



8.4 MAXIMUM POWER SPECTRAL DENSITY

8.4.1 Applicable Standard

According to FCC Part15.247(e) and KDB 558074 D01 15.247 Meas Guidance v05r02
According to RSS-247, 5.2(b) and RSS-Gen6.12

8.4.2 Conformance Limit

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of section 5.4(d), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

8.4.3 Test Configuration

Test according to clause 6.1 radio frequency test setup

8.4.4 Test Procedure

This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance

The transmitter output (antenna port) was connected to the spectrum analyzer

Set analyzer center frequency to DTS channel center frequency.

Set the span to 1.5 times the DTS bandwidth.

Set the RBW to: 3 kHz

Set the VBW to: 10 kHz.

Set Detector = peak.

Set Sweep time = auto couple.

Set Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level within the RBW.

8.4.5 Test Results

Temperature:	25 °C
Relative Humidity:	45%
ATM Pressure:	1011 mbar

Note: N/A

TestMode	Antenna	Frequency[MHz]	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-9.81	≤8.00	PASS
		2437	-10.66	≤8.00	PASS
		2462	-10.05	≤8.00	PASS
11G	Ant1	2412	-12.47	≤8.00	PASS
		2437	-13.31	≤8.00	PASS
		2462	-12.83	≤8.00	PASS
11N20SISO	Ant1	2412	-13.53	≤8.00	PASS
		2437	-13.16	≤8.00	PASS
		2462	-13.08	≤8.00	PASS
11N40SISO	Ant1	2422	-15.47	≤8.00	PASS
		2437	-15.78	≤8.00	PASS
		2452	-15.79	≤8.00	PASS



11B_Ant1_2412



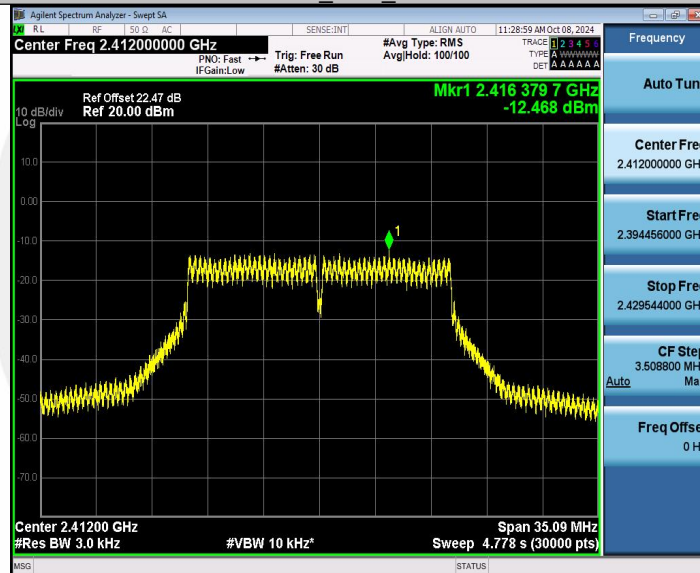
11B_Ant1_2437



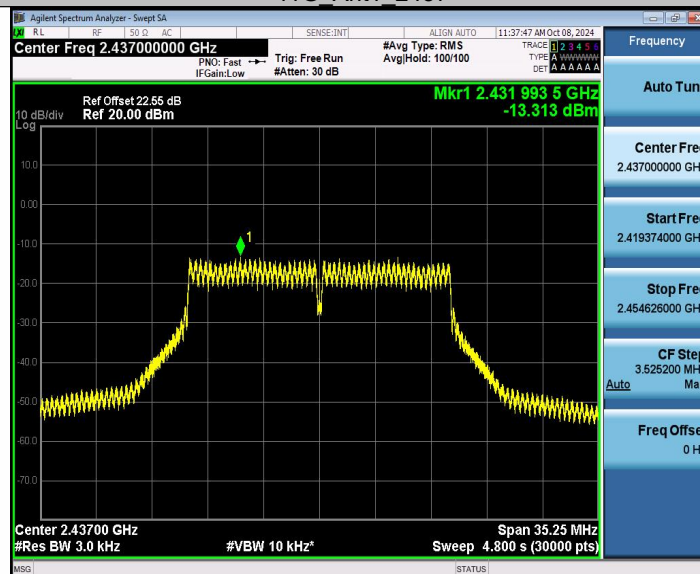
11B_Ant1_2462



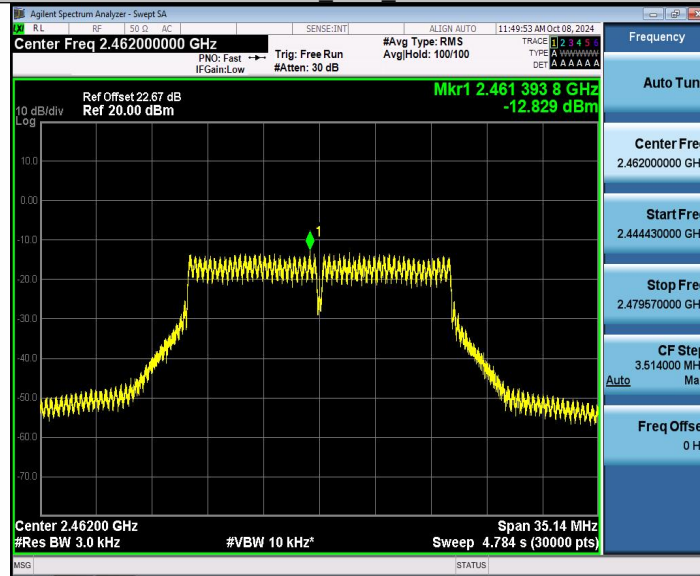
11G Ant1 2412



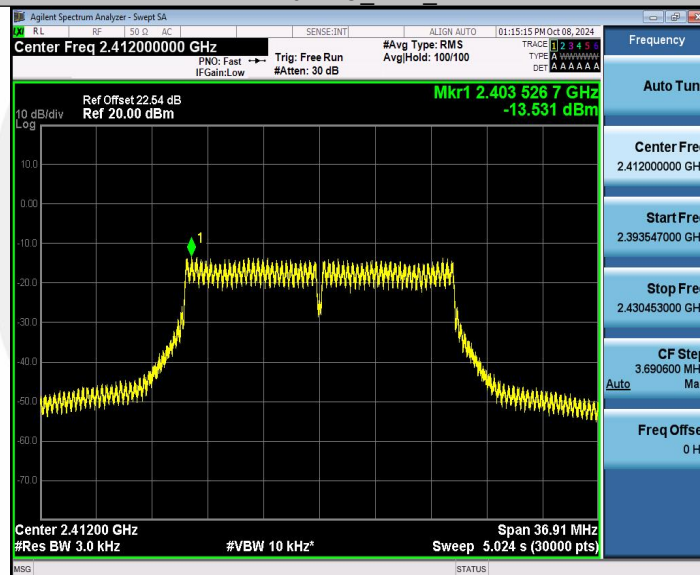
11G Ant1 2437



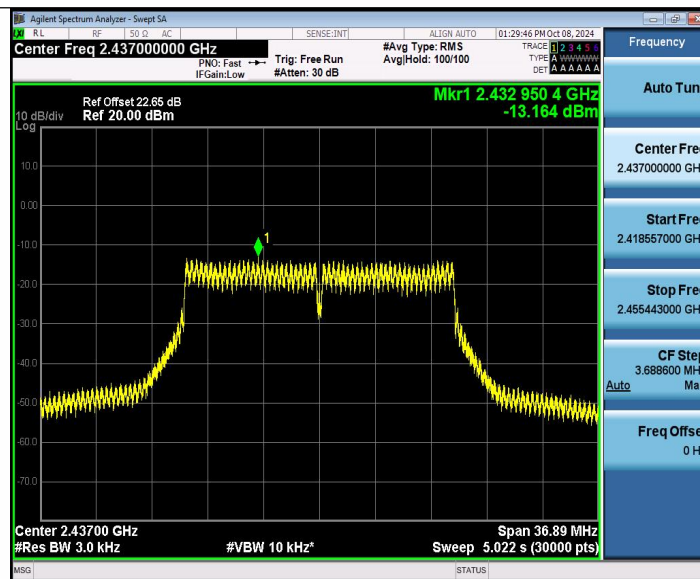
11G_Ant1_2462



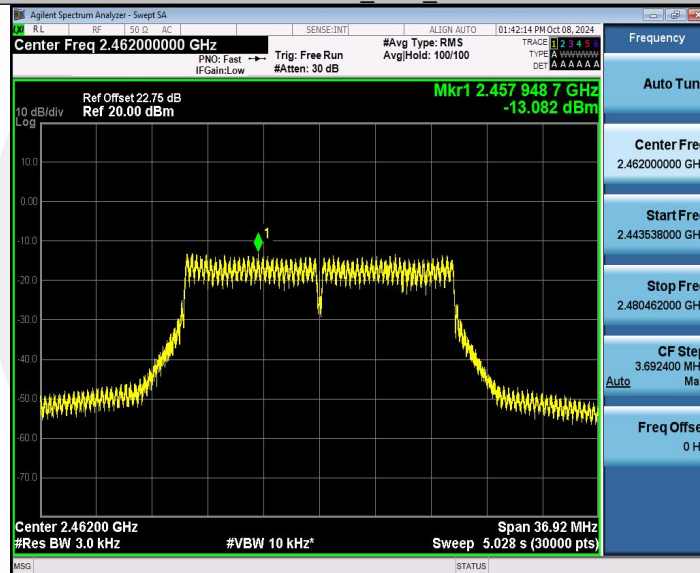
11N20SISO_Ant1_2412



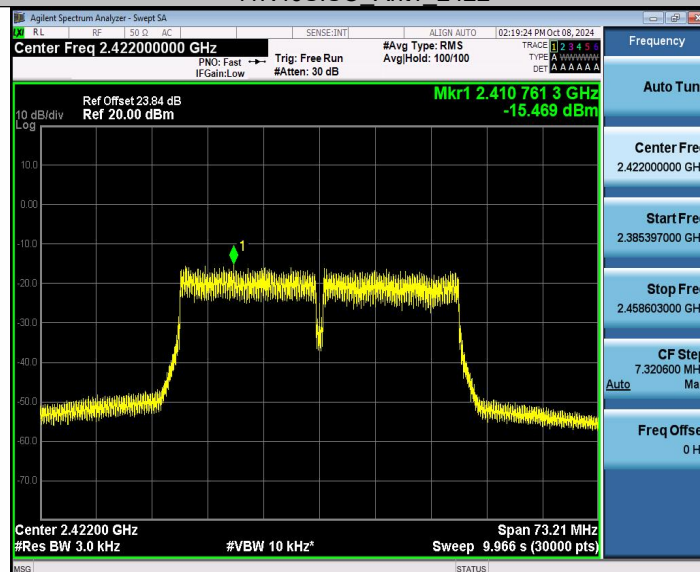
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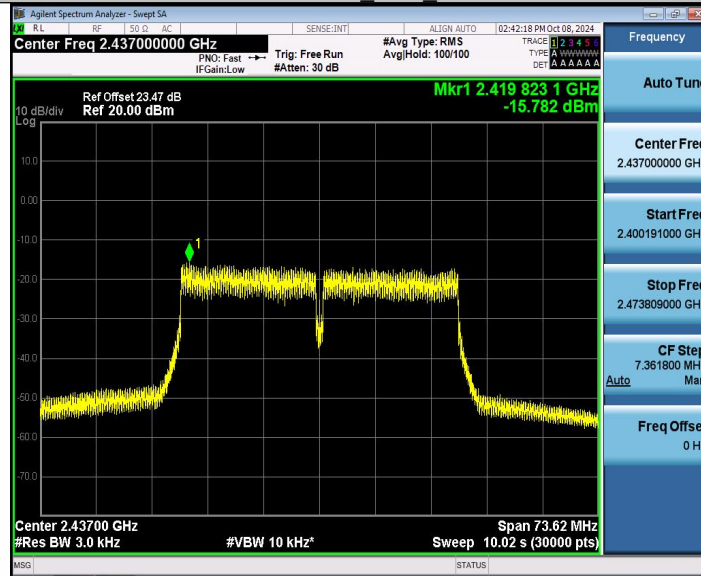
11N20SISO_Ant1_2462



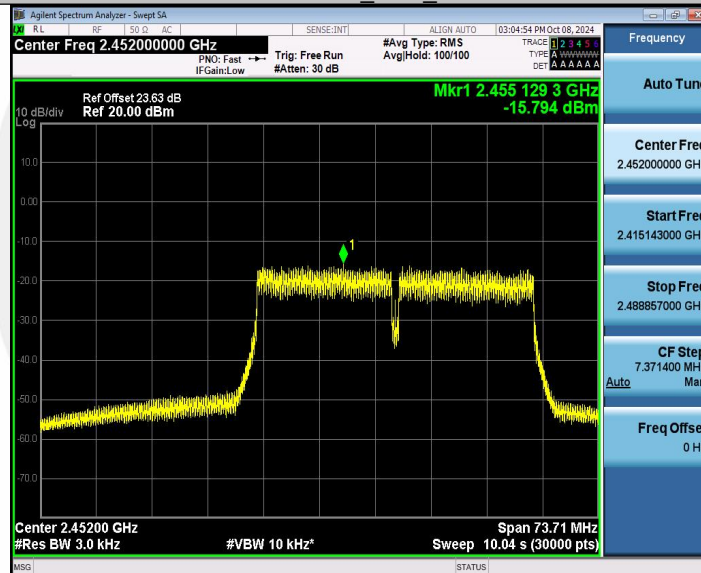
11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



8.5 UNWANTED EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS

8.5.1 Applicable Standard

According to FCC Part 15.247(d) and KDB 558074 D01 15.247 Meas Guidance v05r02
According to RSS-247, 5.5

8.5.2 Conformance Limit

According to FCC Part 15.247(d):

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

8.5.3 Test Configuration

Test according to clause 6.1 radio frequency test setup

8.5.4 Test Procedure

The transmitter output (antenna port) was connected to the spectrum analyzer

■ Reference level measurement

Establish a reference level by using the following procedure:

Set instrument center frequency to DTS channel center frequency.

Set the span to ≥ 1.5 times the DTS bandwidth.

Set the RBW = 100 kHz.

Set the VBW $\geq 3 \times$ RBW.

Set Detector = peak.

Set Sweep time = auto couple.

Set Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum PSD level.

Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

■ Band-edge measurement

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the emission operating on the channel closest to the band-edge, as well as any modulation products which fall outside of the authorized band of operation

Set RBW $\geq 1\%$ of the span=100kHz Set VBW $\geq 3 \times$ RBW

Set Sweep = auto Set Detector function = peak Set Trace = max hold

Allow the trace to stabilize. Set the marker on the emission at the bandedge, or on the highest modulation product outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. The marker-delta value now displayed must comply with the limit specified in this Section.

■ Emission level measurement

Set the center frequency and span to encompass frequency range to be measured.

Set the RBW = 100 kHz.

Set the VBW = 300 kHz.

Set Detector = peak

Sweep time = auto couple.

Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements. Report the three highest emissions relative to the limit.

8.5.5 Test Results

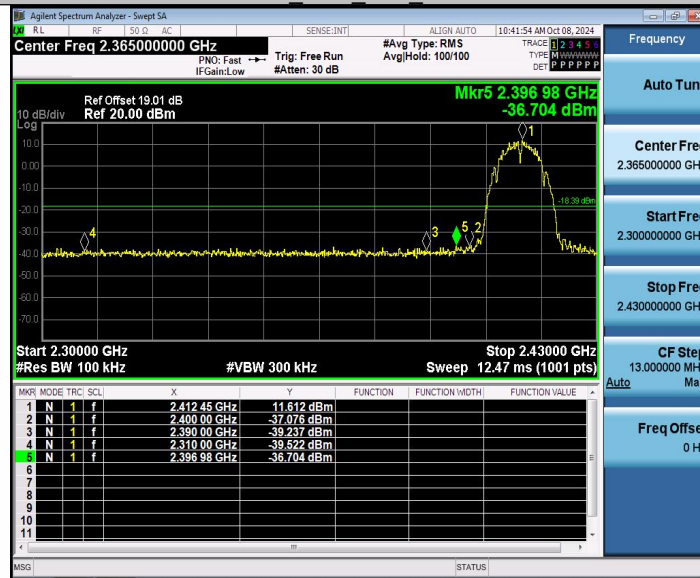
Temperature:	25 °C
Relative Humidity:	45%
ATM Pressure:	1011 mbar

Note: N/A

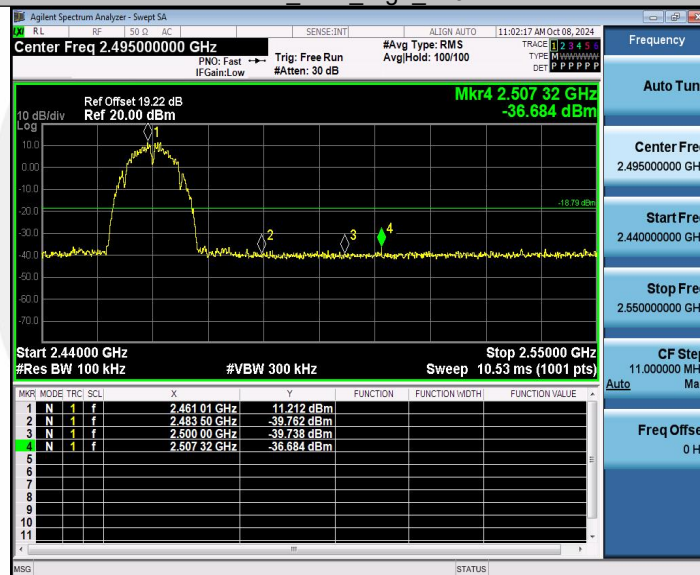
Band edge measurements

TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	11.61	-36.7	≤-18.39	PASS
		High	2462	11.21	-36.68	≤-18.79	PASS
11G	Ant1	Low	2412	3.92	-28.05	≤-26.08	PASS
		High	2462	7.82	-33.97	≤-22.18	PASS
11N20SISO	Ant1	Low	2412	9.11	-21.56	≤-5.9	PASS
		High	2462	6.28	-32.67	≤-23.72	PASS
11N40SISO	Ant1	Low	2422	5.32	-24.77	≤-24.68	PASS
		High	2452	5.00	-28.75	≤-25	PASS

11B Ant1 Low 2412



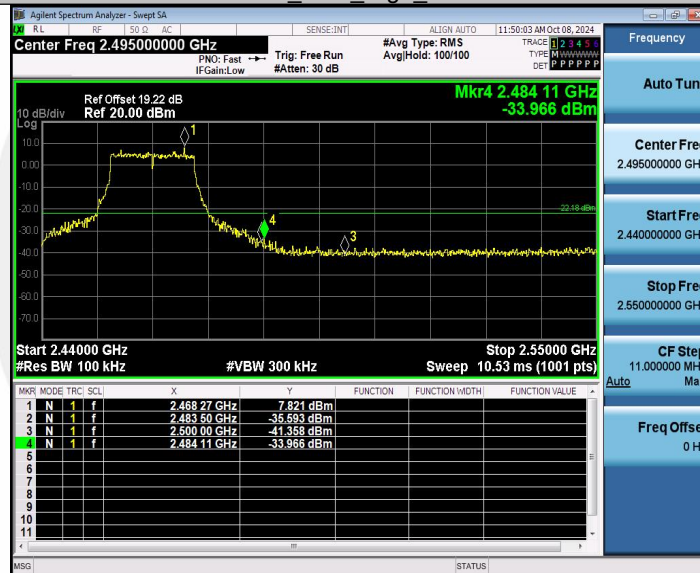
11B Ant1 High 2462



11G Ant1 Low 2412



11G Ant1_High_2462



11N20SISO Ant1 Low 2412



11N20SISO Ant1 High 2462



11N40SISO Ant1 Low 2422

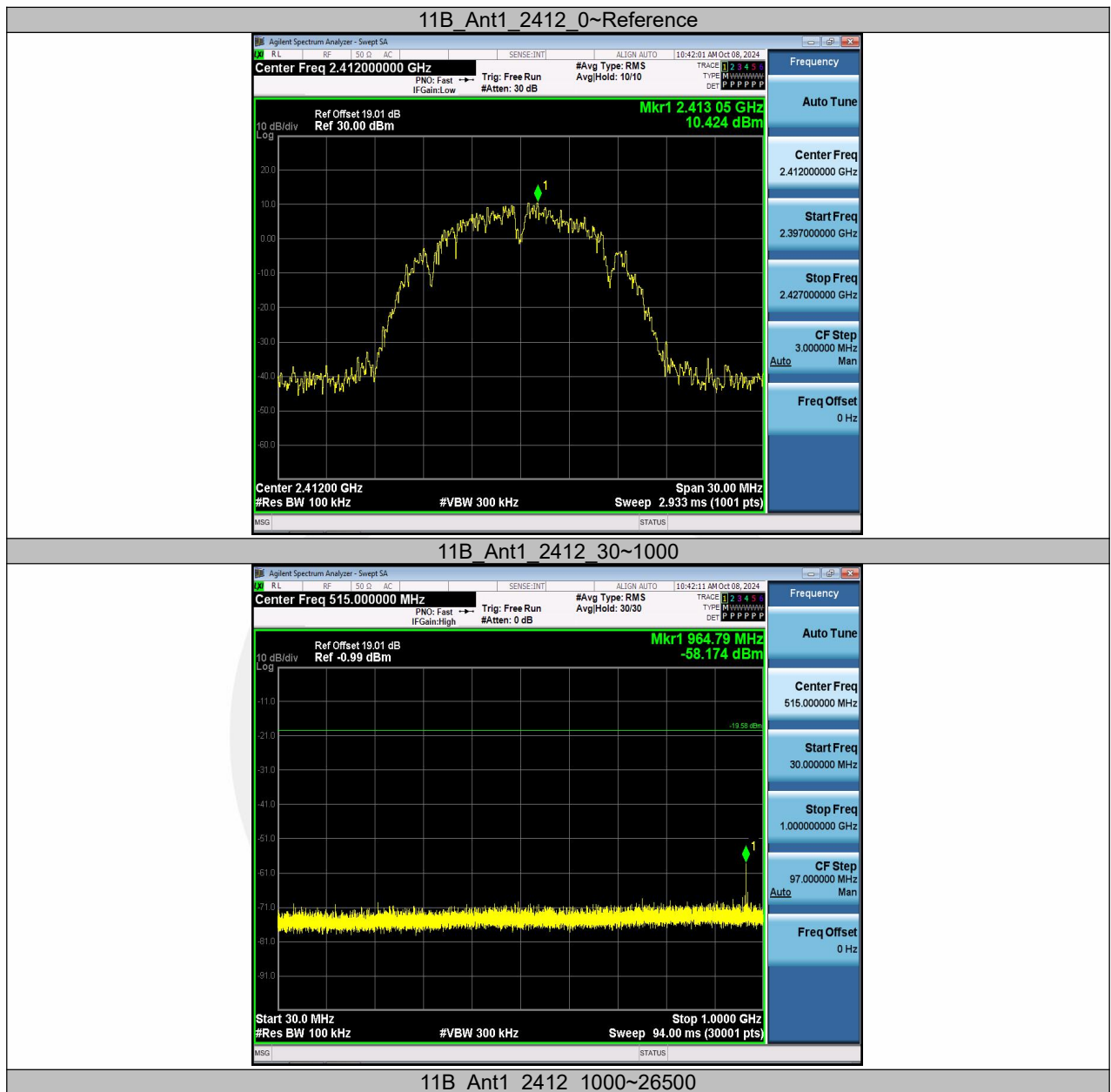


11N40SISO Ant1 High 2452



Conducted Spurious Emission

TestMode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	10.42	10.42	---	PASS
			30~1000	10.42	-58.17	≤-19.58	PASS
			1000~26500	10.42	-39.82	≤-19.58	PASS
		2437	Reference	9.95	9.95	---	PASS
			30~1000	9.95	-59.06	≤-20.05	PASS
			1000~26500	9.95	-39.91	≤-20.05	PASS
		2462	Reference	9.03	9.03	---	PASS
			30~1000	9.03	-58.36	≤-20.97	PASS
			1000~26500	9.03	-40.26	≤-20.97	PASS
11G	Ant1	2412	Reference	3.73	3.73	---	PASS
			30~1000	3.73	-68.55	≤-26.27	PASS
			1000~26500	3.73	-52.49	≤-26.27	PASS
		2437	Reference	4.85	4.85	---	PASS
			30~1000	4.85	-65.94	≤-25.15	PASS
			1000~26500	4.85	-36.09	≤-25.15	PASS
		2462	Reference	8.85	8.85	---	PASS
			30~1000	8.85	-64.61	≤-21.15	PASS
			1000~26500	8.85	-40.33	≤-21.15	PASS
11N20SISO	Ant1	2412	Reference	4.99	4.99	---	PASS
			30~1000	4.99	-67.28	≤-25.01	PASS
			1000~26500	4.99	-40.2	≤-25.01	PASS
		2437	Reference	5.47	5.47	---	PASS
			30~1000	5.47	-66.28	≤-24.53	PASS
			1000~26500	5.47	-39.89	≤-24.53	PASS
		2462	Reference	5.13	5.13	---	PASS
			30~1000	5.13	-62.26	≤-24.87	PASS
			1000~26500	5.13	-40.08	≤-24.87	PASS
11N40SISO	Ant1	2422	Reference	5.30	5.30	---	PASS
			30~1000	5.30	-67.22	≤-24.7	PASS
			1000~26500	5.30	-51.96	≤-24.7	PASS
		2437	Reference	2.44	2.44	---	PASS
			30~1000	2.44	-64.24	≤-27.56	PASS
			1000~26500	2.44	-52.28	≤-27.56	PASS
		2452	Reference	2.46	2.46	---	PASS
			30~1000	2.46	-66.29	≤-27.54	PASS
			1000~26500	2.46	-50.58	≤-27.54	PASS

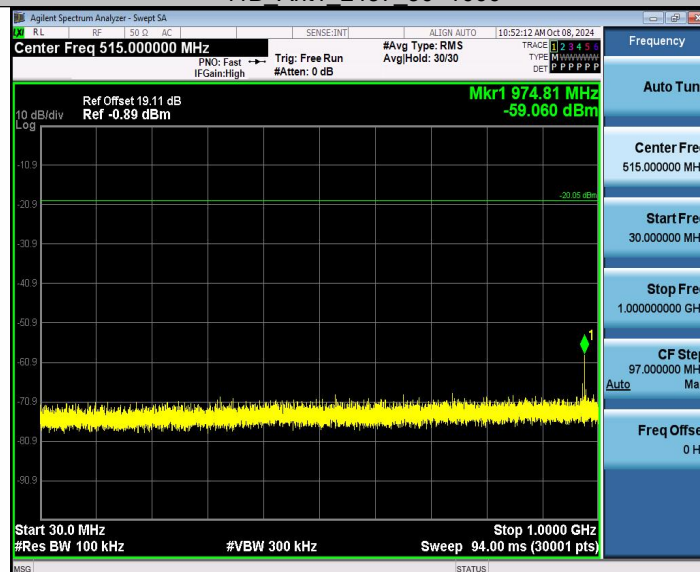




11B_Ant1_2437_0~Reference



11B_Ant1_2437_30~1000



11B Ant1 2437 1000~26500



11B Ant1 2462 0~Reference



11B Ant1 2462 30~1000



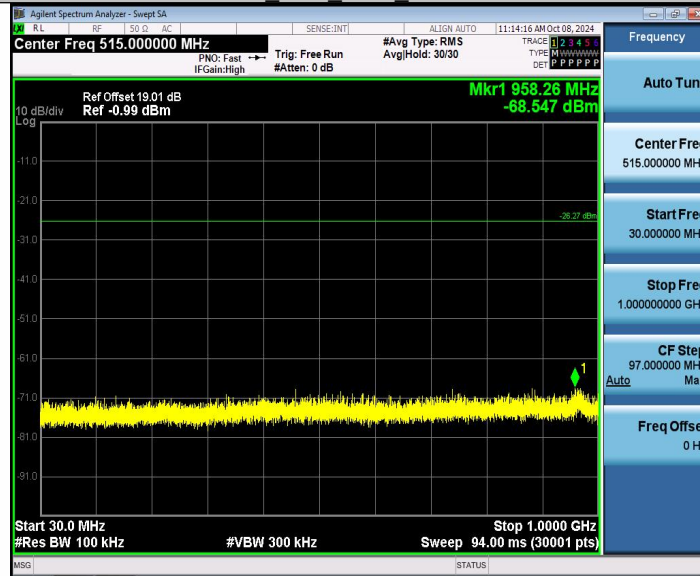
11B Ant1 2462 1000~26500



11G Ant1 2412 0~Reference



11G_Ant1_2412_30~1000



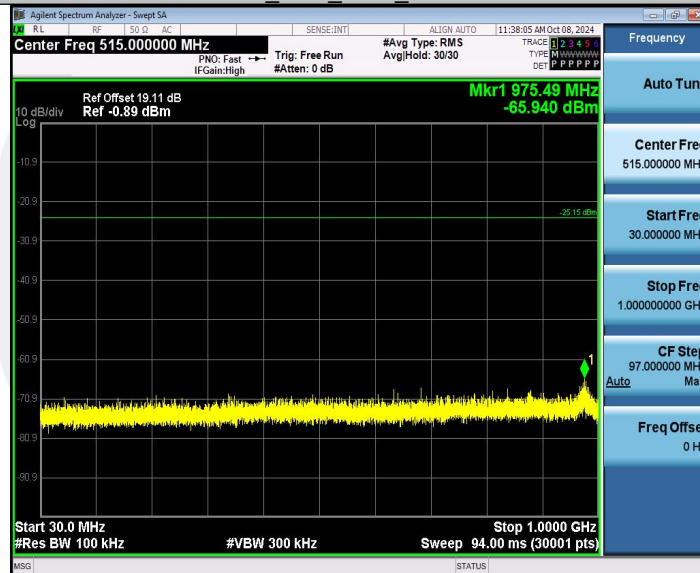
11G_Ant1_2412_1000~26500



11G_Ant1_2437_0~Reference



11G_Ant1_2437_30~1000



11G_Ant1_2437_1000~26500

