#### **Appendix A for SHEM190901758301**

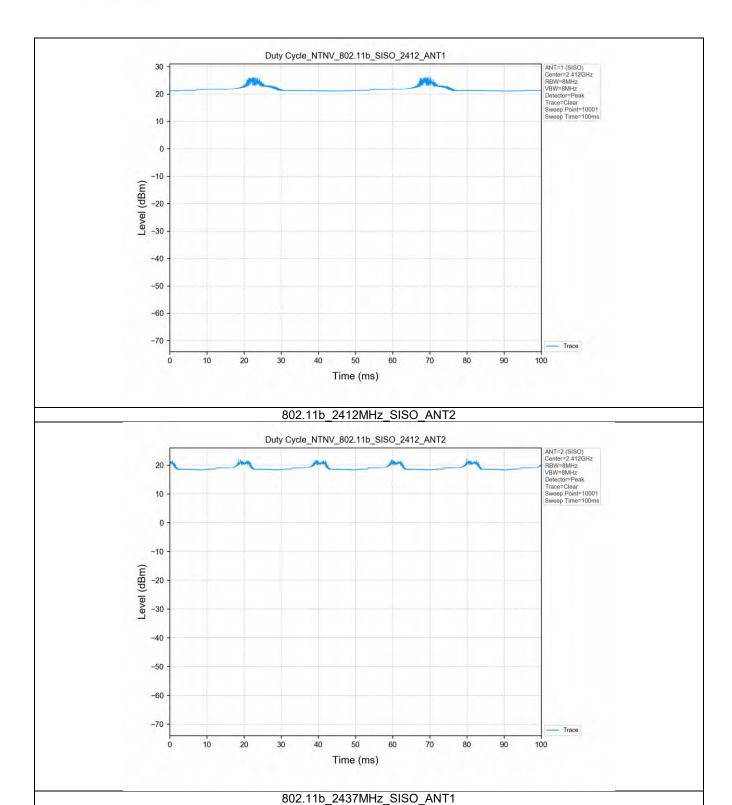
#### 1. Duty Cycle

#### 1.1 Test Result

Test Mode	Channel Frequency( MHz)	ТХ Туре	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
	2412	3130	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
	2402		2	100.000	100.000	100.00	0.00
	2412	SISO	1	100.000	100.000	100.00	0.00
	2412	3130	2	100.000	100.000	100.00	0.00
000 11 ~	2427	SISO	1	100.000	100.000	100.00	0.00
802.11g	2437	3130	2	100.000	100.000	100.00	0.00
	2462	SISO	1	100.000	100.000	100.00	0.00
	2462	SISO	2	100.000	100.000	100.00	0.00
		SISO	1	100.000	100.000	100.00	0.00
	2412	3130	2	100.000	100.000	100.00	0.00
	2412	MINAO	1	100.000	100.000	100.00	0.00
		MIMO	2	100.000	100.000	100.00	0.00
		CICO	1	100.000	100.000	100.00	0.00
000 44~(LIT00)	2437	SISO	2	100.000	100.000	100.00	0.00
802.11n(HT20)		MIMO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
		SISO	1	100.000	100.000	100.00	0.00
	2462		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
	2422	SISO	1	100.000	100.000	100.00	0.00
802.11n(HT40)			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





-60

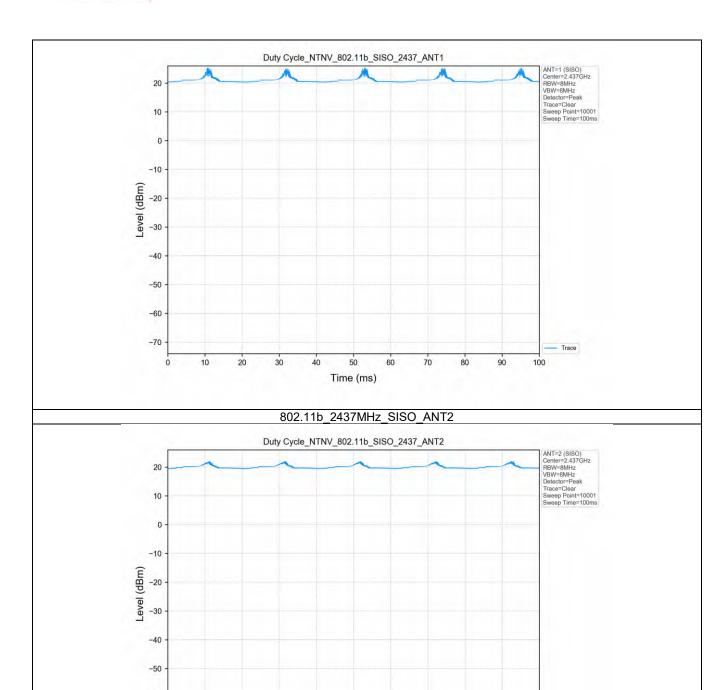
-70

10

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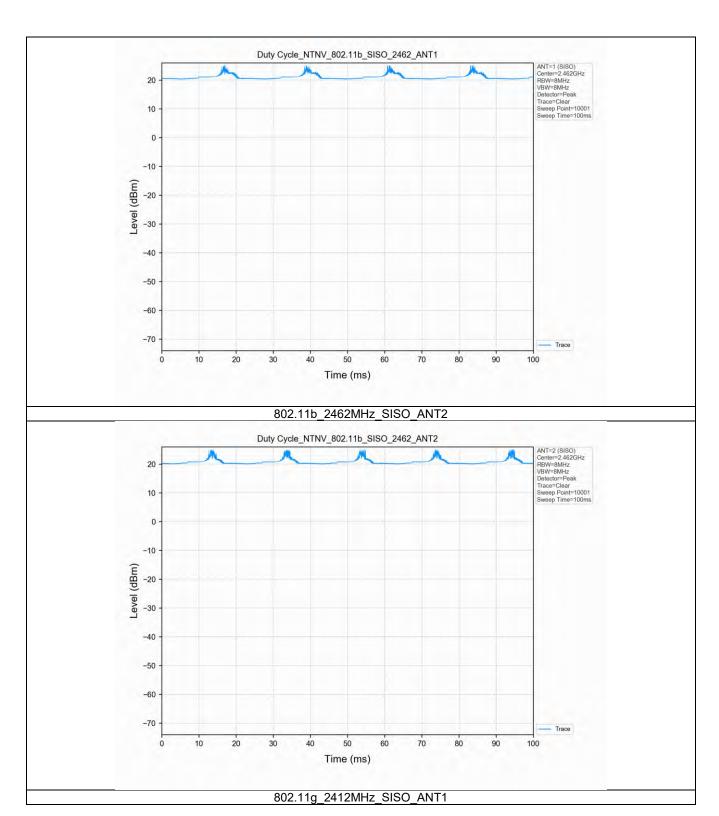
Time (ms)

802.11b\_2462MHz\_SISO\_ANT1

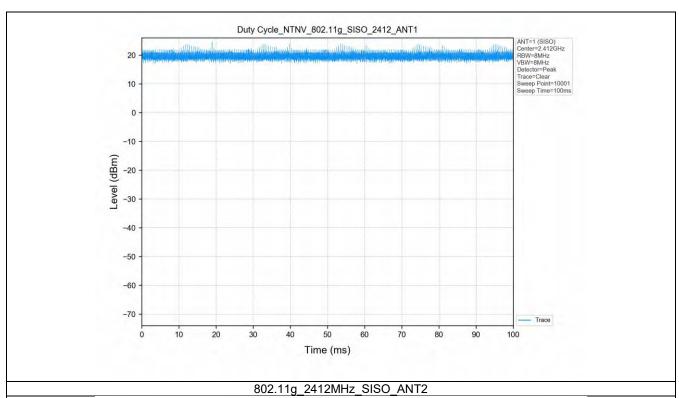
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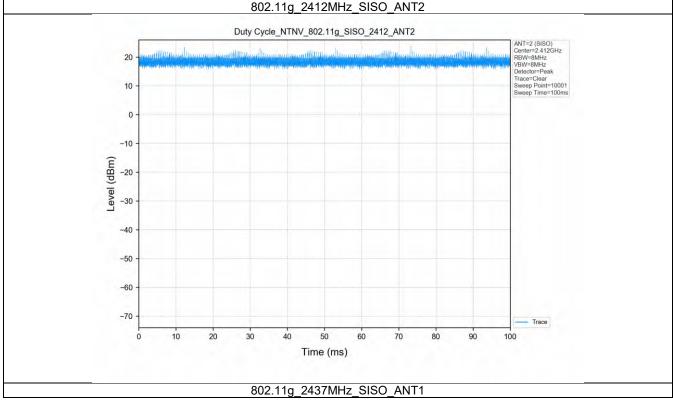
100



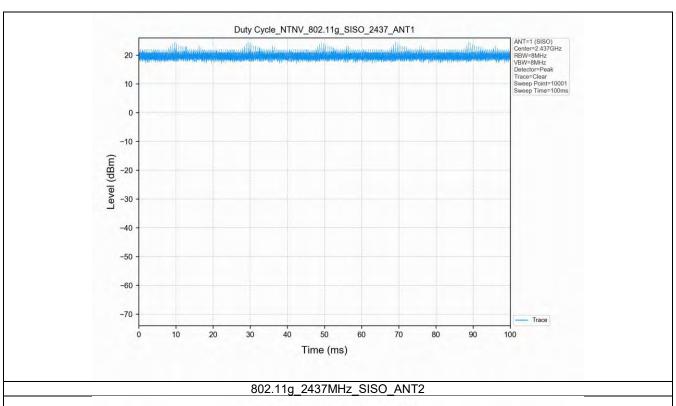


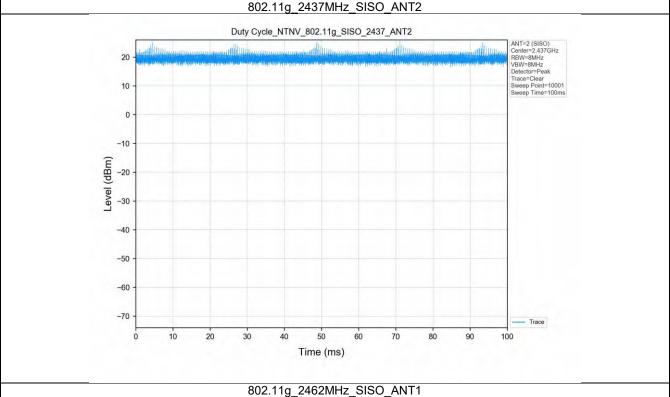




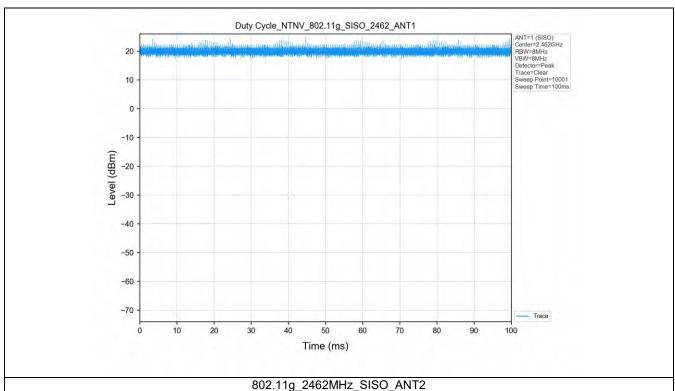


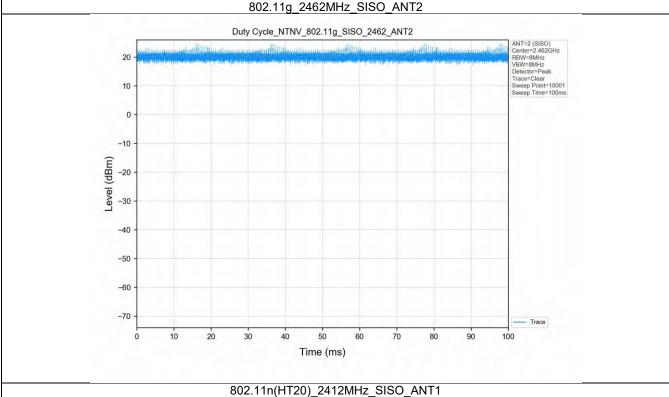




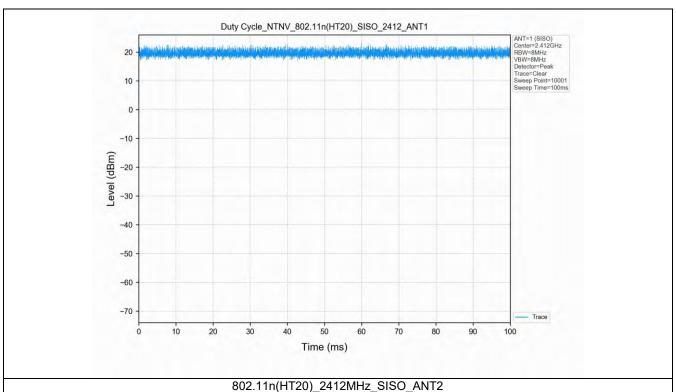


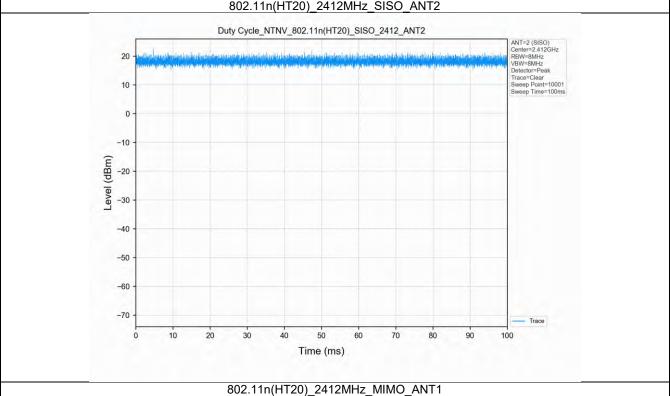




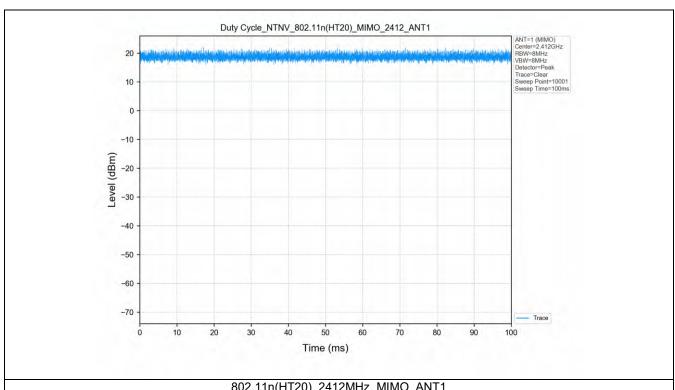


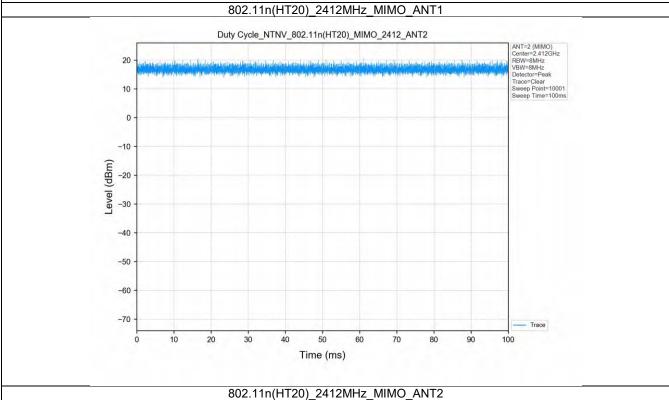




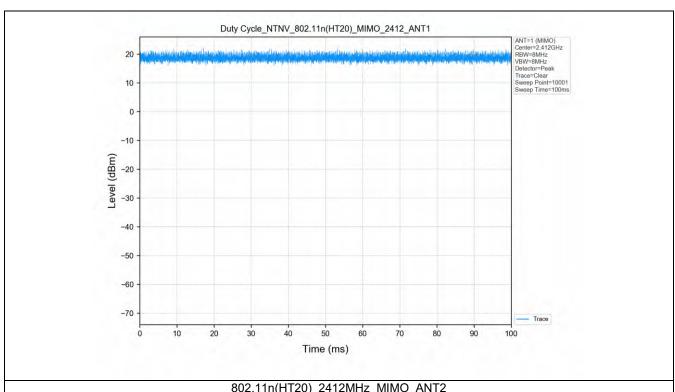


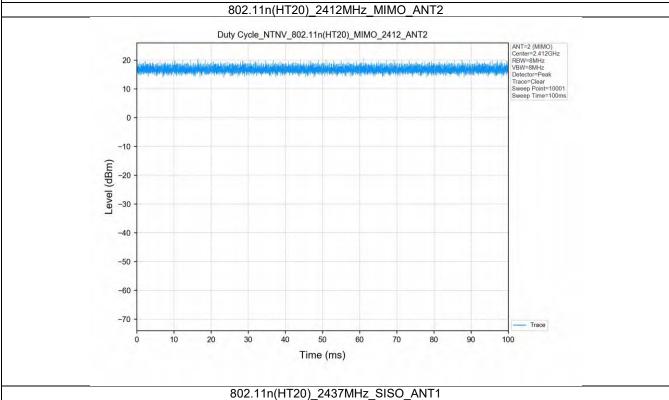




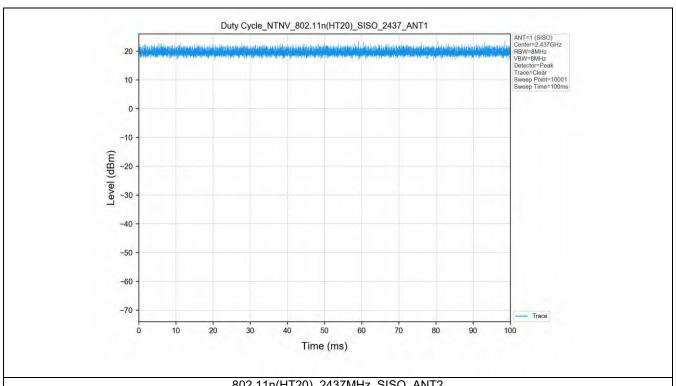


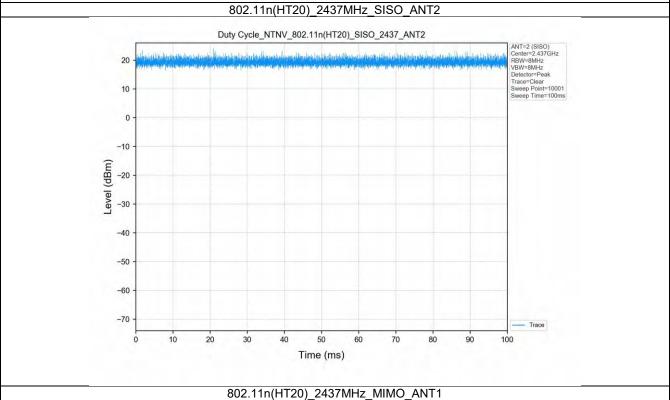




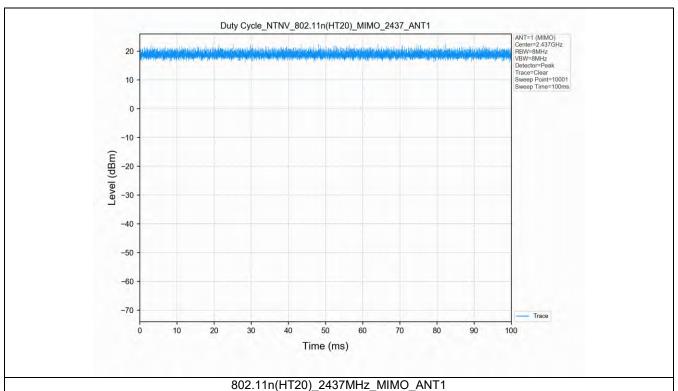


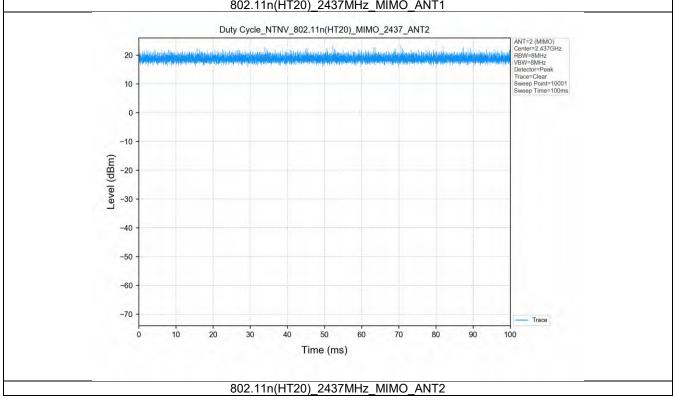




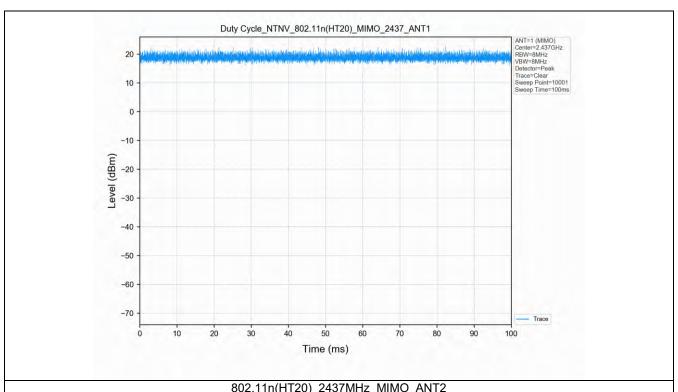


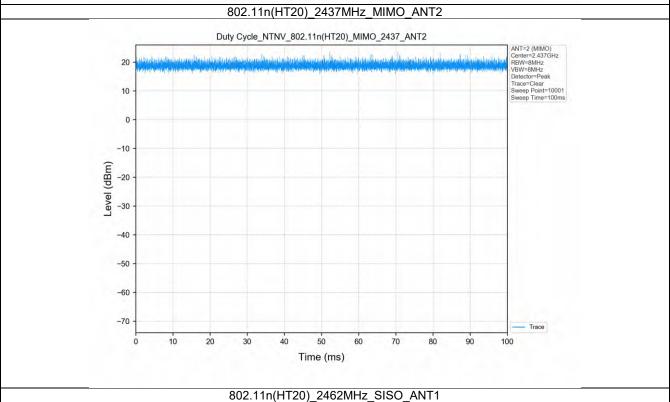




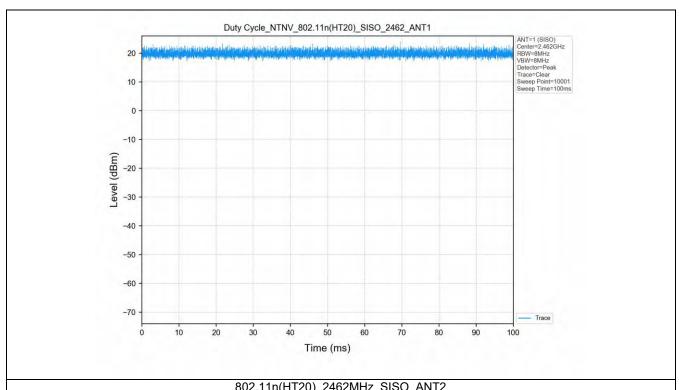


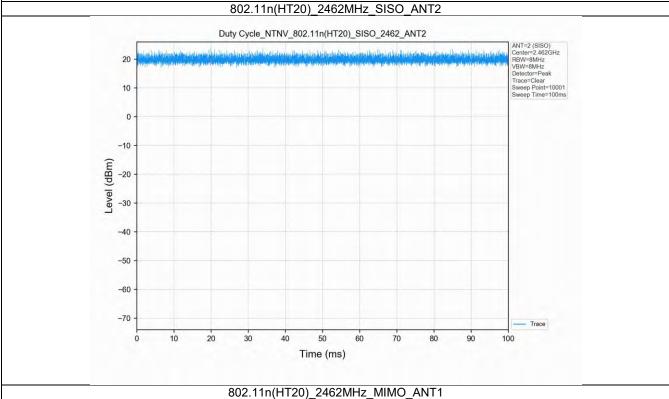




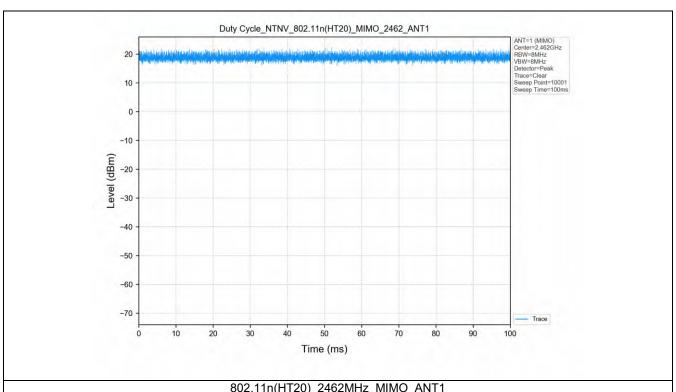


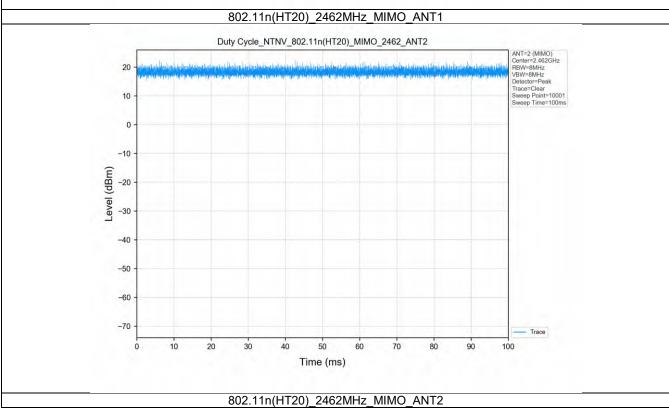




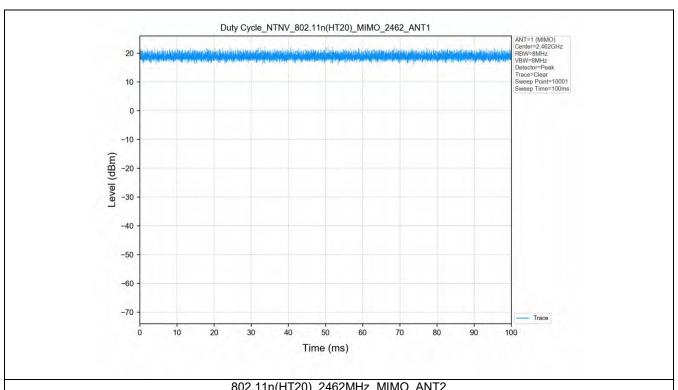


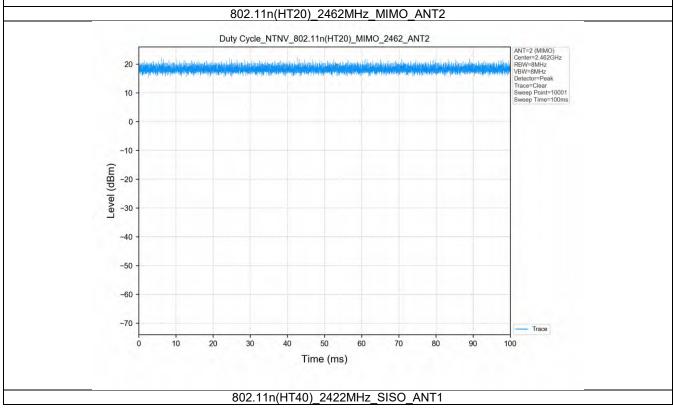




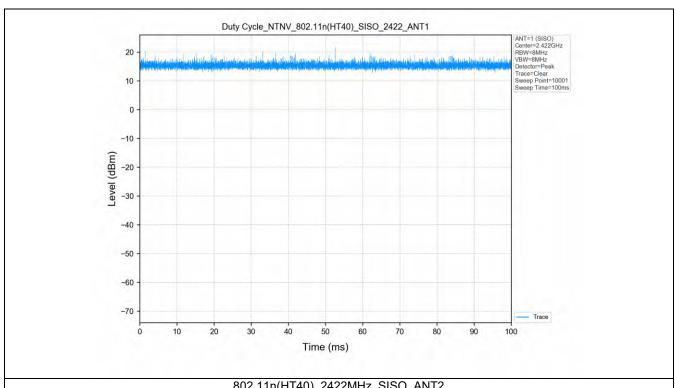


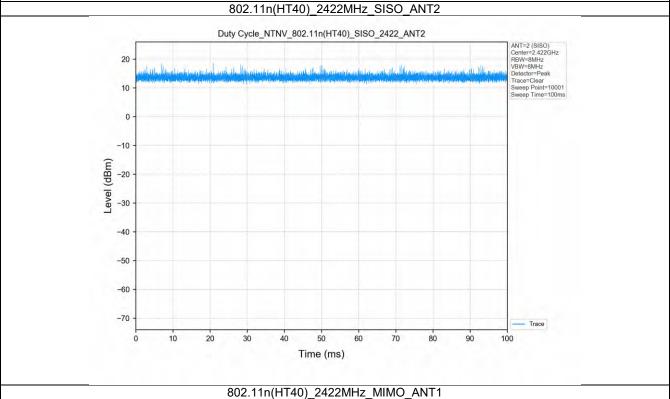




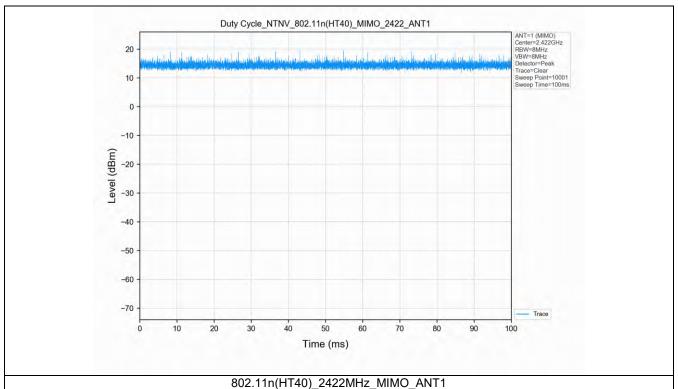


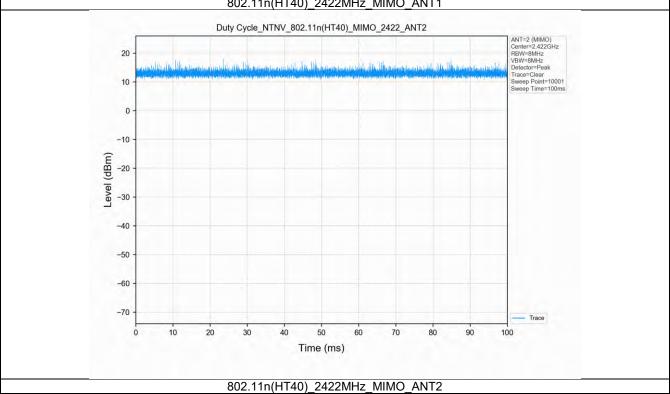




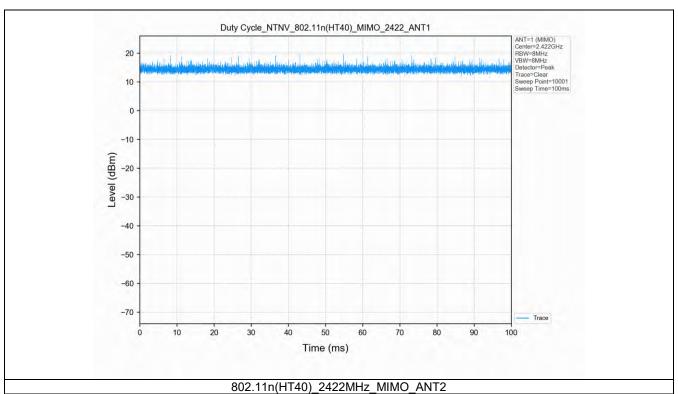


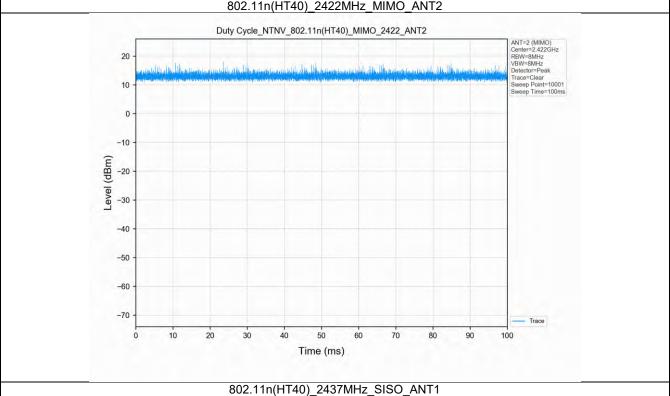




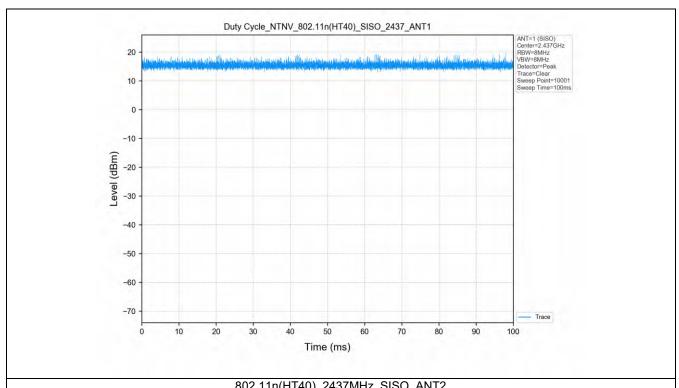


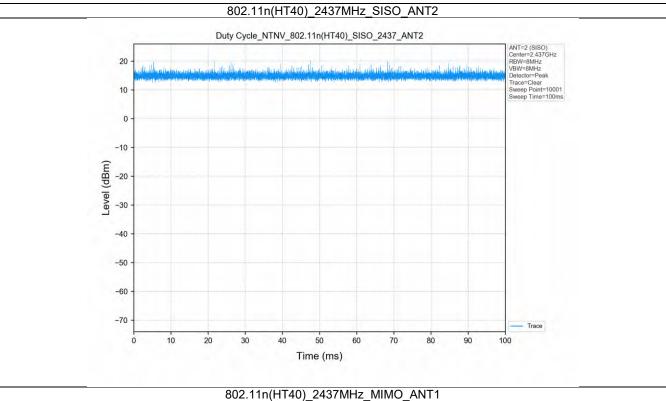




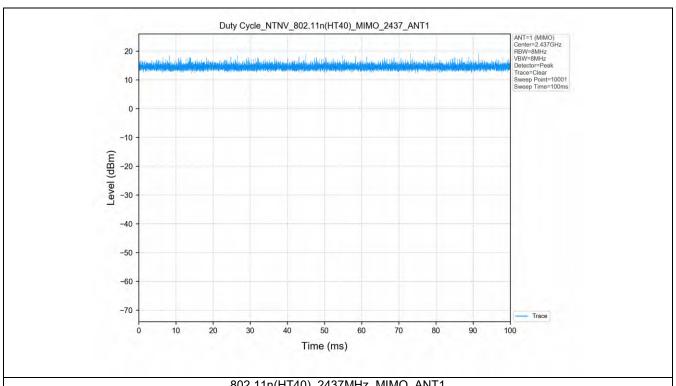


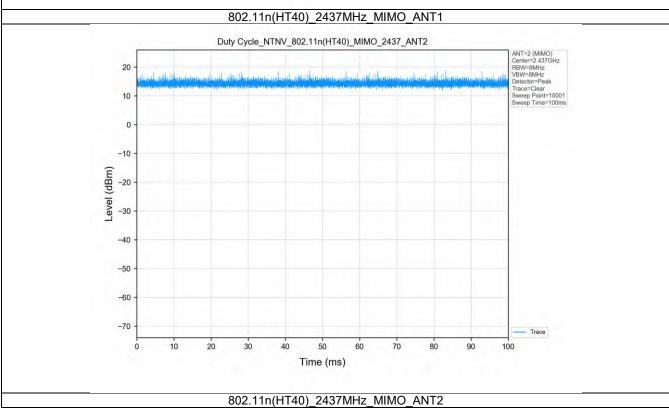




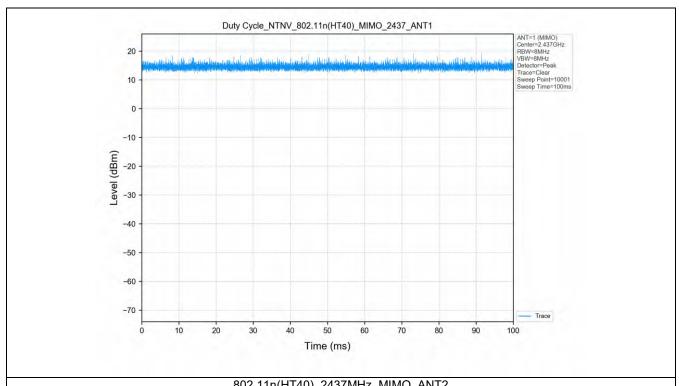


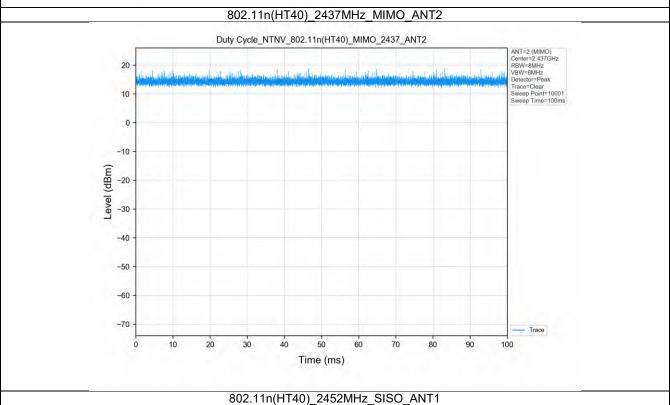




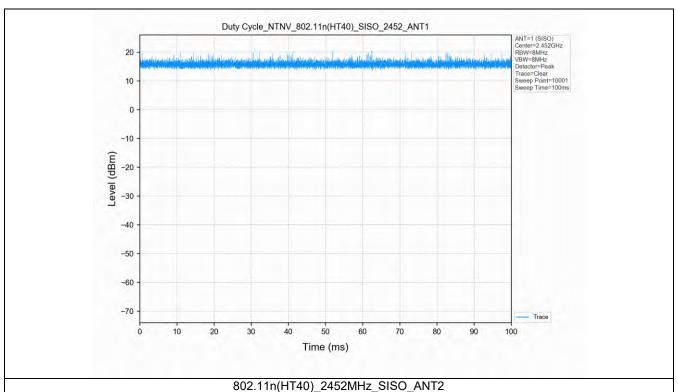


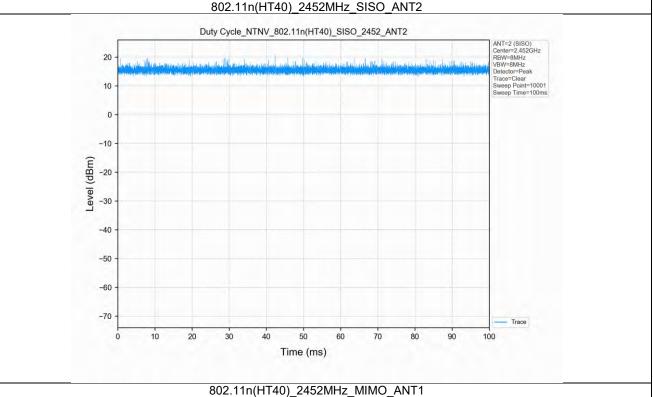




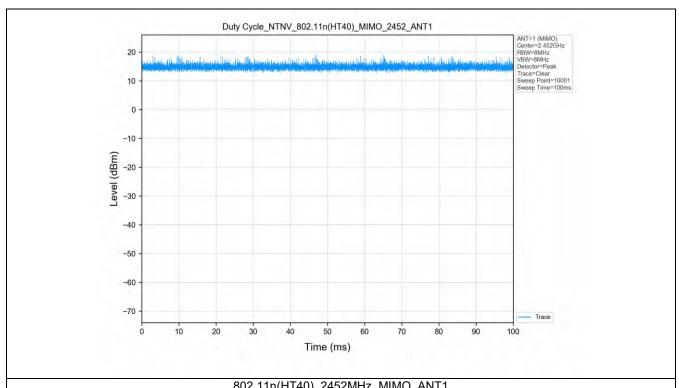






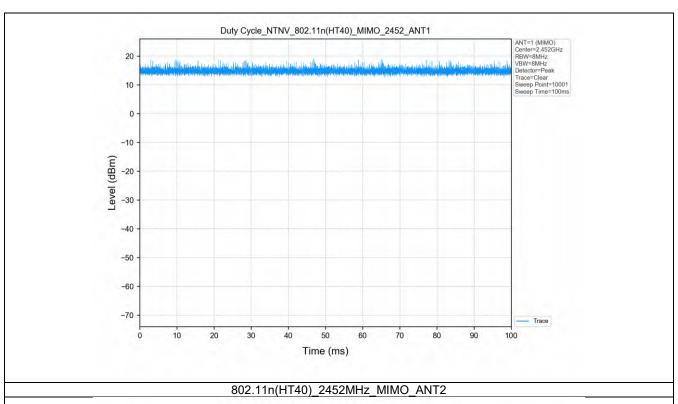


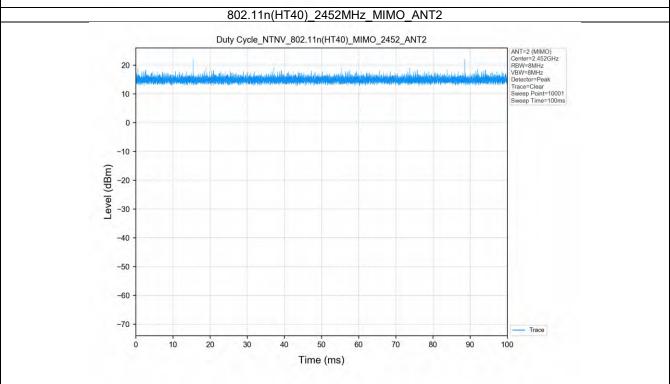




#### 802.11n(HT40)\_2452MHz\_MIMO\_ANT1 Duty Cycle\_NTNV\_802.11n(HT40)\_MIMO\_2452\_ANT2 ANT=2 (MIMO) Center=2.452GHz RBW=8MHz VBW=8MHz Detector=Peak Trace=Clear Sweep Point=10001 Sweep Time=100ms 10 0 -10 Level (dBm) -20 -30 -40 -50 -60 -70 50 10 40 80 30 100 Time (ms) 802.11n(HT40)\_2452MHz\_MIMO\_ANT2







#### 2. Bandwidth

#### 2.1 Test Result

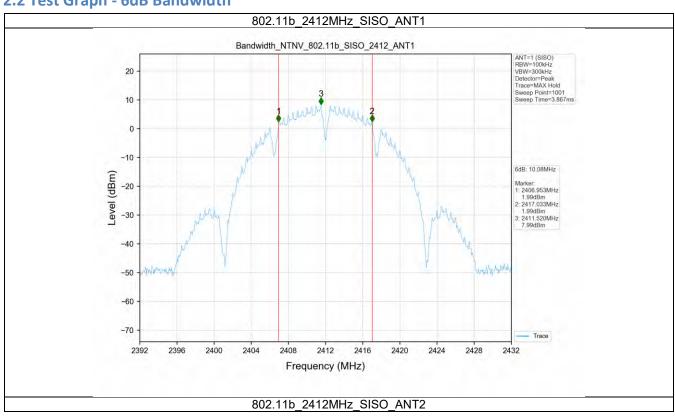
Test Mode	Frequency (MHz)	ТХ Туре	ANT No.	6dB Bandwidth		Verdict
				Test Result (MHz)	Limits (MHz)	verdict
802.11b	2412	SISO	1	10.080	≥0.5	PASS
	2412	3130	2	10.090	≥0.5	PASS
	2437	SISO	1	10.100	≥0.5	PASS
			2	10.080	≥0.5	PASS
	2462	SISO	1	10.100	≥0.5	PASS
		3130	2	10.100	≥0.5	PASS
	2412	SISO	1	16.610	≥0.5	PASS
			2	16.610	≥0.5	PASS
000 11 =	0407	SISO	1	16.610	≥0.5	PASS
802.11g	2437		2	16.600	≥0.5	PASS
	0.400	SISO	1	16.600	≥0.5	PASS
	2462		2	16.620	≥0.5	PASS
	2412	SISO	1	17.850	≥0.5	PASS
			2	17.850	≥0.5	PASS
		MIMO	0	17.850	≥0.5	PASS
	2437	SISO	1	17.860	≥0.5	PASS
802.11n(HT20)			2	17.790	≥0.5	PASS
, ,		MIMO	0	17.800	≥0.5	PASS
	2462	SISO	1	17.850	≥0.5	PASS
			2	17.840	≥0.5	PASS
		MIMO	0	17.850	≥0.5	PASS
802.11n(HT40)	2422	SISO	1	36.520	≥0.5	PASS
			2	36.550	≥0.5	PASS
		MIMO	0	36.550	≥0.5	PASS
	2437	SISO —	1	36.440	≥0.5	PASS
			2	36.430	≥0.5	PASS
		MIMO	0	36.440	≥0.5	PASS
	2452	SISO	1	36.460	≥0.5	PASS
			2	36.480	≥0.5	PASS
		MIMO	0	36.460	≥0.5	PASS

Test Mode Frequency		TX Type	ANT No.	99% Occupied Bandwidth		
	(MHz)	71		Test Res	ult (MHz)	
802.11b	2412	SISO	1	15.110	Only for Report Use	
			2	15.050	Only for Report Use	
	2437	SISO	1	15.120	Only for Report Use	
			2	14.980	Only for Report Use	
	2462	SISO	1	15.100	Only for Report Use	
			2	15.090	Only for Report Use	
802.11g	2412	SISO	1	17.030	Only for Report Use	
			2	17.080	Only for Report Use	
	2437	SISO	1	17.020	Only for Report Use	
			2	16.970	Only for Report Use	
	2462	SISO	1	17.030	Only for Report Use	
			2	17.040	Only for Report Use	
802.11n(HT20)	2412	SISO -	1	18.060	Only for Report Use	
			2	18.080	Only for Report Use	
			0	18.090	Only for Report Use	

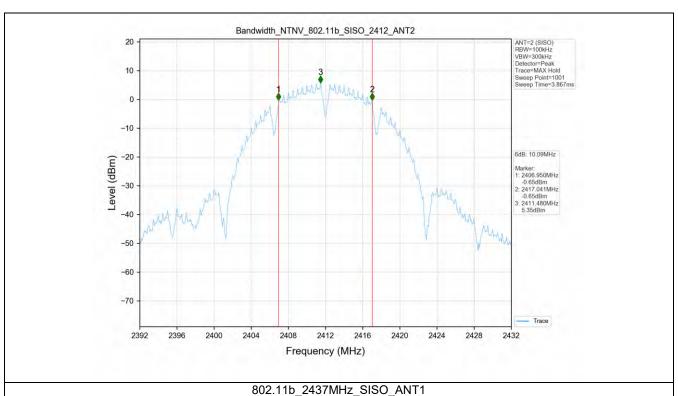


	2437	SISO	1	18.060	Only for Report Use
			2	18.030	Only for Report Use
		MIMO	0	18.020	Only for Report Use
	2462	SISO	1	18.040	Only for Report Use
			2	18.090	Only for Report Use
		MIMO	0	18.070	Only for Report Use
802.11n(HT40)	2422	SISO	1	36.770	Only for Report Use
			2	37.030	Only for Report Use
		MIMO	0	37.020	Only for Report Use
	2437	SISO	1	36.800	Only for Report Use
			2	36.660	Only for Report Use
		MIMO	0	36.650	Only for Report Use
	2452	SISO —	1	36.650	Only for Report Use
			2	36.650	Only for Report Use
			0	36.610	Only for Report Use

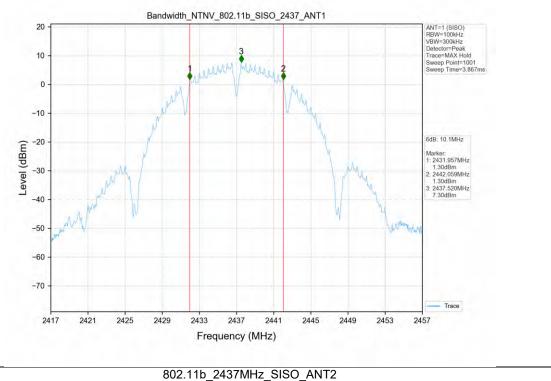
#### 2.2 Test Graph - 6dB Bandwidth



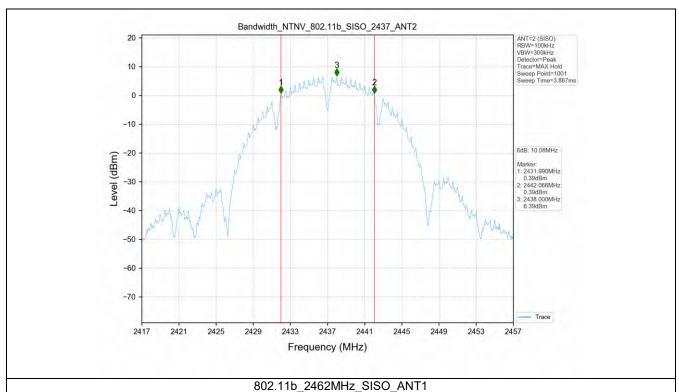


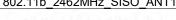


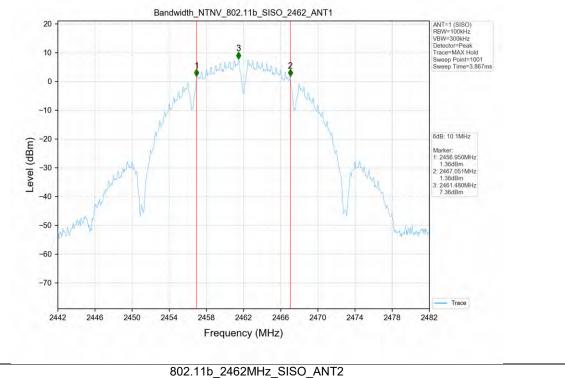




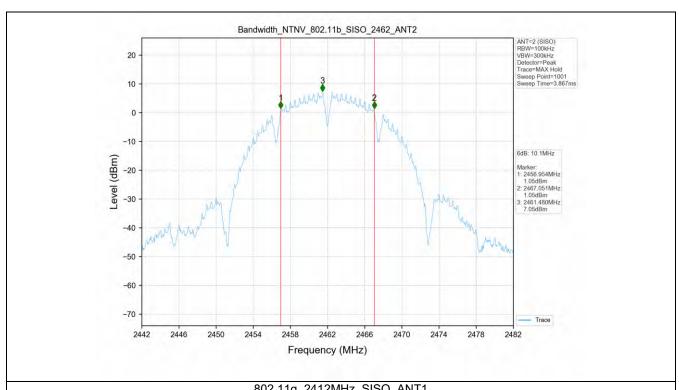


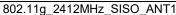


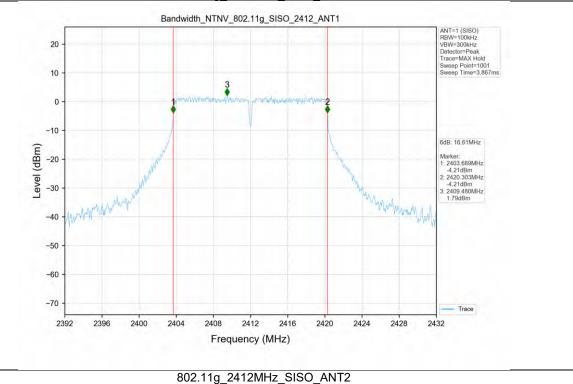




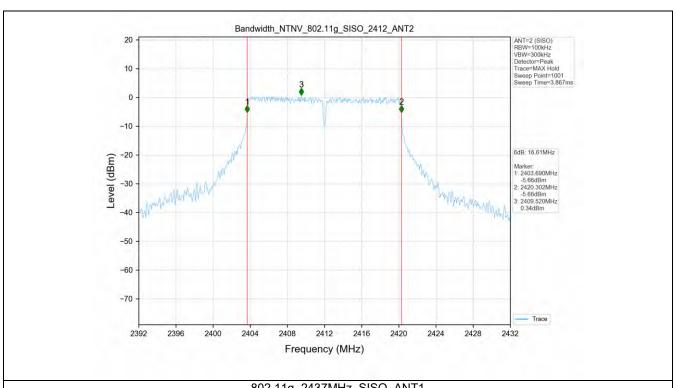






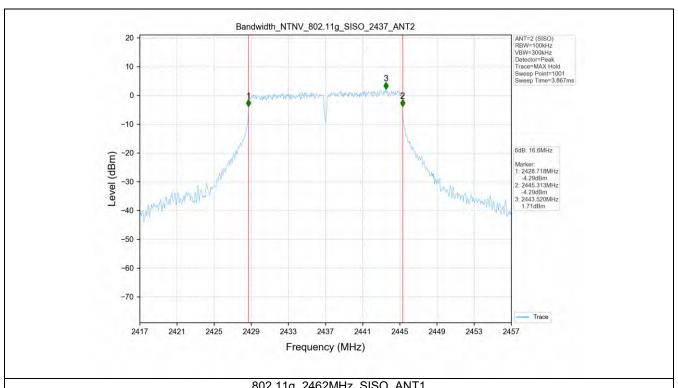


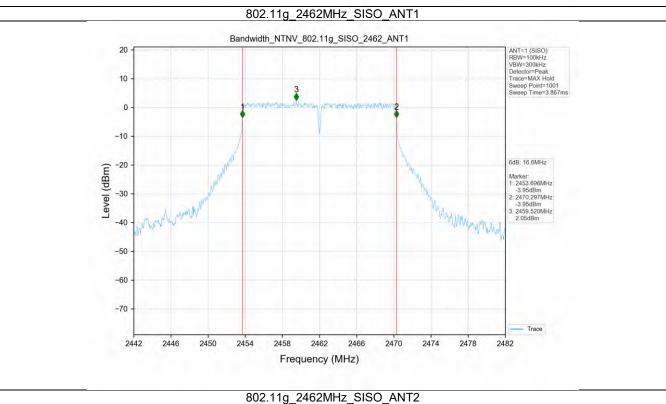




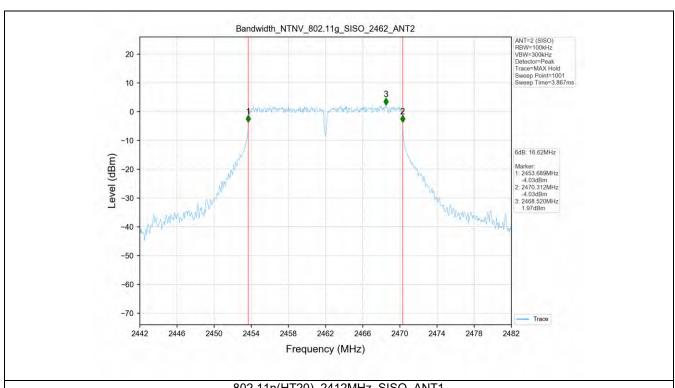
#### 802.11g\_2437MHz\_SISO\_ANT1 Bandwidth\_NTNV\_802.11g\_SISO\_2437\_ANT1 20 ANT=1 (SISO) RBW=100kHz VBW=300kHz Detector=Peak Trace=MAX Hold Sweep Point=1001 Sweep Time=3.867ms 10 0 -10 6dB: 16.61MHz -20 Level (dBm) Marker: 1: 2428.708MHz -4.37dBm 2: 2445.313MHz -4.37dBm 3: 2443.640MHz 1.63dBm -30 -40 -50 -60 -70 Trace 2421 2425 2429 2433 2437 2441 2445 2449 2453 2417 2457 Frequency (MHz) 802.11g\_2437MHz\_SISO\_ANT2

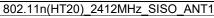


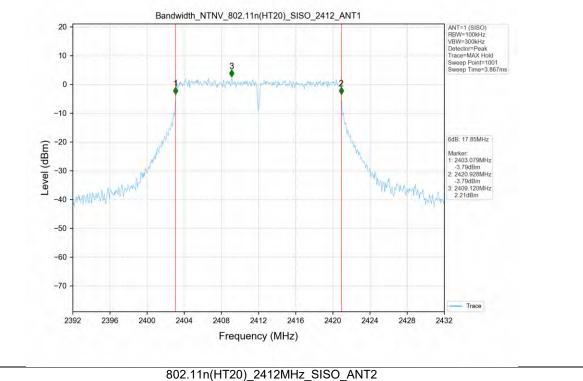




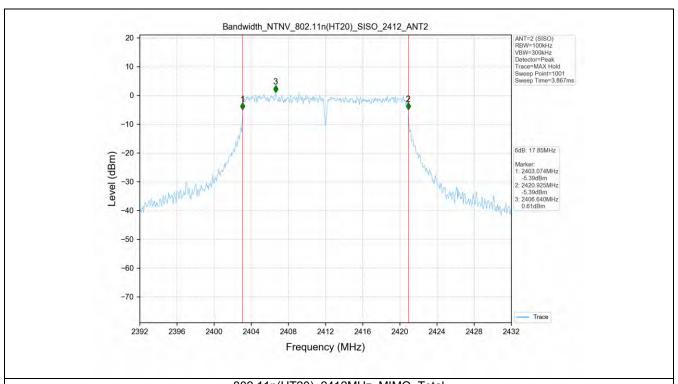








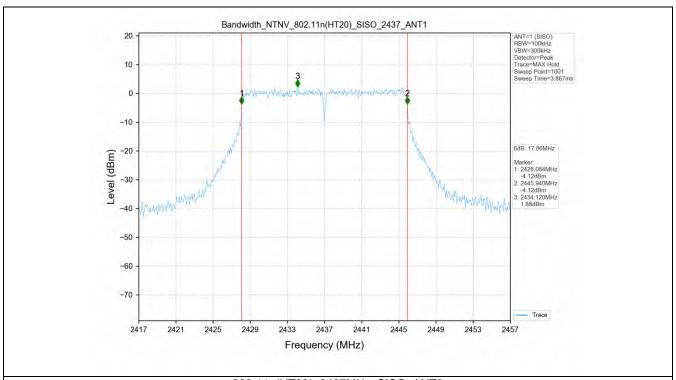




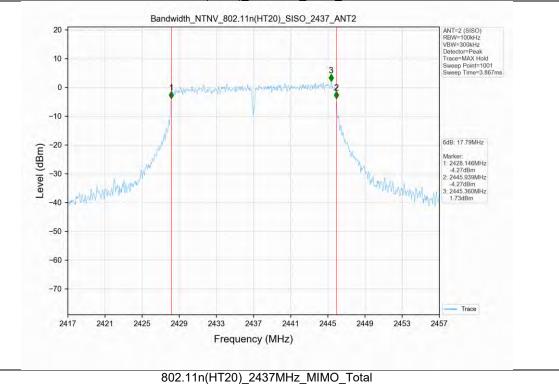
#### 802.11n(HT20)\_2412MHz\_MIMO\_Total Bandwidth\_NTNV\_802.11n(HT20)\_MIMO\_2412\_ANT2 ANT=2 (MIMO) RBW=100kHz VBW=300kHz 20 Detector=Peak Trace=MAX Hold Sweep Point=1001 Sweep Time=3.867ms 10 0 -10 6dB: 17.85MHz Level (dBm) Marker: 1: 2403.075MHz -6.86dBm 2: 2420.924MHz -6.86dBm 3: 2406.640MHz -0.86dBm -20 -30 MANNING FOR whyterpart at -40 -50 -60 -70 Trace 2408 2412 2416 2420 2392 2396 2400 2404 2424 2428 2432 Frequency (MHz)

802.11n(HT20)\_2437MHz\_SISO\_ANT1

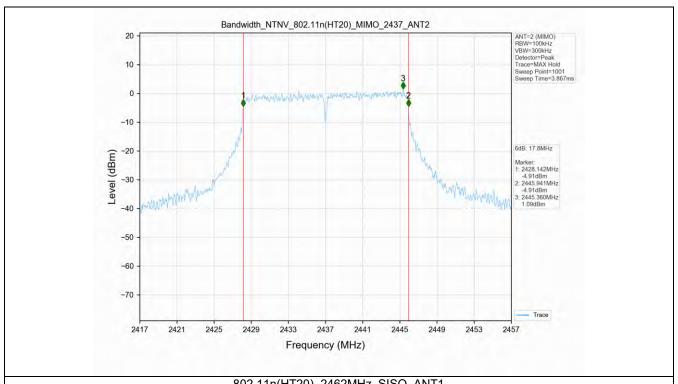


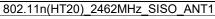


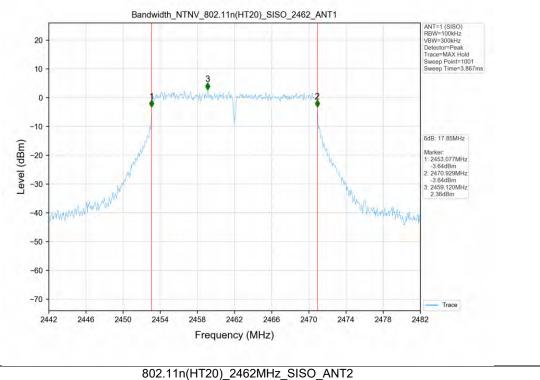
#### 802.11n(HT20)\_2437MHz\_SISO\_ANT2



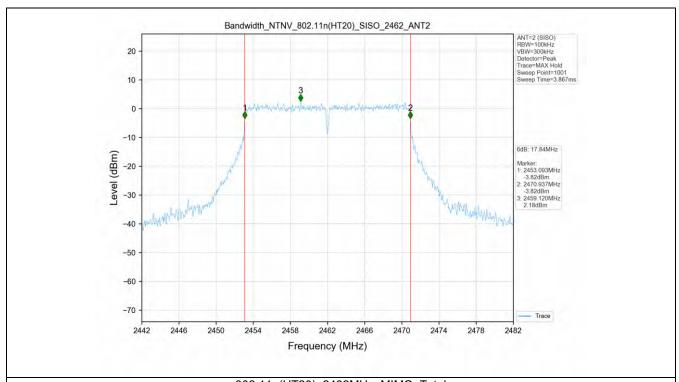


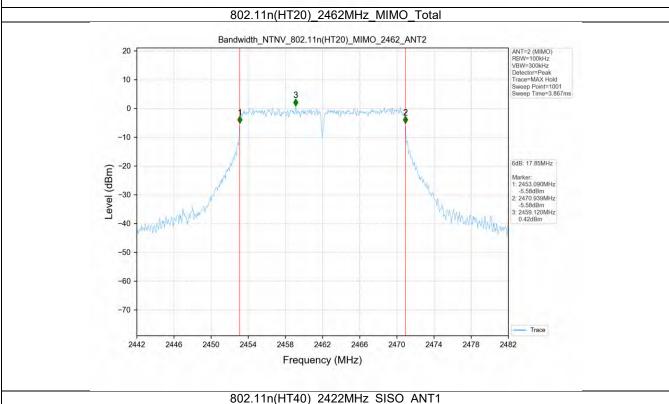




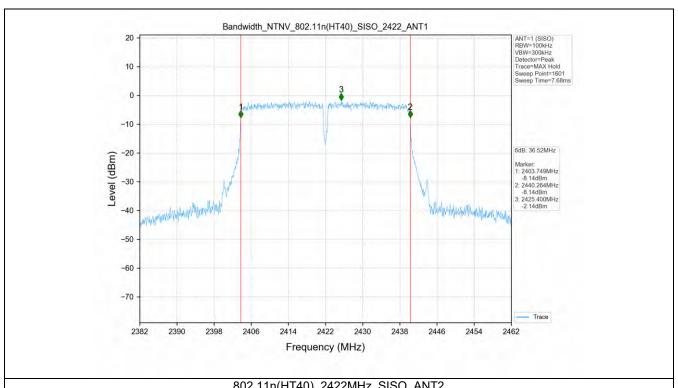






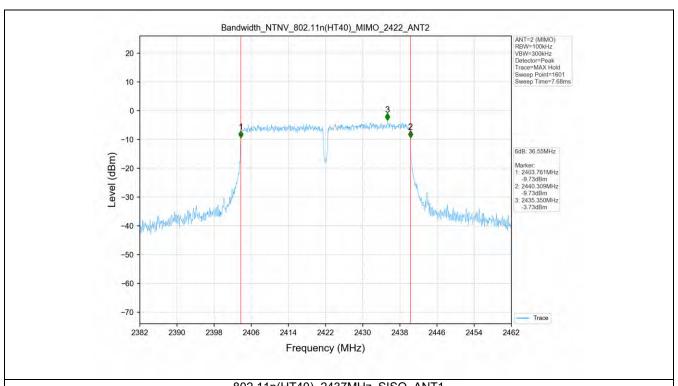






#### 802.11n(HT40) 2422MHz SISO ANT2 Bandwidth\_NTNV\_802.11n(HT40)\_SISO\_2422\_ANT2 20 ANT=2 (SISO) RBW=100kHz VBW=300kHz Detector=Peak Trace=MAX Hold Sweep Point=1601 Sweep Time=7.68ms 10 0 -10 6dB: 36.55MHz -20 Level (dBm) Marker: 1: 2403.758MHz -9.04dBm 2: 2440.309MHz -9.04dBm 3: 2435.350MHz -3.04dBm -30 A post-interpretation of the contraction -40 -50 -60 -70 Trace 2398 2414 2422 2430 2438 2446 2454 2382 2390 2406 2462 Frequency (MHz) 802.11n(HT40) 2422MHz MIMO Total

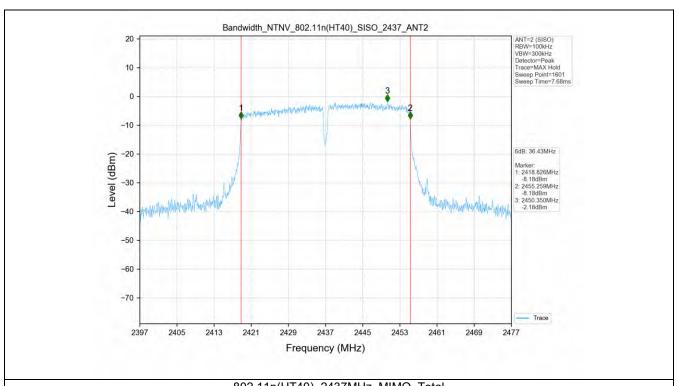




#### 802.11n(HT40)\_2437MHz\_SISO\_ANT1 Bandwidth\_NTNV\_802.11n(HT40)\_SISO\_2437\_ANT1 ANT=1 (SISO) RBW=100kHz VBW=300kHz Detector=Peak Trace=MAX Hold Sweep Point=1601 Sweep Time=7.68ms 10 0 -10 6dB: 36.44MHz -20 Level (dBm) Marker: 1: 2418.799MHz -7.70dBm 2: 2455.242MHz -7.70dBm 3: 2439.100MHz -1.70dBm -30 Marillander and the step and planting of -40 -50 -60 -70 Trace 2405 2413 2429 2437 2445 2453 2461 2397 2421 2469 2477 Frequency (MHz)

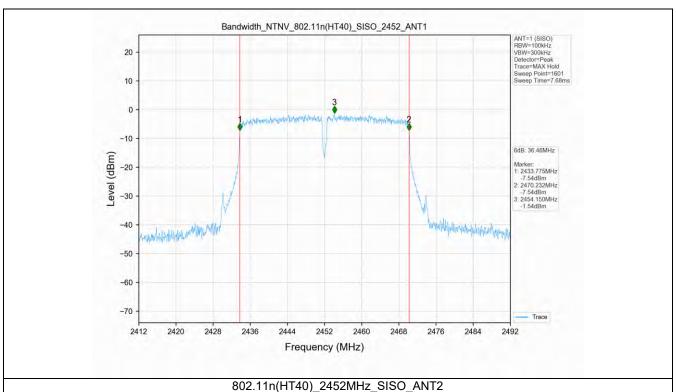
802.11n(HT40) 2437MHz SISO ANT2



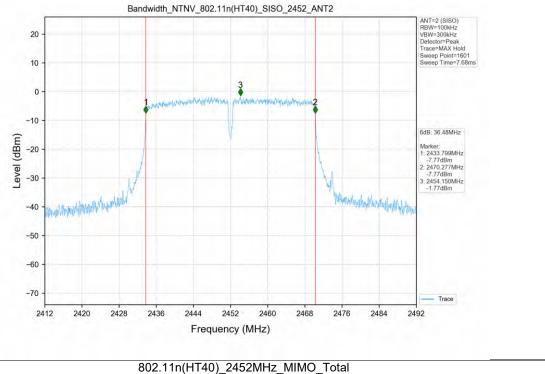


#### 802.11n(HT40) 2437MHz MIMO Total Bandwidth\_NTNV\_802.11n(HT40)\_MIMO\_2437\_ANT2 ANT=2 (MIMO) RBW=100kHz VBW=300kHz 20 Detector=Peak Trace=MAX Hold Sweep Point=1601 Sweep Time=7.68ms 10 0 -10 6dB: 36.44MHz -20 Level (dBm) Marker: 1: 2418.820MHz -8.91dBm 2: 2455.257MHz -8.91dBm 3: 2450.350MHz -2.91dBm -30 Manyharypologicalpologic -50 -60 -70 Trace 2405 2413 2429 2437 2445 2453 2461 2397 2421 2469 2477 Frequency (MHz) 802.11n(HT40) 2452MHz SISO ANT1

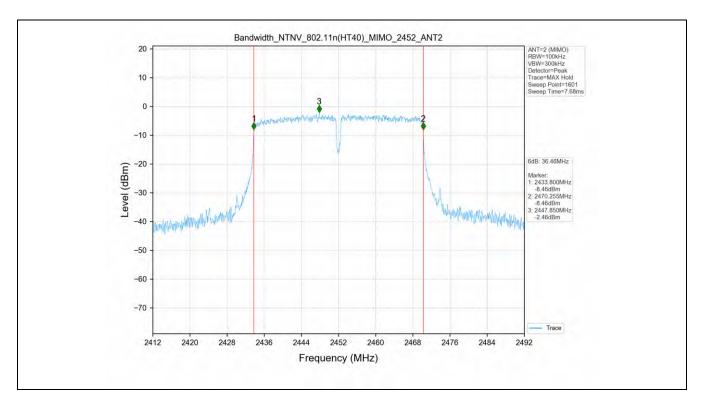




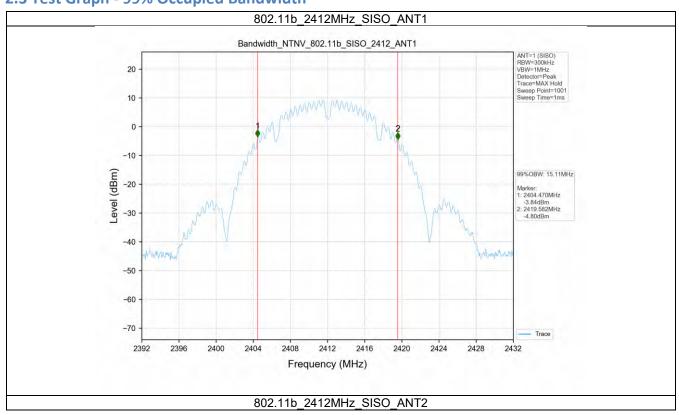
#### 802.11n(H140)\_2452MHz\_SISO\_AN12



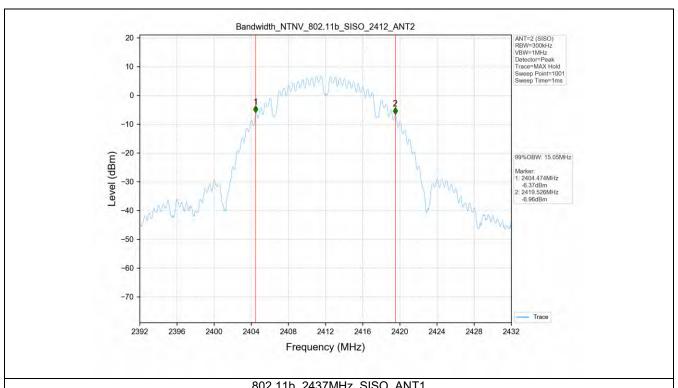




#### 2.3 Test Graph - 99% Occupied Bandwidth

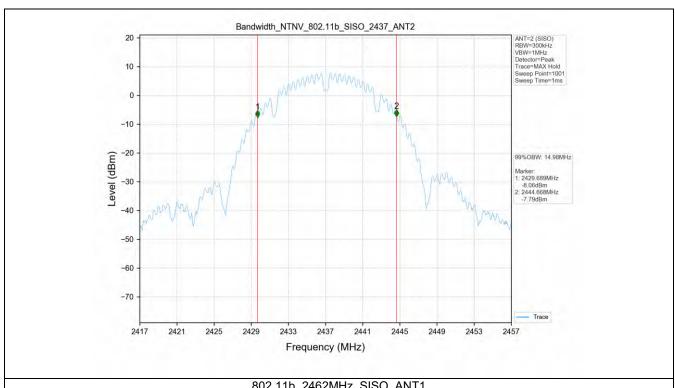






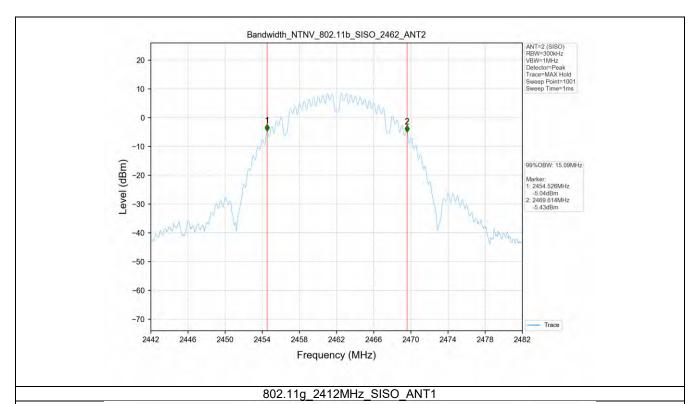
#### 802.11b\_2437MHz\_SISO\_ANT1 Bandwidth\_NTNV\_802.11b\_SISO\_2437\_ANT1 ANT=1 (SISO) RBW=300kHz VBW=1MHz 20 Detector=Peak Trace=MAX Hold Sweep Point=1001 Sweep Time=1ms 10 0 -10 -20 Level (dBm) 99%OBW: 15.12MHz Marker: 1: 2429.512MHz -4.74dBm 2: 2444.627MHz -6.22dBm -30 -40 -50 -60 -70 Trace 2437 2421 2425 2429 2433 2441 2445 2449 2453 2417 2457 Frequency (MHz) 802.11b\_2437MHz\_SISO\_ANT2



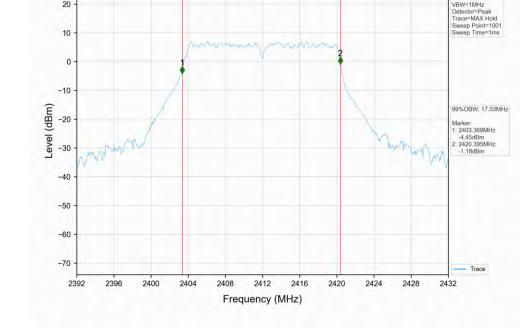


#### 802.11b\_2462MHz\_SISO\_ANT1 Bandwidth\_NTNV\_802.11b\_SISO\_2462\_ANT1 ANT=1 (SISO) RBW=300kHz VBW=1MHz 20 Detector=Peak Trace=MAX Hold Sweep Point=1001 Sweep Time=1ms 10 0 -10 -20 Level (dBm) 99%OBW: 15.1MHz Marker: 1: 2454.467MHz -4.46dBm 2: 2469.566MHz -4.95dBm -30 -40 -50 -60 -70 Trace 2458 2462 2446 2450 2454 2466 2470 2474 2478 2442 2482 Frequency (MHz) 802.11b\_2462MHz\_SISO\_ANT2



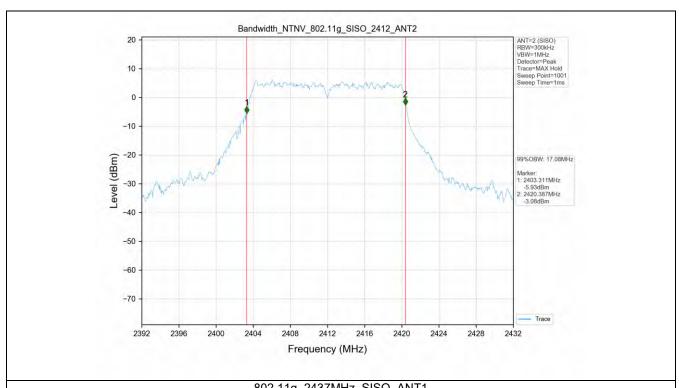


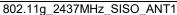
#### Bandwidth\_NTNV\_802.11g\_SISO\_2412\_ANT1 ANT=1 (SISO) RBW=300kHz VBW=1MHz Detector=Peak Trace=MAX Hold Sweep Point=1001 Sweep Time=1ms 20 10

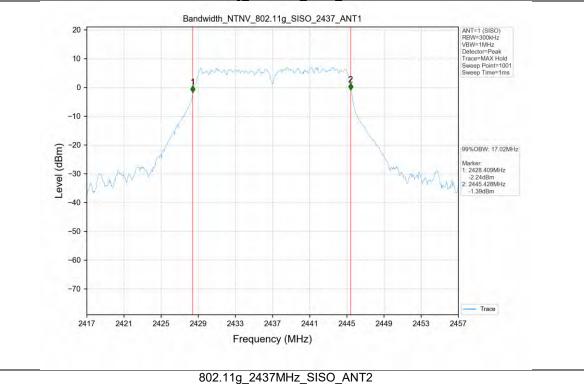


802.11g\_2412MHz\_SISO\_ANT2







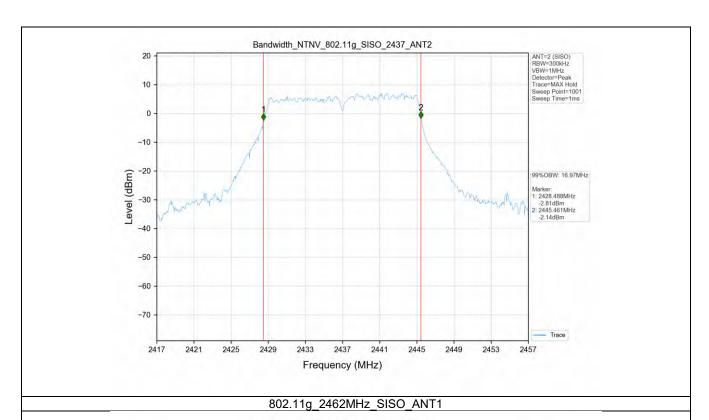




-60

-70

### SGS-CSTC Standards Technical Services Co., Ltd. Shanghai Branch



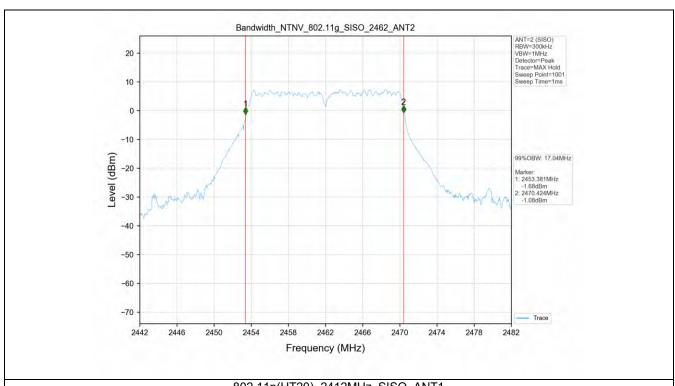
#### 

Frequency (MHz)

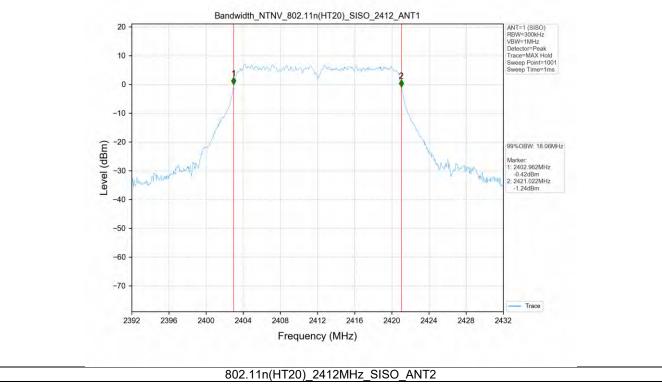
802.11g\_2462MHz\_SISO\_ANT2

Trace

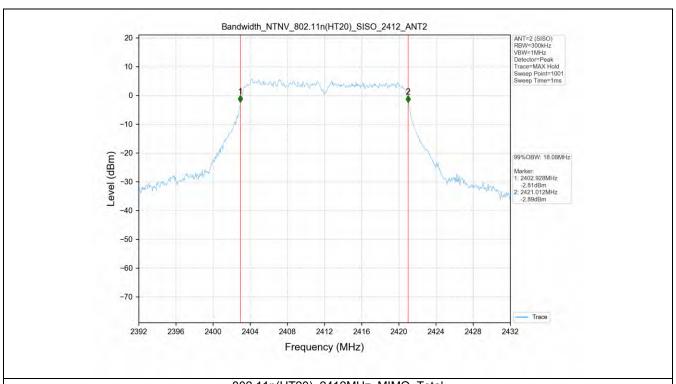


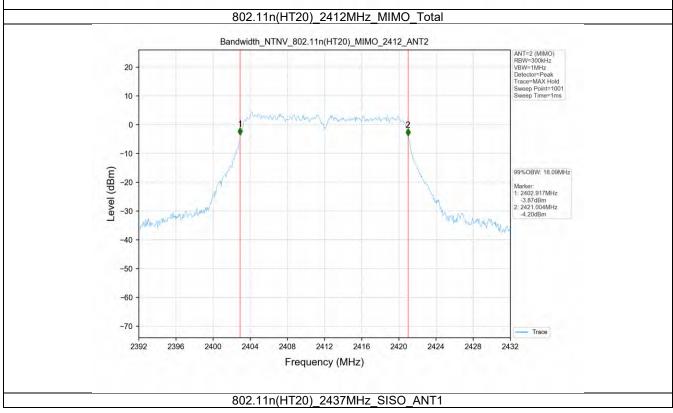


#### 802.11n(HT20)\_2412MHz\_SISO\_ANT1

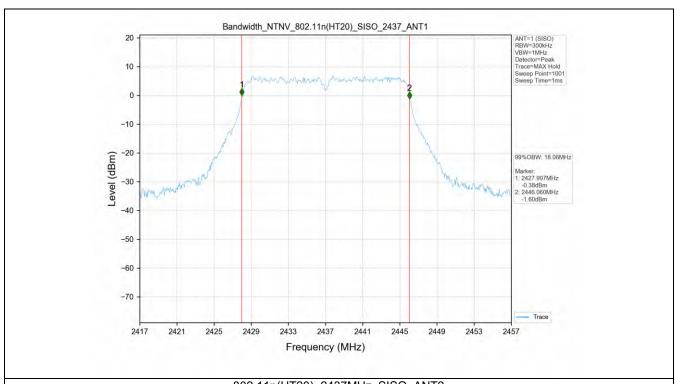


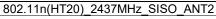


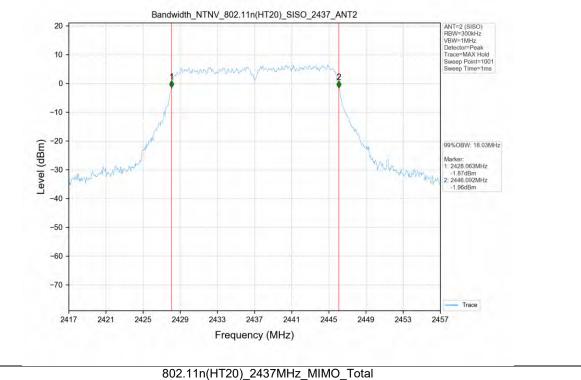




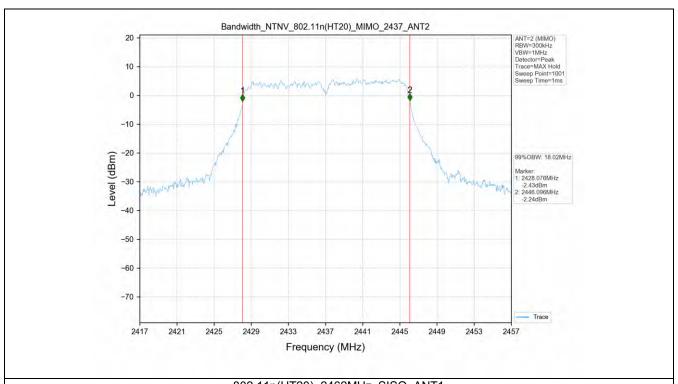


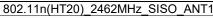


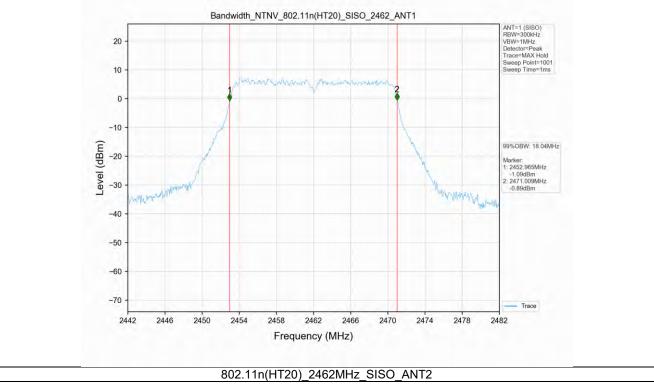




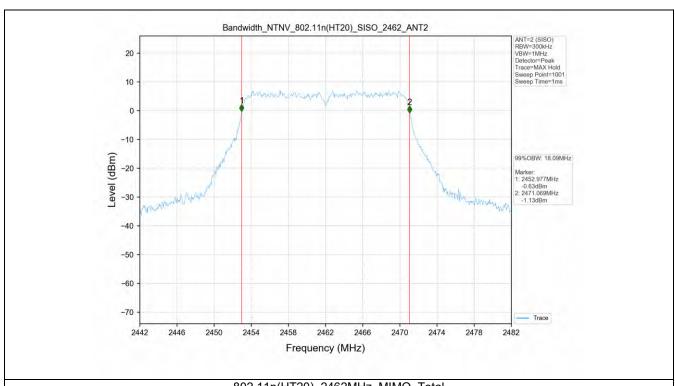






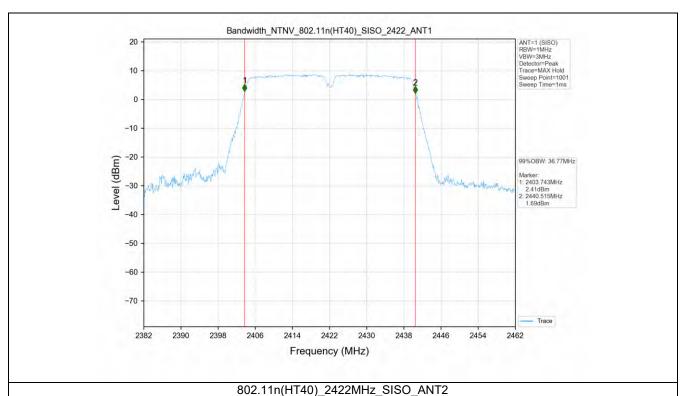




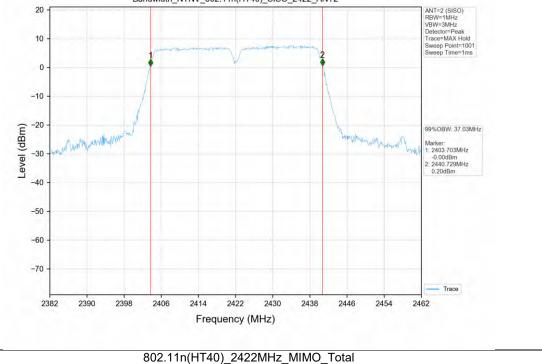


#### 802.11n(HT20)\_2462MHz\_MIMO\_Total Bandwidth\_NTNV\_802.11n(HT20)\_MIMO\_2462\_ANT2 ANT=2 (MIMO) RBW=300kHz VBW=1MHz Detector=Peak Trace=MAX Hold Sweep Point=1001 Sweep Time=1ms 10 0 -10 -20 Level (dBm) 99%OBW: 18.07MHz Marker: 1: 2452.983MHz -1.75dBm 2: 2471.058MHz -2.84dBm -30 -40 -50 -60 -70 Trace 2478 2446 2450 2454 2458 2462 2466 2470 2474 2442 2482 Frequency (MHz) 802.11n(HT40)\_2422MHz\_SISO\_ANT1

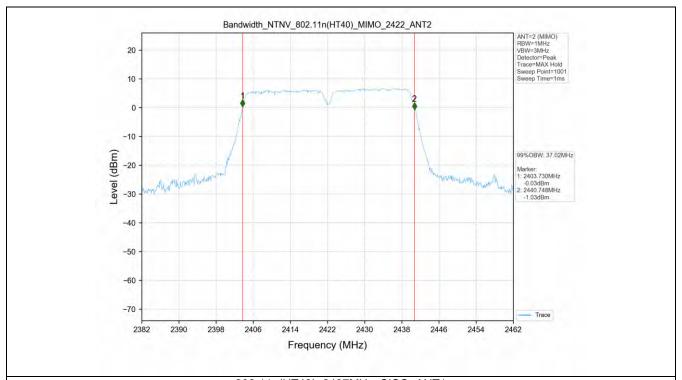


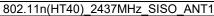


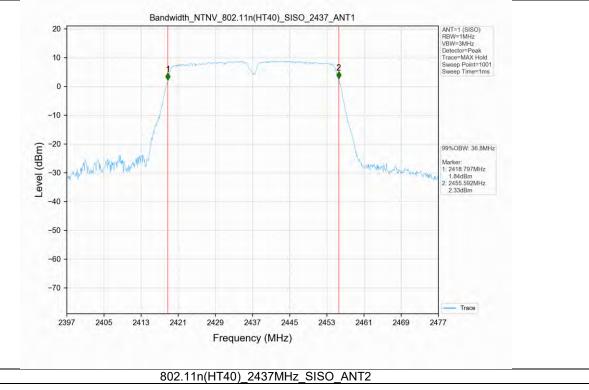
#### Bandwidth\_NTNV\_802.11n(HT40)\_SISO\_2422\_ANT2



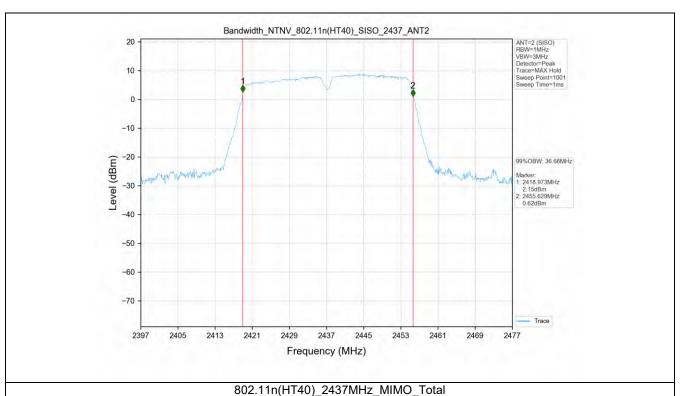








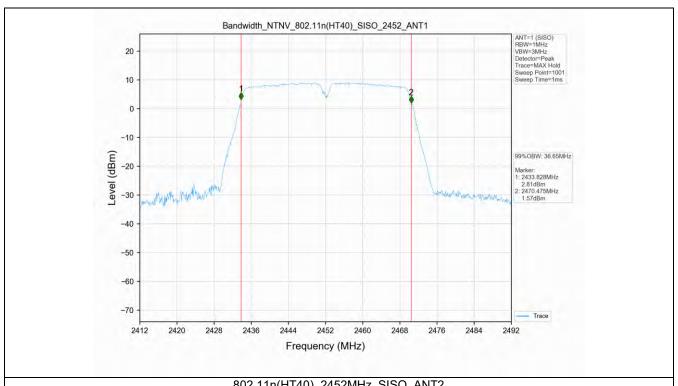




#### Bandwidth\_NTNV\_802.11n(HT40)\_MIMO\_2437\_ANT2 ANT=2 (MIMO) RBW=1MHz VBW=3MHz Detector=Peak Trace=MAX Hold Sweep Point=1001 Sweep Time=1ms 10 0 -10 -20 Level (dBm) 99%OBW: 36.65MHz Marker: 1: 2418.974MHz 1.43dBm 2: 2455.621MHz 0.20dBm -30 -40 -50 -60 -70 Trace 2405 2413 2421 2429 2437 2445 2453 2461 2397 2469 2477 Frequency (MHz)

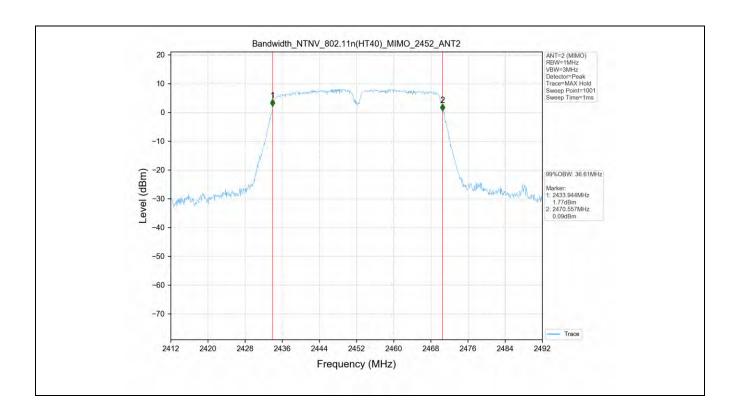
802.11n(HT40)\_2452MHz\_SISO\_ANT1





#### 802.11n(HT40)\_2452MHz\_SISO\_ANT2 Bandwidth\_NTNV\_802.11n(HT40)\_SISO\_2452\_ANT2 ANT=2 (SISO) RBW=1MHz VBW=3MHz 20 Detector=Peak Trace=MAX Hold Sweep Point=1001 Sweep Time=1ms 10 0 -10 Level (dBm) 99%OBW: 36.65MHz -20 Marker: 1: 2433.918MHz 2:78dBm 2: 2470.564MHz 1.09dBm -30 -40 -50 -60 -70 Trace 2428 2444 2452 2460 2468 2476 2412 2420 2436 2484 2492 Frequency (MHz) 802.11n(HT40)\_2452MHz\_MIMO\_Total





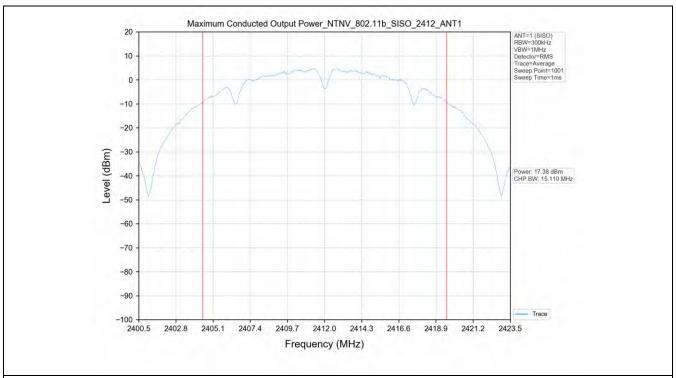
#### 3. Maximum Conducted Output Power

#### 3.1 Test Result

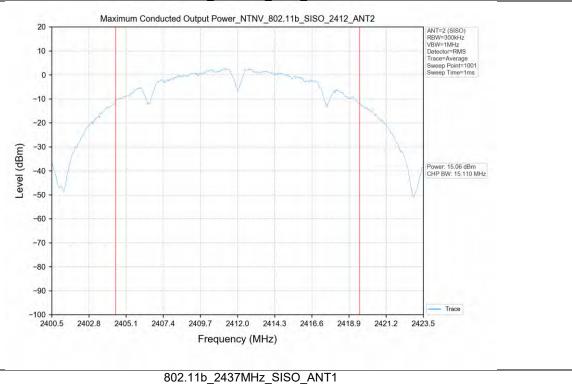
Test Mode	Frequency (MHz)	Тх Туре	Measured Average Output Power (dBm)			Limits (dBm)	Verdict
			Ant 1	Ant 2	Total	Liiilis (ubiii)	verdict
802.11b	2412	SISO	17.38	15.06	1	≤30	PASS
	2437	SISO	16.79	15.77	/	≤30	PASS
	2462	SISO	16.81	16.37	1	≤30	PASS
802.11g	2412	SISO	16.19	14.55	1	≤30	PASS
	2437	SISO	16.07	15.56	/	≤30	PASS
	2462	SISO	16.29	16.25	/	≤30	PASS
802.11n(HT20)	2412	SISO	16.21	14.59	/	≤30	PASS
		MIMO	15.08	13.05	17.19	≤30	PASS
	2437	SISO	16.14	15.64	/	≤30	PASS
		MIMO	15.08	14.91	18.01	≤30	PASS
	2462	SISO	16.38	16.34	/	≤30	PASS
		MIMO	15.15	14.59	17.89	≤30	PASS
802.11n(HT40)	2422	SISO	15.30	13.89	/	≤30	PASS
		MIMO	14.27	13.15	16.76	≤30	PASS
	2437	SISO	15.36	14.62	/	≤30	PASS
		MIMO	14.31	13.89	17.12	≤30	PASS
	2452	SISO	15.52	15.29	1	≤30	PASS
		MIMO	14.47	14.55	17.52	≤30	PASS

#### 3.2 Test Graph

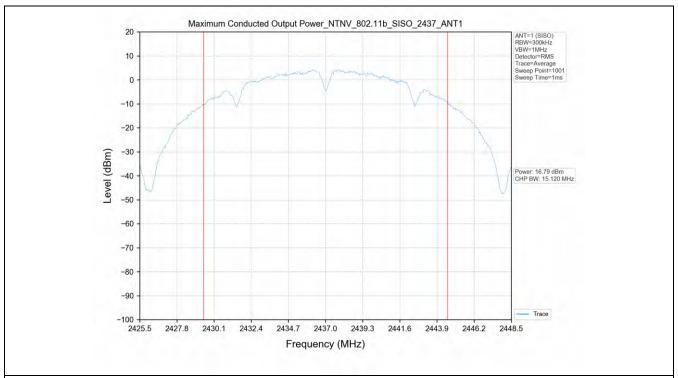




#### 802.11b\_2412MHz\_SISO\_ANT2



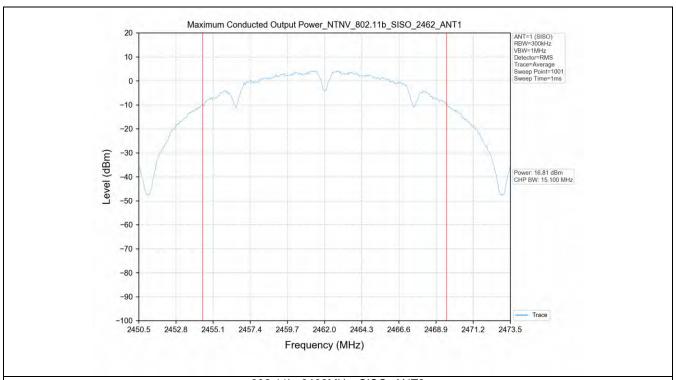




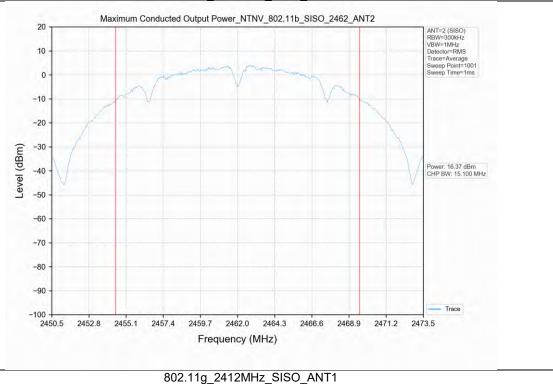
#### 802.11b\_2437MHz\_SISO\_ANT2



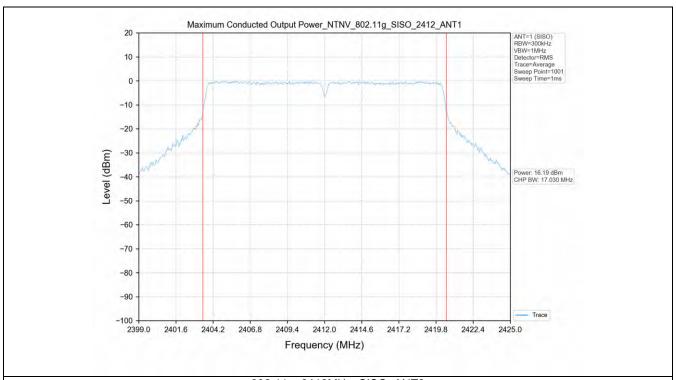




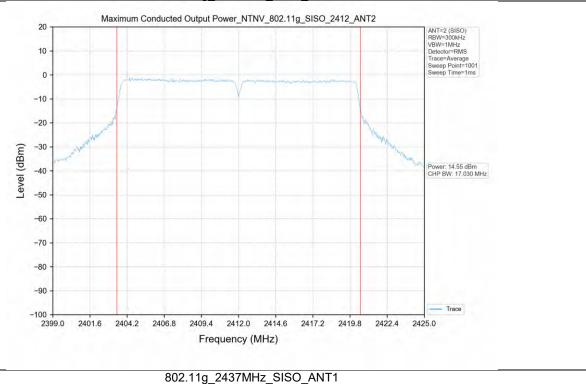
#### 802.11b\_2462MHz\_SISO\_ANT2



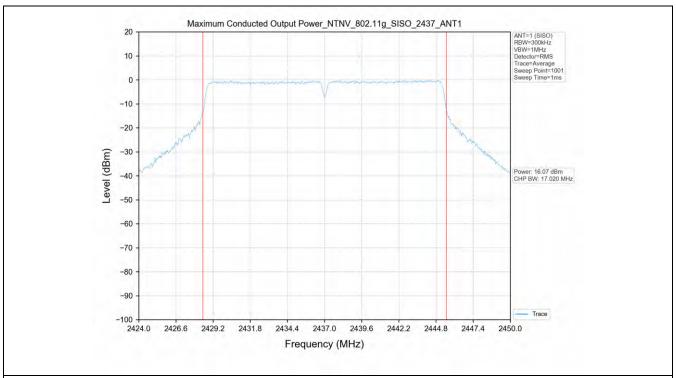




#### 802.11g\_2412MHz\_SISO\_ANT2



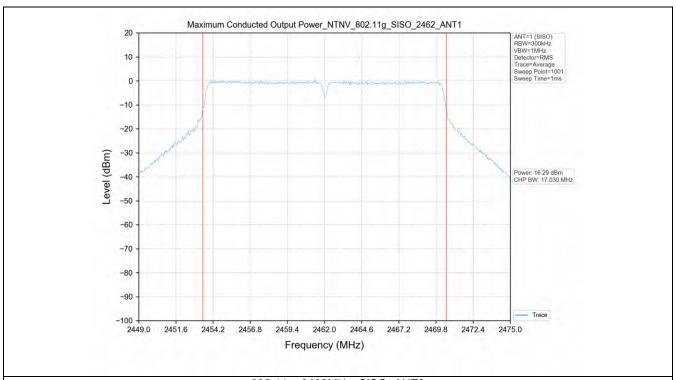




#### 802.11g\_2437MHz\_SISO\_ANT2







#### 802.11g\_2462MHz\_SISO\_ANT2

