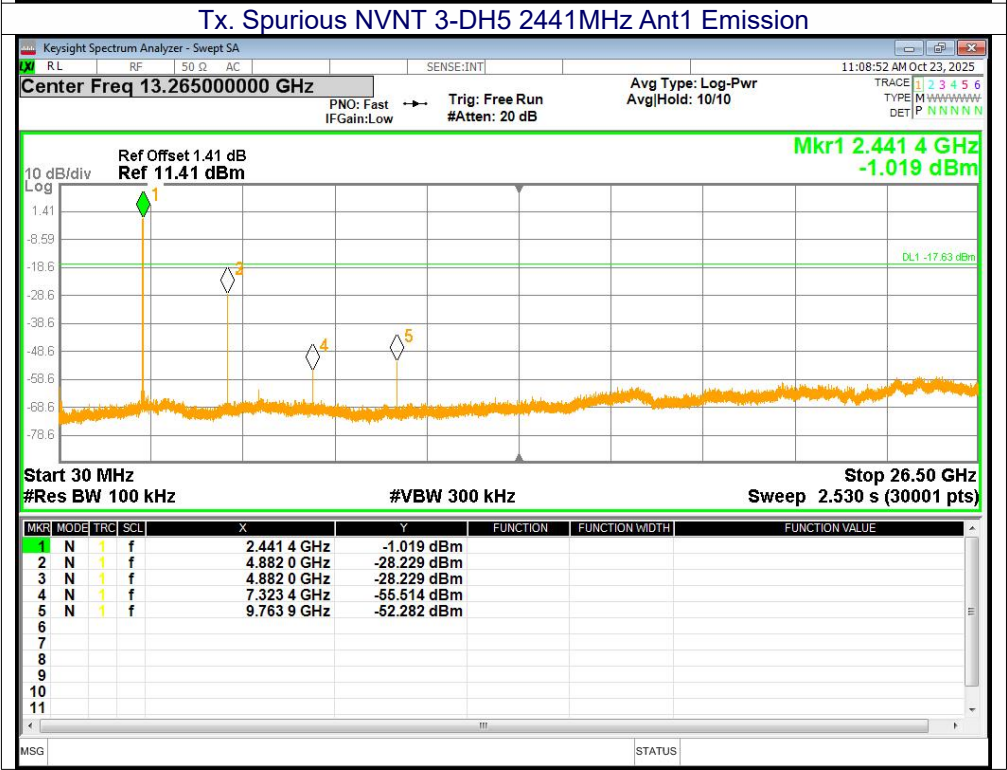
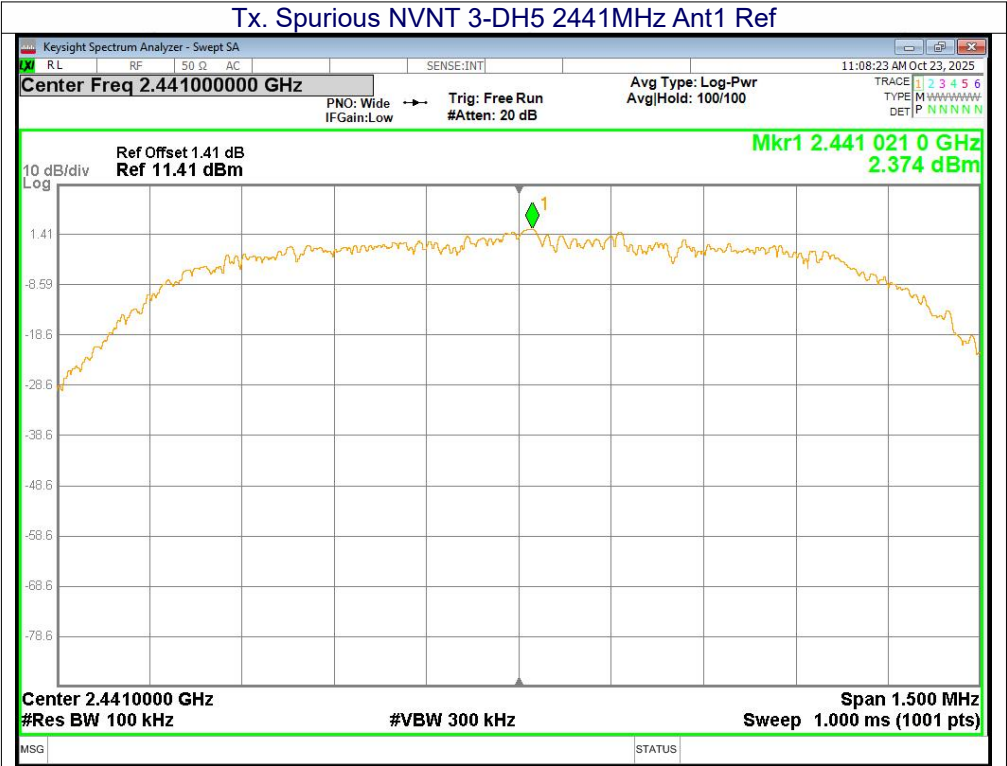
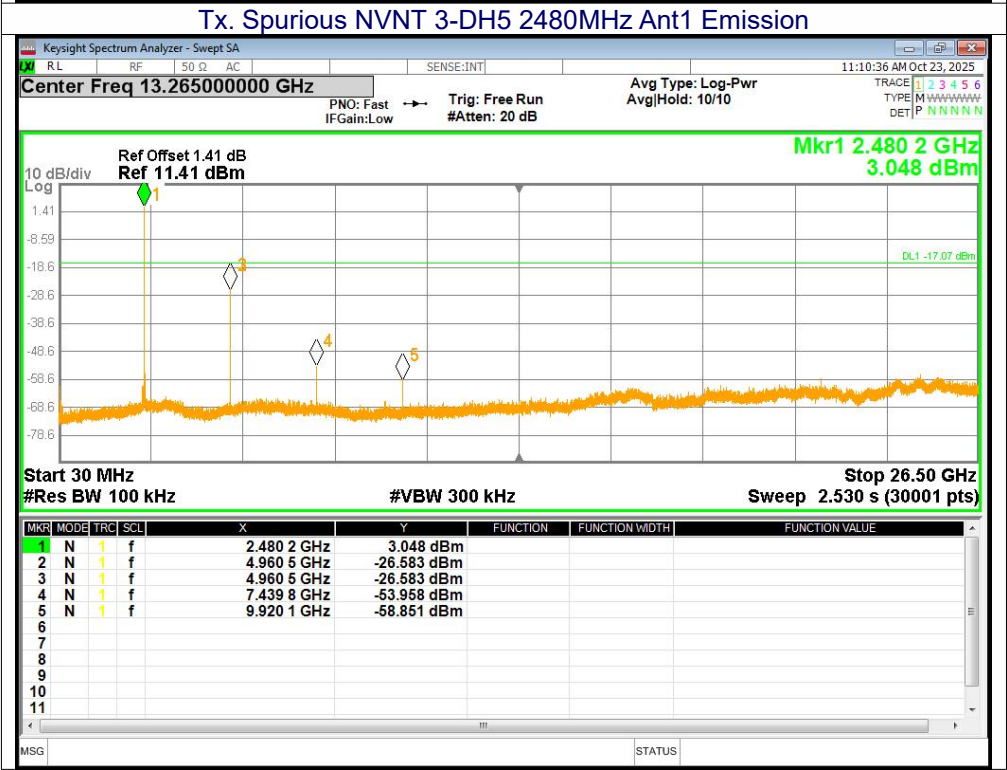
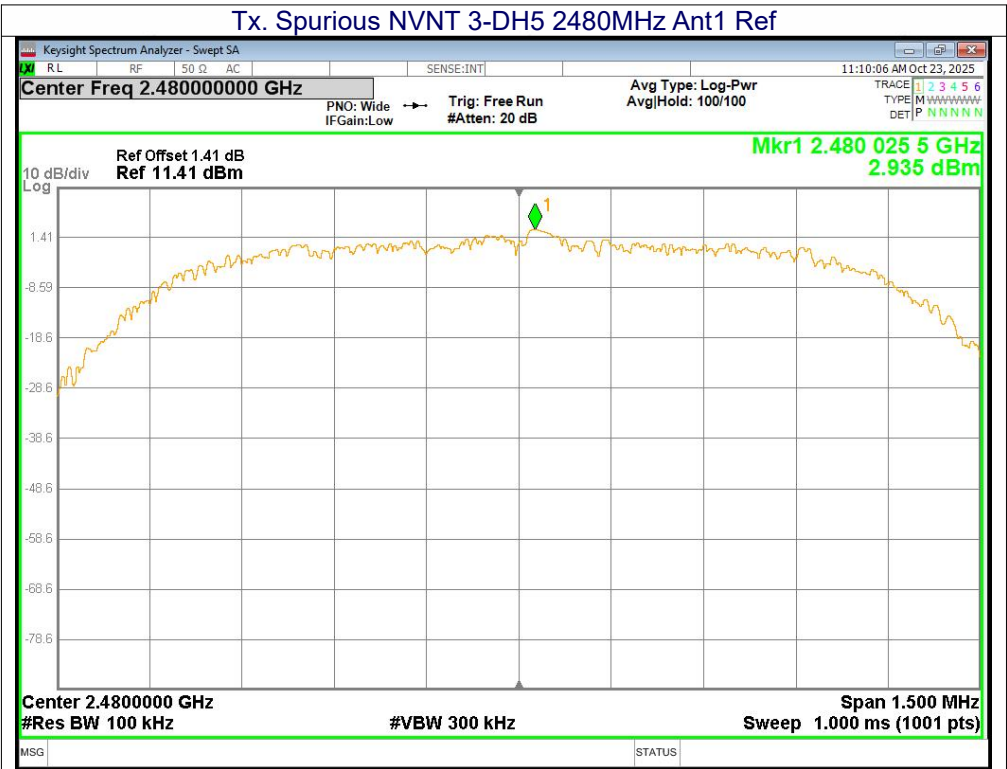






**8. 20DB&99% BANDWIDTH**

Test Requirement:	FCC Part15 C Section 15.247 (a)(1), RSS 247 5.1, RSS-Gen 6.7
Test Method:	ANSI C63.10-2020

8.1 Test Setup**8.2 Limit**

According to RSS-247§5.1(a)& §5.1(b), Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

8.3 Test procedure

1. Set RBW = shall be in the range of 1% to 5% of the OBW but not less than 100kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
8. The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30KHz RBW and 100 KHz VBW record the 99% bandwidth.

8.4 DEVIATION FROM STANDARD

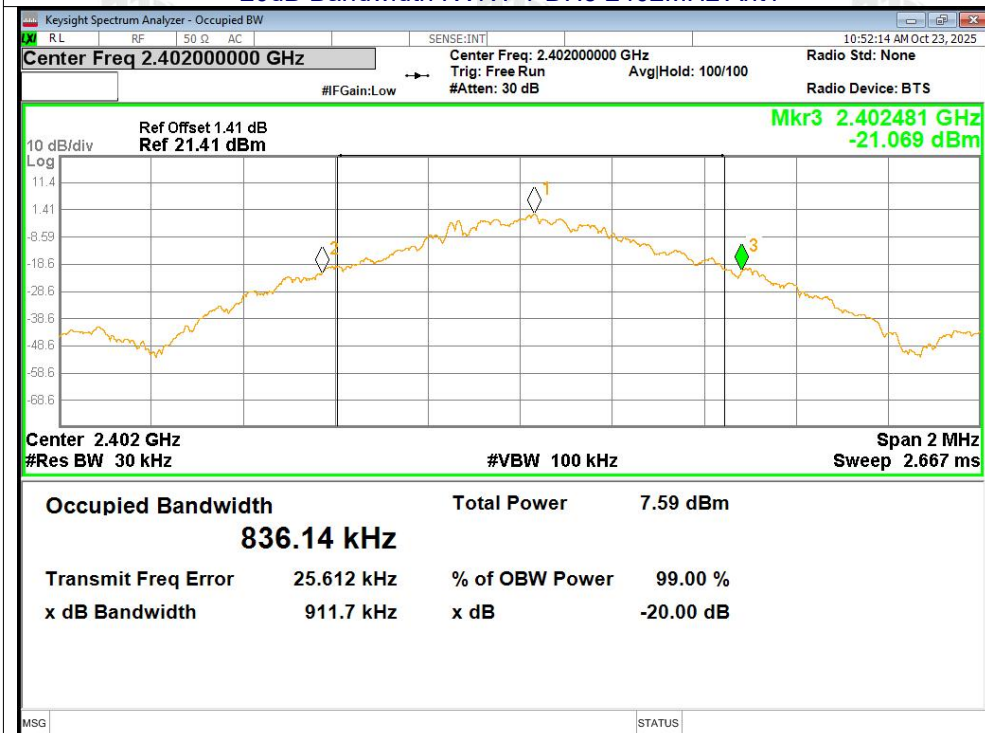
No deviation.

8.5 Test Result

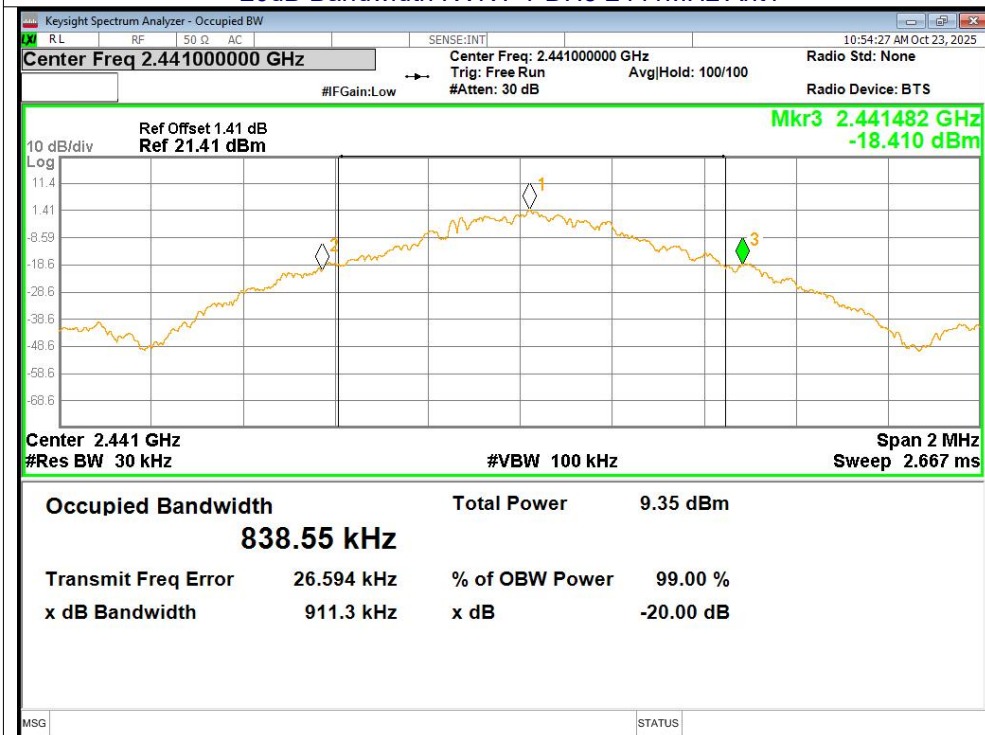
Mode	Test channel	20dB Emission Bandwidth (MHz)	99%Bandwidth (MHz)	Result
GFSK	Lowest	0.912	0.845	Pass
	Middle	0.911	0.84	
	Highest	0.933	0.837	
$\pi/4$ DQPSK	Lowest	1.318	1.187	Pass
	Middle	1.321	1.184	
	Highest	1.267	1.191	
8DPSK	Lowest	1.278	1.2	Pass
	Middle	1.281	1.196	
	Highest	1.282	1.2	

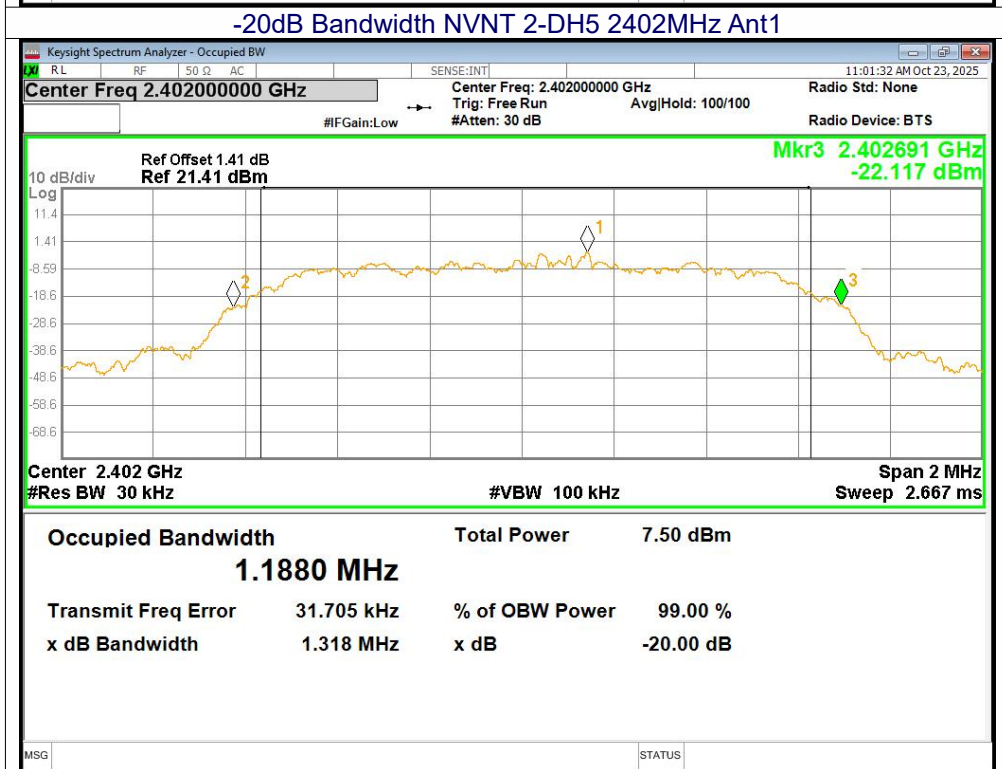
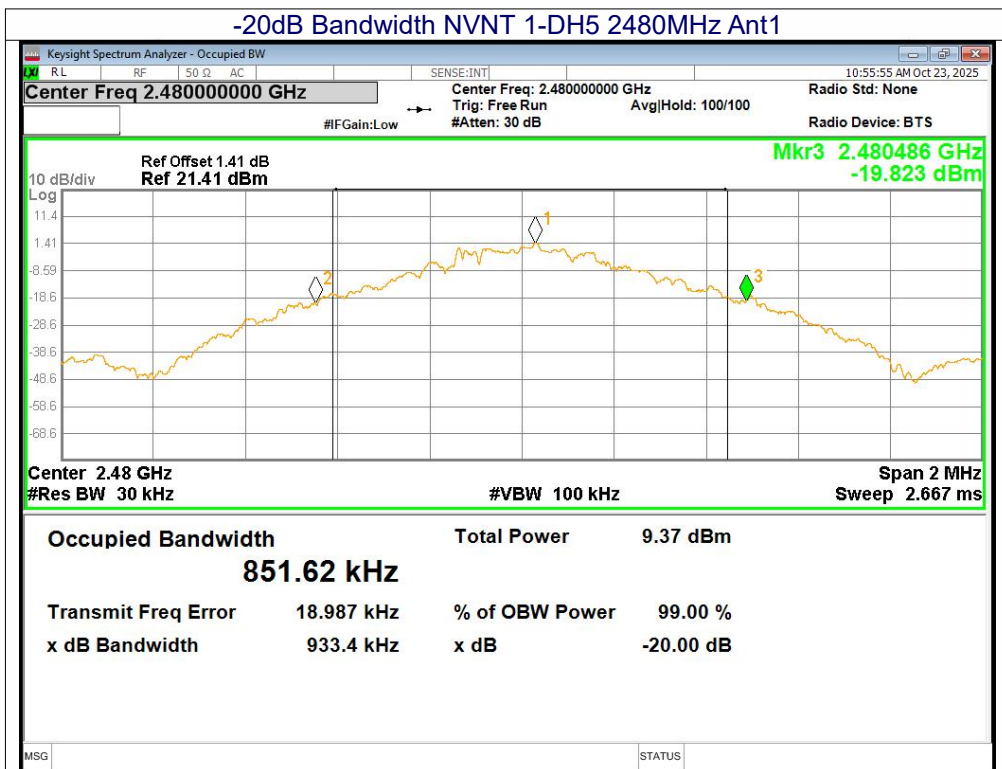
Test Graphs

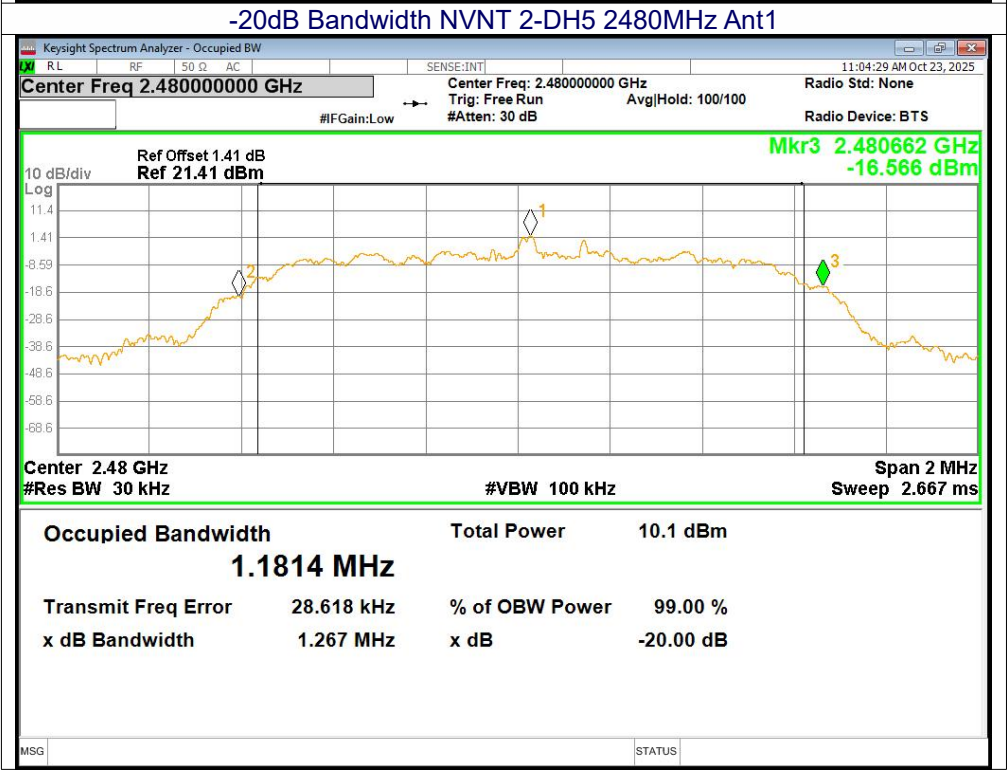
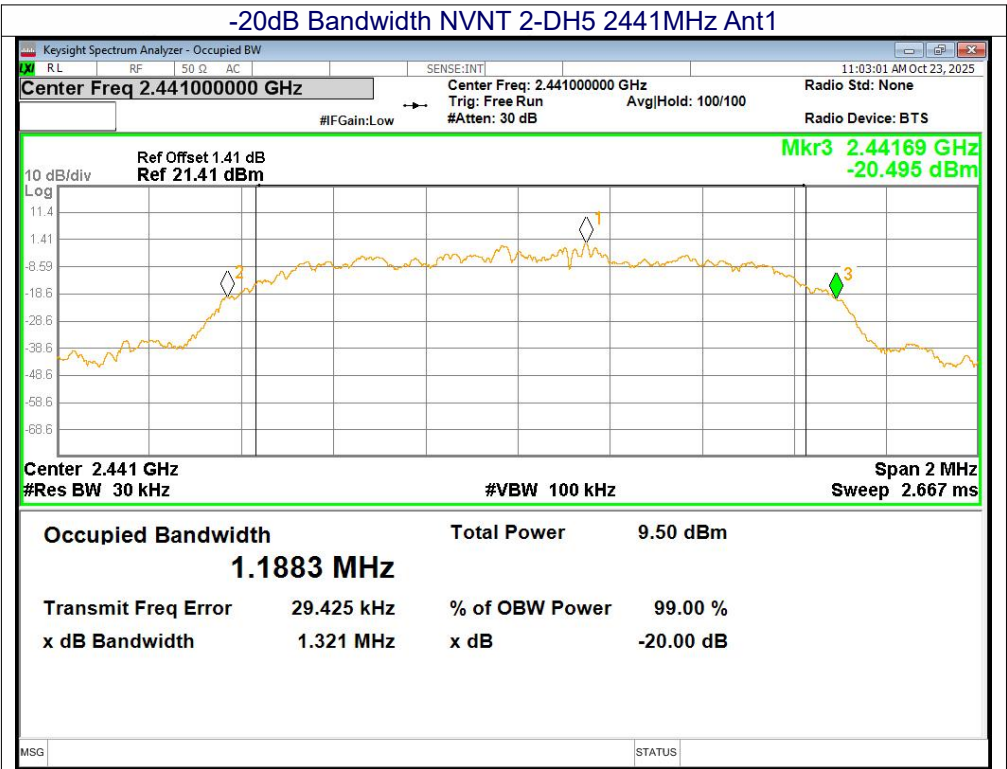
-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1

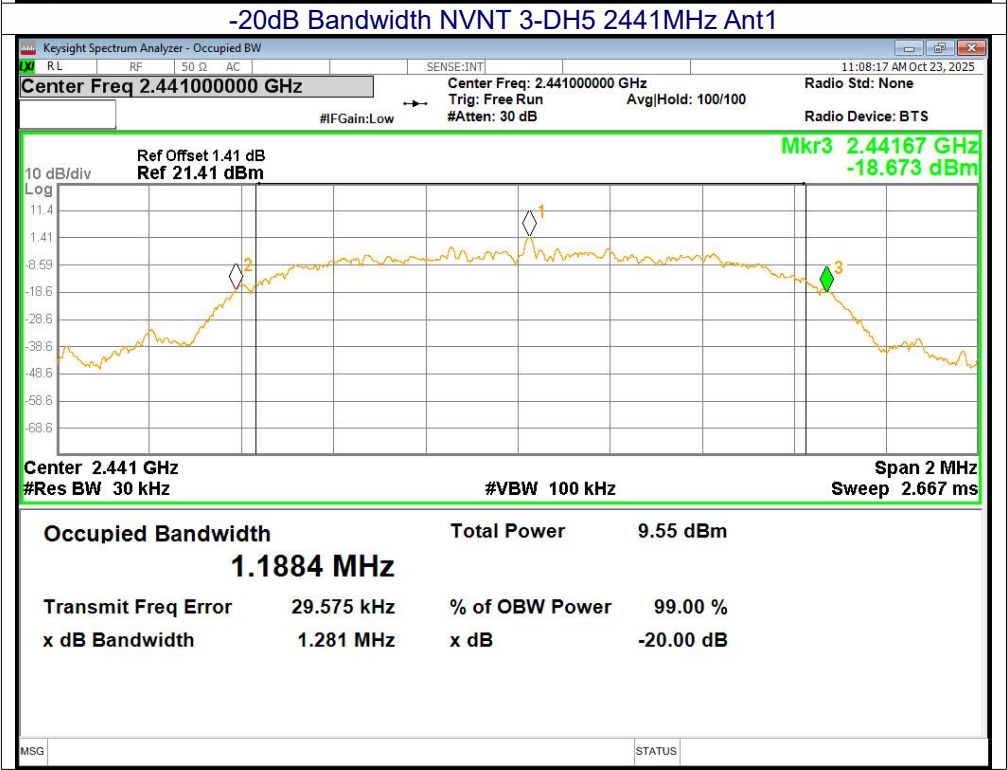
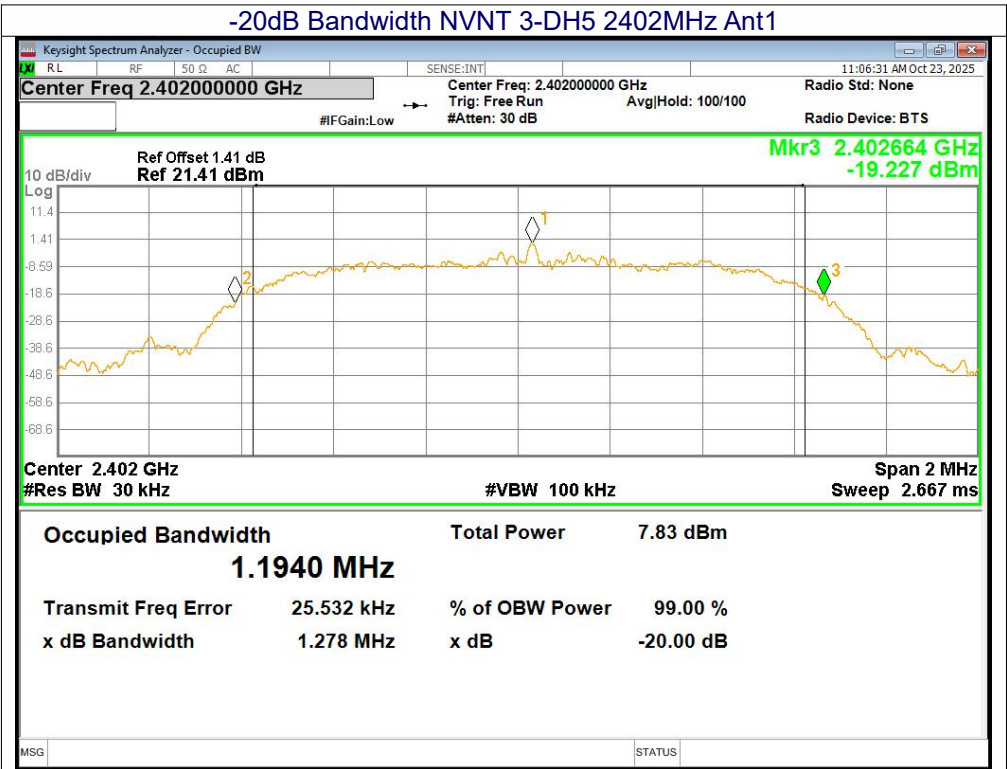


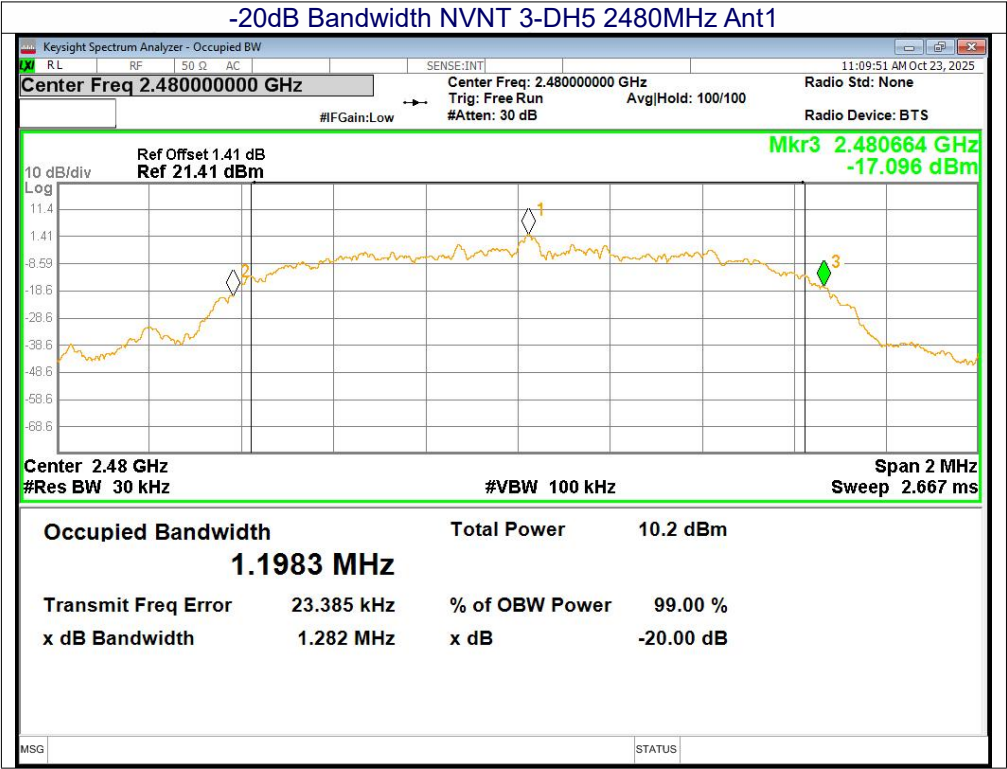
-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1

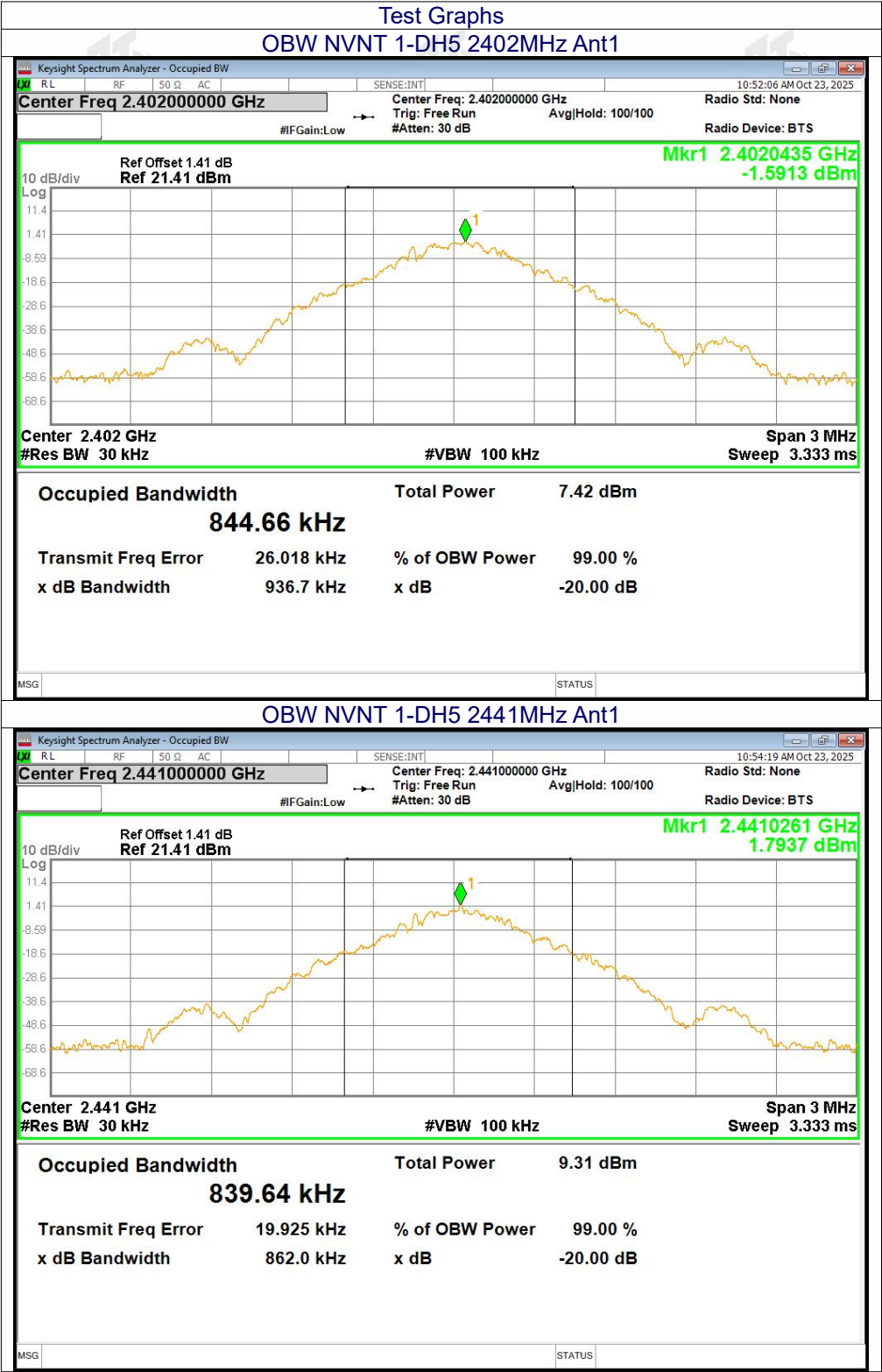


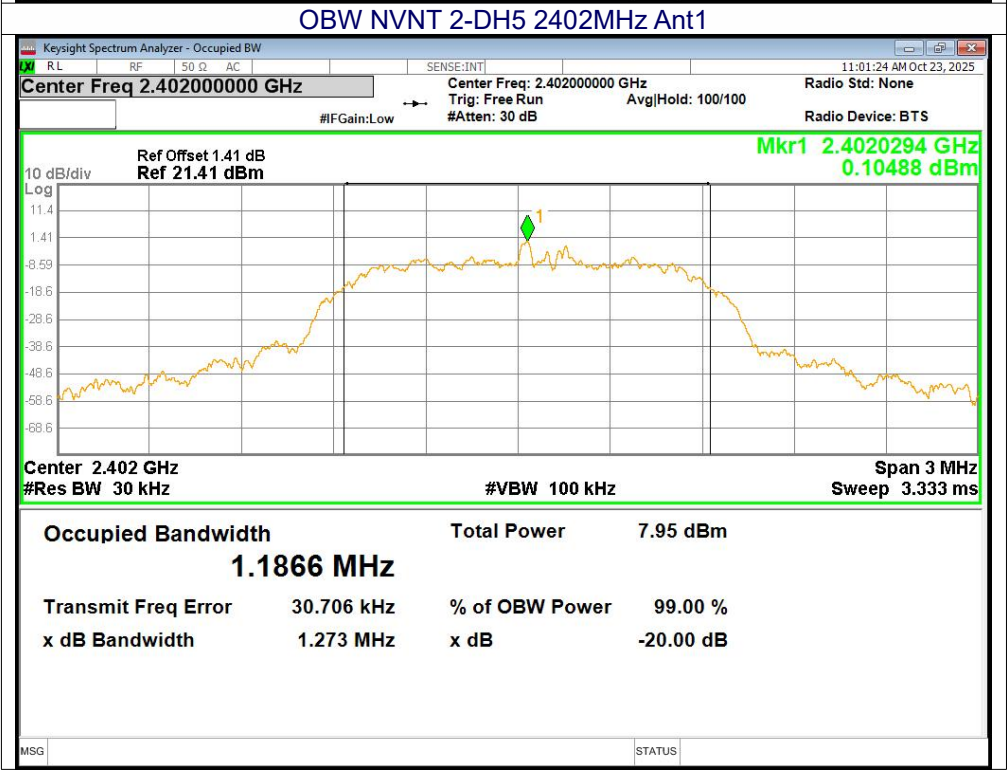
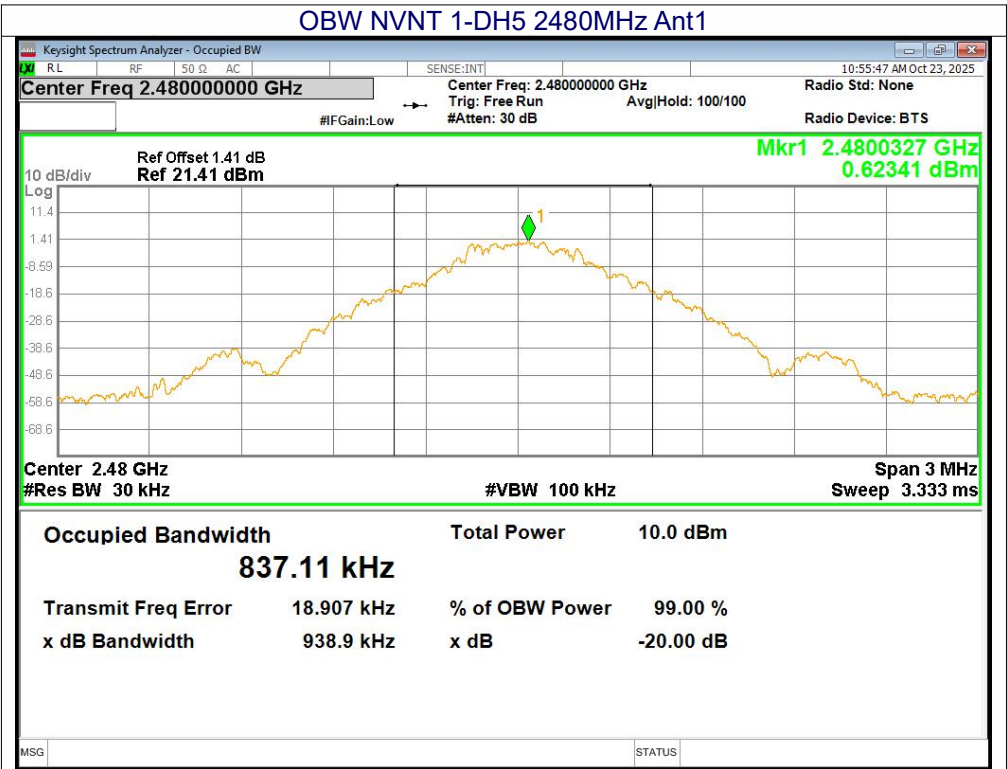


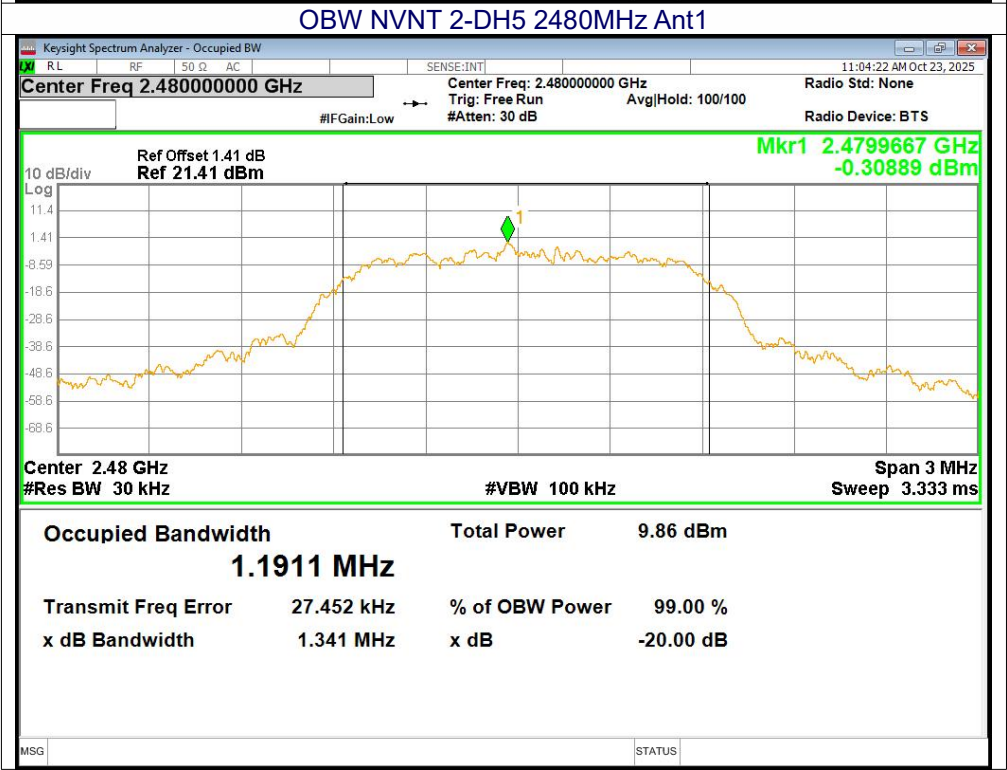
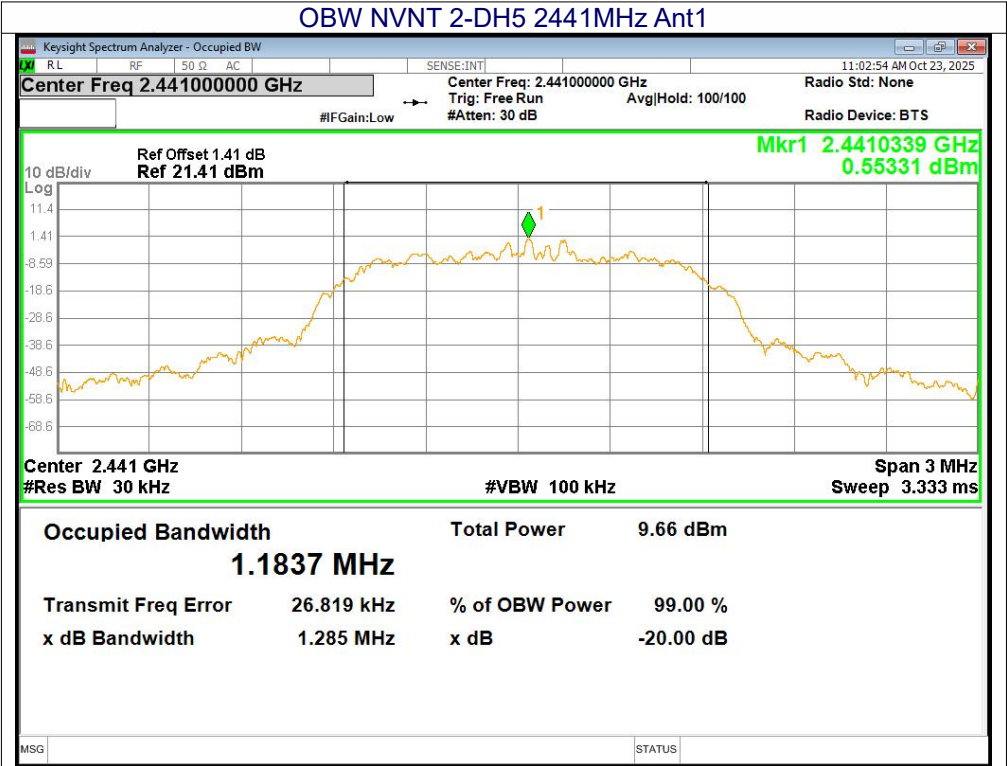


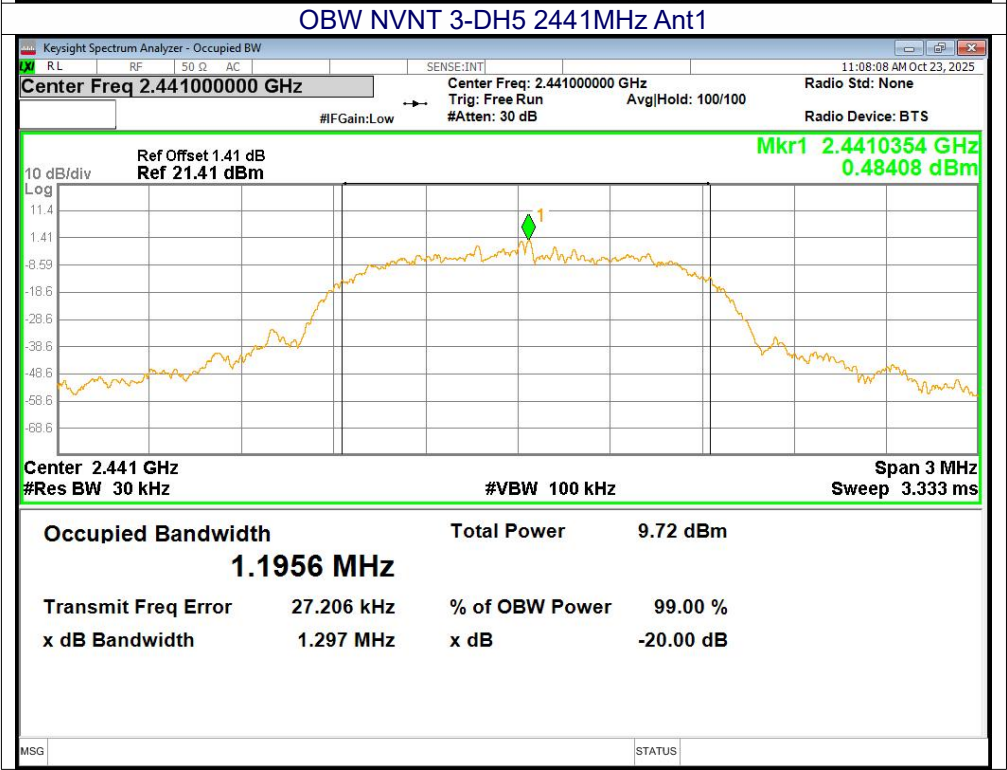
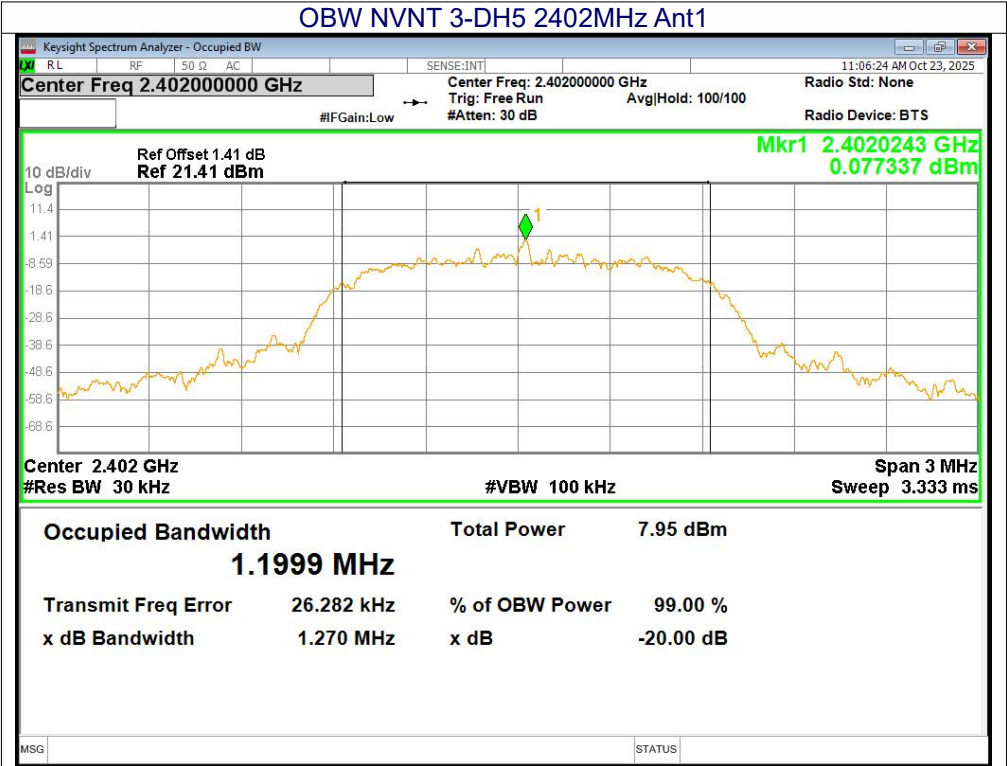


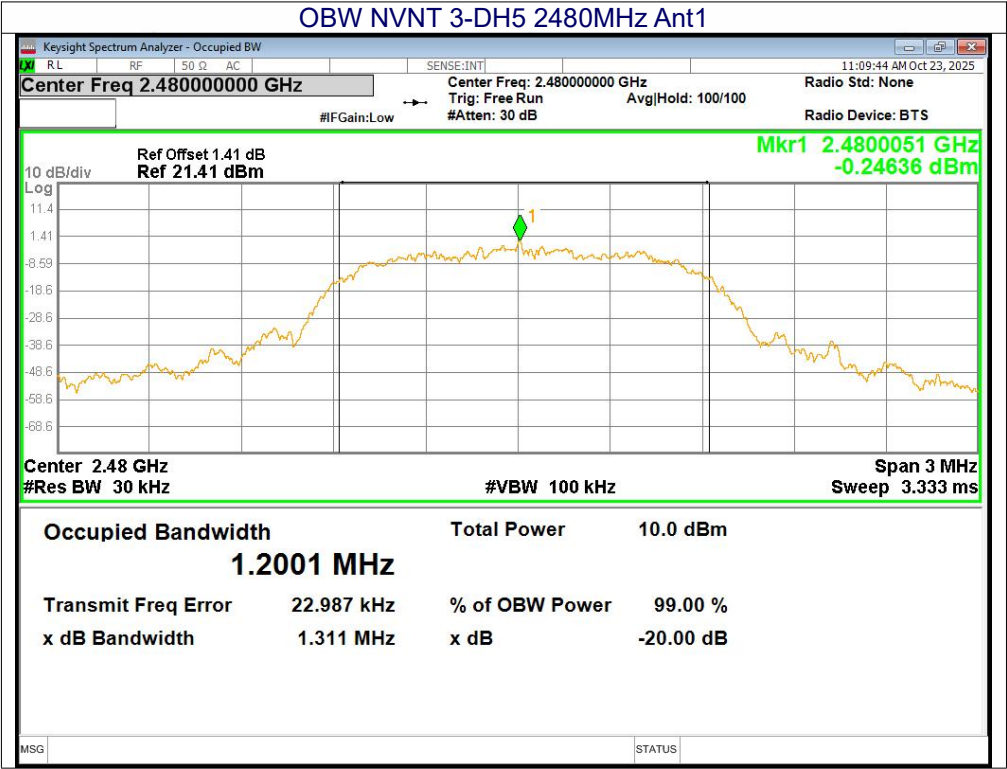












**9. Maximum Peak Output Power**

Test Requirement:	FCC Part15 C Section 15.247 (b)(1), RSS 247 5.4 (b)
Test Method:	ANSI C63.10-2020

9.1 Block Diagram Of Test Setup**9.2 Limit**

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt.
For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

For FHSs operating in the band 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1.0 W if the hopset uses 75 or more hopping channels; the maximum peak conducted output power shall not exceed 0.125 W if the hopset uses less than 75 hopping channels. The e.i.r.p. shall not exceed 4 W.

9.3 Test procedure

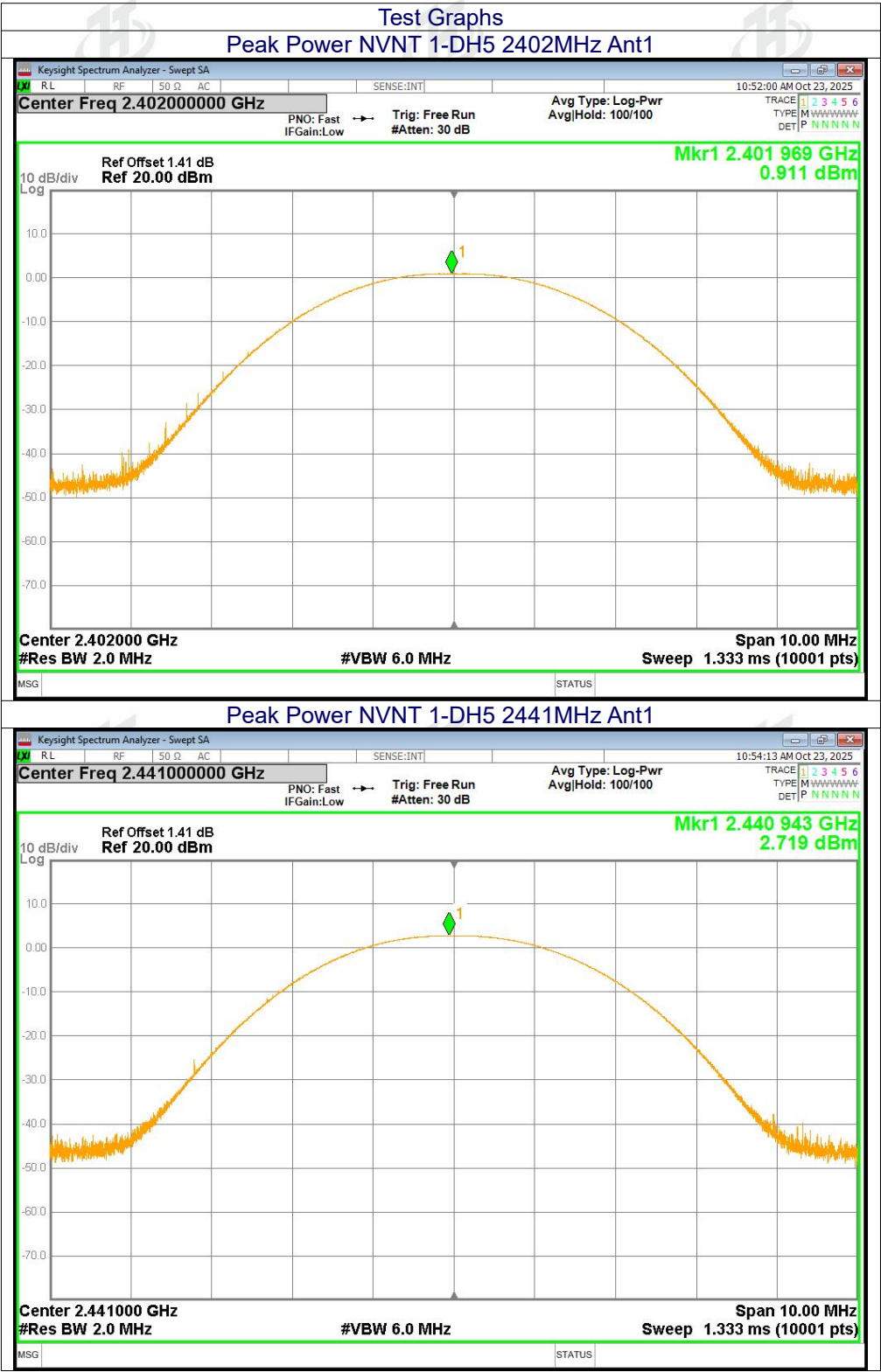
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 2MHz. VBW = 6MHz. Sweep = auto; Detector Function = Peak.
3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

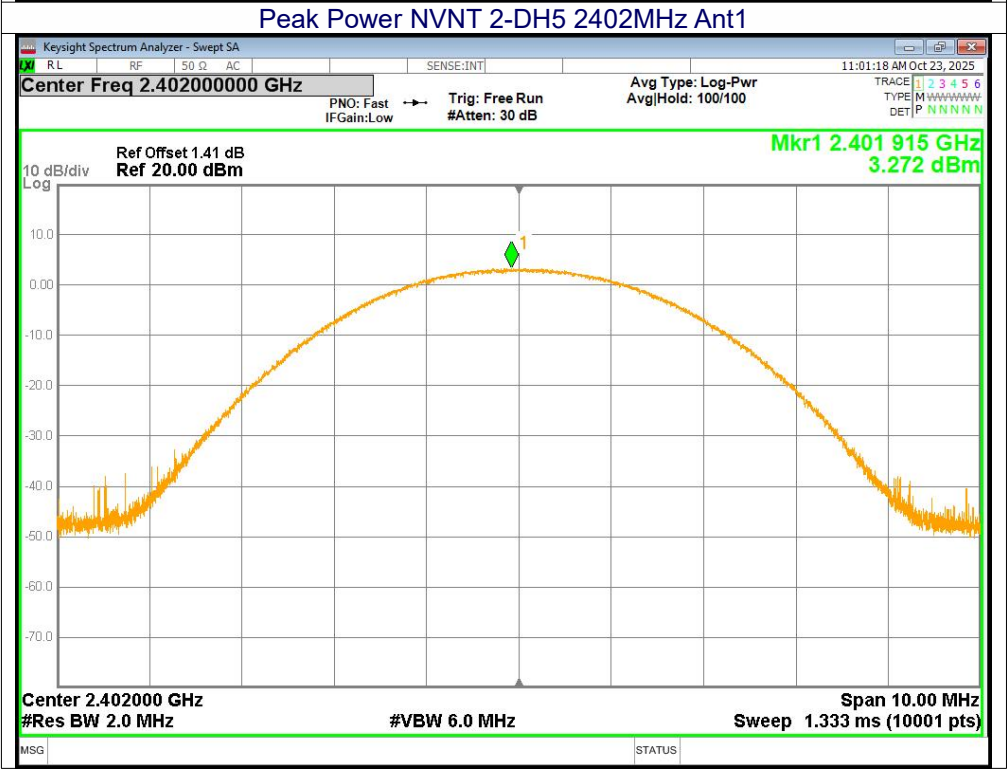
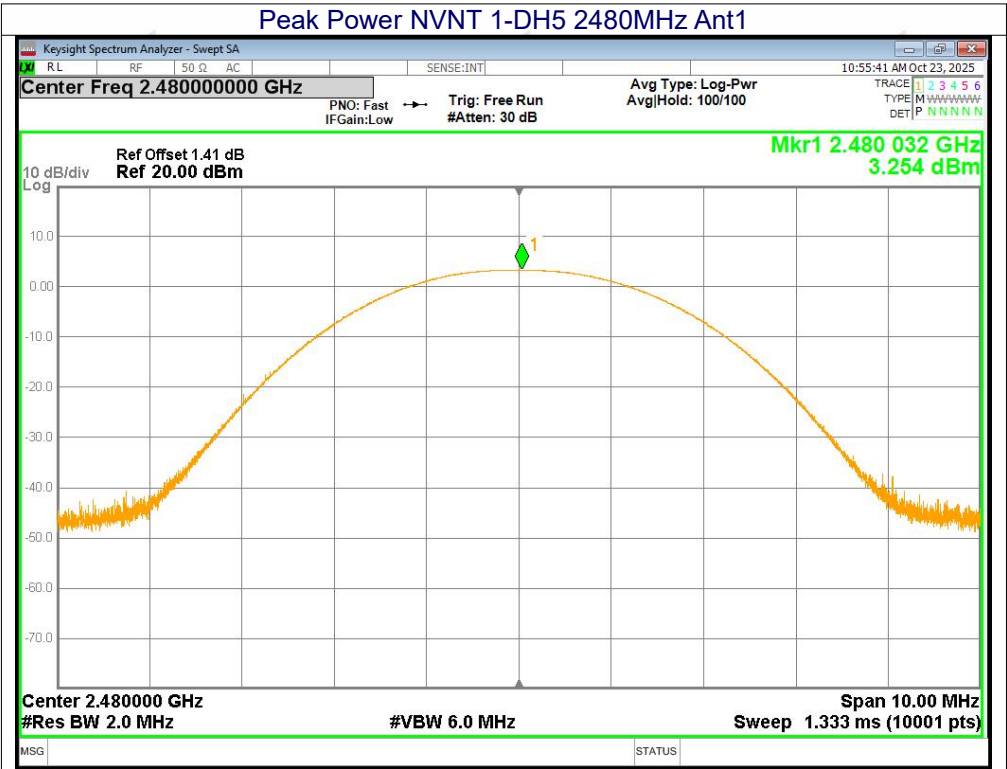
9.4 DEVIATION FROM STANDARD

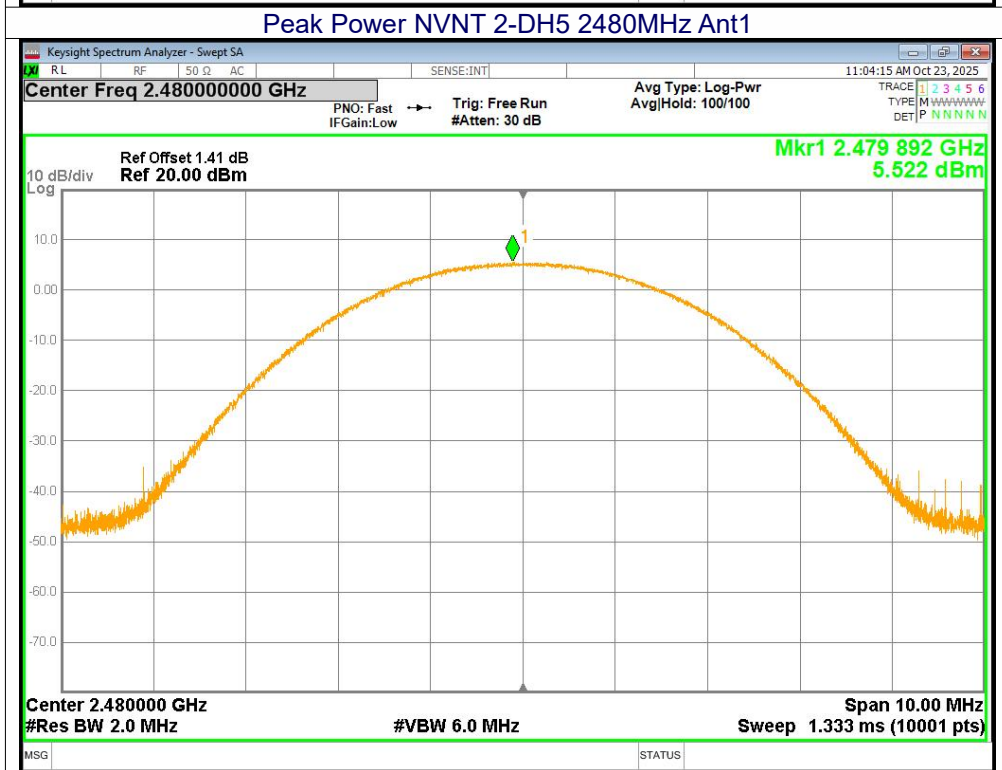
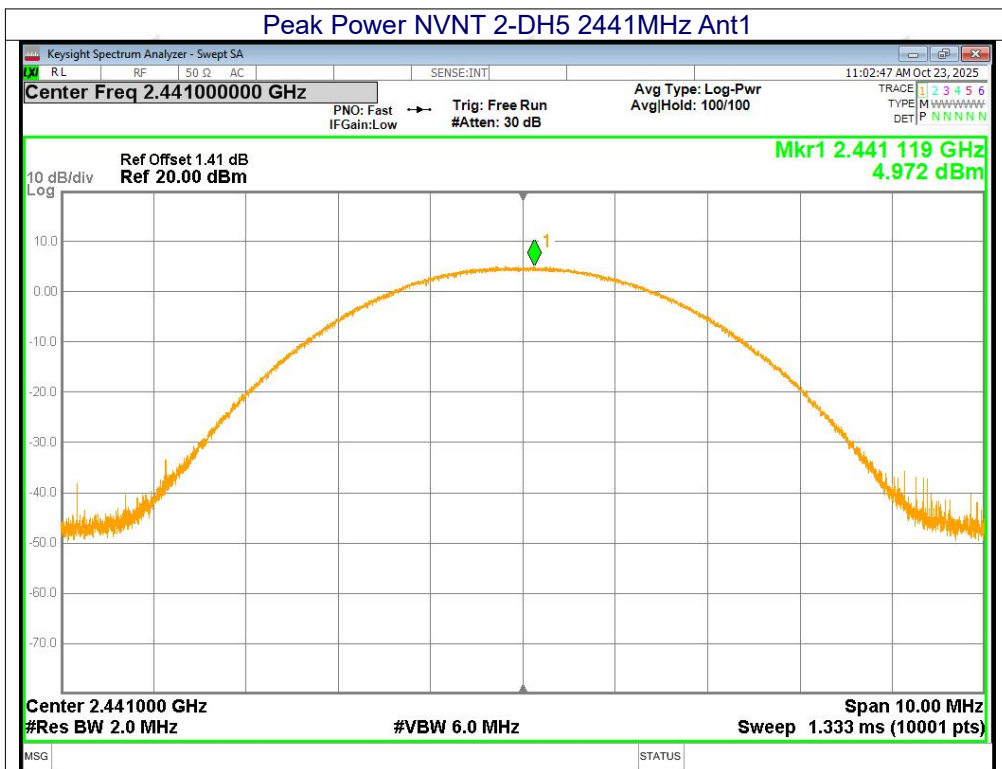
No deviation.

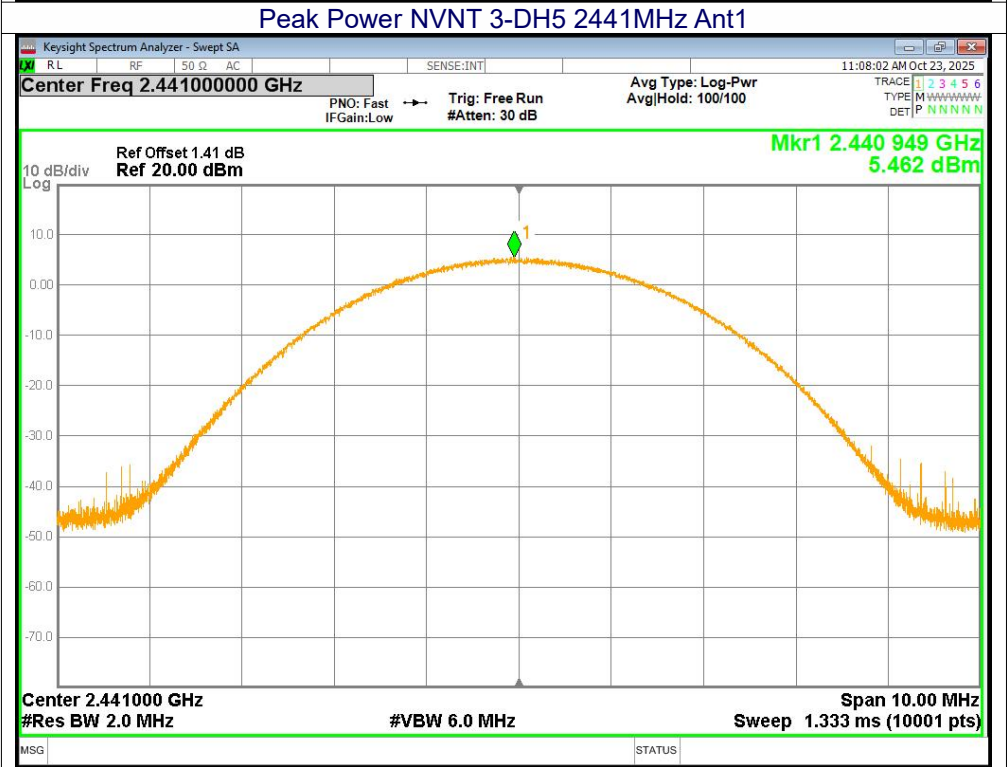
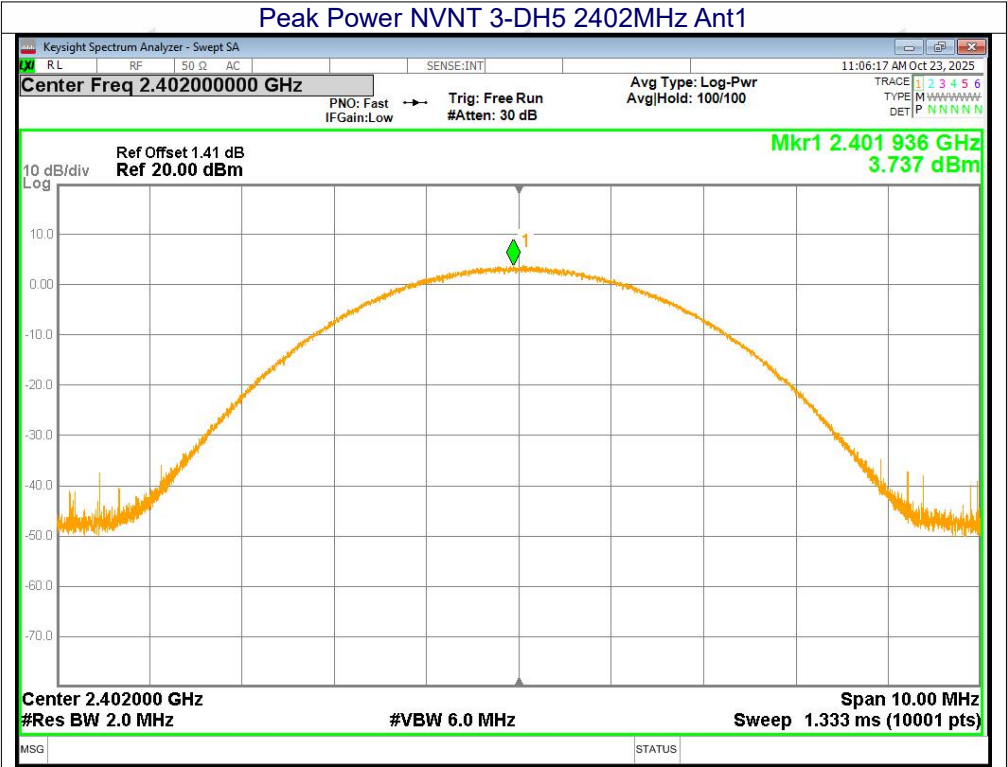
9.5 Test Result

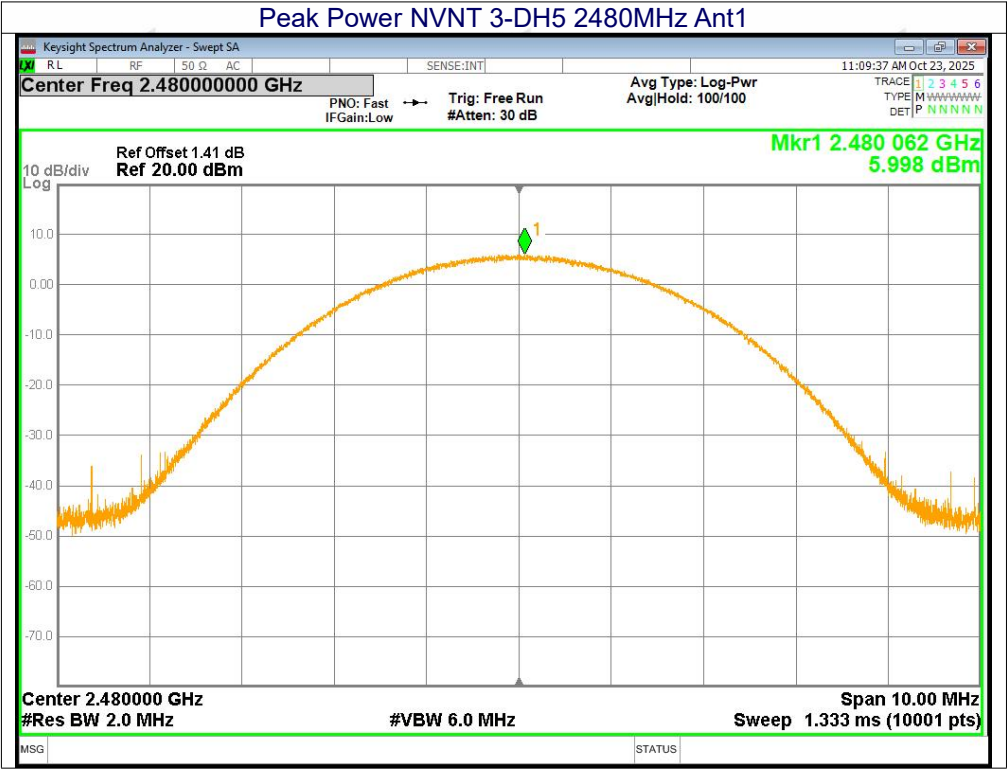
Mode	Test channel	Peak Output Power (dBm)	Peak Output Power Limit (dBm)	Result
GFSK	Lowest	0.91	30.00	Pass
	Middle	2.72		
	Highest	3.25		
$\pi/4$ DQPSK	Lowest	3.27	21.00	Pass
	Middle	4.97		
	Highest	5.52		
8DPSK	Lowest	3.74	21.00	Pass
	Middle	5.46		
	Highest	6		











**10. HOPPING CHANNEL SEPARATION**

Test Requirement:	FCC Part15 C Section 15.247 (a)(1), RSS 247 5.1
Test Method:	ANSI C63.10-2020
Receiver setup:	RBW=30KHz, VBW=100KHz, detector=Peak
Limit:	GFSK, $\pi/4$ -DQPSK & 8DSK: 0.025MHz or 2/3 of the 20dB bandwidth (whichever is greater)

10.1 Test Setup**10.2 Test procedure**

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 30kHz. VBW = 100kHz , Span = 2.0MHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

10.3 DEVIATION FROM STANDARD

No deviation.

10.4 Test Result

Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
1-DH5	Ant1	2402.004	2403.018	1.014	0.608	Pass
1-DH5	Ant1	2440.986	2442.02	1.034	0.607	Pass
1-DH5	Ant1	2478.874	2480.18	1.306	0.622	Pass
2-DH5	Ant1	2402.0294	2403.1318	1.1024	0.879	Pass
2-DH5	Ant1	2441.0268	2441.994	0.9672	0.881	Pass
2-DH5	Ant1	2479.0268	2480.1578	1.131	0.845	Pass
3-DH5	Ant1	2402.0216	2403.0304	1.0088	0.852	Pass
3-DH5	Ant1	2441.0502	2442.0278	0.9776	0.854	Pass
3-DH5	Ant1	2479.0268	2480.007	0.9802	0.855	Pass