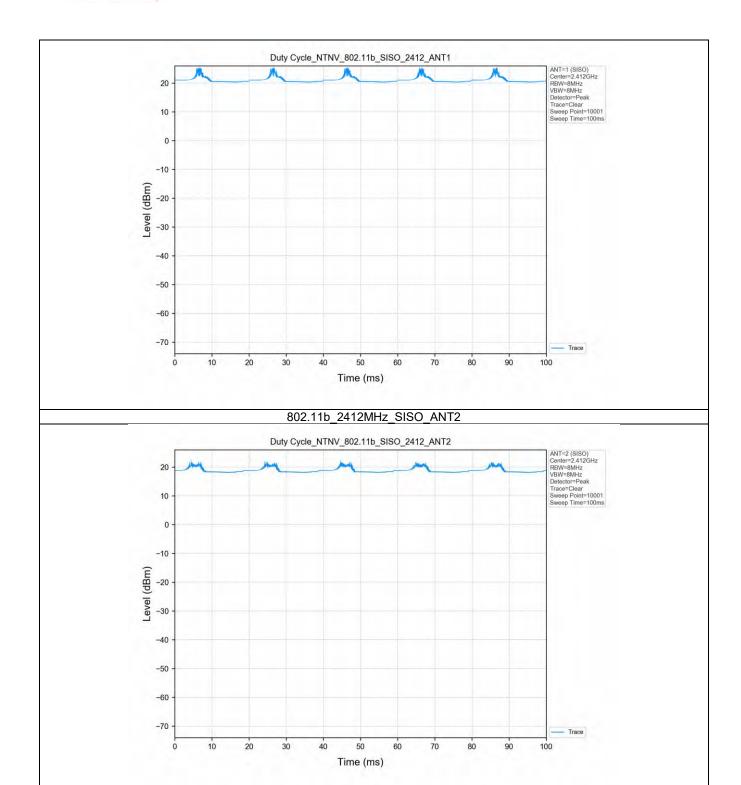
Appendix A for SHEM190901759201

1. Duty Cycle

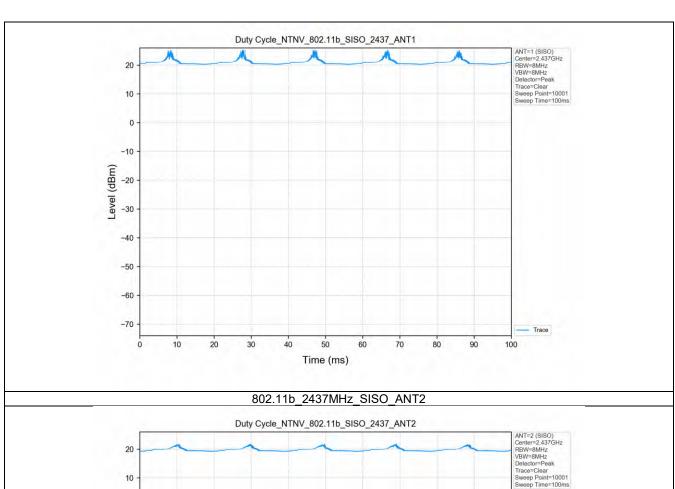
1.1 Test Result

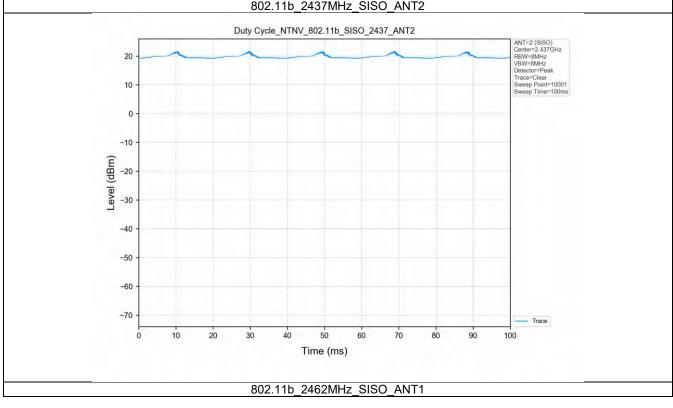
Test Mode	Channel Frequency(MHz)	ТХ Туре	ANT No.	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
802.11b	2412	SISO	1	100.000	100.000	100.00	0.00
	2412		2	100.000	100.000	100.00	0.00
	2437	SISO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
	0.400	SISO	1	100.000	100.000	100.00	0.00
	2462		2	100.000	100.000	100.00	0.00
	0440	0100	1	100.000	100.000	100.00	0.00
	2412	SISO	2	100.000	100.000	100.00	0.00
000 44	2437	0100	1	100.000	100.000	100.00	0.00
802.11g		SISO	2	100.000	100.000	100.00	0.00
	0.400	0100	1	100.000	100.000	100.00	0.00
	2462	SISO	2	100.000	100.000	100.00	0.00
		0100	1	100.000	100.000	100.00	0.00
	0.440	SISO	2	100.000	100.000	100.00	0.00
	2412	141140	1	100.000	100.000	100.00	0.00
		MIMO	2	100.000	100.000	100.00	0.00
		SISO	1	100.000	100.000	100.00	0.00
000 44 (UT00)	2437		2	100.000	100.000	100.00	0.00
802.11n(HT20)		141140	1	100.000	100.000	100.00	0.00
		MIMO	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
			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
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
	2452	SISO	1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00
		MIMO	<u>-</u> 1	100.000	100.000	100.00	0.00
			2	100.000	100.000	100.00	0.00

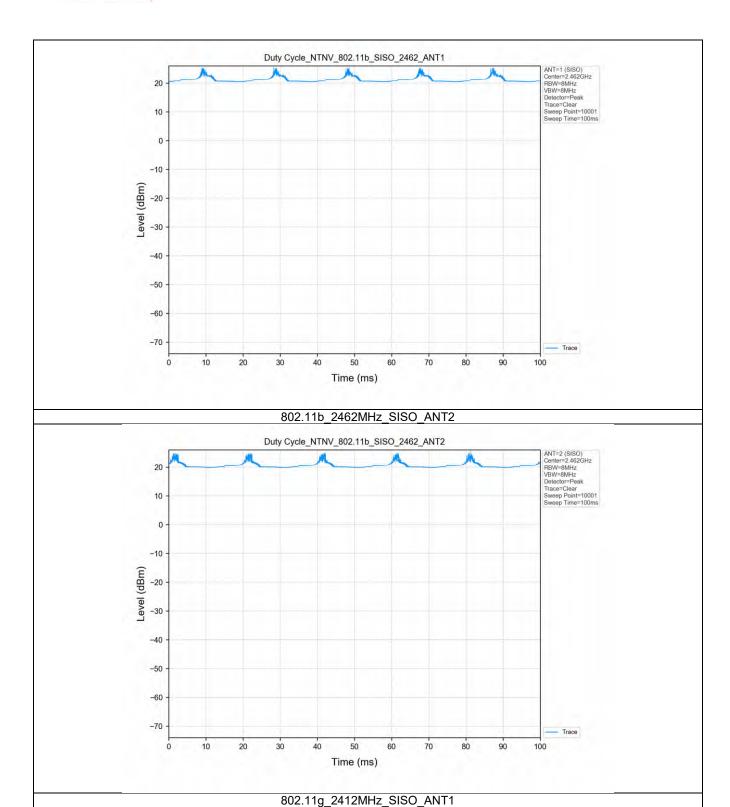
1.2 Test Graph



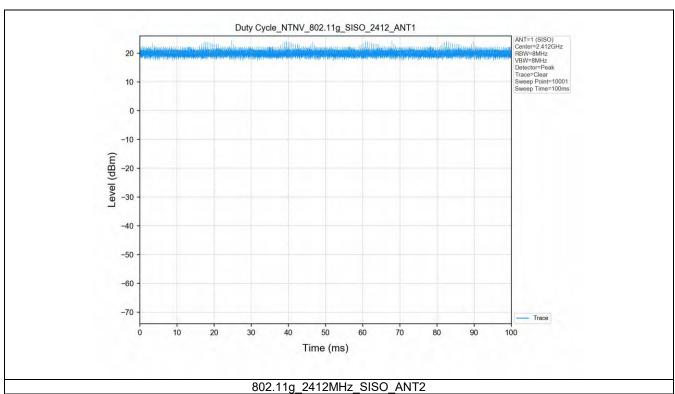
802.11b_2437MHz_SISO_ANT1

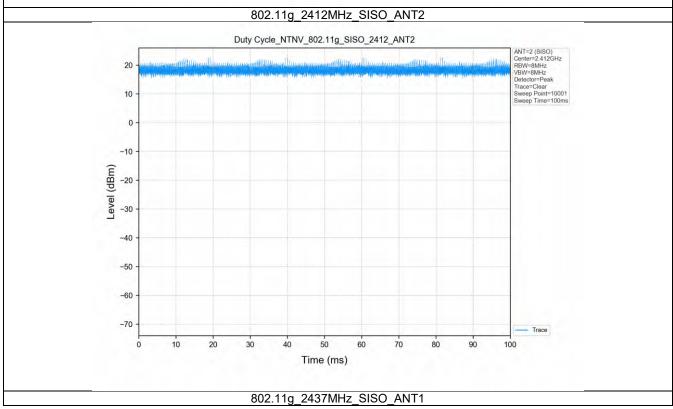




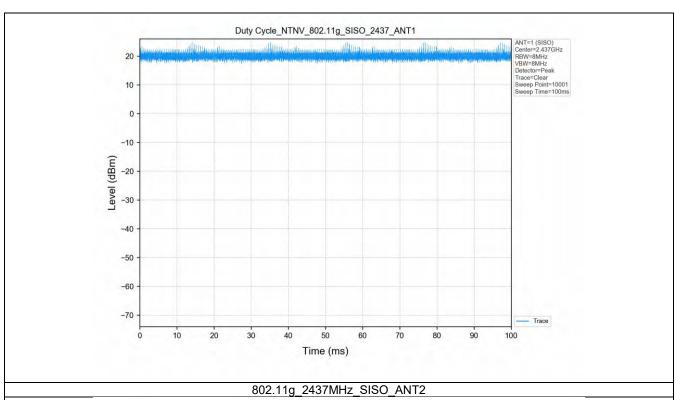


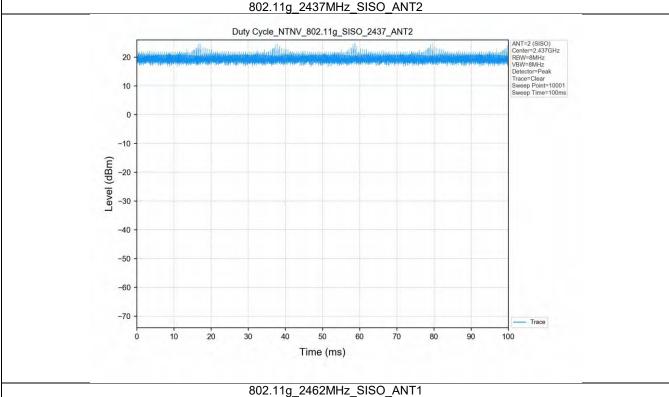




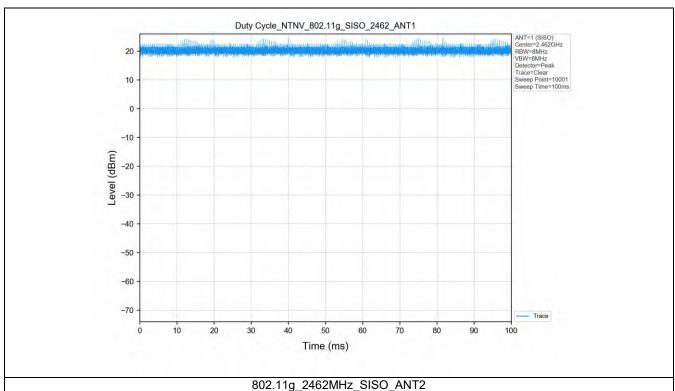


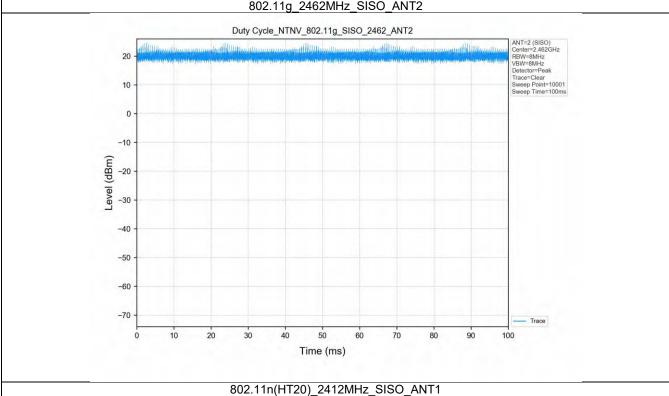




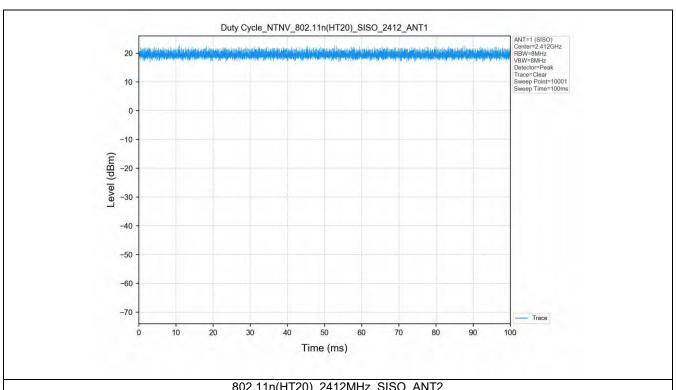


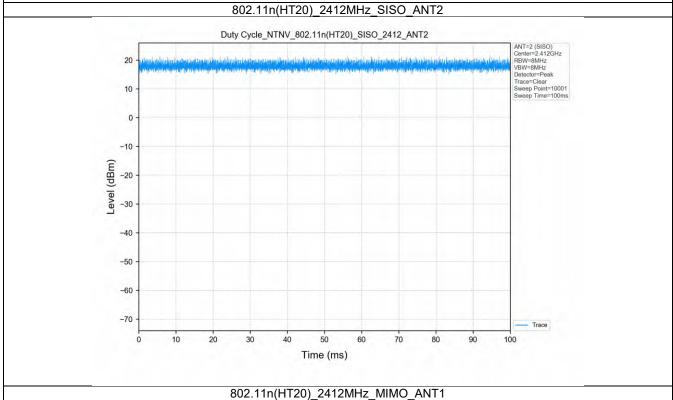




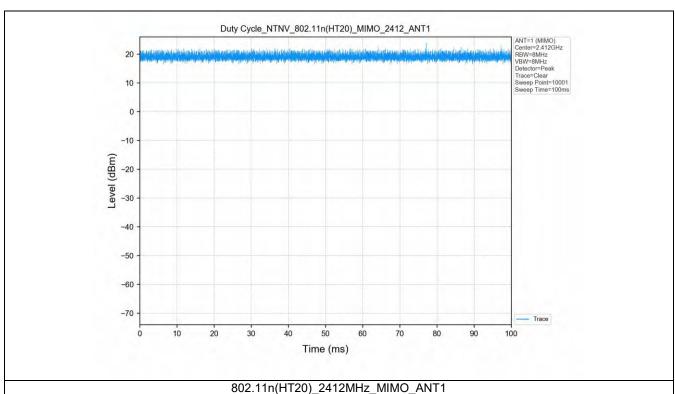


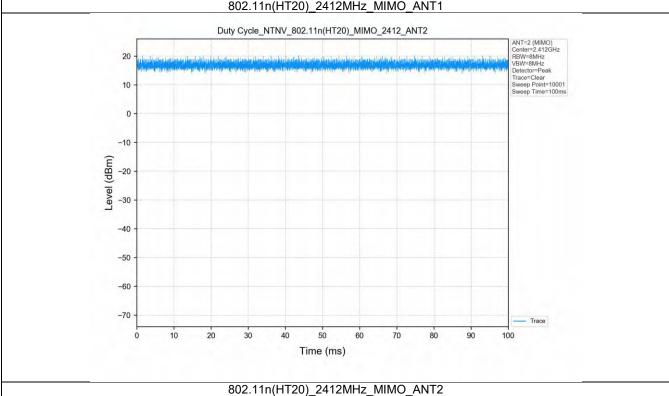




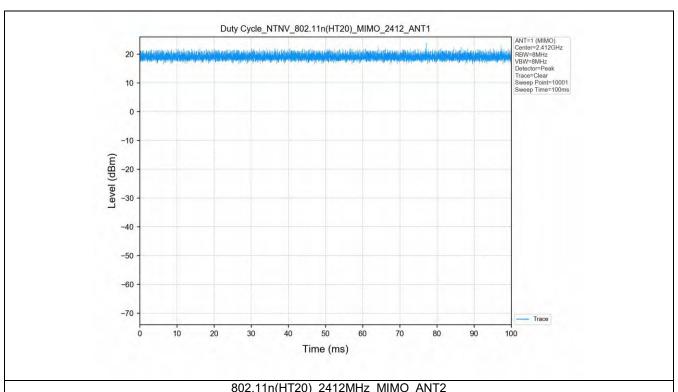


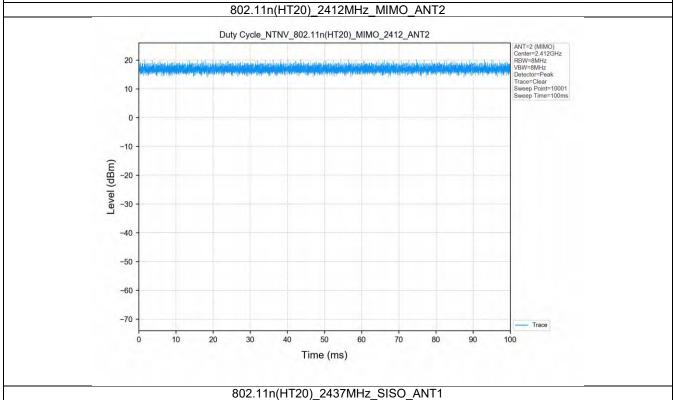




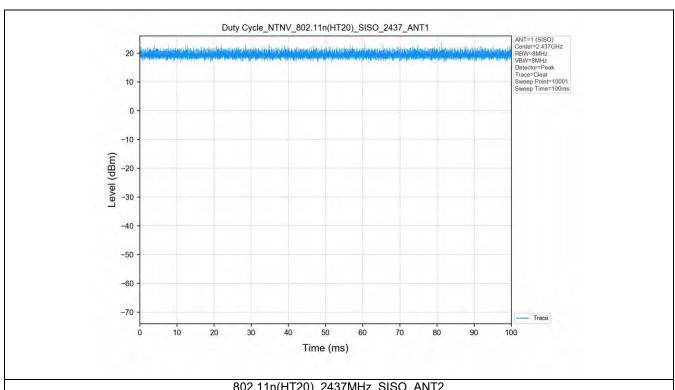


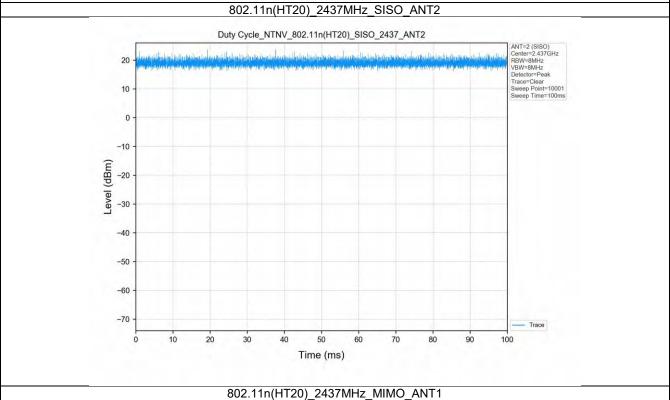




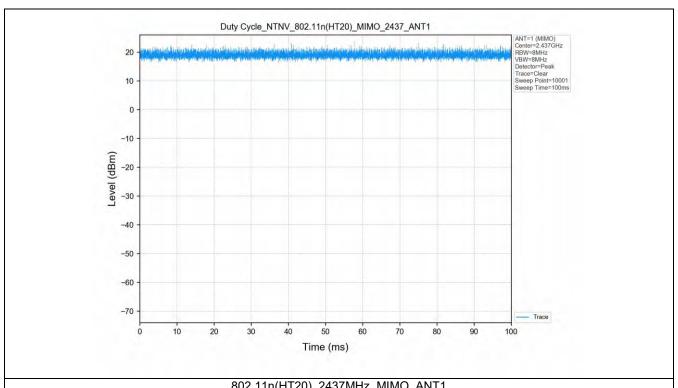


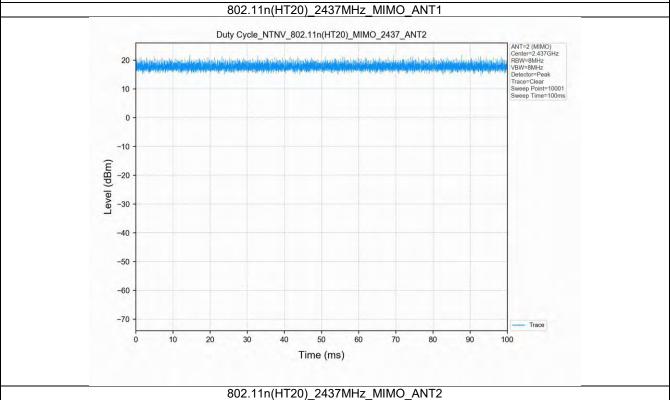




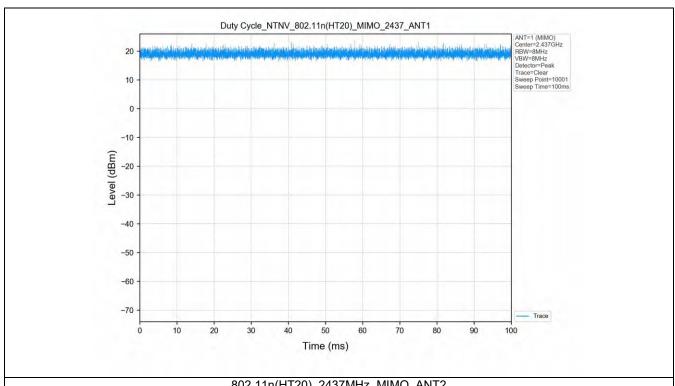


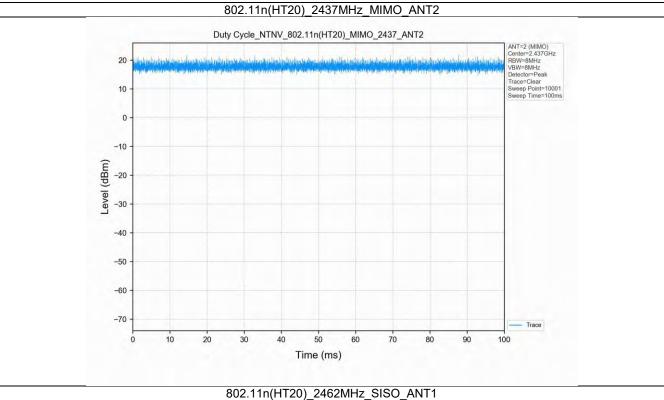




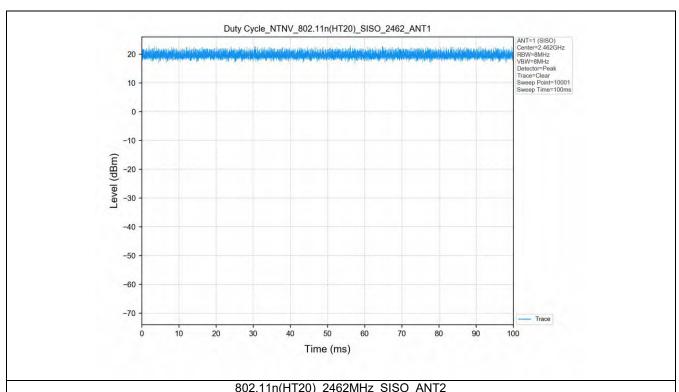


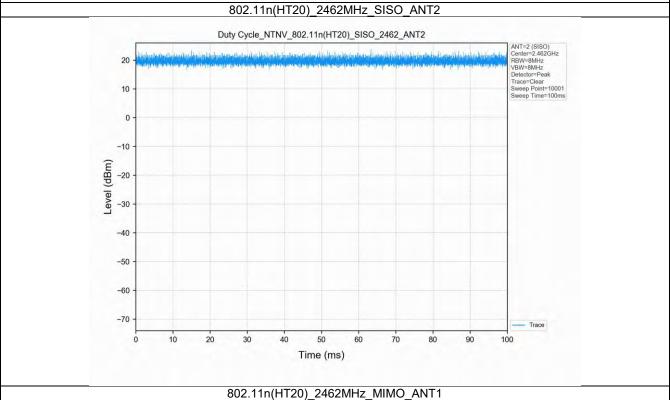




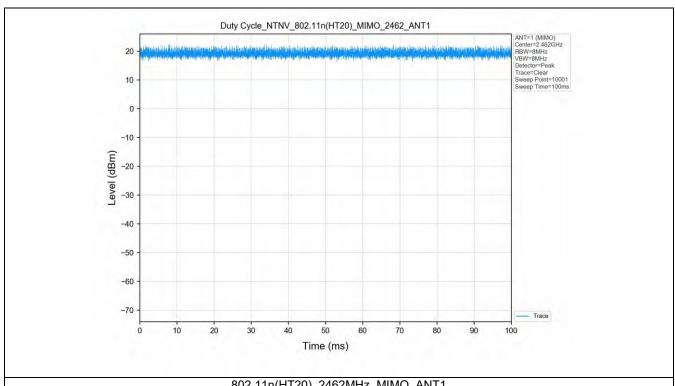


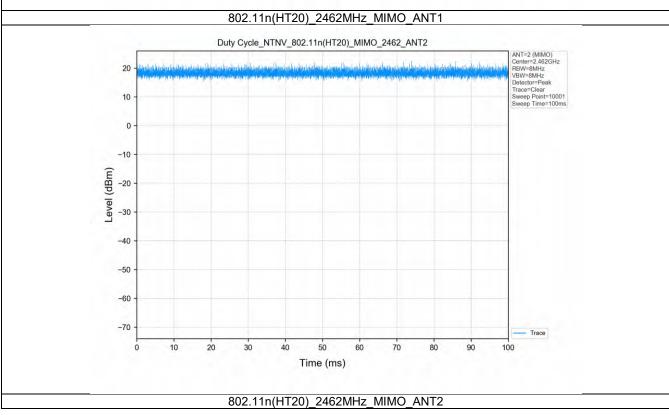




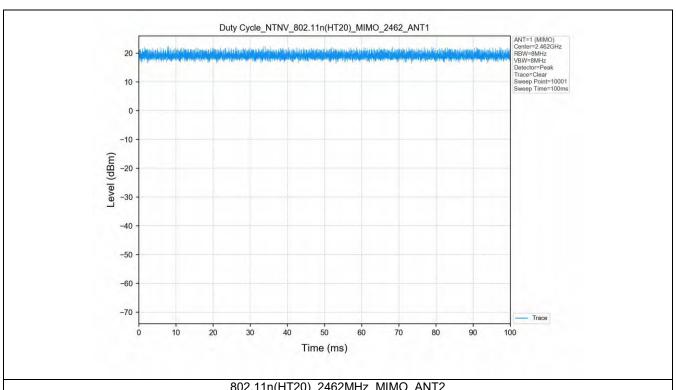


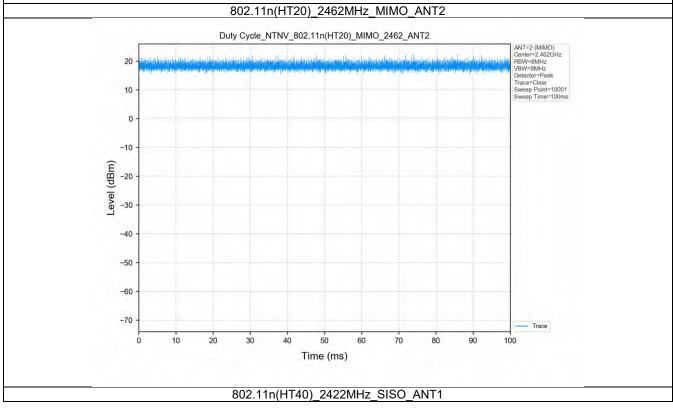




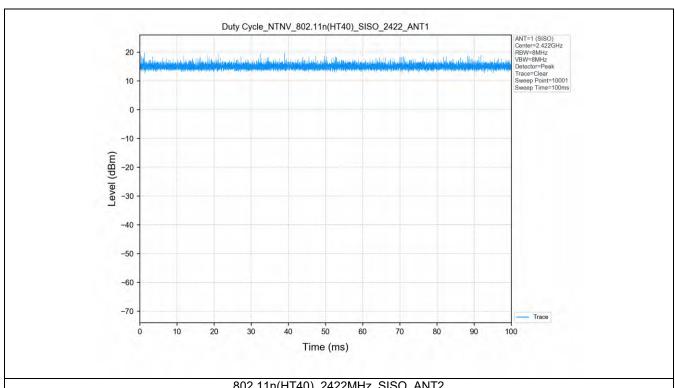


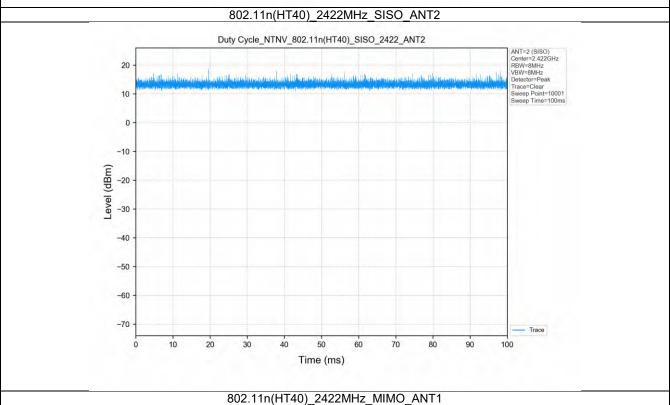




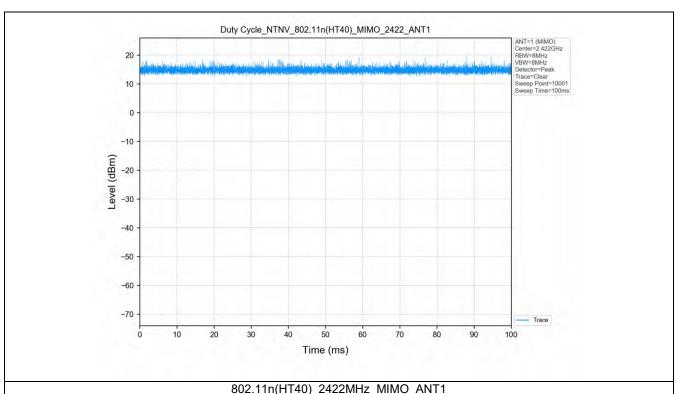


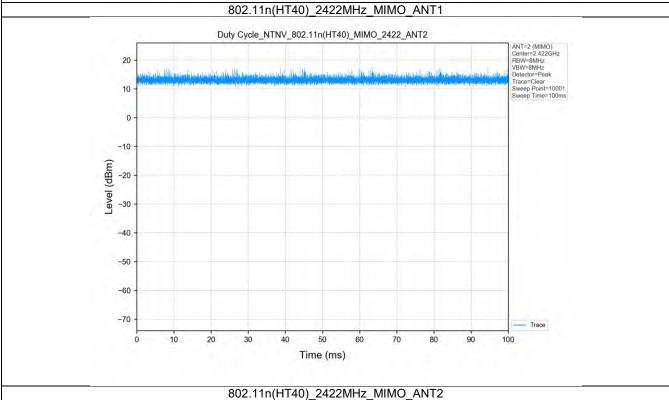




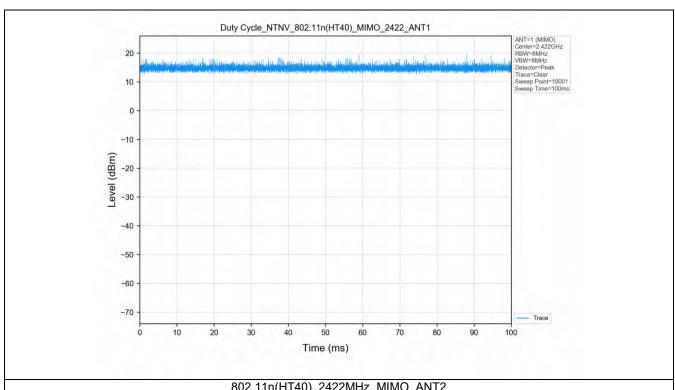


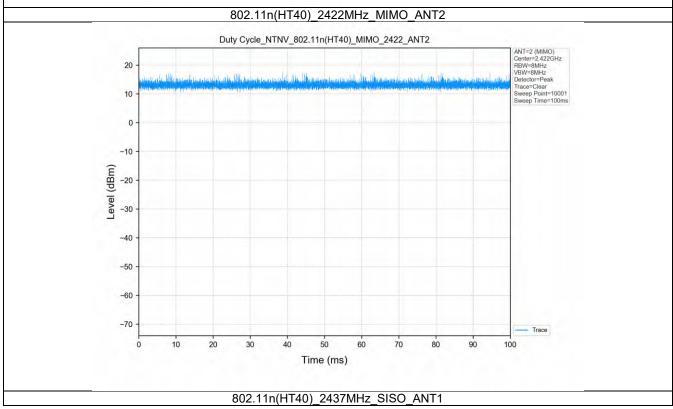




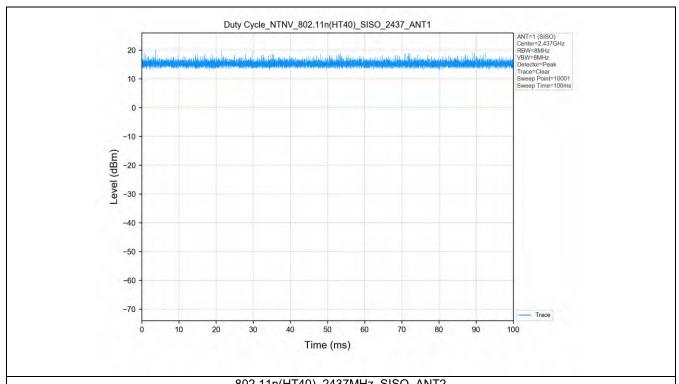


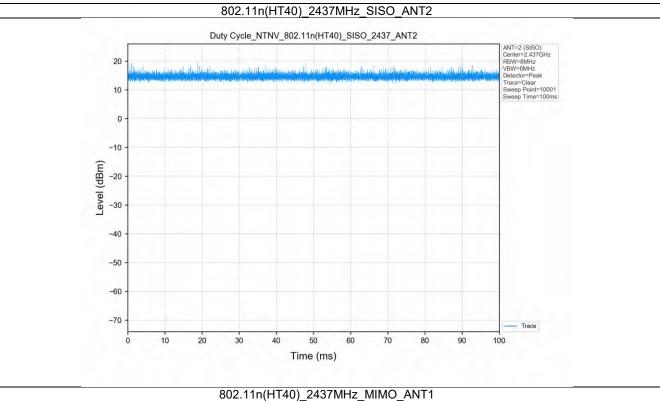




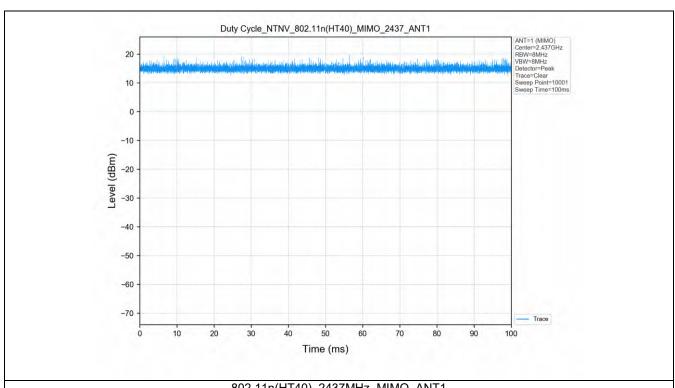


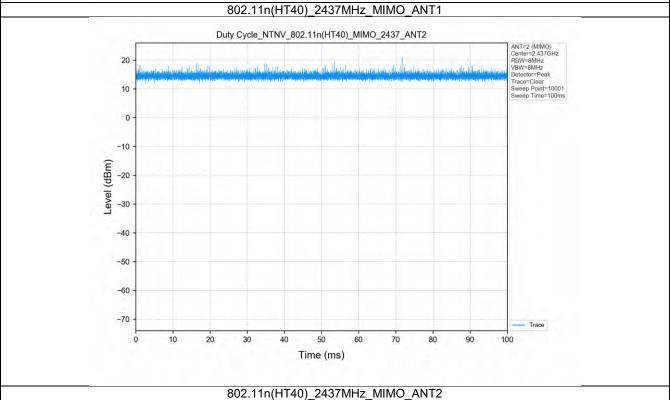




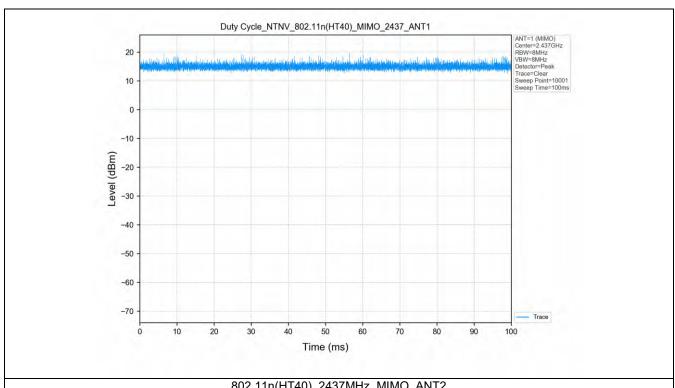


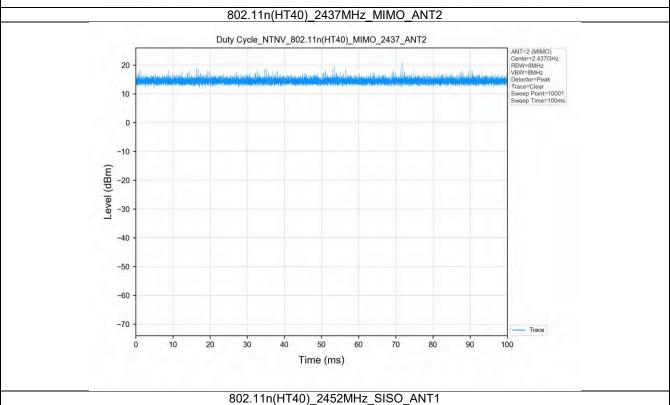




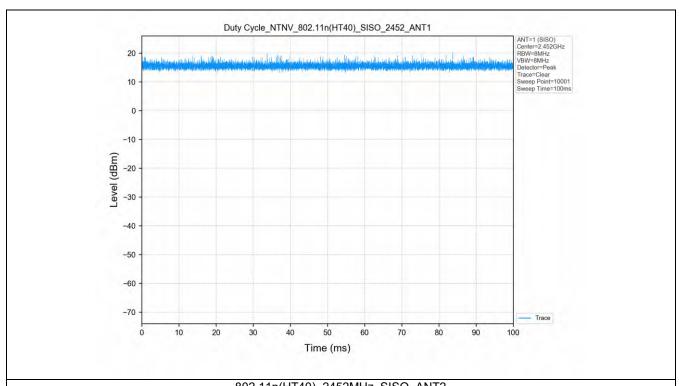






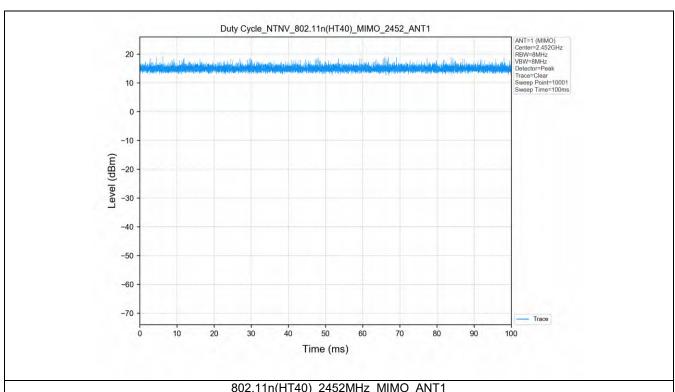


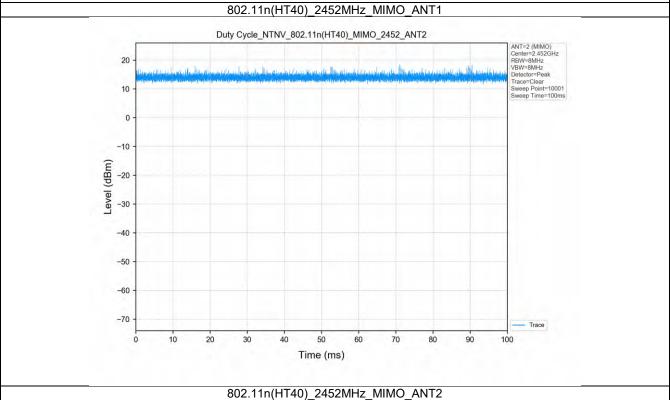




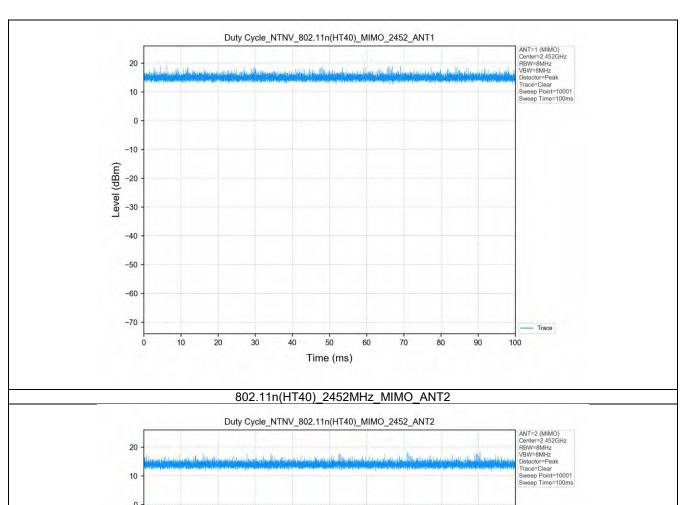
802.11n(HT40)_2452MHz_SISO_ANT2 Duty Cycle_NTNV_802.11n(HT40)_SISO_2452_ANT2 ANT=2 (SISO) Center=2.452GHz RBW=8MHz VBW=8MHz Detector=Peak Trace=Clear Sweep Point=10001 Sweep Time=100ms 20 10 0 -10 Level (dBm) -20 -30 -40 -50 -60 -70 50 10 40 80 30 100 Time (ms) 802.11n(HT40)_2452MHz_MIMO_ANT1

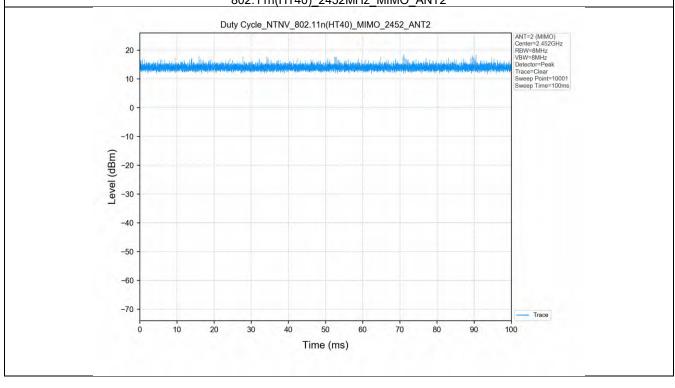












2. Bandwidth

2.1 Test Result

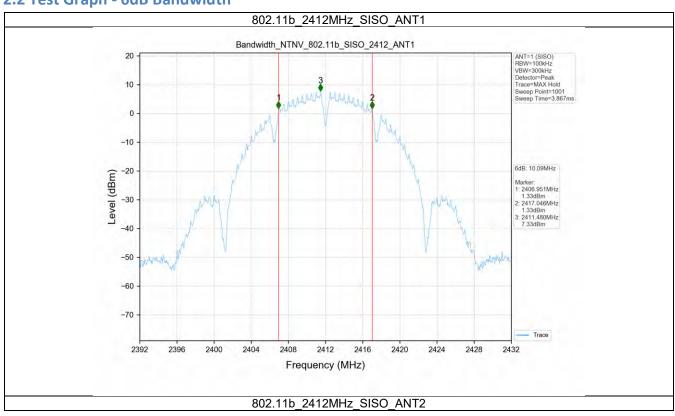
Test Mode	Frequency (MHz)	ТХ Туре	ANT No.	6dB Bar	Verdict	
				Test Result (MHz)	Limits (MHz)	verdict
802.11b	2412	SISO	1	10.090	≥0.5	PASS
			2	10.050	≥0.5	PASS
	2437	SISO	1	10.100	≥0.5	PASS
			2	10.080	≥0.5	PASS
	2462	SISO	1	10.100	≥0.5	PASS
			2	10.090	≥0.5	PASS
	2412	SISO	1	16.610	≥0.5	PASS
			2	16.620	≥0.5	PASS
902 114	2437	SISO	1	16.620	≥0.5	PASS
802.11g	2437		2	16.600	≥0.5	PASS
	2462	SISO	1	16.620	≥0.5	PASS
	2402		2	16.620	≥0.5	PASS
		SISO	1	17.850	≥0.5	PASS
	2412		2	17.840	≥0.5	PASS
		MIMO	0	17.830	≥0.5	PASS
	2437	SISO	1	17.850	≥0.5	PASS
802.11n(HT20)			2	17.810	≥0.5	PASS
		MIMO	0	17.800	≥0.5	PASS
	2462	SISO	1	17.840	≥0.5	PASS
			2	17.850	≥0.5	PASS
		MIMO	0	17.860	≥0.5	PASS
	2422	SISO	1	36.530	≥0.5	PASS
			2	36.550	≥0.5	PASS
		MIMO	0	36.520	≥0.5	PASS
	2437	SISO	1	36.500	≥0.5	PASS
802.11n(HT40)			2	36.460	≥0.5	PASS
		MIMO	0	36.450	≥0.5	PASS
	2452	SISO	1	36.460	≥0.5	PASS
			2	36.450	≥0.5	PASS
		MIMO	0	36.480	≥0.5	PASS

Test Mode	Frequency	TX Type	ANT No.		ed Bandwidth
	(MHz)	71		lest Res	ult (MHz)
802.11b	2412	SISO	1	15.110	Only for Report Use
			2	15.060	Only for Report Use
	2437	SISO	1	15.100	Only for Report Use
			2	14.980	Only for Report Use
	2462	SISO	1	15.110	Only for Report Use
			2	15.080	Only for Report Use
802.11g	2412	SISO	1	17.000	Only for Report Use
			2	17.060	Only for Report Use
	2437	SISO	1	17.010	Only for Report Use
			2	16.960	Only for Report Use
	2462	SISO	1	17.010	Only for Report Use
			2	17.070	Only for Report Use
802.11n(HT20)	2412	SISO -	1	18.060	Only for Report Use
			2	18.090	Only for Report Use
			0	18.080	Only for Report Use

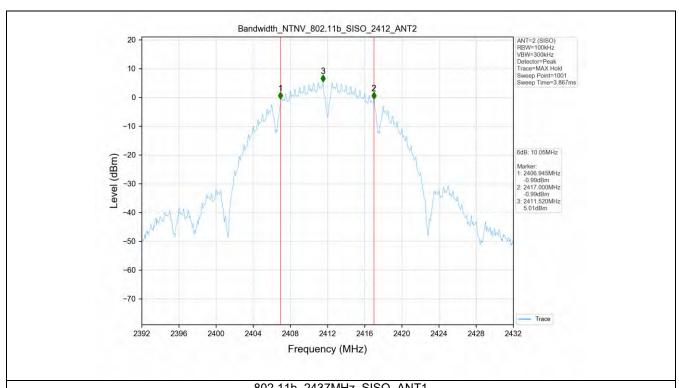


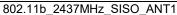
	2437	SISO	1	18.050	Only for Report Use
			2	18.030	Only for Report Use
		MIMO	0	18.040	Only for Report Use
	2462	SISO	1	18.050	Only for Report Use
			2	18.080	Only for Report Use
		MIMO	0	18.070	Only for Report Use
802.11n(HT40)	2422	SISO	1	36.770	Only for Report Use
			2	37.030	Only for Report Use
		MIMO	0	36.960	Only for Report Use
	2437	SISO	1	36.770	Only for Report Use
			2	36.640	Only for Report Use
		MIMO	0	36.600	Only for Report Use
	2452	SISO	1	36.640	Only for Report Use
			2	36.650	Only for Report Use
		MIMO	0	36.640	Only for Report Use

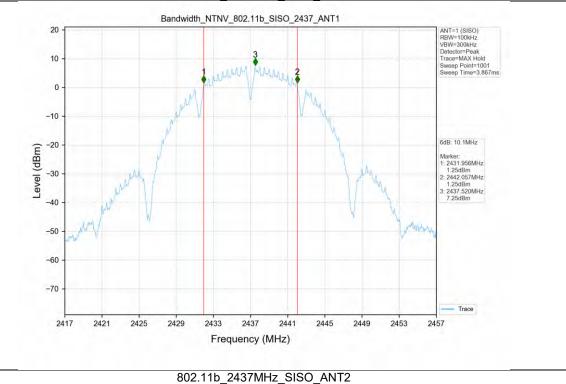
2.2 Test Graph - 6dB Bandwidth



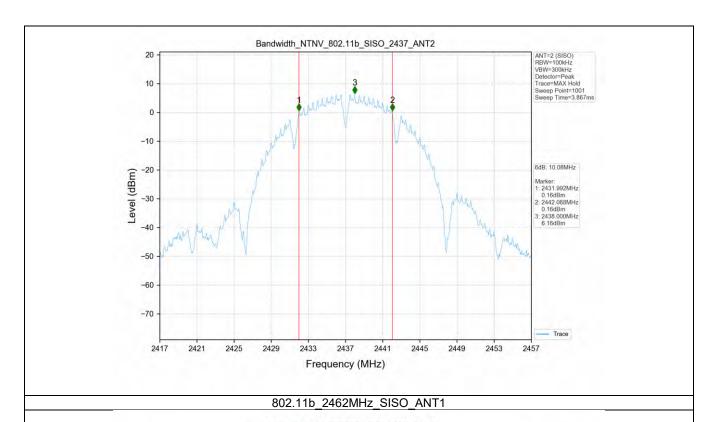












Bandwidth_NTNV_802.11b_SISO_2462_ANT1 ANT=1 (SISO) RBW=100kHz VBW=300kHz 20 Detector=Peak Trace=MAX Hold Sweep Point=1001 Sweep Time=3.867ms 10 0 -10 6dB: 10.1MHz Level (dBm) Marker: 1: 2456.950MHz 1.47dBm 2: 2467.051MHz 1.47dBm 3: 2461.520MHz 7.47dBm -20 -30 -40 -50 -60 -70

2454

2450

2442

2446

2458

2462

Frequency (MHz)

802.11b_2462MHz_SISO_ANT2

2466

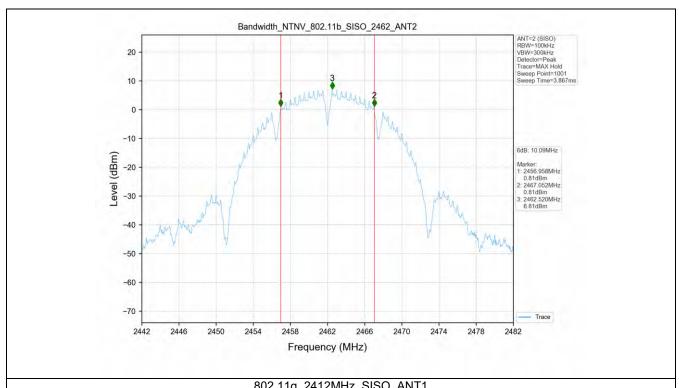
2470

2474

2478

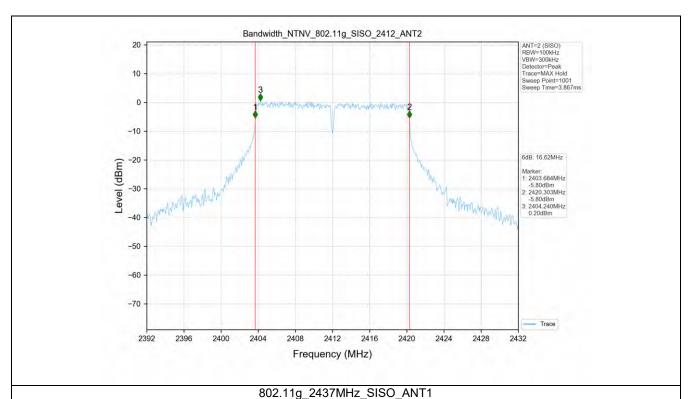
2482





802.11g_2412MHz_SISO_ANT1 Bandwidth_NTNV_802.11g_SISO_2412_ANT1 20 ANT=1 (SISO) RBW=100kHz VBW=300kHz Detector=Peak Trace=MAX Hold Sweep Point=1001 Sweep Time=3.867ms 10 3 0 -10 6dB: 16.61MHz -20 Level (dBm) Marker: 1: 2403.693MHz -4.06dBm 2: 2420.303MHz -4.06dBm 3: 2409.520MHz 1.94dBm -30 Warning Manney Wall -40 -50 -60 -70 Trace 2400 2404 2408 2412 2416 2420 2424 2428 2392 2396 2432 Frequency (MHz) 802.11g_2412MHz_SISO_ANT2

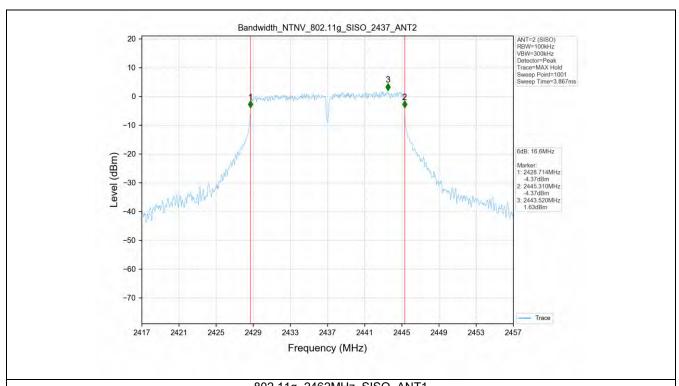


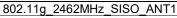


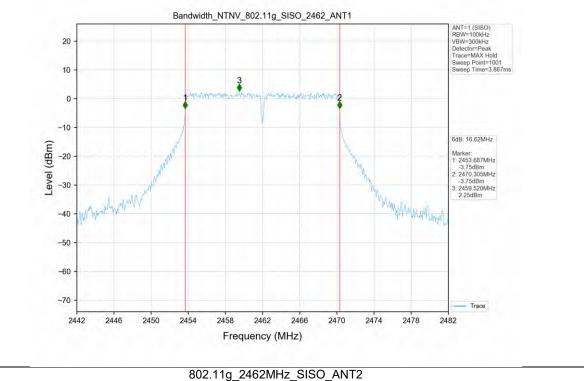
Bandwidth_NTNV_802.11g_SISO_2437_ANT1 20 ANT=1 (SISO) RBW=100kHz VBW=300kHz Detector=Peak Trace=MAX Hold Sweep Point=1001 Sweep Time=3.867ms 10 3 0 -10 6dB: 16.62MHz -20 Level (dBm) Marker: 1: 2428.697MHz -4.00dBm 2: 2445.312MHz -4.00dBm 3: 2443.640MHz 2.00dBm -30 Jun Krayhamara -40 -50 -60 -70 Trace 2421 2425 2429 2433 2437 2441 2445 2449 2453 2417 2457 Frequency (MHz)

802.11g_2437MHz_SISO_ANT2

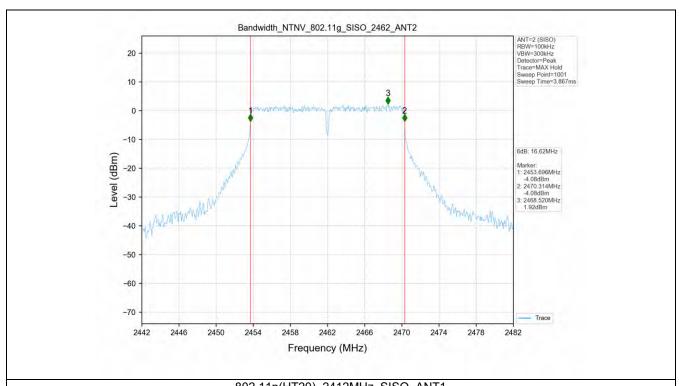


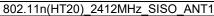


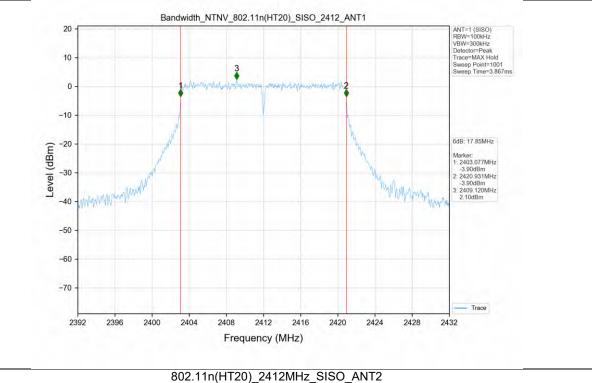




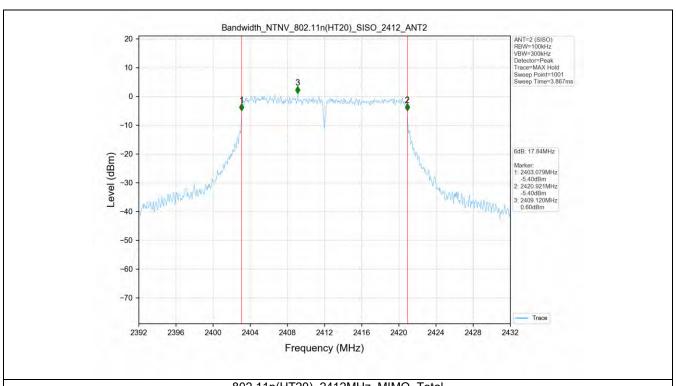






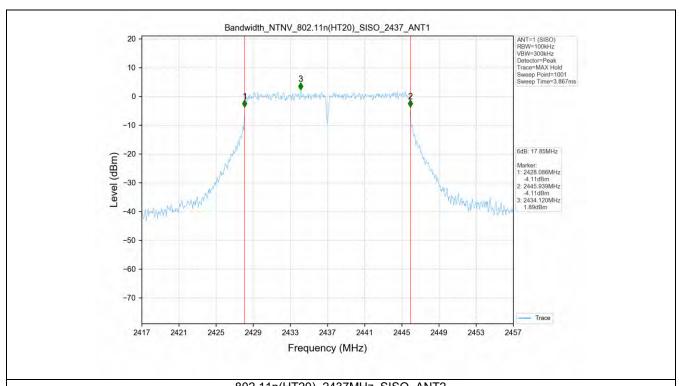




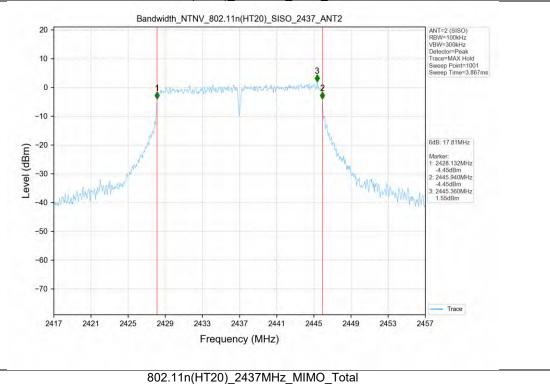


802.11n(HT20)_2412MHz_MIMO_Total Bandwidth_NTNV_802.11n(HT20)_MIMO_2412_ANT2 ANT=2 (MIMO) RBW=100kHz VBW=300kHz 20 Detector=Peak Trace=MAX Hold Sweep Point=1001 Sweep Time=3.867ms 10 0 -10 6dB: 17.83MHz -20 Level (dBm) Marker: 1: 2403.079MHz -6.88dBm 2: 2420.912MHz -6.88dBm 3: 2406.640MHz -0.88dBm -30 "IMMAN MANAMAN -40 -50 -60 -70 Trace 2400 2404 2408 2412 2416 2420 2424 2392 2396 2428 2432 Frequency (MHz) 802.11n(HT20)_2437MHz_SISO_ANT1

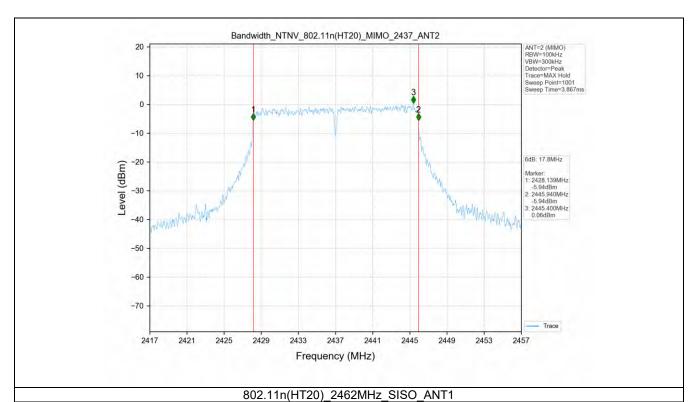




802.11n(HT20)_2437MHz_SISO_ANT2



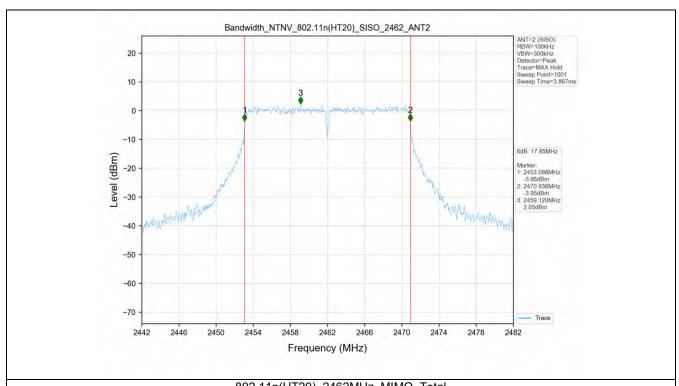


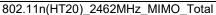


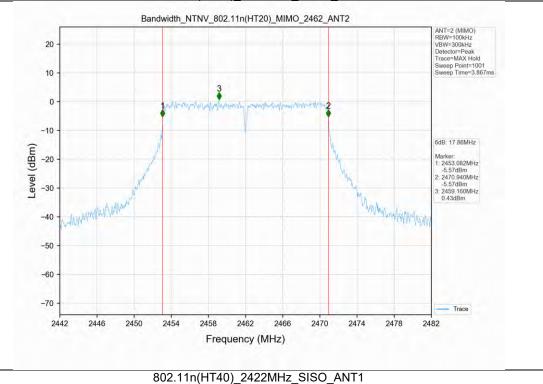
Bandwidth_NTNV_802.11n(HT20)_SISO_2462_ANT1 ANT=1 (SISO) RBW=100kHz VBW=300kHz 20 Detector=Peak Trace=MAX Hold Sweep Point=1001 Sweep Time=3.867ms 10 0 -10 6dB: 17.84MHz Level (dBm) Marker: 1: 2453.078MHz -3.67dBm 2: 2470.922MHz -3.67dBm 3: 2459.120MHz 2.33dBm -20 -30 July May market may -40 -50 -60 -70 Trace 2458 2462 2466 2470 2474 2442 2446 2450 2454 2478 2482 Frequency (MHz)

802.11n(HT20)_2462MHz_SISO_ANT2

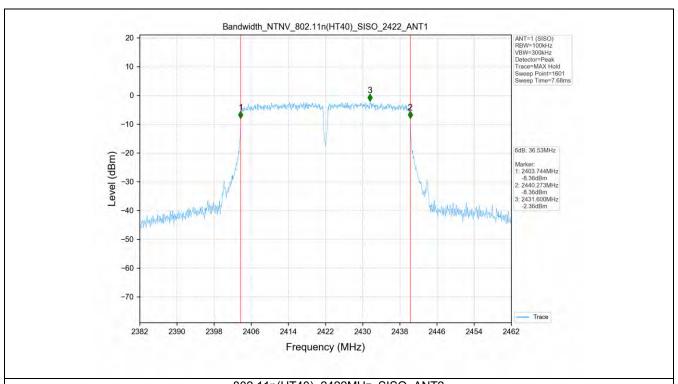


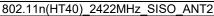


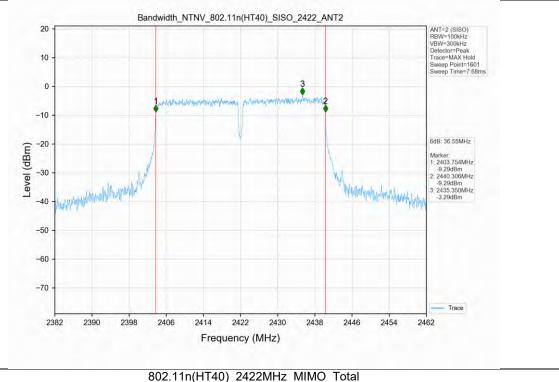




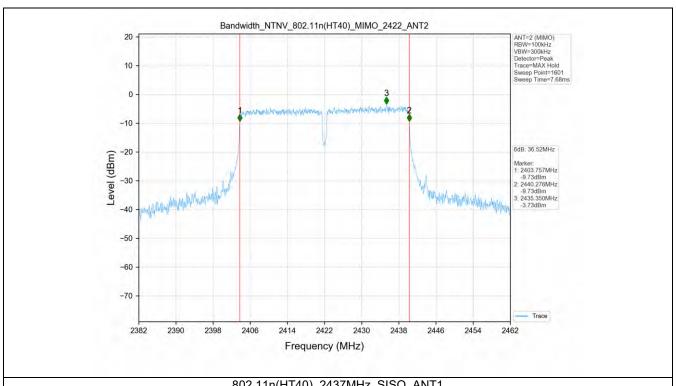






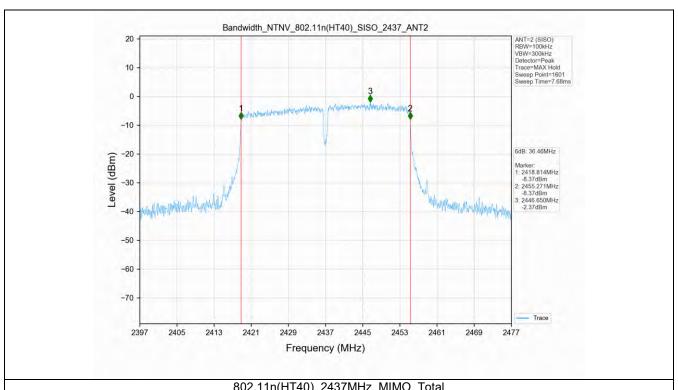






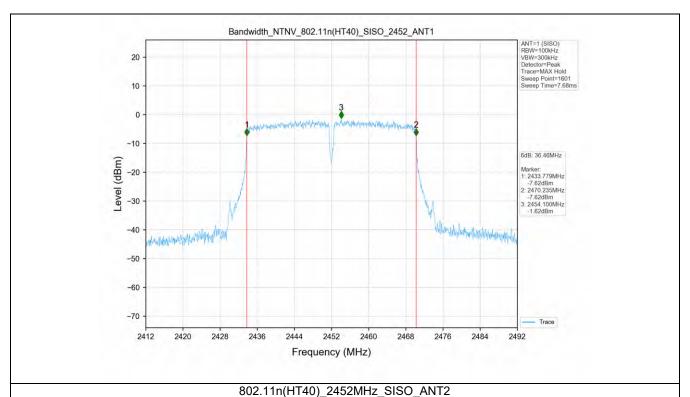
802.11n(HT40)_2437MHz_SISO_ANT1 Bandwidth_NTNV_802.11n(HT40)_SISO_2437_ANT1 20 ANT=1 (SISO) RBW=100kHz VBW=300kHz Detector=Peak Trace=MAX Hold Sweep Point=1601 Sweep Time=7.68ms 10 0 -10 6dB: 36.5MHz -20 Level (dBm) Marker: 1: 2418.772MHz -7.87dBm 2: 2455.276MHz -7.87dBm 3: 2439.150MHz -1.87dBm -30 - Art of the state What which Alabaya -40 -50 -60 -70 Trace 2405 2413 2429 2437 2445 2453 2461 2397 2421 2469 2477 Frequency (MHz) 802.11n(HT40) 2437MHz SISO ANT2





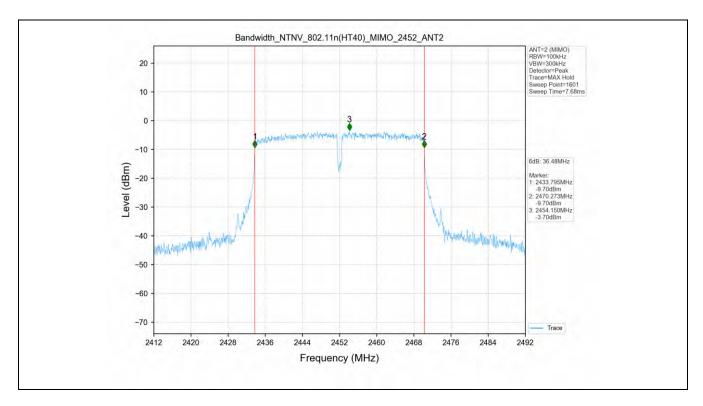
802.11n(HT40) 2437MHz MIMO Total Bandwidth_NTNV_802.11n(HT40)_MIMO_2437_ANT2 ANT=2 (MIMO) RBW=100kHz VBW=300kHz Detector=Peak Trace=MAX Hold Sweep Point=1601 Sweep Time=7.68ms 10 0 -10 6dB: 36.45MHz -20 Level (dBm) Marker: 1: 2418.825MHz -8.91dBm 2: 2455.277MHz -8.91dBm 3: 2439.100MHz -2.91dBm -30 Australia de la company de la -50 -60 -70 Trace 2405 2413 2429 2437 2445 2453 2461 2397 2421 2469 2477 Frequency (MHz) 802.11n(HT40) 2452MHz SISO ANT1



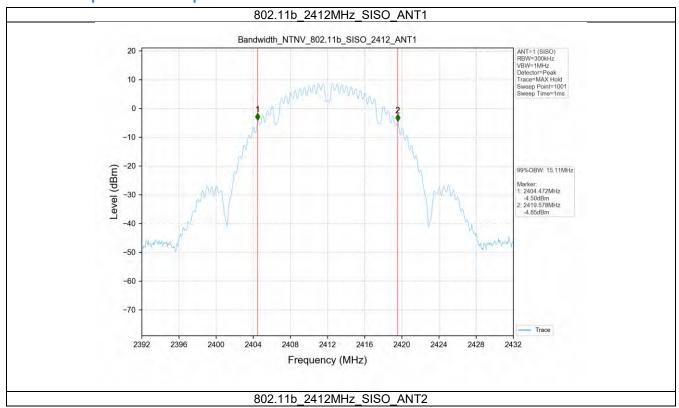


Bandwidth_NTNV_802.11n(HT40)_SISO_2452_ANT2 ANT=2 (SISO) RBW=100kHz VBW=300kHz 20 Detector=Peak Trace=MAX Hold Sweep Point=1601 Sweep Time=7.68ms 10 0 -10 6dB: 36.45MHz Level (dBm) Marker: 1: 2433.806MHz -7.91dBm 2: 2470.260MHz -7.91dBm 3: 2447.850MHz -1.91dBm -20 -30 hala popular de la participa d -40 -50 -60 -70 Trace 2428 2444 2452 2460 2468 2476 2412 2420 2436 2484 2492 Frequency (MHz)

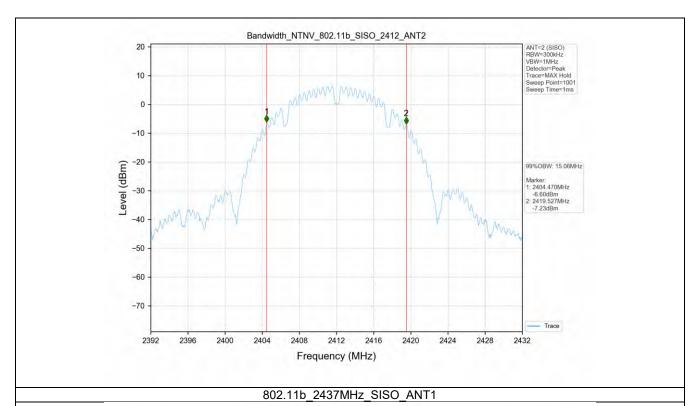
802.11n(HT40)_2452MHz_MIMO_Total



2.3 Test Graph - 99% Occupied Bandwidth





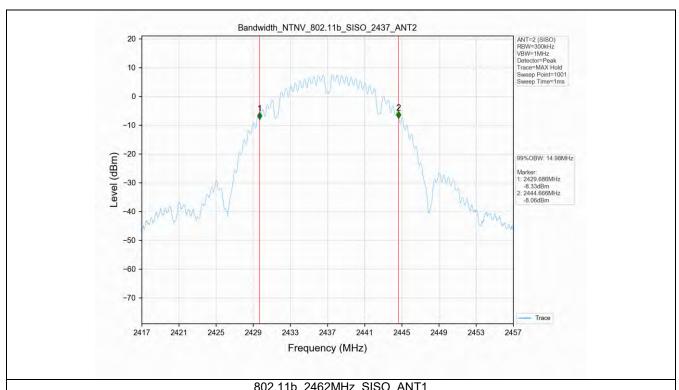


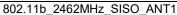
Bandwidth_NTNV_802.11b_SISO_2437_ANT1 ANT=1 (SISO) RBW=300kHz VBW=1MHz 20 Detector=Peak Trace=MAX Hold Sweep Point=1001 Sweep Time=1ms 10 0 -10 -20 Level (dBm) 99%OBW: 15.1MHz Marker: 1: 2429.519MHz -4.89dBm 2: 2444.619MHz -5.31dBm -30 -40 -50 -60 -70 Trace 2437 2421 2425 2429 2433 2441 2445 2449 2453 2417 2457

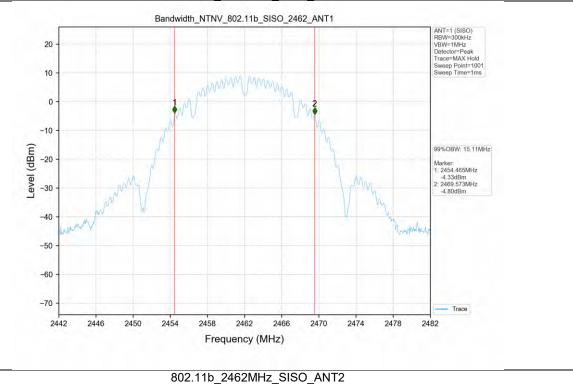
Frequency (MHz)

802.11b_2437MHz_SISO_ANT2

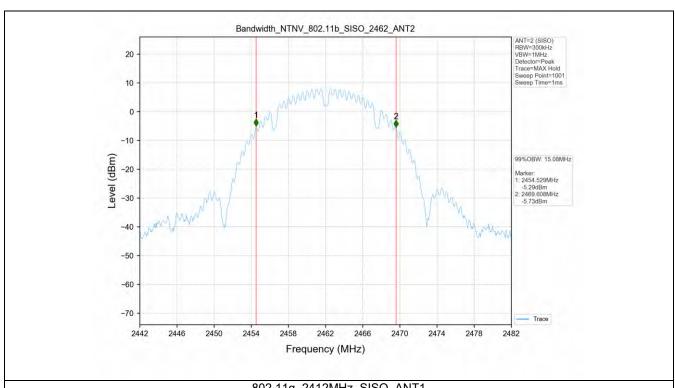






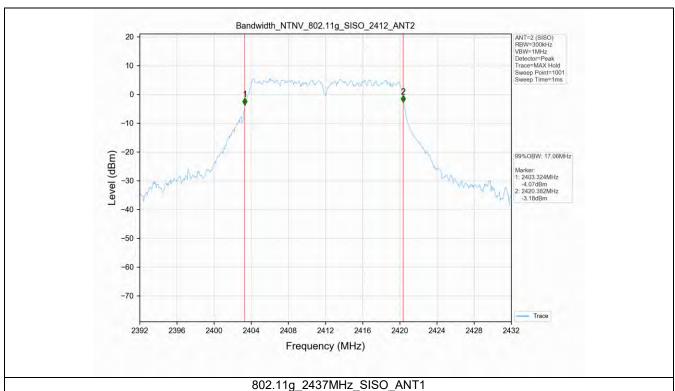




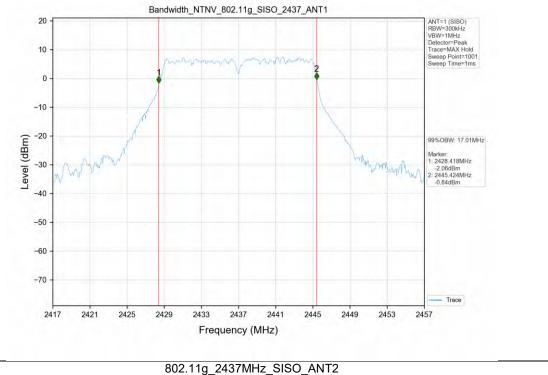


802.11g_2412MHz_SISO_ANT1 Bandwidth_NTNV_802.11g_SISO_2412_ANT1 ANT=1 (SISO) RBW=300kHz VBW=1MHz Detector=Peak Trace=MAX Hold Sweep Point=1001 Sweep Time=1ms 10 0 -10 -20 Level (dBm) 99%OBW: 17MHz -30 -40 -50 -60 -70 Trace 2400 2404 2408 2412 2416 2420 2424 2428 2392 2396 2432 Frequency (MHz) 802.11g_2412MHz_SISO_ANT2

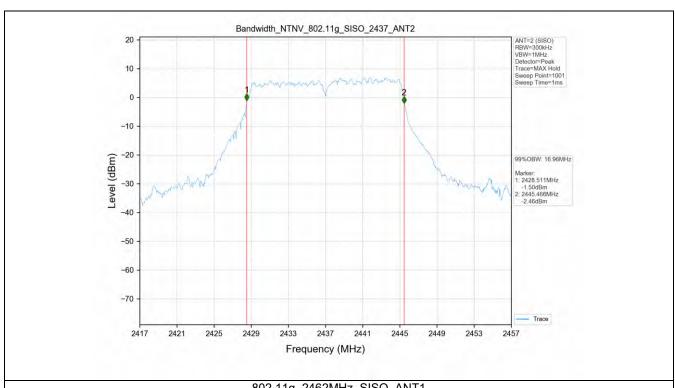




802.11g_2437MHZ_SISO_AN11

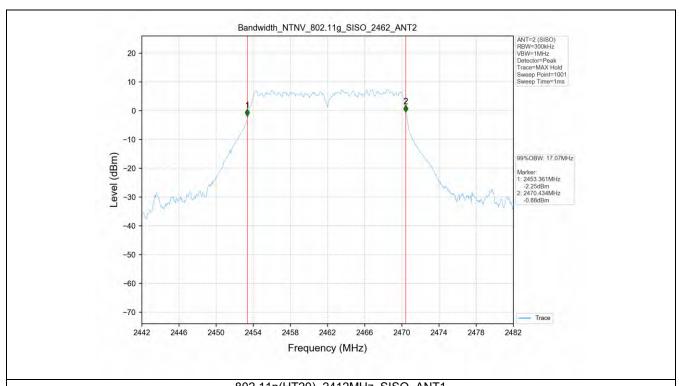




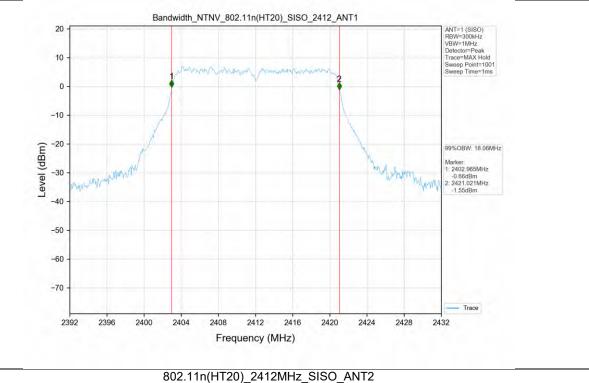


802.11g_2462MHz_SISO_ANT1 Bandwidth_NTNV_802.11g_SISO_2462_ANT1 ANT=1 (SISO) RBW=300kHz VBW=1MHz Detector=Peak Trace=MAX Hold Sweep Point=1001 Sweep Time=1ms 20 10 0 -10 Level (dBm) 99%OBW: 17.01MHz -20 Marker: 1: 2453.373MHz -2.30dBm 2: 2470.387MHz -0.90dBm -30 -40 -50 -60 -70 Trace 2458 2462 2466 2470 2474 2442 2446 2450 2454 2478 2482 Frequency (MHz) 802.11g_2462MHz_SISO_ANT2

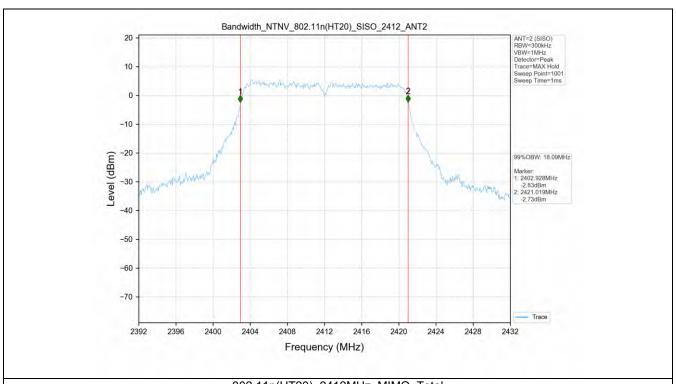


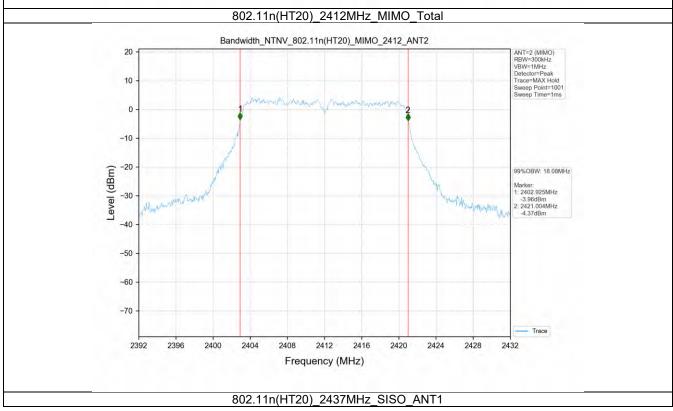


802.11n(HT20)_2412MHz_SISO_ANT1

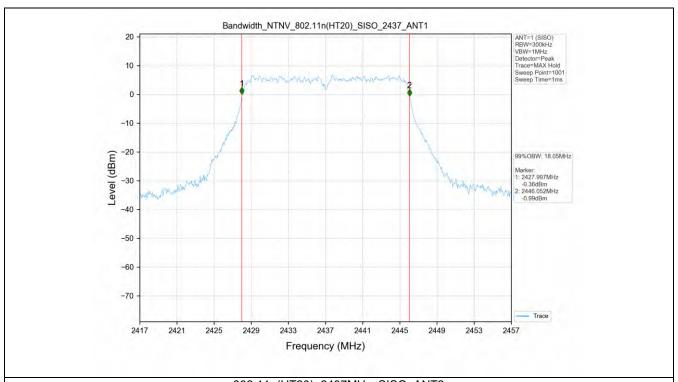


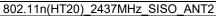


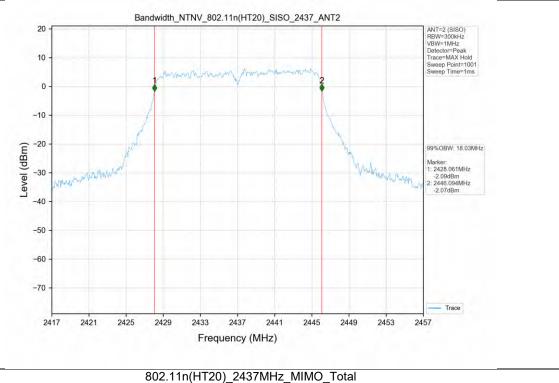




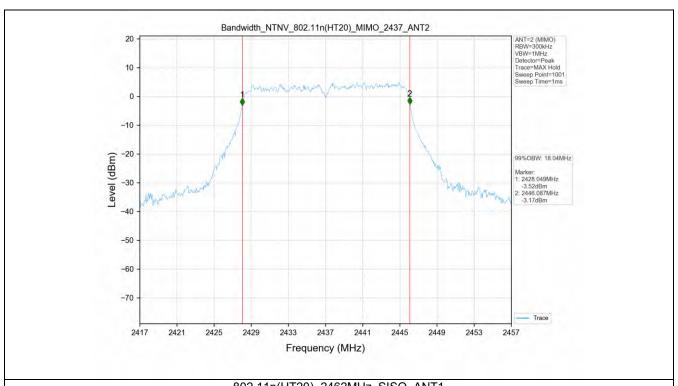




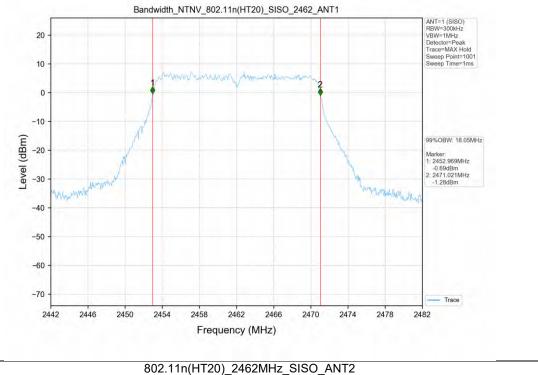




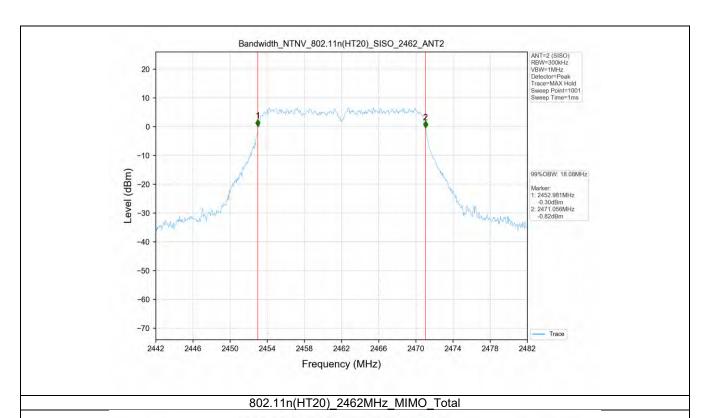


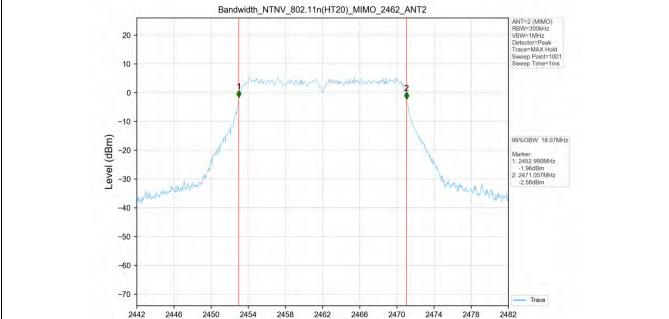


802.11n(HT20)_2462MHz_SISO_ANT1





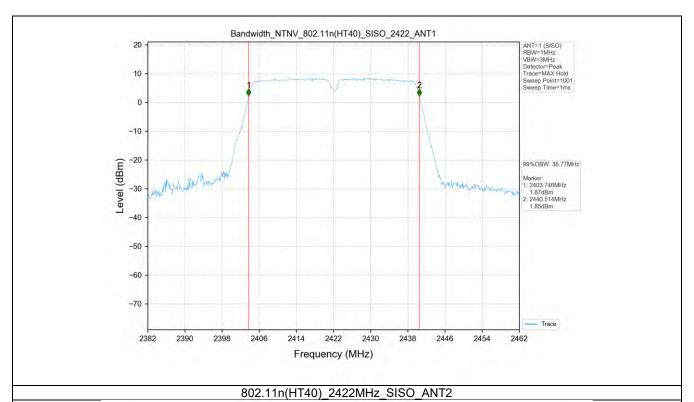




Frequency (MHz)

802.11n(HT40)_2422MHz_SISO_ANT1





Bandwidth_NTNV_802.11n(HT40)_SISO_2422_ANT2 ANT=2 (SISO) RBW=1MHz VBW=3MHz Detector=Peak Trace=MAX Hold Sweep Point=1001 Sweep Time=1ms 10 0 -10 -20 Level (dBm) 99%OBW: 37.03MHz Marker: 1: 2403.720MHz 0.08dBm 2: 2440.752MHz 0.74dBm -30 -40 -50 -60 -70 Trace 2398 2414 2422 2430 2438 2446 2454 2382 2390 2406 2462 Frequency (MHz)

802.11n(HT40)_2422MHz_MIMO_Total



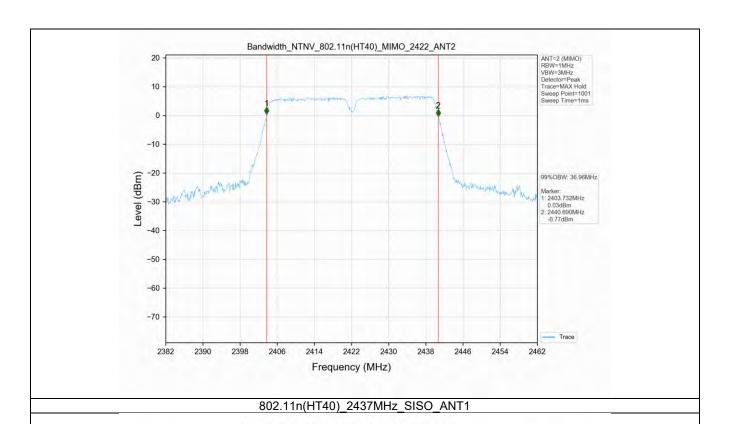
-60

-70

Frequency (MHz)

802.11n(HT40)_2437MHz_SISO_ANT2

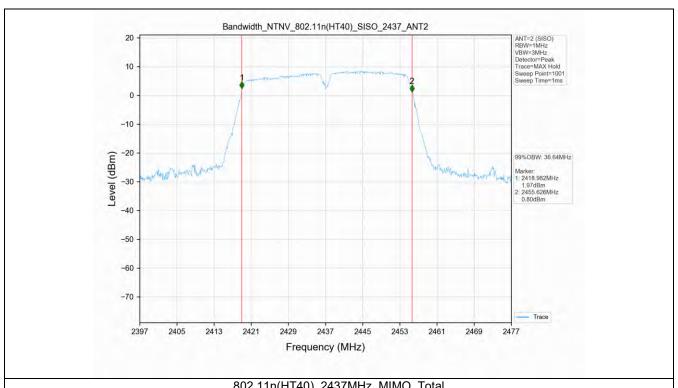
SGS-CSTC Standards Technical Services Co., Ltd. Shanghai Branch



Bandwidth_NTNV_802.11n(HT40)_SISO_2437_ANT1 ANT=1 (SISO) RBW=MHz VBW=3MHz Detector=Peak Trace=MAX Hold Sweep Pint=1001 Sweep Time=1ms 99%OBW: 36.77MHz Marker: 1: 2418 814MHz 2: 2505ffm 1: 2455.587MHz 1: 61d6m

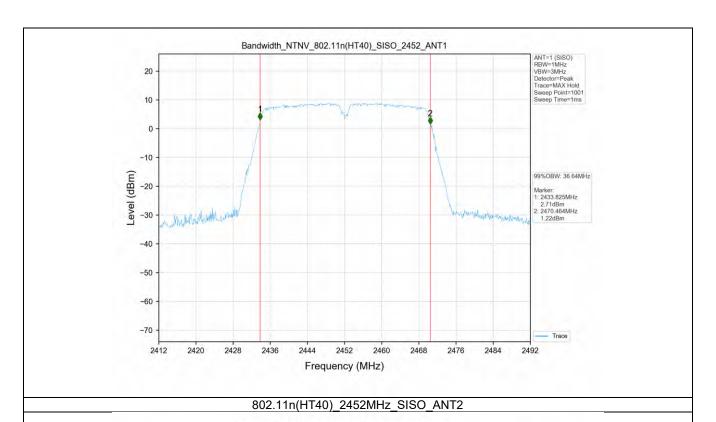
Trace





802.11n(HT40)_2437MHz_MIMO_Total Bandwidth_NTNV_802.11n(HT40)_MIMO_2437_ANT2 RBW=1MHz VBW=3MHz Detector=Peak Trace=MAX Hold Sweep Point=1001 Sweep Time=1ms 10 0 -10 -20 Level (dBm) 99%OBW: 36.6MHz Marker: 1: 2418.989MHz 1.70dBm 2: 2455.591MHz 0.53dBm -30 -40 -50 -60 -70 Trace 2405 2413 2421 2429 2437 2445 2453 2461 2469 2397 2477 Frequency (MHz) 802.11n(HT40)_2452MHz_SISO_ANT1





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: 2433.927MHz 2.59dBm 2: 2470.578MHz 1.15dBm -30 -40 -50 -60 -70 Trace

2444

2412

2420

2428

2436

2452

Frequency (MHz)

802.11n(HT40)_2452MHz_MIMO_Total

2460

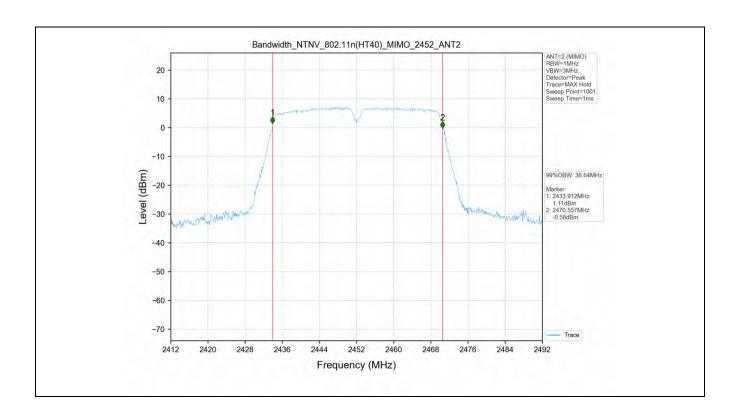
2476

2484

2492

2468





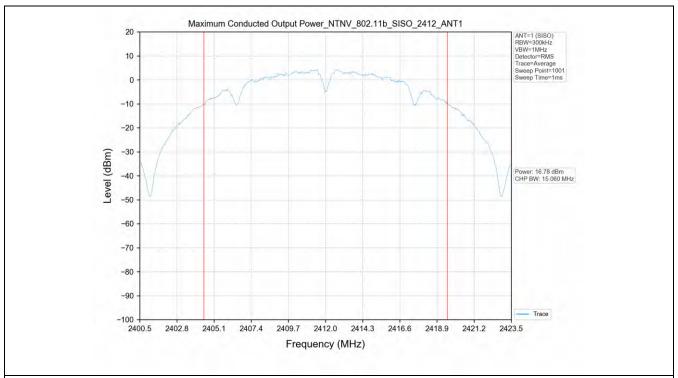
3. Maximum Conducted Output Power

3.1 Test Result

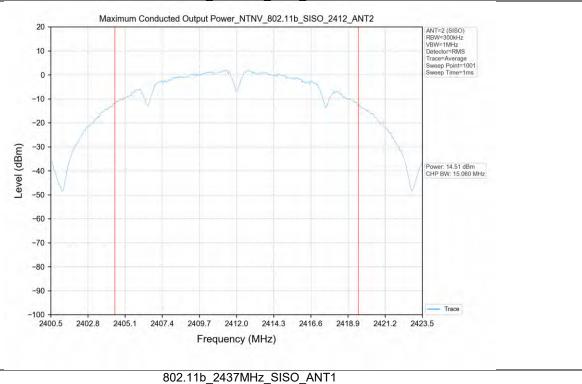
Test Mode	Frequency (MHz)	Тх Туре	Measured Average Output Power (dBm)			Limita (dPm)	Verdict
			Ant 1	Ant 2	Total	Limits (dBm)	verdict
802.11b	2412	SISO	16.78	14.51	1	≤30	PASS
	2437	SISO	16.74	15.63	1	≤30	PASS
	2462	SISO	16.97	16.31	1	≤30	PASS
802.11g	2412	SISO	16.33	14.54	1	≤30	PASS
	2437	SISO	16.41	15.61	1	≤30	PASS
	2462	SISO	16.64	16.33	1	≤30	PASS
802.11n(HT20)	2412	SISO	16.13	14.42	1	≤30	PASS
		MIMO	15.33	13.07	17.36	≤30	PASS
	2437	SISO	16.09	15.40	1	≤30	PASS
		MIMO	15.23	13.94	17.64	≤30	PASS
	2462	SISO	16.34	16.11	1	≤30	PASS
		MIMO	15.50	14.65	18.11	≤30	PASS
802.11n(HT40)	2422	SISO	15.10	13.62	1	≤30	PASS
		MIMO	14.47	13.11	16.85	≤30	PASS
	2437	SISO	15.24	14.37	1	≤30	PASS
		MIMO	14.58	13.88	17.25	≤30	PASS
	2452	SISO	15.42	15.04	1	≤30	PASS
		MIMO	14.60	13.53	17.11	≤30	PASS

3.2 Test Graph

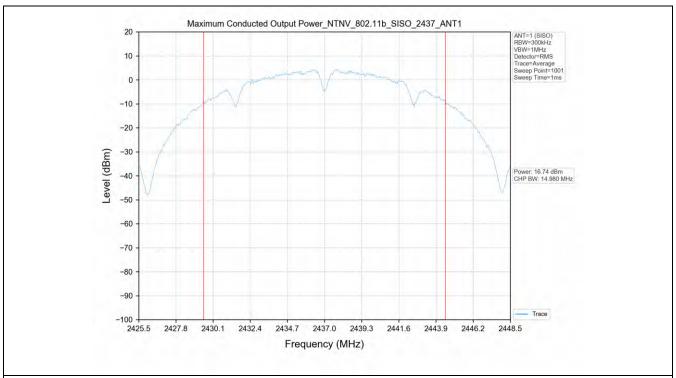




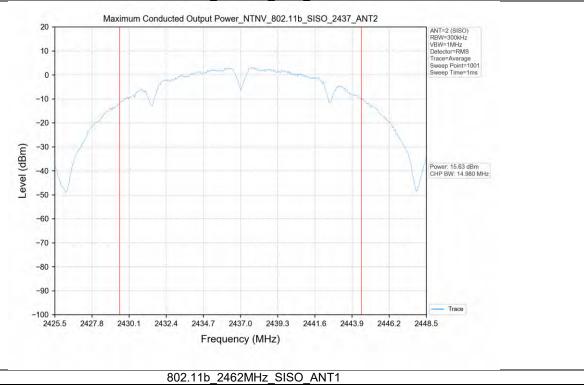
802.11b_2412MHz_SISO_ANT2



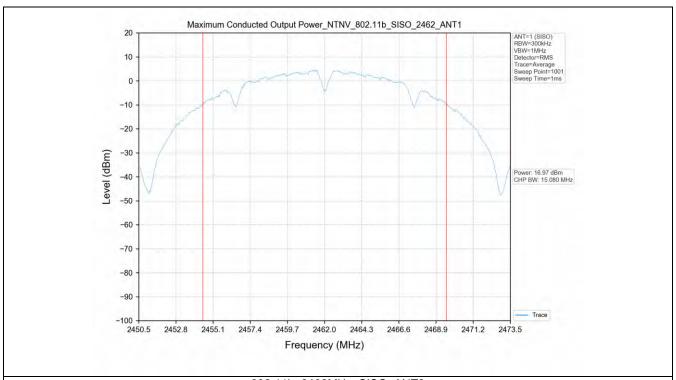




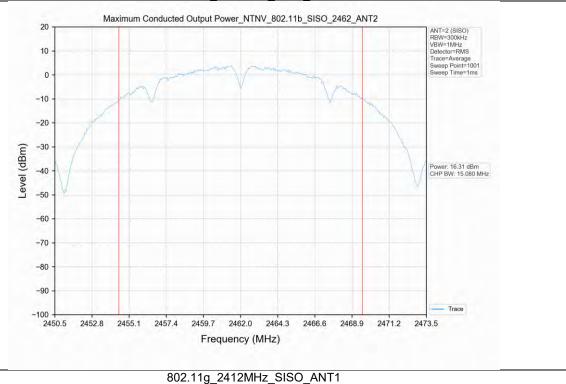
802.11b_2437MHz_SISO_ANT2



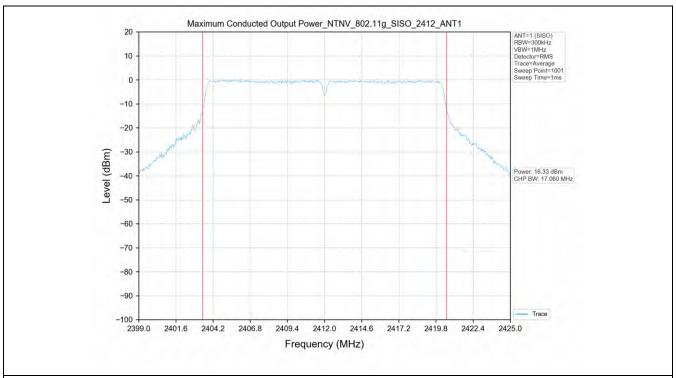




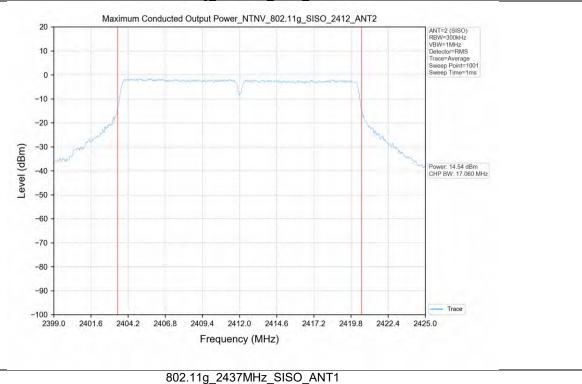
802.11b_2462MHz_SISO_ANT2



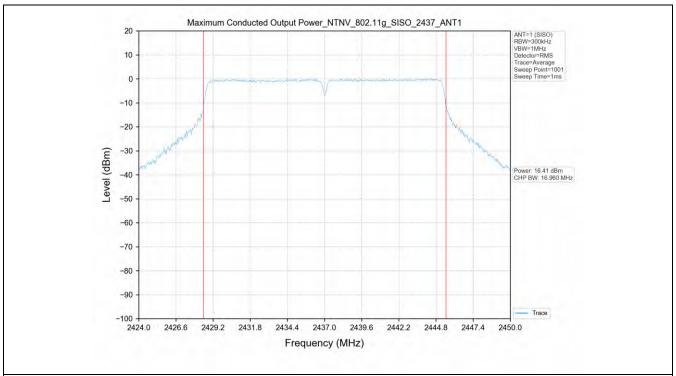




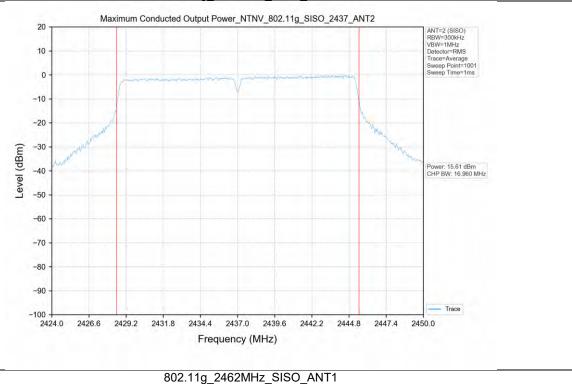
802.11g_2412MHz_SISO_ANT2



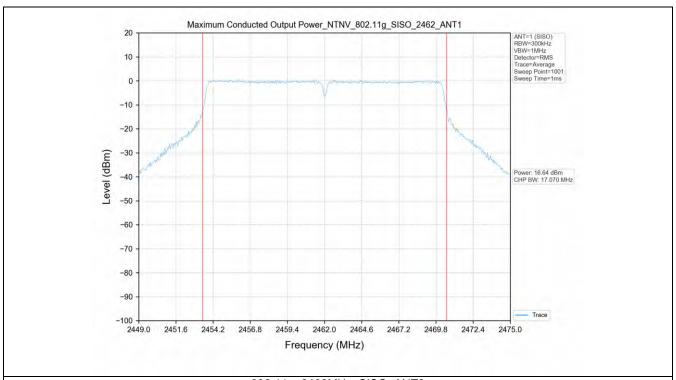




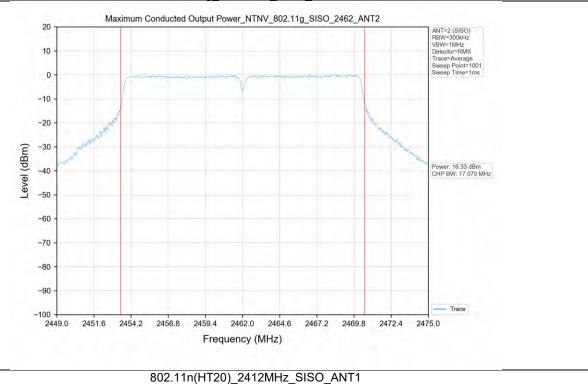
802.11g_2437MHz_SISO_ANT2



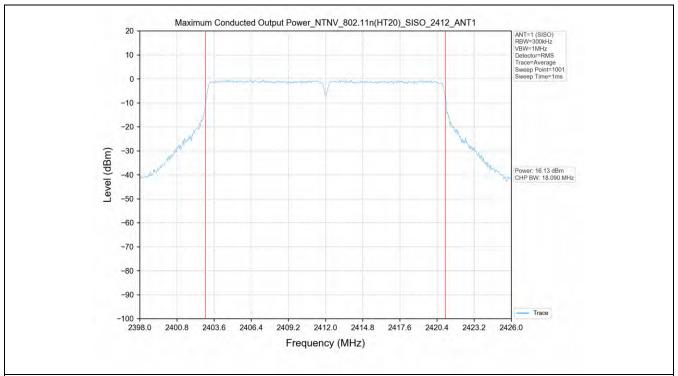




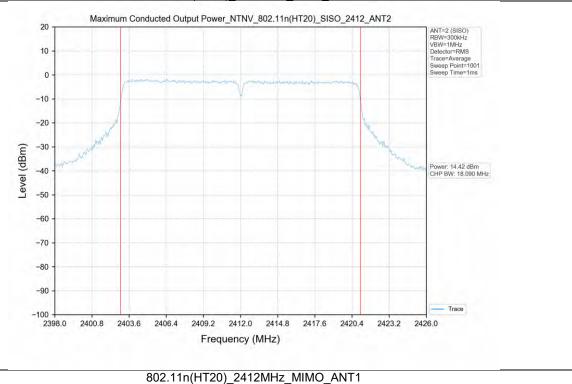
802.11g_2462MHz_SISO_ANT2



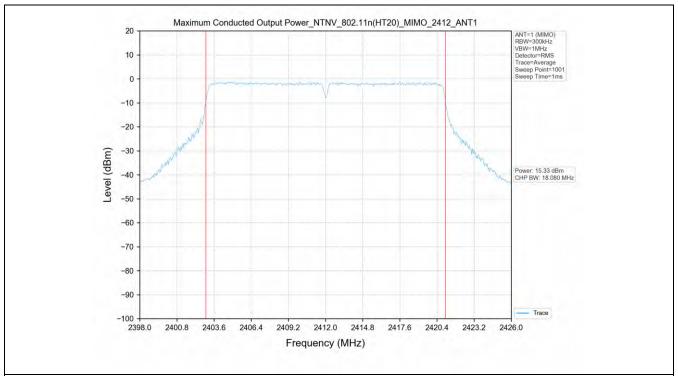




802.11n(HT20)_2412MHz_SISO_ANT2



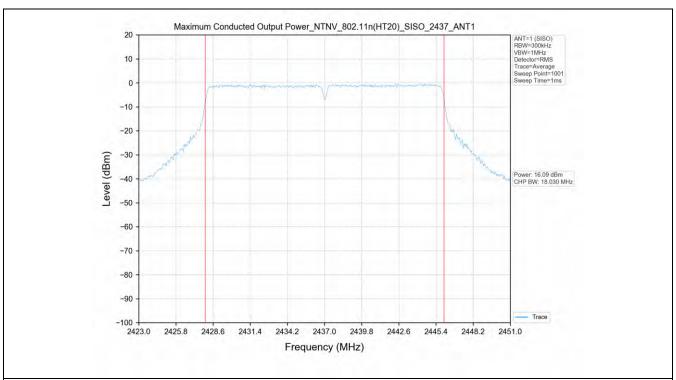




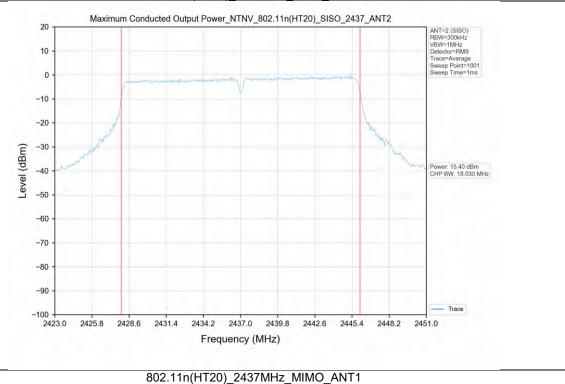
802.11n(HT20)_2412MHz_MIMO_ANT2



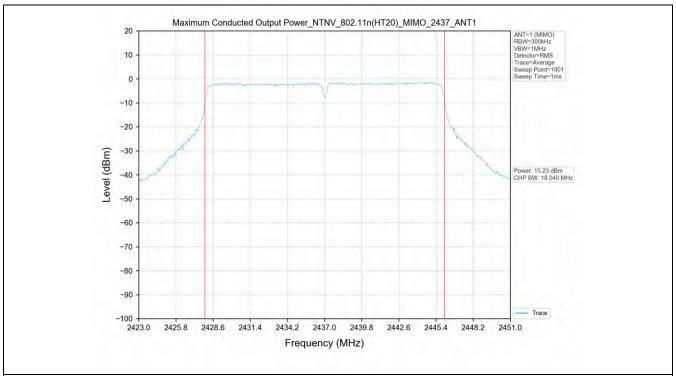




802.11n(HT20)_2437MHz_SISO_ANT2



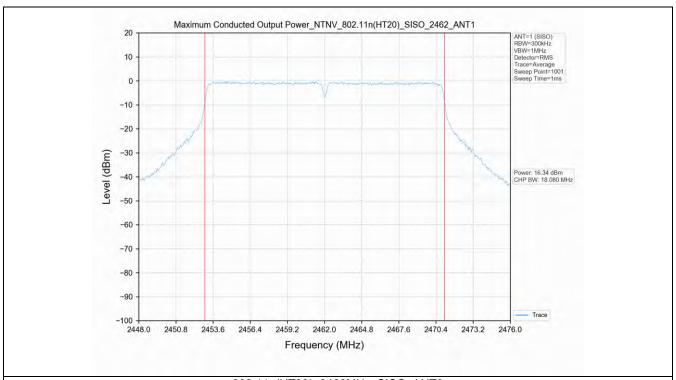




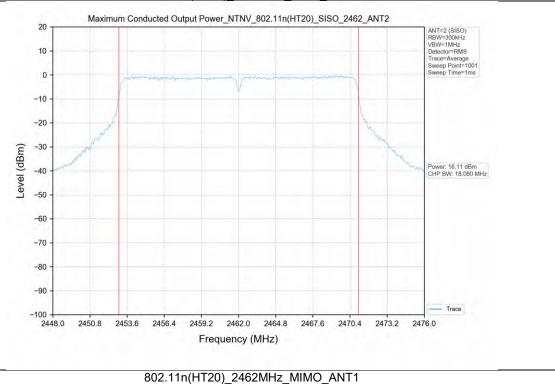
802.11n(HT20)_2437MHz_MIMO_ANT2



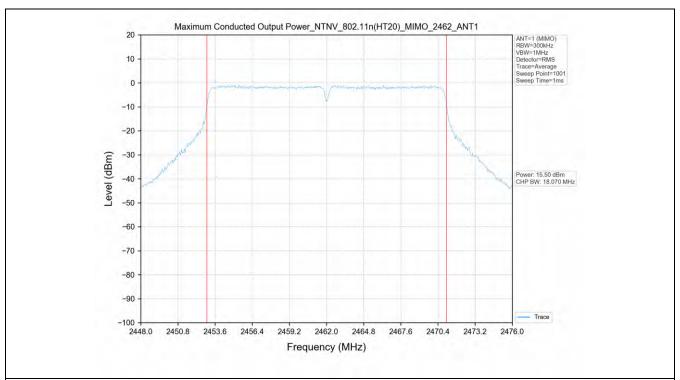




802.11n(HT20)_2462MHz_SISO_ANT2







802.11n(HT20)_2462MHz_MIMO_ANT2

