



Shenzhen CTL Testing Technology Co., Ltd.

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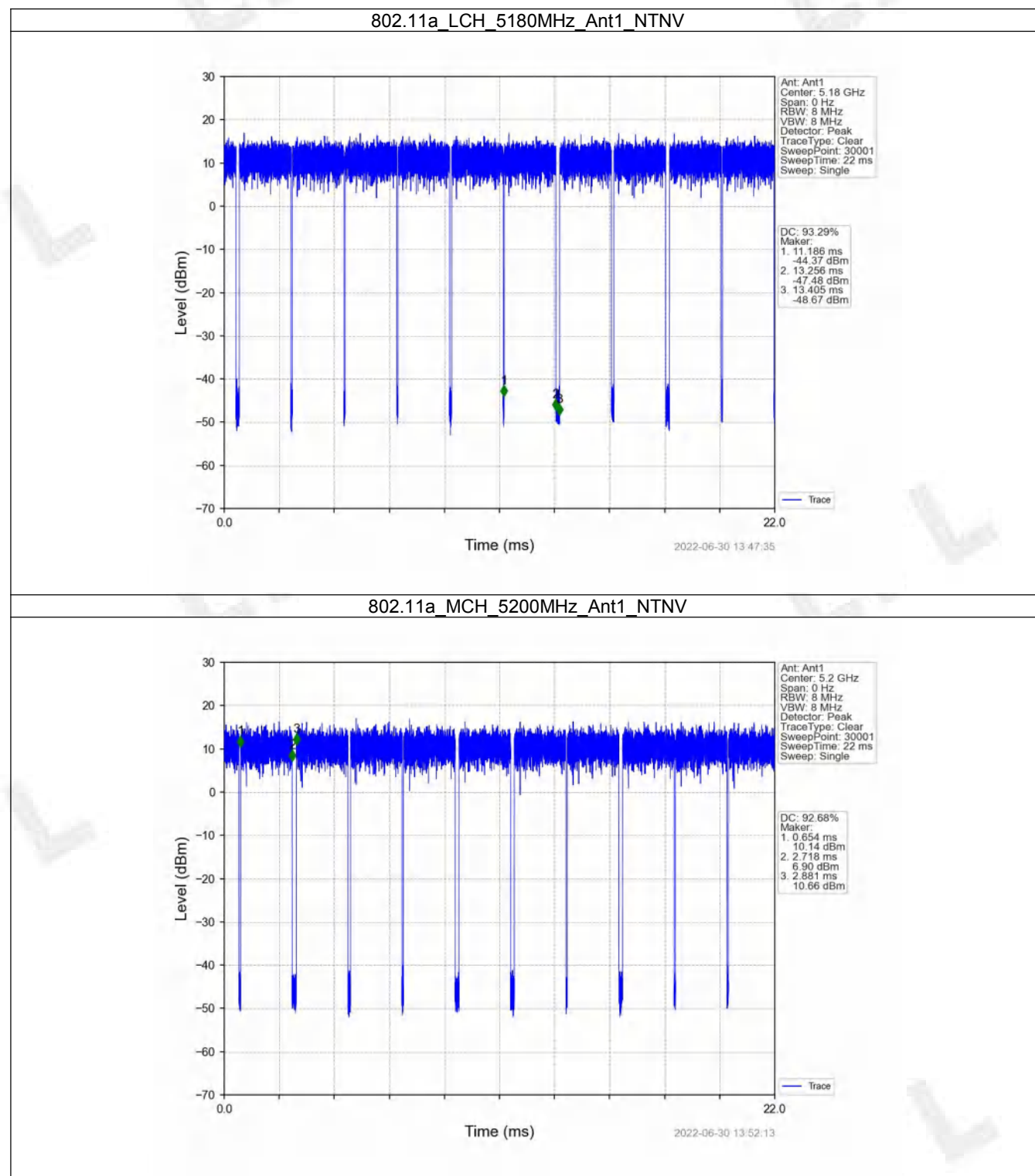
1. Duty Cycle

1.1 Ant1

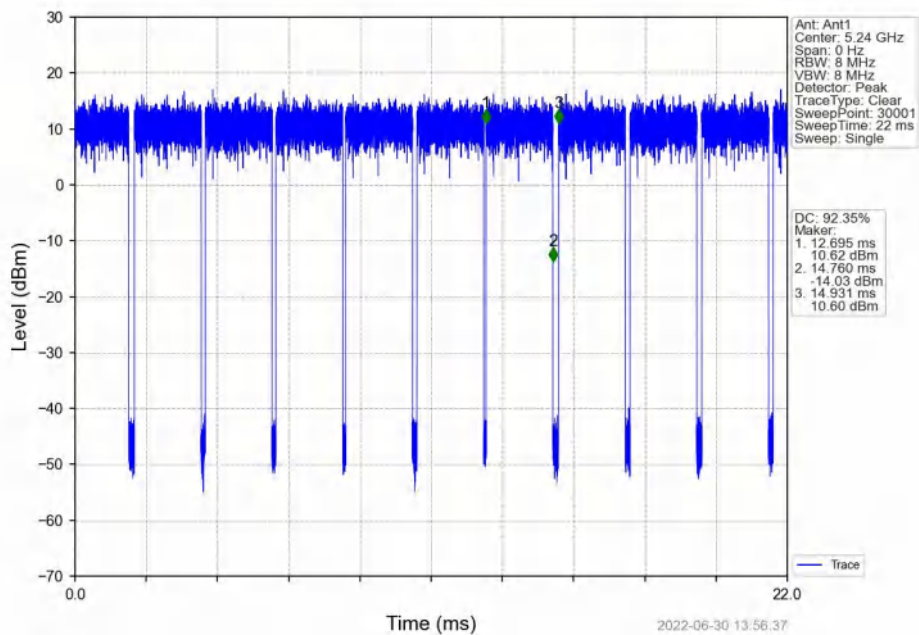
1.1.1 Test Result

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	2.070	2.219	93.29	0.30	5.21
		5200	2.064	2.227	92.68	0.33	5.19
		5240	2.065	2.236	92.35	0.35	4.28
802.11n (HT20)	SISO	5180	1.920	2.092	91.78	0.37	6.37
		5200	1.921	2.083	92.22	0.35	5.50
		5240	1.920	2.083	92.17	0.35	4.64
802.11n (HT40)	SISO	5190	0.945	1.116	84.68	0.72	9.91
		5230	0.950	1.116	85.13	0.70	11.75
802.11ac (VHT20)	SISO	5180	1.939	2.051	94.54	0.24	3.91
		5200	1.932	2.104	91.83	0.37	5.43
		5240	1.939	2.087	92.91	0.32	5.54
802.11ac (VHT40)	SISO	5190	0.953	1.115	85.47	0.68	9.18
		5230	0.958	1.097	87.33	0.59	9.59
802.11ac (VHT80)	SISO	5210	0.460	0.614	74.92	1.25	17.63

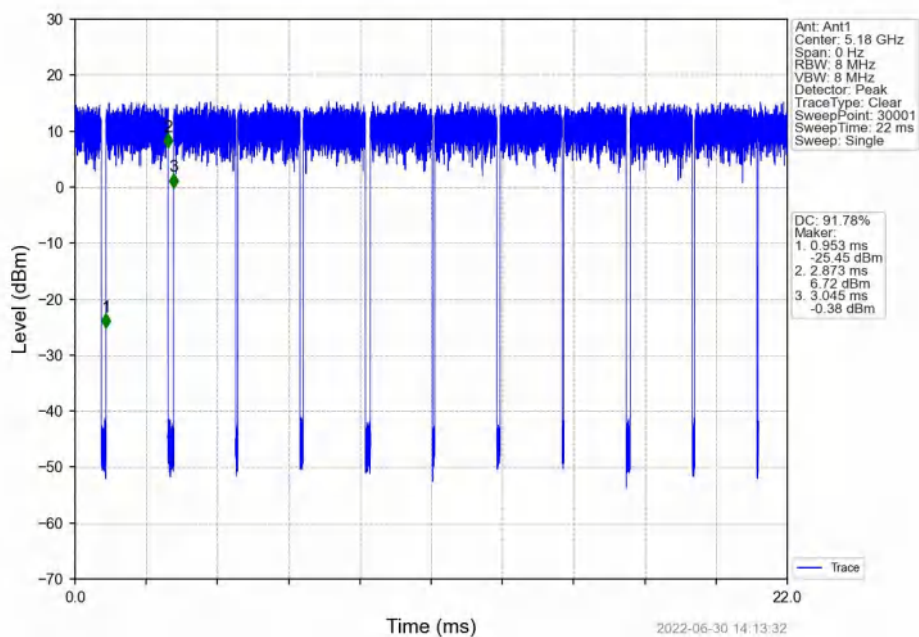
1.1.2 Test Graph



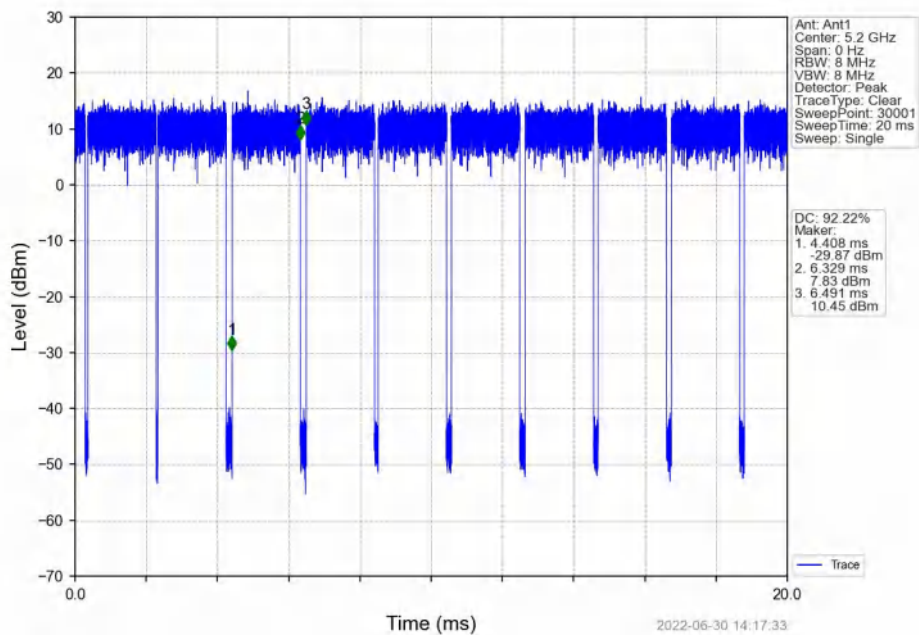
802.11a_HCH_5240MHz_Ant1_NTNV



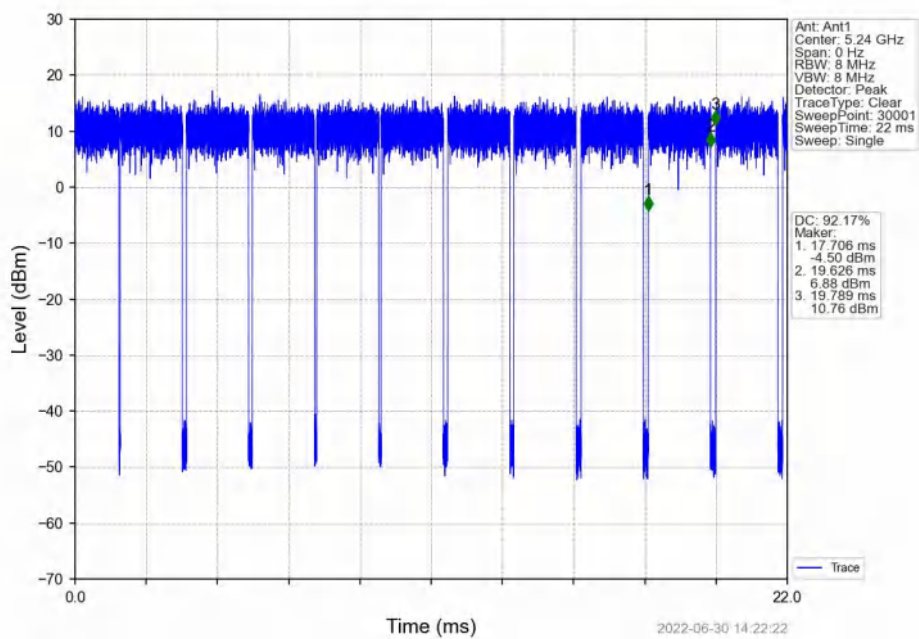
802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



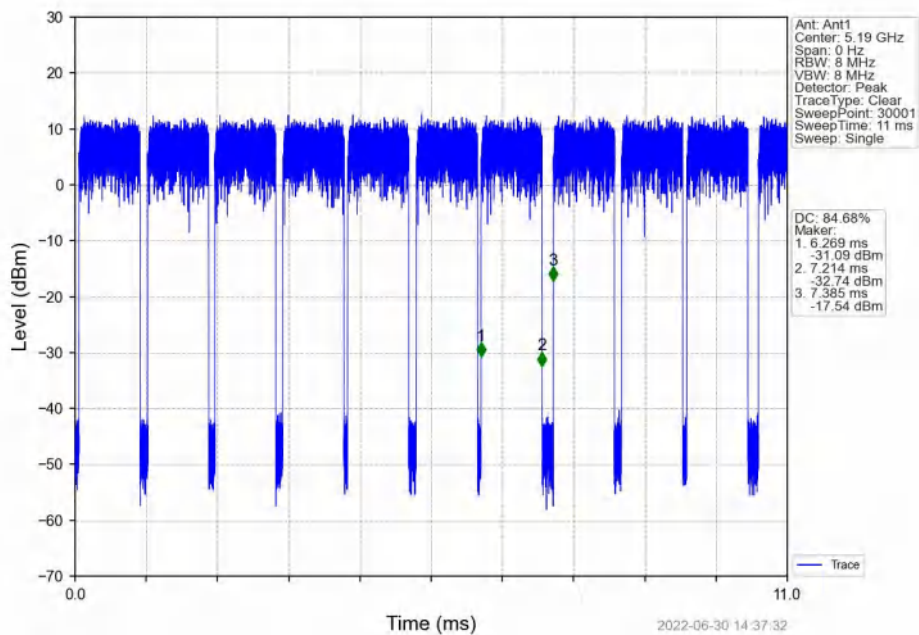
802.11n(HT20)_MCH_5200MHz_Ant1_NTNV



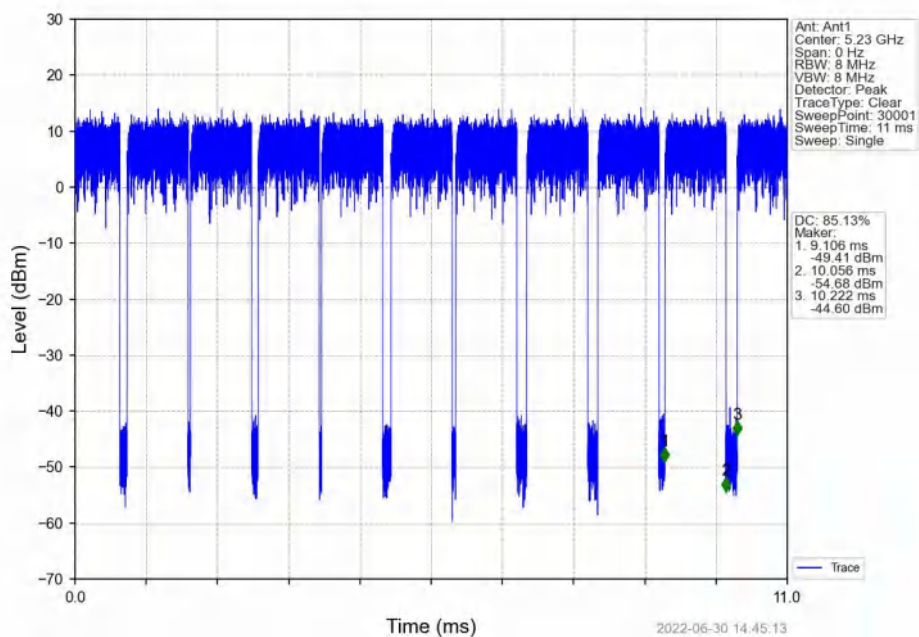
802.11n(HT20)_HCH_5240MHz_Ant1_NTNV



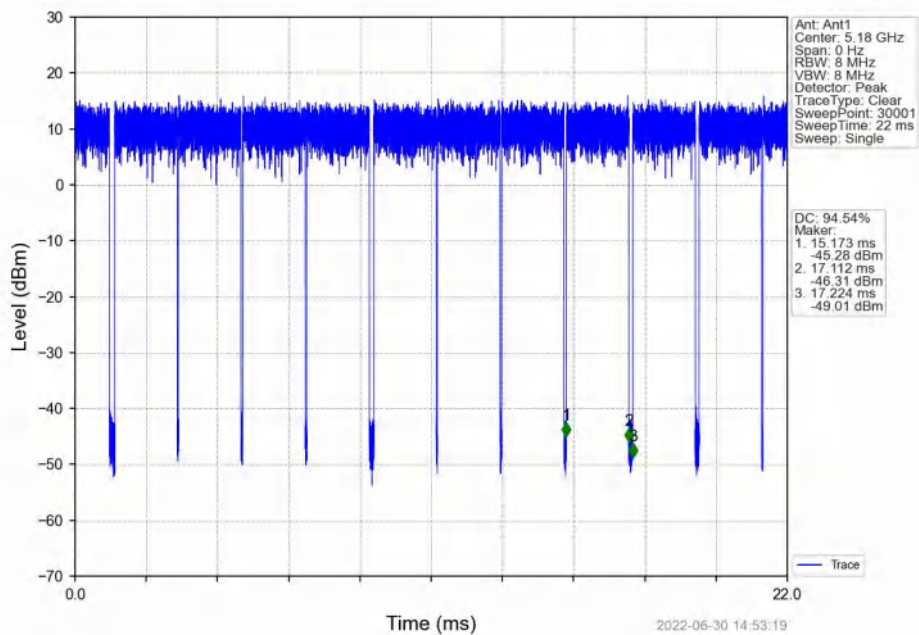
802.11n(HT40)_LCH_5190MHz_Ant1_NTNV



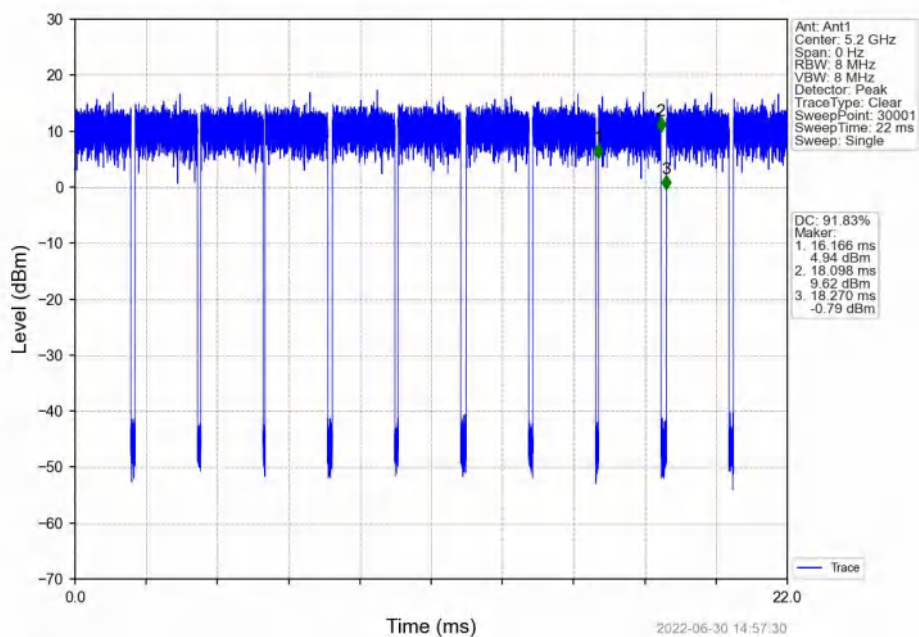
802.11n(HT40)_HCH_5230MHz_Ant1_NTNV



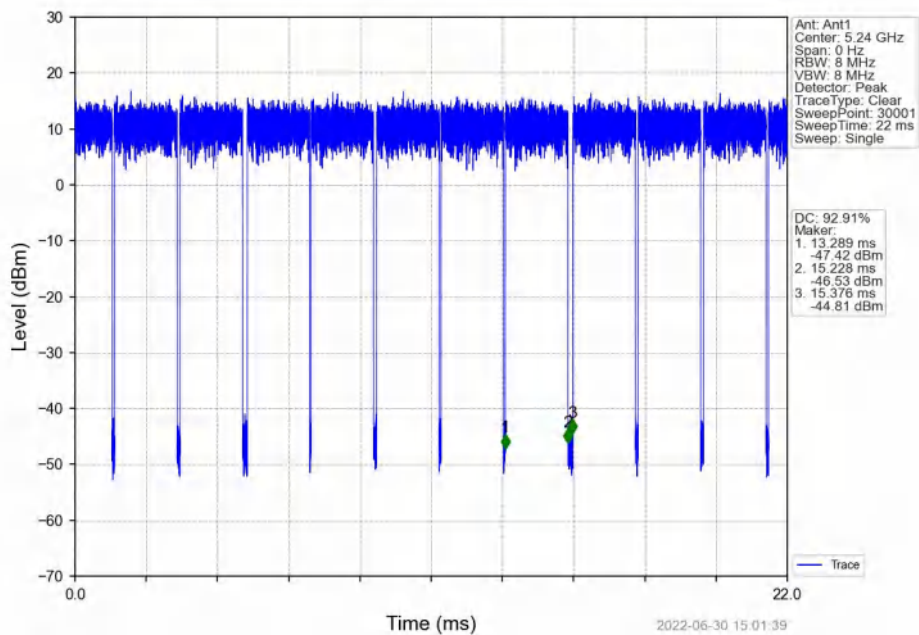
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



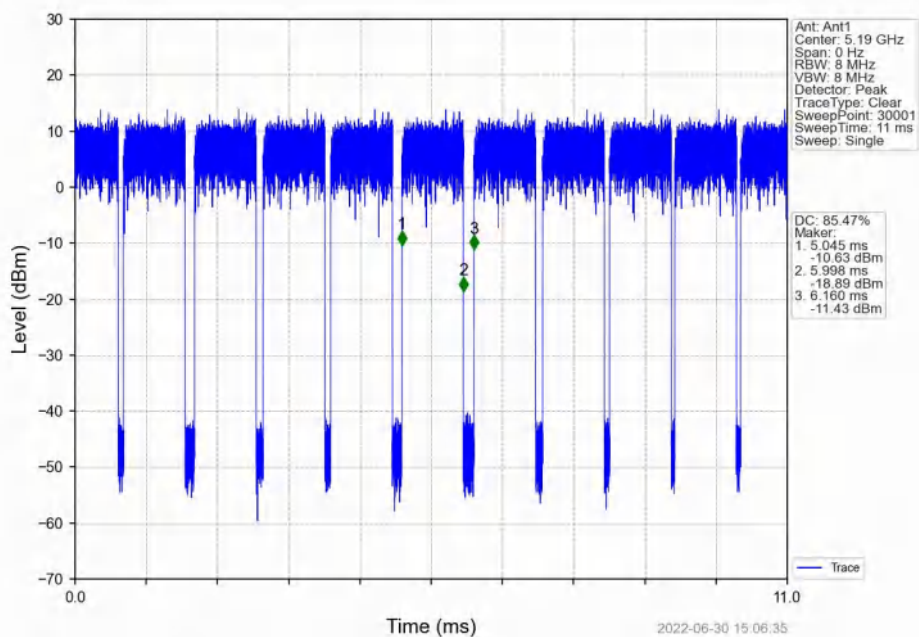
802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV



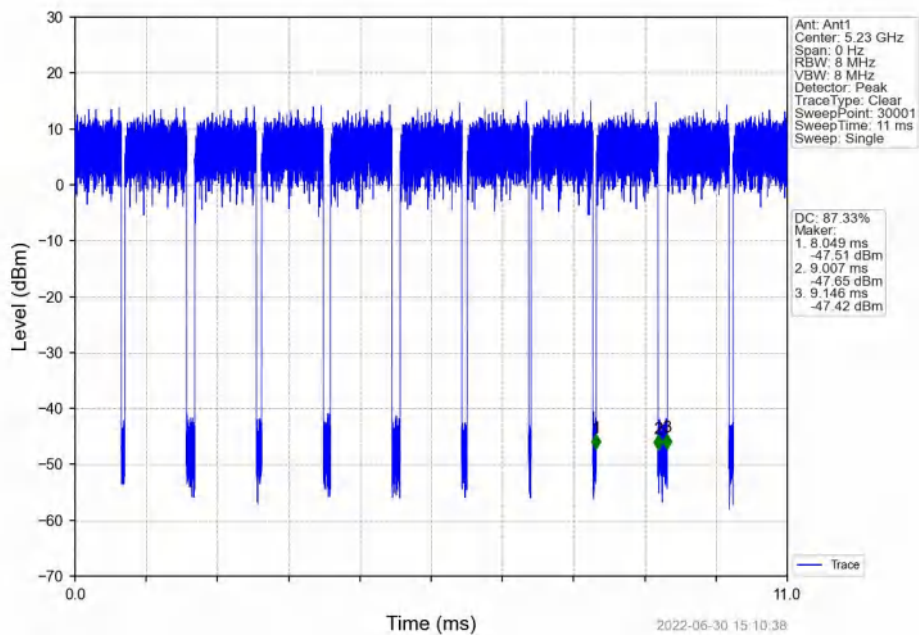
802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV



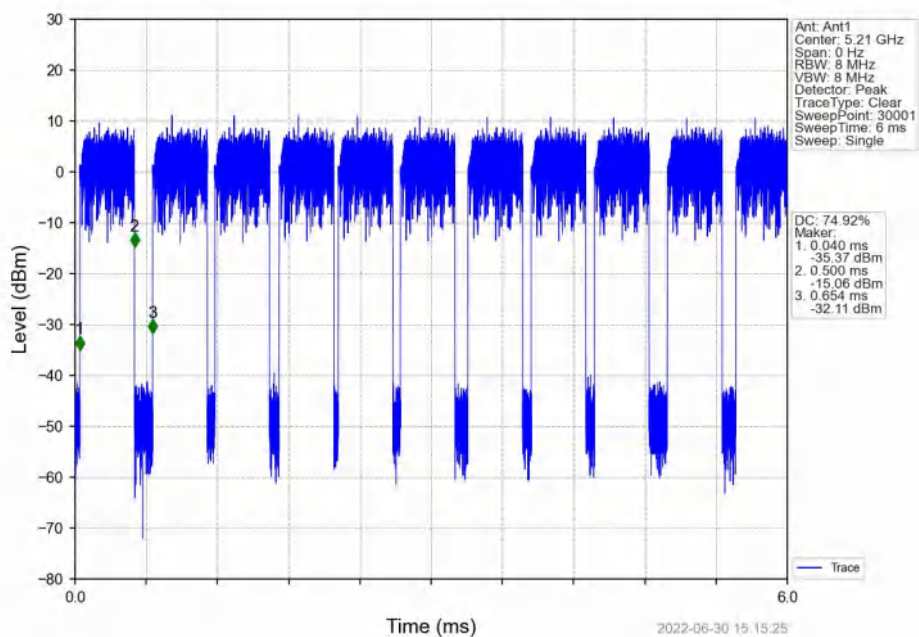
802.11ac(VHT40)_LCH_5190MHz_Ant1_NTNV



802.11ac(VHT40)_HCH_5230MHz_Ant1_NTNV



802.11ac(VHT80)_MCH_5210MHz_Ant1_NTNV



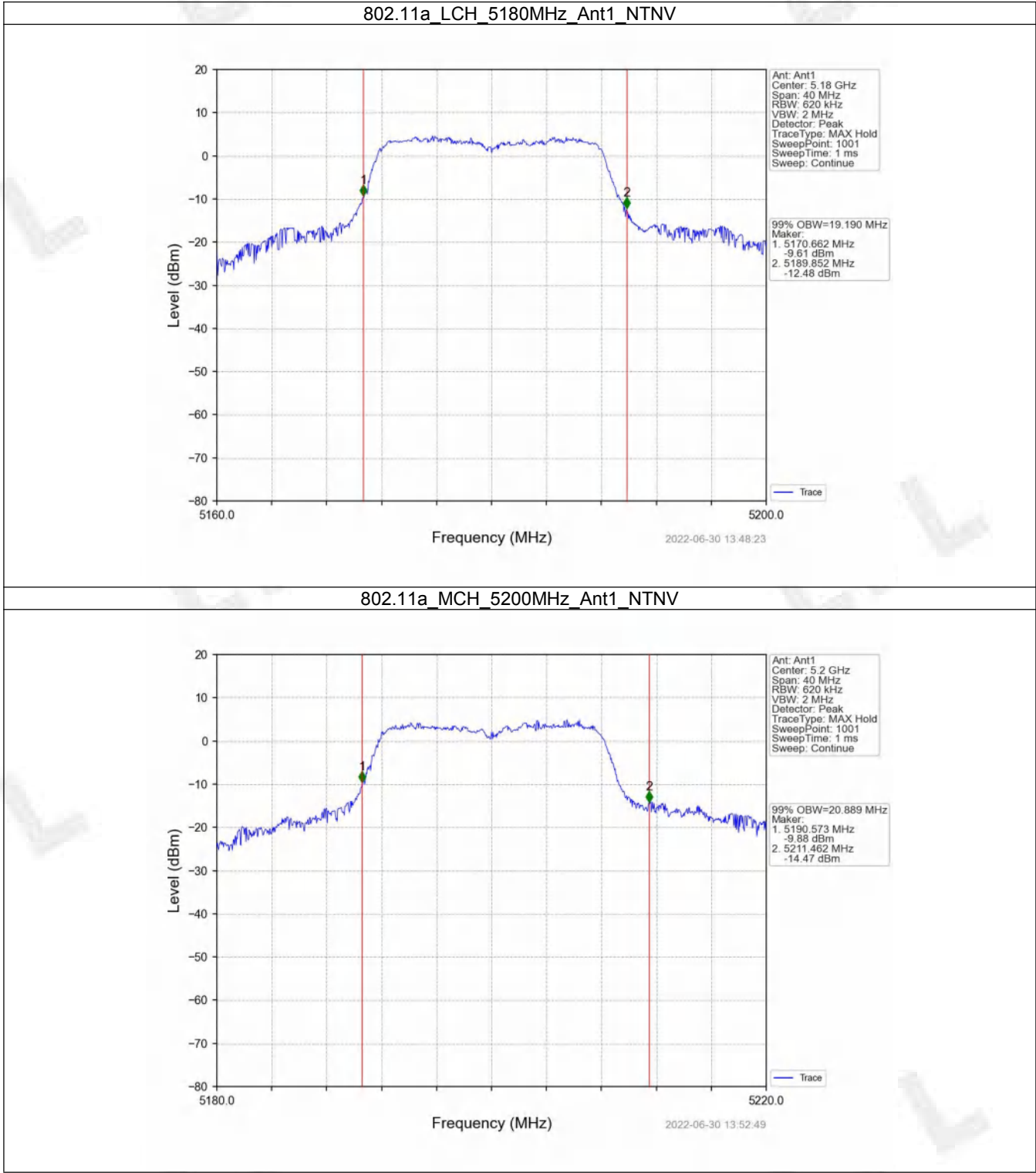
2. Bandwidth

2.1 OBW

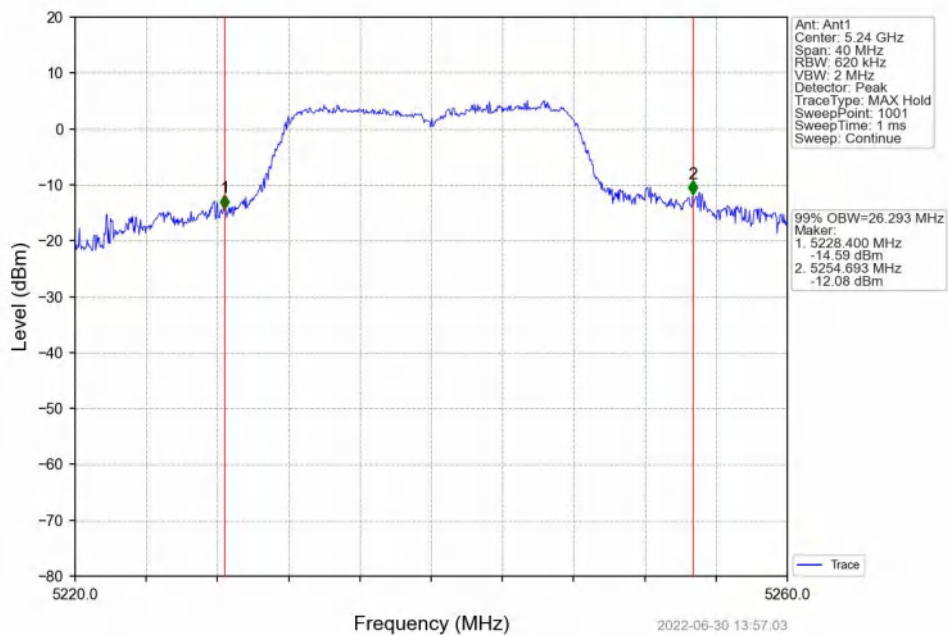
2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)	Verdict
				Result	
802.11a	SISO	5180	1	19.190	Pass
		5200	1	20.889	Pass
		5240	1	26.293	Pass
802.11n (HT20)	SISO	5180	1	19.193	Pass
		5200	1	20.228	Pass
		5240	1	25.471	Pass
802.11n (HT40)	SISO	5190	1	38.389	Pass
		5230	1	48.032	Pass
802.11ac (VHT20)	SISO	5180	1	18.985	Pass
		5200	1	20.800	Pass
		5240	1	25.754	Pass
802.11ac (VHT40)	SISO	5190	1	38.357	Pass
		5230	1	47.589	Pass
802.11ac (VHT80)	SISO	5210	1	86.866	Pass

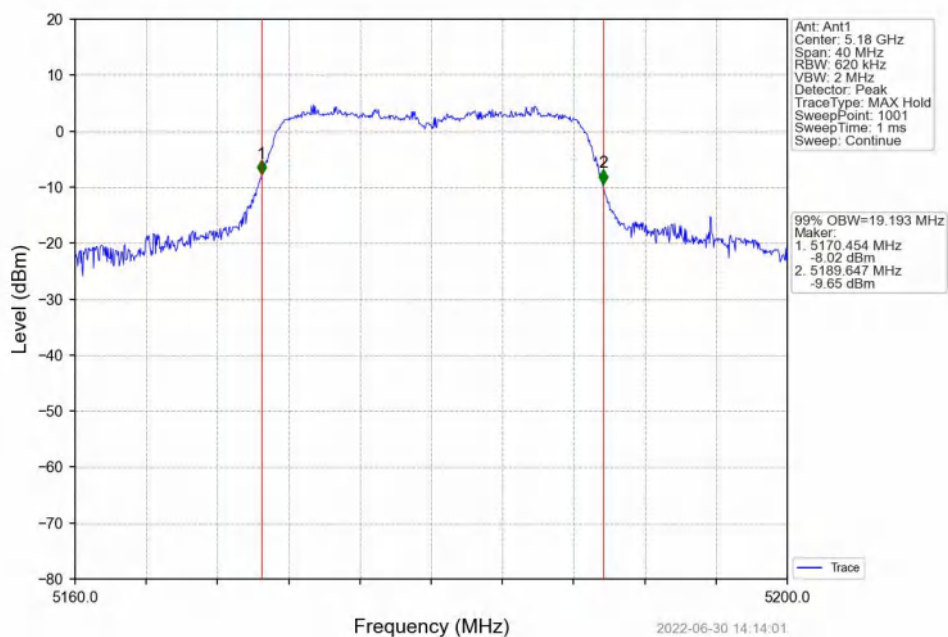
2.1.2 Test Graph



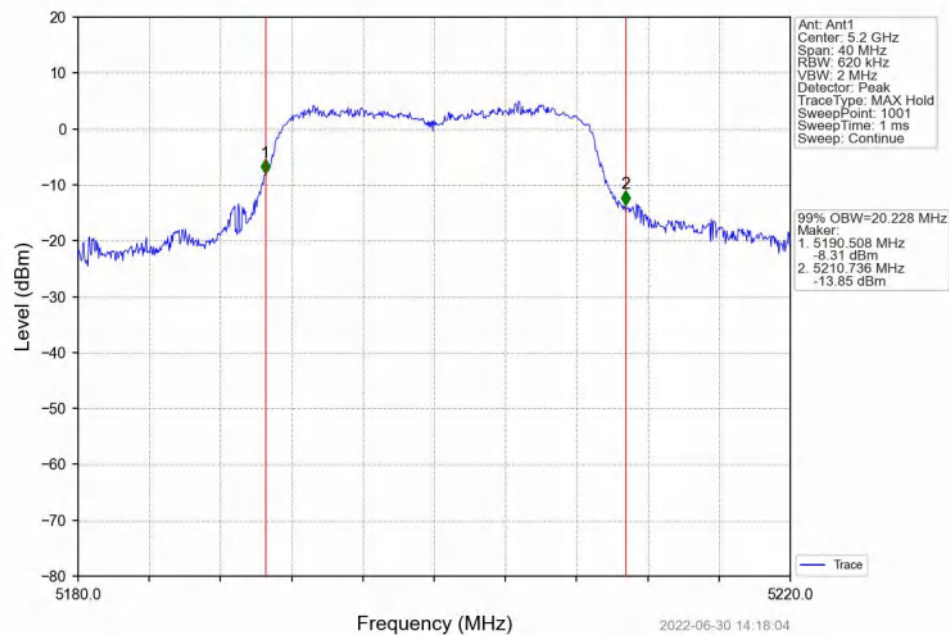
802.11a_HCH_5240MHz_Ant1_NTNV



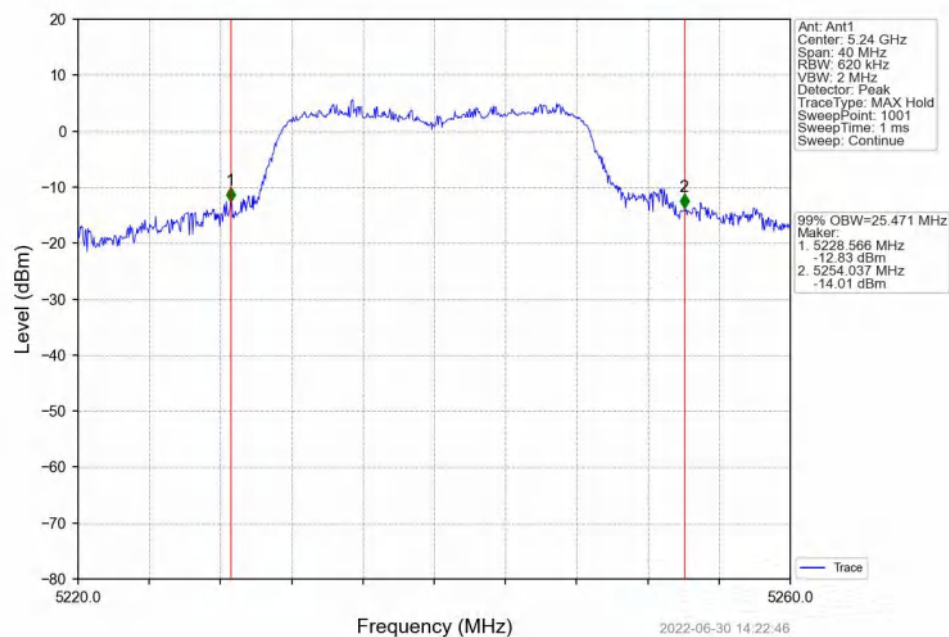
802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



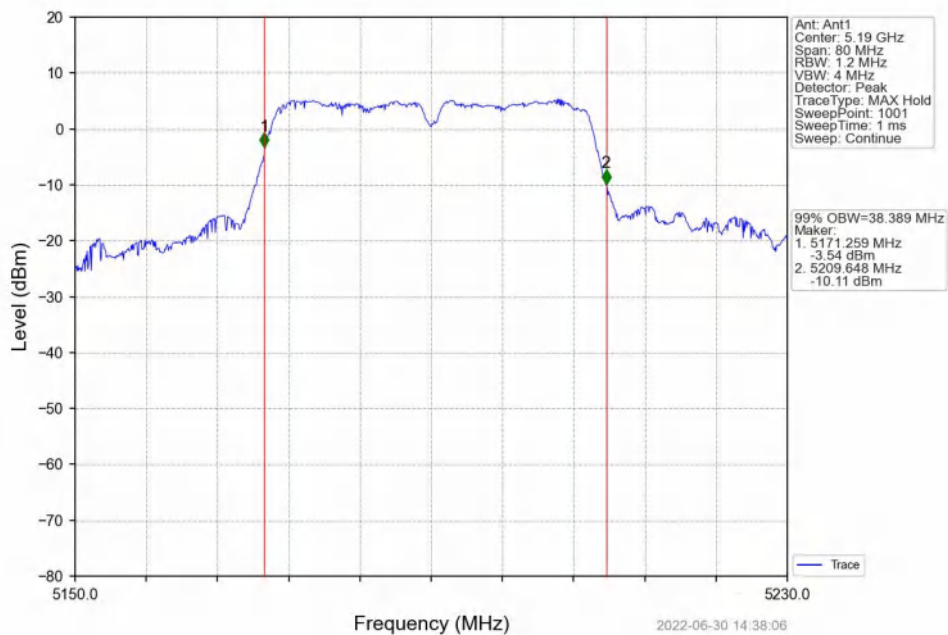
802.11n(HT20)_MCH_5200MHz_Ant1_NTNV



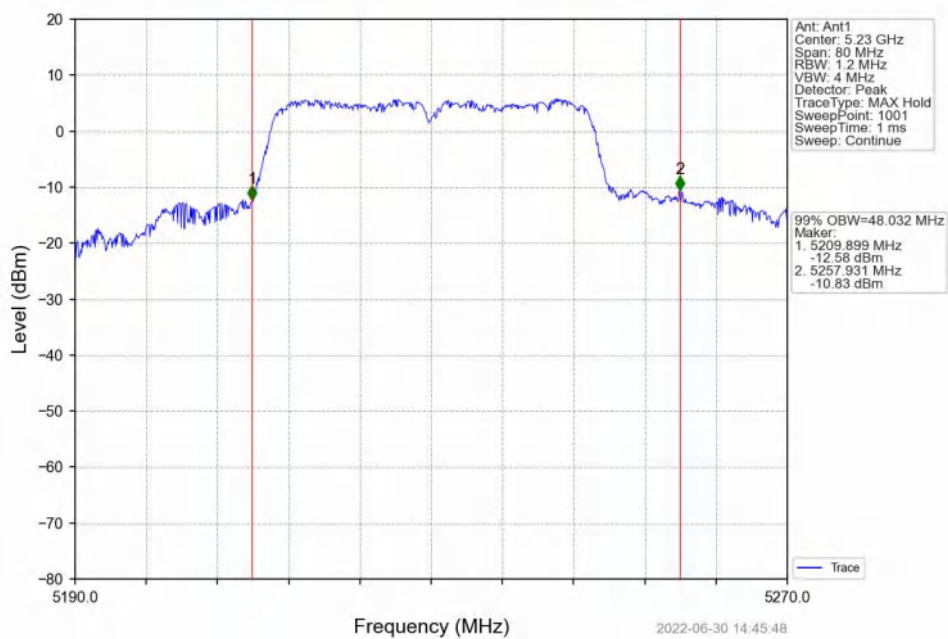
802.11n(HT20)_HCH_5240MHz_Ant1_NTNV



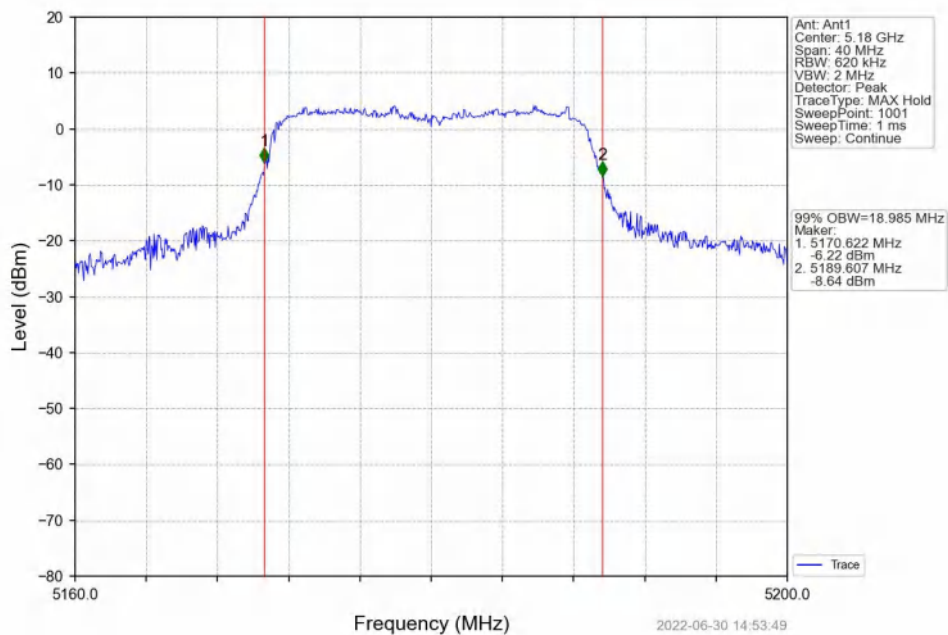
802.11n(HT40)_LCH_5190MHz_Ant1_NTNV



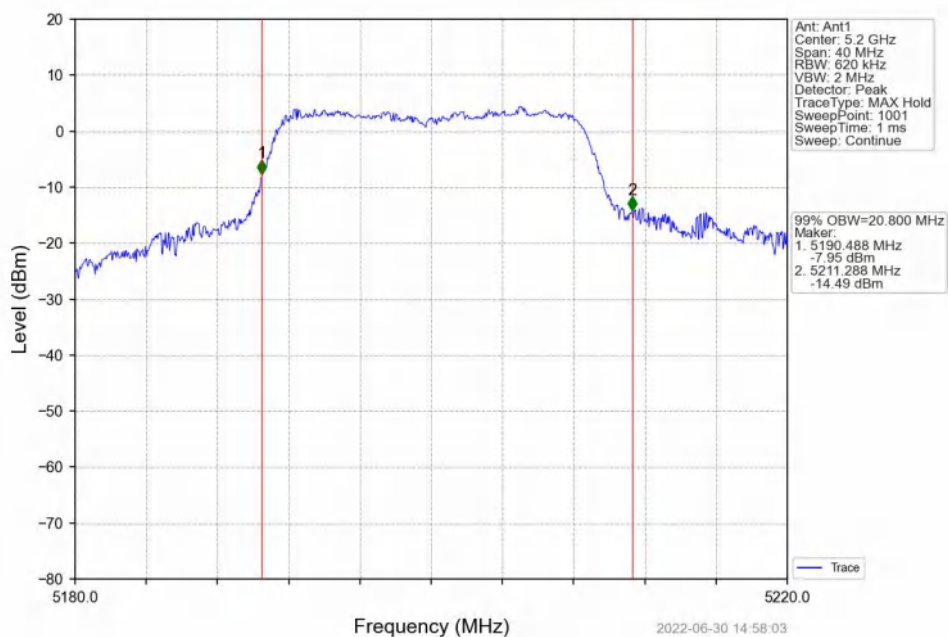
802.11n(HT40)_HCH_5230MHz_Ant1_NTNV



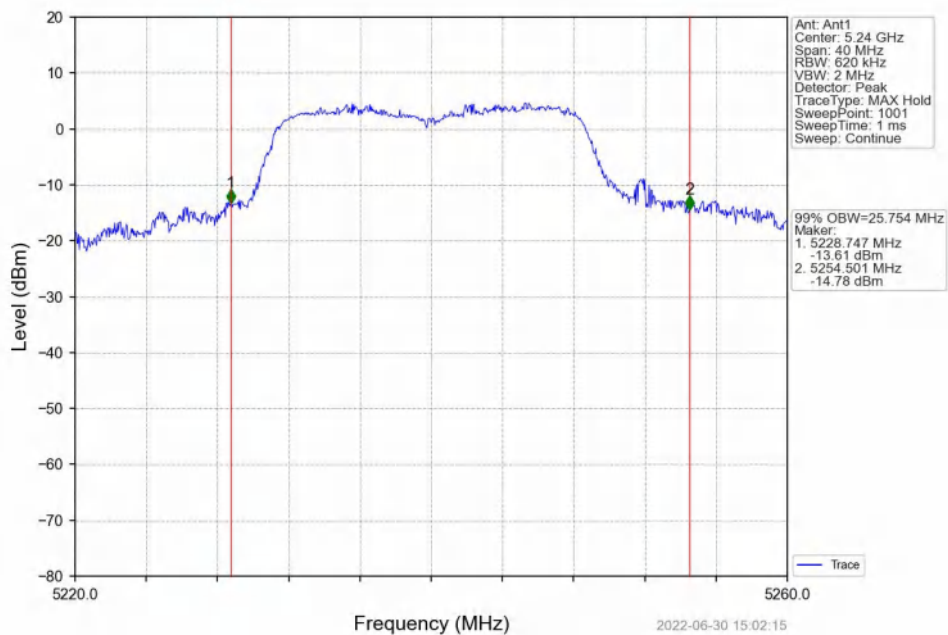
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



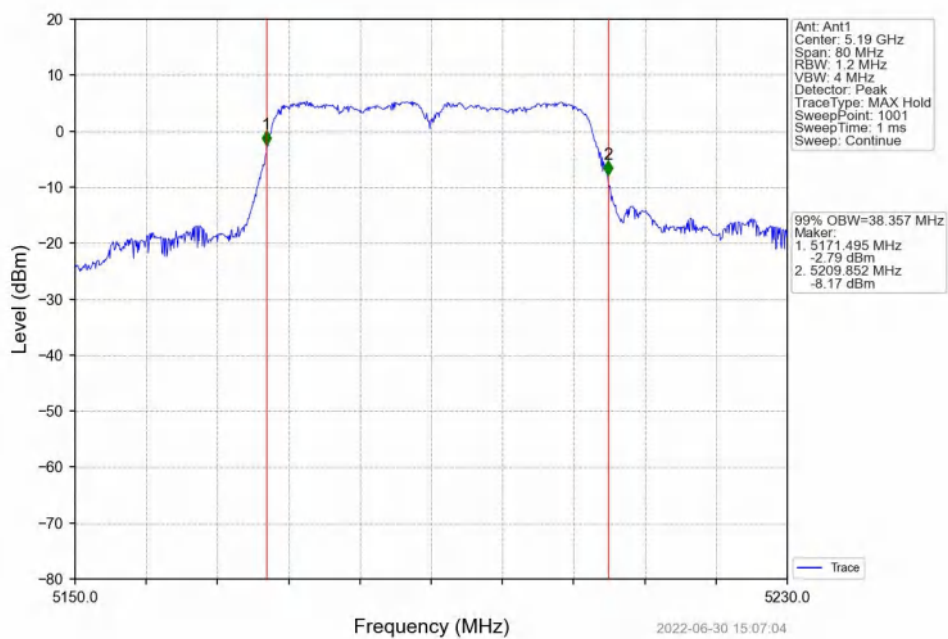
802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV



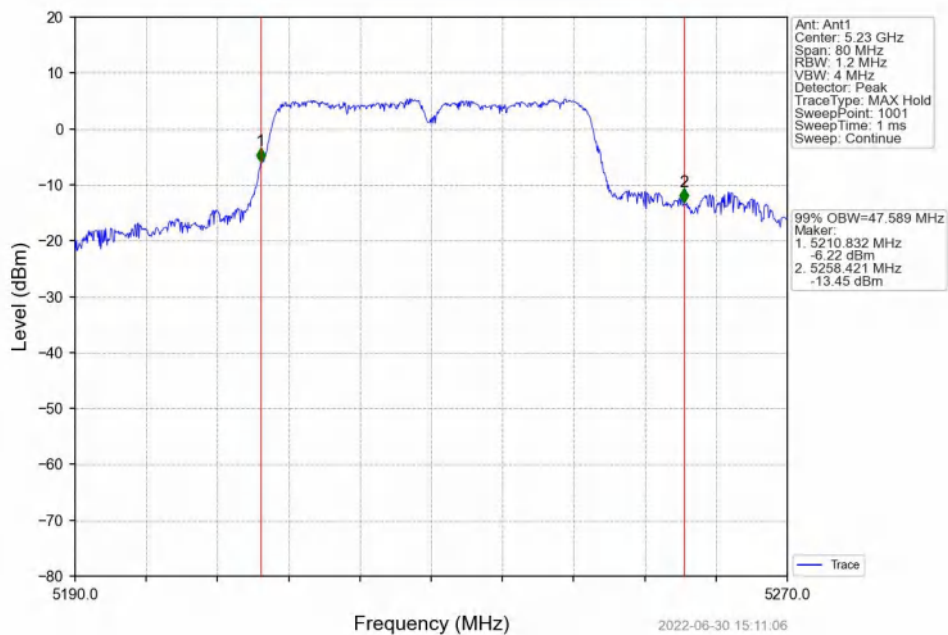
802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV



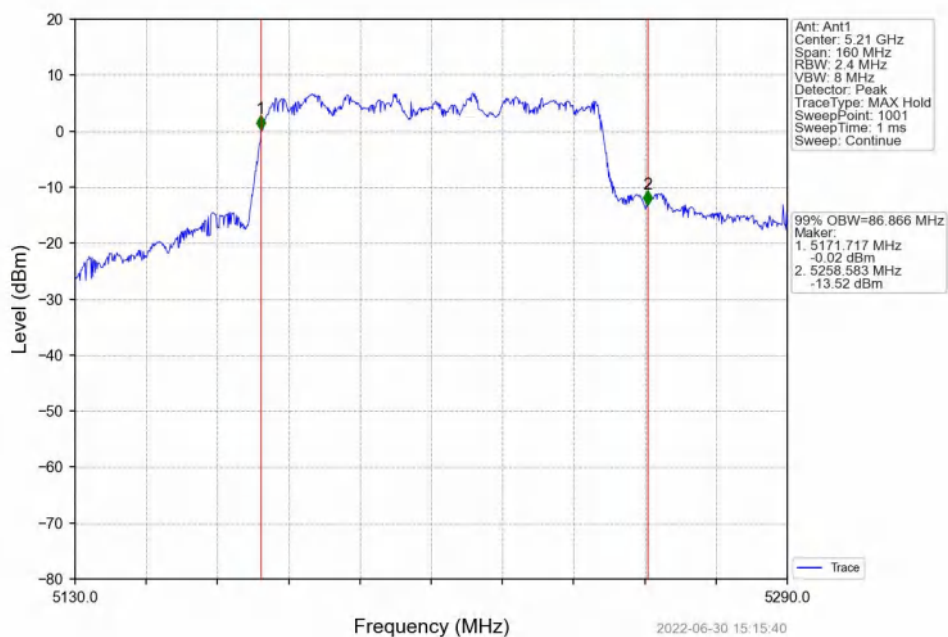
802.11ac(VHT40)_LCH_5190MHz_Ant1_NTNV



802.11ac(VHT40)_HCH_5230MHz_Ant1_NTNV



802.11ac(VHT80)_MCH_5210MHz_Ant1_NTNV

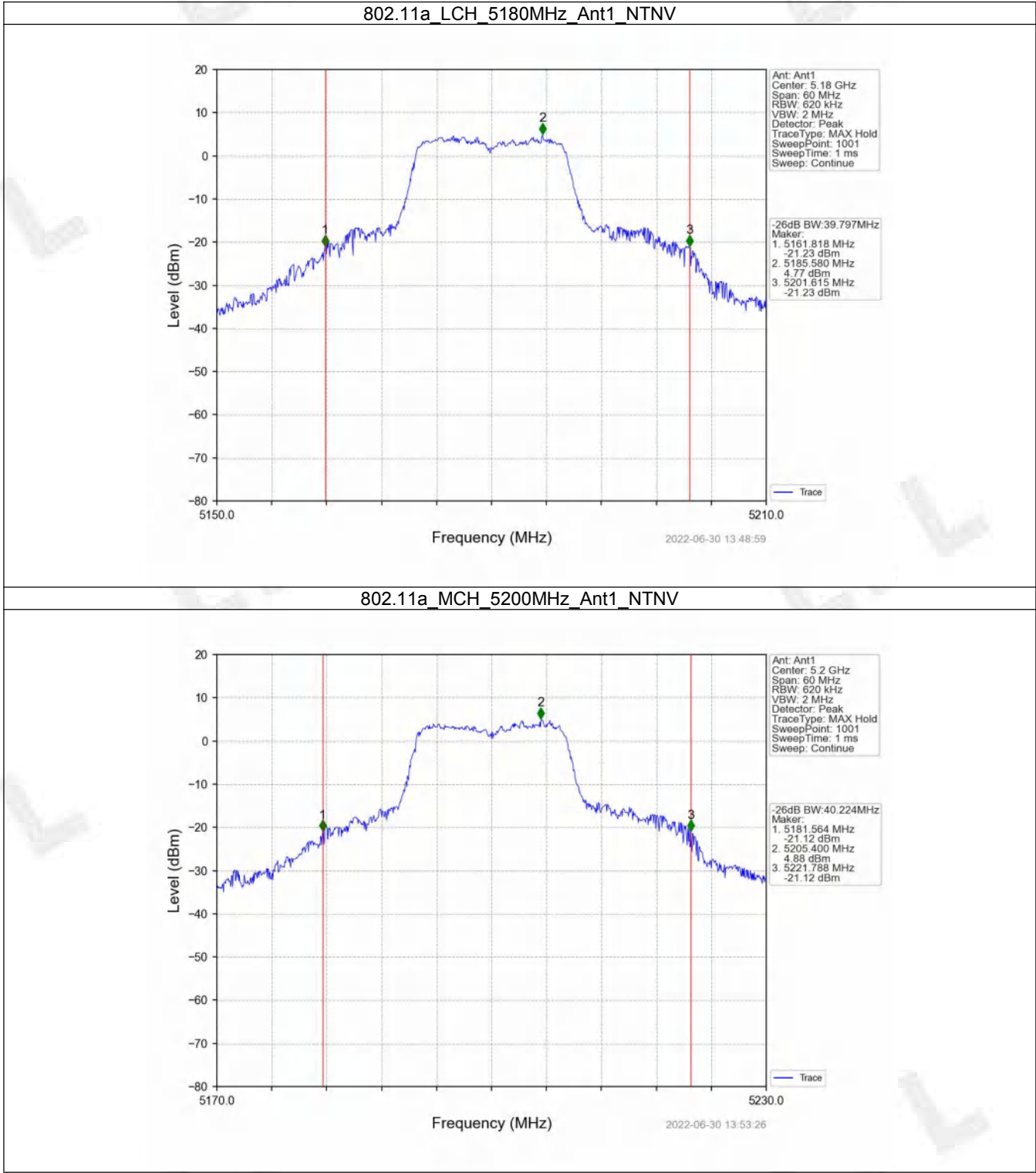


2.2 26dB BW

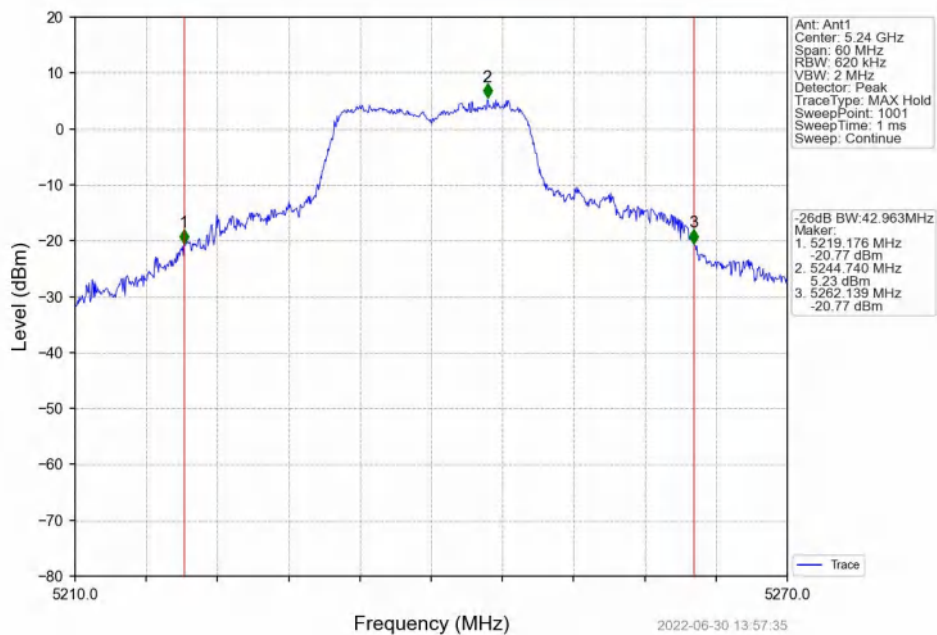
2.2.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	26dB Bandwidth (MHz)	Verdict
				Result	
802.11a	SISO	5180	1	39.797	Pass
		5200	1	40.224	Pass
		5240	1	42.963	Pass
802.11n (HT20)	SISO	5180	1	40.398	Pass
		5200	1	40.501	Pass
		5240	1	45.050	Pass
802.11n (HT40)	SISO	5190	1	80.114	Pass
		5230	1	88.960	Pass
802.11ac (VHT20)	SISO	5180	1	39.135	Pass
		5200	1	37.807	Pass
		5240	1	44.668	Pass
802.11ac (VHT40)	SISO	5190	1	78.544	Pass
		5230	1	89.900	Pass
802.11ac (VHT80)	SISO	5210	1	151.316	Pass

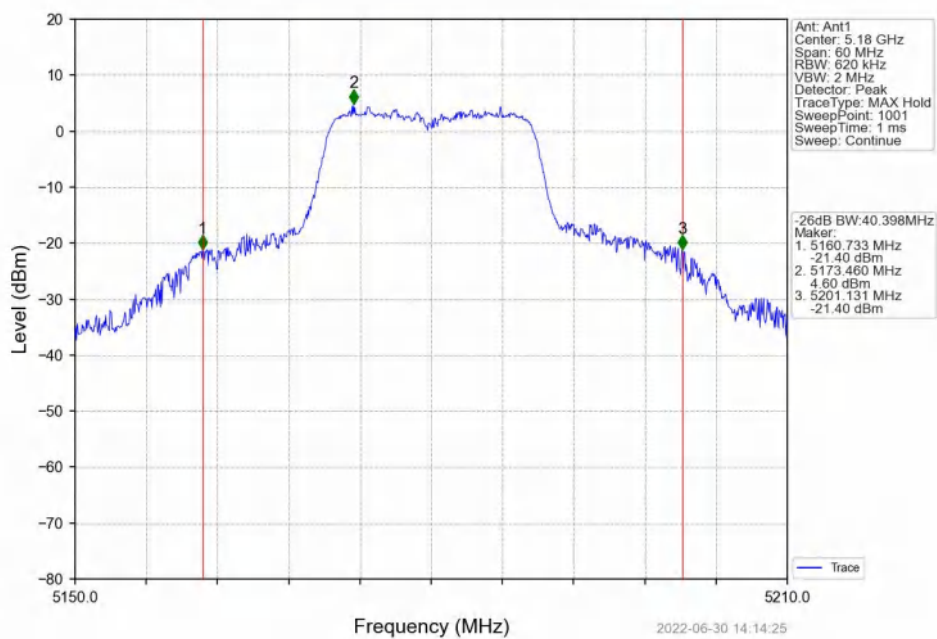
2.2.2 Test Graph



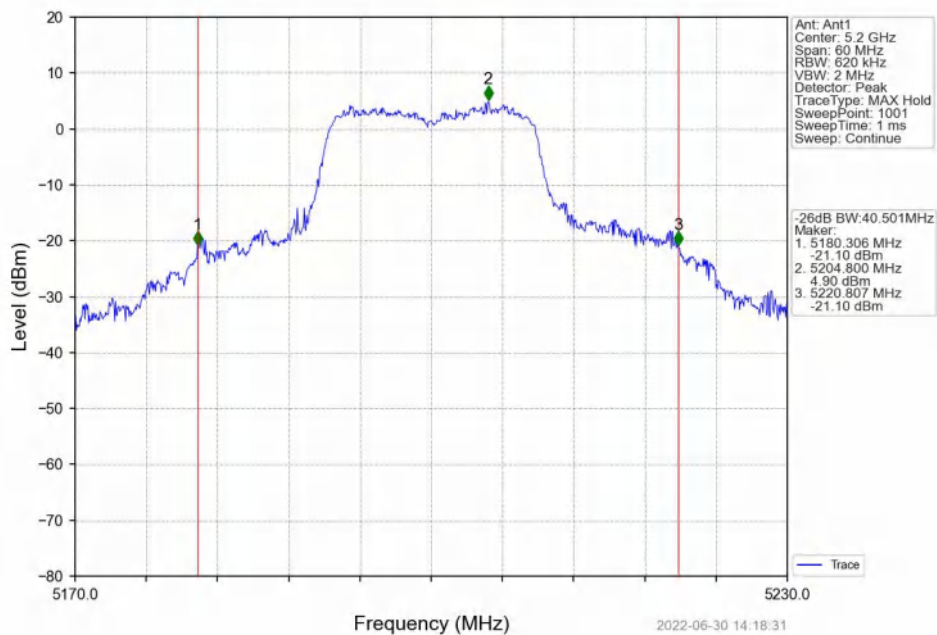
802.11a_HCH_5240MHz_Ant1_NTNV



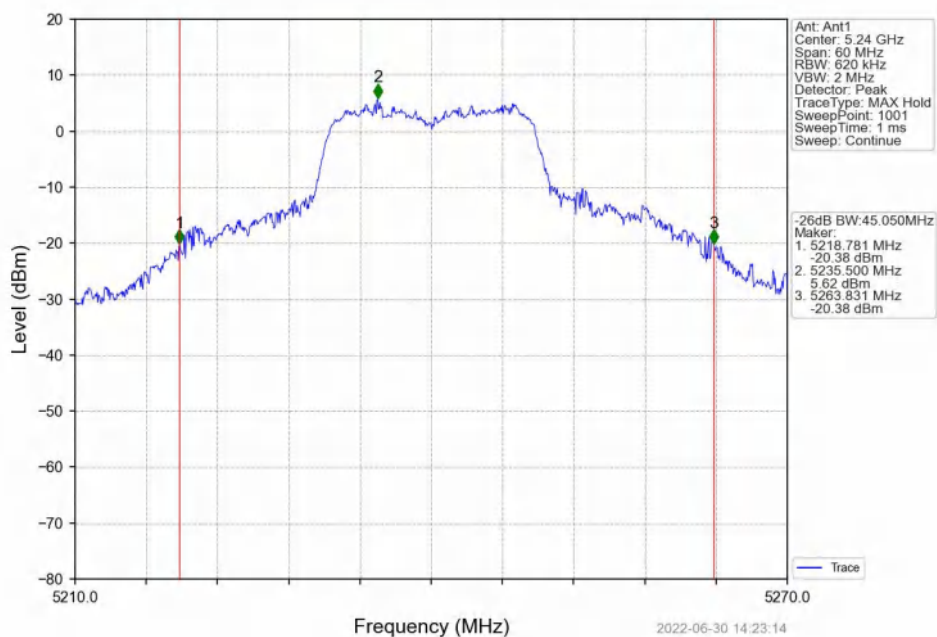
802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



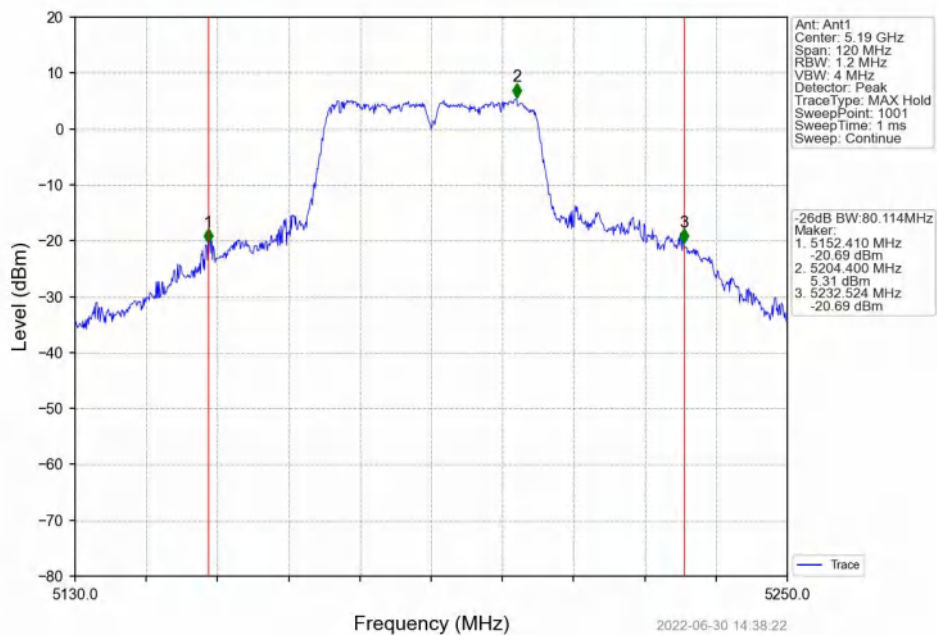
802.11n(HT20)_MCH_5200MHz_Ant1_NTNV



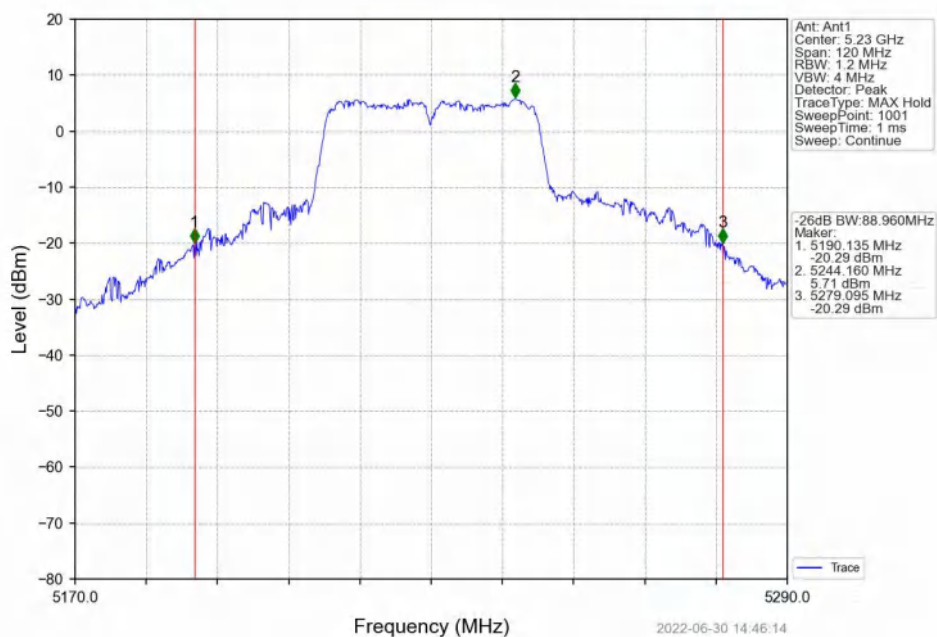
802.11n(HT20)_HCH_5240MHz_Ant1_NTNV



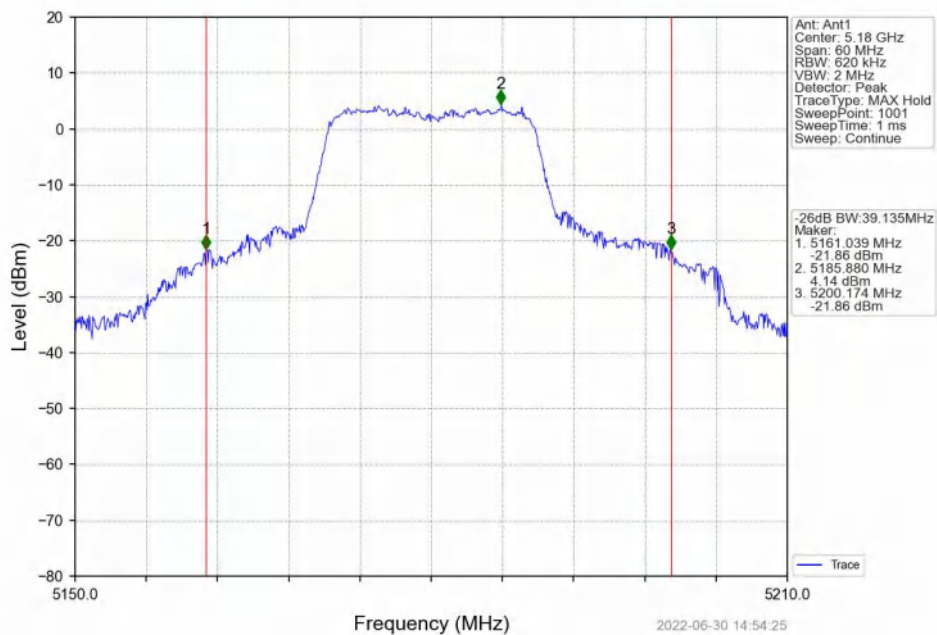
802.11n(HT40)_LCH_5190MHz_Ant1_NTNV



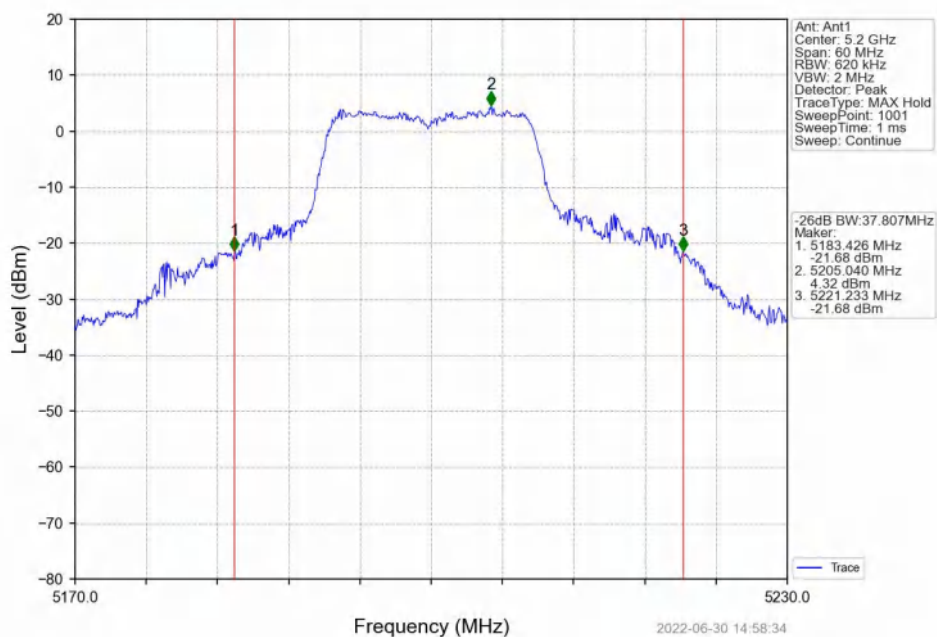
802.11n(HT40)_HCH_5230MHz_Ant1_NTNV



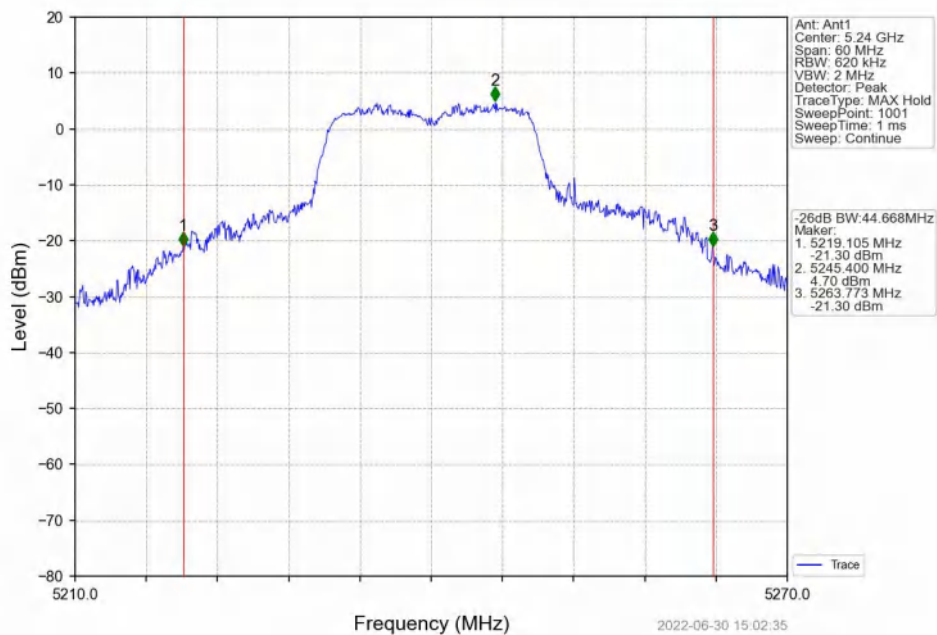
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



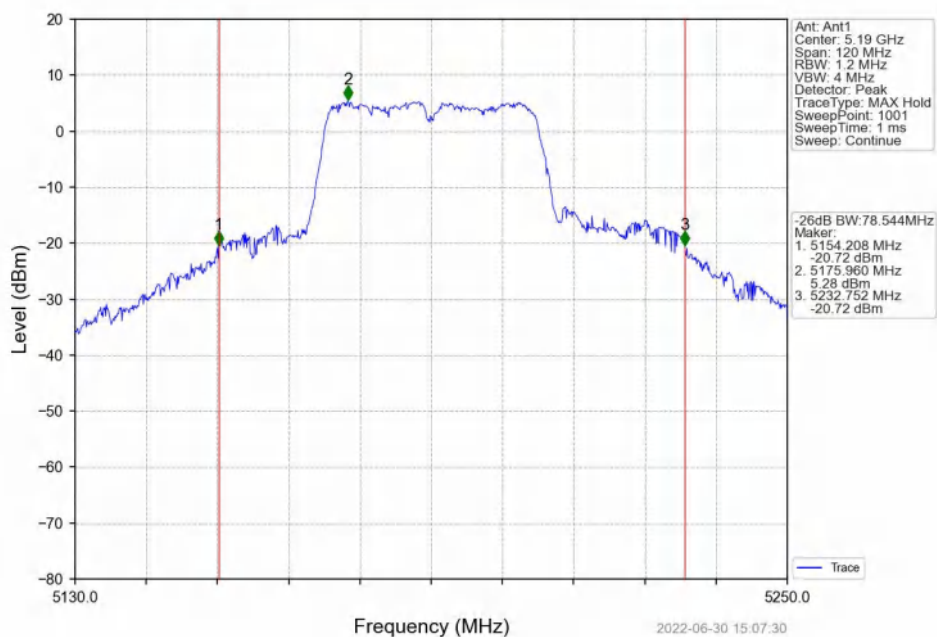
802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV



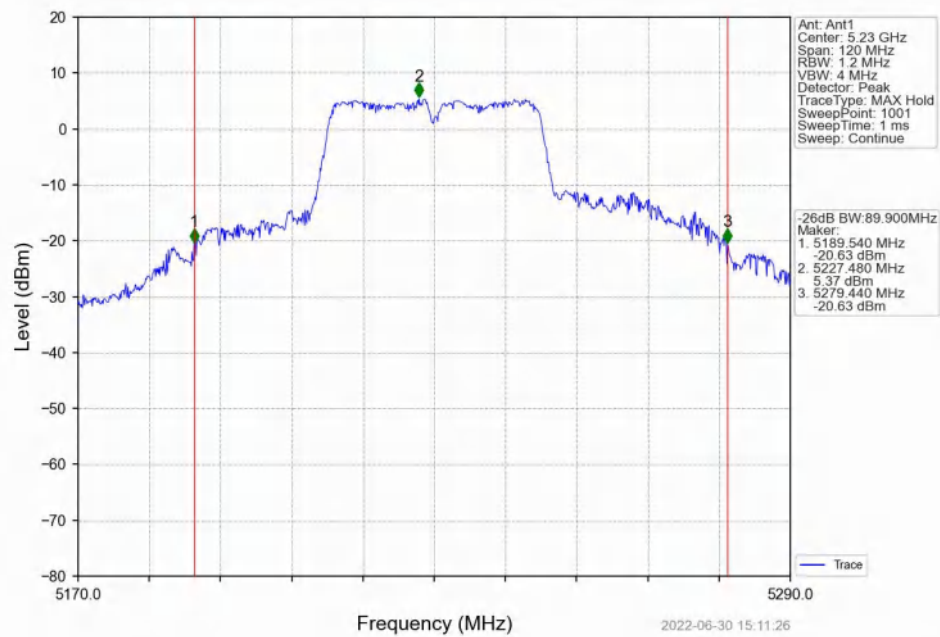
802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV



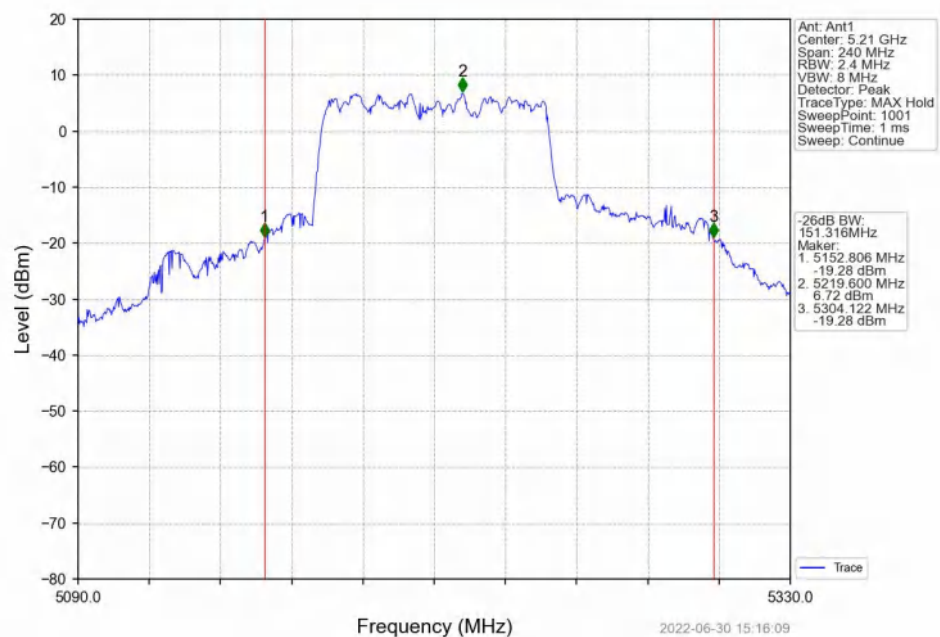
802.11ac(VHT40)_LCH_5190MHz_Ant1_NTNV



802.11ac(VHT40)_HCH_5230MHz_Ant1_NTNV



802.11ac(VHT80)_MCH_5210MHz_Ant1_NTNV



3. Maximum Conducted Output Power

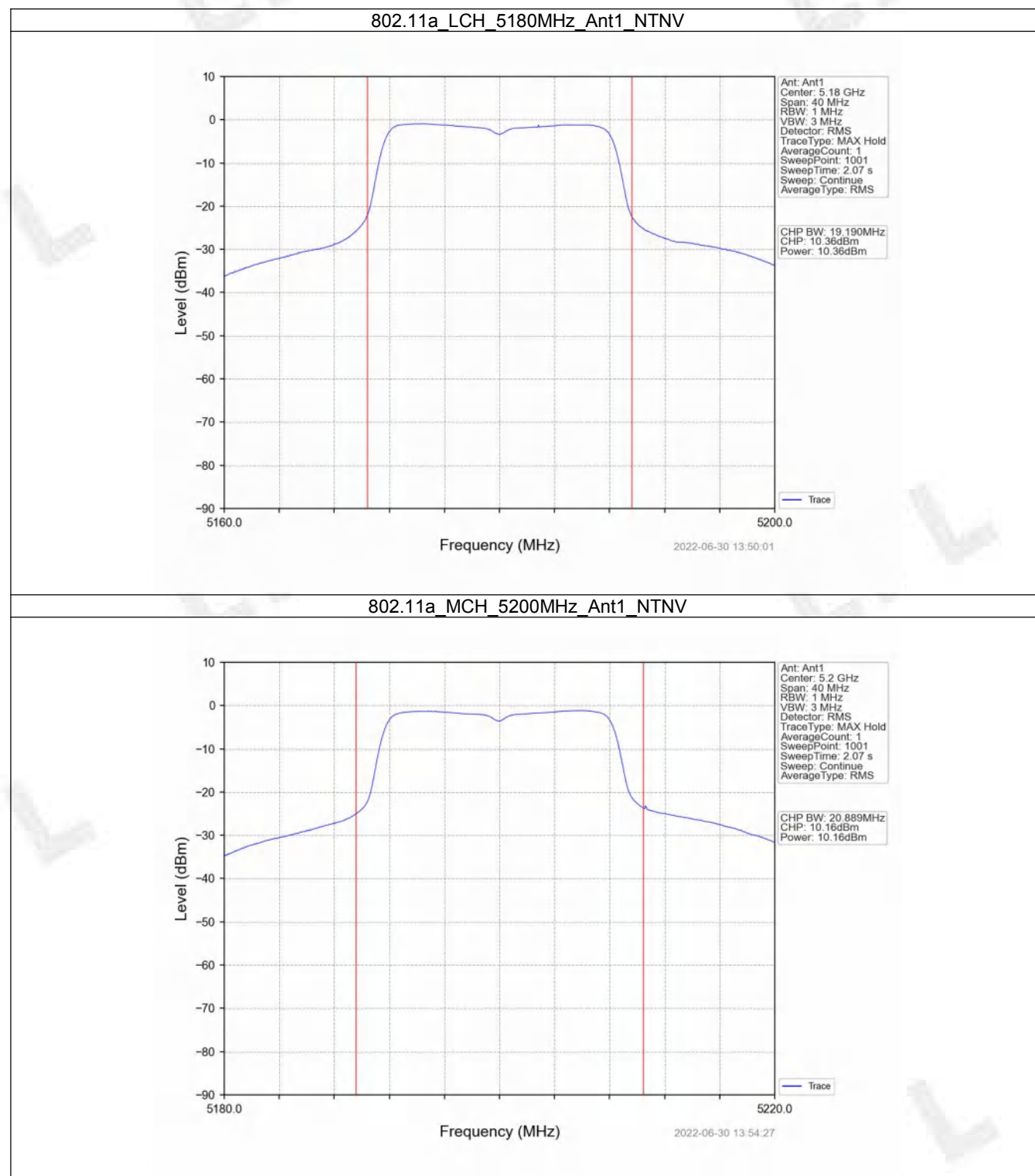
3.1 Power

3.1.1 Test Result

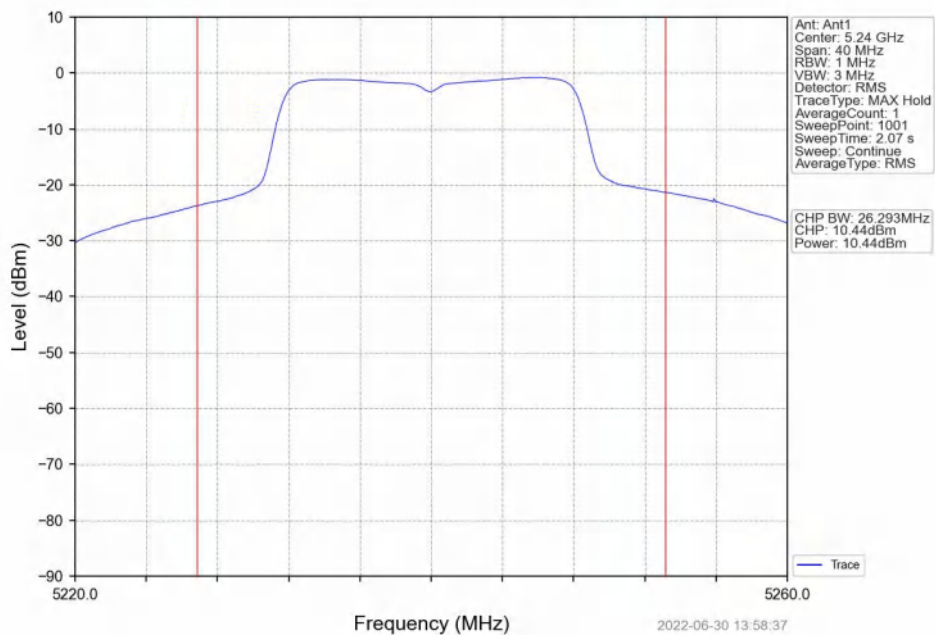
Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11a	SISO	5180	10.36	<=23.98	Pass
		5200	10.16	<=23.98	Pass
		5240	10.44	<=23.98	Pass
802.11n (HT20)	SISO	5180	10.18	<=23.98	Pass
		5200	9.99	<=23.98	Pass
		5240	10.32	<=23.98	Pass
802.11n (HT40)	SISO	5190	10.35	<=23.98	Pass
		5230	10.66	<=23.98	Pass
802.11ac (VHT20)	SISO	5180	10.12	<=23.98	Pass
		5200	10.02	<=23.98	Pass
		5240	10.36	<=23.98	Pass
802.11ac (VHT40)	SISO	5190	10.28	<=23.98	Pass
		5230	10.38	<=23.98	Pass
802.11ac (VHT80)	SISO	5210	10.43	<=23.98	Pass

Note1: Antenna Gain: Ant1: 5.00dBi;

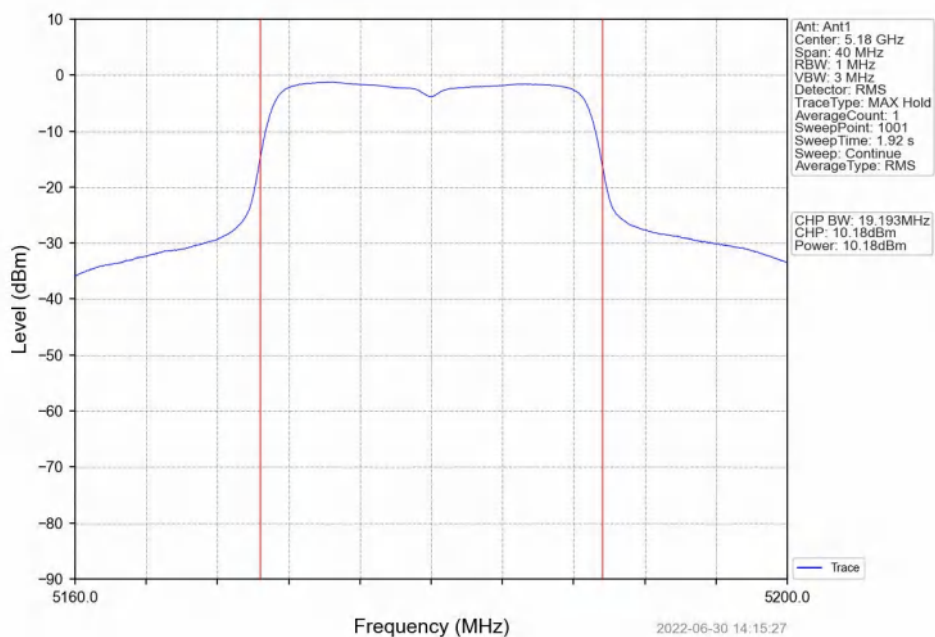
3.1.2 Test Graph



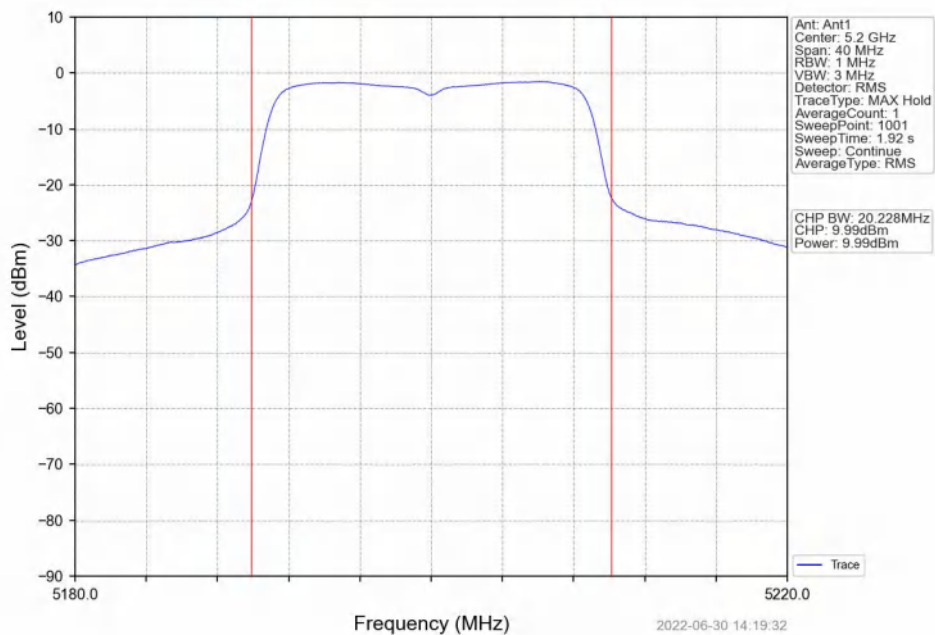
802.11a_HCH_5240MHz_Ant1_NTNV



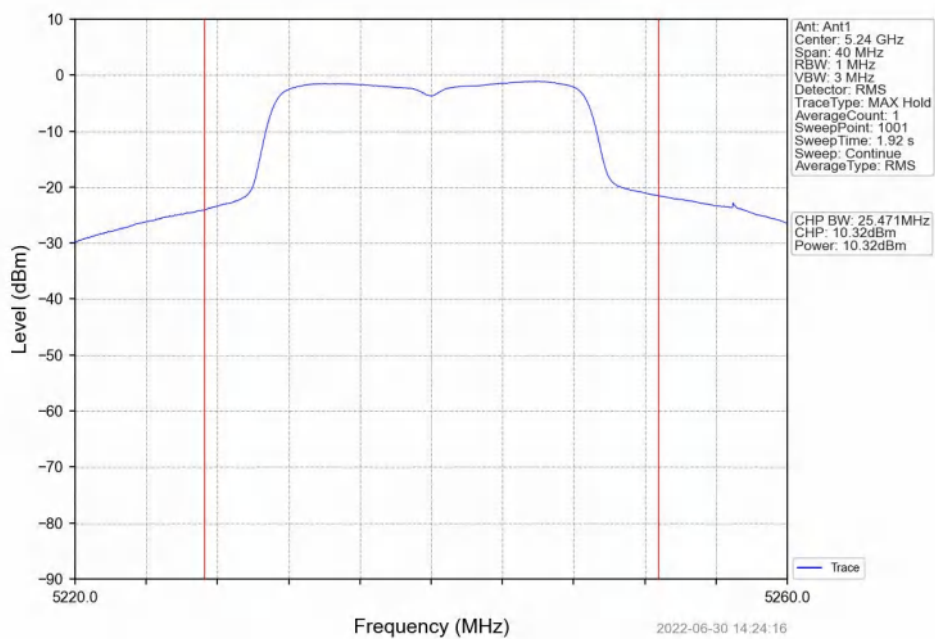
802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



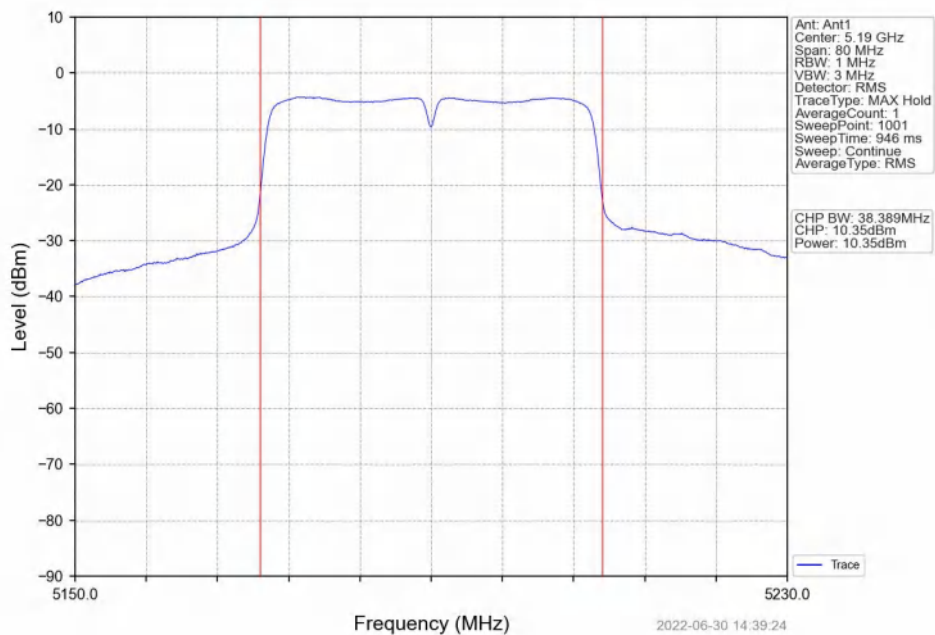
802.11n(HT20)_MCH_5200MHz_Ant1_NTNV



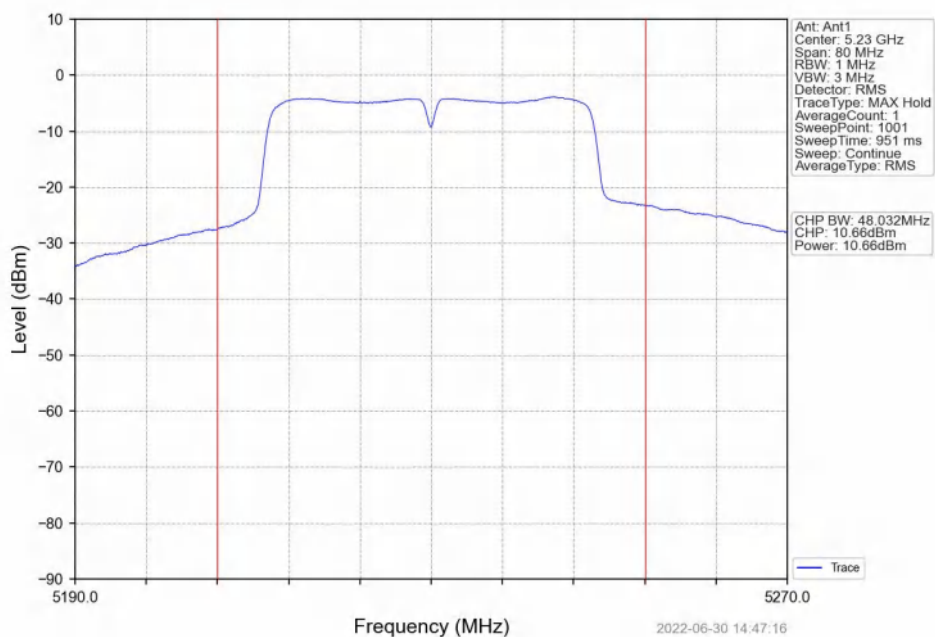
802.11n(HT20)_HCH_5240MHz_Ant1_NTNV



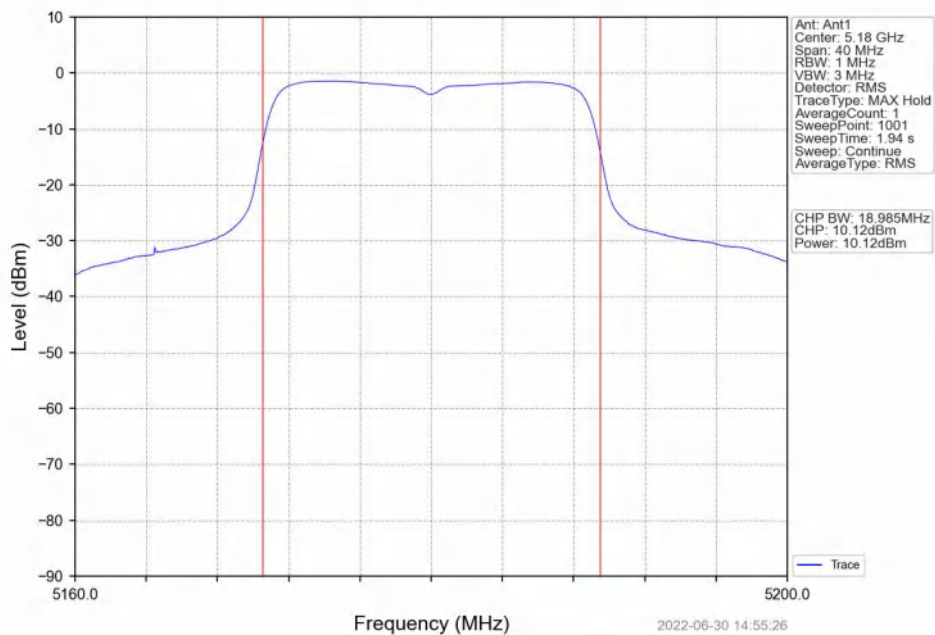
802.11n(HT40)_LCH_5190MHz_Ant1_NTNV



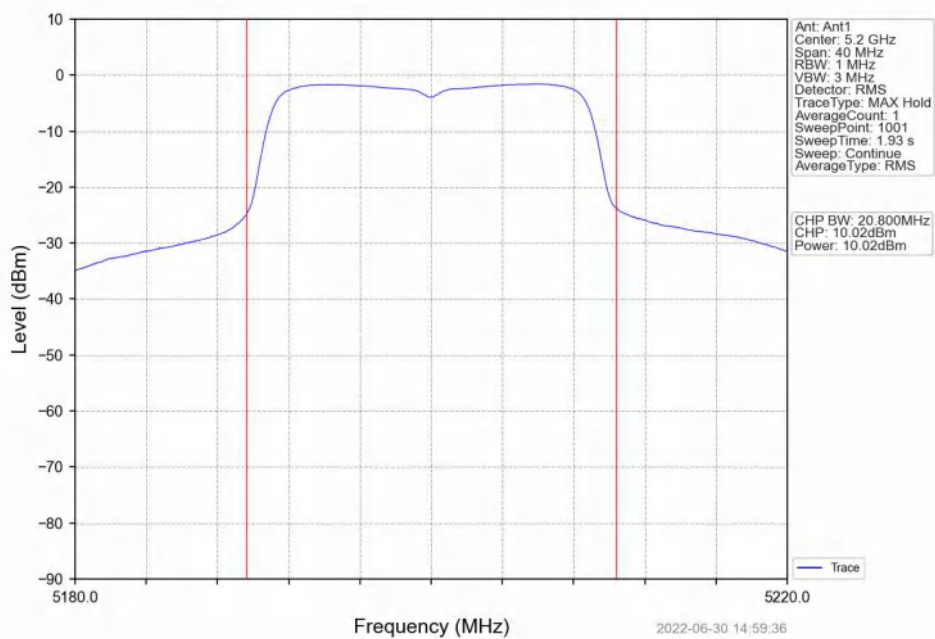
802.11n(HT40)_HCH_5230MHz_Ant1_NTNV



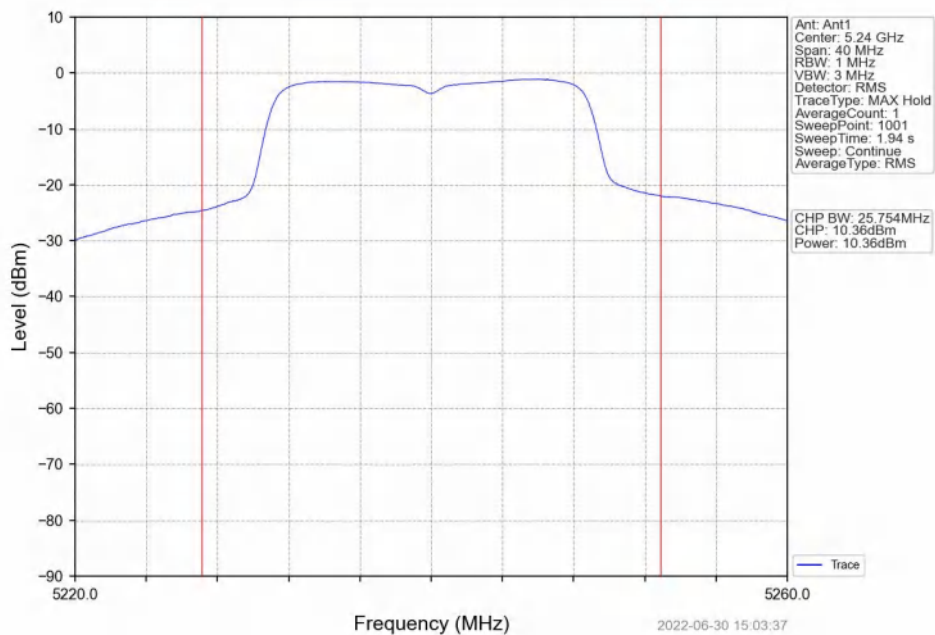
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



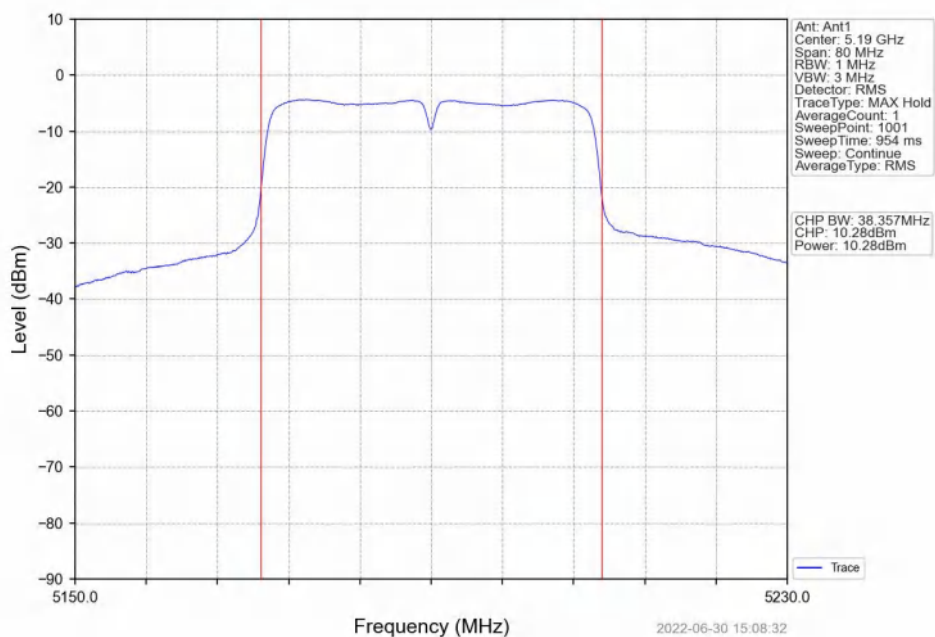
802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV



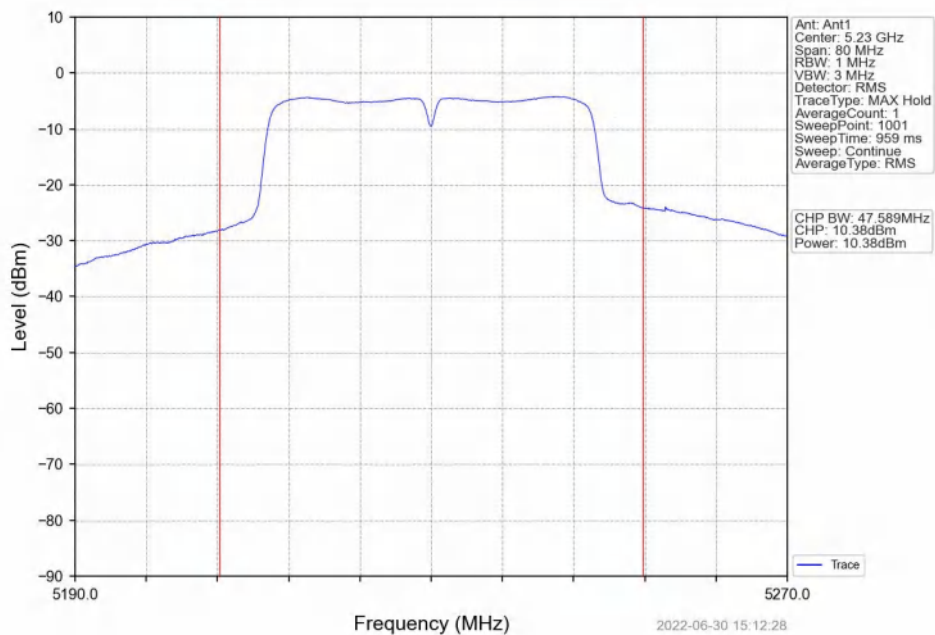
802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV



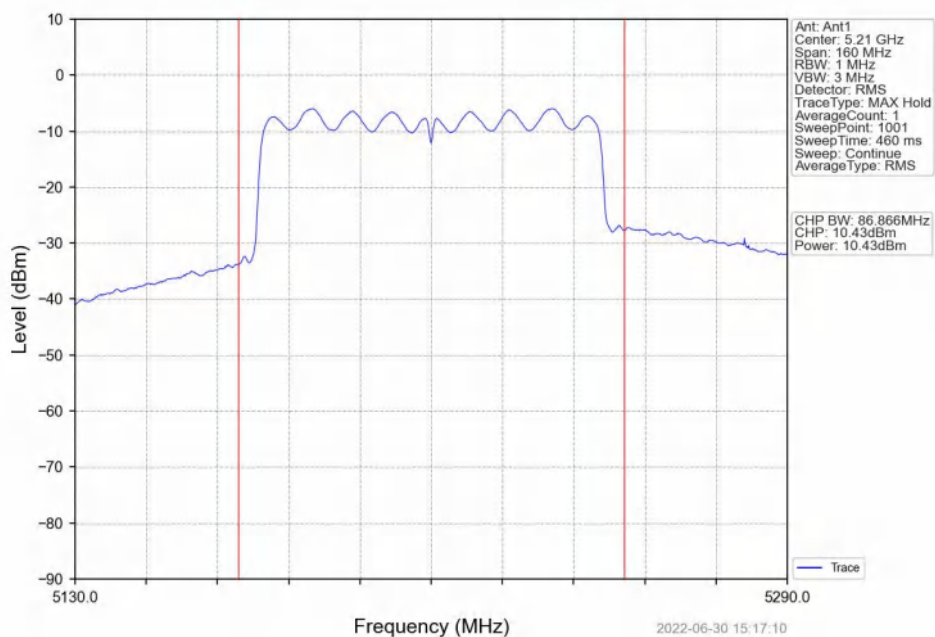
802.11ac(VHT40)_LCH_5190MHz_Ant1_NTNV



802.11ac(VHT40)_HCH_5230MHz_Ant1_NTNV



802.11ac(VHT80)_MCH_5210MHz_Ant1_NTNV



4. Maximum Power Spectral Density

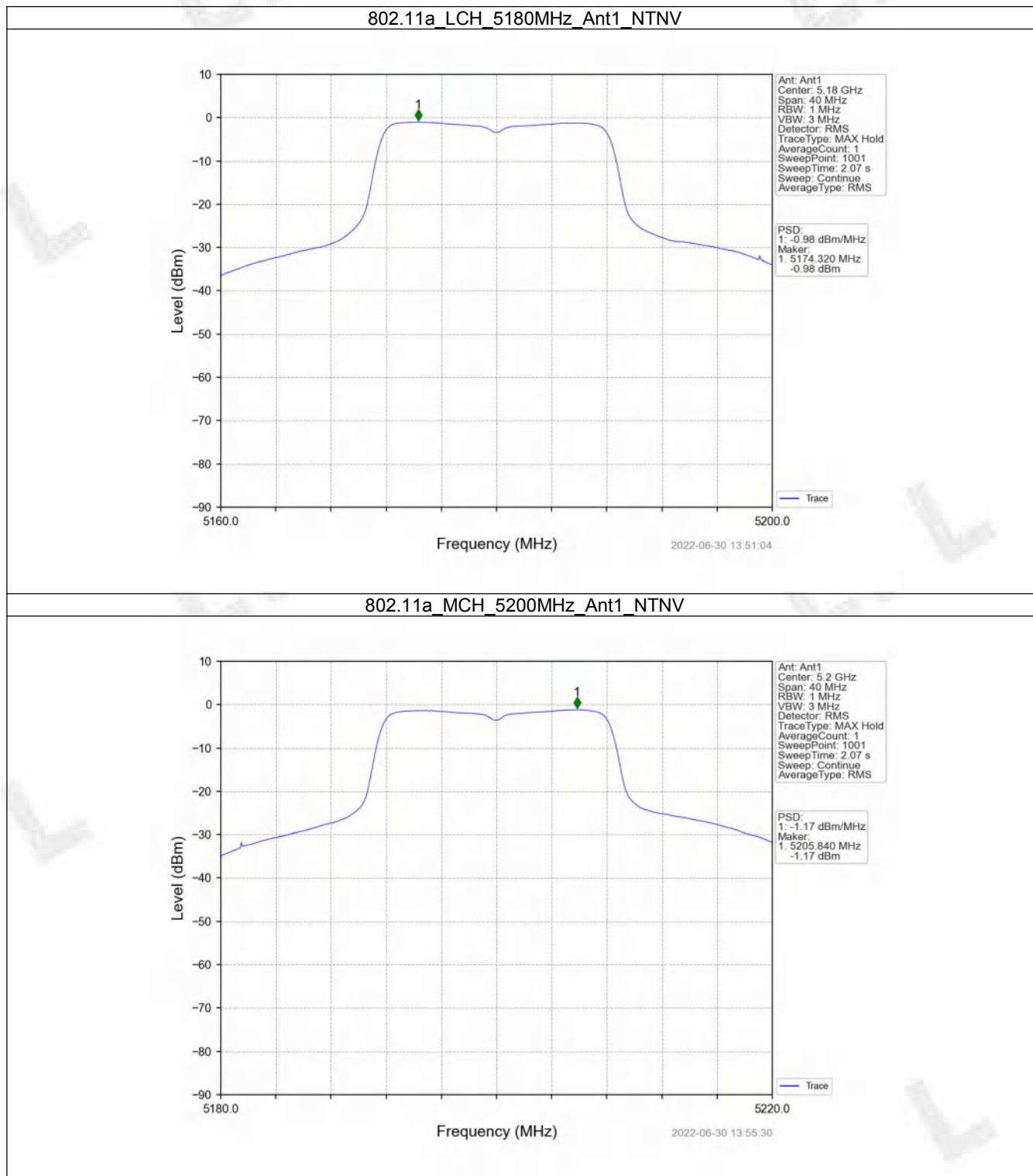
4.1 PSD

4.1.1 Test Result

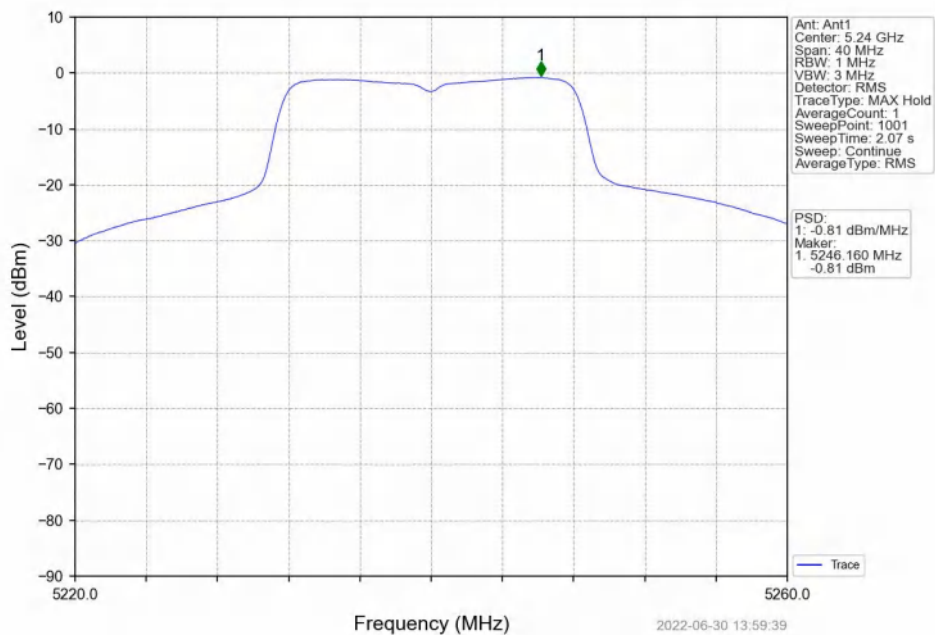
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/MHz)		Verdict
			ANT1	Limit	
802.11a	SISO	5180	-0.98	<=11	Pass
		5200	-1.17	<=11	Pass
		5240	-0.81	<=11	Pass
802.11n (HT20)	SISO	5180	-1.35	<=11	Pass
		5200	-1.59	<=11	Pass
		5240	-1.10	<=11	Pass
802.11n (HT40)	SISO	5190	-4.40	<=11	Pass
		5230	-4.02	<=11	Pass
802.11ac (VHT20)	SISO	5180	-1.47	<=11	Pass
		5200	-1.58	<=11	Pass
		5240	-1.15	<=11	Pass
802.11ac (VHT40)	SISO	5190	-4.39	<=11	Pass
		5230	-4.26	<=11	Pass
802.11ac (VHT80)	SISO	5210	-6.01	<=11	Pass

Note1: Antenna Gain: Ant1: 5.00dBi;

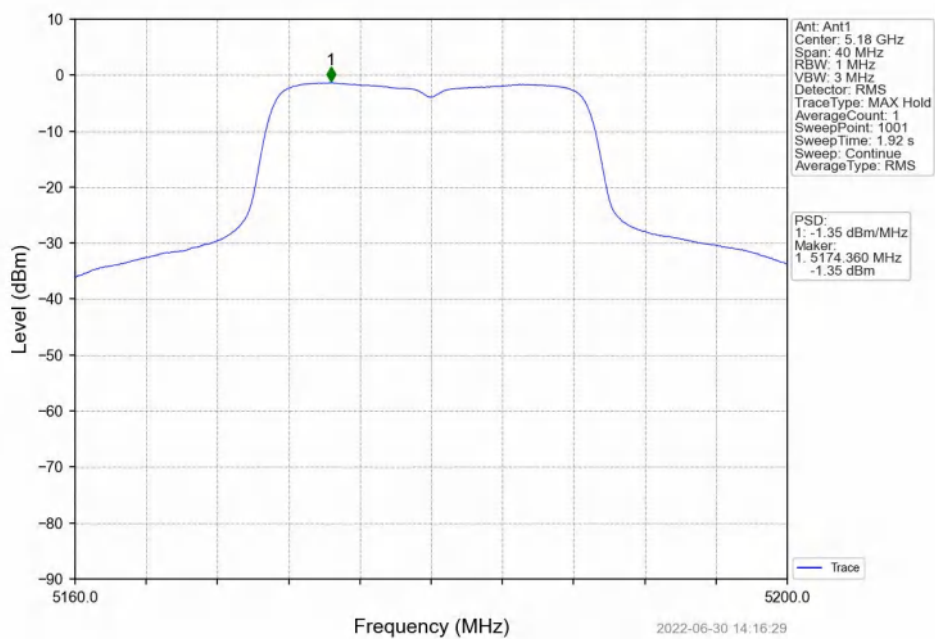
4.1.2 Test Graph



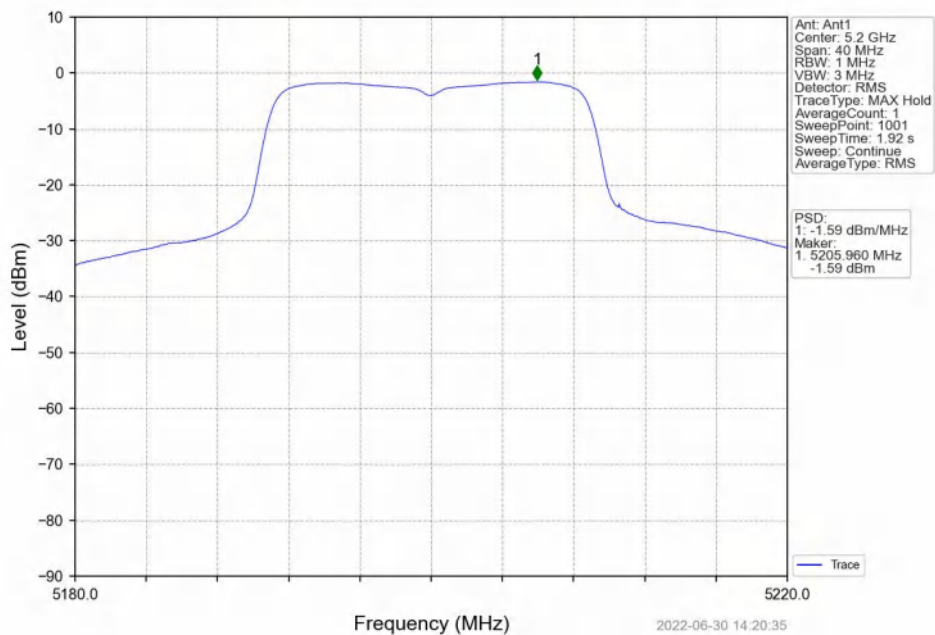
802.11a_HCH_5240MHz_Ant1_NTNV



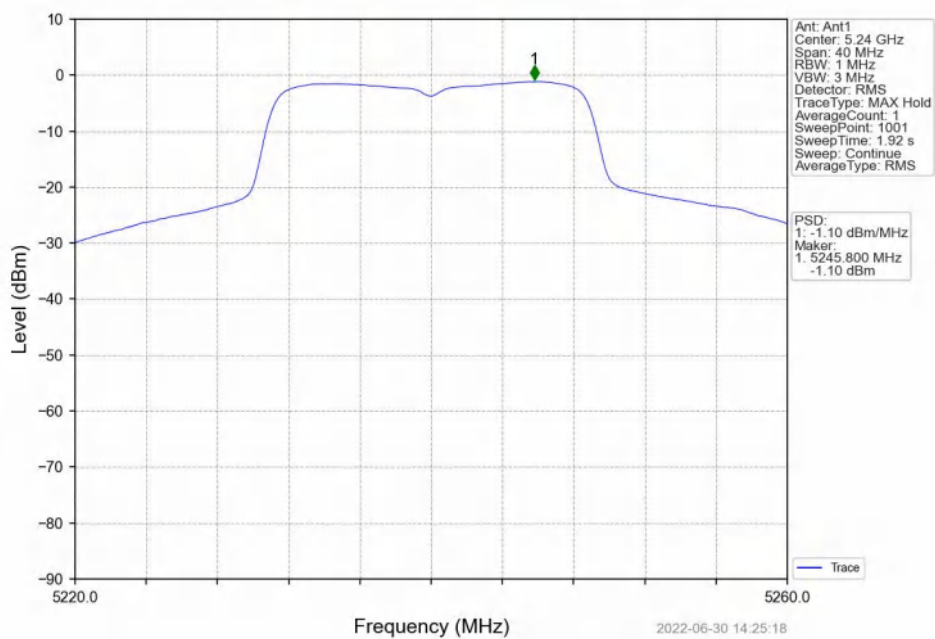
802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



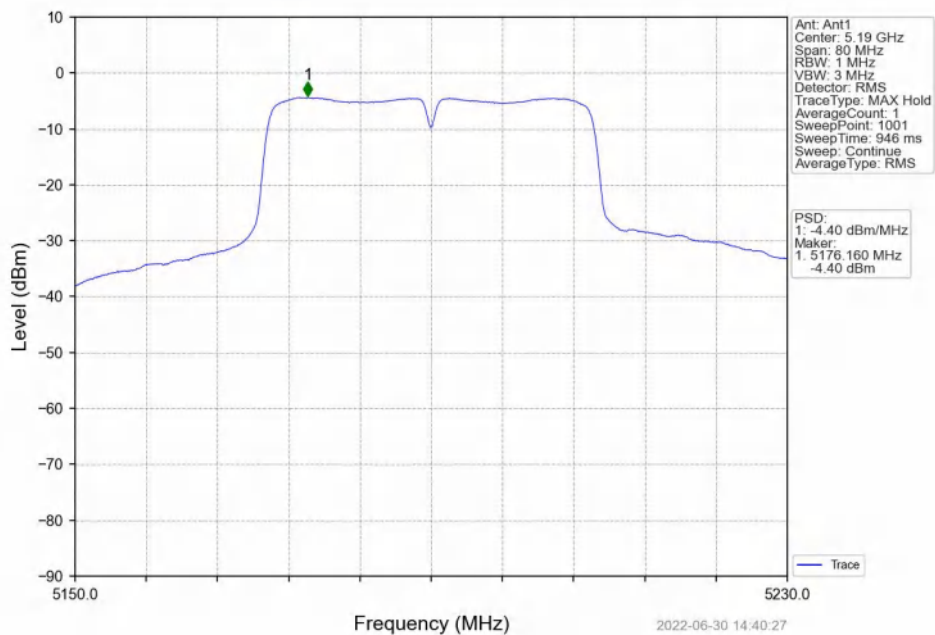
802.11n(HT20)_MCH_5200MHz_Ant1_NTNV



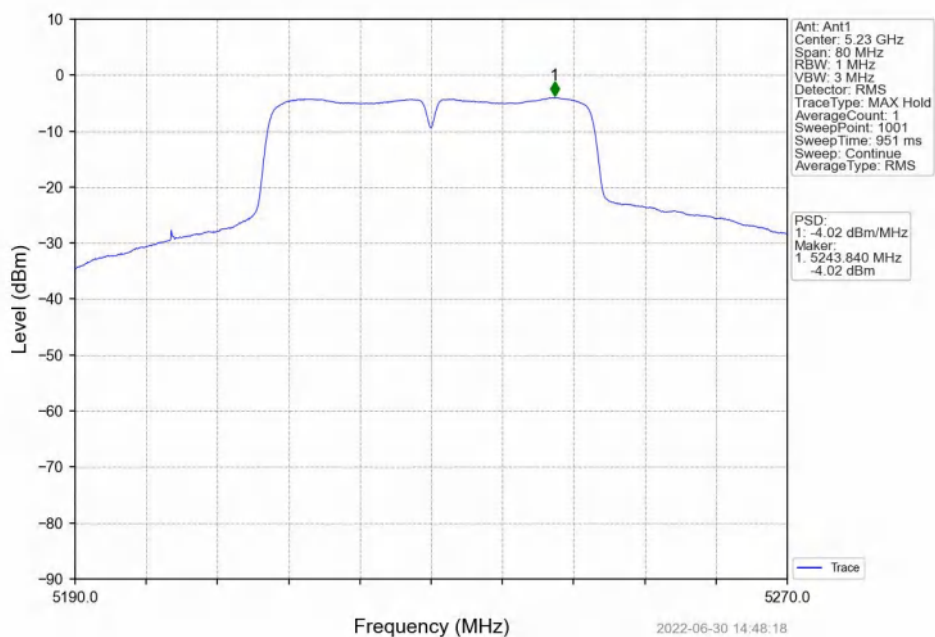
802.11n(HT20)_HCH_5240MHz_Ant1_NTNV



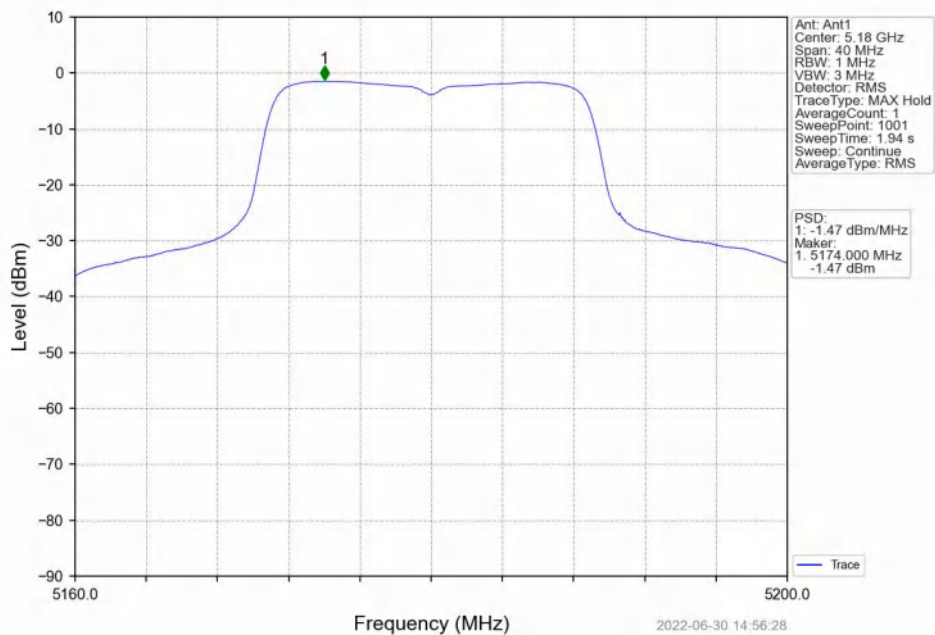
802.11n(HT40)_LCH_5190MHz_Ant1_NTNV



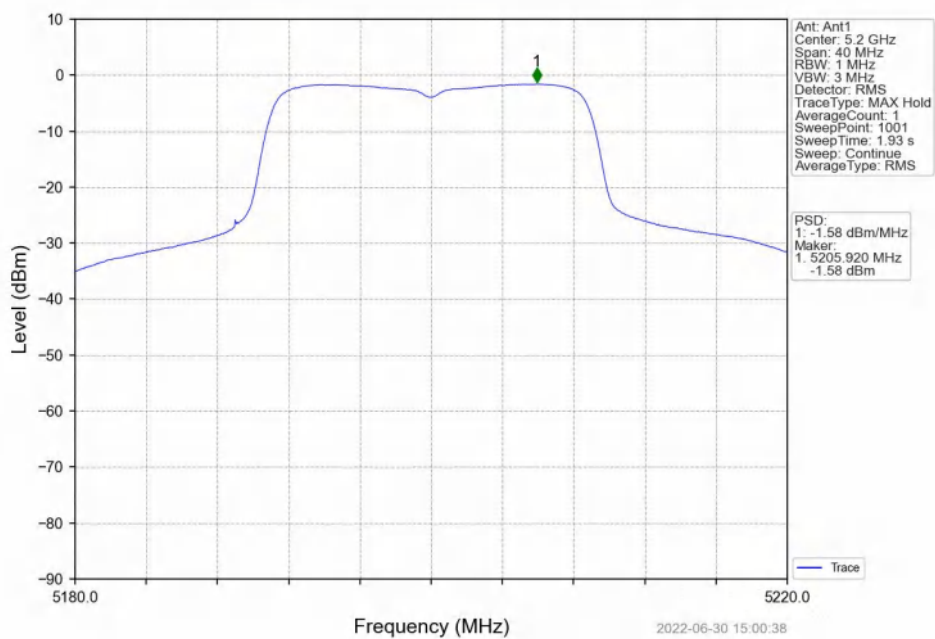
802.11n(HT40)_HCH_5230MHz_Ant1_NTNV



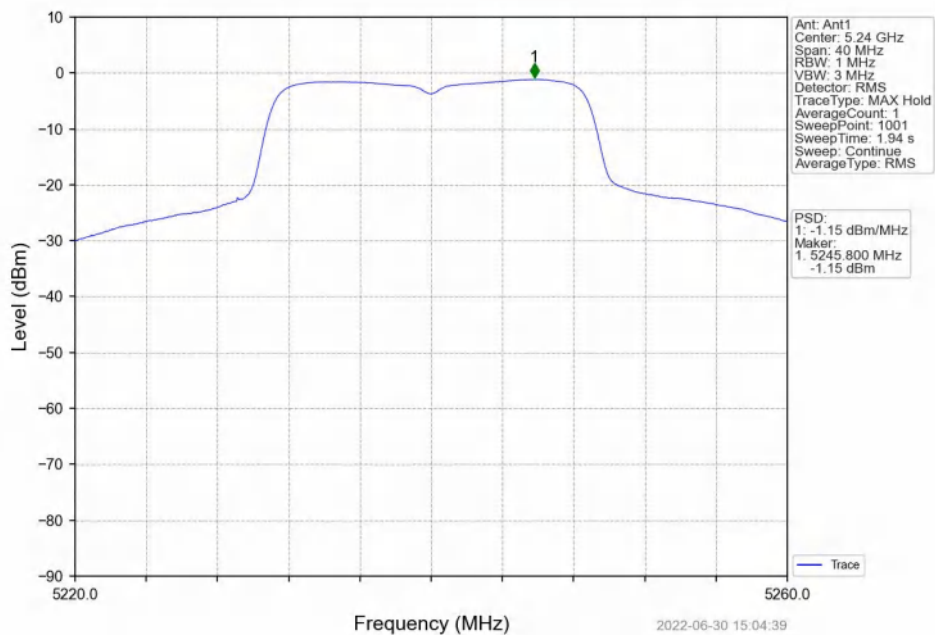
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



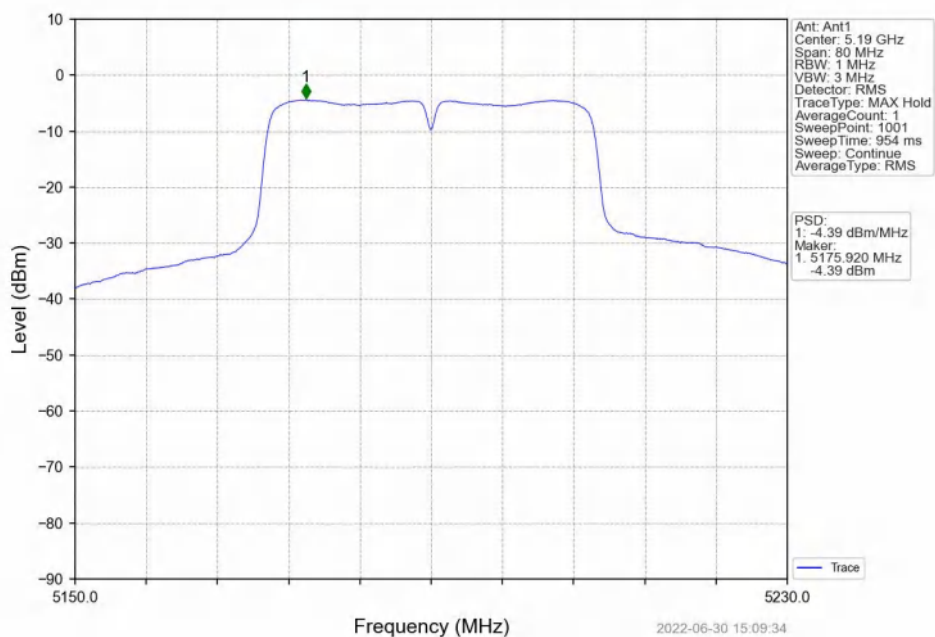
802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV



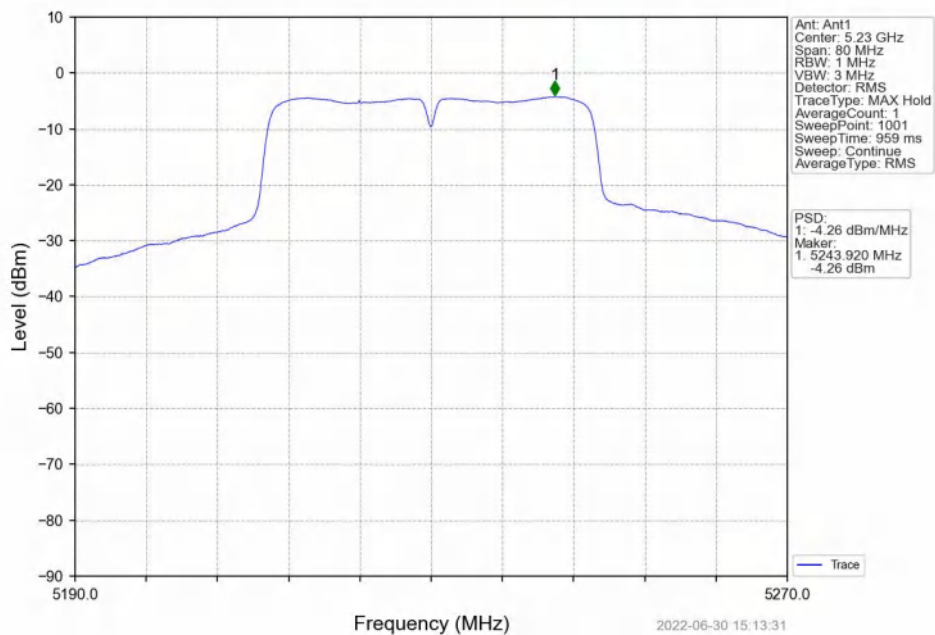
802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV



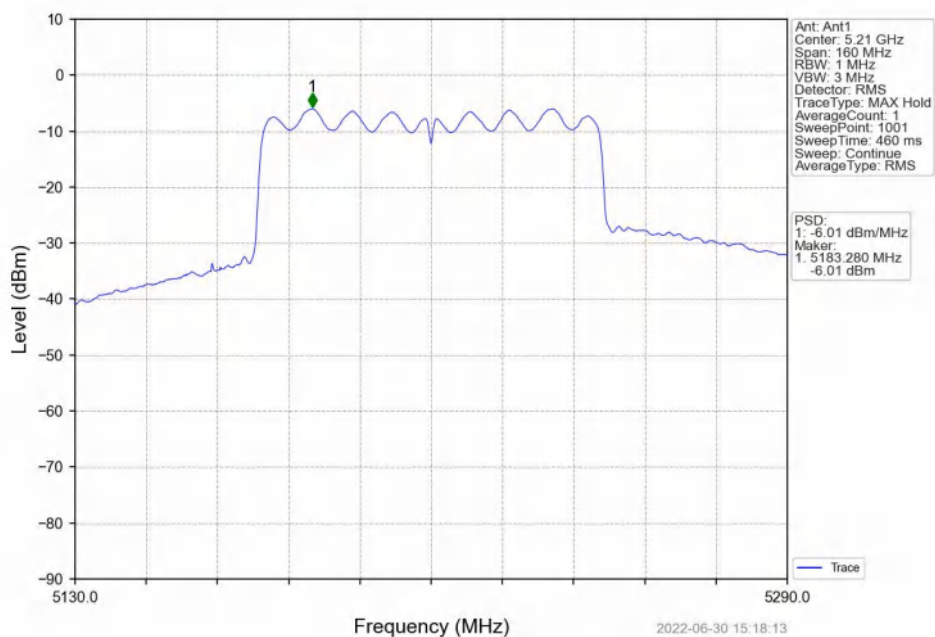
802.11ac(VHT40)_LCH_5190MHz_Ant1_NTNV



802.11ac(VHT40)_HCH_5230MHz_Ant1_NTNV



802.11ac(VHT80)_MCH_5210MHz_Ant1_NTNV



5. Frequency Stability

5.1 Ant1

5.1.1 Test Result

Ant1							
Mode	TX Type	Frequency (MHz)	Temperature (°C)	Voltage (VDC)	Measured Frequency (MHz)	Limit (MHz)	Verdict
802.11a	SISO	5180	20	10.2	5180.020	5150 to 5250	Pass
				12	5180.020	5150 to 5250	Pass
				13.8	5180.020	5150 to 5250	Pass
			-30	12	5180.000	5150 to 5250	Pass
			-20	12	5180.000	5150 to 5250	Pass
			-10	12	5180.040	5150 to 5250	Pass
			0	12	5180.040	5150 to 5250	Pass
			10	12	5180.040	5150 to 5250	Pass
			30	12	5180.000	5150 to 5250	Pass
			40	12	5180.060	5150 to 5250	Pass
			50	12	5180.000	5150 to 5250	Pass
		5200	20	10.2	5200.060	5150 to 5250	Pass
				12	5200.020	5150 to 5250	Pass
				13.8	5200.020	5150 to 5250	Pass
			-30	12	5200.040	5150 to 5250	Pass
			-20	12	5200.020	5150 to 5250	Pass
			-10	12	5200.040	5150 to 5250	Pass
			0	12	5200.060	5150 to 5250	Pass
			10	12	5200.060	5150 to 5250	Pass
			30	12	5200.040	5150 to 5250	Pass
			40	12	5200.060	5150 to 5250	Pass
			50	12	5200.040	5150 to 5250	Pass
		5240	20	10.2	5240.000	5150 to 5250	Pass
				12	5240.080	5150 to 5250	Pass
				13.8	5240.060	5150 to 5250	Pass
			-30	12	5240.040	5150 to 5250	Pass
			-20	12	5240.020	5150 to 5250	Pass
			-10	12	5240.060	5150 to 5250	Pass
			0	12	5240.040	5150 to 5250	Pass
			10	12	5240.060	5150 to 5250	Pass
			30	12	5240.040	5150 to 5250	Pass
			40	12	5240.020	5150 to 5250	Pass
			50	12	5240.020	5150 to 5250	Pass
802.11n (HT20)	SISO	5180	20	10.2	5179.980	5150 to 5250	Pass
				12	5179.980	5150 to 5250	Pass
				13.8	5180.020	5150 to 5250	Pass
			-30	12	5180.000	5150 to 5250	Pass
			-20	12	5180.040	5150 to 5250	Pass
			-10	12	5180.000	5150 to 5250	Pass
			0	12	5180.020	5150 to 5250	Pass
			10	12	5180.020	5150 to 5250	Pass
			30	12	5180.020	5150 to 5250	Pass
			40	12	5180.000	5150 to 5250	Pass
			50	12	5180.020	5150 to 5250	Pass
		5200	20	10.2	5199.960	5150 to 5250	Pass
				12	5200.040	5150 to 5250	Pass
				13.8	5200.000	5150 to 5250	Pass

			-30	12	5200.040	5150 to 5250	Pass
			-20	12	5200.000	5150 to 5250	Pass
			-10	12	5200.020	5150 to 5250	Pass
			0	12	5200.060	5150 to 5250	Pass
			10	12	5200.020	5150 to 5250	Pass
			30	12	5200.000	5150 to 5250	Pass
			40	12	5200.040	5150 to 5250	Pass
			50	12	5200.060	5150 to 5250	Pass
		5240	20	10.2	5240.060	5150 to 5250	Pass
				12	5240.100	5150 to 5250	Pass
				13.8	5240.080	5150 to 5250	Pass
			-30	12	5240.040	5150 to 5250	Pass
			-20	12	5240.120	5150 to 5250	Pass
			-10	12	5240.120	5150 to 5250	Pass
			0	12	5240.140	5150 to 5250	Pass
			10	12	5240.120	5150 to 5250	Pass
			30	12	5240.100	5150 to 5250	Pass
			40	12	5240.060	5150 to 5250	Pass
			50	12	5240.140	5150 to 5250	Pass
802.11n (HT40)	SISO	5190	20	10.2	5190.080	5150 to 5250	Pass
				12	5190.040	5150 to 5250	Pass
				13.8	5190.000	5150 to 5250	Pass
			-30	12	5190.120	5150 to 5250	Pass
			-20	12	5190.040	5150 to 5250	Pass
			-10	12	5190.080	5150 to 5250	Pass
			0	12	5190.040	5150 to 5250	Pass
			10	12	5190.040	5150 to 5250	Pass
			30	12	5190.000	5150 to 5250	Pass
			40	12	5190.080	5150 to 5250	Pass
			50	12	5190.040	5150 to 5250	Pass
		5230	20	10.2	5230.040	5150 to 5250	Pass
				12	5230.080	5150 to 5250	Pass
				13.8	5230.040	5150 to 5250	Pass
			-30	12	5230.160	5150 to 5250	Pass
			-20	12	5230.080	5150 to 5250	Pass
			-10	12	5230.120	5150 to 5250	Pass
			0	12	5230.040	5150 to 5250	Pass
			10	12	5230.040	5150 to 5250	Pass
			30	12	5230.120	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5180	20	10.2	5180.040	5150 to 5250	Pass
				12	5180.000	5150 to 5250	Pass
				13.8	5180.060	5150 to 5250	Pass
			-30	12	5180.020	5150 to 5250	Pass
			-20	12	5180.040	5150 to 5250	Pass
			-10	12	5179.980	5150 to 5250	Pass
			0	12	5180.020	5150 to 5250	Pass
			10	12	5180.060	5150 to 5250	Pass
			30	12	5180.040	5150 to 5250	Pass
			40	12	5180.040	5150 to 5250	Pass
			50	12	5180.080	5150 to 5250	Pass
		5200	20	10.2	5199.980	5150 to 5250	Pass
				12	5200.020	5150 to 5250	Pass
				13.8	5200.020	5150 to 5250	Pass
			-30	12	5200.000	5150 to 5250	Pass
			-20	12	5199.980	5150 to 5250	Pass
			-10	12	5199.980	5150 to 5250	Pass
			0	12	5200.000	5150 to 5250	Pass

802.11ac (VHT40)	SISO	5240	10	12	5199.960	5150 to 5250	Pass
			30	12	5200.060	5150 to 5250	Pass
			40	12	5199.980	5150 to 5250	Pass
			50	12	5200.000	5150 to 5250	Pass
		5240	20	10.2	5240.060	5150 to 5250	Pass
				12	5240.080	5150 to 5250	Pass
				13.8	5239.980	5150 to 5250	Pass
			-30	12	5240.020	5150 to 5250	Pass
			-20	12	5240.060	5150 to 5250	Pass
			-10	12	5240.040	5150 to 5250	Pass
			0	12	5240.000	5150 to 5250	Pass
			10	12	5240.020	5150 to 5250	Pass
			30	12	5240.080	5150 to 5250	Pass
			40	12	5240.100	5150 to 5250	Pass
			50	12	5240.040	5150 to 5250	Pass
802.11ac (VHT40)	SISO	5190	20	10.2	5190.080	5150 to 5250	Pass
				12	5190.040	5150 to 5250	Pass
				13.8	5190.040	5150 to 5250	Pass
			-30	12	5190.040	5150 to 5250	Pass
			-20	12	5190.120	5150 to 5250	Pass
			-10	12	5190.120	5150 to 5250	Pass
			0	12	5190.000	5150 to 5250	Pass
			10	12	5190.040	5150 to 5250	Pass
			30	12	5190.040	5150 to 5250	Pass
			40	12	5190.040	5150 to 5250	Pass
			50	12	5190.040	5150 to 5250	Pass
		5230	20	10.2	5230.160	5150 to 5250	Pass
				12	5230.080	5150 to 5250	Pass
				13.8	5230.120	5150 to 5250	Pass
			-30	12	5230.160	5150 to 5250	Pass
			-20	12	5230.120	5150 to 5250	Pass
			-10	12	5230.120	5150 to 5250	Pass
			0	12	5230.120	5150 to 5250	Pass
			10	12	5230.080	5150 to 5250	Pass
802.11ac (VHT80)	SISO	5210	20	10.2	5210.075	5150 to 5250	Pass
				12	5210.000	5150 to 5250	Pass
				13.8	5210.075	5150 to 5250	Pass
			-30	12	5210.075	5150 to 5250	Pass
			-20	12	5210.000	5150 to 5250	Pass
			-10	12	5210.075	5150 to 5250	Pass
			0	12	5210.075	5150 to 5250	Pass
			10	12	5210.075	5150 to 5250	Pass
			30	12	5210.000	5150 to 5250	Pass
			40	12	5210.000	5150 to 5250	Pass
			50	12	5210.075	5150 to 5250	Pass

6. Form731

6.1 Form731

6.1.1 Test Result

Lower Freq (MHz)	High Freq (MHz)	MAX Power (W)	MAX Power (dBm)
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5180	5240	0.0111	10.44
5190	5230	0.0116	10.66
5210	5210	0.0110	10.43