Appendix Report

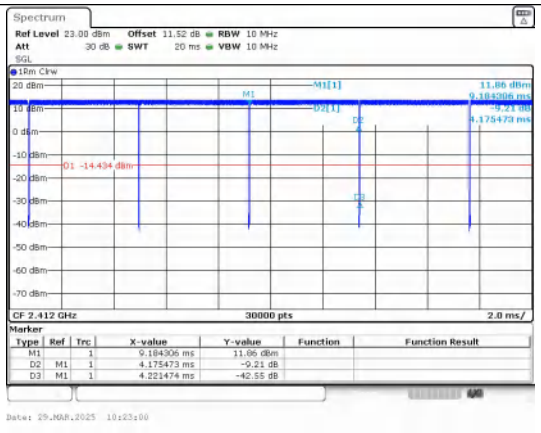
Project No.:	CISR250320171
Test Engineer:	James Wang
Supervised by:	Rory Huang

Duty Cycle

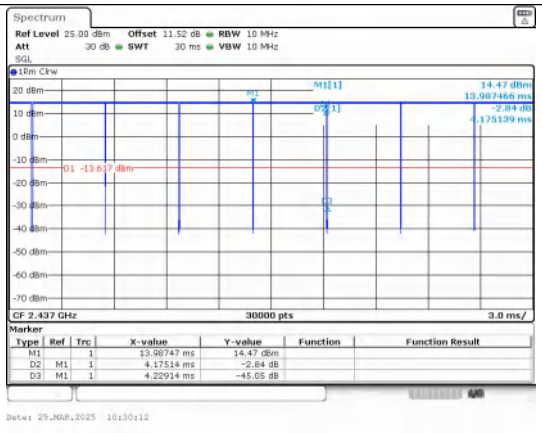
Test Result

Mode	Data rates	Channel	RU & Index	Antenna	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
IEEE 802.11b	1	1	N/A	1	4.175	4.221	98.91	0.9891	0.0476	0.2395
		6			4.175	4.229	98.72	0.9872	0.0559	0.2395
		11			4.176	4.227	98.79	0.9879	0.0529	0.2395
IEEE 802.11g		1			1.400	1.454	96.29	0.9629	0.1642	0.7143
		6			1.400	1.450	96.55	0.9655	0.1525	0.7143
		11			1.400	1.463	95.69	0.9569	0.1913	0.7143
IEEE 802.11n_20	MCS 0	1			1.301	1.364	95.36	0.9536	0.2063	0.7686
		6			1.311	1.370	95.69	0.9569	0.1913	0.7628
		11			1.301	1.351	96.25	0.9625	0.166	0.7686
IEEE 802.11n_40		3			0.650	0.700	92.88	0.9288	0.3208	1.5385
		6			0.650	0.726	89.47	0.8947	0.4832	1.5385
		9			0.650	0.700	92.88	0.9288	0.3208	1.5385
IEEE 802.11ax_20		1	SU		0.650	0.713	91.09	0.9109	0.4053	1.5385
		6			0.650	0.702	92.59	0.9259	0.3344	1.5385
		11			0.650	0.705	92.12	0.9212	0.3565	1.5385

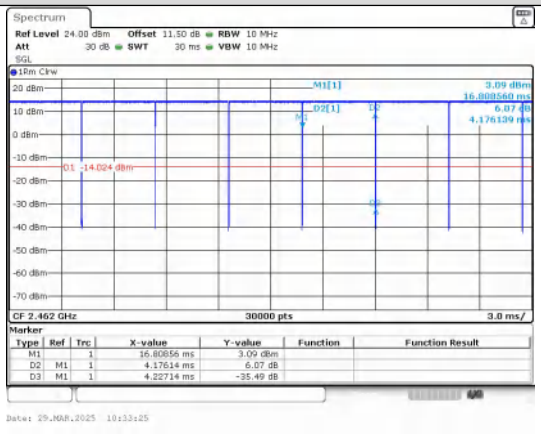
Test Graphs



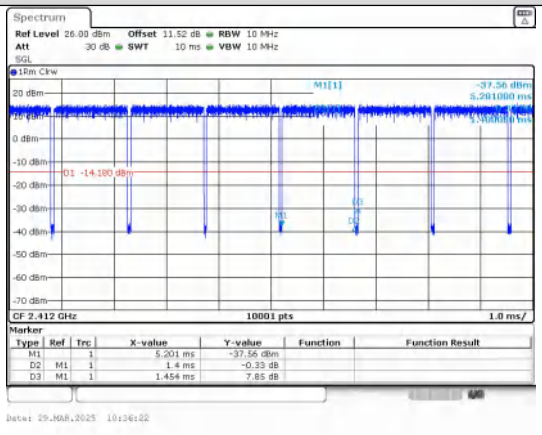
IEEE 802.11b_20MHz_Channel 1



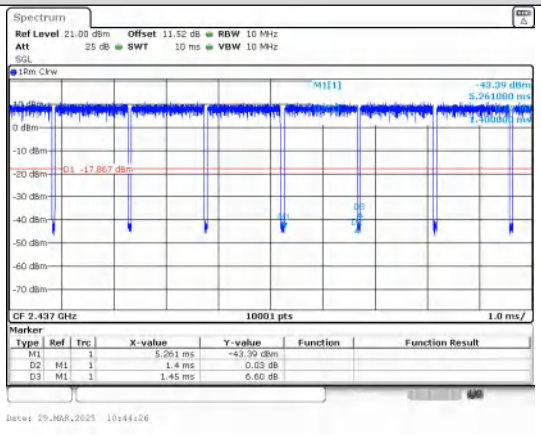
IEEE 802.11b_20MHz_Channel 6



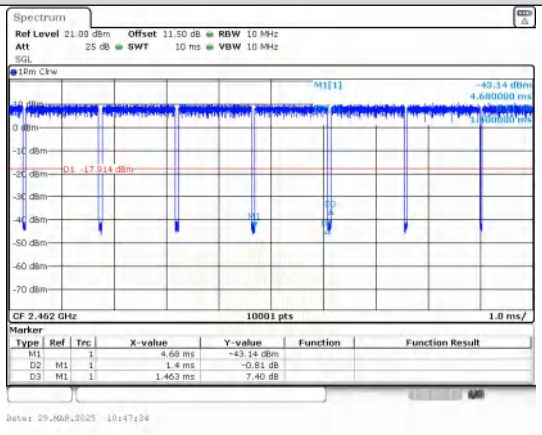
IEEE 802.11b_20MHz_Channel 11



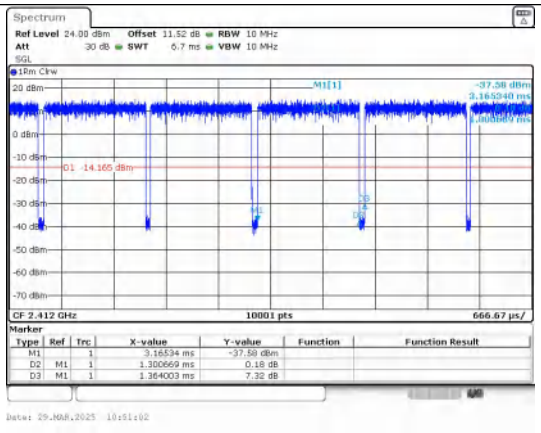
IEEE 802.11g_20MHz_Channel 1



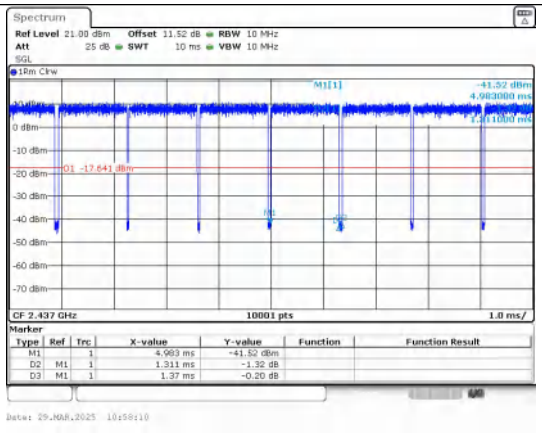
IEEE 802.11g_20MHz_Channel 6



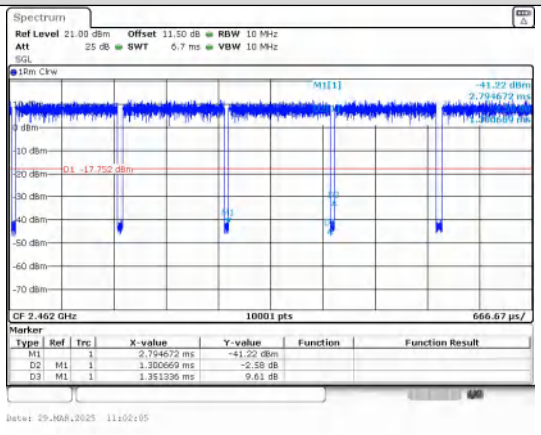
IEEE 802.11g_20MHz_Channel 11



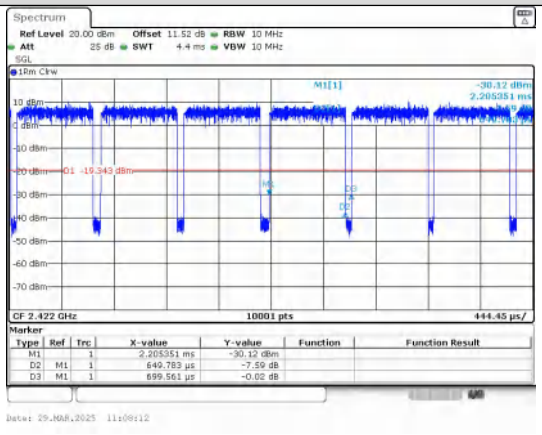
IEEE 802.11n_20MHz_Channel 1



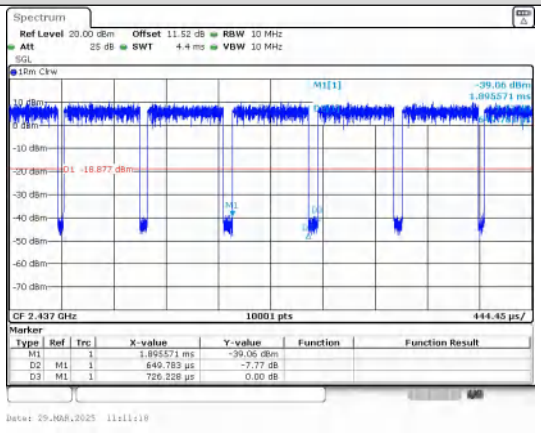
IEEE 802.11n_20MHz_Channel 6



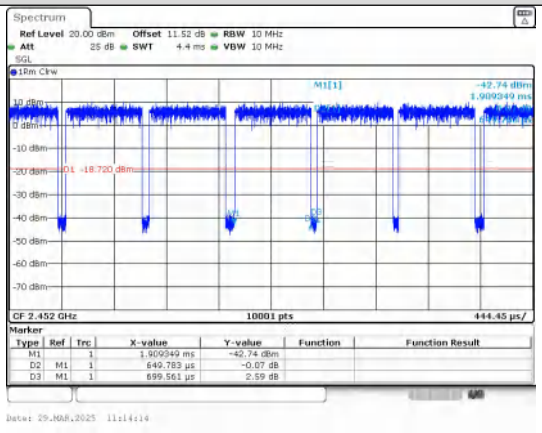
IEEE 802.11n_20MHz_Channel 11



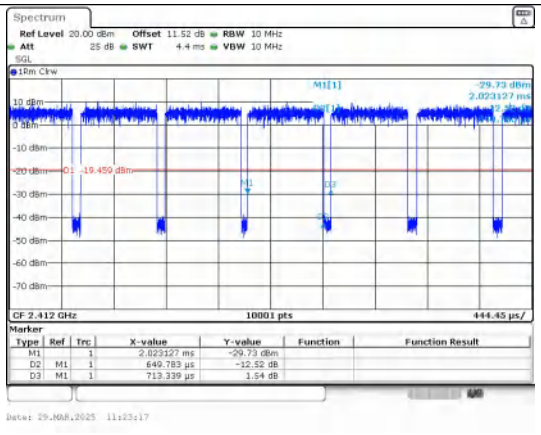
IEEE 802.11n_40MHz_Channel 3



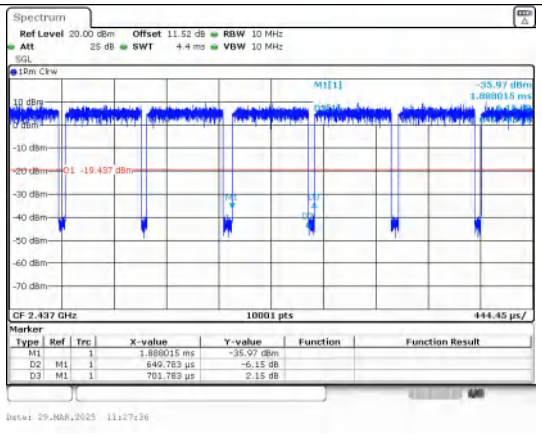
IEEE 802.11n_40MHz_Channel 6



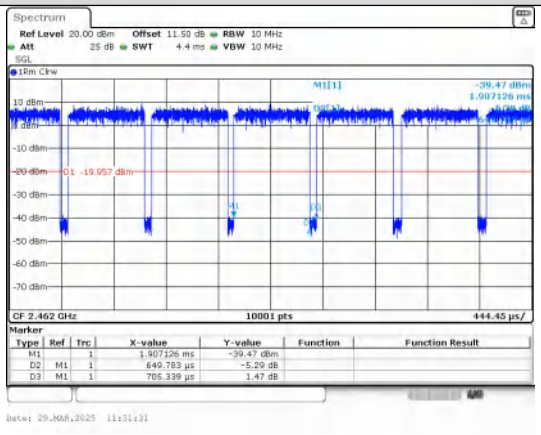
IEEE 802.11n_40MHz_Channel 9



IEEE 802.11ax_20MHz_Channel 1



IEEE 802.11ax_20MHz_Channel 6



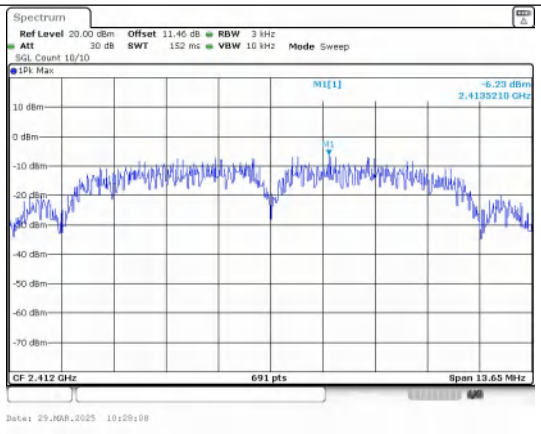
IEEE 802.11ax_20MHz_Channel 11

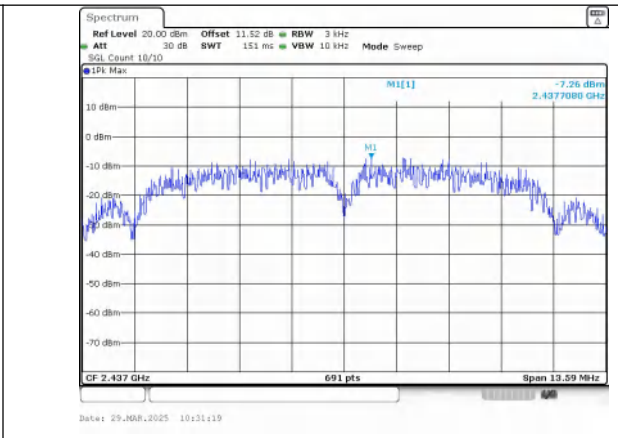
Power Spectral Density

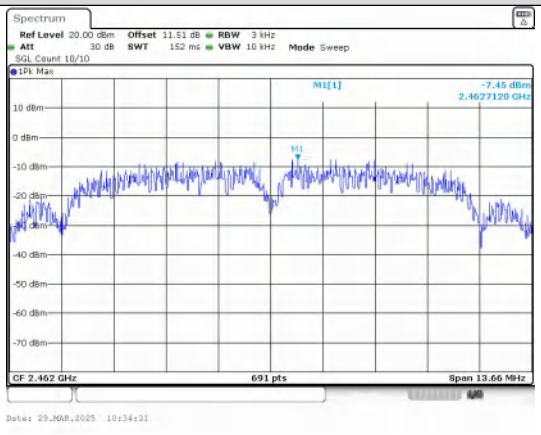
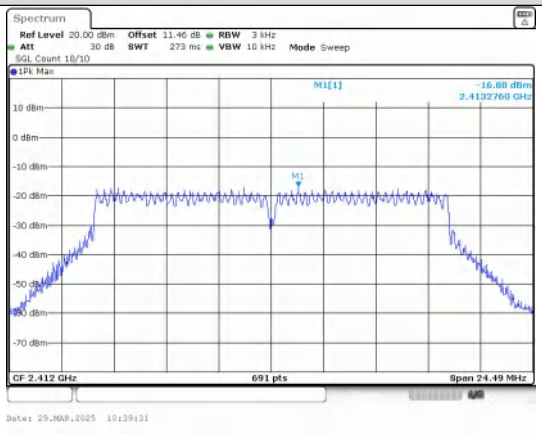
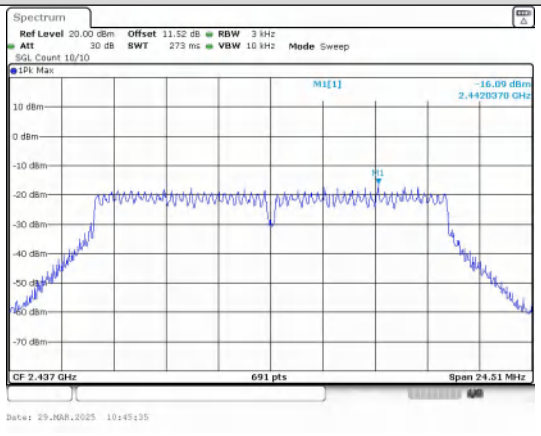
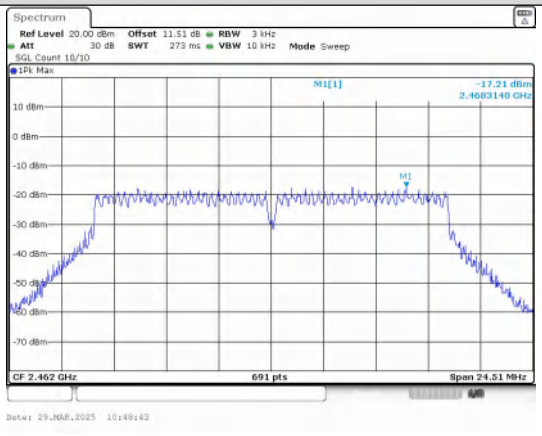
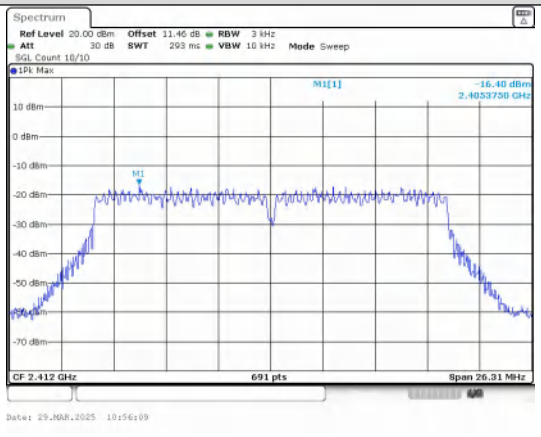
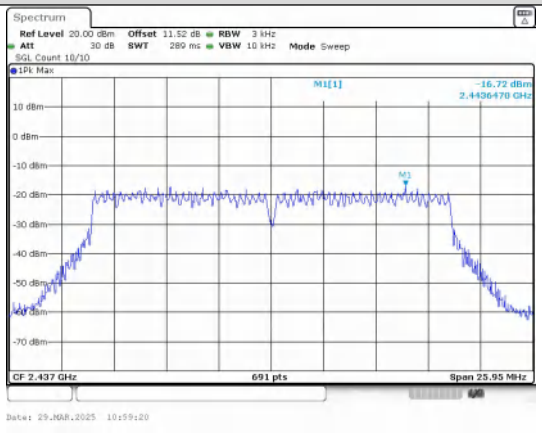
Test Result

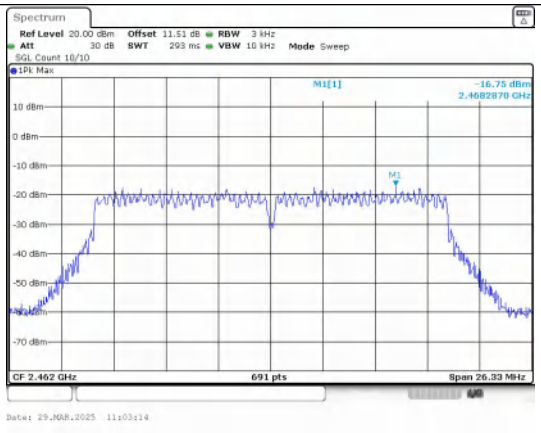
Mode	Channel	RU & Index	PSD (dBm/3kHz) Ant. 0	Limit (dBm/3kHz)	Result
IEEE 802.11b	1	N/A	-6.230	≤8	PASS
	6		-7.260		PASS
	11		-7.450		PASS
IEEE 802.11g	1		-16.880		PASS
	6		-16.090		PASS
	11		-17.210		PASS
IEEE 802.11n_20	1		-16.400		PASS
	6		-16.720		PASS
	11		-16.750		PASS
IEEE 802.11n_40	3		-20.420		PASS
	6		-19.700		PASS
	9		-20.470		PASS
IEEE 802.11ax_20	1	SU	-18.950		PASS
	6		-18.820		PASS
	11		-19.120		PASS

Test Graphs

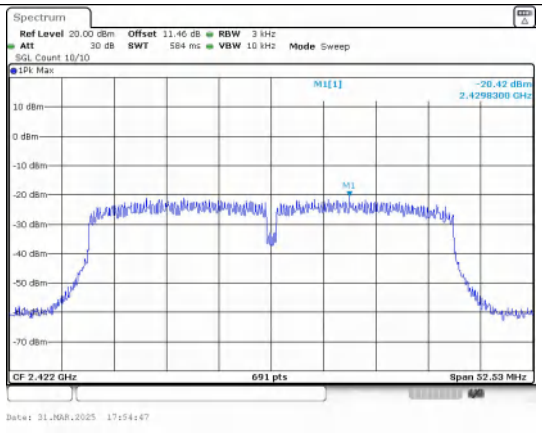




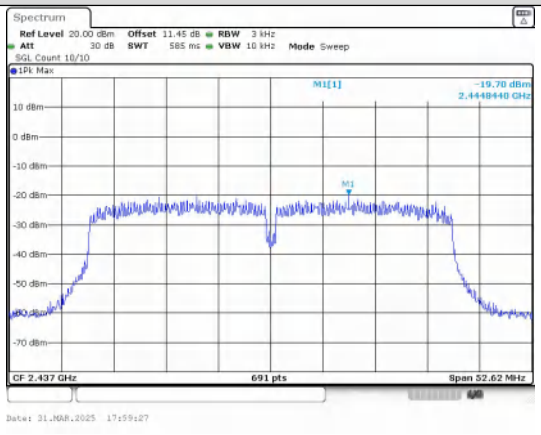
IEEE 802.11b_Channel 1_20MHz_Antenna 0	IEEE 802.11b_Channel 6_20MHz_Antenna 0
	
IEEE 802.11b_Channel 11_20MHz_Antenna 0	**IEEE 802.11g_Channel 1_20MHz_Antenna 0**
	
IEEE 802.11g_Channel 6_20MHz_Antenna 0	**IEEE 802.11g_Channel 11_20MHz_Antenna 0**
	
IEEE 802.11n_Channel 1_20MHz_Antenna 0	**IEEE 802.11n_Channel 6_20MHz_Antenna 0**



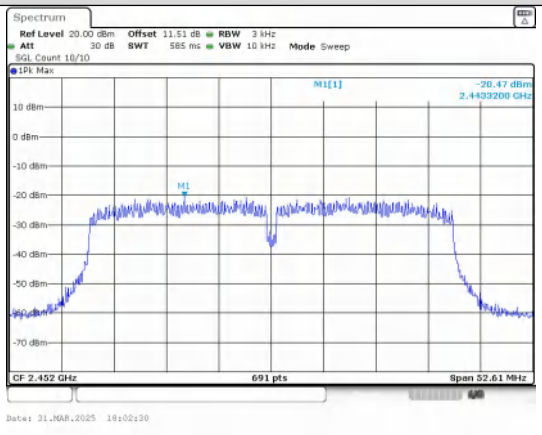
IEEE 802.11n_Channel 11_20MHz_Antenna 0



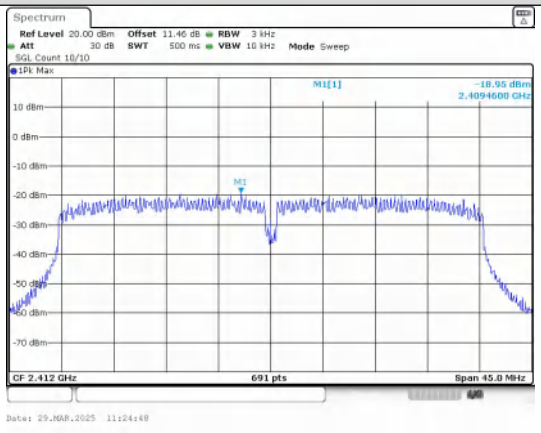
IEEE 802.11n_Channel 3_40MHz_Antenna 0



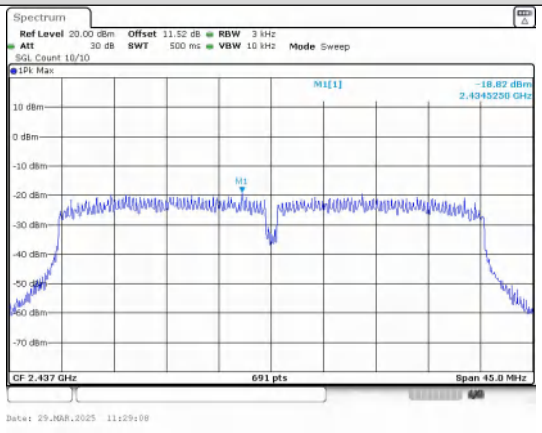
IEEE 802.11n_Channel 6_40MHz_Antenna 0



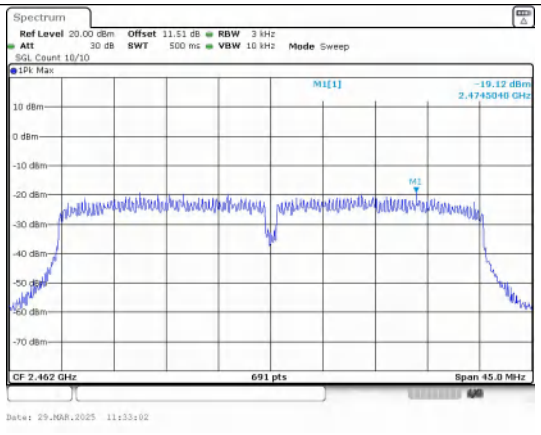
IEEE 802.11n_Channel 9_40MHz_Antenna 0



IEEE 802.11ax_Channel 1_20MHz_Antenna 0_RU&Index SU



IEEE 802.11ax_Channel 6_20MHz_Antenna 0_RU&Index SU



IEEE 802.11ax_Channel 11_20MHz_Antenna 0_RU&Index SU

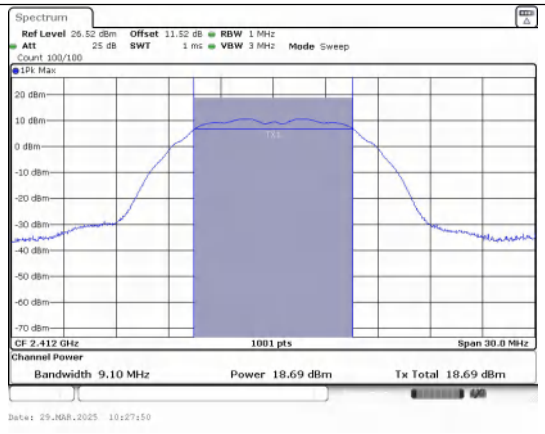
Conducted Output Power

Test Result

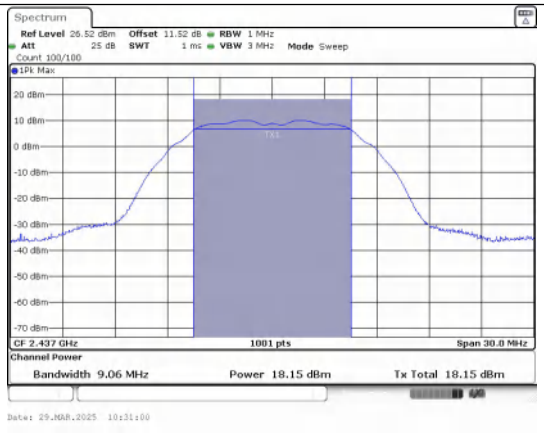
Conducted Output Power

Mode	Channel	Ant. 0 (dBm)	Limit (dBm)	Result
IEEE 802.11b	1	18.69	≤30	PASS
	6	18.15	≤30	PASS
	11	17.83	≤30	PASS
IEEE 802.11g	1	18.54	≤30	PASS
	6	18.07	≤30	PASS
	11	17.88	≤30	PASS
IEEE 802.11n_20	1	18.74	≤30	PASS
	6	18.35	≤30	PASS
	11	18.34	≤30	PASS
IEEE 802.11n_40	3	17.07	≤30	PASS
	6	17.11	≤30	PASS
	9	16.91	≤30	PASS
IEEE 802.11ax_20	1	17.92	≤30	PASS
	6	17.66	≤30	PASS
	11	17.48	≤30	PASS

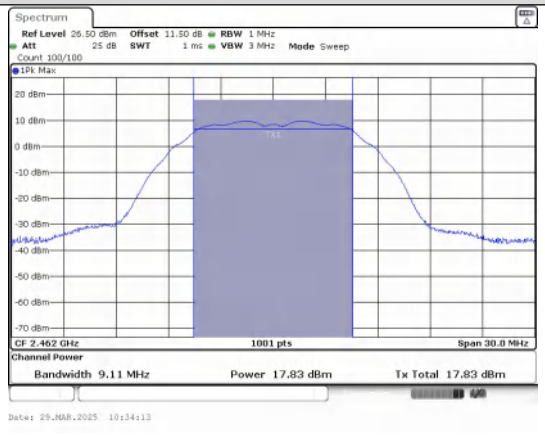
Test Graphs



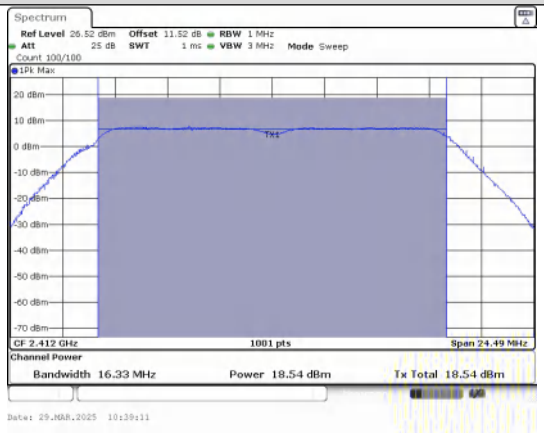
Conducted Output Power
IEEE 802.11b_Channel 1_Antenna 0



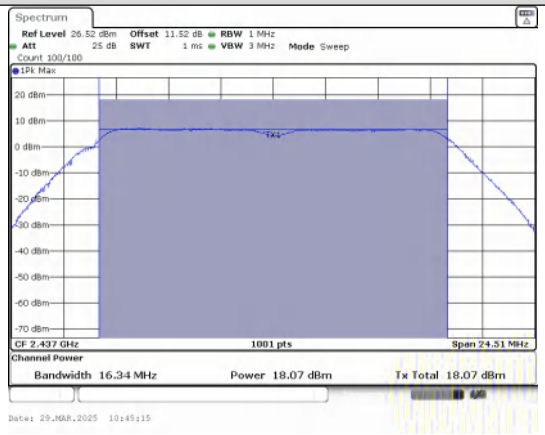
Conducted Output Power
IEEE 802.11b_Channel 6_Antenna 0



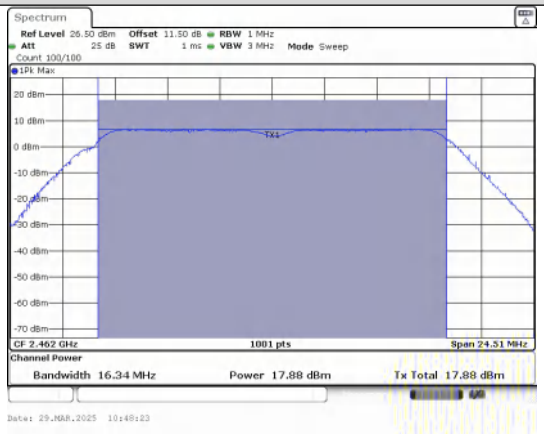
Conducted Output Power
IEEE 802.11b_Channel 11_Antenna 0



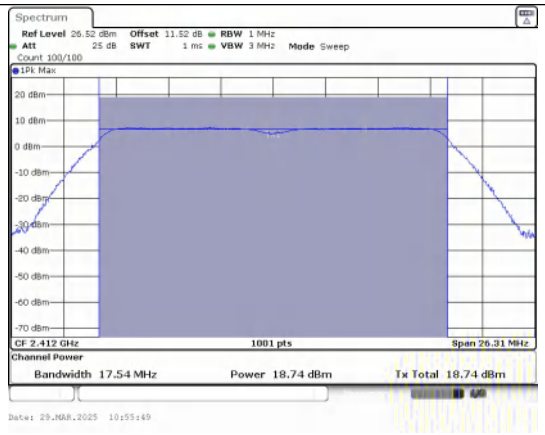
Conducted Output Power
IEEE 802.11g_Channel 1_Antenna 0



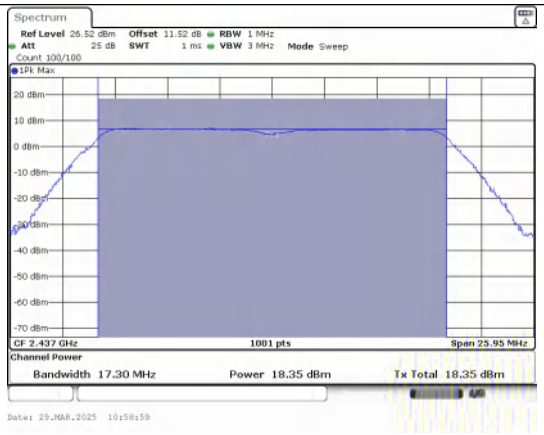
Conducted Output Power
IEEE 802.11g_Channel 6_Antenna 0



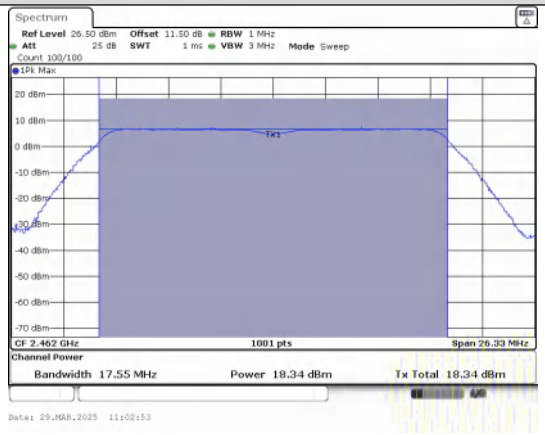
Conducted Output Power
IEEE 802.11g_Channel 11_Antenna 0



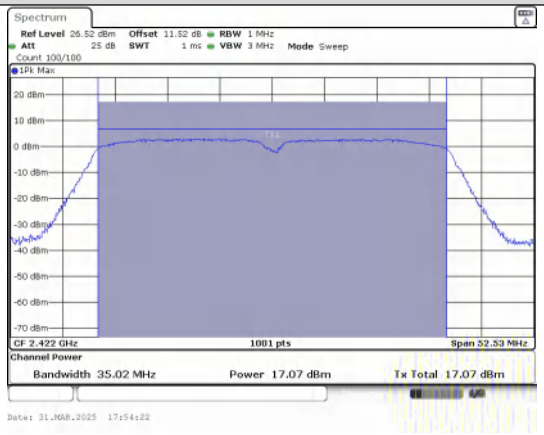
Conducted Output Power
IEEE 802.11n_20_Channel 1_Antenna 0



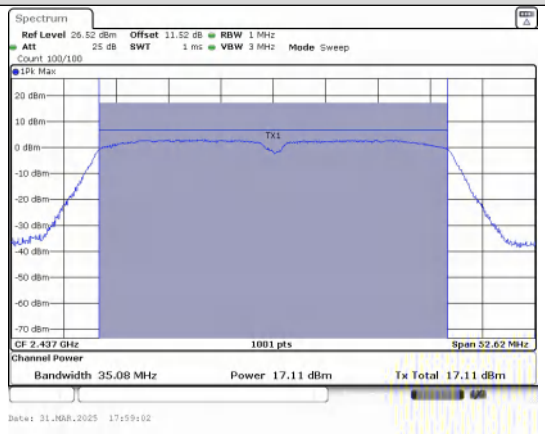
Conducted Output Power
IEEE 802.11n_20_Channel 6_Antenna 0



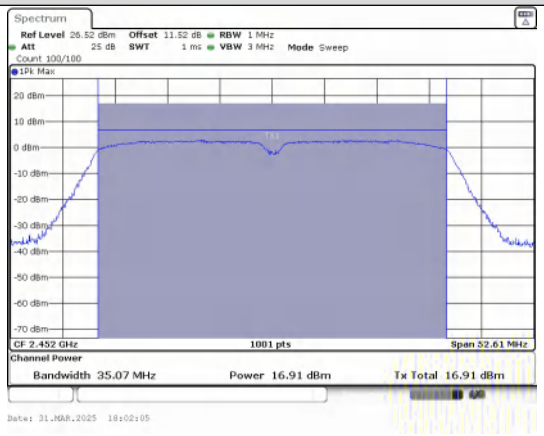
Conducted Output Power
IEEE 802.11n_20_Channel 11_Antenna 0



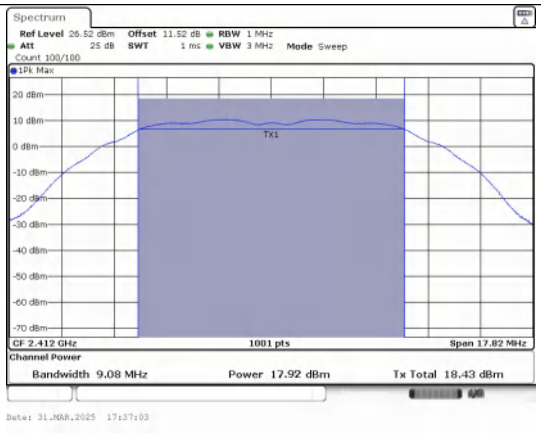
Conducted Output Power
IEEE 802.11n_40_Channel 3_Antenna 0



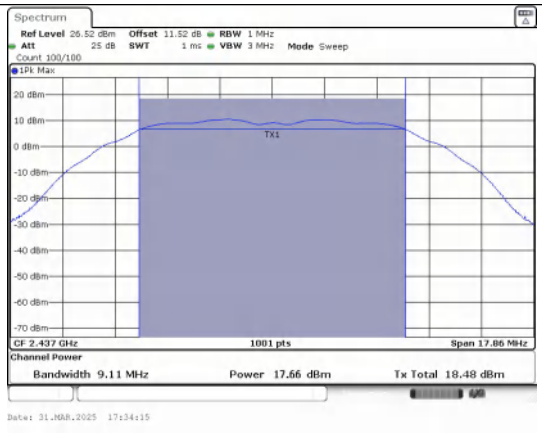
Conducted Output Power
IEEE 802.11n_40_Channel 6_Antenna 0



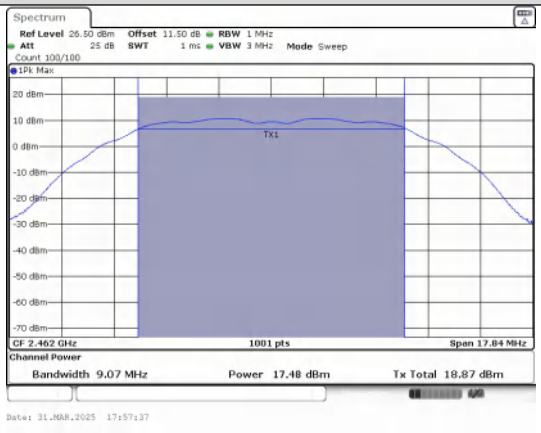
Conducted Output Power
IEEE 802.11n_40_Channel 9_Antenna 0



Conducted Output Power
IEEE 802.11ax_20_Channel 1_Antenna 0_RU&Index SU



Conducted Output Power
IEEE 802.11ax_20_Channel 6_Antenna 0_RU&Index SU



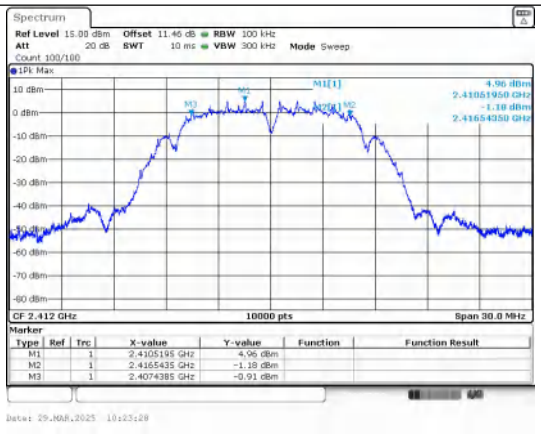
Conducted Output Power
IEEE 802.11ax_20_Channel 11_Antenna 0_RU&Index SU

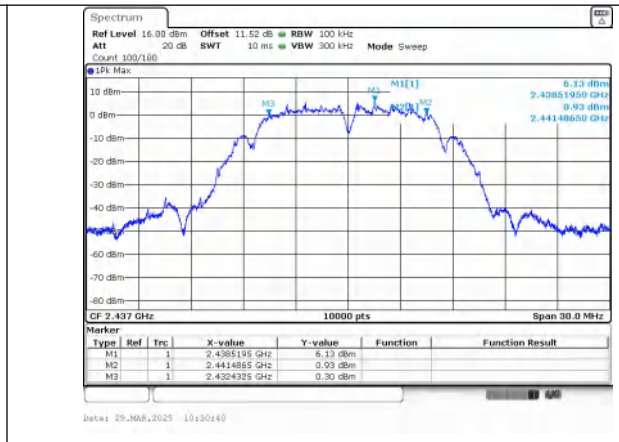
6dB Bandwidth

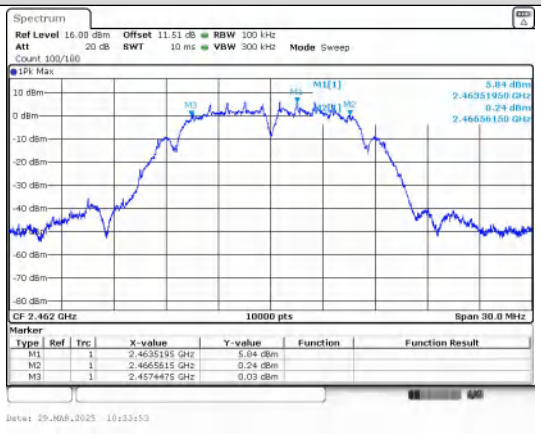
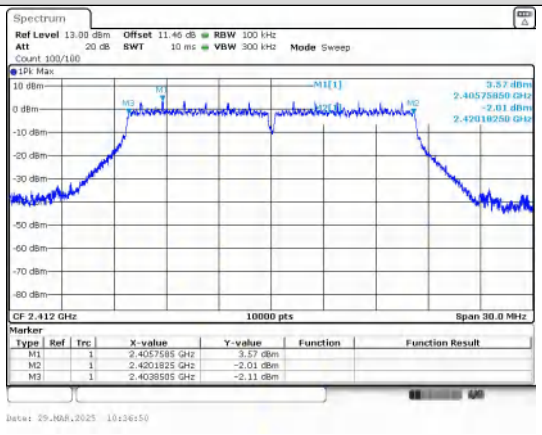
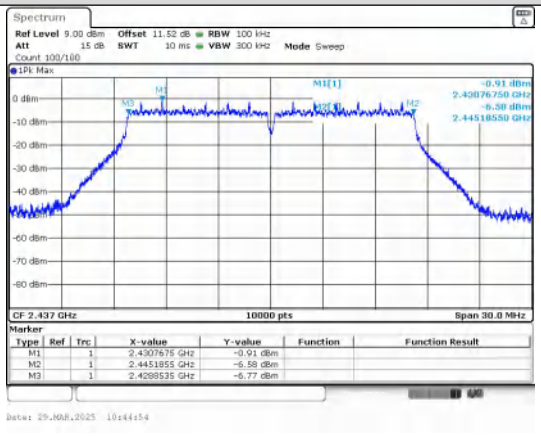
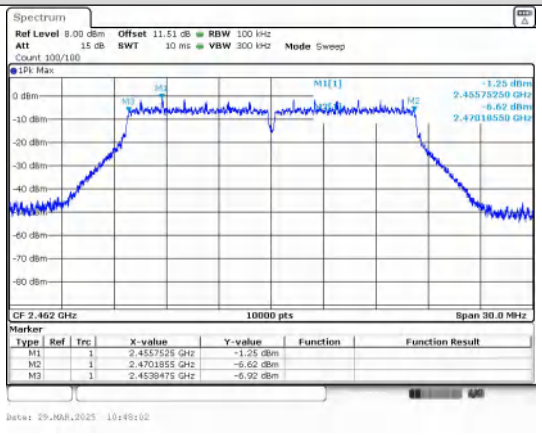
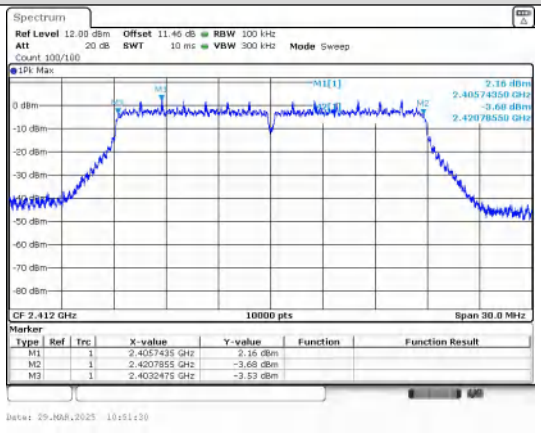
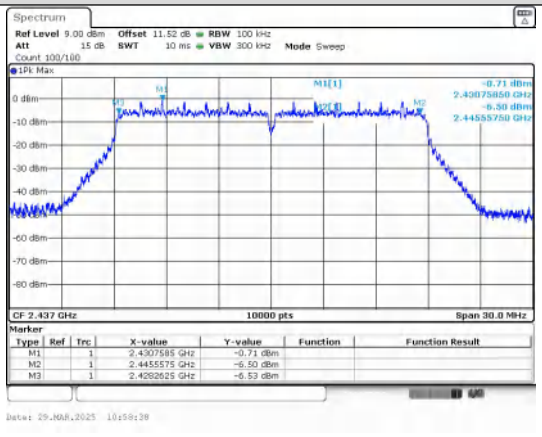
Test Result

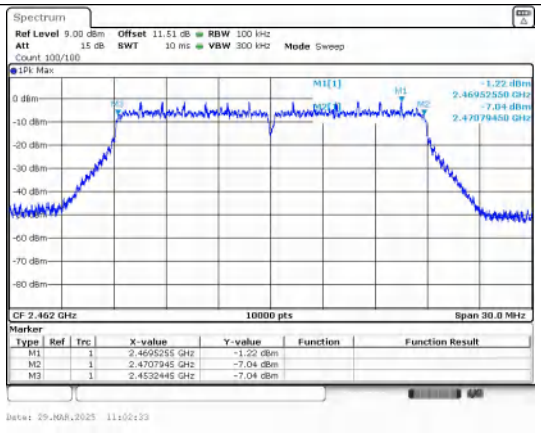
Mode	Channel	RU & Index	Ant.	Center Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
IEEE 802.11b	1	N/A	0	2412	9.100	≥0.5	PASS
	6			2437	9.060		PASS
	11			2462	9.110		PASS
IEEE 802.11g	1			2412	16.33		PASS
	6			2437	16.34		PASS
	11			2462	16.34		PASS
IEEE 802.11n_20	1			2412	17.54		PASS
	6			2437	17.30		PASS
	11			2462	17.55		PASS
IEEE 802.11n_40	3			2422	35.02		PASS
	6			2437	35.08		PASS
	9			2452	35.07		PASS
IEEE 802.11ax_20	1	SU		2412	9.079		PASS
	6			2437	9.109		PASS
	11			2462	9.069		PASS

Test Graphs

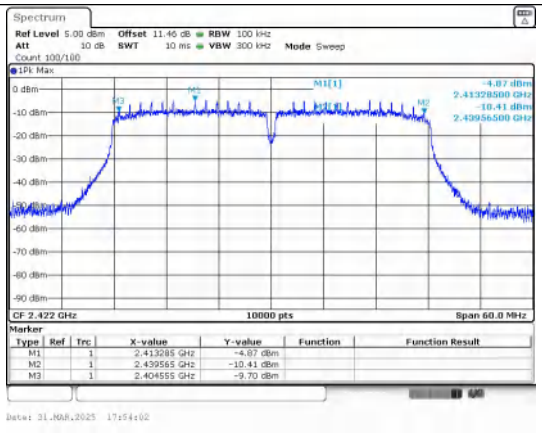




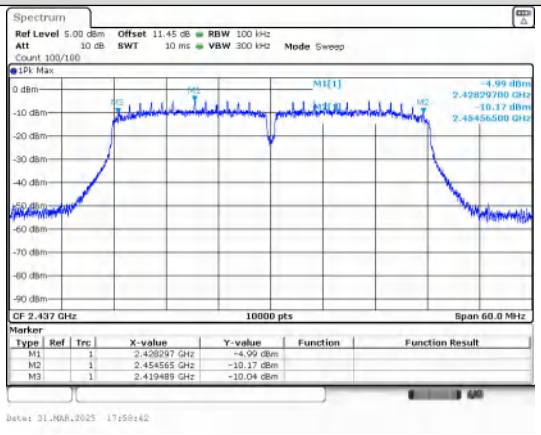
IEEE 802.11b_Channel 1_20MHz_Antenna 0	IEEE 802.11b_Channel 6_20MHz_Antenna 0
	
IEEE 802.11b_Channel 11_20MHz_Antenna 0	**IEEE 802.11g_Channel 1_20MHz_Antenna 0**
	
IEEE 802.11g_Channel 6_20MHz_Antenna 0	**IEEE 802.11g_Channel 11_20MHz_Antenna 0**
	
IEEE 802.11n_Channel 1_20MHz_Antenna 0	**IEEE 802.11n_Channel 6_20MHz_Antenna 0**



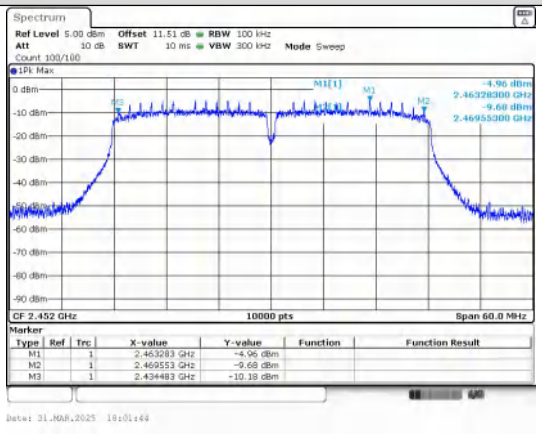
IEEE 802.11n_Channel 11_20MHz_Antenna 0



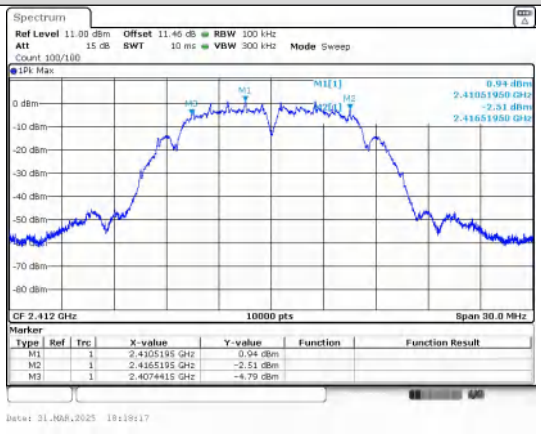
IEEE 802.11n_Channel 3_40MHz_Antenna 0



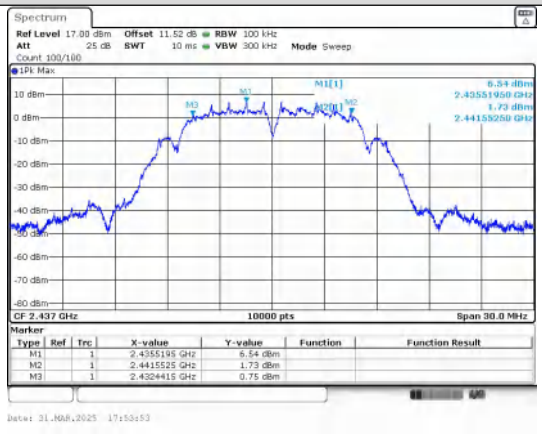
IEEE 802.11n_Channel 6_40MHz_Antenna 0



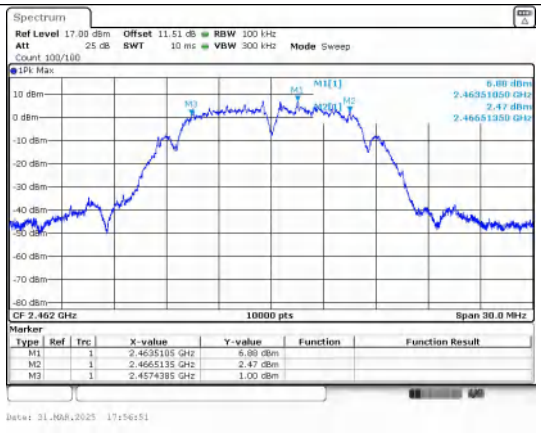
IEEE 802.11n_Channel 9_40MHz_Antenna 0



IEEE 802.11ax_Channel 1_20MHz_Antenna 0_RU&Index SU



IEEE 802.11ax_Channel 6_20MHz_Antenna 0_RU&Index SU



IEEE 802.11ax_Channel 11_20MHz_Antenna 0_RU&Index SU

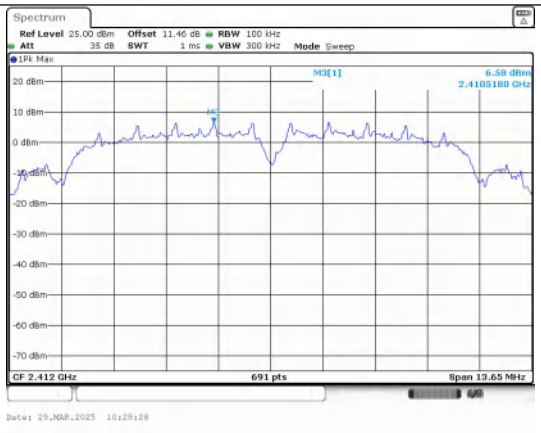
Conducted Out Of Band Emission

Test Result

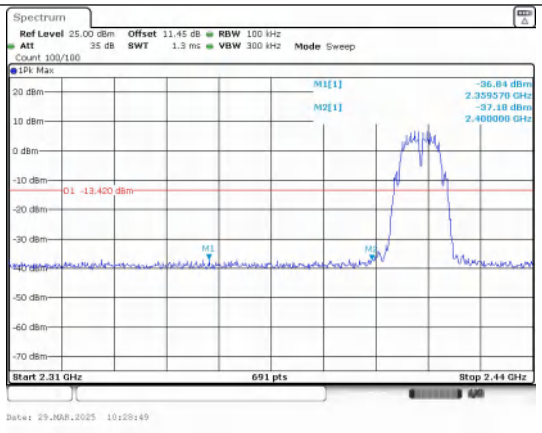
Mode	Channel	RU & Index	Ant.	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
IEEE 802.11b	1	N/A	0	2359.57	-36.836	-13.42	-23.416	PASS
				2400.00	-37.180	-13.42	-23.760	PASS
				6955.40	-43.002	-13.42	-29.582	PASS
	6			6986.23	-42.971	-13.92	-29.051	PASS
	11			2483.50	-39.300	-14.06	-25.240	PASS
				22042.3	-43.039	-14.06	-28.979	PASS
IEEE 802.11g	1			2349.60	-36.400	-20.7	-15.700	PASS
				2400.00	-37.930	-20.7	-17.230	PASS
				23359.1	-43.435	-20.7	-22.735	PASS
	6			6910.48	-42.540	-20.79	-21.750	PASS
	11			2483.50	-37.600	-21.37	-16.230	PASS
				5088.51	-42.855	-21.37	-21.485	PASS
IEEE 802.11n_20	1			2400.00	-36.700	-20.73	-15.970	PASS
				6852.22	-43.131	-20.73	-22.401	PASS
	6			6954.60	-43.225	-20.69	-22.535	PASS
	11			2483.50	-38.280	-20.93	-17.350	PASS
				22014.8	-42.120	-20.93	-21.190	PASS
IEEE 802.11n_40	3			2398.52	-36.475	-24.79	-11.685	PASS
				2400.00	-39.340	-24.79	-14.550	PASS
				6977.10	-42.914	-24.79	-18.124	PASS
	6			22054.0	-42.935	-24.65	-18.285	PASS
	9			2483.50	-38.350	-24.99	-13.360	PASS
				6946.27	-43.052	-24.99	-18.062	PASS
IEEE	1	SU		2356.67	-36.665	-18.99	-17.675	PASS

802.11ax_20				2400.00	-37.580	-18.99	-18.590	PASS
				6911.50	-43.225	-18.99	-24.235	PASS
	6			6985.56	-42.922	-13.67	-29.252	PASS
	11			2483.50	-37.670	-13.12	-24.550	PASS
				6189.88	-43.336	-13.12	-30.216	PASS

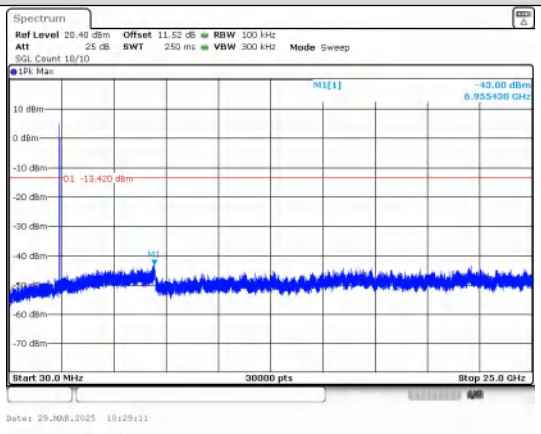
Test Graphs



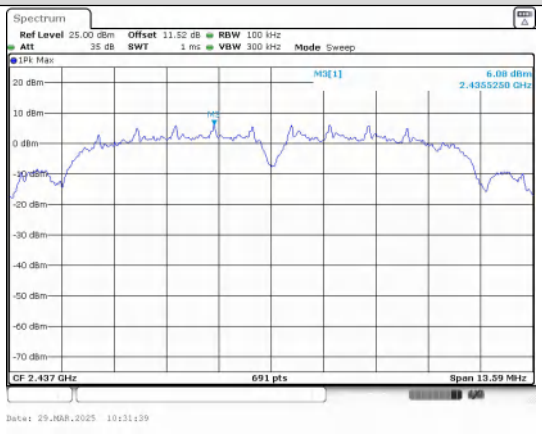
In-Band Reference Level
IEEE 802.11b_Channel 1_20MHz_Antenna 0



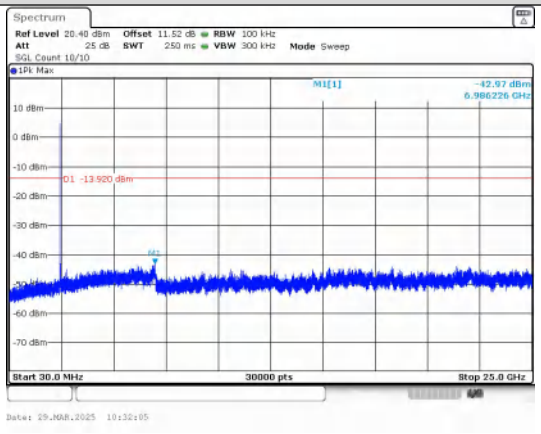
Out Of Band Emission
IEEE 802.11b_Channel 1_20MHz_Antenna 0

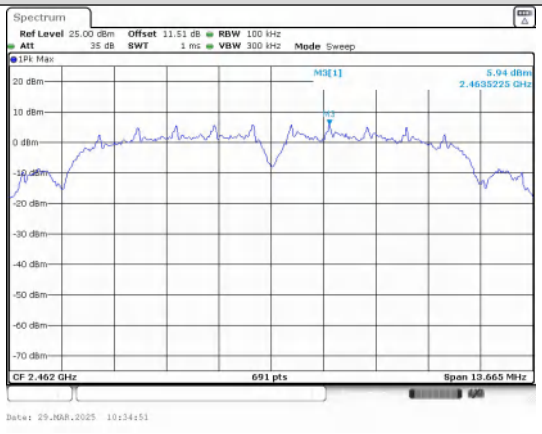


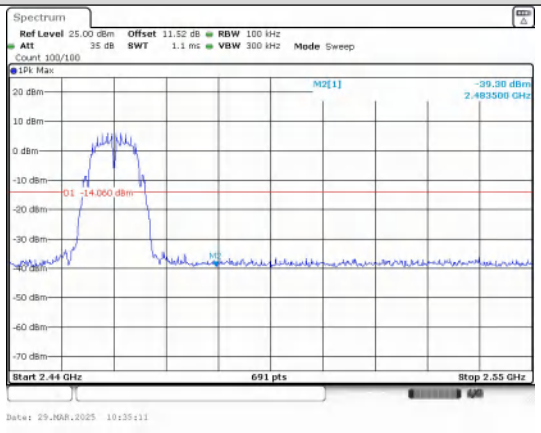
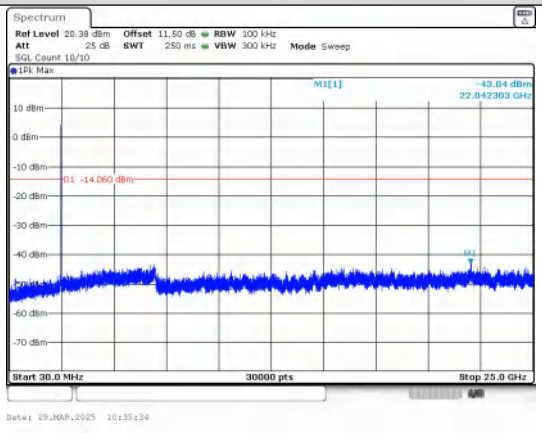
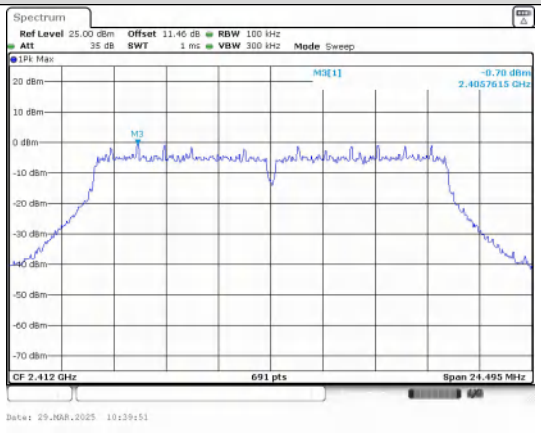
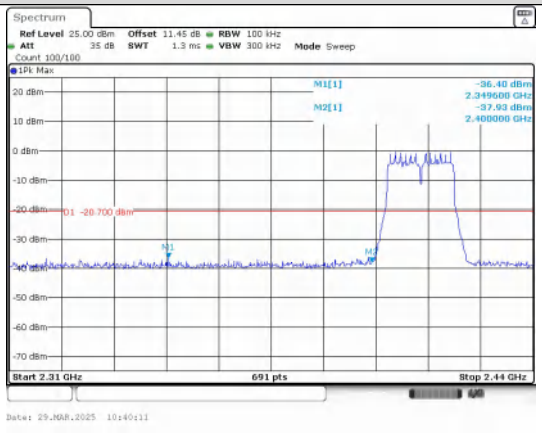
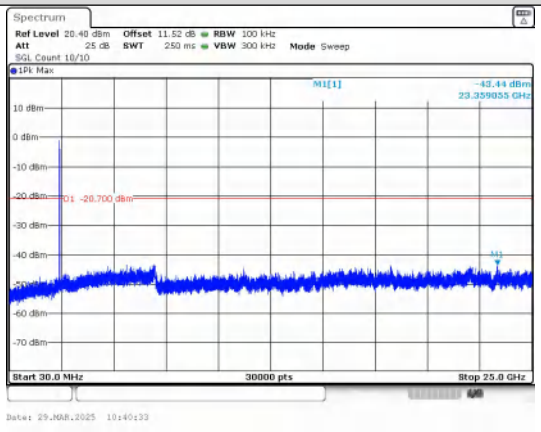
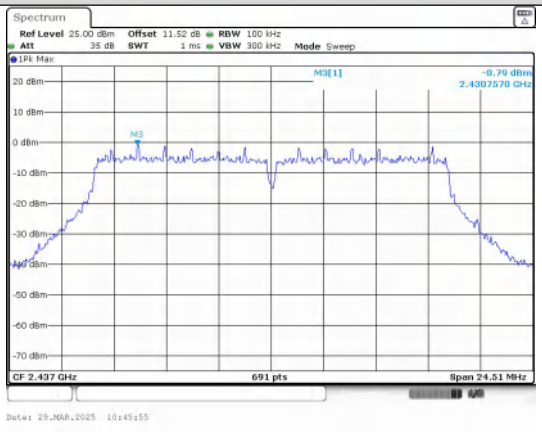
30.0 MHz - 25000.0 MHz
IEEE 802.11b_Channel 1_20MHz_Antenna 0

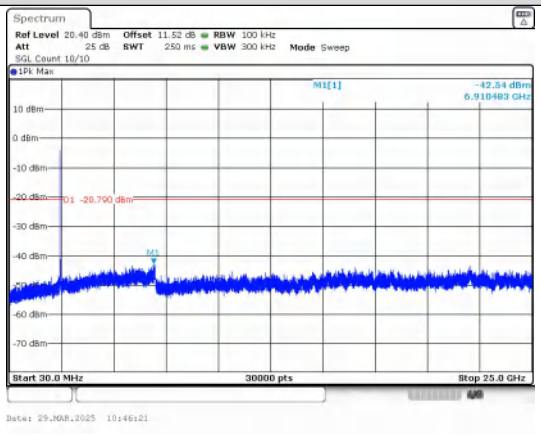
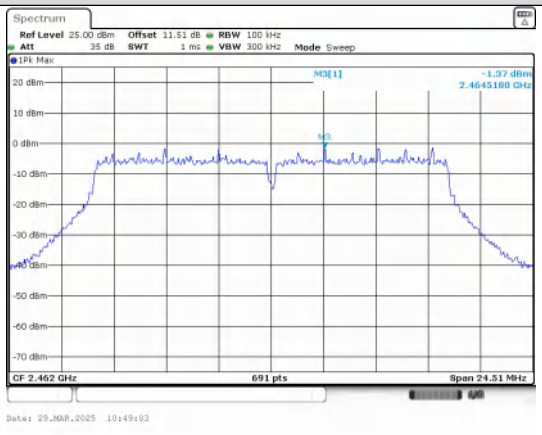
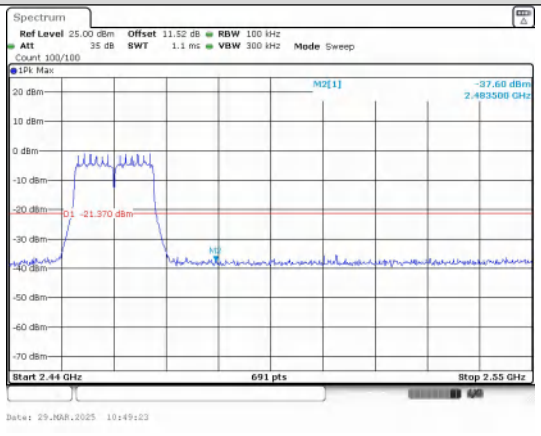
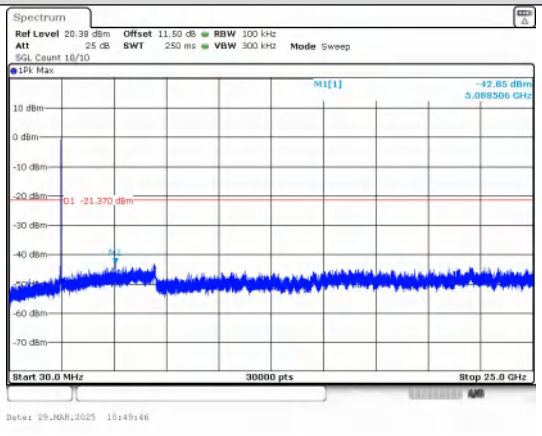
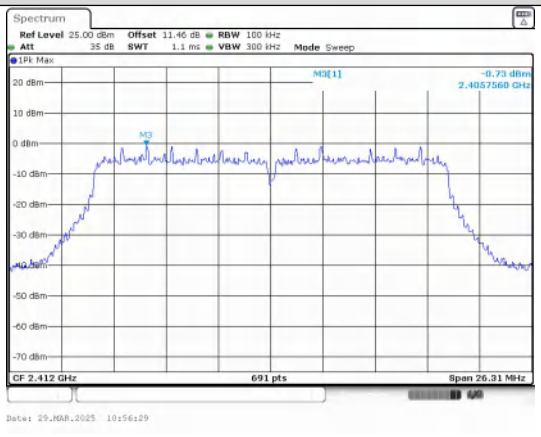
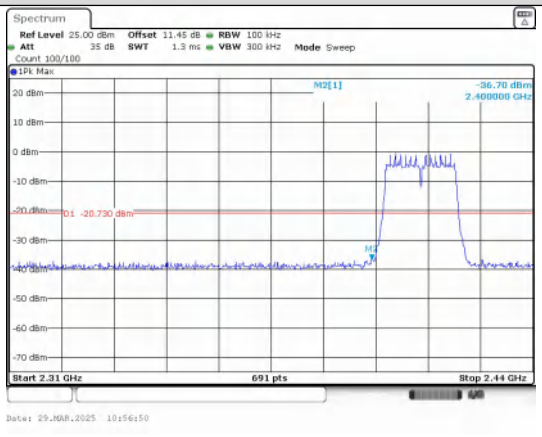


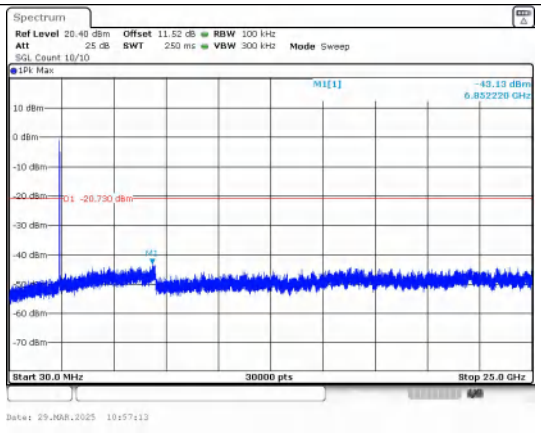
In-Band Reference Level
IEEE 802.11b_Channel 6_20MHz_Antenna 0



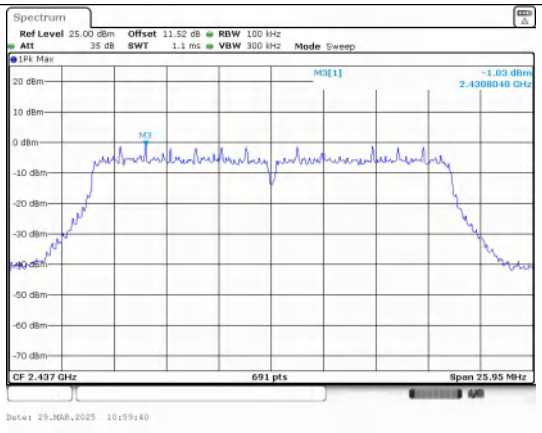


30.0 MHz - 25000.0 MHz IEEE 802.11b_Channel 6_20MHz_Antenna 0	In-Band Reference Level IEEE 802.11b_Channel 11_20MHz_Antenna 0
	
Out Of Band Emission IEEE 802.11b_Channel 11_20MHz_Antenna 0	**30.0 MHz - 25000.0 MHz IEEE 802.11b_Channel 11_20MHz_Antenna 0**
	
In-Band Reference Level IEEE 802.11g_Channel 1_20MHz_Antenna 0	**Out Of Band Emission IEEE 802.11g_Channel 1_20MHz_Antenna 0**
	
30.0 MHz - 25000.0 MHz	**In-Band Reference Level**

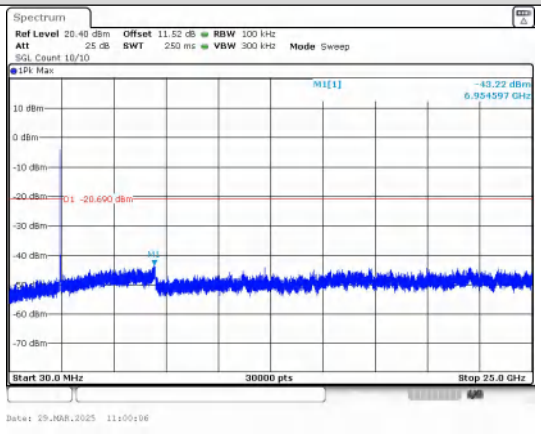
IEEE 802.11g_Channel 1_20MHz_Antenna 0	IEEE 802.11g_Channel 6_20MHz_Antenna 0
	
30.0 MHz - 25000.0 MHz IEEE 802.11g_Channel 6_20MHz_Antenna 0	**In-Band Reference Level IEEE 802.11g_Channel 11_20MHz_Antenna 0**
	
Out Of Band Emission IEEE 802.11g_Channel 11_20MHz_Antenna 0	**30.0 MHz - 25000.0 MHz IEEE 802.11g_Channel 11_20MHz_Antenna 0**
	
In-Band Reference Level IEEE 802.11n_Channel 1_20MHz_Antenna 0	**Out Of Band Emission IEEE 802.11n_Channel 1_20MHz_Antenna 0**



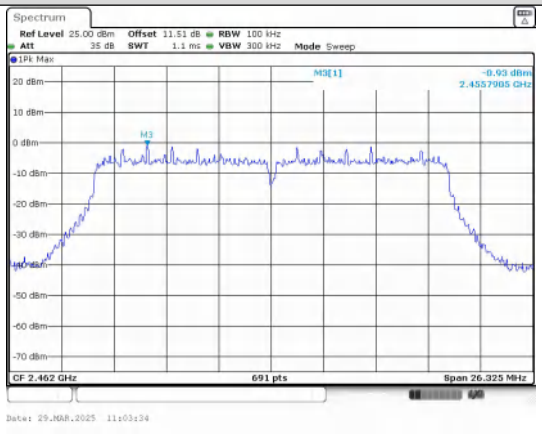
30.0 MHz - 25000.0 MHz
IEEE 802.11n_Channel 1_20MHz_Antenna 0



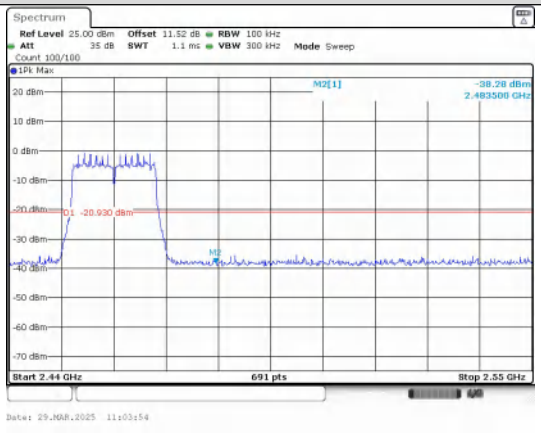
In-Band Reference Level
IEEE 802.11n_Channel 6_20MHz_Antenna 0



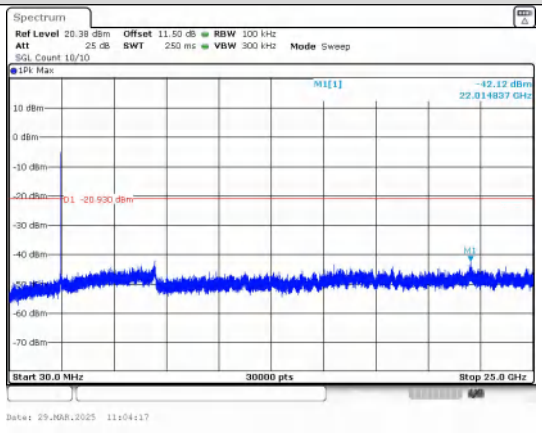
30.0 MHz - 25000.0 MHz
IEEE 802.11n_Channel 6_20MHz_Antenna 0



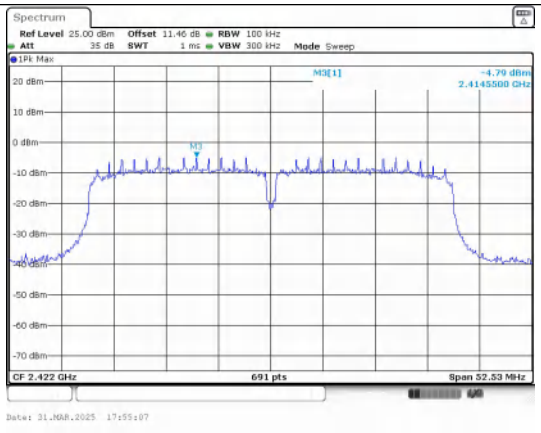
In-Band Reference Level
IEEE 802.11n_Channel 11_20MHz_Antenna 0



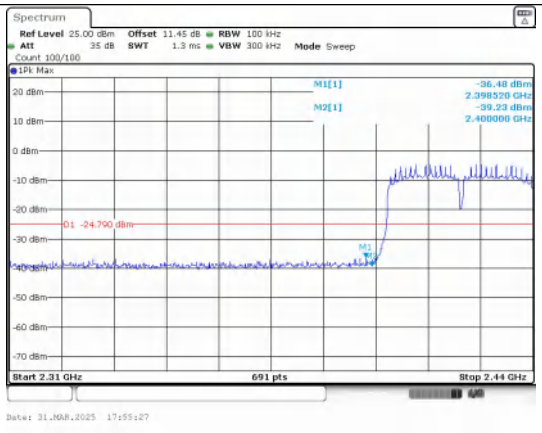
Out Of Band Emission
IEEE 802.11n_Channel 11_20MHz_Antenna 0



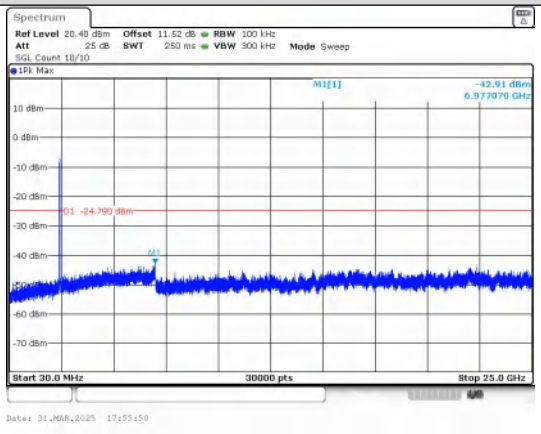
30.0 MHz - 25000.0 MHz
IEEE 802.11n_Channel 11_20MHz_Antenna 0



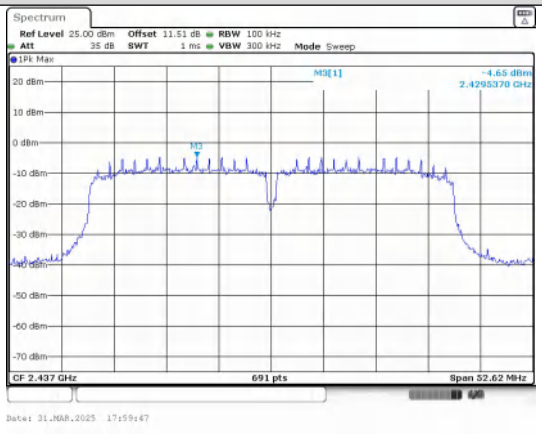
In-Band Reference Level
IEEE 802.11n_Channel 3_40MHz_Antenna 0



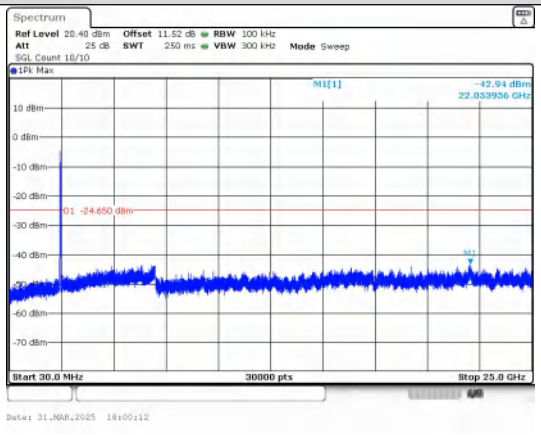
Out Of Band Emission
IEEE 802.11n_Channel 3_40MHz_Antenna 0



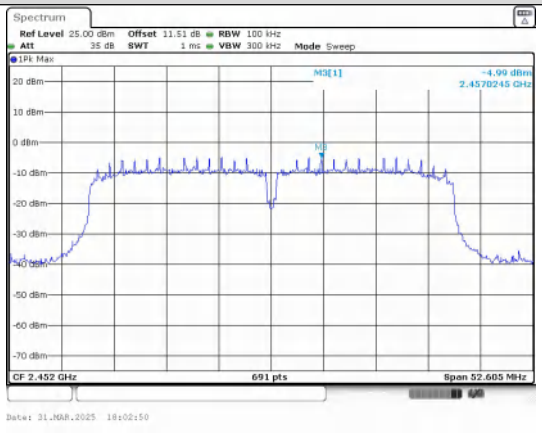
30.0 MHz - 25000.0 MHz
IEEE 802.11n_Channel 3_40MHz_Antenna 0



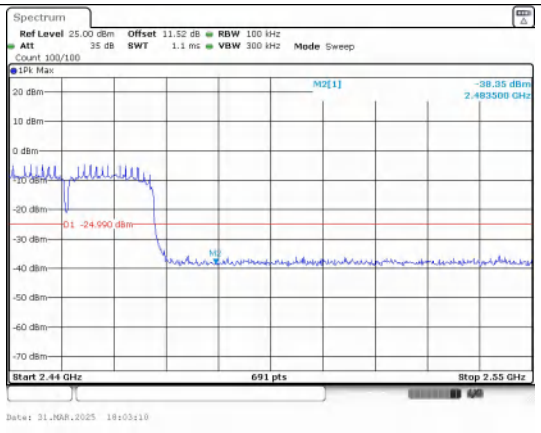
In-Band Reference Level
IEEE 802.11n_Channel 6_40MHz_Antenna 0



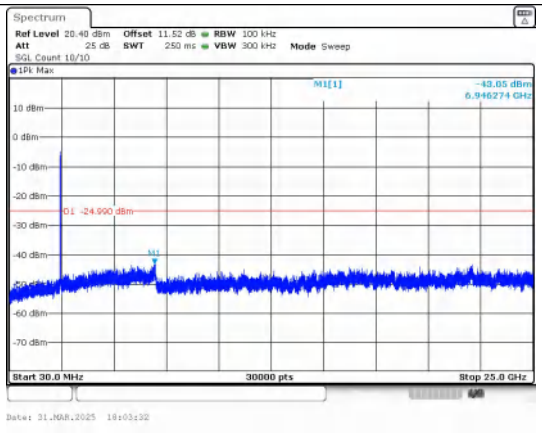
30.0 MHz - 25000.0 MHz
IEEE 802.11n_Channel 6_40MHz_Antenna 0



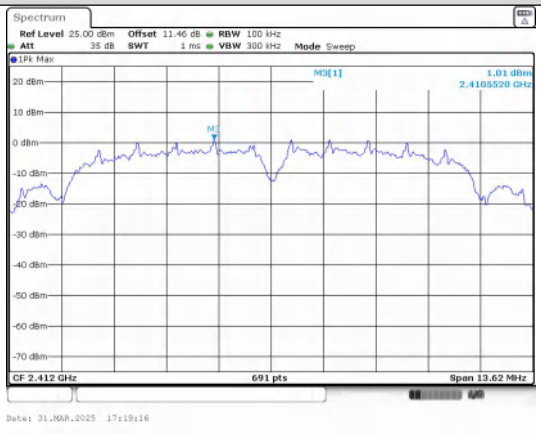
In-Band Reference Level
IEEE 802.11n_Channel 9_40MHz_Antenna 0



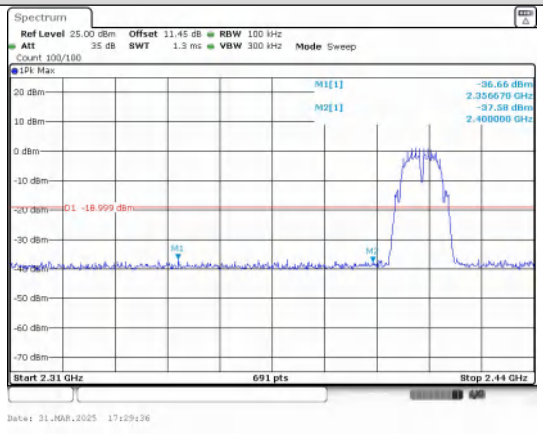
Out Of Band Emission
IEEE 802.11n_Channel 9_40MHz_Antenna 0



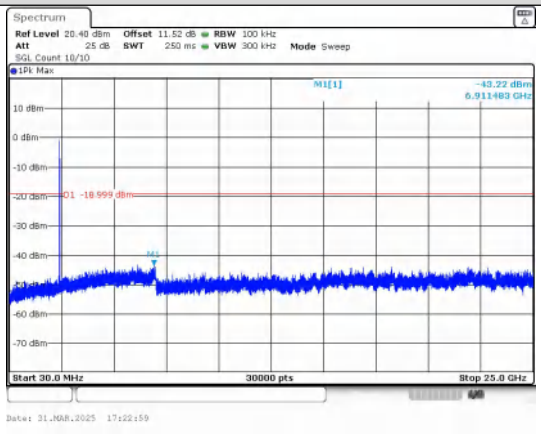
30.0 MHz - 25000.0 MHz
IEEE 802.11n_Channel 9_40MHz_Antenna 0



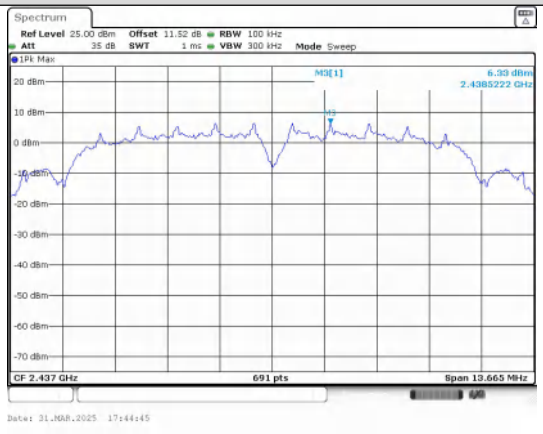
In-Band Reference Level
IEEE 802.11ax_Channel 1_20MHz_Antenna 0_RU&Index SU



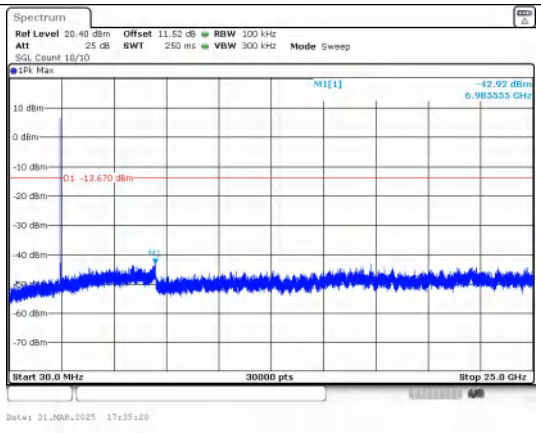
Out Of Band Emission
IEEE 802.11ax_Channel 1_20MHz_Antenna 0_RU&Index SU



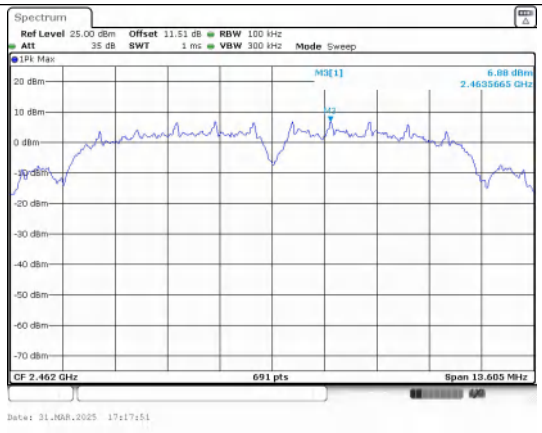
30.0 MHz - 25000.0 MHz
IEEE 802.11ax_Channel 1_20MHz_Antenna 0_RU&Index SU



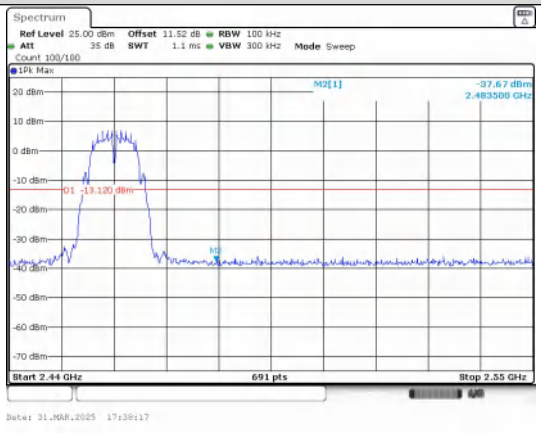
In-Band Reference Level
IEEE 802.11ax_Channel 6_20MHz_Antenna 0_RU&Index SU



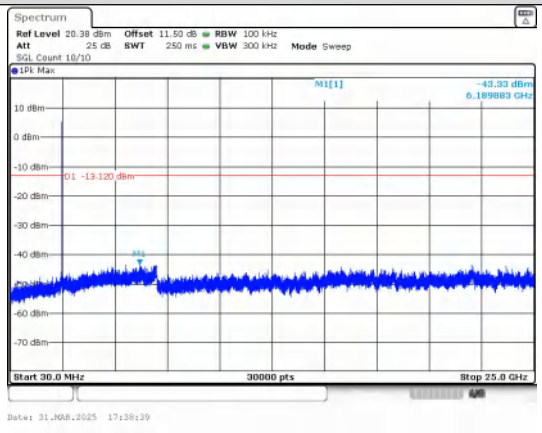
30.0 MHz - 25000.0 MHz
IEEE 802.11ax_Channel 6_20MHz_Antenna 0_RU&Index SU



In-Band Reference Level
IEEE 802.11ax_Channel 11_20MHz_Antenna 0_RU&Index SU



Out Of Band Emission
IEEE 802.11ax_Channel 11_20MHz_Antenna 0_RU&Index SU



30.0 MHz - 25000.0 MHz
IEEE 802.11ax_Channel 11_20MHz_Antenna 0_RU&Index SU

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