

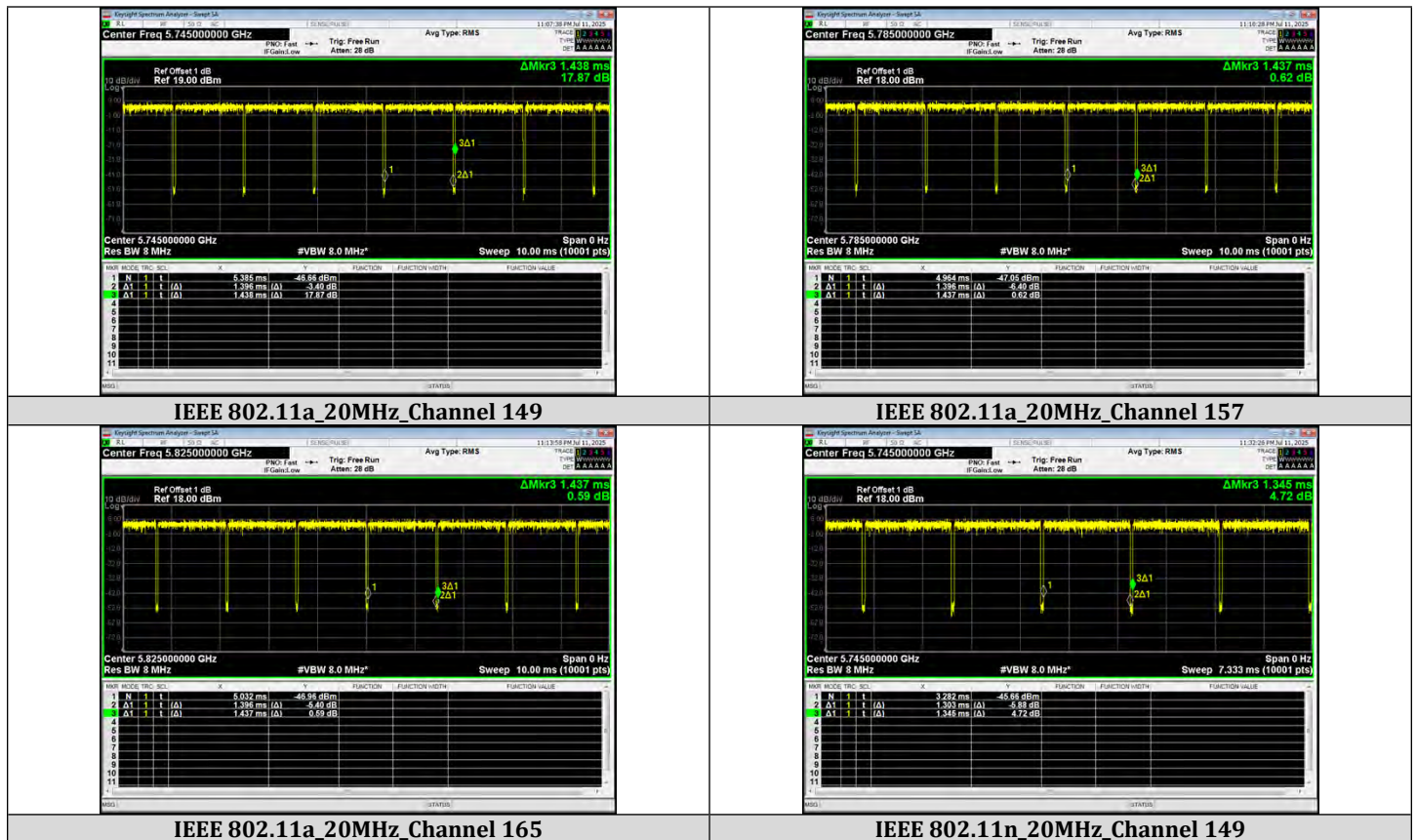
Appendix RF test data for 5G WIFI_NII band 3

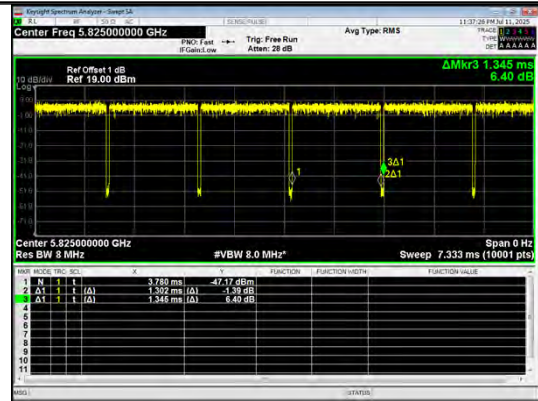


Duty Cycle Test Result

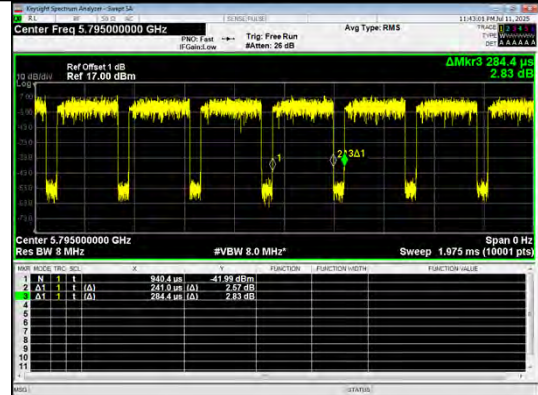
Mode	Data rates	Channel	Antenna	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
IEEE 802.11a	6	149	0	1.396	1.438	97.08	0.9708	0.1287	0.7163
		157		1.396	1.437	97.15	0.9715	0.1256	0.7163
		165		1.396	1.437	97.15	0.9715	0.1256	0.7163
IEEE 802.11n_20	149	1.303		1.345	96.89	0.9689	0.1372	0.7675	
	157	1.303		1.346	96.84	0.9684	0.1395	0.7675	
	165	1.302		1.345	96.84	0.9684	0.1395	0.7680	
IEEE 802.11n_40	151	0.241		0.284	84.75	0.8475	0.7186	4.1494	
	159	0.241		0.284	84.72	0.8472	0.7201	4.1494	
IEEE 802.11ac_20	MCS 0	149		1.316	1.357	96.98	0.9698	0.1332	0.7599
		157		1.316	1.357	96.98	0.9698	0.1332	0.7599
		165		1.316	1.358	96.91	0.9691	0.1363	0.7599
IEEE 802.11ac_40		151		0.654	0.696	93.94	0.9394	0.2715	1.5291
		159		0.654	0.697	93.88	0.9388	0.2743	1.5291
IEEE 802.11ac_80		155		0.325	0.369	88.16	0.8816	0.5473	3.0769

Test Graphs

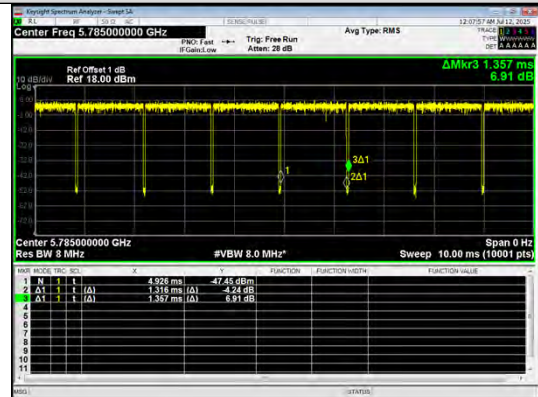




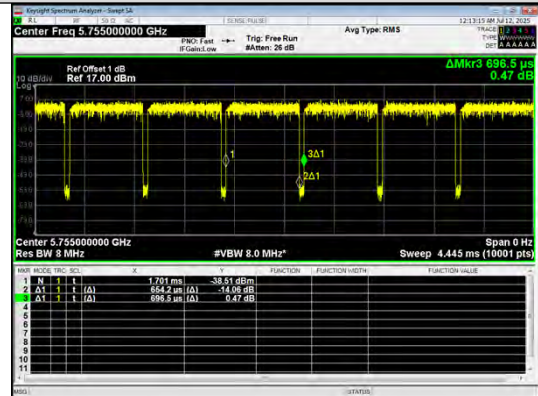
IEEE 802.11n_20MHz_Channel 165



IEEE 802.11n_40MHz_Channel 159



IEEE 802.11ac_20MHz_Channel 157



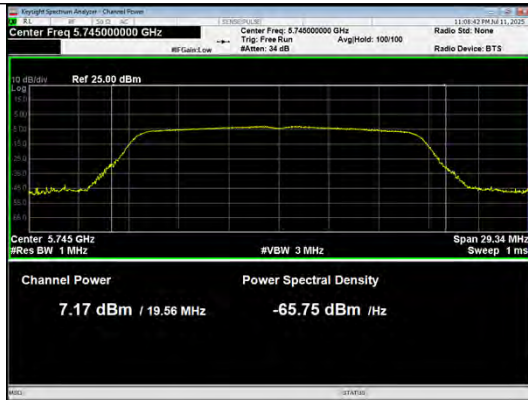
IEEE 802.11ac_40MHz_Channel 151

Conducted Output Power

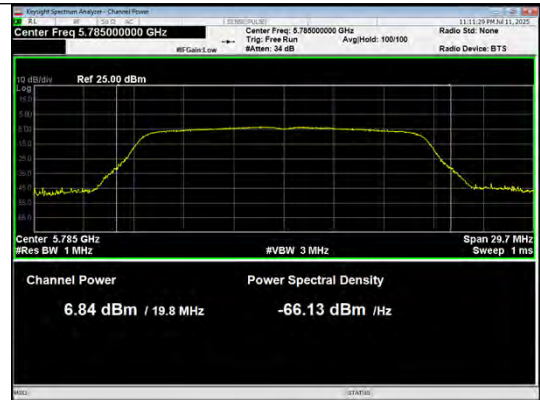
Test Result

Mode	Channel	Ant. 0 (dBm)	Corr'd Value Ant. 0 (dBm)	Limit (dBm)	Result
IEEE 802.11a	149	7.17	7.30	≤30	PASS
	157	6.84	6.97	≤30	PASS
	165	7.10	7.23	≤30	PASS
IEEE 802.11n_20	149	6.91	7.05	≤30	PASS
	157	6.58	6.72	≤30	PASS
	165	7.03	7.17	≤30	PASS
IEEE 802.11n_40	151	6.40	7.12	≤30	PASS
	159	5.94	6.66	≤30	PASS
IEEE 802.11ac_20	149	7.10	7.23	≤30	PASS
	157	6.66	6.79	≤30	PASS
	165	6.93	7.07	≤30	PASS
IEEE 802.11ac_40	151	6.77	7.04	≤30	PASS
	159	6.47	6.74	≤30	PASS
IEEE 802.11ac_80	155	6.31	6.86	≤30	PASS

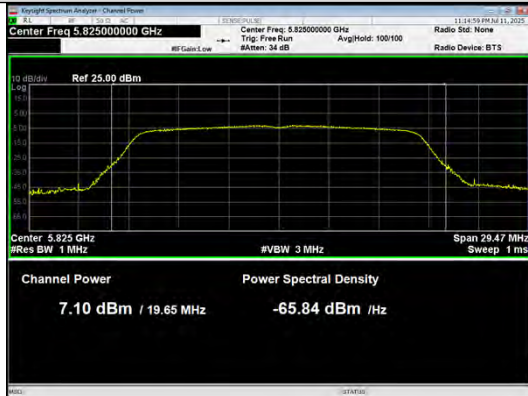
Note: Corr'd Value= Ant. 0 (dBm)+Duty cycle Factor.



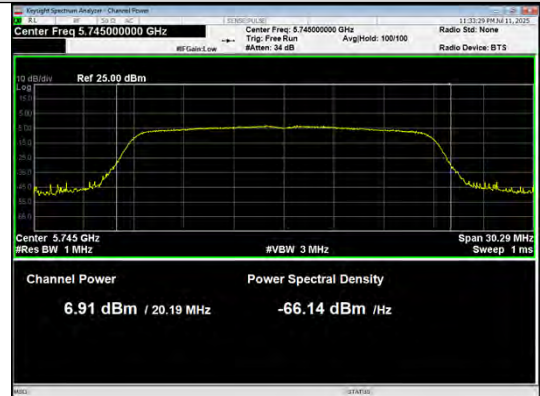
Conducted AVG output power
IEEE 802.11a_Channel 149_Antenna 0



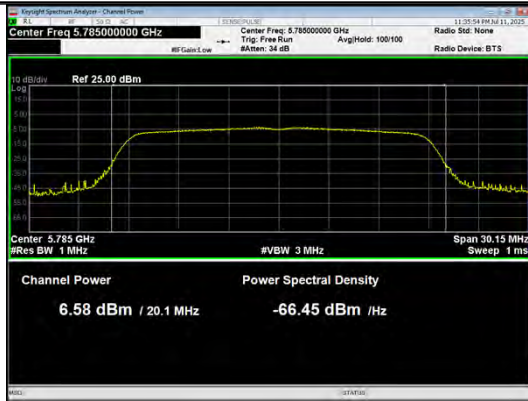
Conducted AVG output power
IEEE 802.11a_Channel 157_Antenna 0



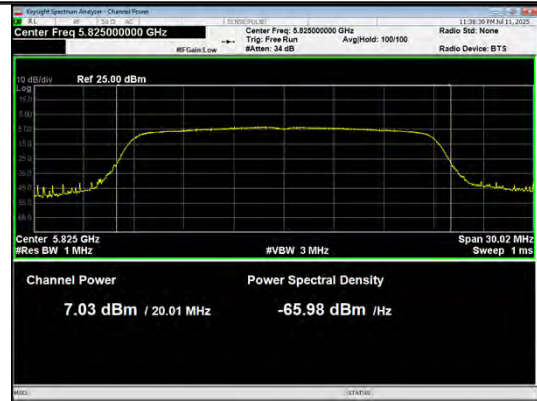
Conducted AVG output power
IEEE 802.11a_Channel 165_Antenna 0



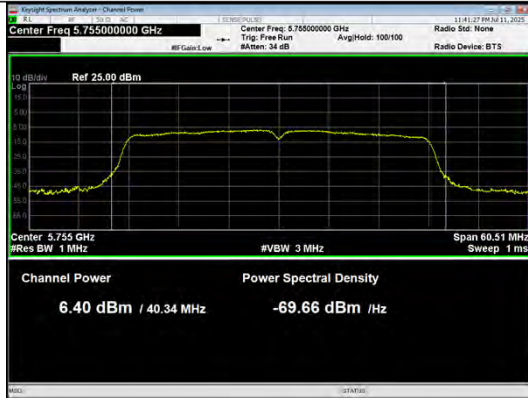
Conducted AVG output power
IEEE 802.11n_20_Channel 149_Antenna 0



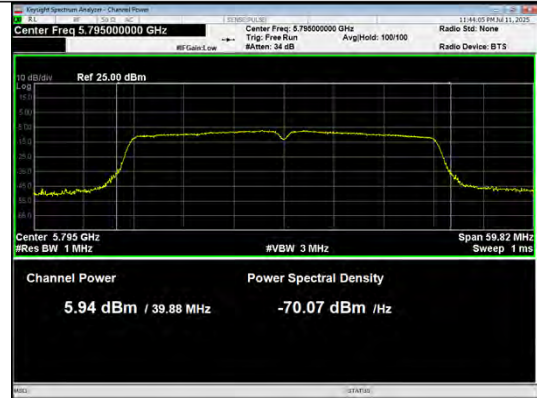
**Conducted AVG output power
IEEE 802.11n_20_Channel 157_Antenna 0**



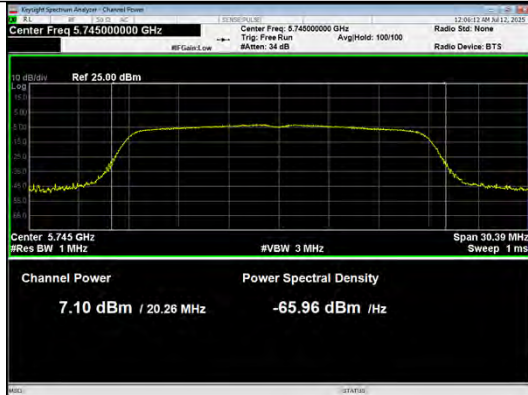
**Conducted AVG output power
IEEE 802.11n_20_Channel 165_Antenna 0**



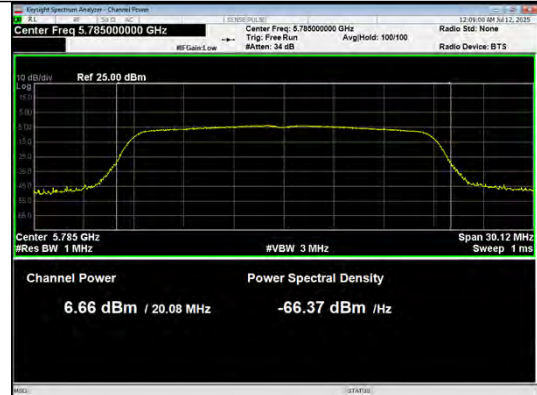
**Conducted AVG output power
IEEE 802.11n_40_Channel 151_Antenna 0**



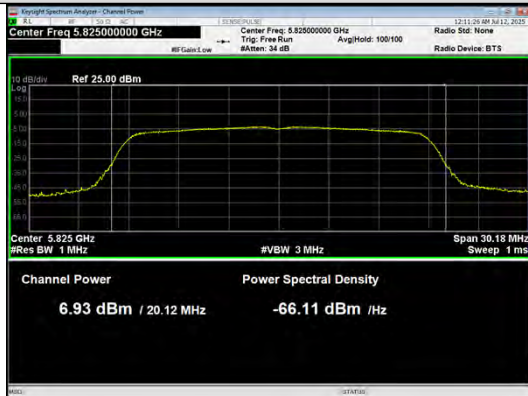
**Conducted AVG output power
IEEE 802.11n_40_Channel 159_Antenna 0**



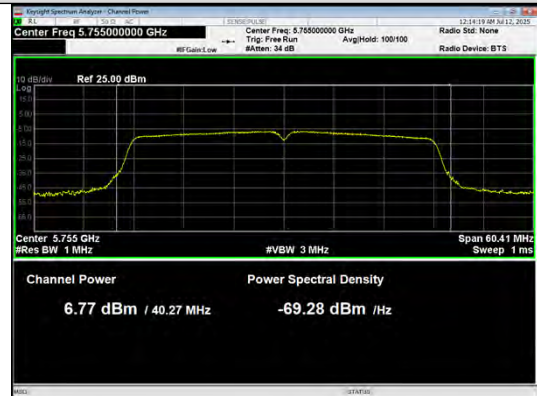
**Conducted AVG output power
IEEE 802.11ac_20_Channel 149_Antenna 0**



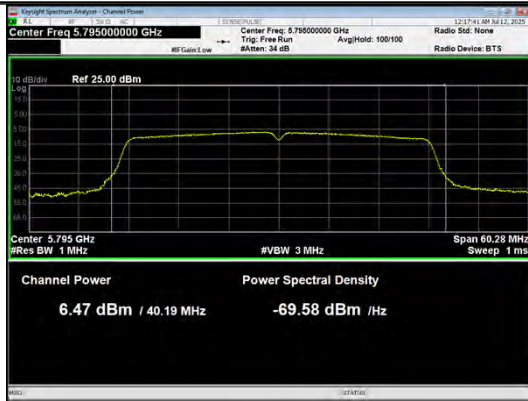
**Conducted AVG output power
IEEE 802.11ac_20_Channel 157_Antenna 0**



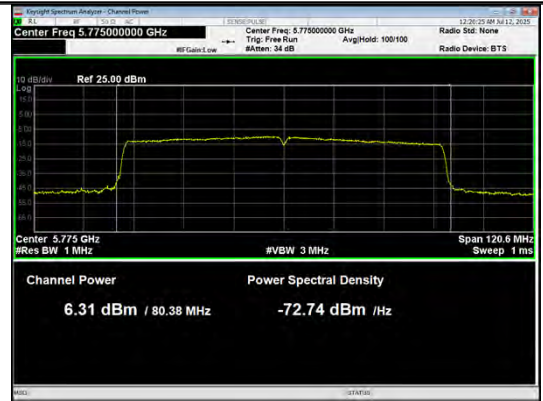
**Conducted AVG output power
IEEE 802.11ac_20_Channel 165_Antenna 0**



**Conducted AVG output power
IEEE 802.11ac_40_Channel 151_Antenna 0**



Conducted AVG output power
IEEE 802.11ac_40_Channel 159_Antenna 0



Conducted AVG output power
IEEE 802.11ac_80_Channel 155_Antenna 0

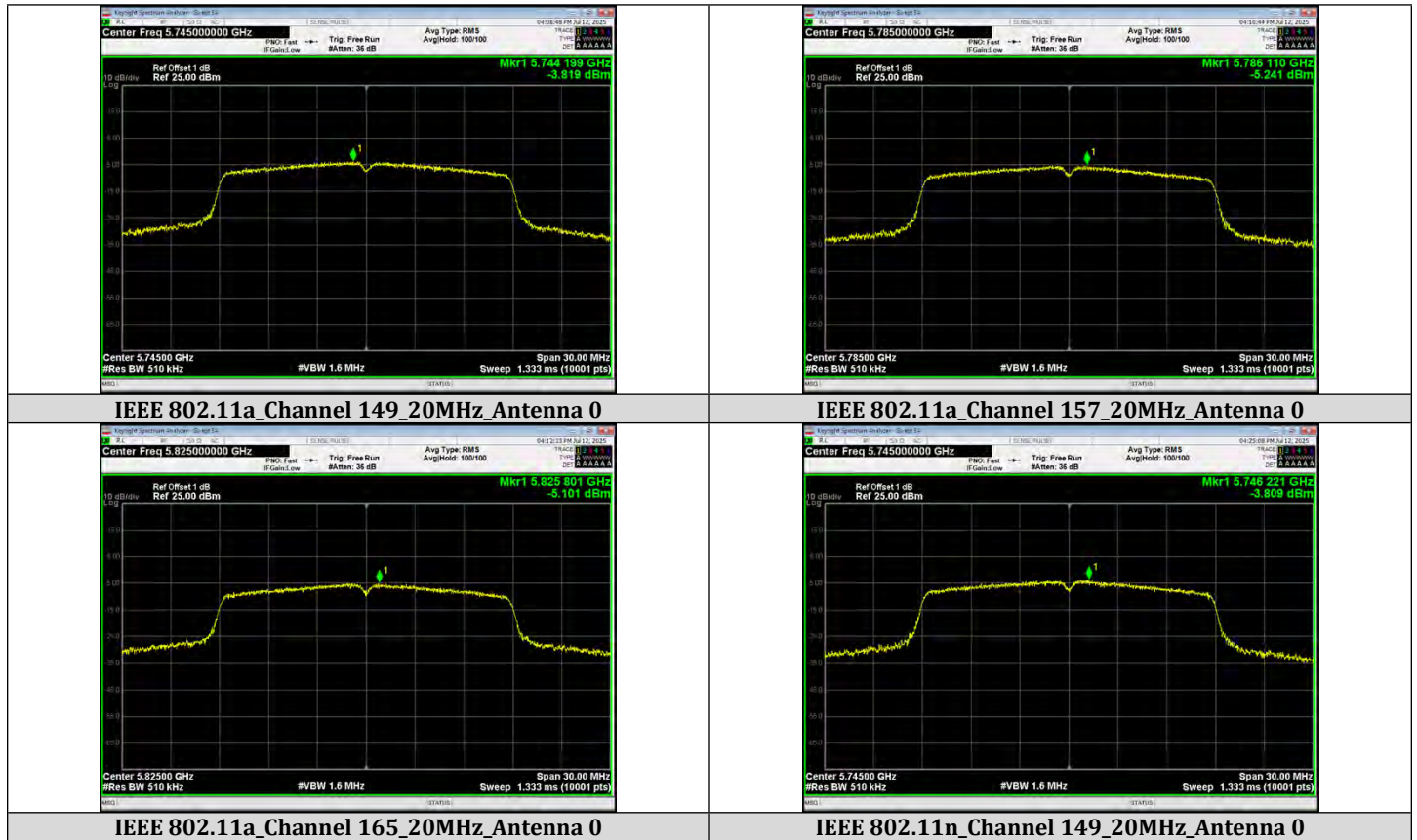
Power Spectral Density

Test Result

Mode	Channel	Ant. 0 Meas PSD (dBm/MHz or dBm/0.51KHz)	Ant. 0 Corr'd PSD (dBm/MHz or dBm/0.5MHz)	Limit (dBm/MHz or dBm/0.5MHz)	Result
IEEE 802.11a	149	-3.819	-3.776	30	PASS
	157	-5.241	-5.201		PASS
	165	-5.101	-5.061		PASS
IEEE 802.11n_20	149	-3.809	-3.758		PASS
	157	-5.342	-5.289		PASS
	165	-6.655	-6.602		PASS
IEEE 802.11n_40	151	-6.954	-6.321		PASS
	159	-8.769	-8.135		PASS
IEEE 802.11ac_20	149	-3.704	-3.657		PASS
	157	-5.446	-5.399		PASS
	165	-6.351	-6.301		PASS
IEEE 802.11ac_40	151	-6.803	-6.618		PASS
	159	-8.350	-8.162		PASS
IEEE 802.11ac_80	155	-11.105	-10.644		PASS

Note: Corr'd PSD = Meas PSD +Duty cycle Factor- BW factor($10 \cdot \log(510/500)$)).

Test Graphs





IEEE 802.11n_Channel 157_20MHz_Antenna 0



IEEE 802.11n_Channel 165_20MHz_Antenna 0



IEEE 802.11n_Channel 151_40MHz_Antenna 0



IEEE 802.11n_Channel 159_40MHz_Antenna 0



IEEE 802.11ac_Channel 149_20MHz_Antenna 0



IEEE 802.11ac_Channel 157_20MHz_Antenna 0



IEEE 802.11ac_Channel 165_20MHz_Antenna 0



IEEE 802.11ac_Channel 151_40MHz_Antenna 0



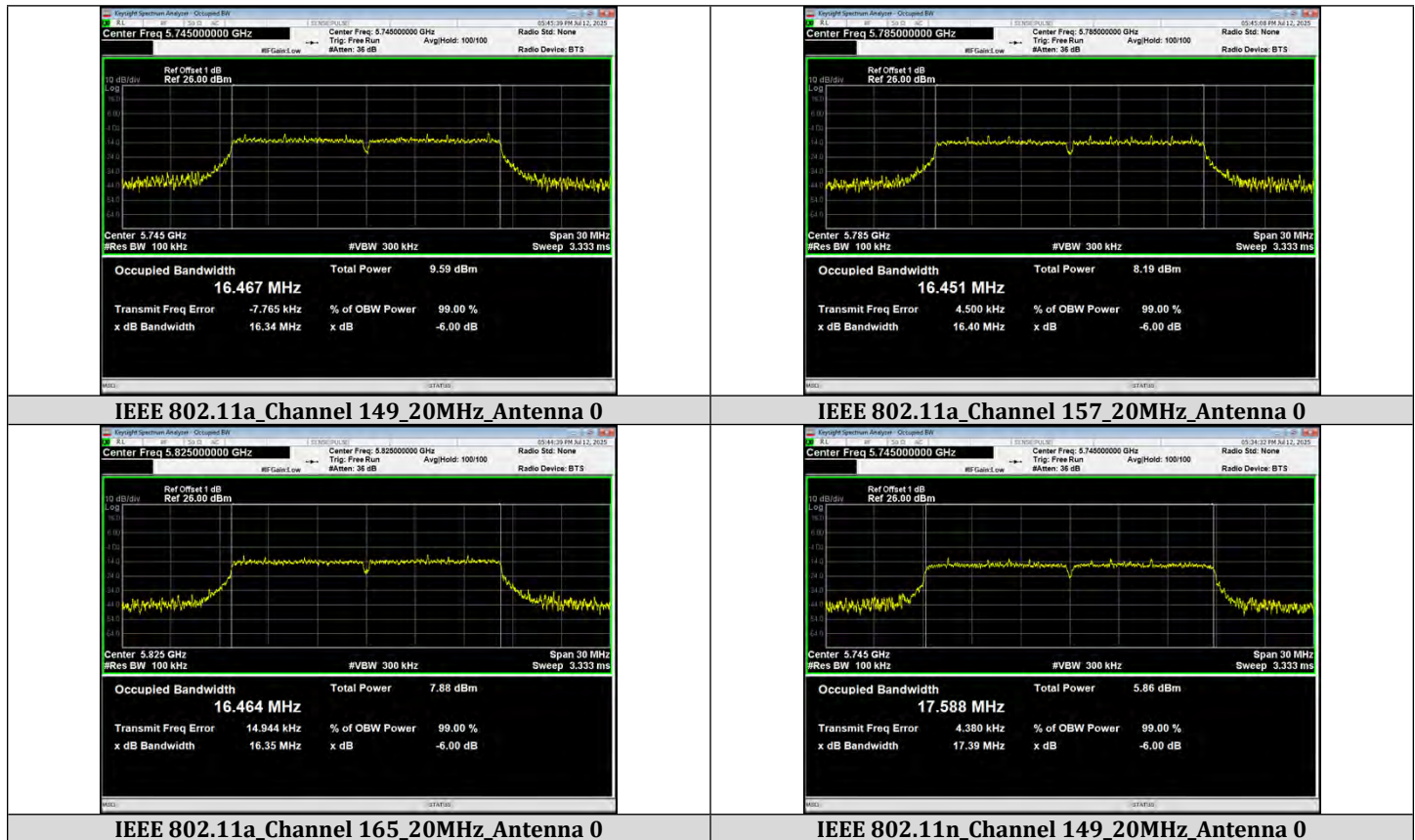
IEEE 802.11ac_Channel 159_40MHz_Antenna 0

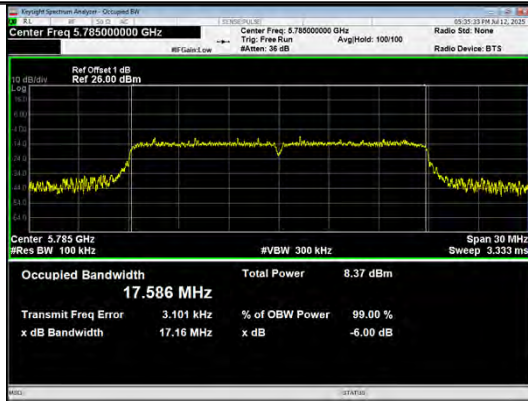


IEEE 802.11ac_Channel 155_80MHz_Antenna 0

**6dB Bandwidth****Test Result**

Mode	Channel	Ant.	Center Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
IEEE 802.11a	149	0	5745	16.34	≥0.5	PASS
	157		5785	16.40		PASS
	165		5825	16.35		PASS
IEEE 802.11n_20	149		5745	17.39		PASS
	157		5785	17.16		PASS
	165		5825	17.43		PASS
IEEE 802.11n_40	151		5755	35.90		PASS
	159		5795	36.26		PASS
IEEE 802.11ac_20	149		5745	17.25		PASS
	157		5785	17.03		PASS
	165		5825	17.28		PASS
IEEE 802.11ac_40	151		5755	36.04		PASS
	159		5795	36.14		PASS
IEEE 802.11ac_80	155		5775	75.74		PASS

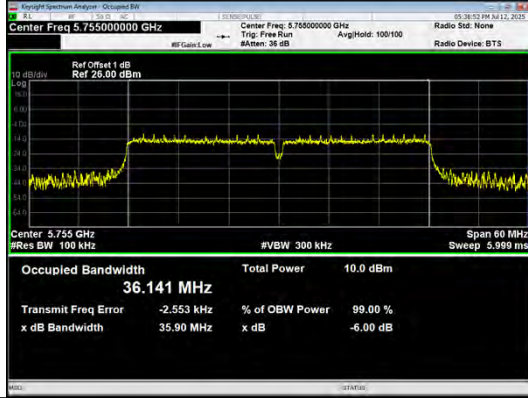
Test Graphs



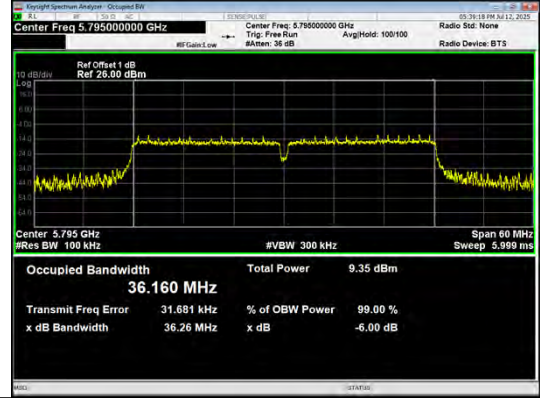
IEEE 802.11n_Channel 157_20MHz_Antenna 0



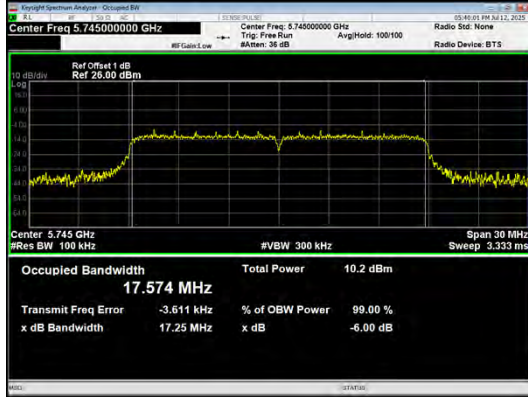
IEEE 802.11n_Channel 165_20MHz_Antenna 0



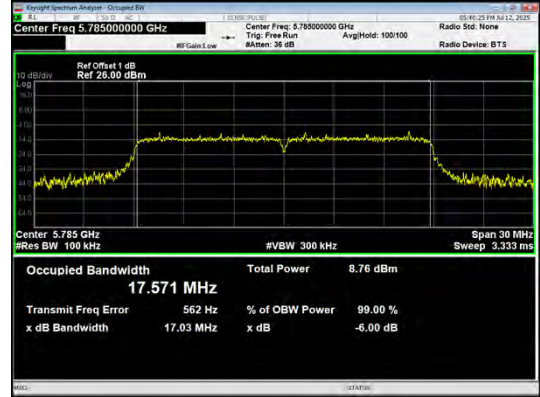
IEEE 802.11n_Channel 151_40MHz_Antenna 0



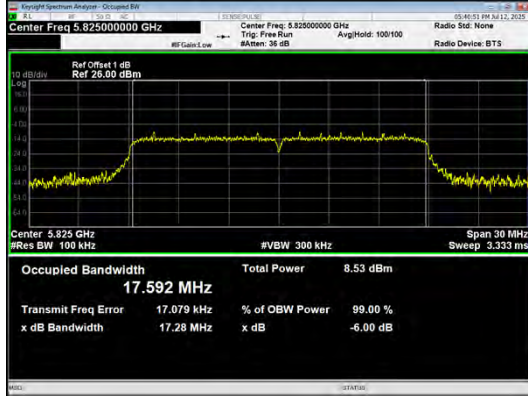
IEEE 802.11n_Channel 159_40MHz_Antenna 0



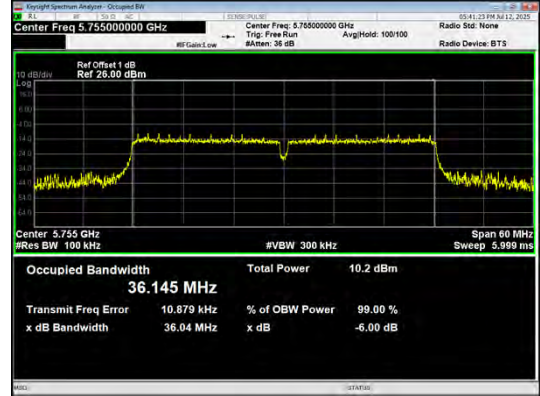
IEEE 802.11ac_Channel 149_20MHz_Antenna 0



IEEE 802.11ac_Channel 157_20MHz_Antenna 0



IEEE 802.11ac_Channel 165_20MHz_Antenna 0



IEEE 802.11ac_Channel 151_40MHz_Antenna 0



IEEE 802.11ac_Channel 159_40MHz_Antenna 0



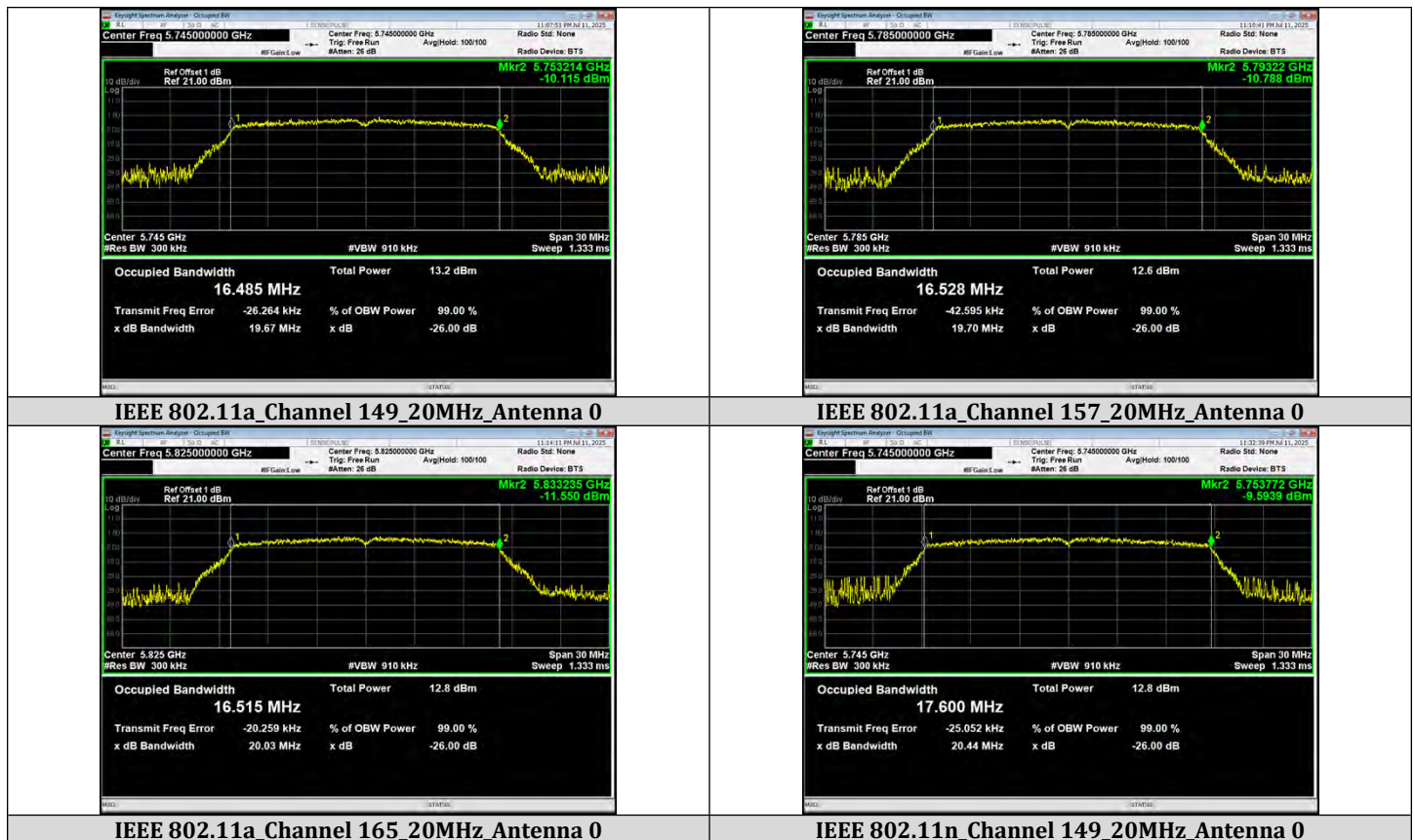
IEEE 802.11ac_Channel 155_80MHz_Antenna 0

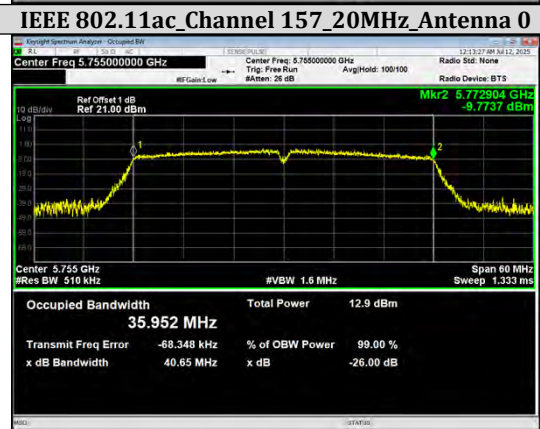
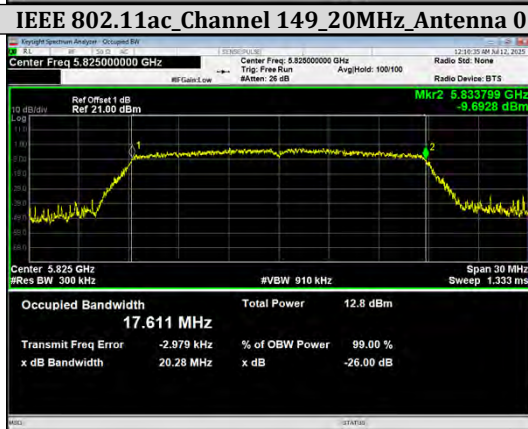
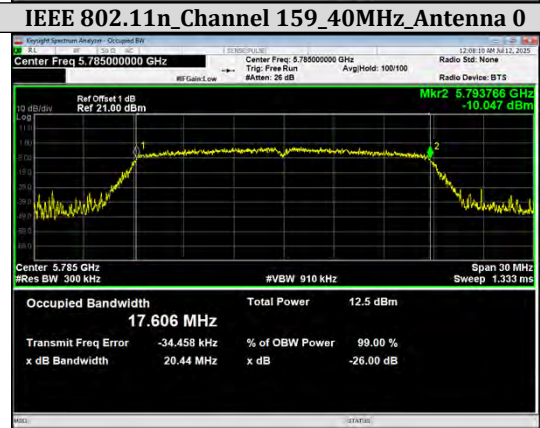
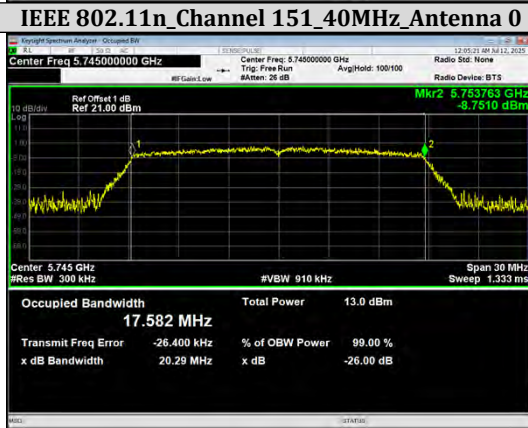
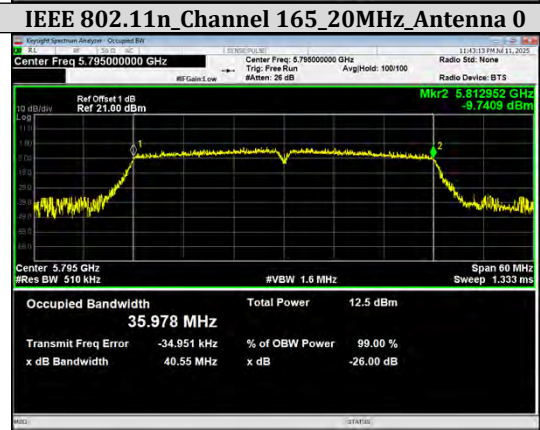
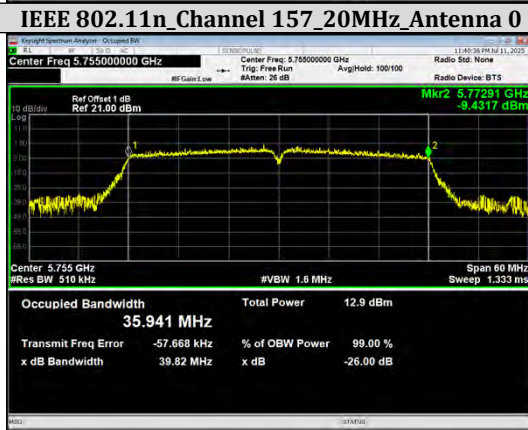
99% Bandwidth

Test Result

Mode	Channel	Ant.	Center Frequency (MHz)	99% BW (MHz)
IEEE 802.11a	149	0	5745	16.485
	157		5785	16.528
	165		5825	16.515
IEEE 802.11n_20	149		5745	17.600
	157		5785	17.615
	165		5825	17.598
IEEE 802.11n_40	151		5755	35.941
	159		5795	35.978
IEEE 802.11ac_20	149		5745	17.582
	157		5785	17.606
	165		5825	17.611
IEEE 802.11ac_40	151		5755	35.952
	159		5795	35.961
IEEE 802.11ac_80	155		5775	75.167

Test Graphs



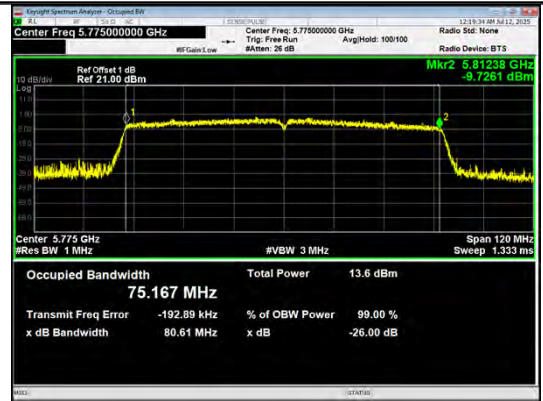


IEEE 802.11ac_Channel 165_20MHz_Antenna 0

IEEE 802.11ac_Channel 151_40MHz_Antenna 0



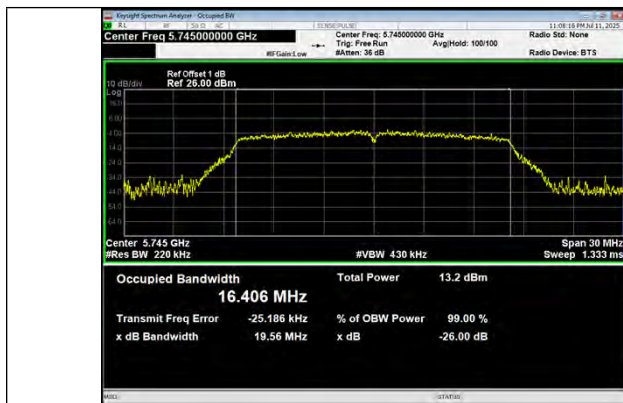
IEEE 802.11ac_Channel 159_40MHz_Antenna 0

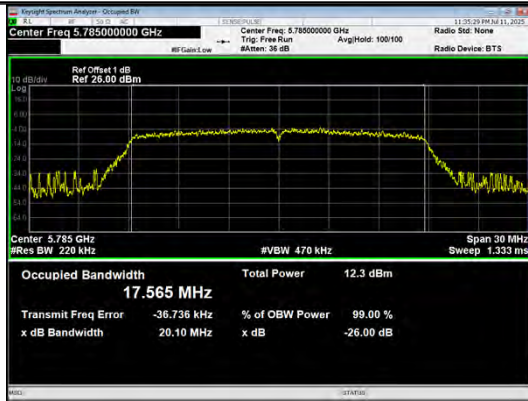


IEEE 802.11ac_Channel 155_80MHz_Antenna 0

**26dB Bandwidth****Test Result**

Mode	Channel	Ant.	Center Frequency (MHz)	26 dB Bandwidth (MHz)	RBW/EBW
IEEE 802.11a	149	0	5745	19.56	1.12
	157		5785	19.80	1.12
	165		5825	19.65	1.11
IEEE 802.11n_20	149		5745	20.19	1.11
	157		5785	20.10	1.12
	165		5825	20.01	1.11
IEEE 802.11n_40	151		5755	40.34	1.05
	159		5795	39.88	1.07
IEEE 802.11ac_20	149		5745	20.26	1.1
	157		5785	20.08	1.11
	165		5825	20.12	1.12
IEEE 802.11ac_40	151		5755	40.27	1.05
	159		5795	40.19	1.06
IEEE 802.11ac_80	155		5775	80.38	1.03

Test Graphs**IEEE 802.11a_Channel 149_20MHz_Antenna 0****IEEE 802.11a_Channel 157_20MHz_Antenna 0****IEEE 802.11a_Channel 165_20MHz_Antenna 0****IEEE 802.11n_Channel 149_20MHz_Antenna 0**



IEEE 802.11n_Channel 157_20MHz_Antenna 0



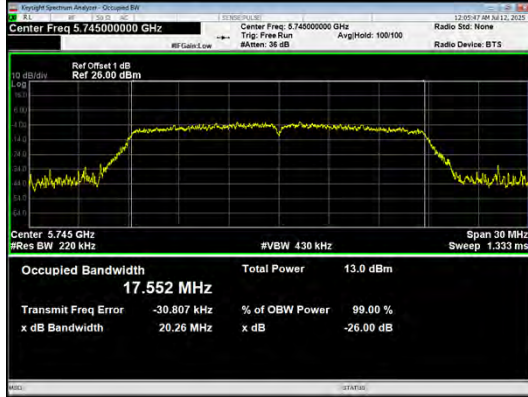
IEEE 802.11n_Channel 165_20MHz_Antenna 0



IEEE 802.11n_Channel 151_40MHz_Antenna 0



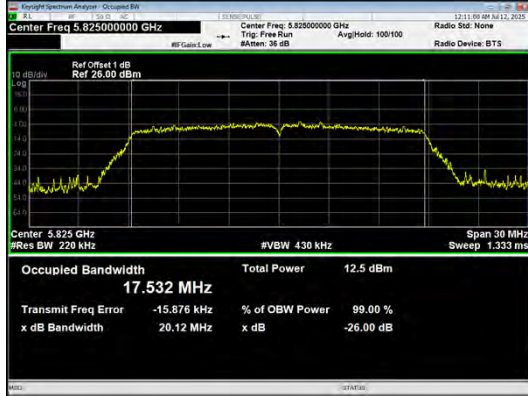
IEEE 802.11n_Channel 159_40MHz_Antenna 0



IEEE 802.11ac_Channel 149_20MHz_Antenna 0



IEEE 802.11ac_Channel 157_20MHz_Antenna 0



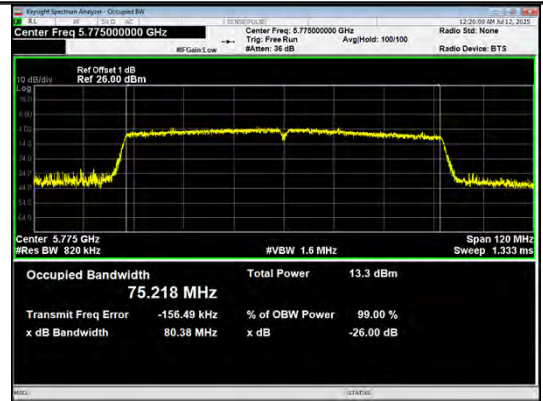
IEEE 802.11ac_Channel 165_20MHz_Antenna 0



IEEE 802.11ac_Channel 151_40MHz_Antenna 0



IEEE 802.11ac_Channel 159_40MHz_Antenna 0



IEEE 802.11ac_Channel 155_80MHz_Antenna 0

Conducted Out Of Band Emission

Test Result

Mode	Channel	Ant.	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
IEEE 802.11a	149	0	1764.05	-45.089	-27	-18.090	PASS
			5610.12	-46.513	-27	-19.513	PASS
			5725.00	-36.538	27	-63.540	PASS
			5850.00	-48.771	27	-75.770	PASS
			5937.12	-46.307	-27	-19.307	PASS
	157		24881.7	-54.248	-27	-27.250	PASS
			5624.15	-52.594	-27	-25.590	PASS
			5641.25	-46.269	-27	-19.269	PASS
			5725.00	-47.316	27	-74.320	PASS
			5850.00	-47.774	27	-74.770	PASS
	165		5928.88	-46.093	-27	-19.093	PASS
			24963.8	-53.605	-27	-26.600	PASS
			1764.05	-49.334	-27	-22.330	PASS
			5637.88	-47.328	-27	-20.328	PASS
			5725.00	-47.502	27	-74.500	PASS
IEEE 802.11n_20	149		5850.00	-35.874	27	-62.870	PASS
			5930.25	-53.792	-27	-26.790	PASS
			5934.50	-45.158	-27	-18.158	PASS
			1752.39	-40.906	-27	-13.910	PASS
			5646.50	-46.240	-27	-19.240	PASS
	157		5725.00	-33.991	27	-60.990	PASS
			5850.00	-49.119	27	-76.120	PASS
			5937.50	-46.778	-27	-19.778	PASS
			24365.3	-54.530	-27	-27.530	PASS
			1937.85	-41.634	-27	-14.630	PASS
	165		5600.75	-47.329	-27	-20.329	PASS
			5725.00	-47.882	27	-74.880	PASS
			5850.00	-47.101	27	-74.100	PASS
			5965.25	-46.365	-27	-19.365	PASS
			24390.6	-53.739	-27	-26.740	PASS
IEEE 802.11n_40	151	1752.39	-45.072	-27	-18.070	PASS	
		5639.75	-45.736	-27	-18.736	PASS	
		5725.00	-47.583	27	-74.580	PASS	
		5850.00	-41.266	27	-68.270	PASS	
		5927.86	-53.349	-27	-26.350	PASS	
	159	5959.25	-45.939	-27	-18.939	PASS	
		5606.00	-46.241	-27	-19.241	PASS	
		5645.93	-52.705	-27	-25.700	PASS	
		5725.00	-33.154	27	-60.150	PASS	
		5850.00	-48.921	27	-75.920	PASS	
	149	5929.25	-46.916	-27	-19.916	PASS	
		24995.2	-53.983	-27	-26.980	PASS	
		1746.49	-50.228	-27	-23.230	PASS	
		5629.62	-46.997	-27	-19.997	PASS	
		5725.00	-47.685	27	-74.690	PASS	
IEEE 802.11ac_20	157	5850.00	-45.888	27	-72.890	PASS	
		5937.50	-45.079	-27	-18.079	PASS	
		24972.8	-54.114	-27	-27.110	PASS	
		1746.21	-49.758	-27	-22.760	PASS	
		5649.50	-45.956	-27	-18.956	PASS	
	149	5725.00	-35.488	27	-62.490	PASS	
		5850.00	-49.392	27	-76.390	PASS	
		5931.12	-47.186	-27	-20.186	PASS	
		24987.1	-53.806	-27	-26.810	PASS	
		1763.49	-40.091	-27	-13.090	PASS	

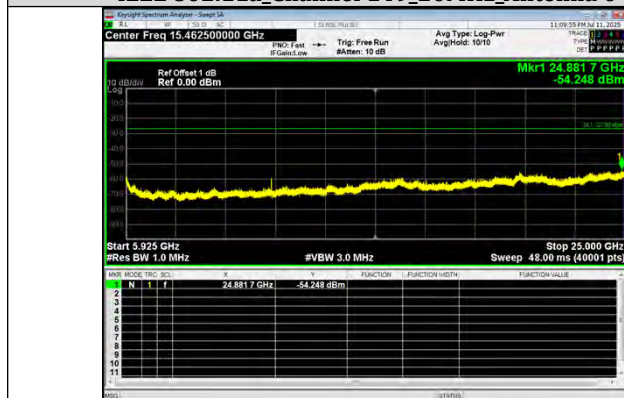


		165	5646.88	-45.836	-27	-18.836	PASS
			5725.00	-48.221	27	-75.220	PASS
			5850.00	-46.025	27	-73.030	PASS
			5968.25	-46.301	-27	-19.301	PASS
			24894.1	-54.202	-27	-27.200	PASS
			2623.21	-45.618	-27	-18.620	PASS
			5620.62	-45.943	-27	-18.943	PASS
			5725.00	-49.655	27	-76.660	PASS
			5850.00	-40.573	27	-67.570	PASS
			5930.25	-53.464	-27	-26.460	PASS
IEEE 802.11ac_40	151	159	5934.12	-46.148	-27	-19.148	PASS
			2522.61	-46.574	-27	-19.570	PASS
			5640.50	-46.498	-27	-19.498	PASS
			5725.00	-34.181	27	-61.180	PASS
			5850.00	-48.340	27	-75.340	PASS
			5940.88	-45.658	-27	-18.658	PASS
			24870.8	-54.164	-27	-27.160	PASS
			2612.25	-41.530	-27	-14.530	PASS
			5648.75	-47.298	-27	-20.298	PASS
			5725.00	-47.845	27	-74.840	PASS
IEEE 802.11ac_80	155		5850.00	-45.974	27	-72.970	PASS
			5956.25	-45.975	-27	-18.975	PASS
			24299.5	-54.120	-27	-27.120	PASS
			5637.12	-45.700	-27	-18.700	PASS
			5641.43	-48.177	-27	-21.180	PASS
			5725.00	-34.033	27	-61.030	PASS
			5850.00	-42.074	27	-69.070	PASS
			5930.25	-52.326	-27	-25.330	PASS
			5945.00	-46.567	-27	-19.567	PASS

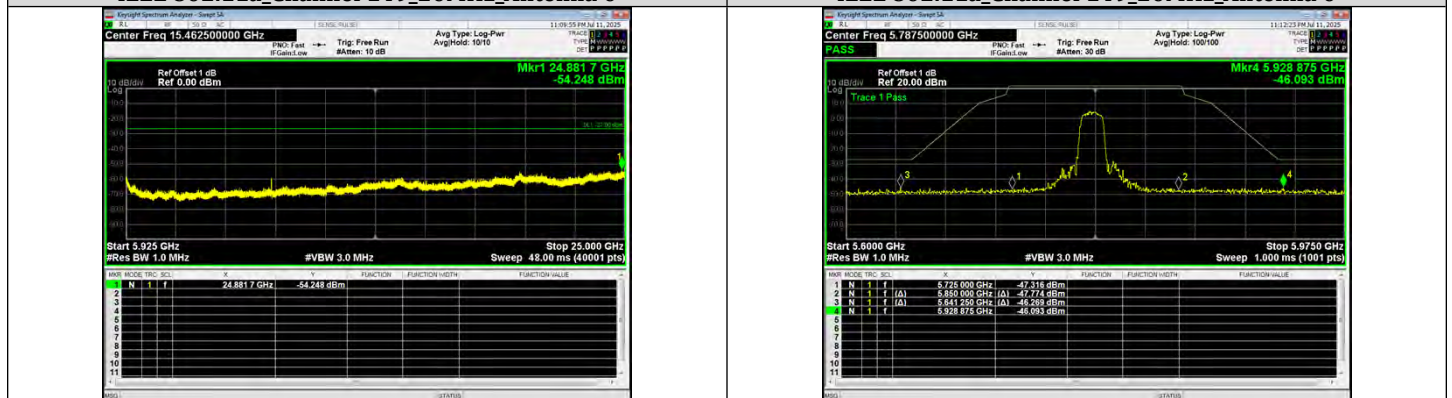
Test Graphs



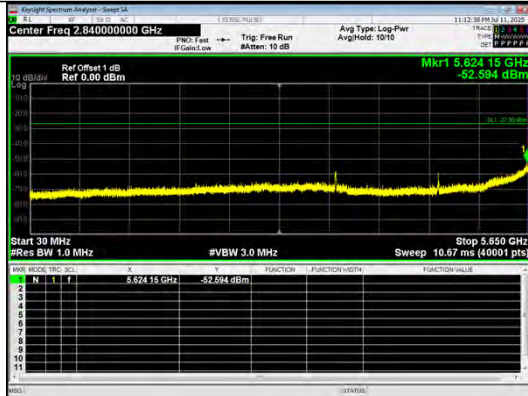
Out Of Band Emission
IEEE 802.11a_Channel 149_20MHz_Antenna 0



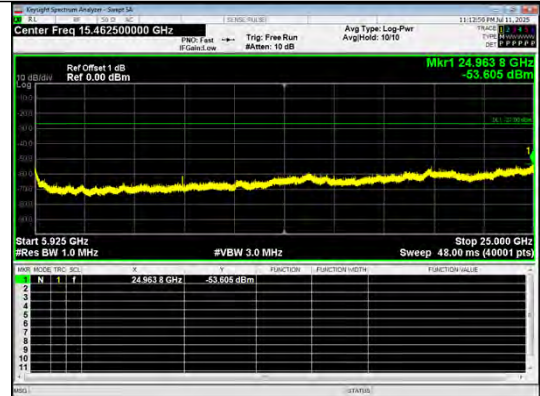
Spurious Emission:30.0~5650 MHz
IEEE 802.11a_Channel 149_20MHz_Antenna 0



Spurious Emission:5925~25000.0 MHz IEEE 802.11a_Channel 149_20MHz_Antenna 0



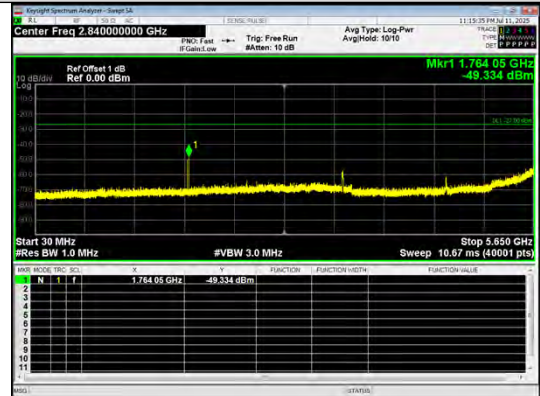
Out Of Band Emission IEEE 802.11a_Channel 157_20MHz_Antenna 0



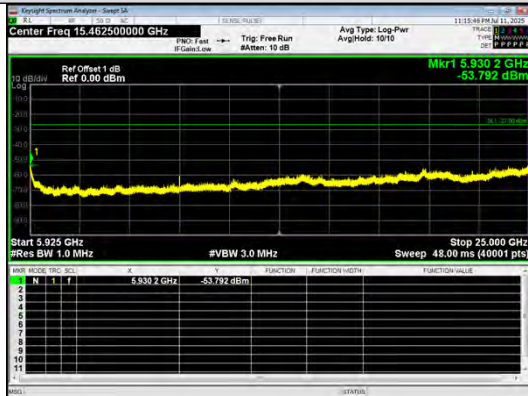
Spurious Emission:30.0~5650 MHz IEEE 802.11a_Channel 157_20MHz_Antenna 0



Spurious Emission:5925~25000.0 MHz IEEE 802.11a_Channel 157_20MHz_Antenna 0



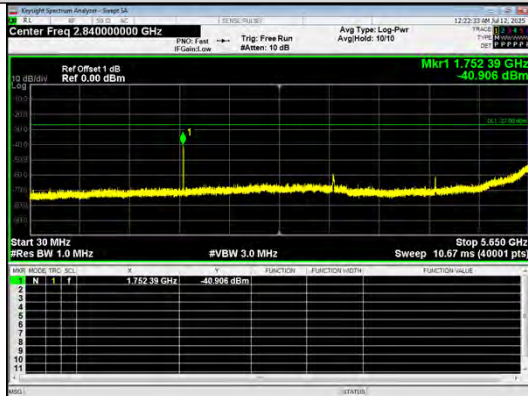
Out Of Band Emission IEEE 802.11a_Channel 165_20MHz_Antenna 0



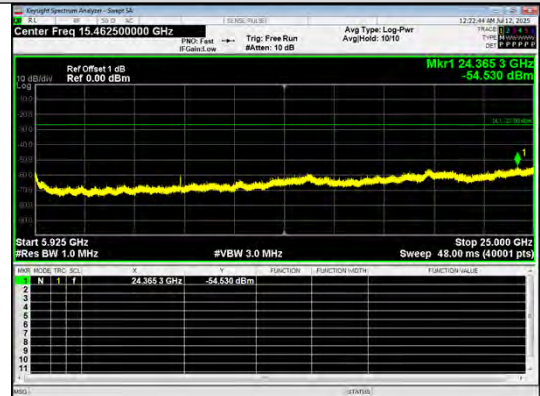
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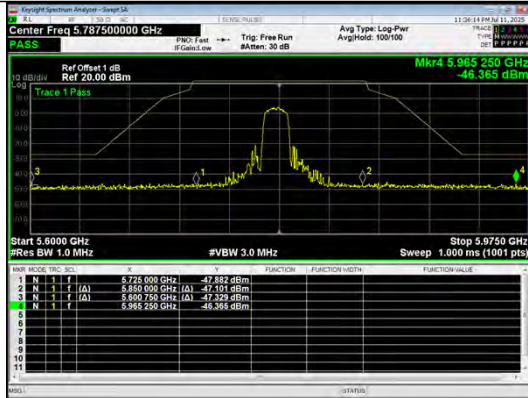
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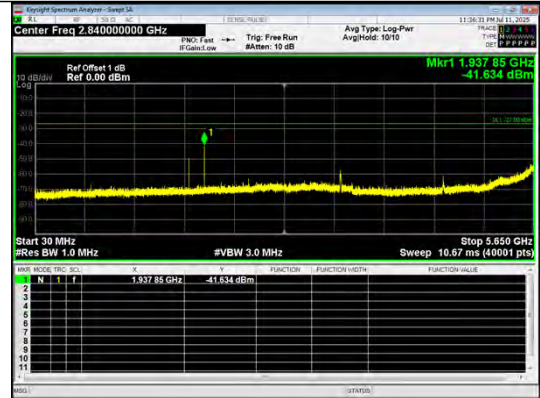
Out Of Band Emission IEEE 802.11n_Channel 149_20MHz_Antenna 0



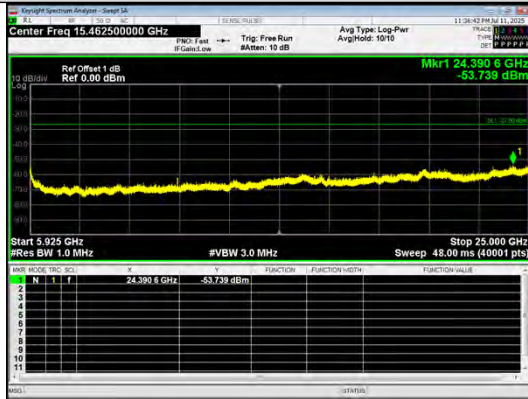
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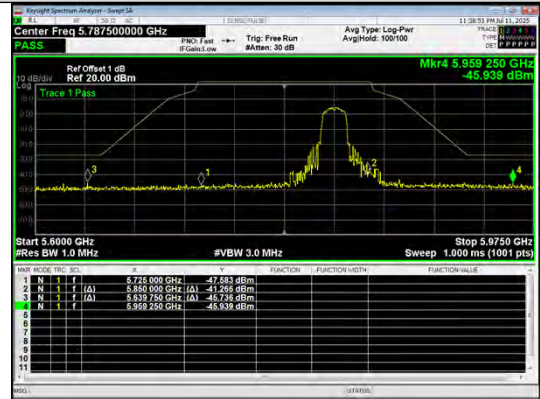
Spurious Emission:5925~25000.0 MHz IEEE 802.11n_Channel 149_20MHz_Antenna 0



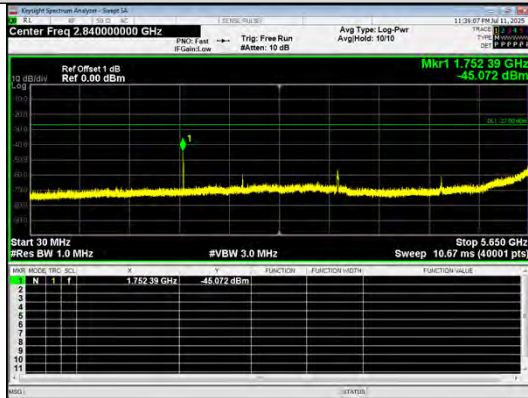
Out Of Band Emission IEEE 802.11n_Channel 157_20MHz_Antenna 0



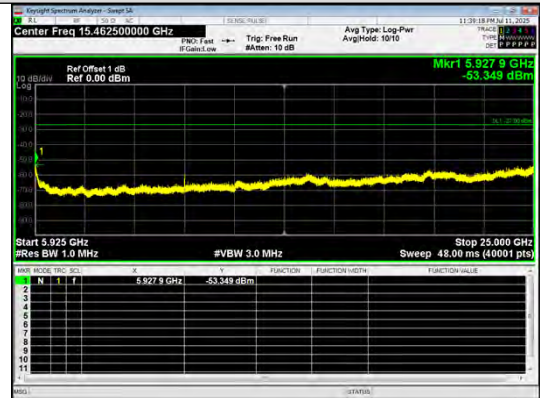
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Spurious Emission:5925~25000.0 MHz IEEE 802.11n_Channel 157_20MHz_Antenna 0



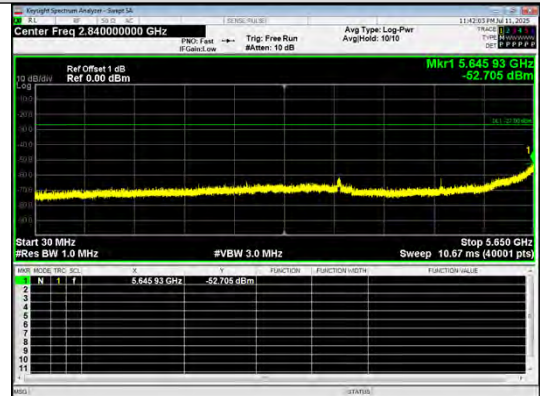
Out Of Band Emission IEEE 802.11n_Channel 165_20MHz_Antenna 0



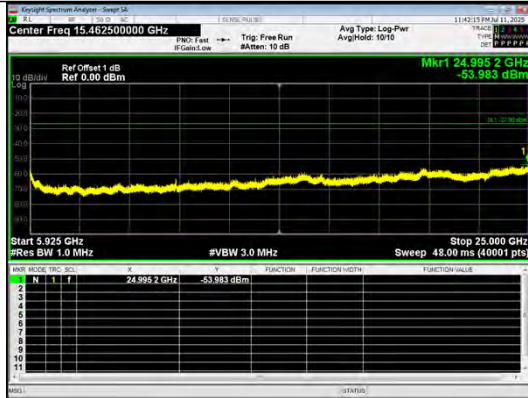
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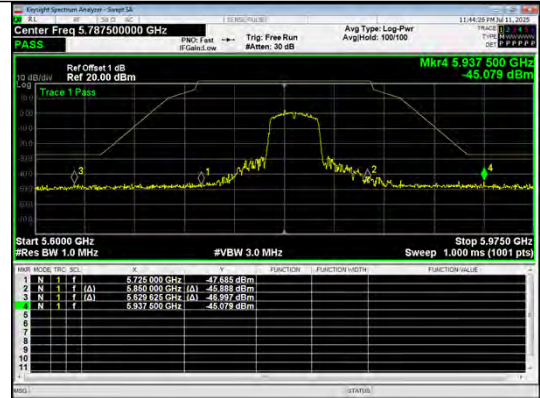
Spurious Emission:5925~25000.0 MHz IEEE 802.11n_Channel 165_20MHz_Antenna 0



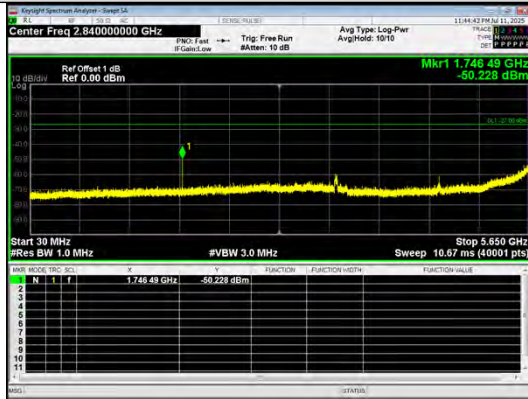
Out Of Band Emission IEEE 802.11n_Channel 151_40MHz_Antenna 0



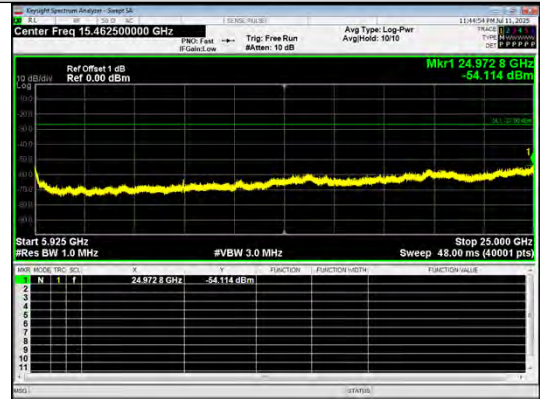
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Spurious Emission:5925~25000.0 MHz IEEE 802.11n_Channel 151_40MHz_Antenna 0



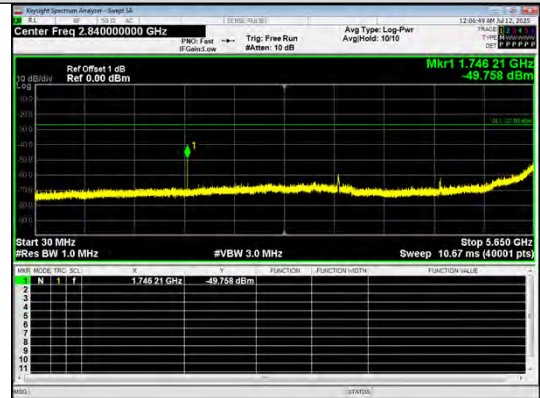
Out Of Band Emission IEEE 802.11n_Channel 159_40MHz_Antenna 0



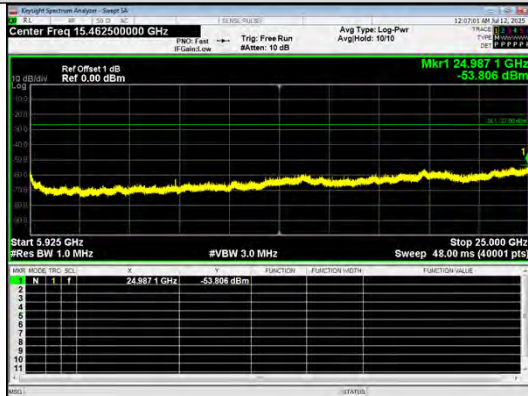
Spurious Emission:30.0~5650 MHz IEEE 802.11n_Channel 159_40MHz_Antenna 0



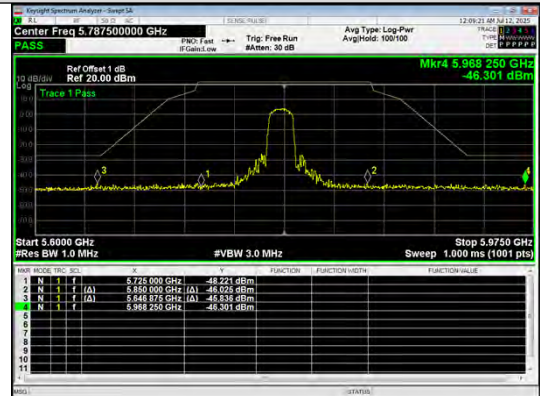
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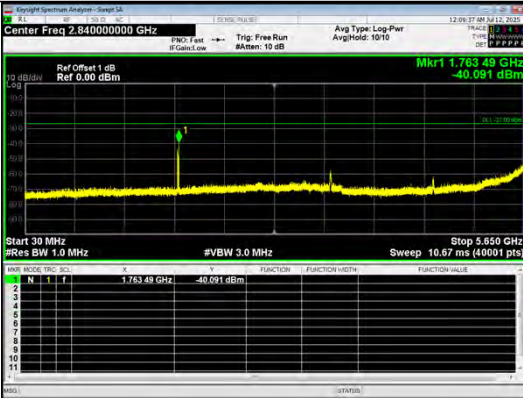
Out Of Band Emission IEEE 802.11ac_Channel 149_20MHz_Antenna 0



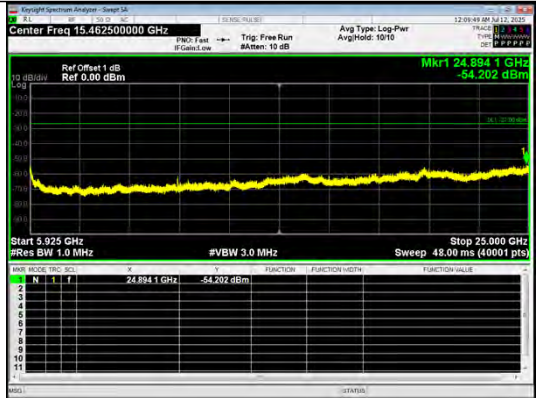
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Spurious Emission:5925~25000.0 MHz IEEE 802.11ac_Channel 149_20MHz_Antenna 0



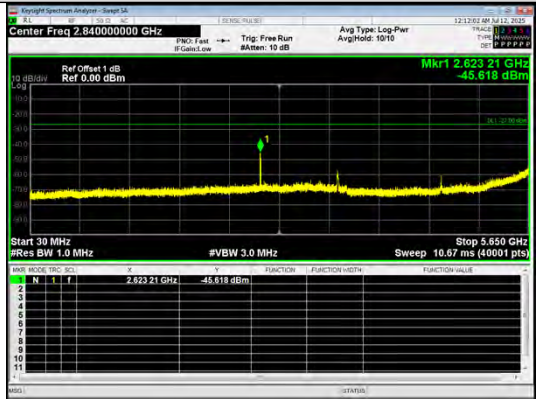
Out Of Band Emission IEEE 802.11ac_Channel 157_20MHz_Antenna 0



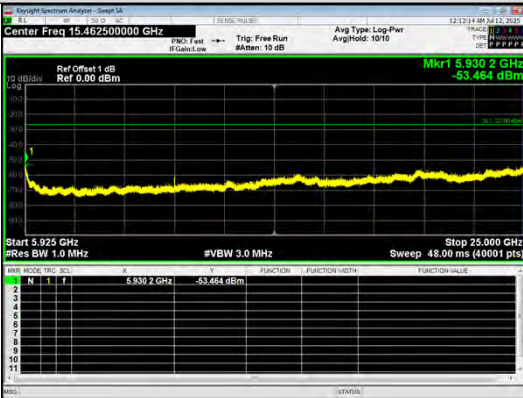
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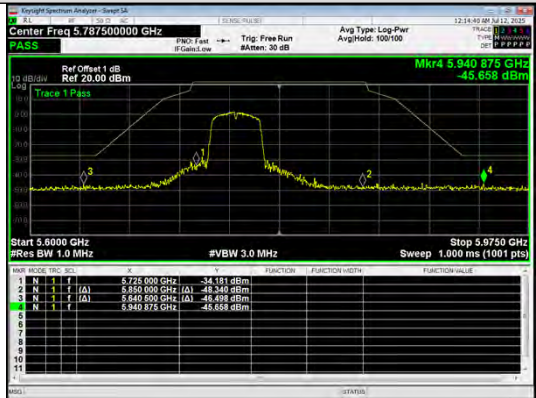
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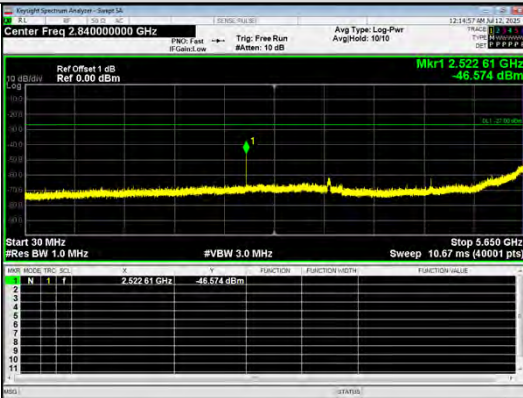
Out Of Band Emission IEEE 802.11ac_Channel 165_20MHz_Antenna 0



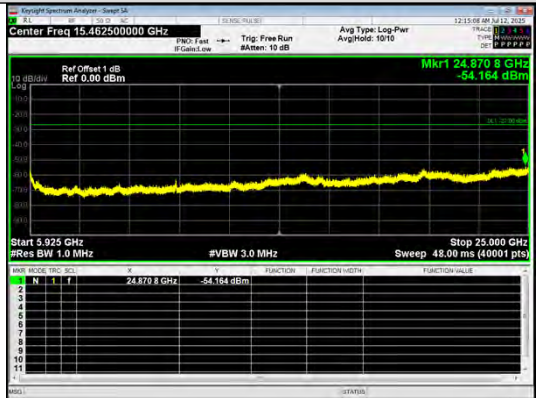
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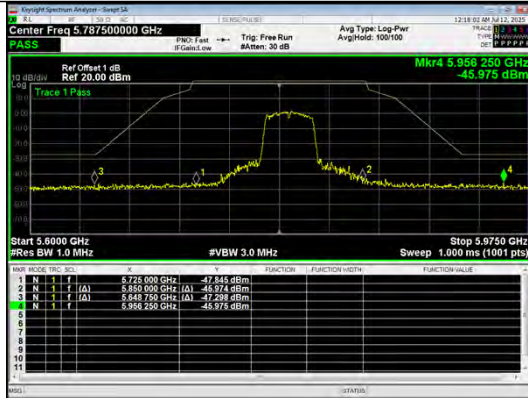
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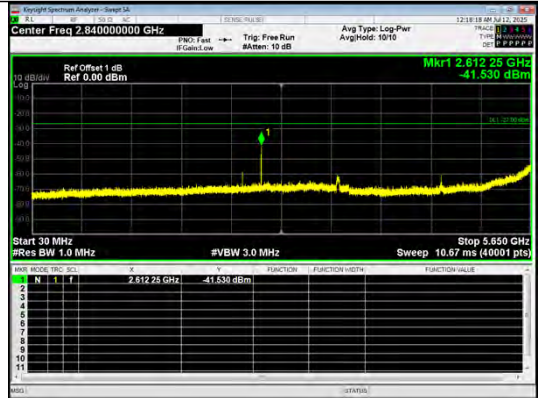
Out Of Band Emission IEEE 802.11ac_Channel 151_40MHz_Antenna 0



Spurious Emission:30.0~5650 MHz IEEE 802.11ac_Channel 151_40MHz_Antenna 0



Spurious Emission:5925~25000.0 MHz IEEE 802.11ac_Channel 151_40MHz_Antenna 0



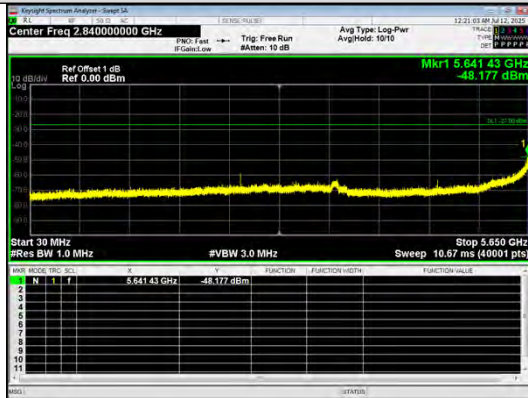
Out Of Band Emission IEEE 802.11ac_Channel 159_40MHz_Antenna 0



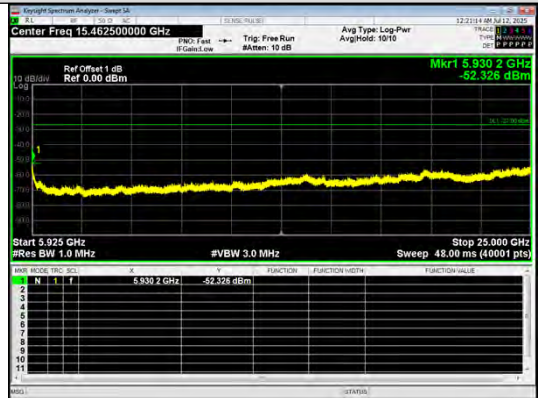
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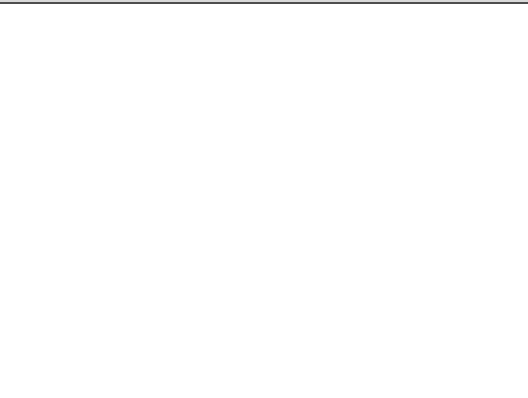
Spurious Emission:5925~25000.0 MHz IEEE 802.11ac_Channel 159_40MHz_Antenna 0



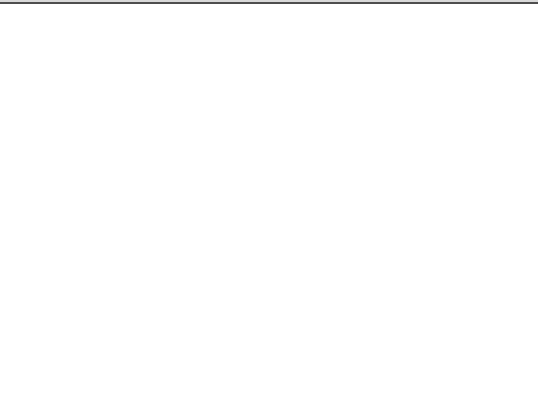
Out Of Band Emission IEEE 802.11ac_Channel 155_80MHz_Antenna 0



Spurious Emission:30.0~5650 MHz IEEE 802.11ac_Channel 155_80MHz_Antenna 0



Spurious Emission:5925~25000.0 MHz IEEE 802.11ac_Channel 155_80MHz_Antenna 0



**Frequency Stability****Test Result**

Condition	Mode	Ch.	Antenna	Center Frequency (MHz)	Calculated Value of Center Frequency(MHz)	Result (ppm)	Limit (ppm)	State
NT/NV	IEEE 802.11a	149	0	5745.0	5744.968705	-5.45	Within authorized band	PASS
		157		5785.0	5784.968730	-5.41		PASS
		165		5825.0	5824.968430	-5.42		PASS
	IEEE 802.11n_20	149		5745.0	5744.969905	-5.24		PASS
		157		5785.0	5784.969293	-5.31		PASS
		165		5825.0	5824.968668	-5.38		PASS
	IEEE 802.11n_40	151		5755.0	5754.969080	-5.37		PASS
		159		5795.0	5794.967943	-5.53		PASS
	IEEE 802.11ac_20	149		5745.0	5744.968630	-5.46		PASS
		157		5785.0	5784.967830	-5.56		PASS
		165		5825.0	5824.967668	-5.55		PASS
	IEEE 802.11ac_40	151		5755.0	5754.967643	-5.62		PASS
		159		5795.0	5794.968043	-5.51		PASS
	IEEE 802.11ac_80	155		5775.0	5774.968380	-5.48		PASS

***** End of Report *****