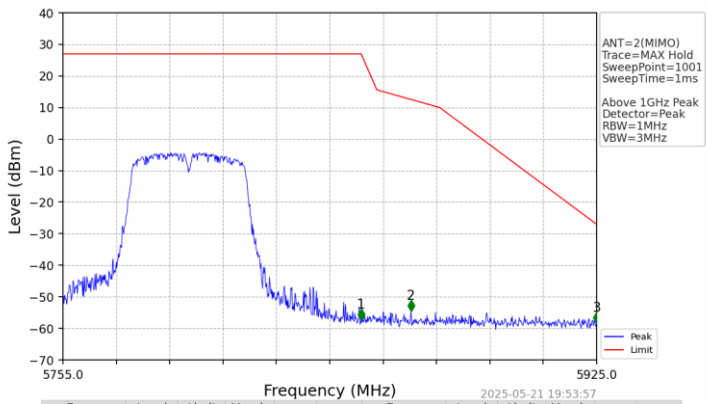
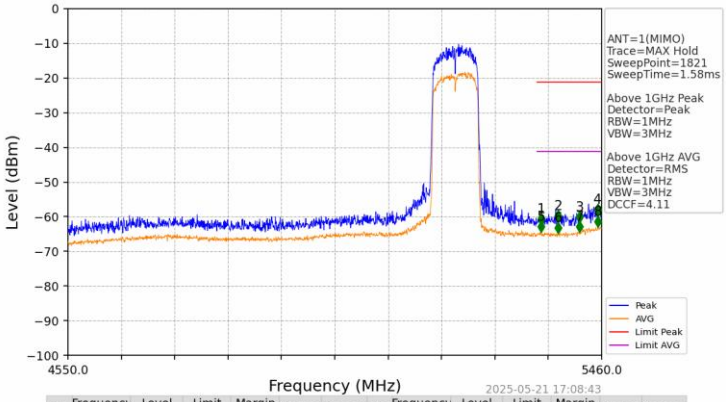
802.11ac(VHT40)_HCH_5795MHz_Ant2_NTNV



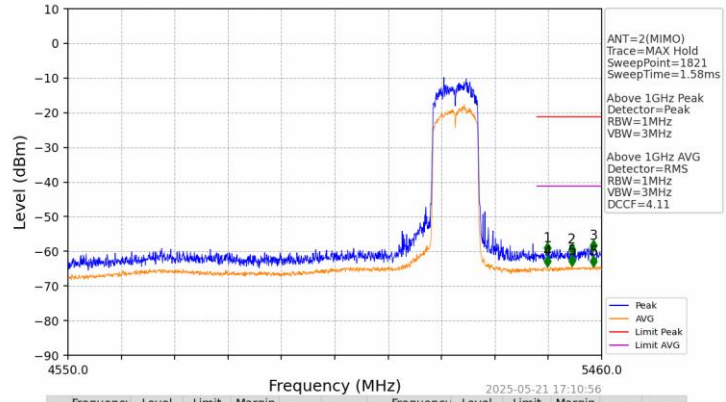
No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark	No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark
1	5850.000	-50.21	27.00	77.21	Pass	Peak	3	5925.000	-51.10	-27.00	24.10	Pass	Peak
2	5865.840	-47.31	12.56	59.87	Pass	Peak							

802.11ac(VHT80)_MCH_5210MHz_Ant1_NTNV



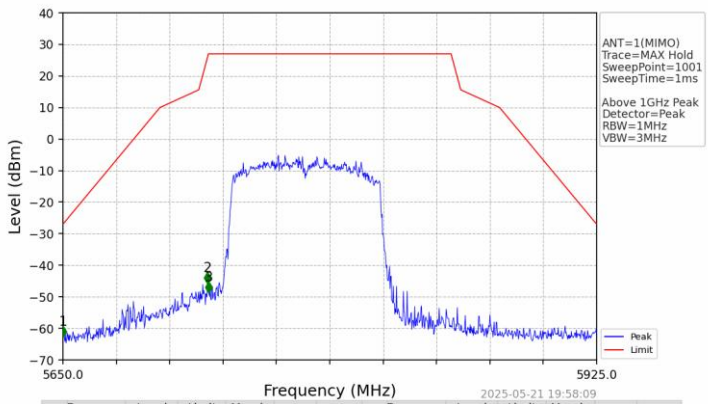
No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark	No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark
1	5357.000	-62.19	-21.20	40.99	Pass	Peak	5	5357.000	-64.45	-41.20	23.25	Pass	AVG
2	5385.500	-61.33	-21.20	40.13	Pass	Peak	6	5385.500	-64.71	-41.20	23.51	Pass	AVG
3	5422.500	-61.61	-21.20	40.41	Pass	Peak	7	5422.500	-64.47	-41.20	23.27	Pass	AVG
4	5453.500	-59.58	-21.20	38.38	Pass	Peak	8	5453.500	-62.90	-41.20	21.70	Pass	AVG

802.11ac(VHT80)_MCH_5210MHz_Ant2_NTNV



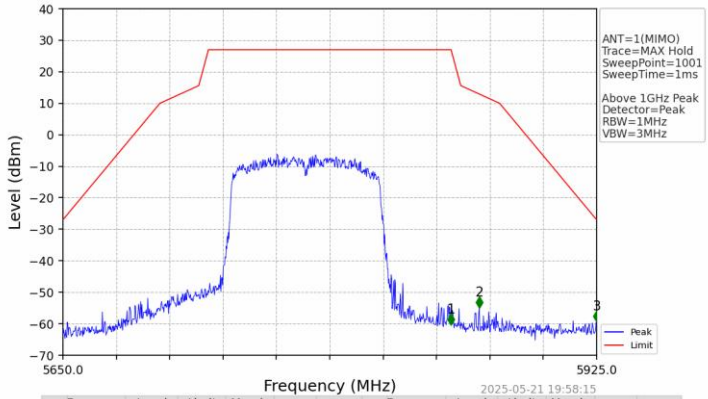
No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark	No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark
1	5368.000	-60.64	-21.20	39.44	Pass	Peak	4	5368.000	-64.50	-41.20	23.30	Pass	AVG
2	5409.000	-61.00	-21.20	39.80	Pass	Peak	5	5409.000	-64.27	-41.20	23.07	Pass	AVG
3	5446.000	-59.93	-21.20	38.73	Pass	Peak	6	5446.000	-64.40	-41.20	23.20	Pass	AVG

802.11ac(VHT80)_MCH_5775MHz_Ant1_NTNV



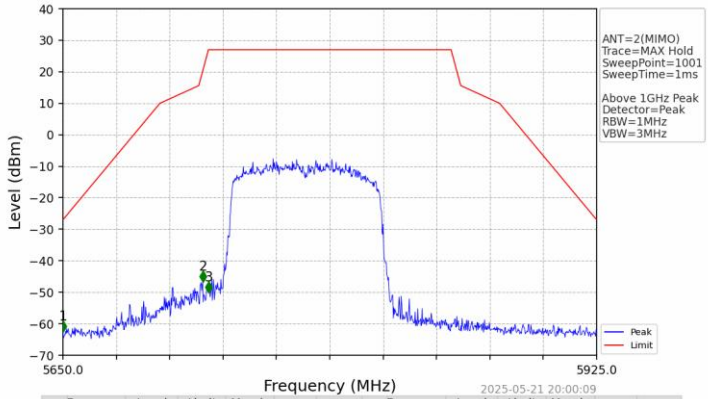
No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark	No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark
1	5650.000	-55.56	-27.00	28.56	Pass	Peak	3	5725.000	-41.51	27.00	68.51	Pass	Peak
2	5724.525	-38.64	25.92	64.56	Pass	Peak							

802.11ac(VHT80)_MCH_5775MHz_Ant1_NTNV



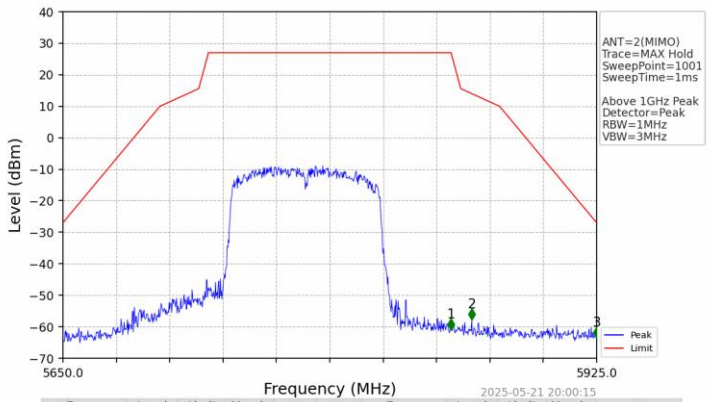
No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark	No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark
1	5850.000	-53.12	27.00	80.12	Pass	AVG	3	5925.000	-52.24	-27.00	25.24	Pass	AVG
2	5864.500	-47.72	12.94	60.66	Pass	AVG							

802.11ac(VHT80)_MCH_5775MHz_Ant2_NTNV



No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark	No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark
1	5650.000	-55.46	-27.00	28.46	Pass	Peak	3	5725.000	-42.90	27.00	69.90	Pass	Peak
2	5722.050	-39.64	20.27	59.91	Pass	Peak							

802.11ac(VHT80)_MCH_5775MHz_Ant2_NTNV



No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark	No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark
1	5850.000	-53.82	27.00	80.82	Pass	AVG	3	5925.000	-56.37	-27.00	29.37	Pass	AVG
2	5860.650	-50.63	14.02	64.65	Pass	AVG							

4.3 Maximum Conducted Average Output Power

Limit

For the band 5.15-5.25 GHz.
(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

(iv) For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.

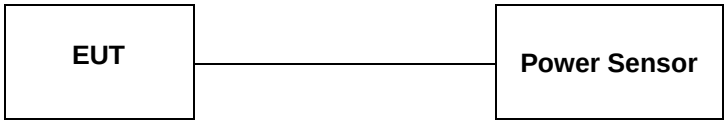
For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W

Test Procedure

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power sensor.

Test Configuration



Test Results

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)				Verdict
			ANT1	ANT2	MIMO	Limit	
802.11a	SISO	5180	-0.60	-0.07	/	<=23.64	Pass
		5200	-0.60	0.32	/	<=23.64	Pass
		5240	-0.35	0.65	/	<=23.64	Pass
		5745	2.31	2.18	/	<=28.85	Pass
		5785	2.29	1.56	/	<=28.85	Pass
		5825	2.16	0.86	/	<=28.85	Pass
802.11n (HT20)	MIMO	5180	-0.84	-0.13	2.54	<=21.14	Pass
		5200	-0.57	0.27	2.88	<=21.14	Pass
		5240	-0.44	0.72	3.19	<=21.14	Pass
		5745	2.46	2.13	5.31	<=25.65	Pass
		5785	2.38	1.49	4.97	<=25.65	Pass
		5825	2.15	0.71	4.50	<=25.65	Pass
802.11n (HT40)	MIMO	5190	-0.72	0.11	2.73	<=21.14	Pass
		5230	-0.44	0.62	3.13	<=21.14	Pass
		5755	2.95	2.54	5.76	<=25.65	Pass
		5795	2.92	1.73	5.38	<=25.65	Pass
802.11ac (VHT20)	MIMO	5180	-0.68	-0.01	2.68	<=21.14	Pass
		5200	-0.40	0.30	2.97	<=21.14	Pass
		5240	-0.24	0.76	3.30	<=21.14	Pass
		5745	4.44	2.30	6.51	<=25.65	Pass
		5785	4.06	1.43	5.95	<=25.65	Pass
		5825	3.34	0.63	5.20	<=25.65	Pass
802.11ac (VHT40)	MIMO	5190	-0.75	-0.03	2.64	<=21.14	Pass
		5230	-0.47	0.44	3.02	<=21.14	Pass
		5755	4.57	2.56	6.69	<=25.65	Pass
		5795	4.23	1.44	6.07	<=25.65	Pass
802.11ac (VHT80)	MIMO	5210	1.44	0.50	4.01	<=21.14	Pass
		5775	4.94	2.16	6.78	<=25.65	Pass

Note1: Antenna Gain:
- Band: 1 Ant1: 4.58dBi;
- Band: 3 Ant1: 5.13dBi;
- Band: 1 Ant2: 6.34dBi;
- Band: 3 Ant2: 7.15dBi;

5.2GWIFI:Directional Gain=10log(((10^(4.58/20)+10^(6.34/20))^2)/2)=8.5dBi

5.8GWIFI:Directional Gain=10log(((10^(5.13/20)+10^(7.15/20))^2)/2)=9.2dBi

4.4 Power Spectral Density

Limit

(1) For the band 5.15 - 5.25 GHz.

(i) For an outdoor access point operating in the band 5.15 - 5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 MHz band.note1

(ii) For an indoor access point operating in the band 5.15 - 5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 MHz band.note1

(iii) For fixed point-to-point access points operating in the band 5.15 - 5.25 GHz, transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.

(iv) For mobile and portable client devices in the 5.15 - 5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 MHz band. note1

(2) For the 5.25 - 5.35 GHz and 5.47 - 5.725 GHz bands, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. note1

(3) For the band 5.725 - 5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500 kHz band. note1, note2

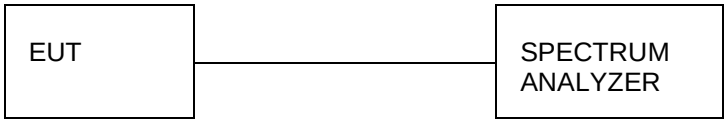
Note1: If transmitting antennas of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note2: Fixed point - to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information.

Test Procedure

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW = 1MHz for U-NII 1, U-NII 2A, U-NII C band and 510KHz for U-NII 3 band.
3. Set the VBW ≥ 3× RBW.
4. Set the span to encompass the entire EBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum power level.

Test Configuration



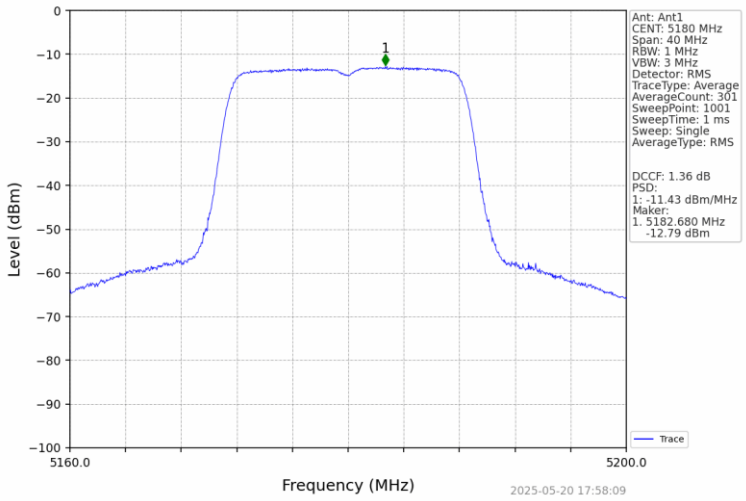
Test Results

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/MHz)				Verdict
			ANT1	ANT2	MIMO	Limit	
802.11a	SISO	5180	-11.43	-11.25	/	<=10.66	Pass
		5200	-11.63	-10.61	/	<=10.66	Pass
		5240	-11.42	-10.46	/	<=10.66	Pass
802.11n (HT20)	MIMO	5180	-12.08	-11.48	-8.91	<=8.16	Pass
		5200	-11.95	-11.04	-8.68	<=8.16	Pass
		5240	-11.72	-10.69	-8.33	<=8.16	Pass
802.11n (HT40)	MIMO	5190	-14.86	-13.88	-11.45	<=8.16	Pass
		5230	-14.33	-13.21	-10.78	<=8.16	Pass
802.11ac (VHT20)	MIMO	5180	-12.03	-11.49	-8.75	<=8.16	Pass
		5200	-11.75	-11.09	-8.48	<=8.16	Pass
		5240	-11.80	-10.60	-8.27	<=8.16	Pass
802.11ac (VHT40)	MIMO	5190	-14.57	-13.64	-11.09	<=8.16	Pass
		5230	-13.90	-13.16	-10.68	<=8.16	Pass
802.11ac (VHT80)	MIMO	5210	-15.47	-16.46	-12.96	<=8.16	Pass
Note1: Antenna Gain: - Band: 1 Ant1: 4.58dBi; - Band: 1 Ant2: 6.34dBi; 5.2GWIFI:Directional Gain=10log(((10^(4.58/20)+10^(6.34/20))^2)/2)=8.5dBi							

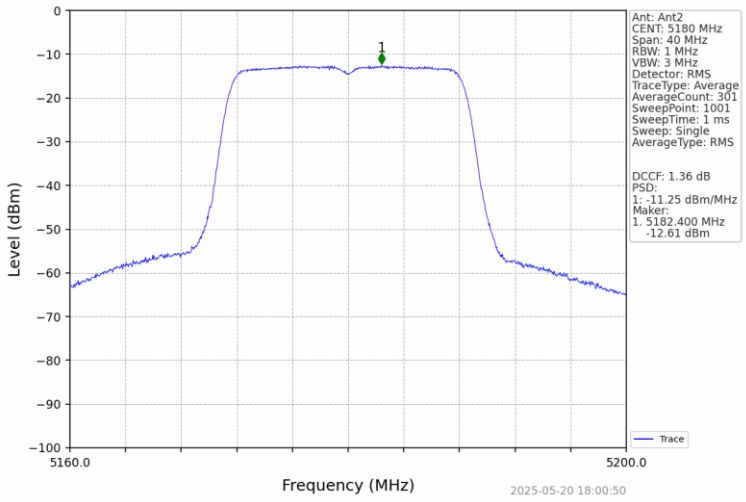
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/500kHz)				Verdict
			ANT1	ANT2	MIMO	Limit	
802.11a	SISO	5745	-11.80	-11.75	/	<=28.85	Pass
		5785	-11.73	-12.39	/	<=28.85	Pass
		5825	-11.85	-13.19	/	<=28.85	Pass
802.11n (HT20)	MIMO	5745	-11.50	-12.32	-8.91	<=25.65	Pass
		5785	-11.97	-12.84	-9.54	<=25.65	Pass
		5825	-12.10	-13.42	-9.85	<=25.65	Pass
802.11n (HT40)	MIMO	5755	-14.00	-14.27	-11.32	<=25.65	Pass
		5795	-14.27	-15.16	-11.73	<=25.65	Pass
802.11ac (VHT20)	MIMO	5745	-10.10	-11.95	-8.03	<=25.65	Pass
		5785	-10.32	-12.82	-8.51	<=25.65	Pass
		5825	-11.13	-13.57	-9.27	<=25.65	Pass
802.11ac (VHT40)	MIMO	5755	-12.00	-14.68	-10.30	<=25.65	Pass
		5795	-12.48	-15.24	-10.68	<=25.65	Pass
802.11ac (VHT80)	MIMO	5775	-15.12	-17.90	-13.47	<=25.65	Pass
Note1: Antenna Gain: - Band: 3 Ant1: 5.13dBi; - Band: 3 Ant2: 7.15dBi; 5.8GWIFI:Directional Gain=10log(((10^(5.13/20)+10^(7.15/20))^2)/2)=9.2dBi							

Test plot as follows

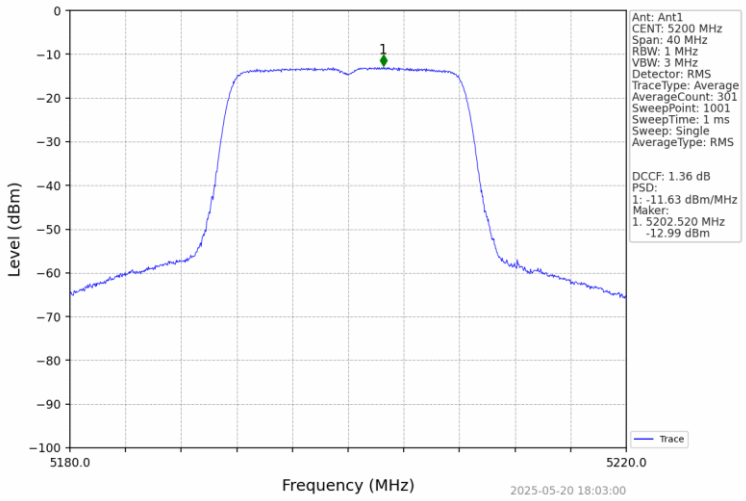
802.11a_LCH_5180MHz_Ant1_NTNV



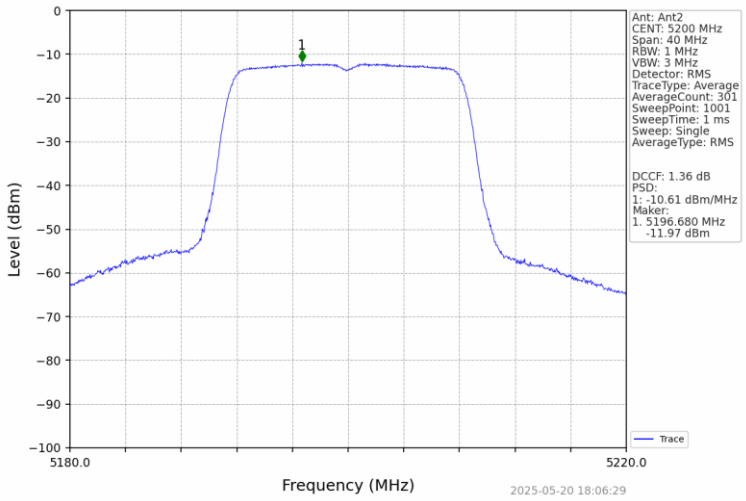
802.11a_LCH_5180MHz_Ant2_NTNV



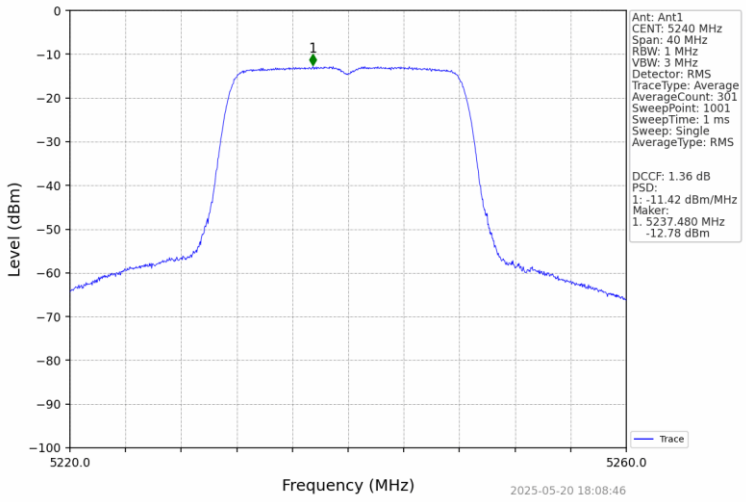
802.11a_MCH_5200MHz_Ant1_NTNV



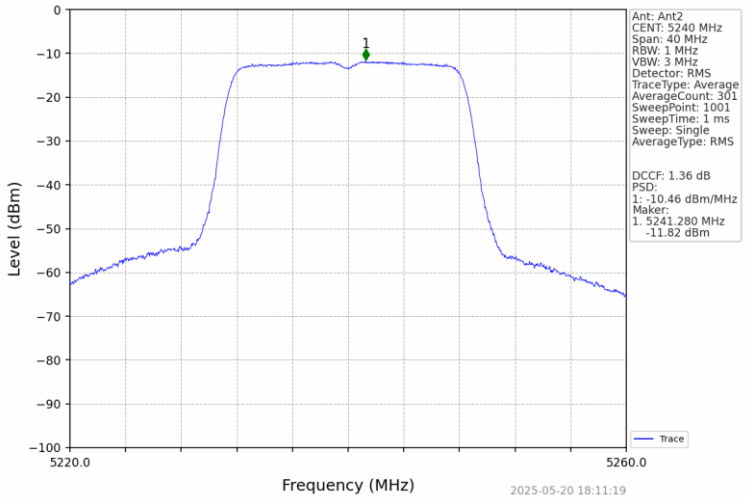
802.11a_MCH_5200MHz_Ant2_NTNV



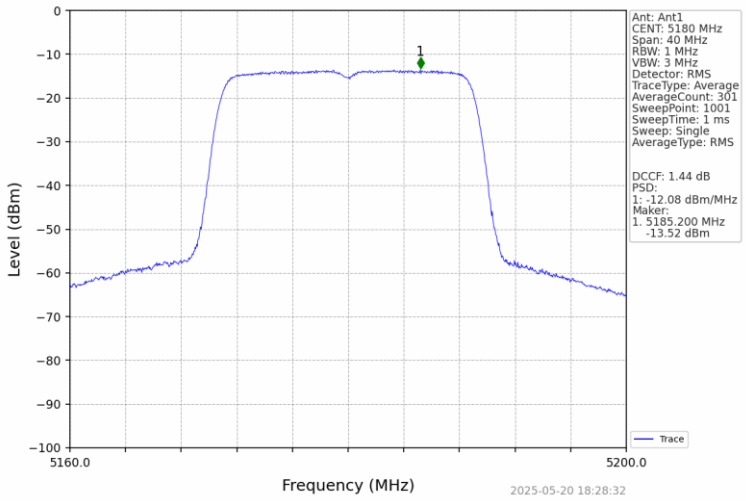
802.11a_HCH_5240MHz_Ant1_NTNV



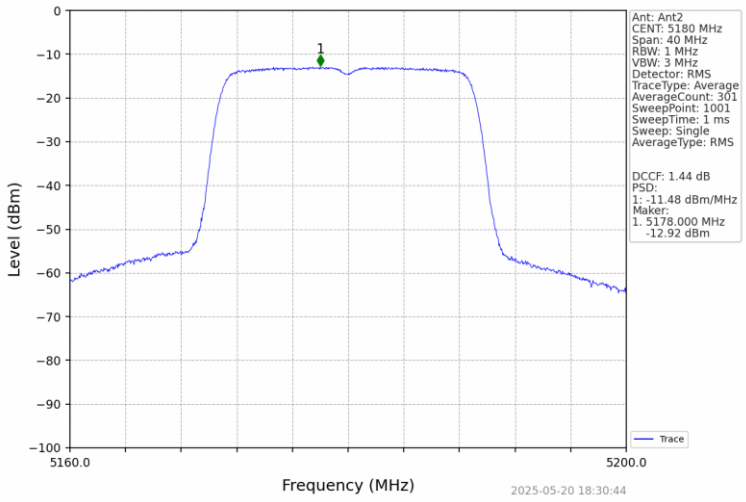
802.11a_HCH_5240MHz_Ant2_NTNV



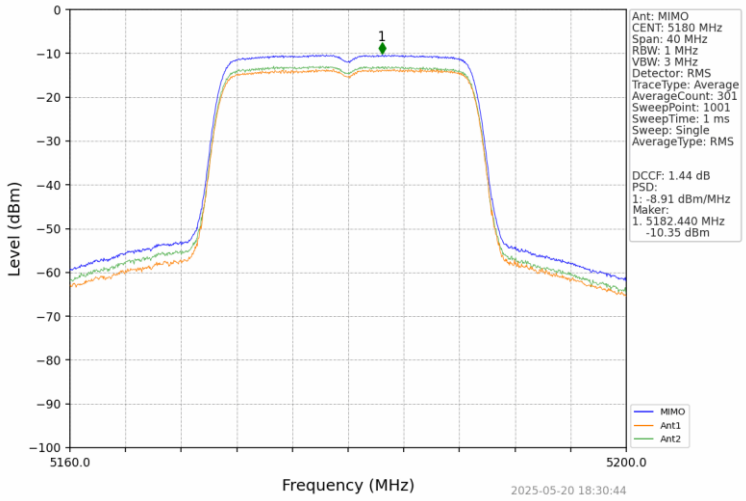
802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



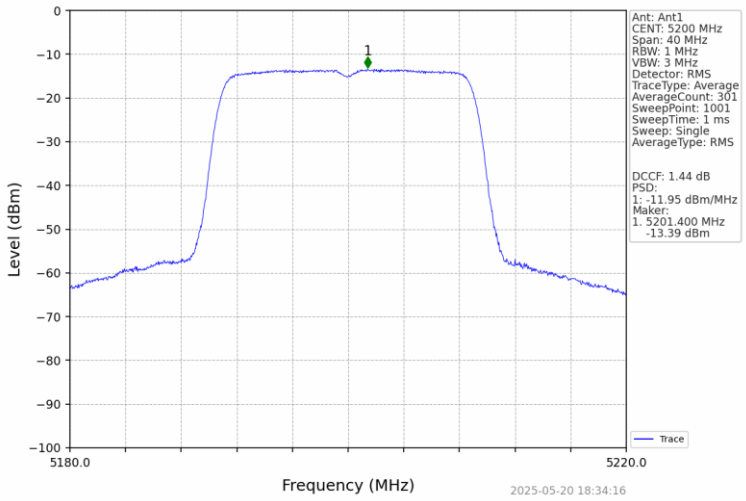
802.11n(HT20)_LCH_5180MHz_Ant2_NTNV



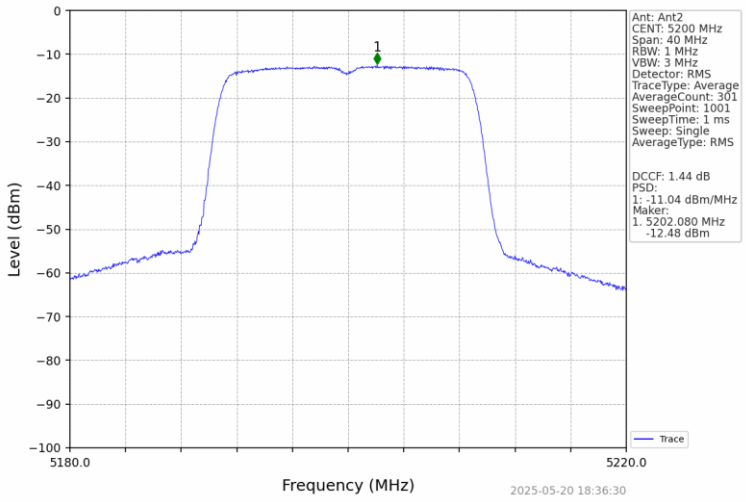
802.11n(HT20)_LCH_5180MHz_MIMO_NTNV



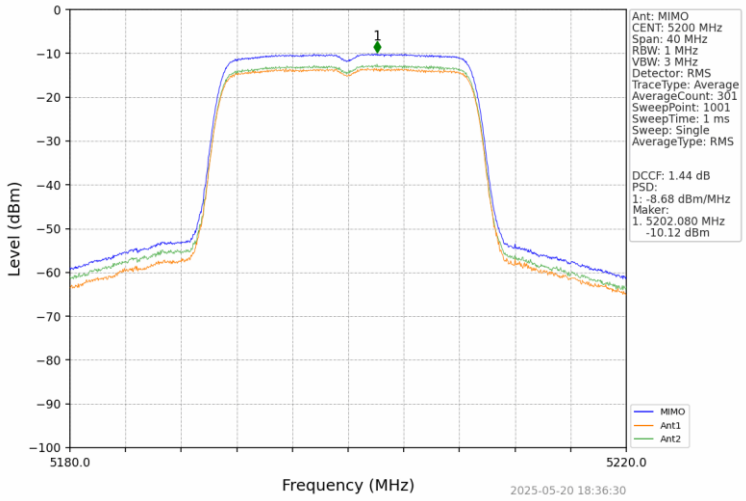
802.11n(HT20)_MCH_5200MHz_Ant1_NTNV



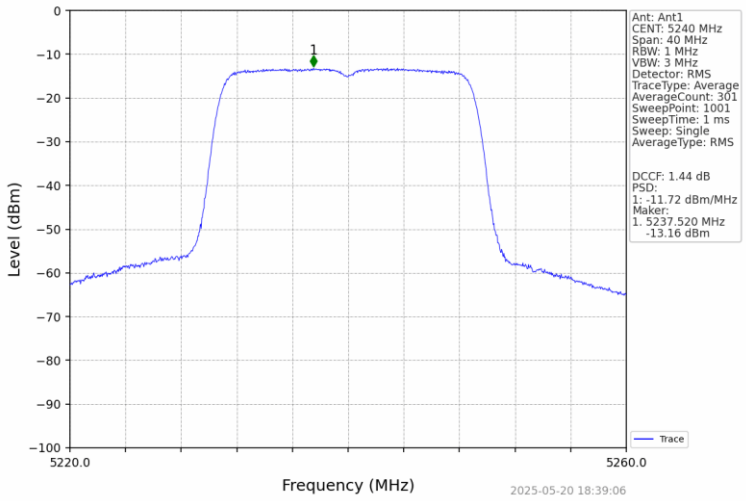
802.11n(HT20)_MCH_5200MHz_Ant2_NTNV



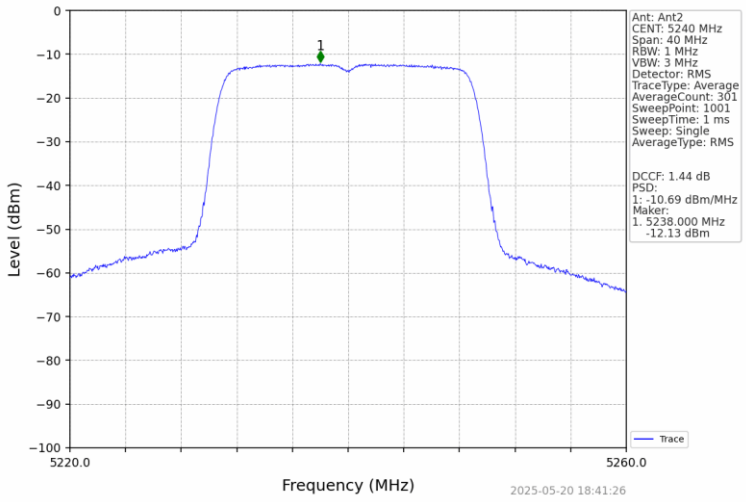
802.11n(HT20)_MCH_5200MHz_MIMO_NTNV



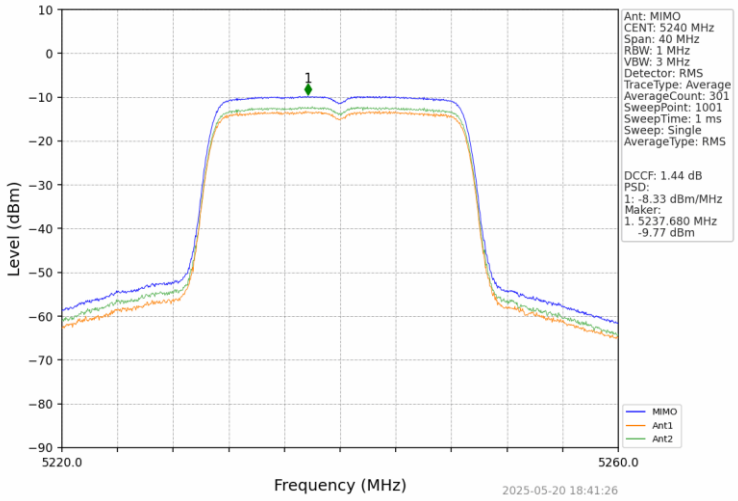
802.11n(HT20)_HCH_5240MHz_Ant1_NTNV



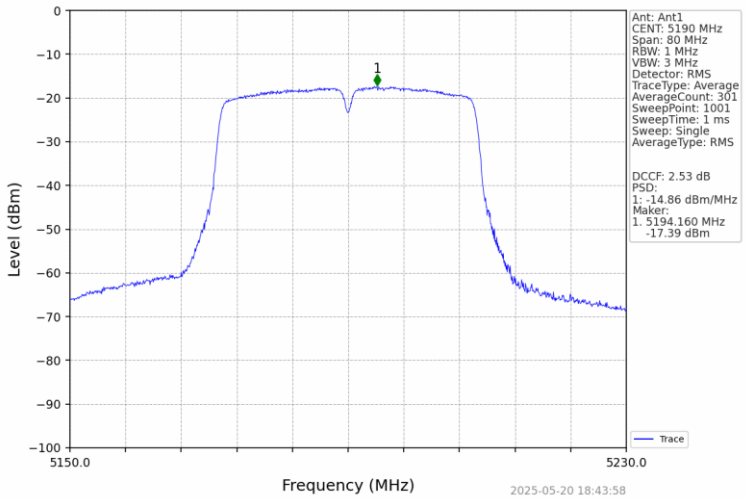
802.11n(HT20)_HCH_5240MHz_Ant2_NTNV



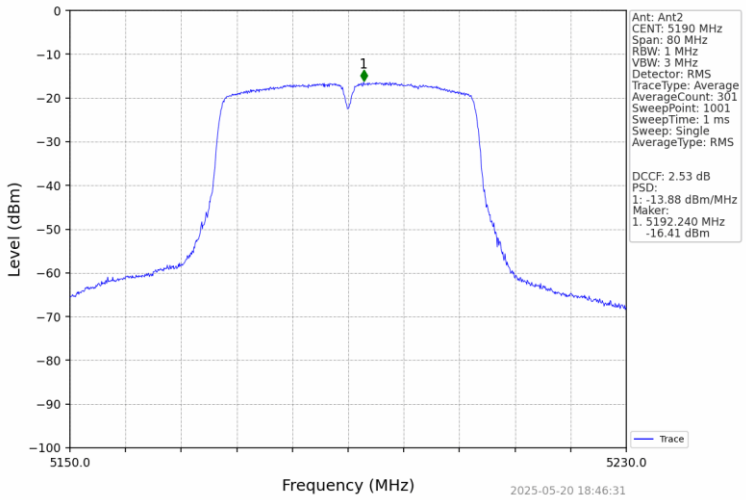
802.11n(HT20)_HCH_5240MHz_MIMO_NTNV



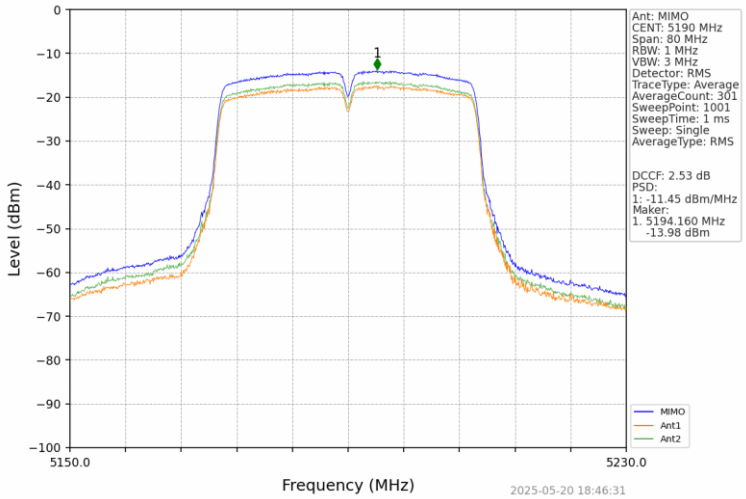
802.11n(HT40)_LCH_5190MHz_Ant1_NTNV



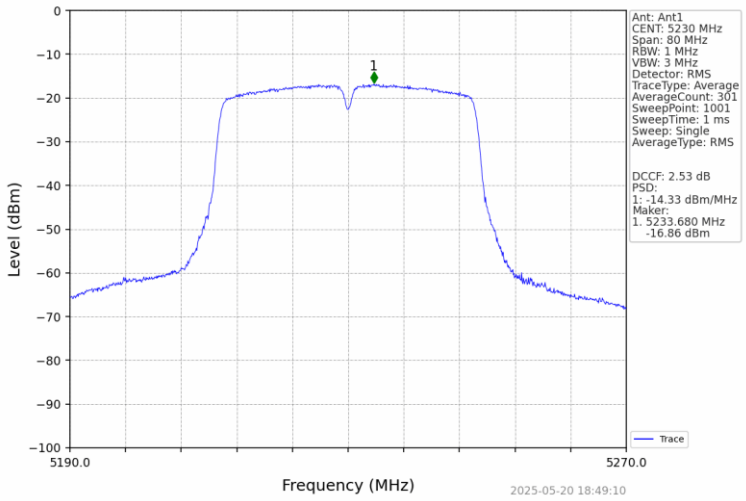
802.11n(HT40)_LCH_5190MHz_Ant2_NTNV



802.11n(HT40)_LCH_5190MHz_MIMO_NTNV



802.11n(HT40)_HCH_5230MHz_Ant1_NTNV



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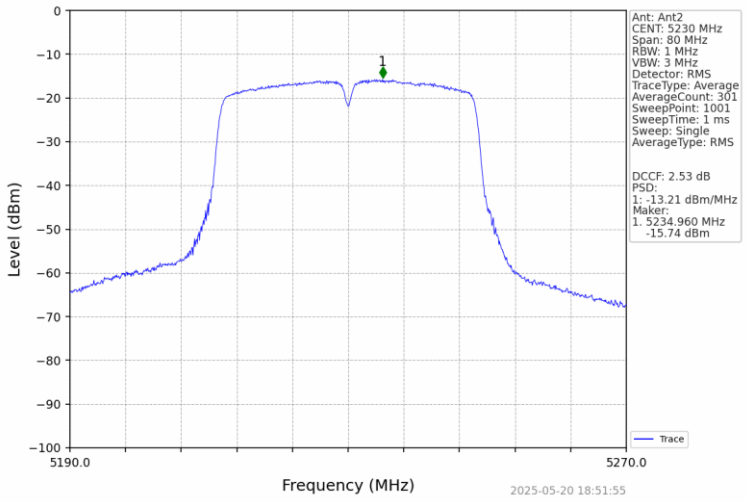

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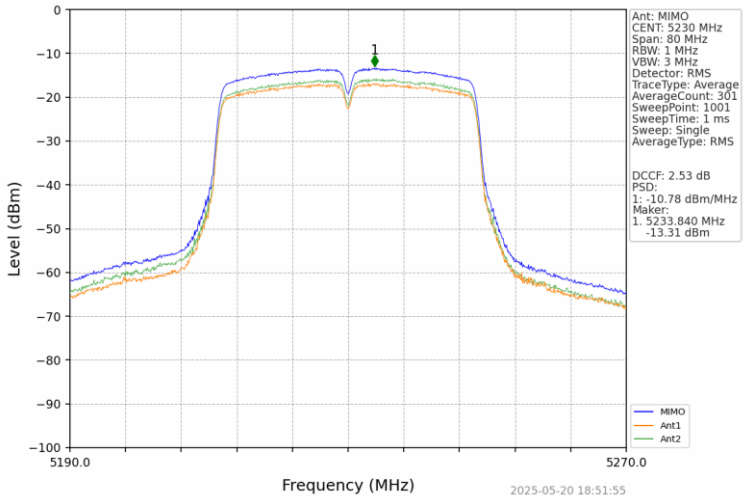
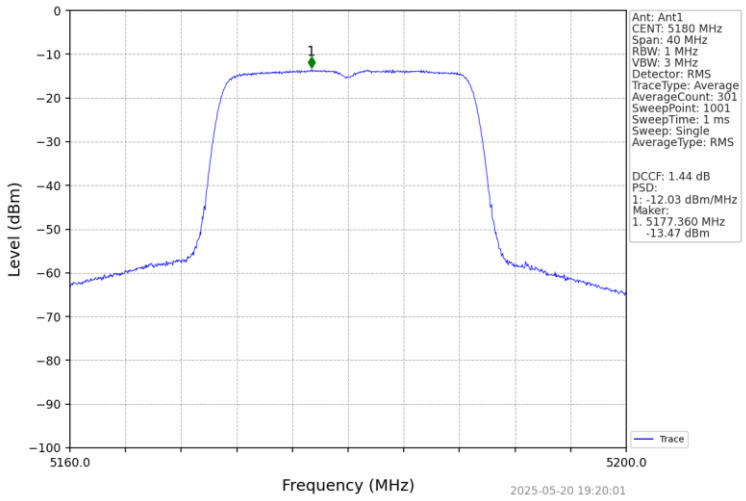


802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



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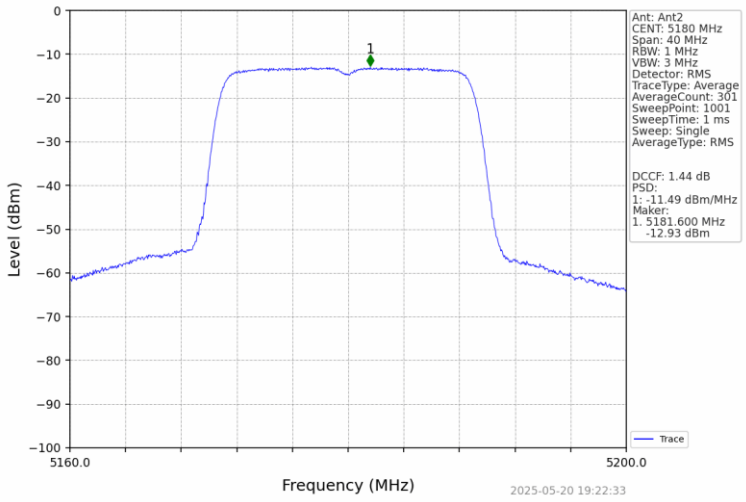

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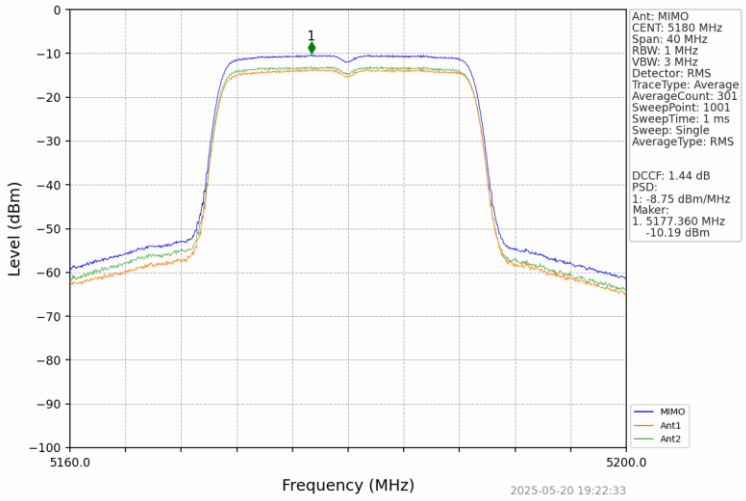
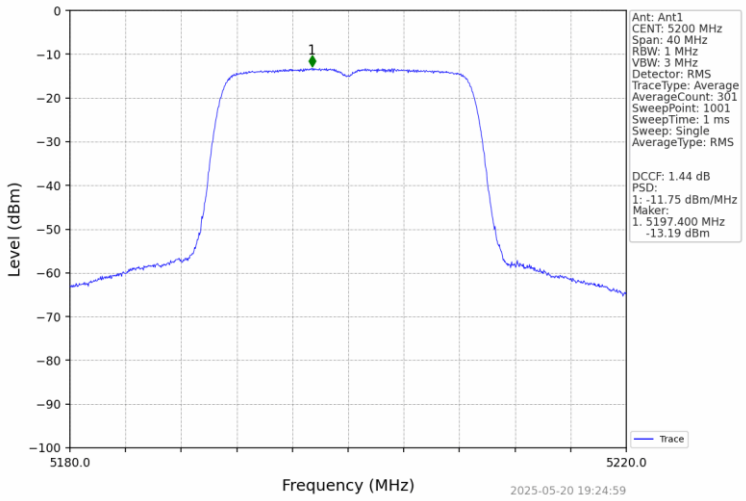


802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV



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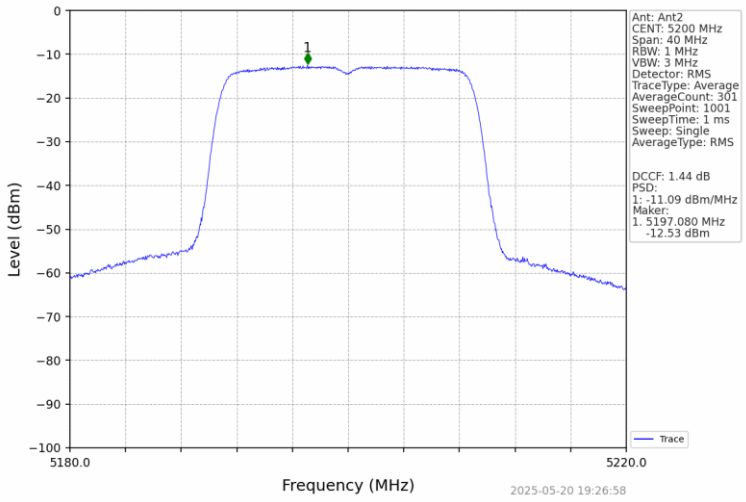

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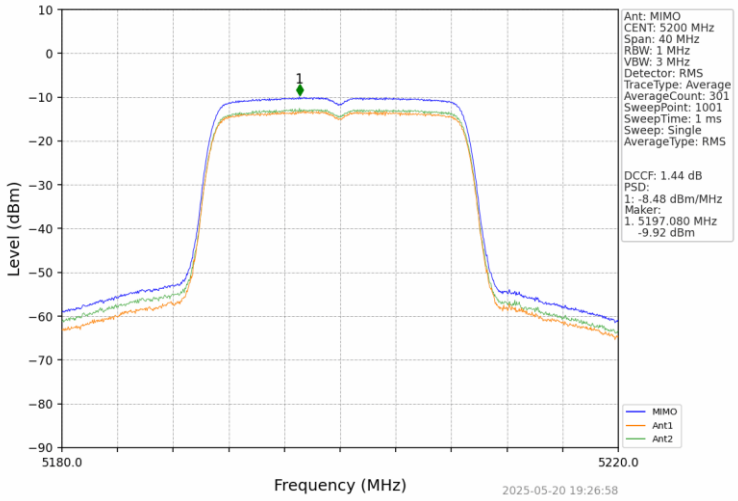
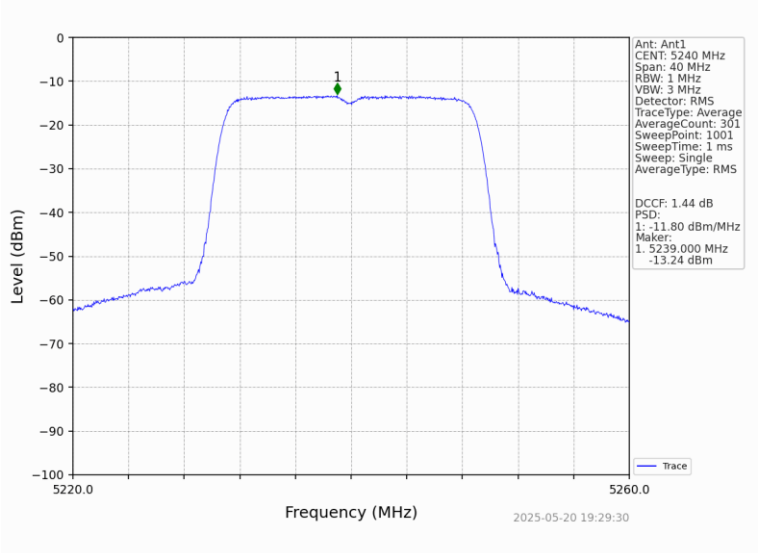


802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV



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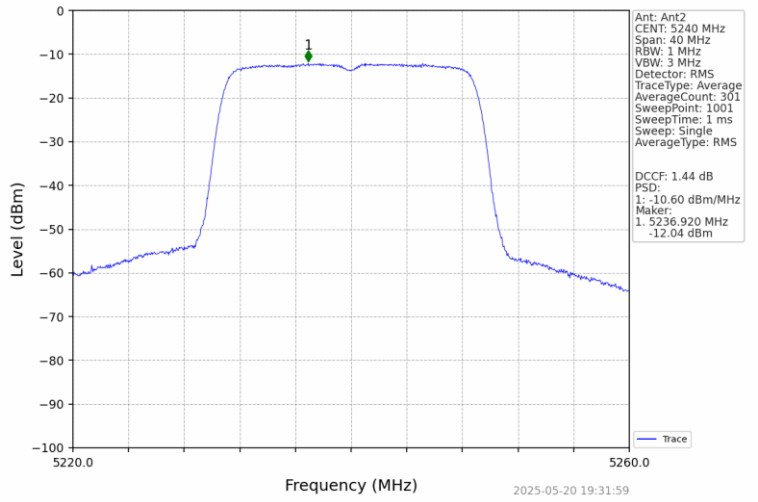
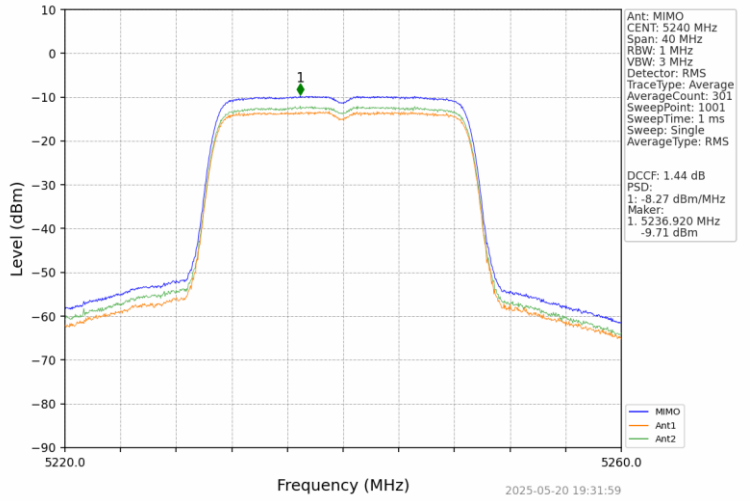
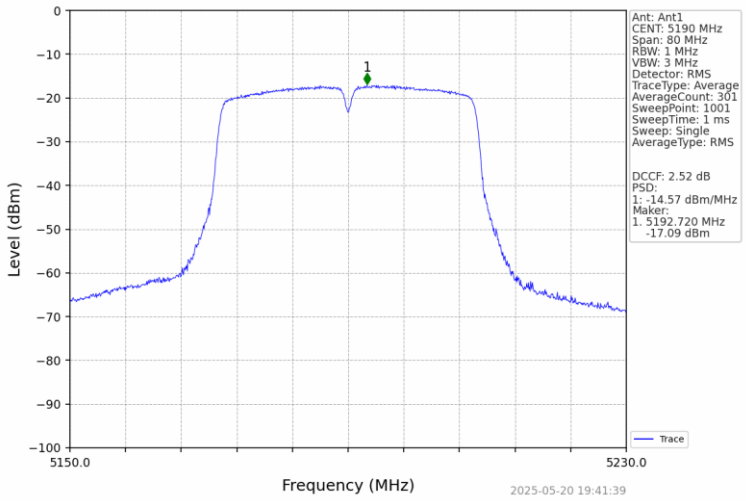


802.11ac(VHT20)_HCH_5240MHz_MIMO_NTNV



802.11ac(VHT40)_LCH_5190MHz_Ant1_NTNV



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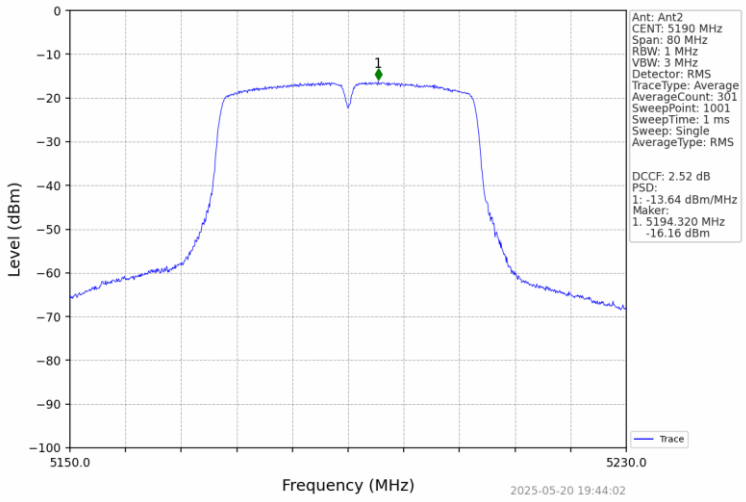
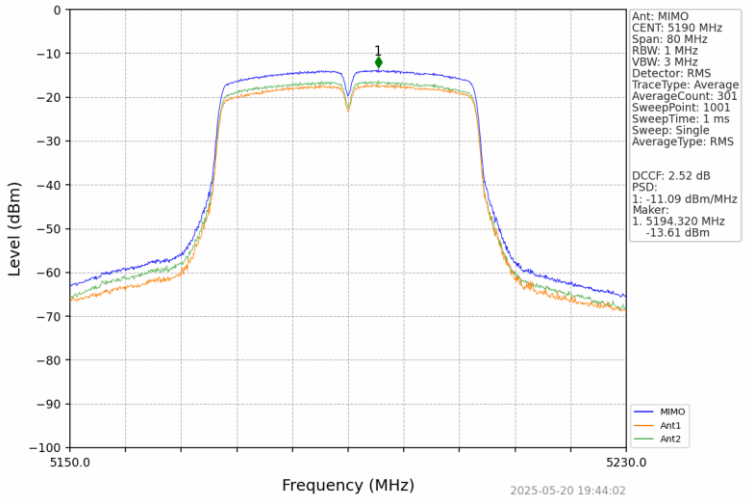
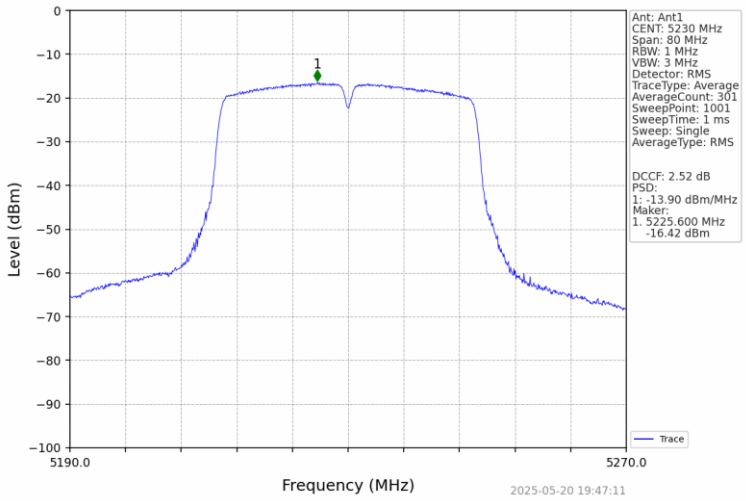


802.11ac(VHT40)_LCH_5190MHz_MIMO_NTNV



802.11ac(VHT40)_HCH_5230MHz_Ant1_NTNV



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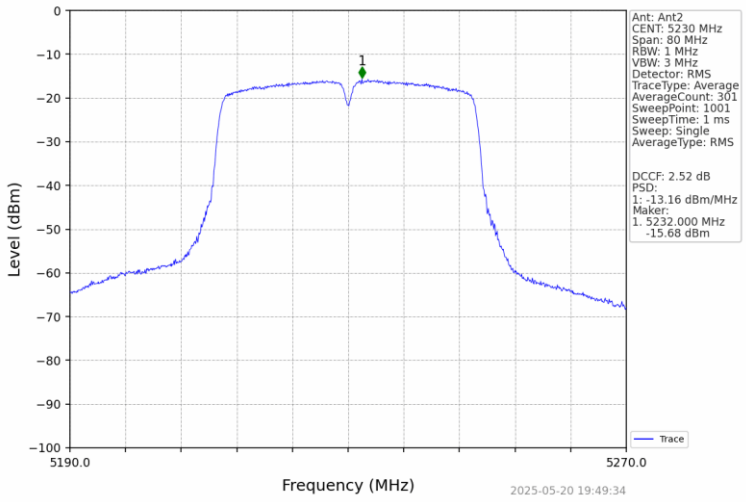
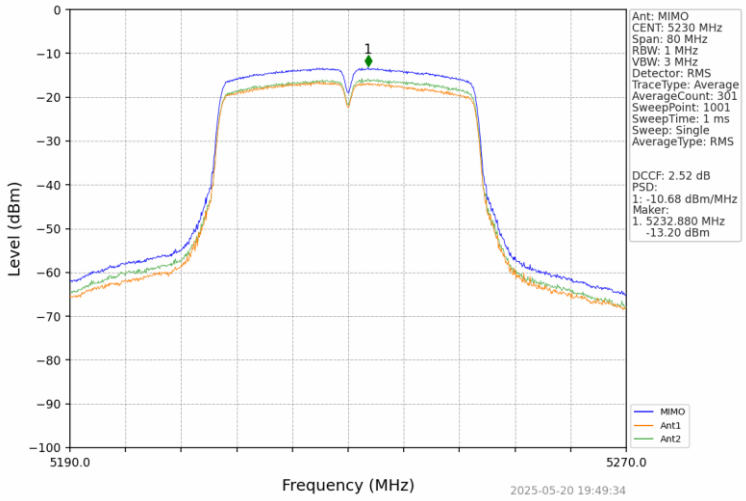
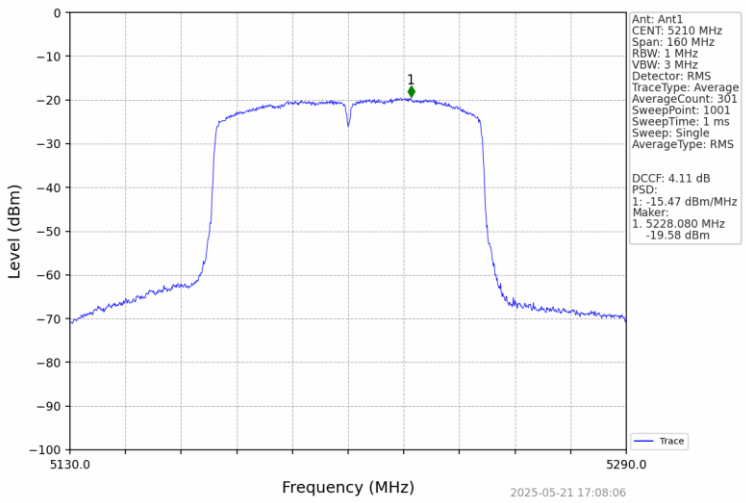


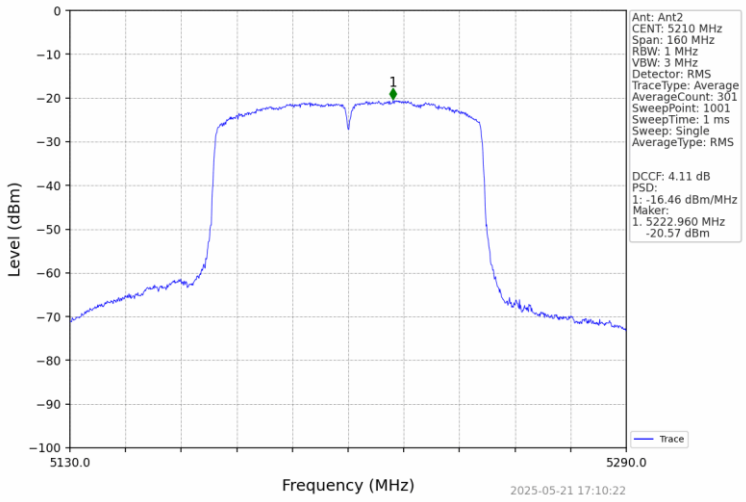
802.11ac(VHT40)_HCH_5230MHz_MIMO_NTNV



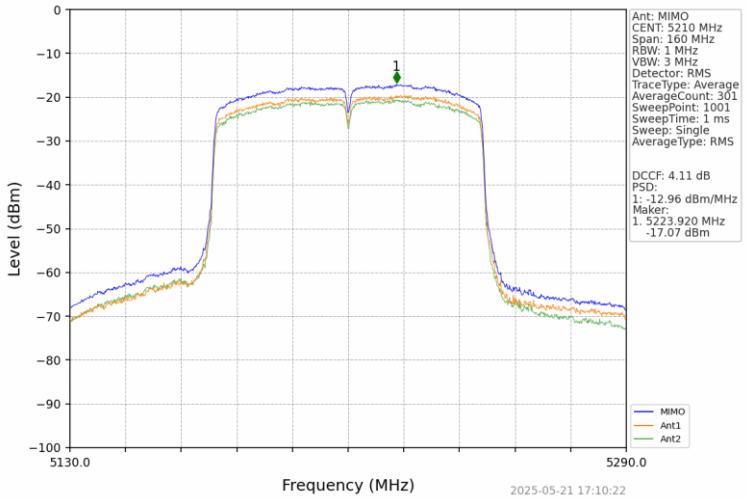
802.11ac(VHT80)_MCH_5210MHz_Ant1_NTNV



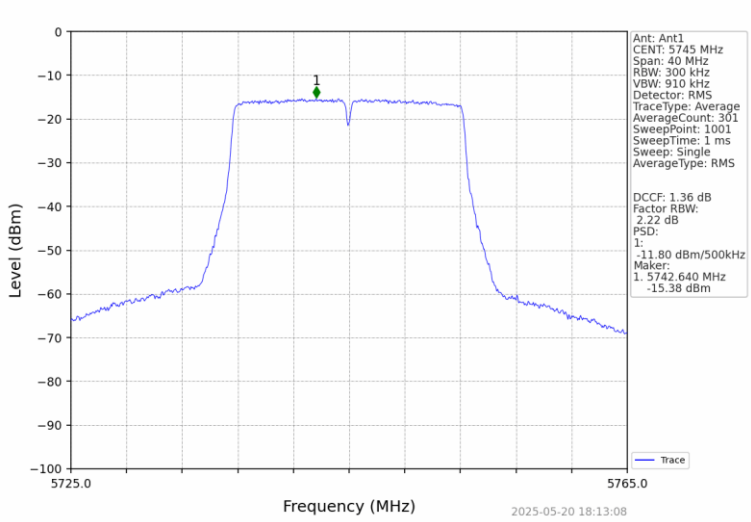
802.11ac(VHT80)_MCH_5210MHz_Ant2_NTNV



802.11ac(VHT80)_MCH_5210MHz_MIMO_NTNV



802.11a_LCH_5745MHz_Ant1_NTNV



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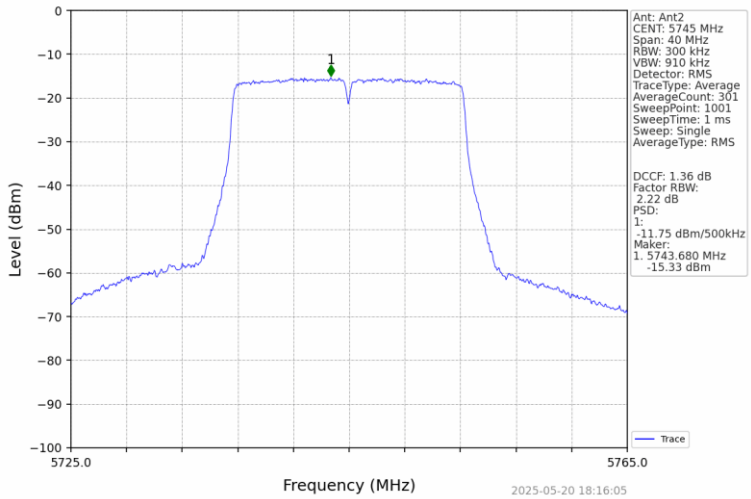
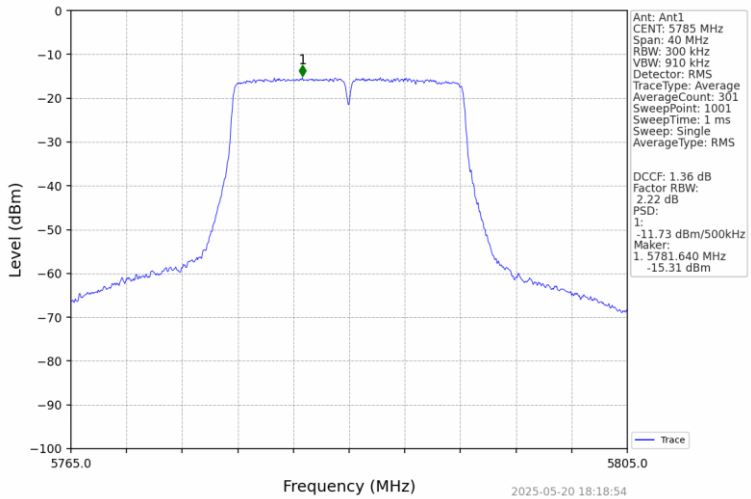


802.11a_MCH_5785MHz_Ant1_NTNV



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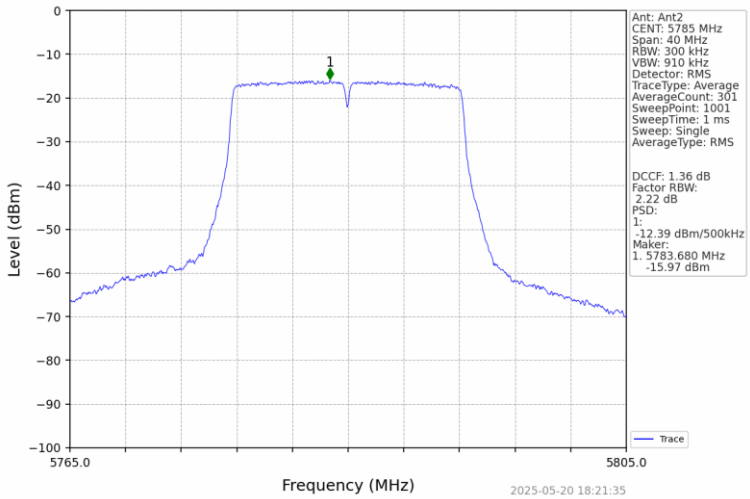

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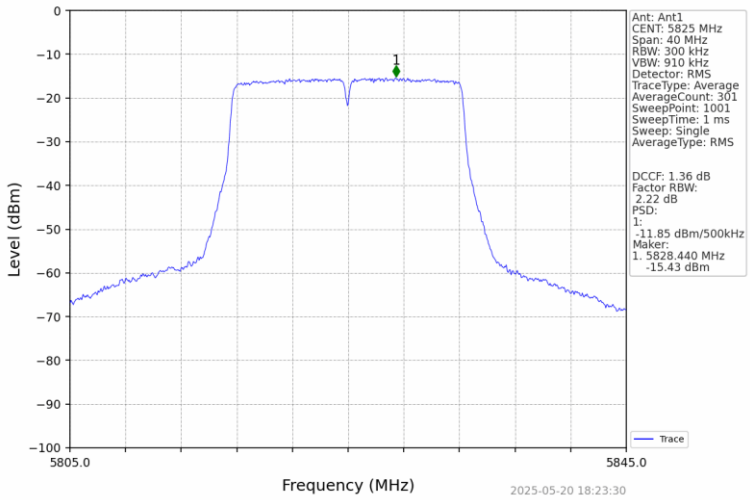

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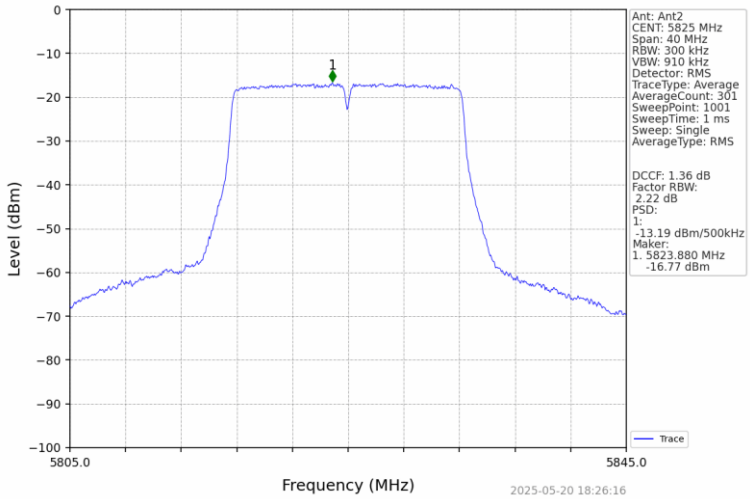
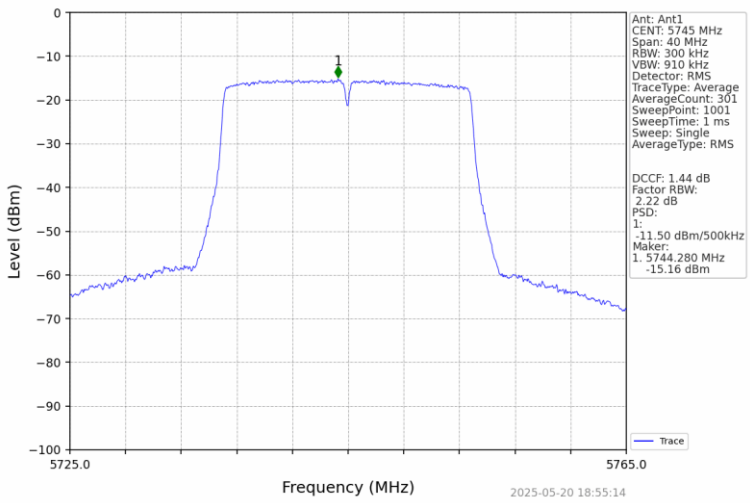


802.11n(HT20)_LCH_5745MHz_Ant1_NTNV



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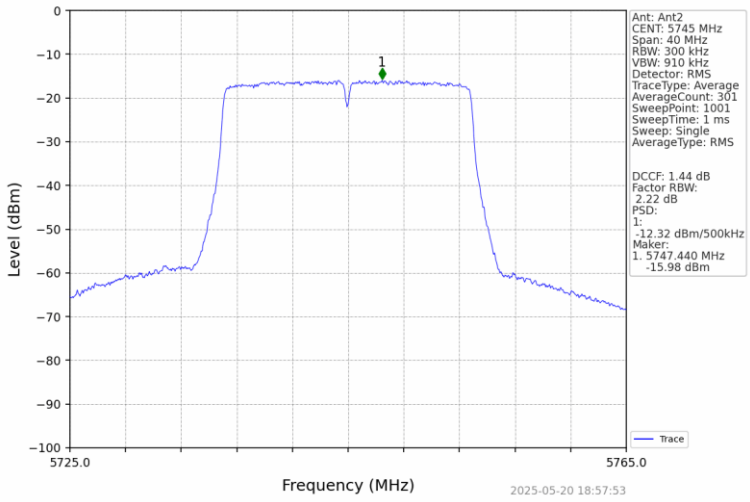
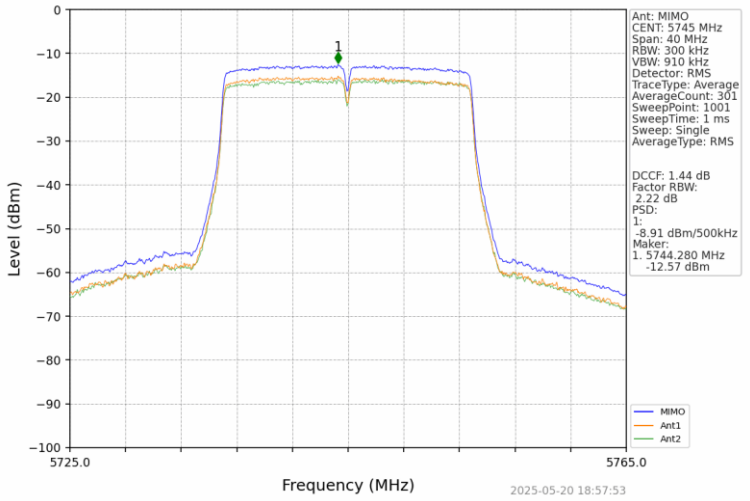


802.11n(HT20)_LCH_5745MHz_MIMO_NTNV



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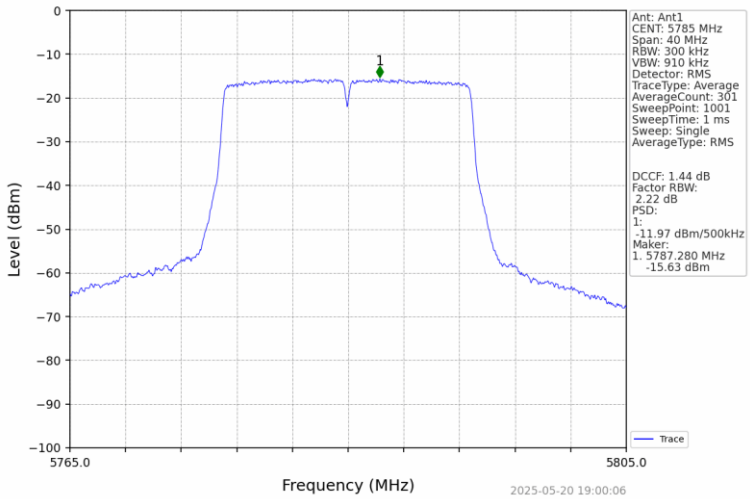

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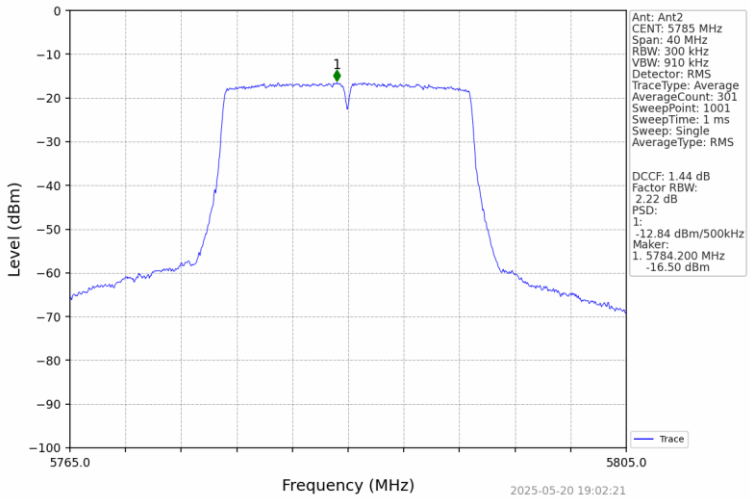
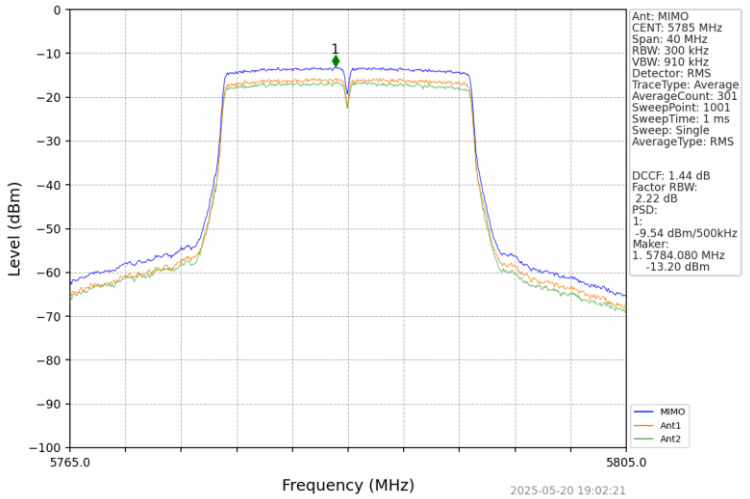
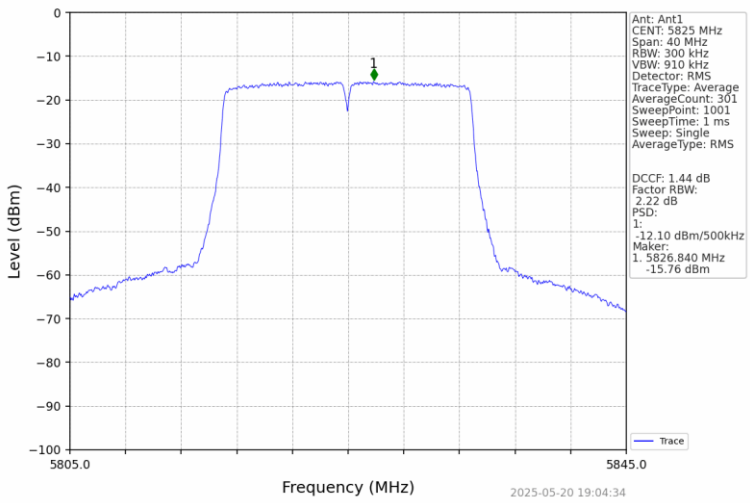


802.11n(HT20)_MCH_5785MHz_MIMO_NTNV



802.11n(HT20)_HCH_5825MHz_Ant1_NTNV



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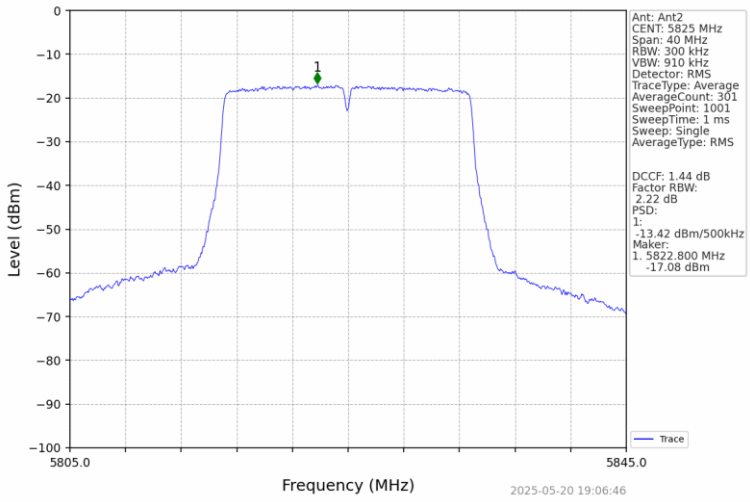
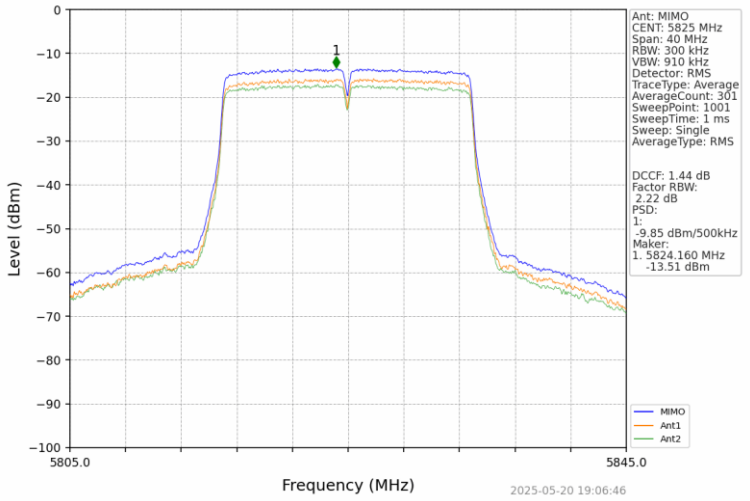
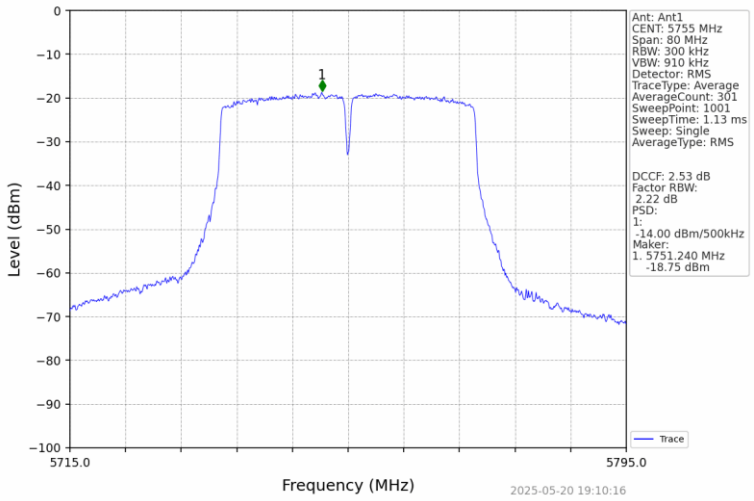


802.11n(HT20)_HCH_5825MHz_MIMO_NTNV



802.11n(HT40)_LCH_5755MHz_Ant1_NTNV



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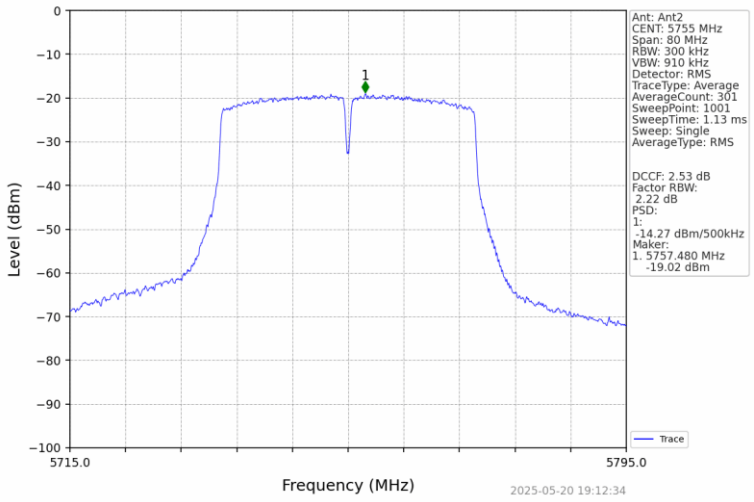
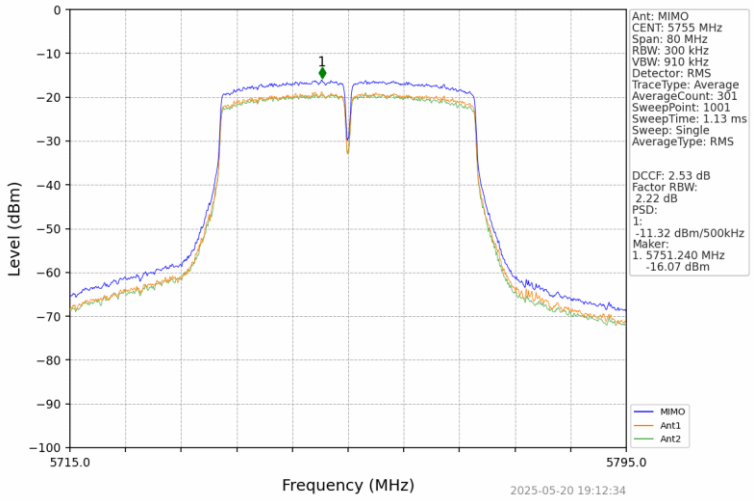
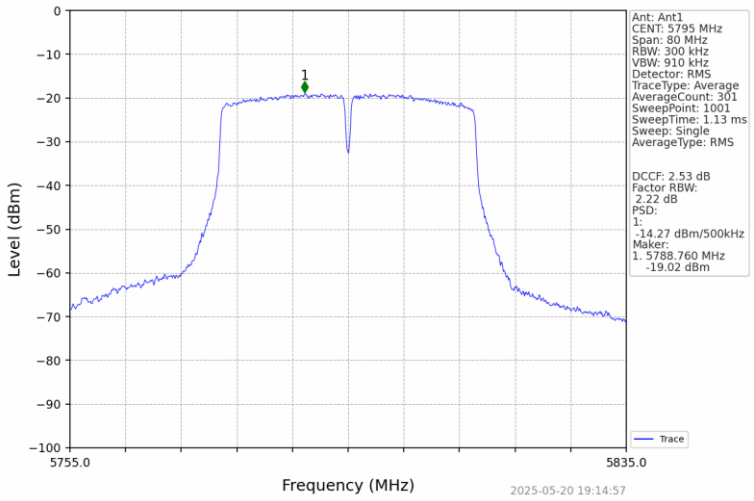


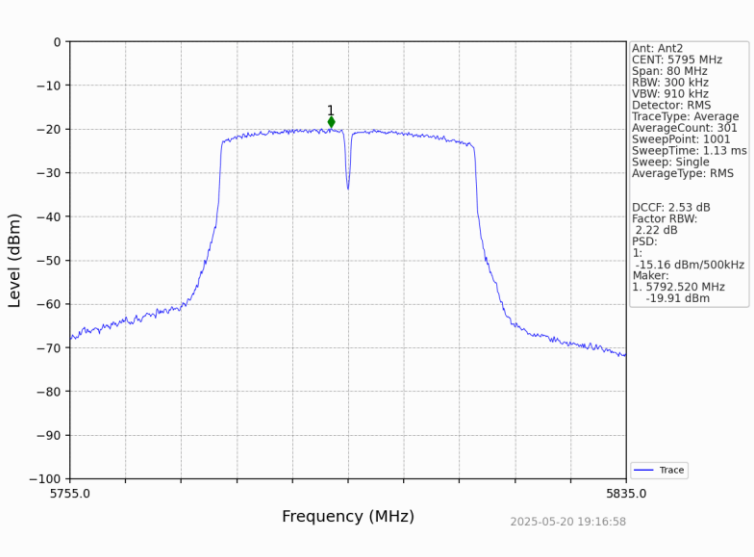
802.11n(HT40)_LCH_5755MHz_MIMO_NTNV



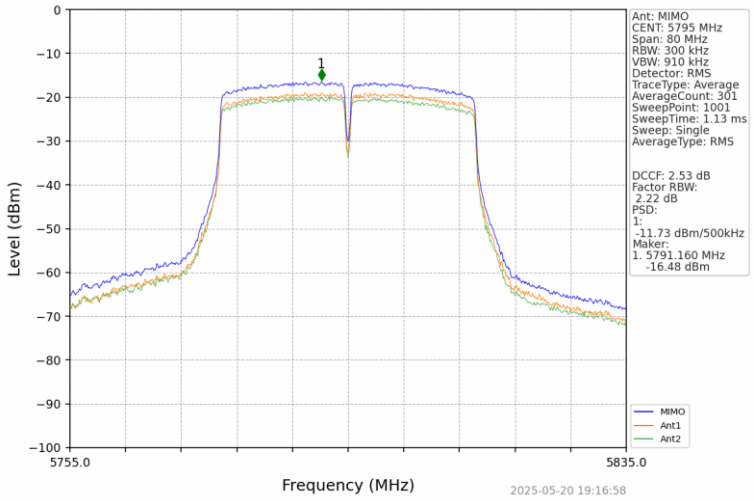
802.11n(HT40)_HCH_5795MHz_Ant1_NTNV



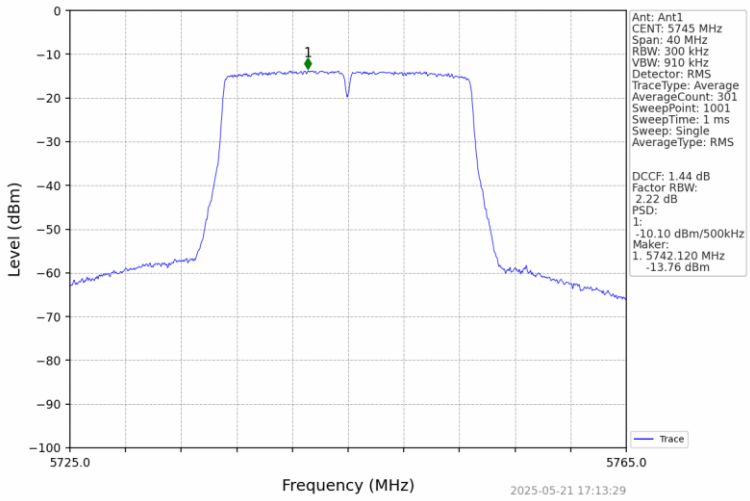
802.11n(HT40)_HCH_5795MHz_Ant2_NTNV



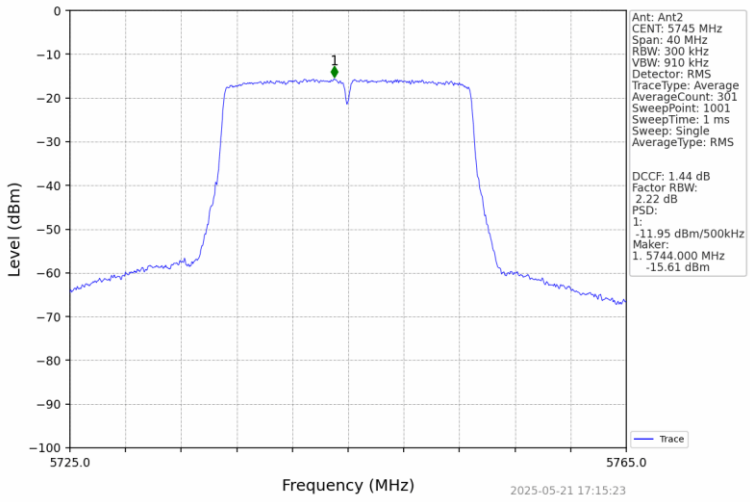
802.11n(HT40)_HCH_5795MHz_MIMO_NTNV



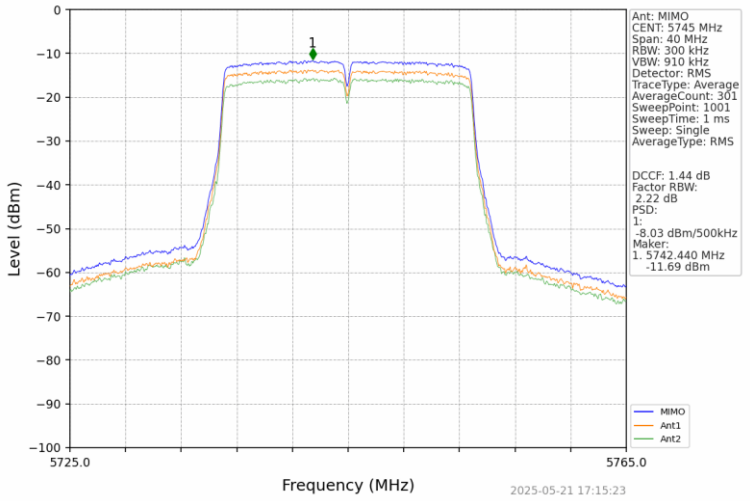
802.11ac(VHT20)_LCH_5745MHz_Ant1_NTNV



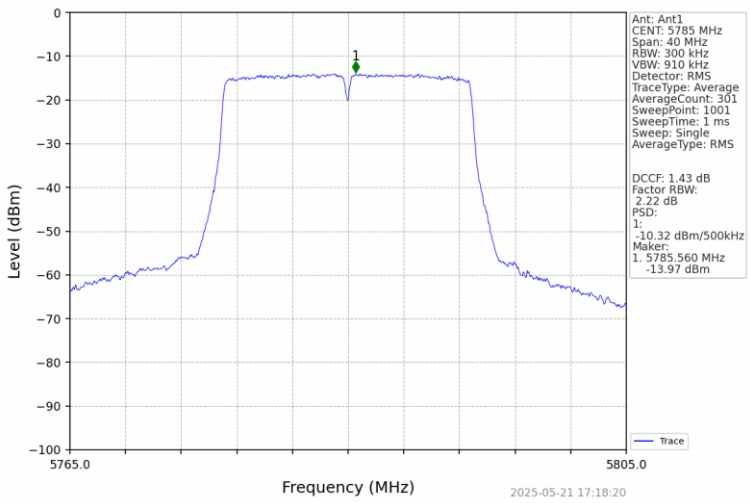
802.11ac(VHT20)_LCH_5745MHz_Ant2_NTNV



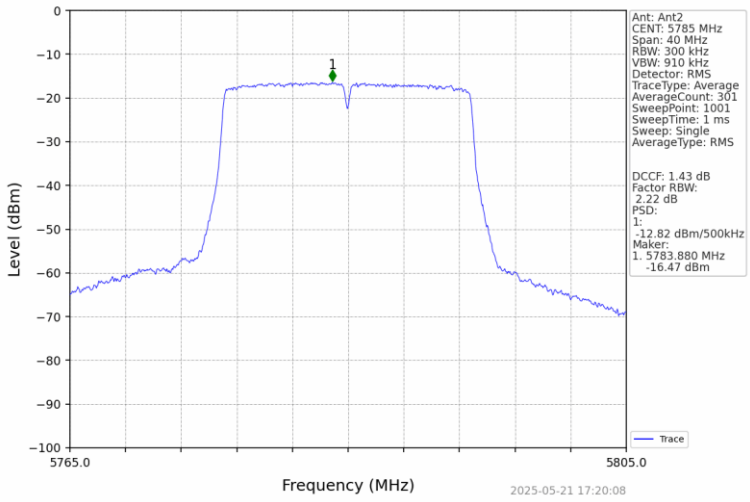
802.11ac(VHT20)_LCH_5745MHz_MIMO_NTNV



802.11ac(VHT20)_MCH_5785MHz_Ant1_NTNV



802.11ac(VHT20)_MCH_5785MHz_Ant2_NTNV



802.11ac(VHT20)_MCH_5785MHz_MIMO_NTNV