



BUREAU
VERITAS

Test Report No.: W7L-P23050004-1RF02

TEST GRAPHS

11B_Ant1_Low_2412



11B_Ant1_High_2462



11G_Ant1_Low_2412



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Test Report No.: W7L-P23050004-1RF02



11G_Ant1_High_2462

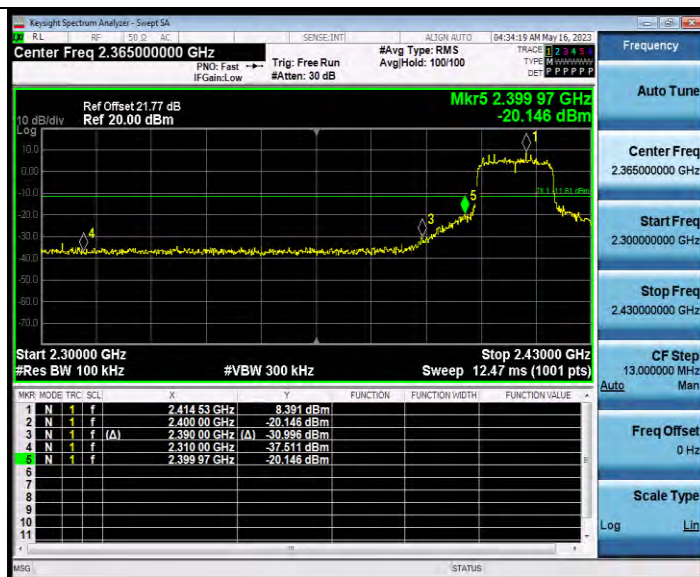


11N20SISO_Ant1_Low_2412



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Test Report No.: W7L-P23050004-1RF02



11N20SISO_Ant1_High_2462



11N40SISO_Ant1_Low_2422



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Test Report No.: W7L-P23050004-1RF02



11N40SISO_Ant1_High_2452



**CONDUCTED SPURIOUS EMISSION****TEST RESULT**

TestMode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	11.80	11.80	---	PASS
			30~1000	11.80	-43.04	≤-8.2	PASS
			1000~26500	11.80	-23.48	≤-8.2	PASS
		2437	Reference	12.00	12.00	---	PASS
			30~1000	12.00	-43.64	≤-8	PASS
			1000~26500	12.00	-23.7	≤-8	PASS
		2462	Reference	13.30	13.30	---	PASS
			30~1000	13.30	-43.35	≤-6.7	PASS
			1000~26500	13.30	-24.11	≤-6.7	PASS
11G	Ant1	2412	Reference	6.47	6.47	---	PASS
			30~1000	6.47	-43.17	≤-13.53	PASS
			1000~26500	6.47	-23.66	≤-13.53	PASS
		2437	Reference	5.58	5.58	---	PASS
			30~1000	5.58	-43.48	≤-14.42	PASS
			1000~26500	5.58	-23.13	≤-14.42	PASS
		2462	Reference	8.31	8.31	---	PASS
			30~1000	8.31	-42.86	≤-11.69	PASS
			1000~26500	8.31	-23.98	≤-11.69	PASS
11N20SISO	Ant1	2412	Reference	5.34	5.34	---	PASS
			30~1000	5.34	-43.39	≤-14.66	PASS
			1000~26500	5.34	-23.25	≤-14.66	PASS
		2437	Reference	5.71	5.71	---	PASS
			30~1000	5.71	-43.63	≤-14.29	PASS
			1000~26500	5.71	-22.69	≤-14.29	PASS
		2462	Reference	8.68	8.68	---	PASS
			30~1000	8.68	-43.05	≤-11.32	PASS
			1000~26500	8.68	-23.51	≤-11.32	PASS
11N40SISO	Ant1	2422	Reference	4.42	4.42	---	PASS
			30~1000	4.42	-42.85	≤-15.58	PASS



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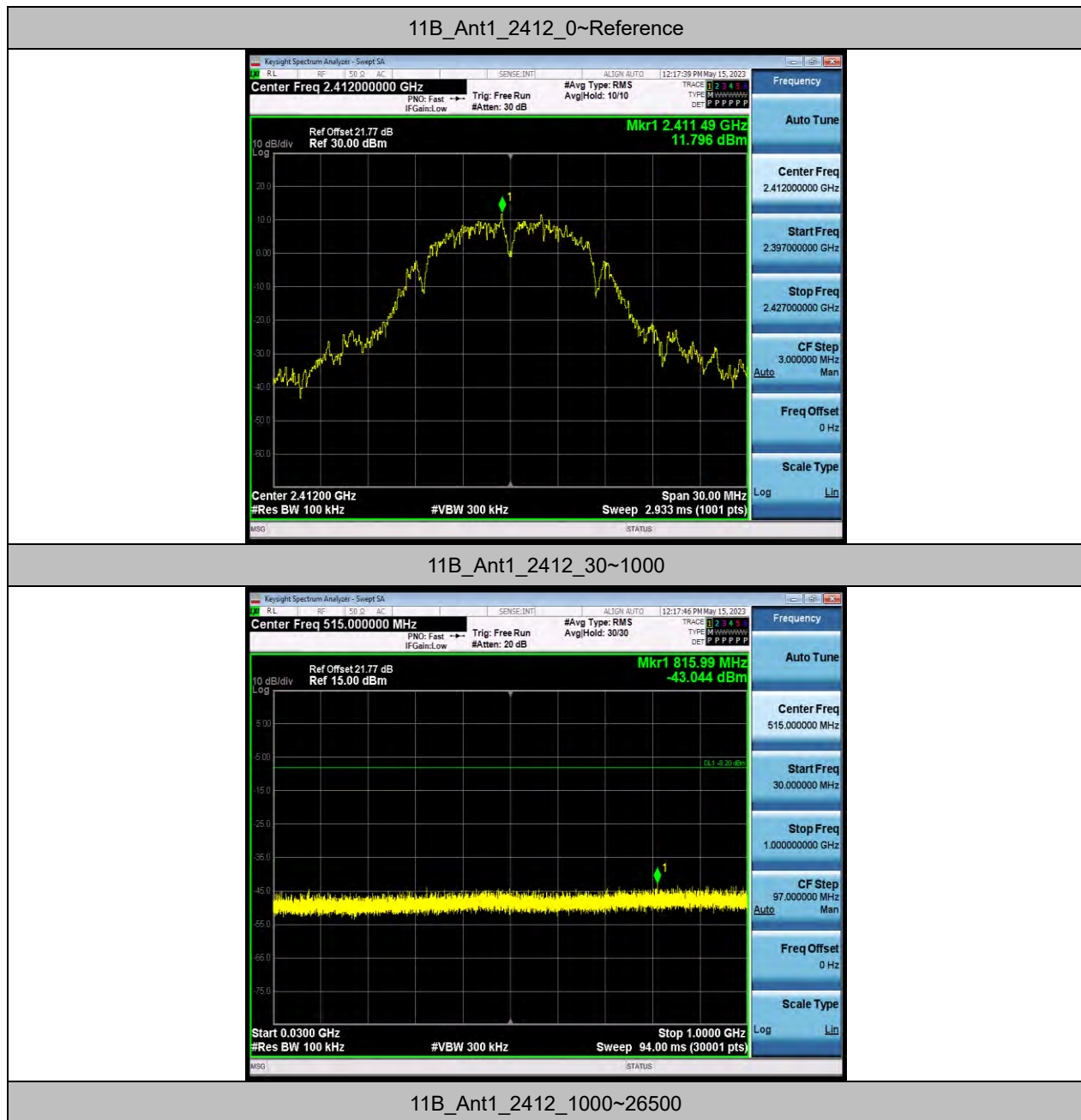
			1000~26500	4.42	-23.5	≤ -15.58	PASS
		2437	Reference	4.52	4.52	---	PASS
			30~1000	4.52	-43.69	≤ -15.48	PASS
			1000~26500	4.52	-24.05	≤ -15.48	PASS
		2452	Reference	5.61	5.61	---	PASS
			30~1000	5.61	-43.65	≤ -14.39	PASS
			1000~26500	5.61	-24.12	≤ -14.39	PASS



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TEST GRAPHS





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11B_Ant1_2437_0~Reference

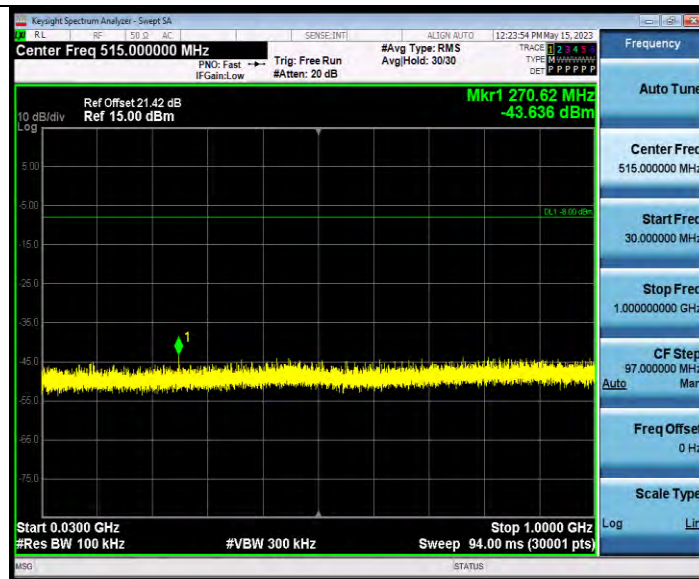


11B_Ant1_2437_30~1000



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Test Report No.: W7L-P23050004-1RF02



11B_Ant1_2437_1000~26500



11B_Ant1_2462_0~Reference



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Test Report No.: W7L-P23050004-1RF02



11B_Ant1_2462_30~1000



11B_Ant1_2462_1000~26500



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Test Report No.: W7L-P23050004-1RF02



11G_Ant1_2412_0~Reference

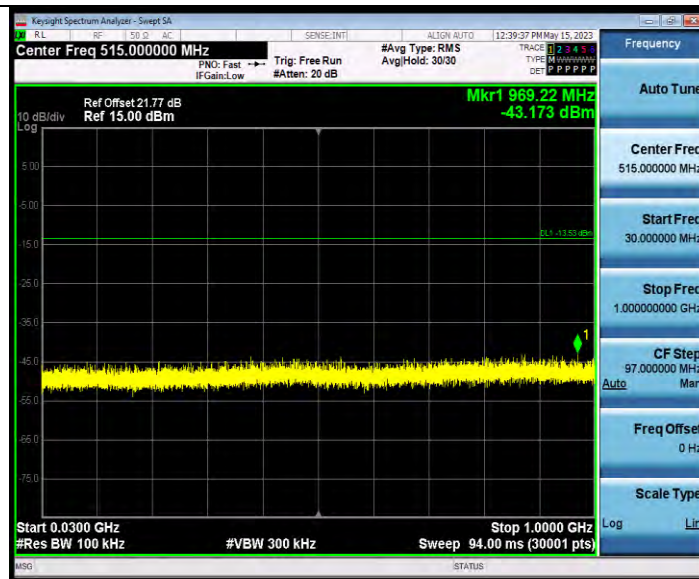


11G_Ant1_2412_30~1000



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Test Report No.: W7L-P23050004-1RF02



11G_Ant1_2412_1000~26500



11G_Ant1_2437_0~Reference

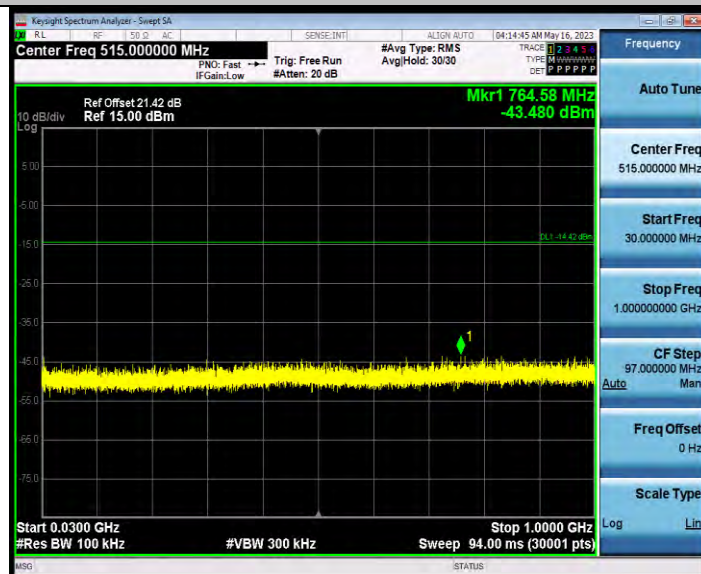


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11G_Ant1_2437_30~1000



11G_Ant1_2437_1000~26500



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Test Report No.: W7L-P23050004-1RF02



11G_Ant1_2462_0~Reference



11G_Ant1_2462_30~1000



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Test Report No.: W7L-P23050004-1RF02



11G_Ant1_2462_1000~26500



11N20SISO_Ant1_2412_0~Reference



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Test Report No.: W7L-P23050004-1RF02



11N20SISO_Ant1_2412_30~1000



11N20SISO_Ant1_2412_1000~26500



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Test Report No.: W7L-P23050004-1RF02



11N20SISO_Ant1_2437_0~Reference

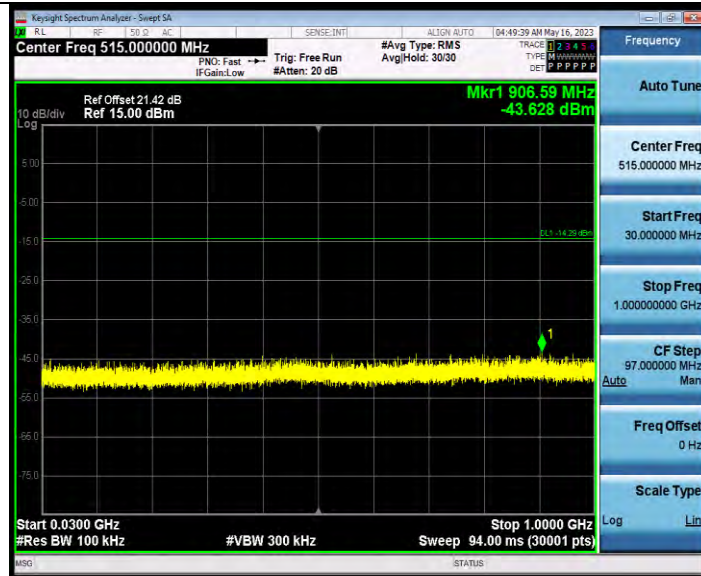


11N20SISO_Ant1_2437_30~1000



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Test Report No.: W7L-P23050004-1RF02



11N20SISO_Ant1_2437_1000~26500



11N20SISO_Ant1_2462_0~Reference



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Test Report No.: W7L-P23050004-1RF02



11N20SISO_Ant1_2462_30~1000



11N20SISO_Ant1_2462_1000~26500



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Test Report No.: W7L-P23050004-1RF02



11N40SISO_Ant1_2422_0~Reference



11N40SISO_Ant1_2422_30~1000



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Test Report No.: W7L-P23050004-1RF02



11N40SISO_Ant1_2422_1000~26500



11N40SISO_Ant1_2437_0~Reference



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Test Report No.: W7L-P23050004-1RF02



11N40SISO_Ant1_2437_30~1000



11N40SISO_Ant1_2437_1000~26500



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Test Report No.: W7L-P23050004-1RF02



11N40SISO_Ant1_2452_0~Reference



11N40SISO_Ant1_2452_30~1000



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Test Report No.: W7L-P23050004-1RF02



11N40SISO_Ant1_2452_1000~26500



**DUTY CYCLE****TEST RESULT**

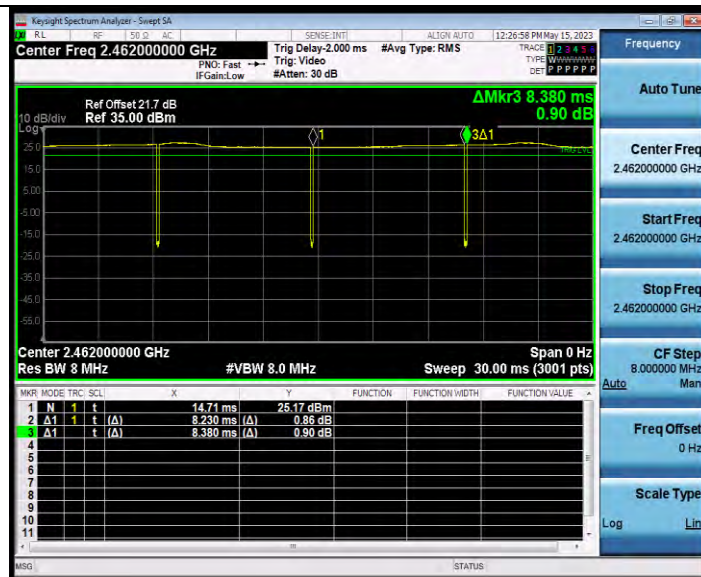
TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Factor
11B	Ant1	2412	8.22	8.37	98.21	0.08
		2437	8.22	8.37	98.21	0.08
		2462	8.23	8.38	98.21	0.08
11G	Ant1	2412	1.36	1.50	90.67	0.43
		2437	1.36	1.50	90.67	0.43
		2462	1.37	1.51	90.73	0.42
11N20SISO	Ant1	2412	1.27	1.42	89.44	0.48
		2437	1.28	1.42	90.14	0.45
		2462	1.28	1.42	90.14	0.45
11N40SISO	Ant1	2422	0.63	0.78	80.77	0.93
		2437	0.64	0.80	80.00	0.97
		2452	0.63	0.78	80.77	0.93



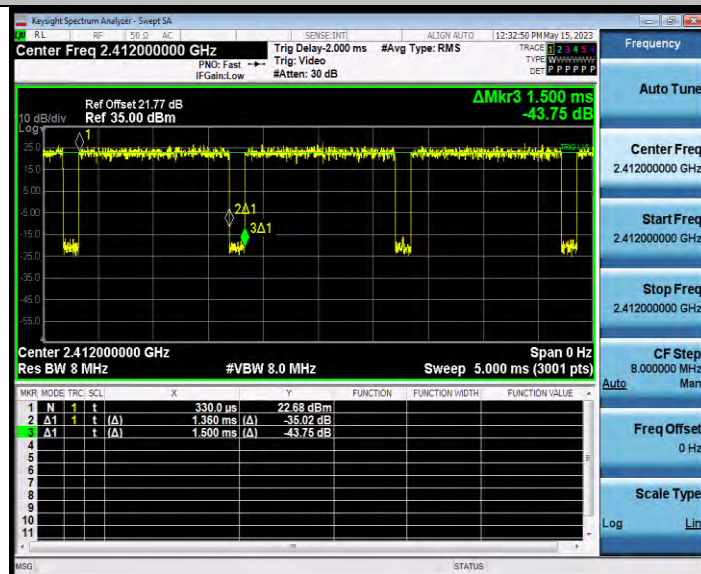


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11G_Ant1_2412

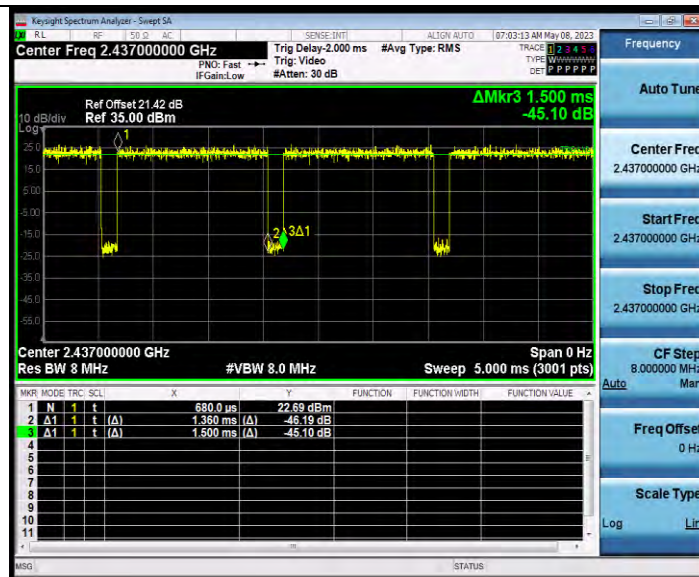


11G_Ant1_2437

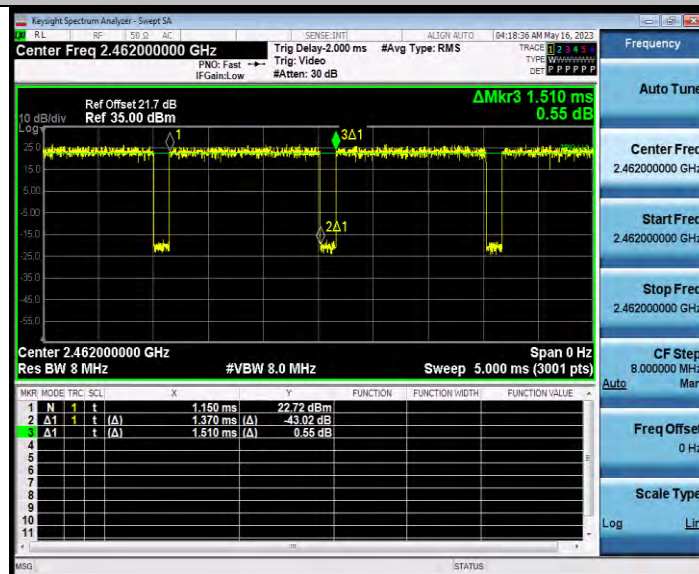


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11G_Ant1_2462

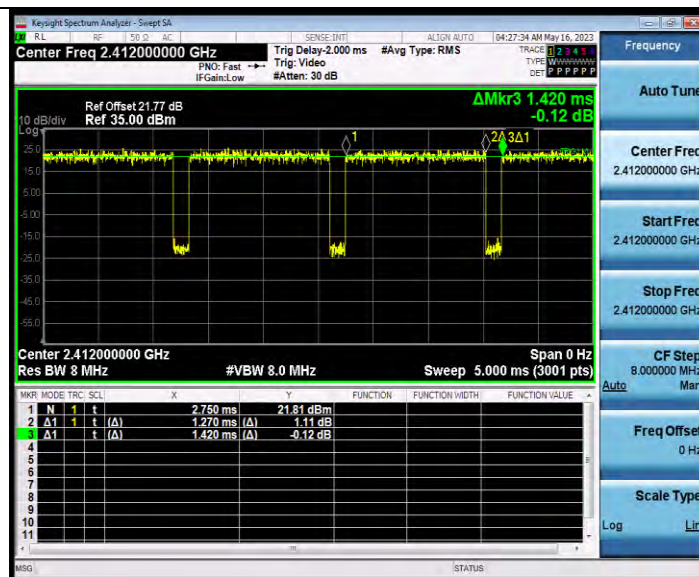


11N20SISO_Ant1_2412

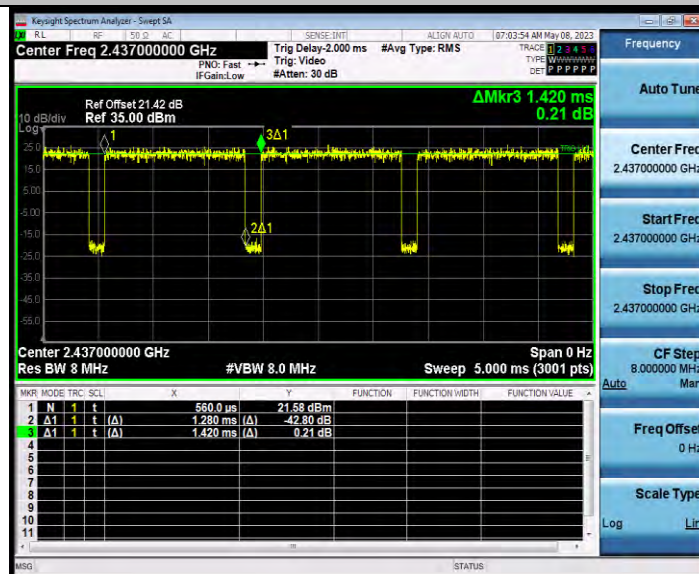


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Test Report No.: W7L-P23050004-1RF02



11N20SISO_Ant1_2437

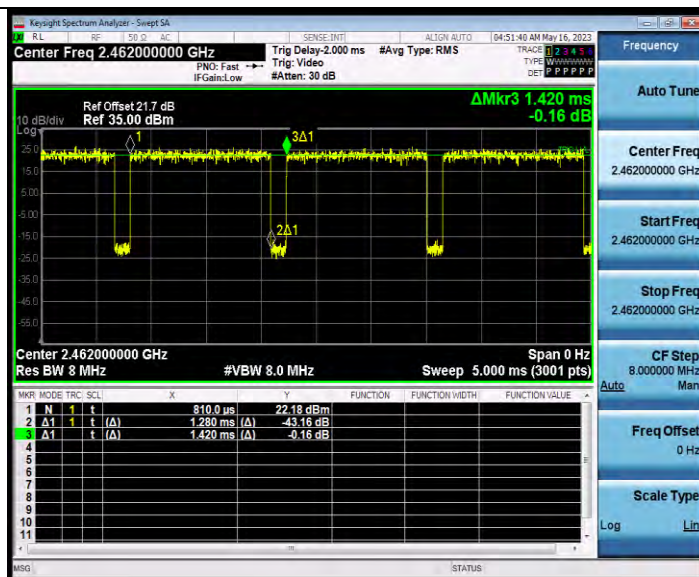


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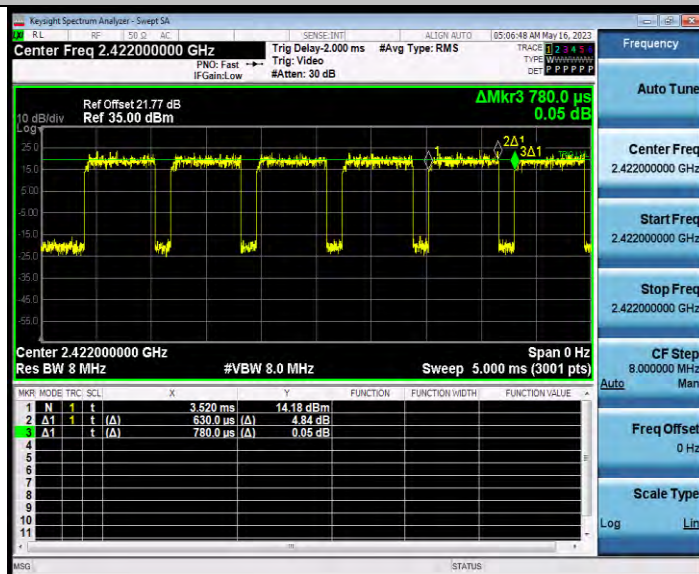


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Test Report No.: W7L-P23050004-1RF02



11N40SISO_Ant1_2422

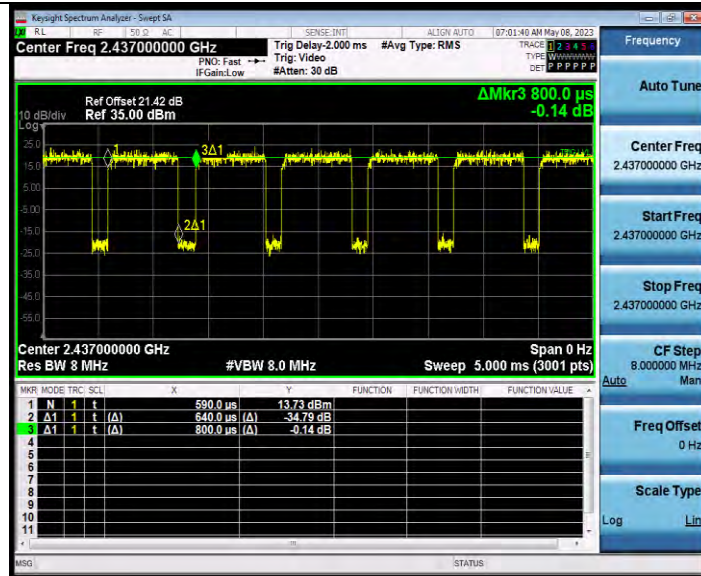


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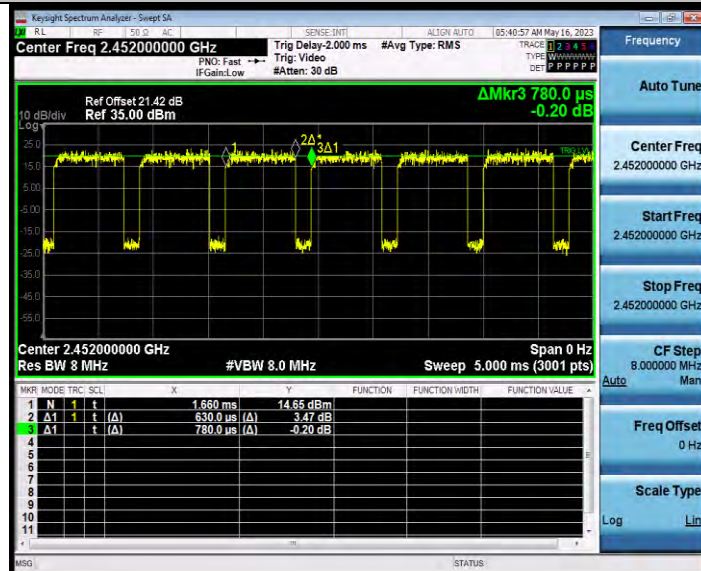


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Test Report No.: W7L-P23050004-1RF02



11N40SISO_Ant1_2452





Test Report No.: W7L-P23050004-1RF02

7 Appendix 2: BLE

DTS BANDWIDTH

TEST RESULT

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.664	2401.664	2402.328	0.5	PASS
		2440	0.640	2439.676	2440.316	0.5	PASS
		2480	0.656	2479.656	2480.312	0.5	PASS
BLE_2M	Ant1	2404	1.164	2403.396	2404.560	0.5	PASS
		2440	1.120	2439.416	2440.536	0.5	PASS
		2478	1.144	2477.408	2478.552	0.5	PASS



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Test Report No.: W7L-P23050004-1RF02

TEST GRAPHS

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



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Test Report No.: W7L-P23050004-1RF02



BLE_2M_Ant1_2404



BLE_2M_Ant1_2440



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Test Report No.: W7L-P23050004-1RF02



BLE_2M_Ant1_2478





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Test Report No.: W7L-P23050004-1RF02

OCCUPIED CHANNEL BANDWIDTH

TEST RESULT

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0118	2401.4967	2402.5085	---	---
		2440	1.0139	2439.4954	2440.5093	---	---
		2480	1.0229	2479.4917	2480.5146	---	---
BLE_2M	Ant1	2404	2.0495	2402.9932	2405.0427	---	---
		2440	2.0487	2438.9905	2441.0392	---	---
		2478	2.0184	2476.9948	2479.0132	---	---

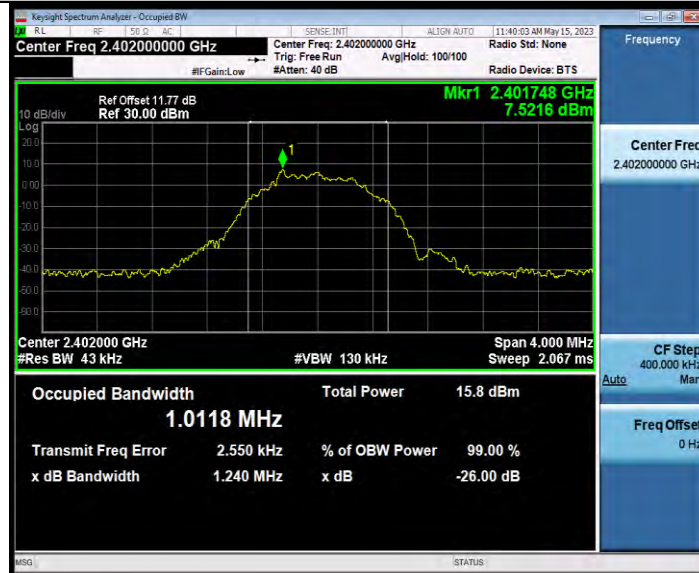


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Test Report No.: W7L-P23050004-1RF02

TEST GRAPHS

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440

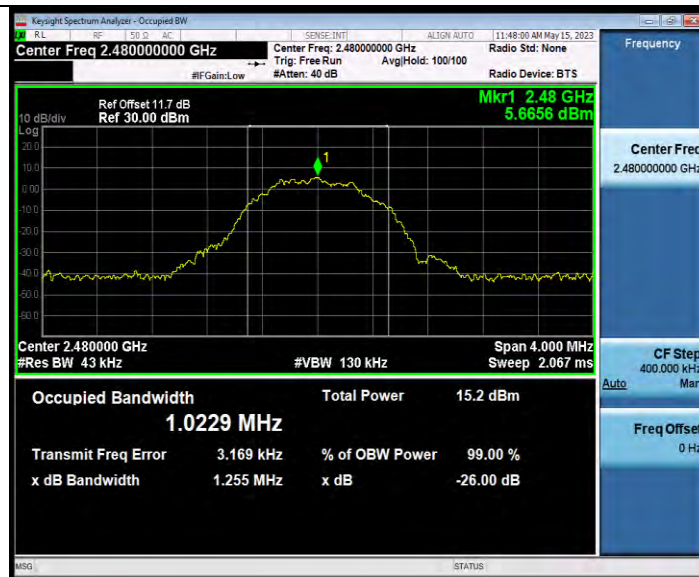


BLE_1M_Ant1_2480



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Test Report No.: W7L-P23050004-1RF02



BLE_2M_Ant1_2404



BLE_2M_Ant1_2440



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Test Report No.: W7L-P23050004-1RF02



BLE_2M_Ant1_2478





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Test Report No.: W7L-P23050004-1RF02

MAXIMUM CONDUCTED OUTPUT POWER

TEST RESULT

TestMode	Antenna	Channel	Average power [dBm]	Peak power [dBm]	Peak power [mw]	Conducted Limit [dBm]	EIRP [dBm]	EIRP [mw]	EIRP Limit [dBm]	Verdict	Power Setting
BLE_1M	Ant1	2402	8.17	8.43	6.97	≤30	9.33	8.57	≤36	PASS	Default
		2440	7.14	7.46	5.57	≤30	8.36	6.85	≤36	PASS	Default
		2480	7.81	8.12	6.49	≤30	9.02	7.98	≤36	PASS	Default
BLE_2M	Ant1	2402	8.02	8.42	6.95	≤30	9.32	8.55	≤36	PASS	Default
		2440	7.14	7.46	5.57	≤30	8.36	6.85	≤36	PASS	Default
		2480	7.9	8.14	6.52	≤30	9.04	8.02	≤36	PASS	Default

Note:EIRP=Peak Power+Gain

MAXIMUM POWER SPECTRAL DENSITY

TEST RESULT

TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-7.07	≤8.00	PASS
		2440	-8.82	≤8.00	PASS
		2480	-7.43	≤8.00	PASS
BLE_2M	Ant1	2404	-9.93	≤8.00	PASS
		2440	-11.63	≤8.00	PASS
		2478	-10.2	≤8.00	PASS



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Test Report No.: W7L-P23050004-1RF02

TEST GRAPHS

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440

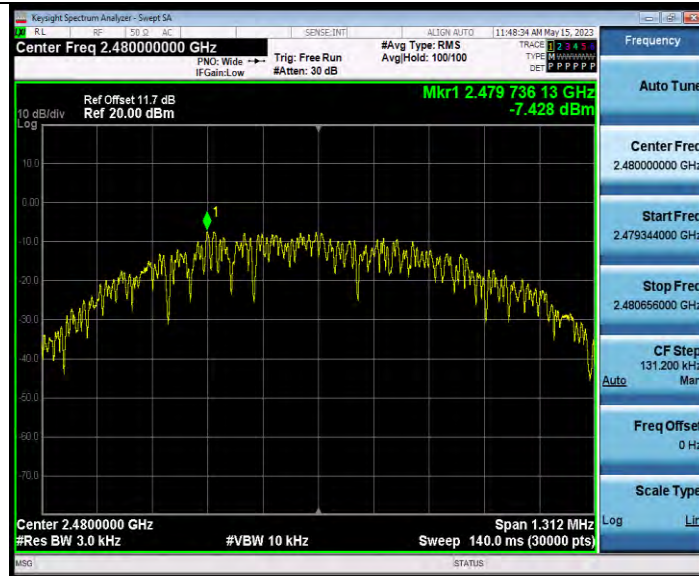


BLE_1M_Ant1_2480

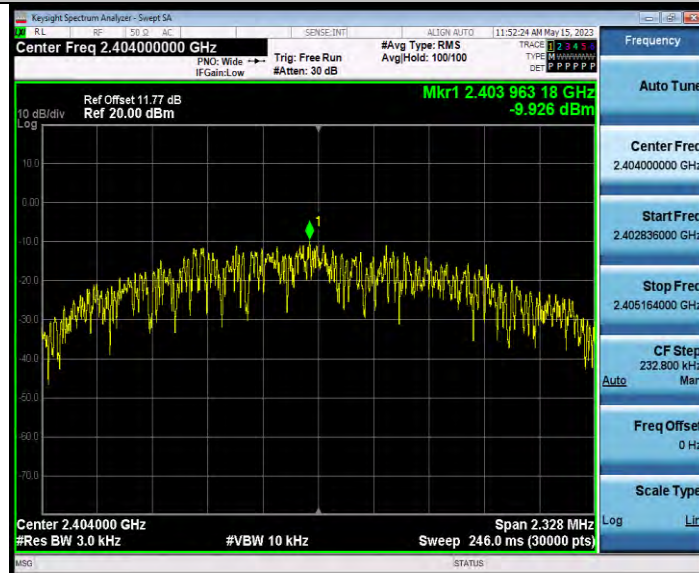


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Test Report No.: W7L-P23050004-1RF02



BLE_2M_Ant1_2404

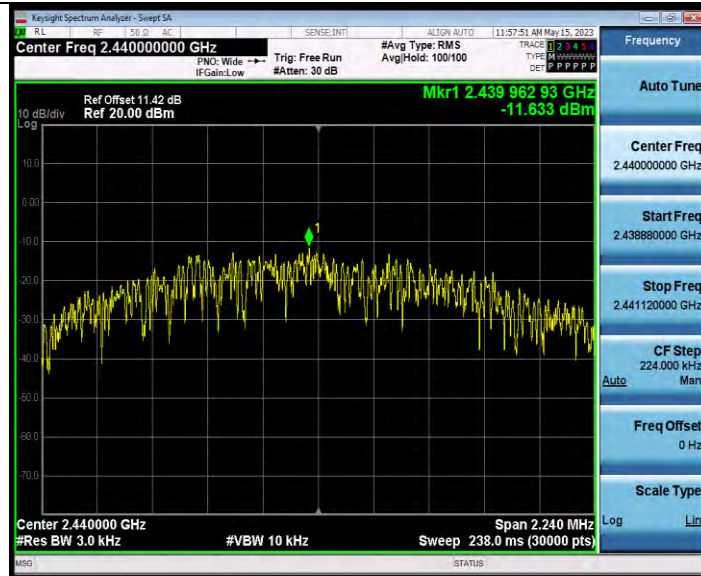


BLE_2M_Ant1_2440

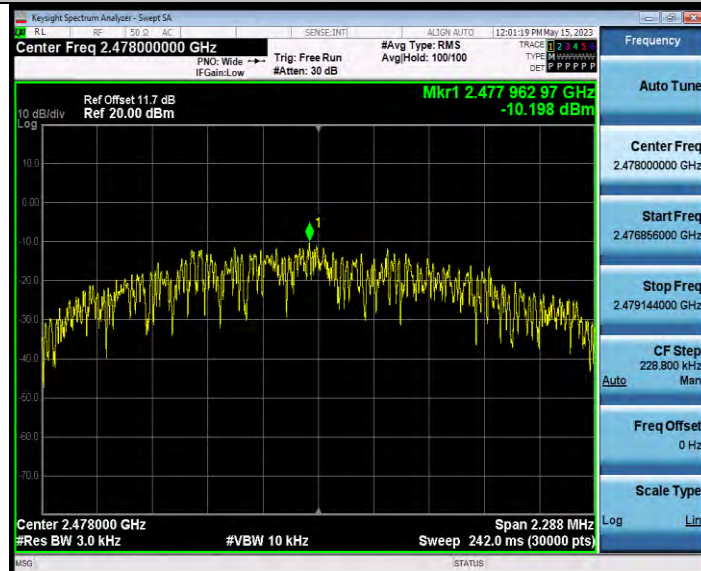


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Test Report No.: W7L-P23050004-1RF02



BLE_2M_Ant1_2478



**BAND EDGE MEASUREMENTS****TEST RESULT**

TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	8.54	-44.57	≤-11.46	PASS
		High	2480	8.63	-43.83	≤-11.38	PASS
BLE_2M	Ant1	Low	2404	8.11	-44.19	≤-11.89	PASS
		High	2478	7.87	-43.83	≤-12.13	PASS

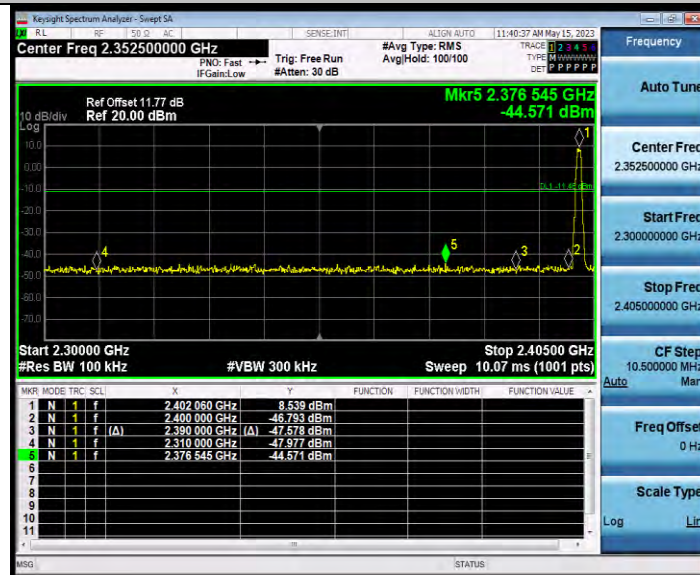


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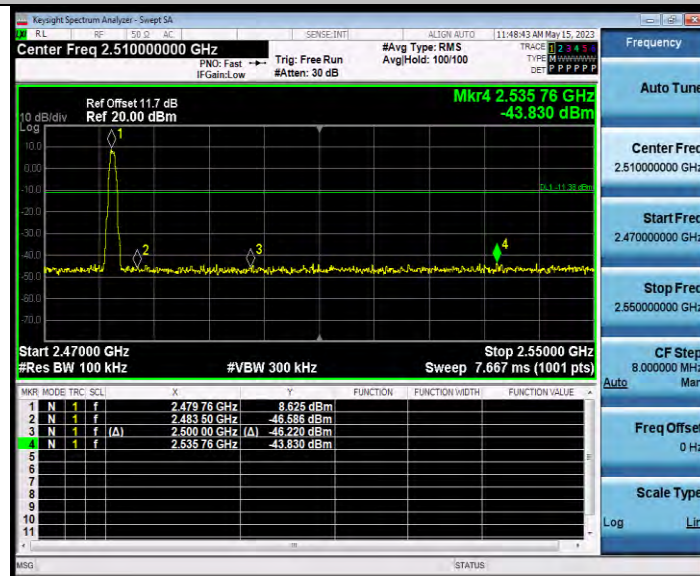
Test Report No.: W7L-P23050004-1RF02

TEST GRAPHS

BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480

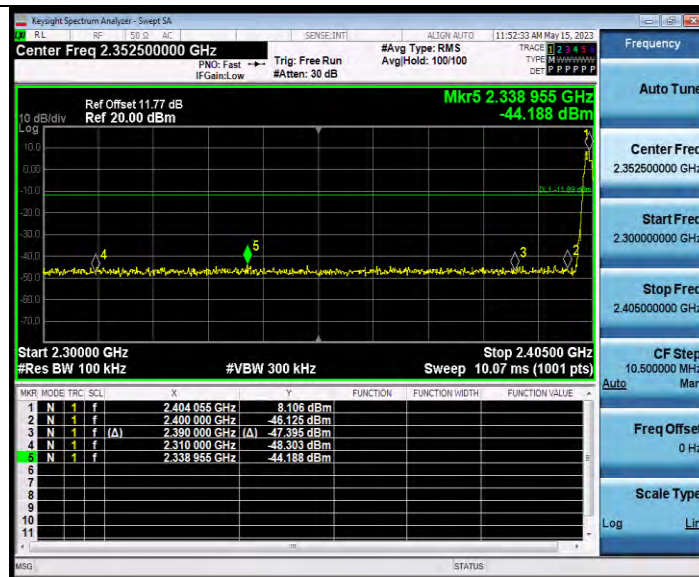


BLE_2M_Ant1_Low_2404

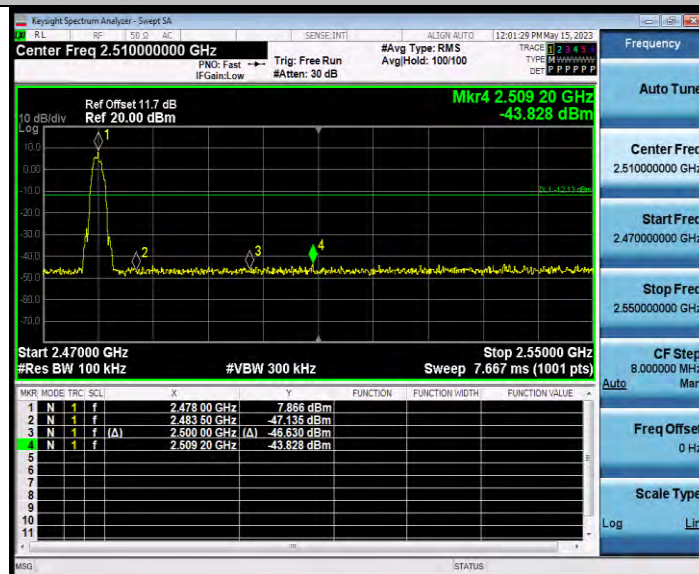


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Test Report No.: W7L-P23050004-1RF02



BLE_2M_Ant1_High_2478



**CONDUCTED SPURIOUS EMISSION****TEST RESULT**

TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	8.20	8.20	---	PASS
			30~1000	8.20	-53.47	≤-11.8	PASS
			1000~26500	8.20	-33.65	≤-11.8	PASS
		2440	Reference	6.06	6.06	---	PASS
			30~1000	6.06	-53.7	≤-13.94	PASS
			1000~26500	6.06	-33.67	≤-13.94	PASS
		2480	Reference	8.30	8.30	---	PASS
			30~1000	8.30	-53.2	≤-11.7	PASS
			1000~26500	8.30	-33.93	≤-11.7	PASS
BLE_2M	Ant1	2404	Reference	6.38	6.38	---	PASS
			30~1000	6.38	-51.99	≤-13.62	PASS
			1000~26500	6.38	-33.99	≤-13.62	PASS
		2440	Reference	4.66	4.66	---	PASS
			30~1000	4.66	-53.7	≤-15.34	PASS
			1000~26500	4.66	-33.57	≤-15.34	PASS
		2478	Reference	6.87	6.87	---	PASS
			30~1000	6.87	-51.71	≤-13.13	PASS
			1000~26500	6.87	-33.99	≤-13.13	PASS



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TEST GRAPHS

BLE_1M_Ant1_2402_0~Reference



BLE_1M_Ant1_2402_30~1000



BLE_1M_Ant1_2402_1000~26500



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Test Report No.: W7L-P23050004-1RF02



BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



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Test Report No.: W7L-P23050004-1RF02



BLE_1M_Ant1_2440_1000~26500



BLE_1M_Ant1_2480_0~Reference



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Test Report No.: W7L-P23050004-1RF02



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500



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Test Report No.: W7L-P23050004-1RF02



BLE_2M_Ant1_2404_0~Reference



BLE_2M_Ant1_2404_30~1000



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Test Report No.: W7L-P23050004-1RF02



BLE_2M_Ant1_2404_1000~26500



BLE_2M_Ant1_2440_0~Reference



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Test Report No.: W7L-P23050004-1RF02



BLE_2M_Ant1_2440_30~1000



BLE_2M_Ant1_2440_1000~26500



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Test Report No.: W7L-P23050004-1RF02



BLE_2M_Ant1_2478_0~Reference



BLE_2M_Ant1_2478_30~1000



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VERITAS

Test Report No.: W7L-P23050004-1RF02



BLE_2M_Ant1_2478_1000~26500





DUTY CYCLE

TEST RESULT

TestMode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
BLE_1M	Ant1	2402	0.39	0.63	61.90	2.08
		2440	0.39	0.63	61.90	2.08
		2480	0.39	0.63	61.90	2.08
BLE_2M	Ant1	2404	0.20	0.63	31.75	4.98
		2440	0.20	0.63	31.75	4.98
		2478	0.19	0.62	30.65	5.14

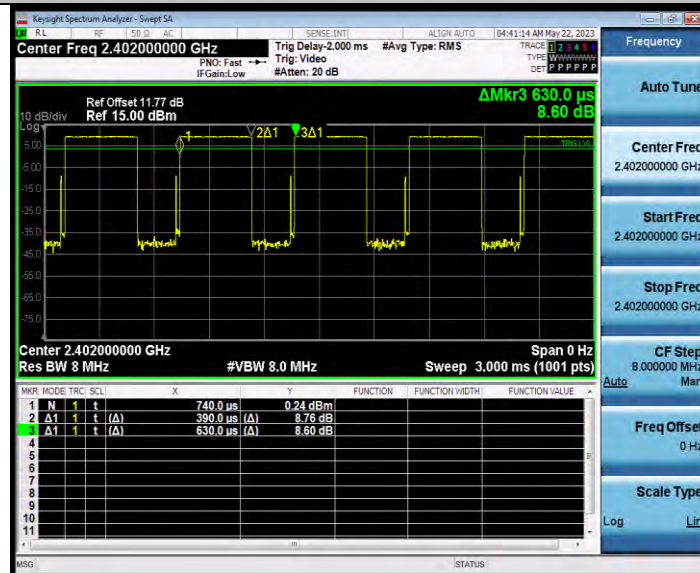


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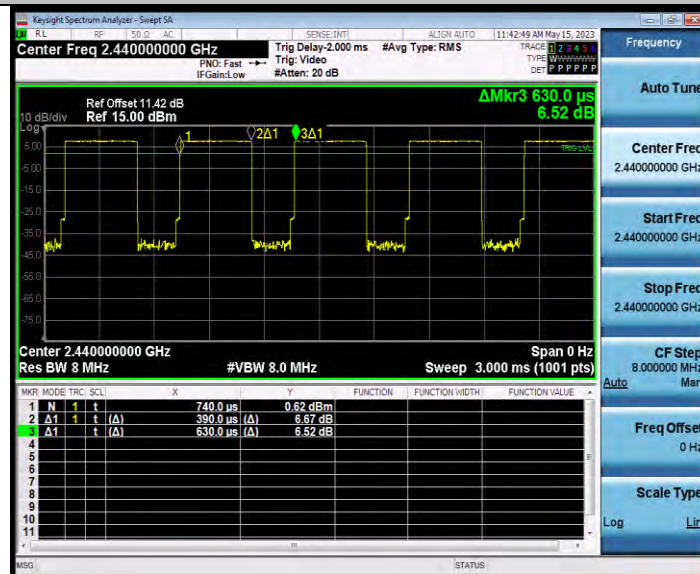
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TEST GRAPHS

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480