

Test Data for Wi-Fi 5G

Product Name: Grace Link Internet Radio Device

Test Model: GDI-WHAL01

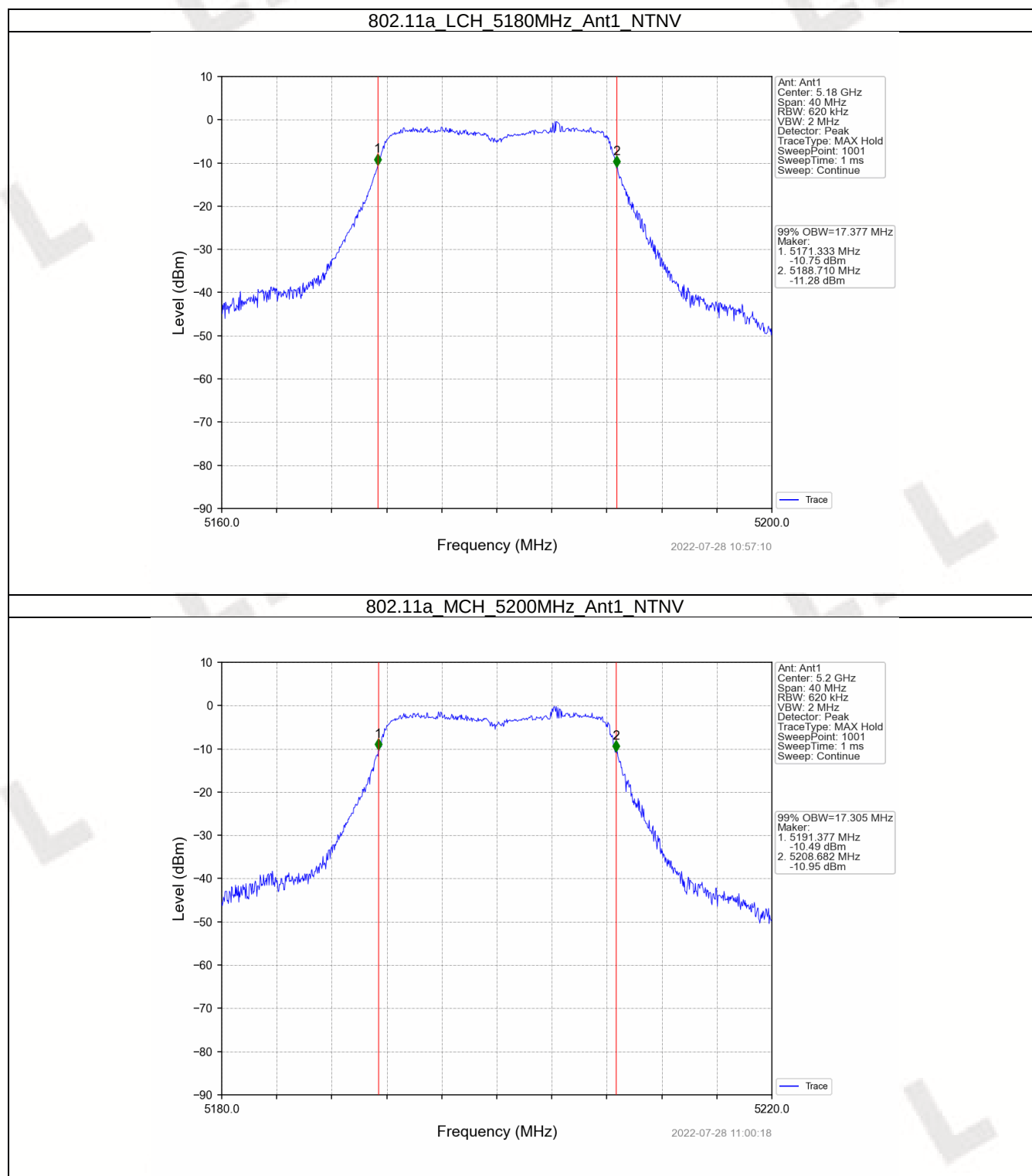
1. Bandwidth

1.1 OBW

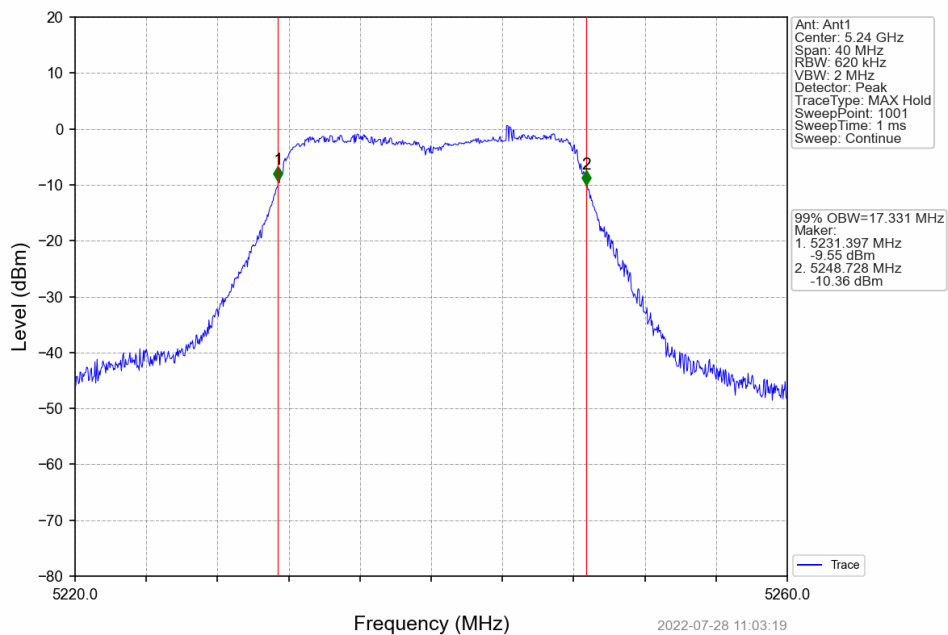
1.1.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)	Verdict
				Result	
802.11a	SISO	5180	1	17.377	Pass
		5200	1	17.305	Pass
		5240	1	17.331	Pass
802.11ac (VHT20)	SISO	5180	1	18.308	Pass
802.11n (HT20)	SISO	5180	1	18.232	Pass
802.11ac (VHT20)	SISO	5200	1	18.278	Pass
802.11n (HT20)	SISO	5200	1	18.235	Pass
802.11ac (VHT20)	SISO	5240	1	18.276	Pass
802.11n (HT20)	SISO	5240	1	18.207	Pass

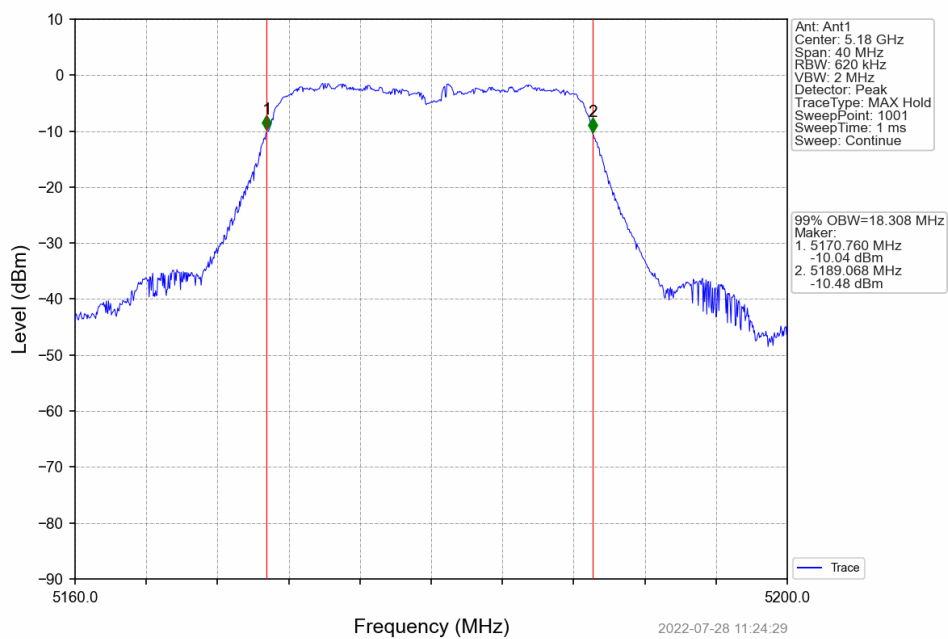
1.1.2 Test Graph



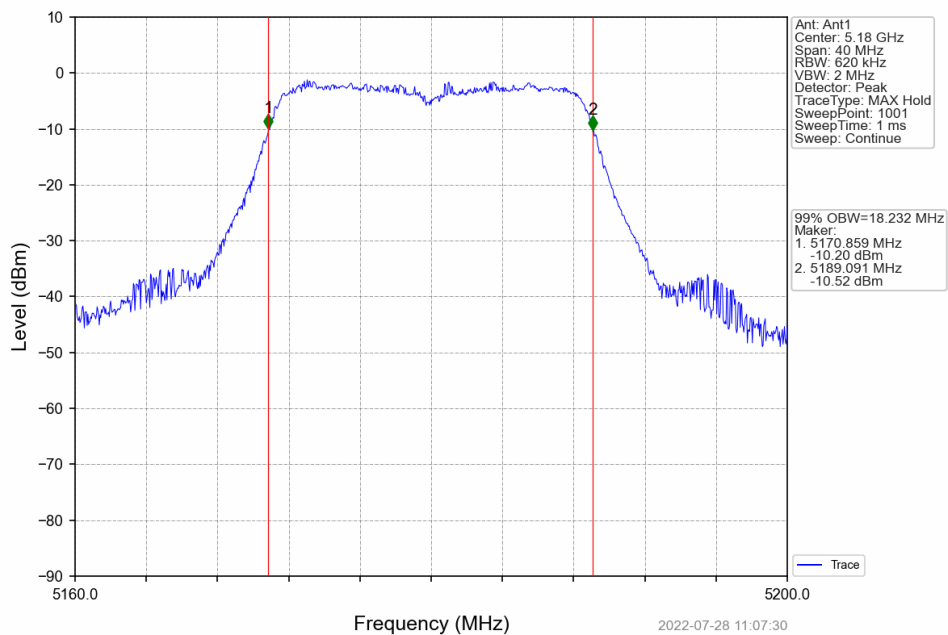
802.11a HCH 5240MHz Ant1 NTNV



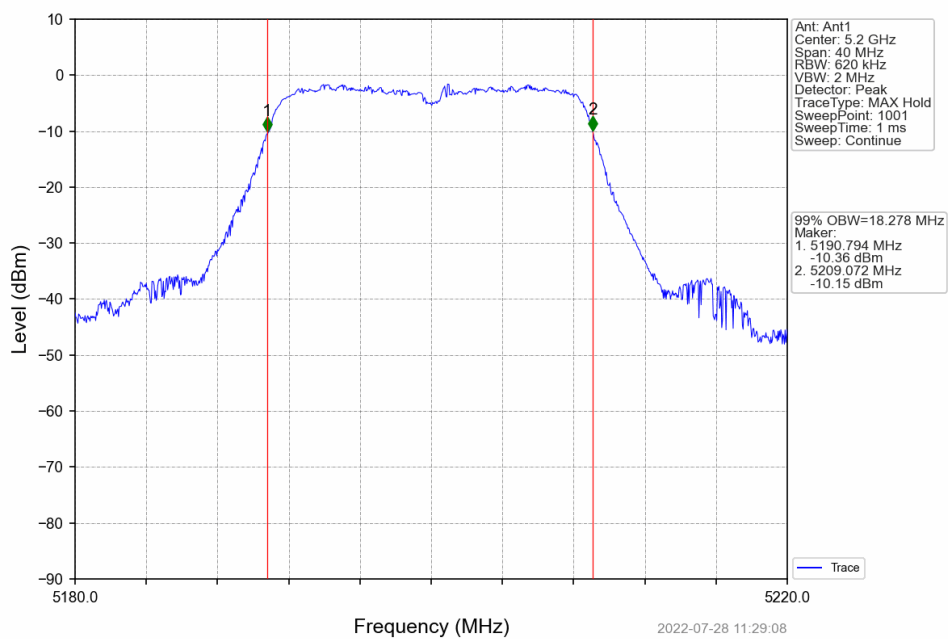
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



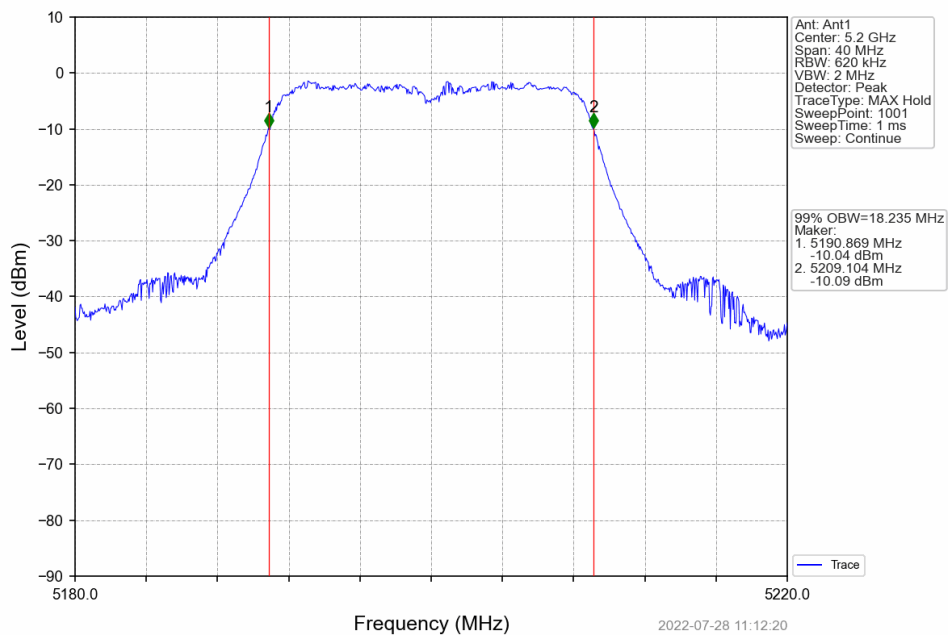
802.11n(HT20) LCH 5180MHz Ant1 NTV



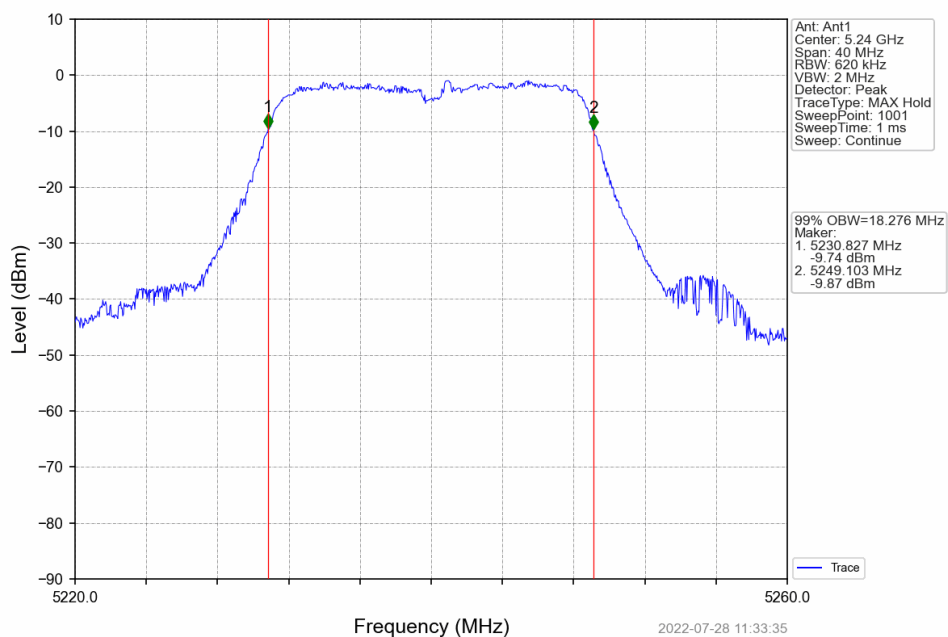
802.11ac(VHT20) MCH 5200MHz Ant1 NTV

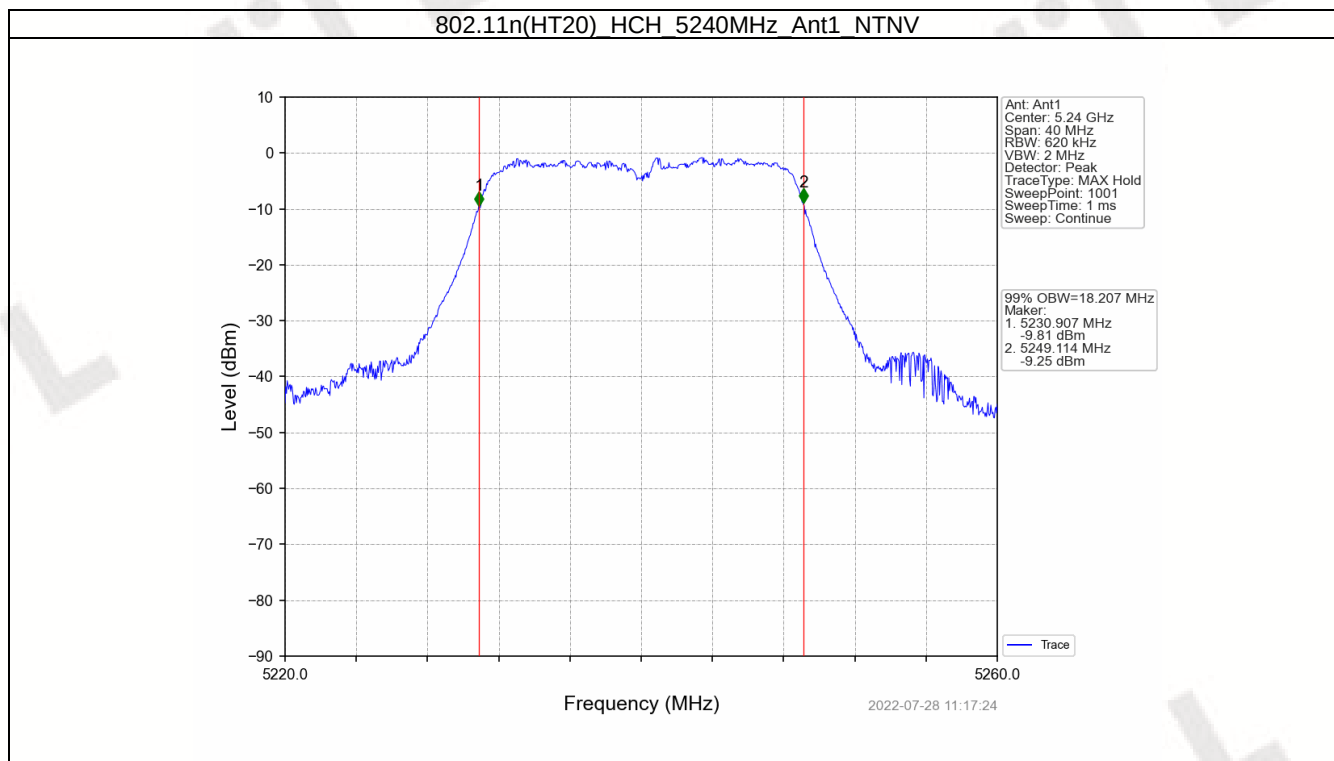


802.11n(HT20) MCH 5200MHz Ant1 NTN



802.11ac(VHT20)_HCH_5240MHz_Ant1_NTN



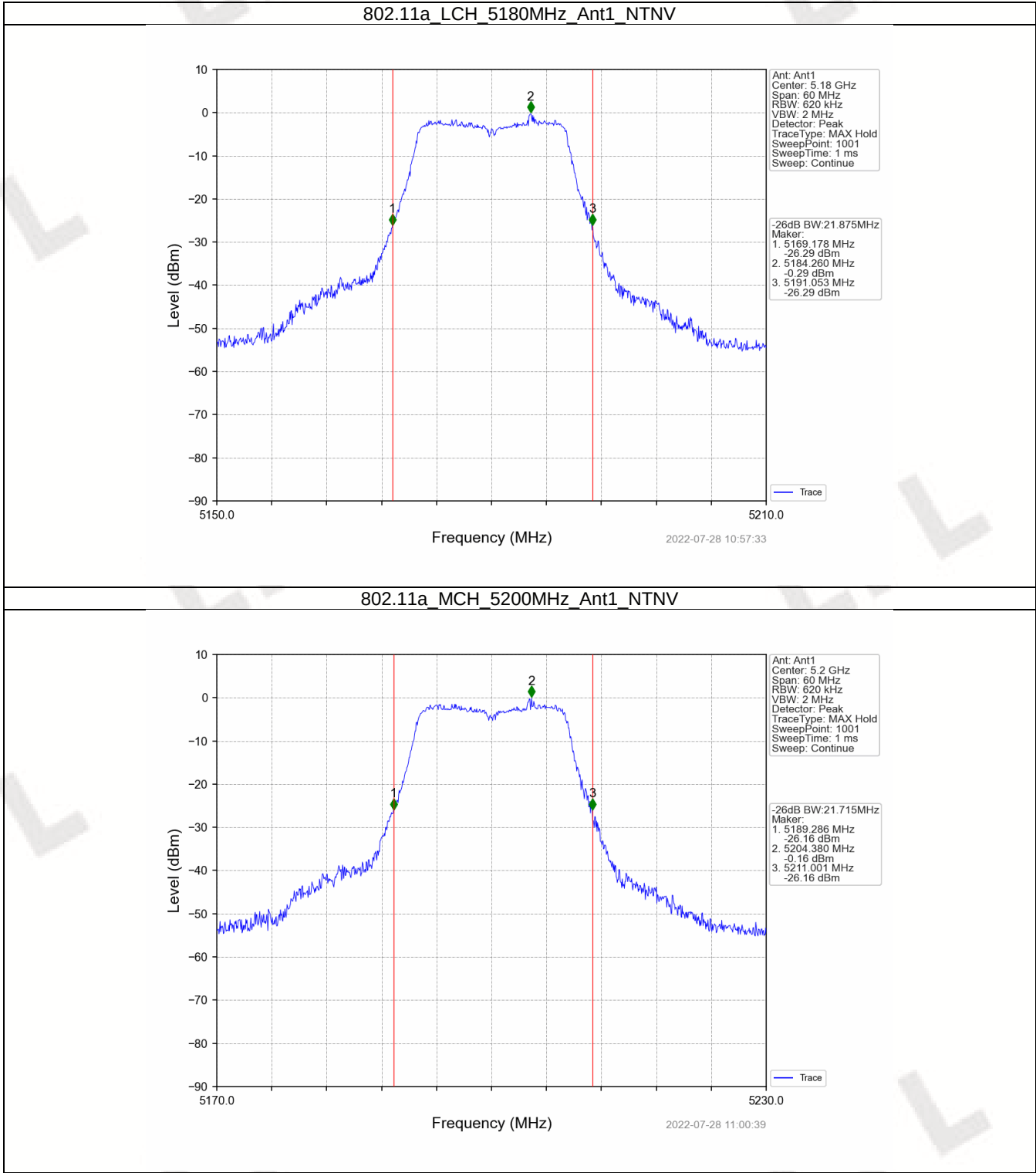


1.2 26dB BW

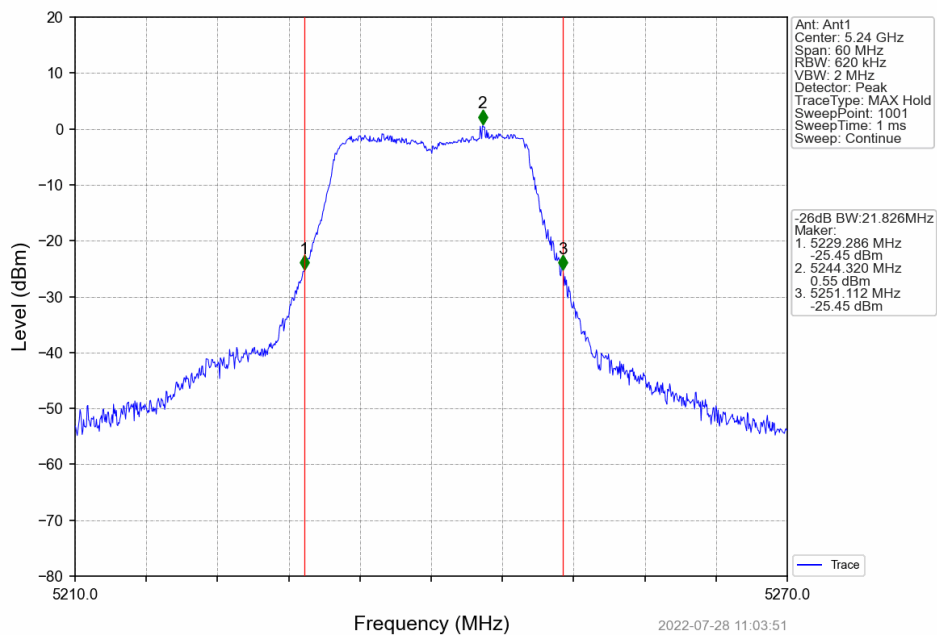
1.2.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	26dB Bandwidth (MHz)	Verdict
				Result	
802.11a	SISO	5180	1	21.875	Pass
		5200	1	21.715	Pass
		5240	1	21.826	Pass
802.11ac (VHT20)	SISO	5180	1	22.568	Pass
802.11n (HT20)	SISO	5180	1	22.420	Pass
802.11ac (VHT20)	SISO	5200	1	22.503	Pass
802.11n (HT20)	SISO	5200	1	22.342	Pass
802.11ac (VHT20)	SISO	5240	1	22.527	Pass
802.11n (HT20)	SISO	5240	1	22.365	Pass

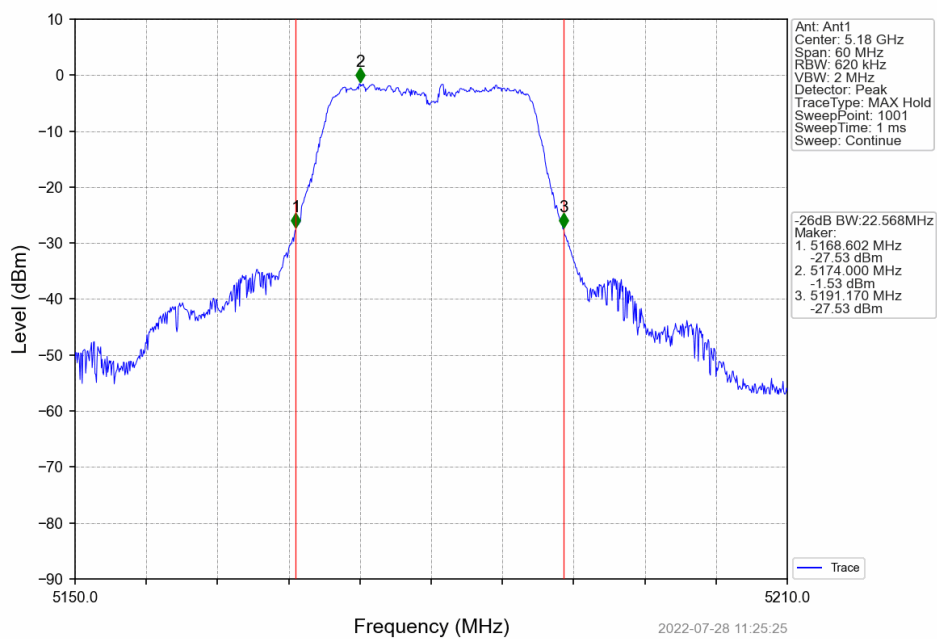
1.2.2 Test Graph



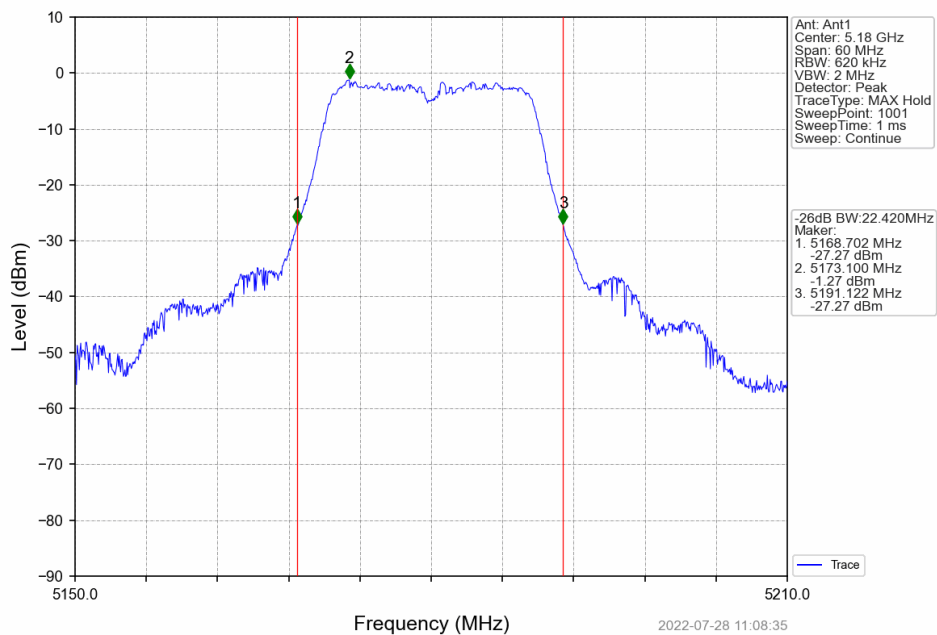
802.11a HCH 5240MHz Ant1 NTN



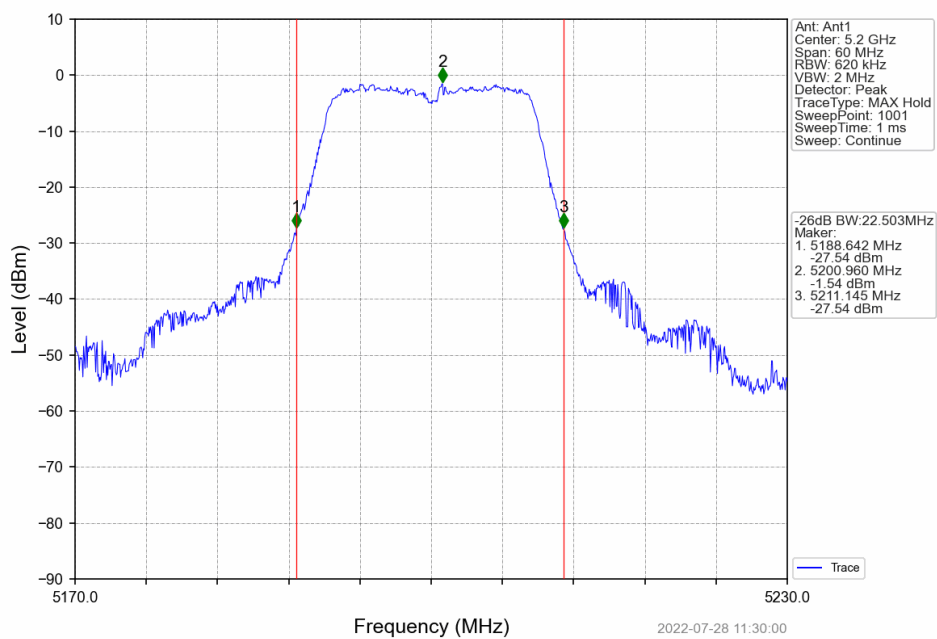
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTN



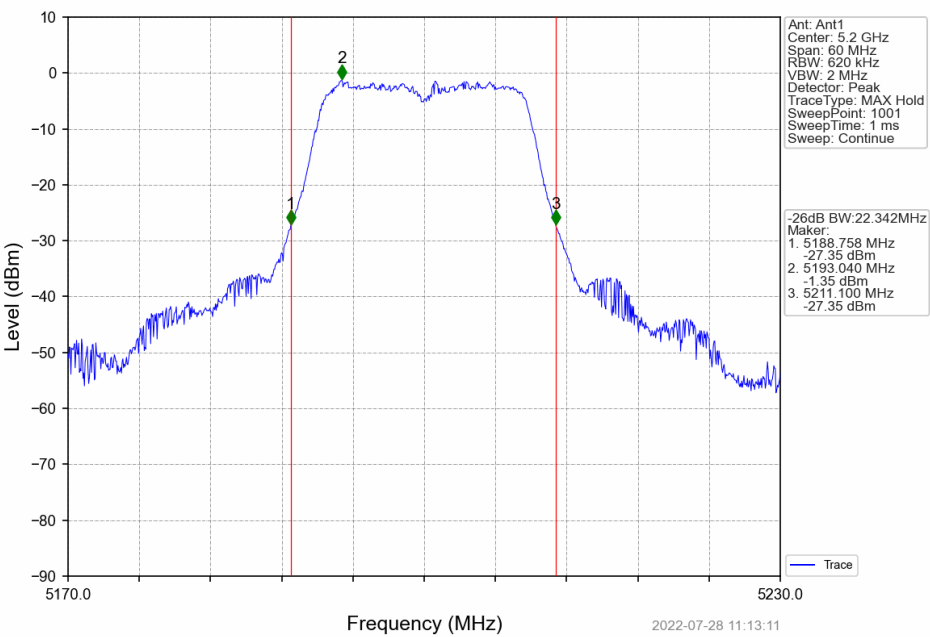
802.11n(HT20) LCH 5180MHz Ant1 NTV



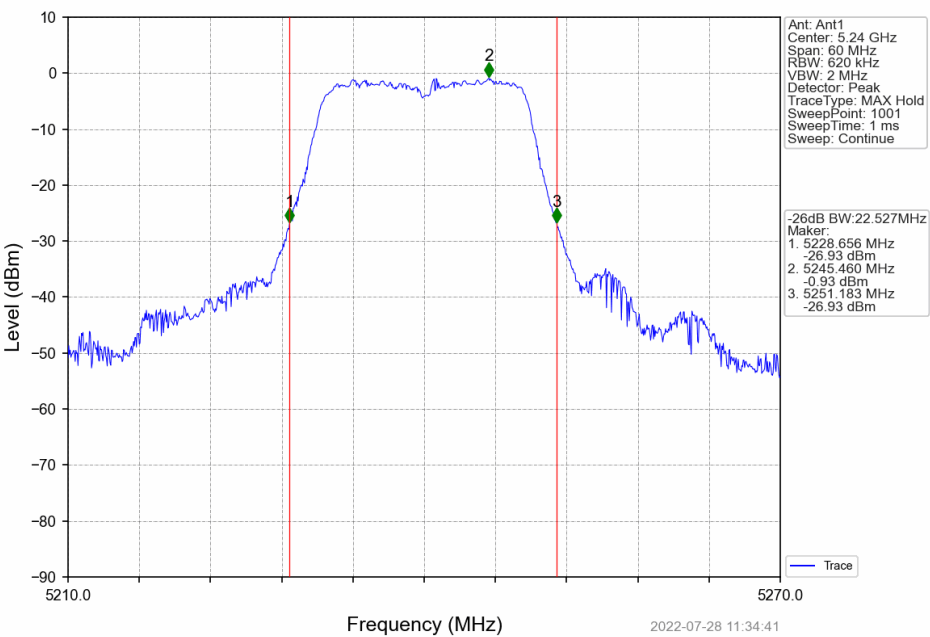
802.11ac(VHT20) MCH 5200MHz Ant1 NTV

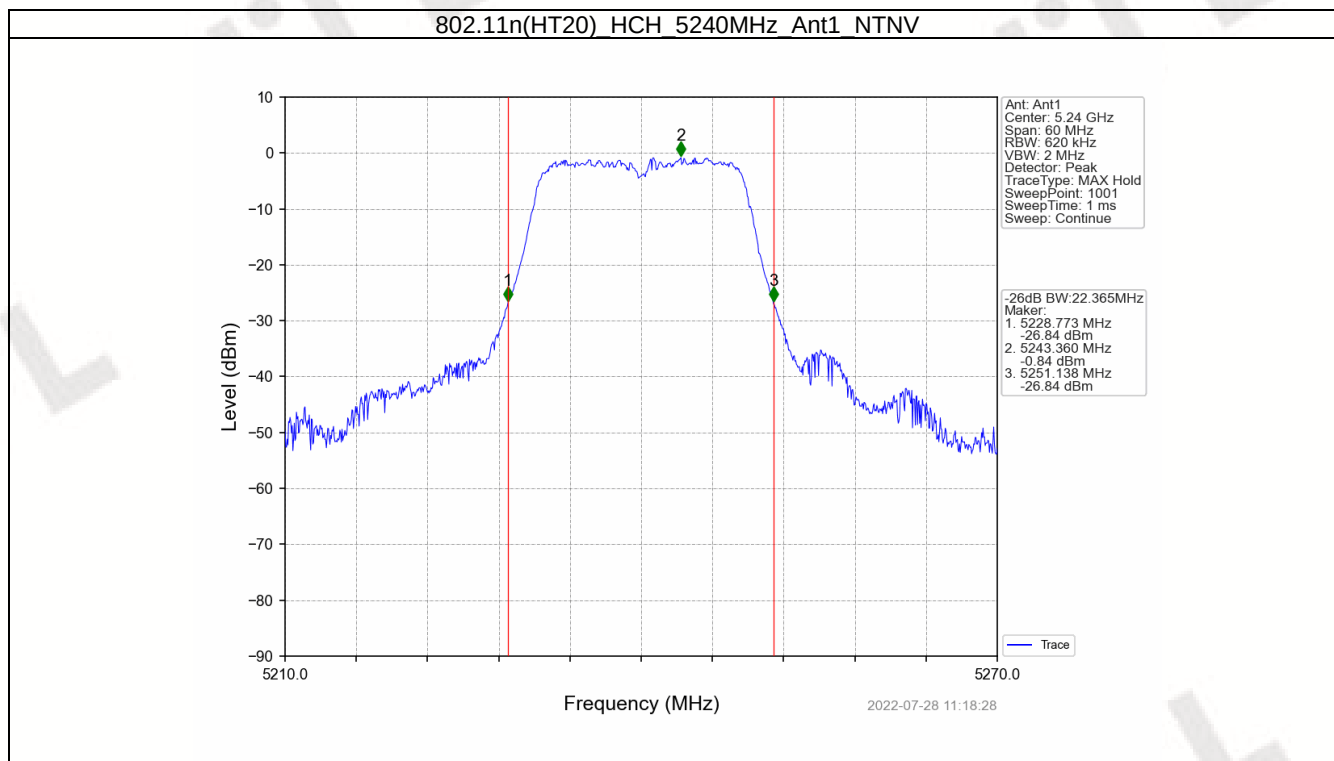


802.11n(HT20) MCH 5200MHz Ant1 NTN



802.11ac(VHT20) HCH 5240MHz Ant1 NTN





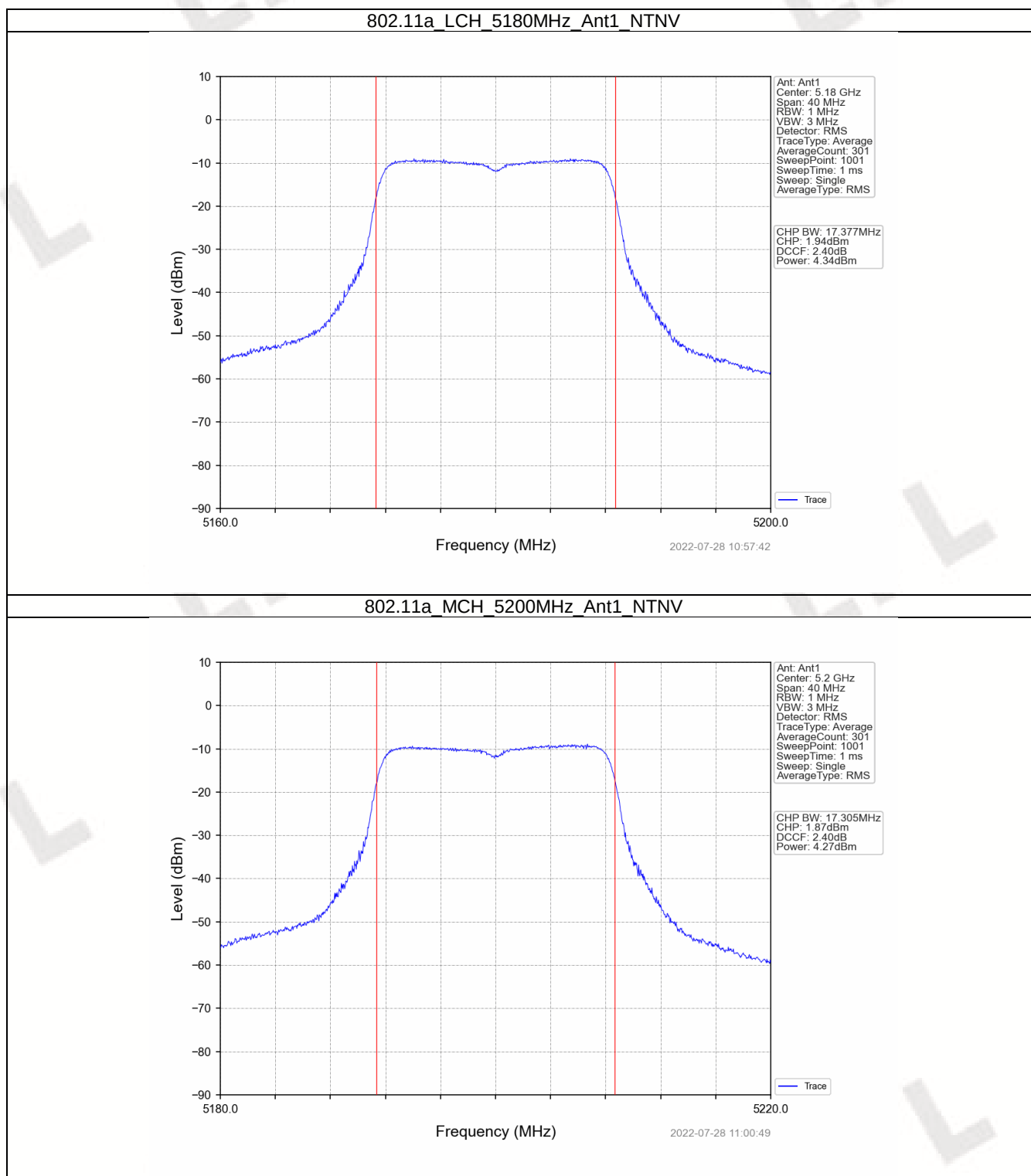
2. Maximum Conducted Output Power

2.1 Power

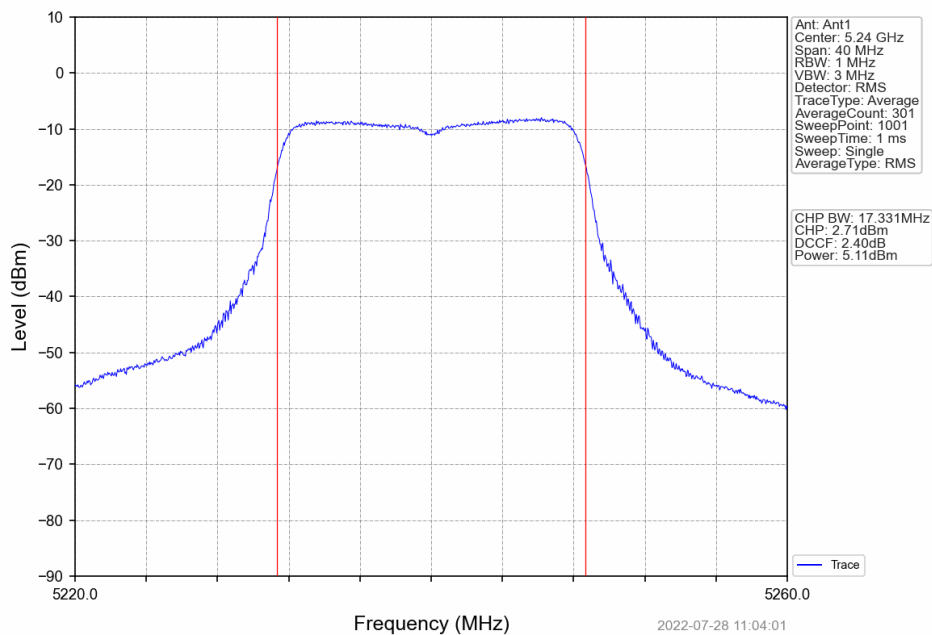
2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11a	SISO	5180	4.34	<=23.98	Pass
		5200	4.27	<=23.98	Pass
		5240	5.11	<=23.98	Pass
802.11ac (VHT20)	SISO	5180	4.55	<=23.98	Pass
802.11n (HT20)	SISO	5180	4.44	<=23.98	Pass
802.11ac (VHT20)	SISO	5200	4.46	<=23.98	Pass
802.11n (HT20)	SISO	5200	4.55	<=23.98	Pass
802.11ac (VHT20)	SISO	5240	5.06	<=23.98	Pass
802.11n (HT20)	SISO	5240	5.15	<=23.98	Pass
Note1: Antenna Gain: Ant1: 3.30dBi;					

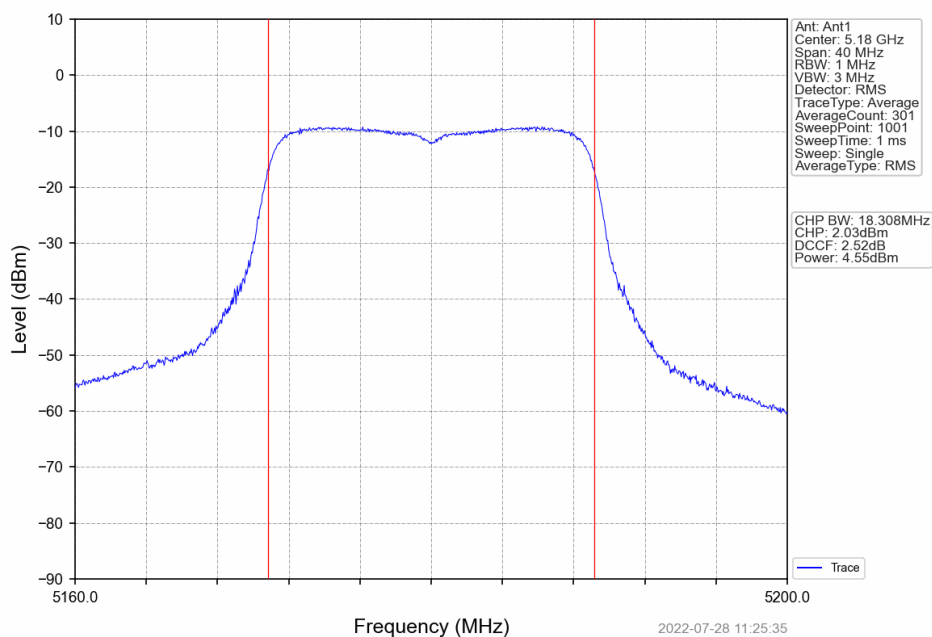
2.1.2 Test Graph



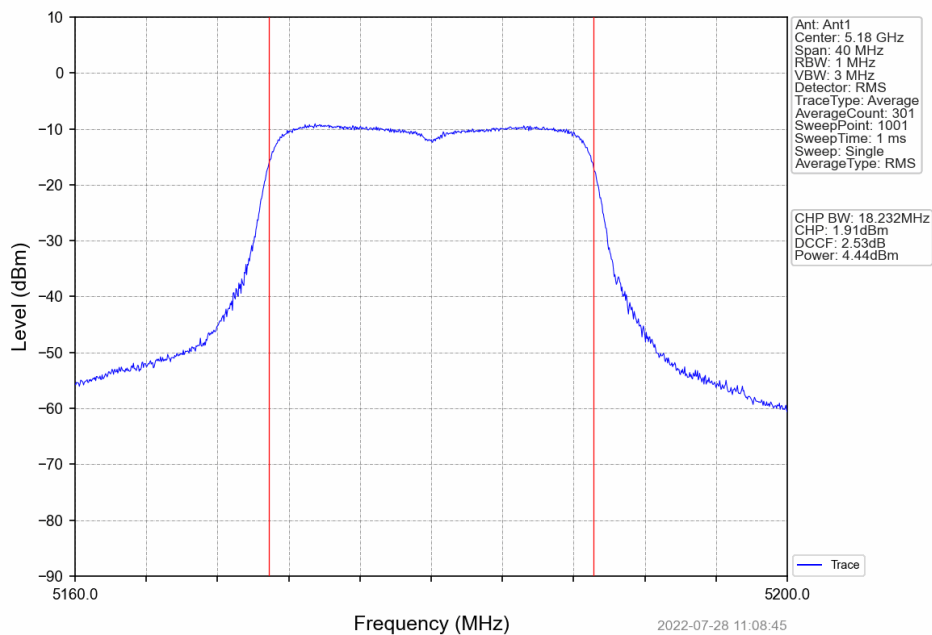
802.11a HCH 5240MHz Ant1 NTNV



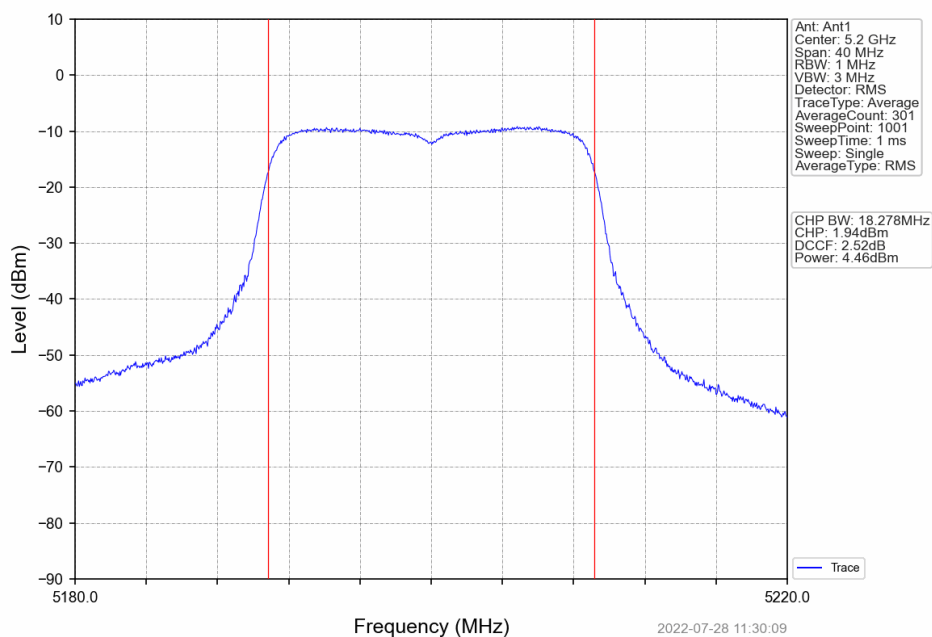
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



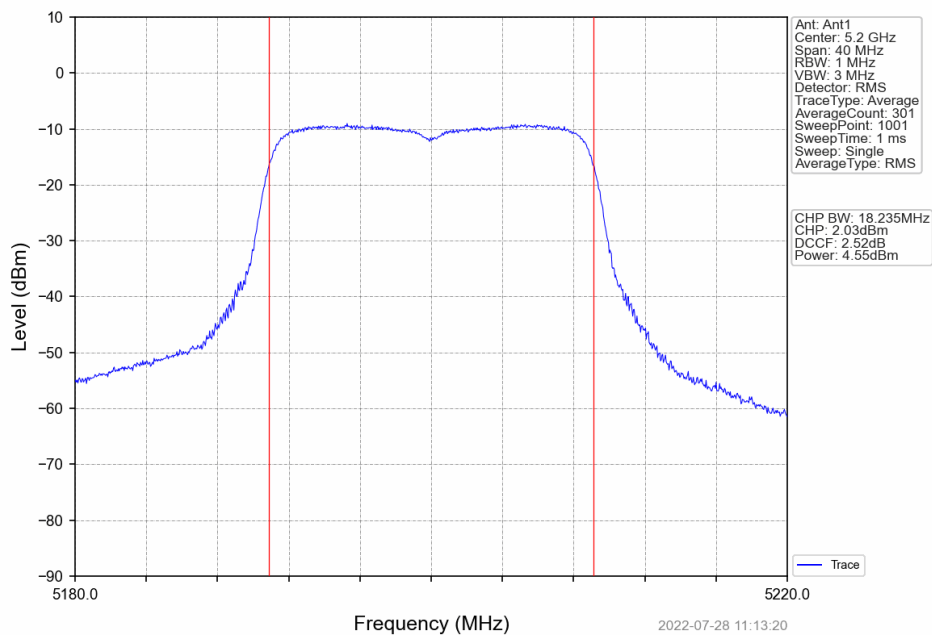
802.11n(HT20) LCH 5180MHz Ant1 NTN



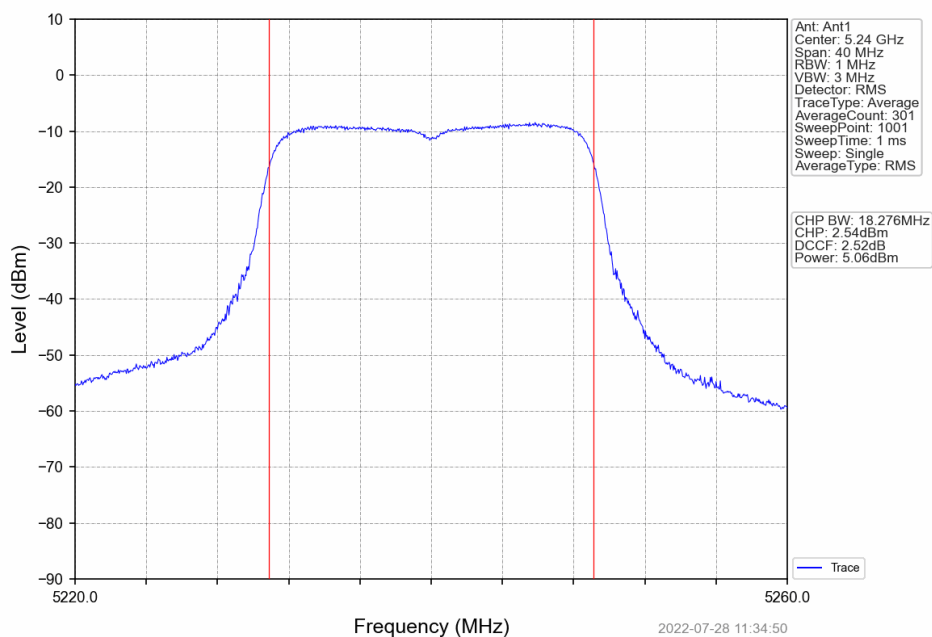
802.11ac(VHT20) MCH 5200MHz Ant1 NTN

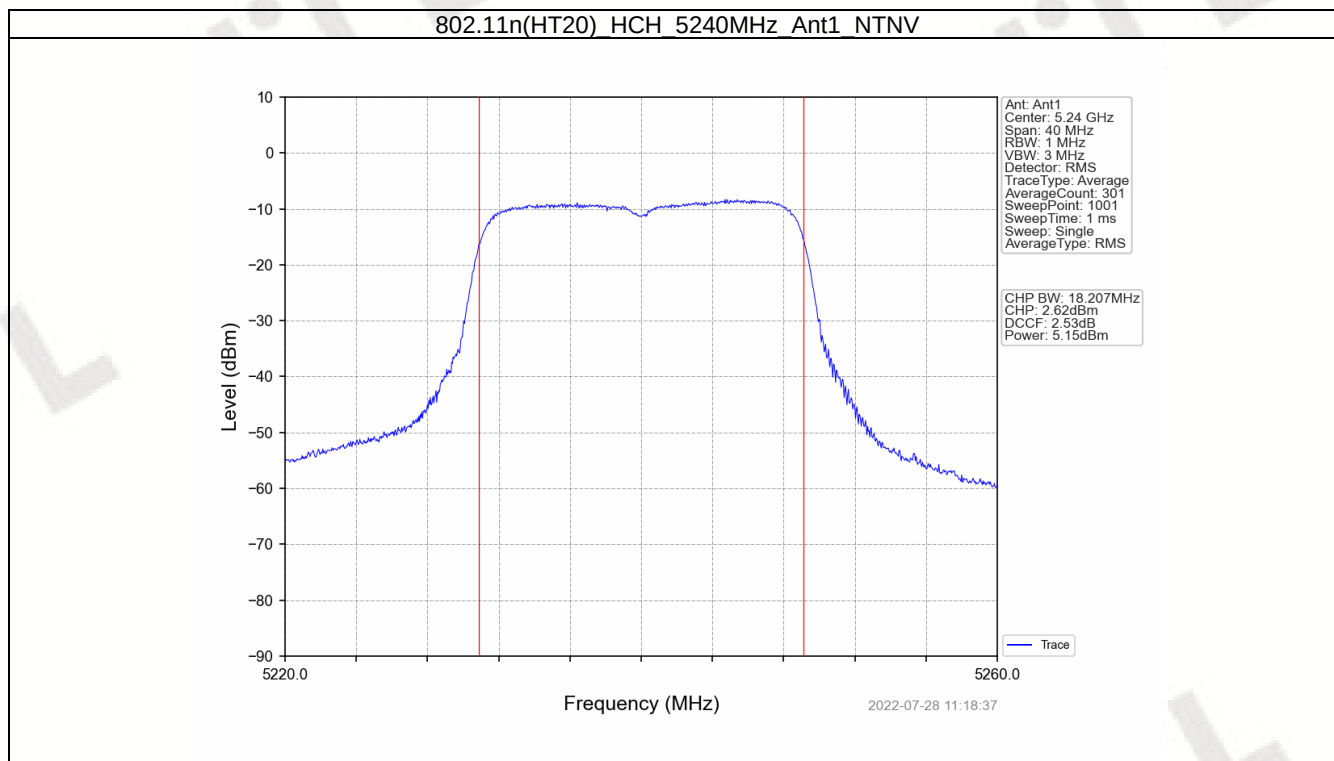


802.11n(HT20) MCH 5200MHz Ant1 NTN



802.11ac(VHT20)_HCH_5240MHz_Ant1_NTN





3. Maximum Power Spectral Density

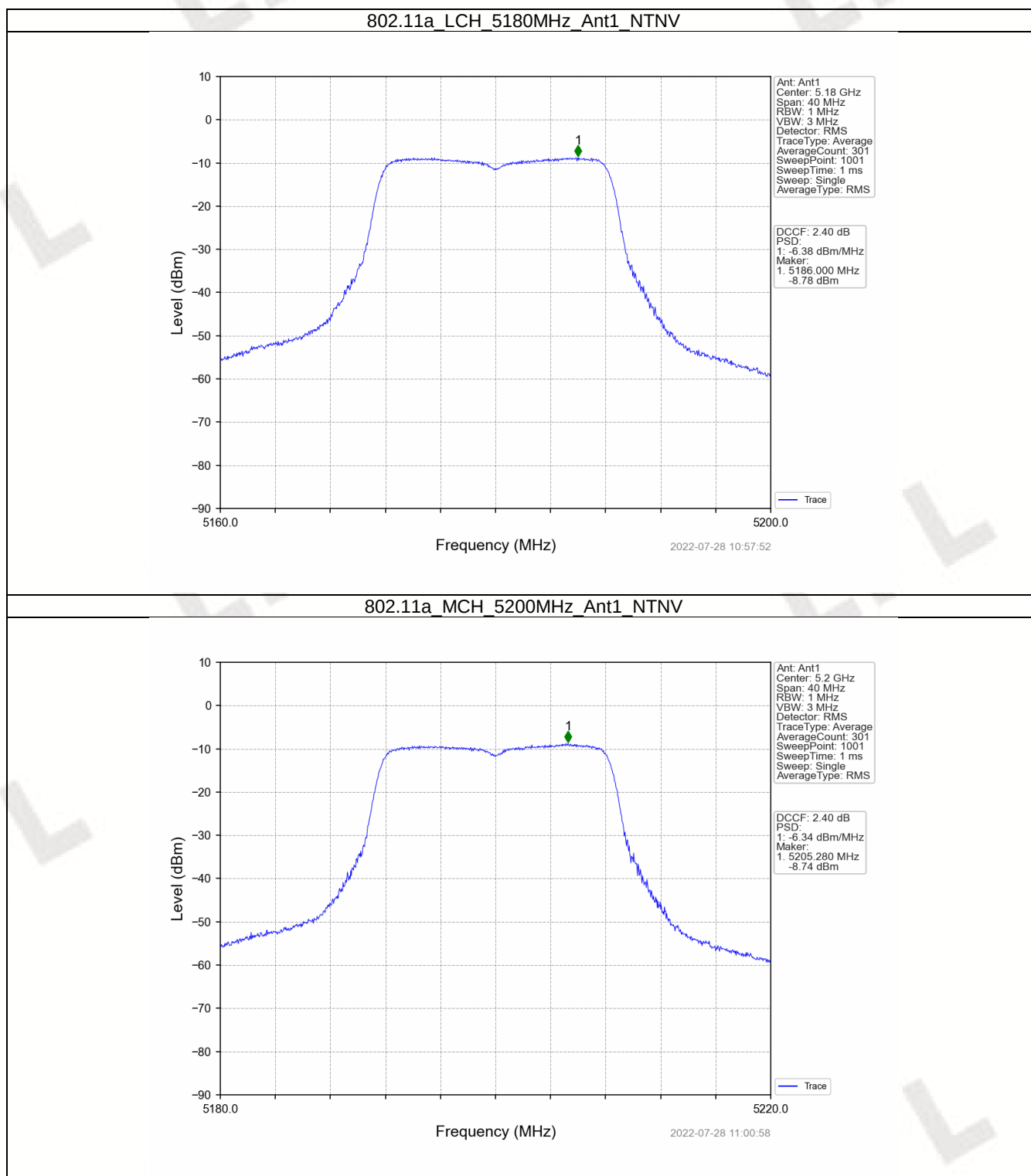
3.1 PSD

3.1.1 Test Result

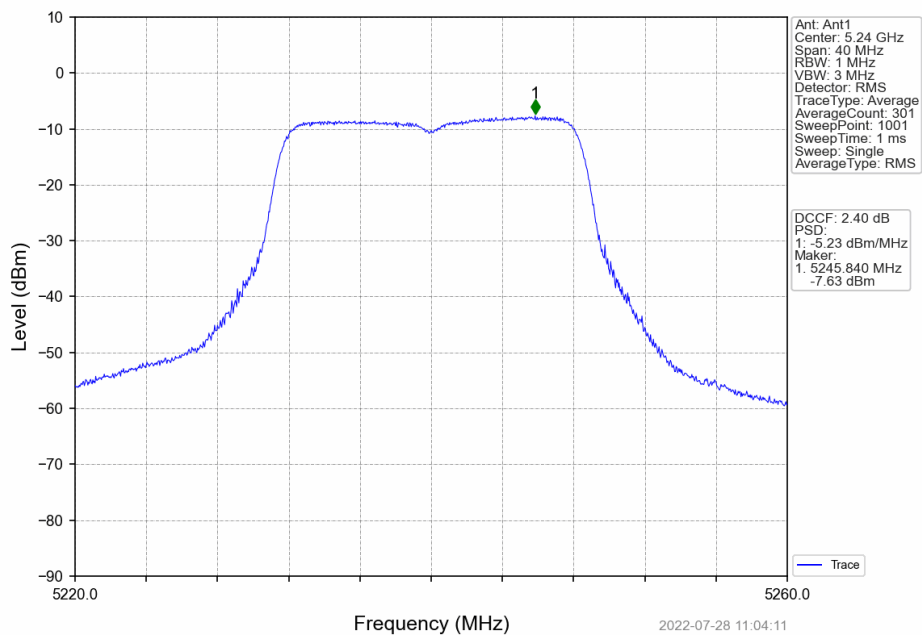
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/MHz)		Verdict
			ANT1	Limit	
802.11a	SISO	5180	-6.38	<=11	Pass
		5200	-6.34	<=11	Pass
		5240	-5.23	<=11	Pass
802.11ac (VHT20)	SISO	5180	-6.55	<=11	Pass
802.11n (HT20)	SISO	5180	-6.64	<=11	Pass
802.11ac (VHT20)	SISO	5200	-6.74	<=11	Pass
802.11n (HT20)	SISO	5200	-6.68	<=11	Pass
802.11ac (VHT20)	SISO	5240	-5.95	<=11	Pass
802.11n (HT20)	SISO	5240	-5.86	<=11	Pass

Note1: Antenna Gain: Ant1: 3.30dBi;

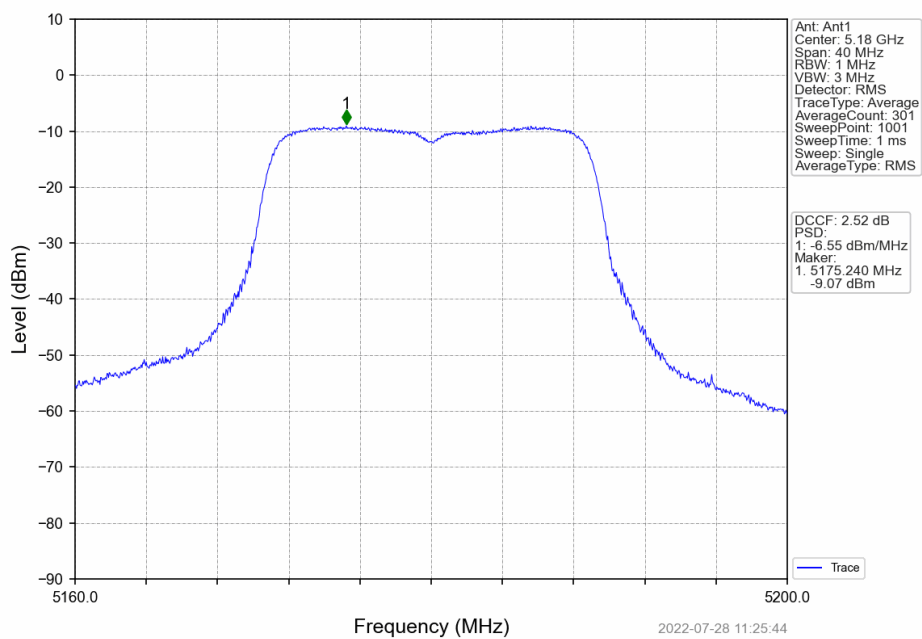
3.1.2 Test Graph



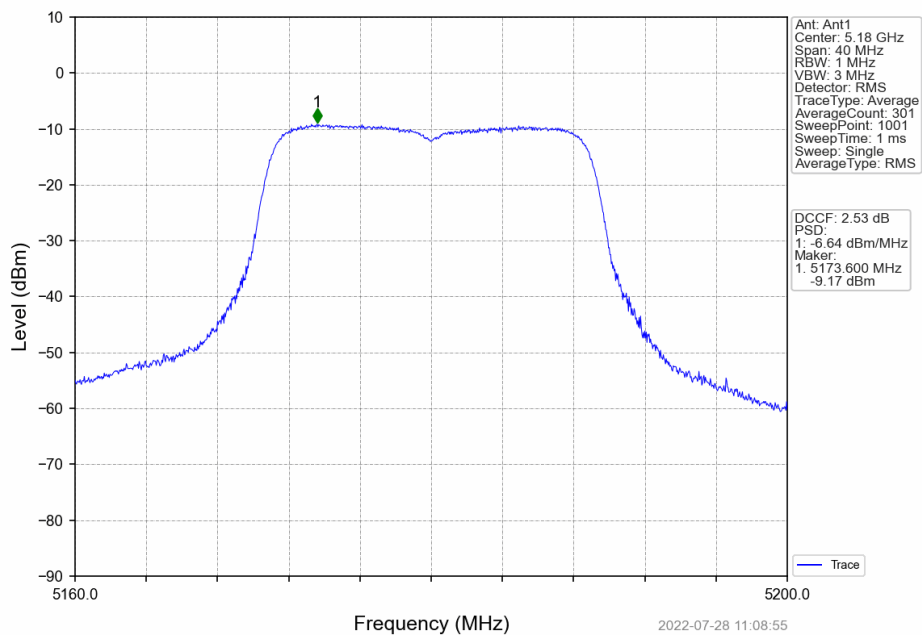
802.11a HCH 5240MHz Ant1 NTNV



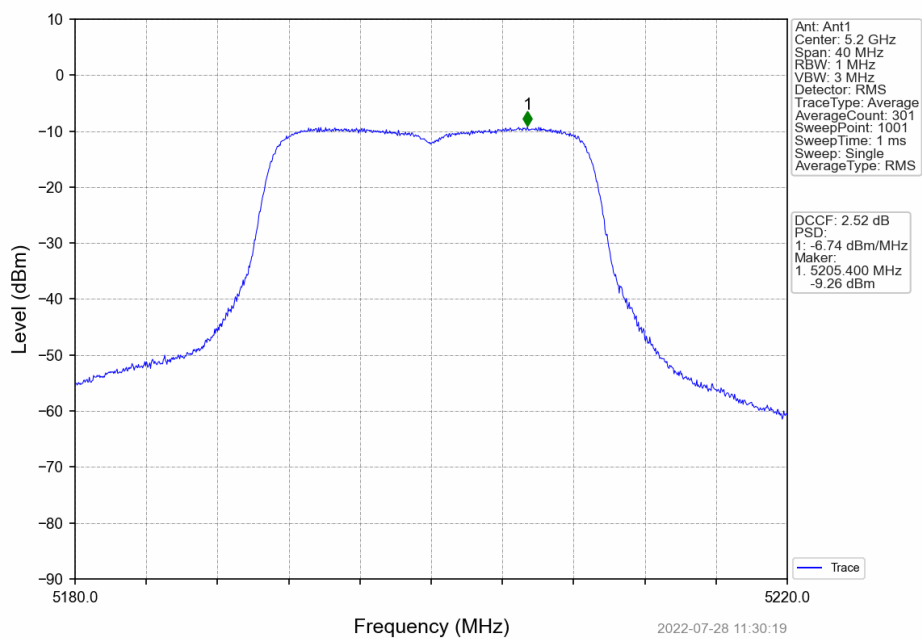
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



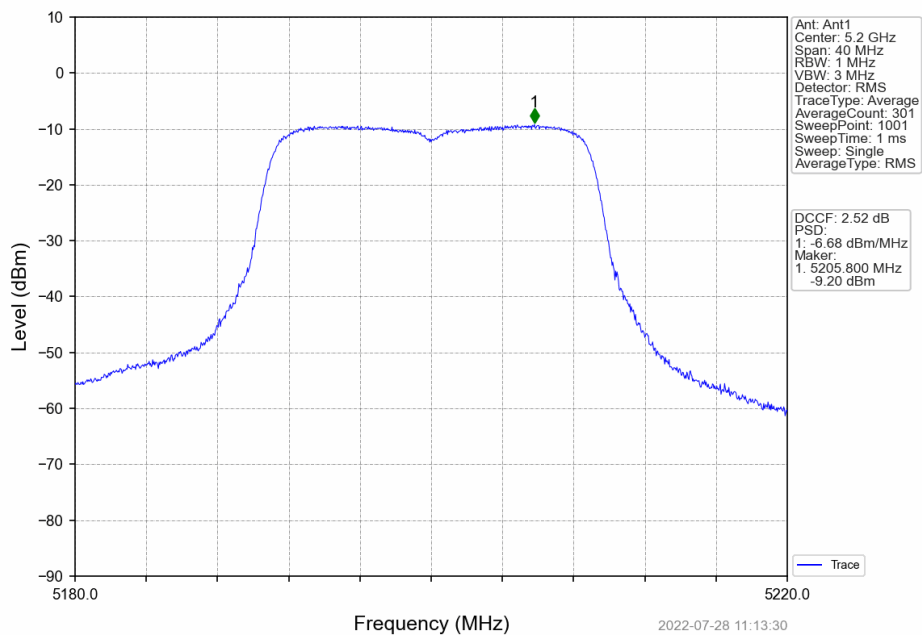
802.11n(HT20) LCH 5180MHz Ant1 NTV



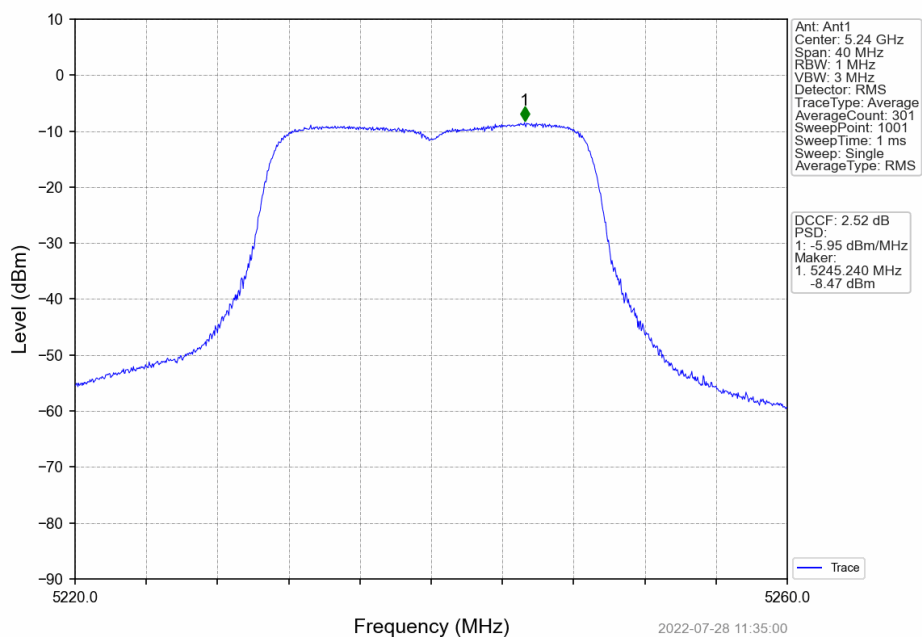
802.11ac(VHT20) MCH 5200MHz Ant1 NTV

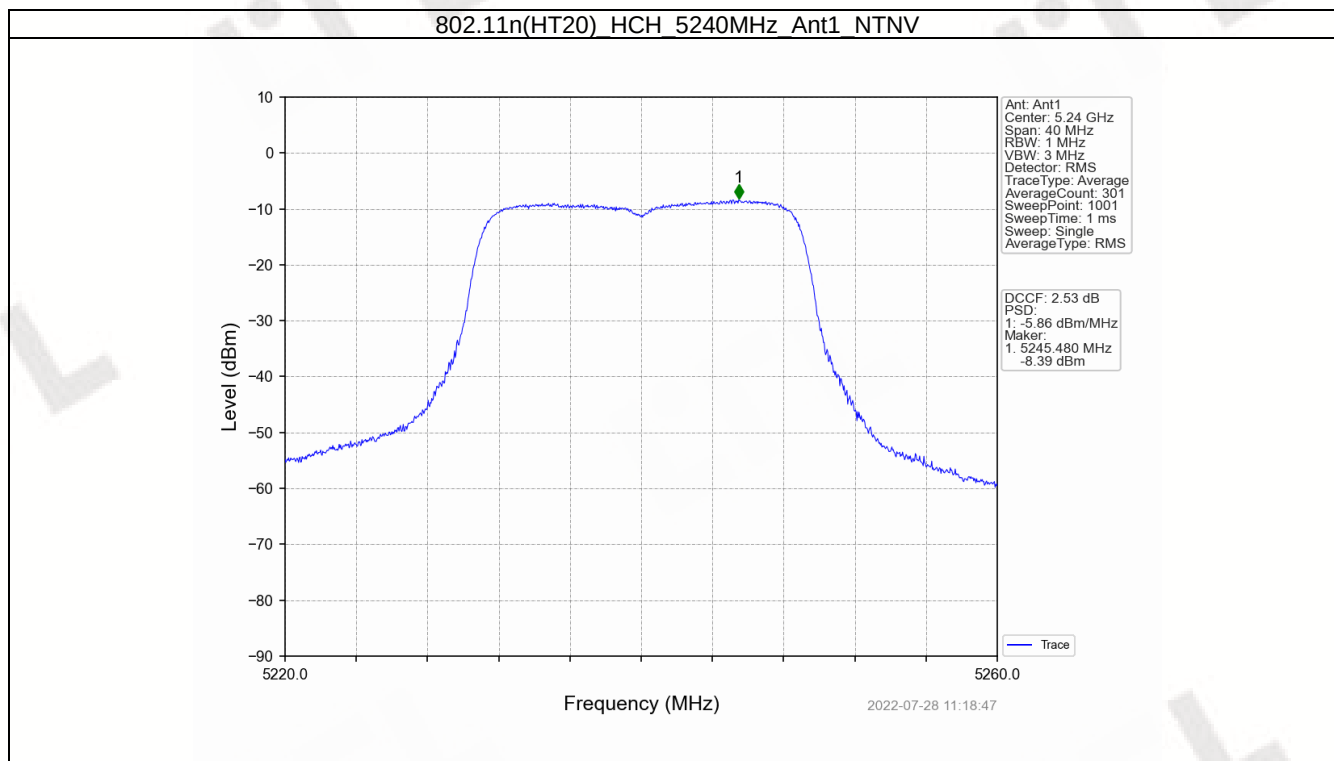


802.11n(HT20) MCH 5200MHz Ant1 NTN



802.11ac(VHT20) HCH 5240MHz 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
802.11a	SISO	5180	20	102	5180.040	5150 to 5250	Pass
				120	5180.020	5150 to 5250	Pass
				138	5180.040	5150 to 5250	Pass
			-30	120	5180.040	5150 to 5250	Pass
			-20	120	5180.020	5150 to 5250	Pass
			-10	120	5180.040	5150 to 5250	Pass
			0	120	5180.040	5150 to 5250	Pass
			10	120	5179.980	5150 to 5250	Pass
			30	120	5180.020	5150 to 5250	Pass
			40	120	5180.000	5150 to 5250	Pass
			50	120	5180.000	5150 to 5250	Pass
		5200	20	102	5200.020	5150 to 5250	Pass
				120	5200.020	5150 to 5250	Pass
				138	5200.040	5150 to 5250	Pass
			-30	120	5199.980	5150 to 5250	Pass
			-20	120	5200.000	5150 to 5250	Pass
			-10	120	5200.000	5150 to 5250	Pass
			0	120	5200.060	5150 to 5250	Pass
			10	120	5200.060	5150 to 5250	Pass
			30	120	5199.980	5150 to 5250	Pass
			40	120	5200.000	5150 to 5250	Pass
			50	120	5200.020	5150 to 5250	Pass
		5240	20	102	5239.960	5150 to 5250	Pass
				120	5239.980	5150 to 5250	Pass
				138	5240.000	5150 to 5250	Pass
			-30	120	5240.020	5150 to 5250	Pass
			-20	120	5240.020	5150 to 5250	Pass
			-10	120	5240.020	5150 to 5250	Pass
			0	120	5240.040	5150 to 5250	Pass
			10	120	5240.040	5150 to 5250	Pass
			30	120	5240.020	5150 to 5250	Pass
			40	120	5240.000	5150 to 5250	Pass
			50	120	5240.020	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5180	20	102	5179.900	5150 to 5250	Pass
802.11n (HT20)	SISO	5180	20	102	5180.000	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5180	20	120	5179.960	5150 to 5250	Pass
802.11n (HT20)	SISO	5180	20	120	5179.980	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5180	20	138	5179.940	5150 to 5250	Pass
802.11n (HT20)	SISO	5180	20	138	5180.040	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5180	-30	120	5179.980	5150 to 5250	Pass
			-20	120	5179.980	5150 to 5250	Pass
802.11n (HT20)	SISO	5180	-30	120	5179.980	5150 to 5250	Pass
			-20	120	5180.020	5150 to 5250	Pass

802.11ac (VHT20)	SISO	5180	-10	120	5179.980	5150 to 5250	Pass
			0	120	5179.960	5150 to 5250	Pass
802.11n (HT20)	SISO	5180	-10	120	5180.000	5150 to 5250	Pass
			0	120	5179.980	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5180	10	120	5179.980	5150 to 5250	Pass
802.11n (HT20)	SISO	5180	10	120	5180.020	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5180	30	120	5179.960	5150 to 5250	Pass
			40	120	5180.000	5150 to 5250	Pass
802.11n (HT20)	SISO	5180	30	120	5179.980	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5180	50	120	5179.940	5150 to 5250	Pass
802.11n (HT20)	SISO	5180	40	120	5180.000	5150 to 5250	Pass
			50	120	5180.000	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5200	20	102	5200.020	5150 to 5250	Pass
				120	5200.040	5150 to 5250	Pass
802.11n (HT20)	SISO	5200	20	102	5199.980	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5200	20	138	5199.980	5150 to 5250	Pass
802.11n (HT20)	SISO	5200	20	120	5200.000	5150 to 5250	Pass
				138	5199.980	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5200	-30	120	5200.000	5150 to 5250	Pass
802.11n (HT20)	SISO	5200	-30	120	5200.000	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5200	-20	120	5199.940	5150 to 5250	Pass
			-10	120	5199.940	5150 to 5250	Pass
802.11n (HT20)	SISO	5200	-20	120	5199.940	5150 to 5250	Pass
			-10	120	5200.040	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5200	0	120	5200.000	5150 to 5250	Pass
802.11n (HT20)	SISO	5200	0	120	5199.960	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5200	10	120	5199.980	5150 to 5250	Pass
802.11n (HT20)	SISO	5200	10	120	5200.020	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5200	30	120	5200.020	5150 to 5250	Pass
802.11n (HT20)	SISO	5200	30	120	5200.020	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5200	40	120	5199.960	5150 to 5250	Pass
802.11n (HT20)	SISO	5200	40	120	5200.000	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5200	50	120	5200.000	5150 to 5250	Pass
802.11n (HT20)	SISO	5200	50	120	5199.980	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5240	20	102	5240.000	5150 to 5250	Pass
802.11n (HT20)	SISO	5240	20	102	5240.020	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5240	20	120	5240.000	5150 to 5250	Pass
802.11n (HT20)	SISO	5240	20	120	5240.020	5150 to 5250	Pass

802.11ac (VHT20)	SISO	5240	20	138	5240.000	5150 to 5250	Pass
			-30	120	5239.960	5150 to 5250	Pass
802.11n (HT20)	SISO	5240	20	138	5240.020	5150 to 5250	Pass
			-30	120	5240.000	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5240	-20	120	5240.040	5150 to 5250	Pass
802.11n (HT20)	SISO	5240	-20	120	5240.020	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5240	-10	120	5240.040	5150 to 5250	Pass
			0	120	5240.020	5150 to 5250	Pass
802.11n (HT20)	SISO	5240	-10	120	5239.980	5150 to 5250	Pass
			0	120	5240.020	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5240	10	120	5240.020	5150 to 5250	Pass
802.11n (HT20)	SISO	5240	10	120	5240.040	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5240	30	120	5240.060	5150 to 5250	Pass
			40	120	5240.000	5150 to 5250	Pass
802.11n (HT20)	SISO	5240	30	120	5240.020	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5240	50	120	5240.000	5150 to 5250	Pass
802.11n (HT20)	SISO	5240	40	120	5240.040	5150 to 5250	Pass
			50	120	5240.020	5150 to 5250	Pass