



Appendix A

RF Test Data for 2.4GWIFI(Conducted Measurement)

Product Name: Robot vacuum cleaner

Trade Mark: N/A

Test Model: AT800

Environmental Conditions

Temperature:	25.8° C
Relative Humidity:	52.5%
ATM Pressure:	100.0 kPa
Test Engineer:	Sean She
Supervised by:	Eder Zhan



Conducted Peak Output Power

Test Result

Conducted peak output power

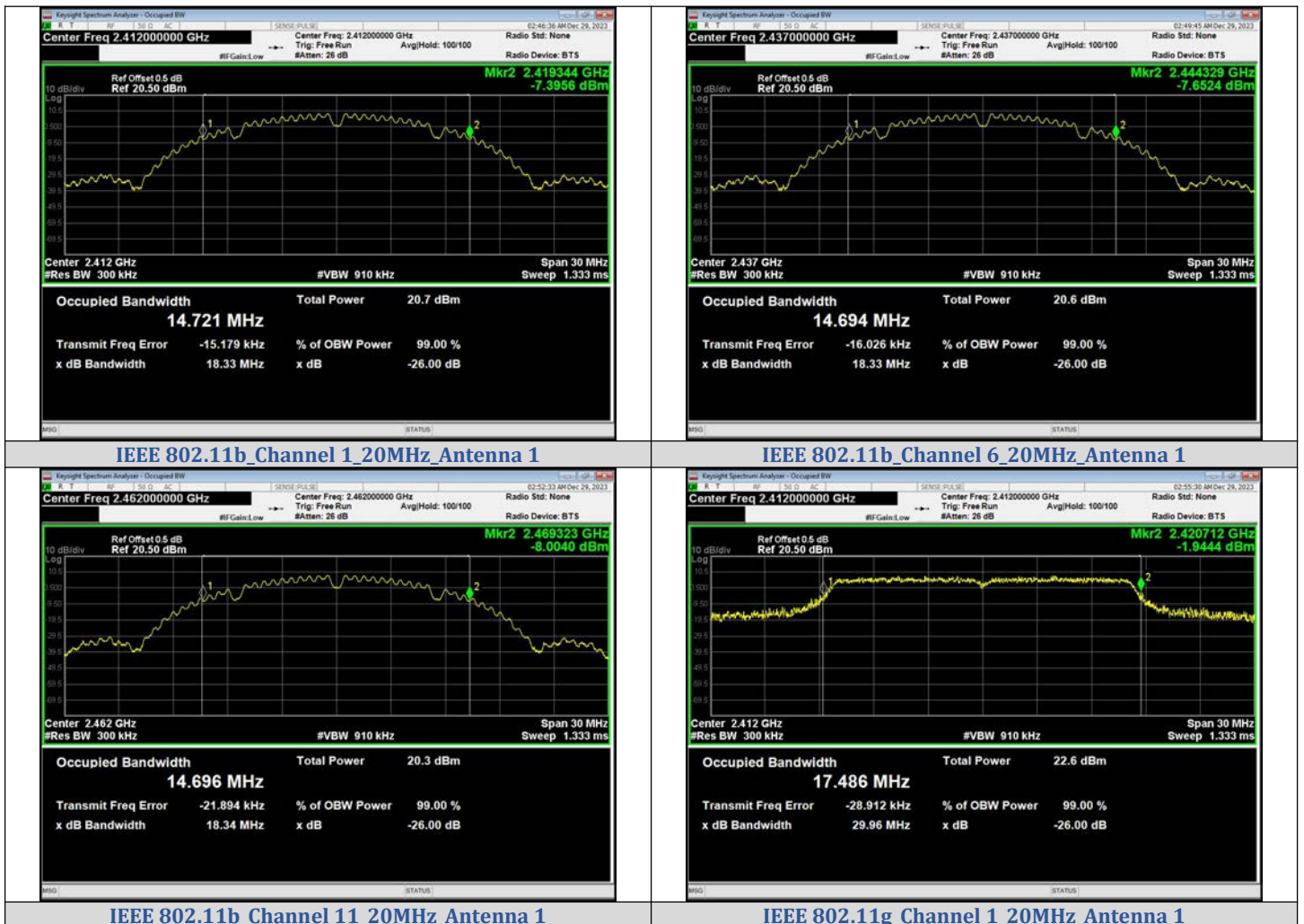
Mode	Channel	Ant. 1 (dBm)	Total (dBm)	Limit (dBm)	Result
IEEE 802.11b	1	19.64	N/A	30	PASS
	6	19.42	N/A	30	PASS
	11	19.13	N/A	30	PASS
IEEE 802.11g	1	24.25	N/A	30	PASS
	6	24.24	N/A	30	PASS
	11	24.00	N/A	30	PASS
IEEE 802.11n_20	1	23.23	N/A	30	PASS
	6	23.04	N/A	30	PASS
	11	22.87	N/A	30	PASS
IEEE 802.11n_40	3	21.93	N/A	30	PASS
	6	21.80	N/A	30	PASS
	9	21.63	N/A	30	PASS



**99% Bandwidth
Test Result**

Mode	Channel	Ant.	99% BW (MHz)
IEEE 802.11b	1	1	14.721
	6		14.694
	11		14.696
IEEE 802.11g	1		17.486
	6		17.348
	11		17.310
IEEE 802.11n_20	1		18.023
	6		18.013
	11		18.009
IEEE 802.11n_40	3		14.936
	6		14.914
	9	14.870	

Test Graphs

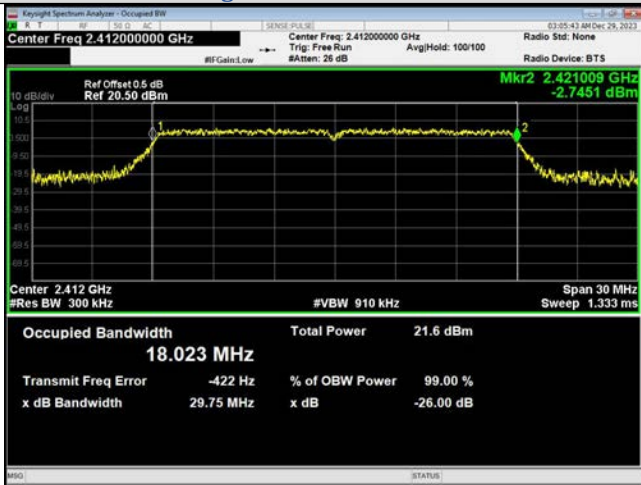




IEEE 802.11g_Channel 6_20MHz_Antenna 1



IEEE 802.11g_Channel 11_20MHz_Antenna 1



IEEE 802.11n_Channel 1_20MHz_Antenna 1



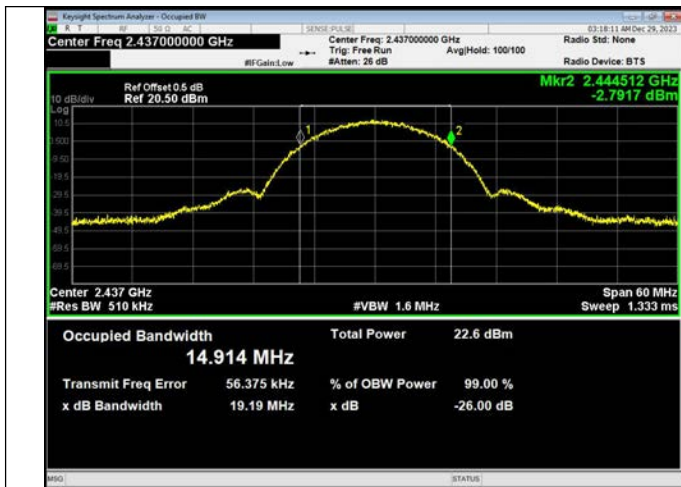
IEEE 802.11n_Channel 6_20MHz_Antenna 1



IEEE 802.11n_Channel 11_20MHz_Antenna 1



IEEE 802.11n_Channel 3_40MHz_Antenna 1



IEEE 802.11n_Channel 6_40MHz_Antenna 1



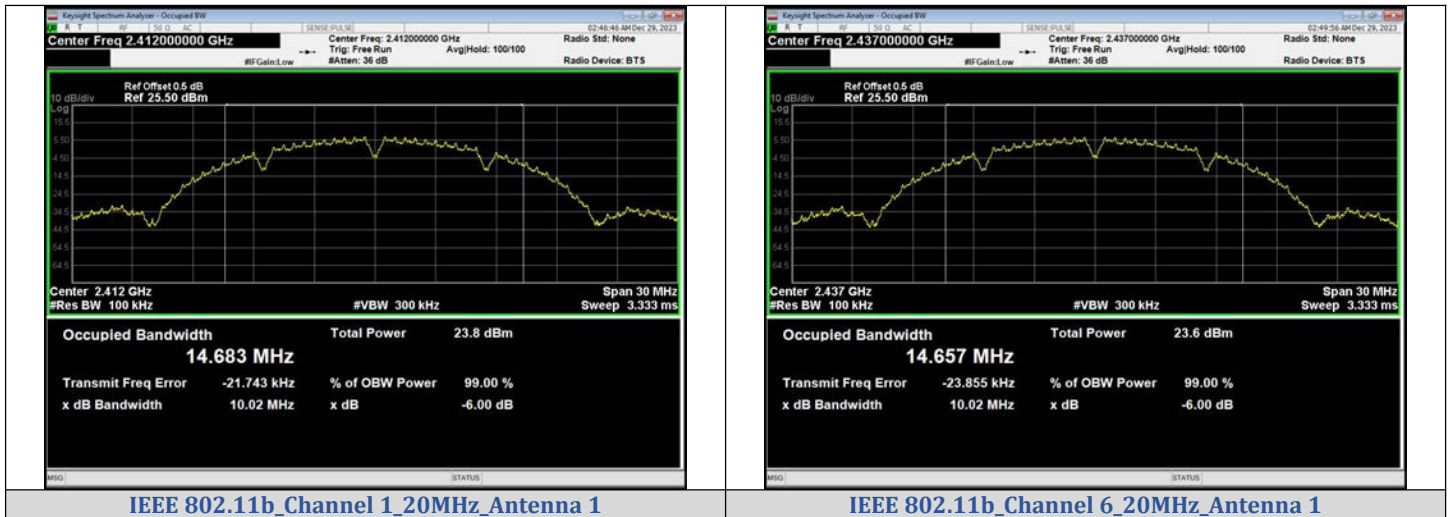
IEEE 802.11n_Channel 9_40MHz_Antenna 1



6dB Bandwidth
Test Result

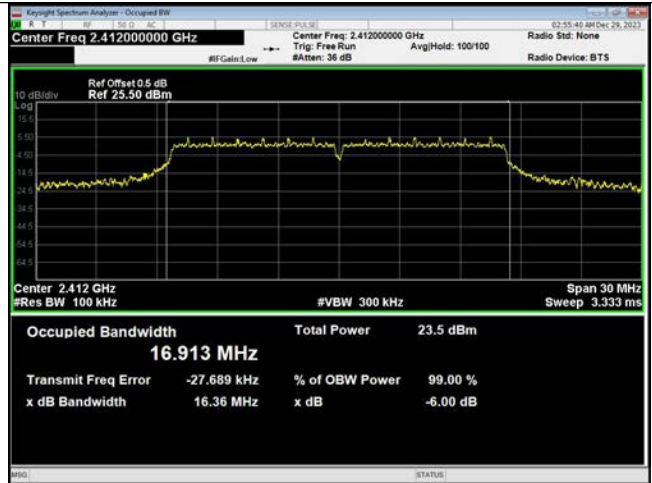
Mode	Channel	Ant.	Center Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
IEEE 802.11b	1	1	2412	10.02	0.5	PASS
	6		2437	10.02		PASS
	11		2462	10.03		PASS
IEEE 802.11g	1		2412	16.36		PASS
	6		2437	16.35		PASS
	11		2462	16.35		PASS
IEEE 802.11n_20	1		2412	17.59		PASS
	6		2437	17.58		PASS
	11		2462	17.58		PASS
IEEE 802.11n_40	3		2422	8.858		PASS
	6		2437	8.859		PASS
	9		2452	8.862		PASS

Test Graphs

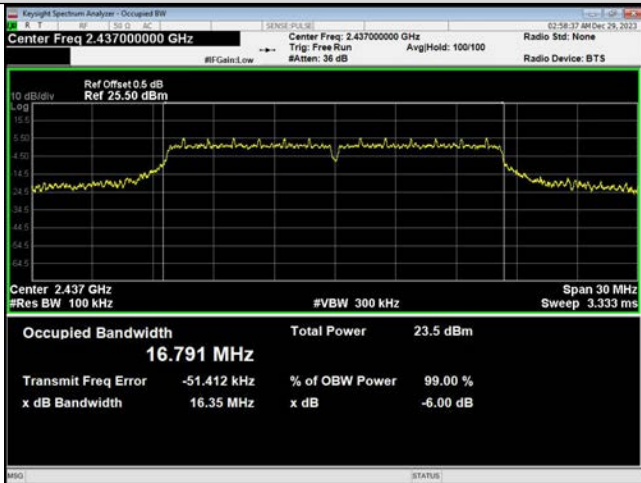




IEEE 802.11b_Channel 11_20MHz_Antenna 1



IEEE 802.11g_Channel 1_20MHz_Antenna 1



IEEE 802.11g_Channel 6_20MHz_Antenna 1



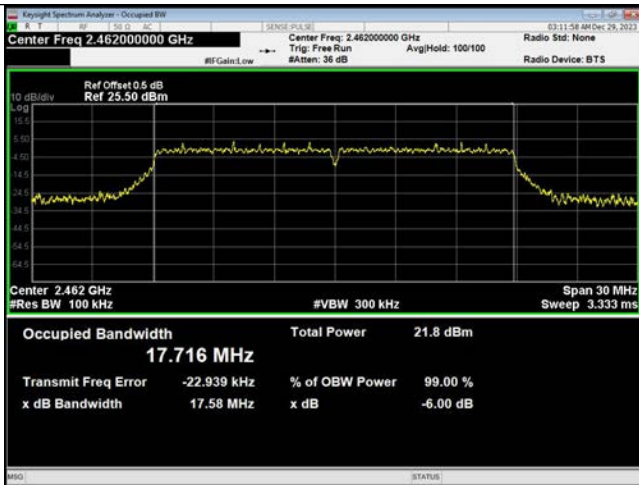
IEEE 802.11g_Channel 11_20MHz_Antenna 1



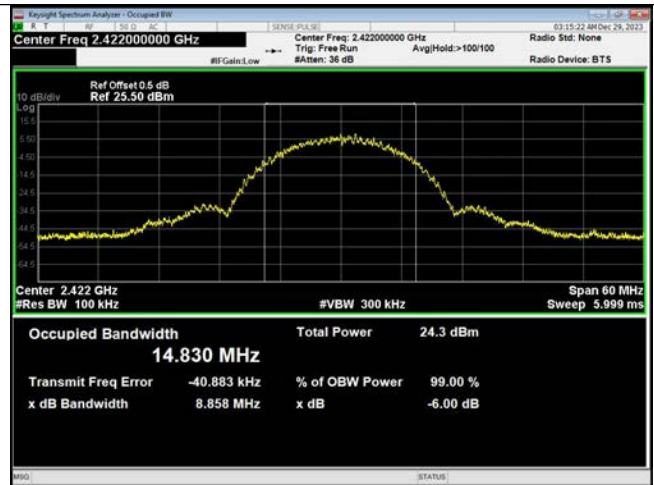
IEEE 802.11n_Channel 1_20MHz_Antenna 1



IEEE 802.11n_Channel 6_20MHz_Antenna 1



IEEE 802.11n_Channel 11_20MHz_Antenna 1



IEEE 802.11n_Channel 3_40MHz_Antenna 1



IEEE 802.11n_Channel 6_40MHz_Antenna 1



IEEE 802.11n_Channel 9_40MHz_Antenna 1



Conducted Out Of Band Emission
Test Result

Mode	Channel	Ant.	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
IEEE 802.11b	1	1	2400.00	-33.251	-12.56	-20.691	PASS
			2398.92	-31.086	-12.56	-18.526	PASS
			4823.70	-35.733	-12.56	-23.173	PASS
	6		4873.68	-38.306	-12.74	-25.566	PASS
	11		2483.50	-47.786	-13.02	-34.766	PASS
	4924.24		-40.079	-13.02	-27.059	PASS	
IEEE 802.11g	1		2400.00	-18.642	-14.07	-4.572	PASS
			2398.53	-18.350	-14.07	-4.280	PASS
			24765.3	-40.778	-14.07	-26.708	PASS
	6		24890.1	-39.898	-14.14	-25.758	PASS
	11		2483.50	-28.358	-14.4	-13.958	PASS
	24293.3		-40.450	-14.4	-26.050	PASS	
IEEE 802.11n_20	1		2400.00	-25.450	-15.15	-10.300	PASS
			2397.23	-22.293	-15.15	-7.143	PASS
			24670.4	-40.378	-15.15	-25.228	PASS
	6		24936.3	-39.749	-15.4	-24.349	PASS
	11		2483.50	-34.950	-15.63	-19.320	PASS
	24920.7		-40.014	-15.63	-24.384	PASS	
IEEE 802.11n_40	3	2400.00	-46.899	-11.5	-35.399	PASS	
		2396.06	-44.854	-11.5	-33.354	PASS	
		4843.70	-37.464	-11.5	-25.964	PASS	
	6	4873.68	-38.825	-11.62	-27.205	PASS	
	9	2483.50	-47.499	-11.75	-35.749	PASS	
	4904.27	-39.913	-11.75	-28.163	PASS		

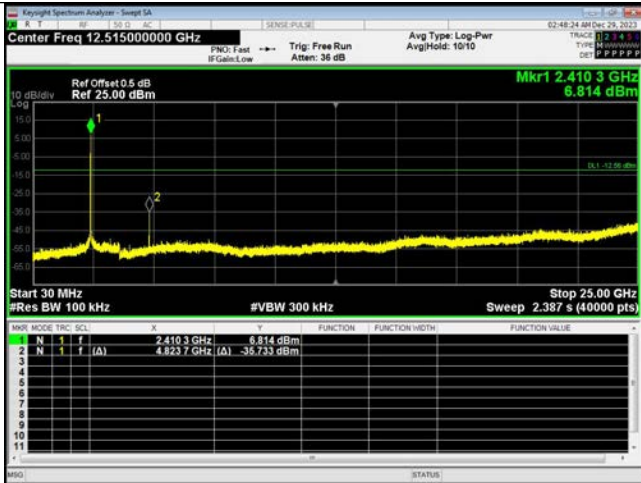
Test Graphs



In-Band Reference Level
IEEE 802.11b_Channel 1_20MHz_Antenna 1



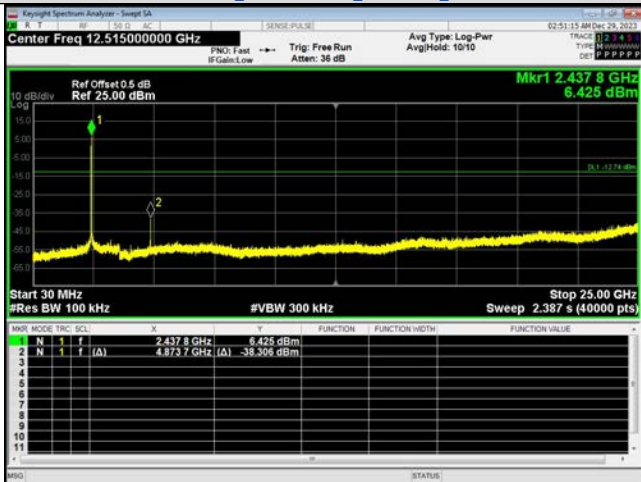
Out Of Band Emission
IEEE 802.11b_Channel 1_20MHz_Antenna 1



Spurious Emission
IEEE 802.11b Channel 1_20MHz_Antenna 1



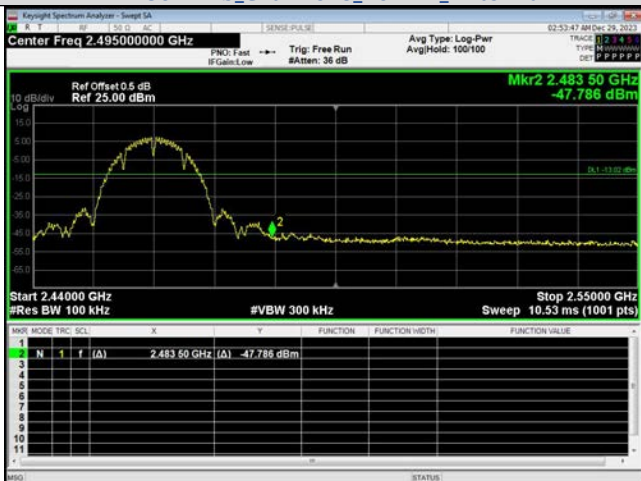
In-Band Reference Level
IEEE 802.11b Channel 6_20MHz_Antenna 1



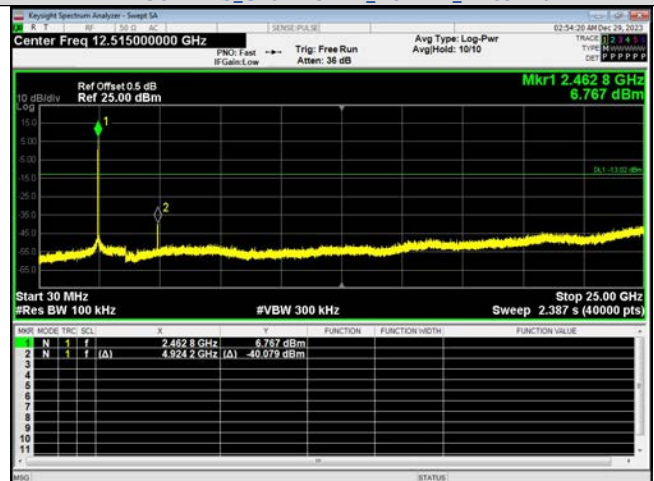
Spurious Emissions
IEEE 802.11b Channel 6_20MHz_Antenna 1



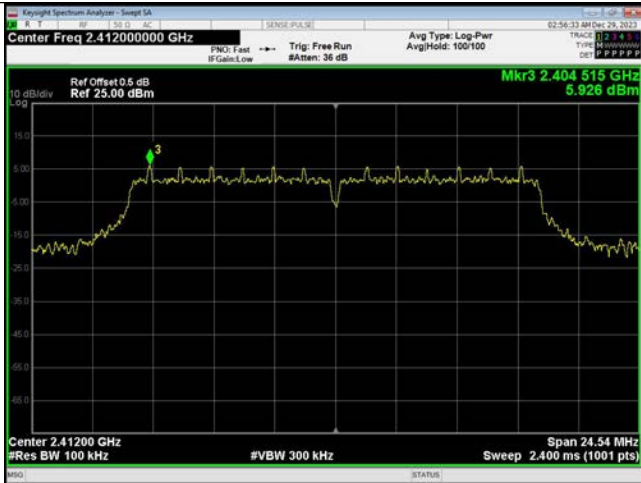
In-Band Reference Level
IEEE 802.11b Channel 11_20MHz_Antenna 1



Out Of Band Emission
IEEE 802.11b_Channel 11_20MHz_Antenna 1



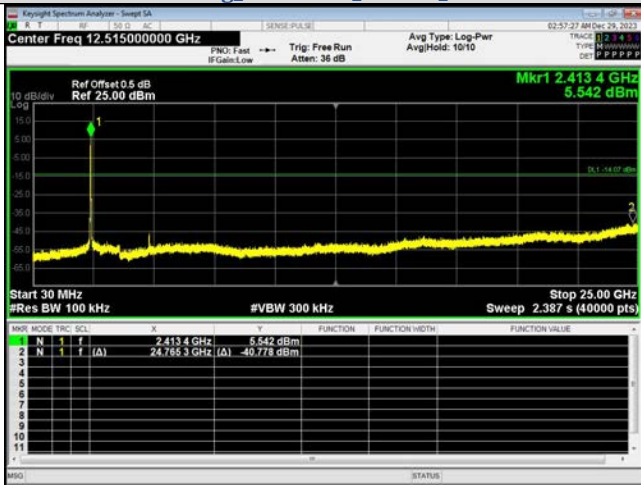
Spurious Emission
IEEE 802.11b_Channel 11_20MHz_Antenna 1



In-Band Reference Level
IEEE 802.11g Channel 1_20MHz Antenna 1



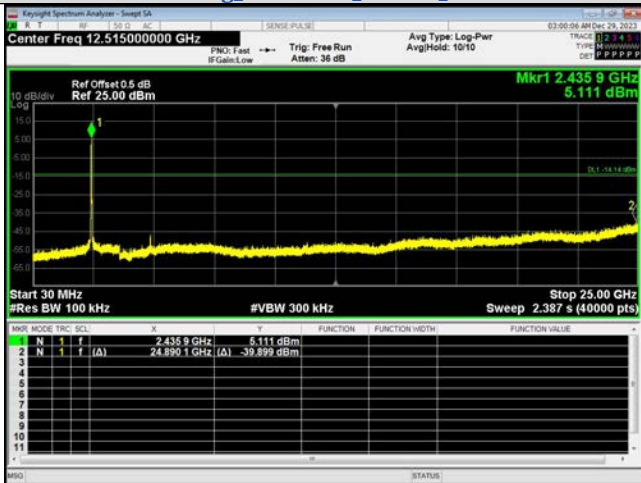
Out Of Band Emission
IEEE 802.11g Channel 1_20MHz Antenna 1



Spurious Emission
IEEE 802.11g Channel 1_20MHz Antenna 1



In-Band Reference Level
IEEE 802.11g Channel 6_20MHz Antenna 1



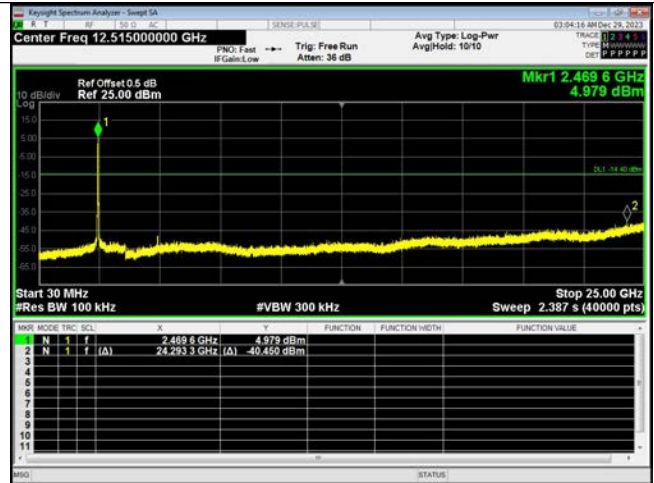
Spurious Emissions
IEEE 802.11g Channel 6_20MHz Antenna 1



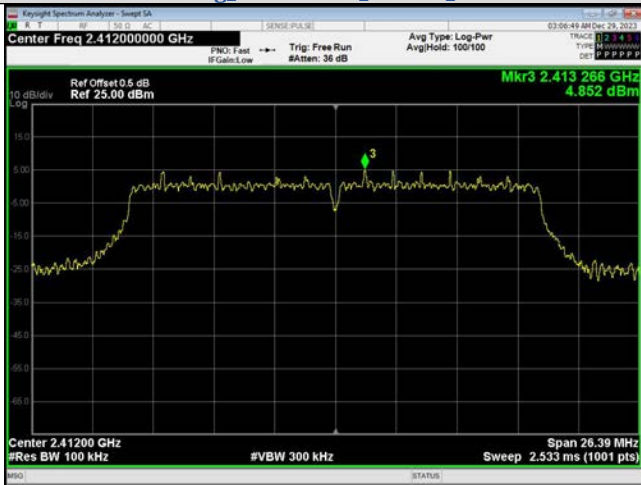
In-Band Reference Level
IEEE 802.11g Channel 11_20MHz Antenna 1



Out Of Band Emission
IEEE 802.11g Channel 11_20MHz_Antenna 1



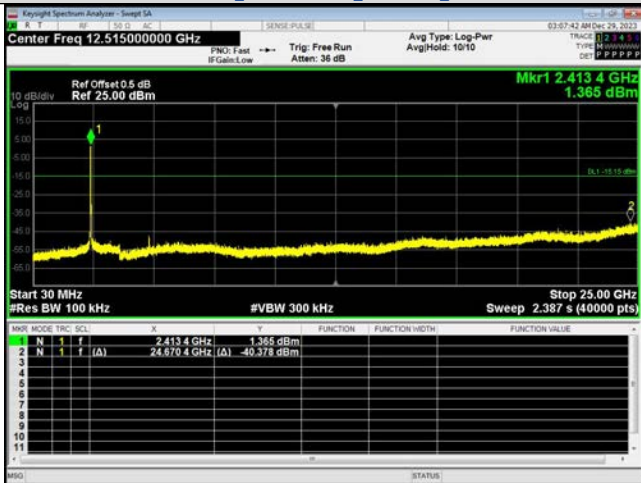
Spurious Emission
IEEE 802.11g Channel 11_20MHz_Antenna 1



In-Band Reference Level
IEEE 802.11n Channel 1_20MHz_Antenna 1



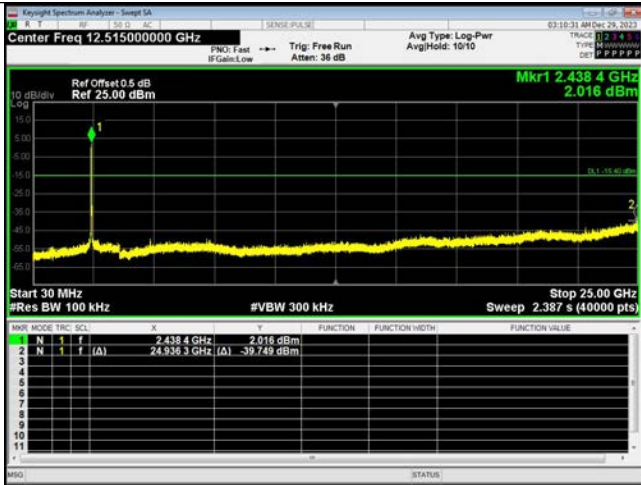
Out Of Band Emission
IEEE 802.11n Channel 1_20MHz_Antenna 1



Spurious Emission
IEEE 802.11n Channel 1_20MHz_Antenna 1



In-Band Reference Level
IEEE 802.11n Channel 6_20MHz_Antenna 1



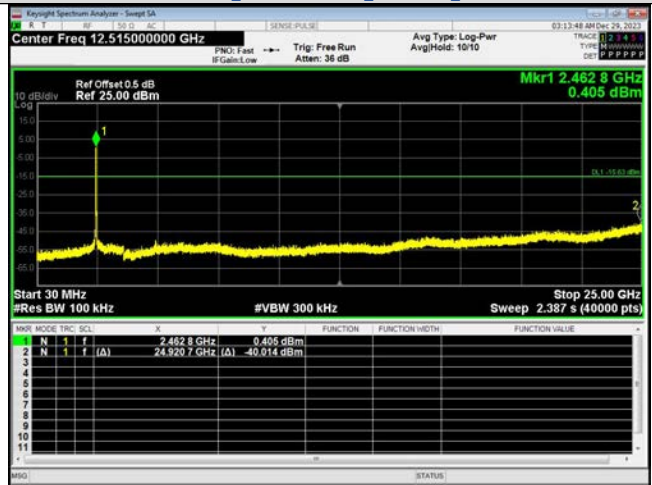
Spurious Emissions
IEEE 802.11n Channel 6 20MHz Antenna 1



In-Band Reference Level
IEEE 802.11n Channel 11 20MHz Antenna 1



Out Of Band Emission
IEEE 802.11n Channel 11 20MHz Antenna 1



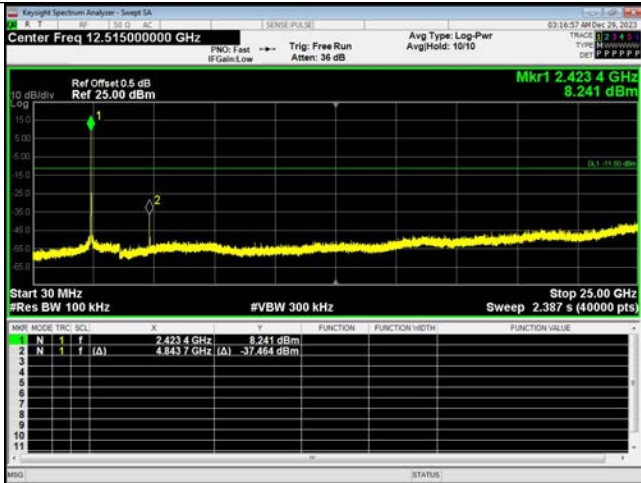
Spurious Emission
IEEE 802.11n Channel 11 20MHz Antenna 1



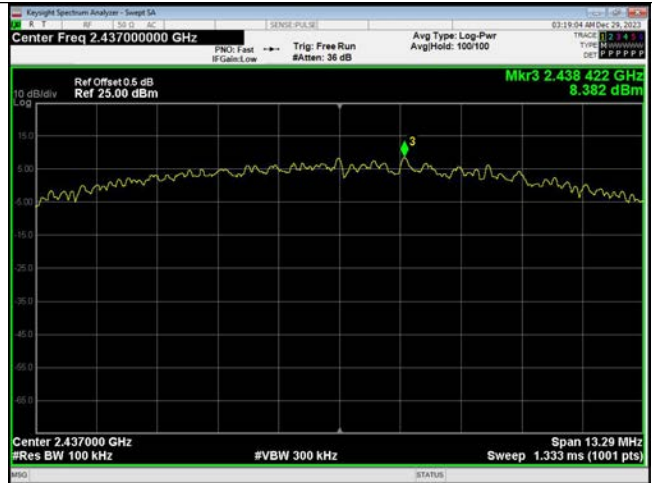
In-Band Reference Level
IEEE 802.11n Channel 3 40MHz Antenna 1



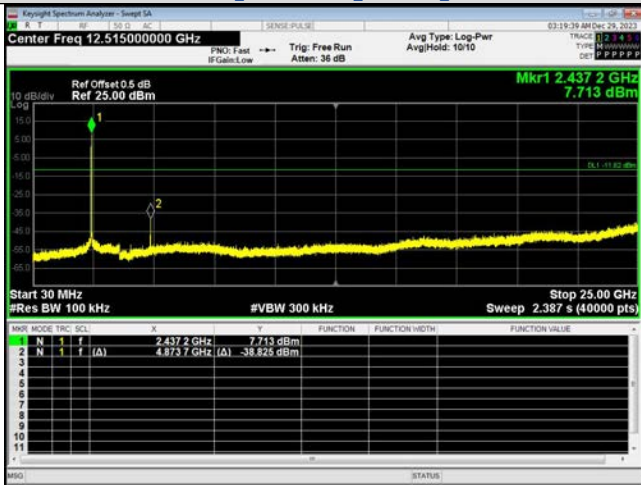
Out Of Band Emission
IEEE 802.11n Channel 3 40MHz Antenna 1



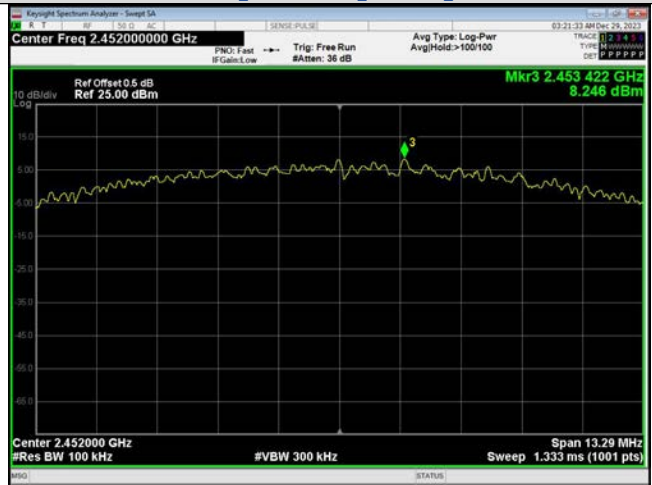
Spurious Emission
IEEE 802.11n Channel 3 40MHz Antenna 1



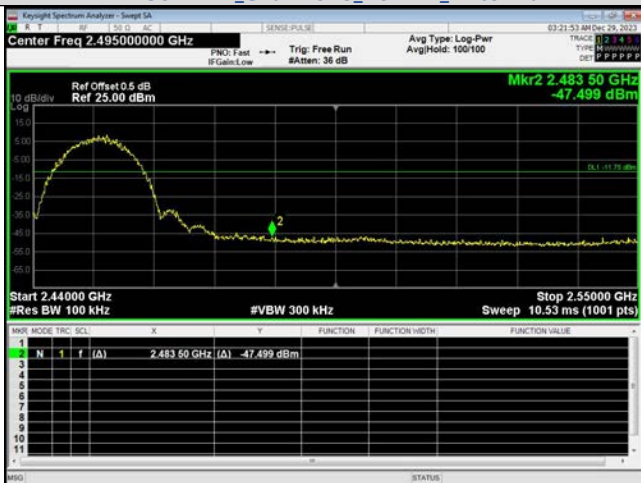
In-Band Reference Level
IEEE 802.11n Channel 6 40MHz Antenna 1



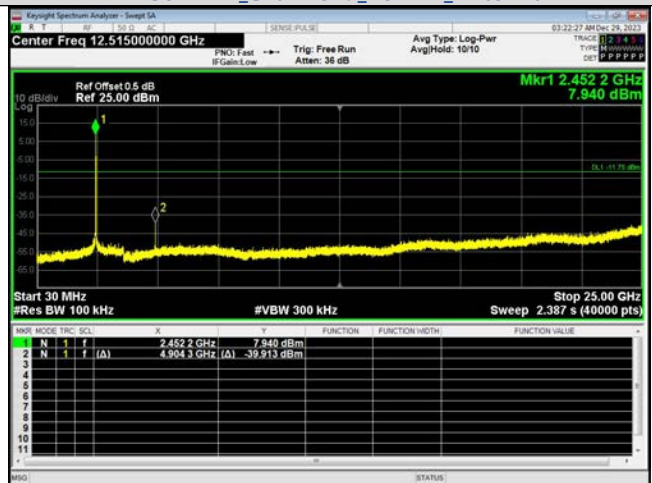
Spurious Emissions
IEEE 802.11n Channel 6 40MHz Antenna 1



In-Band Reference Level
IEEE 802.11n Channel 9 40MHz Antenna 1



Out Of Band Emission
IEEE 802.11n Channel 9 40MHz Antenna 1



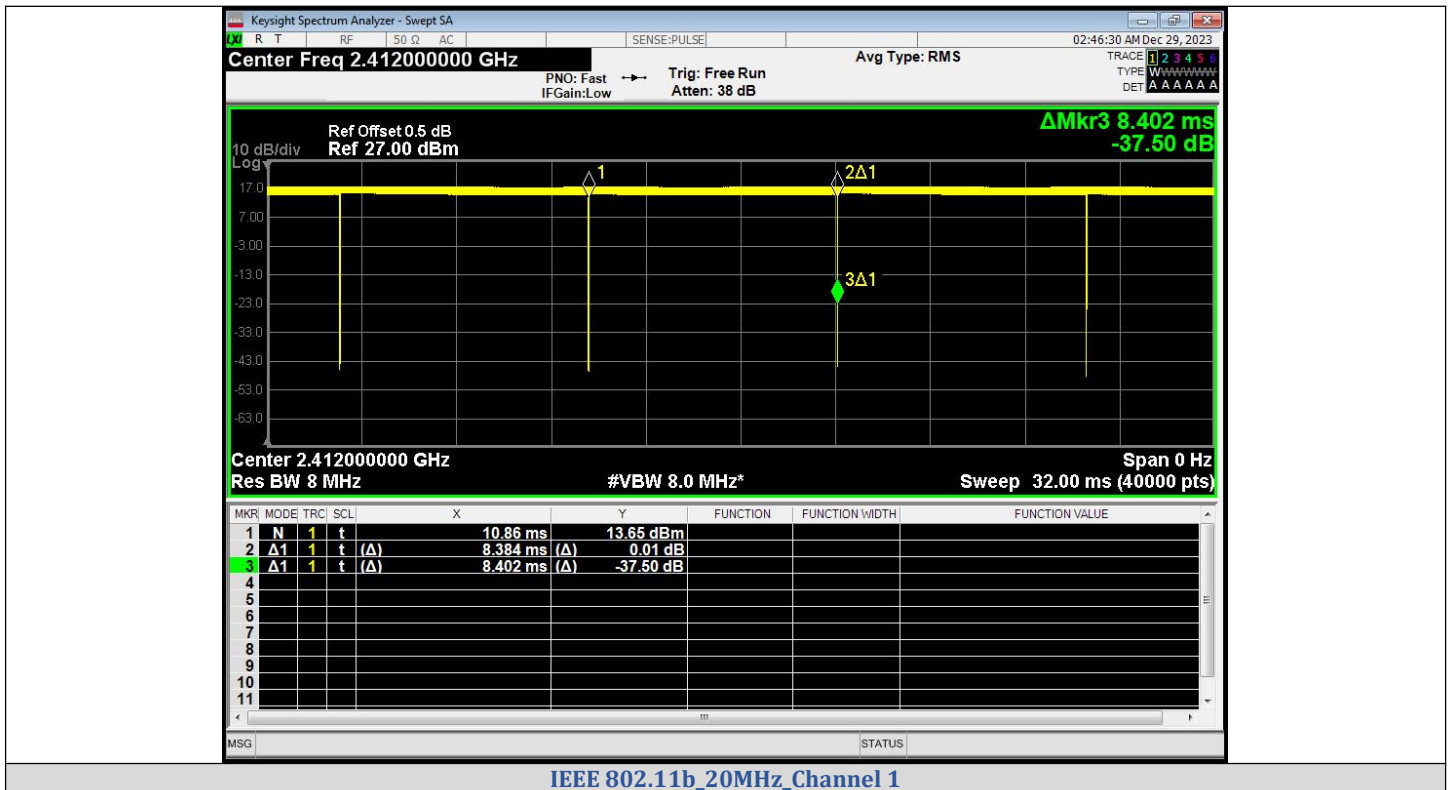
Spurious Emission
IEEE 802.11n Channel 9 40MHz Antenna 1

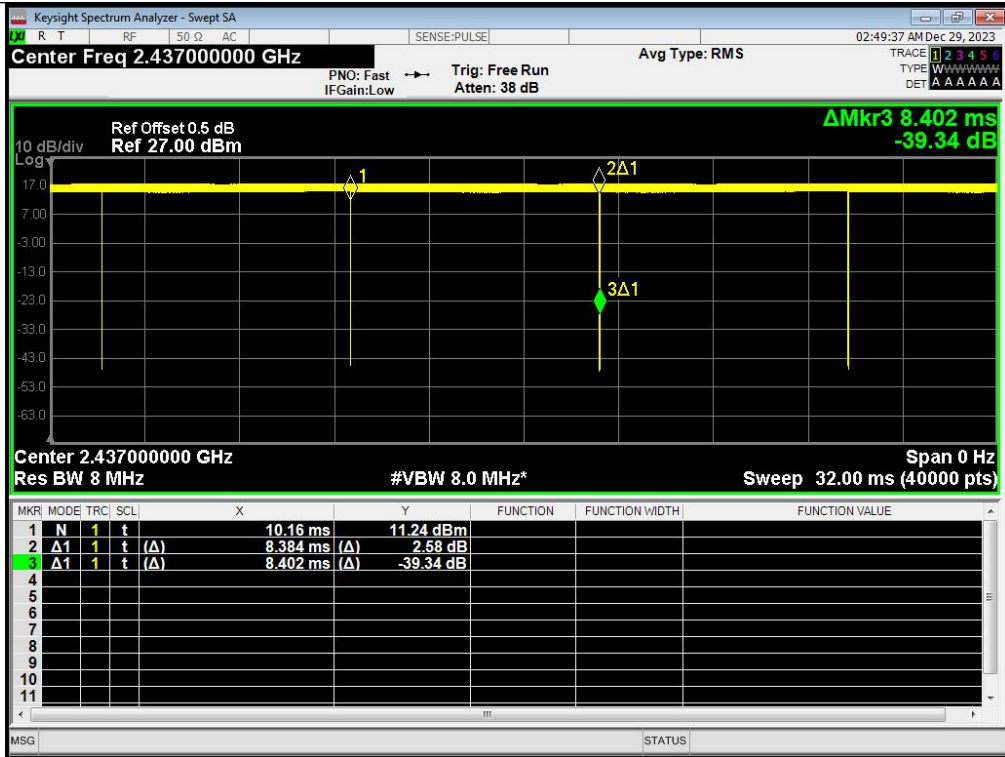


Duty Cycle
Test Result

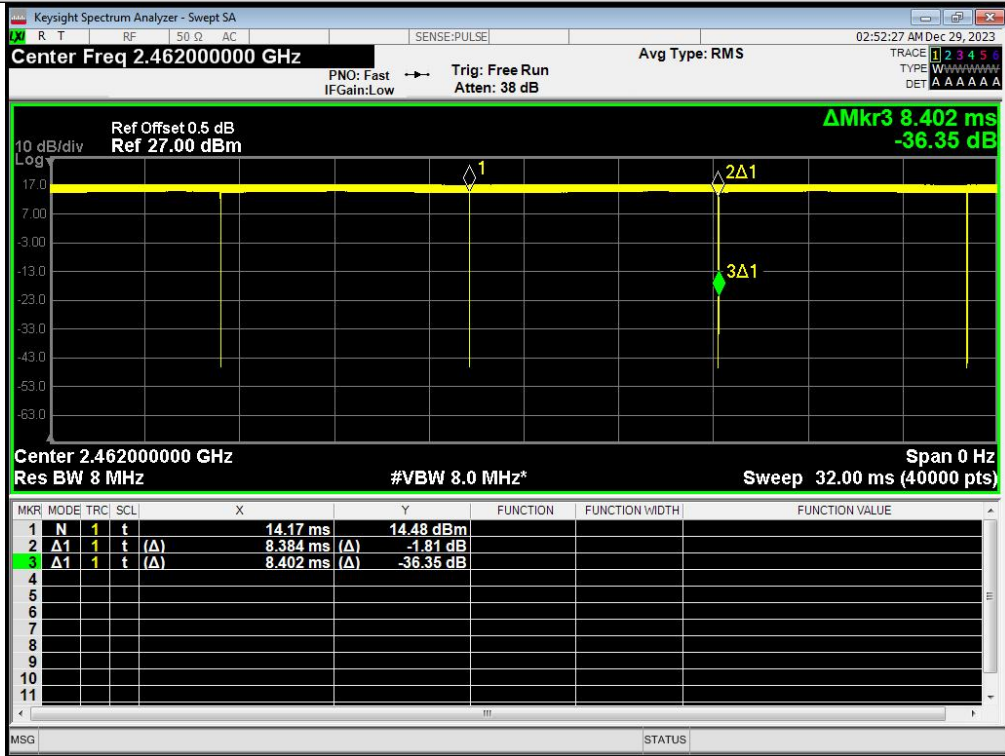
Mode	Data rates	Channel	Antenna	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)
IEEE 802.11b	1Mbps	1	1	8.384	8.402	99.78	0.9978	0.0096
		6		8.384	8.402	99.78	0.9978	0.0096
		11		8.384	8.402	99.78	0.9978	0.0096
IEEE 802.11g	6Mbps	1		1.396	1.411	98.94	0.9894	0.0463
		6		1.396	1.411	98.94	0.9894	0.0463
		11		1.396	1.411	98.94	0.9894	0.0463
IEEE 802.11n_20	MCS 0	1		5.093	5.105	99.78	0.9978	0.0096
		6		5.093	5.105	99.78	0.9978	0.0096
		11		5.093	5.102	99.82	0.9982	0.0078
IEEE 802.11n_40	MCS 0	3		0.939	0.956	98.14	0.9814	0.0815
		6		0.939	0.957	98.14	0.9814	0.0815
		9	0.939	0.956	98.24	0.9824	0.0771	

Test Graphs

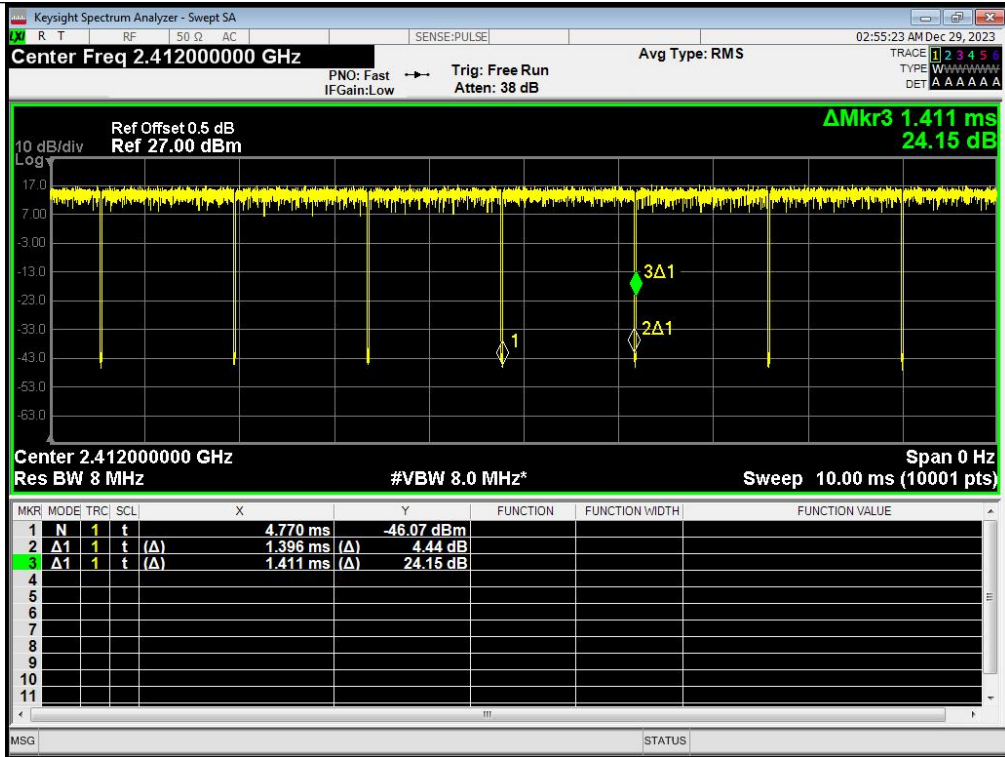




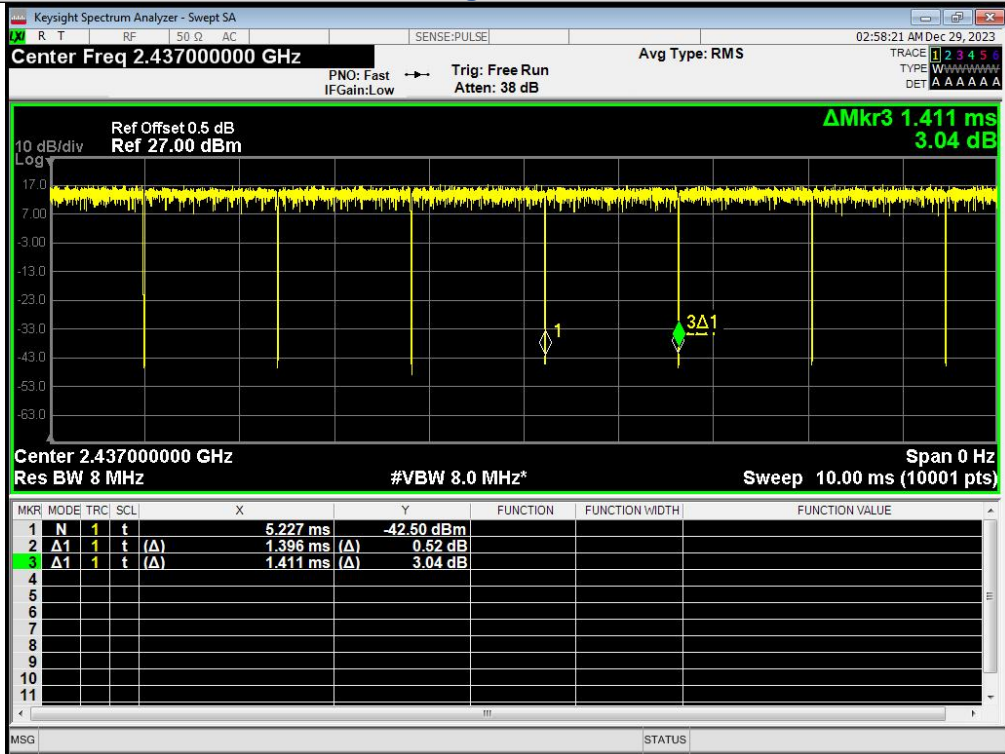
IEEE 802.11b_20MHz_Channel 6



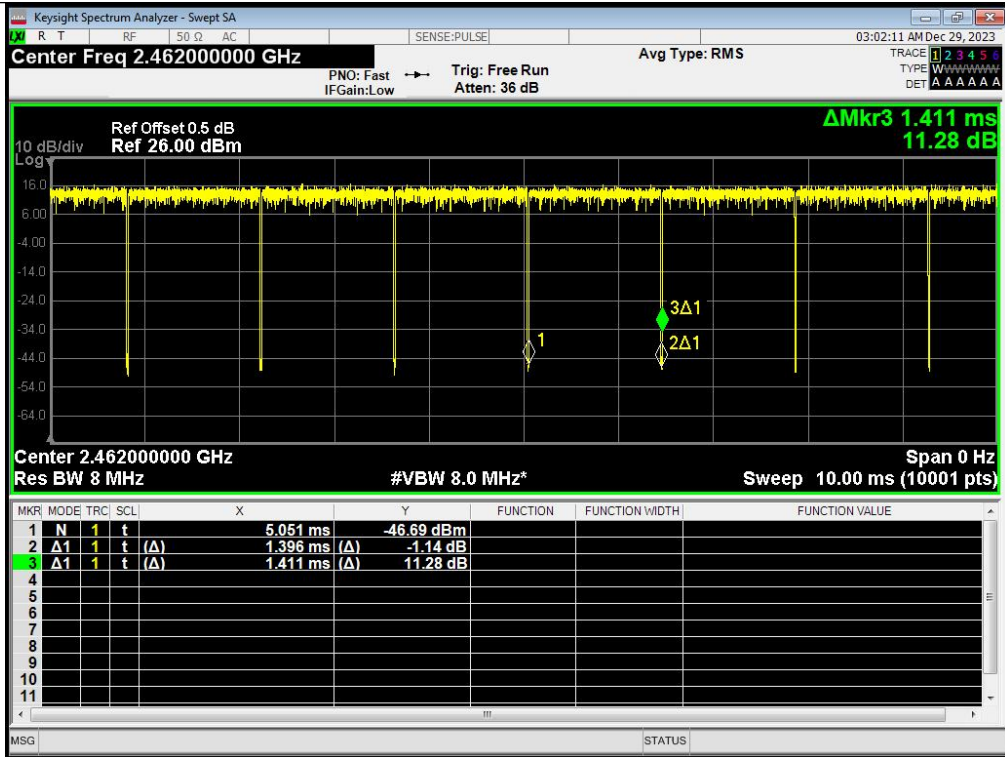
IEEE 802.11b_20MHz_Channel 11



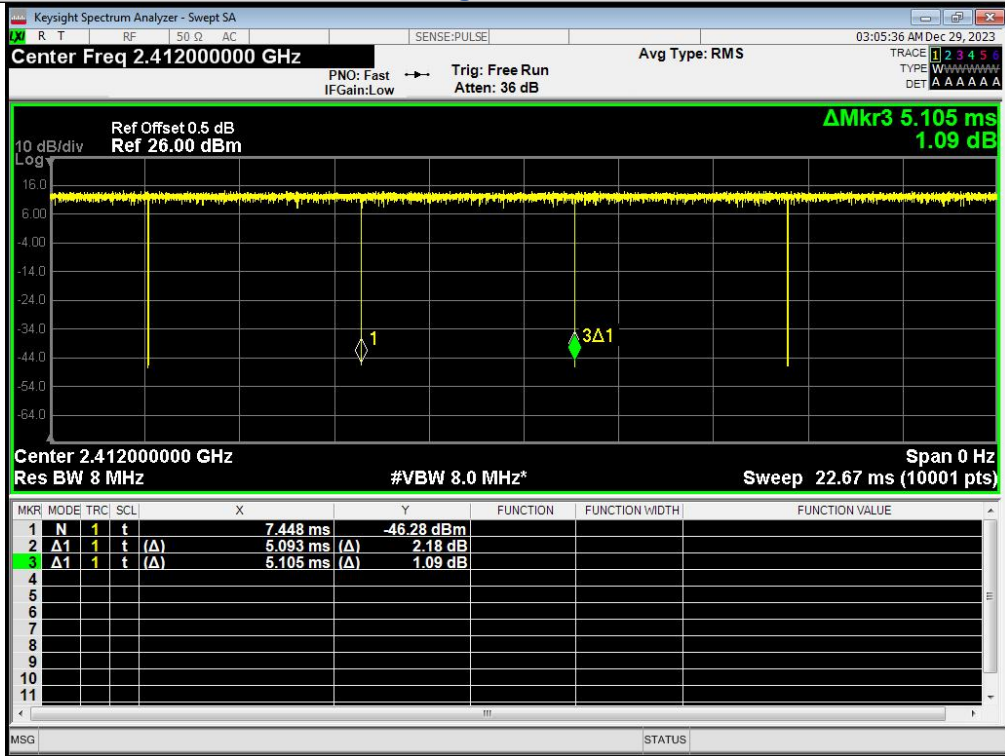
IEEE 802.11g_20MHz_Channel 1



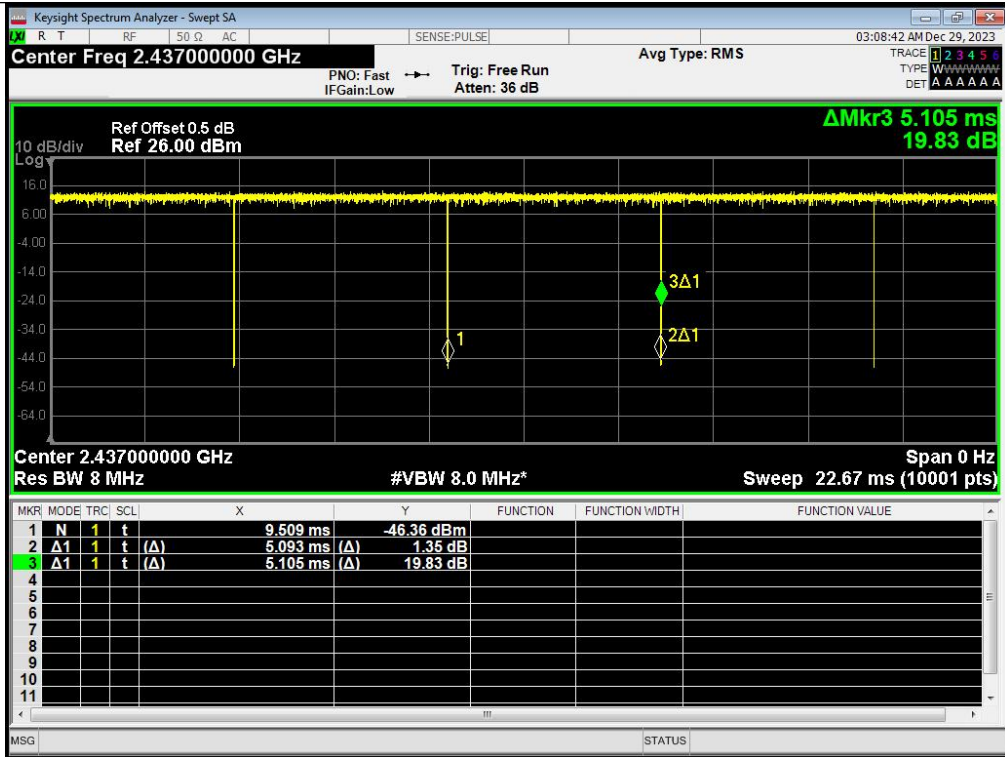
IEEE 802.11g_20MHz_Channel 6



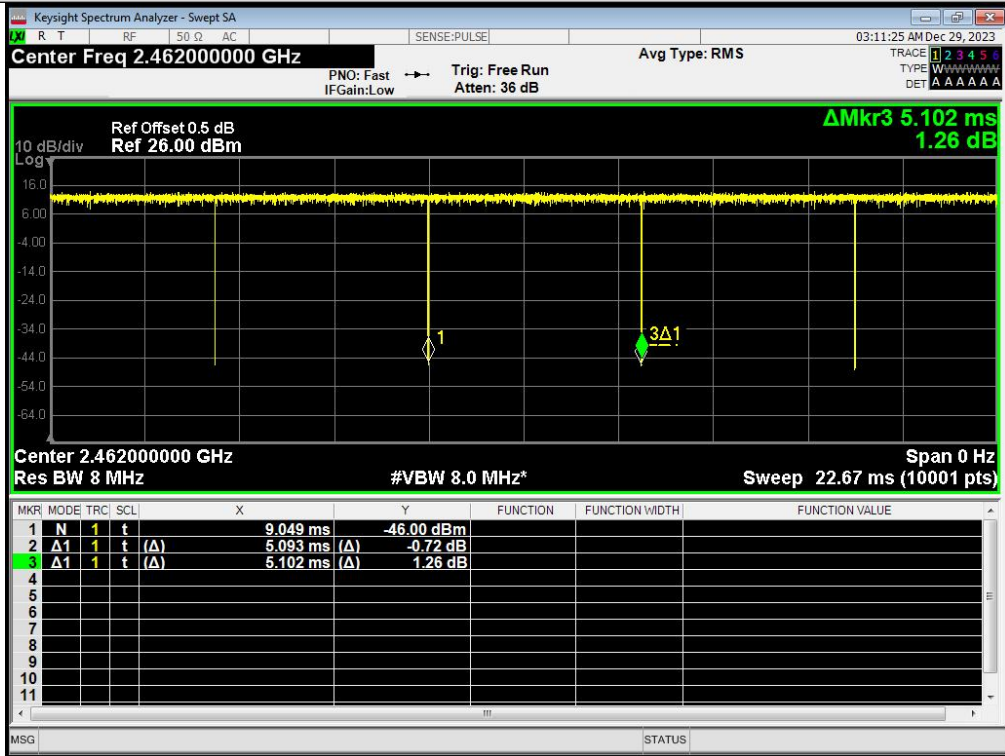
IEEE 802.11g_20MHz_Channel 11



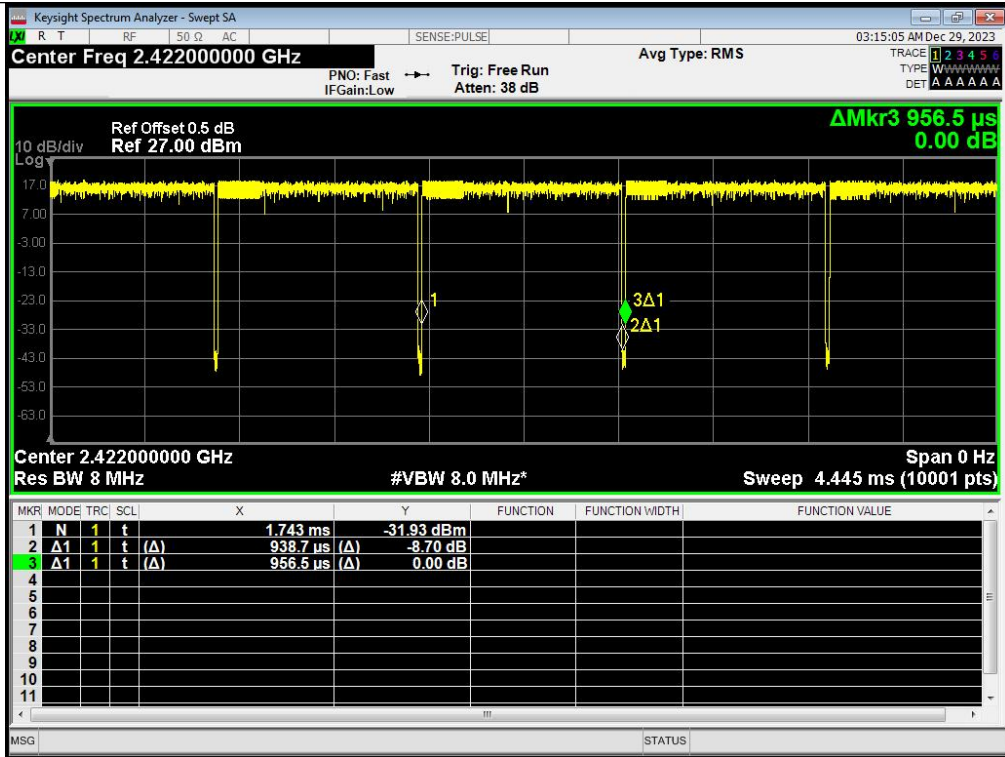
IEEE 802.11n_20MHz_Channel 1



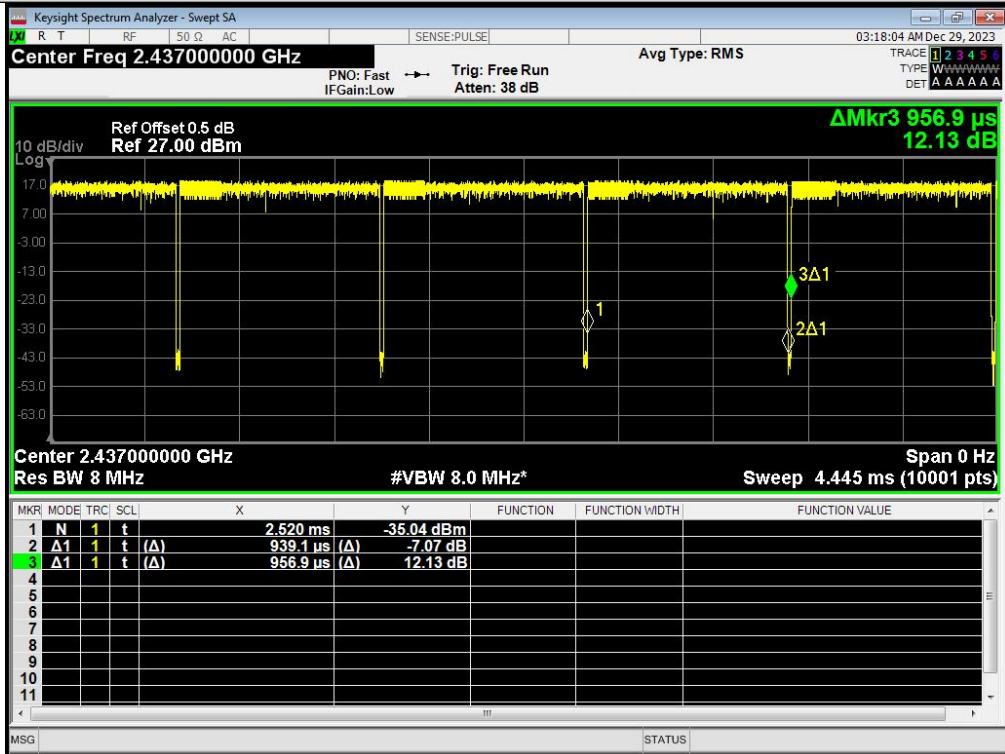
IEEE 802.11n_20MHz_Channel 6



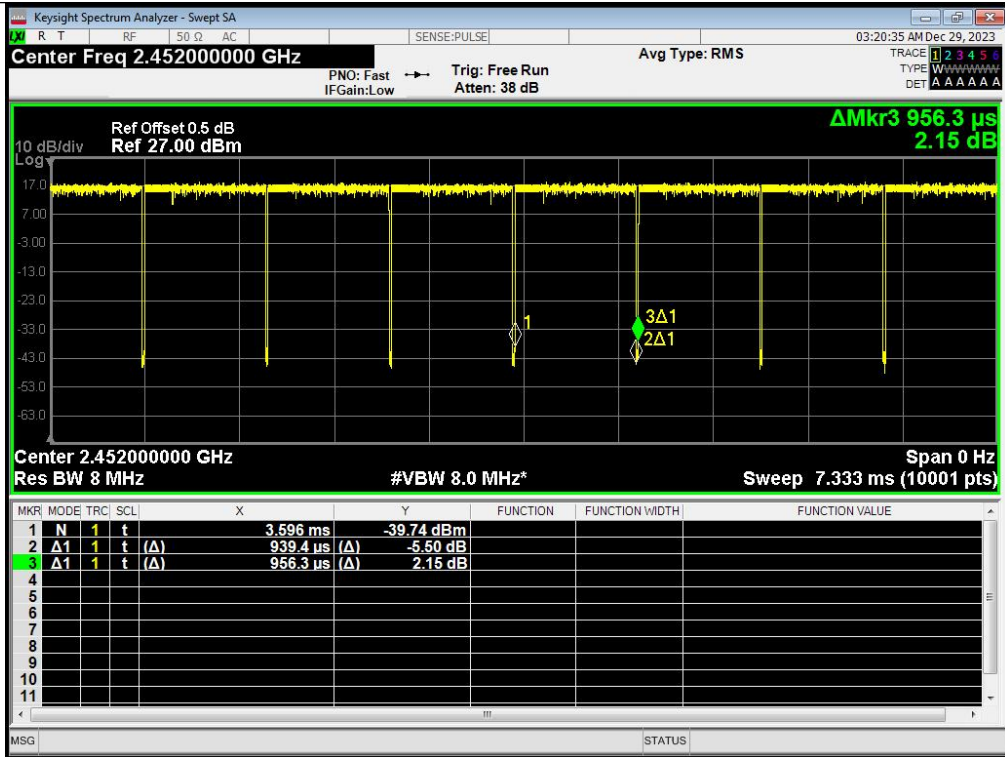
IEEE 802.11n_20MHz_Channel 11



IEEE 802.11n_40MHz_Channel 3



IEEE 802.11n_40MHz_Channel 6



IEEE 802.11n_40MHz_Channel 9

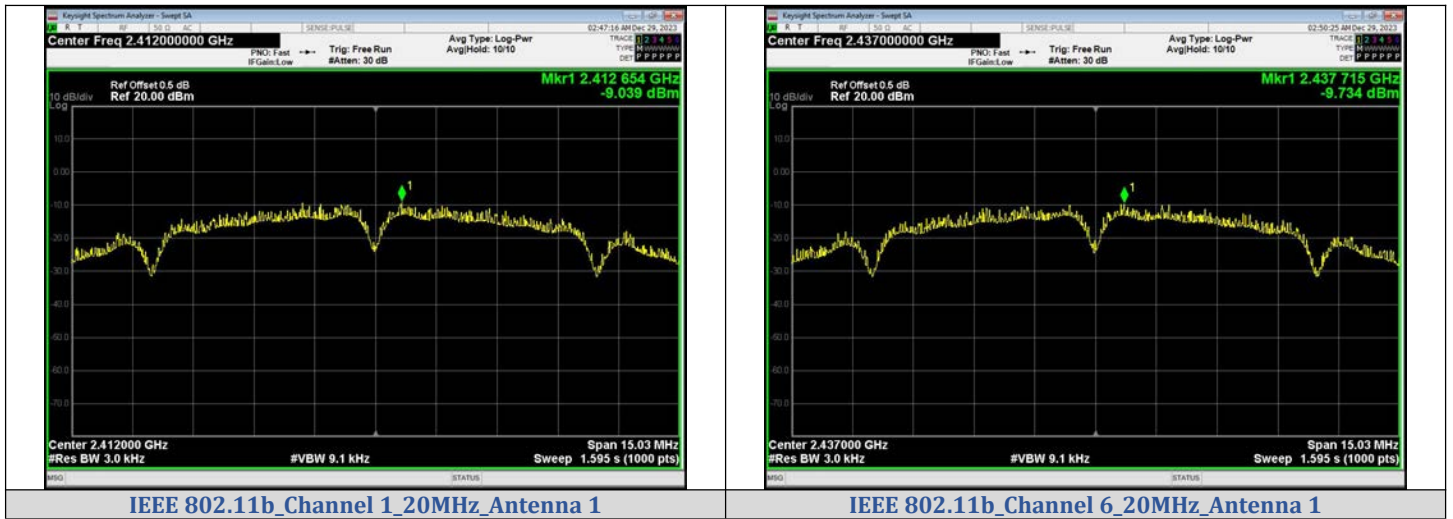


Power Spectral Density

Test Result

Mode	Channel	PSD (dBm/3kHz) Ant. 0	Limit (dBm/3kHz)	Result
IEEE 802.11b	1	-9.039	8	PASS
	6	-9.734		PASS
	11	-8.968		PASS
IEEE 802.11g	1	-9.266		PASS
	6	-10.685		PASS
	11	-9.201		PASS
IEEE 802.11n_20	1	-10.486		PASS
	6	-11.056		PASS
	11	-9.365		PASS
IEEE 802.11n_40	3	-5.265		PASS
	6	-5.400		PASS
	9	-5.546		PASS

Test Graphs





IEEE 802.11b_Channel 11_20MHz_Antenna 1



IEEE 802.11g_Channel 1_20MHz_Antenna 1



IEEE 802.11g_Channel 6_20MHz_Antenna 1



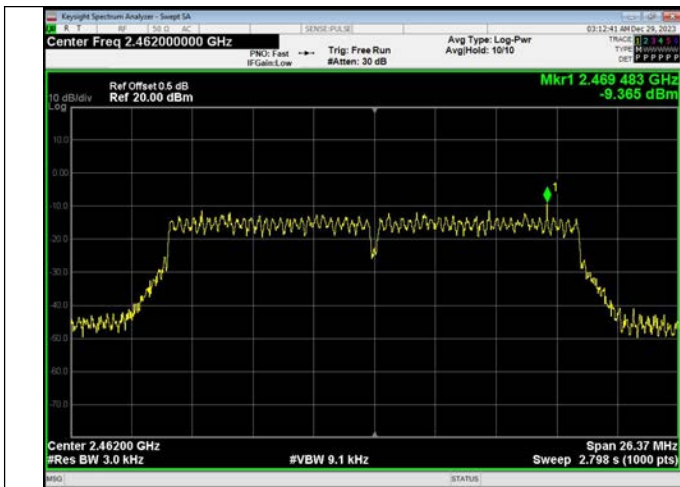
IEEE 802.11g_Channel 11_20MHz_Antenna 1



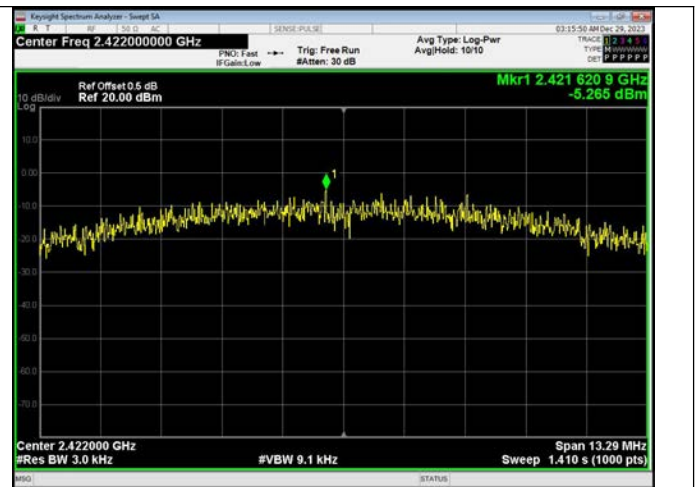
IEEE 802.11n_Channel 1_20MHz_Antenna 1



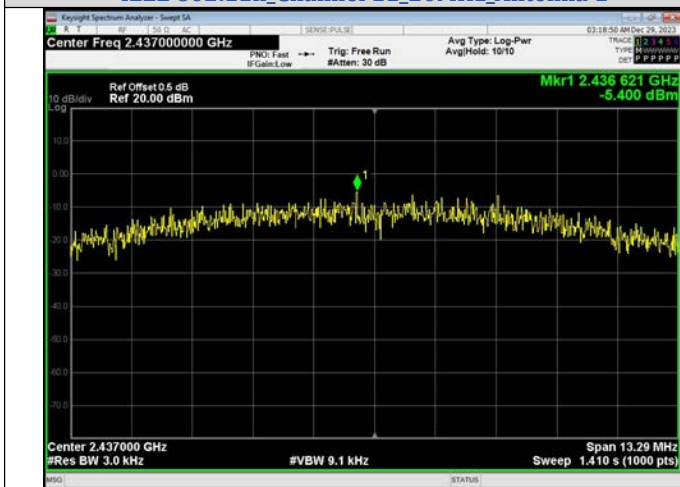
IEEE 802.11n_Channel 6_20MHz_Antenna 1



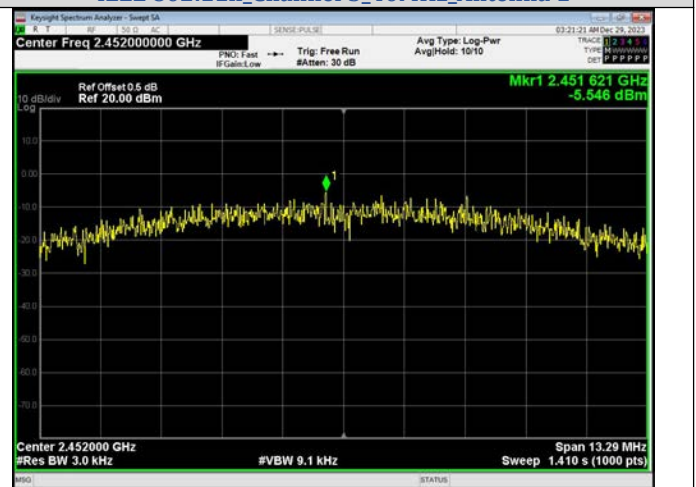
IEEE 802.11n_Channel 11_20MHz_Antenna 1



IEEE 802.11n_Channel 3_40MHz_Antenna 1



IEEE 802.11n_Channel 6_40MHz_Antenna 1



IEEE 802.11n_Channel 9_40MHz_Antenna 1