ANNEX G TEST DATA

For

Project No.:	8230EU012401W
Client:	Guangzhou Munbyn Information Technology Co, Ltd.
Product Name:	Android Barcode Scanner
Model No.:	IPDA099
FCC ID:	2A8JV-IPDA099
Technology:	WiFi 5G
Test Engineer:	Mikey zhu
Test Date:	2024-06-28

Test Summary

Item	Result
Duty Cycle	Pass
Bandwidth	Pass
Maximum Conducted Output Power	Pass
Maximum Power Spectral Density	Pass
Frequency Stability	Pass

1. Duty Cycle

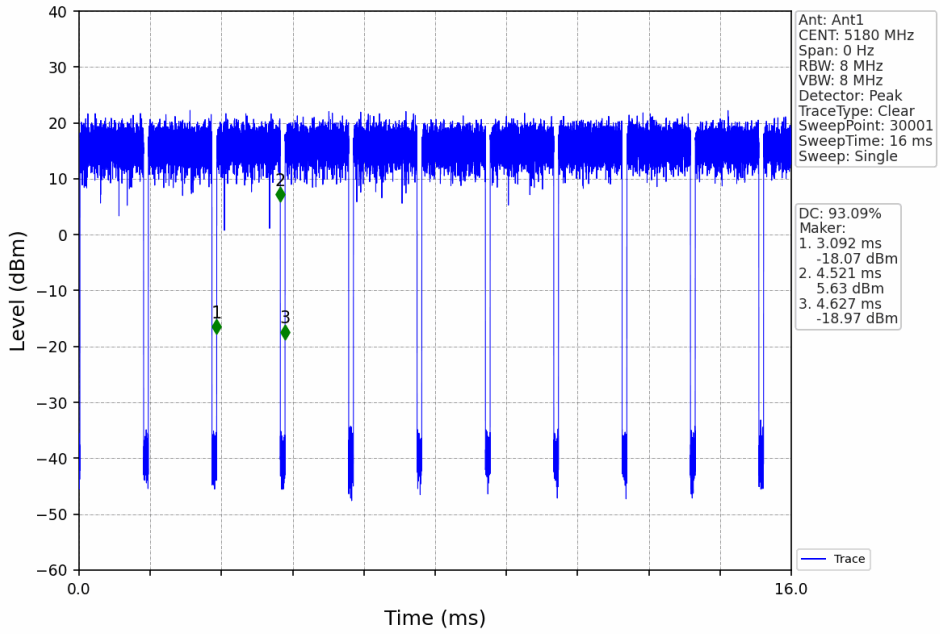
1.1 Ant1

1.1.1 Test Result

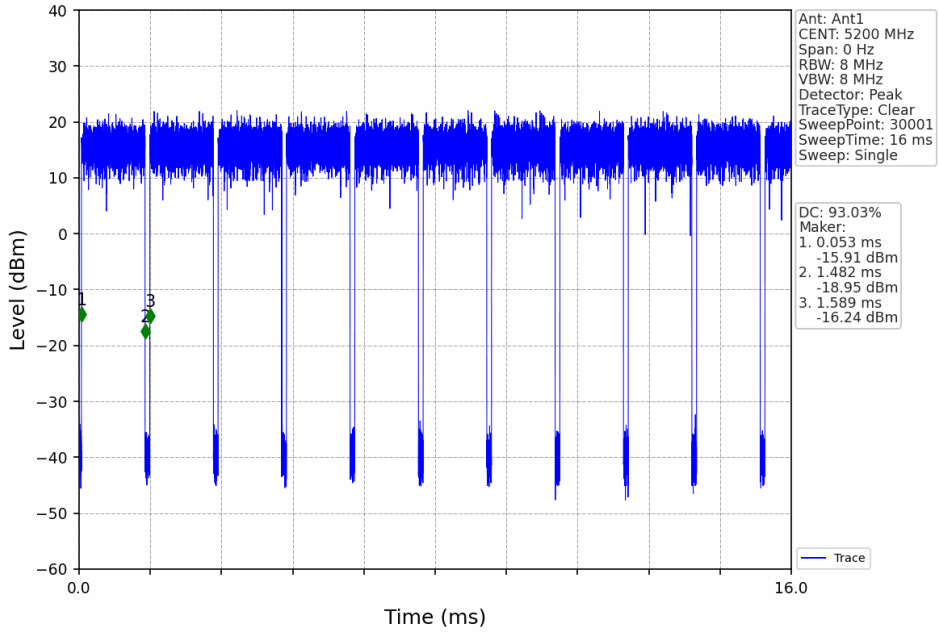
Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11a	SISO	5180	1.429	1.535	93.09	0.31	0.03
		5200	1.429	1.536	93.03	0.31	0.16
		5240	1.430	1.554	92.02	0.36	2.17
		5745	1.429	1.922	74.35	1.29	23.42
		5785	1.429	1.563	91.43	0.39	3.30
		5825	1.429	1.554	91.96	0.36	2.17
802.11n (HT20)	SISO	5180	1.212	1.470	82.45	0.84	15.23
		5200	1.207	1.314	91.86	0.37	0.66
		5240	1.207	1.314	91.86	0.37	0.03
		5745	1.207	1.630	74.05	1.30	19.13
		5785	1.207	1.437	83.99	0.76	11.89
		5825	1.207	1.332	90.62	0.43	2.55
802.11ac (VHT20)	SISO	5180	1.214	1.330	91.28	0.40	1.92
		5200	1.215	1.330	91.35	0.39	1.94
		5240	1.215	1.330	91.35	0.39	1.88
		5745	1.220	1.330	91.73	0.37	5.97
		5785	1.214	1.330	91.28	0.40	1.90
		5825	1.215	1.331	91.28	0.40	1.92

1.1.2 Test Graph

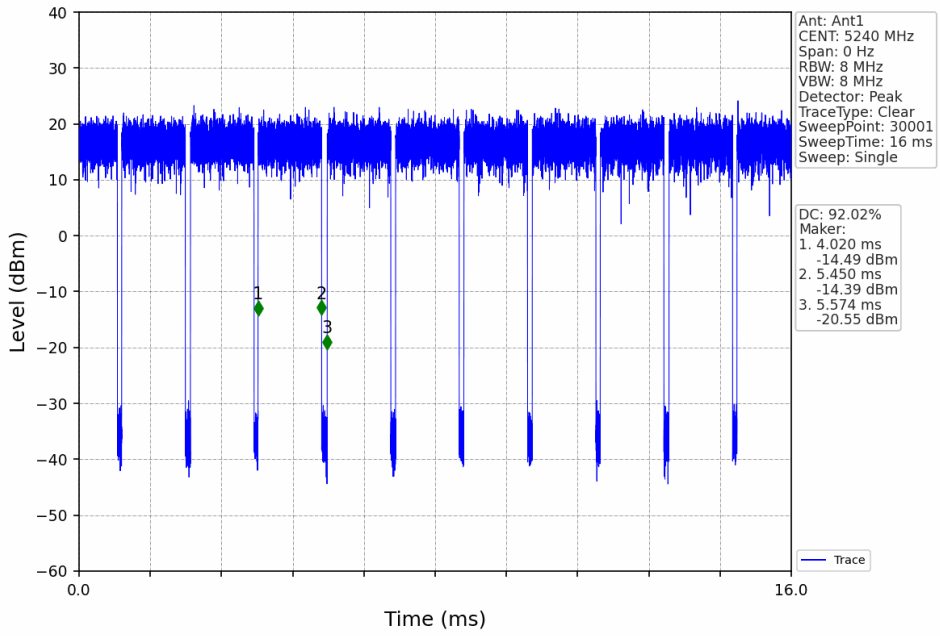
802.11a_LCH_5180MHz_Ant1_NTNV



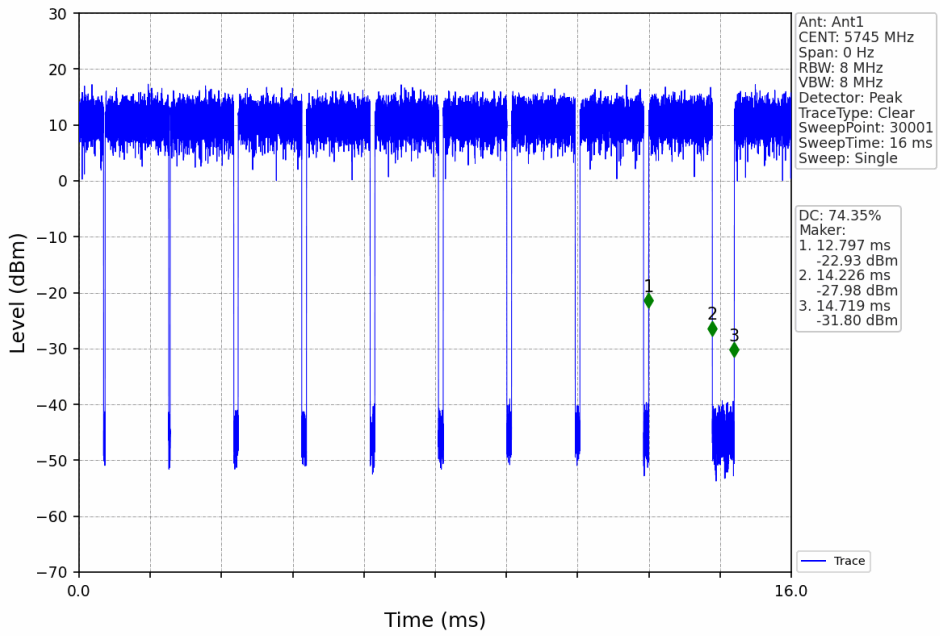
802.11a_MCH_5200MHz_Ant1_NTNV



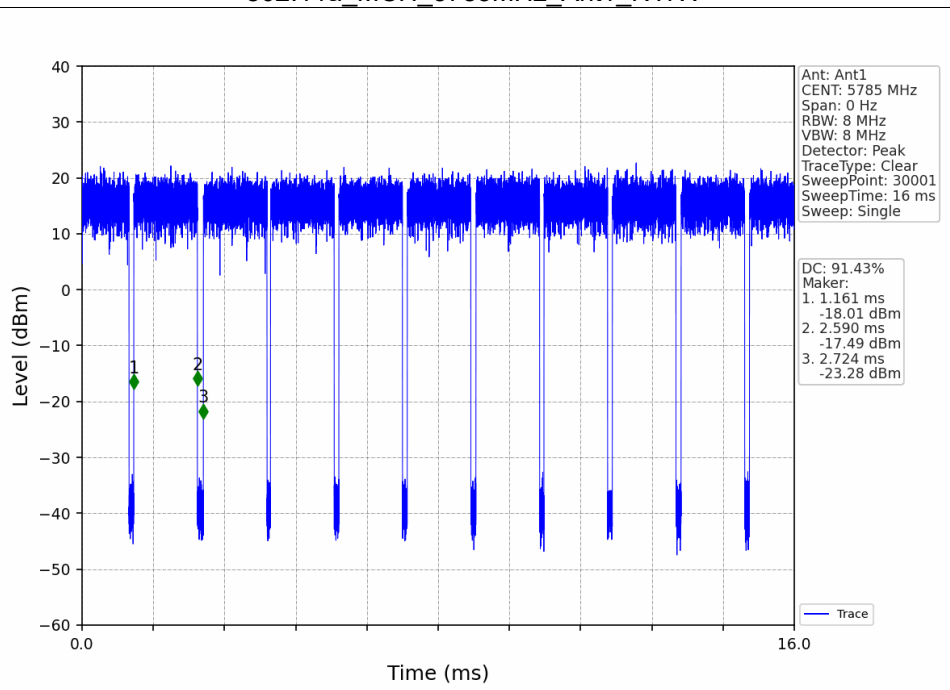
802.11a_HCH_5240MHz_Ant1_NTNV



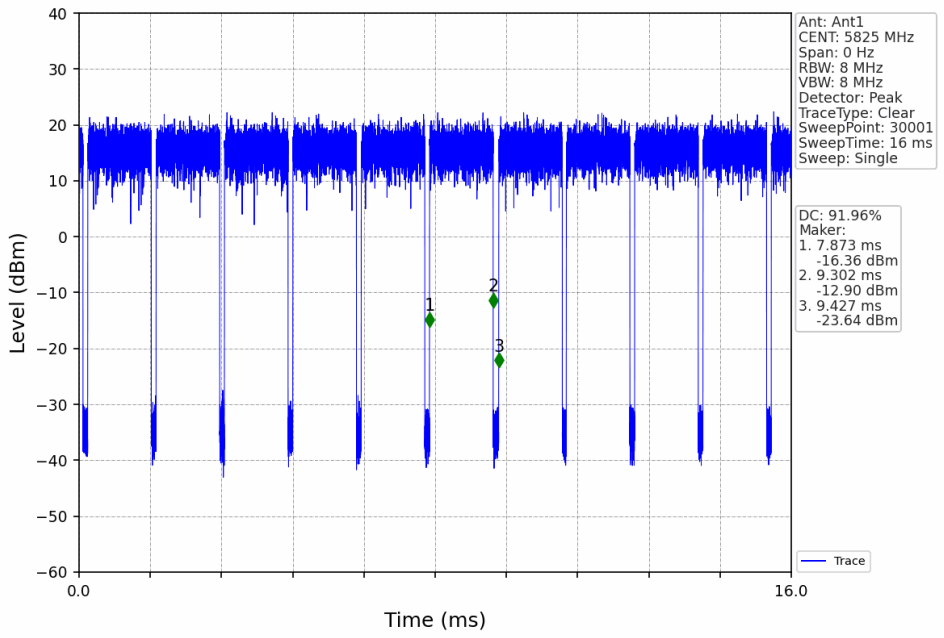
802.11a_LCH_5745MHz_Ant1_NTNV



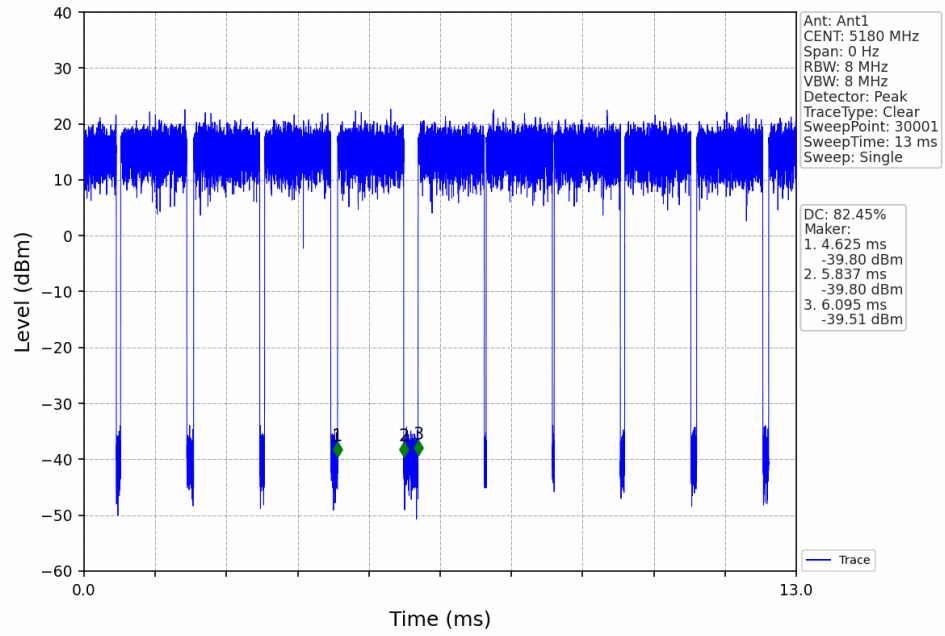
802.11a_MCH_5785MHz_Ant1_NTNV



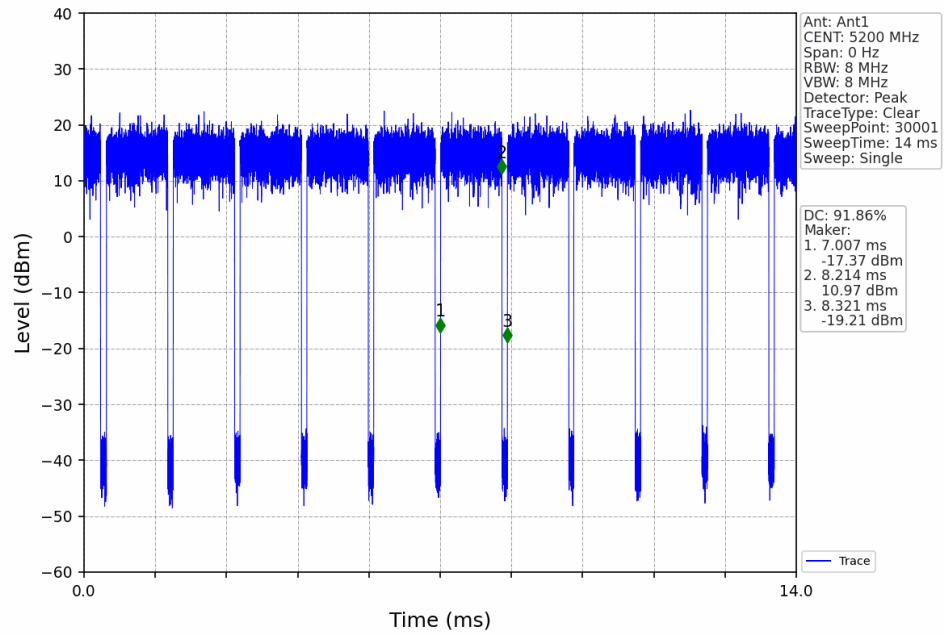
802.11a_HCH_5825MHz_Ant1_NTNV



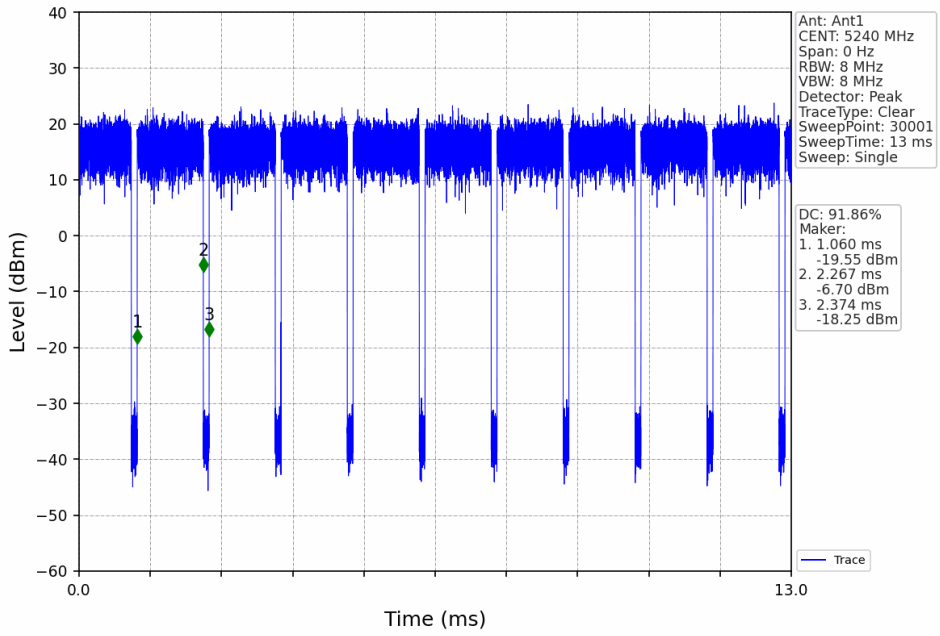
802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



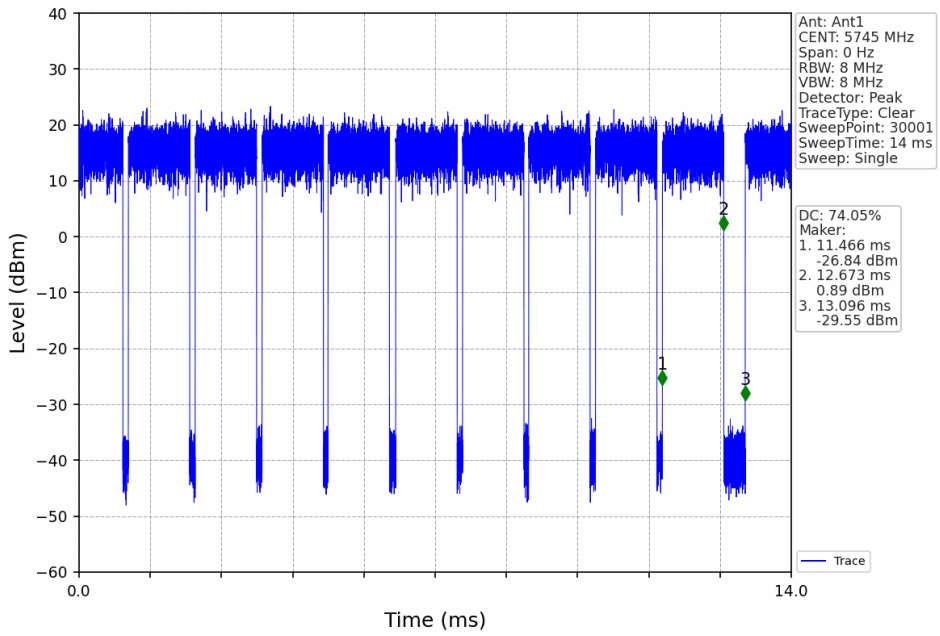
802.11n(HT20)_MCH_5200MHz_Ant1_NTNV



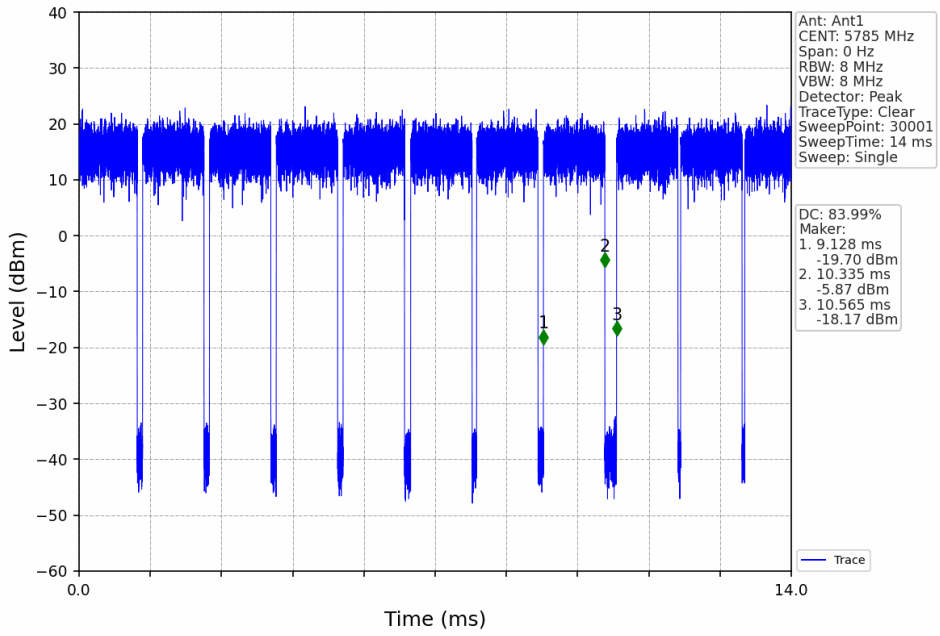
802.11n(HT20)_HCH_5240MHz_Ant1_NTNV



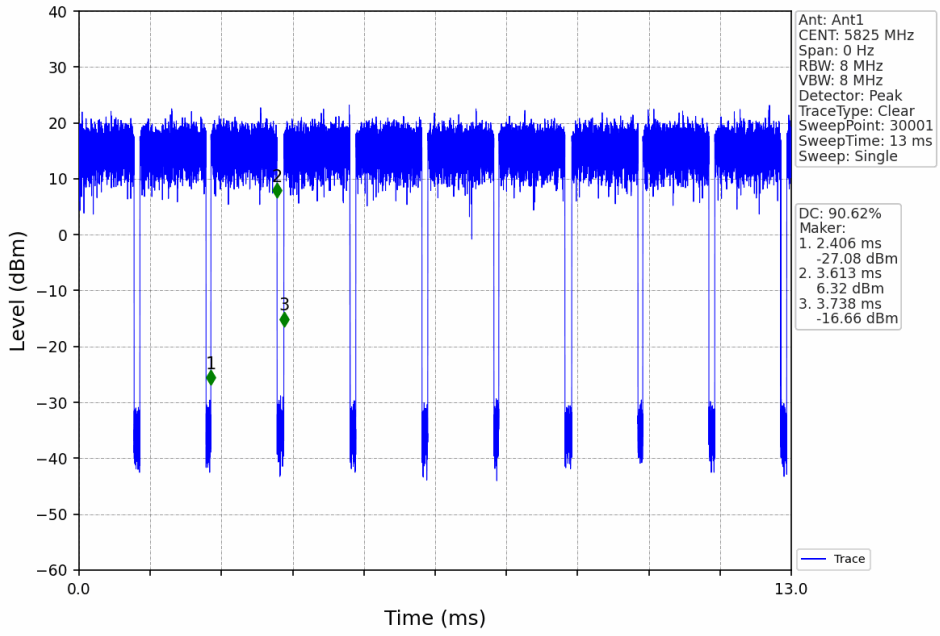
802.11n(HT20)_LCH_5745MHz_Ant1_NTNV



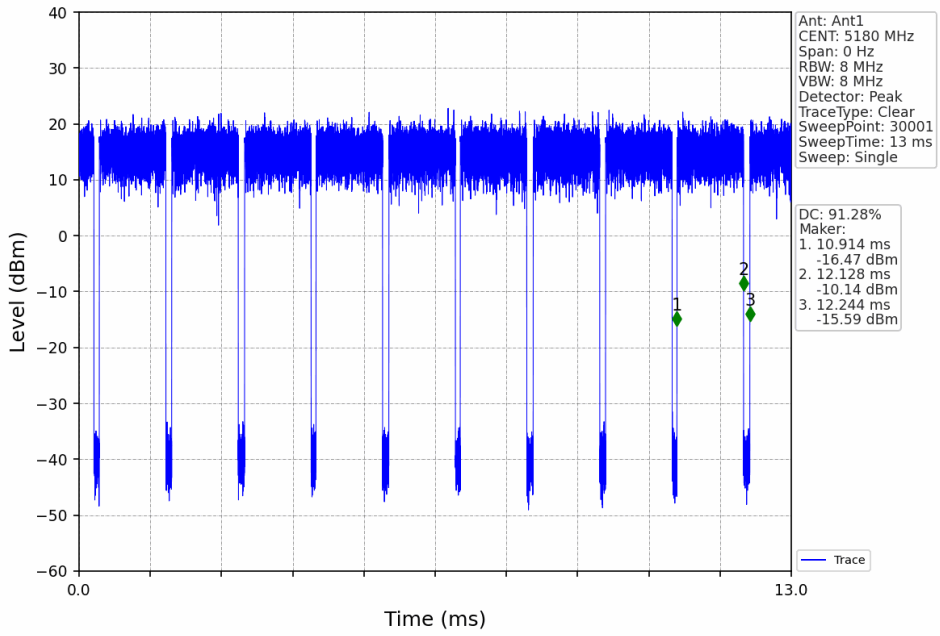
802.11n(HT20)_MCH_5785MHz_Ant1_NTNV



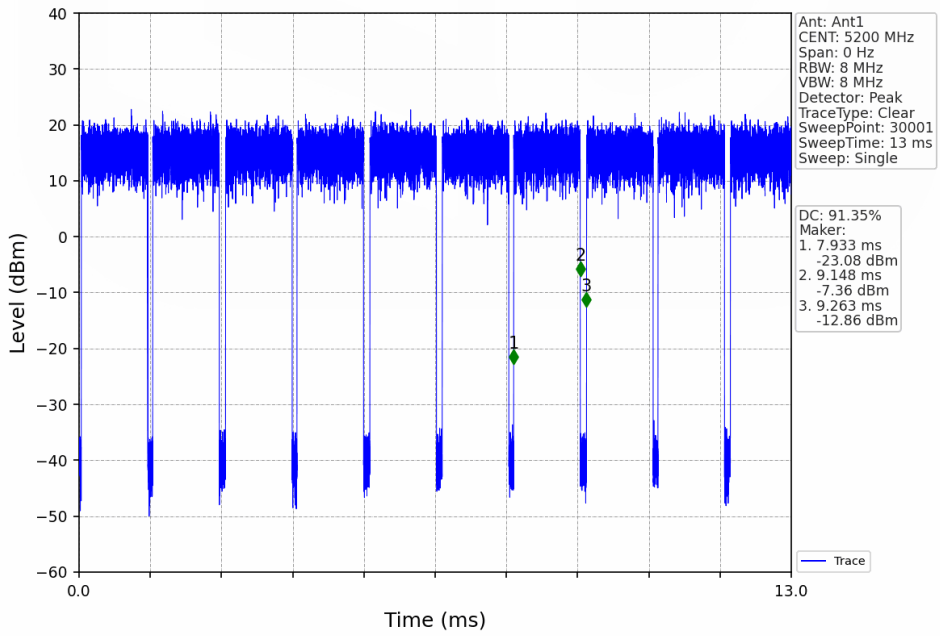
802.11n(HT20)_HCH_5825MHz_Ant1_NTNV



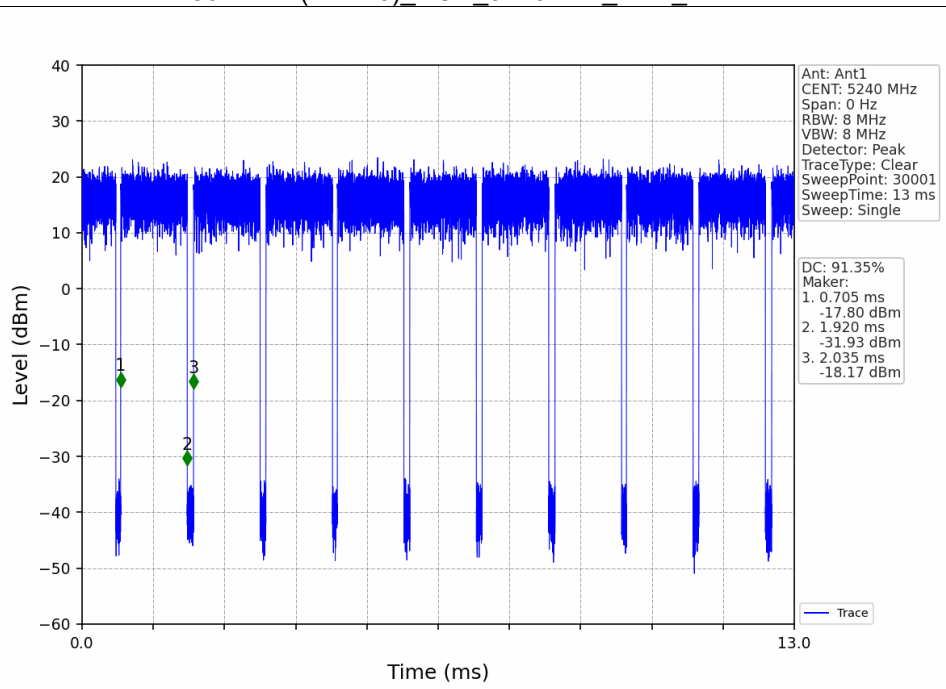
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



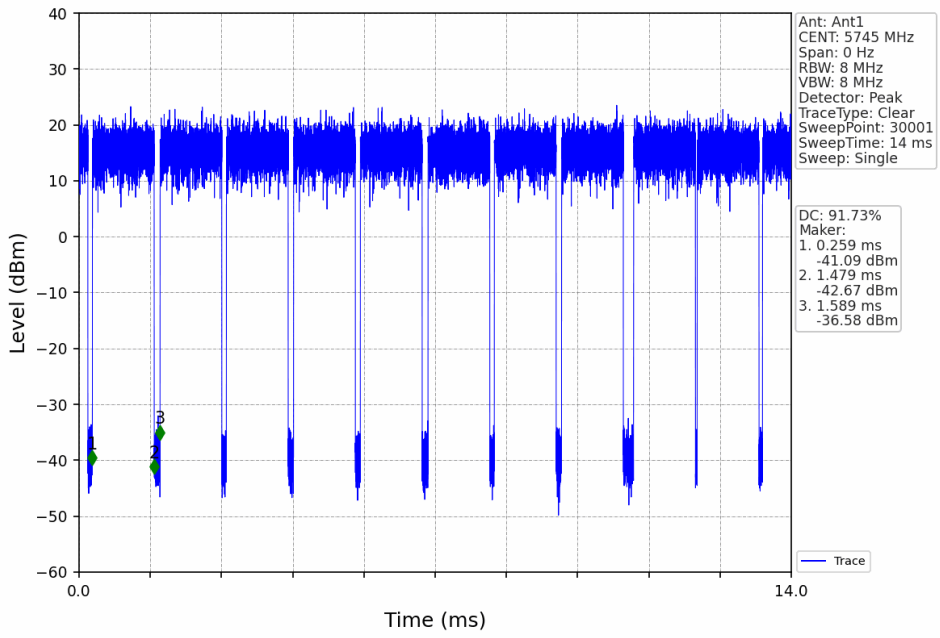
802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV



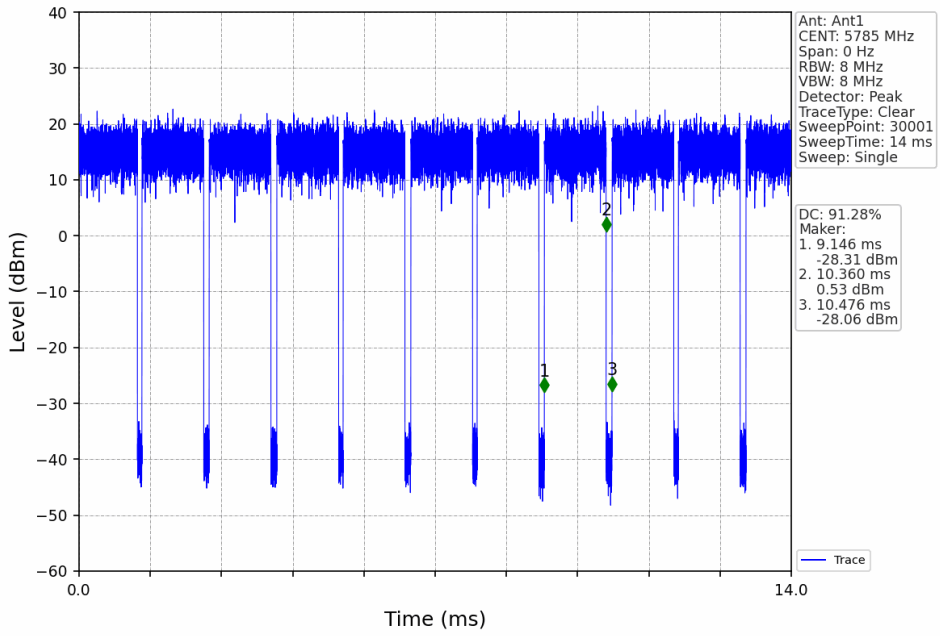
802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV



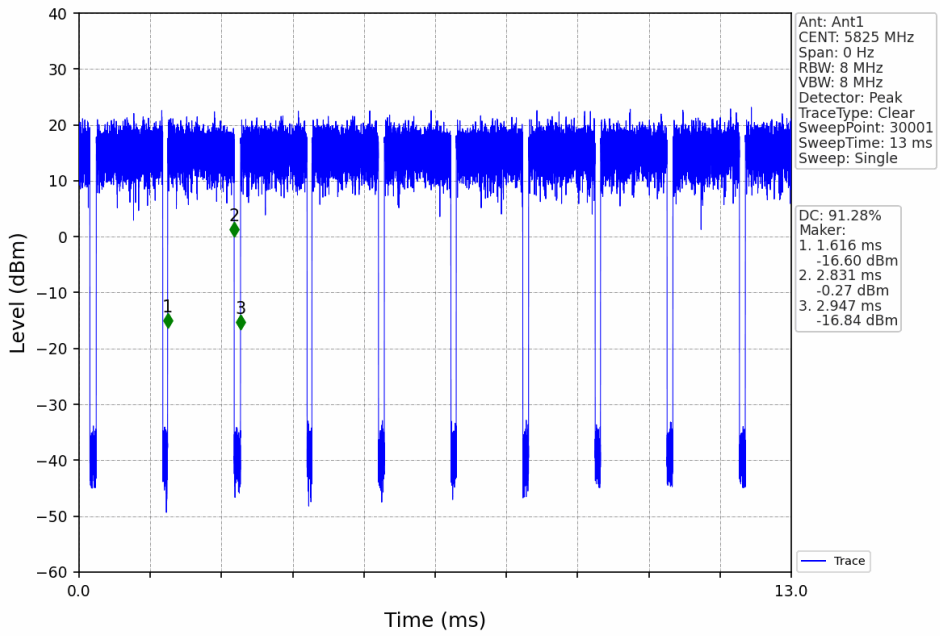
802.11ac(VHT20)_LCH_5745MHz_Ant1_NTNV



802.11ac(VHT20)_MCH_5785MHz_Ant1_NTNV



802.11ac(VHT20)_HCH_5825MHz_Ant1_NTNV



2. Bandwidth

2.1 OBW

2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
802.11a	SISO	5180	1	18.295	/	Pass
		5200	1	18.329	/	Pass
		5240	1	18.323	/	Pass
		5745	1	18.252	/	Pass
		5785	1	18.262	/	Pass
		5825	1	18.198	/	Pass
802.11n (HT20)	SISO	5180	1	19.326	/	Pass
		5200	1	19.419	/	Pass
		5240	1	19.504	/	Pass
		5745	1	19.384	/	Pass
		5785	1	19.285	/	Pass
		5825	1	19.230	/	Pass
802.11ac (VHT20)	SISO	5180	1	19.235	/	Pass
		5200	1	19.430	/	Pass
		5240	1	19.507	/	Pass
		5745	1	19.292	/	Pass
		5785	1	19.346	/	Pass
		5825	1	19.333	/	Pass

2.2 6dB BW

2.2.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11a	SISO	5745	1	16.421	>=0.5	Pass
		5785	1	16.437	>=0.5	Pass
		5825	1	16.425	>=0.5	Pass
802.11n (HT20)	SISO	5745	1	17.716	>=0.5	Pass
		5785	1	17.703	>=0.5	Pass
		5825	1	17.701	>=0.5	Pass
802.11ac (VHT20)	SISO	5745	1	17.699	>=0.5	Pass
		5785	1	17.676	>=0.5	Pass
		5825	1	17.690	>=0.5	Pass

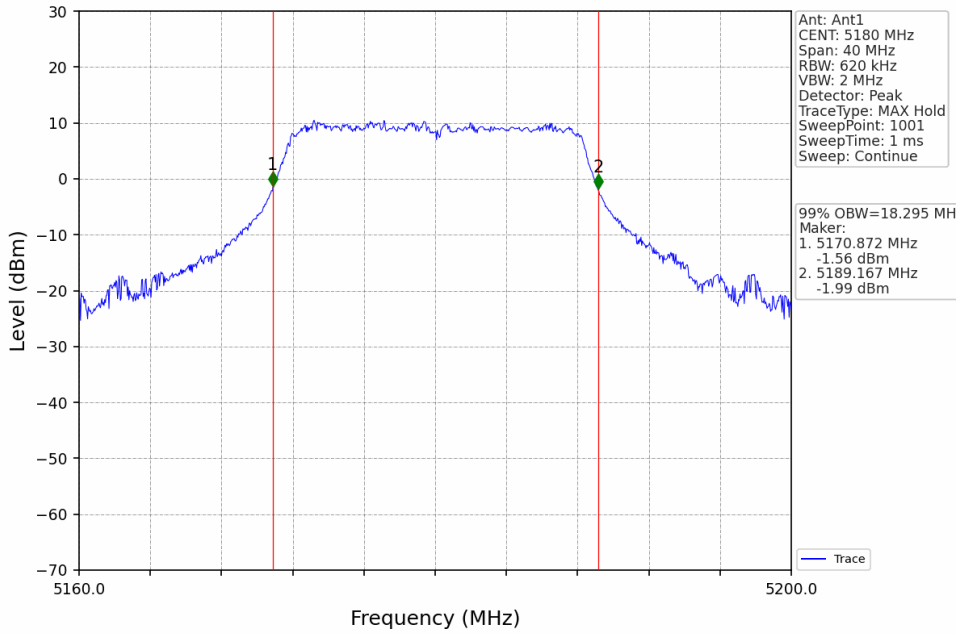
2.3 26dB BW

2.3.1 Test Result

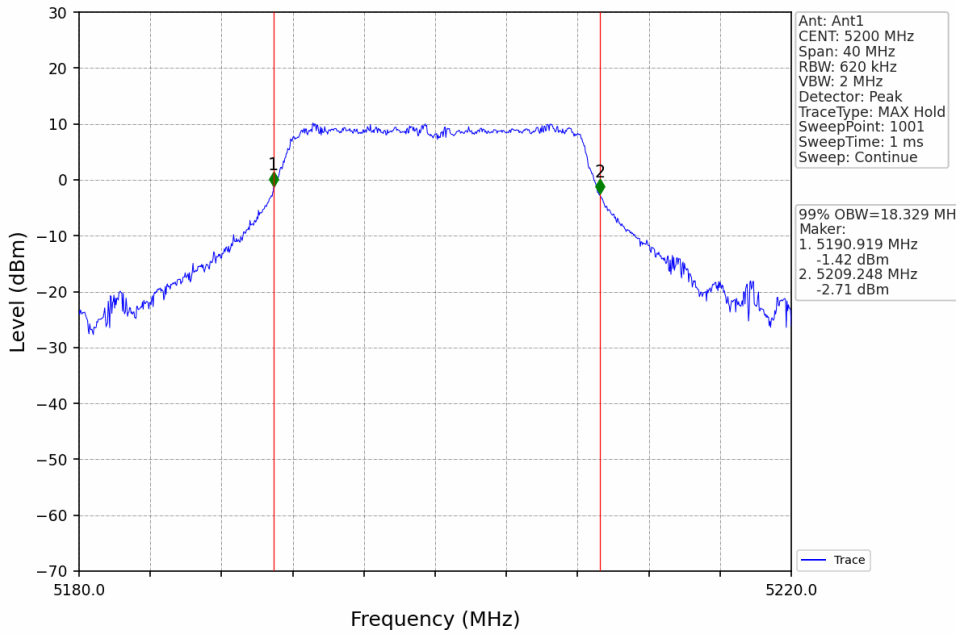
Mode	TX Type	Frequency (MHz)	ANT	26dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11a	SISO	5180	1	24.040	/	Pass
		5200	1	23.851	/	Pass
		5240	1	23.787	/	Pass
802.11n (HT20)	SISO	5180	1	28.300	/	Pass
		5200	1	30.102	/	Pass
		5240	1	30.196	/	Pass
802.11ac (VHT20)	SISO	5180	1	30.189	/	Pass
		5200	1	30.157	/	Pass
		5240	1	29.866	/	Pass

2.1.2 Test Graph

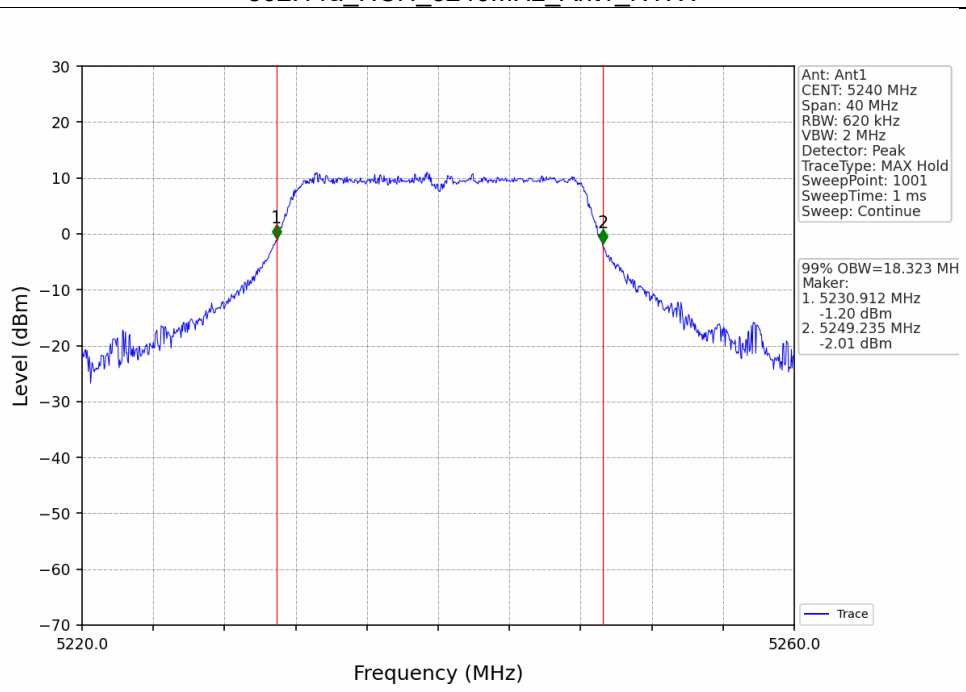
802.11a_LCH_5180MHz_Ant1_NTNV



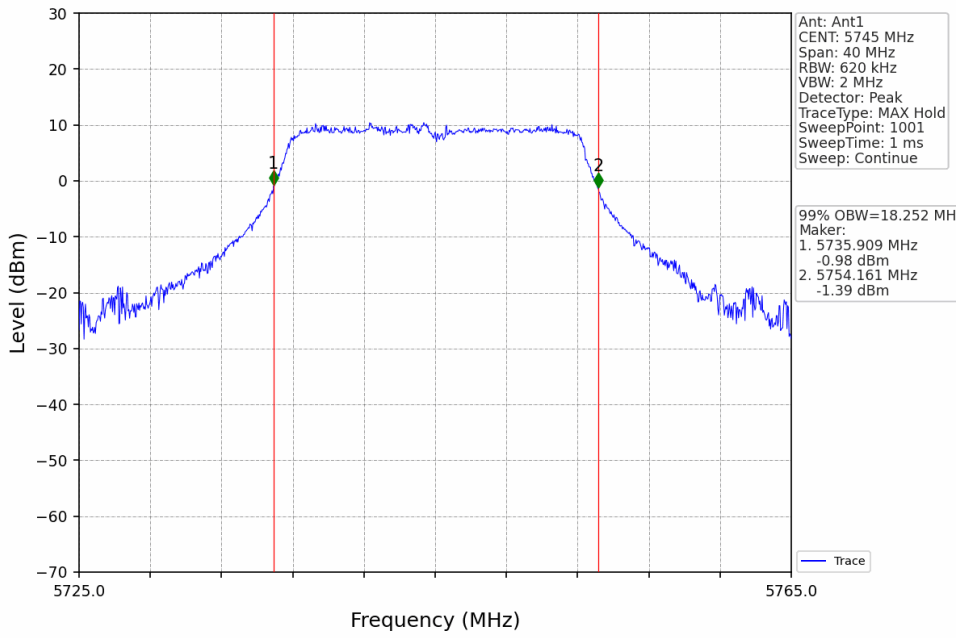
802.11a_MCH_5200MHz_Ant1_NTNV



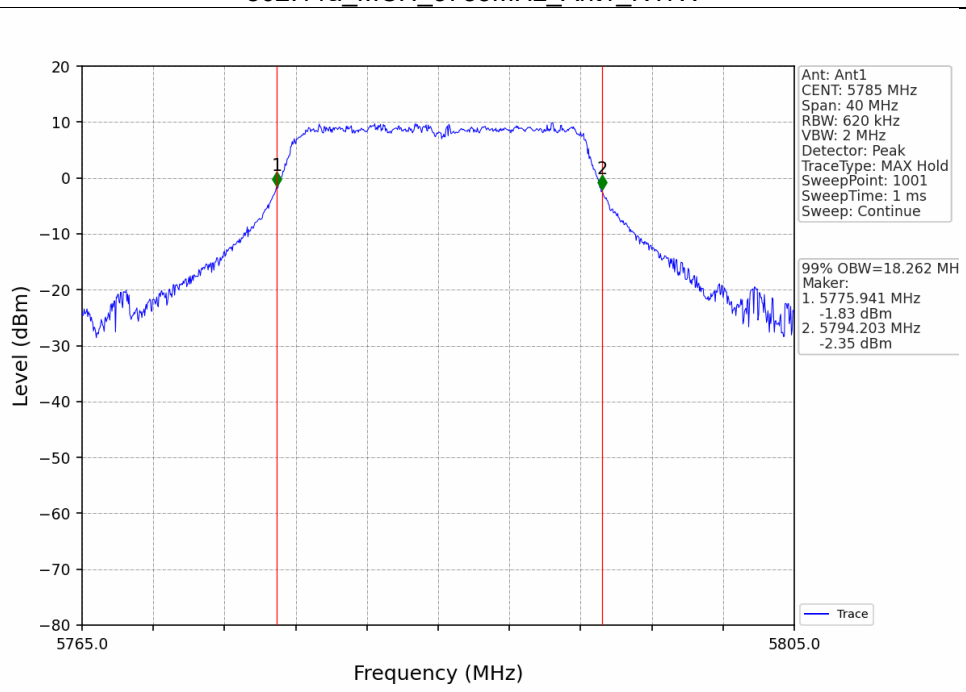
802.11a_HCH_5240MHz_Ant1_NTNV



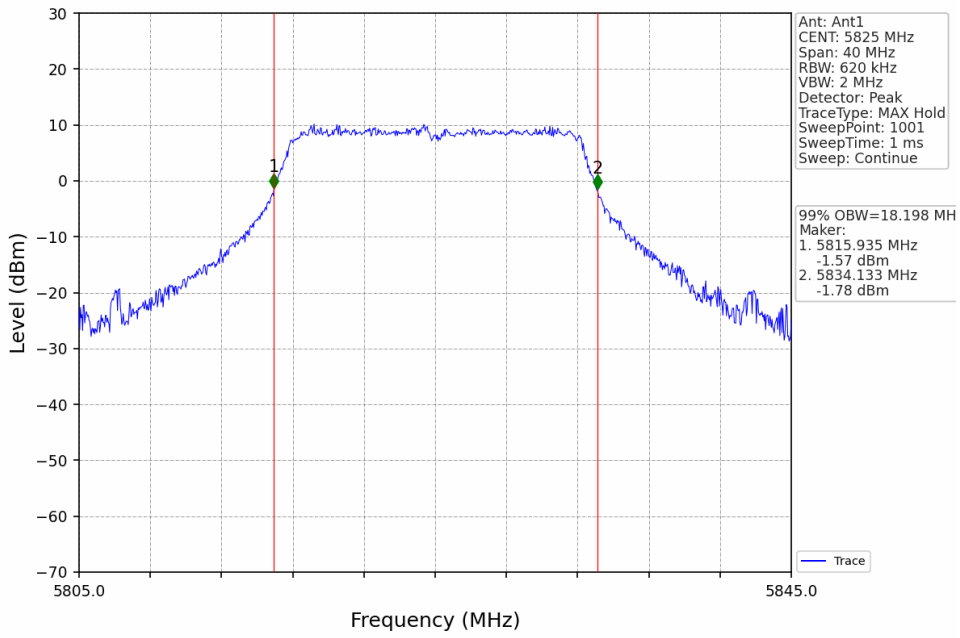
802.11a_LCH_5745MHz_Ant1_NTNV



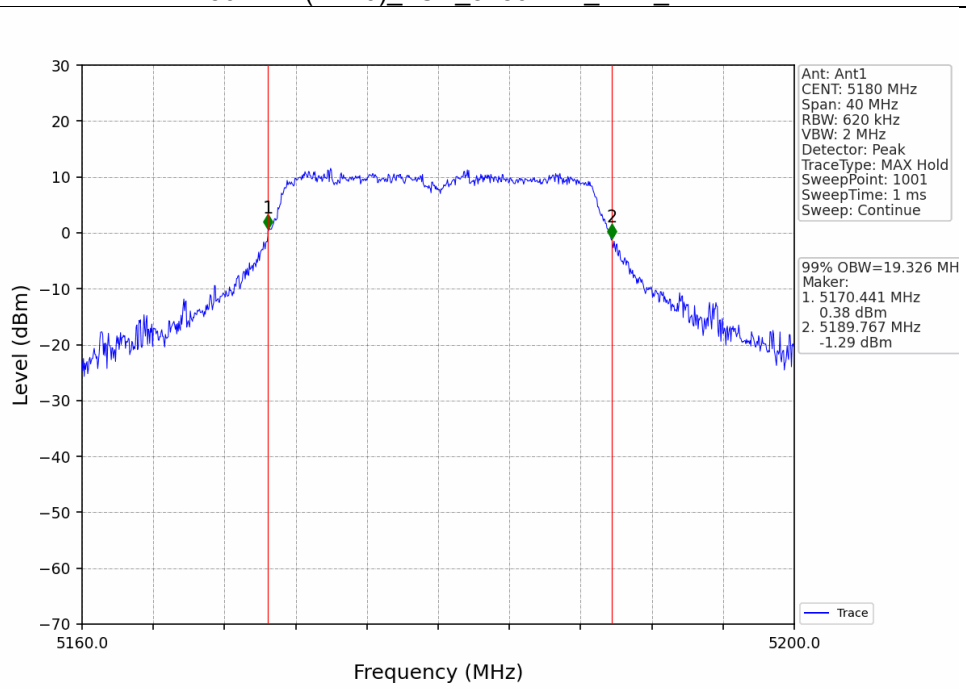
802.11a_MCH_5785MHz_Ant1_NTNV



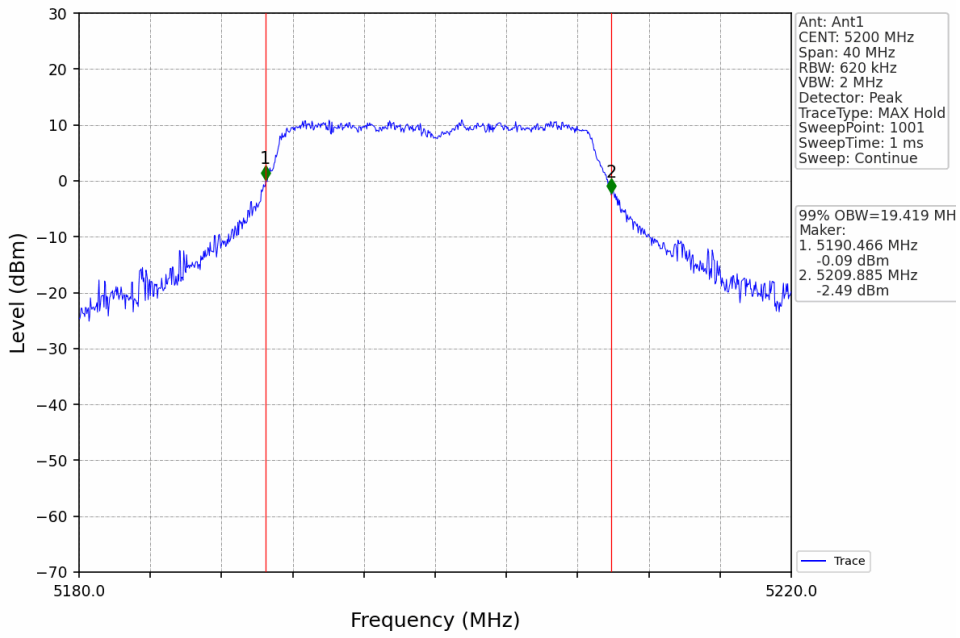
802.11a_HCH_5825MHz_Ant1_NTNV



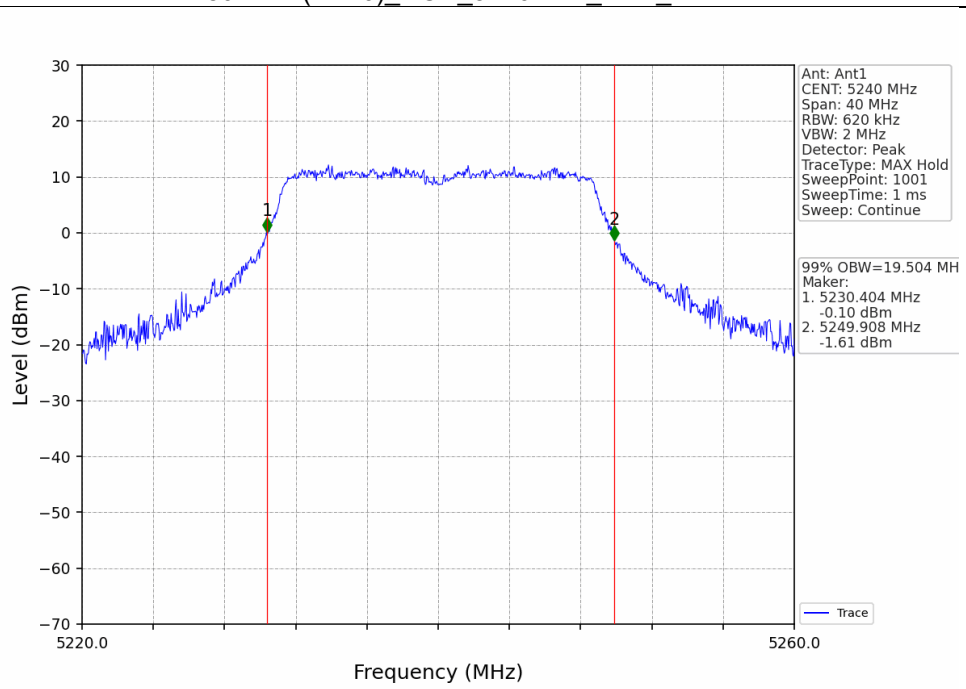
802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



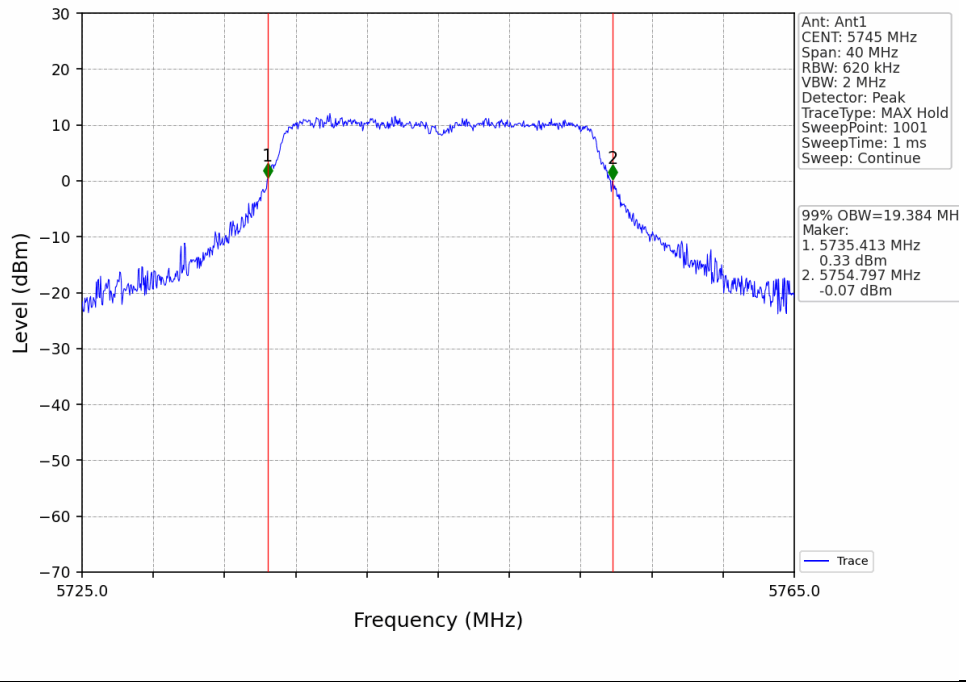
802.11n(HT20)_MCH_5200MHz_Ant1_NTNV



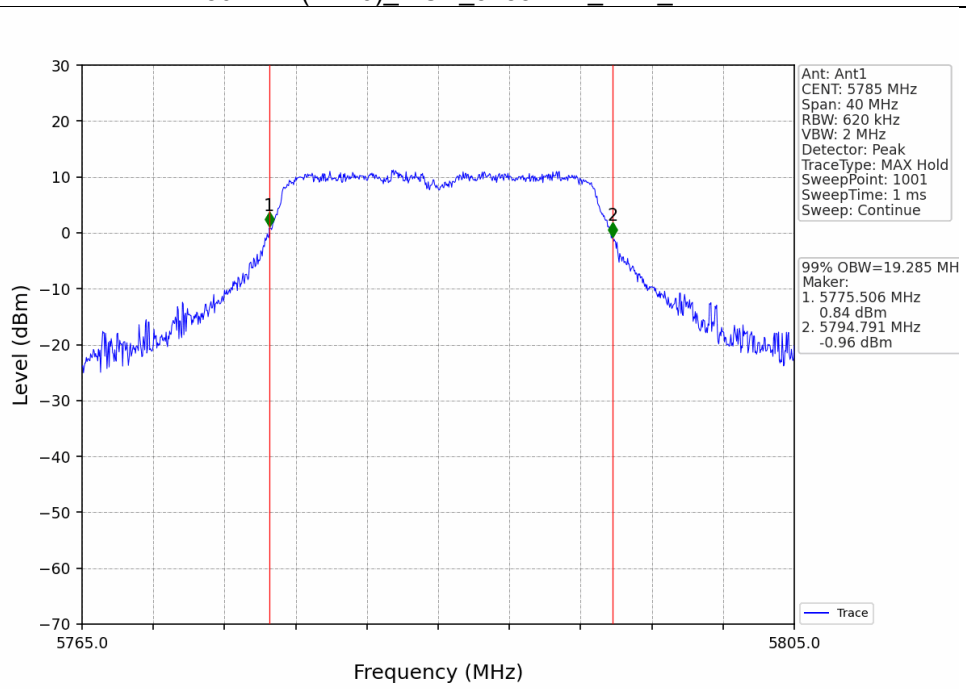
802.11n(HT20)_HCH_5240MHz_Ant1_NTNV



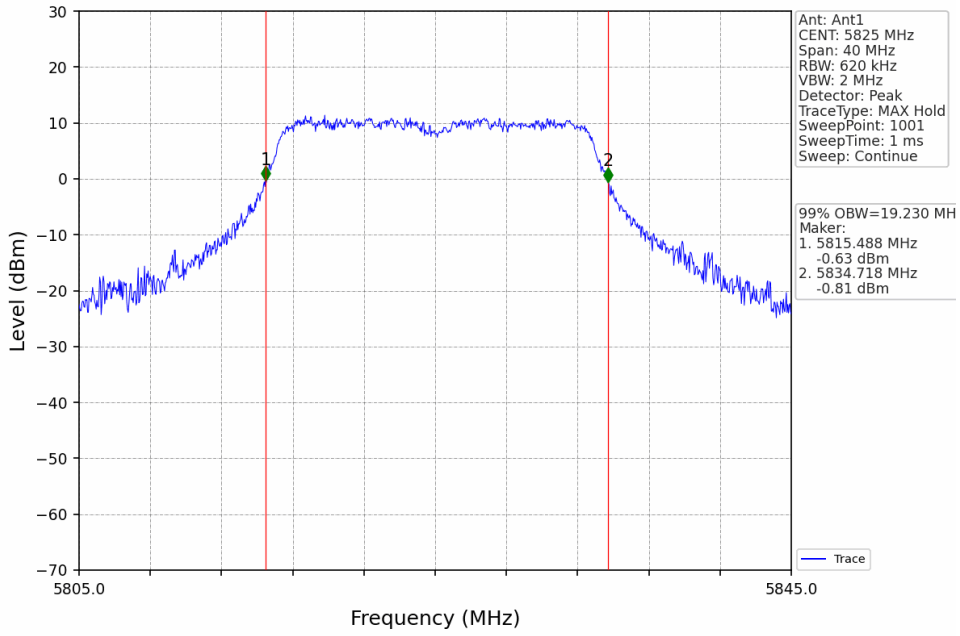
802.11n(HT20)_LCH_5745MHz_Ant1_NTNV



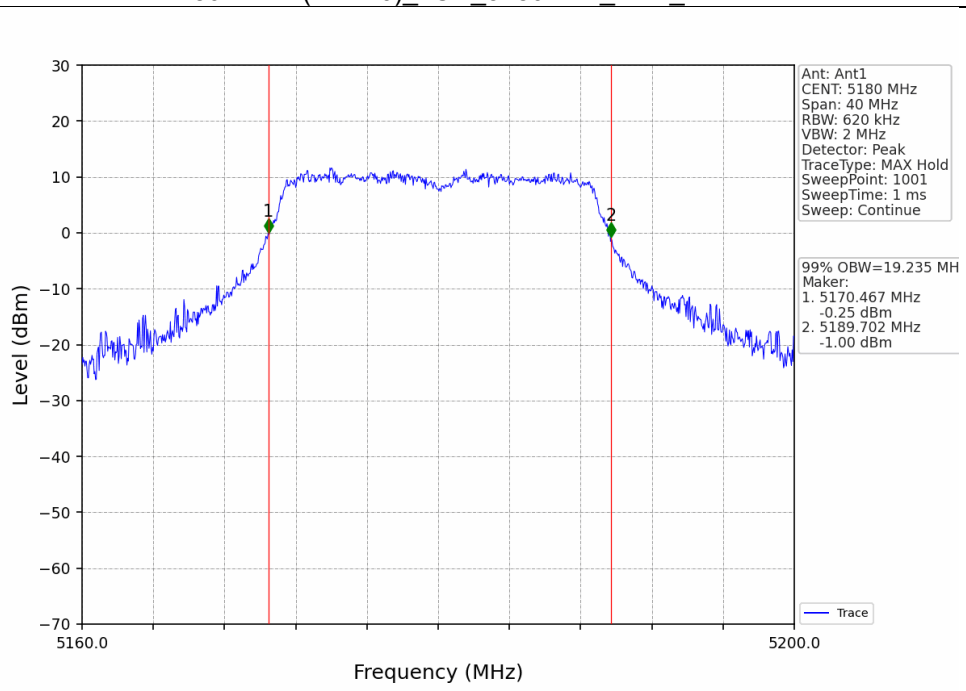
802.11n(HT20)_MCH_5785MHz_Ant1_NTNV



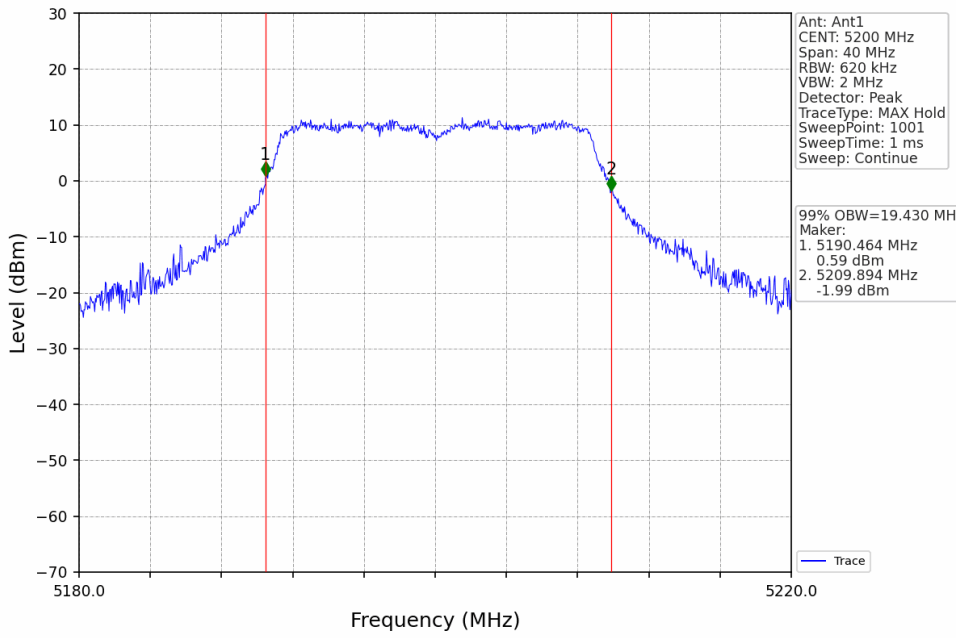
802.11n(HT20)_HCH_5825MHz_Ant1_NTNV



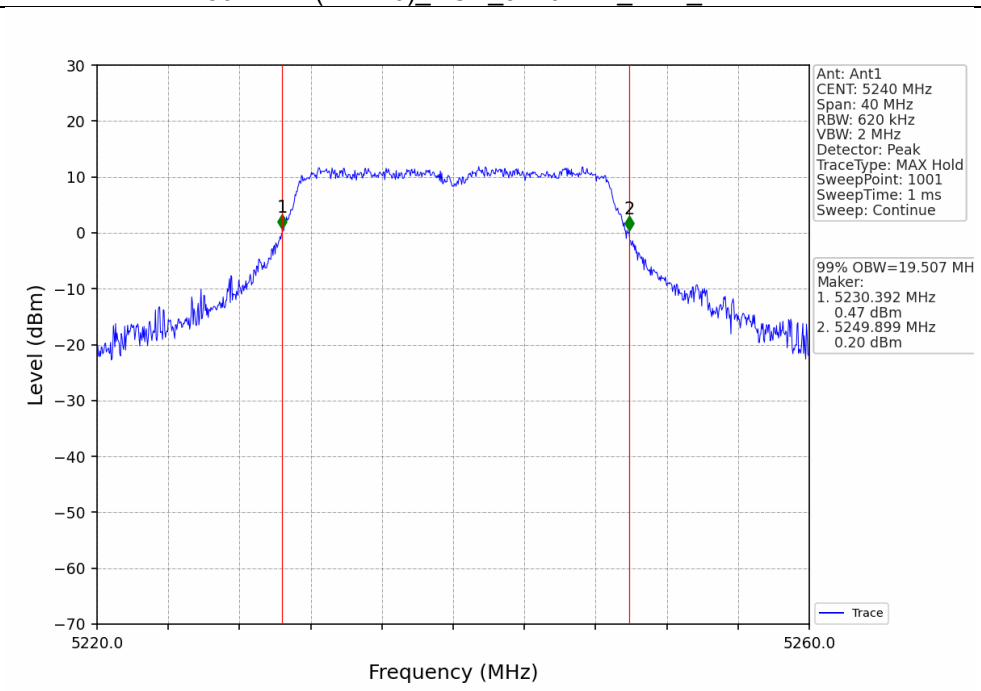
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



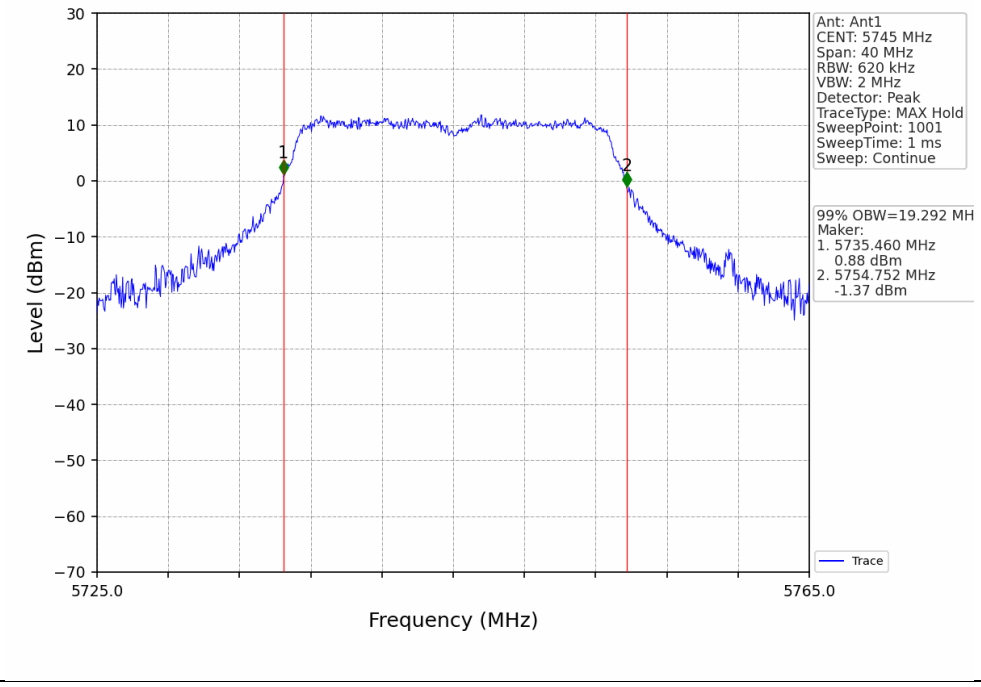
802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV



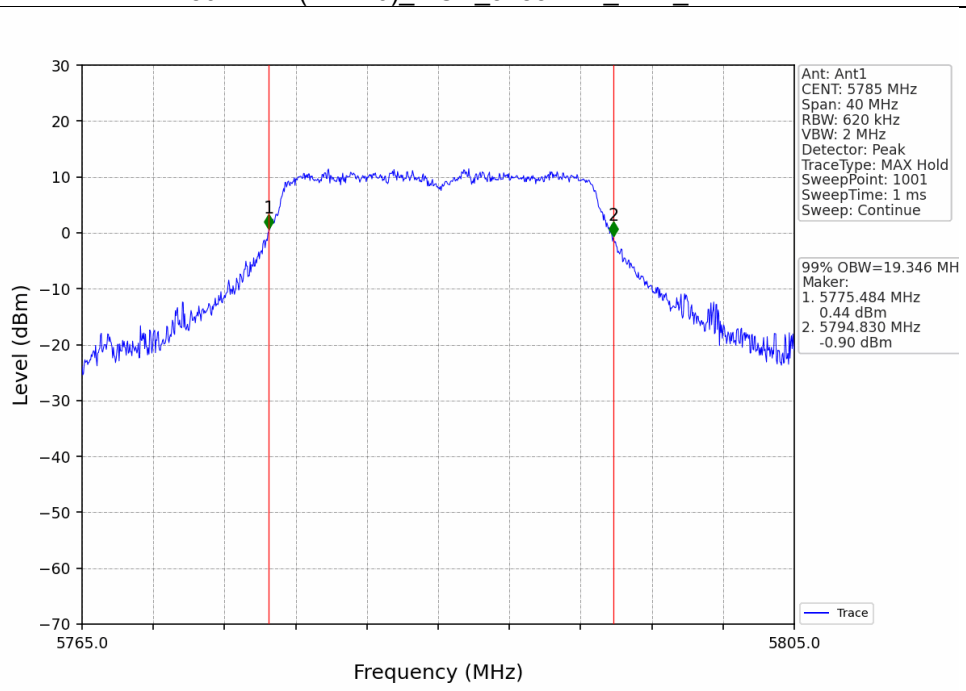
802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV



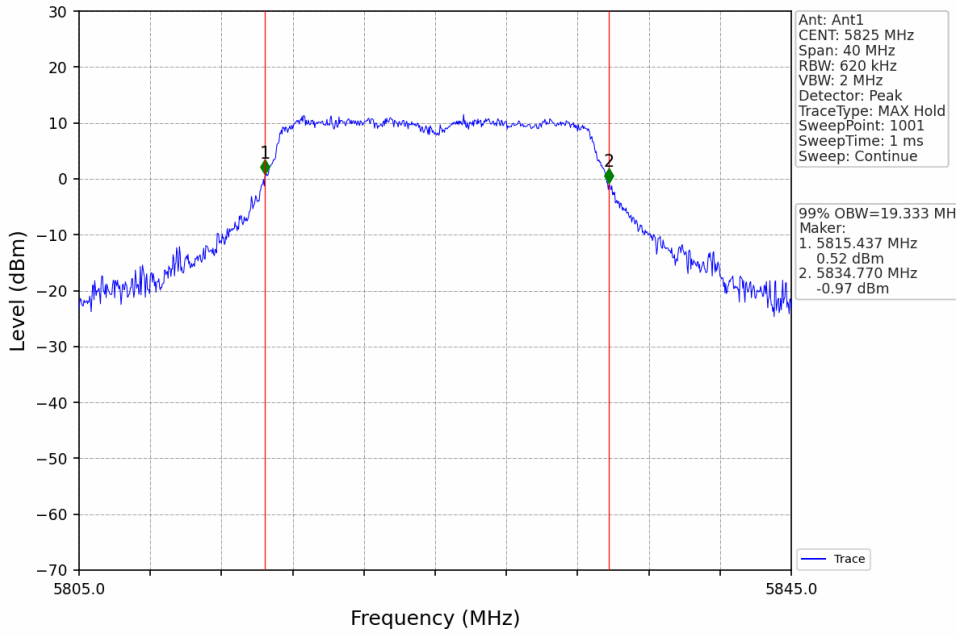
802.11ac(VHT20)_LCH_5745MHz_Ant1_NTNV



802.11ac(VHT20)_MCH_5785MHz_Ant1_NTNV

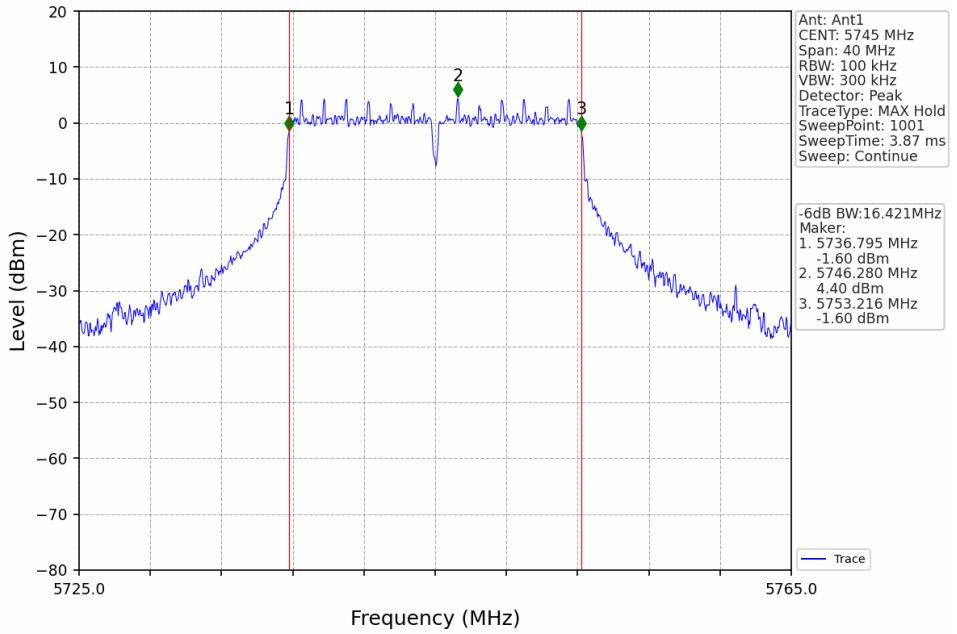


802.11ac(VHT20)_HCH_5825MHz_Ant1_NTNV

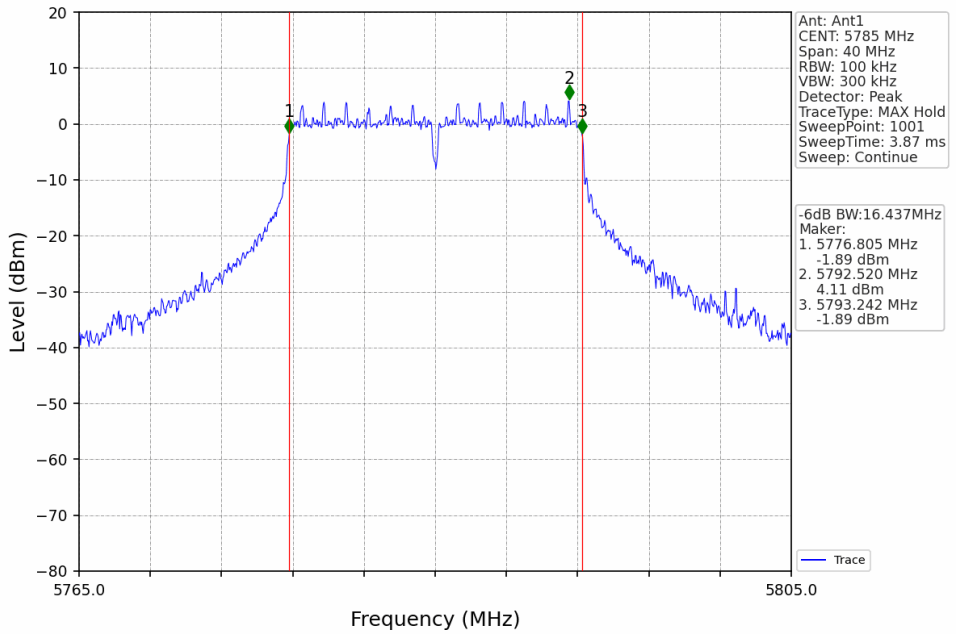


2.2.2 Test Graph

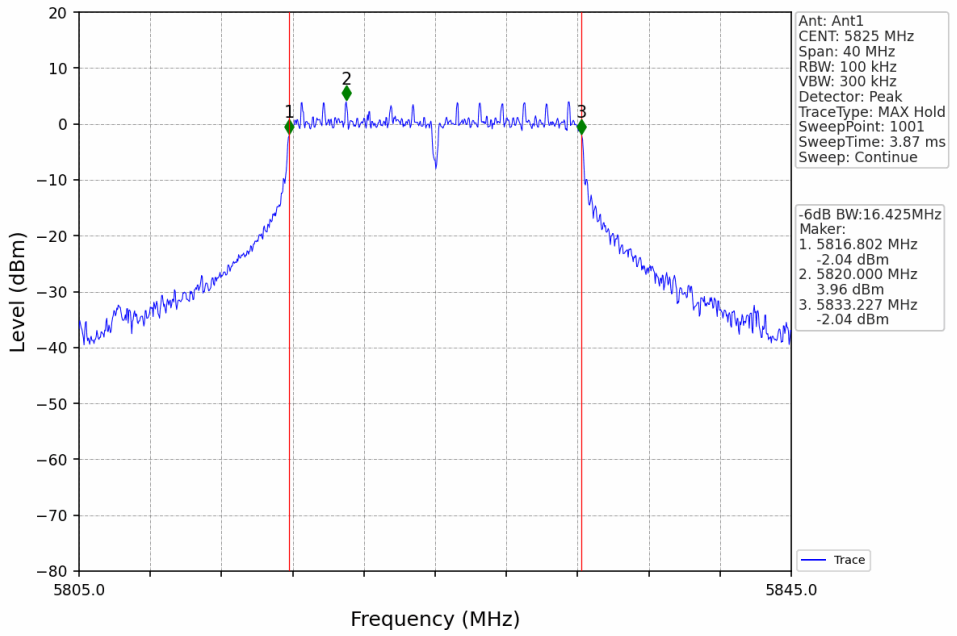
802.11a_LCH_5745MHz_Ant1_NTNV



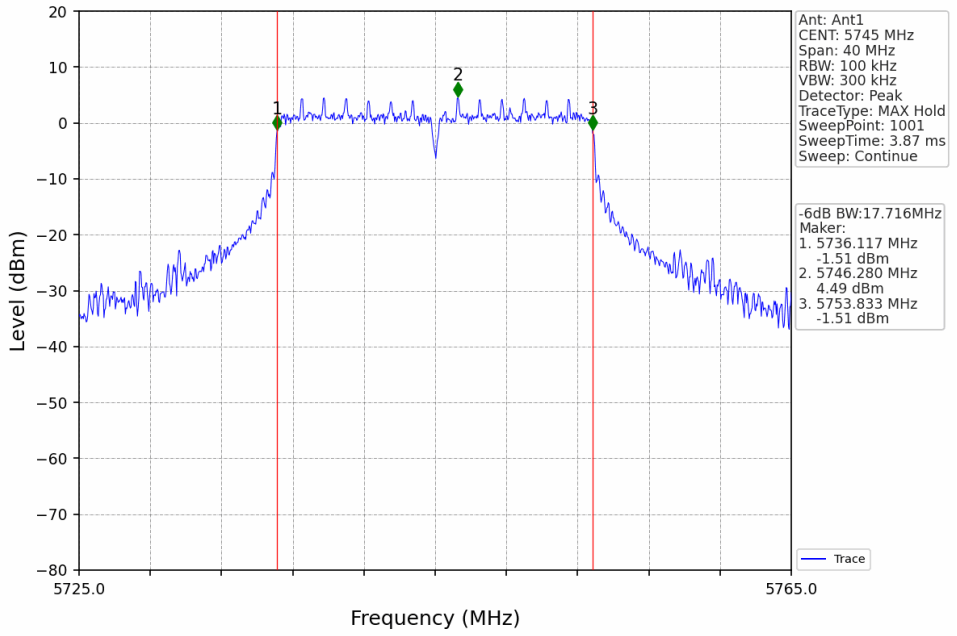
802.11a_MCH_5785MHz_Ant1_NTNV



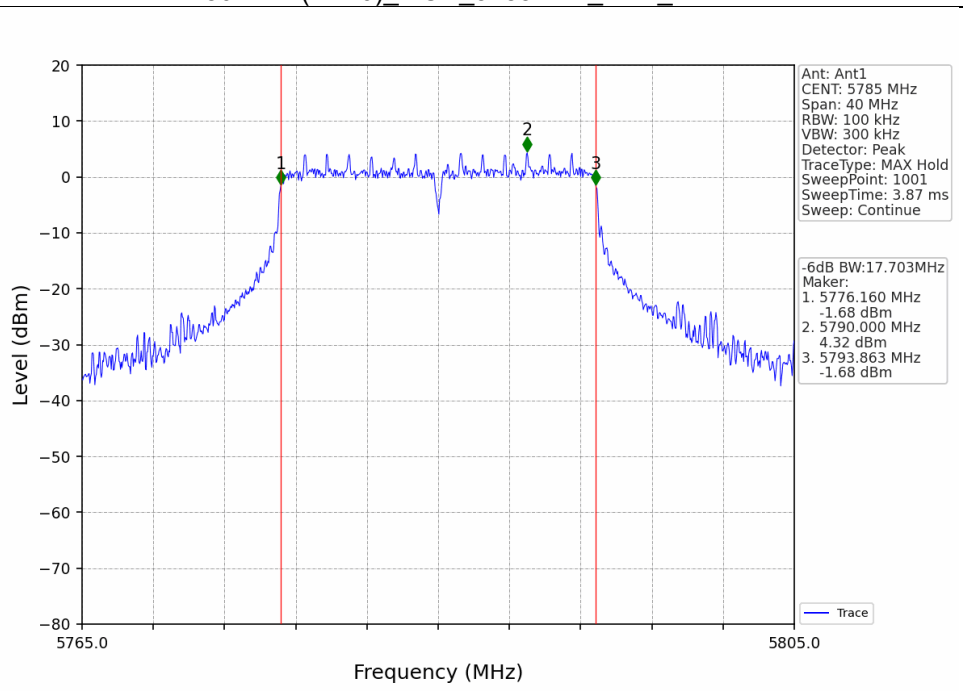
802.11a_HCH_5825MHz_Ant1_NTNV



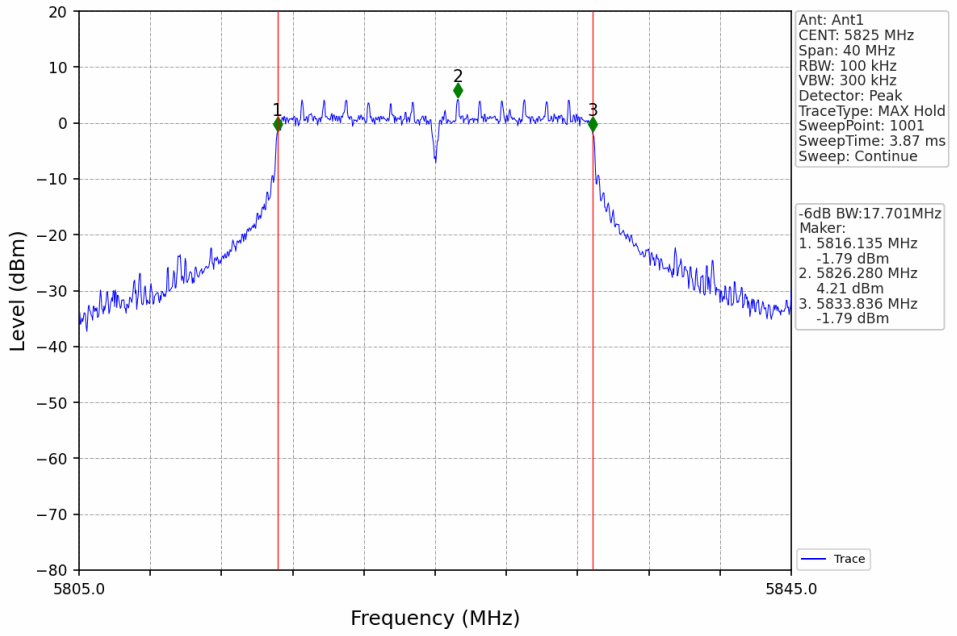
802.11n(HT20)_LCH_5745MHz_Ant1_NTNV



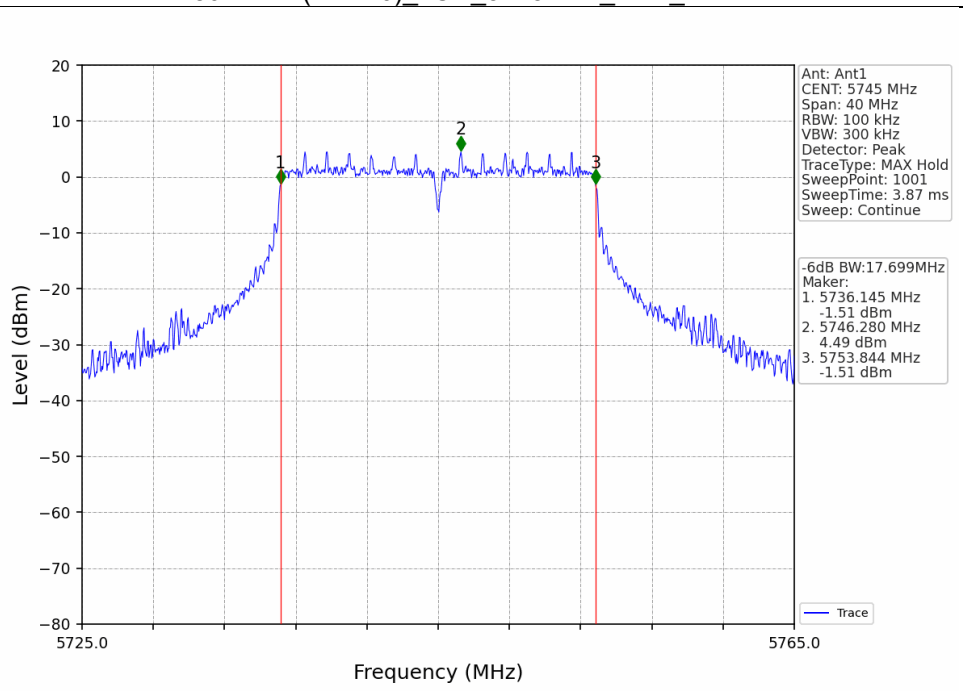
802.11n(HT20)_MCH_5785MHz_Ant1_NTNV



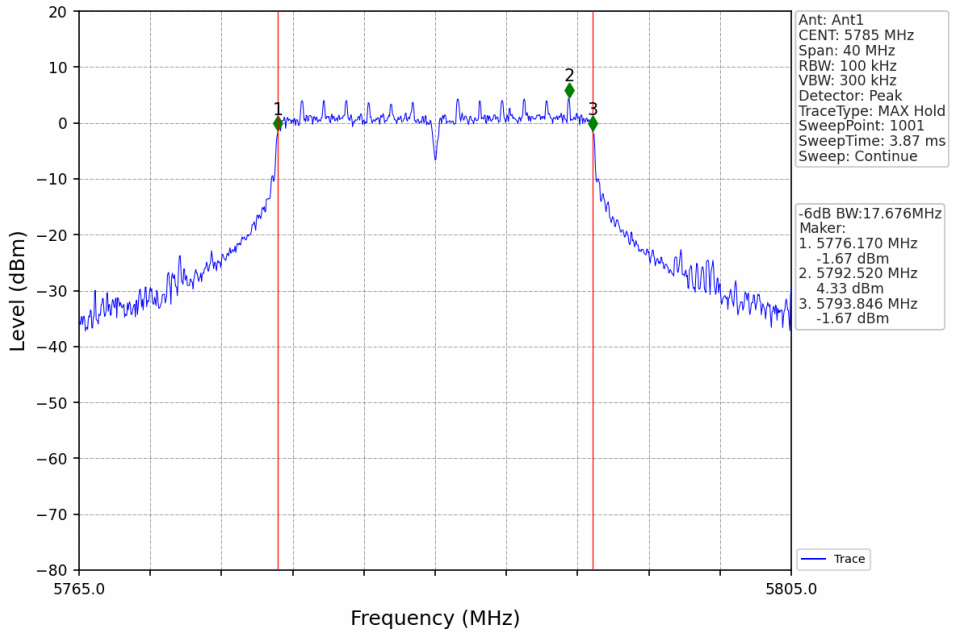
802.11n(HT20)_HCH_5825MHz_Ant1_NTNV



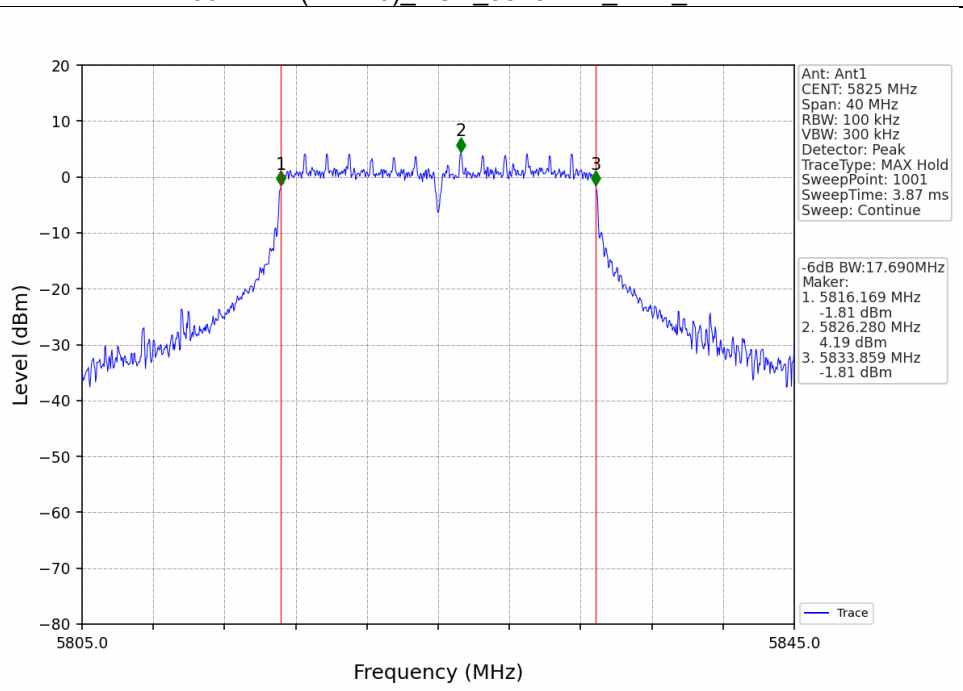
802.11ac(VHT20)_LCH_5745MHz_Ant1_NTNV



802.11ac(VHT20)_MCH_5785MHz_Ant1_NTNV

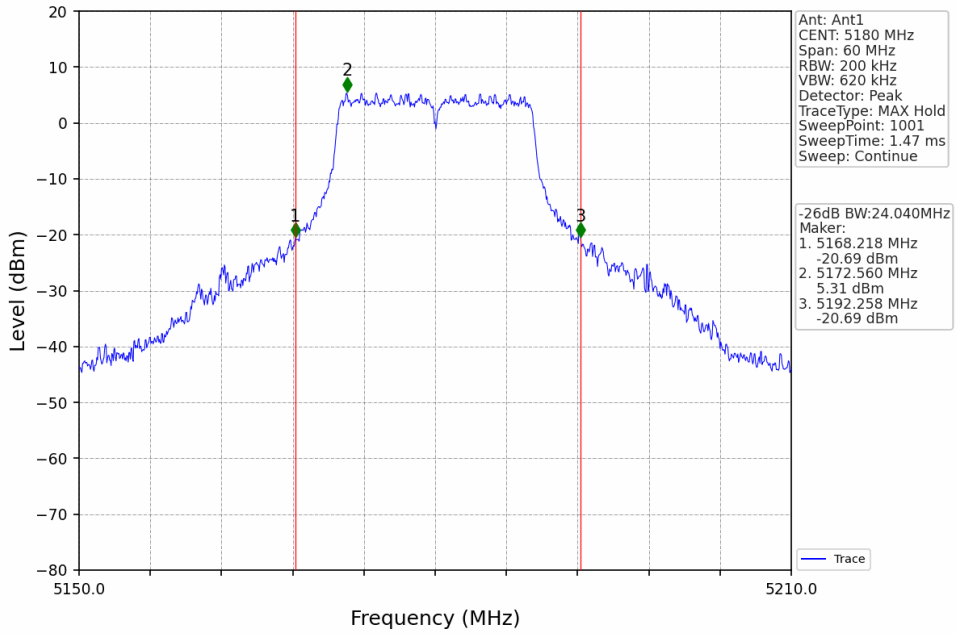


802.11ac(VHT20)_HCH_5825MHz_Ant1_NTNV

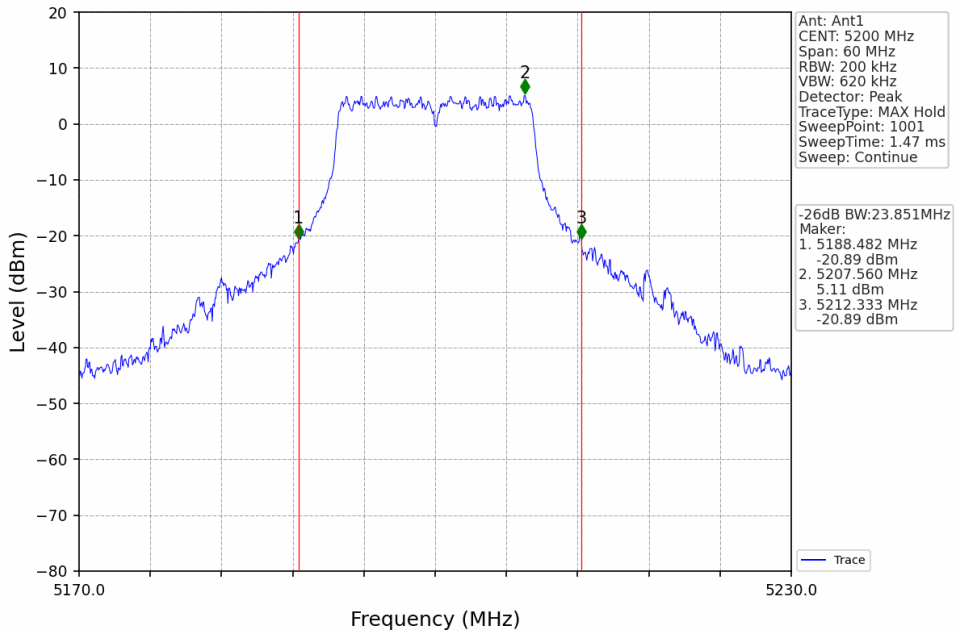


2.3.2 Test Graph

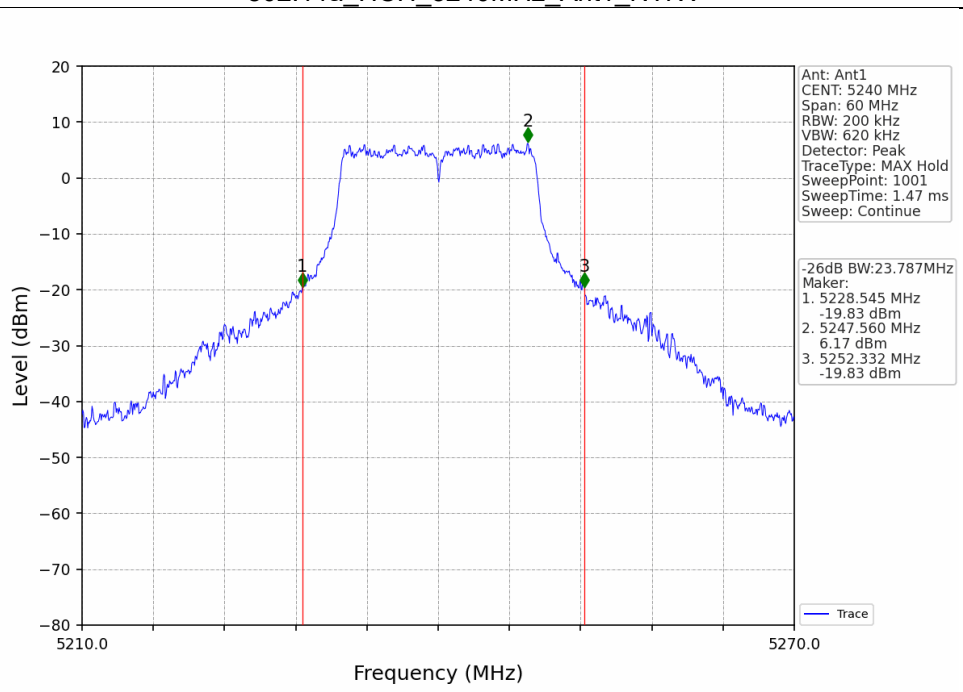
802.11a_LCH_5180MHz_Ant1_NTNV



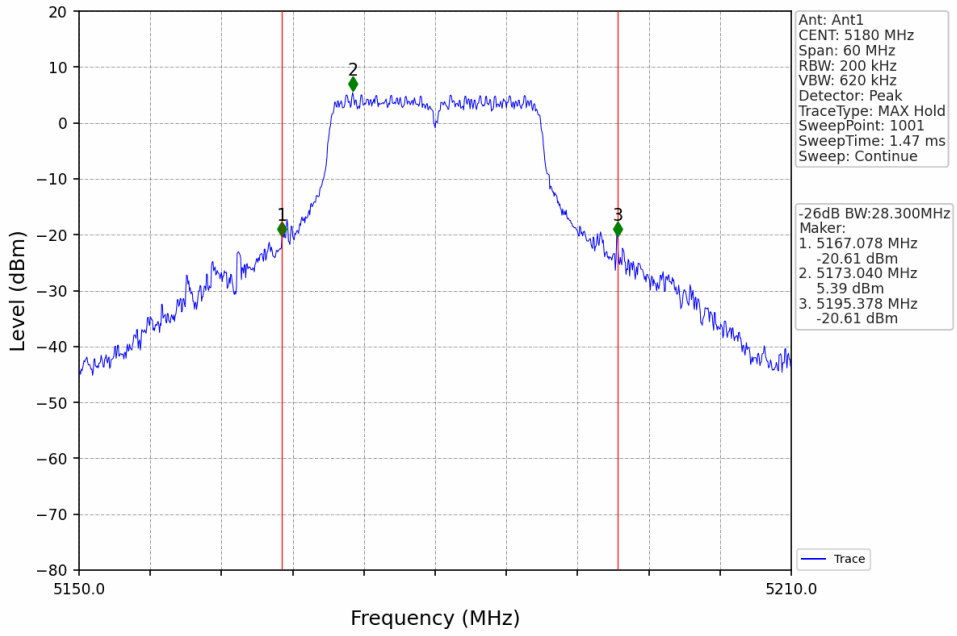
802.11a_MCH_5200MHz_Ant1_NTNV



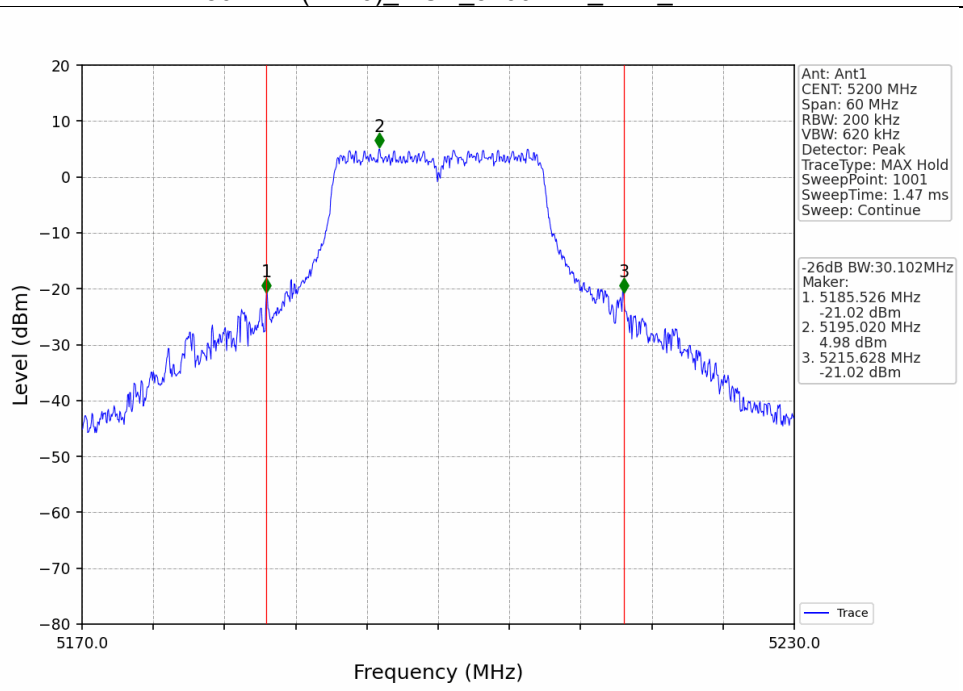
802.11a_HCH_5240MHz_Ant1_NTNV



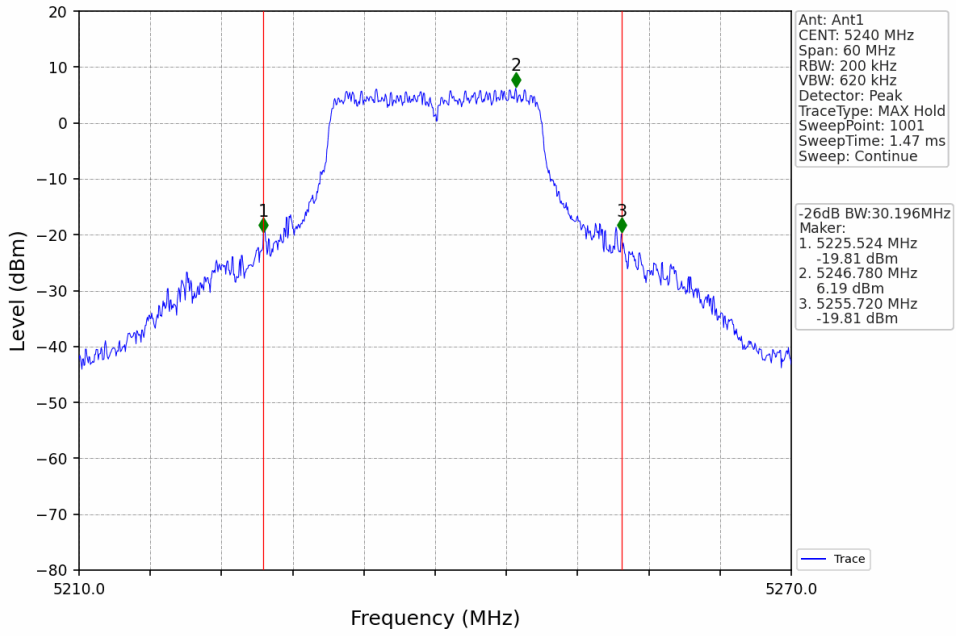
802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



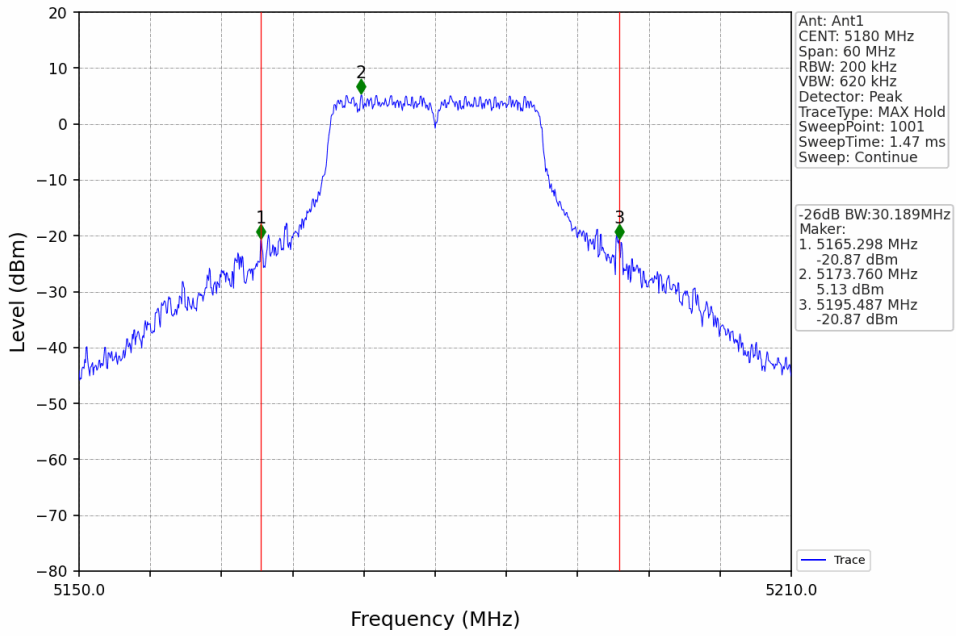
802.11n(HT20)_MCH_5200MHz_Ant1_NTNV



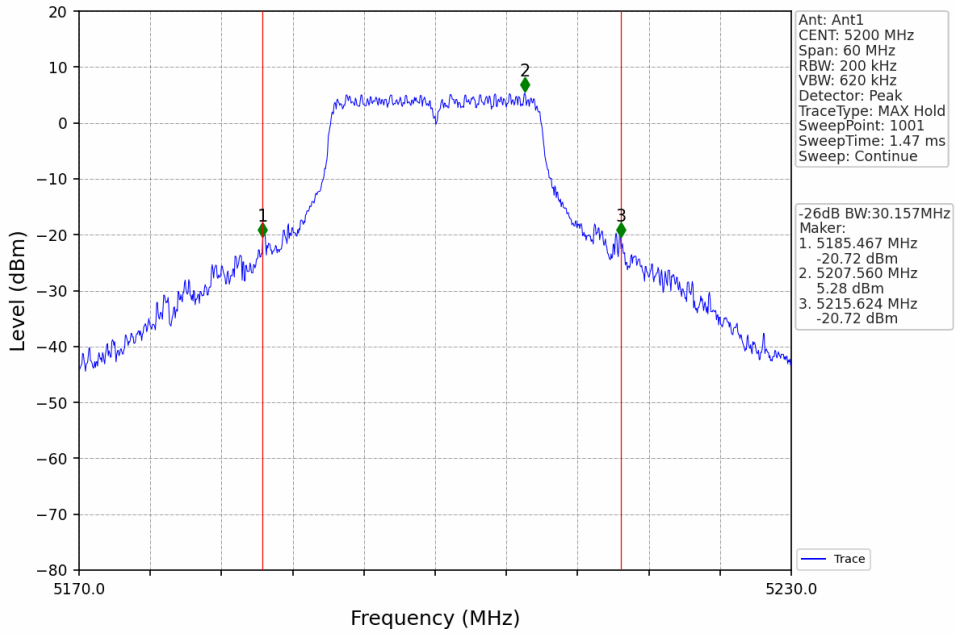
802.11n(HT20)_HCH_5240MHz_Ant1_NTNV



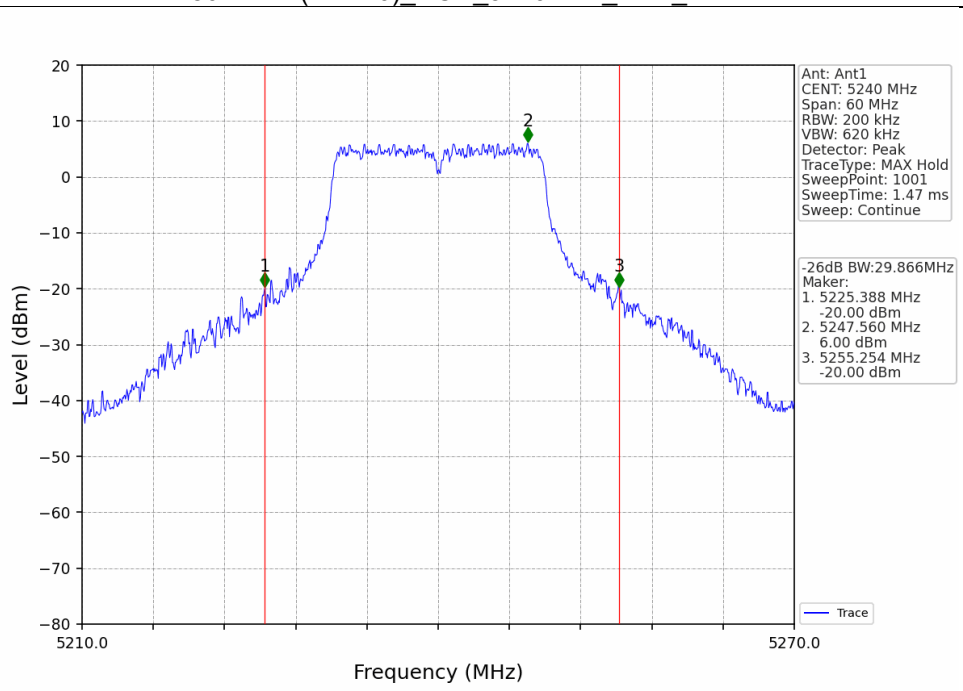
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV



802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV



3. Maximum Conducted Output Power

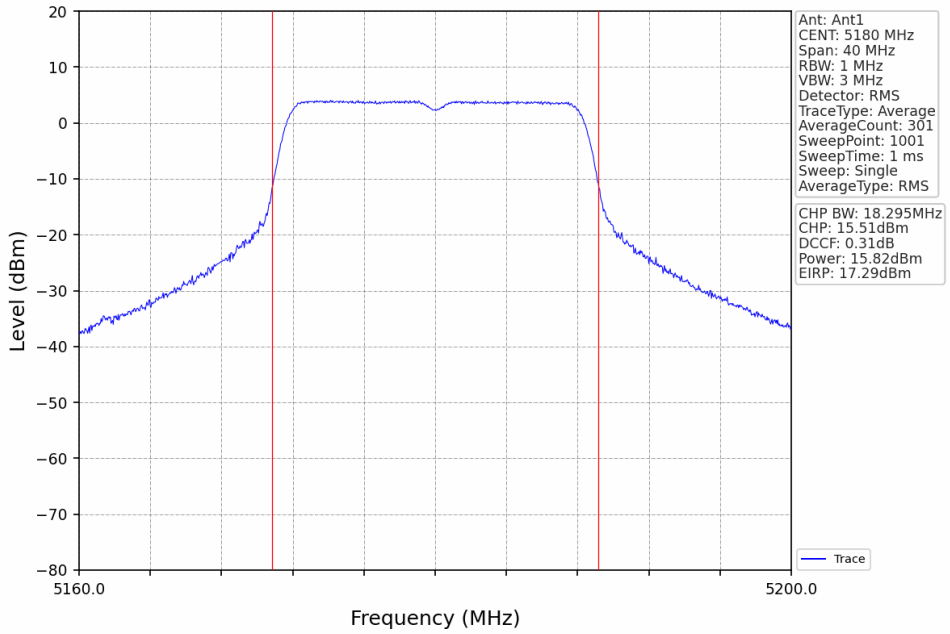
3.1 Power

3.1.1 Test Result

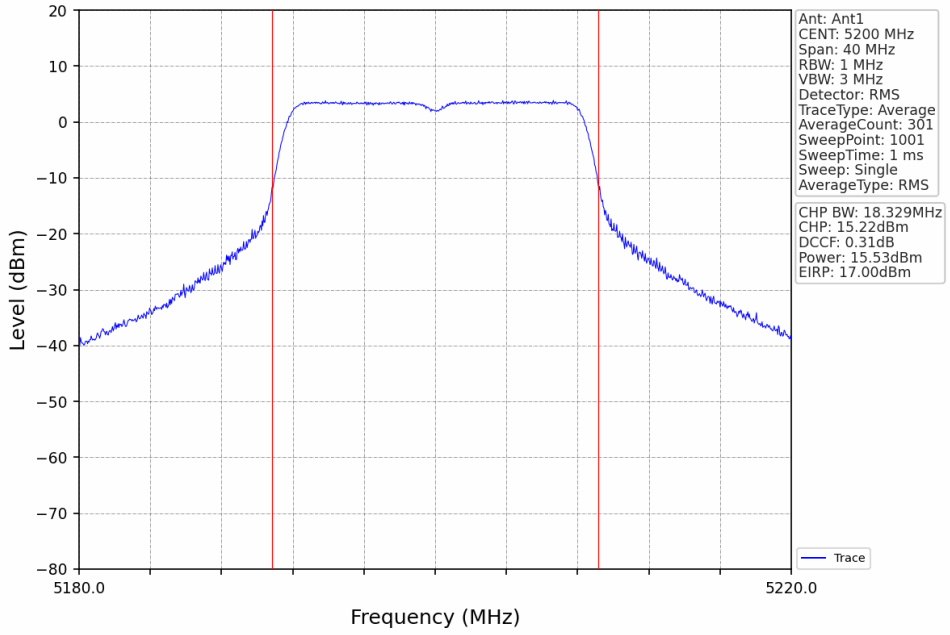
Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11a	SISO	5180	15.82	<=23.98	Pass
		5200	15.53	<=23.98	Pass
		5240	16.58	<=23.98	Pass
		5745	16.01	<=30	Pass
		5785	15.57	<=30	Pass
		5825	15.54	<=30	Pass
802.11n (HT20)	SISO	5180	15.58	<=23.98	Pass
		5200	15.44	<=23.98	Pass
		5240	16.45	<=23.98	Pass
		5745	16.07	<=30	Pass
		5785	15.83	<=30	Pass
		5825	15.97	<=30	Pass
802.11ac (VHT20)	SISO	5180	15.73	<=23.98	Pass
		5200	15.75	<=23.98	Pass
		5240	16.61	<=23.98	Pass
		5745	16.04	<=30	Pass
		5785	15.88	<=30	Pass
		5825	15.82	<=30	Pass

3.2.2 Test Graph

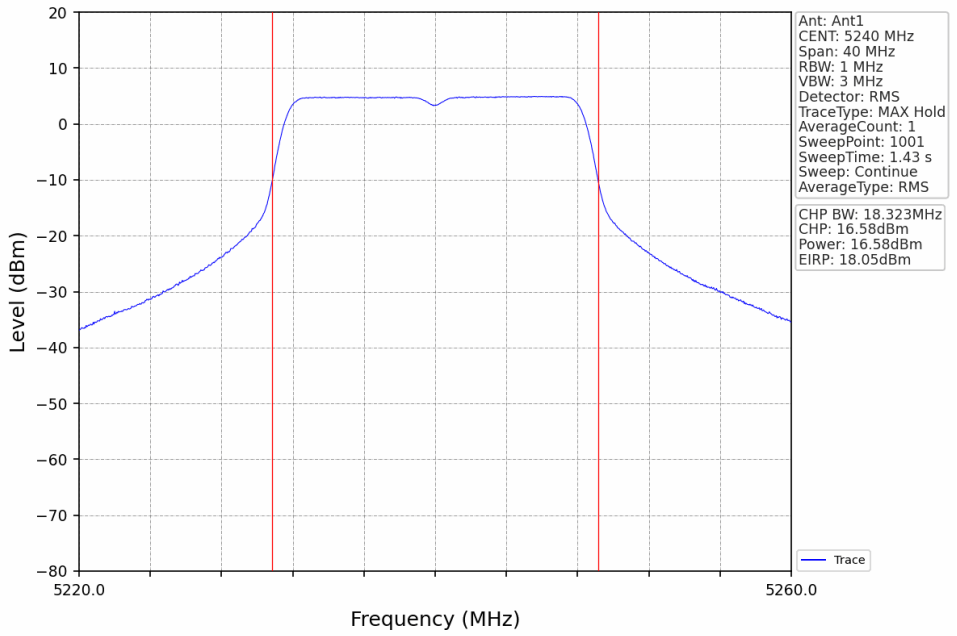
802.11a_LCH_5180MHz_Ant1_NTNV



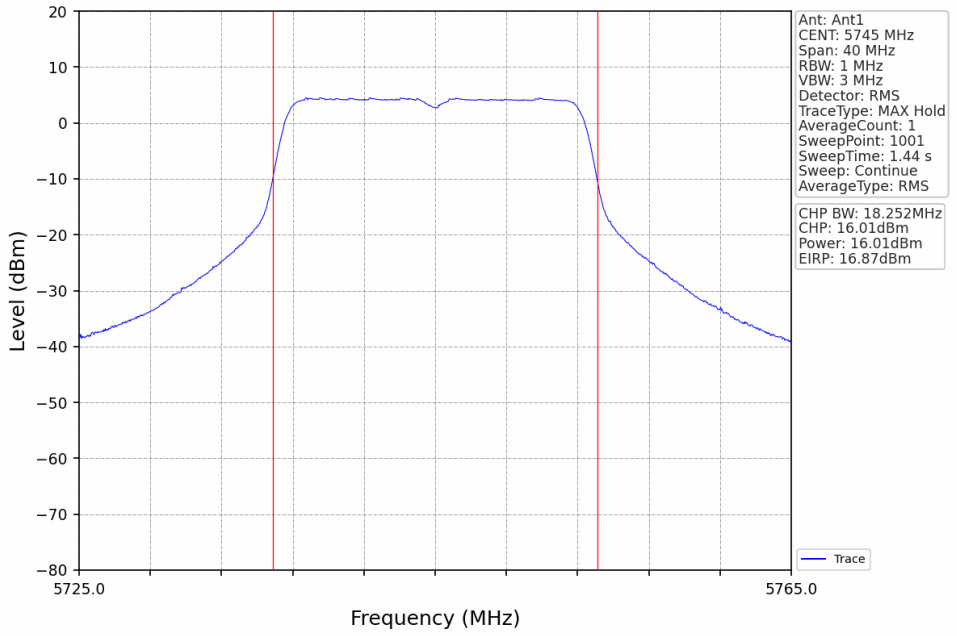
802.11a_MCH_5200MHz_Ant1_NTNV



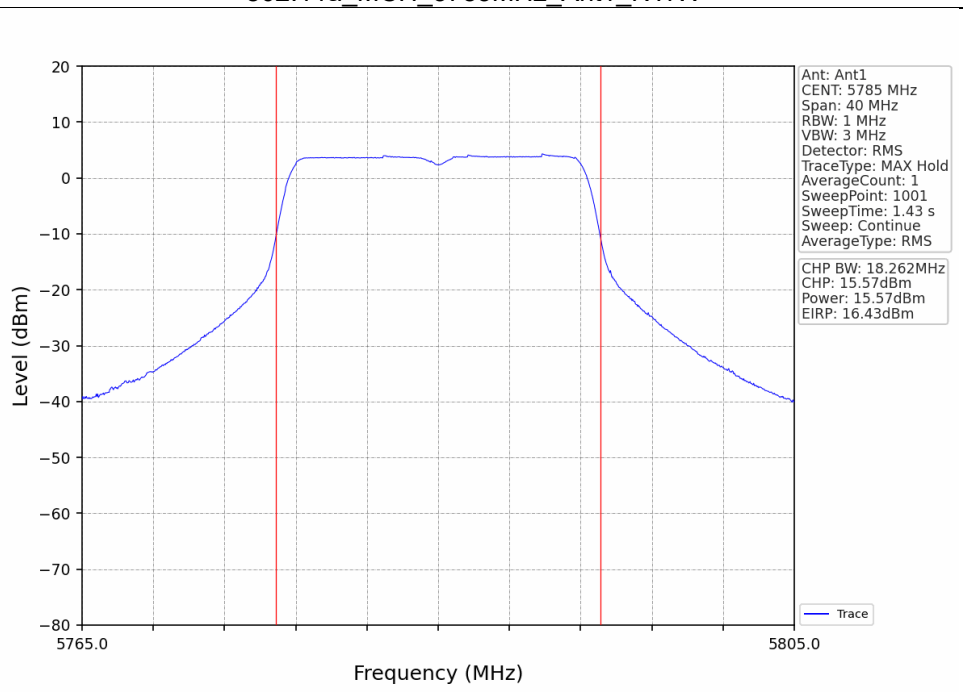
802.11a_HCH_5240MHz_Ant1_NTNV



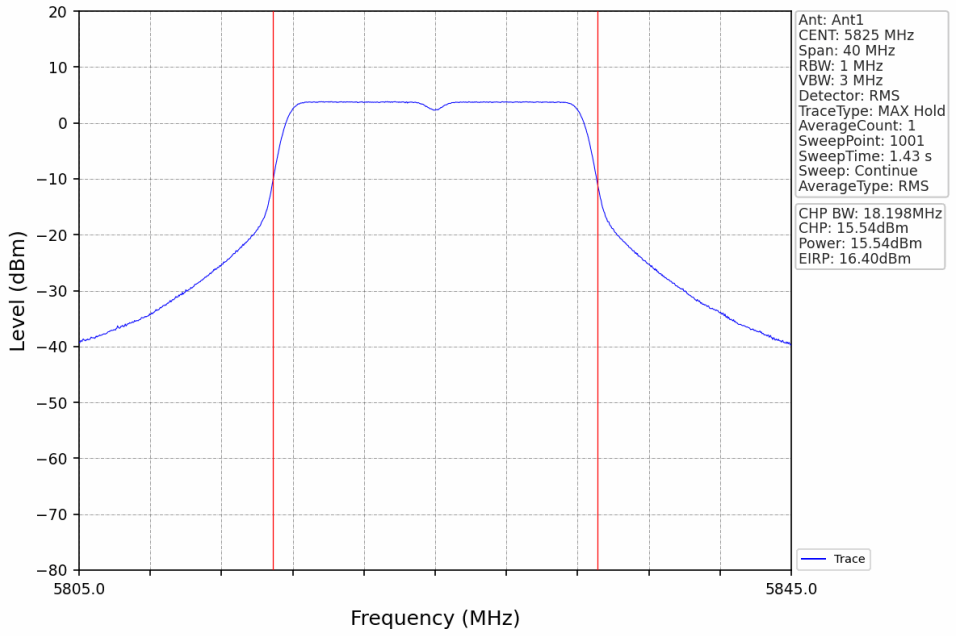
802.11a_LCH_5745MHz_Ant1_NTNV



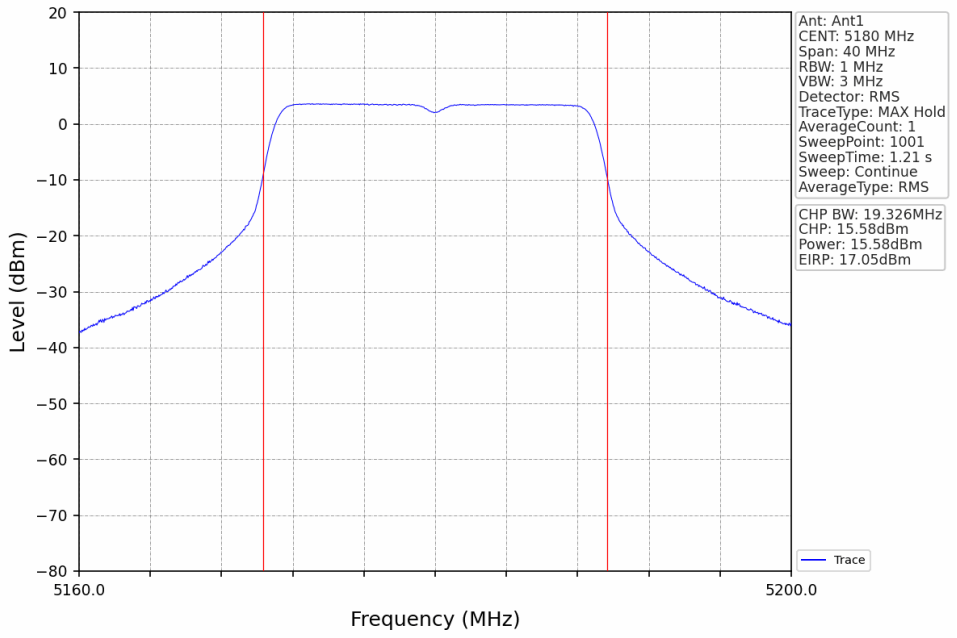
802.11a_MCH_5785MHz_Ant1_NTNV



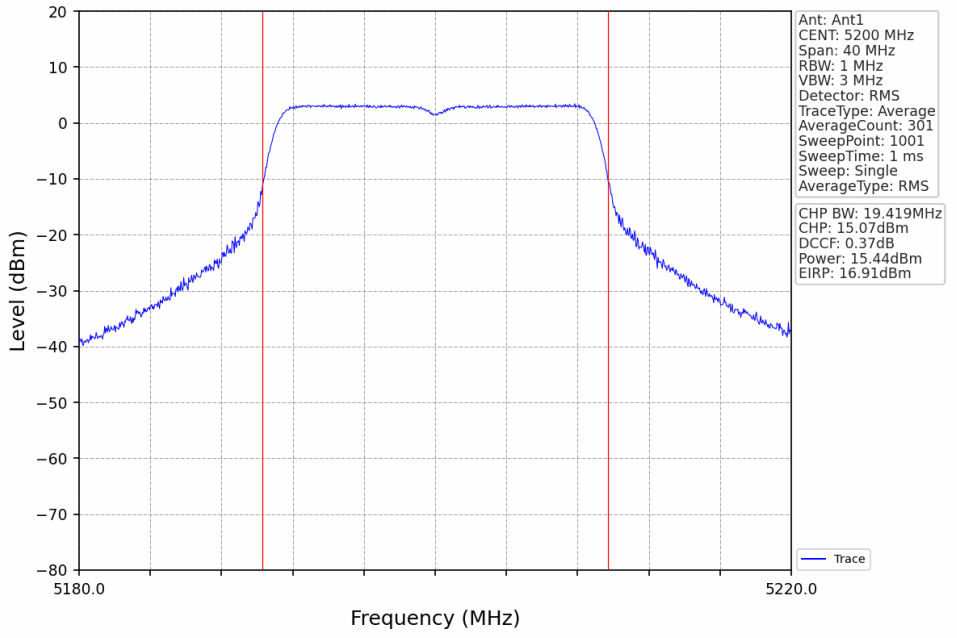
802.11a_HCH_5825MHz_Ant1_NTNV



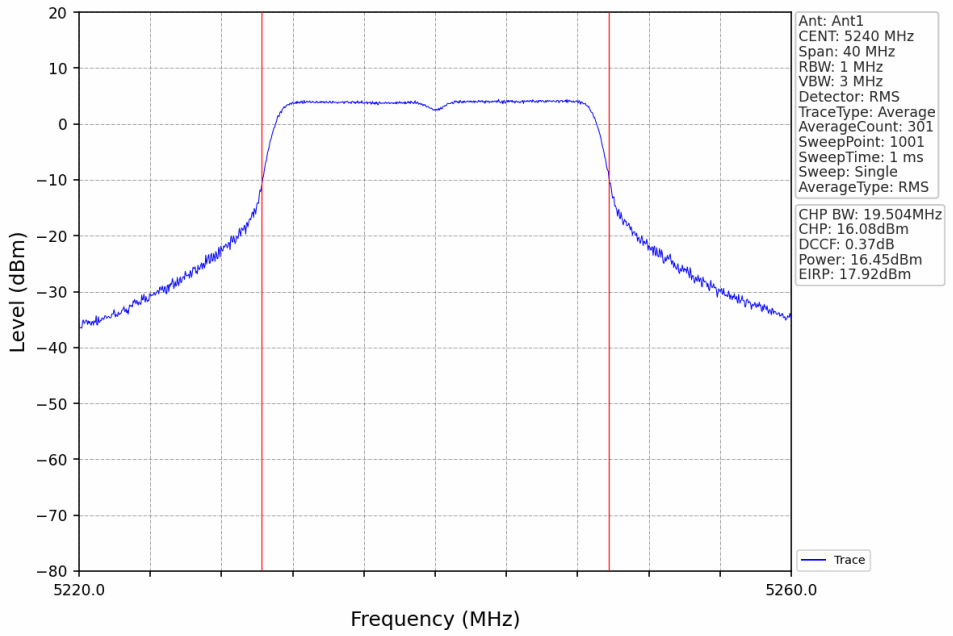
802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



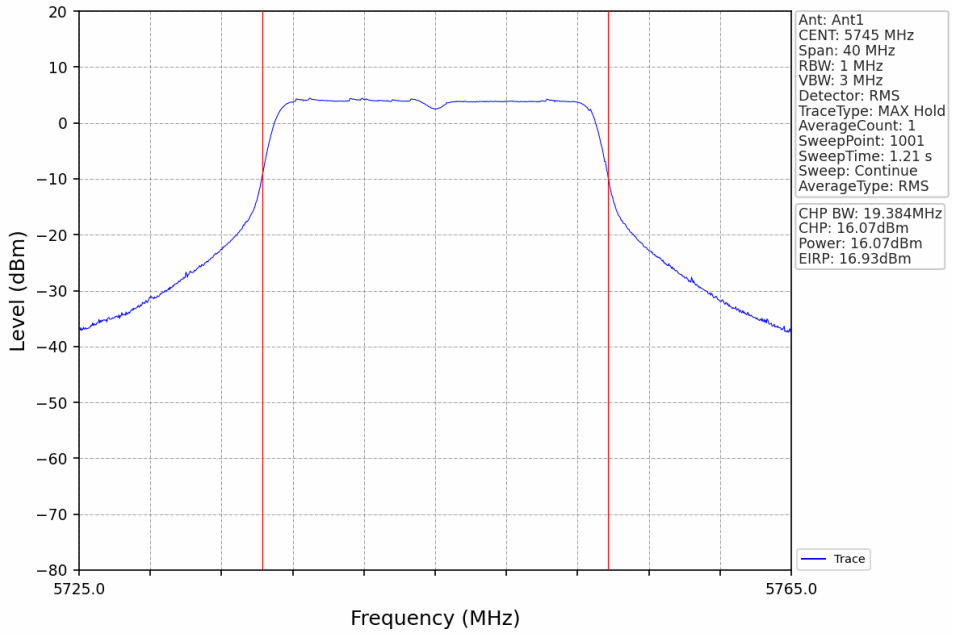
802.11n(HT20)_MCH_5200MHz_Ant1_NTNV



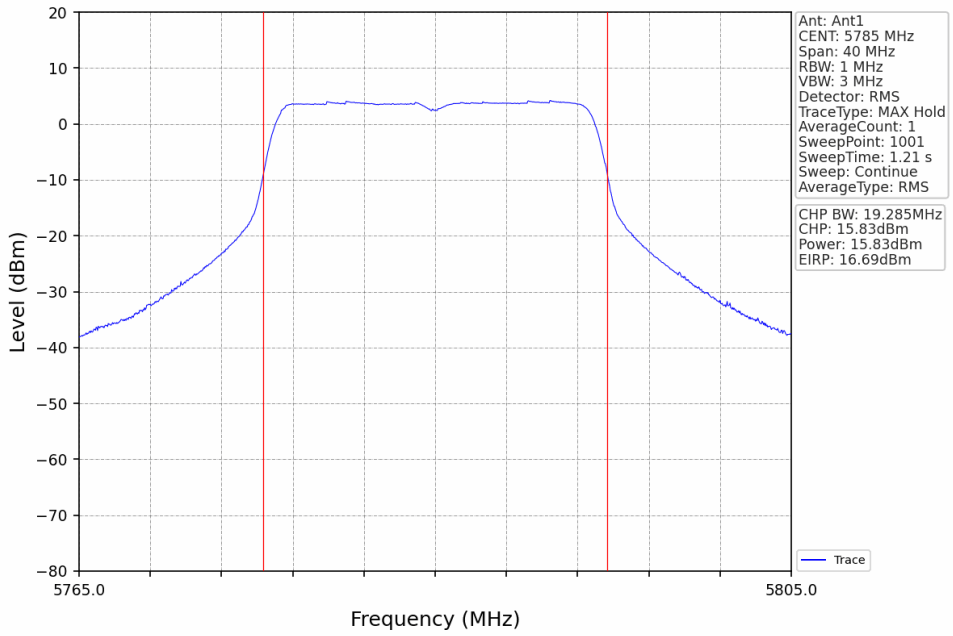
802.11n(HT20)_HCH_5240MHz_Ant1_NTNV



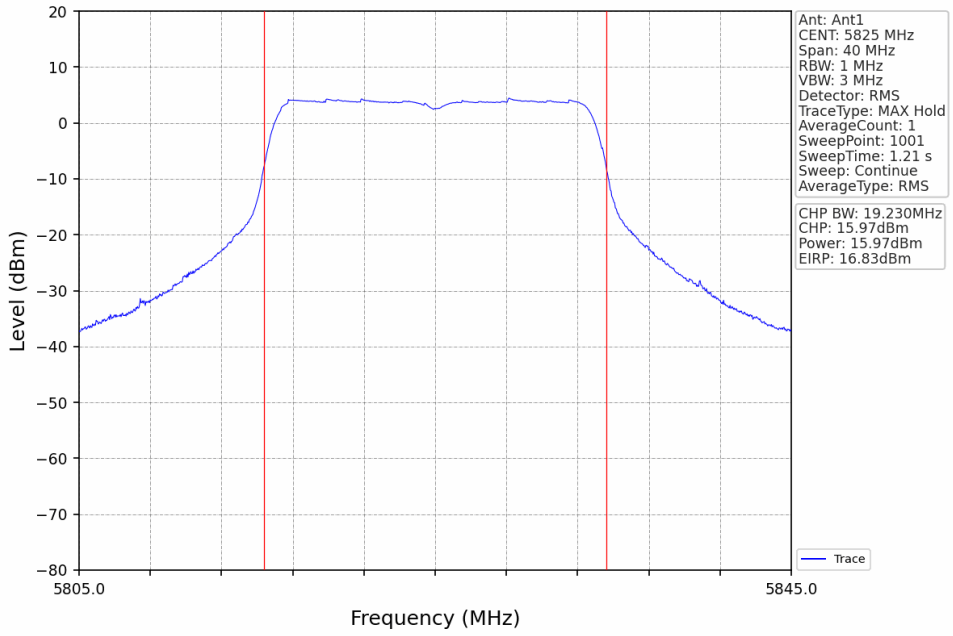
802.11n(HT20)_LCH_5745MHz_Ant1_NTNV



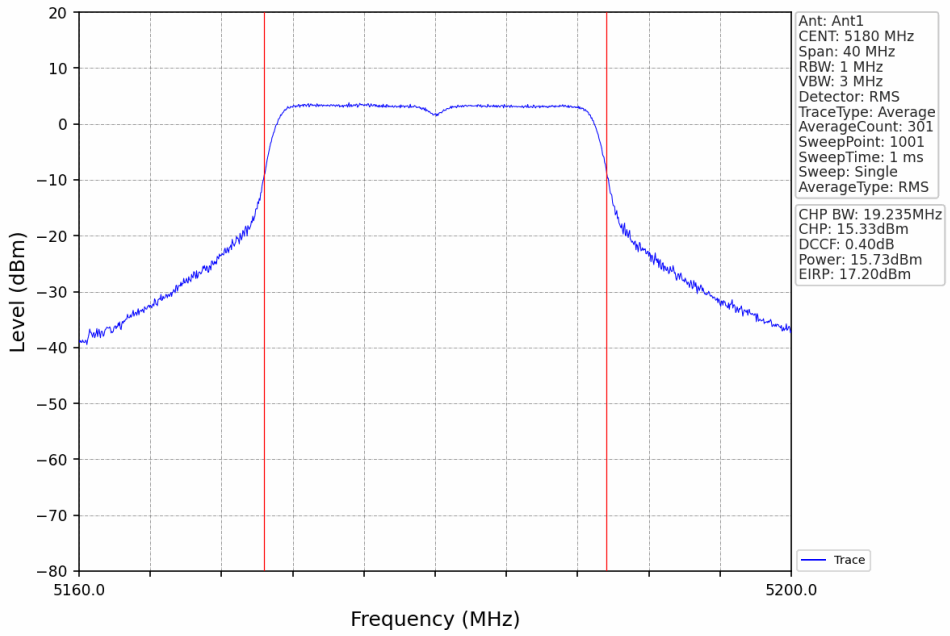
802.11n(HT20)_MCH_5785MHz_Ant1_NTNV



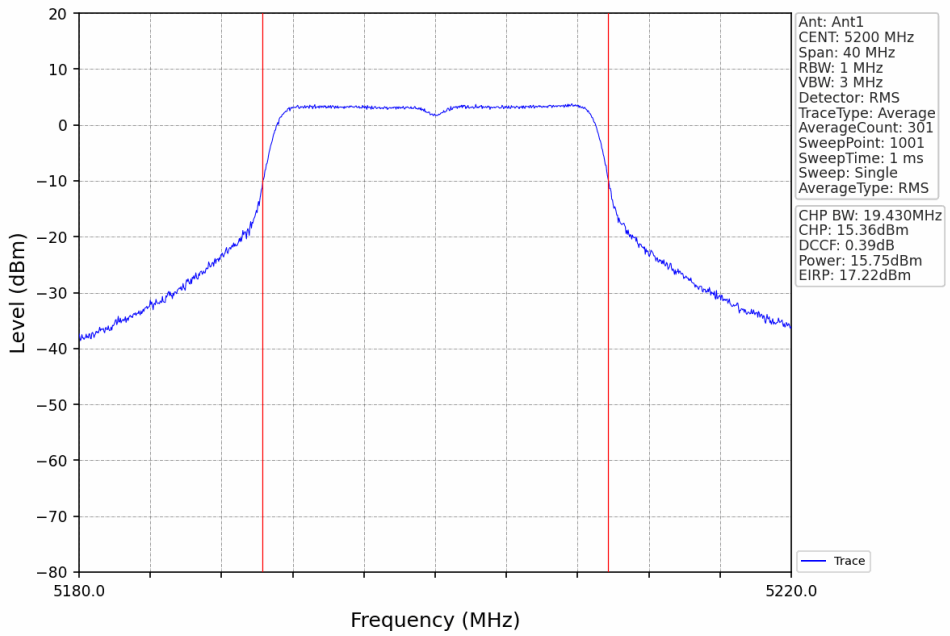
802.11n(HT20)_HCH_5825MHz_Ant1_NTNV



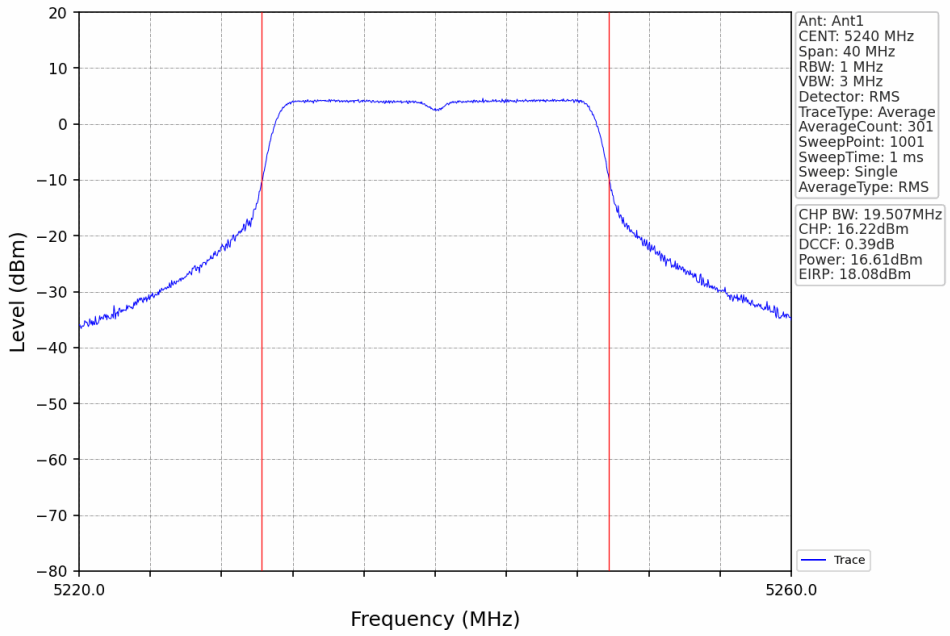
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



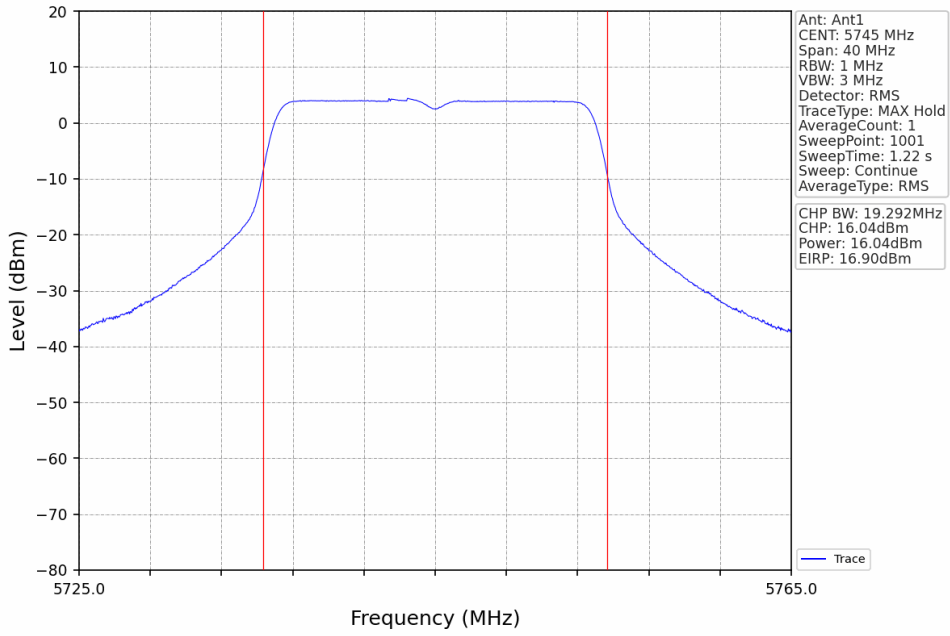
802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV



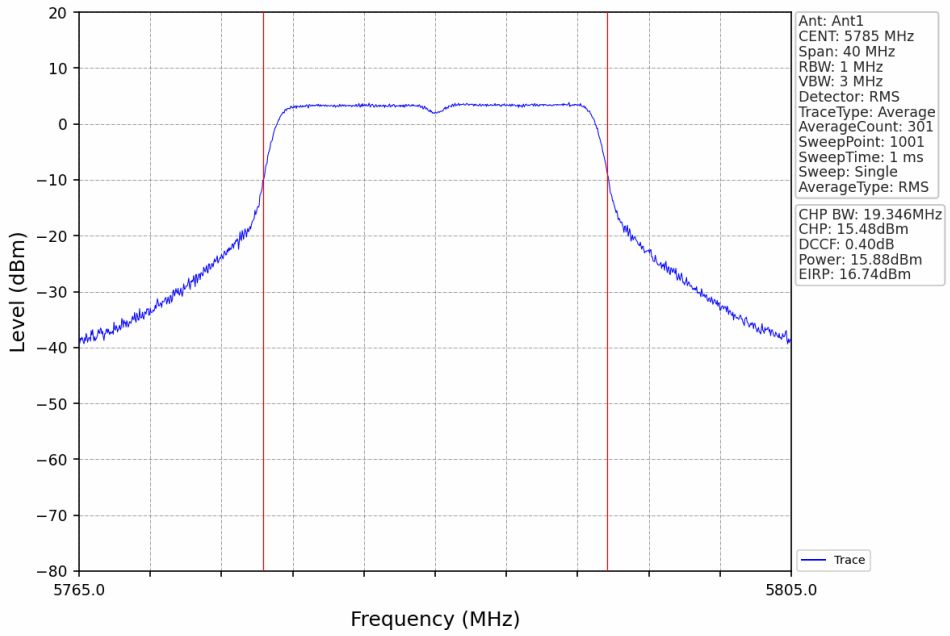
802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV



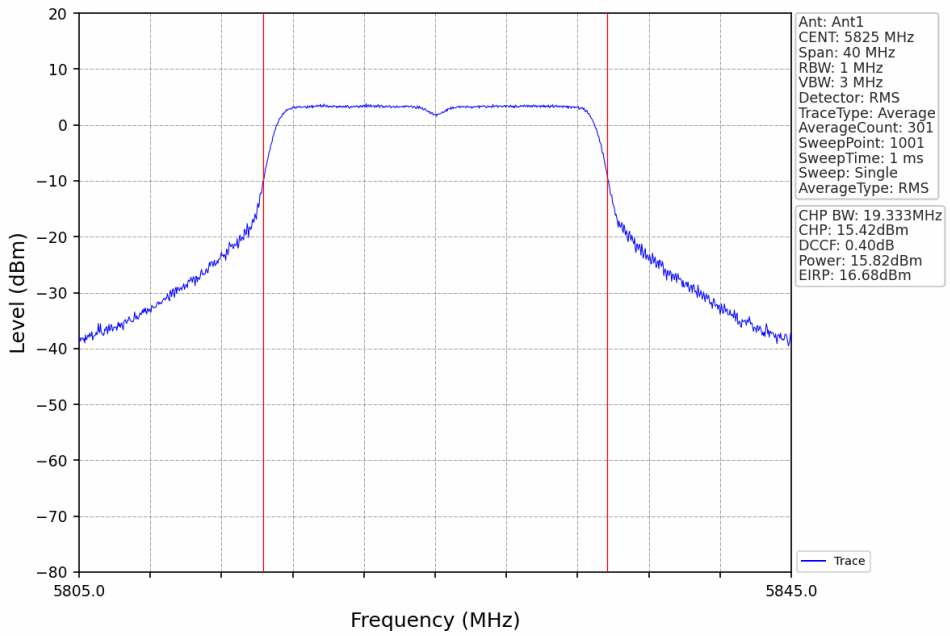
802.11ac(VHT20)_LCH_5745MHz_Ant1_NTNV



802.11ac(VHT20)_MCH_5785MHz_Ant1_NTNV



802.11ac(VHT20)_HCH_5825MHz_Ant1_NTNV



4. Maximum Power Spectral Density

4.1 PSD-Band3

4.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/500kHz)		Verdict
			ANT1	Limit	
802.11a	SISO	5745	1.65	<=30	Pass
		5785	1.19	<=30	Pass
		5825	1.02	<=30	Pass
802.11n (HT20)	SISO	5745	2.30	<=30	Pass
		5785	1.48	<=30	Pass
		5825	1.28	<=30	Pass
802.11ac (VHT20)	SISO	5745	1.34	<=30	Pass
		5785	1.32	<=30	Pass
		5825	1.24	<=30	Pass

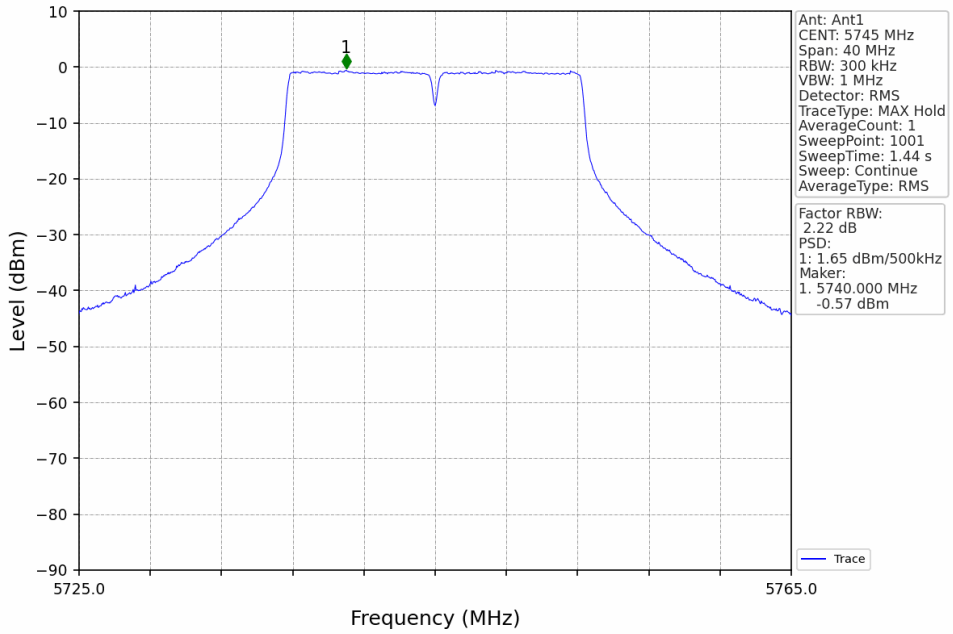
4.2 PSD-Band1

4.2.1 Test Result

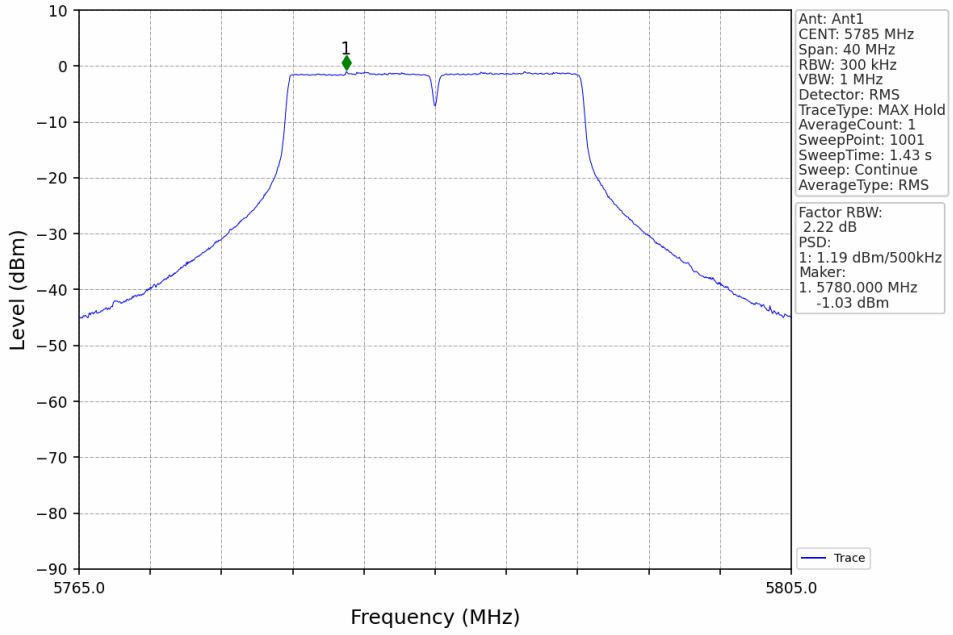
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/MHz)		Verdict
			ANT1	Limit	
802.11a	SISO	5180	4.49	<=11	Pass
		5200	4.28	<=11	Pass
		5240	4.91	<=11	Pass
802.11n (HT20)	SISO	5180	3.61	<=11	Pass
		5200	3.83	<=11	Pass
		5240	4.67	<=11	Pass
802.11ac (VHT20)	SISO	5180	4.02	<=11	Pass
		5200	4.20	<=11	Pass
		5240	4.98	<=11	Pass

4.1.2 Test Graph

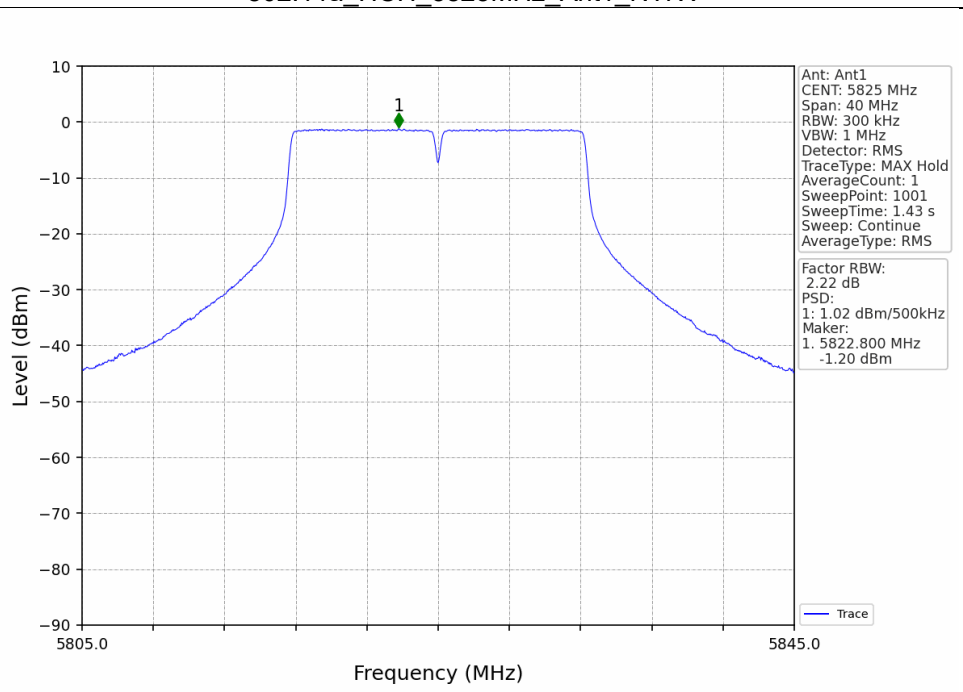
802.11a_LCH_5745MHz_Ant1_NTNV



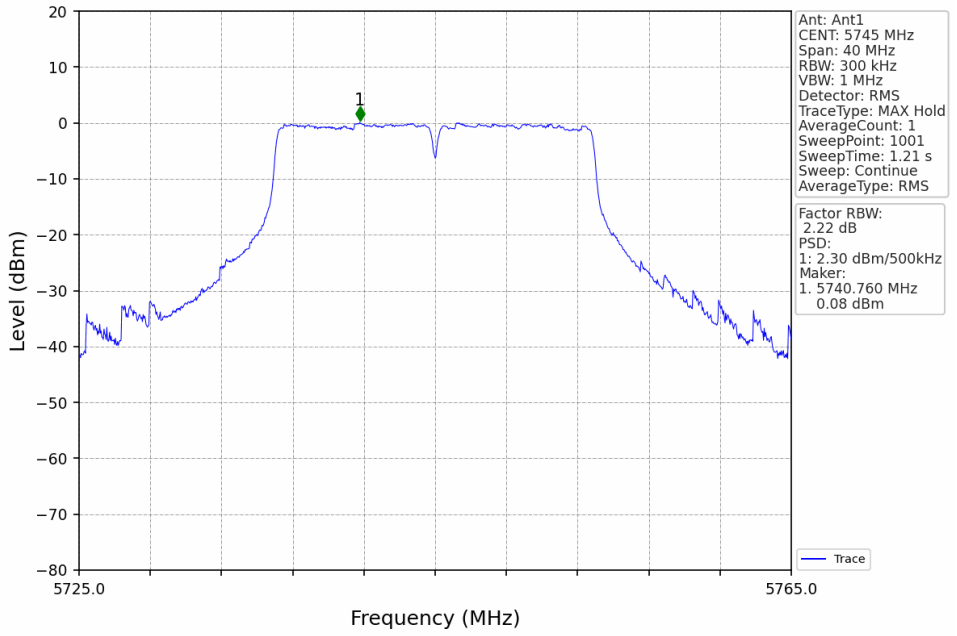
802.11a_MCH_5785MHz_Ant1_NTNV



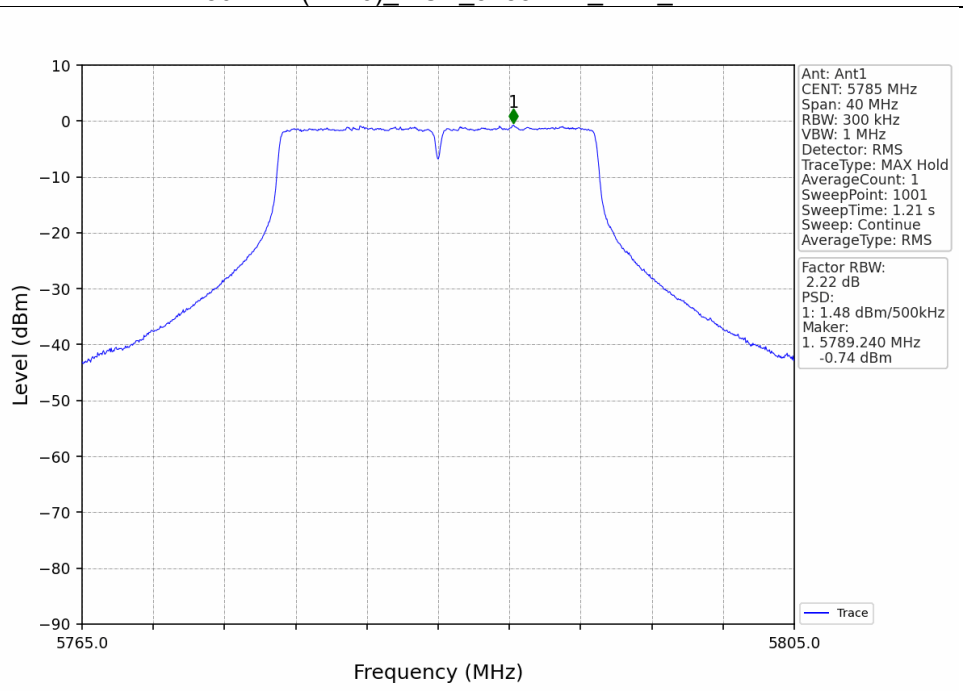
802.11a_HCH_5825MHz_Ant1_NTNV



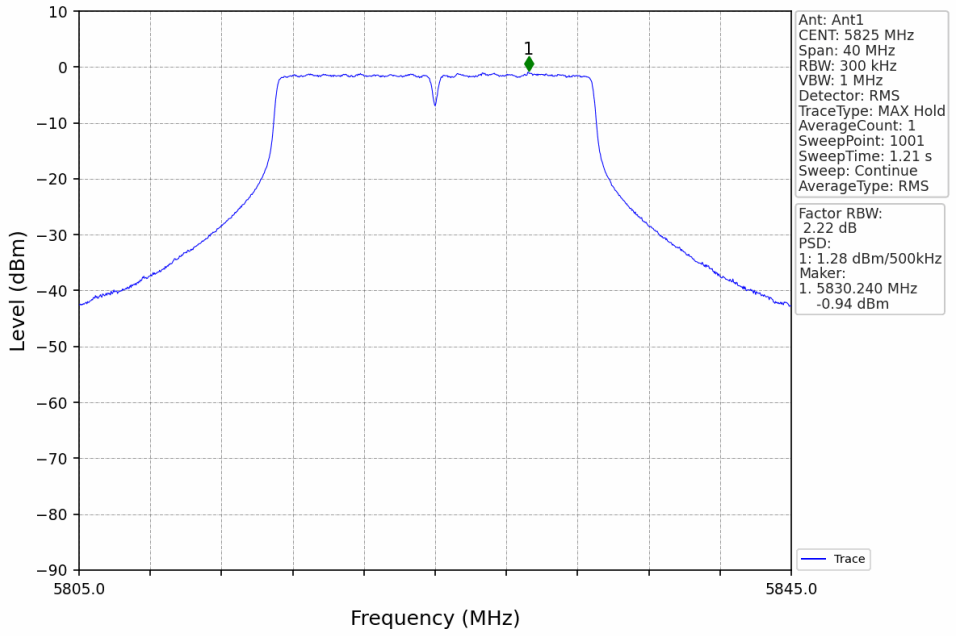
802.11n(HT20)_LCH_5745MHz_Ant1_NTNV



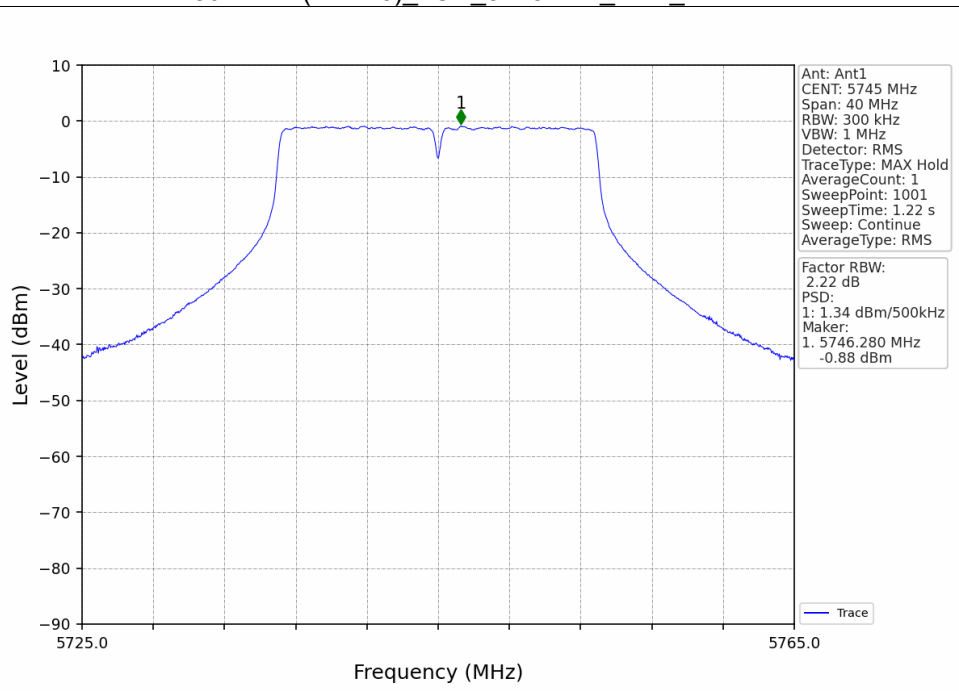
802.11n(HT20)_MCH_5785MHz_Ant1_NTNV



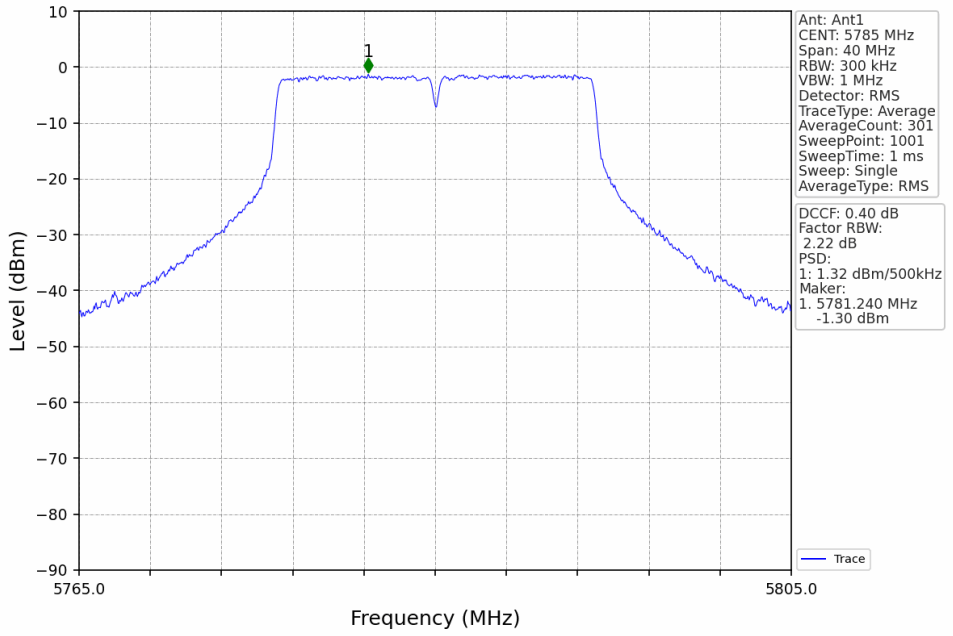
802.11n(HT20)_HCH_5825MHz_Ant1_NTNV



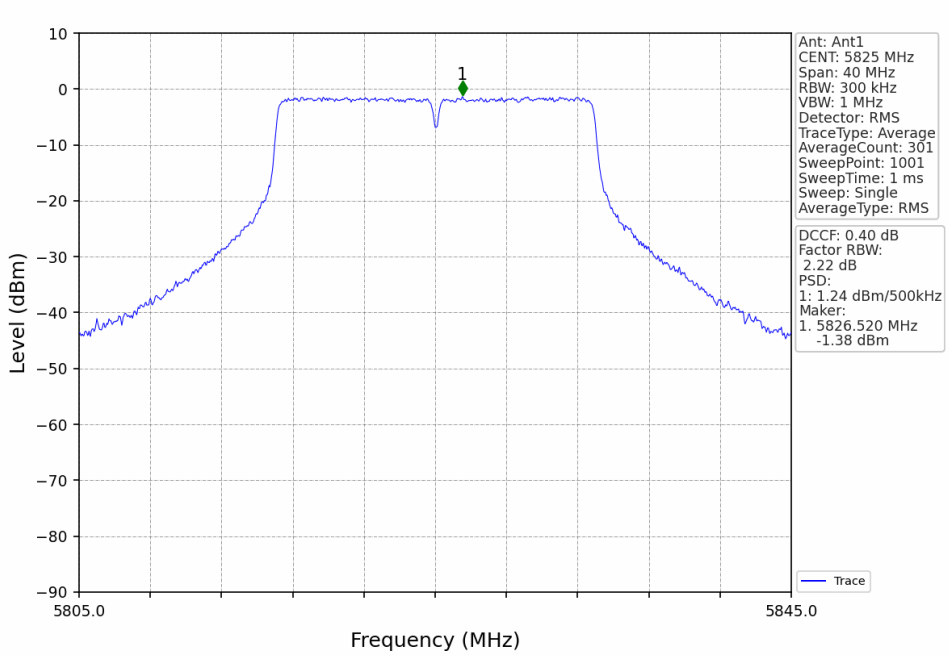
802.11ac(VHT20)_LCH_5745MHz_Ant1_NTNV



802.11ac(VHT20)_MCH_5785MHz_Ant1_NTNV

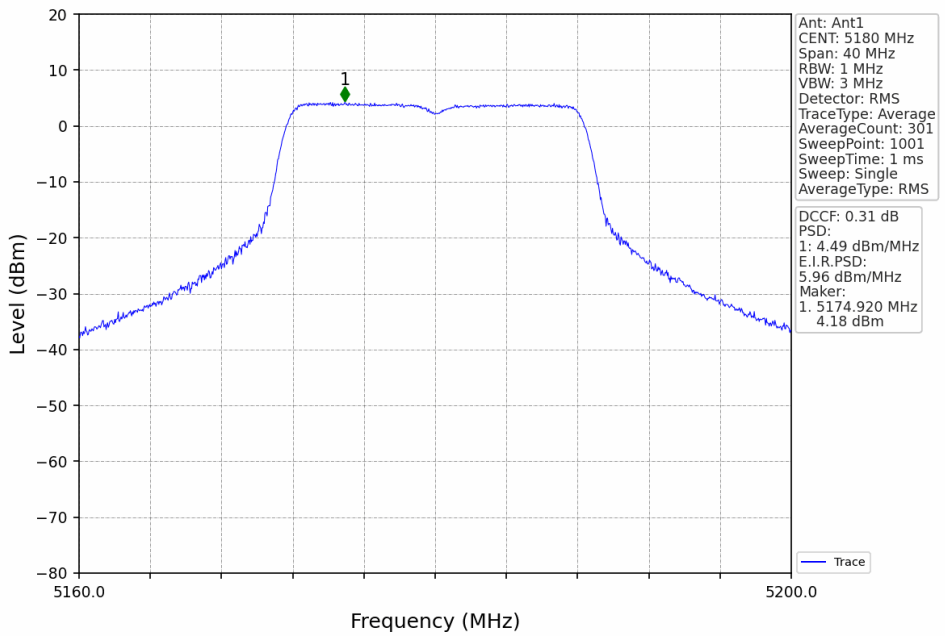


802.11ac(VHT20)_HCH_5825MHz_Ant1_NTNV

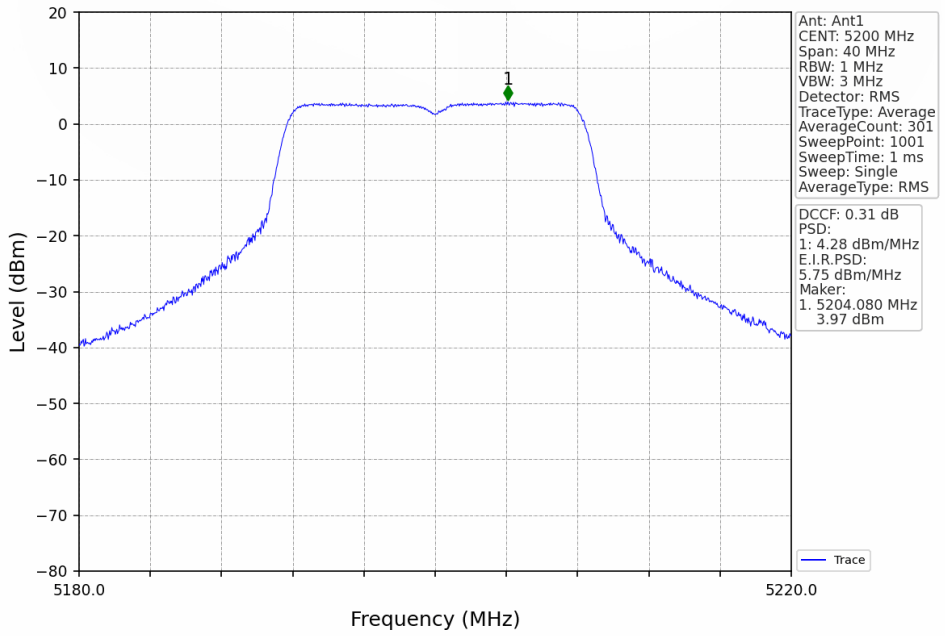


4.2.2 Test Graph

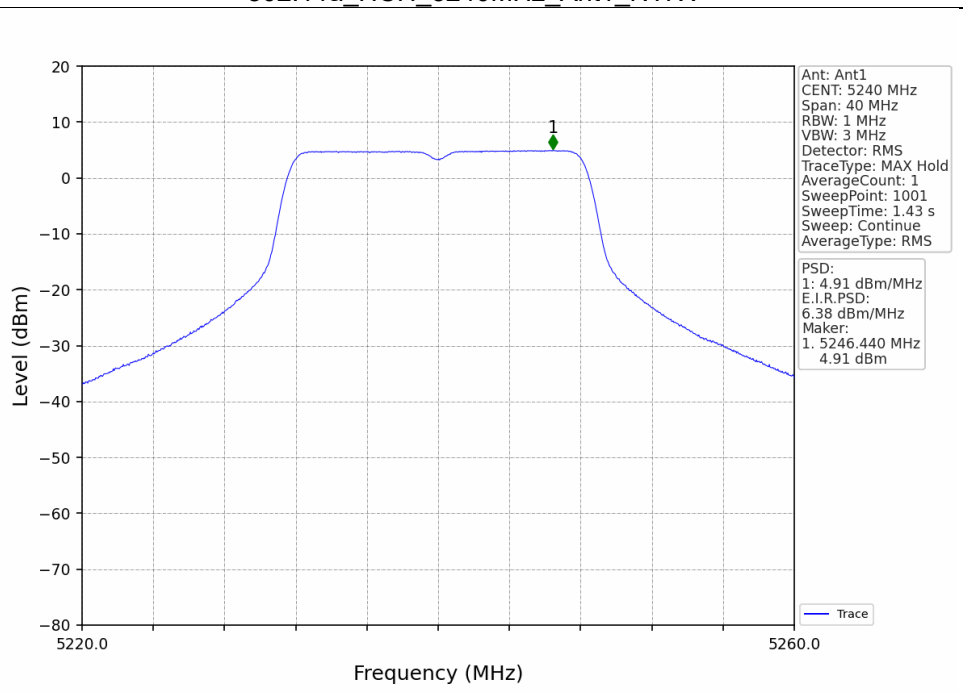
802.11a_LCH_5180MHz_Ant1_NTNV



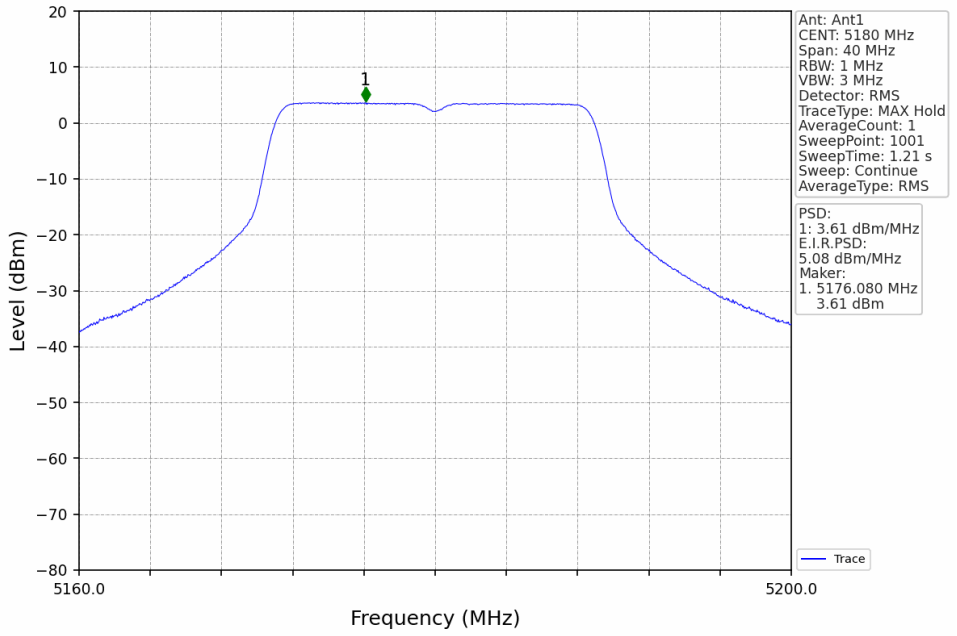
802.11a_MCH_5200MHz_Ant1_NTNV



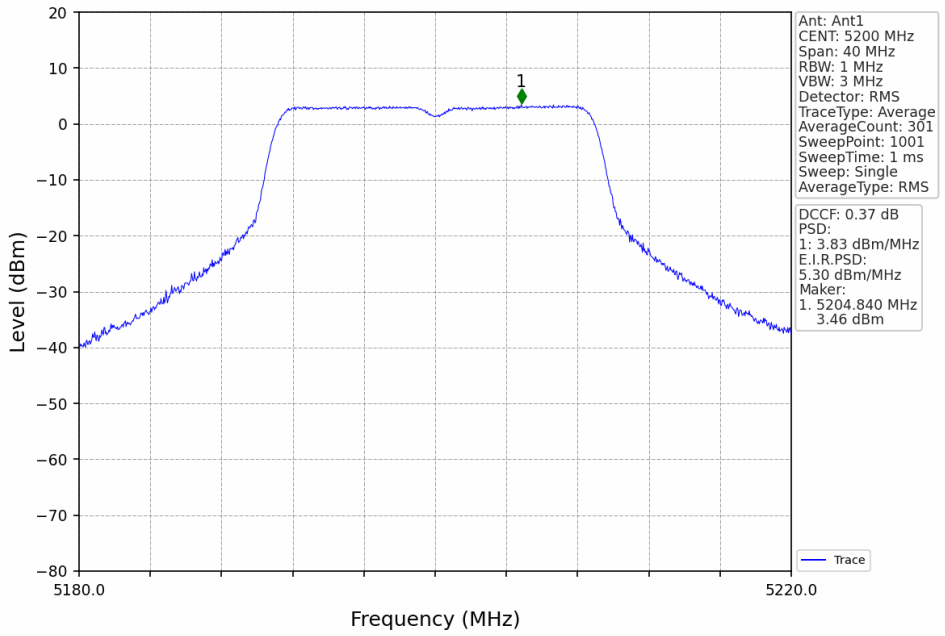
802.11a_HCH_5240MHz_Ant1_NTNV



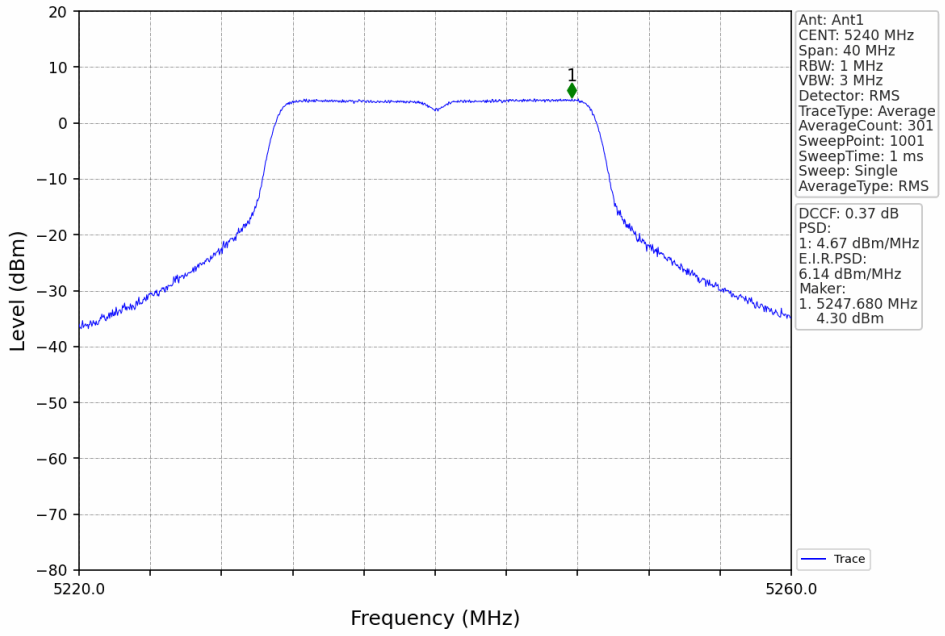
802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



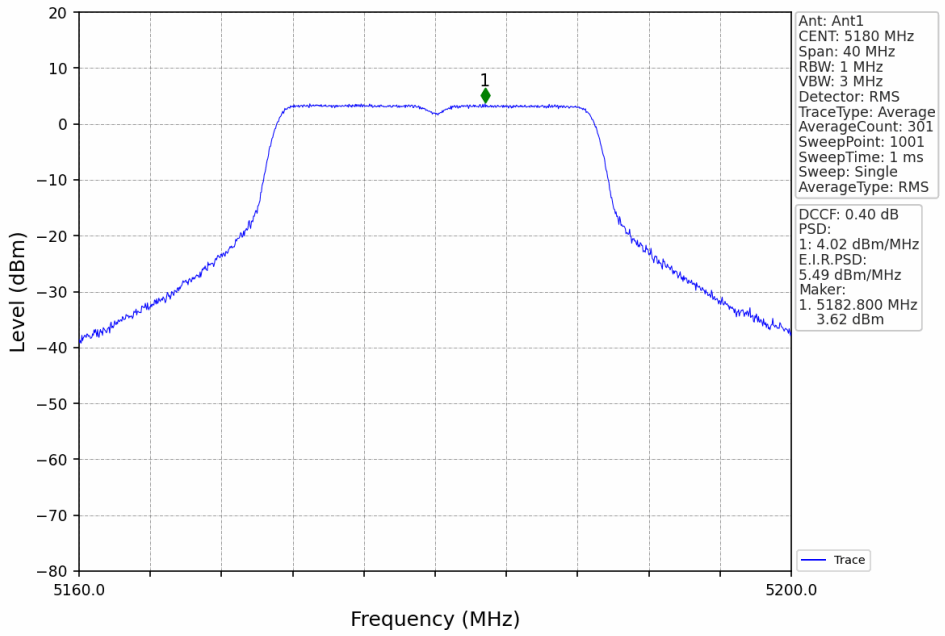
802.11n(HT20)_MCH_5200MHz_Ant1_NTNV



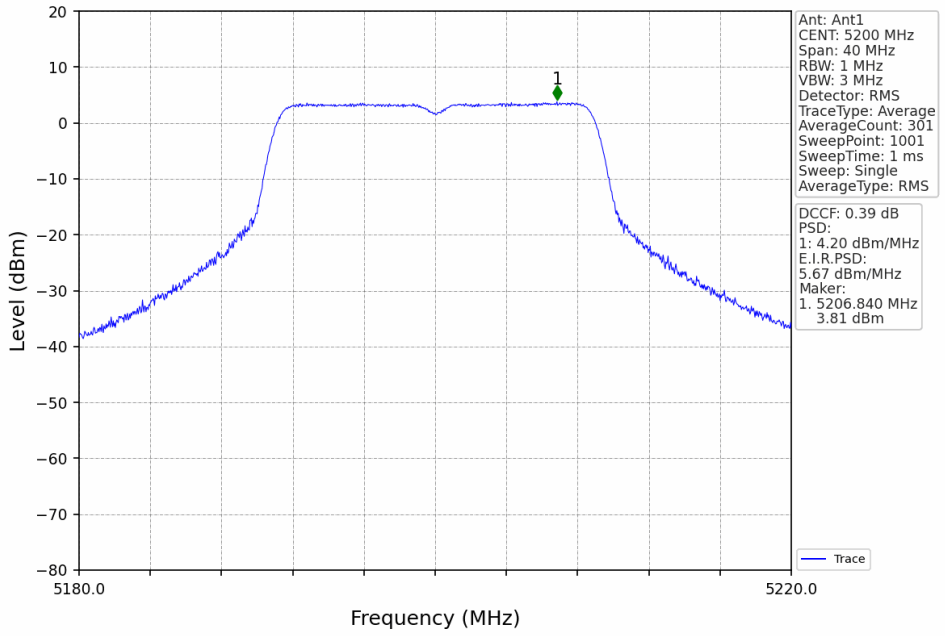
802.11n(HT20)_HCH_5240MHz_Ant1_NTNV



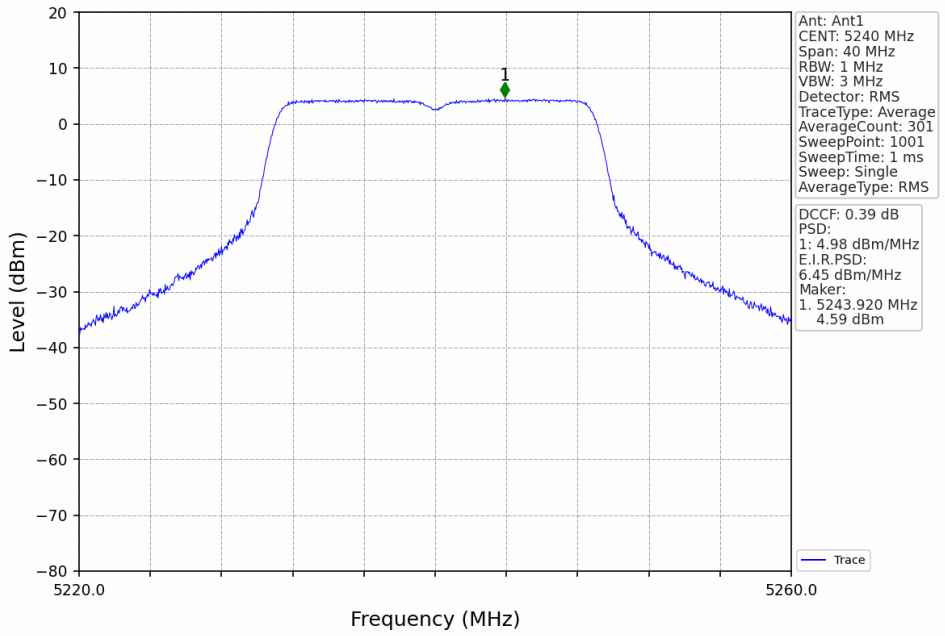
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV



802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV



5. Frequency Stability

5.1 Ant1

5.1.1 Test Result

Ant1							
Mode	TX Type	Frequency (MHz)	Temperature (°C)	Voltage (VAC)	Measured Frequency (MHz)	Limit (MHz)	Verdict
802.11a	SISO	5180	20	102	5180.000	5172.682 to 5187.318	Pass
				120	5180.060	5172.682 to 5187.318	Pass
				138	5180.020	5172.682 to 5187.318	Pass
			-30	120	5180.000	5172.682 to 5187.318	Pass
			50	120	5180.040	5172.682 to 5187.318	Pass
		5200	20	102	5200.040	5192.668 to 5207.332	Pass
				120	5200.040	5192.668 to 5207.332	Pass
				138	5200.020	5192.668 to 5207.332	Pass
			-30	120	5200.060	5192.668 to 5207.332	Pass
			50	120	5200.020	5192.668 to 5207.332	Pass
		5240	20	102	5240.000	5232.671 to 5247.329	Pass
				120	5240.040	5232.671 to 5247.329	Pass
				138	5240.020	5232.671 to 5247.329	Pass
			-30	120	5240.040	5232.671 to 5247.329	Pass
			50	120	5240.020	5232.671 to 5247.329	Pass
		5745	20	102	5744.980	5737.699 to 5752.301	Pass
				120	5745.020	5737.699 to 5752.301	Pass
				138	5745.000	5737.699 to 5752.301	Pass
			-30	120	5745.040	5737.699 to 5752.301	Pass
			50	120	5745.040	5737.699 to 5752.301	Pass
		5785	20	102	5785.060	5777.695 to 5792.305	Pass
				120	5785.020	5777.695 to 5792.305	Pass
				138	5785.000	5777.695 to 5792.305	Pass
			-30	120	5785.060	5777.695 to 5792.305	Pass
			50	120	5785.060	5777.695 to 5792.305	Pass
		5825	20	102	5825.040	5817.721 to 5832.279	Pass
				120	5825.000	5817.721 to 5832.279	Pass
				138	5825.020	5817.721 to 5832.279	Pass
			-30	120	5825.020	5817.721 to 5832.279	Pass
			50	120	5825.000	5817.721 to 5832.279	Pass
802.11n (HT20)	SISO	5180	20	102	5180.000	5172.27 to 5187.73	Pass
				120	5180.100	5172.27 to 5187.73	Pass
				138	5180.060	5172.27 to 5187.73	Pass
			-30	120	5180.060	5172.27 to 5187.73	Pass
			50	120	5180.080	5172.27 to 5187.73	Pass
		5200	20	102	5200.080	5192.232 to 5207.768	Pass
				120	5200.060	5192.232 to 5207.768	Pass
				138	5200.080	5192.232 to 5207.768	Pass
			-30	120	5200.040	5192.232 to 5207.768	Pass
			50	120	5200.040	5192.232 to 5207.768	Pass
		5240	20	102	5240.000	5232.198 to 5247.802	Pass

				120	5240.080	5232.198 to 5247.802	Pass
				138	5240.040	5232.198 to 5247.802	Pass
			-30	120	5240.060	5232.198 to 5247.802	Pass
			50	120	5240.020	5232.198 to 5247.802	Pass
		5745	20	102	5745.020	5737.246 to 5752.754	Pass
				120	5745.080	5737.246 to 5752.754	Pass
				138	5744.960	5737.246 to 5752.754	Pass
			-30	120	5745.000	5737.246 to 5752.754	Pass
			50	120	5745.040	5737.246 to 5752.754	Pass
		5785	20	102	5785.020	5777.286 to 5792.714	Pass
				120	5785.080	5777.286 to 5792.714	Pass
				138	5785.040	5777.286 to 5792.714	Pass
			-30	120	5785.060	5777.286 to 5792.714	Pass
			50	120	5785.060	5777.286 to 5792.714	Pass
		5825	20	102	5825.040	5817.308 to 5832.692	Pass
				120	5825.060	5817.308 to 5832.692	Pass
				138	5825.060	5817.308 to 5832.692	Pass
			-30	120	5825.040	5817.308 to 5832.692	Pass
			50	120	5825.060	5817.308 to 5832.692	Pass
802.11ac (VHT20)	SISO	5180	20	102	5180.020	5172.306 to 5187.694	Pass
				120	5180.040	5172.306 to 5187.694	Pass
				138	5180.040	5172.306 to 5187.694	Pass
			-30	120	5180.040	5172.306 to 5187.694	Pass
			50	120	5180.040	5172.306 to 5187.694	Pass
		5200	20	102	5200.060	5192.228 to 5207.772	Pass
				120	5200.060	5192.228 to 5207.772	Pass
				138	5200.060	5192.228 to 5207.772	Pass
			-30	120	5200.100	5192.228 to 5207.772	Pass
			50	120	5200.080	5192.228 to 5207.772	Pass
		5240	20	102	5240.020	5232.197 to 5247.803	Pass
				120	5240.040	5232.197 to 5247.803	Pass
				138	5240.040	5232.197 to 5247.803	Pass
			-30	120	5240.080	5232.197 to 5247.803	Pass
			50	120	5240.060	5232.197 to 5247.803	Pass
		5745	20	102	5745.020	5737.283 to 5752.717	Pass
				120	5745.000	5737.283 to 5752.717	Pass
				138	5745.020	5737.283 to 5752.717	Pass
			-30	120	5745.060	5737.283 to 5752.717	Pass
			50	120	5745.060	5737.283 to 5752.717	Pass
		5785	20	102	5785.020	5777.262 to 5792.738	Pass
				120	5785.080	5777.262 to 5792.738	Pass
				138	5785.060	5777.262 to 5792.738	Pass
			-30	120	5785.040	5777.262 to 5792.738	Pass
			50	120	5785.080	5777.262 to 5792.738	Pass
		5825	20	102	5825.020	5817.267 to 5832.733	Pass
				120	5825.040	5817.267 to 5832.733	Pass
				138	5825.040	5817.267 to 5832.733	Pass
			-30	120	5825.100	5817.267 to 5832.733	Pass
			50	120	5825.040	5817.267 to 5832.733	Pass

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