

Appendix RF Test Data for 5G WIFI

Company: : Shenzhen RIDERNAV Technology Co., Ltd.

EUT : Motorcycle Smart Riding System

FCC ID: : 2BSY4-R7M

Model Number : R7M

Report No. : HTT2025101134F03

Reviewed By : Heber He

1. Duty Cycle

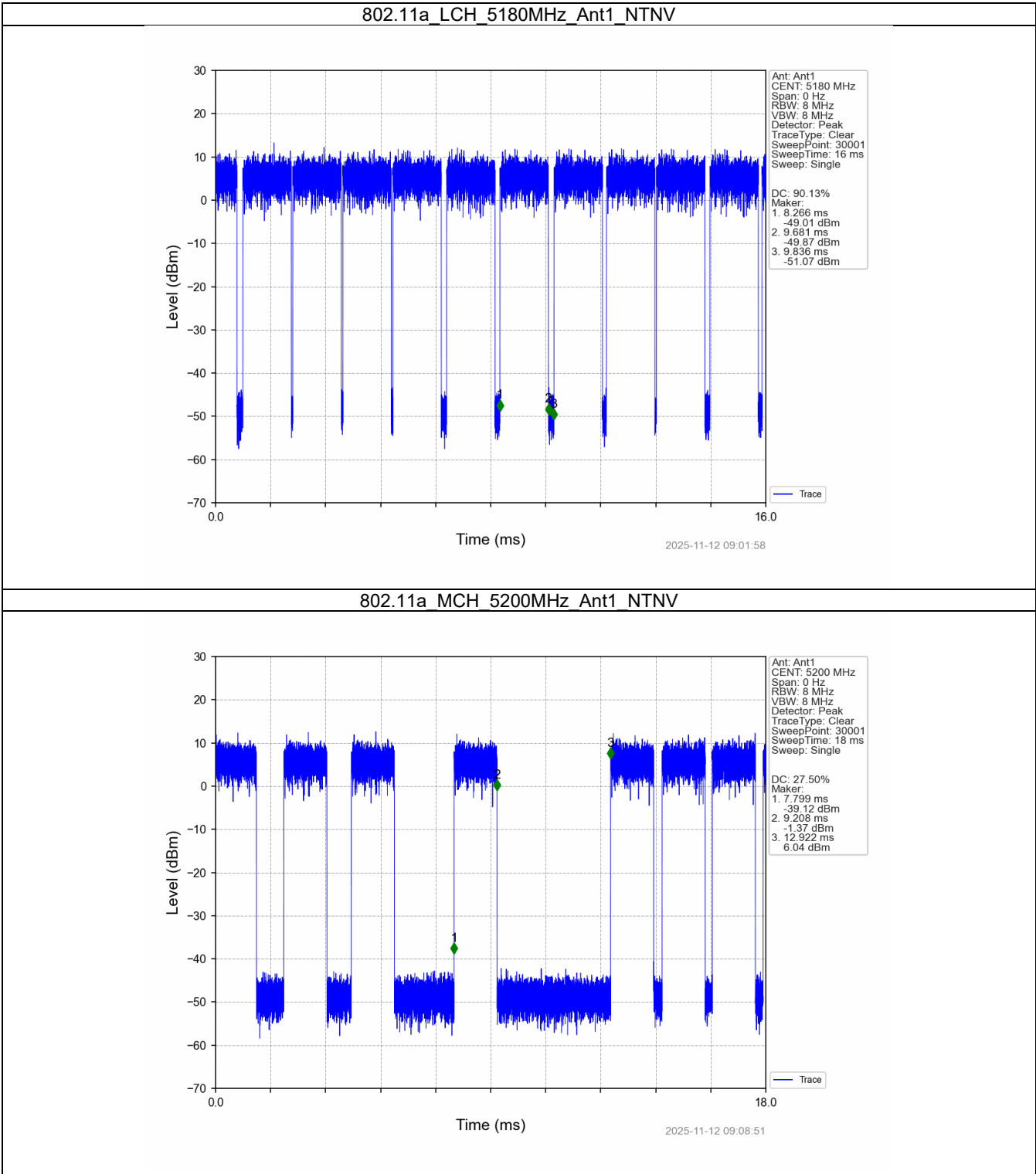
1.1 Test Result

1.1.1 Ant1

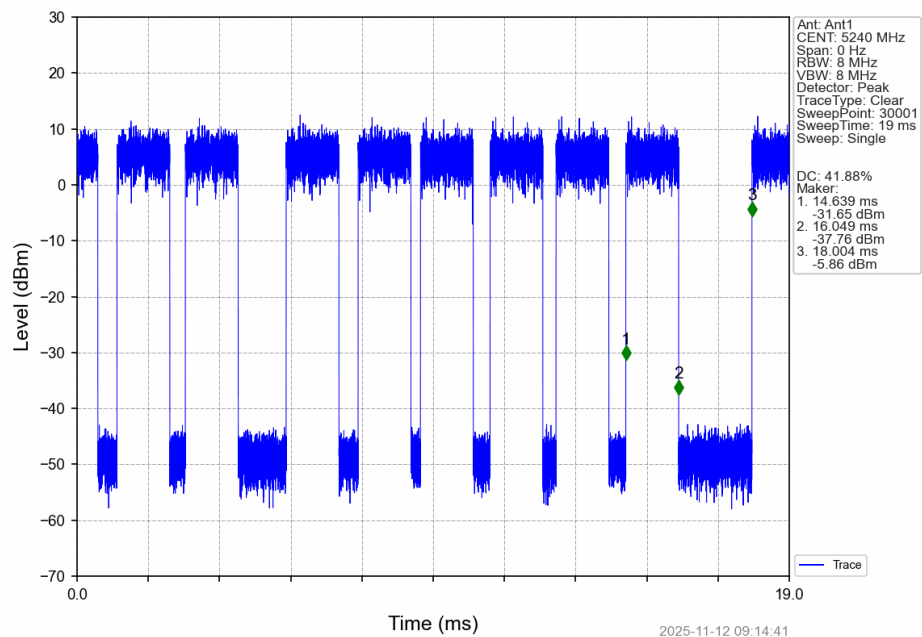
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11a	SISO	5180	1.415	1.570	90.13	0.45	7.24
		5200	1.409	5.123	27.50	5.61	58.37
		5240	1.409	3.364	41.88	3.78	42.79
802.11n (HT20)	SISO	5180	1.316	1.759	74.82	1.26	9.17
		5200	1.316	1.568	83.93	0.76	0.07
		5240	1.316	1.568	83.93	0.76	0.04
802.11n (HT40)	SISO	5190	0.653	2.272	28.74	5.41	14.68
		5230	0.653	1.985	32.90	4.83	9.60
802.11ac (VHT20)	SISO	5180	1.324	1.824	72.59	1.39	11.87
		5200	1.324	1.792	73.88	1.31	4.21
		5240	1.325	2.471	53.62	2.71	24.77
802.11ac (VHT40)	SISO	5190	0.653	3.104	21.04	6.77	21.48
		5230	0.653	2.656	24.59	6.09	16.21
802.11ac (VHT80)	SISO	5210	0.329	2.241	14.68	8.33	6.97
802.11ax (HEW20)	SISO	5180	0.684	4.417	15.49	8.10	58.40
		5200	0.684	2.336	29.28	5.33	15.27
		5240	0.684	1.888	36.23	4.41	3.36
802.11ax (HEW40)	SISO	5190	0.352	2.688	13.10	8.83	9.84
		5230	0.352	2.752	12.79	8.93	11.65
802.11ax (HEW80)	SISO	5210	0.185	2.176	8.50	10.70	36.15

1.2 Test Graph

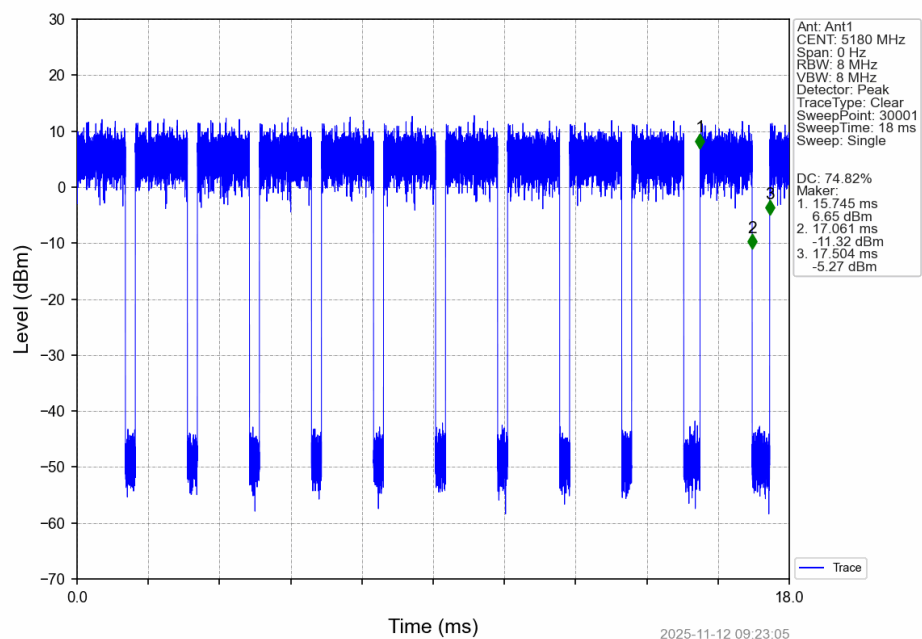
1.2.1 Ant1



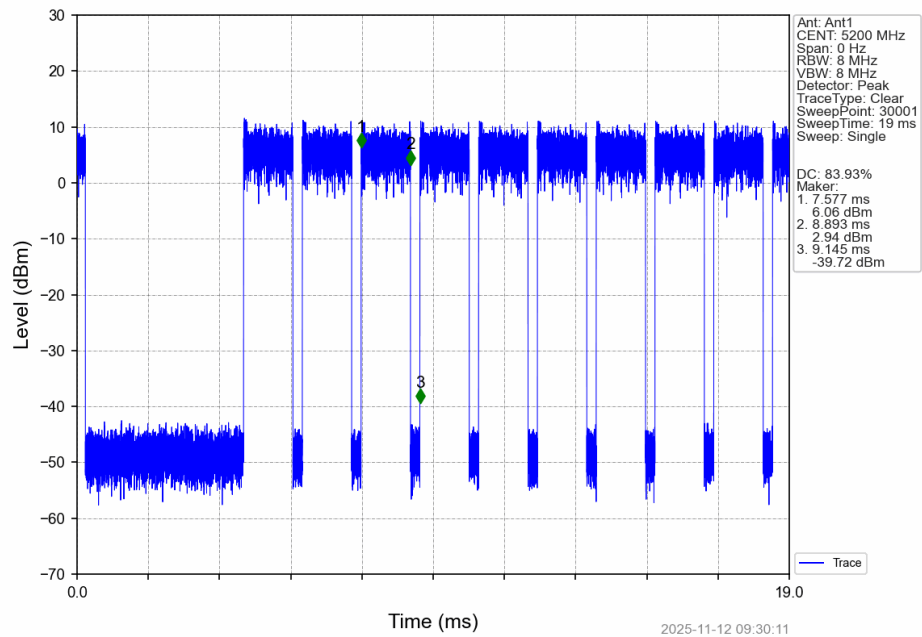
802.11a_HCH_5240MHz_Ant1_NTNV



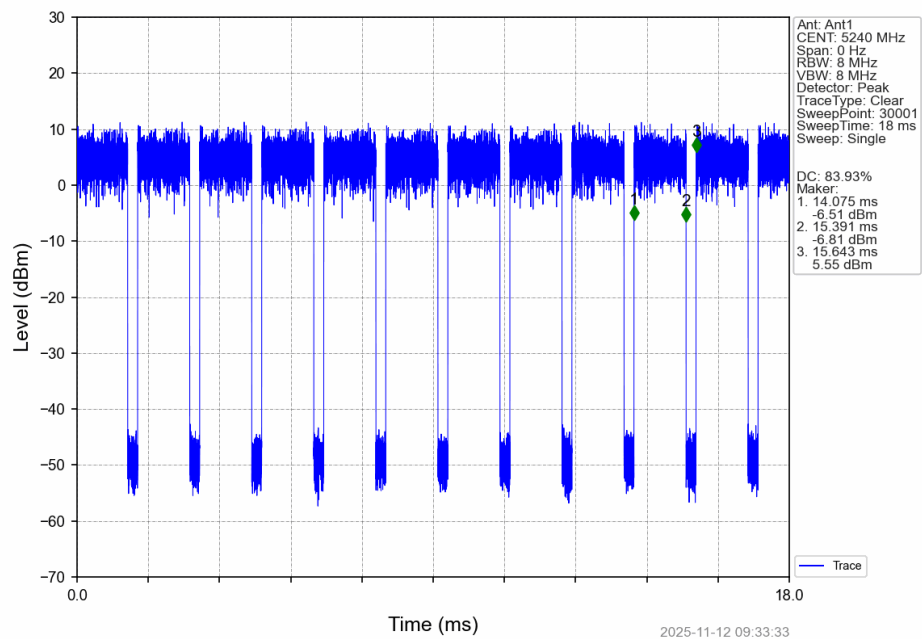
802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



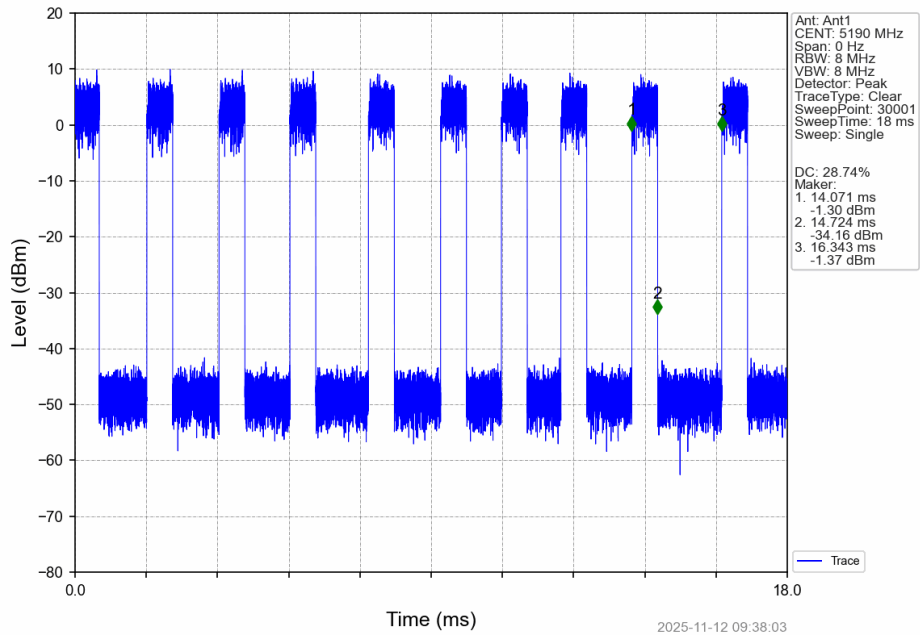
802.11n(HT20) MCH 5200MHz Ant1 NTN



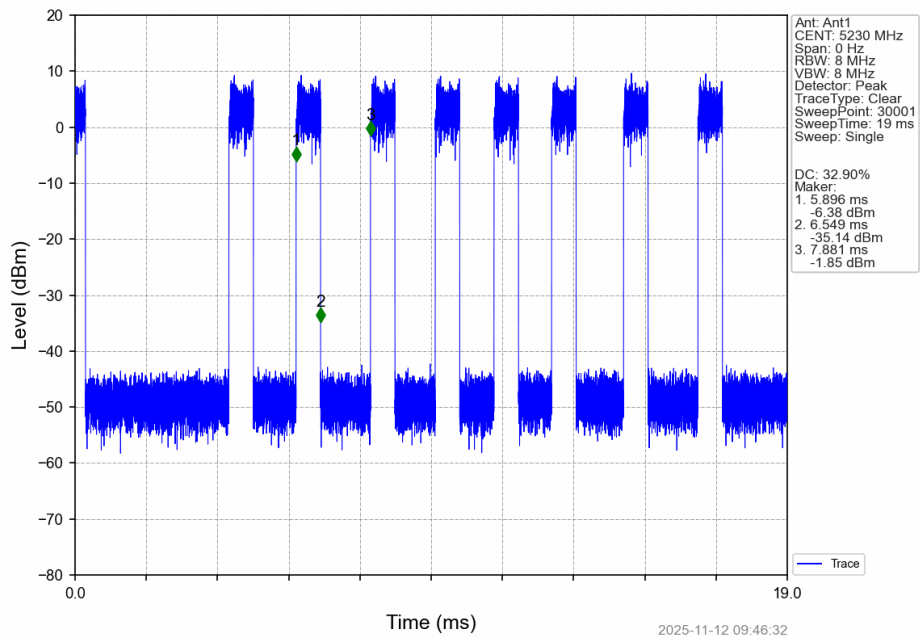
802.11n(HT20)_HCH_5240MHz_Ant1_NTN



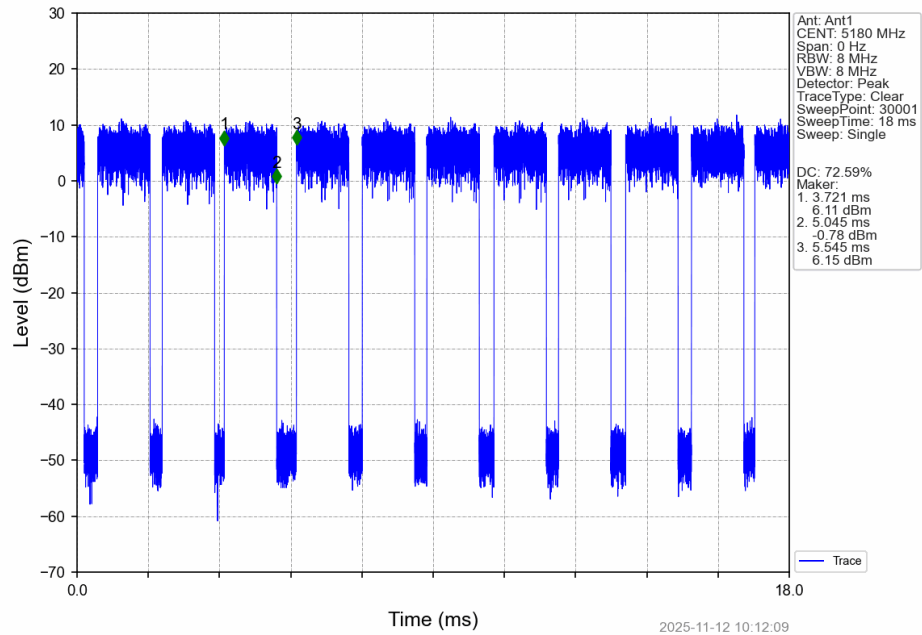
802.11n(HT40) LCH 5190MHz Ant1 NTN



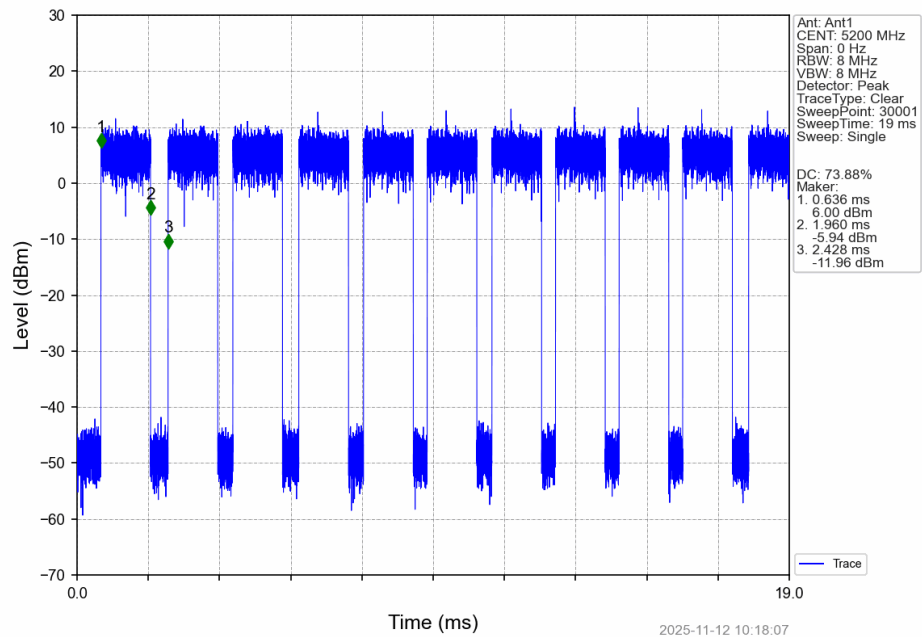
802.11n(HT40)_HCH_5230MHz_Ant1_NTN



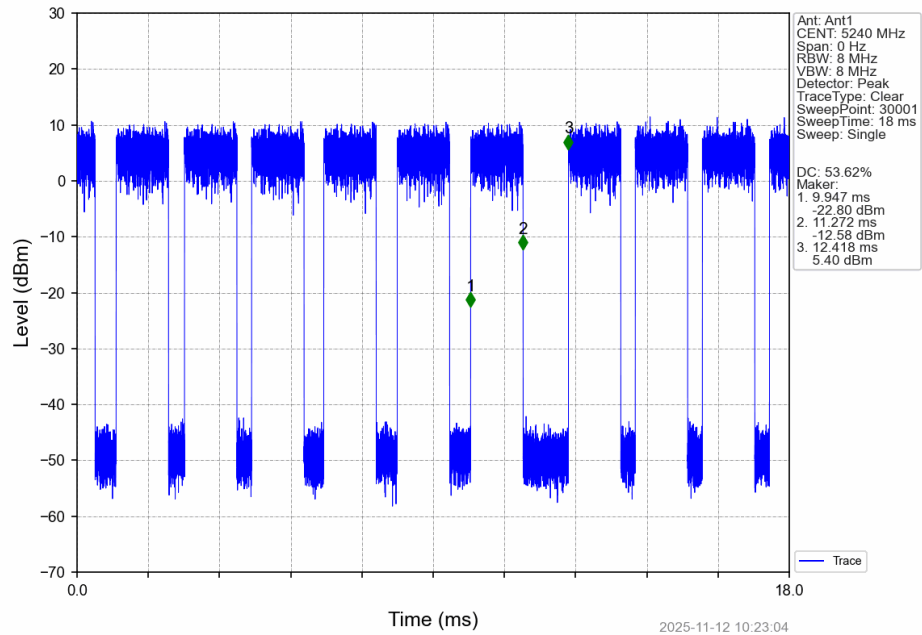
802.11ac(VHT20) LCH 5180MHz Ant1 NTN



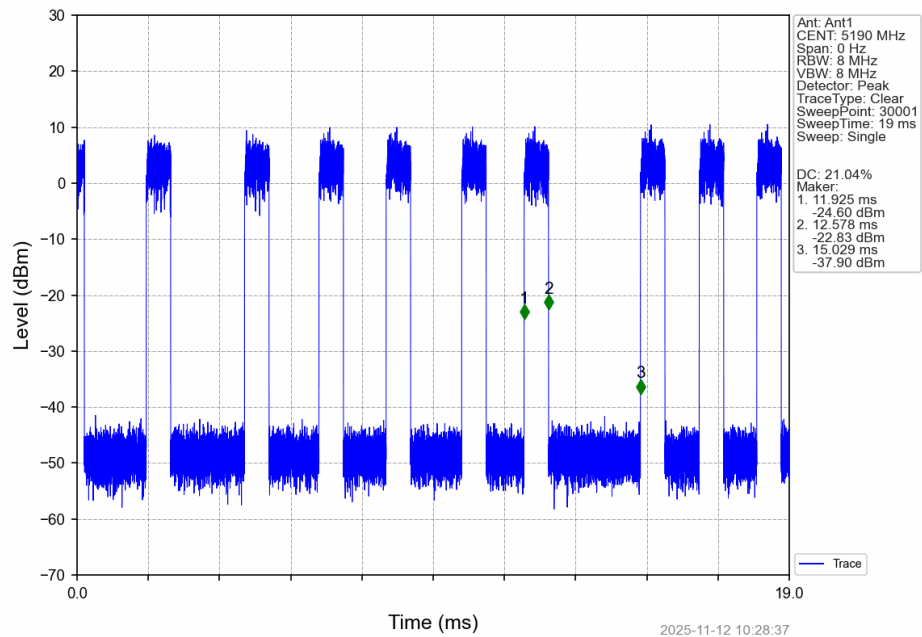
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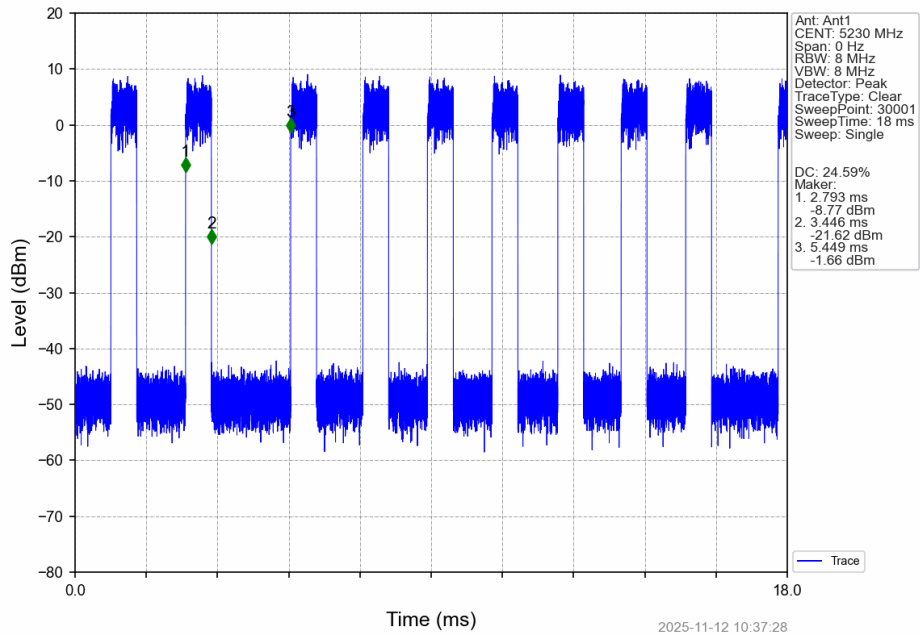
802.11ac(VHT20) HCH 5240MHz Ant1 NTN



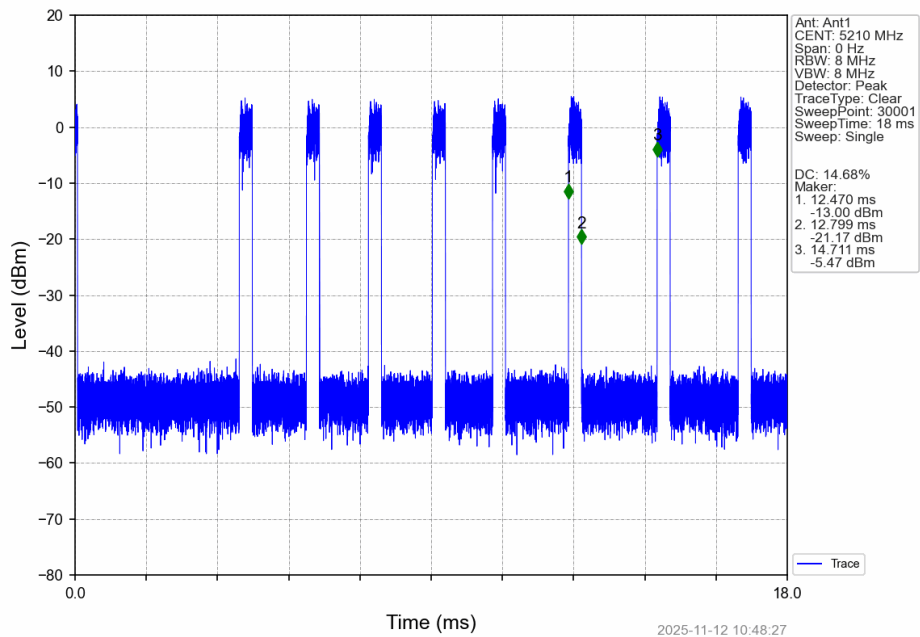
802.11ac(VHT40)_LCH_5190MHz_Ant1_NTN



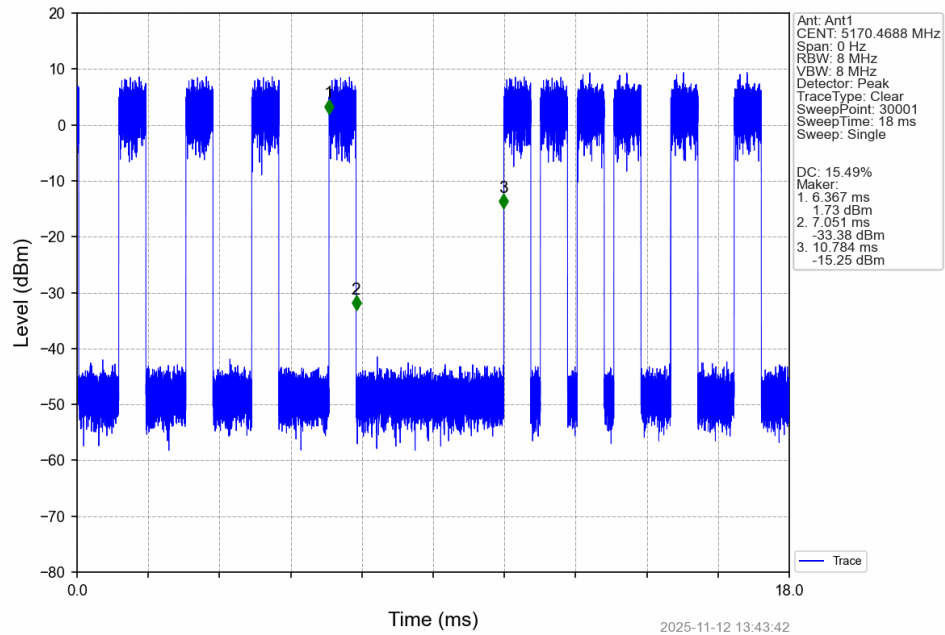
802.11ac(VHT40) HCH 5230MHz Ant1 NTN



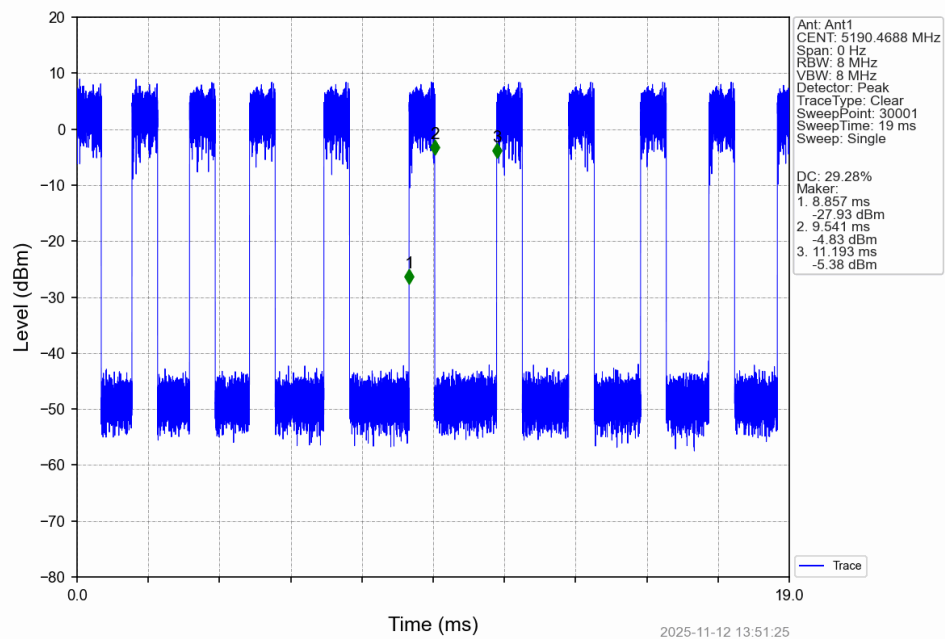
802.11ac(VHT80) MCH 5210MHz Ant1 NTN



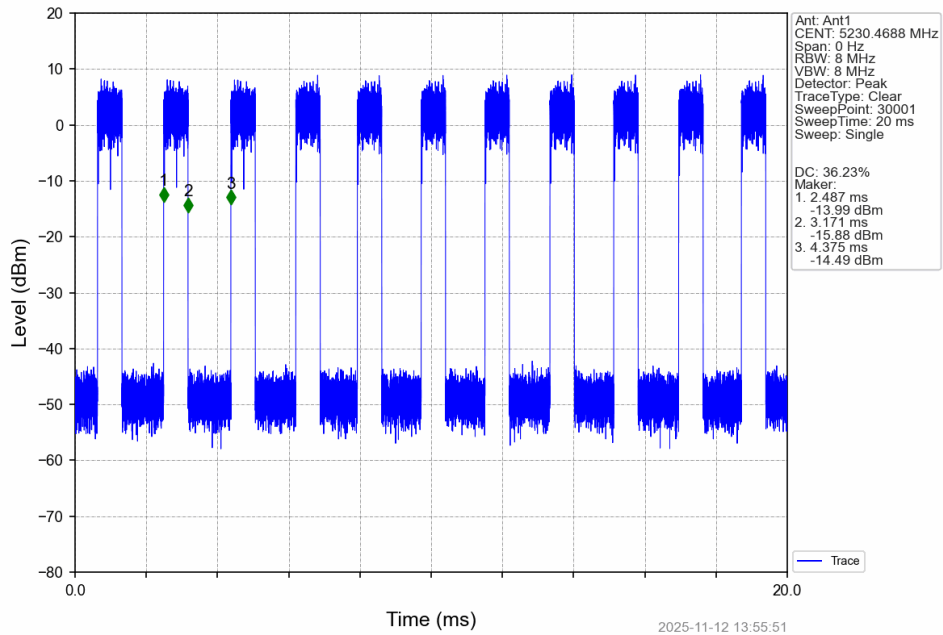
802.11ax(HEW20) LCH 5180MHz SU / Ant1 NTN



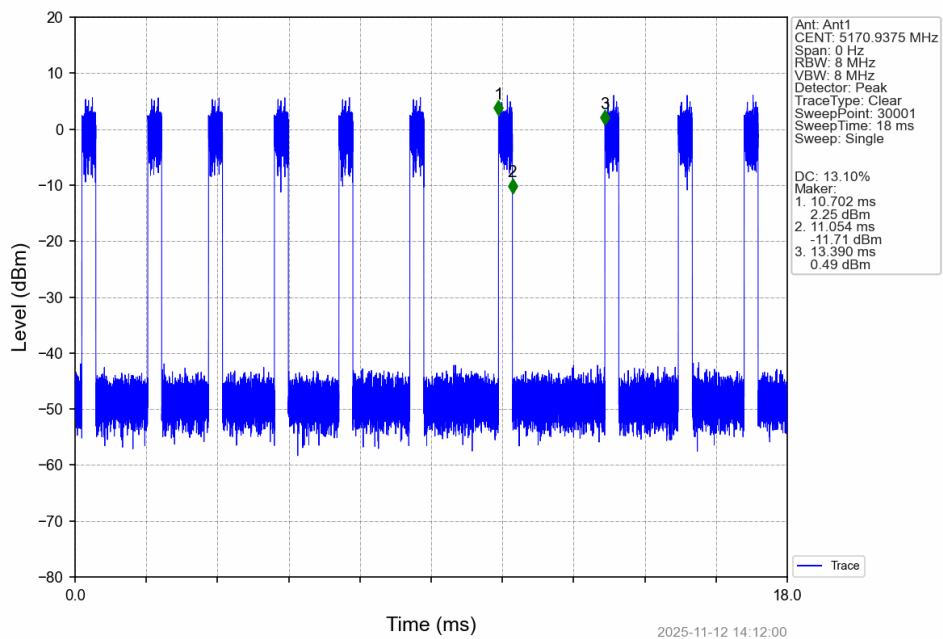
802.11ax(HEW20) MCH 5200MHz SU / Ant1 NTN



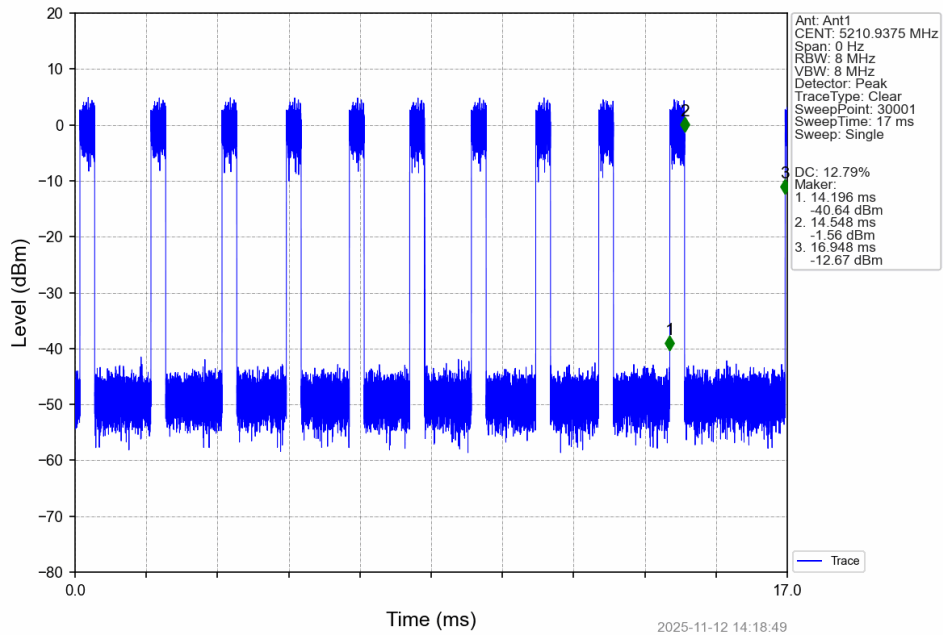
802.11ax(HEW20) HCH 5240MHz SU / Ant1 NTN



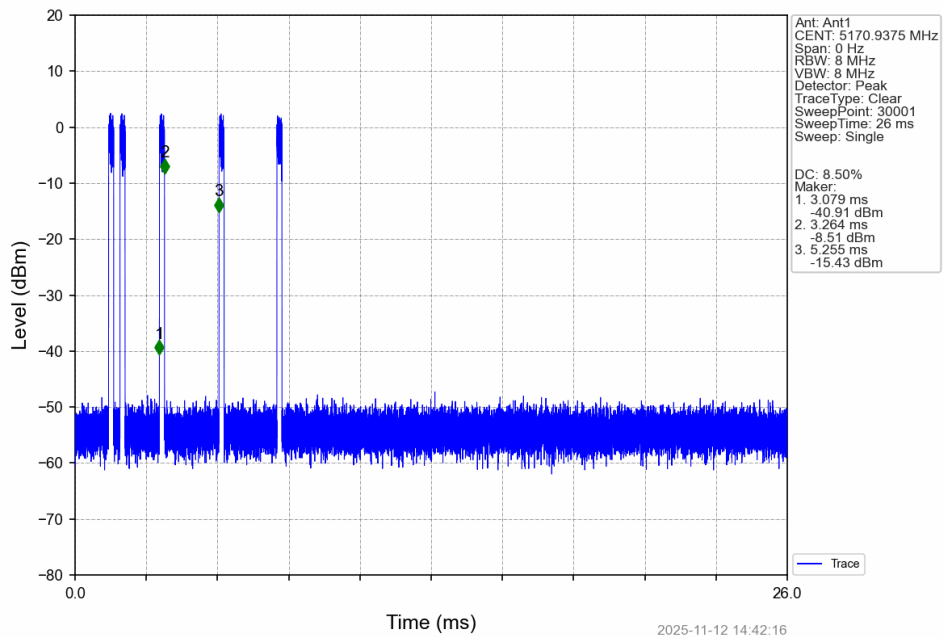
802.11ax(HEW40) LCH 5190MHz SU / Ant1 NTN



802.11ax(HEW40) HCH 5230MHz SU / Ant1 NTN



802.11ax(HEW80) MCH 5210MHz SU / Ant1 NTN



2. Bandwidth

2.1 Test Result

2.1.1 OBW

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
802.11a	SISO	5180	1	17.444	/	Pass
		5200	1	17.370	/	Pass
		5240	1	17.355	/	Pass
802.11n (HT20)	SISO	5180	1	18.228	/	Pass
		5200	1	18.269	/	Pass
		5240	1	18.224	/	Pass
802.11n (HT40)	SISO	5190	1	36.666	/	Pass
		5230	1	36.553	/	Pass
802.11ac (VHT20)	SISO	5180	1	18.223	/	Pass
		5200	1	18.187	/	Pass
		5240	1	18.268	/	Pass
802.11ac (VHT40)	SISO	5190	1	36.569	/	Pass
		5230	1	36.739	/	Pass
802.11ac (VHT80)	SISO	5210	1	76.150	/	Pass
802.11ax (HEW20)	SISO	5180	1	18.057	/	Pass
		5200	1	18.210	/	Pass
		5240	1	18.159	/	Pass
802.11ax (HEW40)	SISO	5190	1	36.562	/	Pass
		5230	1	36.485	/	Pass
802.11ax (HEW80)	SISO	5210	1	76.154	/	Pass

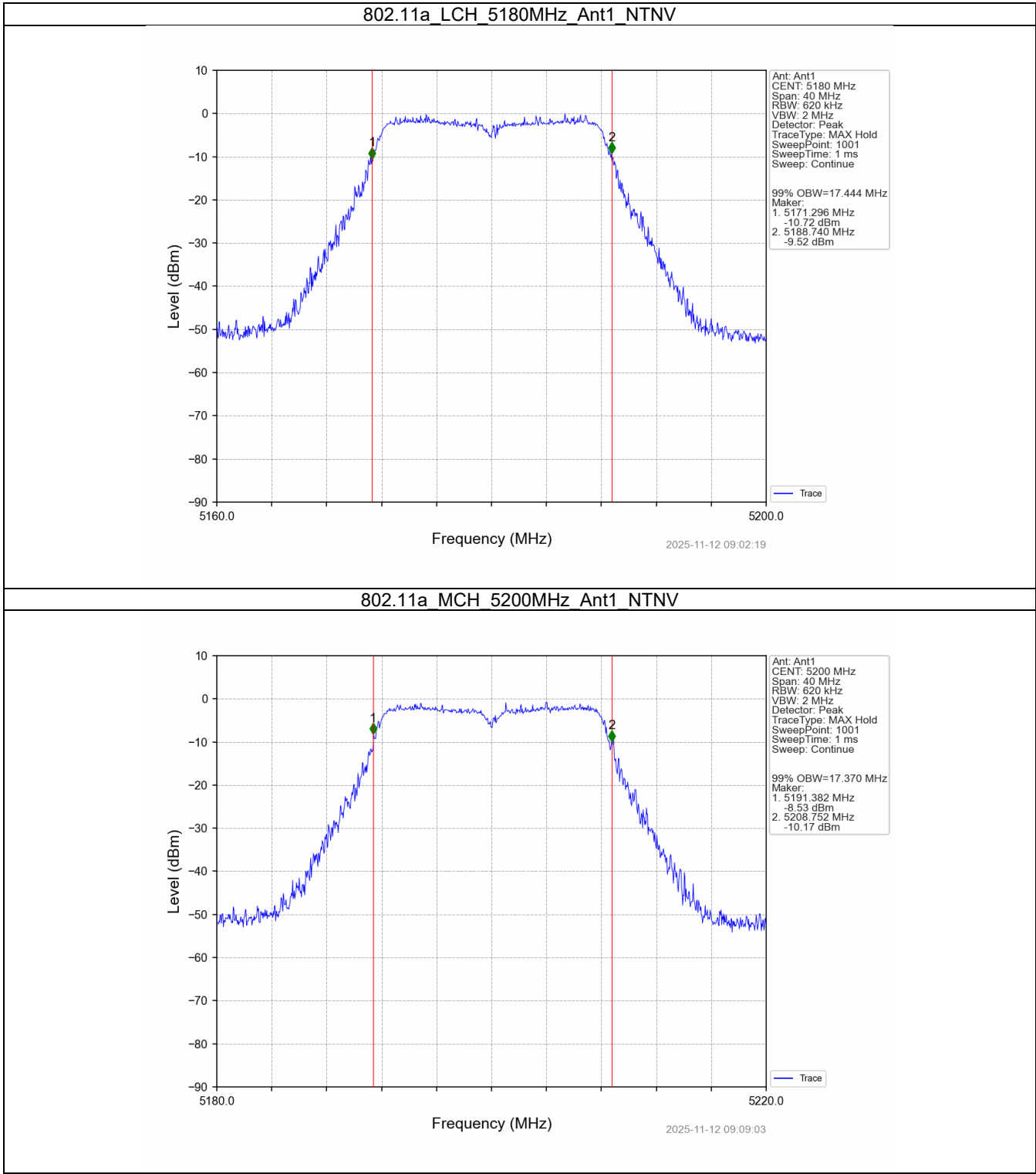
2.1.2 26dB BW

Mode	TX Type	Frequency (MHz)	ANT	26dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11a	SISO	5180	1	21.417	/	Pass
		5200	1	21.827	/	Pass
		5240	1	21.842	/	Pass
802.11n (HT20)	SISO	5180	1	22.329	/	Pass
		5200	1	21.994	/	Pass
		5240	1	22.075	/	Pass
802.11n (HT40)	SISO	5190	1	43.592	/	Pass
		5230	1	43.028	/	Pass
802.11ac (VHT20)	SISO	5180	1	22.253	/	Pass
		5200	1	22.210	/	Pass
		5240	1	22.205	/	Pass
802.11ac (VHT40)	SISO	5190	1	43.148	/	Pass
		5230	1	42.551	/	Pass
802.11ac (VHT80)	SISO	5210	1	81.897	/	Pass
802.11ax (HEW20)	SISO	5180	1	21.551	/	Pass
		5200	1	22.111	/	Pass
		5240	1	22.101	/	Pass
802.11ax	SISO	5190	1	42.110	/	Pass

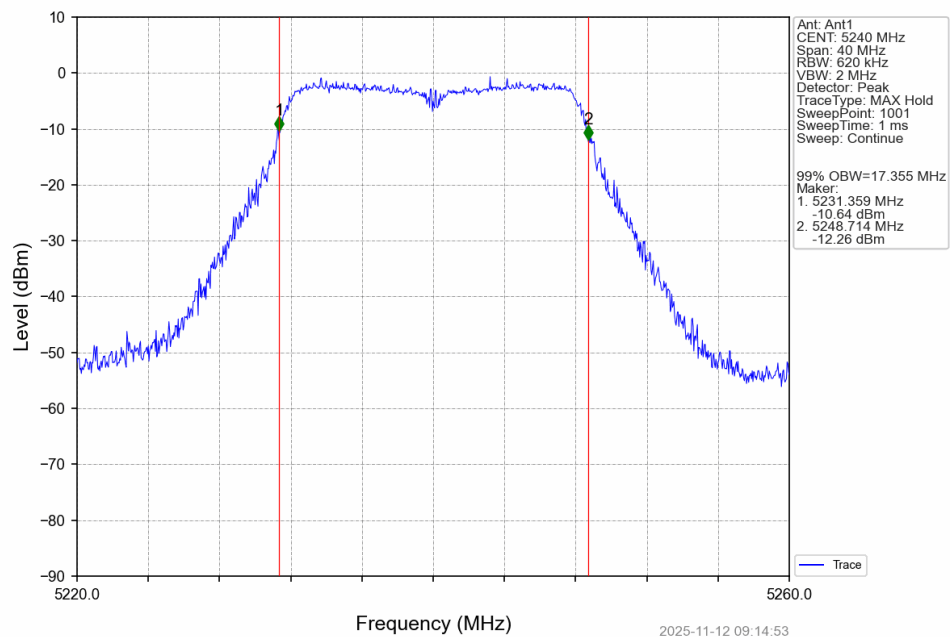
(HEW40)		5230	1	42.284	/	Pass
802.11ax (HEW80)	SISO	5210	1	82.277	/	Pass

2.2 Test Graph

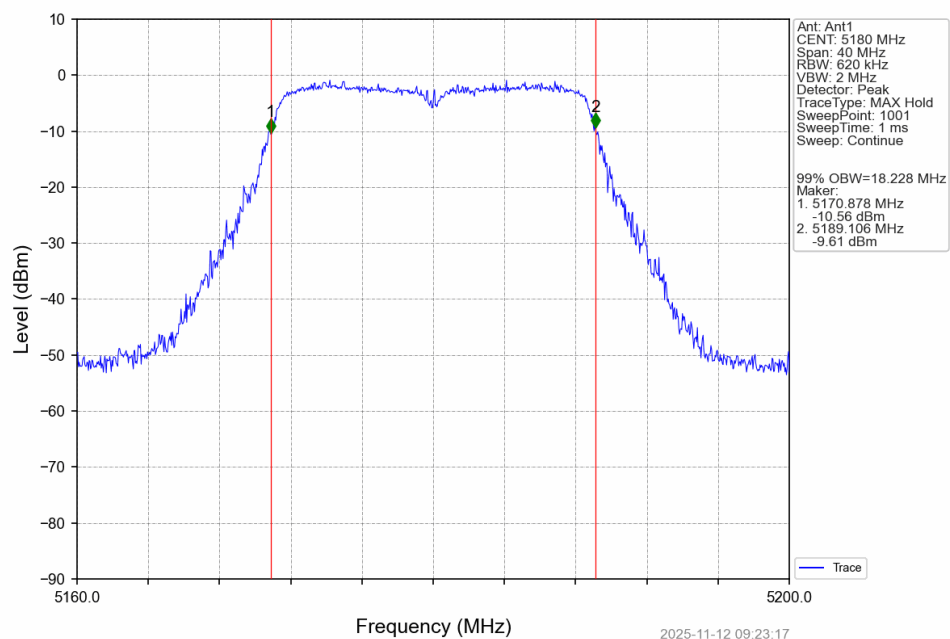
2.2.1 OBW



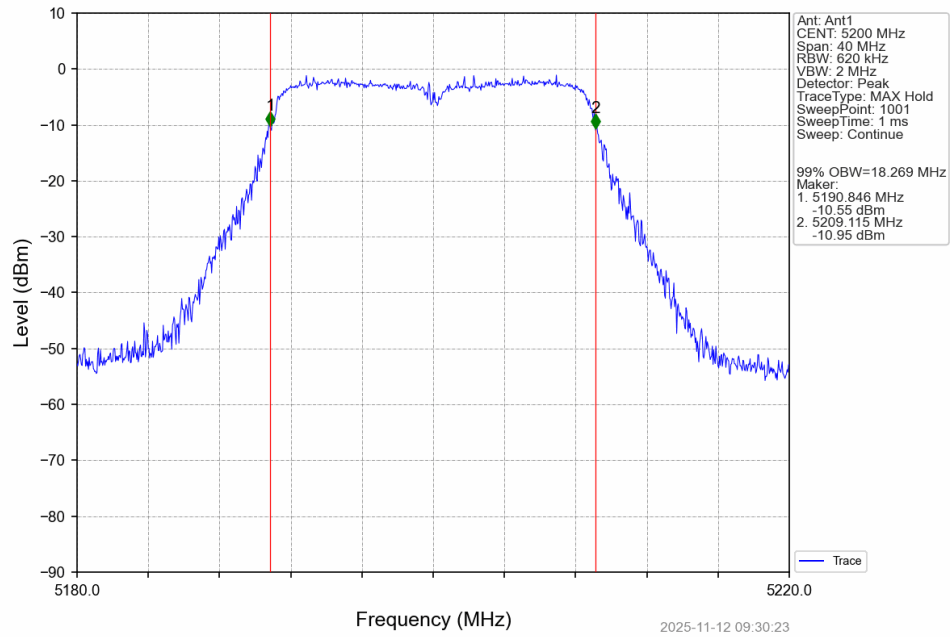
802.11a_HCH_5240MHz_Ant1_NTNV



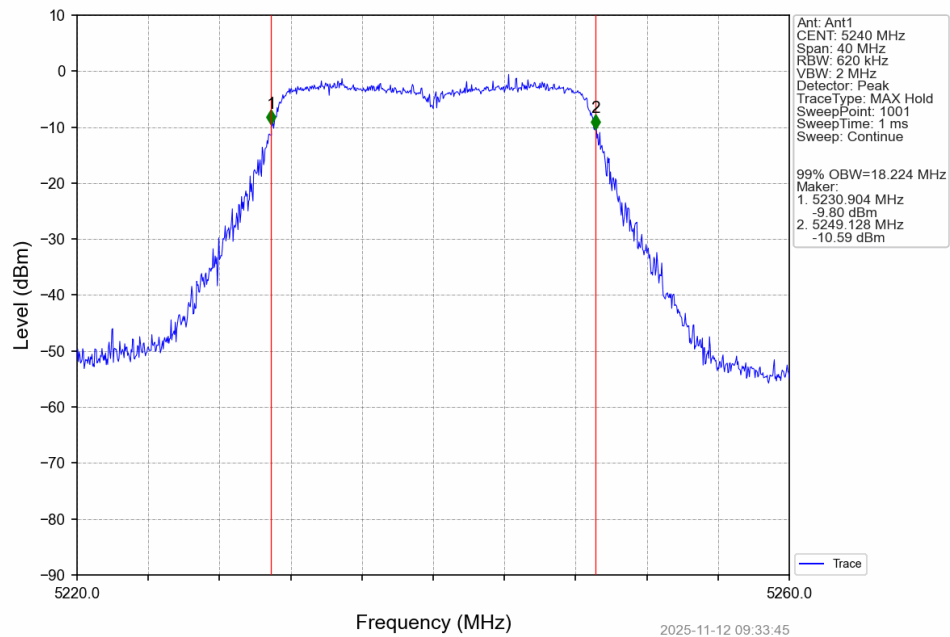
802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



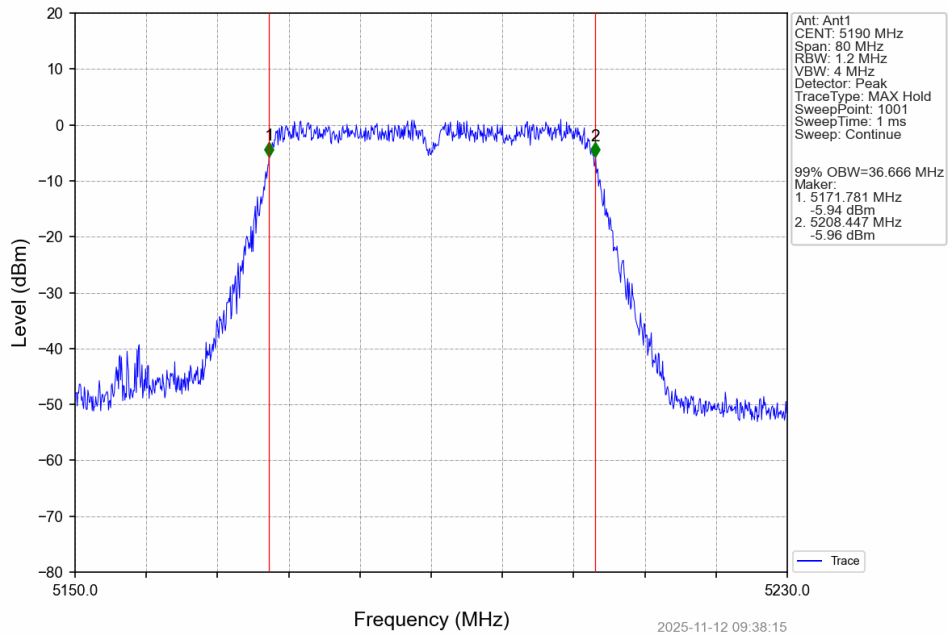
802.11n(HT20) MCH 5200MHz Ant1 NTN



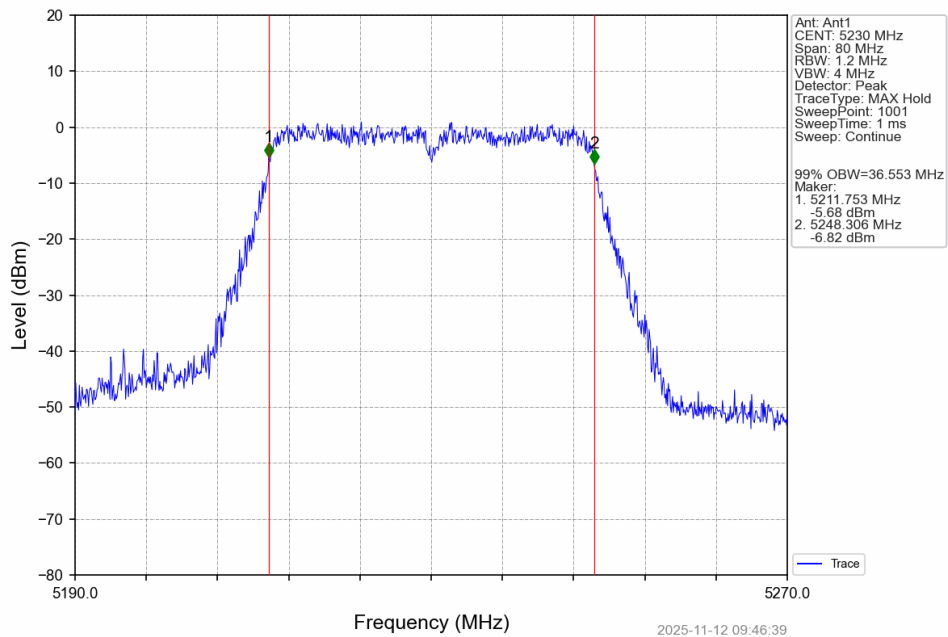
802.11n(HT20)_HCH_5240MHz_Ant1_NTN



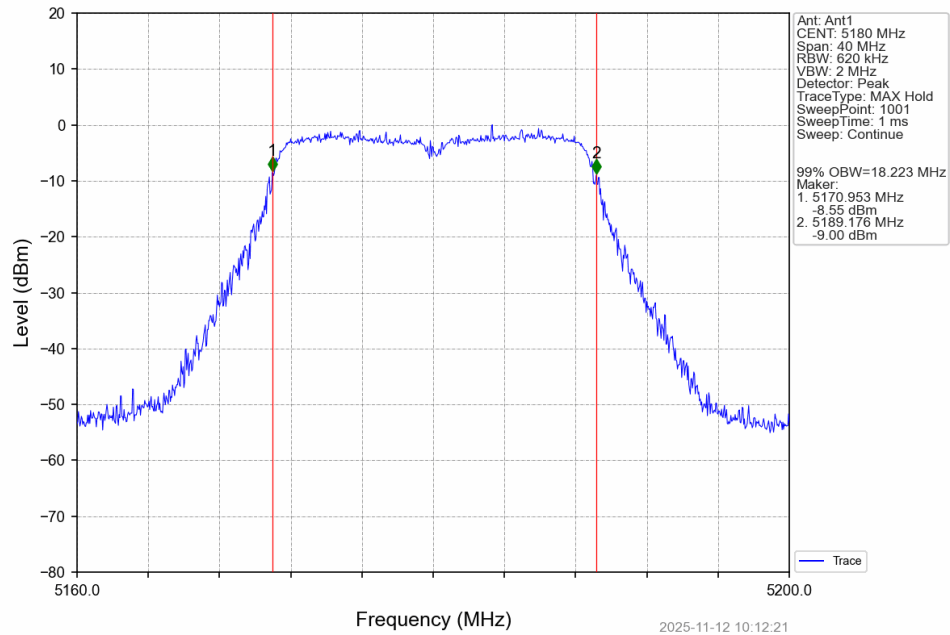
802.11n(HT40) LCH 5190MHz Ant1 NTN



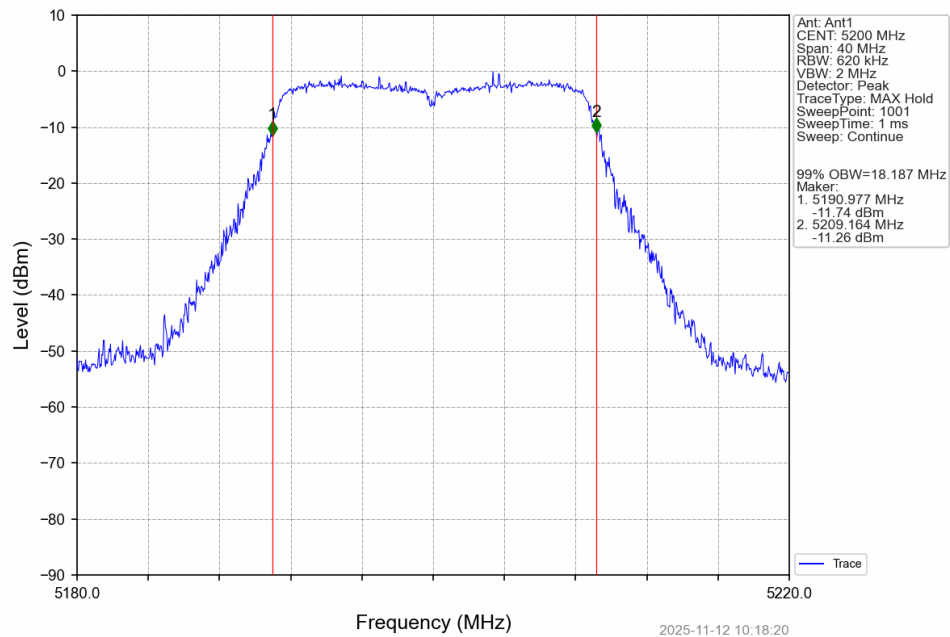
802.11n(HT40)_HCH_5230MHz_Ant1_NTN



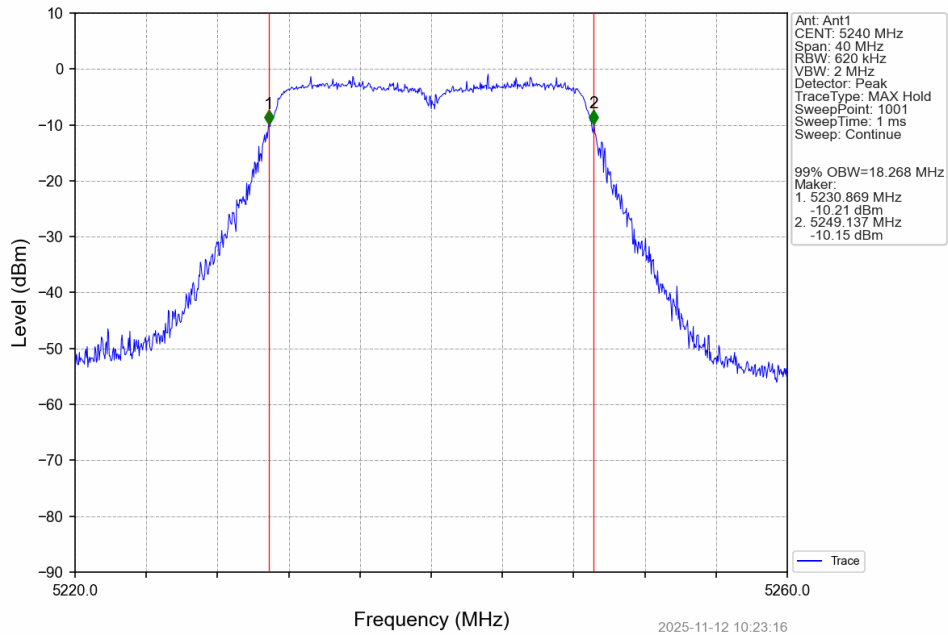
802.11ac(VHT20) LCH 5180MHz Ant1 NTN



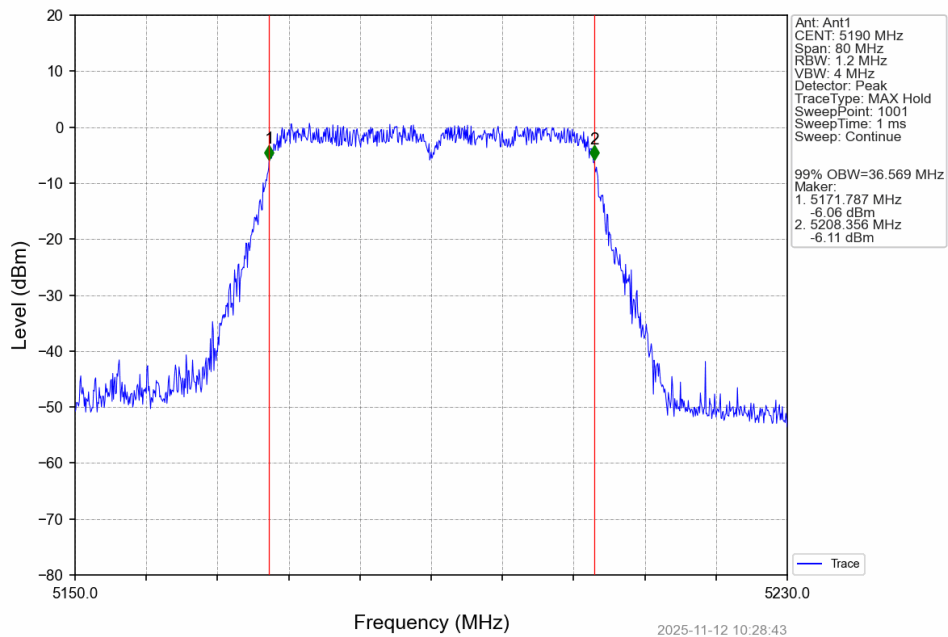
802.11ac(VHT20) MCH 5200MHz Ant1 NTN



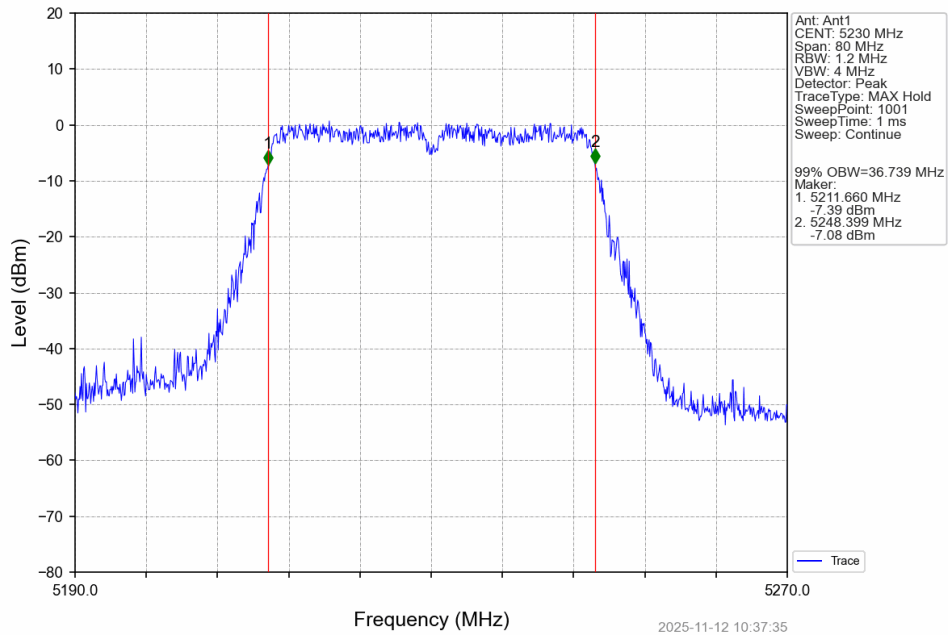
802.11ac(VHT20) HCH 5240MHz Ant1 NTN



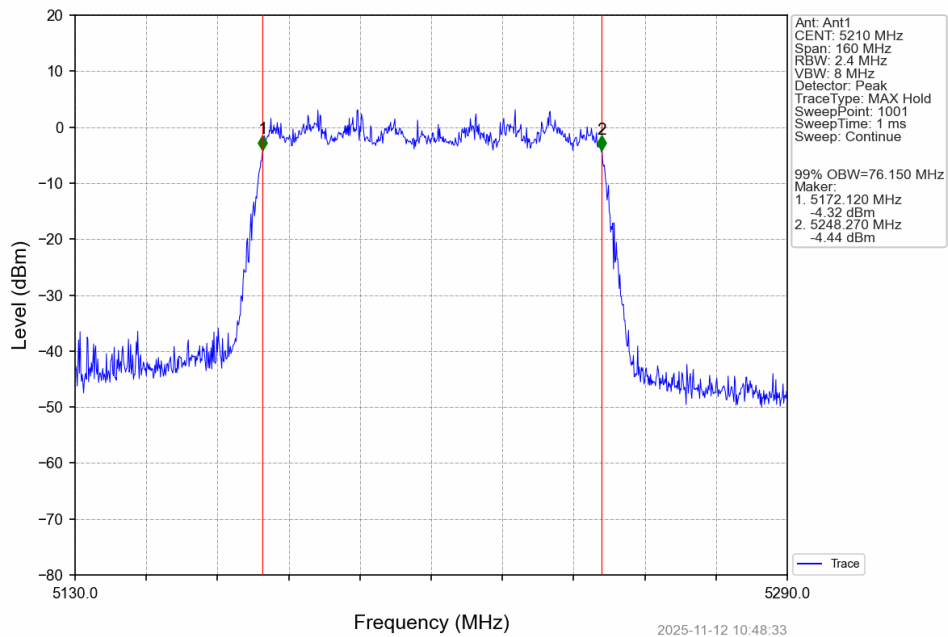
802.11ac(VHT40)_LCH_5190MHz_Ant1_NTN



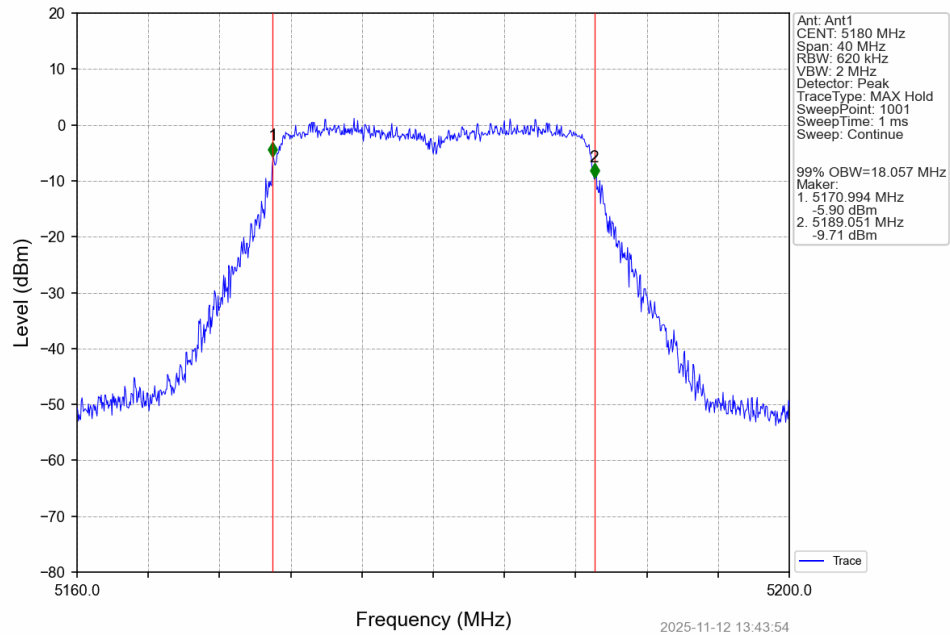
802.11ac(VHT40) HCH 5230MHz Ant1 NTN



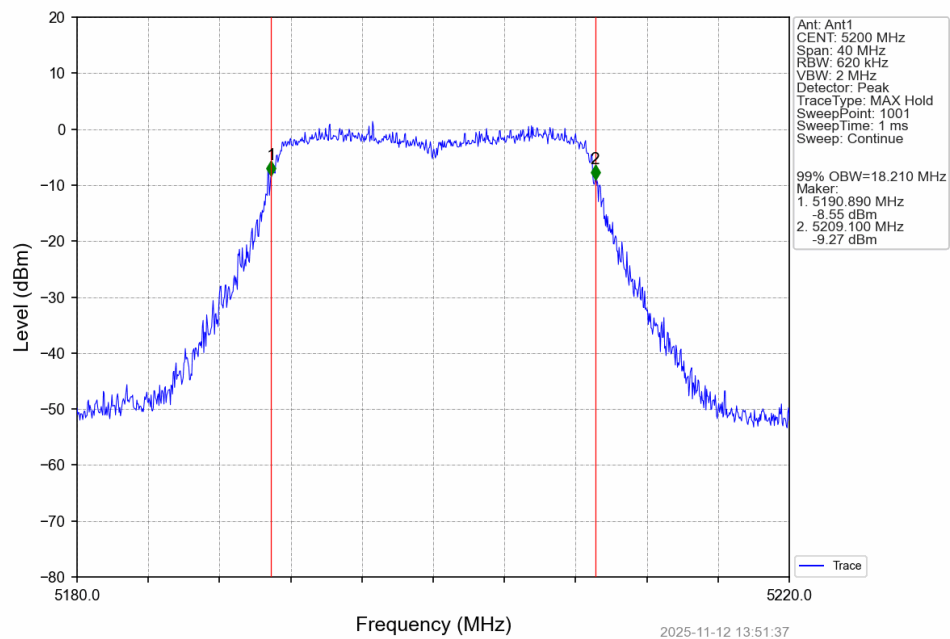
802.11ac(VHT80) MCH 5210MHz Ant1 NTN



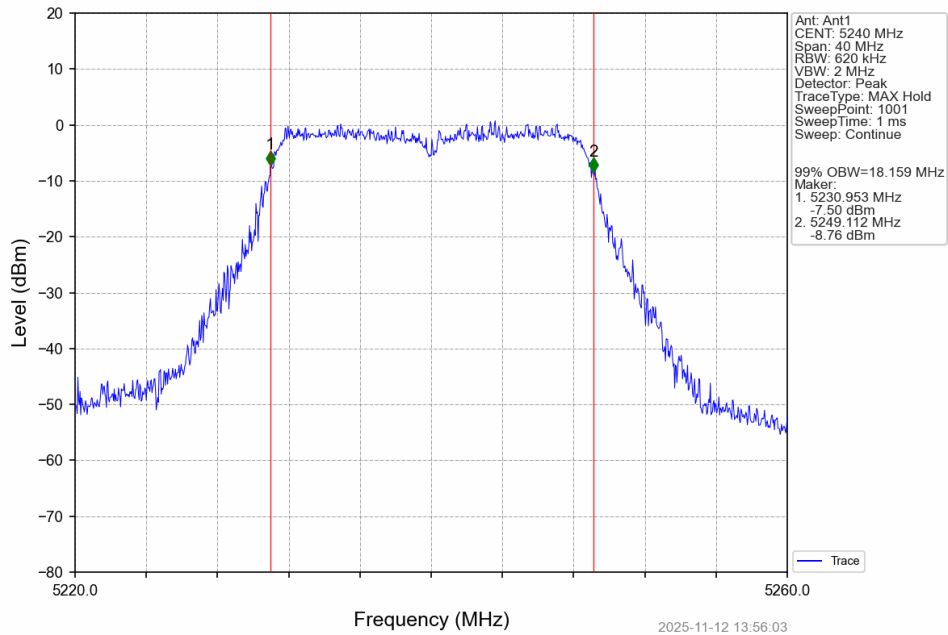
802.11ax(HEW20) LCH 5180MHz SU / Ant1 NTN



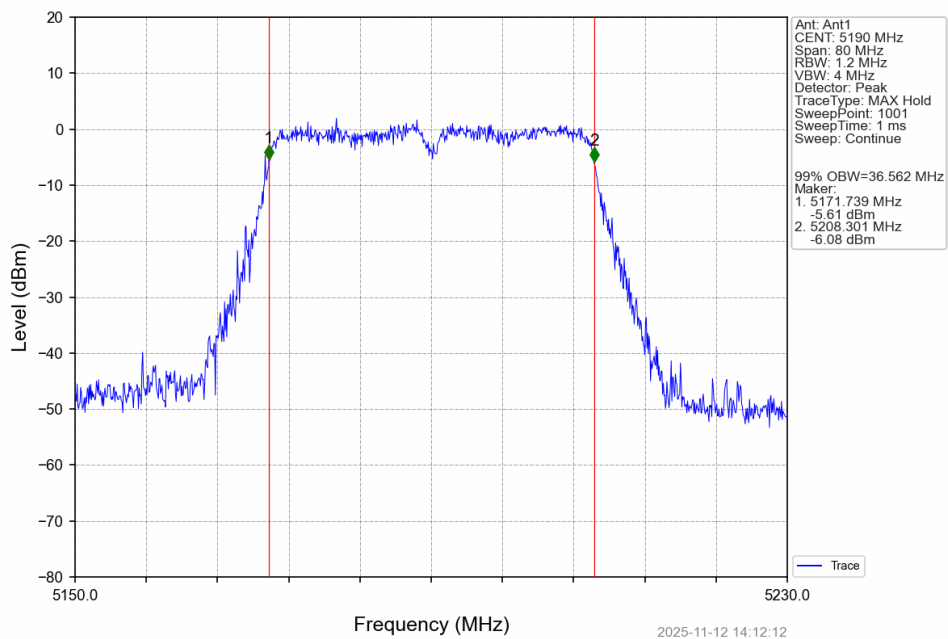
802.11ax(HEW20) MCH 5200MHz SU / Ant1 NTN



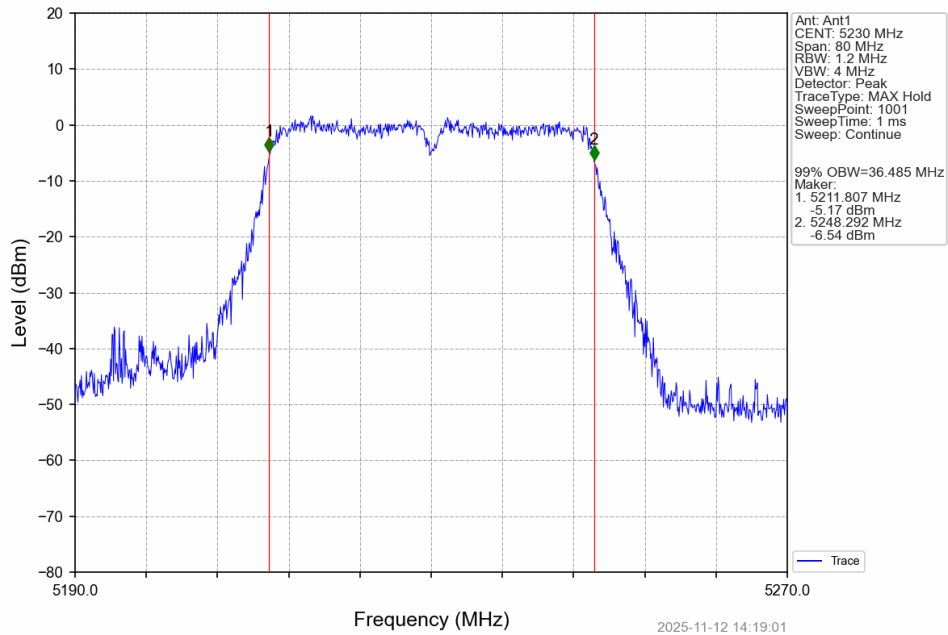
802.11ax(HEW20) HCH 5240MHz SU / Ant1 NTN



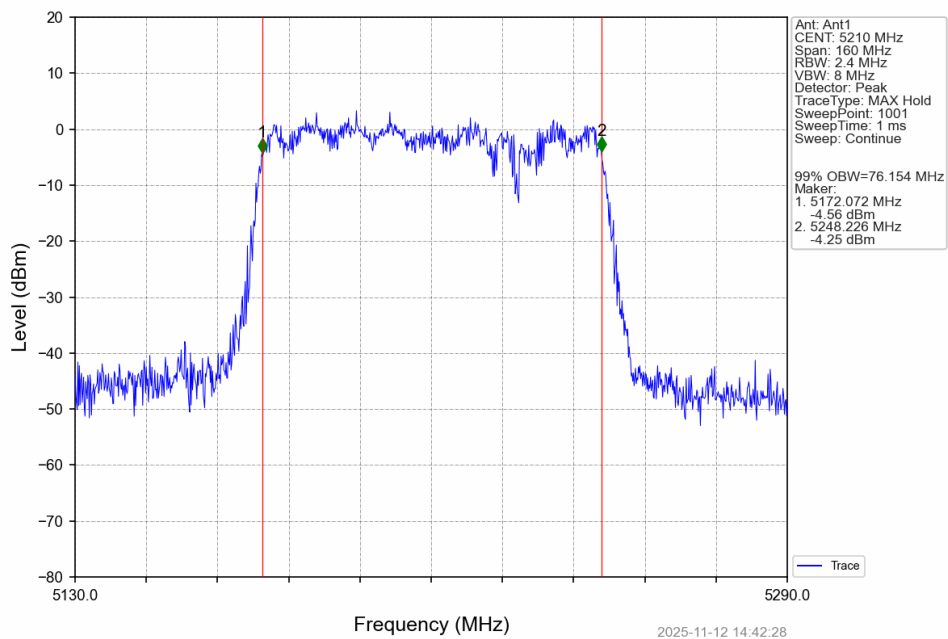
802.11ax(HEW40) LCH 5190MHz SU / Ant1 NTN



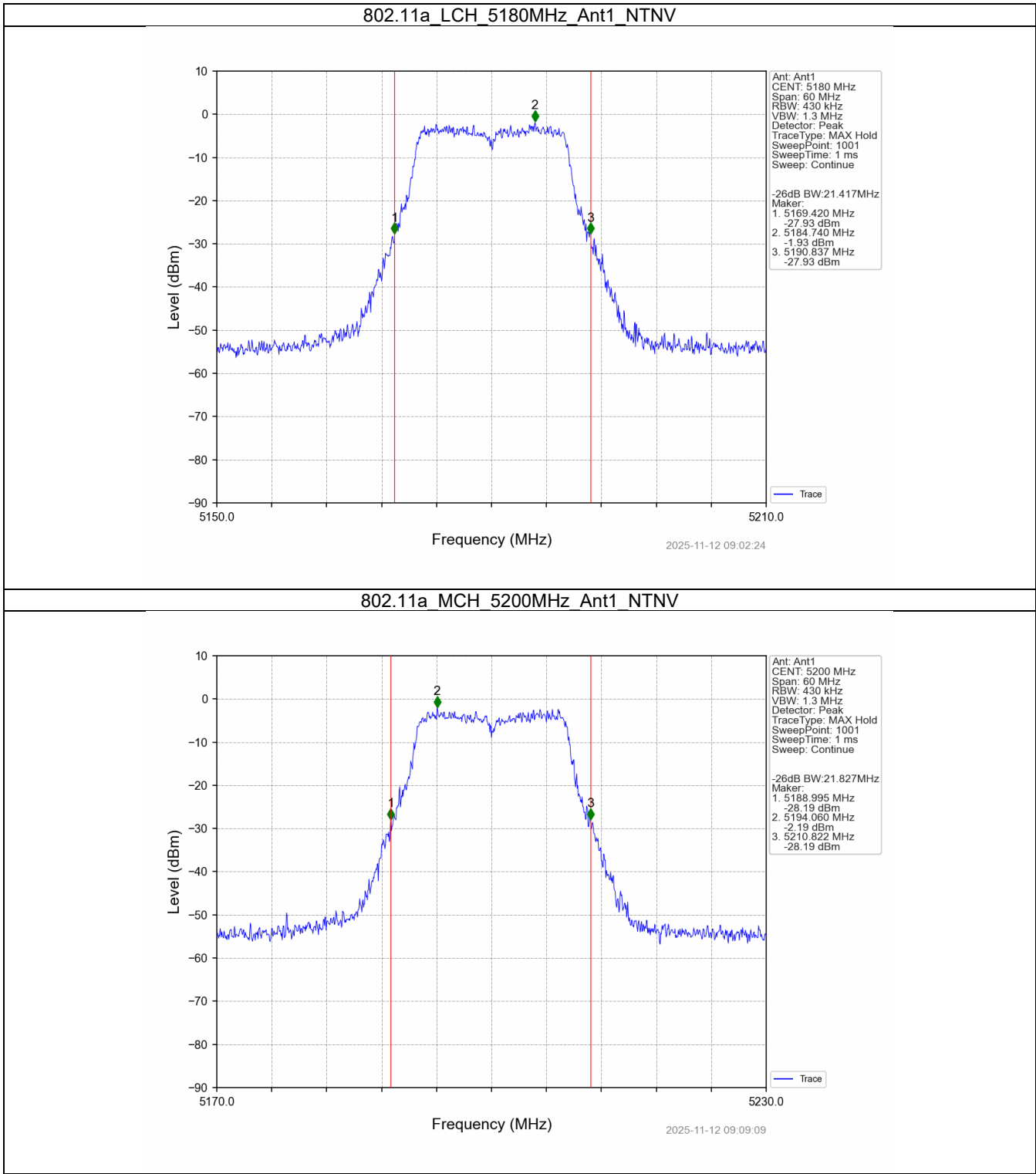
802.11ax(HEW40) HCH 5230MHz SU / Ant1 NTN



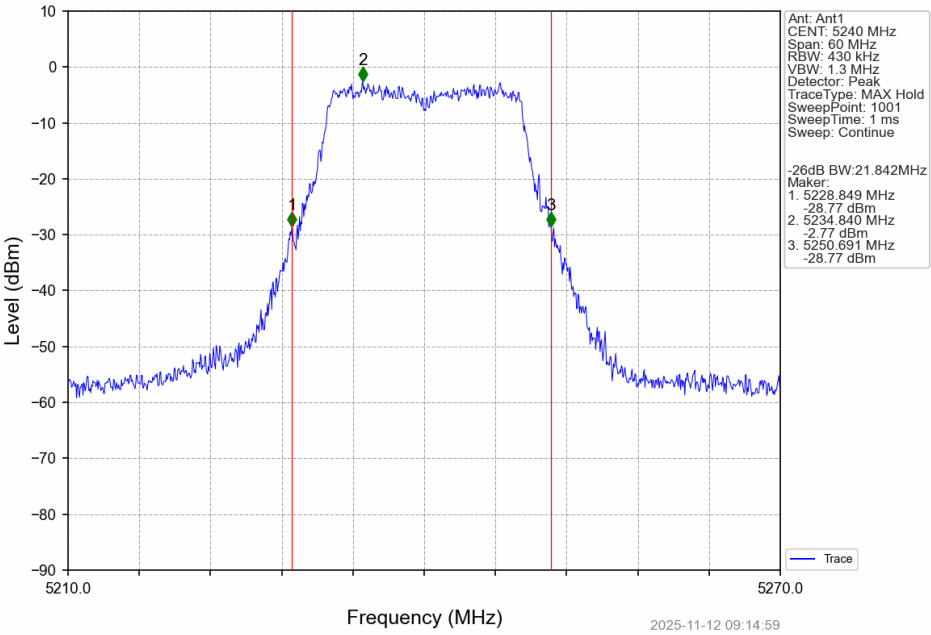
802.11ax(HEW80) MCH 5210MHz SU / Ant1 NTN



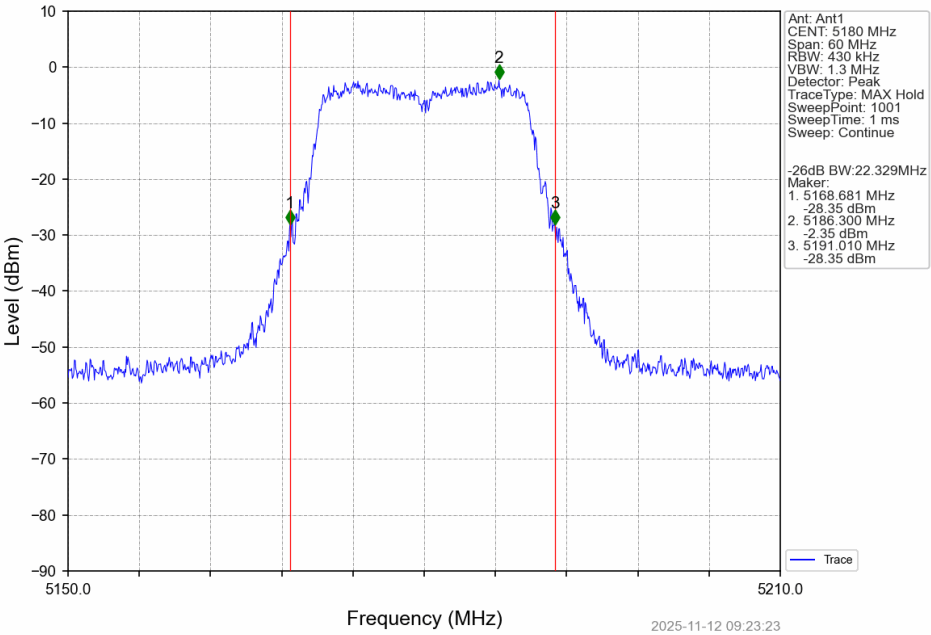
2.2.2 26dB BW



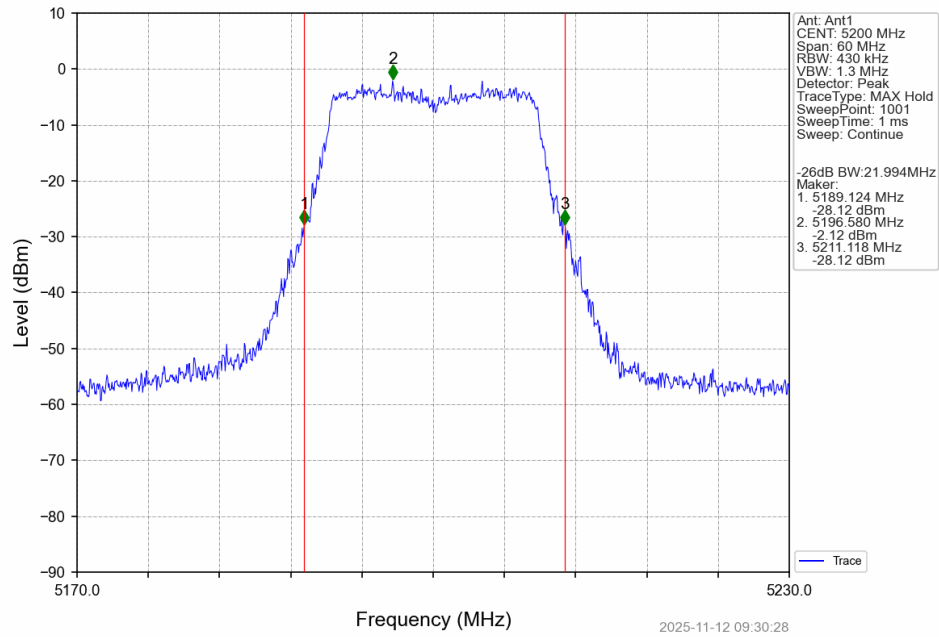
802.11a_HCH_5240MHz_Ant1_NTNV



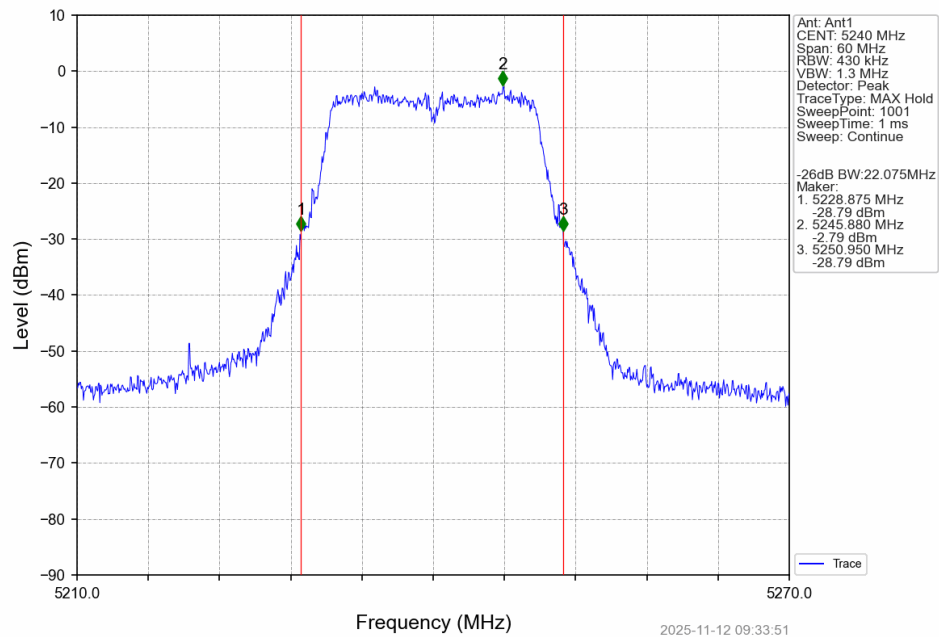
802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



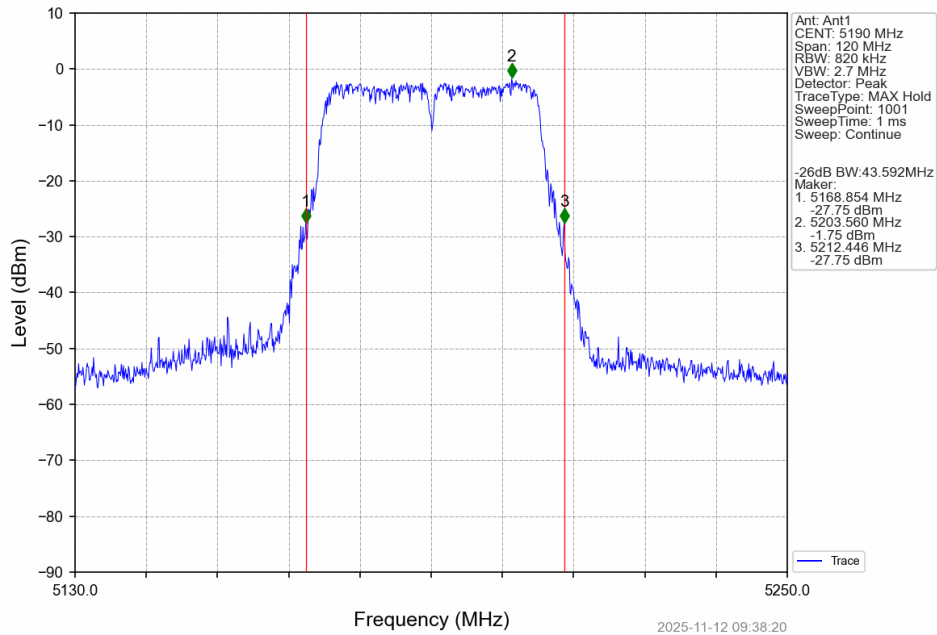
802.11n(HT20) MCH 5200MHz Ant1 NTN



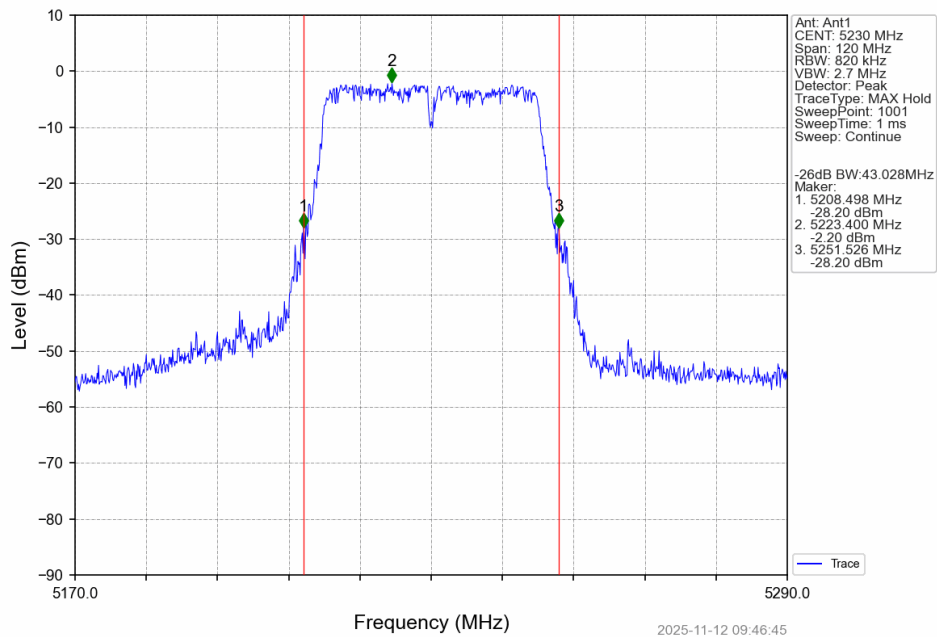
802.11n(HT20)_HCH 5240MHz_Ant1 NTN



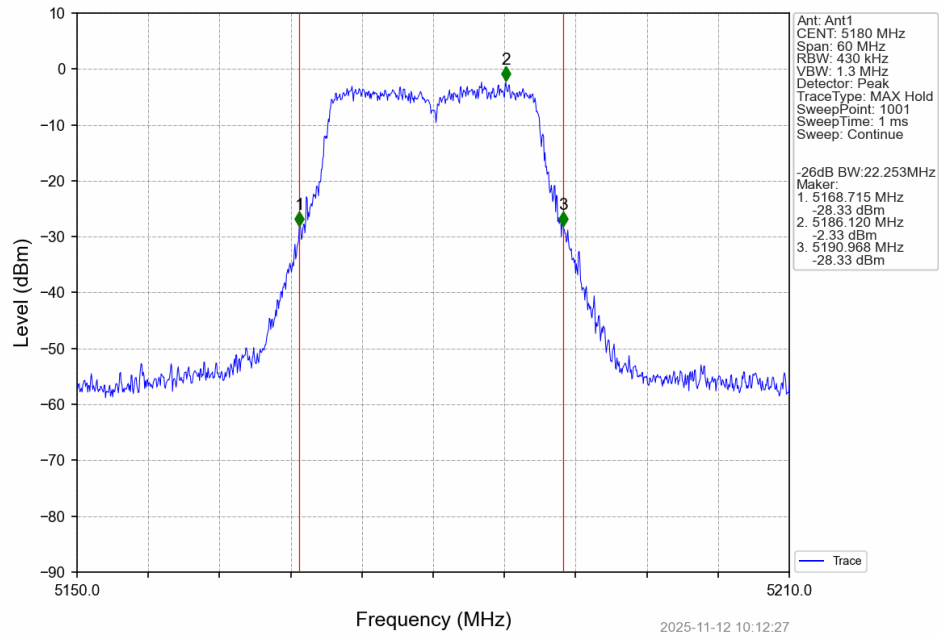
802.11n(HT40) LCH 5190MHz Ant1 NTN



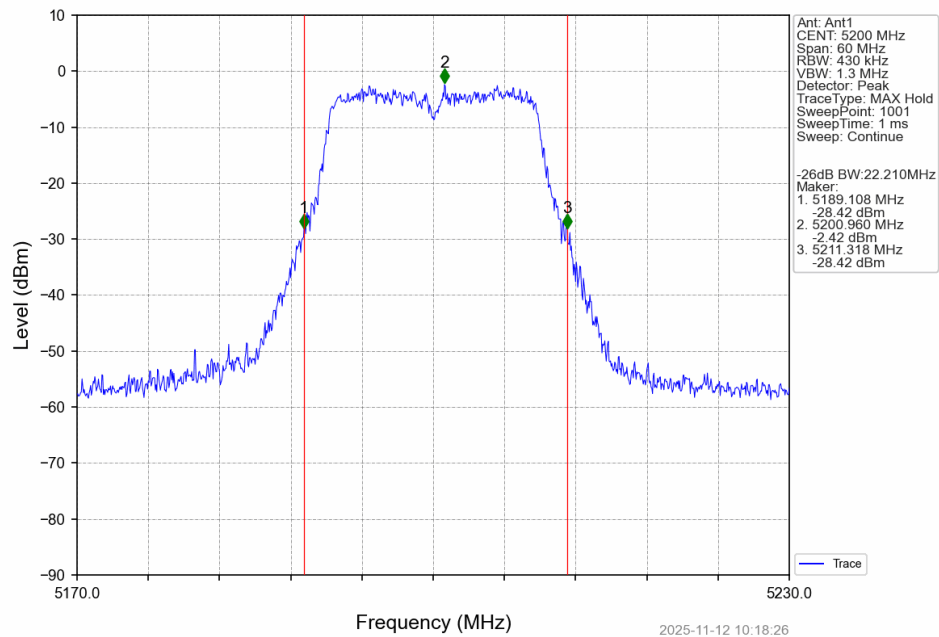
802.11n(HT40)_HCH_5230MHz_Ant1_NTN



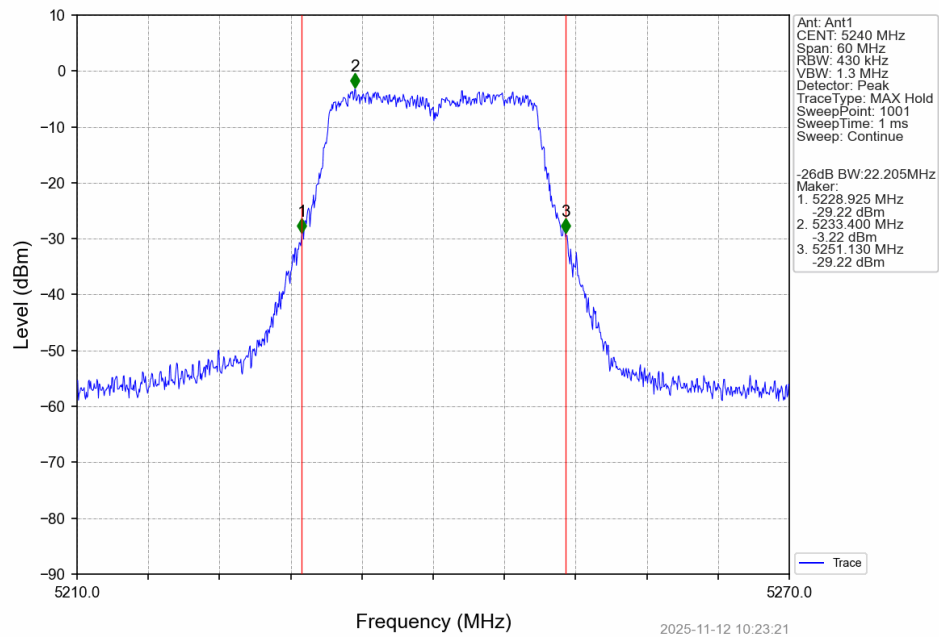
802.11ac(VHT20) LCH 5180MHz Ant1 NTN



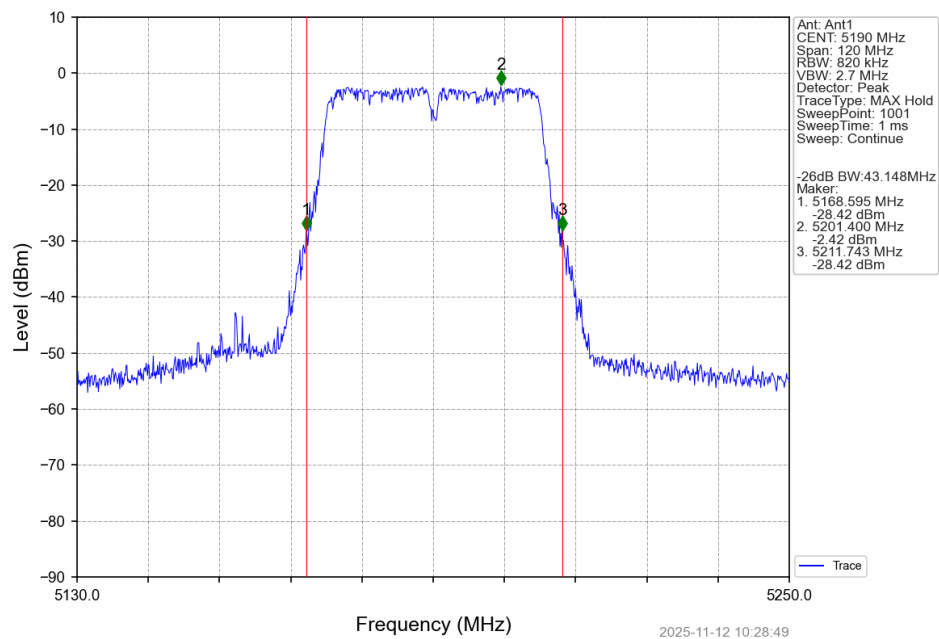
802.11ac(VHT20)_MCH_5200MHz_Ant1_NTN



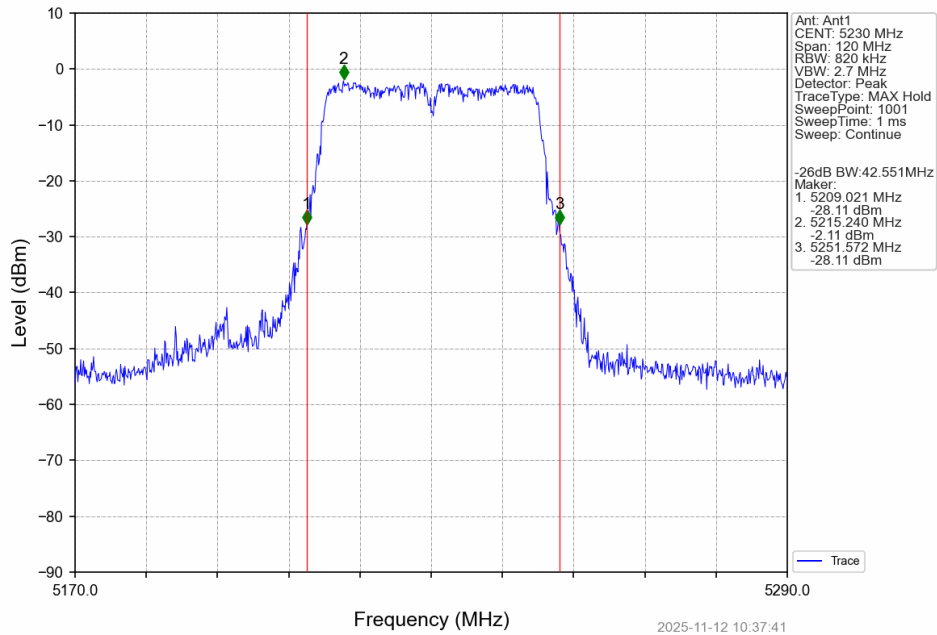
802.11ac(VHT20) HCH 5240MHz Ant1 NTN



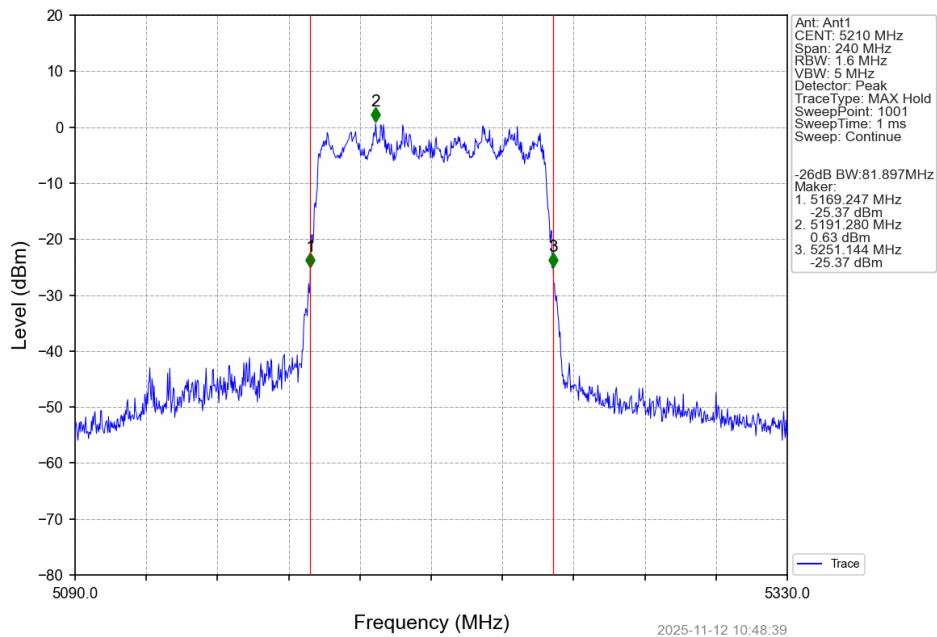
802.11ac(VHT40)_LCH_5190MHz_Ant1_NTN



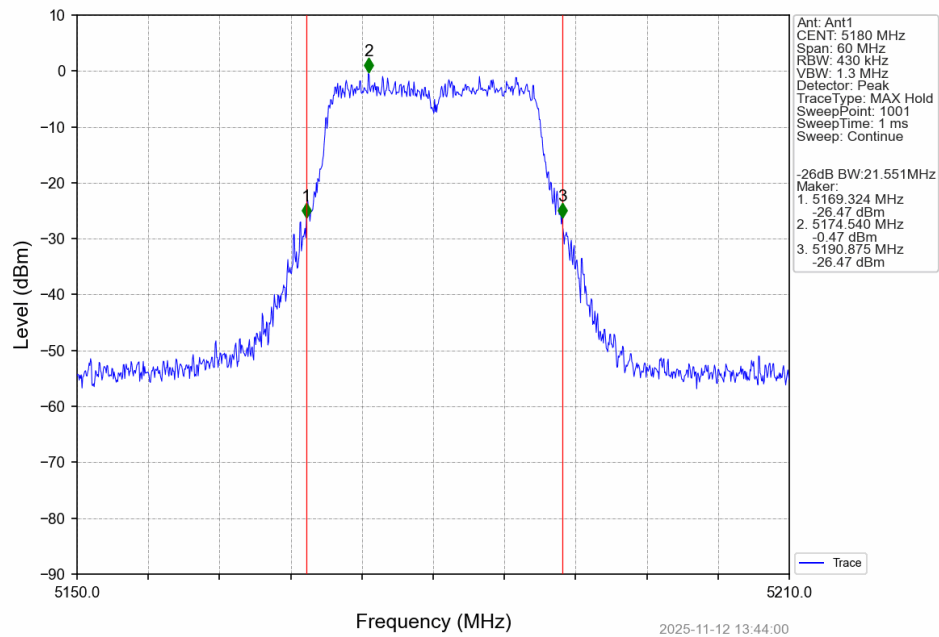
802.11ac(VHT40) HCH 5230MHz Ant1 NTN



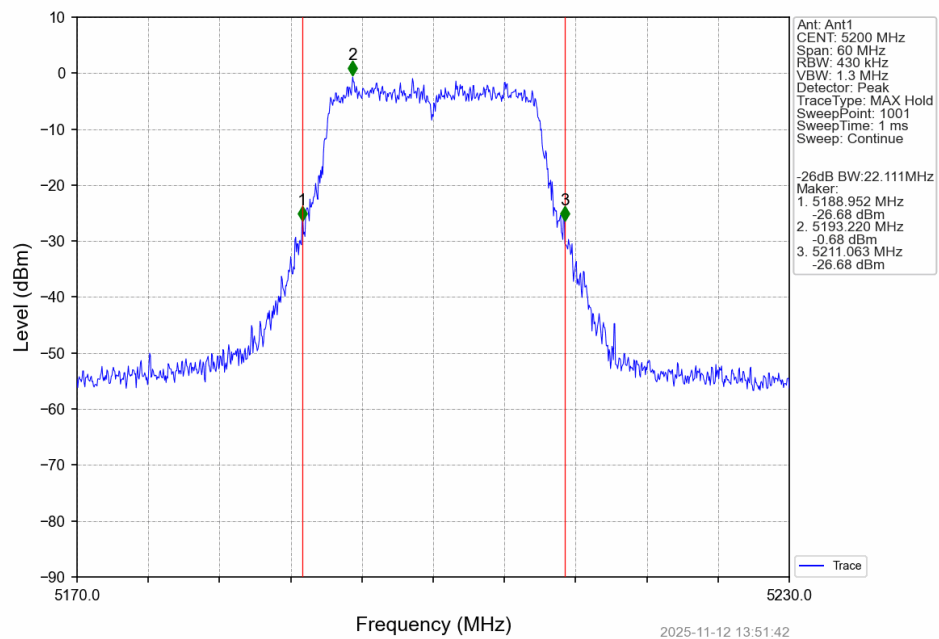
802.11ac(VHT80) MCH 5210MHz Ant1 NTN



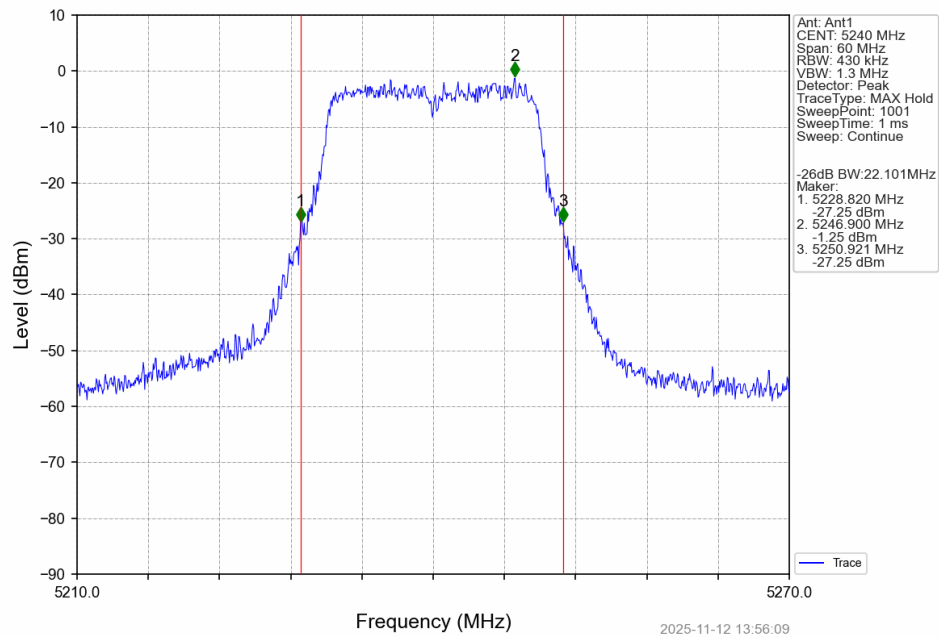
802.11ax(HEW20) LCH 5180MHz SU / Ant1 NTN



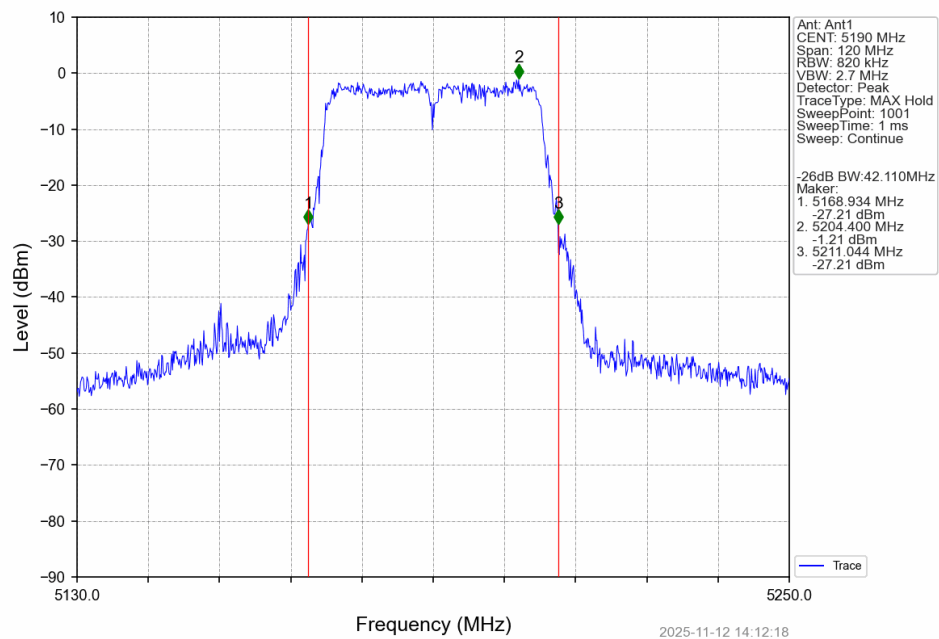
802.11ax(HEW20) MCH 5200MHz SU / Ant1 NTN



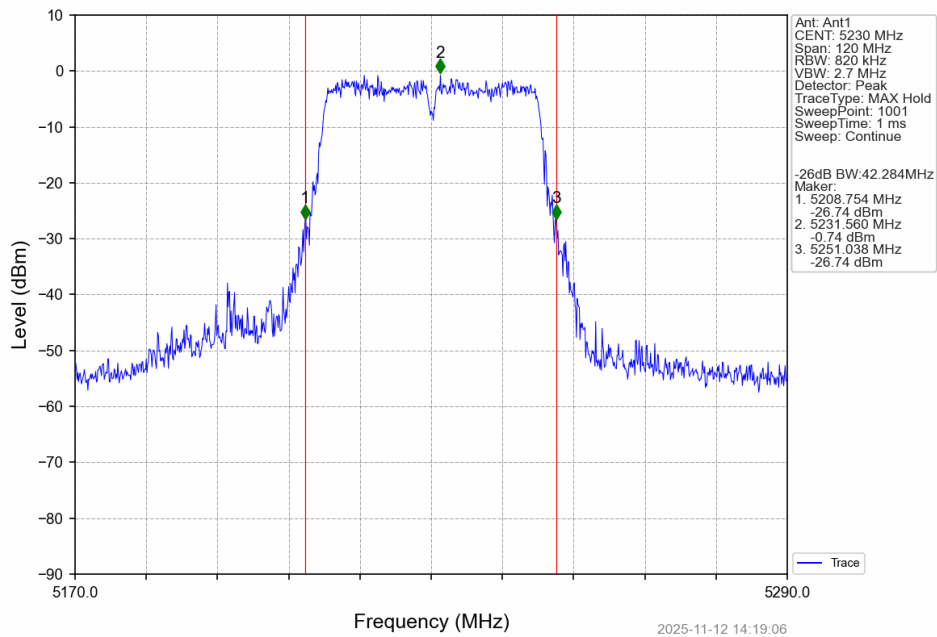
802.11ax(HEW20) HCH 5240MHz SU / Ant1 NTN



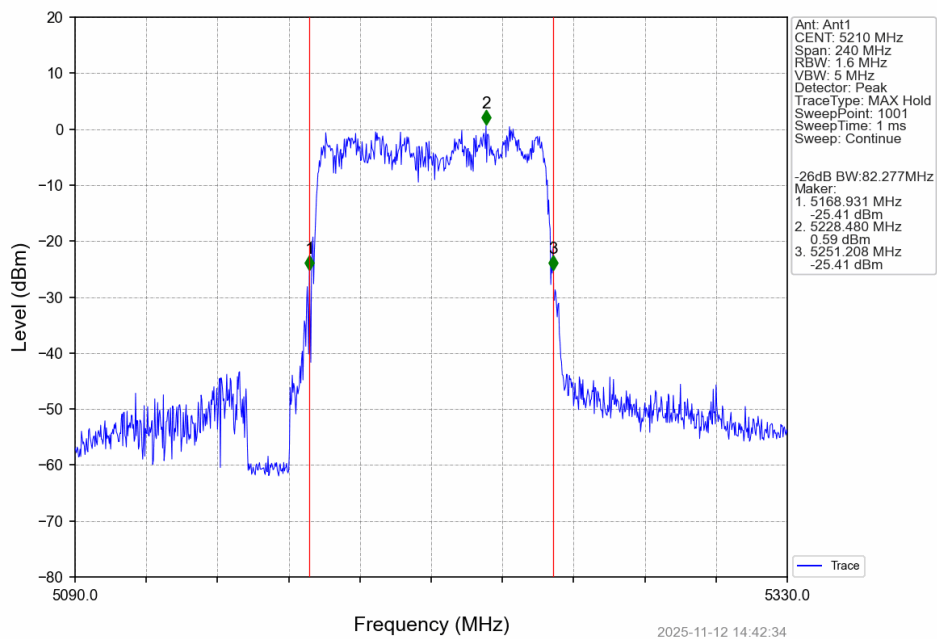
802.11ax(HEW40) LCH 5190MHz SU / Ant1 NTN



802.11ax(HEW40) HCH 5230MHz SU / Ant1 NTN



802.11ax(HEW80) MCH 5210MHz SU / Ant1 NTN



3. Maximum Conducted Output Power

3.1 Test Result

3.1.1 Power

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11a	SISO	5180	5.18	<=23.98	Pass
		5200	5.14	<=23.98	Pass
		5240	4.60	<=23.98	Pass
802.11n (HT20)	SISO	5180	5.12	<=23.98	Pass
		5200	4.47	<=23.98	Pass
		5240	4.00	<=23.98	Pass
802.11n (HT40)	SISO	5190	5.91	<=23.98	Pass
		5230	5.86	<=23.98	Pass
802.11ac (VHT20)	SISO	5180	5.06	<=23.98	Pass
		5200	5.11	<=23.98	Pass
		5240	4.62	<=23.98	Pass
802.11ac (VHT40)	SISO	5190	5.85	<=23.98	Pass
		5230	5.85	<=23.98	Pass
802.11ac (VHT80)	SISO	5210	6.31	<=23.98	Pass
802.11ax (HEW20)	SISO	5180	6.60	<=23.98	Pass
		5200	6.55	<=23.98	Pass
		5240	6.18	<=23.98	Pass
802.11ax (HEW40)	SISO	5190	6.99	<=23.98	Pass
		5230	6.94	<=23.98	Pass
802.11ax (HEW80)	SISO	5210	7.46	<=23.98	Pass

The duty factor is already compensated in the result.

4. Maximum Power Spectral Density

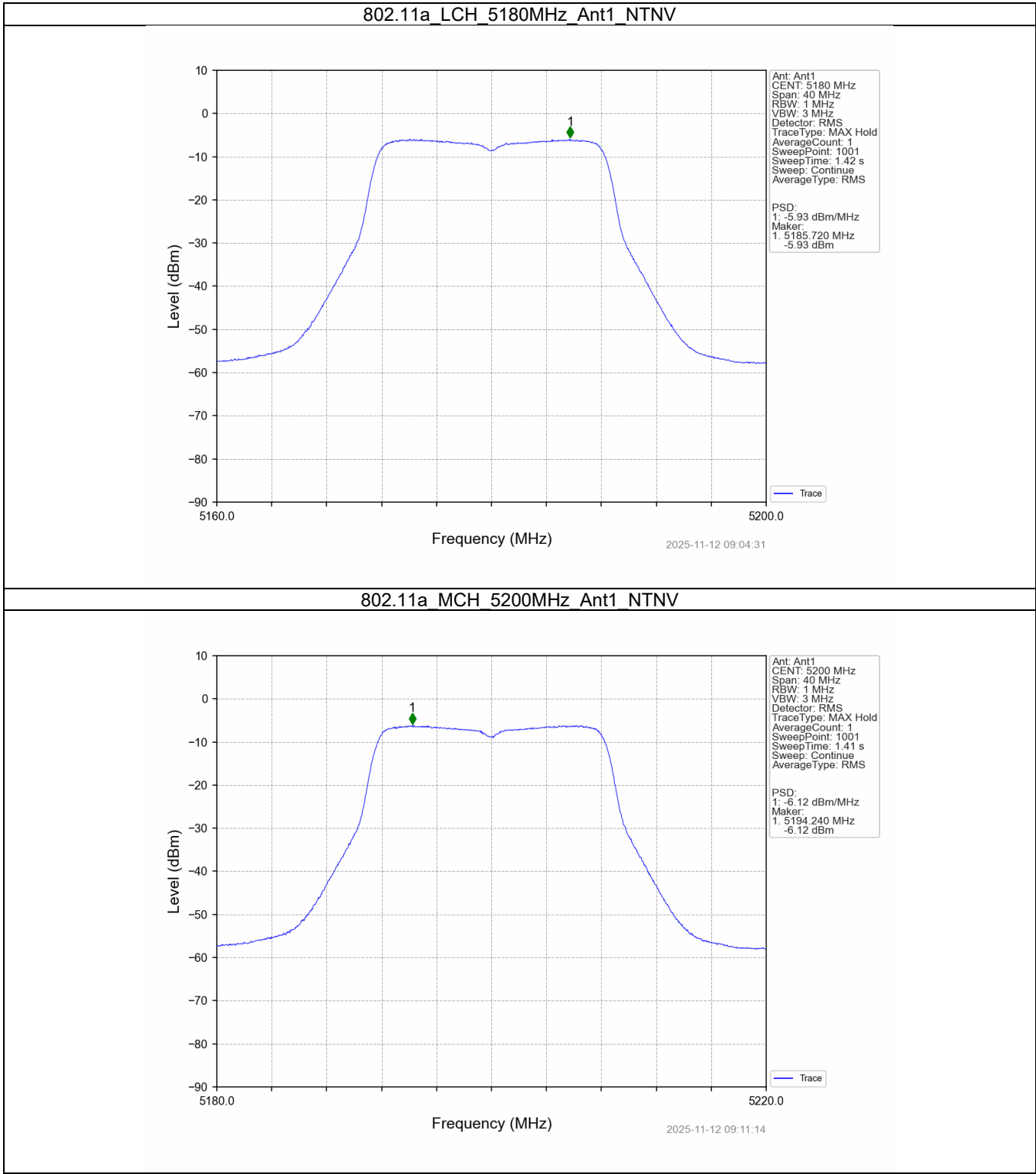
4.1 Test Result

4.1.1 PSD

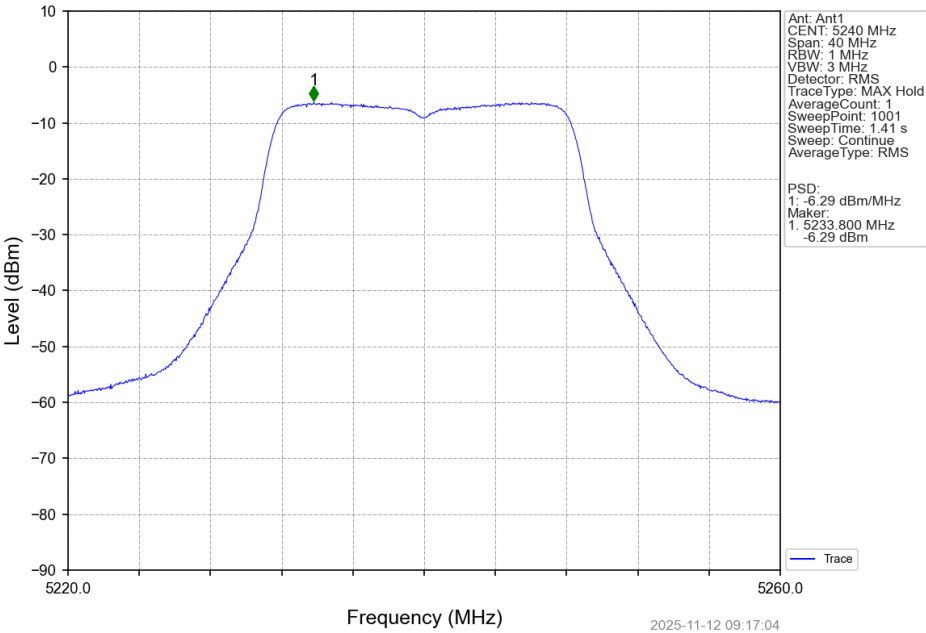
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/MHz)				Verdict
			ANT1	Duty factor	result	Limit	
802.11a	SISO	5180	-5.93	0.45	-5.48	<=11	Pass
		5200	-6.12	5.61	-0.51	<=11	Pass
		5240	-6.29	3.78	-2.51	<=11	Pass
802.11n (HT20)	SISO	5180	-6.12	1.26	-4.86	<=11	Pass
		5200	-6.75	0.76	-5.99	<=11	Pass
		5240	-7.25	0.76	-6.49	<=11	Pass
802.11n (HT40)	SISO	5190	-8.71	5.41	-3.3	<=11	Pass
		5230	-8.65	4.83	-3.82	<=11	Pass
802.11ac (VHT20)	SISO	5180	-6.39	1.39	-5	<=11	Pass
		5200	-6.38	1.31	-5.07	<=11	Pass
		5240	-6.79	2.71	-4.08	<=11	Pass
802.11ac (VHT40)	SISO	5190	-8.70	6.77	-1.93	<=11	Pass
		5230	-8.69	6.09	-2.6	<=11	Pass
802.11ac (VHT80)	SISO	5210	-10.09	8.33	-1.76	<=11	Pass
802.11ax (HEW20)	SISO	5180	-4.72	8.10	3.38	<=11	Pass
		5200	-4.76	5.33	0.57	<=11	Pass
		5240	-5.07	4.41	-0.66	<=11	Pass
802.11ax (HEW40)	SISO	5190	-7.49	8.83	1.34	<=11	Pass
		5230	-7.55	8.93	1.38	<=11	Pass
802.11ax (HEW80)	SISO	5210	-8.85	10.70	1.85	<=11	Pass

4.2 Test Graph

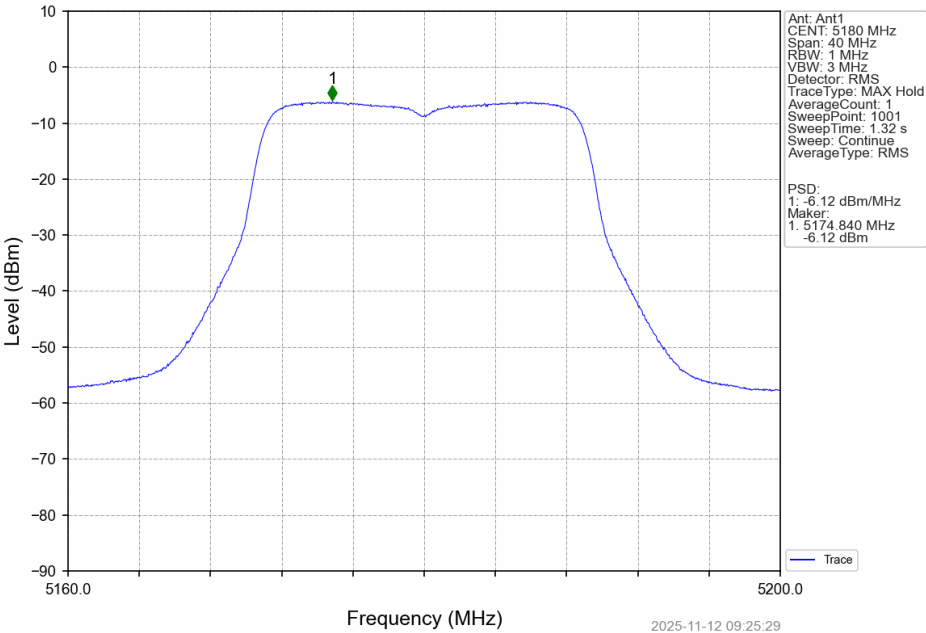
4.2.1 PSD



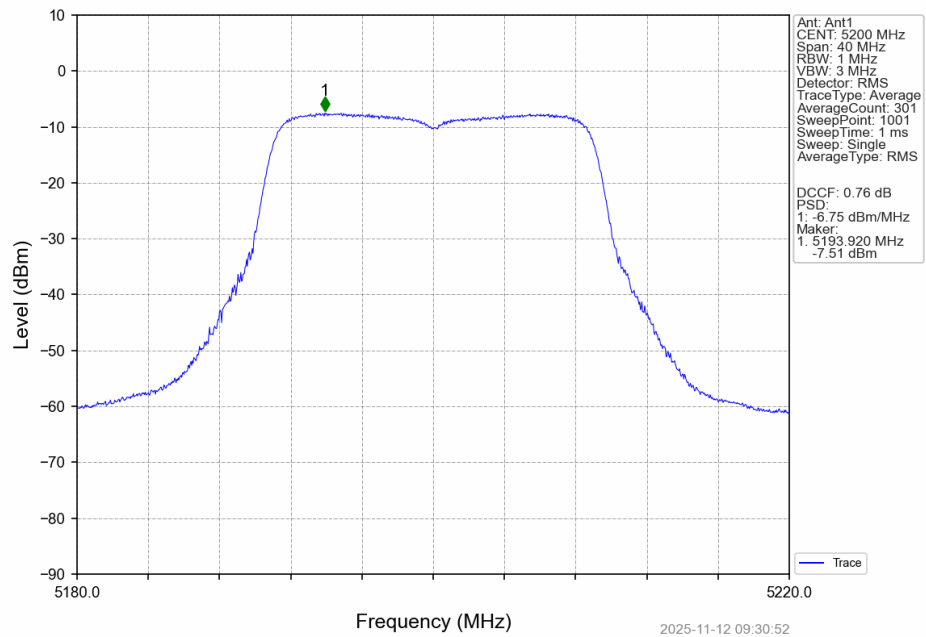
802.11a_HCH_5240MHz_Ant1_NTNV



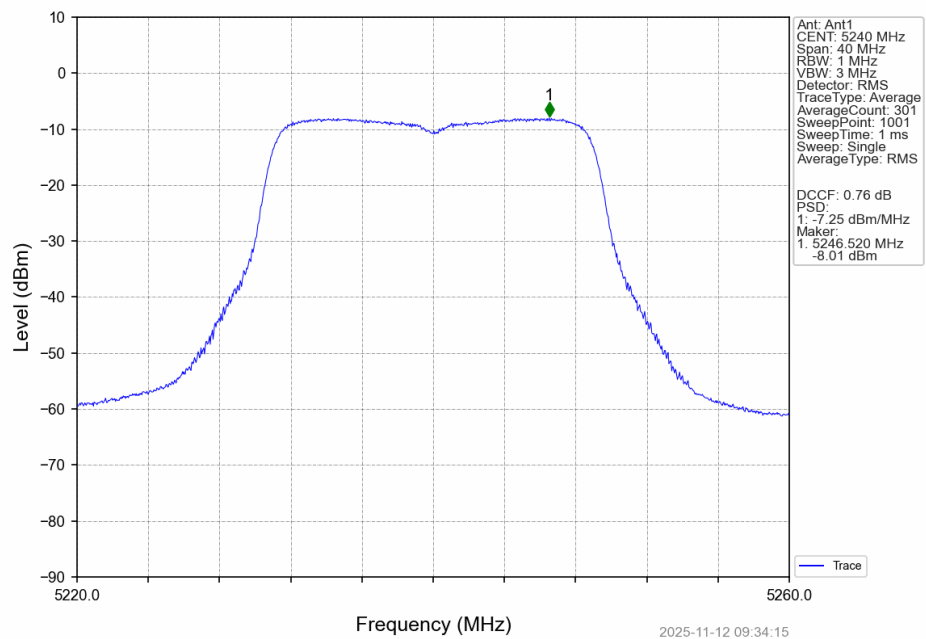
802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



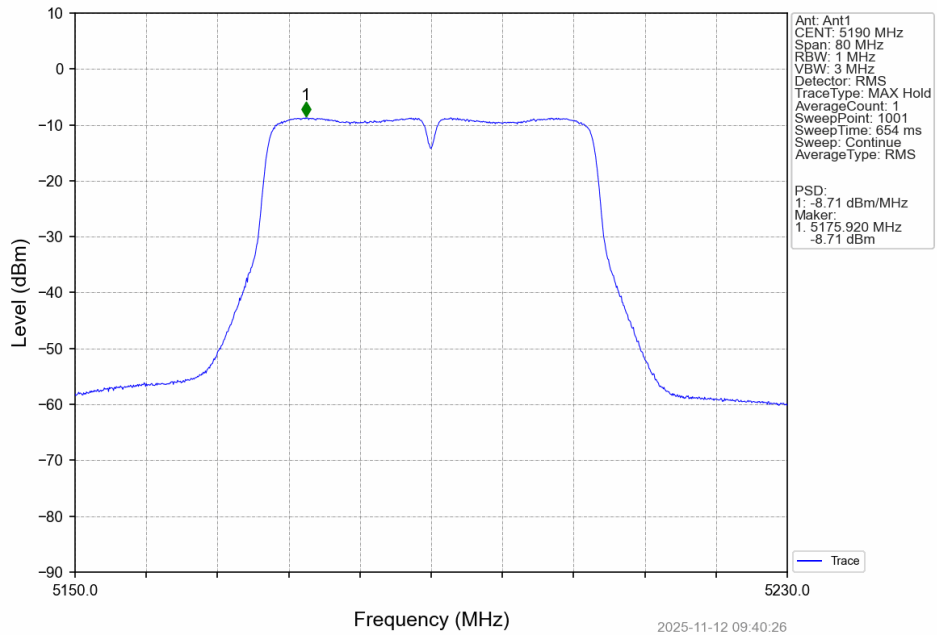
802.11n(HT20) MCH 5200MHz Ant1 NTN



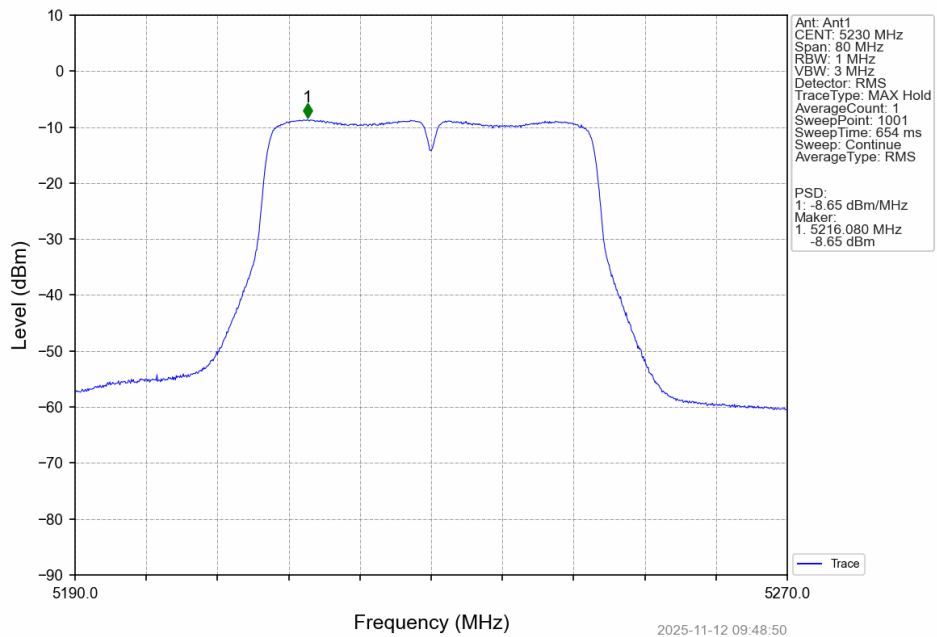
802.11n(HT20)_HCH_5240MHz_Ant1_NTN



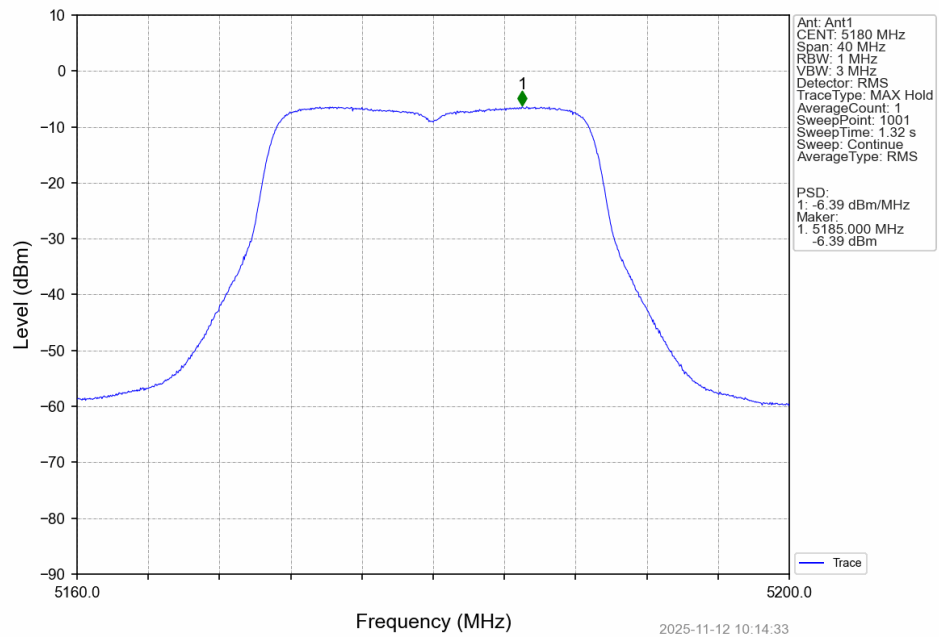
802.11n(HT40) LCH 5190MHz Ant1 NTN



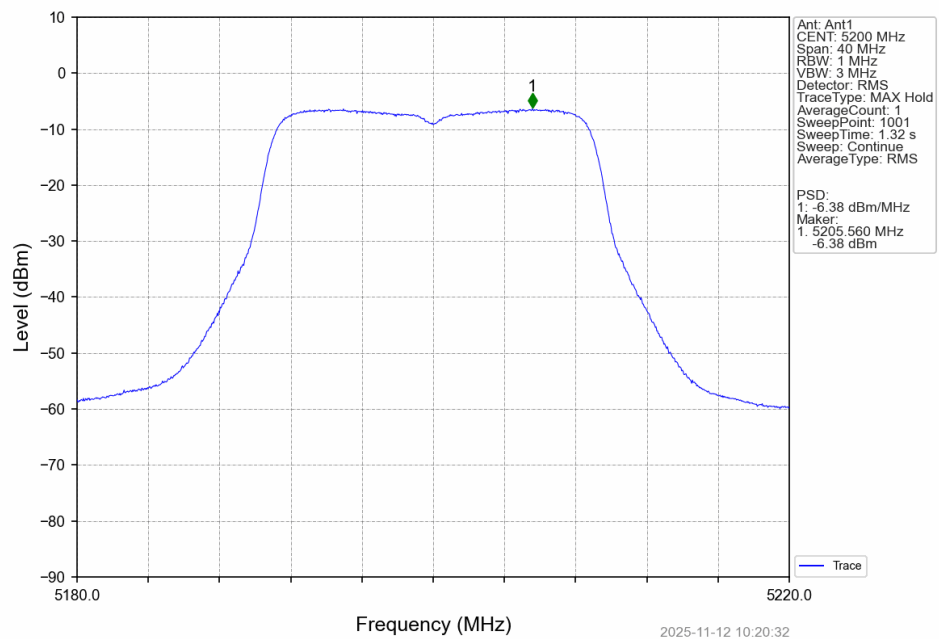
802.11n(HT40)_HCH_5230MHz_Ant1_NTN



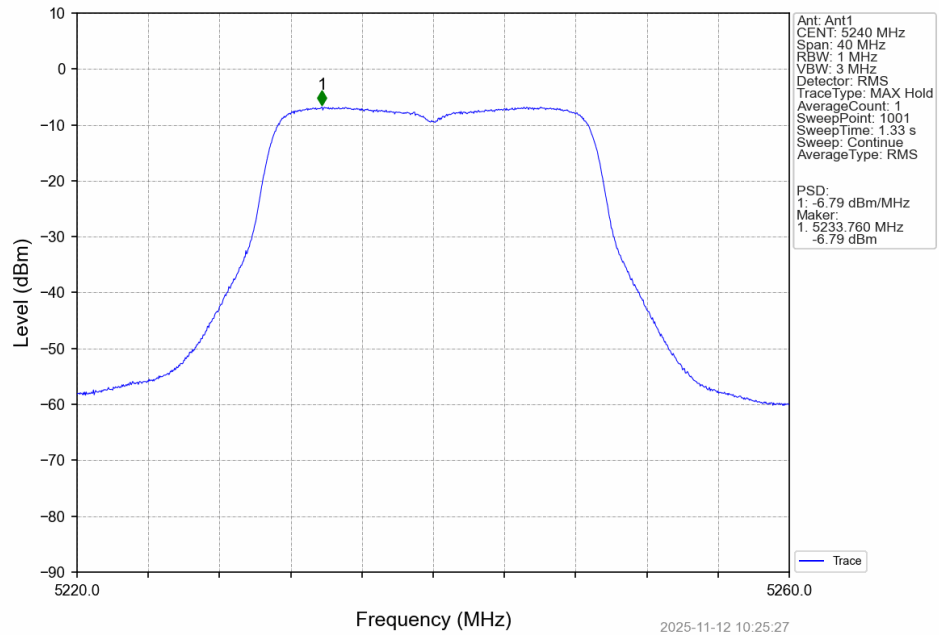
802.11ac(VHT20) LCH 5180MHz Ant1 NTN



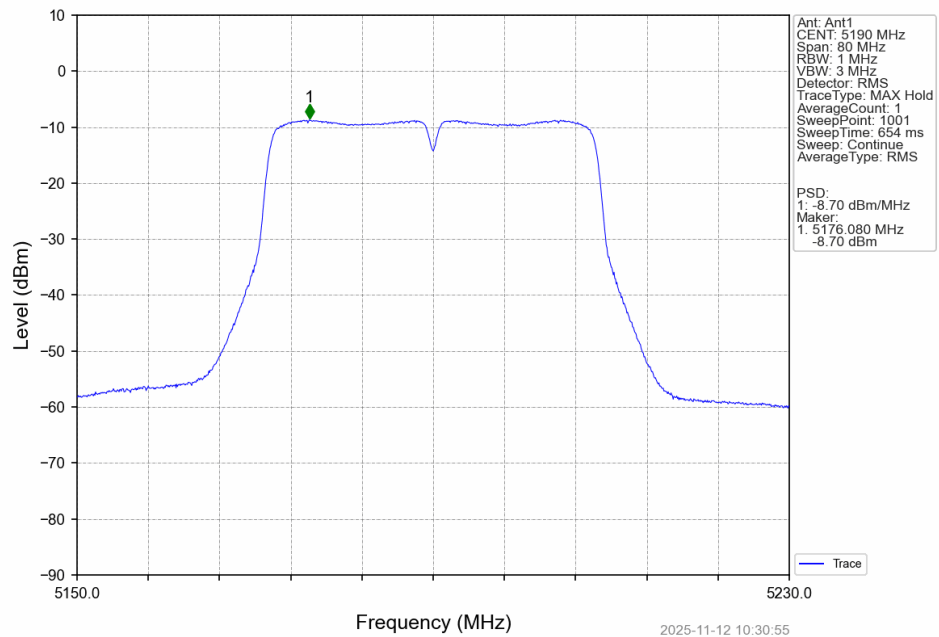
802.11ac(VHT20) MCH 5200MHz Ant1 NTN



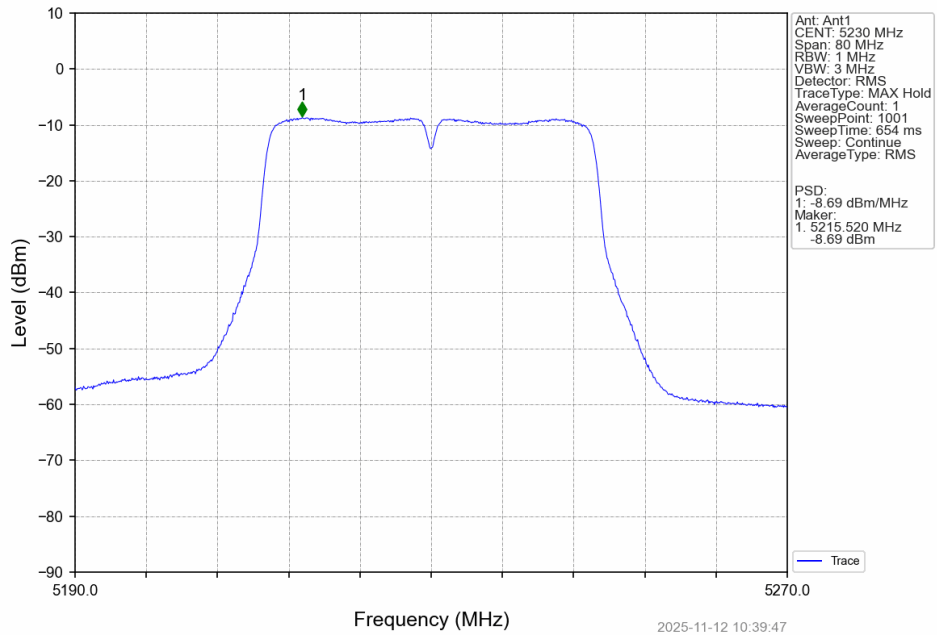
802.11ac(VHT20) HCH 5240MHz Ant1 NTN



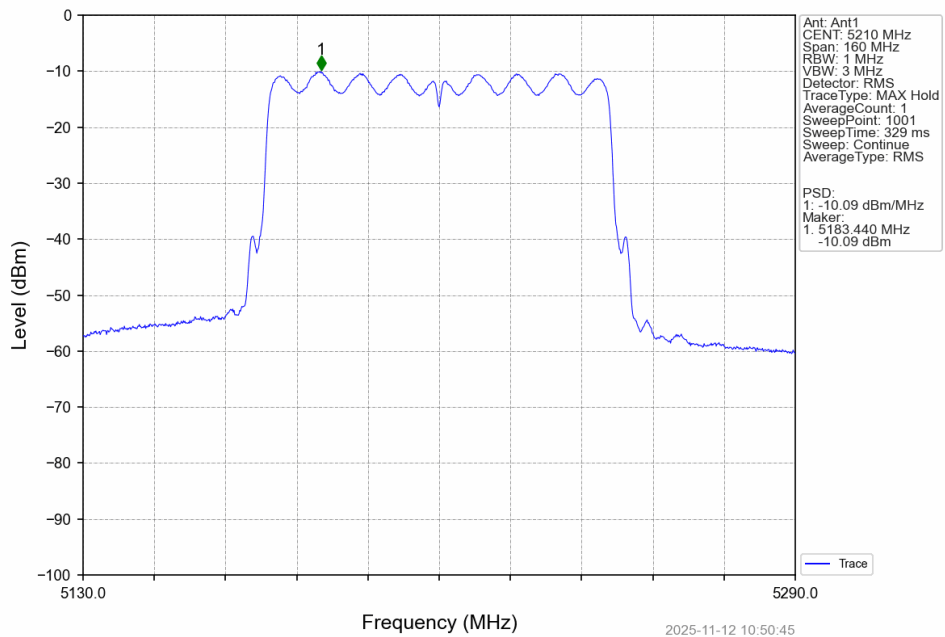
802.11ac(VHT40)_LCH_5190MHz_Ant1_NTN



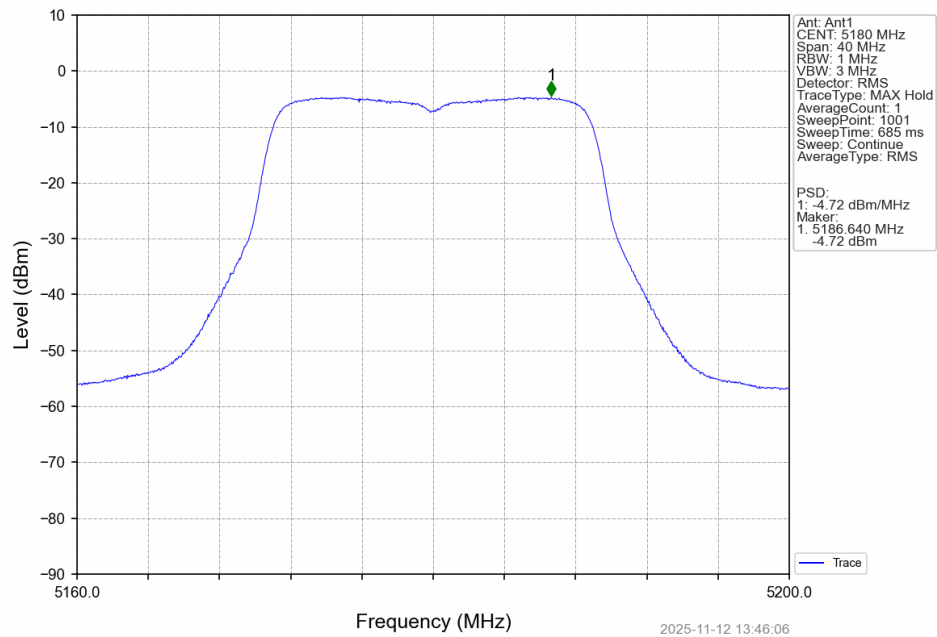
802.11ac(VHT40) HCH 5230MHz Ant1 NTN



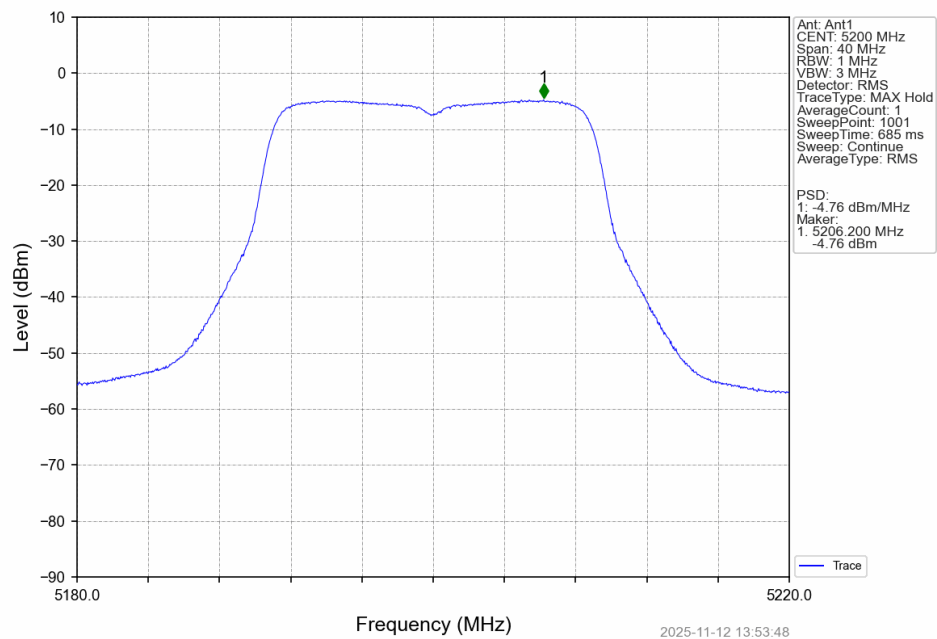
802.11ac(VHT80)_MCH_5210MHz_Ant1_NTN



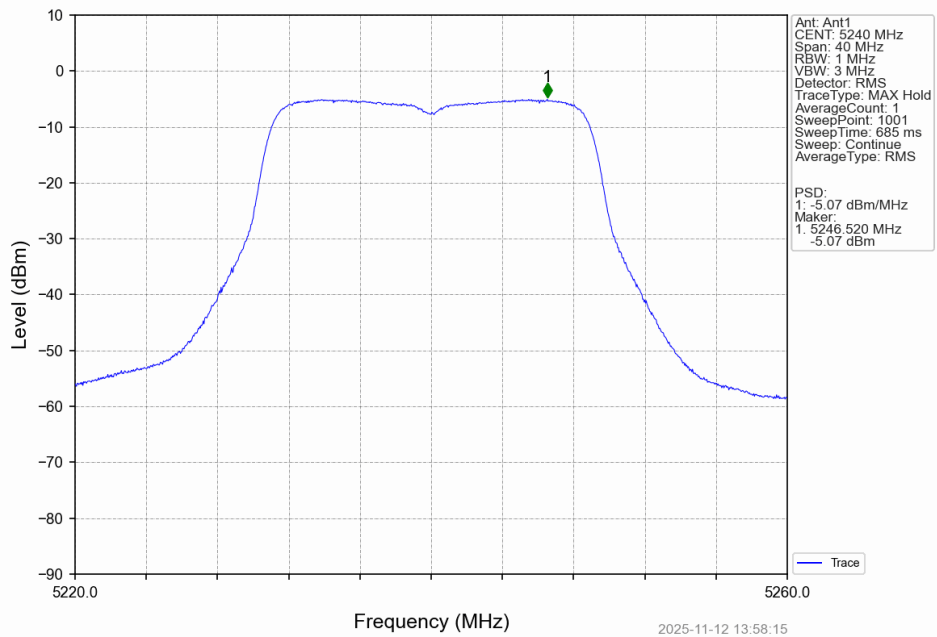
802.11ax(HEW20) LCH 5180MHz SU / Ant1 NTN



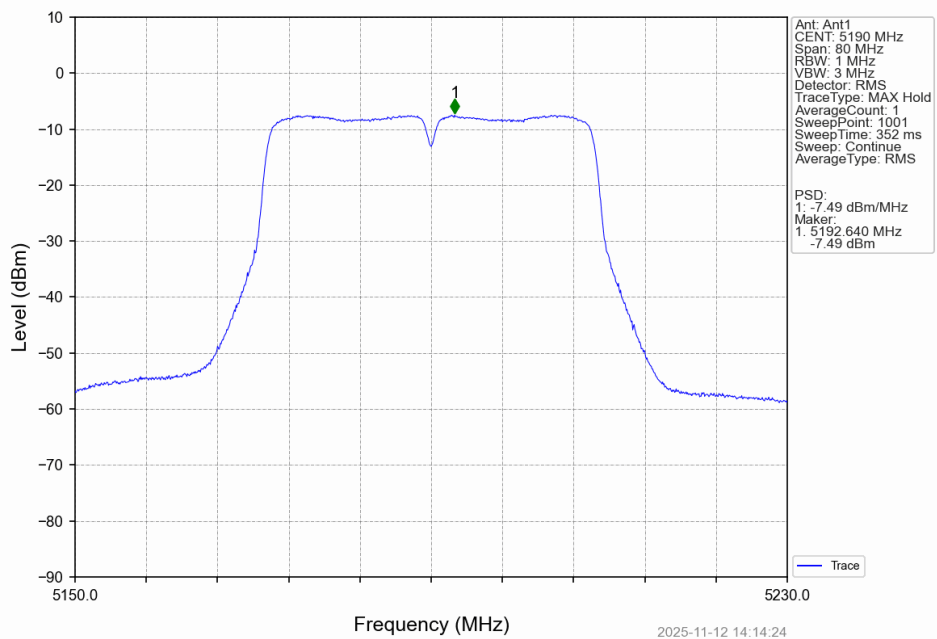
802.11ax(HEW20) MCH 5200MHz SU / Ant1 NTN



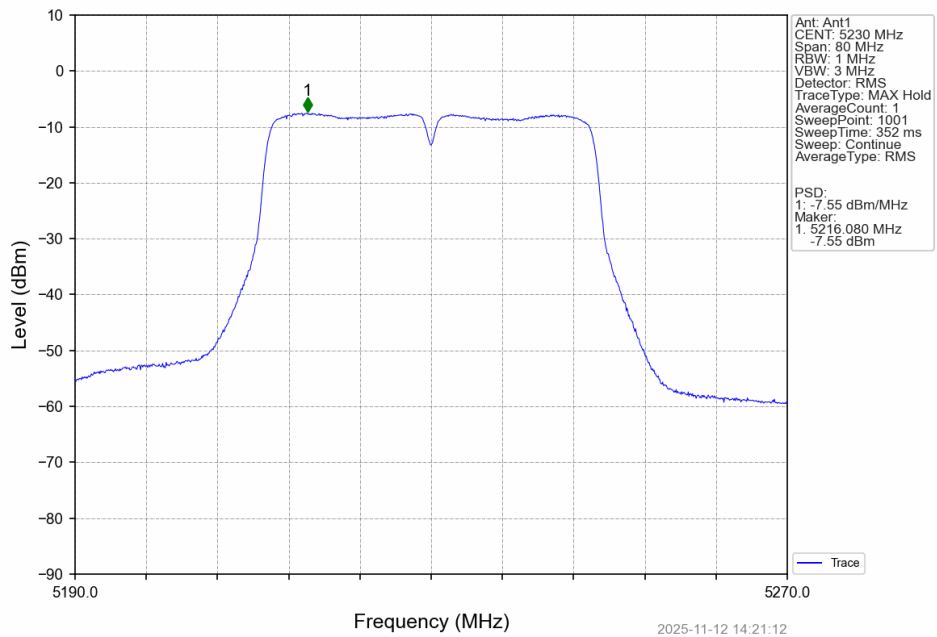
802.11ax(HEW20) HCH 5240MHz SU / Ant1 NTN



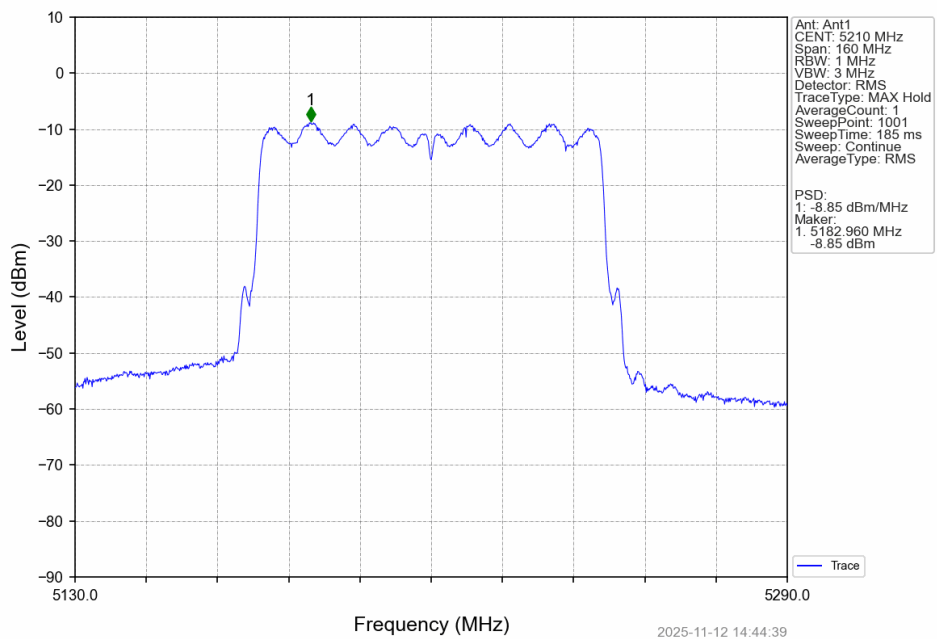
802.11ax(HEW40) LCH 5190MHz SU / Ant1 NTN



802.11ax(HEW40) HCH 5230MHz SU / Ant1 NTN



802.11ax(HEW80) MCH 5210MHz SU / Ant1 NTN



5. Unwanted Emissions In Restricted Frequency Bands

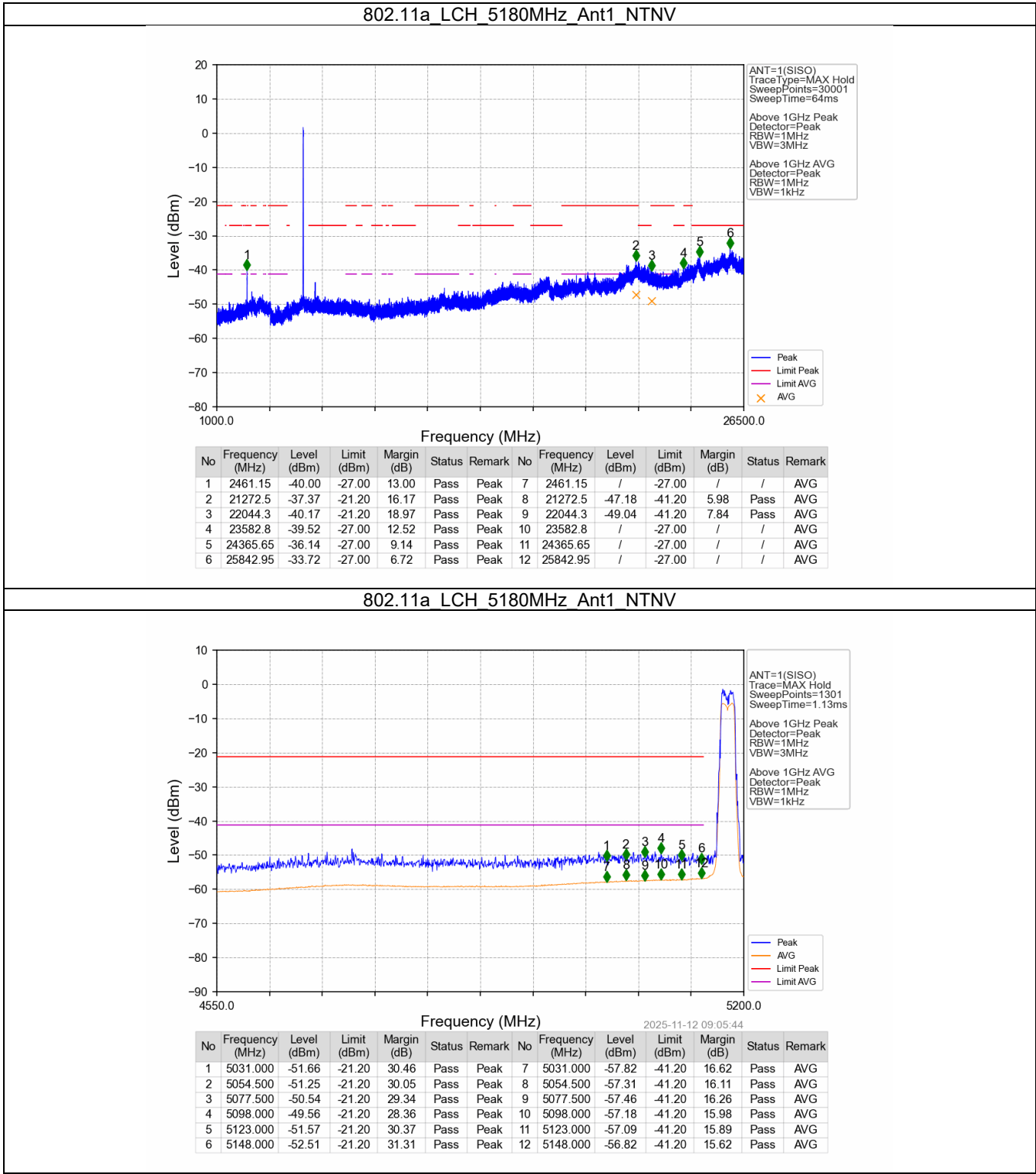
5.1 Test Result

5.1.1 RSE

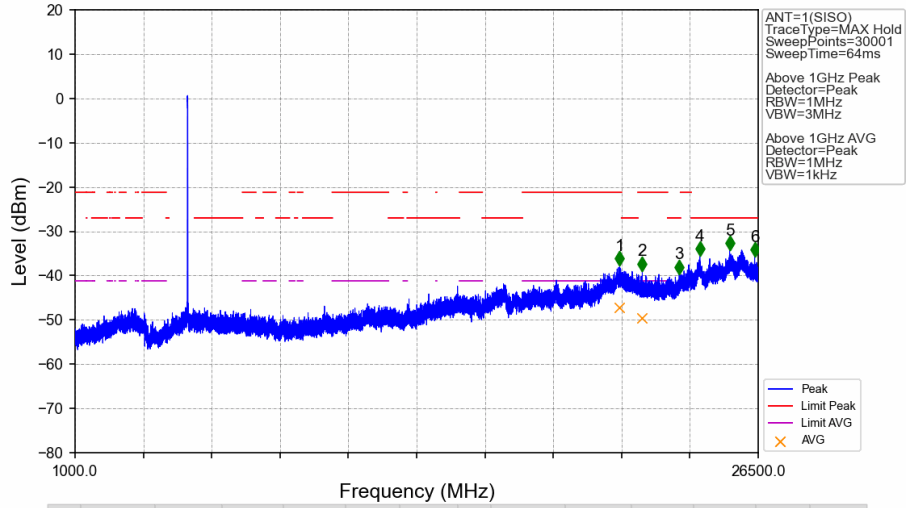
Mode	TX Type	Frequency (MHz)	ANT	Level of Unwanted Emissions (dBm)		Verdict
				Result	Limit	
802.11a	SISO	5180	1	Refer To Test Graph		Pass
		5200	1	Refer To Test Graph		Pass
		5240	1	Refer To Test Graph		Pass
802.11n (HT20)	SISO	5180	1	Refer To Test Graph		Pass
		5200	1	Refer To Test Graph		Pass
		5240	1	Refer To Test Graph		Pass
802.11n (HT40)	SISO	5190	1	Refer To Test Graph		Pass
		5230	1	Refer To Test Graph		Pass
802.11ac (VHT20)	SISO	5180	1	Refer To Test Graph		Pass
		5200	1	Refer To Test Graph		Pass
		5240	1	Refer To Test Graph		Pass
802.11ac (VHT40)	SISO	5190	1	Refer To Test Graph		Pass
		5230	1	Refer To Test Graph		Pass
802.11ac (VHT80)	SISO	5210	1	Refer To Test Graph		Pass
802.11ax (HEW20)	SISO	5180	1	Refer To Test Graph		Pass
		5200	1	Refer To Test Graph		Pass
		5240	1	Refer To Test Graph		Pass
802.11ax (HEW40)	SISO	5190	1	Refer To Test Graph		Pass
		5230	1	Refer To Test Graph		Pass
802.11ax (HEW80)	SISO	5210	1	Refer To Test Graph		Pass

5.2 Test Graph

5.2.1 RSE

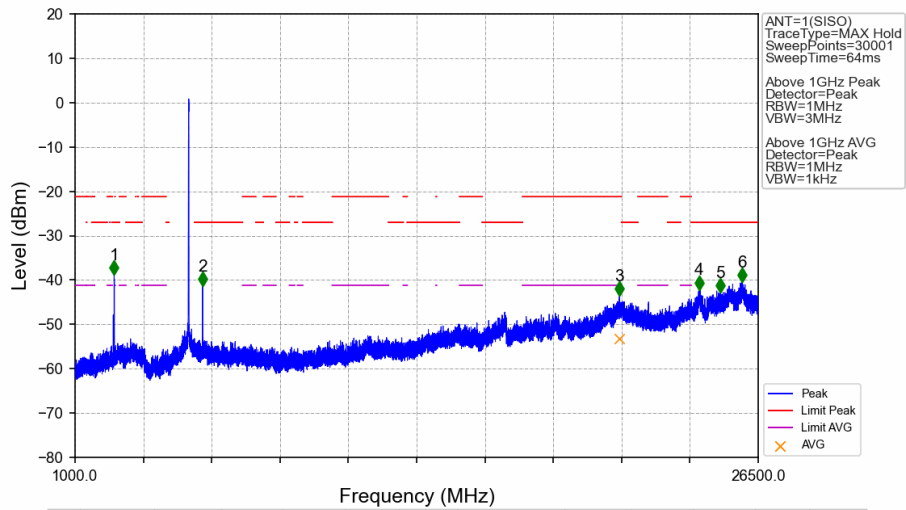


802.11a MCH 5200MHz Ant1 NTN



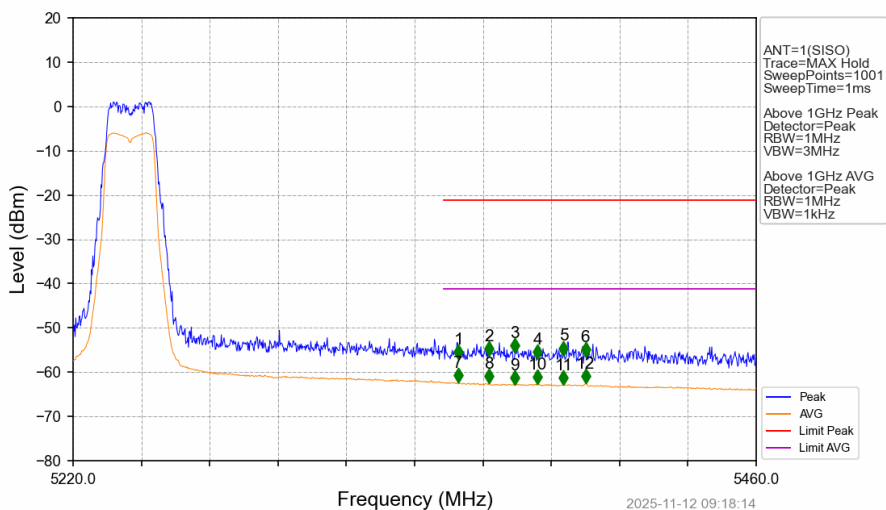
No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark	No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark
1	21330.3	-37.66	-21.20	16.46	Pass	Peak	7	21330.3	-47.18	-41.20	5.98	Pass	AVG
2	22172.65	-38.87	-21.20	17.67	Pass	Peak	8	22172.65	-49.50	-41.20	8.30	Pass	AVG
3	23550.5	-39.60	-27.00	12.60	Pass	Peak	9	23550.5	/	-27.00	/	/	AVG
4	24321.45	-35.51	-27.00	8.51	Pass	Peak	10	24321.45	/	-27.00	/	/	AVG
5	25432.4	-34.26	-27.00	7.26	Pass	Peak	11	25432.4	/	-27.00	/	/	AVG
6	26368.25	-35.72	-27.00	8.72	Pass	Peak	12	26368.25	/	-27.00	/	/	AVG

802.11a_HCH 5240MHz_Ant1 NTN

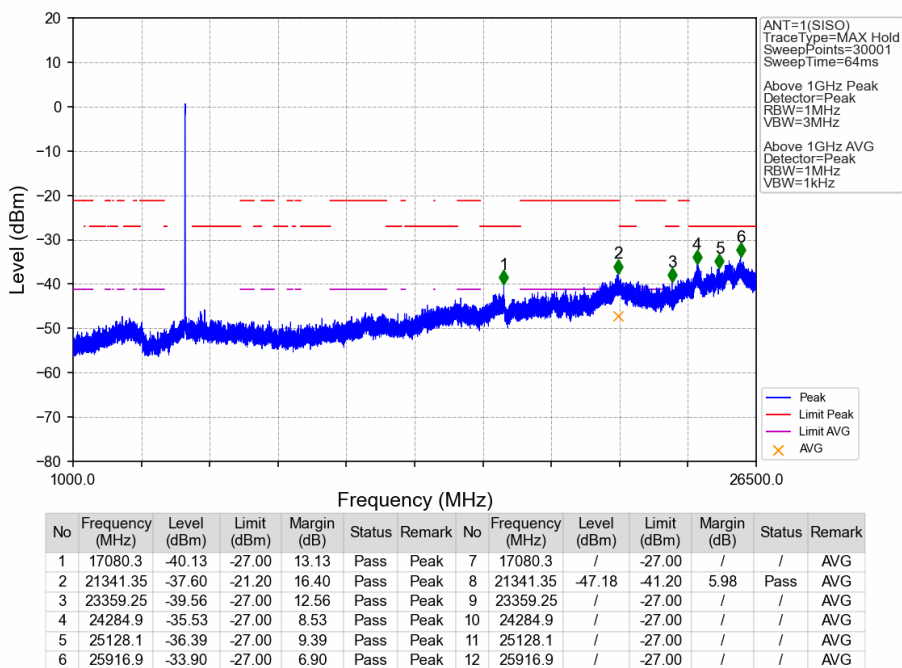


No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark	No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark
1	2459.45	-38.76	-27.00	11.76	Pass	Peak	7	2459.45	/	-27.00	/	/	AVG
2	5759.15	-41.30	-27.00	14.30	Pass	Peak	8	5759.15	/	-27.00	/	/	AVG
3	21318.4	-43.60	-21.20	22.40	Pass	Peak	9	21318.4	-53.22	-41.20	12.02	Pass	AVG
4	24301.05	-42.15	-27.00	15.15	Pass	Peak	10	24301.05	/	-27.00	/	/	AVG
5	25093.25	-42.71	-27.00	15.71	Pass	Peak	11	25093.25	/	-27.00	/	/	AVG
6	25898.2	-40.44	-27.00	13.44	Pass	Peak	12	25898.2	/	-27.00	/	/	AVG

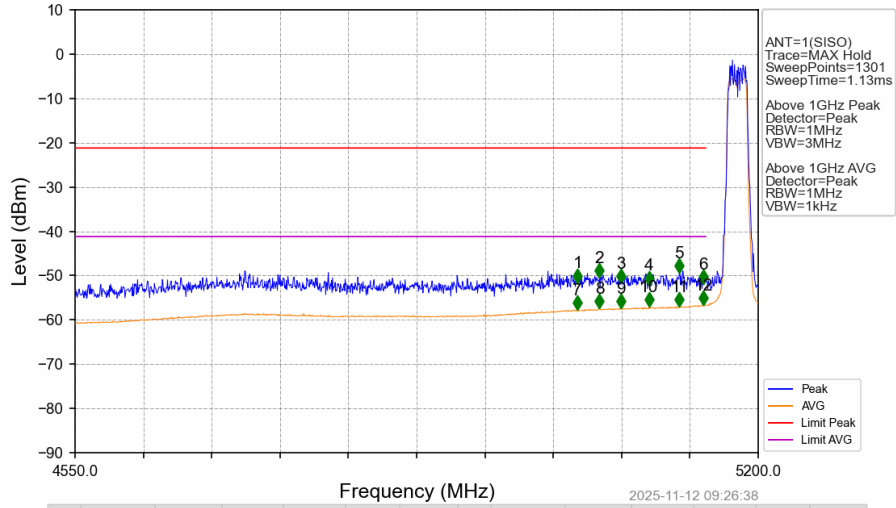
802.11a HCH 5240MHz Ant1 NTV



802.11n(HT20)_LCH_5180MHz_Ant1_NTV

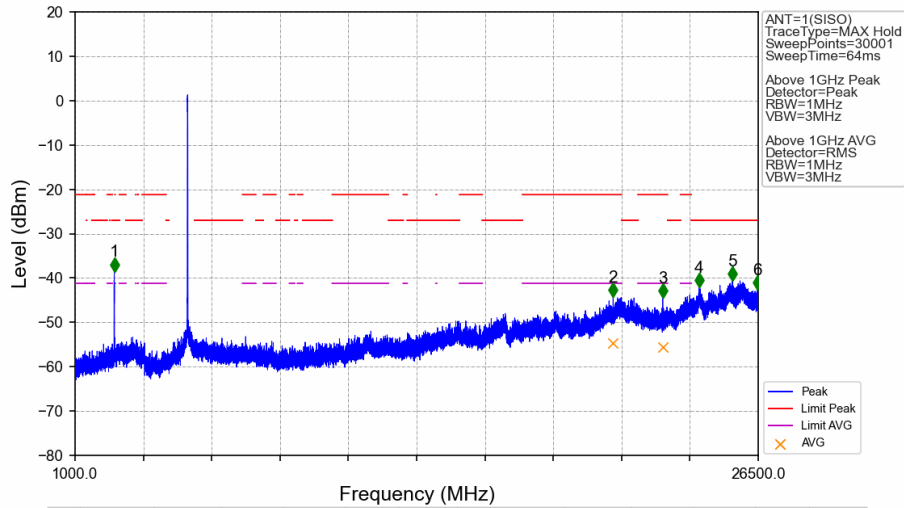


802.11n(HT20) LCH 5180MHz Ant1 NTV



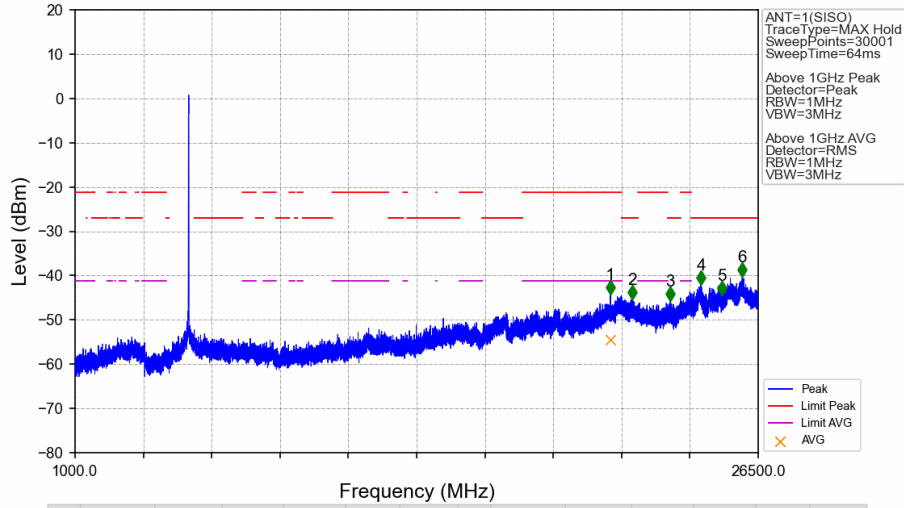
No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark	No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark
1	5028.000	-51.61	-21.20	30.41	Pass	Peak	7	5028.000	-57.68	-41.20	16.48	Pass	AVG
2	5049.000	-50.36	-21.20	29.16	Pass	Peak	8	5049.000	-57.41	-41.20	16.21	Pass	AVG
3	5069.500	-51.70	-21.20	30.50	Pass	Peak	9	5069.500	-57.40	-41.20	16.20	Pass	AVG
4	5096.000	-52.15	-21.20	30.95	Pass	Peak	10	5096.000	-57.04	-41.20	15.84	Pass	AVG
5	5125.000	-49.38	-21.20	28.18	Pass	Peak	11	5125.000	-57.02	-41.20	15.82	Pass	AVG
6	5148.000	-51.94	-21.20	30.74	Pass	Peak	12	5148.000	-56.67	-41.20	15.47	Pass	AVG

802.11n(HT20)_MCH_5200MHz_Ant1_NTV



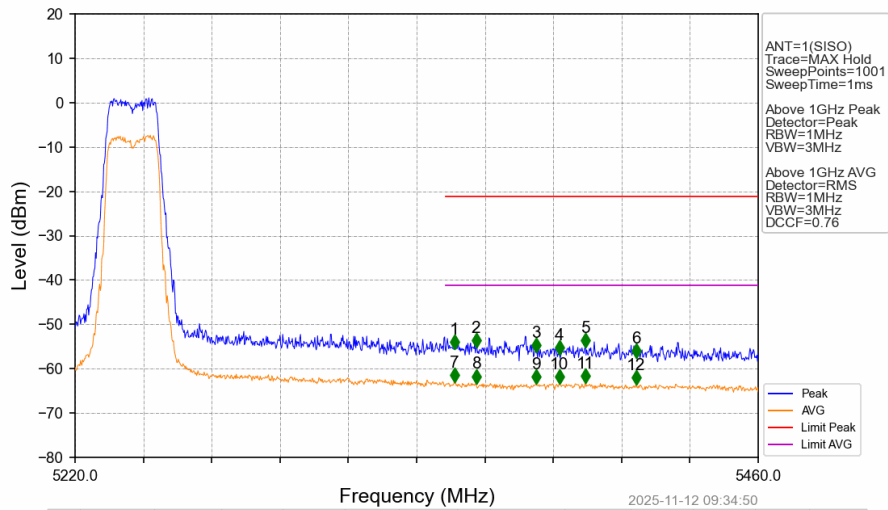
No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark	No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark
1	2463.7	-38.51	-27.00	11.51	Pass	Peak	7	2463.7	/	-27.00	/	/	AVG
2	21085.5	-44.29	-21.20	23.09	Pass	Peak	8	21085.5	-54.62	-41.20	13.42	Pass	AVG
3	22936.8	-44.46	-21.20	23.26	Pass	Peak	9	22936.8	-55.51	-41.20	14.31	Pass	AVG
4	24286.6	-42.01	-27.00	15.01	Pass	Peak	10	24286.6	/	-27.00	/	/	AVG
5	25536.1	-40.54	-27.00	13.54	Pass	Peak	11	25536.1	/	-27.00	/	/	AVG
6	26468.55	-42.67	-27.00	15.67	Pass	Peak	12	26468.55	/	-27.00	/	/	AVG

802.11n(HT20) HCH 5240MHz Ant1 NTVN



No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark	No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark
1	20984.35	-44.25	-21.20	23.05	Pass	Peak	7	20984.35	-54.47	-41.20	13.27	Pass	AVG
2	21808.85	-45.38	-27.00	18.38	Pass	Peak	8	21808.85	/	-27.00	/	/	AVG
3	23216.45	-45.65	-27.00	18.65	Pass	Peak	9	23216.45	/	-27.00	/	/	AVG
4	24362.25	-42.07	-27.00	15.07	Pass	Peak	10	24362.25	/	-27.00	/	/	AVG
5	25130.65	-44.49	-27.00	17.49	Pass	Peak	11	25130.65	/	-27.00	/	/	AVG
6	25904.15	-40.19	-27.00	13.19	Pass	Peak	12	25904.15	/	-27.00	/	/	AVG

802.11n(HT20) HCH 5240MHz Ant1 NTVN



No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark	No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark
1	5353.200	-55.60	-21.20	34.40	Pass	Peak	7	5353.200	-63.05	-41.20	21.85	Pass	AVG
2	5360.880	-55.16	-21.20	33.96	Pass	Peak	8	5360.880	-63.28	-41.20	22.08	Pass	AVG
3	5382.000	-56.26	-21.20	35.06	Pass	Peak	9	5382.000	-63.39	-41.20	22.19	Pass	AVG
4	5390.160	-56.85	-21.20	35.65	Pass	Peak	10	5390.160	-63.44	-41.20	22.24	Pass	AVG
5	5399.280	-55.13	-21.20	33.93	Pass	Peak	11	5399.280	-63.21	-41.20	22.01	Pass	AVG
6	5417.040	-57.58	-21.20	36.38	Pass	Peak	12	5417.040	-63.49	-41.20	22.29	Pass	AVG