

Appendix RF test data for 5.8G WIFI

1. Duty Cycle Worst case

1.1 Test Result

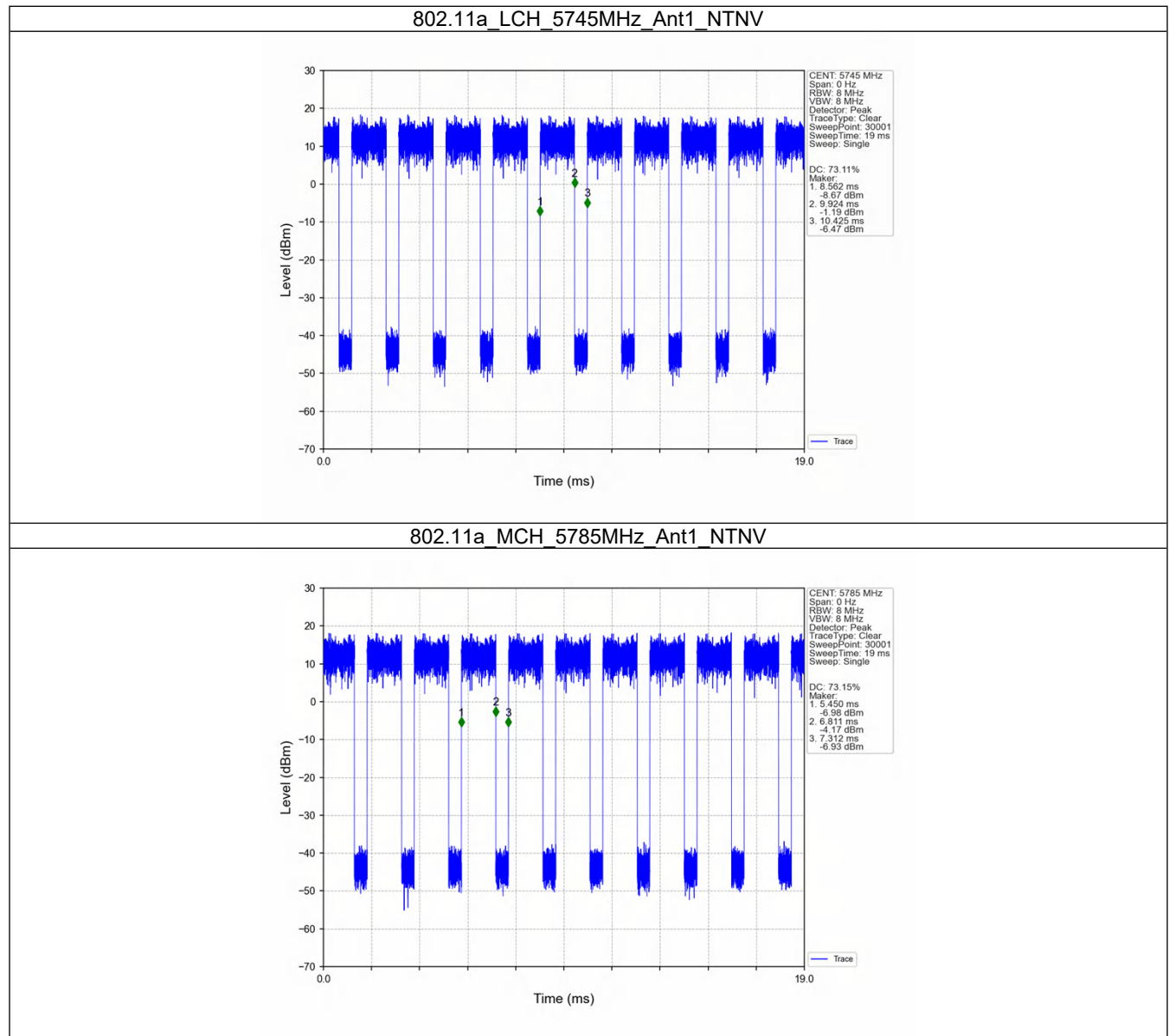
1.1.1 Ant1

Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11a	SISO	5745	1.362	1.863	73.11	1.36	0.03
		5785	1.362	1.862	73.15	1.36	0.03
		5825	1.361	1.862	73.09	1.36	0.03
802.11n (HT20)	MIMO	5745	1.273	1.774	71.76	1.44	0.03
		5785	1.273	1.774	71.76	1.44	0.03
		5825	1.273	1.774	71.76	1.44	0.03
802.11n (HT40)	MIMO	5755	0.634	1.134	55.91	2.53	0.01
		5795	0.634	1.134	55.91	2.53	0.03
802.11ac (VHT20)	MIMO	5745	1.274	1.775	71.77	1.44	0.02
		5785	1.278	1.779	71.84	1.44	0.03
		5825	1.277	1.778	71.82	1.44	0.01
802.11ac (VHT40)	MIMO	5755	0.637	1.138	55.98	2.52	0.03
		5795	0.638	1.139	56.01	2.52	0.03
802.11ac (VHT80)	MIMO	5775	0.318	0.818	38.88	4.10	0.01

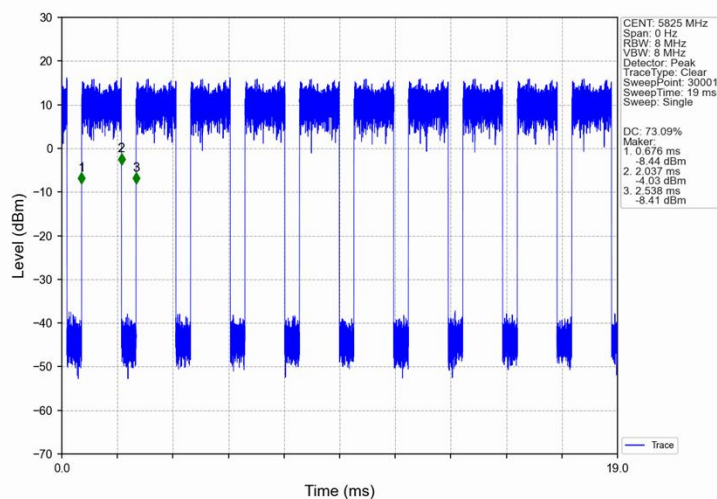
Note: Both antennas have been tested, but only the worst ant1 data is shown

1.2 Test Graph

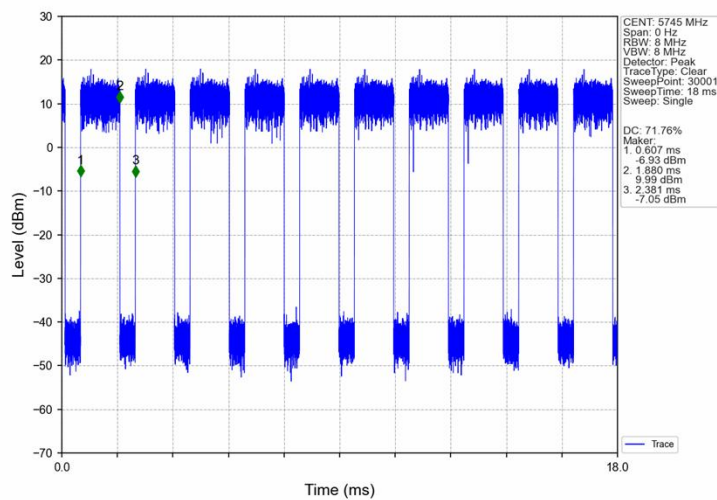
1.2.1 Ant1



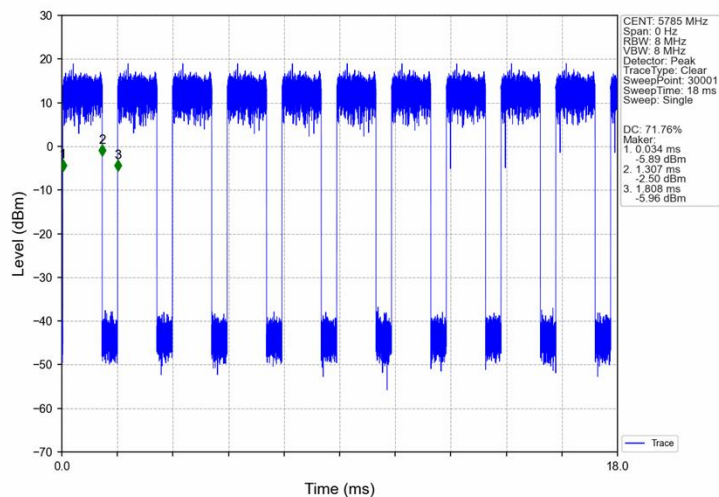
802.11a_HCH_5825MHz_Ant1_NTNV



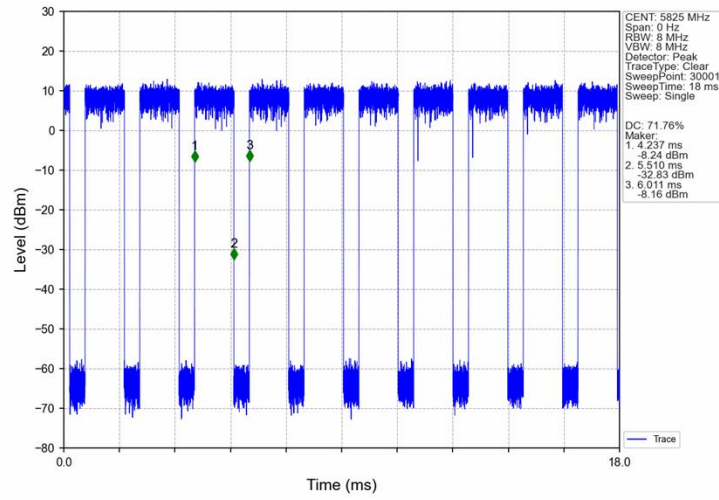
802.11n(HT20)_LCH_5745MHz_Ant1_NTNV



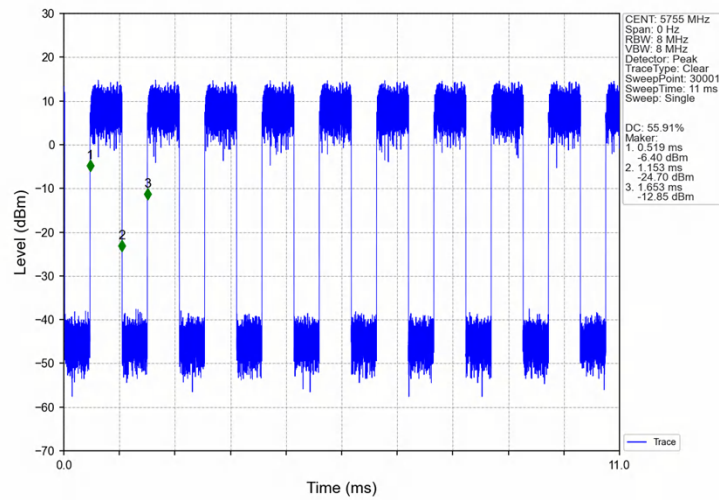
802.11n(HT20)_MCH_5785MHz_Ant1_NTNV



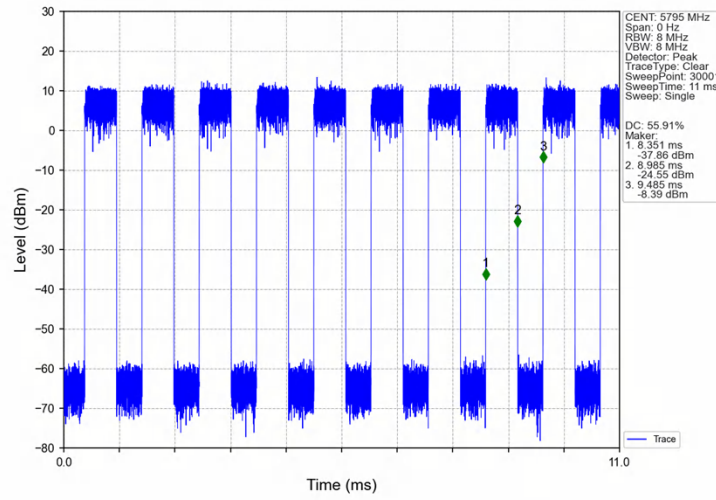
802.11n(HT20)_HCH_5825MHz_Ant1_NTNV



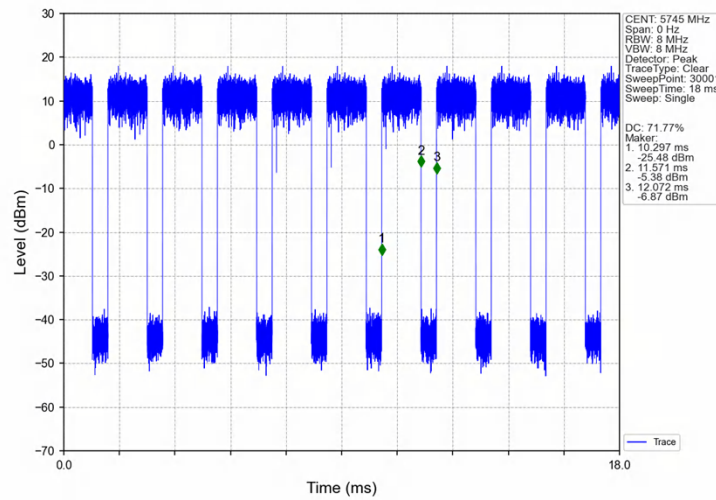
802.11n(HT40)_LCH_5755MHz_Ant1_NTNV



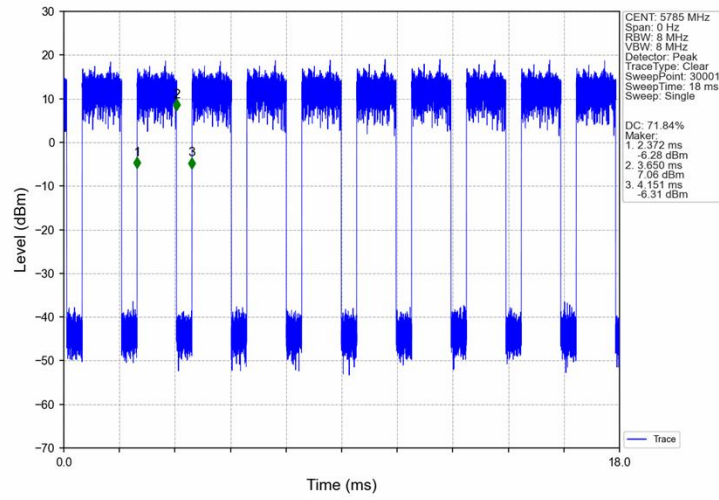
802.11n(HT40)_HCH_5795MHz_Ant1_NTNV



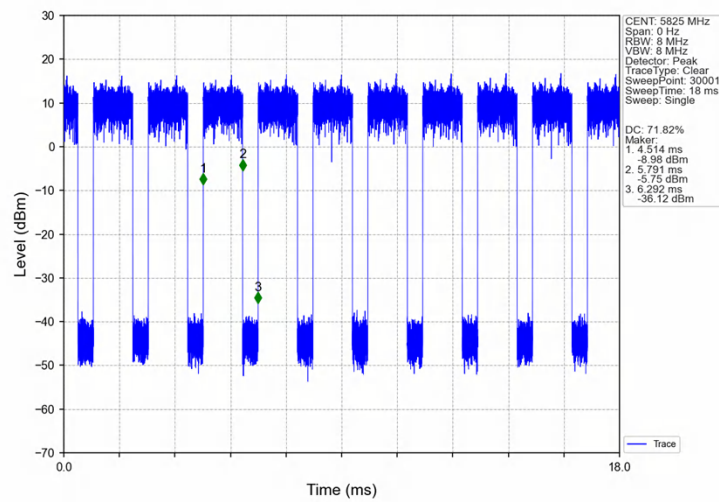
802.11ac(VHT20)_LCH_5745MHz_Ant1_NTNV



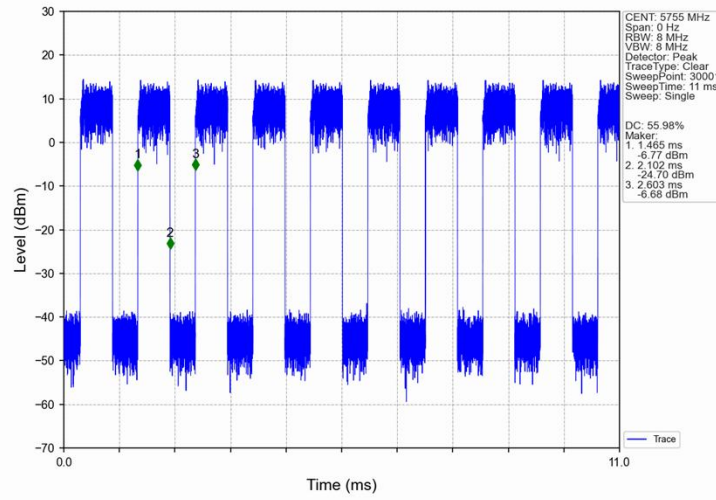
802.11ac(VHT20)_MCH_5785MHz_Ant1_NTNV



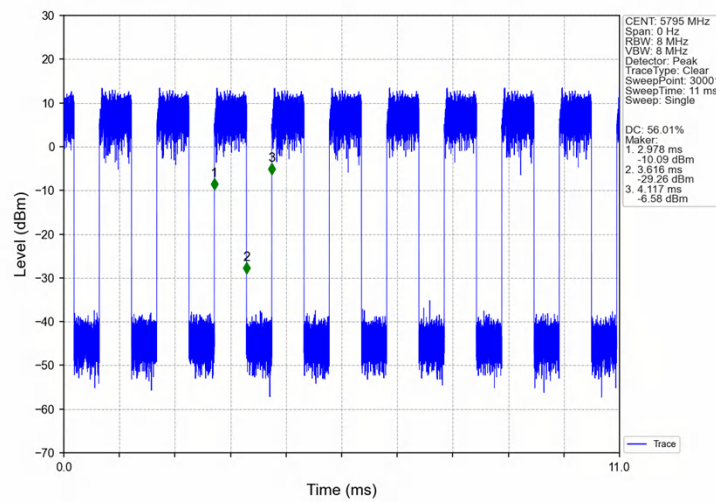
802.11ac(VHT20)_HCH_5825MHz_Ant1_NTNV



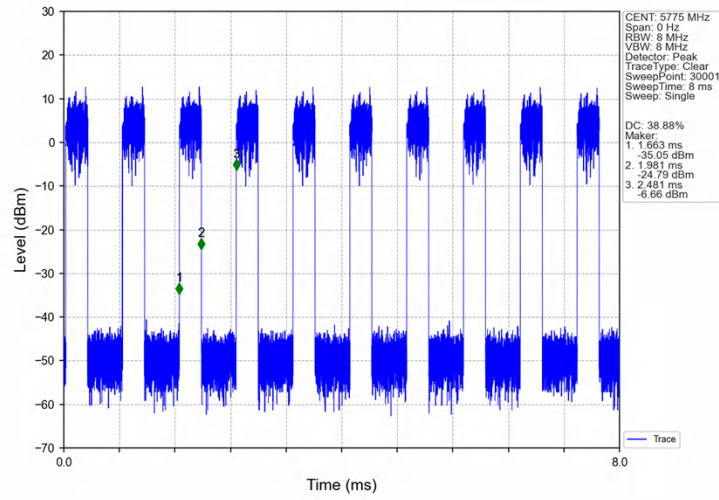
802.11ac(VHT40)_LCH_5755MHz_Ant1_NTNV



802.11ac(VHT40)_HCH_5795MHz_Ant1_NTNV



802.11ac(VHT80)_MCH_5775MHz_Ant1_NTNV



2. Bandwidth Worst case

2.1 Test Result

2.1.1 OBW

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
802.11a	SISO	5745	1	16.623	/	Pass
		5785	1	16.585	/	Pass
		5825	1	16.666	/	Pass
802.11n (HT20)	MIMO	5745	1	17.774	/	Pass
		5785	1	17.755	/	Pass
		5825	1	17.748	/	Pass
802.11n (HT40)	MIMO	5755	1	36.342	/	Pass
		5795	1	36.342	/	Pass
802.11ac (VHT20)	MIMO	5745	1	17.743	/	Pass
		5785	1	17.711	/	Pass
		5825	1	17.738	/	Pass
802.11ac (VHT40)	MIMO	5755	1	36.197	/	Pass
		5795	1	36.356	/	Pass
802.11ac (VHT80)	MIMO	5775	1	74.456	/	Pass

Ant1 and ant2 were tested, only worst antenna 1 test data were present in the report.

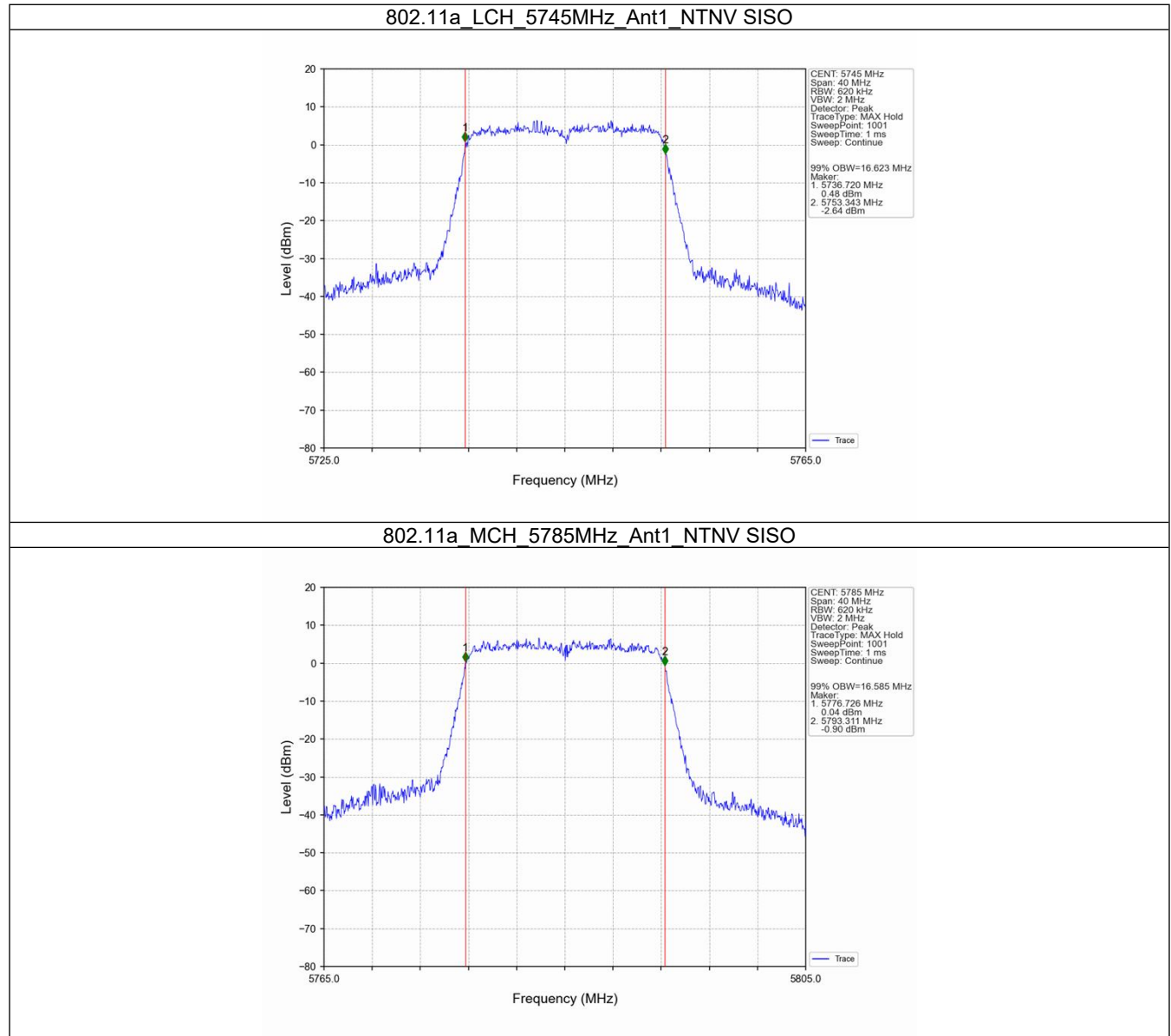
2.1.2 6dB BW

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11a	SISO	5745	1	16.344	≥ 0.5	Pass
		5785	1	16.356	≥ 0.5	Pass
		5825	1	16.361	≥ 0.5	Pass
802.11n (HT20)	MIMO	5745	1	17.605	≥ 0.5	Pass
		5785	1	17.242	≥ 0.5	Pass
		5825	1	17.583	≥ 0.5	Pass
802.11n (HT40)	MIMO	5755	1	35.194	≥ 0.5	Pass
		5795	1	31.751	≥ 0.5	Pass
802.11ac (VHT20)	MIMO	5745	1	17.605	≥ 0.5	Pass
		5785	1	17.334	≥ 0.5	Pass
		5825	1	17.580	≥ 0.5	Pass
802.11ac (VHT40)	MIMO	5755	1	33.247	≥ 0.5	Pass
		5795	1	35.082	≥ 0.5	Pass
802.11ac (VHT80)	MIMO	5775	1	71.366	≥ 0.5	Pass

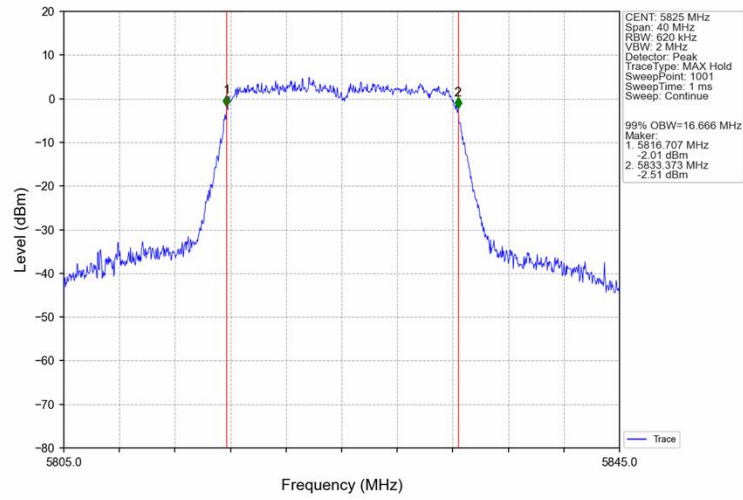
Ant1 and ant2 were tested, only worst antenna 1 test data were present in the report.

2.2 Test Graph

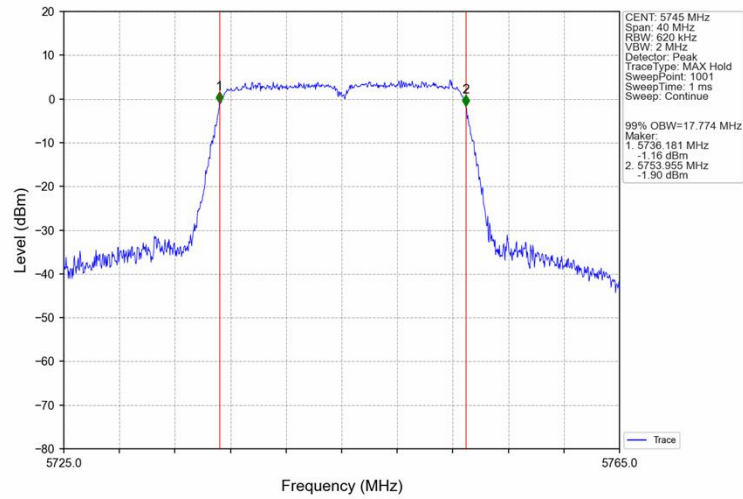
2.2.1 OBW



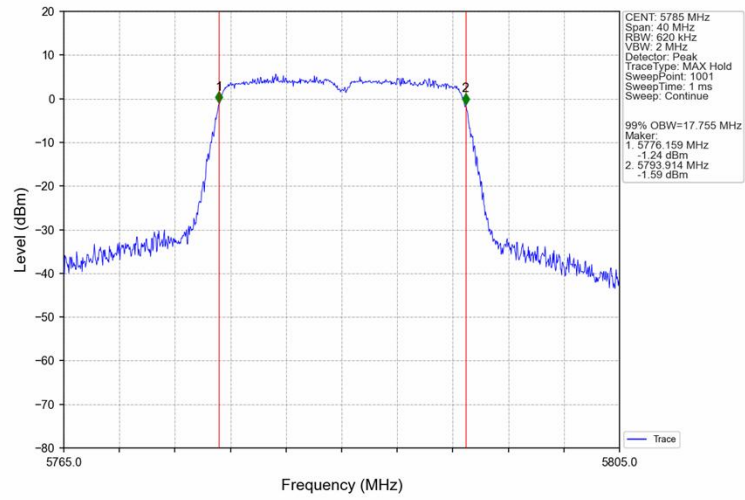
802.11a_HCH_5825MHz_Ant1_NTNV_SISO



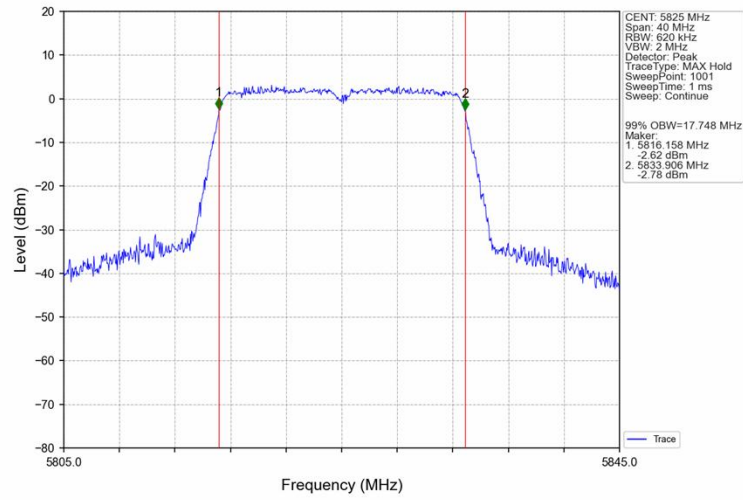
802.11n(HT20)_LCH_5745MHz_Ant1_NTNV_SISO



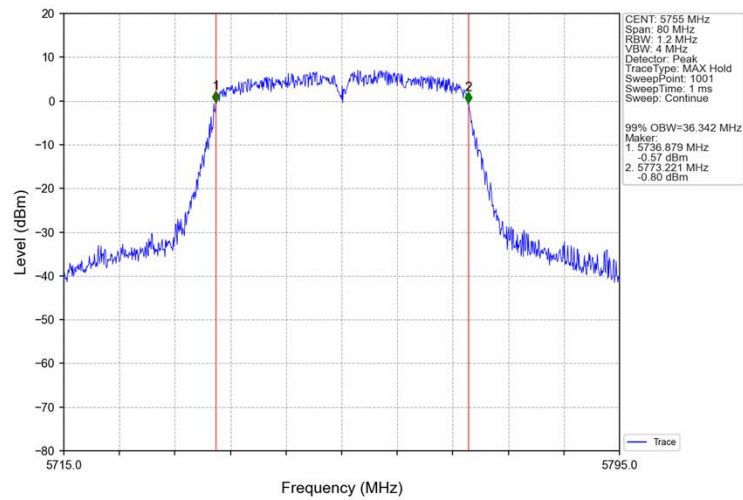
802.11n(HT20)_MCH_5785MHz_Ant1_NTNV SISO



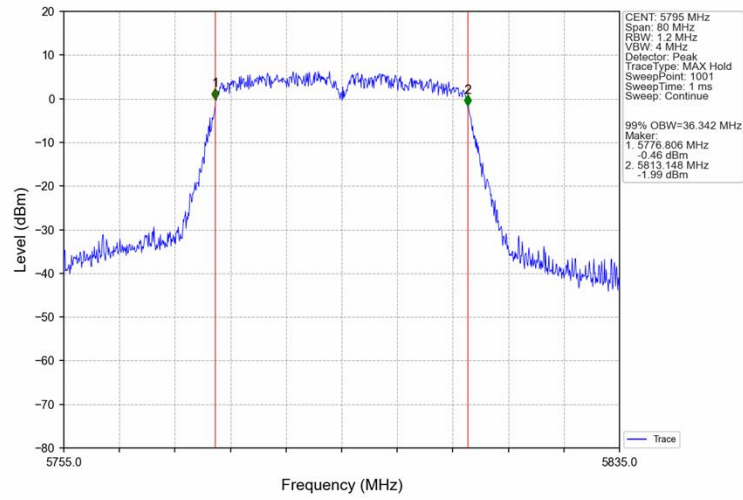
802.11n(HT20)_HCH_5825MHz_Ant1_NTNV_SISO



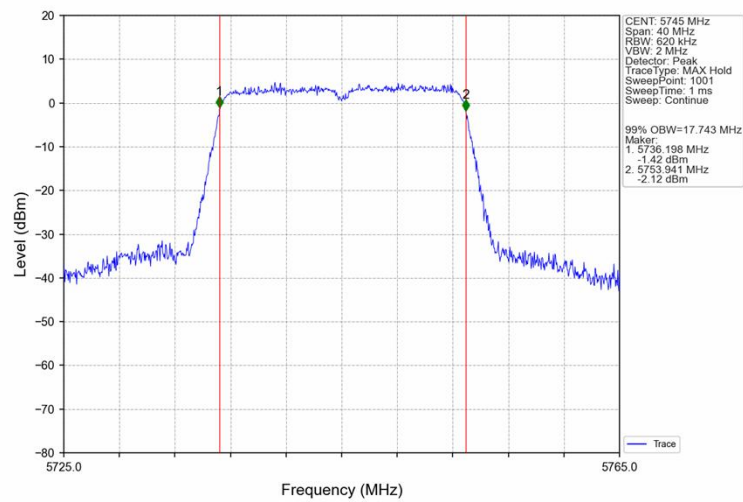
802.11n(HT40)_LCH_5755MHz_Ant1_NTNV_SISO



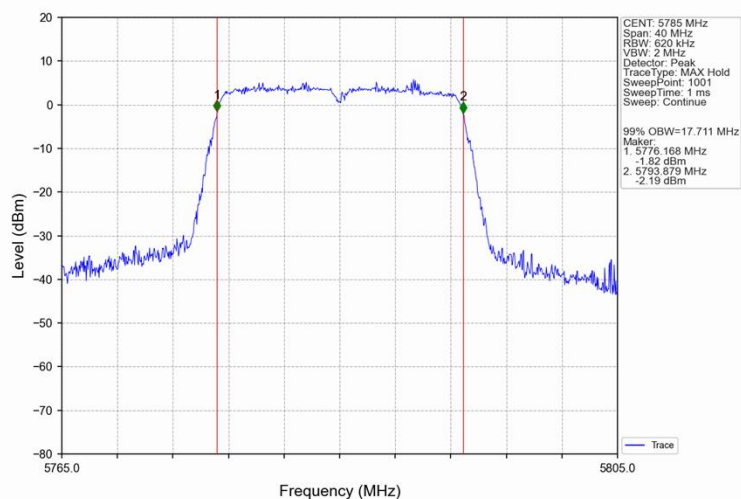
802.11n(HT40)_HCH_5795MHz_Ant1_NTNV SISO



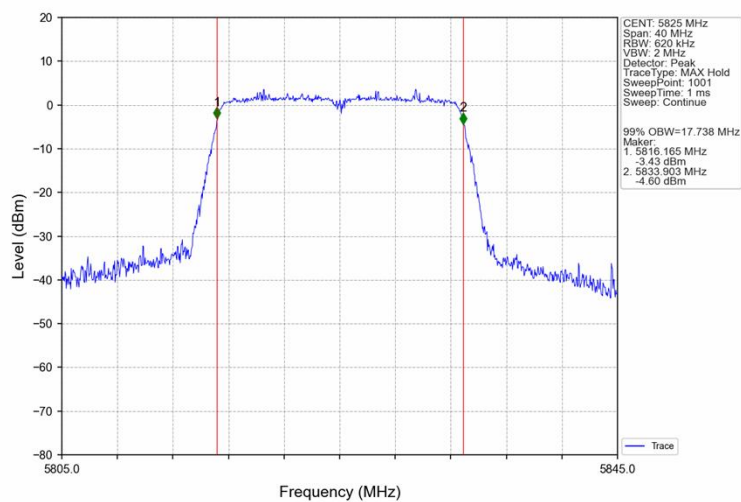
802.11ac(VHT20)_LCH_5745MHz_Ant1_NTNV SISO



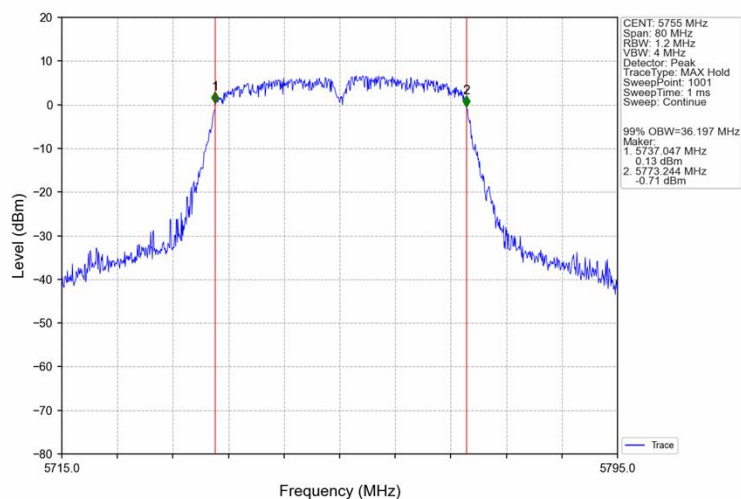
802.11ac(VHT20)_MCH_5785MHz_Ant1_NTNV_SISO



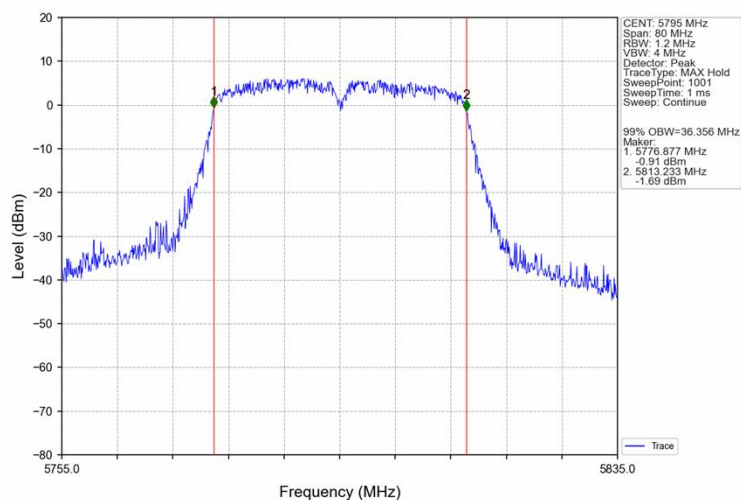
802.11ac(VHT20)_HCH_5825MHz_Ant1_NTNV_SISO



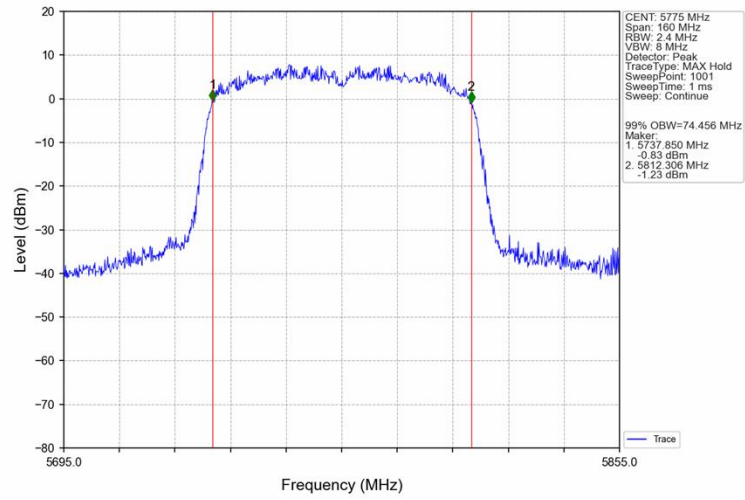
802.11ac(VHT40)_LCH_5755MHz_Ant1_NTNV_SISO



802.11ac(VHT40)_HCH_5795MHz_Ant1_NTNV_SISO

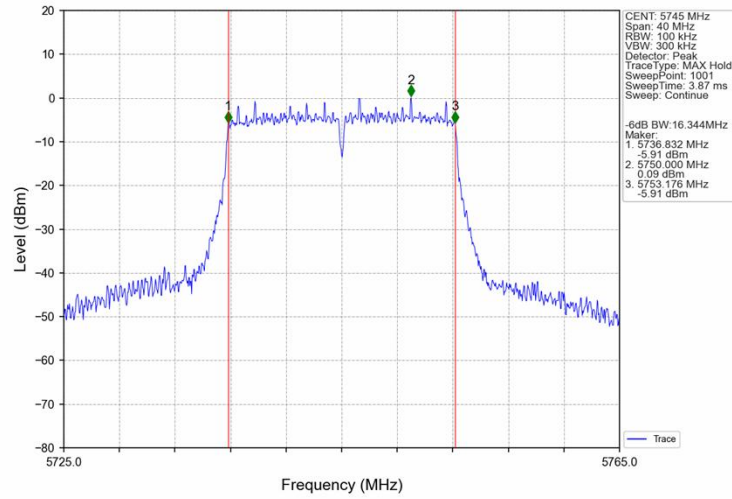


802.11ac(VHT80)_MCH_5775MHz_Ant1_NTNV SISO

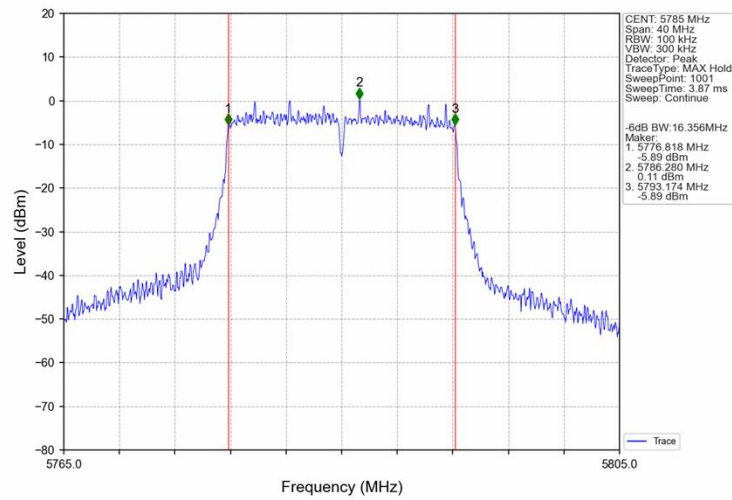


2.2.2 6dB BW

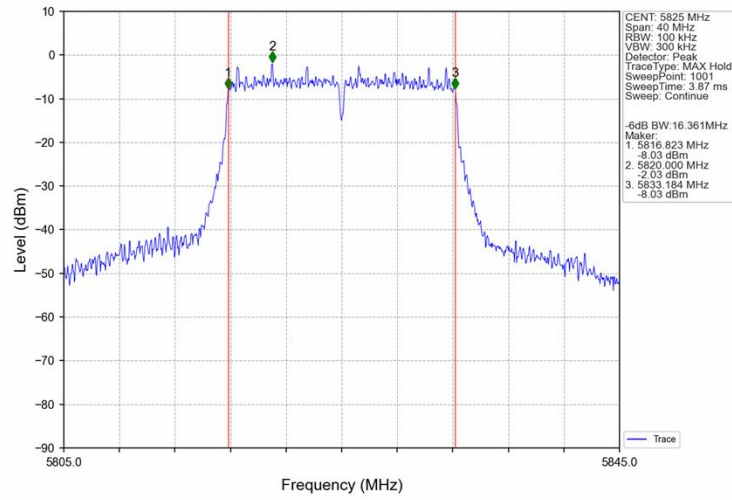
802.11a_LCH_5745MHz_Ant1_NTNV_SISO



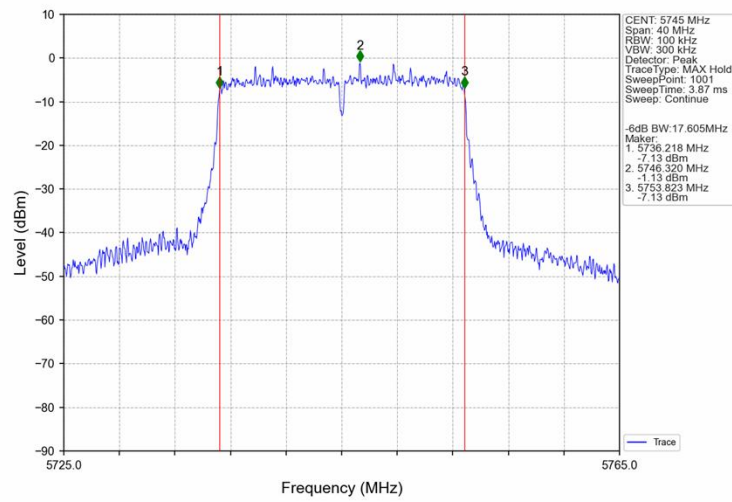
802.11a_MCH_5785MHz_Ant1_NTNV_SISO



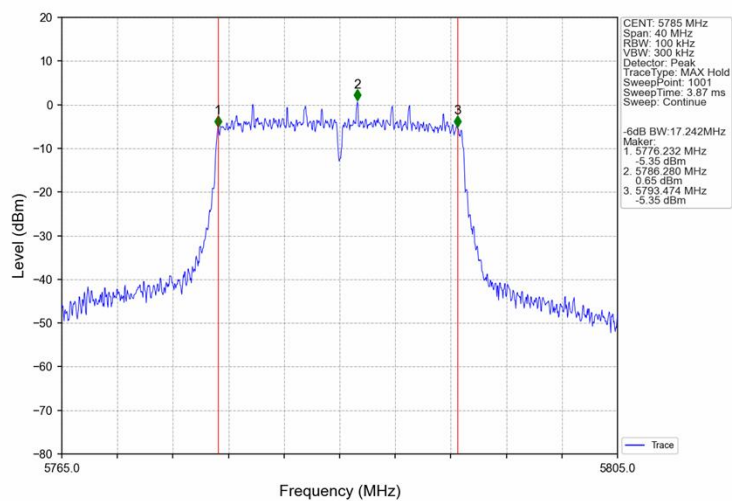
802.11a_HCH_5825MHz_Ant1_NTNV_SISO



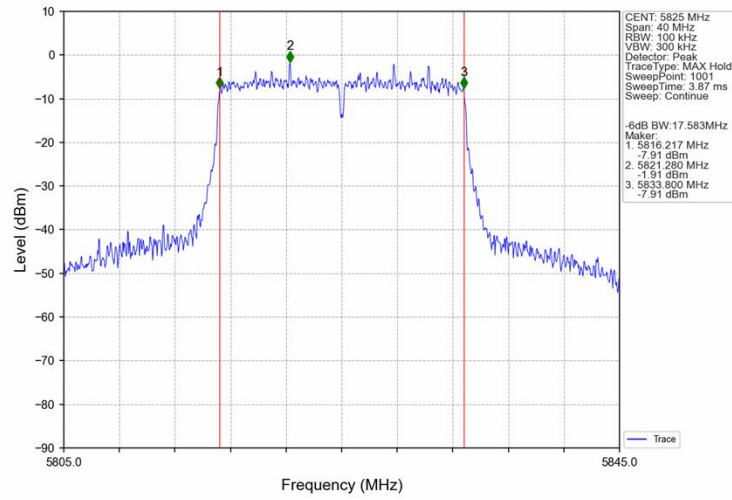
802.11n(HT20)_LCH_5745MHz_Ant1_NTNV_SISO



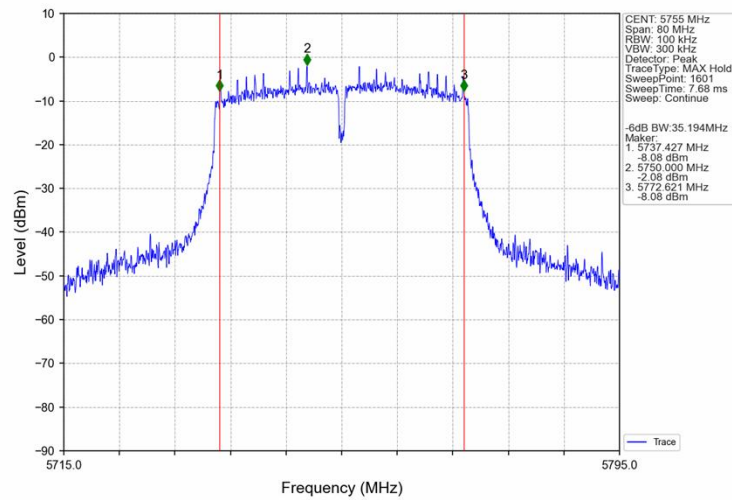
802.11n(HT20)_MCH_5785MHz_Ant1_NTNV_SISO



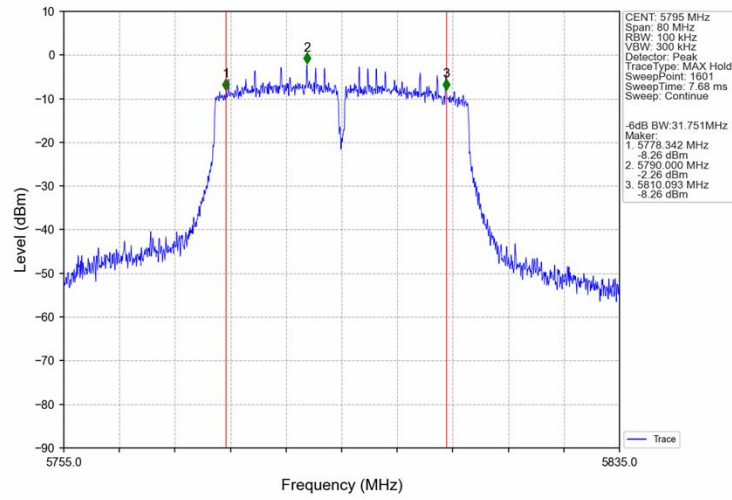
802.11n(HT20)_HCH_5825MHz_Ant1_NTNV_SISO



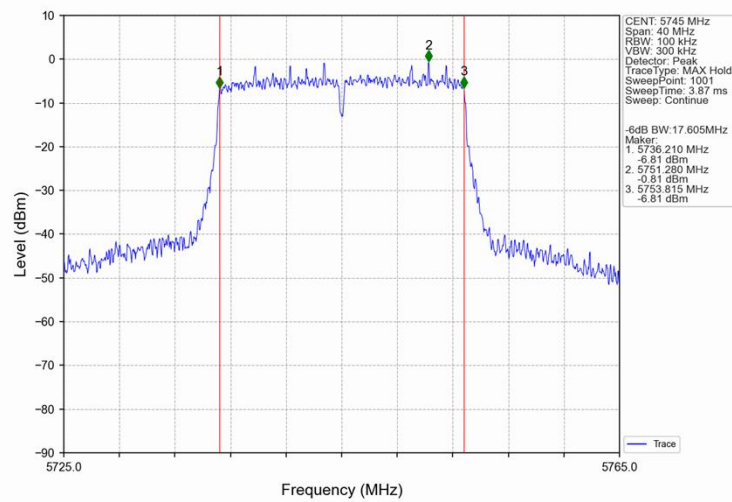
802.11n(HT40)_LCH_5755MHz_Ant1_NTNV_SISO



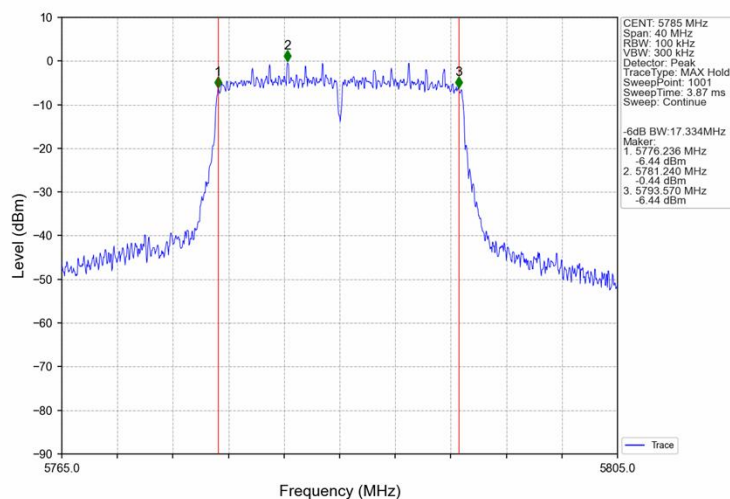
802.11n(HT40)_HCH_5795MHz_Ant1_NTNV SISO



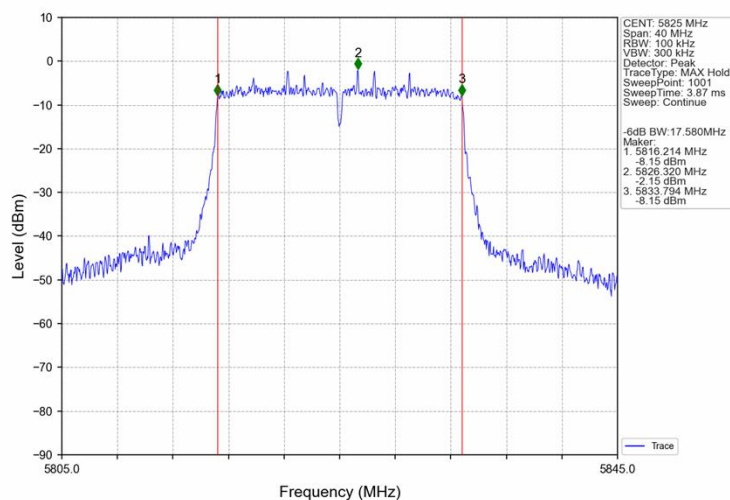
802.11ac(VHT20)_LCH_5745MHz_Ant1_NTNV SISO



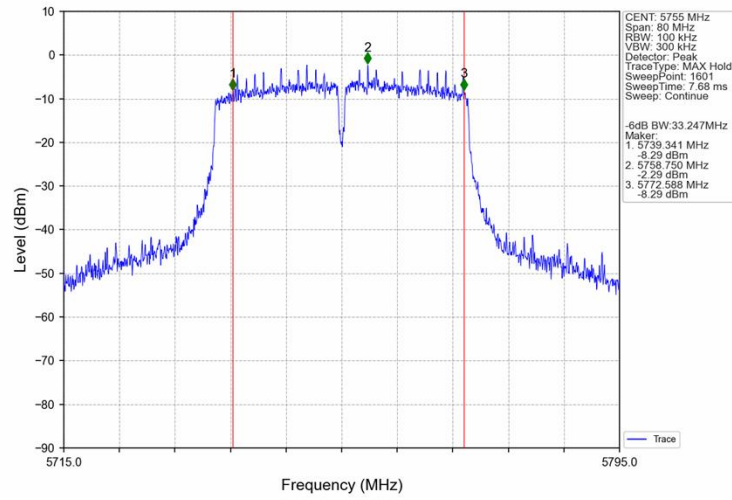
802.11ac(VHT20)_MCH_5785MHz_Ant1_NTNV_SISO



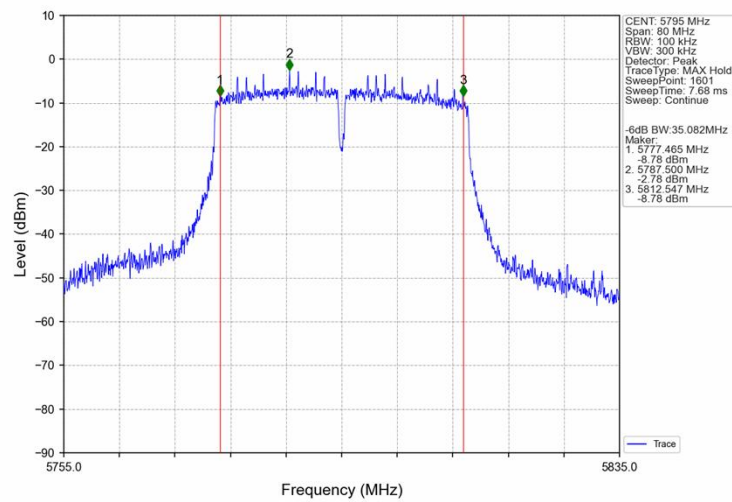
802.11ac(VHT20)_HCH_5825MHz_Ant1_NTNV_SISO



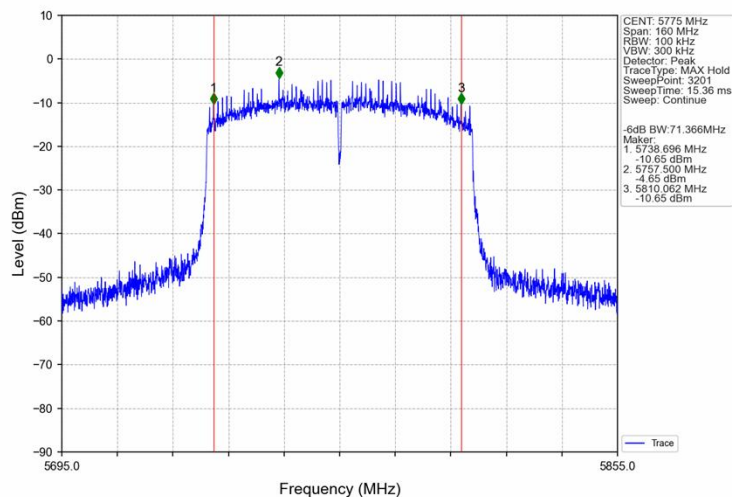
802.11ac(VHT40)_LCH_5755MHz_Ant1_NTNV SISO



802.11ac(VHT40)_HCH_5795MHz_Ant1_NTNV SISO



802.11ac(VHT80)_MCH_5775MHz_Ant1_NTNV SISO



3. Maximum Conducted Output Power

3.1 Test Result

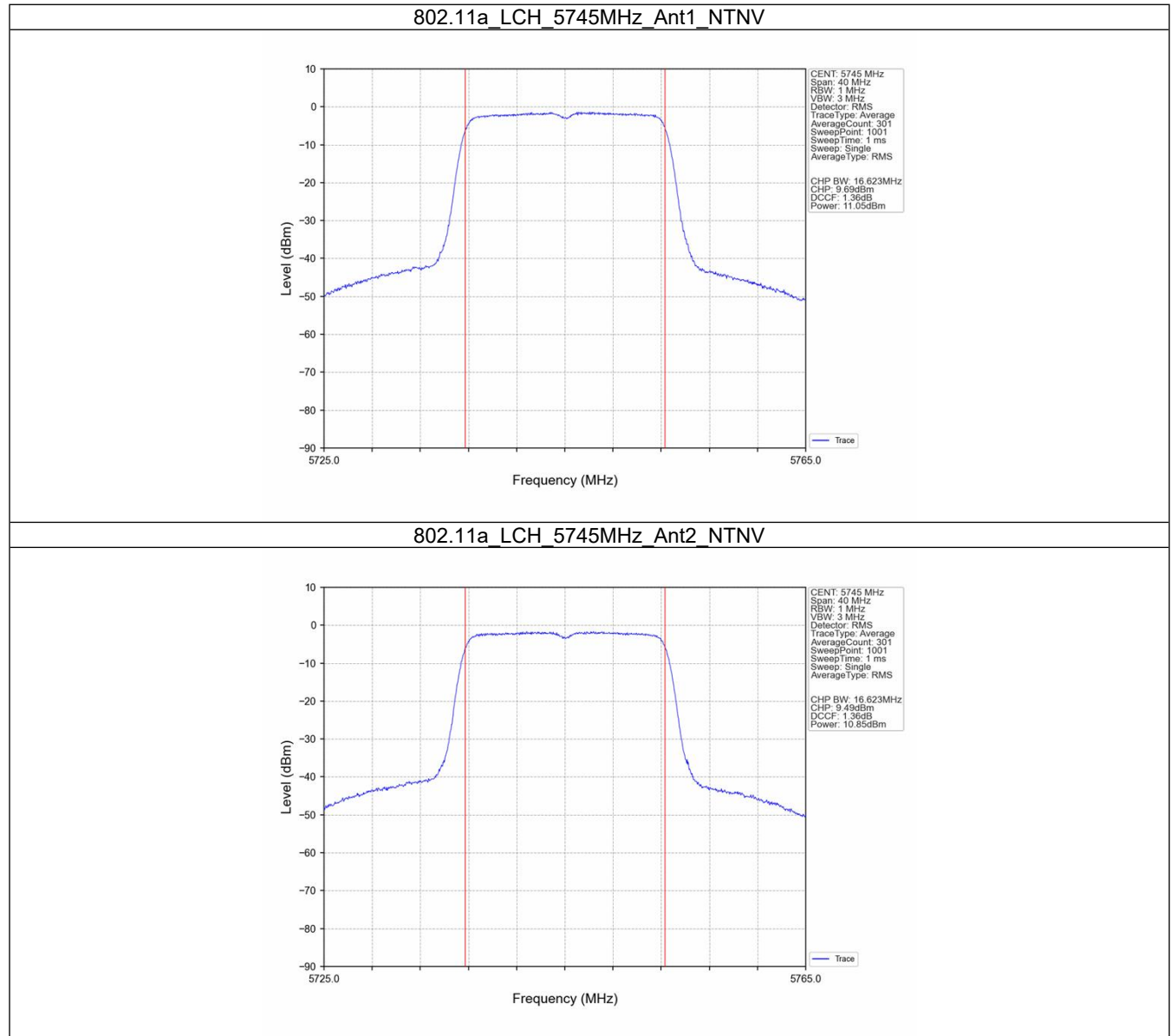
3.1.1 Power

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)				Verdict
			ANT1	ANT2	MIMO	Limit	
802.11a	SISO	5745	11.05	10.85	/	<=30	Pass
		5785	11.30	10.09	/	<=30	Pass
		5825	9.58	8.65	/	<=30	Pass
802.11n (HT20)	MIMO	5745	10.75	9.82	13.32	<=28.68	Pass
		5785	11.51	9.03	13.45	<=28.68	Pass
		5825	9.38	8.70	12.06	<=28.68	Pass
802.11n (HT40)	MIMO	5755	11.29	9.55	13.52	<=28.68	Pass
		5795	10.98	9.34	13.25	<=28.68	Pass
802.11ac (VHT20)	MIMO	5745	10.59	9.27	12.99	<=28.68	Pass
		5785	11.31	8.76	13.23	<=28.68	Pass
		5825	9.19	8.08	11.68	<=28.68	Pass
802.11ac (VHT40)	MIMO	5755	11.35	9.55	13.55	<=28.68	Pass
		5795	10.82	8.91	12.98	<=28.68	Pass
802.11ac (VHT80)	MIMO	5775	11.38	9.29	13.47	<=28.68	Pass

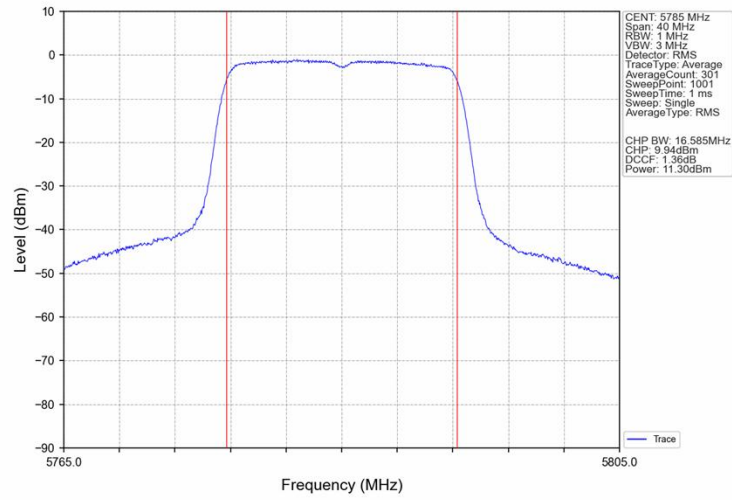
Note1: Antenna Gain:
- Band: 3 Ant1: 4.46dBi;
- Band: 3 Ant2: 4.16dBi;
Note2: Directional Gain:7.32 is more than 6dBi, Therefore, the corresponding power and power density limit values are reduced by 1.32dB

3.2 Test Graph

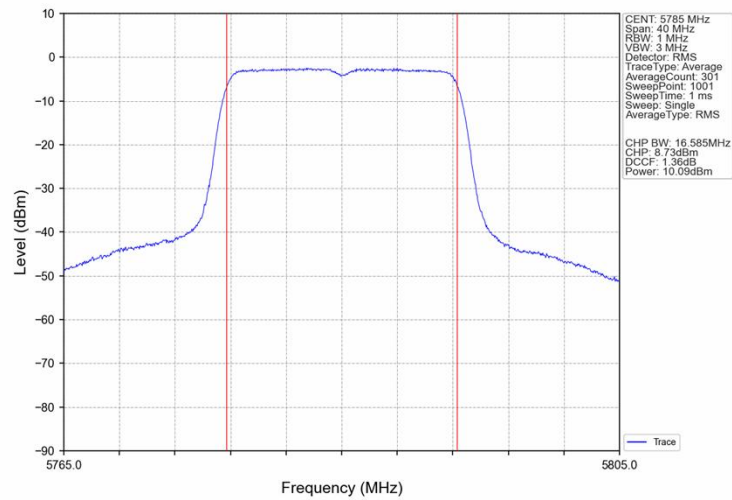
3.2.1 Power



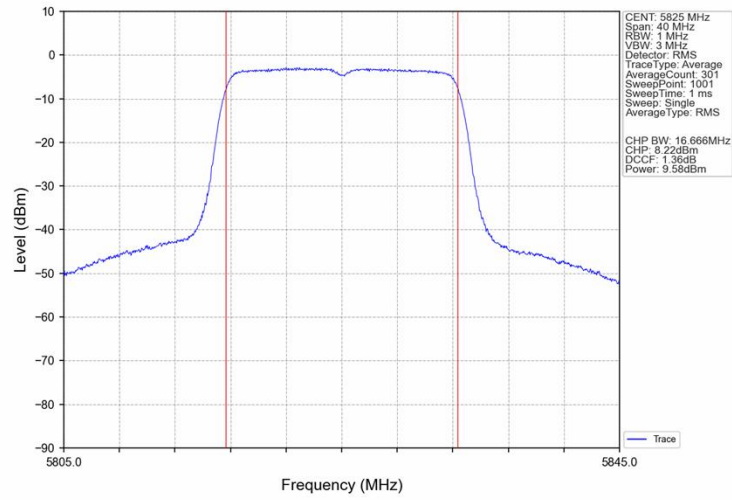
802.11a_MCH_5785MHz_Ant1_NTNV



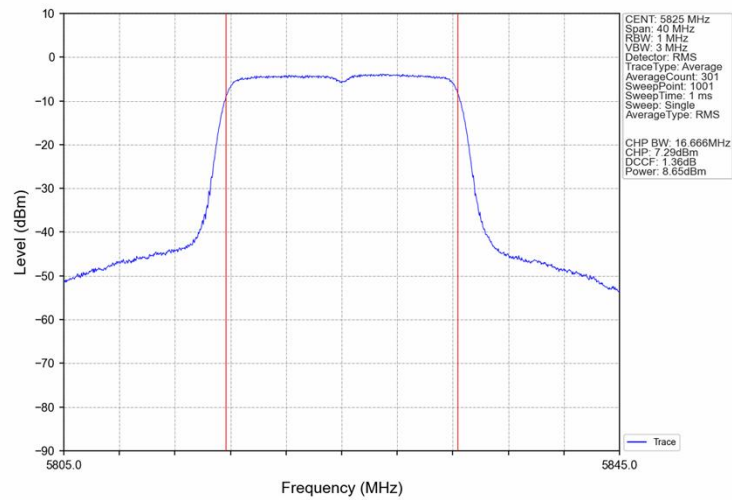
802.11a_MCH_5785MHz_Ant2_NTNV



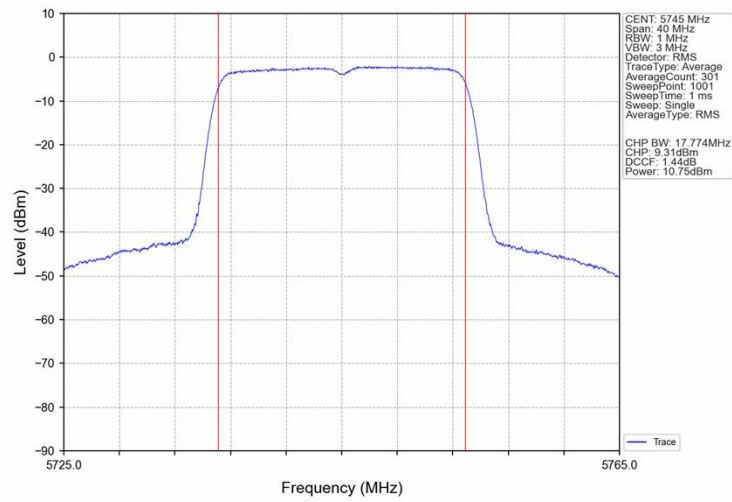
802.11a_HCH_5825MHz_Ant1_NTNV



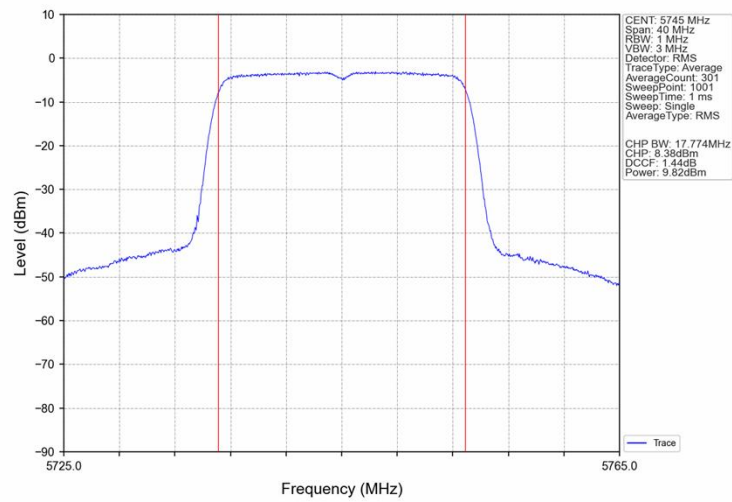
802.11a_HCH_5825MHz_Ant2_NTNV



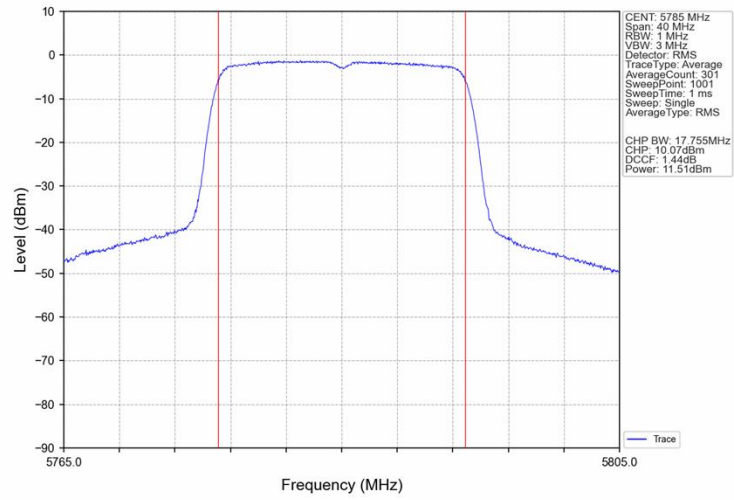
802.11n(HT20)_LCH_5745MHz_Ant1_NTNV



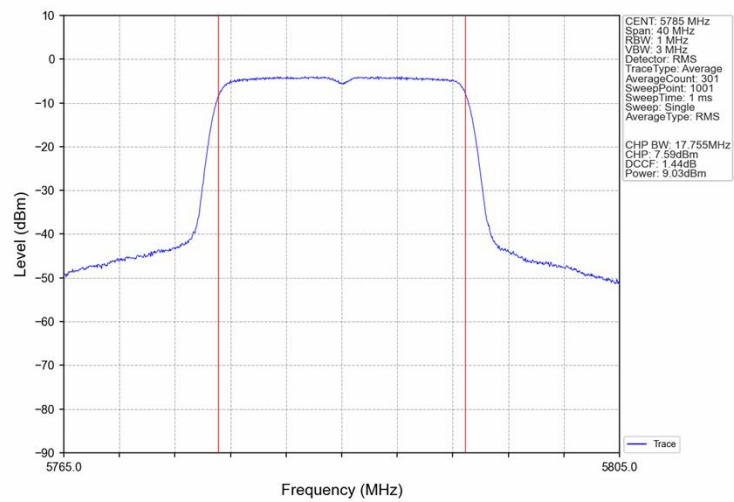
802.11n(HT20)_LCH_5745MHz_Ant2_NTNV



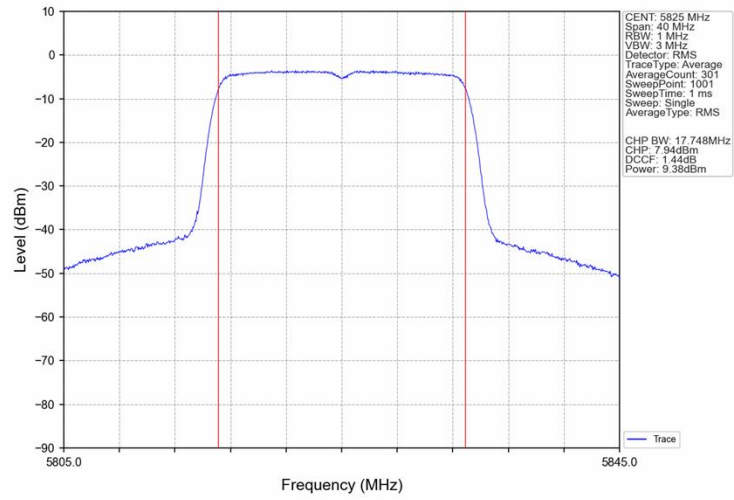
802.11n(HT20)_MCH_5785MHz_Ant1_NTNV



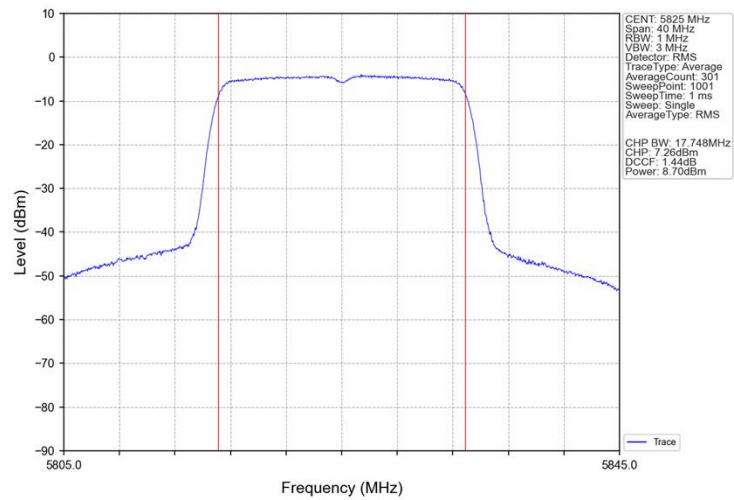
802.11n(HT20)_MCH_5785MHz_Ant2_NTNV



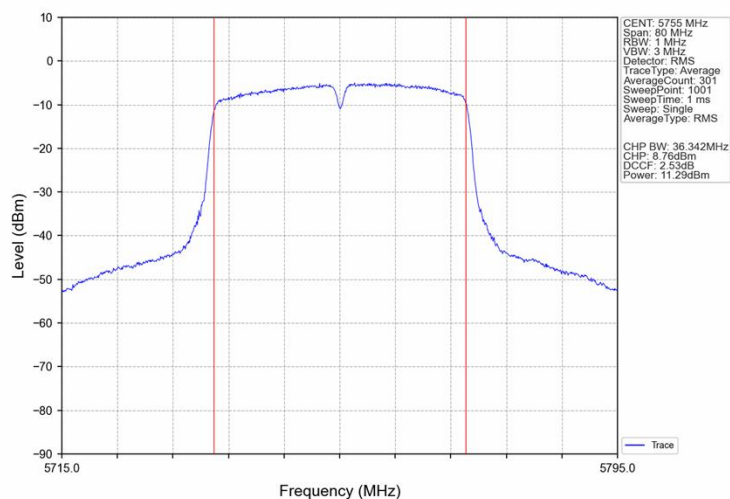
802.11n(HT20)_HCH_5825MHz_Ant1_NTNV



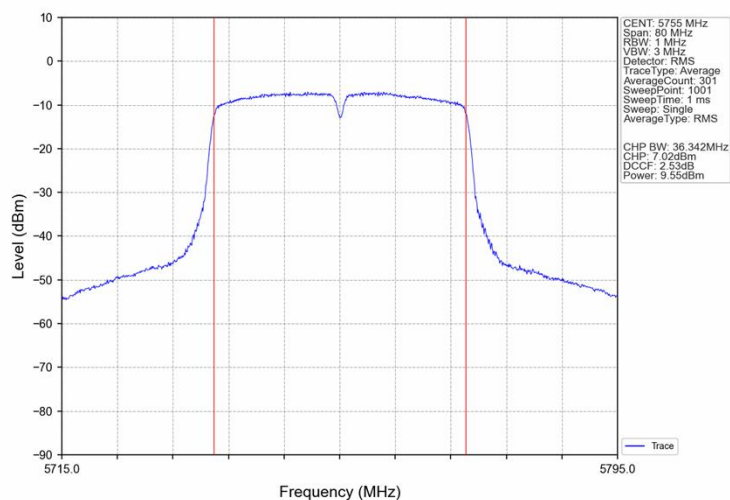
802.11n(HT20)_HCH_5825MHz_Ant2_NTNV



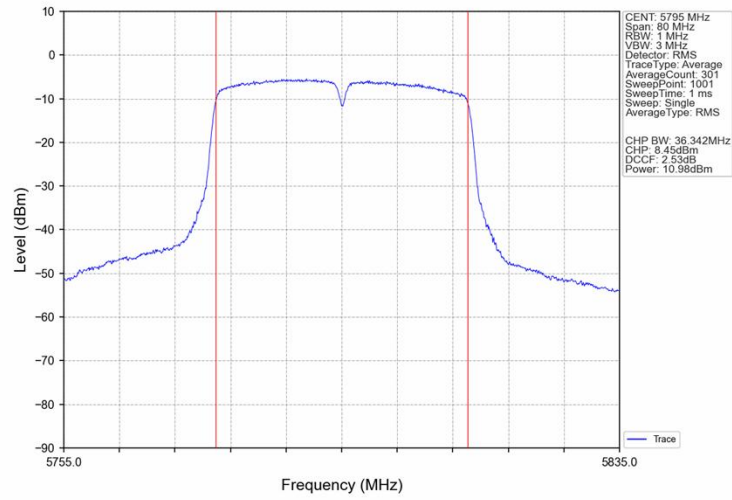
802.11n(HT40) LCH 5755MHz Ant1_NTNV



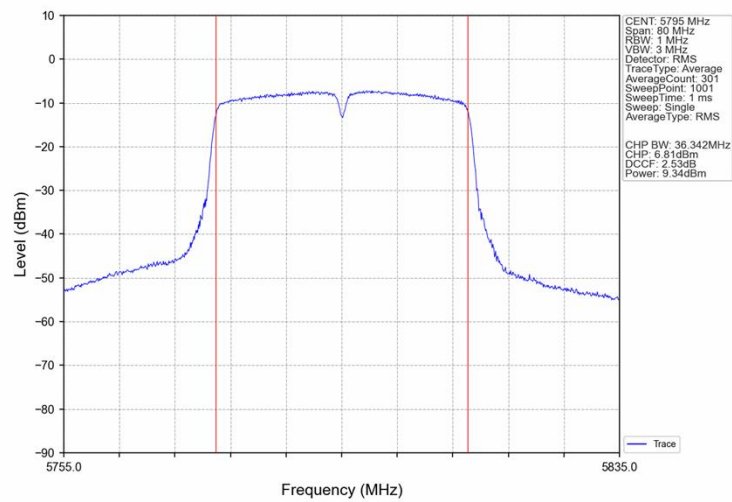
802.11n(HT40) LCH 5755MHz Ant2_NTNV



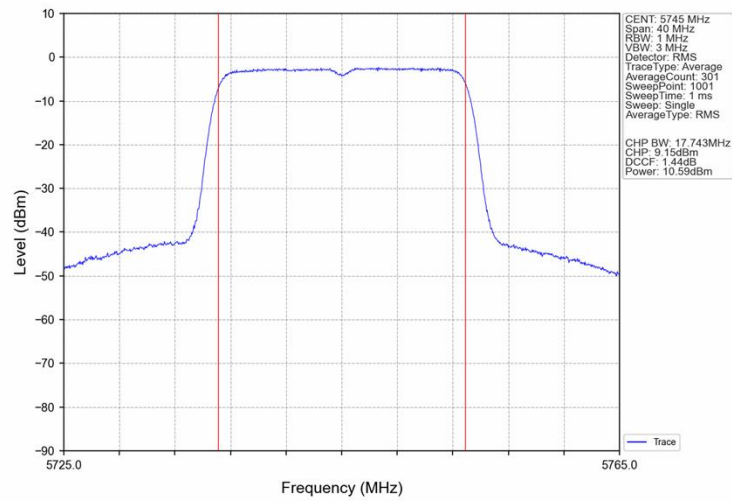
802.11n(HT40)_HCH_5795MHz_Ant1_NTNV



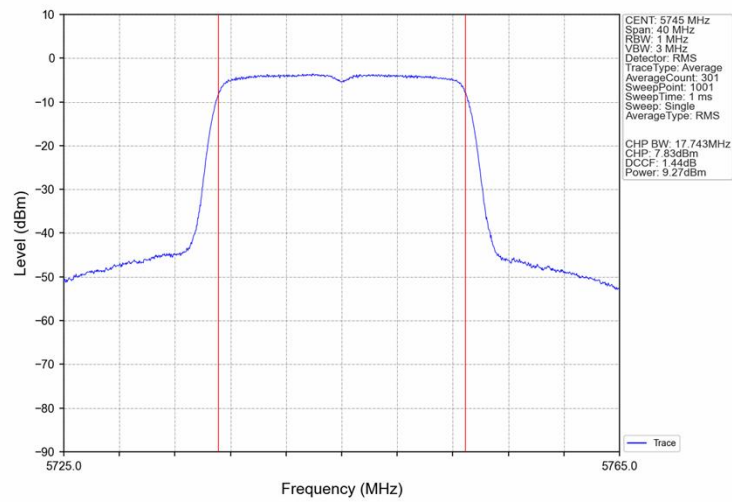
802.11n(HT40)_HCH_5795MHz_Ant2_NTNV



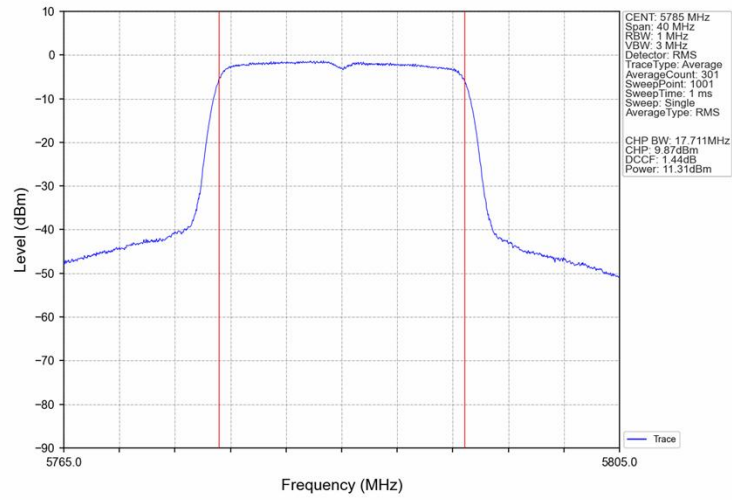
802.11ac(VHT20)_LCH_5745MHz_Ant1_NTNV



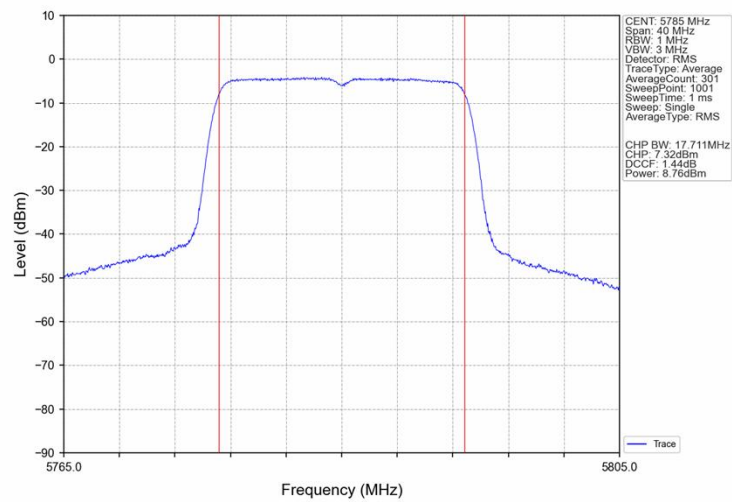
802.11ac(VHT20)_LCH_5745MHz_Ant2_NTNV



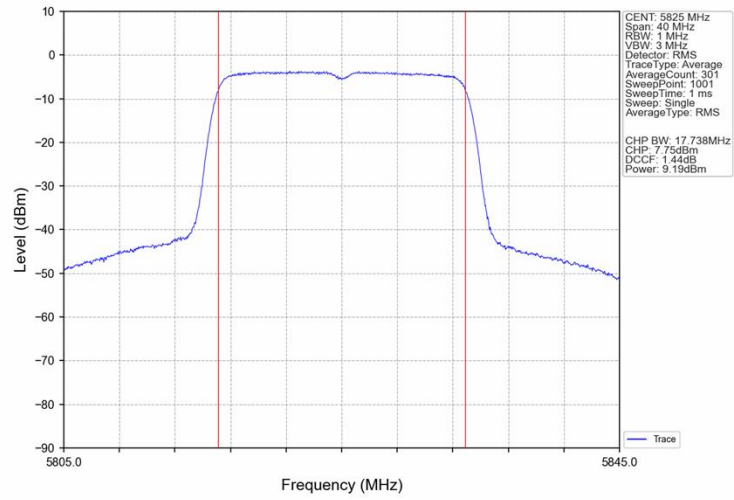
802.11ac(VHT20)_MCH_5785MHz_Ant1_NTNV



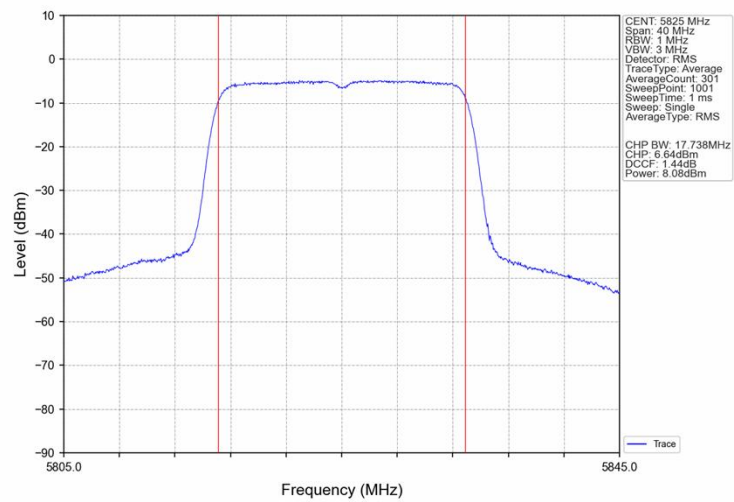
802.11ac(VHT20)_MCH_5785MHz_Ant2_NTNV



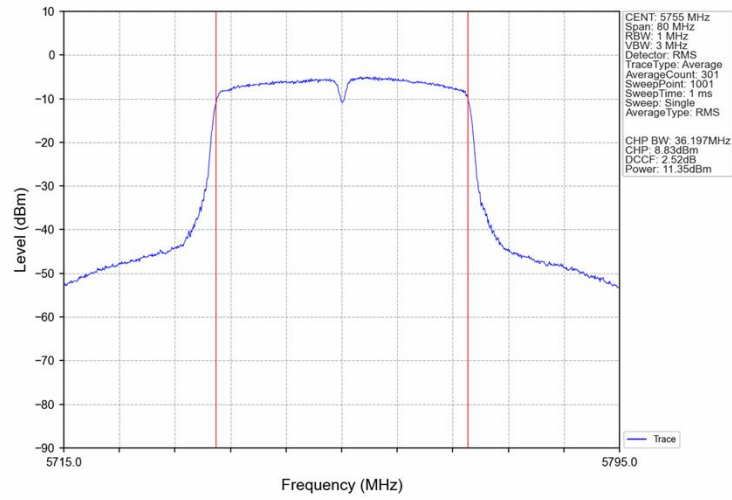
802.11ac(VHT20)_HCH_5825MHz_Ant1_NTNV



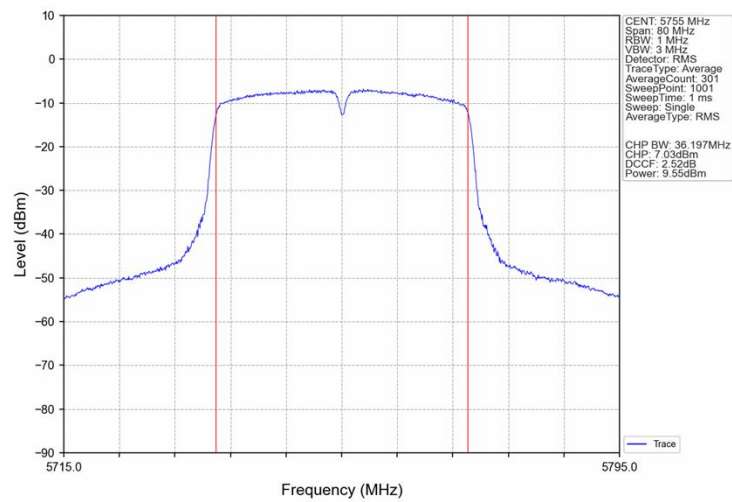
802.11ac(VHT20)_HCH_5825MHz_Ant2_NTNV



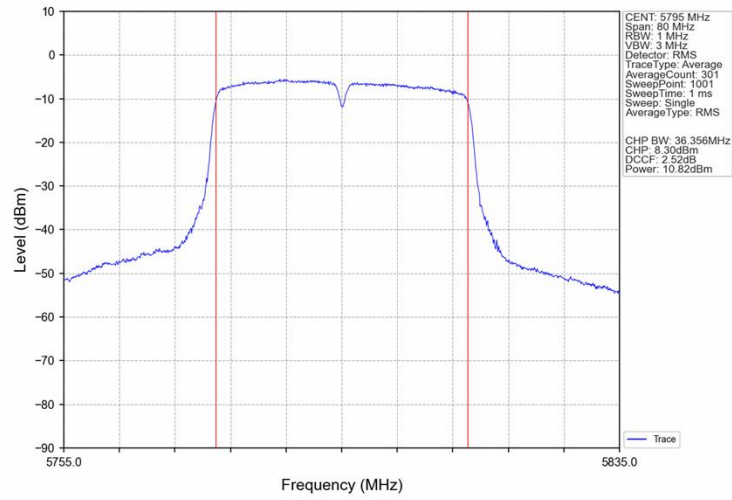
802.11ac(VHT40)_LCH_5755MHz_Ant1_NTNV



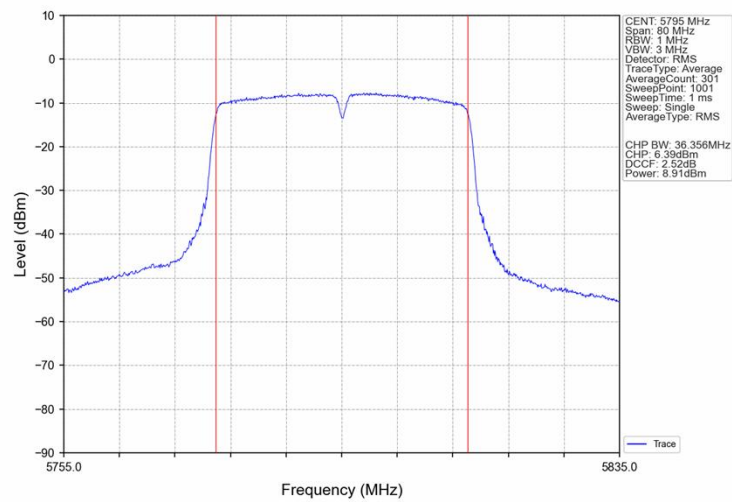
802.11ac(VHT40)_LCH_5755MHz_Ant2_NTNV



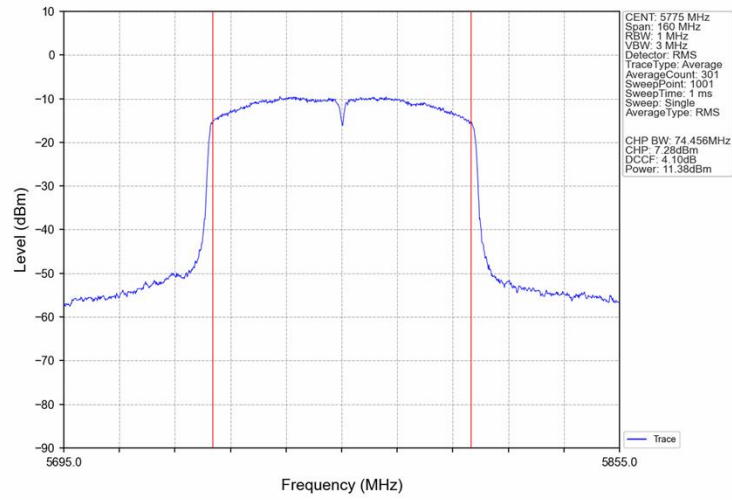
802.11ac(VHT40)_HCH_5795MHz_Ant1_NTNV



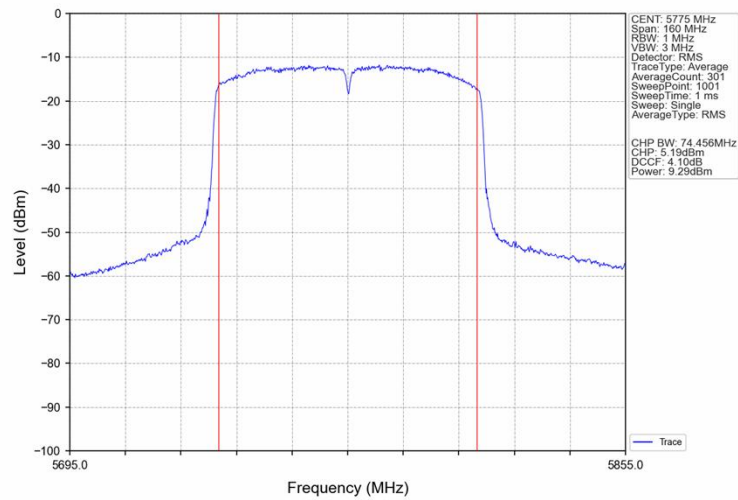
802.11ac(VHT40)_HCH_5795MHz_Ant2_NTNV



802.11ac(VHT80)_MCH_5775MHz_Ant1_NTNV



802.11ac(VHT80)_MCH_5775MHz_Ant2_NTNV



4. Maximum Power Spectral Density

4.1 Test Result

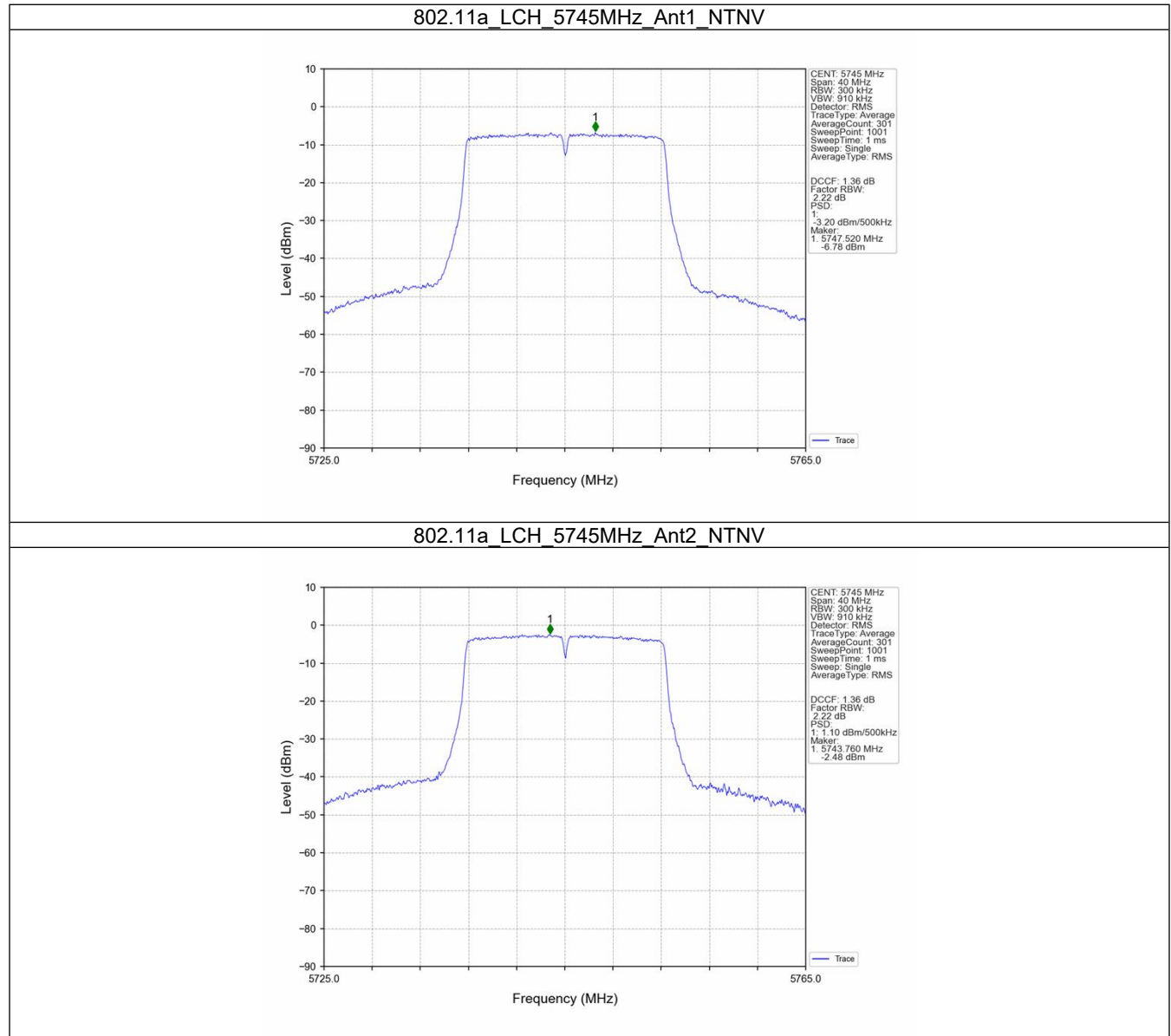
4.1.1 PSD-Band3

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/500kHz)				Verdict
			ANT1	ANT2	MIMO	Limit	
802.11a	SISO	5745	-3.20	1.10	/	<=30	Pass
		5785	-2.78	-4.13	/	<=30	Pass
		5825	-4.91	-5.37	/	<=30	Pass
802.11n (HT20)	MIMO	5745	-3.84	-4.21	-1.01	<=28.68	Pass
		5785	-3.21	-5.24	-1.10	<=28.68	Pass
		5825	-4.87	-5.85	-2.32	<=28.68	Pass
802.11n (HT40)	MIMO	5755	-5.40	-7.16	-3.18	<=28.68	Pass
		5795	-6.07	-7.69	-3.79	<=28.68	Pass
802.11ac (VHT20)	MIMO	5745	-3.55	-5.06	-1.23	<=28.68	Pass
		5785	-3.13	-5.67	-1.21	<=28.68	Pass
		5825	-5.12	-6.21	-2.62	<=28.68	Pass
802.11ac (VHT40)	MIMO	5755	-5.35	-7.30	-3.21	<=28.68	Pass
		5795	-5.87	-7.48	-3.59	<=28.68	Pass
802.11ac (VHT80)	MIMO	5775	-7.61	-10.19	-5.70	<=28.68	Pass

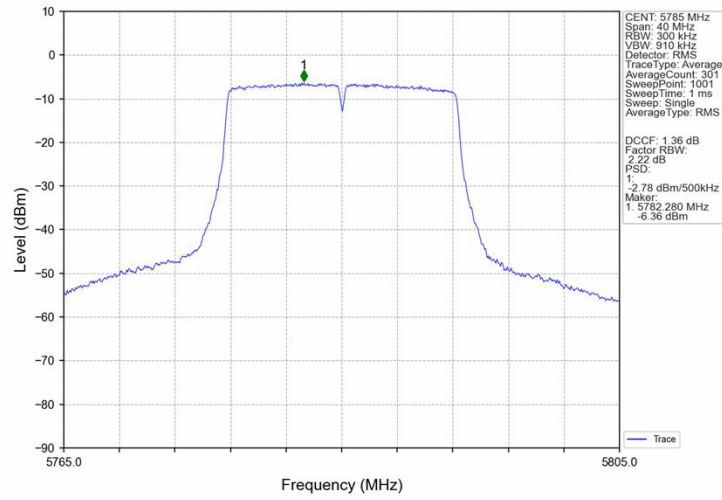
Note1: Antenna Gain:
- Band: 3 Ant1: 4.46dBi;
- Band: 3 Ant2: 4.16dBi;
Note2: Directional Gain:7.32 is more than 6dBi, Therefore, the corresponding power and power density limit values are reduced by 1.32dB
Duty cycle factor has added into final result in the test plots.

4.2 Test Graph

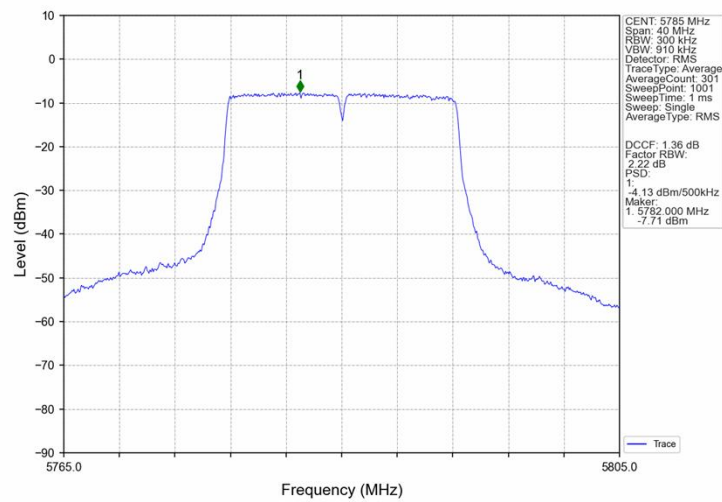
4.2.1 PSD-Band3



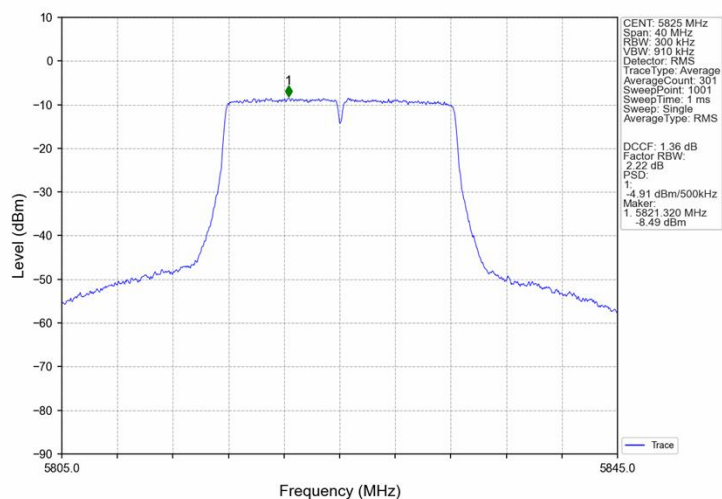
802.11a_MCH_5785MHz_Ant1_NTNV



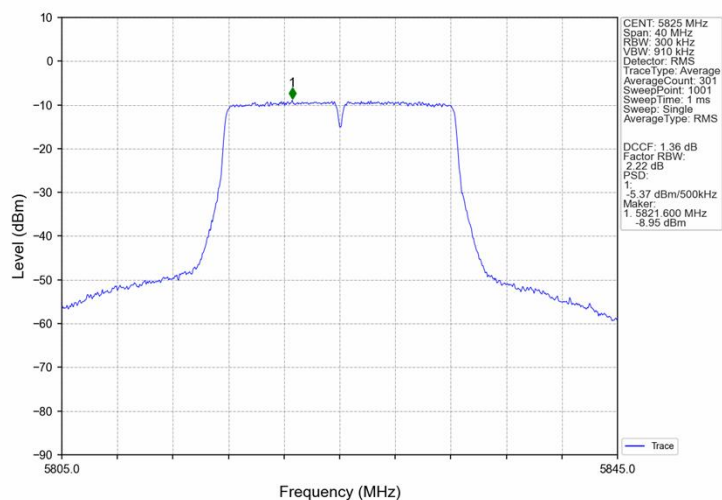
802.11a_MCH_5785MHz_Ant2_NTNV



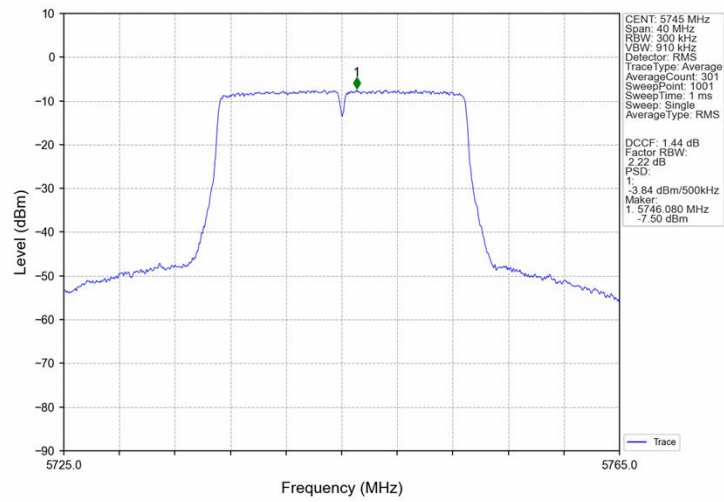
802.11a_HCH_5825MHz_Ant1_NTNV



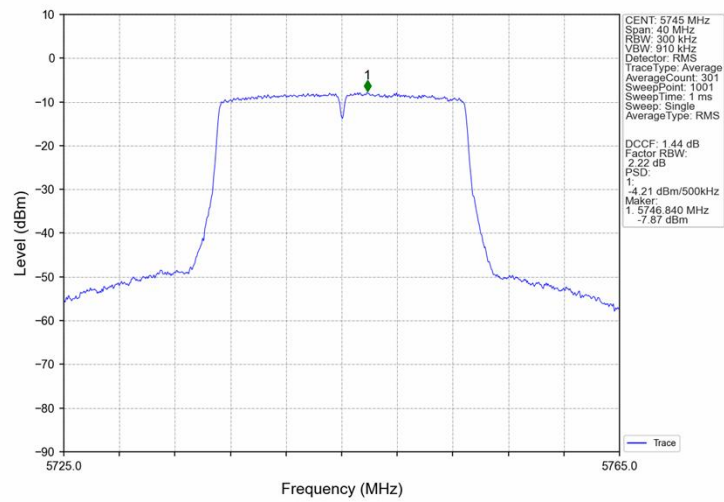
802.11a_HCH_5825MHz_Ant2_NTNV



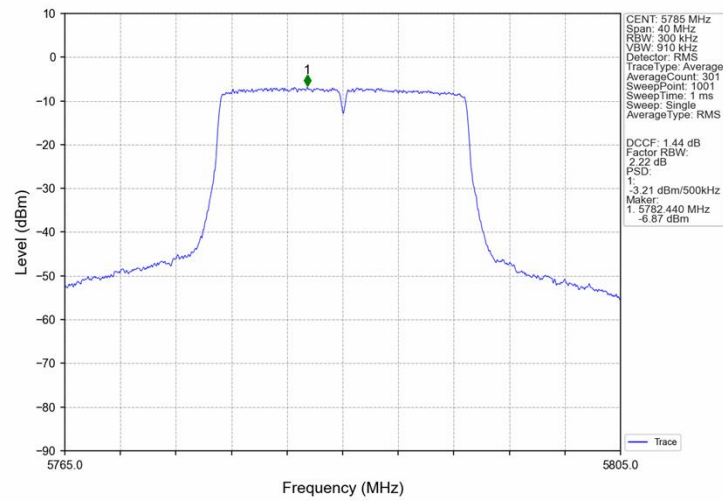
802.11n(HT20)_LCH_5745MHz_Ant1_NTNV



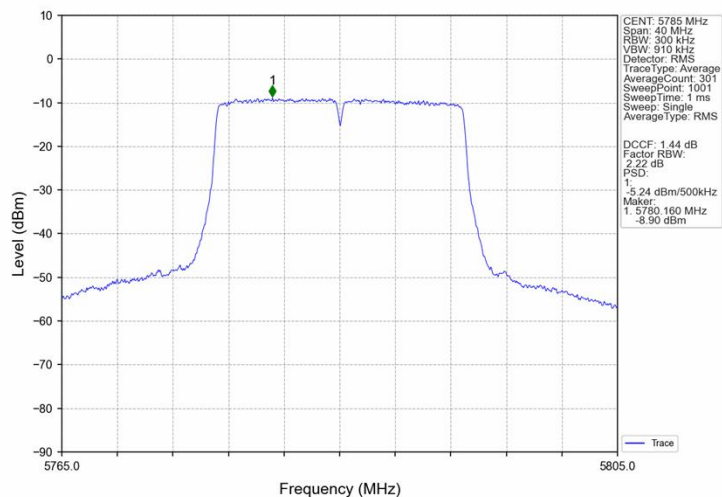
802.11n(HT20)_LCH_5745MHz_Ant2_NTNV



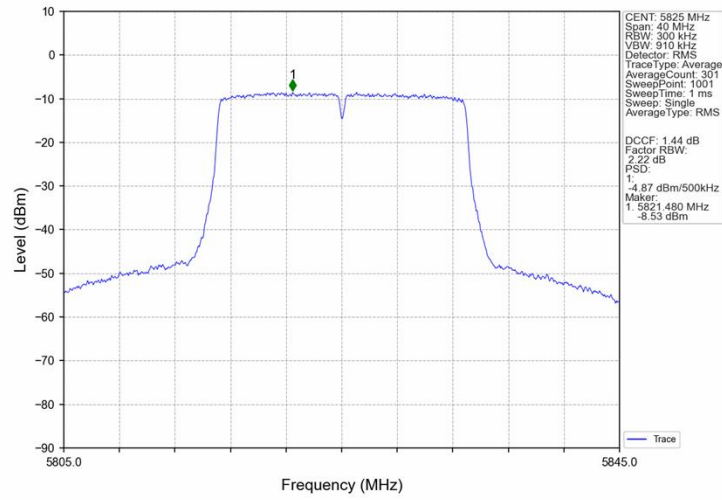
802.11n(HT20)_MCH_5785MHz_Ant1_NTNV



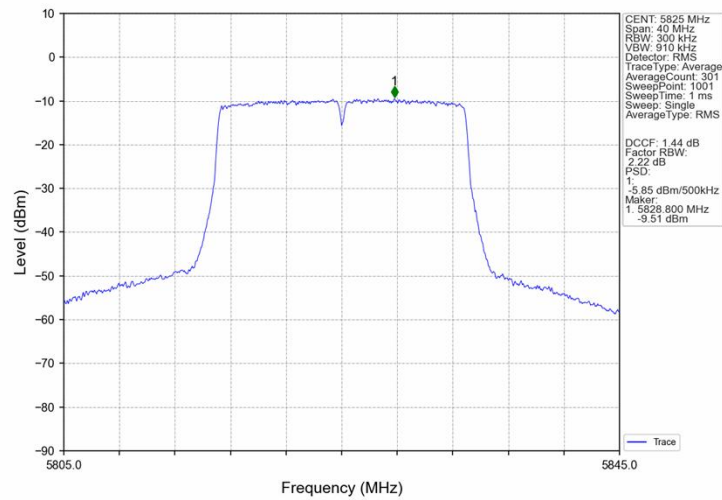
802.11n(HT20)_MCH_5785MHz_Ant2_NTNV



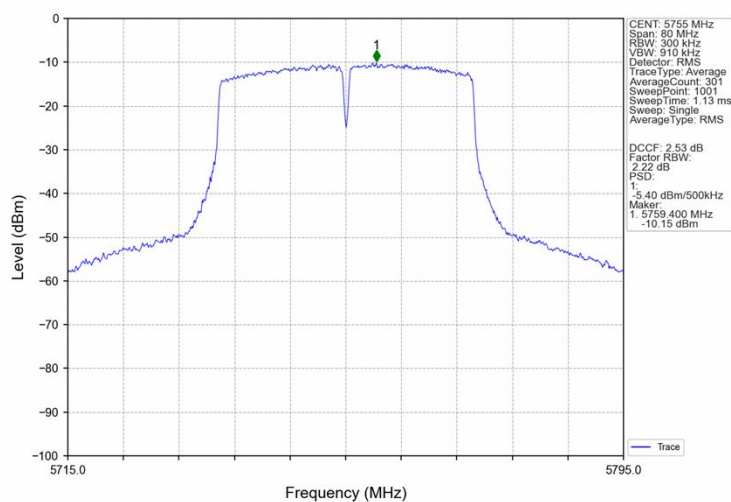
802.11n(HT20)_HCH_5825MHz_Ant1_NTNV



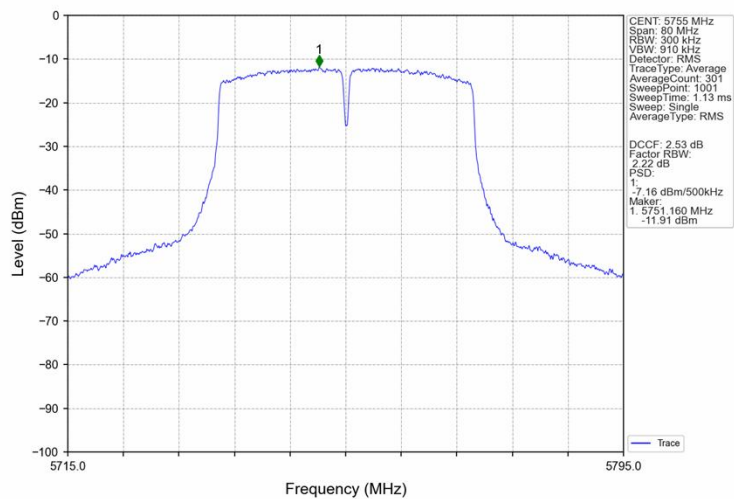
802.11n(HT20)_HCH_5825MHz_Ant2_NTNV



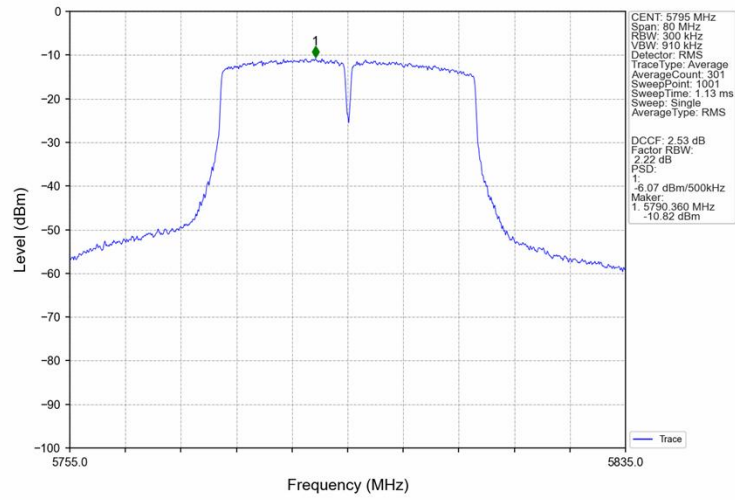
802.11n(HT40)_LCH_5755MHz_Ant1_NTNV



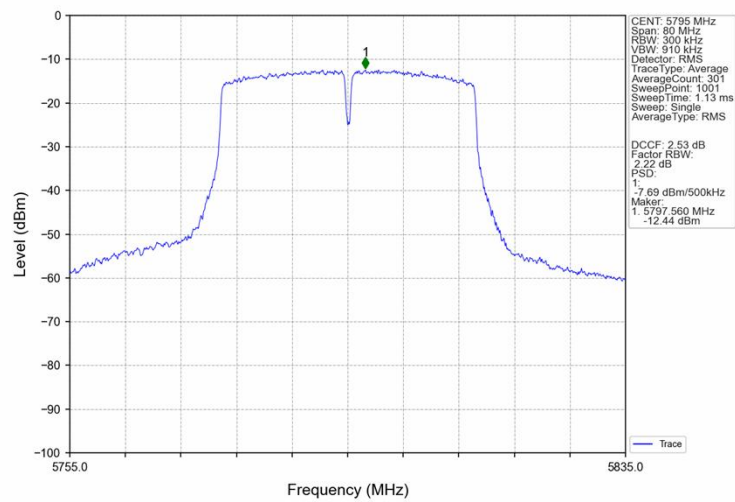
802.11n(HT40)_LCH_5755MHz_Ant2_NTNV



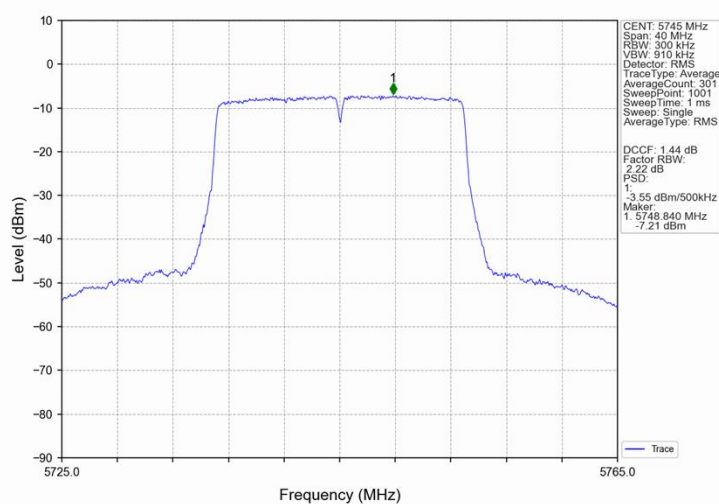
802.11n(HT40)_HCH_5795MHz_Ant1_NTNV



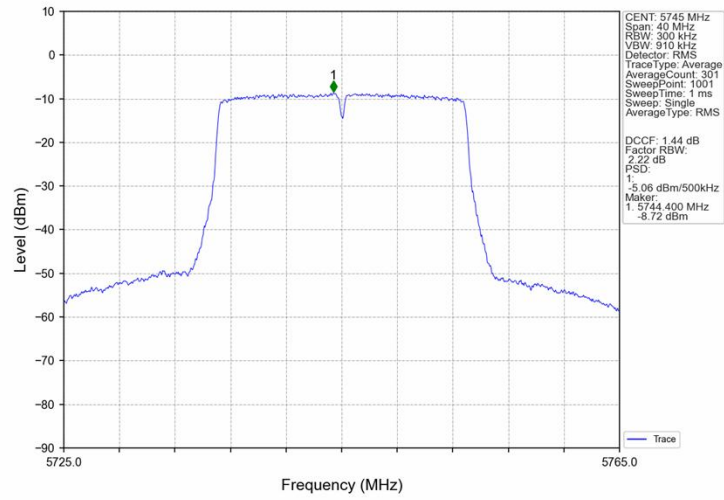
802.11n(HT40)_HCH_5795MHz_Ant2_NTNV



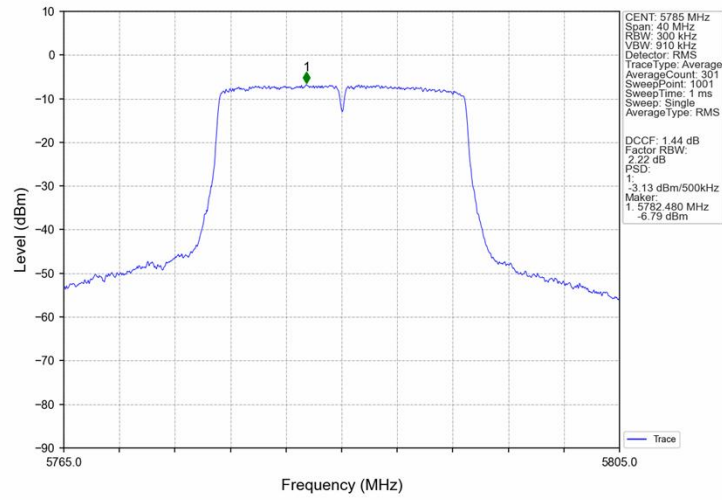
802.11ac(VHT20)_LCH_5745MHz_Ant1_NTNV



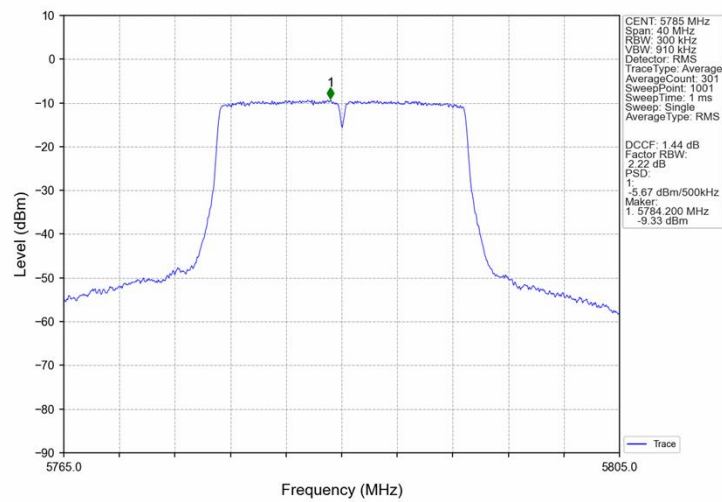
802.11ac(VHT20)_LCH_5745MHz_Ant2_NTNV



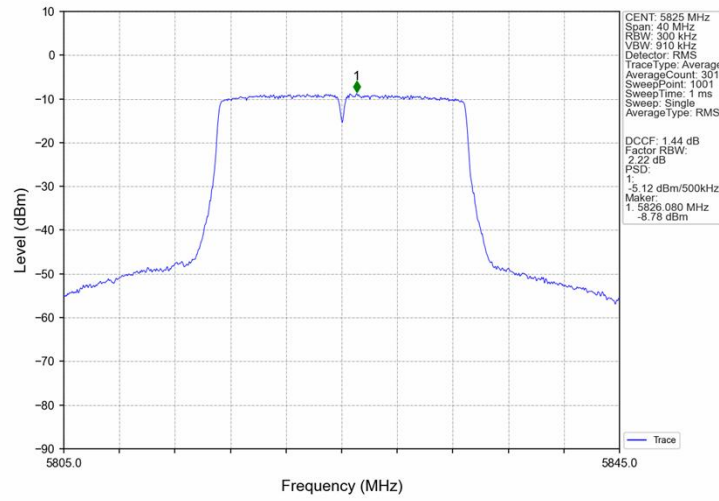
802.11ac(VHT20)_MCH_5785MHz_Ant1_NTNV



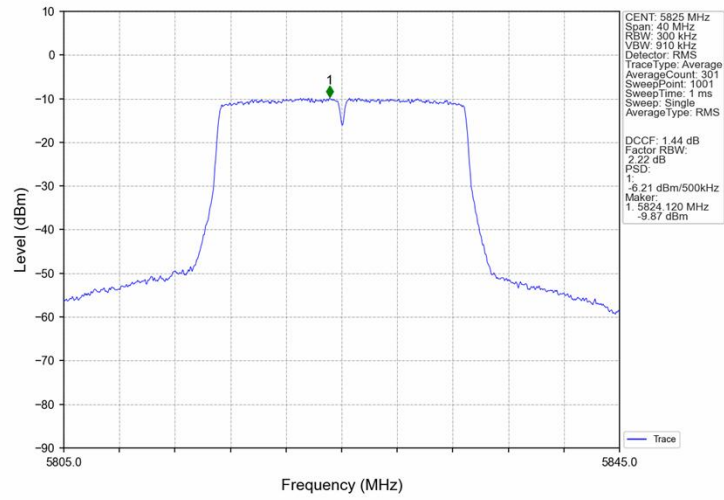
802.11ac(VHT20)_MCH_5785MHz_Ant2_NTNV



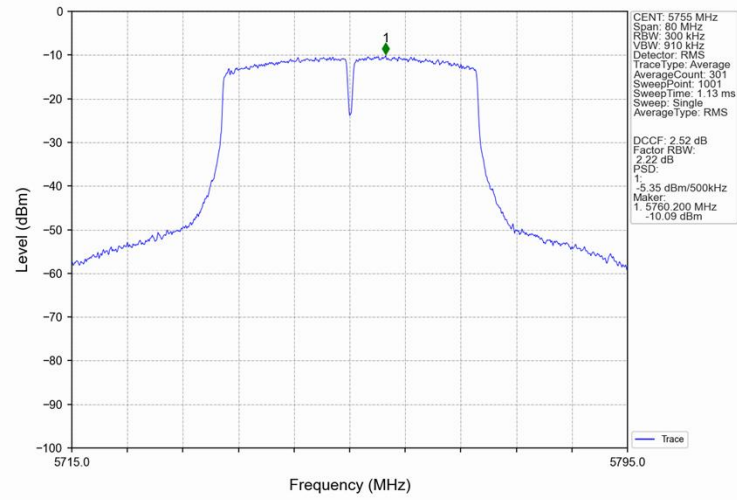
802.11ac(VHT20)_HCH_5825MHz_Ant1_NTNV



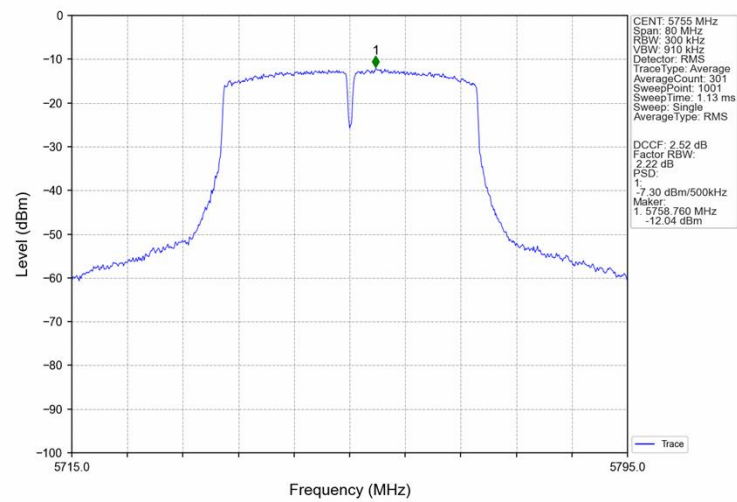
802.11ac(VHT20)_HCH_5825MHz_Ant2_NTNV



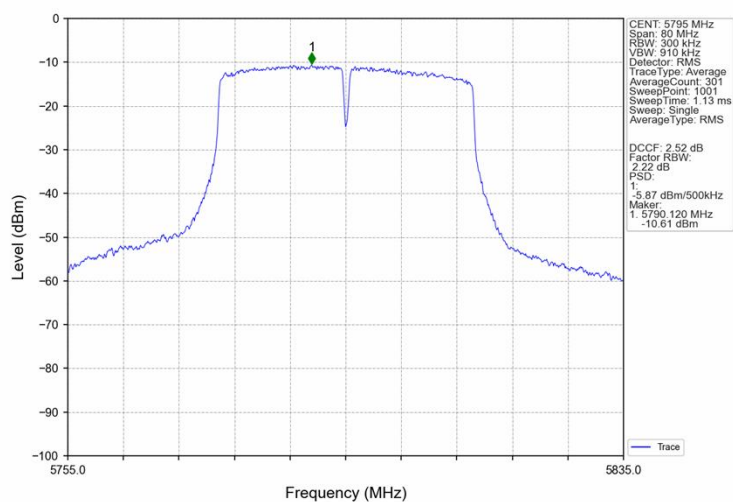
802.11ac(VHT40)_LCH_5755MHz_Ant1_NTNV



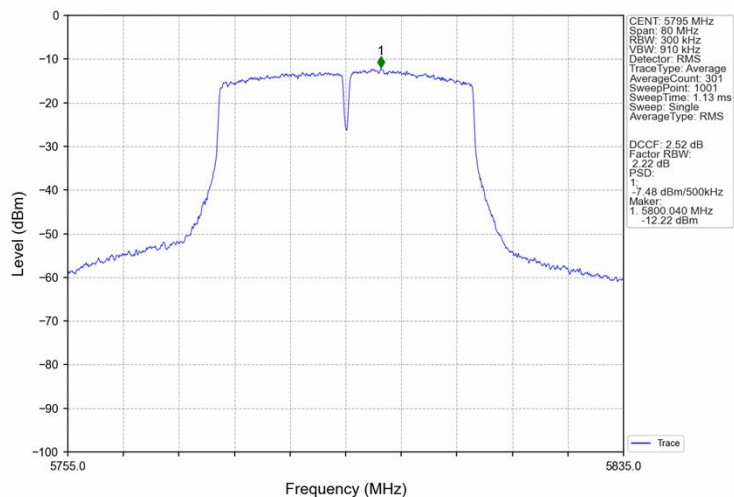
802.11ac(VHT40)_LCH_5755MHz_Ant2_NTNV



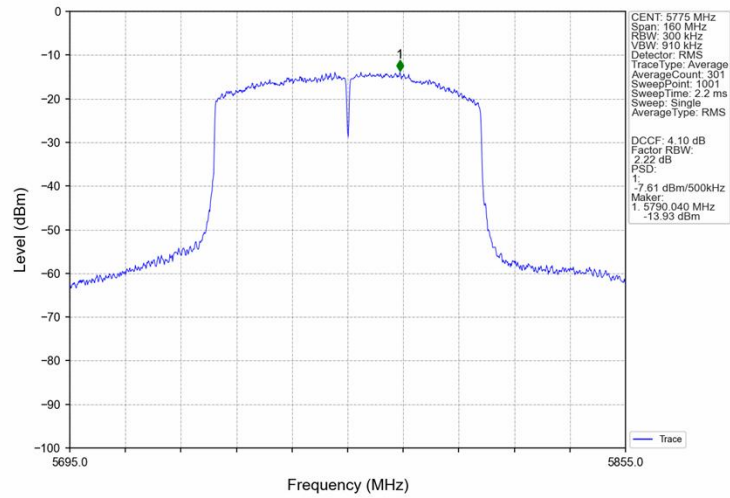
802.11ac(VHT40)_HCH_5795MHz_Ant1_NTNV



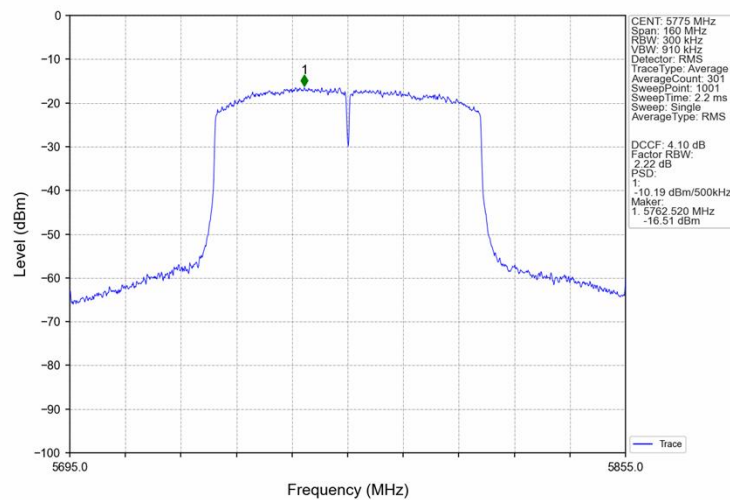
802.11ac(VHT40)_HCH_5795MHz_Ant2_NTNV



802.11ac(VHT80)_MCH_5775MHz_Ant1_NTNV



802.11ac(VHT80)_MCH_5775MHz_Ant2_NTNV



5. Frequency Stability

5.1 Test Result

5.1.1 Ant1

Ant1							
Mode	TX Type	Frequency (MHz)	Temperature (°C)	Voltage (VAC)	Measured Frequency (MHz)	Limit (MHz)	Verdict
Carrier Wave	SISO	5745	20	102	5744.986	5725 to 5850	Pass
				120	5744.986	5725 to 5850	Pass
				138	5744.986	5725 to 5850	Pass
			-30	120	5744.986	5725 to 5850	Pass
			-20	120	5744.986	5725 to 5850	Pass
			-10	120	5744.986	5725 to 5850	Pass
			0	120	5744.986	5725 to 5850	Pass
			10	120	5744.986	5725 to 5850	Pass
			30	120	5744.986	5725 to 5850	Pass
			40	120	5744.985	5725 to 5850	Pass
			50	120	5744.985	5725 to 5850	Pass
		5785	20	102	5784.985	5725 to 5850	Pass
				120	5784.985	5725 to 5850	Pass
				138	5784.984	5725 to 5850	Pass
			-30	120	5784.984	5725 to 5850	Pass
			-20	120	5784.984	5725 to 5850	Pass
			-10	120	5784.984	5725 to 5850	Pass
			0	120	5784.984	5725 to 5850	Pass
			10	120	5784.984	5725 to 5850	Pass
			30	120	5784.984	5725 to 5850	Pass
			40	120	5784.984	5725 to 5850	Pass
			50	120	5784.984	5725 to 5850	Pass
		5825	20	102	5824.983	5725 to 5850	Pass
				120	5824.983	5725 to 5850	Pass
				138	5824.983	5725 to 5850	Pass
			-30	120	5824.982	5725 to 5850	Pass
			-20	120	5824.982	5725 to 5850	Pass
			-10	120	5824.982	5725 to 5850	Pass
			0	120	5824.982	5725 to 5850	Pass
			10	120	5824.982	5725 to 5850	Pass
			30	120	5824.982	5725 to 5850	Pass
			40	120	5824.982	5725 to 5850	Pass
			50	120	5824.982	5725 to 5850	Pass

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