

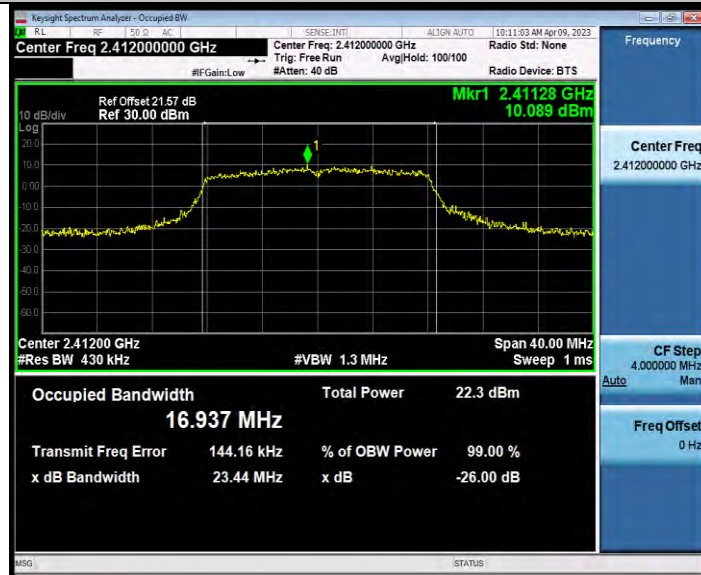


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Test Report No.: W7L-P23030025RF02



11G_Ant1_2412



11G_Ant1_2437

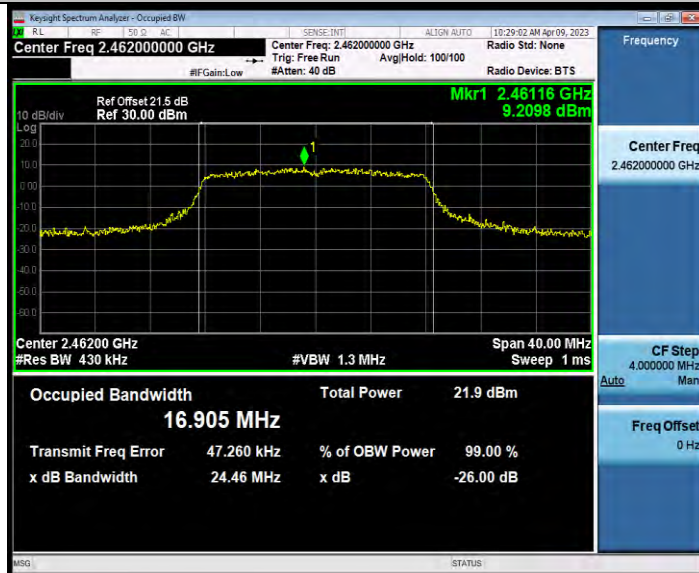


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Test Report No.: W7L-P23030025RF02



11G_Ant1_2462



11N20SISO_Ant1_2412

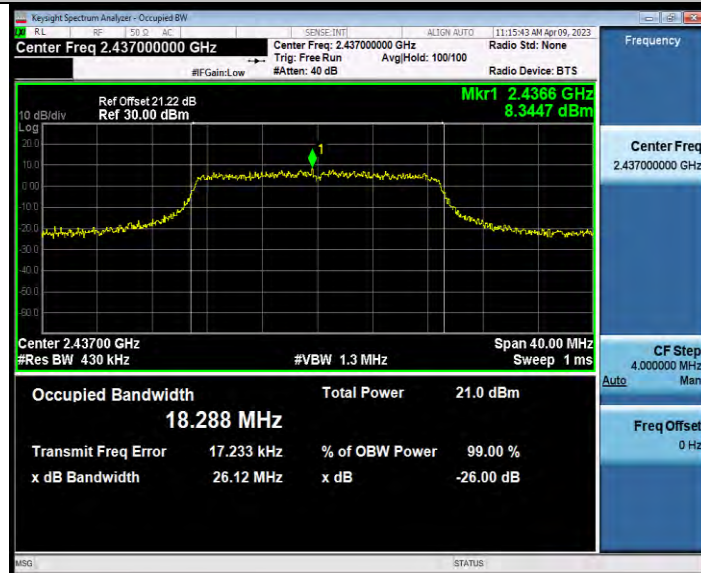


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Test Report No.: W7L-P23030025RF02



11N20SISO_Ant1_2437

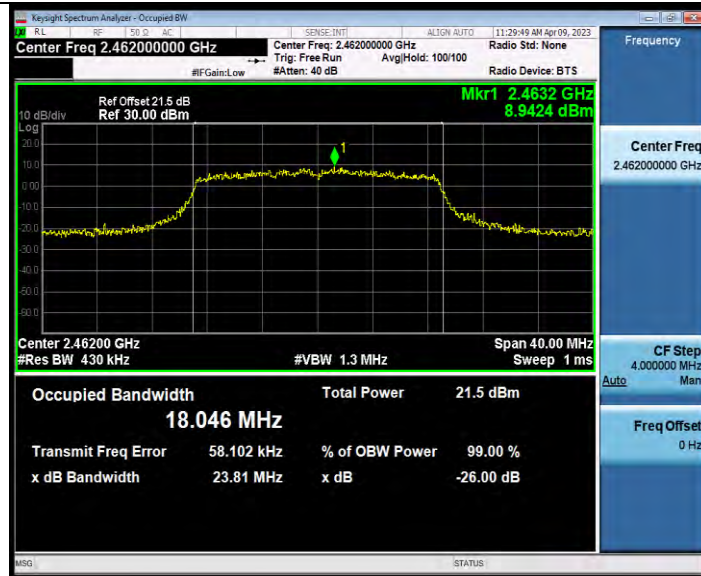


11N20SISO_Ant1_2462

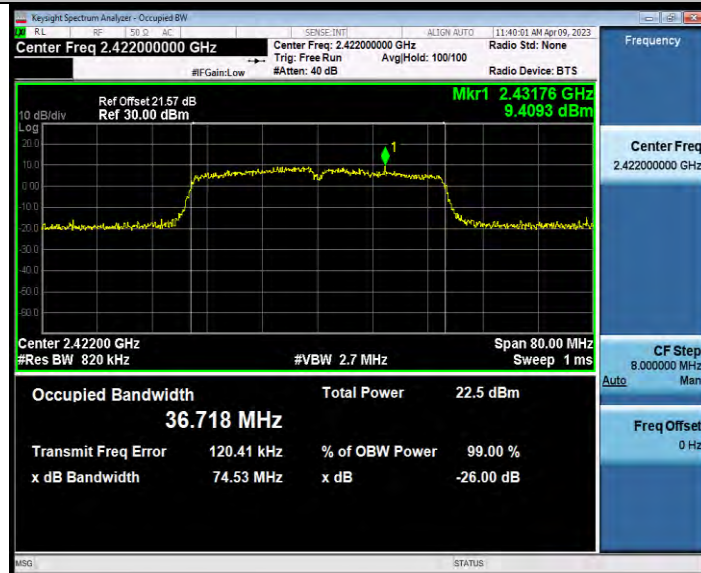


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Test Report No.: W7L-P23030025RF02



11N40SISO_Ant1_2422

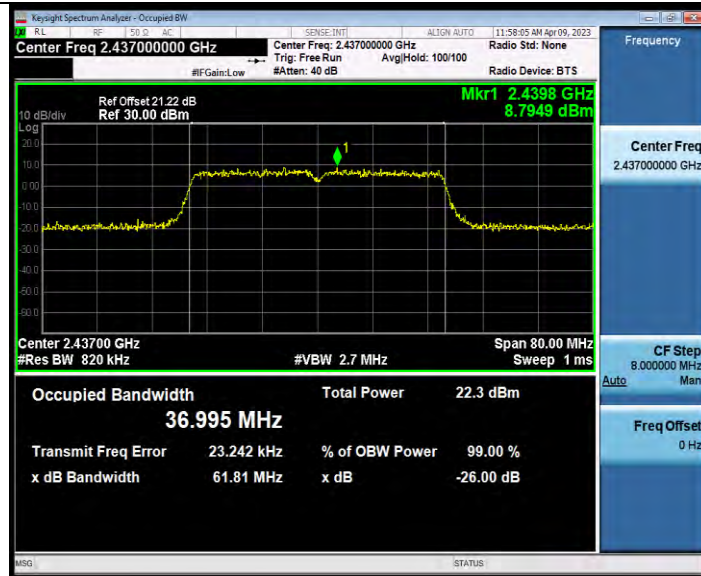


11N40SISO_Ant1_2437

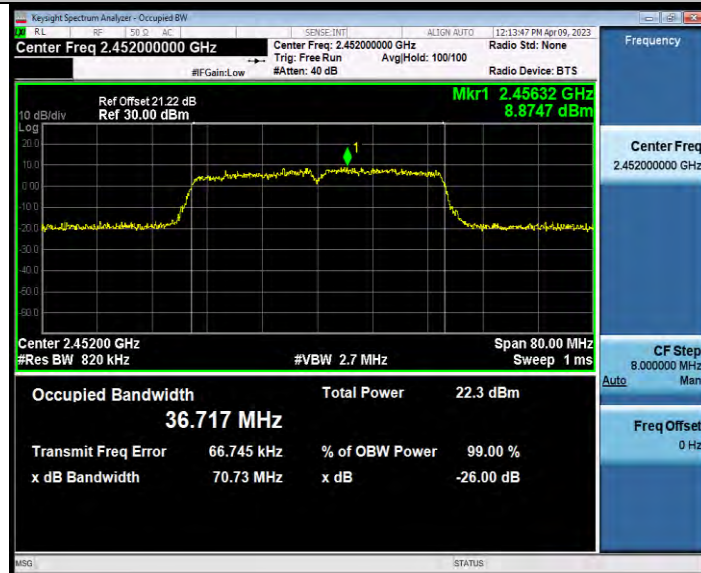


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Test Report No.: W7L-P23030025RF02



11N40SISO_Ant1_2452





MAXIMUM CONDUCTED OUTPUT POWER TEST RESULT

TestMode	Antenna	Freq. [MHz]	Average power [dBm]	Peak Power [dBm]	Peak Power [mw]	Conducted Limit [dBm]	EIRP [dBm]	EIRP [mw]	EIRP Limit [dBm]	Verdict	Power Setting
11B	Ant1	2412	16.12	18.40	69.18	≤30.00	21.4	138.04	≤36.00	PASS	16.5
		2437	16.17	18.51	70.96	≤30.00	21.51	141.58	≤36.00	PASS	17
		2462	16.04	18.39	69.02	≤30.00	21.39	137.72	≤36.00	PASS	16.5
11G	Ant1	2412	15.13	20.29	106.91	≤30.00	23.29	213.30	≤36.00	PASS	16.5
		2437	14.83	19.64	92.04	≤30.00	22.64	183.65	≤36.00	PASS	16.5
		2462	15.06	19.96	99.08	≤30.00	22.96	197.70	≤36.00	PASS	16.5
11N20S ISO	Ant1	2412	13.8	18.97	78.89	≤30.00	21.97	157.40	≤36.00	PASS	15.5
		2437	14.04	19.02	79.80	≤30.00	22.02	159.22	≤36.00	PASS	16
		2462	14.18	19.43	87.70	≤30.00	22.43	174.98	≤36.00	PASS	16
11N40S ISO	Ant1	2412	14.03	20.88	122.46	≤30.00	23.88	244.34	≤36.00	PASS	15.5
		2437	14.18	21.05	127.35	≤30.00	24.05	254.10	≤36.00	PASS	15.5
		2462	14.06	20.73	118.30	≤30.00	23.73	236.05	≤36.00	PASS	15.5

Note: EIRP=Peak Power + Gain



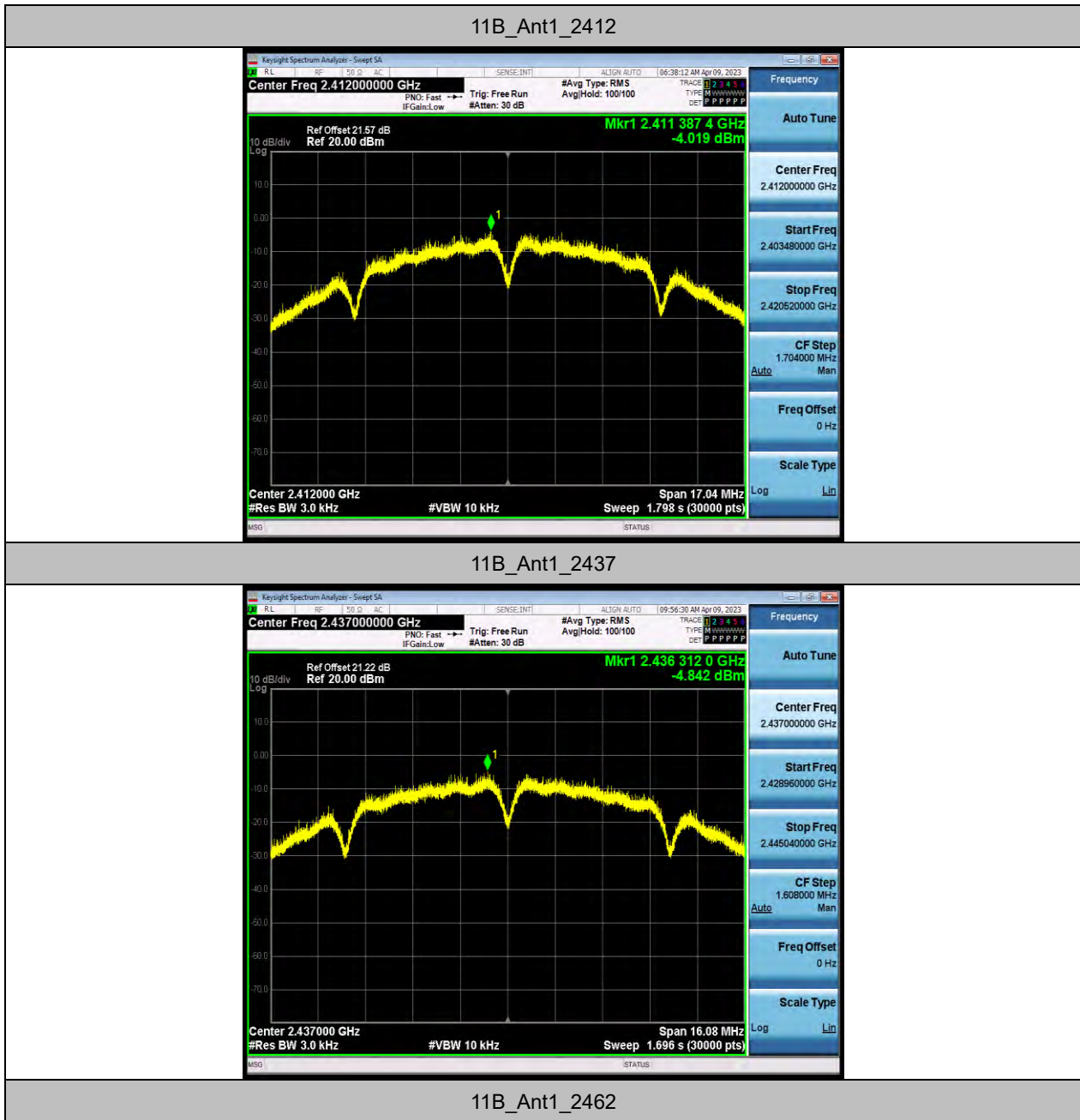
MAXIMUM POWER SPECTRAL DENSITY

TEST RESULT

TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-4.02	≤8.00	PASS
		2437	-4.84	≤8.00	PASS
		2462	-4.19	≤8.00	PASS
11G	Ant1	2412	-6.36	≤8.00	PASS
		2437	-7.57	≤8.00	PASS
		2462	-6.61	≤8.00	PASS
11N20SISO	Ant1	2412	-9.3	≤8.00	PASS
		2437	-9.28	≤8.00	PASS
		2462	-8.96	≤8.00	PASS
11N40SISO	Ant1	2422	-11.15	≤8.00	PASS
		2437	-11.9	≤8.00	PASS
		2452	-10.92	≤8.00	PASS



TEST GRAPHS



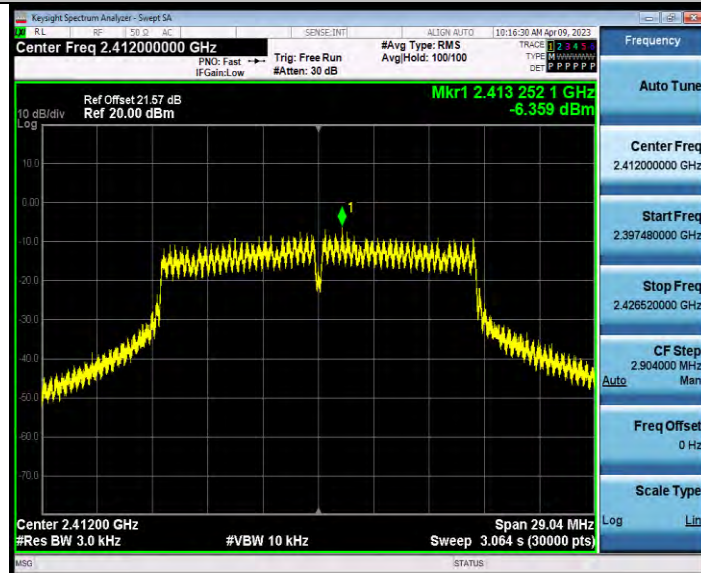


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Test Report No.: W7L-P23030025RF02



11G_Ant1_2412

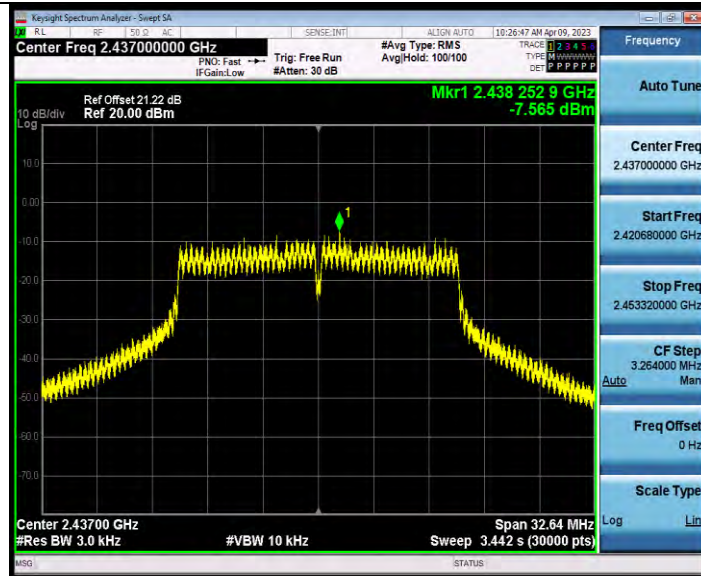


11G_Ant1_2437

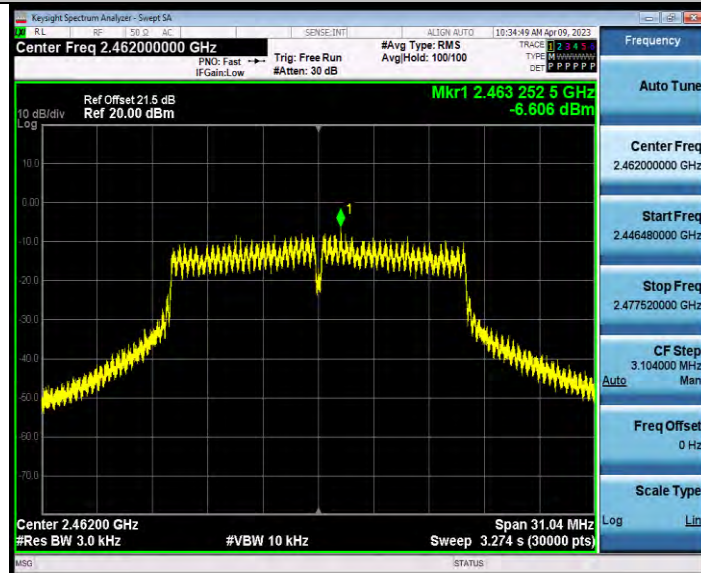


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11G_Ant1_2462

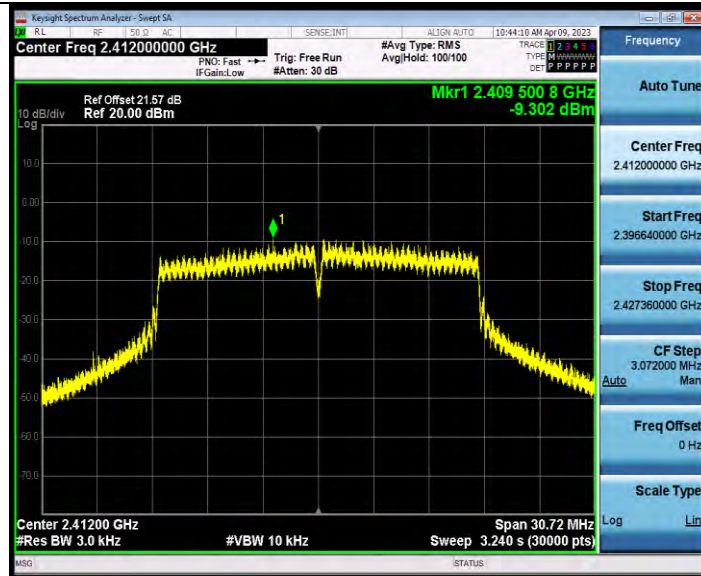


11N20SISO_Ant1_2412

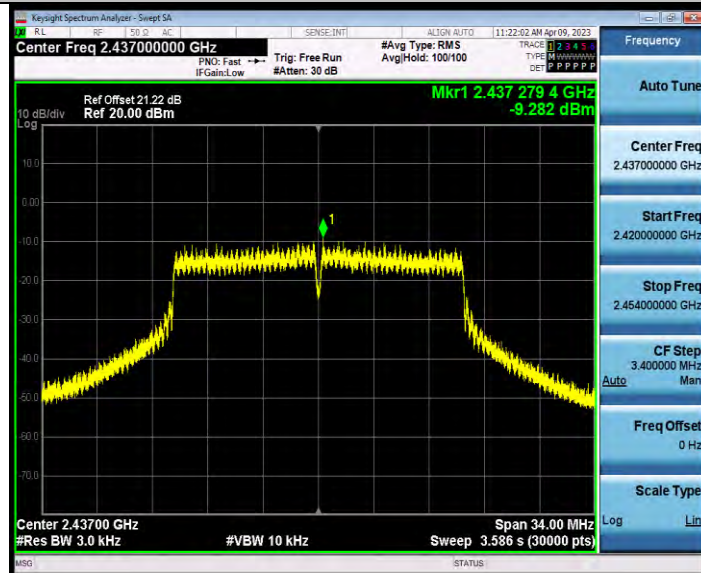


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11N20SISO_Ant1_2437

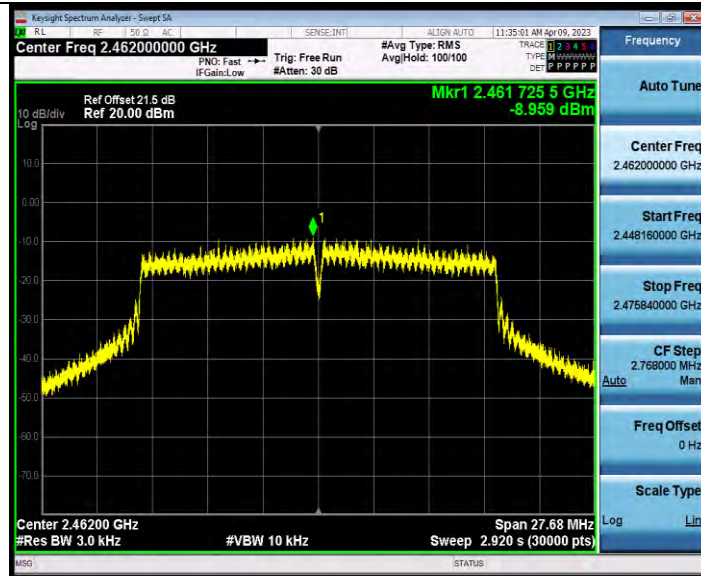


11N20SISO_Ant1_2462

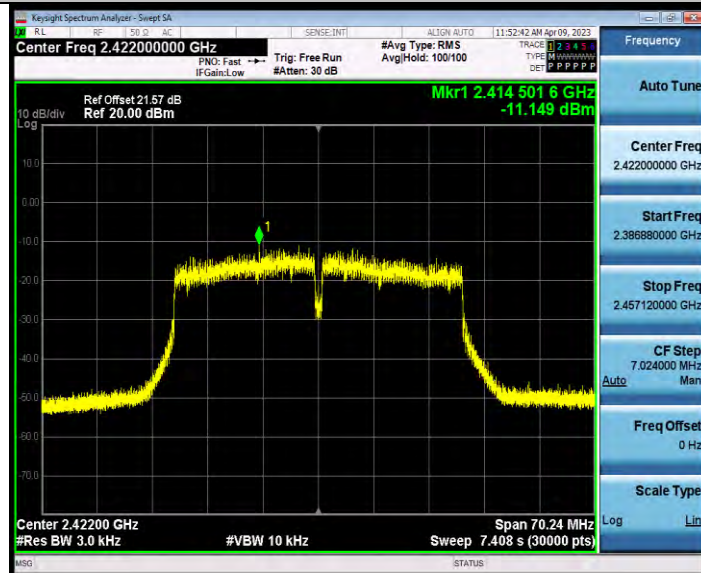


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11N40SISO_Ant1_2422

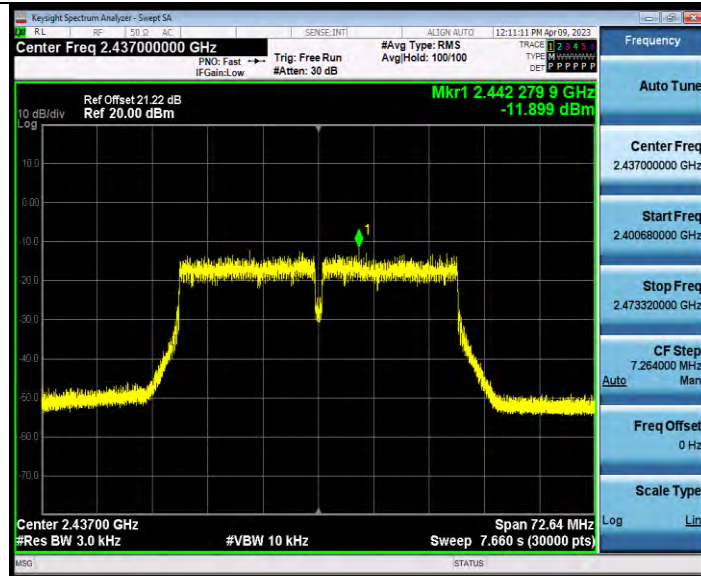


11N40SISO_Ant1_2437



BUREAU VERITAS

Test Report No.: W7L-P23030025RF02



11N40SISO_Ant1_2452





BAND EDGE MEASUREMENTS

TEST RESULT

TestMode	Antenna	ChName	Frequency [MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	8.83	-33.96	≤-11.17	PASS
		High	2462	7.88	-33.67	≤-12.12	PASS
11G	Ant1	Low	2412	6.38	-27.26	≤-13.62	PASS
		High	2462	6.88	-33.93	≤-13.12	PASS
11N20SISO	Ant1	Low	2412	5.51	-26.54	≤-14.49	PASS
		High	2462	5.80	-34.06	≤-14.2	PASS
11N40SISO	Ant1	Low	2422	2.61	-31.97	≤-17.39	PASS
		High	2452	2.21	-34.36	≤-17.79	PASS



BUREAU VERITAS

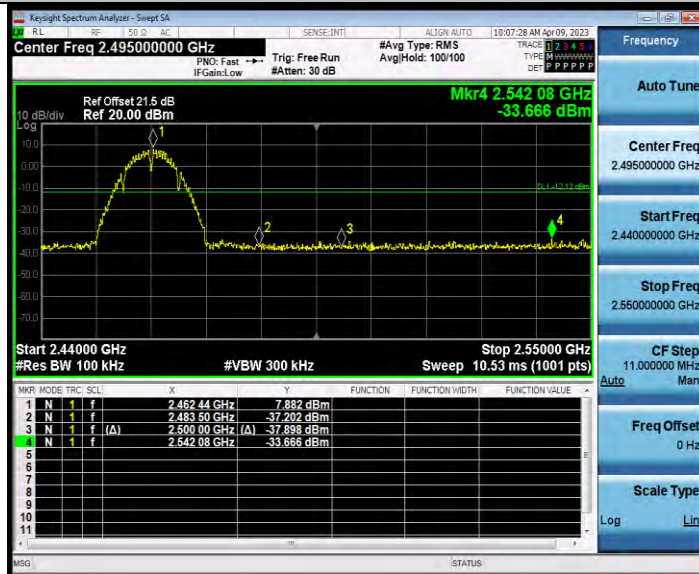
Test Report No.: W7L-P23030025RF02

TEST GRAPHS

11B_Ant1_Low_2412



11B_Ant1_High_2462



11G_Ant1_Low_2412



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Test Report No.: W7L-P23030025RF02



11G_Ant1_High_2462



11N20SISO_Ant1_Low_2412

BV 7Layers Communications Technology
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11N20SISO_Ant1_High_2462



11N40SISO_Ant1_Low_2422



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Test Report No.: W7L-P23030025RF02



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	8.38	8.38	---	PASS
			30~1000	8.38	-43.55	≤-11.62	PASS
			1000~26500	8.38	-22.67	≤-11.62	PASS
		2437	Reference	5.59	5.59	---	PASS
			30~1000	5.59	-42.66	≤-14.41	PASS
			1000~26500	5.59	-23.78	≤-14.41	PASS
		2462	Reference	6.83	6.83	---	PASS
			30~1000	6.83	-43.61	≤-13.17	PASS
			1000~26500	6.83	-24	≤-13.17	PASS
11G	Ant1	2412	Reference	6.10	6.10	---	PASS
			30~1000	6.10	-43.05	≤-13.9	PASS
			1000~26500	6.10	-23.86	≤-13.9	PASS
		2437	Reference	3.71	3.71	---	PASS
			30~1000	3.71	-43.36	≤-16.29	PASS
			1000~26500	3.71	-24.39	≤-16.29	PASS
		2462	Reference	2.72	2.72	---	PASS
			30~1000	2.72	-42.99	≤-17.28	PASS
			1000~26500	2.72	-24.09	≤-17.28	PASS
11N20SISO	Ant1	2412	Reference	1.56	1.56	---	PASS
			30~1000	1.56	-42.23	≤-18.44	PASS
			1000~26500	1.56	-23.82	≤-18.44	PASS
		2437	Reference	4.29	4.29	---	PASS
			30~1000	4.29	-43.41	≤-15.71	PASS
			1000~26500	4.29	-23.25	≤-15.71	PASS
		2462	Reference	4.43	4.43	---	PASS
			30~1000	4.43	-43.66	≤-15.57	PASS
			1000~26500	4.43	-23.74	≤-15.57	PASS
11N40SISO	Ant1	2422	Reference	2.31	2.31	---	PASS
			30~1000	2.31	-43.25	≤-17.69	PASS



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			1000~26500	2.31	-23.7	≤ -17.69	PASS
		2437	Reference	0.46	0.46	---	PASS
			30~1000	0.46	-43.54	≤ -19.54	PASS
			1000~26500	0.46	-24.65	≤ -19.54	PASS
		2452	Reference	1.23	1.23	---	PASS
			30~1000	1.23	-42.97	≤ -18.77	PASS
			1000~26500	1.23	-23.62	≤ -18.77	PASS



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TEST GRAPHS

11B_Ant1_2412_0~Reference



11B_Ant1_2412_30~1000



11B_Ant1_2412_1000~26500



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11B_Ant1_2437_0~Reference

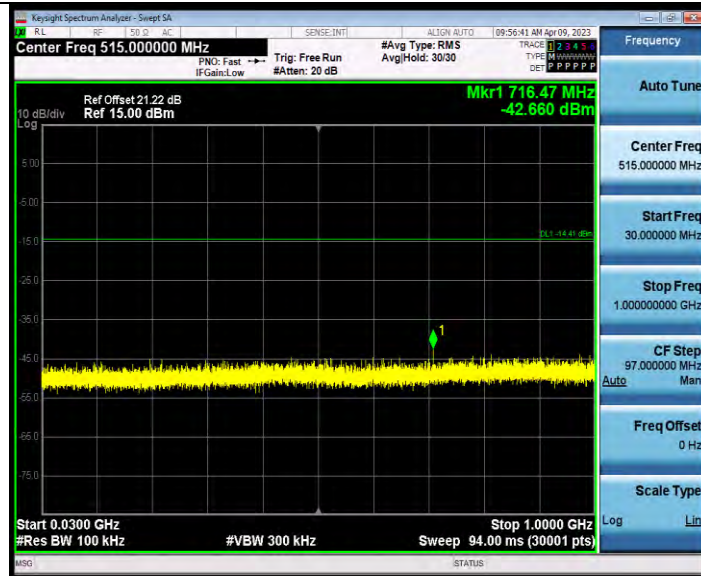


11B_Ant1_2437_30~1000



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11B_Ant1_2437_1000~26500



11B_Ant1_2462_0~Reference

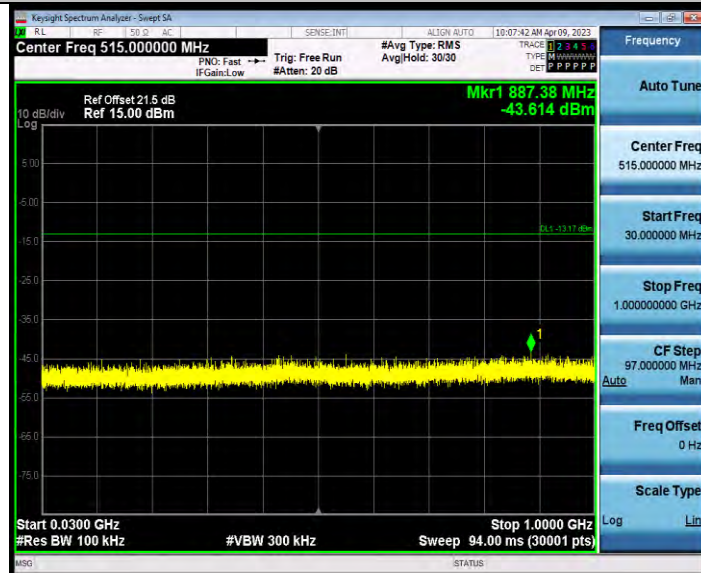


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11B_Ant1_2462_30~1000

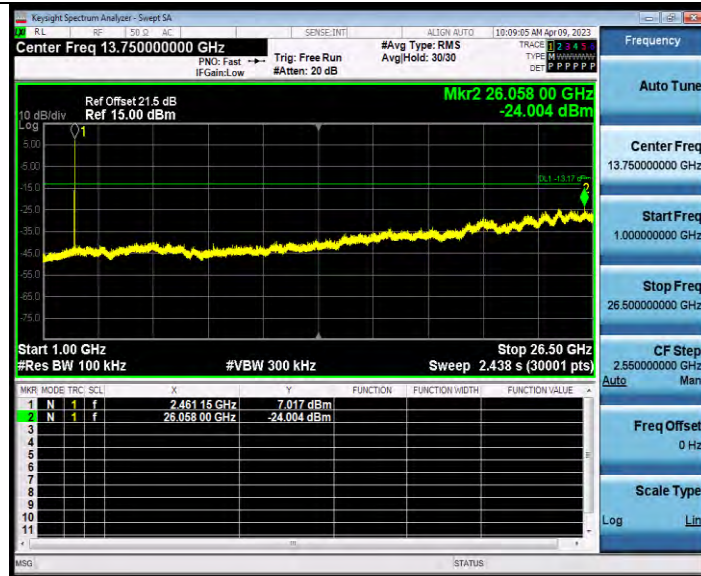


11B_Ant1_2462_1000~26500



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11G_Ant1_2412_0~Reference

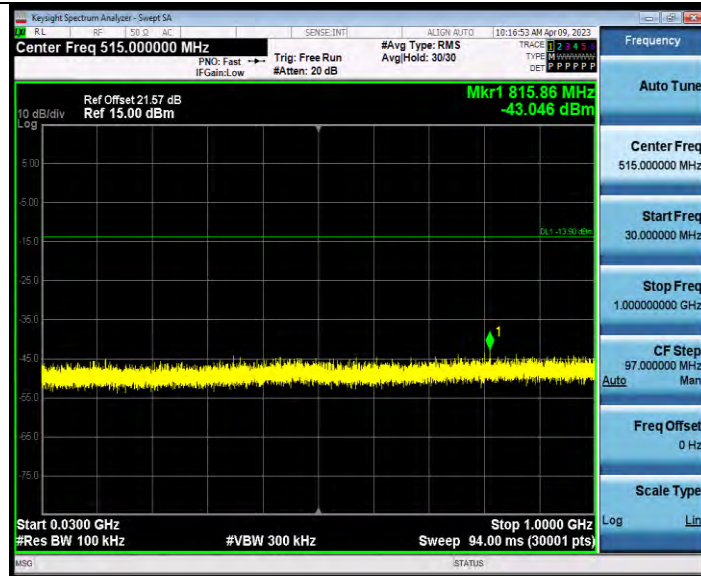


11G_Ant1_2412_30~100



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11G_Ant1_2412_1000~26500



11G_Ant1_2437_0~Reference



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Test Report No.: W7L-P23030025RF02



11G_Ant1_2437_30~1000



11G_Ant1_2437_1000~26500



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11G_Ant1_2462_0~Reference



11G_Ant1_2462_30~1000

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11G_Ant1_2462_1000~26500



11N20SISO_Ant1_2412_0~Reference

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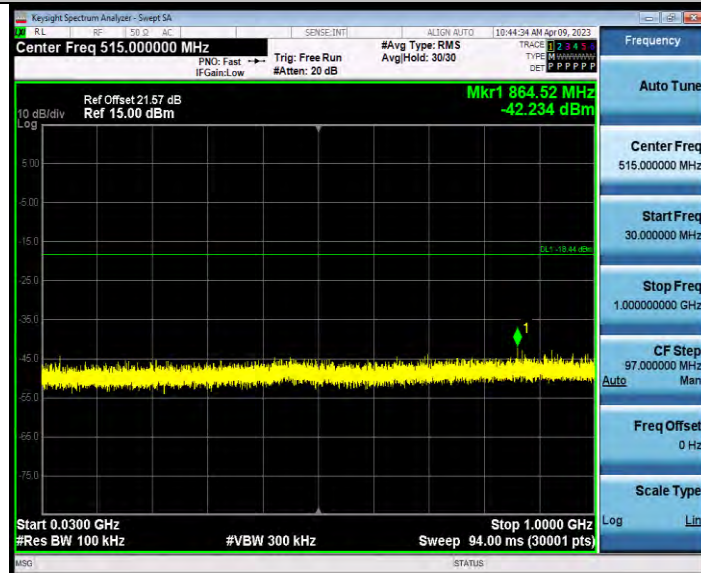


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Test Report No.: W7L-P23030025RF02



11N20SISO_Ant1_2412_30~1000

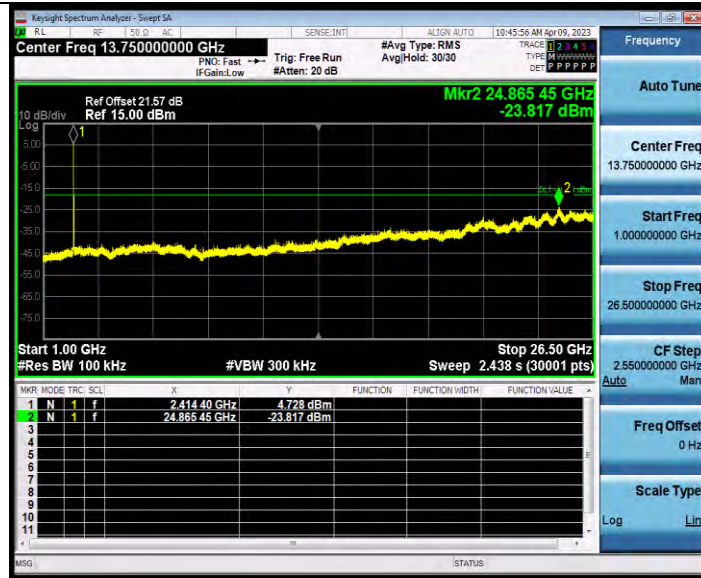


11N20SISO_Ant1_2412_1000~26500



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11N20SISO_Ant1_2437_0~Reference

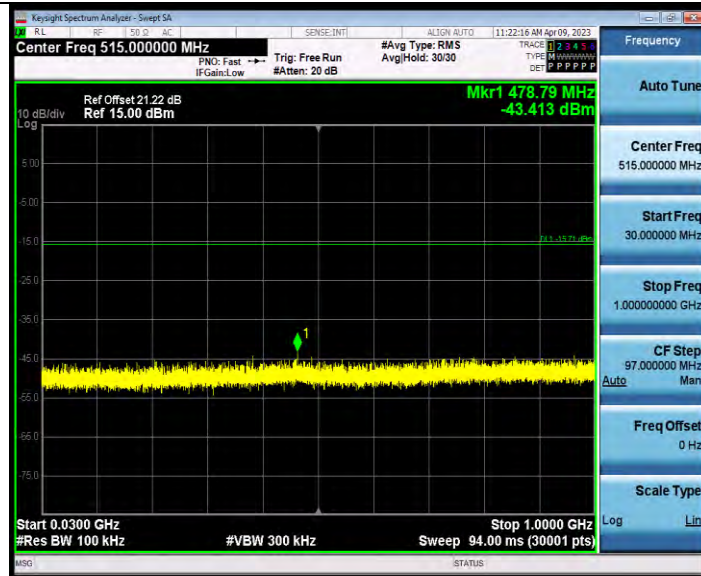


11N20SISO_Ant1_2437_30~1000



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Test Report No.: W7L-P23030025RF02



11N20SISO_Ant1_2437_1000~26500



11N20SISO_Ant1_2462_0~Reference

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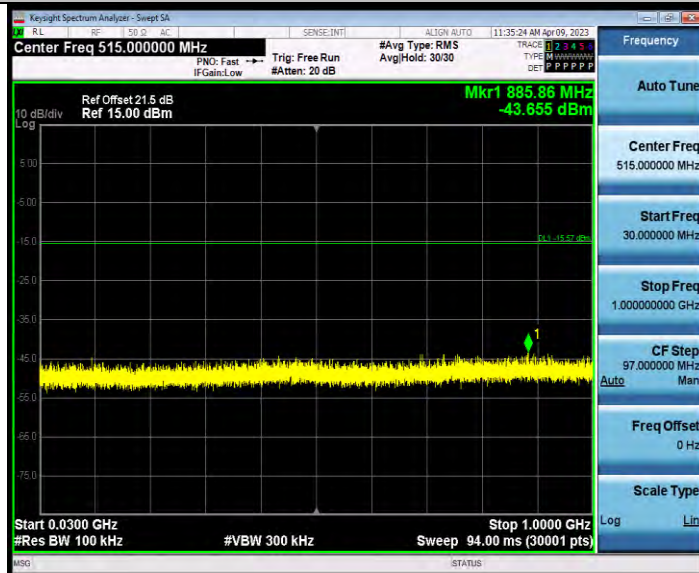


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11N20SISO_Ant1_2462_30~1000



11N20SISO_Ant1_2462_1000~26500



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Test Report No.: W7L-P23030025RF02



11N40SISO_Ant1_2422_0~Reference

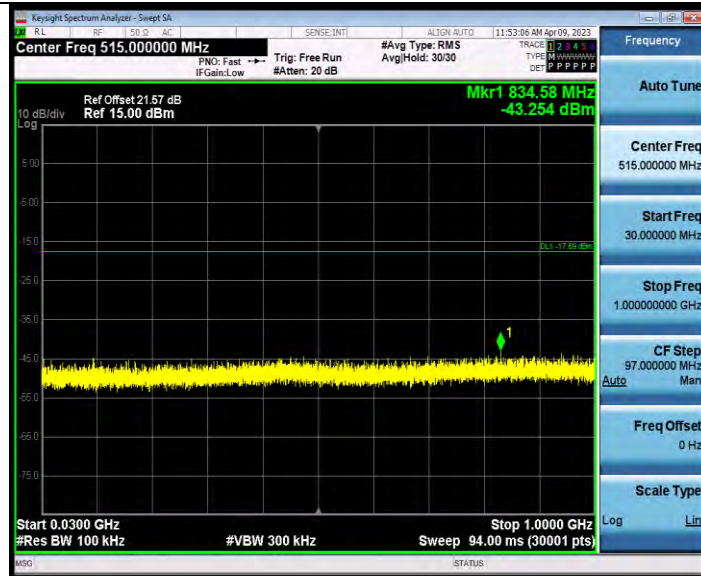


11N40SISO_Ant1_2422_30~1000



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11N40SISO_Ant1_2422_1000~26500

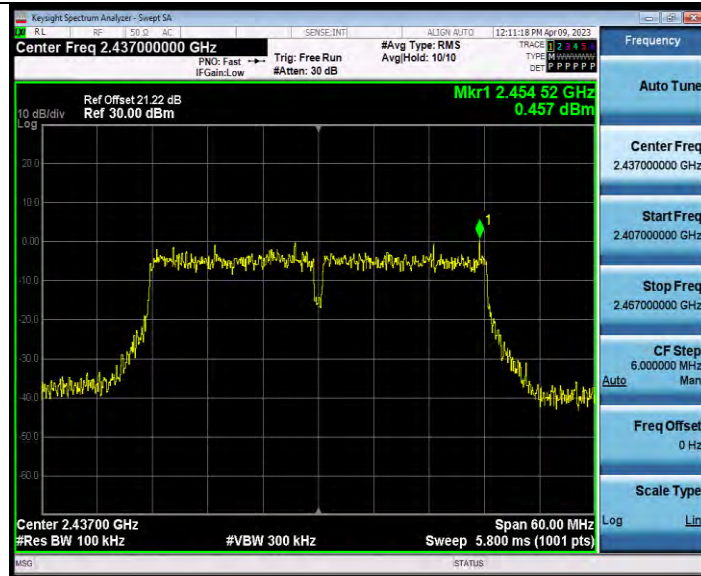


11N40SISO_Ant1_2437_0~Reference



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Test Report No.: W7L-P23030025RF02



11N40SISO_Ant1_2437_30~1000



11N40SISO_Ant1_2437_1000~26500



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Test Report No.: W7L-P23030025RF02



11N40SISO_Ant1_2452_0~Reference

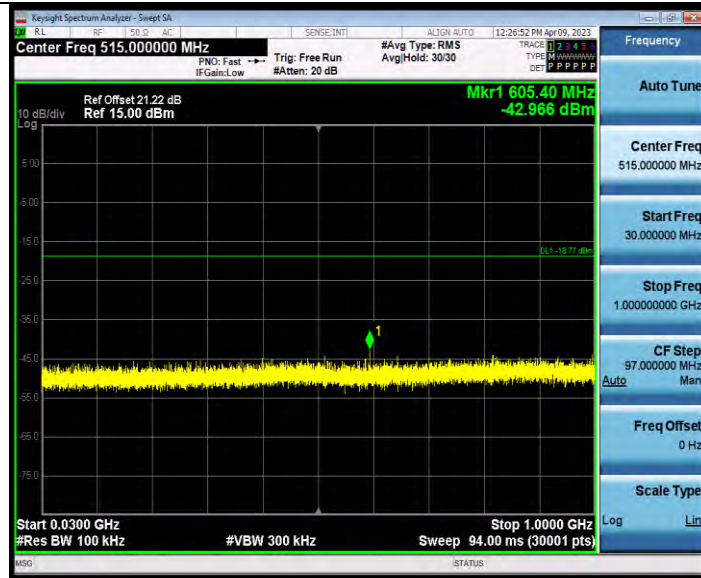


11N40SISO_Ant1_2452_30~1000



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Test Report No.: W7L-P23030025RF02



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	12.21	12.45	98.07	0.08
		2437	12.20	12.44	98.07	0.08
		2462	12.21	12.34	98.95	0.05
11G	Ant1	2412	2.03	2.07	98.07	0.08
		2437	2.03	2.07	98.07	0.08
		2462	2.03	2.07	98.07	0.08
11N20SISO	Ant1	2412	1.70	1.74	97.70	0.10
		2437	1.70	1.74	97.70	0.10
		2462	1.70	1.74	97.70	0.10
11N40SISO	Ant1	2422	0.84	0.89	94.38	0.25
		2437	0.84	0.89	94.38	0.25
		2452	0.84	0.89	94.38	0.25

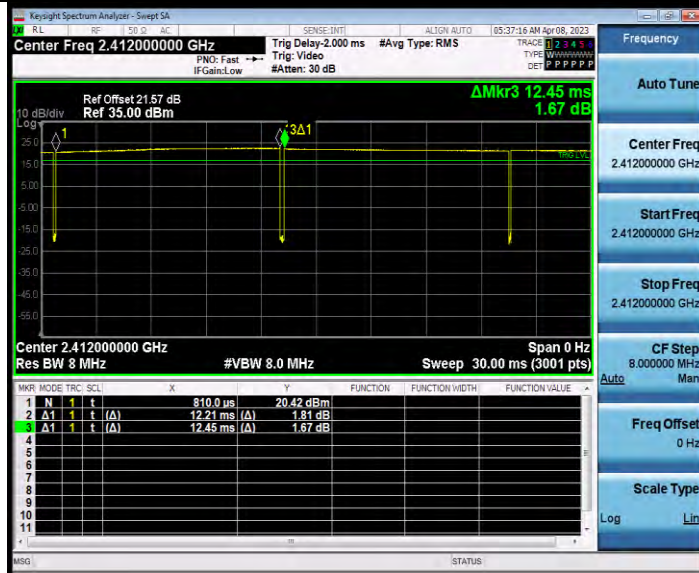


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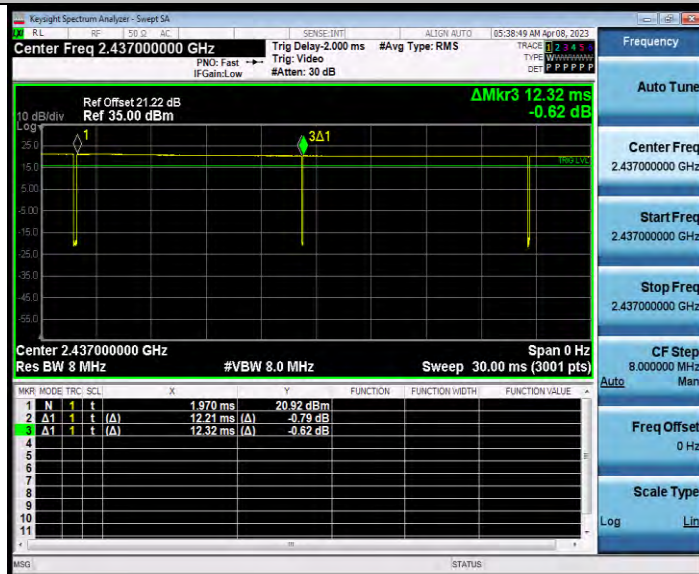
Test Report No.: W7L-P23030025RF02

TEST GRAPHS

11B_Ant1_2412



11B_Ant1_2437

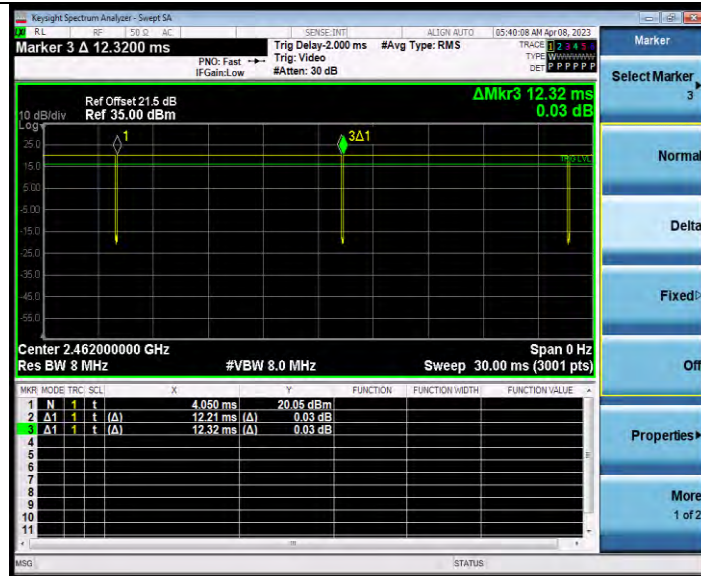


11B_Ant1_2462

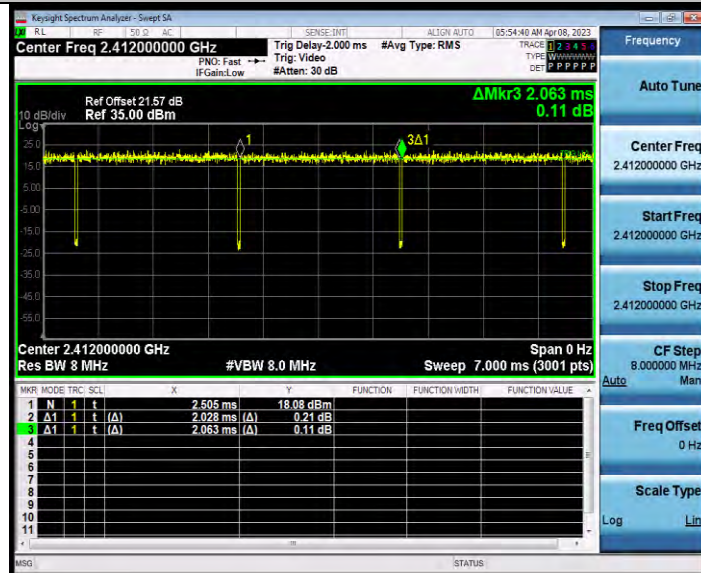


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Test Report No.: W7L-P23030025RF02



11G_Ant1_2412

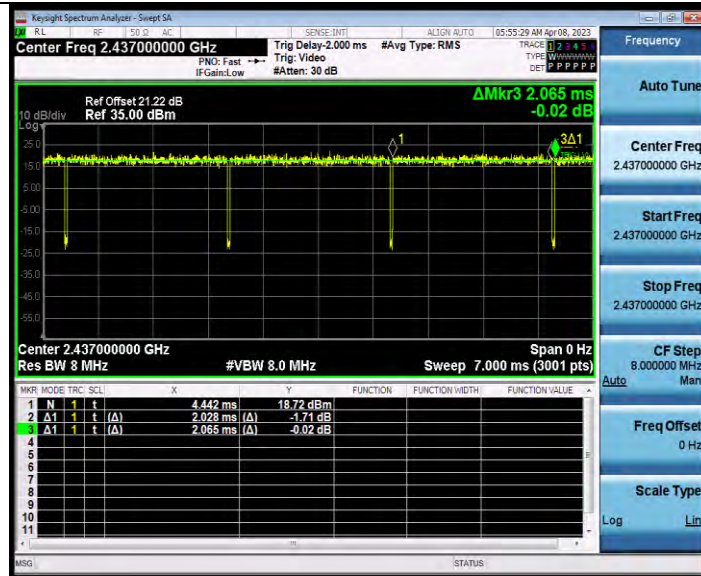


11G_Ant1_2437

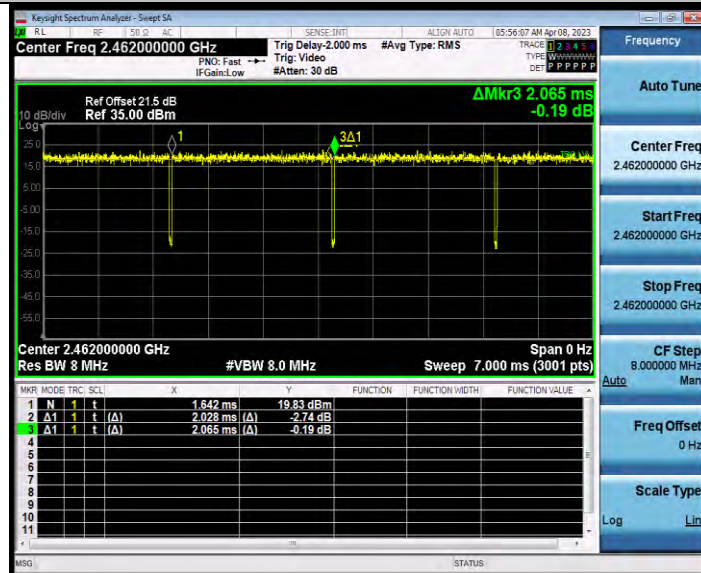


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Test Report No.: W7L-P23030025RF02



11G_Ant1_2462

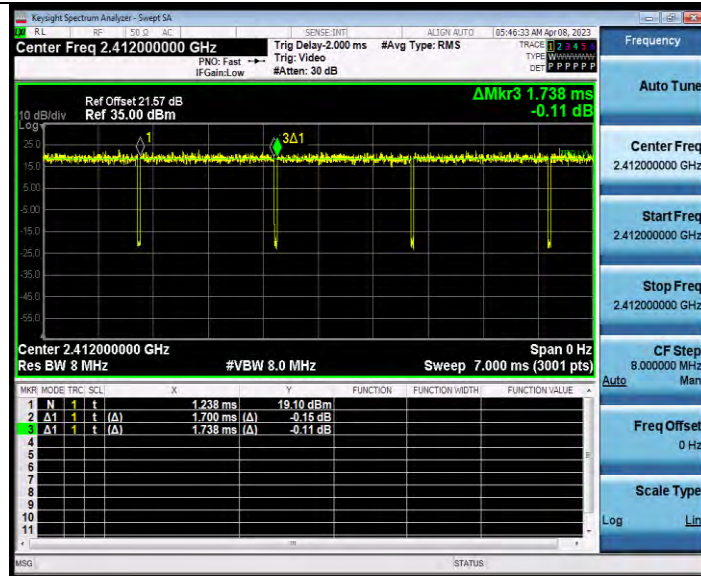


11N20SISO_Ant1_2412

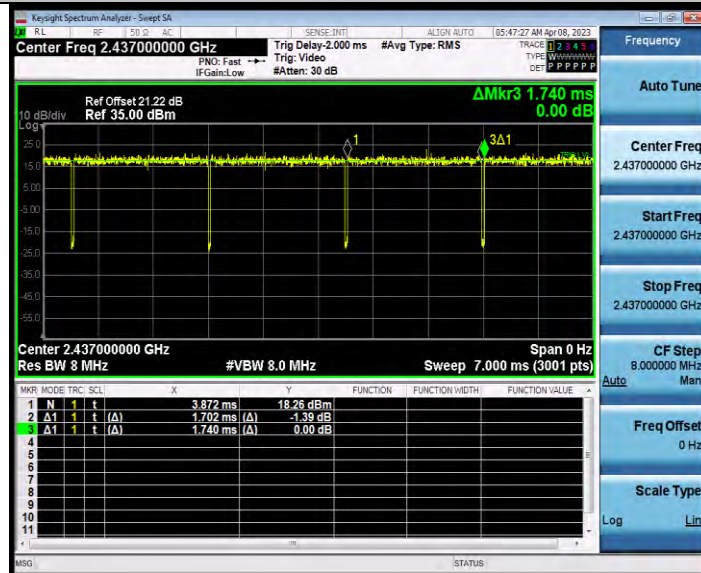


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Test Report No.: W7L-P23030025RF02



11N20SISO_Ant1_2437

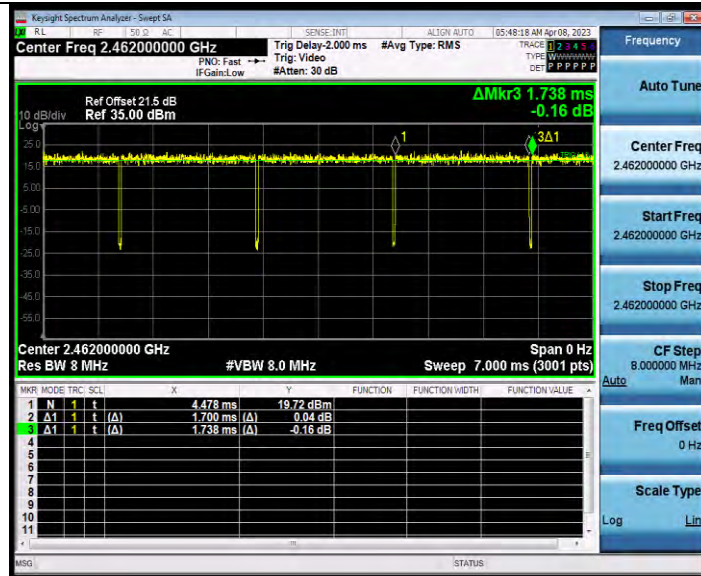


11N20SISO_Ant1_2462

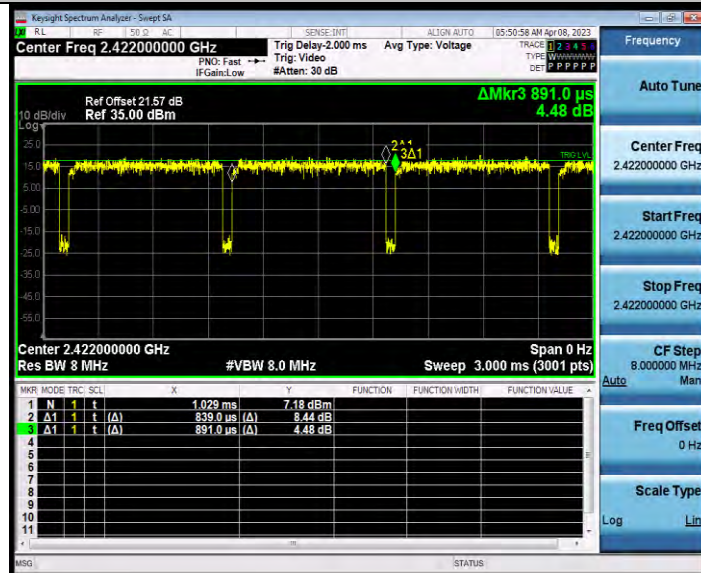


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VERITAS**

Test Report No.: W7L-P23030025RF02



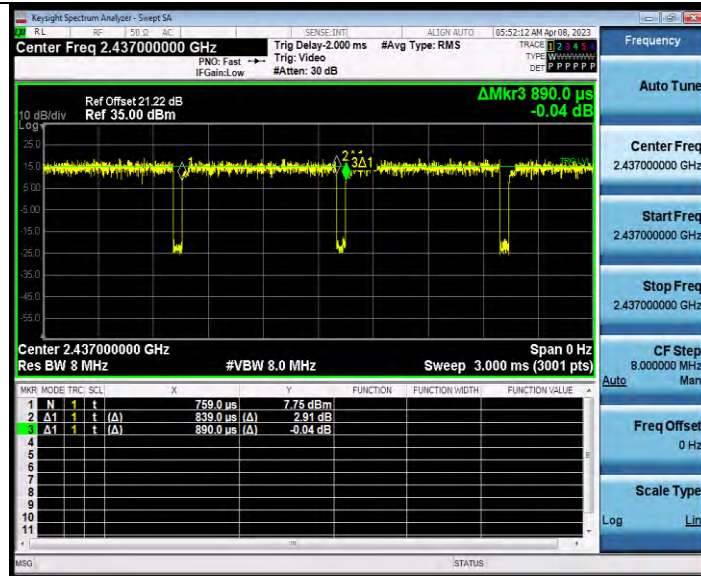
11N40SISO_Ant1_2422



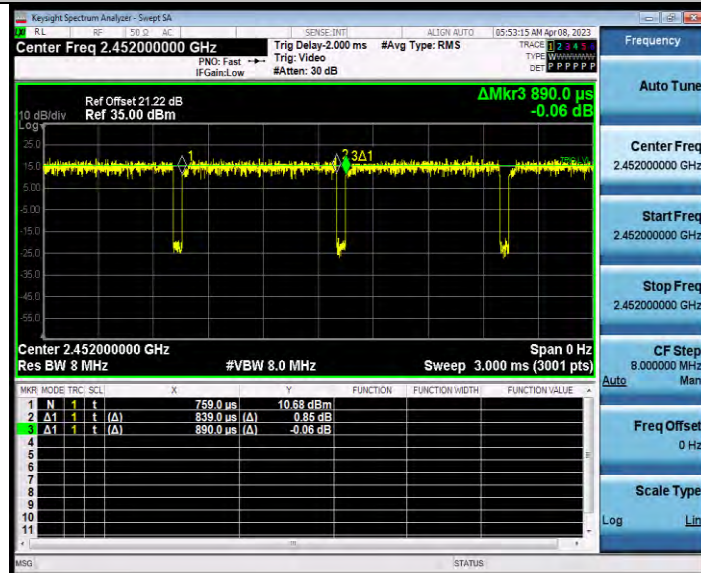
11N40SISO_Ant1_2437



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11N40SISO_Ant1_2452





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	0.684	2401.664	2402.348	0.5	PASS
		2440	0.688	2439.664	2440.352	0.5	PASS
		2480	0.656	2479.676	2480.332	0.5	PASS



TEST GRAPHS

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



**BUREAU
VERITAS**

Test Report No.: W7L-P23030025RF02





OCCUPIED CHANNEL BANDWIDTH TEST RESULT

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0621	2401.4830	2402.5451	---	---
		2440	1.0519	2439.4901	2440.5420	---	---
		2480	1.0600	2479.4844	2480.5444	---	---



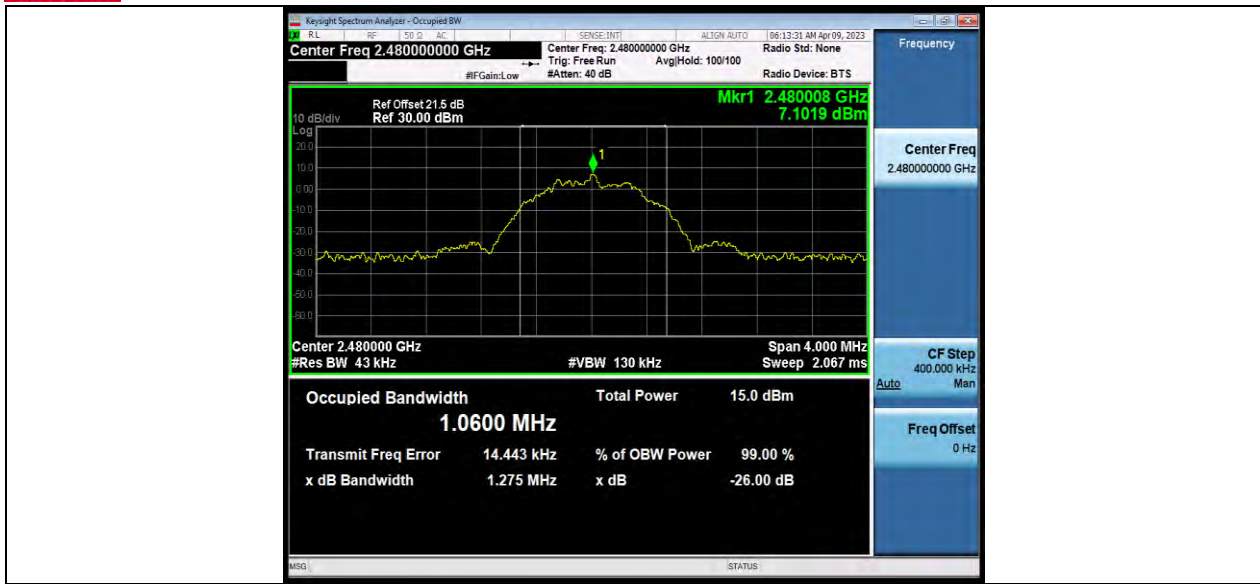
TEST GRAPHS





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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	5.69	6.02	4.00	≤30	9.02	7.98	≤36	PASS	Default
		2440	7.10	7.35	5.43	≤30	10.35	10.84	≤36	PASS	Default
		2480	7.11	7.34	5.42	≤30	10.34	10.81	≤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	-7.7	≤8.00	PASS
		2440	-6.83	≤8.00	PASS
		2480	-6.47	≤8.00	PASS



BUREAU VERITAS

Test Report No.: W7L-P23030025RF02

TEST GRAPHS

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440

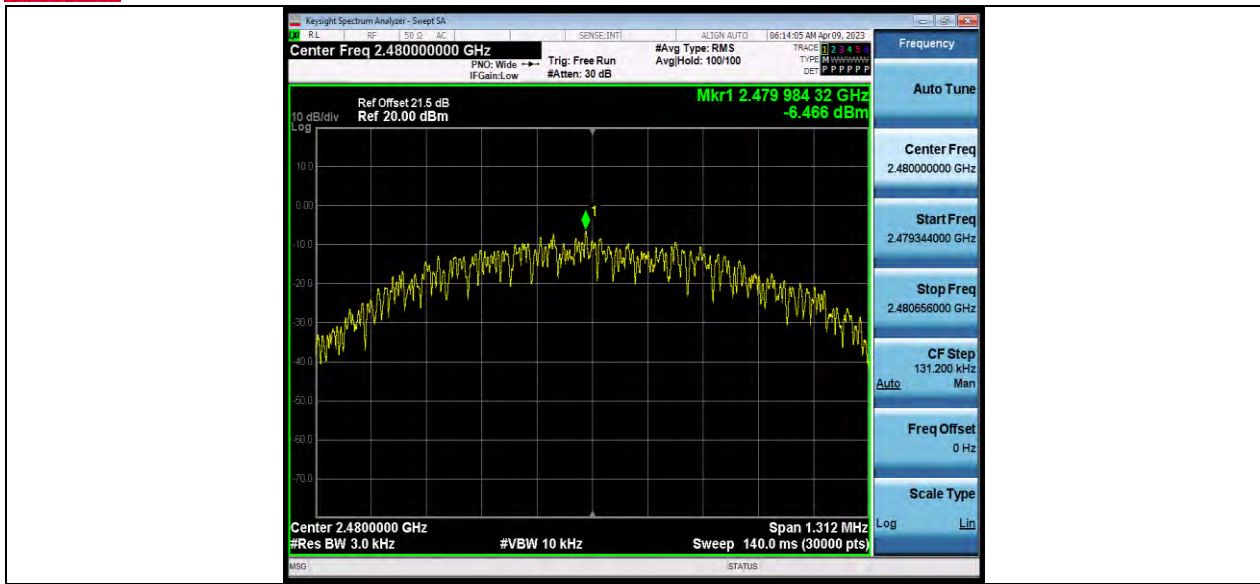


BLE_1M_Ant1_2480



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Test Report No.: W7L-P23030025RF02



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BAND EDGE MEASUREMENTS

TEST RESULT

TestMode	Antenna	ChName	Frequency [MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	6.90	-34.34	≤-13.1	PASS
		High	2480	7.56	-34.39	≤-12.44	PASS

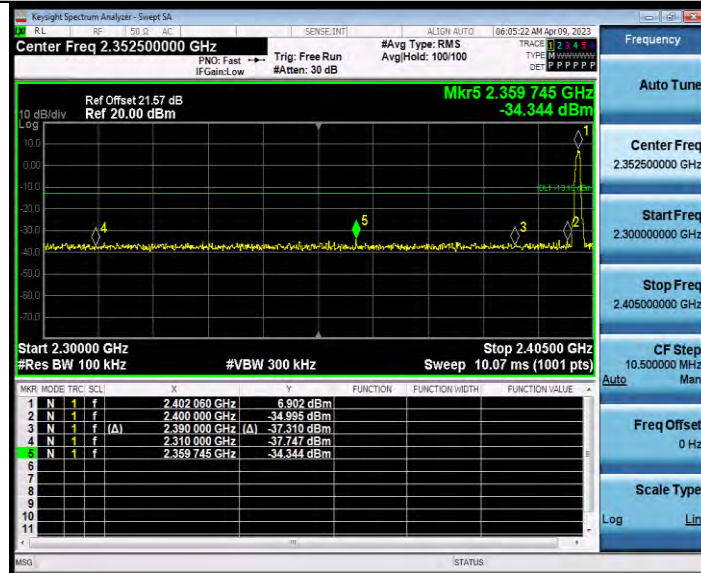


BUREAU VERITAS

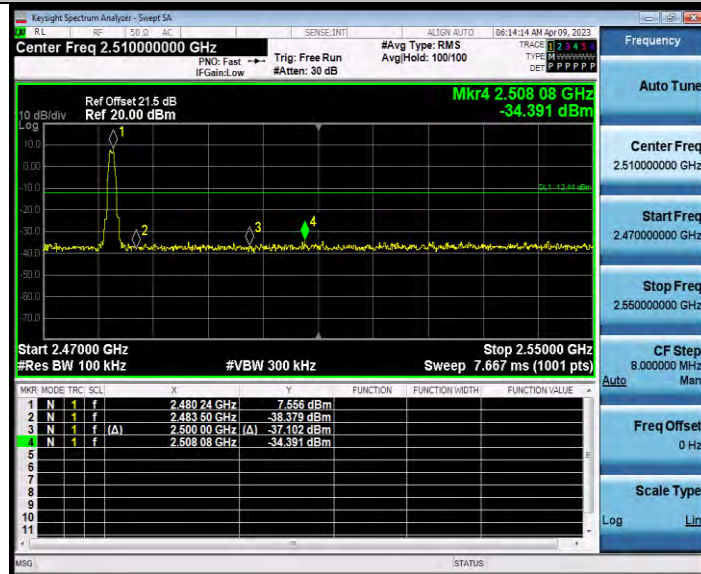
Test Report No.: W7L-P23030025RF02

TEST GRAPHS

BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480





CONDUCTED SPURIOUS EMISSION

TEST RESULT

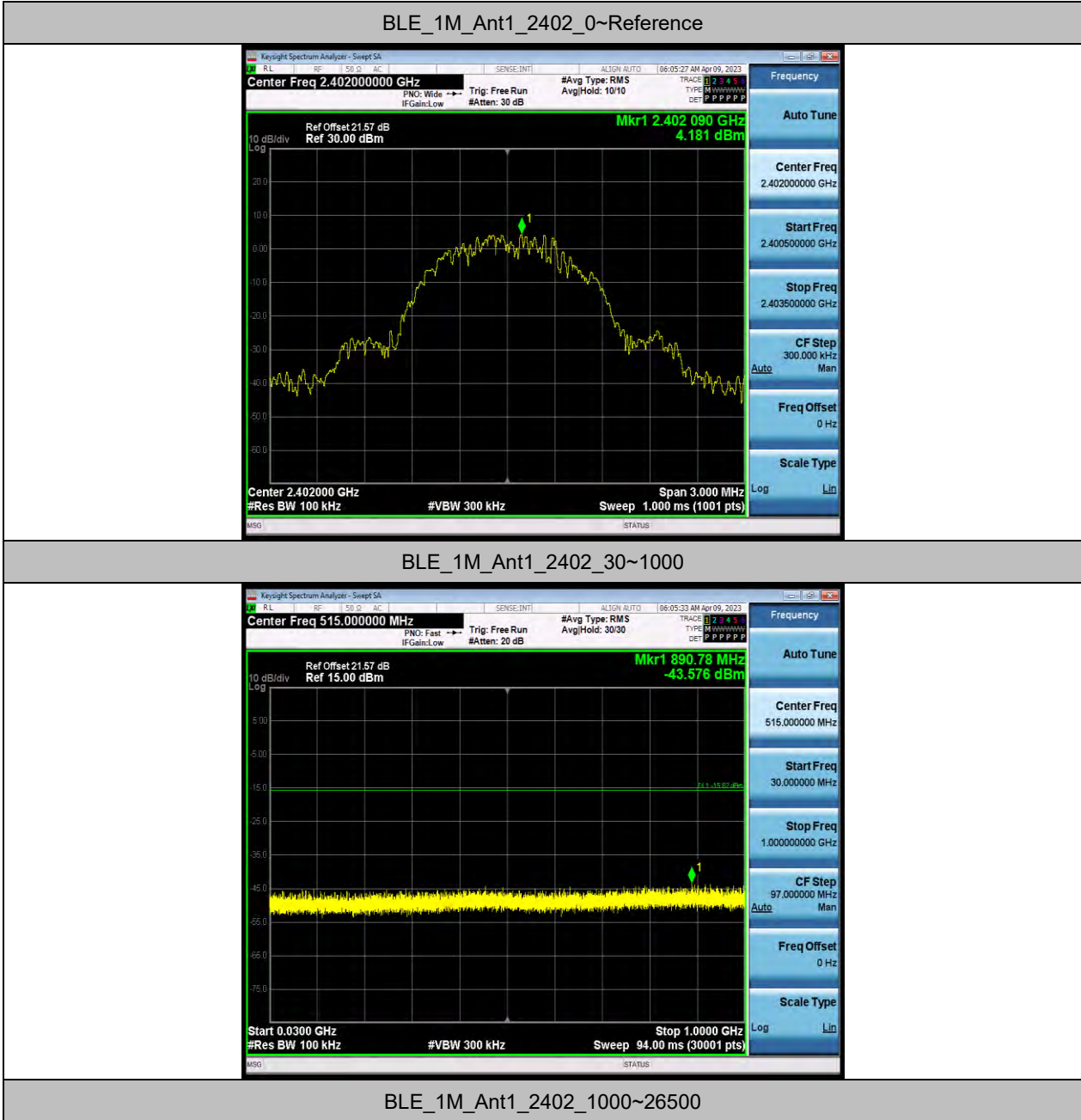
TestMode	Antenna	Frequency [MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	4.18	4.18	---	PASS
			30~1000	4.18	-43.58	≤-15.82	PASS
			1000~26500	4.18	-24.88	≤-15.82	PASS
		2440	Reference	6.95	6.95	---	PASS
			30~1000	6.95	-43.32	≤-13.05	PASS
			1000~26500	6.95	-24.6	≤-13.05	PASS
		2480	Reference	6.46	6.46	---	PASS
			30~1000	6.46	-43.77	≤-13.54	PASS
			1000~26500	6.46	-24.32	≤-13.54	PASS



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Test Report No.: W7L-P23030025RF02

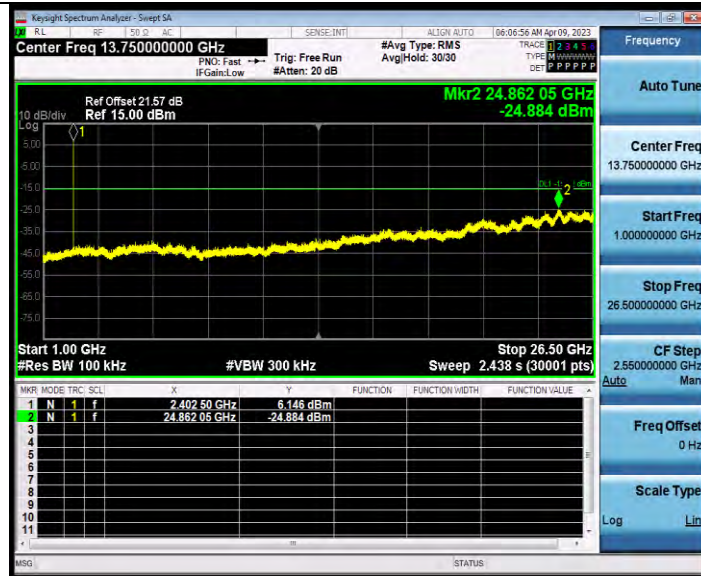
TEST GRAPHS





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VERITAS**

Test Report No.: W7L-P23030025RF02



BLE_1M_Ant1_2440_0~Reference

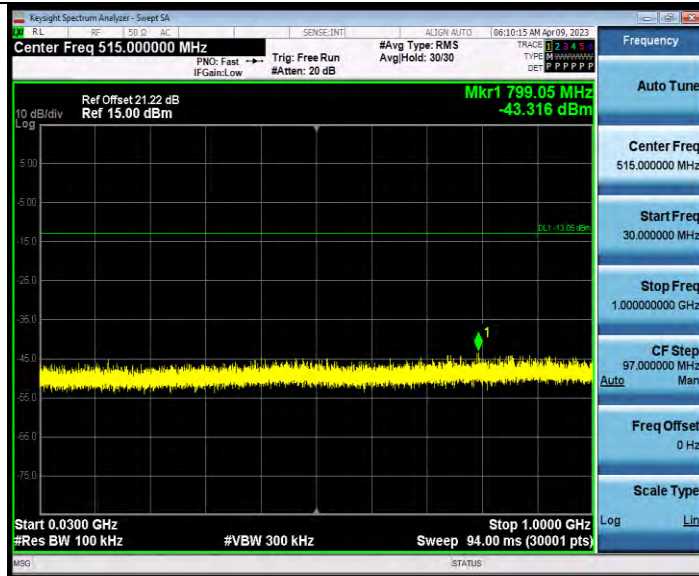


BLE_1M_Ant1_2440_30~1000



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Test Report No.: W7L-P23030025RF02



BLE_1M_Ant1_2440_1000~26500



BLE_1M_Ant1_2480_0~Reference



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Test Report No.: W7L-P23030025RF02



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500



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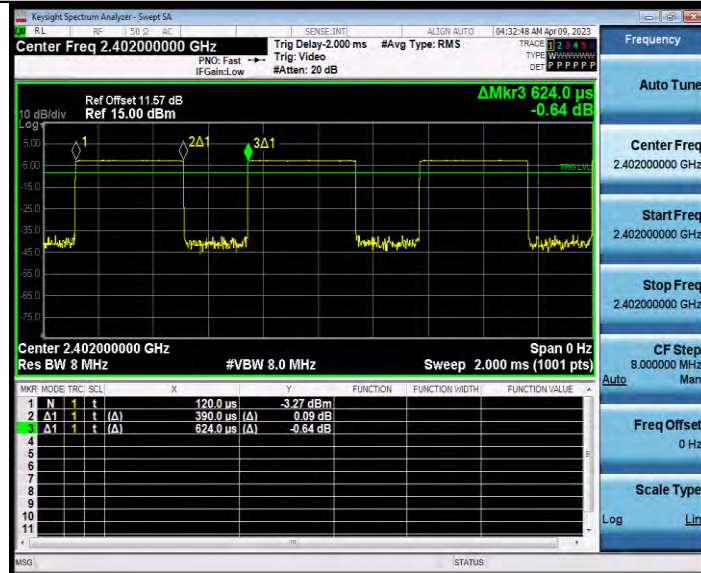
DUTY CYCLE TEST RESULT

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

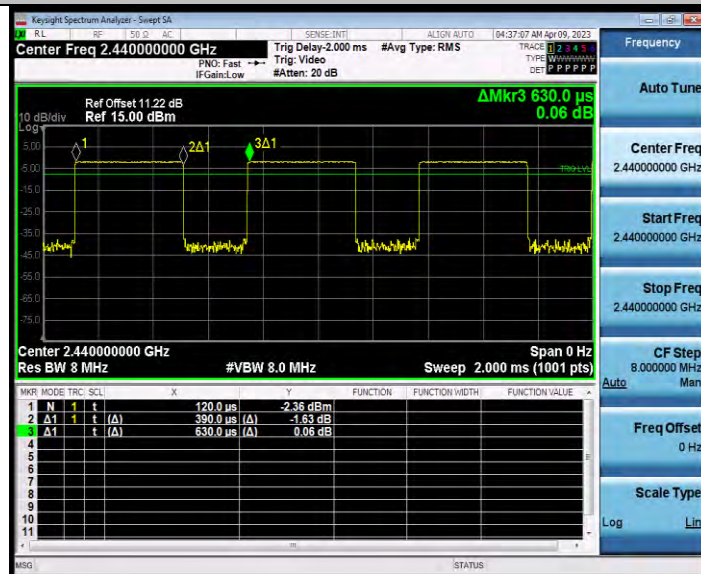


TEST GRAPHS

BLE_1M_Ant1_2402



BLE_1M_Ant1_2440

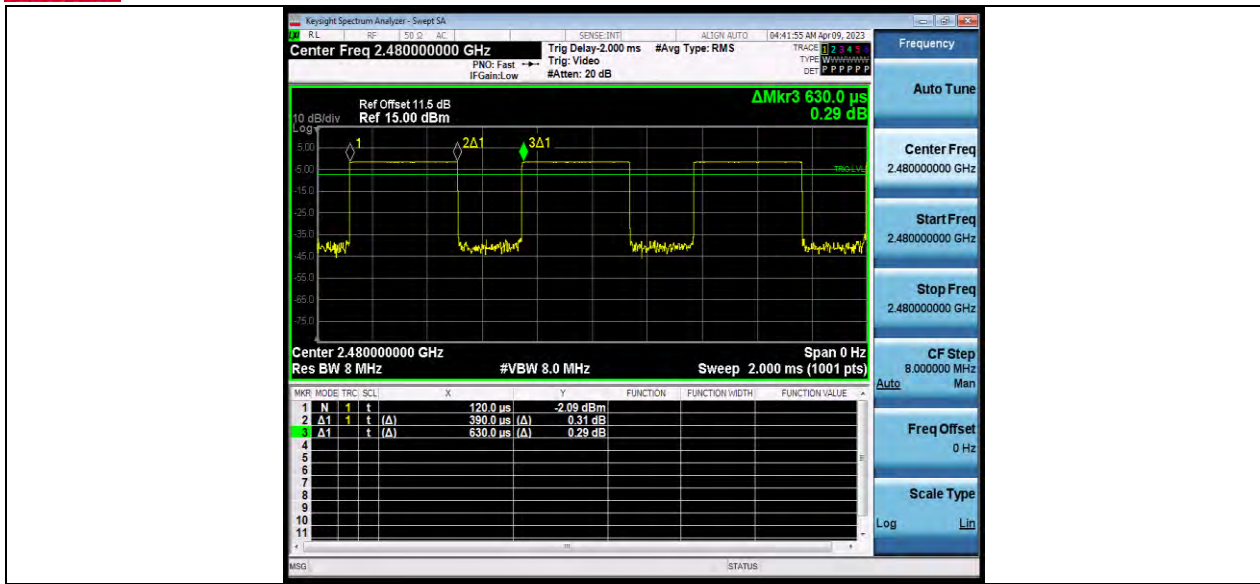


BLE_1M_Ant1_2480



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VERITAS**

Test Report No.: W7L-P23030025RF02



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