

Test Data for 5G_Band 3_WIFI

Product Name: Laser Projector

Test Model: PJ90

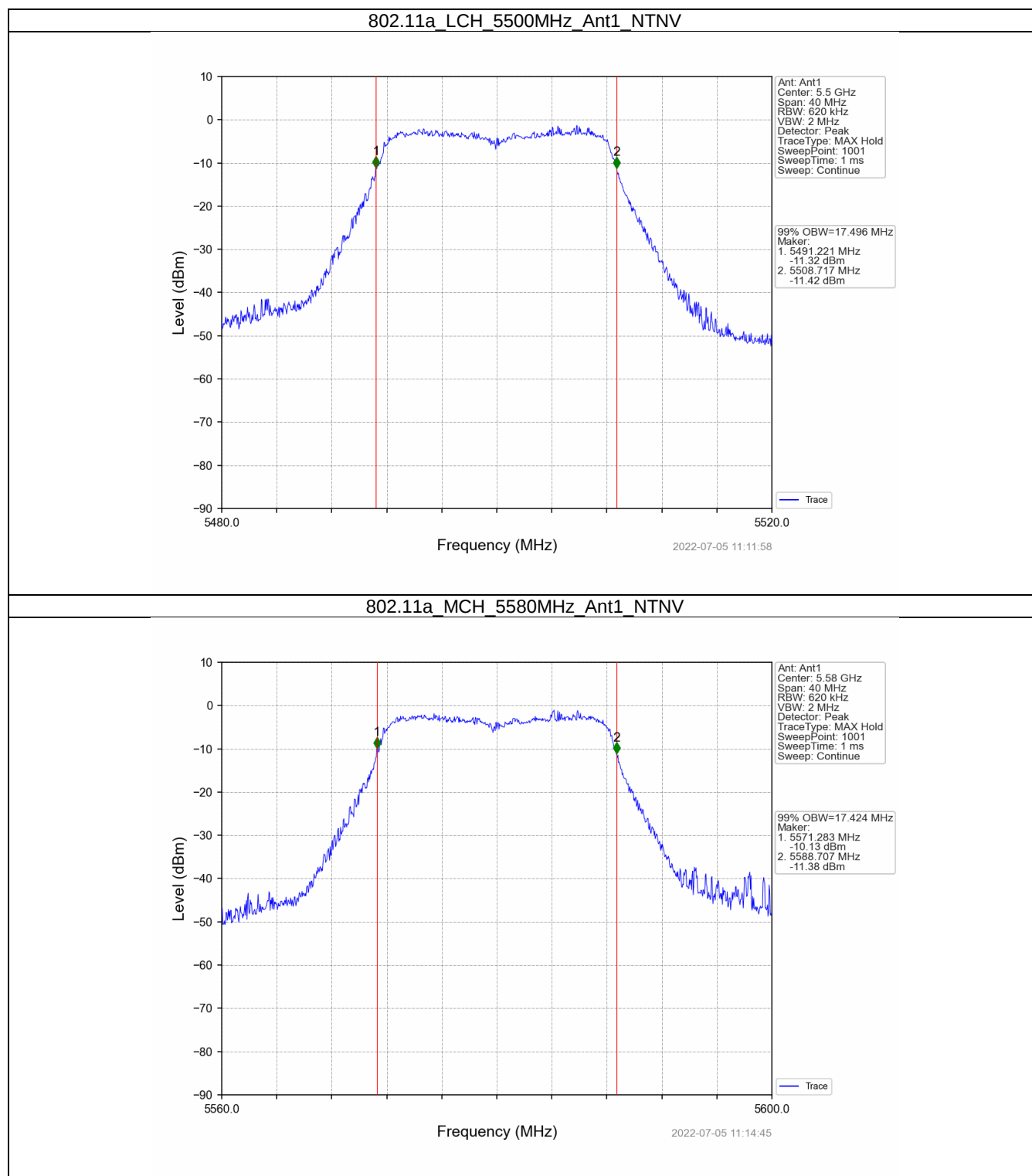
1. Bandwidth

1.1 OBW

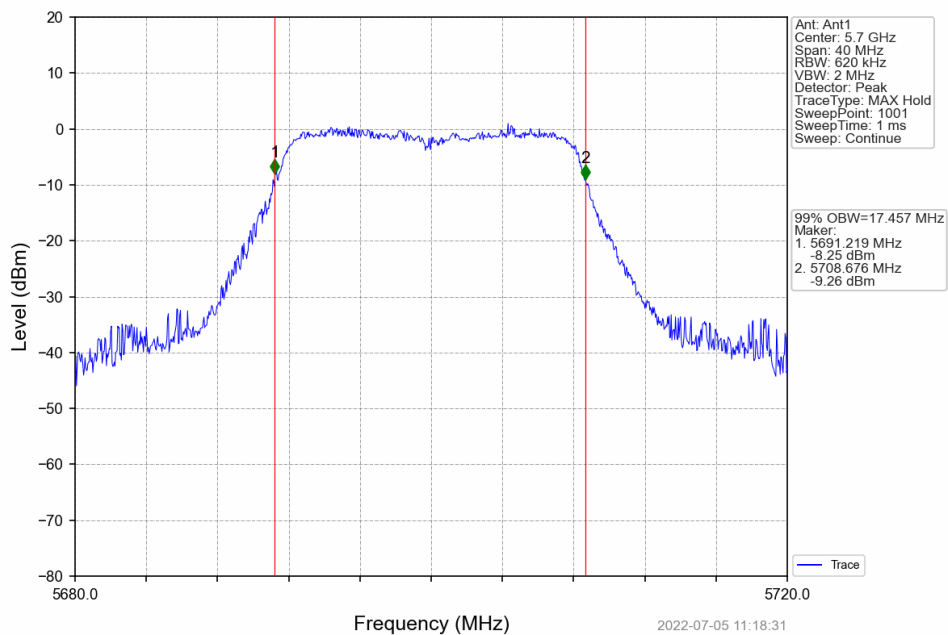
1.1.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)	Verdict
				Result	
802.11a	SISO	5500	1	17.496	Pass
		5580	1	17.424	Pass
		5700	1	17.457	Pass
802.11n (HT20)	SISO	5500	1	18.424	Pass
		5580	1	18.455	Pass
		5700	1	18.387	Pass
802.11n (HT40)	SISO	5510	1	36.785	Pass
		5550	1	36.808	Pass
		5670	1	36.722	Pass
802.11ac (VHT20)	SISO	5500	1	18.284	Pass
		5580	1	18.273	Pass
		5700	1	18.223	Pass
802.11ac (VHT40)	SISO	5510	1	36.788	Pass
		5550	1	36.903	Pass
		5670	1	36.797	Pass
802.11ac (VHT80)	SISO	5530	1	76.034	Pass
		5610	1	76.120	Pass

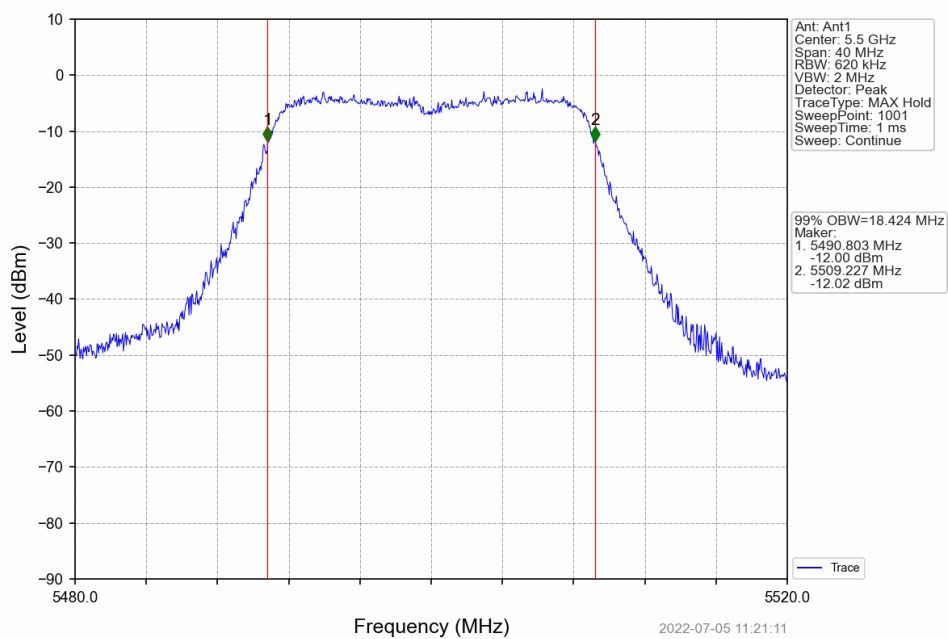
1.1.2 Test Graph



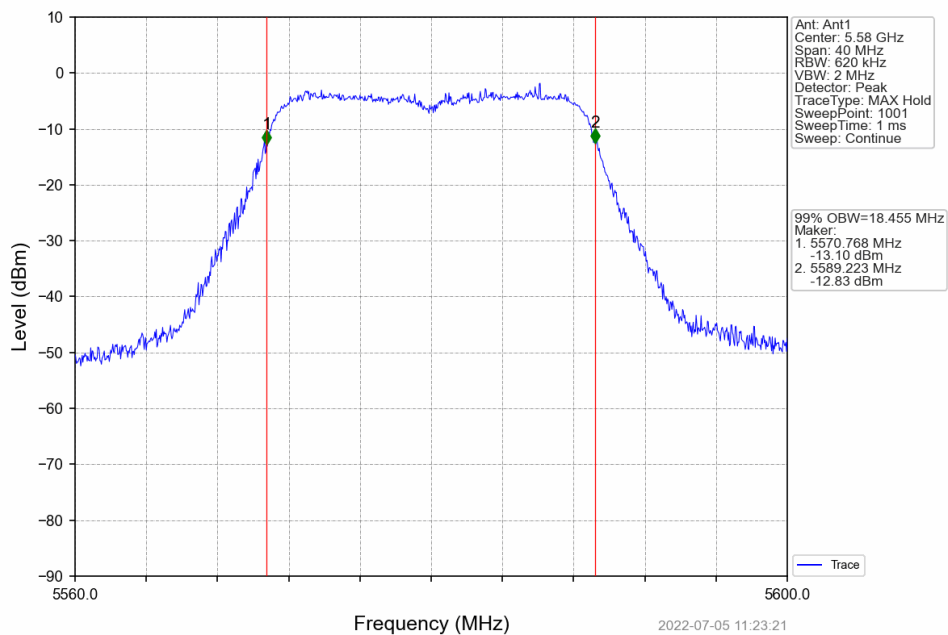
802.11a HCH 5700MHz Ant1 NTNV



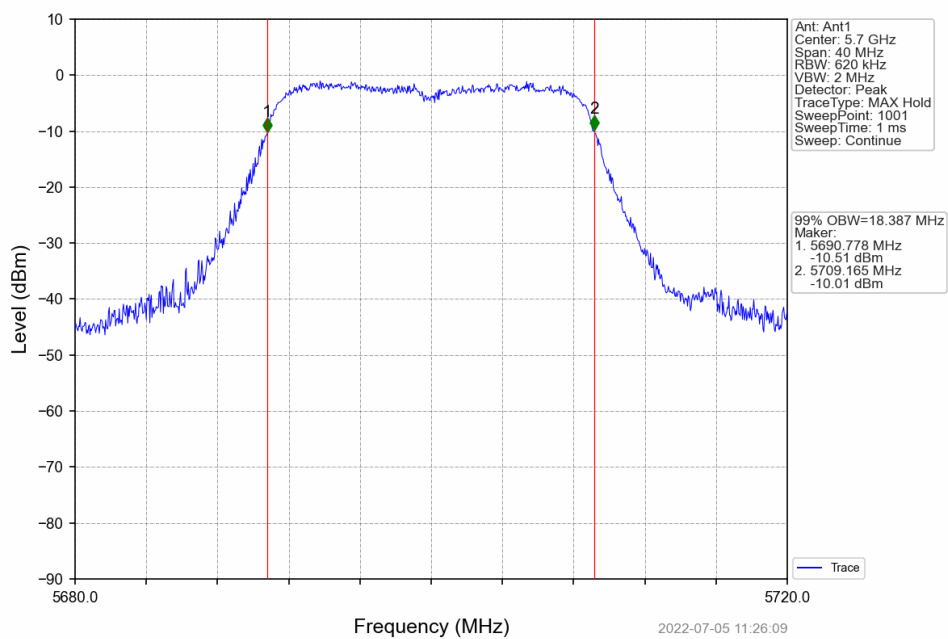
802.11n(HT20) LCH 5500MHz Ant1 NTNV



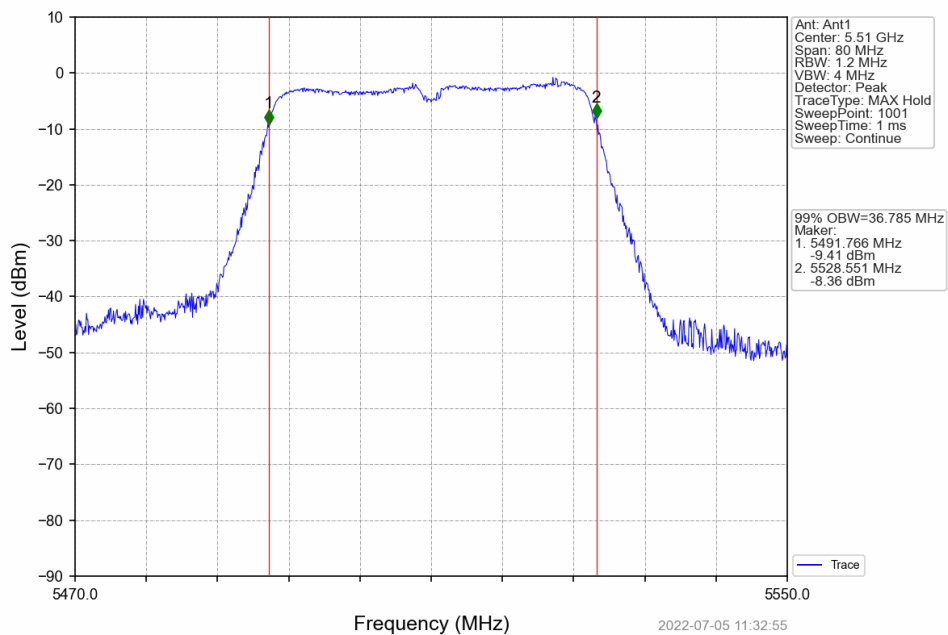
802.11n(HT20) MCH 5580MHz Ant1 NTN



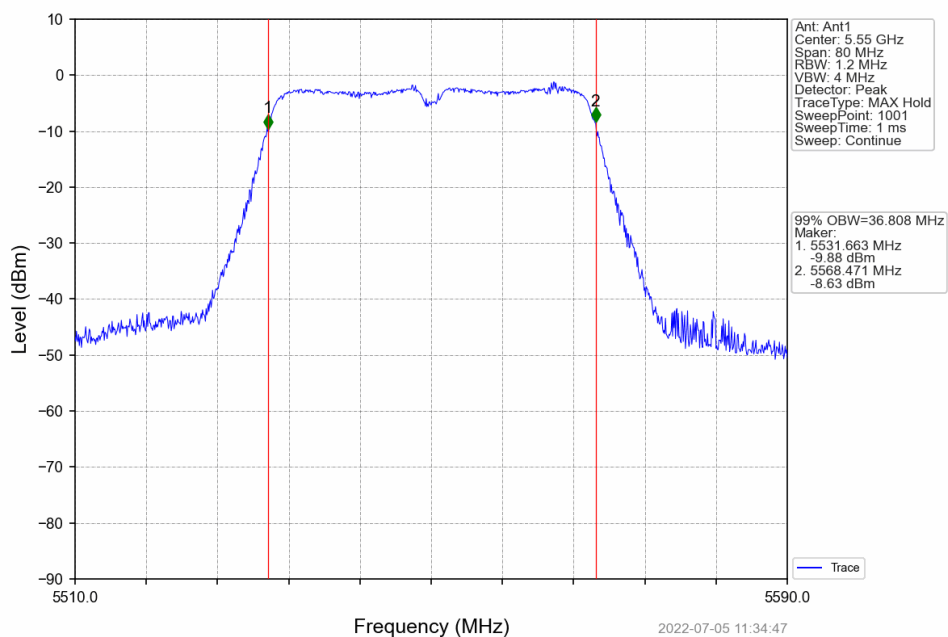
802.11n(HT20)_HCH_5700MHz_Ant1_NTN

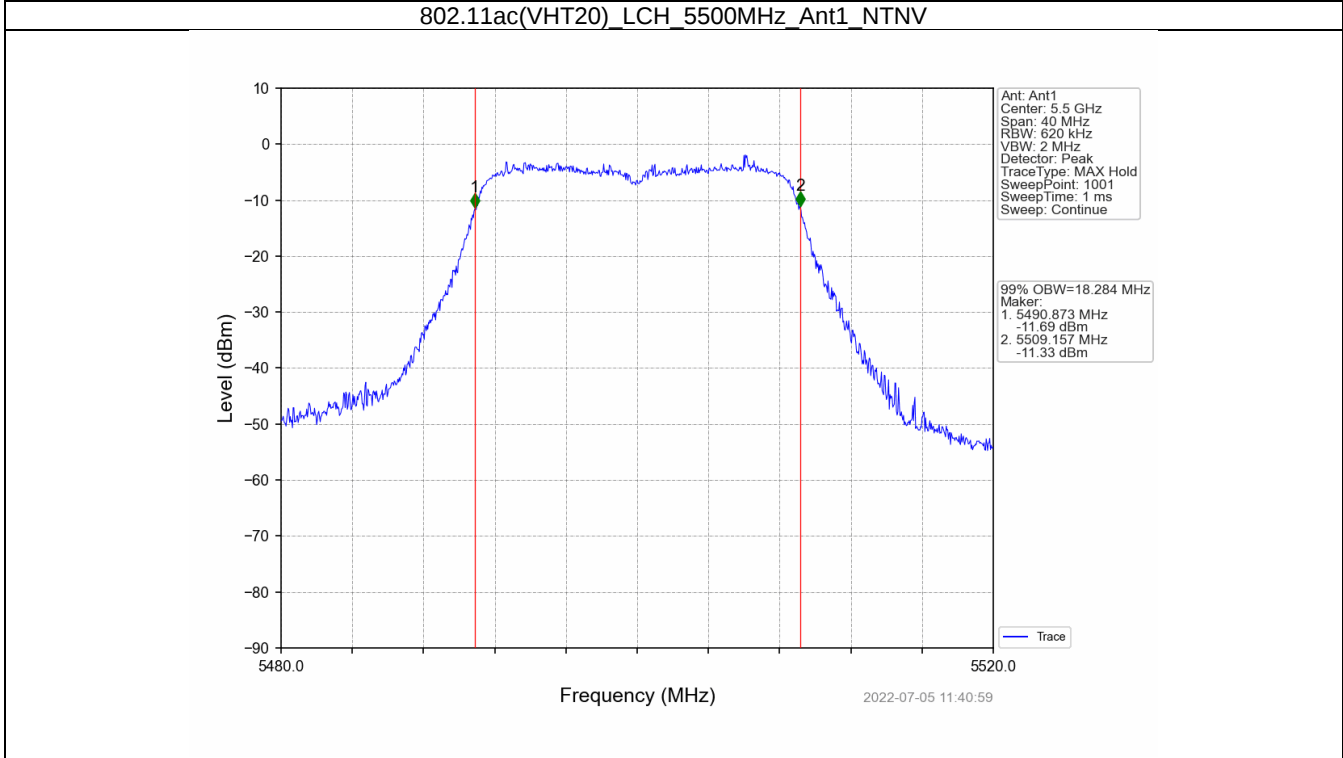
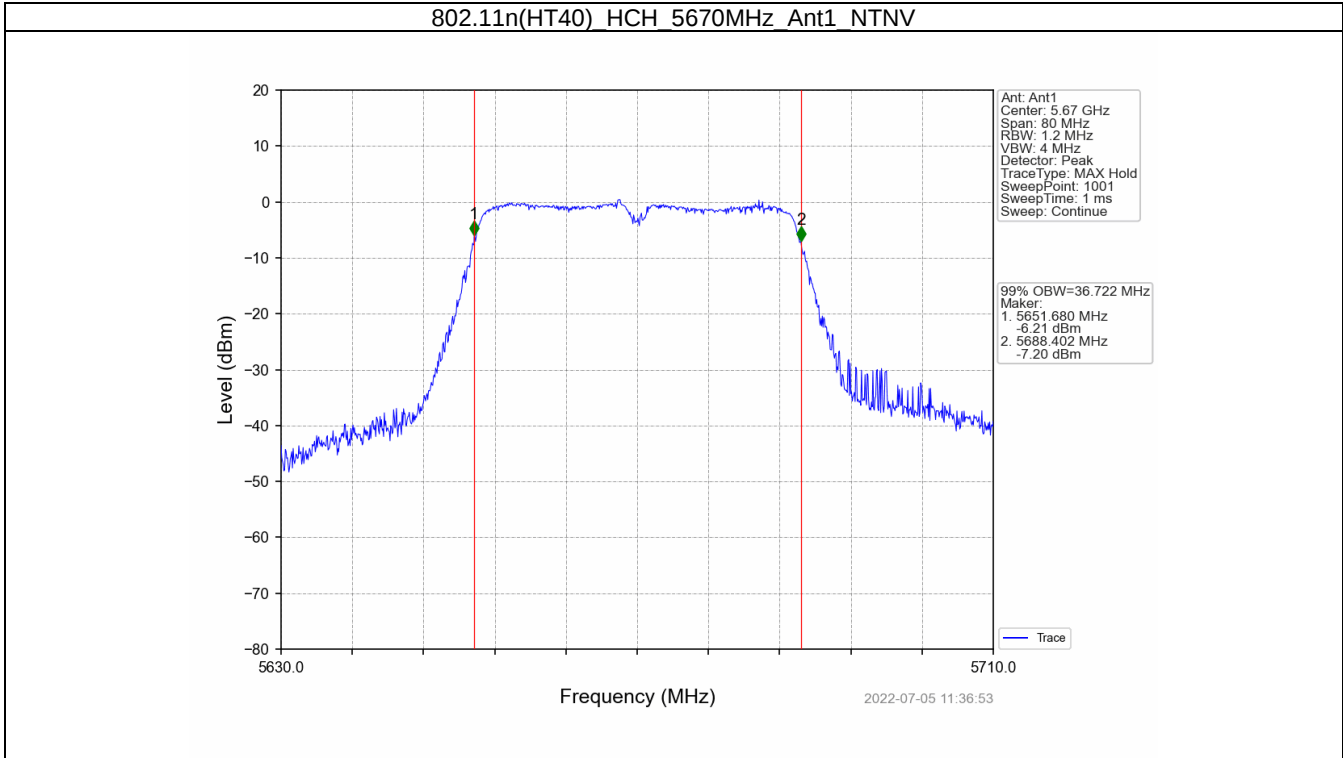


802.11n(HT40) LCH 5510MHz Ant1 NTN

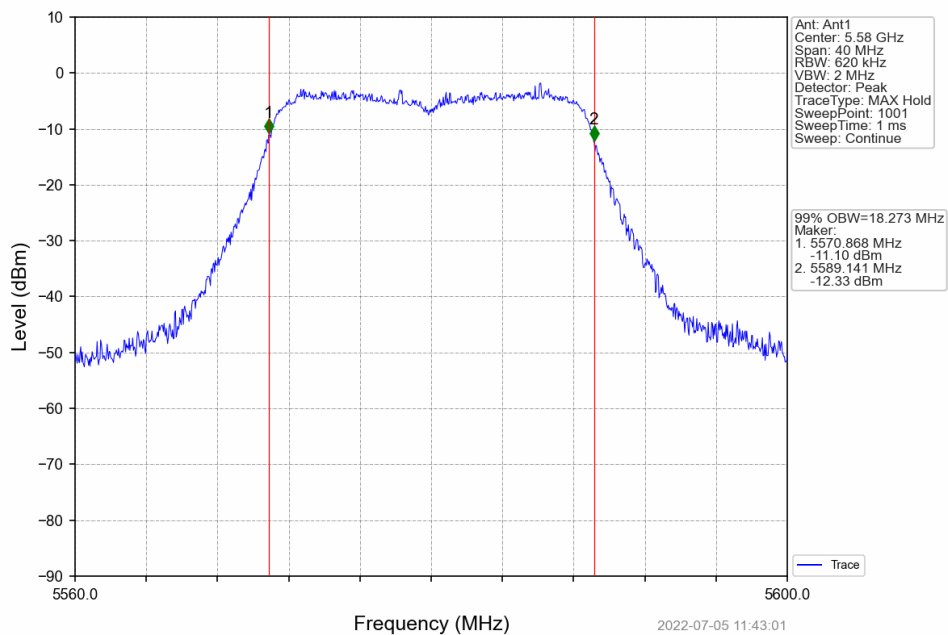


802.11n(HT40)_MCH_5550MHz_Ant1_NTN

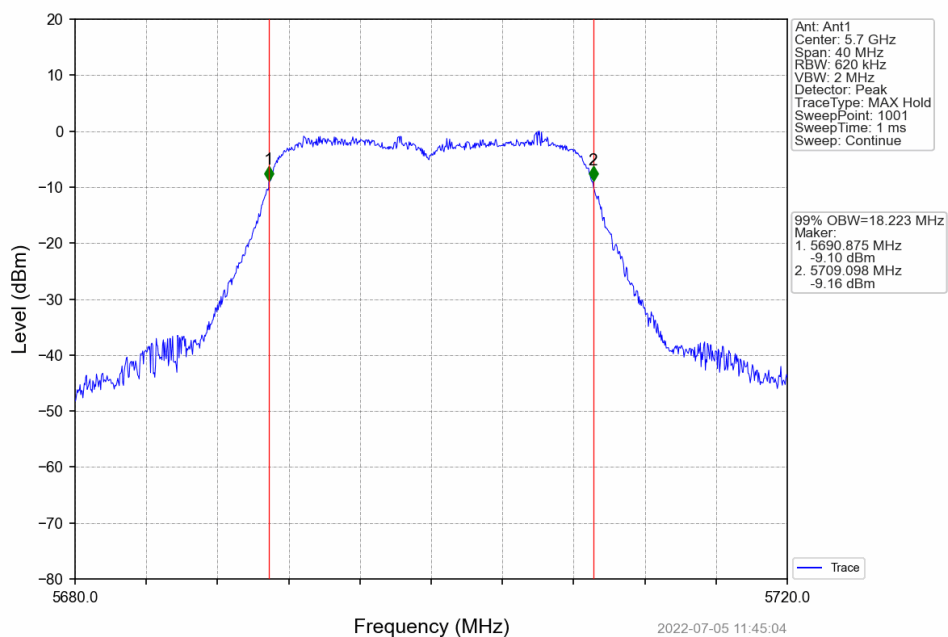


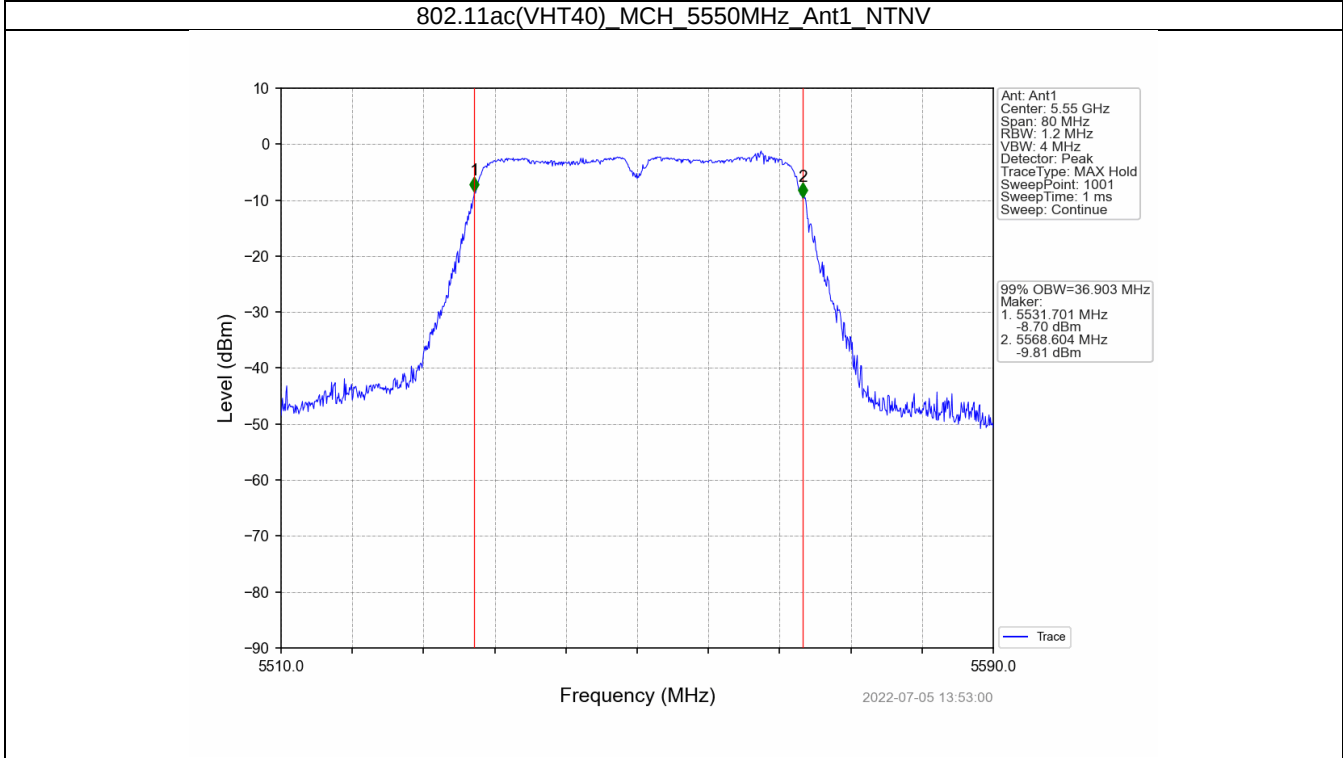
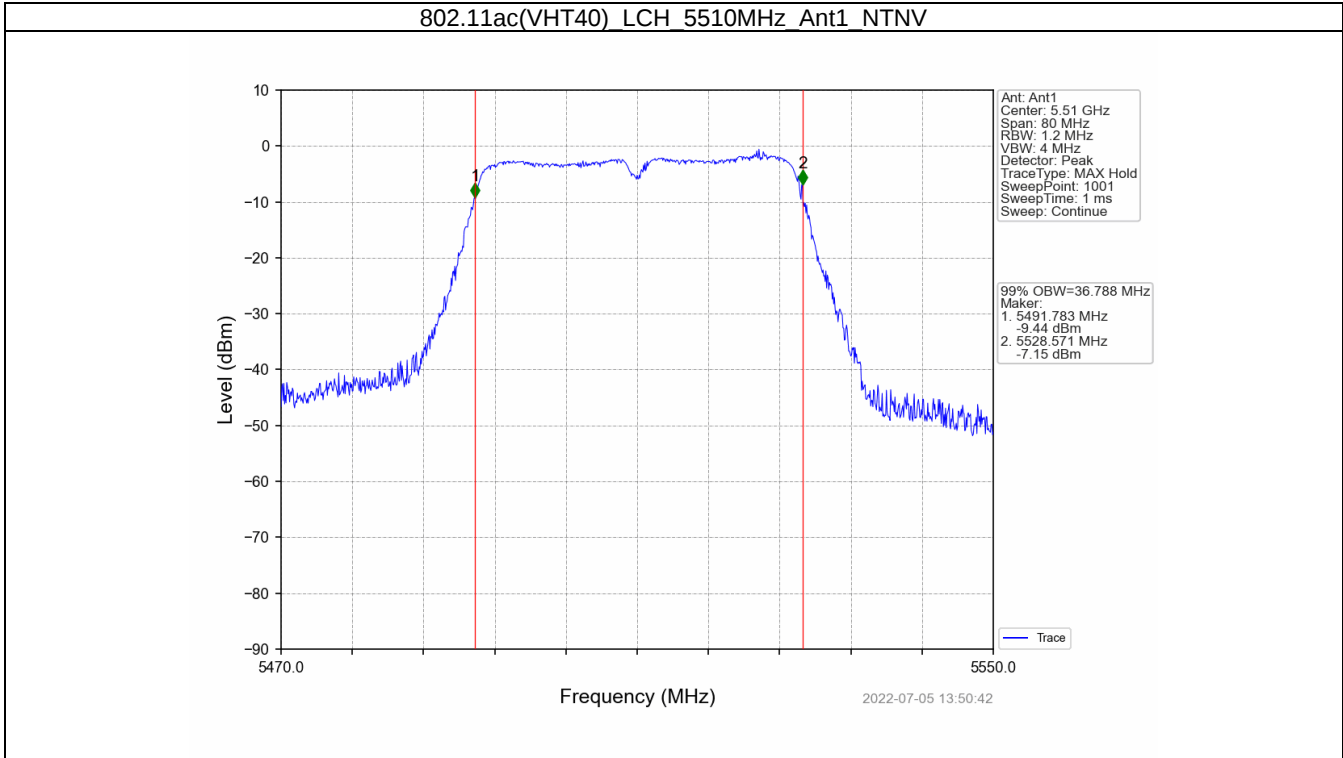


802.11ac(VHT20) MCH 5580MHz Ant1 NTN

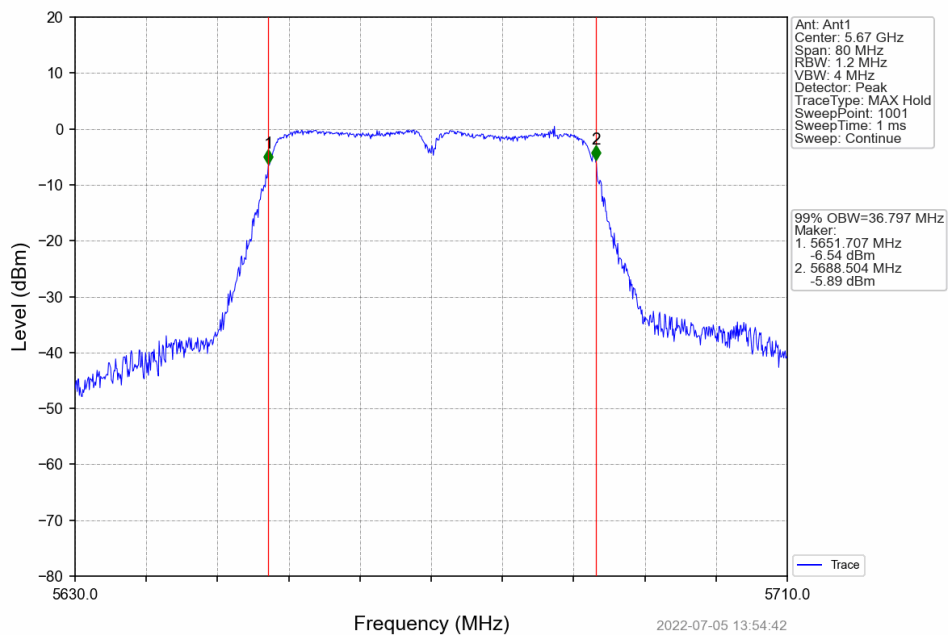


802.11ac(VHT20)_HCH_5700MHz_Ant1_NTN

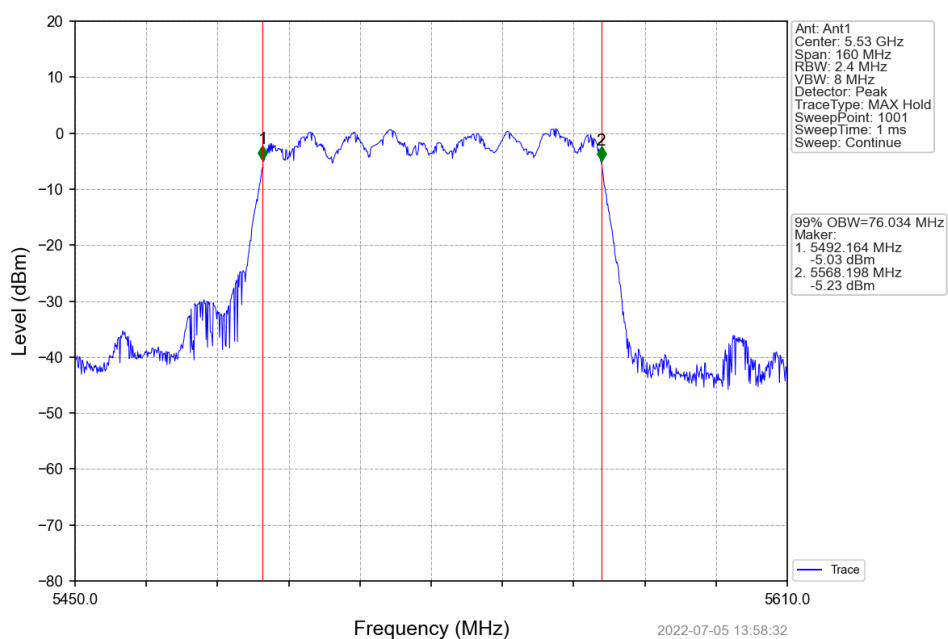


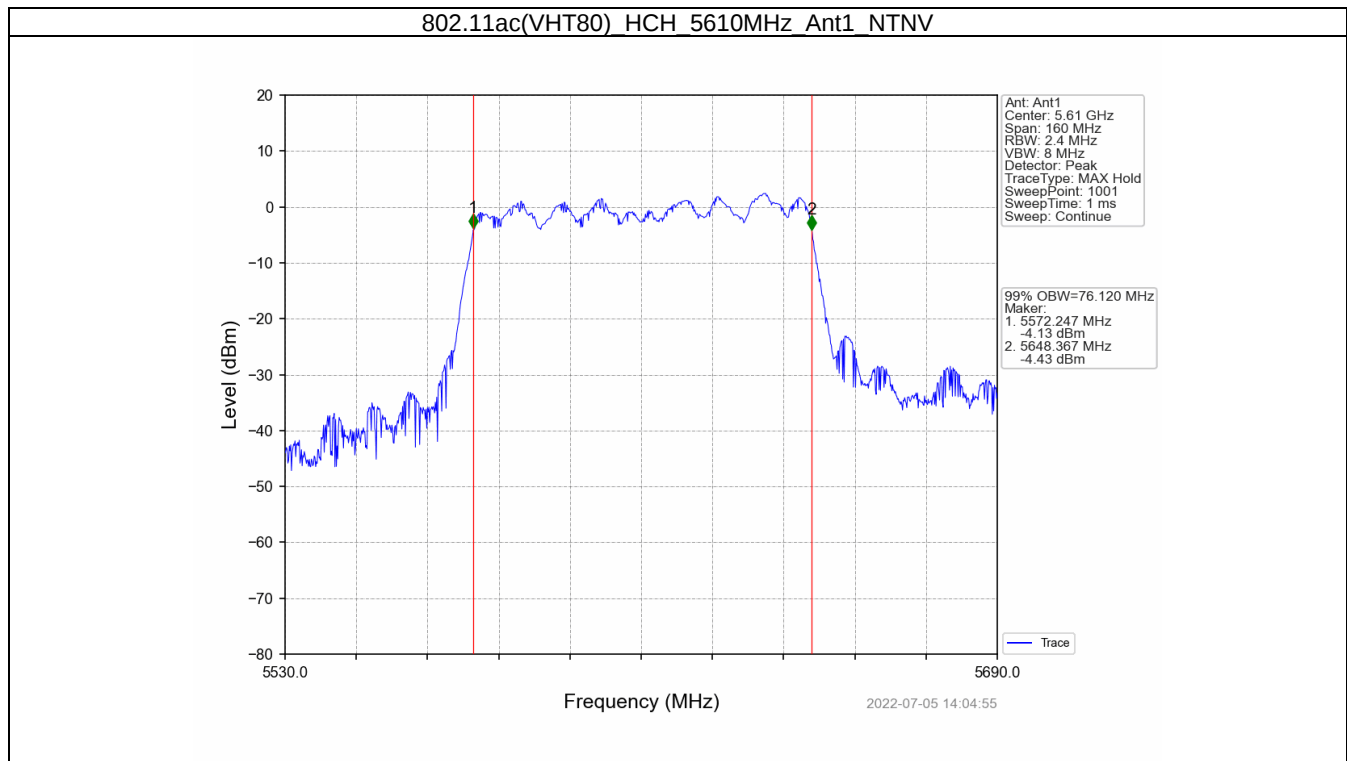


802.11ac(VHT40) HCH 5670MHz Ant1 NTN



802.11ac(VHT80)_LCH_5530MHz_Ant1_NTN



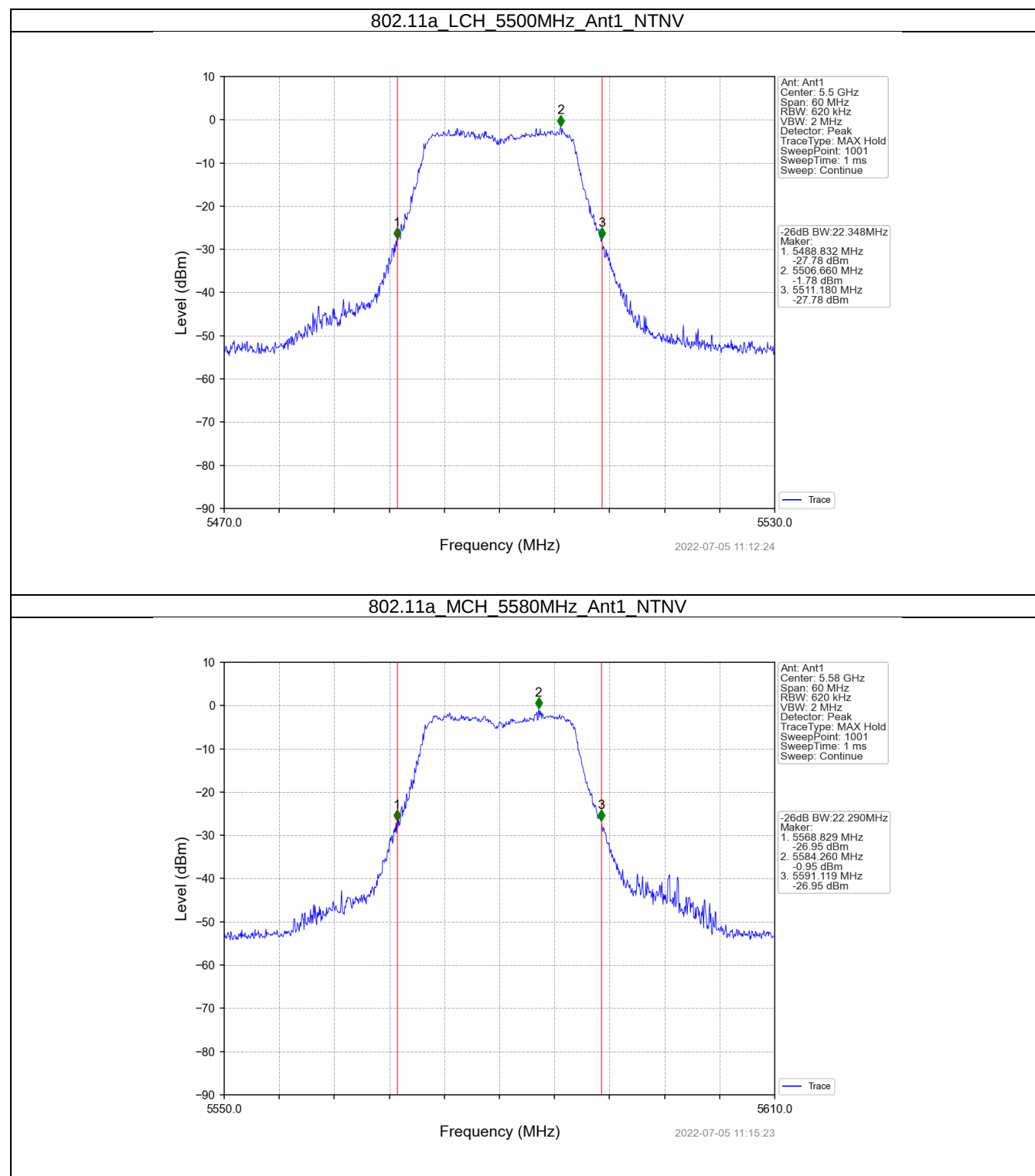


1.2 26dB BW

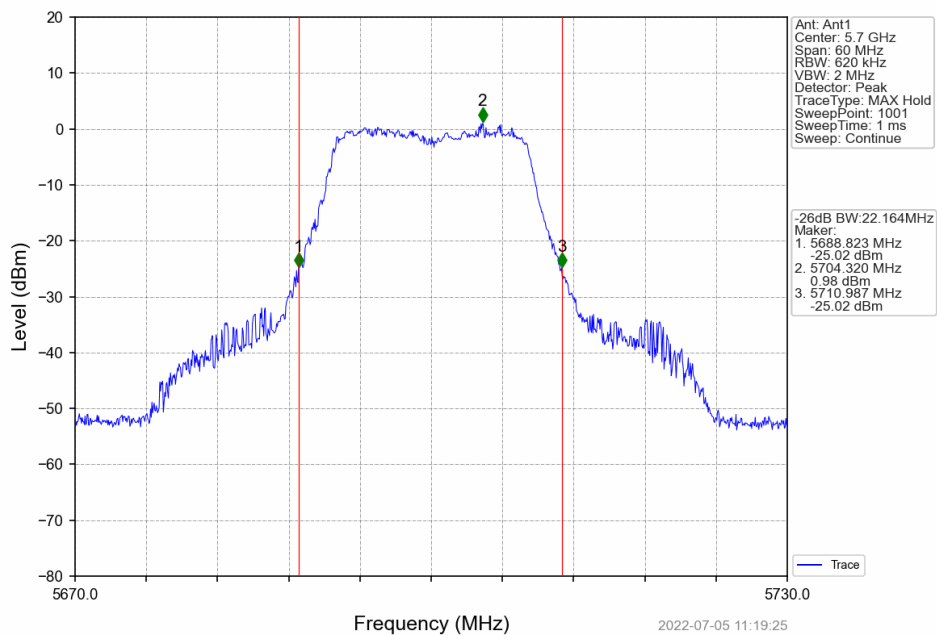
1.2.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	26dB Bandwidth (MHz)	Verdict
				Result	
802.11a	SISO	5500	1	22.348	Pass
		5580	1	22.290	Pass
		5700	1	22.164	Pass
802.11n (HT20)	SISO	5500	1	22.437	Pass
		5580	1	22.676	Pass
		5700	1	22.804	Pass
802.11n (HT40)	SISO	5510	1	42.924	Pass
		5550	1	43.844	Pass
		5670	1	43.940	Pass
802.11ac (VHT20)	SISO	5500	1	22.393	Pass
		5580	1	22.452	Pass
		5700	1	22.318	Pass
802.11ac (VHT40)	SISO	5510	1	43.142	Pass
		5550	1	43.010	Pass
		5670	1	43.577	Pass
802.11ac (VHT80)	SISO	5530	1	84.769	Pass
		5610	1	88.454	Pass

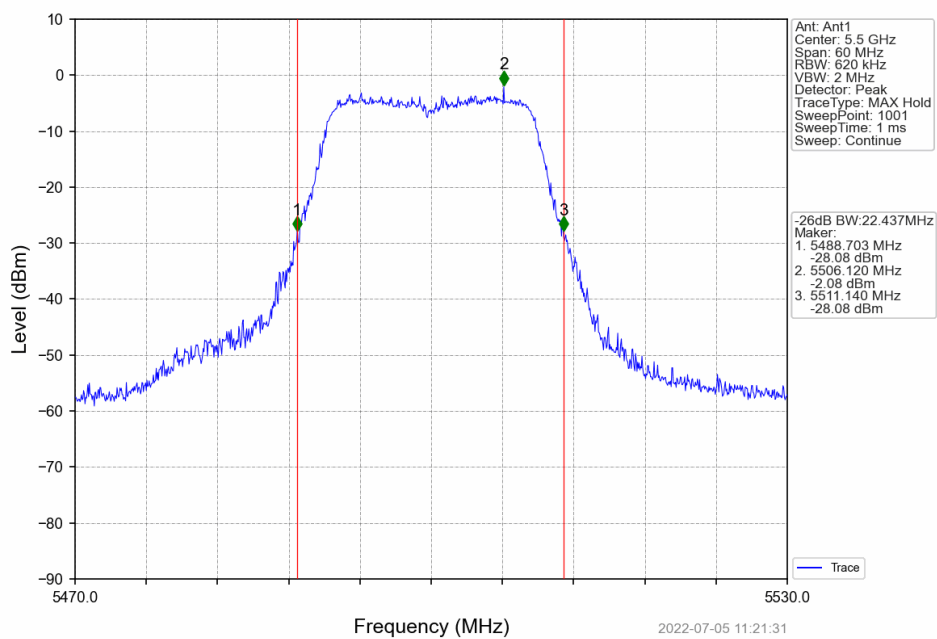
1.2.2 Test Graph



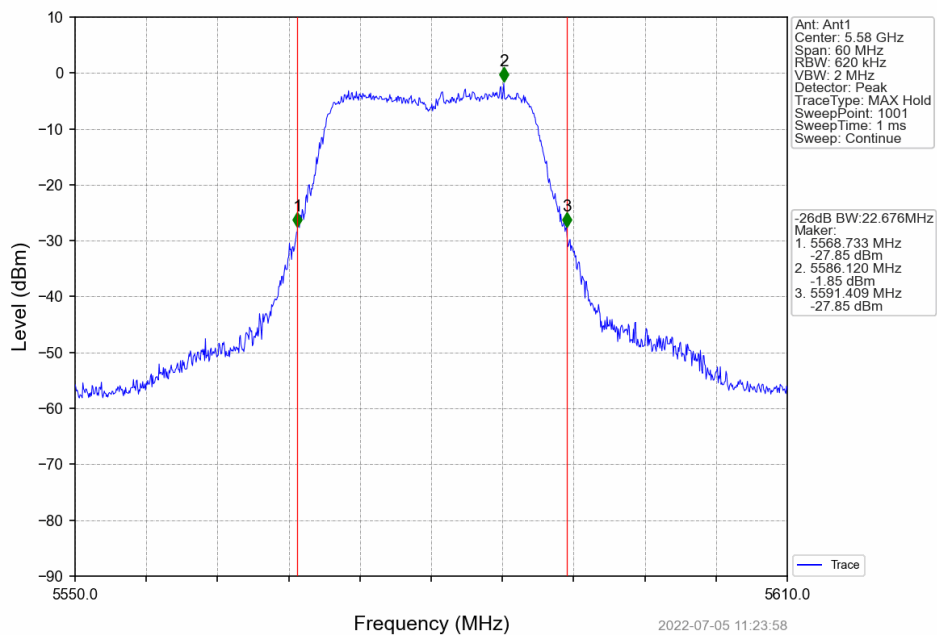
802.11a HCH 5700MHz Ant1 NTN



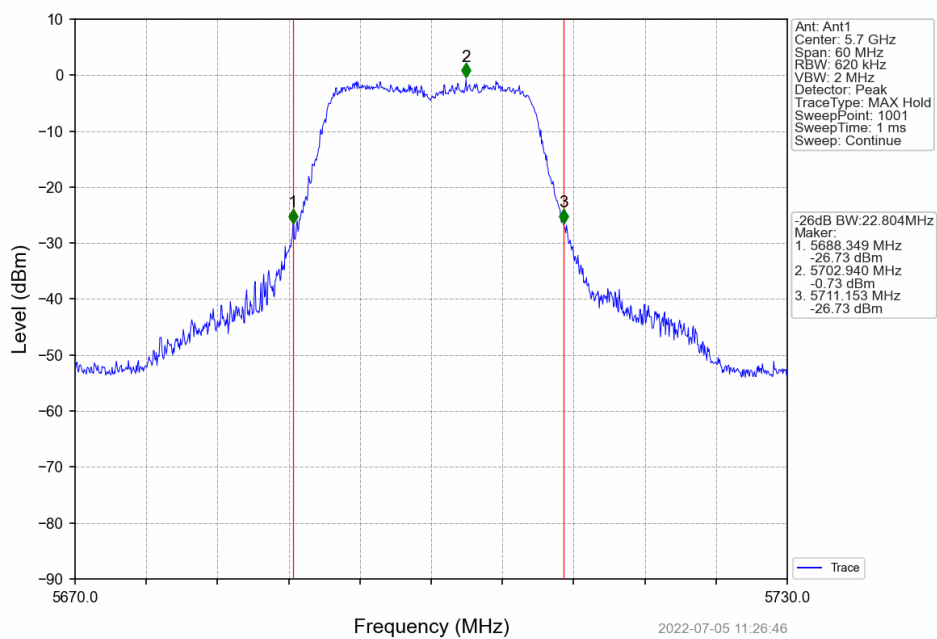
802.11n(HT20) LCH 5500MHz Ant1 NTN



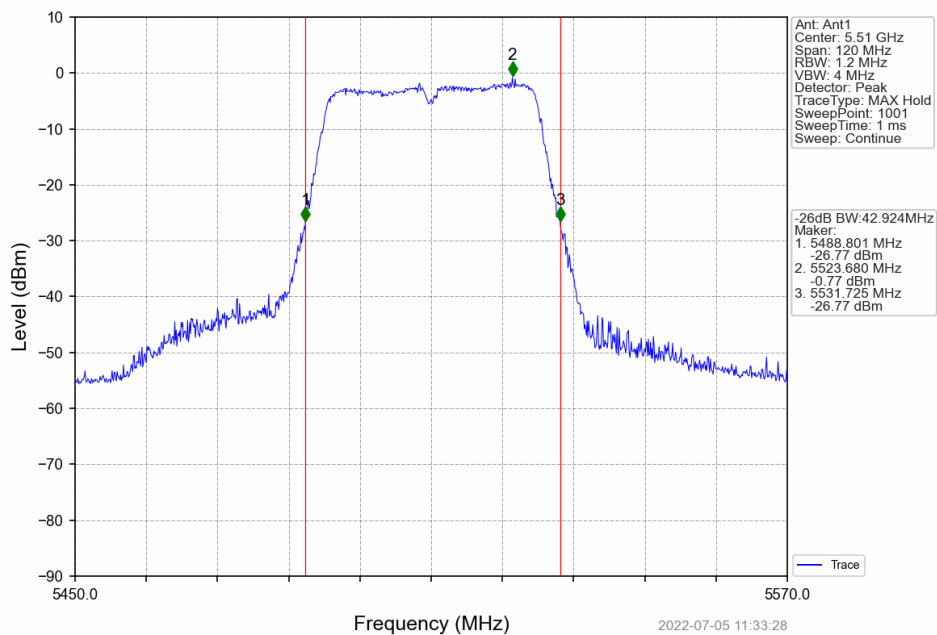
802.11n(HT20) MCH 5580MHz Ant1 NTN



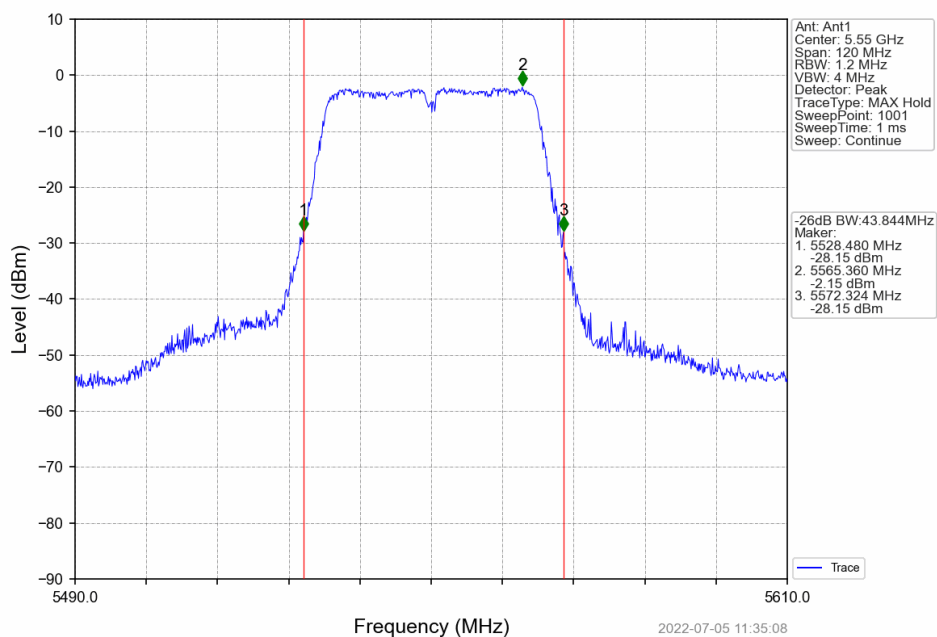
802.11n(HT20)_HCH_5700MHz_Ant1_NTN



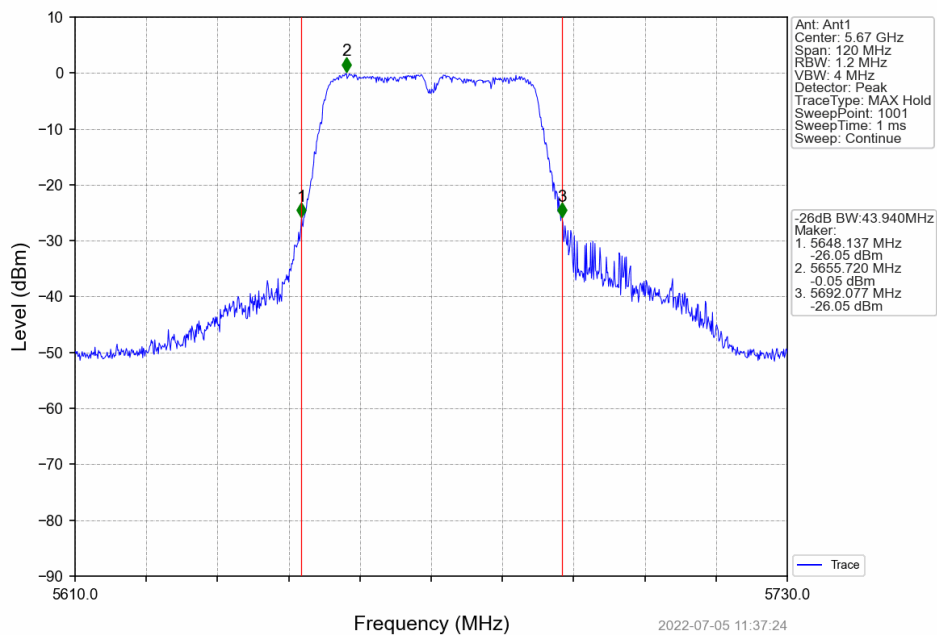
802.11n(HT40) LCH 5510MHz Ant1 NTN



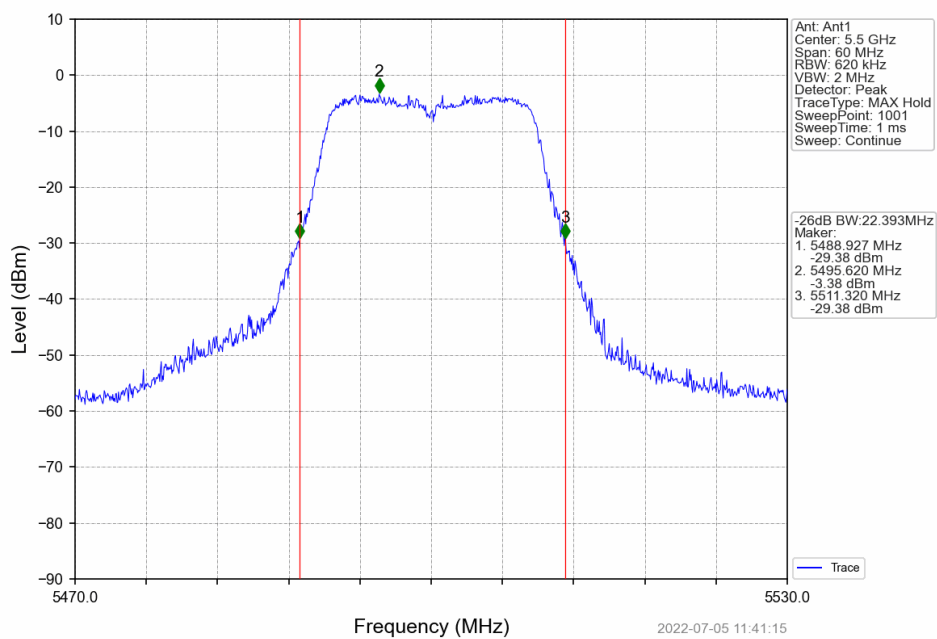
802.11n(HT40)_MCH_5550MHz_Ant1_NTN



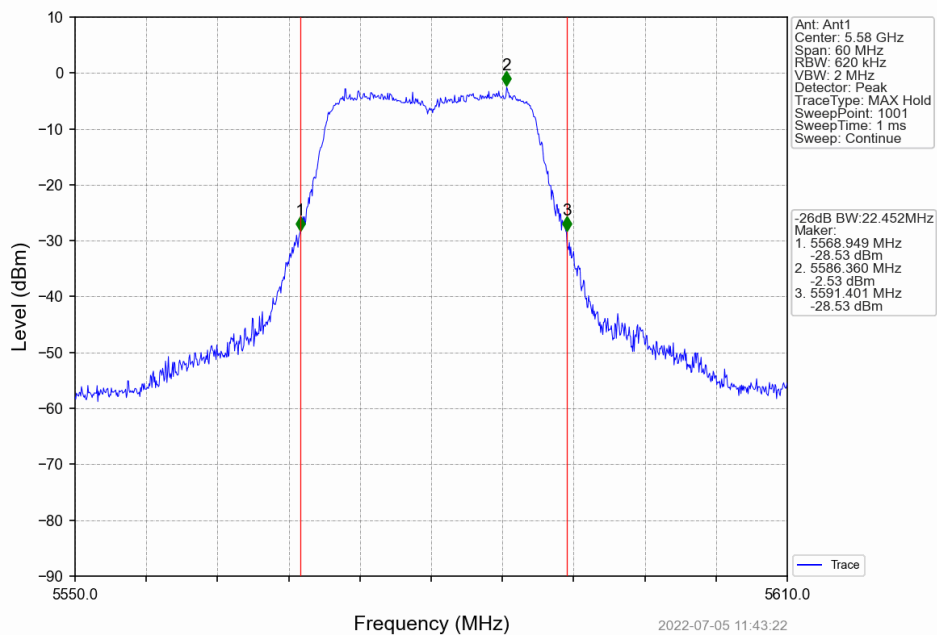
802.11n(HT40) HCH 5670MHz Ant1 NTN



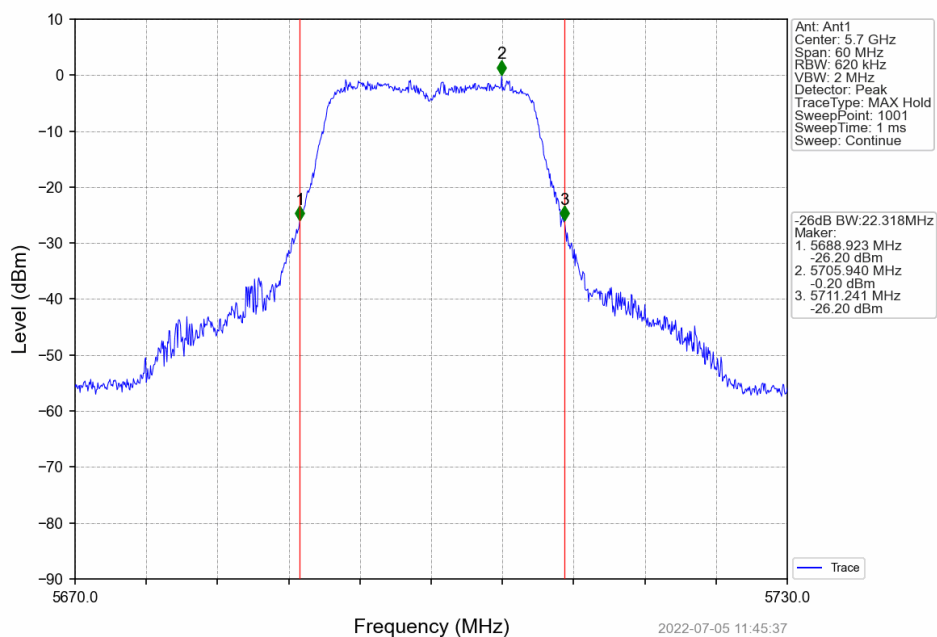
802.11ac(VHT20)_LCH_5500MHz_Ant1_NTN



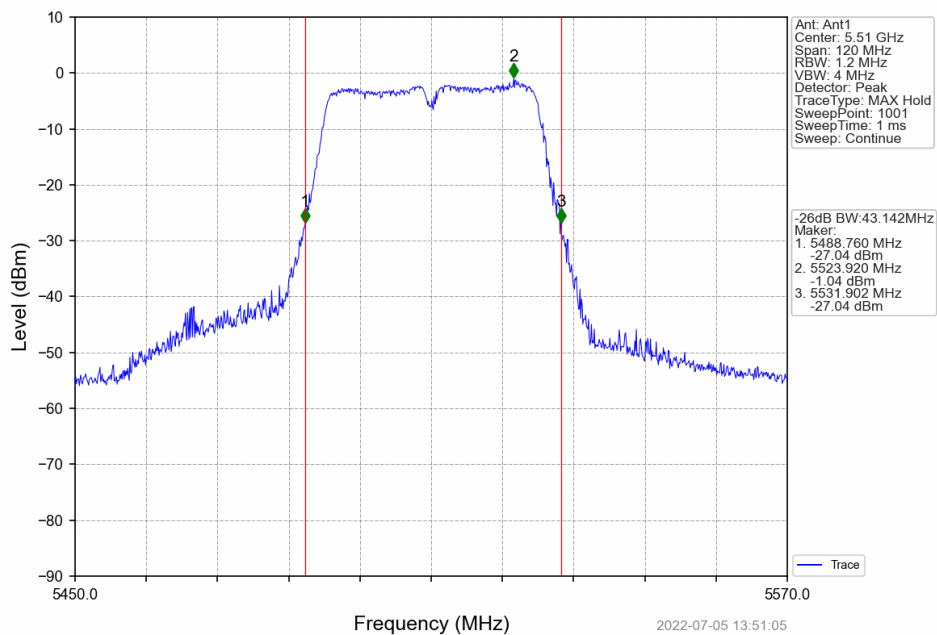
802.11ac(VHT20) MCH 5580MHz Ant1 NTN



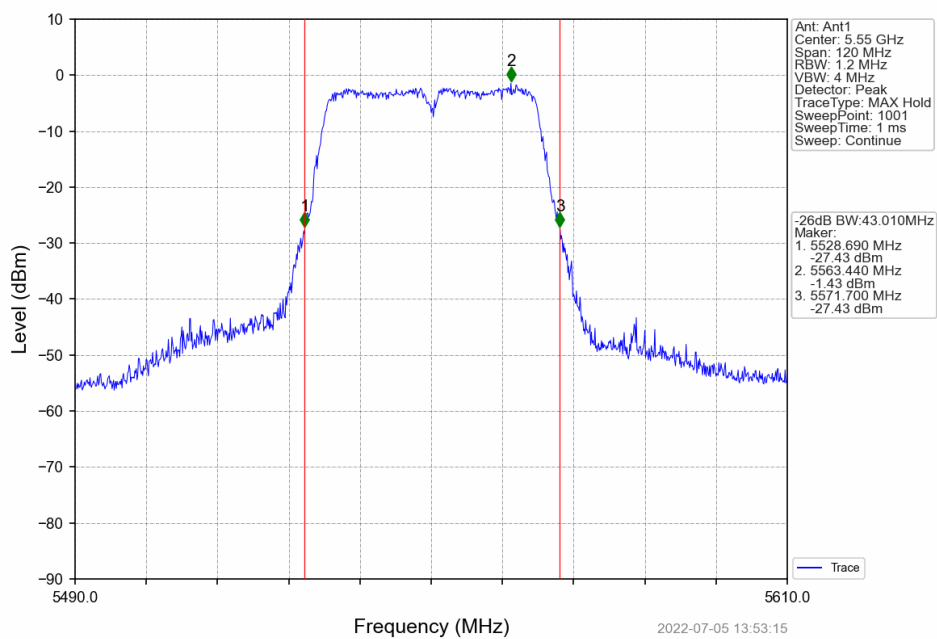
802.11ac(VHT20)_HCH_5700MHz_Ant1_NTN



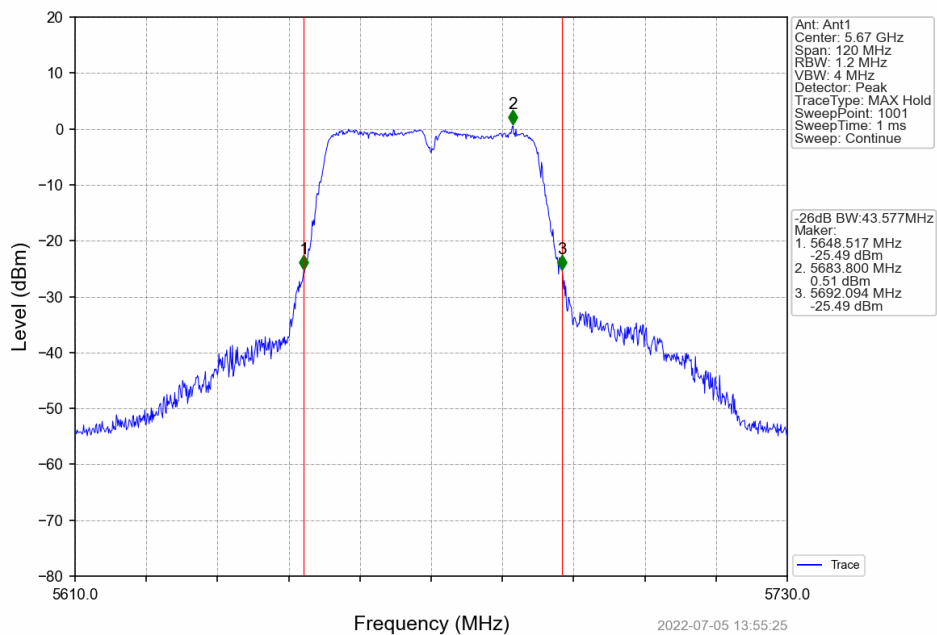
802.11ac(VHT40) LCH 5510MHz Ant1 NTN



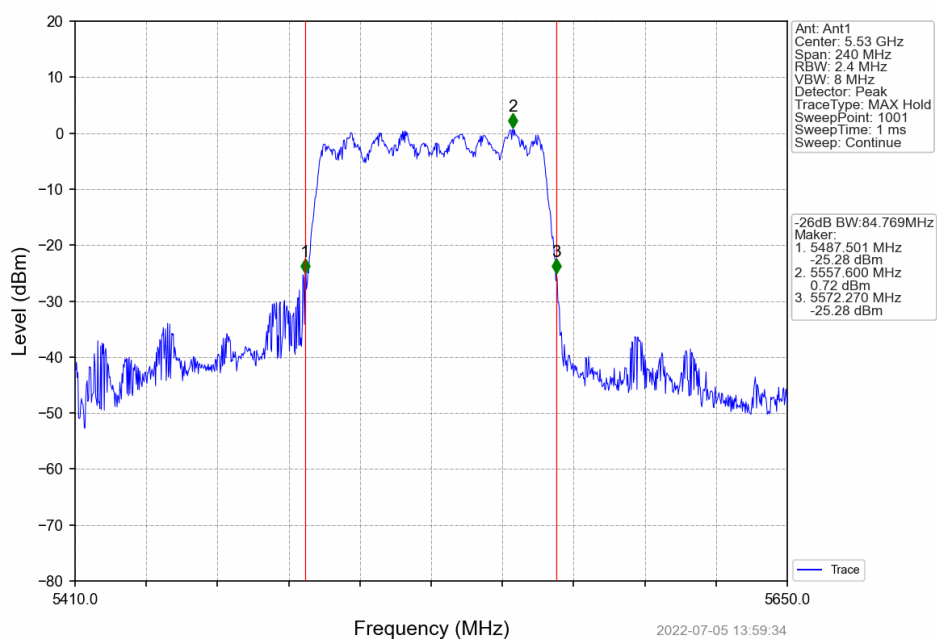
802.11ac(VHT40)_MCH_5550MHz_Ant1_NTN



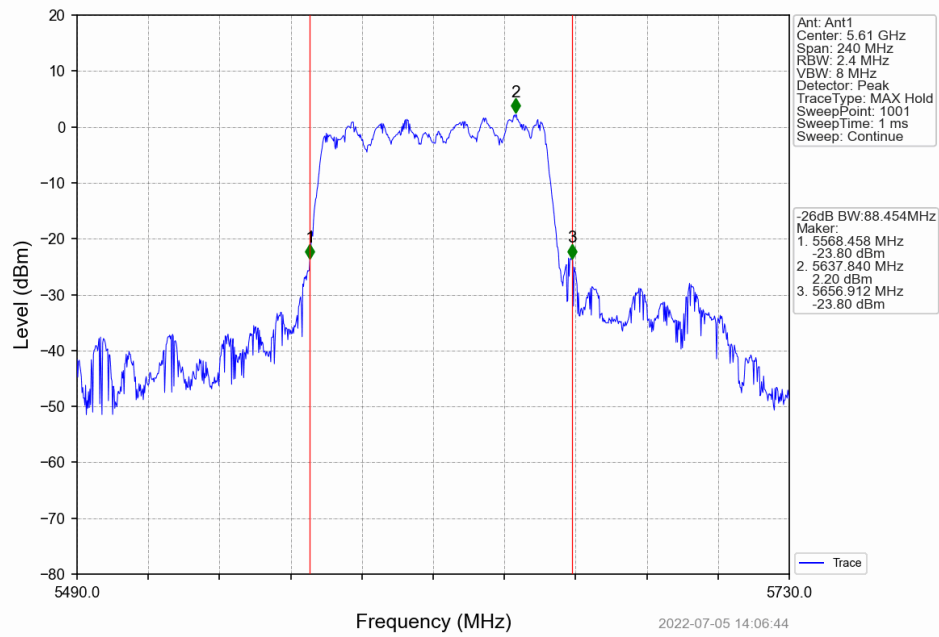
802.11ac(VHT40) HCH 5670MHz Ant1 NTN



802.11ac(VHT80)_LCH_5530MHz_Ant1_NTN



802.11ac(VHT80) HCH 5610MHz Ant1 NTN



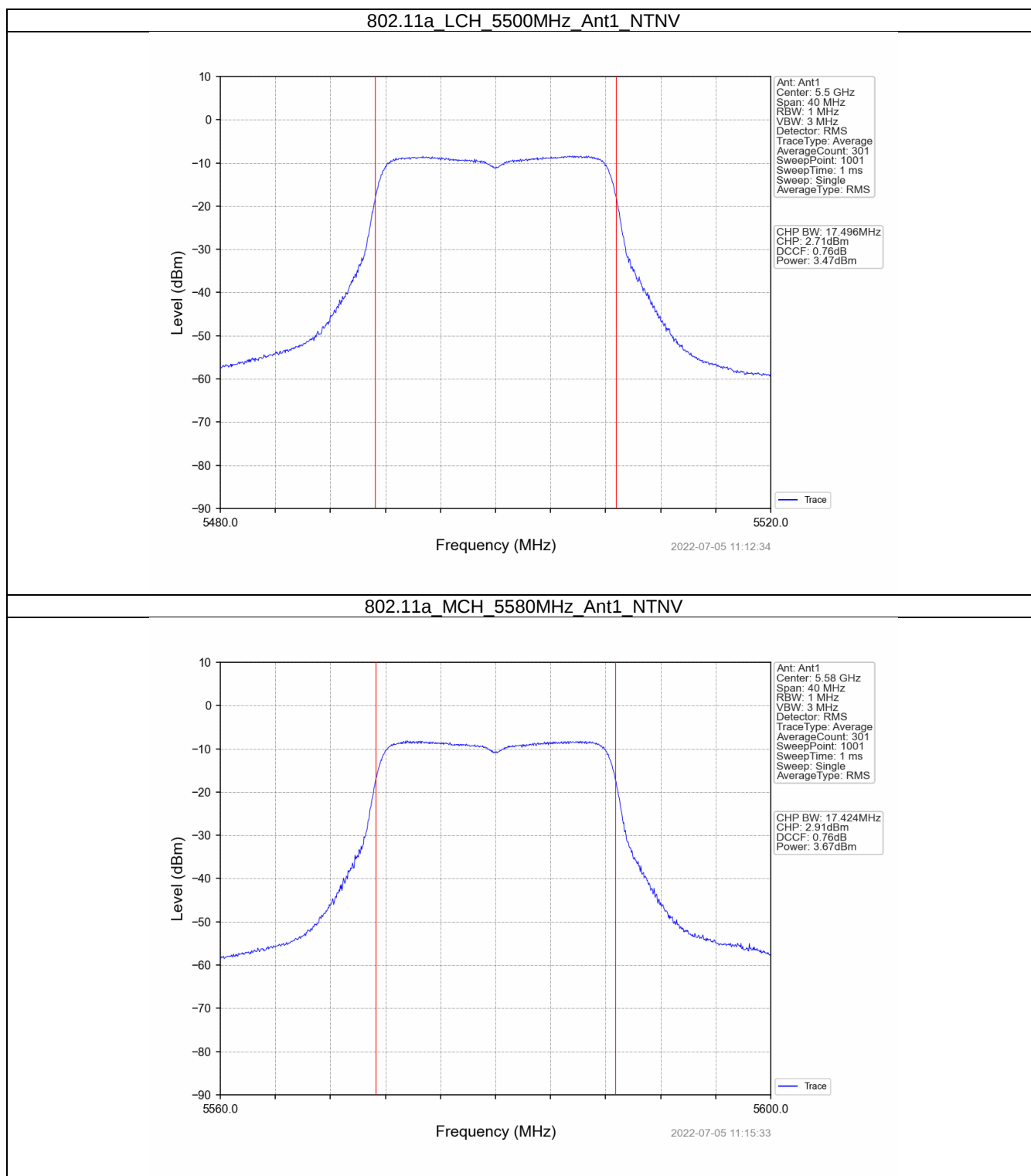
2. Maximum Conducted Output Power

2.1 Power

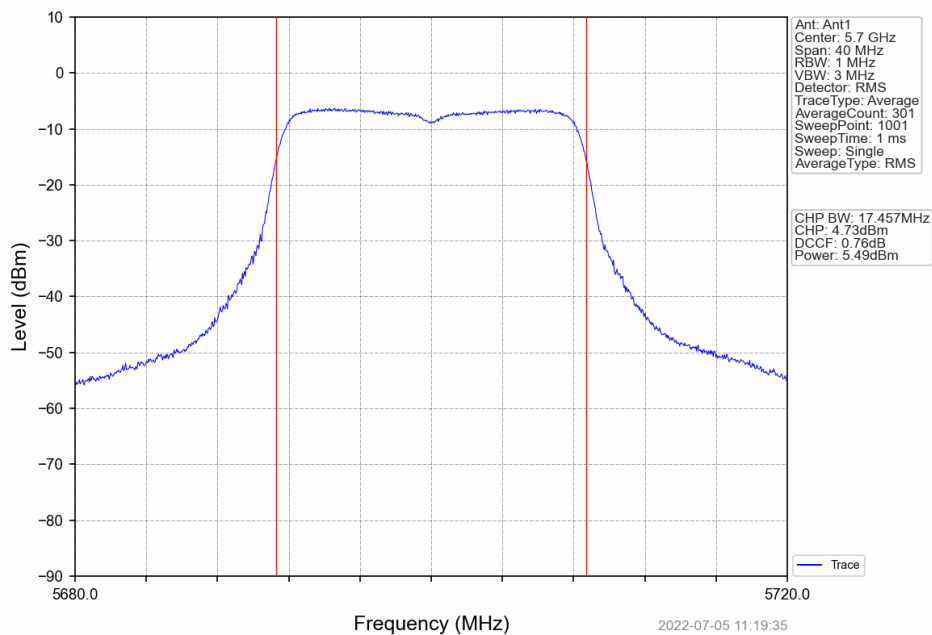
2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11a	SISO	5500	3.47	<=23.98	Pass
		5580	3.67	<=23.98	Pass
		5700	5.49	<=23.98	Pass
802.11n (HT20)	SISO	5500	2.12	<=23.98	Pass
		5580	2.51	<=23.98	Pass
		5700	4.41	<=23.98	Pass
802.11n (HT40)	SISO	5510	2.93	<=23.98	Pass
		5550	2.89	<=23.98	Pass
		5670	4.90	<=23.98	Pass
802.11ac (VHT20)	SISO	5500	2.29	<=23.98	Pass
		5580	2.60	<=23.98	Pass
		5700	4.67	<=23.98	Pass
802.11ac (VHT40)	SISO	5510	2.94	<=23.98	Pass
		5550	2.86	<=23.98	Pass
		5670	4.84	<=23.98	Pass
802.11ac (VHT80)	SISO	5530	2.89	<=23.98	Pass
		5610	4.01	<=23.98	Pass
Note1: Antenna Gain: Ant1: 3.48dBi;					

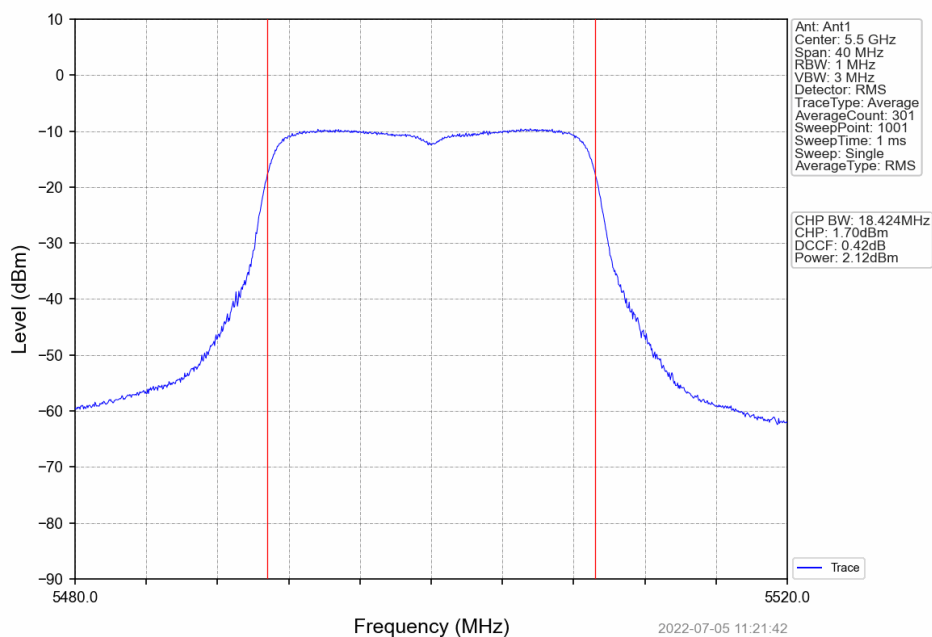
2.1.2 Test Graph



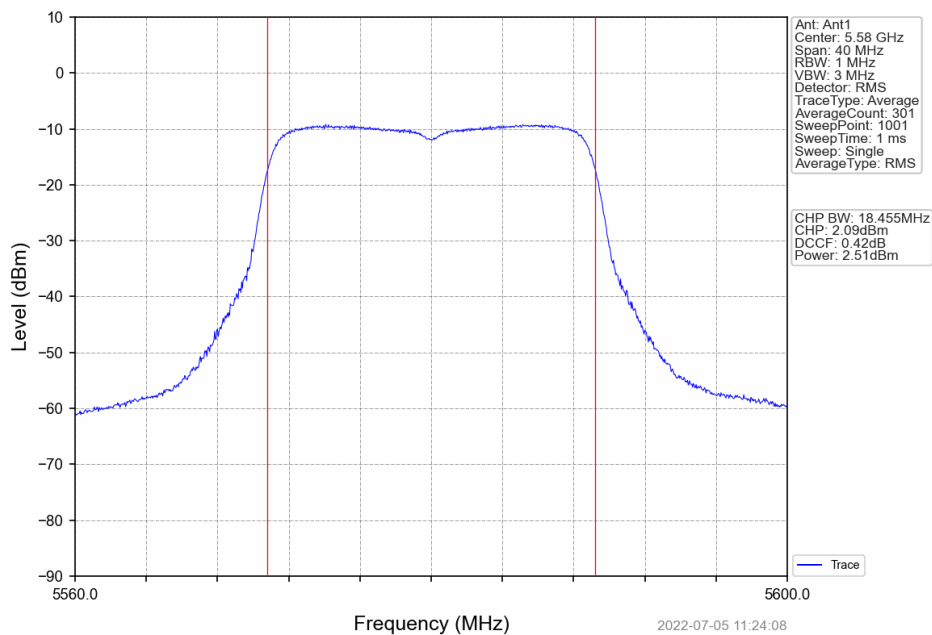
802.11a HCH 5700MHz Ant1 NTN



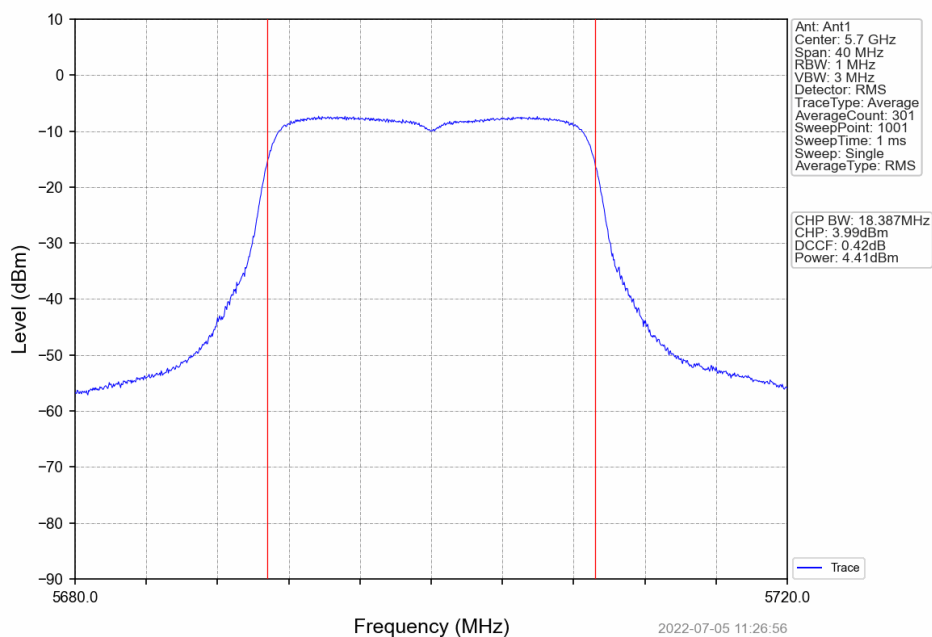
802.11n(HT20)_LCH_5500MHz_Ant1_NTN



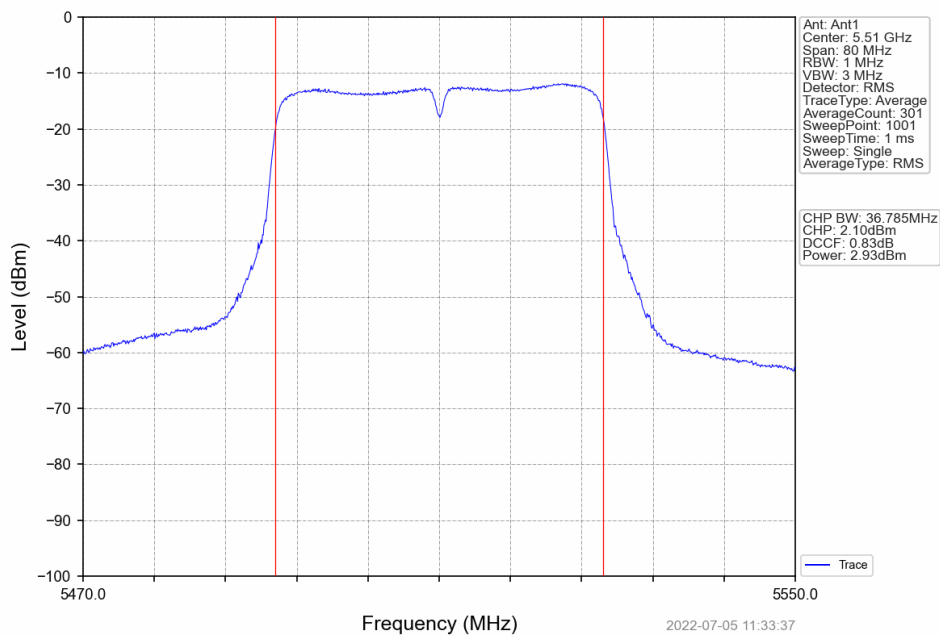
802.11n(HT20) MCH 5580MHz Ant1 NTN



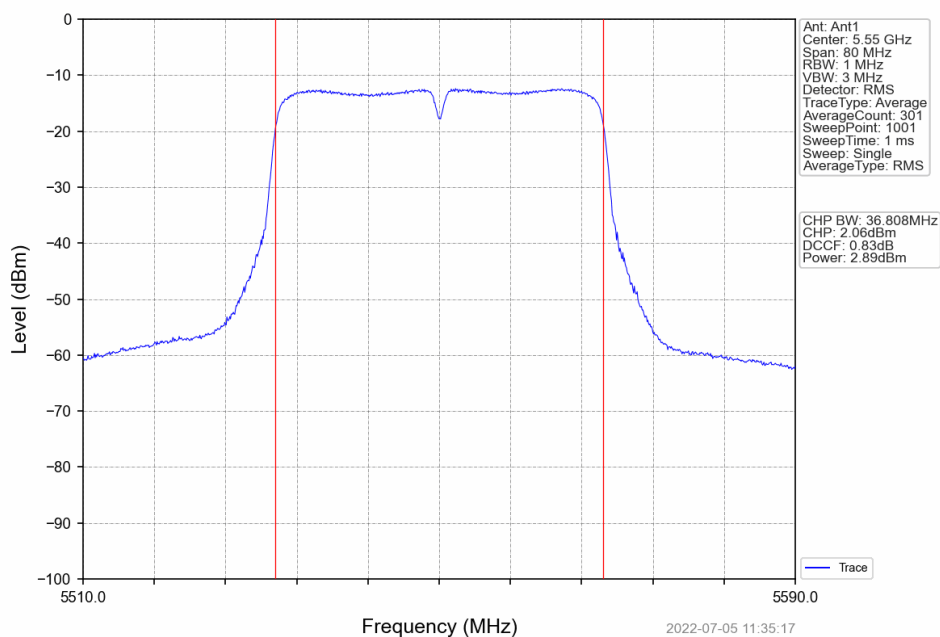
802.11n(HT20)_HCH_5700MHz_Ant1_NTN



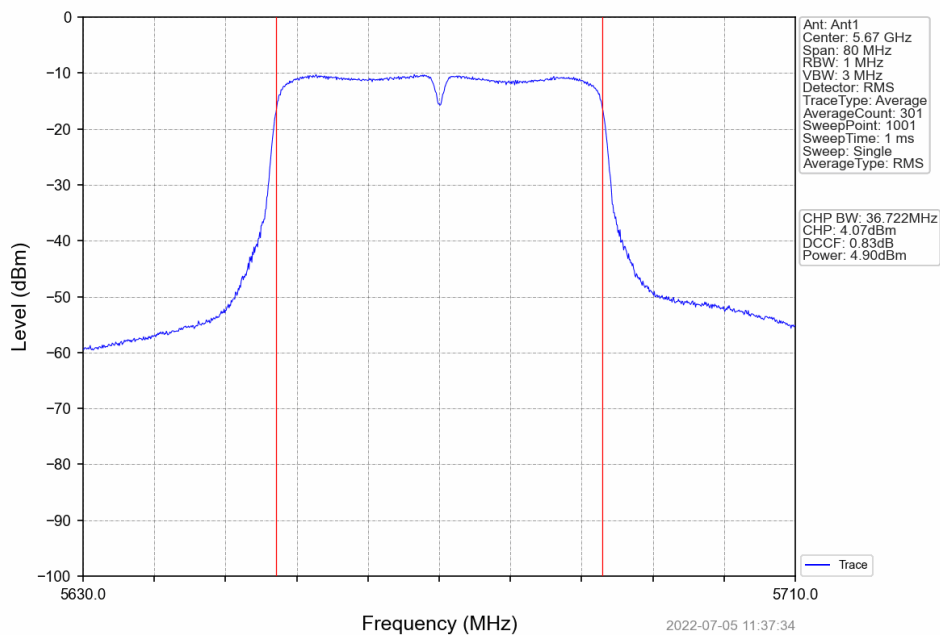
802.11n(HT40) LCH 5510MHz Ant1 NTN



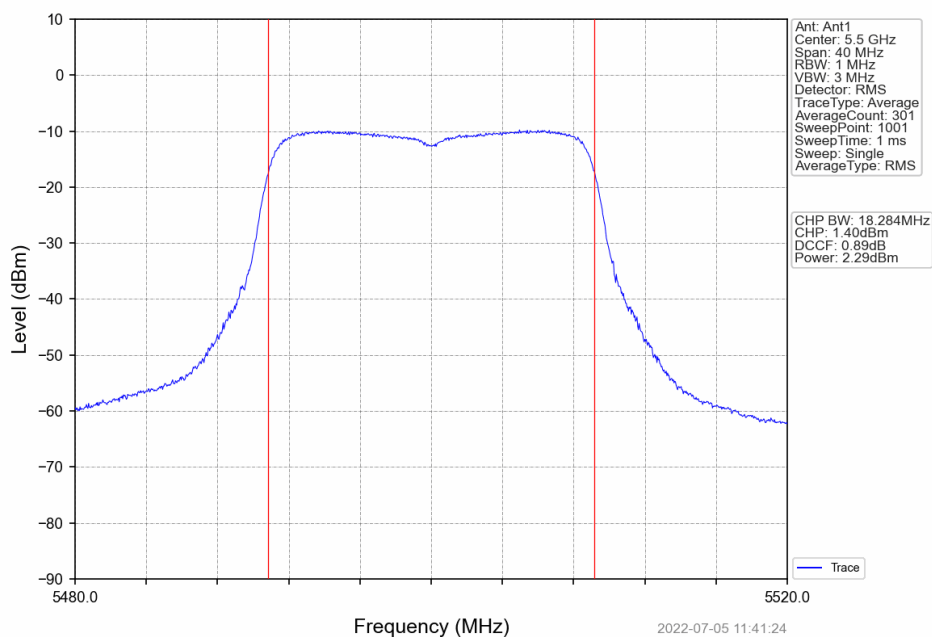
802.11n(HT40)_MCH_5550MHz_Ant1_NTN



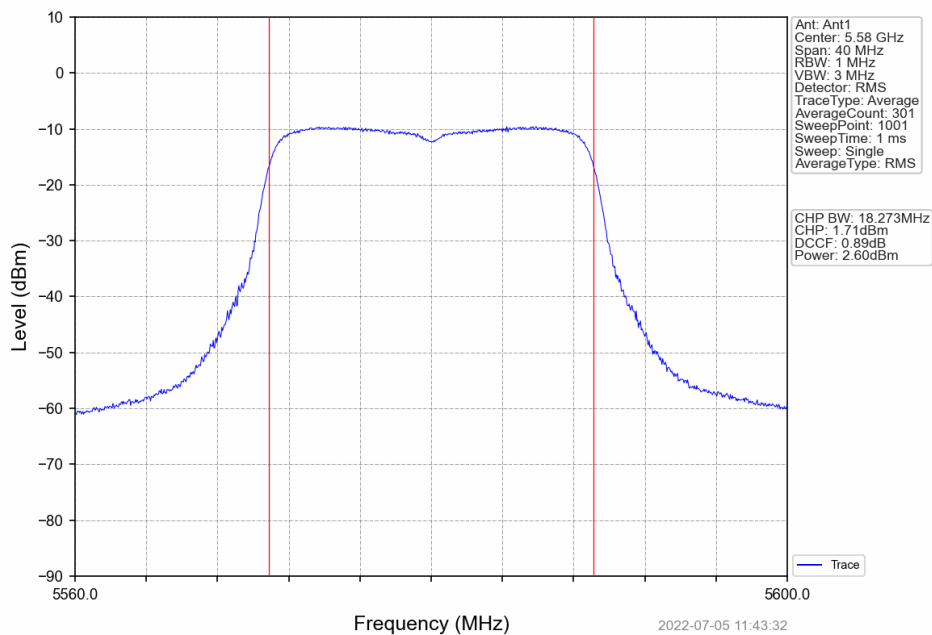
802.11n(HT40) HCH 5670MHz Ant1 NTN



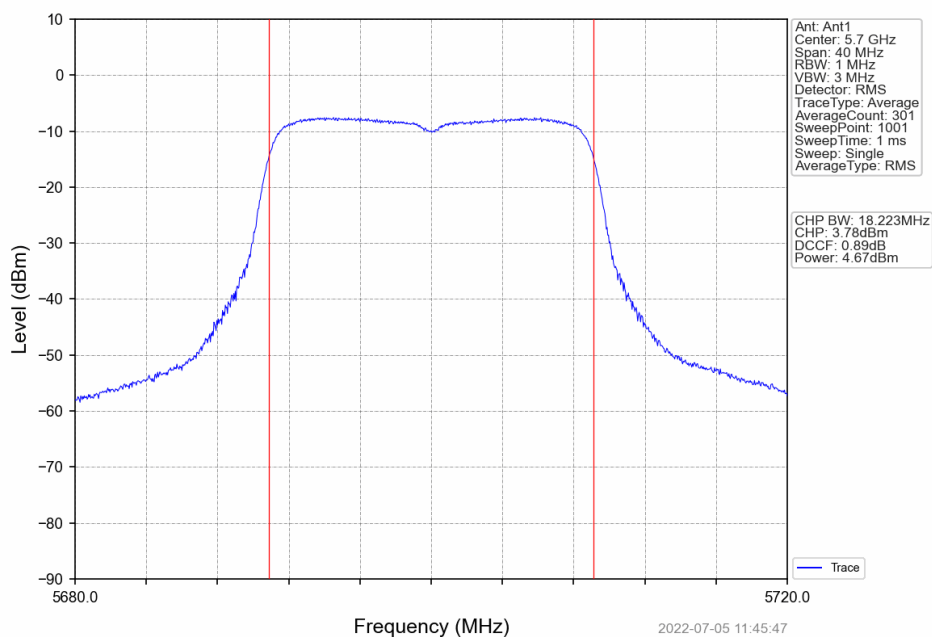
802.11ac(VHT20)_LCH_5500MHz_Ant1_NTN



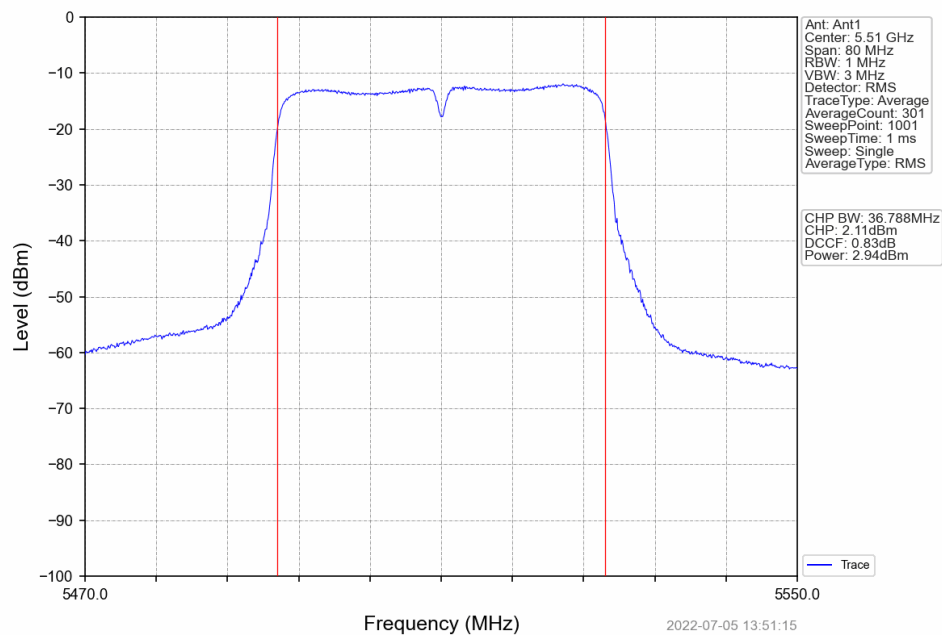
802.11ac(VHT20) MCH 5580MHz Ant1 NTNV



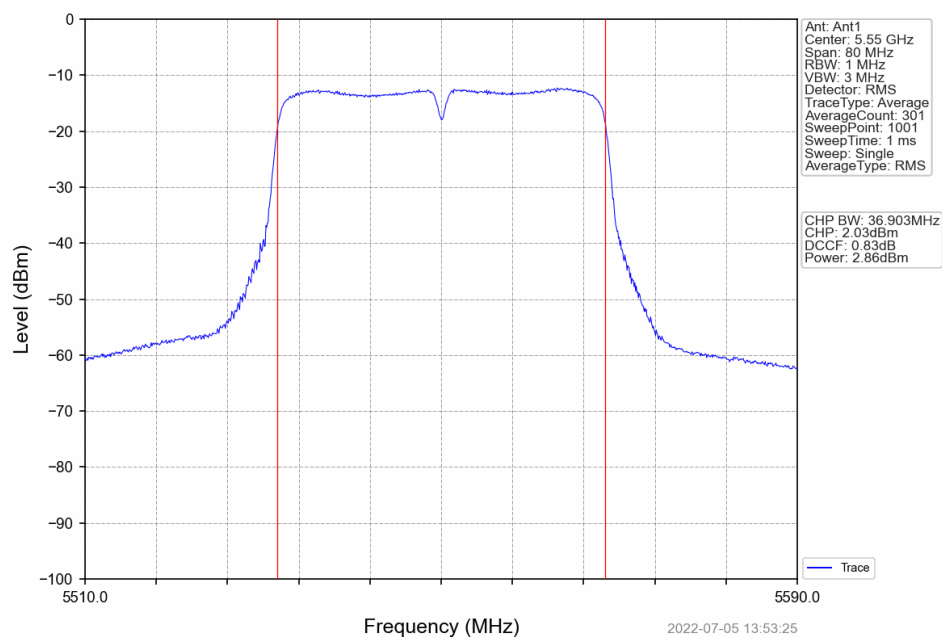
802.11ac(VHT20)_HCH_5700MHz_Ant1_NTNV



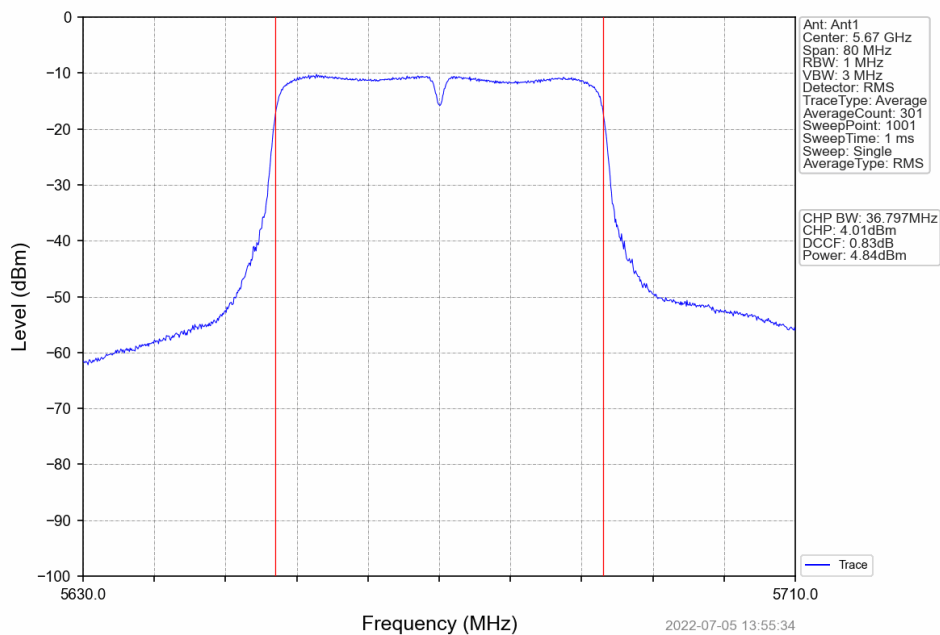
802.11ac(VHT40) LCH 5510MHz Ant1 NTN



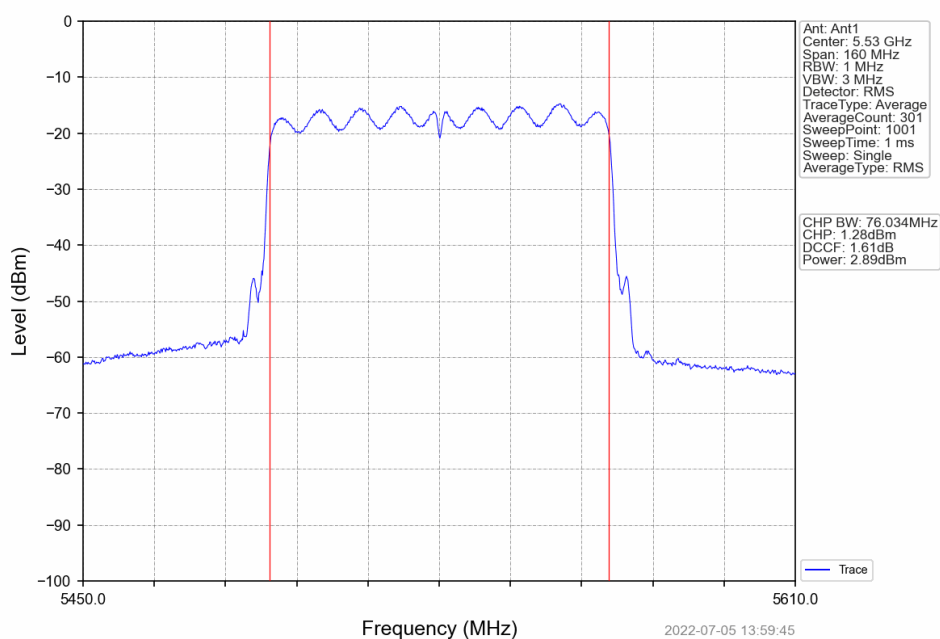
802.11ac(VHT40)_MCH_5550MHz_Ant1_NTN

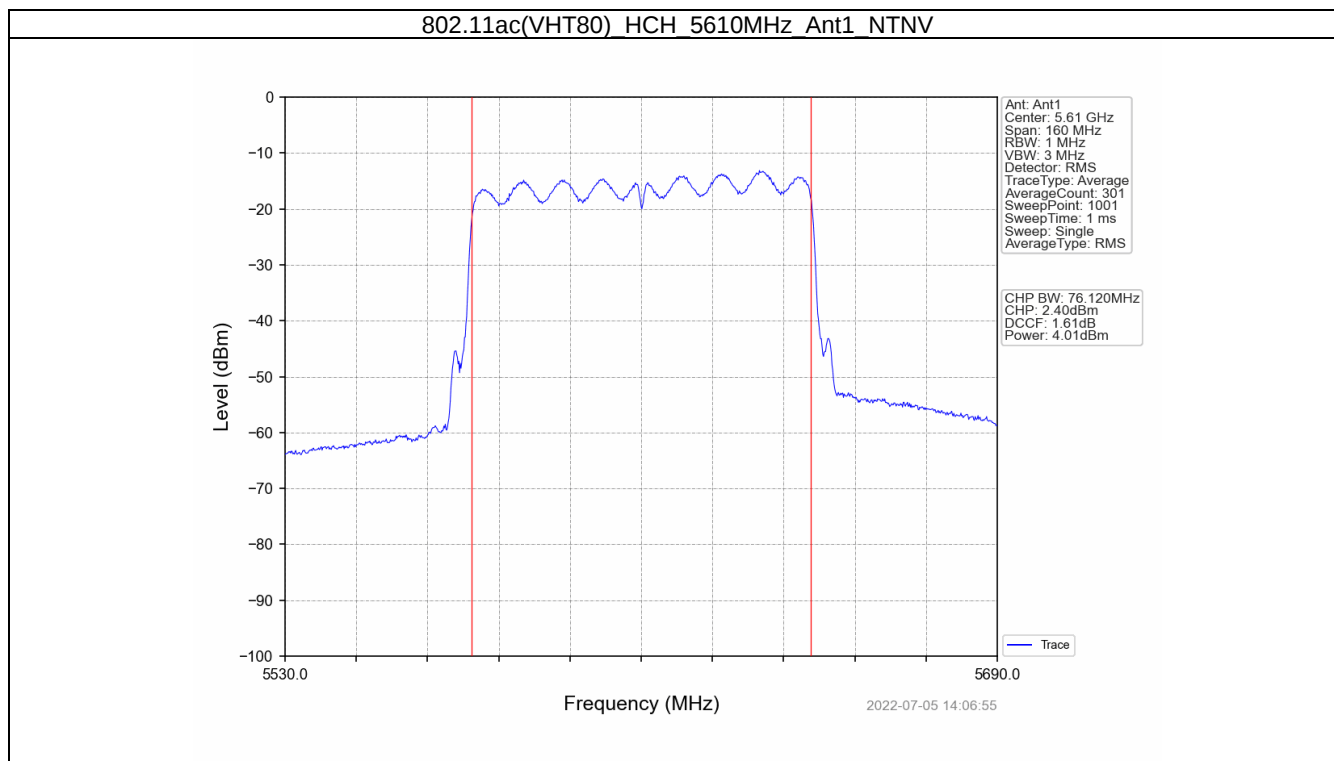


802.11ac(VHT40) HCH 5670MHz Ant1 NTNV



802.11ac(VHT80)_LCH_5530MHz_Ant1_NTNV





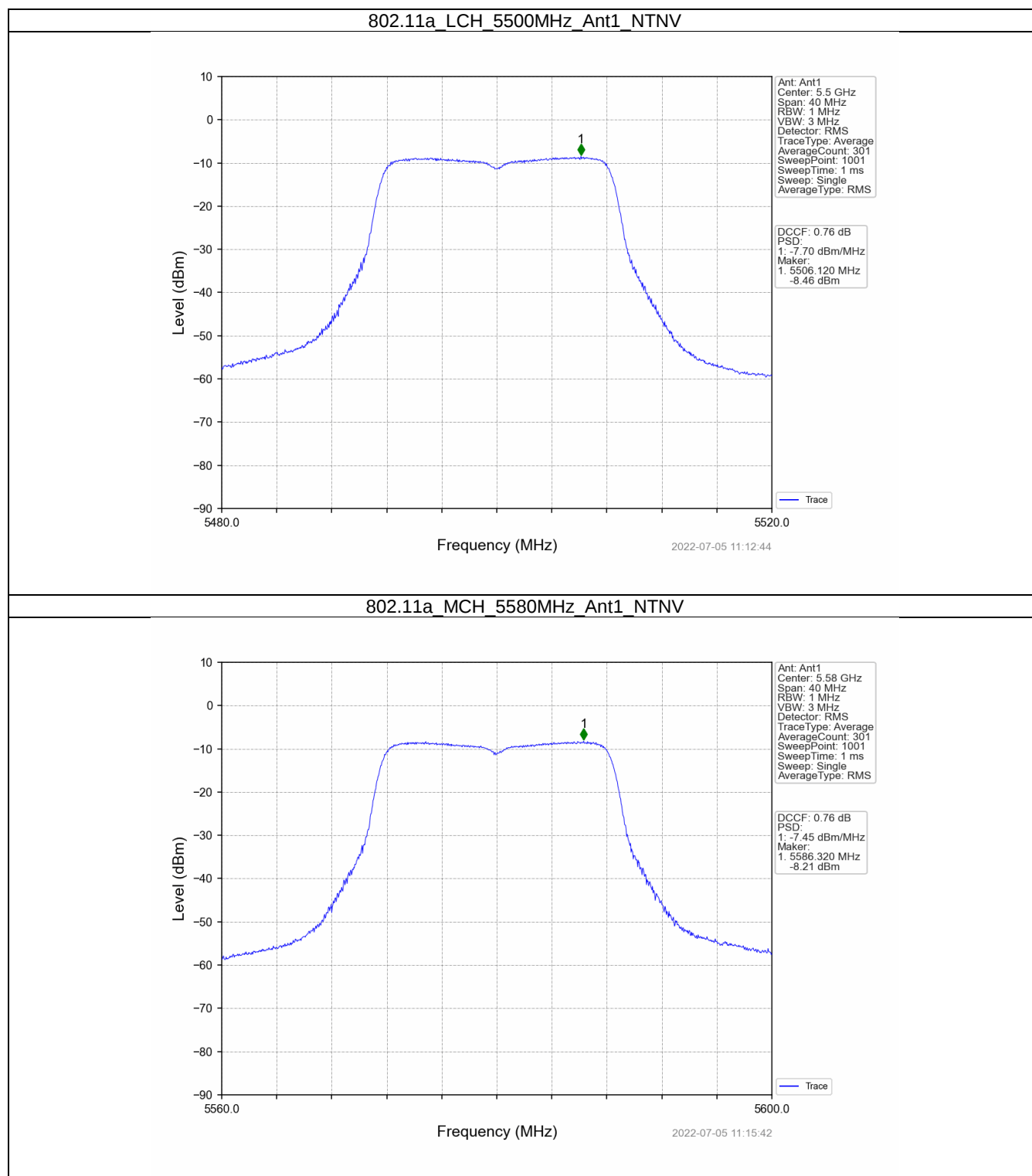
3. Maximum Power Spectral Density

3.1 PSD

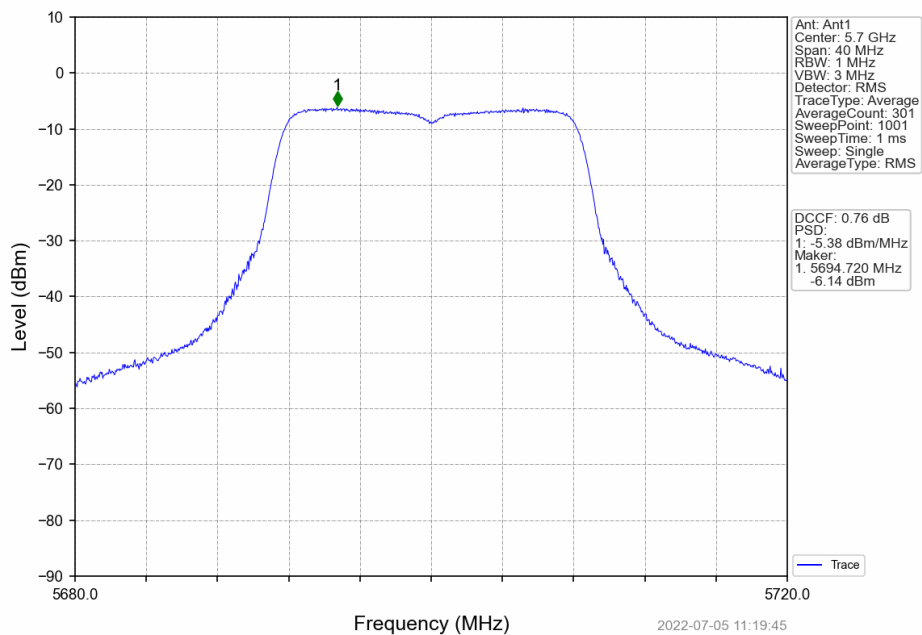
3.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/MHz)		Verdict
			ANT1	Limit	
802.11a	SISO	5500	-7.70	<=11	Pass
		5580	-7.45	<=11	Pass
		5700	-5.38	<=11	Pass
802.11n (HT20)	SISO	5500	-8.97	<=11	Pass
		5580	-8.82	<=11	Pass
		5700	-6.82	<=11	Pass
802.11n (HT40)	SISO	5510	-10.97	<=11	Pass
		5550	-11.41	<=11	Pass
		5670	-9.51	<=11	Pass
802.11ac (VHT20)	SISO	5500	-8.73	<=11	Pass
		5580	-8.81	<=11	Pass
		5700	-6.50	<=11	Pass
802.11ac (VHT40)	SISO	5510	-11.07	<=11	Pass
		5550	-11.62	<=11	Pass
		5670	-9.52	<=11	Pass
802.11ac (VHT80)	SISO	5530	-13.15	<=11	Pass
		5610	-11.43	<=11	Pass
Note1: Antenna Gain: Ant1: 3.48dBi;					

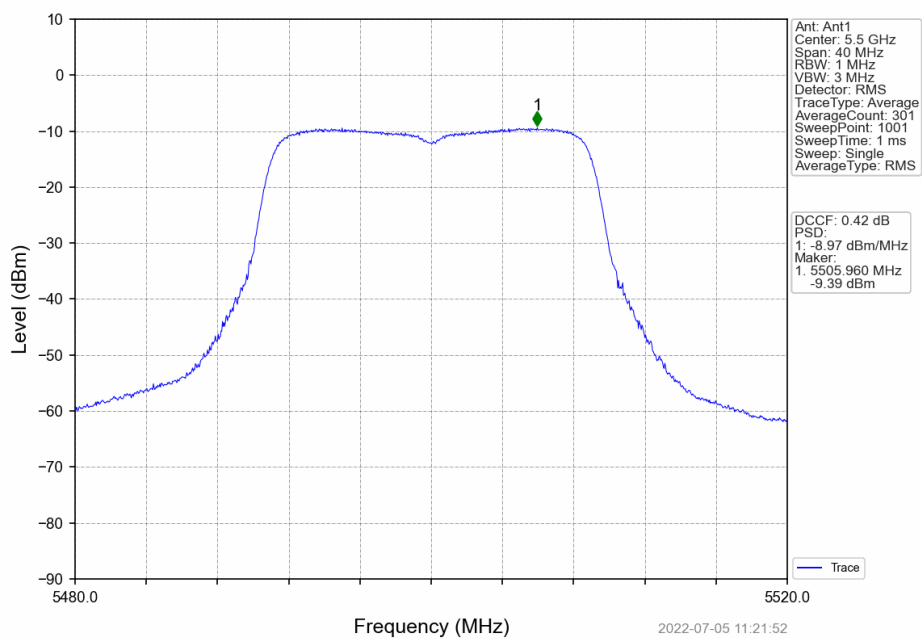
3.1.2 Test Graph



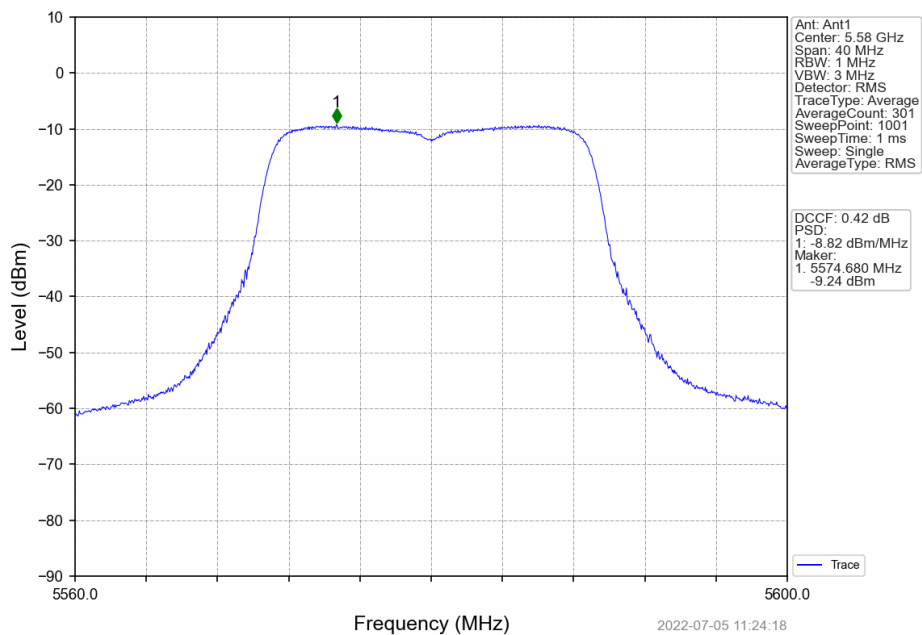
802.11a HCH 5700MHz Ant1 NTN



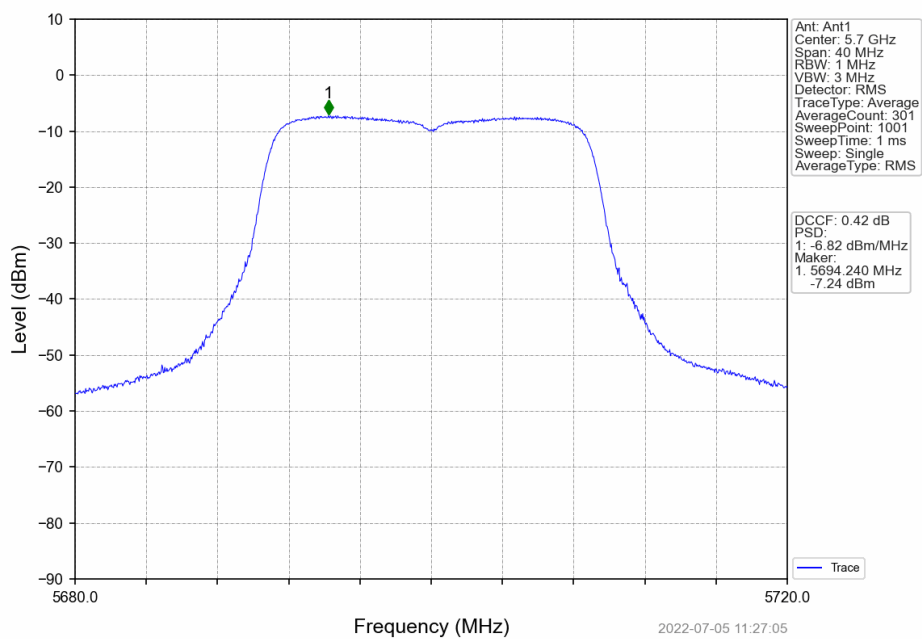
802.11n(HT20) LCH 5500MHz Ant1 NTN



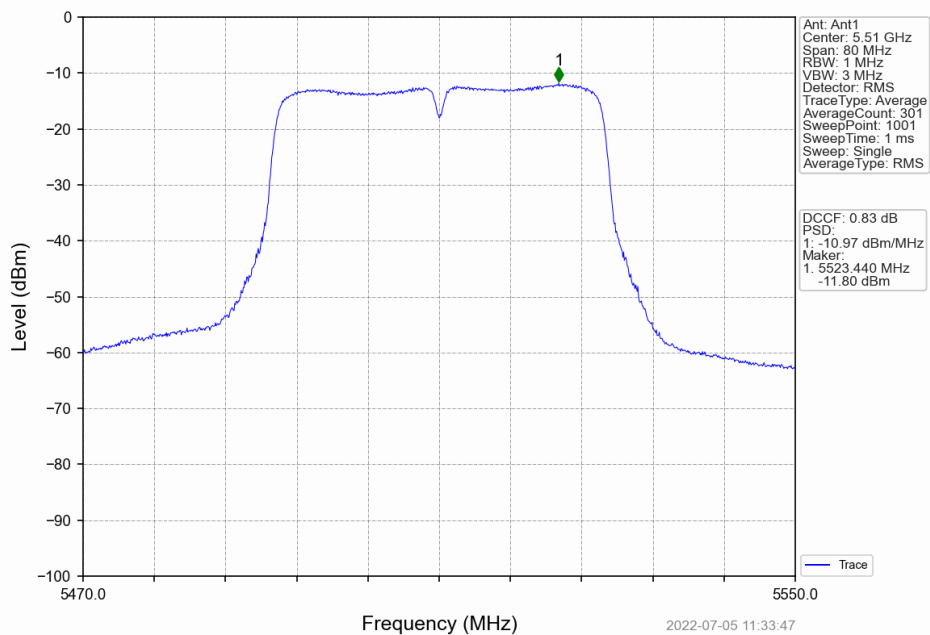
802.11n(HT20) MCH 5580MHz Ant1 NTN



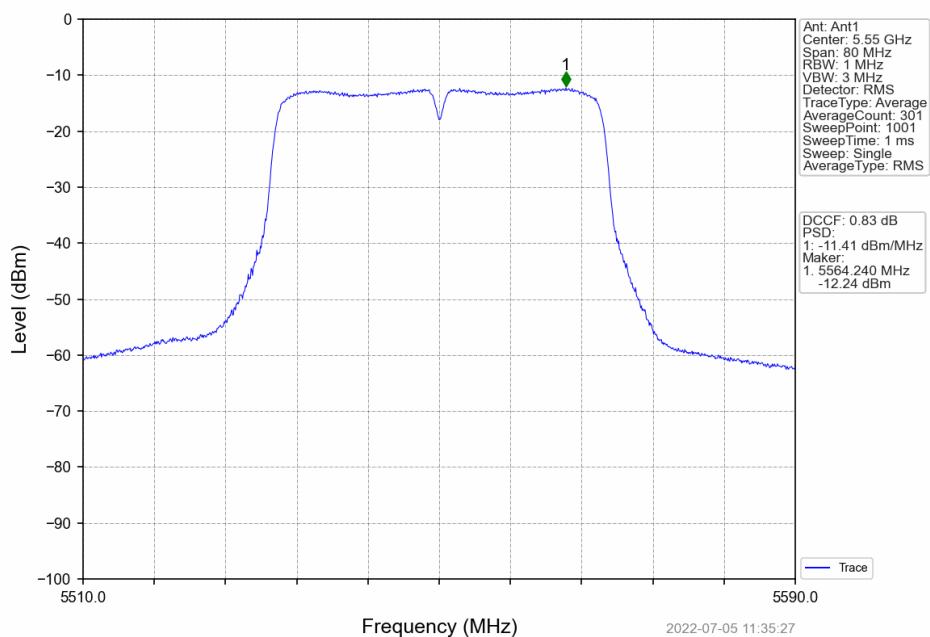
802.11n(HT20)_HCH_5700MHz_Ant1_NTN



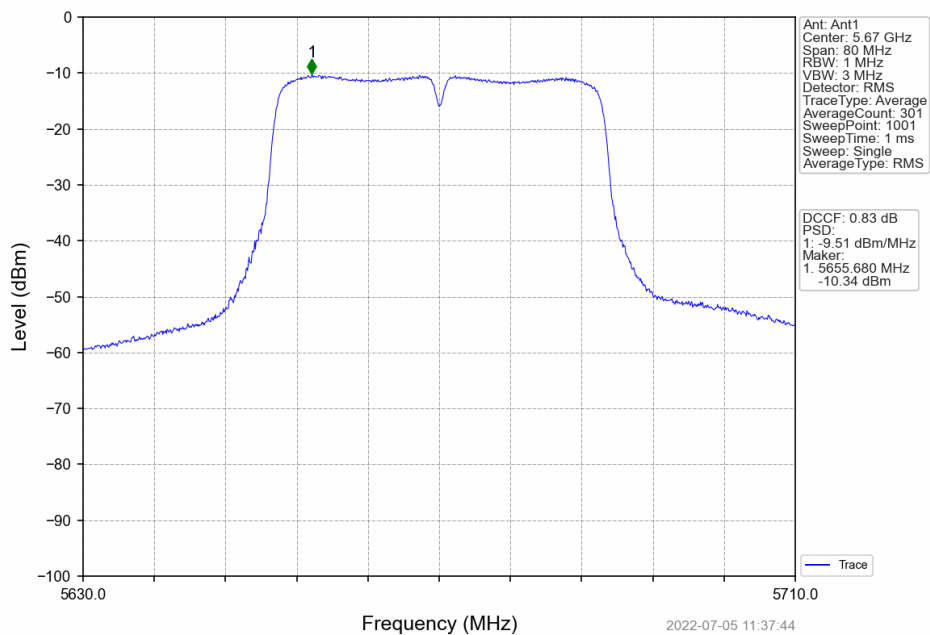
802.11n(HT40) LCH 5510MHz Ant1 NTN



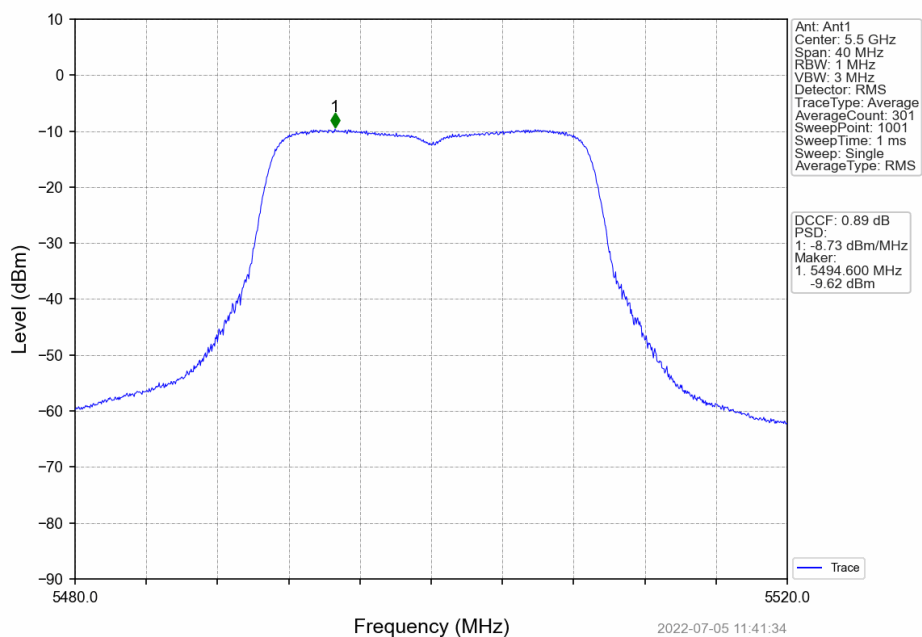
802.11n(HT40)_MCH_5550MHz_Ant1_NTN



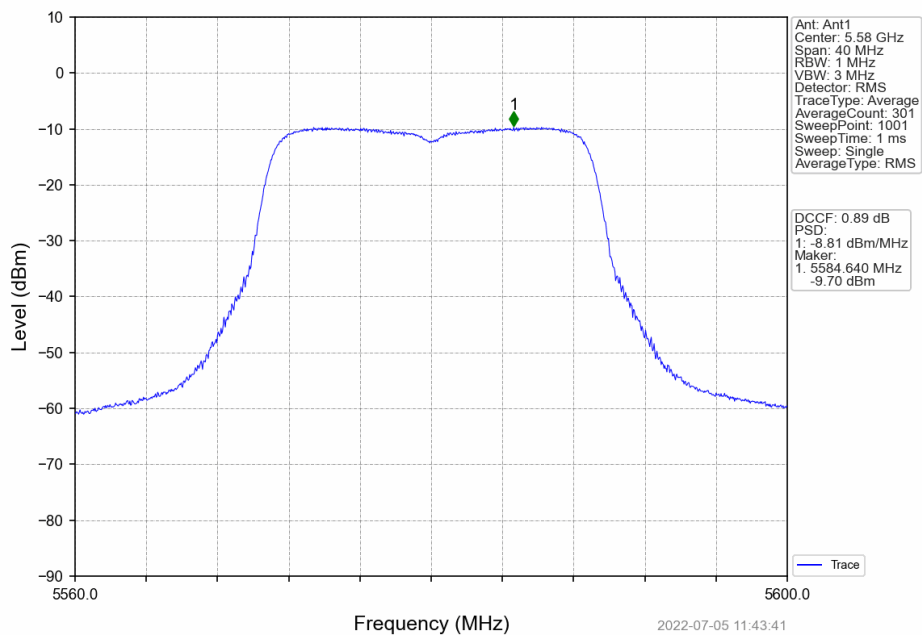
802.11n(HT40) HCH 5670MHz Ant1 NTN



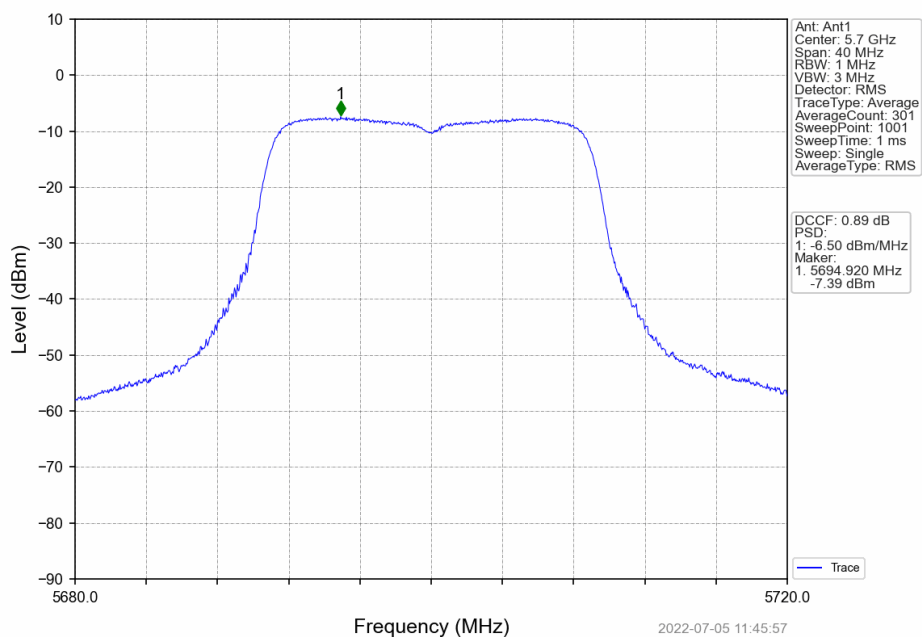
802.11ac(VHT20)_LCH_5500MHz_Ant1_NTN



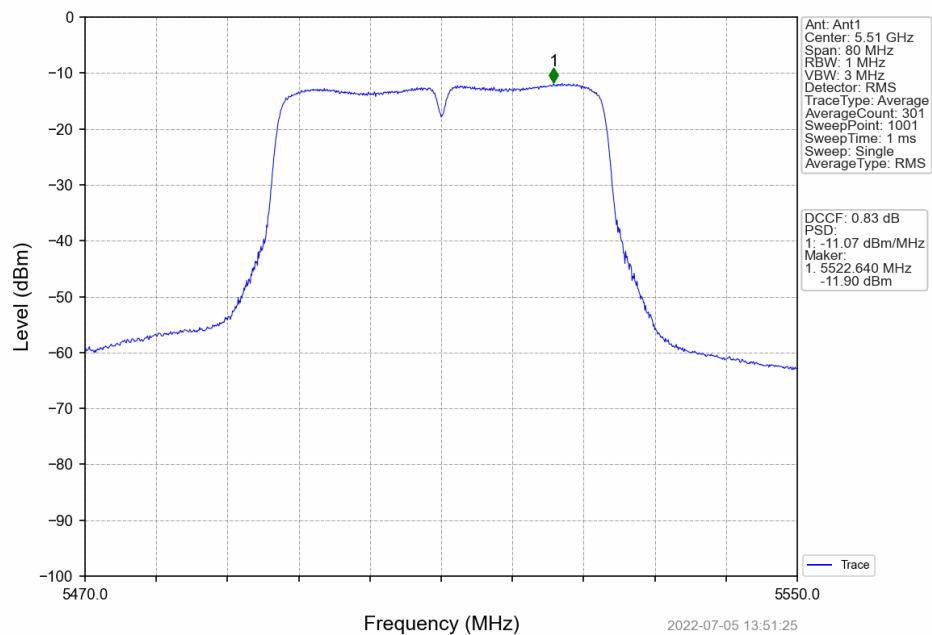
802.11ac(VHT20) MCH 5580MHz Ant1 NTN



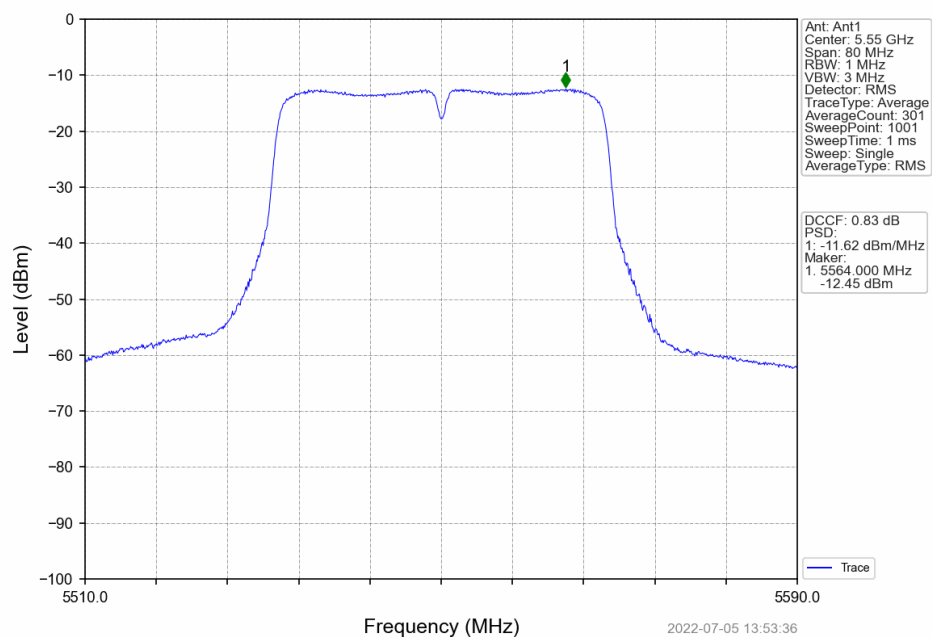
802.11ac(VHT20)_HCH_5700MHz_Ant1_NTN



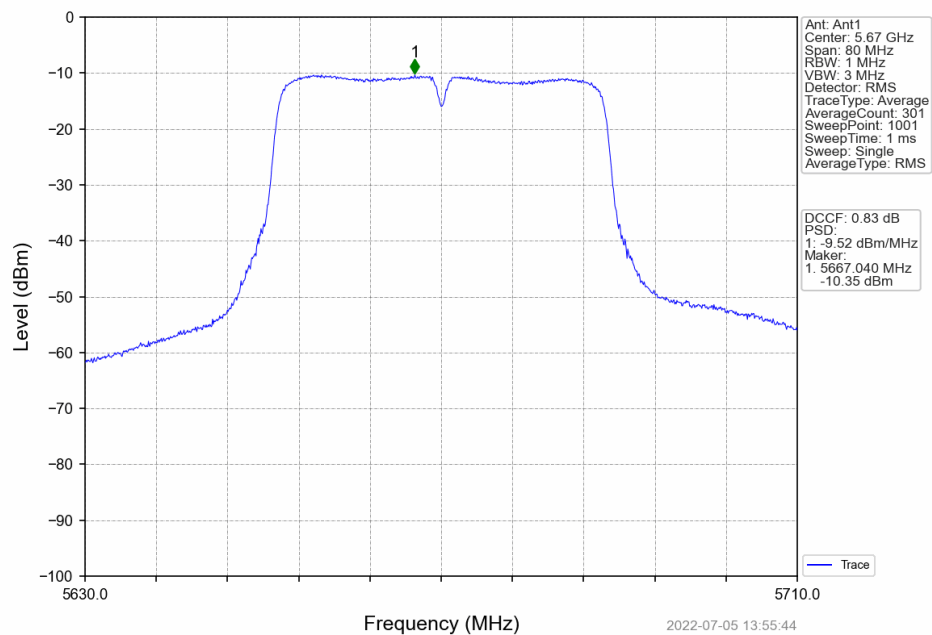
802.11ac(VHT40) LCH 5510MHz Ant1 NTN



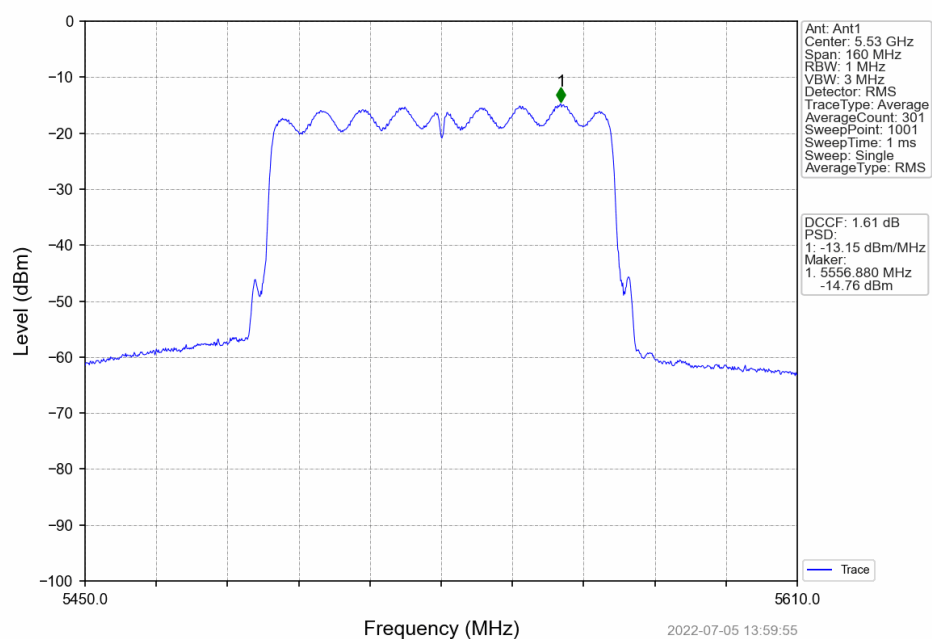
802.11ac(VHT40)_MCH_5550MHz_Ant1_NTN

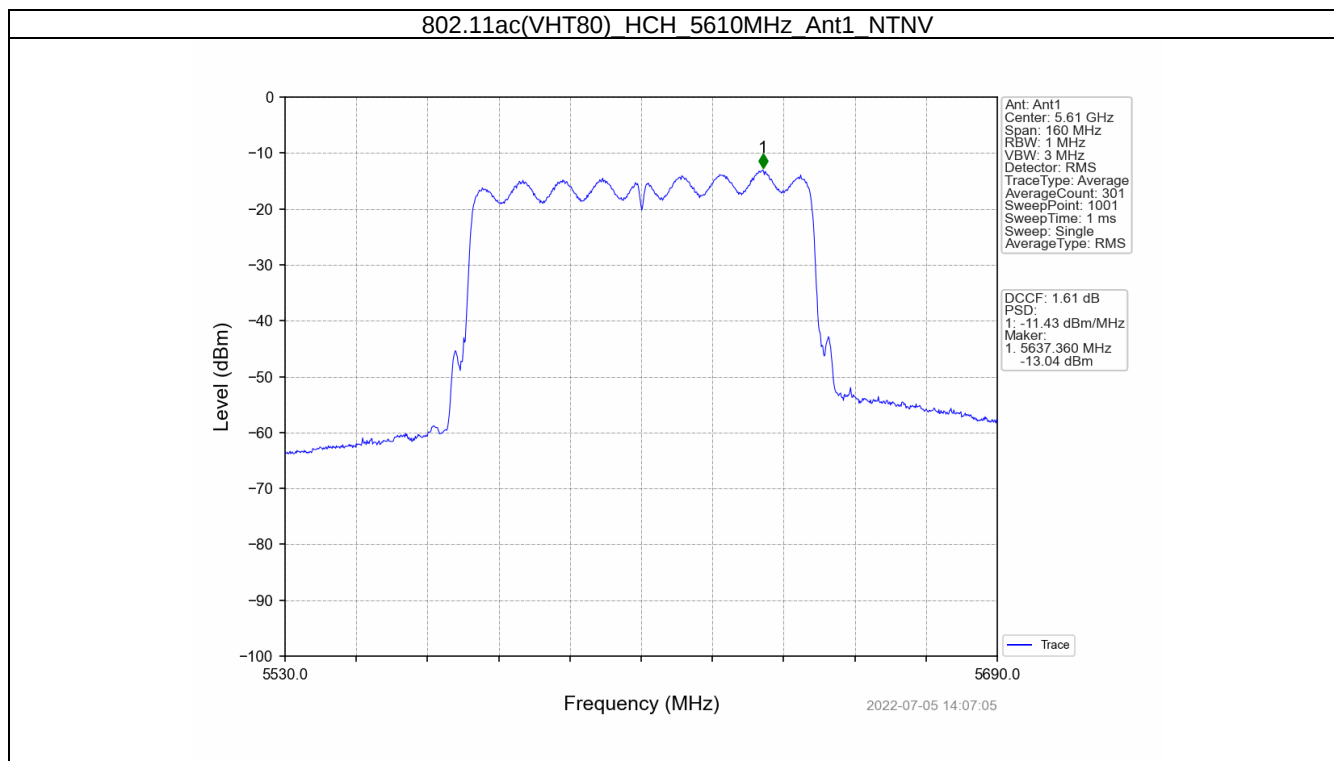


802.11ac(VHT40) HCH 5670MHz Ant1 NTN



802.11ac(VHT80)_LCH_5530MHz_Ant1_NTN





4. Frequency Stability

4.1 Ant1

4.1.1 Test Result

Ant1							
Mode	TX Type	Frequency (MHz)	Temperature (°C)	Voltage (VAC)	Measured Frequency (MHz)	Limit (MHz)	Verdict
Carrier Wave	SISO	5500	20	102	5499.960	5470 to 5725	Pass
				120	5499.959	5470 to 5725	Pass
				138	5499.959	5470 to 5725	Pass
			-30	120	5499.958	5470 to 5725	Pass
			-20	120	5499.958	5470 to 5725	Pass
			-10	120	5499.958	5470 to 5725	Pass
			0	120	5499.958	5470 to 5725	Pass
			10	120	5499.958	5470 to 5725	Pass
			30	120	5499.958	5470 to 5725	Pass
			40	120	5499.958	5470 to 5725	Pass
			50	120	5499.957	5470 to 5725	Pass
		5580	20	102	5579.958	5470 to 5725	Pass
				120	5579.958	5470 to 5725	Pass
				138	5579.958	5470 to 5725	Pass
			-30	120	5579.957	5470 to 5725	Pass
			-20	120	5579.957	5470 to 5725	Pass
			-10	120	5579.957	5470 to 5725	Pass
			0	120	5579.957	5470 to 5725	Pass
			10	120	5579.957	5470 to 5725	Pass
			30	120	5579.957	5470 to 5725	Pass
			40	120	5579.957	5470 to 5725	Pass
			50	120	5579.957	5470 to 5725	Pass
		5700	20	102	5699.957	5470 to 5725	Pass
				120	5699.956	5470 to 5725	Pass
				138	5699.956	5470 to 5725	Pass
			-30	120	5699.956	5470 to 5725	Pass
			-20	120	5699.956	5470 to 5725	Pass
			-10	120	5699.955	5470 to 5725	Pass
			0	120	5699.956	5470 to 5725	Pass
			10	120	5699.955	5470 to 5725	Pass
			30	120	5699.955	5470 to 5725	Pass
			40	120	5699.955	5470 to 5725	Pass
			50	120	5699.955	5470 to 5725	Pass
		5510	20	102	5509.960	5470 to 5725	Pass
				120	5509.959	5470 to 5725	Pass
				138	5509.958	5470 to 5725	Pass
			-30	120	5509.958	5470 to 5725	Pass
			-20	120	5509.957	5470 to 5725	Pass
			-10	120	5509.957	5470 to 5725	Pass
			0	120	5509.957	5470 to 5725	Pass
			10	120	5509.957	5470 to 5725	Pass
			30	120	5509.957	5470 to 5725	Pass
			40	120	5509.957	5470 to 5725	Pass
			50	120	5509.957	5470 to 5725	Pass
		5550	20	102	5549.959	5470 to 5725	Pass
				120	5549.958	5470 to 5725	Pass
				138	5549.957	5470 to 5725	Pass
			-30	120	5549.957	5470 to 5725	Pass
			-20	120	5549.957	5470 to 5725	Pass

			-10	120	5549.957	5470 to 5725	Pass
			0	120	5549.957	5470 to 5725	Pass
			10	120	5549.956	5470 to 5725	Pass
			30	120	5549.956	5470 to 5725	Pass
			40	120	5549.956	5470 to 5725	Pass
			50	120	5549.956	5470 to 5725	Pass
		5670	20	102	5669.957	5470 to 5725	Pass
				120	5669.957	5470 to 5725	Pass
				138	5669.957	5470 to 5725	Pass
			-30	120	5669.957	5470 to 5725	Pass
			-20	120	5669.957	5470 to 5725	Pass
			-10	120	5669.957	5470 to 5725	Pass
			0	120	5669.957	5470 to 5725	Pass
			10	120	5669.957	5470 to 5725	Pass
			30	120	5669.957	5470 to 5725	Pass
			40	120	5669.957	5470 to 5725	Pass
			50	120	5669.957	5470 to 5725	Pass
		5530	20	102	5529.960	5470 to 5725	Pass
				120	5529.959	5470 to 5725	Pass
				138	5529.958	5470 to 5725	Pass
			-30	120	5529.958	5470 to 5725	Pass
			-20	120	5529.957	5470 to 5725	Pass
			-10	120	5529.957	5470 to 5725	Pass
			0	120	5529.957	5470 to 5725	Pass
			10	120	5529.957	5470 to 5725	Pass
			30	120	5529.957	5470 to 5725	Pass
			40	120	5529.957	5470 to 5725	Pass
			50	120	5529.957	5470 to 5725	Pass
		5610	20	102	5609.959	5470 to 5725	Pass
				120	5609.958	5470 to 5725	Pass
				138	5609.958	5470 to 5725	Pass
			-30	120	5609.958	5470 to 5725	Pass
			-20	120	5609.957	5470 to 5725	Pass
			-10	120	5609.957	5470 to 5725	Pass
			0	120	5609.957	5470 to 5725	Pass
			10	120	5609.957	5470 to 5725	Pass
			30	120	5609.957	5470 to 5725	Pass
			40	120	5609.957	5470 to 5725	Pass
			50	120	5609.957	5470 to 5725	Pass