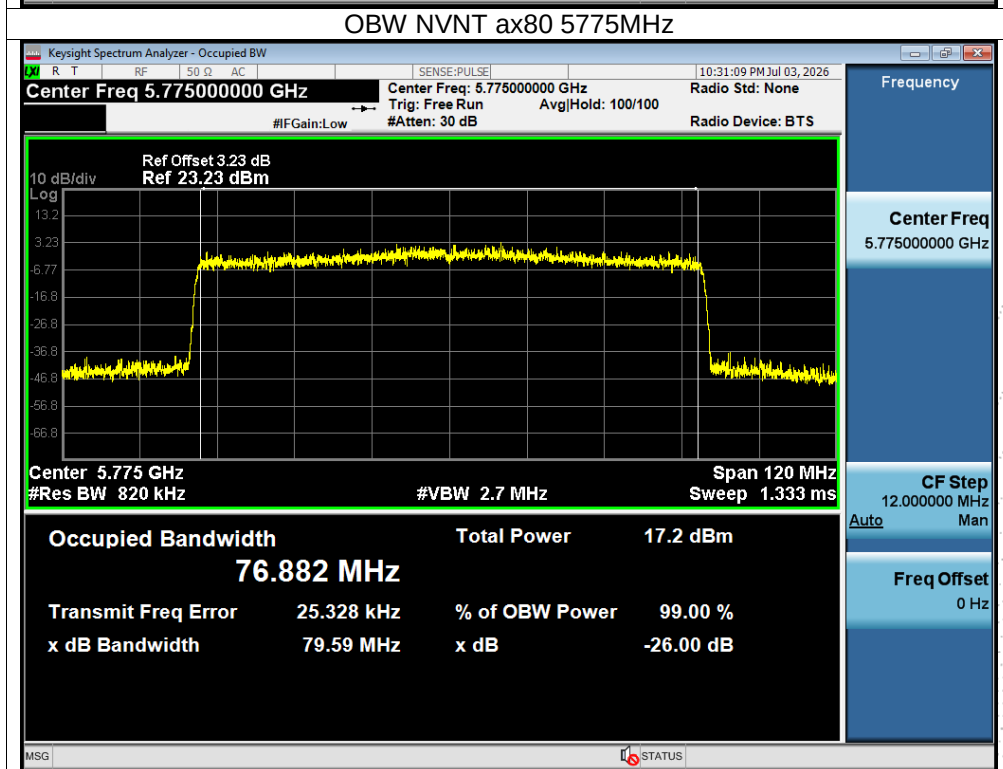
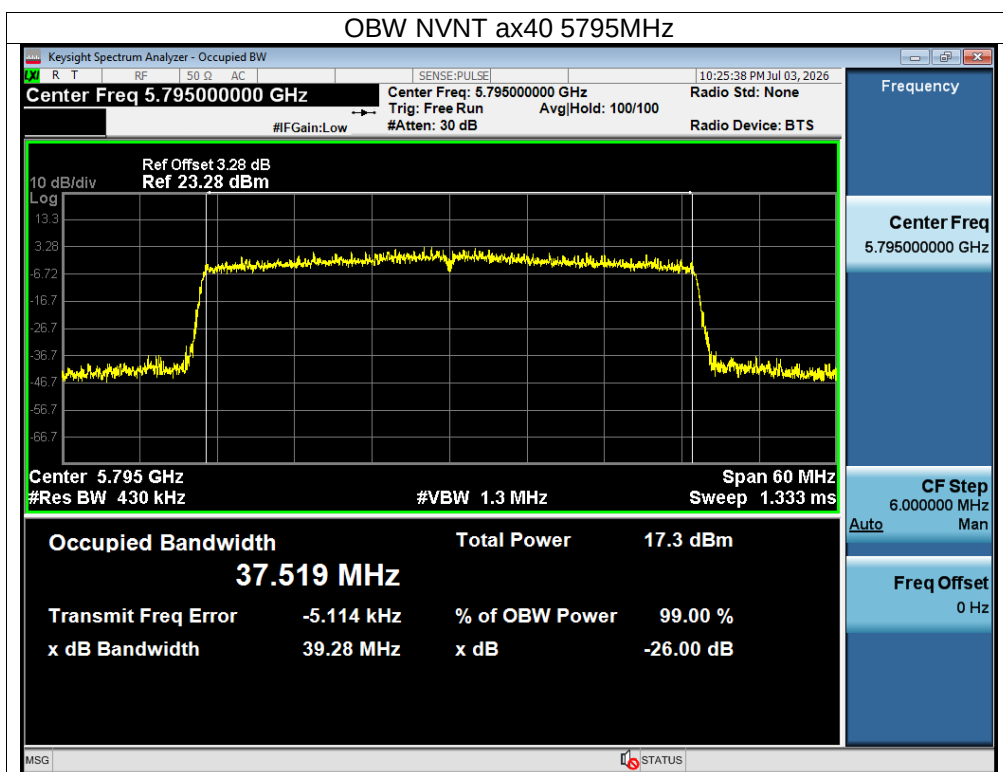
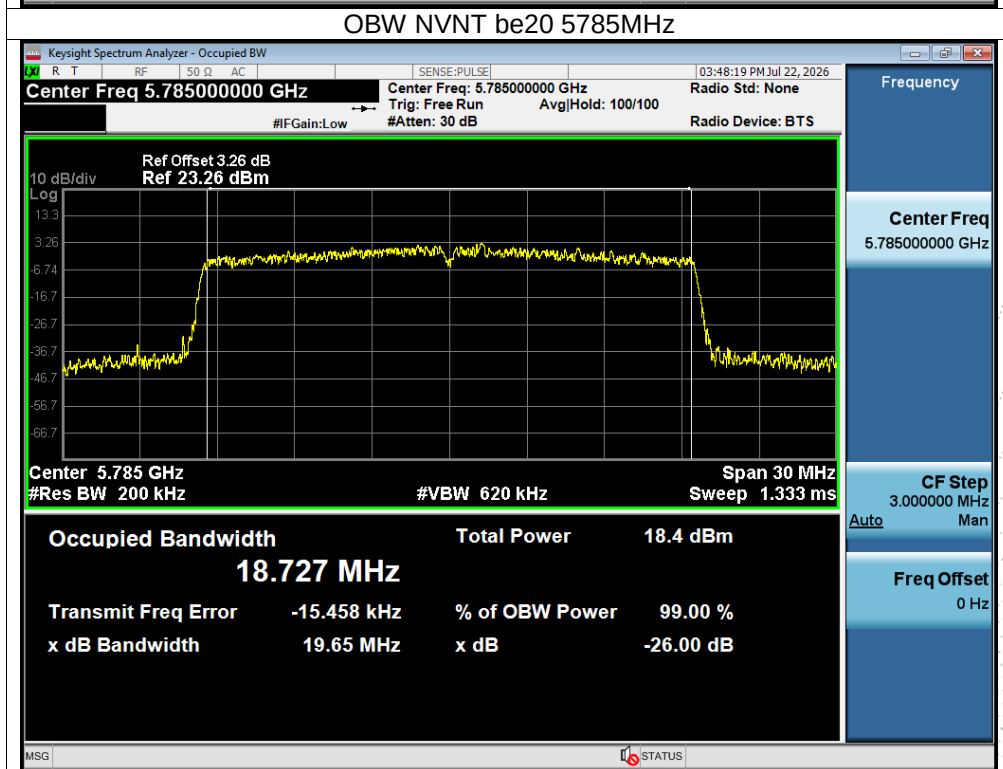
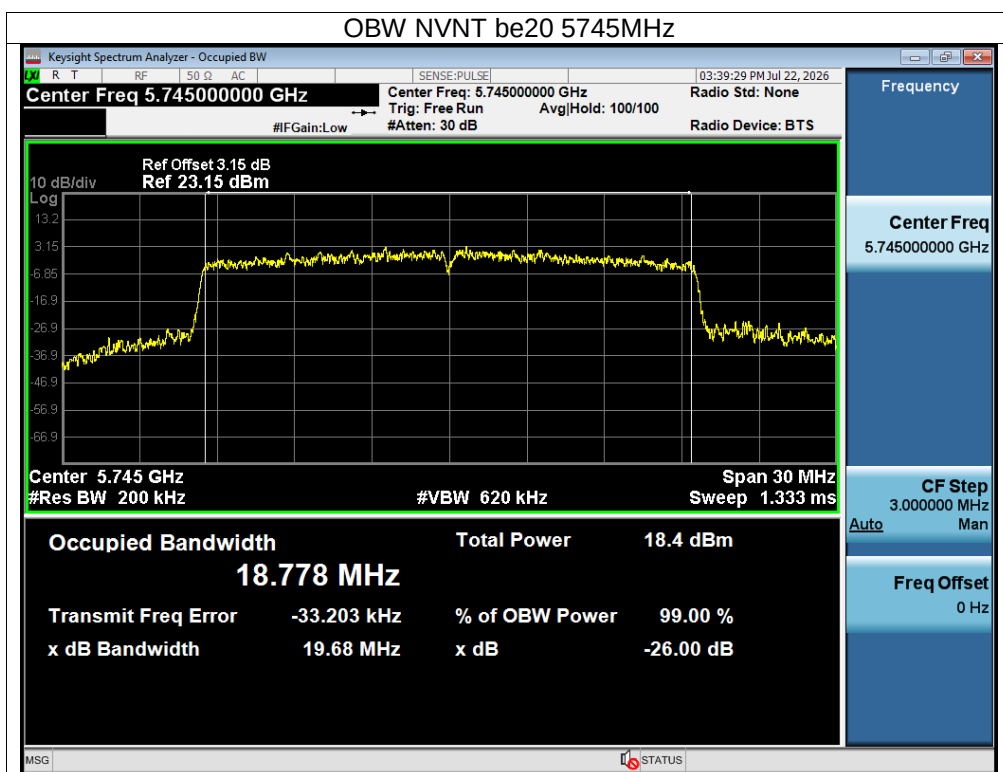
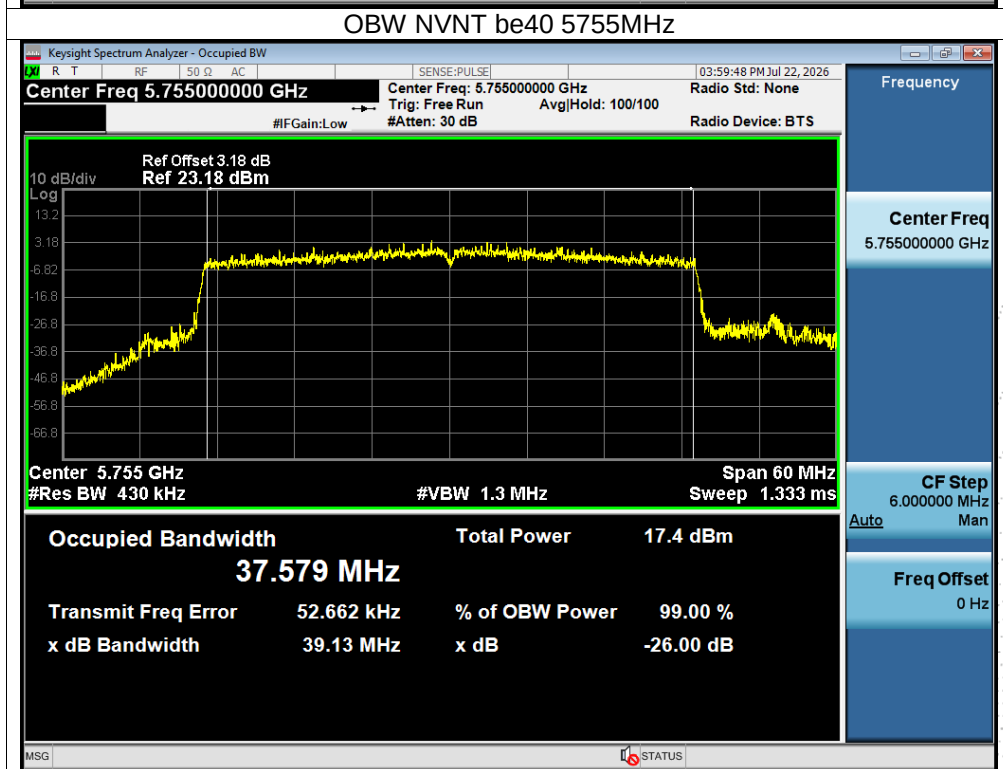
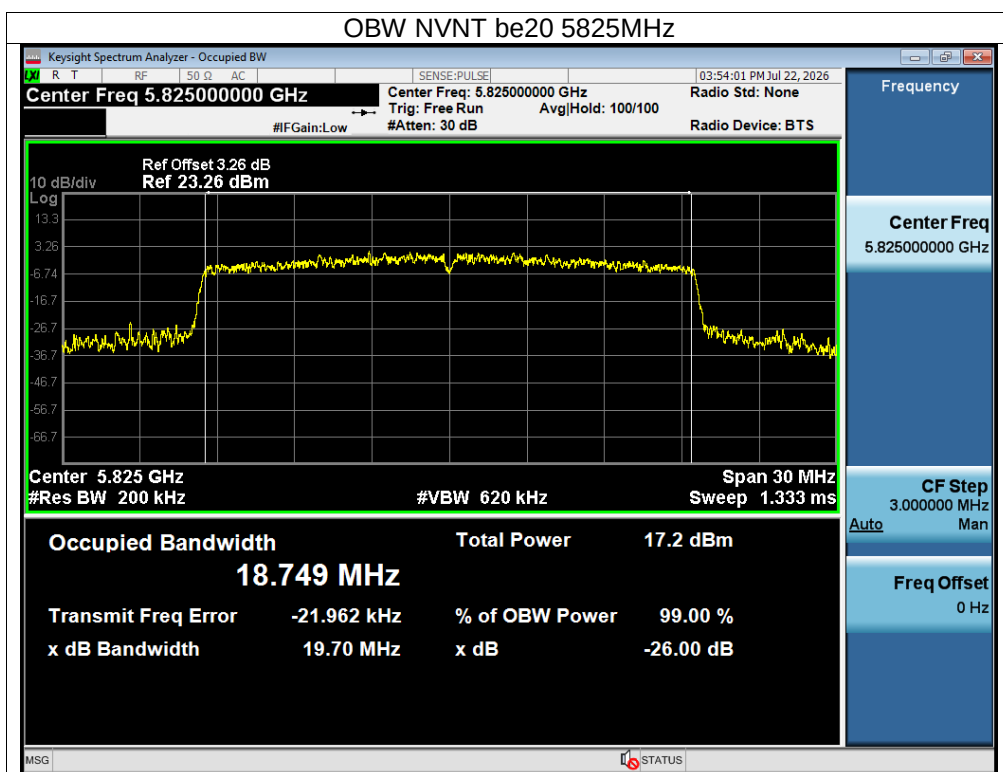
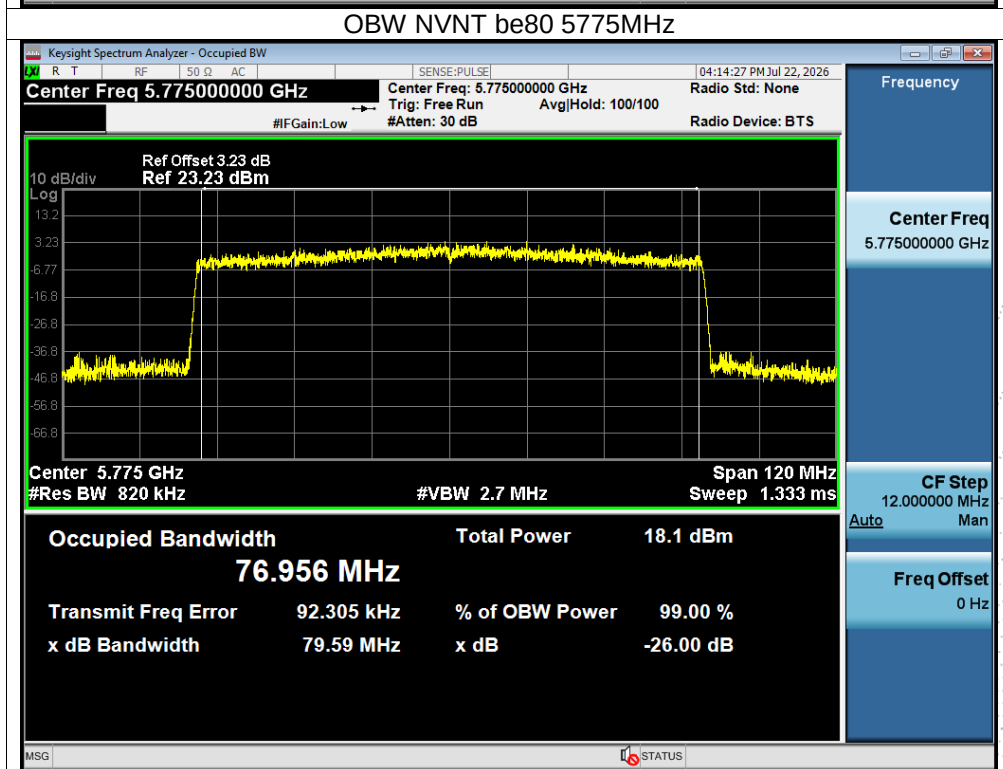
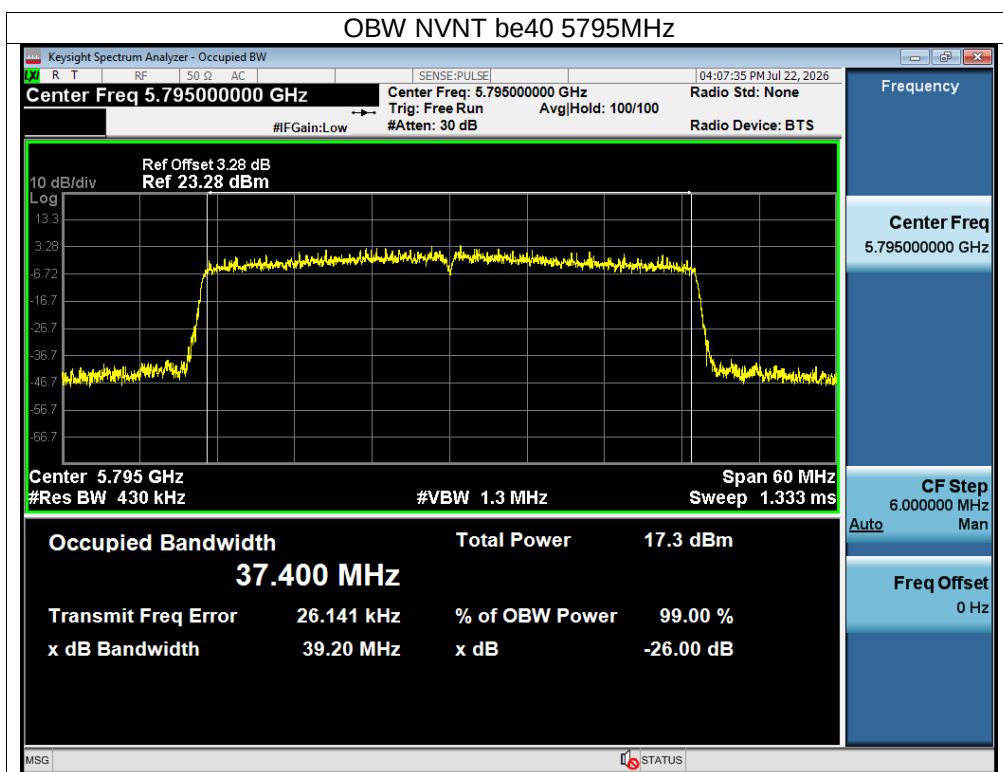










10. Maximum Conducted Output Power

10.1 Block Diagram Of Test Setup



10.2 Limit

According to FCC §15.407

The maximum conducted output power should not exceed:

Frequency Band(MHz)	Limit
5150~5250	0.25W
5250~5350	250 mW or 11 dBm + 10log B, whichever is less.
5470~5725	250 mW or 11 dBm + 10log B, whichever is less.
5725~5850	1W
Note: Where "B" is the 26 dB emissions bandwidth in MHz.	

10.3 Test Procedure

Method SA-1 or method SA-1A (alternative) shall be applied if either of the following conditions can be satisfied:

- 1) The EUT transmits continuously (or with a $D \geq 98\%$).

Method SA-1 uses trace averaging with the EUT transmitting at full power throughout each sweep. The procedure for this method is as follows:

- a) Set span to encompass the entire 99% OBW of the signal.
- b) Set RBW = 1 MHz.
- c) Set VBW ≥ 3 MHz.
- d) Number of points in sweep $\geq [2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing $\leq \text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.)
- e) Sweep time = auto.
- f) Detector = Power averaging (rms), if available. Otherwise, use sample detector mode.
- g) If transmit duty cycle $< 98\%$, use a video trigger with the trigger level set to enable triggering only on full power pulses. The transmitter shall operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no OFF intervals) or at duty cycle $\geq 98\%$, and if each transmission is entirely at the maximum power control level, then the

trigger shall be set to “free run.”

- h) Trace average at least 100 traces in power averaging (rms) mode.
- i) Compute power by integrating the spectrum across the 99% OBW of the signal using the instrument's band-power measurement function, with band limits set equal to the OBW band-edges. If the instrument does not have a band-power function, then sum the spectrum levels (in power units) at 1 MHz intervals extending across the 99% OBW of the spectrum.

Method SA-2 or method SA-2A (alternative) shall be applied if the conditions of the preceding item a) cannot be achieved, and the transmissions exhibit a constant duty cycle during the measurement duration. Duty cycle will be considered to be constant if variations are less than $\pm 2\%$.

Method SA-2 uses trace averaging across ON and OFF times of the EUT transmissions, followed by duty cycle correction. The procedure for this method is as follows:

- a) Measure the duty cycle D of the transmitter output signal as described in 12.2.
- b) Set span to encompass the entire 99% OBW of the signal.
- c) Set RBW = 1 MHz.
- d) Set VBW ≥ 3 MHz.
- e) Number of points in sweep $\geq [2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing $\leq \text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.)
- f) Sweep time = auto.
- g) Detector = Power averaging (rms), if available. Otherwise, use sample detector mode.
- h) Do not use sweep triggering. Allow the sweep to “free run.”
- i) Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed such that the average accurately represents the true average over the ON and OFF periods of the transmitter.
- j) Compute power by integrating the spectrum across the 99% OBW of the signal using the instrument's band-power measurement function with band limits set equal to the EBW or OBW band-edges. If the instrument does not have a band-power function, then sum the spectrum levels (in power units) at 1 MHz intervals extending across the 99% OBW of the spectrum.
- k) Add $[10 \log (1 / D)]$, where D is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average over both the ON and OFF times of the transmission). For example, add $[10 \log (1 / 0.25)] = 6$ dB if the duty cycle is 25%.

10.4 EUT Operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

10.5 Test Result

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	5180-5240MHz		

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)			Limit (dBm)	Verdict
			Ant A	Ant B	Total		
NVNT	a	5180	14.96	14.09	/	24	Pass
NVNT	a	5200	14.35	14.13	/	24	Pass
NVNT	a	5240	13.88	14.26	/	24	Pass
NVNT	n20	5180	13.68	13.51	16.61	24	Pass
NVNT	n20	5200	13.32	13.06	16.20	24	Pass
NVNT	n20	5240	13.92	13.42	16.69	24	Pass
NVNT	n40	5190	12.23	11.83	15.04	24	Pass
NVNT	n40	5230	12.2	12	15.11	24	Pass
NVNT	ac20	5180	14.15	13.99	17.08	24	Pass
NVNT	ac20	5200	13.95	13.84	16.91	24	Pass
NVNT	ac20	5240	14.33	14.21	17.28	24	Pass
NVNT	ac40	5190	12.9	12.54	15.73	24	Pass
NVNT	ac40	5230	12.61	12.69	15.66	24	Pass
NVNT	ac80	5210	12.41	11.98	15.21	24	Pass
NVNT	ax20	5180	13.49	13.36	16.44	24	Pass
NVNT	ax20	5200	13.25	13.26	16.27	24	Pass
NVNT	ax20	5240	13.63	13.57	16.61	24	Pass
NVNT	ax40	5190	13.17	12.89	16.04	24	Pass
NVNT	ax40	5230	12.98	12.74	15.87	24	Pass
NVNT	ax80	5210	12.71	12.49	15.61	24	Pass
NVNT	be20	5180	13.33	13.41	16.38	24	Pass
NVNT	be20	5200	13.05	12.9	15.99	24	Pass
NVNT	be20	5240	13.21	13.4	16.32	24	Pass
NVNT	be40	5190	13.34	13.2	16.28	24	Pass
NVNT	be40	5230	13.51	13.69	16.61	24	Pass
NVNT	be80	5210	13.57	13.53	16.56	24	Pass

Note:

For power measurements.

The Array gain=0 for NANT≤4

So the directional gain for Power measurements is 1.95 dBi

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	5260-5320MHz		

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)			Limit (dBm)	Verdict
			Ant A	Ant B	Total		
NVNT	a	5260	13.47	13.15	/	24	Pass
NVNT	a	5280	13.16	13.1	/	24	Pass
NVNT	a	5320	12.61	12.86	/	24	Pass
NVNT	n20	5260	11.92	11.56	14.75	24	Pass
NVNT	n20	5280	11.72	11.65	14.70	24	Pass
NVNT	n20	5320	11.37	11.44	14.42	24	Pass
NVNT	n40	5270	11.1	11.1	14.11	24	Pass
NVNT	n40	5310	11.13	10.95	14.05	24	Pass
NVNT	ac20	5260	11.92	11.89	14.92	24	Pass
NVNT	ac20	5280	12.04	11.84	14.95	24	Pass
NVNT	ac20	5320	11.33	11.75	14.56	24	Pass
NVNT	ac40	5270	10.85	11.29	14.09	24	Pass
NVNT	ac40	5310	11.06	10.92	14.00	24	Pass
NVNT	ac80	5290	10.92	11.37	14.16	24	Pass
NVNT	ax20	5260	12.01	11.99	15.01	24	Pass
NVNT	ax20	5280	11.92	12.2	15.07	24	Pass
NVNT	ax20	5320	11.89	11.74	14.83	24	Pass
NVNT	ax40	5270	11.32	11.39	14.37	24	Pass
NVNT	ax40	5310	11.11	11.43	14.28	24	Pass
NVNT	ax80	5290	11.61	11.41	14.52	24	Pass
NVNT	be20	5260	13.44	13.13	16.30	24	Pass
NVNT	be20	5280	13.29	13.57	16.44	24	Pass
NVNT	be20	5320	12.68	13.01	15.86	24	Pass
NVNT	be40	5270	13.07	13.03	16.06	24	Pass
NVNT	be40	5310	13.17	13.41	16.30	24	Pass
NVNT	be80	5290	12.8	13.15	15.99	24	Pass

Note:

For power measurements.

The Array gain=0 for NANT≤4

So the directional gain for Power measurements is 1.95 dBi

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	5500-5700MHz		

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)			Limit (dBm)	Verdict
			Ant A	Ant B	Total		
NVNT	a	5500	13.28	12.96	/	24	Pass
NVNT	a	5580	13.6	12.71	/	24	Pass
NVNT	a	5700	12.14	10.31	/	24	Pass
NVNT	n20	5500	11.66	11.46	14.57	24	Pass
NVNT	n20	5580	12.04	11.14	14.62	24	Pass
NVNT	n20	5700	10.56	9.05	12.88	24	Pass
NVNT	n40	5510	10.97	10.88	13.94	24	Pass
NVNT	n40	5550	10.54	10.35	13.46	24	Pass
NVNT	n40	5670	10.32	8.97	12.71	24	Pass
NVNT	ac20	5500	11.61	11.4	14.52	24	Pass
NVNT	ac20	5580	12.17	11.42	14.82	24	Pass
NVNT	ac20	5700	10.36	9.08	12.78	24	Pass
NVNT	ac40	5510	10.93	10.56	13.76	24	Pass
NVNT	ac40	5550	10.81	10.7	13.77	24	Pass
NVNT	ac40	5670	10.34	9.41	12.91	24	Pass
NVNT	ac80	5530	10.27	10.7	13.50	24	Pass
NVNT	ax20	5500	11.84	11.65	14.76	24	Pass
NVNT	ax20	5580	12.27	11.38	14.86	24	Pass
NVNT	ax20	5700	10.94	9.36	13.23	24	Pass
NVNT	ax40	5510	11.1	10.91	14.02	24	Pass
NVNT	ax40	5550	10.85	10.54	13.71	24	Pass
NVNT	ax40	5670	10.58	9.62	13.14	24	Pass
NVNT	ax80	5530	11.25	11.09	14.18	24	Pass
NVNT	be20	5500	13.73	13.17	16.47	24	Pass
NVNT	be20	5580	13.3	12.67	16.01	24	Pass
NVNT	be20	5700	12.5	11.52	15.05	24	Pass
NVNT	be40	5510	12.7	13.74	16.26	24	Pass
NVNT	be40	5550	12.72	13.76	16.28	24	Pass
NVNT	be40	5670	12.21	11.12	14.71	24	Pass
NVNT	be80	5530	13.03	13.16	16.11	24	Pass

Note:

For power measurements.

The Array gain=0 for NANT≤4

So the directional gain for Power measurements is 1.95 dBi

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	5745-5825MHz		

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)			Limit (dBm)	Verdict
			Ant A	Ant B	Total		
NVNT	a	5745	14.33	13.28	/	30	Pass
NVNT	a	5785	13.98	12.73	/	30	Pass
NVNT	a	5825	13.52	12.8	/	30	Pass
NVNT	n20	5745	13.14	11.91	15.58	30	Pass
NVNT	n20	5785	12.87	11.65	15.31	30	Pass
NVNT	n20	5825	12.25	11.62	14.96	30	Pass
NVNT	n40	5755	12.17	11.24	14.74	30	Pass
NVNT	n40	5795	11.87	10.62	14.30	30	Pass
NVNT	ac20	5745	12.93	12.33	15.65	30	Pass
NVNT	ac20	5785	12.32	11.76	15.06	30	Pass
NVNT	ac20	5825	12.42	11.8	15.13	30	Pass
NVNT	ac40	5755	12.06	10.8	14.49	30	Pass
NVNT	ac40	5795	11.72	10.7	14.25	30	Pass
NVNT	ac80	5775	11.04	10.32	13.71	30	Pass
NVNT	ax20	5745	13.38	12.43	15.94	30	Pass
NVNT	ax20	5785	13.03	11.9	15.51	30	Pass
NVNT	ax20	5825	12.21	11.58	14.92	30	Pass
NVNT	ax40	5755	12.34	10.72	14.62	30	Pass
NVNT	ax40	5795	11.51	10.85	14.20	30	Pass
NVNT	ax80	5775	11.41	10.42	13.95	30	Pass
NVNT	be20	5745	12.58	12.3	15.45	30	Pass
NVNT	be20	5785	12.78	12.4	15.60	30	Pass
NVNT	be20	5825	11.89	10.99	14.47	30	Pass
NVNT	be40	5755	12.71	11.48	15.15	30	Pass
NVNT	be40	5795	12.64	11.04	14.92	30	Pass
NVNT	be80	5775	12.85	12.19	15.54	30	Pass

Note:

For power measurements.

The Array gain=0 for NANT≤4

So the directional gain for Power measurements is 1.95 dBi

11. Out Of Band Emissions

11.1 Block Diagram Of Test Setup



11.2 Limit

According to FCC §15.407(b)

Undesirable emission limits. Except as shown in paragraph (b)(10) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz (68.2 dBuV/m@3m).

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz (68.2 dBuV/m@3m).

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz (68.2 dBuV/m@3m).

(4) For transmitters operating solely in the 5.725-5.850 GHz band:

(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

11.3 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

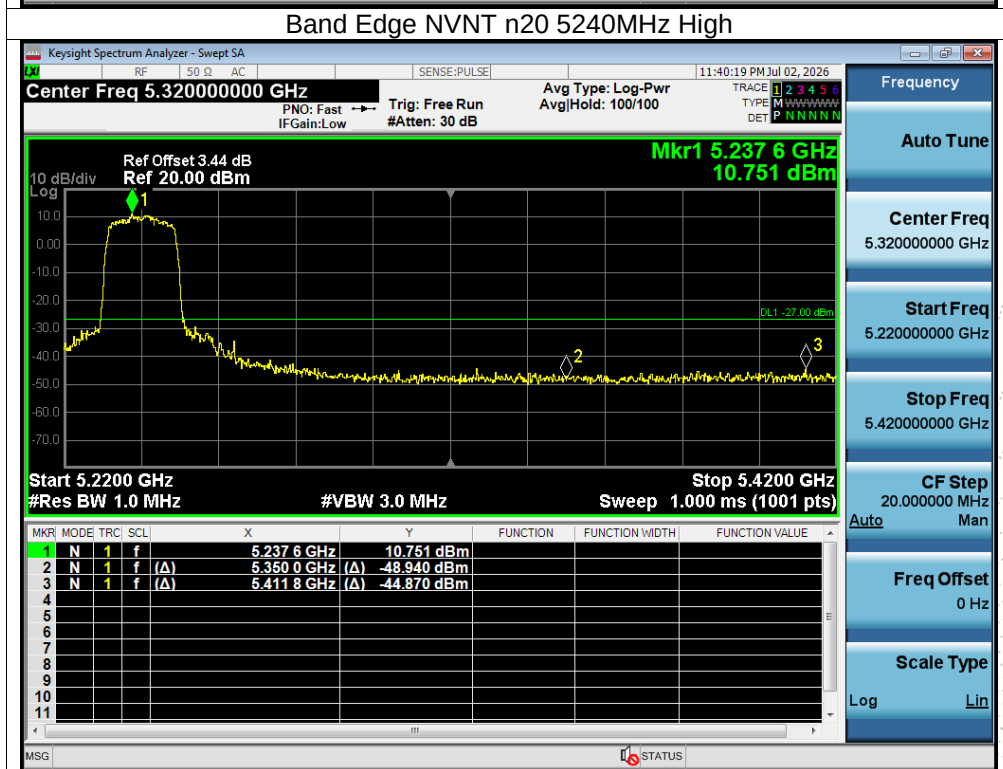
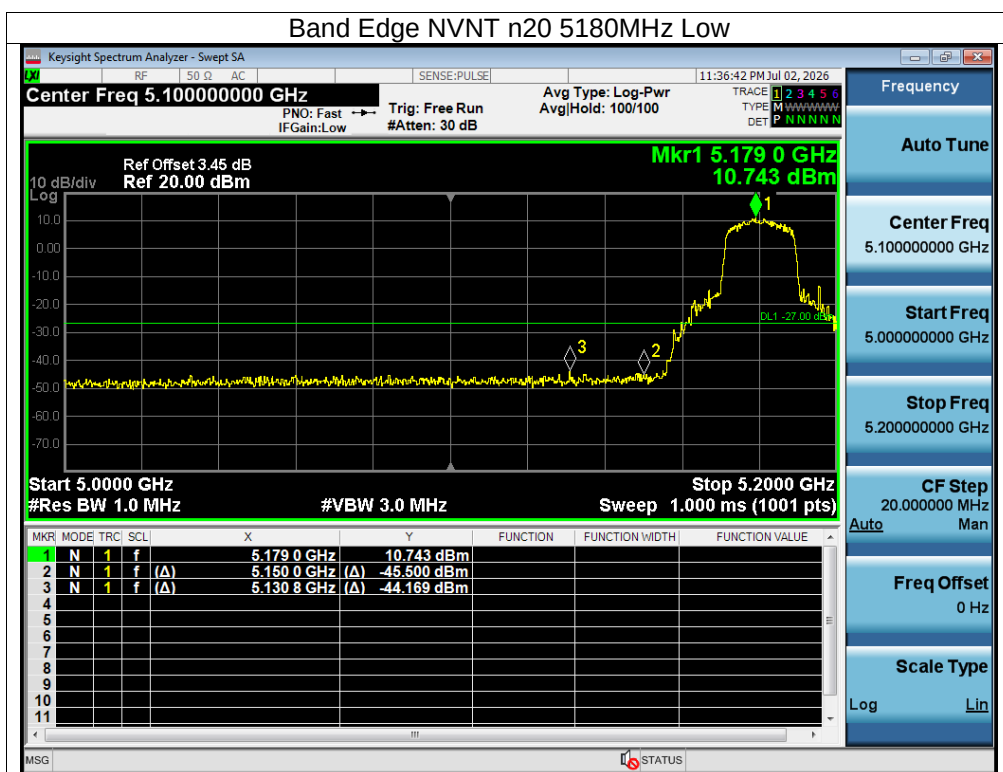
11.4 EUT Operating Conditions

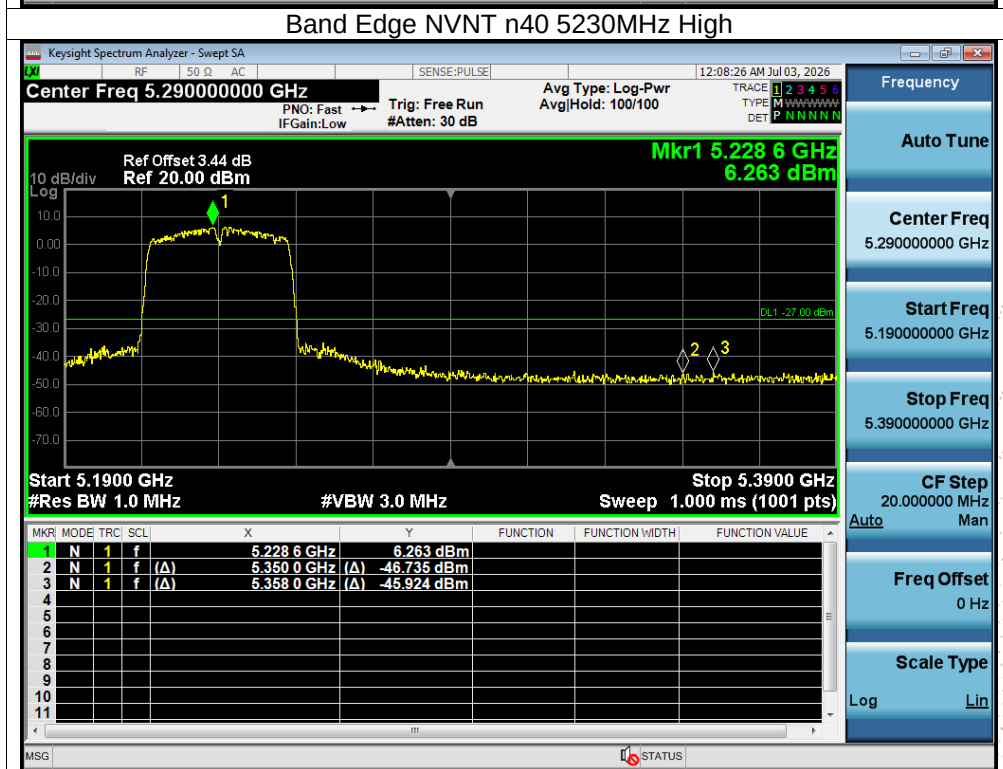
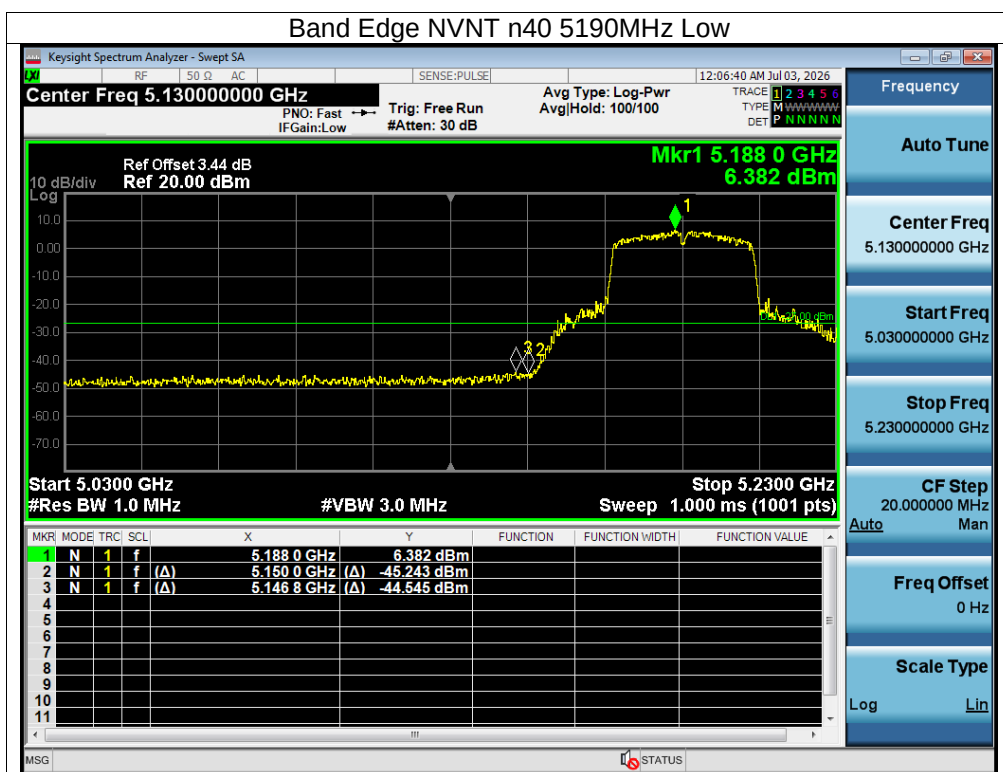
The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data

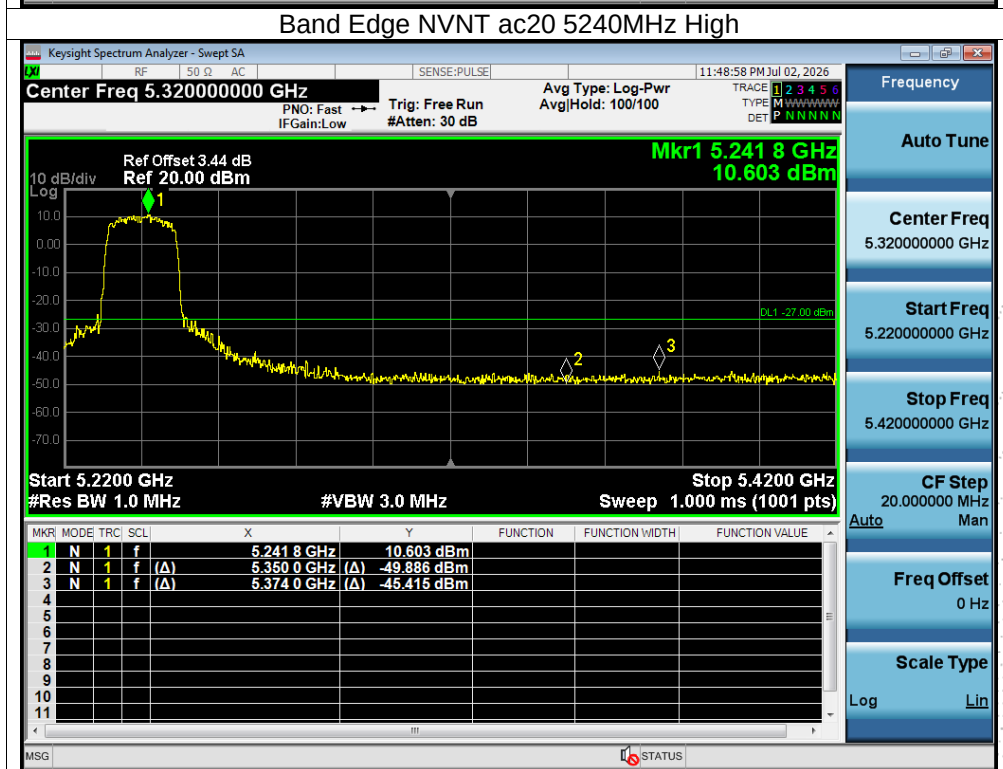
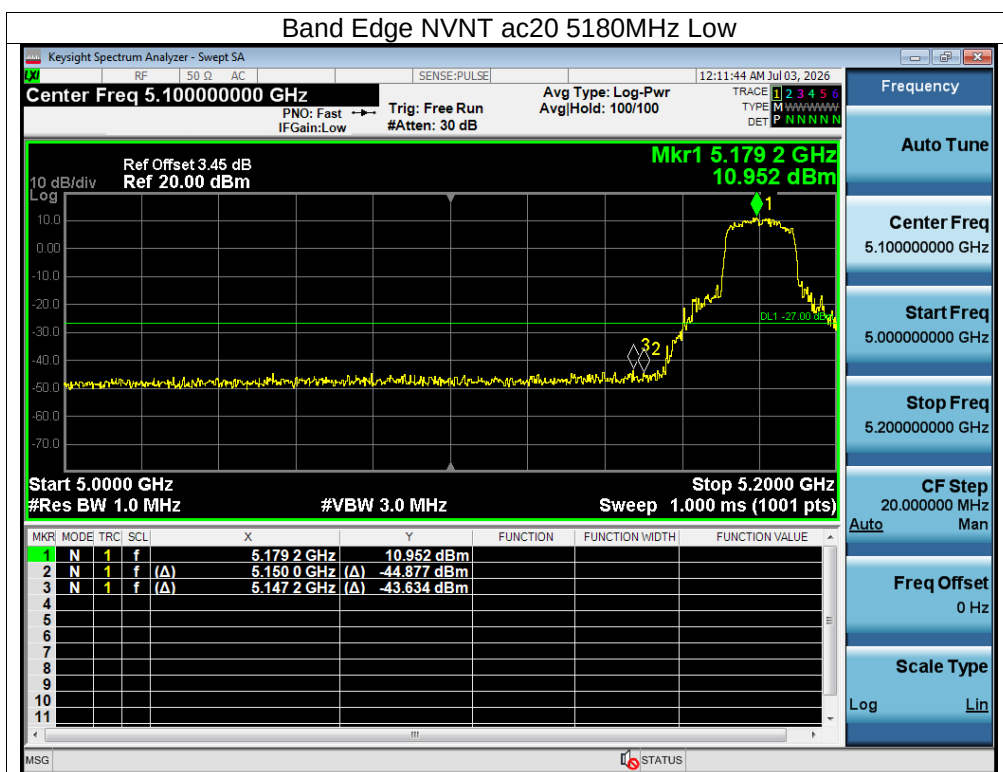
11.5 Test Result

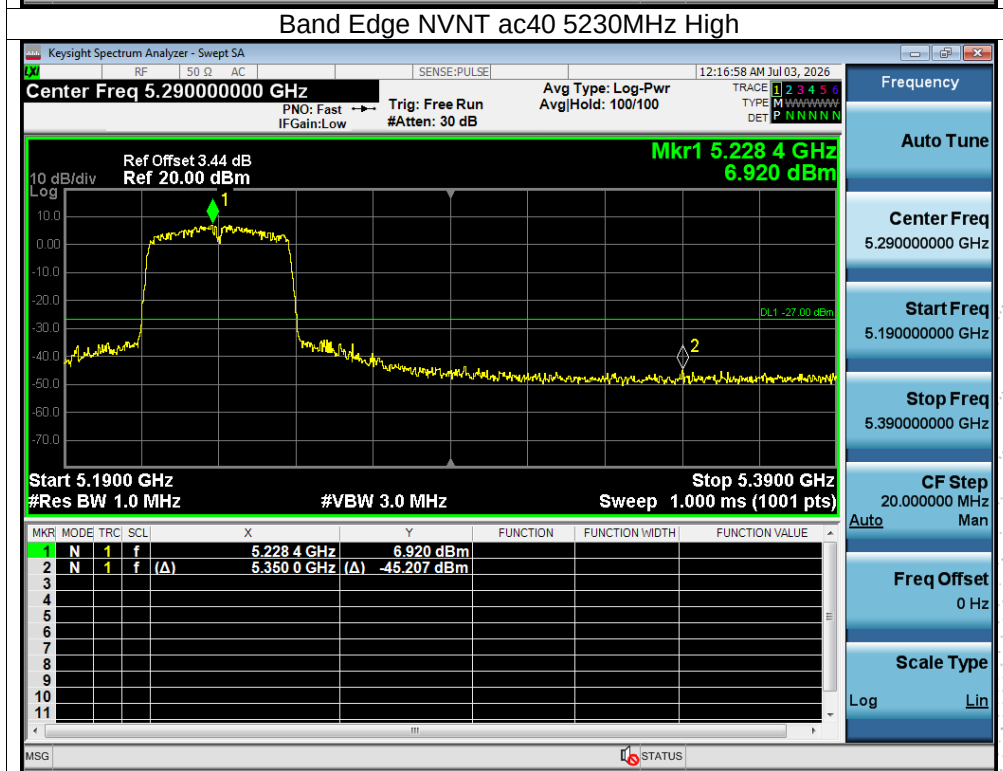
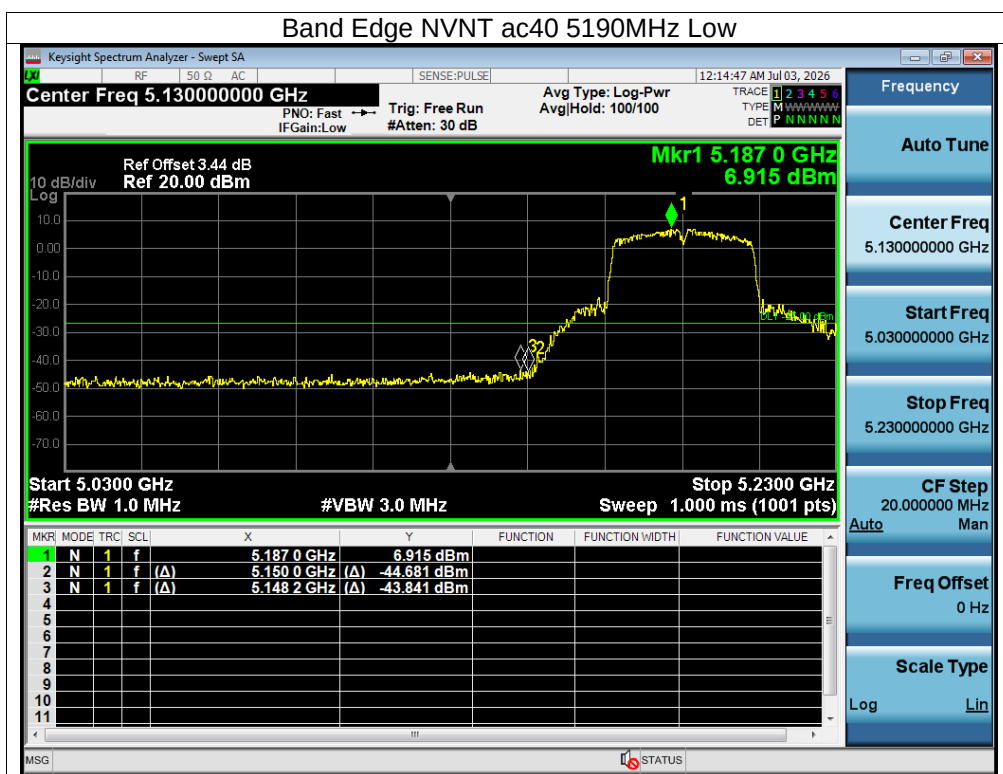
Note: A(B) Represent the value of antenna A and B, The worst data is Antenna A, only shown Antenna A. Plot.

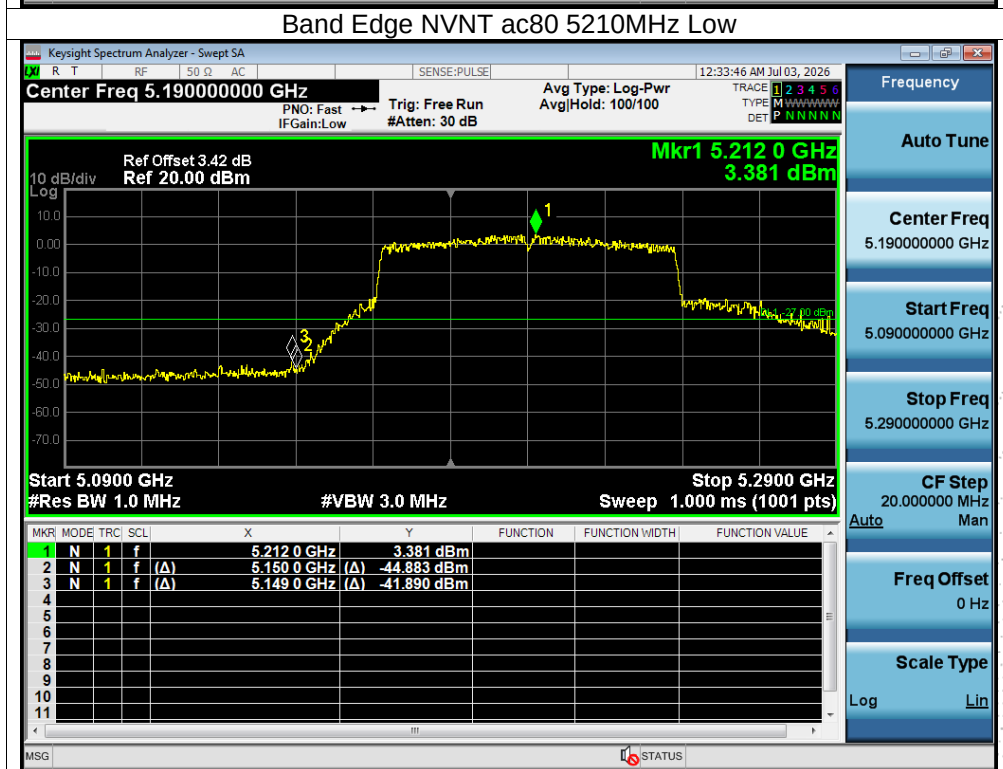
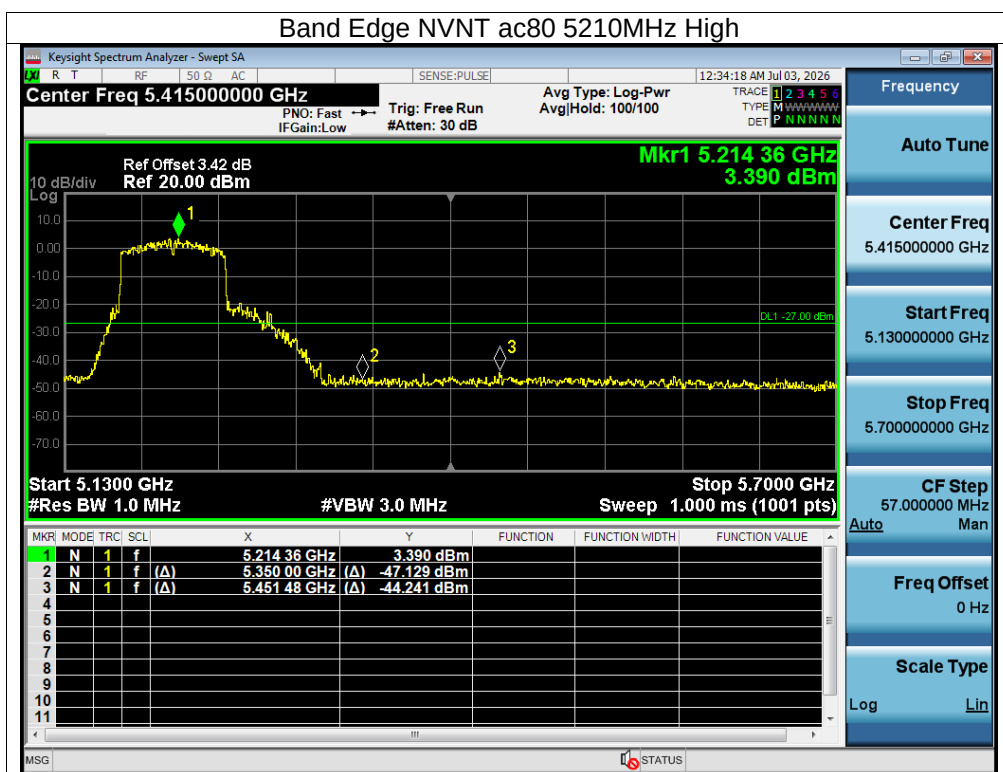


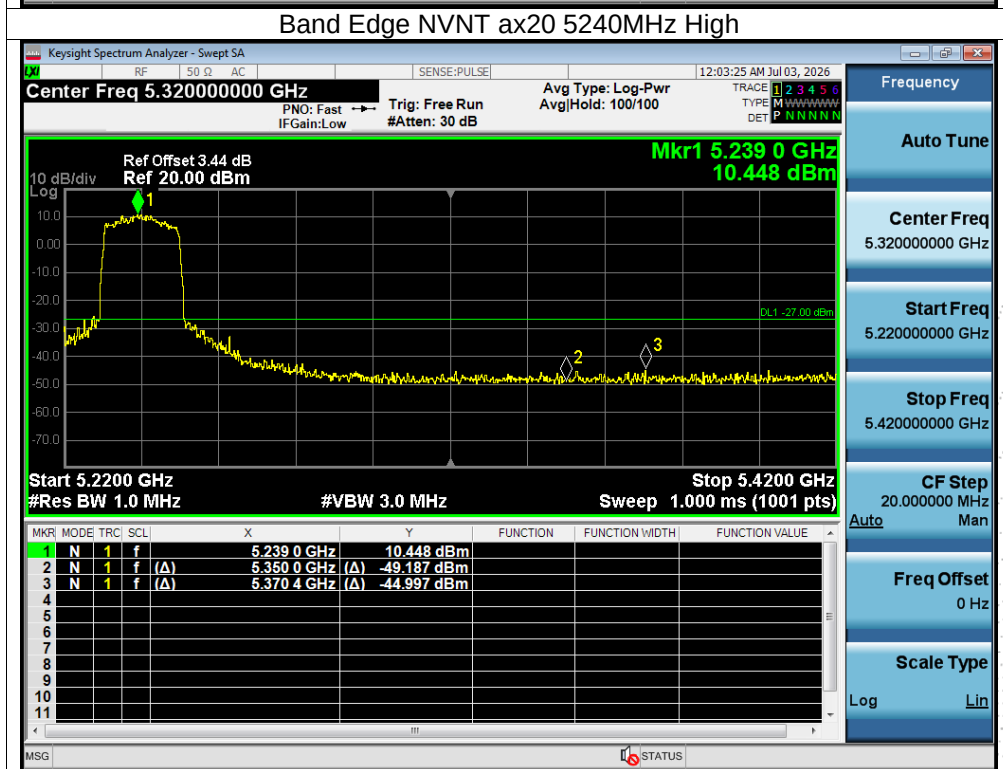
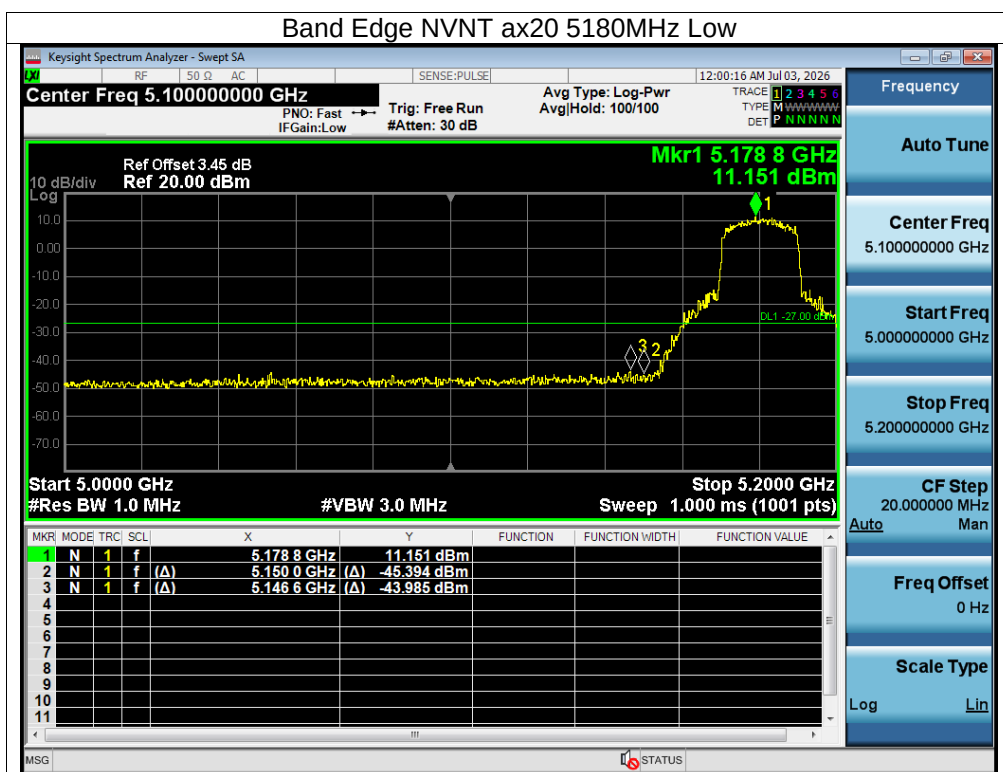


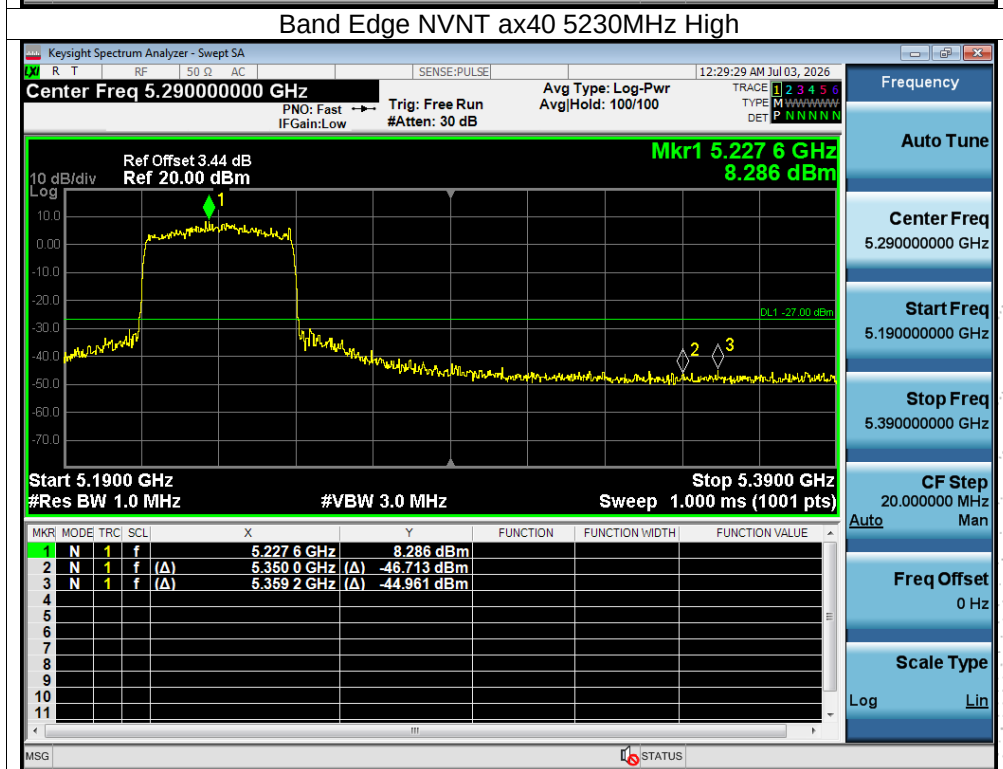
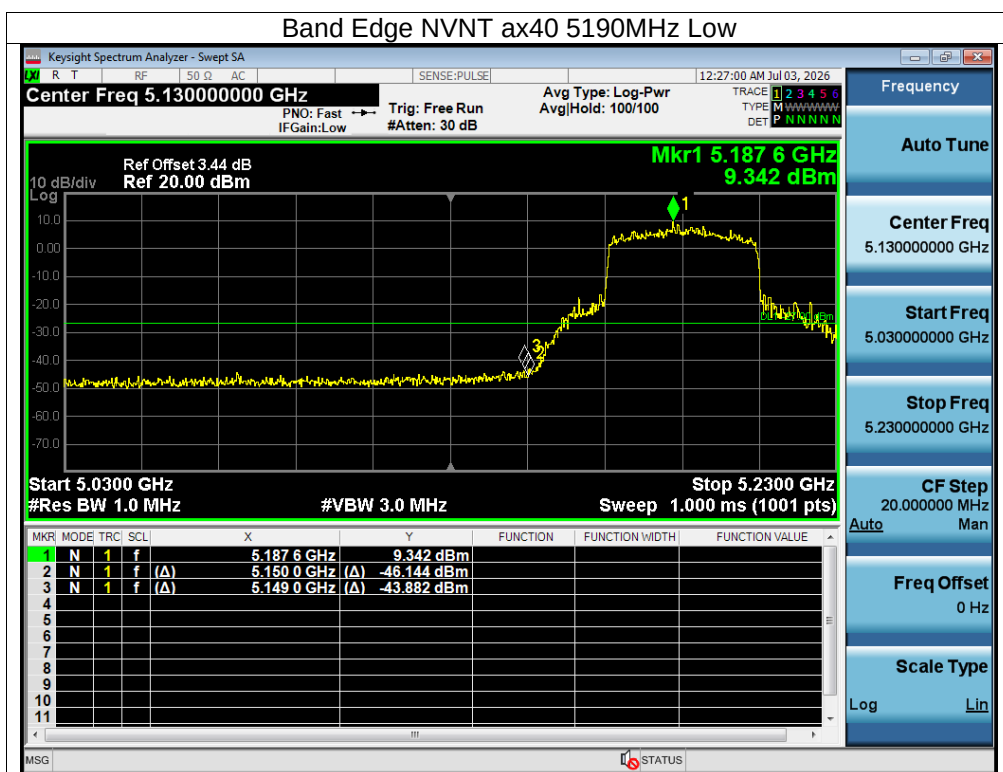


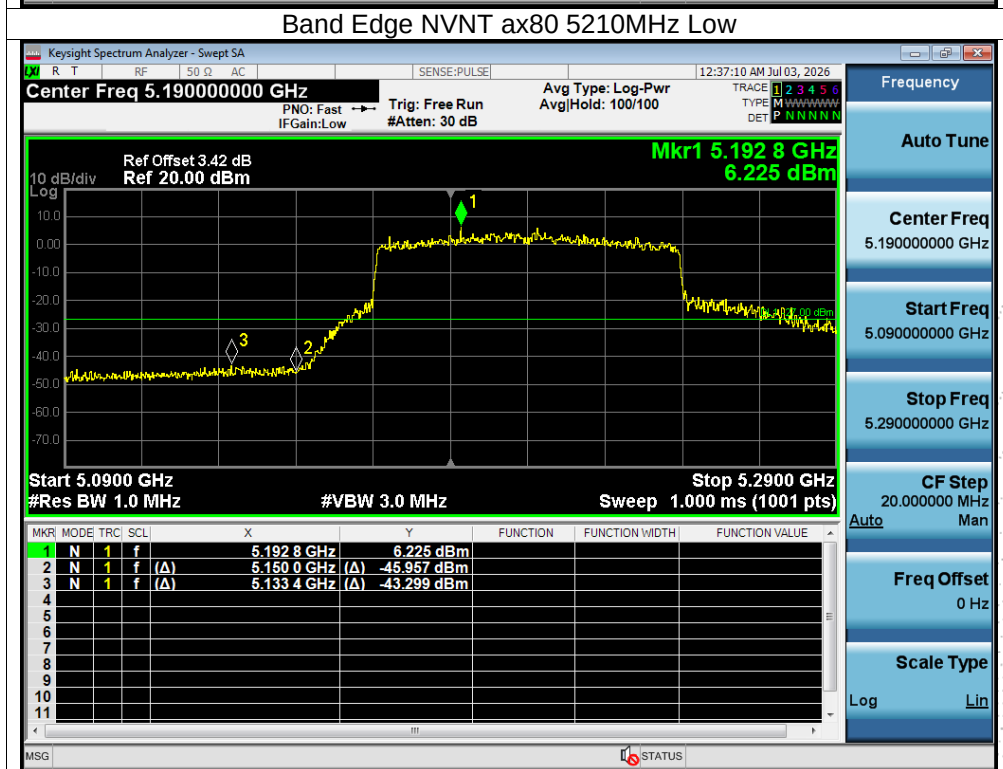
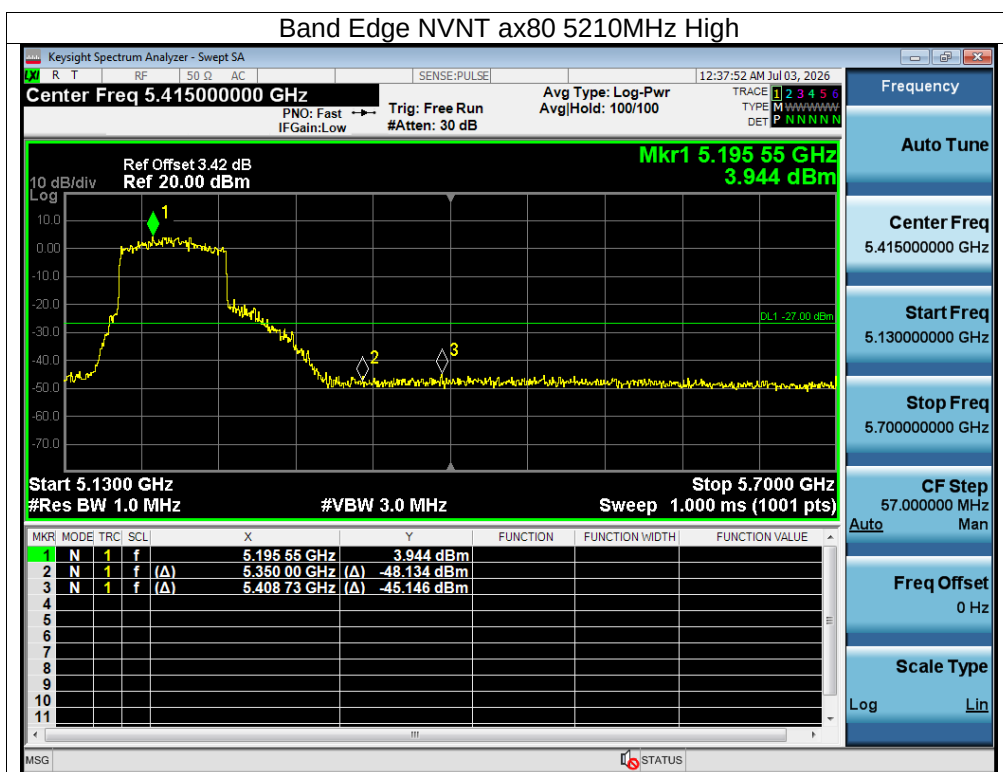


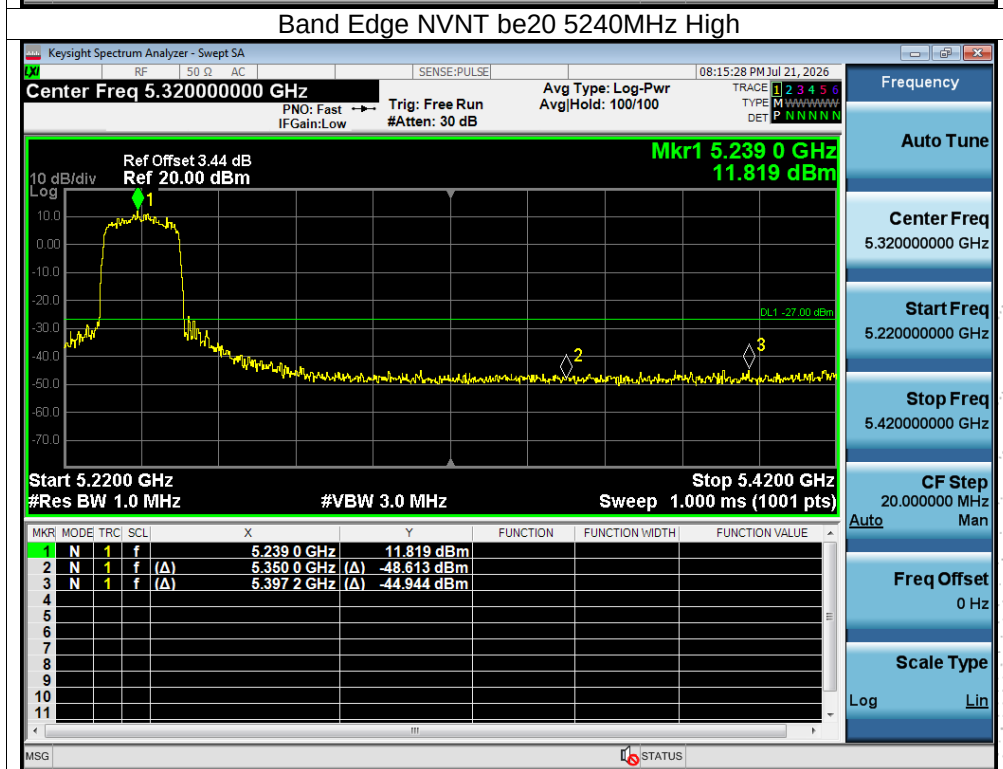
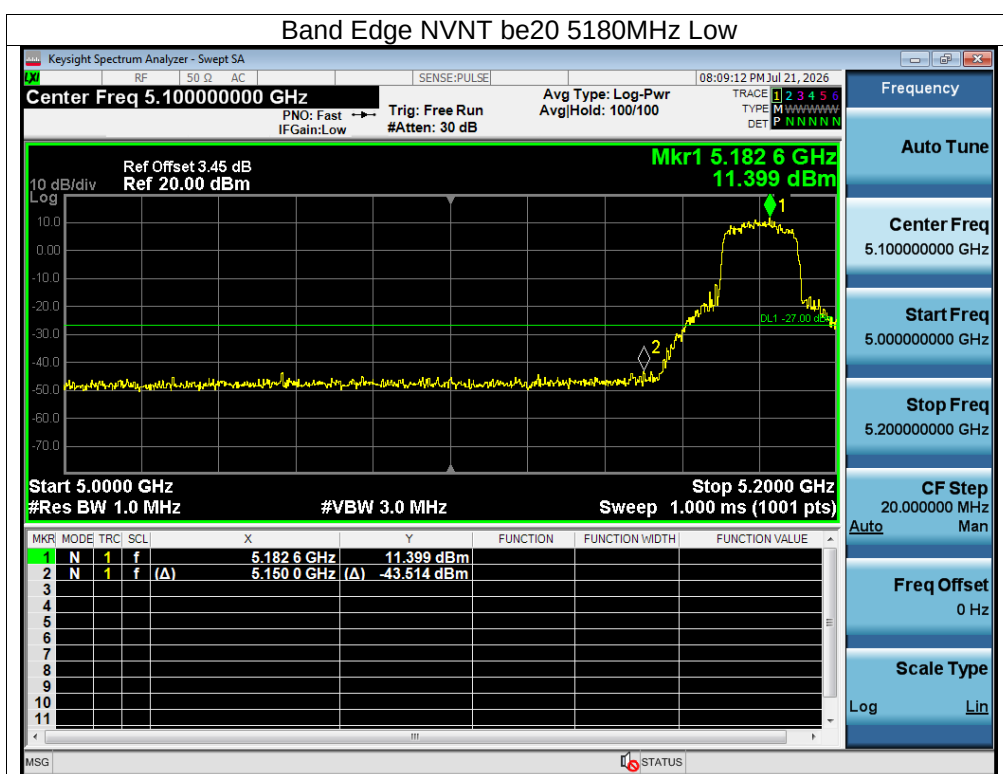


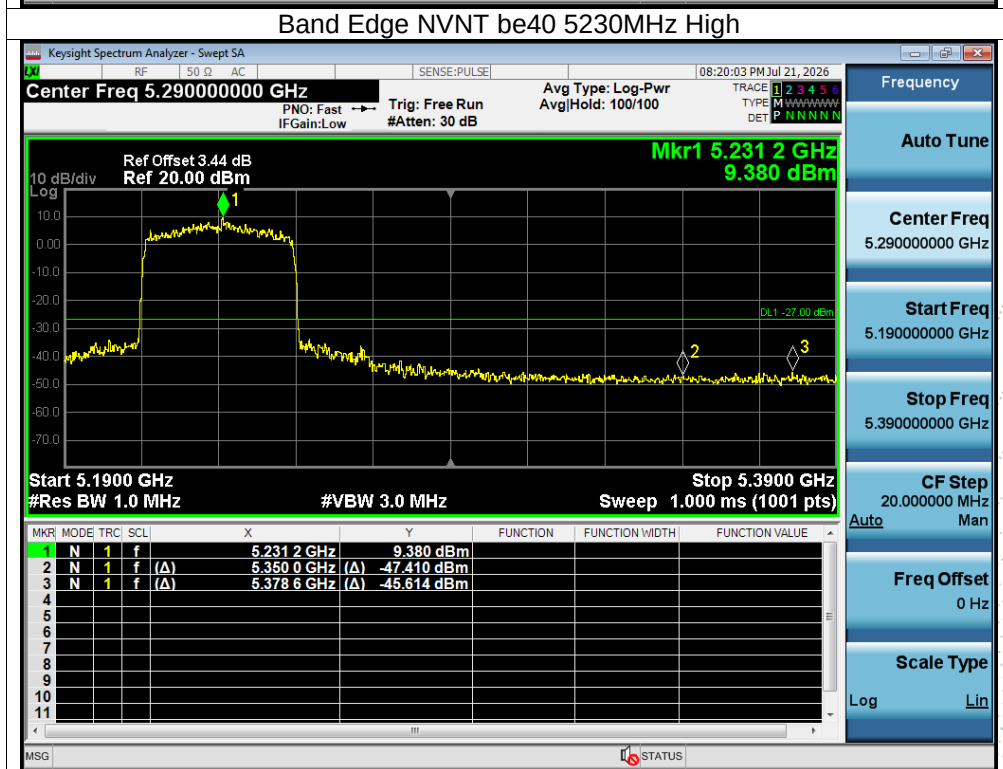
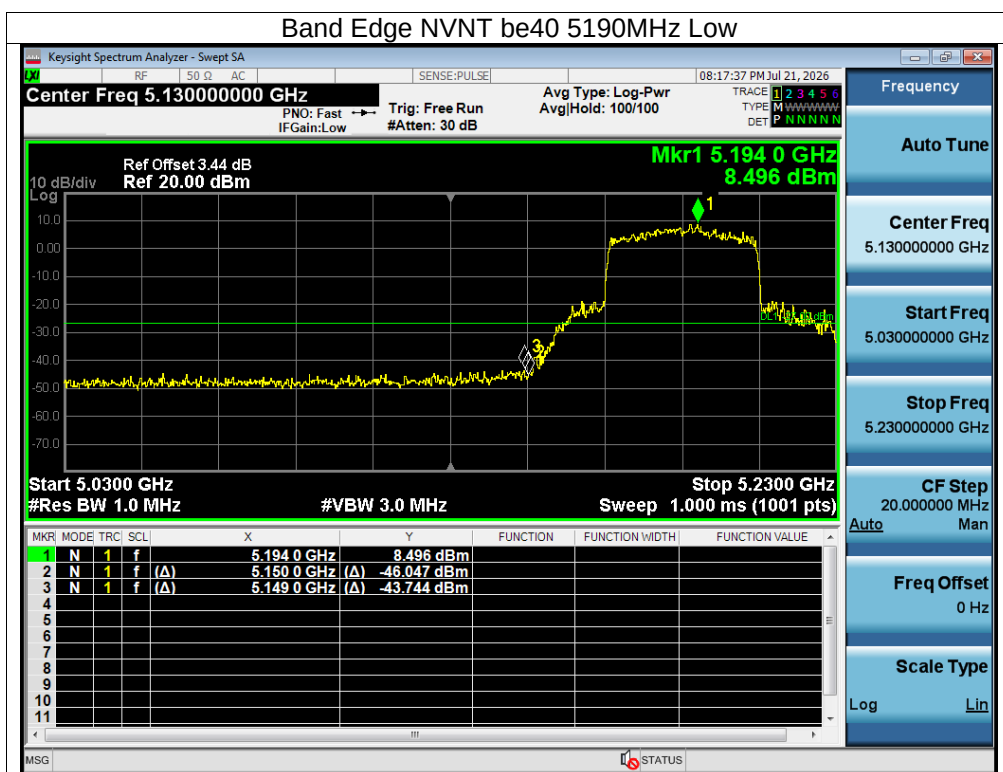


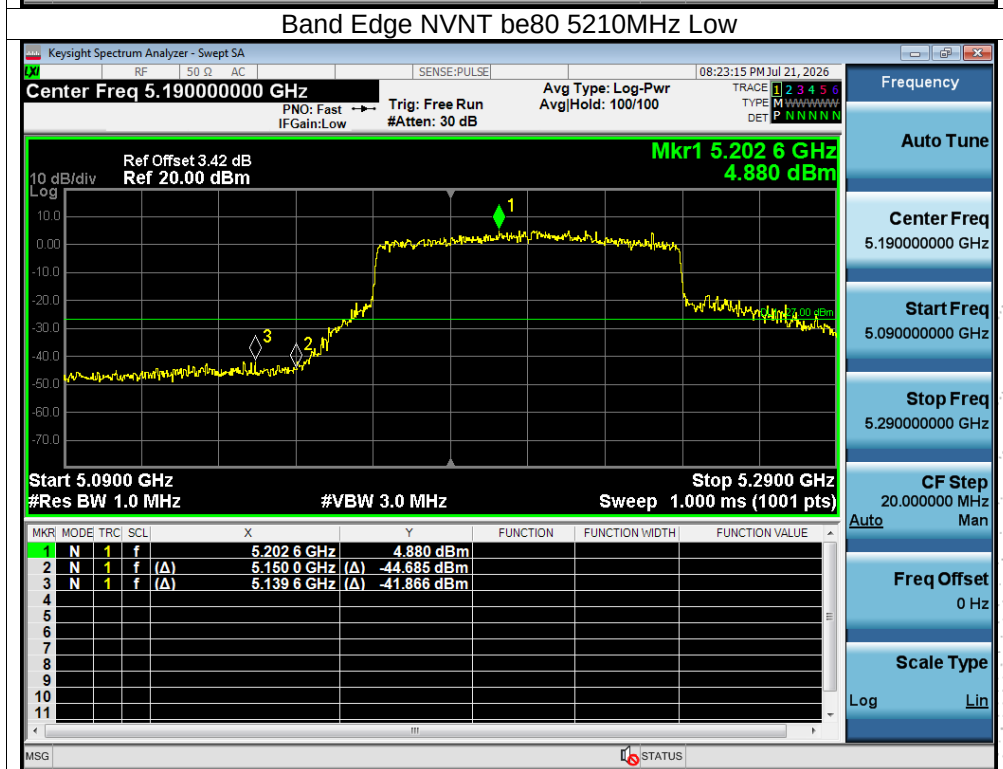
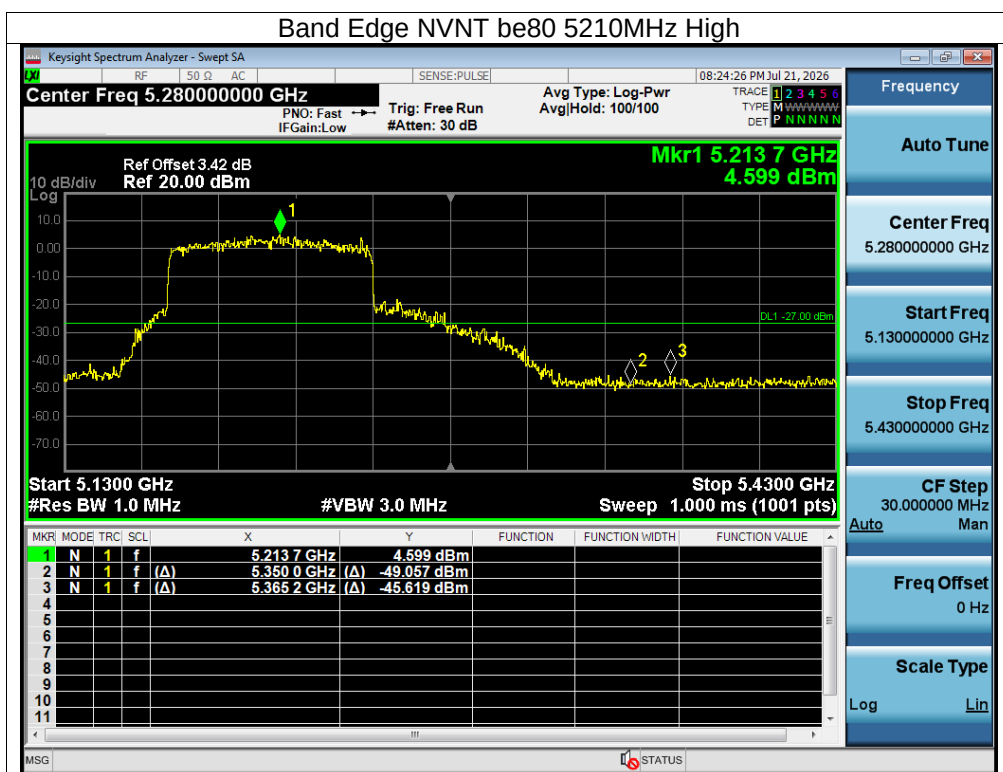




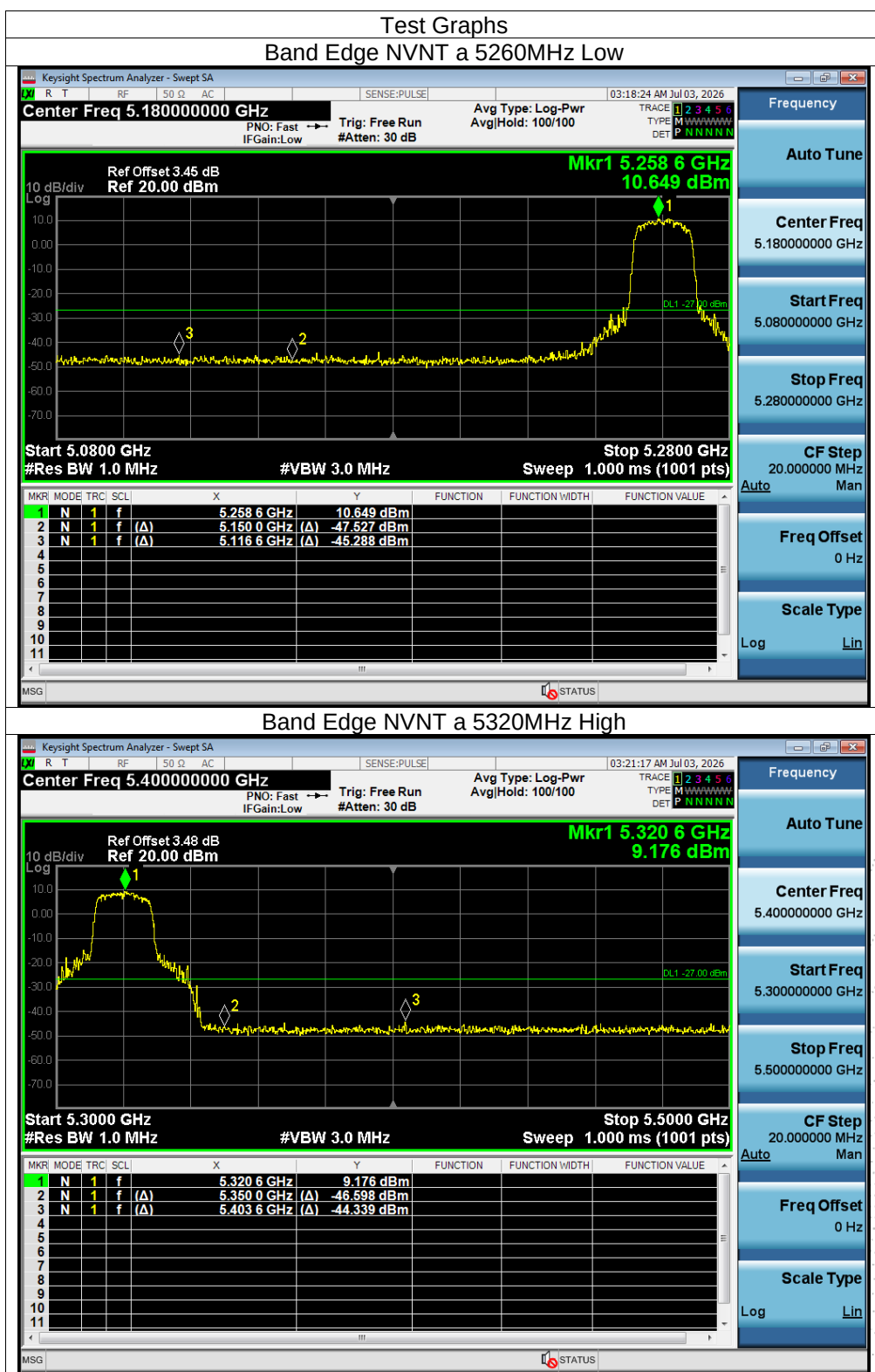


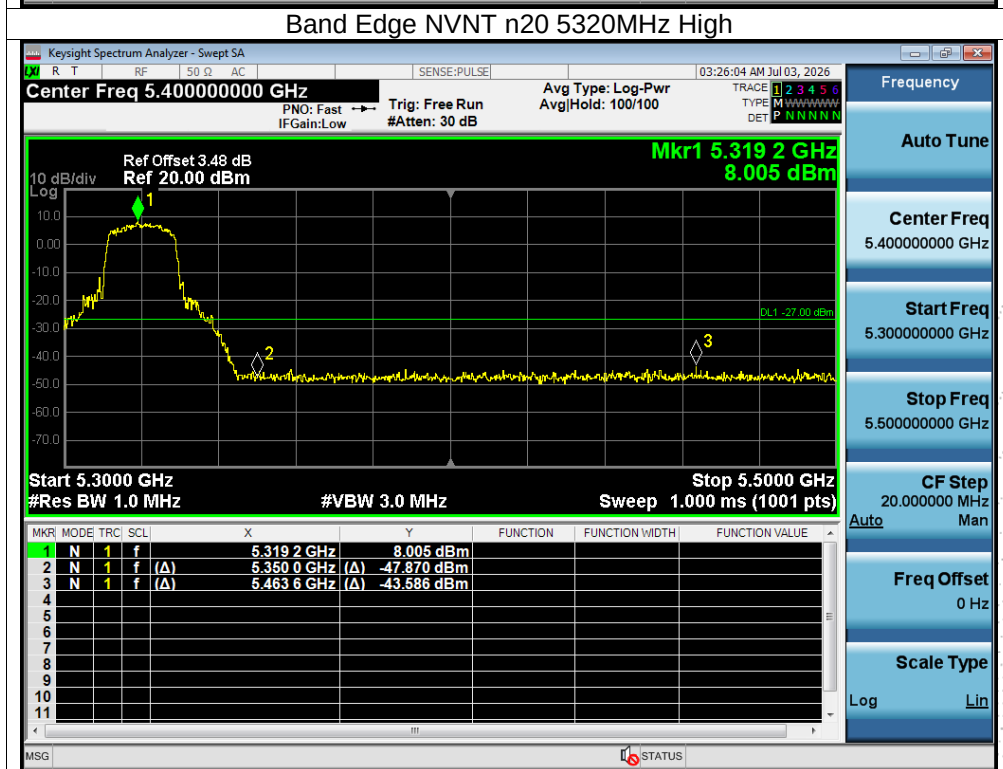
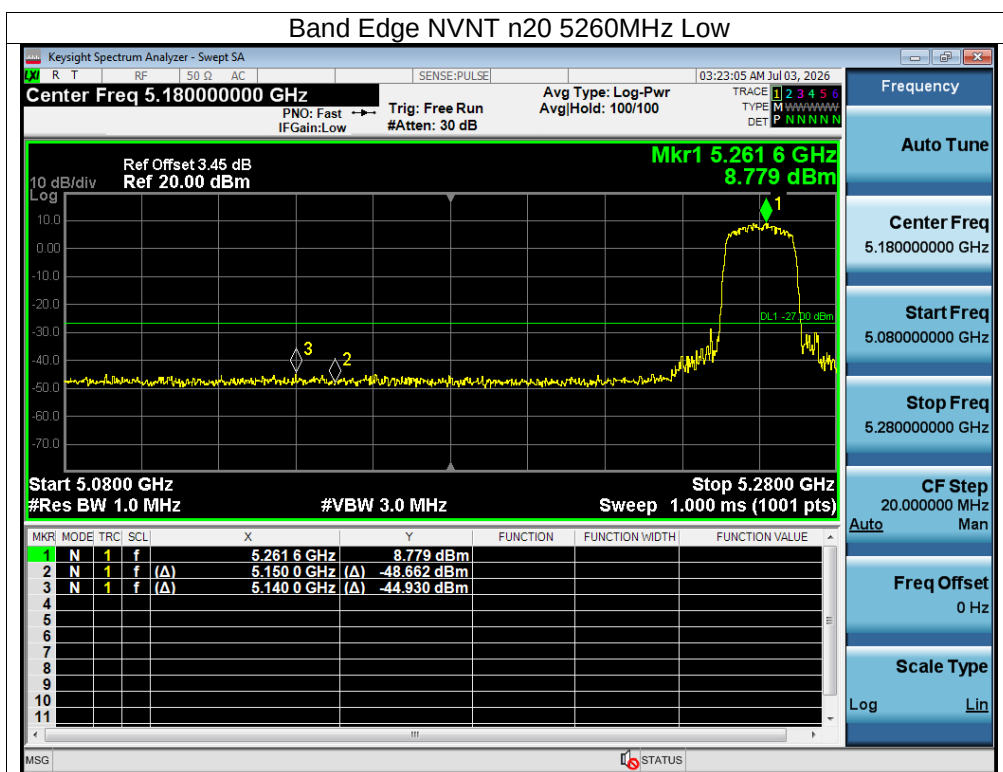


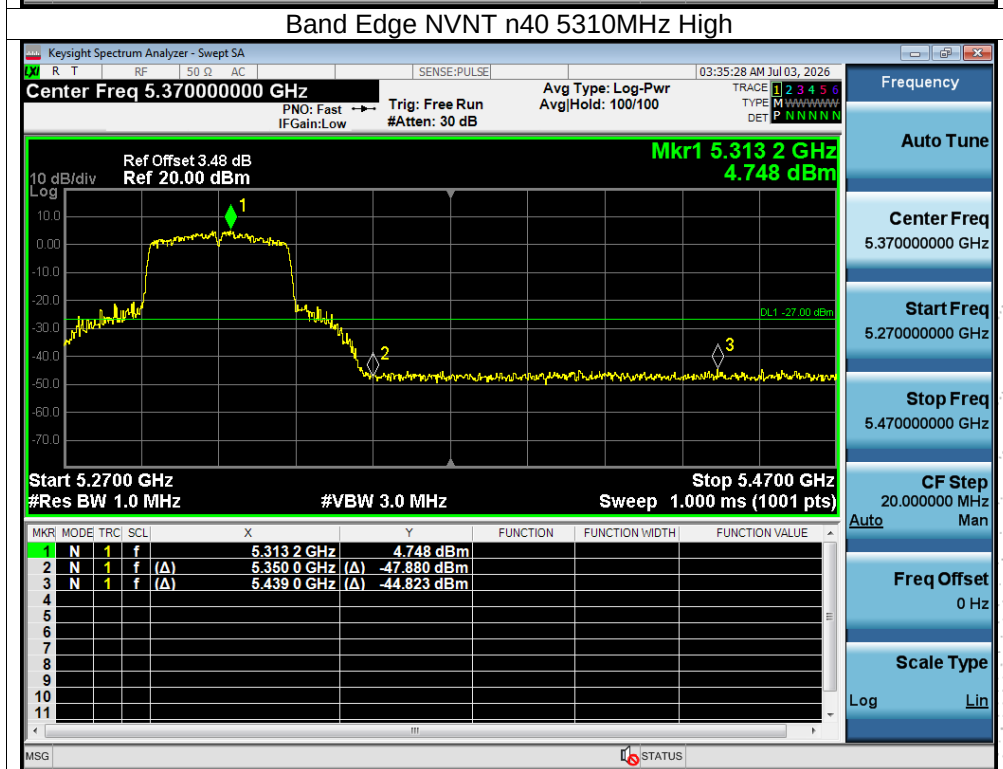
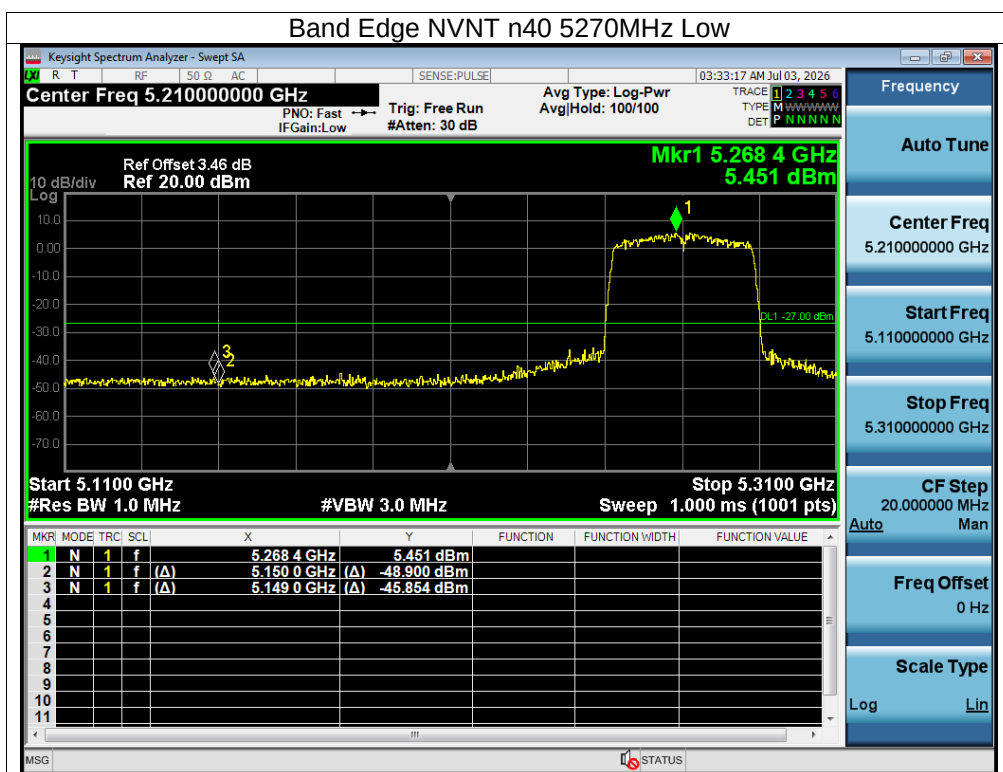


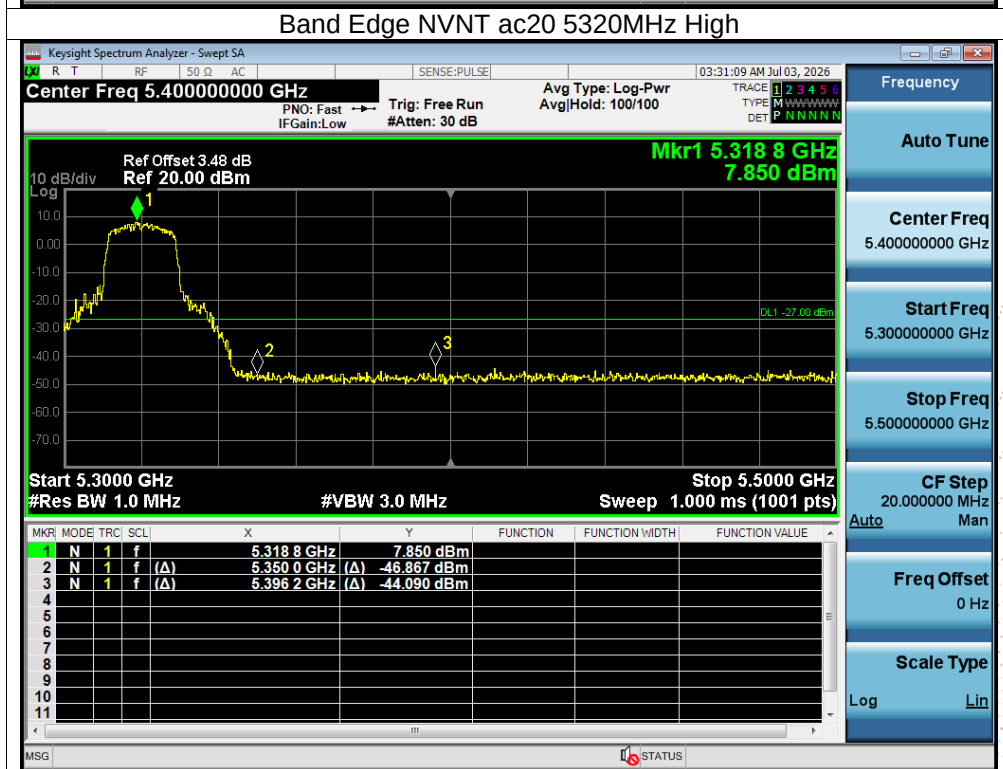
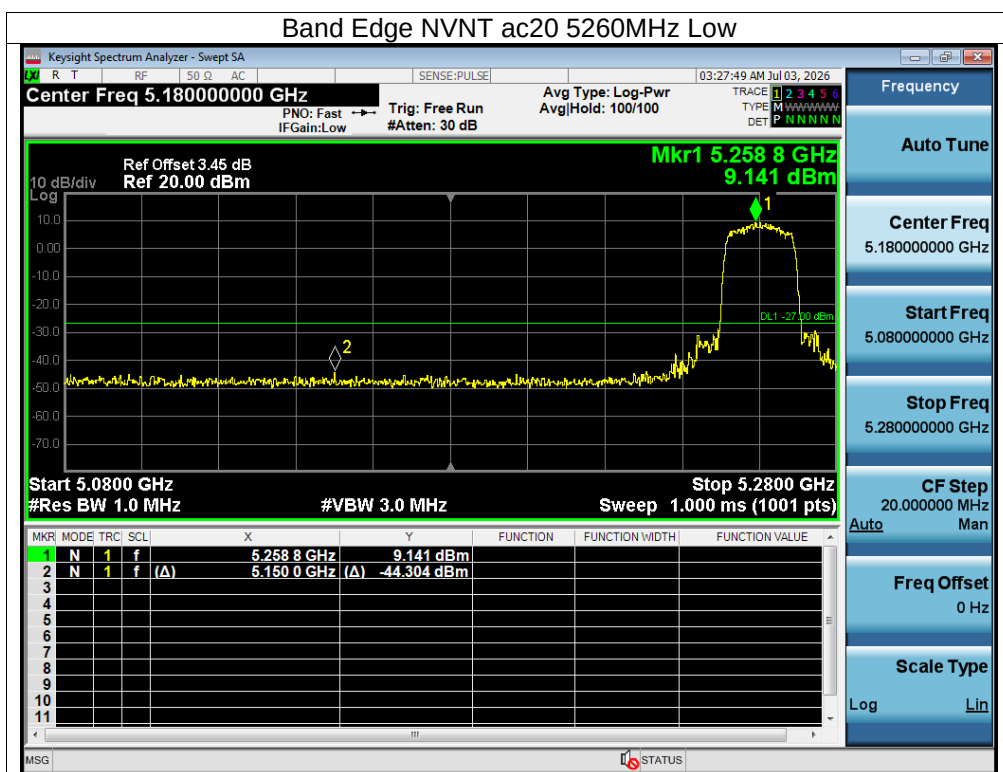


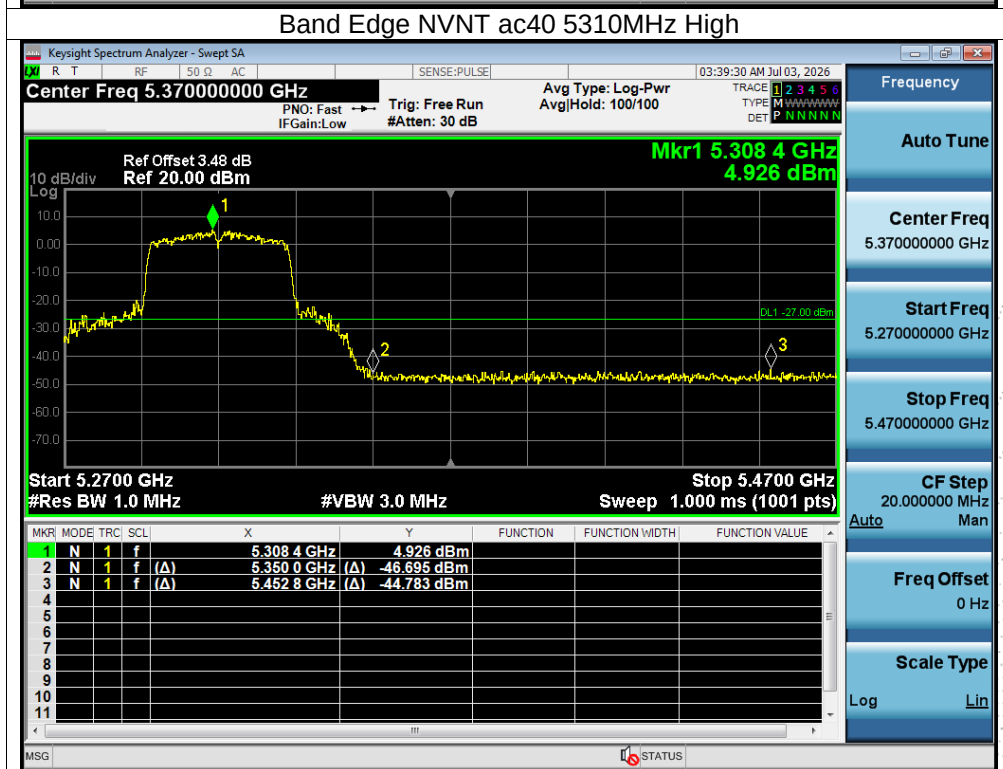
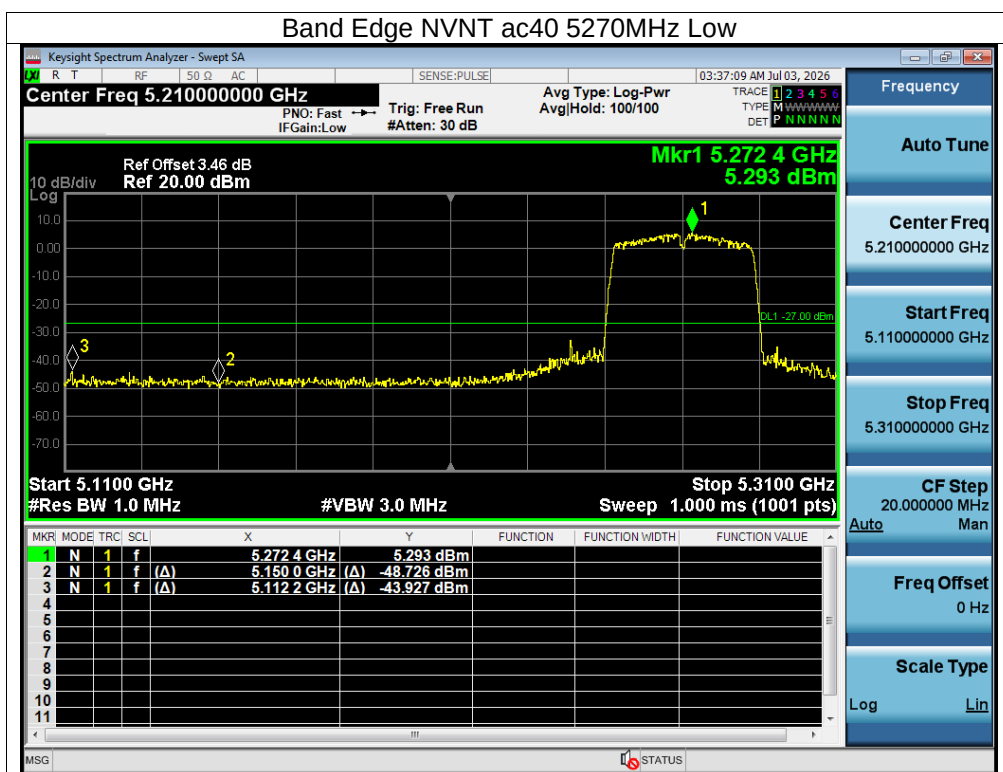
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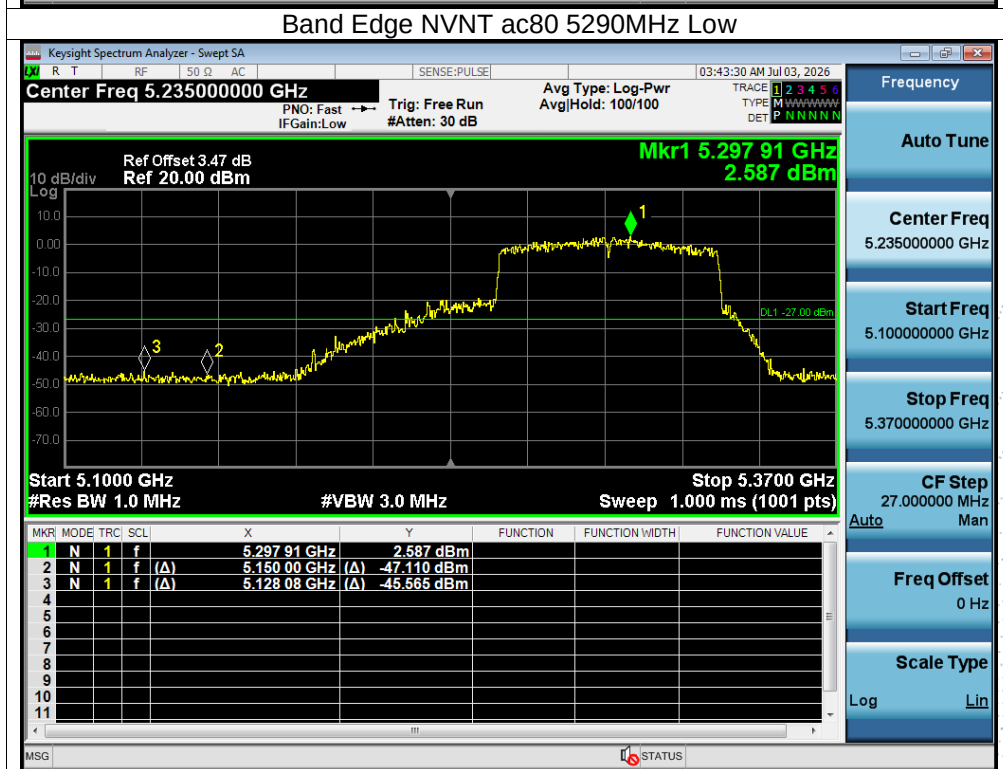
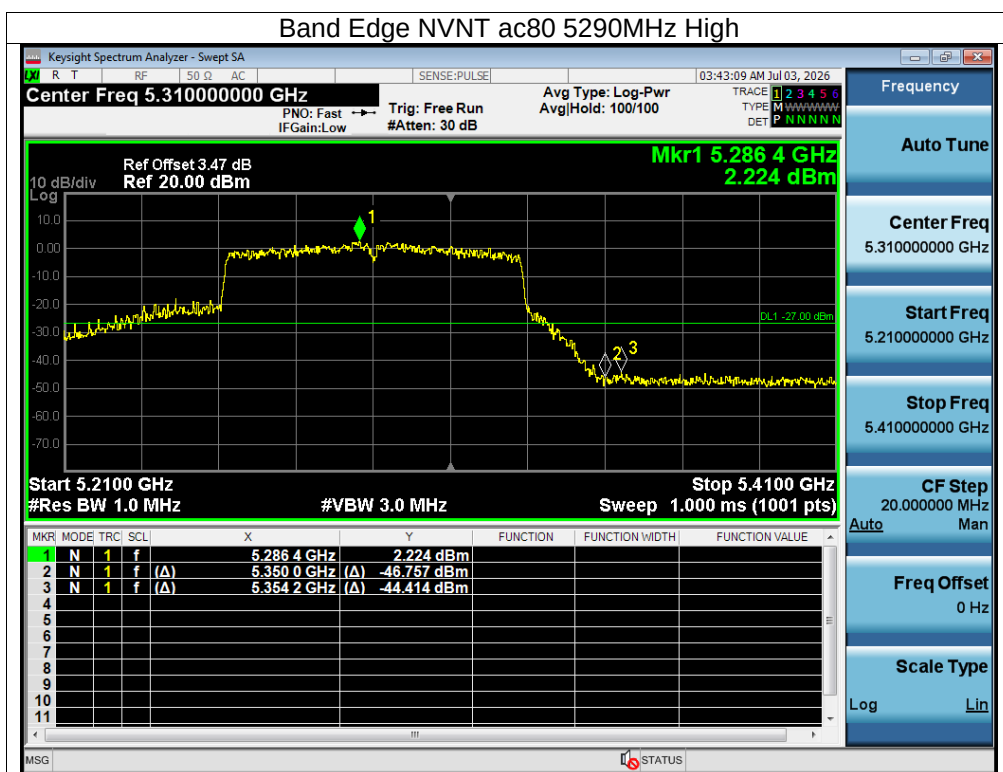


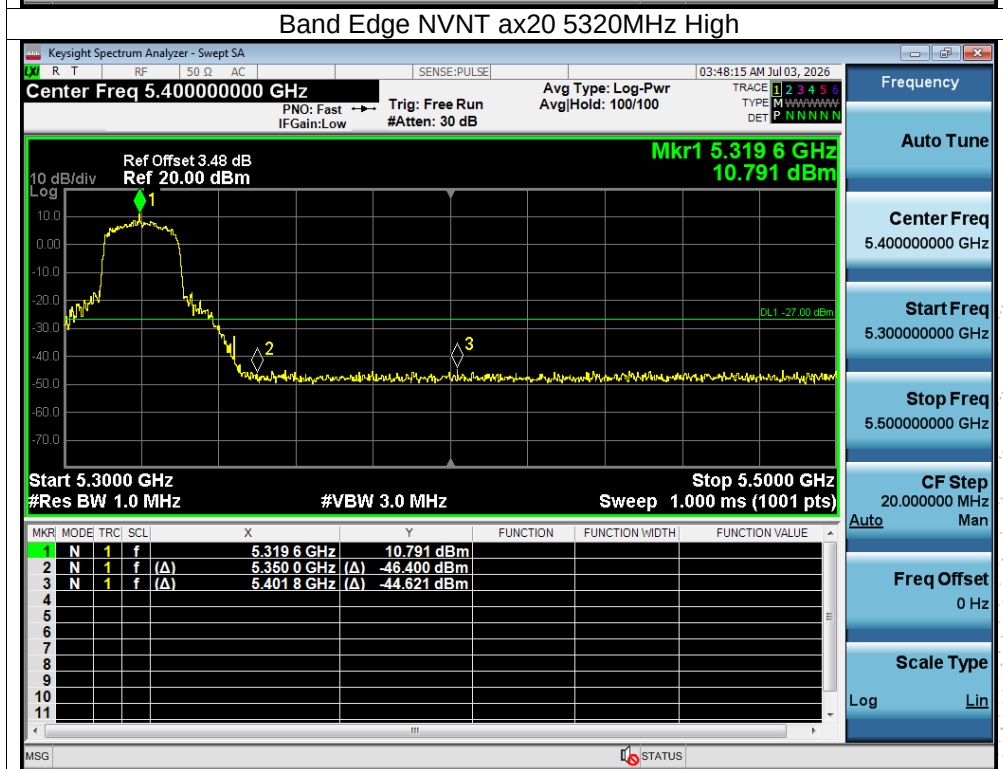
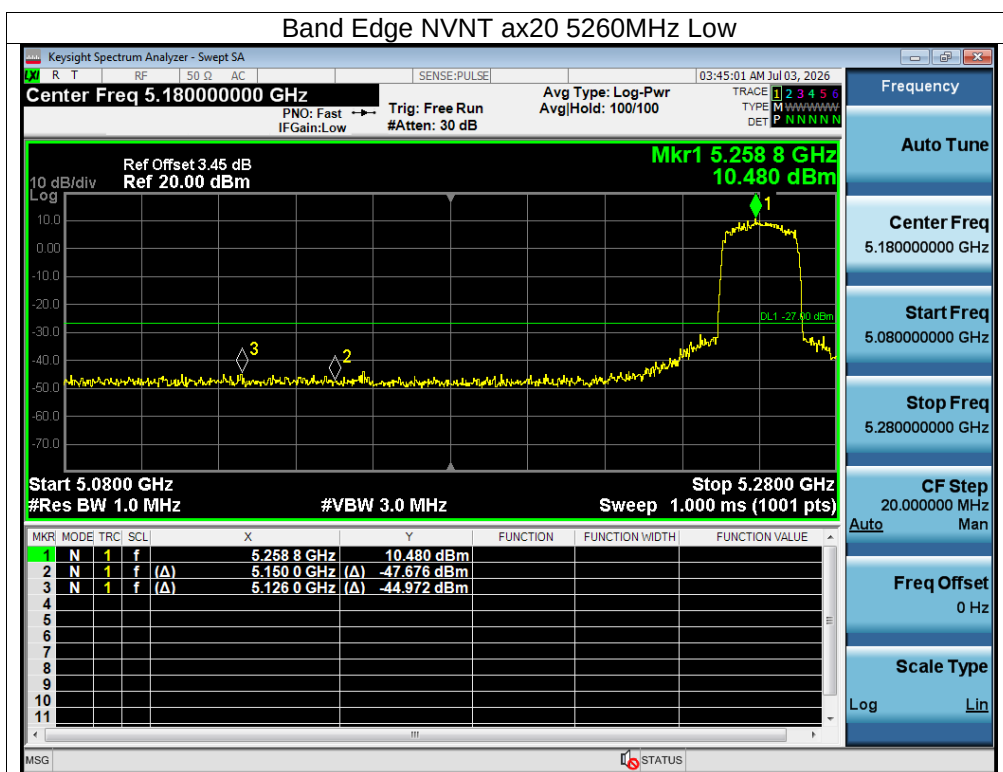


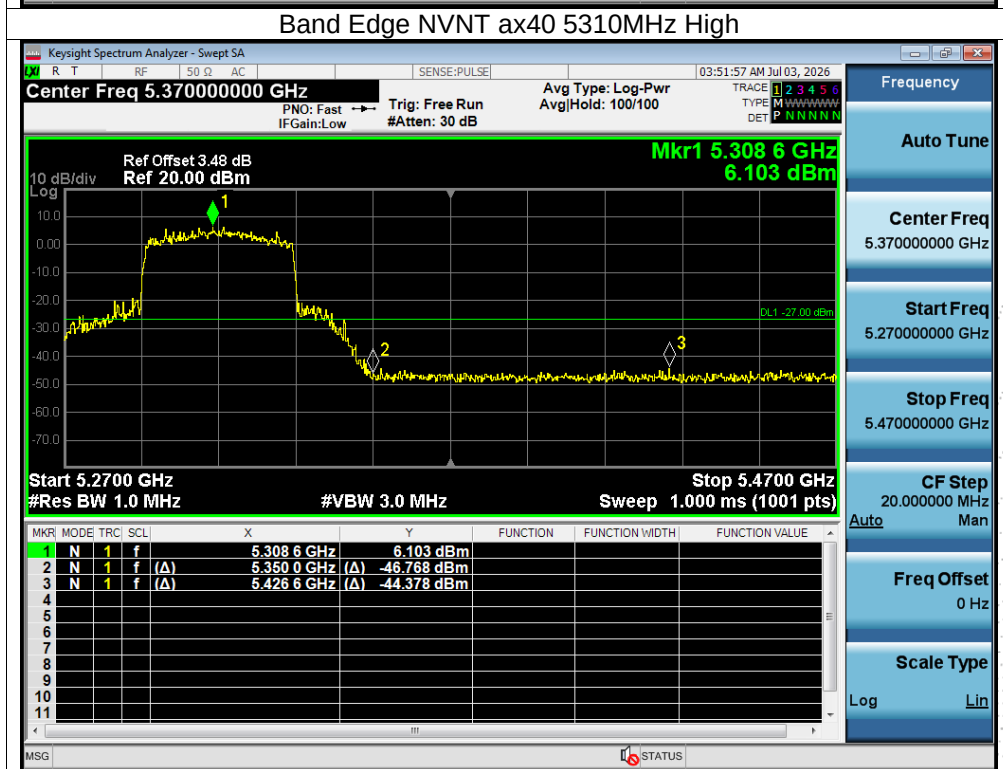
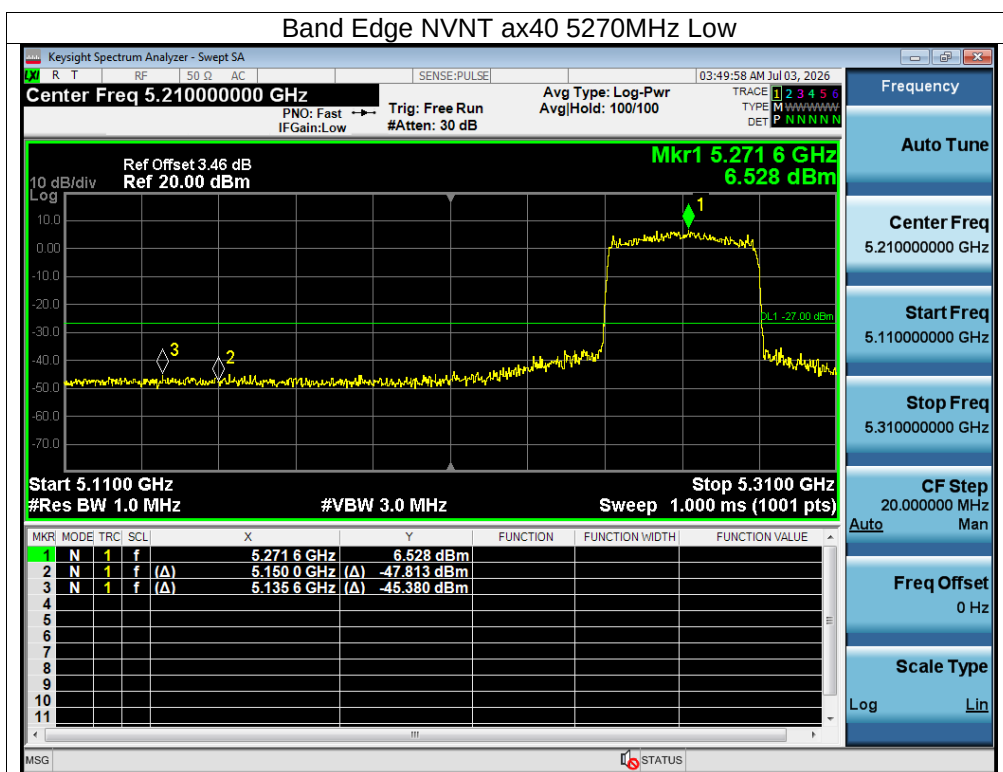


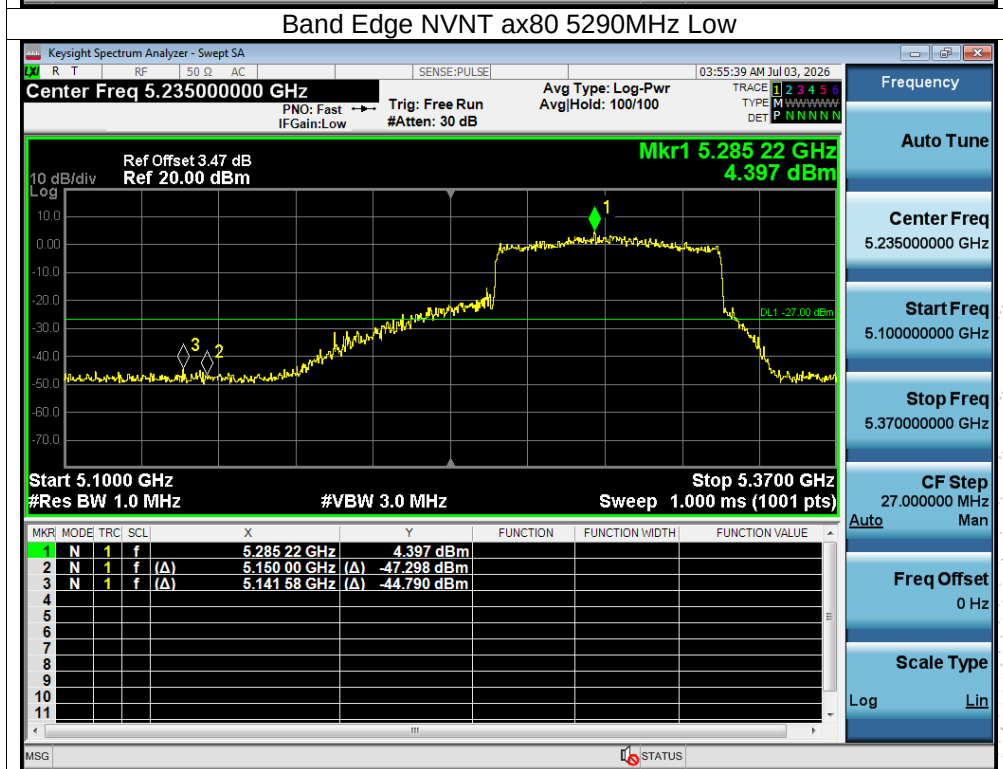
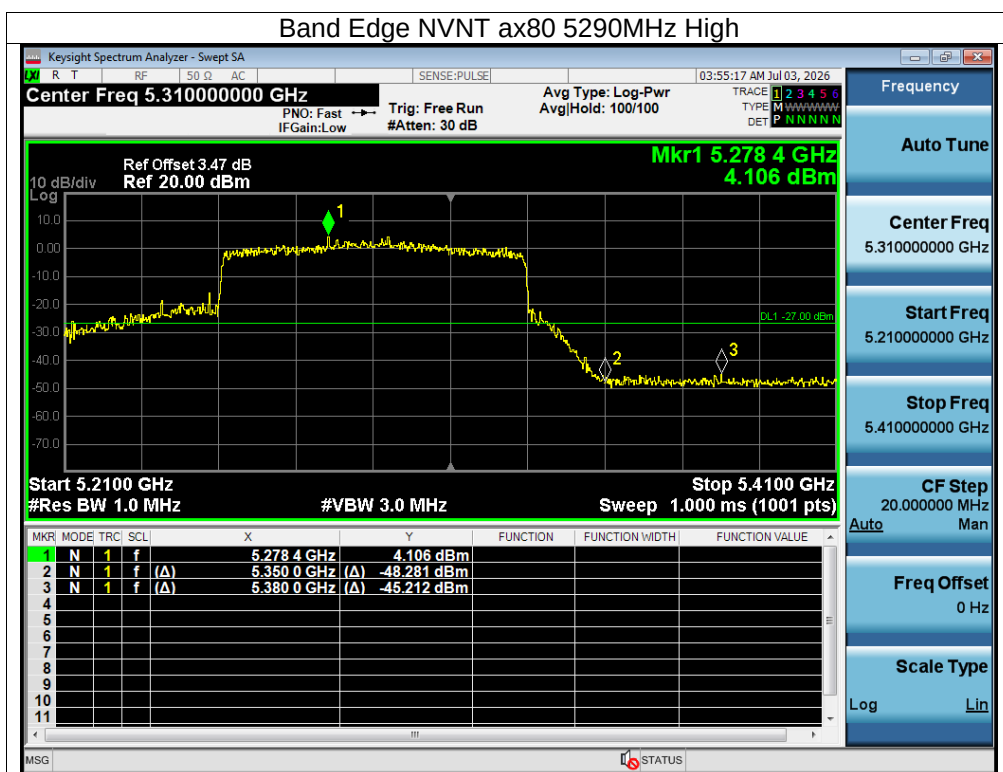


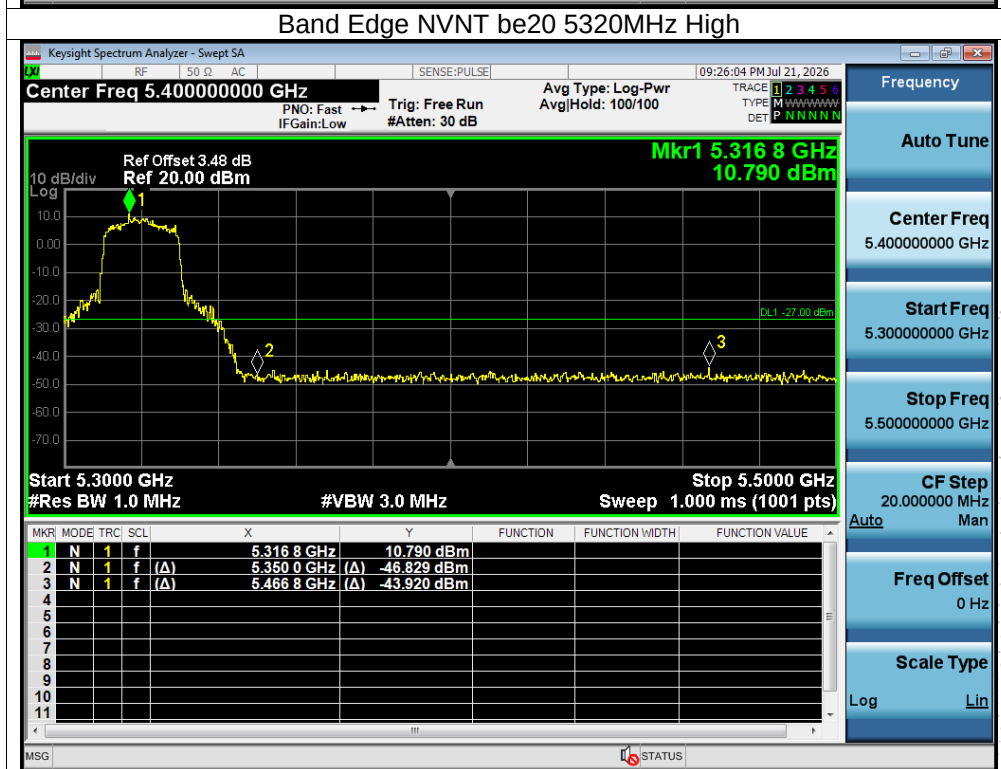
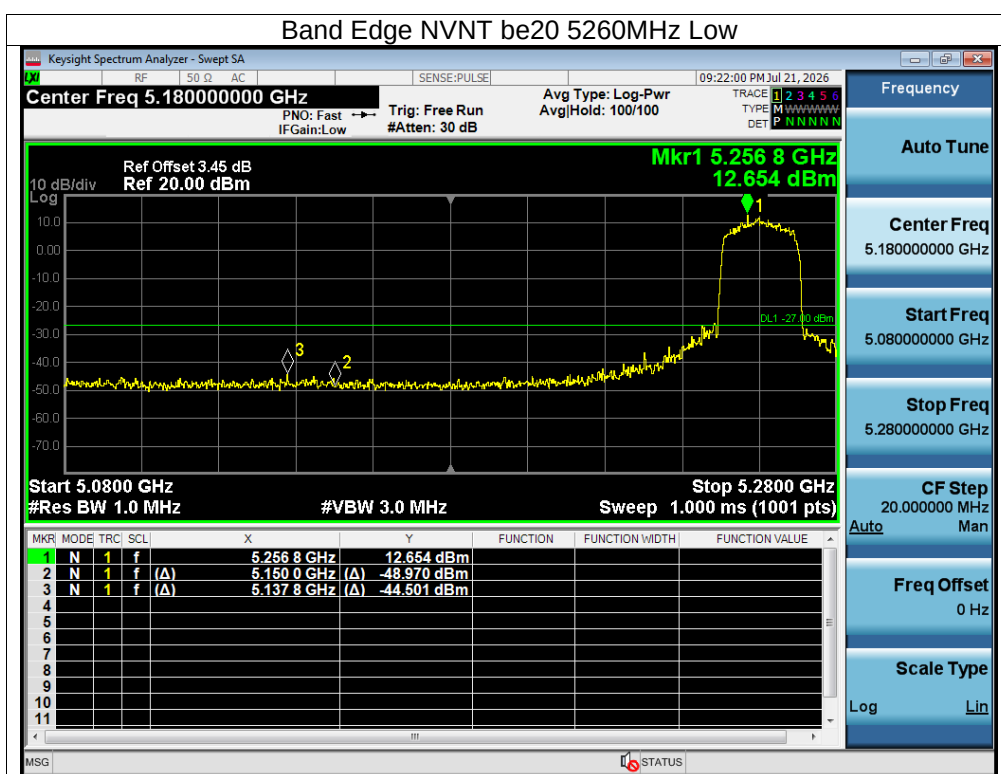


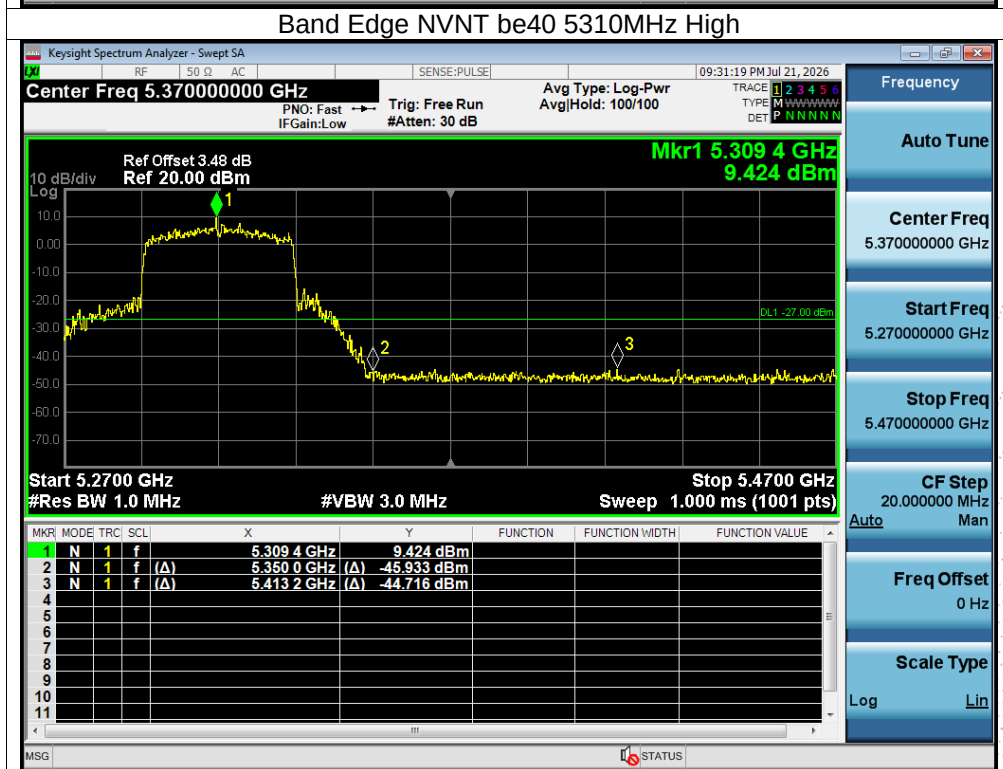
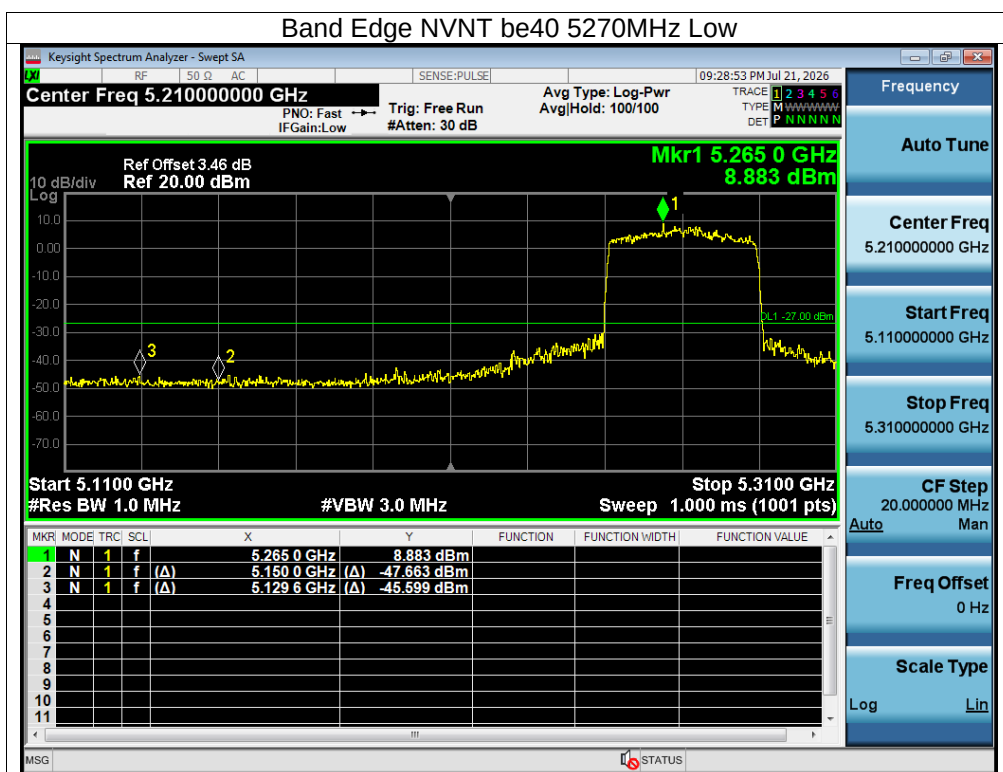


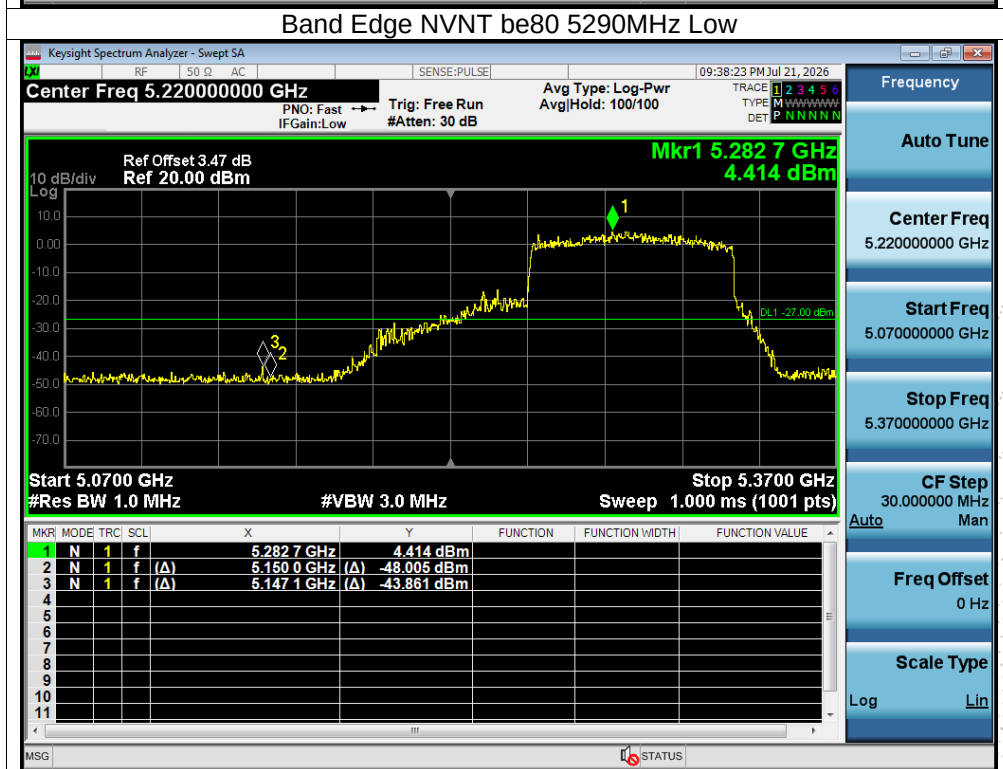
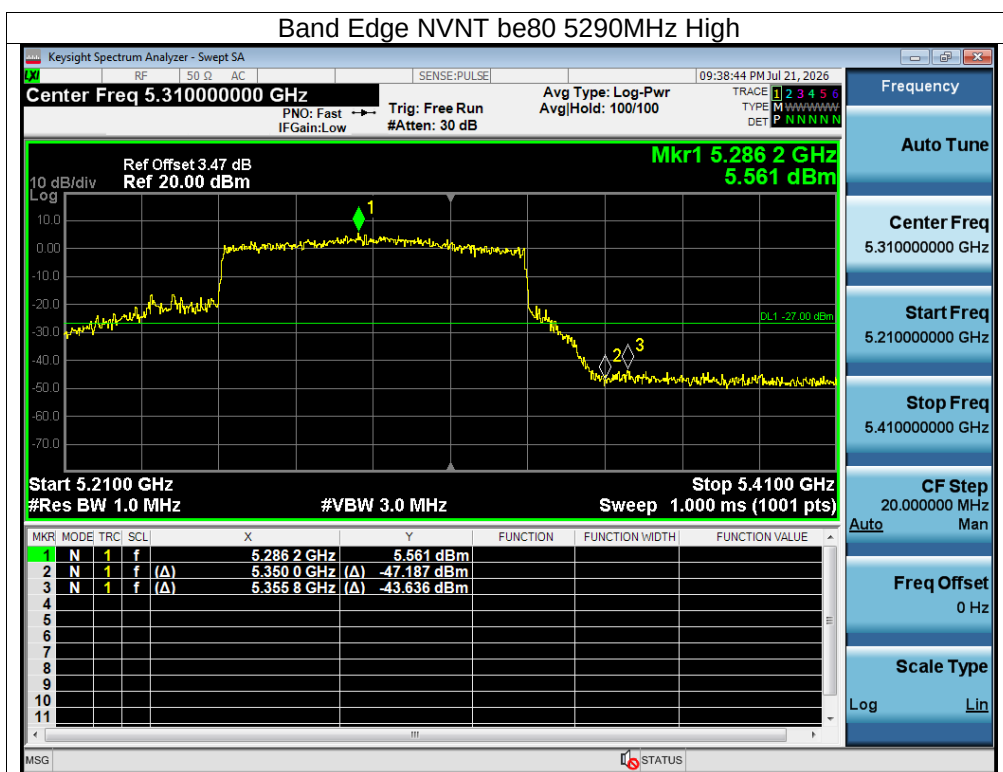




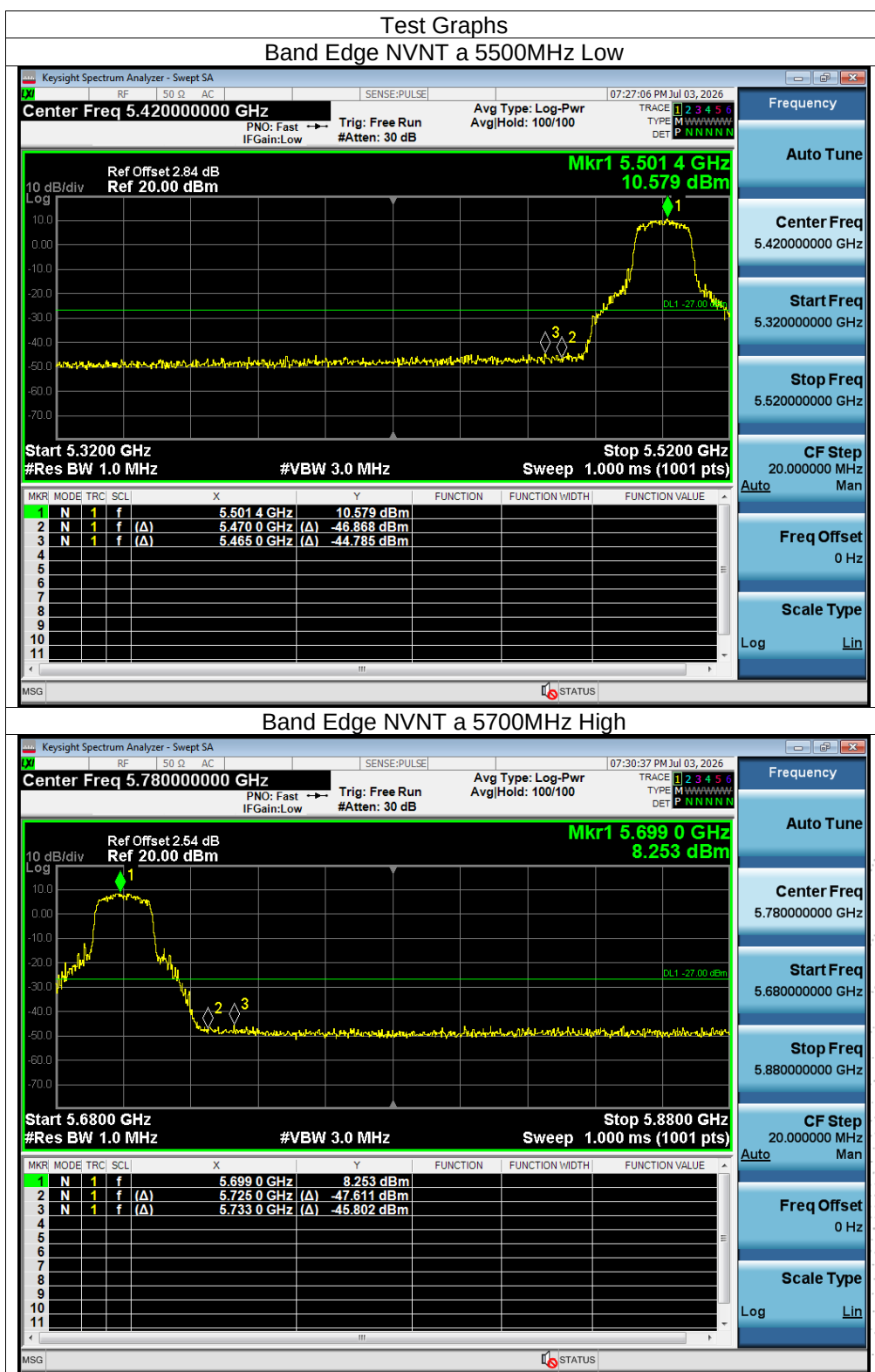


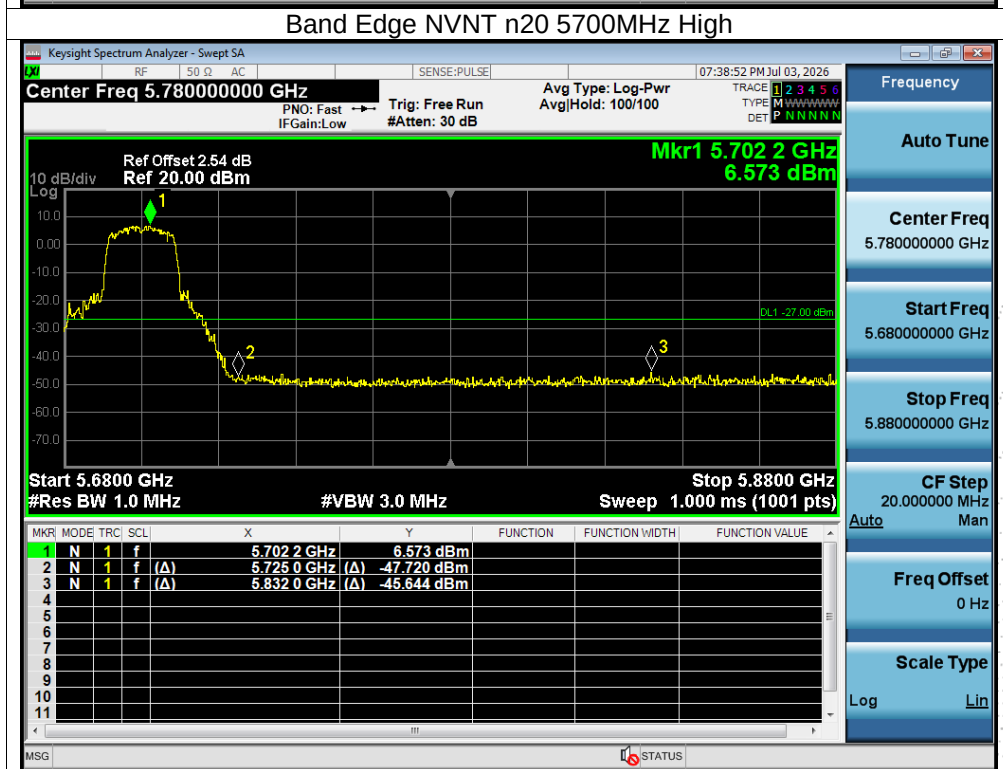
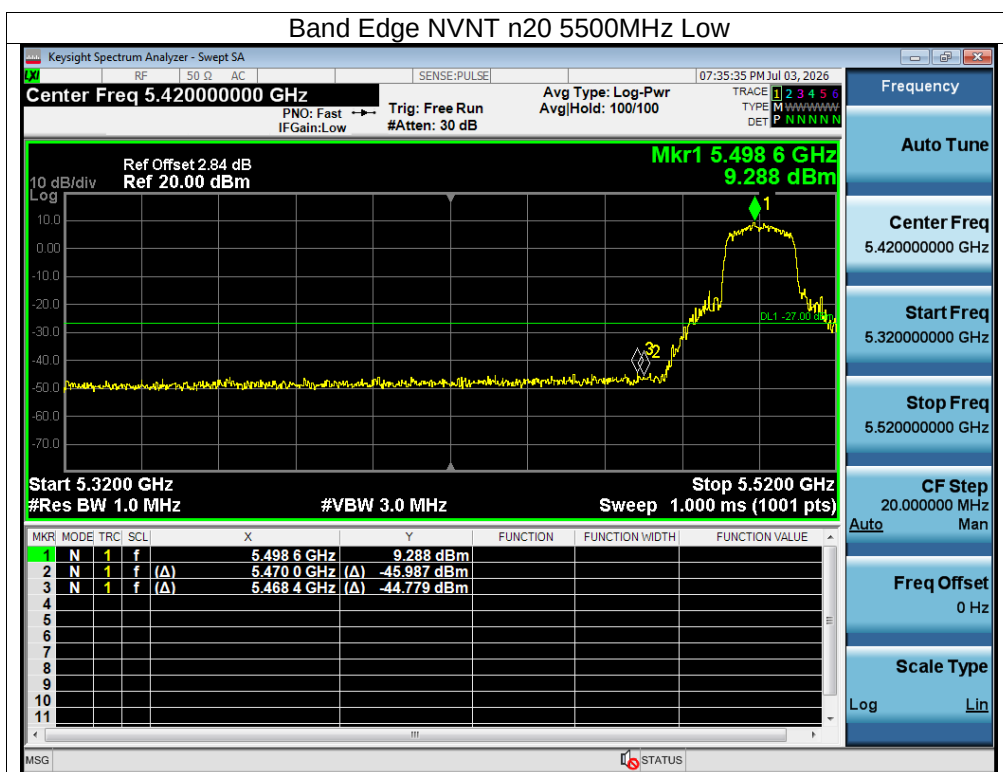


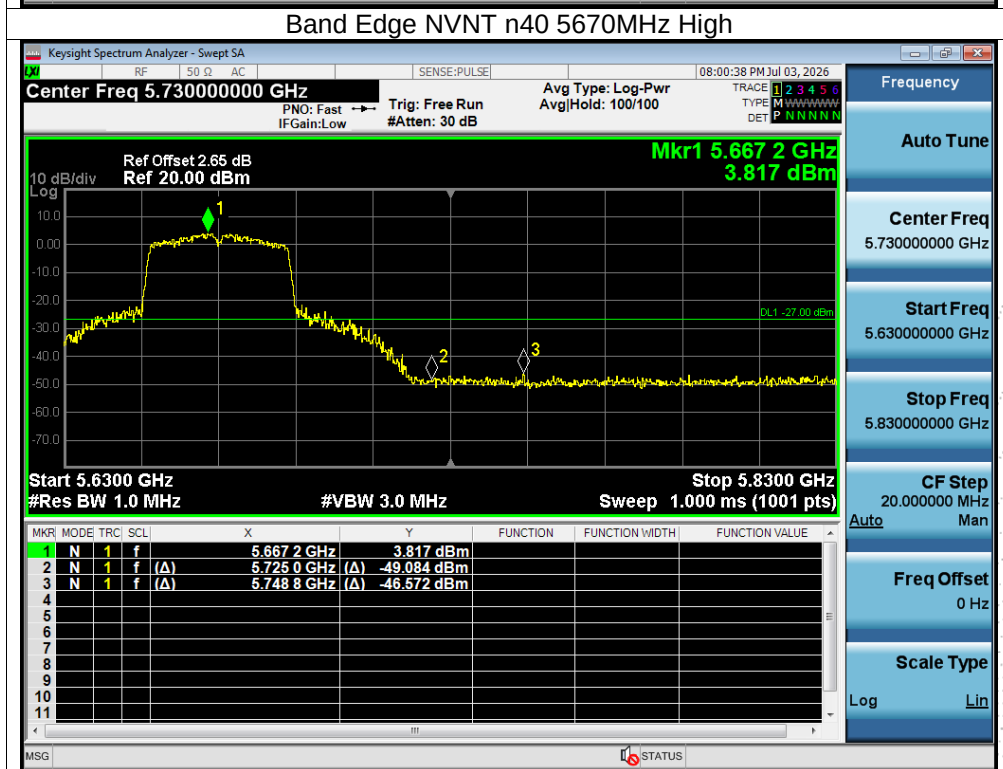
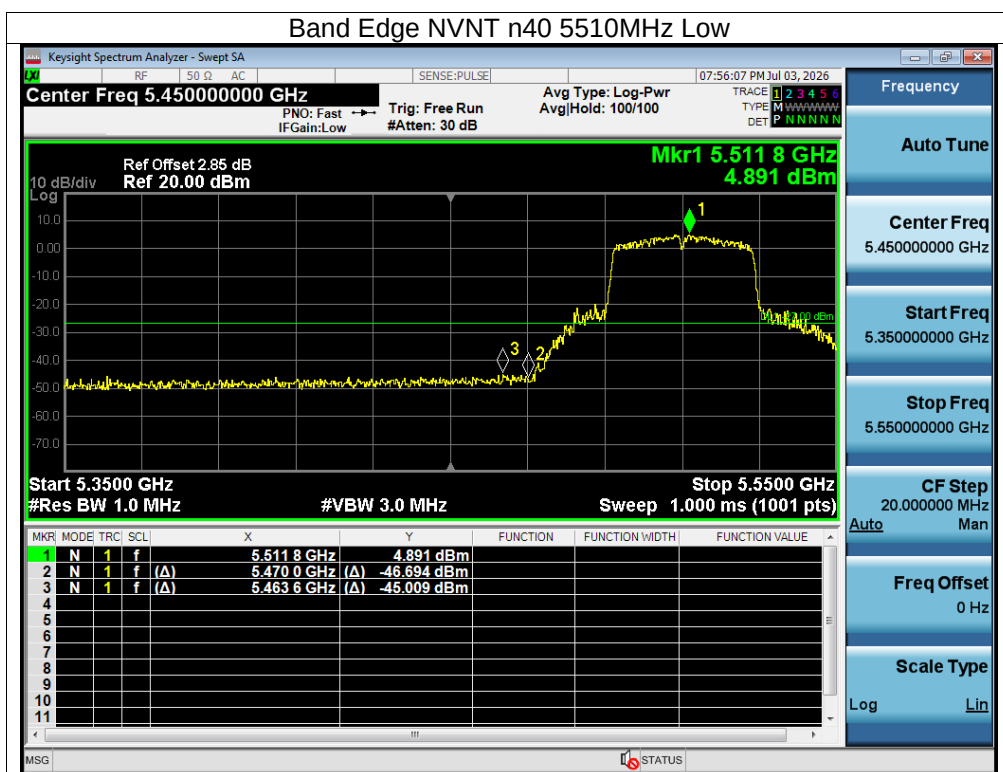


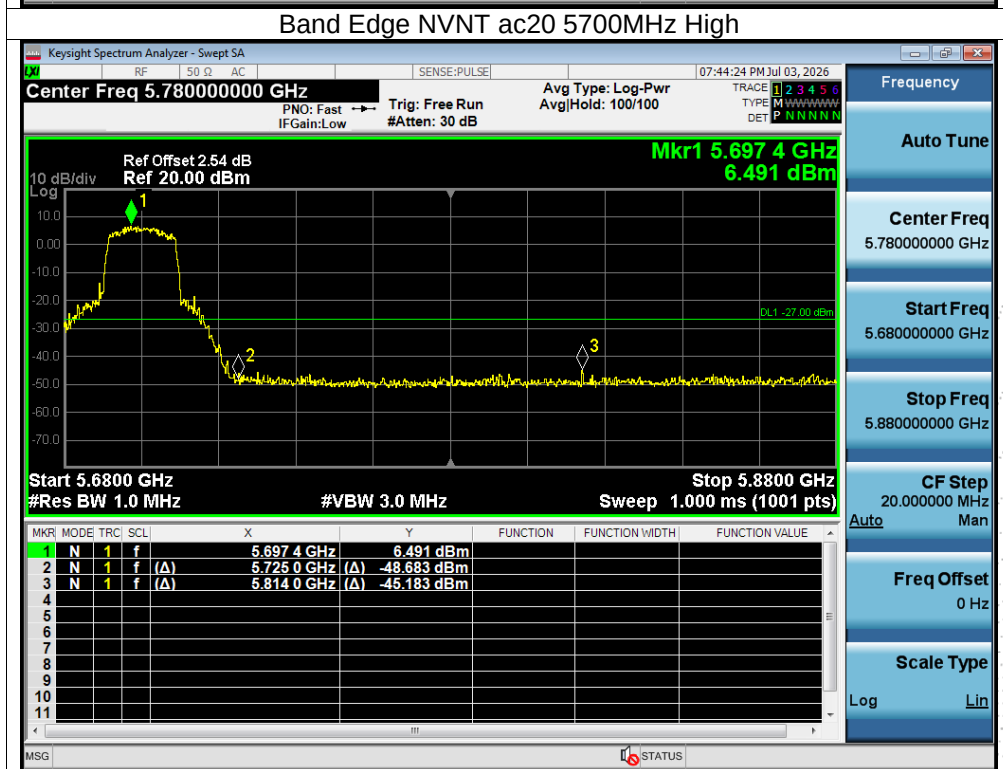
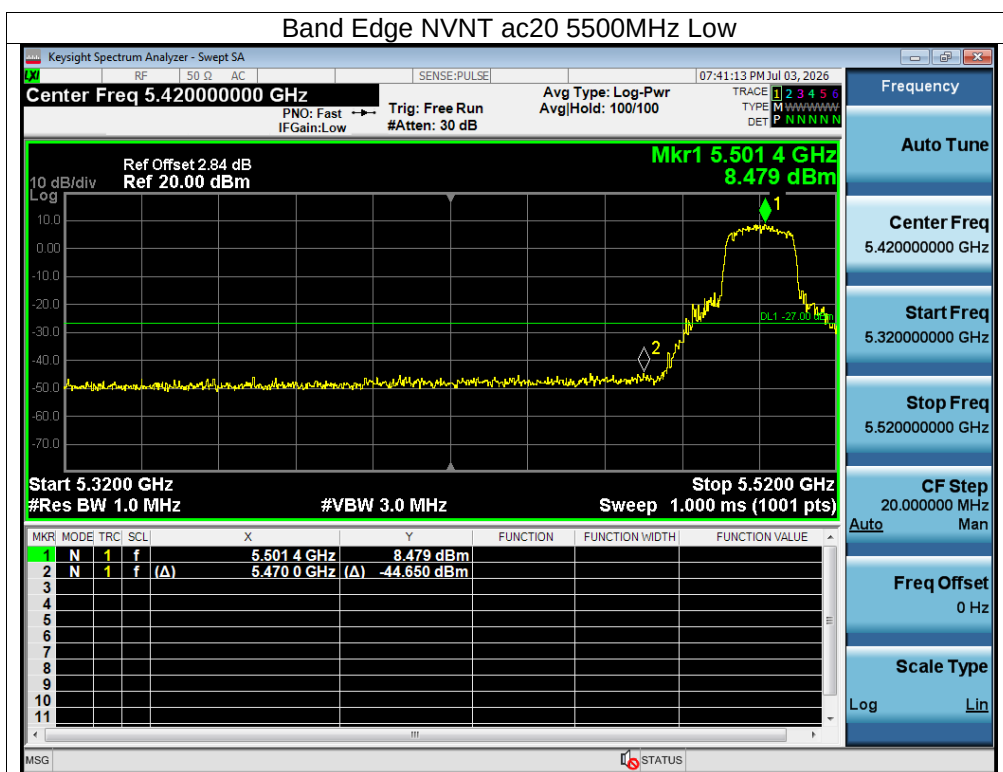


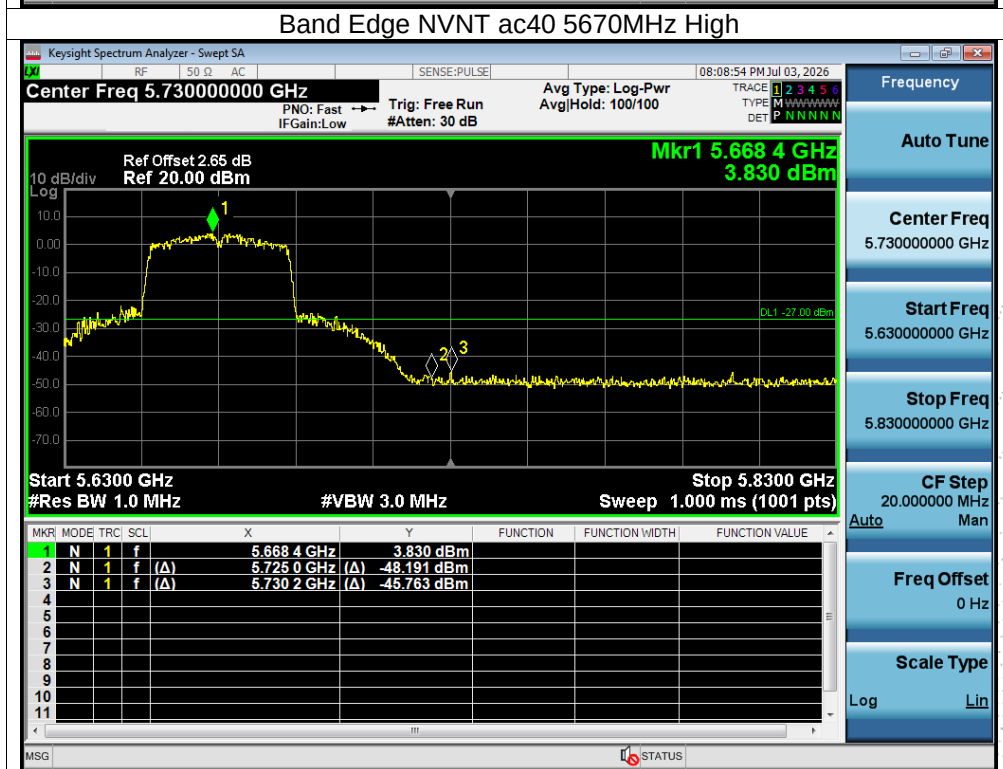
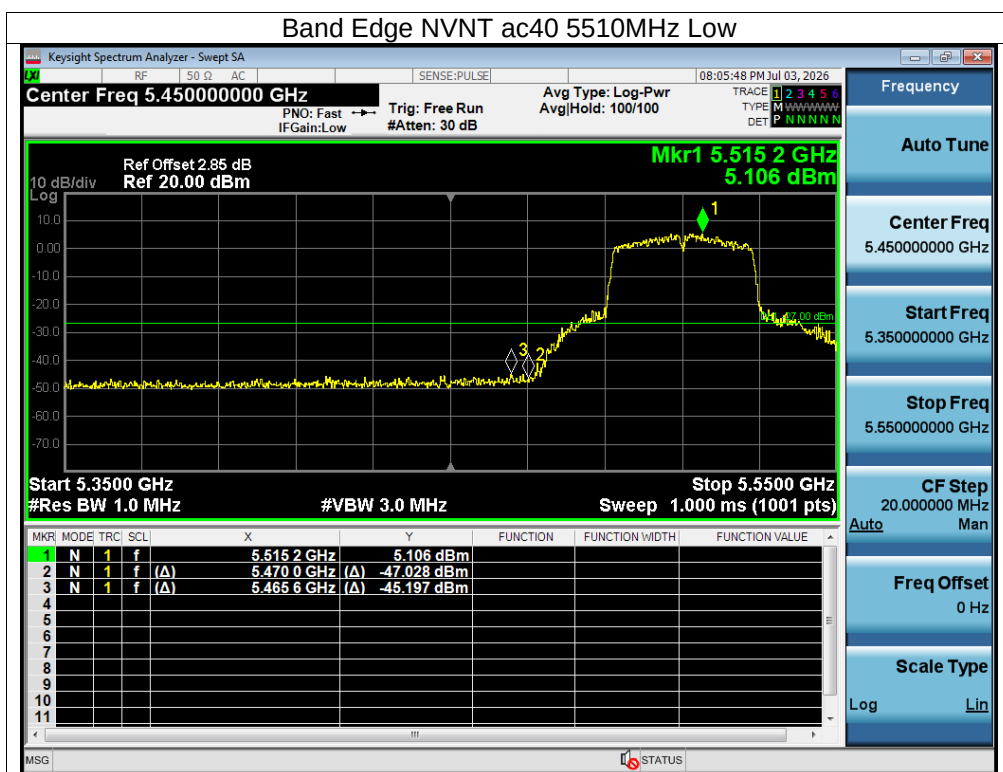
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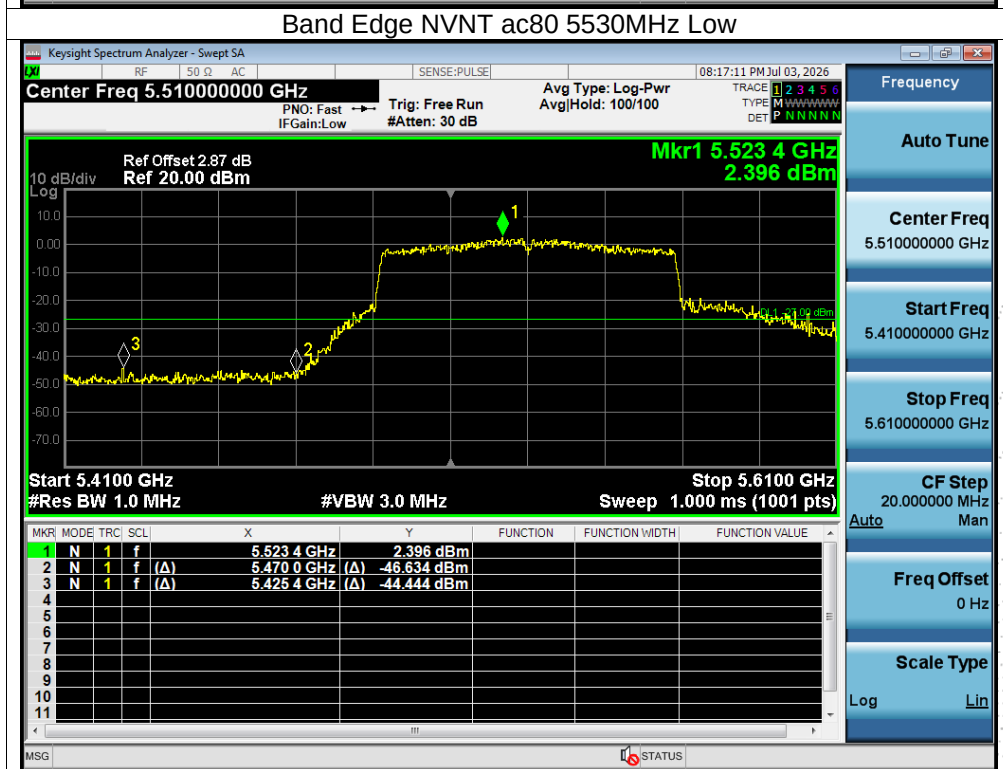
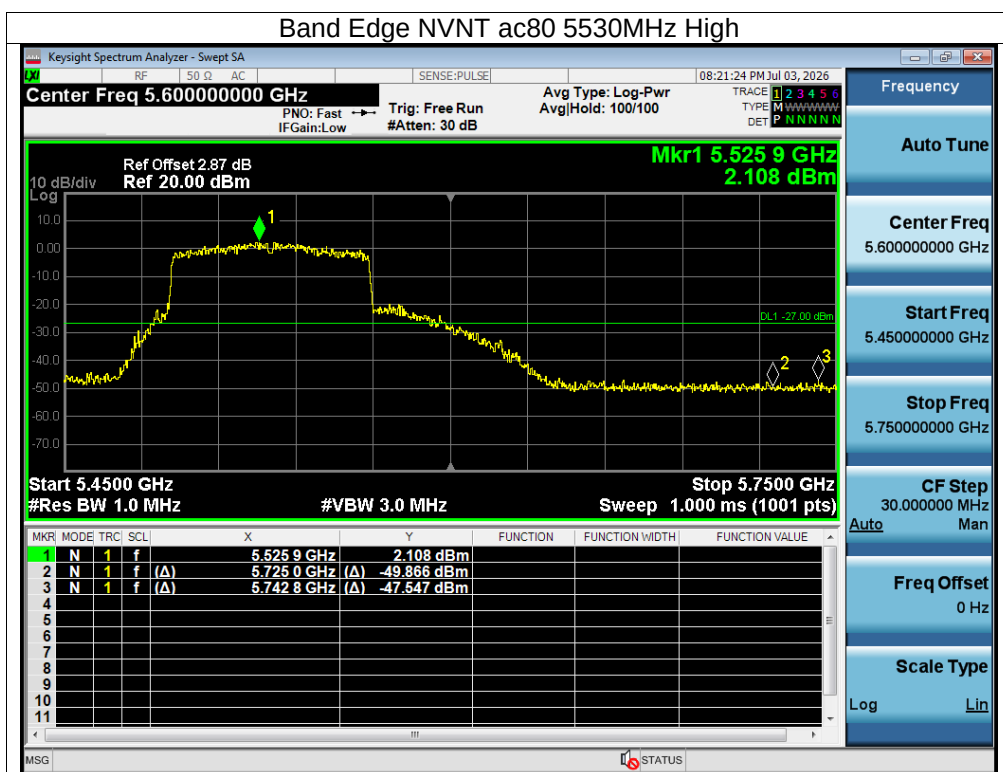


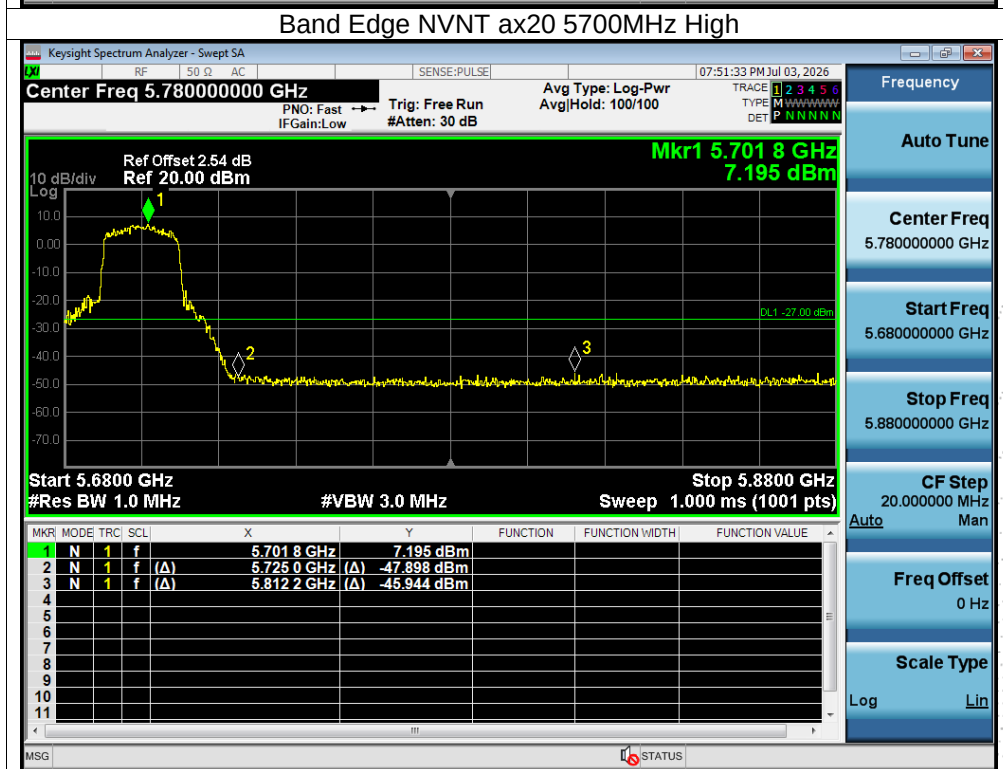
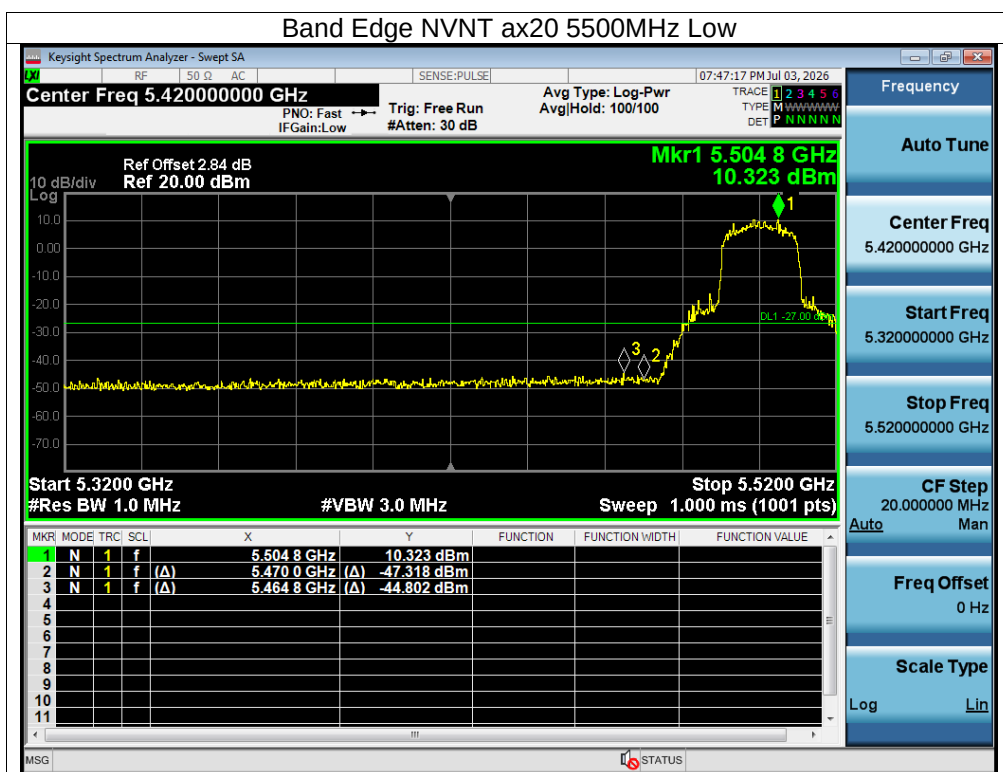


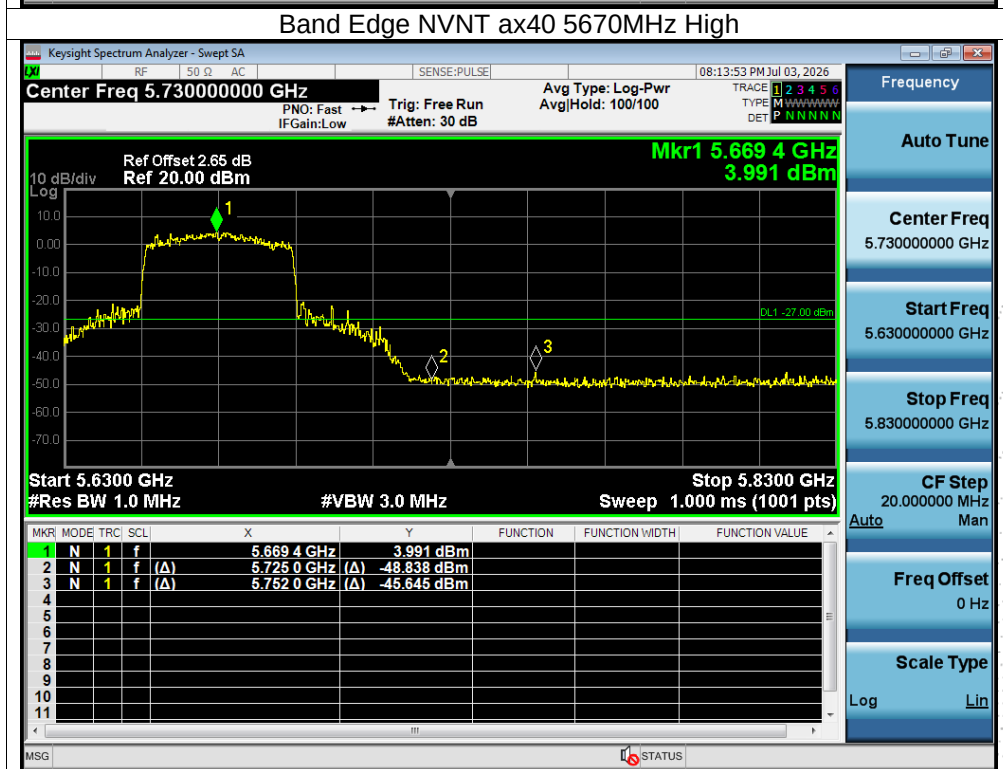
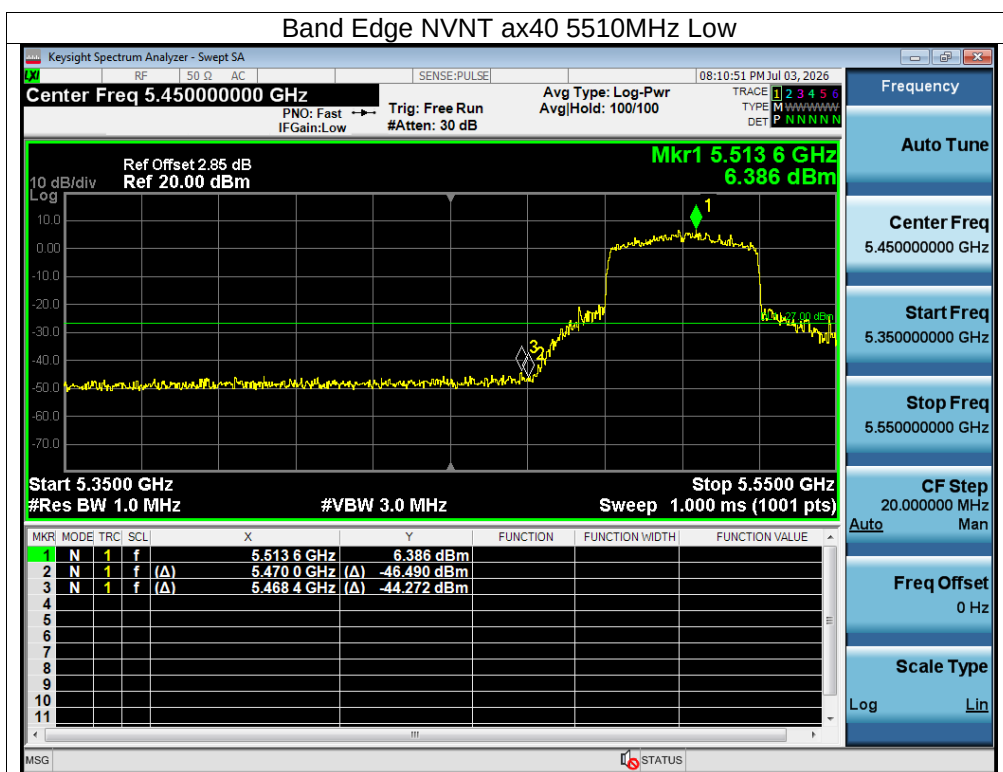


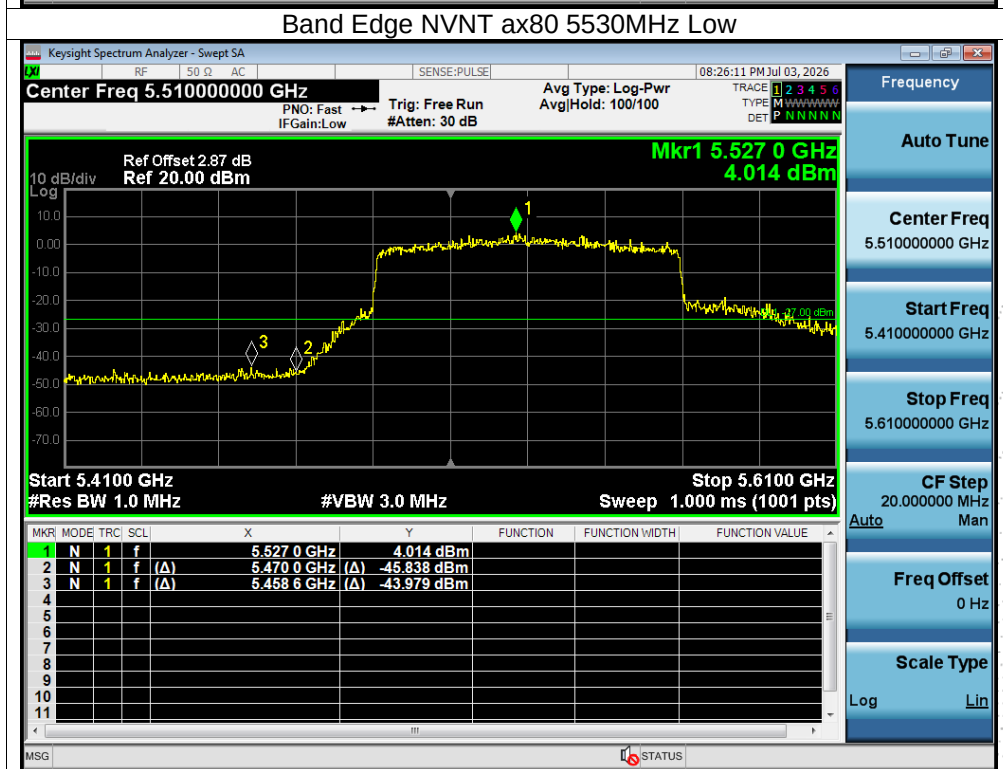
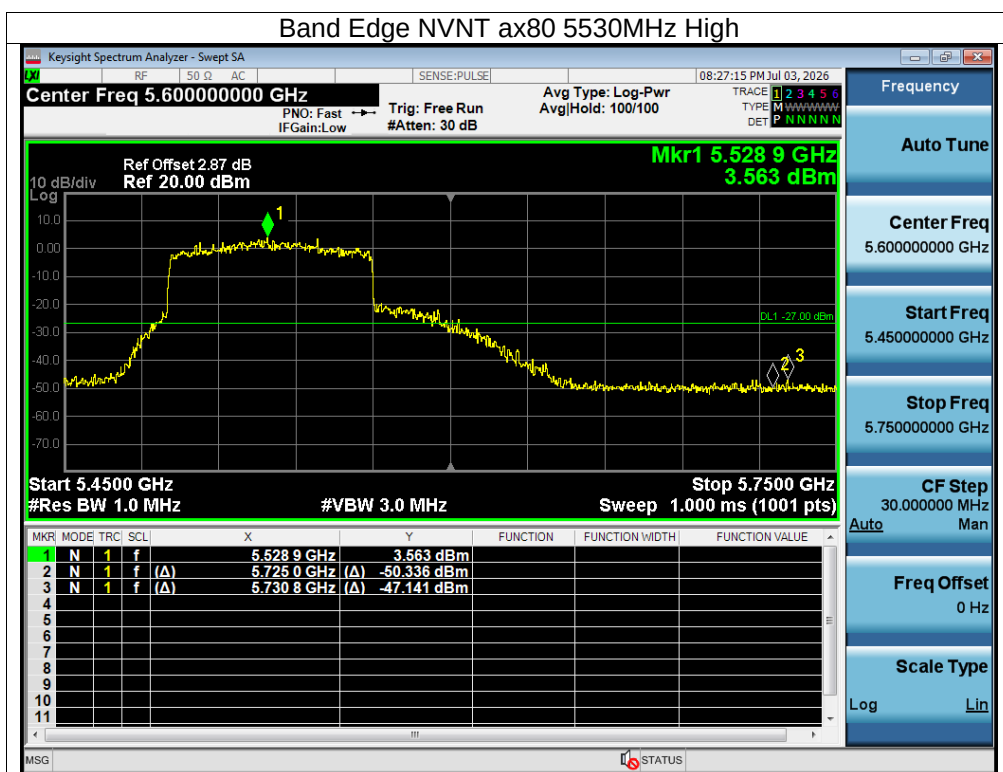


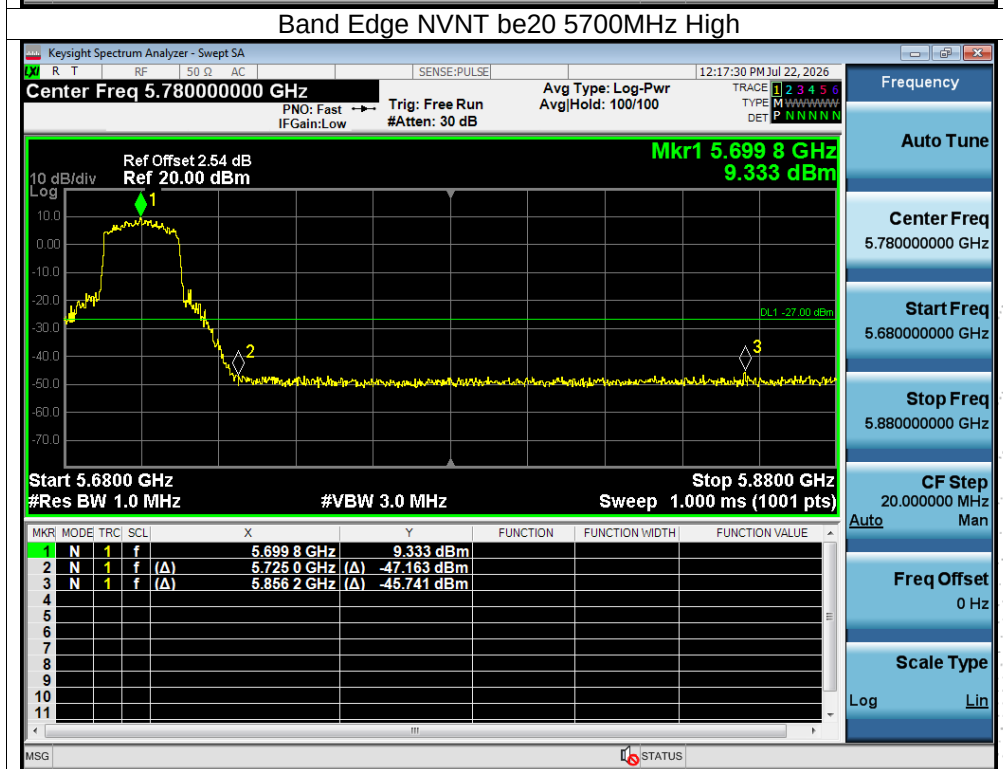
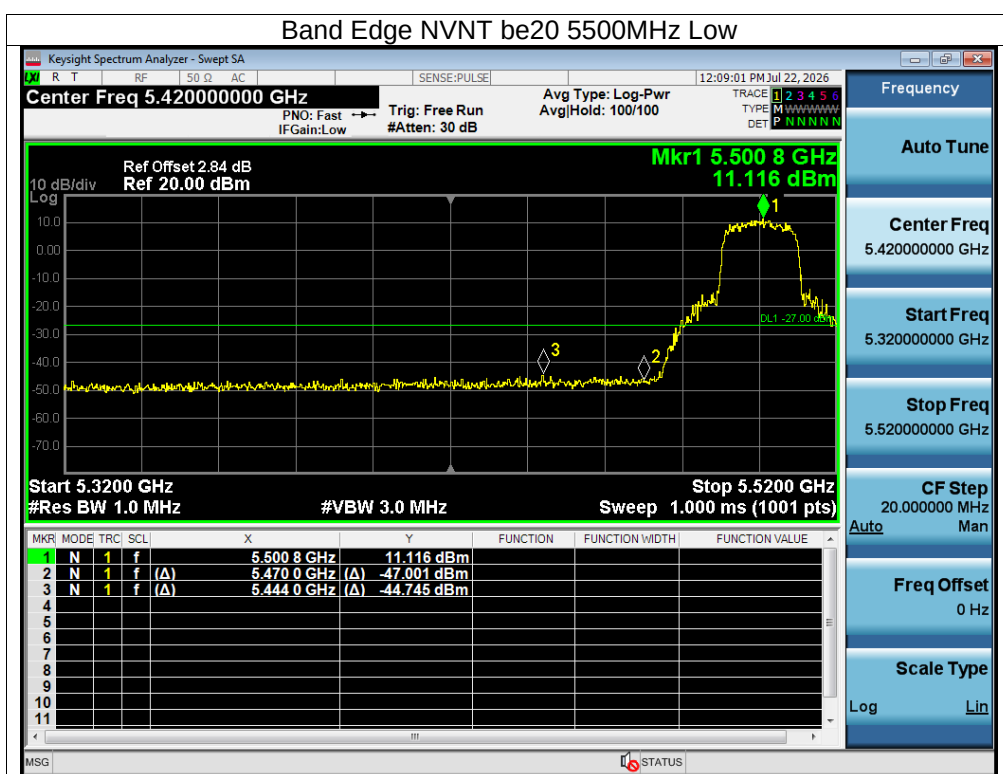


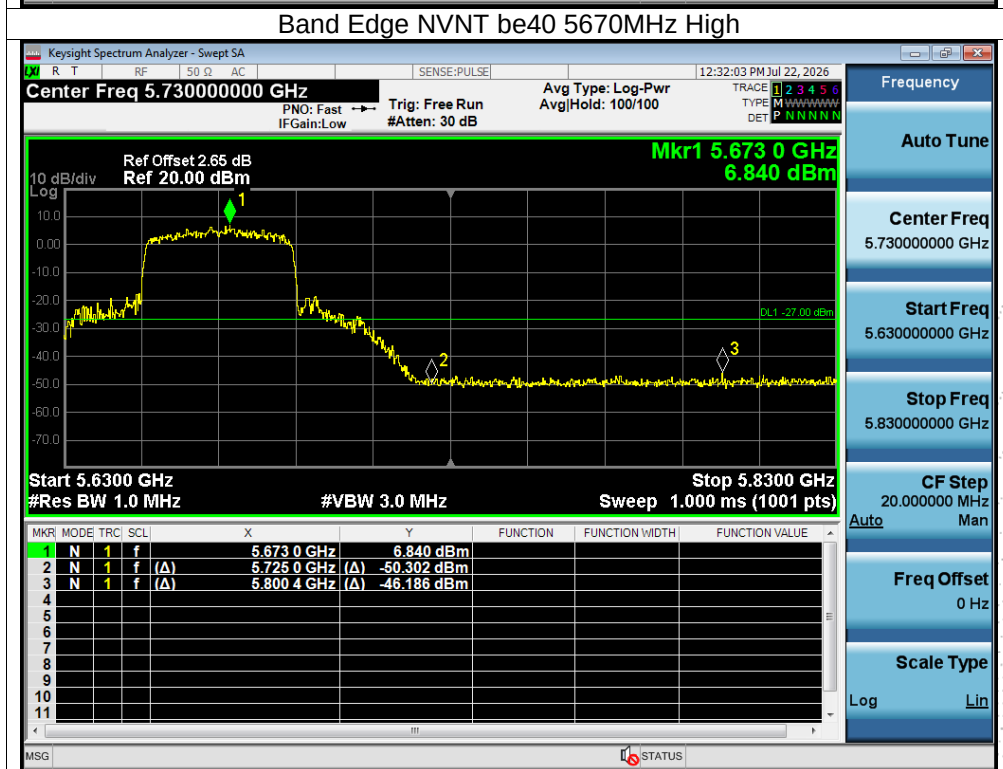
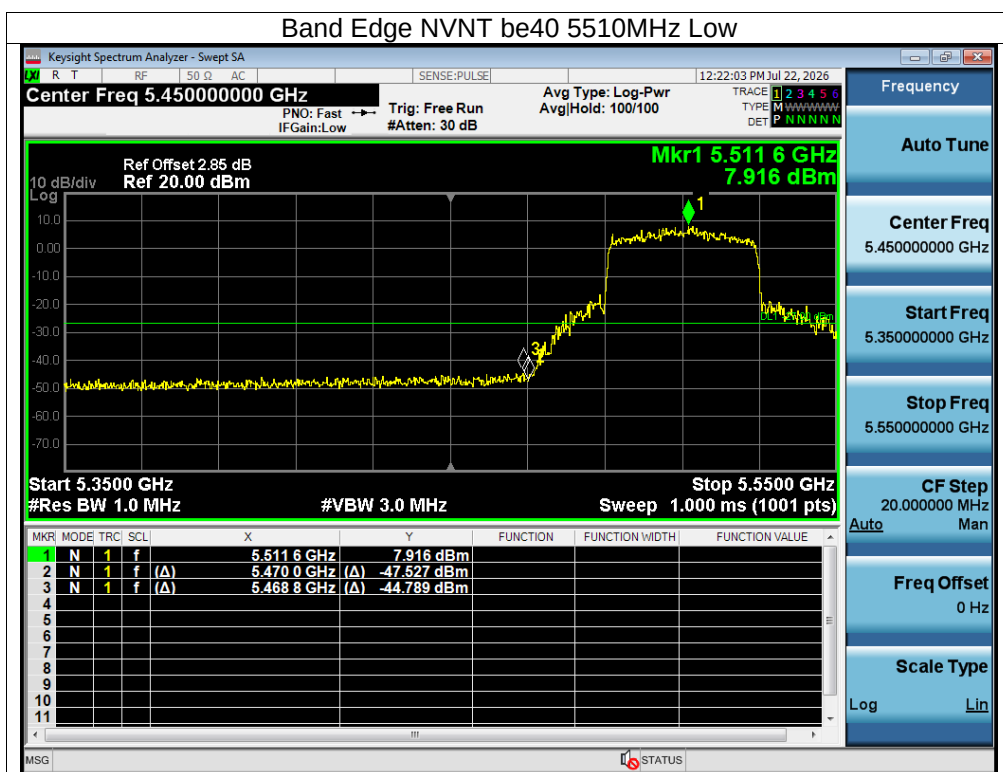


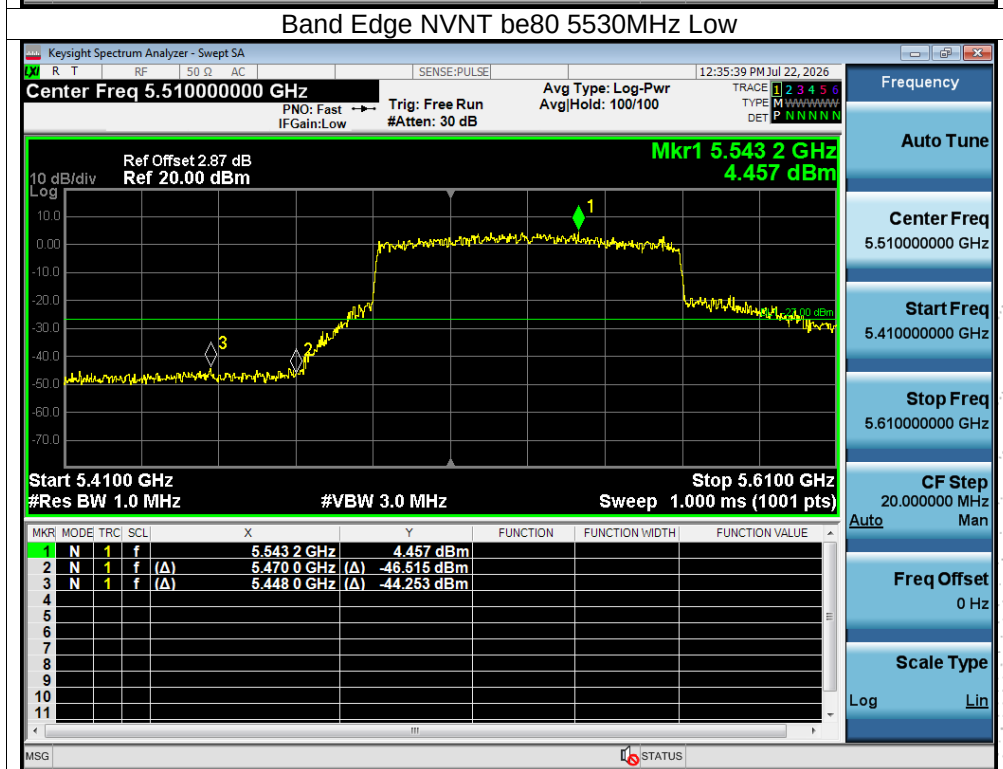
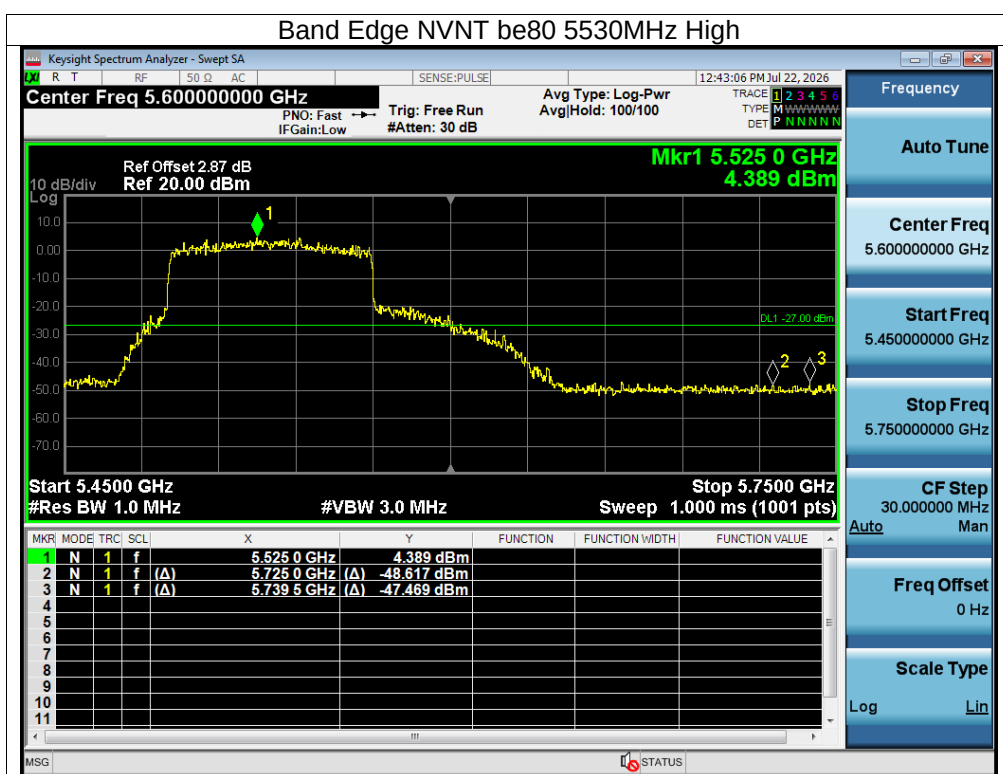












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