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Annex for 5G Wi-Fi Band 3

Test Report No.:CTL2512053031-WF02

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FCC ID: 2BUPFTC-40EA-US

1. Bandwidth

1.1 Test Result

1.1.1 OBW

Mode	TX Type	Frequency (MHz)	RU	RU Pos	ANT	99% Occupied Bandwidth (MHz)		Verdict
						Result	Limit	
802.11a	SISO	5745	/	/	1	18.203	/	Pass
		5785	/	/	1	18.271	/	Pass
		5825	/	/	1	18.148	/	Pass
802.11n (HT20)	SISO	5745	/	/	1	19.540	/	Pass
		5785	/	/	1	19.577	/	Pass
		5825	/	/	1	19.535	/	Pass
802.11n (HT40)	SISO	5755	/	/	1	37.799	/	Pass
		5795	/	/	1	37.943	/	Pass
802.11ac (VHT20)	SISO	5745	/	/	1	19.625	/	Pass
		5785	/	/	1	19.680	/	Pass
		5825	/	/	1	19.681	/	Pass
802.11ac (VHT40)	SISO	5755	/	/	1	38.027	/	Pass
		5795	/	/	1	37.910	/	Pass
802.11ax (HEW20)	SISO	5745	SU	/	1	19.710	/	Pass
		5785	SU	/	1	19.856	/	Pass
		5825	SU	/	1	19.912	/	Pass
802.11ax (HEW40)	SISO	5755	SU	/	1	38.920	/	Pass
		5795	SU	/	1	38.910	/	Pass

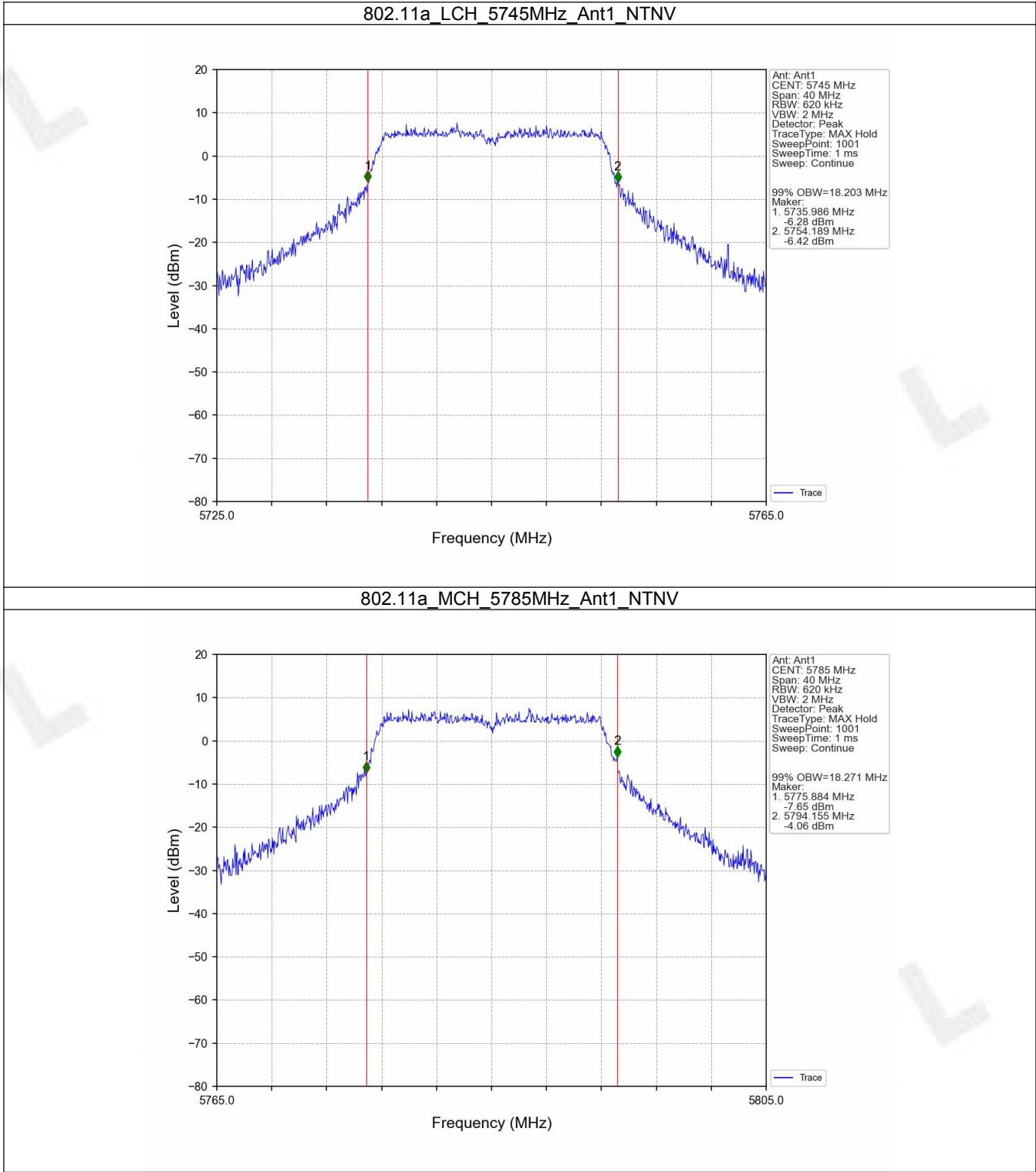
1.1.2 6dB BW

Mode	TX Type	Frequency (MHz)	RU	RU Pos	ANT	6dB Bandwidth (MHz)		Verdict
						Result	Limit	
802.11a	SISO	5745	/	/	1	16.462	>=0.5	Pass
		5785	/	/	1	16.452	>=0.5	Pass
		5825	/	/	1	16.476	>=0.5	Pass
802.11n (HT20)	SISO	5745	/	/	1	17.623	>=0.5	Pass
		5785	/	/	1	17.778	>=0.5	Pass
		5825	/	/	1	17.640	>=0.5	Pass
802.11n (HT40)	SISO	5755	/	/	1	36.424	>=0.5	Pass
		5795	/	/	1	36.407	>=0.5	Pass
802.11ac (VHT20)	SISO	5745	/	/	1	17.678	>=0.5	Pass
		5785	/	/	1	17.692	>=0.5	Pass
		5825	/	/	1	17.628	>=0.5	Pass
802.11ac (VHT40)	SISO	5755	/	/	1	36.408	>=0.5	Pass
		5795	/	/	1	36.402	>=0.5	Pass
802.11ax (HEW20)	SISO	5745	SU	/	1	19.006	>=0.5	Pass
		5785	SU	/	1	18.955	>=0.5	Pass
		5825	SU	/	1	18.994	>=0.5	Pass
802.11ax (HEW40)	SISO	5755	SU	/	1	38.103	>=0.5	Pass
		5795	SU	/	1	38.062	>=0.5	Pass

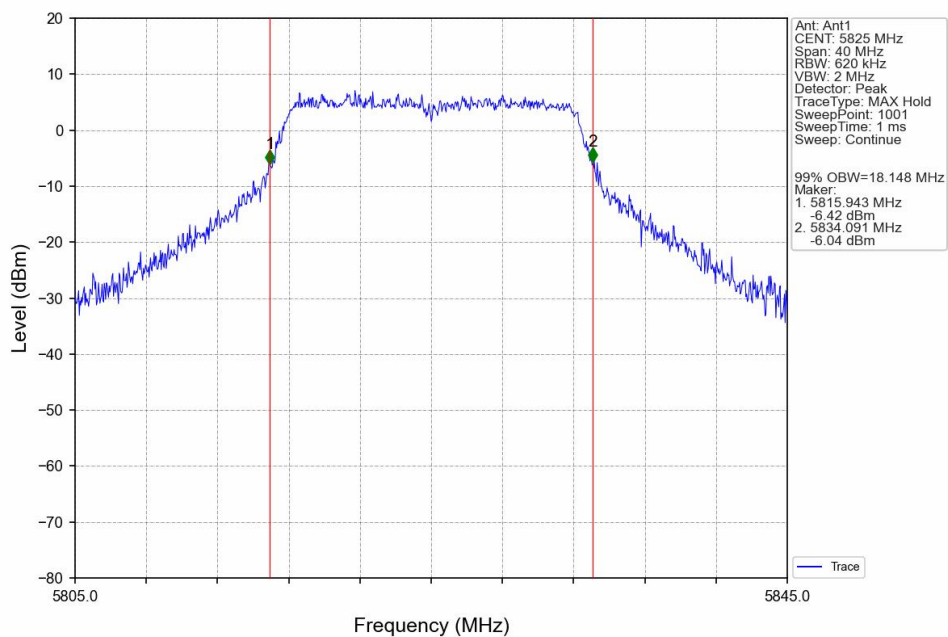
FCC ID: 2BUPFTC-40EA-US

1.2 Test Graph

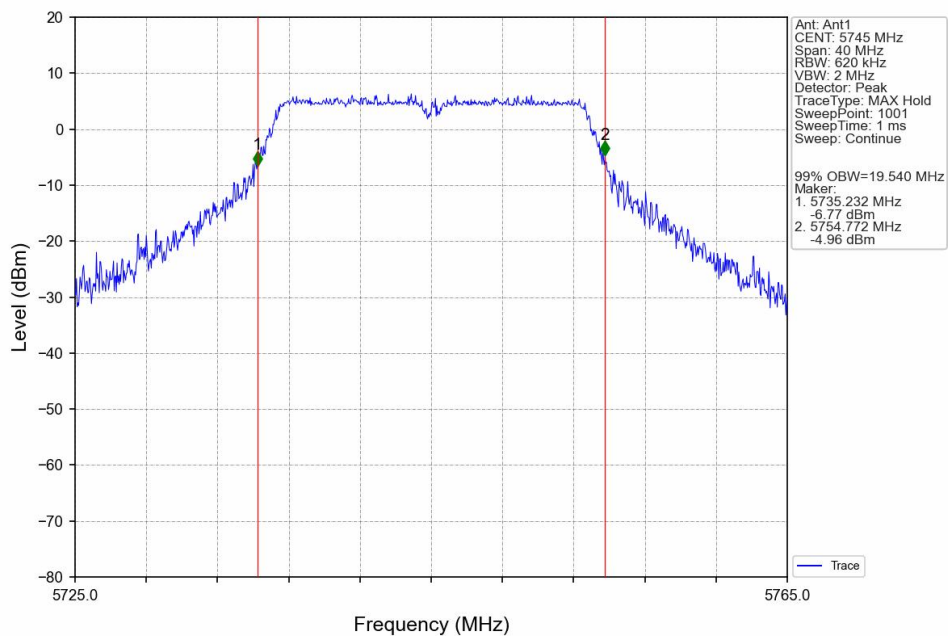
1.2.1 OBW



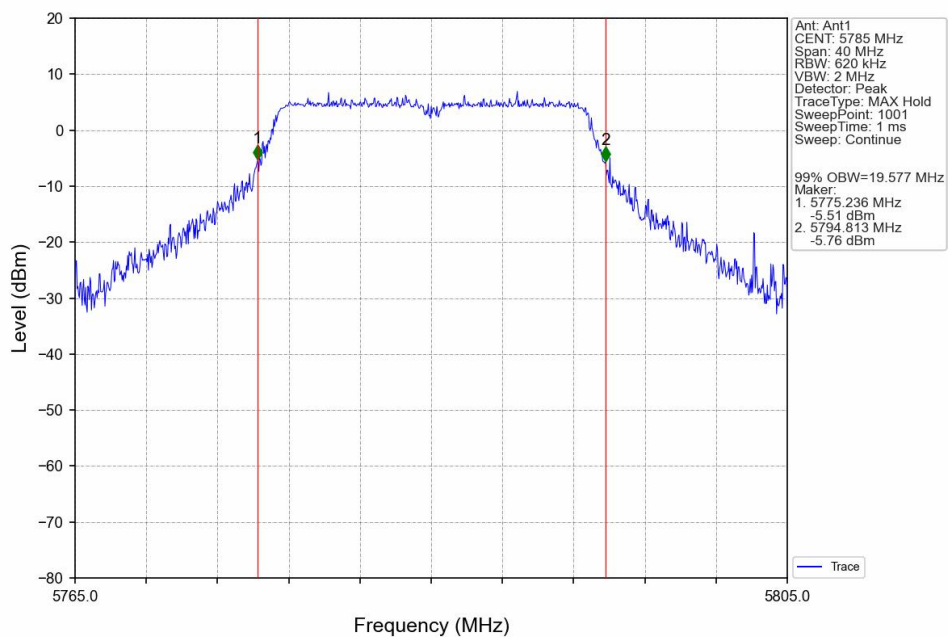
802.11a_HCH_5825MHz_Ant1_NTNV



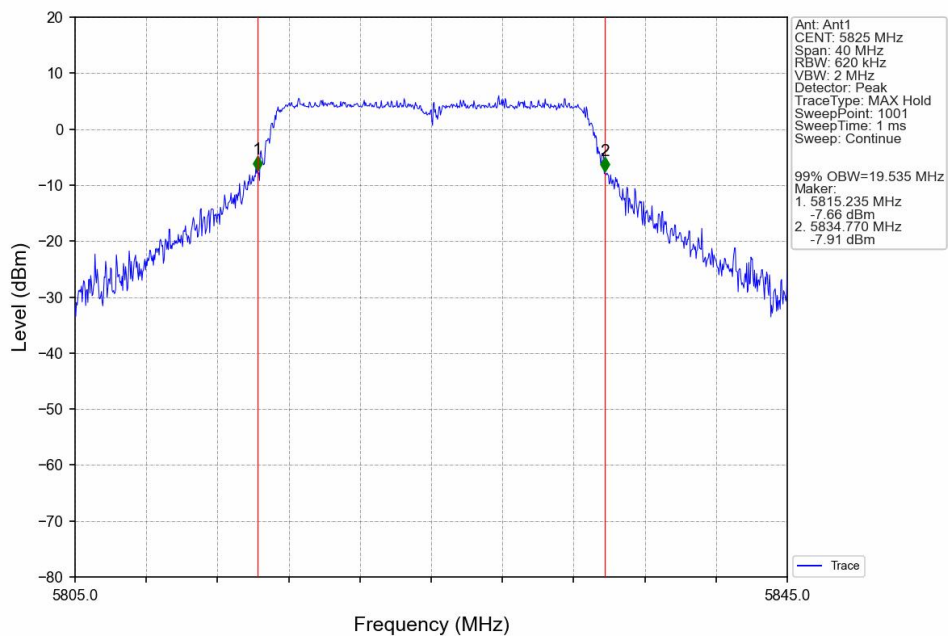
802.11n(HT20)_LCH_5745MHz_Ant1_NTNV



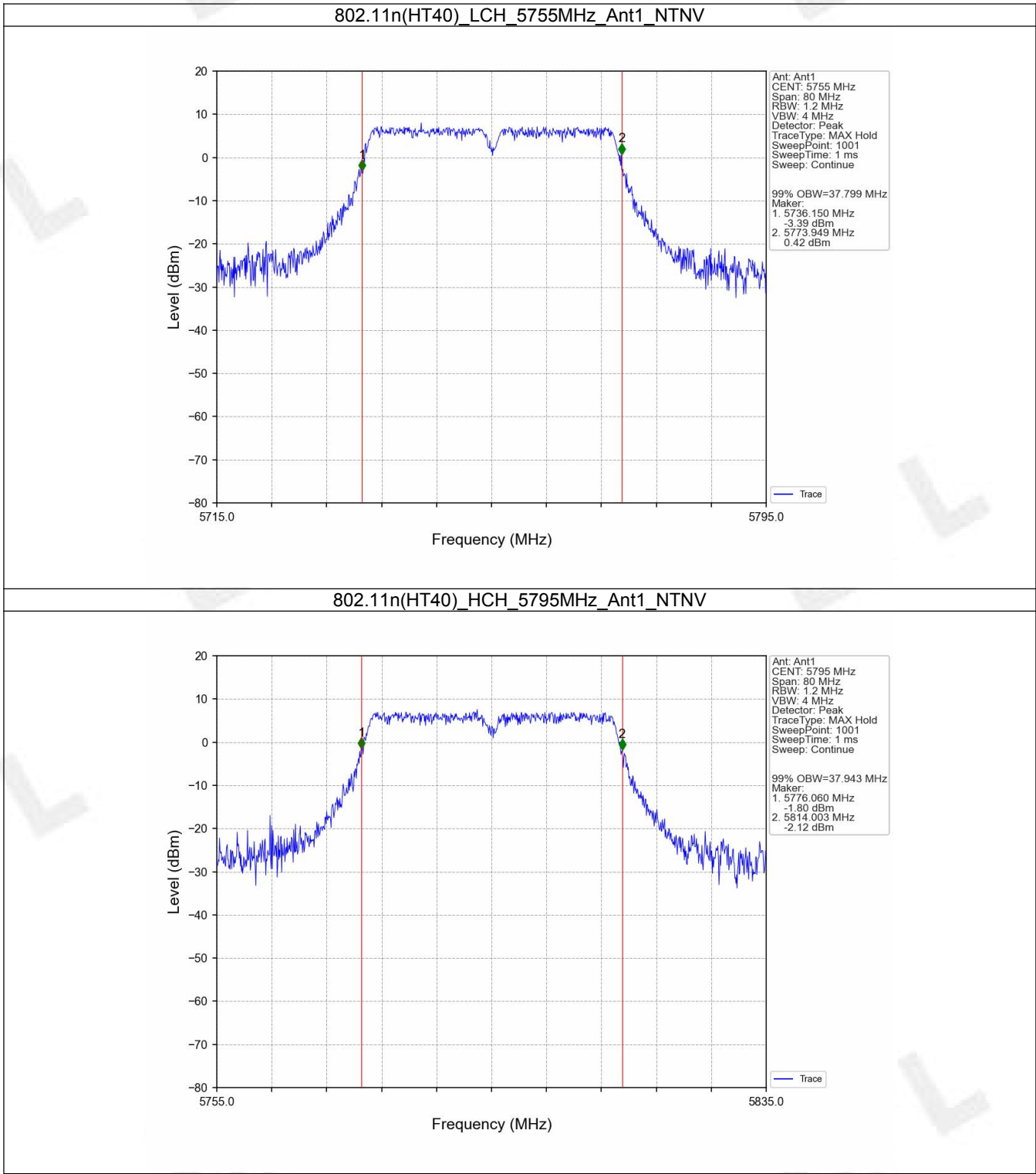
802.11n(HT20)_MCH_5785MHz_Ant1_NTNV



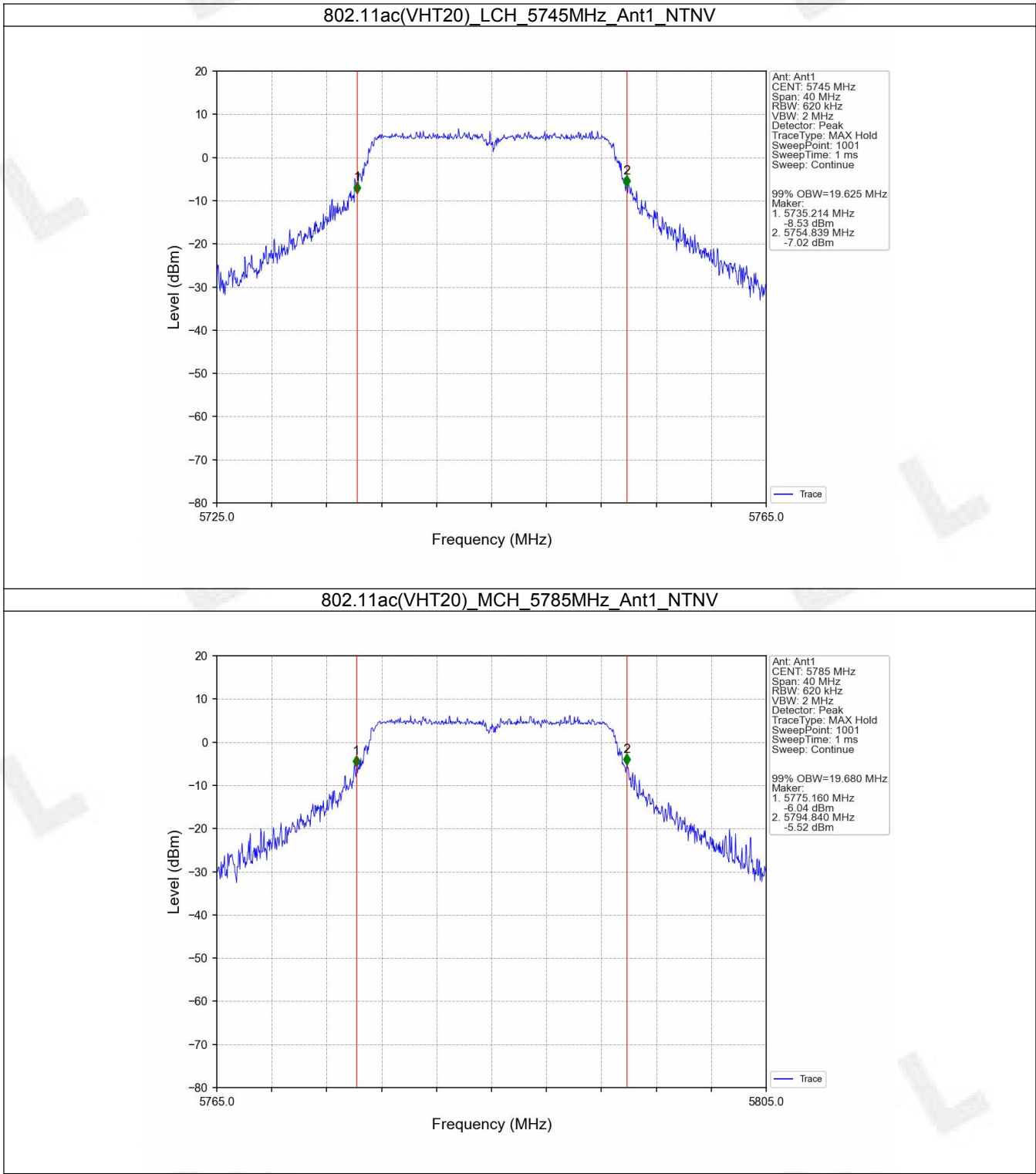
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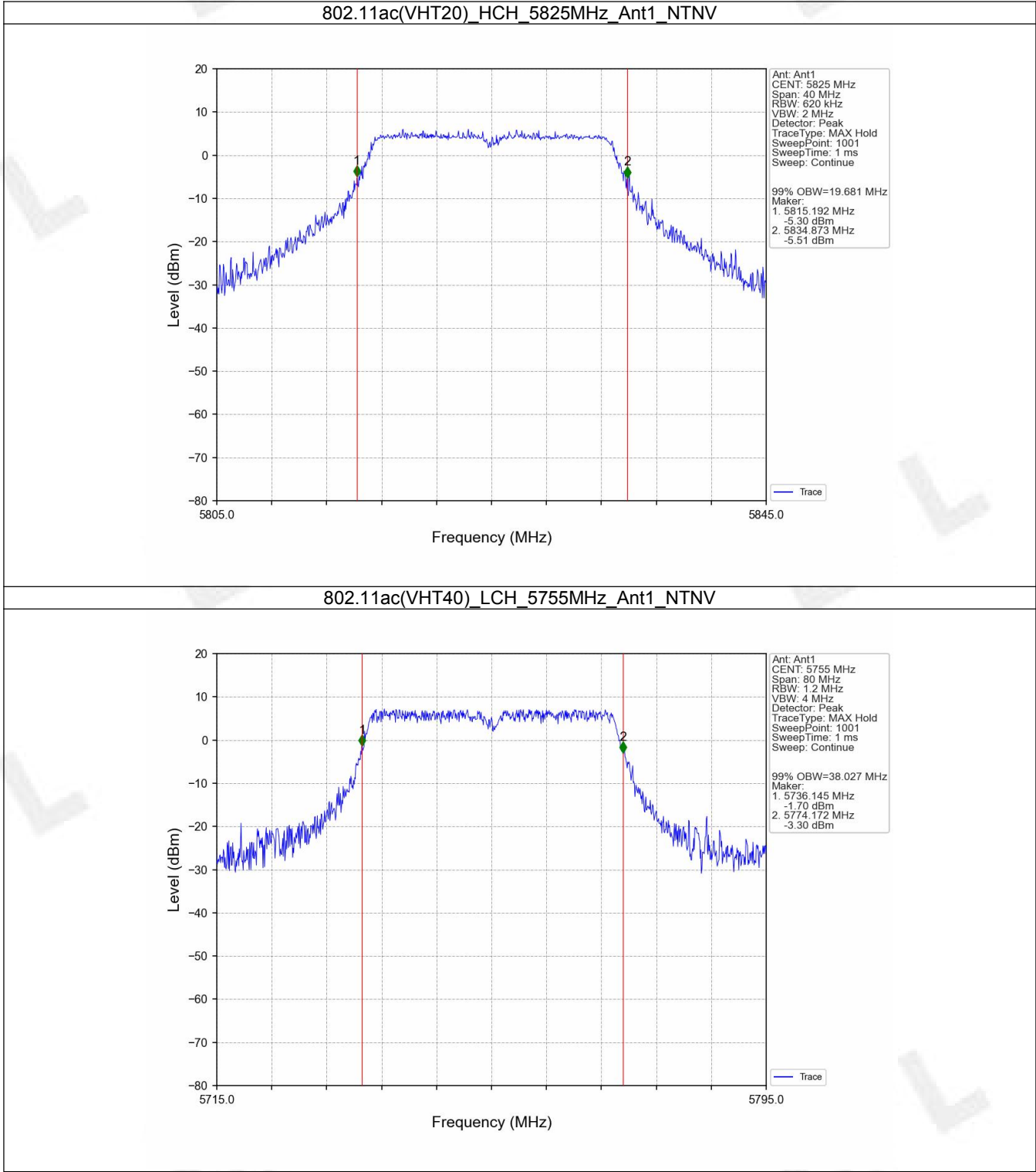
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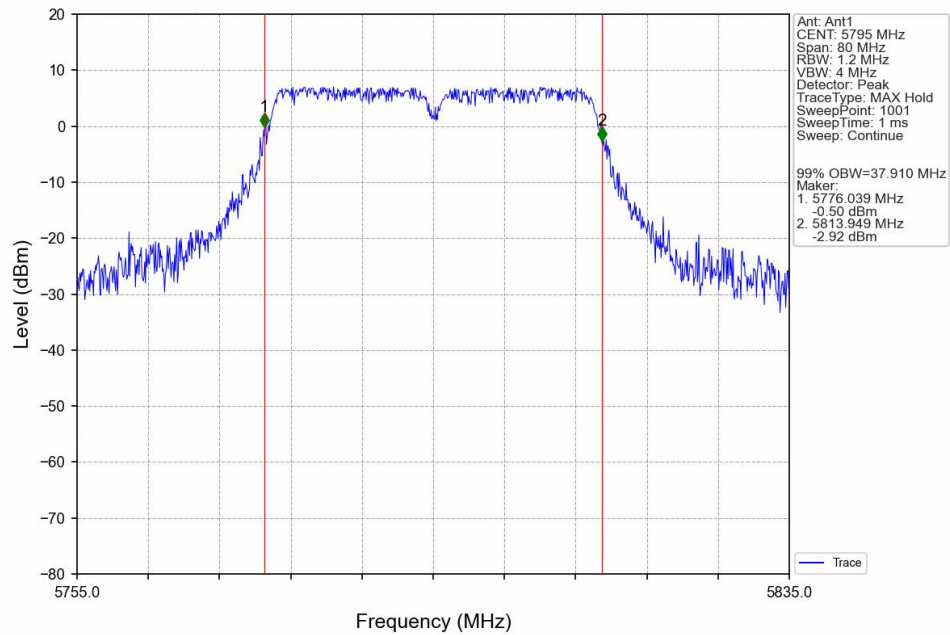
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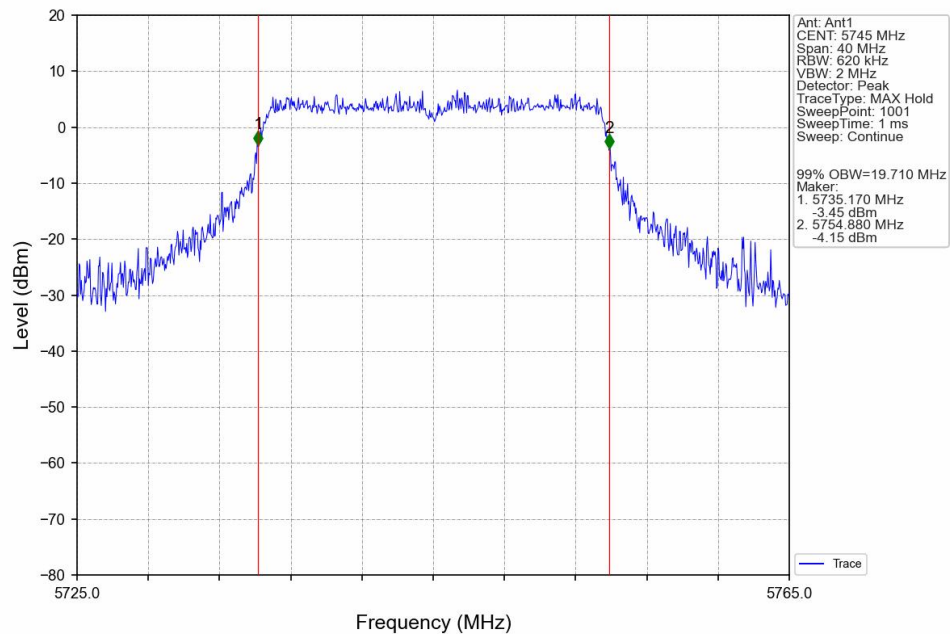
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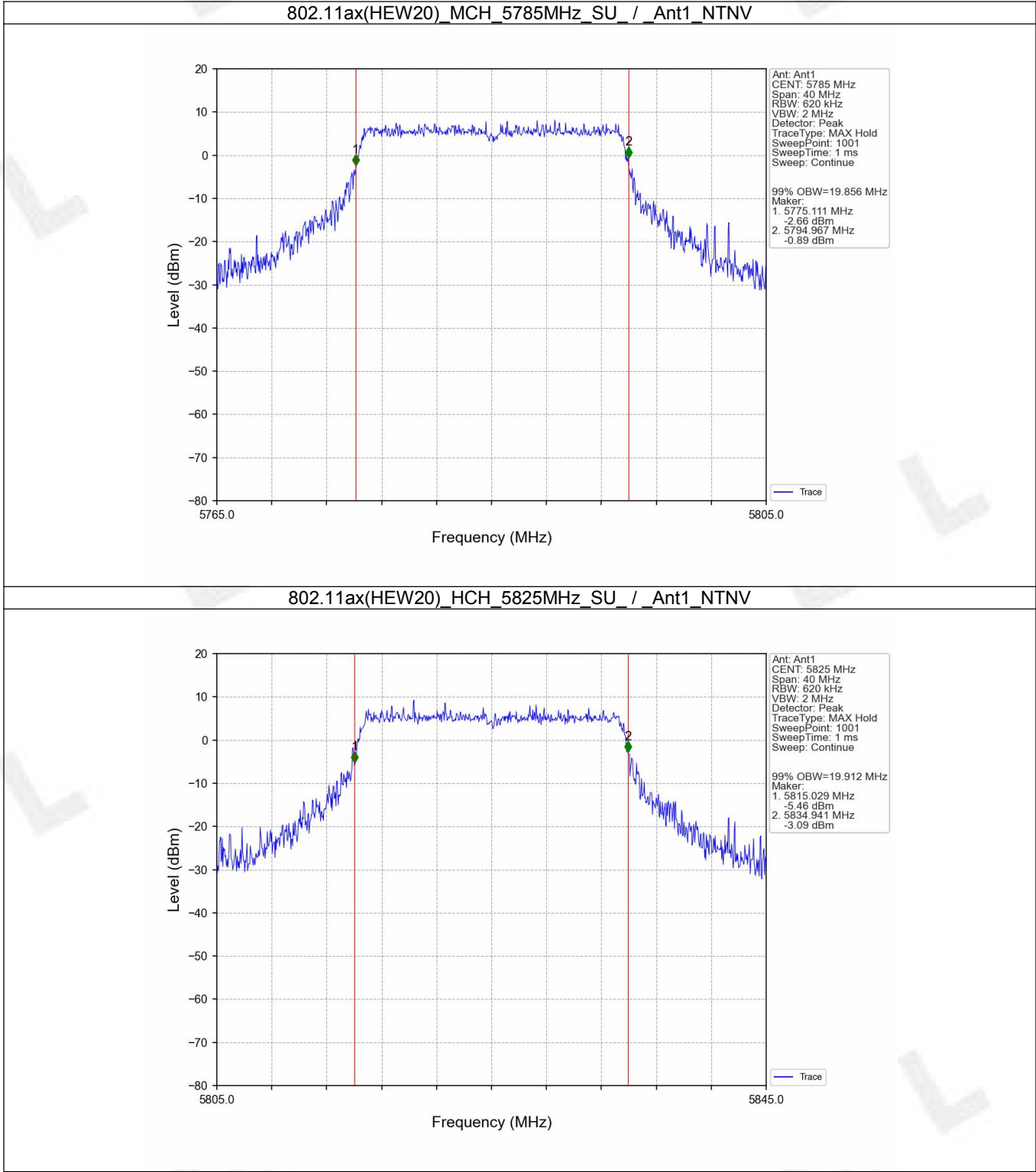
802.11ac(VHT40)_HCH_5795MHz_Ant1_NTNV



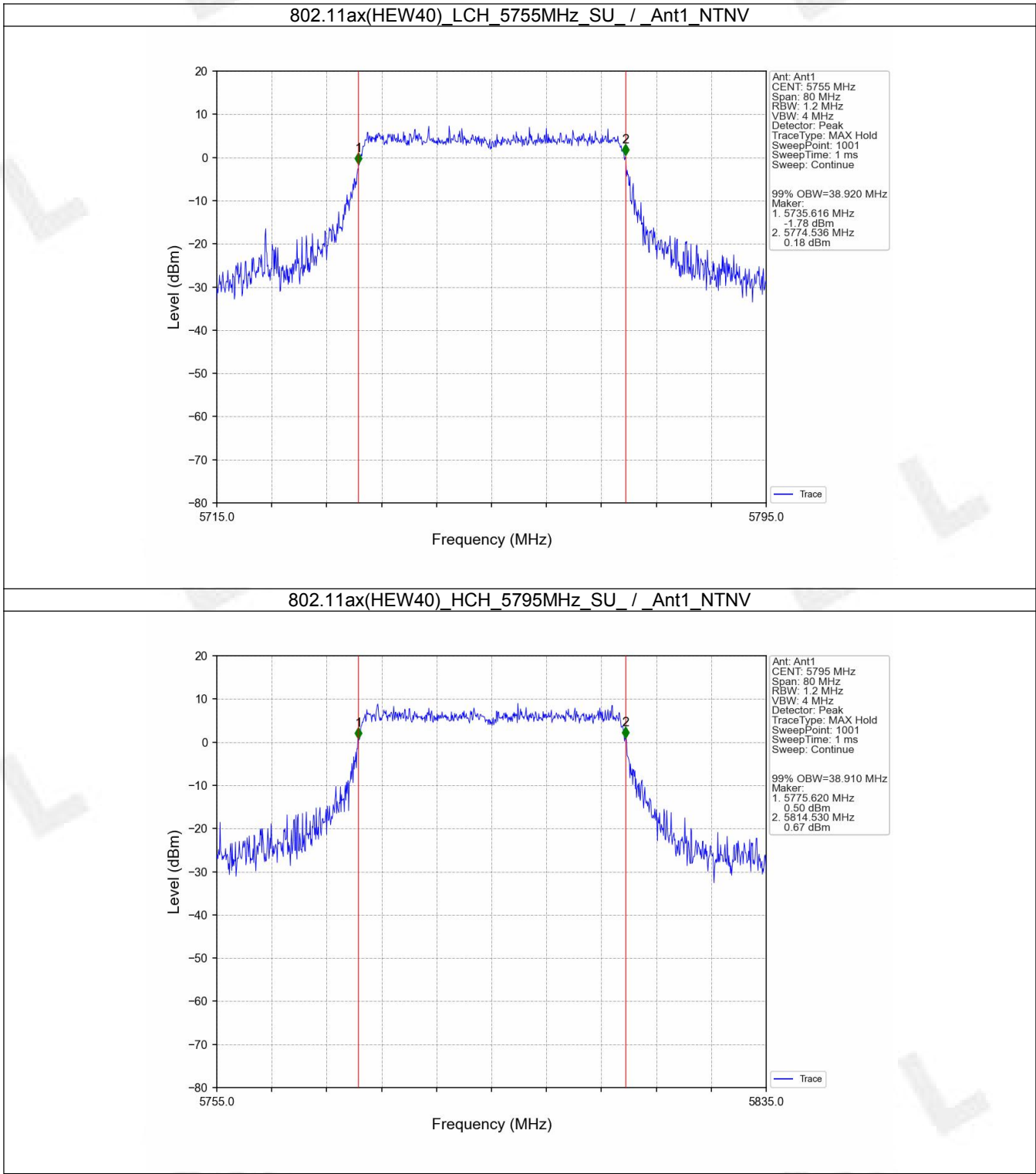
802.11ax(HEW20)_LCH_5745MHz_SU_/_Ant1_NTNV



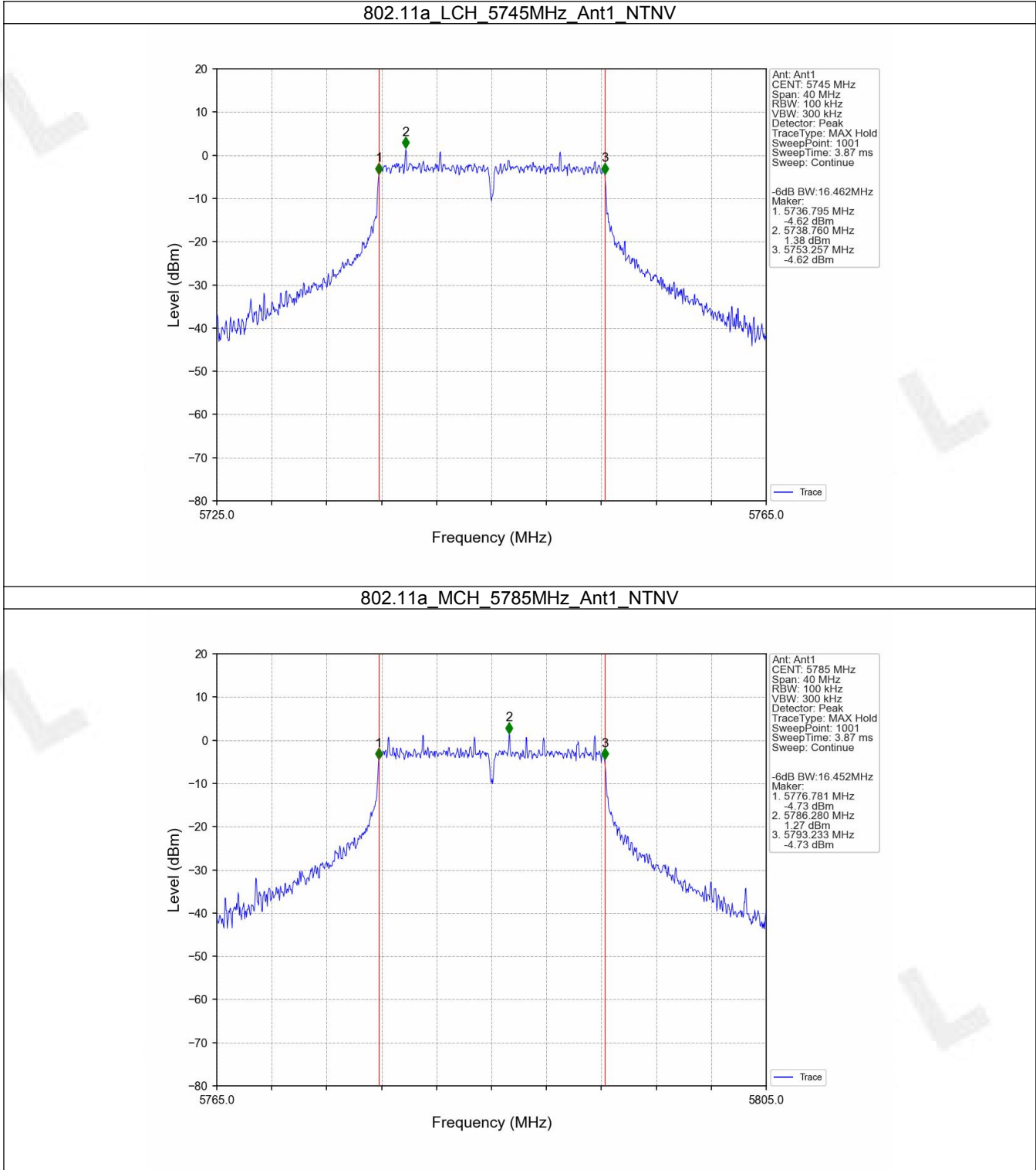
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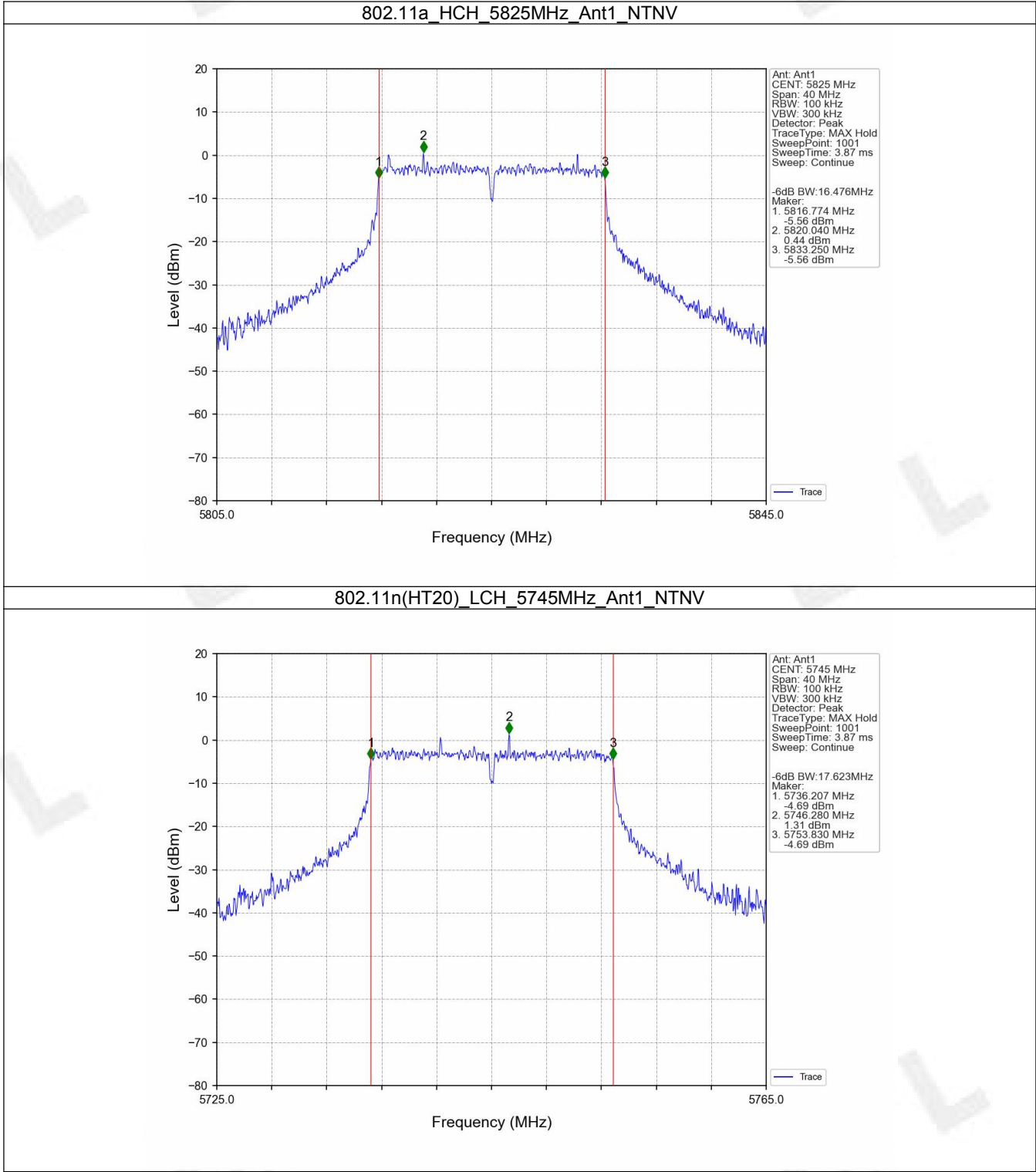
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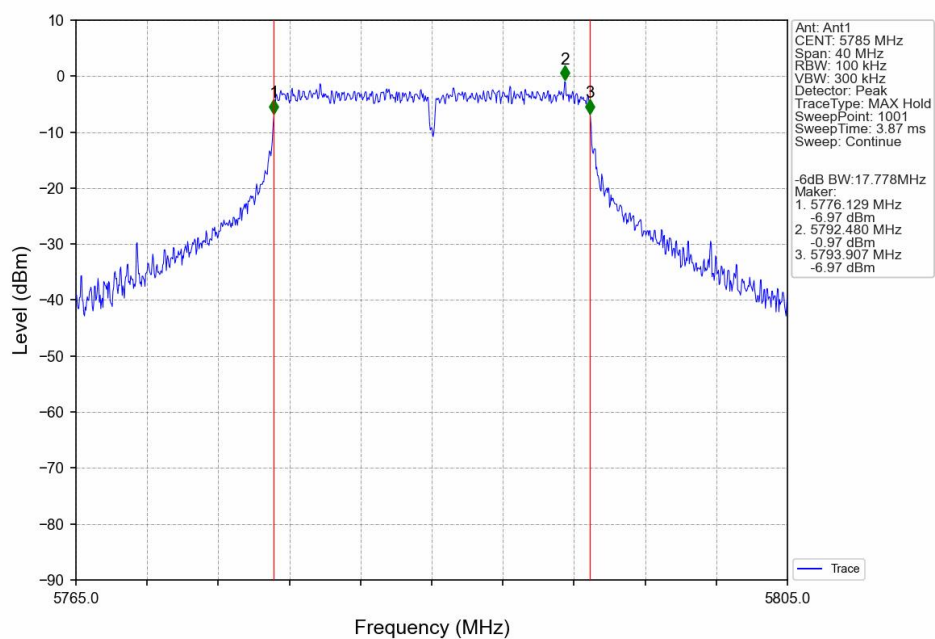
1.2.2 6dB BW



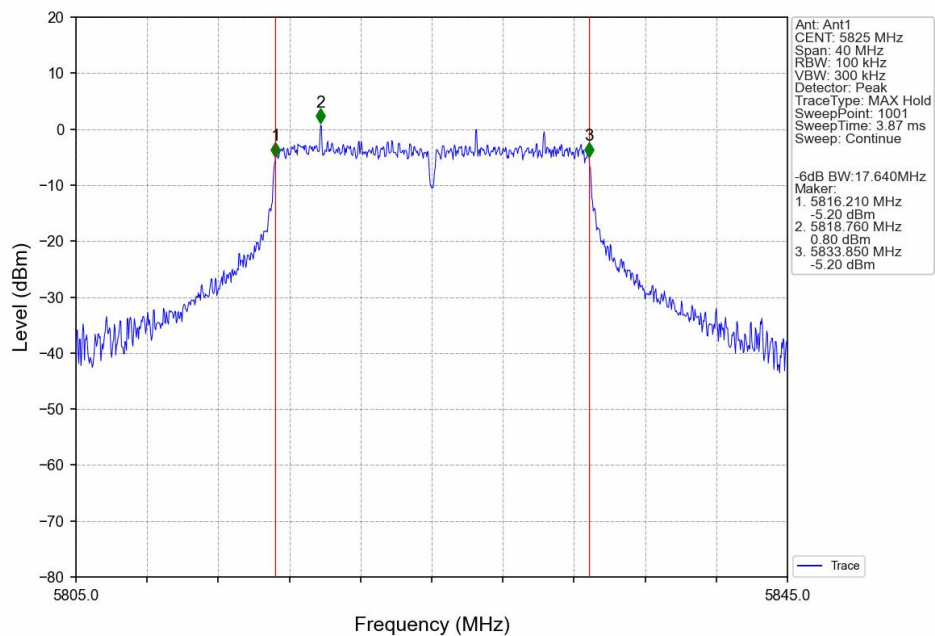
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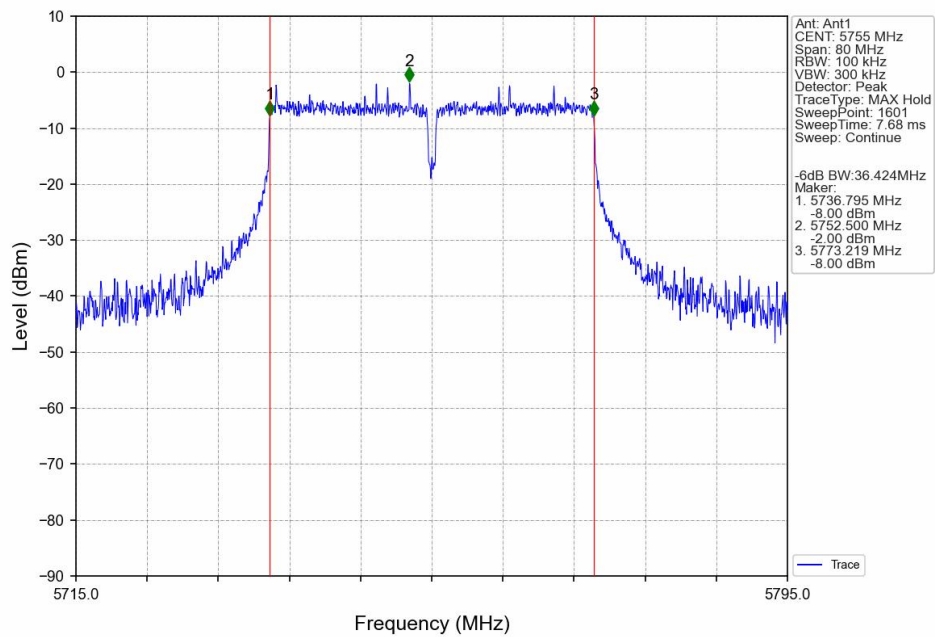
802.11n(HT20)_MCH_5785MHz_Ant1_NTNV



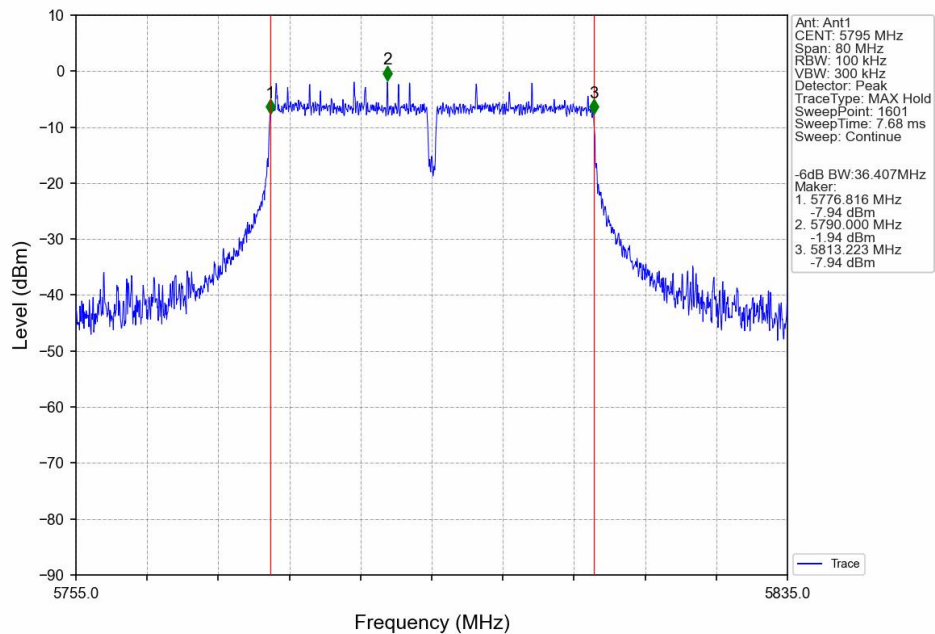
802.11n(HT20)_HCH_5825MHz_Ant1_NTNV



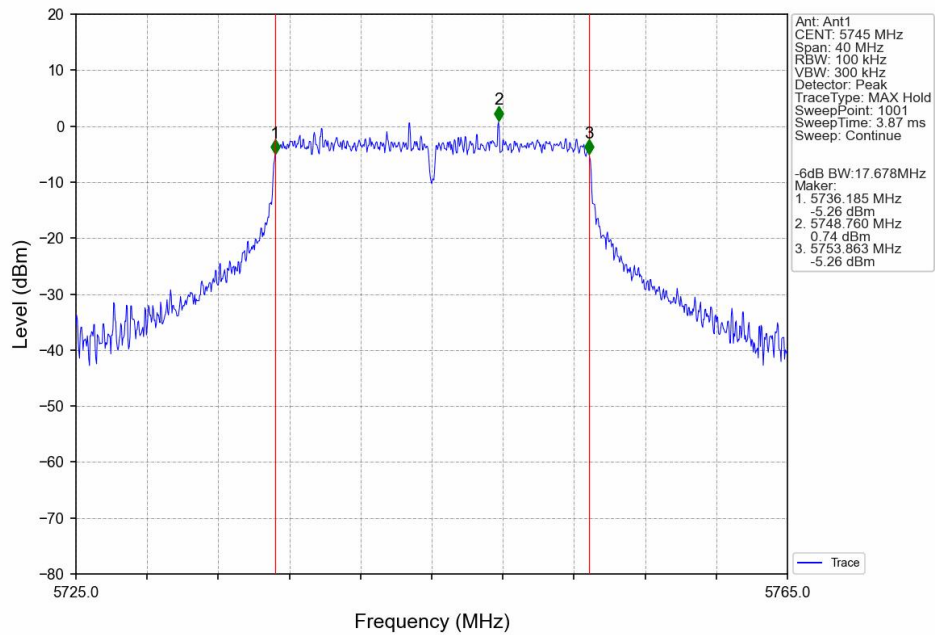
802.11n(HT40)_LCH_5755MHz_Ant1_NTNV



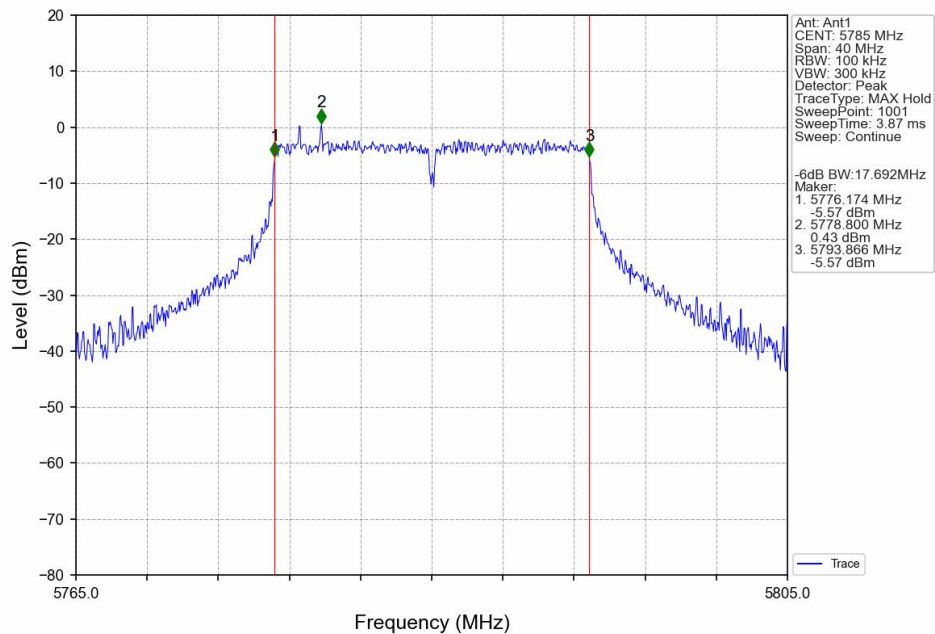
802.11n(HT40)_HCH_5795MHz_Ant1_NTNV



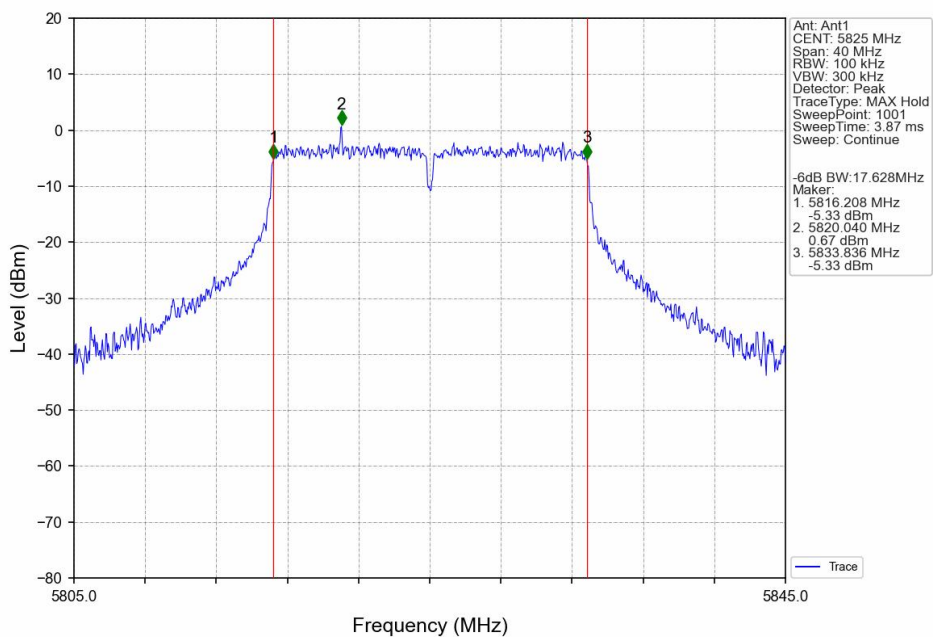
802.11ac(VHT20)_LCH_5745MHz_Ant1_NTNV



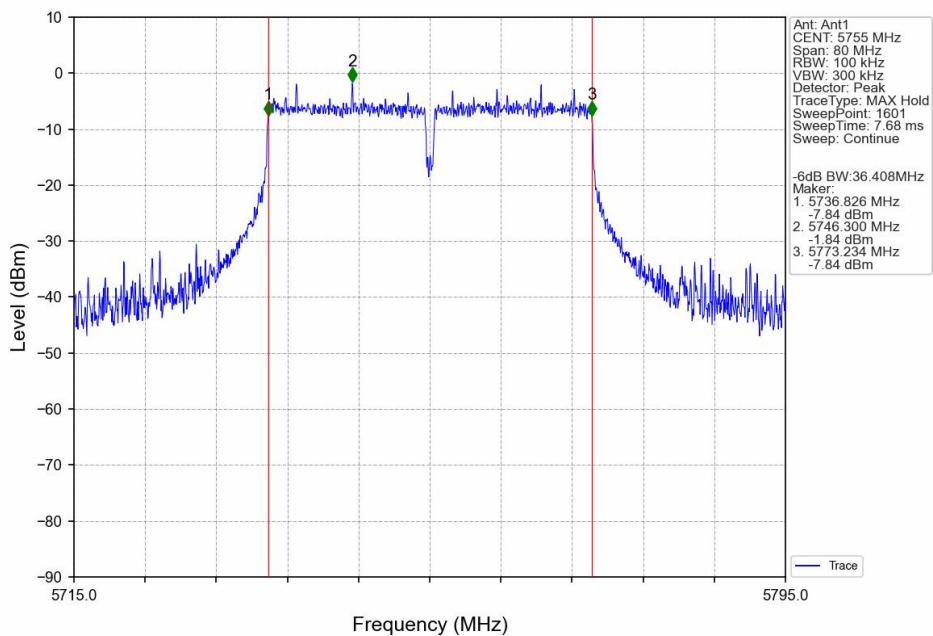
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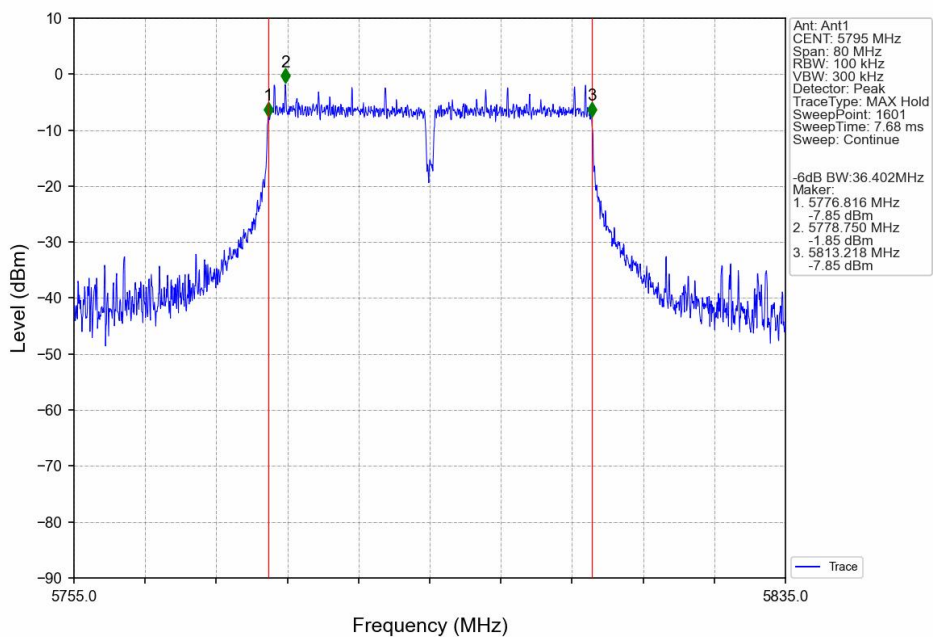
802.11ac(VHT20)_HCH_5825MHz_Ant1_NTNV



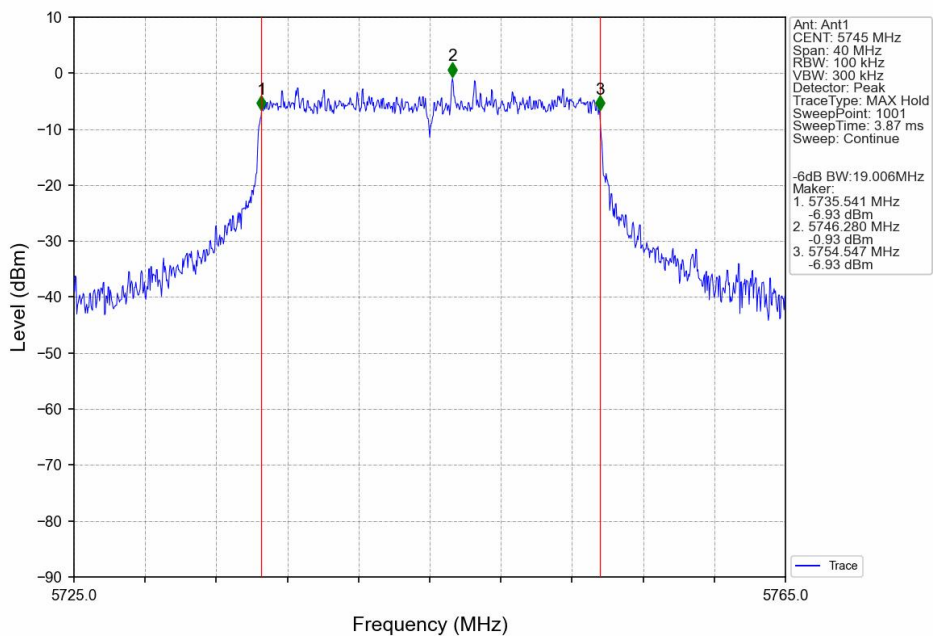
802.11ac(VHT40)_LCH_5755MHz_Ant1_NTNV



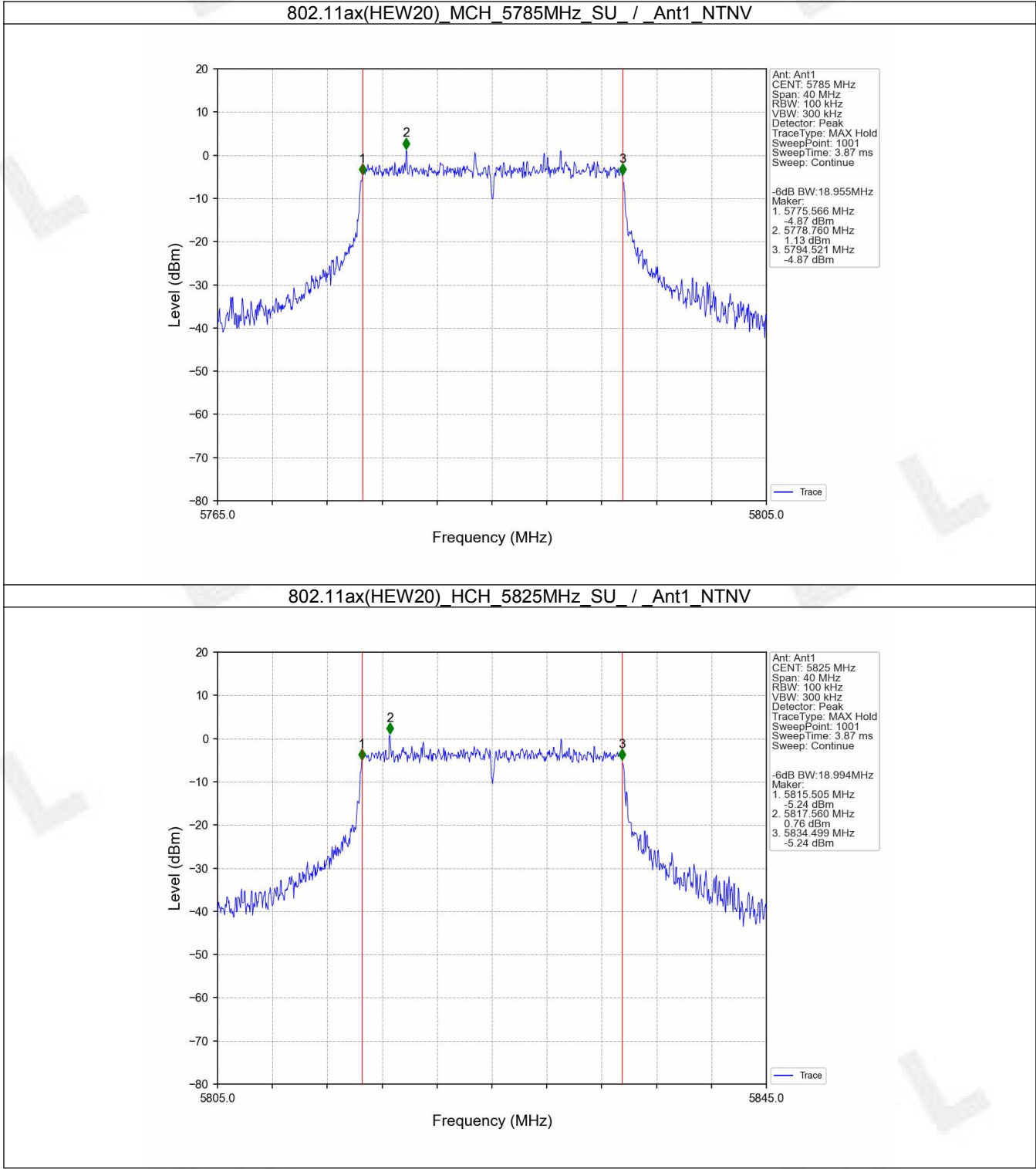
802.11ac(VHT40)_HCH_5795MHz_Ant1_NTNV



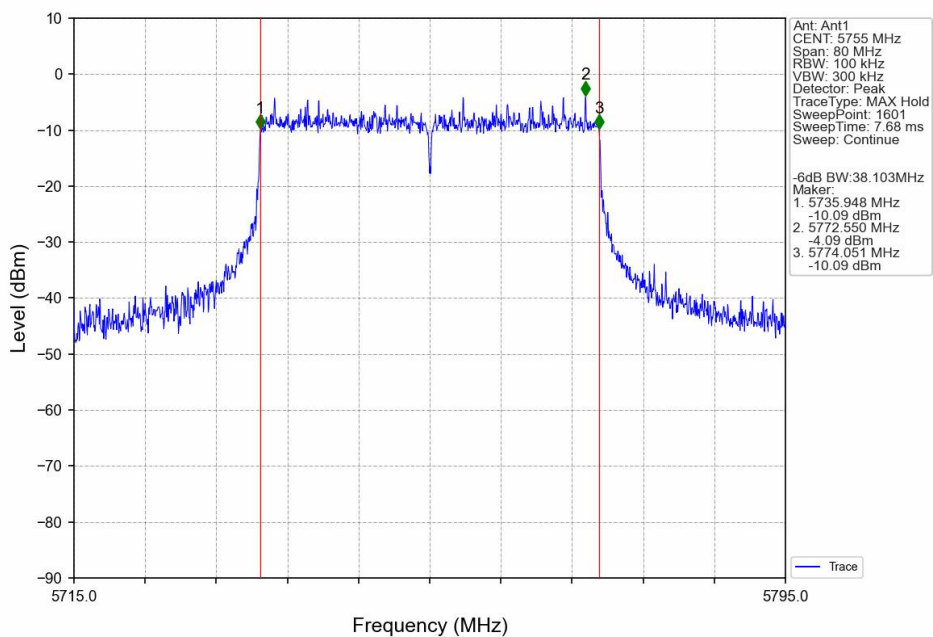
802.11ax(HEW20)_LCH_5745MHz_SU_/_Ant1_NTNV



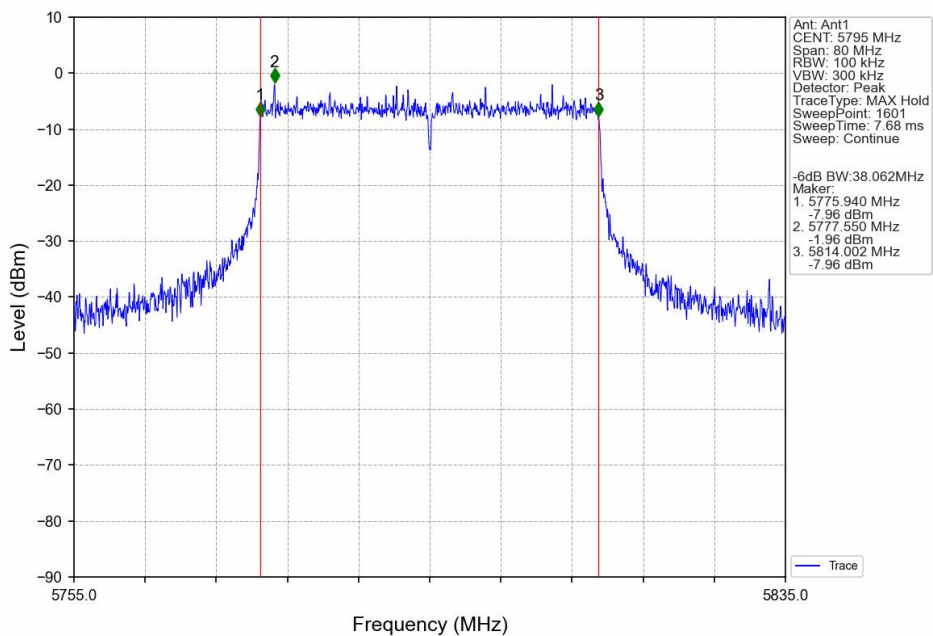
FCC ID: 2BUPFTC-40EA-US



802.11ax(HEW40)_LCH_5755MHz_SU_/_Ant1_NTNV



802.11ax(HEW40)_HCH_5795MHz_SU_/_Ant1_NTNV



2. Maximum Conducted Output Power

2.1 Test Result

2.1.1 Power

Mode	TX Type	Frequency (MHz)	RU	RU Pos	Maximum Average Conducted Output Power (dBm)		Verdict
					ANT1	Limit	
802.11a	SISO	5745	/	/	12.67	<=30	Pass
		5785	/	/	12.56	<=30	Pass
		5825	/	/	12.26	<=30	Pass
802.11n (HT20)	SISO	5745	/	/	12.63	<=30	Pass
		5785	/	/	12.40	<=30	Pass
		5825	/	/	12.17	<=30	Pass
802.11n (HT40)	SISO	5755	/	/	12.57	<=30	Pass
		5795	/	/	12.38	<=30	Pass
802.11ac (VHT20)	SISO	5745	/	/	12.67	<=30	Pass
		5785	/	/	12.39	<=30	Pass
		5825	/	/	12.18	<=30	Pass
802.11ac (VHT40)	SISO	5755	/	/	12.62	<=30	Pass
		5795	/	/	12.41	<=30	Pass
802.11ax (HEW20)	SISO	5745	SU	/	10.75	<=30	Pass
		5785	SU	/	12.44	<=30	Pass
		5825	SU	/	11.97	<=30	Pass
802.11ax (HEW40)	SISO	5755	SU	/	10.61	<=30	Pass
		5795	SU	/	12.42	<=30	Pass

Note1: Antenna Gain: Ant1: 3.00dBi;

3. Maximum Power Spectral Density

3.1 Test Result

3.1.1 PSD-Band3

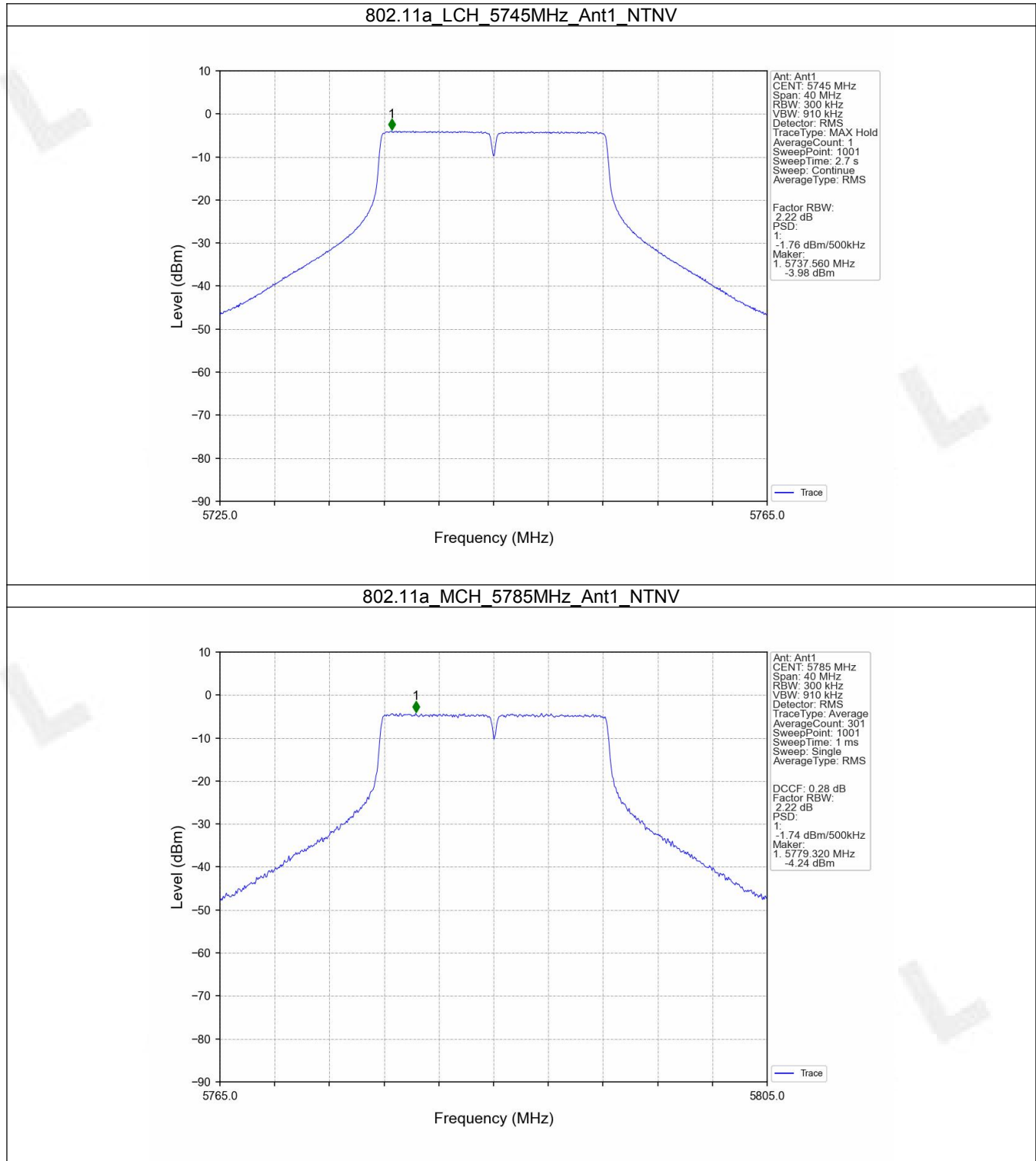
Mode	TX Type	Frequency (MHz)	RU	RU Pos	Maximum PSD (dBm/500kHz)		Verdict
					ANT1	Limit	
802.11a	SISO	5745	/	/	-1.76	<=30	Pass
		5785	/	/	-1.74	<=30	Pass
		5825	/	/	-2.07	<=30	Pass
802.11n (HT20)	SISO	5745	/	/	-2.17	<=30	Pass
		5785	/	/	-2.40	<=30	Pass
		5825	/	/	-2.42	<=30	Pass
802.11n (HT40)	SISO	5755	/	/	-5.25	<=30	Pass
		5795	/	/	-5.44	<=30	Pass
802.11ac (VHT20)	SISO	5745	/	/	-2.12	<=30	Pass
		5785	/	/	-2.43	<=30	Pass
		5825	/	/	-2.47	<=30	Pass
802.11ac (VHT40)	SISO	5755	/	/	-5.18	<=30	Pass
		5795	/	/	-5.33	<=30	Pass
802.11ax (HEW20)	SISO	5745	SU	/	-4.64	<=30	Pass
		5785	SU	/	-2.70	<=30	Pass
		5825	SU	/	-3.16	<=30	Pass
802.11ax (HEW40)	SISO	5755	SU	/	-7.72	<=30	Pass
		5795	SU	/	-5.62	<=30	Pass

Note1: Antenna Gain: Ant1: 3.00dBi;

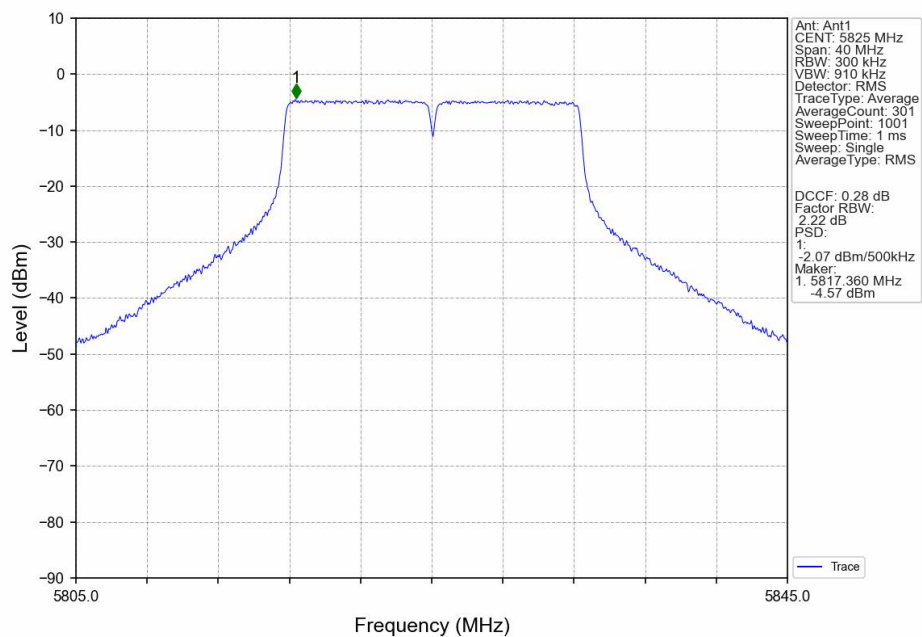
FCC ID: 2BUPFTC-40EA-US

3.2 Test Graph

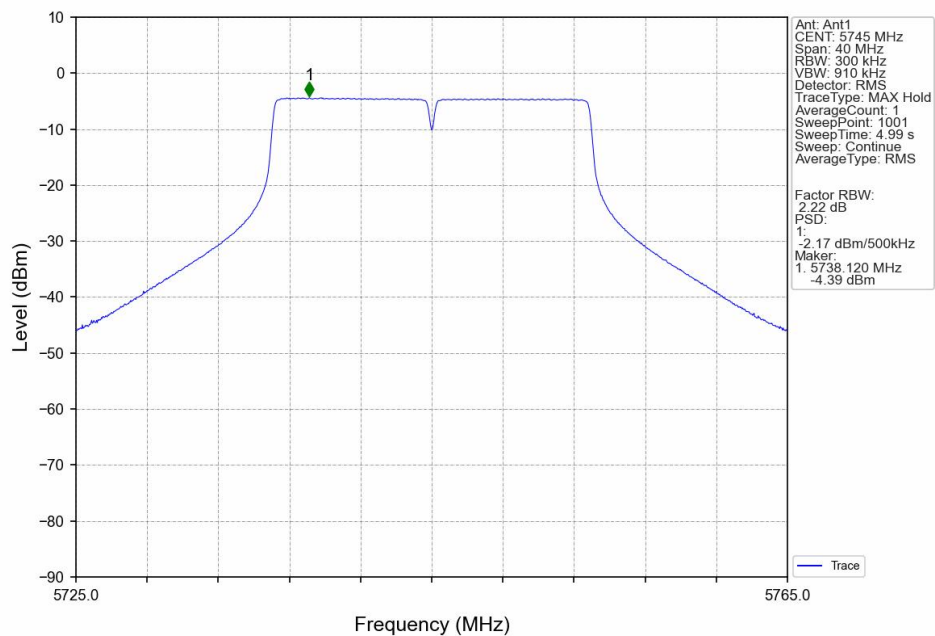
3.2.1 PSD-Band3



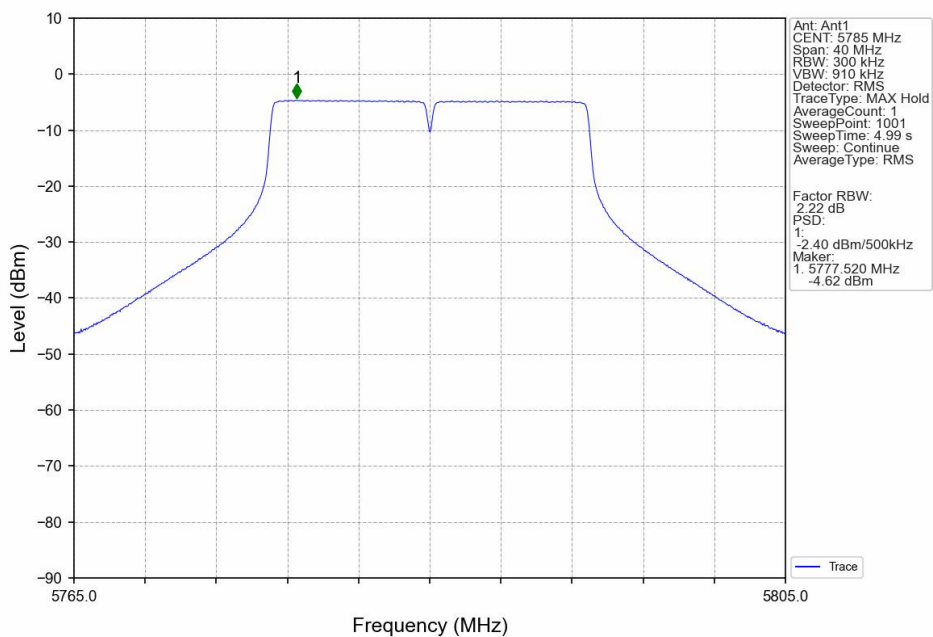
802.11a_HCH_5825MHz_Ant1_NTNV



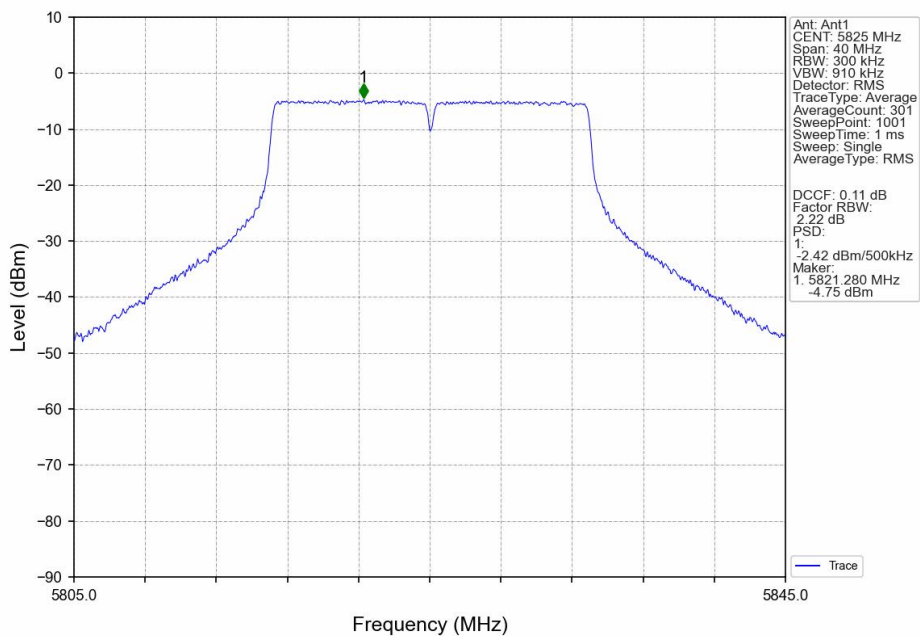
802.11n(HT20)_LCH_5745MHz_Ant1_NTNV



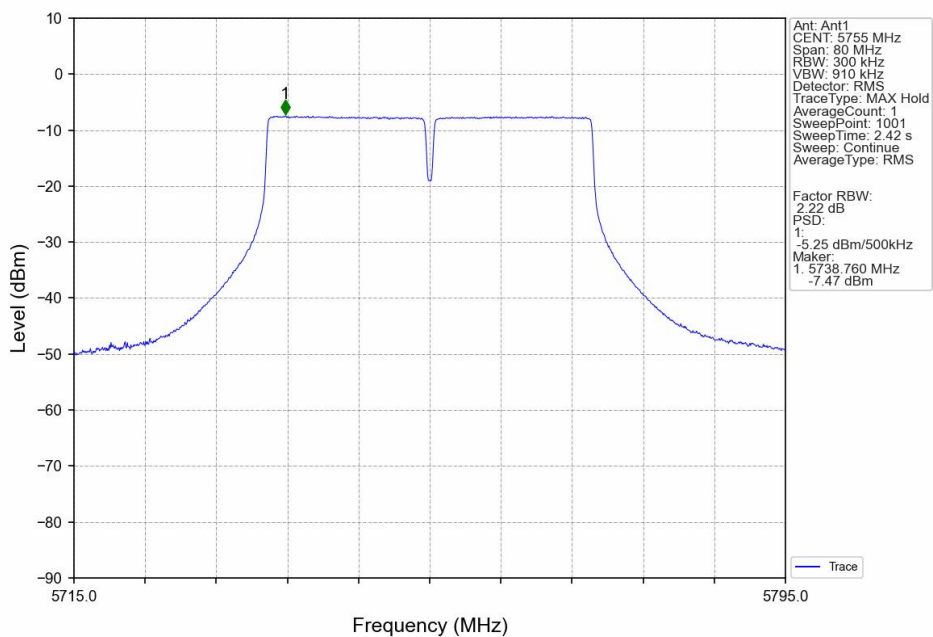
802.11n(HT20)_MCH_5785MHz_Ant1_NTNV



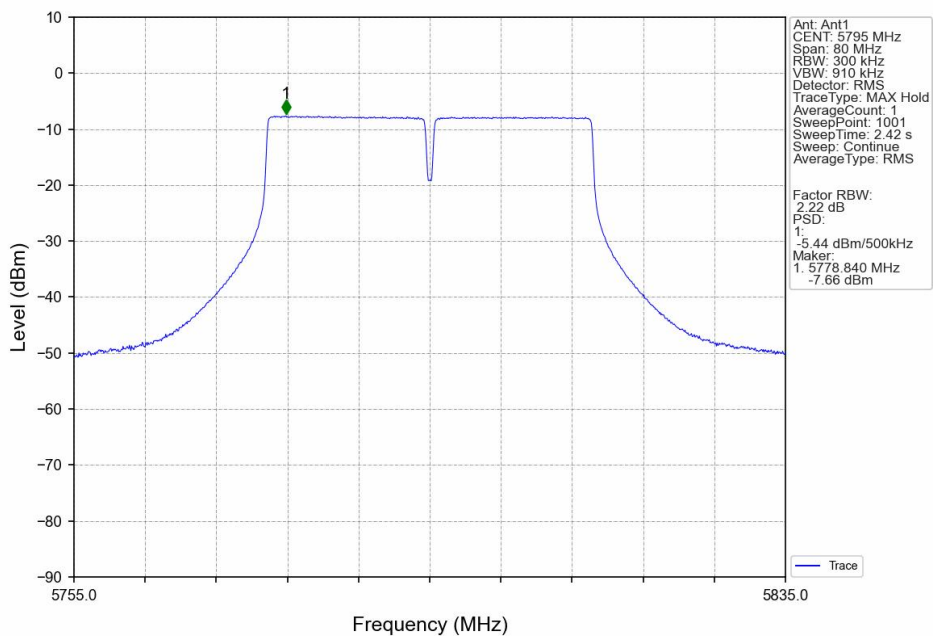
802.11n(HT20)_HCH_5825MHz_Ant1_NTNV



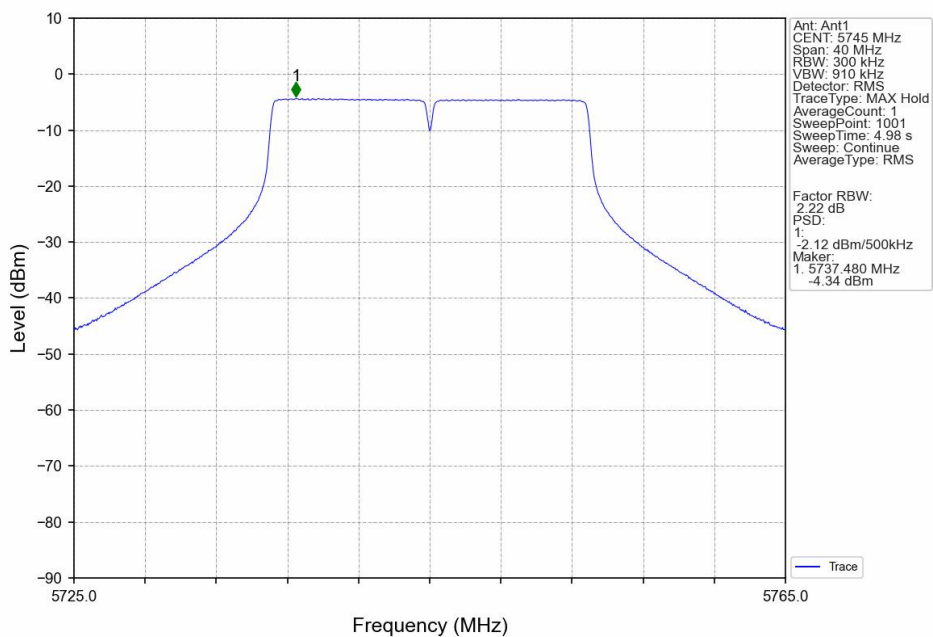
802.11n(HT40)_LCH_5755MHz_Ant1_NTNV



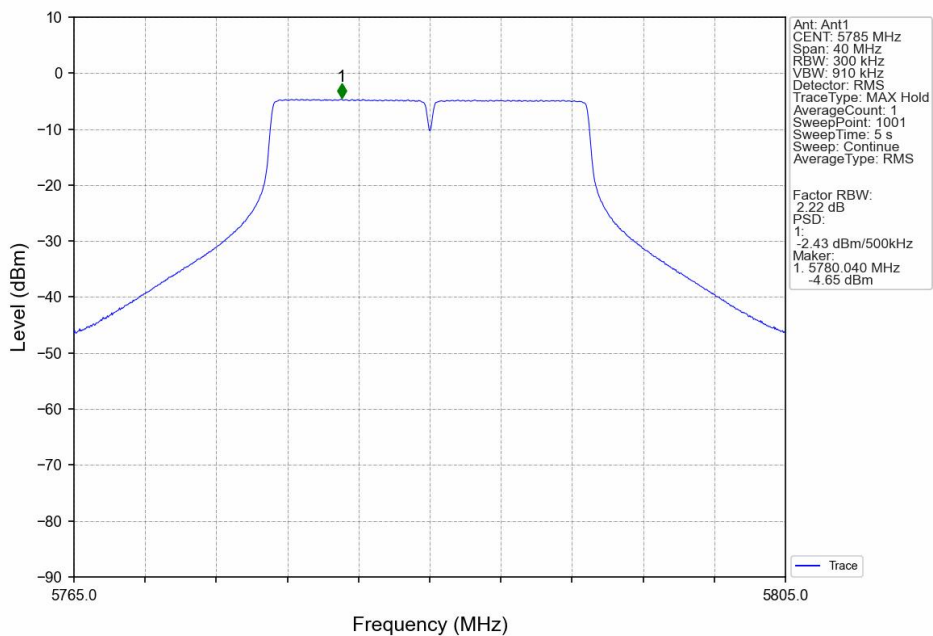
802.11n(HT40)_HCH_5795MHz_Ant1_NTNV



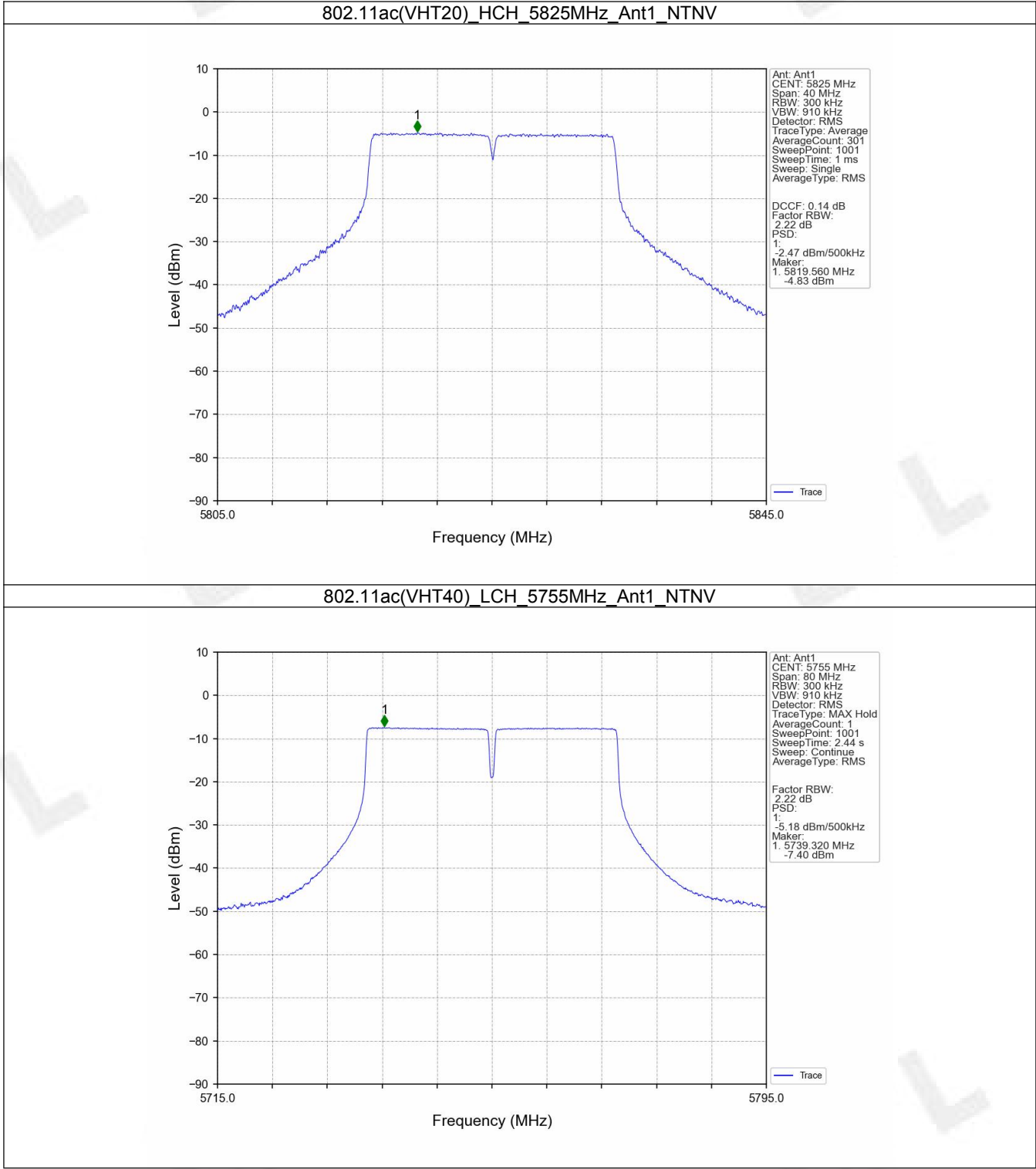
802.11ac(VHT20)_LCH_5745MHz_Ant1_NTNV



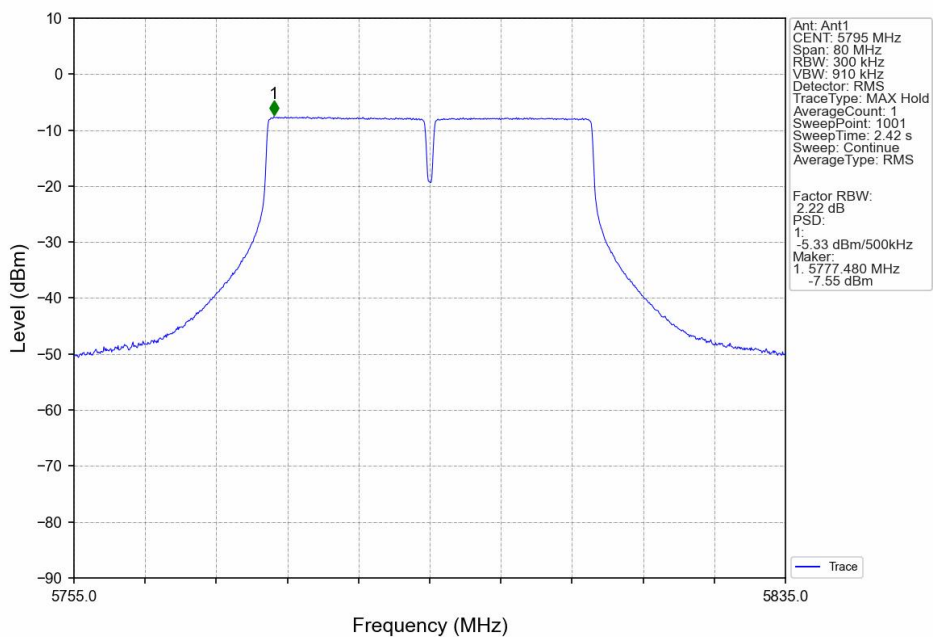
802.11ac(VHT20)_MCH_5785MHz_Ant1_NTNV



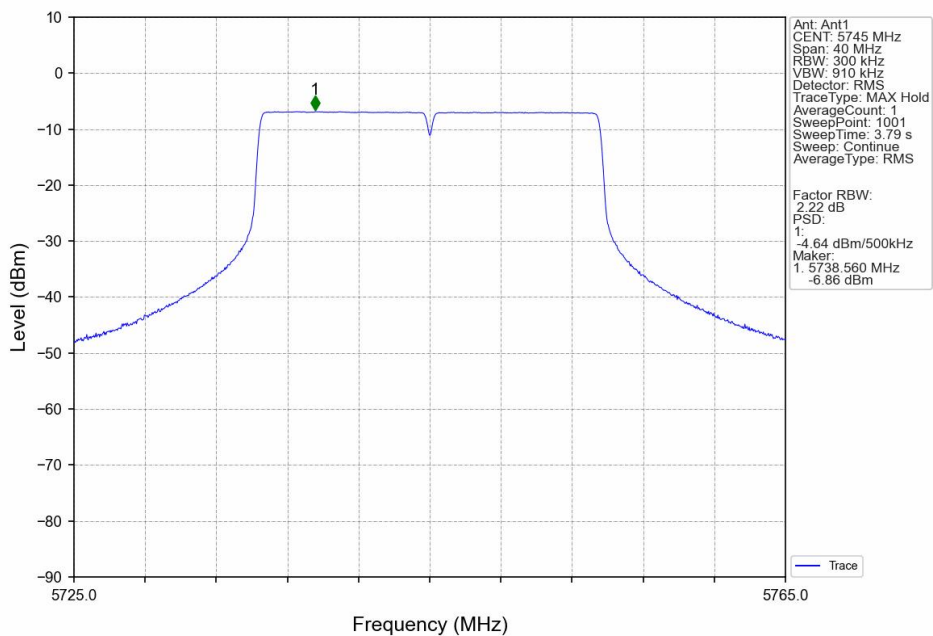
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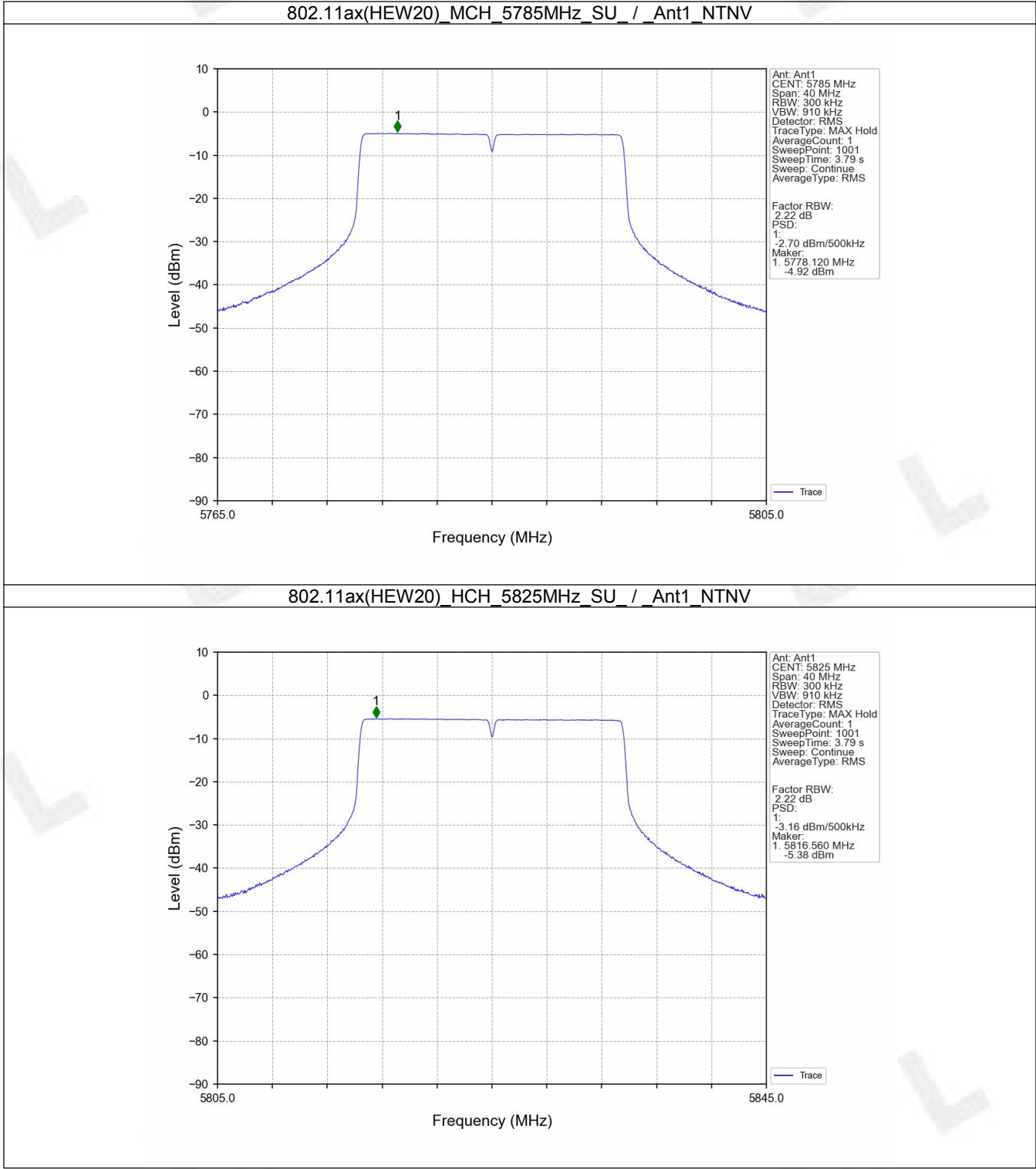
802.11ac(VHT40)_HCH_5795MHz_Ant1_NTNV



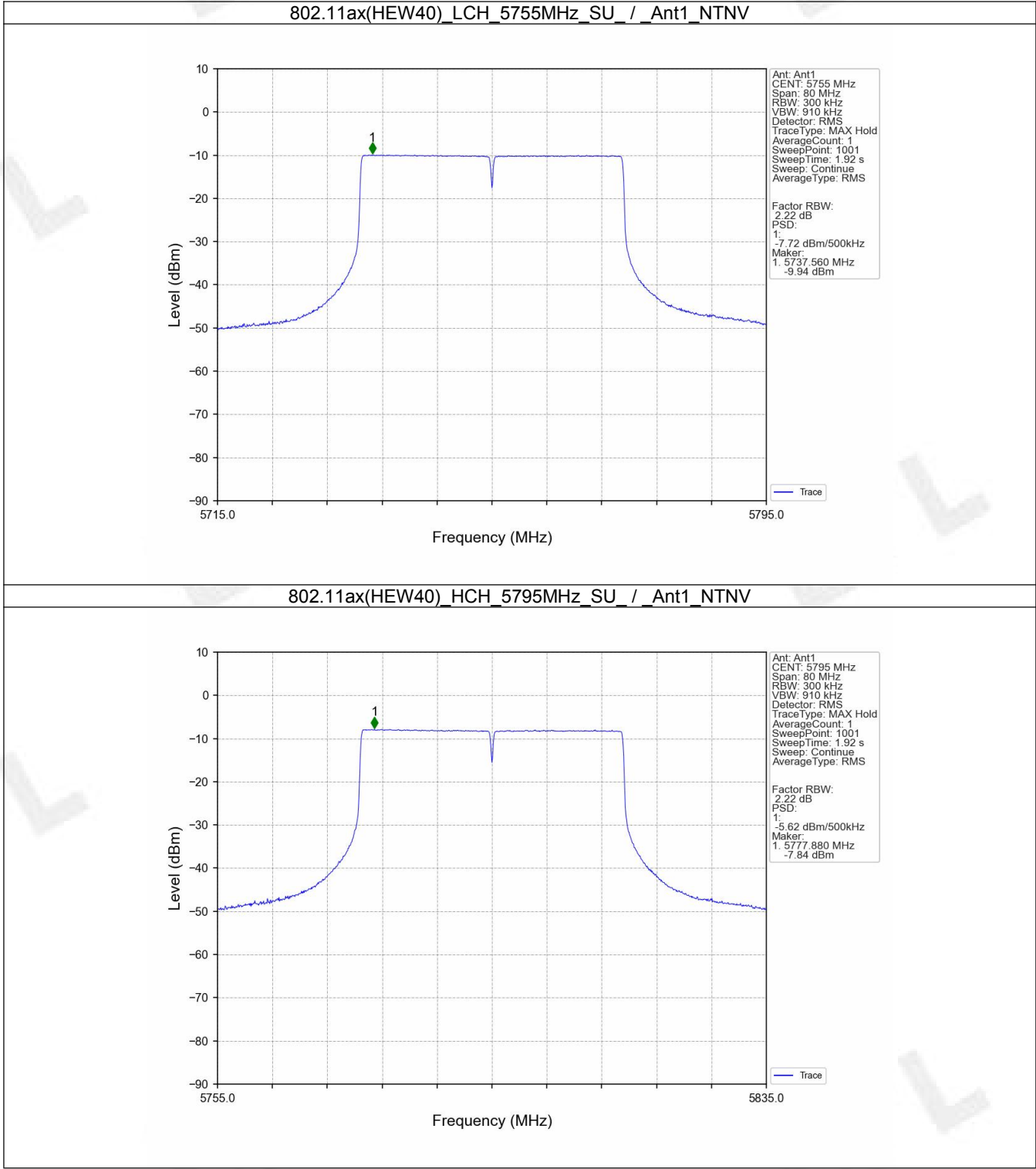
802.11ax(HEW20)_LCH_5745MHz_SU_/_Ant1_NTNV



FCC ID: 2BUPFTC-40EA-US



FCC ID: 2BUPFTC-40EA-US



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	5745	20	102	5745.034	5725 to 5850	Pass
				120	5745.034	5725 to 5850	Pass
				138	5745.034	5725 to 5850	Pass
			-30	120	5745.034	5725 to 5850	Pass
			-20	120	5745.034	5725 to 5850	Pass
			-10	120	5745.034	5725 to 5850	Pass
			0	120	5745.034	5725 to 5850	Pass
			10	120	5745.034	5725 to 5850	Pass
			30	120	5745.034	5725 to 5850	Pass
			40	120	5745.034	5725 to 5850	Pass
			50	120	5745.034	5725 to 5850	Pass
		5785	20	102	5785.035	5725 to 5850	Pass
				120	5785.034	5725 to 5850	Pass
				138	5785.034	5725 to 5850	Pass
			-30	120	5785.034	5725 to 5850	Pass
			-20	120	5785.034	5725 to 5850	Pass
			-10	120	5785.034	5725 to 5850	Pass
			0	120	5785.034	5725 to 5850	Pass
			10	120	5785.034	5725 to 5850	Pass
			30	120	5785.034	5725 to 5850	Pass
			40	120	5785.034	5725 to 5850	Pass
			50	120	5785.034	5725 to 5850	Pass
		5825	20	102	5825.035	5725 to 5850	Pass
				120	5825.035	5725 to 5850	Pass
				138	5825.035	5725 to 5850	Pass
			-30	120	5825.035	5725 to 5850	Pass
			-20	120	5825.035	5725 to 5850	Pass
			-10	120	5825.035	5725 to 5850	Pass
			0	120	5825.035	5725 to 5850	Pass
			10	120	5825.035	5725 to 5850	Pass
			30	120	5825.035	5725 to 5850	Pass
			40	120	5825.035	5725 to 5850	Pass
			50	120	5825.035	5725 to 5850	Pass
		5755	20	102	5755.035	5725 to 5850	Pass
				120	5755.034	5725 to 5850	Pass
				138	5755.034	5725 to 5850	Pass
			-30	120	5755.034	5725 to 5850	Pass
			-20	120	5755.034	5725 to 5850	Pass
			-10	120	5755.034	5725 to 5850	Pass
			0	120	5755.034	5725 to 5850	Pass
			10	120	5755.034	5725 to 5850	Pass
			30	120	5755.034	5725 to 5850	Pass
			40	120	5755.034	5725 to 5850	Pass
			50	120	5755.034	5725 to 5850	Pass

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		5795	20	102	5795.035	5725 to 5850	Pass
				120	5795.035	5725 to 5850	Pass
				138	5795.035	5725 to 5850	Pass
			-30	120	5795.035	5725 to 5850	Pass
			-20	120	5795.034	5725 to 5850	Pass
			-10	120	5795.034	5725 to 5850	Pass
			0	120	5795.034	5725 to 5850	Pass
			10	120	5795.034	5725 to 5850	Pass
			30	120	5795.034	5725 to 5850	Pass
			40	120	5795.034	5725 to 5850	Pass
			50	120	5795.034	5725 to 5850	Pass

5. Form731

5.1 Test Result

5.1.1 Form731

Lower Freq (MHz)	High Freq (MHz)	MAX Power (W)	MAX Power (dBm)
5745	5825	0.0185	12.67
5755	5795	0.0183	12.62