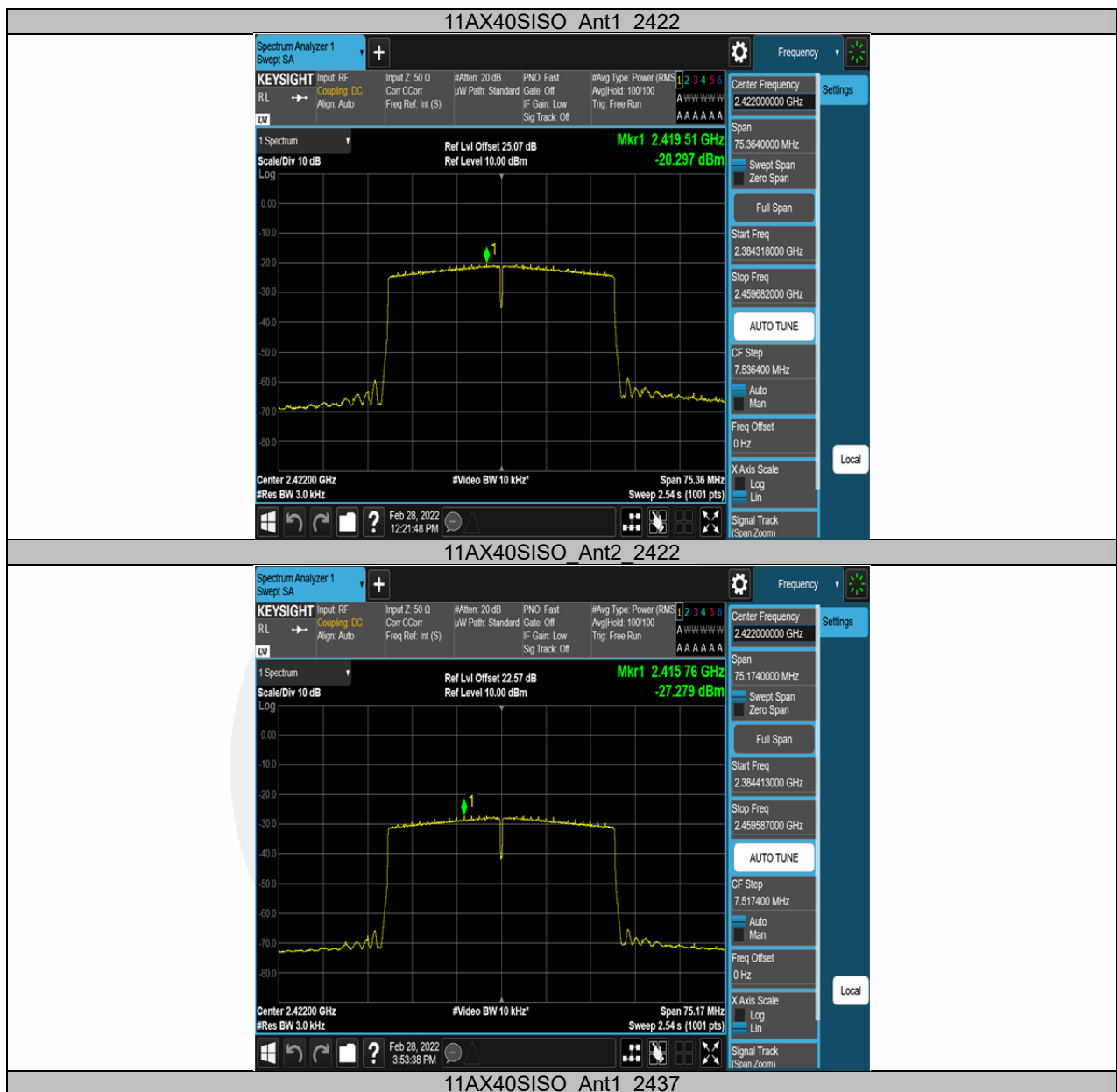
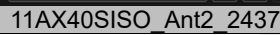








8.5 UNWANTED EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS

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.

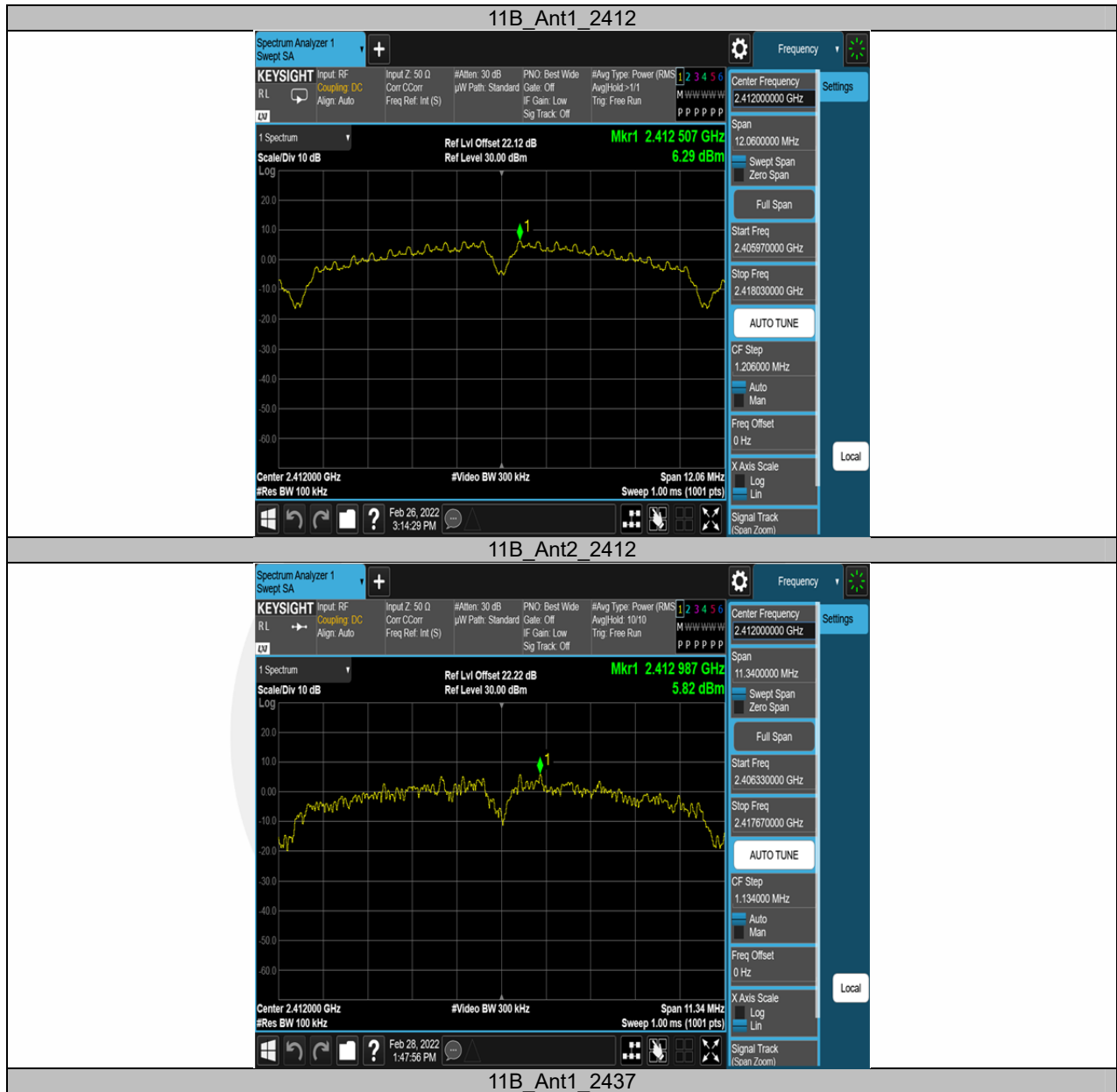
Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements. Report the three highest emissions relative to the limit.

8.5.5 Test Results

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

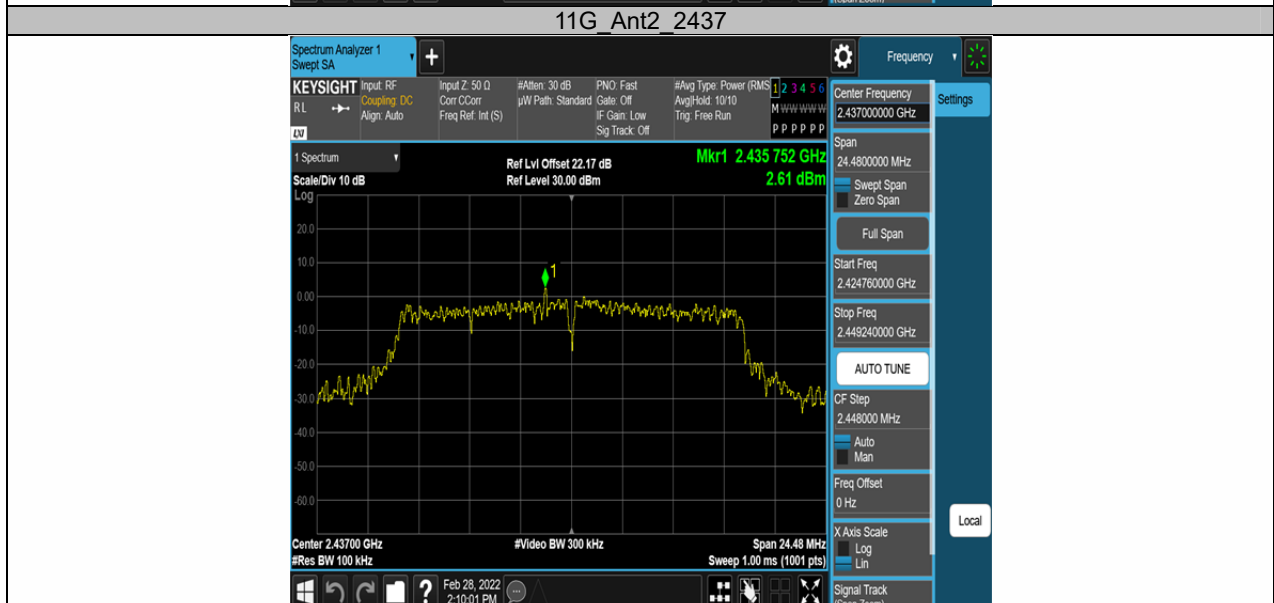
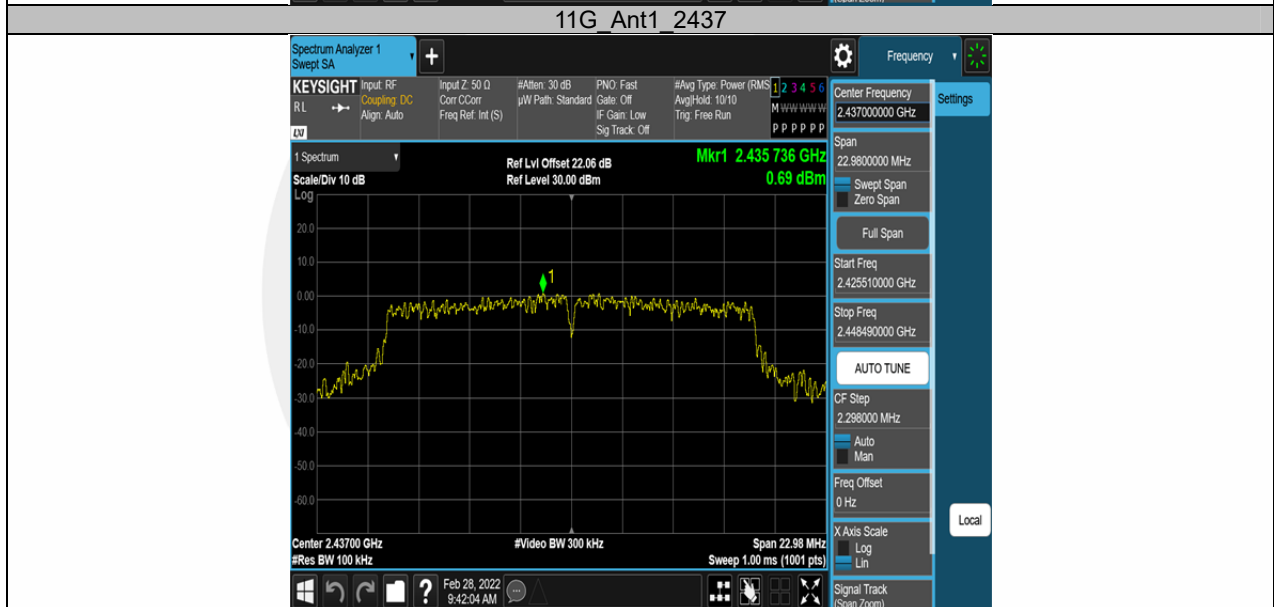
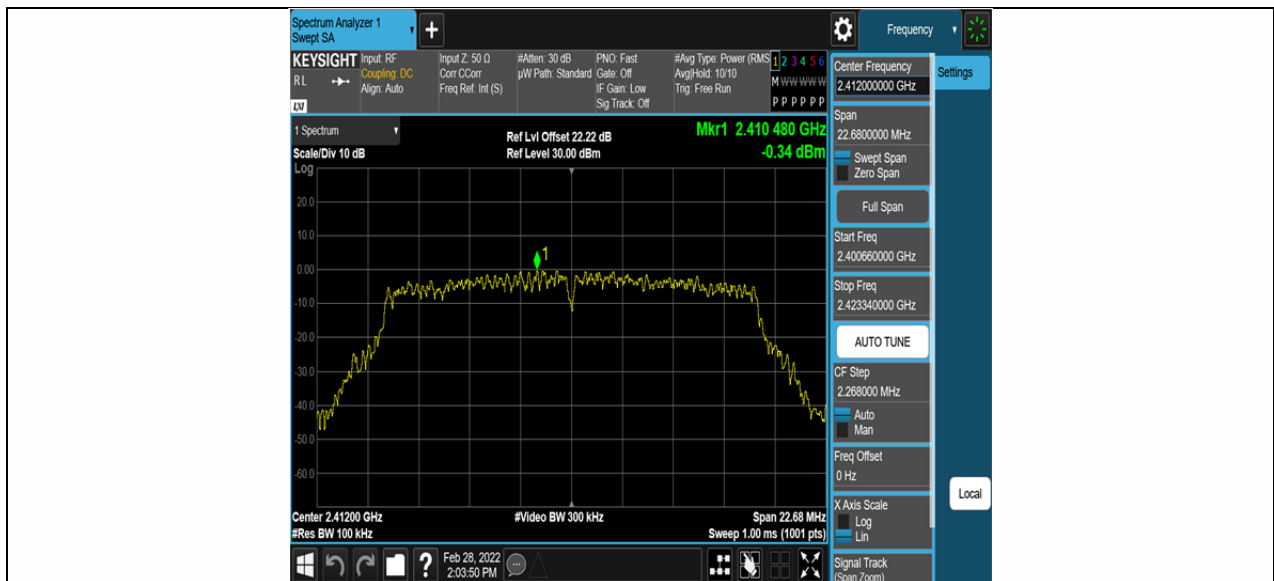
Note: N/A

TestMode	Antenna	Freq(MHz)	Max.Point[MHz]	Result[dBm]
11B	Ant1	2412	2412.51	6.29
	Ant2	2412	2412.99	5.82
	Ant1	2437	2437.50	6.08
	Ant2	2437	2435.49	4.39
	Ant1	2462	2463.49	5.32
	Ant2	2462	2460.51	4.69
11G	Ant1	2412	2408.22	3.28
	Ant2	2412	2410.48	-0.34
	Ant1	2437	2435.74	0.69
	Ant2	2437	2435.75	2.61
	Ant1	2462	2463.60	1.36
	Ant2	2462	2461.34	0.13
11N20SISO	Ant1	2412	2411.38	1.40
	Ant2	2412	2409.43	-0.24
	Ant1	2437	2444.45	0.73
	Ant2	2437	2437.63	-0.43
	Ant1	2462	2462.61	0.53
	Ant2	2462	2463.19	-0.48
11N40SISO	Ant1	2422	2416.95	0.25
	Ant2	2422	2429.46	-4.24
	Ant1	2437	2444.51	0.45
	Ant2	2437	2436.10	-5.74
	Ant1	2452	2449.51	2.11
	Ant2	2452	2458.20	-3.88
11AX20SISO	Ant1	2412	2415.54	0.75
	Ant2	2412	2408.19	0.97
	Ant1	2437	2442.00	2.84
	Ant2	2437	2434.13	-1.17
	Ant1	2462	2464.48	3.92
	Ant2	2462	2469.52	0.60
11AX40SISO	Ant1	2422	2421.58	-0.29
	Ant2	2422	2425.70	-3.87
	Ant1	2437	2434.46	-1.33
	Ant2	2437	2429.50	-3.26
	Ant1	2452	2440.75	-3.26
	Ant2	2452	2449.47	-2.69

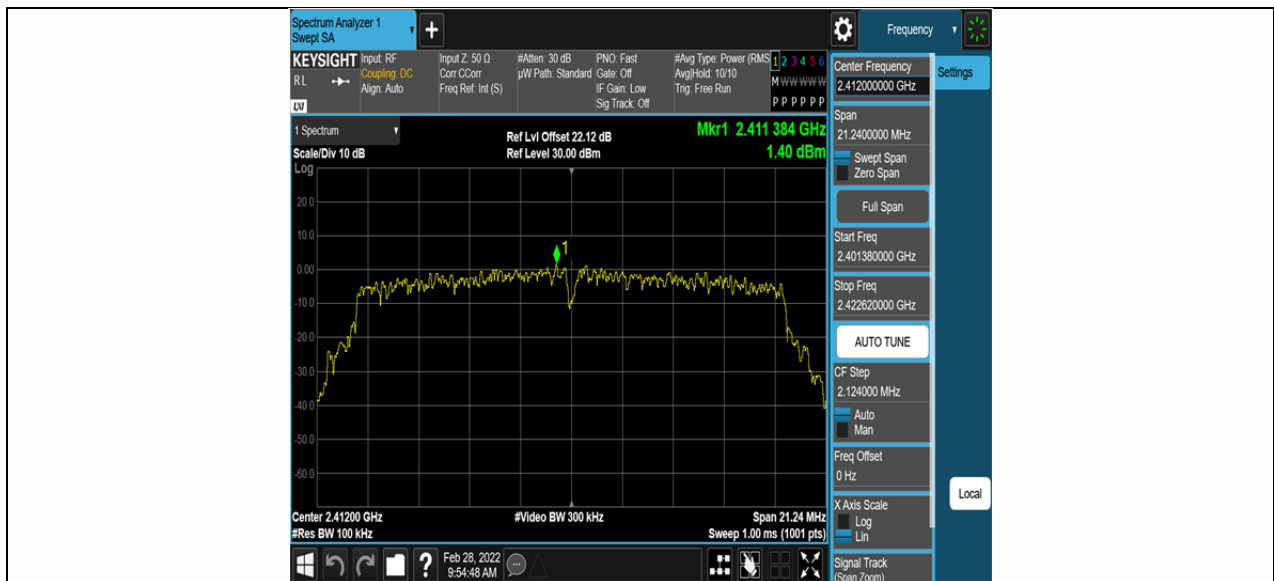




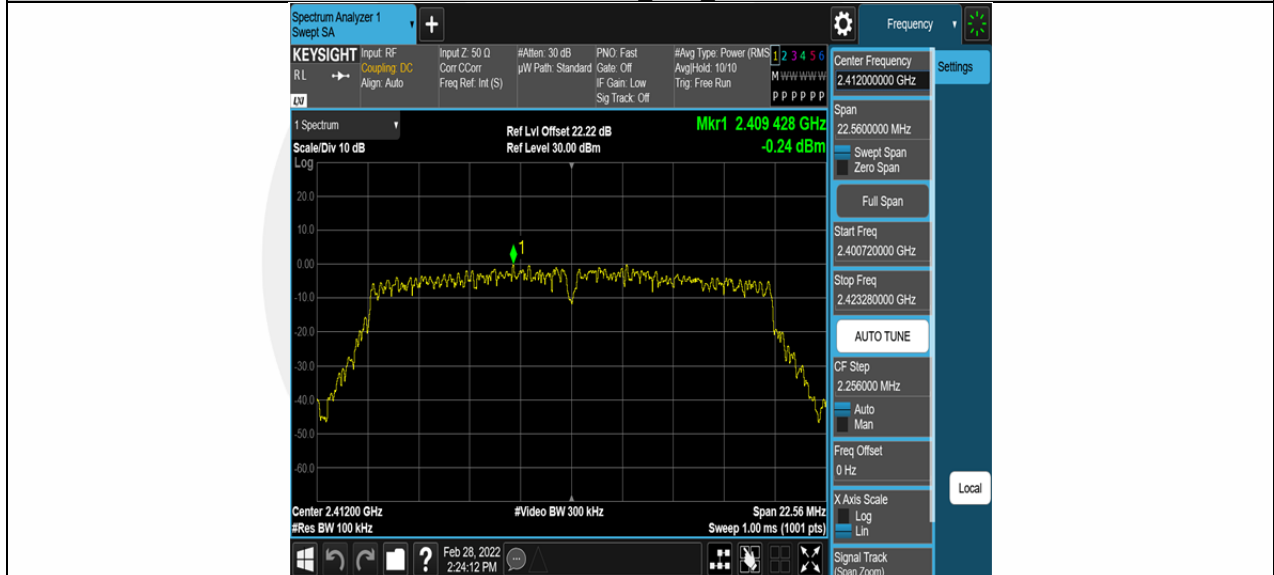






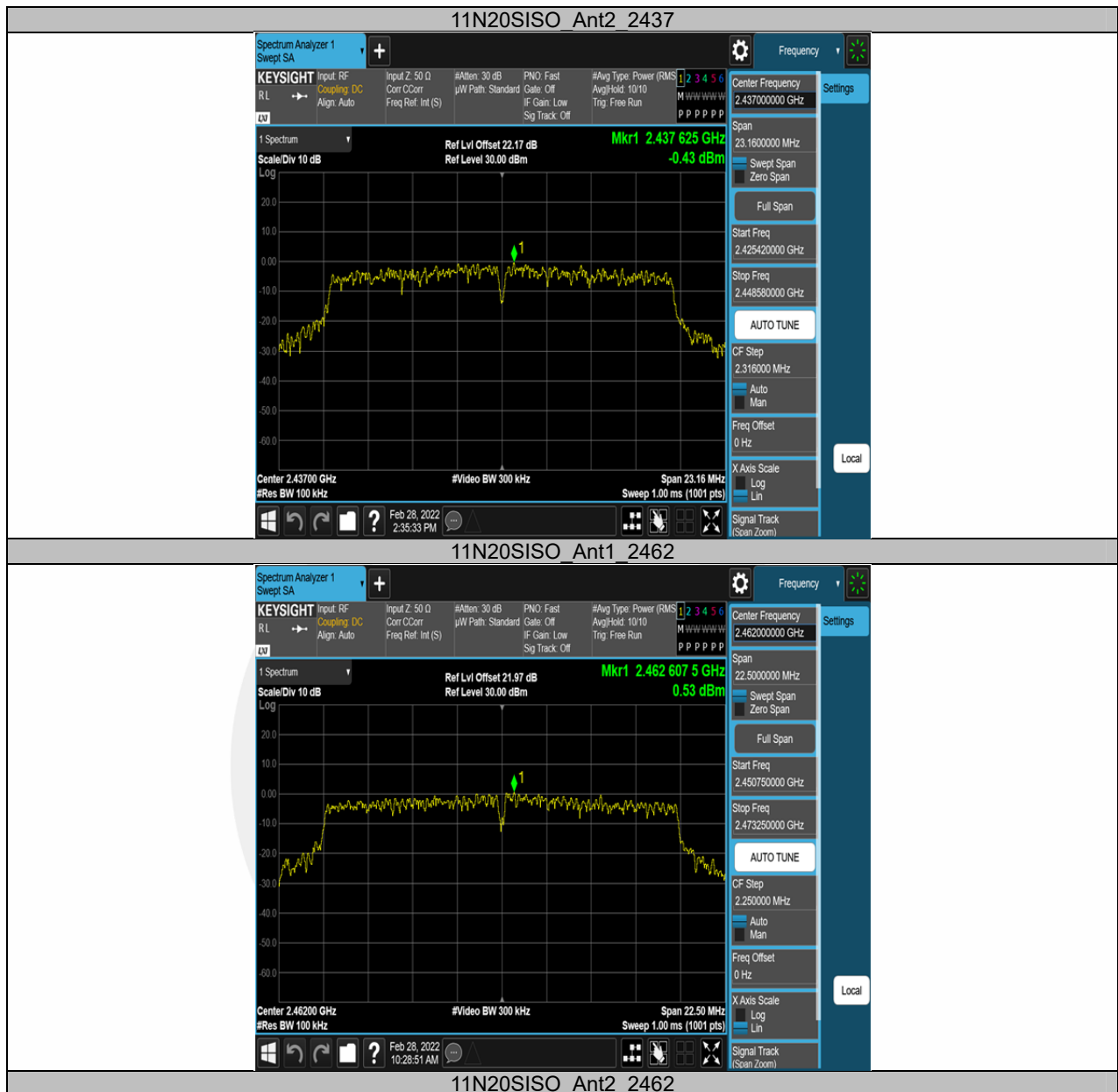


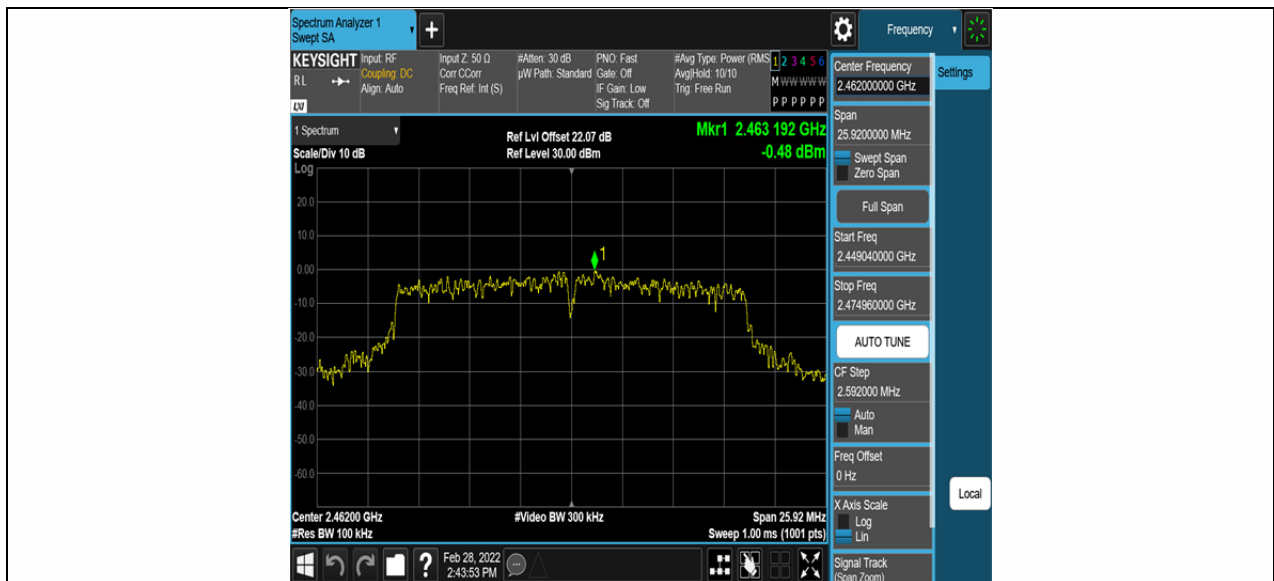
11N20SISO_Ant2_2412



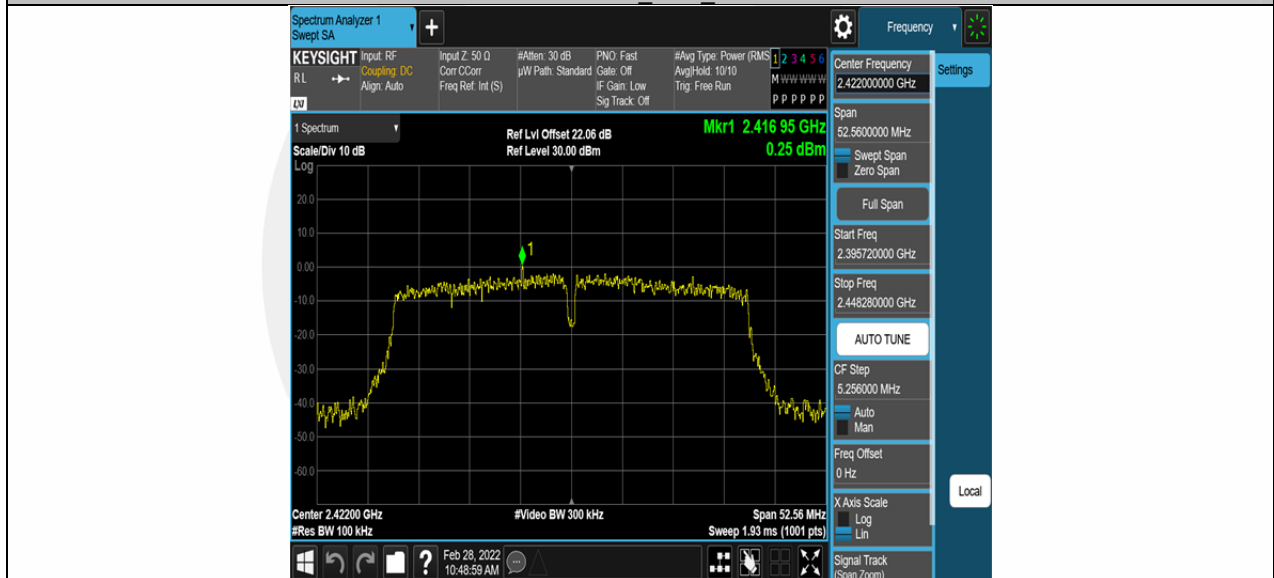
11N20SISO_Ant1_2437



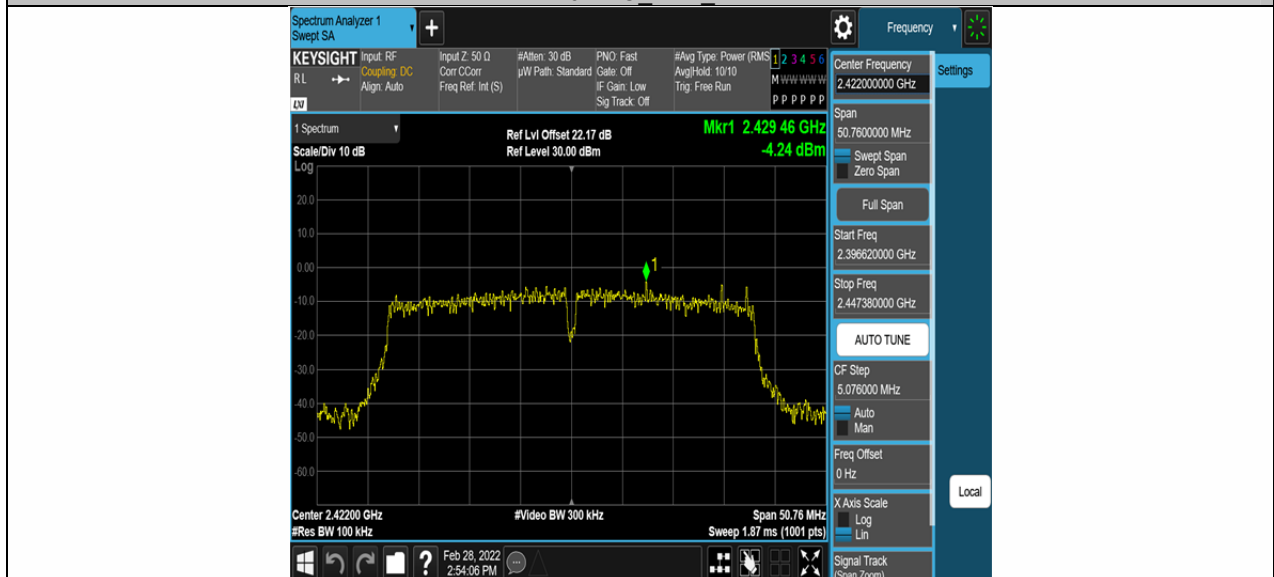


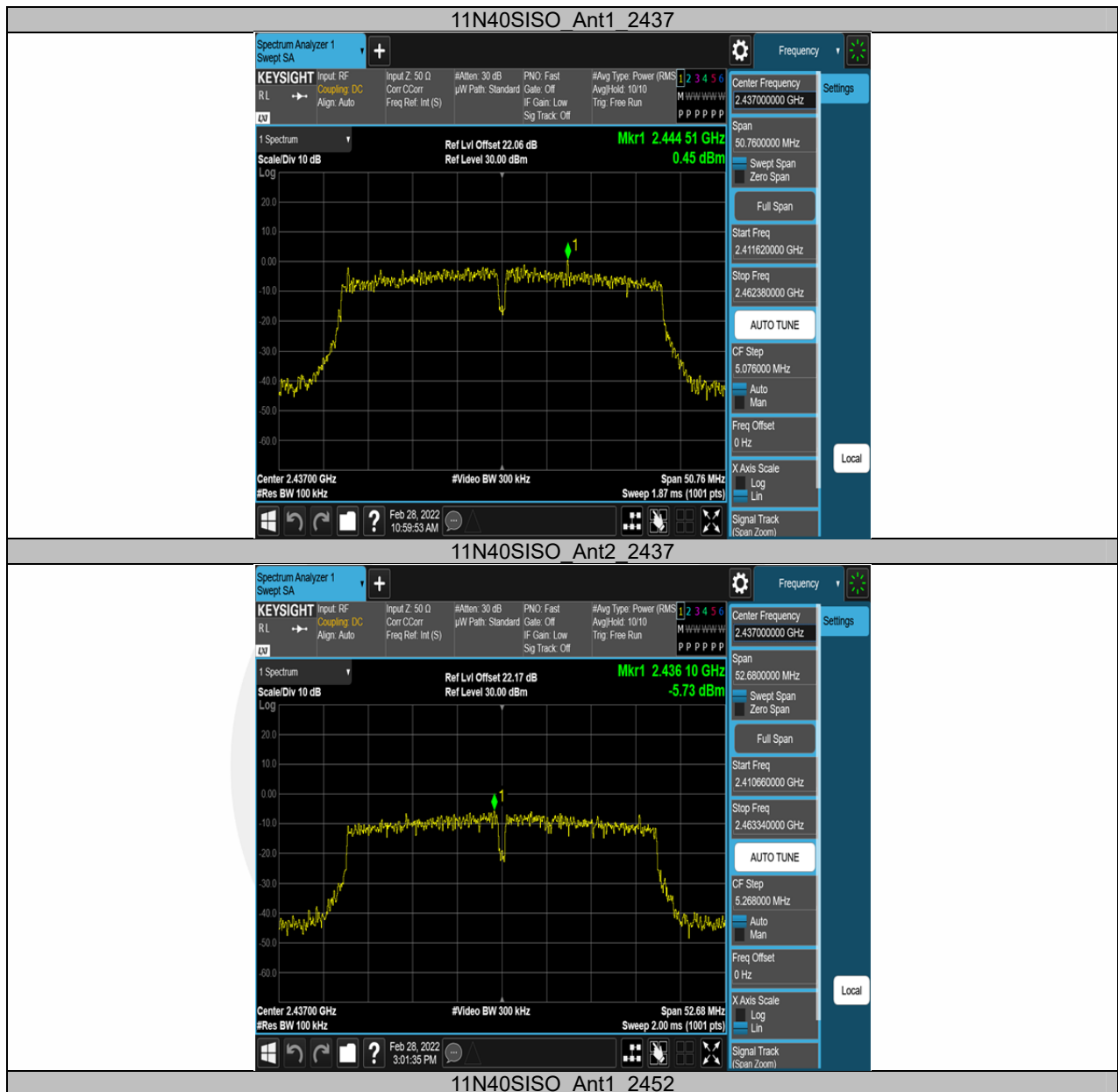


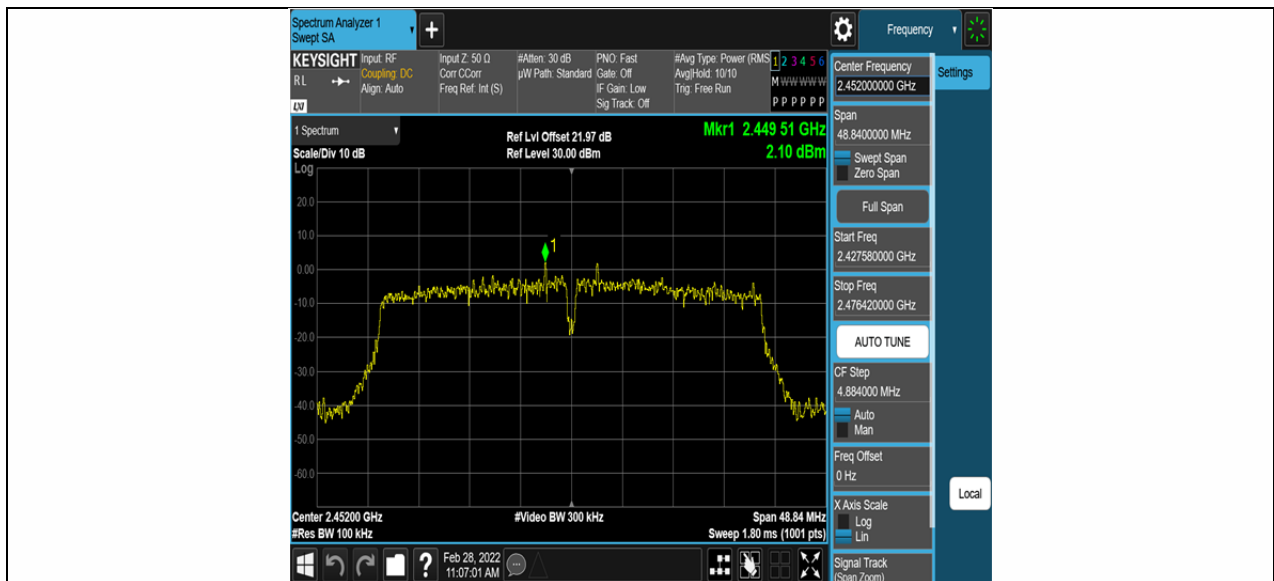
11N40SISO_Ant1_2422



11N40SISO_Ant2_2422







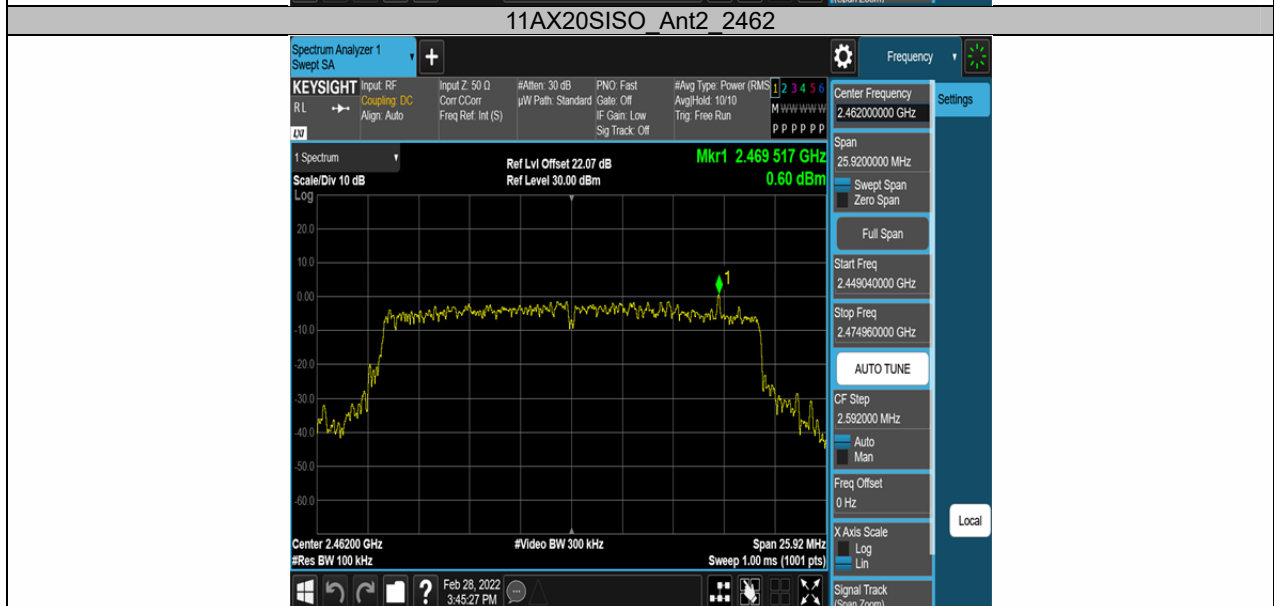
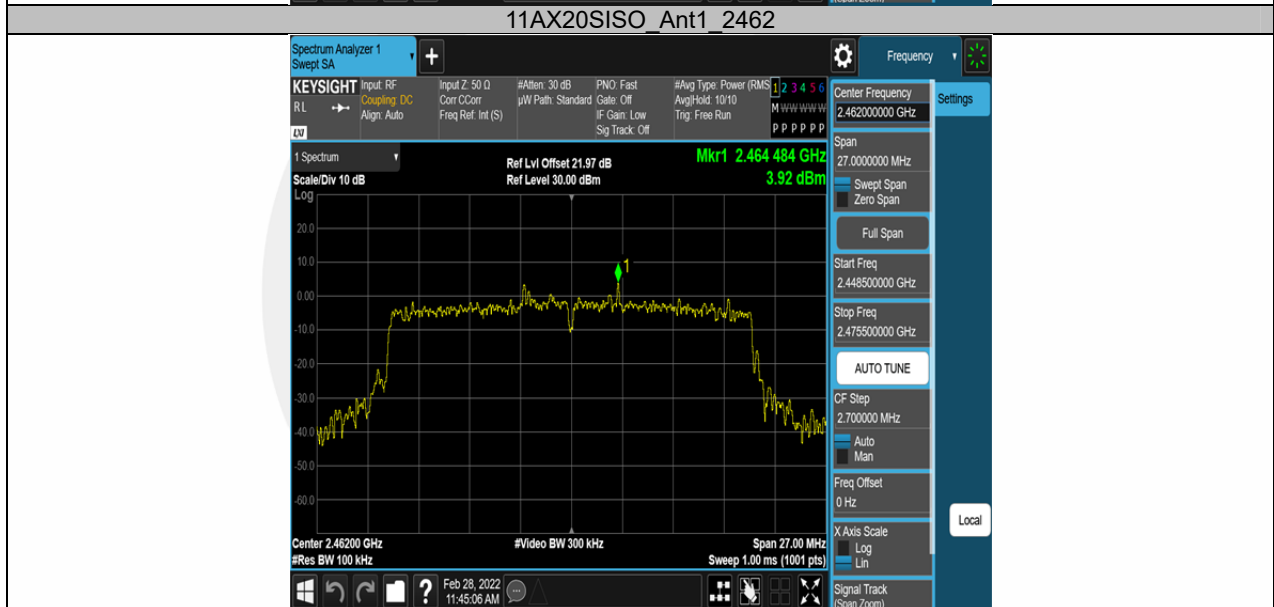
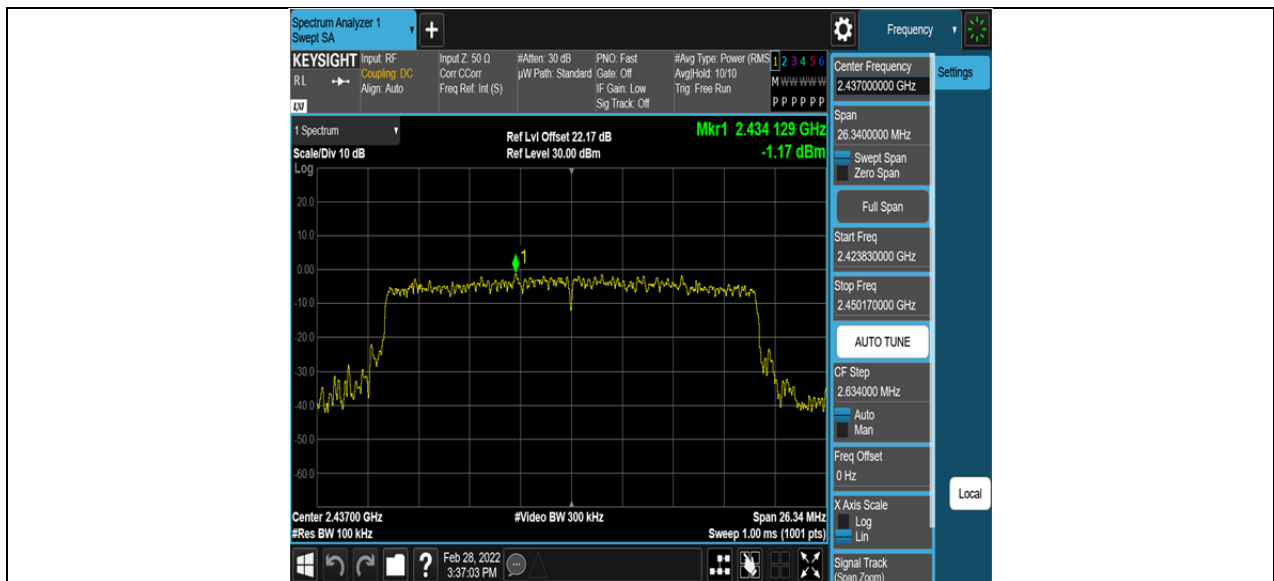
11N40SISO_Ant2_2452



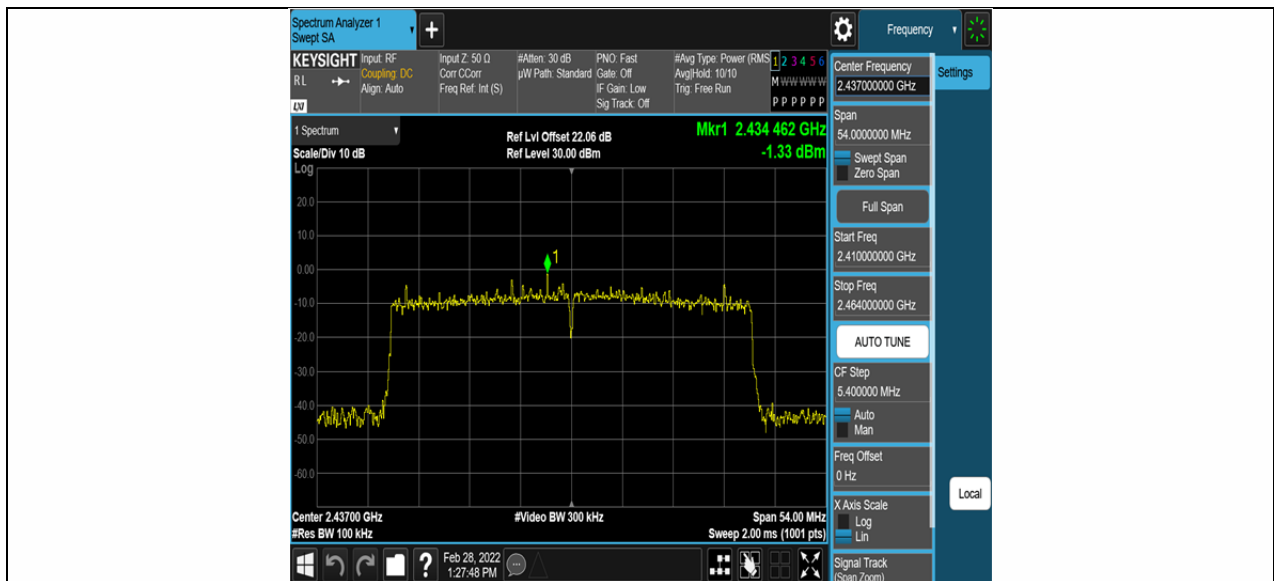
11AX20SISO_Ant1_2412



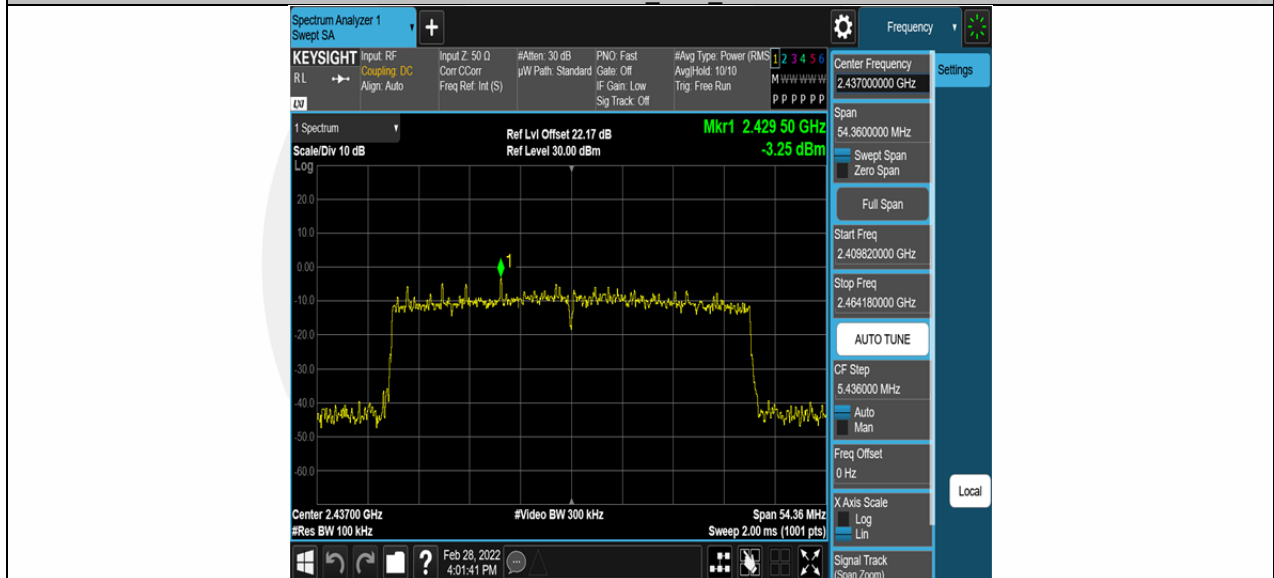




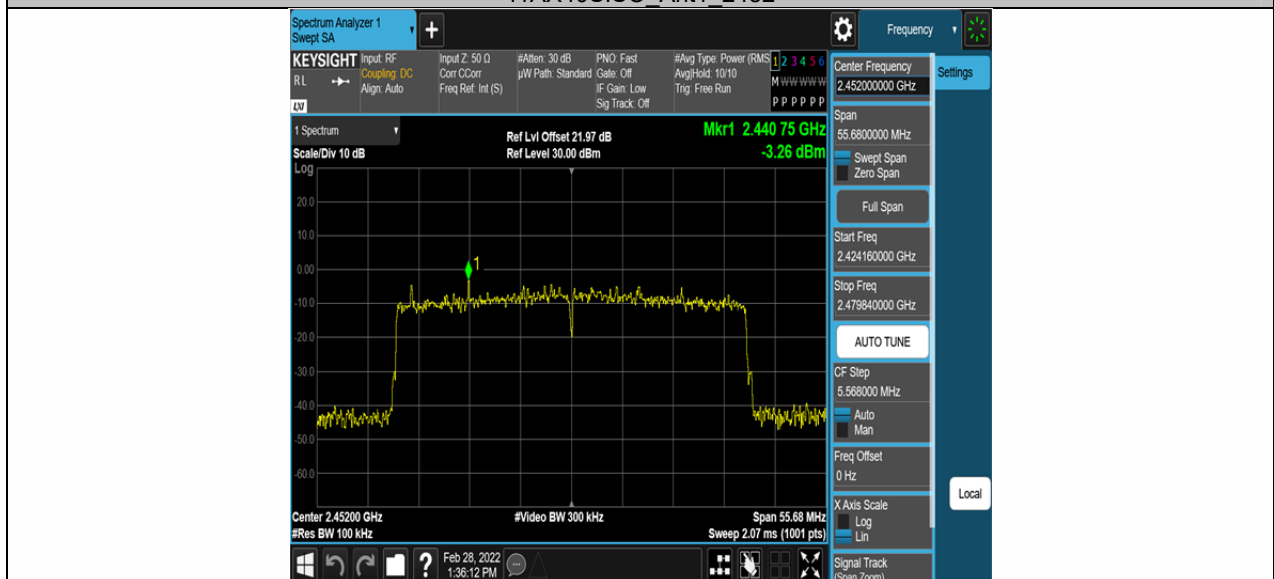


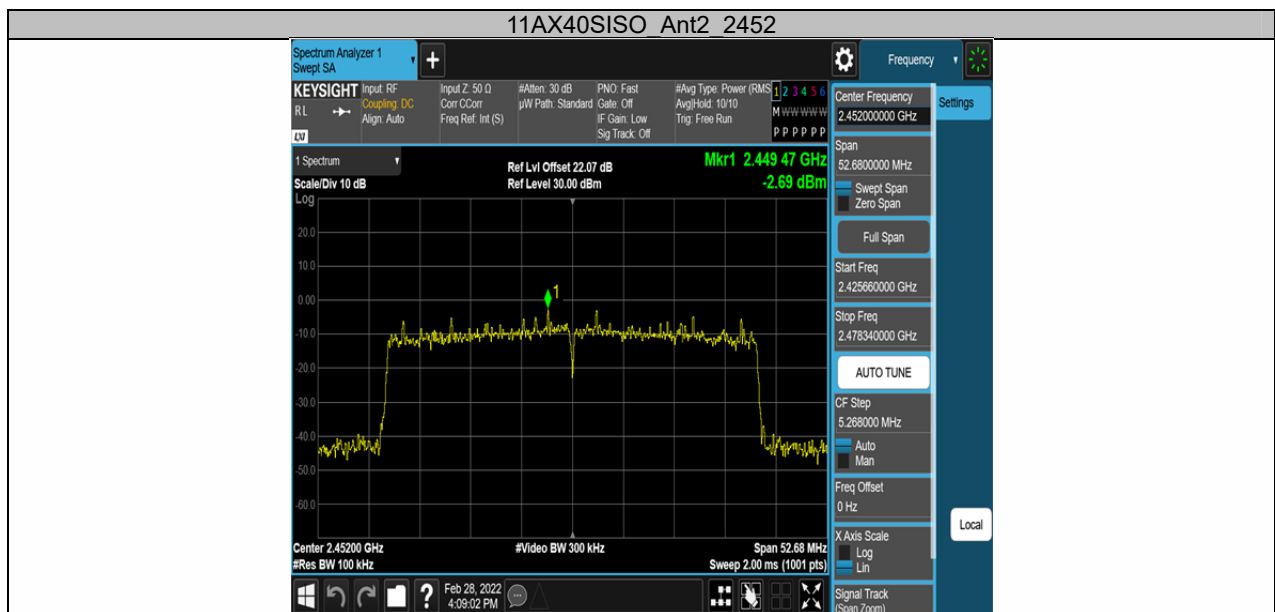


11AX40SISO_Ant2_2437



11AX40SISO_Ant1_2452





TestMode	Antenna	Channel	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	5.56	-35.75	≤-24.44	PASS
	Ant2	Low	2412	5.82	-36.07	≤-24.18	PASS
	Ant1	High	2462	5.32	-38.81	≤-24.68	PASS
	Ant2	High	2462	4.69	-39.7	≤-25.31	PASS
11G	Ant1	Low	2412	3.28	-39.44	≤-26.72	PASS
	Ant2	Low	2412	-0.34	-39.43	≤-30.34	PASS
	Ant1	High	2462	1.36	-39.11	≤-28.64	PASS
	Ant2	High	2462	0.13	-39.27	≤-29.87	PASS
11N20SISO	Ant1	Low	2412	1.40	-38.38	≤-28.6	PASS
	Ant2	Low	2412	-0.24	-38.26	≤-30.24	PASS
	Ant1	High	2462	0.53	-38.91	≤-29.47	PASS
	Ant2	High	2462	-0.48	-38.93	≤-30.48	PASS
11N40SISO	Ant1	Low	2422	0.25	-38.47	≤-29.75	PASS
	Ant2	Low	2422	-4.24	-38.19	≤-34.24	PASS
	Ant1	High	2452	2.11	-38.77	≤-27.89	PASS
	Ant2	High	2452	-3.88	-39.6	≤-33.88	PASS
11AX20SISO	Ant1	Low	2412	0.75	-38.72	≤-29.25	PASS
	Ant2	Low	2412	0.97	-39.92	≤-29.03	PASS
	Ant1	High	2462	3.92	-39.88	≤-26.08	PASS
	Ant2	High	2462	0.60	-39.07	≤-29.4	PASS
11AX40SISO	Ant1	Low	2422	-0.29	-39.46	≤-30.29	PASS
	Ant2	Low	2422	-3.87	-38.35	≤-33.87	PASS
	Ant1	High	2452	-3.26	-39.14	≤-33.26	PASS
	Ant2	High	2452	-2.69	-39.26	≤-32.69	PASS

