



CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	50.86	58.9	74	-23.14	31.75	6.18	45.97	127	266	Peak
2390	43.08	51.12	54	-10.92	31.75	6.18	45.97	127	266	Average
2480	100.35	107.94	/	/	32.04	6.3	45.93	195	214	Peak
2480	98.81	106.4	/	/	32.04	6.3	45.93	195	214	Average
2483.5	54.8	62.37	74	-19.2	32.05	6.31	45.93	117	311	Peak
2483.5	44.72	52.29	54	-9.28	32.05	6.31	45.93	117	311	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.46	59.11	74	-22.54	32.14	6.18	45.97	179	285	Peak
2390	43.79	51.44	54	-10.21	32.14	6.18	45.97	179	285	Average
2480	88.96	96.24	/	/	32.35	6.3	45.93	192	275	Peak
2480	87.99	95.27	/	/	32.35	6.3	45.93	192	275	Average
2483.5	51.2	58.46	74	-22.8	32.36	6.31	45.93	179	307	Peak
2483.5	44.79	52.05	54	-9.21	32.36	6.31	45.93	179	307	Average

REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
- 2480MHz: Fundamental frequency.

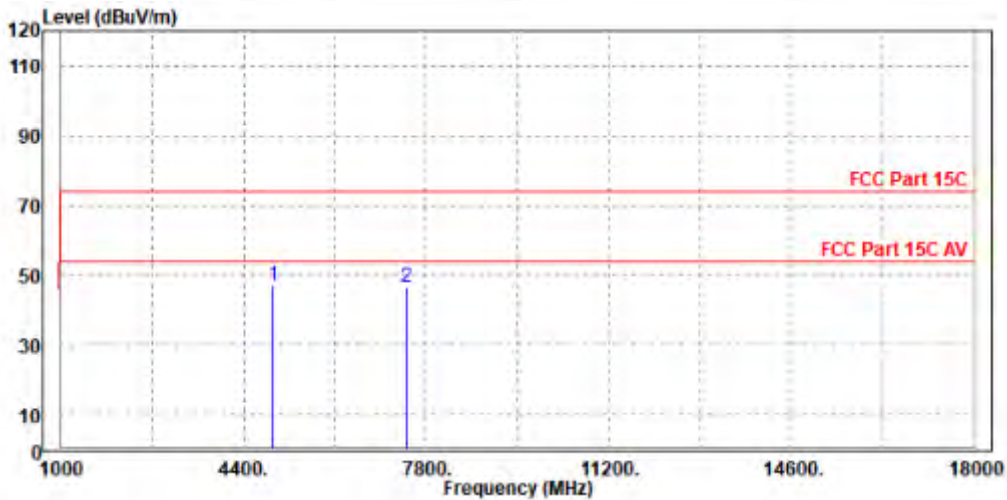


Worst case harmonic:

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

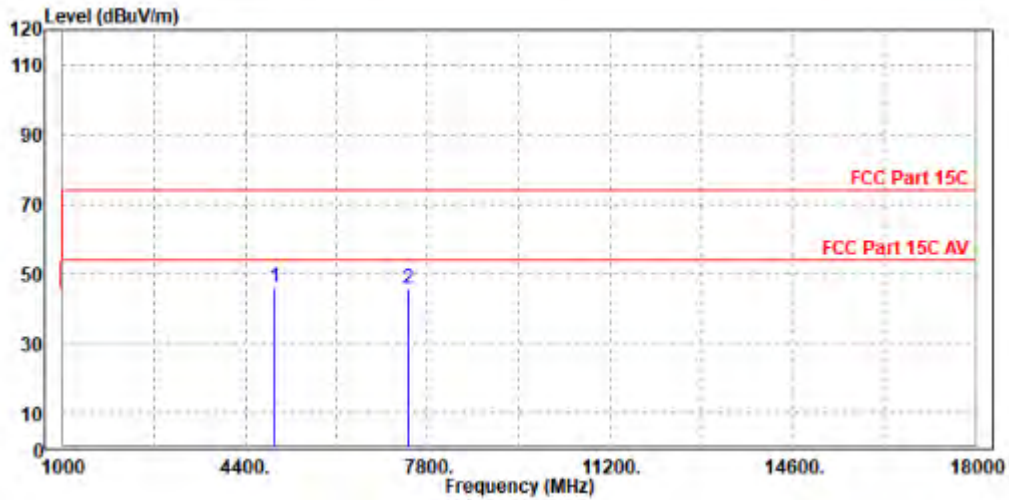
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	PP 4960.000	47.03	45.69	74.00	-26.97	1.34	Peak	Horizontal
2	7440.000	46.63	42.07	74.00	-27.37	4.56	Peak	Horizontal





ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	PP 4960.000	46.24	46.58	74.00	-27.76	-0.34	Peak	Vertical
2	7440.000	45.74	42.21	74.00	-28.26	3.53	Peak	Vertical



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 2480MHz: Fundamental frequency.
3. For frequency above 18GHz, the emission was tested 20db below the limit so the data not recorded in the sheet.



3.3 6 dB BANDWIDTH MEASUREMENT

3.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

3.3.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Meter	ANRITSU	ML2495A	1506002	Feb. 22,22	Feb. 21,23
EXA Signal Analyzer	KEYSIGHT	N9010A-526	MY54510322	Feb. 18,22	Feb. 17,23
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	May.15,22	May.14,23
Power Sensor	ANRITSU	MA2411B	1339352	May. 06,22	May. 05,23

NOTE:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
2. The test was performed in RF Oven room.

3.3.3 TEST PROCEDURE

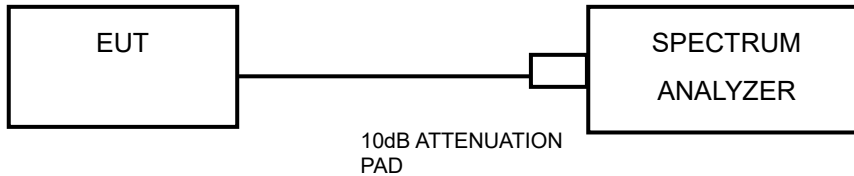
1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.



3.3.4 DEVIATION FROM TEST STANDARD

No deviation.

3.3.5 TEST SETUP



3.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



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VERITAS

3.3.7 TEST RESULTS

Please Refer to Appendix1/2 Of this test report.

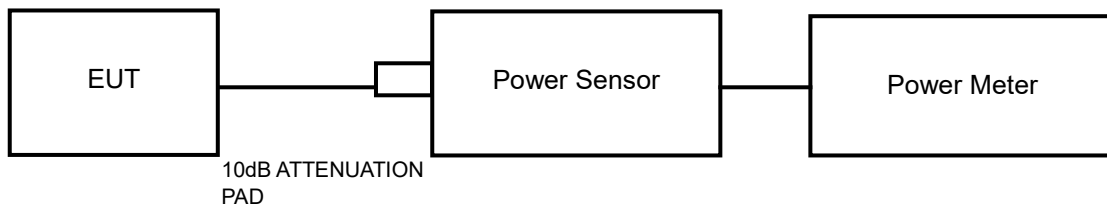


3.4 CONDUCTED OUTPUT POWER

3.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 2400–2483.5 MHz band: 1 Watt (30dBm)

3.4.2 TEST SETUP



3.4.3 TEST INSTRUMENTS

Refer to section 3.3.2 to get information of above instrument.

3.4.4 TEST PROCEDURES

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

3.4.5 DEVIATION FROM TEST STANDARD

No deviation.

3.4.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



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3.4.7 TEST RESULTS

3.4.7.1 MAXIMUM PEAK OUTPUT POWER

Please Refer to Appendix1/2 Of this test report.



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3.4.7.2 AVERAGE OUTPUT POWER (FOR REFERENCE)

The average power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

Please Refer to Appendix1/2 Of this test report.

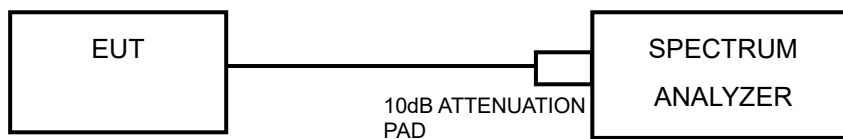


3.5 POWER SPECTRAL DENSITY MEASUREMENT

3.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm/3KHz.

3.5.2 TEST SETUP



3.5.3 TEST INSTRUMENTS

Refer to section 3.3.2 to get information of above instrument.

3.5.4 TEST PROCEDURE

1. Set the span to 1.5 times the DTS bandwidth
2. Set the RBW = 3 kHz, VBW \geq 3 x RBW, Detector = peak.
3. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
4. Use the peak marker function to determine the maximum amplitude level.

3.5.5 DEVIATION FROM TEST STANDARD

No deviation.

3.5.6 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



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3.5.7 TEST RESULTS

Please Refer to Appendix1/2 Of this test report.

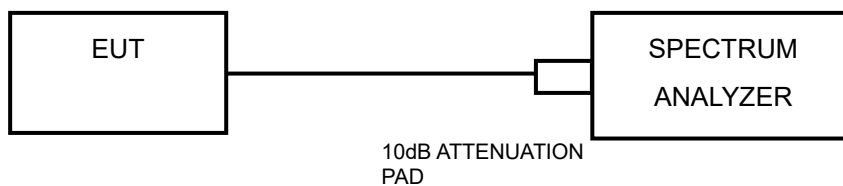


3.6 OUT OF BAND EMISSION MEASUREMENT

3.6.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

3.6.2 TEST SETUP



3.6.3 TEST INSTRUMENTS

Refer to section 3.3.2 to get information of above instrument.

3.6.4 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW \geq 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.



MEASUREMENT PROCEDURE OOB

1. Set RBW = 100 kHz.
2. Set VBW \geq 300 kHz.
3. Set span to encompass the spectrum to be examined
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

3.6.5 DEVIATION FROM TEST STANDARD

No deviation.

3.6.6 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

3.6.7 TEST RESULTS

The spectrum plots are attached on the following images. D1 line indicates the highest level. D2 line indicates the 20dB offset below D1. It shows compliance to the requirement.

Please Refer to Appendix1/2 Of this test report.



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4 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).



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5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.



6 Appendix 1 WLAN 2.4G DTS BANDWIDTH

TEST RESULT

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	8.520	2408.000	2416.520	0.5	PASS
		2437	8.040	2433.000	2441.040	0.5	PASS
		2462	8.600	2457.960	2466.560	0.5	PASS
11G	Ant1	2412	14.400	2405.120	2419.520	0.5	PASS
		2437	15.640	2429.160	2444.800	0.5	PASS
		2462	13.560	2455.360	2468.920	0.5	PASS
11N20SISO	Ant1	2412	14.240	2404.120	2418.360	0.5	PASS
		2437	17.520	2428.240	2445.760	0.5	PASS
		2462	12.600	2454.480	2467.080	0.5	PASS
11N40SISO	Ant1	2422	35.040	2404.480	2439.520	0.5	PASS
		2437	35.040	2419.480	2454.520	0.5	PASS
		2452	35.040	2434.480	2469.520	0.5	PASS



TEST GRAPHS

11B_Ant1_2412



11B_Ant1_2437



11B_Ant1_2462



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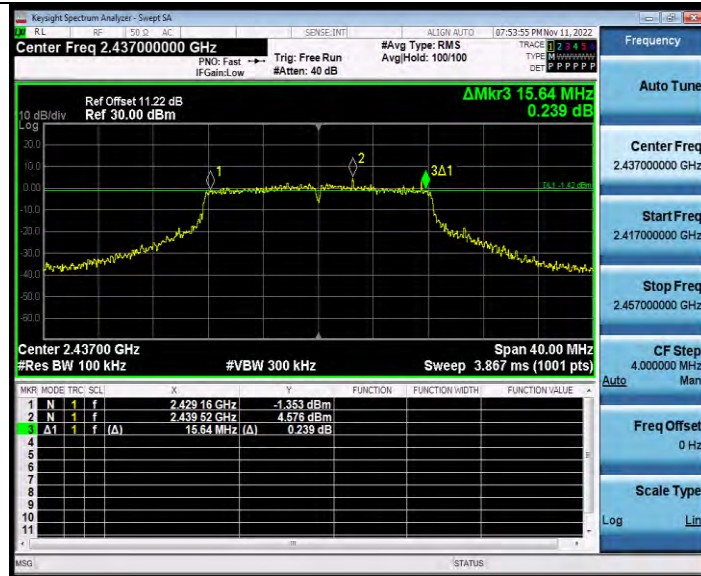
11G_Ant1_2412



11G_Ant1_2437



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11G_Ant1_2462

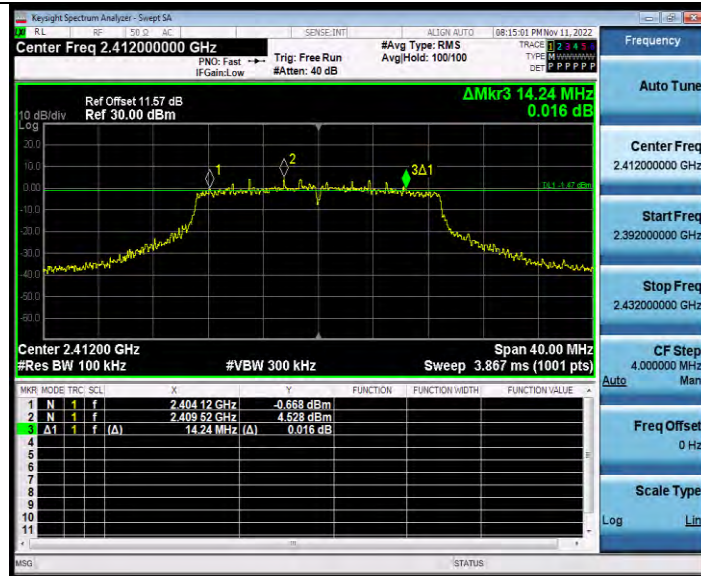


11N20SISO_Ant1_2412



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11N20SISO_Ant1_2437

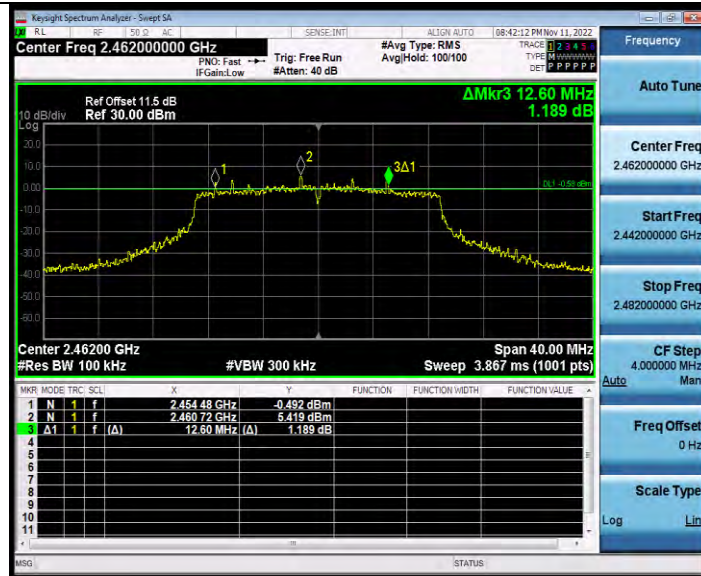


11N20SISO_Ant1_2462

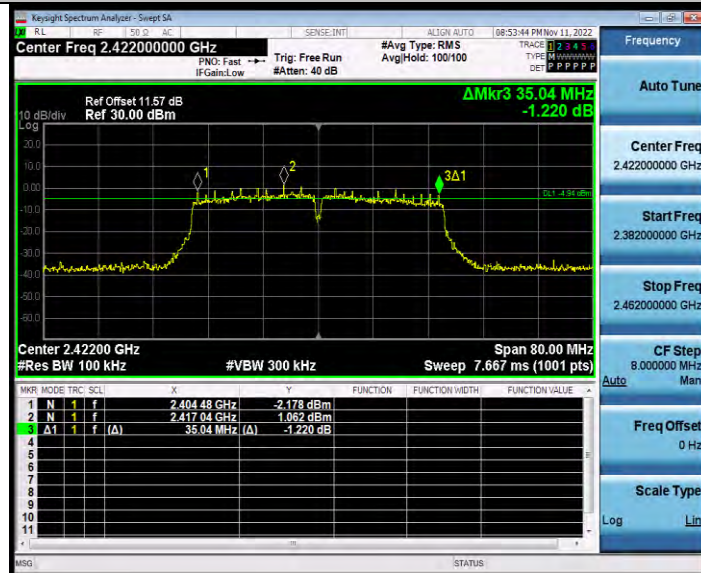


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Test Report No.: W7L-P22110001RF02



11N40SISO_Ant1_2422

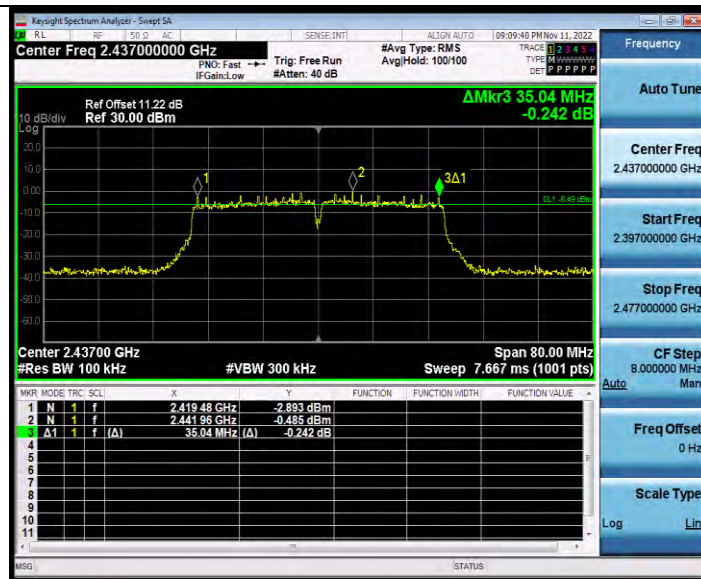


11N40SISO_Ant1_2437



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Test Report No.: W7L-P22110001RF02



11N40SISO_Ant1_2452





OCCUPIED CHANNEL BANDWIDTH TEST RESULT

TestMode	Antenna	Channel Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	13.835	2405.1110	2418.9460	---	---
		2437	13.970	2430.0736	2444.0436	---	---
		2462	13.834	2455.0628	2468.8968	---	---
11G	Ant1	2412	16.657	2403.6755	2420.3325	---	---
		2437	16.760	2428.6423	2445.4023	---	---
		2462	16.694	2453.6743	2470.3683	---	---
11N20SISO	Ant1	2412	17.863	2403.0999	2420.9629	---	---
		2437	18.012	2428.0256	2446.0376	---	---
		2462	17.849	2453.1044	2470.9534	---	---
11N40SISO	Ant1	2422	36.205	2403.9090	2440.1140	---	---
		2437	36.349	2418.9043	2455.2533	---	---
		2452	36.091	2434.0377	2470.1287	---	---



TEST GRAPHS

11B_Ant1_2412



11B_Ant1_2437



11B_Ant1_2462

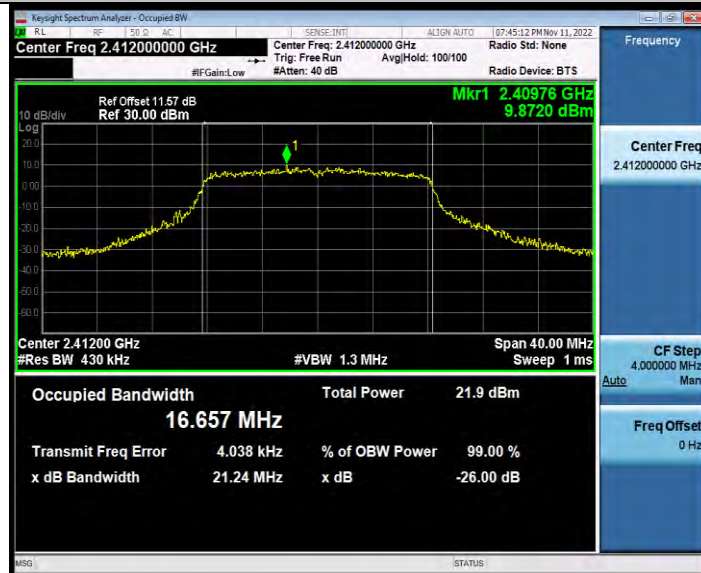


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VERITAS**

Test Report No.: W7L-P22110001RF02



11G_Ant1_2412

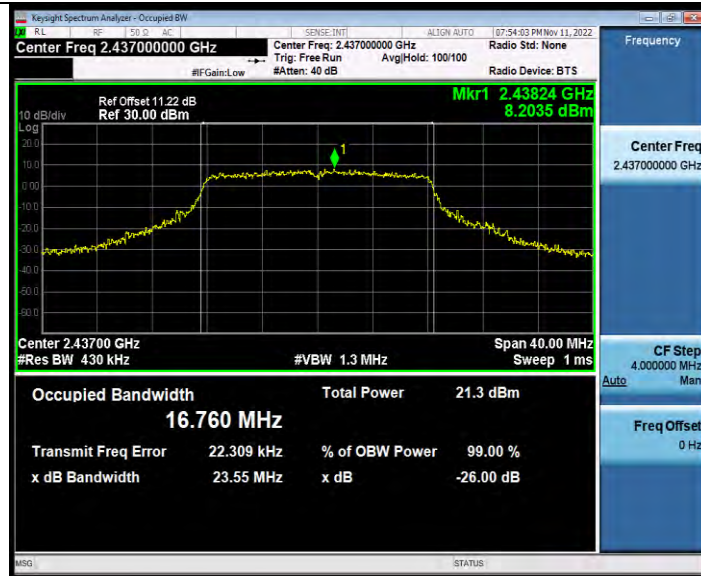


11G_Ant1_2437



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Test Report No.: W7L-P22110001RF02



11G_Ant1_2462

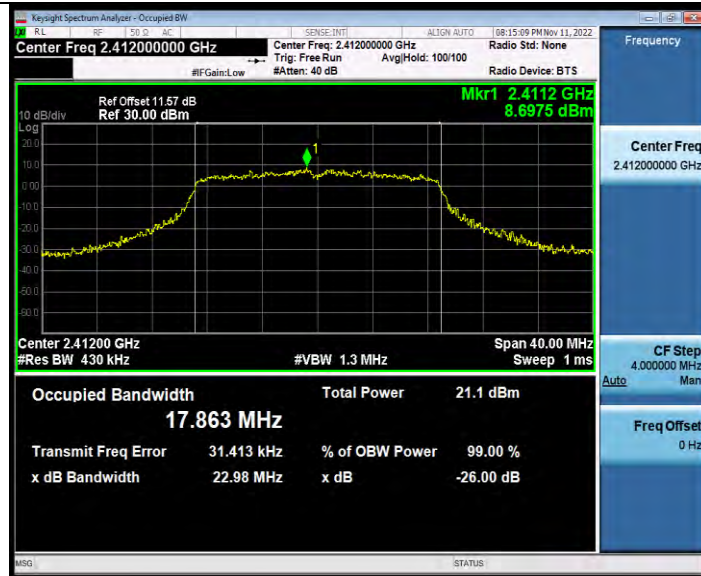


11N20SISO_Ant1_2412



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Test Report No.: W7L-P22110001RF02



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462

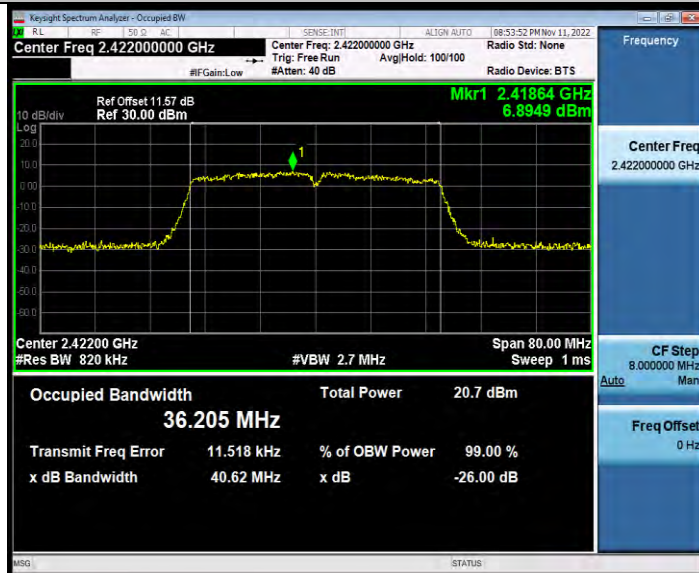


BUREAU VERITAS

Test Report No.: W7L-P22110001RF02



11N40SISO_Ant1_2422

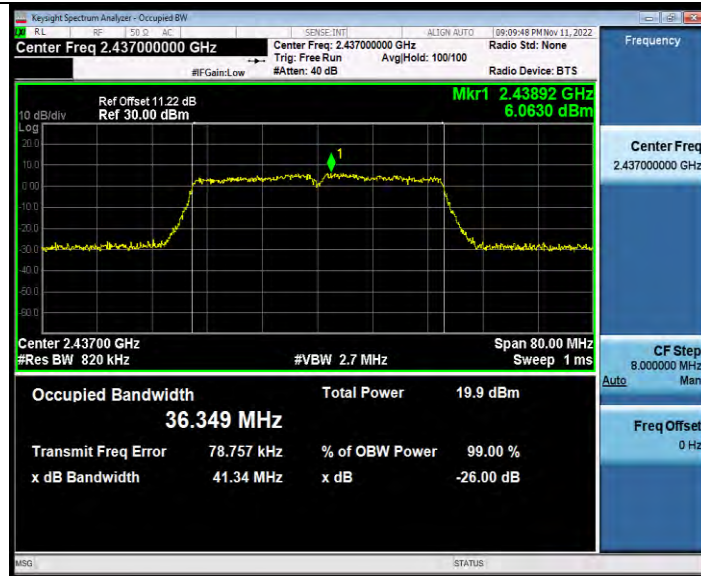


11N40SISO_Ant1_2437

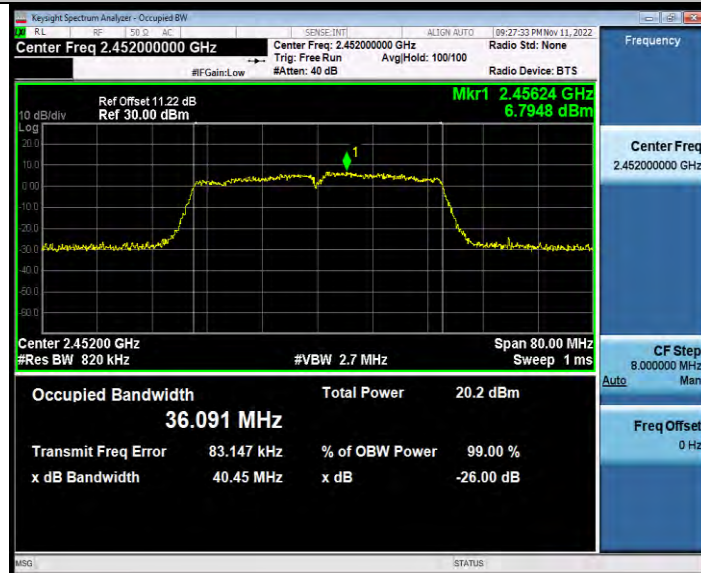


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Test Report No.: W7L-P22110001RF02



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	15.44	17.78	59.98	≤30.00	15.58	36.14	≤36.00	PASS	16.0
		2437	15.43	17.72	59.16	≤30.00	15.52	35.65	≤36.00	PASS	16.0
		2462	15.48	17.84	60.81	≤30.00	15.64	36.64	≤36.00	PASS	16.5
11G	Ant1	2412	13.33	18.12	64.86	≤30.00	15.92	39.08	≤36.00	PASS	15.0
		2437	13.3	18.10	64.57	≤30.00	15.90	38.90	≤36.00	PASS	15.0
		2462	13.23	18.07	64.12	≤30.00	15.87	38.64	≤36.00	PASS	15.5
11N20SI SO	Ant1	2412	12.27	17.32	53.95	≤30.00	15.12	32.51	≤36.00	PASS	14.5
		2437	12.32	17.34	54.20	≤30.00	15.14	32.66	≤36.00	PASS	14.5
		2462	12.23	17.33	54.08	≤30.00	15.13	32.58	≤36.00	PASS	14.5
11N40SI SO	Ant1	2422	11.54	17.87	61.24	≤30.00	15.67	36.90	≤36.00	PASS	12.0
		2437	11.25	17.84	60.81	≤30.00	15.64	36.64	≤36.00	PASS	12.0
		2452	11.43	18.04	63.68	≤30.00	15.84	38.37	≤36.00	PASS	13.0



MAXIMUM POWER SPECTRAL DENSITY TEST RESULT

TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-2.83	≤8.00	PASS
		2437	-3.35	≤8.00	PASS
		2462	-2.88	≤8.00	PASS
11G	Ant1	2412	-7.43	≤8.00	PASS
		2437	-10.4	≤8.00	PASS
		2462	-9.67	≤8.00	PASS
11N20SISO	Ant1	2412	-9.78	≤8.00	PASS
		2437	-10.64	≤8.00	PASS
		2462	-9.90	≤8.00	PASS
11N40SISO	Ant1	2422	-12.83	≤8.00	PASS
		2437	-14.54	≤8.00	PASS
		2452	-13.82	≤8.00	PASS



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VERITAS**

Test Report No.: W7L-P22110001RF02

TEST GRAPHS

11B_Ant1_2412



11B_Ant1_2437



11B_Ant1_2462



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Test Report No.: W7L-P22110001RF02



11G_Ant1_2412

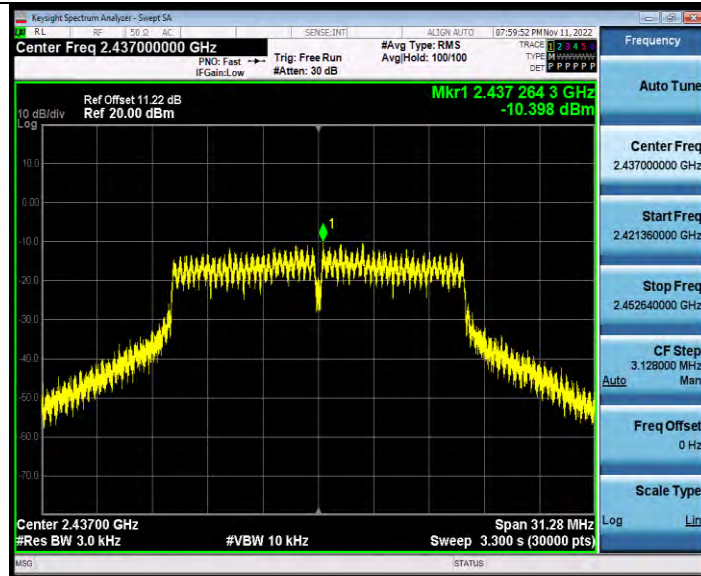


11G_Ant1_2437



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Test Report No.: W7L-P22110001RF02



11G_Ant1_2462

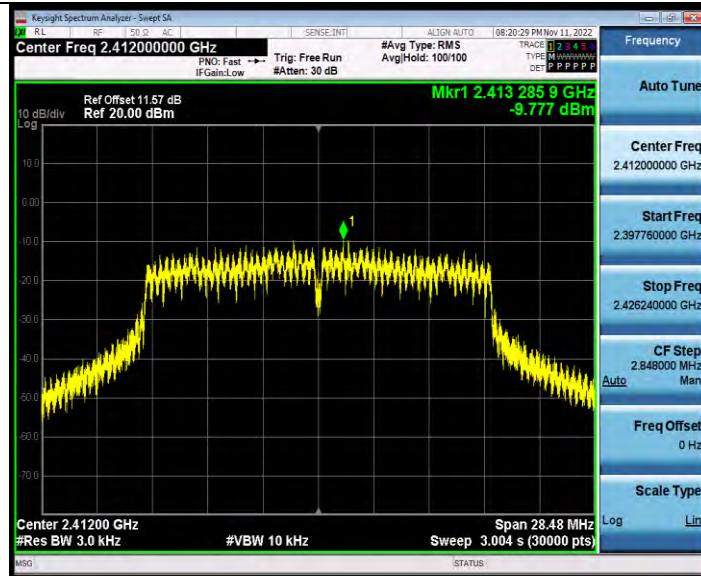


11N20SISO_Ant1_2412

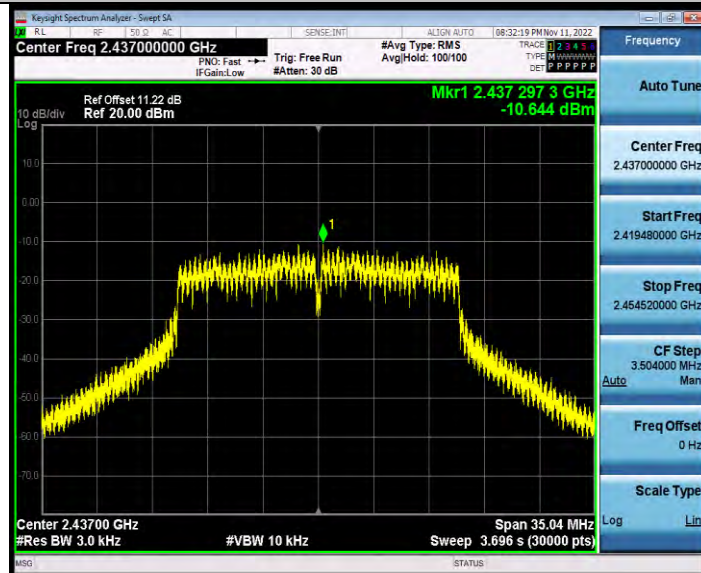


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Test Report No.: W7L-P22110001RF02



11N20SISO_Ant1_2437

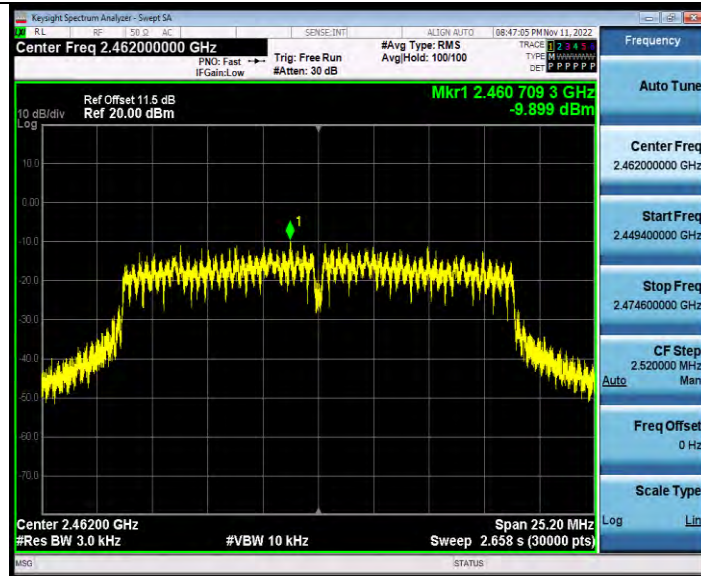


11N20SISO_Ant1_2462



BUREAU VERITAS

Test Report No.: W7L-P22110001RF02



11N40SISO_Ant1_2422

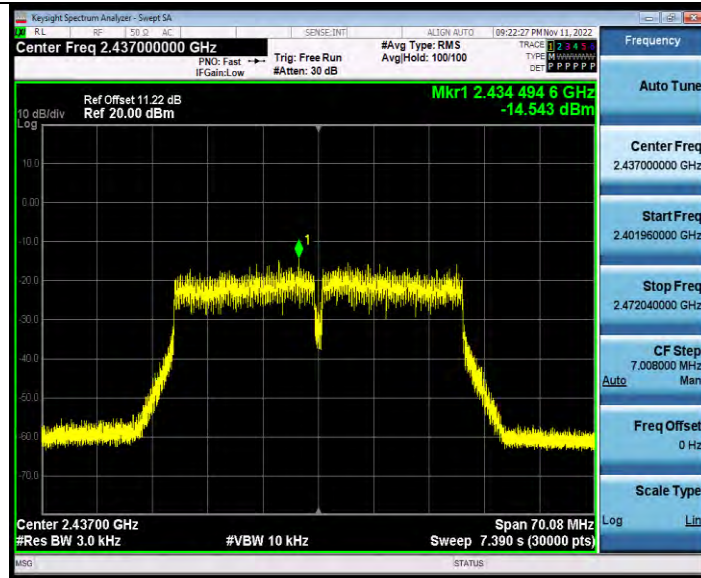


11N40SISO_Ant1_2437



**BUREAU
VERITAS**

Test Report No.: W7L-P22110001RF02



11N40SISO_Ant1_2452





BAND EDGE MEASUREMENTS

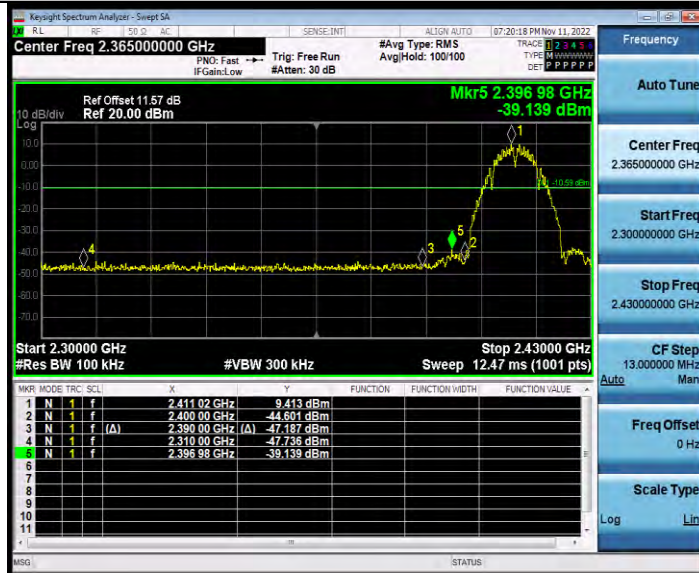
TEST RESULT

TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	9.41	-39.14	≤-10.59	PASS
		High	2462	9.50	-43.67	≤-10.5	PASS
11G	Ant1	Low	2412	6.73	-27.41	≤-13.27	PASS
		High	2462	3.96	-43.2	≤-16.04	PASS
11N20SISO	Ant1	Low	2412	4.65	-26.13	≤-15.35	PASS
		High	2462	5.67	-44.26	≤-14.33	PASS
11N40SISO	Ant1	Low	2422	1.03	-38.35	≤-18.97	PASS
		High	2452	-0.20	-42.27	≤-20.2	PASS

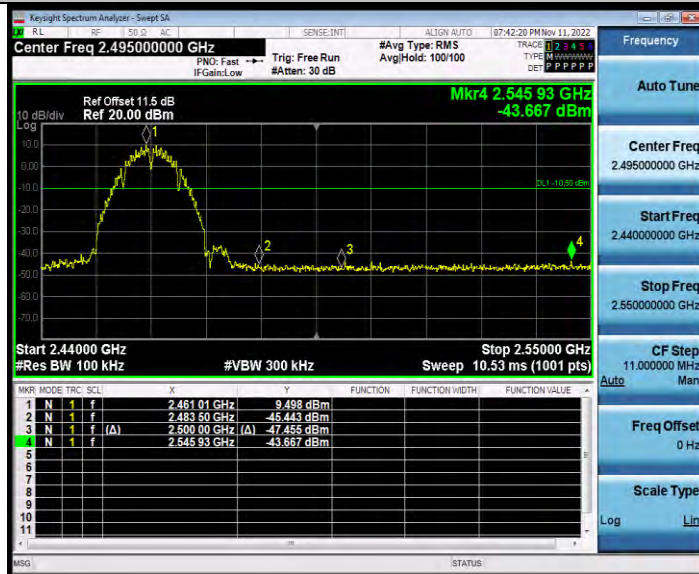


TEST GRAPHS

11B_Ant1_Low_2412



11B_Ant1_High_2462

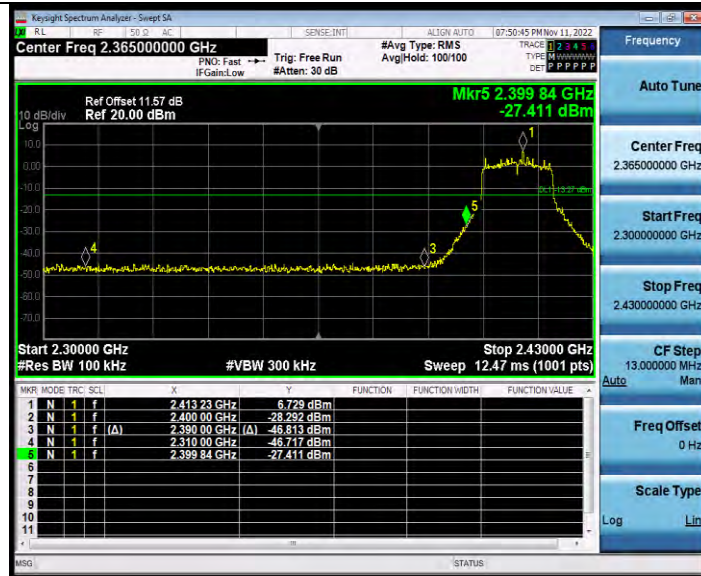


11G_Ant1_Low_2412



BUREAU VERITAS

Test Report No.: W7L-P22110001RF02



11G_Ant1_High_2462

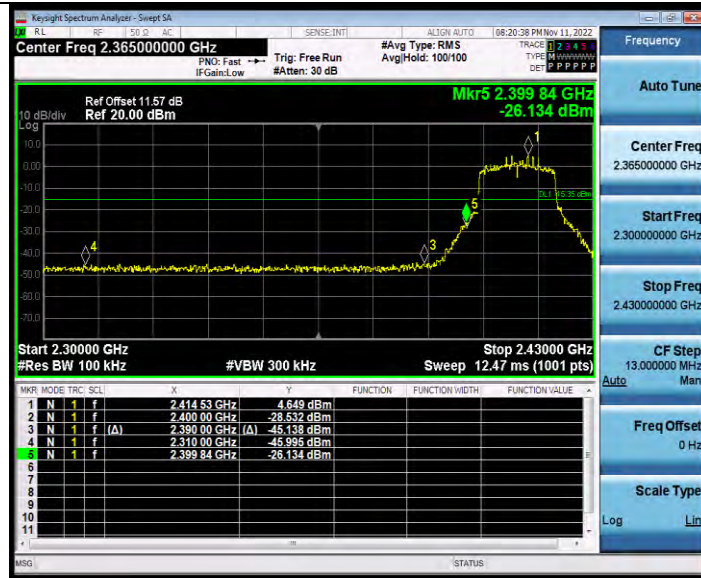


11N20SISO_Ant1_Low_2412



**BUREAU
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Test Report No.: W7L-P22110001RF02



11N20SISO_Ant1_High_2462



11N40SISO_Ant1_Low_2422



**BUREAU
VERITAS**

Test Report No.: W7L-P22110001RF02



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	7.80	7.80	---	PASS
			30~1000	7.80	-52.96	≤-12.2	PASS
			1000~26500	7.80	-34.03	≤-12.2	PASS
		2437	Reference	7.25	7.25	---	PASS
			30~1000	7.25	-52.76	≤-12.75	PASS
			1000~26500	7.25	-32.69	≤-12.75	PASS
		2462	Reference	8.03	8.03	---	PASS
			30~1000	8.03	-53.46	≤-11.97	PASS
			1000~26500	8.03	-34.01	≤-11.97	PASS
11G	Ant1	2412	Reference	4.45	4.45	---	PASS
			30~1000	4.45	-52.71	≤-15.55	PASS
			1000~26500	4.45	-33.89	≤-15.55	PASS
		2437	Reference	2.24	2.24	---	PASS
			30~1000	2.24	-53.87	≤-17.76	PASS
			1000~26500	2.24	-34.46	≤-17.76	PASS
		2462	Reference	1.83	1.83	---	PASS
			30~1000	1.83	-53.29	≤-18.17	PASS
			1000~26500	1.83	-34.06	≤-18.17	PASS
11N20SISO	Ant1	2412	Reference	2.42	2.42	---	PASS
			30~1000	2.42	-53.22	≤-17.58	PASS
			1000~26500	2.42	-34.19	≤-17.58	PASS
		2437	Reference	2.58	2.58	---	PASS
			30~1000	2.58	-52.3	≤-17.42	PASS
			1000~26500	2.58	-34.32	≤-17.42	PASS
		2462	Reference	2.71	2.71	---	PASS
			30~1000	2.71	-53.65	≤-17.29	PASS
			1000~26500	2.71	-34.03	≤-17.29	PASS
11N40SISO	Ant1	2422	Reference	-2.51	-2.51	---	PASS
			30~1000	-2.51	-52.71	≤-22.51	PASS



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			1000~26500	-2.51	-33.84	≤ -22.51	PASS
		2437	Reference	-0.99	-0.99	---	PASS
			30~1000	-0.99	-52.56	≤ -20.99	PASS
			1000~26500	-0.99	-34.6	≤ -20.99	PASS
		2452	Reference	-1.77	-1.77	---	PASS
			30~1000	-1.77	-53.18	≤ -21.77	PASS
			1000~26500	-1.77	-34.26	≤ -21.77	PASS



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TEST GRAPHS

