



Annex for 5G Wi-Fi BAND1

Test Report No.: CTL2409269021-WF04

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FCCID: SMQ-UWM3

1. Bandwidth

1.1 Test Result

1.1.1 OBW

Mode	TX Type	Frequency (MHz)	RU	ANT	99% Occupied Bandwidth (MHz)		Verdict
					Result	Limit	
802.11a	SISO	5180	/	1	17.529	/	Pass
		5200	/	1	17.626	/	Pass
		5240	/	1	17.638	/	Pass
802.11n (HT20)	SISO	5180	/	1	17.564	/	Pass
		5200	/	1	17.601	/	Pass
		5240	/	1	17.850	/	Pass
802.11n (HT40)	SISO	5190	/	1	37.256	/	Pass
		5230	/	1	37.167	/	Pass
802.11ac (VHT20)	SISO	5180	/	1	18.474	/	Pass
		5200	/	1	18.624	/	Pass
		5240	/	1	18.548	/	Pass
802.11ac (VHT40)	SISO	5190	/	1	37.298	/	Pass
		5230	/	1	37.237	/	Pass
802.11ac (VHT80)	SISO	5210	/	1	77.264	/	Pass
802.11ax (HEW20)	SISO	5180	SU	1	19.293	/	Pass
		5200	SU	1	19.263	/	Pass
		5240	SU	1	19.335	/	Pass
802.11ax (HEW40)	SISO	5190	SU	1	38.477	/	Pass
		5230	SU	1	38.359	/	Pass
802.11ax (HEW80)	SISO	5210	SU	1	78.358	/	Pass

1.1.2 26dB BW

Mode	TX Type	Frequency (MHz)	RU	ANT	26dB Bandwidth (MHz)		Verdict
					Result	Limit	
802.11a	SISO	5180	/	1	21.540	/	Pass
		5200	/	1	21.419	/	Pass
		5240	/	1	21.785	/	Pass
802.11n (HT20)	SISO	5180	/	1	21.837	/	Pass
		5200	/	1	21.815	/	Pass
		5240	/	1	22.061	/	Pass
802.11n (HT40)	SISO	5190	/	1	42.492	/	Pass
		5230	/	1	42.303	/	Pass
802.11ac (VHT20)	SISO	5180	/	1	21.999	/	Pass
		5200	/	1	21.913	/	Pass
		5240	/	1	22.125	/	Pass
802.11ac (VHT40)	SISO	5190	/	1	42.576	/	Pass
		5230	/	1	42.738	/	Pass
802.11ac (VHT80)	SISO	5210	/	1	87.108	/	Pass
802.11ax (HEW20)	SISO	5180	SU	1	21.964	/	Pass
		5200	SU	1	21.828	/	Pass
		5240	SU	1	21.896	/	Pass
802.11ax (HEW40)	SISO	5190	SU	1	41.945	/	Pass
		5230	SU	1	41.762	/	Pass

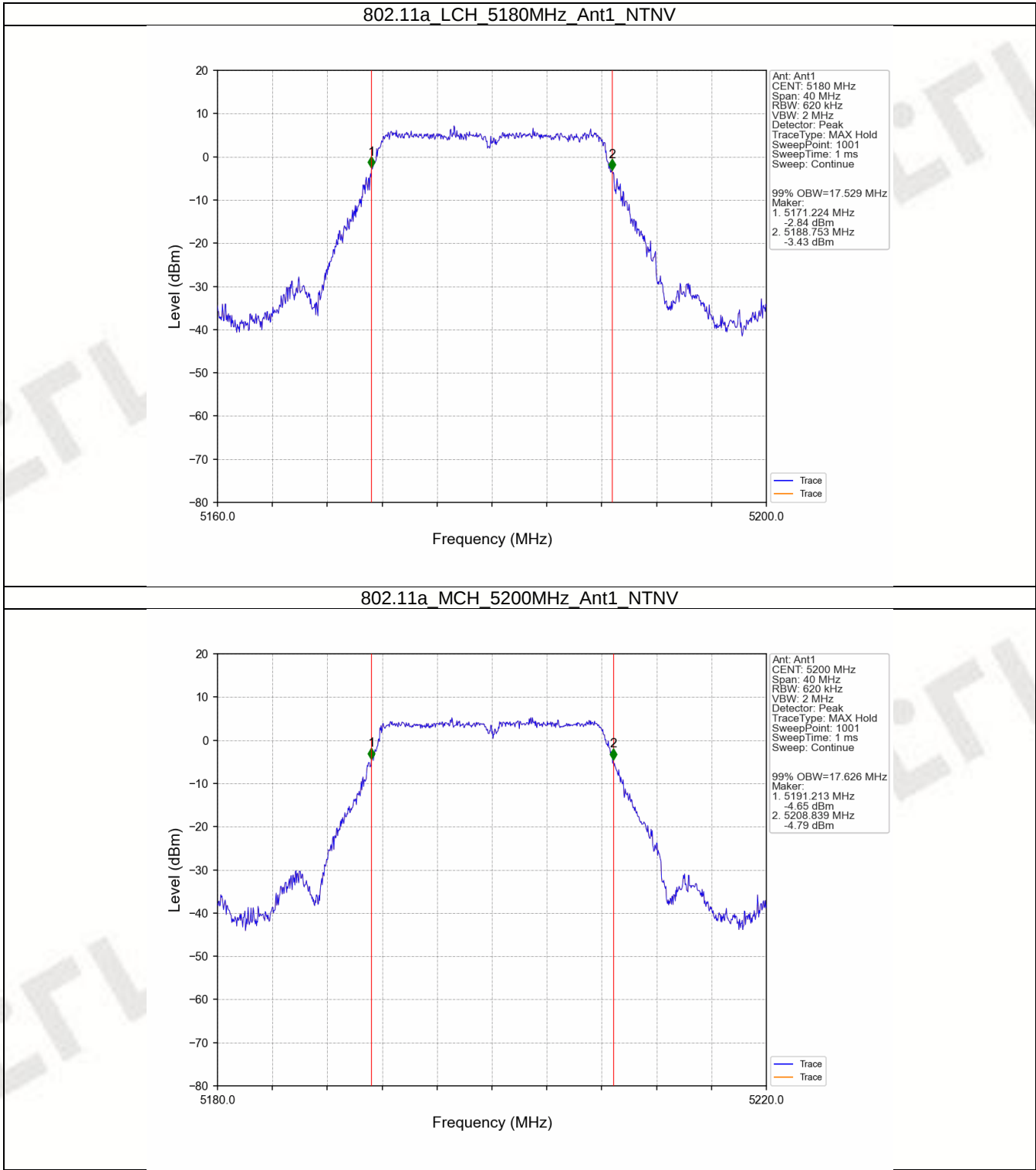
FCCID: SMQ-UWM3

802.11ax (HEW80)	SISO	5210	SU	1	84.395	/	Pass
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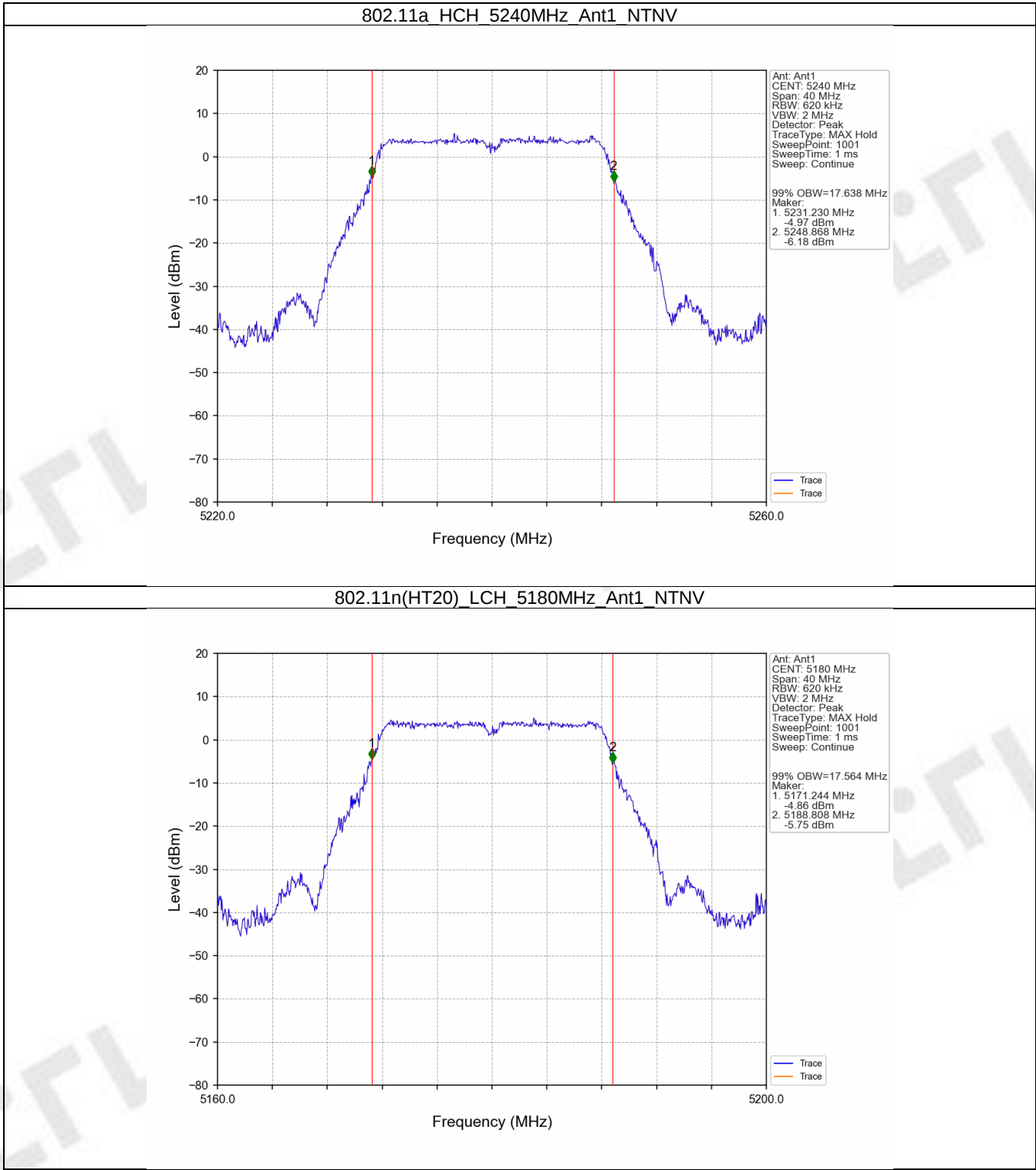
FCCID: SMQ-UWM3

1.2 Test Graph

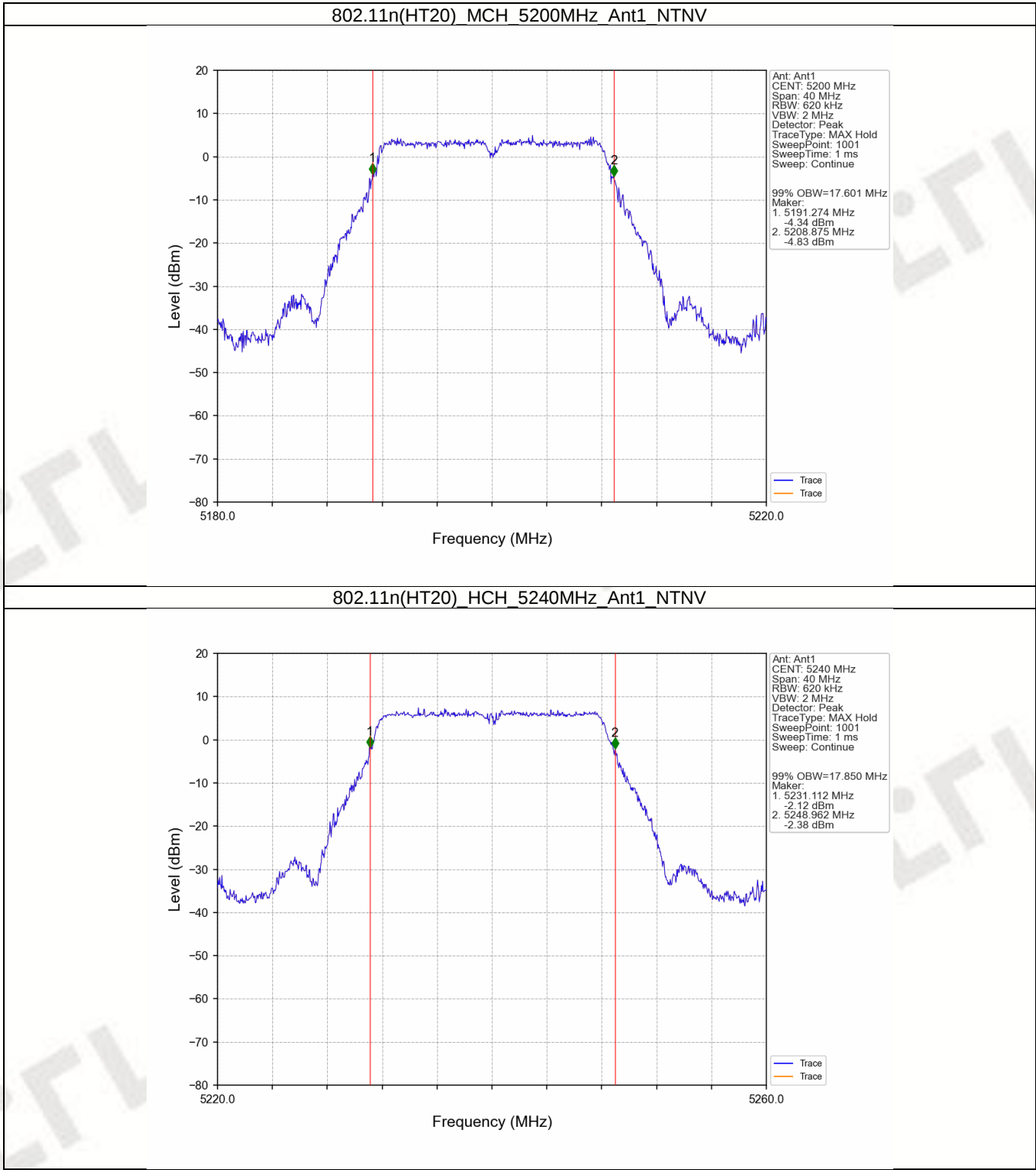
1.2.1 OBW



FCCID: SMQ-UWM3

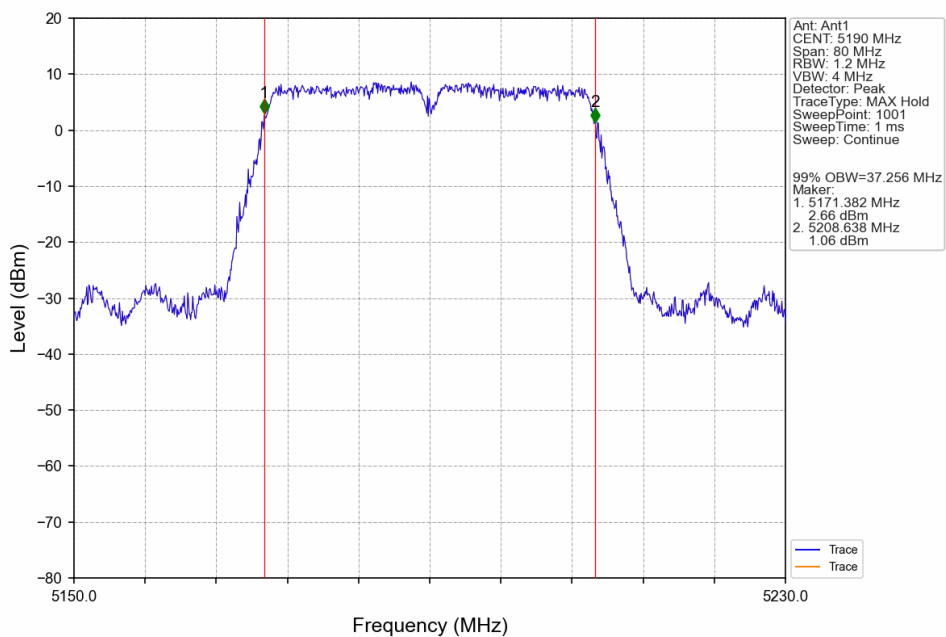


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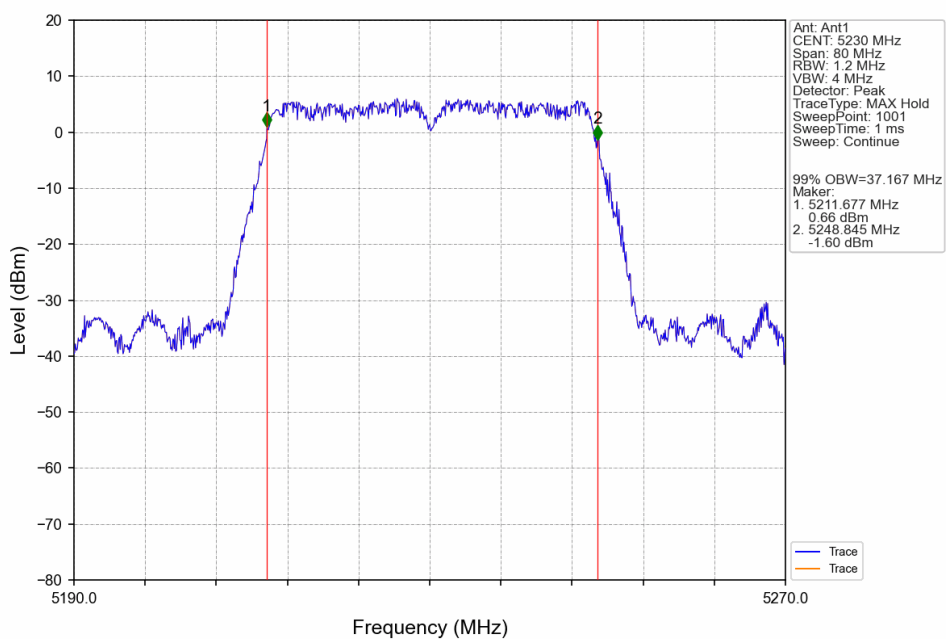


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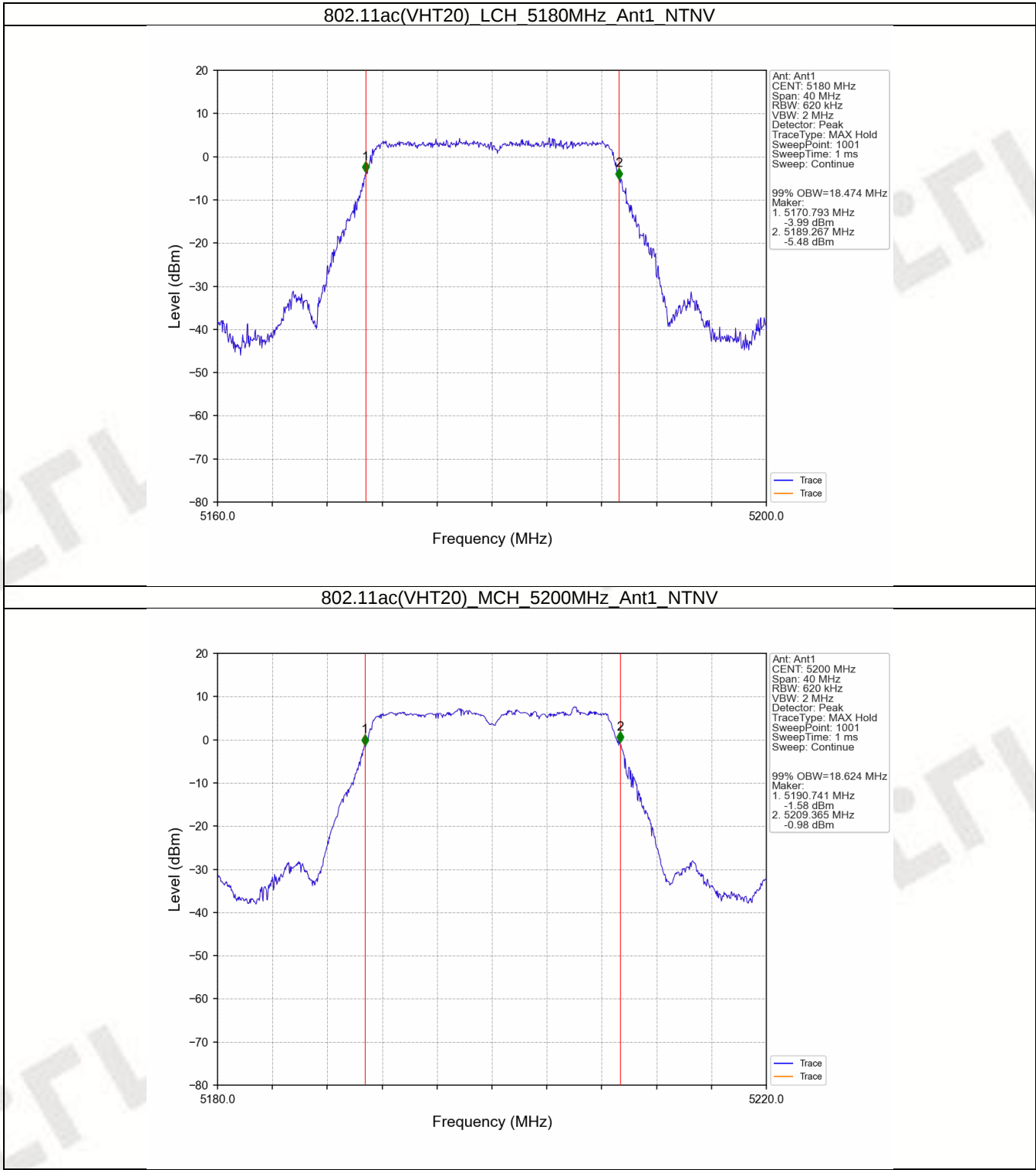
802.11n(HT40) LCH 5190MHz Ant1 NTN



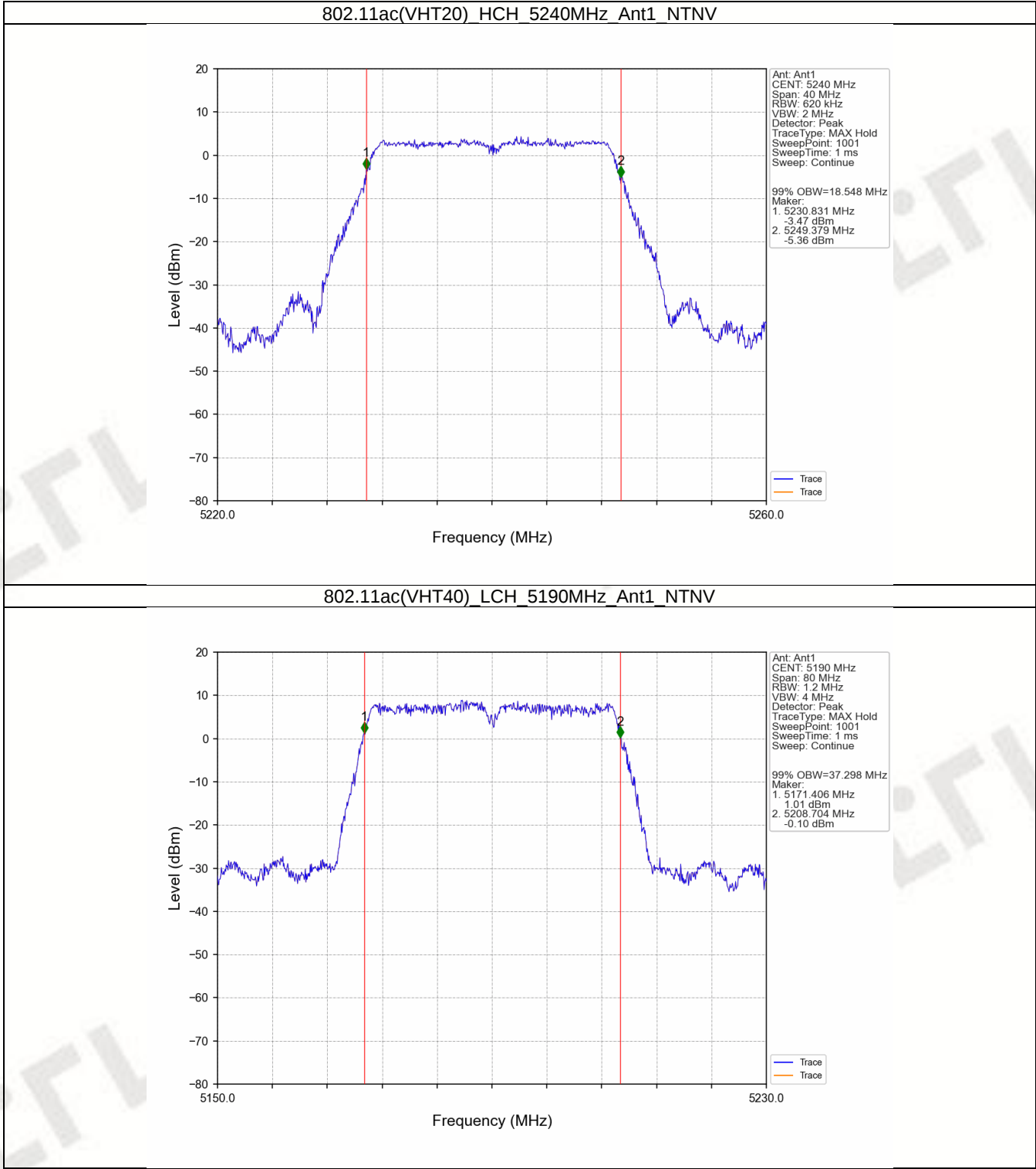
802.11n(HT40) HCH 5230MHz Ant1 NTN



FCCID: SMQ-UWM3

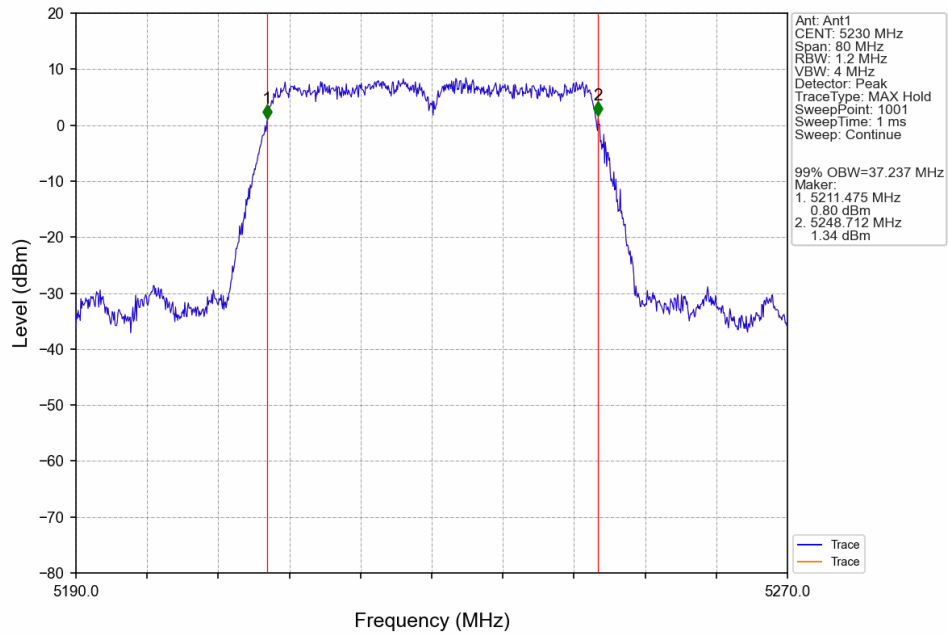


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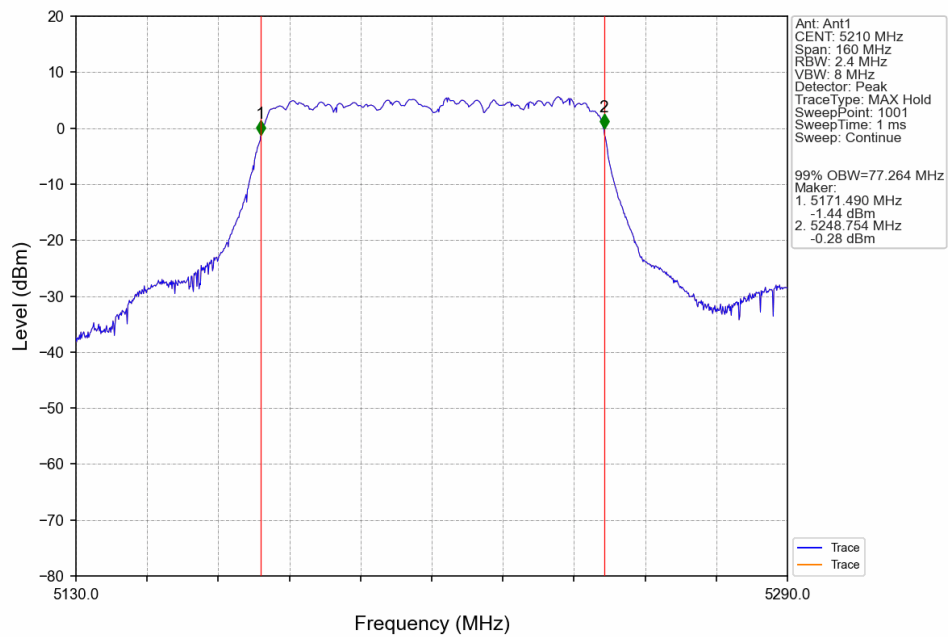


FCCID: SMQ-UWM3

802.11ac(VHT40) HCH 5230MHz Ant1 NTN

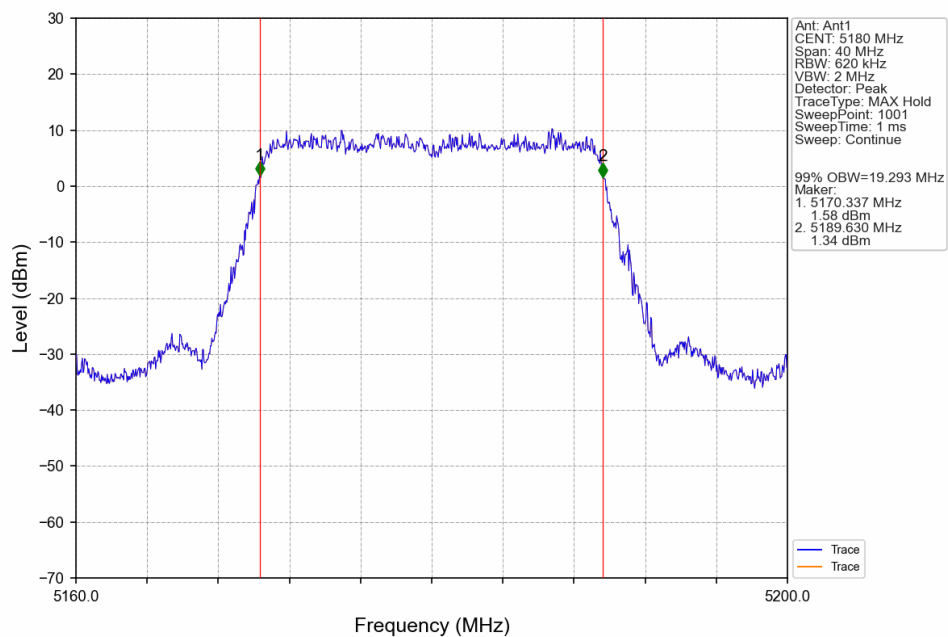


802.11ac(VHT80) MCH 5210MHz Ant1 NTN

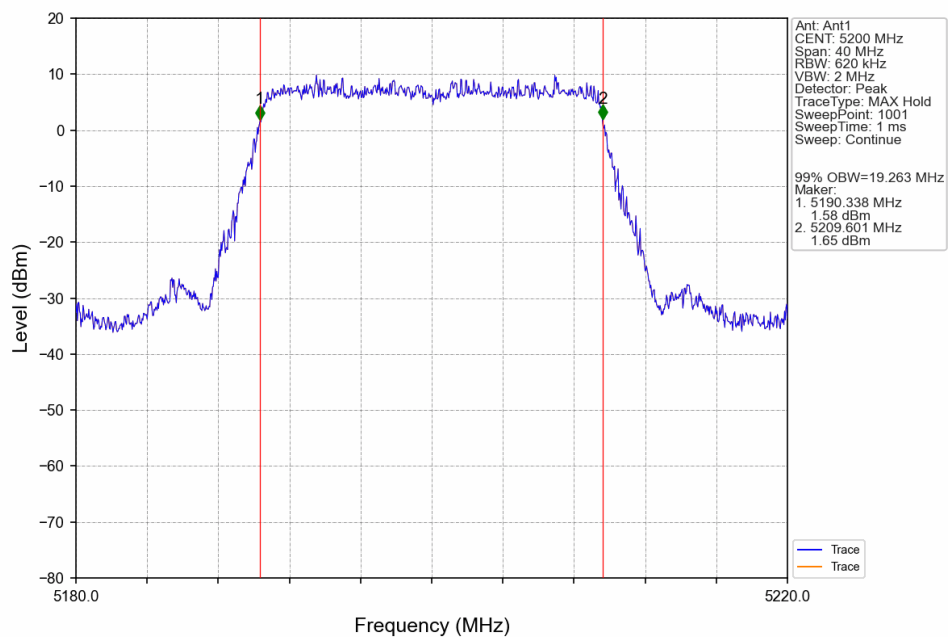


FCCID: SMQ-UWM3

802.11ax(HEW20) LCH 5180MHz SU Ant1 NTN

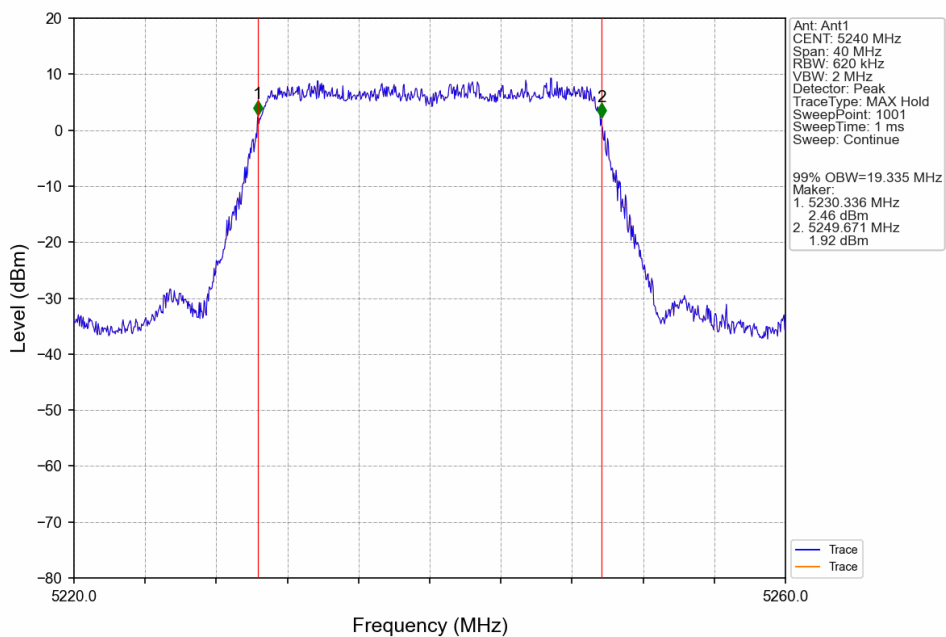


802.11ax(HEW20) MCH 5200MHz SU Ant1 NTN

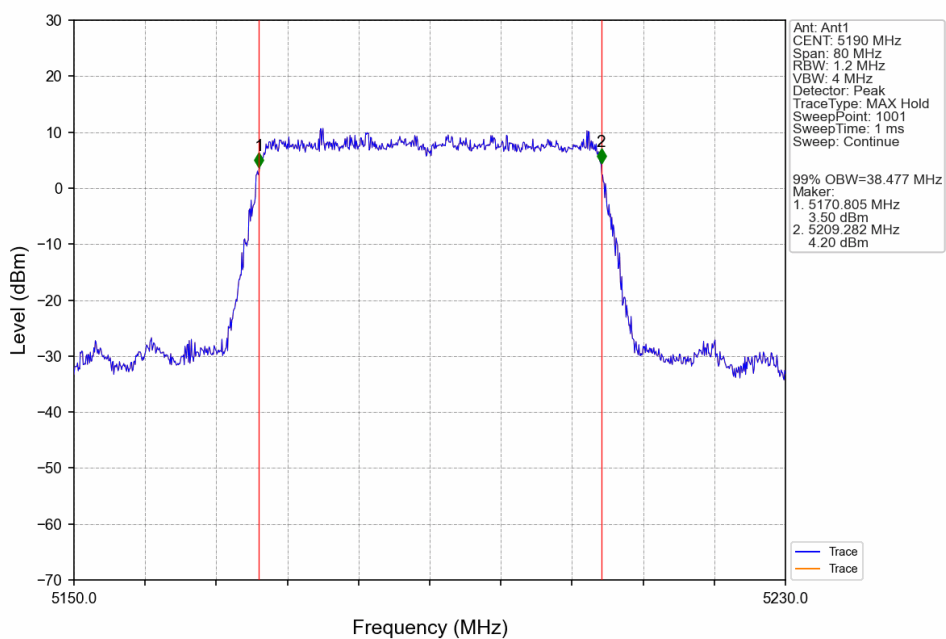


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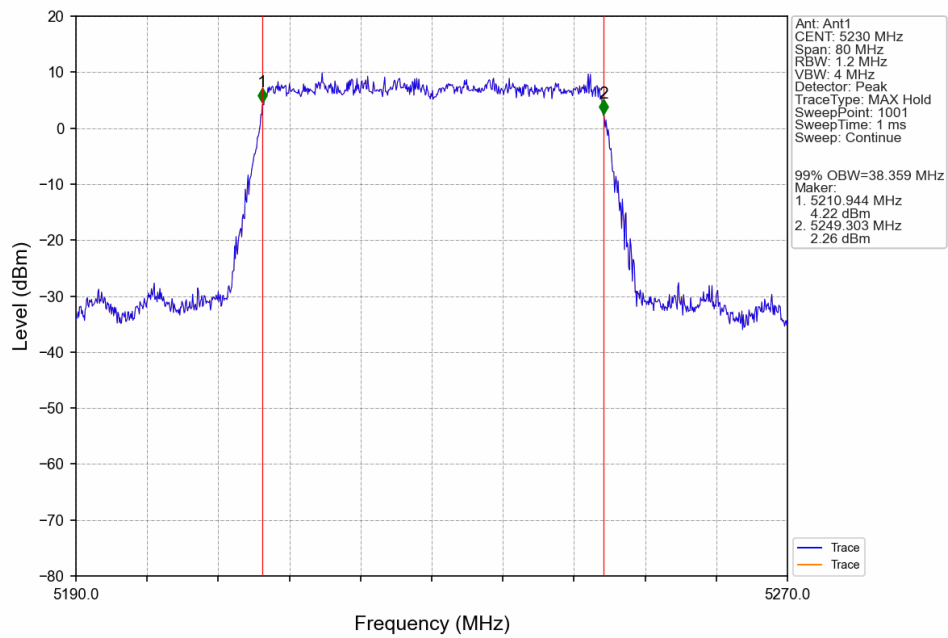


802.11ax(HEW40) LCH 5190MHz SU Ant1 NTNV

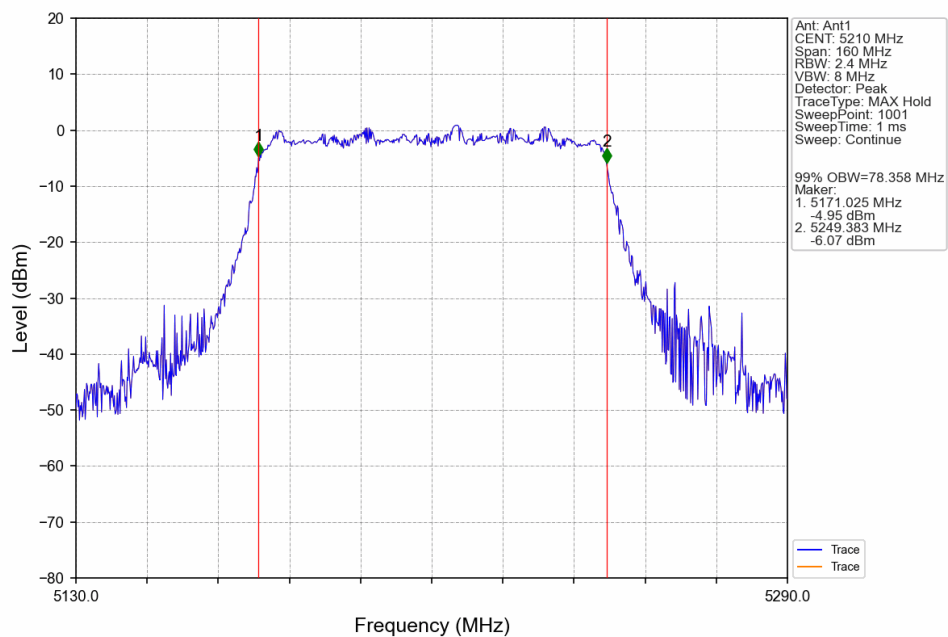


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802.11ax(HEW40) HCH 5230MHz SU Ant1 NTNV

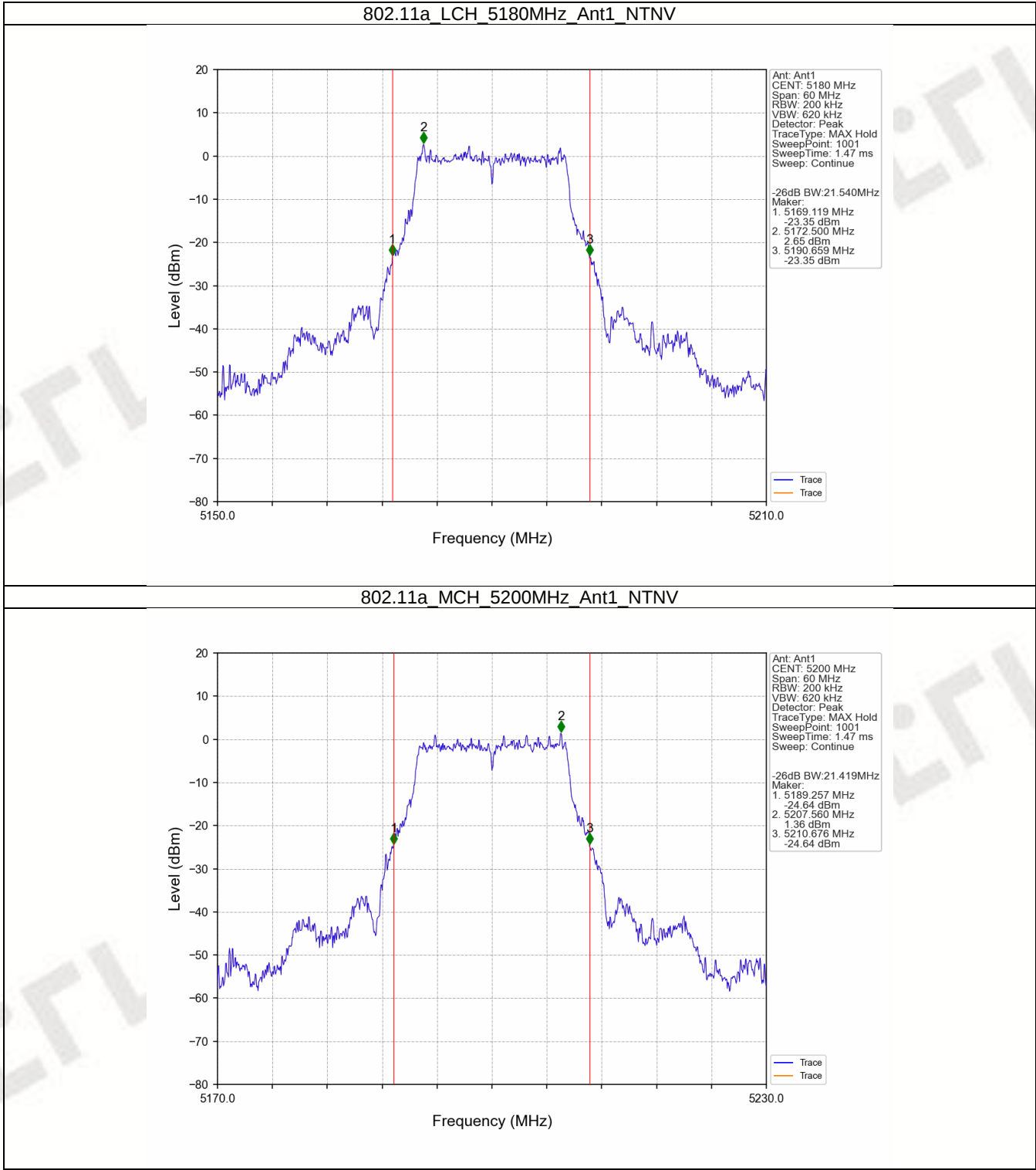


802.11ax(HEW80) MCH 5210MHz SU Ant1 NTNV



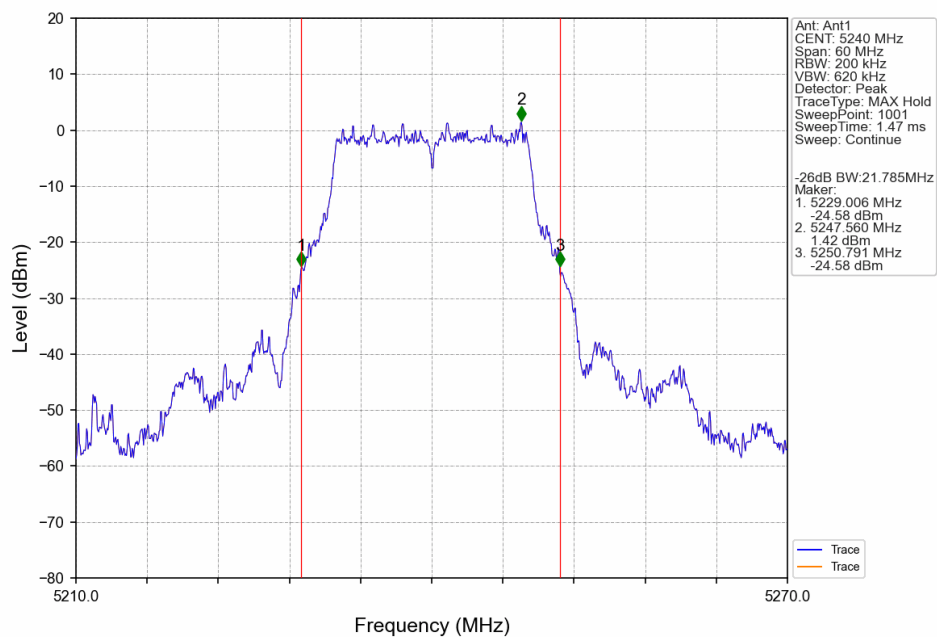
FCCID: SMQ-UWM3

1.2.2 26dB BW

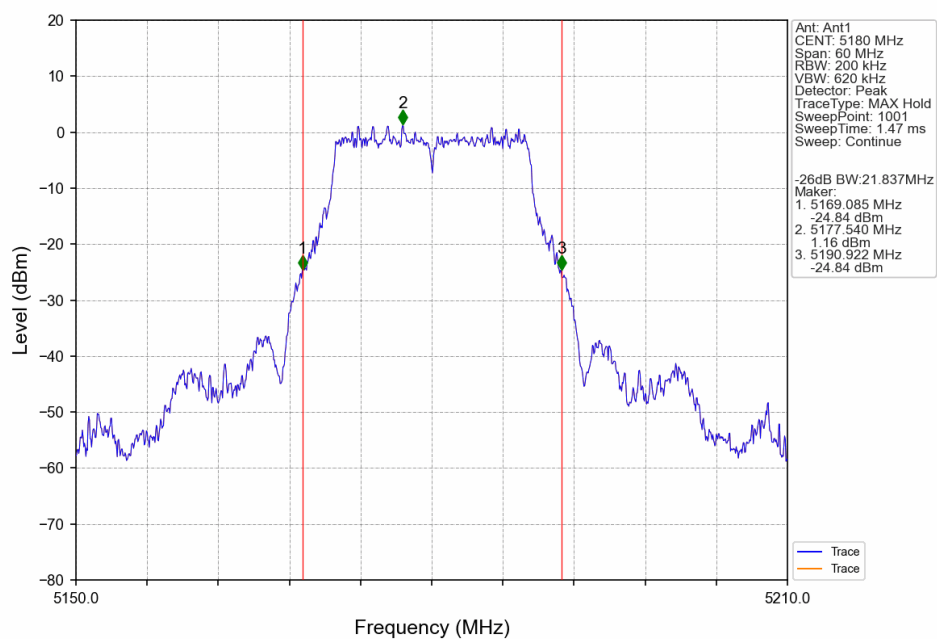


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802.11a HCH 5240MHz Ant1 NTN

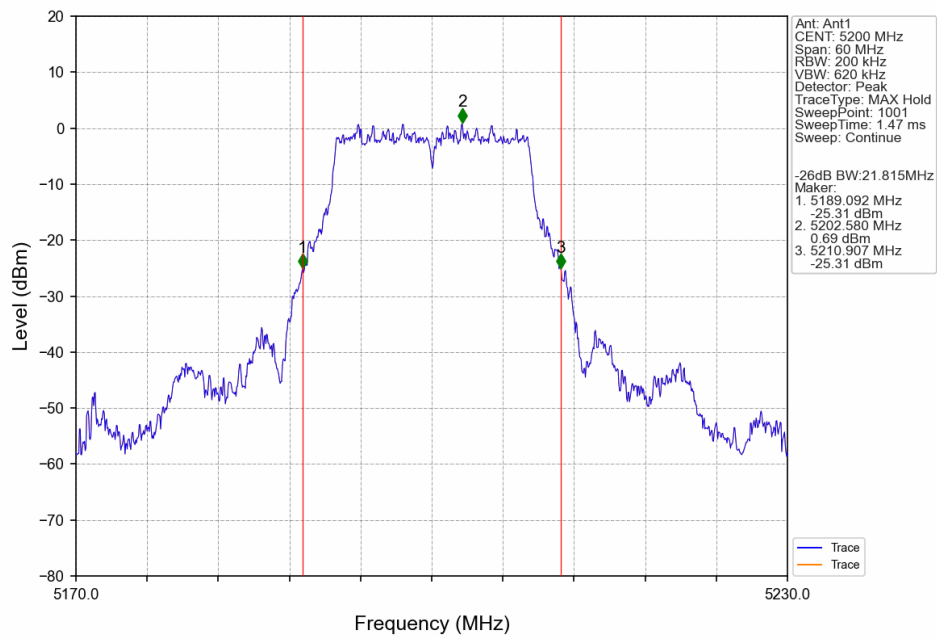


802.11n(HT20) LCH 5180MHz Ant1 NTN

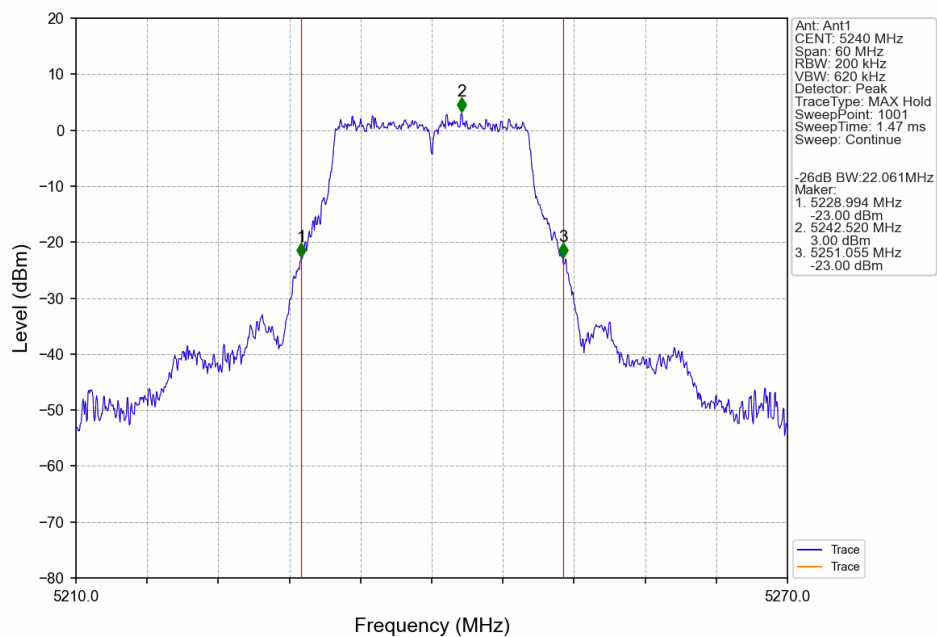


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802.11n(HT20) MCH 5200MHz Ant1 NTN

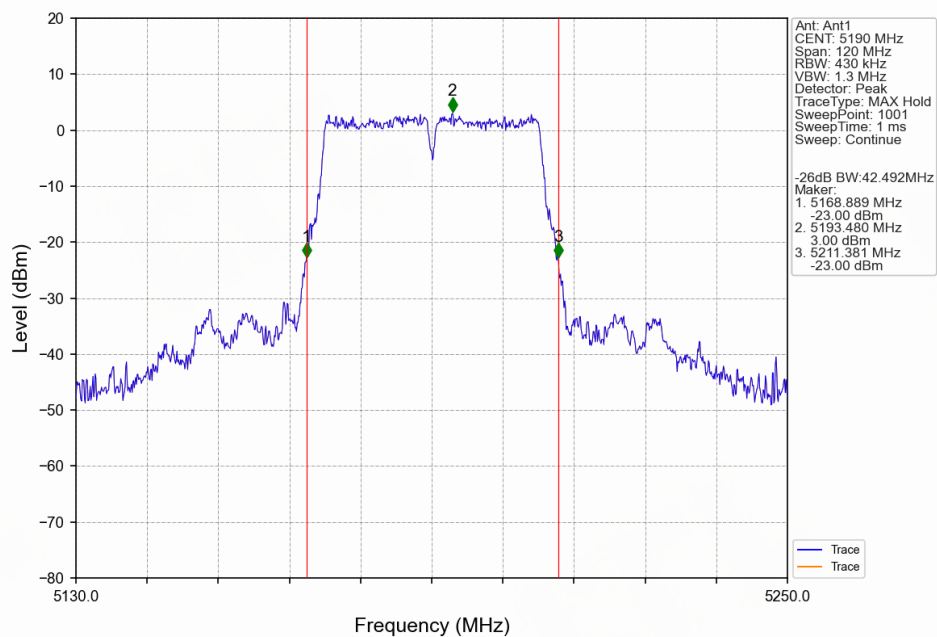


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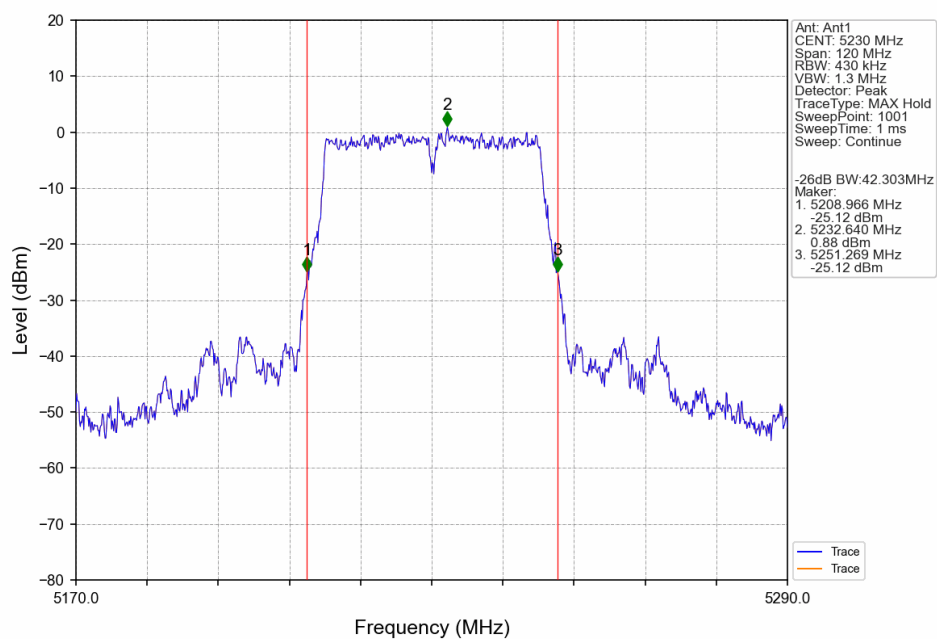


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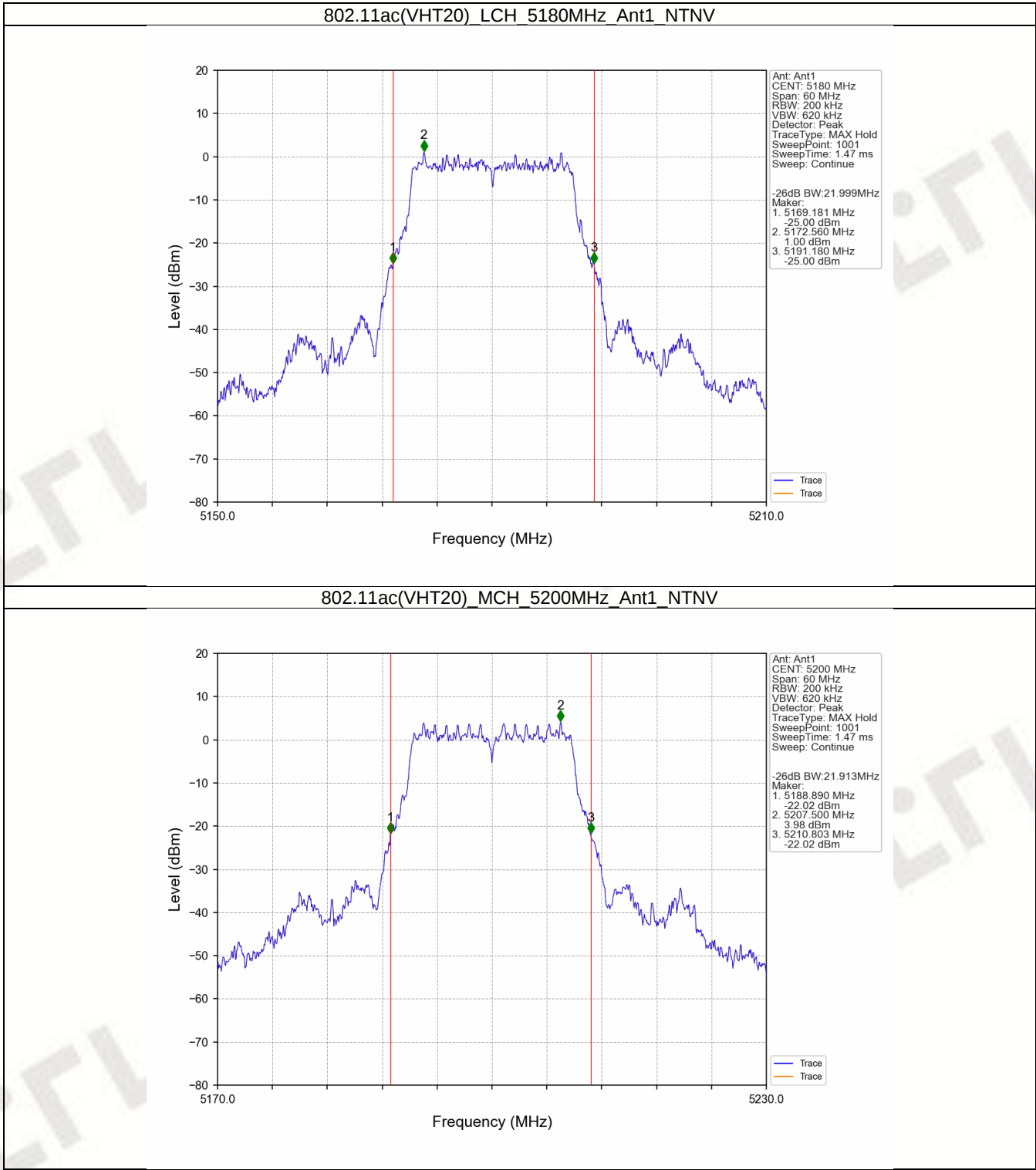
802.11n(HT40) LCH 5190MHz Ant1 NTN



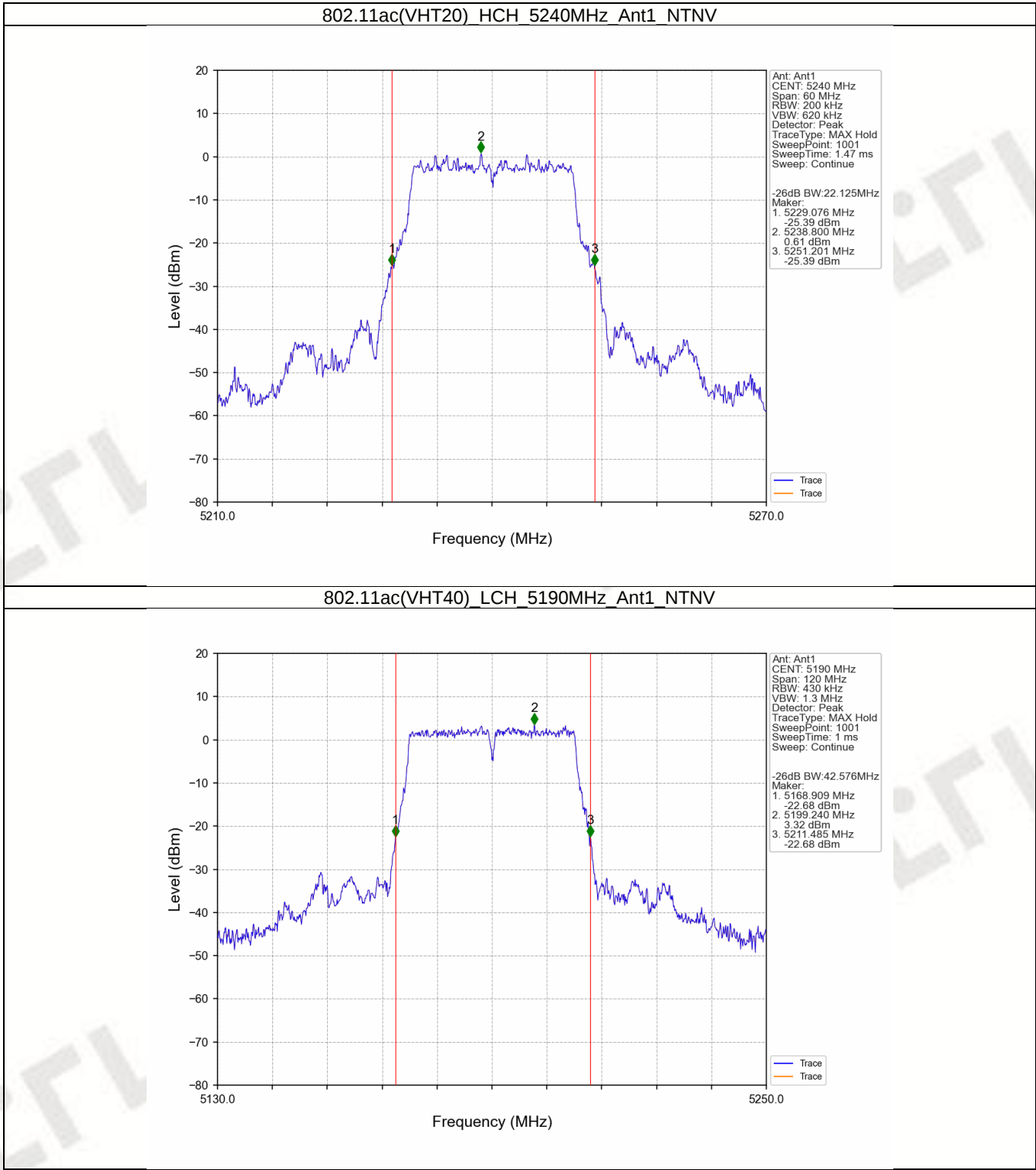
802.11n(HT40) HCH 5230MHz Ant1 NTN



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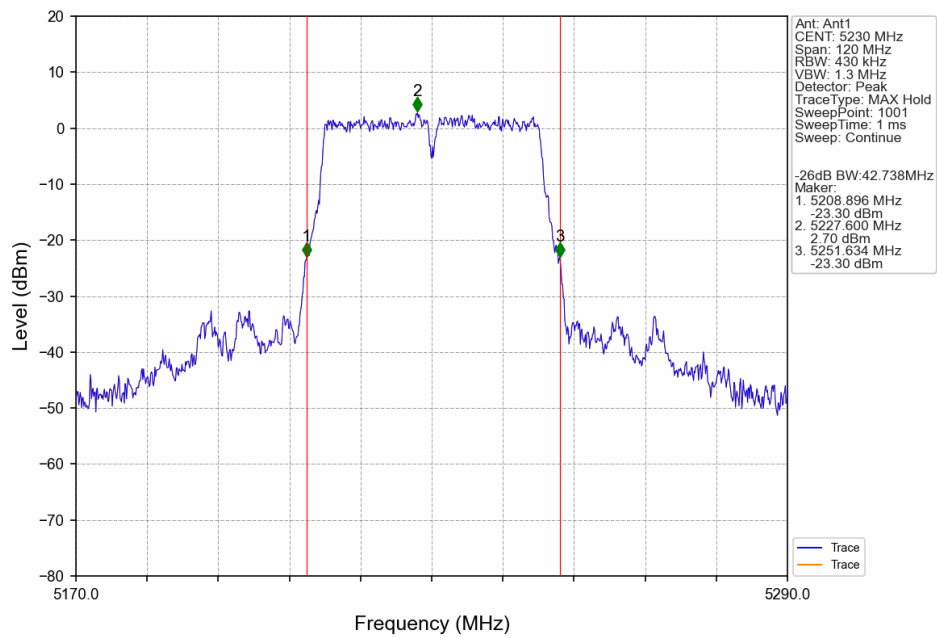


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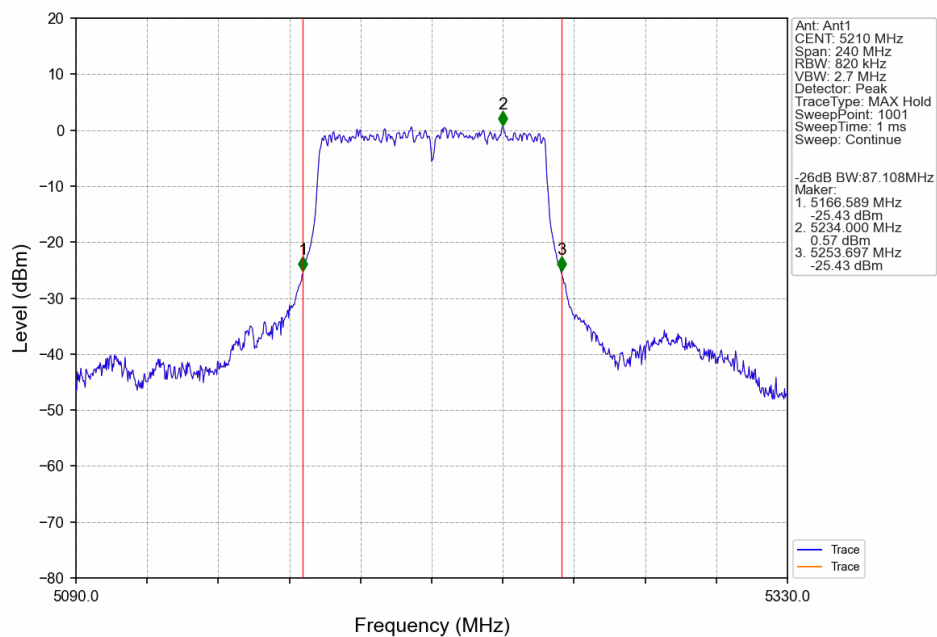


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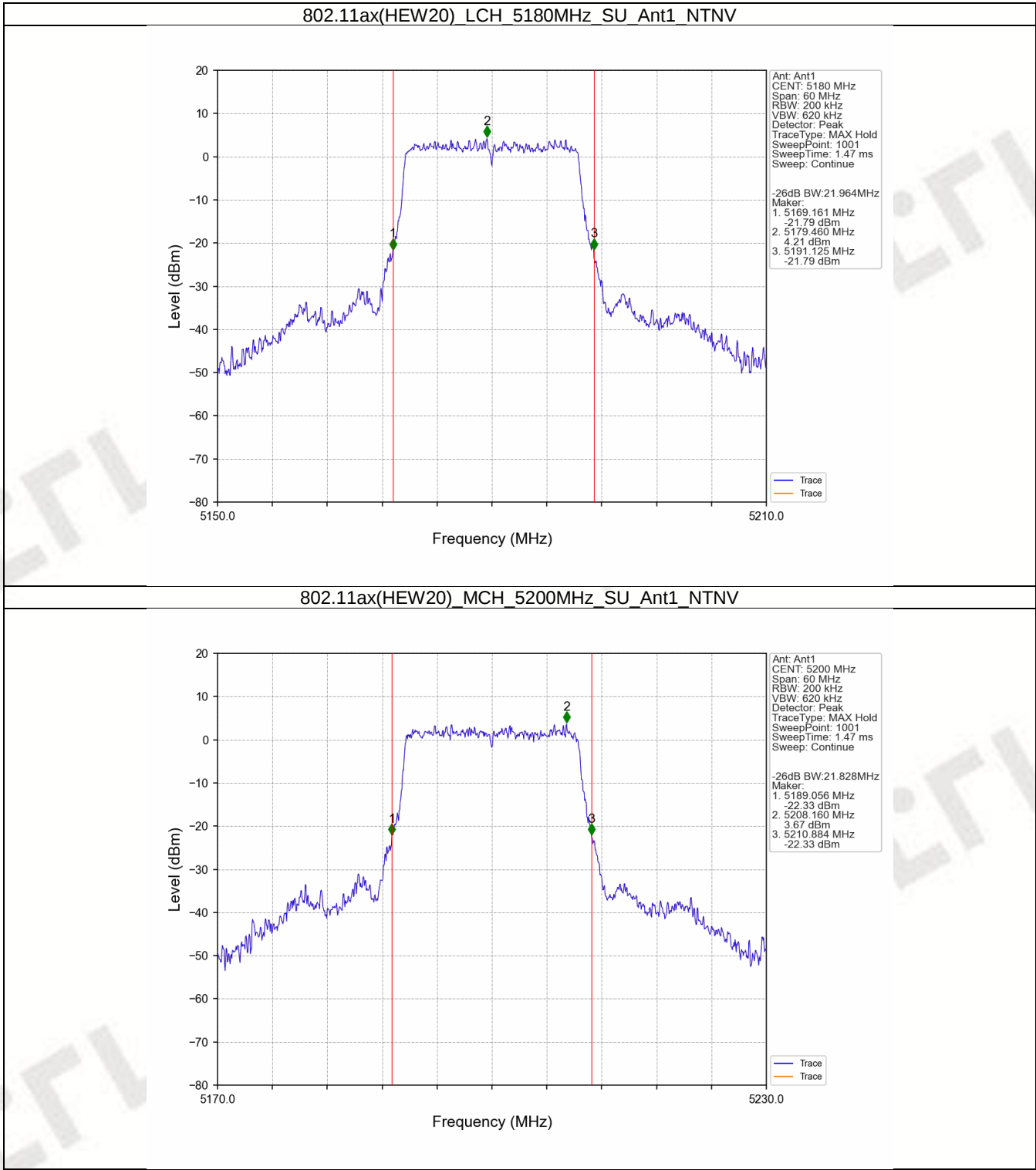
802.11ac(VHT40) HCH 5230MHz Ant1 NTN



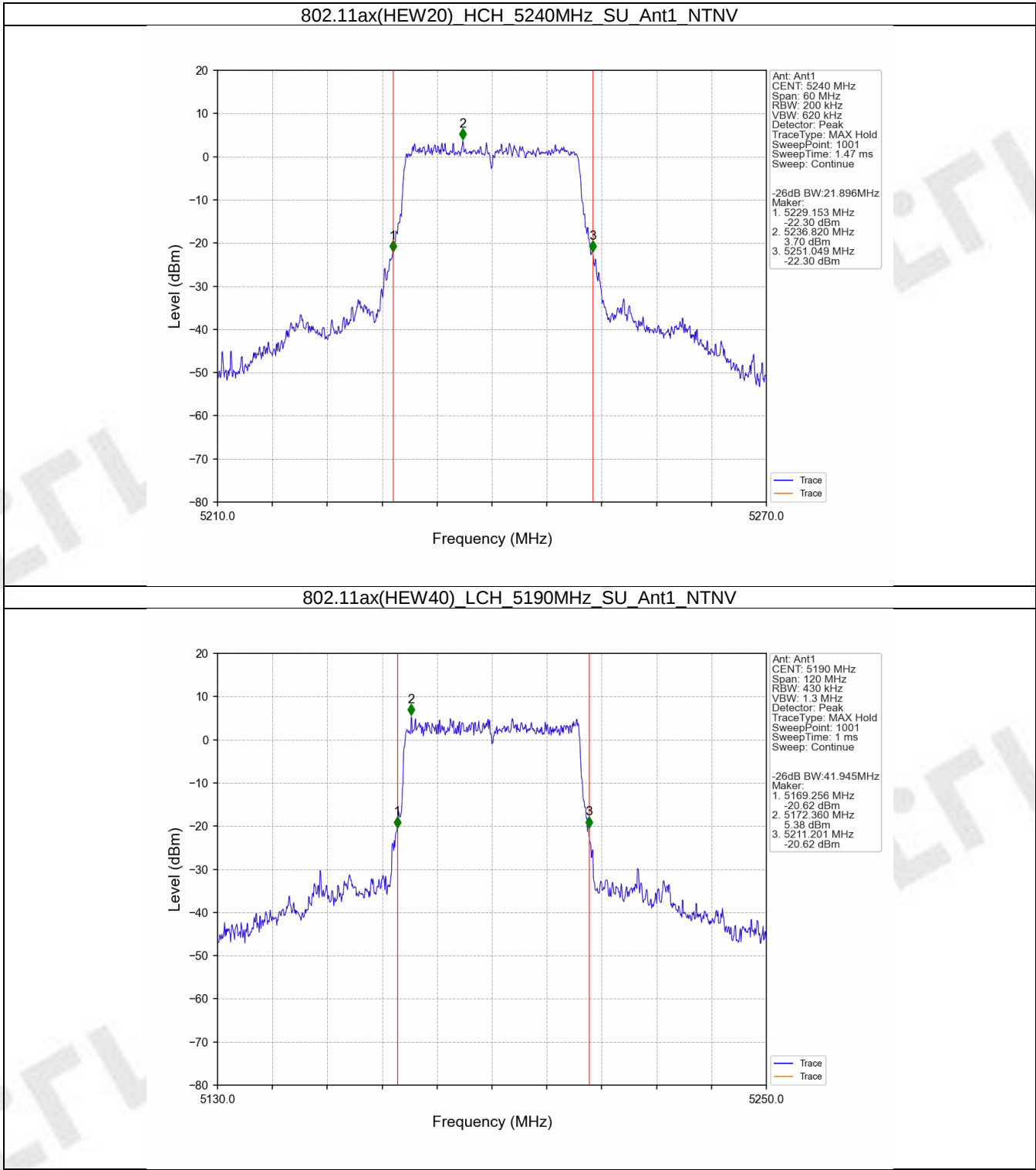
802.11ac(VHT80) MCH 5210MHz Ant1 NTN



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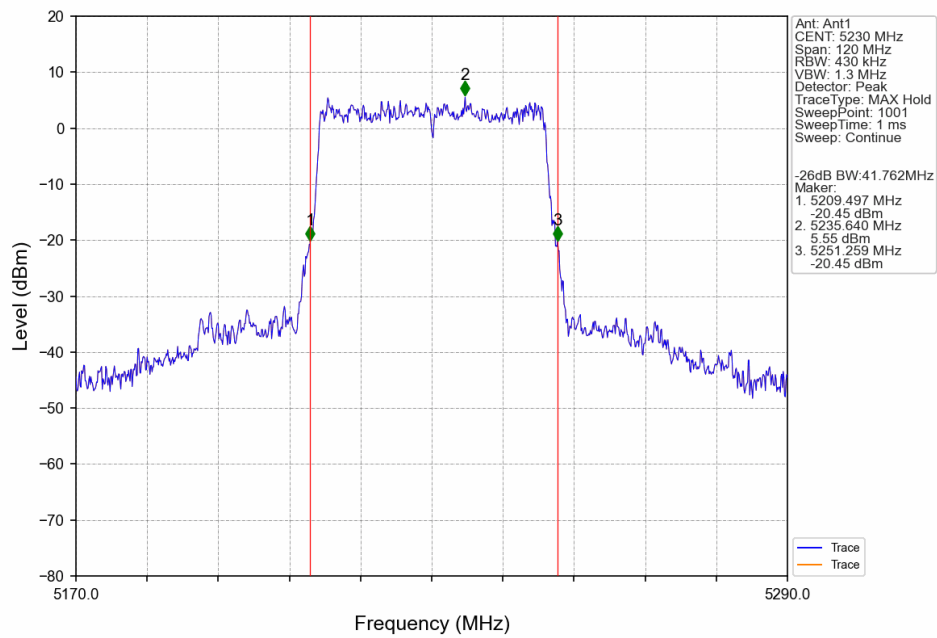


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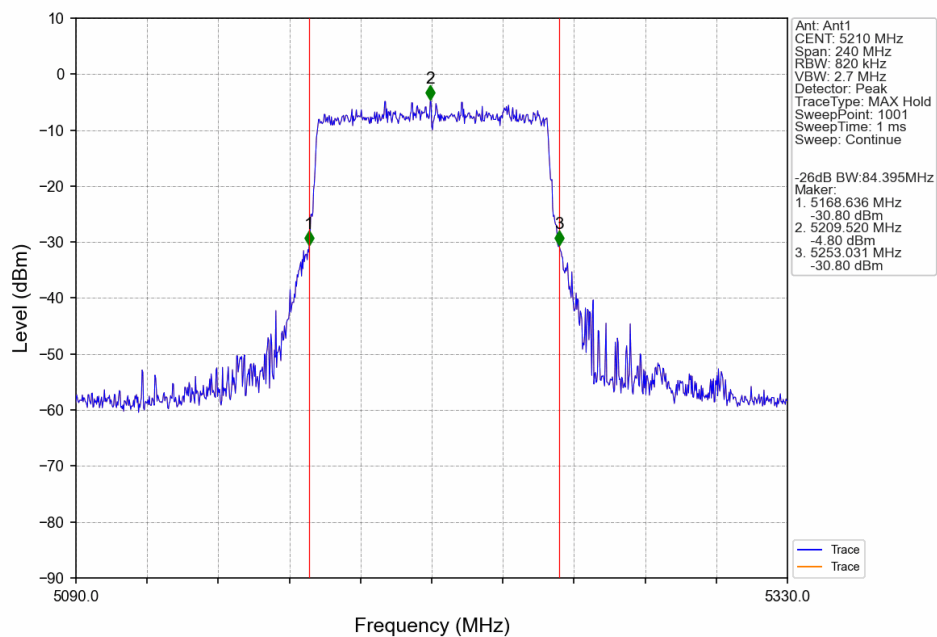


FCCID: SMQ-UWM3

802.11ax(HEW40) HCH 5230MHz SU Ant1 NTN



802.11ax(HEW80) MCH 5210MHz SU Ant1 NTN



FCCID: SMQ-UWM3

2. Maximum Conducted Output Power

2.1 Test Result

2.1.1 Power

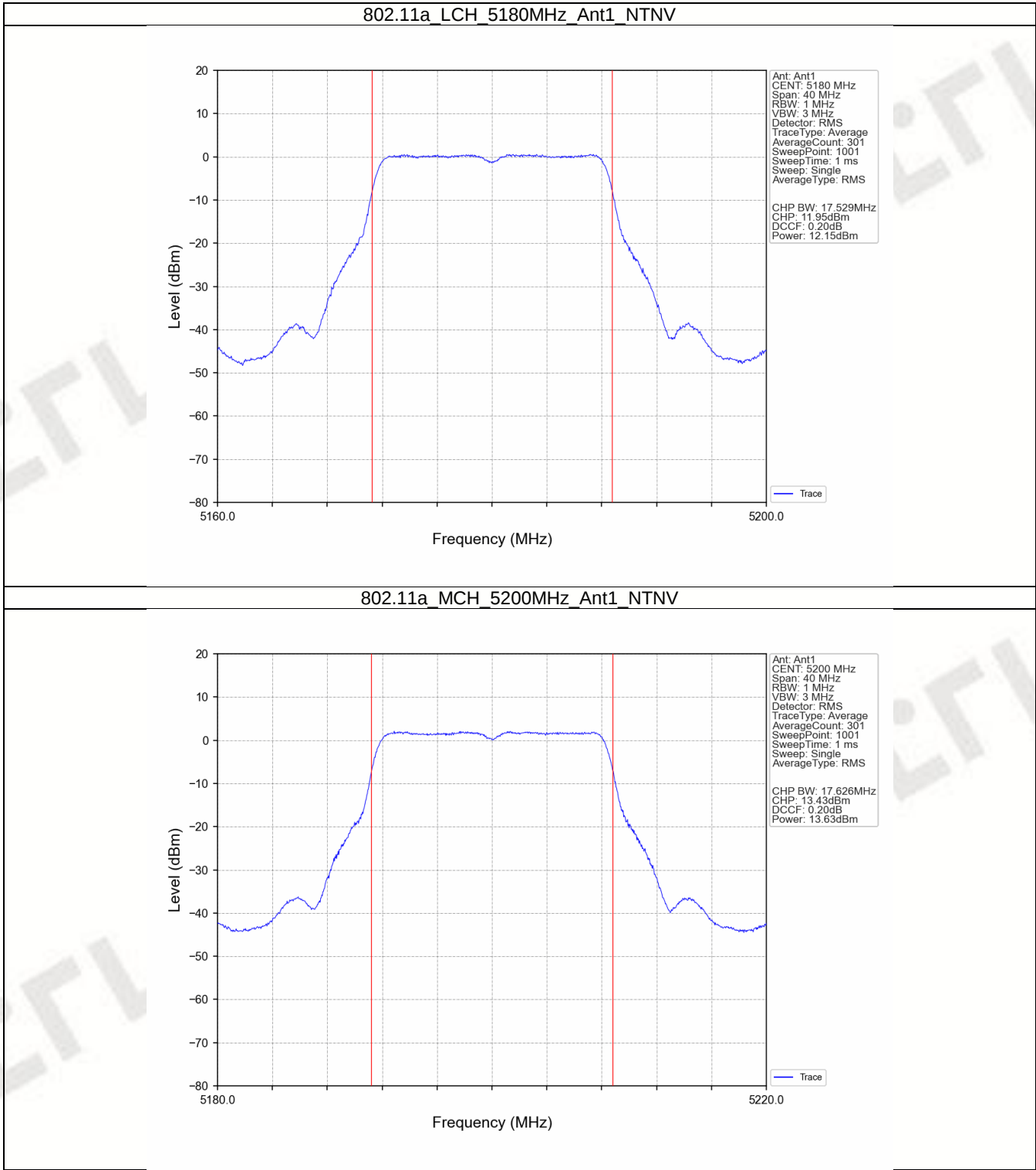
Mode	TX Type	Frequency (MHz)	RU	Maximum Average Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
802.11a	SISO	5180	/	12.15	<=23.98	Pass
		5200	/	13.63	<=23.98	Pass
		5240	/	13.82	<=23.98	Pass
802.11n (HT20)	SISO	5180	/	13.80	<=23.98	Pass
		5200	/	13.96	<=23.98	Pass
		5240	/	13.84	<=23.98	Pass
802.11n (HT40)	SISO	5190	/	14.30	<=23.98	Pass
		5230	/	14.18	<=23.98	Pass
802.11ac (VHT20)	SISO	5180	/	13.70	<=23.98	Pass
		5200	/	13.66	<=23.98	Pass
		5240	/	13.58	<=23.98	Pass
802.11ac (VHT40)	SISO	5190	/	14.01	<=23.98	Pass
		5230	/	13.82	<=23.98	Pass
802.11ac (VHT80)	SISO	5210	/	10.33	<=23.98	Pass
802.11ax (HEW20)	SISO	5180	SU	13.76	<=23.98	Pass
		5200	SU	13.66	<=23.98	Pass
		5240	SU	13.06	<=23.98	Pass
802.11ax (HEW40)	SISO	5190	SU	14.25	<=23.98	Pass
		5230	SU	13.36	<=23.98	Pass
802.11ax (HEW80)	SISO	5210	SU	13.24	<=23.98	Pass

Note1: Antenna Gain: Ant1: 2.41dBi;

FCCID: SMQ-UWM3

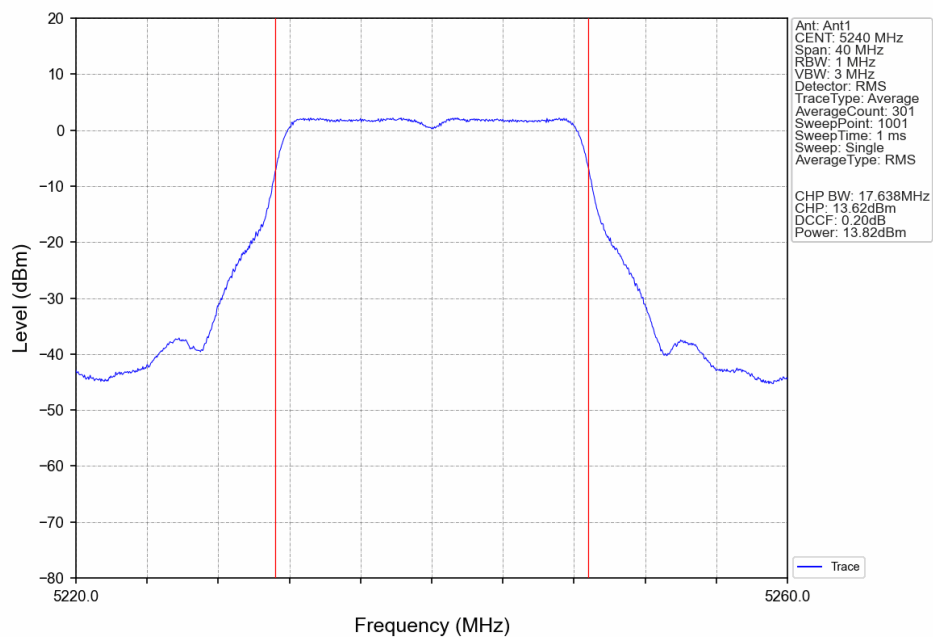
2.2 Test Graph

2.2.1 Power

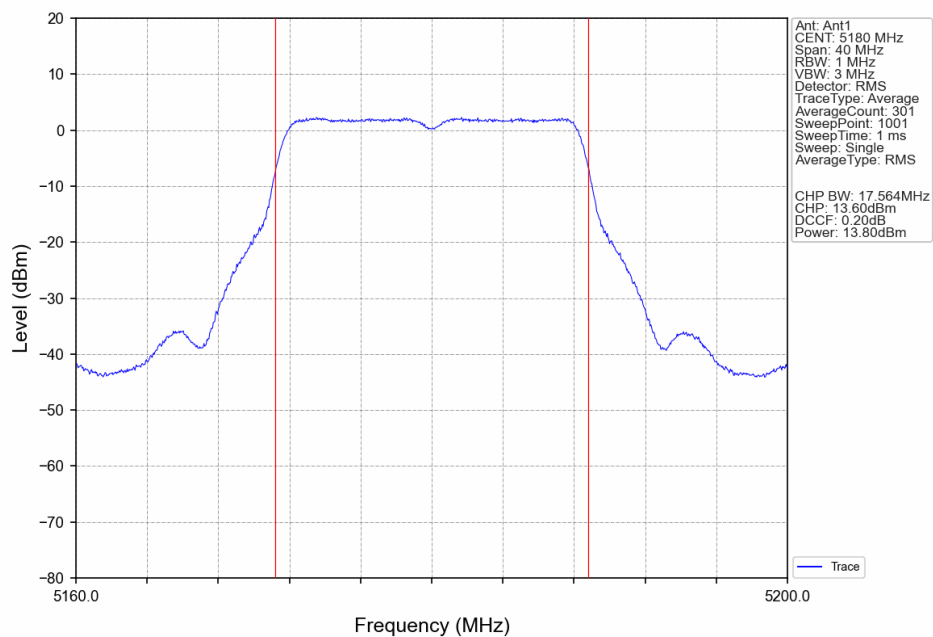


FCCID: SMQ-UWM3

802.11a HCH 5240MHz Ant1 NTV

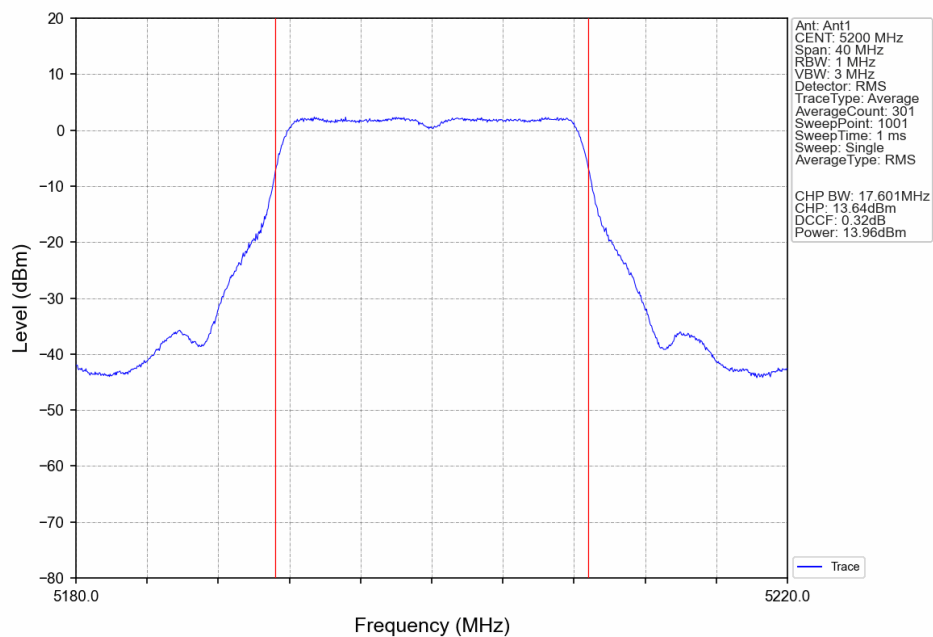


802.11n(HT20) LCH 5180MHz Ant1 NTV

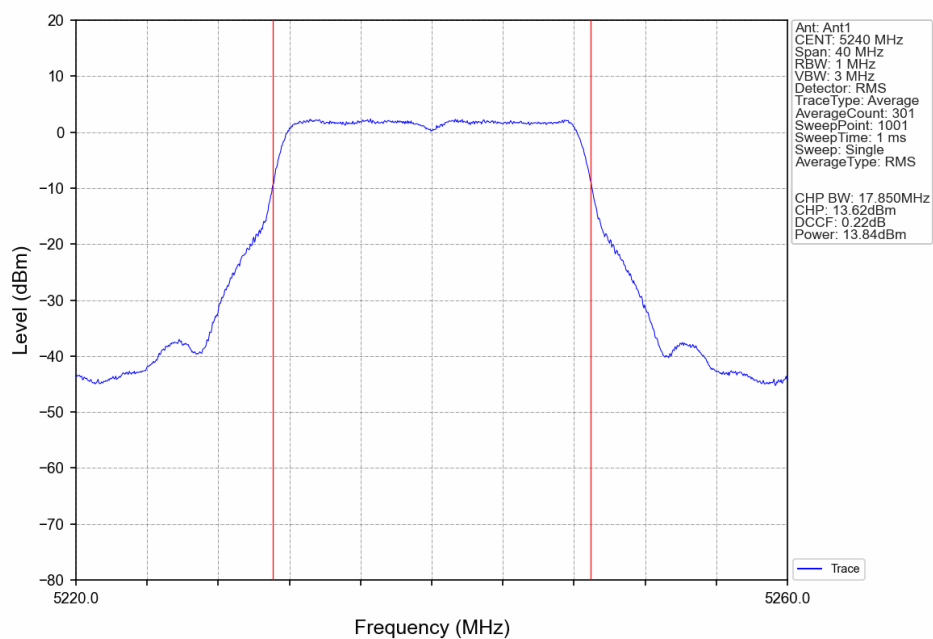


FCCID: SMQ-UWM3

802.11n(HT20) MCH 5200MHz Ant1 NTN

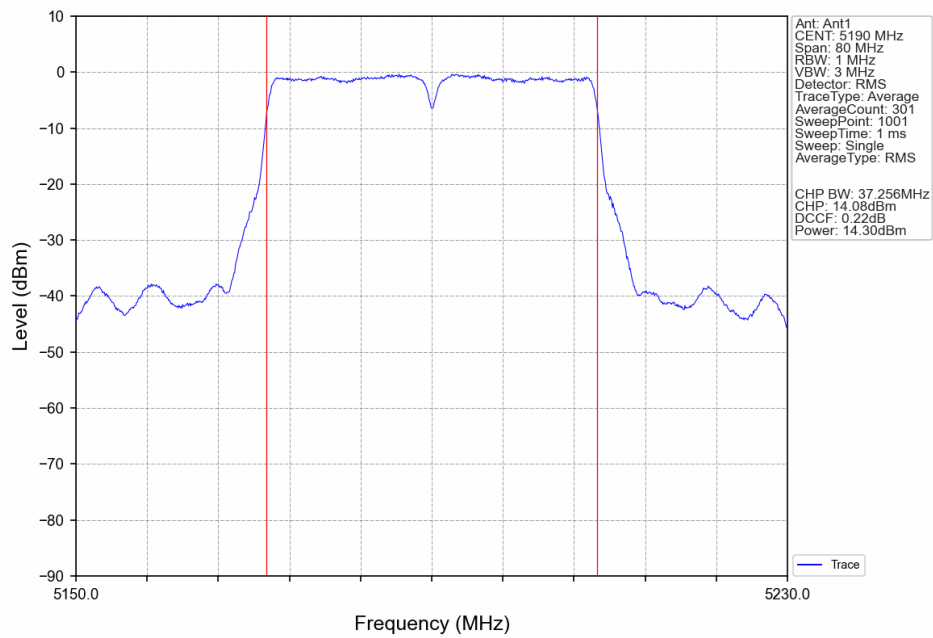


802.11n(HT20) HCH 5240MHz Ant1 NTN

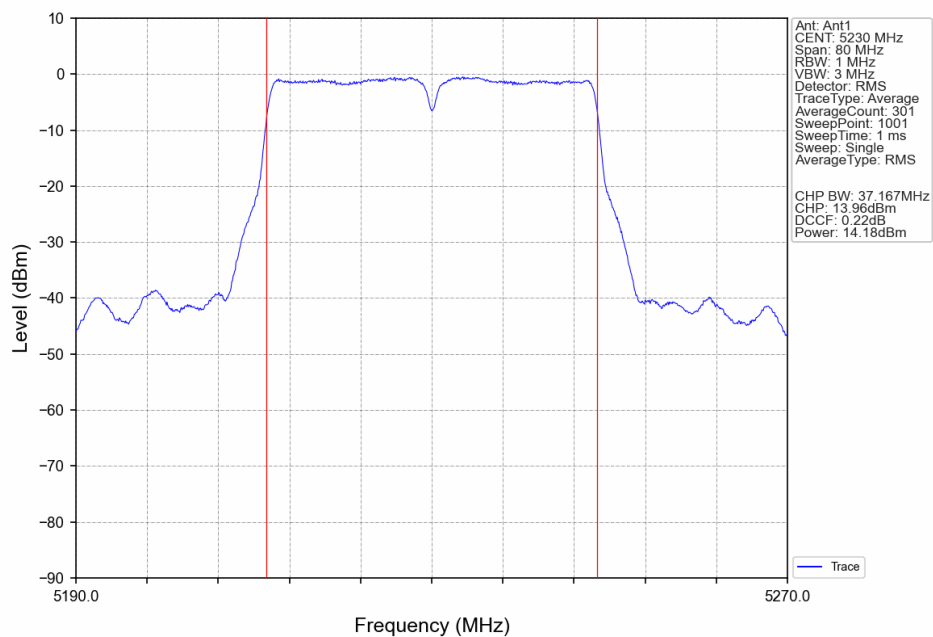


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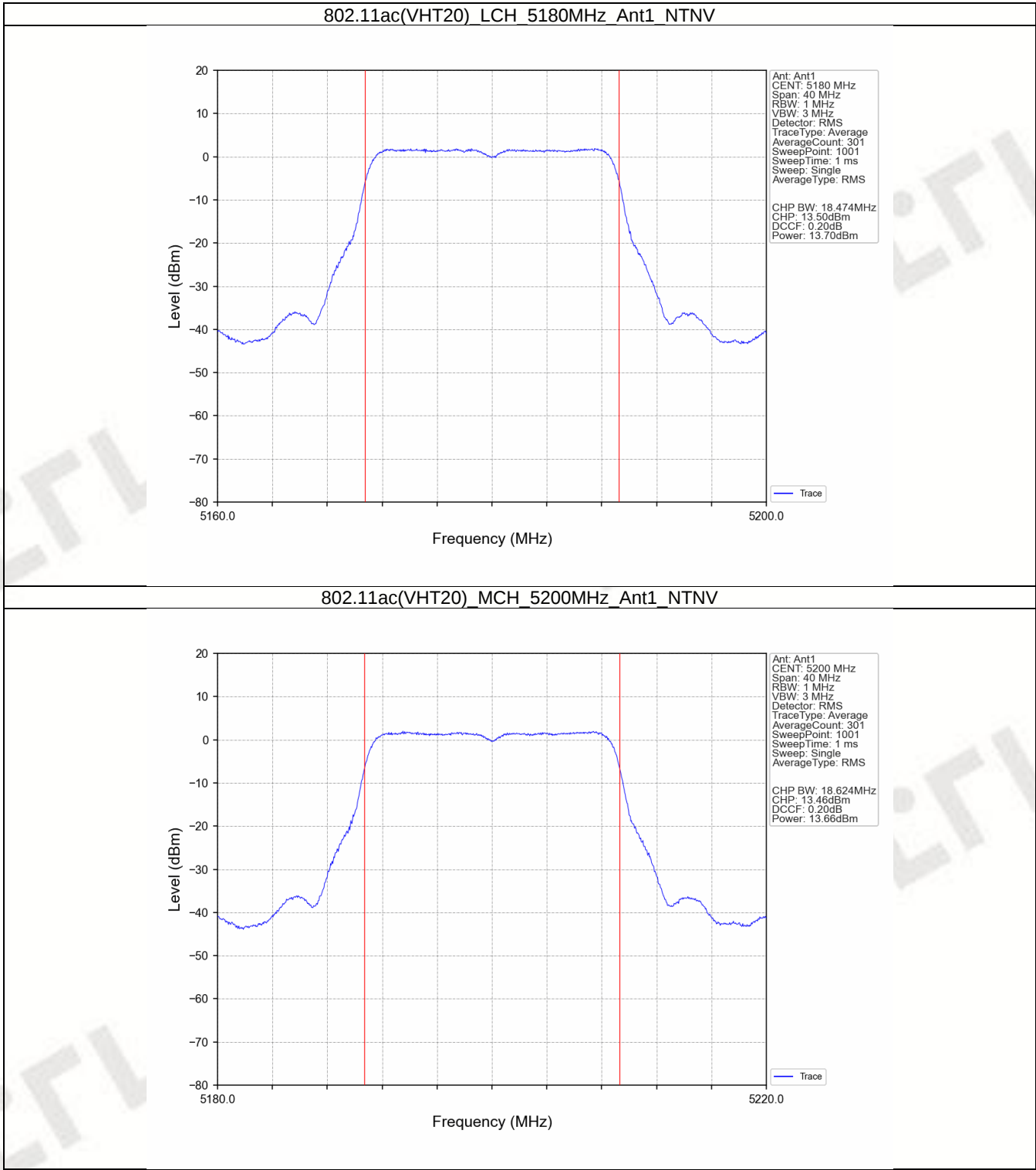
802.11n(HT40) LCH 5190MHz Ant1 NTN



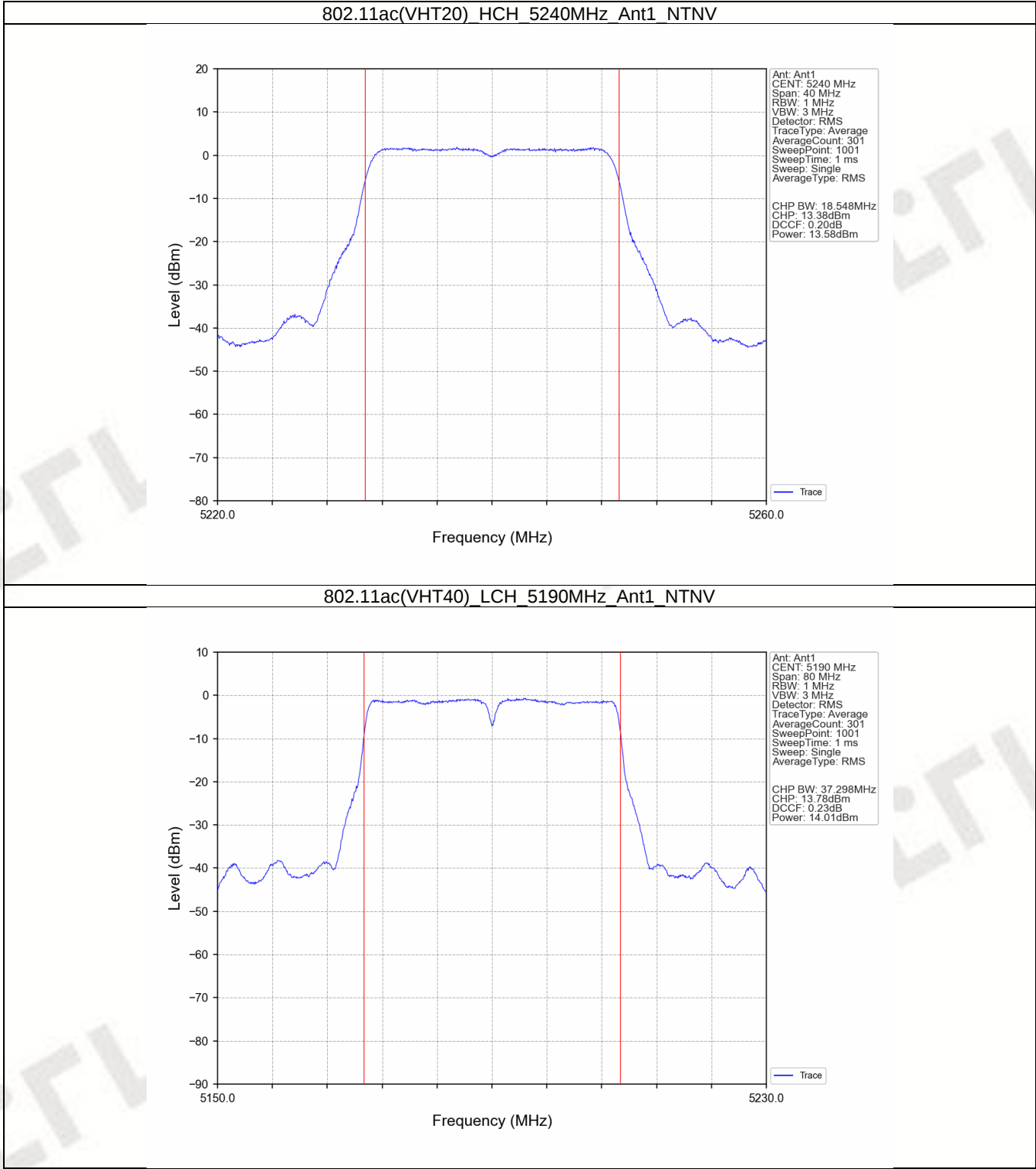
802.11n(HT40) HCH 5230MHz Ant1 NTN



FCCID: SMQ-UWM3

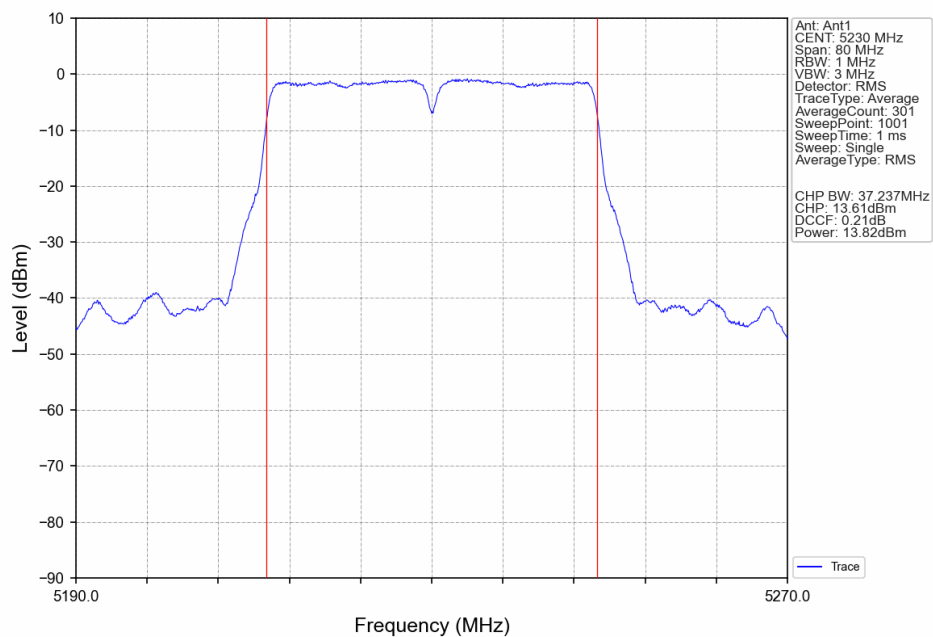


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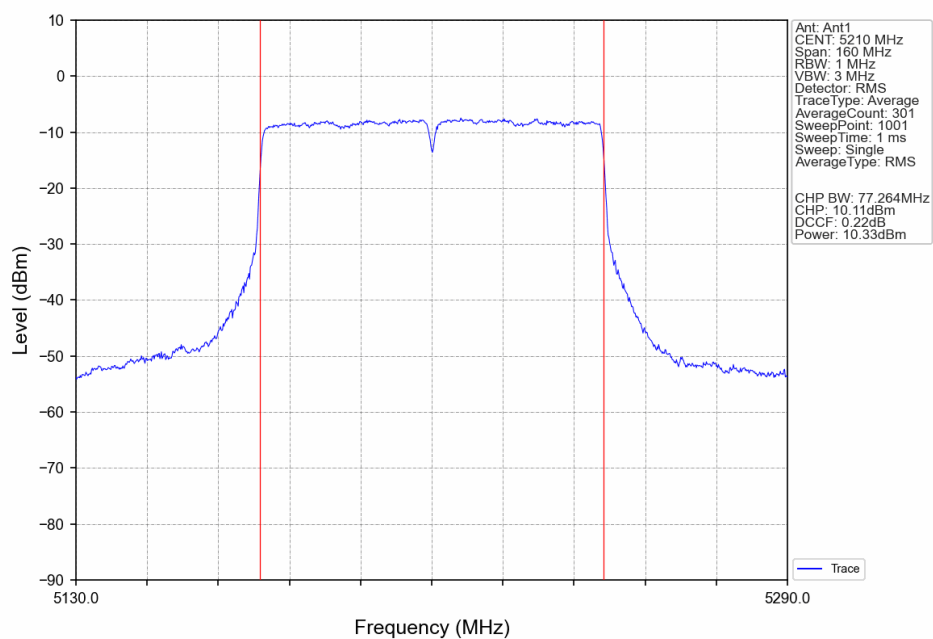


FCCID: SMQ-UWM3

802.11ac(VHT40) HCH 5230MHz Ant1 NTN

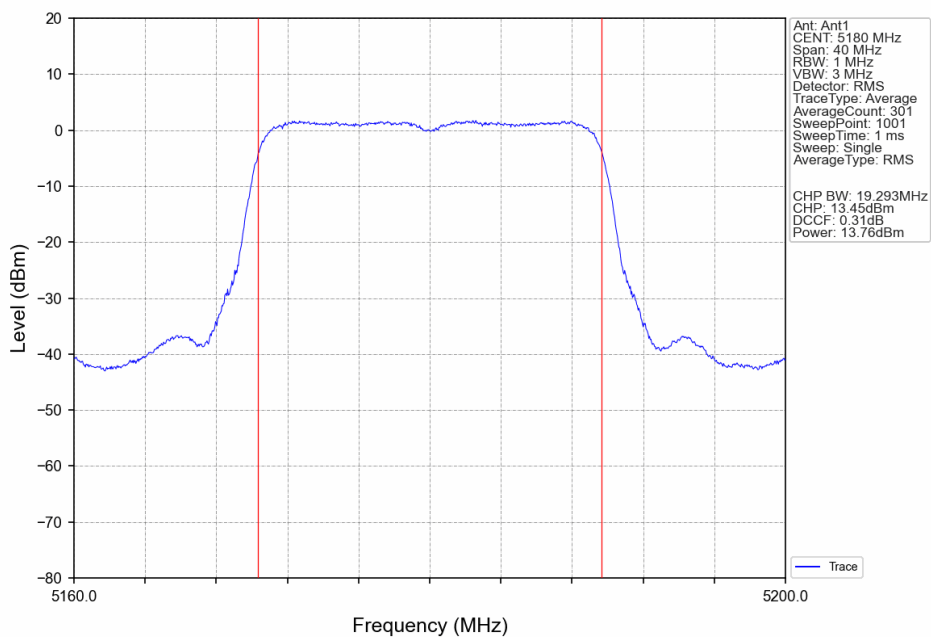


802.11ac(VHT80) MCH 5210MHz Ant1 NTN

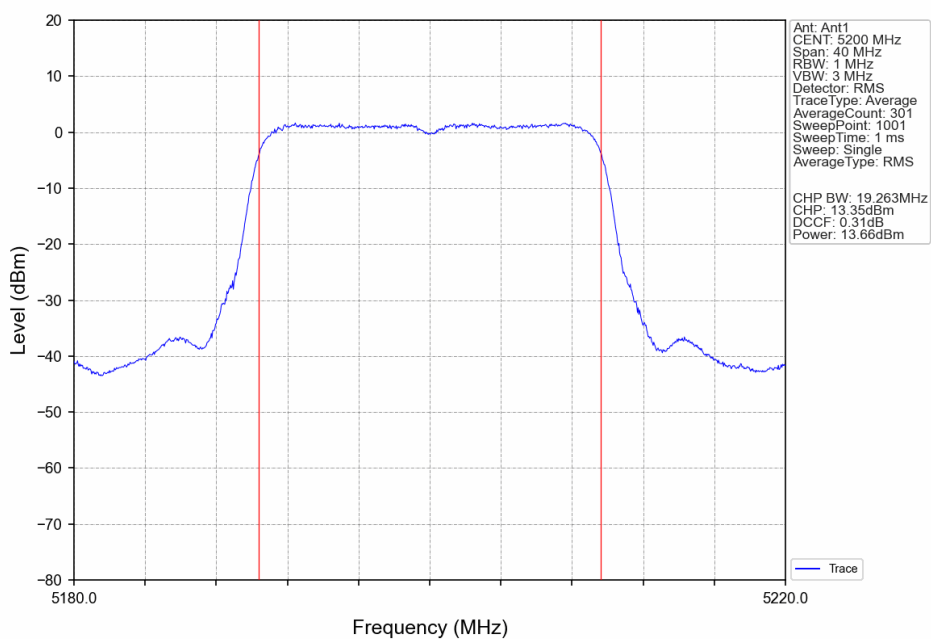


FCCID: SMQ-UWM3

802.11ax(HEW20) LCH 5180MHz SU Ant1 NTV

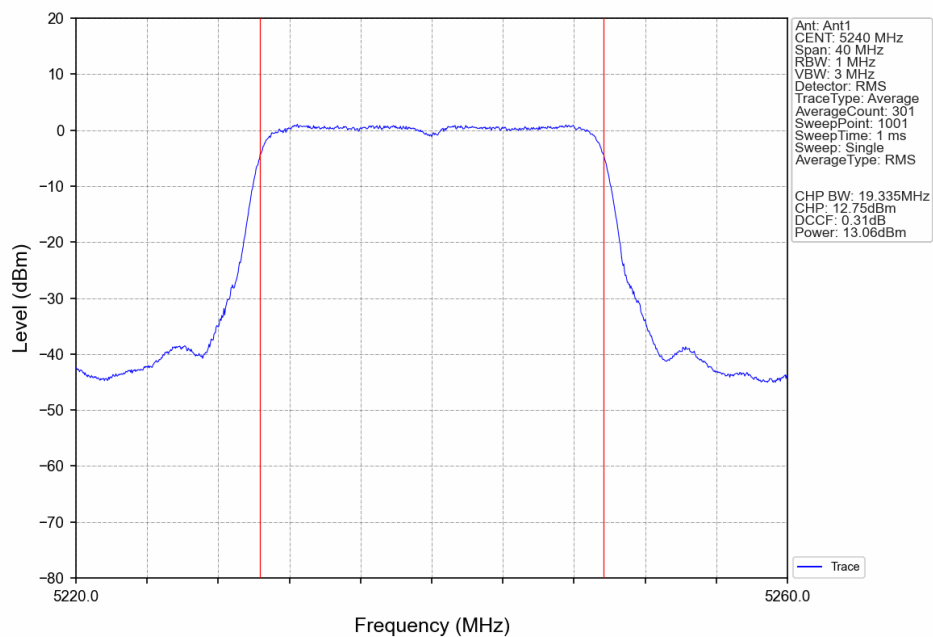


802.11ax(HEW20) MCH 5200MHz SU Ant1 NTV

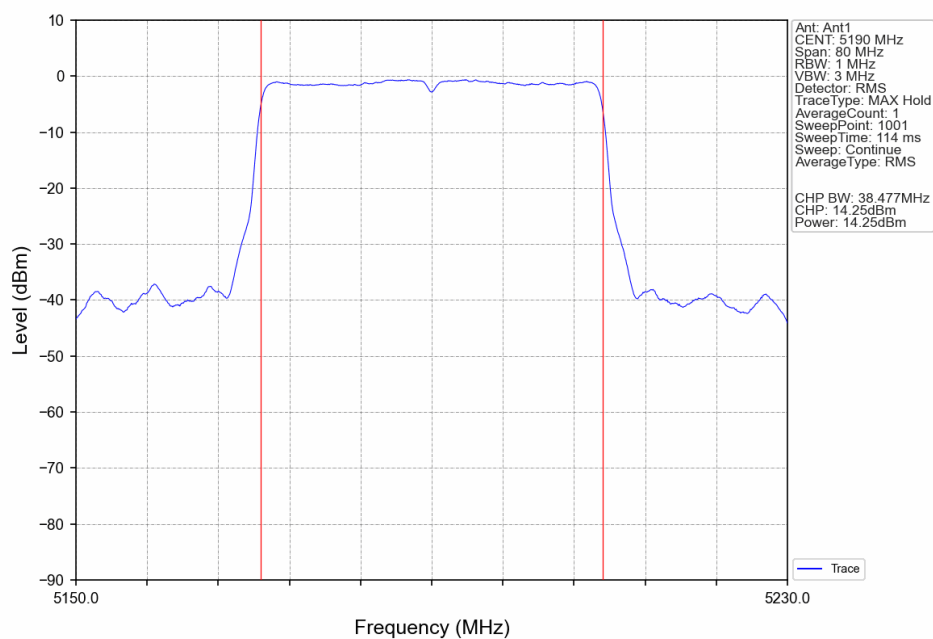


FCCID: SMQ-UWM3

802.11ax(HEW20) HCH 5240MHz SU Ant1 NTV

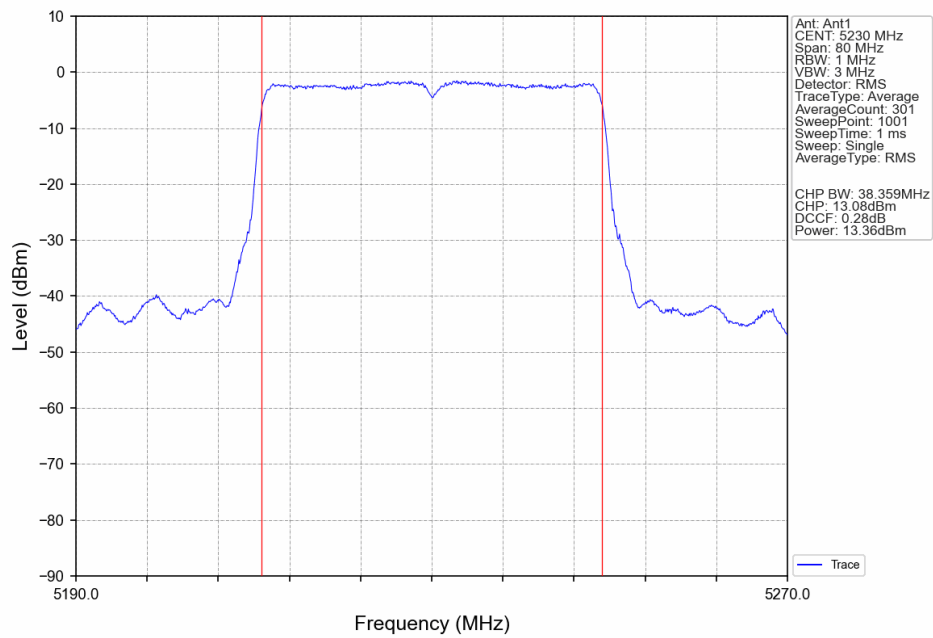


802.11ax(HEW40) LCH 5190MHz SU_Ant1_NTV

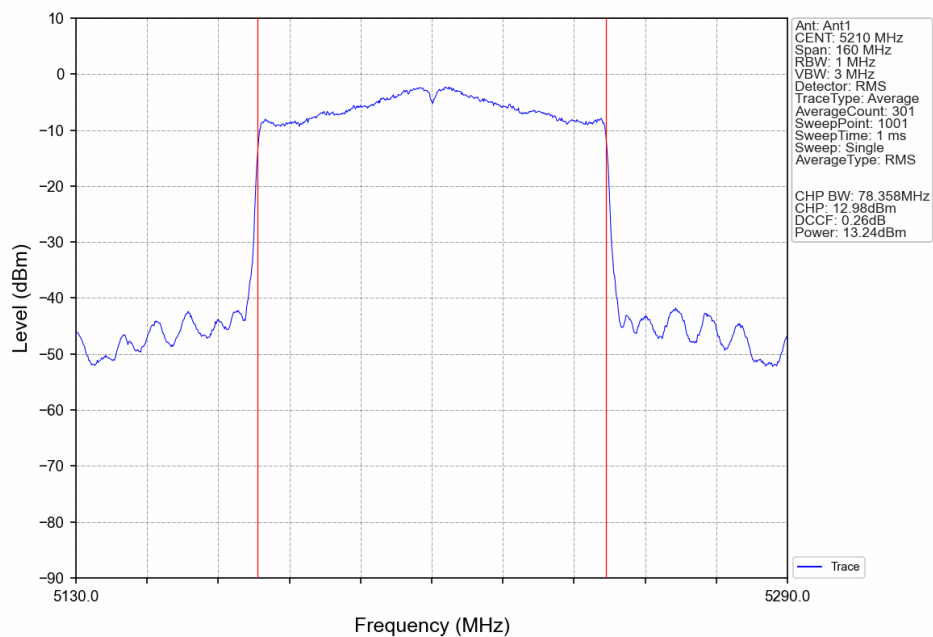


FCCID: SMQ-UWM3

802.11ax(HEW40) HCH 5230MHz SU Ant1 NTN



802.11ax(HEW80) MCH 5210MHz SU Ant1 NTN



3. Maximum Power Spectral Density

3.1 Test Result

3.1.1 PSD

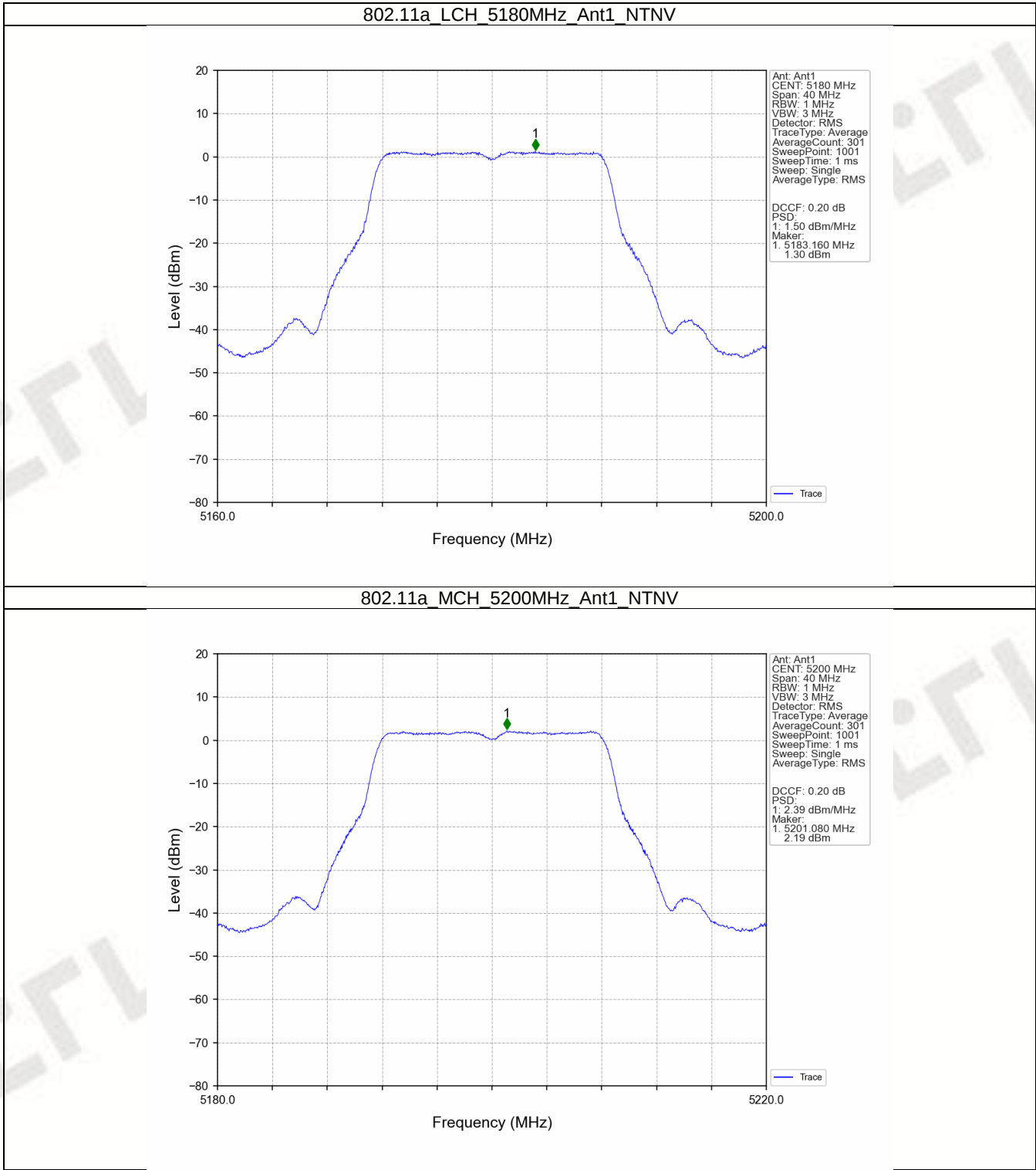
Mode	TX Type	Frequency (MHz)	RU	Maximum PSD (dBm/MHz)		Verdict
				ANT1	Limit	
802.11a	SISO	5180	/	1.50	<=11	Pass
		5200	/	2.39	<=11	Pass
		5240	/	2.50	<=11	Pass
802.11n (HT20)	SISO	5180	/	2.38	<=11	Pass
		5200	/	2.55	<=11	Pass
		5240	/	2.41	<=11	Pass
802.11n (HT40)	SISO	5190	/	-0.02	<=11	Pass
		5230	/	-0.19	<=11	Pass
802.11ac (VHT20)	SISO	5180	/	2.22	<=11	Pass
		5200	/	2.05	<=11	Pass
		5240	/	2.02	<=11	Pass
802.11ac (VHT40)	SISO	5190	/	-0.43	<=11	Pass
		5230	/	-0.59	<=11	Pass
802.11ac (VHT80)	SISO	5210	/	-7.51	<=11	Pass
802.11ax (HEW20)	SISO	5180	SU	2.06	<=11	Pass
		5200	SU	2.12	<=11	Pass
		5240	SU	1.42	<=11	Pass
802.11ax (HEW40)	SISO	5190	SU	-0.85	<=11	Pass
		5230	SU	-1.26	<=11	Pass
802.11ax (HEW80)	SISO	5210	SU	-2.09	<=11	Pass

Note1: Antenna Gain: Ant1: 2.41dBi;

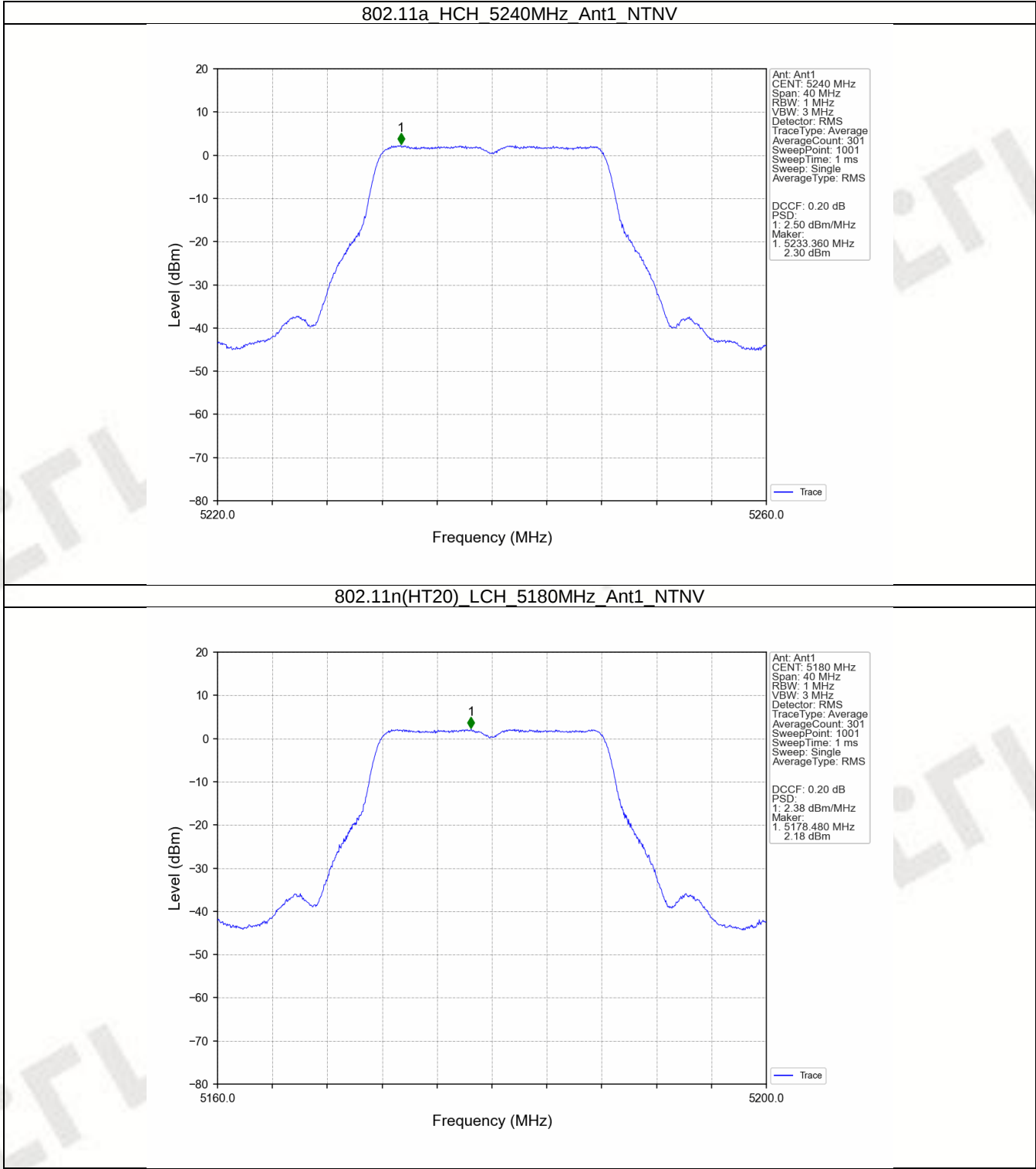
FCCID: SMQ-UWM3

3.2 Test Graph

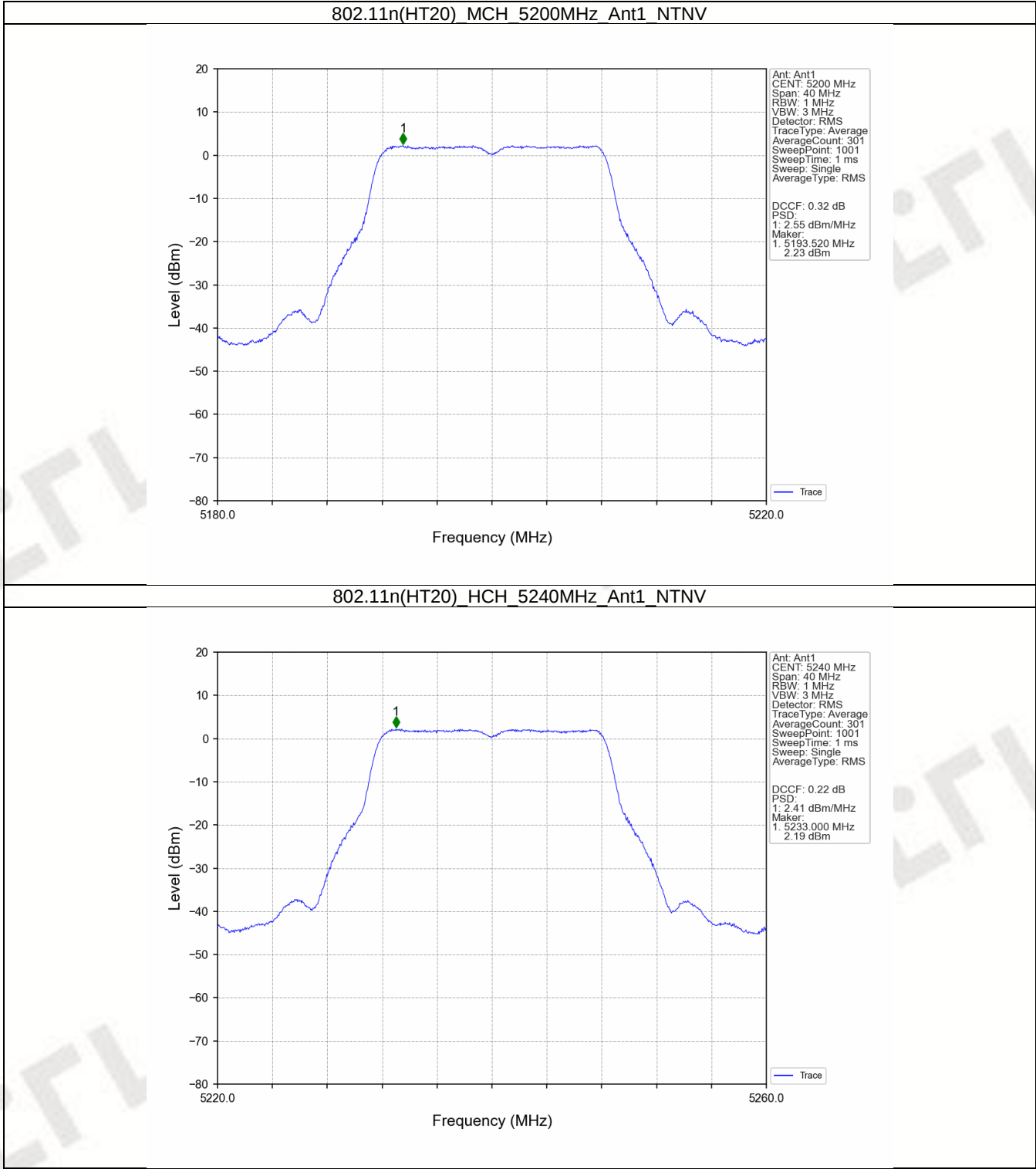
3.2.1 PSD



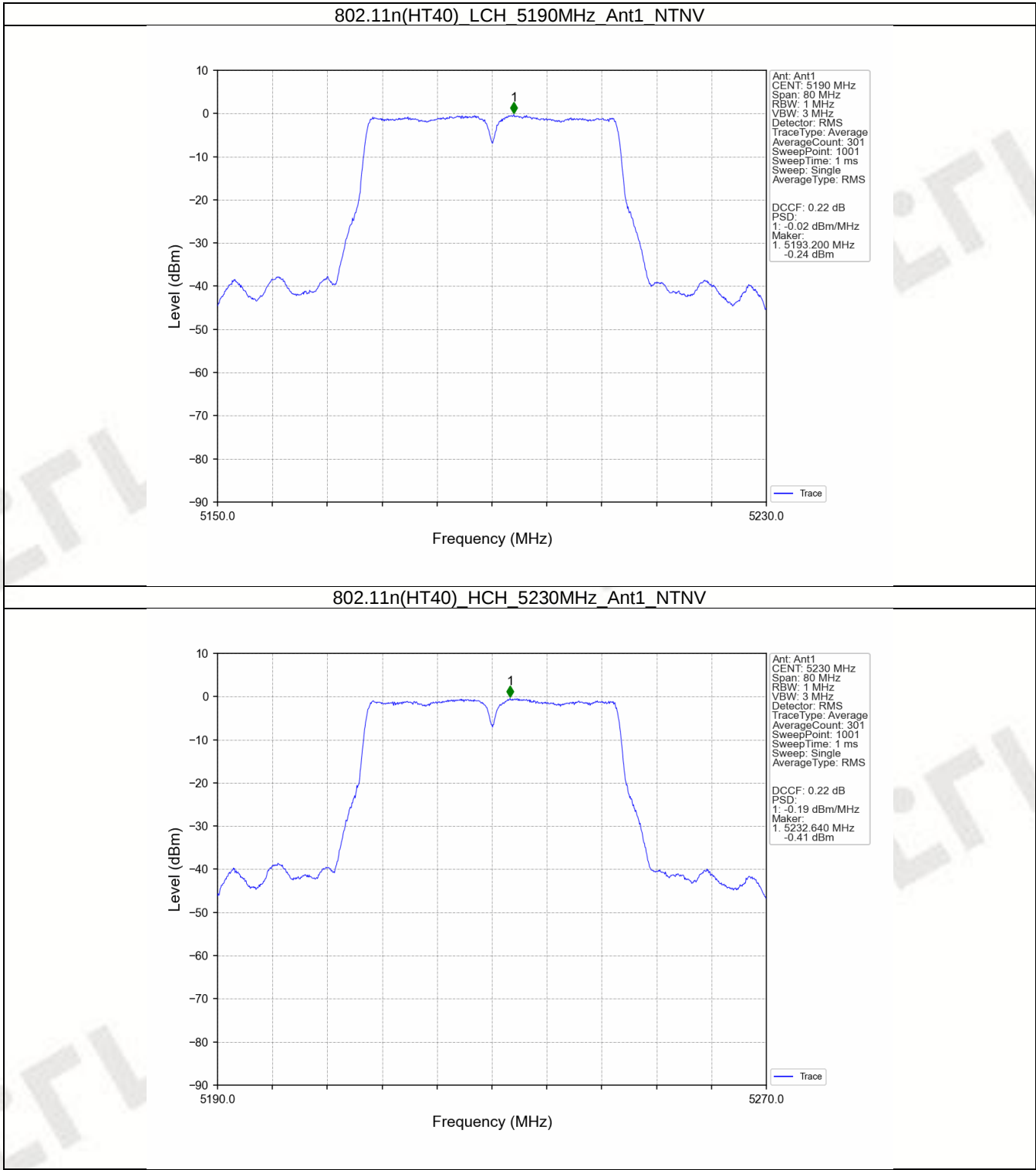
FCCID: SMQ-UWM3



FCCID: SMQ-UWM3

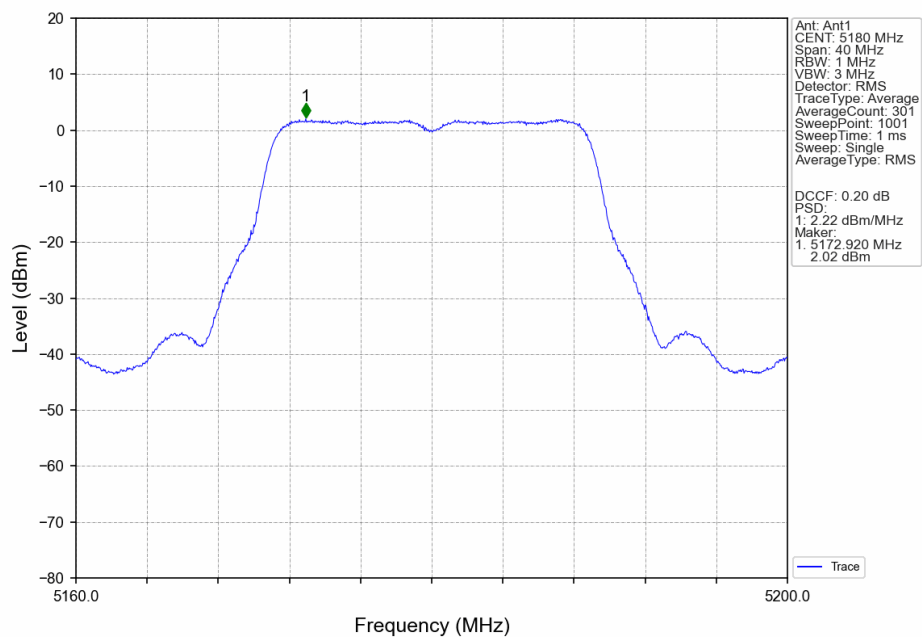


FCCID: SMQ-UWM3

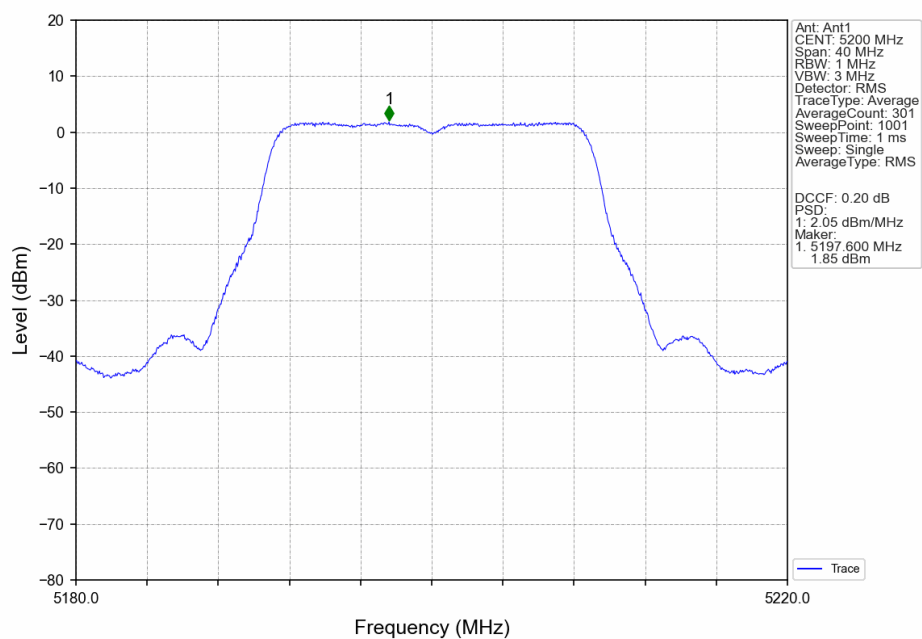


FCCID: SMQ-UWM3

802.11ac(VHT20) LCH 5180MHz Ant1 NTN

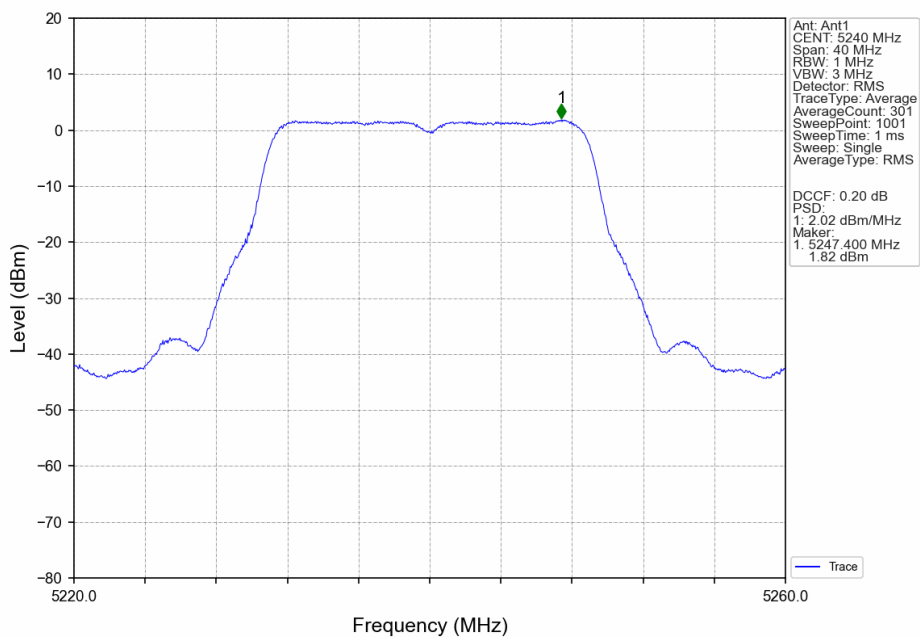


802.11ac(VHT20) MCH 5200MHz Ant1 NTN

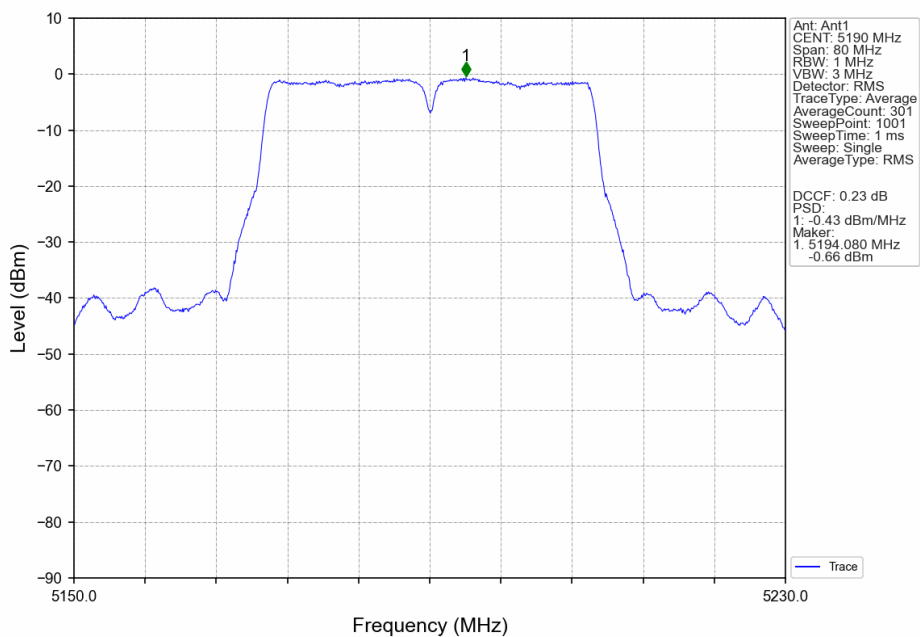


FCCID: SMQ-UWM3

802.11ac(VHT20) HCH 5240MHz Ant1 NTN

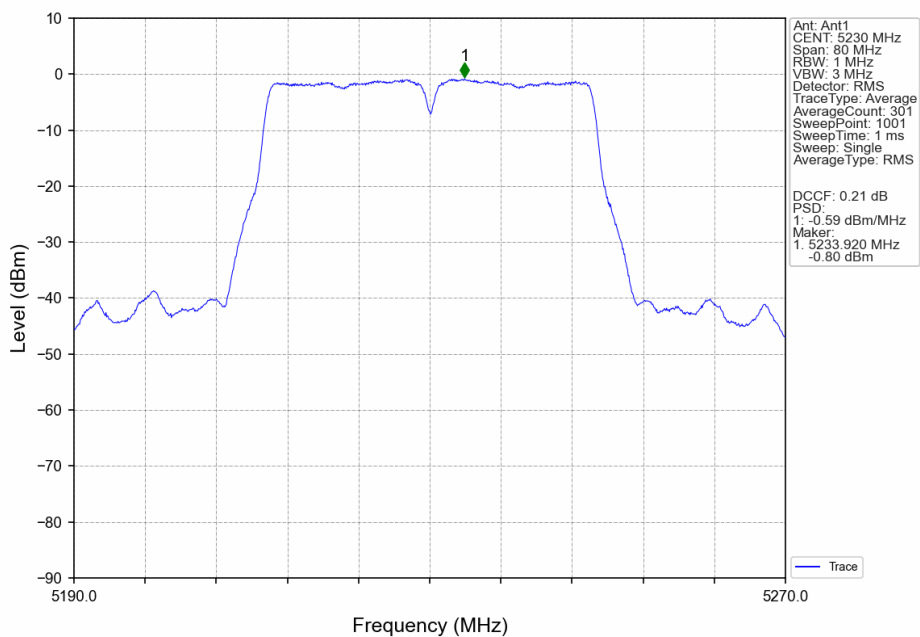


802.11ac(VHT40) LCH 5190MHz Ant1 NTN

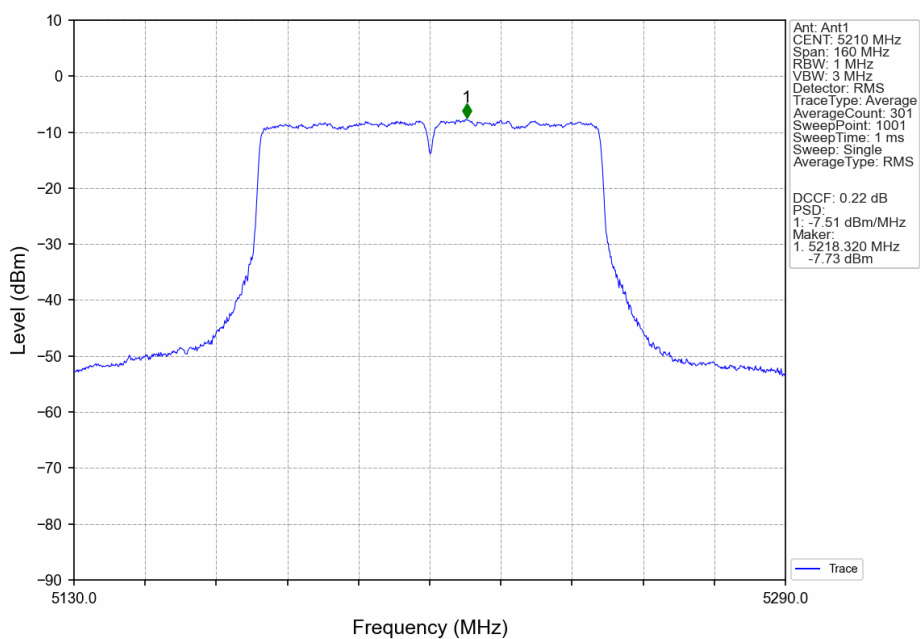


FCCID: SMQ-UWM3

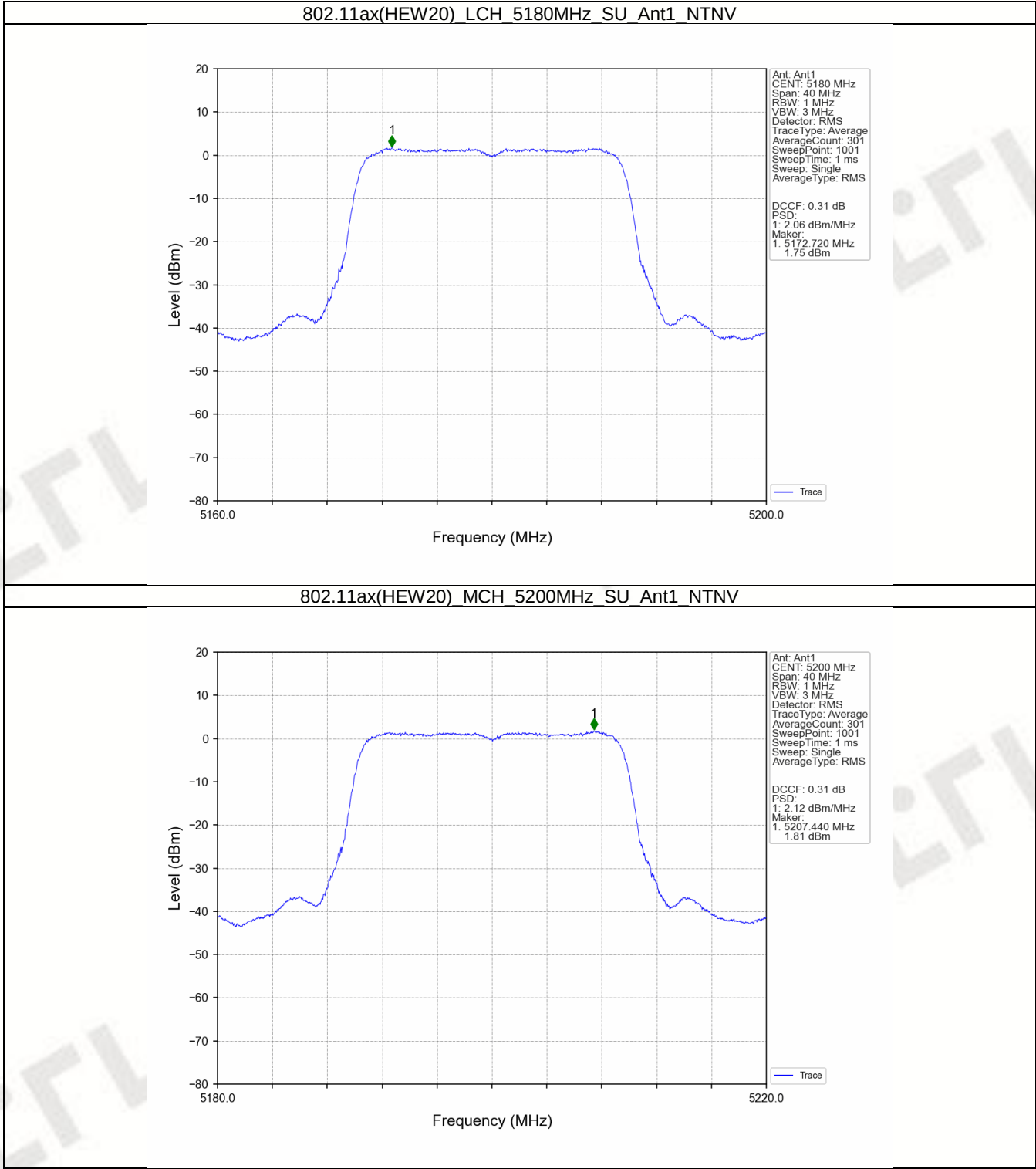
802.11ac(VHT40) HCH 5230MHz Ant1 NTN



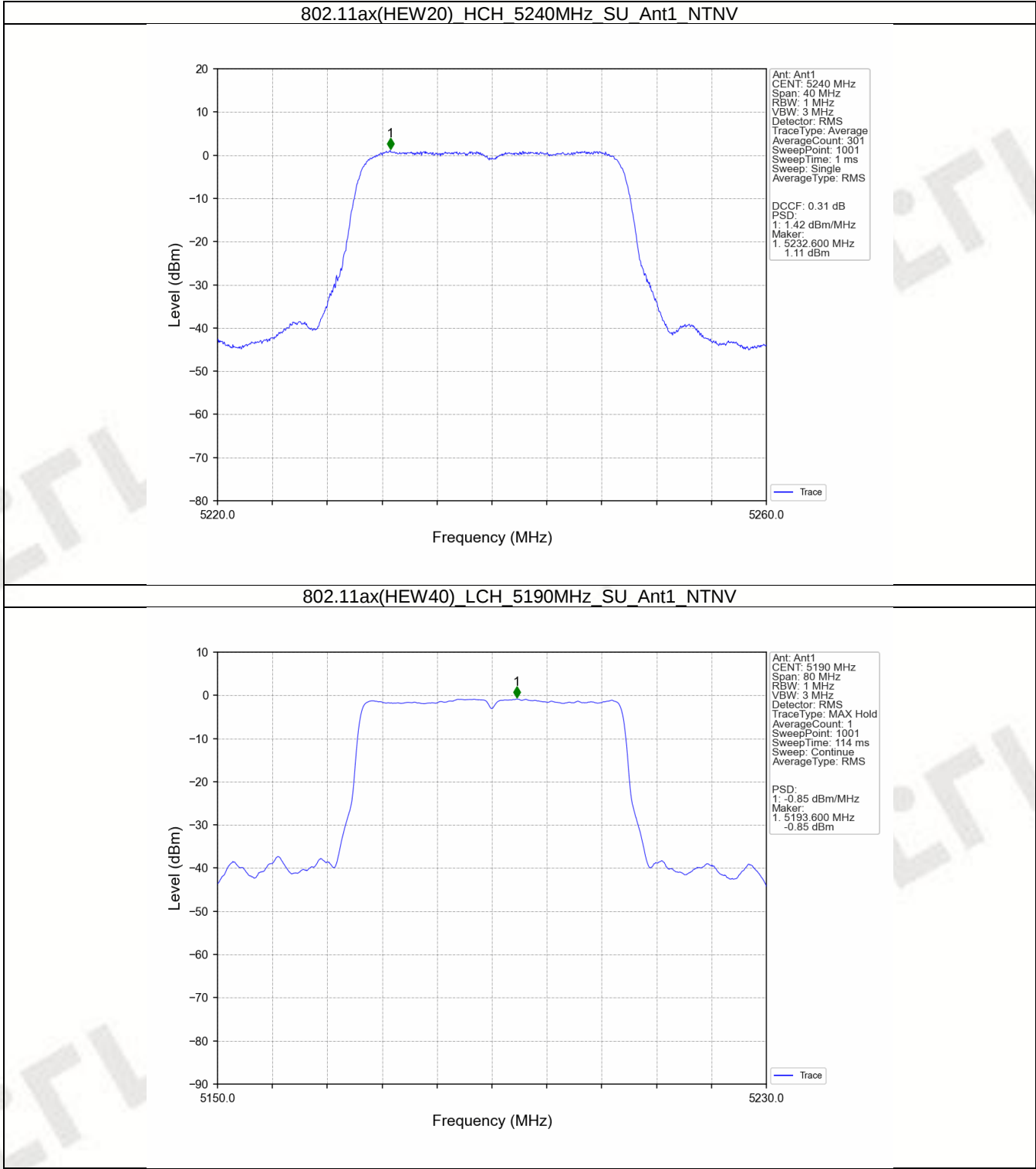
802.11ac(VHT80) MCH 5210MHz Ant1 NTN



FCCID: SMQ-UWM3

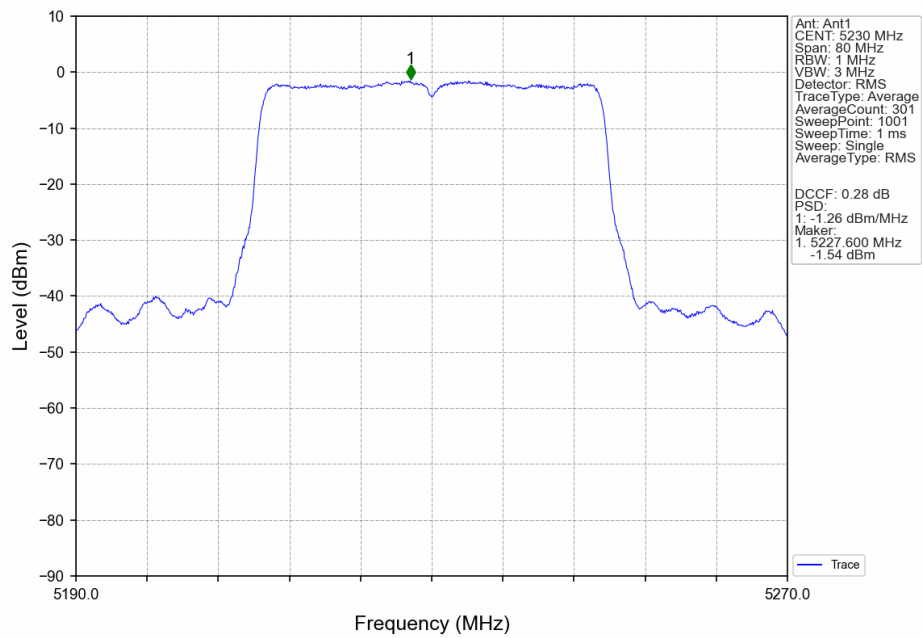


FCCID: SMQ-UWM3

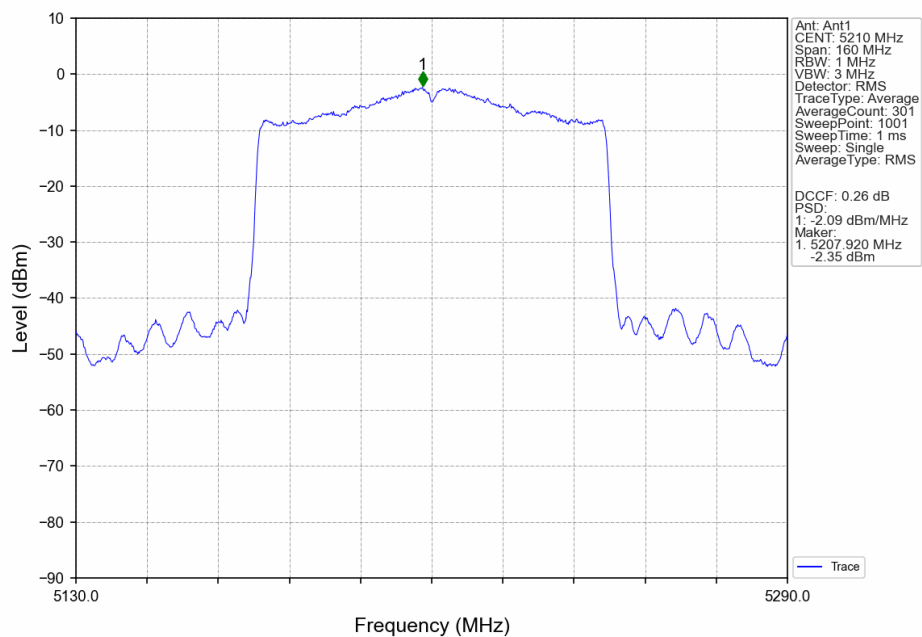


FCCID: SMQ-UWM3

802.11ax(HEW40) HCH 5230MHz SU Ant1 NTNV



802.11ax(HEW80) MCH 5210MHz SU Ant1 NTNV



FCCID: SMQ-UWM3

4. Frequency Stability

4.1 Test Result

4.1.1 Ant1

Ant1							
Mode	Tx Type	Frequency (MHz)	Temperature (°C)	Voltage (VAC)	Measured Frequency (MHz)	Limit (MHz)	Verdict
Carrier Wave	SISO	5180	20	102	5179.963	5150 to 5250	Pass
				120	5179.963	5150 to 5250	Pass
				138	5179.962	5150 to 5250	Pass
			-30	120	5179.963	5150 to 5250	Pass
			-20	120	5179.963	5150 to 5250	Pass
			-10	120	5179.963	5150 to 5250	Pass
			0	120	5179.963	5150 to 5250	Pass
			10	120	5179.963	5150 to 5250	Pass
			30	120	5179.963	5150 to 5250	Pass
			40	120	5179.962	5150 to 5250	Pass
			50	120	5179.963	5150 to 5250	Pass
		5200	20	102	5199.964	5150 to 5250	Pass
				120	5199.964	5150 to 5250	Pass
				138	5199.963	5150 to 5250	Pass
			-30	120	5199.963	5150 to 5250	Pass
			-20	120	5199.963	5150 to 5250	Pass
			-10	120	5199.963	5150 to 5250	Pass
			0	120	5199.963	5150 to 5250	Pass
			10	120	5199.963	5150 to 5250	Pass
			30	120	5199.963	5150 to 5250	Pass
			40	120	5199.963	5150 to 5250	Pass
			50	120	5199.963	5150 to 5250	Pass
		5240	20	102	5239.963	5150 to 5250	Pass
				120	5239.963	5150 to 5250	Pass
				138	5239.963	5150 to 5250	Pass
			-30	120	5239.963	5150 to 5250	Pass
			-20	120	5239.963	5150 to 5250	Pass
			-10	120	5239.963	5150 to 5250	Pass
			0	120	5239.963	5150 to 5250	Pass
			10	120	5239.963	5150 to 5250	Pass
			30	120	5239.963	5150 to 5250	Pass
			40	120	5239.963	5150 to 5250	Pass
			50	120	5239.963	5150 to 5250	Pass
		5190	20	102	5189.964	5150 to 5250	Pass
				120	5189.964	5150 to 5250	Pass
				138	5189.964	5150 to 5250	Pass
			-30	120	5189.963	5150 to 5250	Pass
			-20	120	5189.963	5150 to 5250	Pass
			-10	120	5189.963	5150 to 5250	Pass
			0	120	5189.963	5150 to 5250	Pass
			10	120	5189.963	5150 to 5250	Pass
			30	120	5189.963	5150 to 5250	Pass
			40	120	5189.963	5150 to 5250	Pass
			50	120	5189.963	5150 to 5250	Pass
		5230	20	102	5229.963	5150 to 5250	Pass

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				120	5229.963	5150 to 5250	Pass
				138	5229.963	5150 to 5250	Pass
			-30	120	5229.963	5150 to 5250	Pass
			-20	120	5229.963	5150 to 5250	Pass
			-10	120	5229.963	5150 to 5250	Pass
			0	120	5229.963	5150 to 5250	Pass
			10	120	5229.963	5150 to 5250	Pass
			30	120	5229.963	5150 to 5250	Pass
			40	120	5229.963	5150 to 5250	Pass
			50	120	5229.963	5150 to 5250	Pass
		5210	20	102	5209.964	5150 to 5250	Pass
				120	5209.964	5150 to 5250	Pass
				138	5209.963	5150 to 5250	Pass
			-30	120	5209.963	5150 to 5250	Pass
			-20	120	5209.963	5150 to 5250	Pass
			-10	120	5209.963	5150 to 5250	Pass
			0	120	5209.964	5150 to 5250	Pass
			10	120	5209.963	5150 to 5250	Pass
			30	120	5209.964	5150 to 5250	Pass
			40	120	5209.964	5150 to 5250	Pass
			50	120	5209.964	5150 to 5250	Pass