



## Appendix A for SHEM190901758001

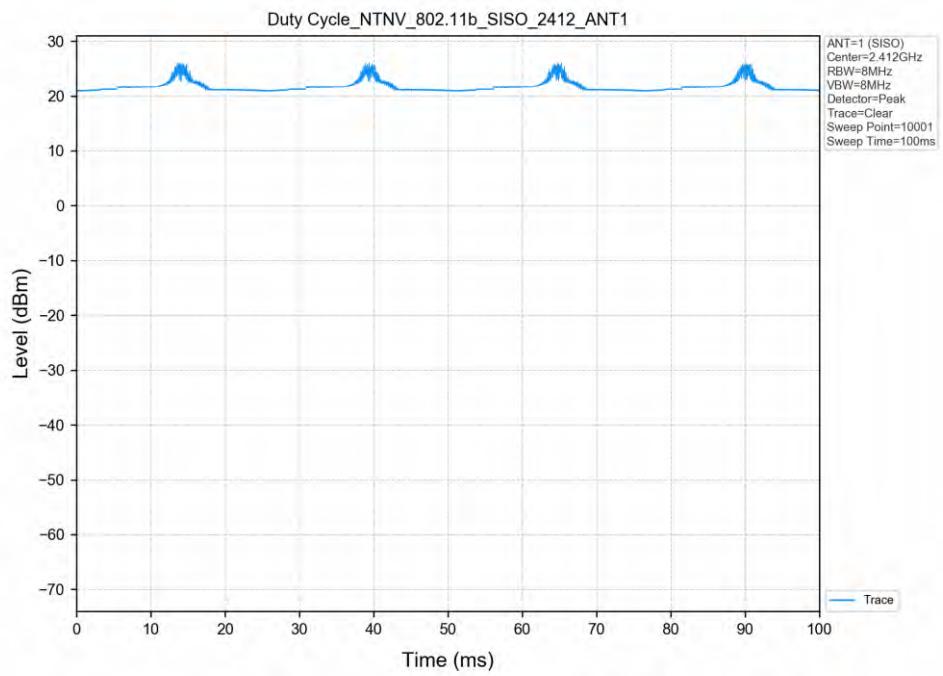
### 1. Duty Cycle

#### 1.1 Test Result

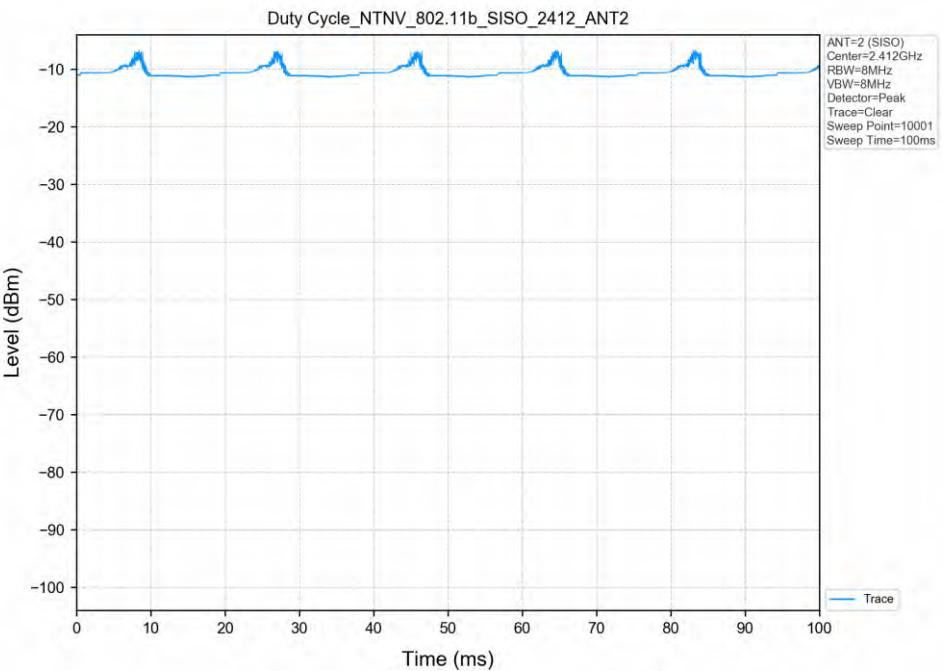
Test Mode	Channel Frequency(MHz)	TX Type	ANT No.	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
802.11b	2412	SISO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
	2437	SISO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
	2462	SISO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
802.11g	2412	SISO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
	2437	SISO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
	2462	SISO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
802.11n(HT20)	2412	SISO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
		MIMO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
	2437	SISO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
		MIMO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
	2462	SISO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
		MIMO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
802.11n(HT40)	2422	SISO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
		MIMO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
	2437	SISO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
		MIMO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
	2452	SISO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
		MIMO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00

#### 1.2 Test Graph

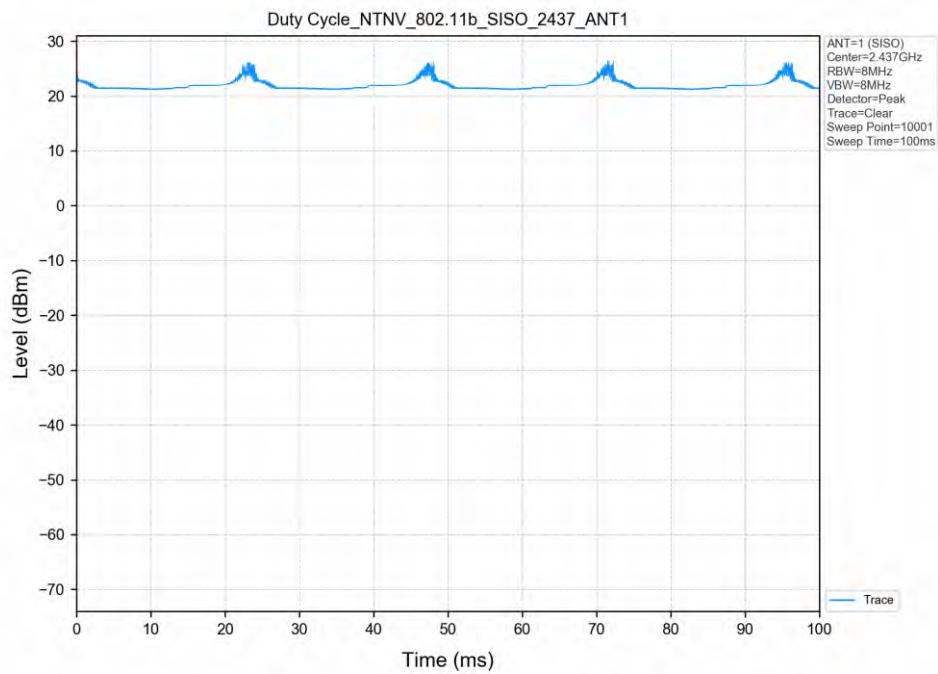
802.11b\_2412MHz\_SISO\_ANT1



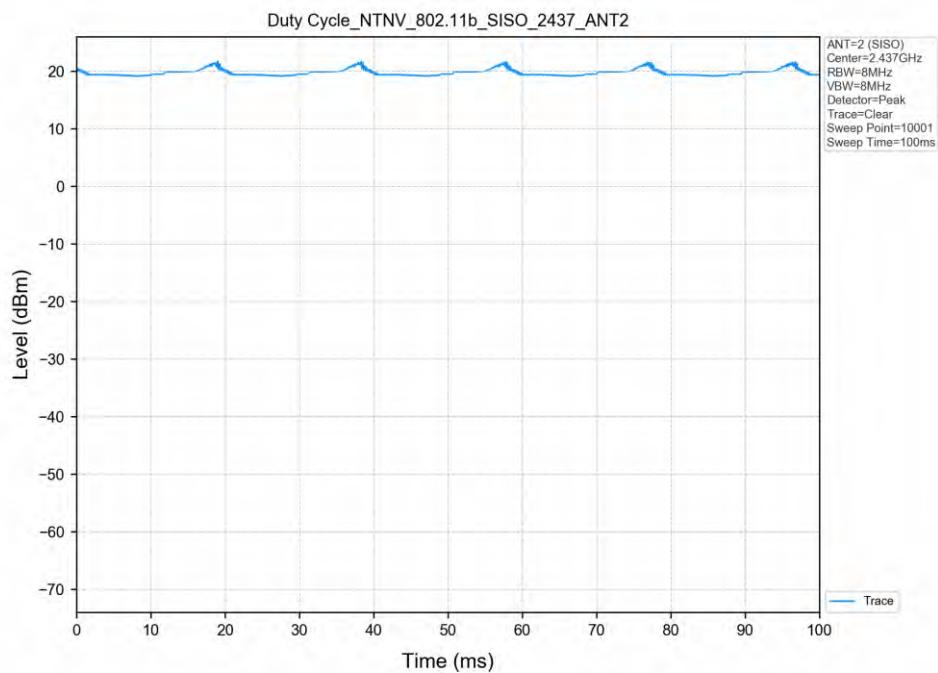
802.11b\_2412MHz SISO ANT2



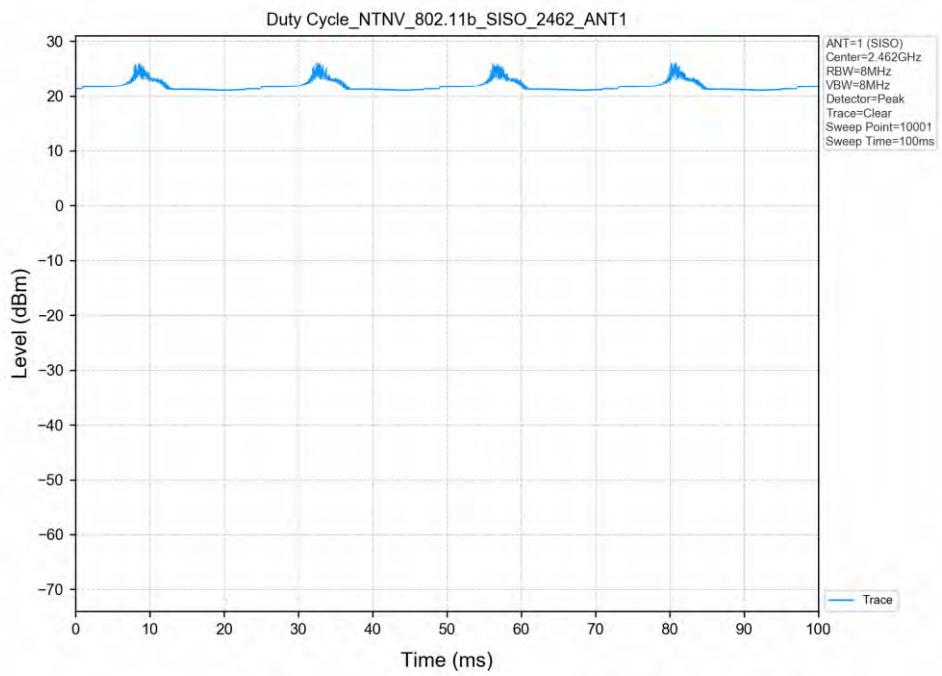
802.11b\_2437MHz SISO ANT1



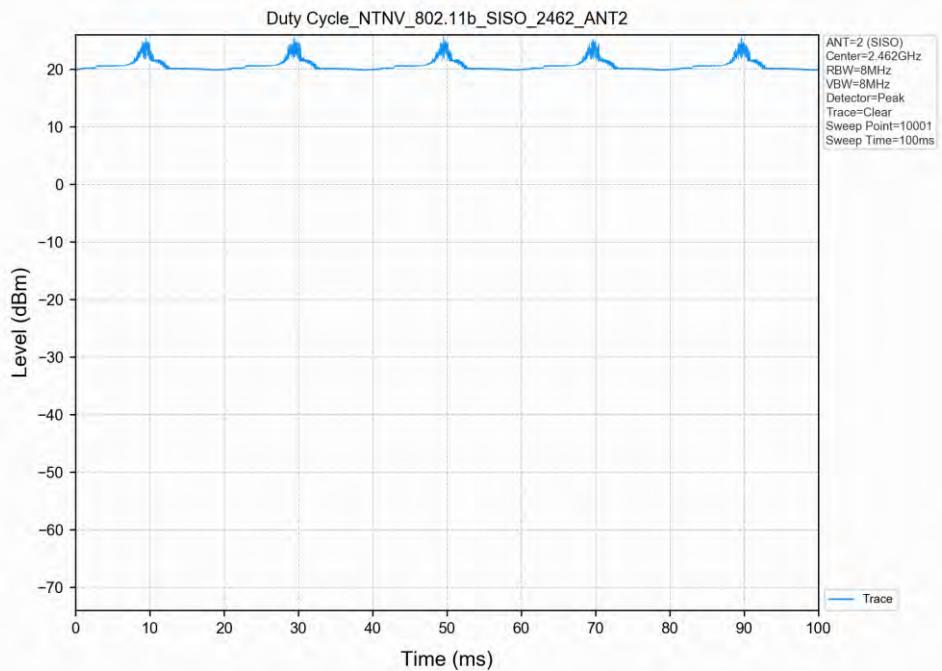
802.11b\_2437MHz SISO ANT2



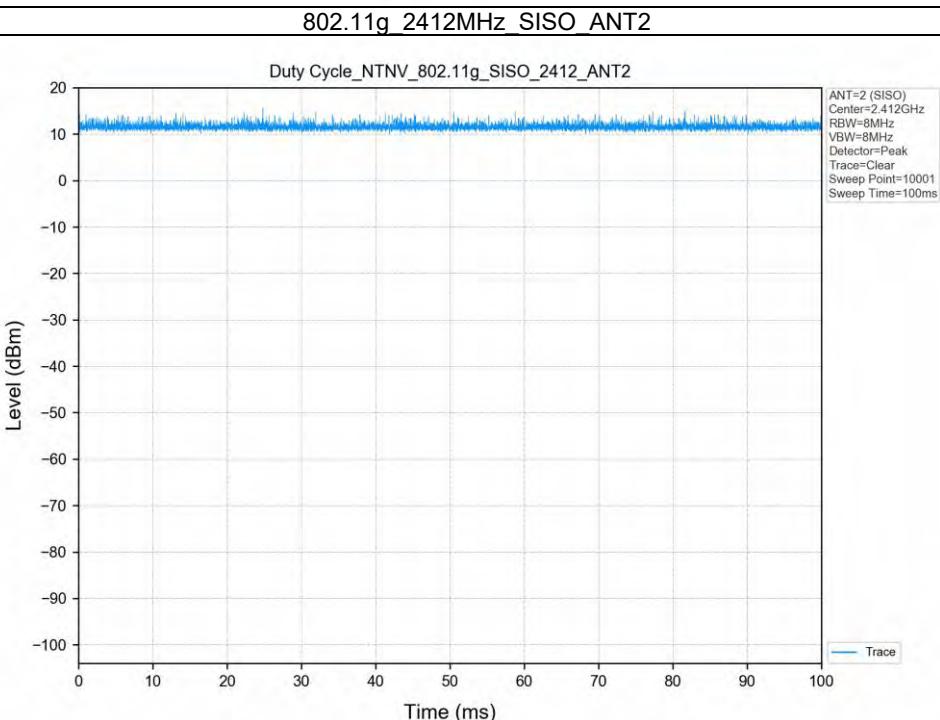
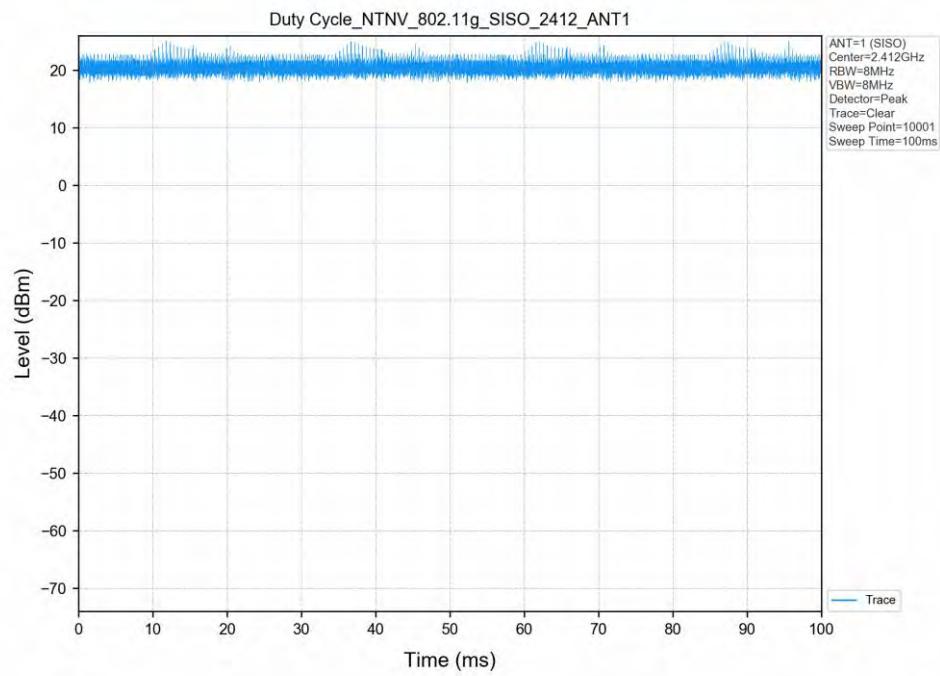
802.11b\_2462MHz SISO ANT1



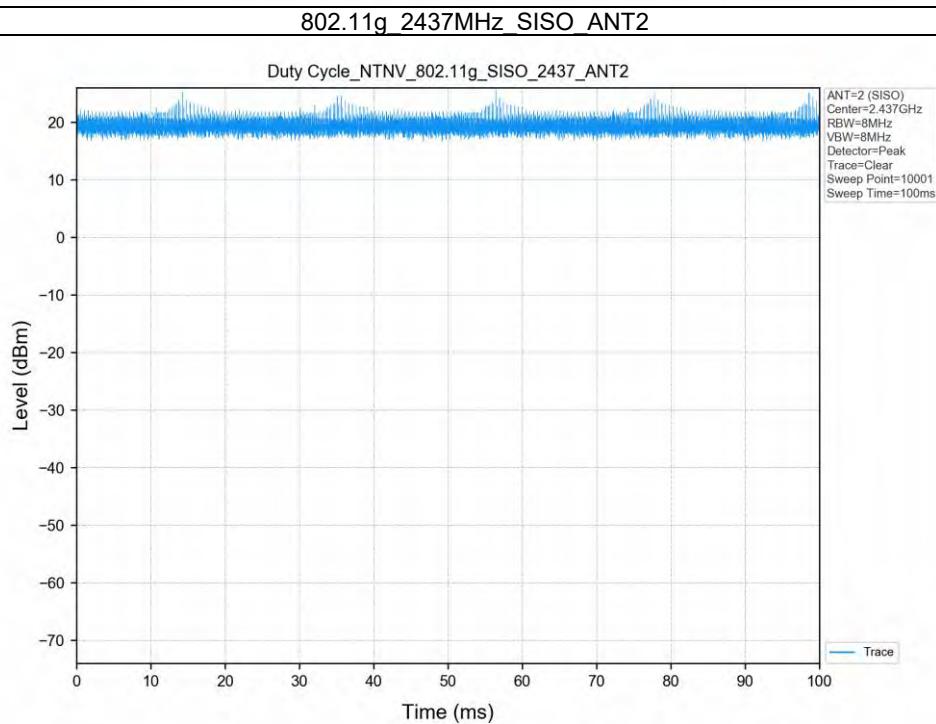
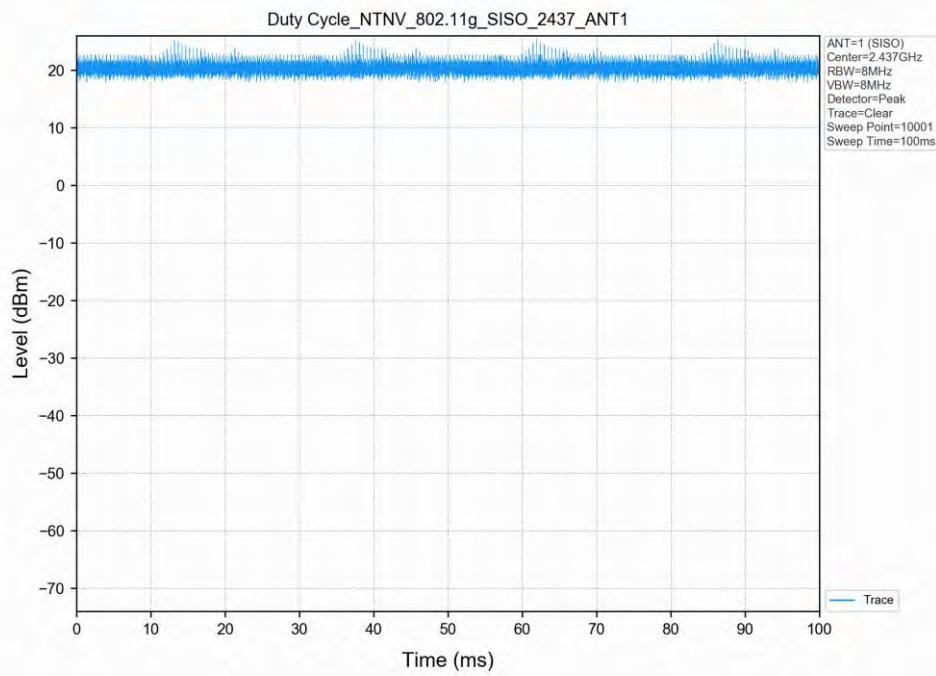
802.11b\_2462MHz\_SISO\_ANT2



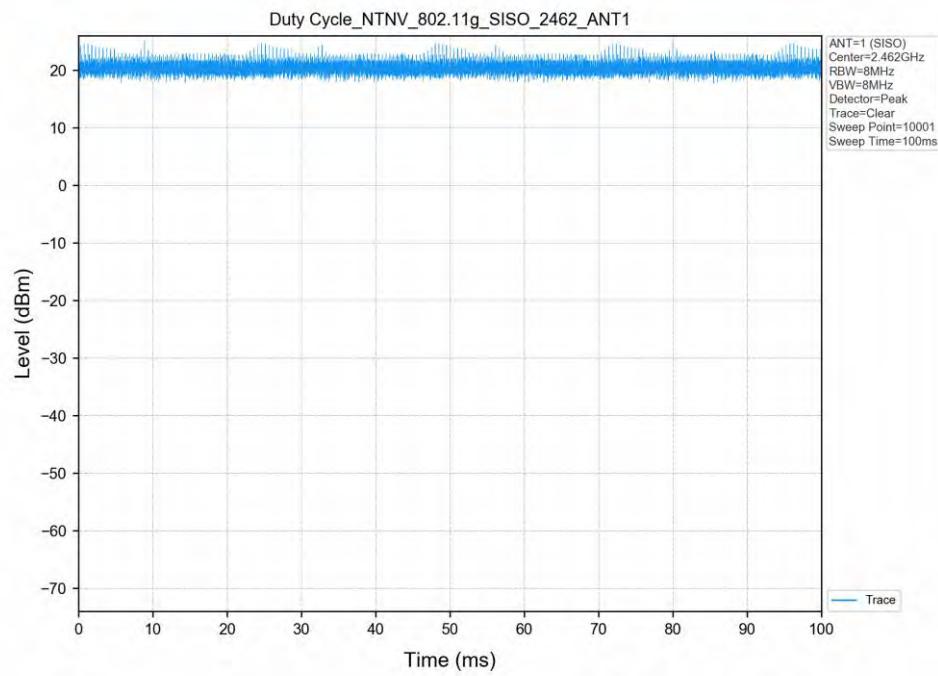
802.11g\_2412MHz\_SISO\_ANT1



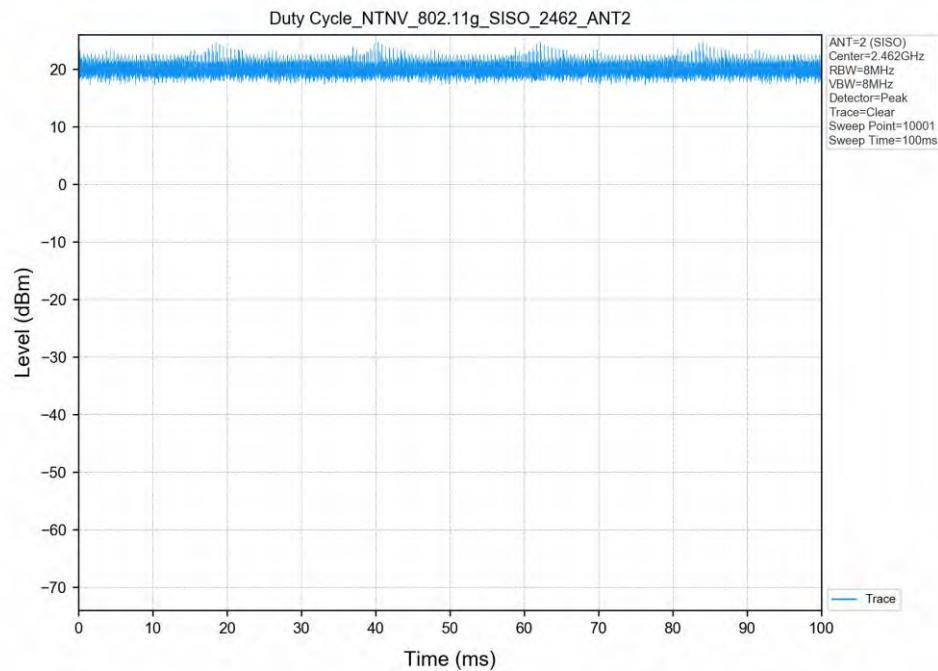
802.11g\_2437MHz\_SISO\_ANT1



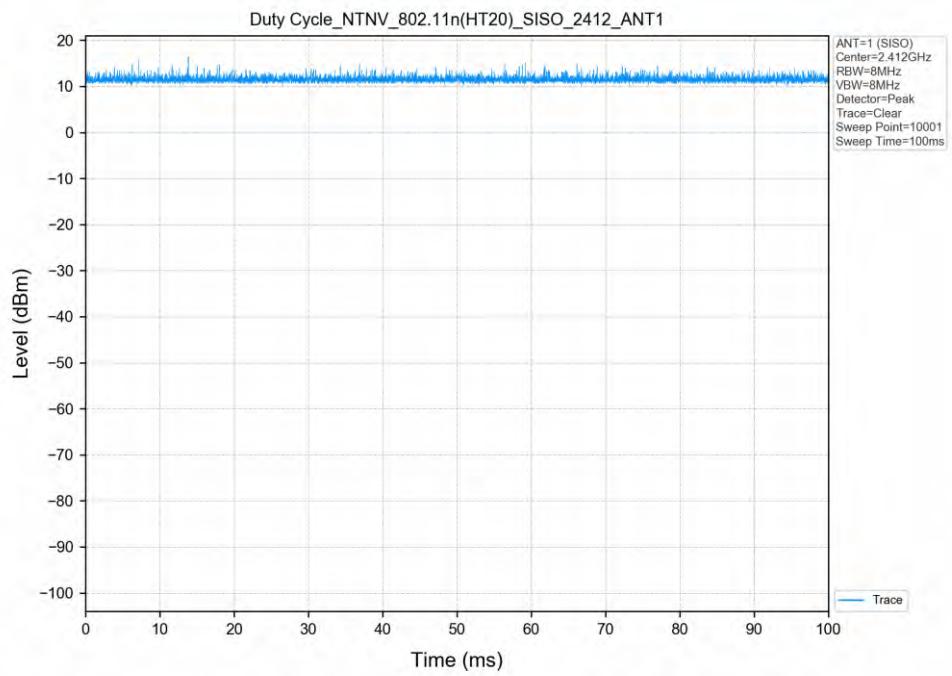
802.11g 2462MHz SISO ANT1



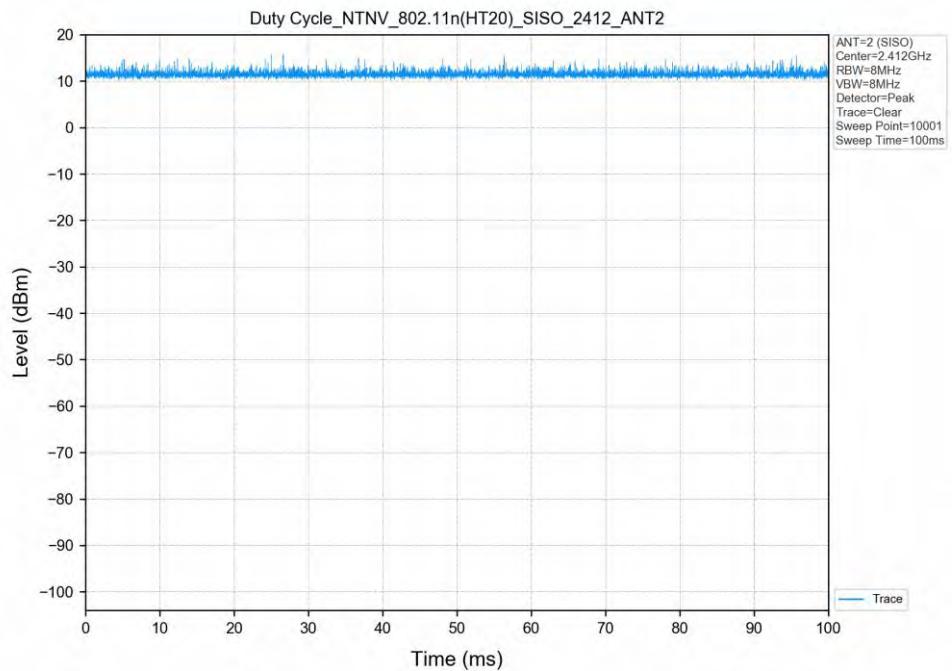
802.11g 2462MHz SISO ANT2



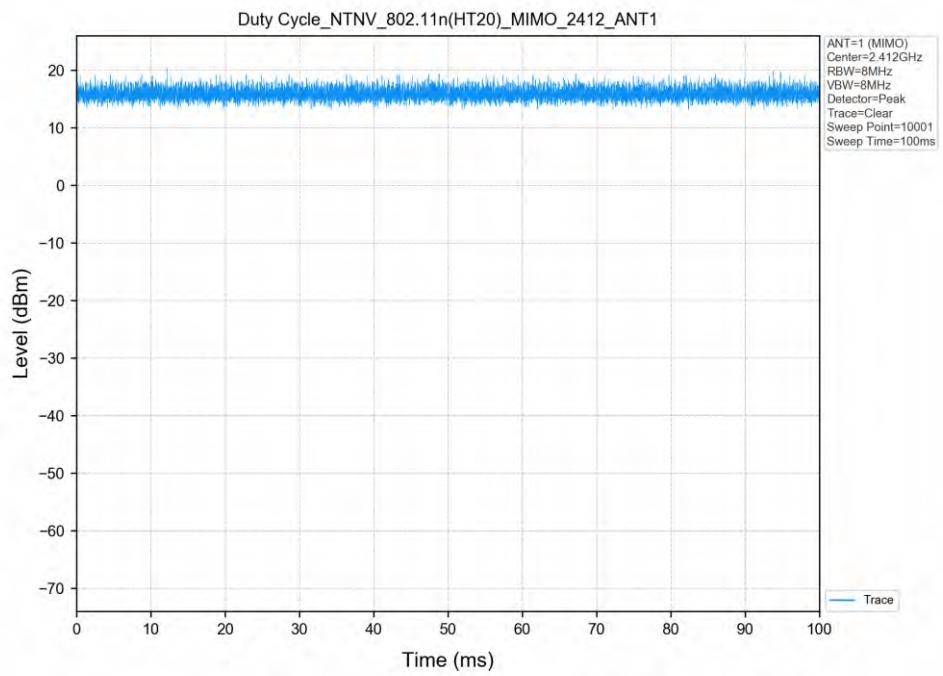
802.11n(HT20) 2412MHz SISO ANT1



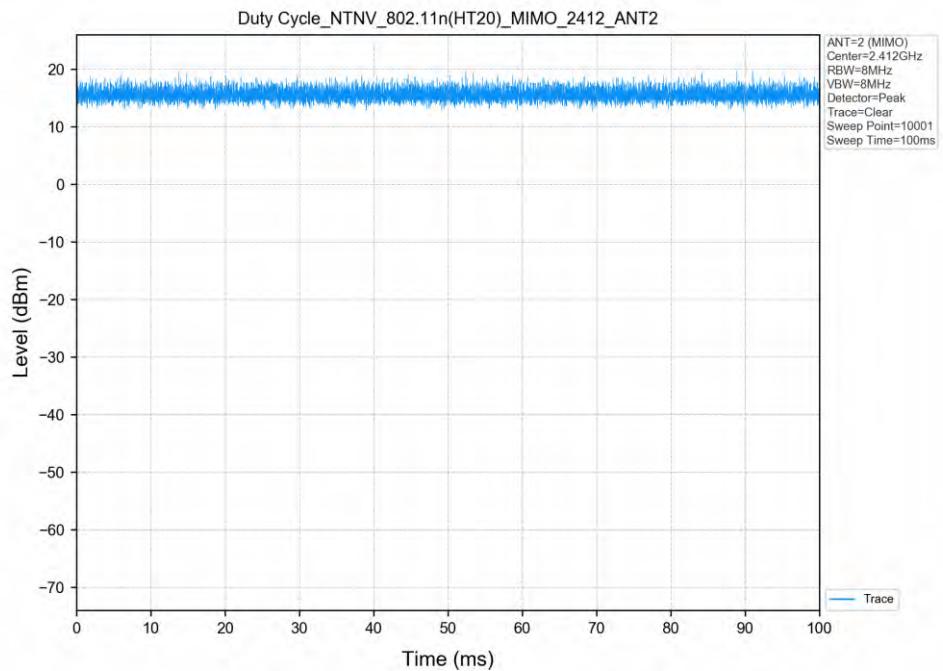
802.11n(HT20) 2412MHz SISO ANT2



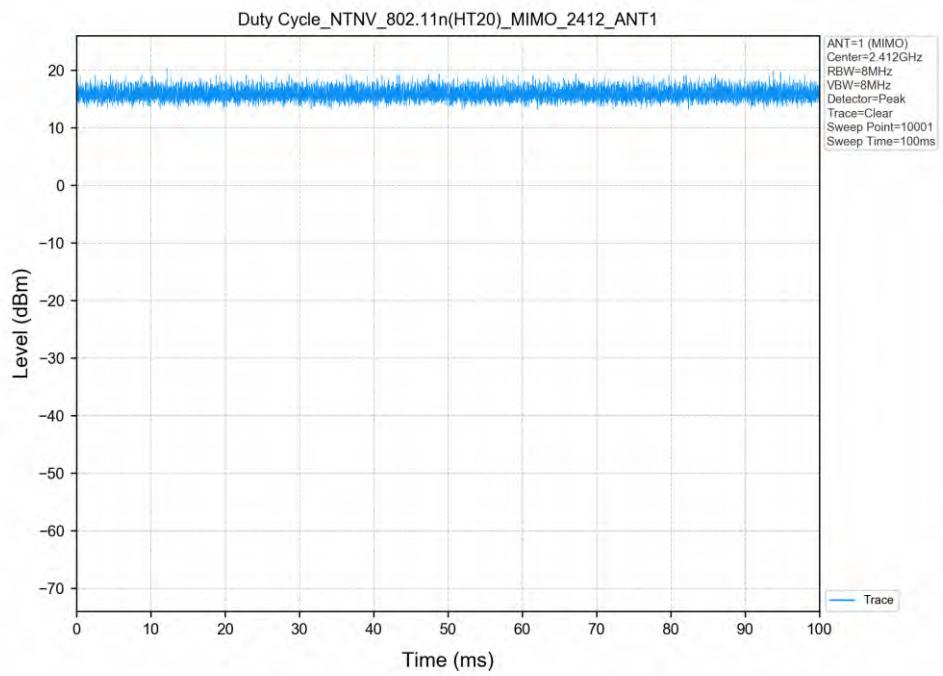
802.11n(HT20) 2412MHz MIMO ANT1



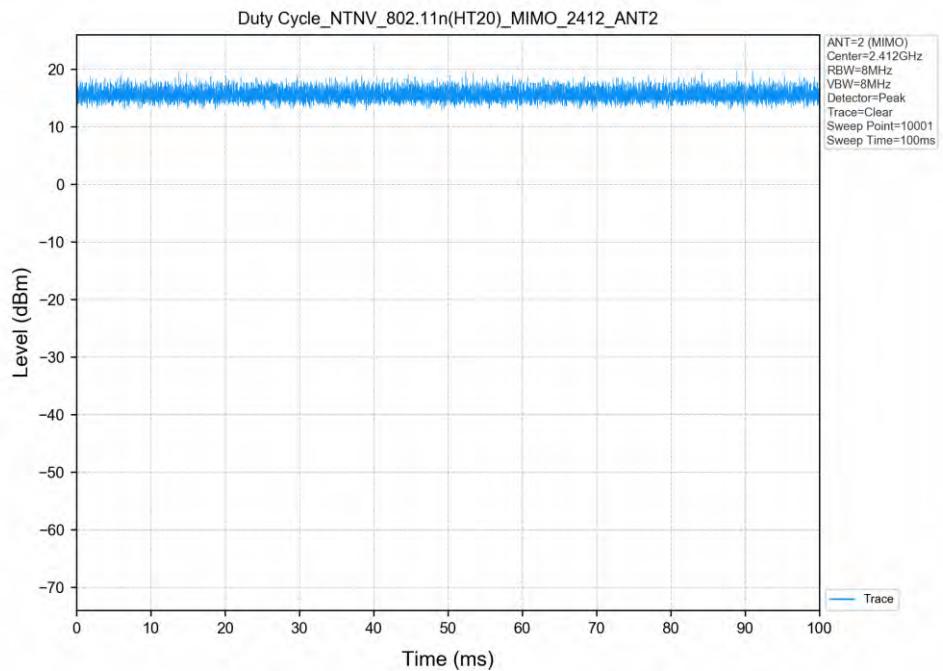
802.11n(HT20) 2412MHz MIMO ANT1



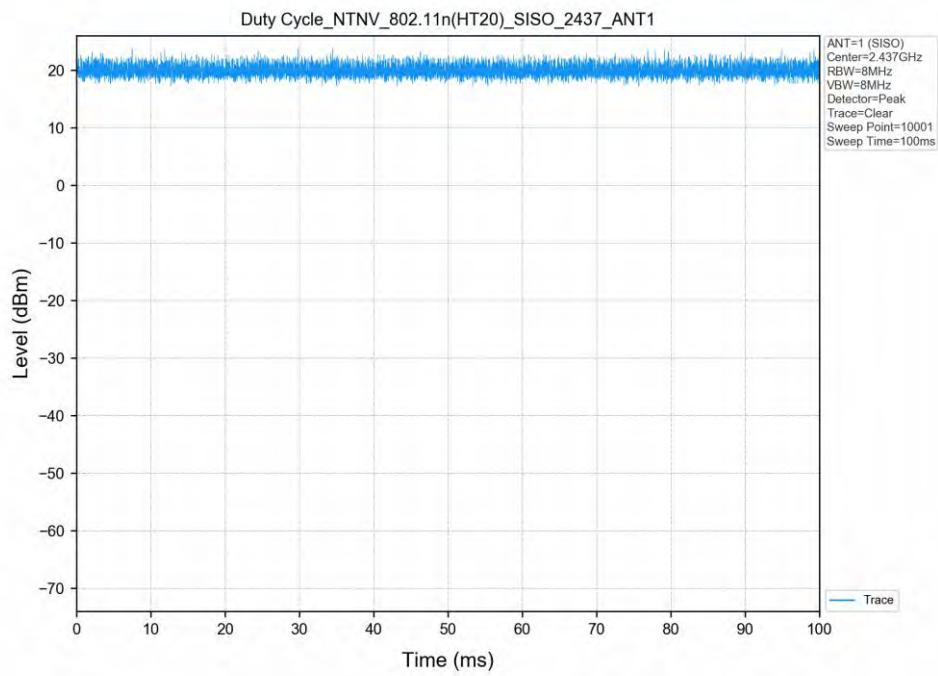
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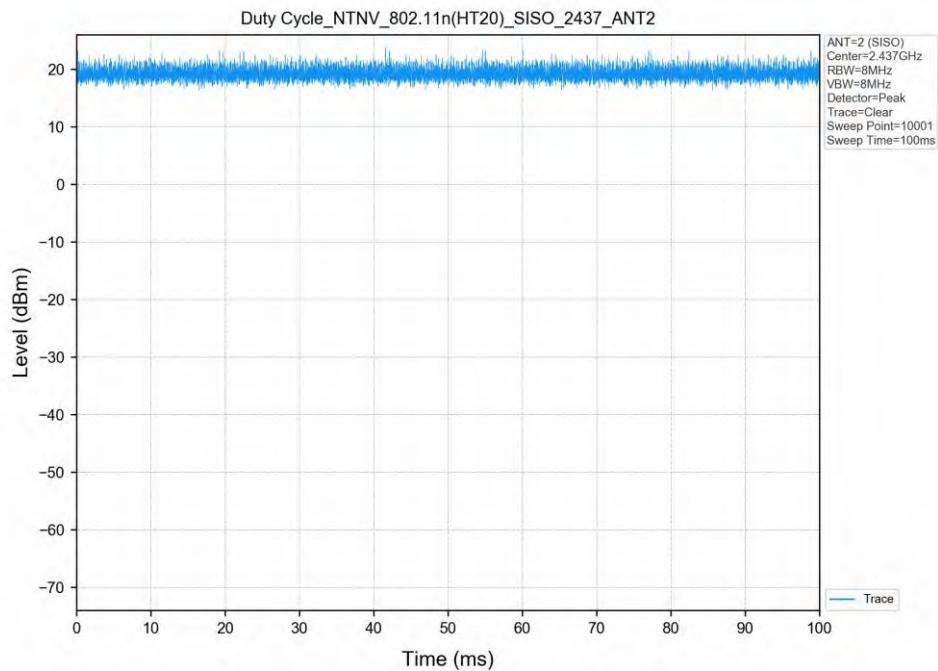
802.11n(HT20) 2412MHz MIMO ANT2



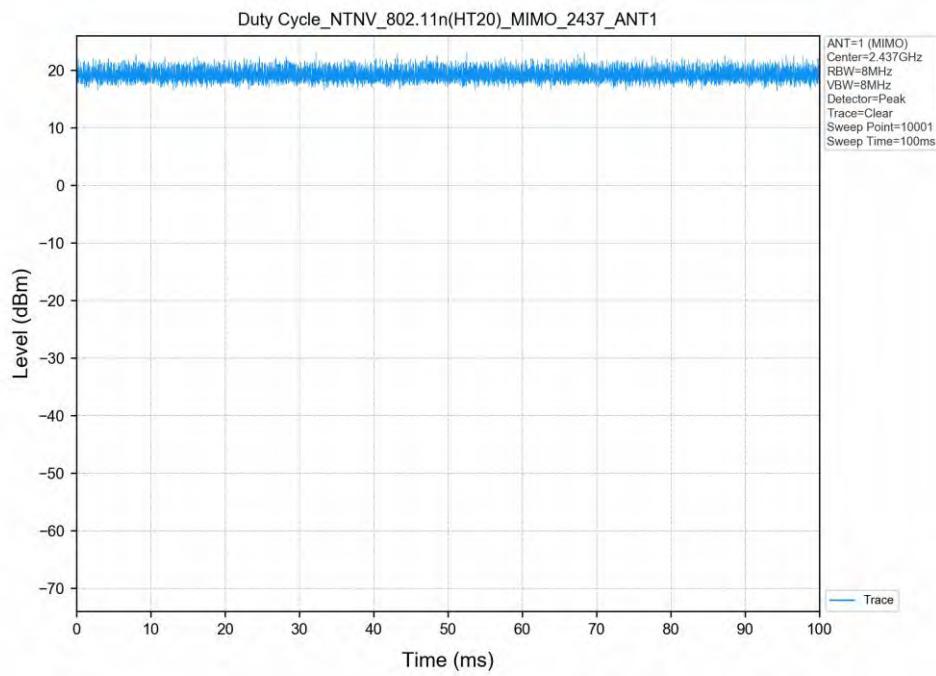
802.11n(HT20) 2437MHz SISO ANT1



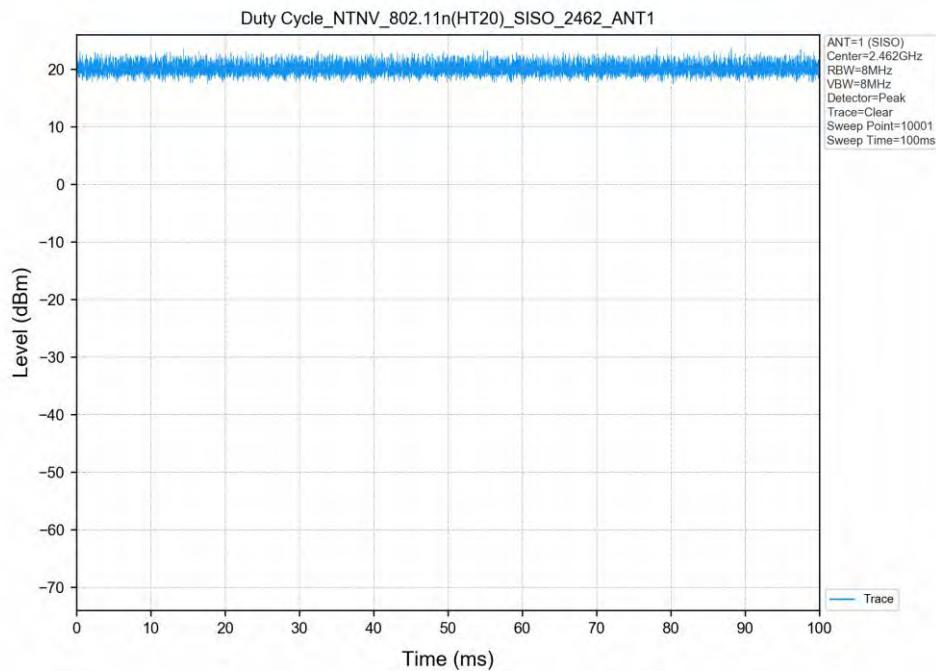
802.11n(HT20) 2437MHz SISO ANT2



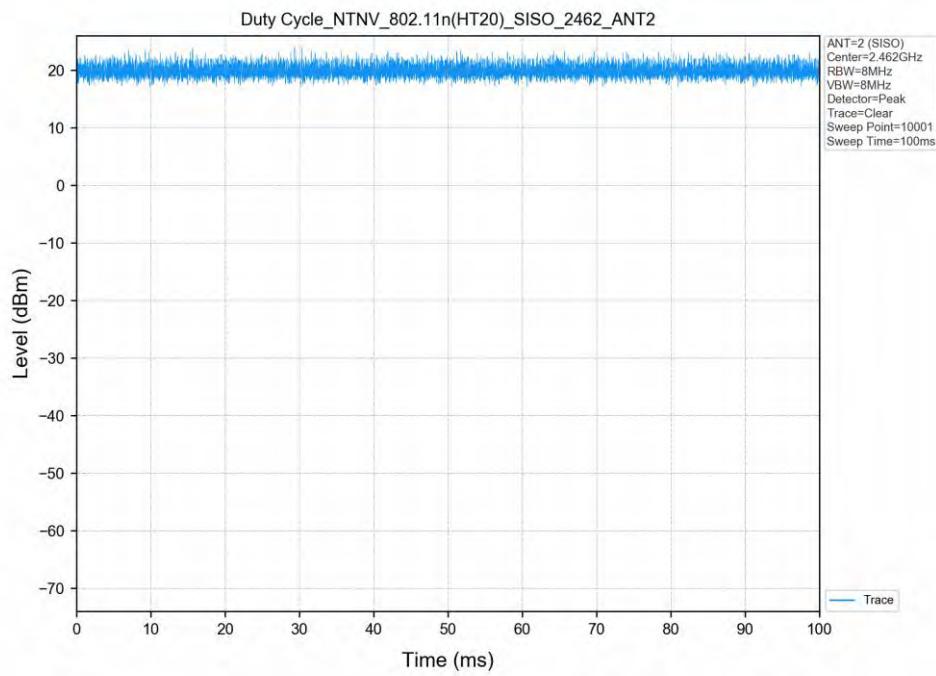
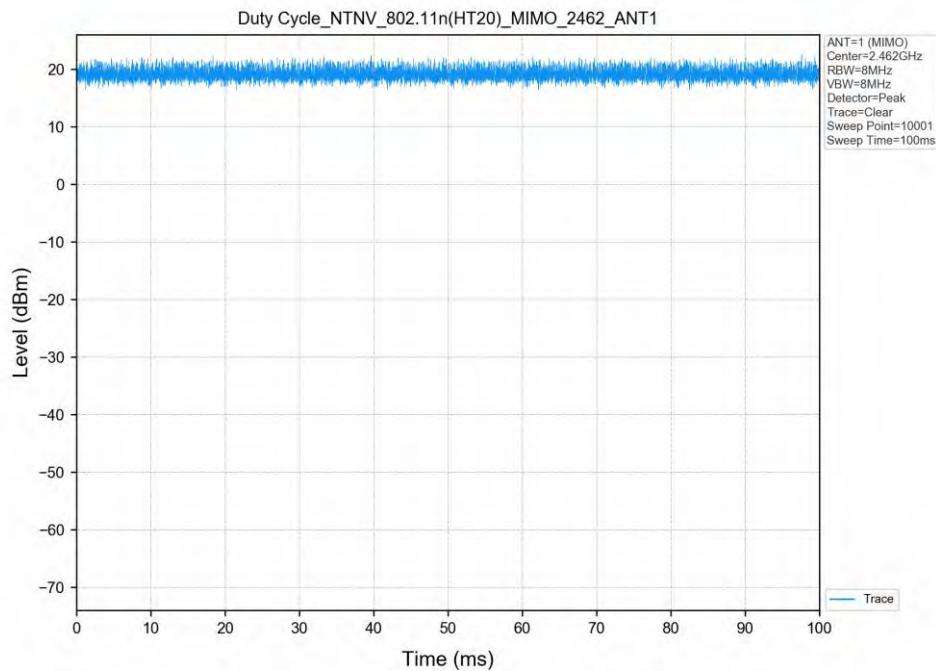
802.11n(HT20) 2437MHz MIMO ANT1

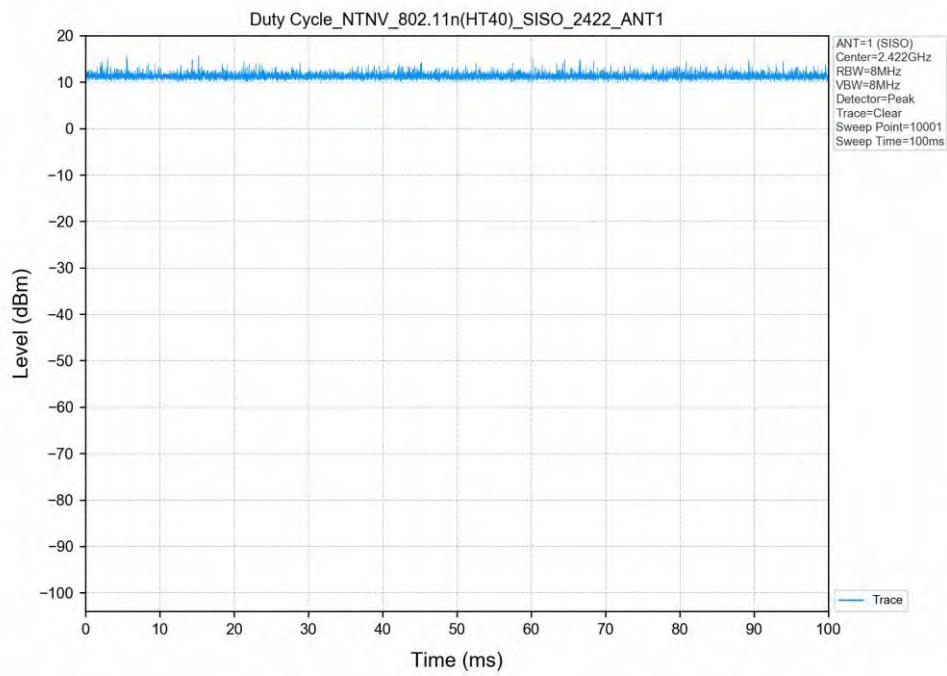


802.11n(HT20) 2462MHz SISO ANT1

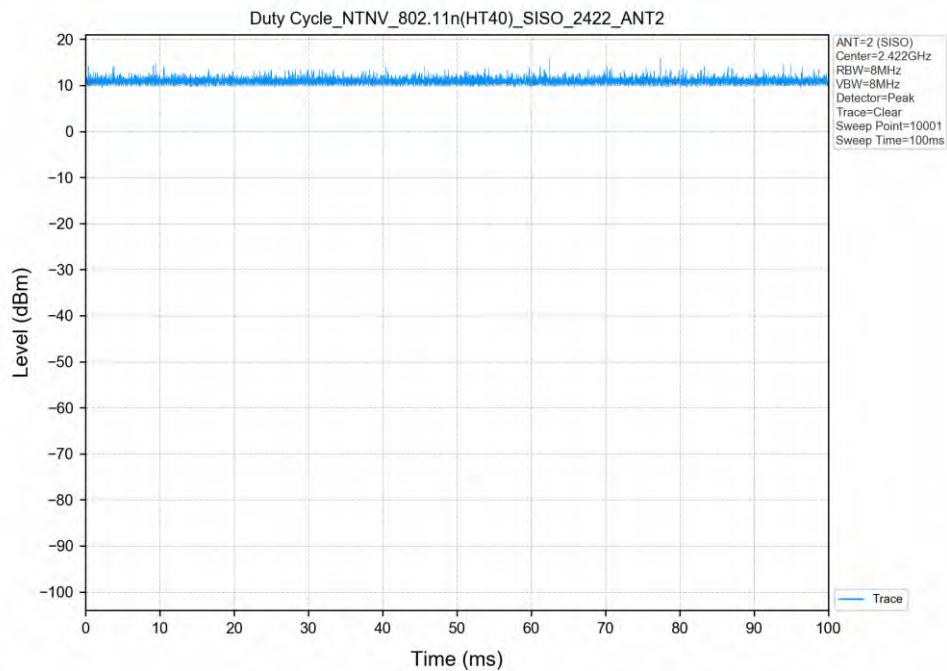


802.11n(HT20) 2462MHz SISO ANT2

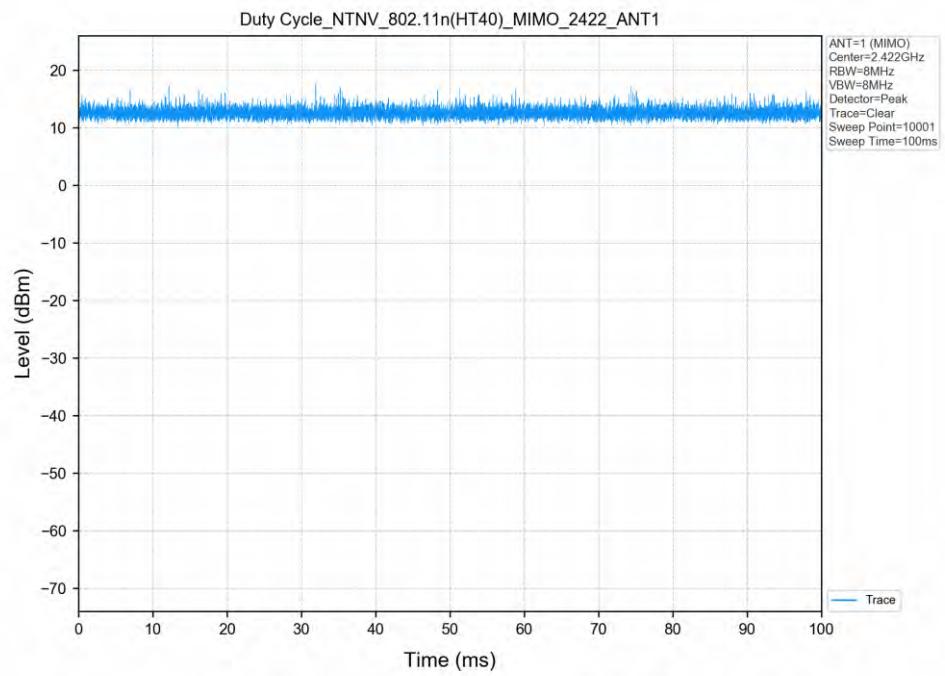
**802.11n(HT20) 2462MHz MIMO ANT1****802.11n(HT40) 2422MHz SISO ANT1**



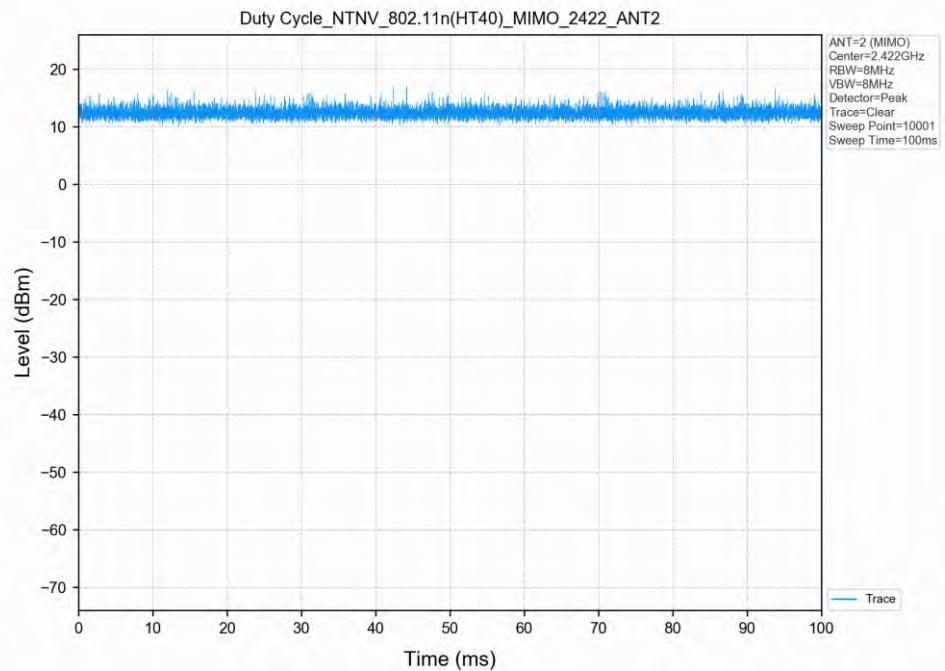
802.11n(HT40) 2422MHz SISO ANT2



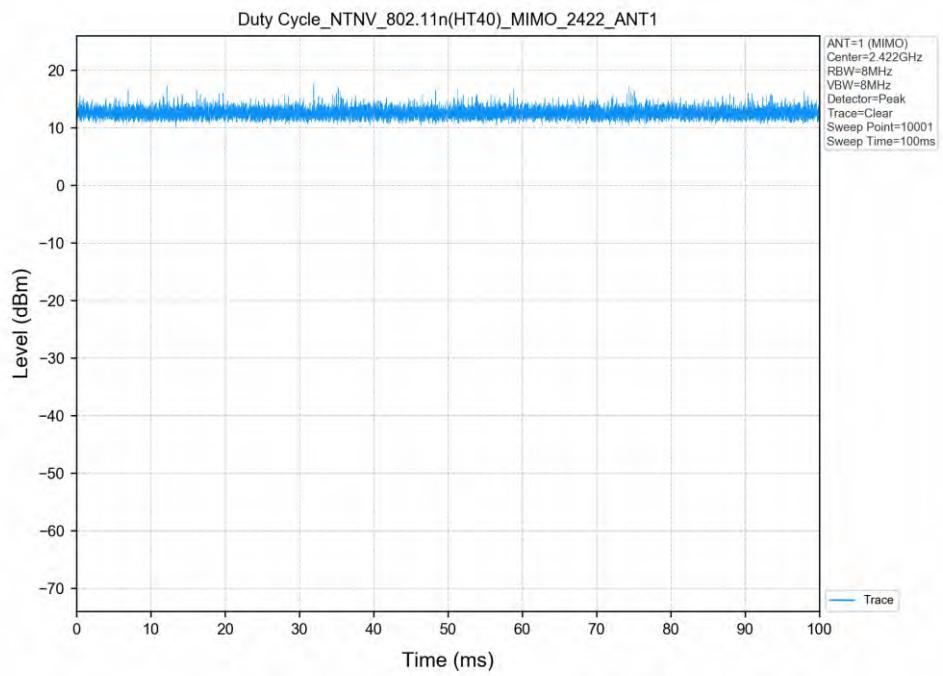
802.11n(HT40) 2422MHz MIMO ANT1



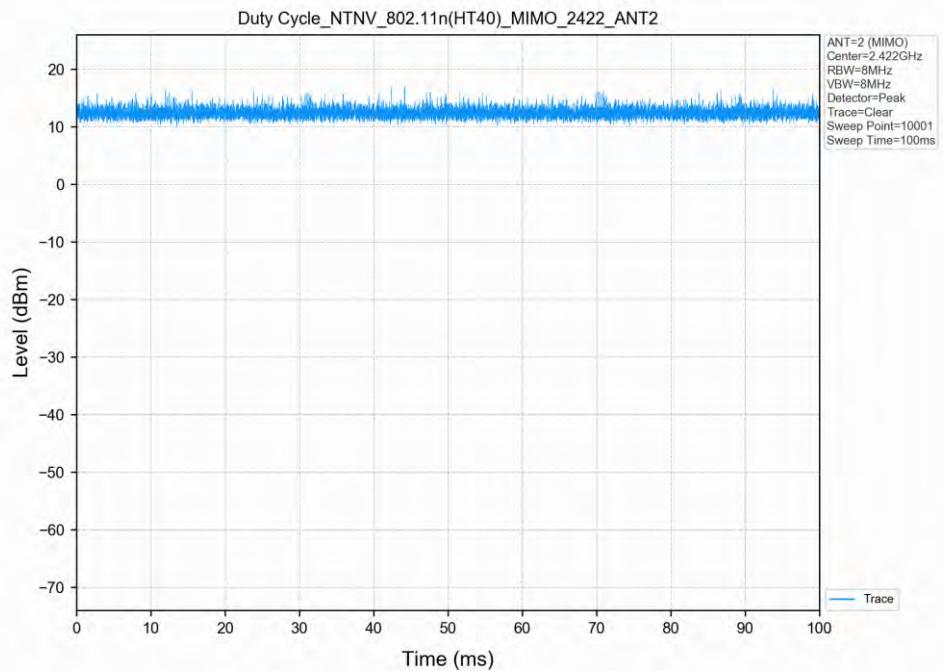
802.11n(HT40) 2422MHz MIMO ANT1



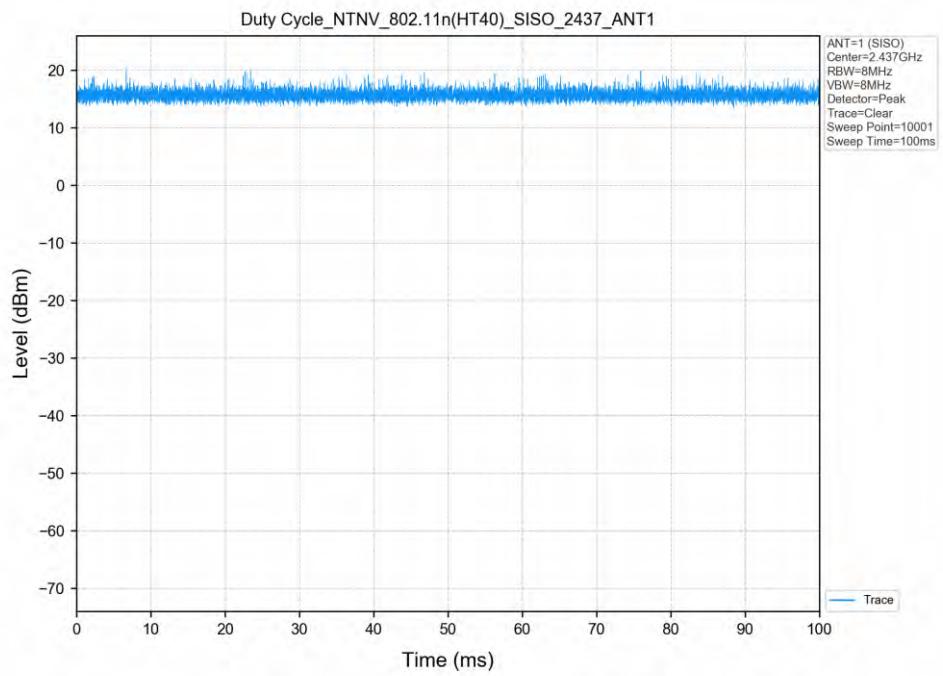
802.11n(HT40) 2422MHz MIMO ANT2



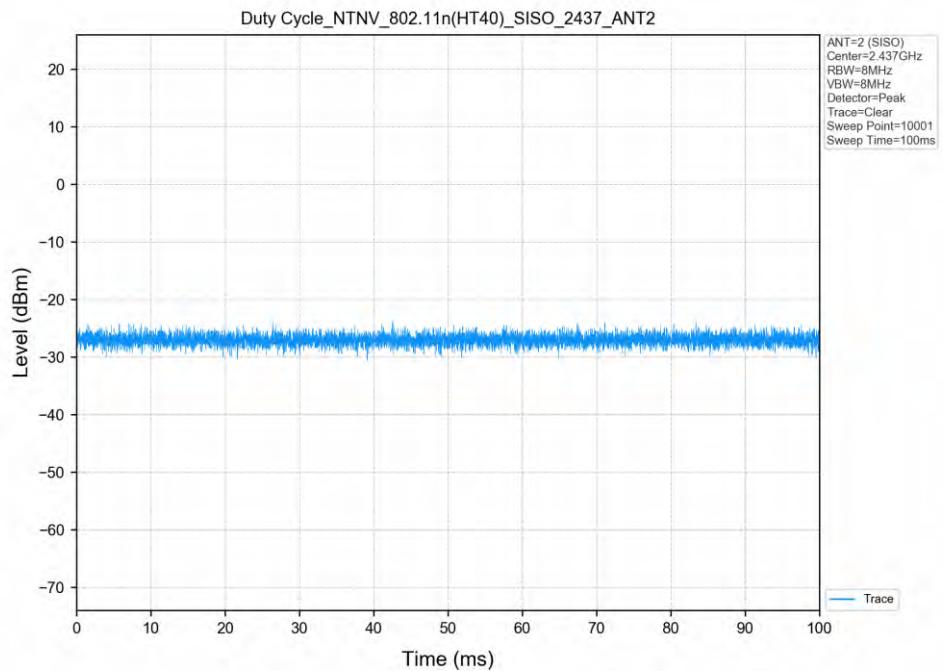
802.11n(HT40) 2422MHz MIMO ANT2



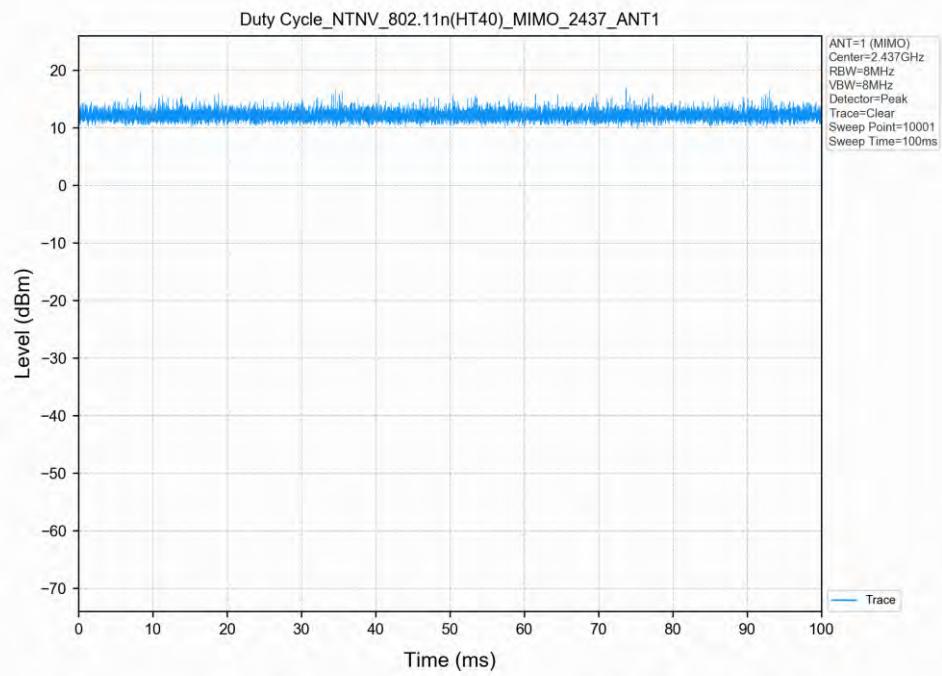
802.11n(HT40) 2437MHz SISO ANT1



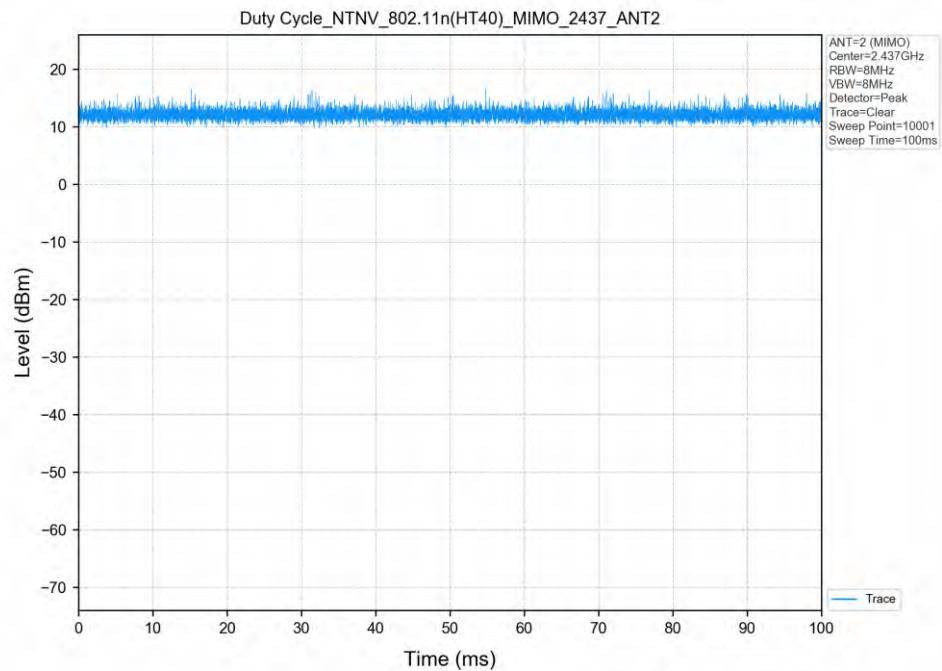
802.11n(HT40) 2437MHz SISO ANT2



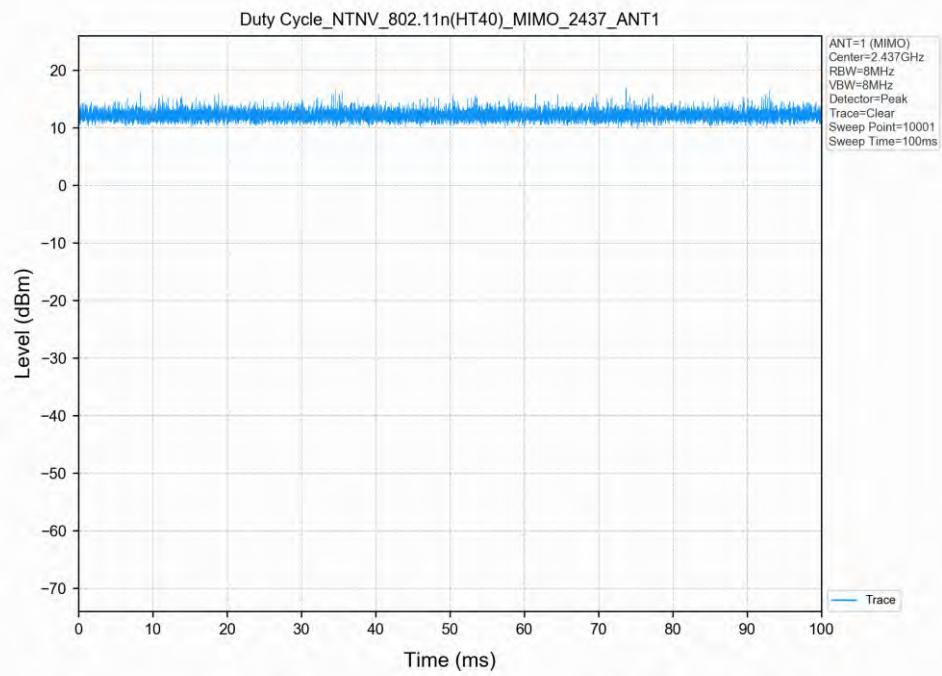
802.11n(HT40) 2437MHz MIMO ANT1



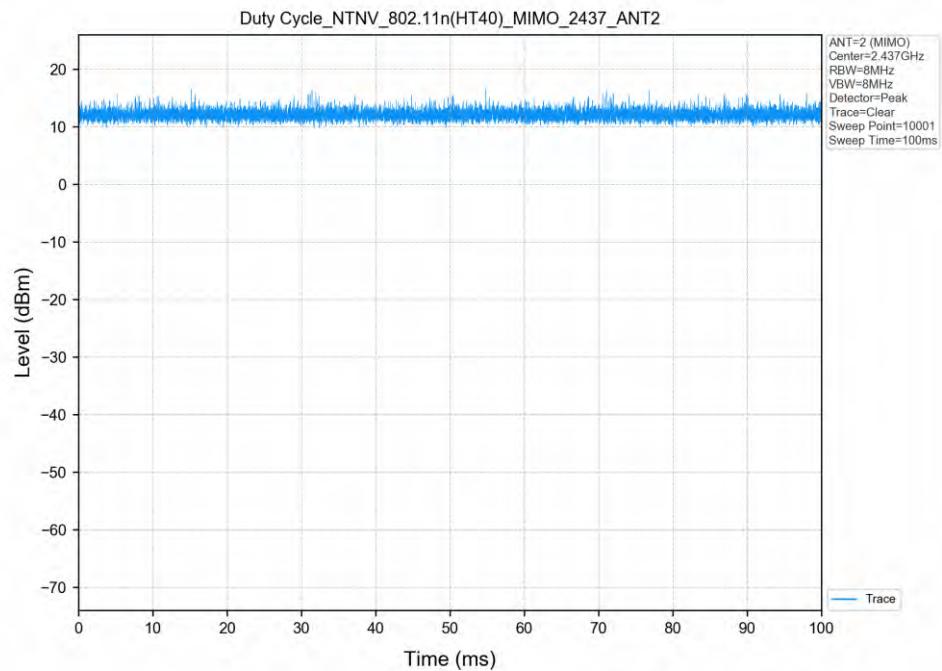
802.11n(HT40) 2437MHz MIMO ANT1



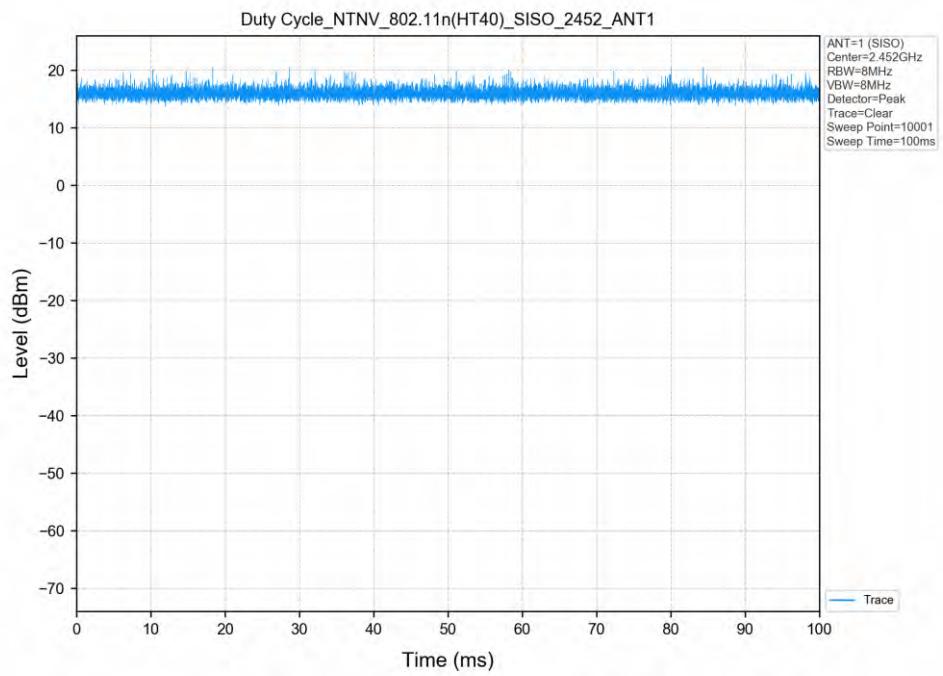
802.11n(HT40) 2437MHz MIMO ANT2



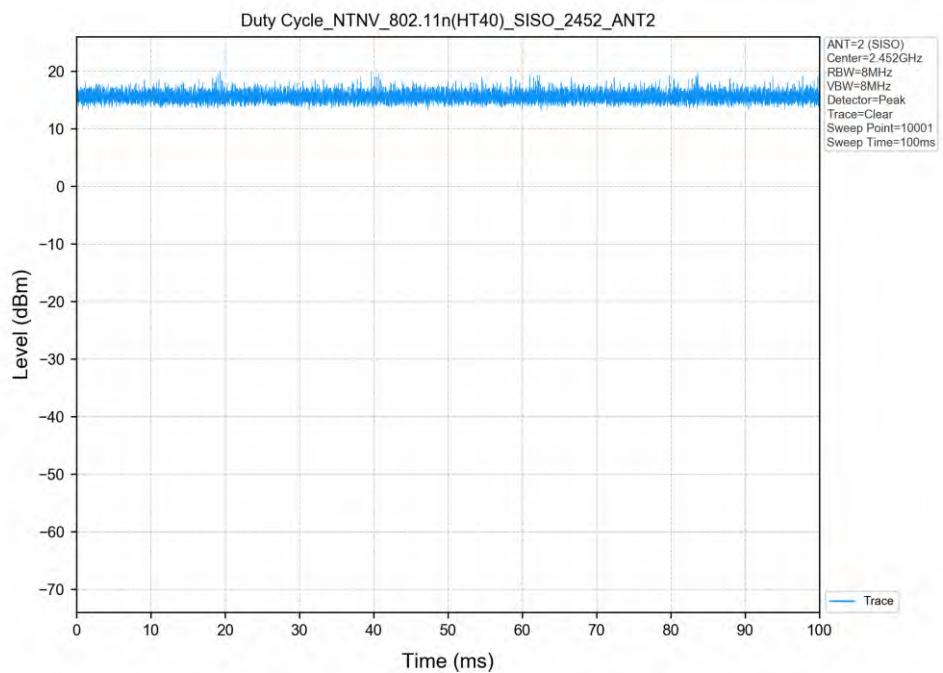
802.11n(HT40) 2437MHz MIMO ANT2



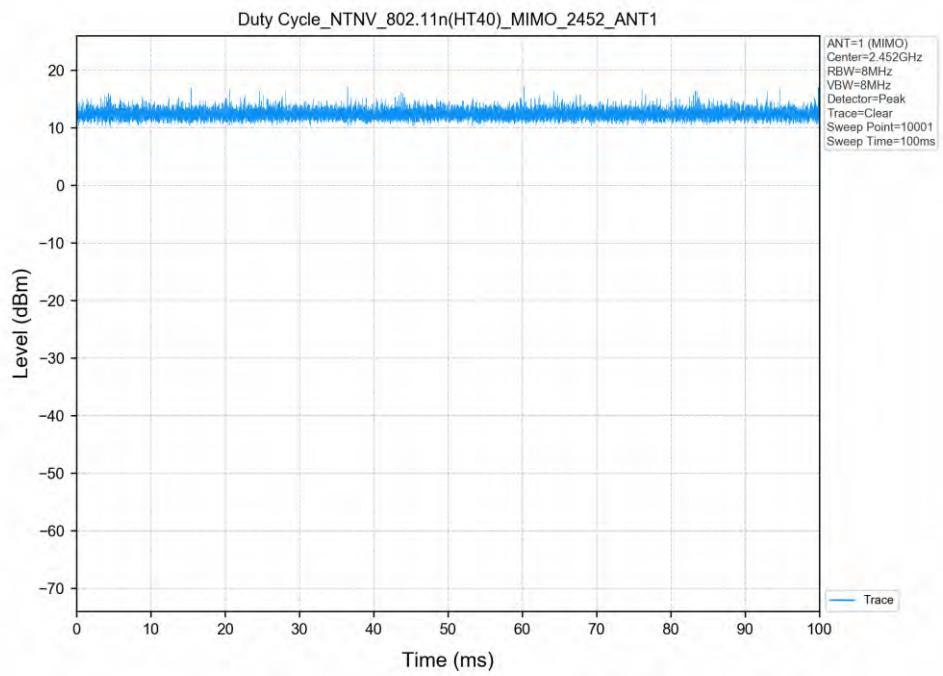
802.11n(HT40) 2452MHz SISO ANT1



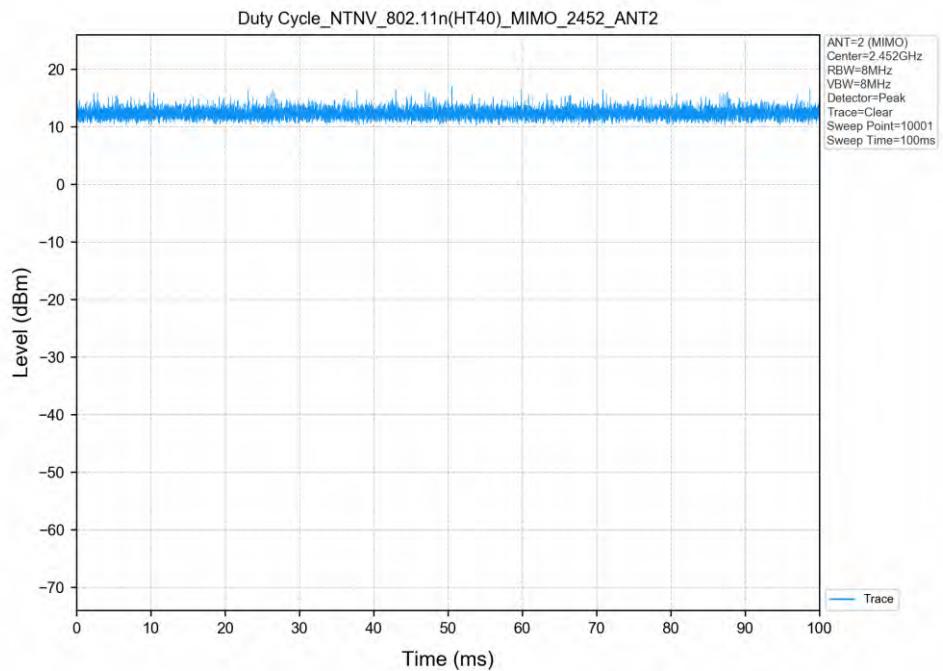
802.11n(HT40) 2452MHz SISO ANT2



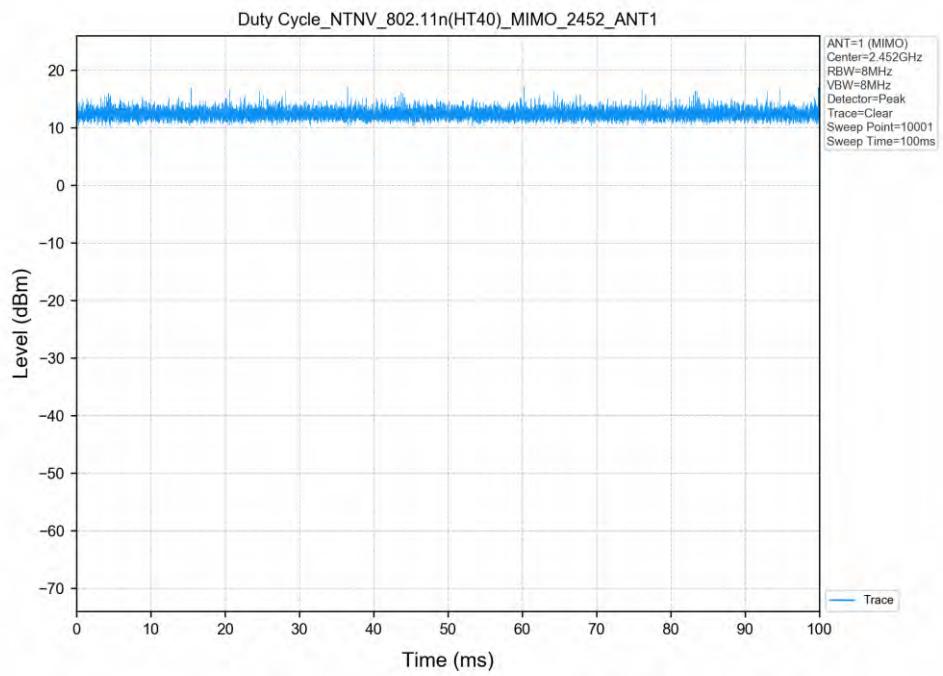
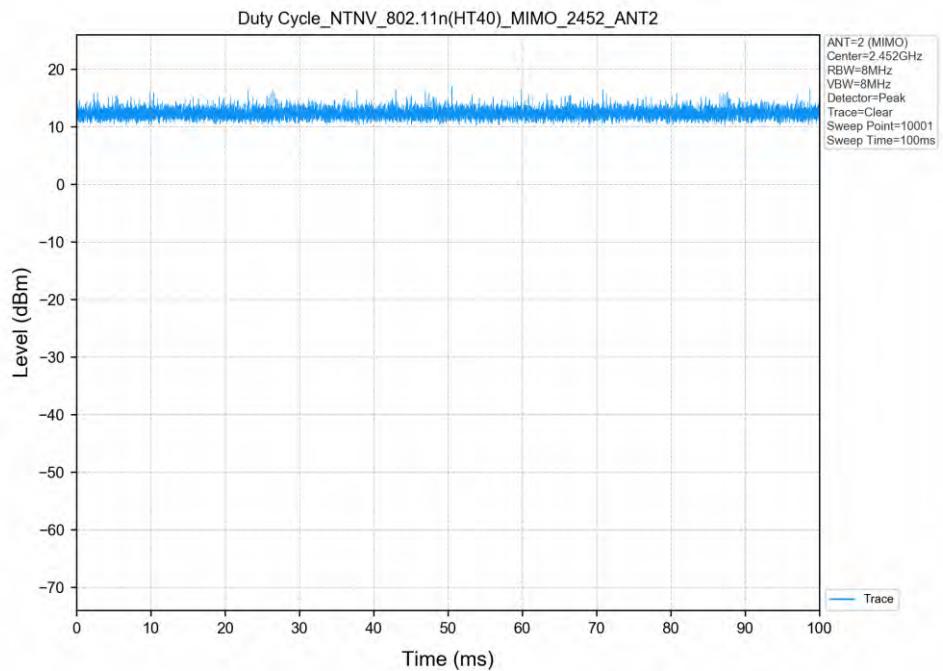
802.11n(HT40) 2452MHz MIMO ANT1



802.11n(HT40) 2452MHz MIMO ANT1



802.11n(HT40) 2452MHz MIMO ANT2

**802.11n(HT40) 2452MHz MIMO ANT2**



## 2. Bandwidth

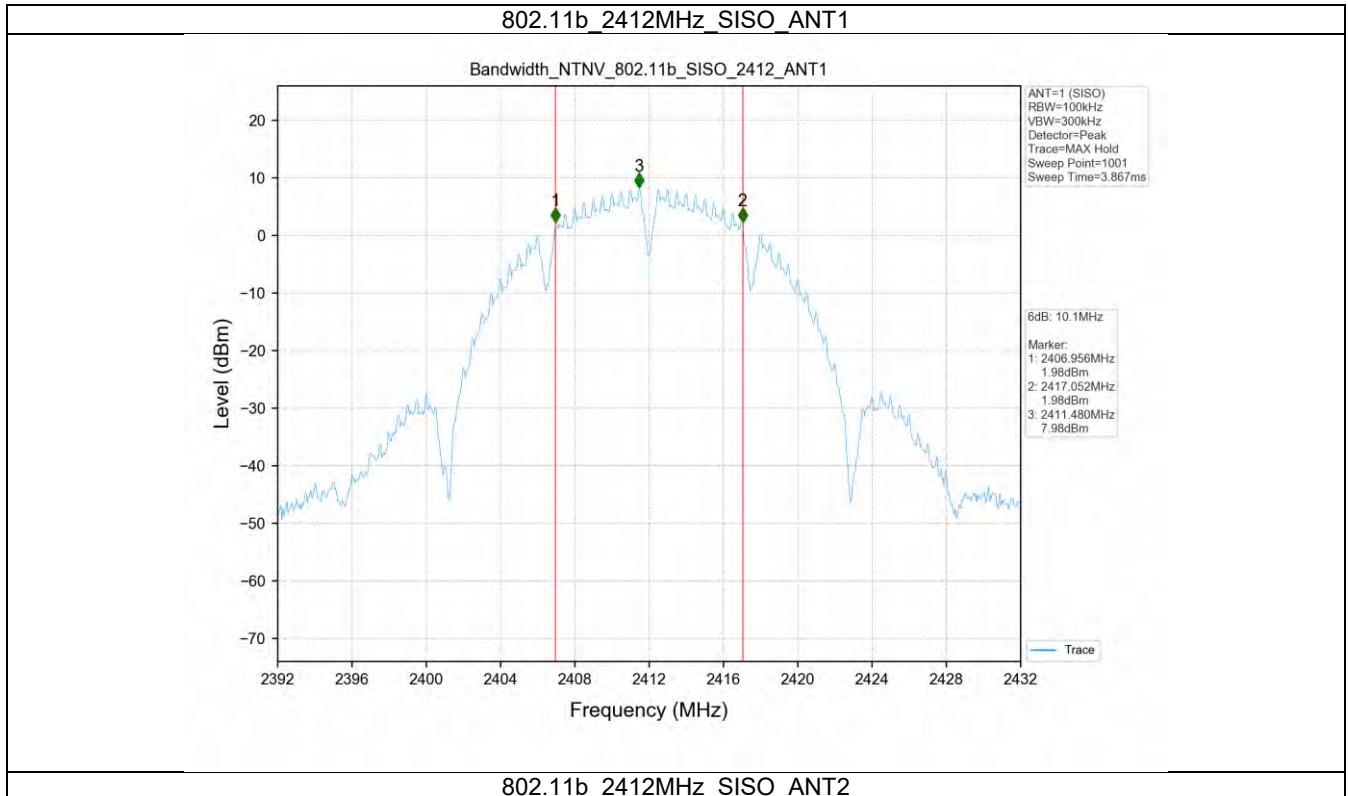
### 2.1 Test Result

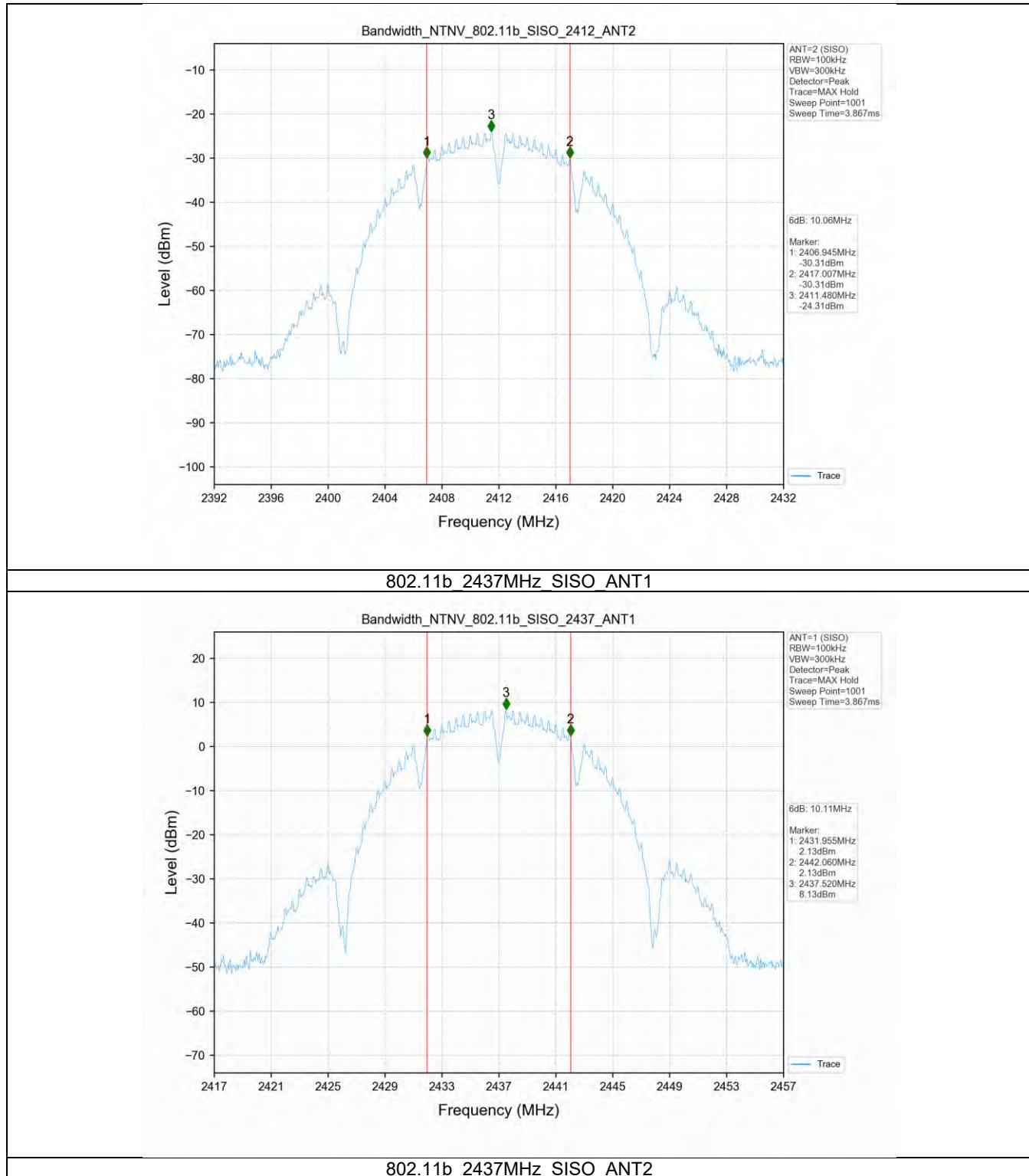
Test Mode	Frequency (MHz)	TX Type	ANT No.	6dB Bandwidth		Verdict
				Test Result (MHz)	Limits (MHz)	
802.11b	2412	SISO	1	10.100	≥0.5	PASS
			2	10.060	≥0.5	PASS
	2437	SISO	1	10.110	≥0.5	PASS
			2	10.070	≥0.5	PASS
	2462	SISO	1	10.100	≥0.5	PASS
			2	10.090	≥0.5	PASS
802.11g	2412	SISO	1	16.610	≥0.5	PASS
			2	16.610	≥0.5	PASS
	2437	SISO	1	16.620	≥0.5	PASS
			2	16.590	≥0.5	PASS
	2462	SISO	1	16.600	≥0.5	PASS
			2	16.630	≥0.5	PASS
802.11n(HT20)	2412	SISO	1	17.860	≥0.5	PASS
			2	17.850	≥0.5	PASS
		MIMO	0	17.860	≥0.5	PASS
	2437	SISO	1	17.870	≥0.5	PASS
			2	17.810	≥0.5	PASS
		MIMO	0	17.820	≥0.5	PASS
	2462	SISO	1	17.830	≥0.5	PASS
			2	17.850	≥0.5	PASS
		MIMO	0	17.850	≥0.5	PASS
802.11n(HT40)	2422	SISO	1	36.510	≥0.5	PASS
			2	36.550	≥0.5	PASS
		MIMO	0	36.490	≥0.5	PASS
	2437	SISO	1	36.470	≥0.5	PASS
			2	36.440	≥0.5	PASS
		MIMO	0	36.490	≥0.5	PASS
	2452	SISO	1	36.450	≥0.5	PASS
			2	36.450	≥0.5	PASS
		MIMO	0	36.480	≥0.5	PASS

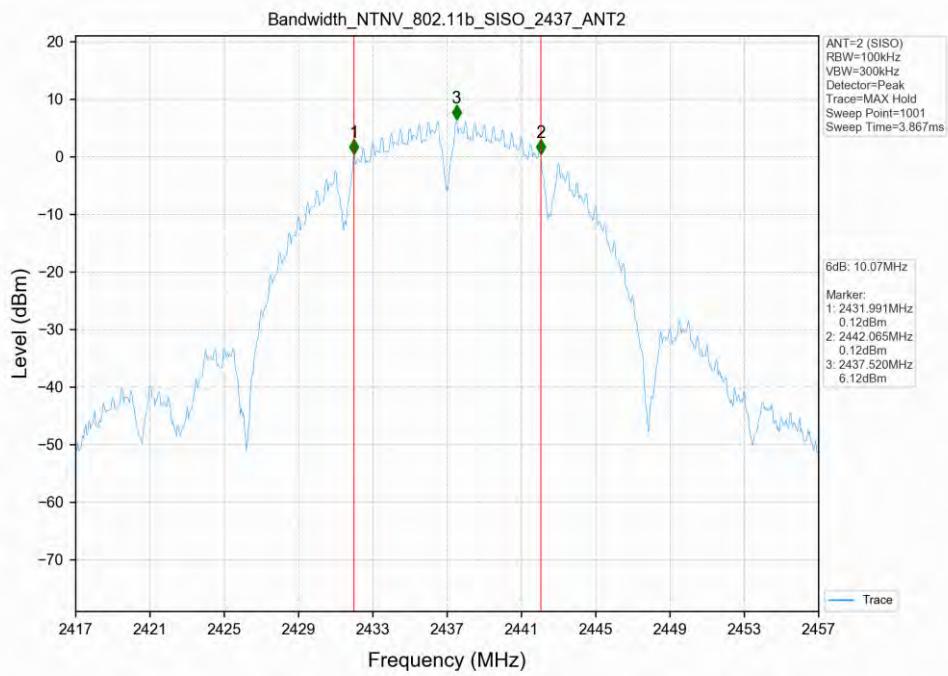
Test Mode	Frequency (MHz)	TX Type	ANT No.	99% Occupied Bandwidth	
				Test Result (MHz)	
802.11b	2412	SISO	1	15.080	Only for Report Use
			2	15.140	Only for Report Use
	2437	SISO	1	15.140	Only for Report Use
			2	14.990	Only for Report Use
802.11g	2462	SISO	1	15.120	Only for Report Use
			2	15.080	Only for Report Use
	2412	SISO	1	17.020	Only for Report Use
			2	17.110	Only for Report Use
802.11n(HT20)	2437	SISO	1	17.000	Only for Report Use
			2	16.990	Only for Report Use
	2462	SISO	1	17.020	Only for Report Use
			2	17.060	Only for Report Use
802.11n(HT20)	2412	SISO	1	18.120	Only for Report Use
			2	18.100	Only for Report Use
		MIMO	0	18.040	Only for Report Use

	2437	SISO	1	18.060	Only for Report Use
			2	18.050	Only for Report Use
			MIMO	18.080	Only for Report Use
	2462	SISO	1	18.050	Only for Report Use
			2	18.070	Only for Report Use
			MIMO	18.070	Only for Report Use
802.11n(HT40)	2422	SISO	1	37.430	Only for Report Use
			2	37.350	Only for Report Use
		MIMO	0	36.740	Only for Report Use
	2437	SISO	1	36.780	Only for Report Use
			2	36.650	Only for Report Use
		MIMO	0	36.680	Only for Report Use
	2452	SISO	1	36.680	Only for Report Use
			2	36.600	Only for Report Use
		MIMO	0	36.640	Only for Report Use

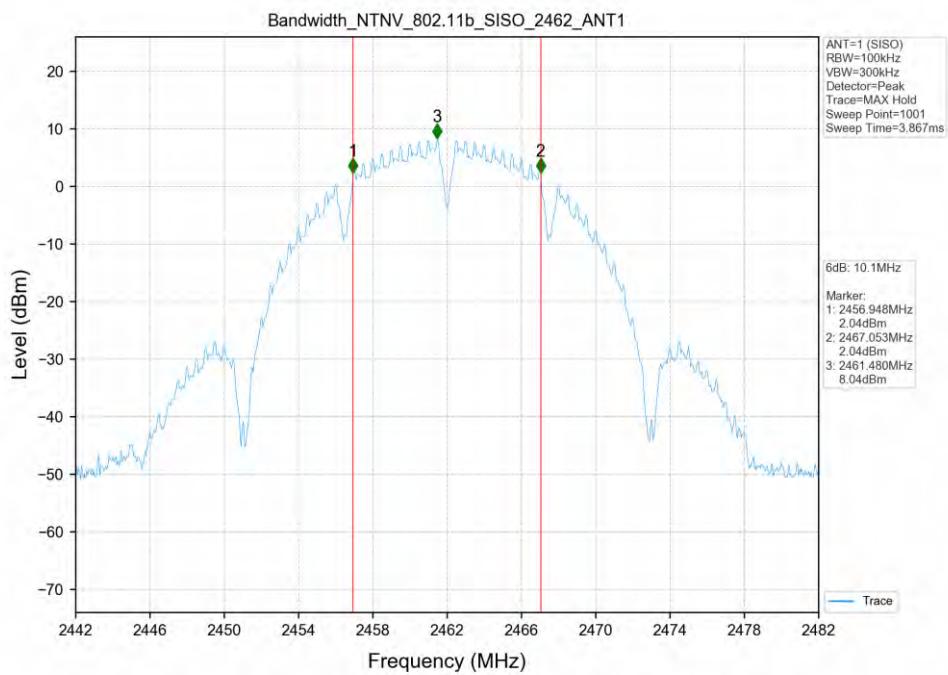
## 2.2 Test Graph - 6dB Bandwidth



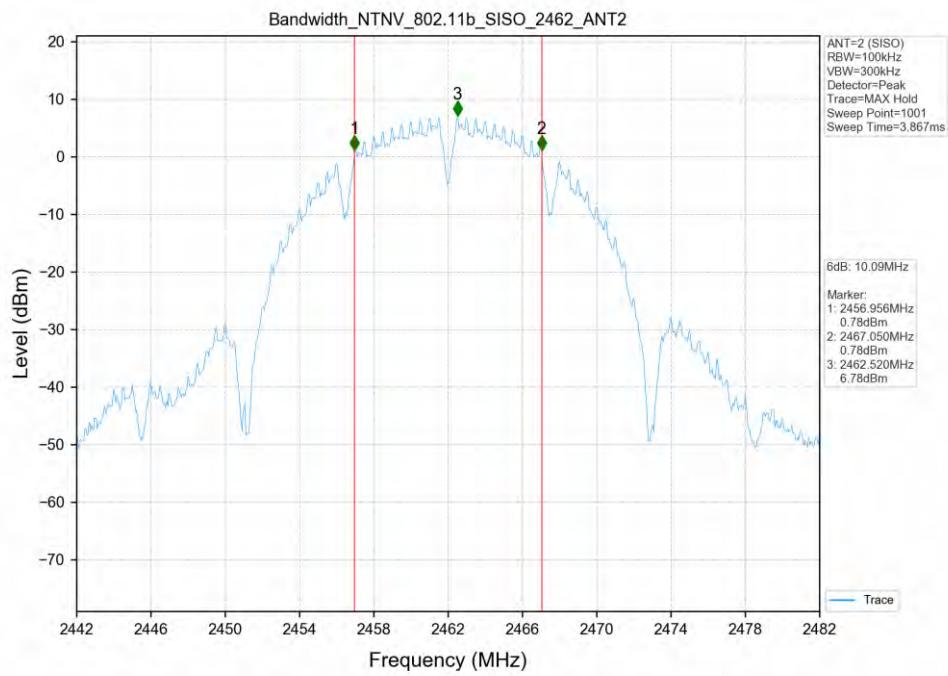




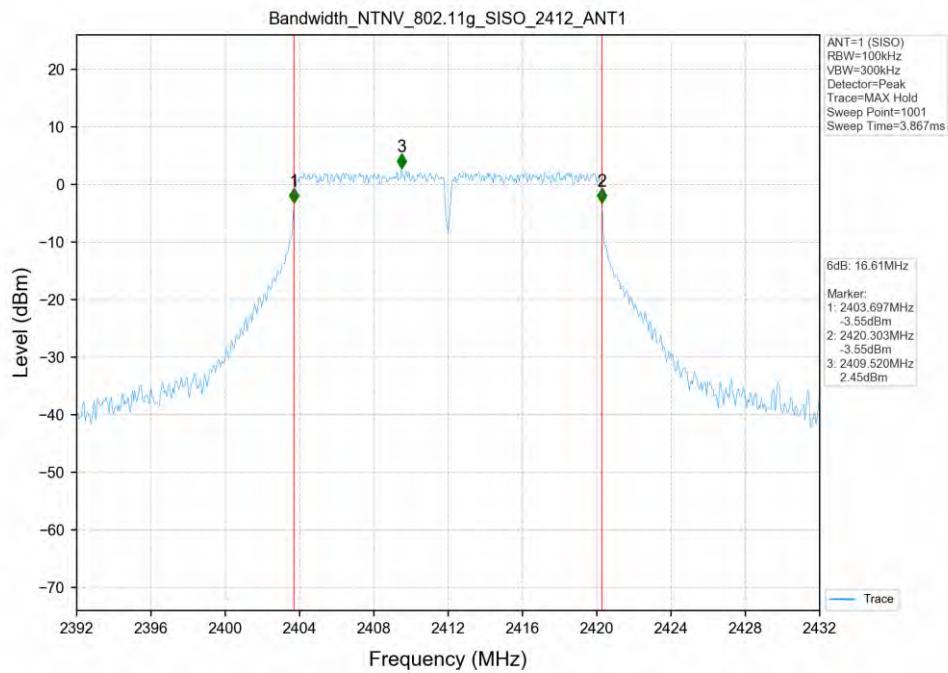
802.11b\_2462MHz SISO ANT1



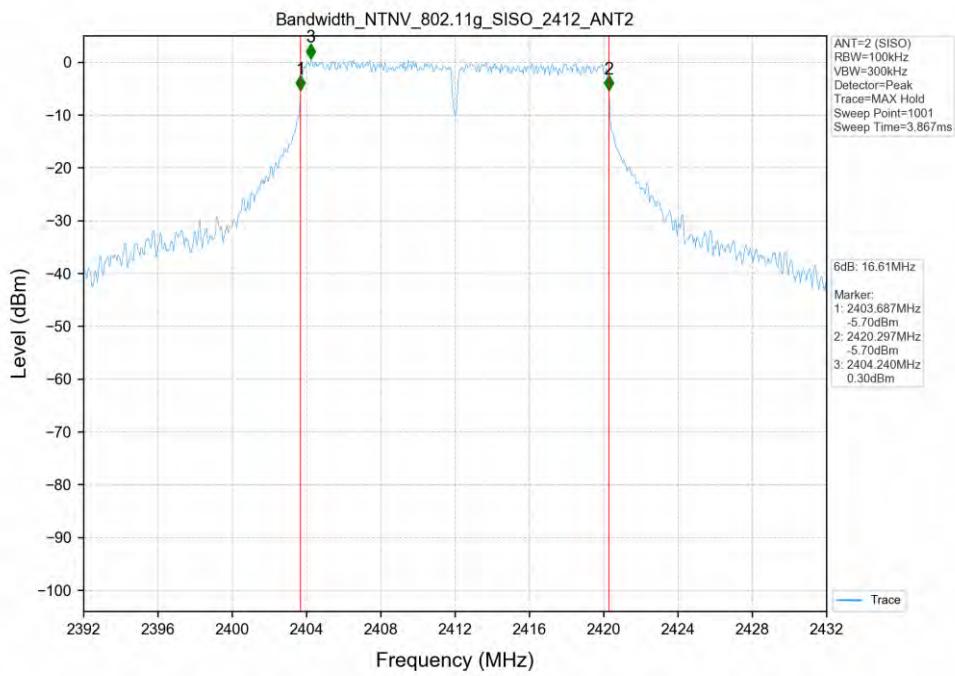
802.11b\_2462MHz SISO ANT2



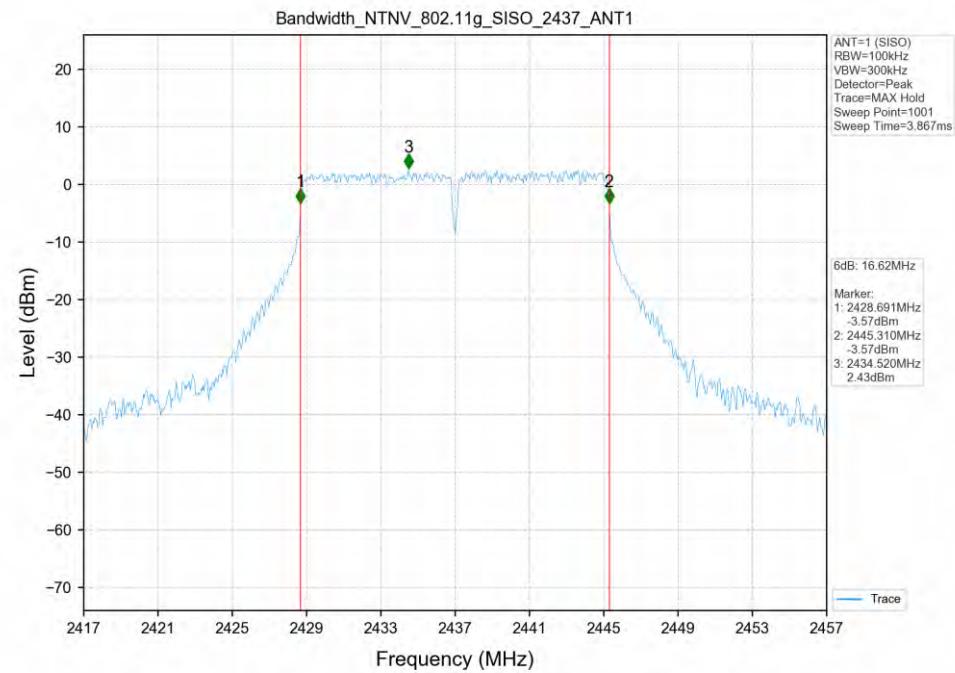
802.11g\_2412MHz\_SISO\_ANT1



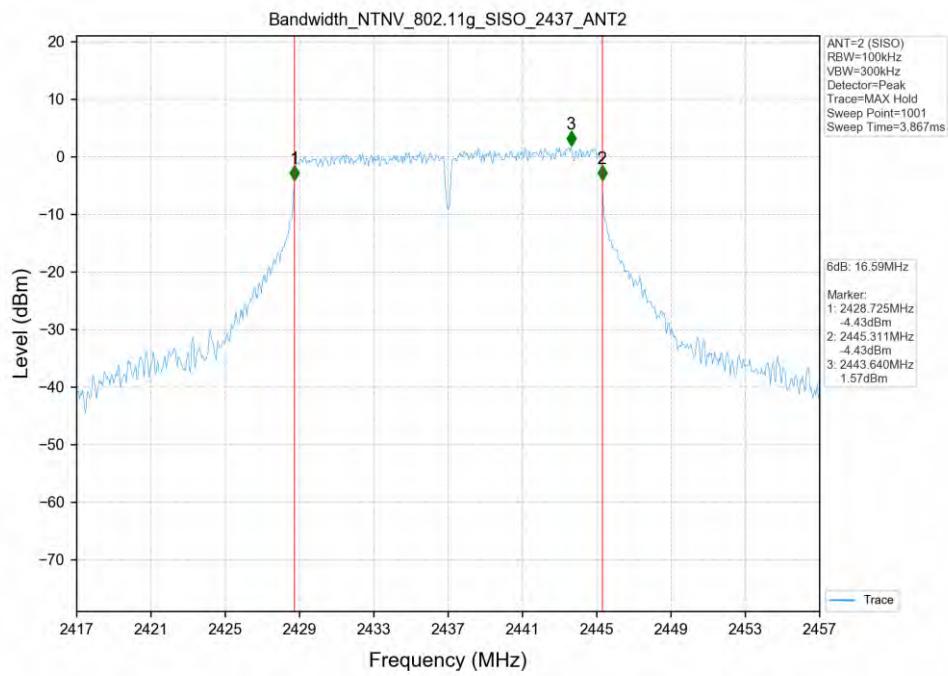
802.11g\_2412MHz\_SISO\_ANT2



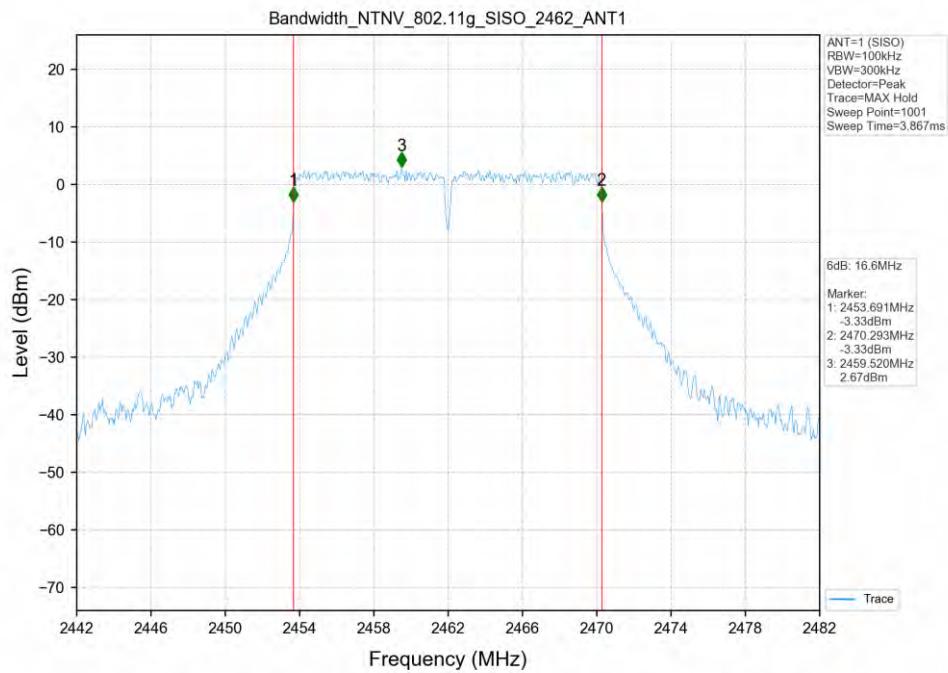
802.11g 2437MHz SISO ANT1



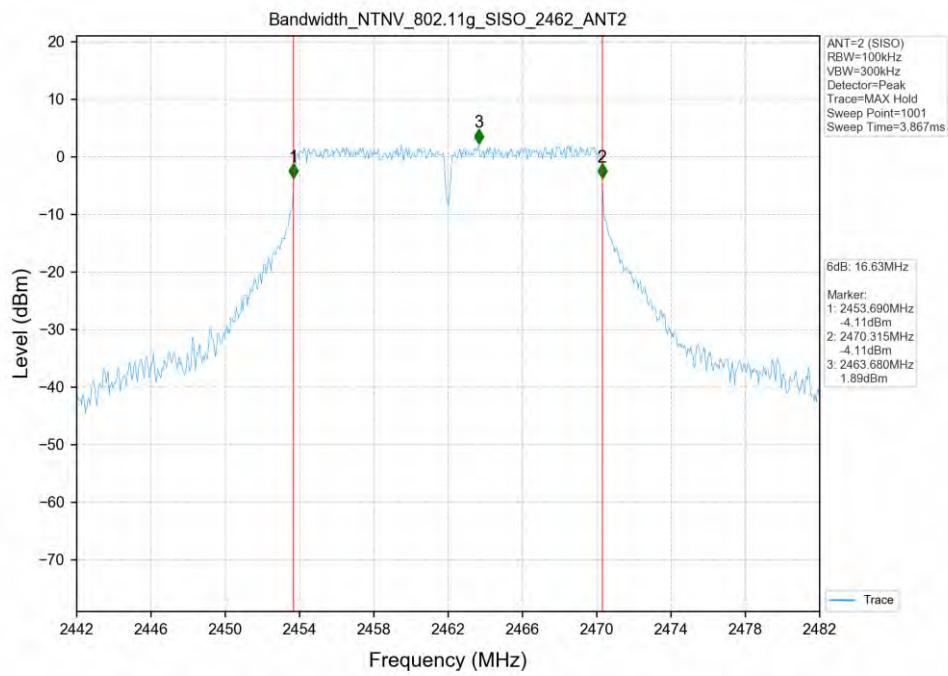
802.11g 2437MHz SISO ANT2



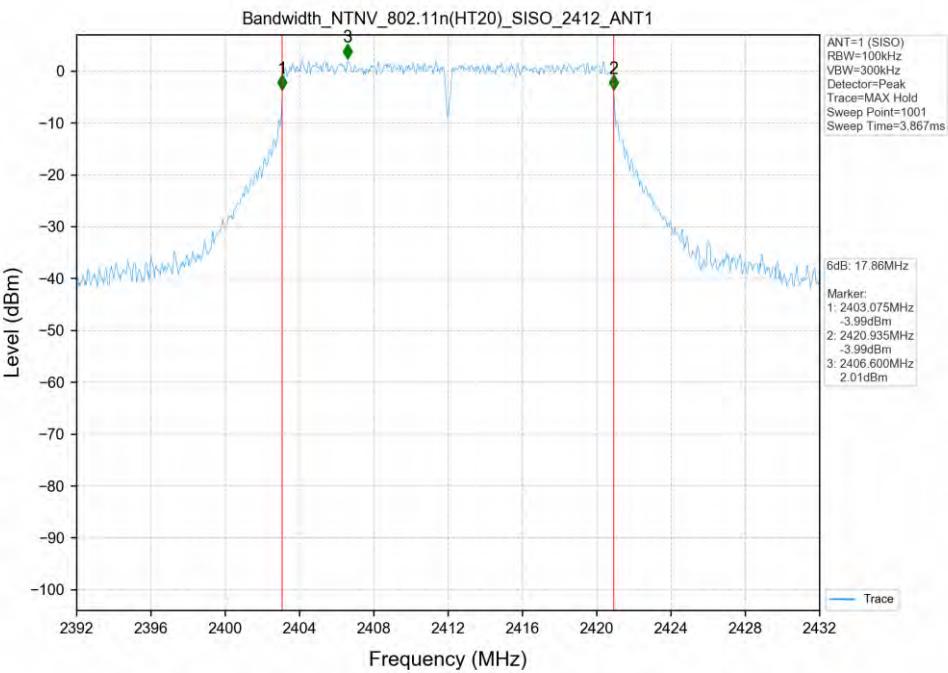
802.11g 2462MHz SISO ANT1



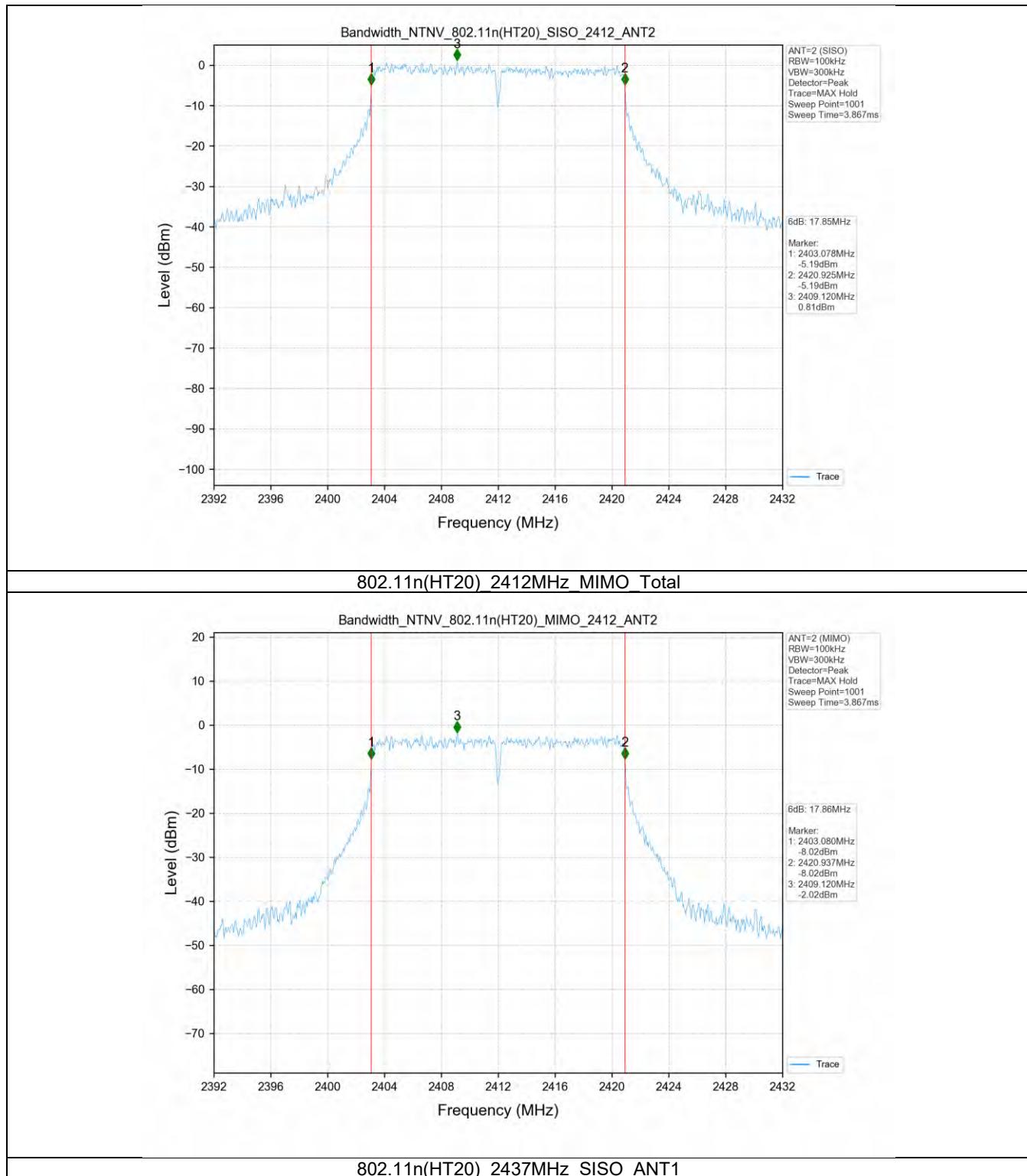
802.11g 2462MHz SISO ANT2

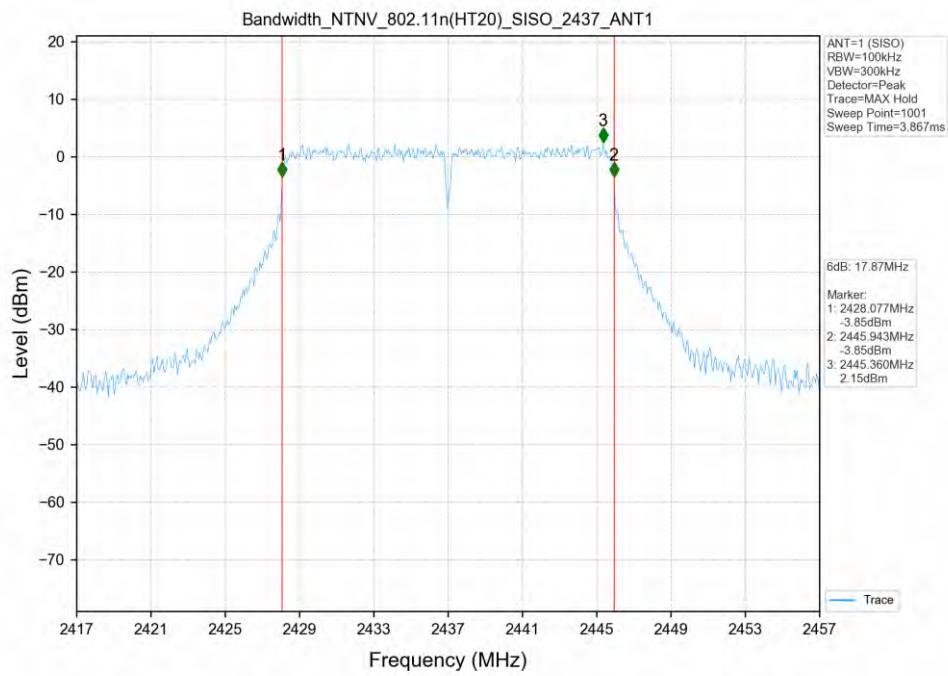


802.11n(HT20) 2412MHz SISO ANT1

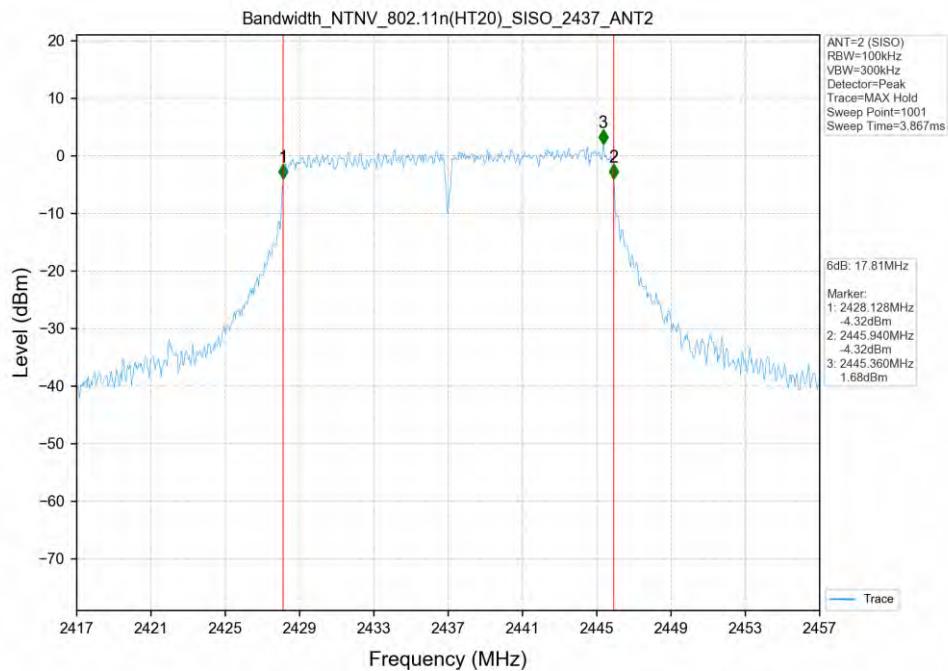


802.11n(HT20) 2412MHz SISO ANT2

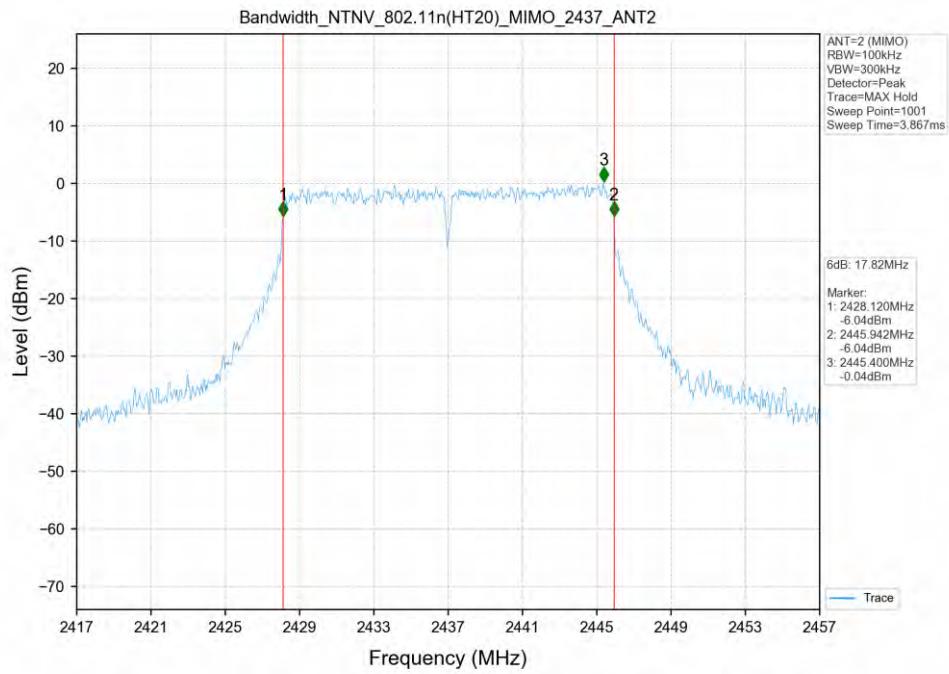




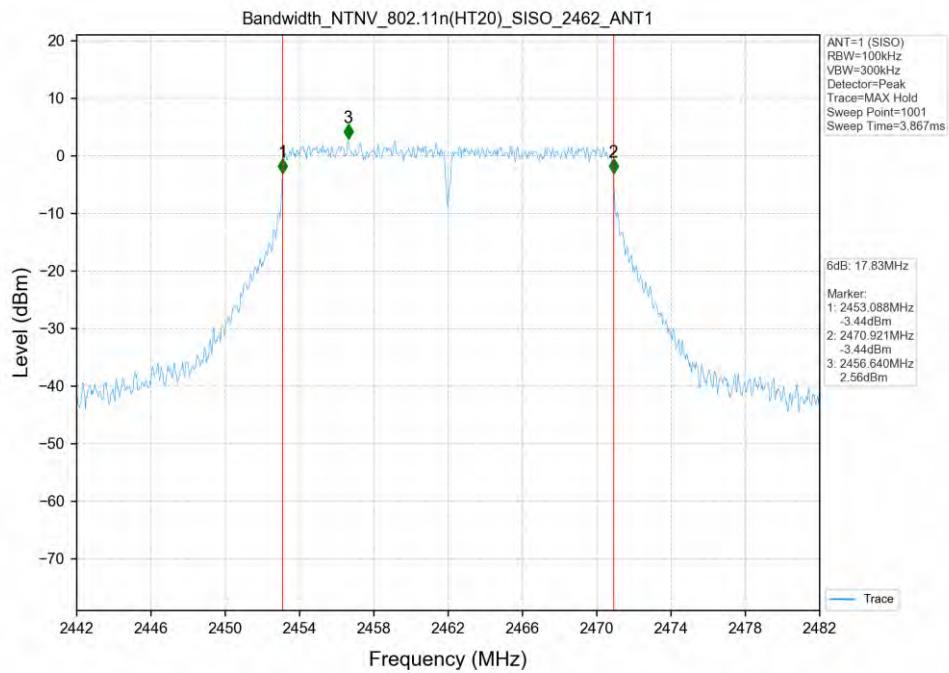
802.11n(HT20) 2437MHz SISO ANT2



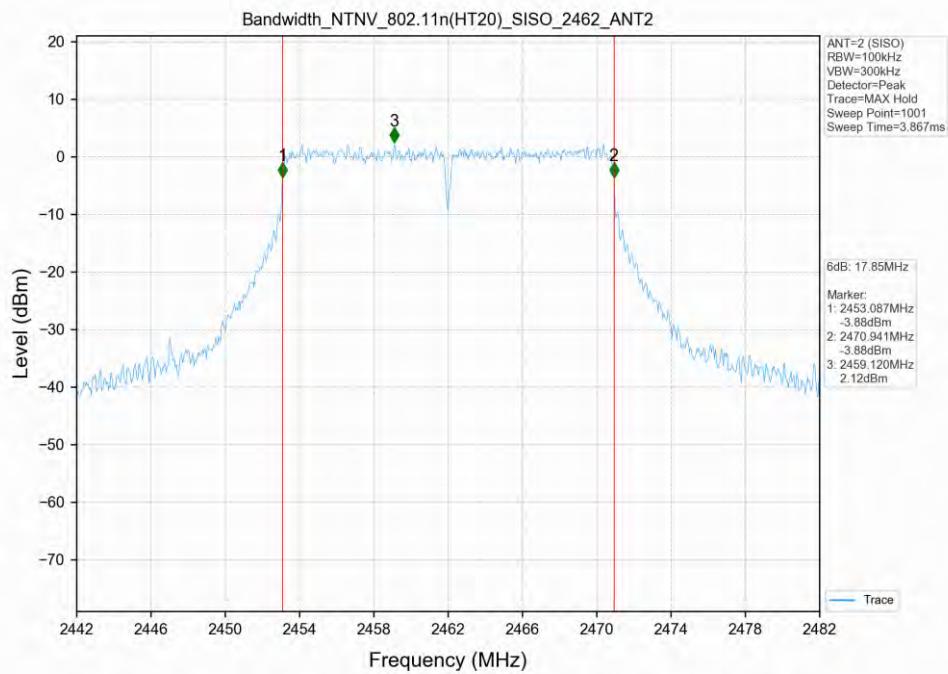
802.11n(HT20) 2437MHz MIMO Total



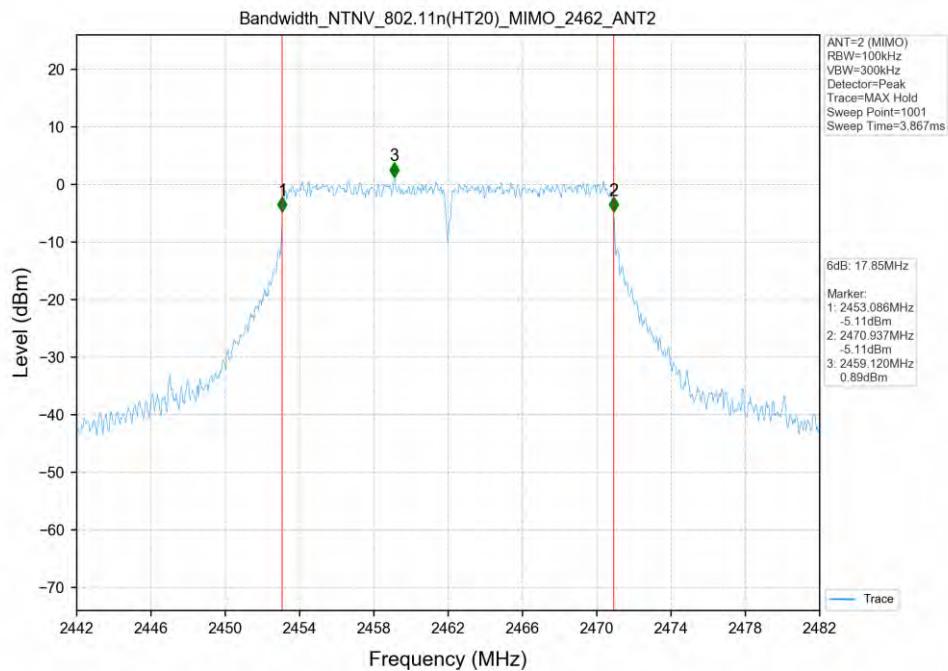
802.11n(HT20) 2462MHz SISO ANT1



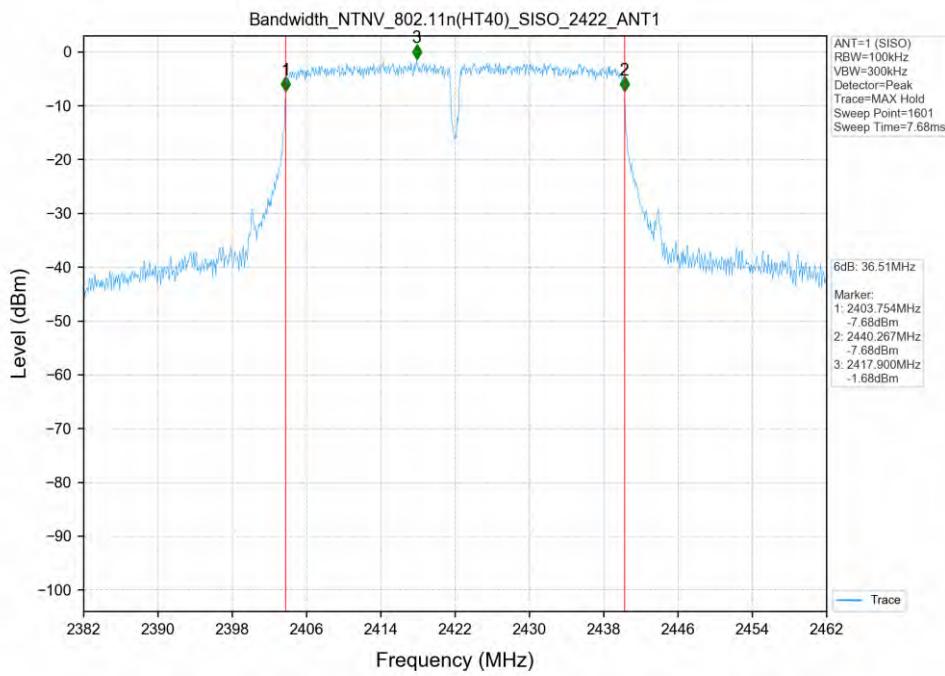
802.11n(HT20) 2462MHz SISO ANT2



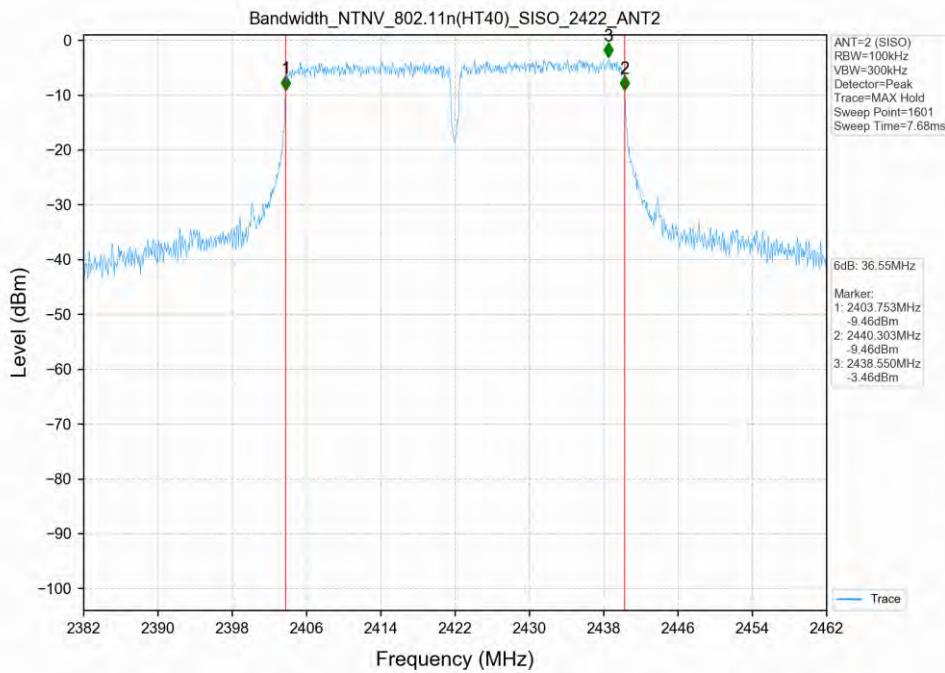
802.11n(HT20) 2462MHz MIMO Total



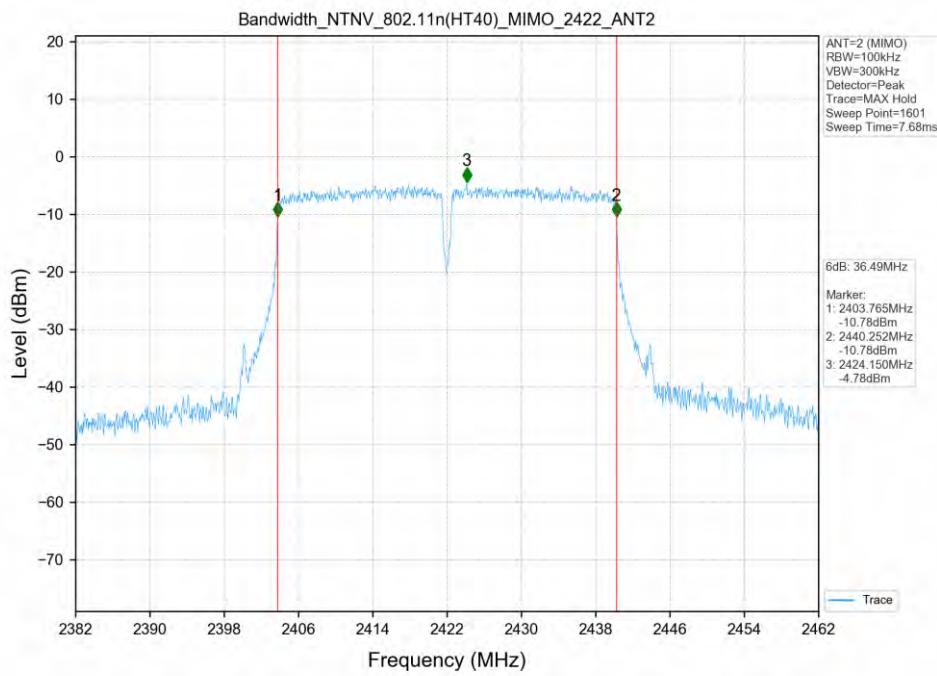
802.11n(HT40) 2422MHz SISO ANT1



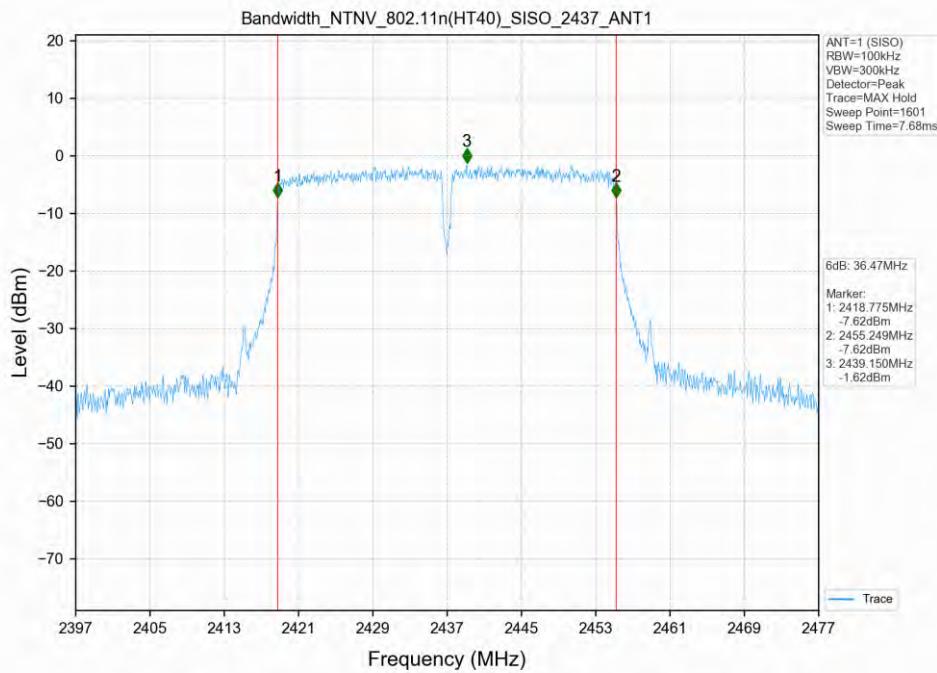
802.11n(HT40) 2422MHz SISO ANT2



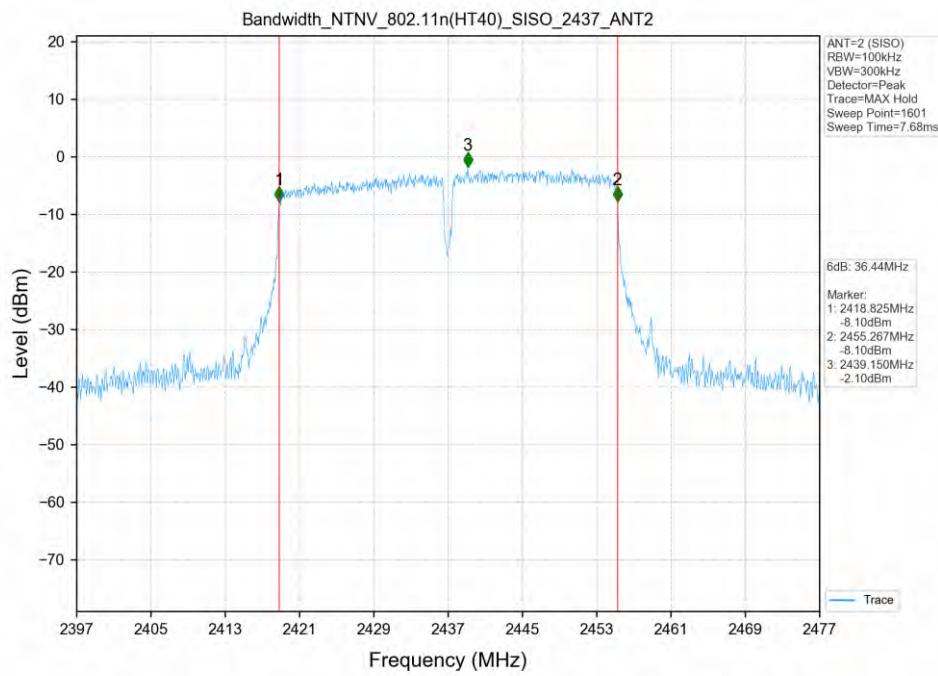
802.11n(HT40) 2422MHz MIMO Total



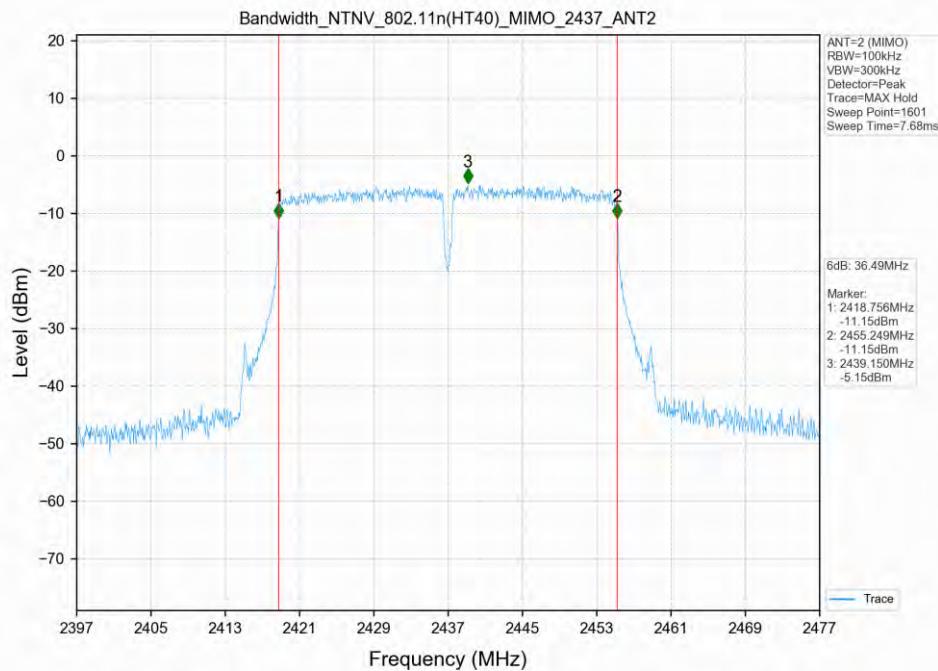
802.11n(HT40) 2437MHz SISO ANT1



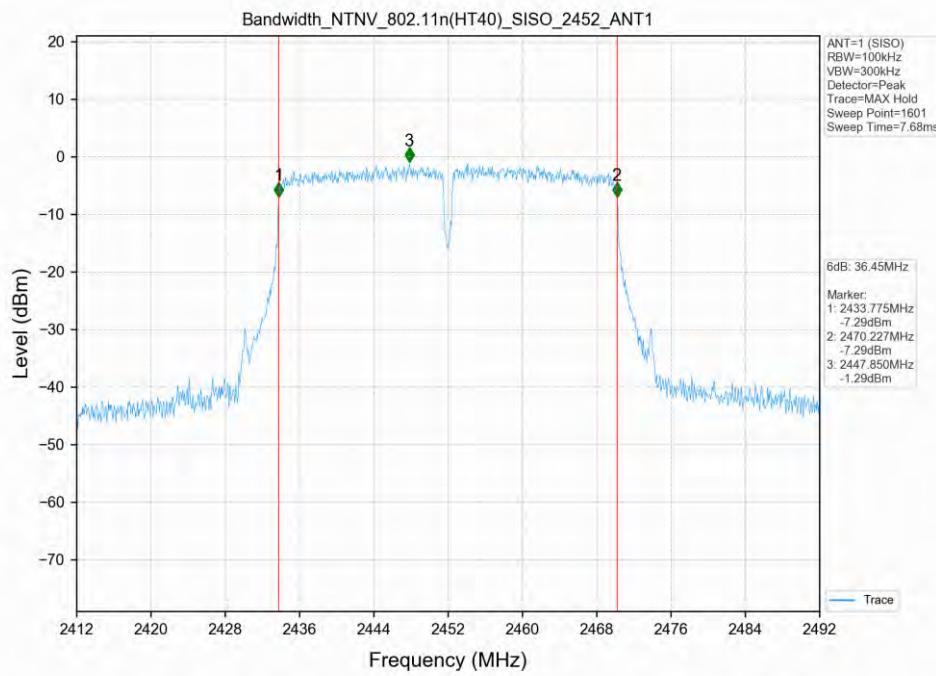
802.11n(HT40) 2437MHz SISO ANT2



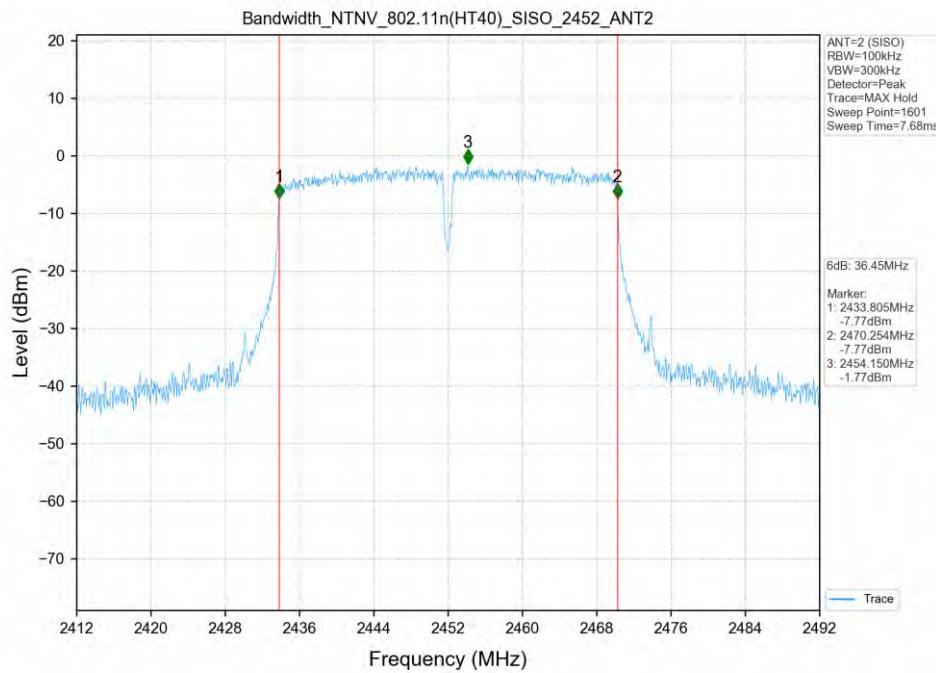
802.11n(HT40) 2437MHz MIMO Total



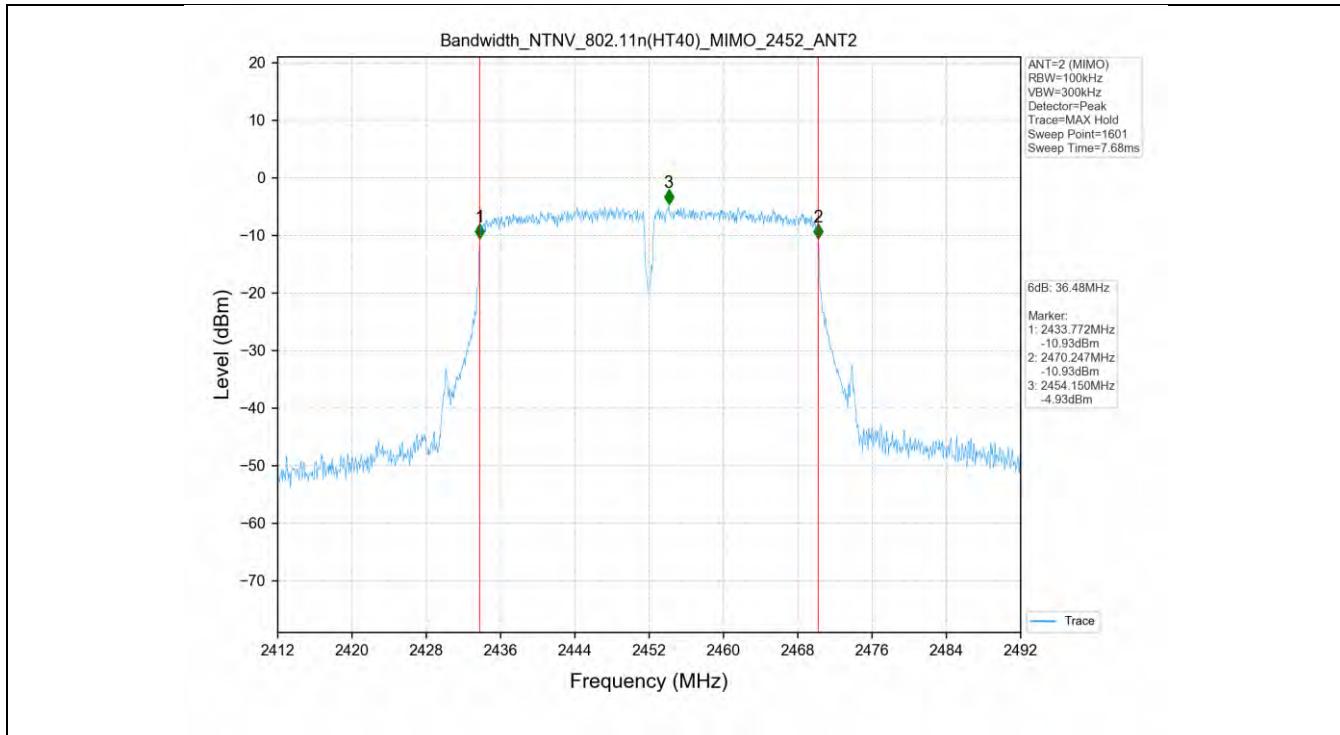
802.11n(HT40) 2452MHz SISO ANT1



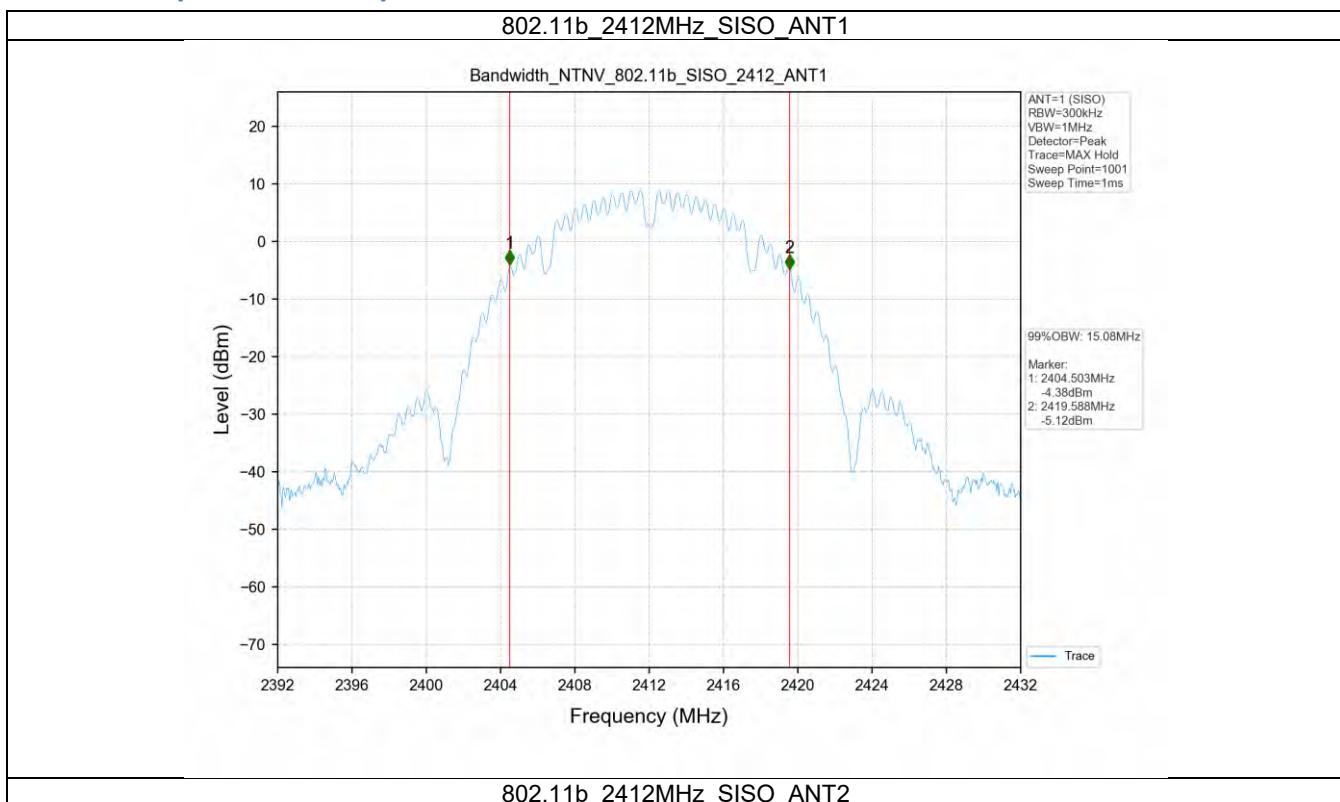
802.11n(HT40) 2452MHz SISO ANT2

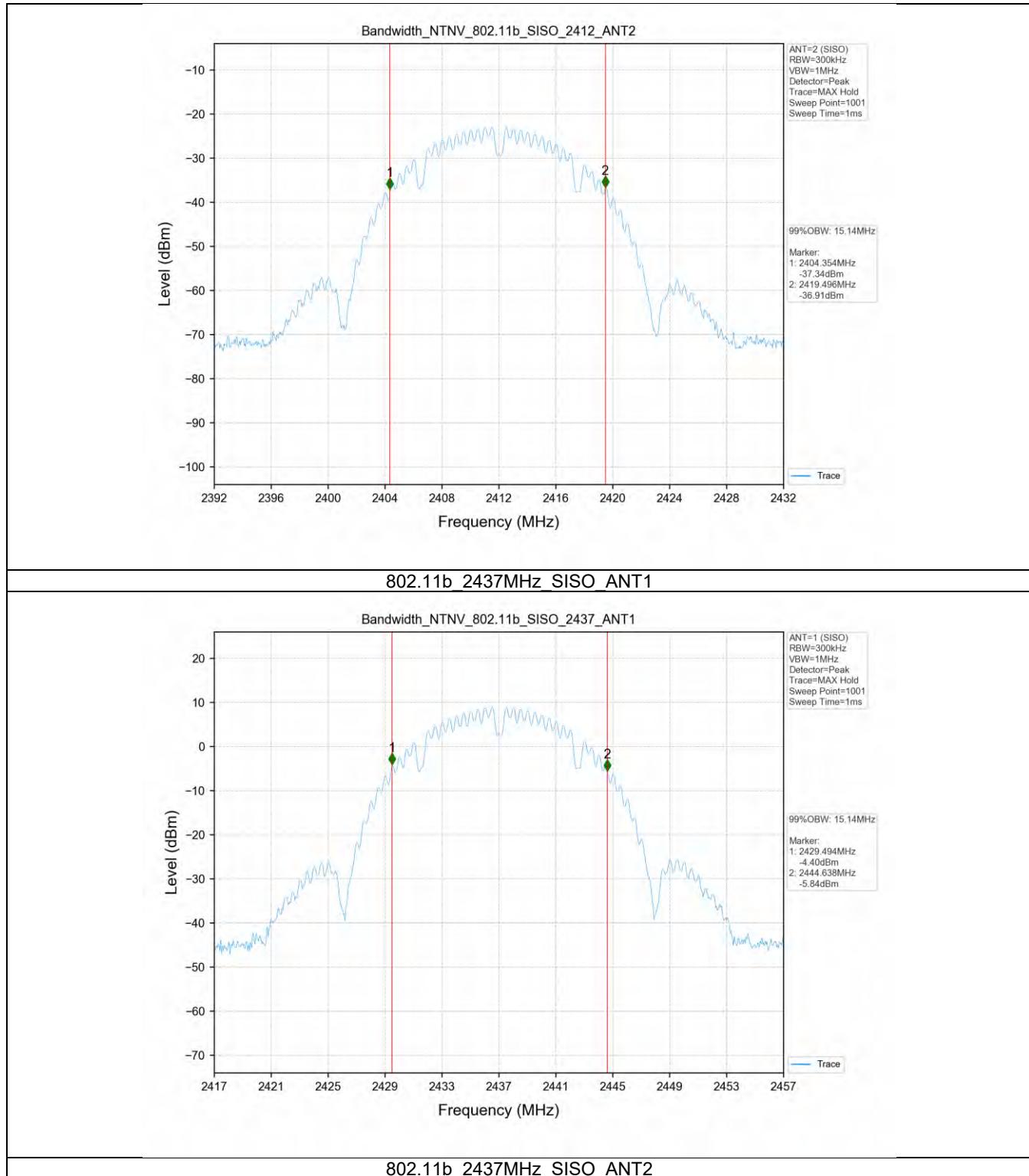


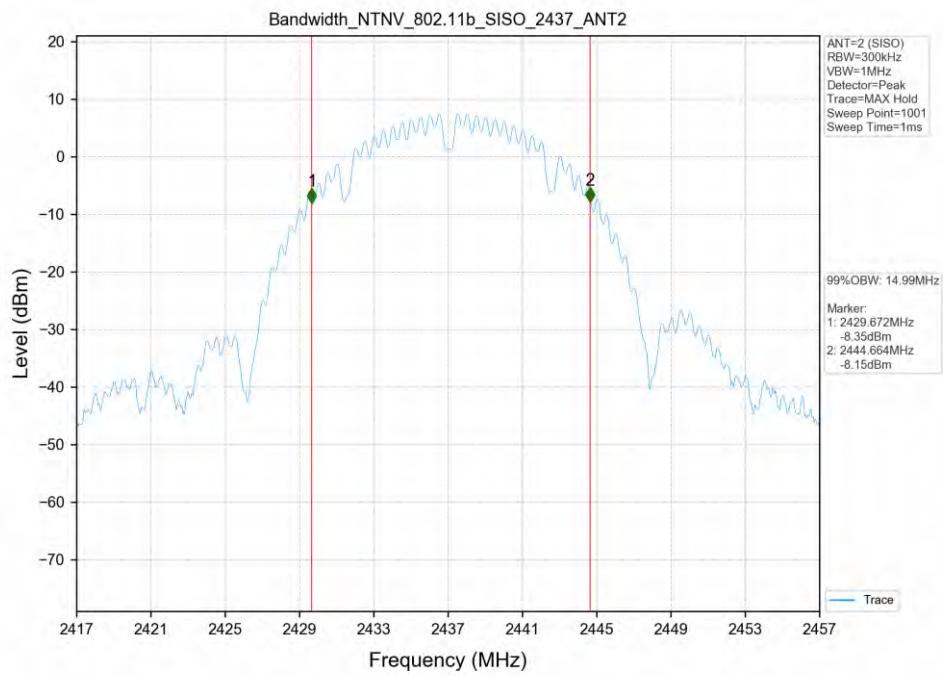
802.11n(HT40) 2452MHz MIMO Total



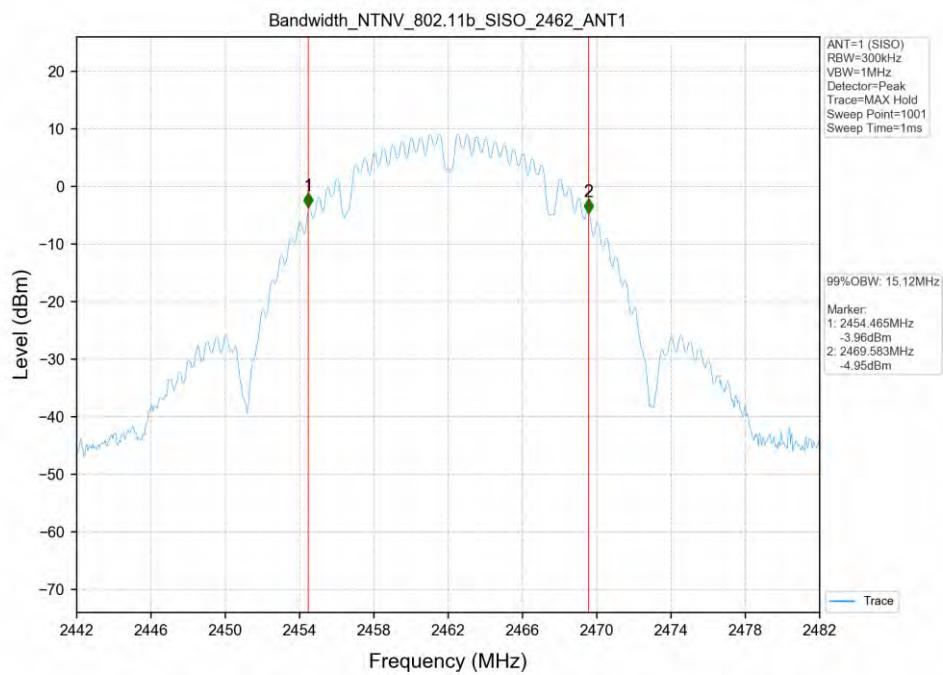
### 2.3 Test Graph - 99% Occupied Bandwidth



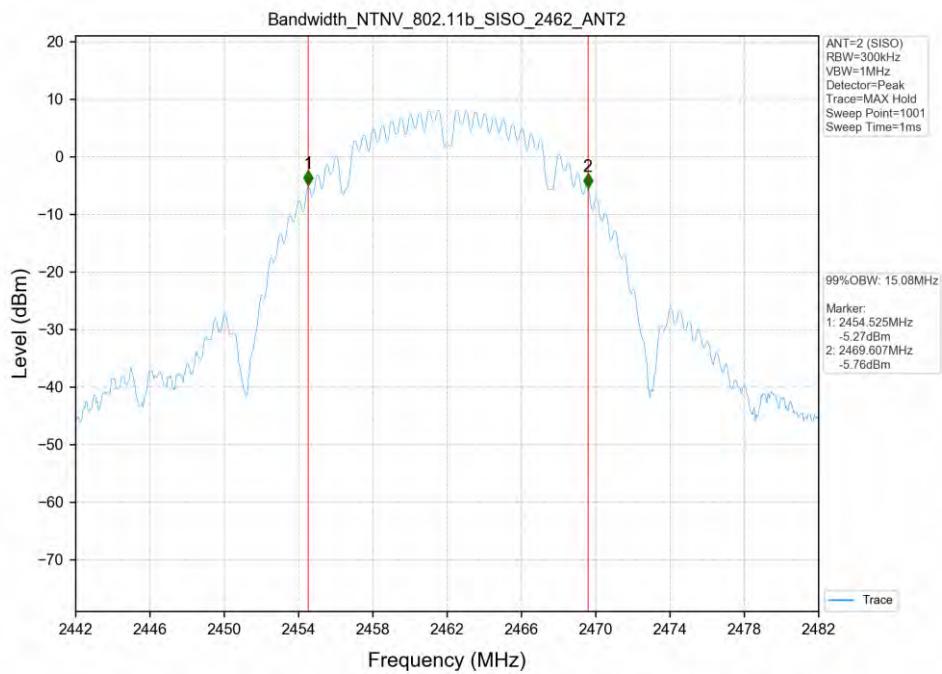




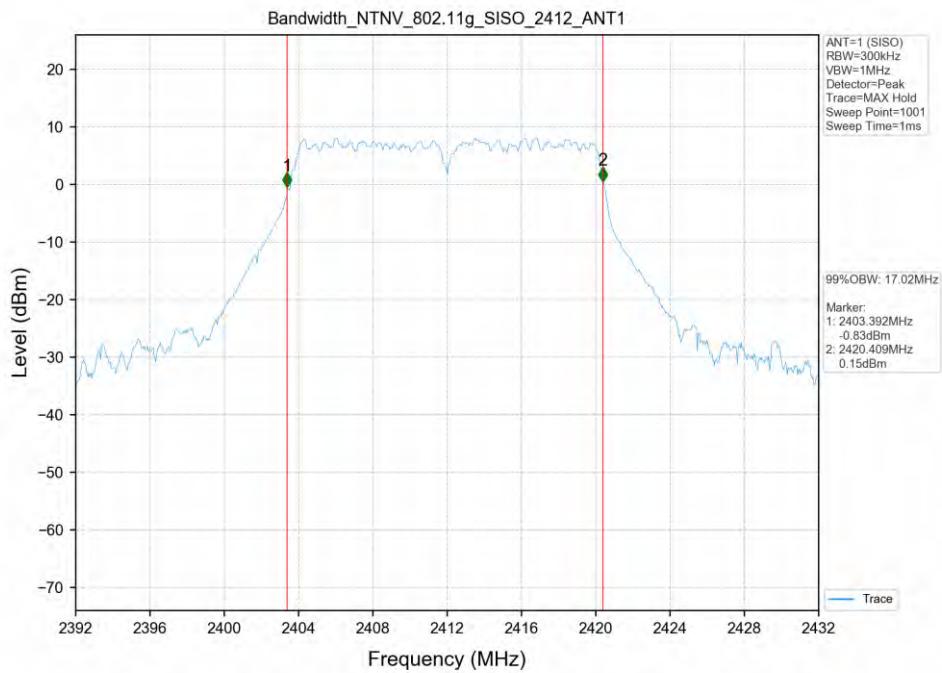
802.11b 2462MHz SISO ANT1



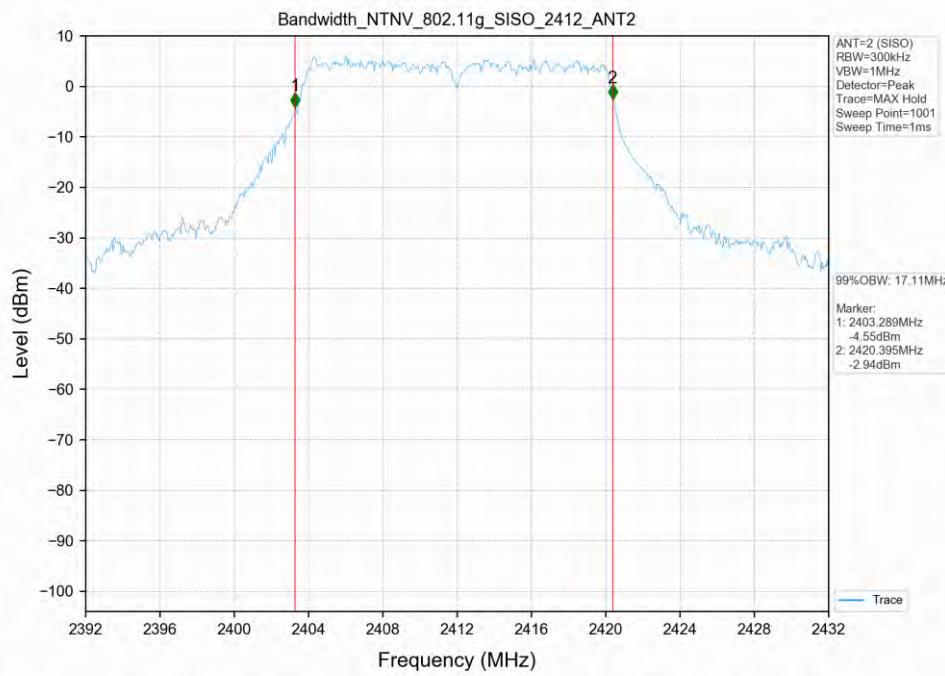
802.11b 2462MHz SISO ANT2



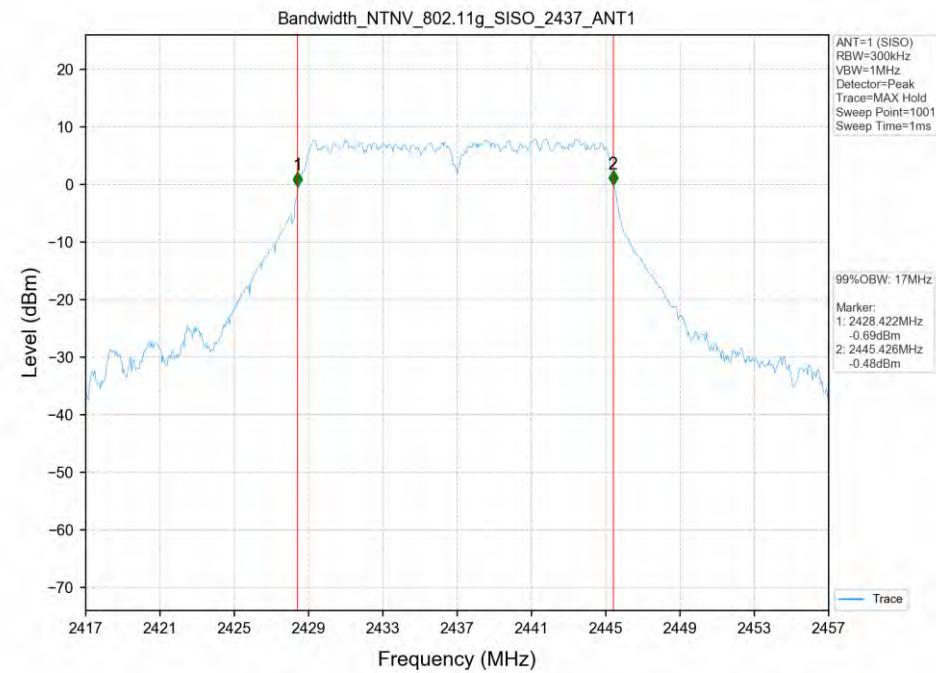
802.11g\_2412MHz\_SISO\_ANT1



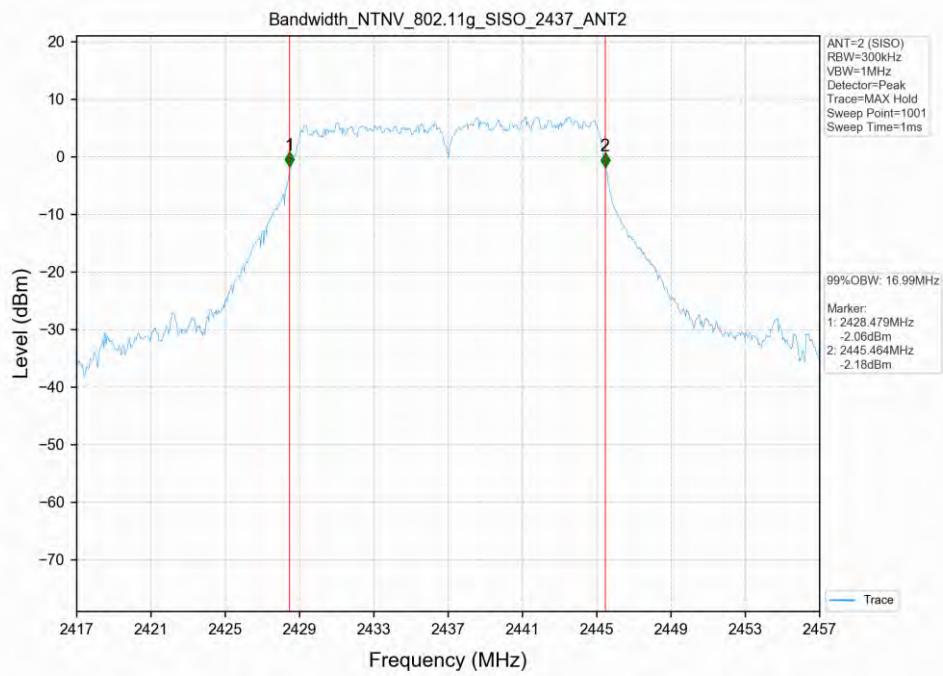
802.11g\_2412MHz\_SISO\_ANT2



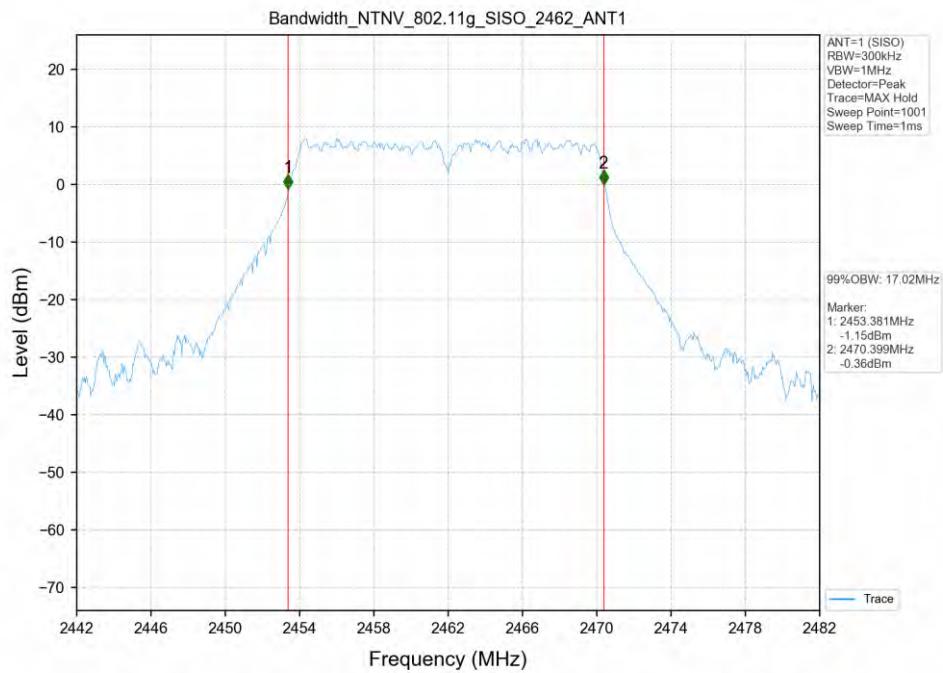
802.11g 2437MHz SISO ANT1



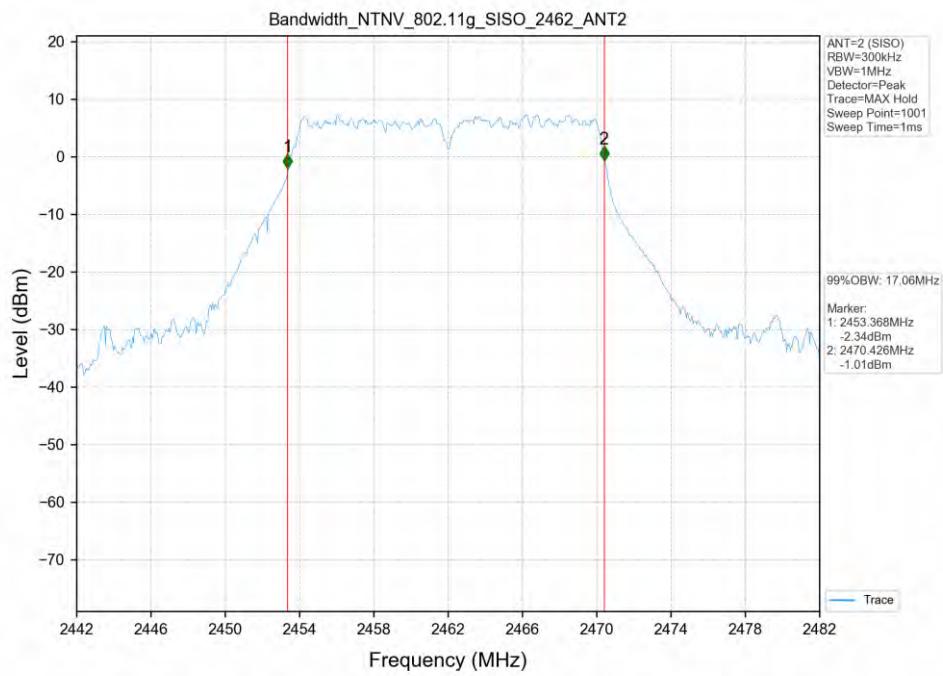
802.11g 2437MHz SISO ANT2



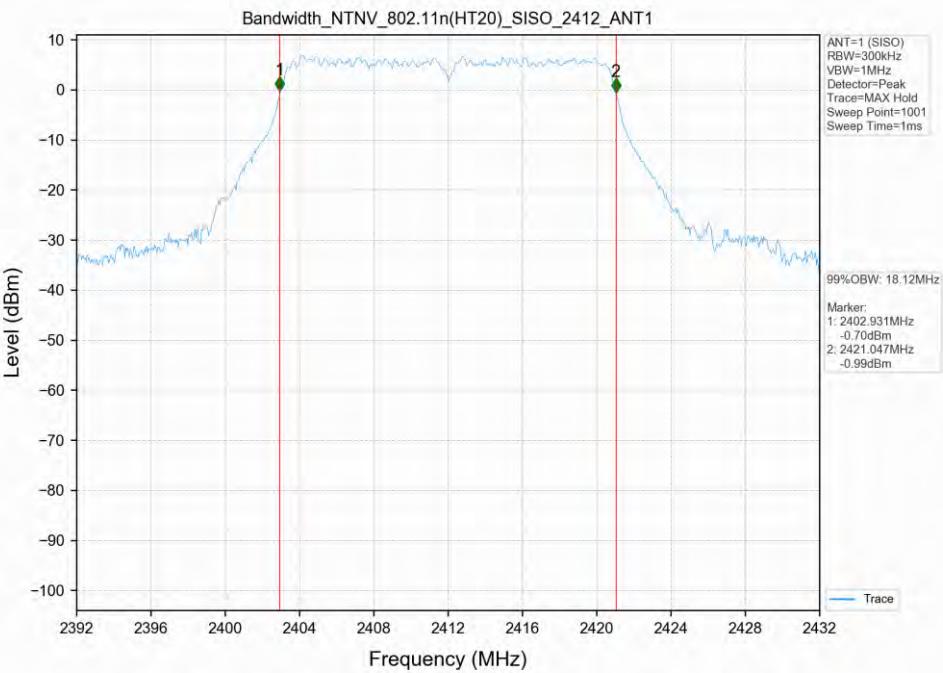
802.11g 2462MHz SISO ANT1



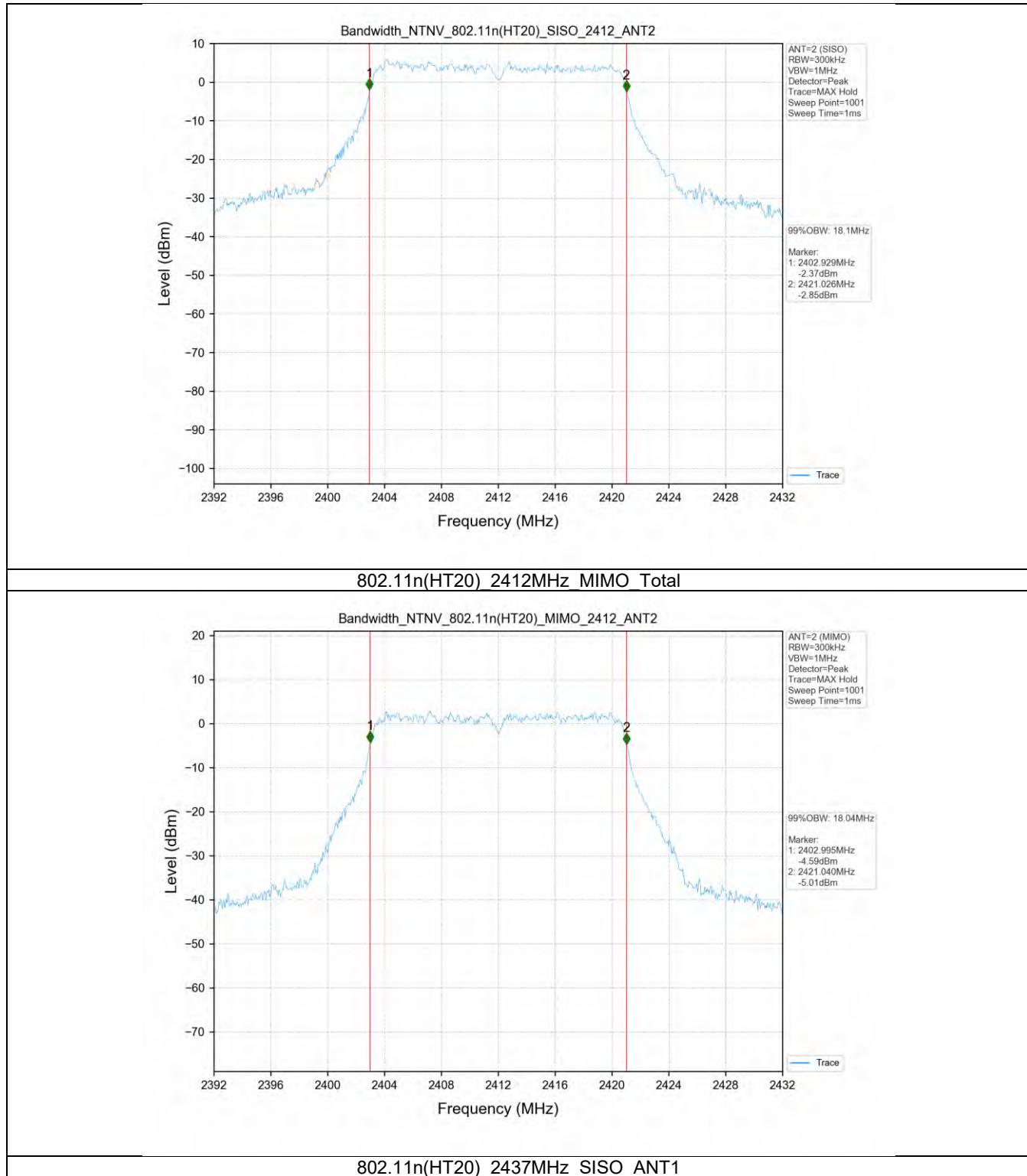
802.11g 2462MHz SISO ANT2

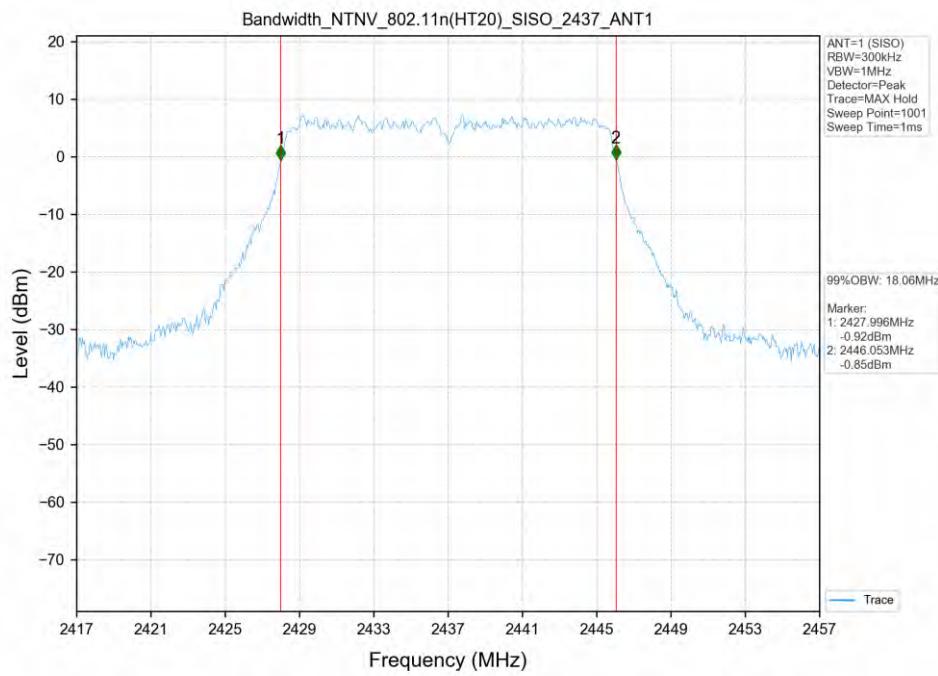


802.11n(HT20) 2412MHz SISO ANT1

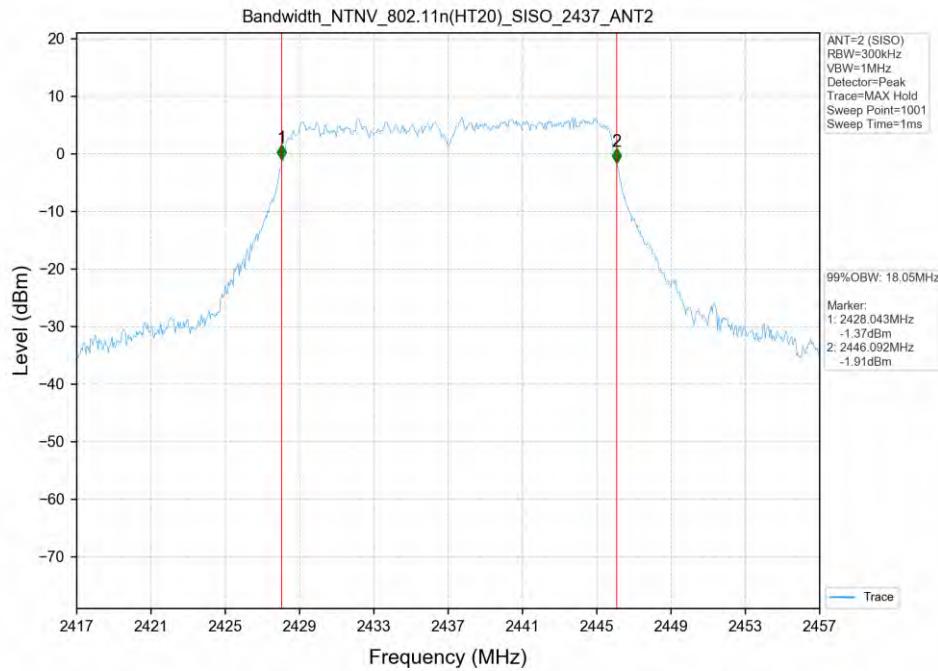


802.11n(HT20) 2412MHz SISO ANT2

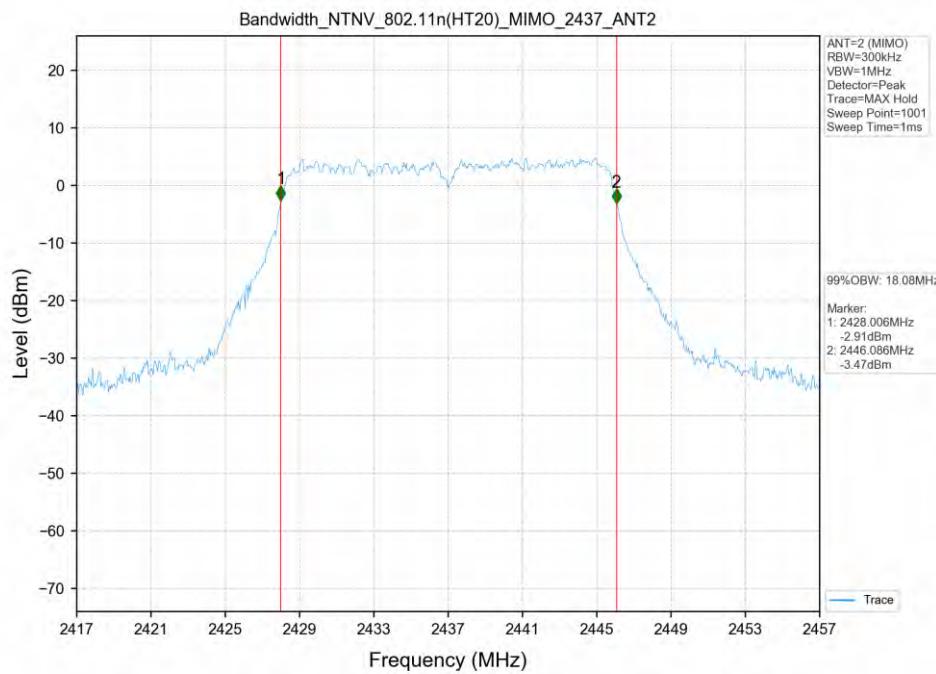




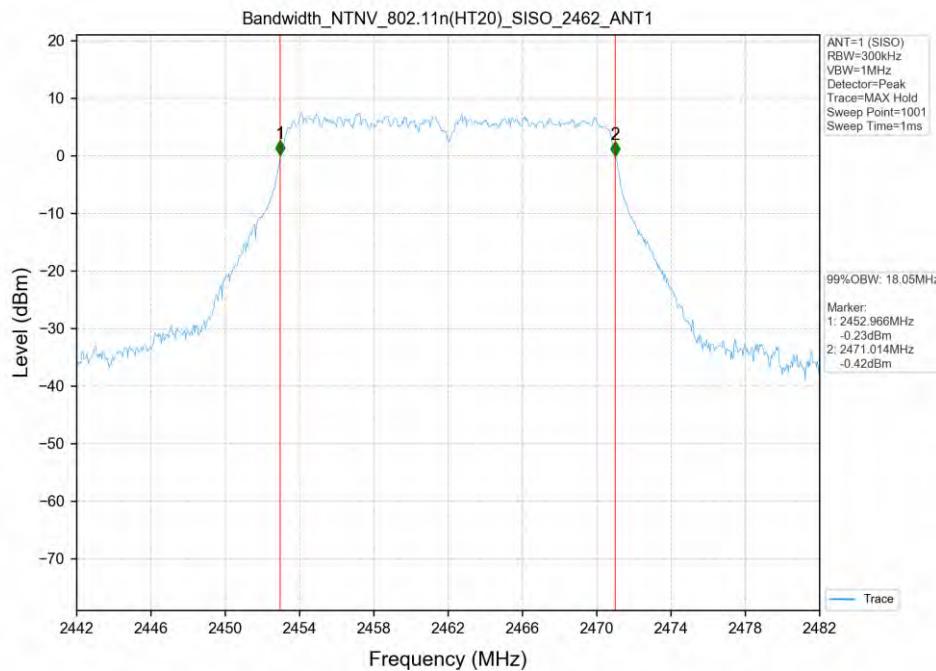
802.11n(HT20) 2437MHz SISO ANT2



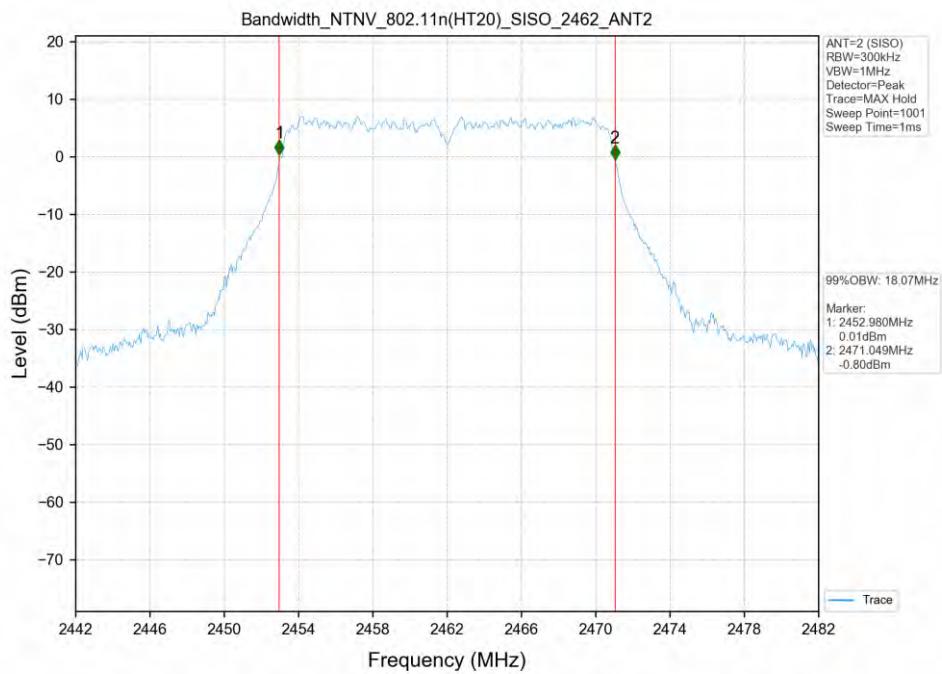
802.11n(HT20) 2437MHz MIMO Total



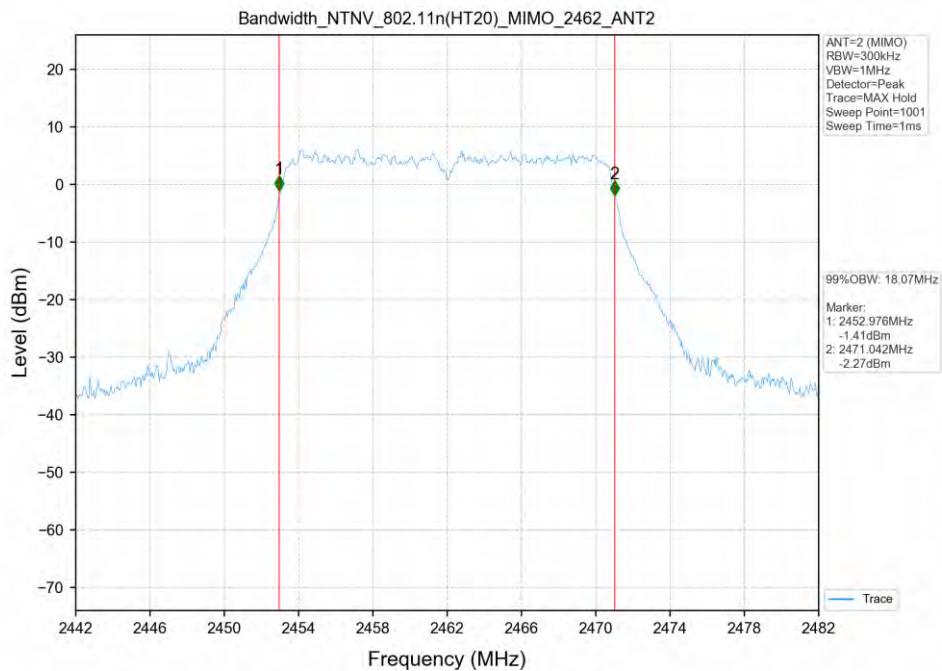
802.11n(HT20) 2462MHz SISO ANT1



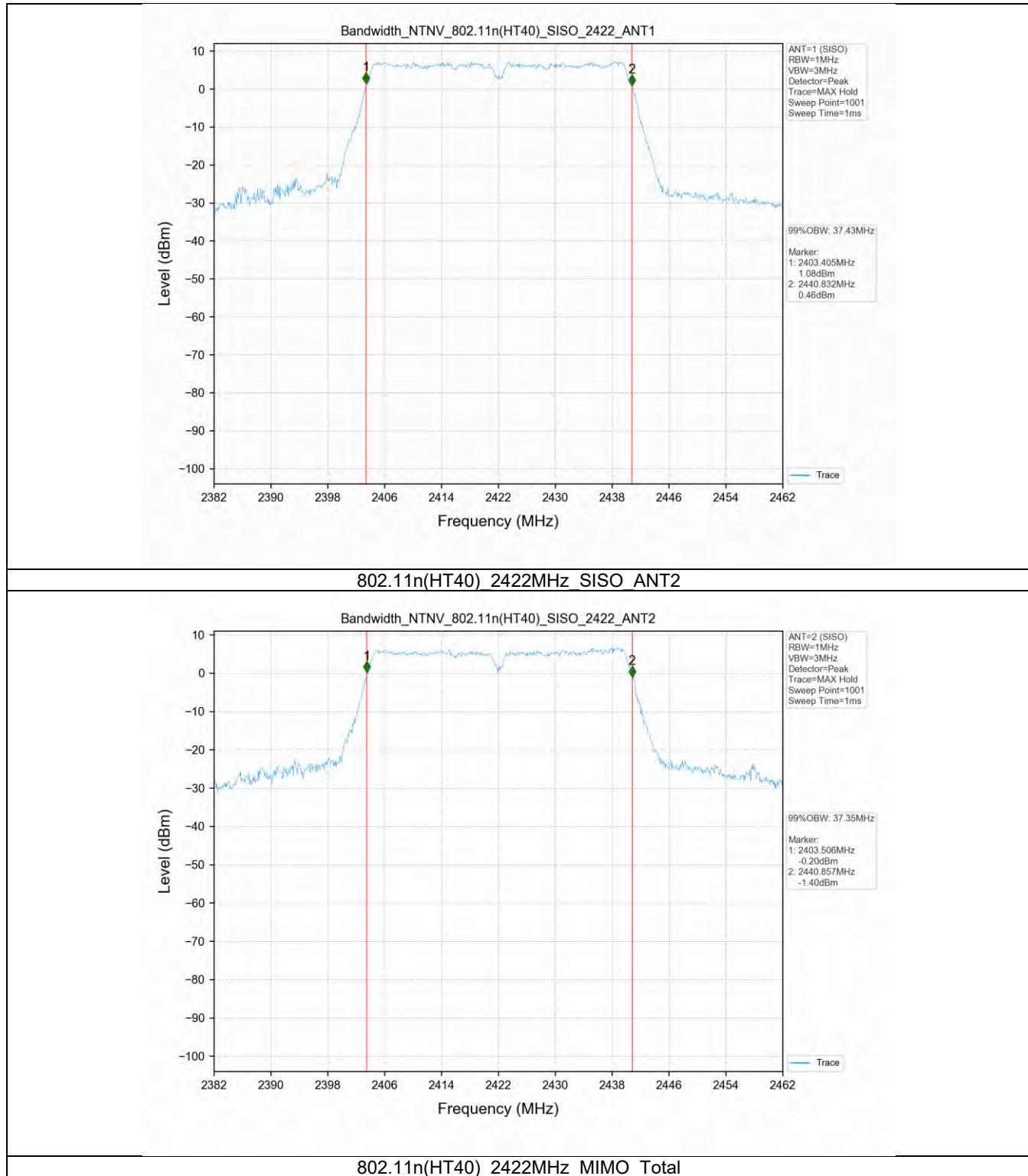
802.11n(HT20) 2462MHz SISO ANT2

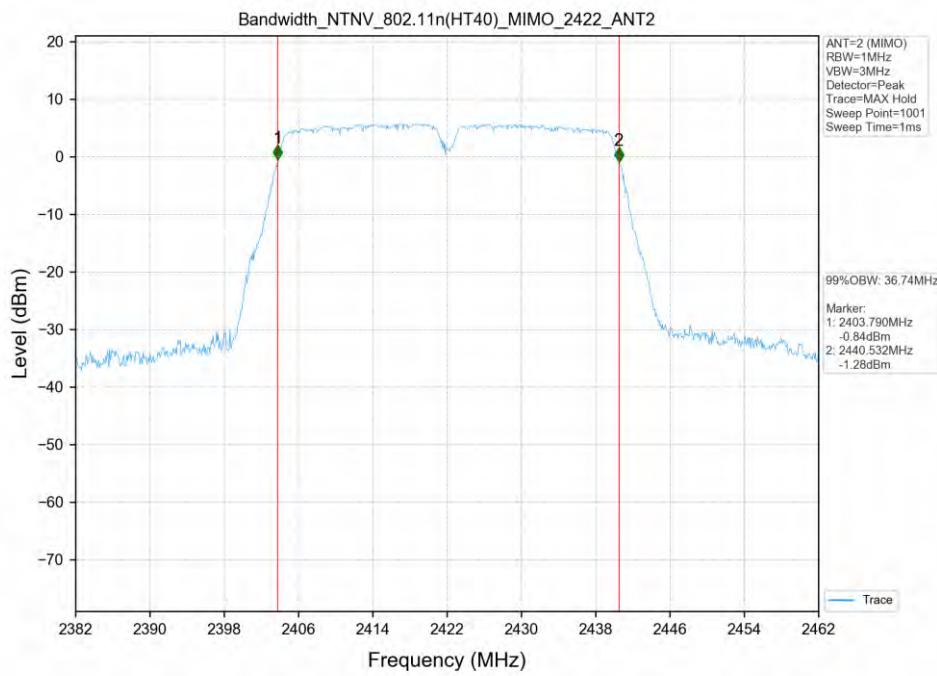


802.11n(HT20) 2462MHz MIMO Total

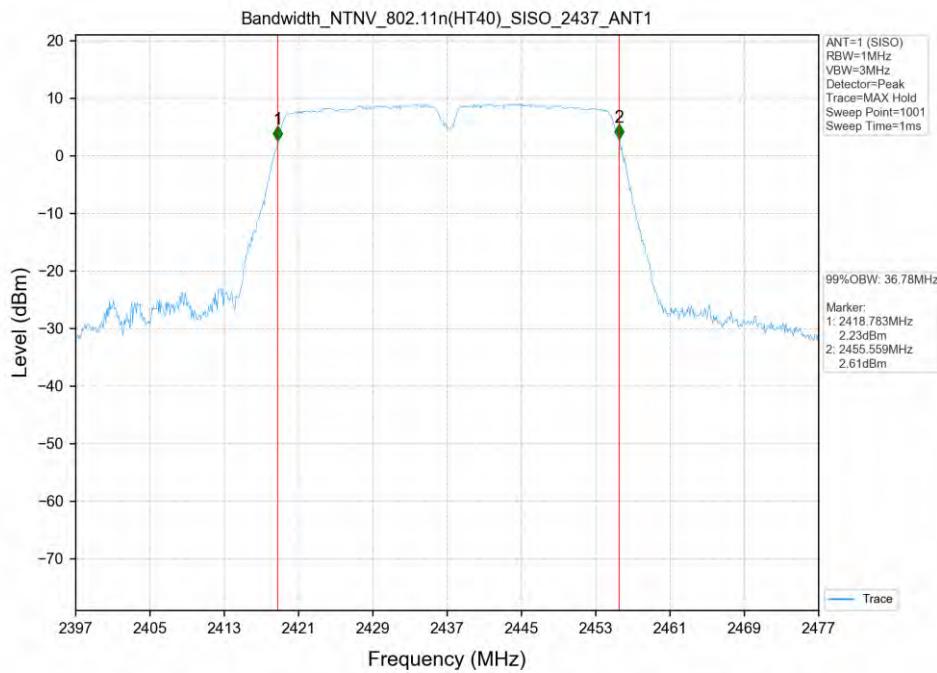


802.11n(HT40) 2422MHz SISO ANT1

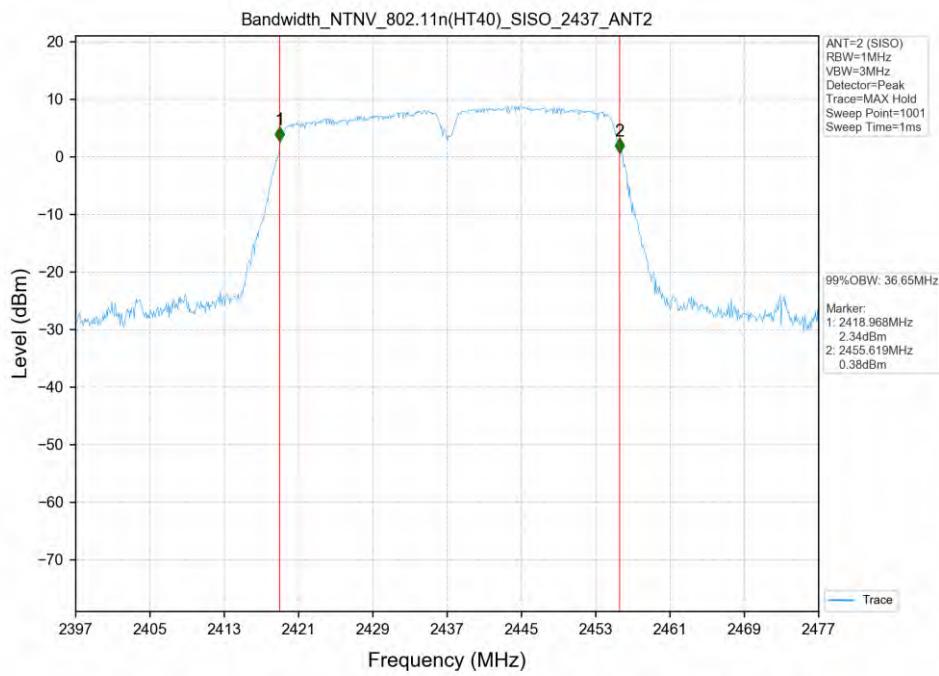




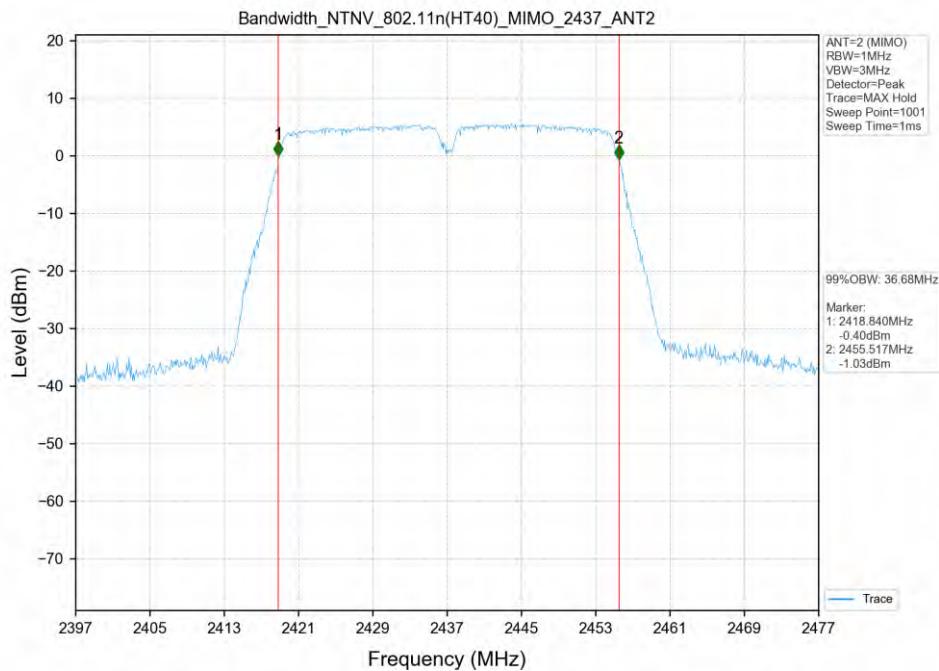
802.11n(HT40) 2437MHz SISO ANT1



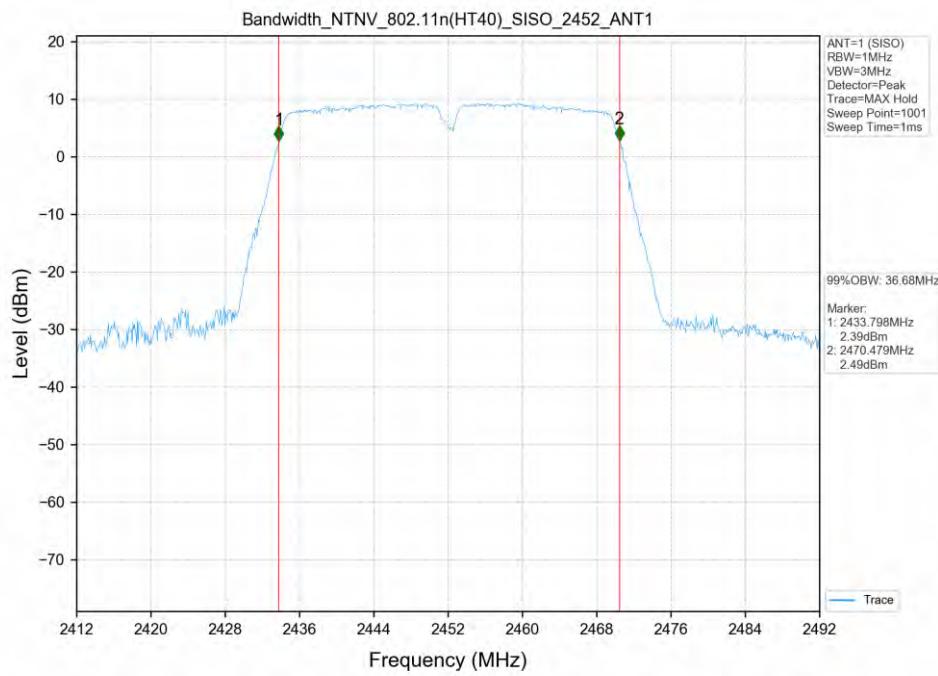
802.11n(HT40) 2437MHz SISO ANT2



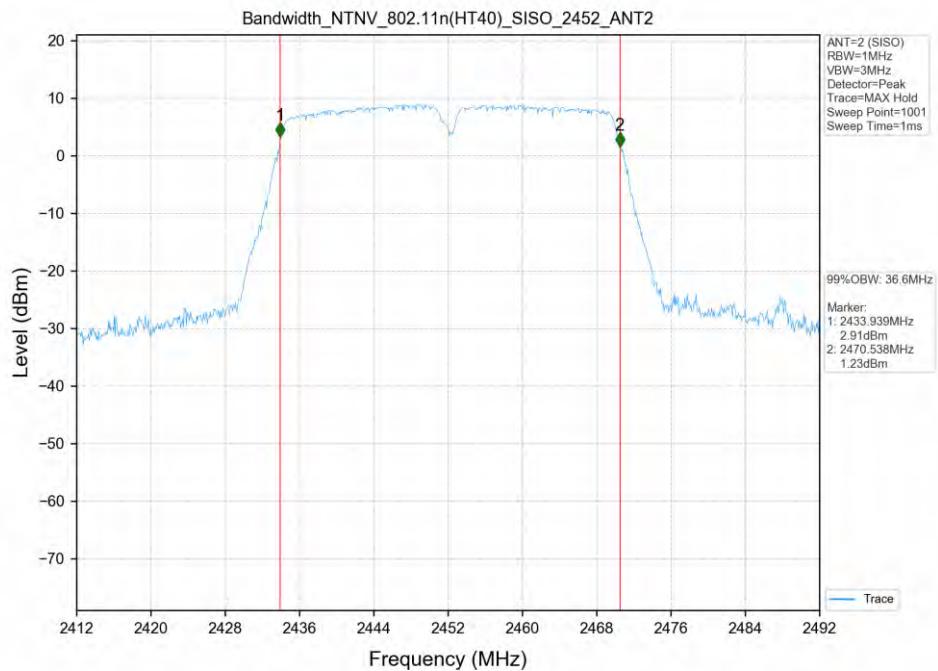
802.11n(HT40) 2437MHz MIMO Total



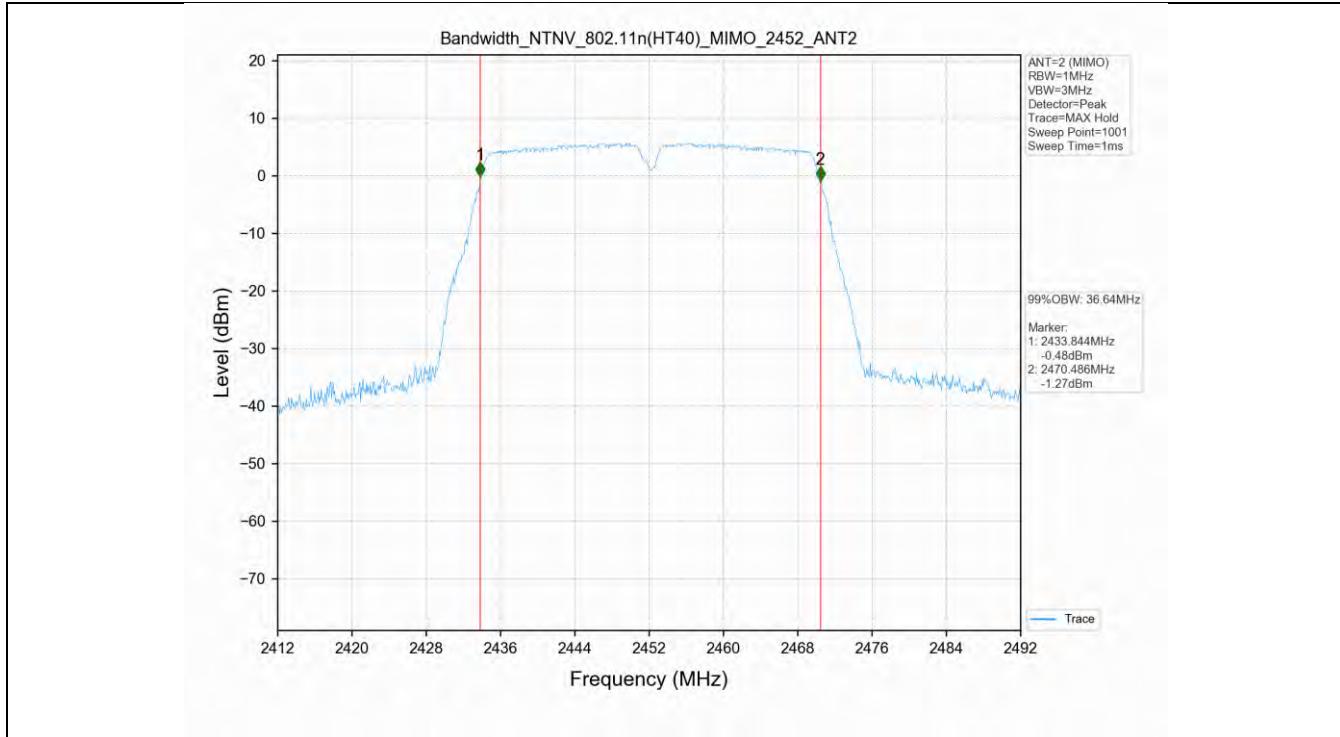
802.11n(HT40) 2452MHz SISO ANT1



802.11n(HT40) 2452MHz SISO ANT2



802.11n(HT40) 2452MHz MIMO Total



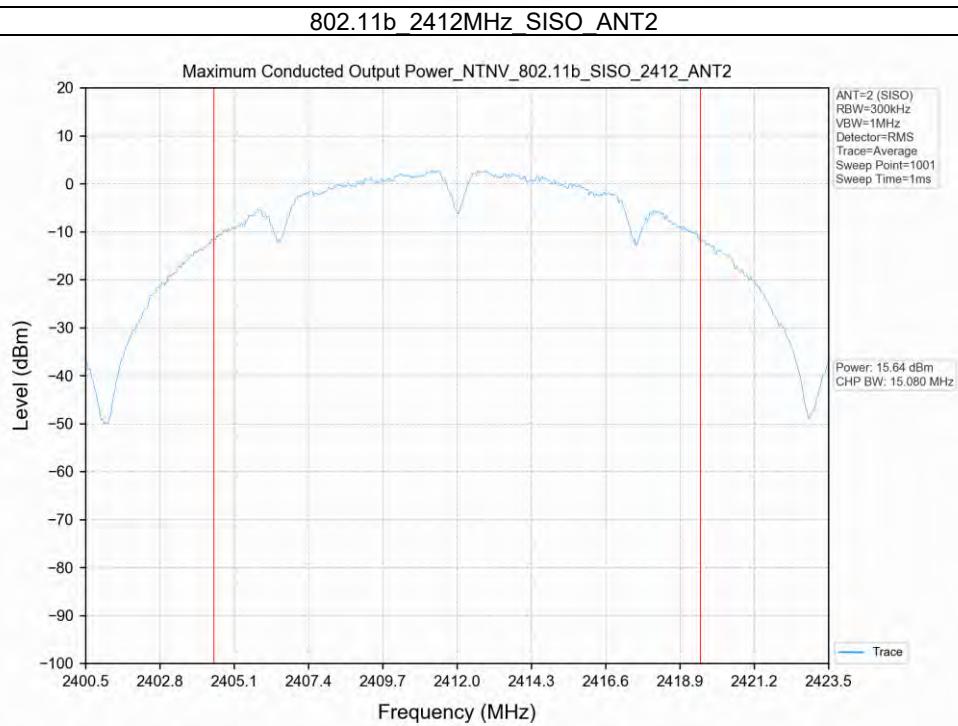
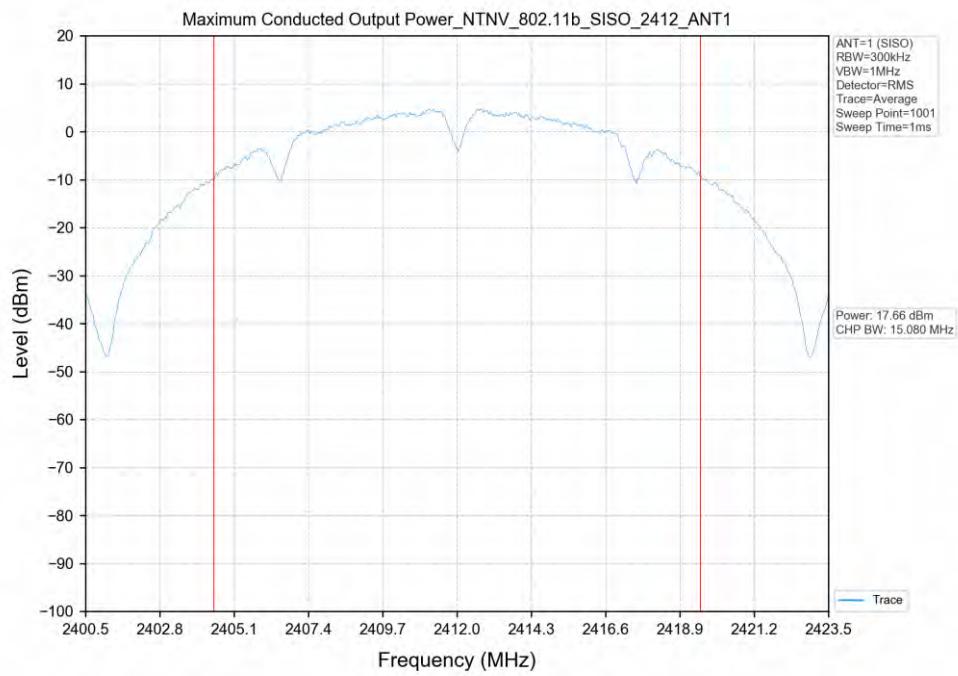
### 3. Maximum Conducted Output Power

#### 3.1 Test Result

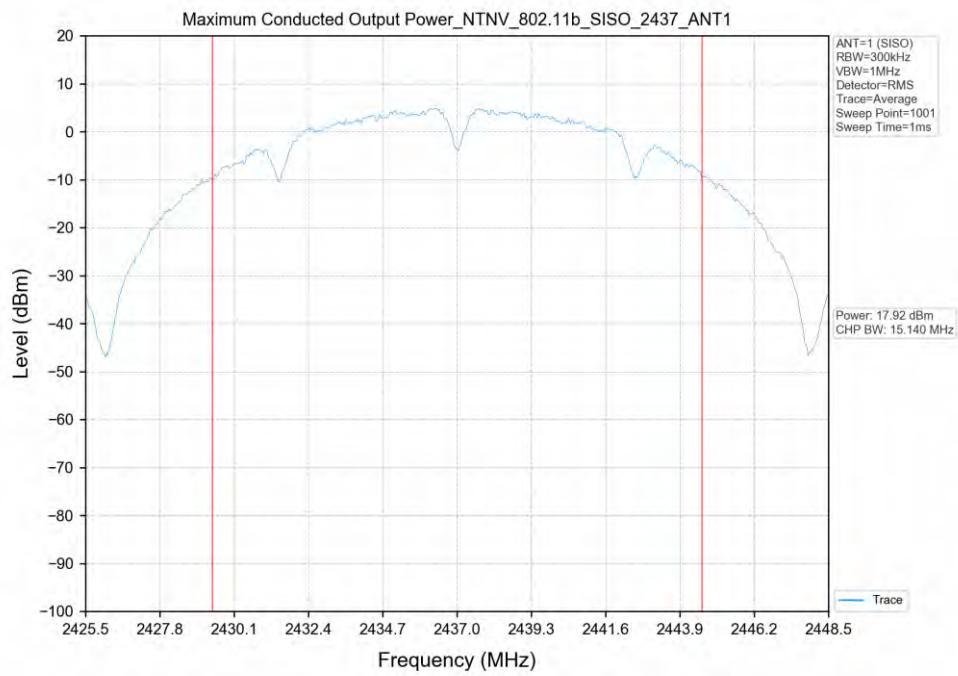
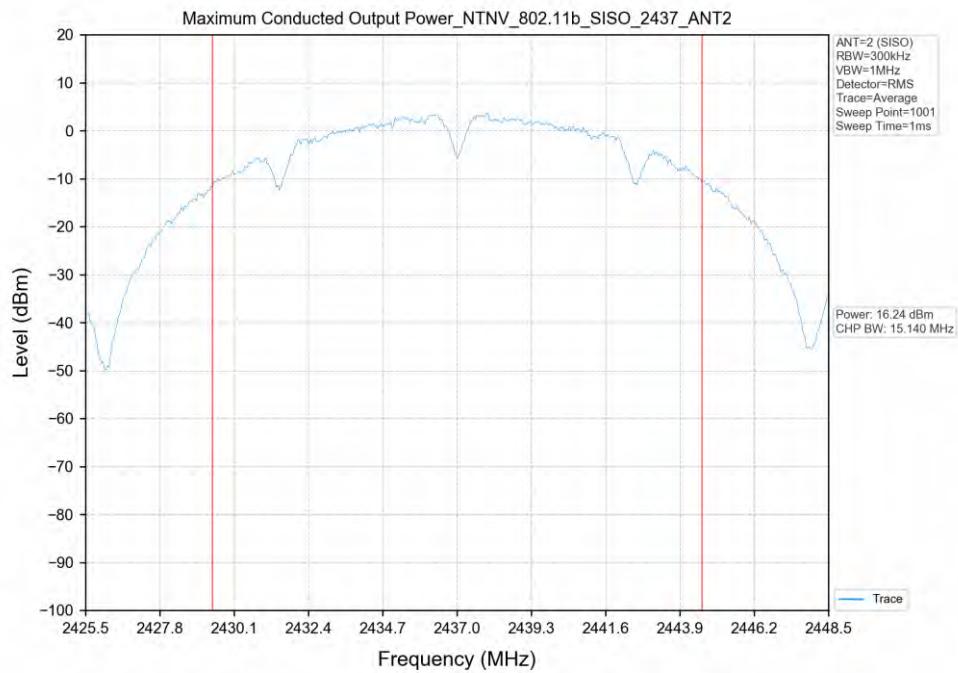
Test Mode	Frequency (MHz)	Tx Type	Measured Average Output Power (dBm)			Limits (dBm)	Verdict
			Ant 1	Ant 2	Total		
802.11b	2412	SISO	17.66	15.64	/	≤30	PASS
	2437	SISO	17.92	16.24	/	≤30	PASS
	2462	SISO	17.81	17.21	/	≤30	PASS
802.11g	2412	SISO	16.79	15.24	/	≤30	PASS
	2437	SISO	16.83	15.69	/	≤30	PASS
	2462	SISO	16.92	16.66	/	≤30	PASS
802.11n(HT20)	2412	SISO	16.22	14.61	/	≤30	PASS
		MIMO	13.11	12.86	16.00	≤30	PASS
	2437	SISO	16.49	15.62	/	≤30	PASS
		MIMO	15.74	14.90	18.35	≤30	PASS
	2462	SISO	16.62	16.30	/	≤30	PASS
		MIMO	13.60	13.34	16.48	≤30	PASS
802.11n(HT40)	2422	SISO	13.16	12.52	/	≤30	PASS
		MIMO	14.16	12.20	16.30	≤30	PASS
	2437	SISO	15.64	14.72	/	≤30	PASS
		MIMO	14.26	12.67	16.55	≤30	PASS
	2452	SISO	15.83	15.35	/	≤30	PASS
		MIMO	14.36	13.26	16.86	≤30	PASS

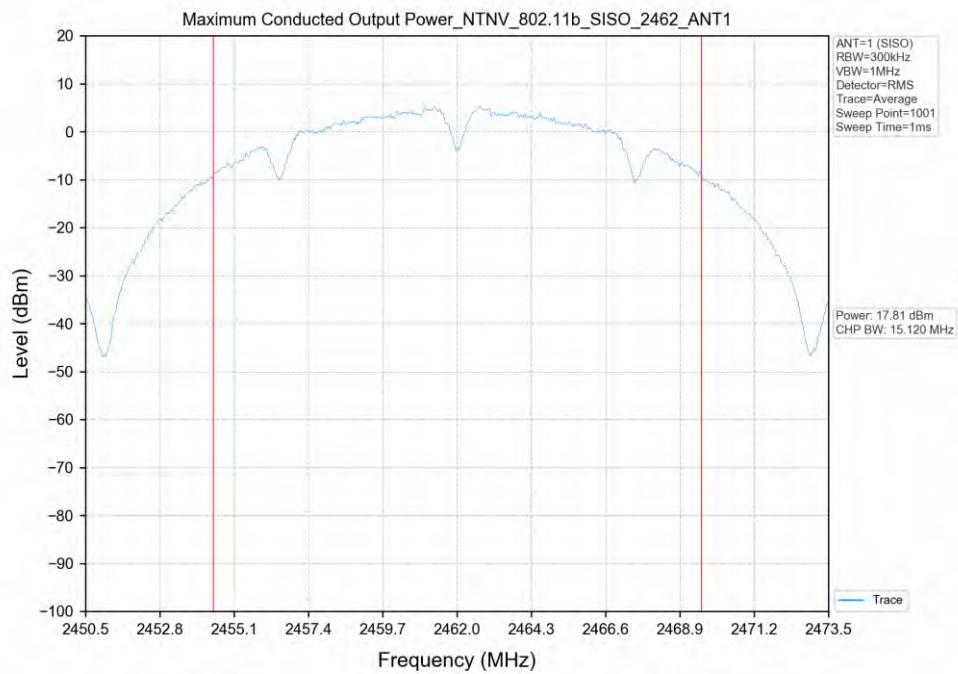
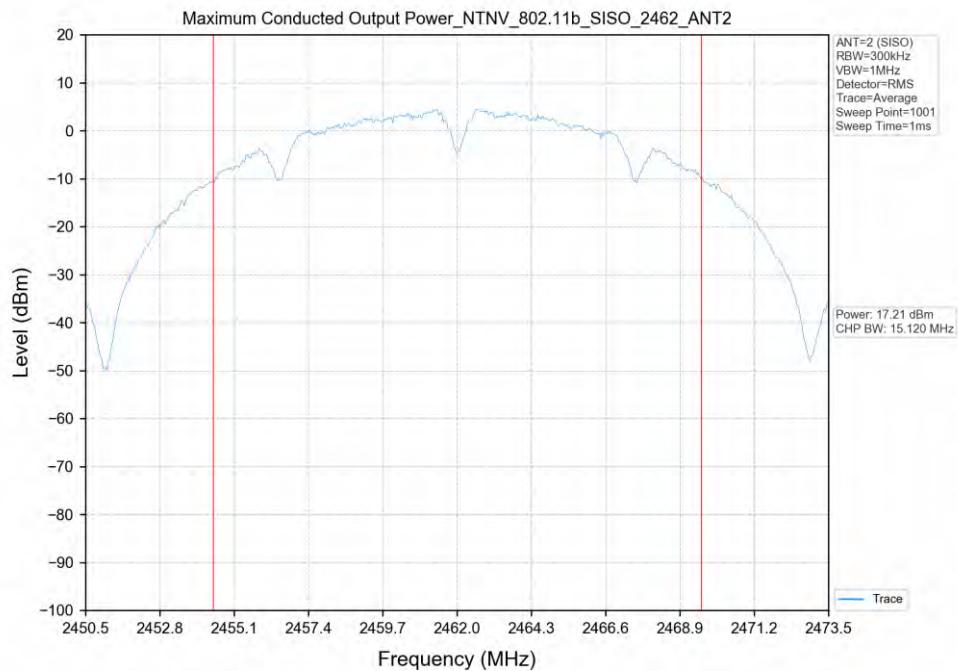
#### 3.2 Test Graph

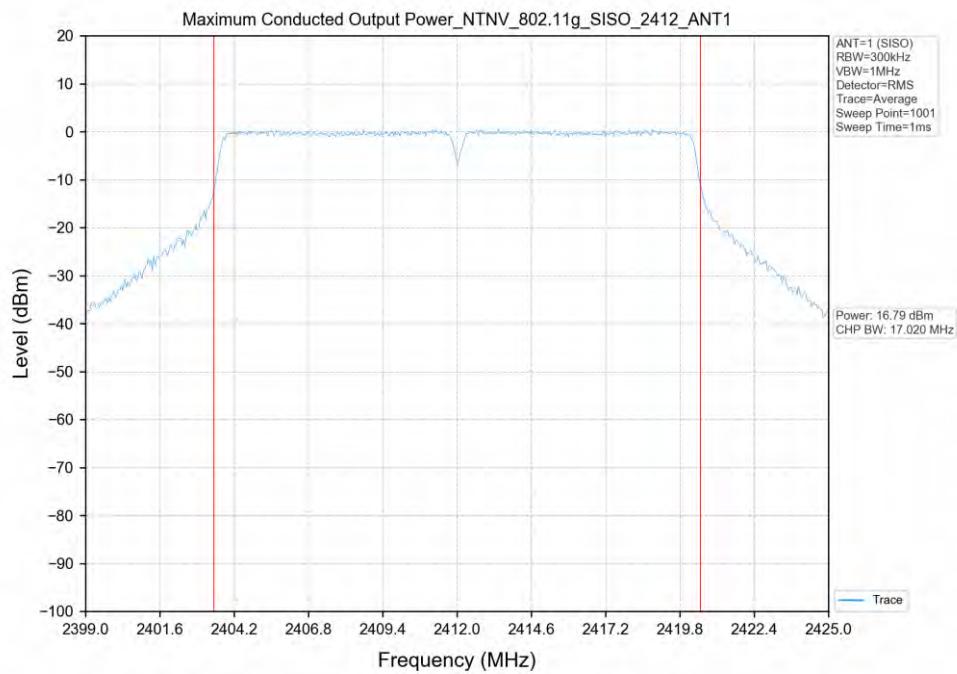
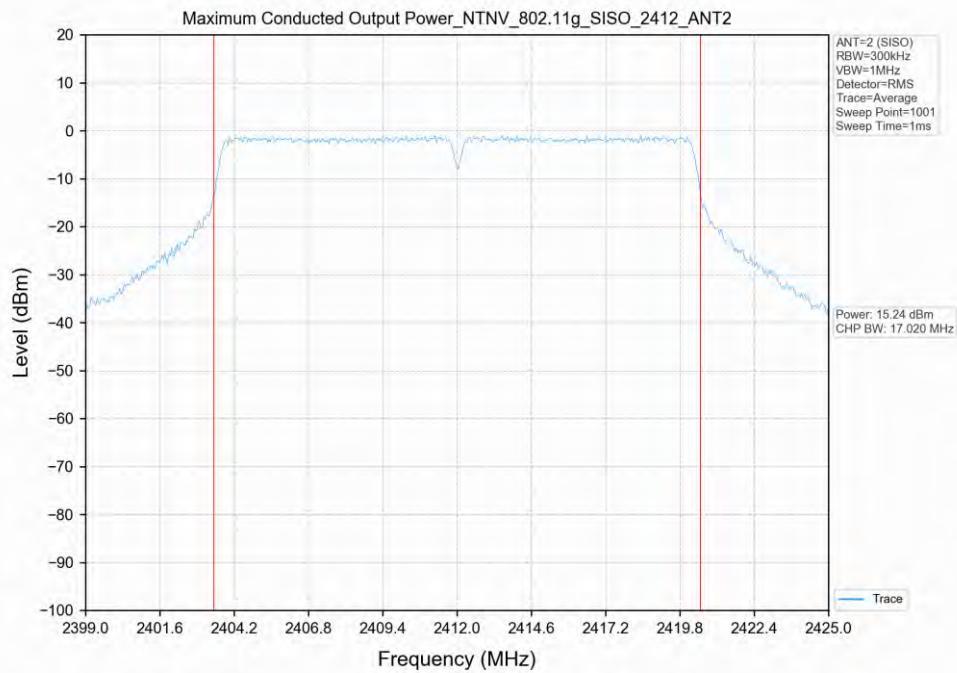
802.11b_2412MHz_SISO_ANT1
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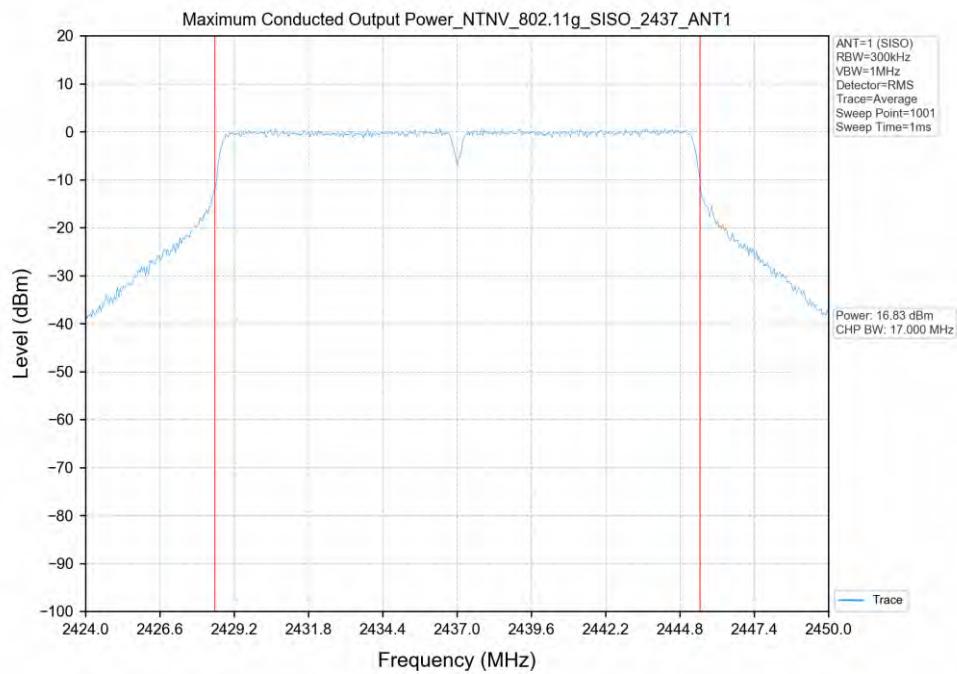


802.11b\_2437MHz SISO ANT1

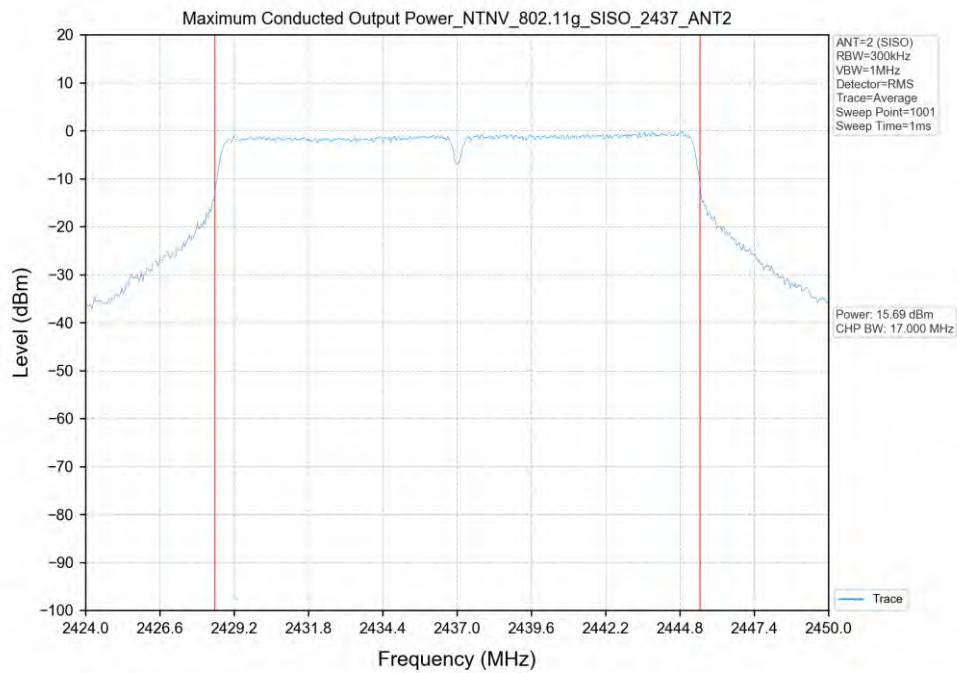
**802.11b\_2437MHz SISO ANT2****802.11b\_2462MHz SISO ANT1**

**802.11b\_2462MHz\_SISO\_ANT2****802.11g\_2412MHz\_SISO\_ANT1**

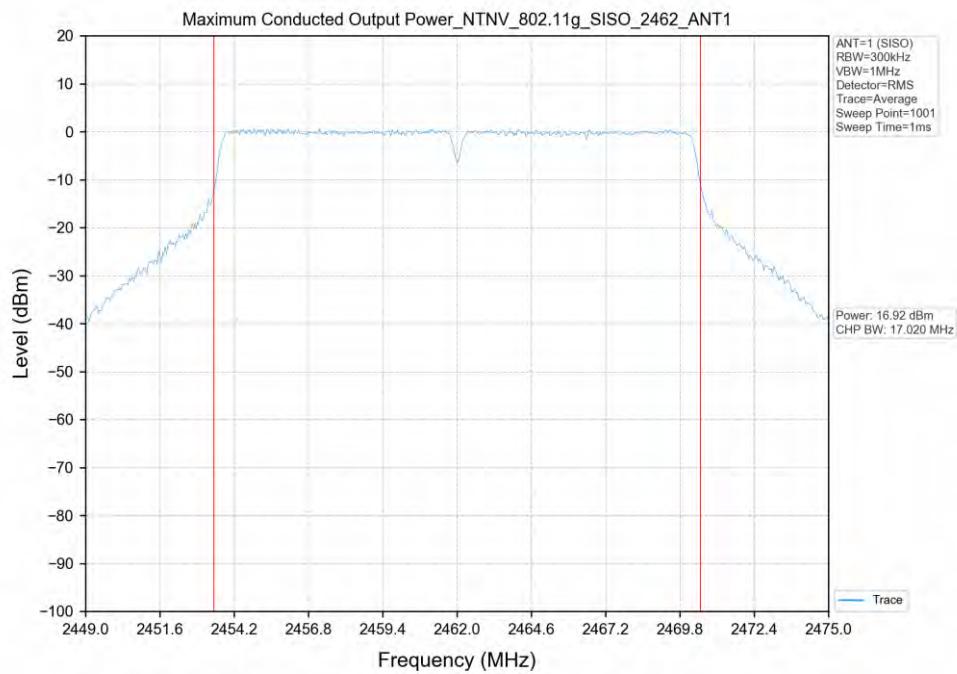
**802.11g\_2412MHz\_SISO\_ANT2****802.11g\_2437MHz\_SISO\_ANT1**



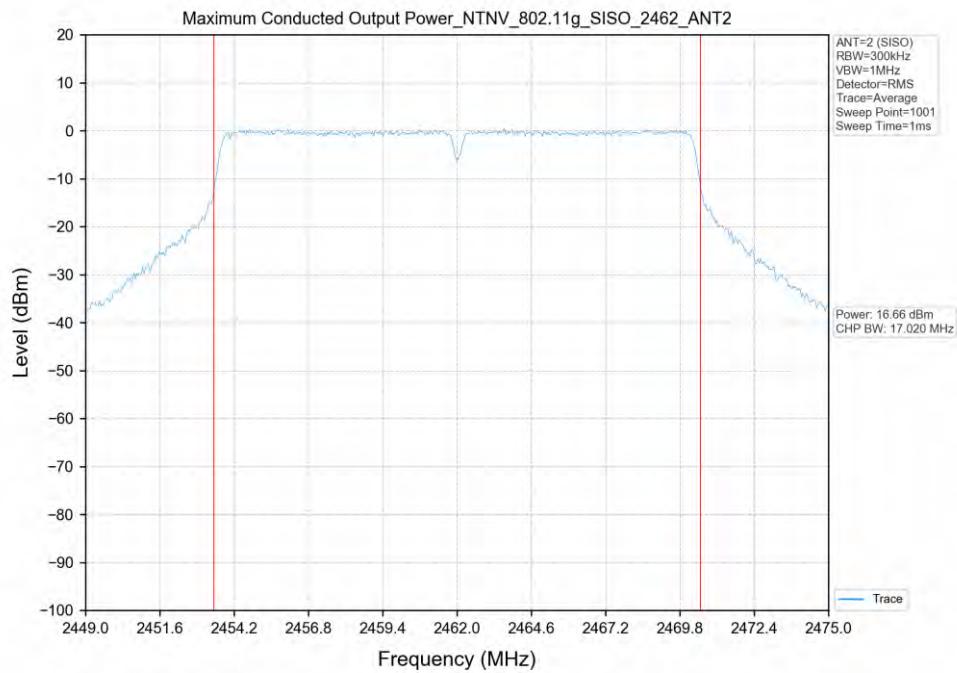
802.11g\_2437MHz\_SISO\_ANT2



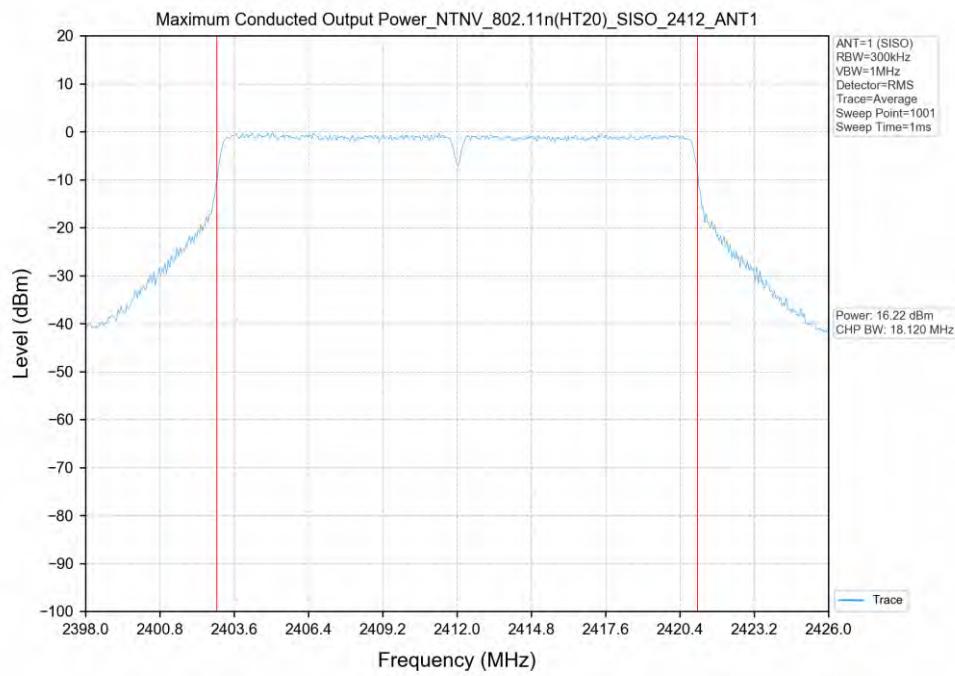
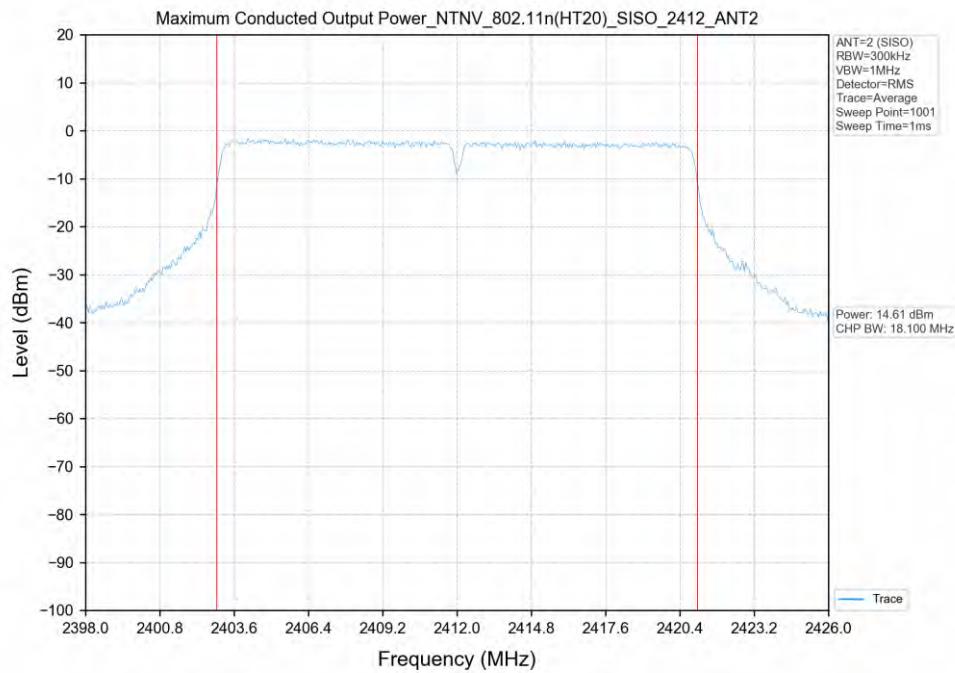
802.11g\_2462MHz\_SISO\_ANT1

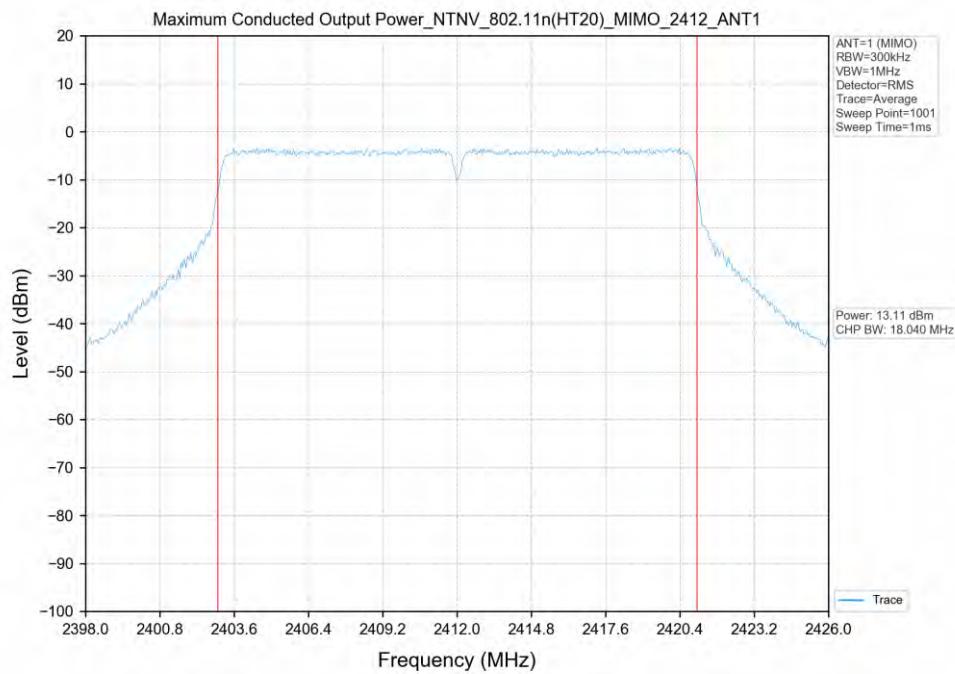
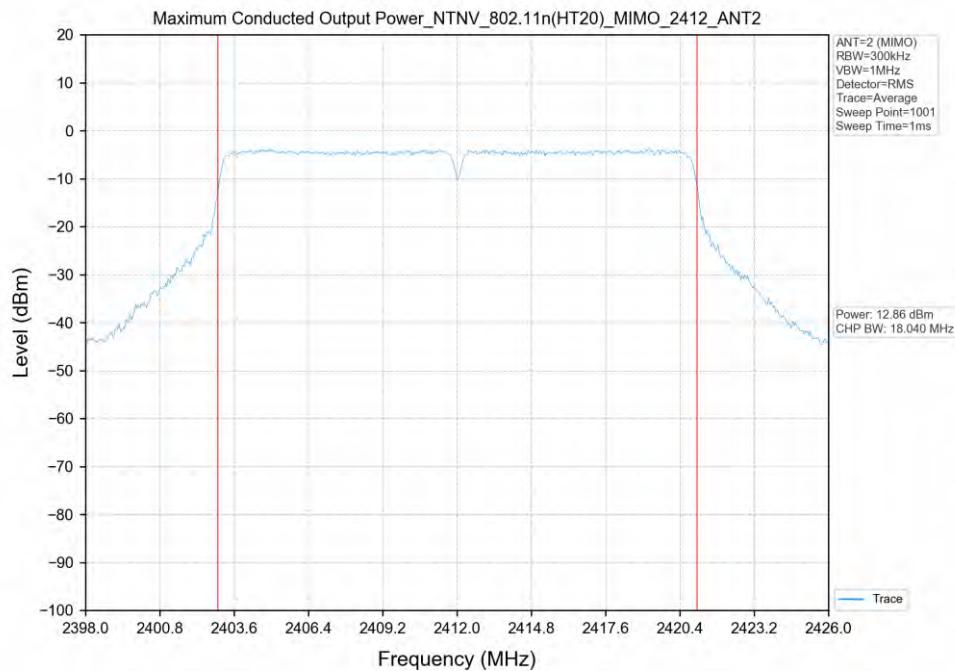


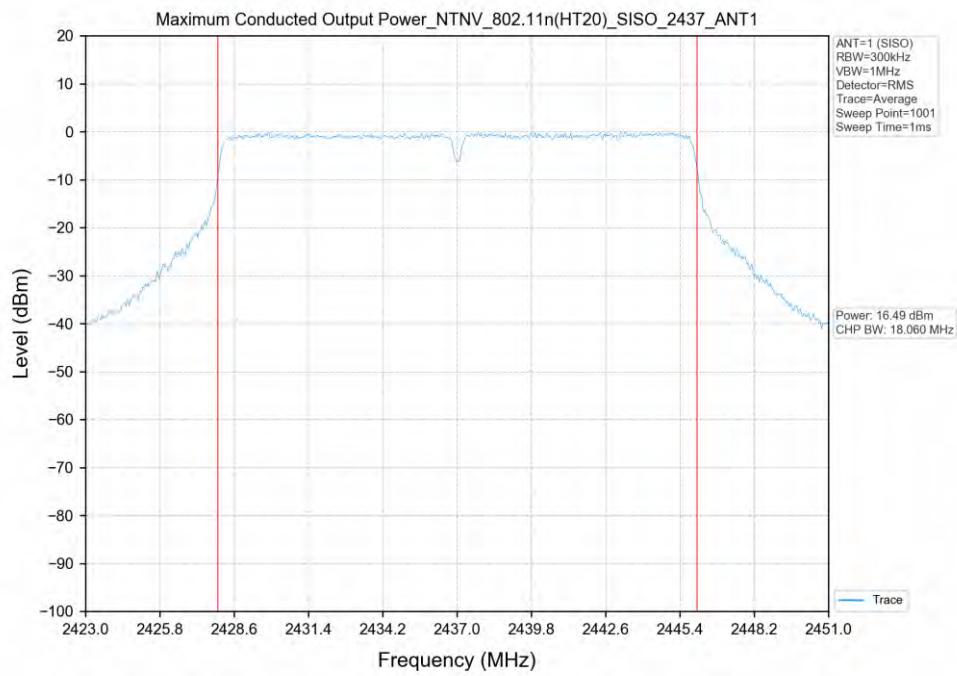
802.11g 2462MHz SISO ANT2



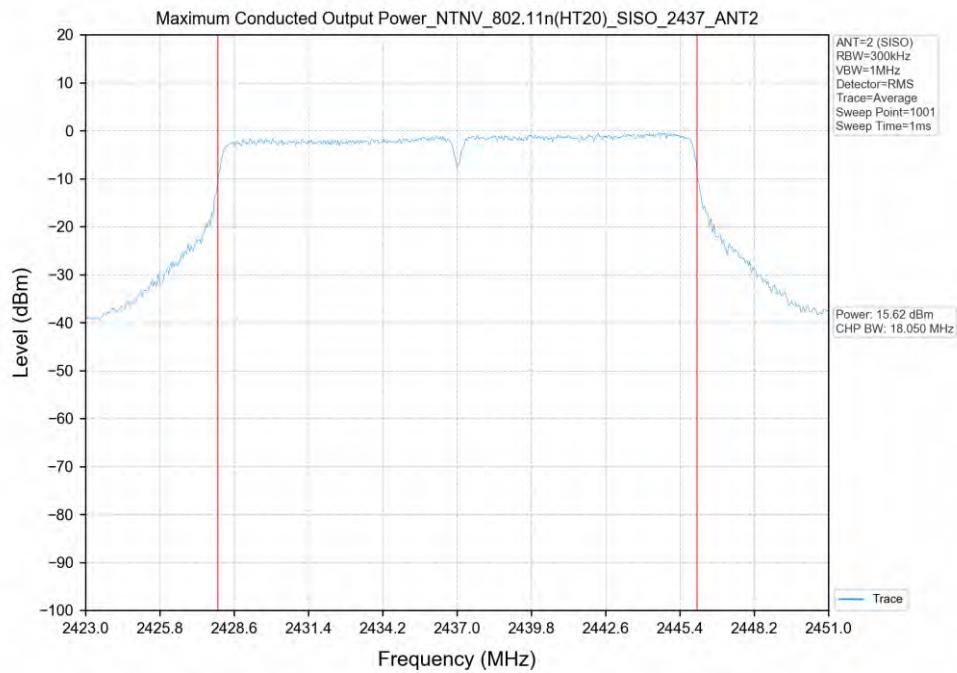
802.11n(HT20) 2412MHz SISO ANT1

**802.11n(HT20) 2412MHz SISO ANT2****802.11n(HT20) 2412MHz MIMO ANT1**

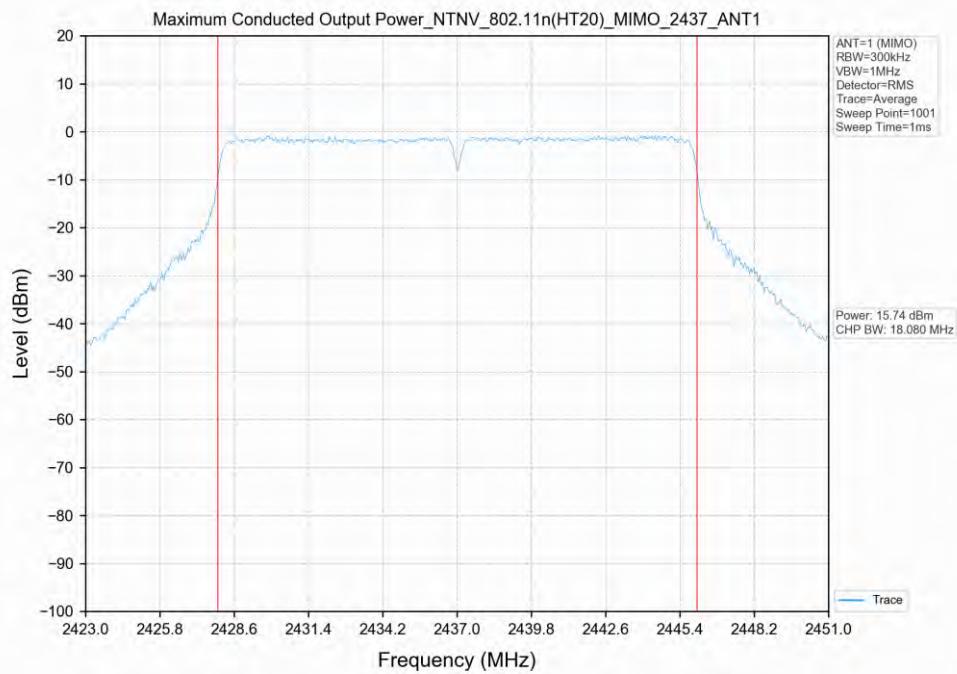
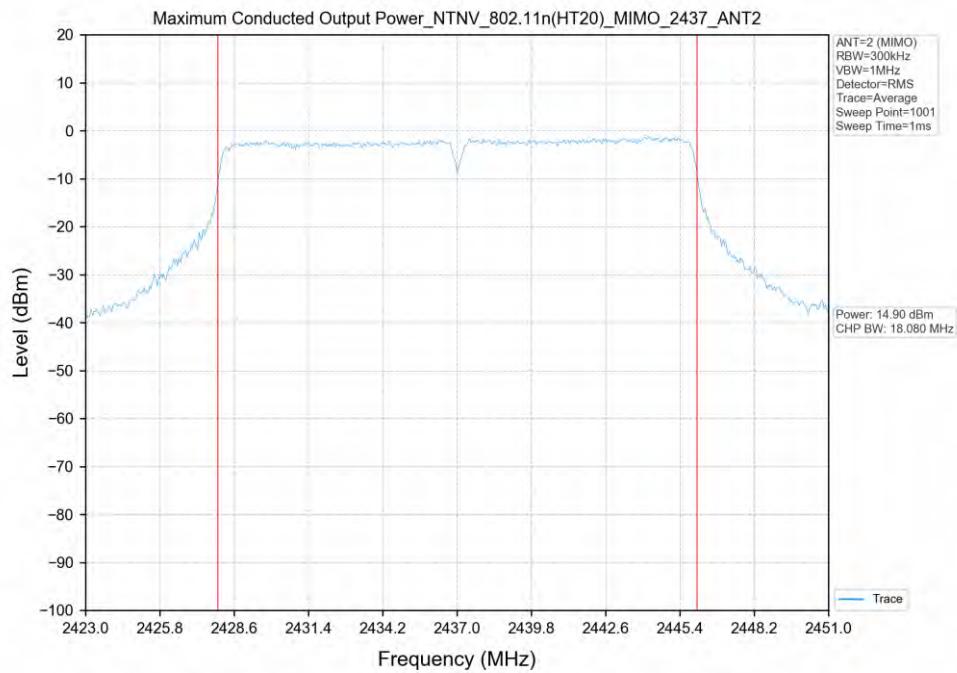
**802.11n(HT20) 2412MHz MIMO ANT2****802.11n(HT20) 2437MHz SISO ANT1**

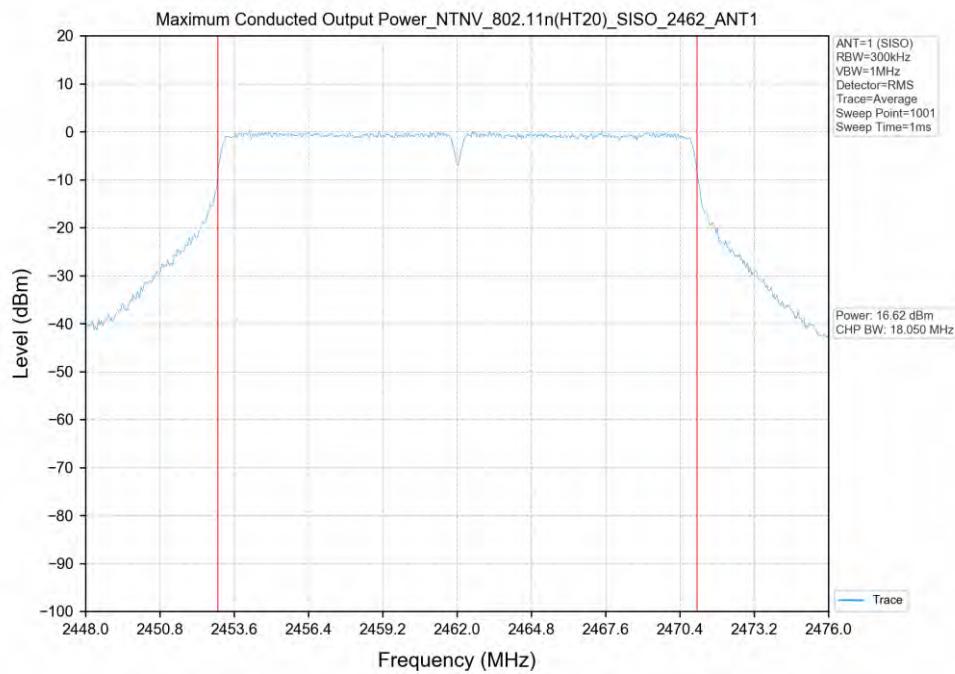
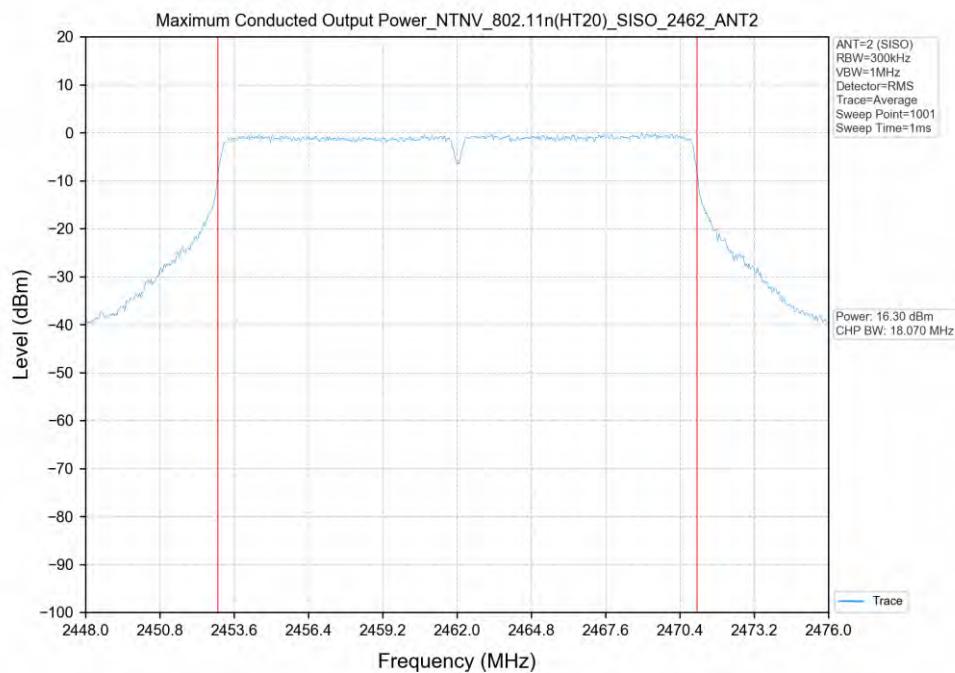


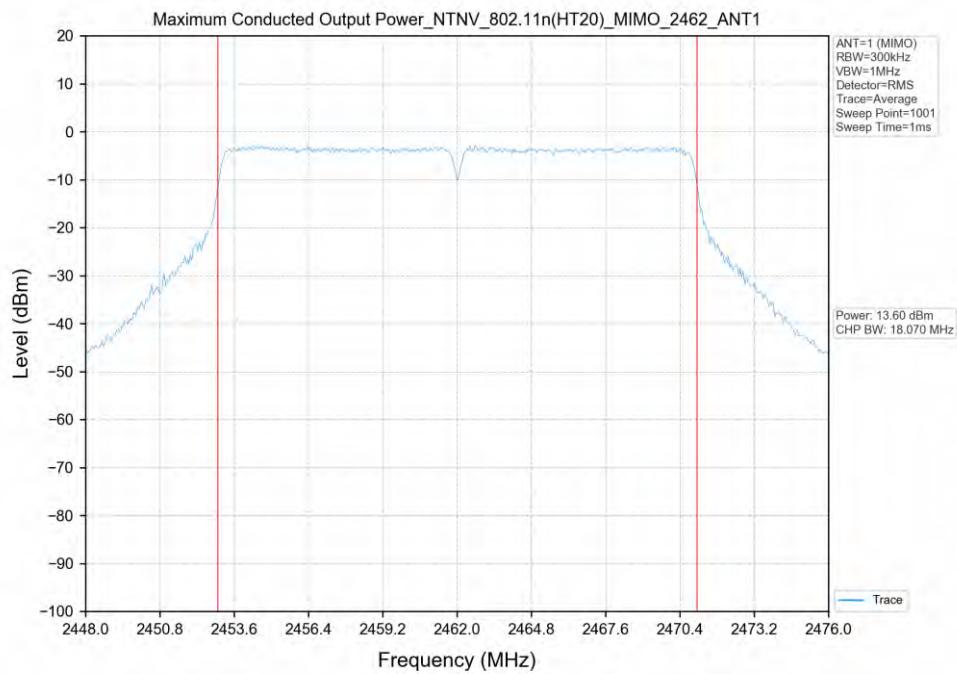
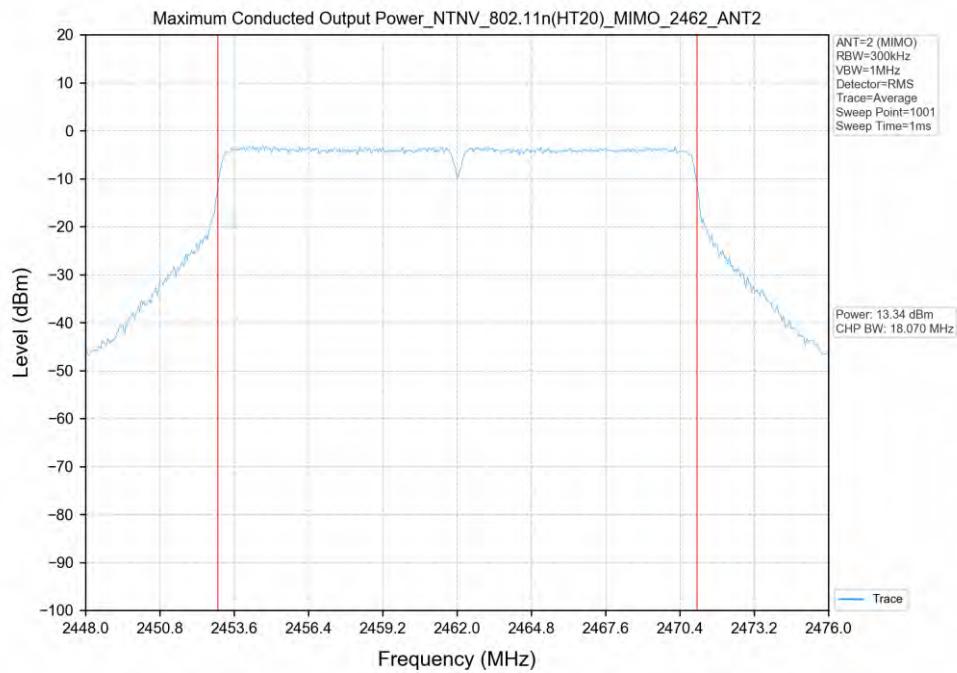
802.11n(HT20) 2437MHz SISO ANT2

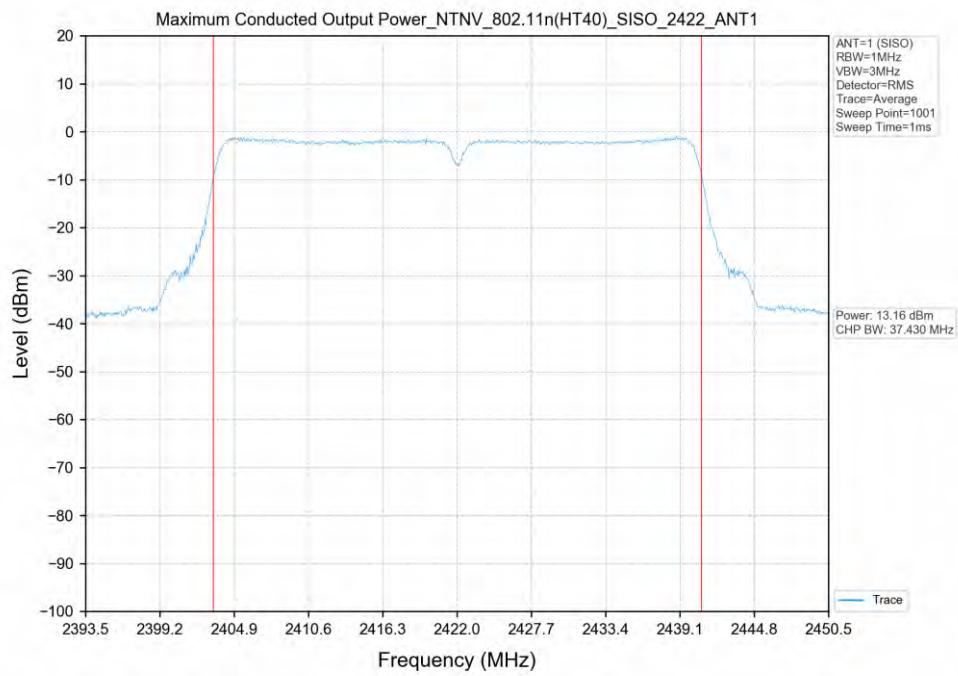
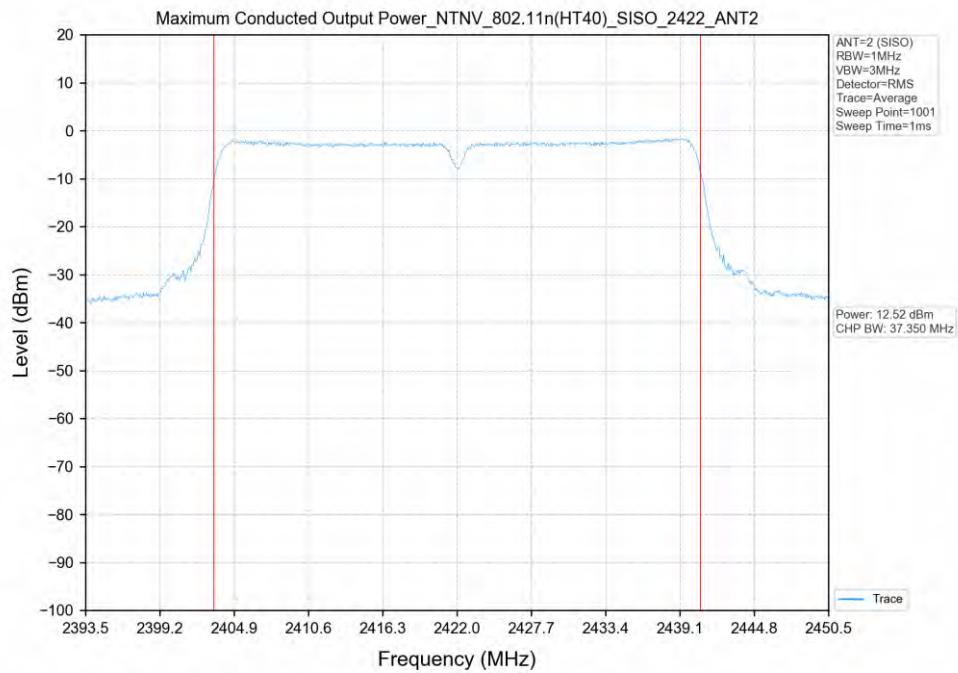


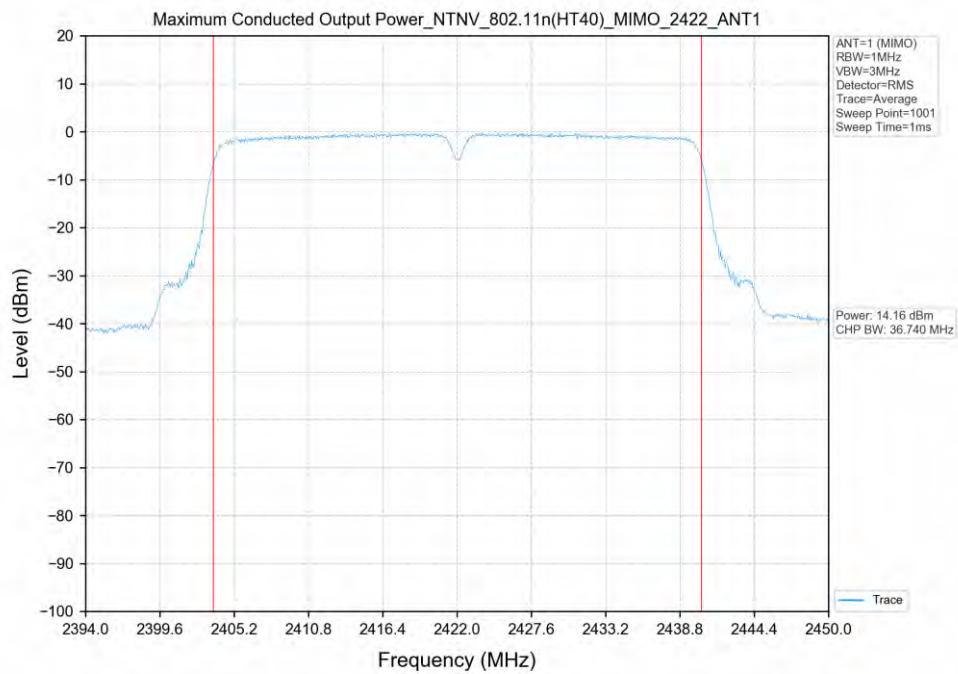
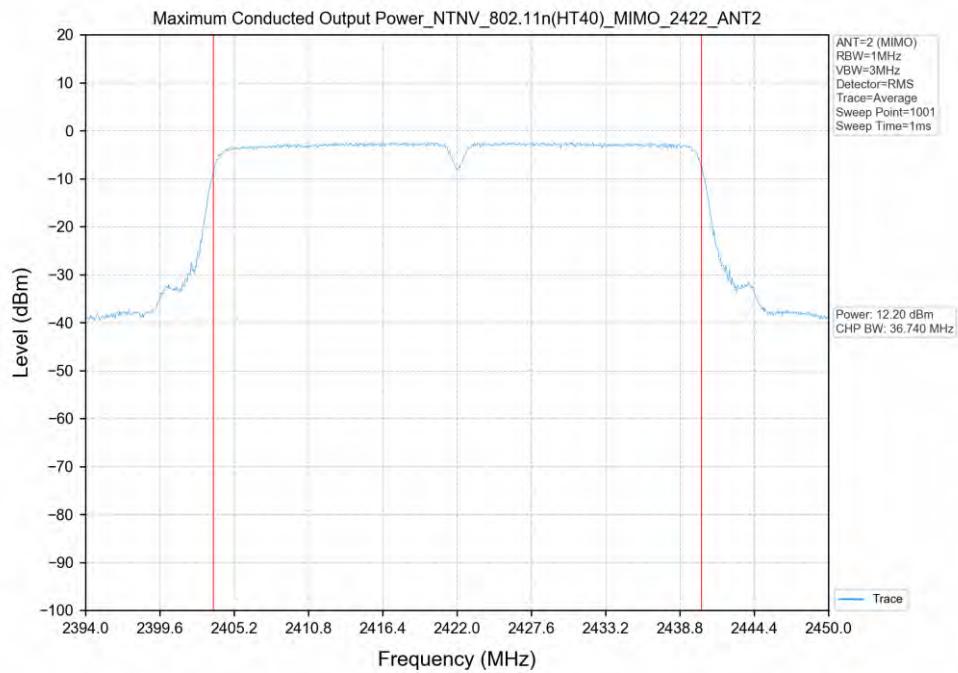
802.11n(HT20) 2437MHz MIMO ANT1

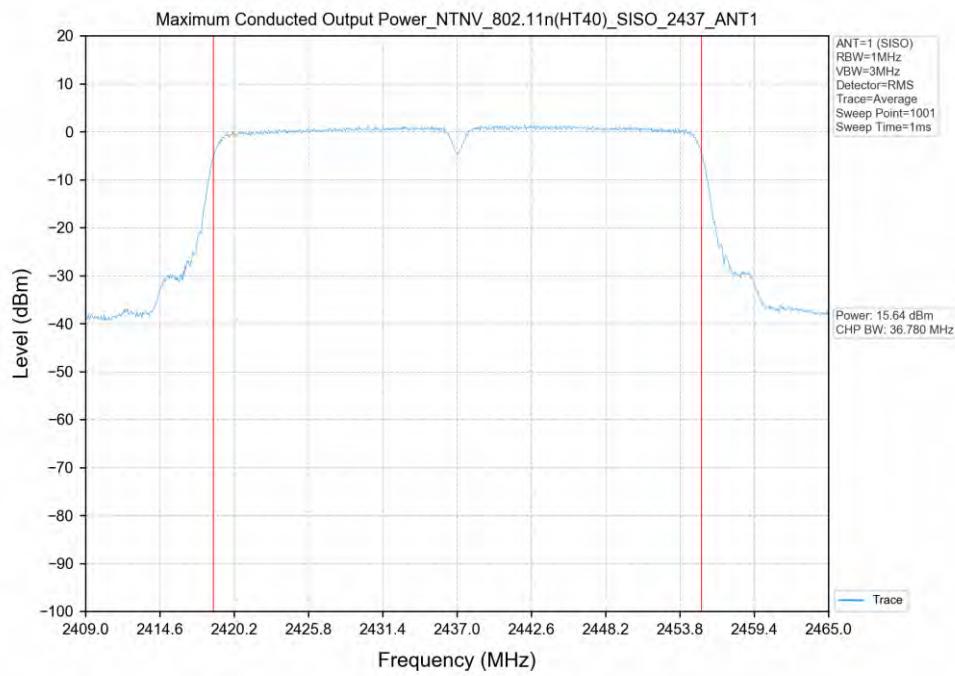
**802.11n(HT20) 2437MHz MIMO ANT2****802.11n(HT20) 2462MHz SISO ANT1**

**802.11n(HT20) 2462MHz SISO ANT2****802.11n(HT20) 2462MHz MIMO ANT1**

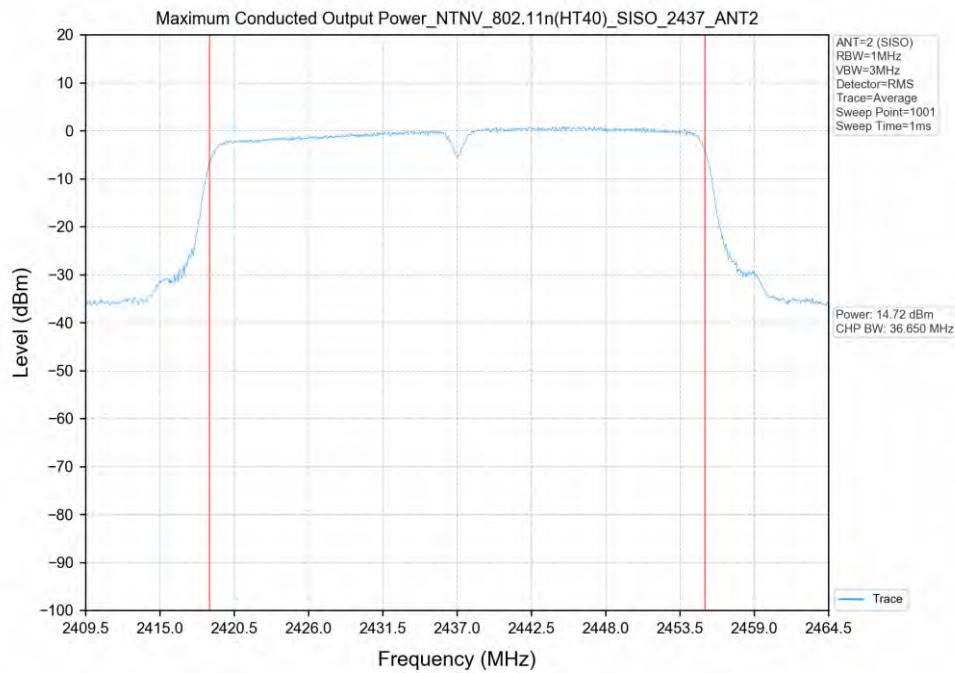
**802.11n(HT20) 2462MHz MIMO ANT2****802.11n(HT40) 2422MHz SISO ANT1**

**802.11n(HT40) 2422MHz SISO ANT2****802.11n(HT40) 2422MHz MIMO ANT1**

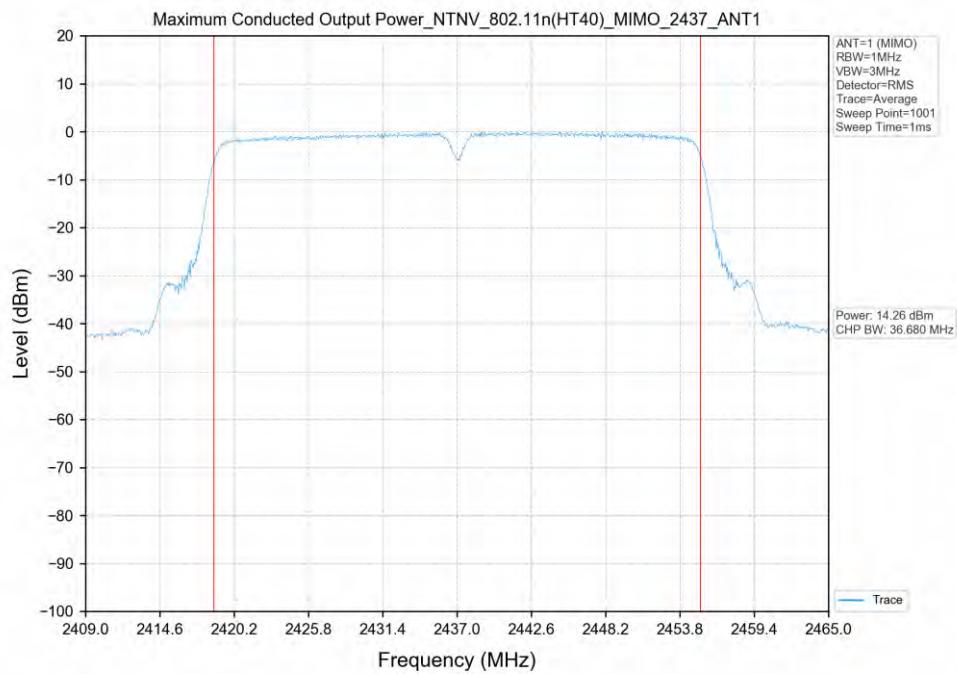
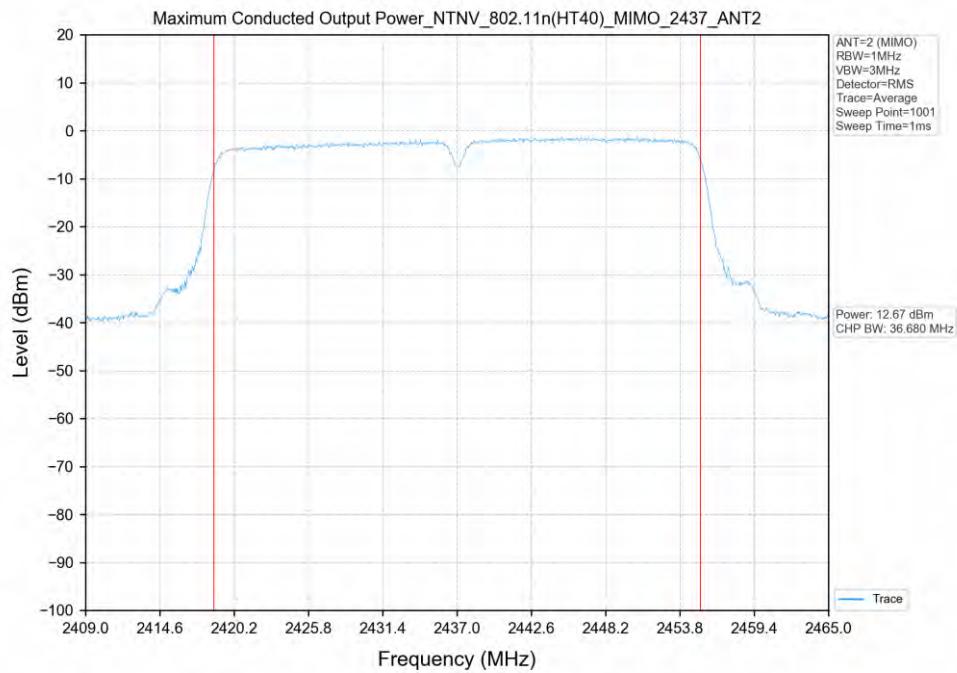
**802.11n(HT40) 2422MHz MIMO ANT2****802.11n(HT40) 2437MHz SISO ANT1**

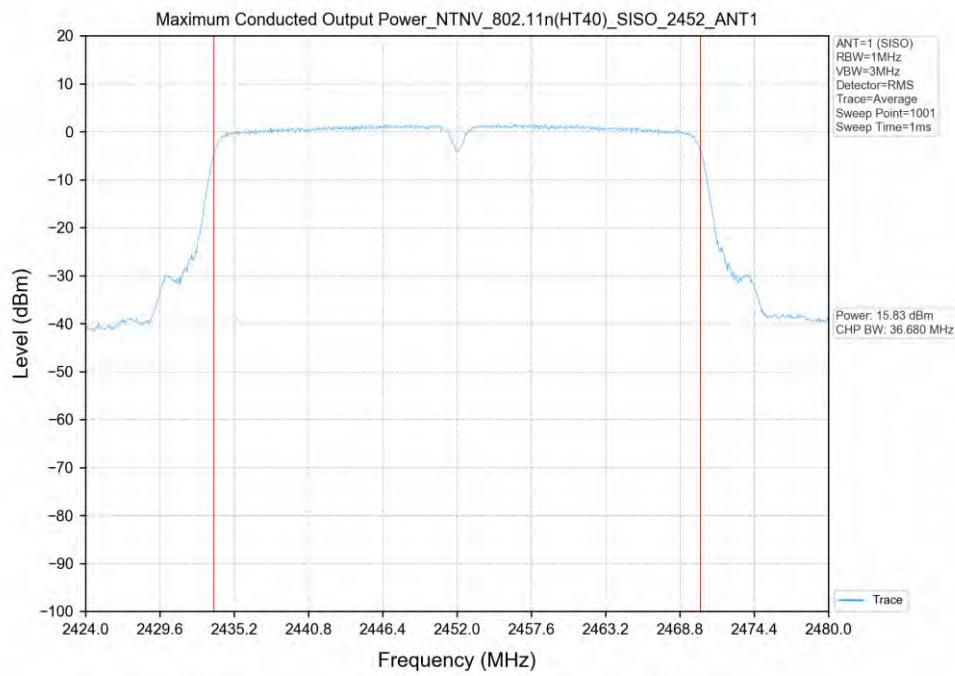
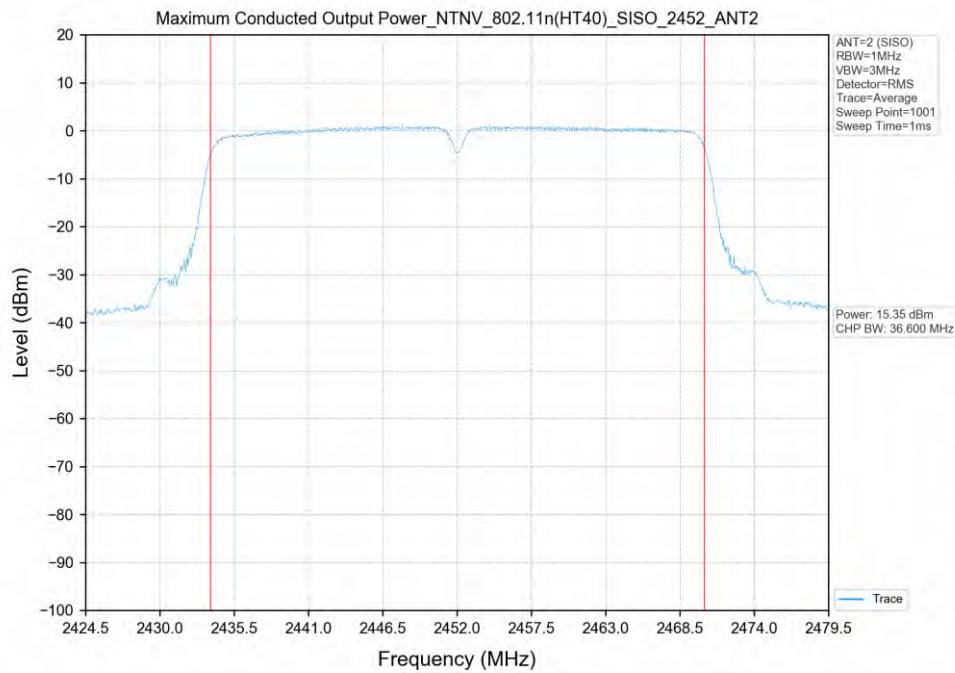


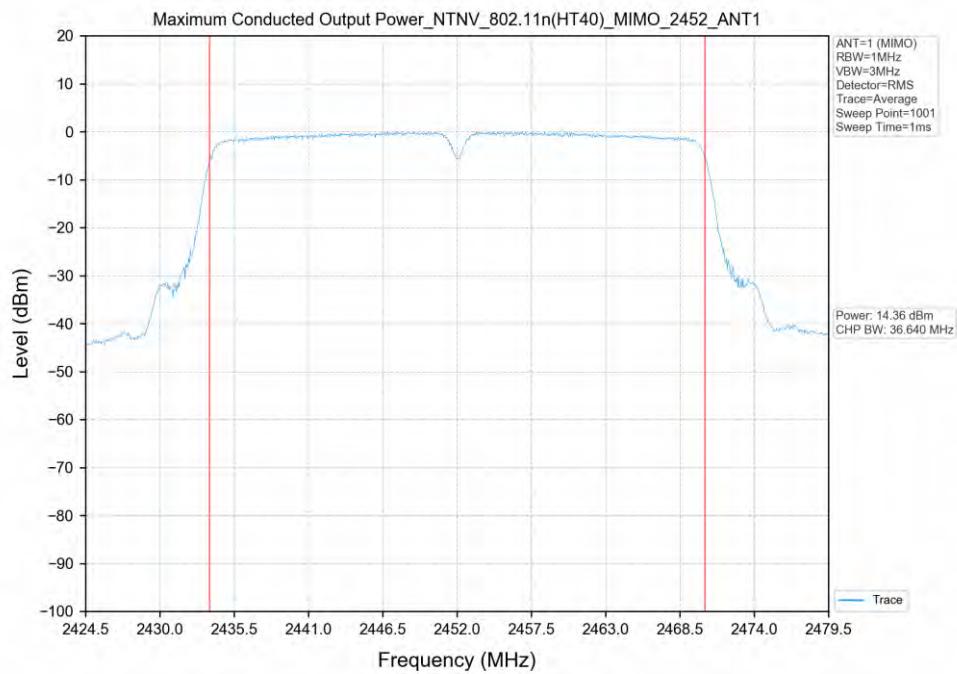
802.11n(HT40) 2437MHz SISO ANT2



802.11n(HT40) 2437MHz MIMO ANT1

**802.11n(HT40) 2437MHz MIMO ANT2****802.11n(HT40) 2452MHz SISO ANT1**

**802.11n(HT40) 2452MHz SISO ANT2****802.11n(HT40) 2452MHz MIMO ANT1**

**802.11n(HT40) 2452MHz MIMO ANT2**