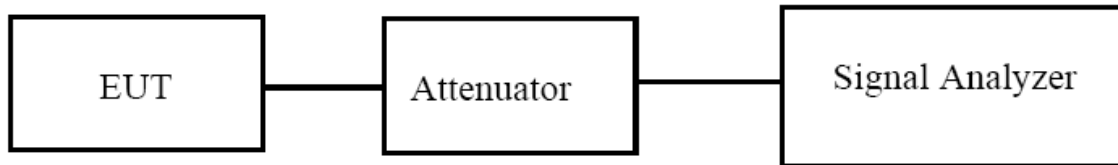


## 9. 26dB & 6dB & 99% Emission Bandwidth

### 9.1 Block Diagram Of Test Setup



### 9.2 Limit

(1) For the band 5.15-5.25 GHz.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

### 9.3 Test Procedure

- Set RBW = approximately 1% of the emission bandwidth.
- Set the VBW > RBW.
- Detector = Peak.
- Trace mode = max hold.
- Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

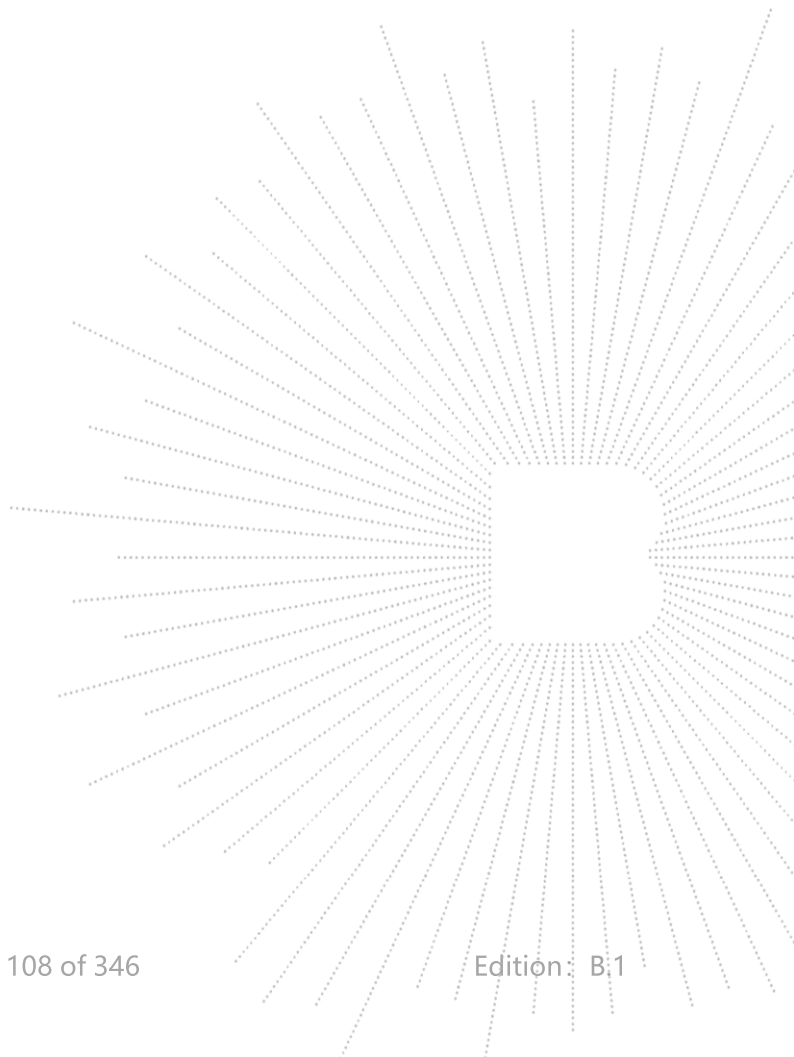
The following procedure shall be used for measuring (99 %) power bandwidth:

- Set center frequency to the nominal EUT channel center frequency.
- Set span = 1.5 times to 5.0 times the OBW.

3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW  $\geq 3 \cdot$  RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

#### 9.4 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.



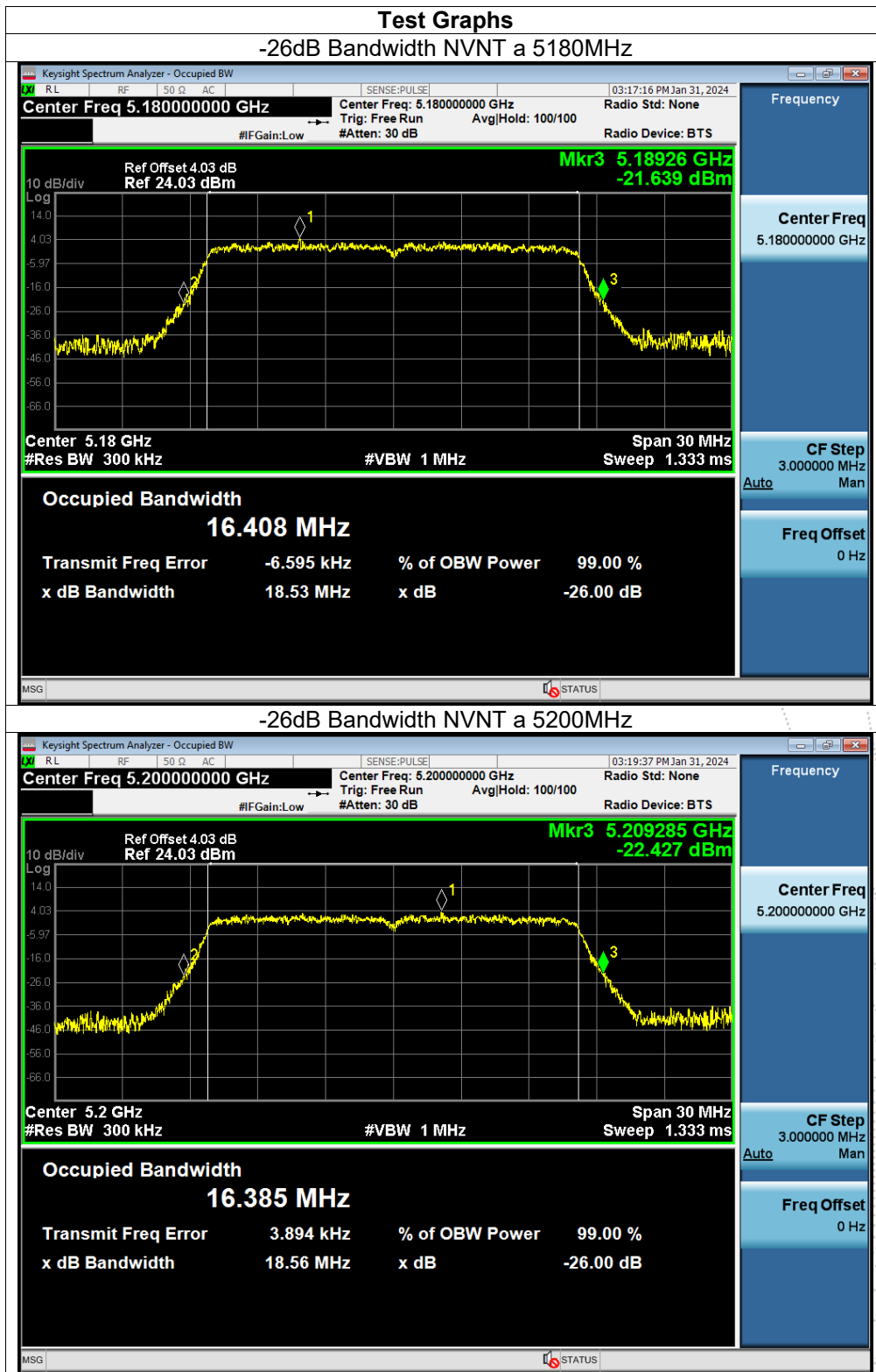
## 9.5 Test Result

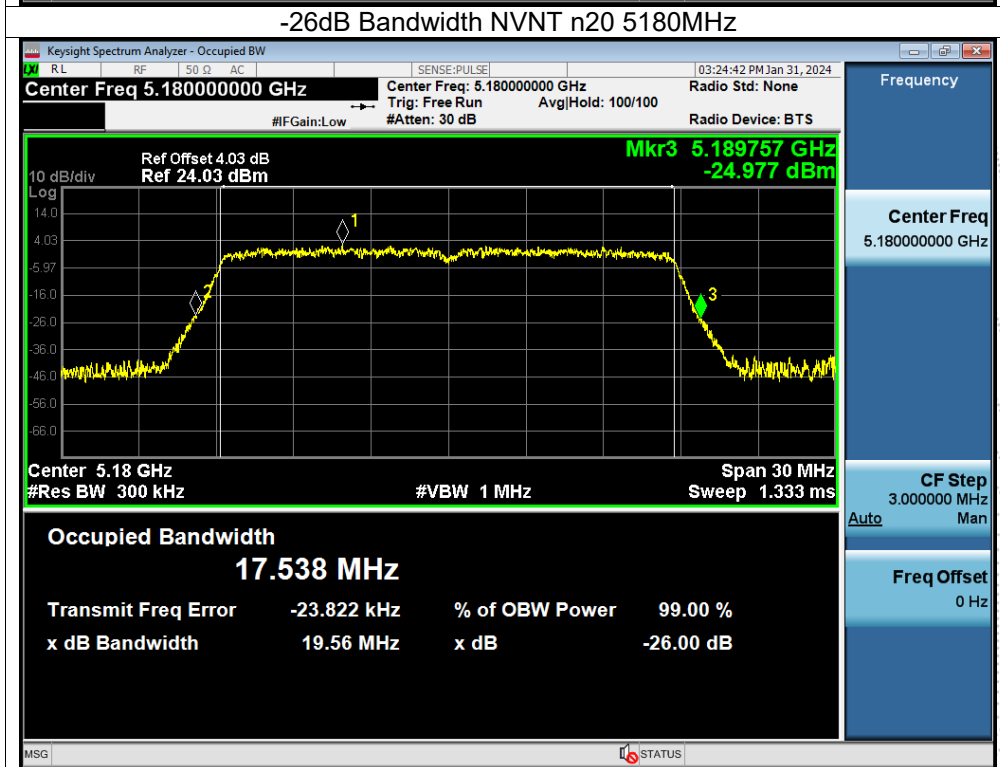
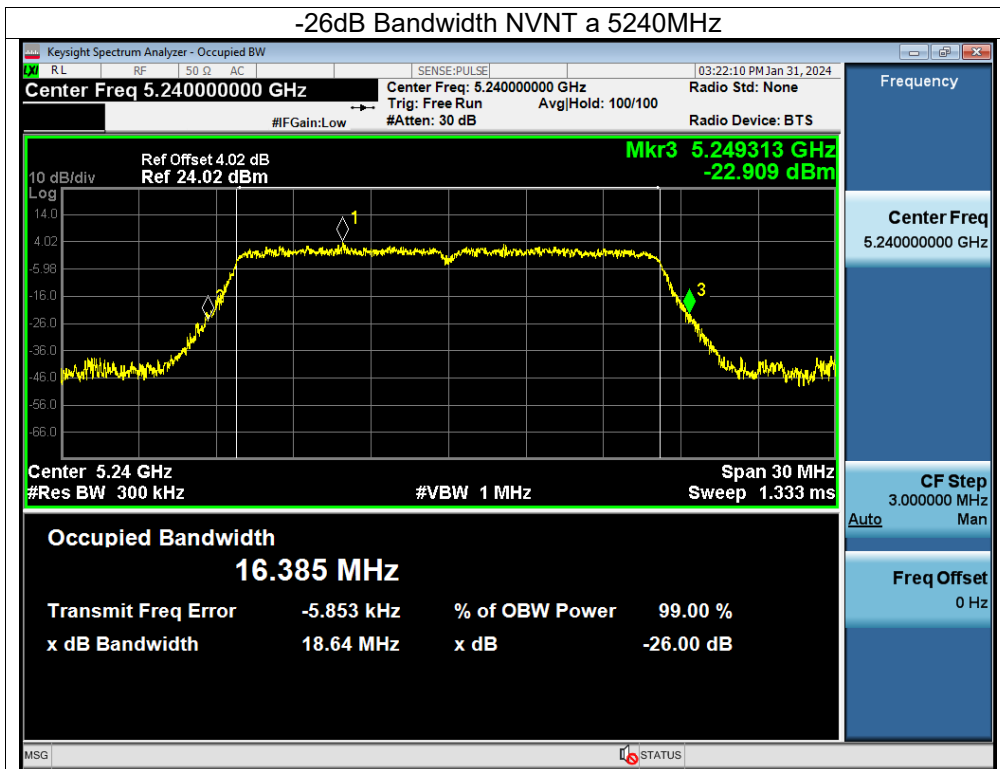
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	(5180-5240MHz)		

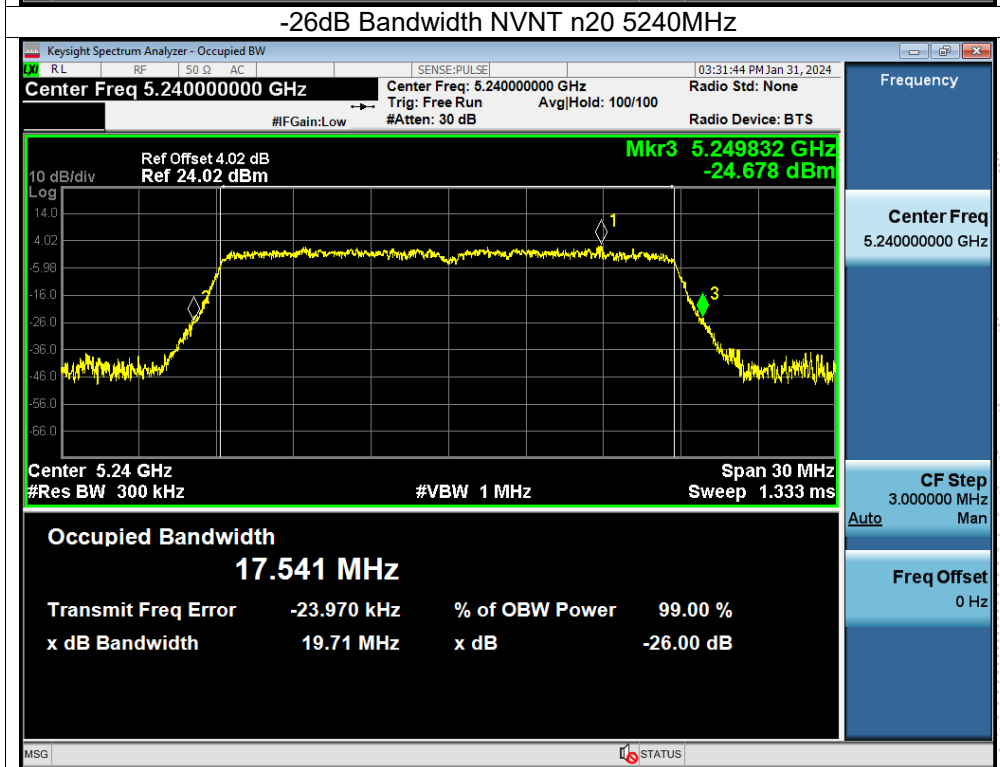
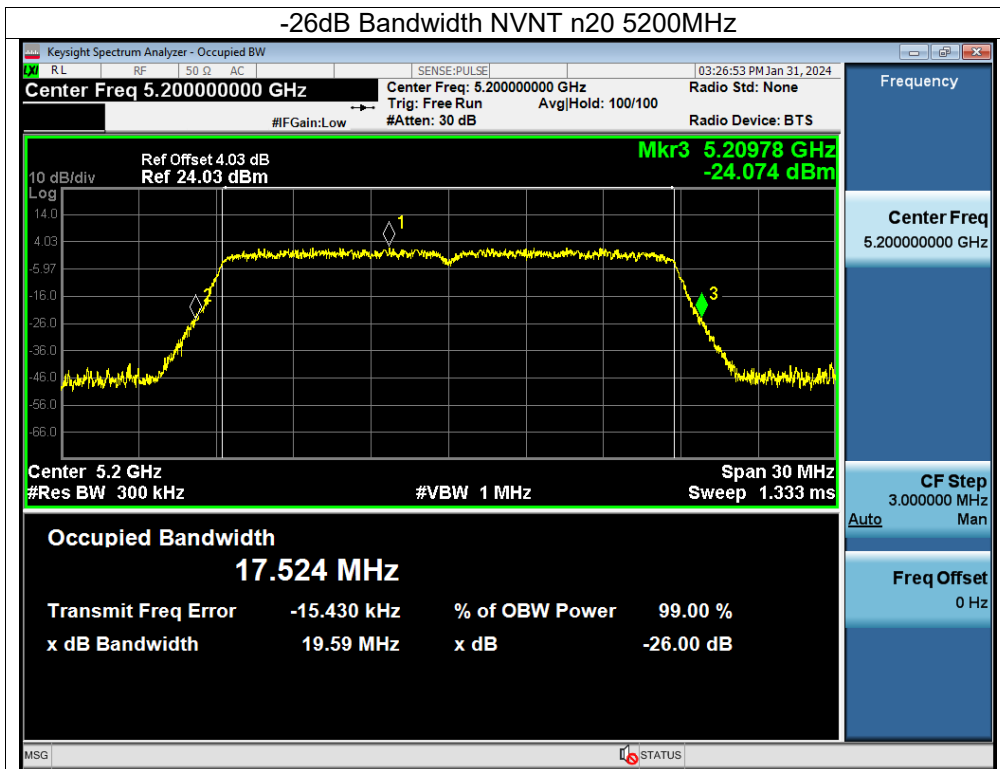
Condition	Mode	Frequency (MHz)	-26 dB Bandwidth (MHz)		99% OBW (MHz)		Verdict
			Ant A	Ant B	Ant A	Ant B	
NVNT	a	5180	18.497	18.533	16.329	16.343	Pass
NVNT	a	5200	18.472	18.563	16.334	16.352	Pass
NVNT	a	5240	18.591	18.639	16.341	16.33	Pass
NVNT	n20	5180	19.574	19.562	17.492	17.509	Pass
NVNT	n20	5200	19.658	19.591	17.499	17.502	Pass
NVNT	n20	5240	19.499	19.711	17.501	17.517	Pass
NVNT	n40	5190	38.787	38.857	35.987	36.028	Pass
NVNT	n40	5230	38.747	38.74	36.026	35.984	Pass
NVNT	ac20	5180	19.496	19.604	17.503	17.506	Pass
NVNT	ac20	5200	19.598	19.452	17.495	17.505	Pass
NVNT	ac20	5240	19.55	19.595	17.502	17.505	Pass
NVNT	ac40	5190	38.567	38.472	36.012	36.072	Pass
NVNT	ac40	5230	38.602	38.351	36.072	36.012	Pass
NVNT	ac80	5210	83.605	<b>84.118</b>	76.106	76.05	Pass
NVNT	ax20	5180	20.467	20.399	18.876	18.884	Pass
NVNT	ax20	5200	20.45	20.277	18.876	18.858	Pass
NVNT	ax20	5240	20.392	20.585	18.879	18.869	Pass
NVNT	ax40	5190	39.604	39.449	37.589	37.658	Pass
NVNT	ax40	5230	39.474	39.496	37.641	37.634	Pass
NVNT	ax80	5210	79.517	80.701	<b>77.172</b>	77.171	Pass

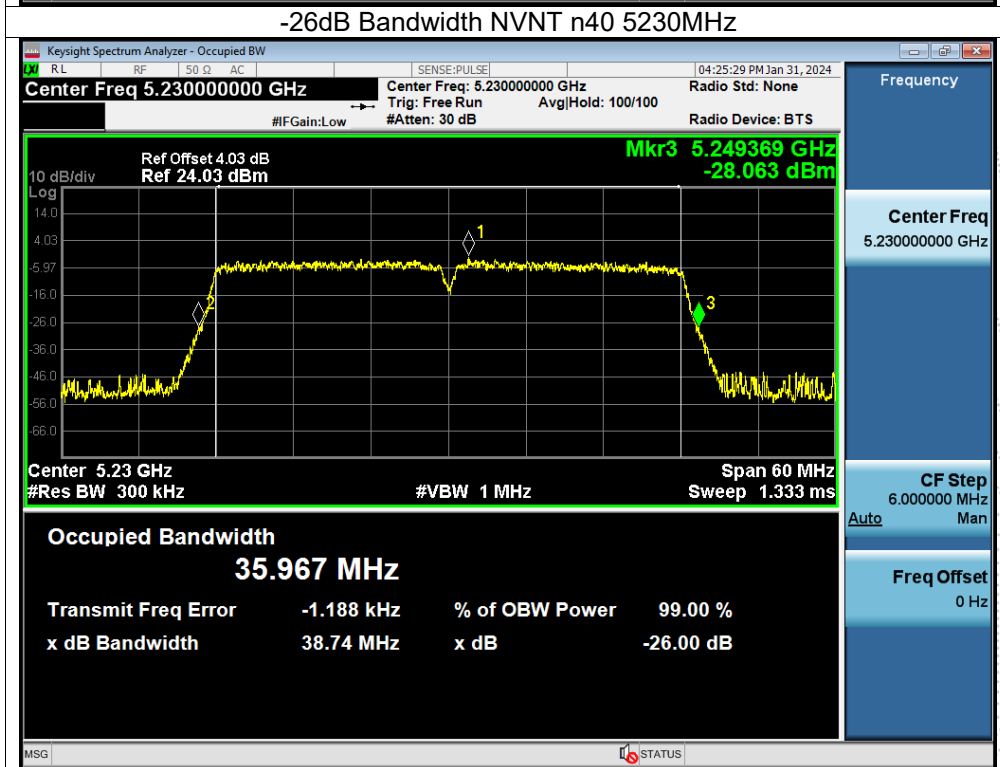
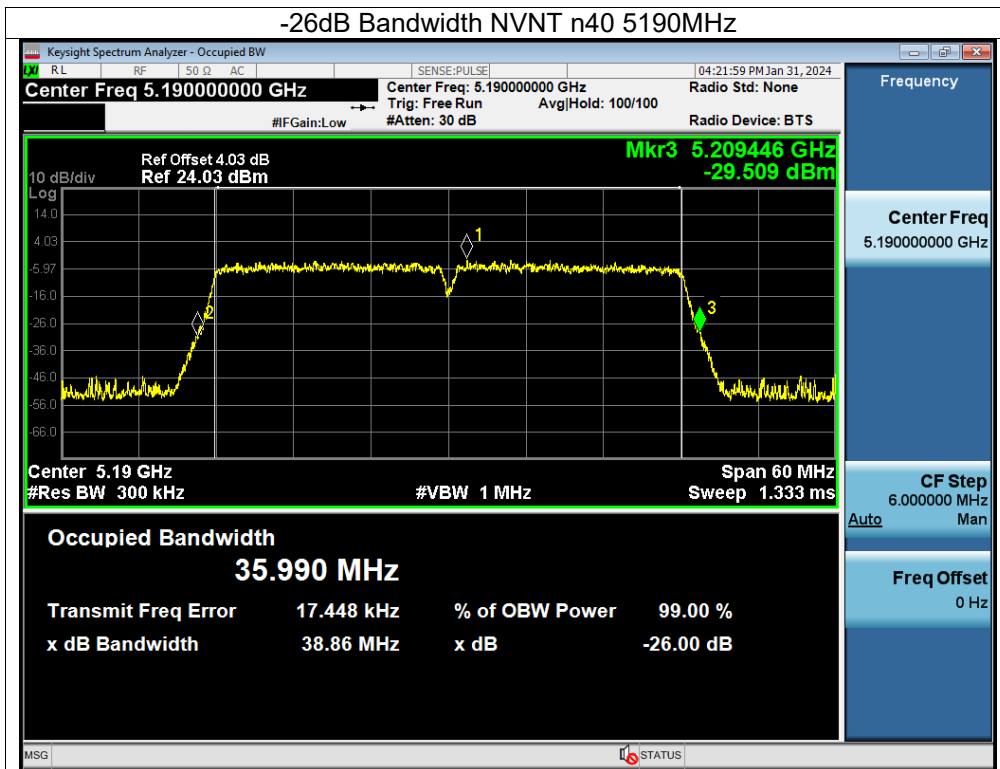


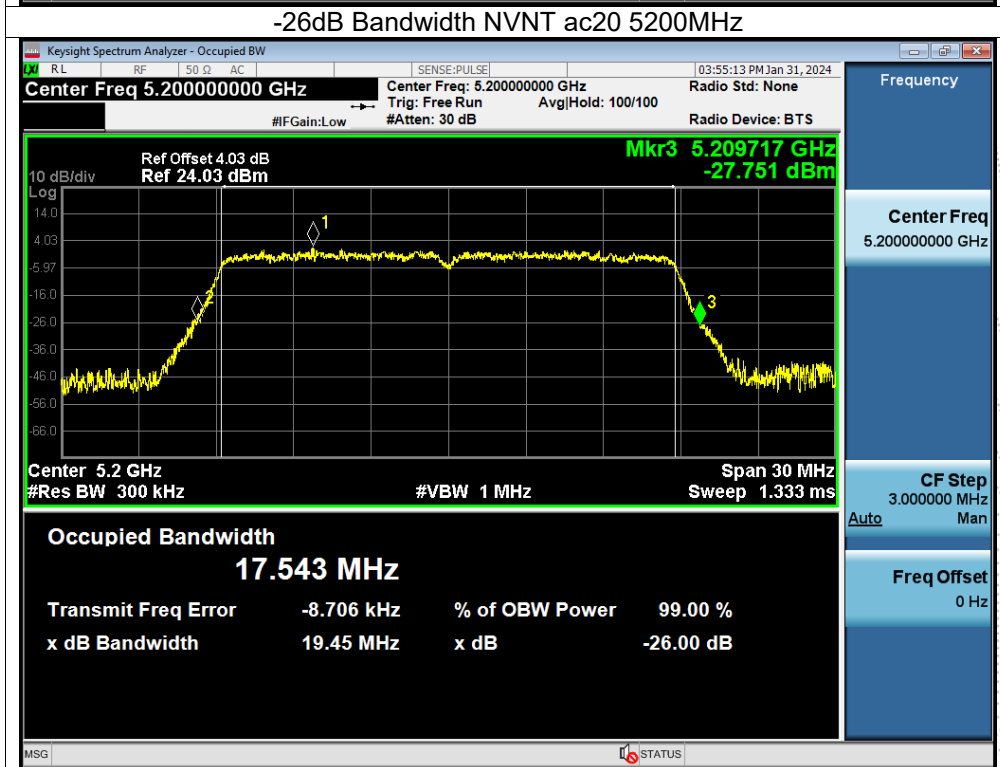
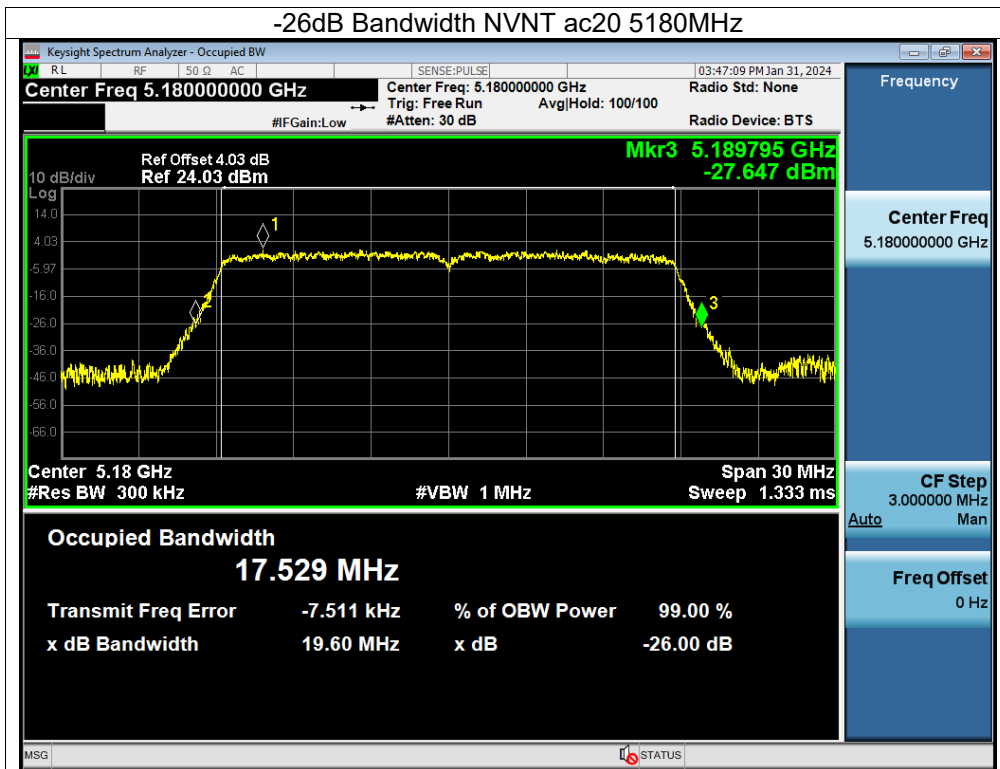
Note: A(B) Represent the value of antenna A and B, The worst data is Antenna B, only shown Antenna B Plot.

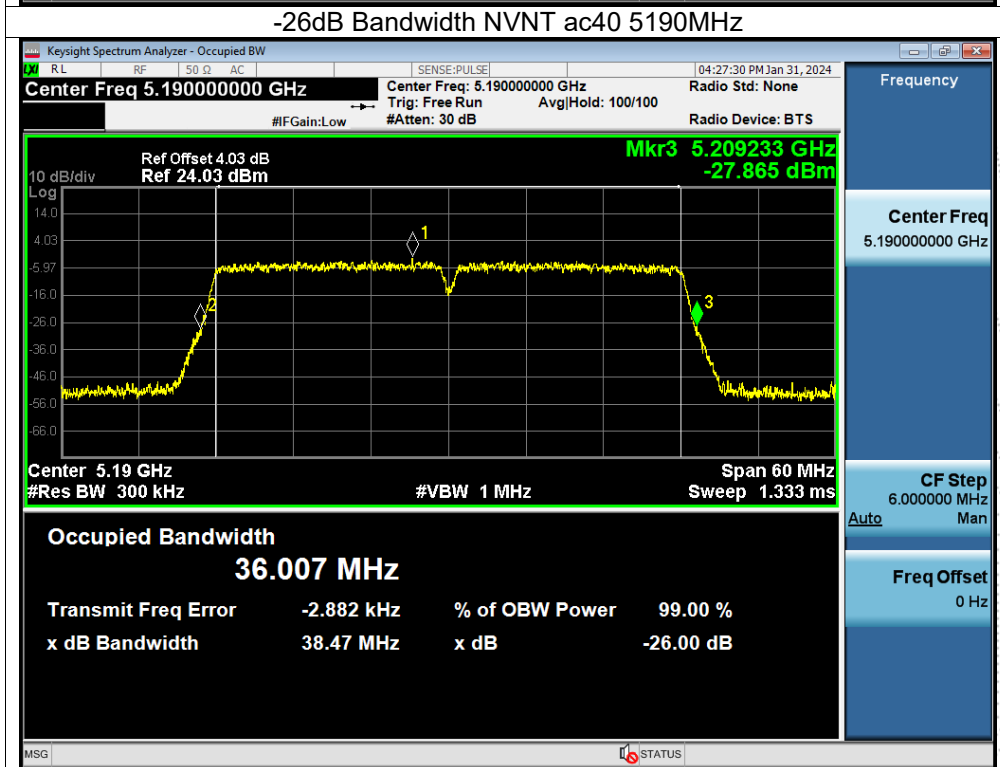
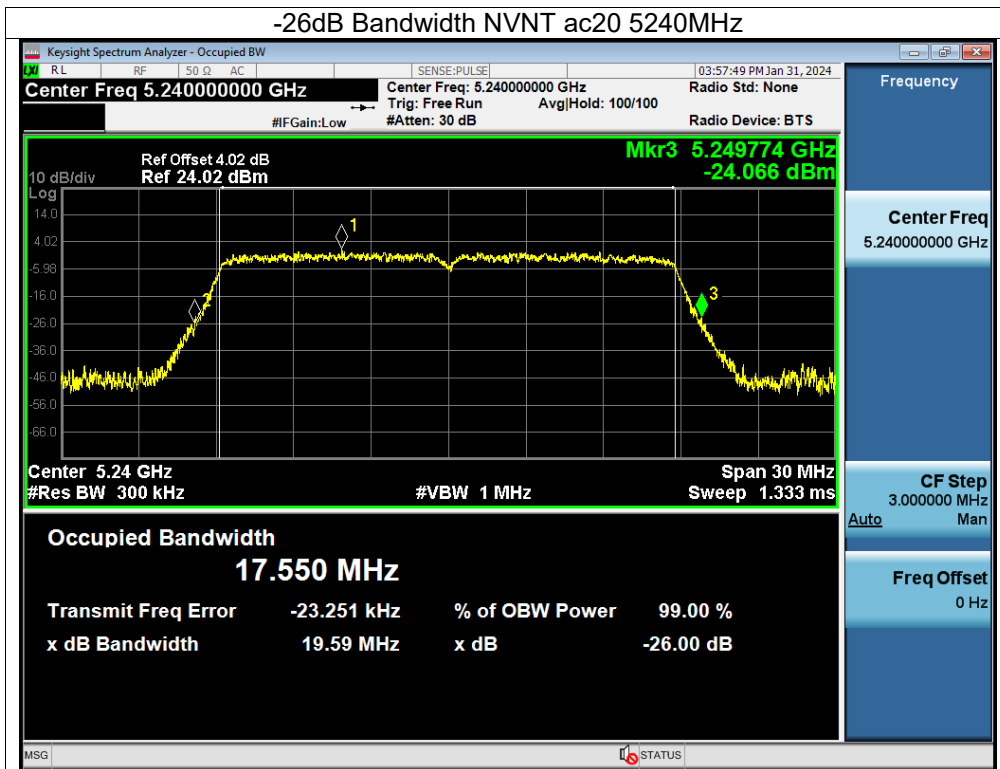


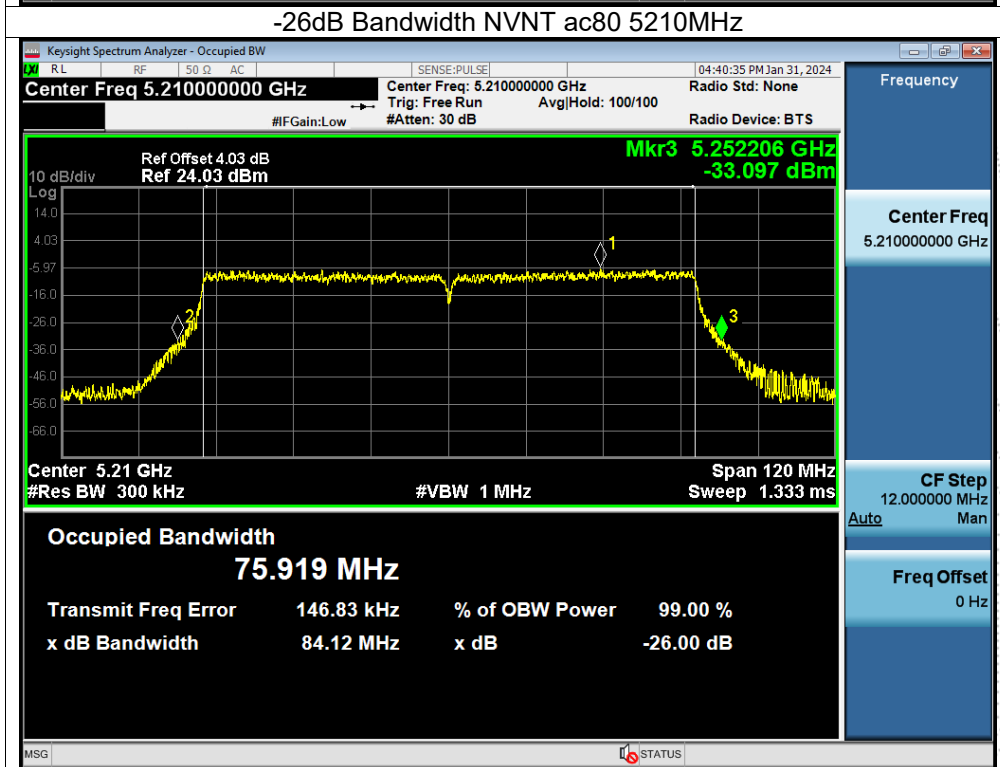
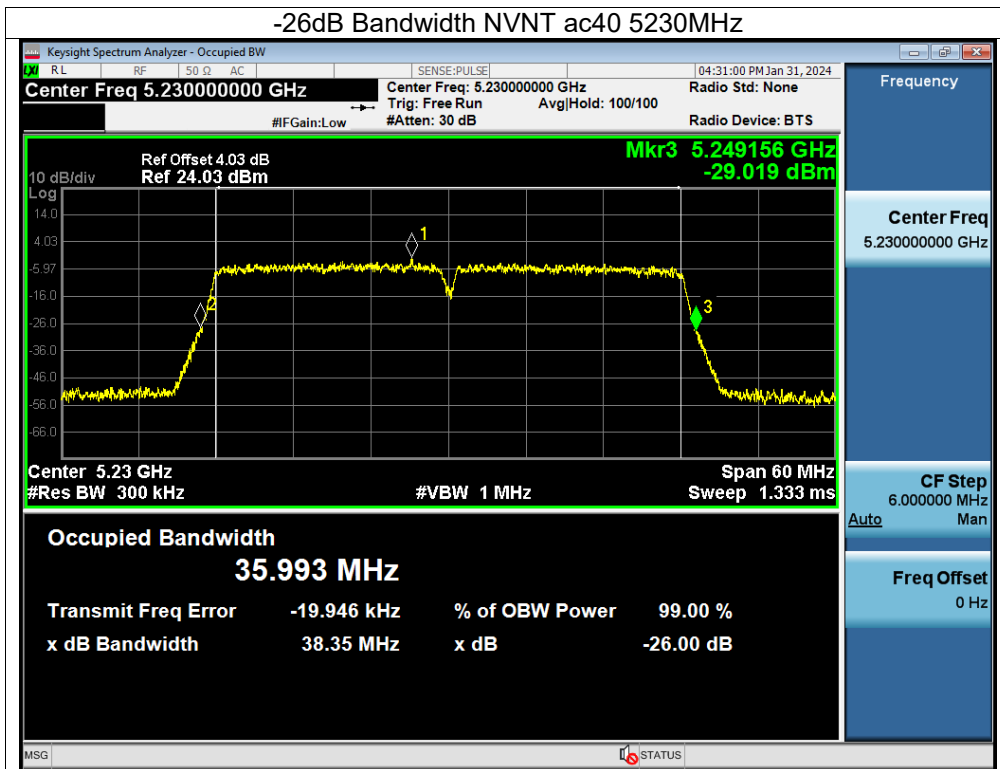


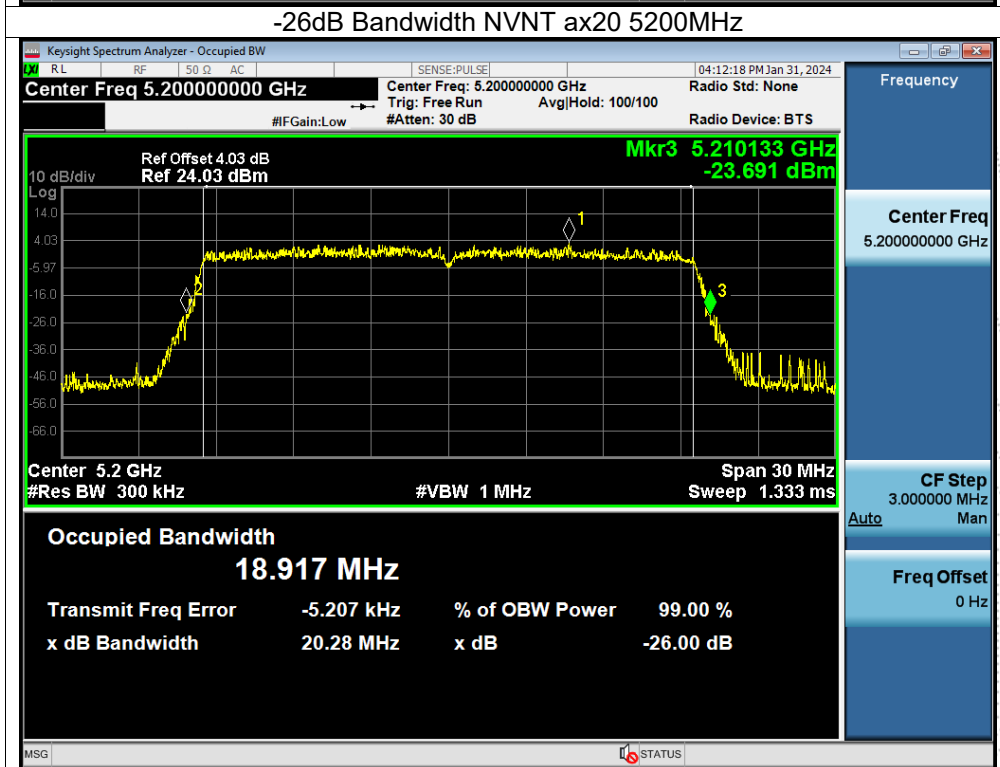
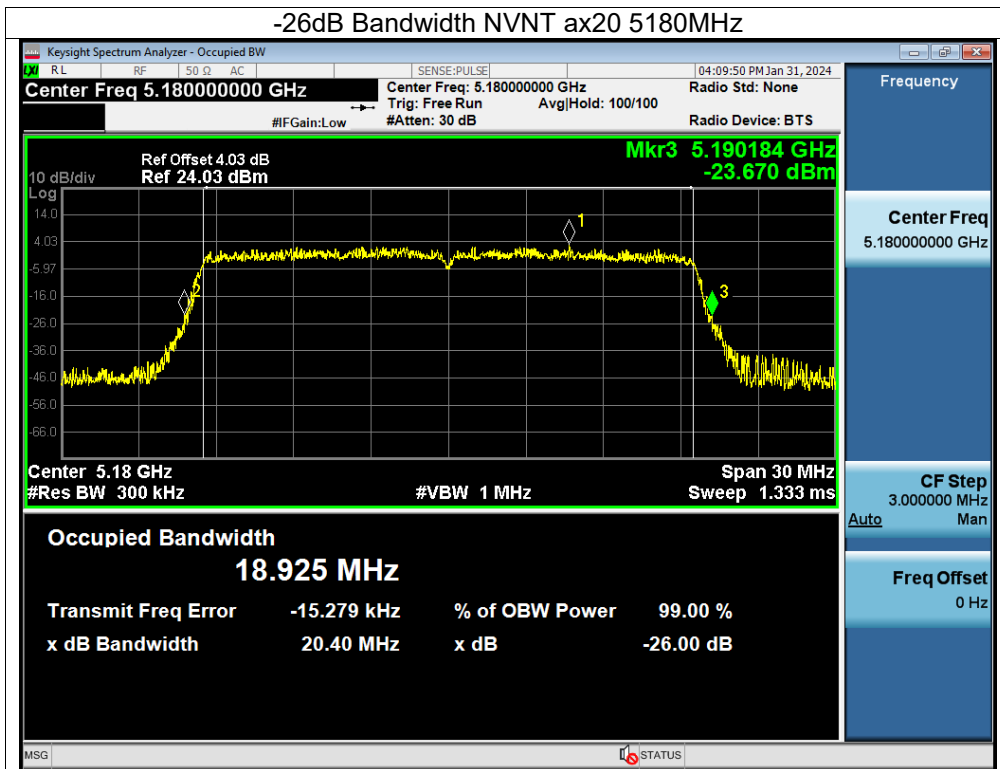




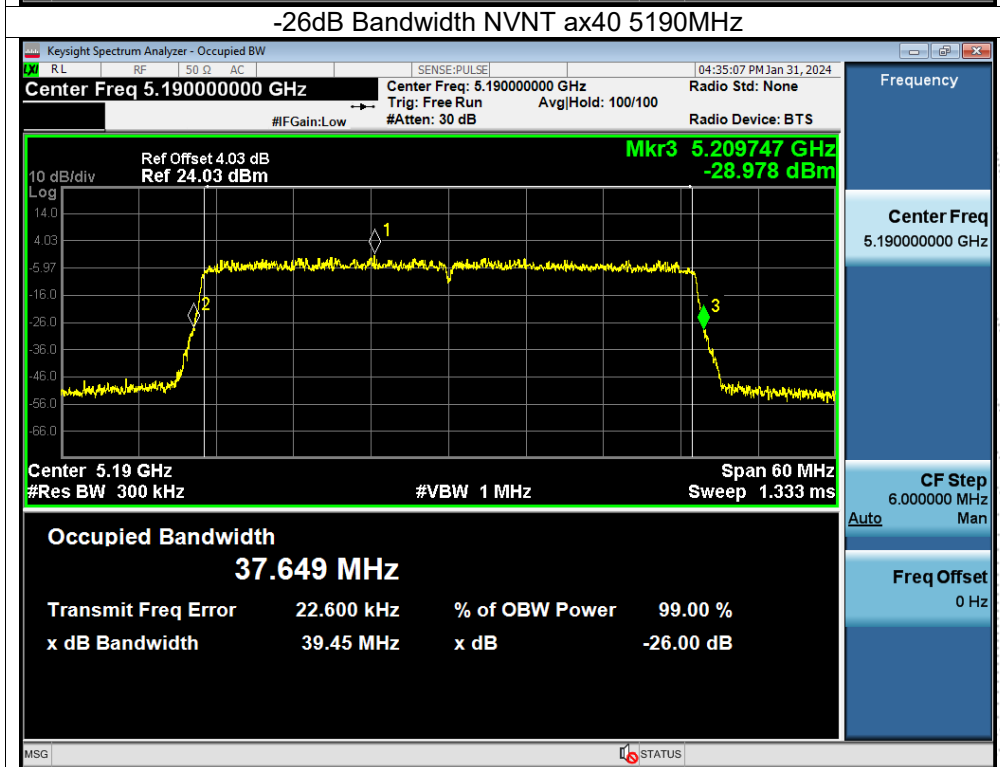
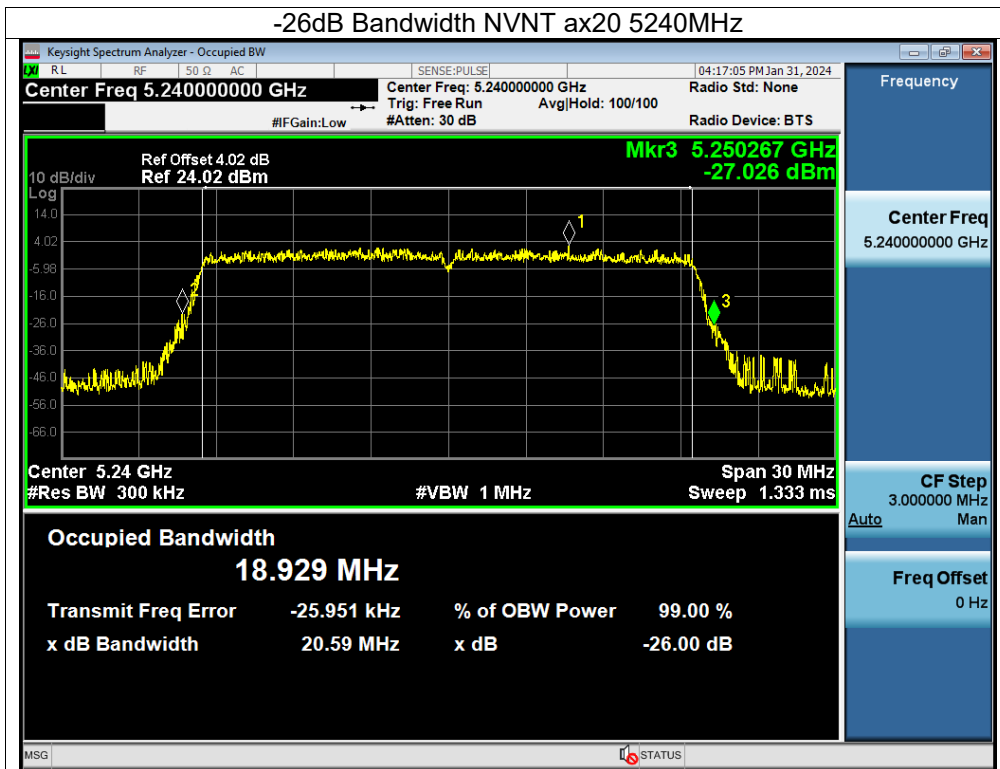


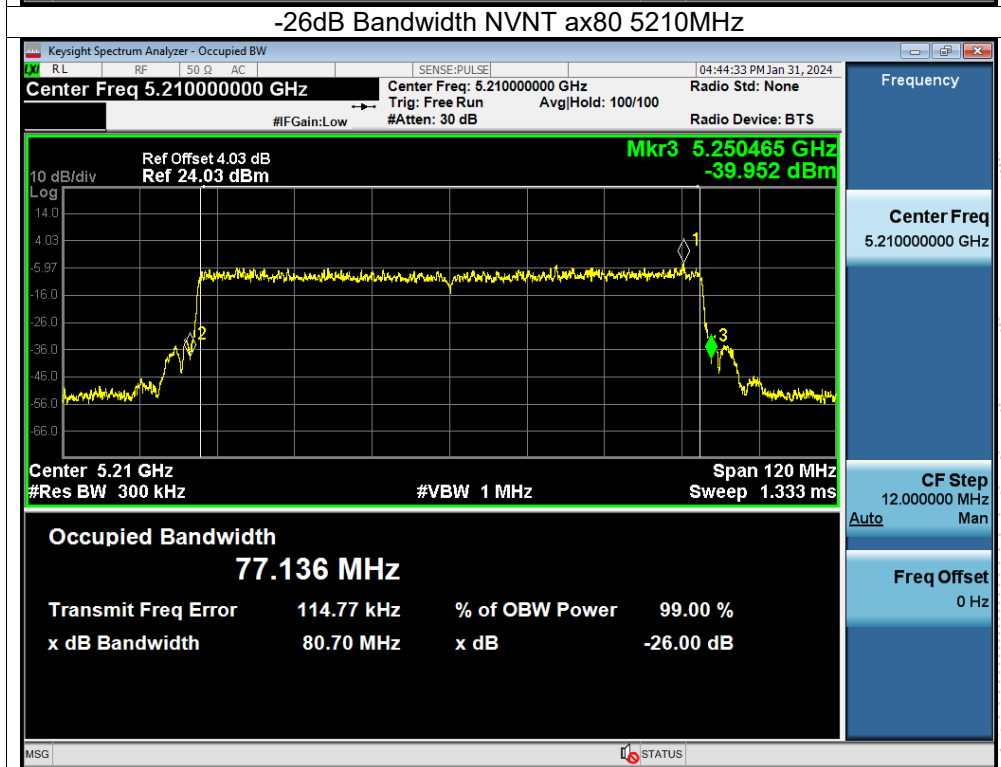
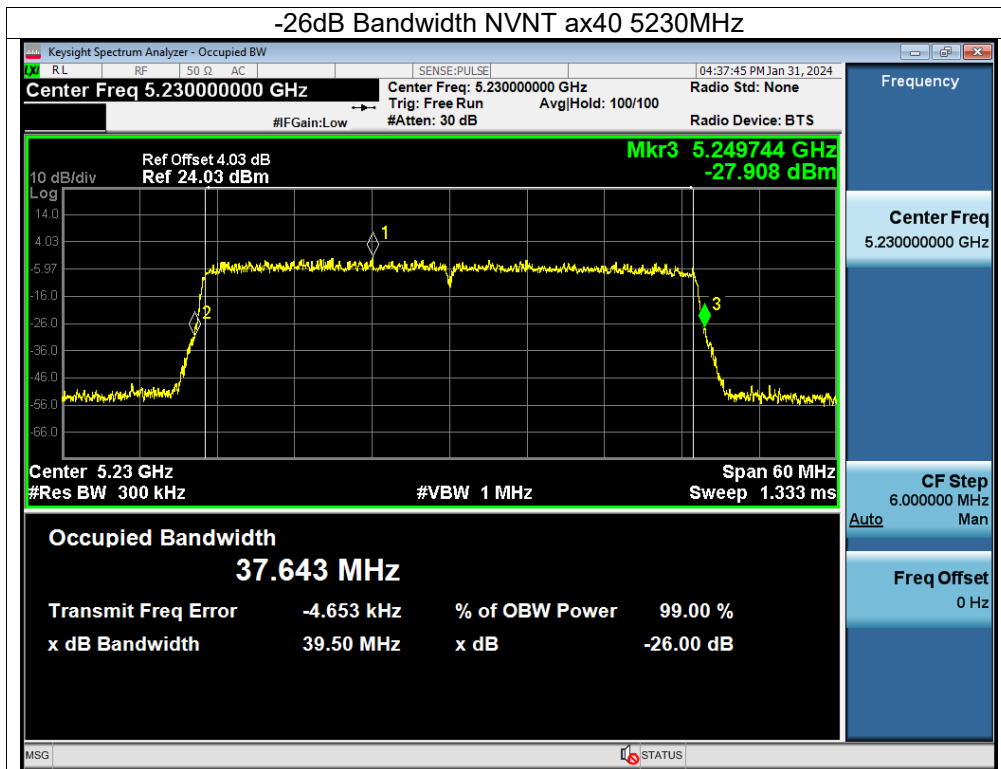




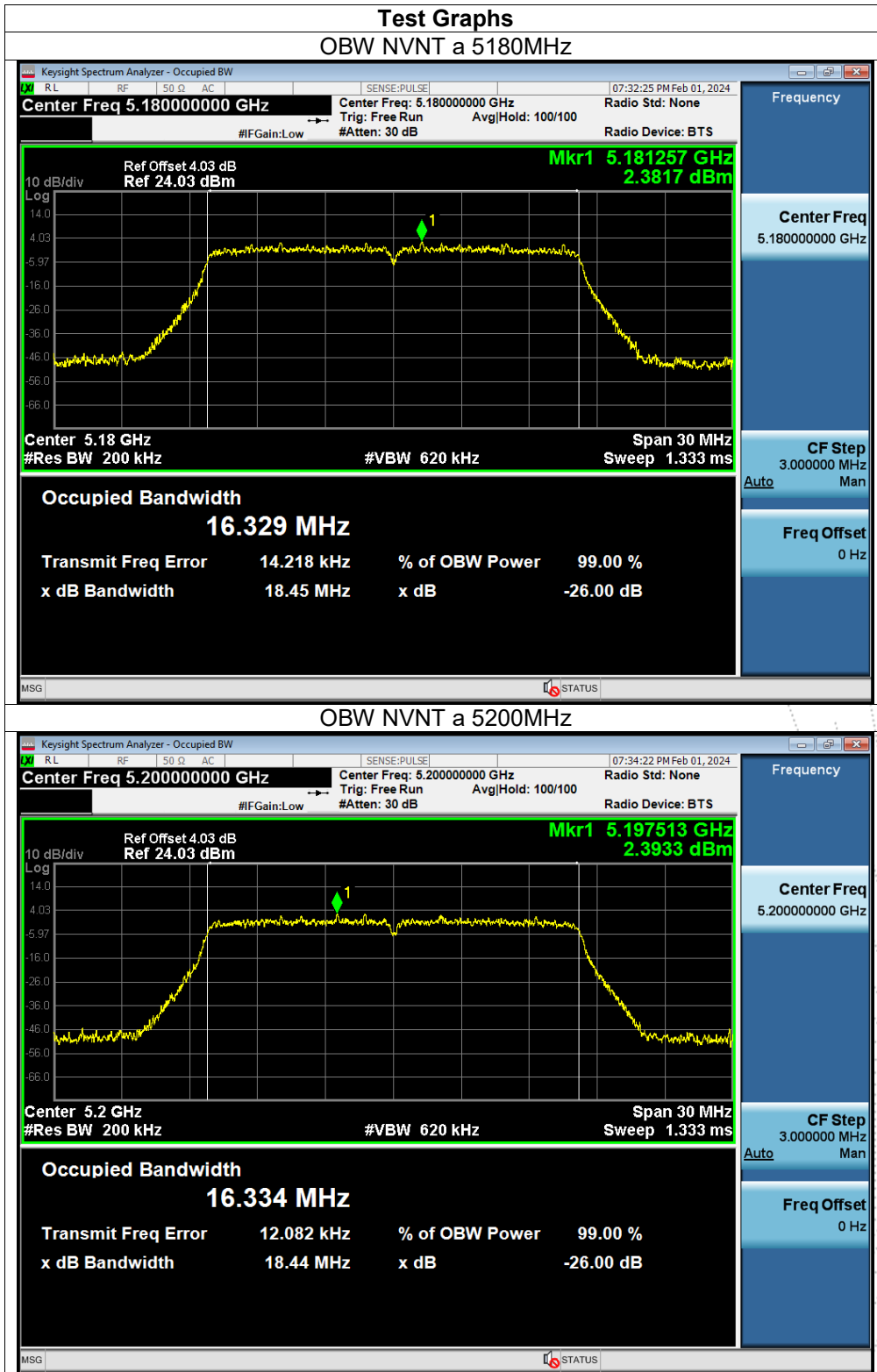


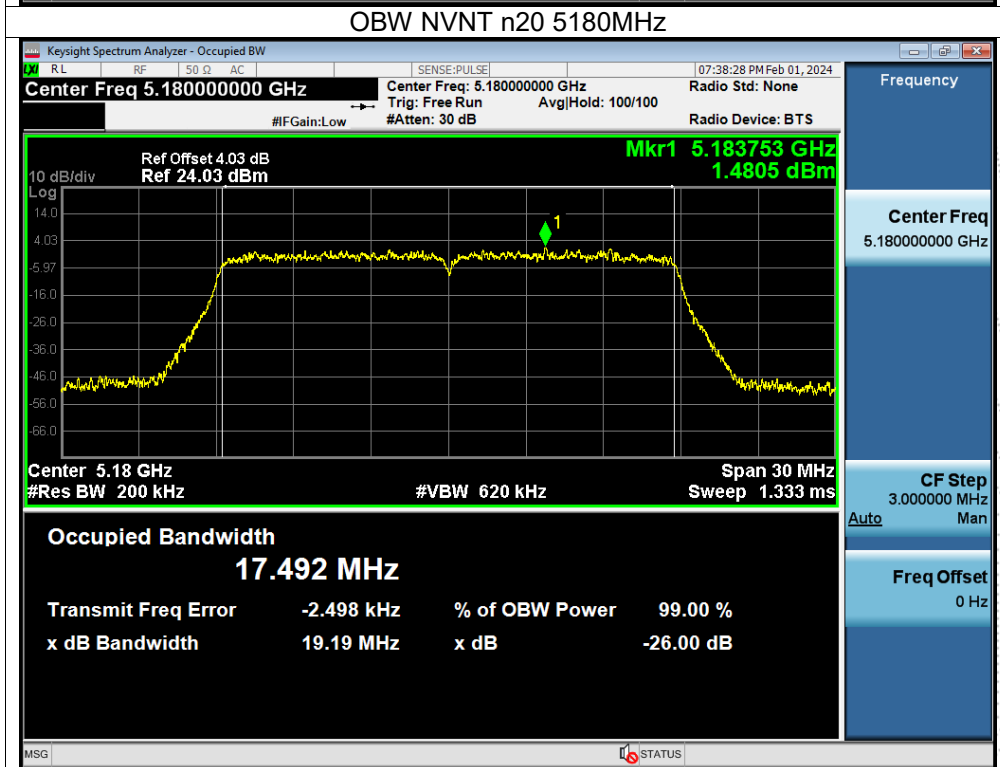
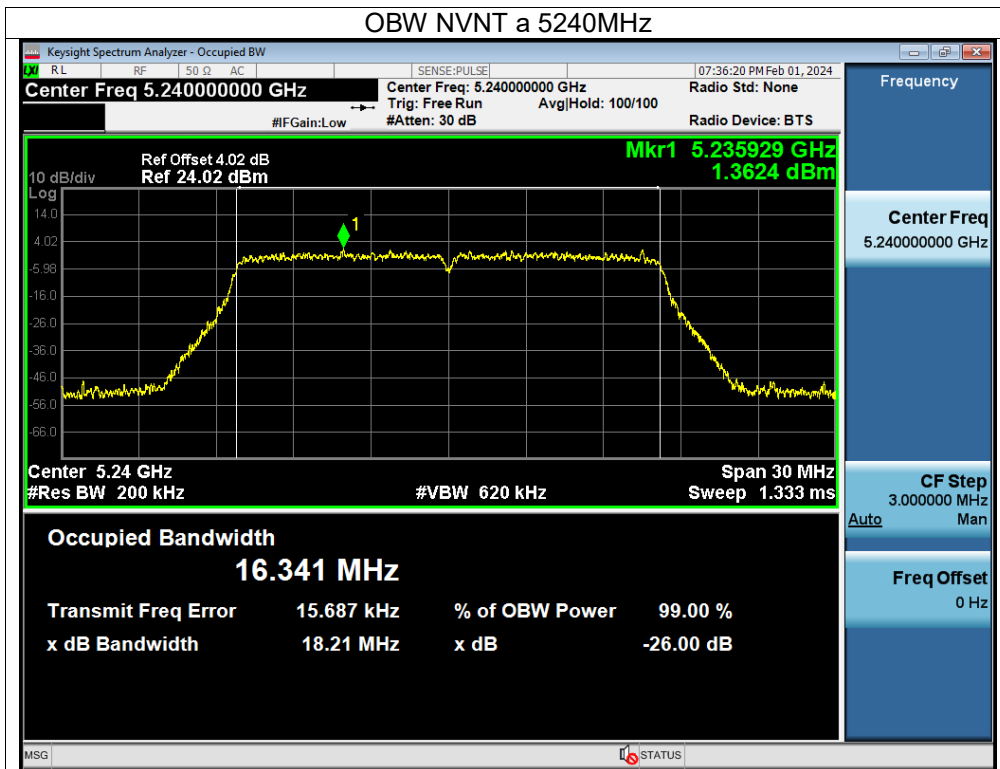


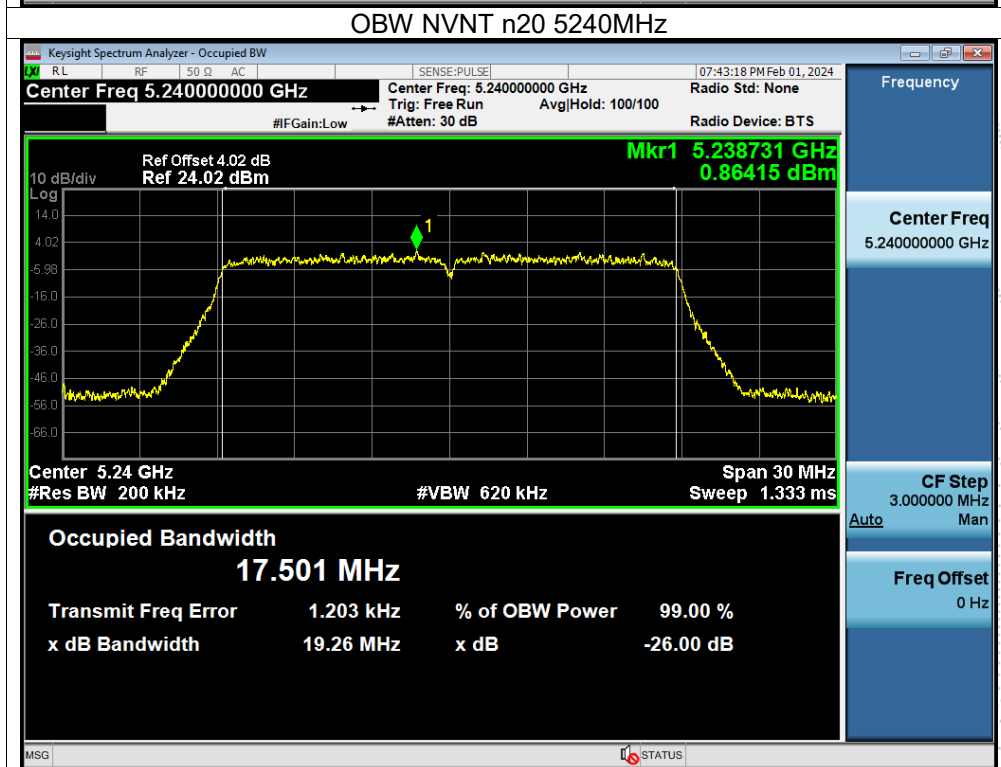
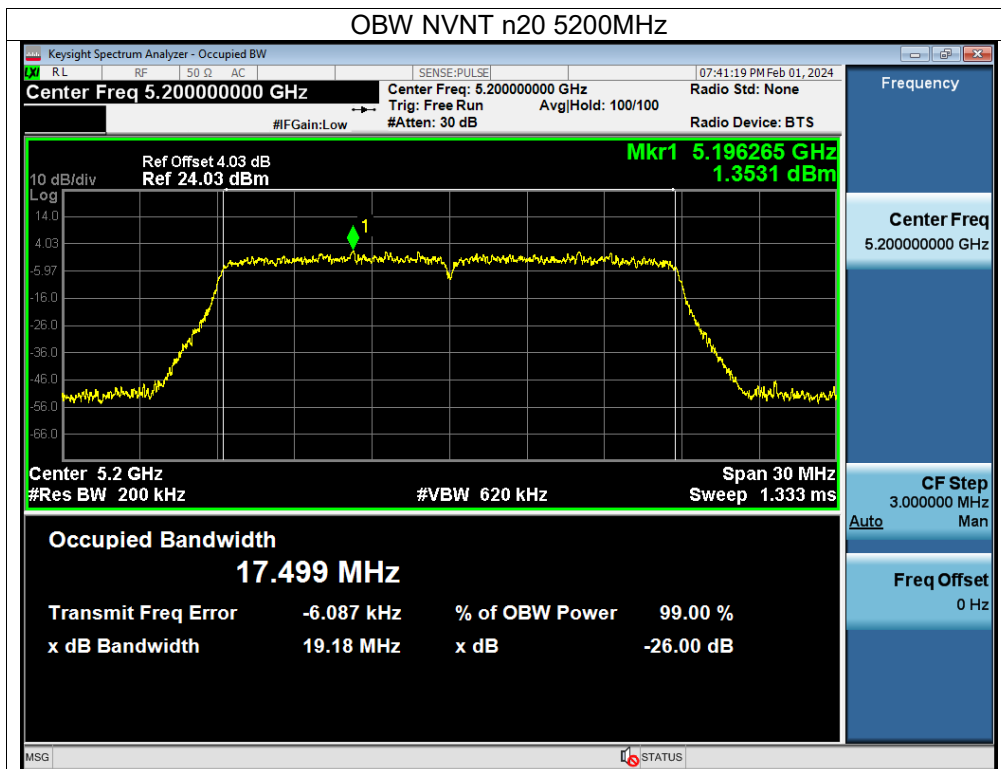


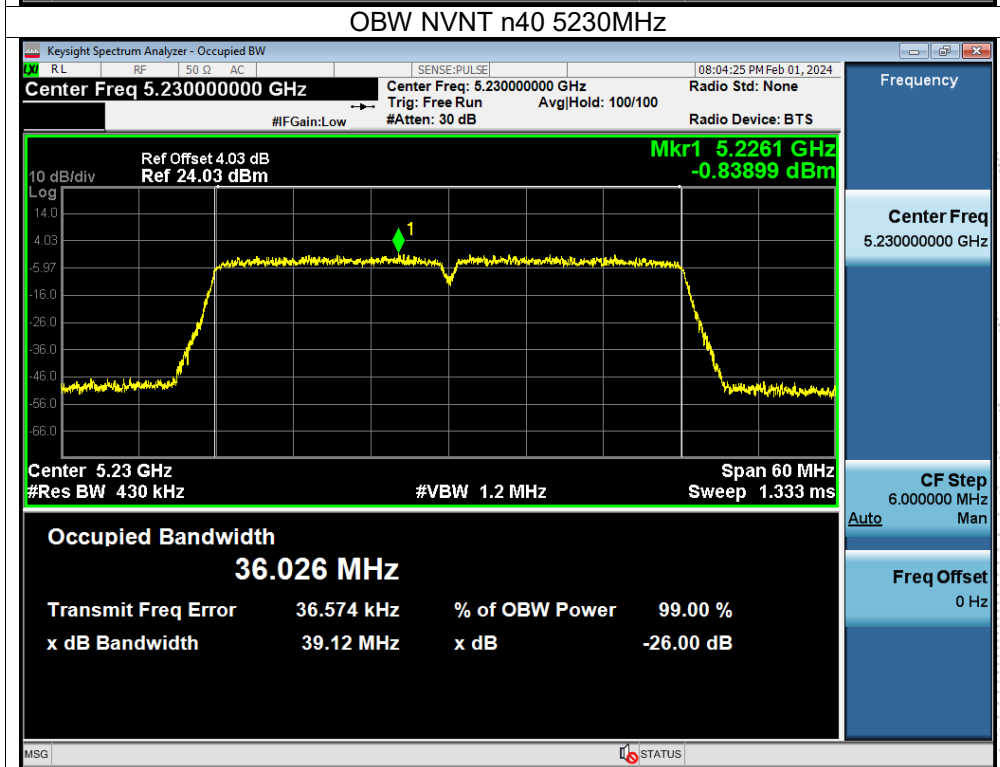
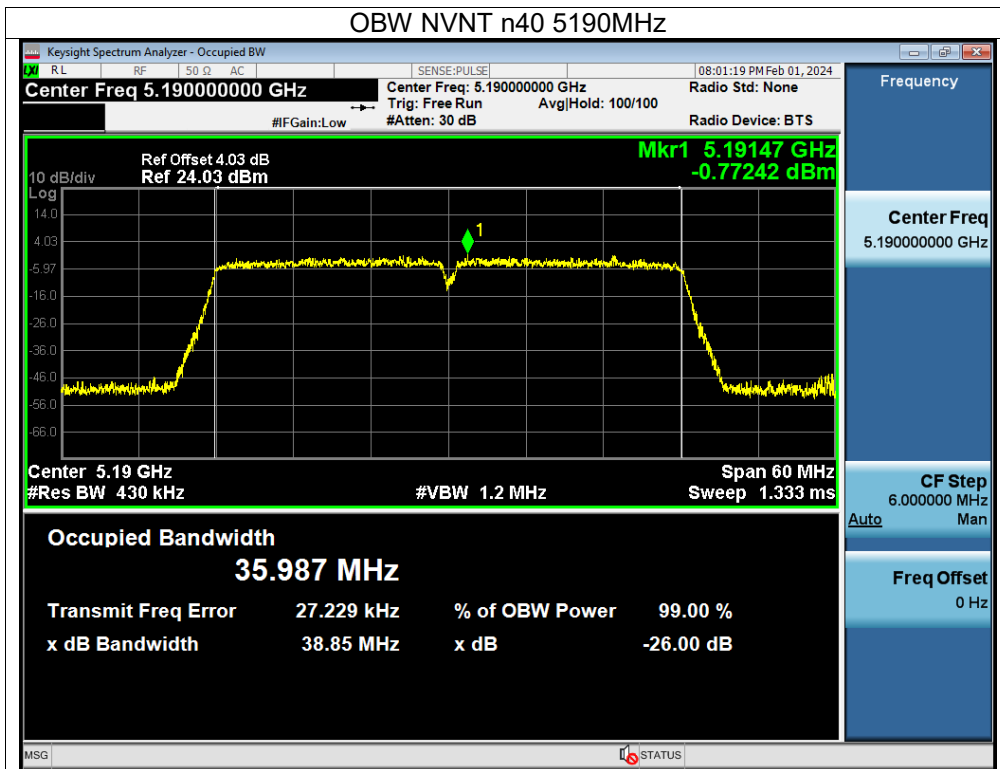


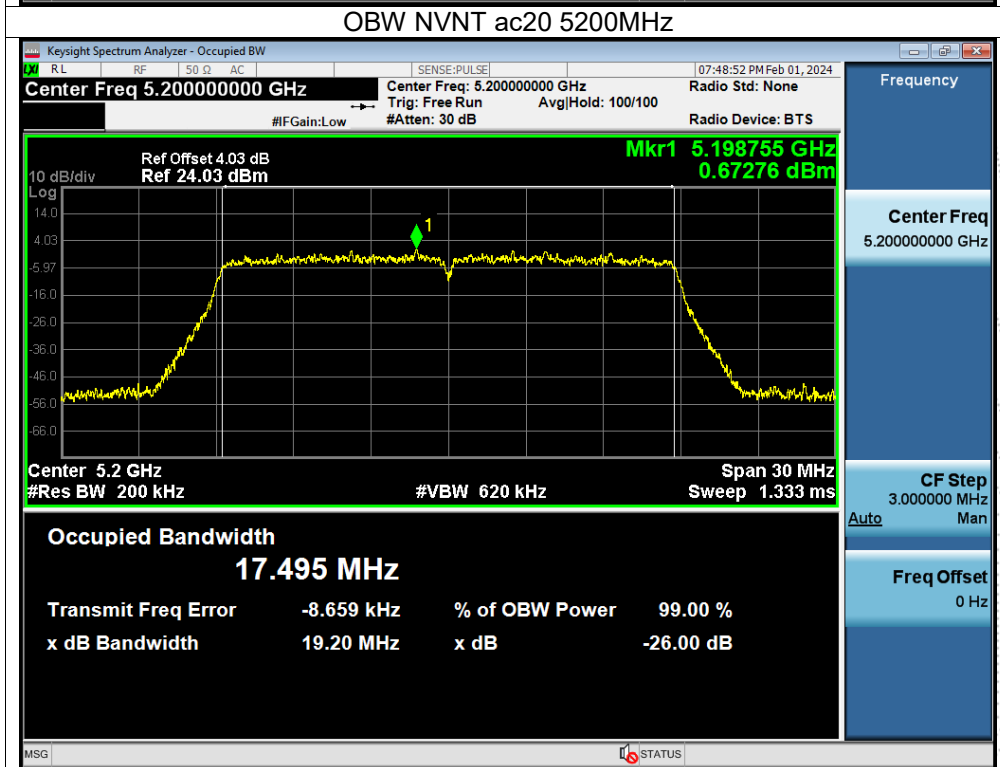
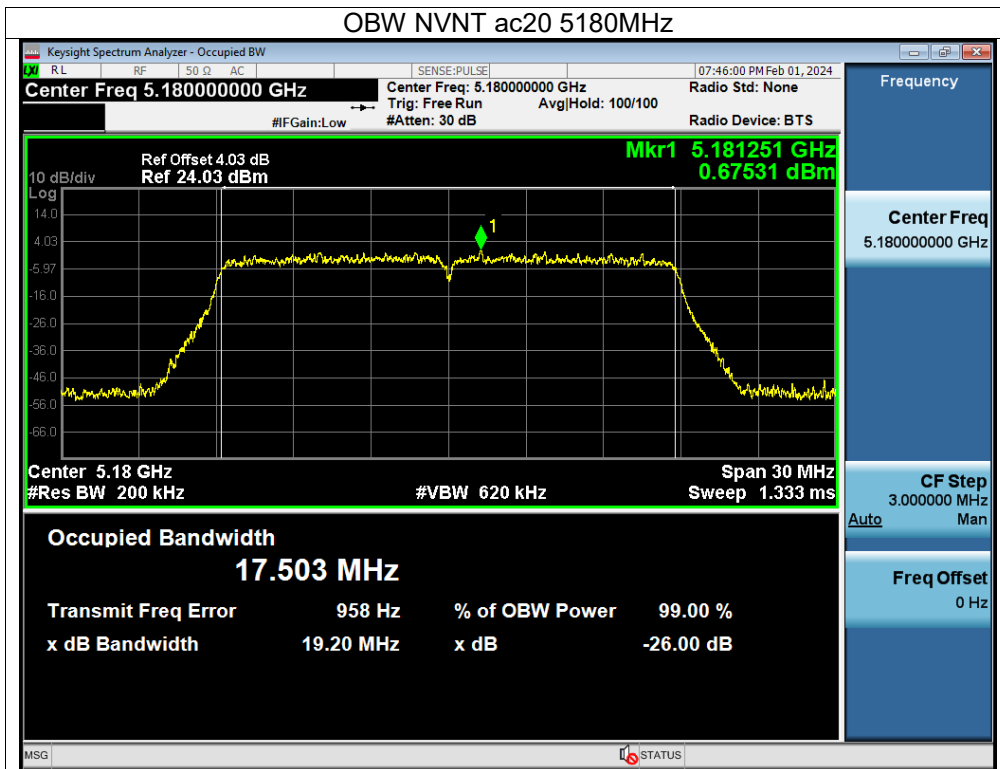
Note: A(B) Represent the value of antenna A and B, The worst data is Antenna A, only shown Antenna A Plot.

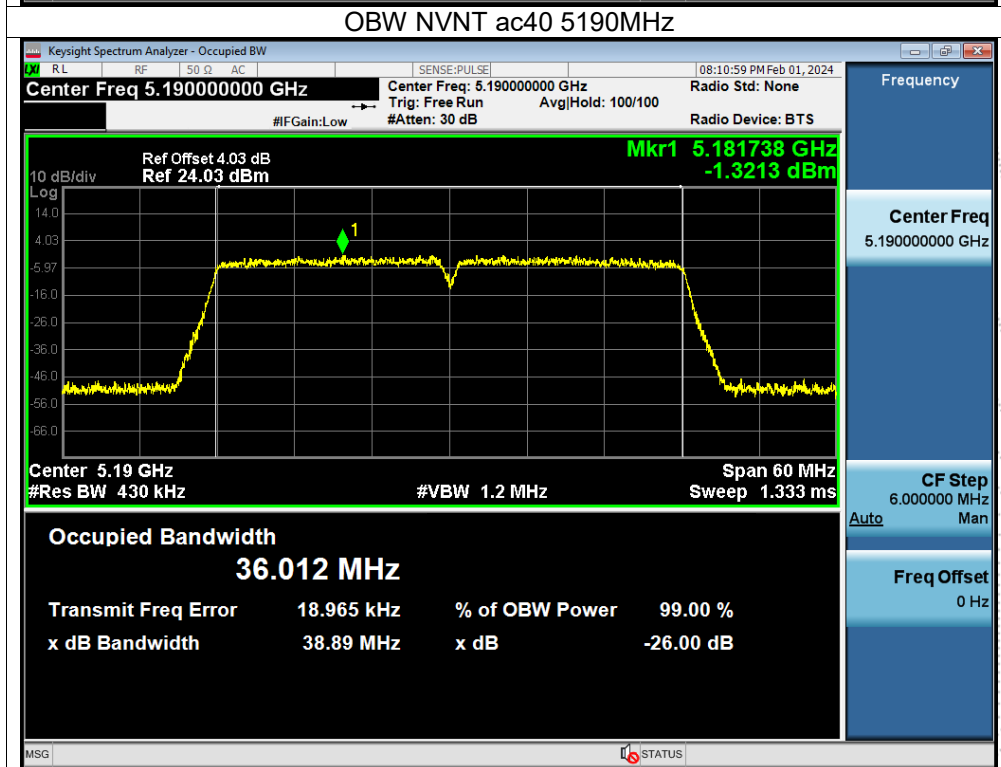
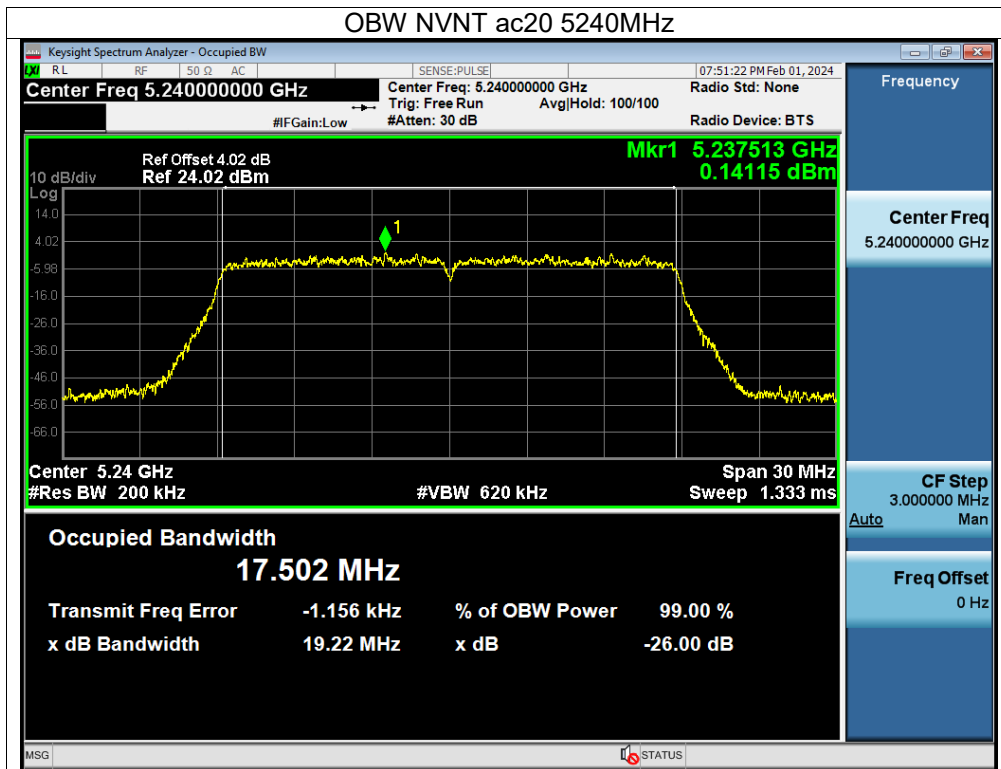




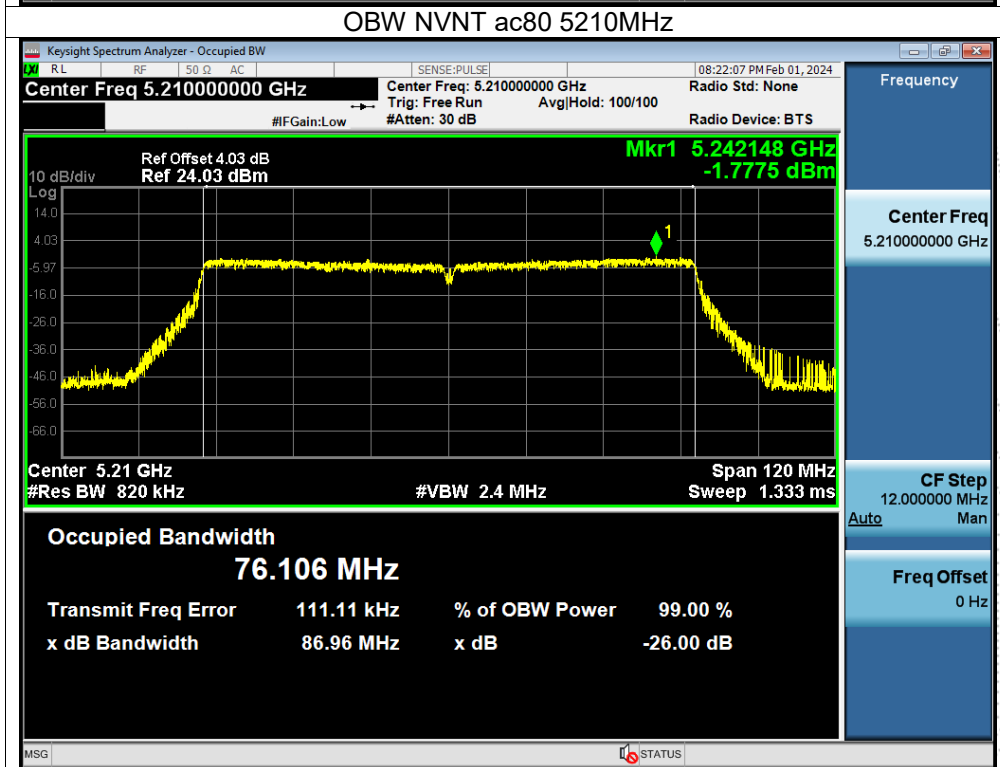
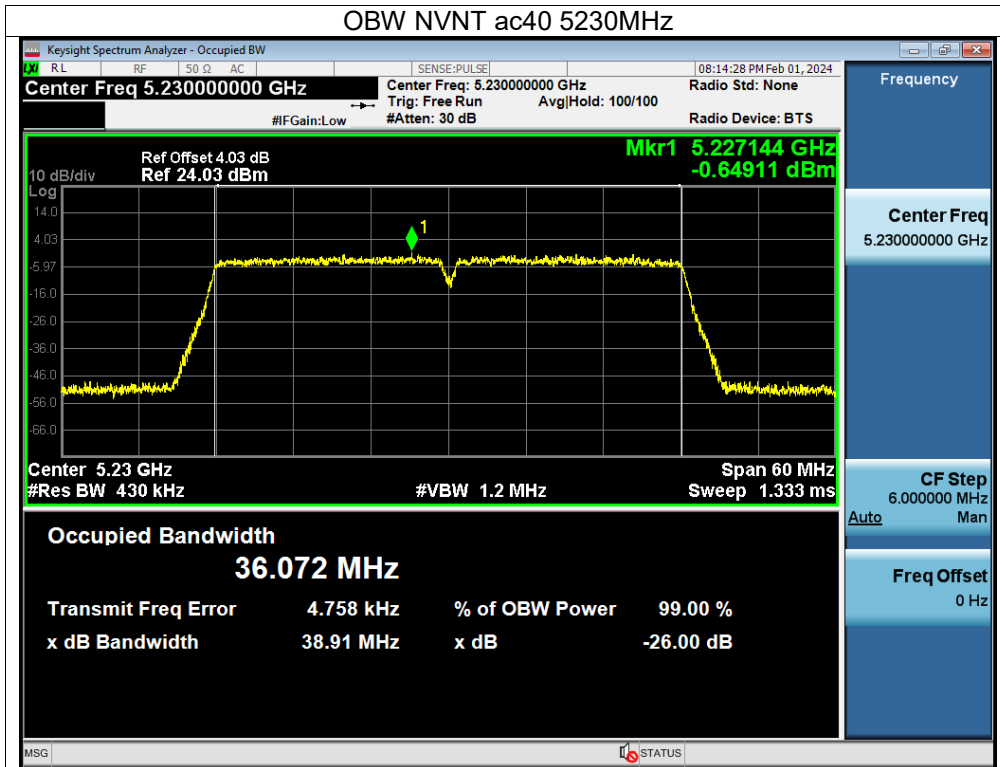


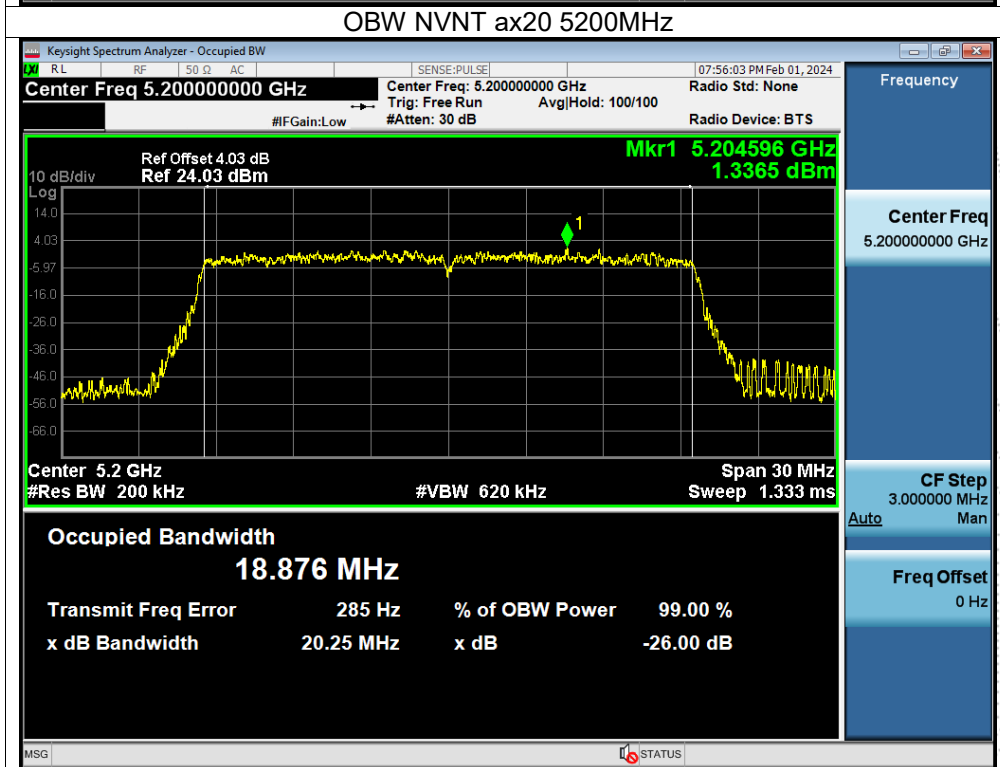
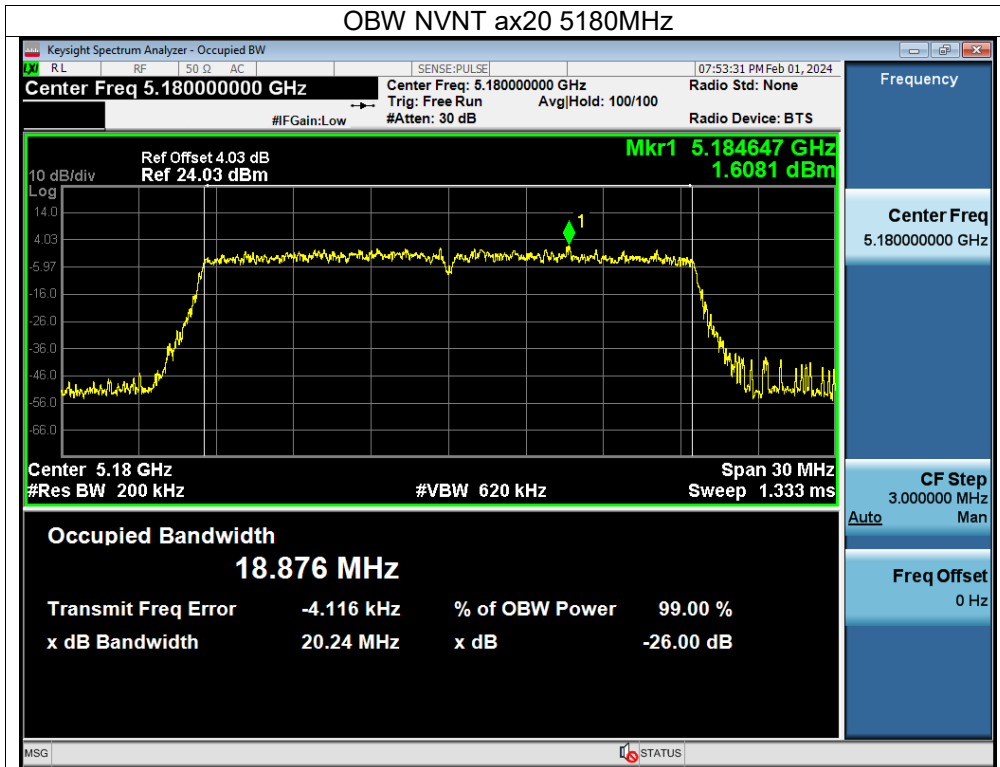


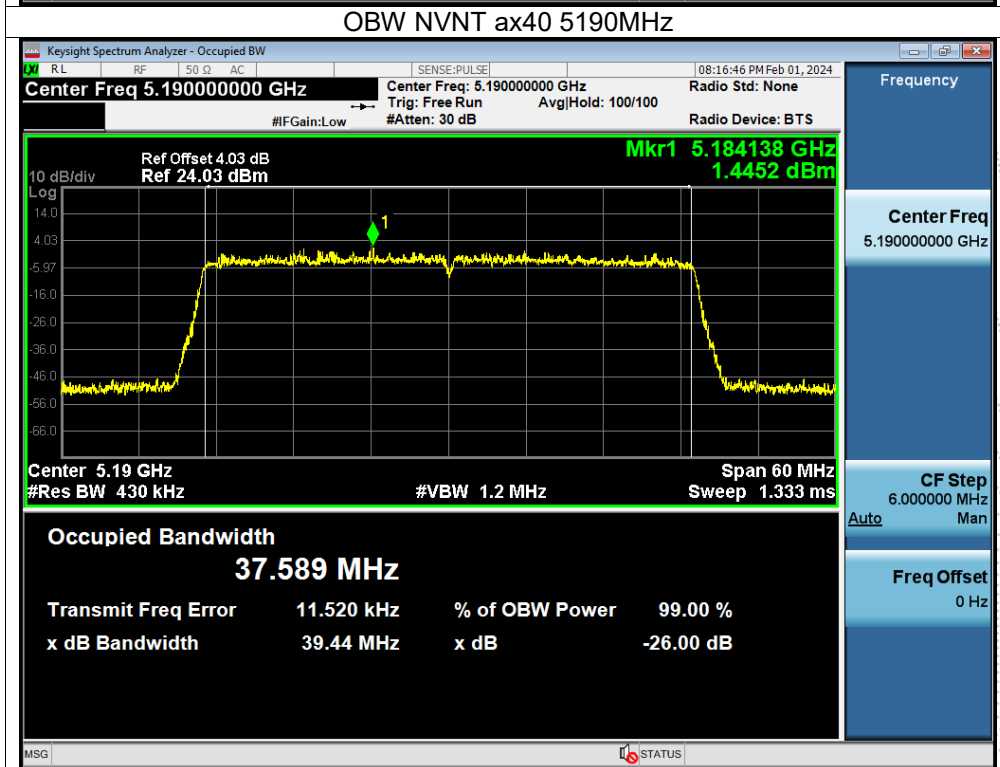
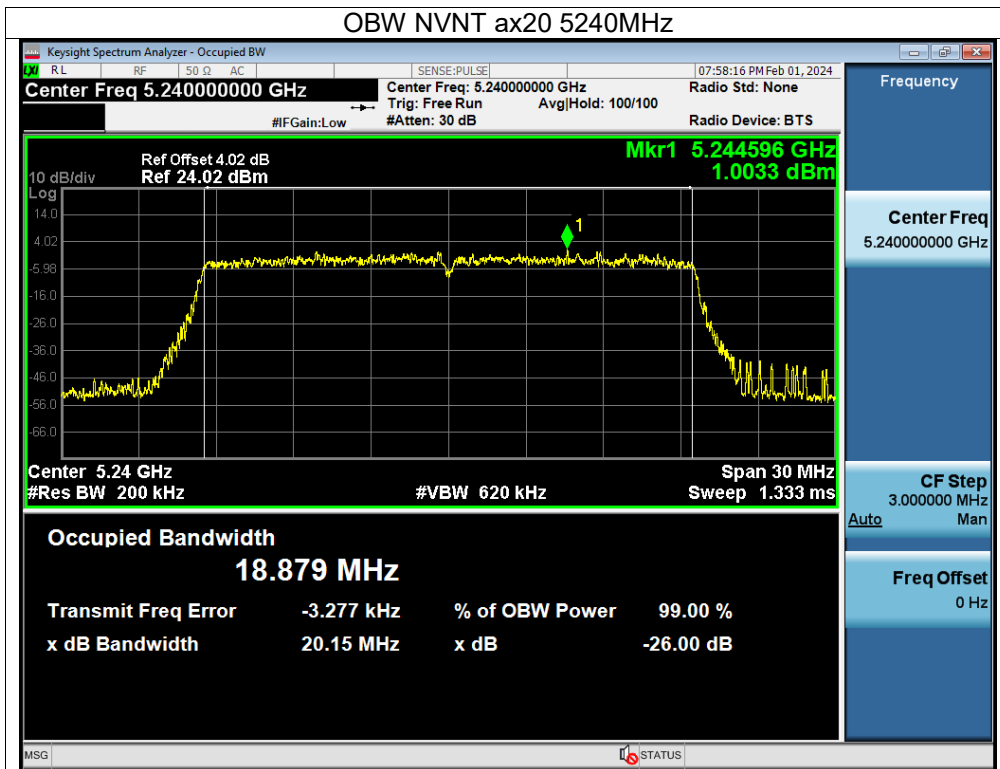


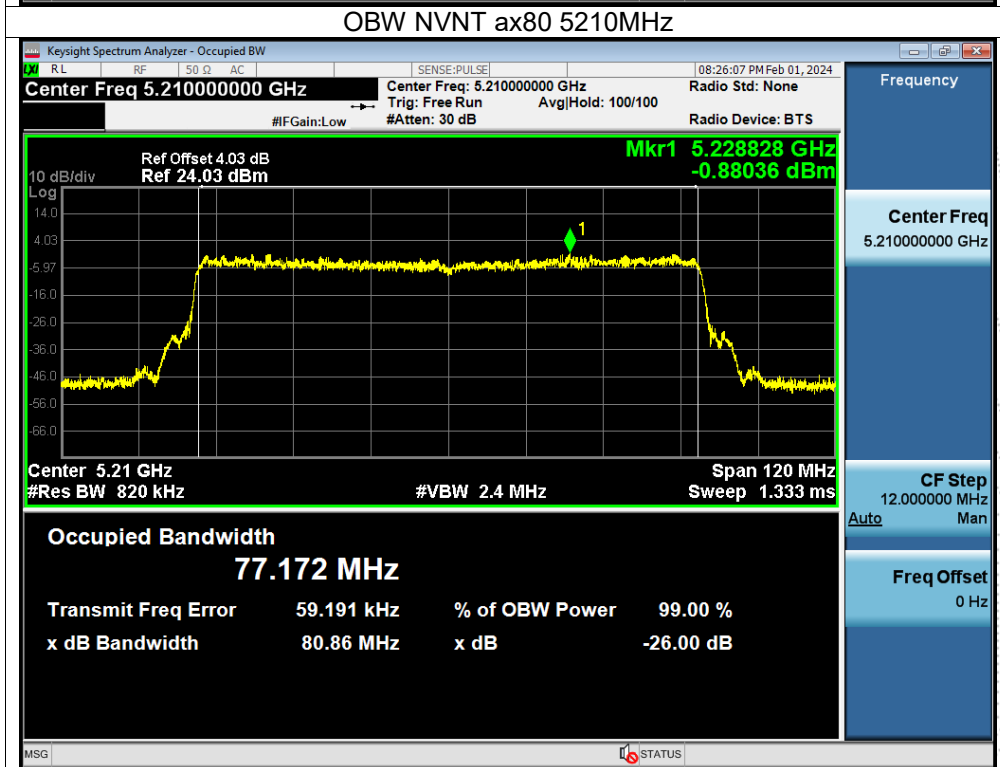
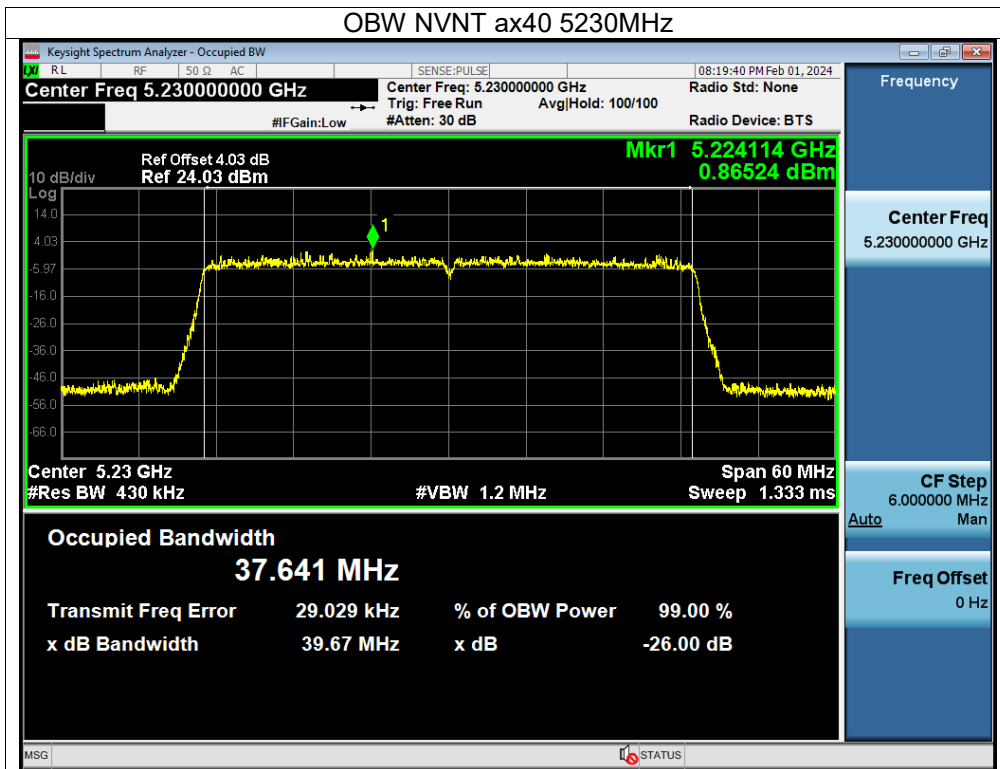






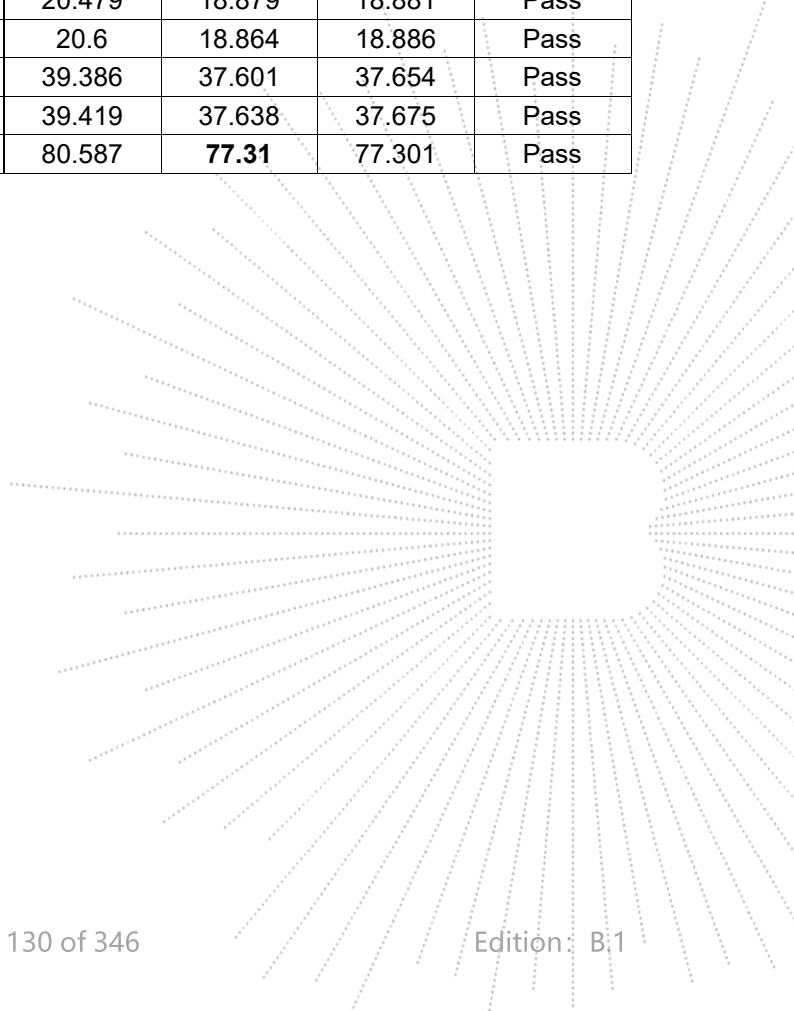




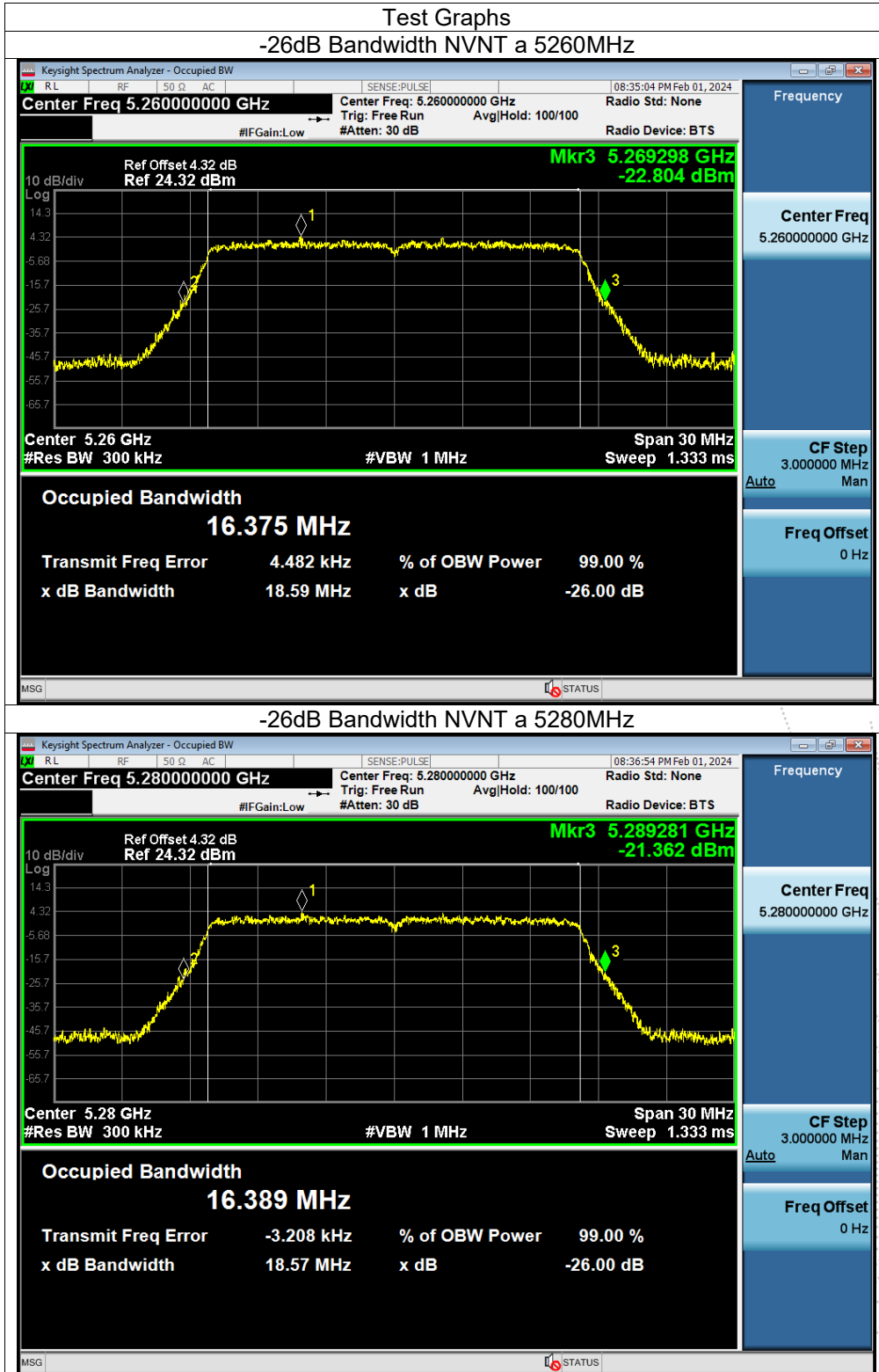


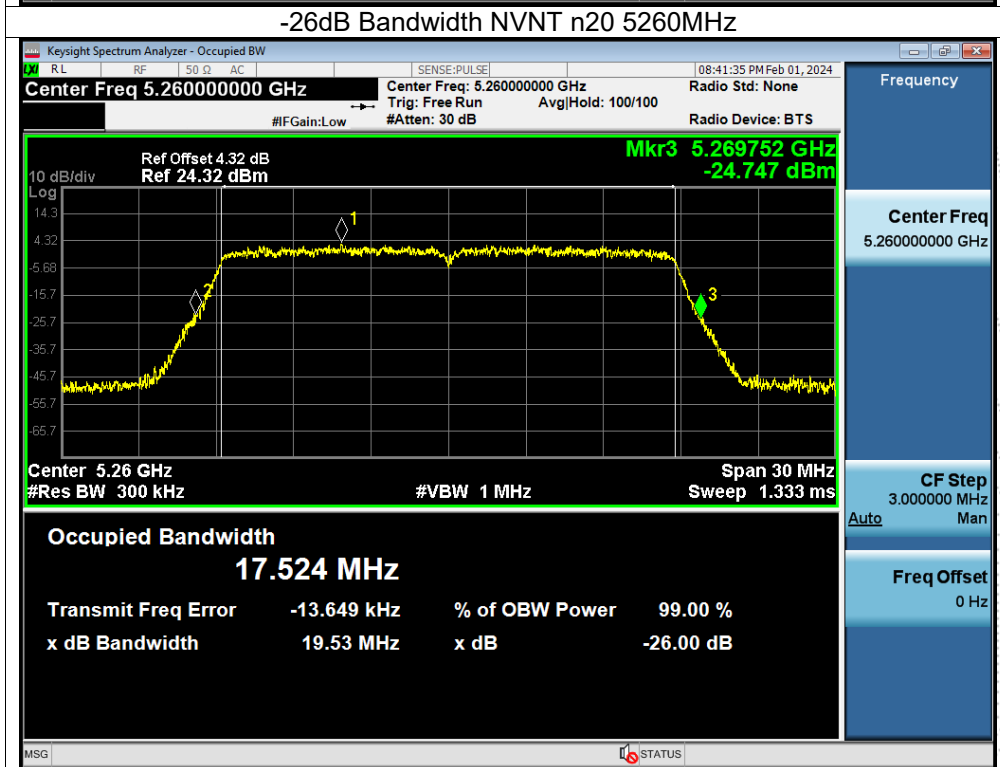
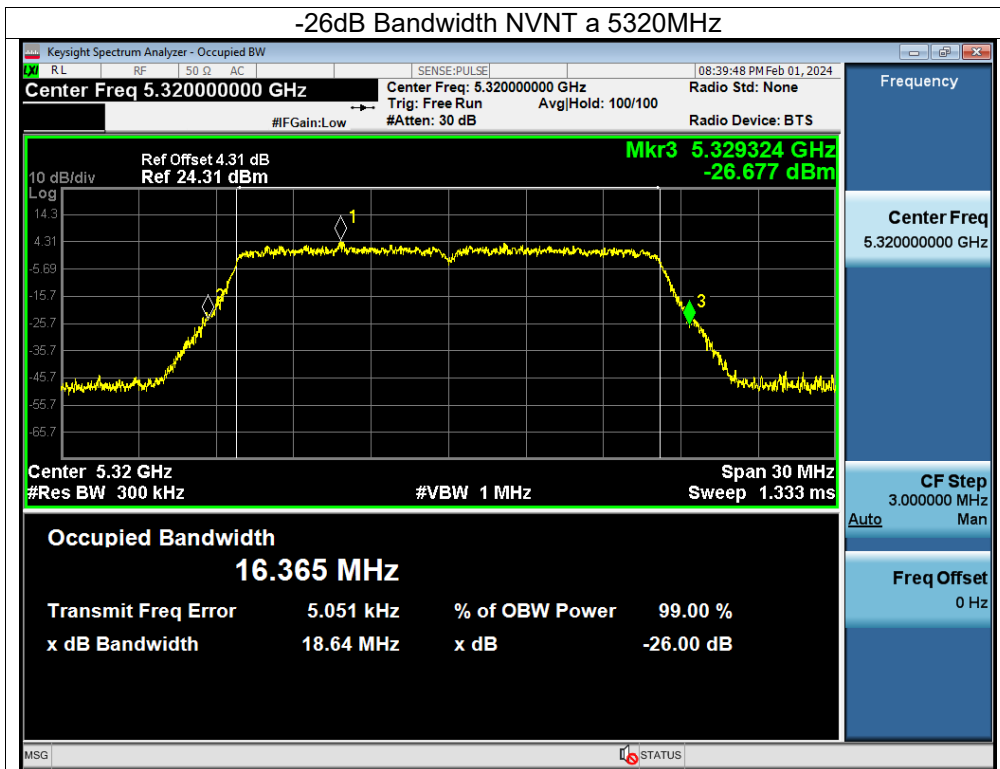
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	(5260-5320MHz)		

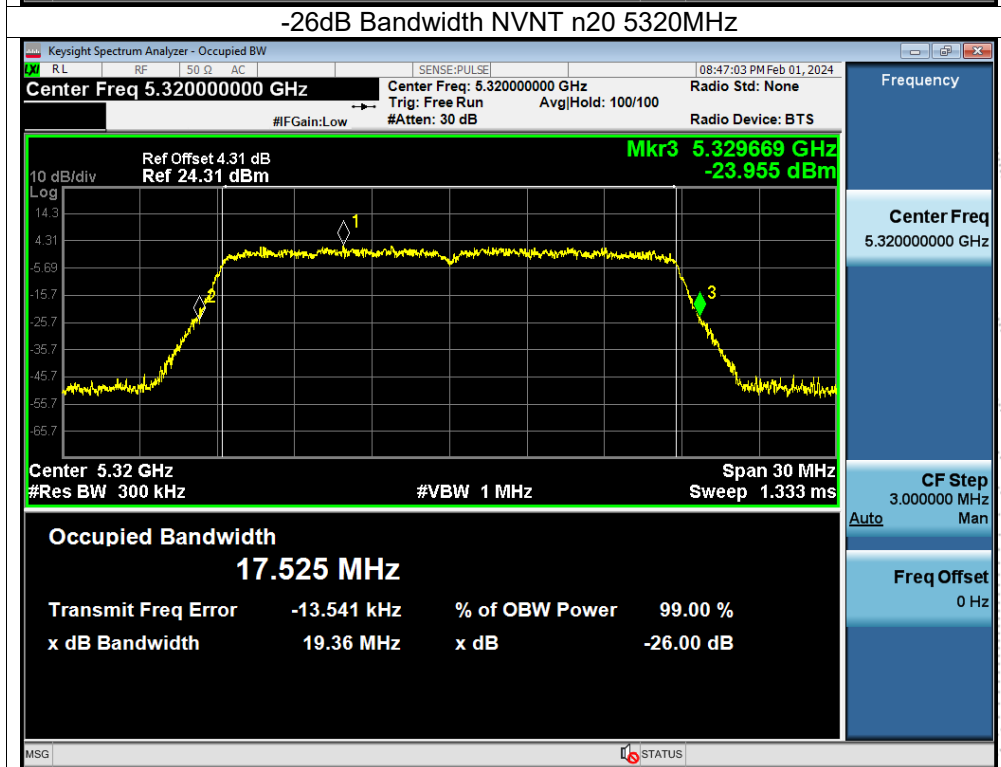
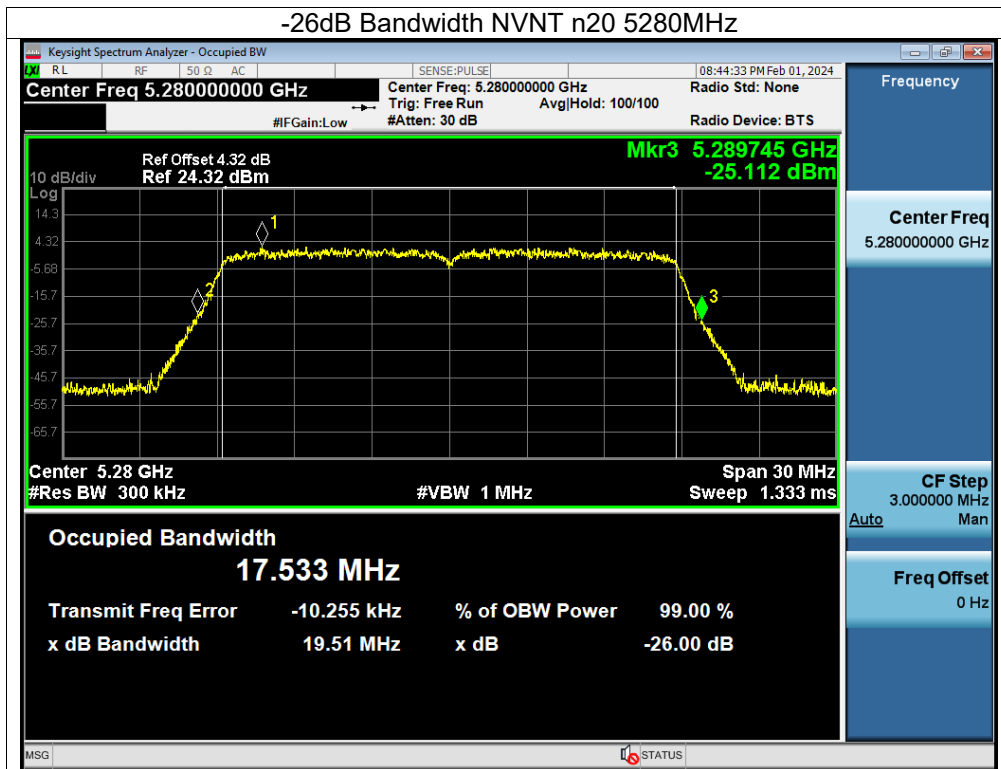
Condition	Mode	Frequency (MHz)	-26 dB Bandwidth (MHz)		99% OBW (MHz)		Verdict
			Ant A	Ant B	Ant A	Ant B	
NVNT	a	5260	18.587	18.591	16.331	16.336	Pass
NVNT	a	5280	18.569	18.65	16.329	16.344	Pass
NVNT	a	5320	18.637	18.613	16.328	16.343	Pass
NVNT	n20	5260	19.53	19.567	17.506	17.518	Pass
NVNT	n20	5280	19.511	19.502	17.499	17.519	Pass
NVNT	n20	5320	19.365	19.577	17.498	17.51	Pass
NVNT	n40	5270	38.695	38.586	36.006	36.03	Pass
NVNT	n40	5310	38.611	38.576	36.021	36.031	Pass
NVNT	ac20	5260	19.562	19.453	17.499	17.503	Pass
NVNT	ac20	5280	19.601	19.526	17.505	17.496	Pass
NVNT	ac20	5320	19.541	19.635	17.499	17.51	Pass
NVNT	ac40	5270	38.579	38.642	36.062	36.06	Pass
NVNT	ac40	5310	38.392	38.717	36.046	36.053	Pass
NVNT	ac80	5290	<b>84.431</b>	84.353	76.151	76.191	Pass
NVNT	ax20	5260	20.558	20.437	18.877	18.889	Pass
NVNT	ax20	5280	20.489	20.479	18.879	18.881	Pass
NVNT	ax20	5320	20.477	20.6	18.864	18.886	Pass
NVNT	ax40	5270	39.499	39.386	37.601	37.654	Pass
NVNT	ax40	5310	39.475	39.419	37.638	37.675	Pass
NVNT	ax80	5290	79.43	80.587	<b>77.31</b>	77.301	Pass



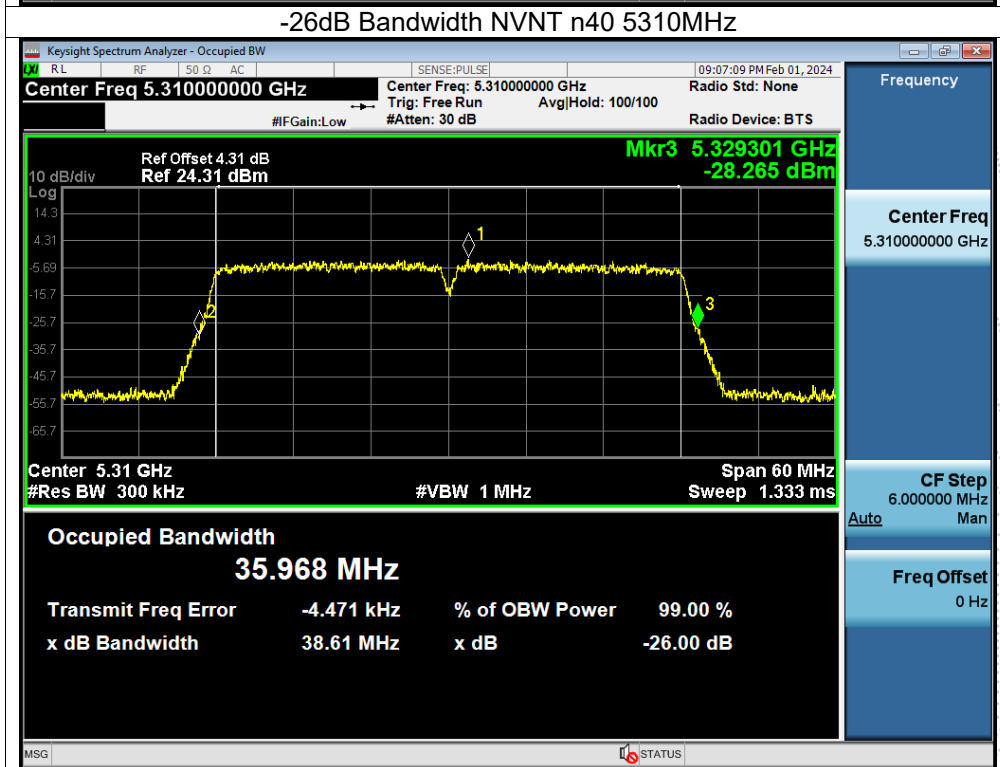
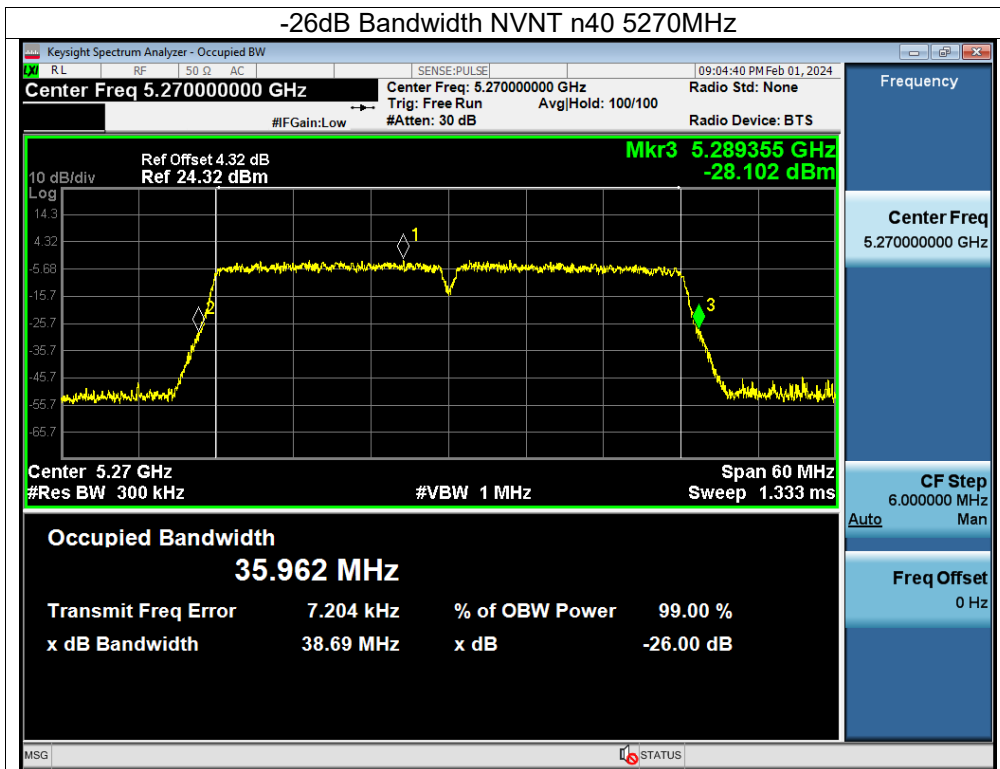
Note: A(B) Represent the value of antenna A and B, The worst data is Antenna A, only shown Antenna A Plot.

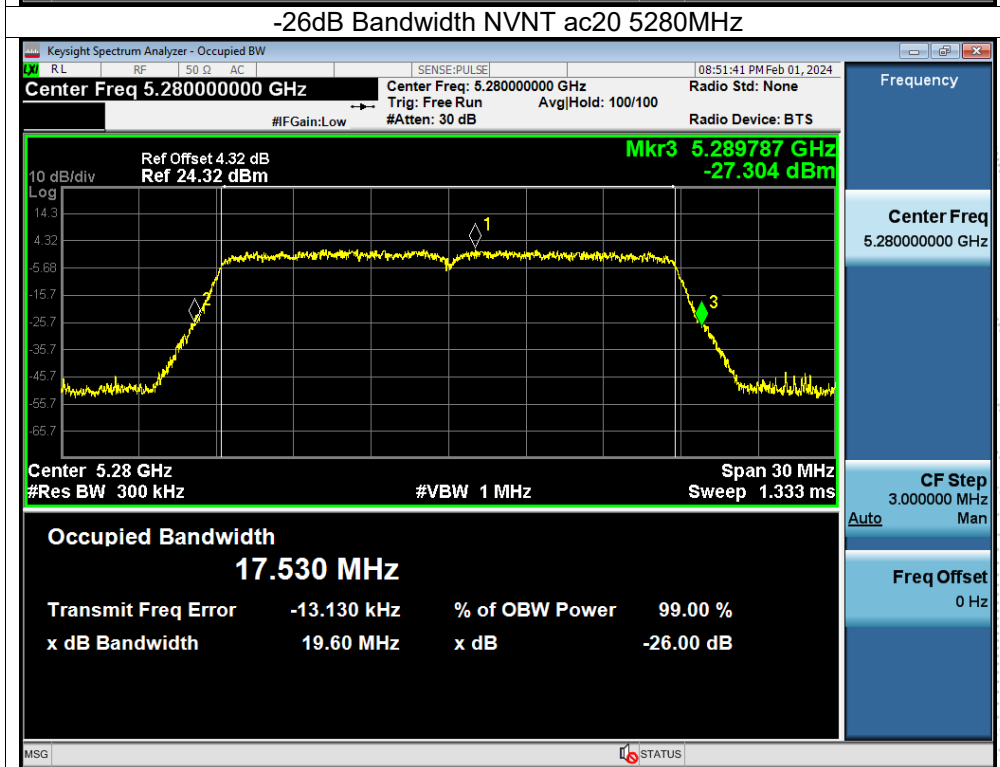
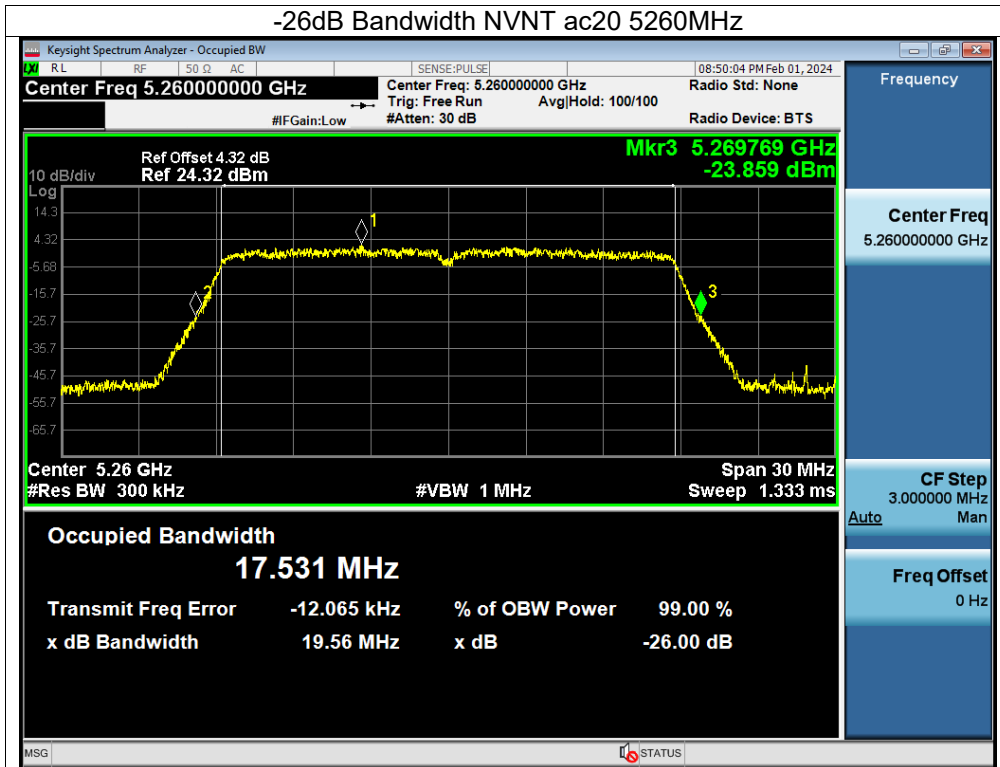


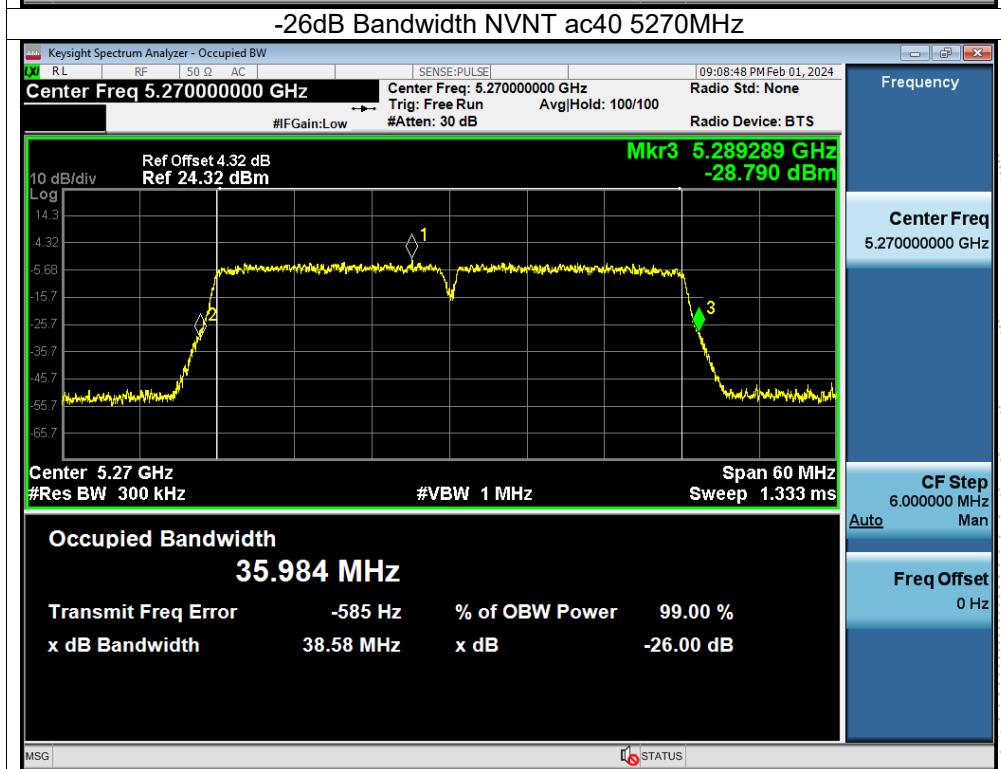
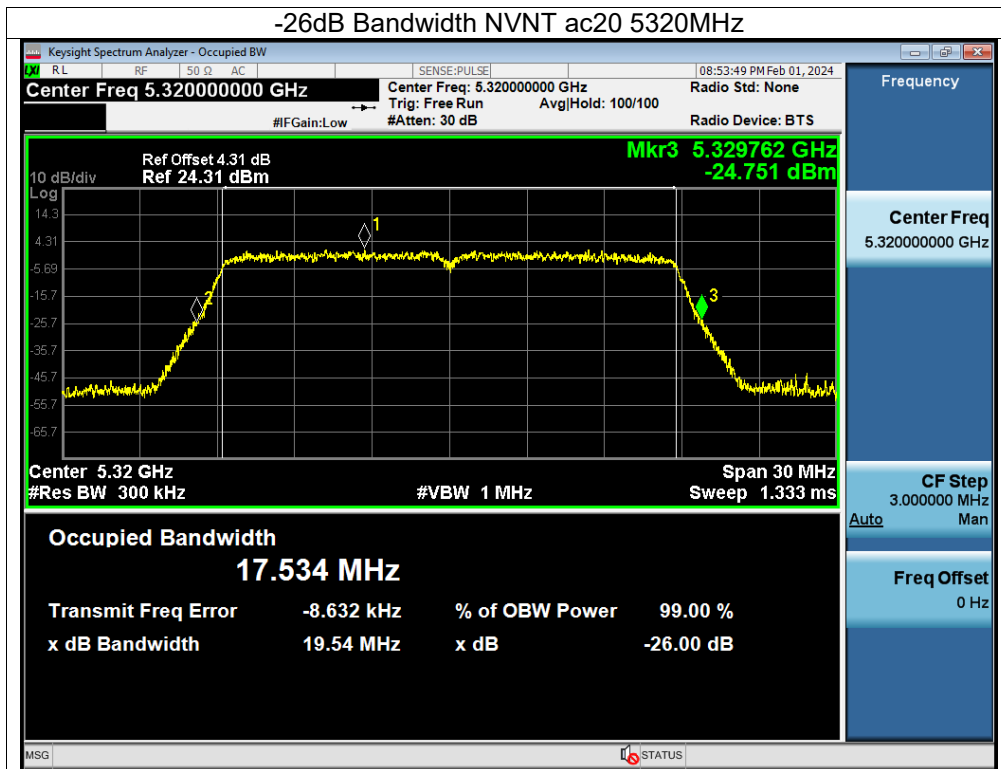


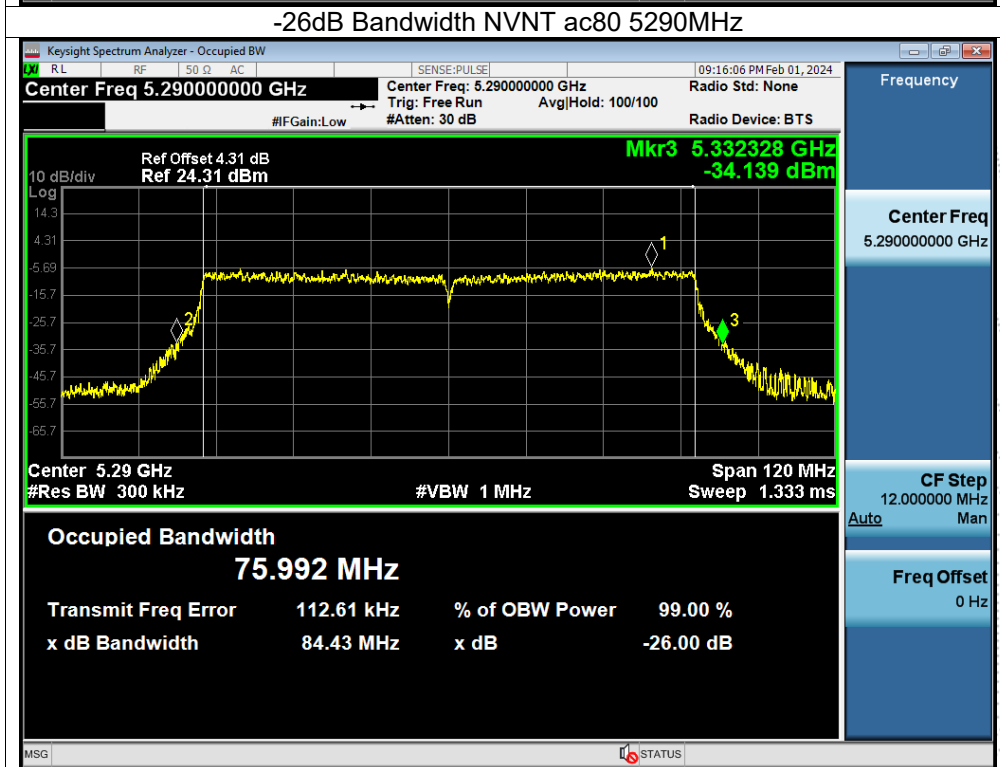
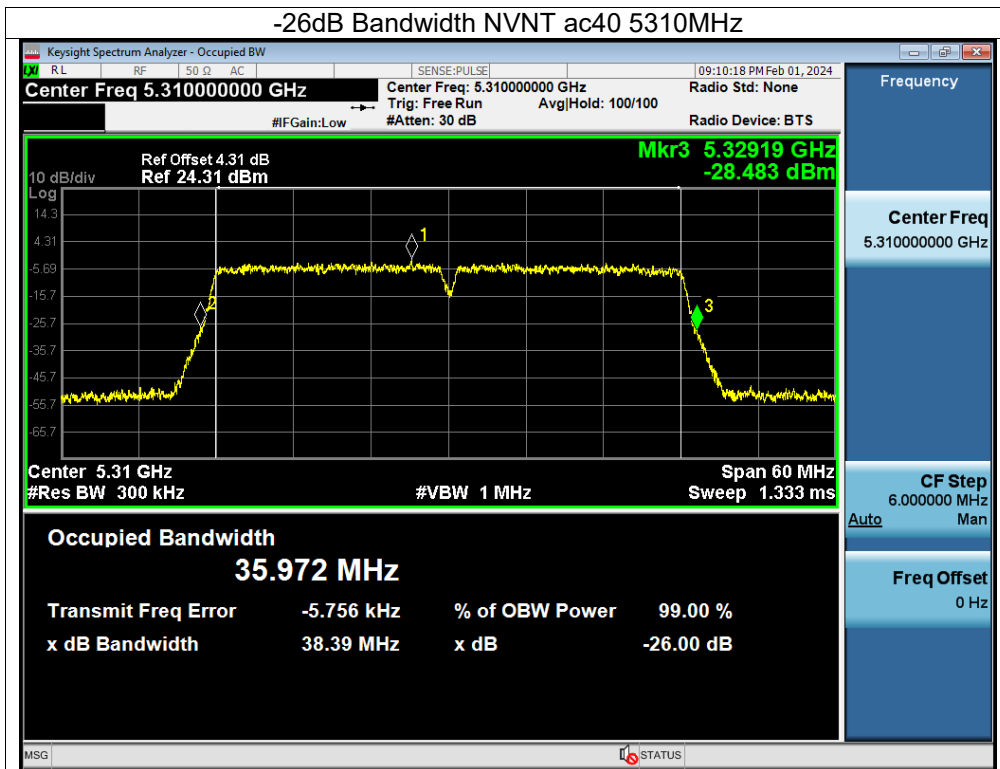


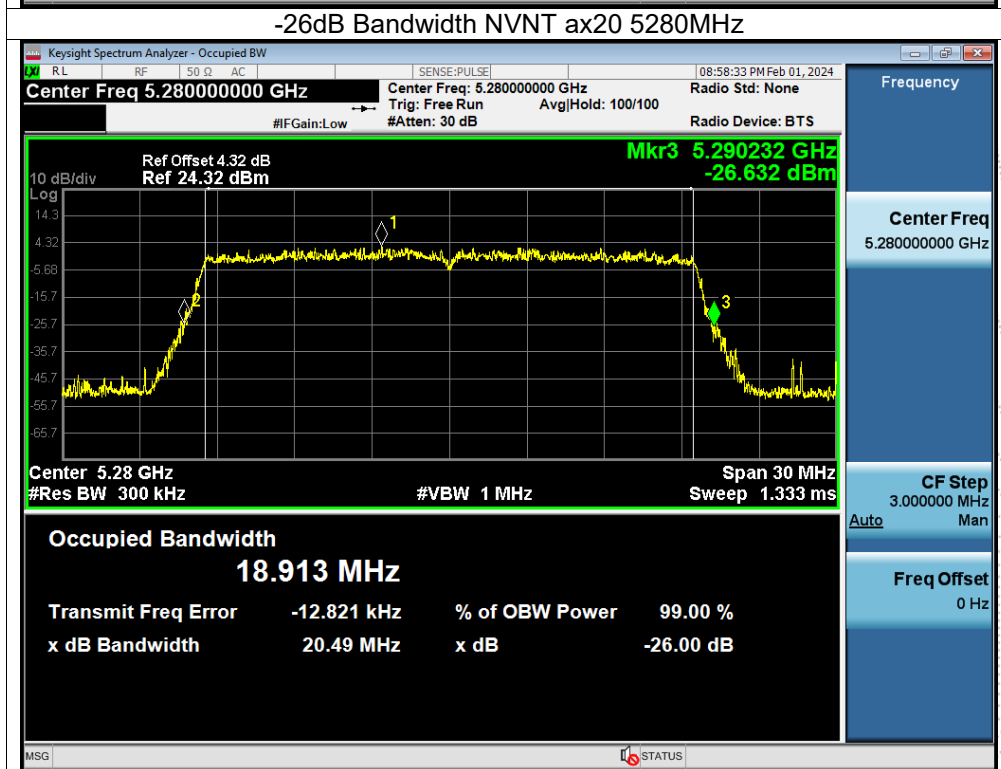
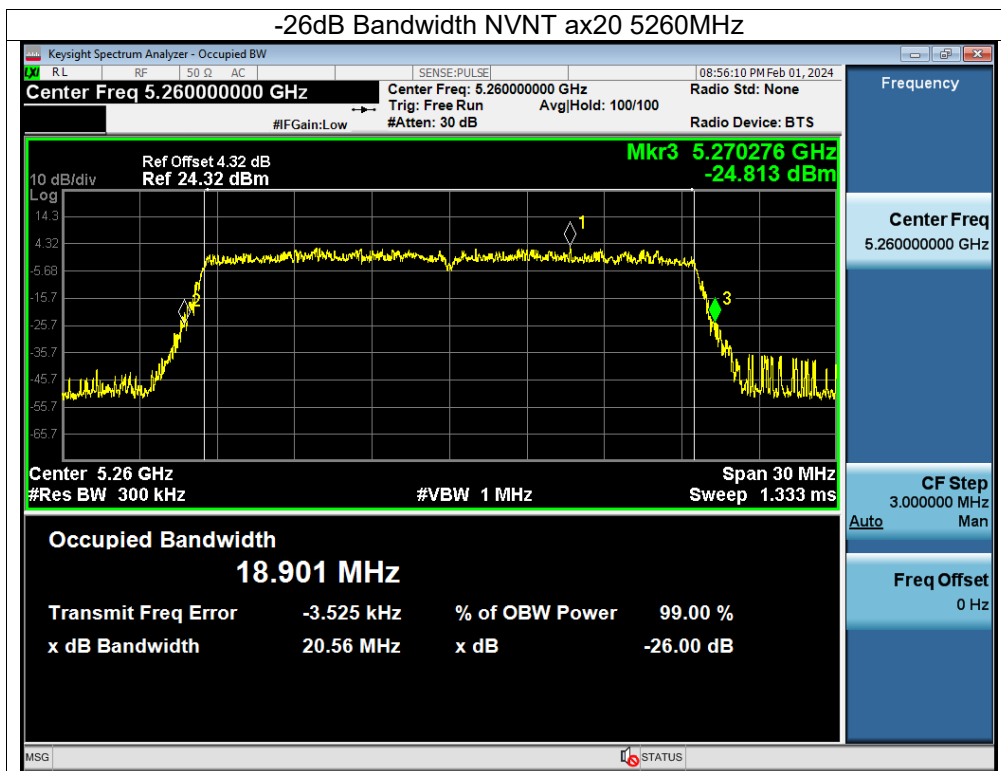


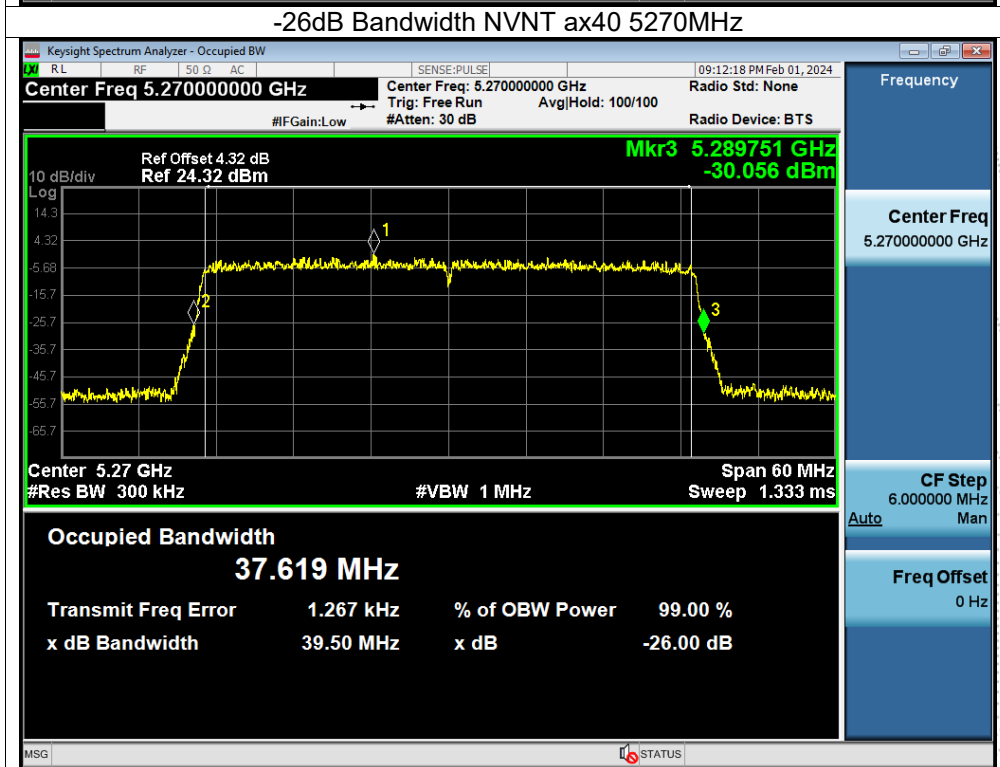
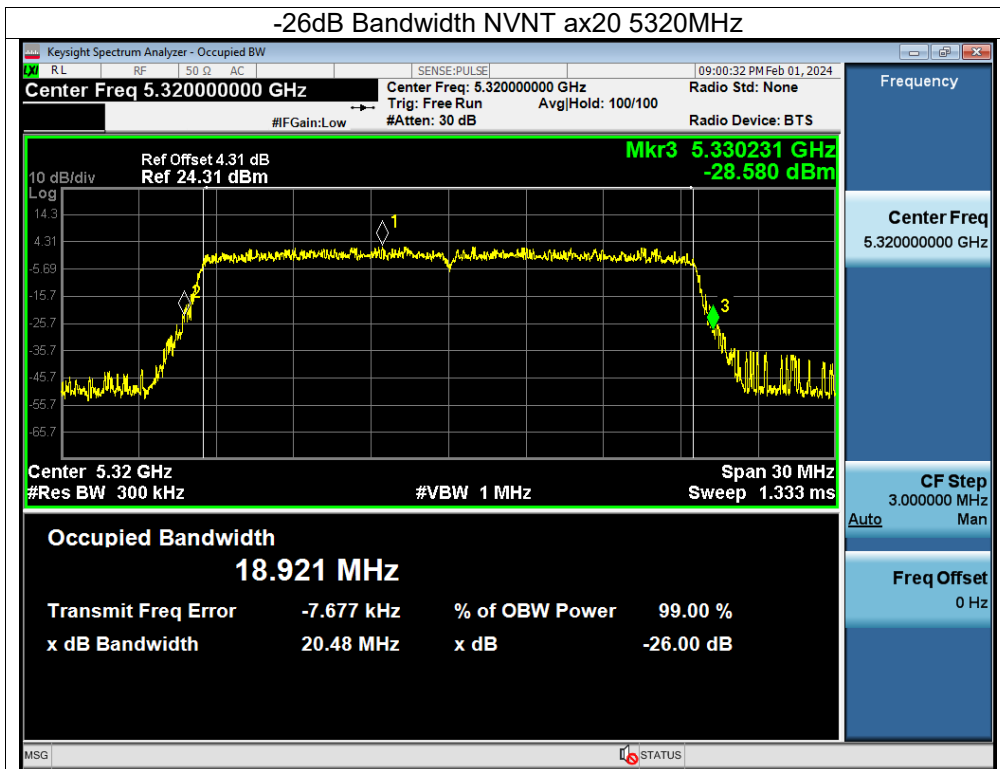


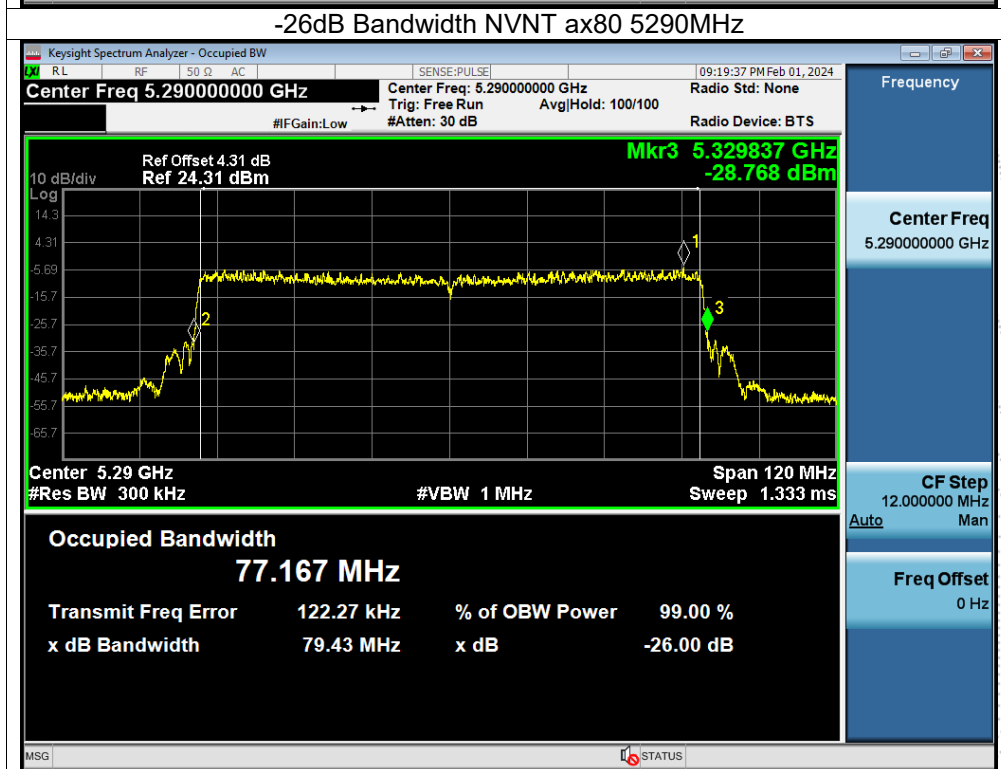
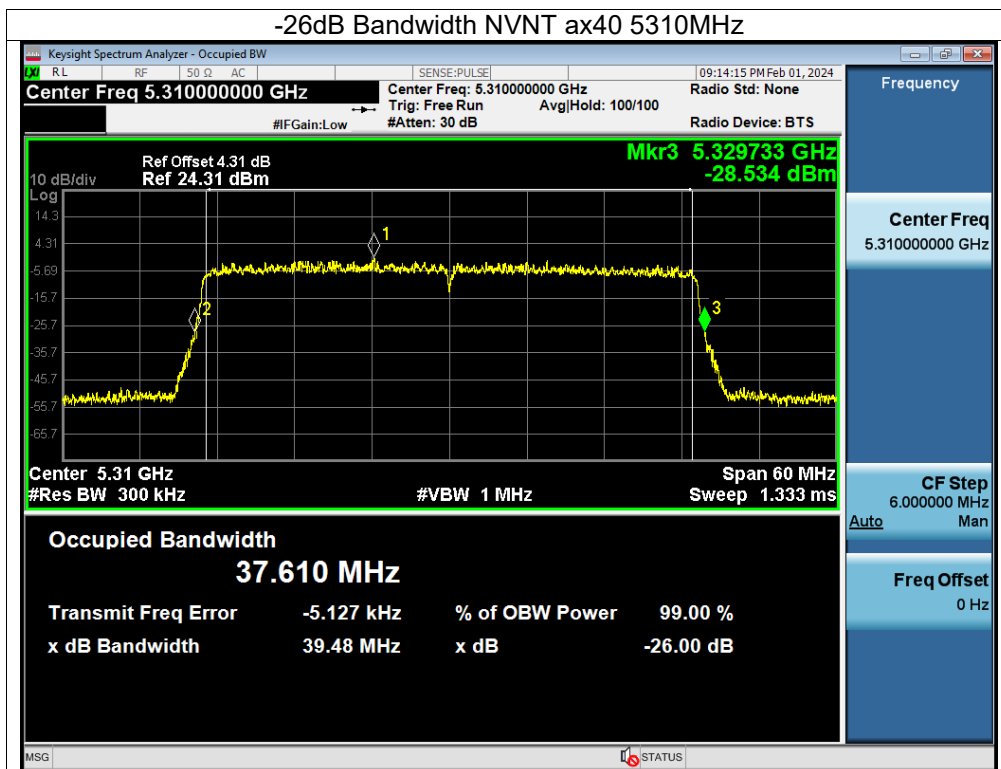




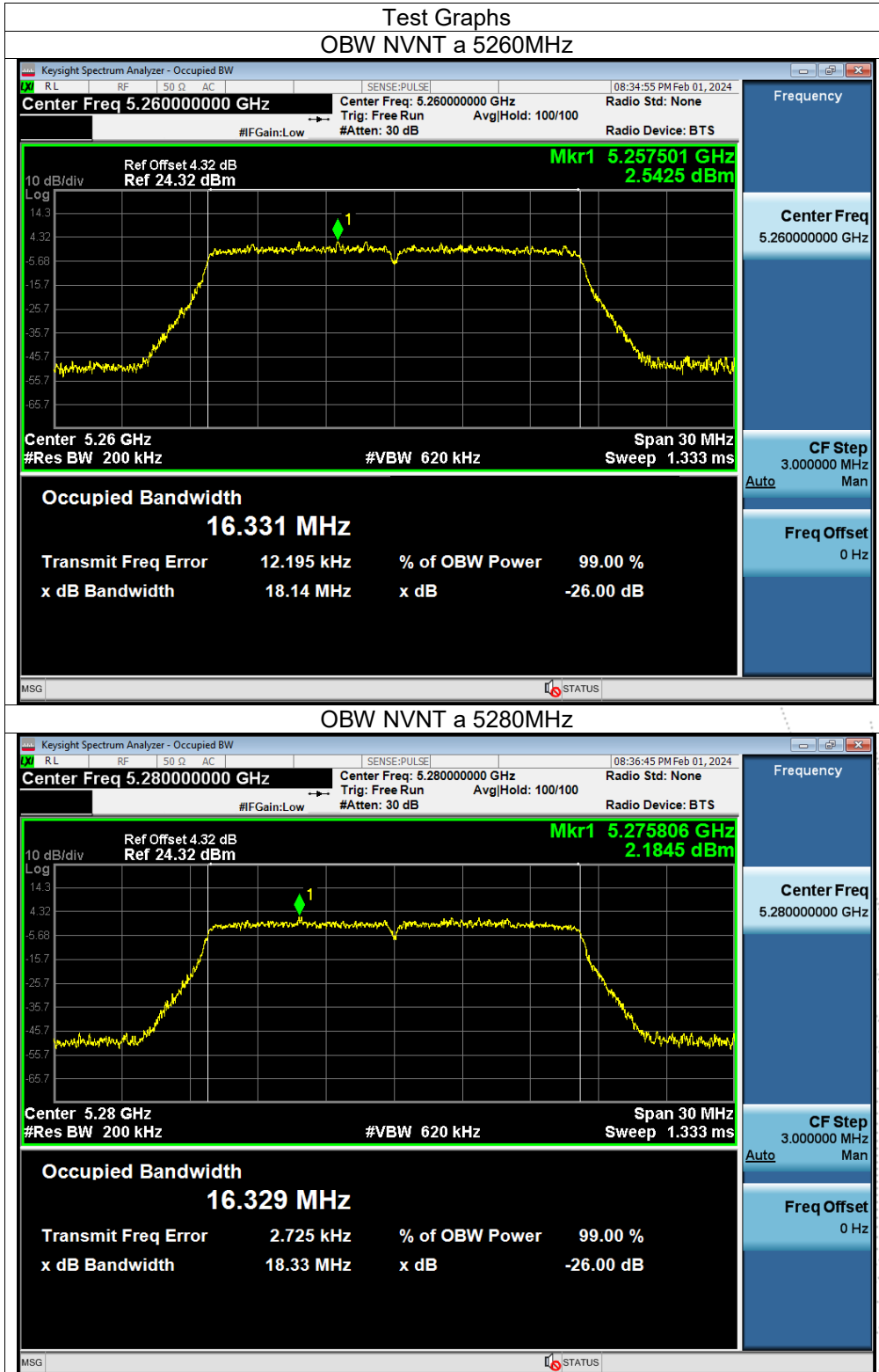




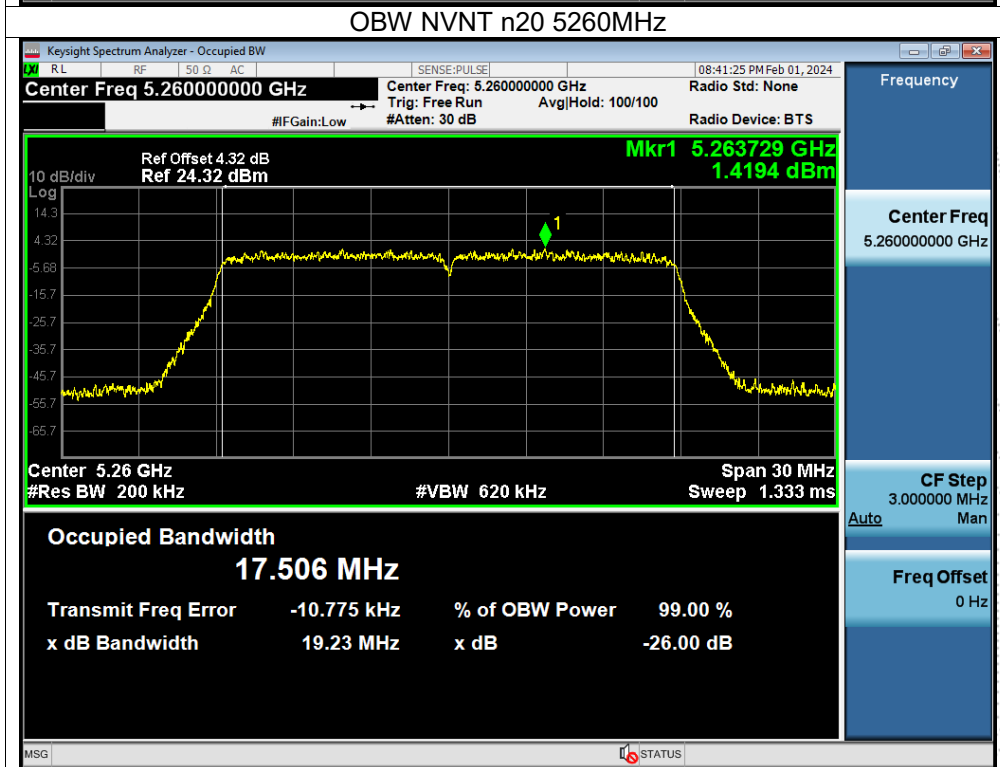
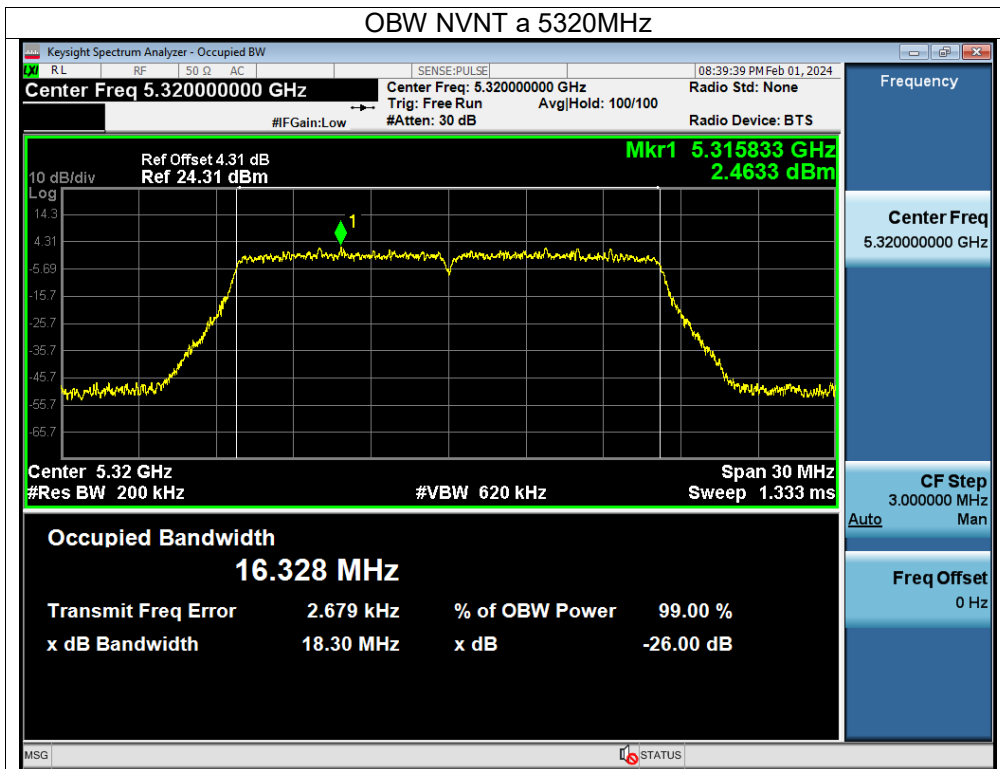


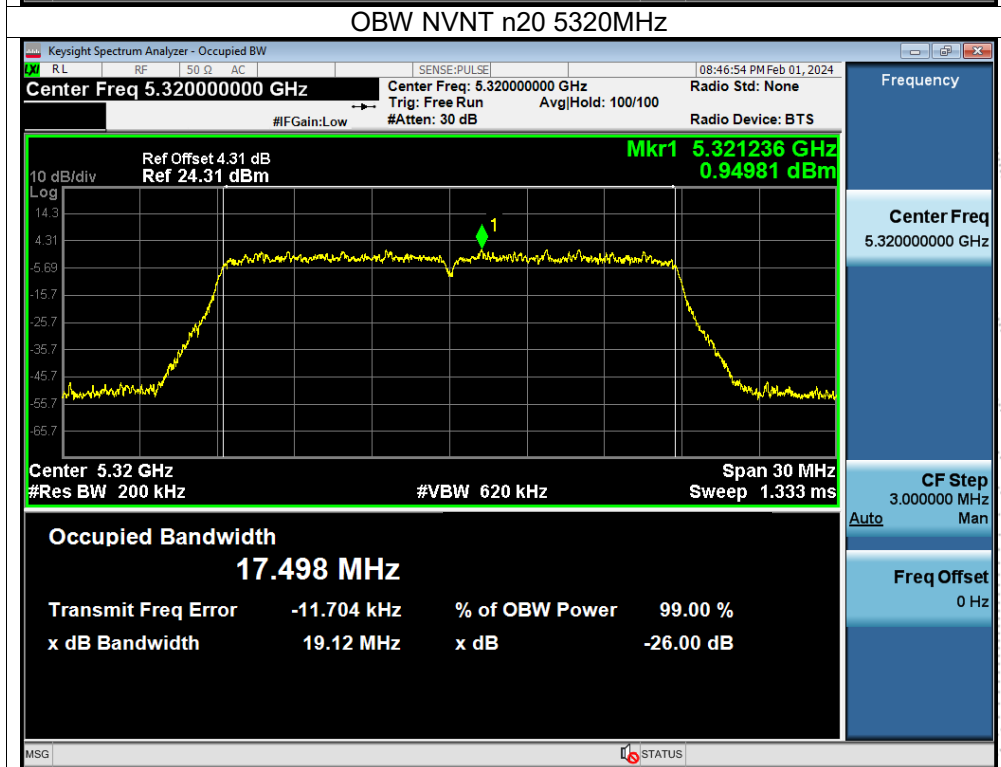
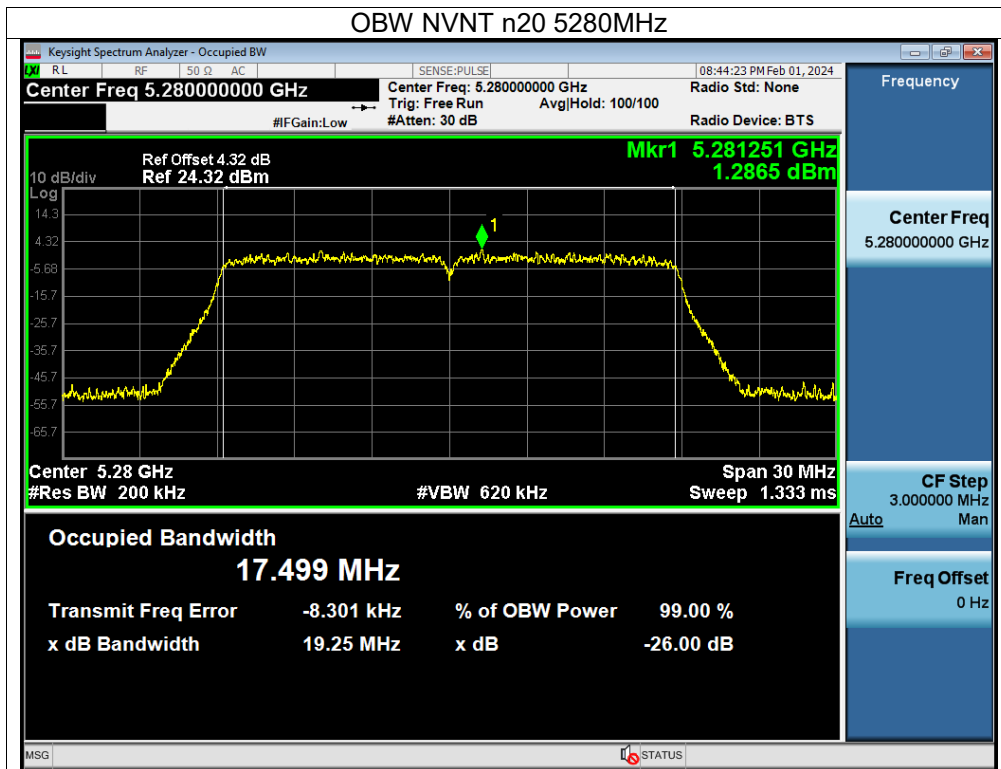


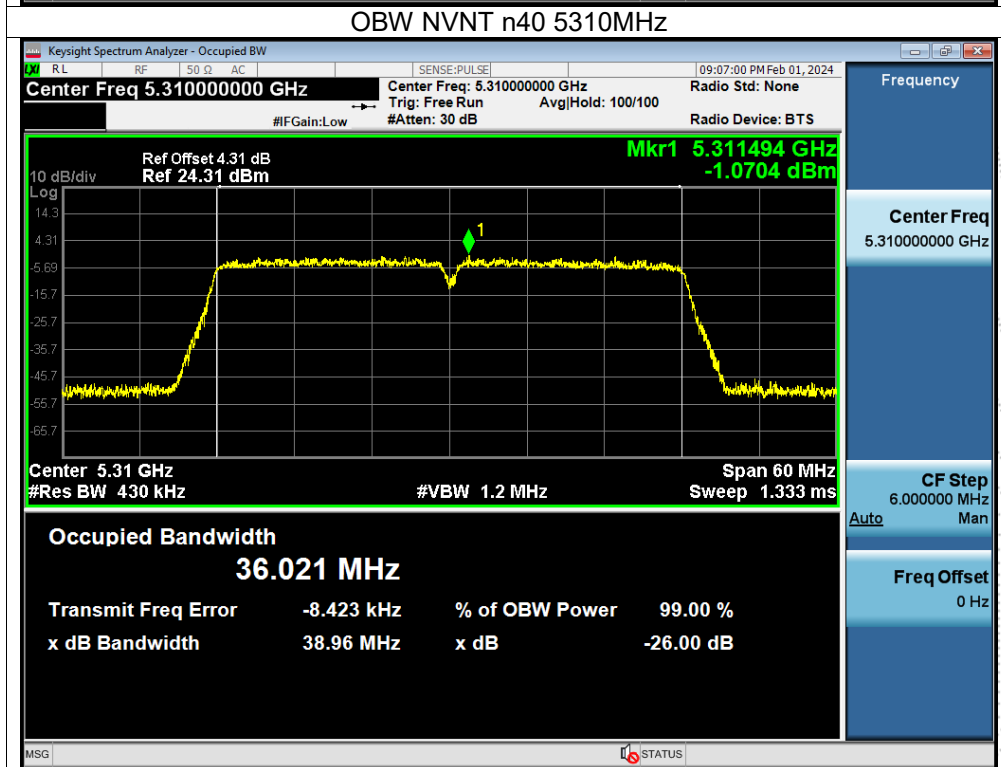
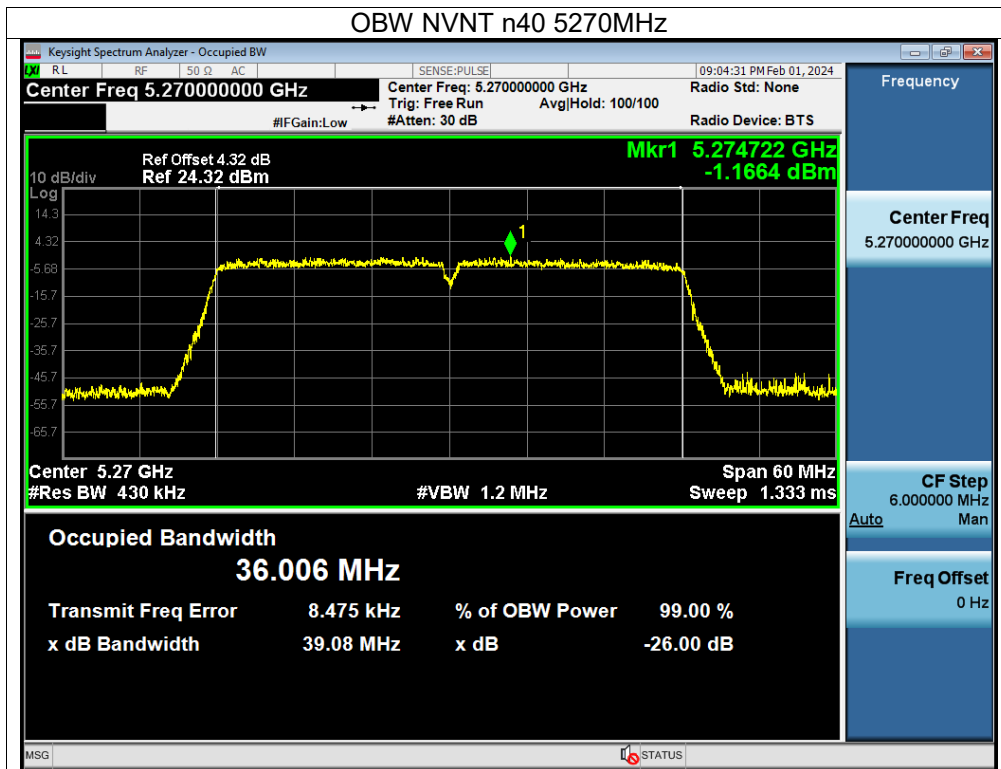
Note: A(B) Represent the value of antenna A and B, The worst data is Antenna A, only shown Antenna A Plot.

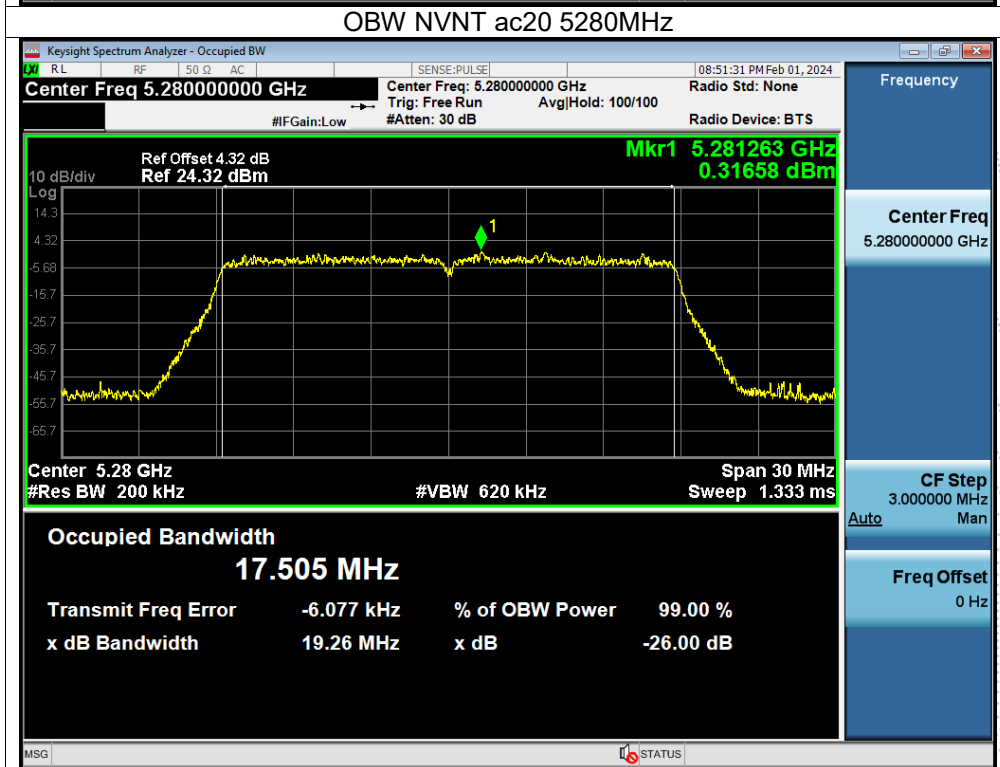
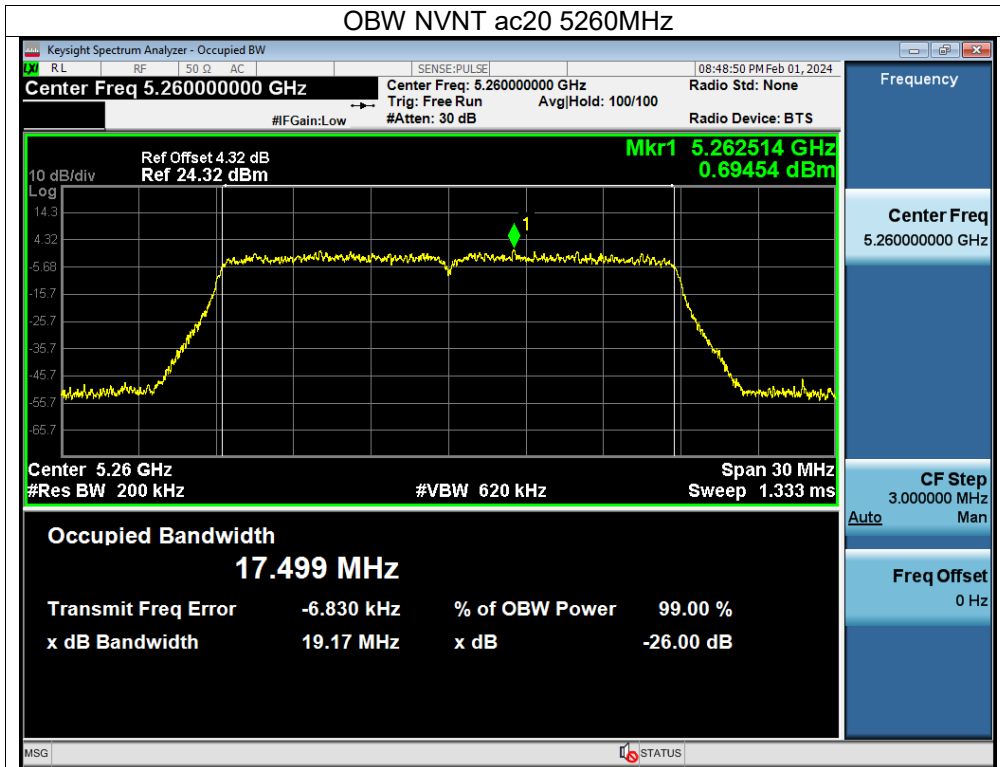


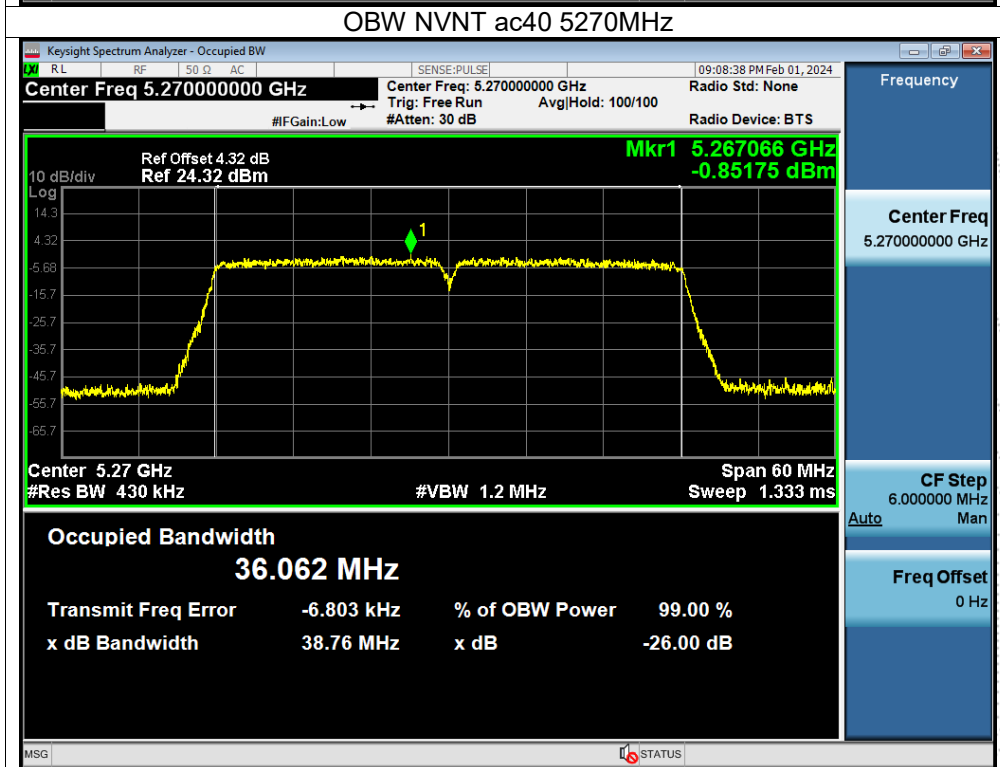
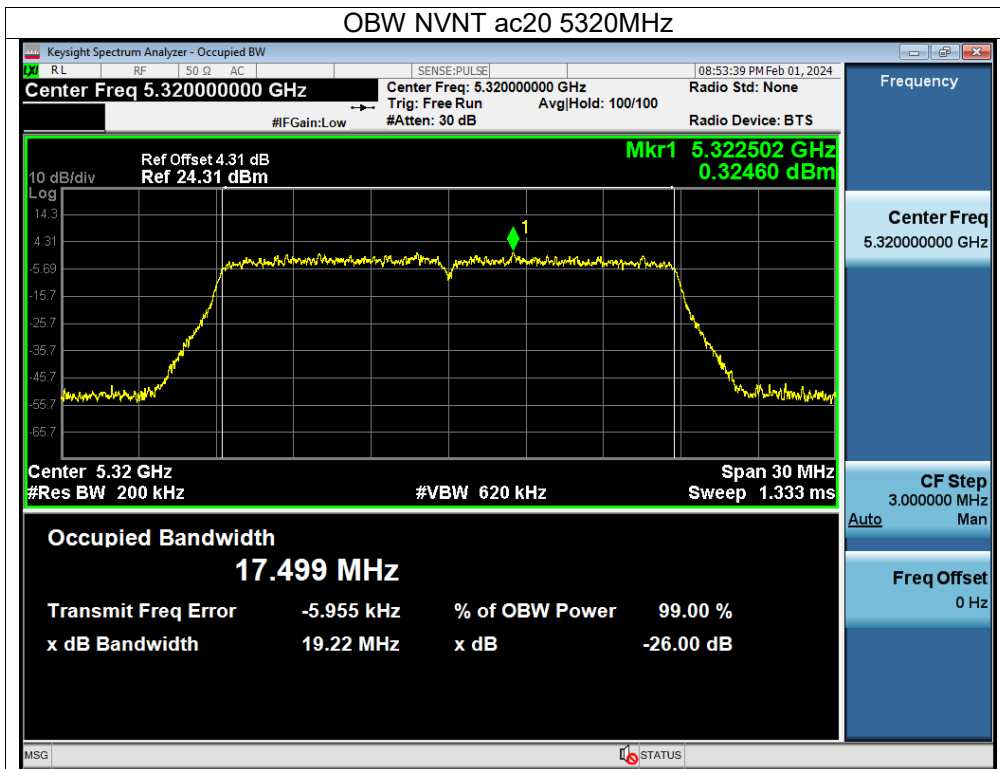


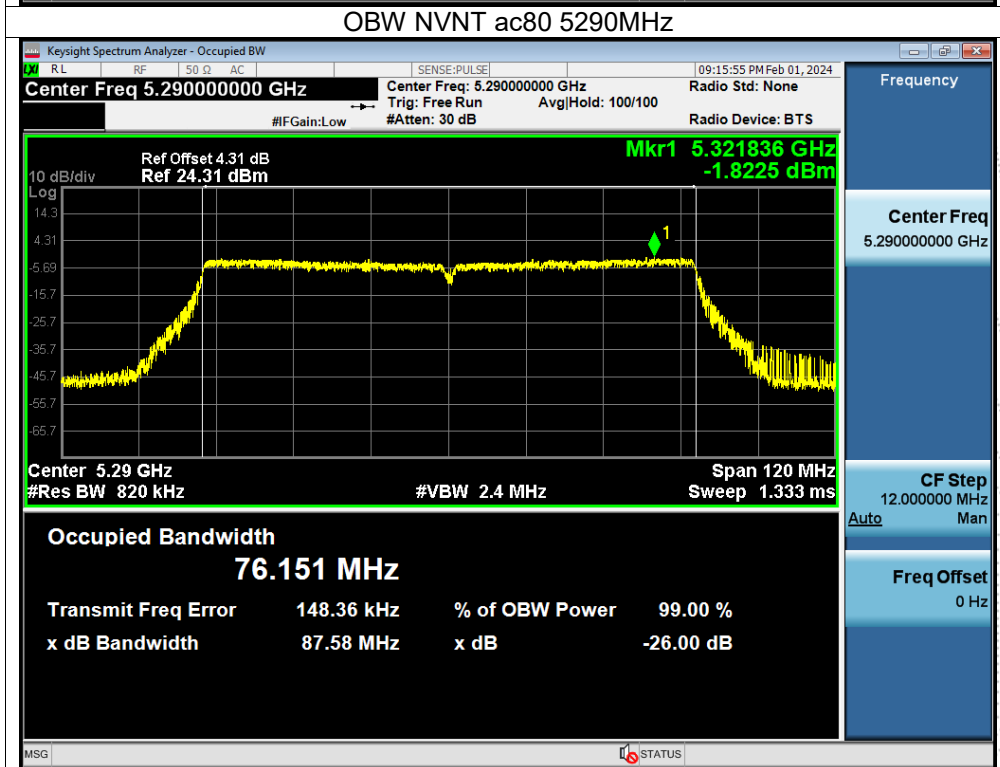
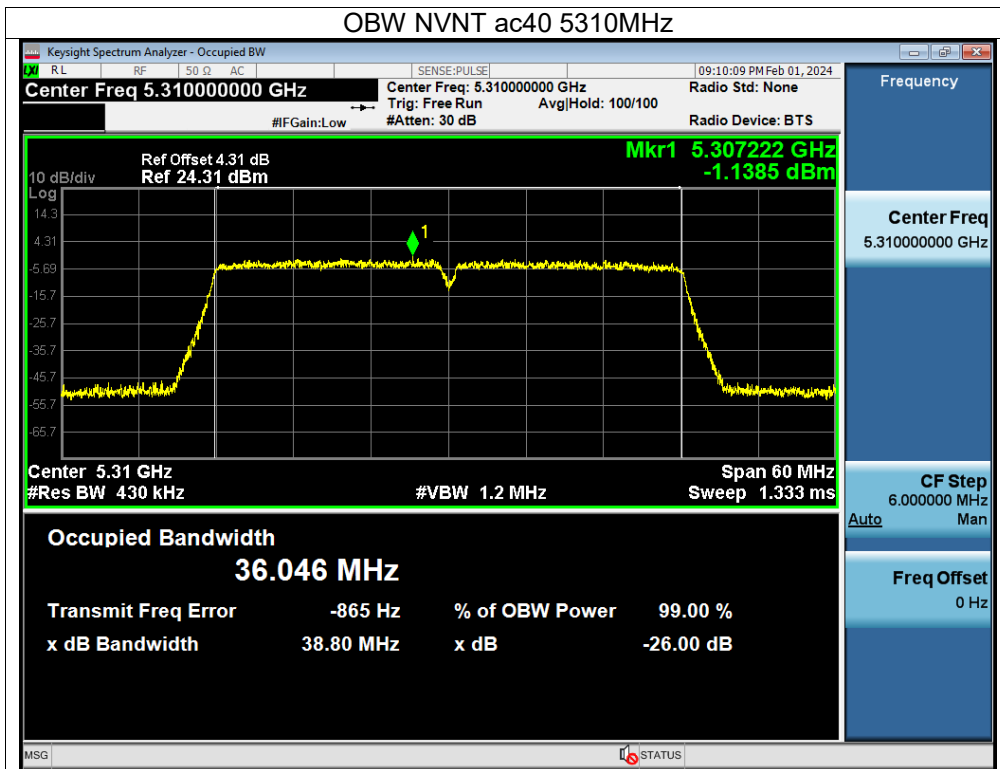


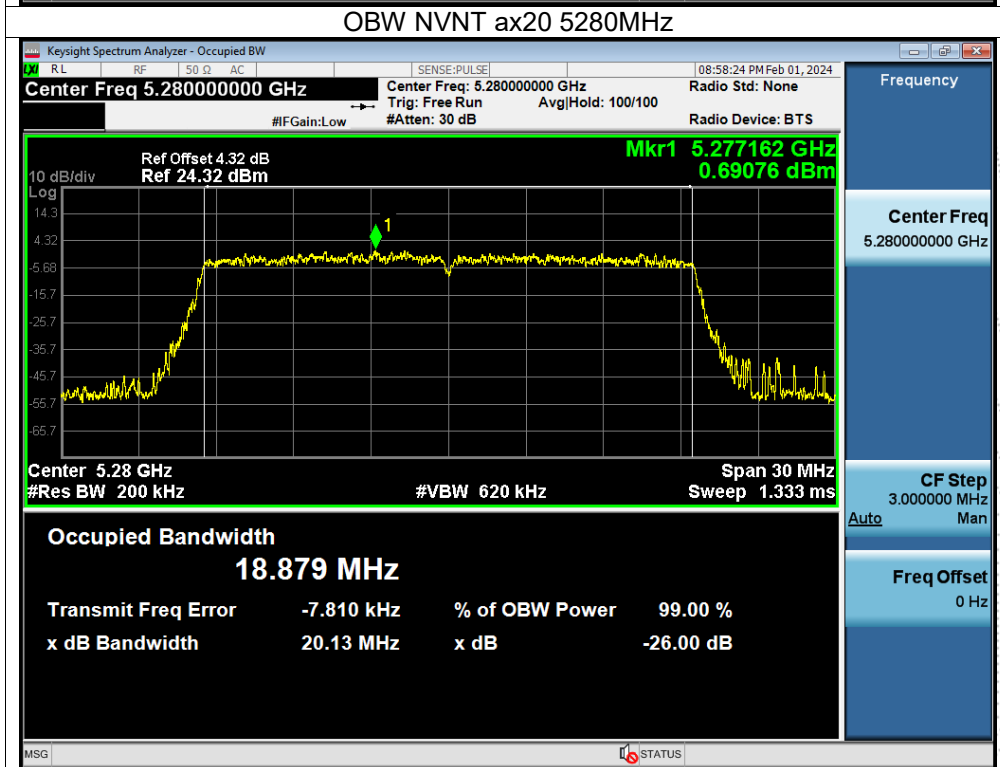
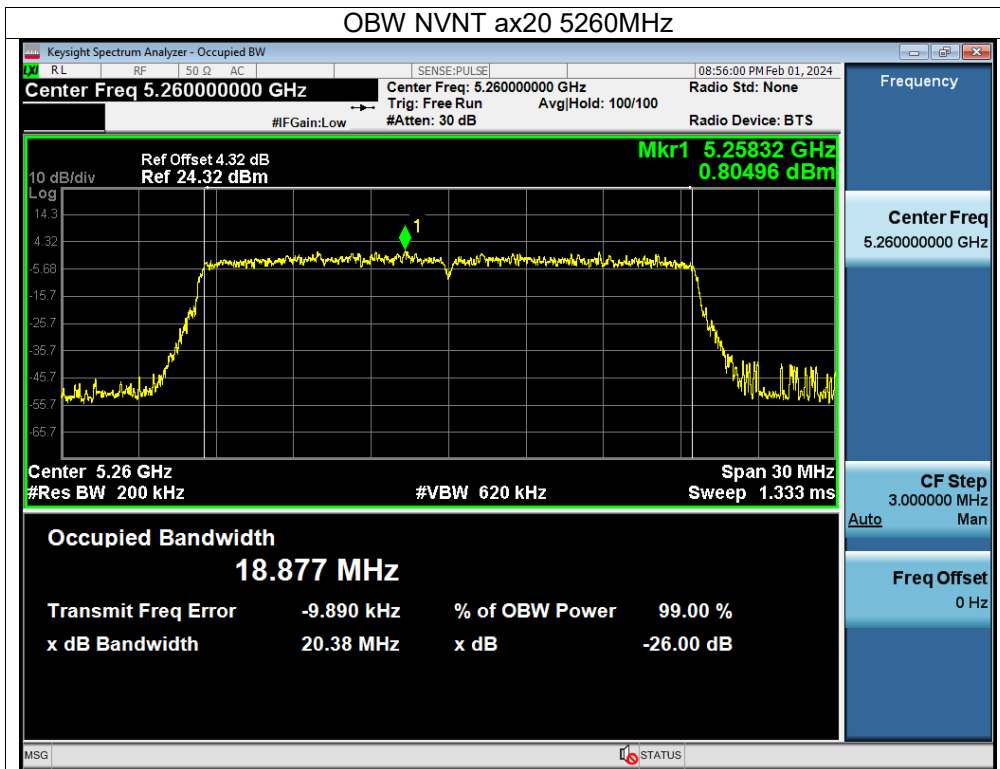


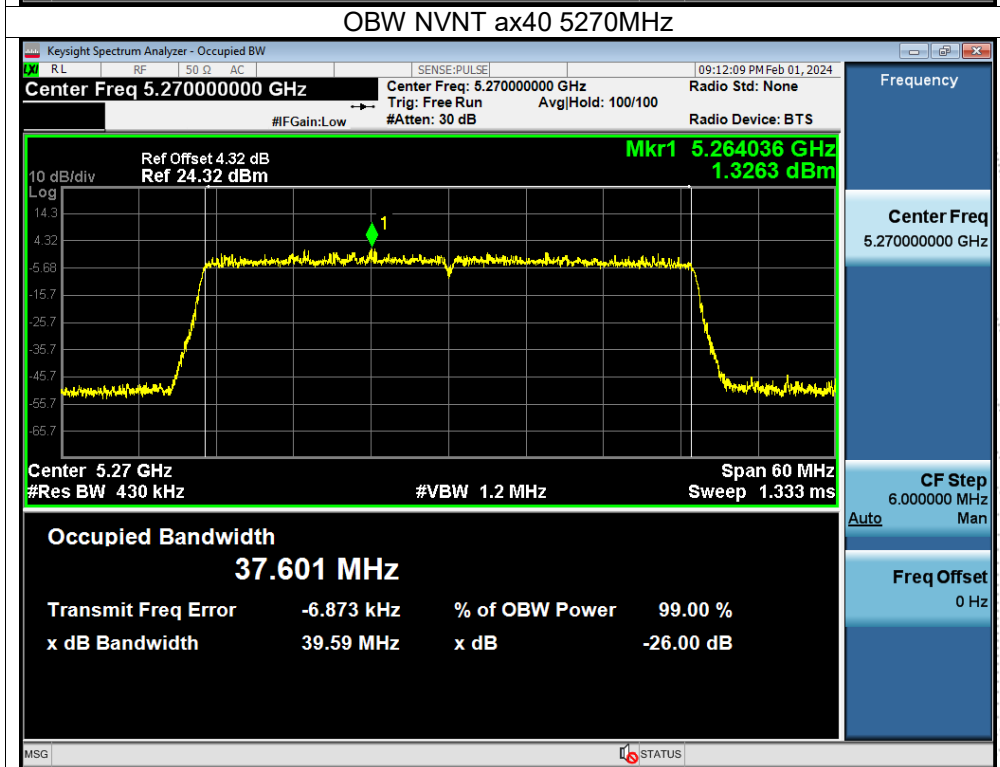
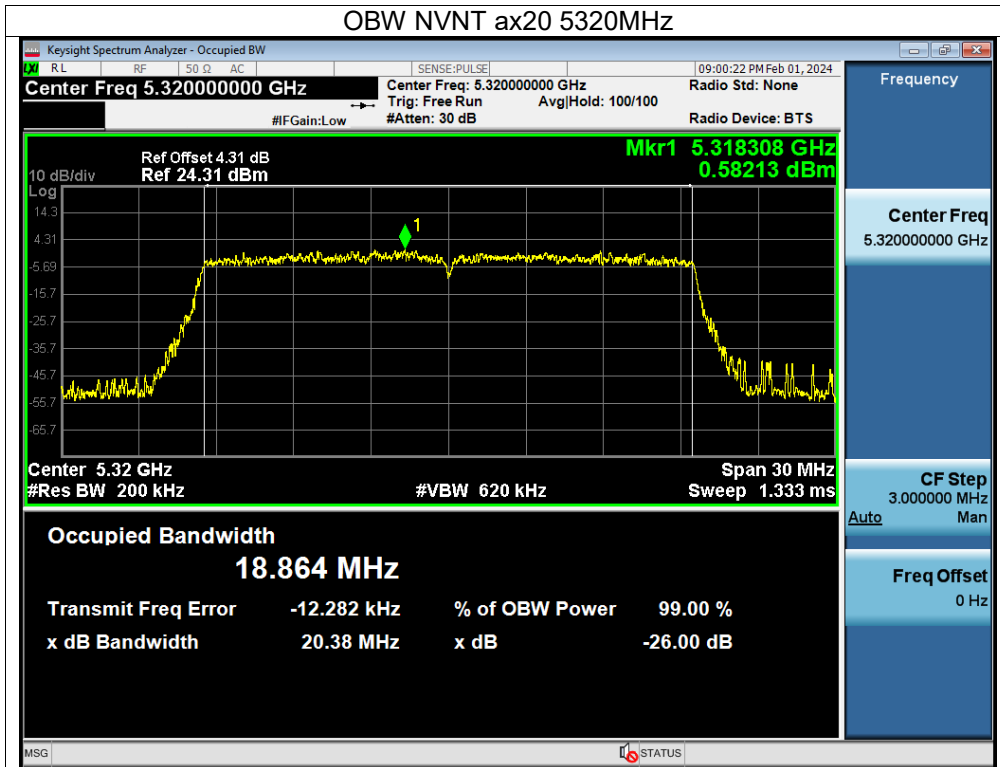




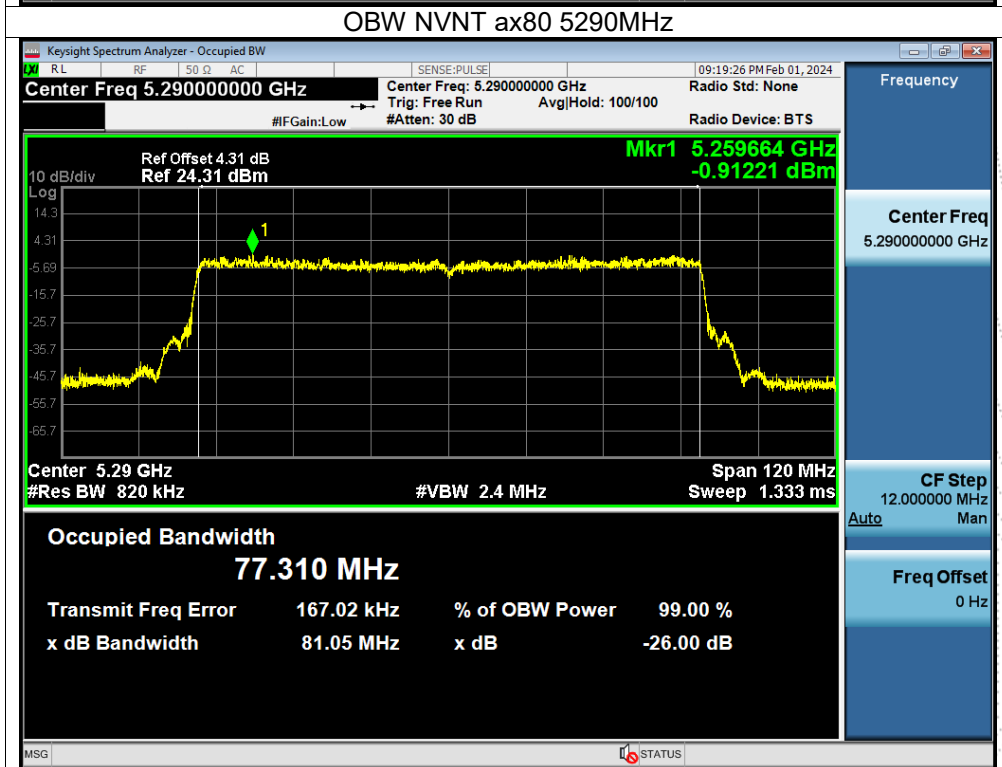
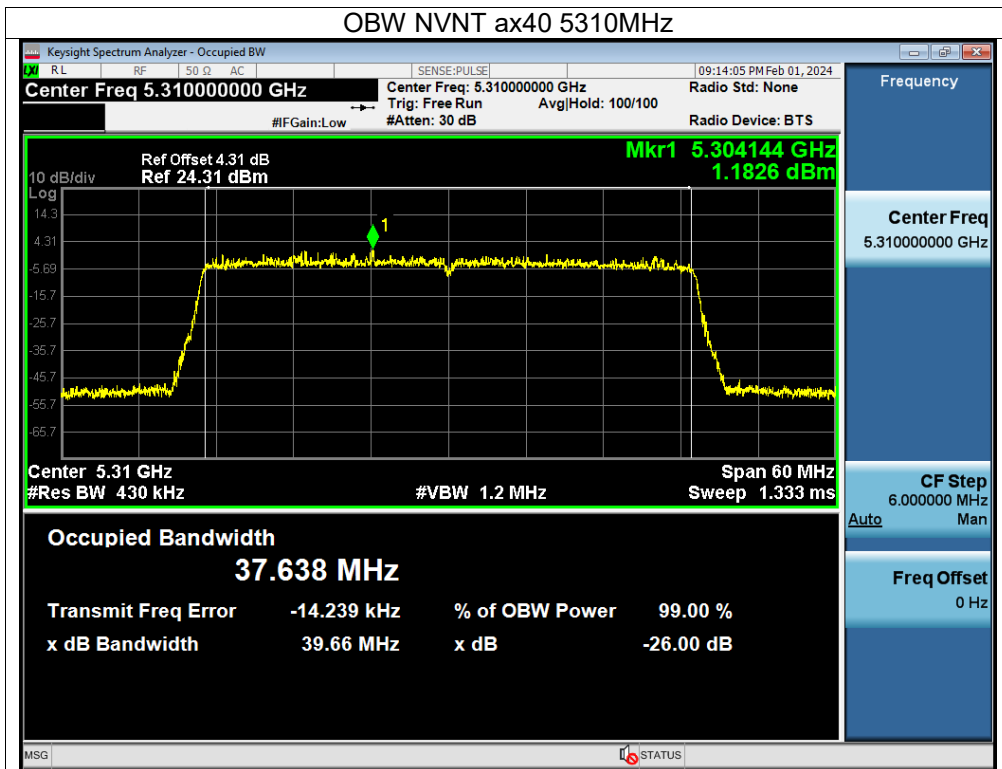












Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	(5500-5700MHz)		

Condition	Mode	Frequency (MHz)	-26 dB Bandwidth (MHz)		99% OBW (MHz)		Verdict
			Ant A	Ant B	Ant A	Ant B	
NVNT	a	5500	18.42	18.416	16.34	16.339	Pass
NVNT	a	5580	18.738	18.636	16.335	16.326	Pass
NVNT	a	5700	18.557	18.574	16.311	16.323	Pass
NVNT	n20	5500	19.631	19.536	17.496	17.497	Pass
NVNT	n20	5580	19.584	19.577	17.494	17.498	Pass
NVNT	n20	5700	19.453	19.584	17.499	17.499	Pass
NVNT	n40	5510	40.01	39.857	36.007	36.035	Pass
NVNT	n40	5550	39.943	40.033	36.023	36.012	Pass
NVNT	n40	5670	40.018	40.089	35.957	36.057	Pass
NVNT	ac20	5500	19.507	19.533	17.501	17.504	Pass
NVNT	ac20	5580	19.598	19.524	17.485	17.512	Pass
NVNT	ac20	5700	19.645	19.481	17.494	17.499	Pass
NVNT	ac40	5510	39.865	39.598	36.02	36.075	Pass
NVNT	ac40	5550	39.712	39.675	36.051	36.055	Pass
NVNT	ac40	5670	39.624	39.711	36.032	36.042	Pass
NVNT	ac80	5530	87.172	<b>87.969</b>	76.188	76.201	Pass
NVNT	ax20	5500	20.454	20.466	18.867	18.854	Pass
NVNT	ax20	5580	20.422	20.427	18.892	18.887	Pass
NVNT	ax20	5700	20.37	20.339	18.884	18.864	Pass
NVNT	ax40	5510	39.43	39.459	37.623	37.677	Pass
NVNT	ax40	5550	39.597	39.303	37.686	37.656	Pass
NVNT	ax40	5670	39.434	39.567	37.626	37.664	Pass
NVNT	ax80	5530	80.443	80.845	77.19	<b>77.255</b>	Pass

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

