



Shenzhen CTL Testing Technology Co., Ltd.

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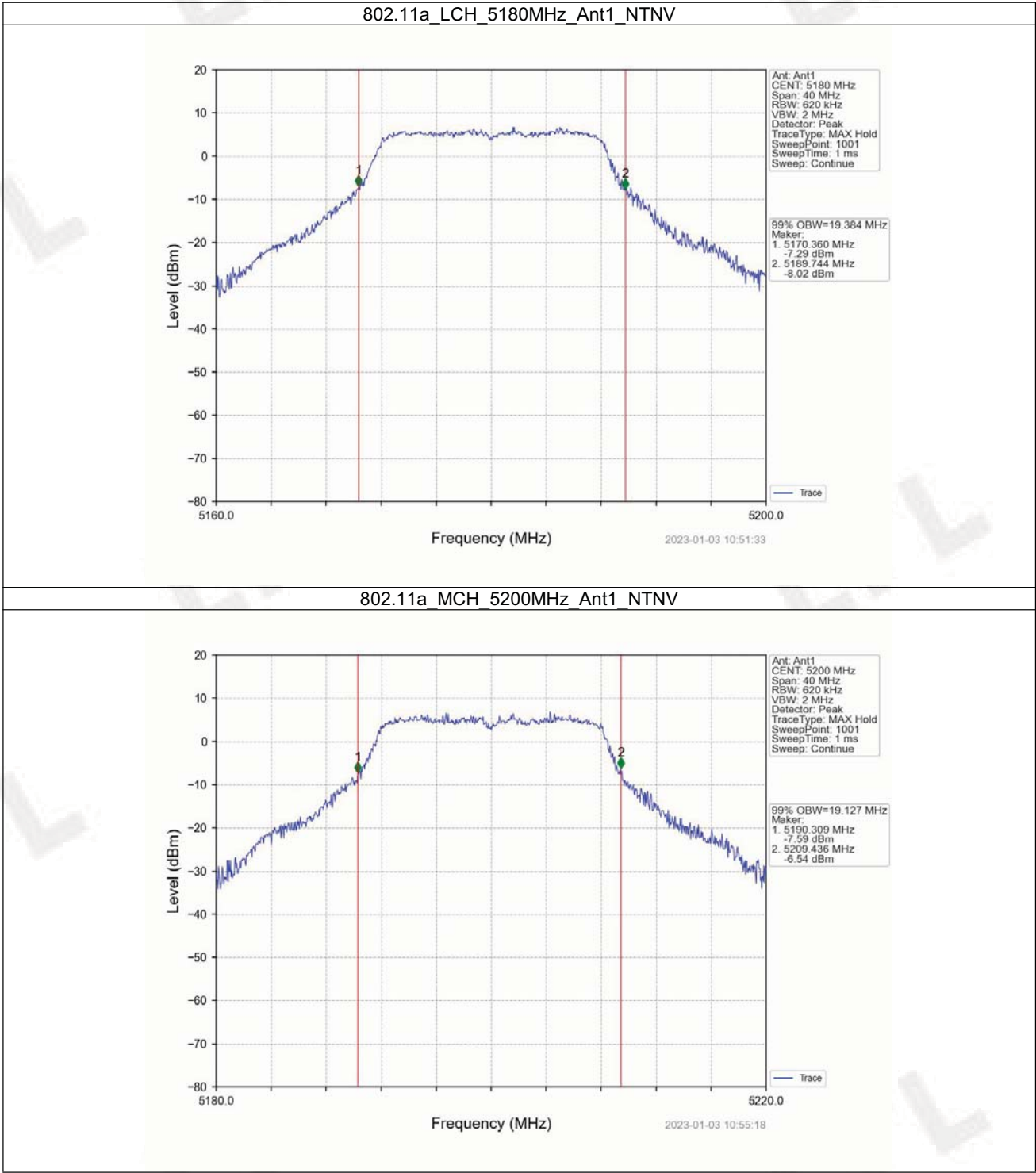
1. Bandwidth

1.1 OBW

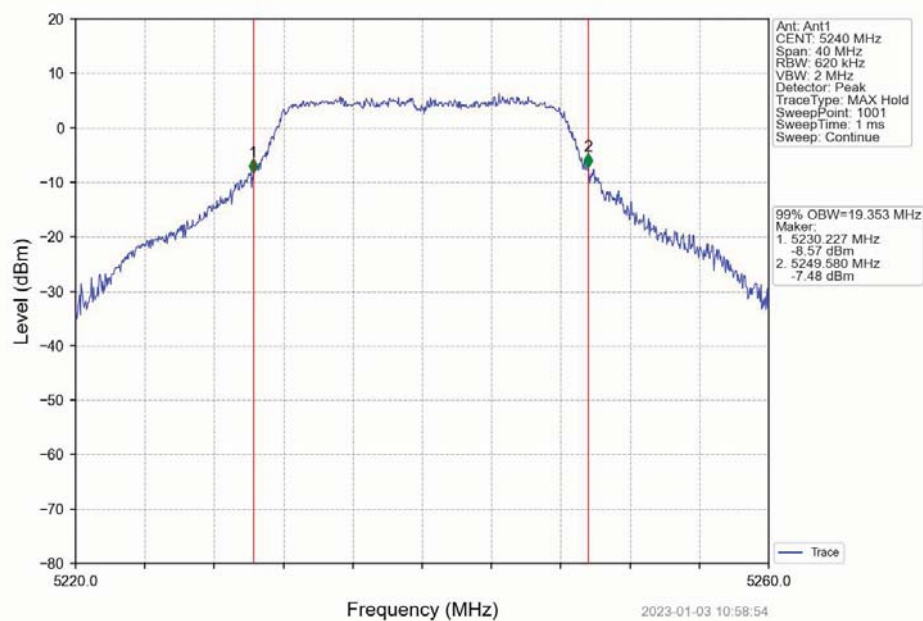
1.1.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)	Verdict
				Result	
802.11a	SISO	5180	1	19.384	Pass
		5200	1	19.127	Pass
		5240	1	19.353	Pass
802.11n (HT20)	SISO	5180	1	19.966	Pass
		5200	1	20.257	Pass
		5240	1	20.224	Pass
802.11n (HT40)	SISO	5190	1	38.325	Pass
		5230	1	38.532	Pass
802.11ac (VHT20)	SISO	5180	1	20.252	Pass
		5200	1	20.280	Pass
		5240	1	20.348	Pass
802.11ac (VHT40)	SISO	5190	1	38.390	Pass
		5230	1	38.339	Pass

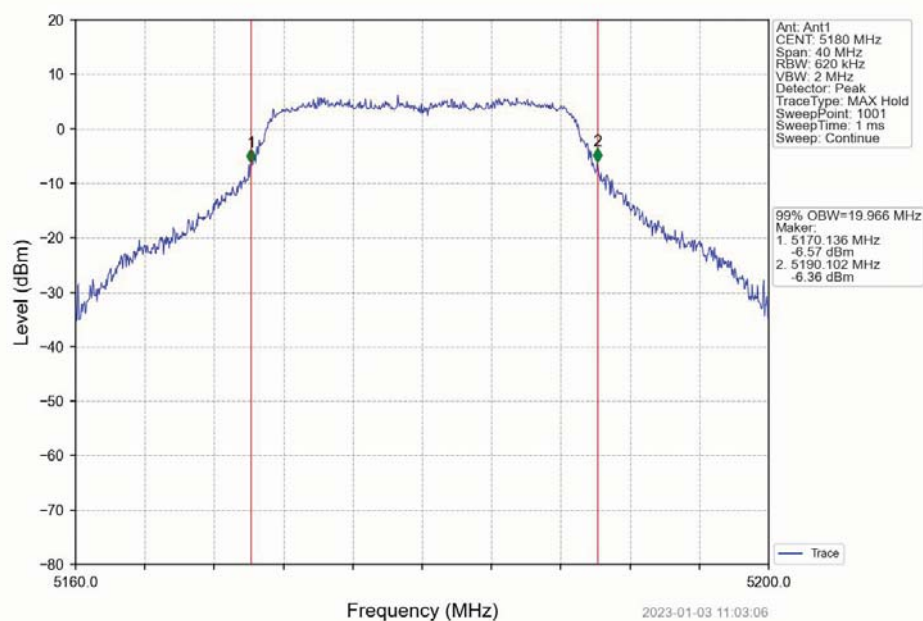
1.1.2 Test Graph



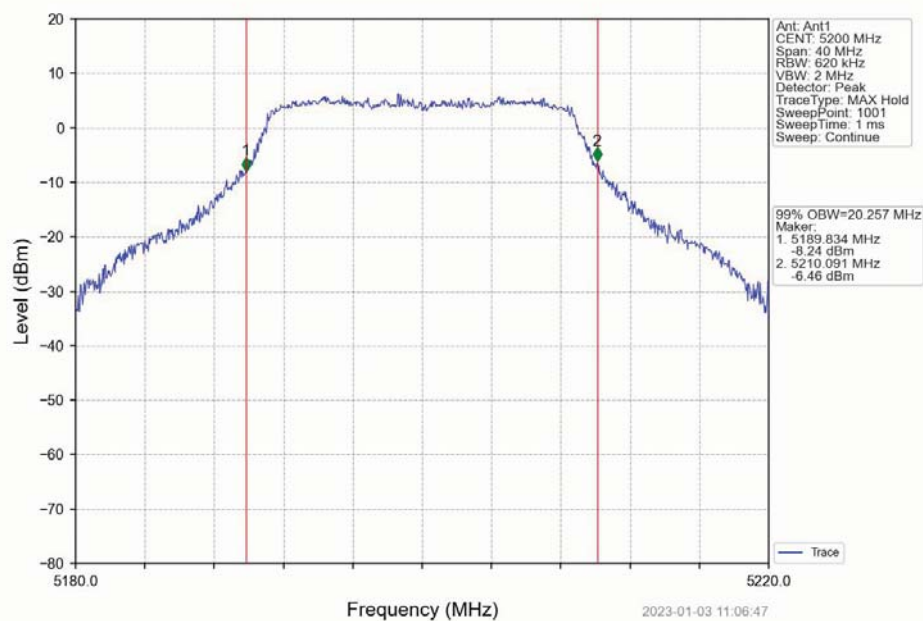
802.11a_HCH_5240MHz_Ant1_NTNV



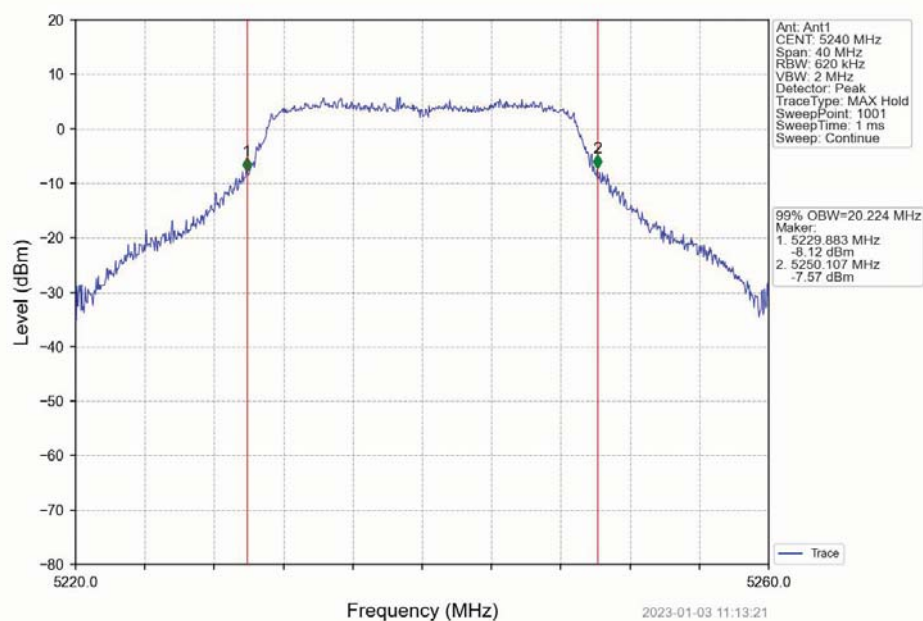
802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



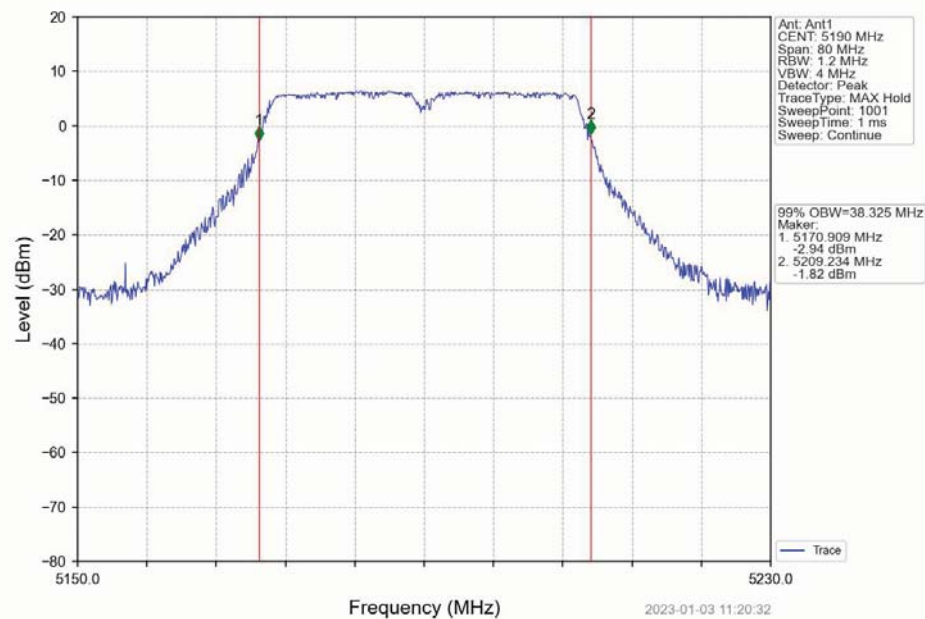
802.11n(HT20)_MCH_5200MHz_Ant1_NTNV



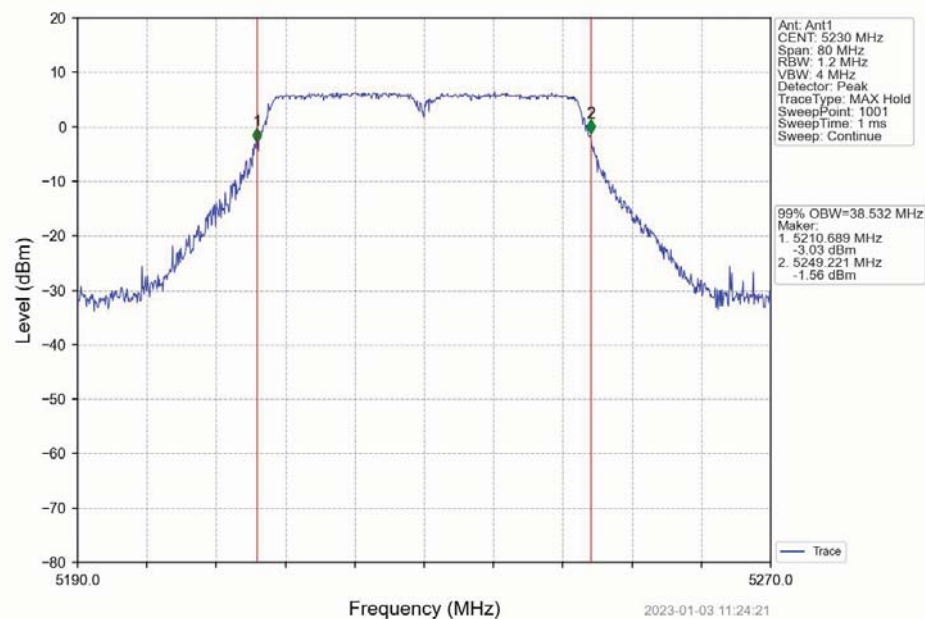
802.11n(HT20)_HCH_5240MHz_Ant1_NTNV



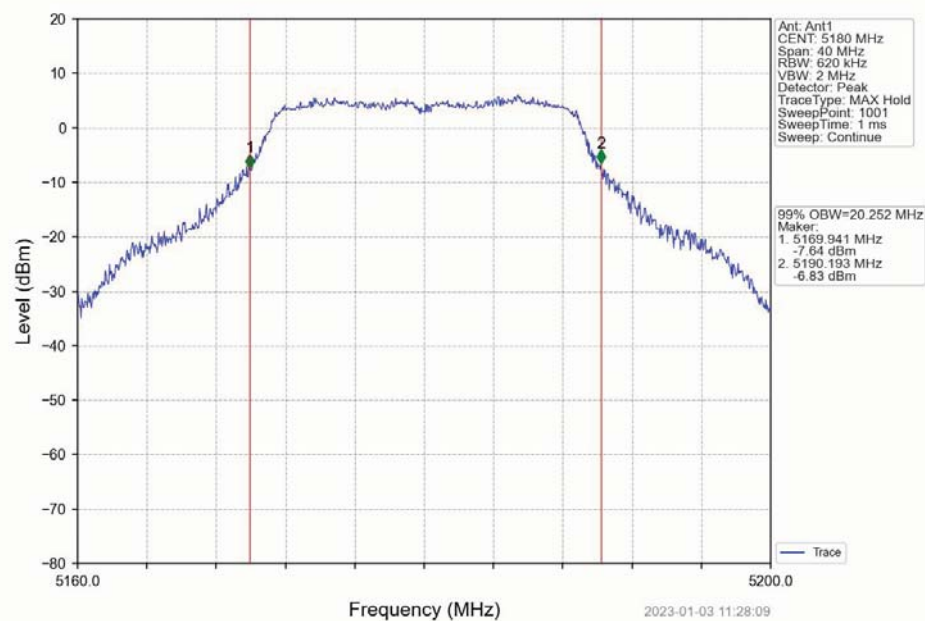
802.11n(HT40)_LCH_5190MHz_Ant1_NTNV



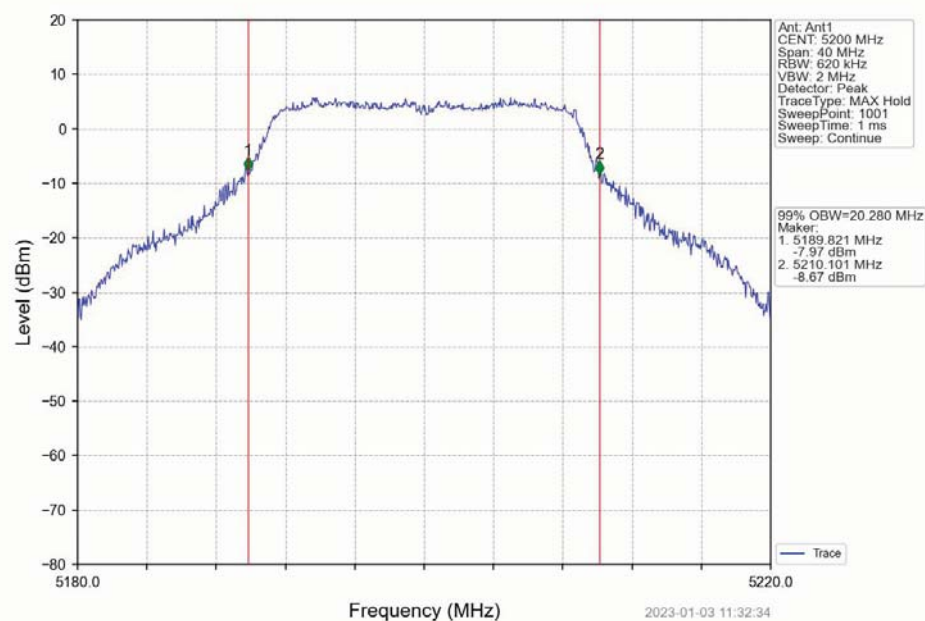
802.11n(HT40)_HCH_5230MHz_Ant1_NTNV



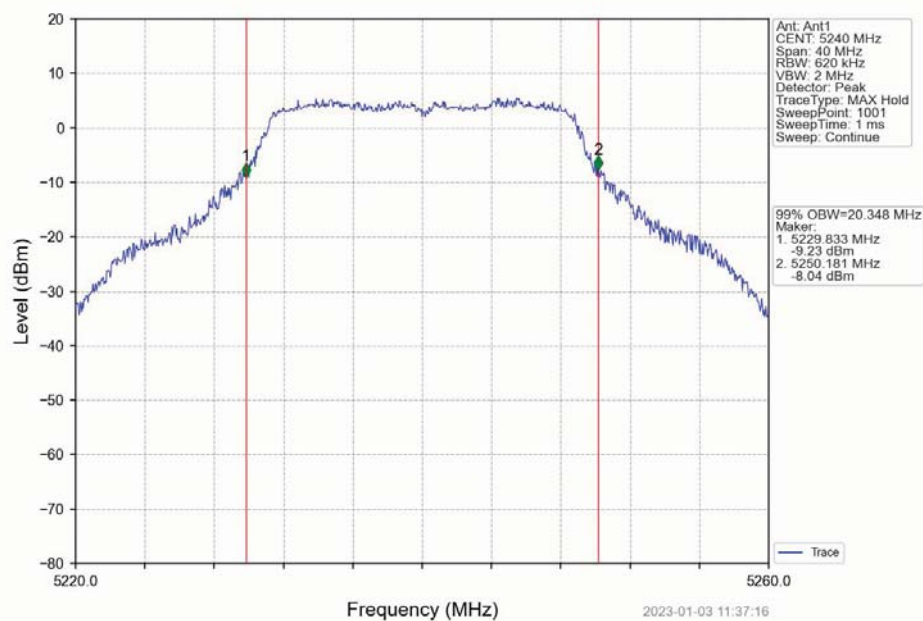
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



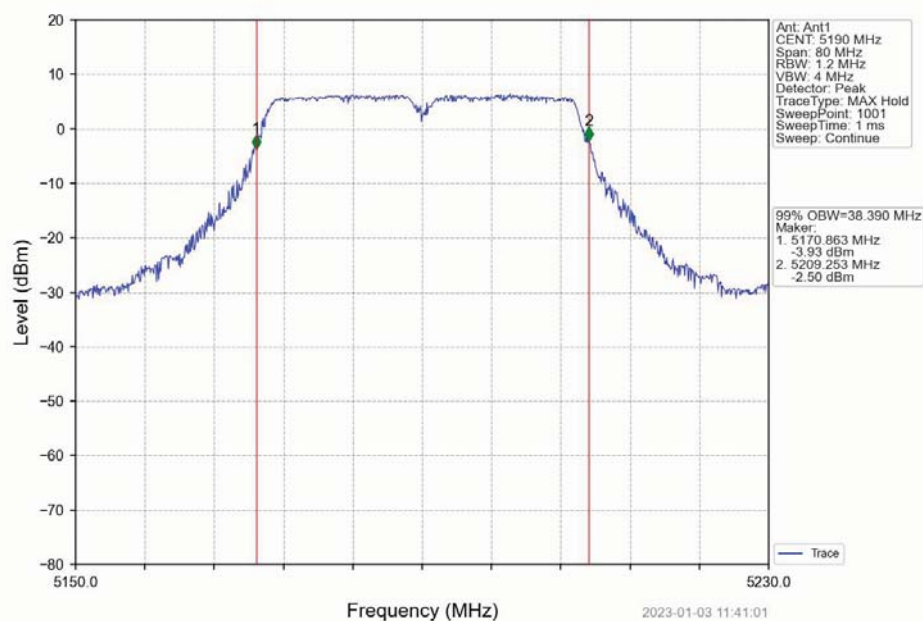
802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV

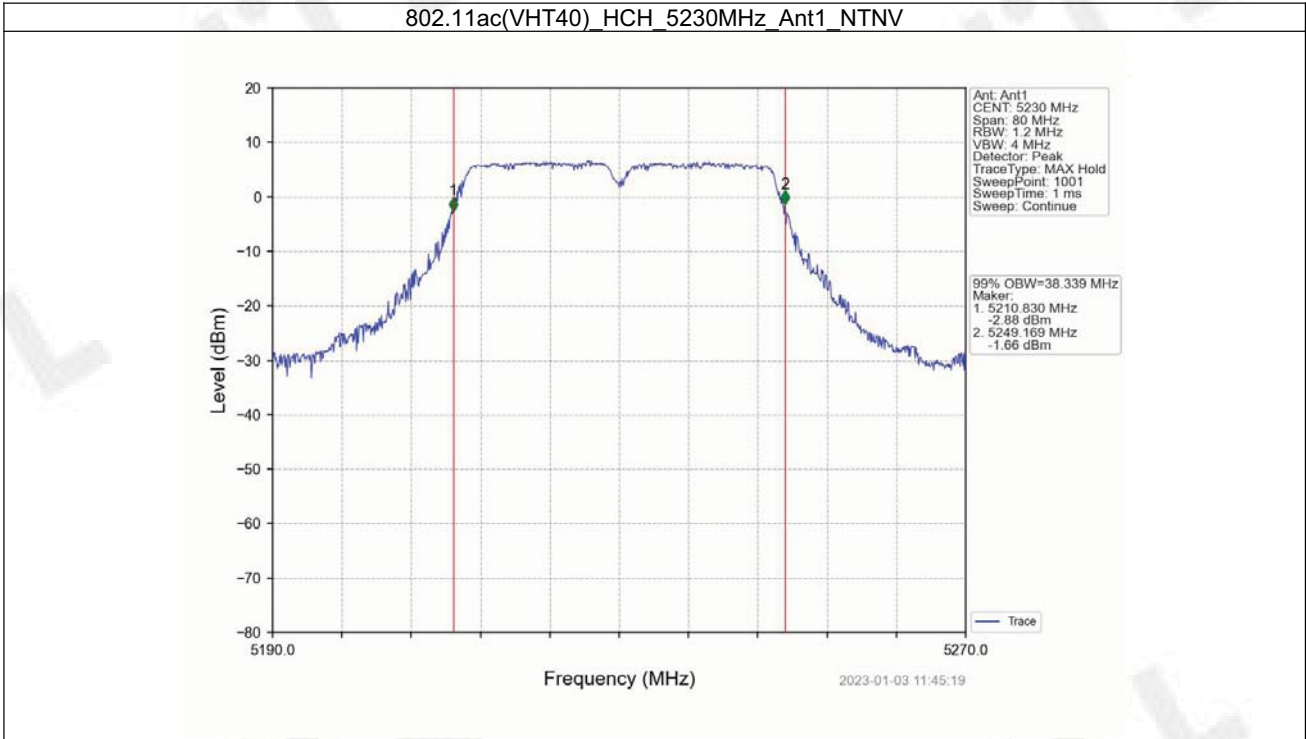


802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV



802.11ac(VHT40)_LCH_5190MHz_Ant1_NTNV



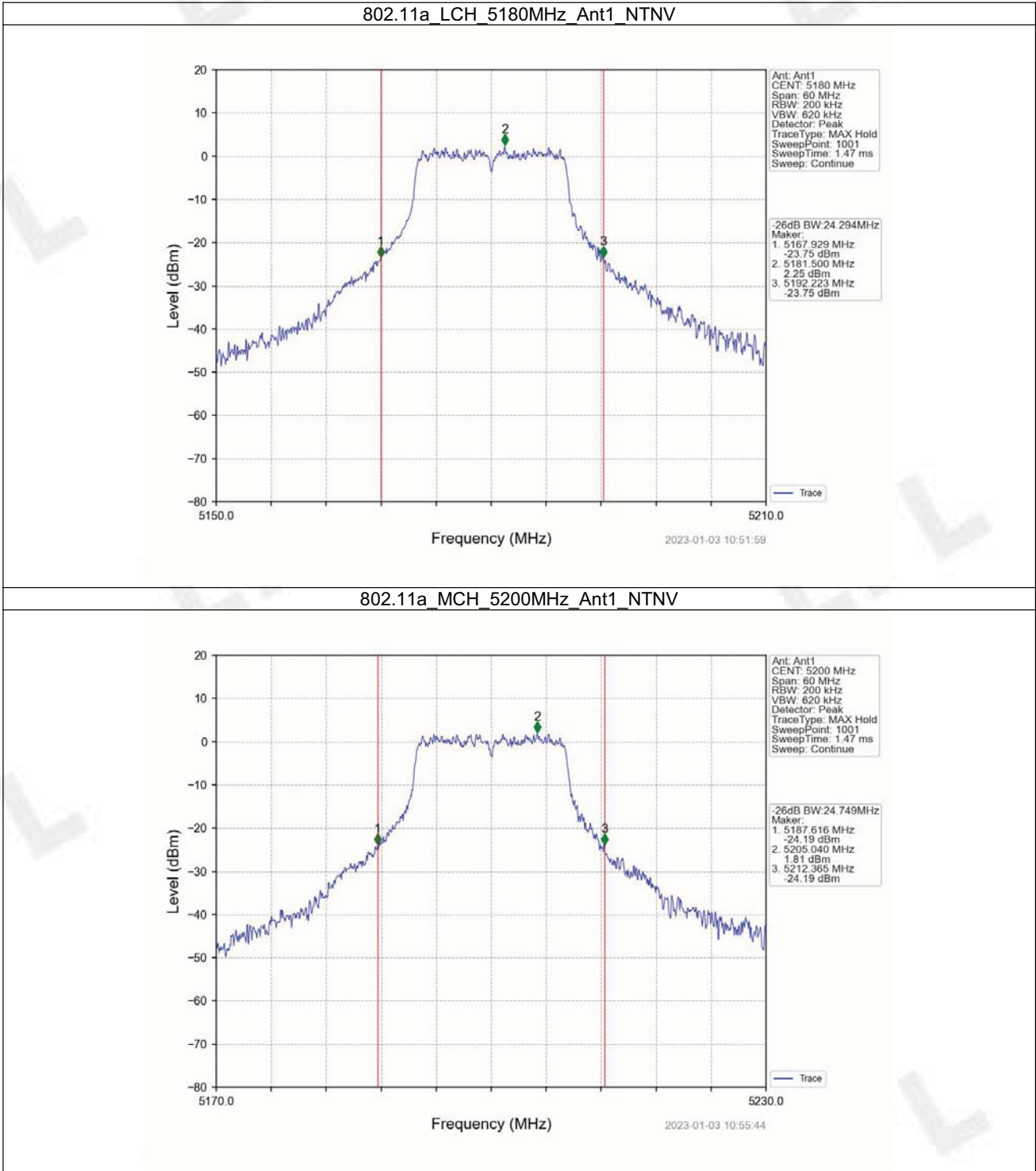


1.2 26dB BW

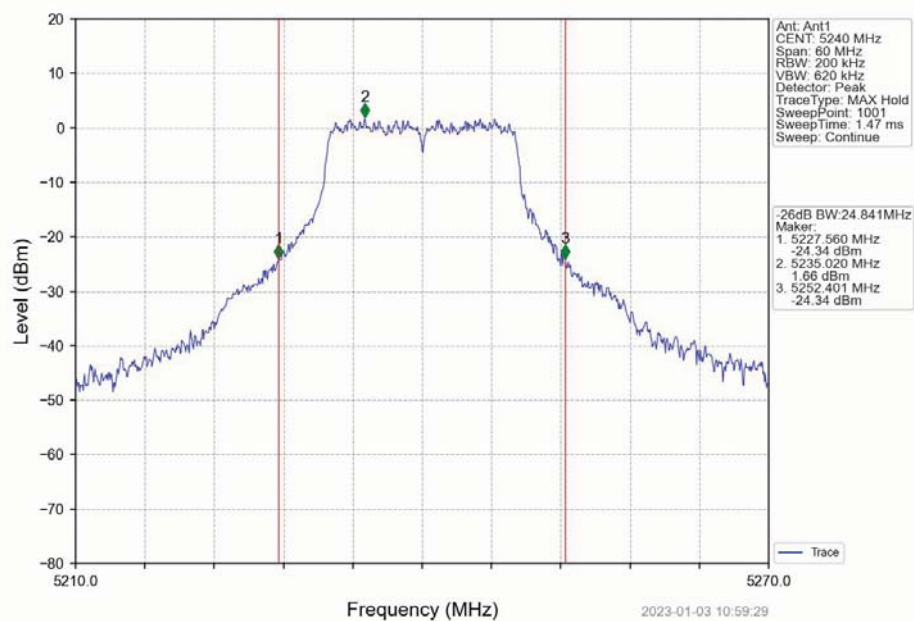
1.2.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	26dB Bandwidth (MHz)	Verdict
				Result	
802.11a	SISO	5180	1	24.294	Pass
		5200	1	24.749	Pass
		5240	1	24.841	Pass
802.11n (HT20)	SISO	5180	1	25.189	Pass
		5200	1	25.309	Pass
		5240	1	25.873	Pass
802.11n (HT40)	SISO	5190	1	49.006	Pass
		5230	1	48.422	Pass
802.11ac (VHT20)	SISO	5180	1	25.342	Pass
		5200	1	25.261	Pass
		5240	1	25.552	Pass
802.11ac (VHT40)	SISO	5190	1	48.927	Pass
		5230	1	47.681	Pass

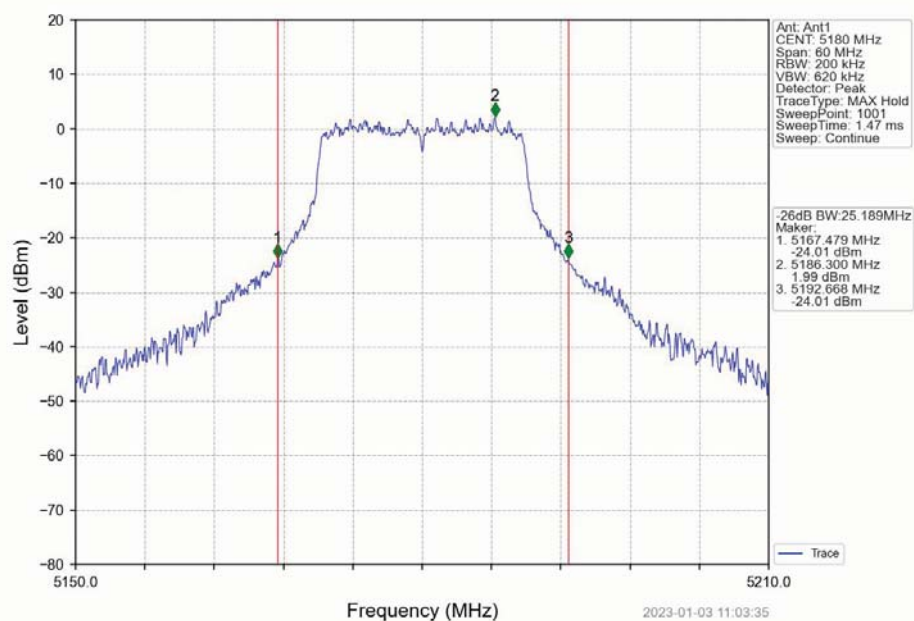
1.2.2 Test Graph



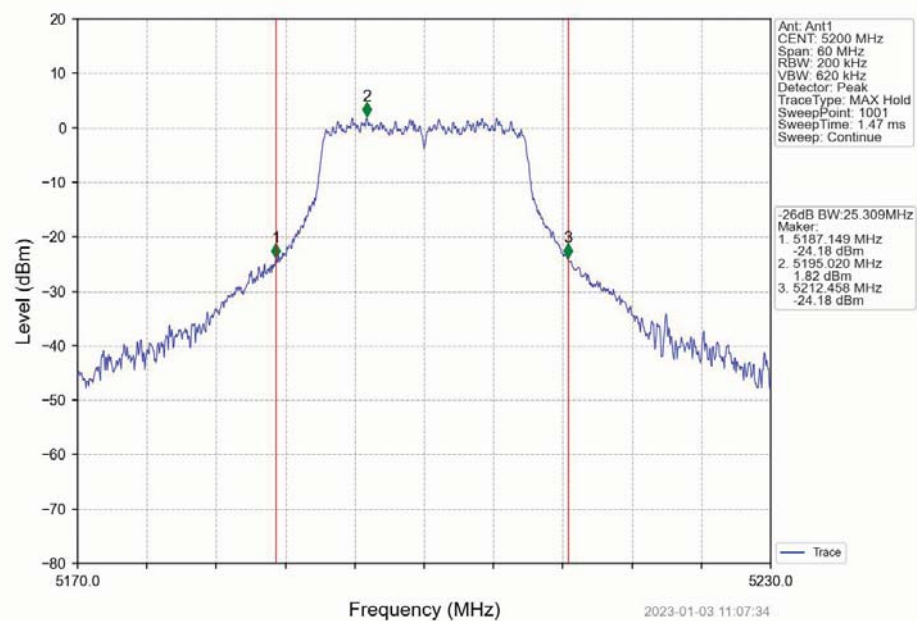
802.11a_HCH_5240MHz_Ant1_NTNV



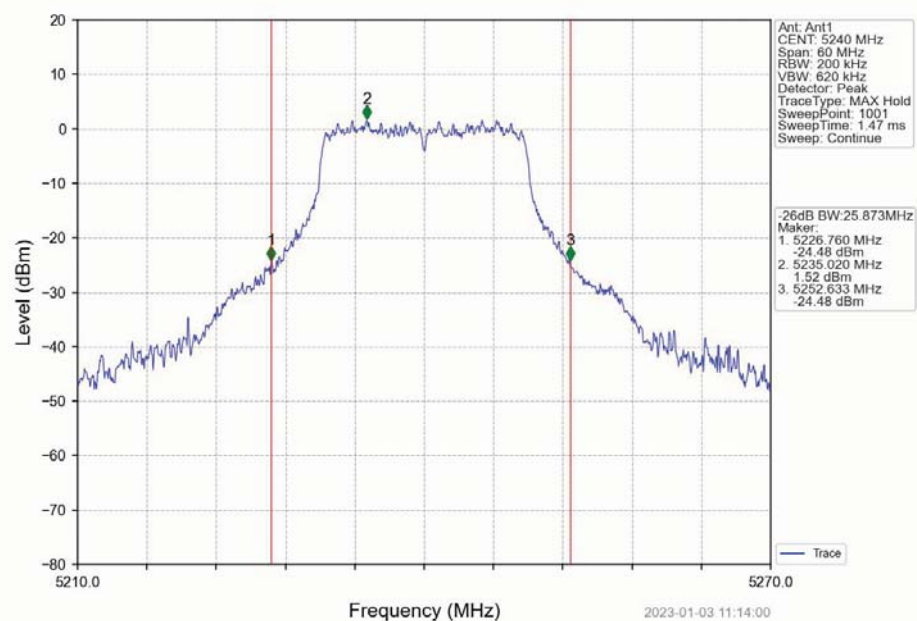
802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



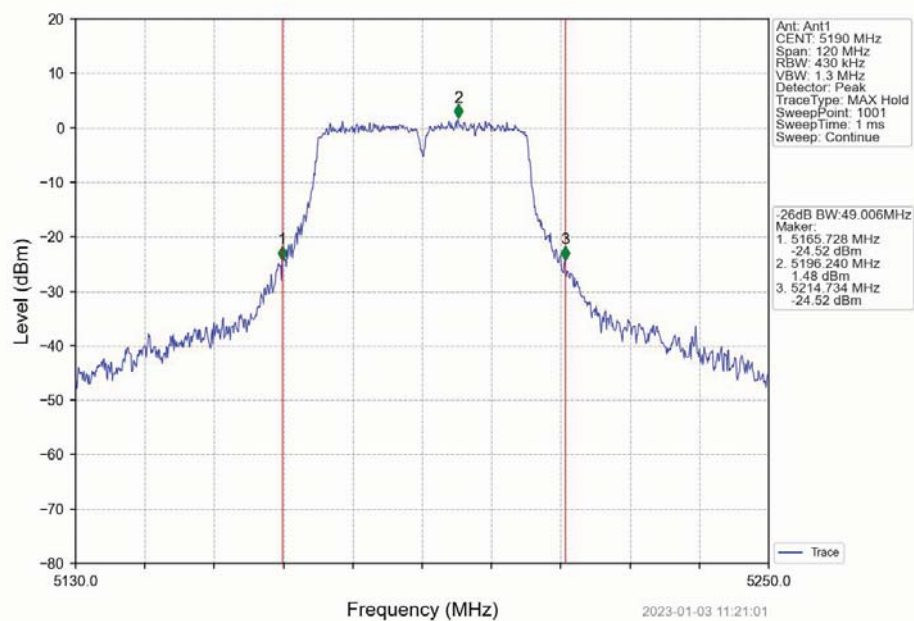
802.11n(HT20)_MCH_5200MHz_Ant1_NTNV



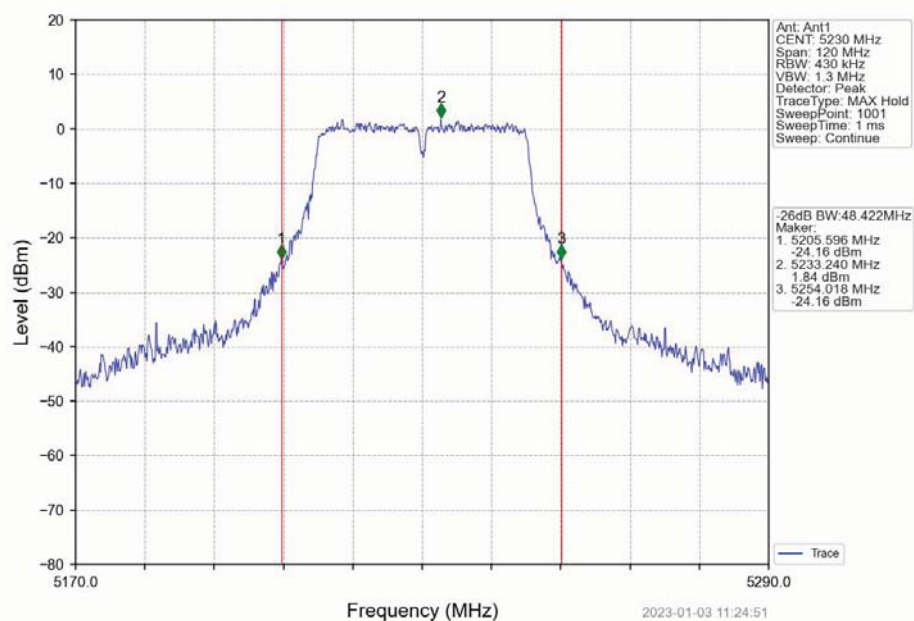
802.11n(HT20)_HCH_5240MHz_Ant1_NTNV



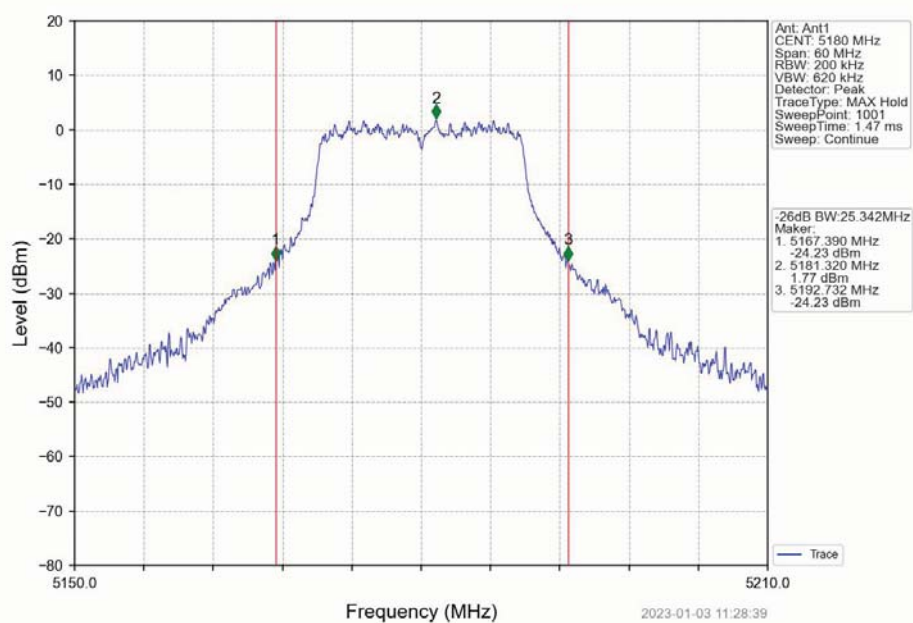
802.11n(HT40)_LCH_5190MHz_Ant1_NTNV



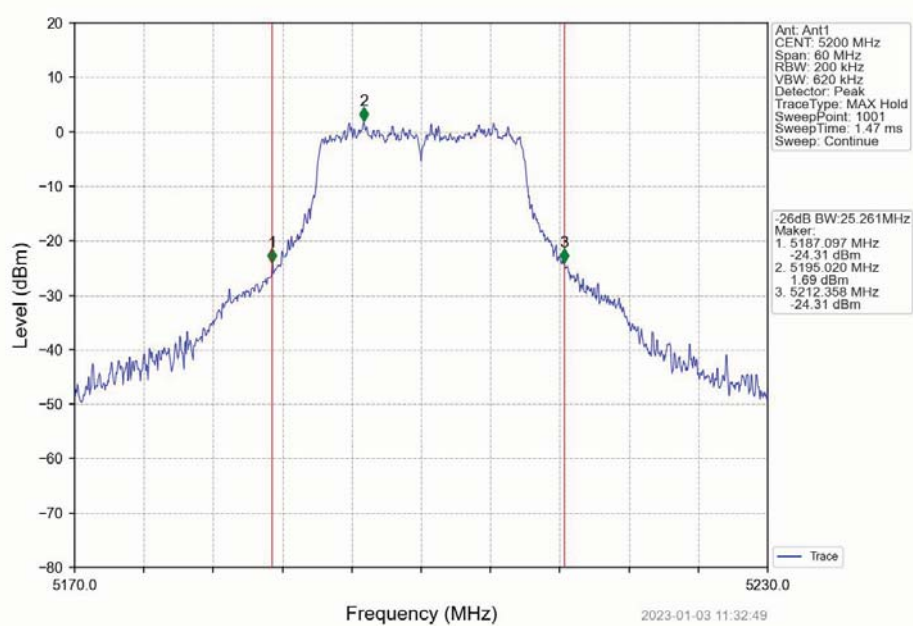
802.11n(HT40)_HCH_5230MHz_Ant1_NTNV



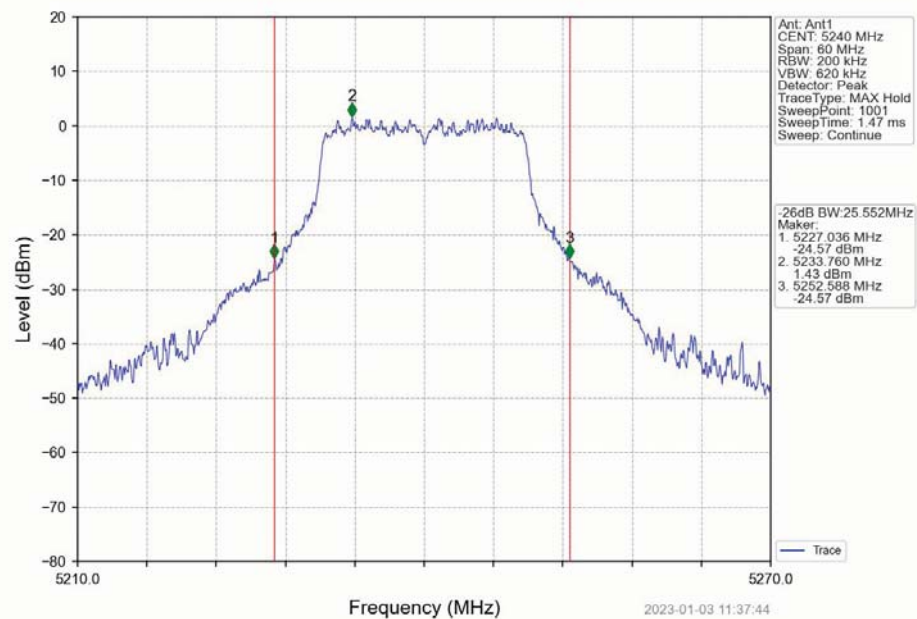
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



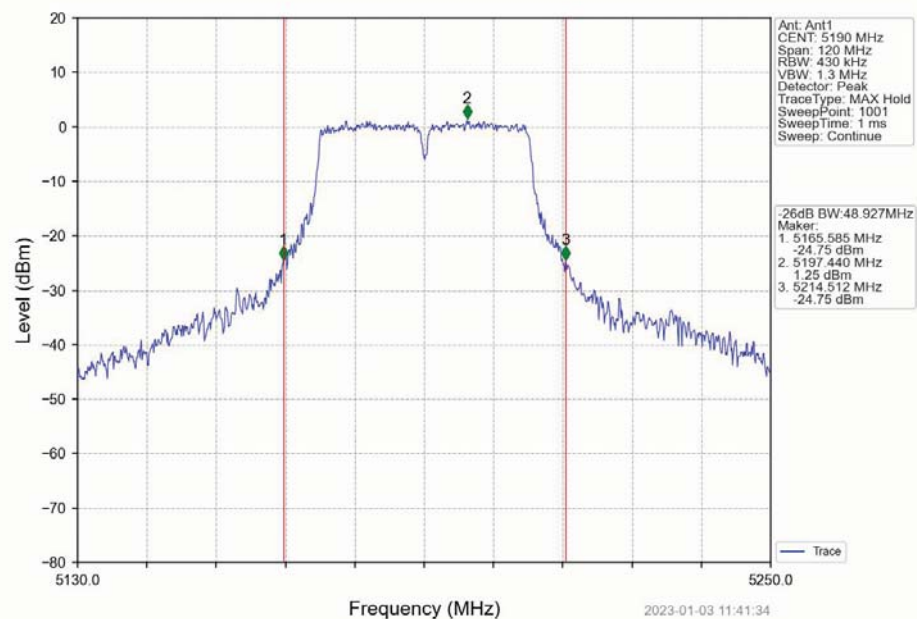
802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV

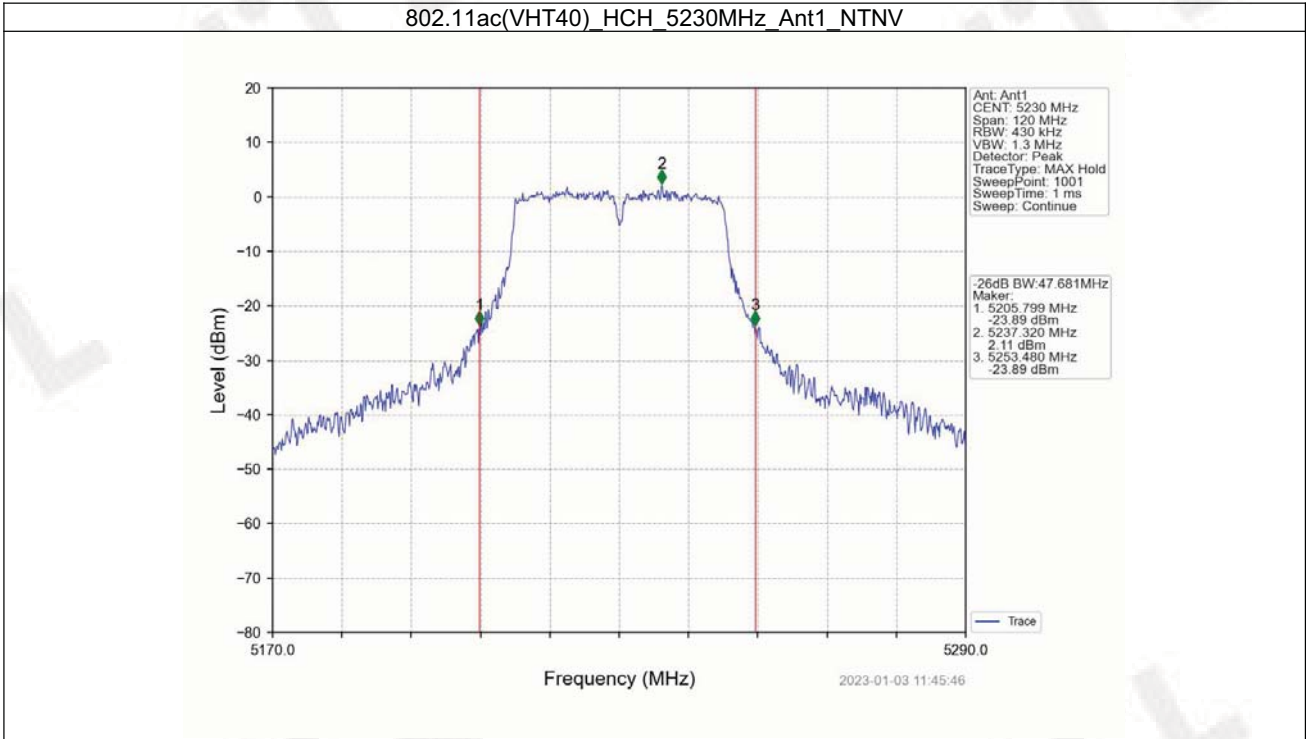


802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV



802.11ac(VHT40)_LCH_5190MHz_Ant1_NTNV





2. Maximum Conducted Output Power

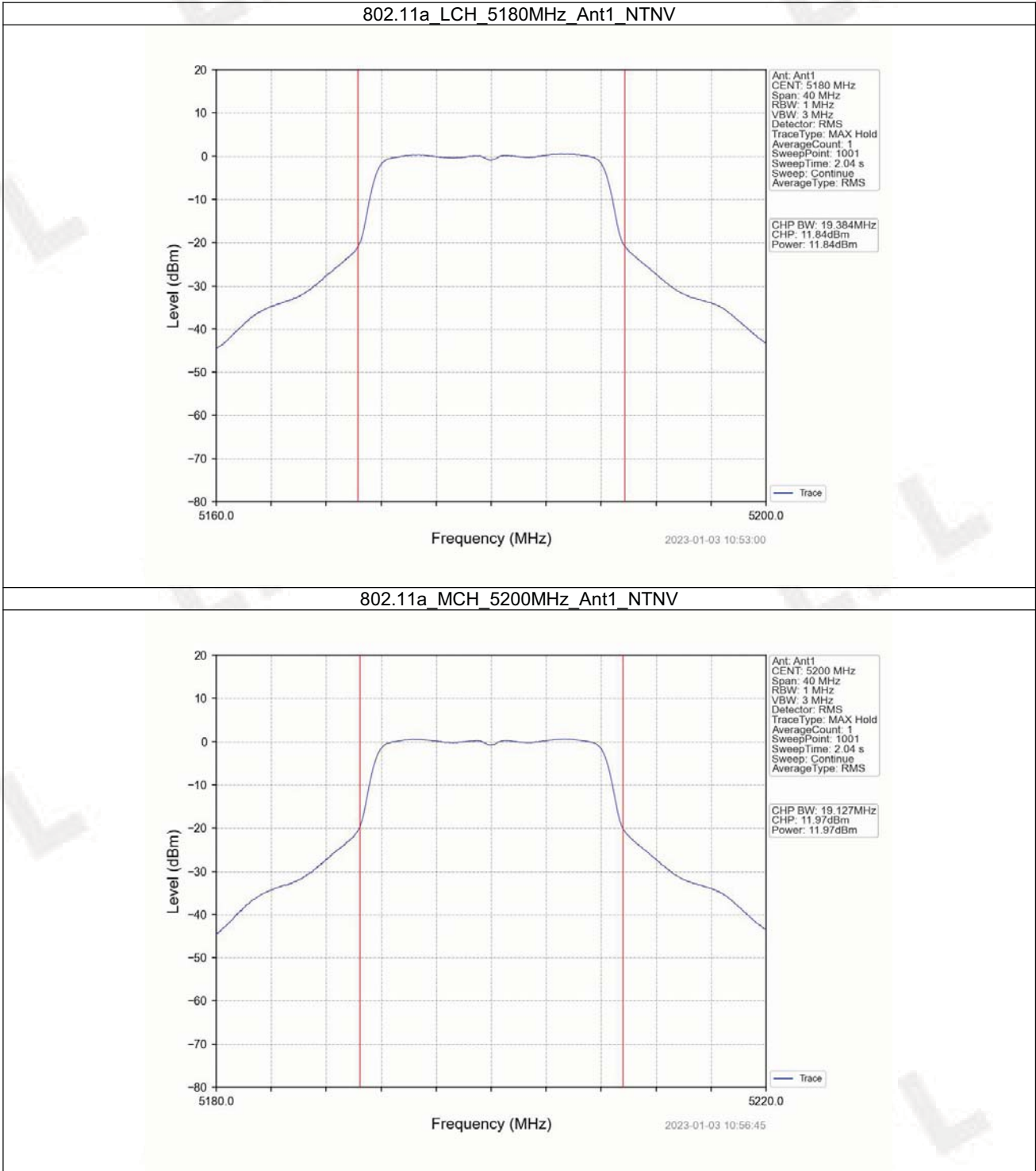
2.1 Power

2.1.1 Test Result

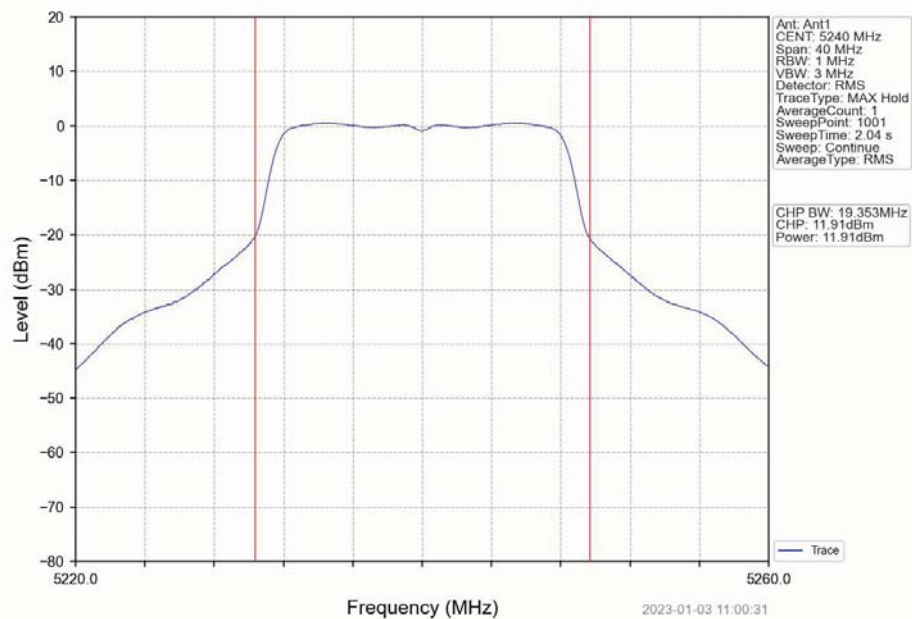
Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11a	SISO	5180	11.84	≤ 23.98	Pass
		5200	11.97	≤ 23.98	Pass
		5240	11.91	≤ 23.98	Pass
802.11n (HT20)	SISO	5180	11.73	≤ 23.98	Pass
		5200	11.92	≤ 23.98	Pass
		5240	11.87	≤ 23.98	Pass
802.11n (HT40)	SISO	5190	11.79	≤ 23.98	Pass
		5230	11.97	≤ 23.98	Pass
802.11ac (VHT20)	SISO	5180	11.70	≤ 23.98	Pass
		5200	11.84	≤ 23.98	Pass
		5240	11.77	≤ 23.98	Pass
802.11ac (VHT40)	SISO	5190	11.89	≤ 23.98	Pass
		5230	12.02	≤ 23.98	Pass

Note1: Antenna Gain: Ant1: 4.53dBi;

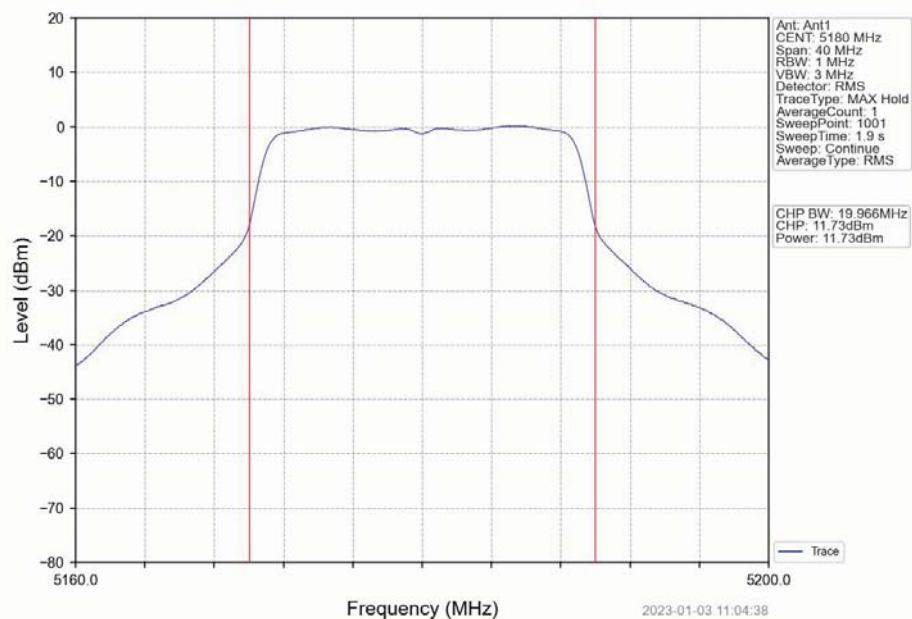
2.1.2 Test Graph



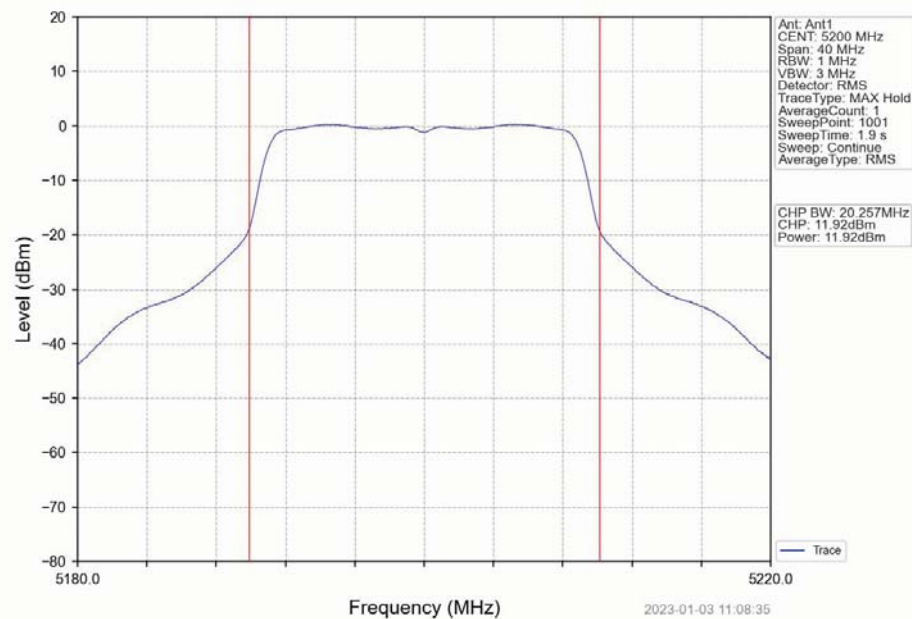
802.11a_HCH_5240MHz_Ant1_NTNV



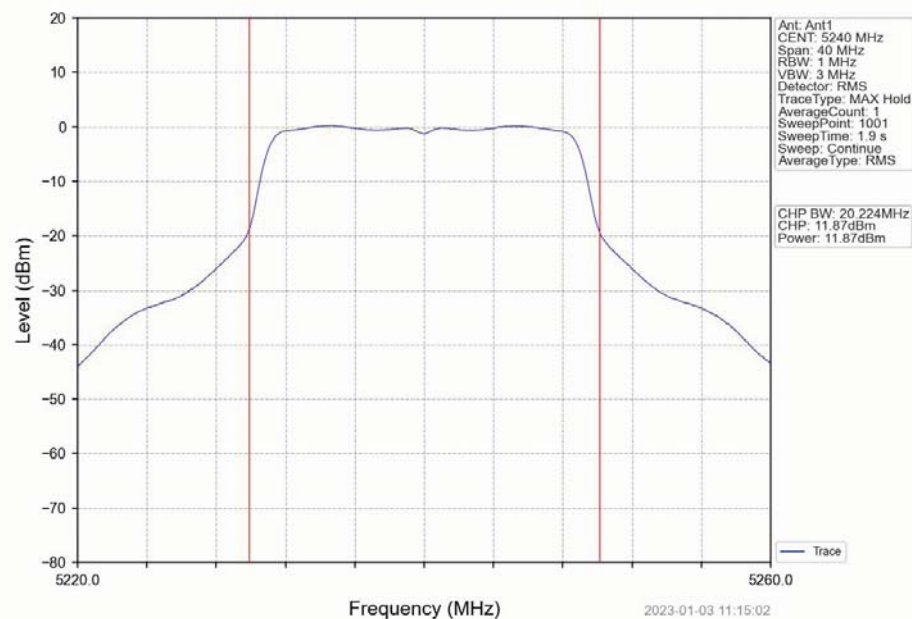
802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



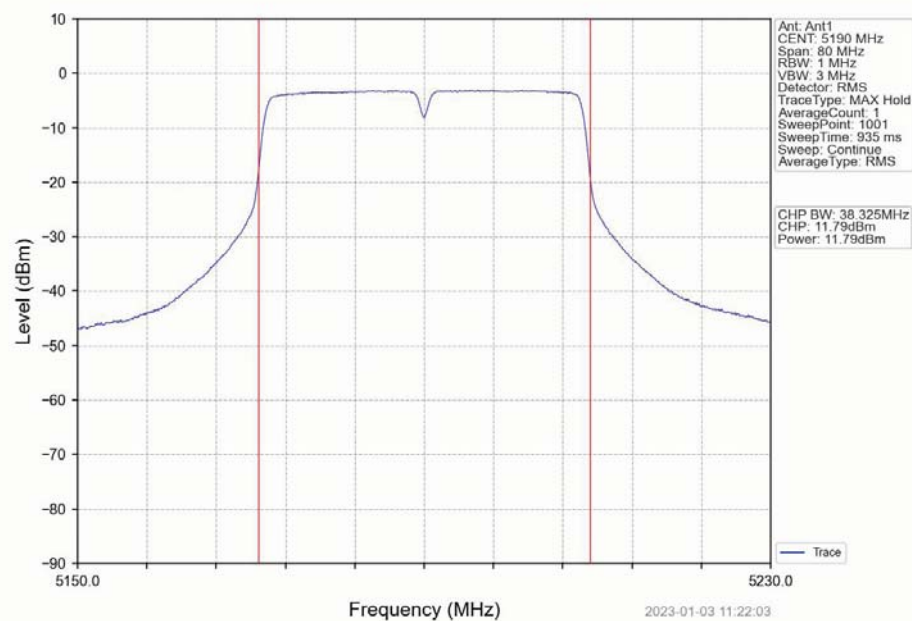
802.11n(HT20)_MCH_5200MHz_Ant1_NTNV



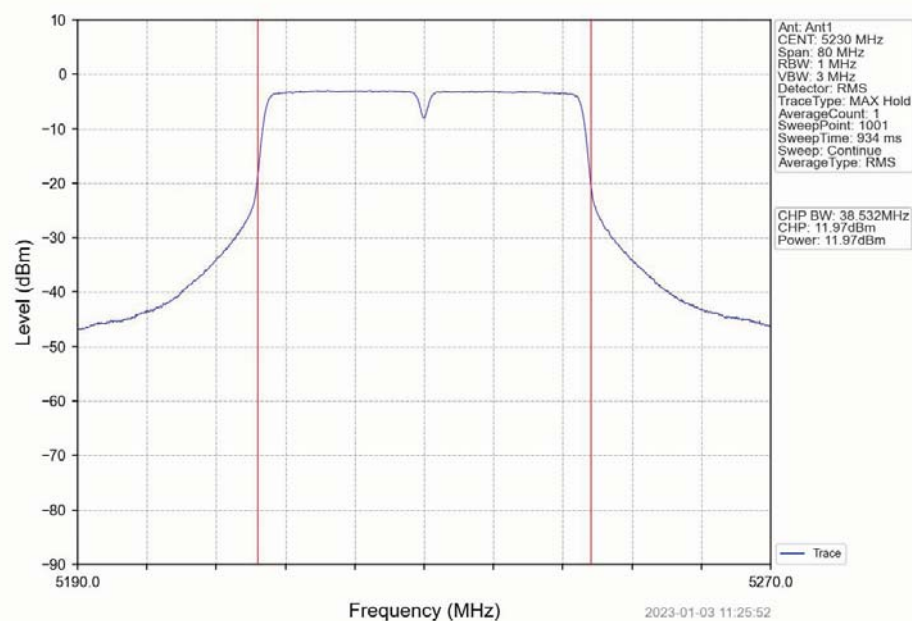
802.11n(HT20)_HCH_5240MHz_Ant1_NTNV



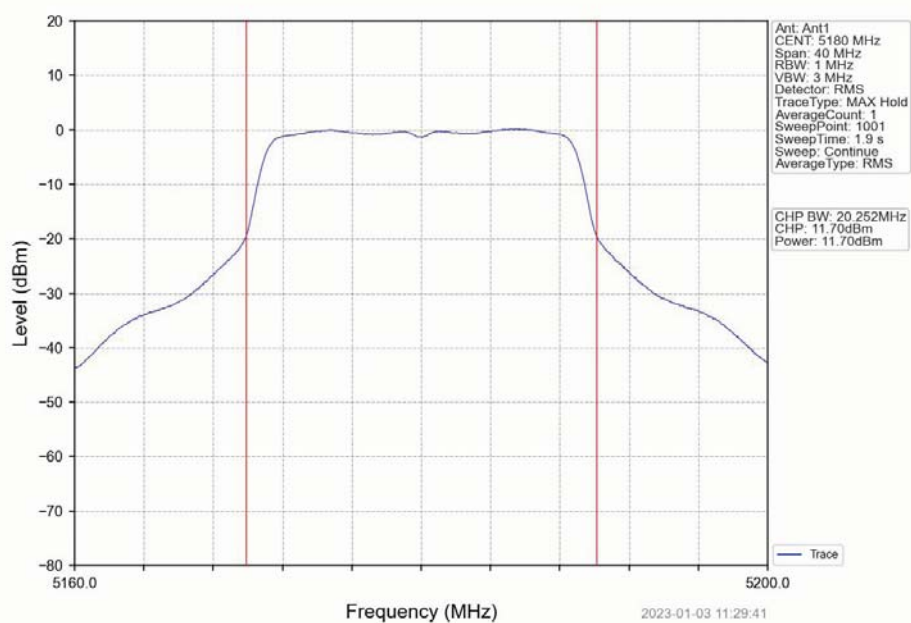
802.11n(HT40)_LCH_5190MHz_Ant1_NTNV



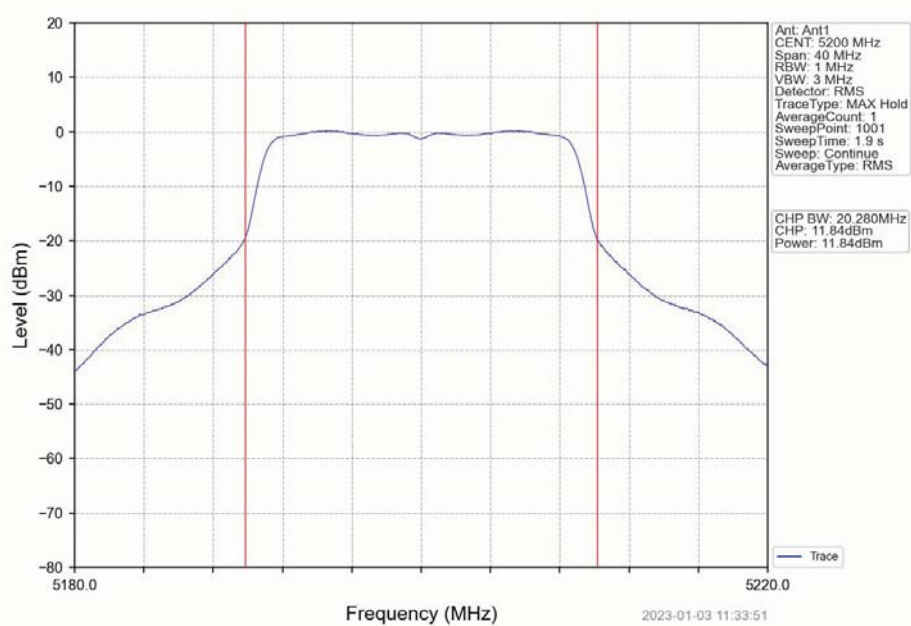
802.11n(HT40)_HCH_5230MHz_Ant1_NTNV



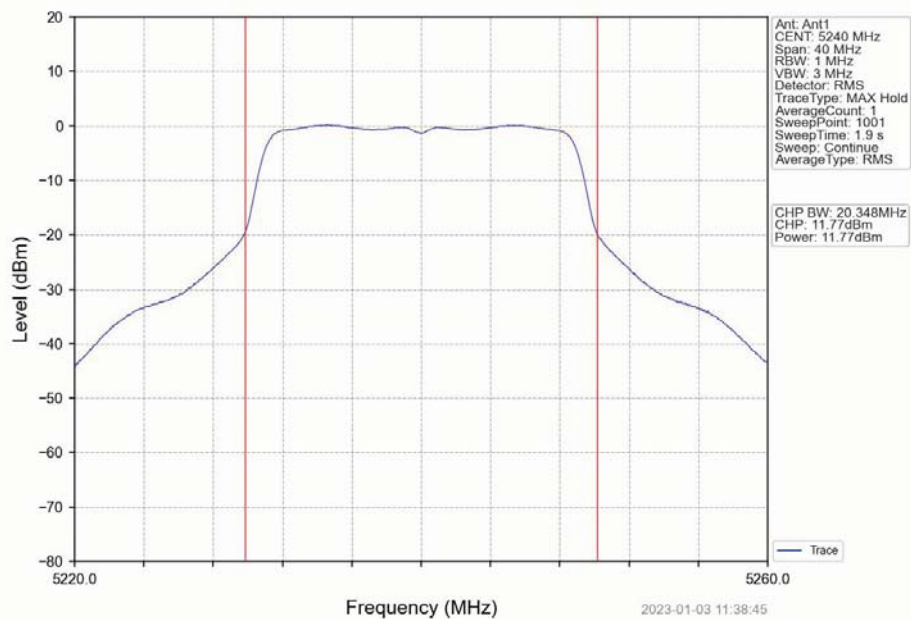
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



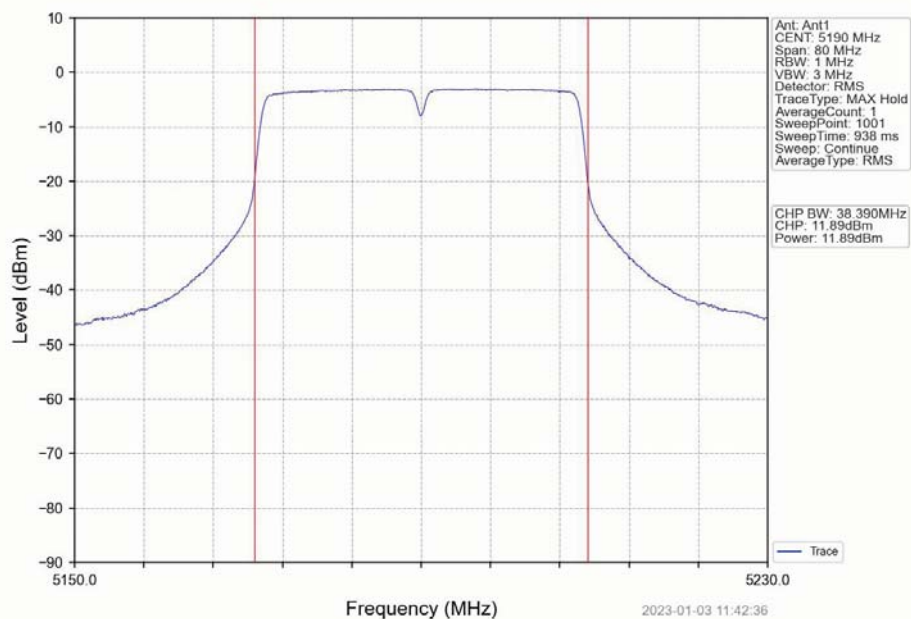
802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV



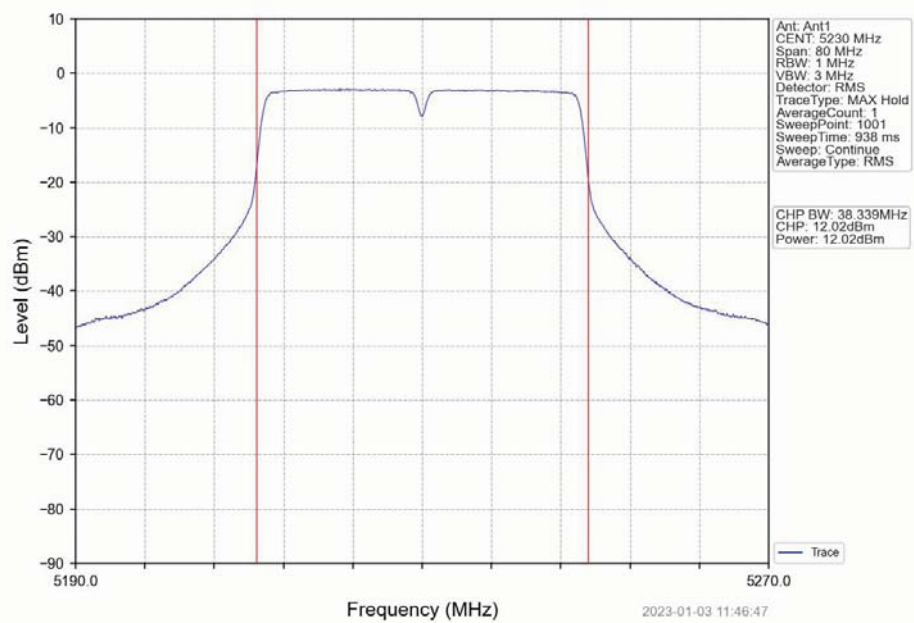
802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV



802.11ac(VHT40)_LCH_5190MHz_Ant1_NTNV



802.11ac(VHT40)_HCH_5230MHz_Ant1_NTNV



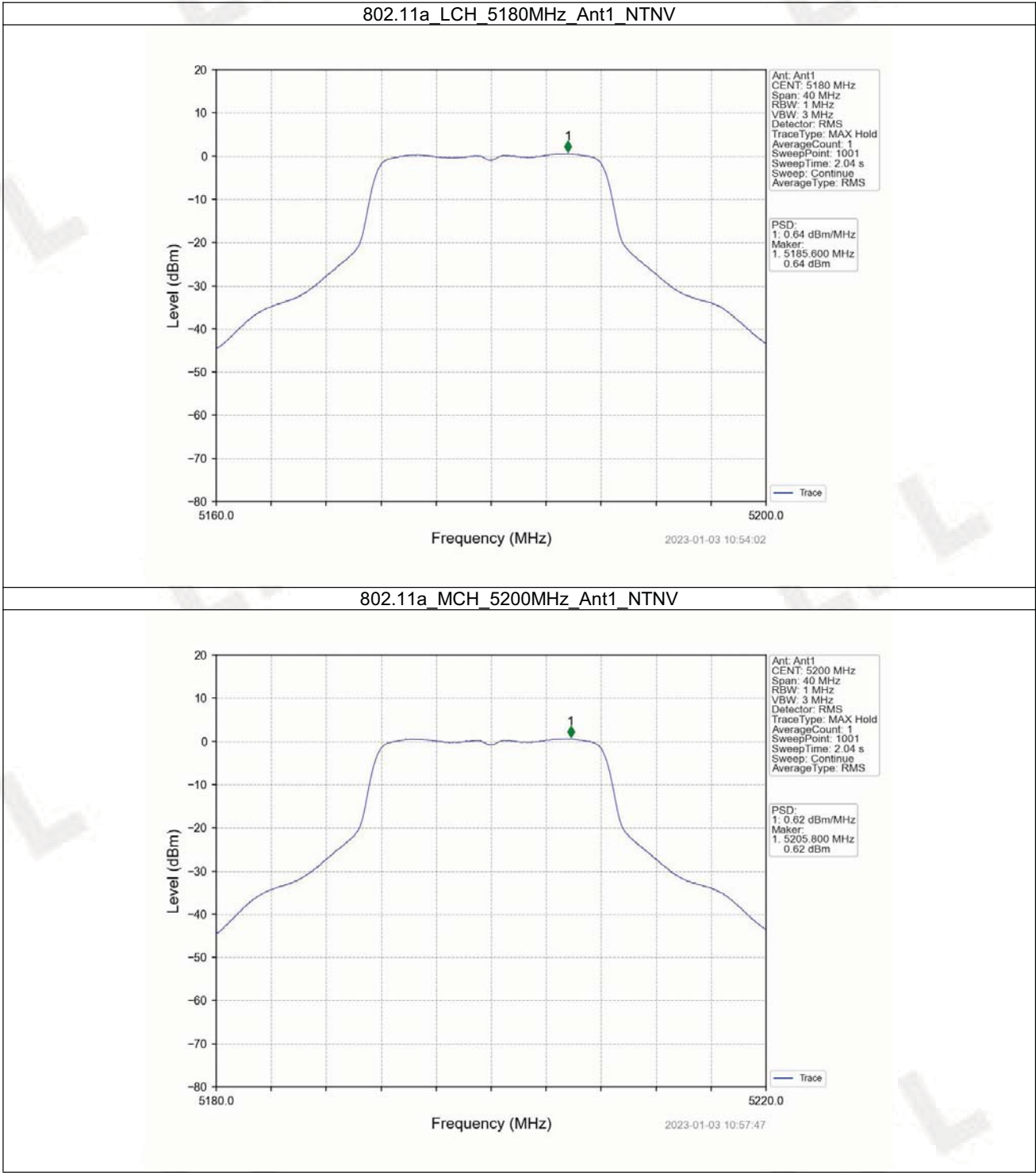
3. Maximum Power Spectral Density

3.1 PSD

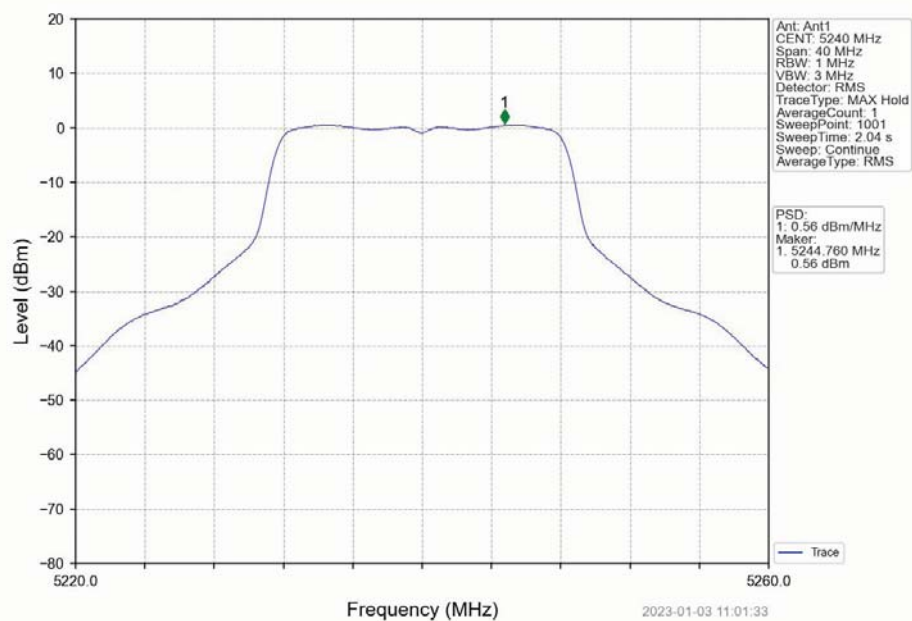
3.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/MHz)		Verdict
			ANT1	Limit	
802.11a	SISO	5180	0.64	<=11	Pass
		5200	0.62	<=11	Pass
		5240	0.56	<=11	Pass
802.11n (HT20)	SISO	5180	0.22	<=11	Pass
		5200	0.36	<=11	Pass
		5240	0.30	<=11	Pass
802.11n (HT40)	SISO	5190	-3.18	<=11	Pass
		5230	-2.99	<=11	Pass
802.11ac (VHT20)	SISO	5180	0.10	<=11	Pass
		5200	0.21	<=11	Pass
		5240	0.19	<=11	Pass
802.11ac (VHT40)	SISO	5190	-3.08	<=11	Pass
		5230	-2.97	<=11	Pass
Note1: Antenna Gain: Ant1: 4.53dBi;					

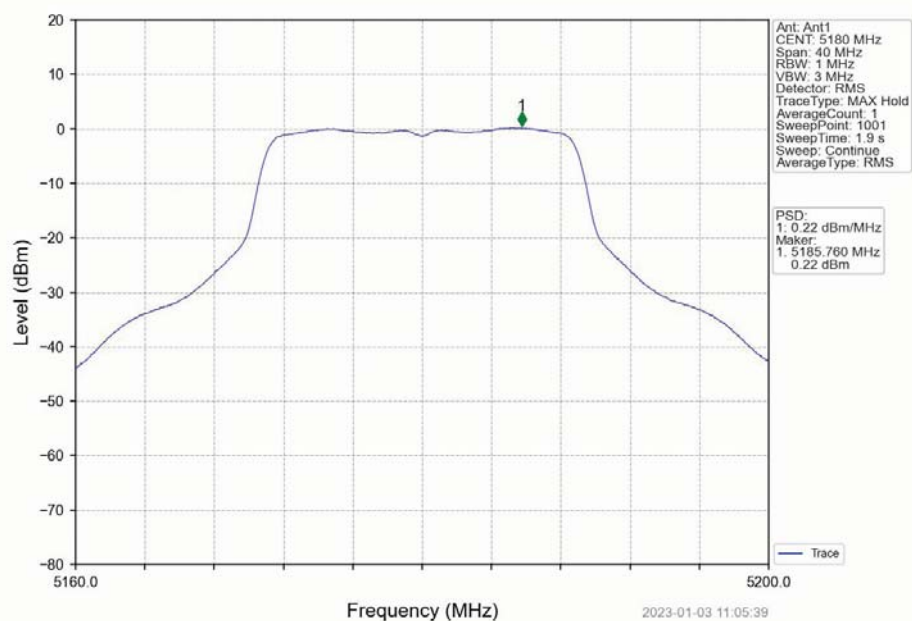
3.1.2 Test Graph



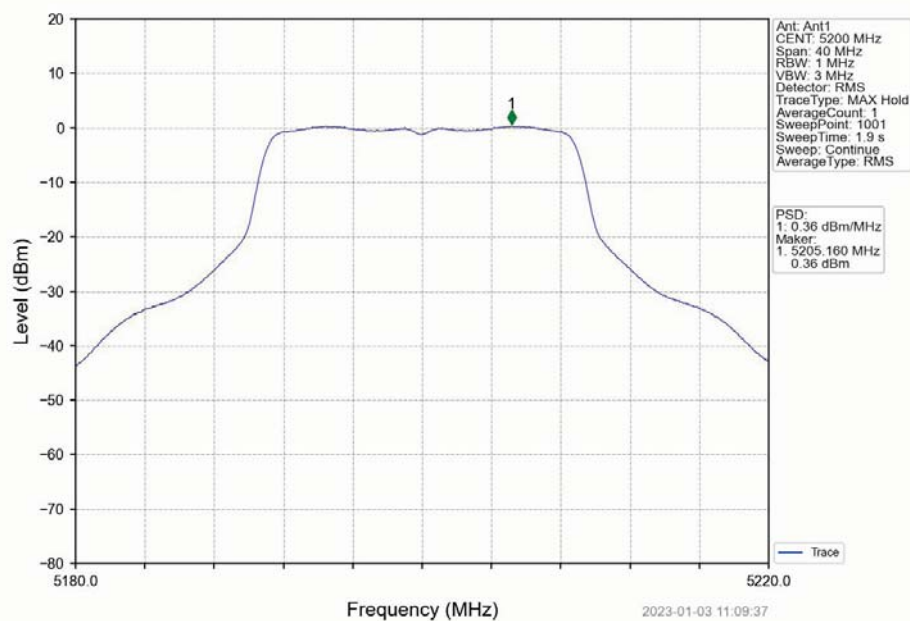
802.11a_HCH_5240MHz_Ant1_NTNV



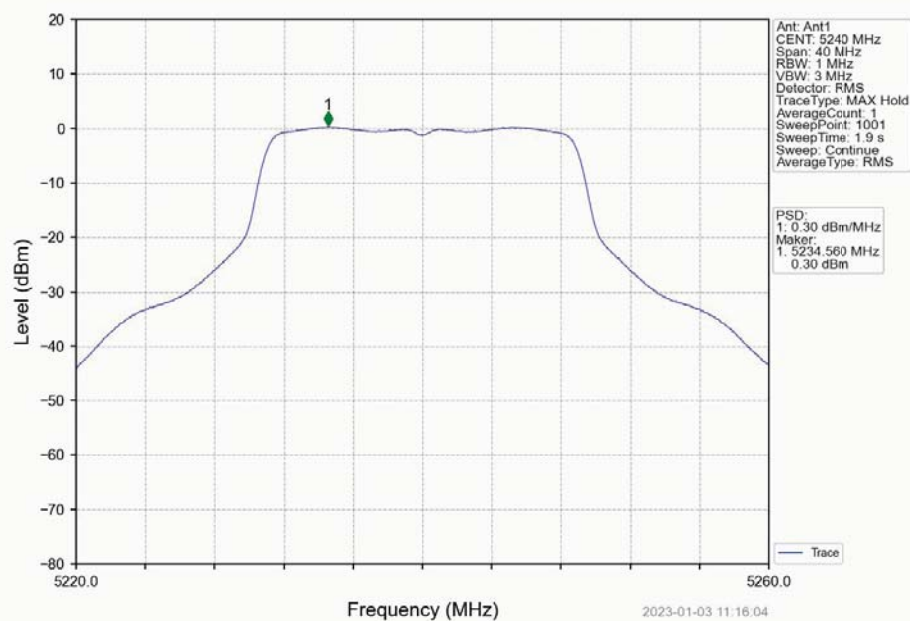
802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



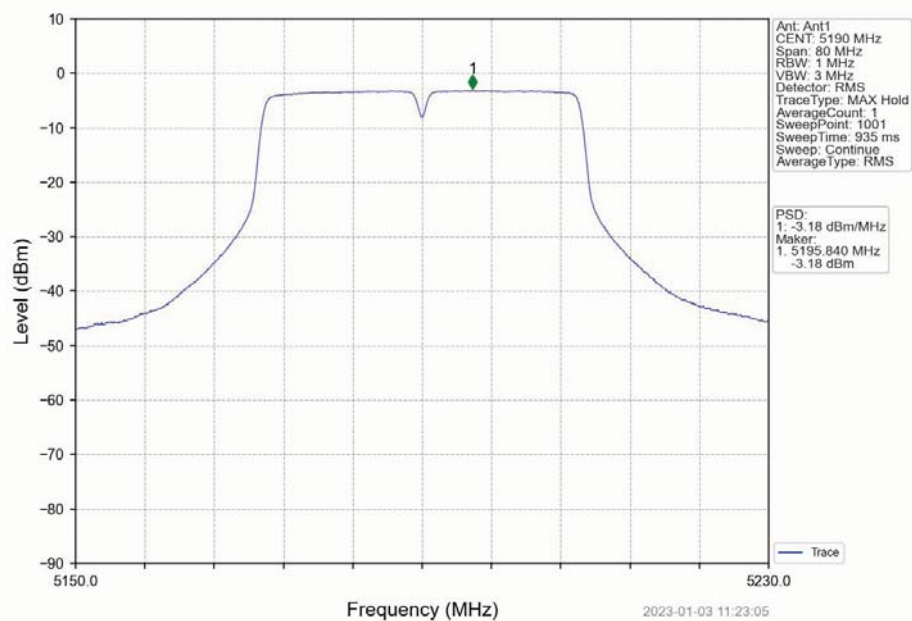
802.11n(HT20)_MCH_5200MHz_Ant1_NTNV



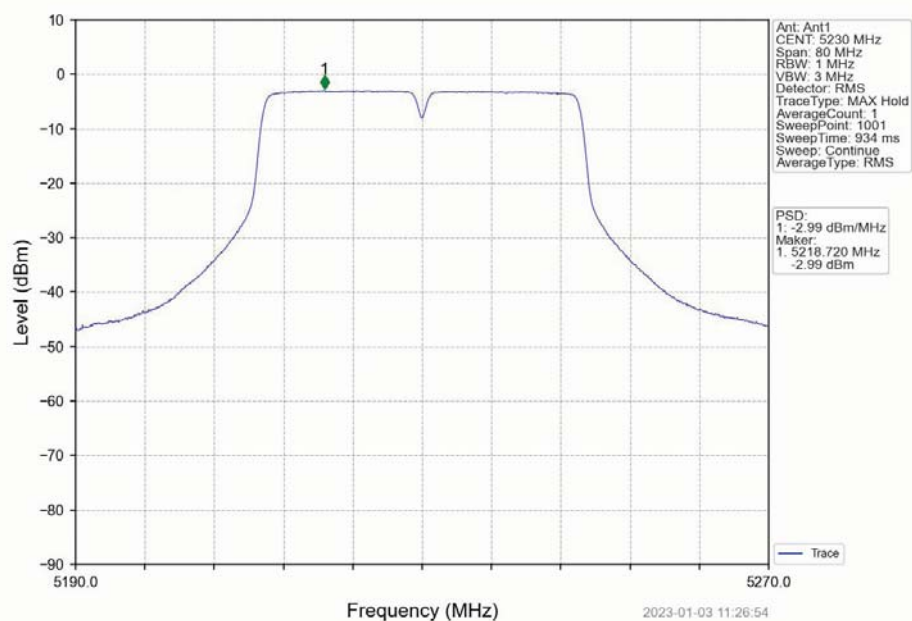
802.11n(HT20)_HCH_5240MHz_Ant1_NTNV



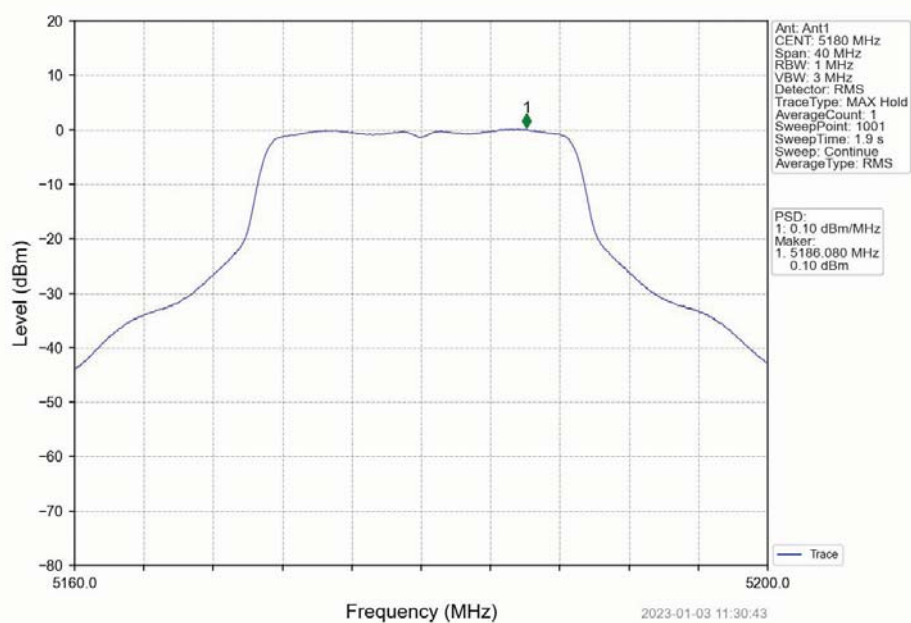
802.11n(HT40)_LCH_5190MHz_Ant1_NTNV



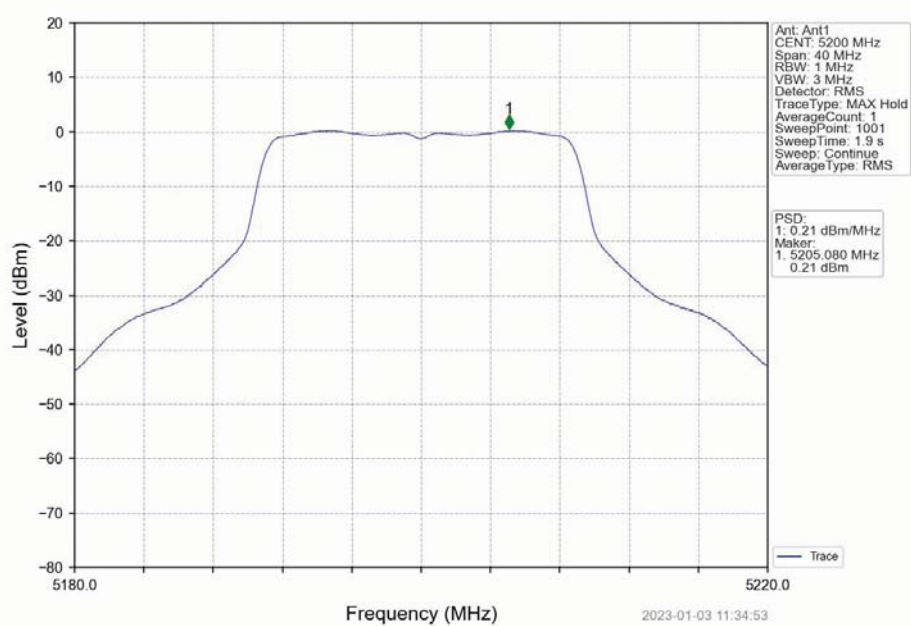
802.11n(HT40)_HCH_5230MHz_Ant1_NTNV



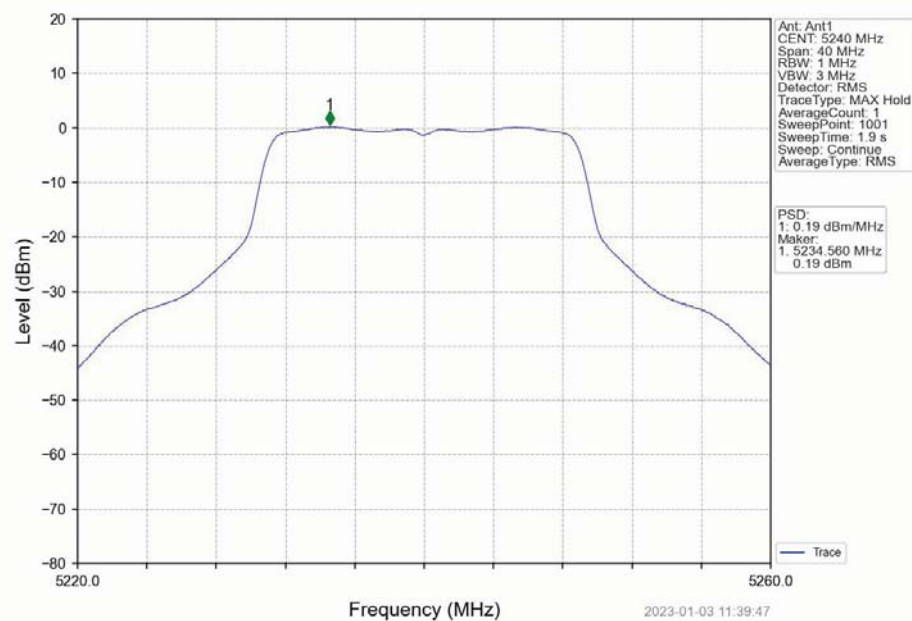
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



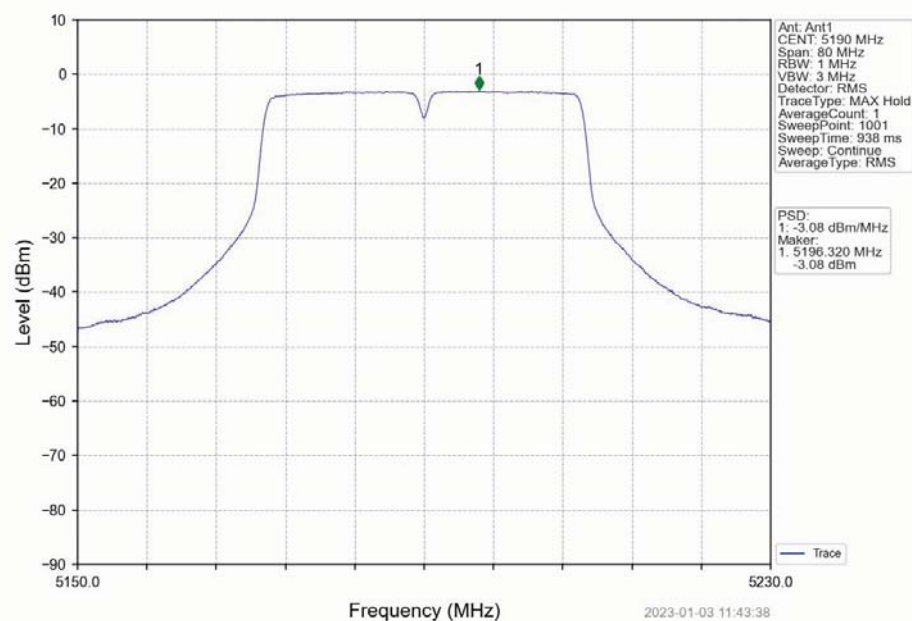
802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV



802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV



802.11ac(VHT40)_LCH_5190MHz_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	5179.983	5150 to 5250	Pass
				120	5179.984	5150 to 5250	Pass
				138	5179.984	5150 to 5250	Pass
			-30	120	5179.985	5150 to 5250	Pass
			-20	120	5179.985	5150 to 5250	Pass
			-10	120	5179.985	5150 to 5250	Pass
			0	120	5179.985	5150 to 5250	Pass
			10	120	5179.985	5150 to 5250	Pass
			30	120	5179.986	5150 to 5250	Pass
			40	120	5179.986	5150 to 5250	Pass
			50	120	5179.986	5150 to 5250	Pass
		5200	20	102	5199.993	5150 to 5250	Pass
				120	5199.689	5150 to 5250	Pass
				138	5199.984	5150 to 5250	Pass
			-30	120	5199.992	5150 to 5250	Pass
			-20	120	5199.987	5150 to 5250	Pass
			-10	120	5199.990	5150 to 5250	Pass
			0	120	5199.604	5150 to 5250	Pass
			10	120	5199.536	5150 to 5250	Pass
			30	120	5199.991	5150 to 5250	Pass
			40	120	5199.987	5150 to 5250	Pass
			50	120	5199.985	5150 to 5250	Pass
		5240	20	102	5239.986	5150 to 5250	Pass
				120	5239.986	5150 to 5250	Pass
				138	5239.986	5150 to 5250	Pass
			-30	120	5239.986	5150 to 5250	Pass
			-20	120	5239.986	5150 to 5250	Pass
			-10	120	5239.986	5150 to 5250	Pass
			0	120	5239.986	5150 to 5250	Pass
			10	120	5239.986	5150 to 5250	Pass
			30	120	5239.986	5150 to 5250	Pass
			40	120	5239.986	5150 to 5250	Pass
			50	120	5239.986	5150 to 5250	Pass
		5190	20	102	5189.598	5150 to 5250	Pass
				120	5189.536	5150 to 5250	Pass
				138	5189.549	5150 to 5250	Pass
			-30	120	5189.588	5150 to 5250	Pass
			-20	120	5189.574	5150 to 5250	Pass
			-10	120	5189.605	5150 to 5250	Pass
			0	120	5189.549	5150 to 5250	Pass
			10	120	5189.607	5150 to 5250	Pass
			30	120	5189.534	5150 to 5250	Pass
			40	120	5189.542	5150 to 5250	Pass
			50	120	5189.599	5150 to 5250	Pass
		5230	20	102	5229.618	5150 to 5250	Pass
				120	5229.826	5150 to 5250	Pass
				138	5229.527	5150 to 5250	Pass

			-30	120	5229.568	5150 to 5250	Pass
			-20	120	5230.053	5150 to 5250	Pass
			-10	120	5229.644	5150 to 5250	Pass
			0	120	5229.984	5150 to 5250	Pass
			10	120	5229.851	5150 to 5250	Pass
			30	120	5229.817	5150 to 5250	Pass
			40	120	5229.573	5150 to 5250	Pass
			50	120	5229.764	5150 to 5250	Pass