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Annex for 5G Wi-Fi Band 1

Test Report No.: CTL2604152052-WF03

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FCC ID: 2A94J-CP027

1. Duty Cycle

1.1 Test Result

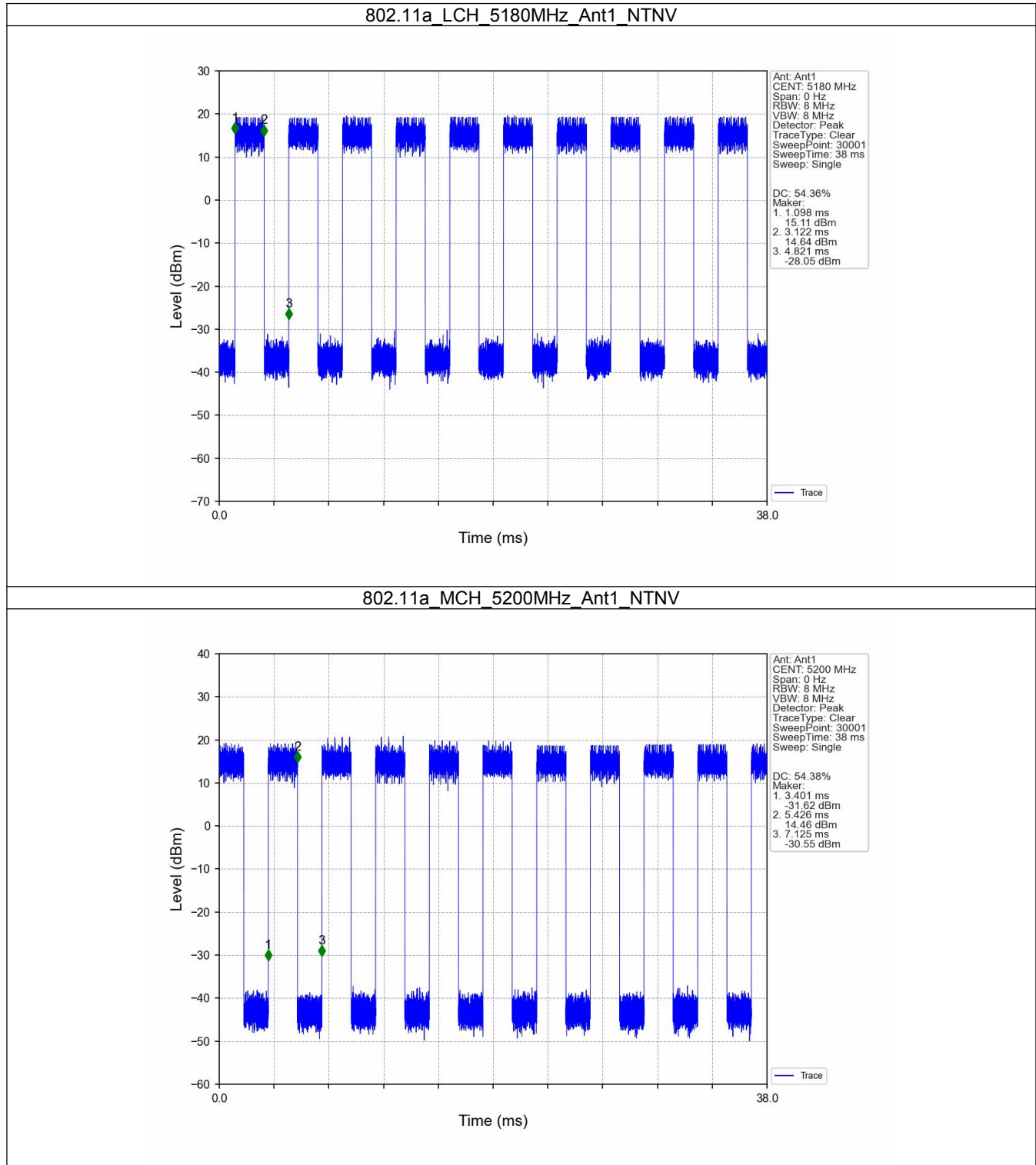
1.1.1 Ant1

Ant1									
Mode	TX Type	Frequency (MHz)	RU	RU Pos	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11a	SISO	5180	/	/	2.024	3.723	54.36	2.65	0.03
		5200	/	/	2.025	3.724	54.38	2.65	0.03
		5240	/	/	2.024	3.723	54.36	2.65	0.03
802.11n (HT20)	SISO	5180	/	/	1.703	3.402	50.06	3.01	0.02
		5200	/	/	1.703	3.402	50.06	3.01	0.05
		5240	/	/	1.703	3.402	50.06	3.01	0.04
802.11ac (VHT20)	SISO	5180	/	/	1.706	3.405	50.10	3.00	0.05
		5200	/	/	1.708	3.407	50.13	3.00	0.04
		5240	/	/	1.707	3.406	50.12	3.00	0.04
802.11ax (HEW20)	SISO	5180	SU	/	1.453	3.152	46.10	3.36	0.02
		5200	SU	/	1.453	3.152	46.10	3.36	0.02
		5240	SU	/	1.453	3.152	46.10	3.36	0.03

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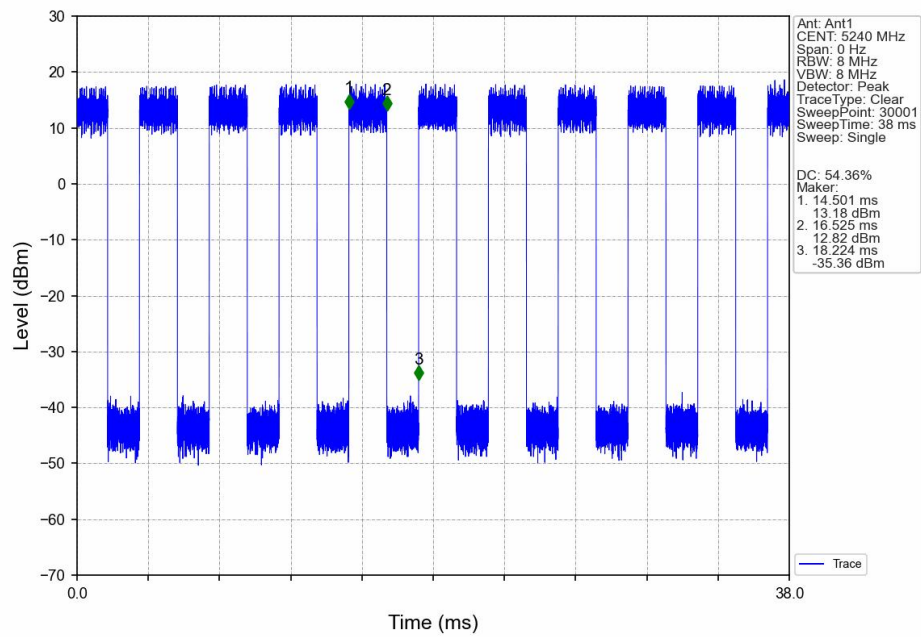
1.2 Test Graph

1.2.1 Ant1

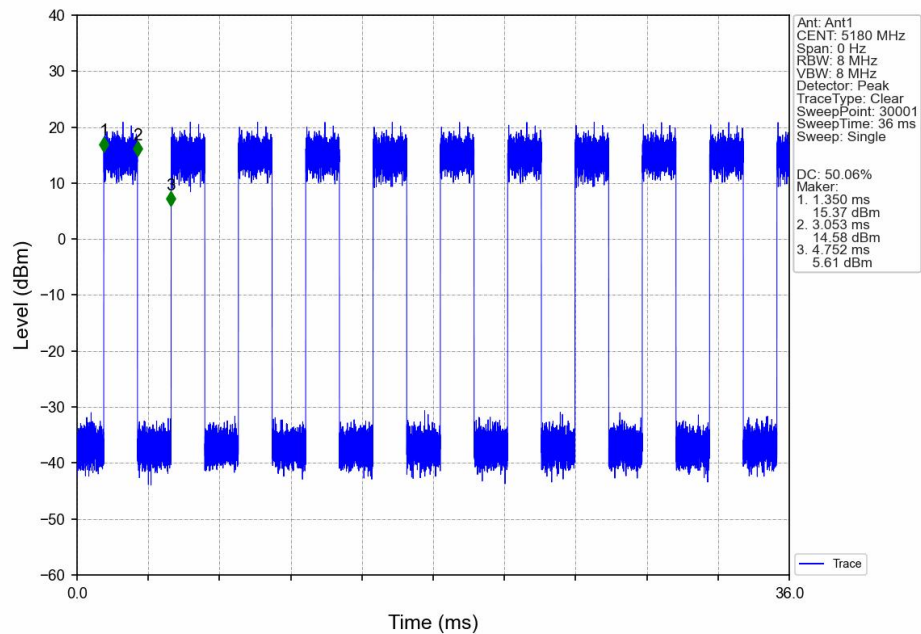


FCC ID: 2A94J-CP027

802.11a_HCH_5240MHz_Ant1_NTNV

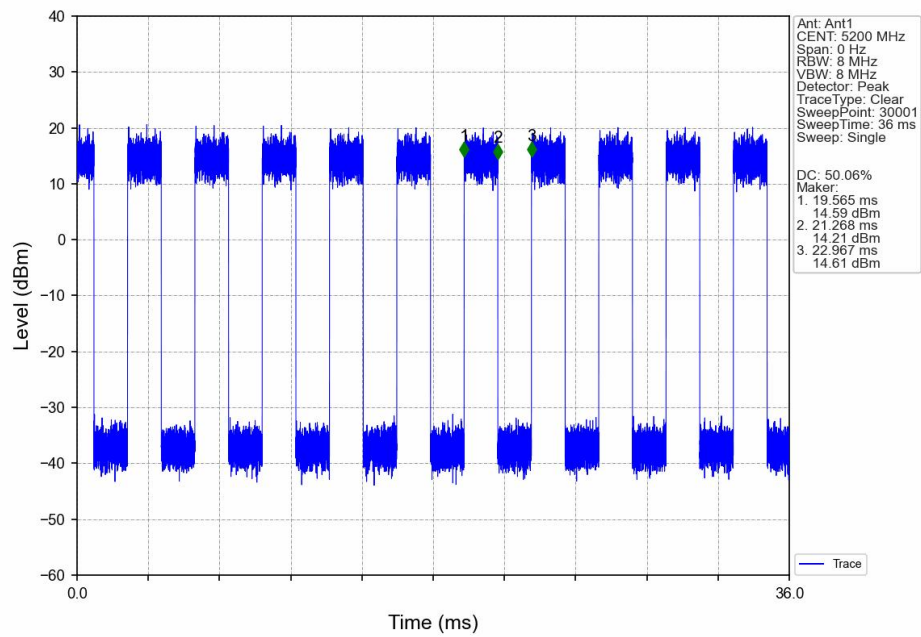


802.11n(HT20)_LCH_5180MHz_Ant1_NTNV

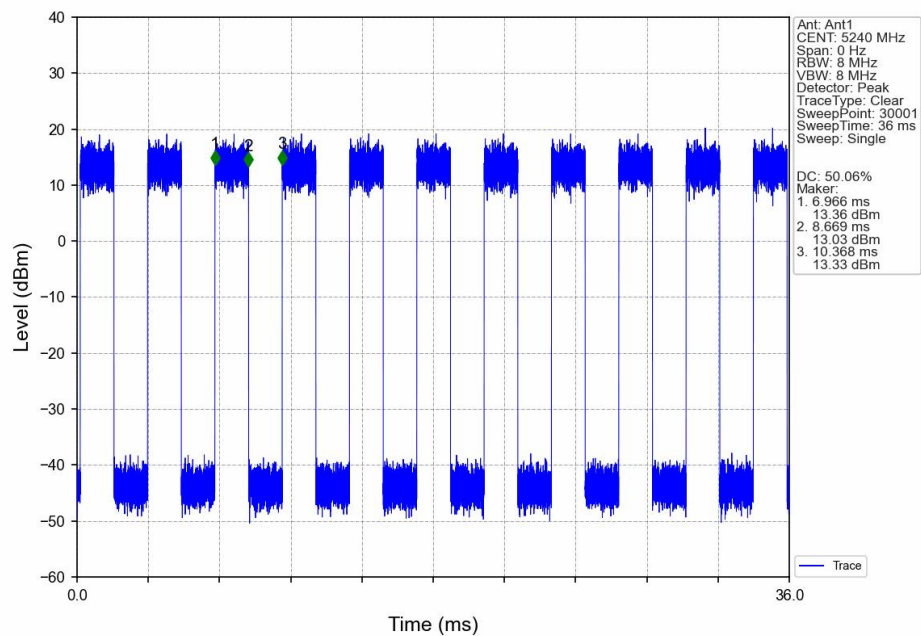


FCC ID: 2A94J-CP027

802.11n(HT20)_MCH_5200MHz_Ant1_NTNV

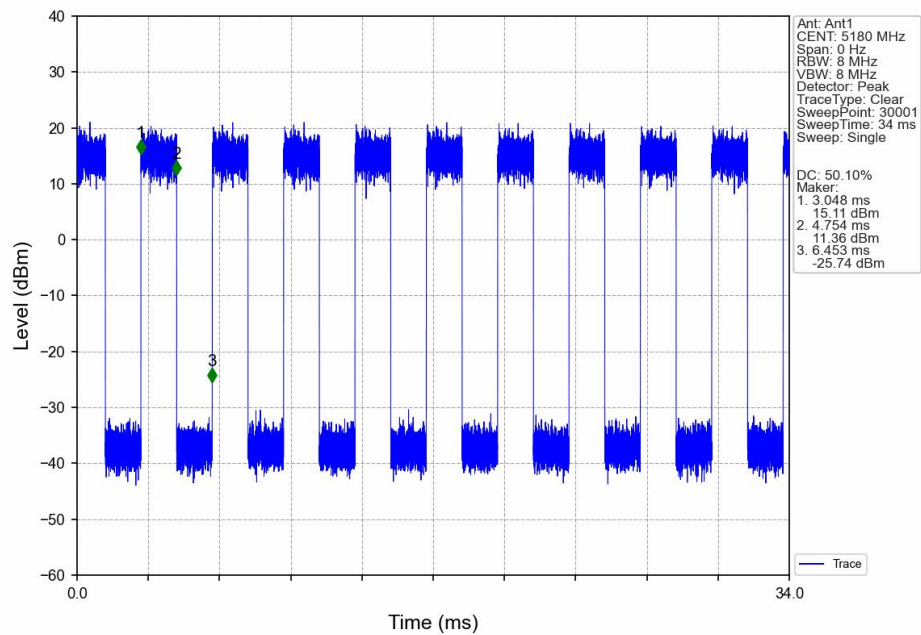


802.11n(HT20)_HCH_5240MHz_Ant1_NTNV

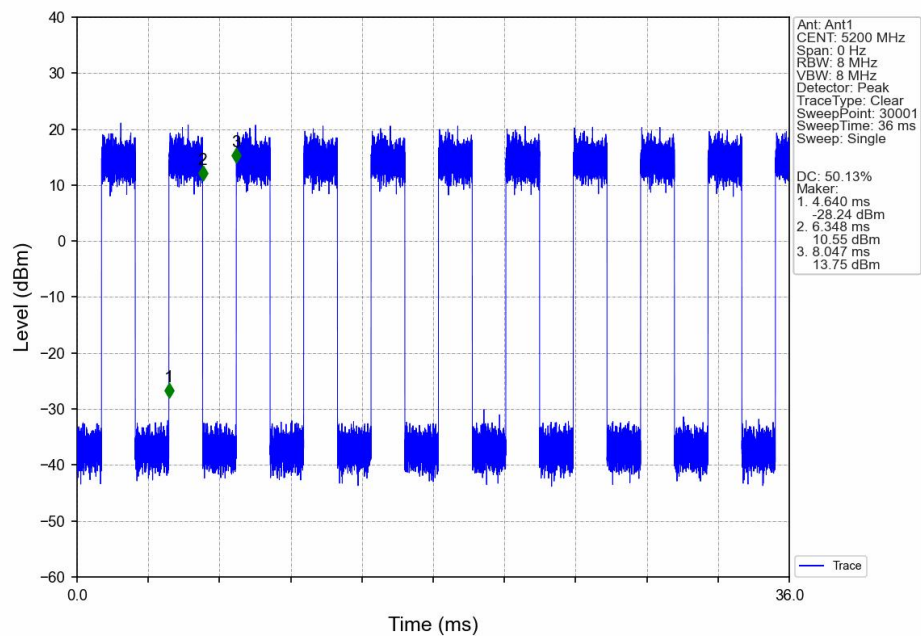


FCC ID: 2A94J-CP027

802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV

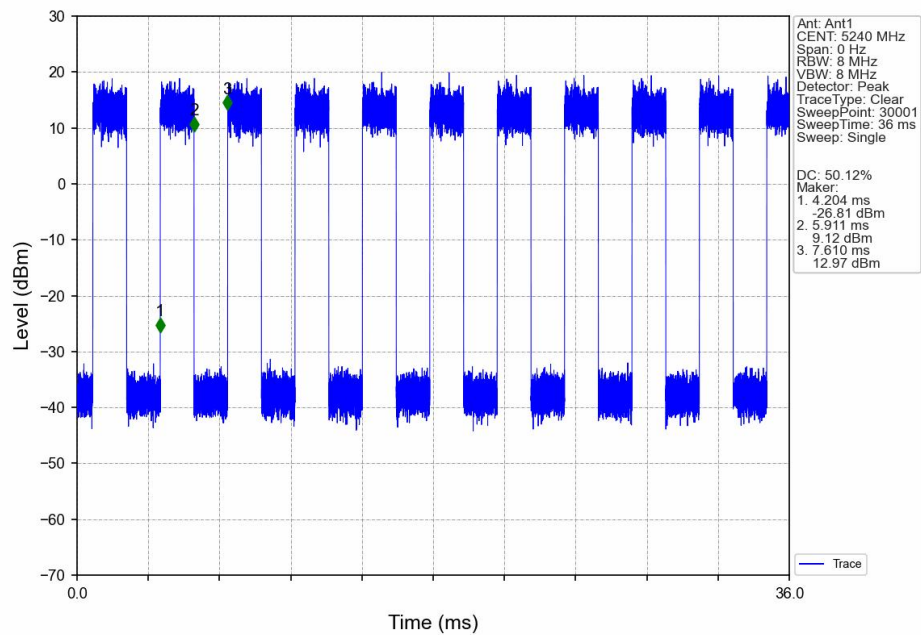


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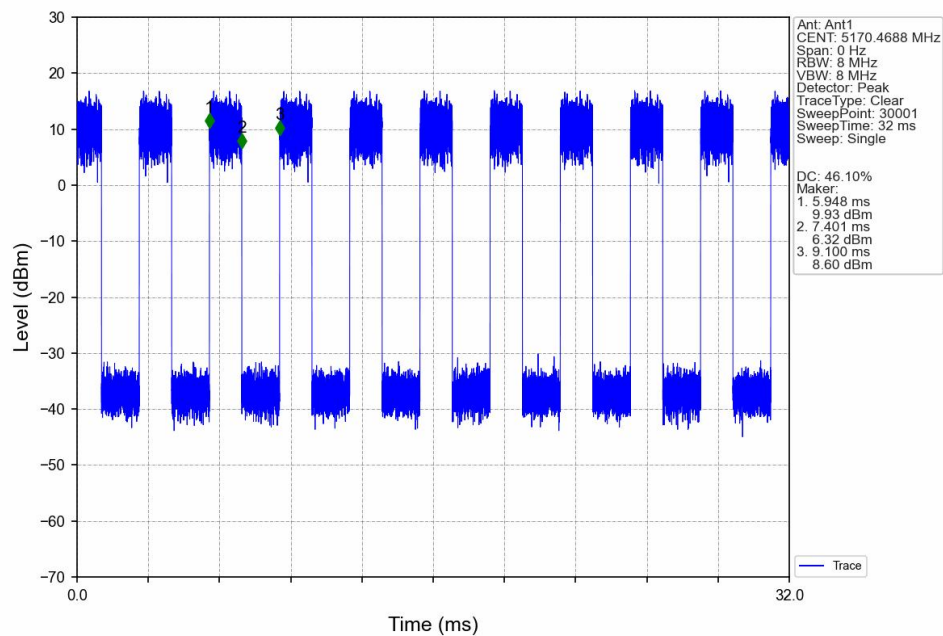


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802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV

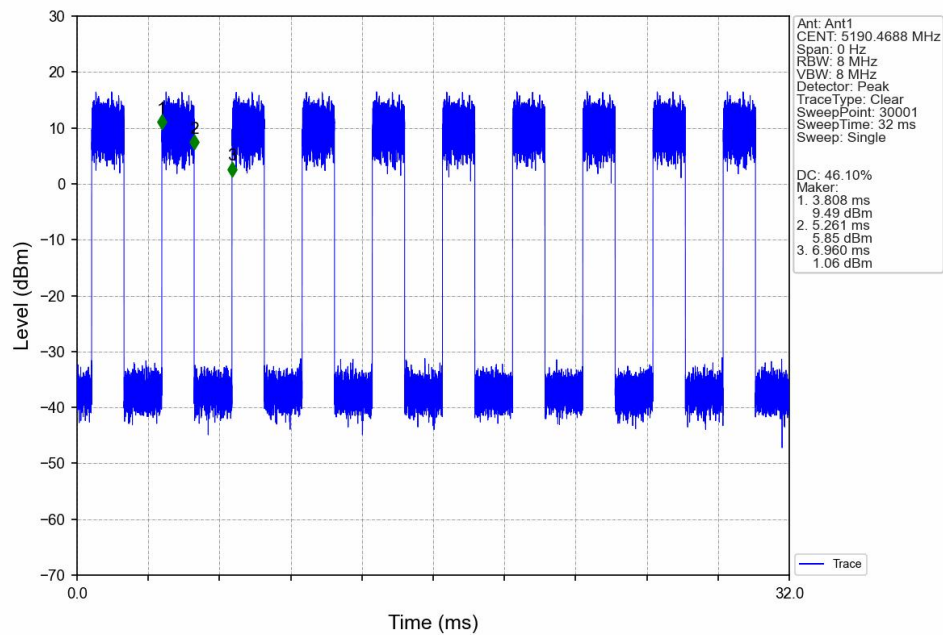


802.11ax(HEW20)_LCH_5180MHz_SU_/_Ant1_NTNV

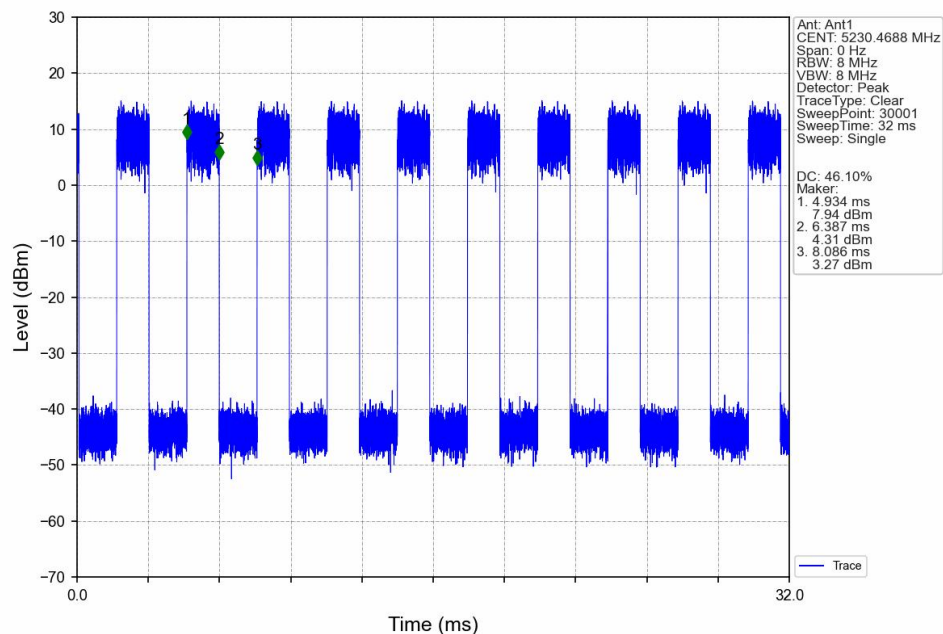


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802.11ax(HEW20)_MCH_5200MHz_SU_ / _Ant1_NTNV



802.11ax(HEW20)_HCH_5240MHz_SU_ / _Ant1_NTNV



FCC ID: 2A94J-CP027

2. Bandwidth

2.1 Test Result

2.1.1 OBW

Mode	TX Type	Frequency (MHz)	RU	RU Pos	ANT	99% Occupied Bandwidth (MHz)		Verdict
						Result	Limit	
802.11a	SISO	5180	/	/	1	16.450	/	Pass
		5200	/	/	1	16.424	/	Pass
		5240	/	/	1	16.366	/	Pass
802.11n (HT20)	SISO	5180	/	/	1	17.622	/	Pass
		5200	/	/	1	17.598	/	Pass
		5240	/	/	1	17.566	/	Pass
802.11ac (VHT20)	SISO	5180	/	/	1	17.631	/	Pass
		5200	/	/	1	17.597	/	Pass
		5240	/	/	1	17.577	/	Pass
802.11ax (HEW20)	SISO	5180	SU	/	1	18.859	/	Pass
		5200	SU	/	1	18.895	/	Pass
		5240	SU	/	1	18.811	/	Pass

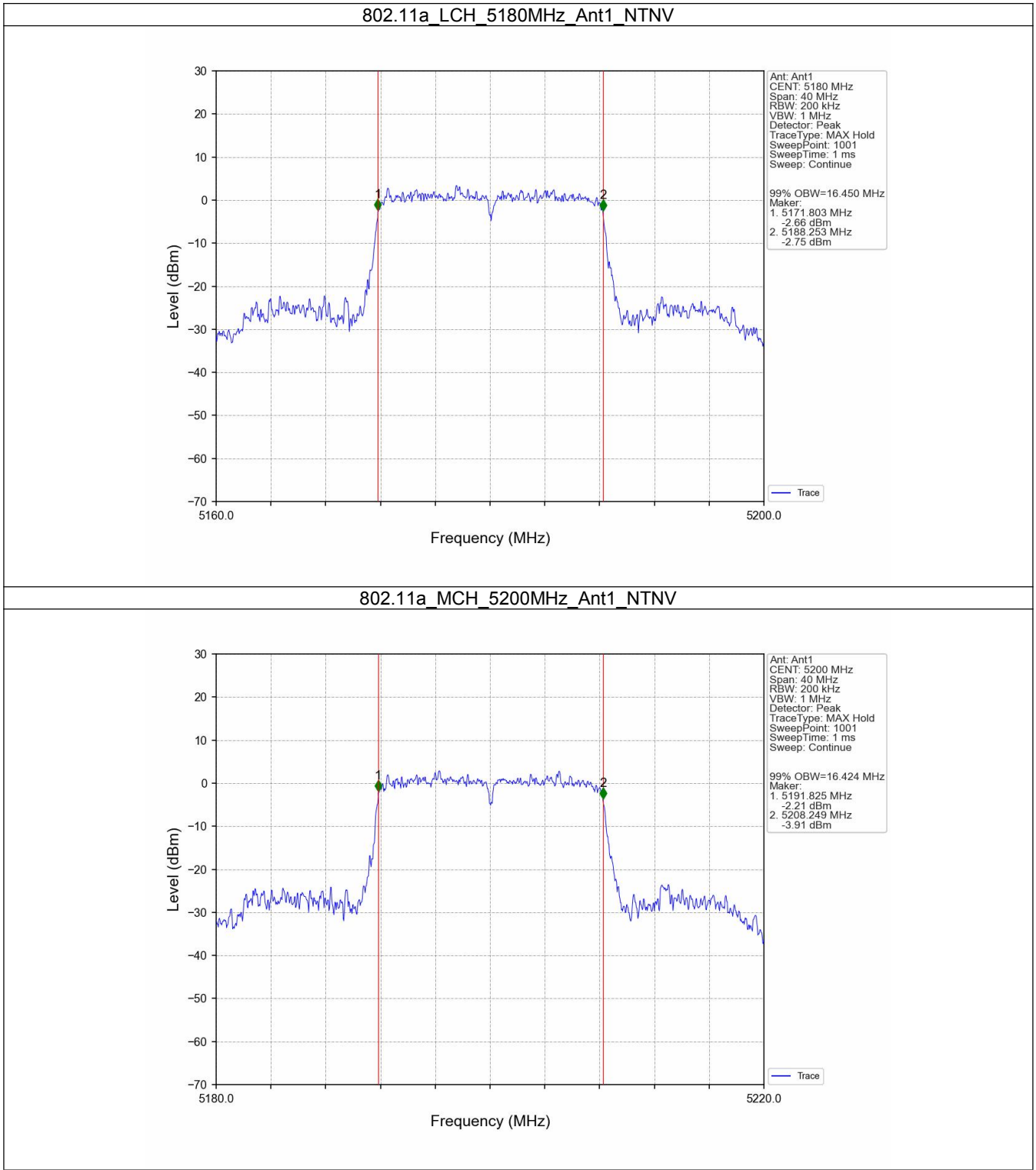
2.1.2 26dB BW

Mode	TX Type	Frequency (MHz)	RU	RU Pos	ANT	26dB Bandwidth (MHz)		Verdict
						Result	Limit	
802.11a	SISO	5180	/	/	1	18.165	/	Pass
		5200	/	/	1	18.513	/	Pass
		5240	/	/	1	18.461	/	Pass
802.11n (HT20)	SISO	5180	/	/	1	36.606	/	Pass
		5200	/	/	1	26.791	/	Pass
		5240	/	/	1	19.508	/	Pass
802.11ac (VHT20)	SISO	5180	/	/	1	34.846	/	Pass
		5200	/	/	1	36.137	/	Pass
		5240	/	/	1	19.370	/	Pass
802.11ax (HEW20)	SISO	5180	SU	/	1	34.999	/	Pass
		5200	SU	/	1	34.023	/	Pass
		5240	SU	/	1	19.822	/	Pass

FCC ID: 2A94J-CP027

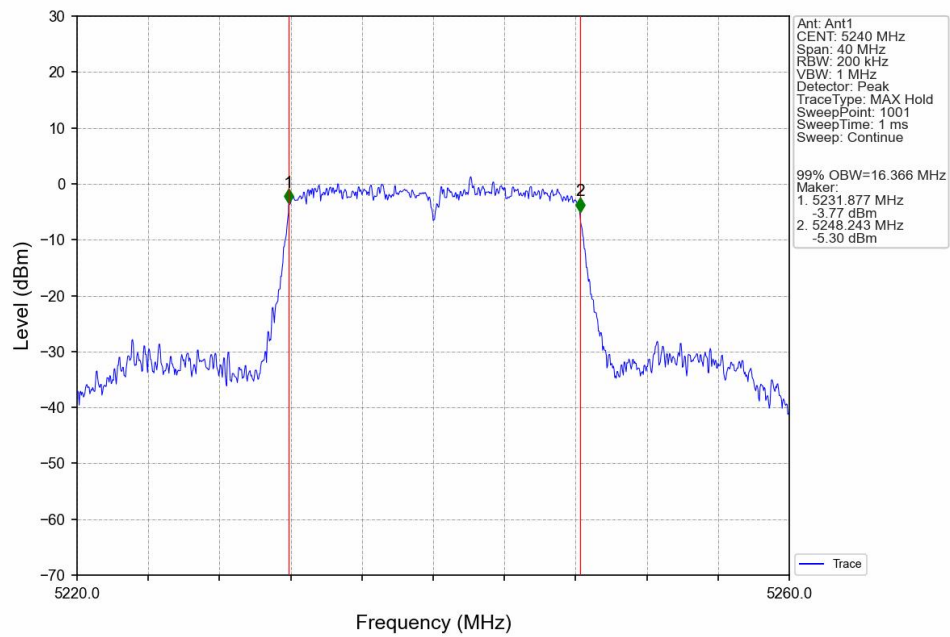
2.2 Test Graph

2.2.1 OBW

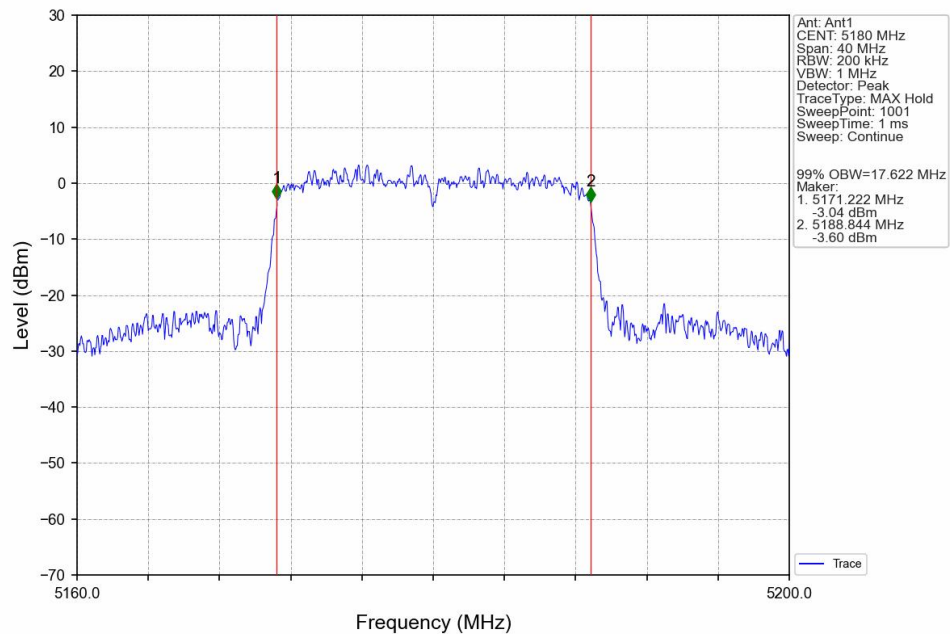


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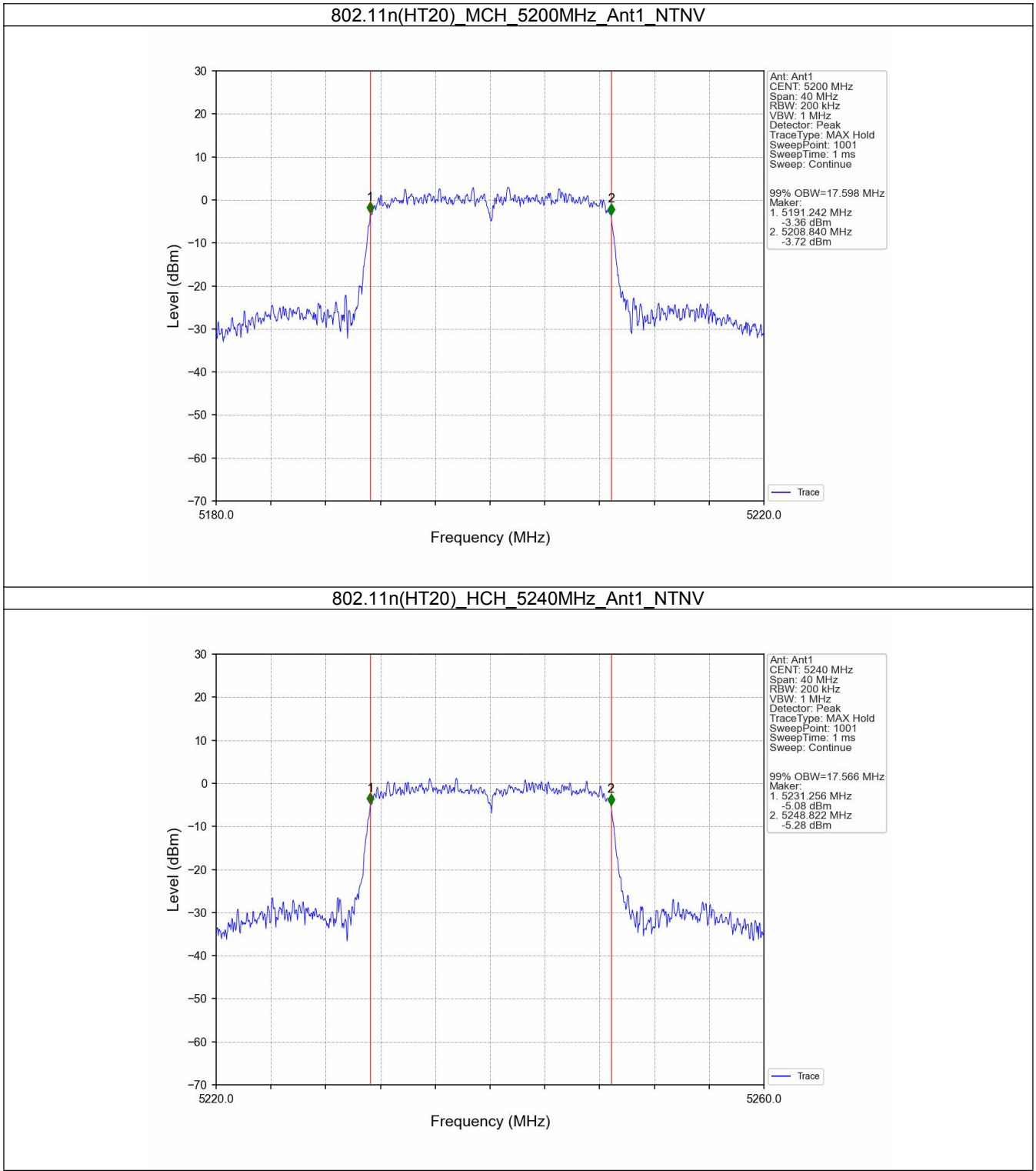
802.11a_HCH_5240MHz_Ant1_NTNV



802.11n(HT20)_LCH_5180MHz_Ant1_NTNV

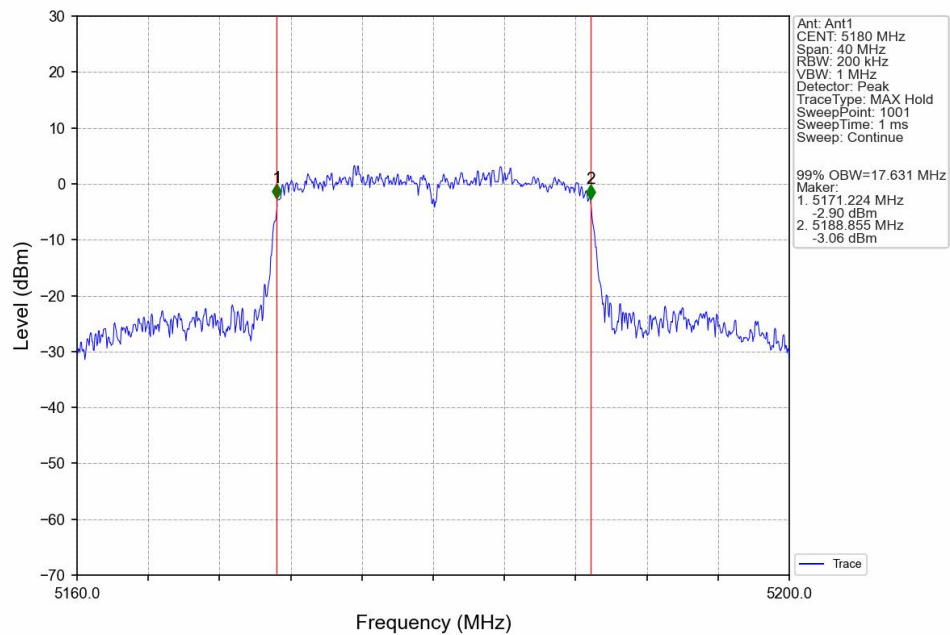


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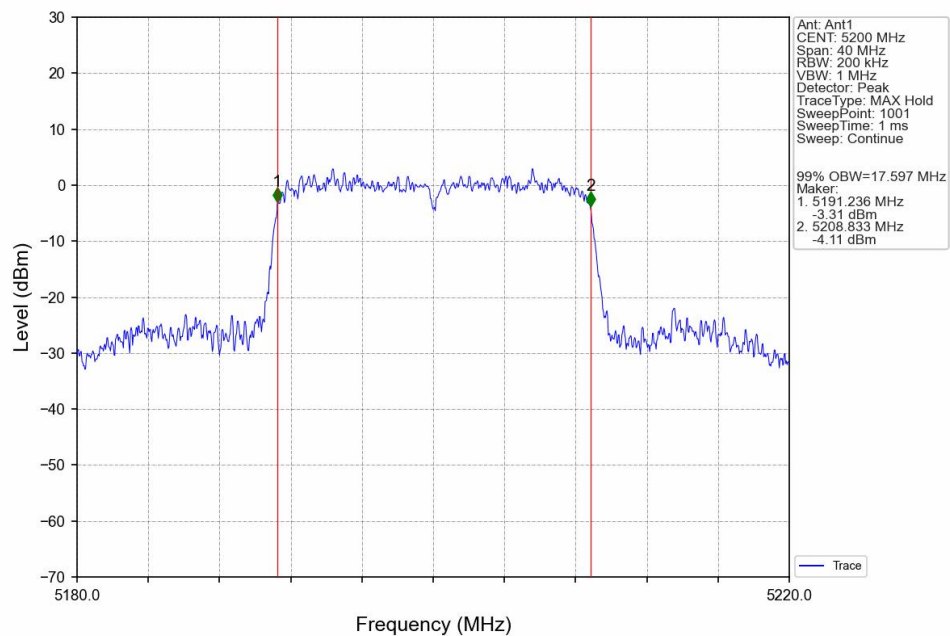


FCC ID: 2A94J-CP027

802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV

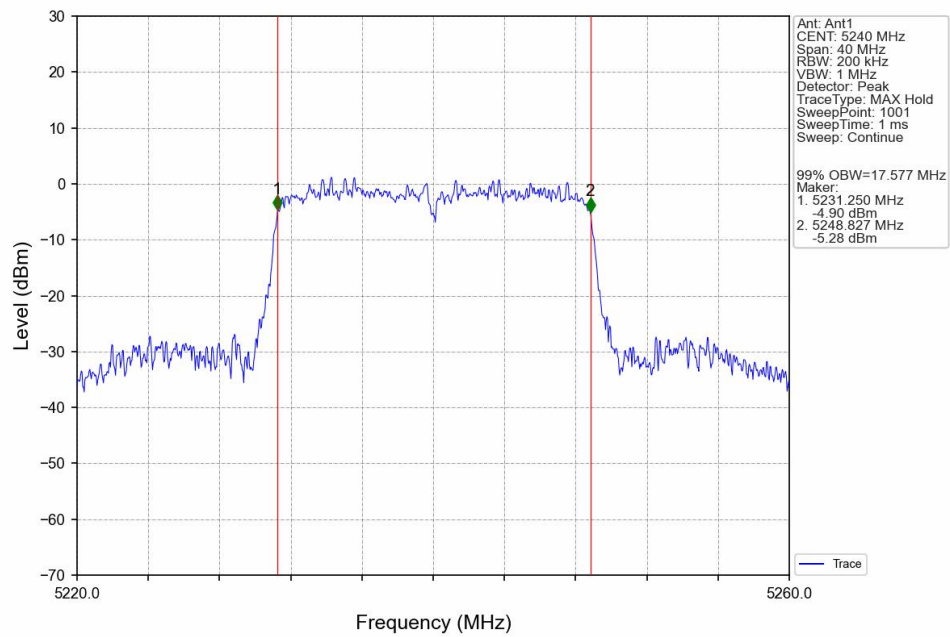


802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV

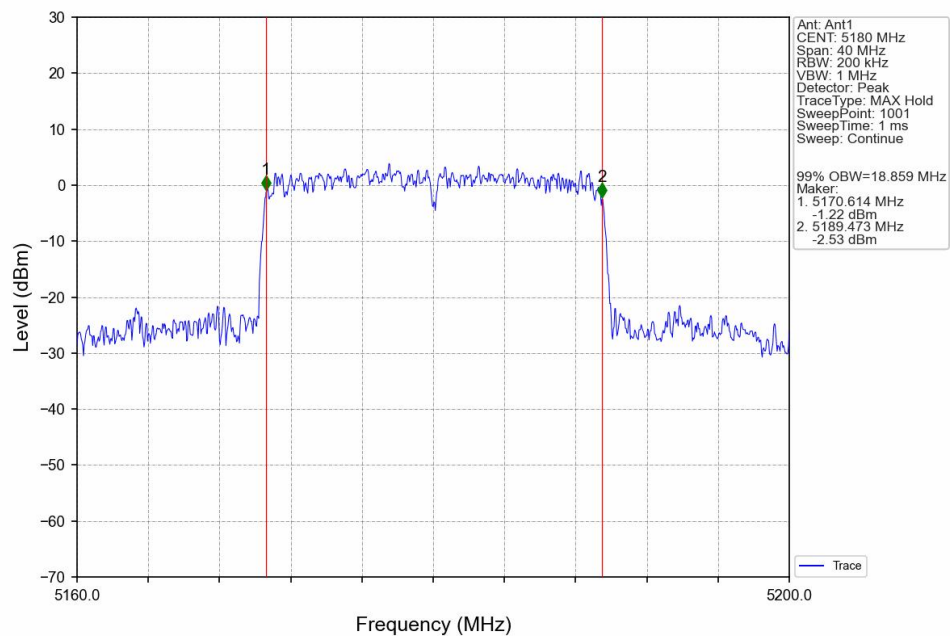


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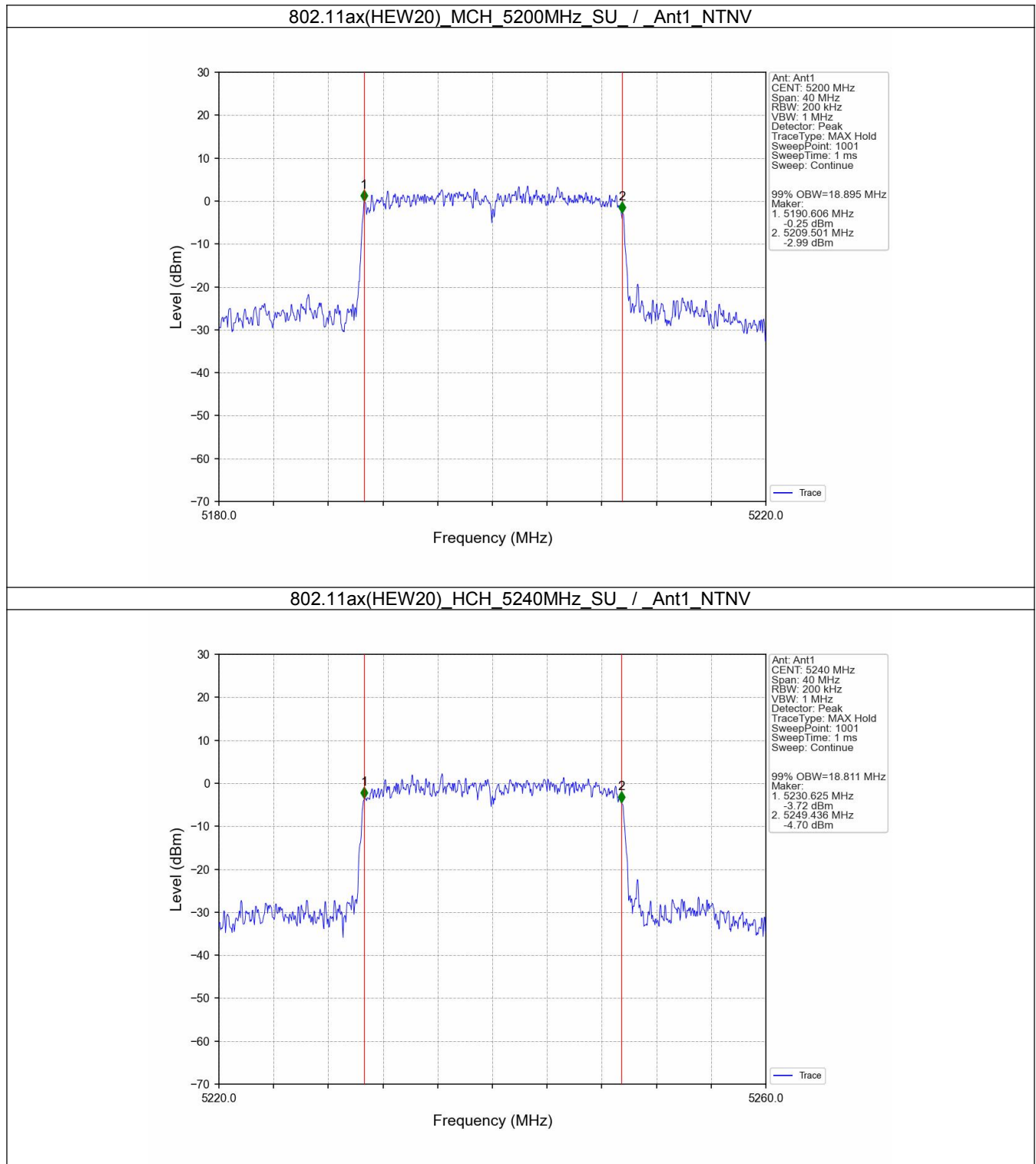
802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV



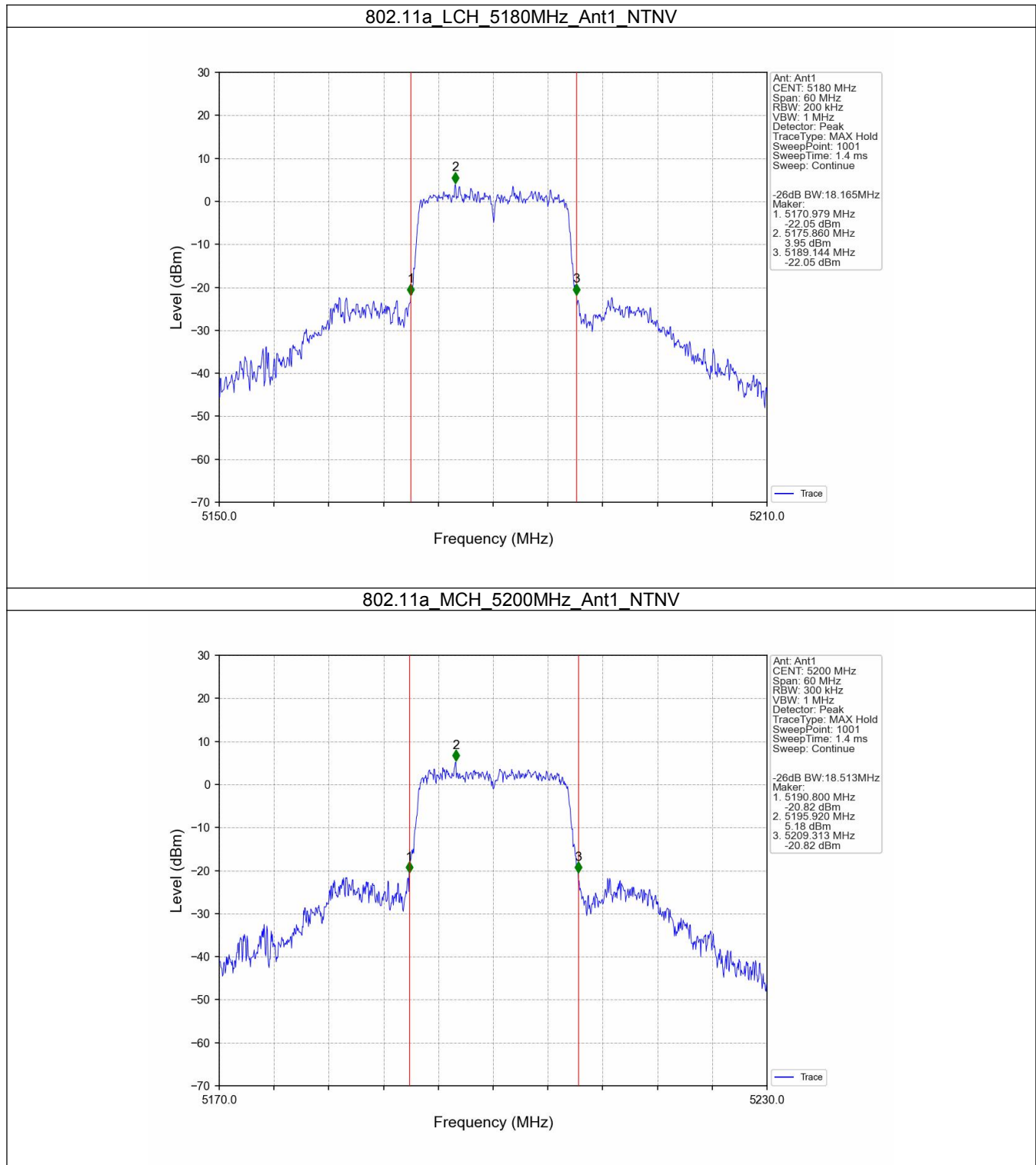
802.11ax(HEW20)_LCH_5180MHz_SU_ / _Ant1_NTNV



FCC ID: 2A94J-CP027

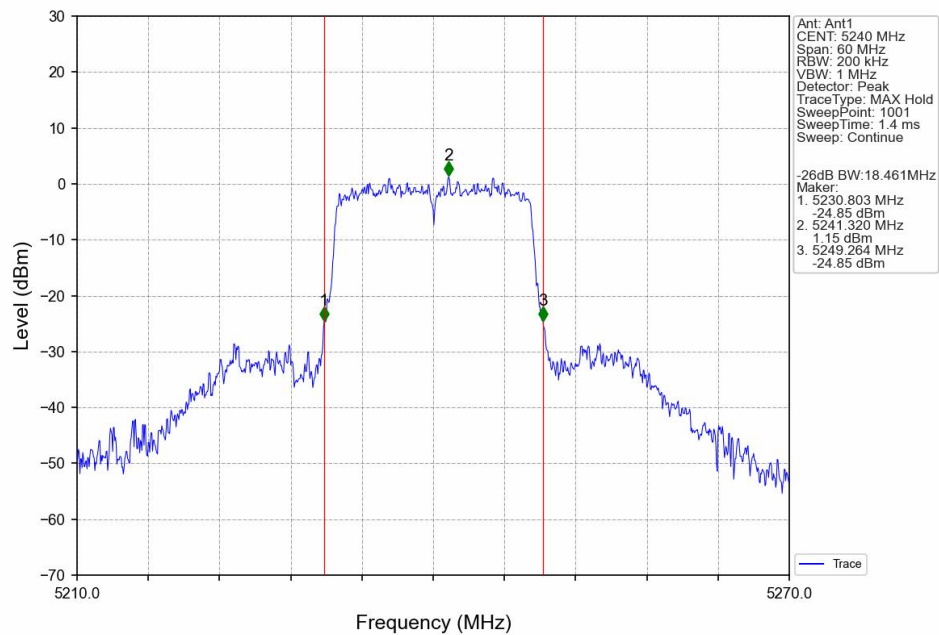


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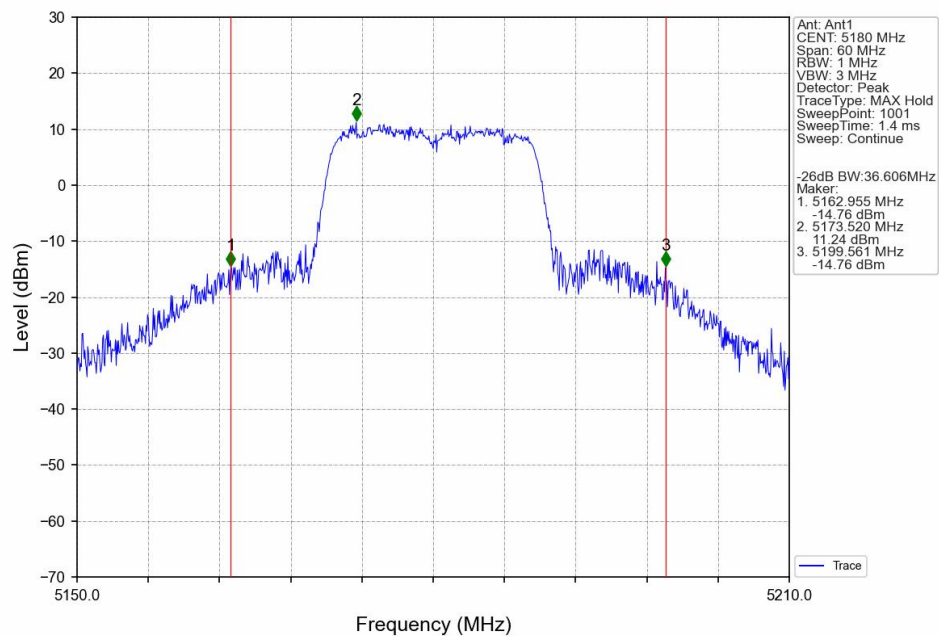
2.2.2 26dB BW

FCC ID: 2A94J-CP027

802.11a_HCH_5240MHz_Ant1_NTNV

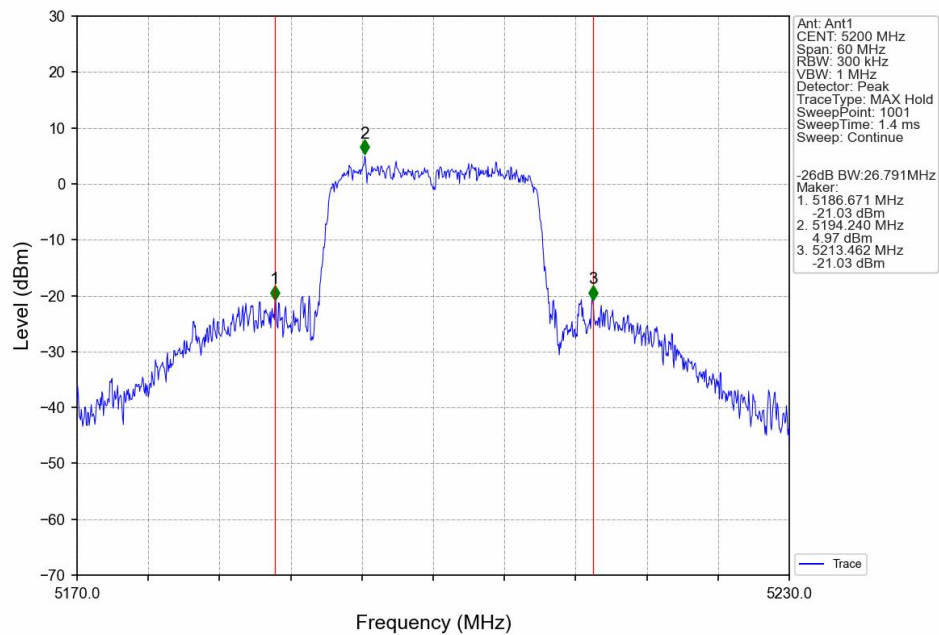


802.11n(HT20)_LCH_5180MHz_Ant1_NTNV

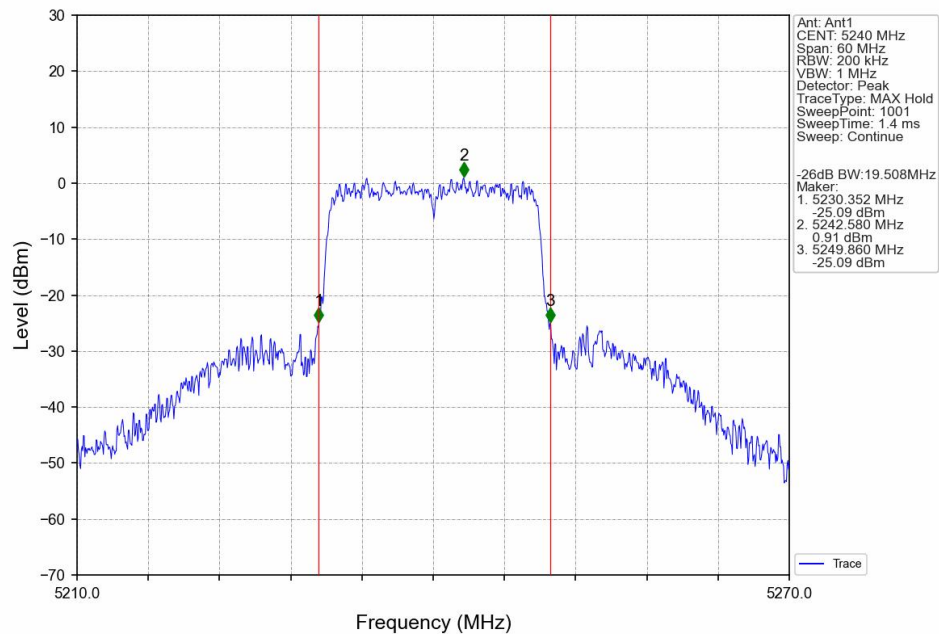


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802.11n(HT20)_MCH_5200MHz_Ant1_NTNV

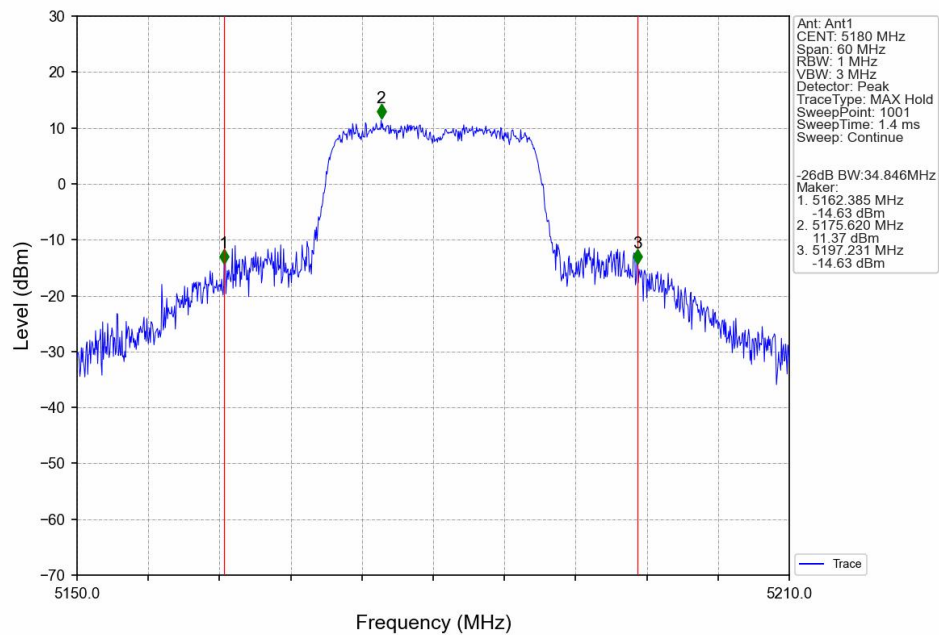


802.11n(HT20)_HCH_5240MHz_Ant1_NTNV

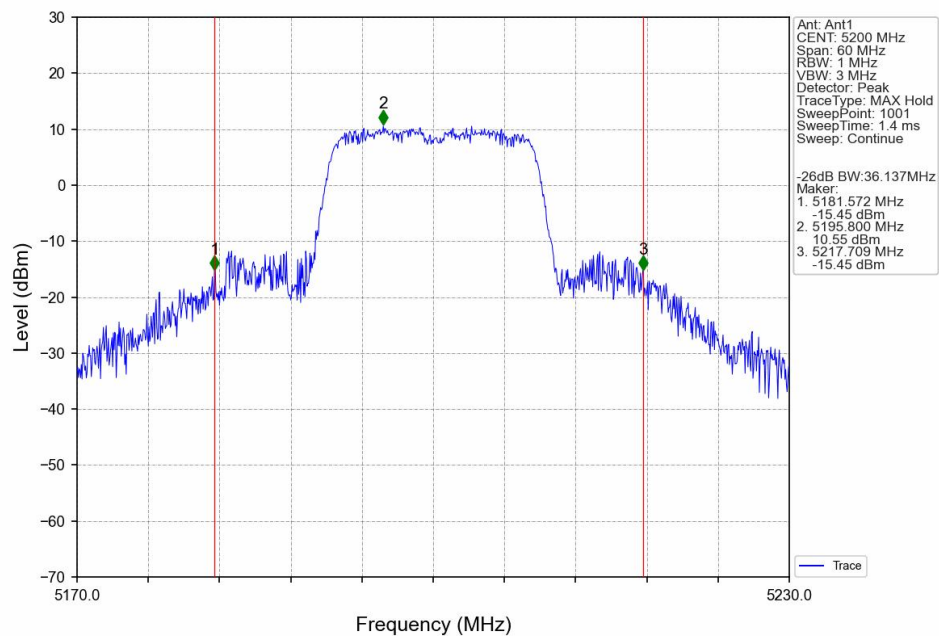


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802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV

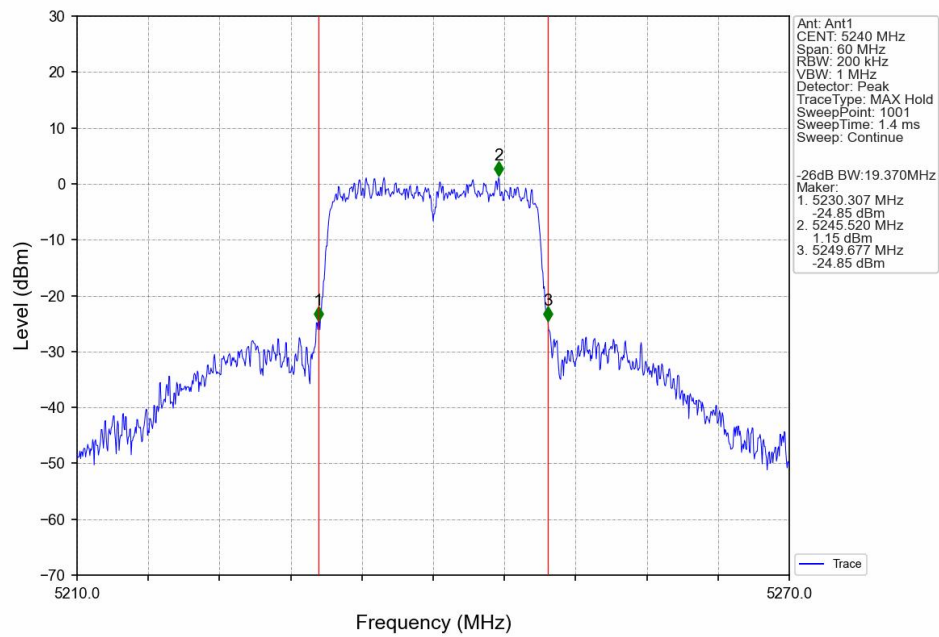


802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV

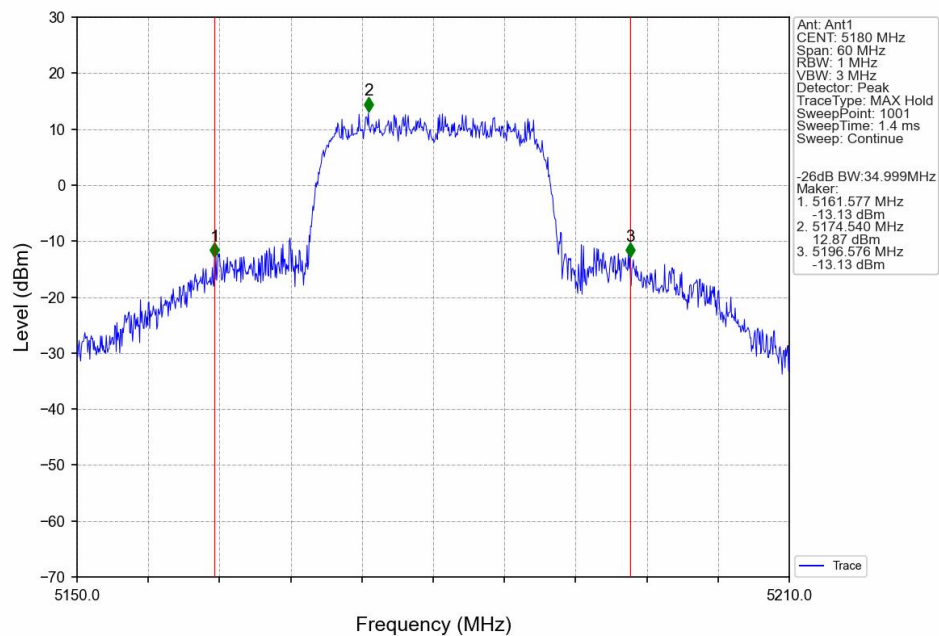


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802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV

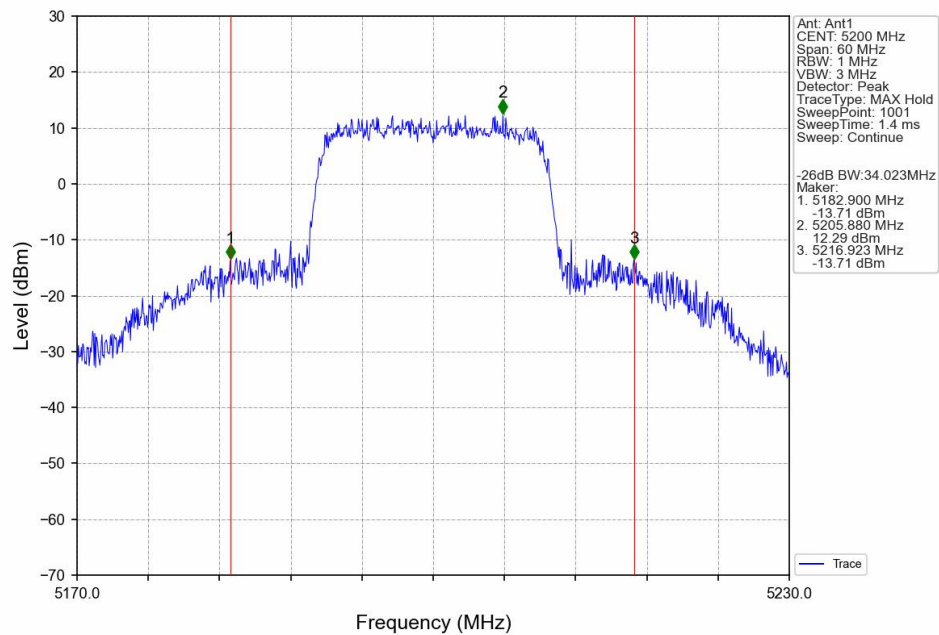


802.11ax(HEW20)_LCH_5180MHz_SU_ / _Ant1_NTNV

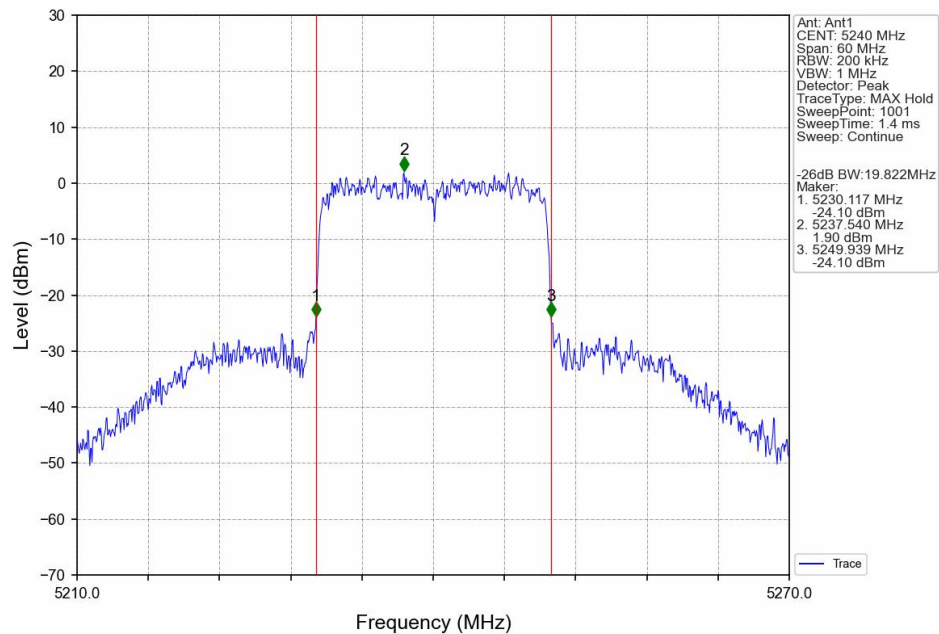


FCC ID: 2A94J-CP027

802.11ax(HEW20)_MCH_5200MHz_SU_ / Ant1_NTNV



802.11ax(HEW20)_HCH_5240MHz_SU_ / Ant1_NTNV



FCC ID: 2A94J-CP027

3. Maximum Conducted Output Power

3.1 Test Result

3.1.1 Power

Mode	TX Type	Frequency (MHz)	RU	RU Pos	Maximum Average Conducted Output Power (dBm)			Verdict
					Duty Cycle Correction Factor (dB)	ANT1	Limit	
802.11a	SISO	5180	/	/	2.65	13.62	<=30	Pass
		5200	/	/	2.65	13.41	<=30	Pass
		5240	/	/	2.65	11.47	<=30	Pass
802.11n (HT20)	SISO	5180	/	/	3.01	13.44	<=30	Pass
		5200	/	/	3.01	13.11	<=30	Pass
		5240	/	/	3.01	11.88	<=30	Pass
802.11ac (VHT20)	SISO	5180	/	/	3.00	13.67	<=30	Pass
		5200	/	/	3.00	13.20	<=30	Pass
		5240	/	/	3.00	11.47	<=30	Pass
802.11ax (HEW20)	SISO	5180	SU	/	3.36	13.59	<=30	Pass
		5200	SU	/	3.36	13.40	<=30	Pass
		5240	SU	/	3.36	11.42	<=30	Pass
Note1: Antenna Gain: Ant1: -2.06dBi; Note2: RF Cable loss=0.5dB Note3: The test results include RF Cable loss. Note4: The duty factor is already compensated in the result.								

FCC ID: 2A94J-CP027

4. Maximum Power Spectral Density

4.1 Test Result

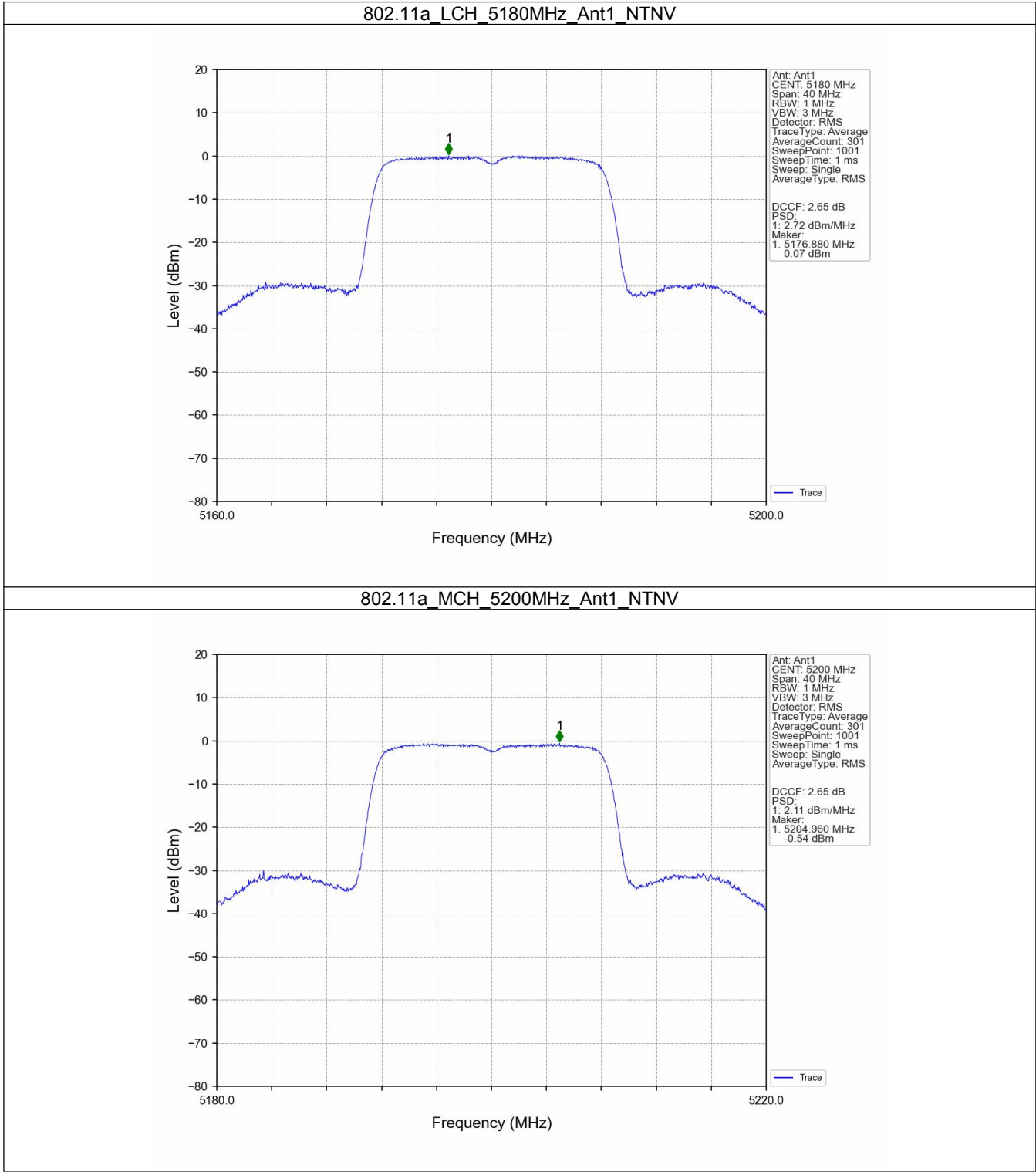
4.1.1 PSD

Mode	TX Type	Frequency (MHz)	RU	RU Pos	Maximum PSD (dBm/MHz)		Verdict
					ANT1	Limit	
802.11a	SISO	5180	/	/	2.72	<=17	Pass
		5200	/	/	2.11	<=17	Pass
		5240	/	/	0.50	<=17	Pass
802.11n (HT20)	SISO	5180	/	/	2.01	<=17	Pass
		5200	/	/	1.49	<=17	Pass
		5240	/	/	0.46	<=17	Pass
802.11ac (VHT20)	SISO	5180	/	/	2.29	<=17	Pass
		5200	/	/	2.08	<=17	Pass
		5240	/	/	0.26	<=17	Pass
802.11ax (HEW20)	SISO	5180	SU	/	2.39	<=17	Pass
		5200	SU	/	1.69	<=17	Pass
		5240	SU	/	0.34	<=17	Pass
Note1: Antenna Gain: Ant1: -2.06dBi; Note2: RF Cable loss=0.5dB Note3: The test results include RF Cable loss. Note4: Maximum PSD=DCCF+Maker+factor RBW;							

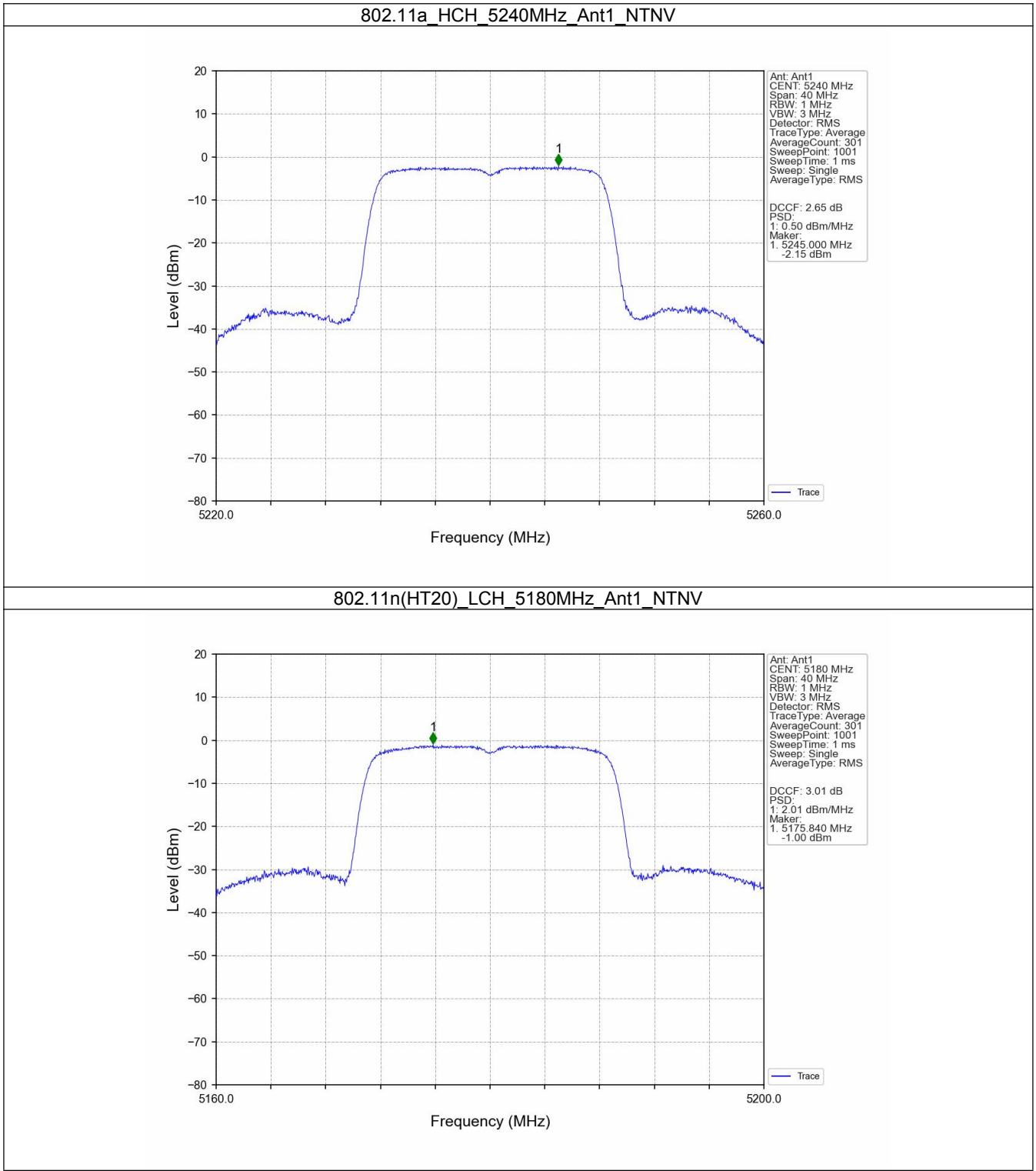
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4.2 Test Graph

4.2.1 PSD

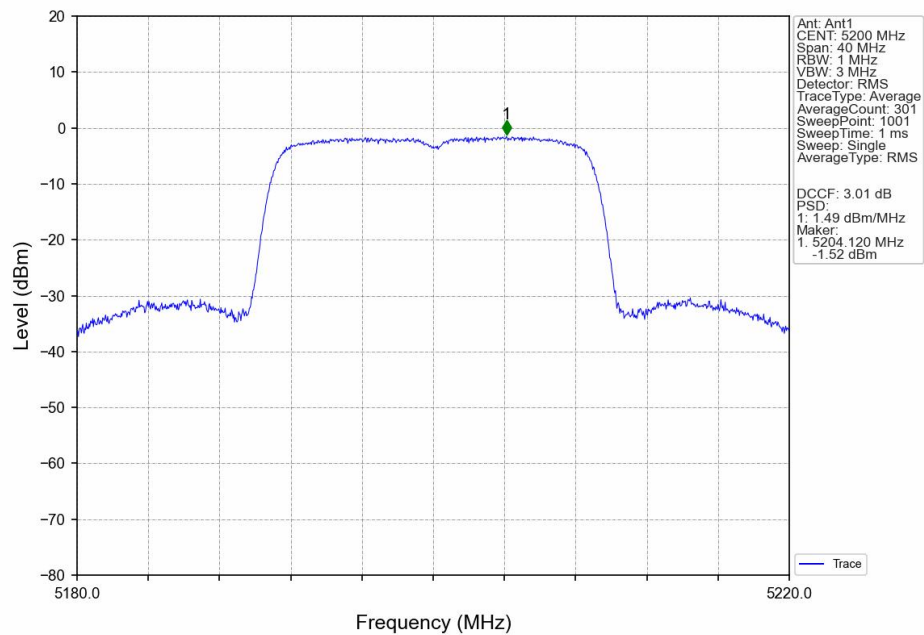


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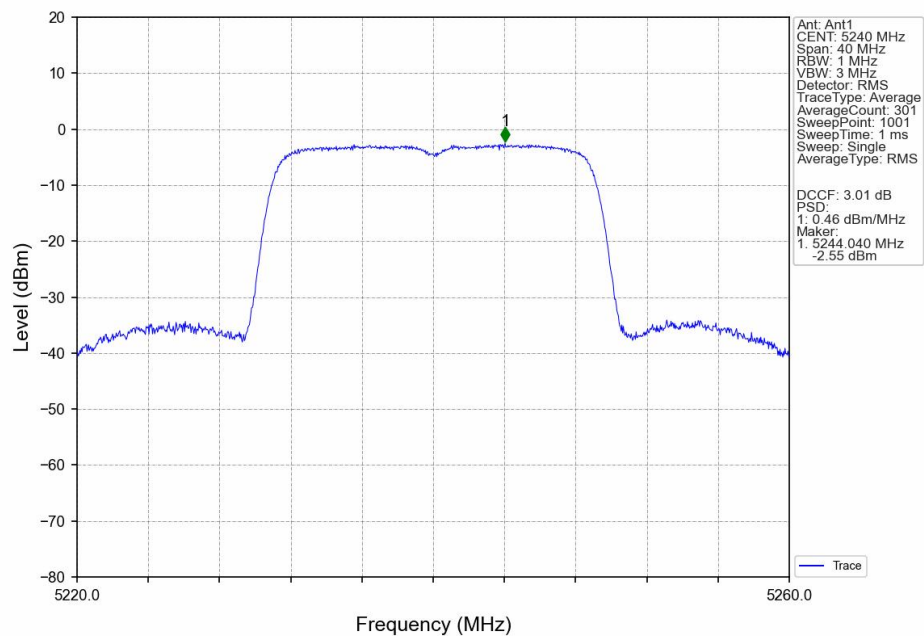


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802.11n(HT20)_MCH_5200MHz_Ant1_NTNV

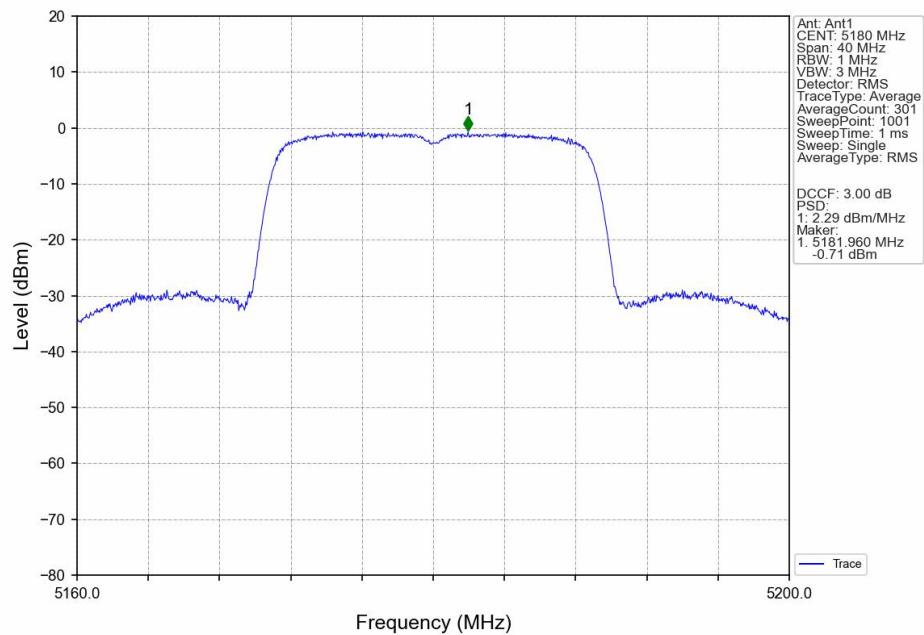


802.11n(HT20)_HCH_5240MHz_Ant1_NTNV

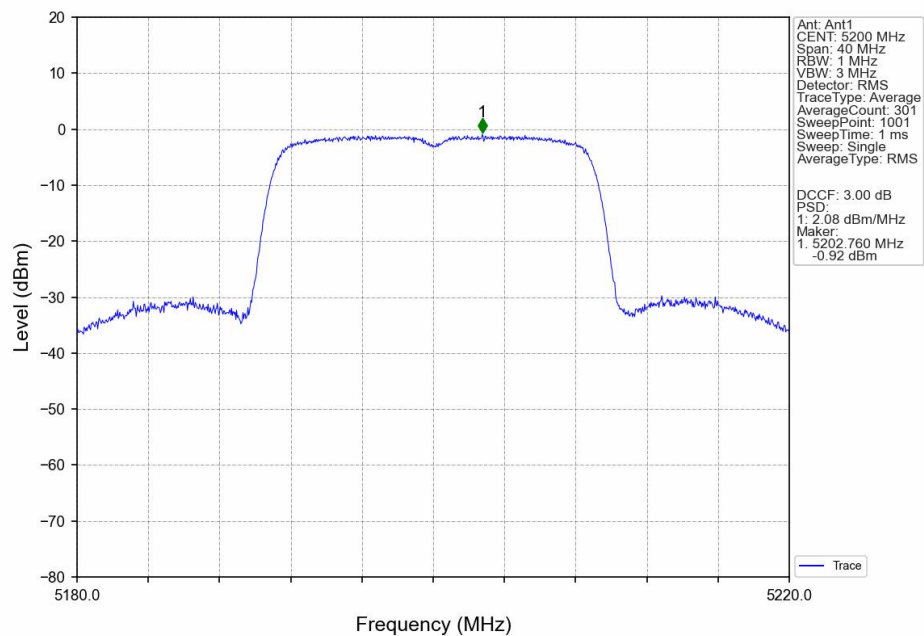


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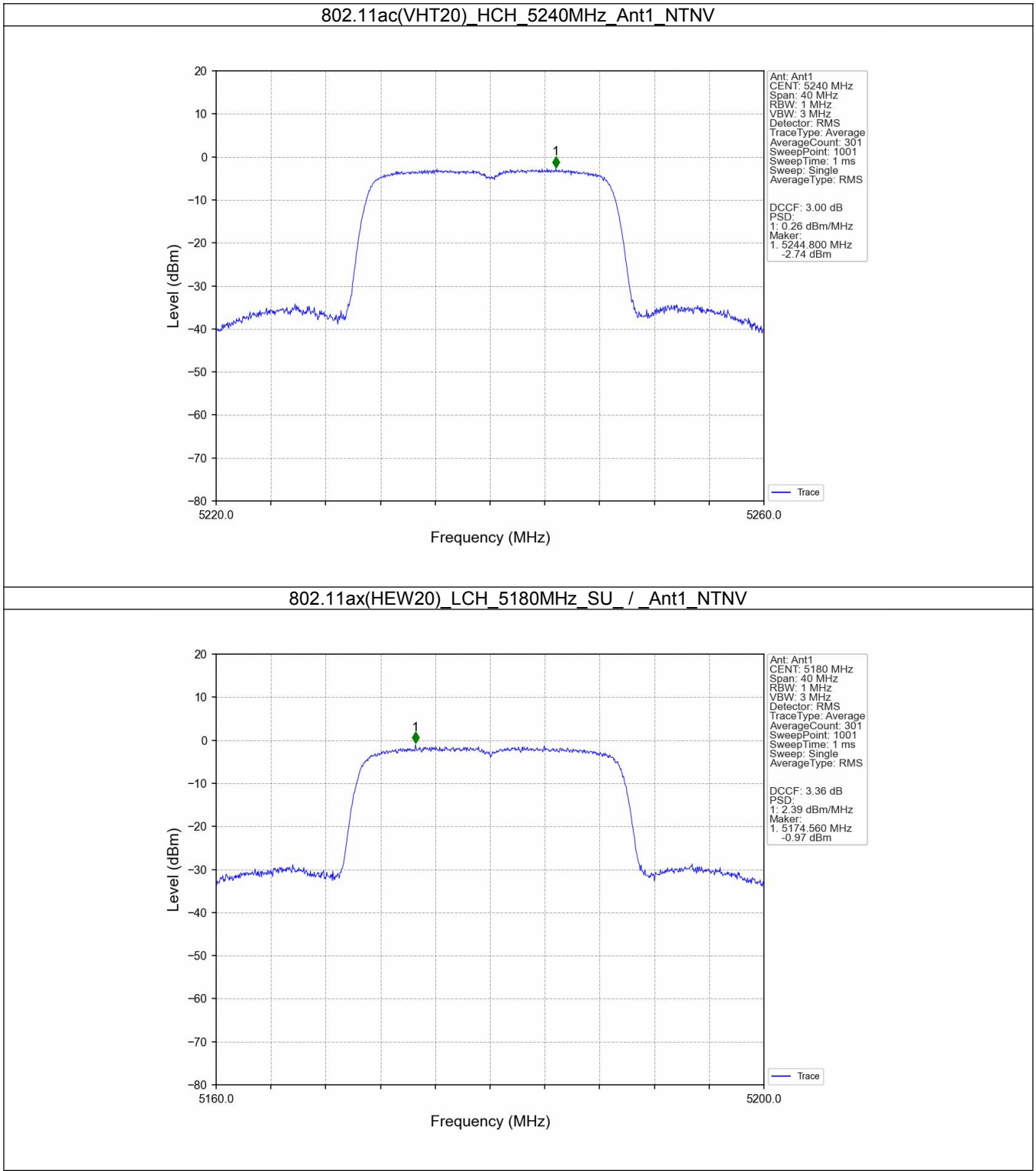
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



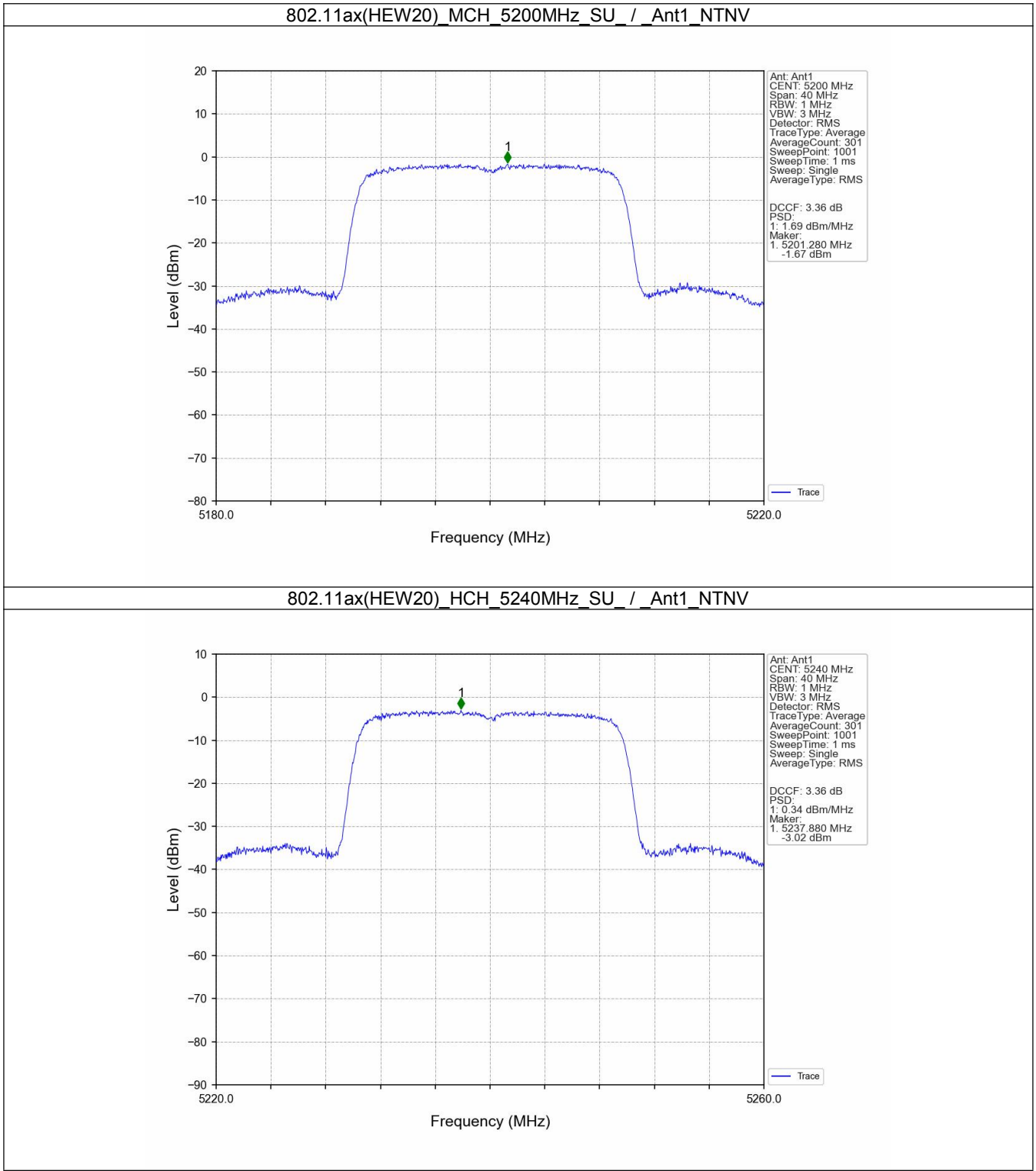
802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV



FCC ID: 2A94J-CP027



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5. Frequency Stability

5.1 Test Result

5.1.1 Ant1

Ant1							
Mode	TX Type	Frequency (MHz)	Temperature (°C)	Voltage	Measured Frequency (MHz)	Limit (MHz)	Verdict
Carrier Wave	SISO	5180	20	LV	5180.221	5150 to 5250	Pass
				NV	5180.221	5150 to 5250	Pass
				HV	5180.221	5150 to 5250	Pass
			-30	NV	5180.224	5150 to 5250	Pass
			-20	NV	5180.228	5150 to 5250	Pass
			-10	NV	5180.234	5150 to 5250	Pass
			0	NV	5180.237	5150 to 5250	Pass
			10	NV	5180.235	5150 to 5250	Pass
			30	NV	5180.240	5150 to 5250	Pass
			40	NV	5180.250	5150 to 5250	Pass
			50	NV	5180.251	5150 to 5250	Pass
		5200	20	LV	5200.126	5150 to 5250	Pass
				NV	5200.131	5150 to 5250	Pass
				HV	5200.135	5150 to 5250	Pass
			-30	NV	5200.143	5150 to 5250	Pass
			-20	NV	5200.146	5150 to 5250	Pass
			-10	NV	5200.152	5150 to 5250	Pass
			0	NV	5200.156	5150 to 5250	Pass
			10	NV	5200.159	5150 to 5250	Pass
			30	NV	5200.164	5150 to 5250	Pass
			40	NV	5200.171	5150 to 5250	Pass
			50	NV	5200.173	5150 to 5250	Pass
		5240	20	LV	5240.132	5150 to 5250	Pass
				NV	5240.143	5150 to 5250	Pass
				HV	5240.151	5150 to 5250	Pass
			-30	NV	5240.161	5150 to 5250	Pass
			-20	NV	5240.163	5150 to 5250	Pass
			-10	NV	5240.170	5150 to 5250	Pass
			0	NV	5240.171	5150 to 5250	Pass
			10	NV	5240.180	5150 to 5250	Pass
			30	NV	5240.187	5150 to 5250	Pass
			40	NV	5240.191	5150 to 5250	Pass
			50	NV	5240.195	5150 to 5250	Pass

FCC ID: 2A94J-CP027

6. Form731

6.1 Test Result

6.1.1 Form731

Lower Freq (MHz)	High Freq (MHz)	MAX Power (W)	MAX Power (dBm)
5180	5240	0.0233	13.67