

Test Data for 5G_Band 1_WIFI

Product Name: Laser Projector

Test Model: PJ90

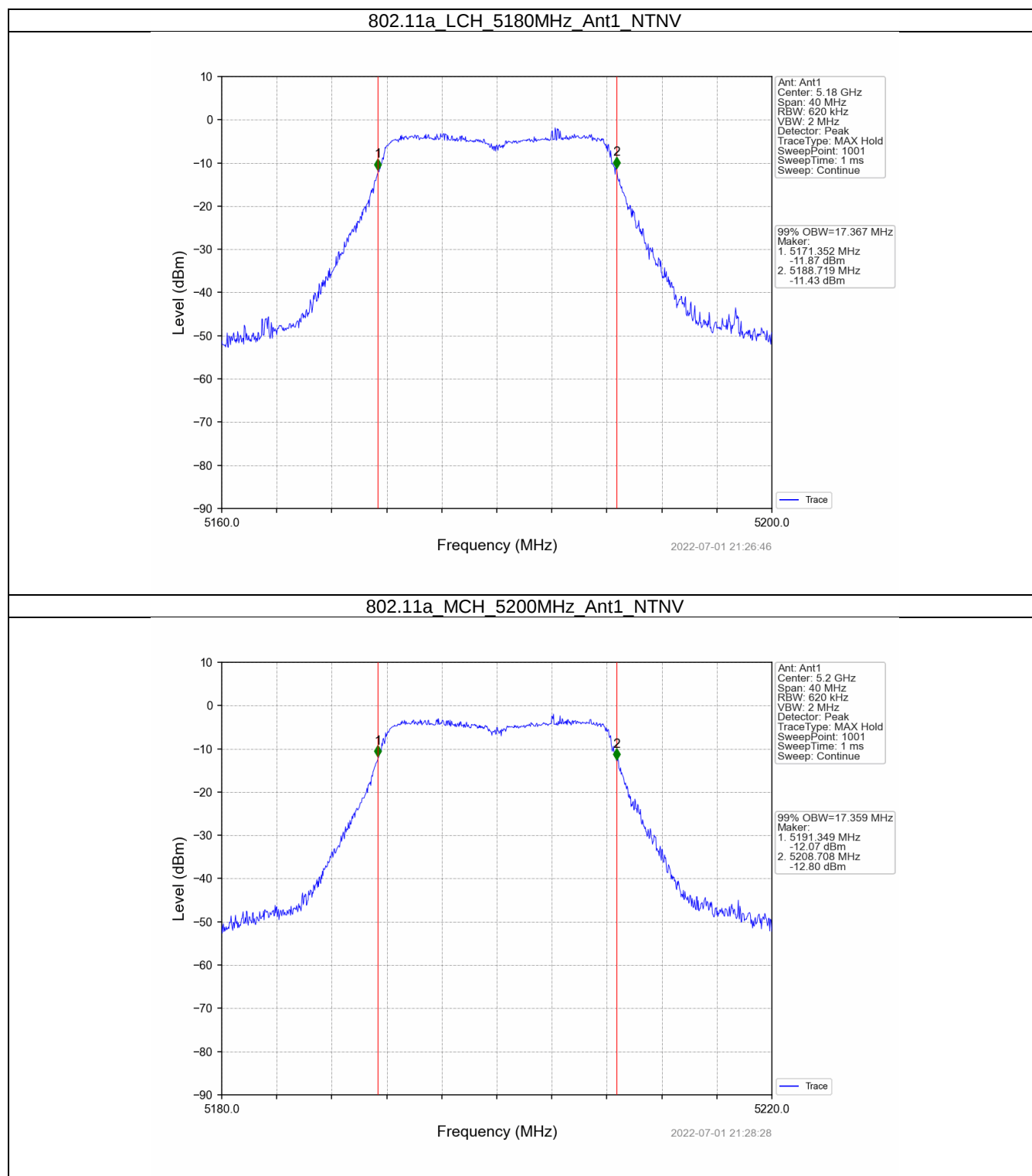
1. Bandwidth

1.1 OBW

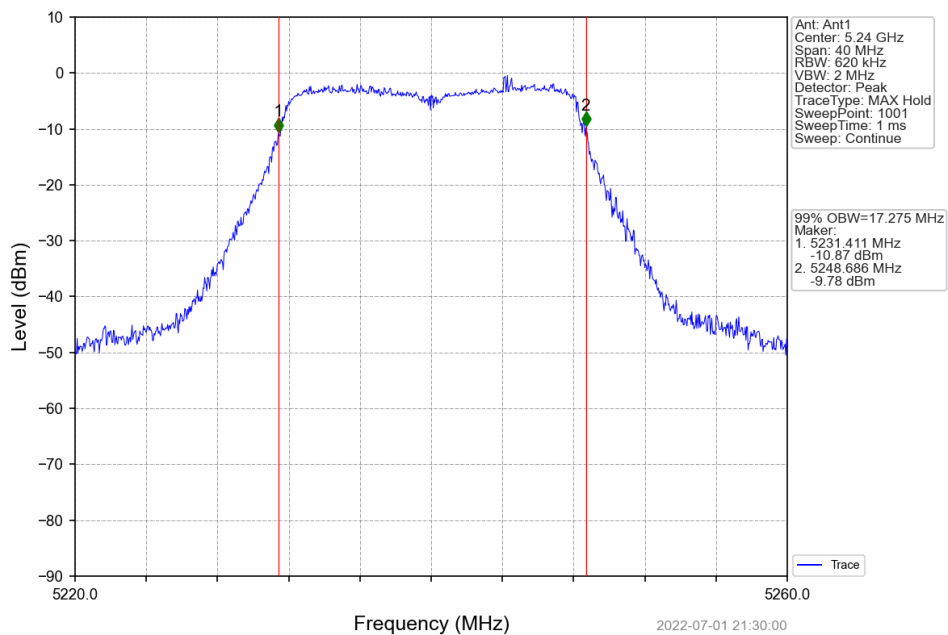
1.1.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)	Verdict
				Result	
802.11a	SISO	5180	1	17.367	Pass
		5200	1	17.359	Pass
		5240	1	17.275	Pass
802.11n (HT20)	SISO	5180	1	18.210	Pass
		5200	1	18.168	Pass
		5240	1	18.205	Pass
802.11n (HT40)	SISO	5190	1	36.872	Pass
		5230	1	36.887	Pass
802.11ac (VHT20)	SISO	5180	1	18.235	Pass
		5200	1	18.224	Pass
		5240	1	18.209	Pass
802.11ac (VHT40)	SISO	5190	1	36.837	Pass
		5230	1	36.779	Pass
802.11ac (VHT80)	SISO	5210	1	76.199	Pass

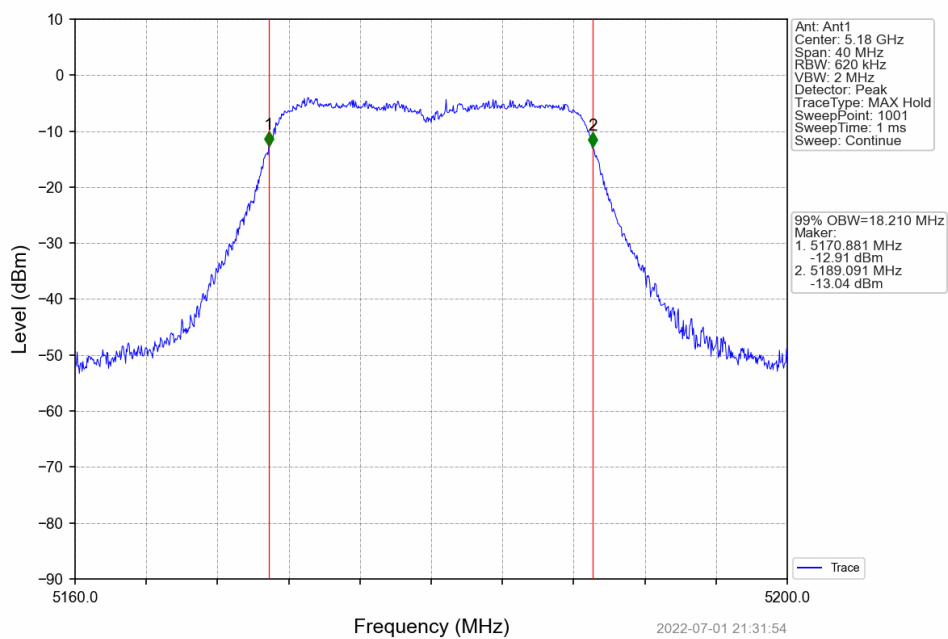
1.1.2 Test Graph



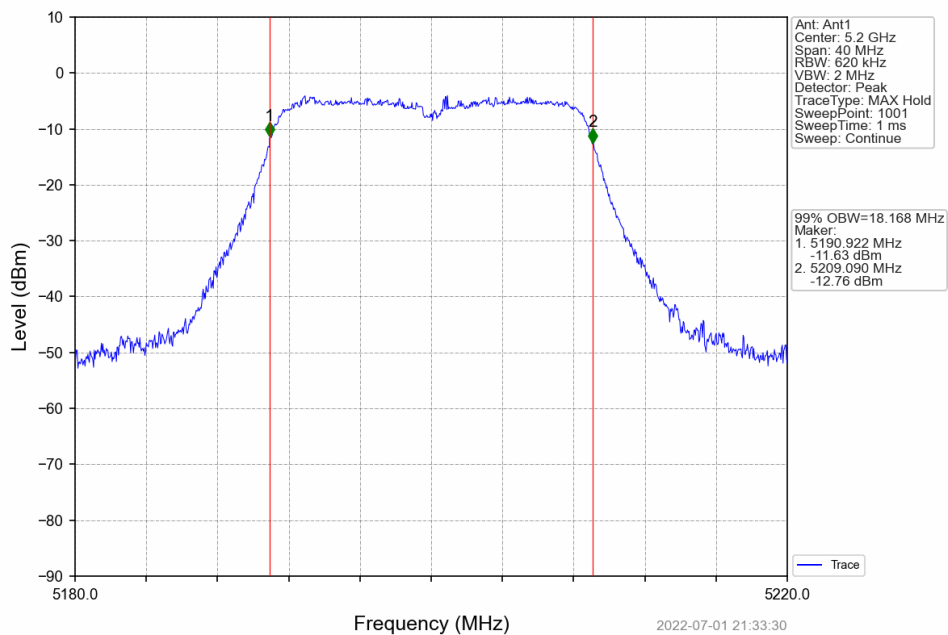
802.11a HCH 5240MHz Ant1 NTN



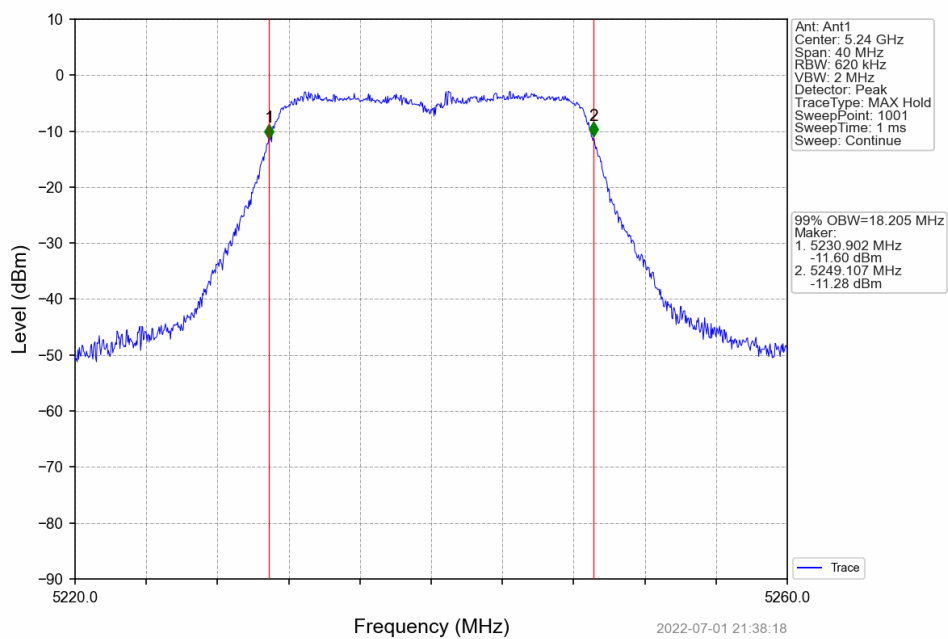
802.11n(HT20) LCH 5180MHz Ant1 NTN



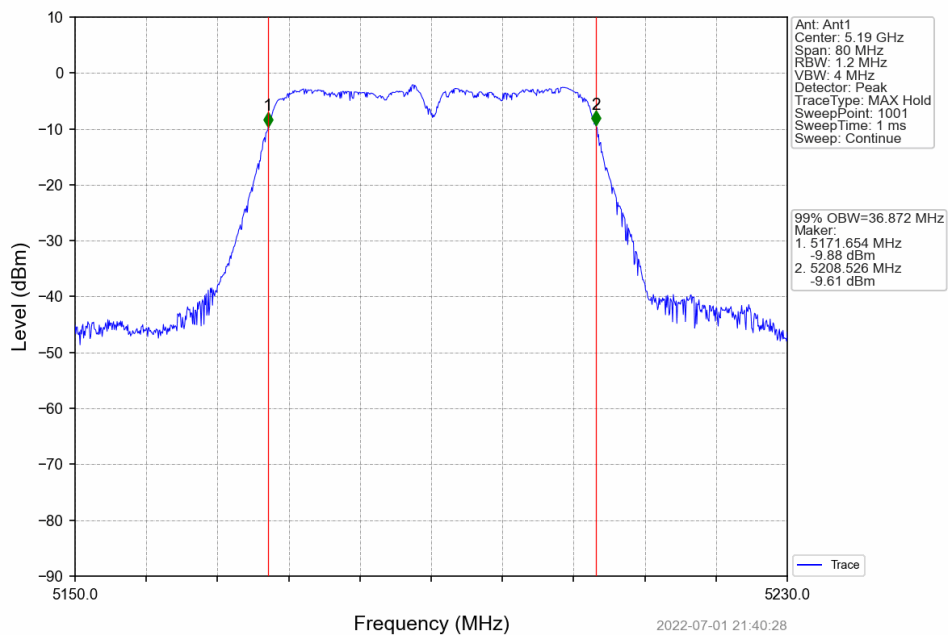
802.11n(HT20) MCH 5200MHz Ant1 NTN



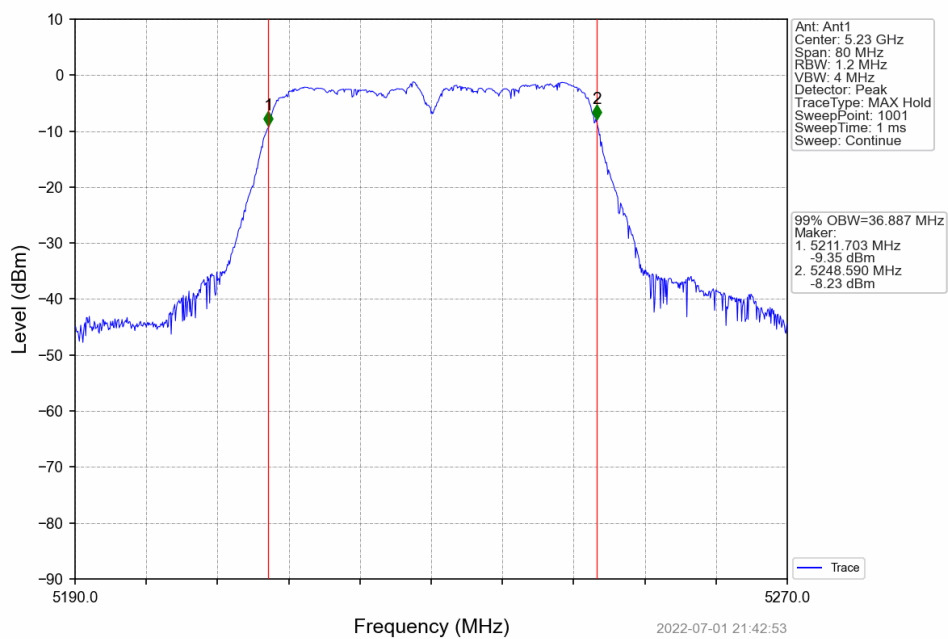
802.11n(HT20)_HCH_5240MHz_Ant1_NTN



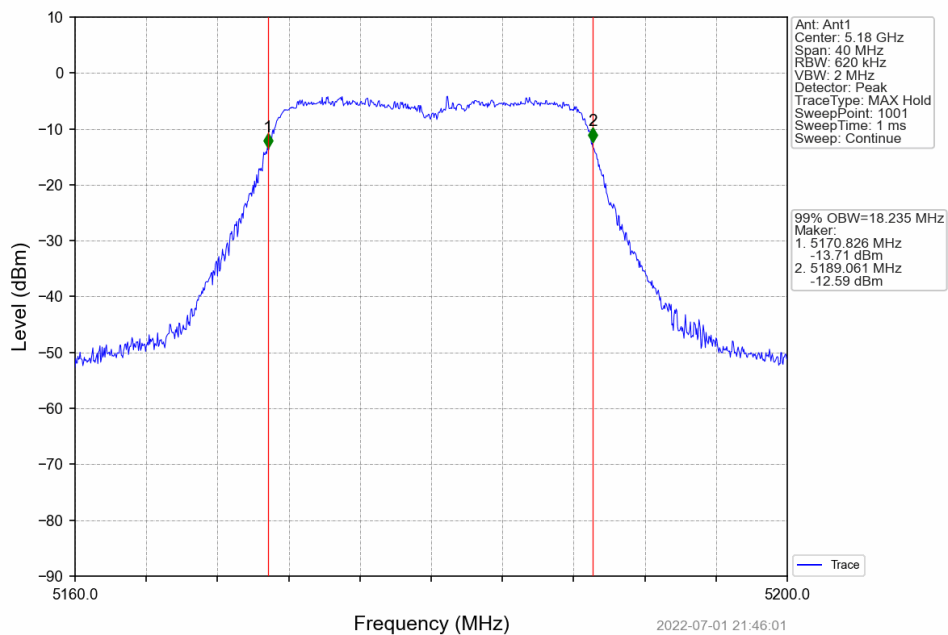
802.11n(HT40) LCH 5190MHz Ant1 NTN



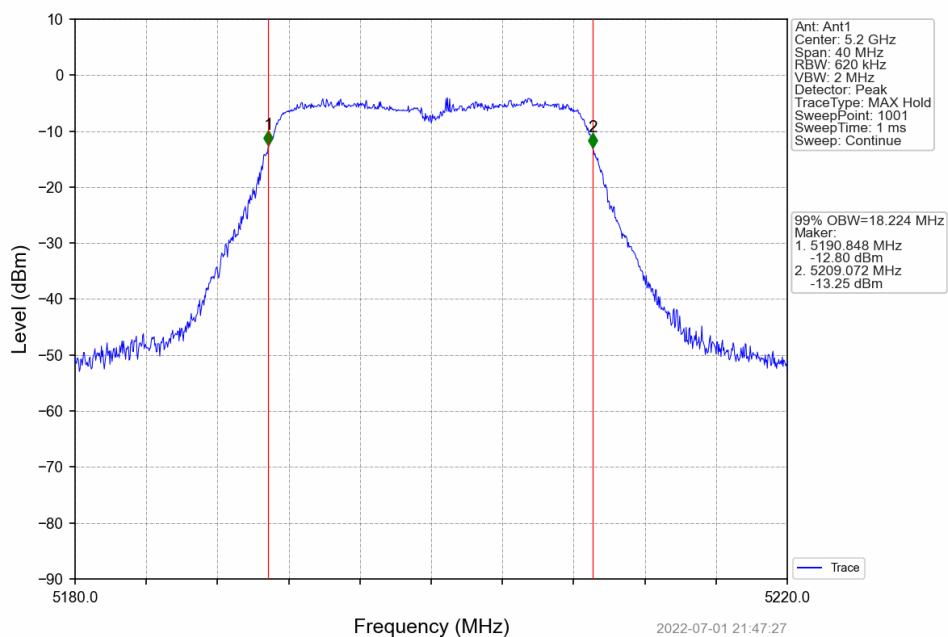
802.11n(HT40)_HCH_5230MHz_Ant1_NTN



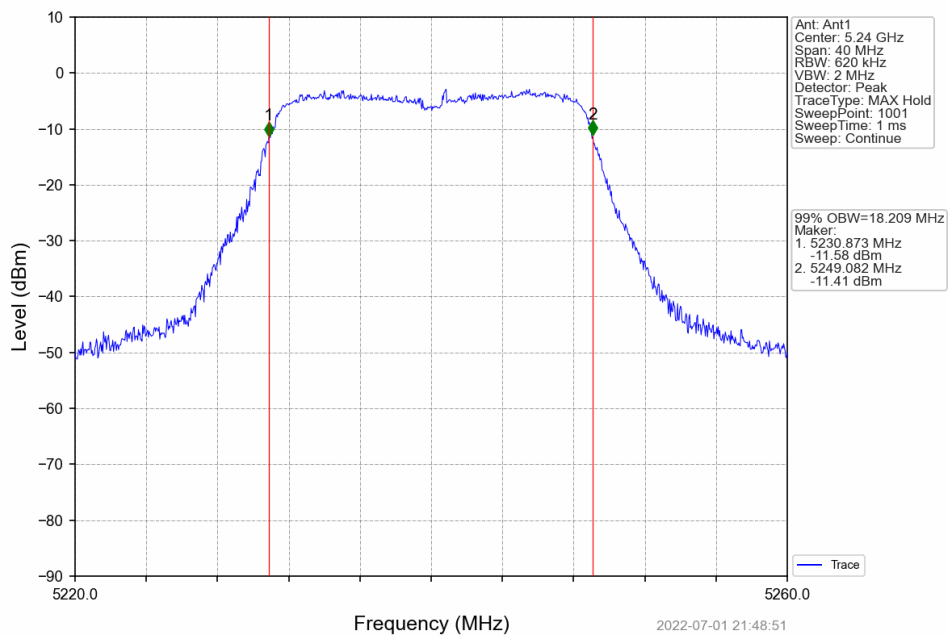
802.11ac(VHT20) LCH 5180MHz Ant1 NTN



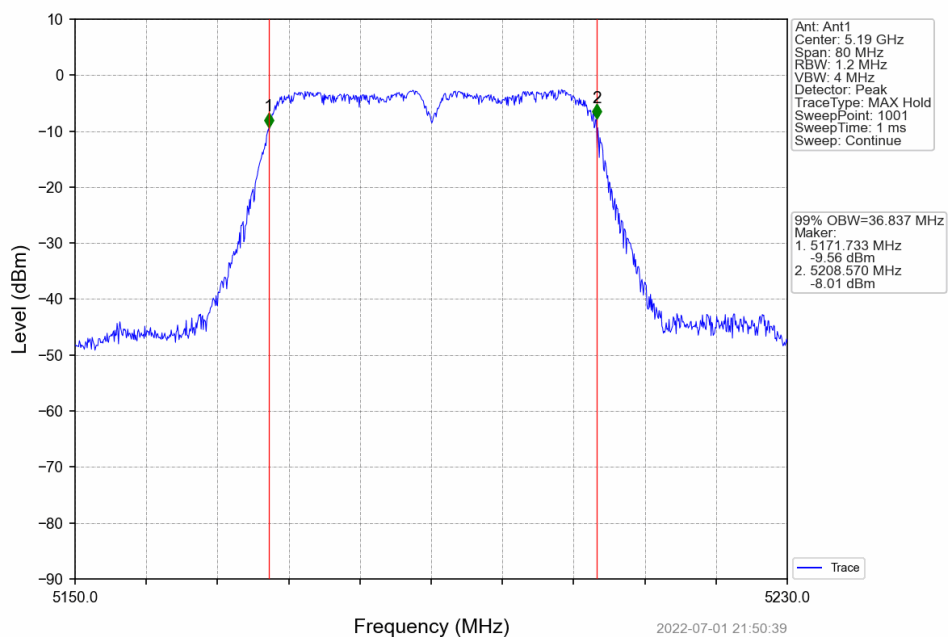
802.11ac(VHT20)_MCH_5200MHz_Ant1_NTN



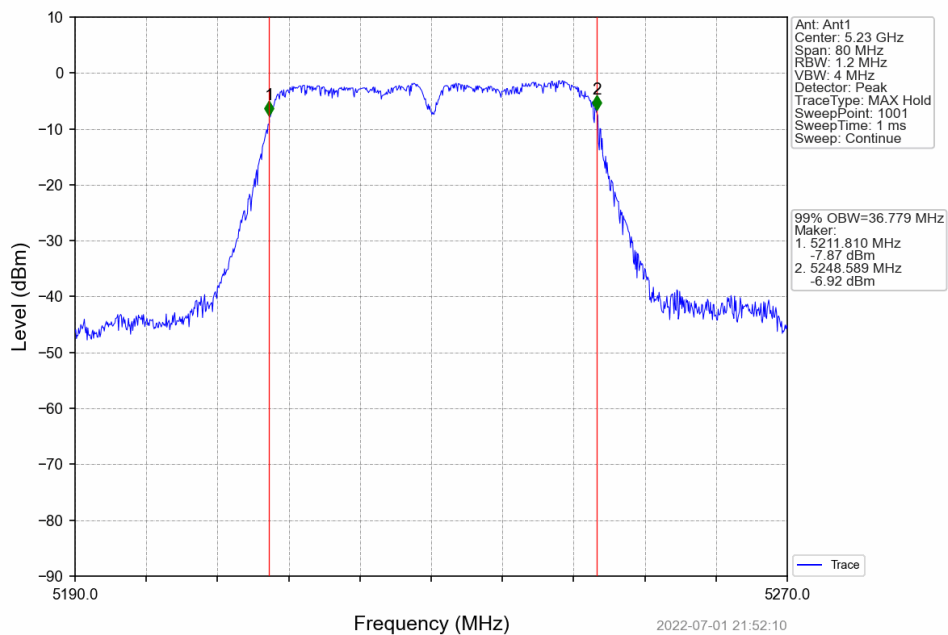
802.11ac(VHT20) HCH 5240MHz Ant1 NTN



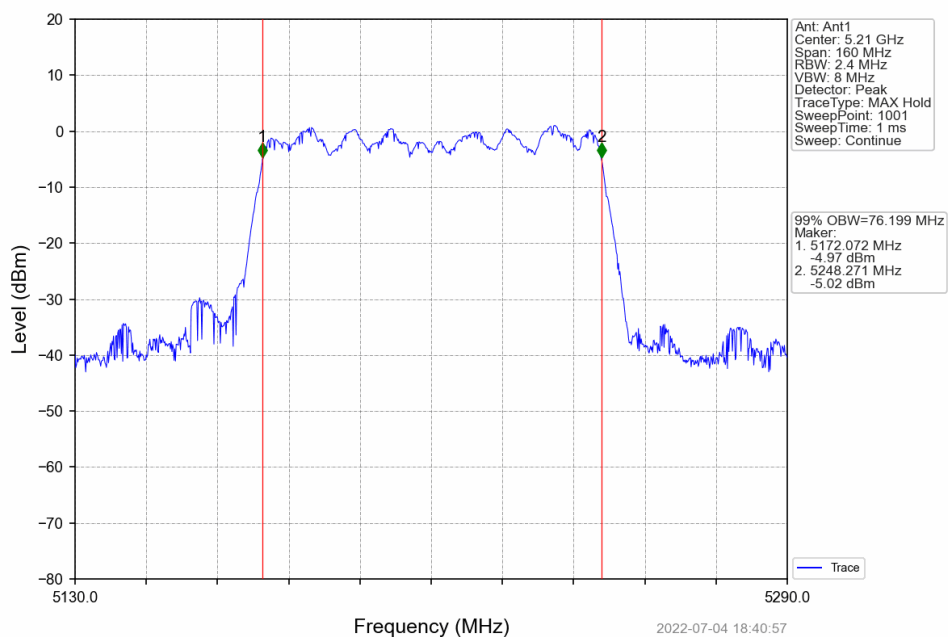
802.11ac(VHT40)_LCH_5190MHz_Ant1_NTN



802.11ac(VHT40) HCH 5230MHz Ant1 NTN



802.11ac(VHT80)_MCH_5210MHz_Ant1_NTN

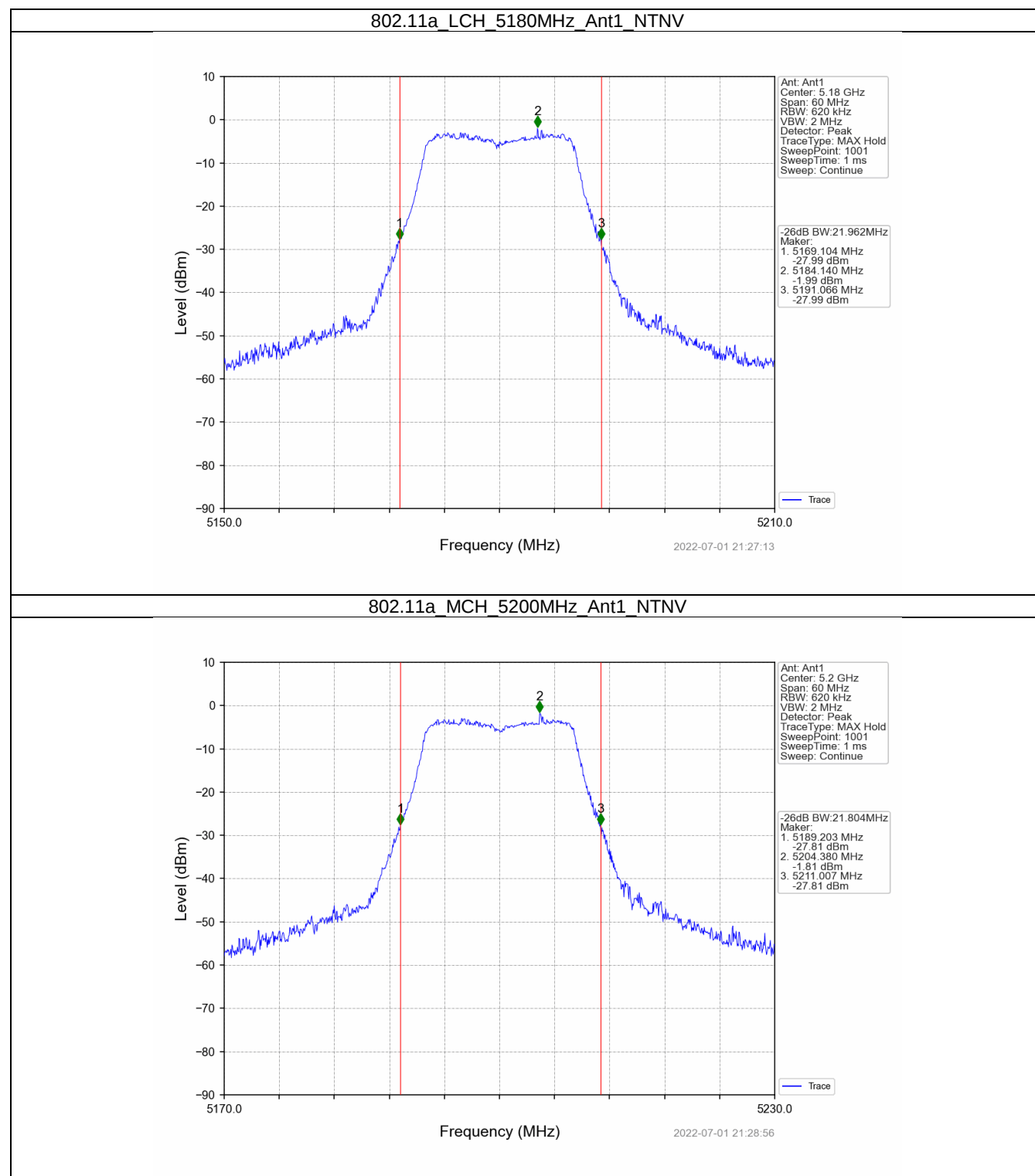


1.2 26dB BW

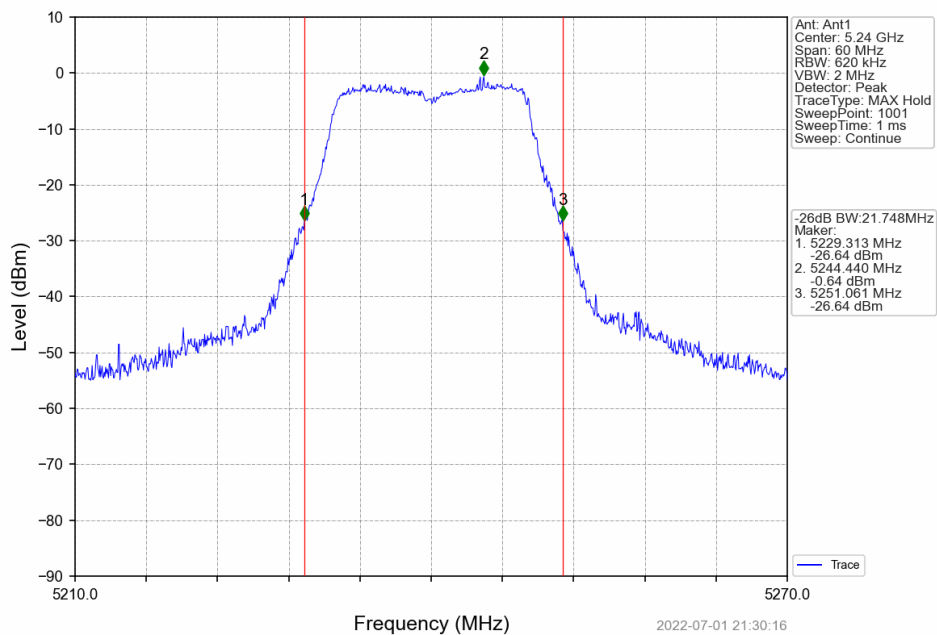
1.2.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	26dB Bandwidth (MHz)	Verdict
				Result	
802.11a	SISO	5180	1	21.962	Pass
		5200	1	21.804	Pass
		5240	1	21.748	Pass
802.11n (HT20)	SISO	5180	1	22.314	Pass
		5200	1	22.264	Pass
		5240	1	22.419	Pass
802.11n (HT40)	SISO	5190	1	43.615	Pass
		5230	1	43.811	Pass
802.11ac (VHT20)	SISO	5180	1	22.186	Pass
		5200	1	22.460	Pass
		5240	1	22.615	Pass
802.11ac (VHT40)	SISO	5190	1	43.754	Pass
		5230	1	43.388	Pass
802.11ac (VHT80)	SISO	5210	1	84.035	Pass

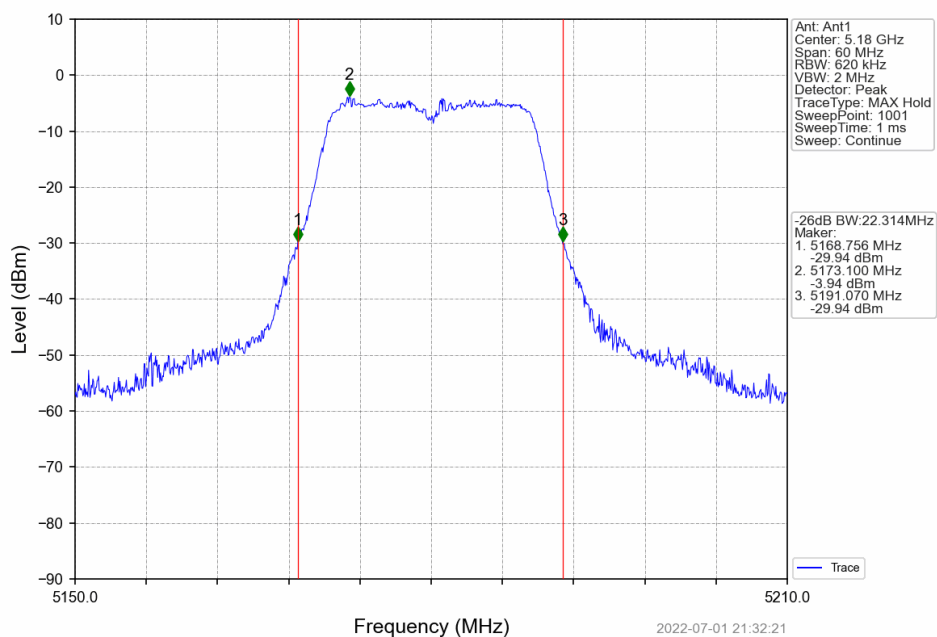
1.2.2 Test Graph



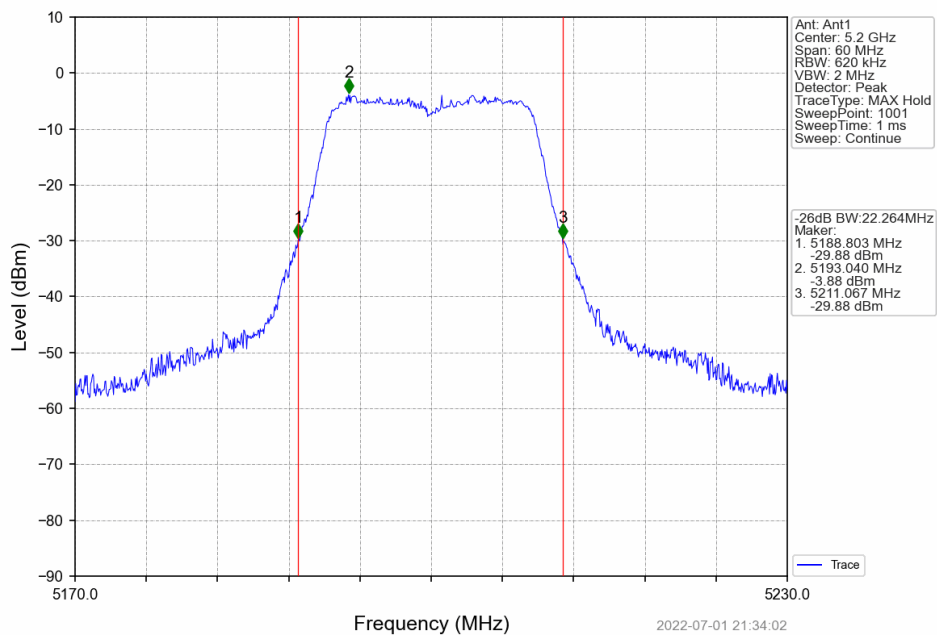
802.11a HCH 5240MHz Ant1 NTV



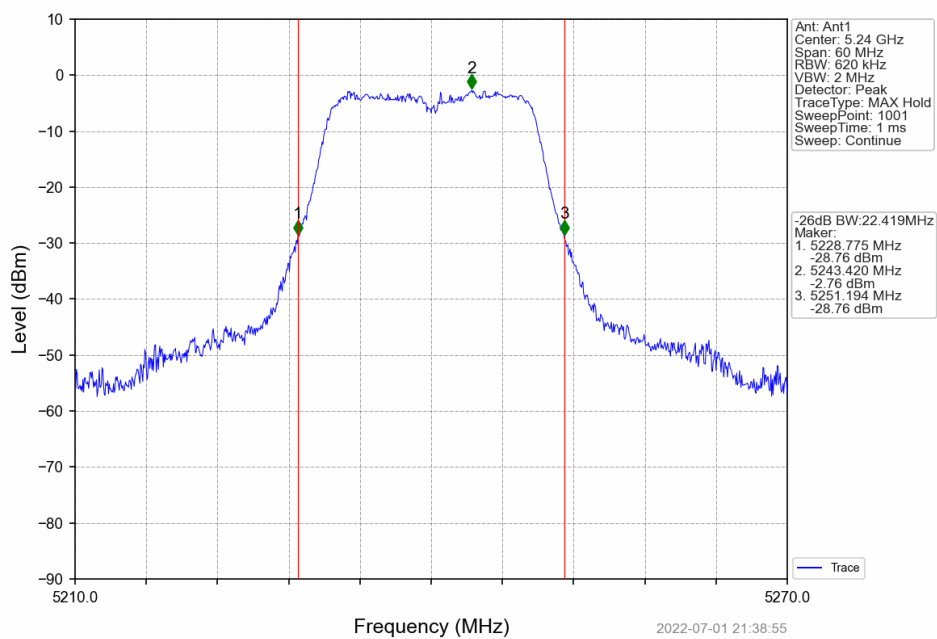
802.11n(HT20) LCH 5180MHz Ant1 NTV



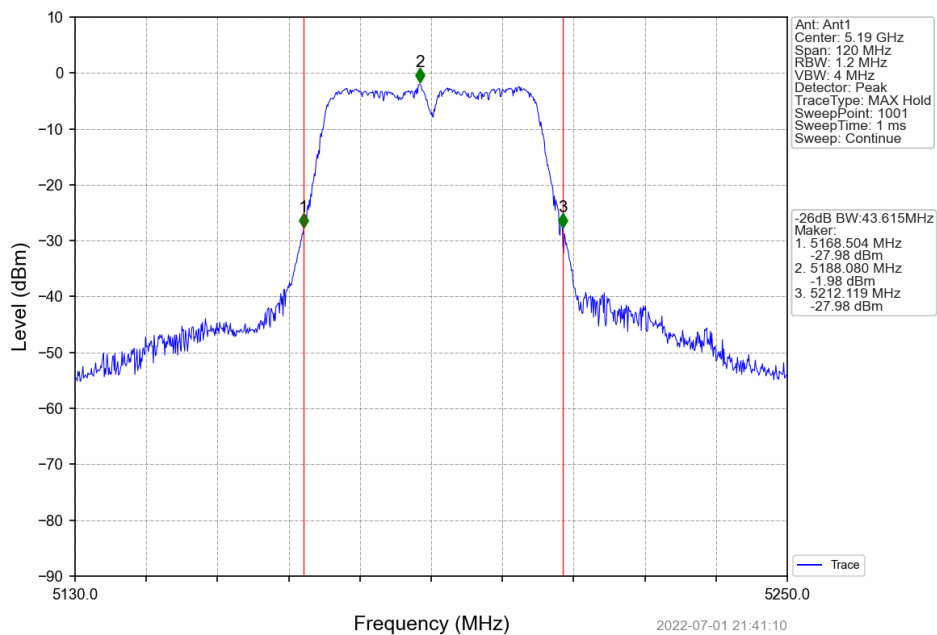
802.11n(HT20) MCH 5200MHz Ant1 NTN



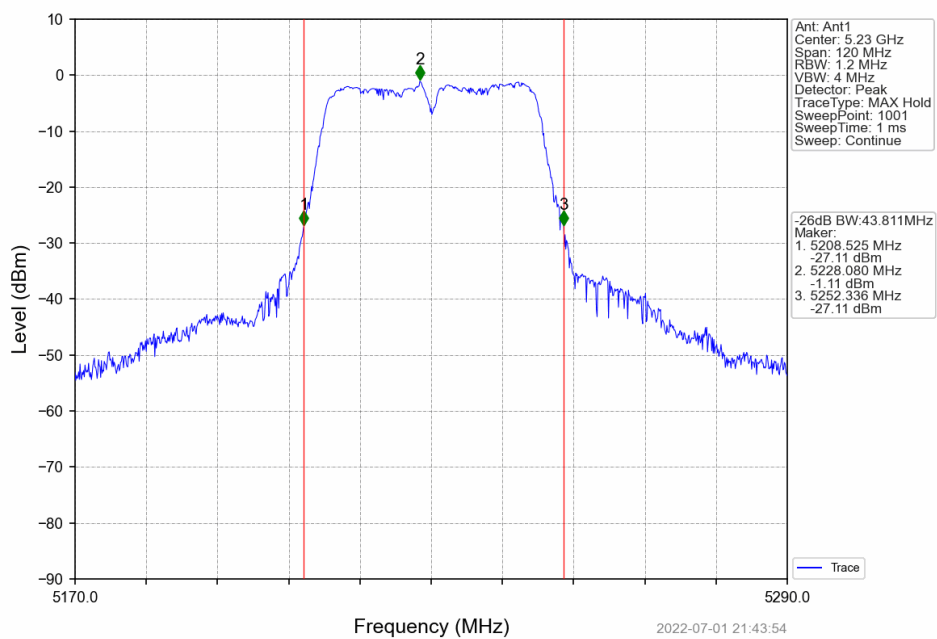
802.11n(HT20)_HCH_5240MHz_Ant1_NTN



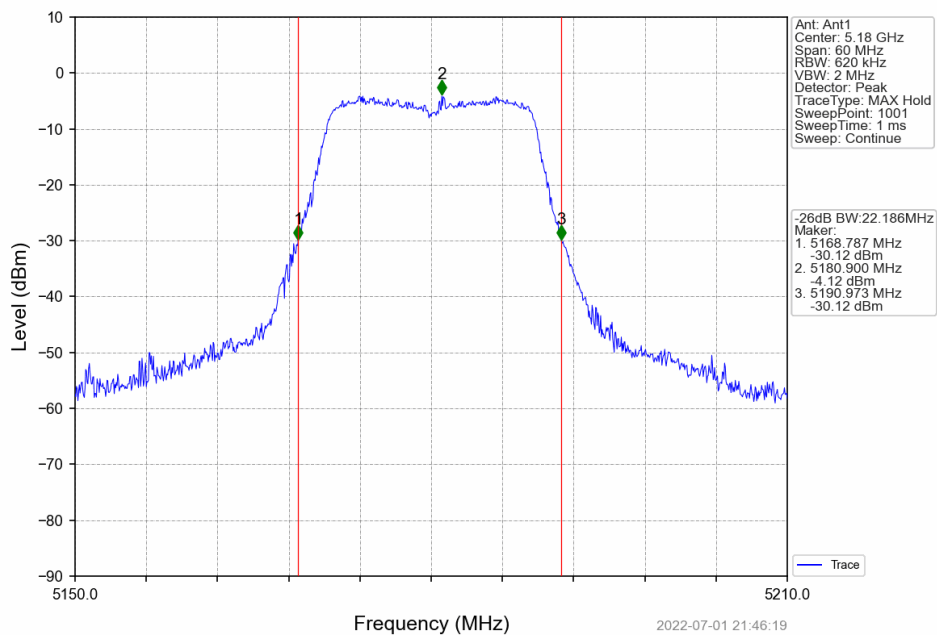
802.11n(HT40) LCH 5190MHz Ant1 NTN



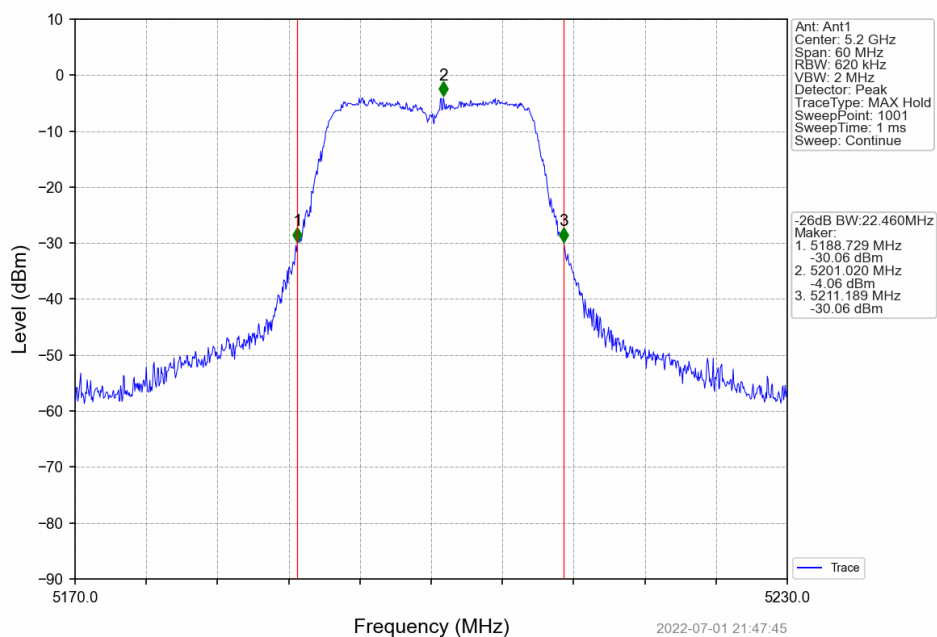
802.11n(HT40)_HCH_5230MHz_Ant1_NTN



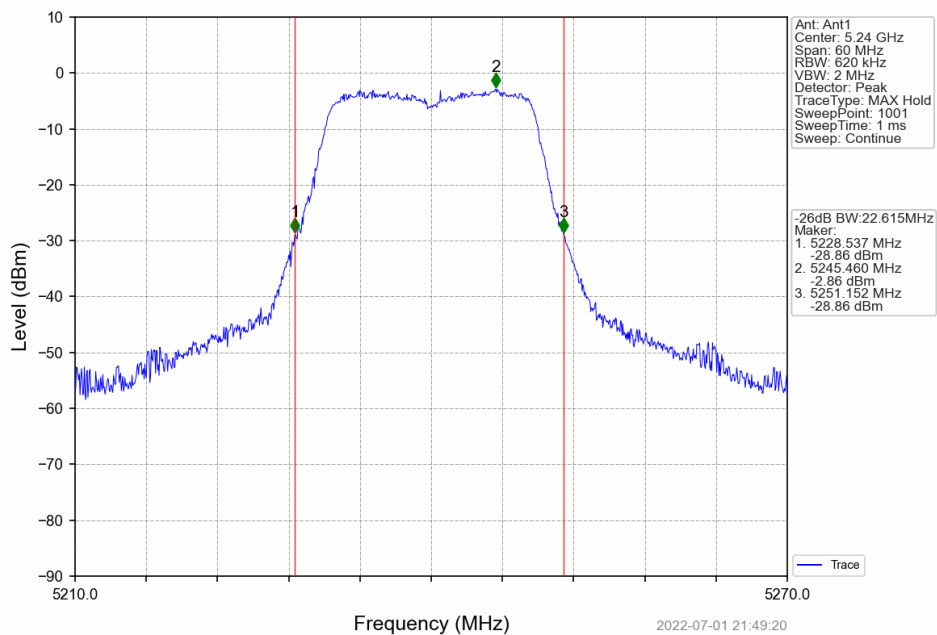
802.11ac(VHT20) LCH 5180MHz Ant1 NTN



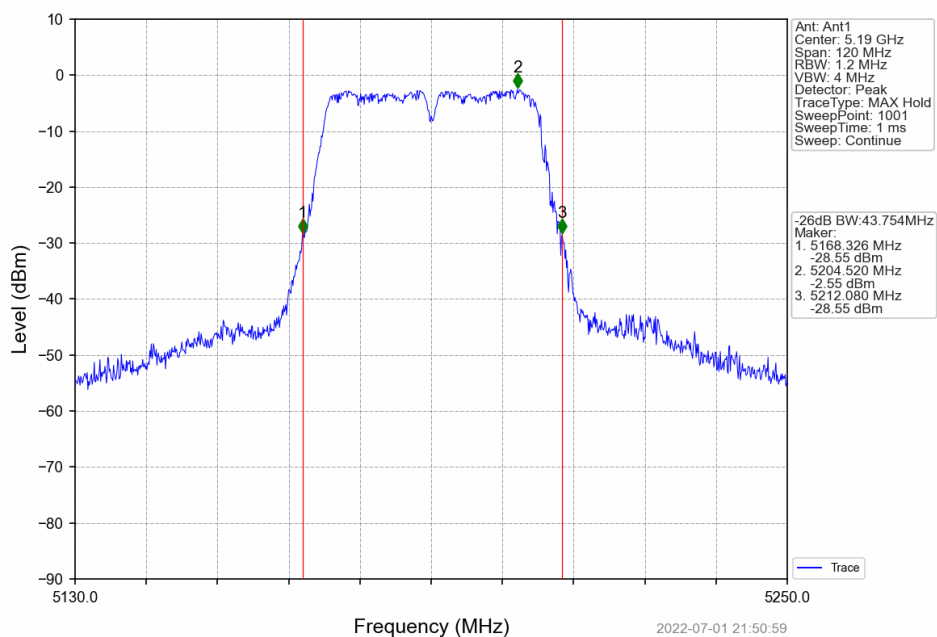
802.11ac(VHT20)_MCH_5200MHz_Ant1_NTN



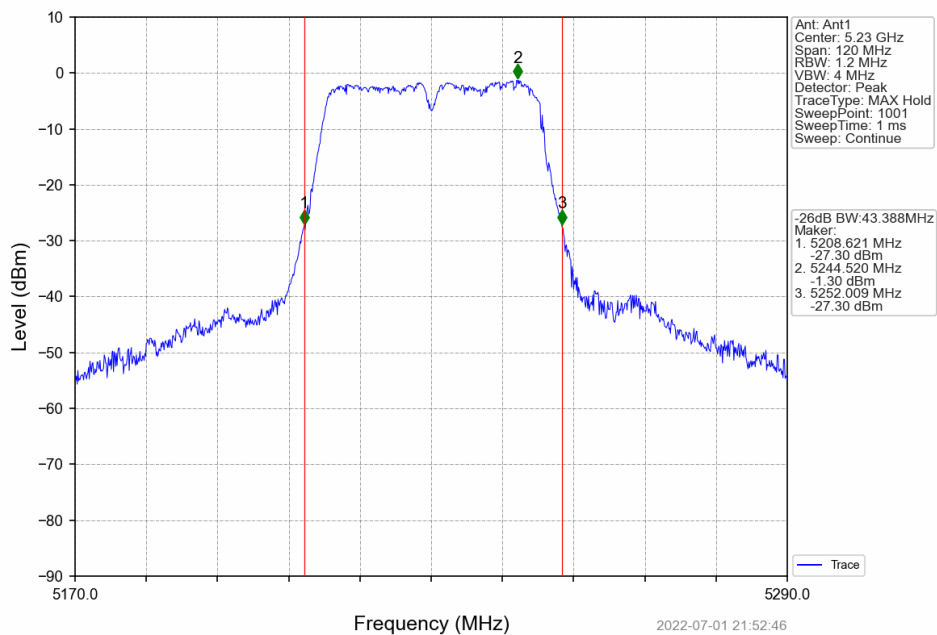
802.11ac(VHT20) HCH 5240MHz Ant1 NTN



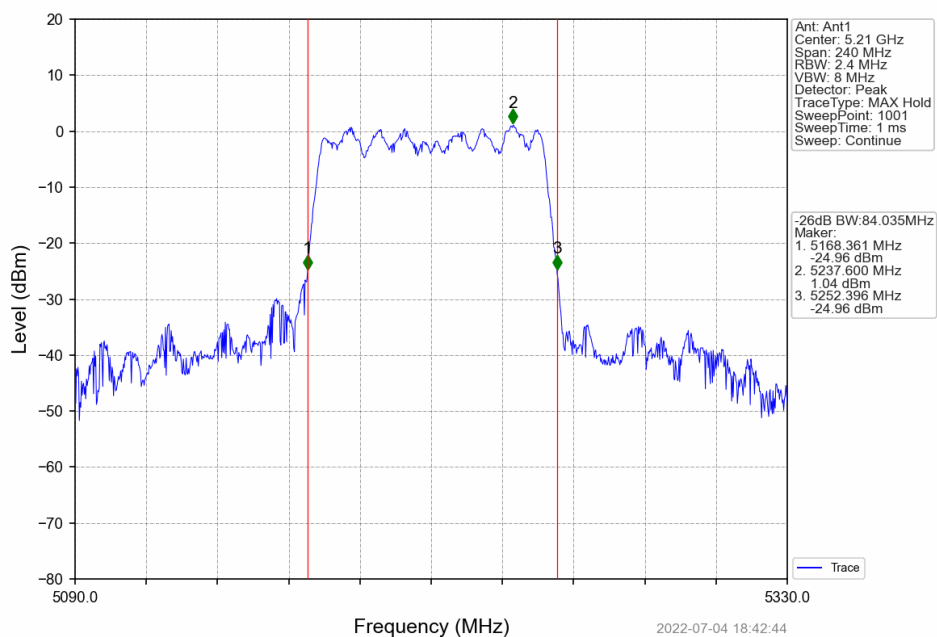
802.11ac(VHT40)_LCH_5190MHz_Ant1_NTN



802.11ac(VHT40) HCH 5230MHz Ant1 NTN



802.11ac(VHT80)_MCH_5210MHz_Ant1_NTN



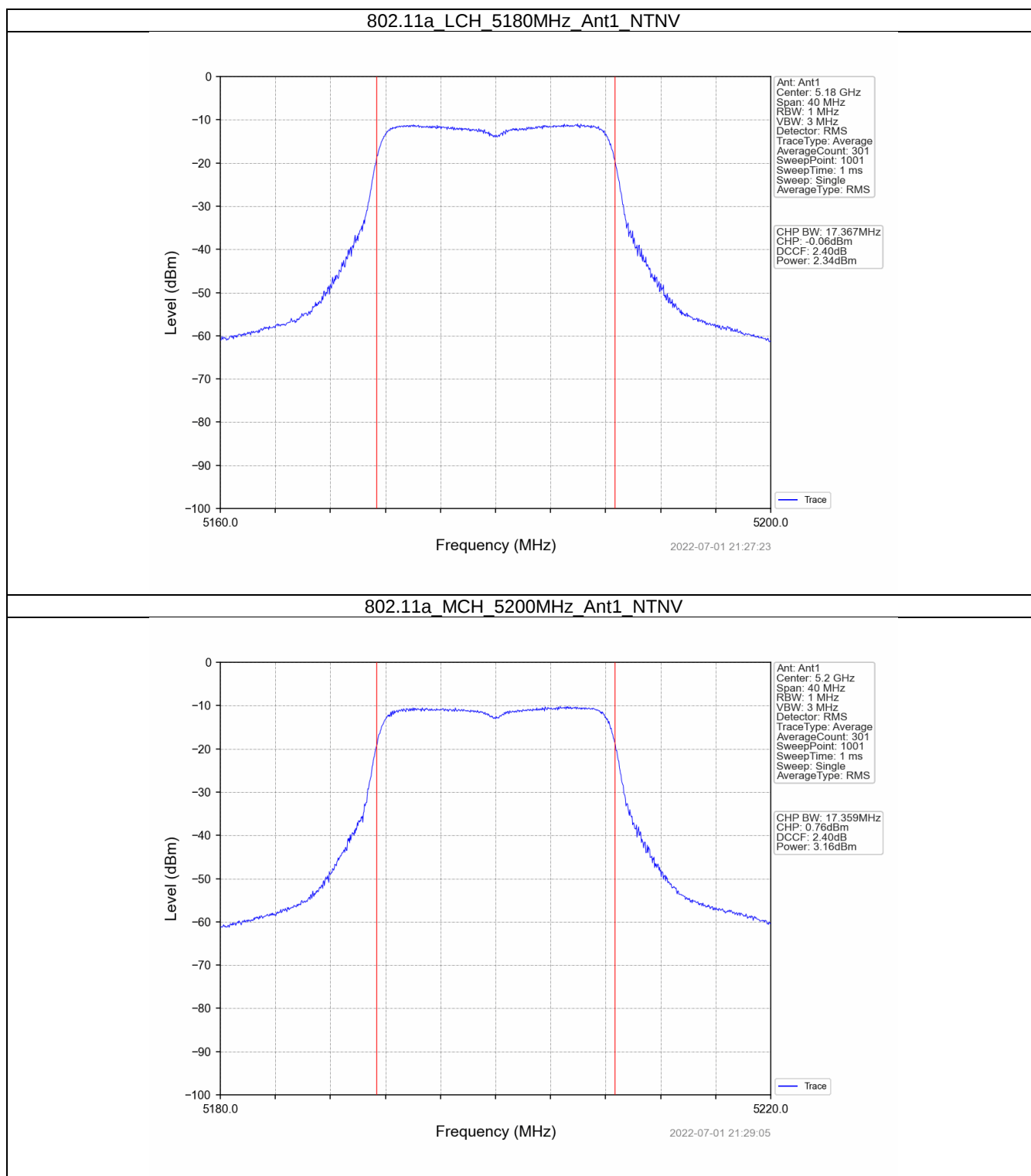
2. Maximum Conducted Output Power

2.1 Power

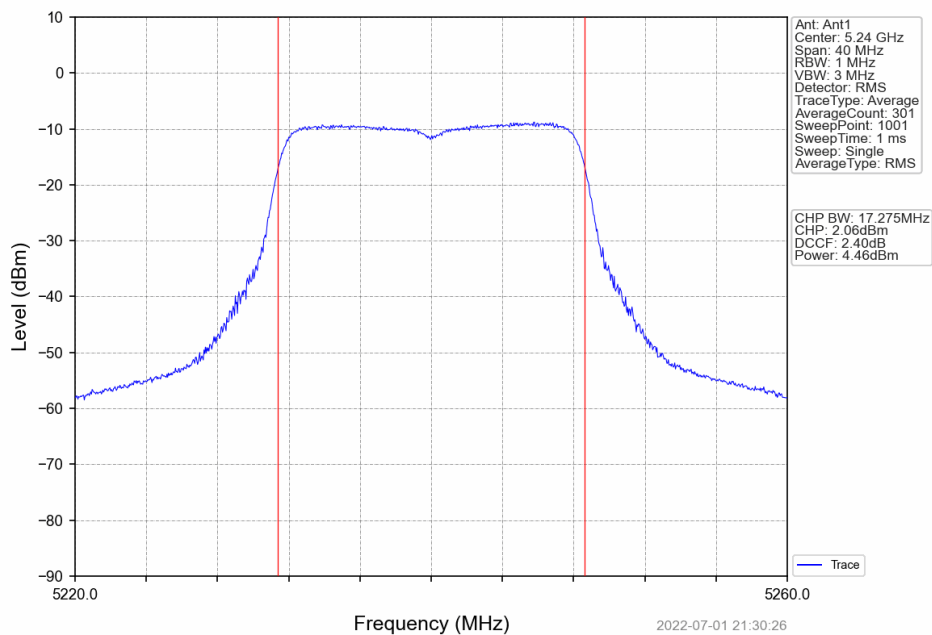
2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11a	SISO	5180	2.34	<=23.98	Pass
		5200	3.16	<=23.98	Pass
		5240	4.46	<=23.98	Pass
802.11n (HT20)	SISO	5180	1.83	<=23.98	Pass
		5200	2.00	<=23.98	Pass
		5240	3.07	<=23.98	Pass
802.11n (HT40)	SISO	5190	2.72	<=23.98	Pass
		5230	3.71	<=23.98	Pass
802.11ac (VHT20)	SISO	5180	1.86	<=23.98	Pass
		5200	1.91	<=23.98	Pass
		5240	3.11	<=23.98	Pass
802.11ac (VHT40)	SISO	5190	1.94	<=23.98	Pass
		5230	4.03	<=23.98	Pass
802.11ac (VHT80)	SISO	5210	2.93	<=23.98	Pass
Note1: Antenna Gain: Ant1: 3.48dBi;					

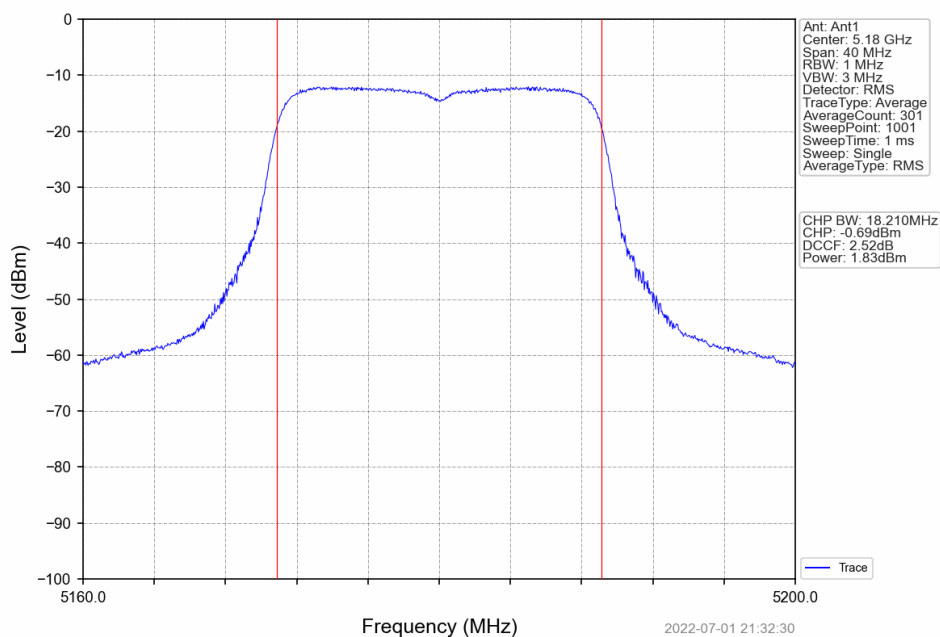
2.1.2 Test Graph



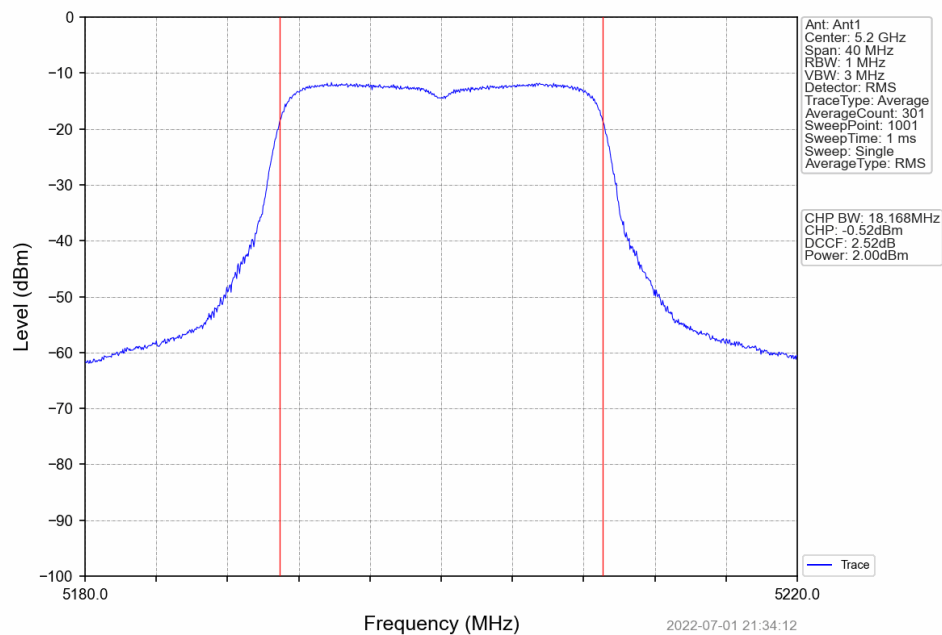
802.11a HCH 5240MHz Ant1 NTN



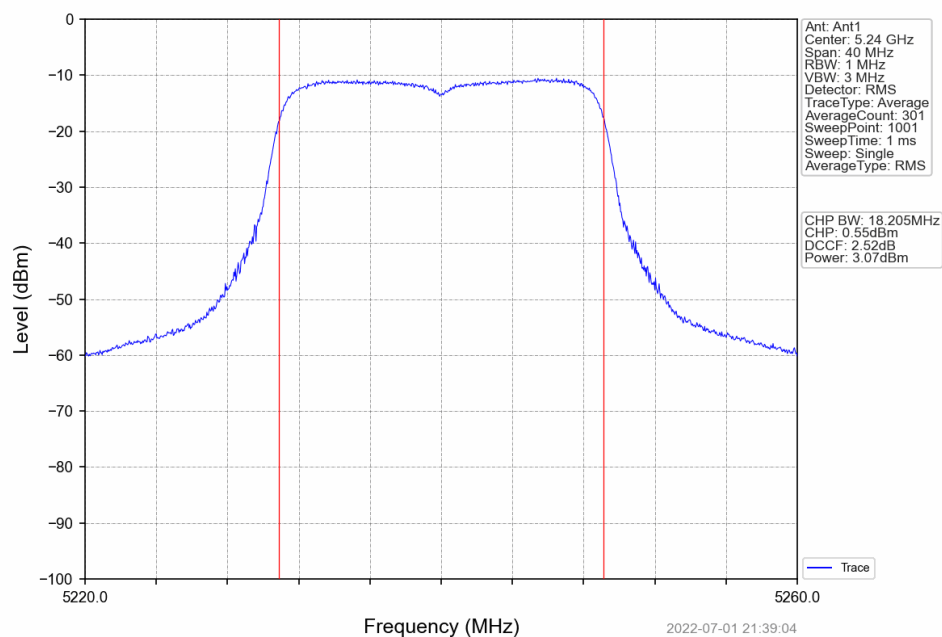
802.11n(HT20) LCH 5180MHz Ant1 NTN



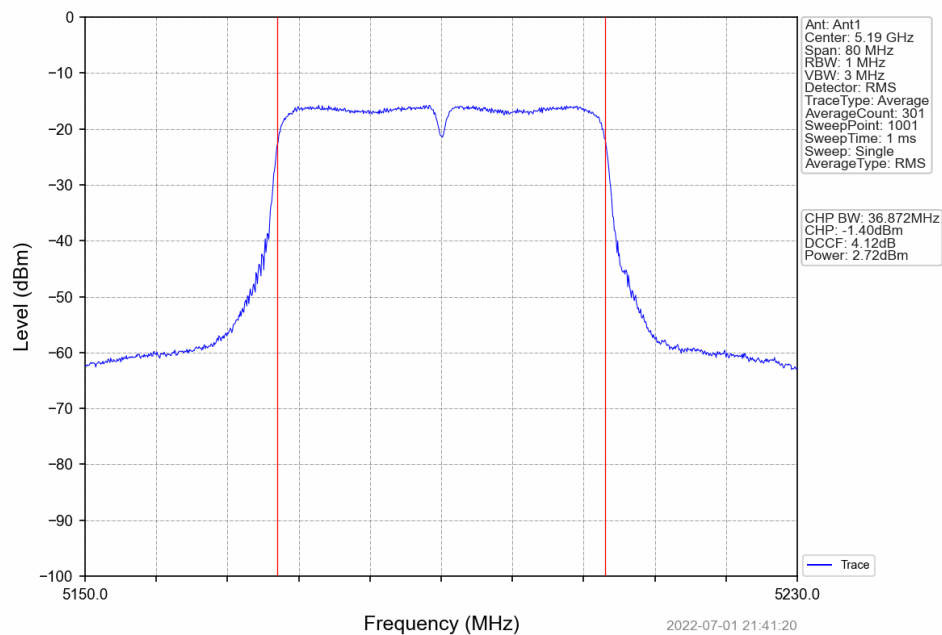
802.11n(HT20) MCH 5200MHz Ant1 NTN



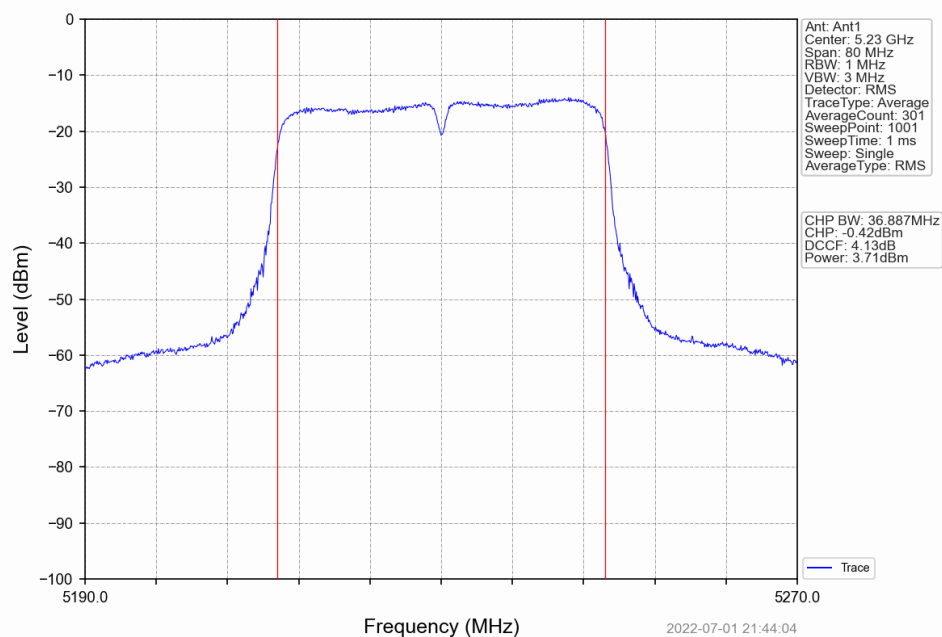
802.11n(HT20)_HCH_5240MHz_Ant1_NTN



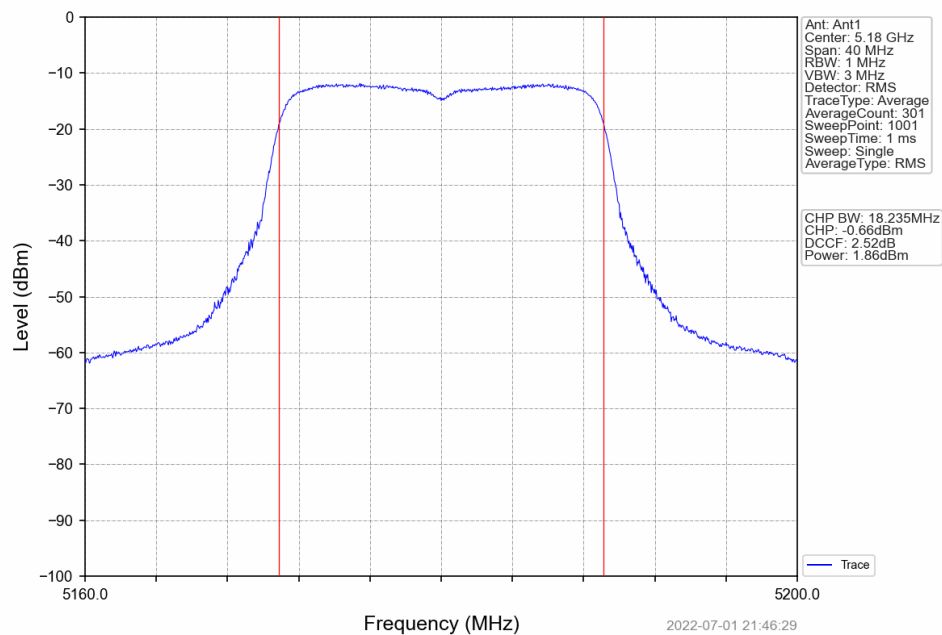
802.11n(HT40) LCH 5190MHz Ant1 NTN



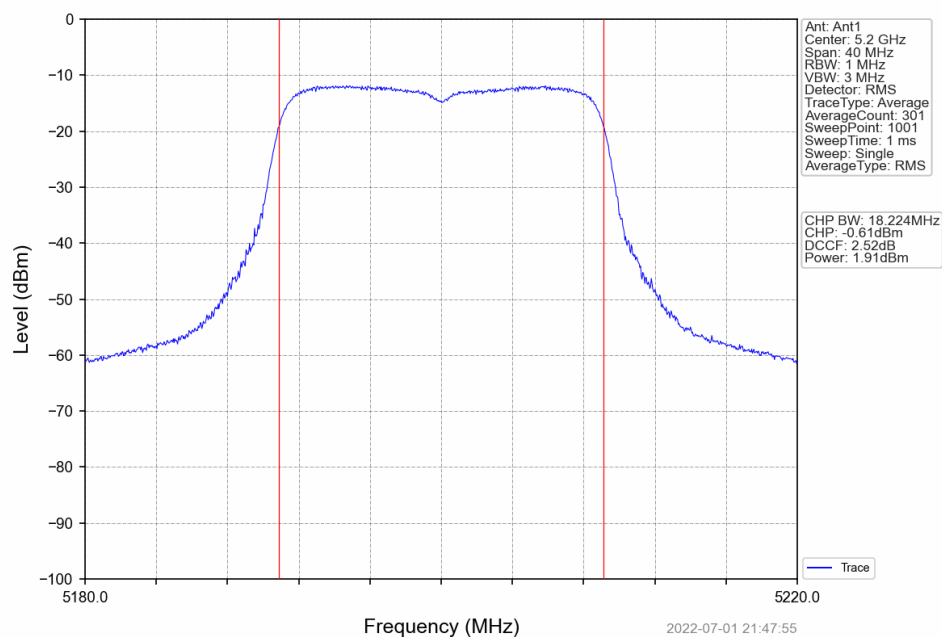
802.11n(HT40)_HCH_5230MHz_Ant1_NTN



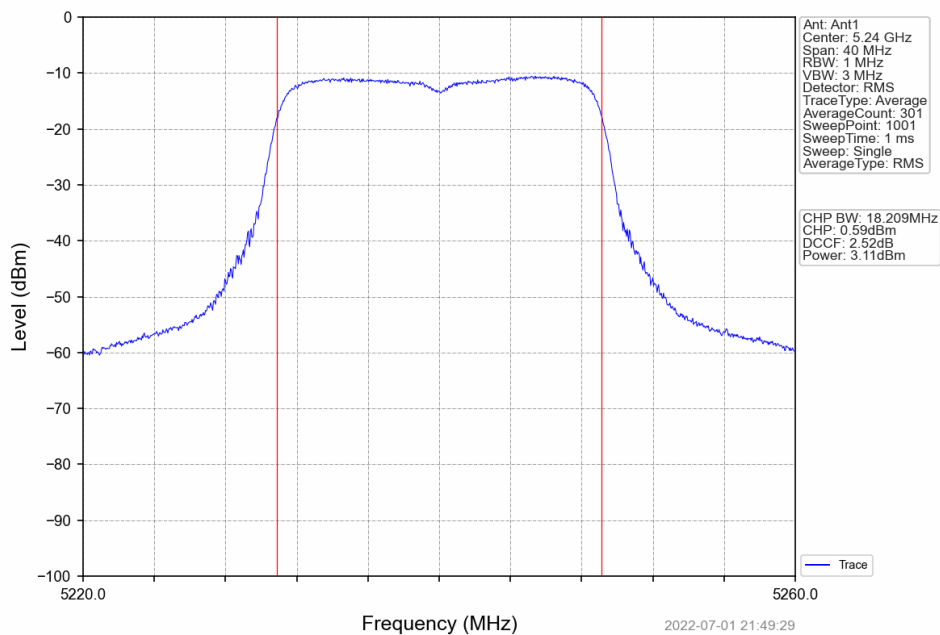
802.11ac(VHT20) LCH 5180MHz Ant1 NTN



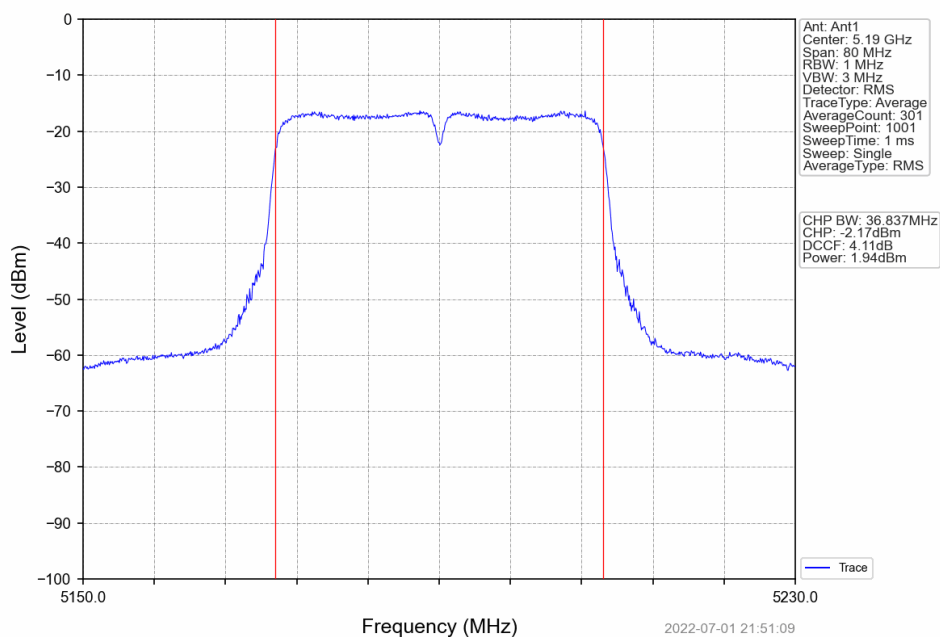
802.11ac(VHT20)_MCH_5200MHz_Ant1_NTN



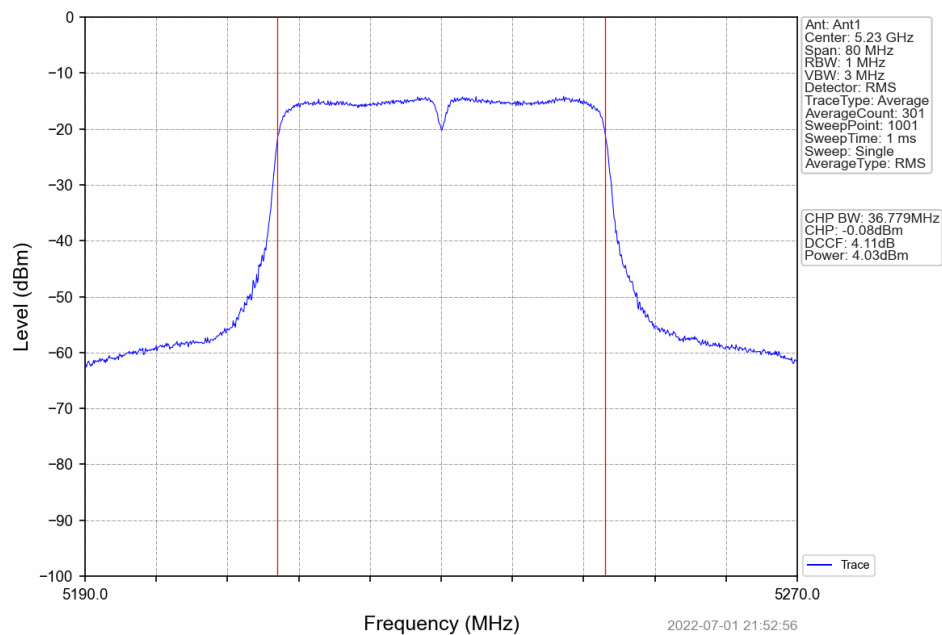
802.11ac(VHT20) HCH 5240MHz Ant1 NTN



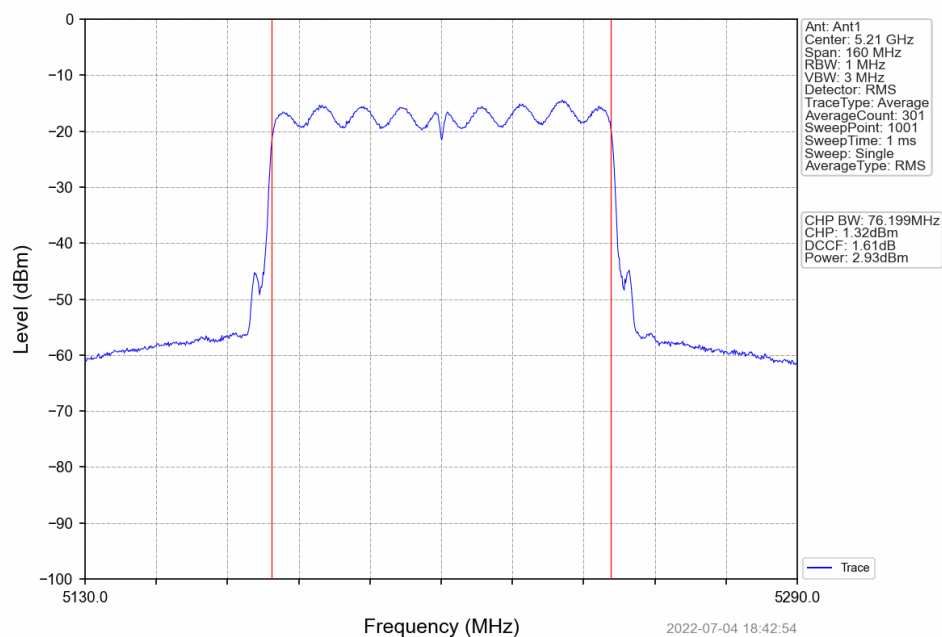
802.11ac(VHT40)_LCH_5190MHz_Ant1_NTN



802.11ac(VHT40) HCH 5230MHz Ant1 NTNV



802.11ac(VHT80)_MCH_5210MHz_Ant1_NTNV



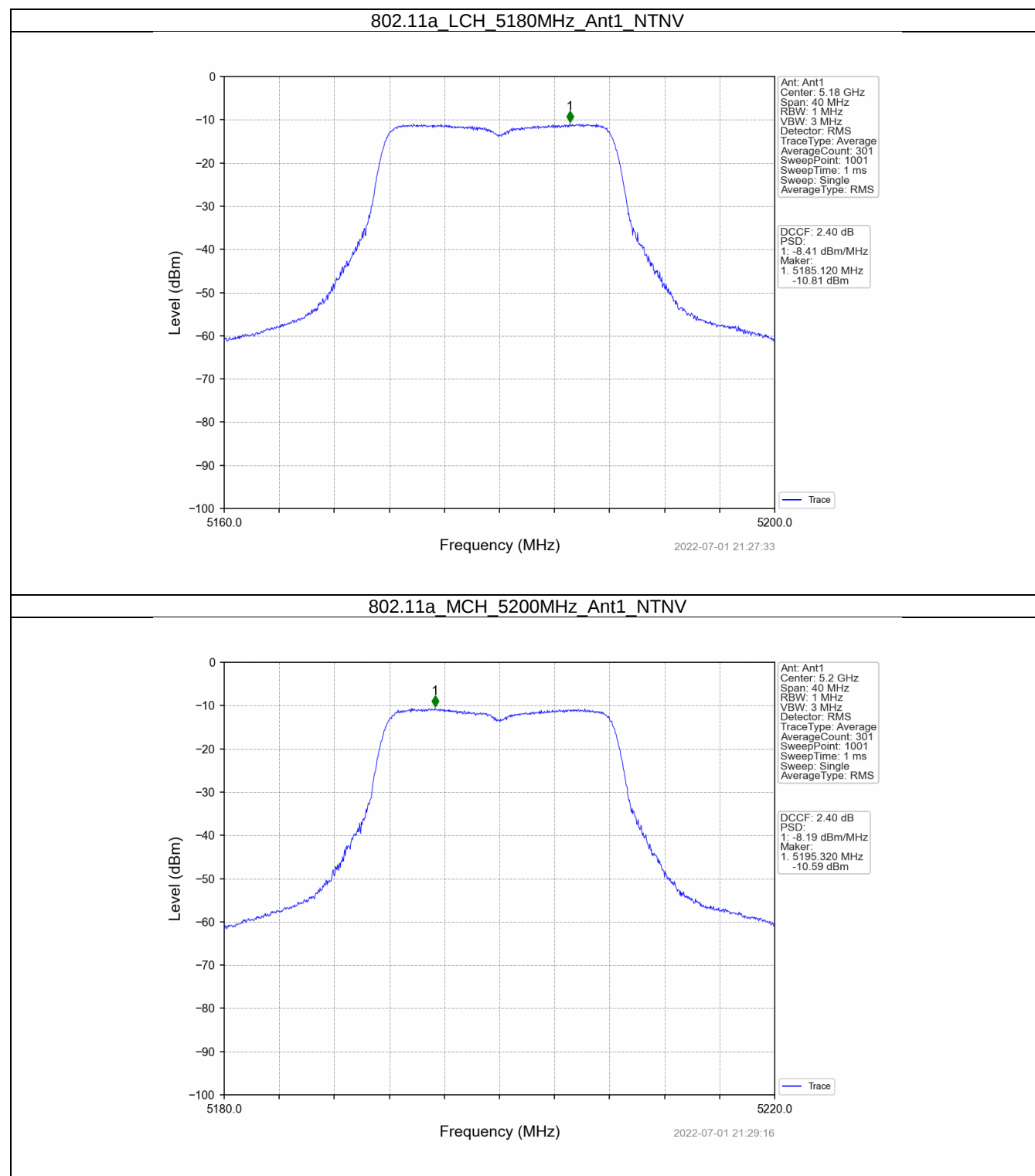
3. Maximum Power Spectral Density

3.1 PSD

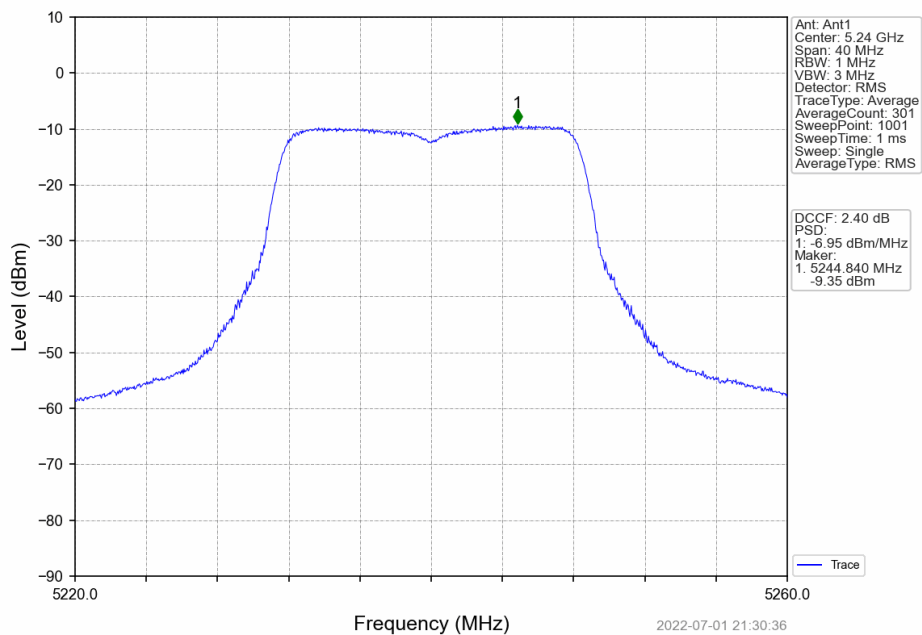
3.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/MHz)		Verdict
			ANT1	Limit	
802.11a	SISO	5180	-8.41	<=11	Pass
		5200	-8.19	<=11	Pass
		5240	-6.95	<=11	Pass
802.11n (HT20)	SISO	5180	-9.24	<=11	Pass
		5200	-9.26	<=11	Pass
		5240	-8.02	<=11	Pass
802.11n (HT40)	SISO	5190	-11.48	<=11	Pass
		5230	-10.69	<=11	Pass
802.11ac (VHT20)	SISO	5180	-9.41	<=11	Pass
		5200	-8.98	<=11	Pass
		5240	-8.06	<=11	Pass
802.11ac (VHT40)	SISO	5190	-11.86	<=11	Pass
		5230	-10.59	<=11	Pass
802.11ac (VHT80)	SISO	5210	-13.16	<=11	Pass
Note1: Antenna Gain: Ant1: 3.48dBi;					

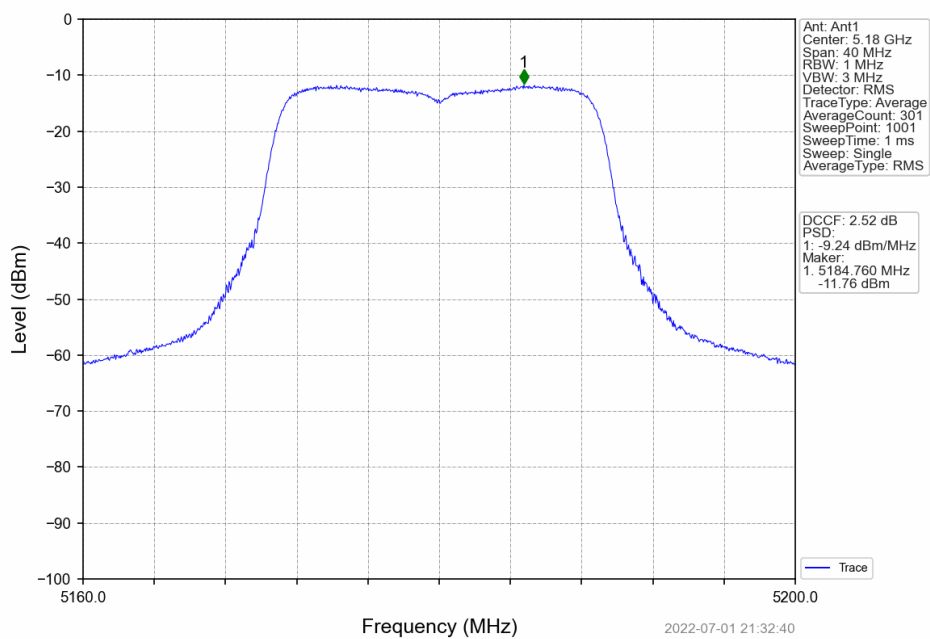
3.1.2 Test Graph



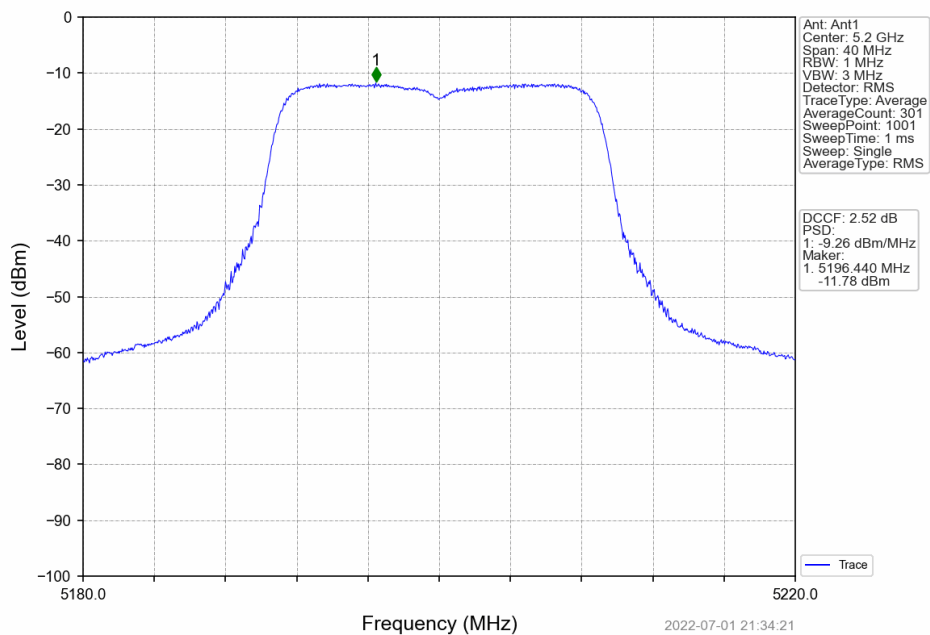
802.11a HCH 5240MHz Ant1 NTN



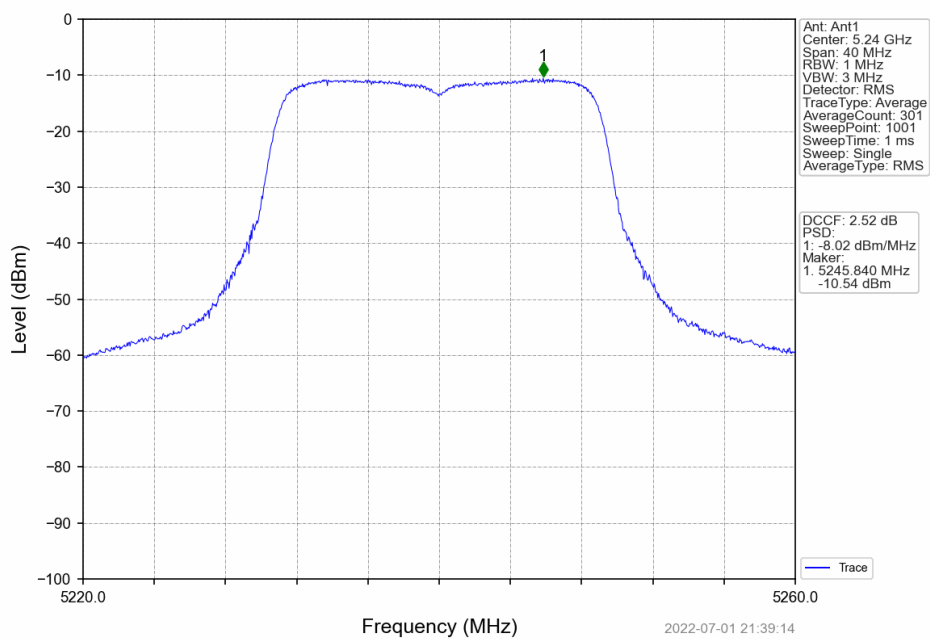
802.11n(HT20) LCH 5180MHz Ant1 NTN

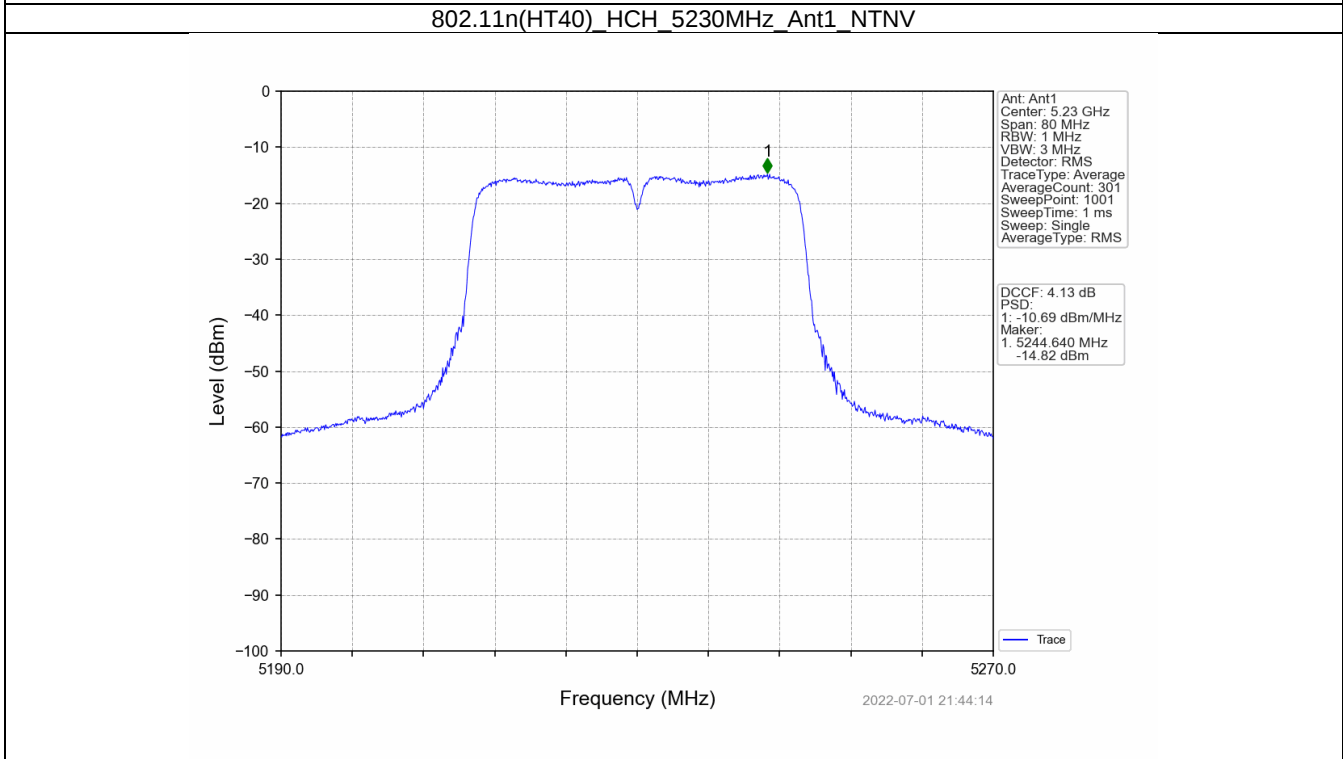
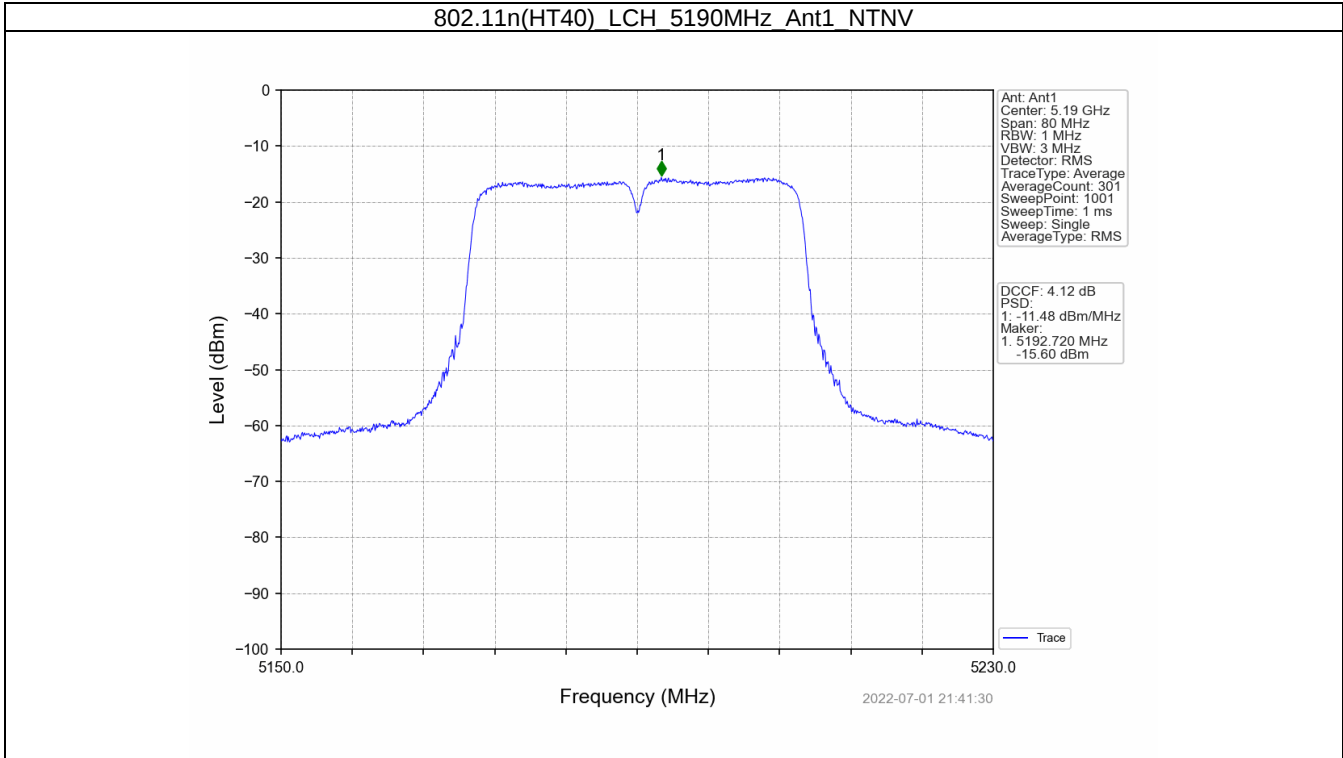


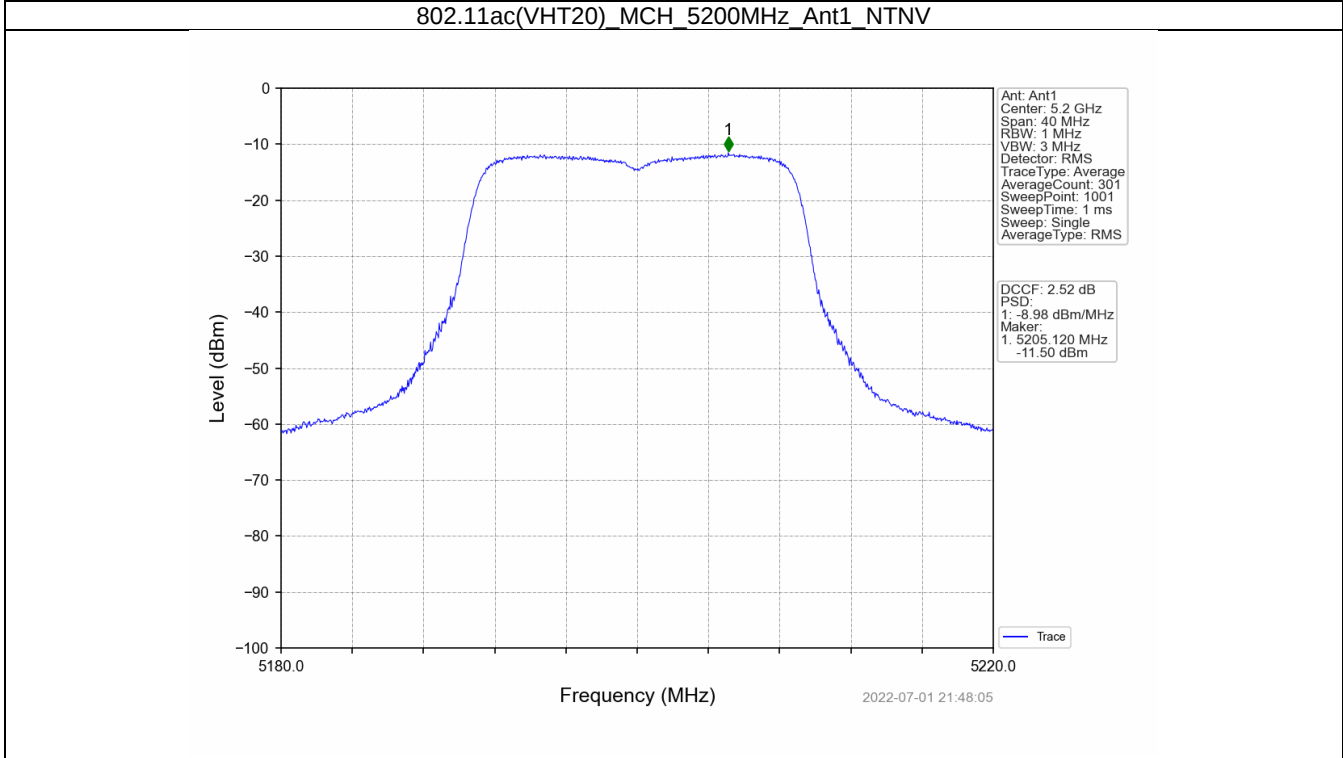
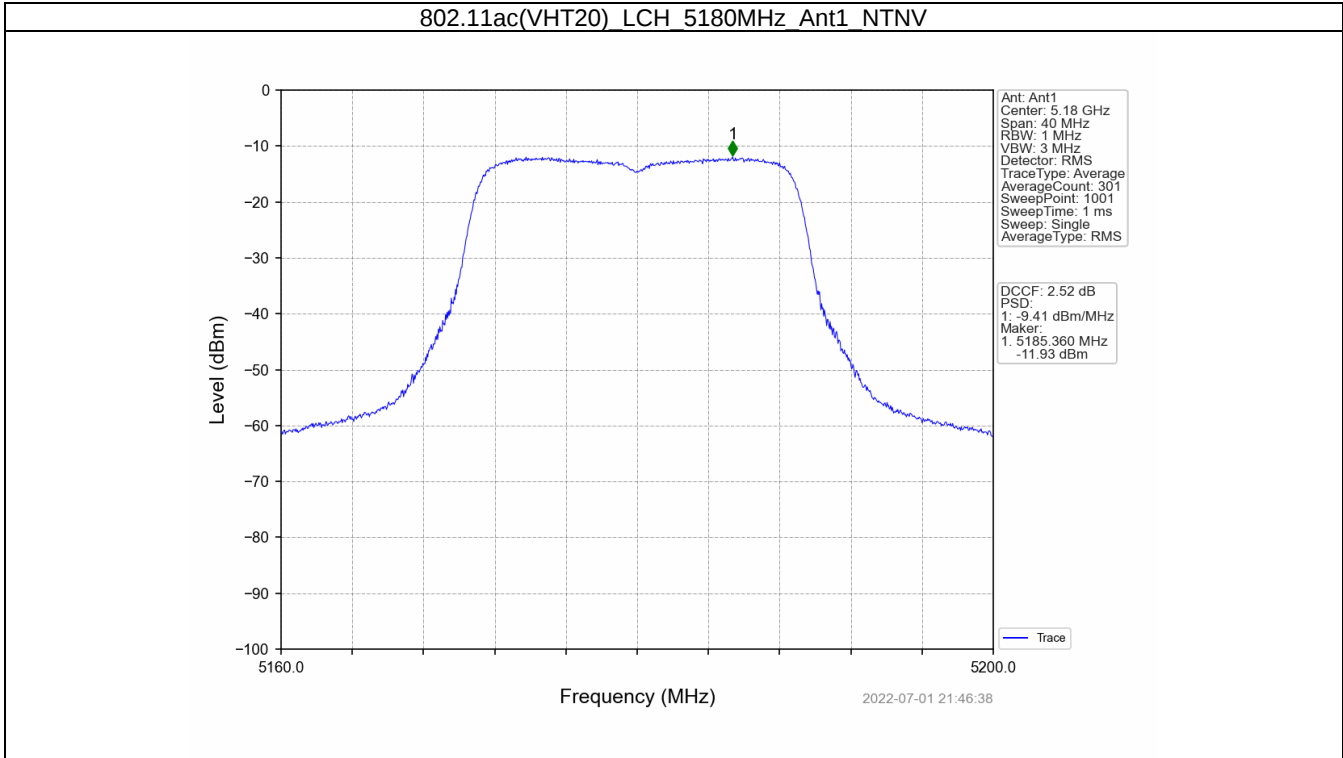
802.11n(HT20) MCH 5200MHz Ant1 NTN



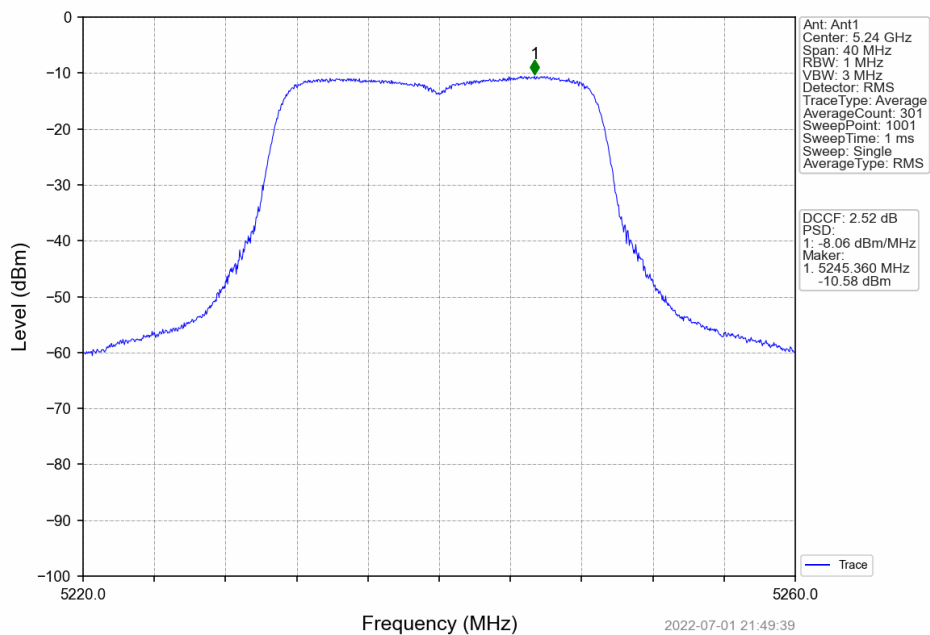
802.11n(HT20)_HCH_5240MHz_Ant1_NTN



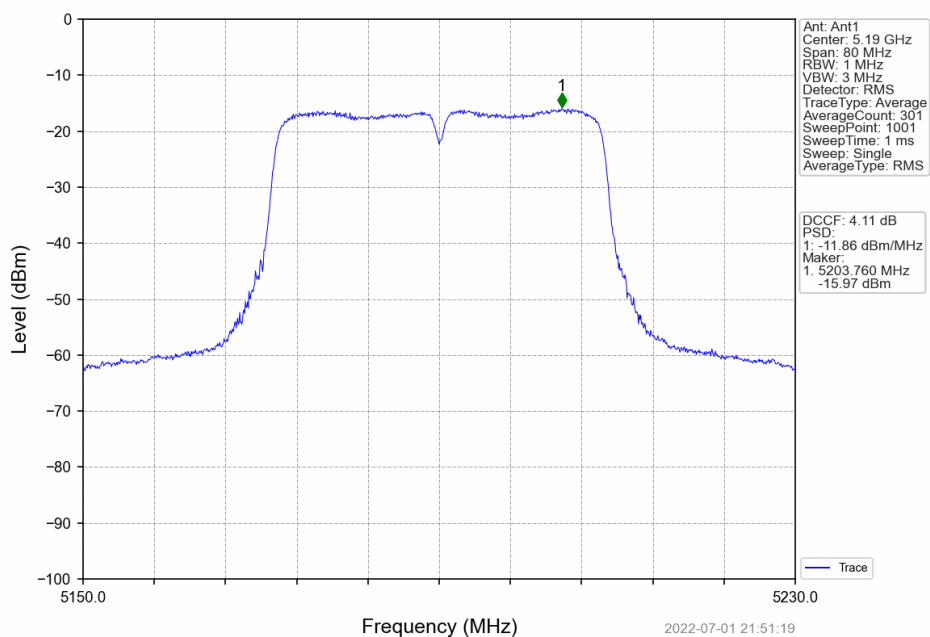




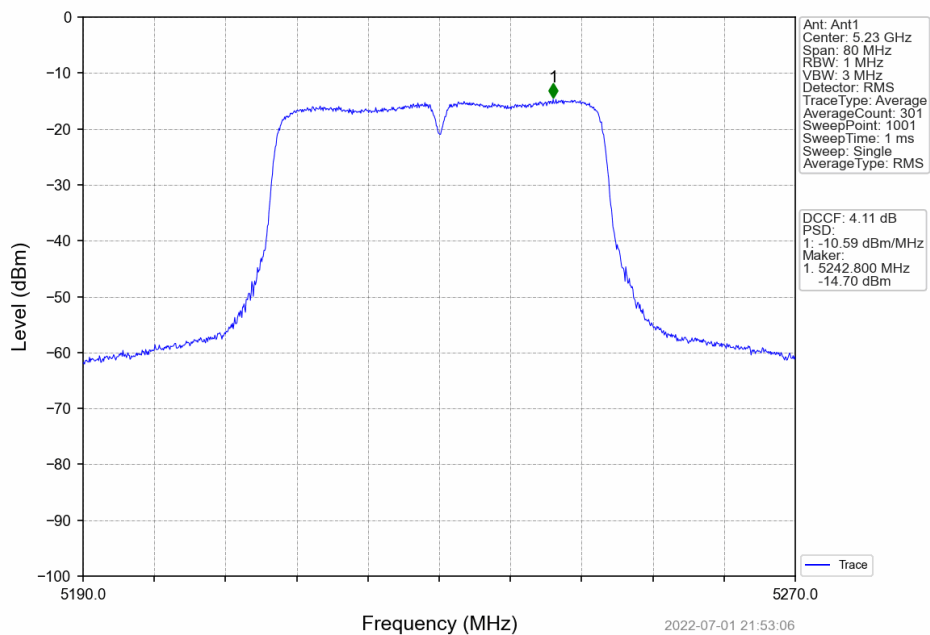
802.11ac(VHT20) HCH 5240MHz Ant1 NTN



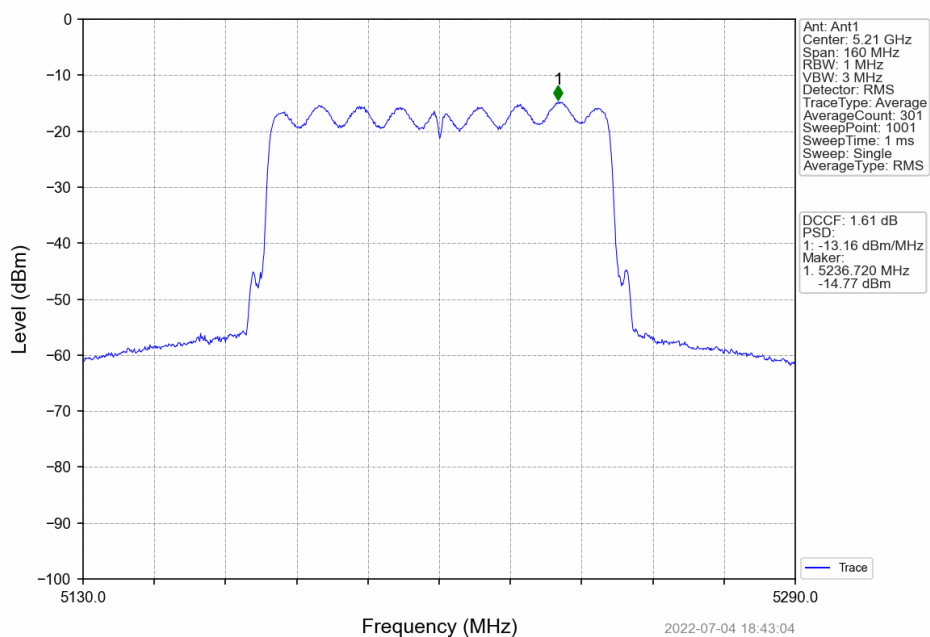
802.11ac(VHT40)_LCH_5190MHz_Ant1_NTN



802.11ac(VHT40) HCH 5230MHz Ant1 NTNV



802.11ac(VHT80)_MCH_5210MHz_Ant1_NTNV



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	5180	20	102	5179.963	5150 to 5250	Pass
				120	5179.962	5150 to 5250	Pass
				138	5179.961	5150 to 5250	Pass
			-30	120	5179.960	5150 to 5250	Pass
			-20	120	5179.960	5150 to 5250	Pass
			-10	120	5179.960	5150 to 5250	Pass
			0	120	5179.960	5150 to 5250	Pass
			10	120	5179.960	5150 to 5250	Pass
			30	120	5179.959	5150 to 5250	Pass
			40	120	5179.959	5150 to 5250	Pass
			50	120	5179.959	5150 to 5250	Pass
		5200	20	102	5199.961	5150 to 5250	Pass
				120	5199.960	5150 to 5250	Pass
				138	5199.959	5150 to 5250	Pass
			-30	120	5199.959	5150 to 5250	Pass
			-20	120	5199.959	5150 to 5250	Pass
			-10	120	5199.958	5150 to 5250	Pass
			0	120	5199.958	5150 to 5250	Pass
			10	120	5199.958	5150 to 5250	Pass
			30	120	5199.958	5150 to 5250	Pass
			40	120	5199.958	5150 to 5250	Pass
			50	120	5199.958	5150 to 5250	Pass
		5240	20	102	5239.960	5150 to 5250	Pass
				120	5239.959	5150 to 5250	Pass
				138	5239.958	5150 to 5250	Pass
			-30	120	5239.958	5150 to 5250	Pass
			-20	120	5239.958	5150 to 5250	Pass
			-10	120	5239.958	5150 to 5250	Pass
			0	120	5239.958	5150 to 5250	Pass
			10	120	5239.958	5150 to 5250	Pass
			30	120	5239.958	5150 to 5250	Pass
			40	120	5239.958	5150 to 5250	Pass
			50	120	5239.958	5150 to 5250	Pass
		5190	20	102	5189.962	5150 to 5250	Pass
				120	5189.961	5150 to 5250	Pass
				138	5189.960	5150 to 5250	Pass
			-30	120	5189.959	5150 to 5250	Pass
			-20	120	5189.959	5150 to 5250	Pass
			-10	120	5189.959	5150 to 5250	Pass
			0	120	5189.959	5150 to 5250	Pass
			10	120	5189.959	5150 to 5250	Pass
			30	120	5189.959	5150 to 5250	Pass
			40	120	5189.958	5150 to 5250	Pass
			50	120	5189.958	5150 to 5250	Pass
		5230	20	102	5229.960	5150 to 5250	Pass
				120	5229.959	5150 to 5250	Pass
				138	5229.959	5150 to 5250	Pass
			-30	120	5229.958	5150 to 5250	Pass
			-20	120	5229.958	5150 to 5250	Pass

			-10	120	5229.958	5150 to 5250	Pass
			0	120	5229.958	5150 to 5250	Pass
			10	120	5229.958	5150 to 5250	Pass
			30	120	5229.958	5150 to 5250	Pass
			40	120	5229.958	5150 to 5250	Pass
			50	120	5229.958	5150 to 5250	Pass
		5210	20	102	5209.960	5150 to 5250	Pass
				120	5209.959	5150 to 5250	Pass
				138	5209.959	5150 to 5250	Pass
			-30	120	5209.958	5150 to 5250	Pass
			-20	120	5209.958	5150 to 5250	Pass
			-10	120	5209.958	5150 to 5250	Pass
			0	120	5209.958	5150 to 5250	Pass
			10	120	5209.958	5150 to 5250	Pass
			30	120	5209.958	5150 to 5250	Pass
			40	120	5209.958	5150 to 5250	Pass
			50	120	5209.958	5150 to 5250	Pass