

RF Test Data for Bluetooth(BDR+EDR) (Conducted Measurements)

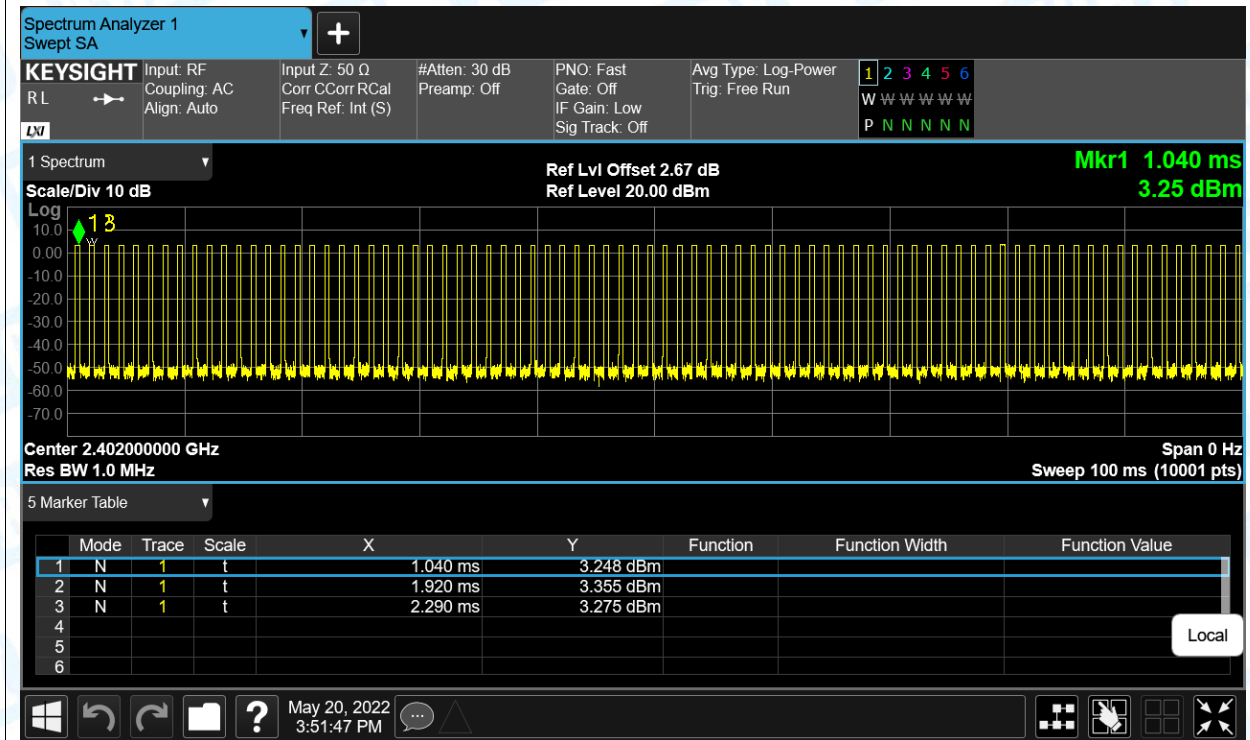
General Description of EUT	
Product Name:	Heltec Indoor Hotspot
Test Model:	HT-M2802
Sample ID:	RW-C-202205-0225-1-2#
Environmental Conditions	
Temperature:	23.8℃
Relative Humidity:	48%
Test Voltage:	DC 5V
Test Engineer:	Huang jian ping
Note: For a more detailed features description, please refer to the report TBR-C-202205-0225-1	

1. Duty Cycle

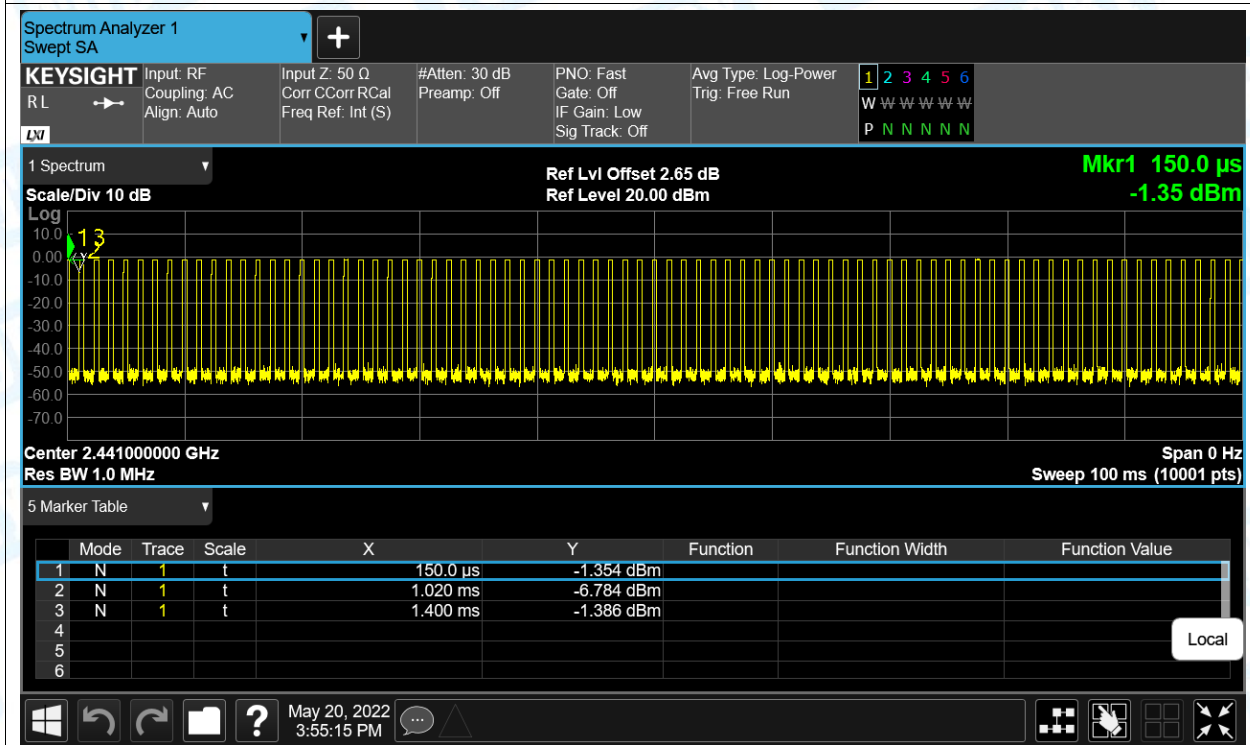
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	30.4	5.17	2.7
NVNT	1-DH1	2441	Ant1	31.21	5.06	2.63
NVNT	1-DH1	2480	Ant1	30.4	5.17	2.7
NVNT	2-DH1	2402	Ant1	32.01	4.95	2.56
NVNT	2-DH1	2441	Ant1	31.95	4.96	2.63
NVNT	2-DH1	2480	Ant1	32	4.95	2.56
NVNT	3-DH1	2402	Ant1	31.21	5.06	2.63
NVNT	3-DH1	2441	Ant1	31.21	5.06	2.63
NVNT	3-DH1	2480	Ant1	23.01	6.38	2.63

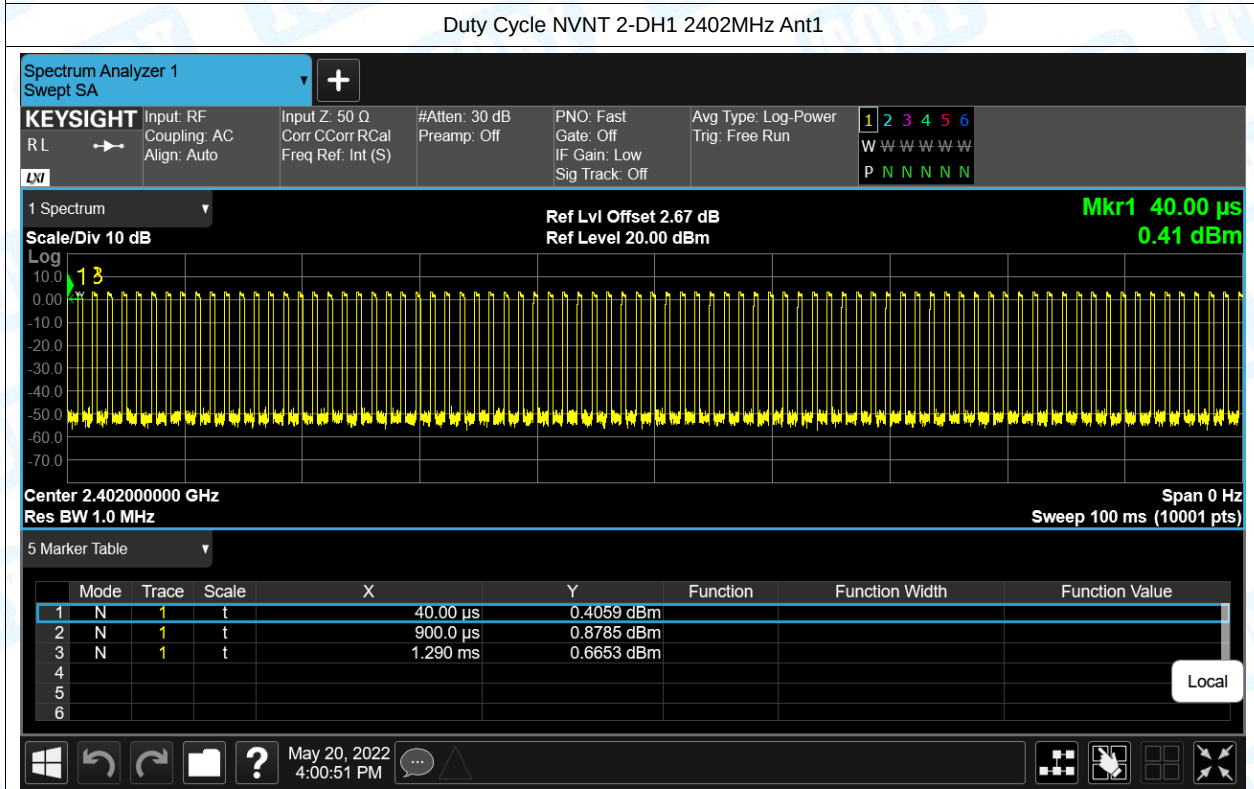
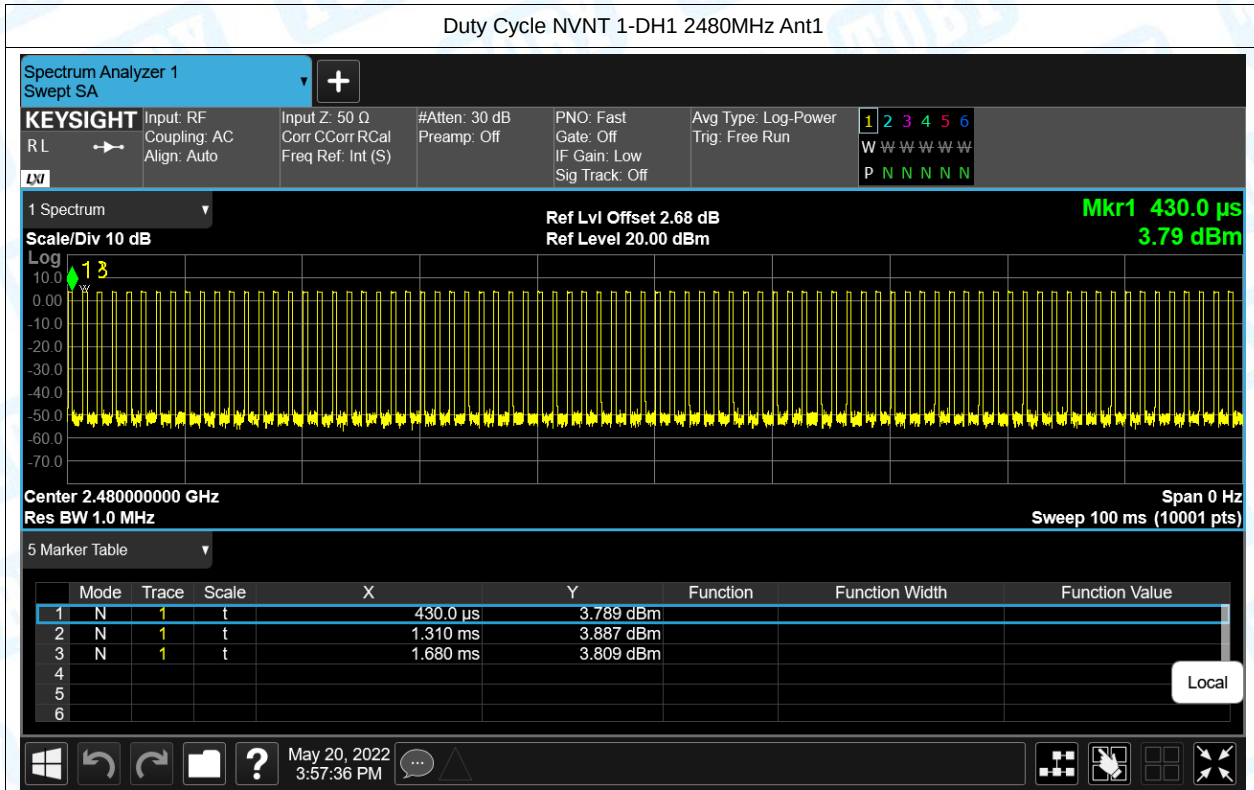
Test Graphs

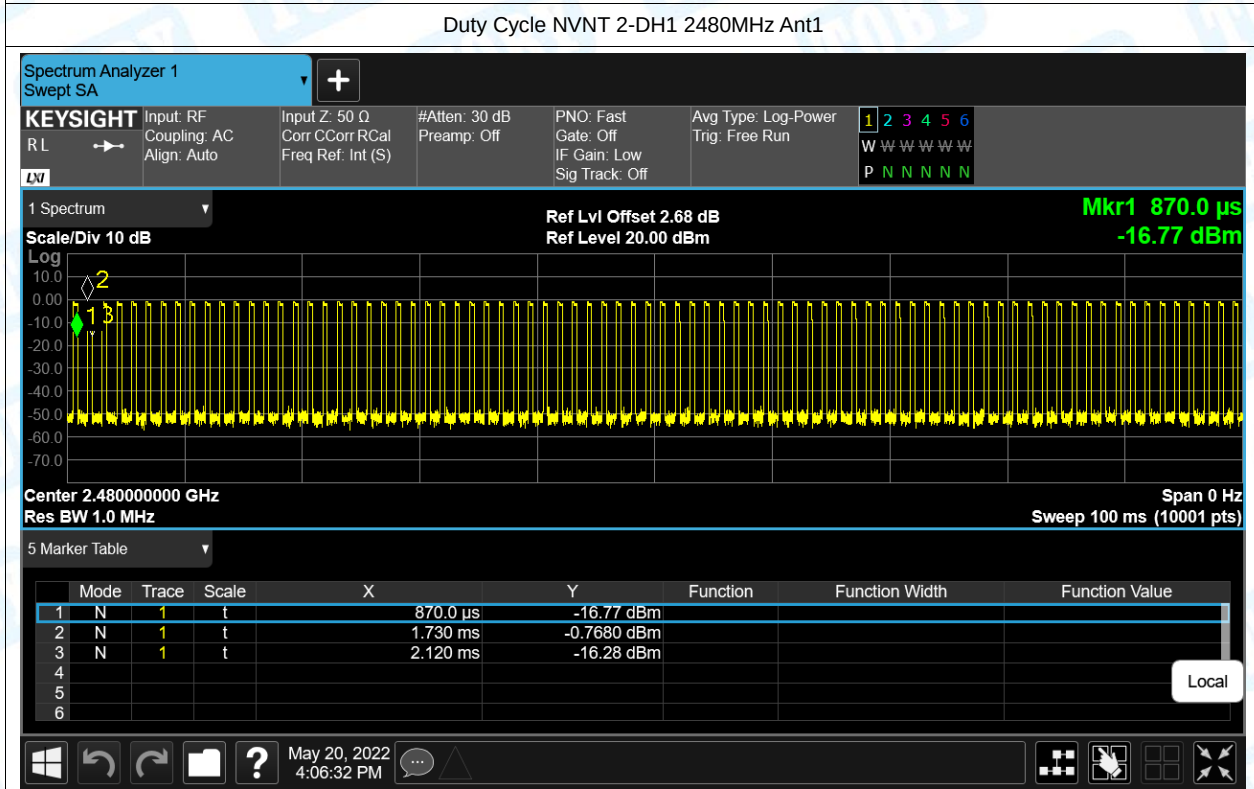
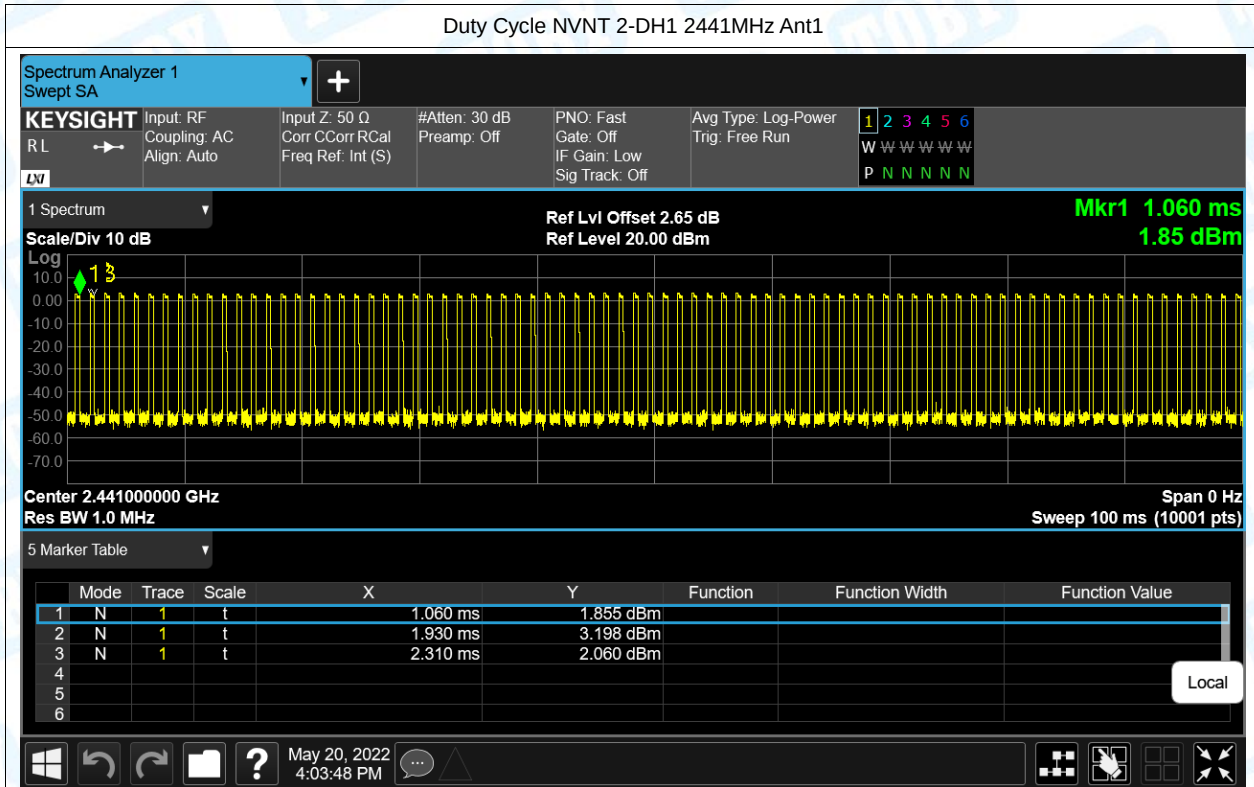
Duty Cycle NVNT 1-DH1 2402MHz Ant1

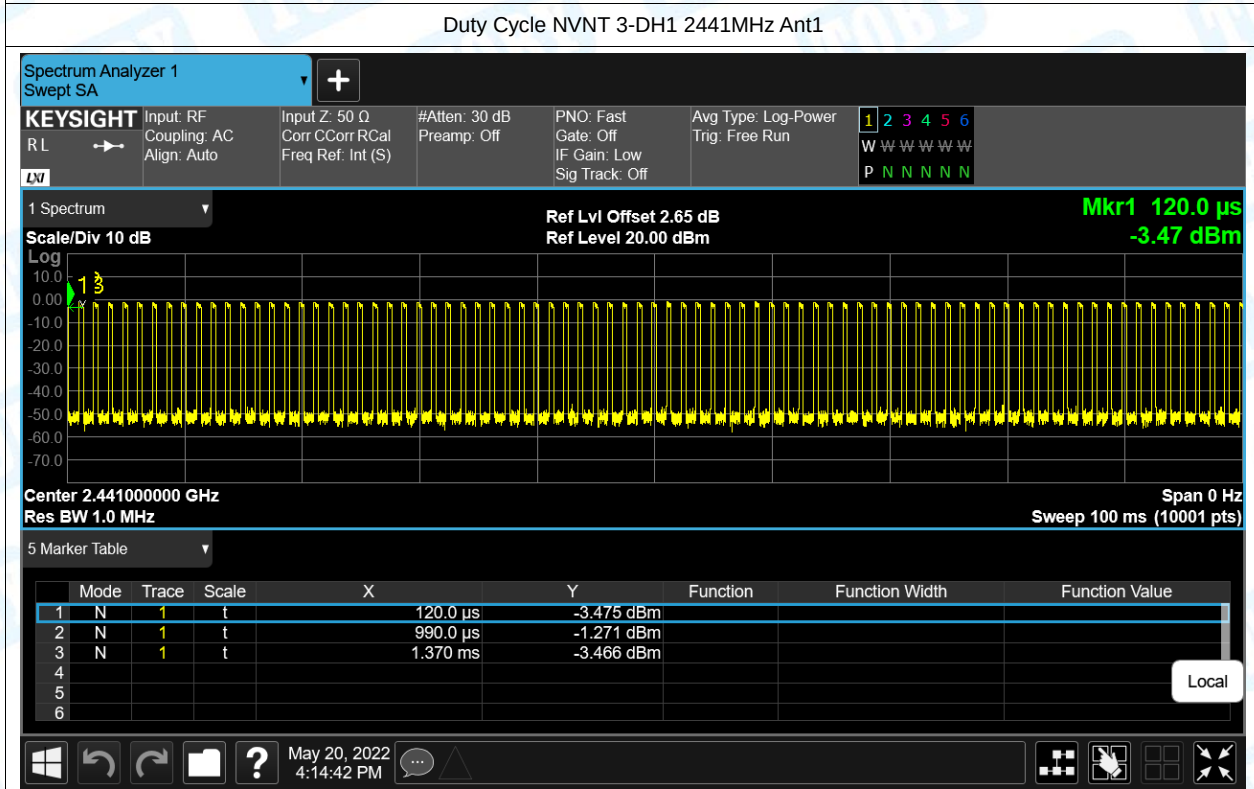
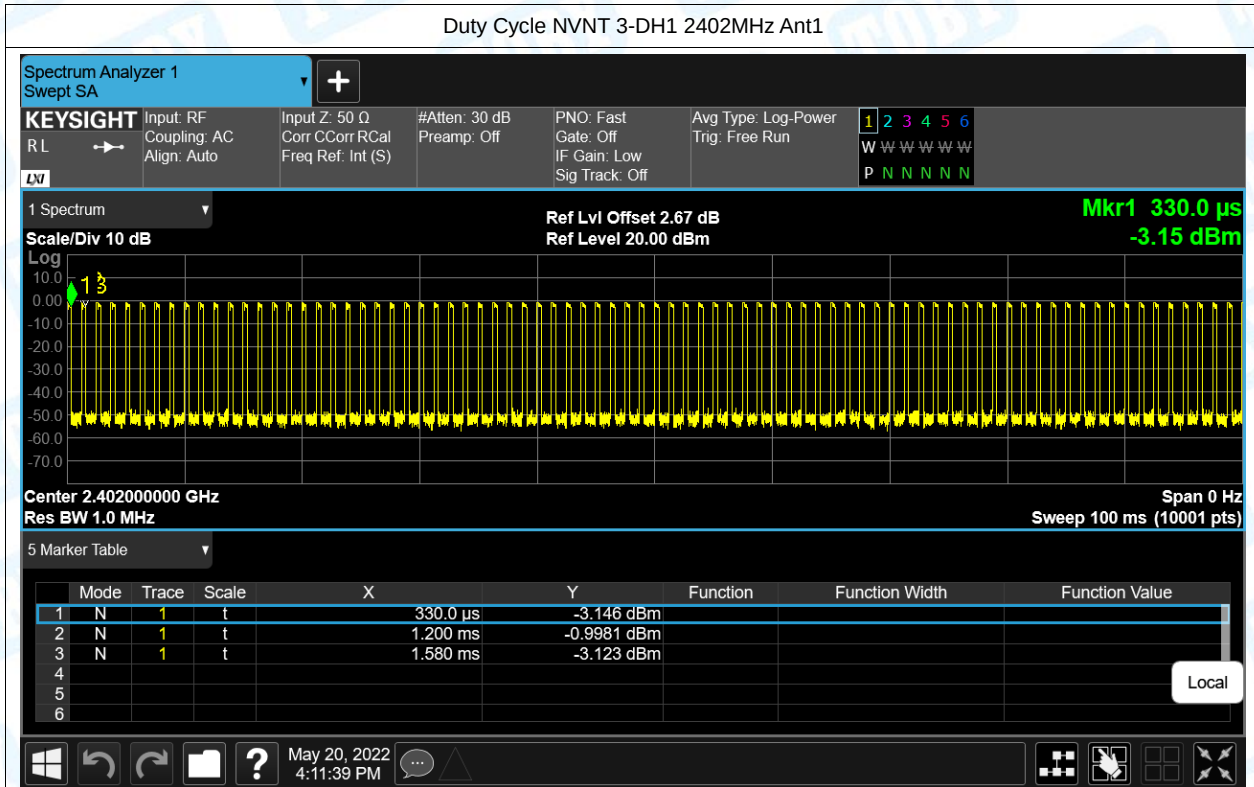


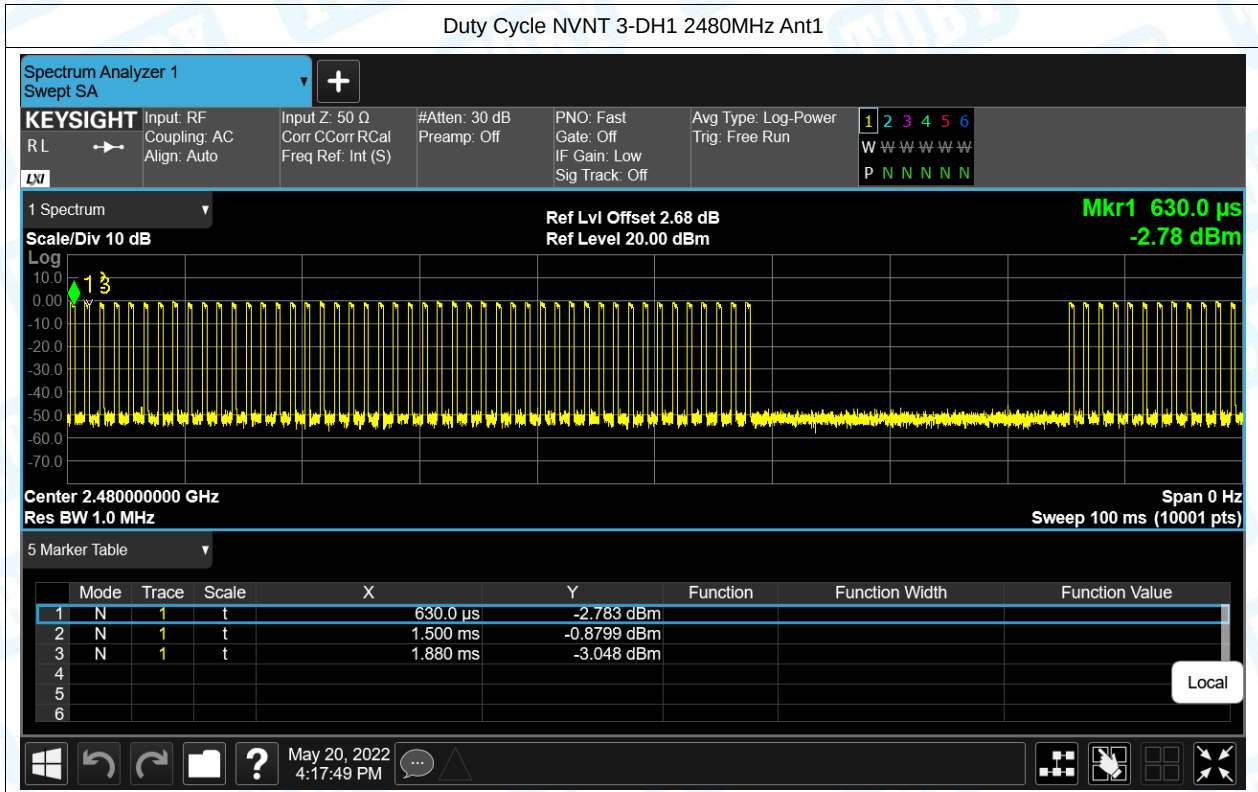
Duty Cycle NVNT 1-DH1 2441MHz Ant1









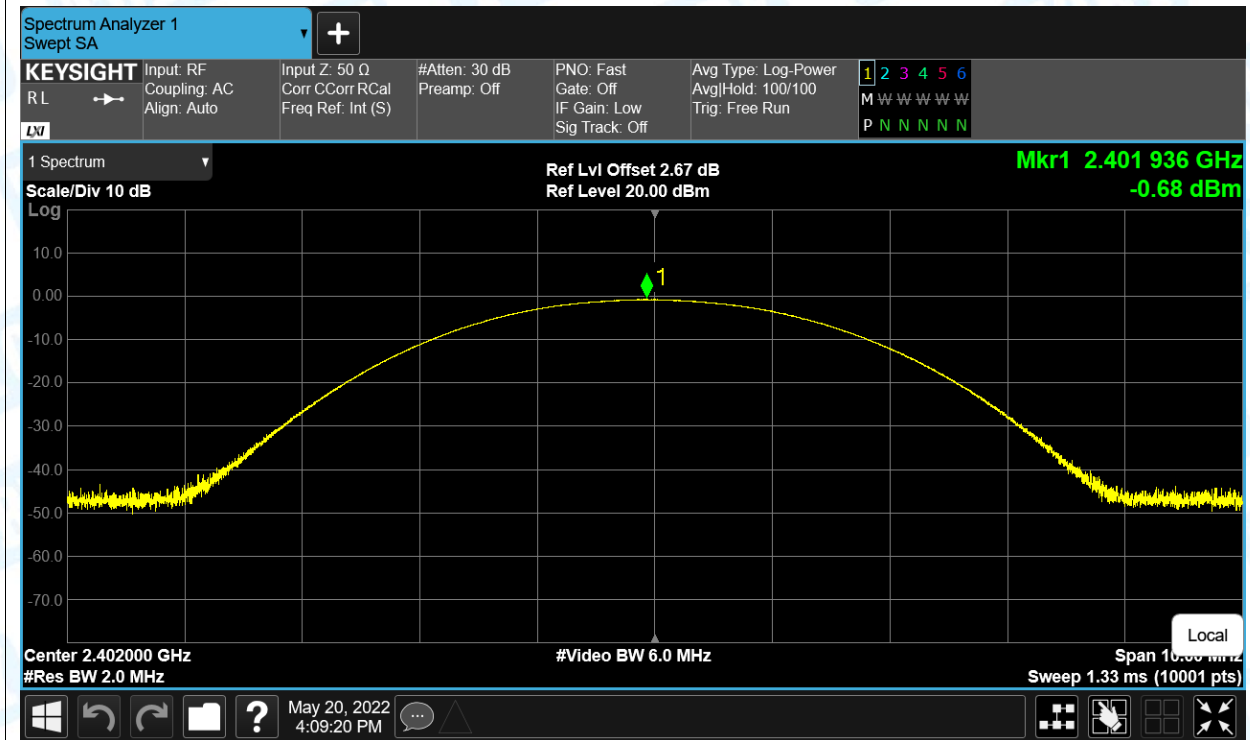


2. Maximum Conducted Output Power

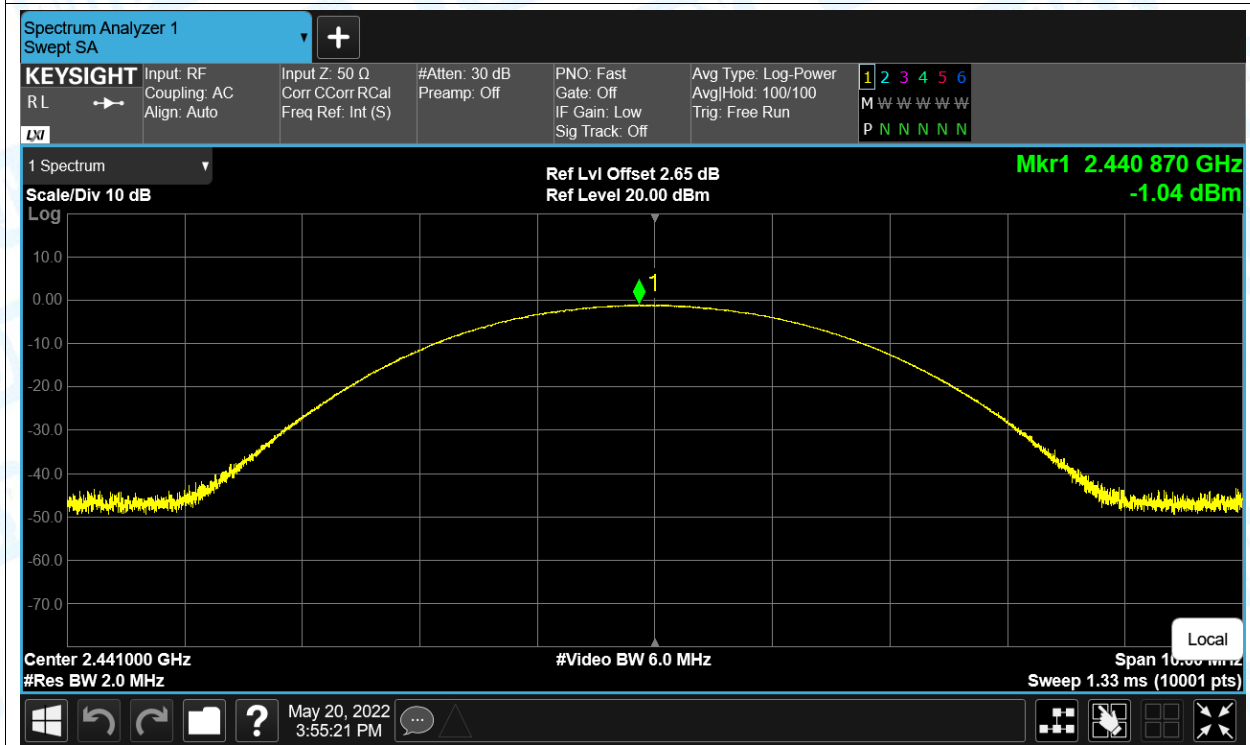
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	-0.68	21	Pass
NVNT	1-DH1	2441	Ant1	-1.04	21	Pass
NVNT	1-DH1	2480	Ant1	-0.48	21	Pass
NVNT	2-DH1	2402	Ant1	-0.86	21	Pass
NVNT	2-DH1	2441	Ant1	-1.19	21	Pass
NVNT	2-DH1	2480	Ant1	-0.67	21	Pass
NVNT	3-DH1	2402	Ant1	-0.85	21	Pass
NVNT	3-DH1	2441	Ant1	-1.14	21	Pass
NVNT	3-DH1	2480	Ant1	-0.54	21	Pass

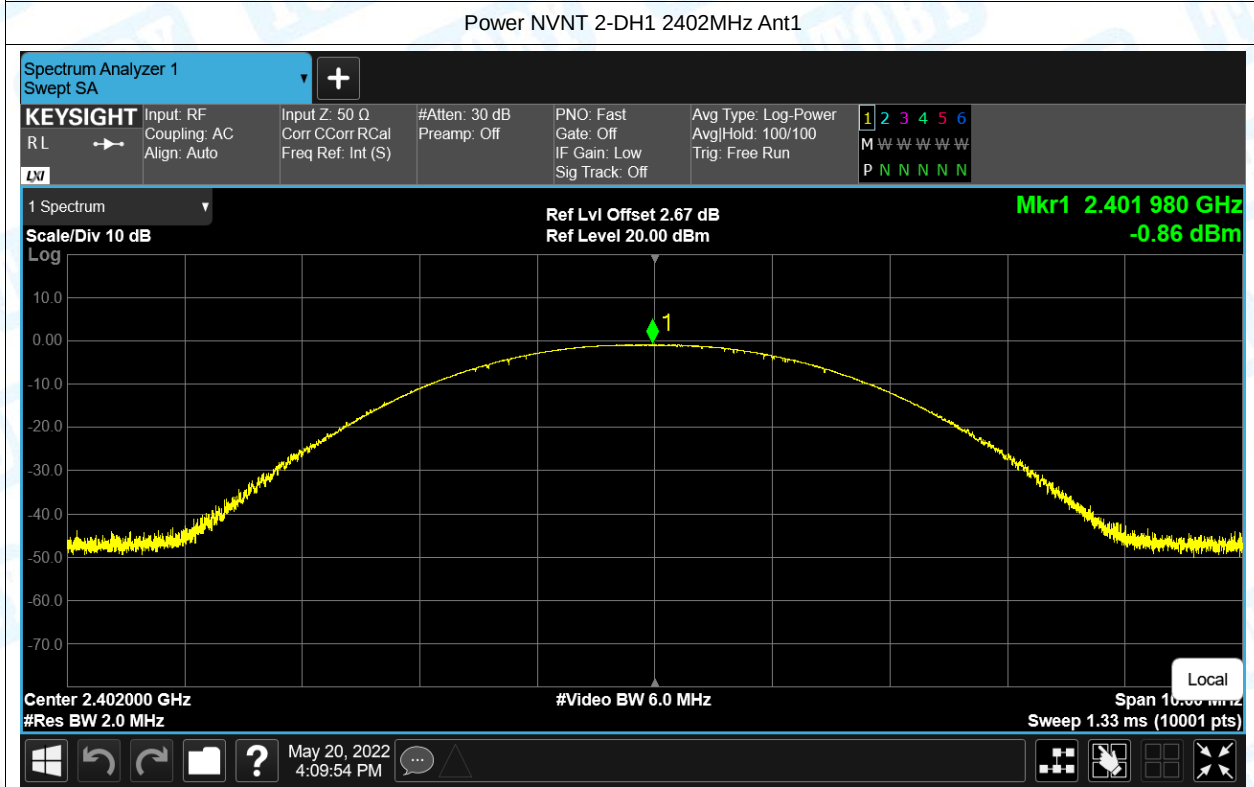
Test Graphs

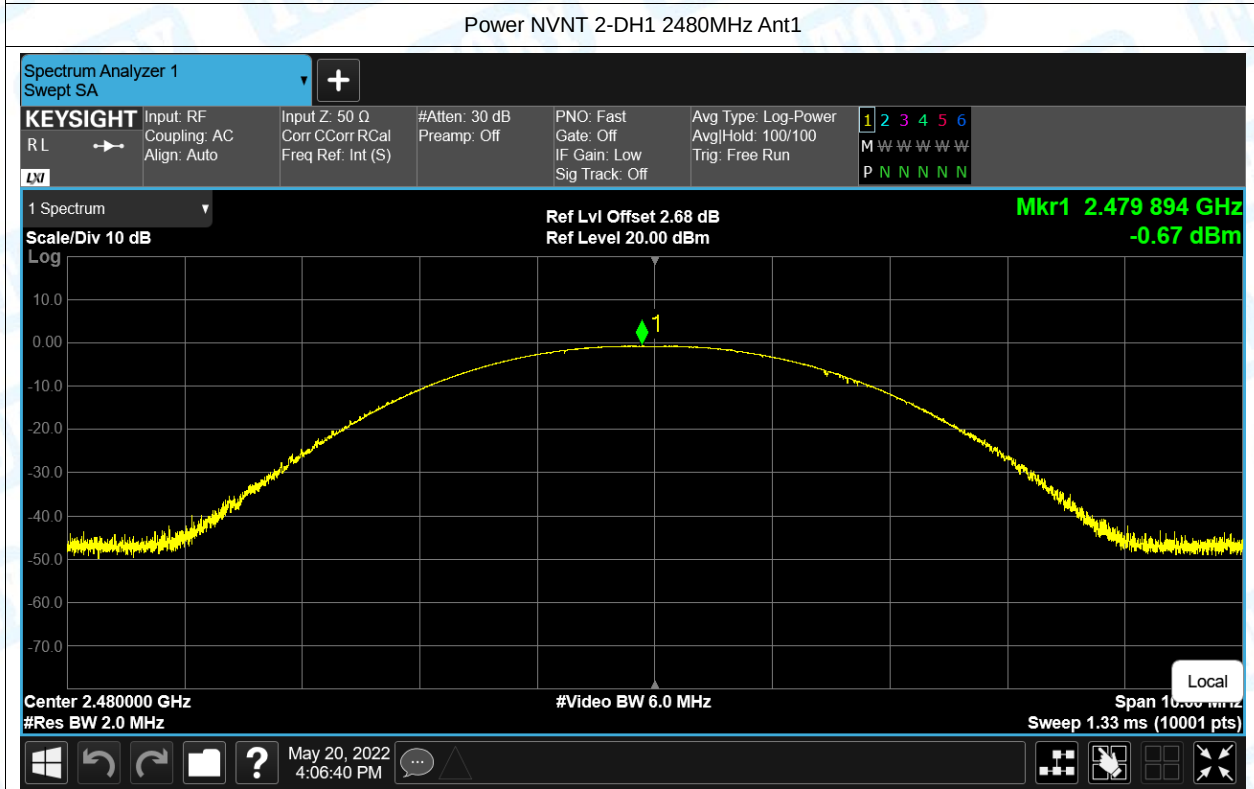
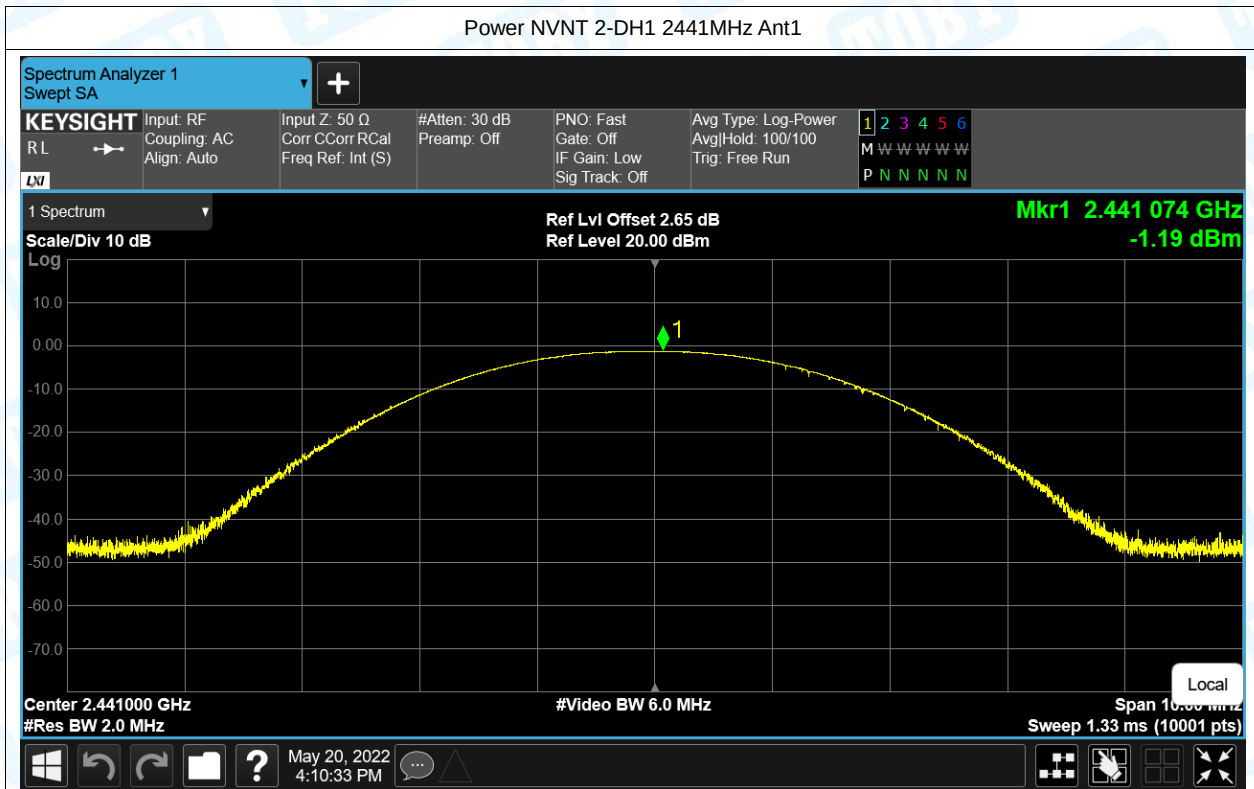
Power NVNT 1-DH1 2402MHz Ant1

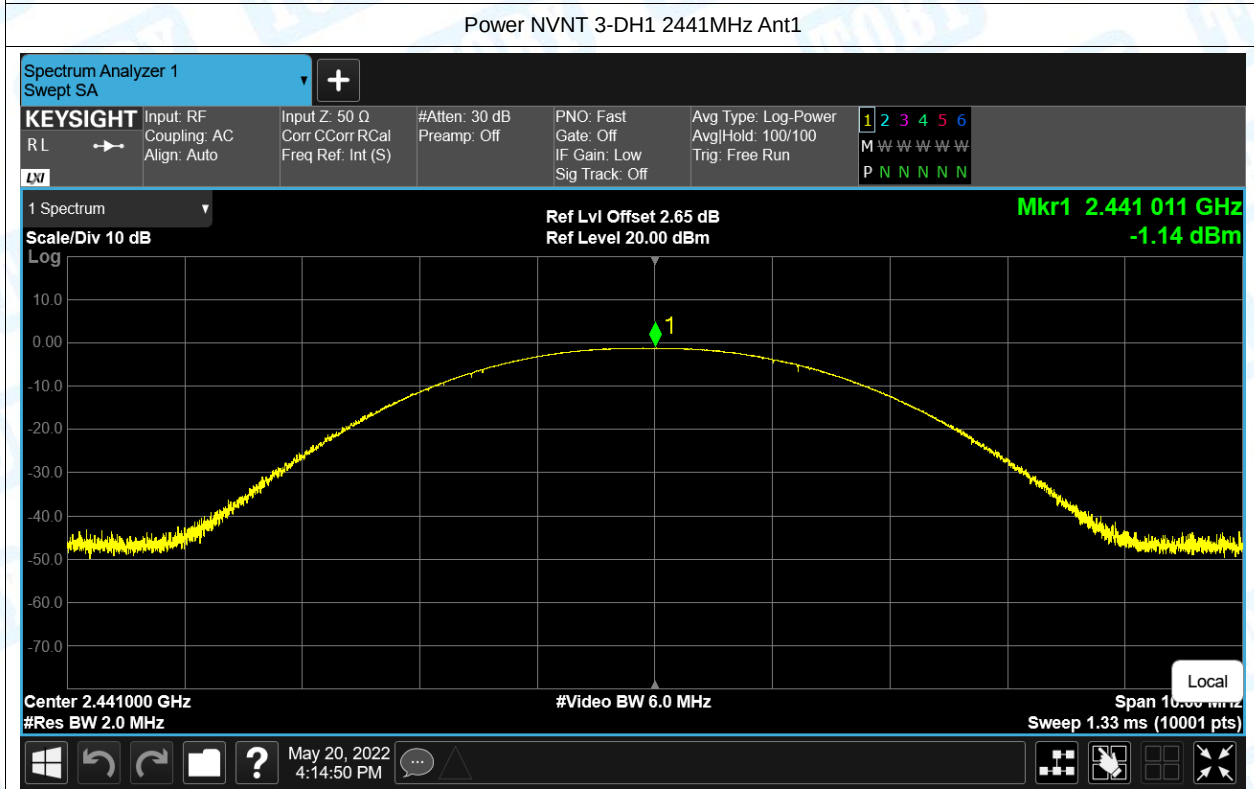


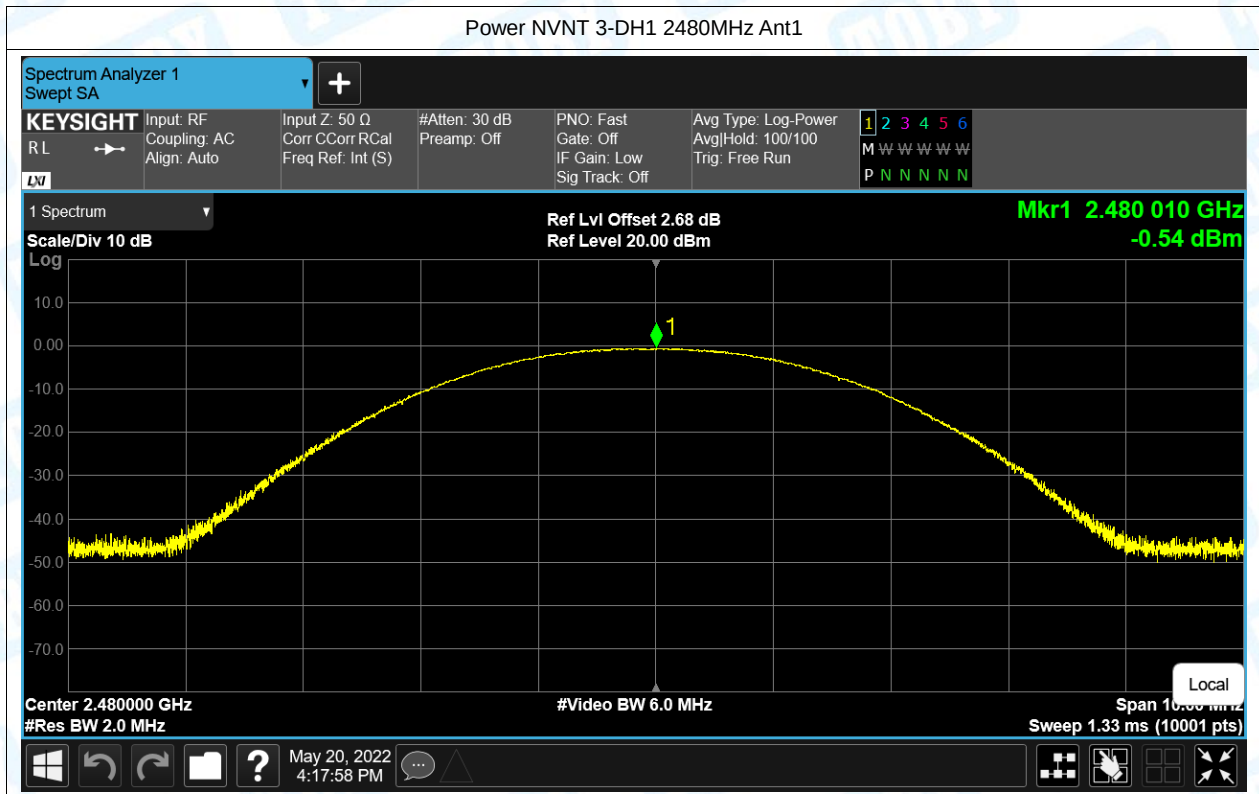
Power NVNT 1-DH1 2441MHz Ant1











3. -20dB Bandwidth

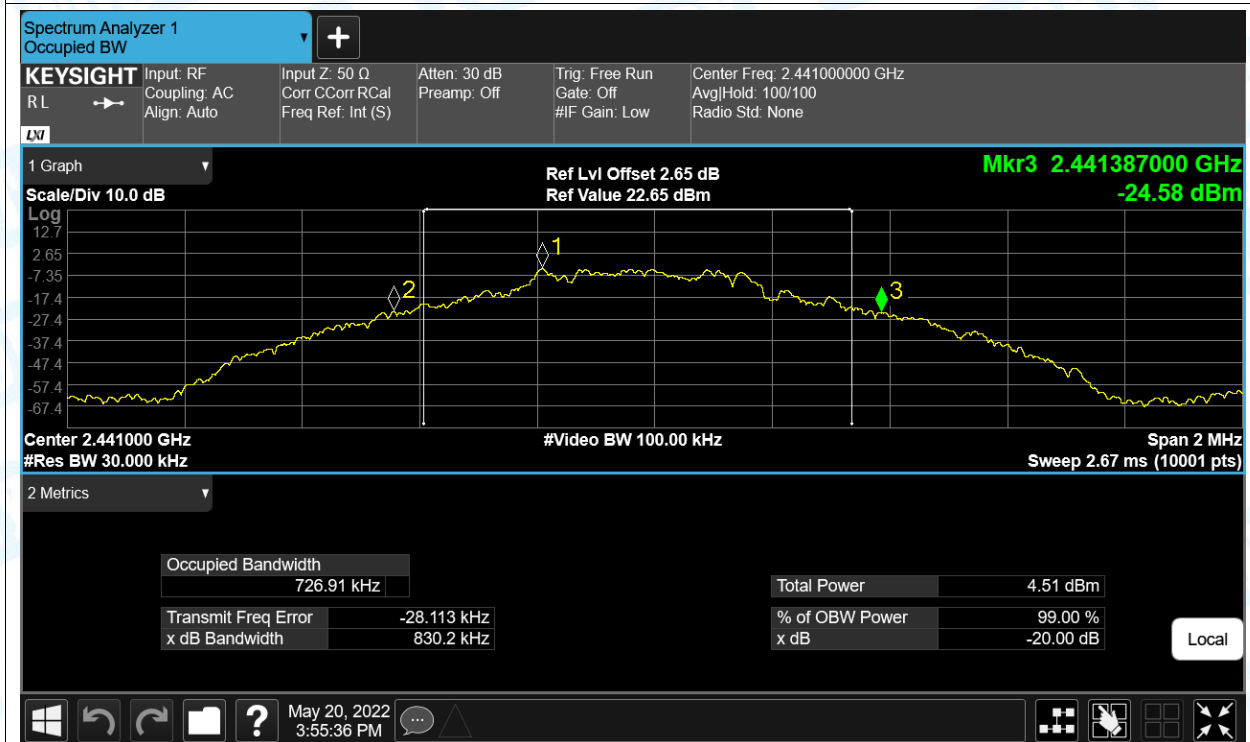
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.77	----	Pass
NVNT	1-DH1	2441	Ant1	0.83	----	Pass
NVNT	1-DH1	2480	Ant1	0.86	----	Pass
NVNT	2-DH1	2402	Ant1	1.2	----	Pass
NVNT	2-DH1	2441	Ant1	1.24	----	Pass
NVNT	2-DH1	2480	Ant1	1.23	----	Pass
NVNT	3-DH1	2402	Ant1	1.22	----	Pass
NVNT	3-DH1	2441	Ant1	1.21	----	Pass
NVNT	3-DH1	2480	Ant1	1.22	----	Pass

Test Graphs

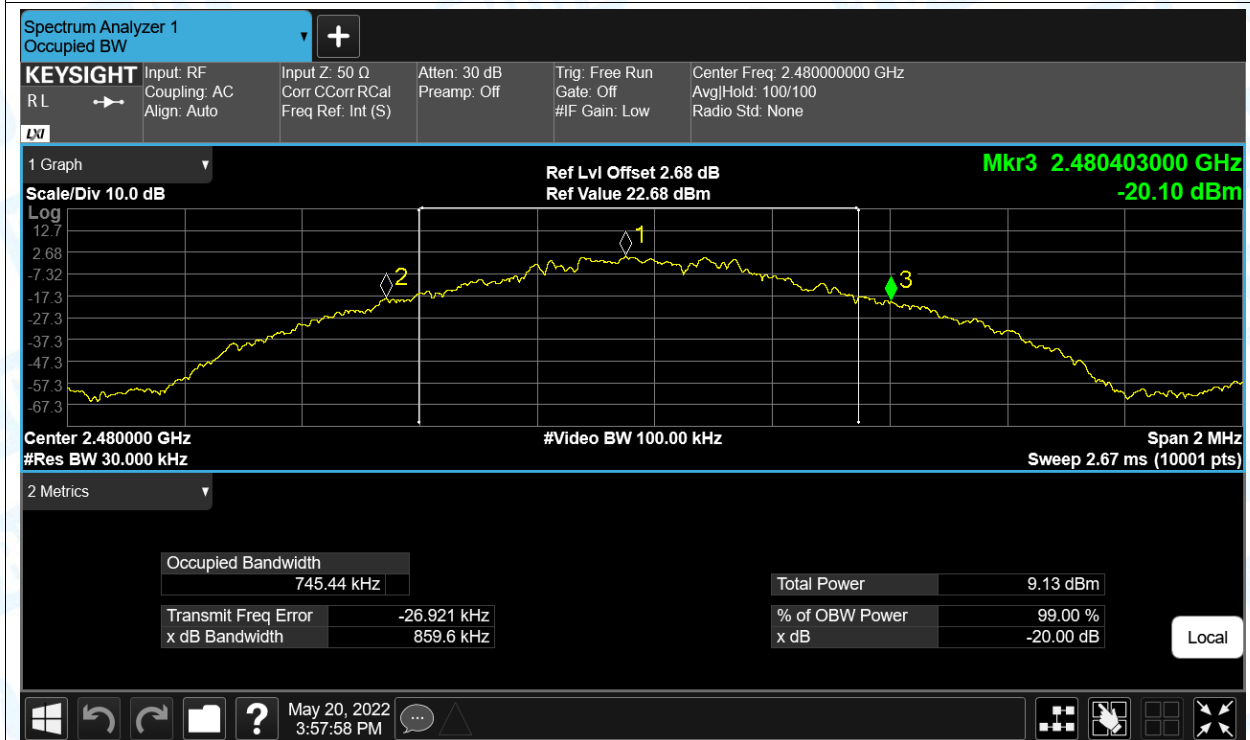
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



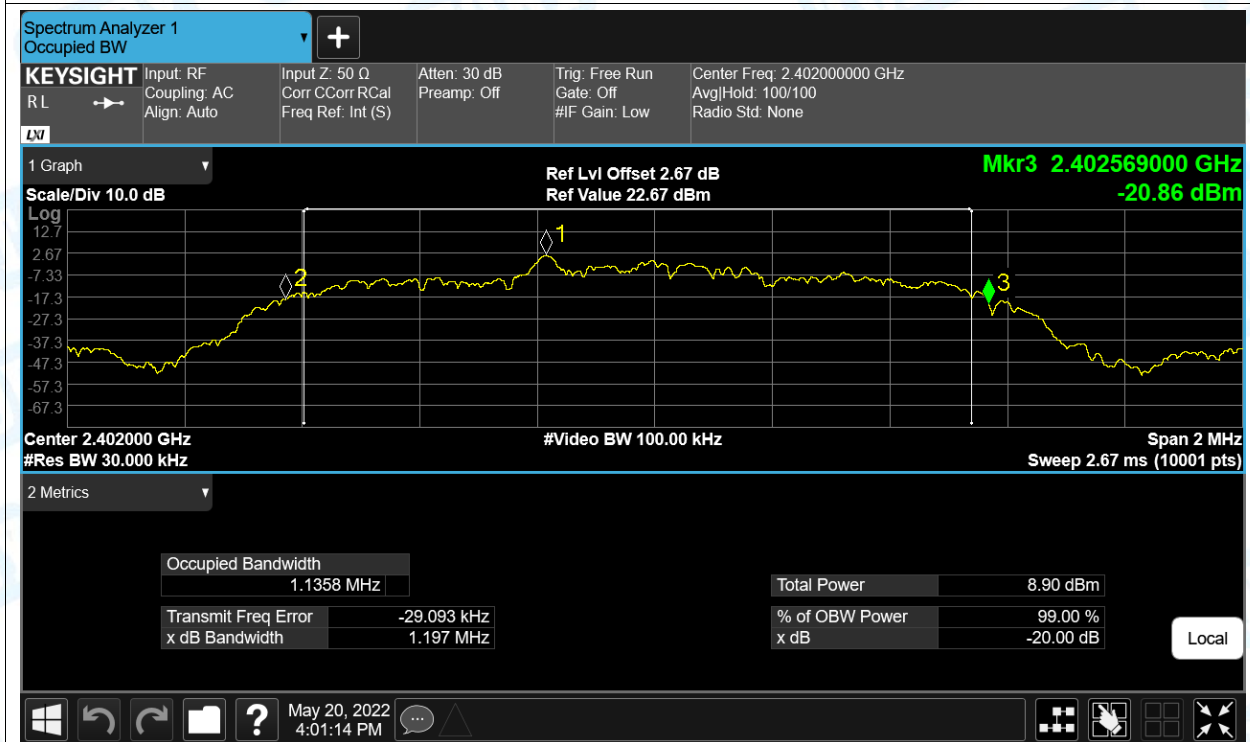
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



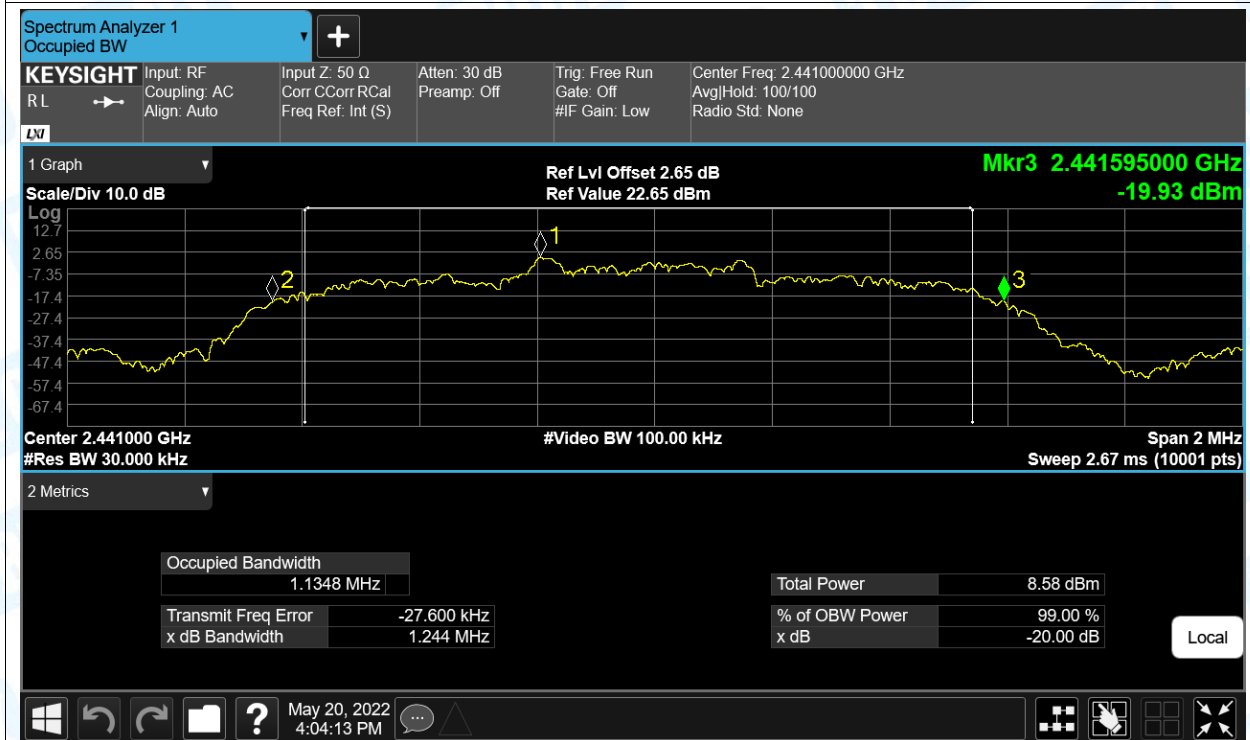
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



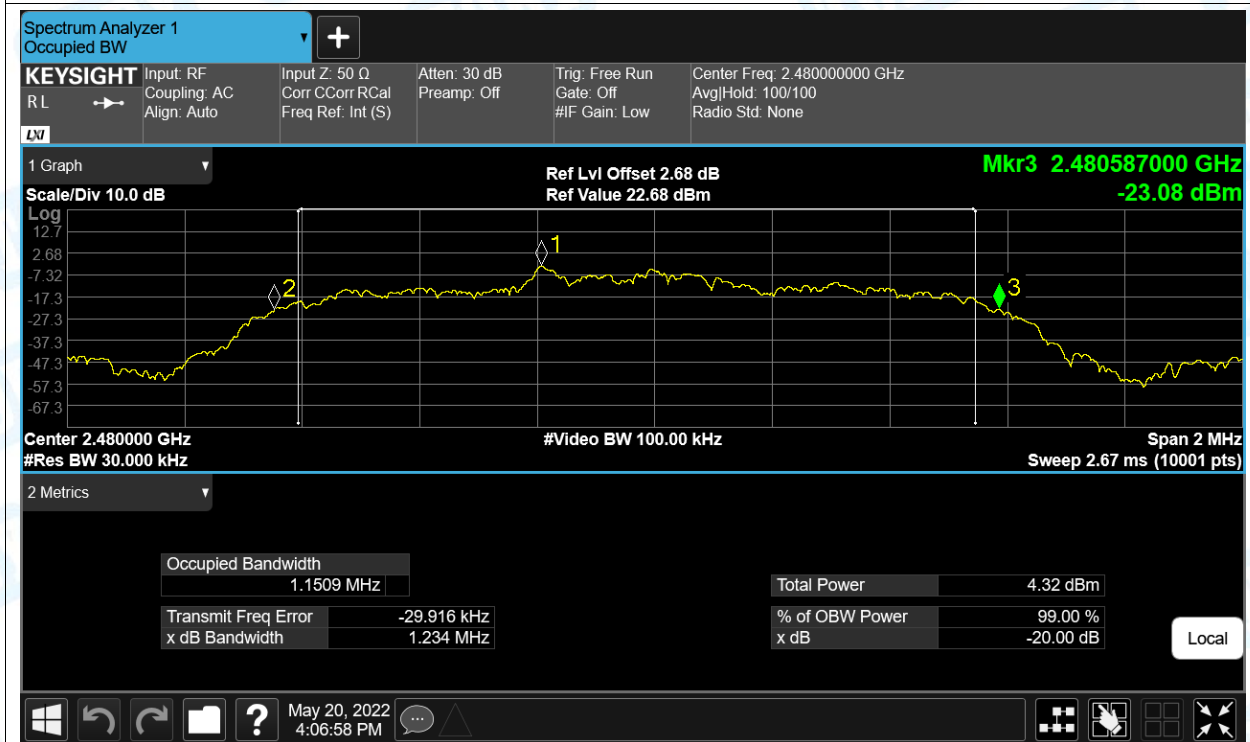
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



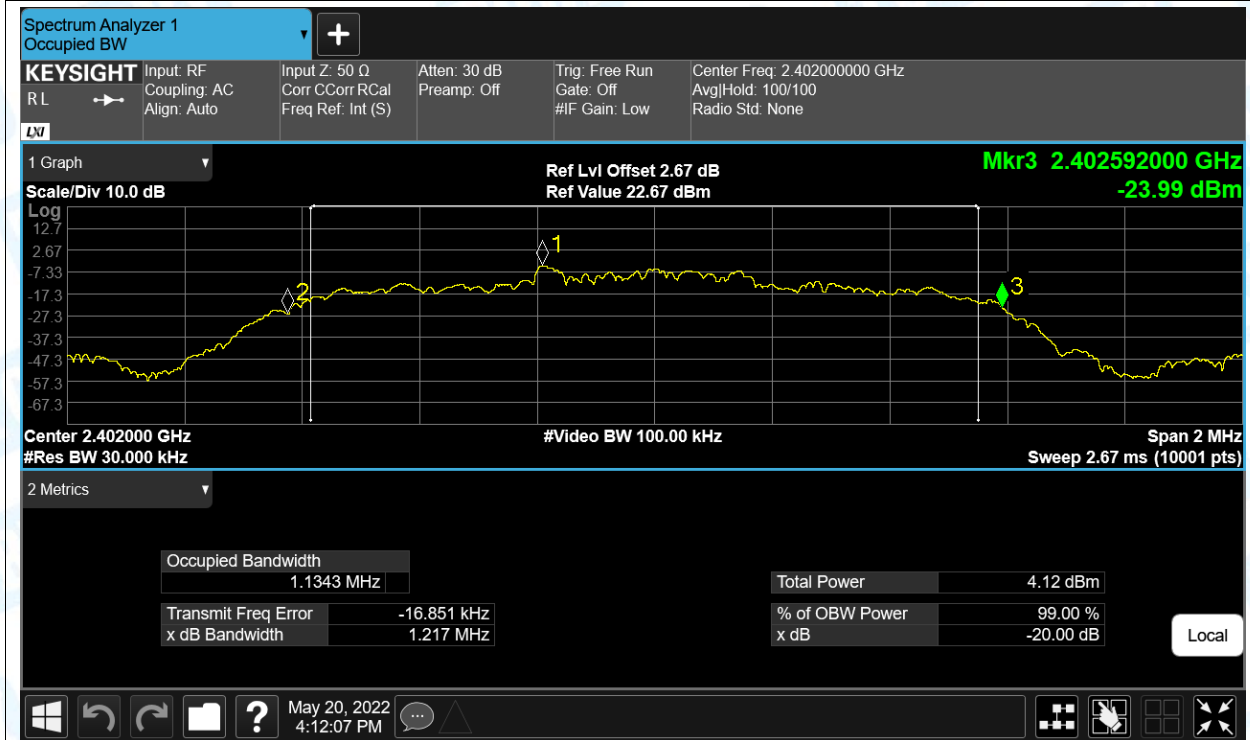
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



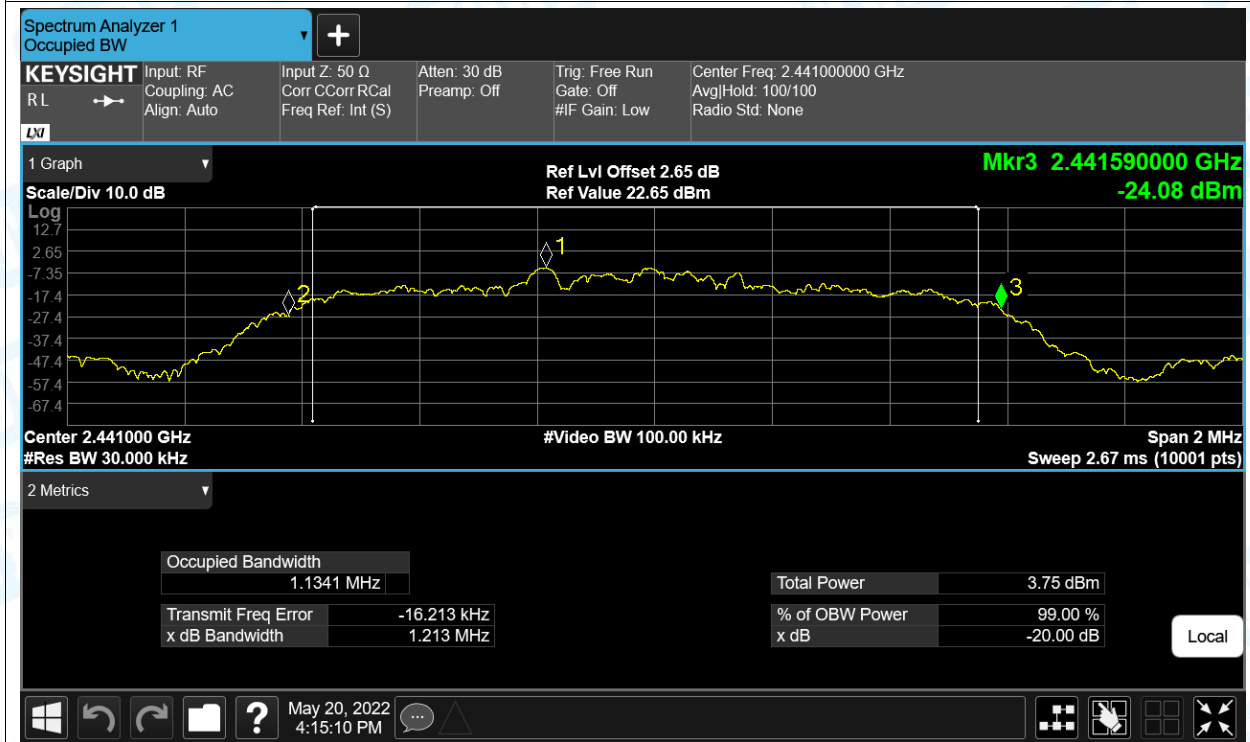
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

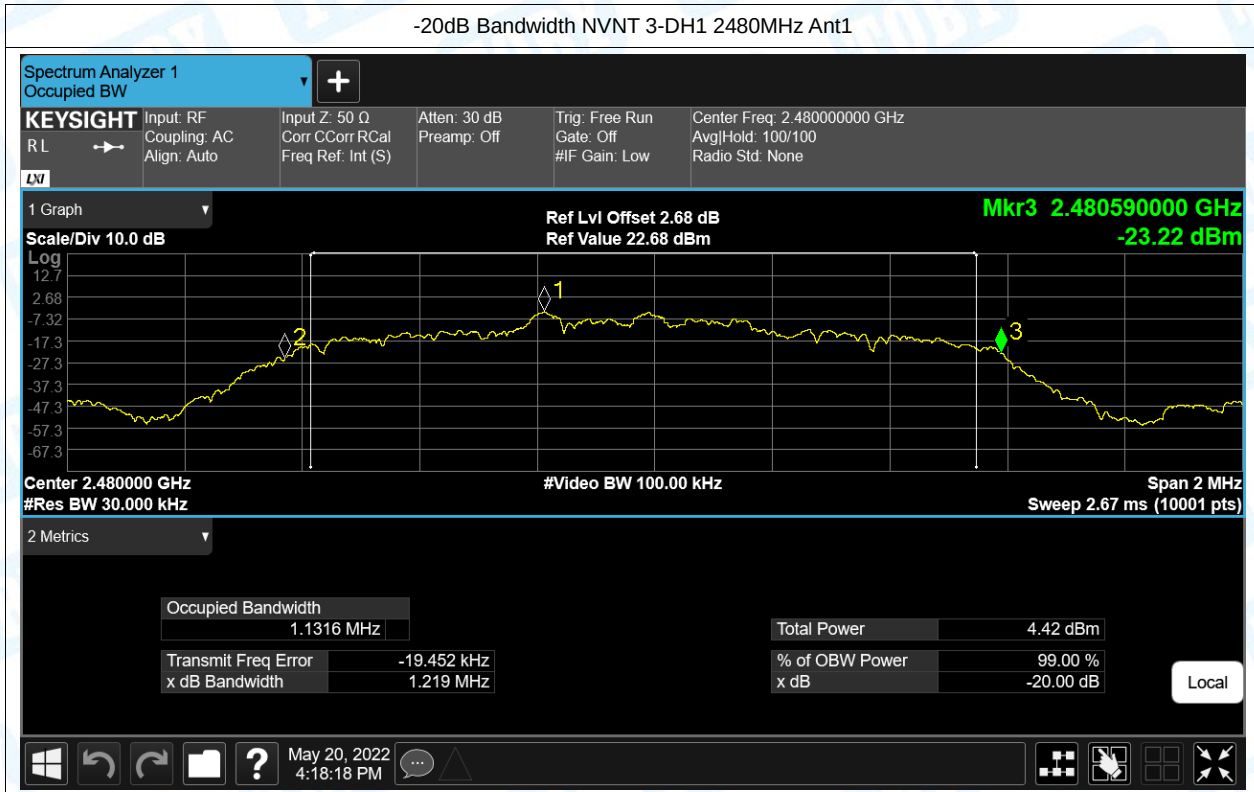


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



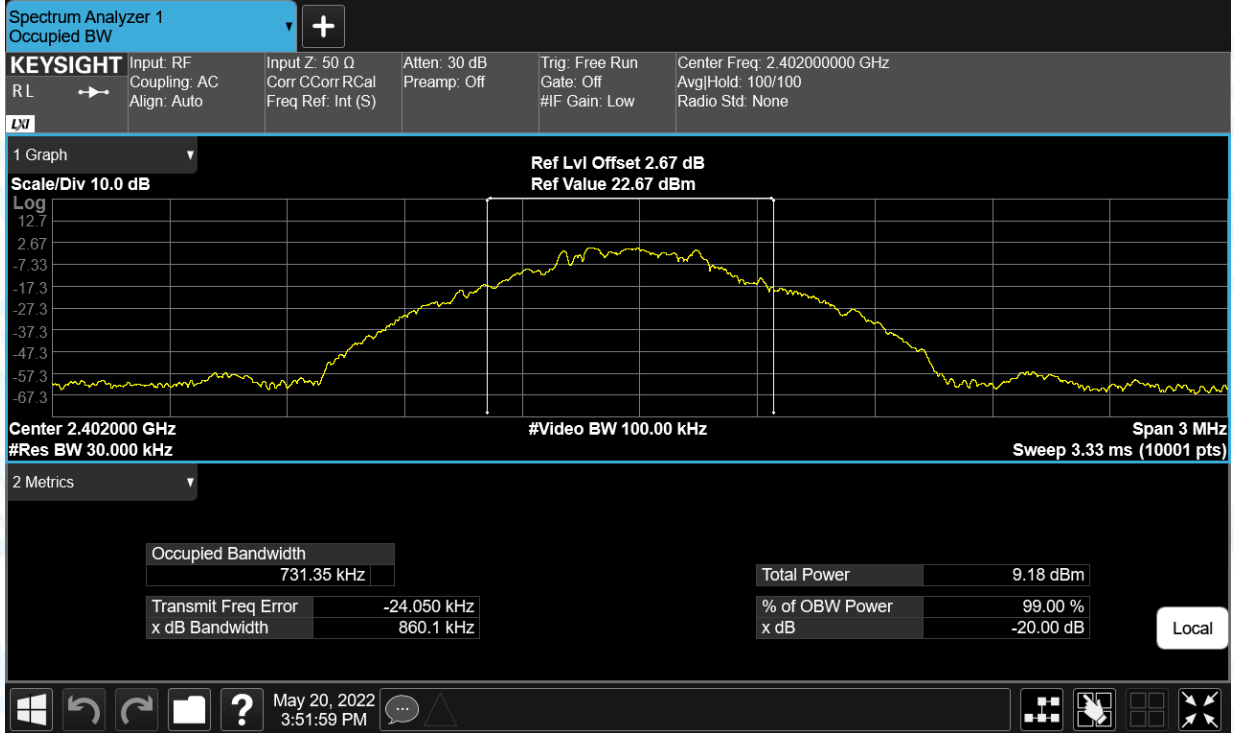


4. Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.731
NVNT	1-DH1	2441	Ant1	0.711
NVNT	1-DH1	2480	Ant1	0.703
NVNT	2-DH1	2402	Ant1	1.139
NVNT	2-DH1	2441	Ant1	1.141
NVNT	2-DH1	2480	Ant1	1.14
NVNT	3-DH1	2402	Ant1	1.121
NVNT	3-DH1	2441	Ant1	1.132
NVNT	3-DH1	2480	Ant1	1.137

Test Graphs

OBW NVNT 1-DH1 2402MHz Ant1



OBW NVNT 1-DH1 2441MHz Ant1



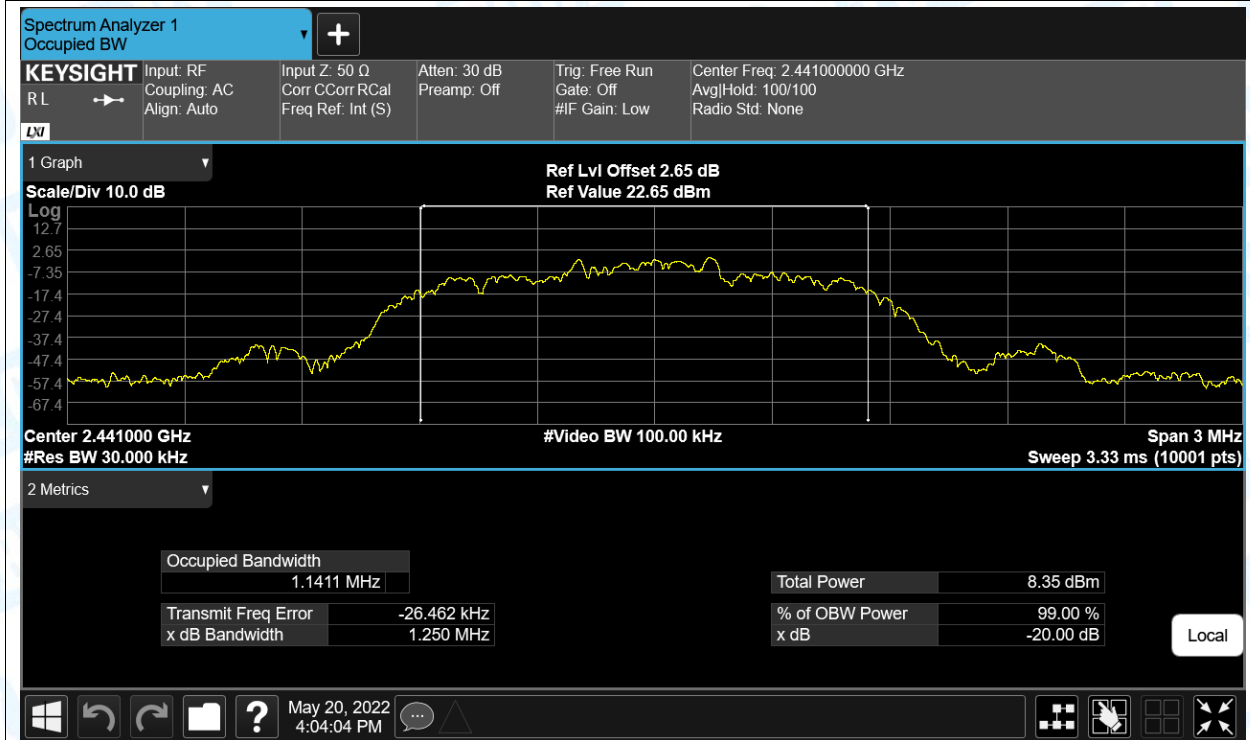
OBW NVNT 1-DH1 2480MHz Ant1



OBW NVNT 2-DH1 2402MHz Ant1



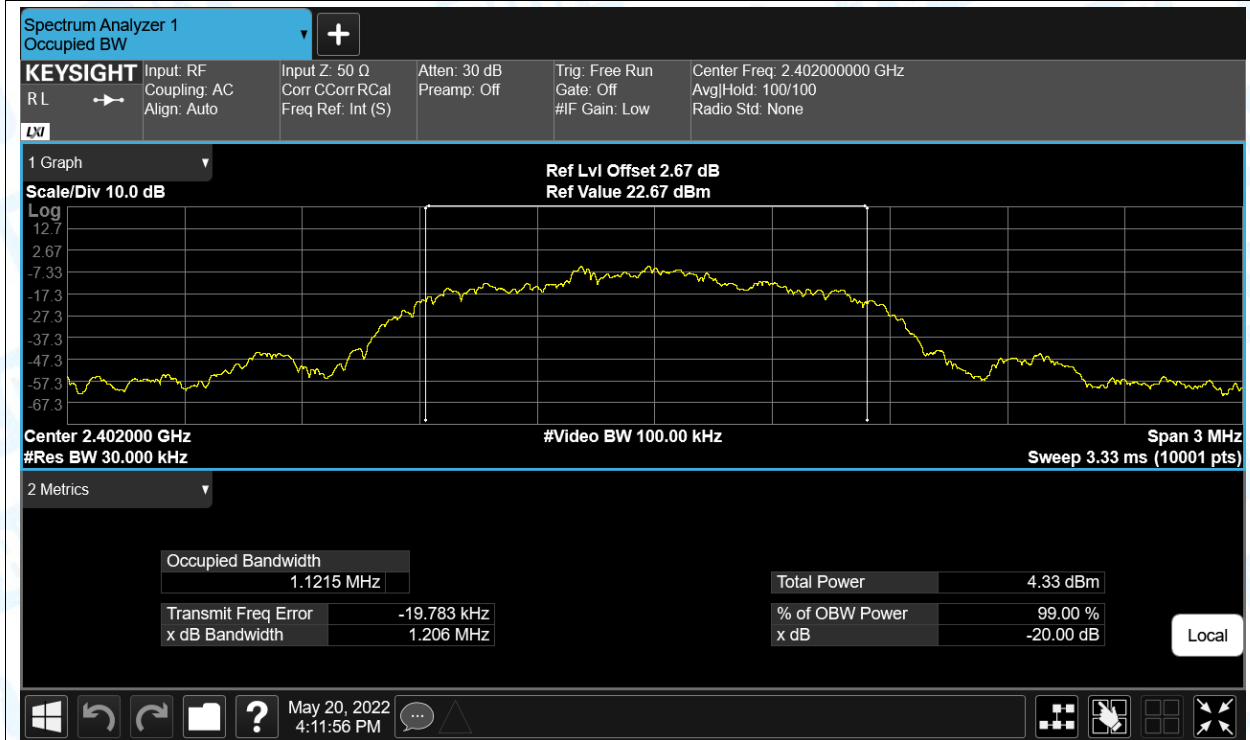
OBW NVNT 2-DH1 2441MHz Ant1



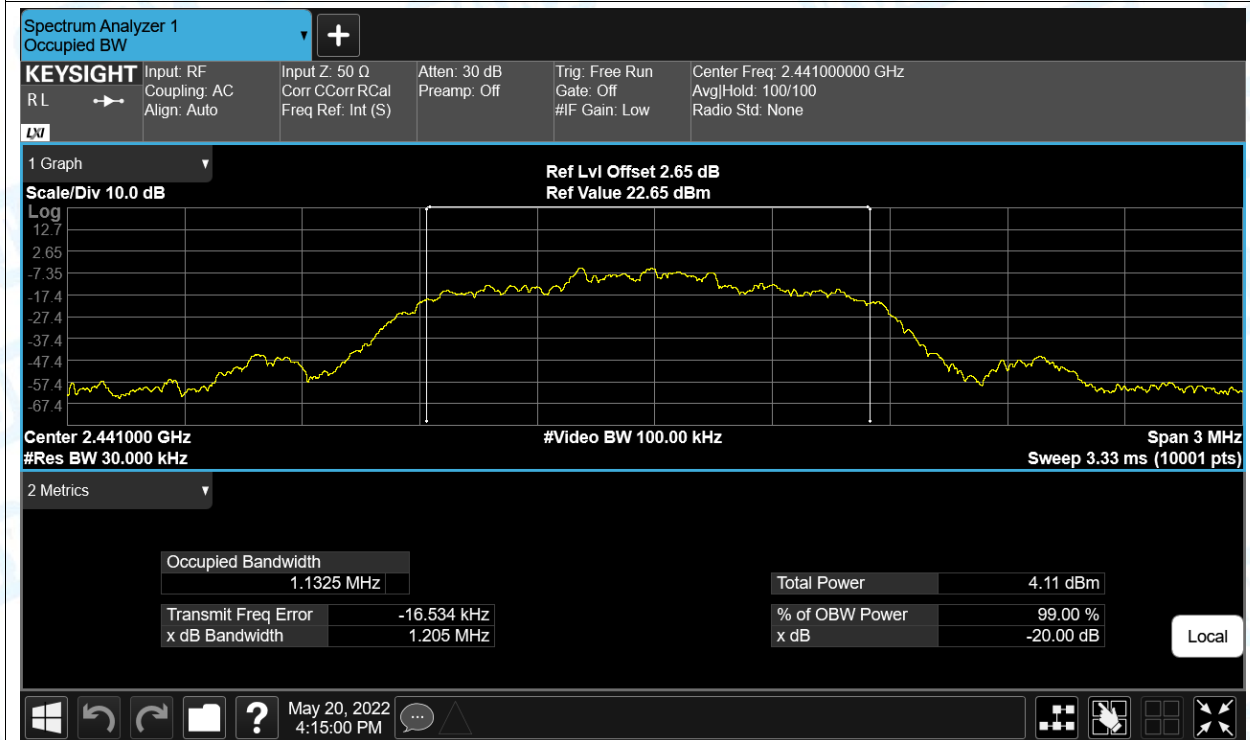
OBW NVNT 2-DH1 2480MHz Ant1

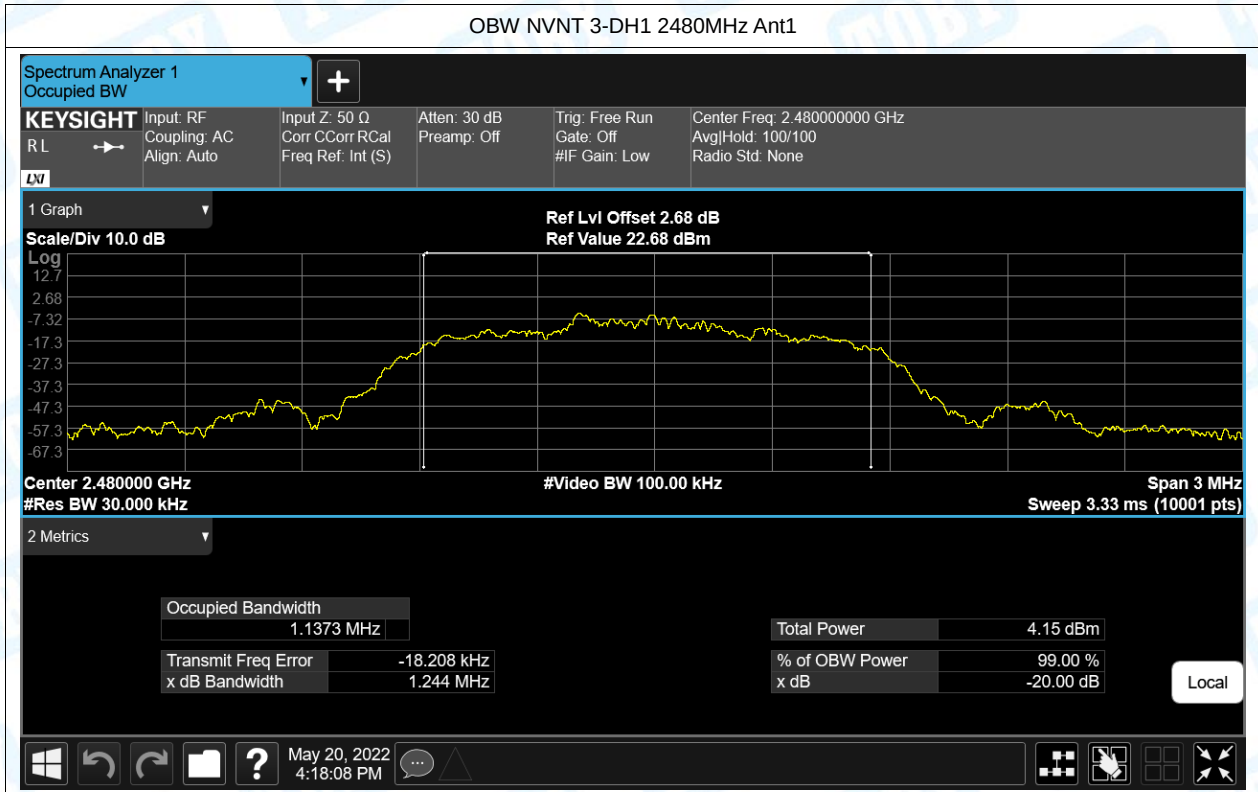


OBW NVNT 3-DH1 2402MHz Ant1



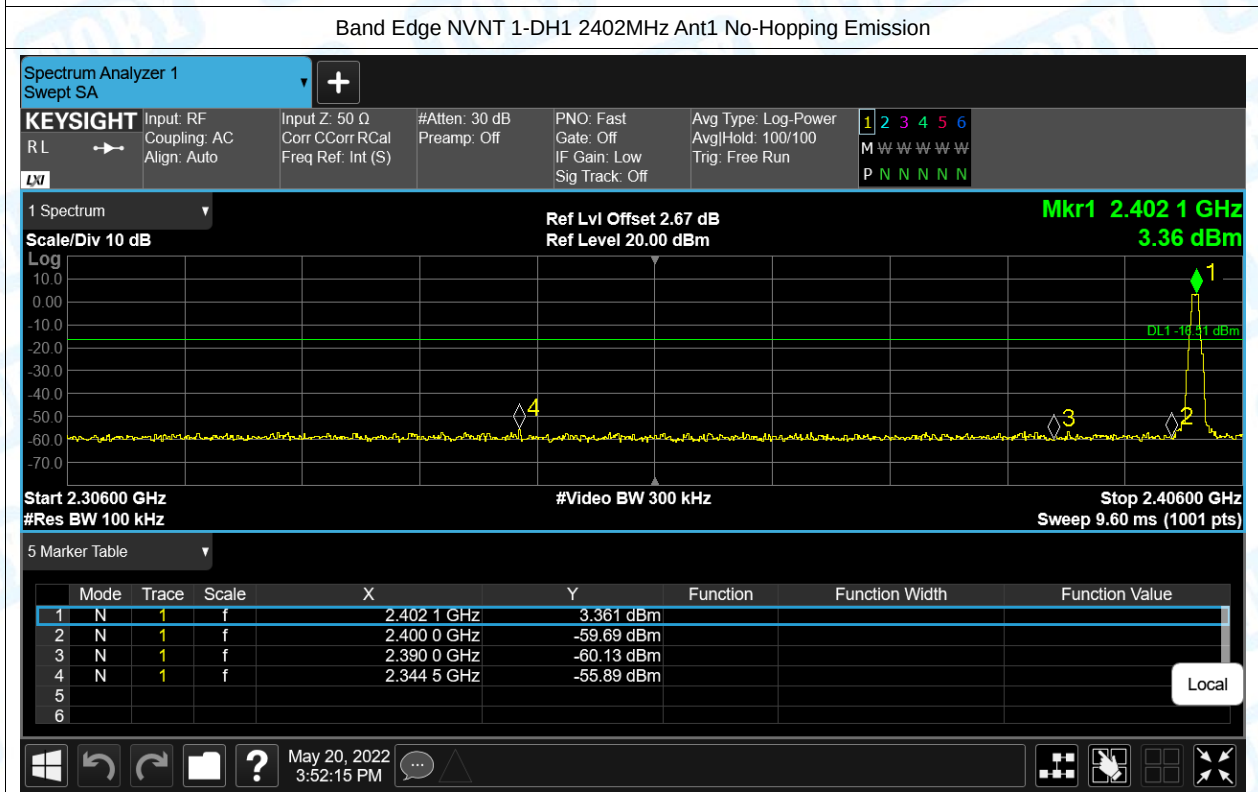
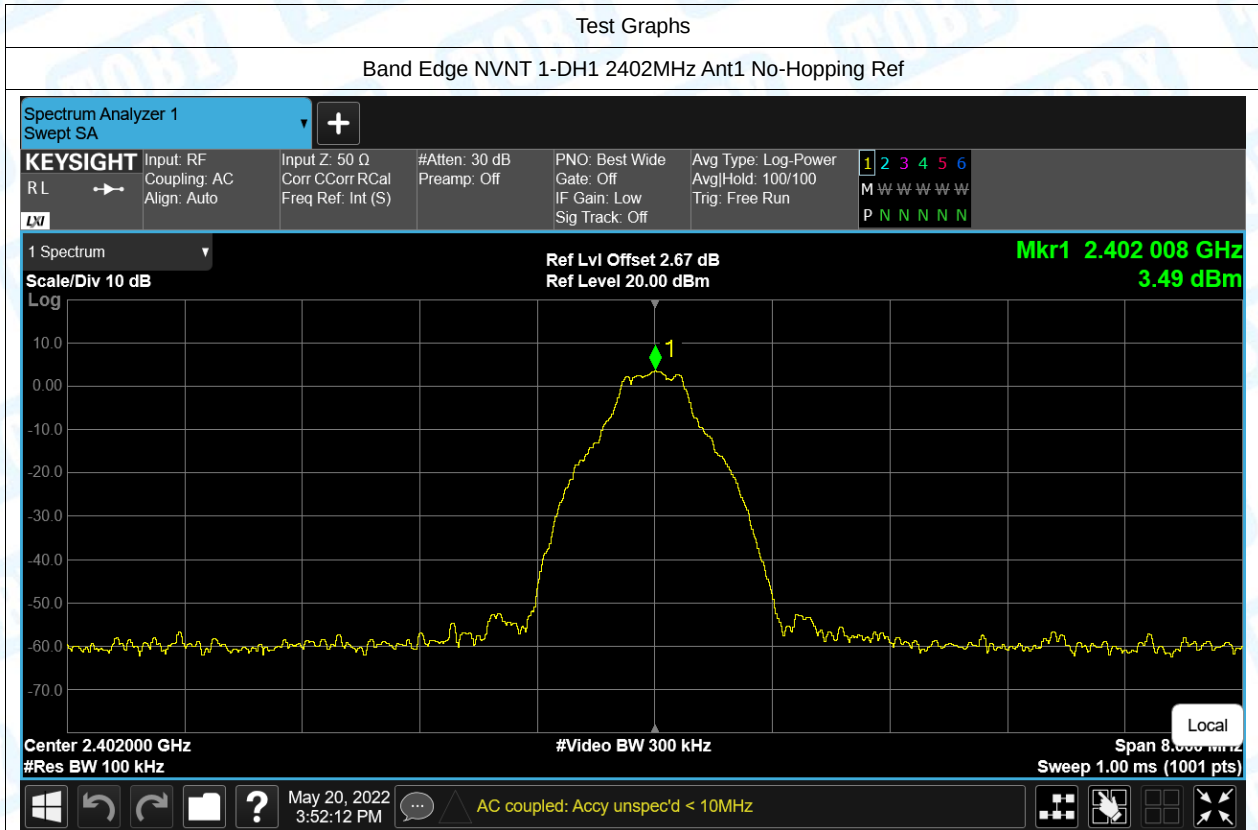
OBW NVNT 3-DH1 2441MHz Ant1





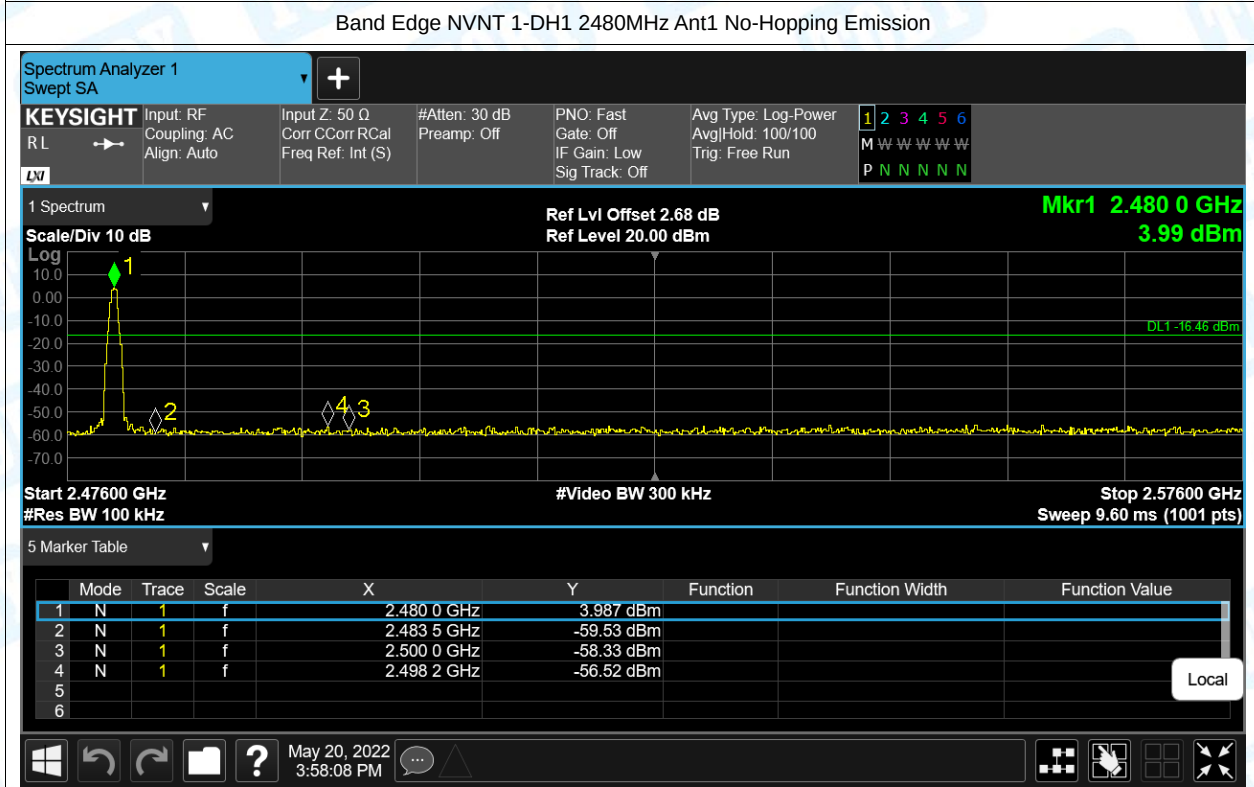
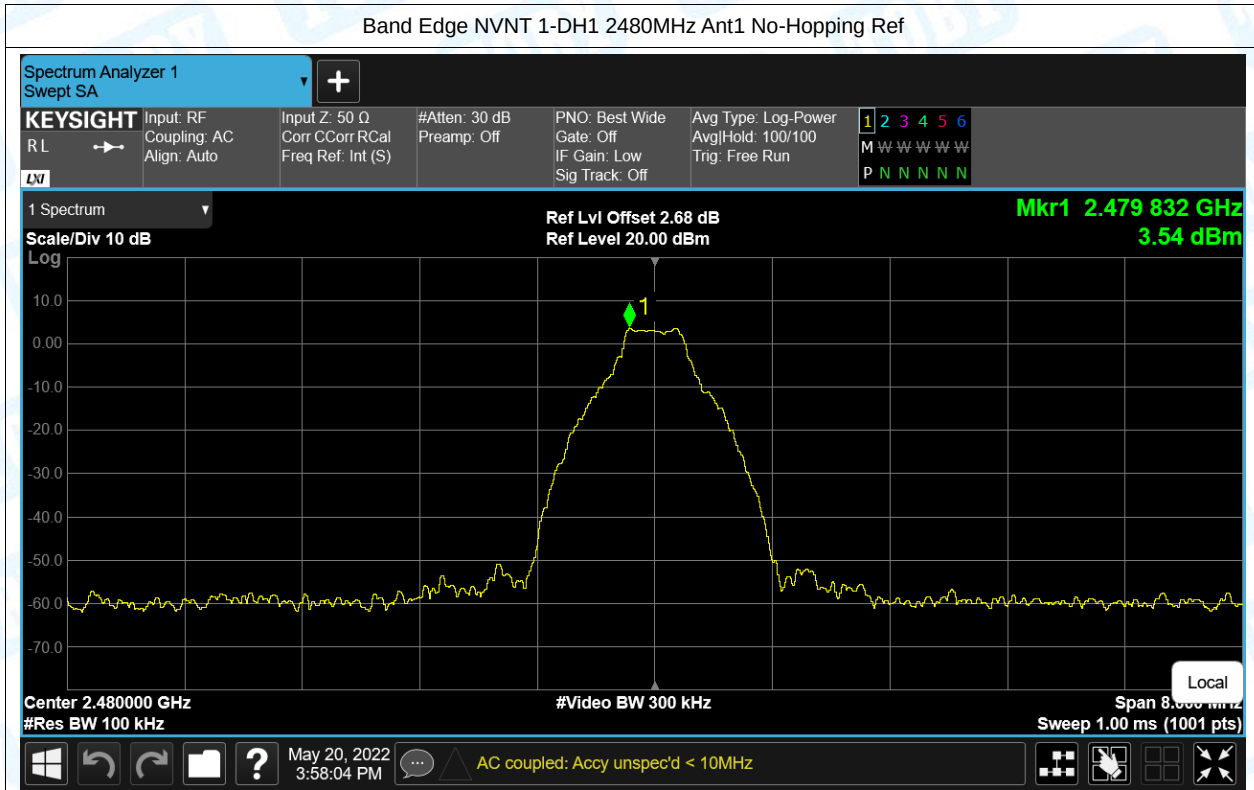
5. Band Edge

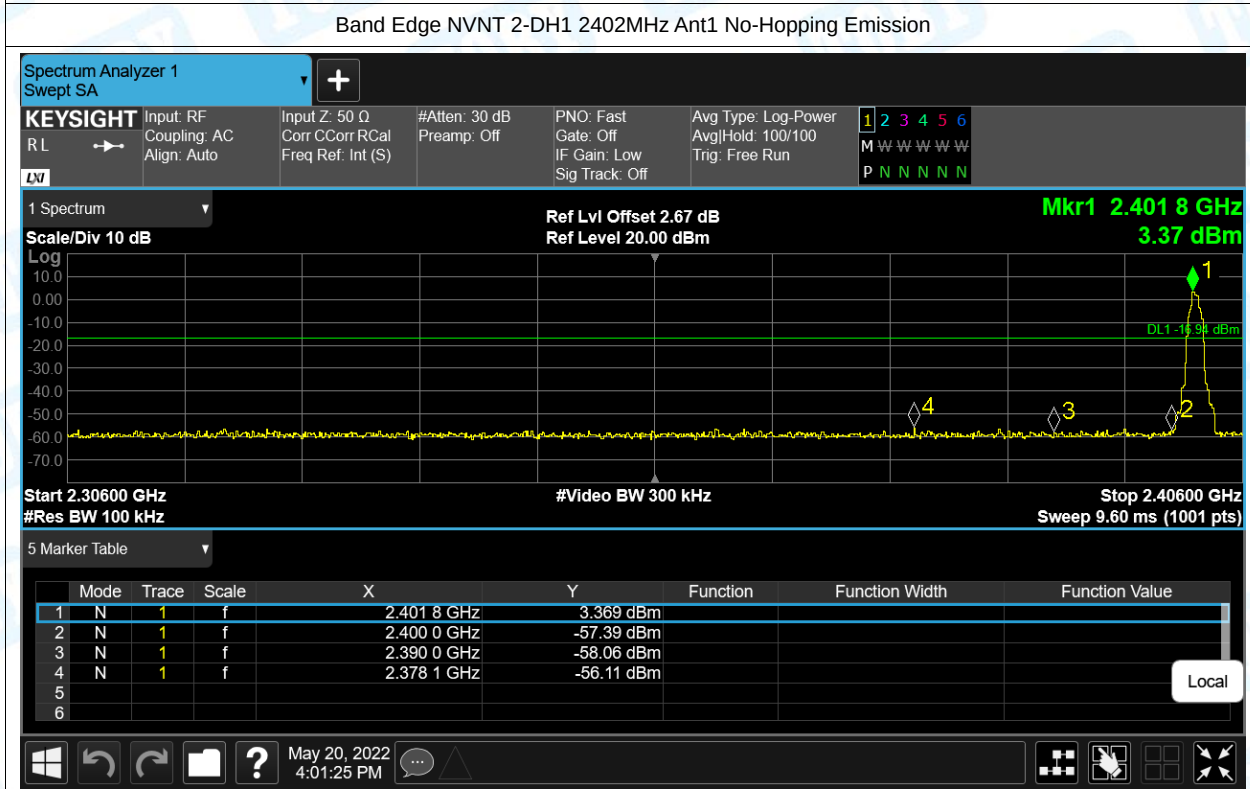
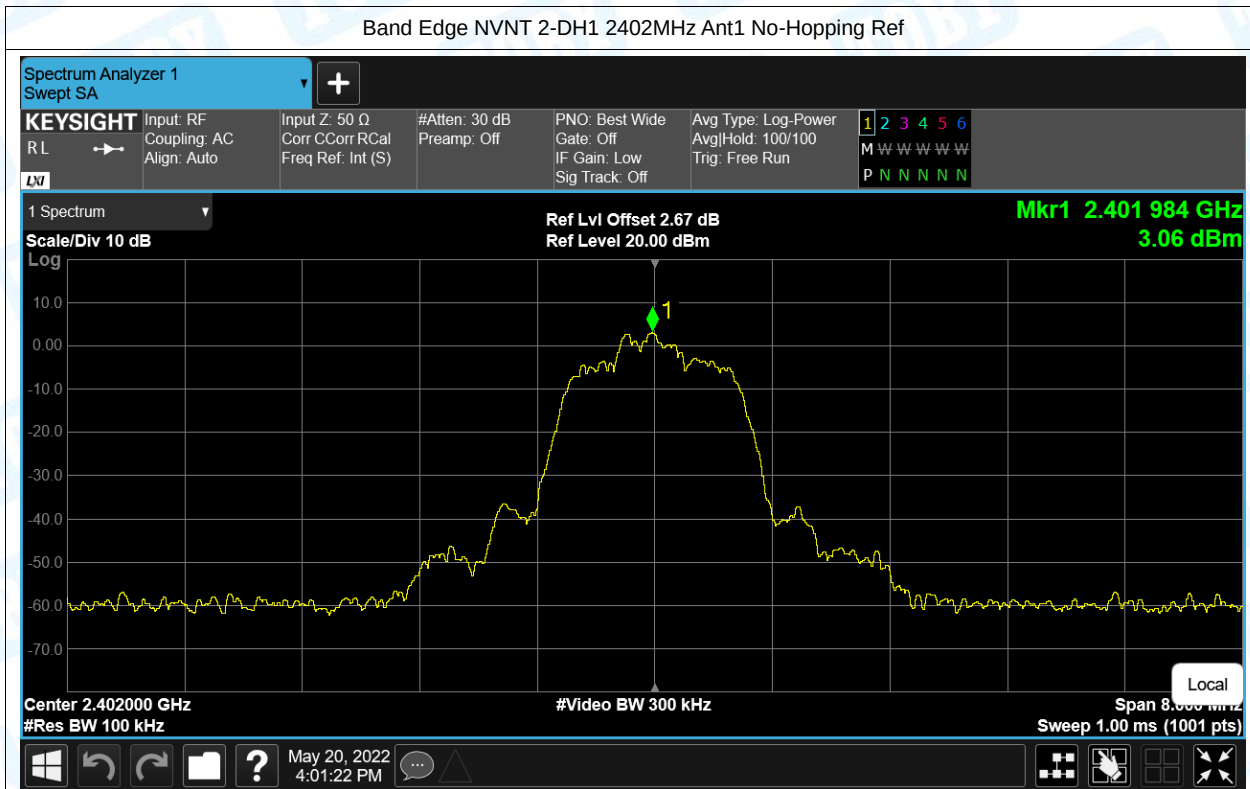
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-59.38	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-60.06	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-59.17	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-55.22	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-54.09	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-55.77	-20	Pass



5 Marker Table

	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.402 1 GHz	3.361 dBm			
2	N	1	f	2.400 0 GHz	-59.69 dBm			
3	N	1	f	2.390 0 GHz	-60.13 dBm			
4	N	1	f	2.344 5 GHz	-55.89 dBm			
5								
6								

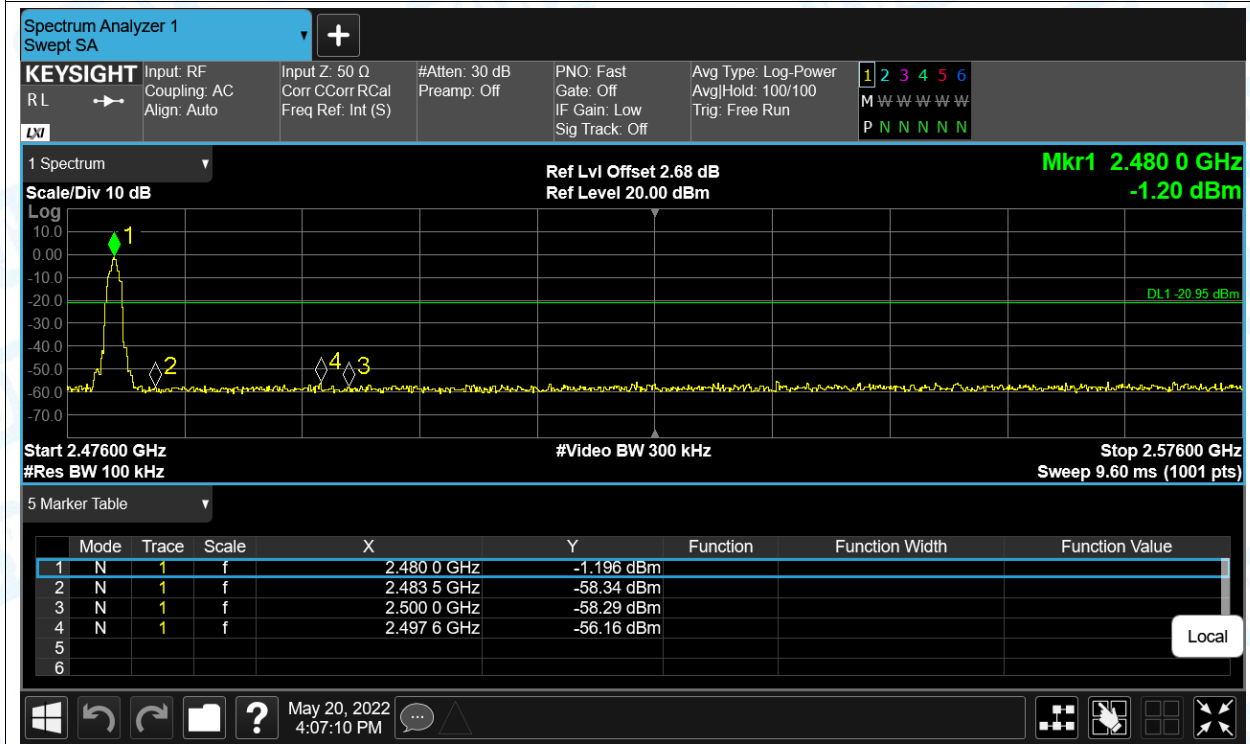




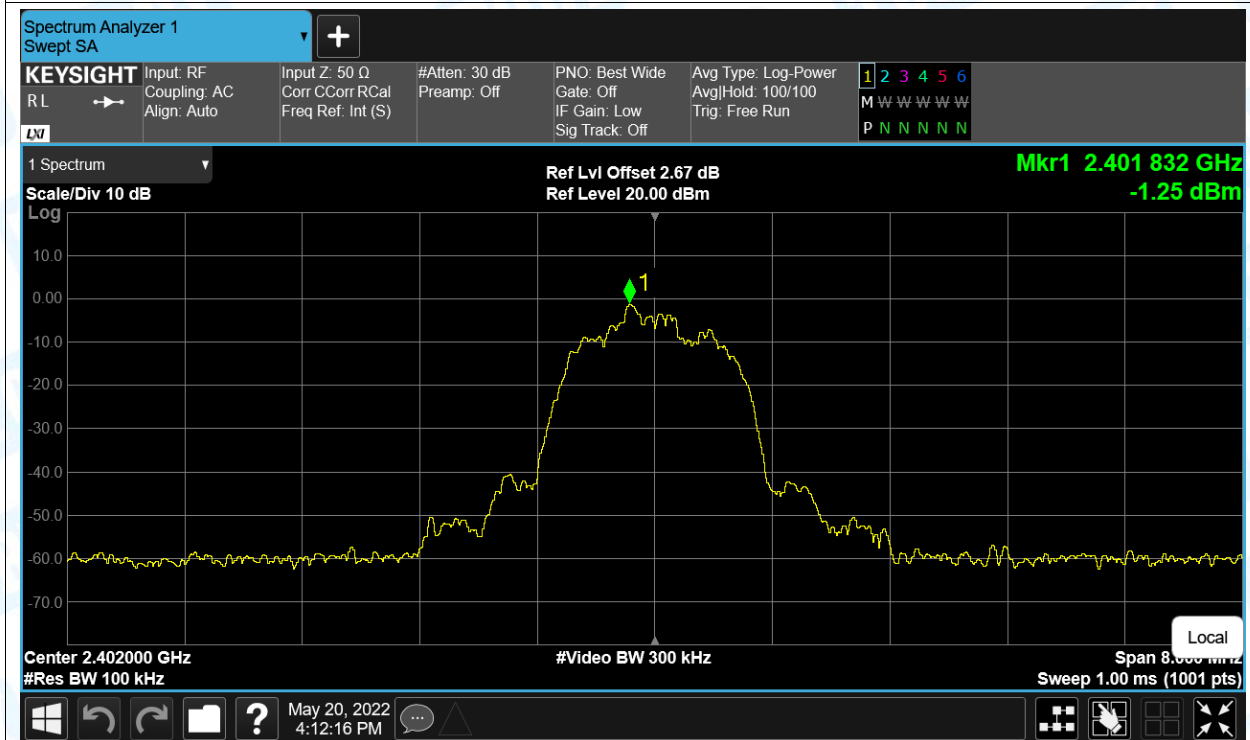
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Ref



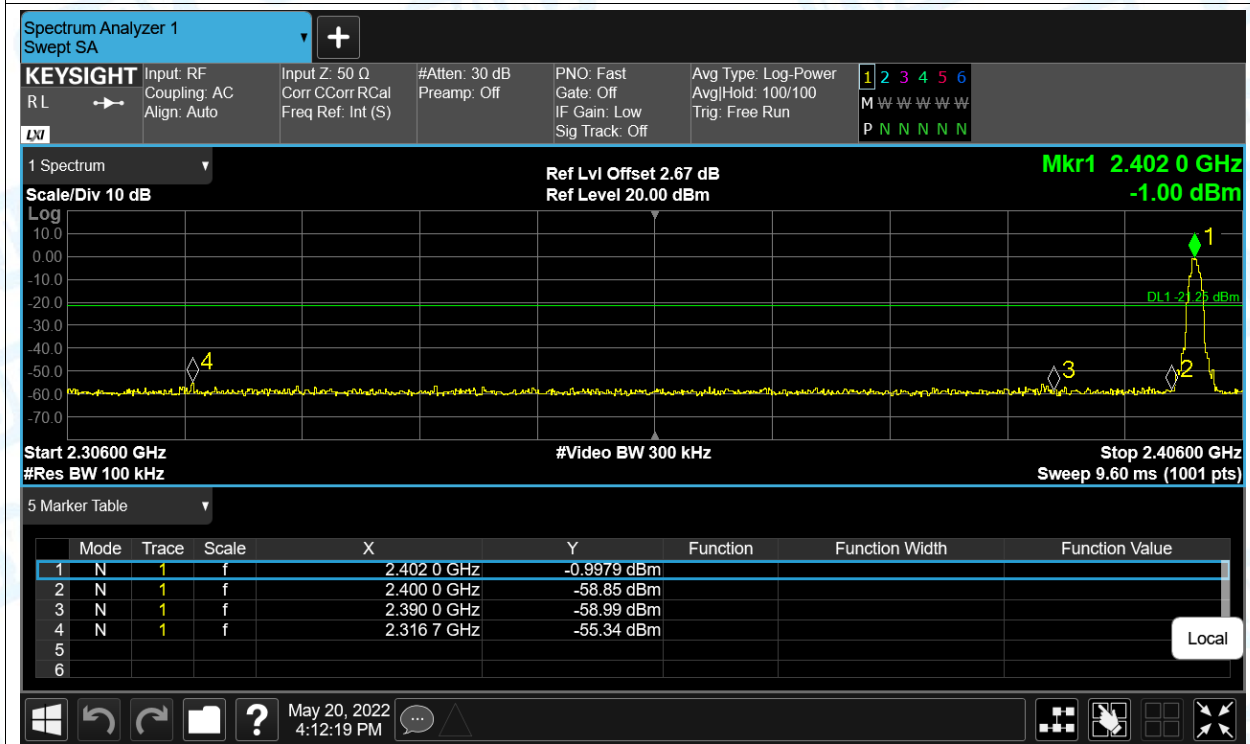
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission

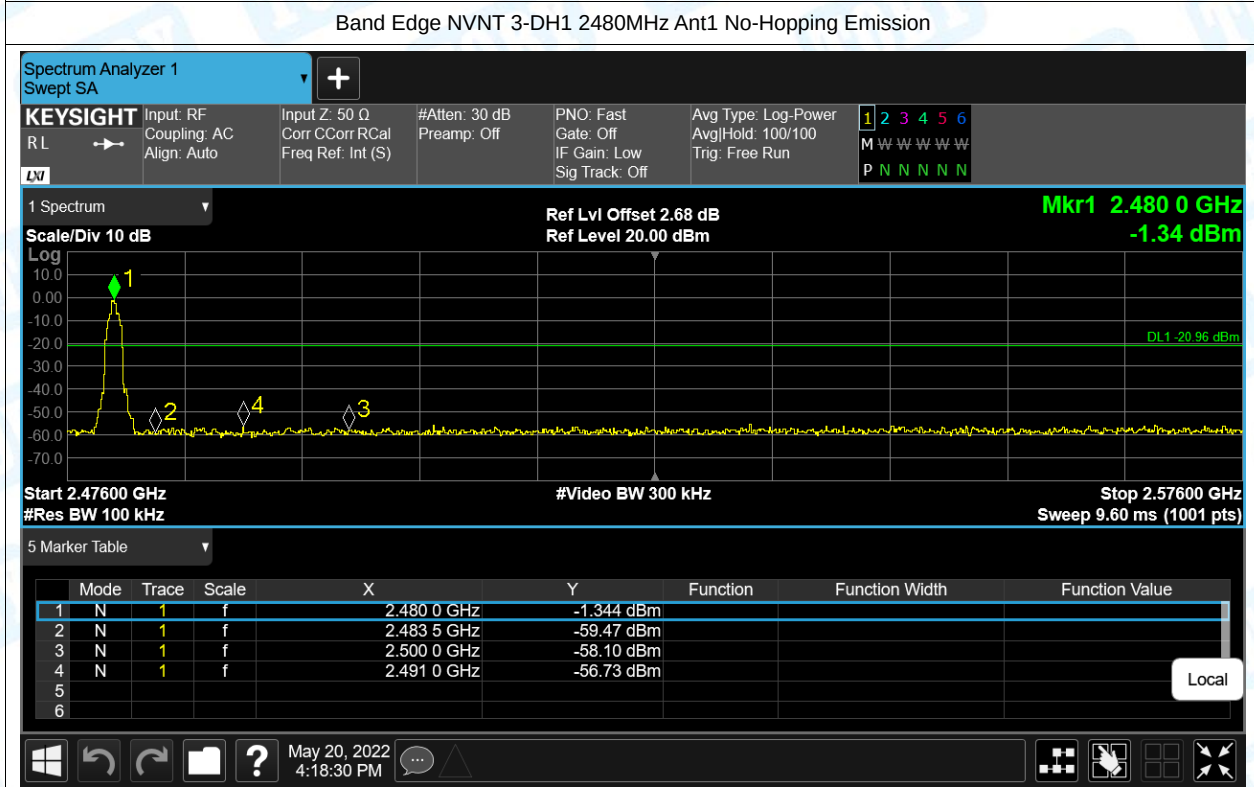
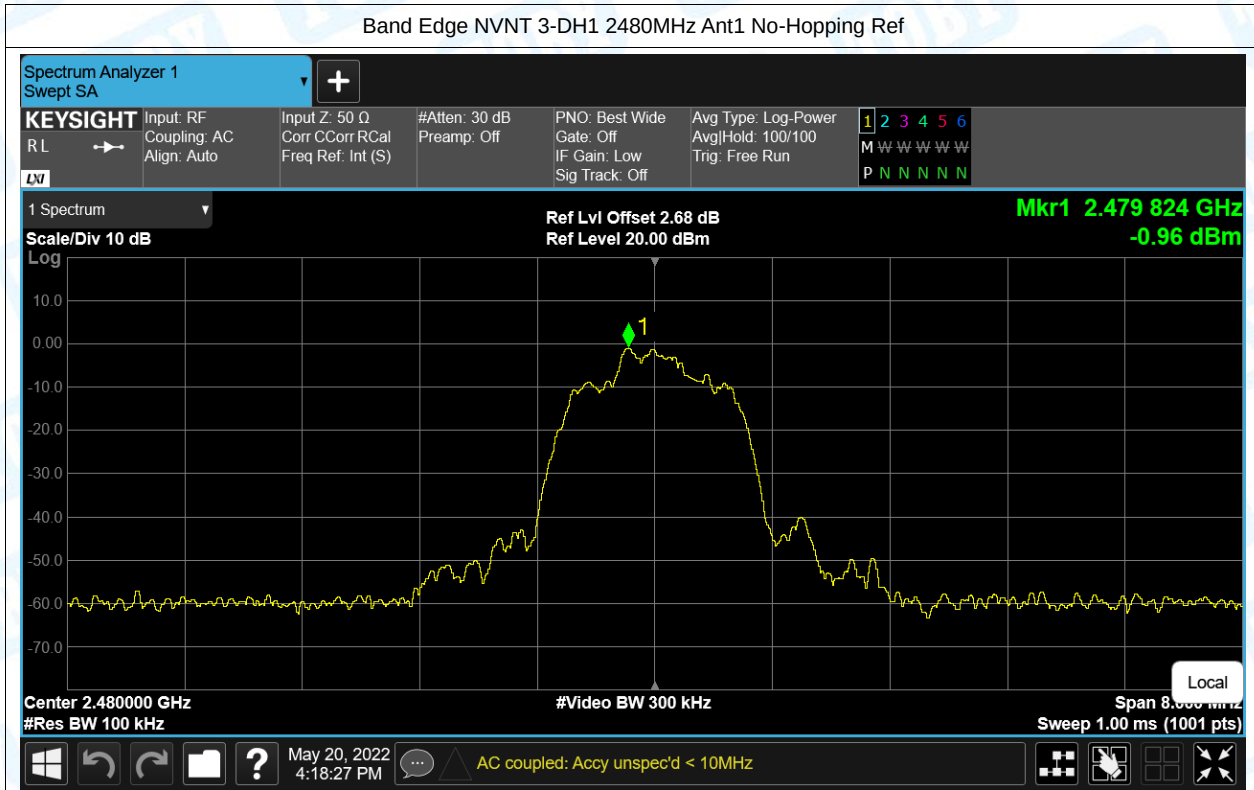


Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Ref



Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission





6. Band Edge(Hopping)

Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-53.74	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-54.76	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-53.83	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-54.18	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-54.15	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-54.62	-20	Pass



