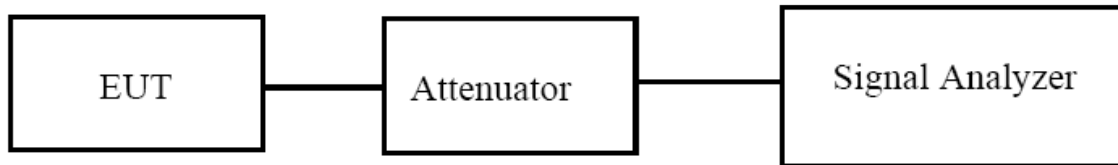


## 9. 26dB & 6dB & 99% Emission Bandwidth

### 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%.

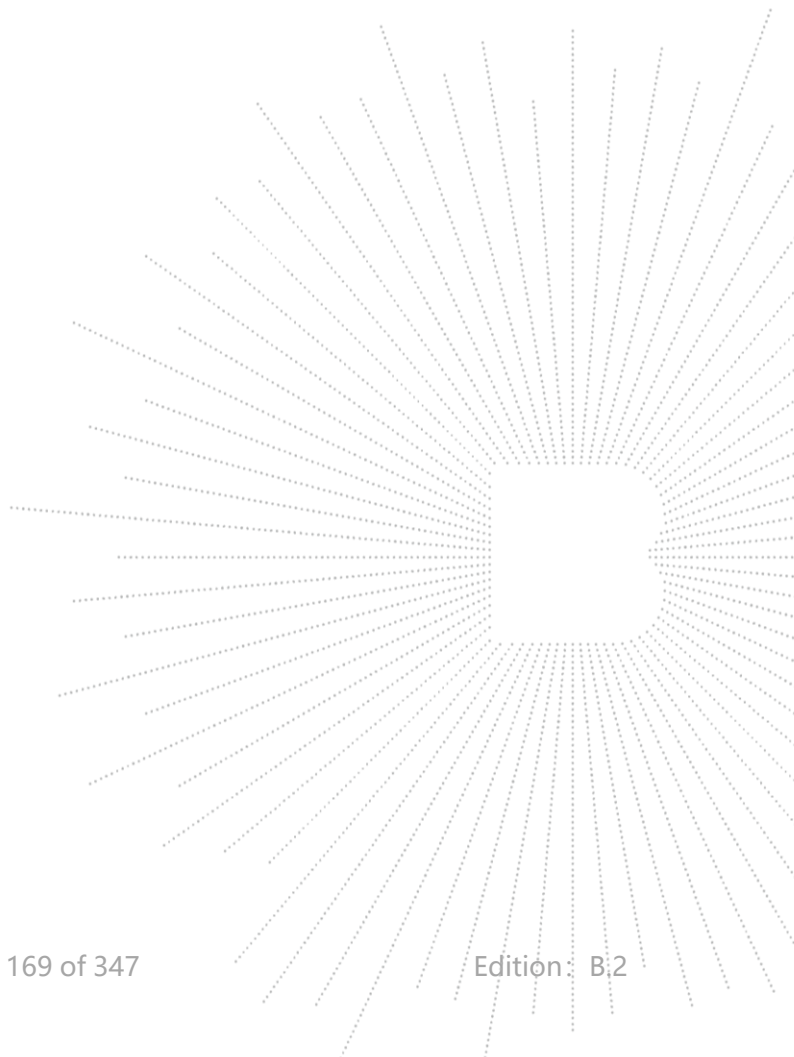
The following procedure shall be used for measuring (99 %) power bandwidth:

- 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.

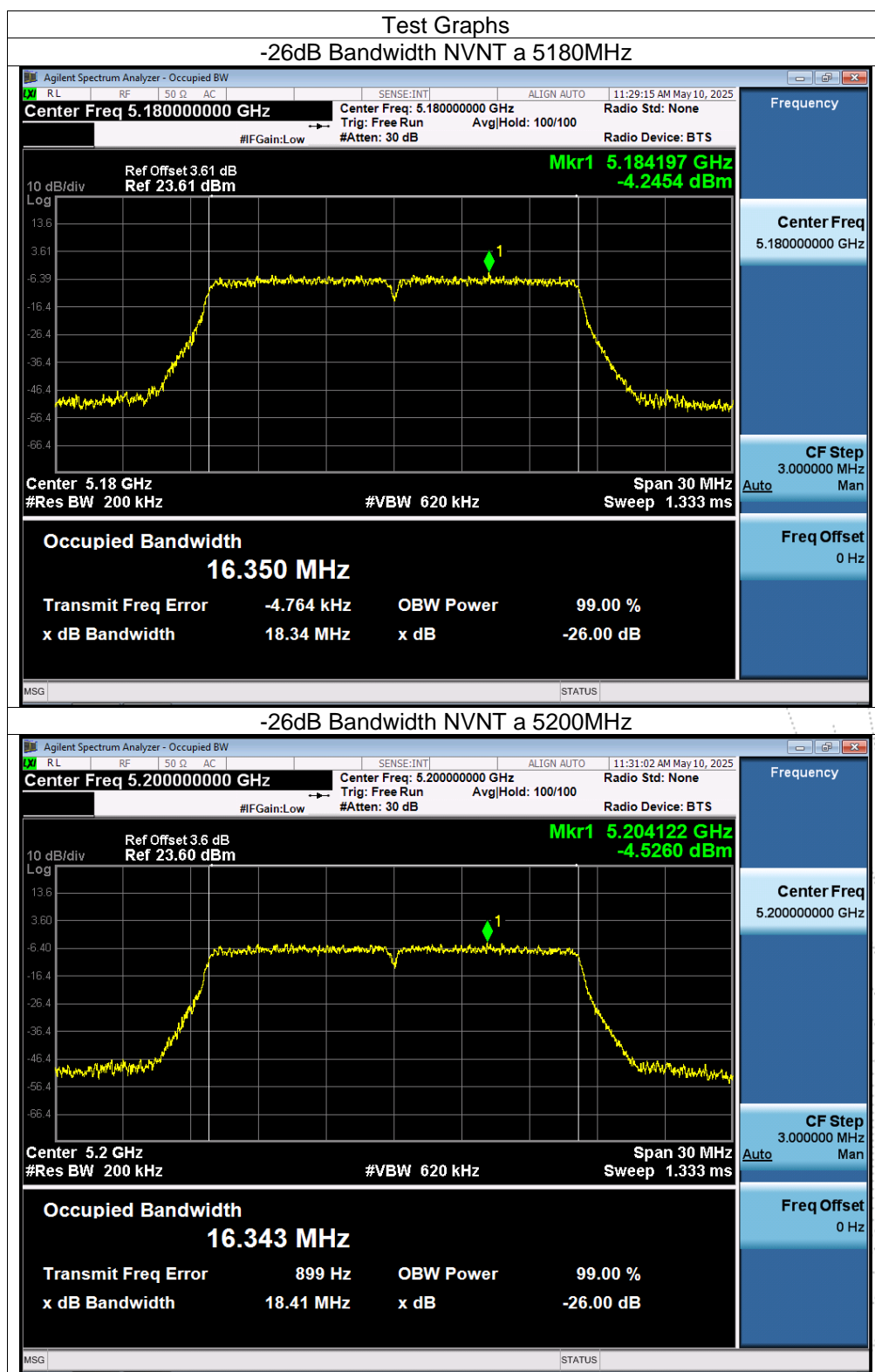


## 9.5 Test Result

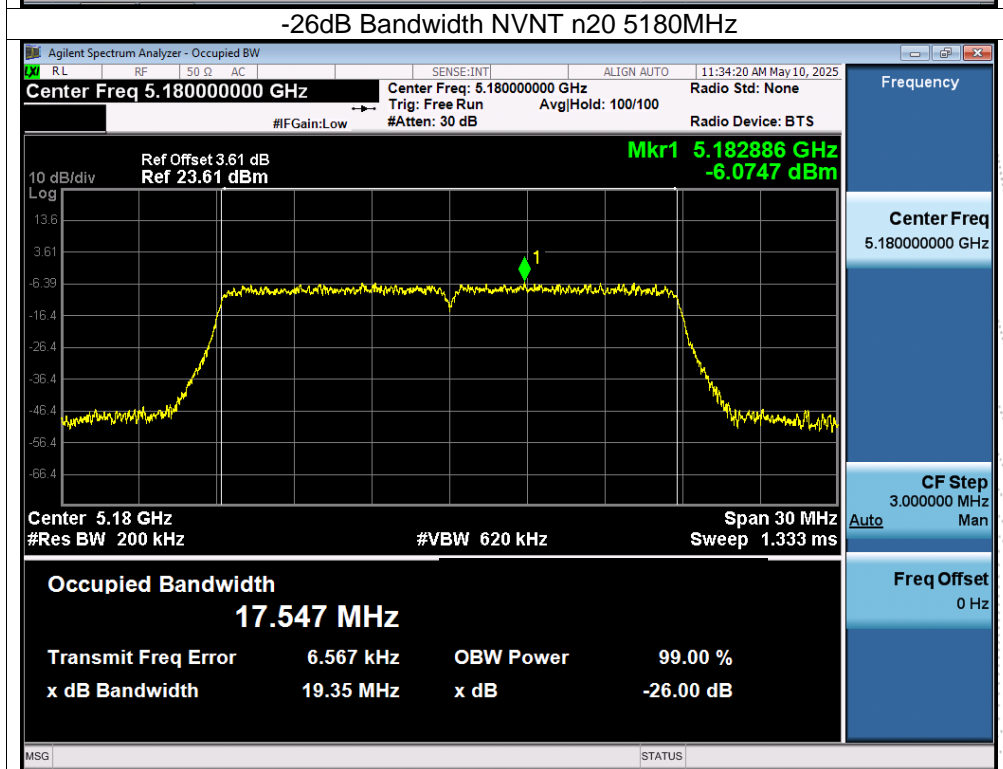
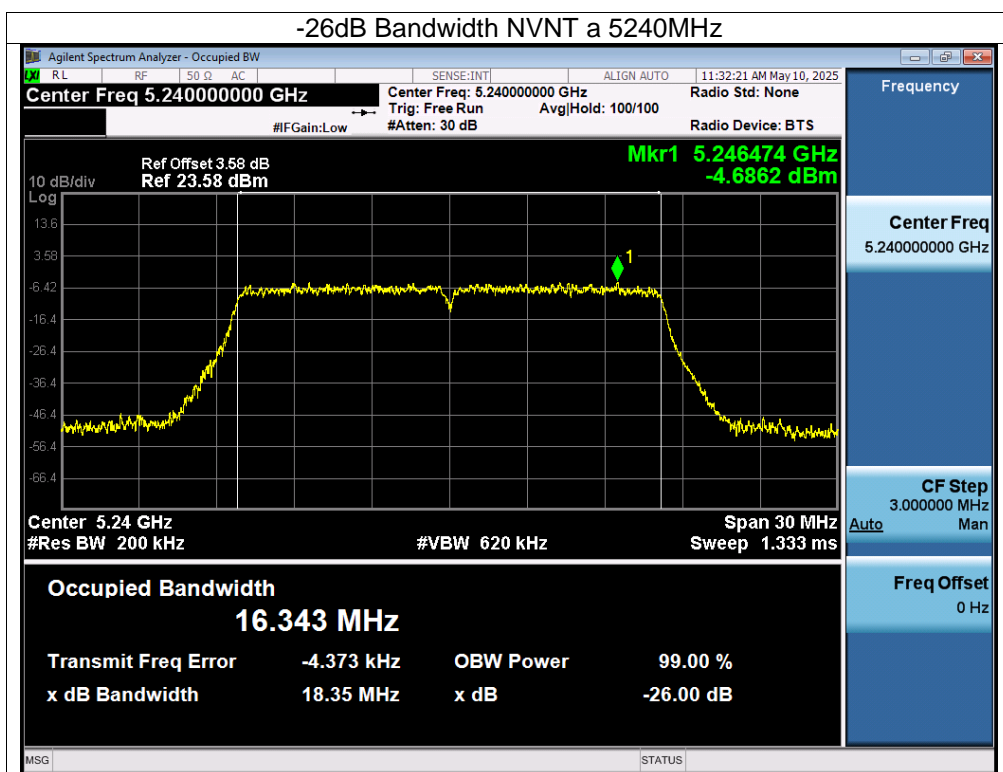
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	DC 3.3V
Test Mode:	(U-NII-1) 5180MHz-5240MHz		

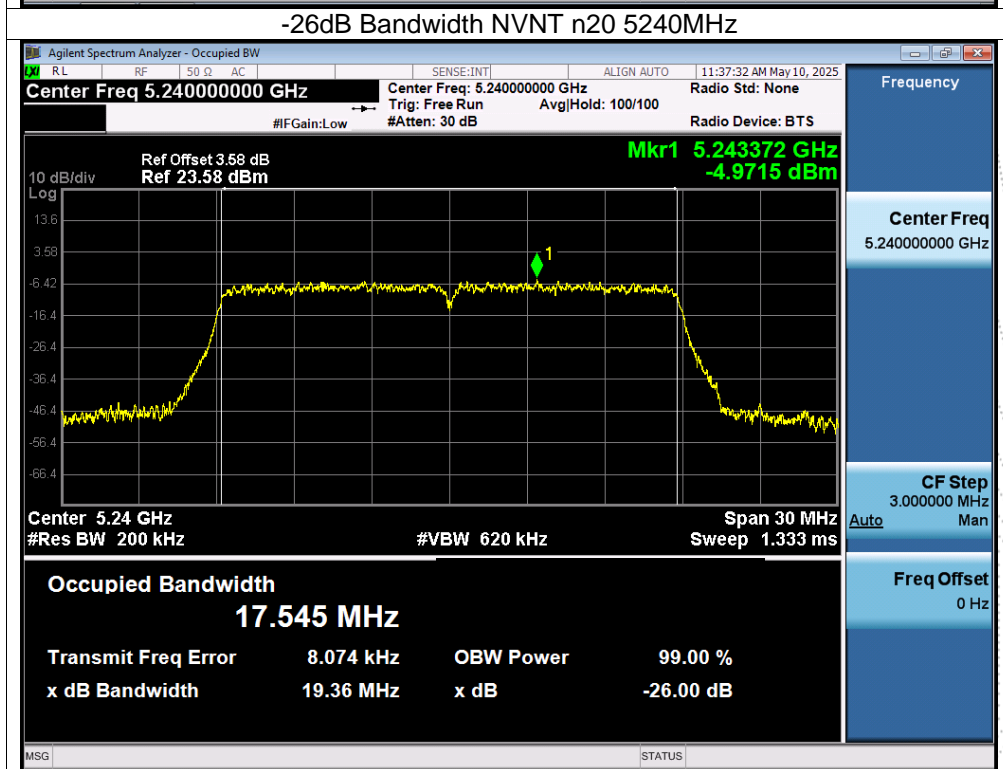
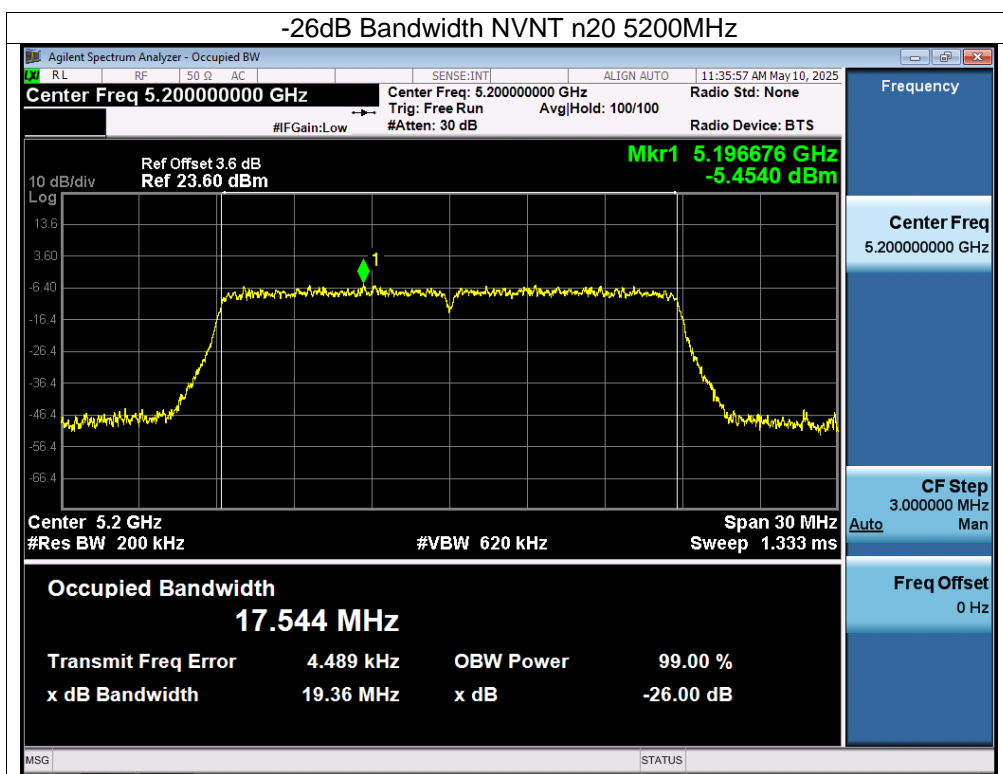
Condition	Mode	Frequency (MHz)	-26 dB Bandwidth (MHz)		99% OBW (MHz)		Verdict
			Ant A	Ant B	Ant A	Ant B	
NVNT	a	5180	18.344	18.4	16.337	16.346	Pass
NVNT	a	5200	18.411	18.51	16.329	16.337	Pass
NVNT	a	5240	18.346	18.307	16.342	16.351	Pass
NVNT	n20	5180	19.35	19.329	17.547	17.541	Pass
NVNT	n20	5200	19.356	19.416	17.55	17.541	Pass
NVNT	n20	5240	19.356	19.393	17.546	17.558	Pass
NVNT	n40	5190	40.891	41.065	36.01	36.005	Pass
NVNT	n40	5230	40.898	40.843	36.031	36.04	Pass
NVNT	ac20	5180	19.426	19.384	17.552	17.543	Pass
NVNT	ac20	5200	19.41	19.378	17.546	17.536	Pass
NVNT	ac20	5240	19.371	19.47	17.552	17.562	Pass
NVNT	ac40	5190	40.885	40.817	35.991	35.985	Pass
NVNT	ac40	5230	40.873	40.775	36.005	36.047	Pass
NVNT	ac80	5210	<b>80.699</b>	80.535	74.736	<b>74.775</b>	Pass

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

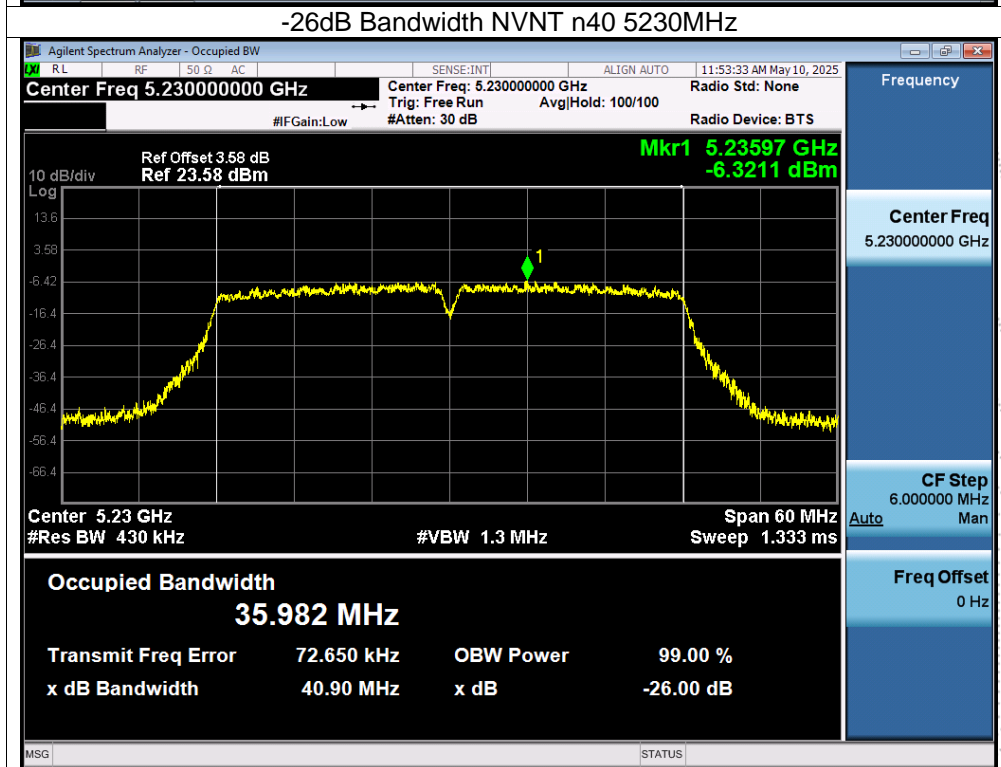
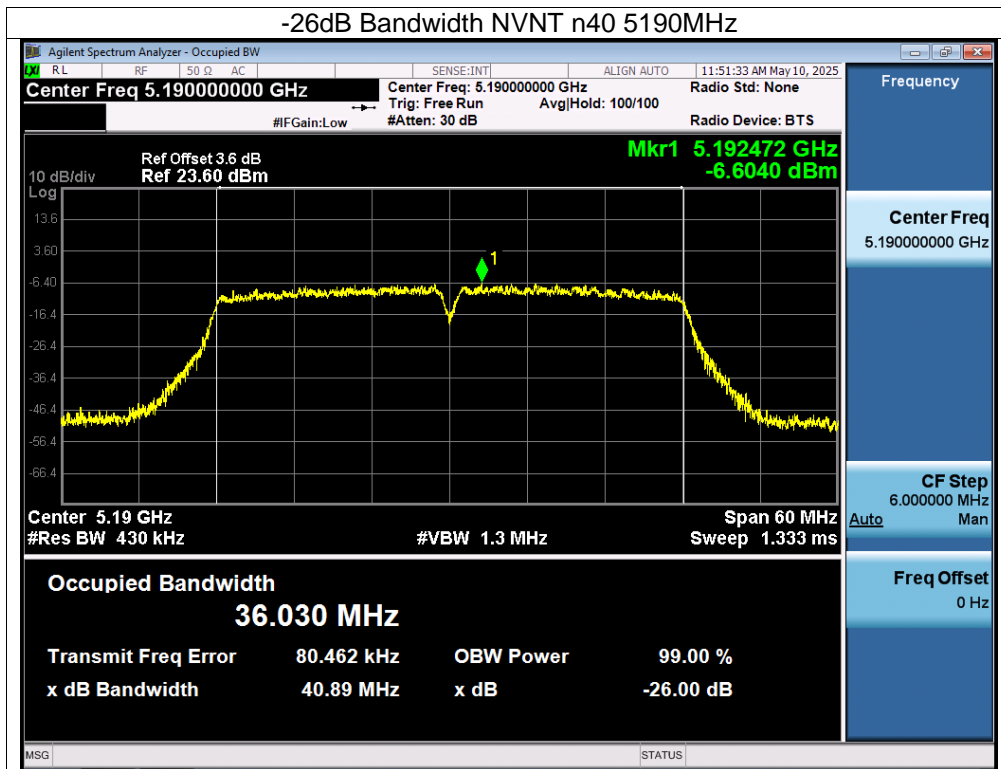


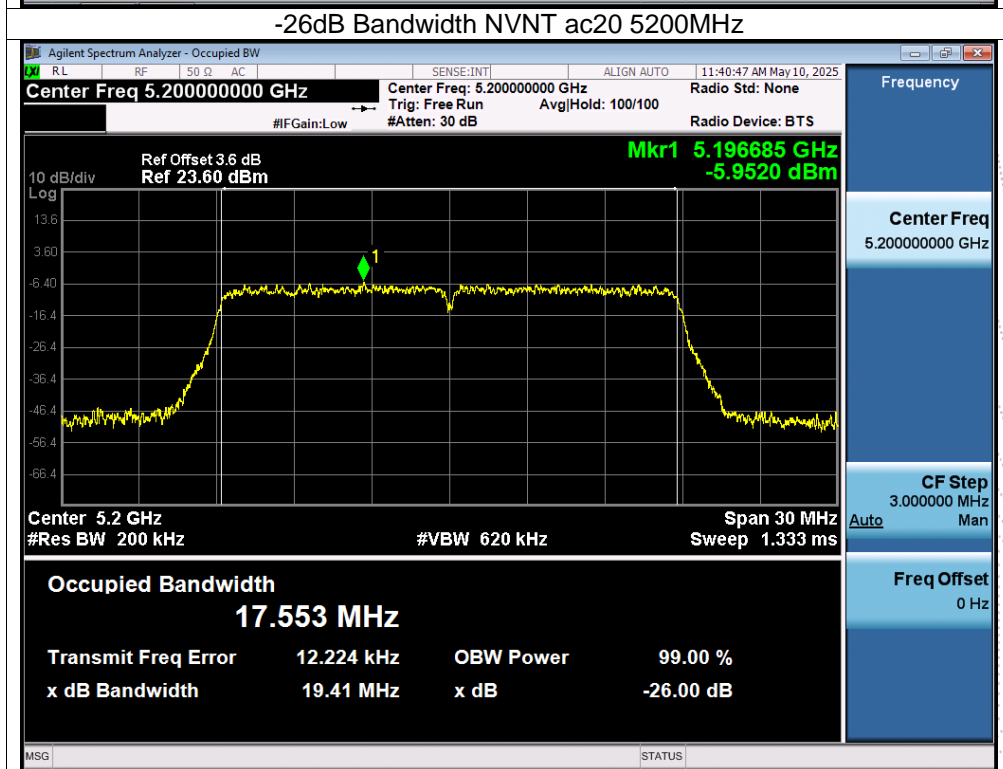
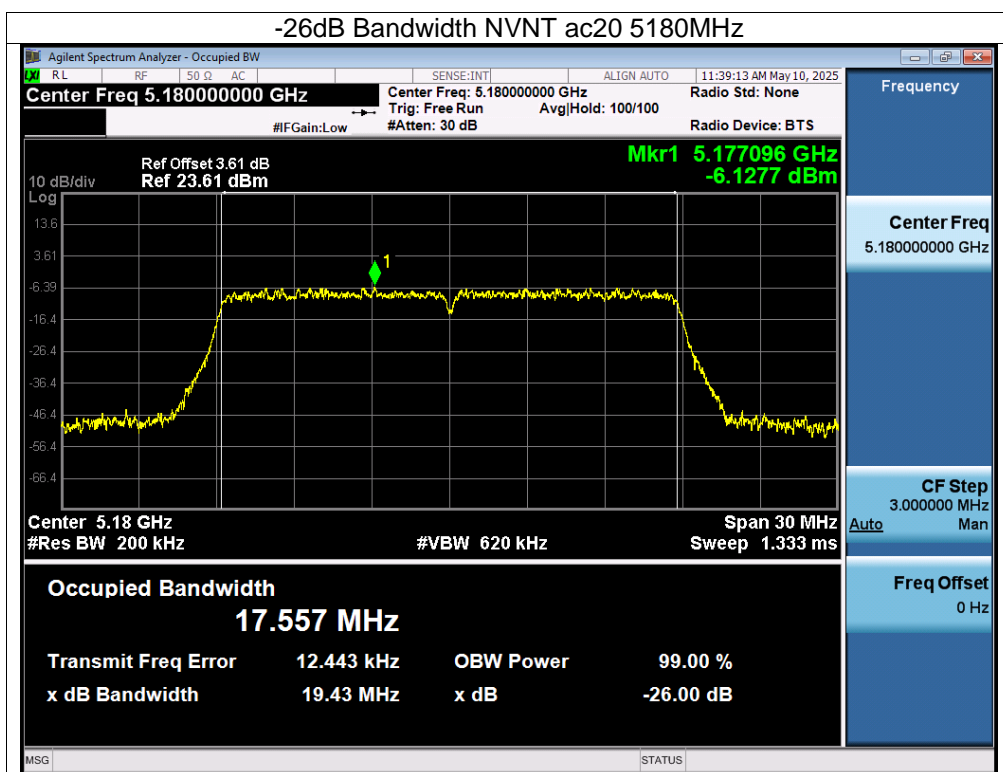


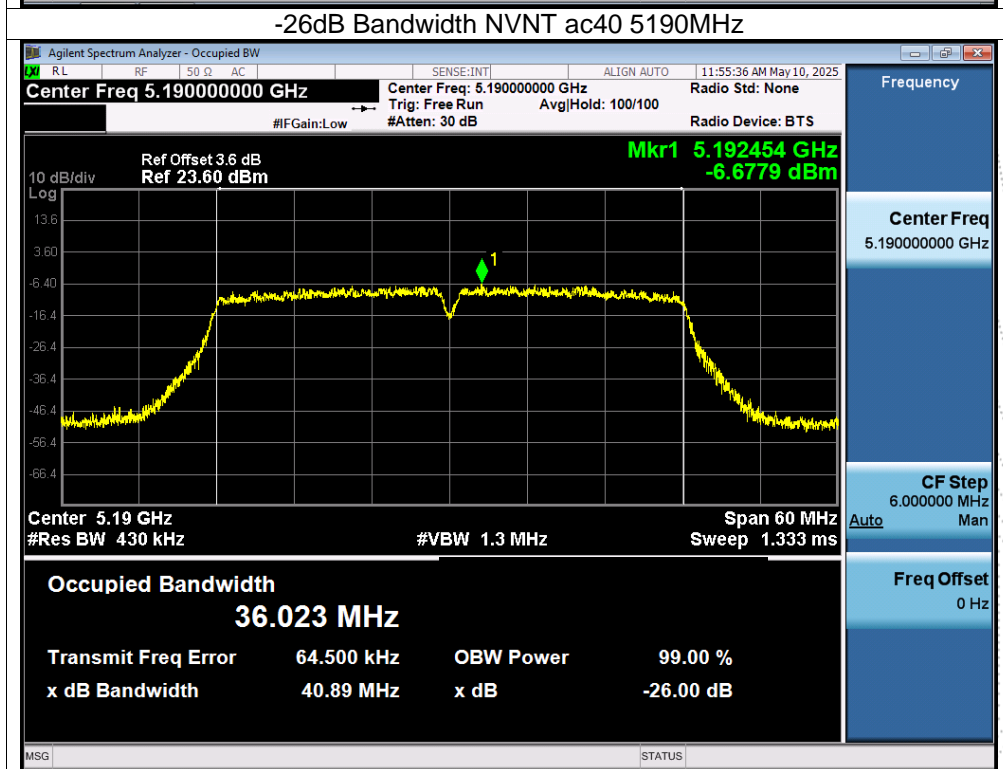
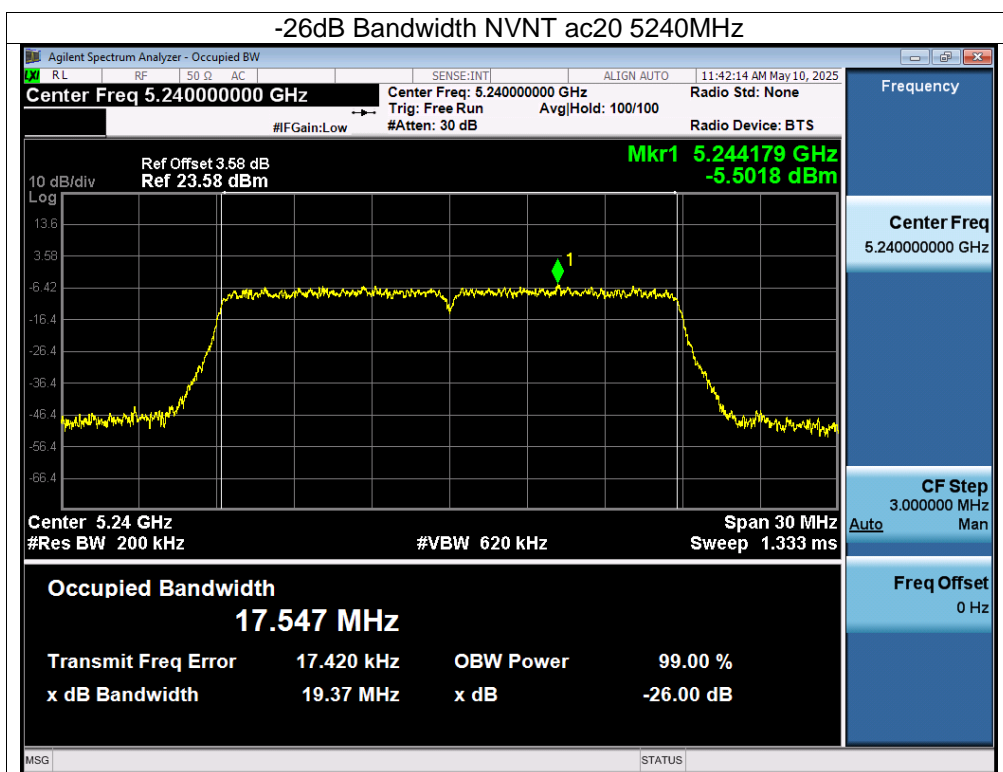


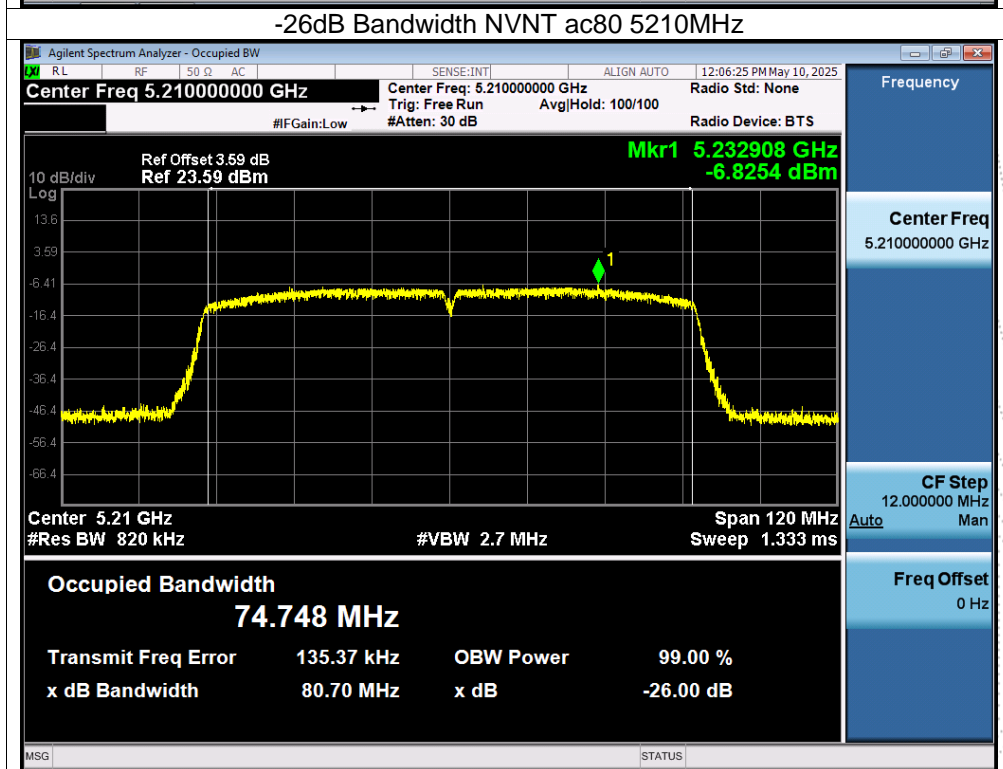
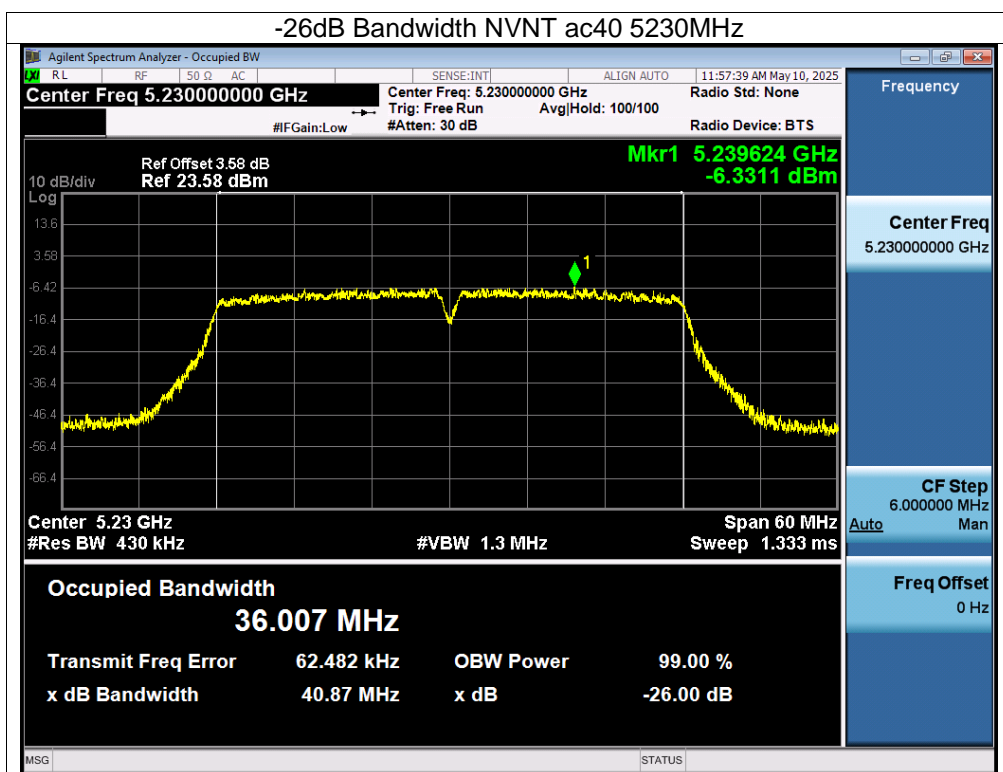




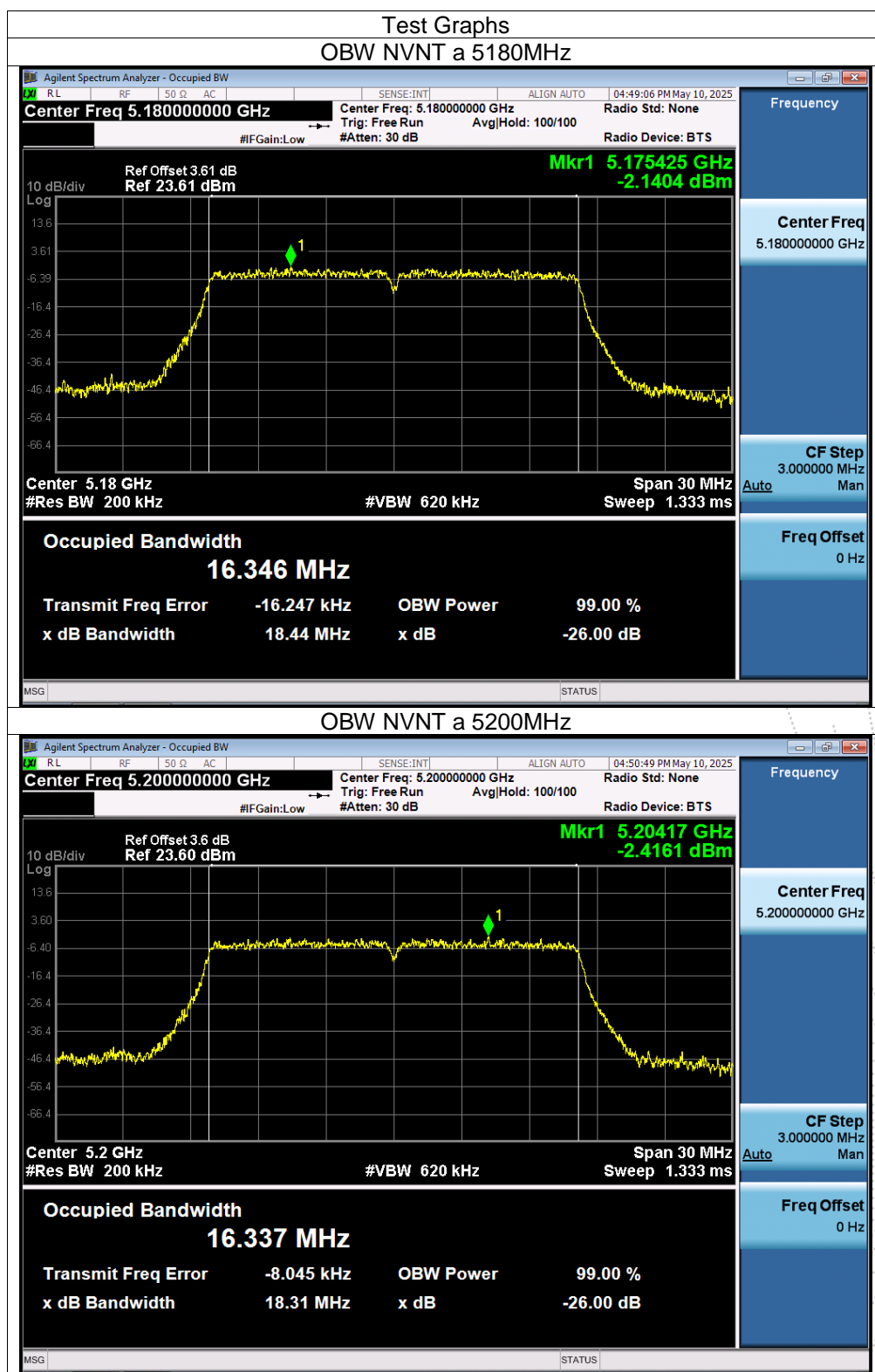




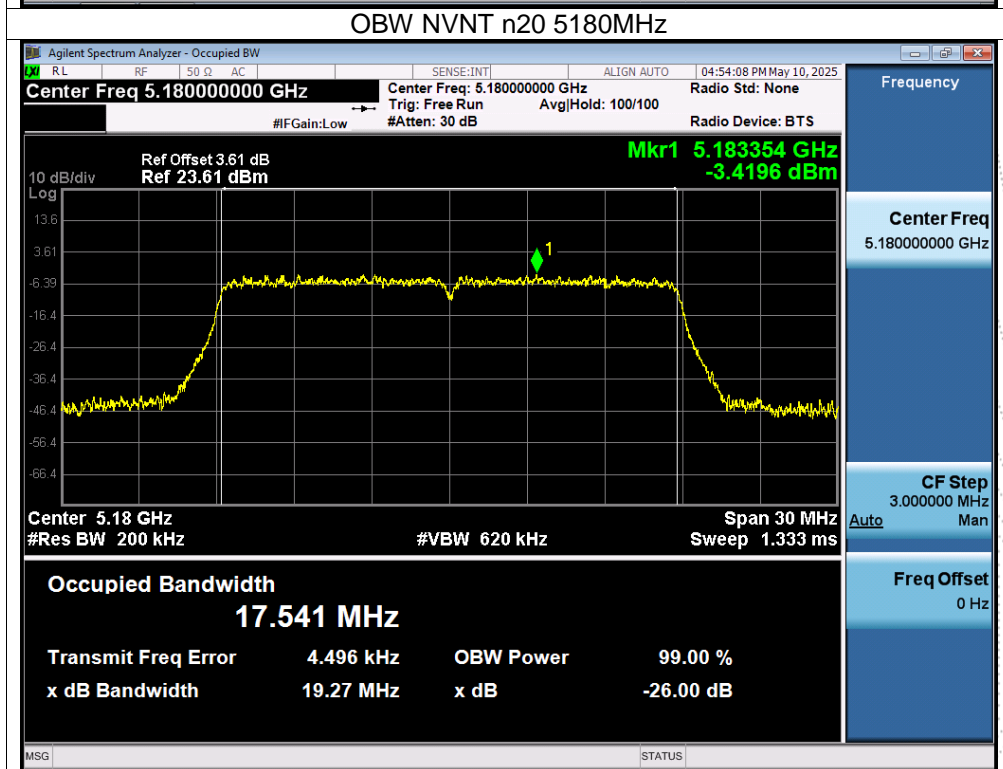
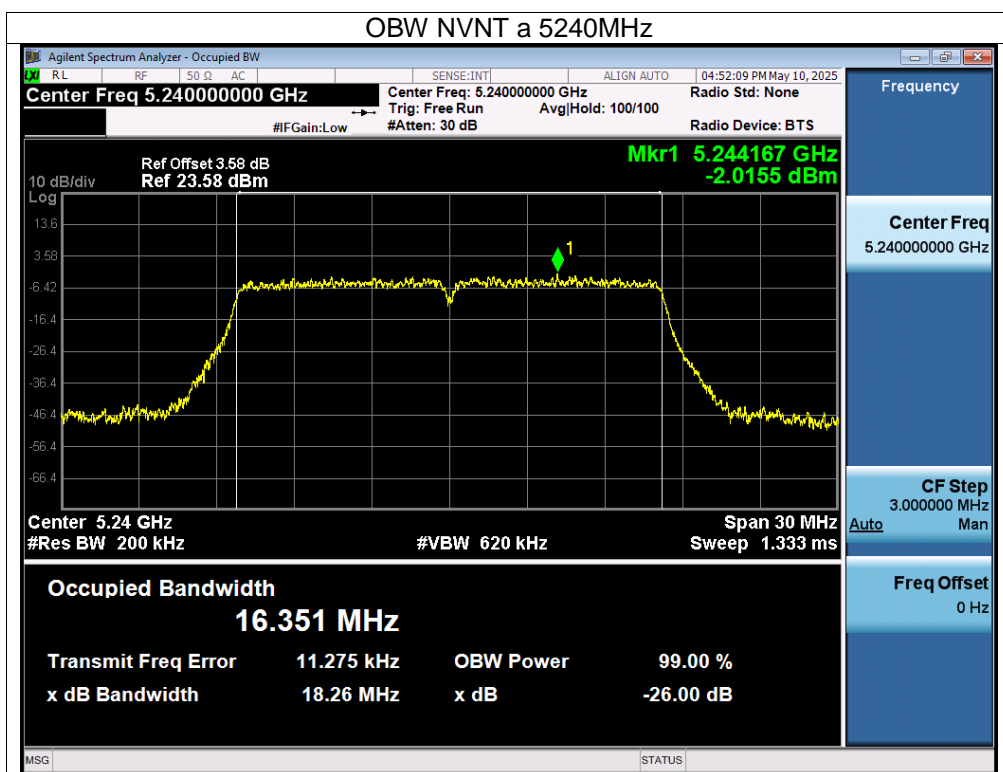




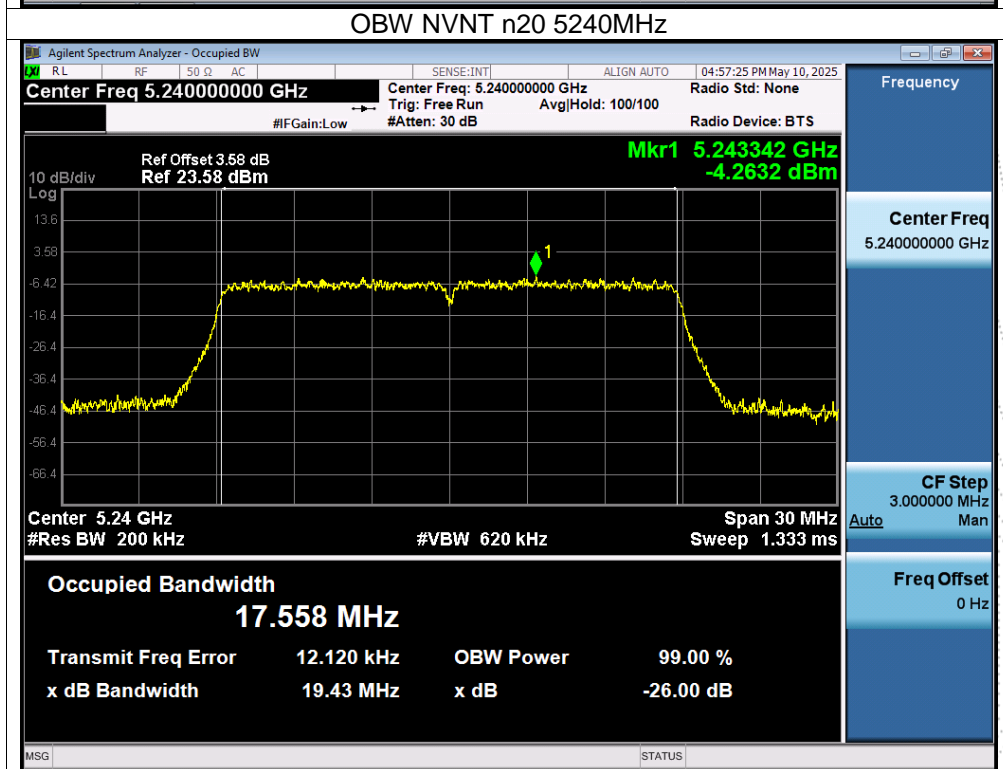
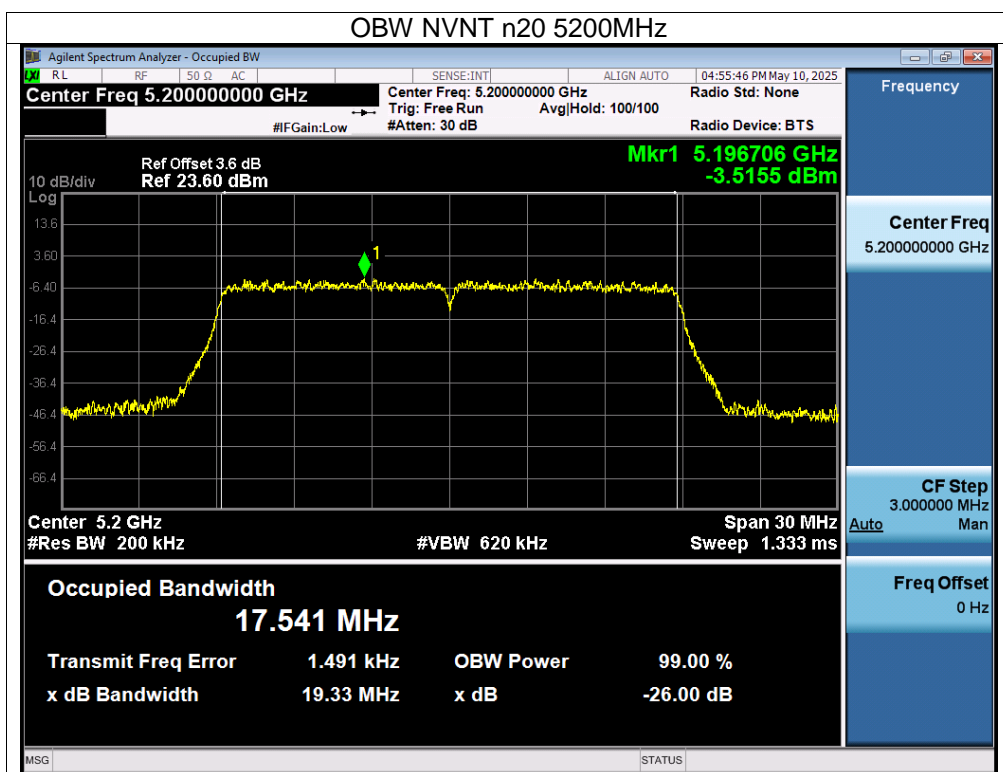
Note: A(B) Represent the value of antenna A and B, The worst data is Antenna B, only shown Antenna B Plot.

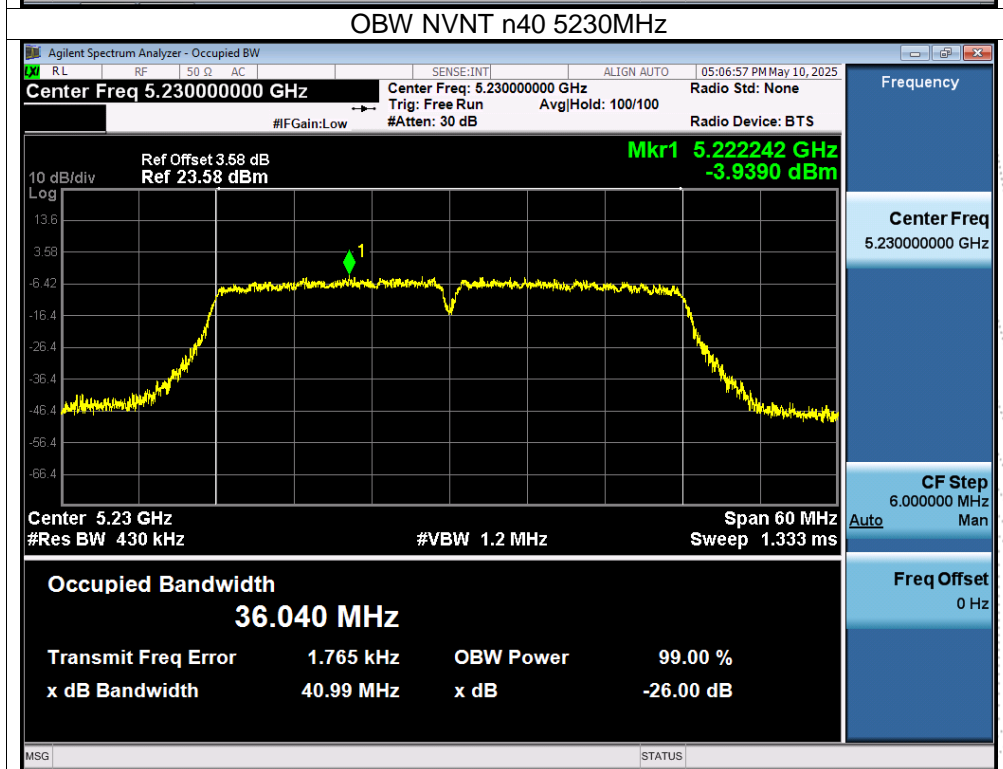
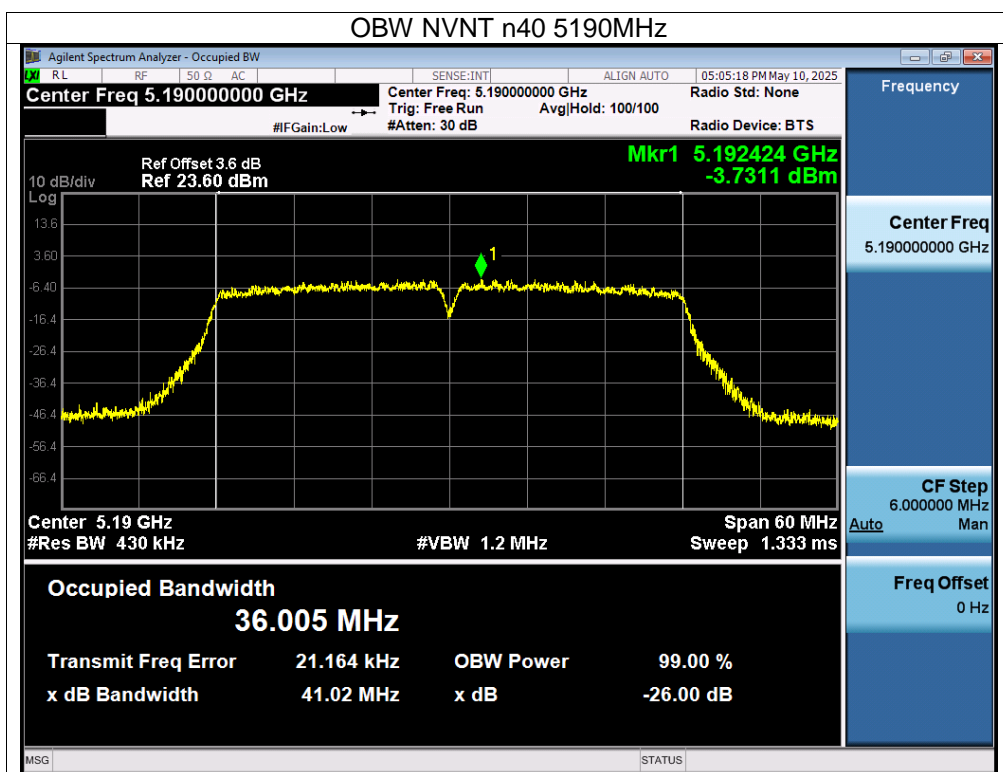


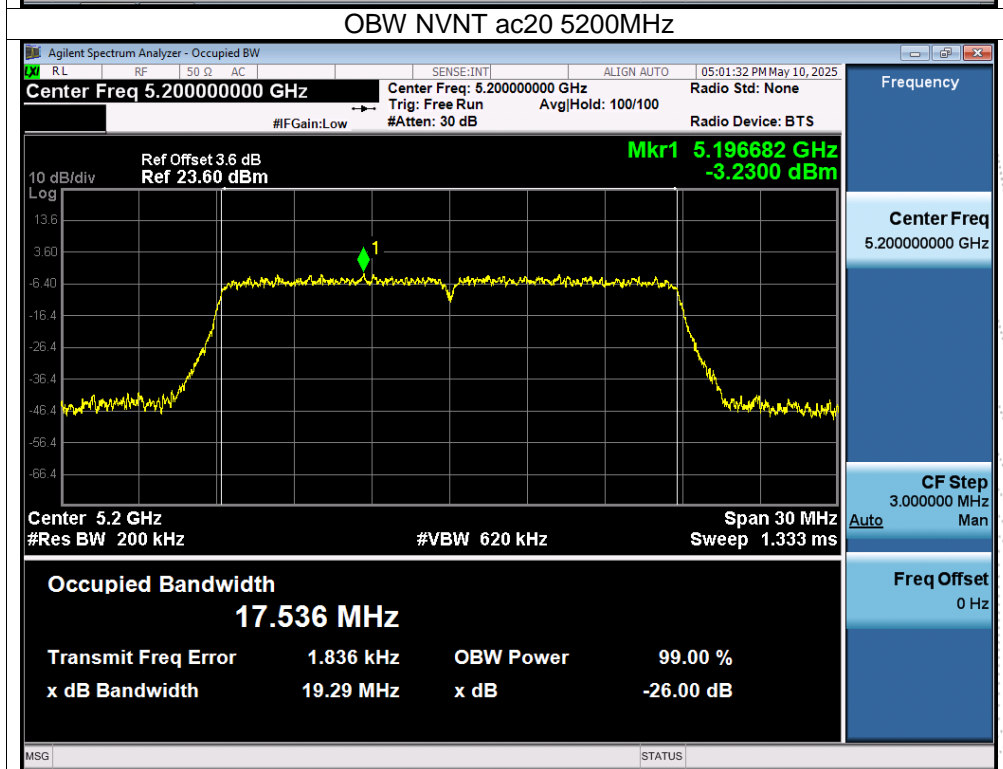
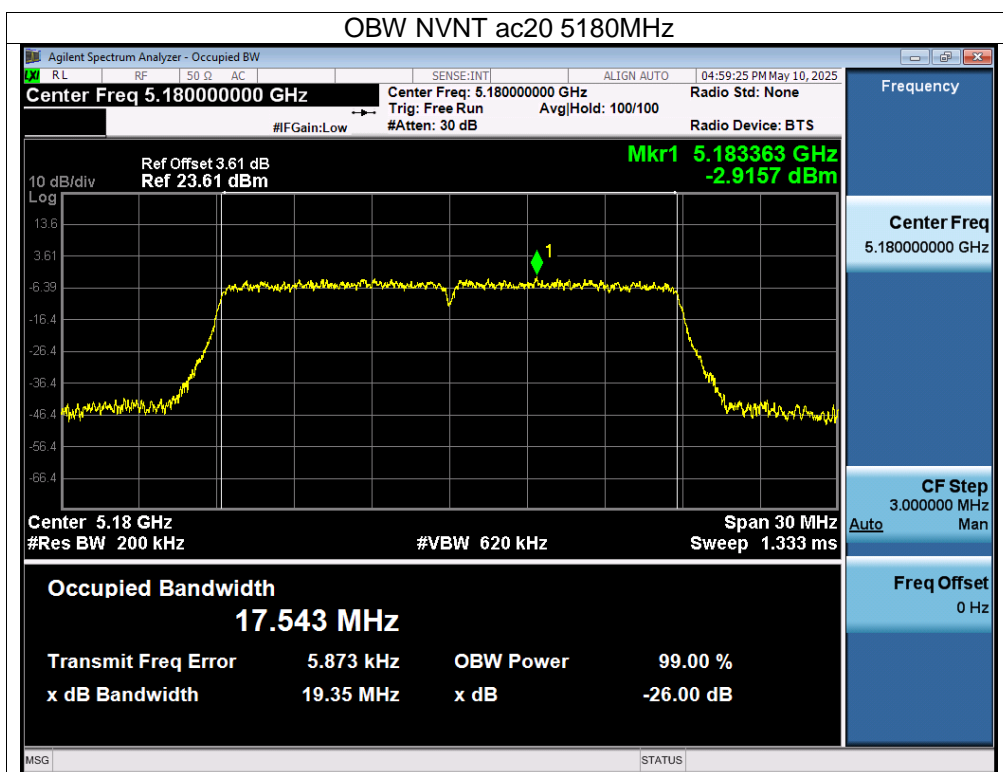


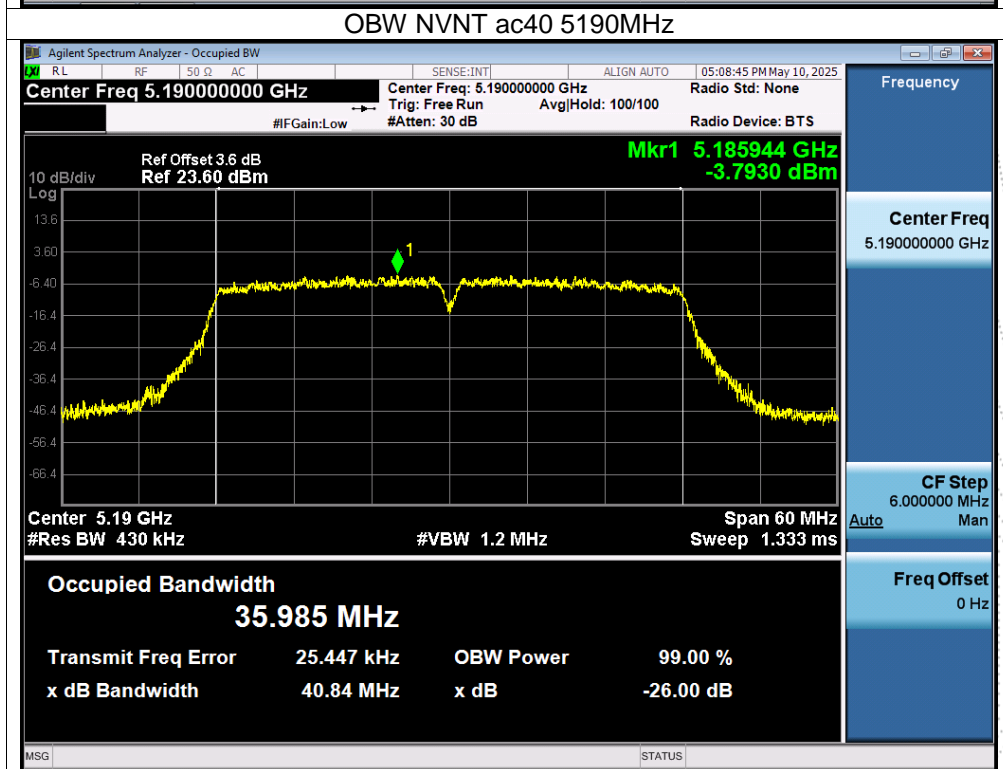
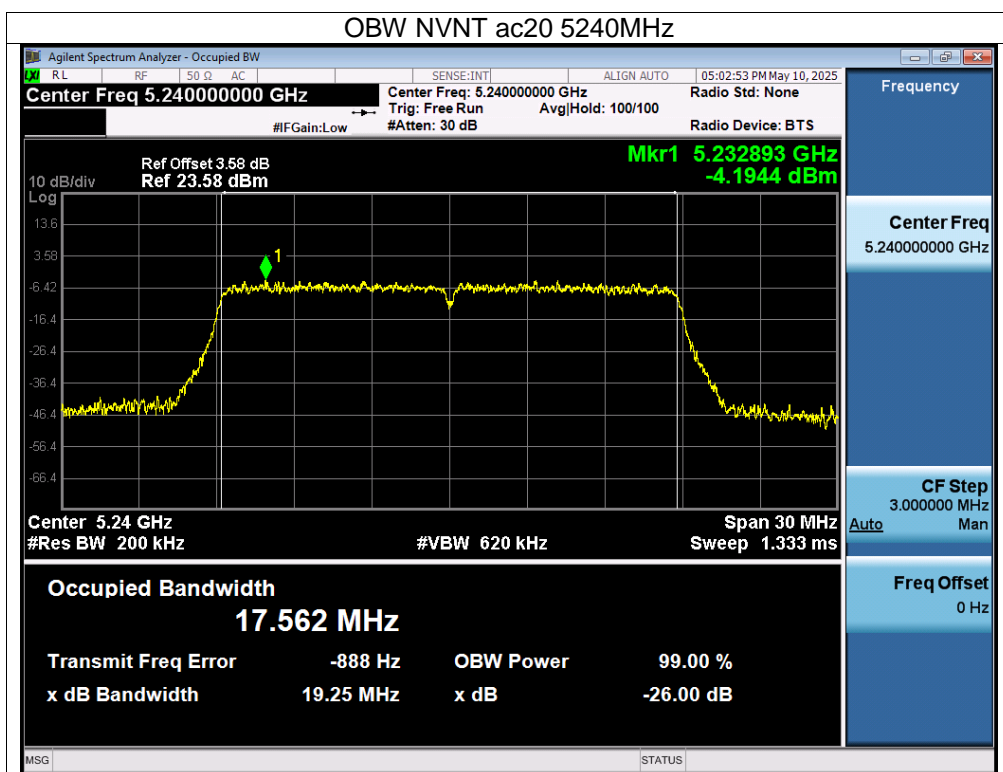


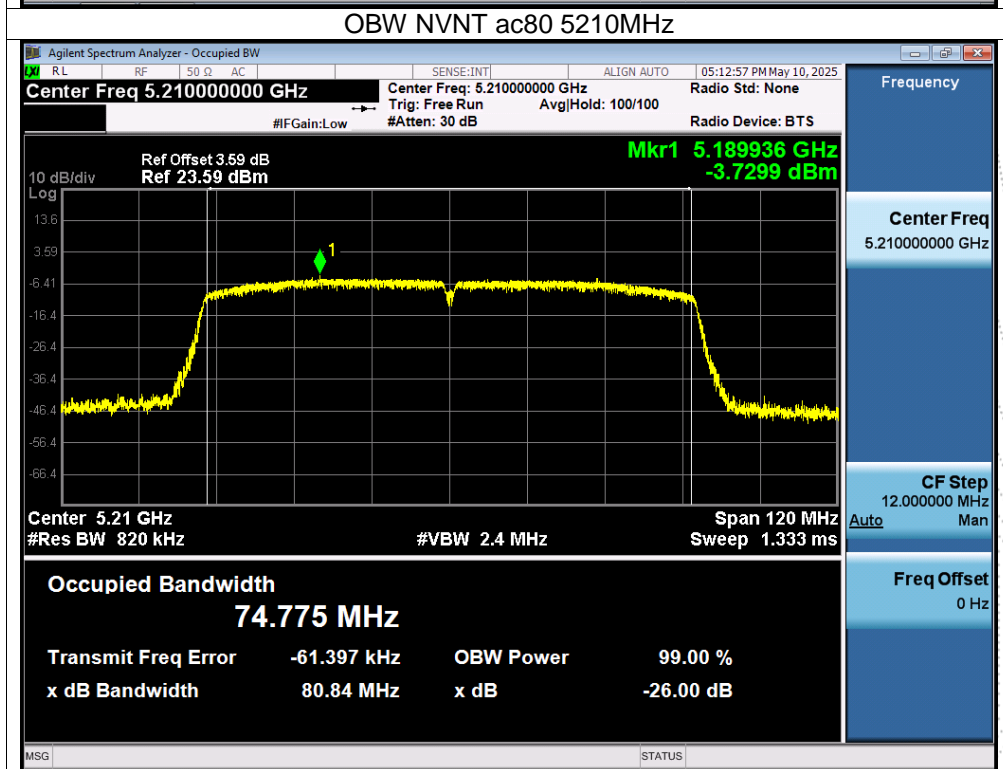
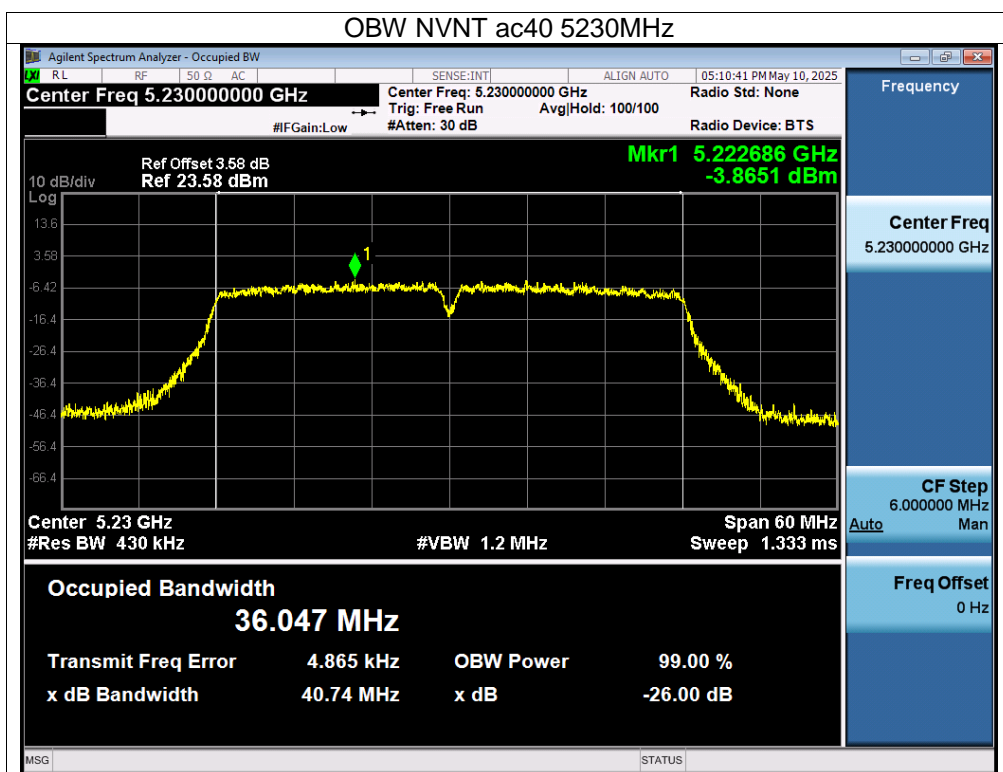






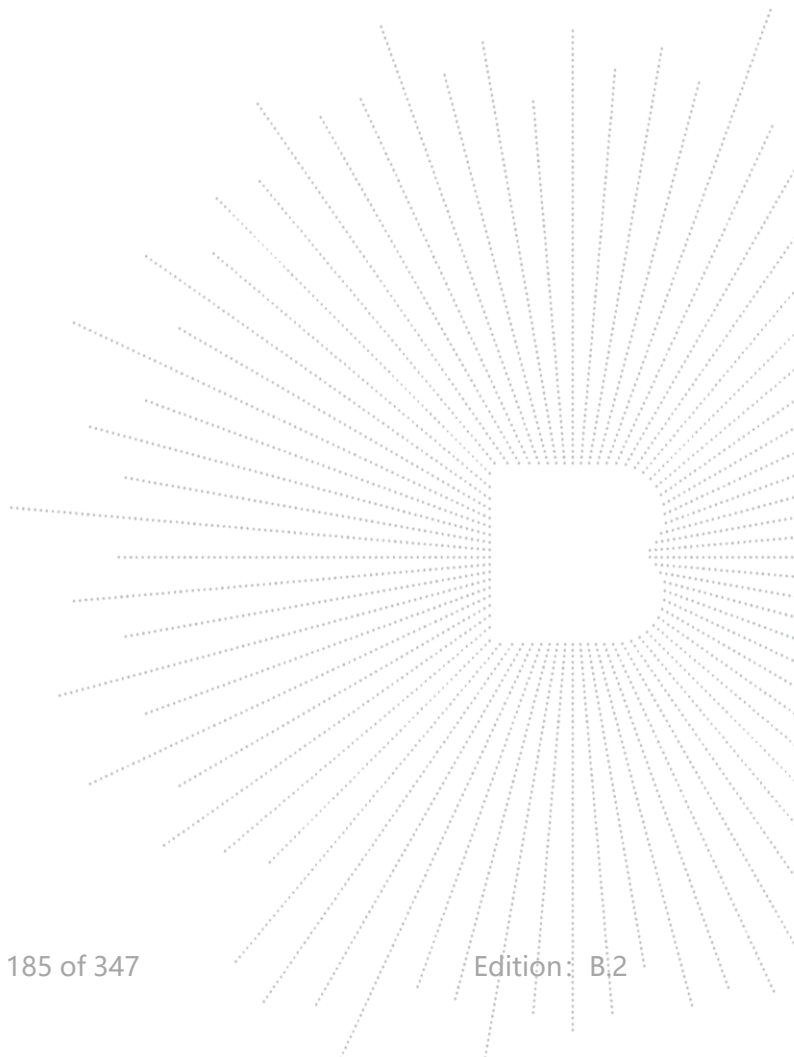






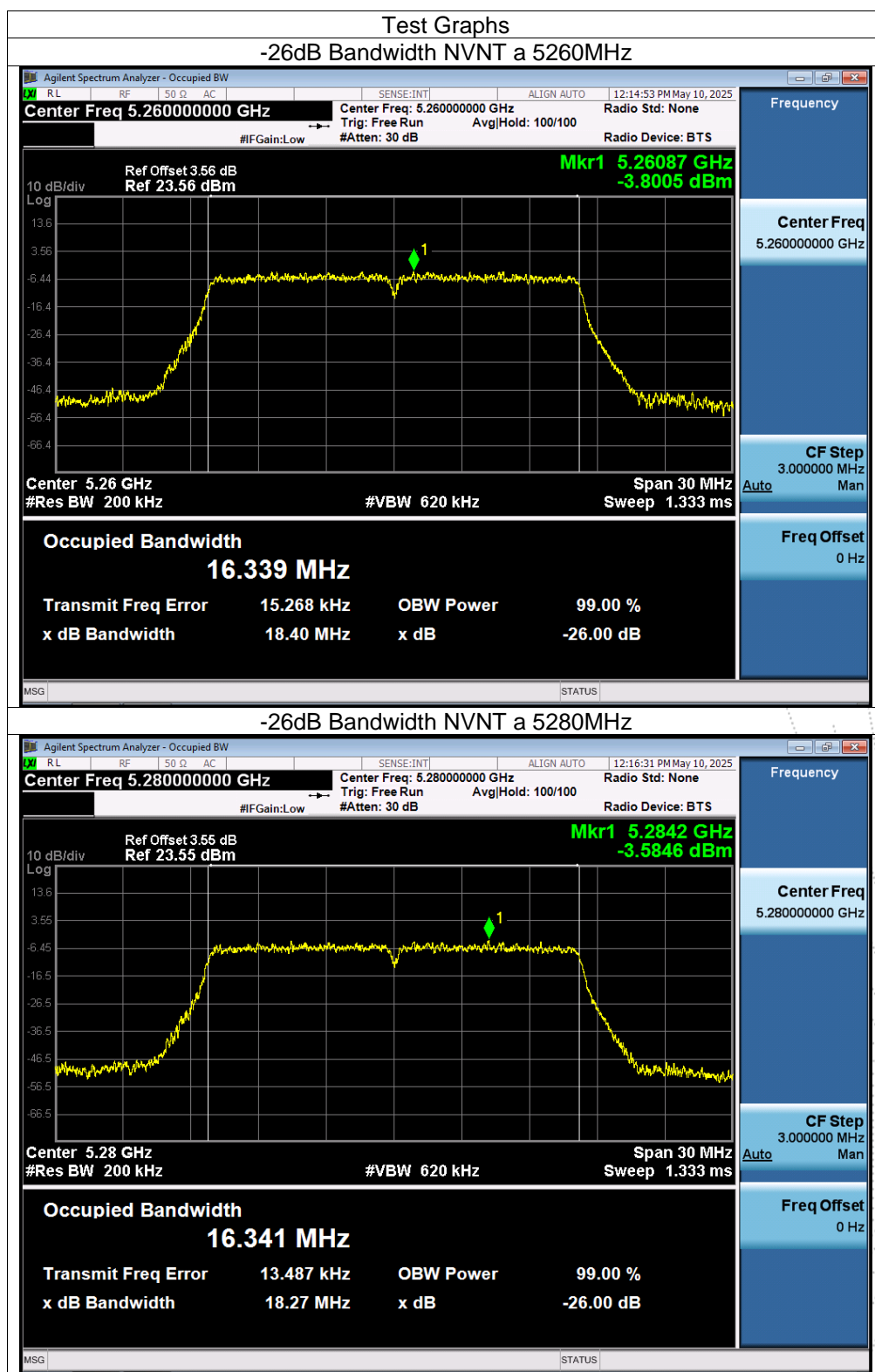
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	DC 3.3V
Test Mode:	(U-NII-2A) 5260MHz-5320MHz		

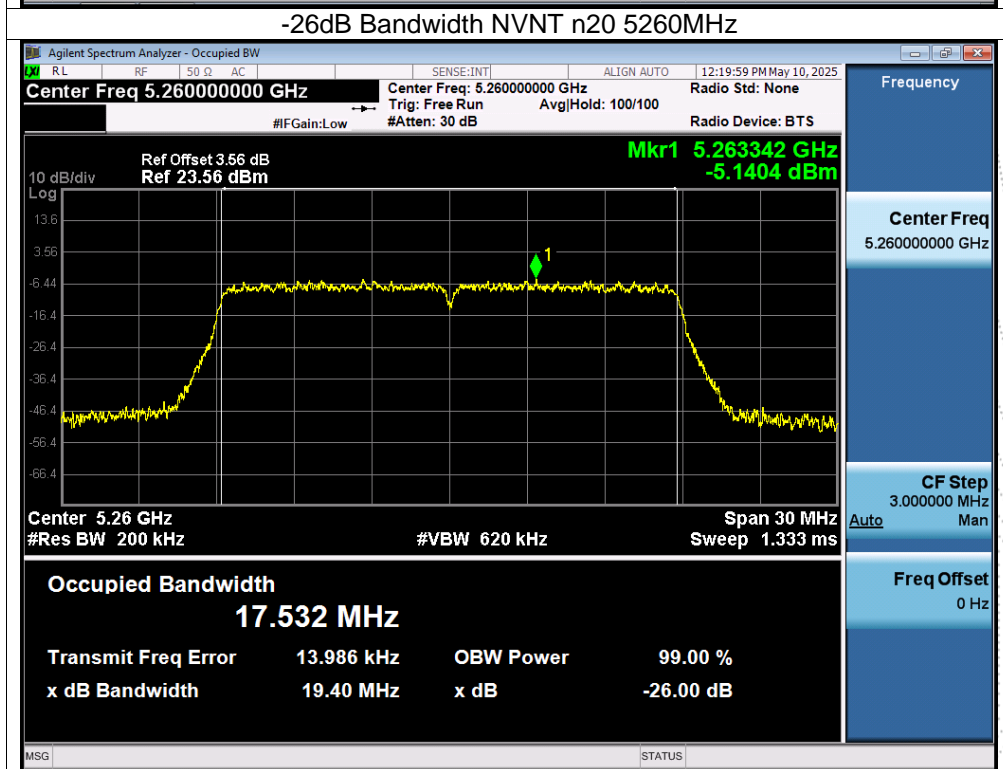
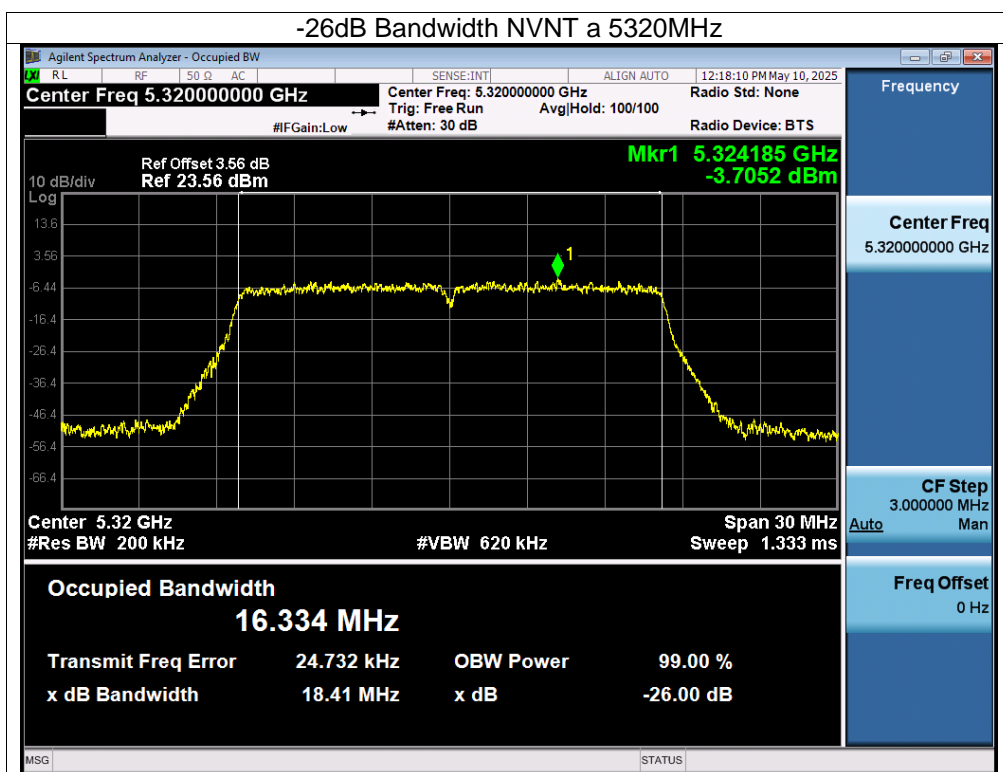
Condition	Mode	Frequency (MHz)	-26 dB Bandwidth (MHz)		99% OBW (MHz)		Verdict
			Ant A	Ant B	Ant A	Ant B	
NVNT	a	5260	18.396	18.329	16.336	16.349	Pass
NVNT	a	5280	18.267	18.352	16.335	16.338	Pass
NVNT	a	5320	18.407	18.343	16.343	16.338	Pass
NVNT	n20	5260	19.401	19.351	17.539	17.549	Pass
NVNT	n20	5280	19.344	19.282	17.551	17.554	Pass
NVNT	n20	5320	19.361	19.248	17.539	17.541	Pass
NVNT	n40	5270	40.685	40.749	36.015	36.012	Pass
NVNT	n40	5310	40.92	40.716	35.997	36.027	Pass
NVNT	ac20	5260	19.331	19.341	17.538	17.551	Pass
NVNT	ac20	5280	19.304	19.32	17.554	17.557	Pass
NVNT	ac20	5320	19.355	19.407	17.536	17.543	Pass
NVNT	ac40	5270	40.783	40.84	36.012	36.007	Pass
NVNT	ac40	5310	40.944	40.747	35.992	36.01	Pass
NVNT	ac80	5290	<b>80.901</b>	80.873	<b>74.718</b>	74.696	Pass

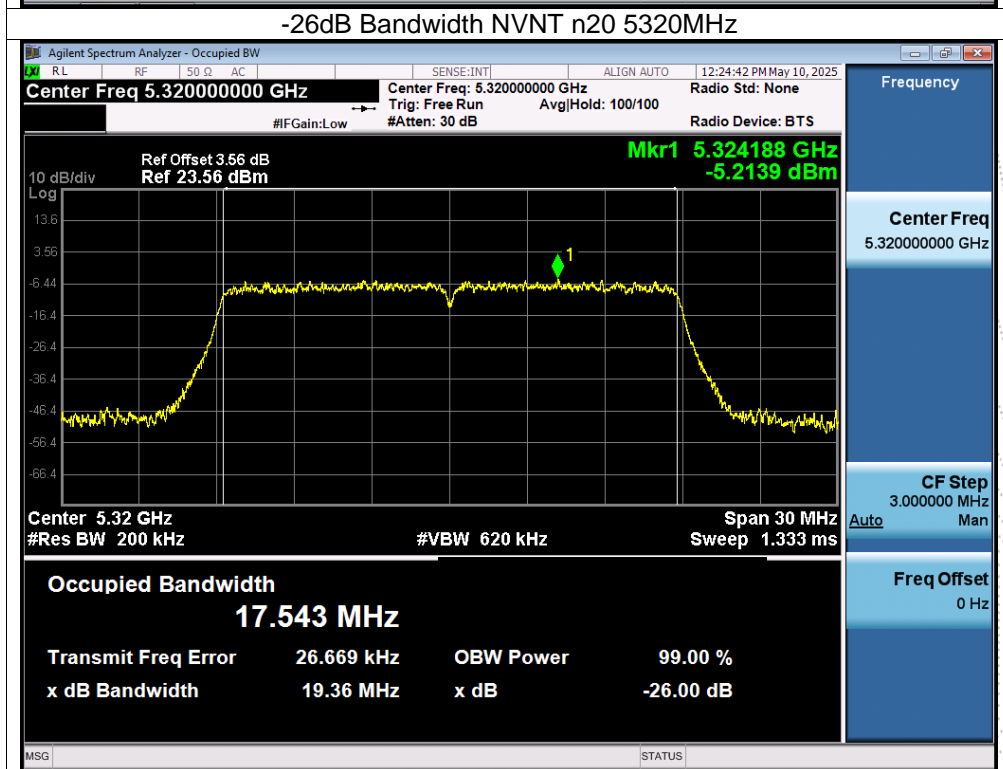
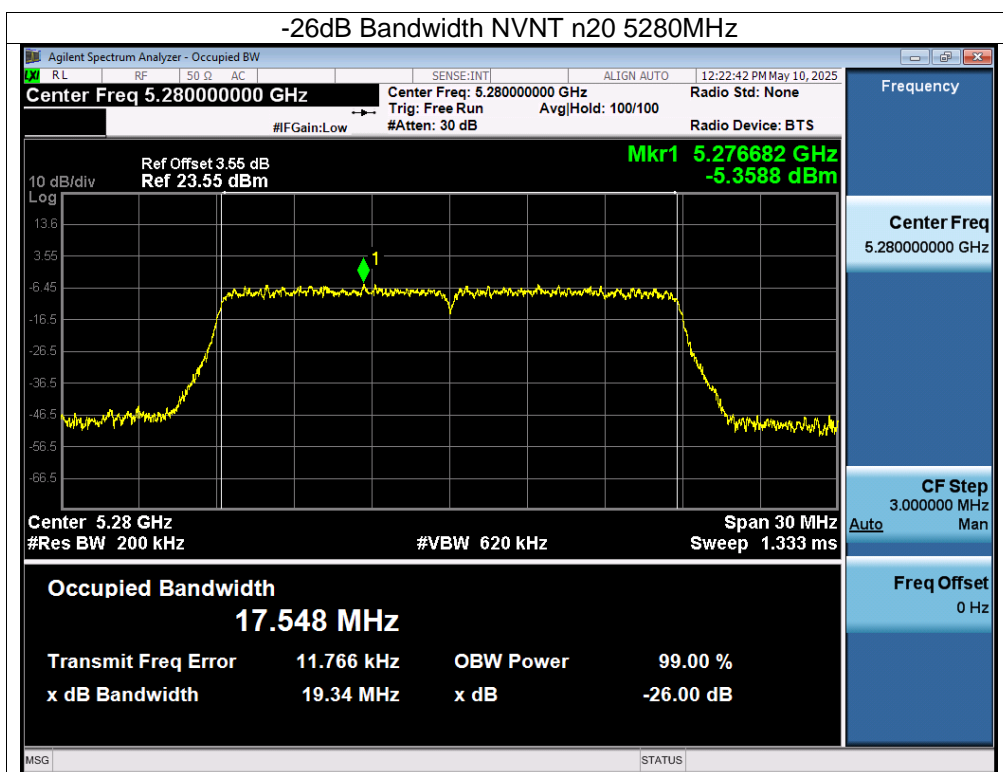


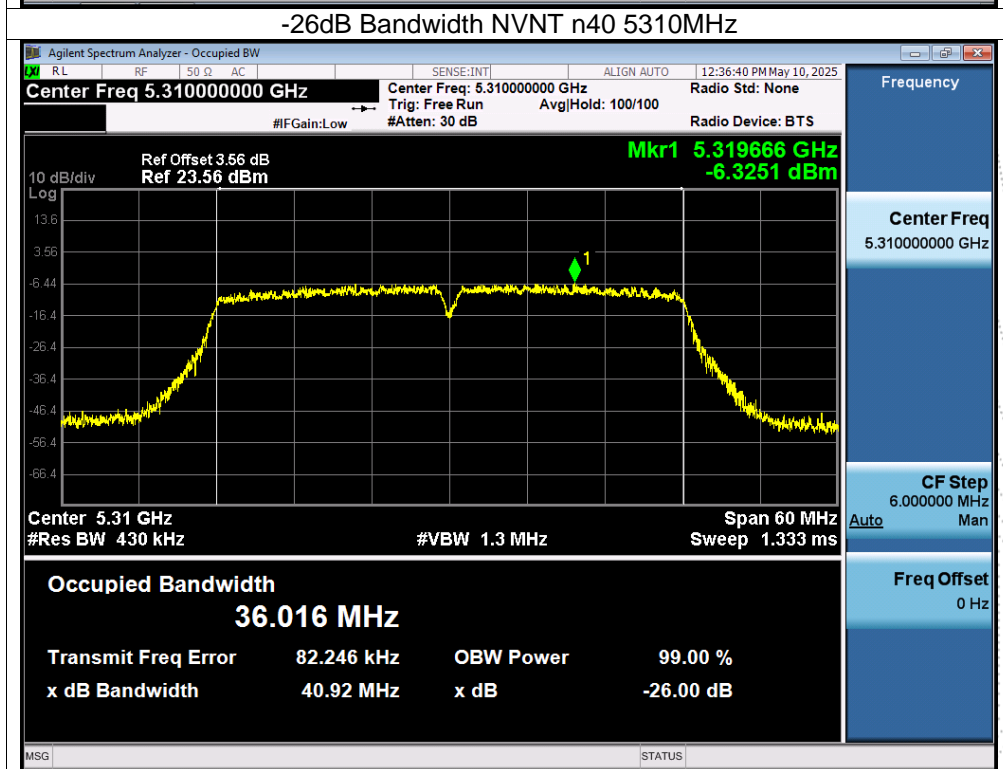
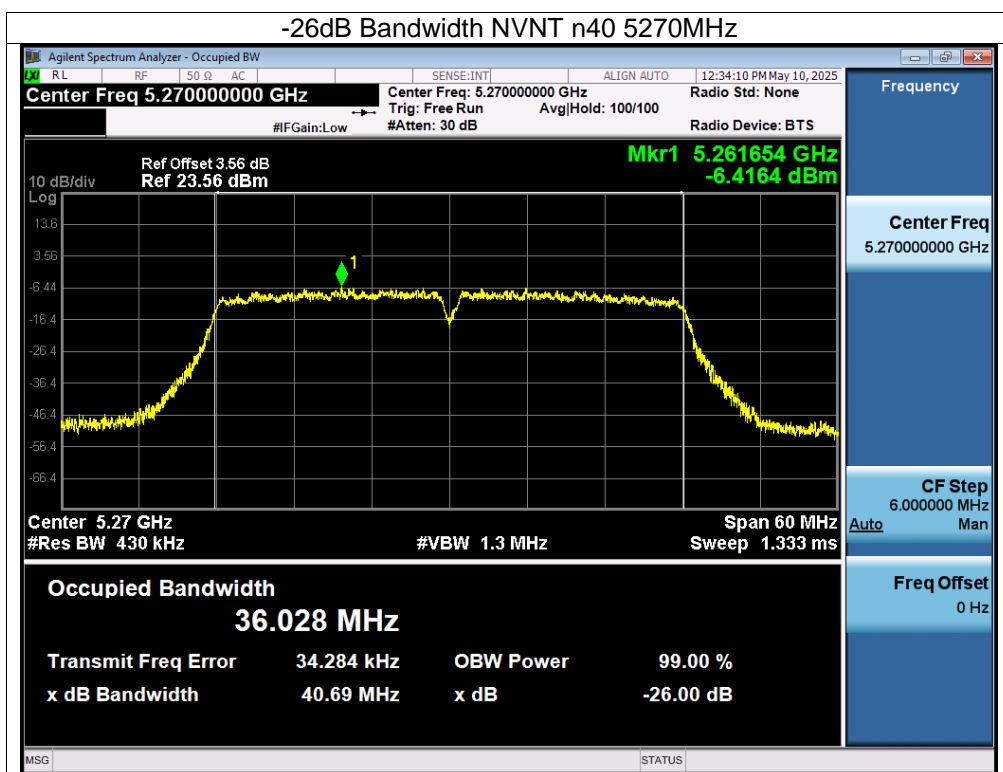


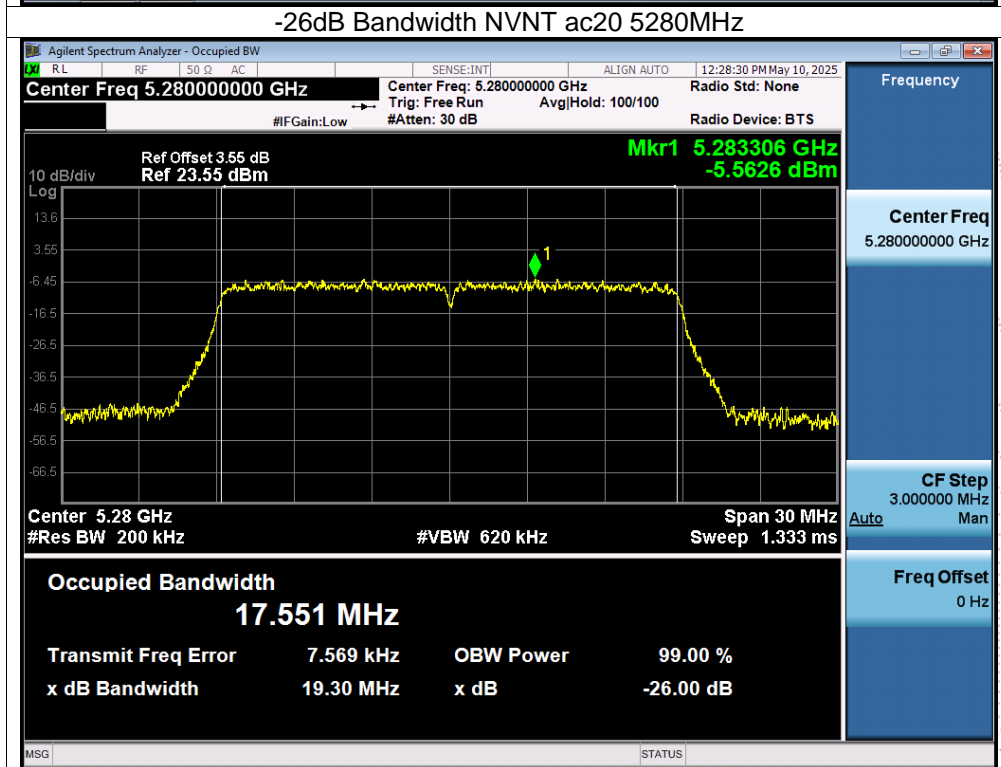
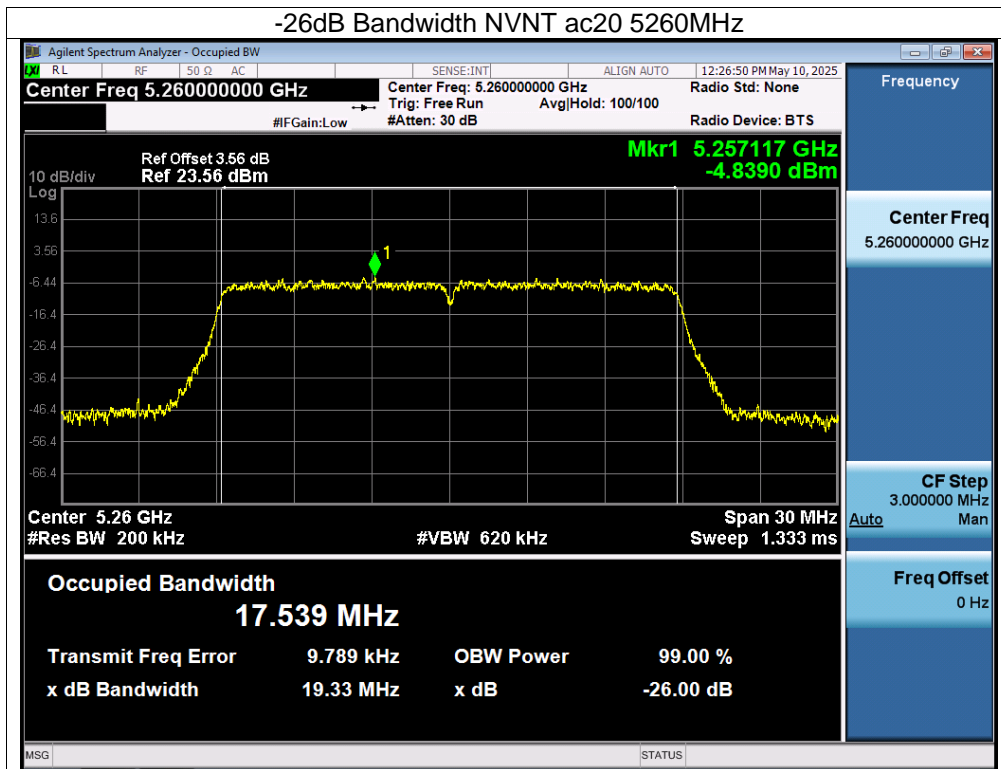
Note: A(B) Represent the value of antenna A and B, The worst data is Antenna A, only shown Antenna A Plot.



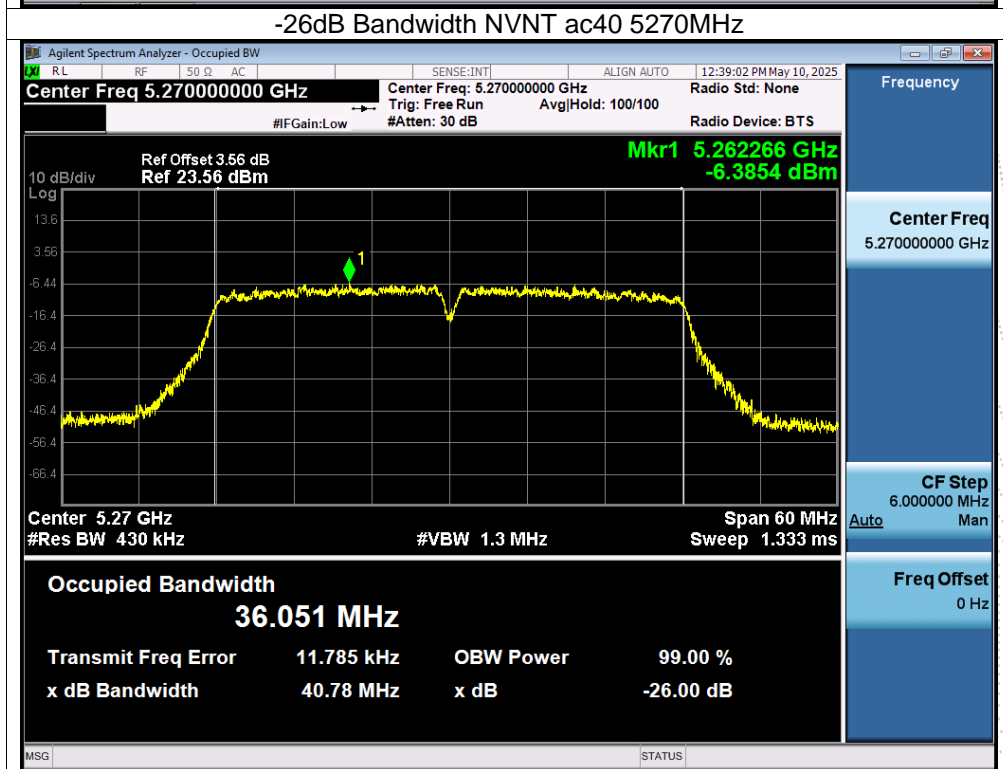
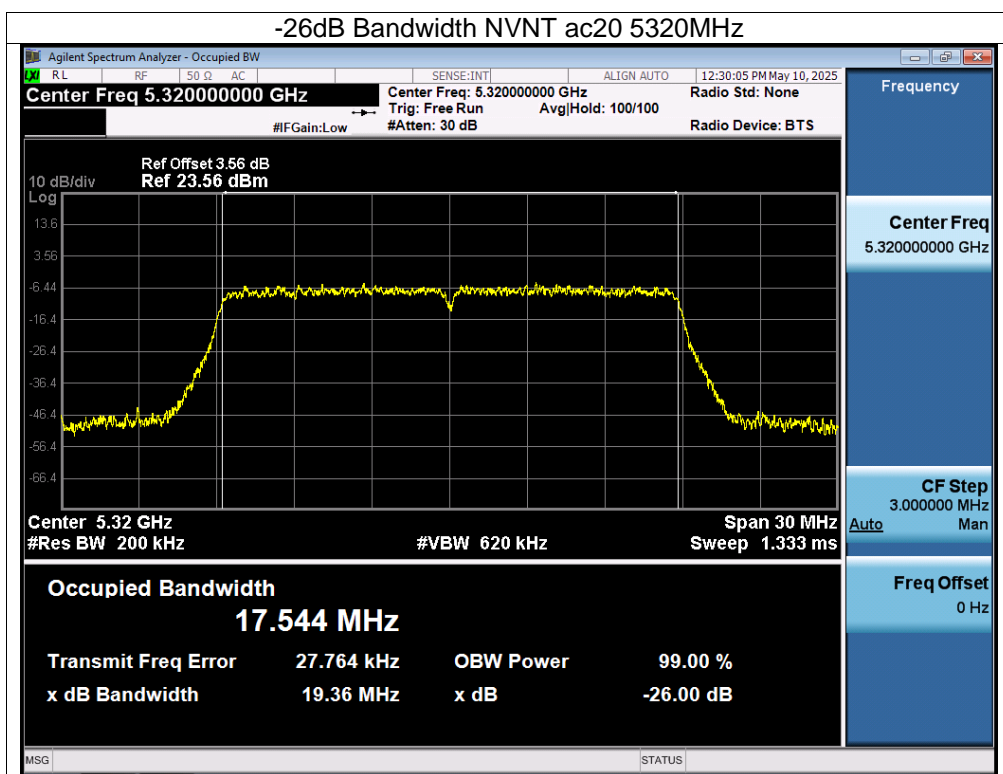




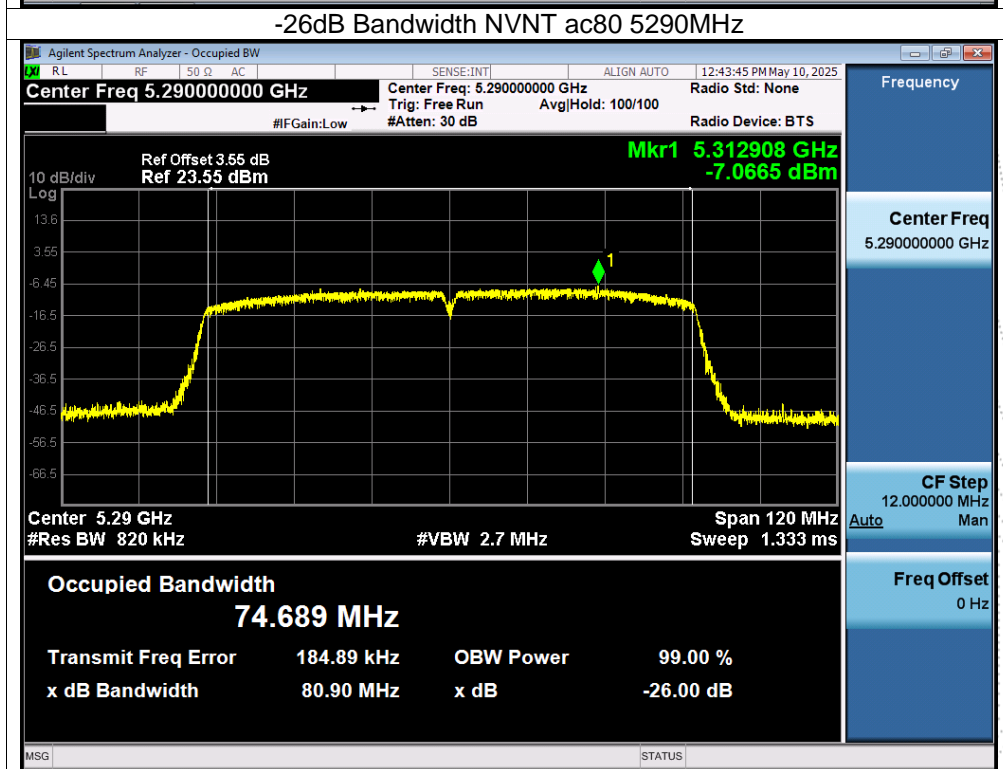
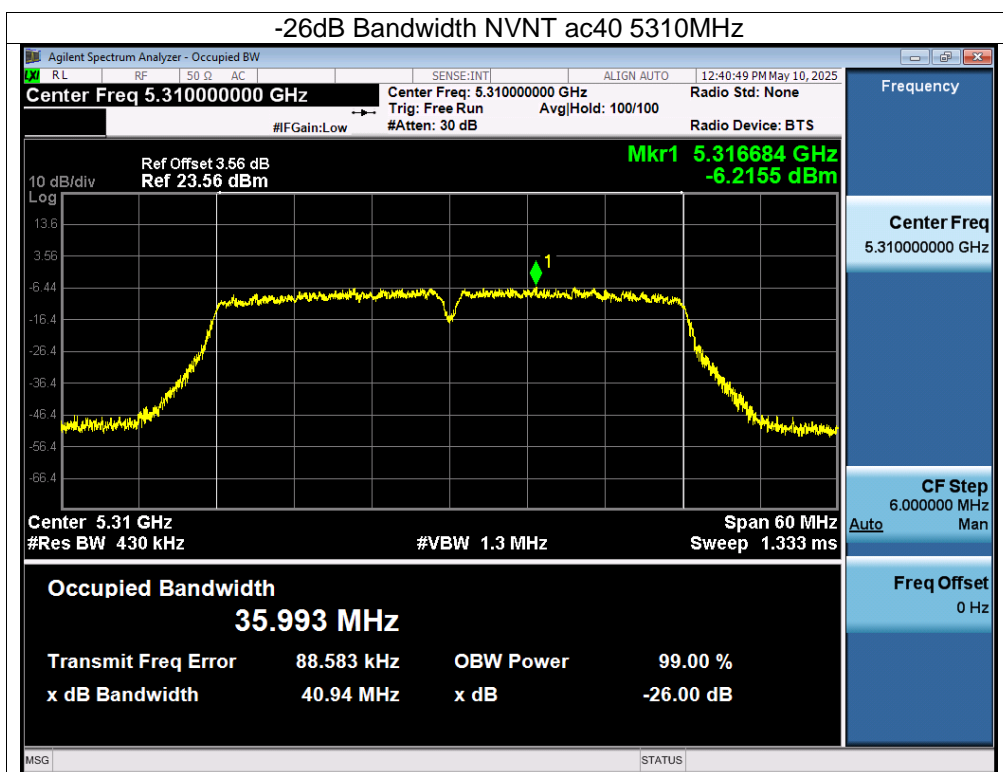




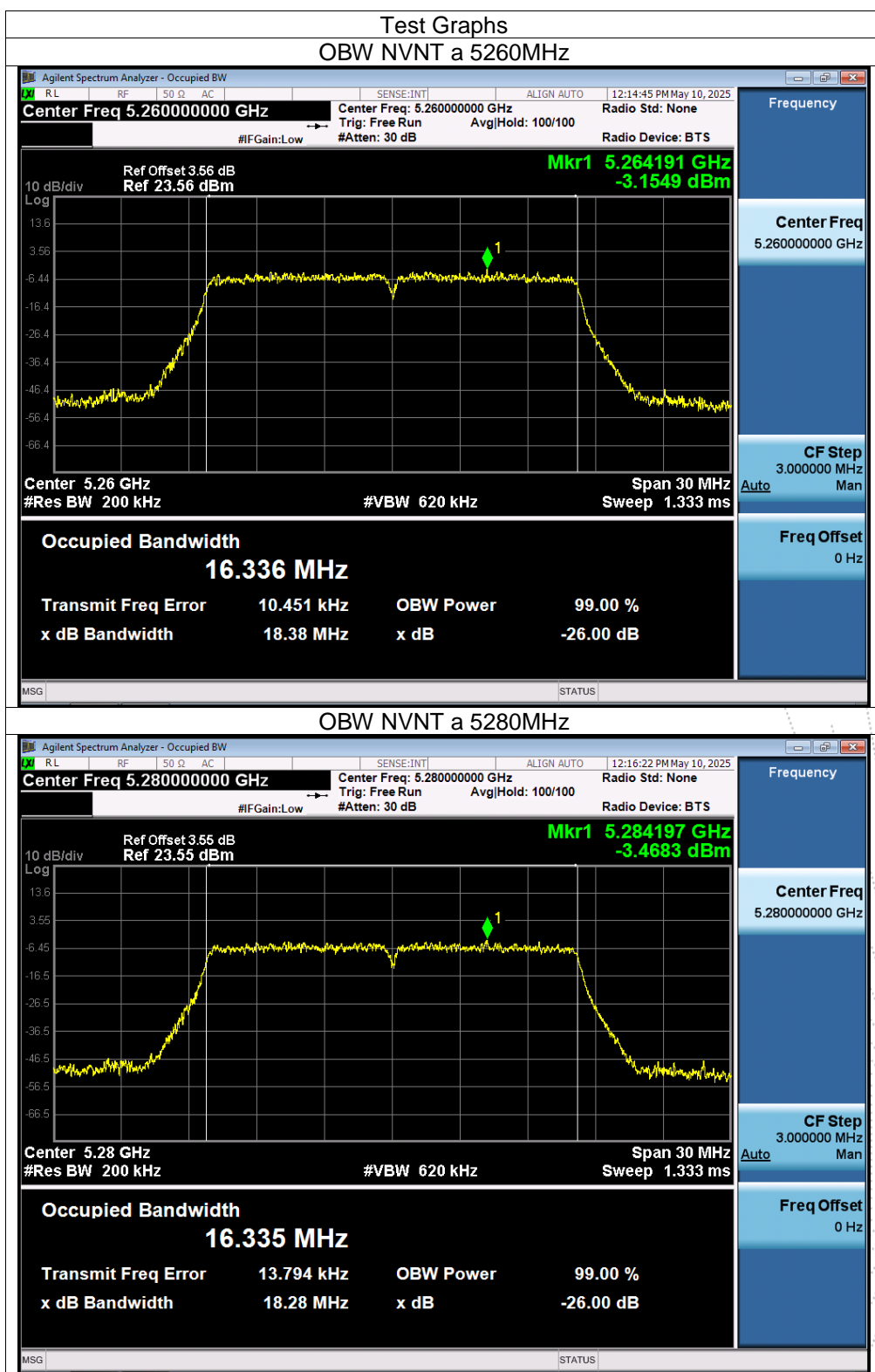


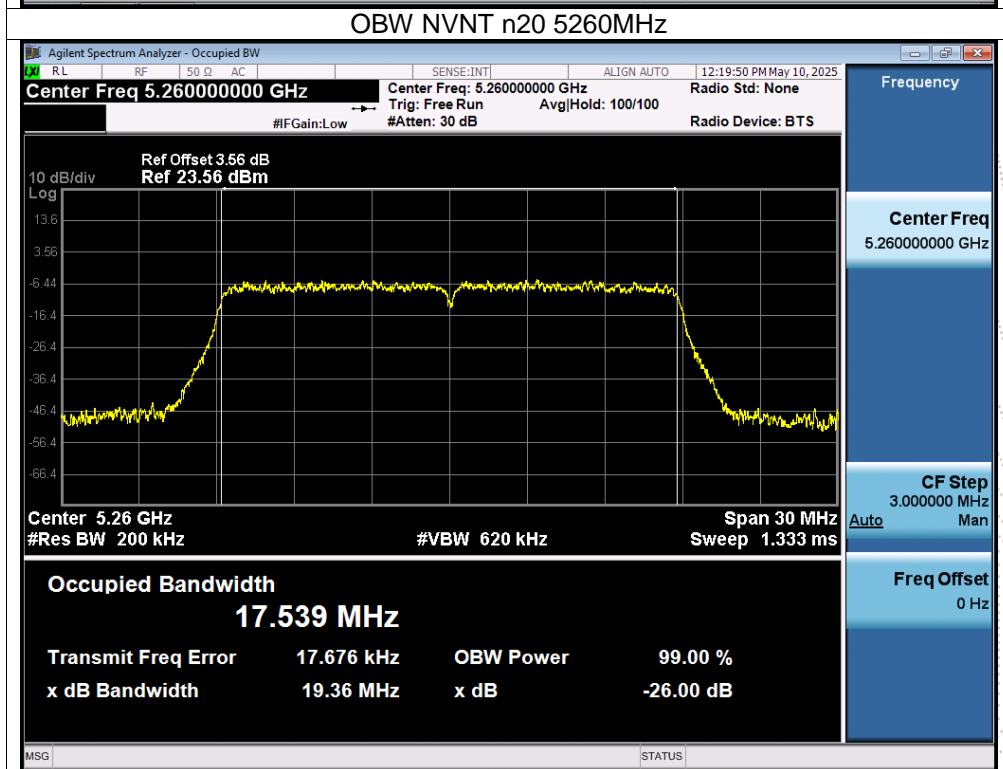
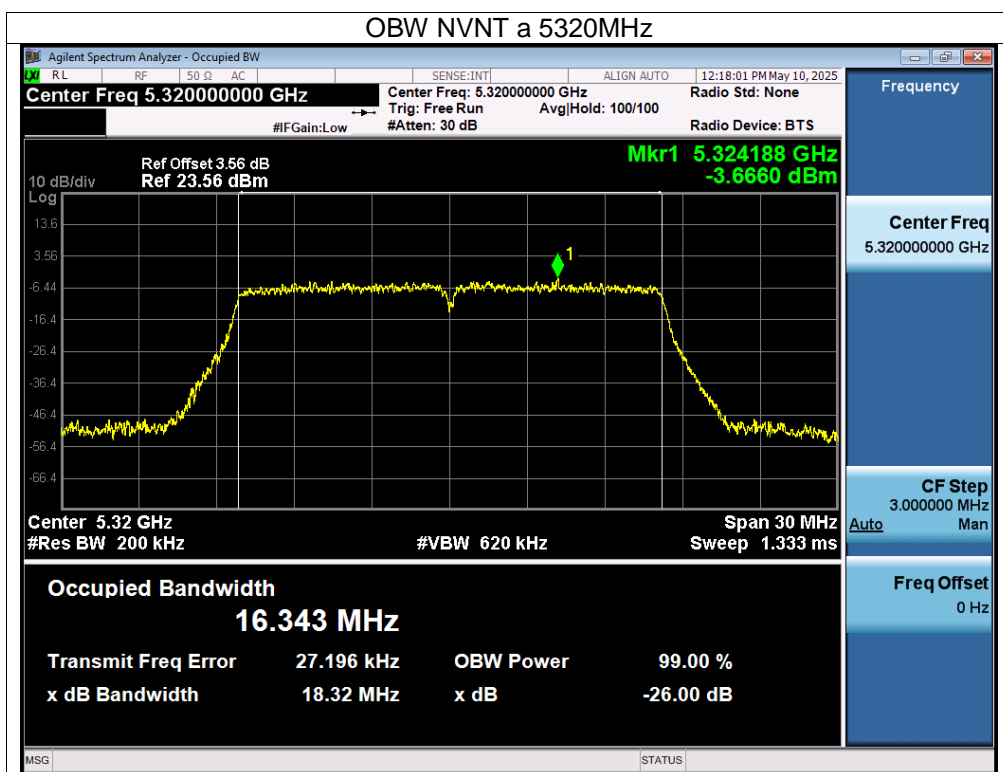


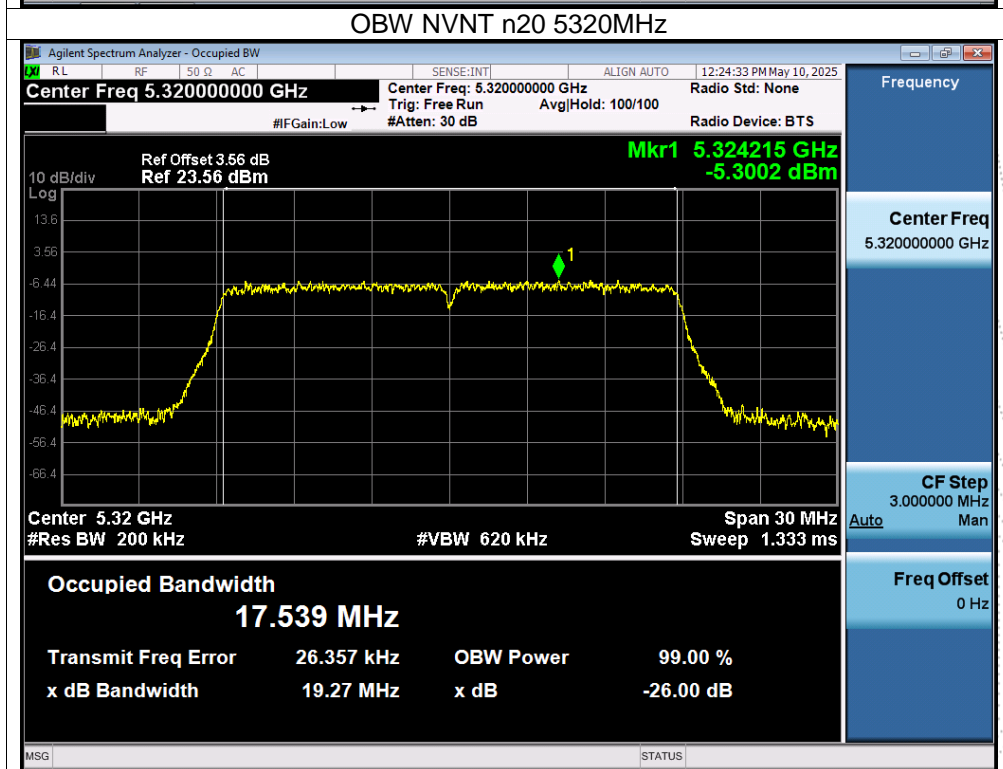
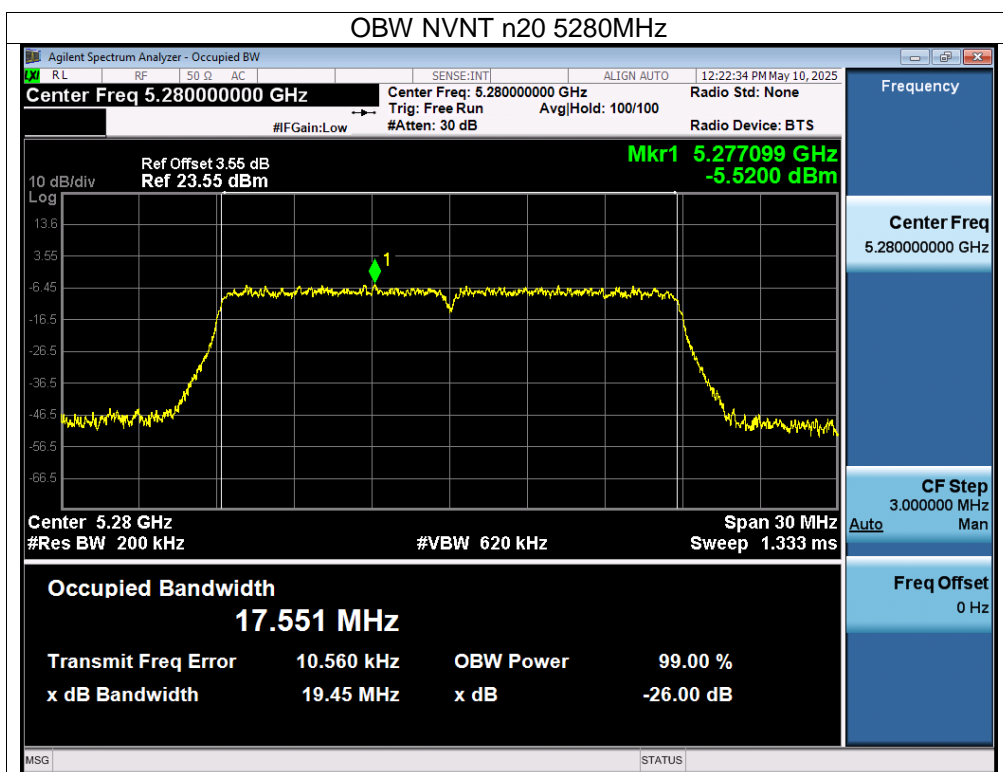


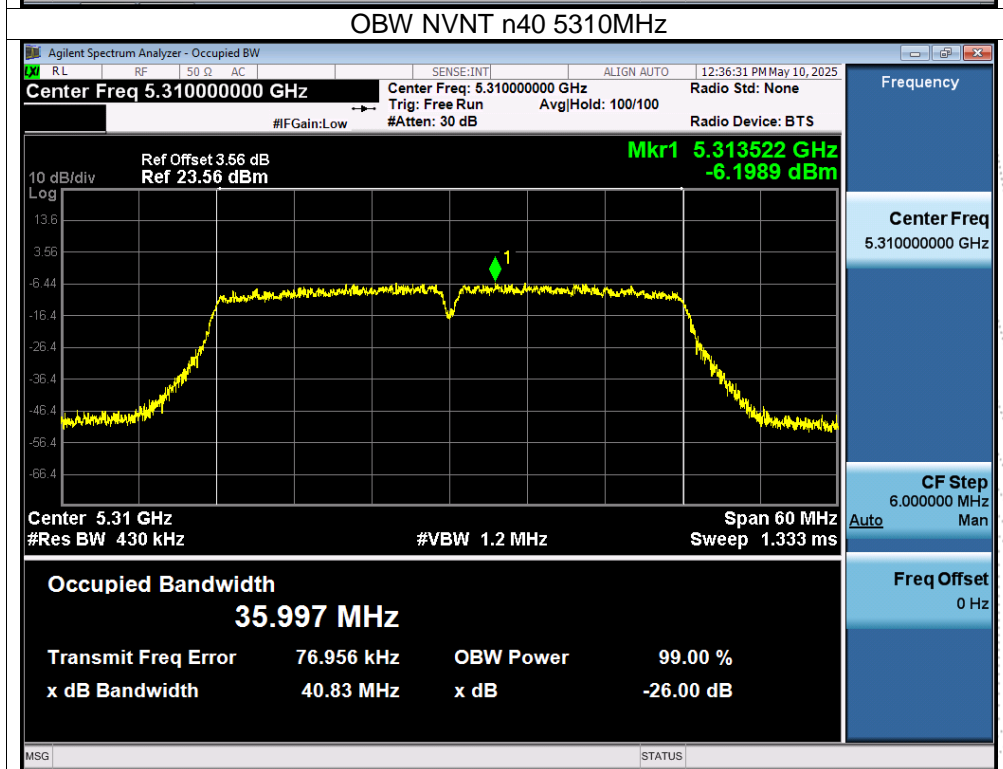
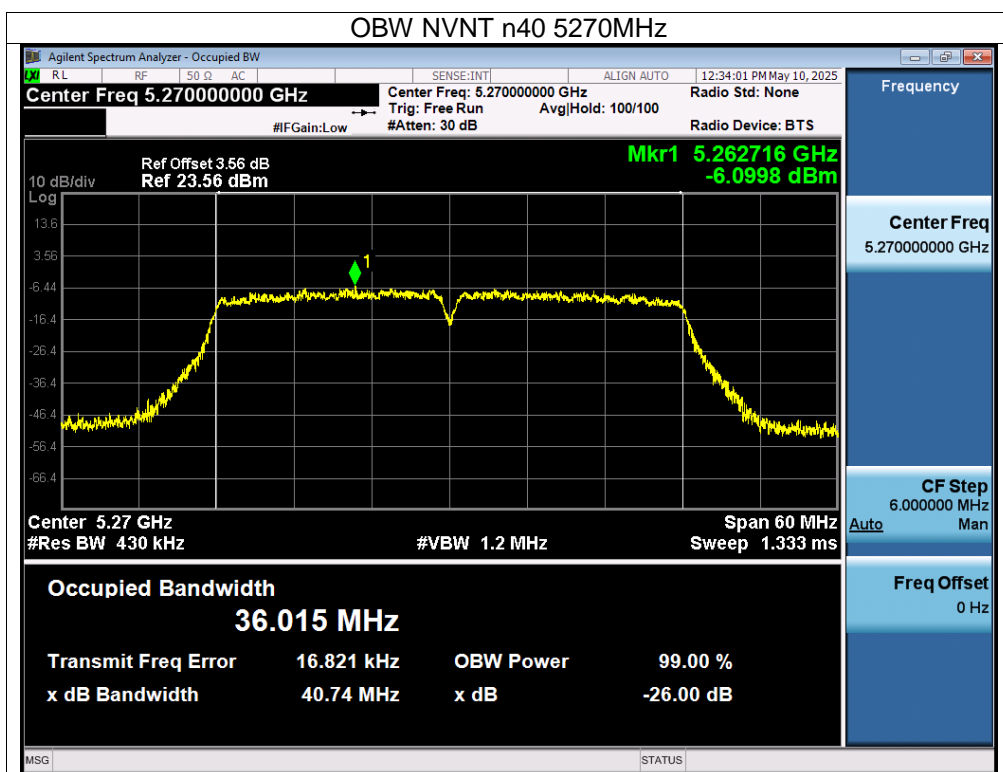


Note: A(B) Represent the value of antenna A and B, The worst data is Antenna A, only shown Antenna A Plot.

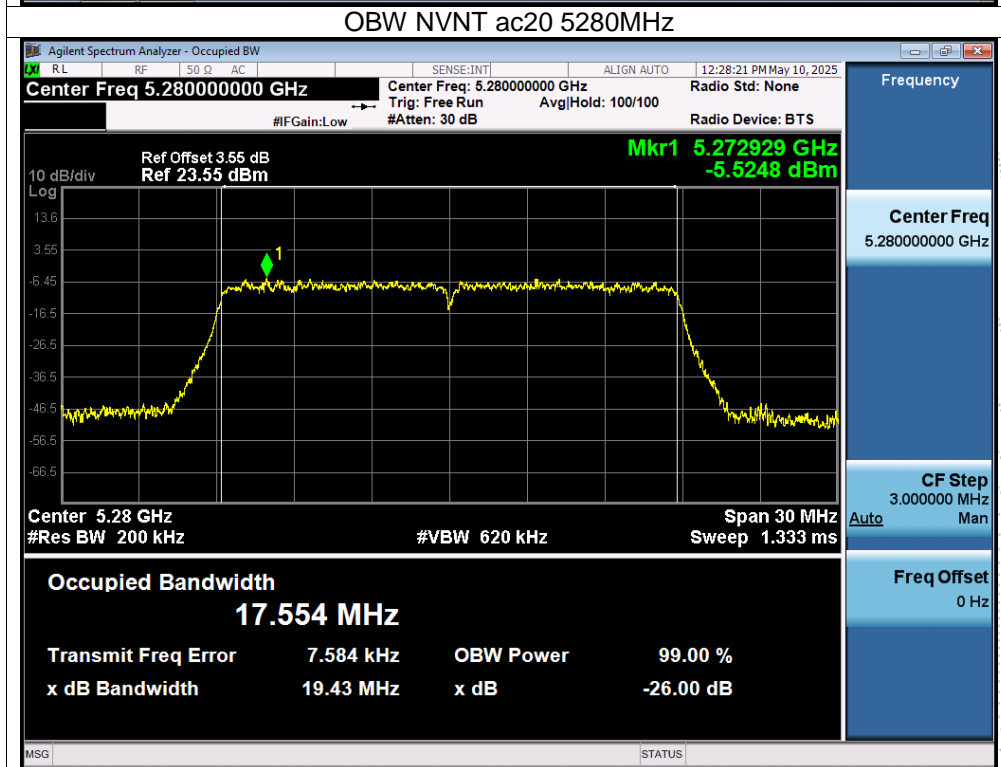
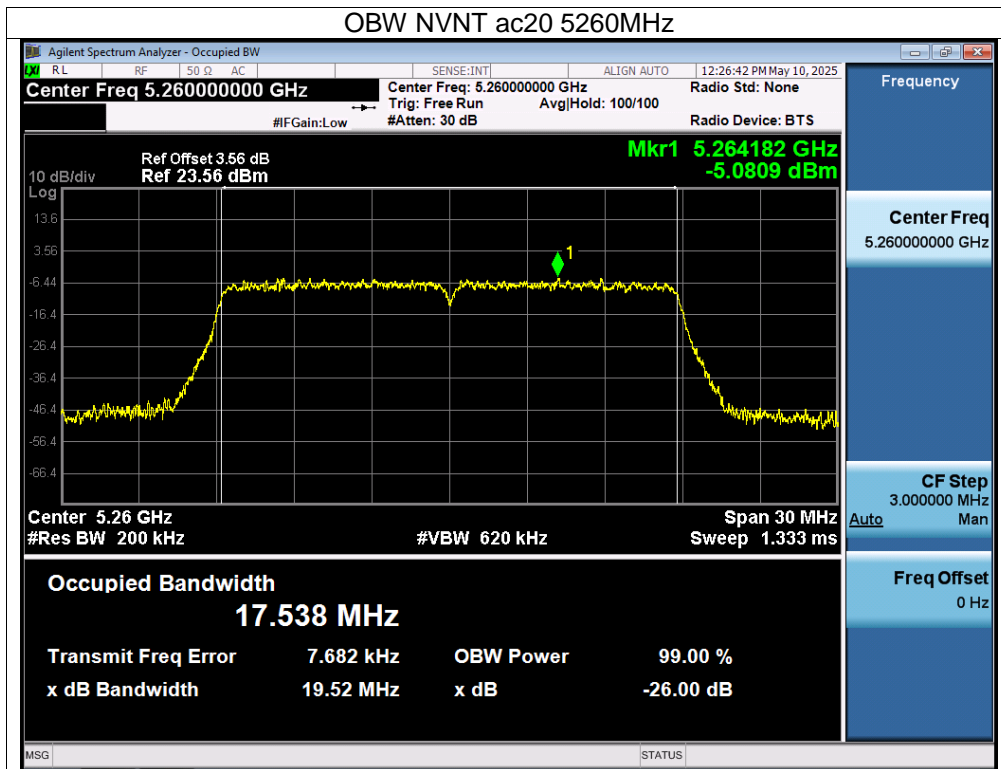




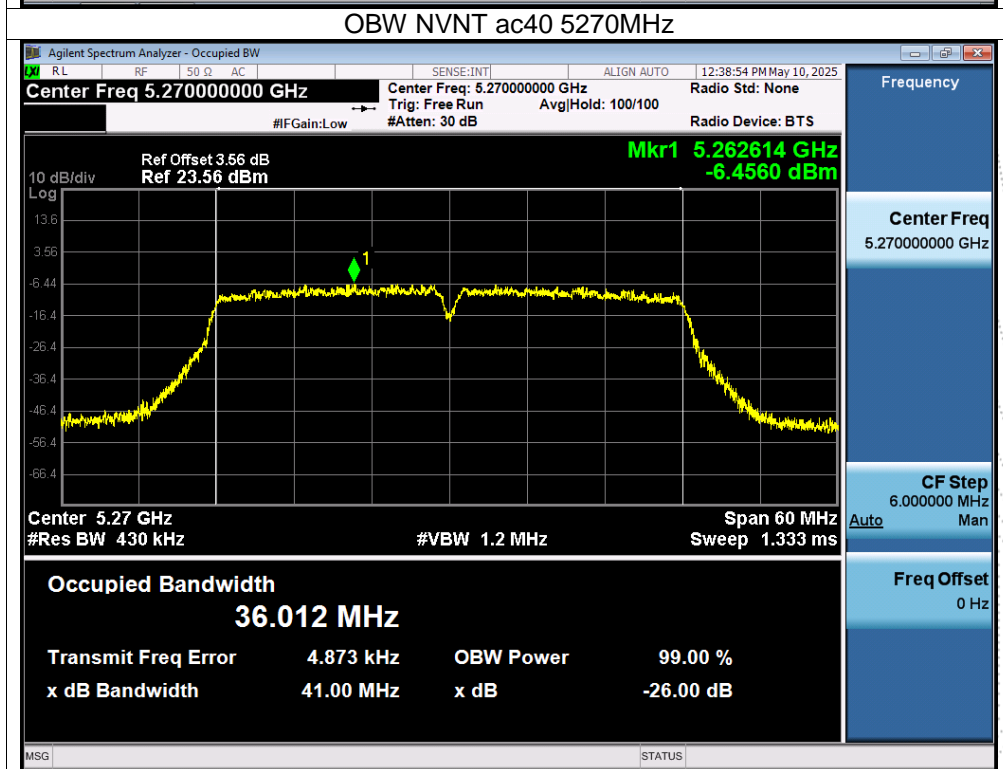
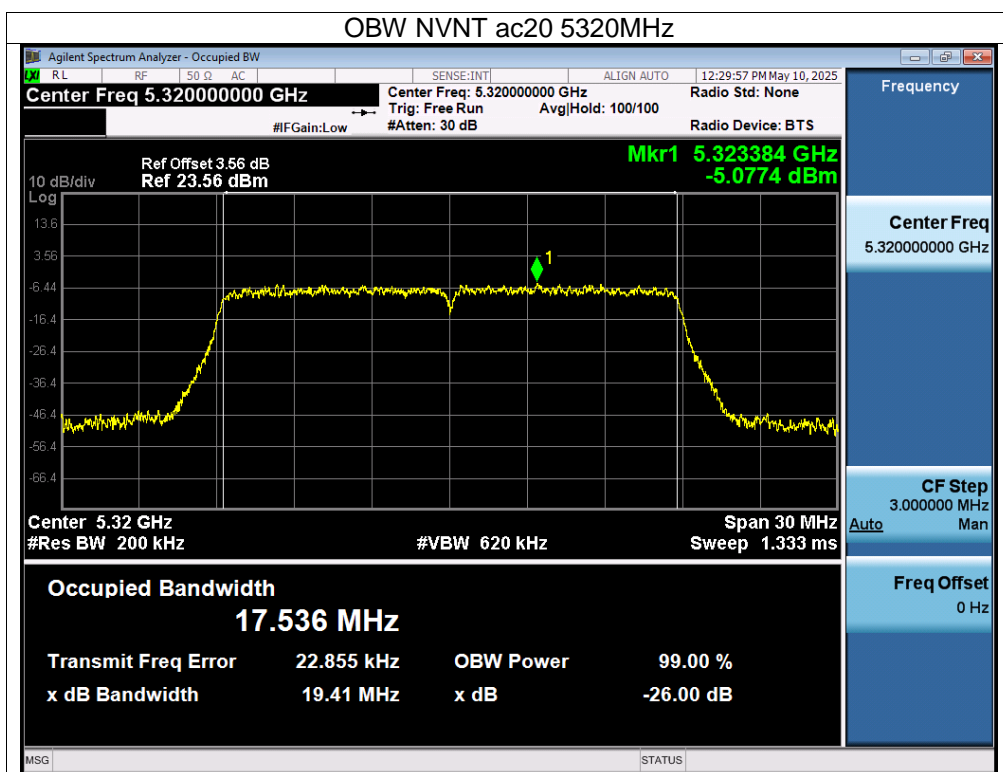


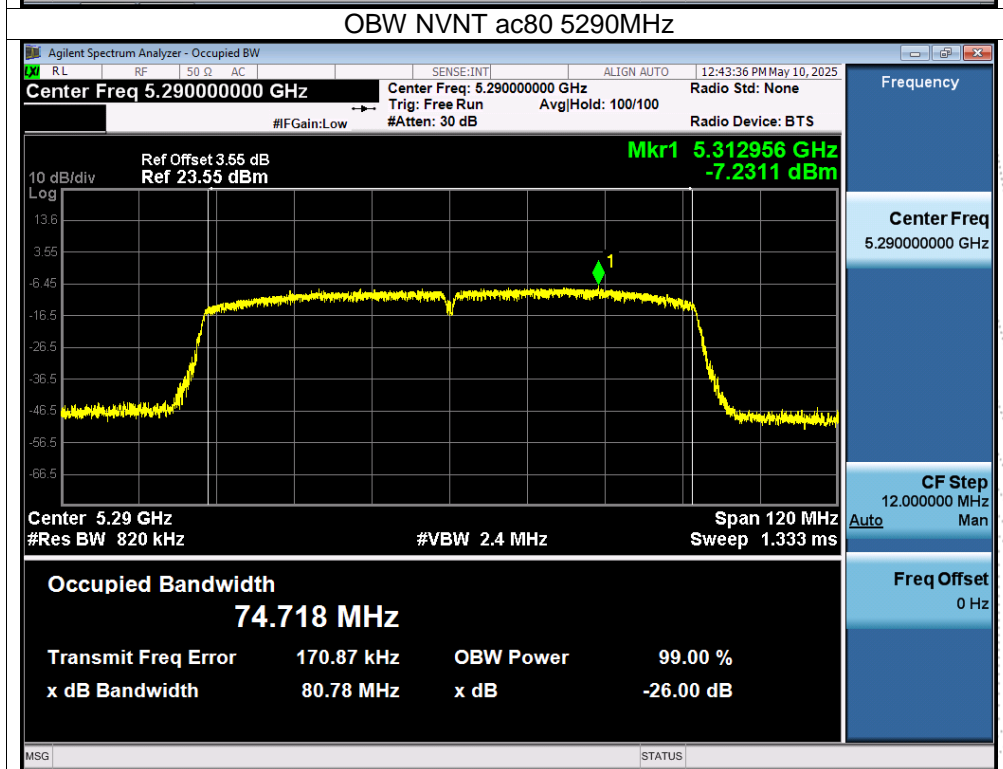
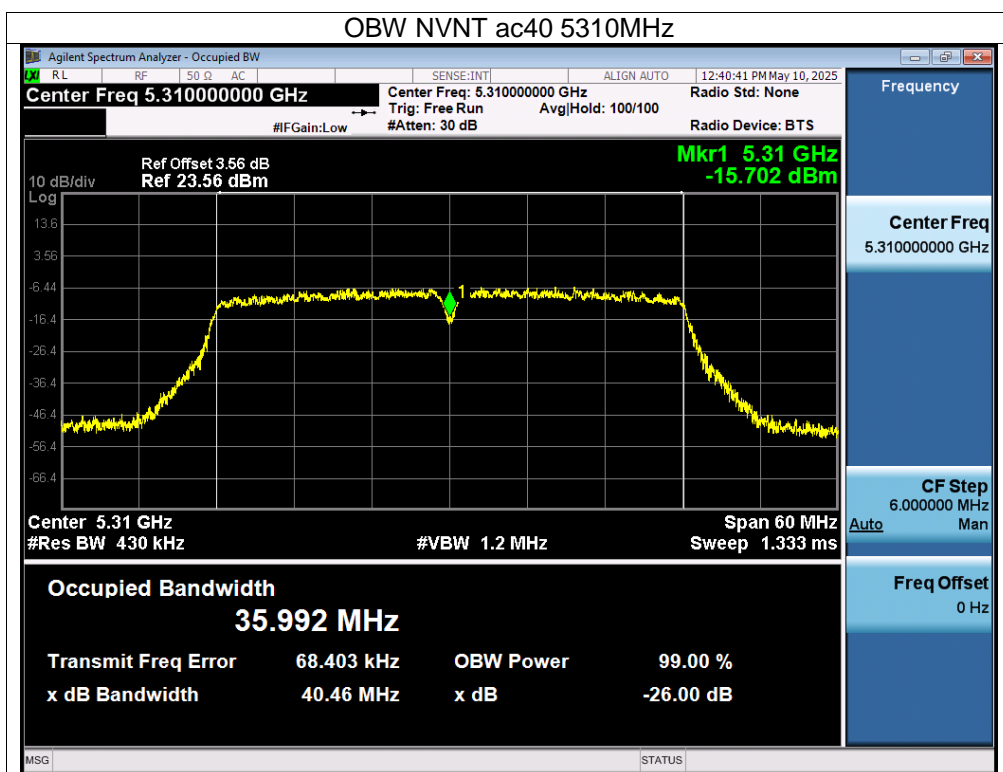






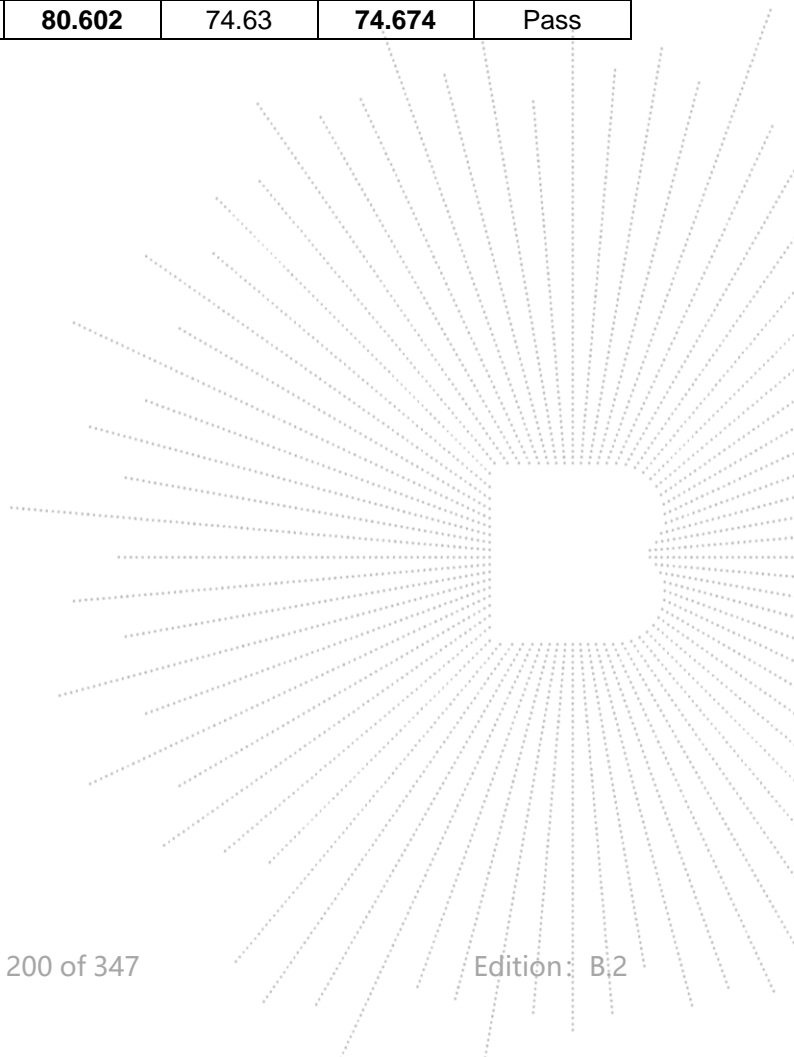






Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	DC 3.3V
Test Mode:	(U-NII-2C) 5500MHz-5700MHz		

Condition	Mode	Frequency (MHz)	-26 dB Bandwidth (MHz)		99% OBW (MHz)		Verdict
			Ant A	Ant B	Ant A	Ant B	
NVNT	a	5500	18.306	18.314	16.344	16.331	Pass
NVNT	a	5580	18.486	18.227	16.354	16.348	Pass
NVNT	a	5700	18.381	18.318	16.329	16.34	Pass
NVNT	n20	5500	19.362	19.36	17.554	17.542	Pass
NVNT	n20	5580	19.338	19.39	17.552	17.542	Pass
NVNT	n20	5700	19.314	19.374	17.53	17.539	Pass
NVNT	n40	5510	40.916	41.013	36.013	35.973	Pass
NVNT	n40	5550	40.984	40.851	35.998	36.025	Pass
NVNT	n40	5670	40.871	40.488	36.023	36	Pass
NVNT	ac20	5500	19.366	19.303	17.55	17.549	Pass
NVNT	ac20	5580	19.399	19.449	17.552	17.55	Pass
NVNT	ac20	5700	19.326	19.345	17.529	17.54	Pass
NVNT	ac40	5510	40.768	40.79	36.027	36.036	Pass
NVNT	ac40	5550	40.649	40.977	35.982	35.987	Pass
NVNT	ac40	5670	40.879	40.897	36.006	35.993	Pass
NVNT	ac80	5530	80.544	<b>80.602</b>	74.63	<b>74.674</b>	Pass



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

