

# RF Test Data for Bluetooth(BR+EDR) (Conducted Measurements)

General Description of EUT	
<b>Product Name:</b>	SMART WATCH
<b>Test Model:</b>	X8
<b>Sample ID:</b>	RW-C-202403-0319-2-2#
Environmental Conditions	
<b>Temperature:</b>	23.8°C
<b>Relative Humidity:</b>	48%
<b>Test Voltage:</b>	DC 3.8V
<b>Test Engineer:</b>	ZKN ZHOU
Note: For a more detailed features description, please refer to the report TBR-C-202403-0319-3 The report only show the worst case data.	

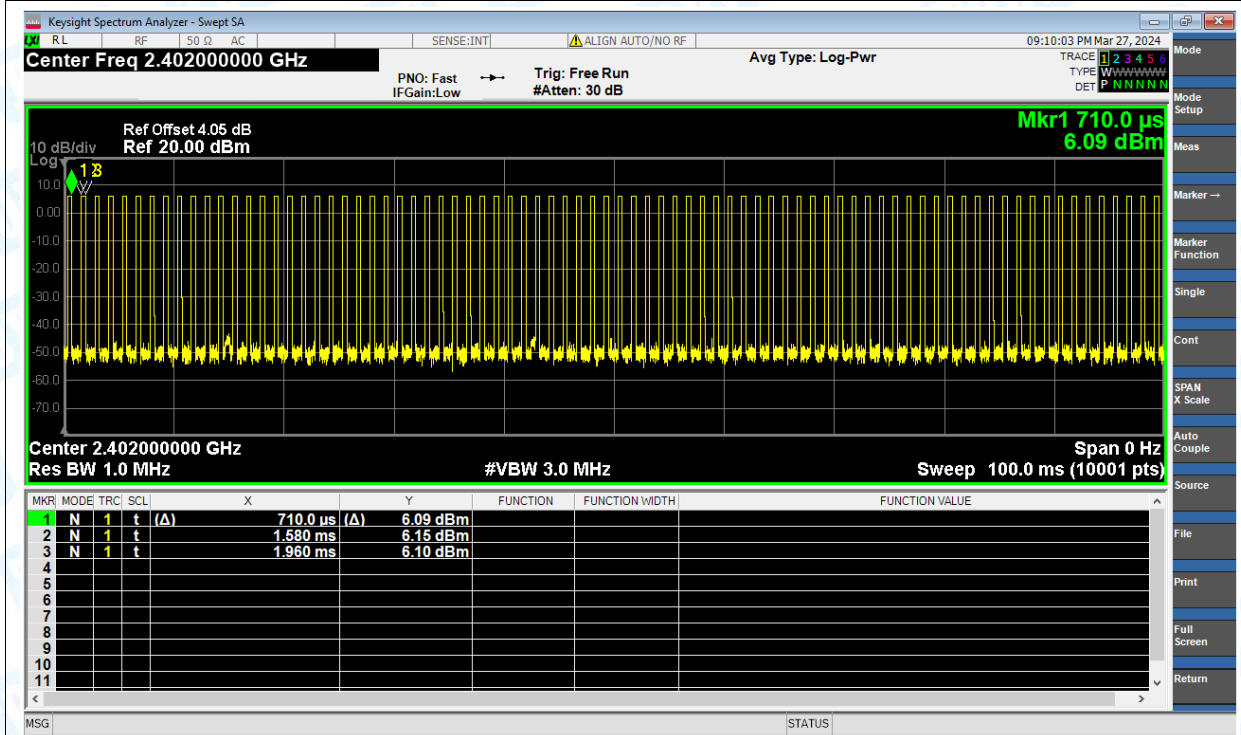


## 1. Duty Cycle

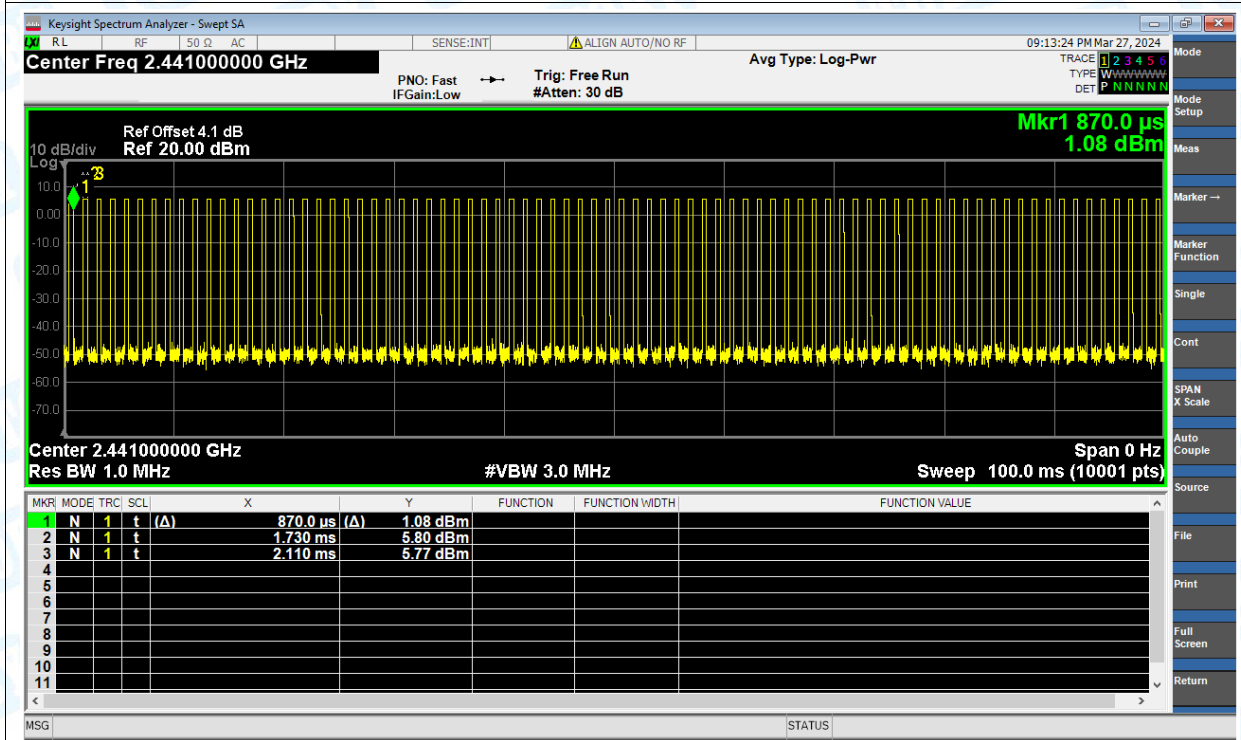
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	30.4	5.17	2.63
NVNT	1-DH1	2441	Ant1	30.65	5.14	2.63
NVNT	1-DH1	2480	Ant1	30.4	5.17	2.63
NVNT	2-DH1	2402	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2441	Ant1	32	4.95	2.5
NVNT	2-DH1	2480	Ant1	32	4.95	2.5
NVNT	3-DH1	2402	Ant1	31.2	5.06	2.56
NVNT	3-DH1	2441	Ant1	32	4.95	2.5
NVNT	3-DH1	2480	Ant1	31.2	5.06	2.56

Test Graphs

Duty Cycle NVNT 1-DH1 2402MHz Ant1

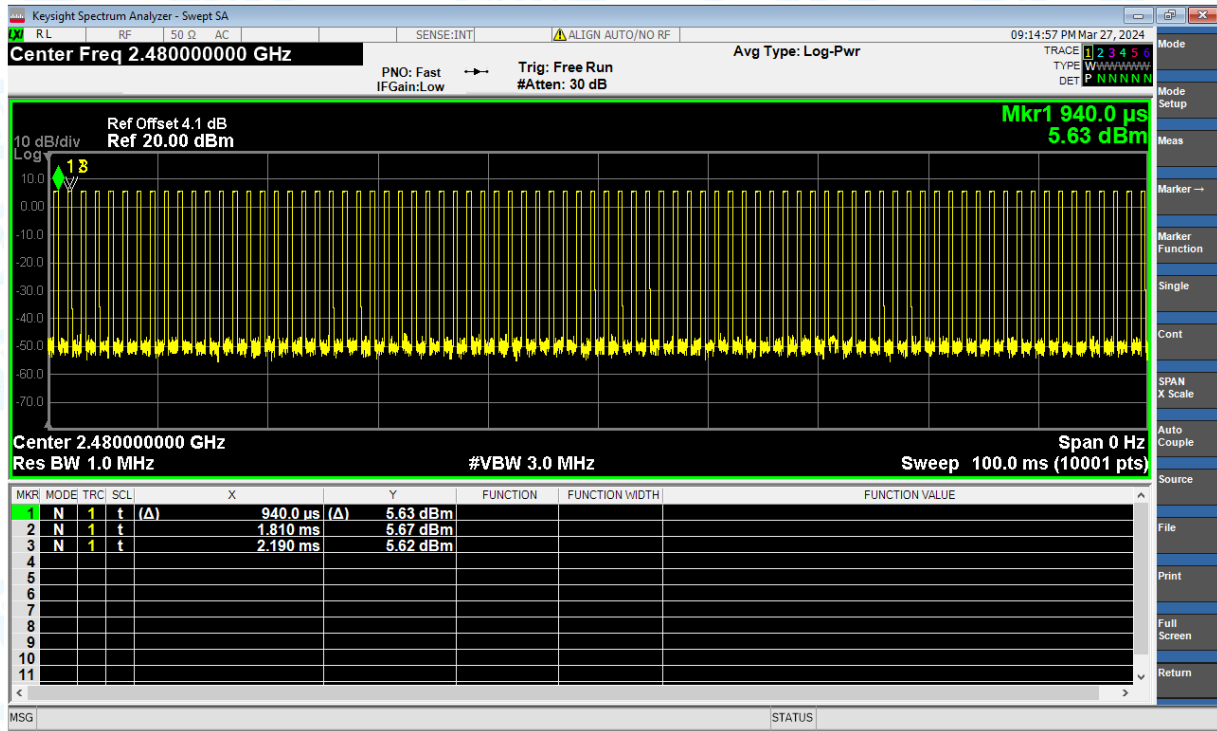


Duty Cycle NVNT 1-DH1 2441MHz Ant1

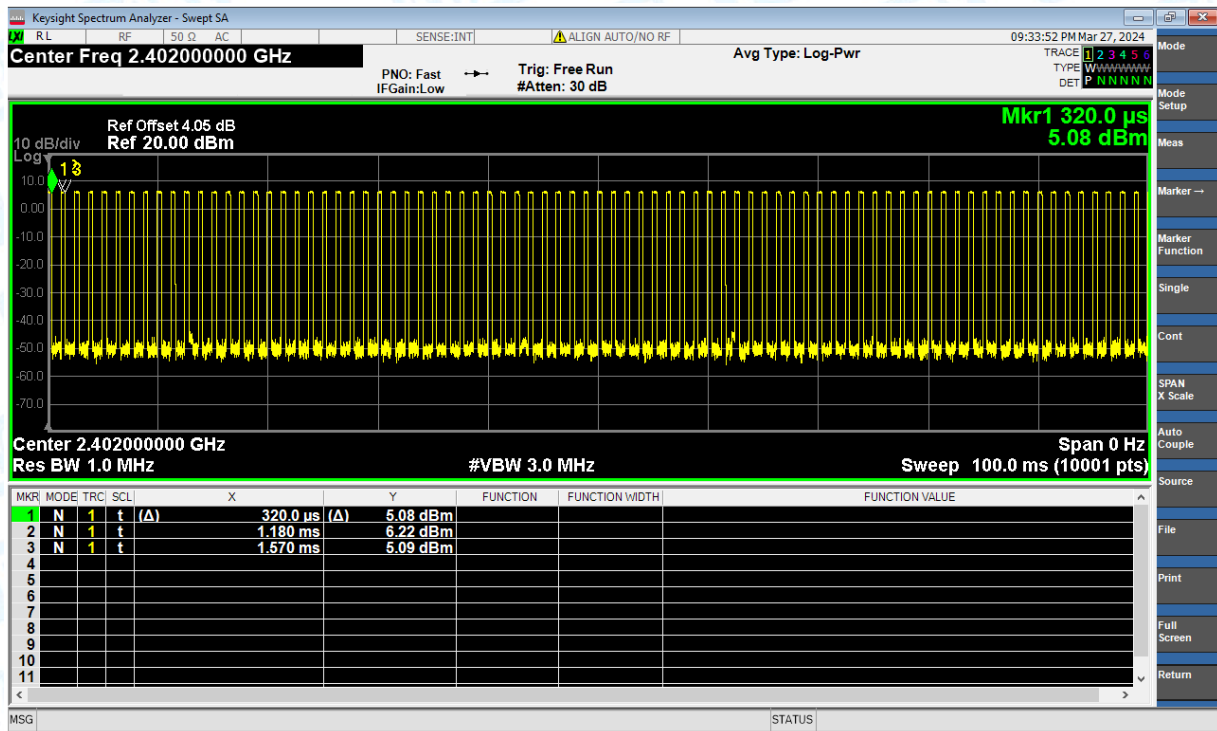




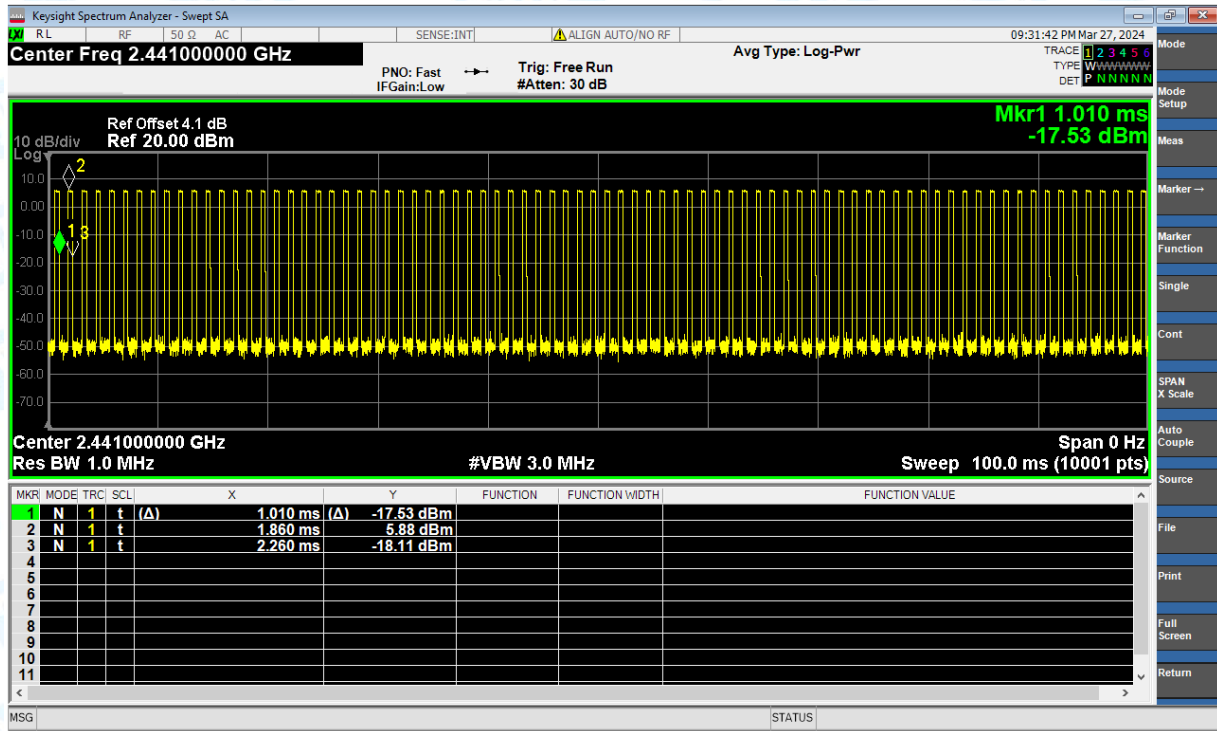
Duty Cycle NVNT 1-DH1 2480MHz Ant1



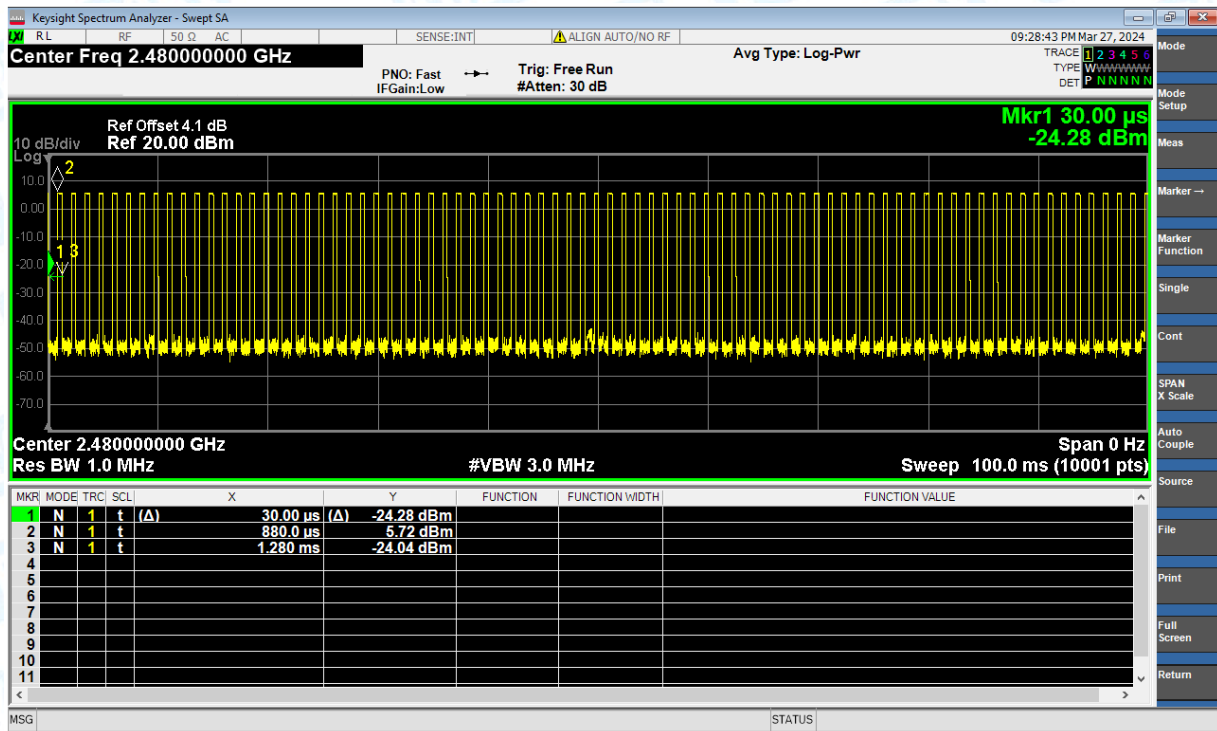
Duty Cycle NVNT 2-DH1 2402MHz Ant1



Duty Cycle NVNT 2-DH1 2441MHz Ant1

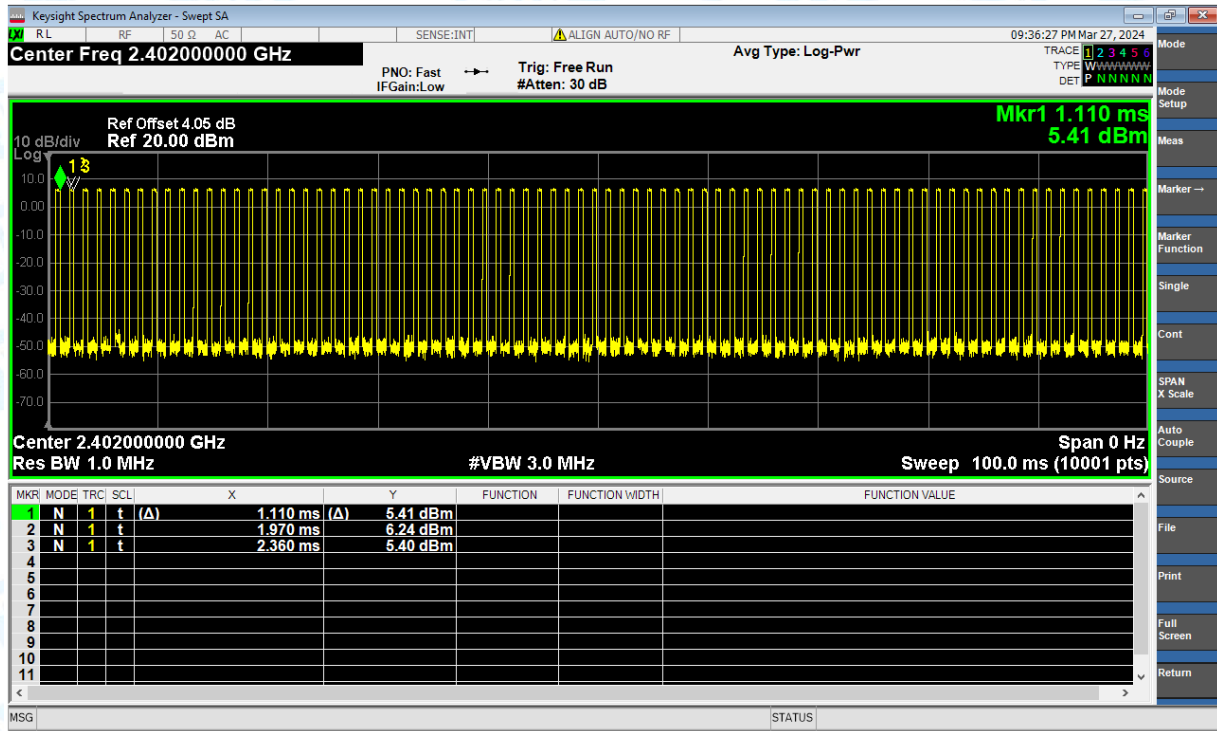


Duty Cycle NVNT 2-DH1 2480MHz Ant1

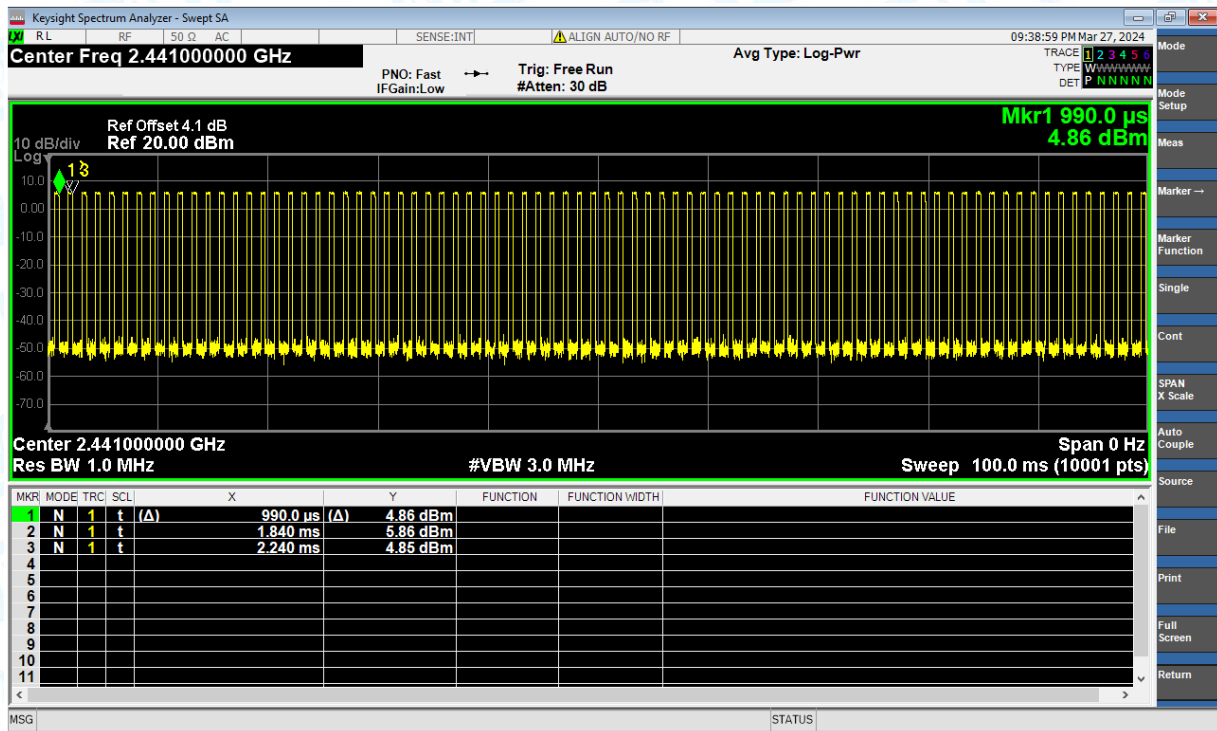


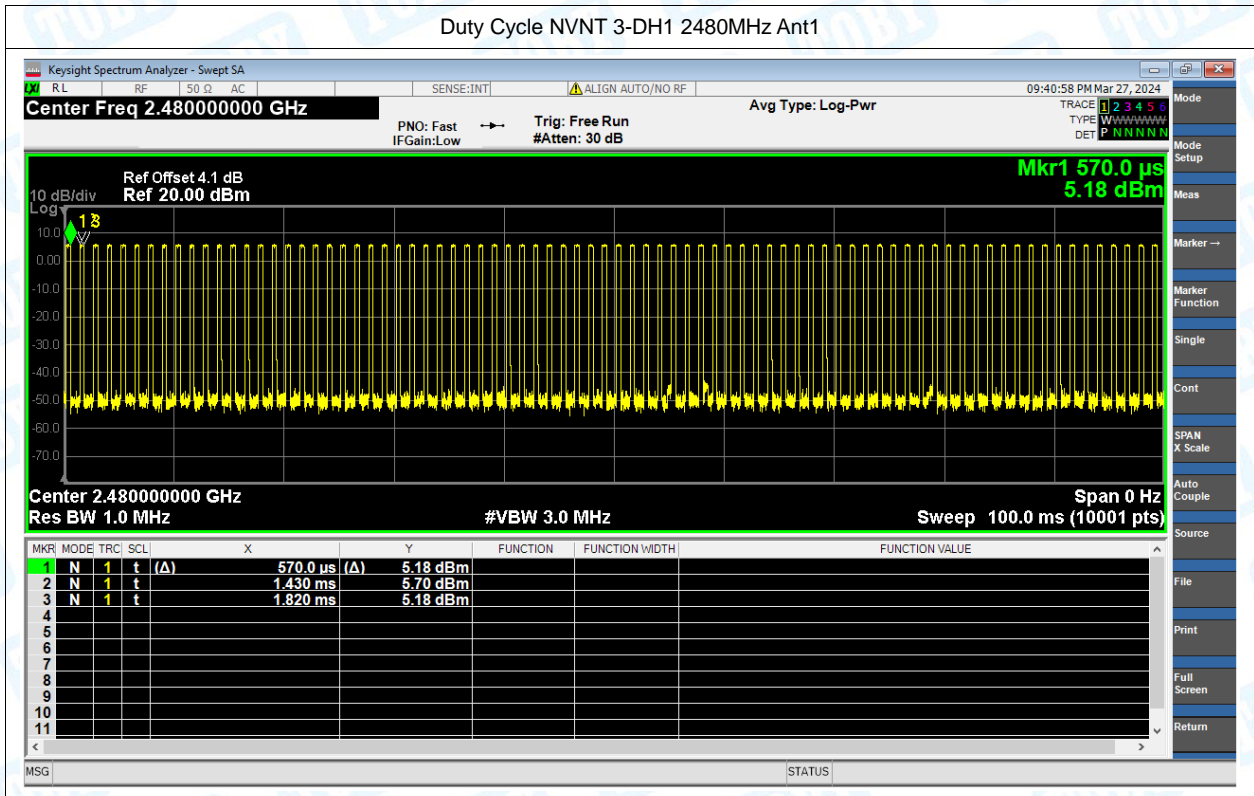


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1







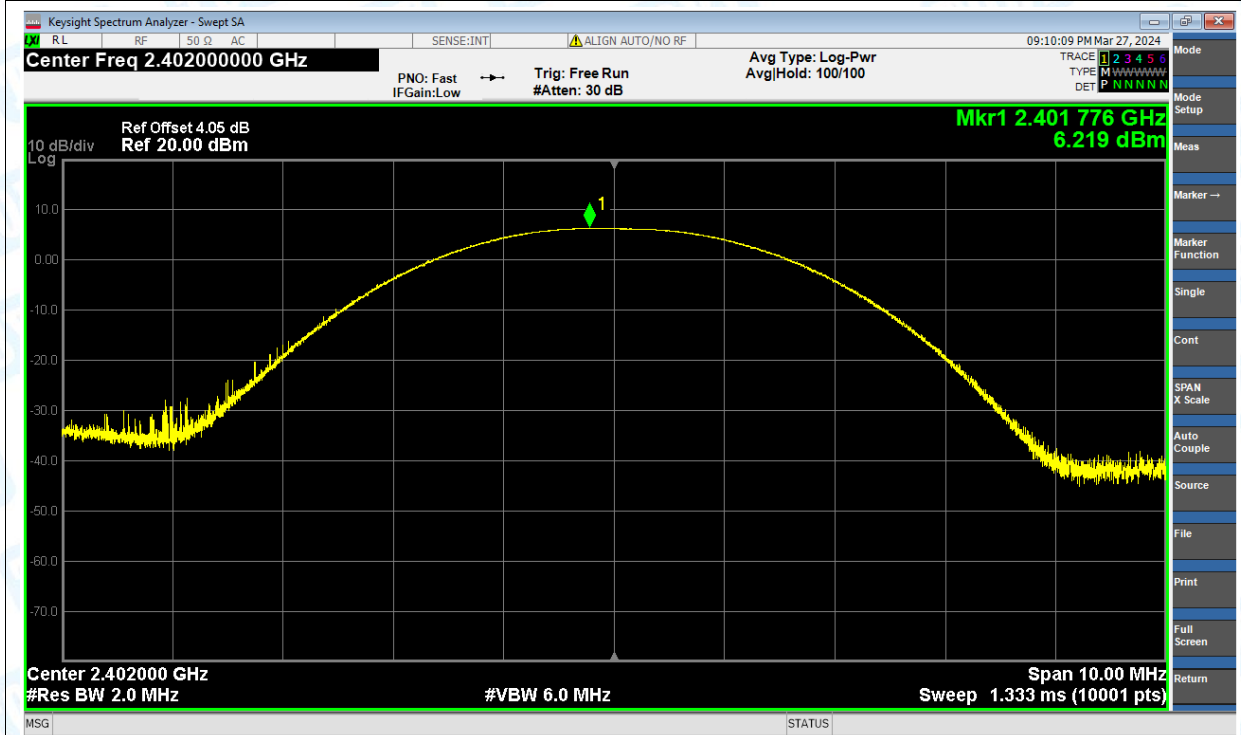
## 2. Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	6.219	21	Pass
NVNT	1-DH1	2441	Ant1	5.873	21	Pass
NVNT	1-DH1	2480	Ant1	5.718	21	Pass
NVNT	2-DH1	2402	Ant1	6.718	21	Pass
NVNT	2-DH1	2441	Ant1	6.259	21	Pass
NVNT	2-DH1	2480	Ant1	6.017	21	Pass
NVNT	3-DH1	2402	Ant1	6.961	21	Pass
NVNT	3-DH1	2441	Ant1	6.441	21	Pass
NVNT	3-DH1	2480	Ant1	6.189	21	Pass



Test Graphs

Power NVNT 1-DH1 2402MHz Ant1



Power NVNT 1-DH1 2441MHz Ant1



Power NVNT 1-DH1 2480MHz Ant1



Power NVNT 2-DH1 2402MHz Ant1

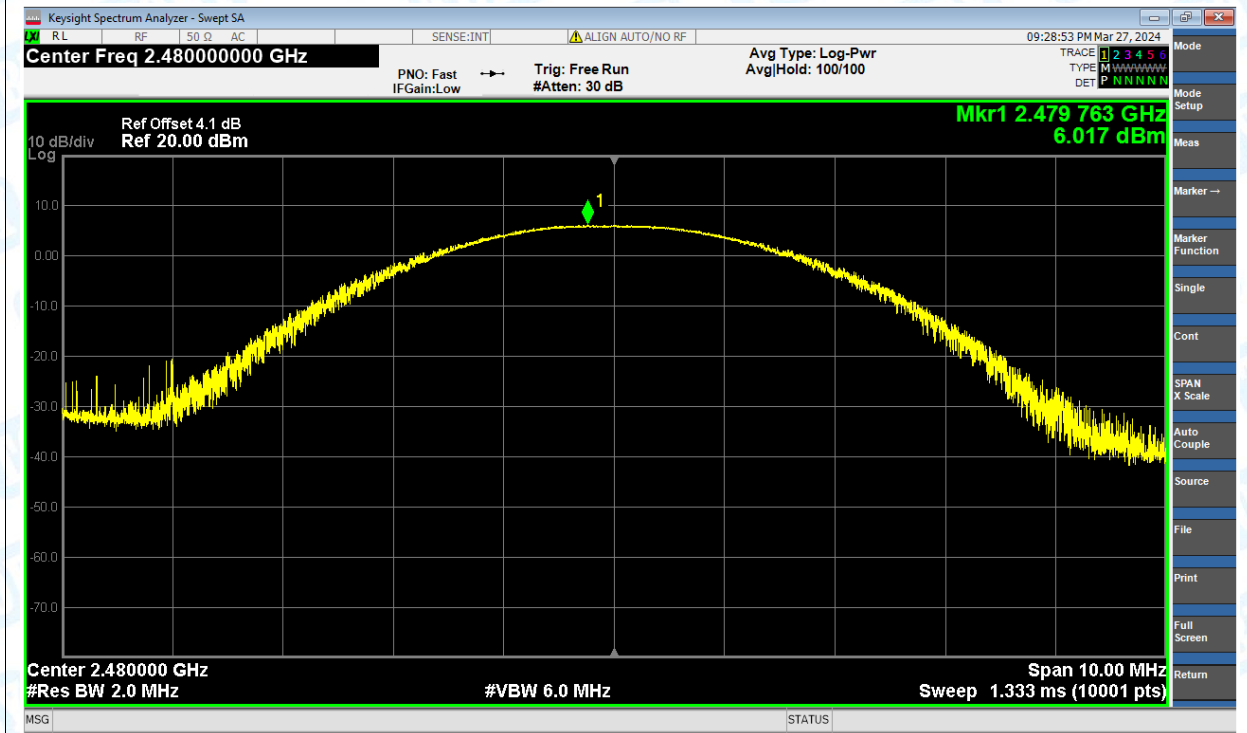




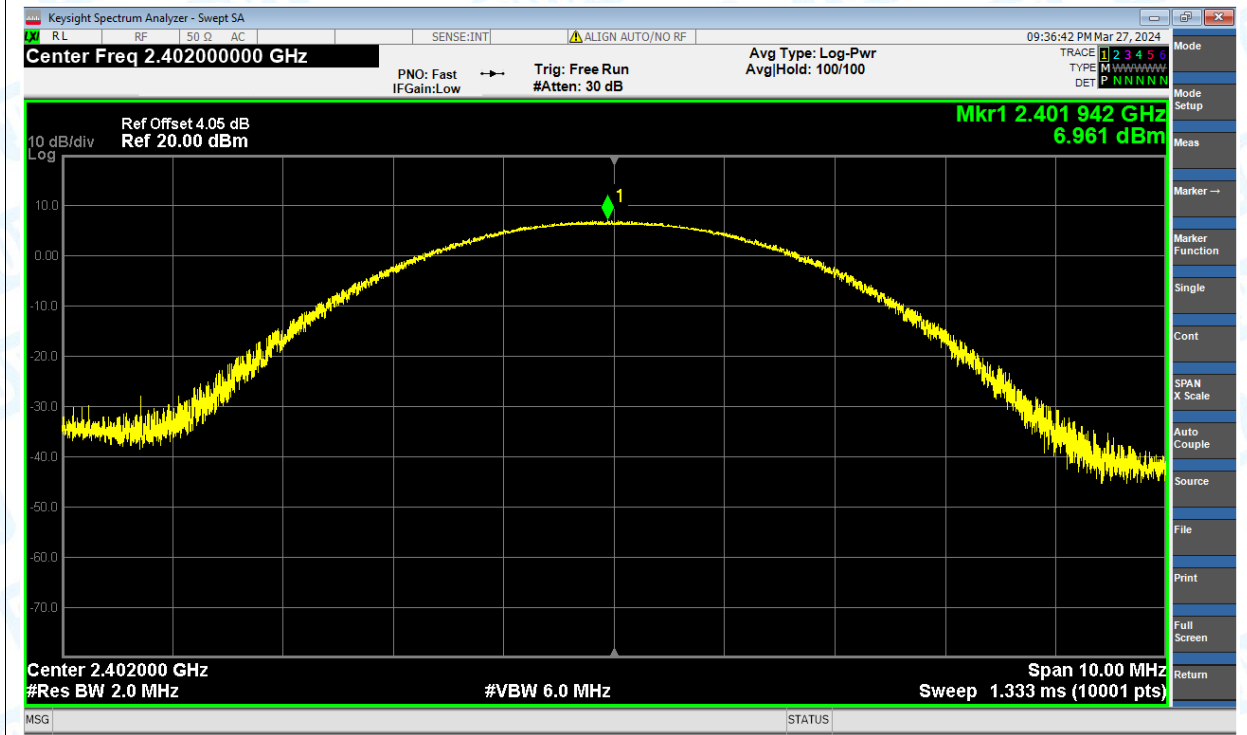
Power NVNT 2-DH1 2441MHz Ant1



Power NVNT 2-DH1 2480MHz Ant1



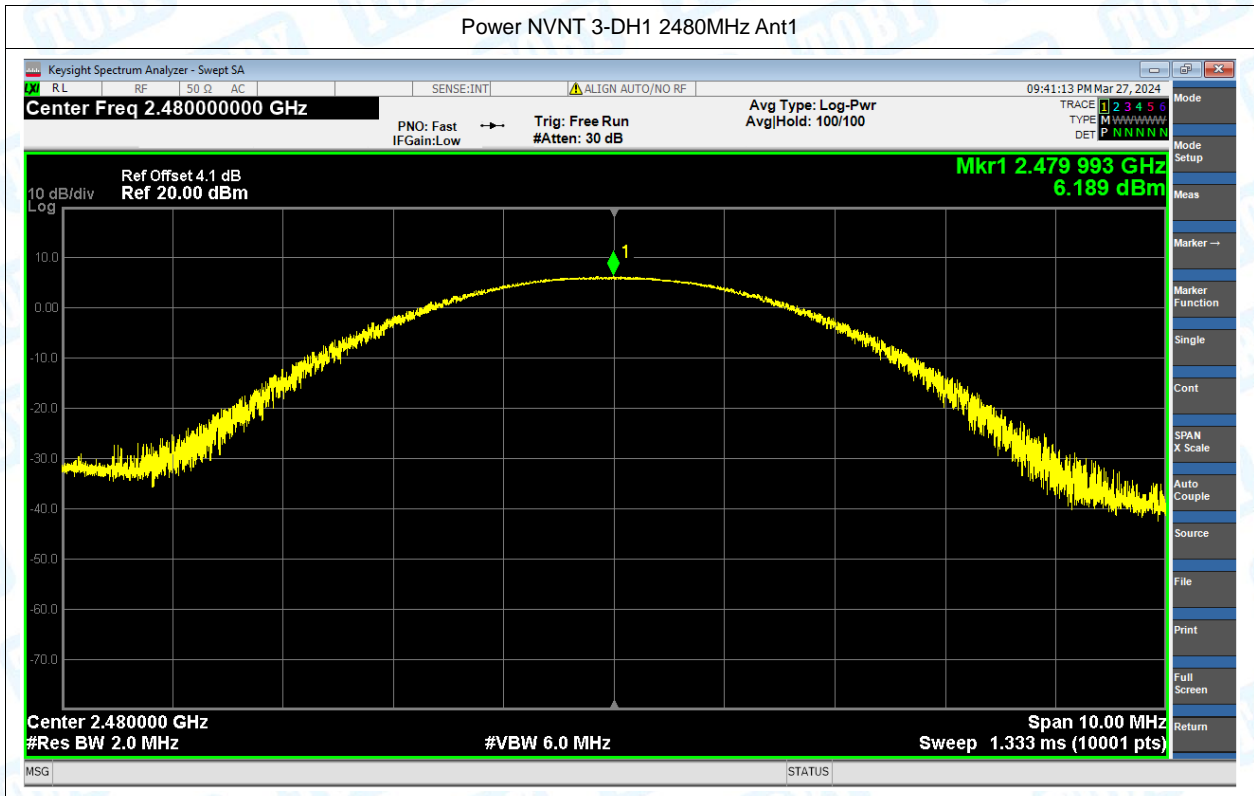
Power NVNT 3-DH1 2402MHz Ant1



Power NVNT 3-DH1 2441MHz Ant1







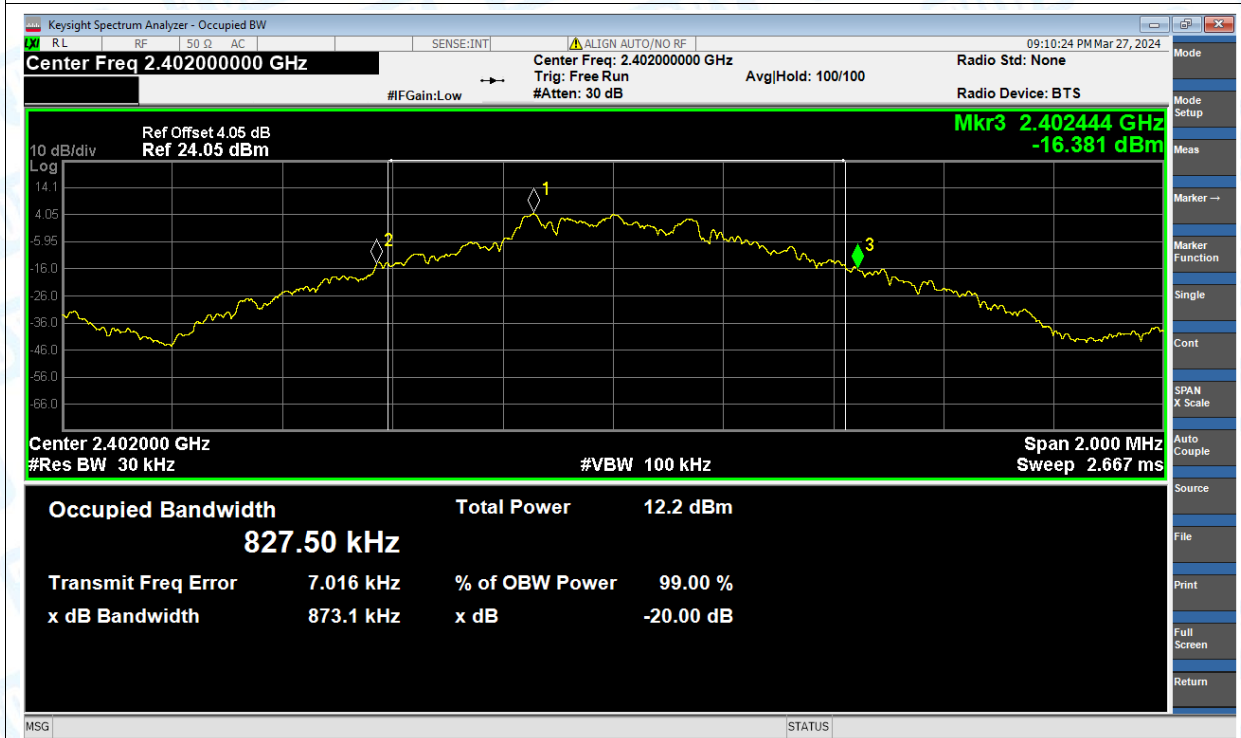
### 3. -20dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.87	----	Pass
NVNT	1-DH1	2441	Ant1	0.87	----	Pass
NVNT	1-DH1	2480	Ant1	0.86	----	Pass
NVNT	2-DH1	2402	Ant1	1.27	----	Pass
NVNT	2-DH1	2441	Ant1	1.27	----	Pass
NVNT	2-DH1	2480	Ant1	1.22	----	Pass
NVNT	3-DH1	2402	Ant1	1.20	----	Pass
NVNT	3-DH1	2441	Ant1	1.22	----	Pass
NVNT	3-DH1	2480	Ant1	1.24	----	Pass

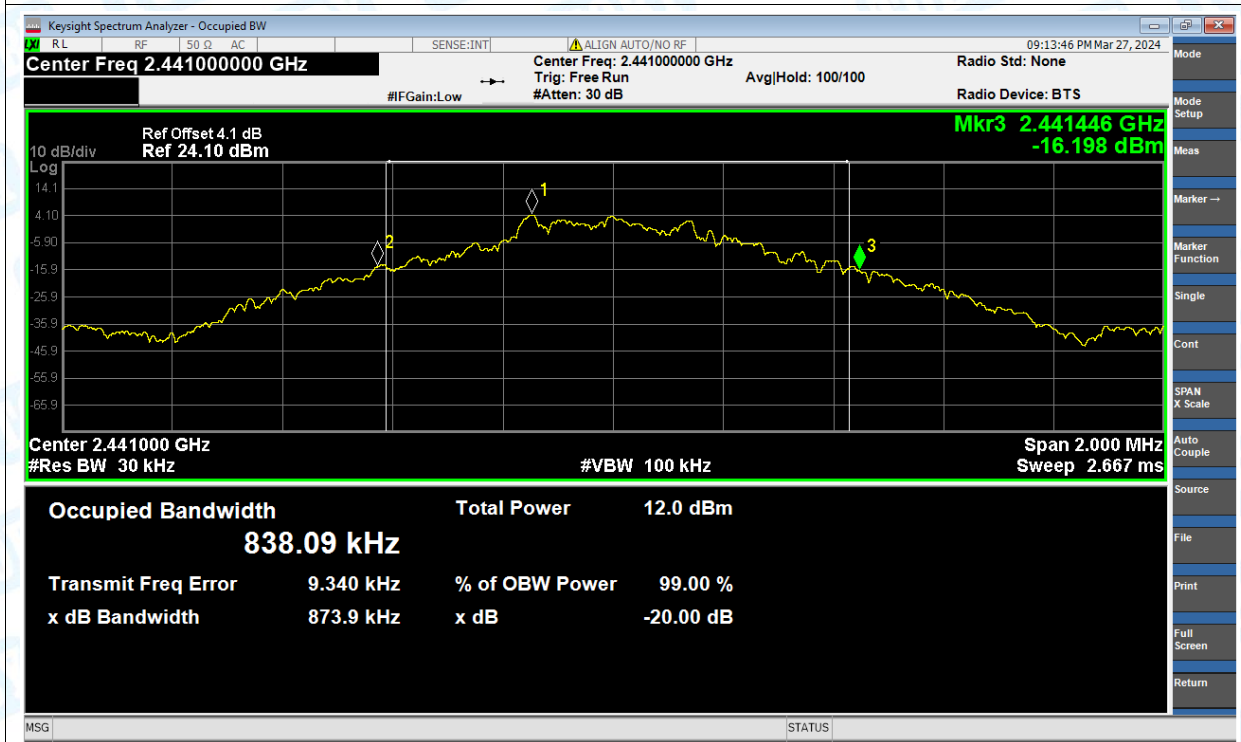


Test Graphs

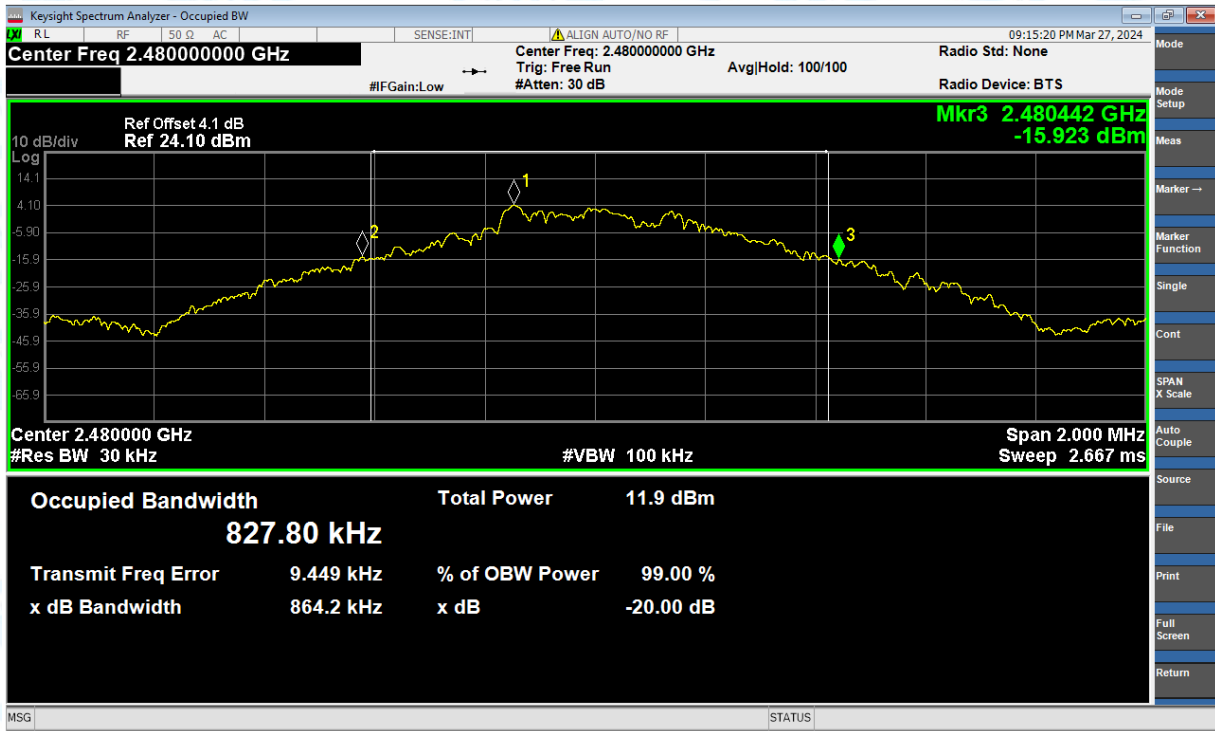
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



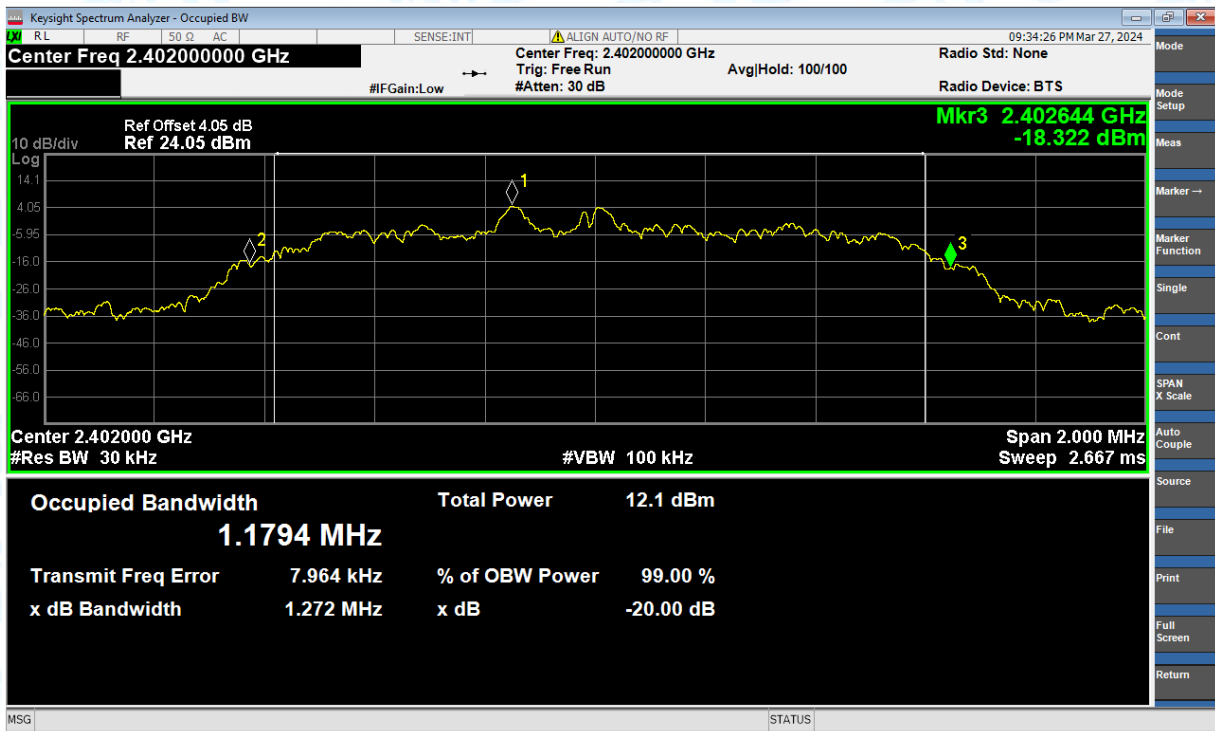
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1

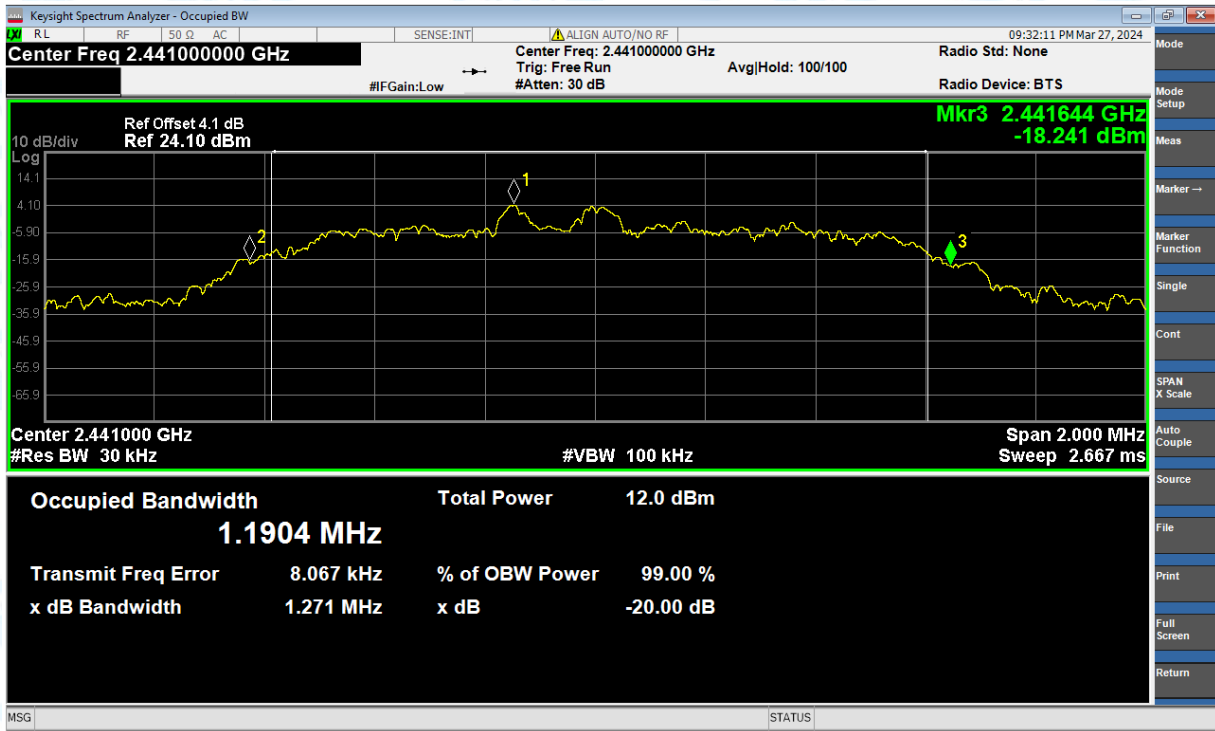


-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1

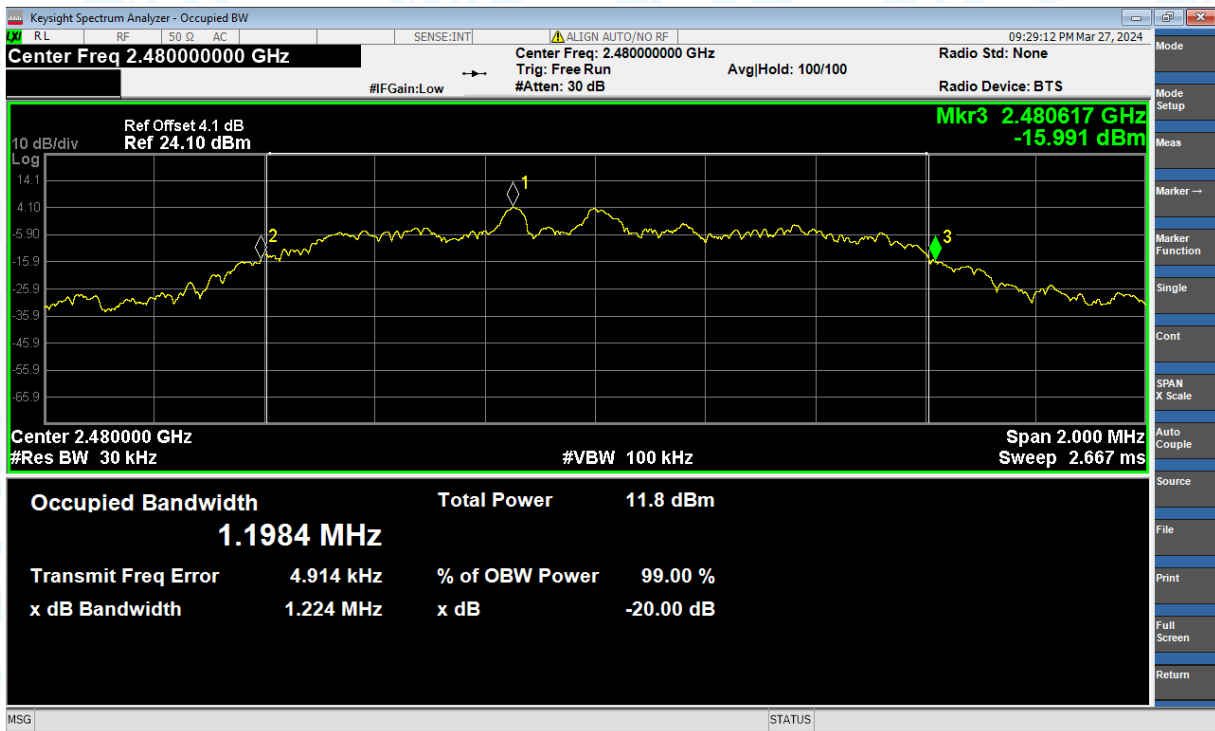




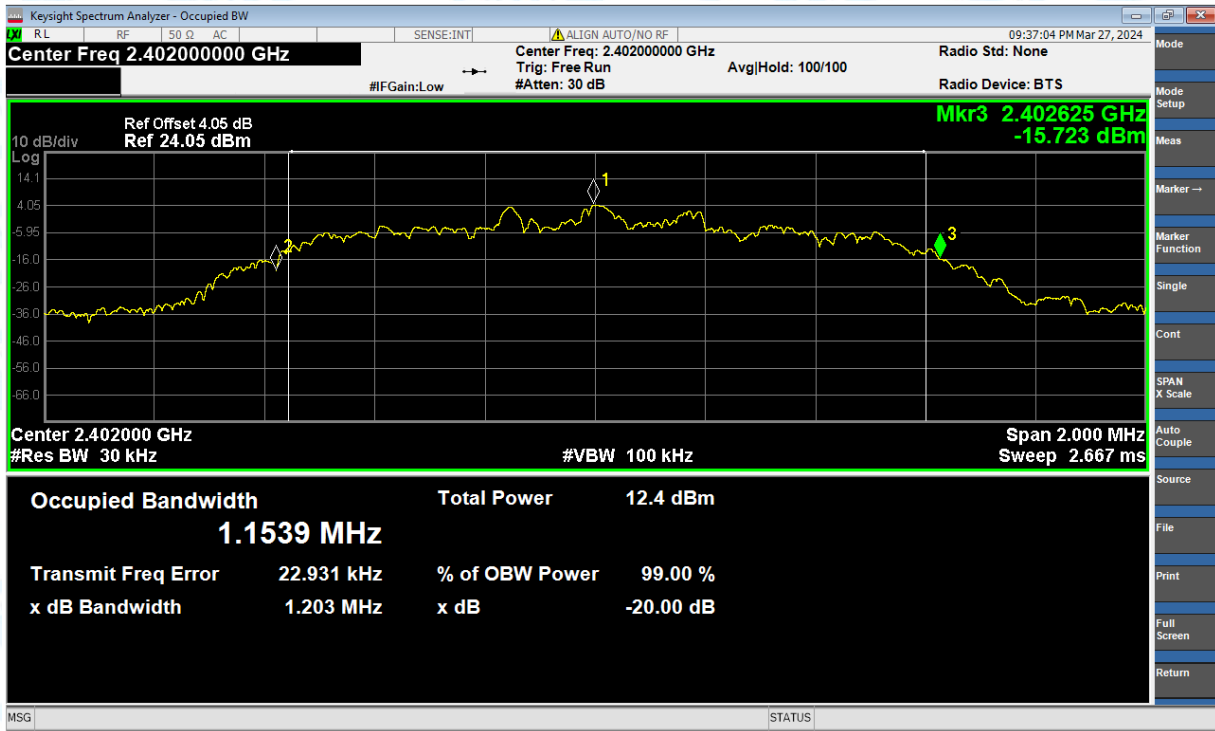
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



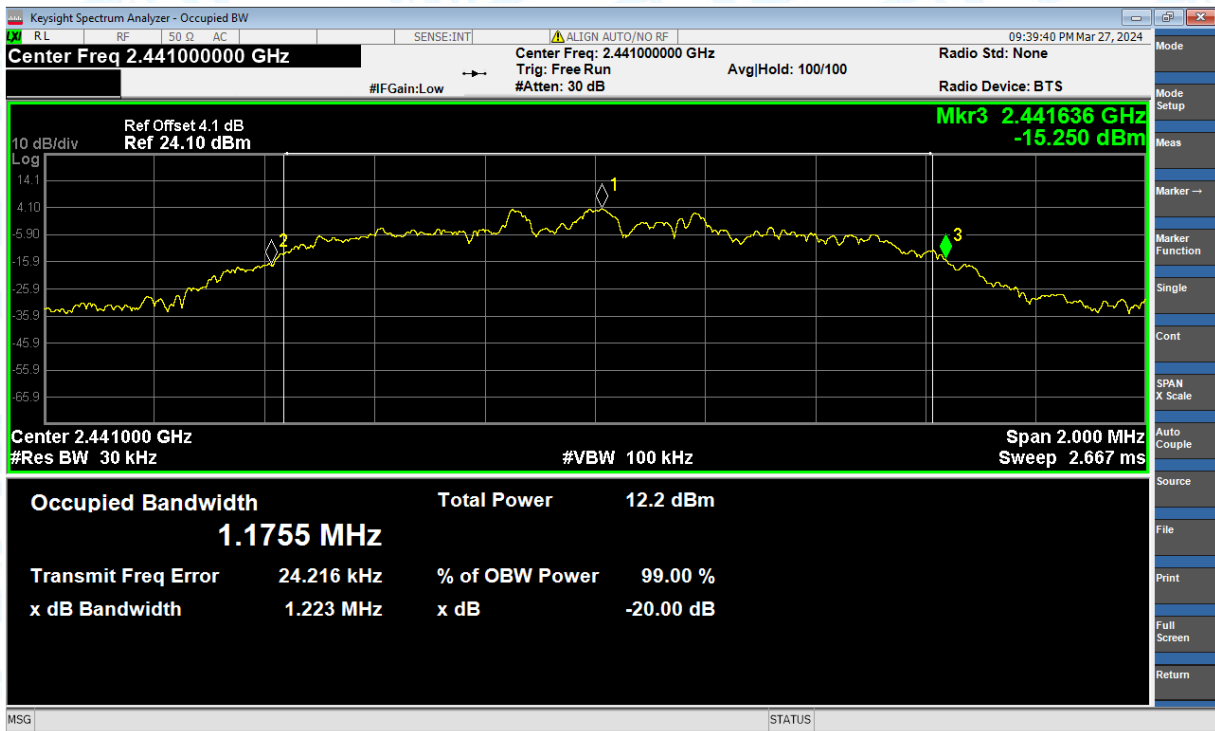
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1



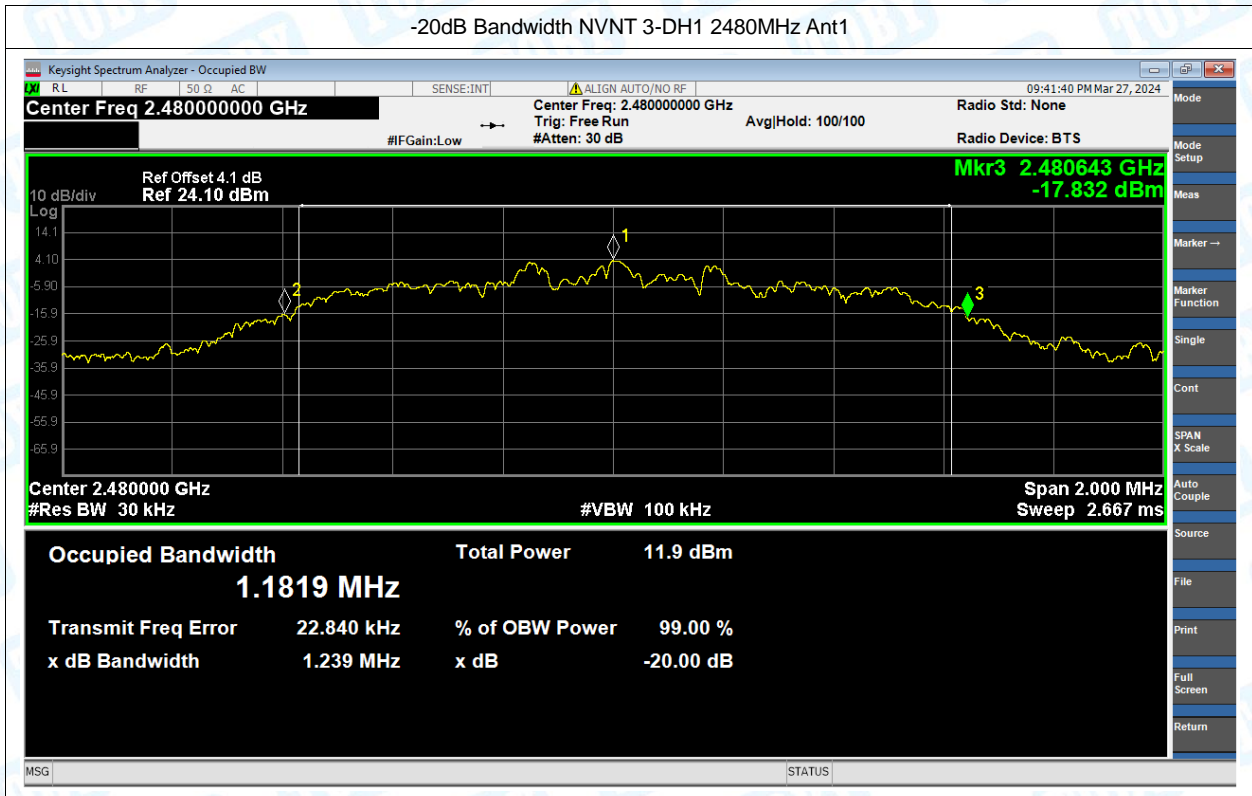
-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1







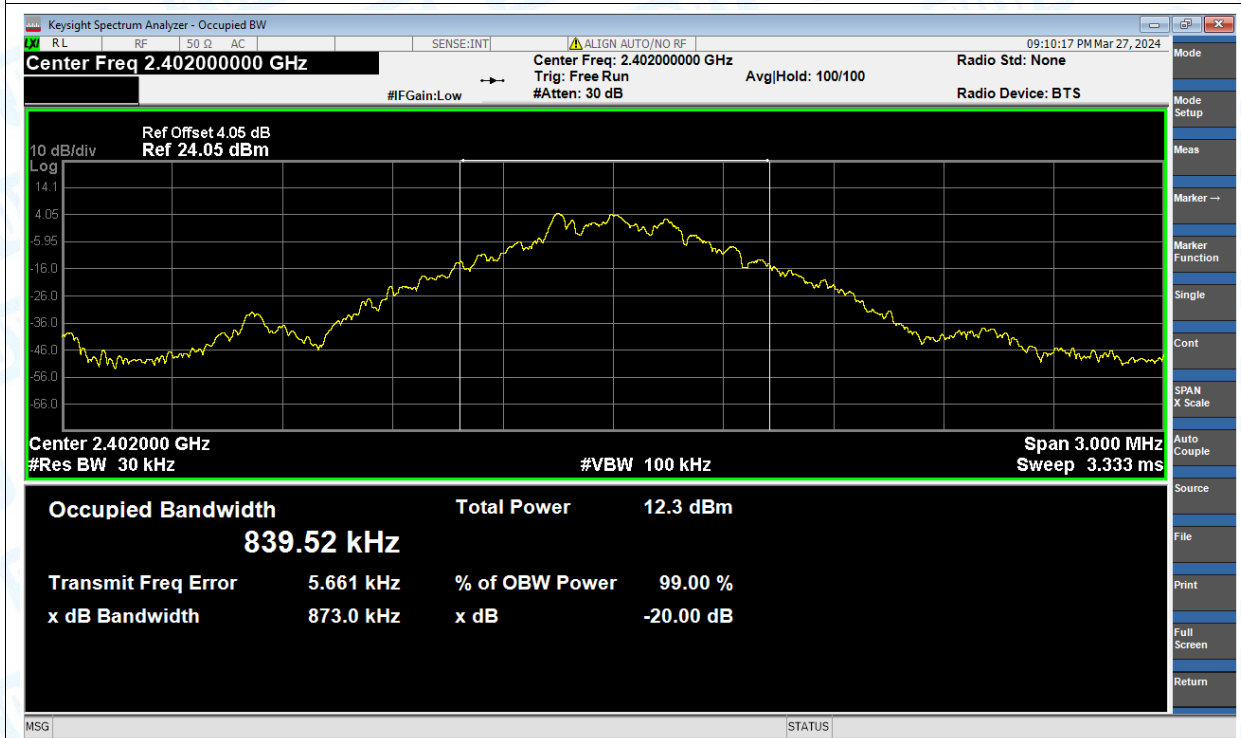
## 4. Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.840
NVNT	1-DH1	2441	Ant1	0.822
NVNT	1-DH1	2480	Ant1	0.825
NVNT	2-DH1	2402	Ant1	1.161
NVNT	2-DH1	2441	Ant1	1.207
NVNT	2-DH1	2480	Ant1	1.243
NVNT	3-DH1	2402	Ant1	1.168
NVNT	3-DH1	2441	Ant1	1.187
NVNT	3-DH1	2480	Ant1	1.213

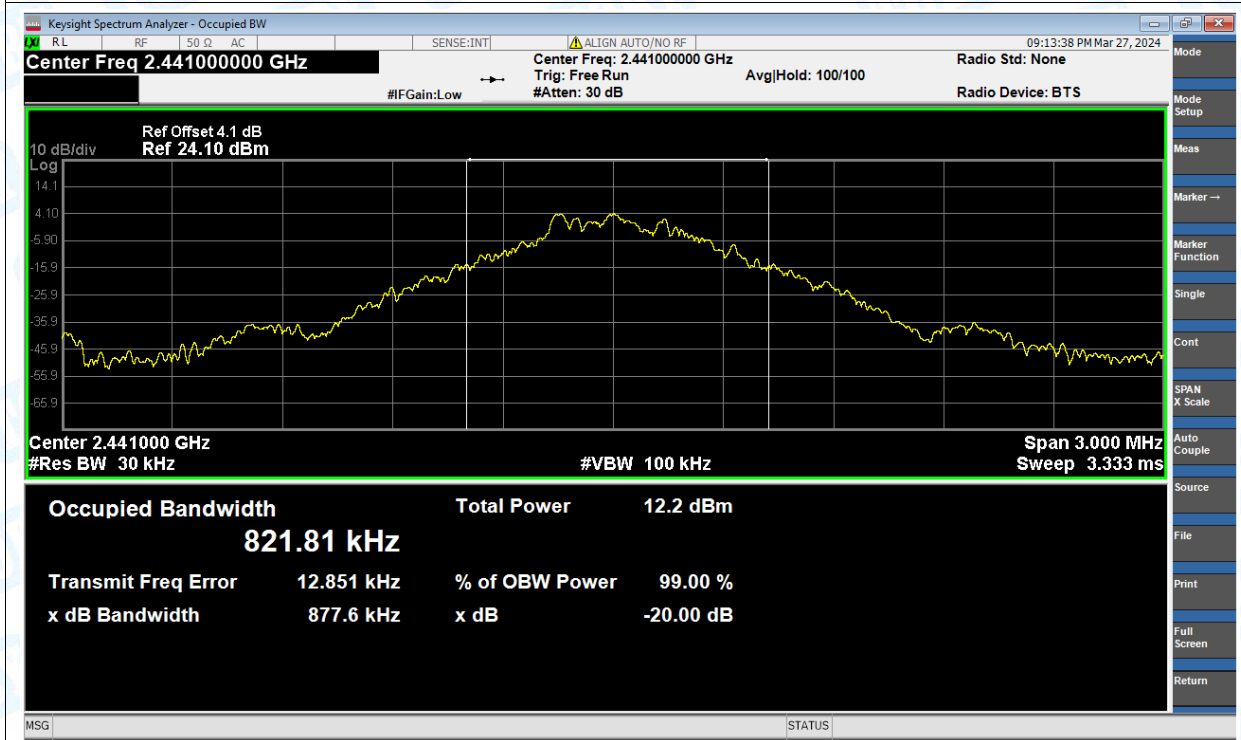


Test Graphs

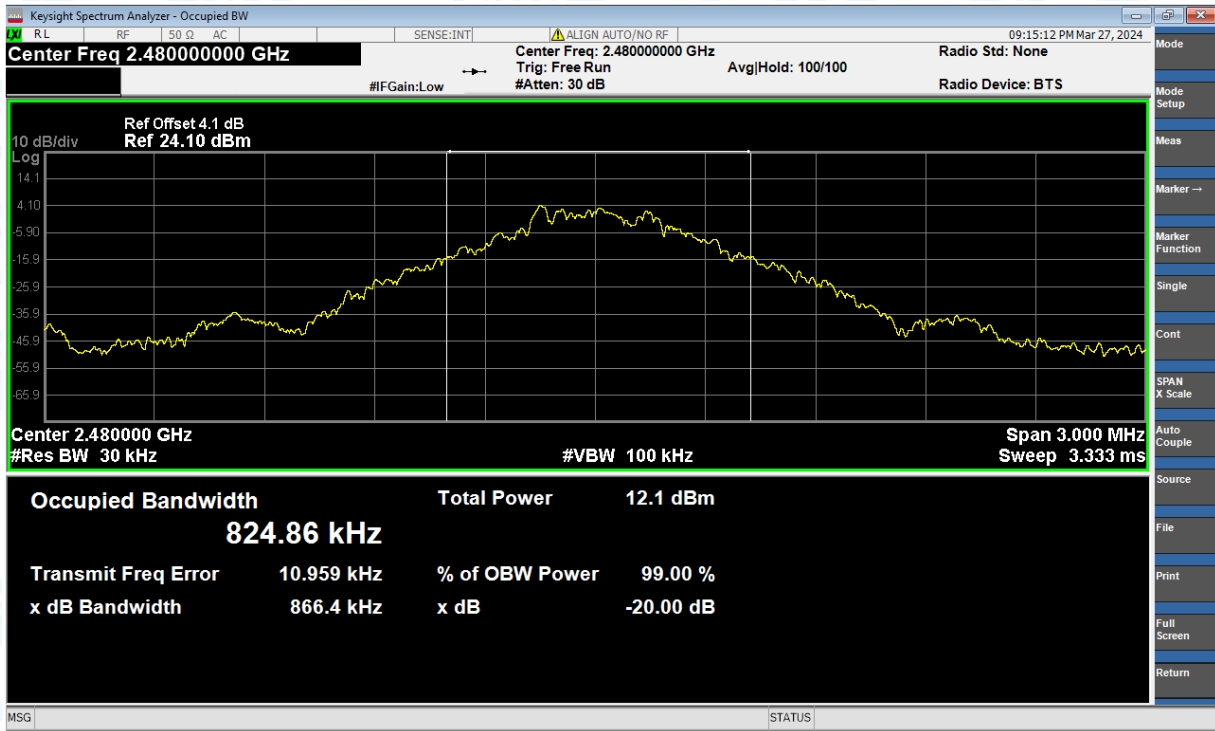
OBW NVNT 1-DH1 2402MHz Ant1



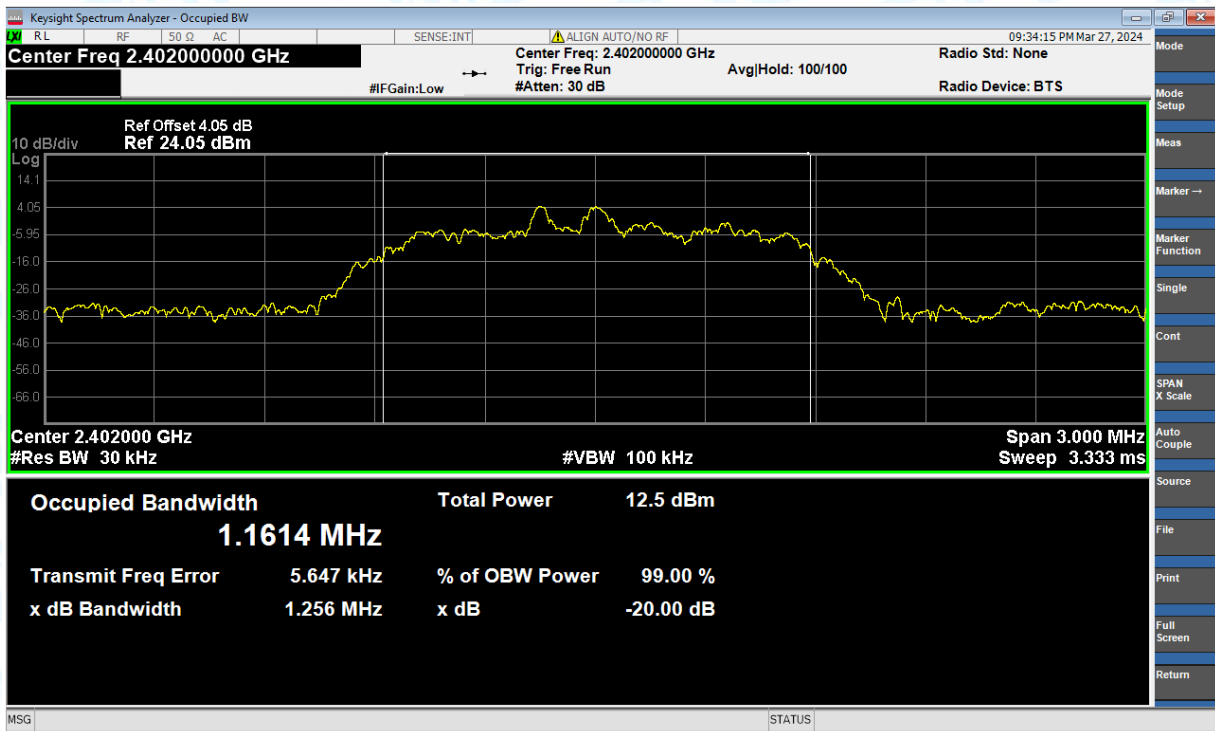
OBW NVNT 1-DH1 2441MHz Ant1



OBW NVNT 1-DH1 2480MHz Ant1

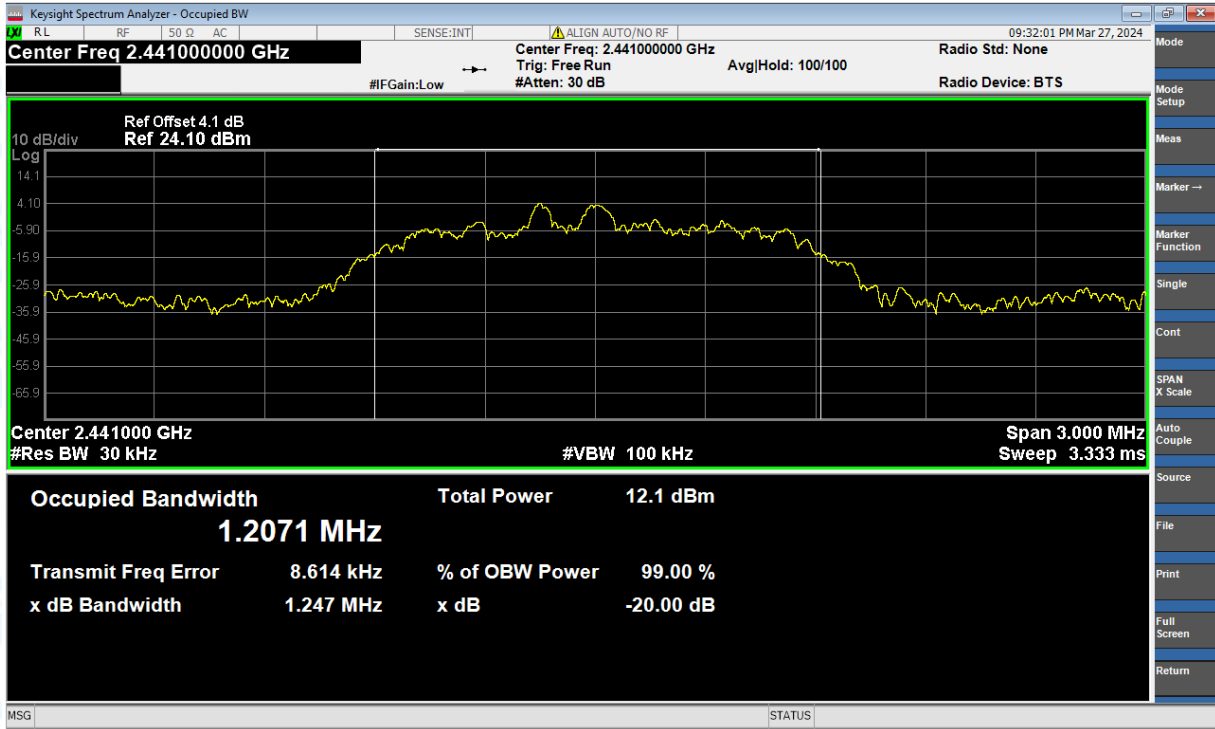


OBW NVNT 2-DH1 2402MHz Ant1

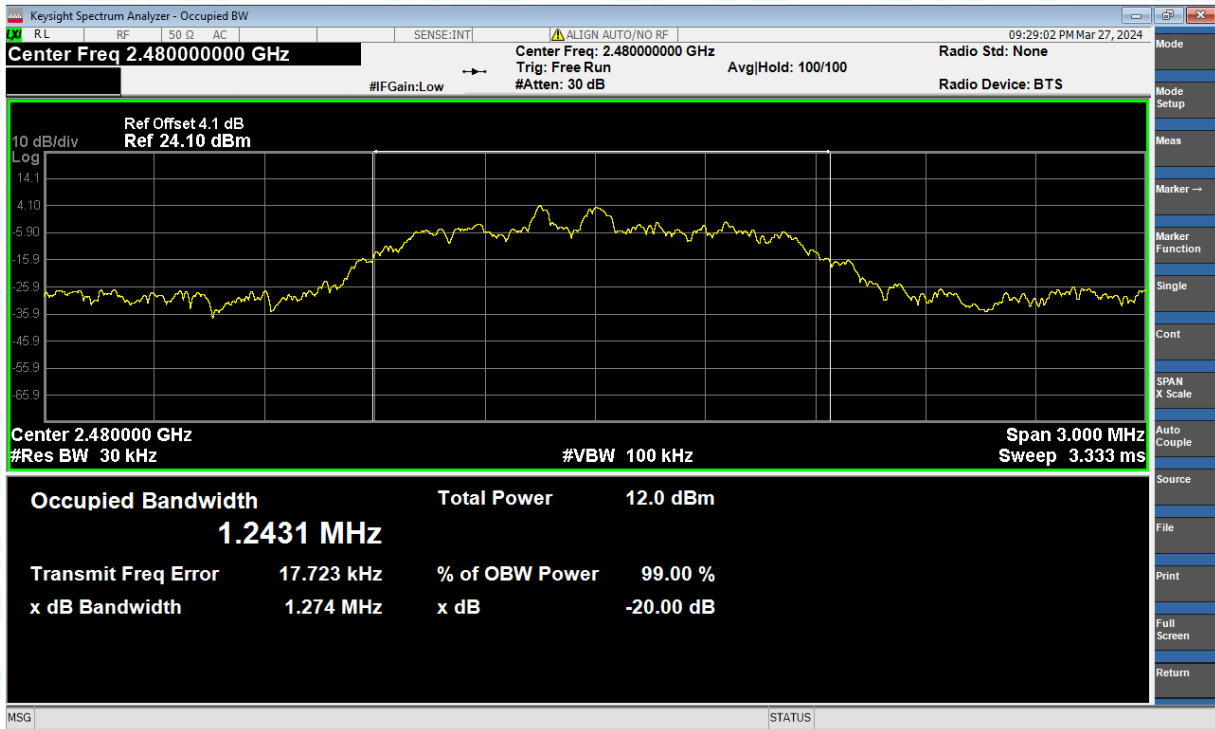




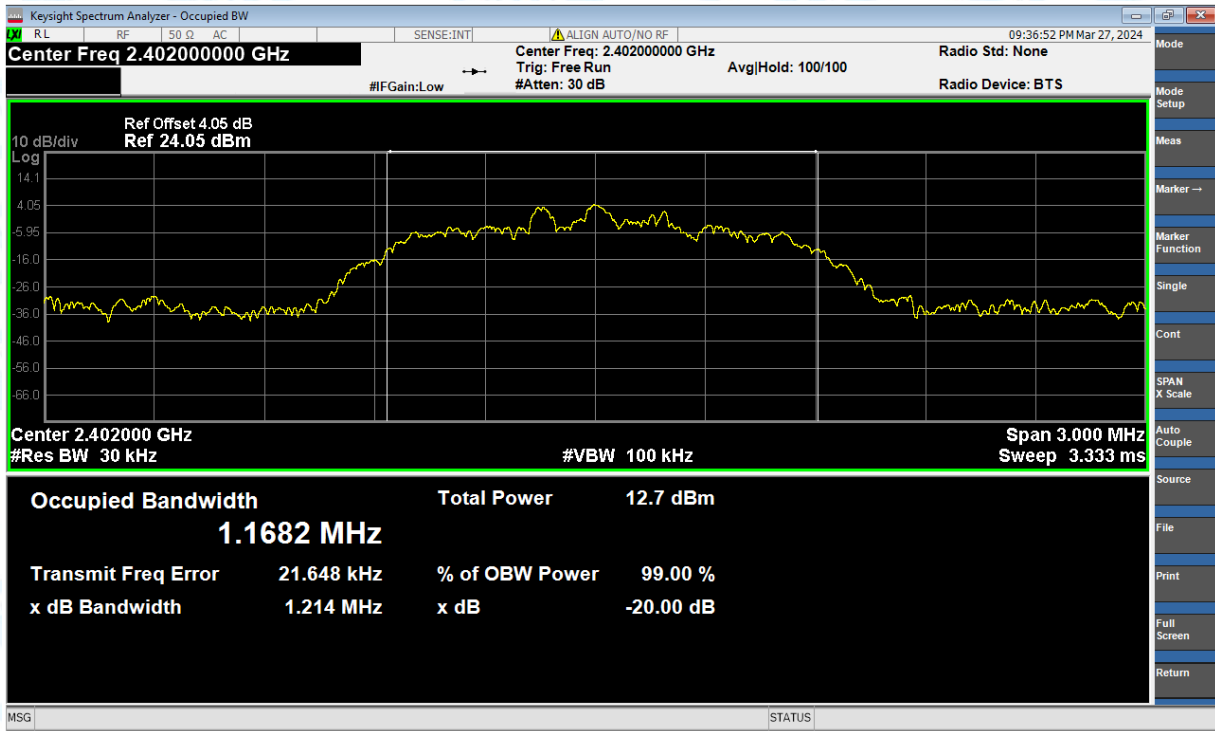
OBW NVNT 2-DH1 2441MHz Ant1



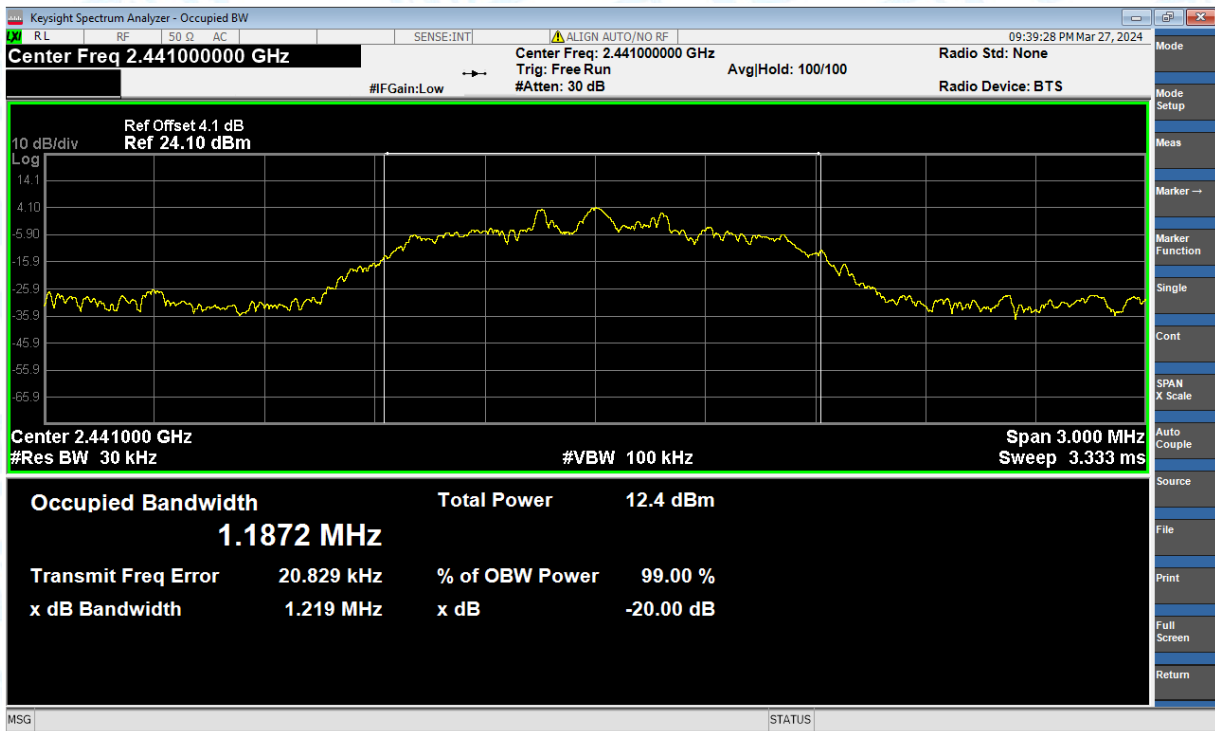
OBW NVNT 2-DH1 2480MHz Ant1



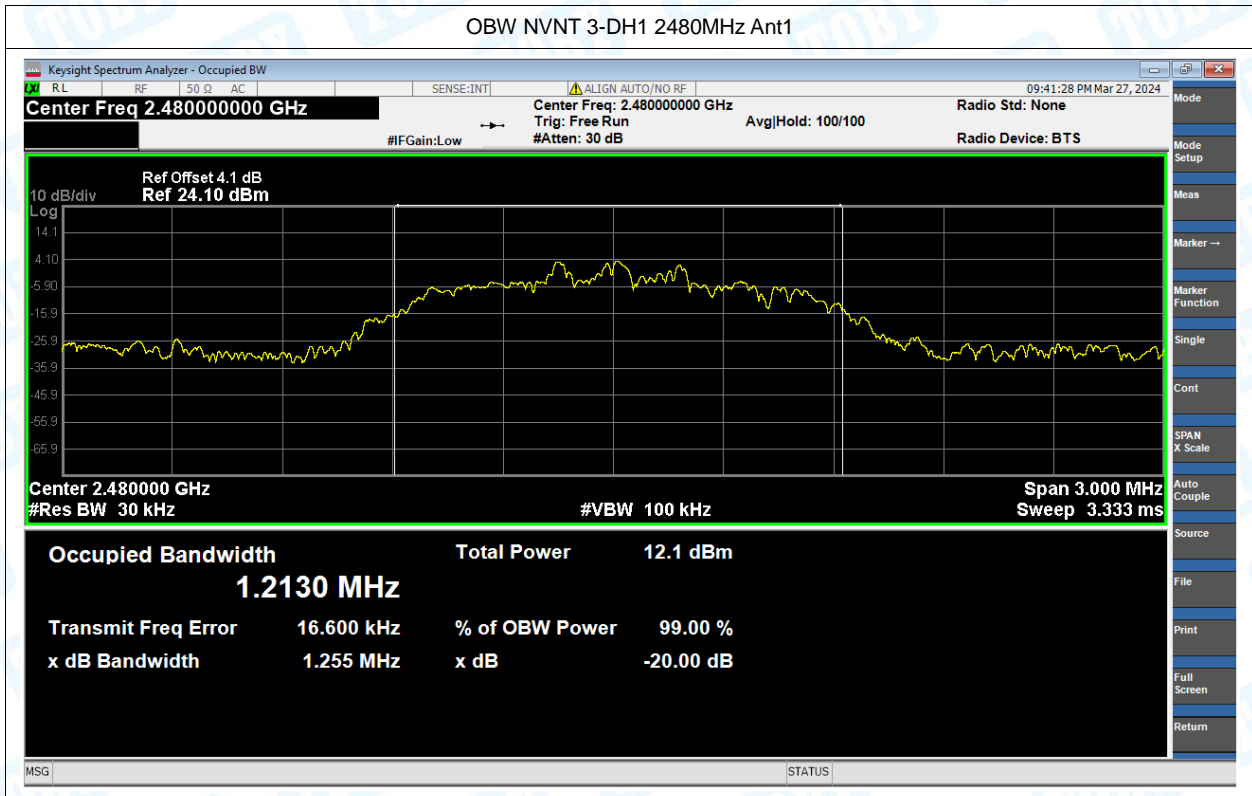
OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1







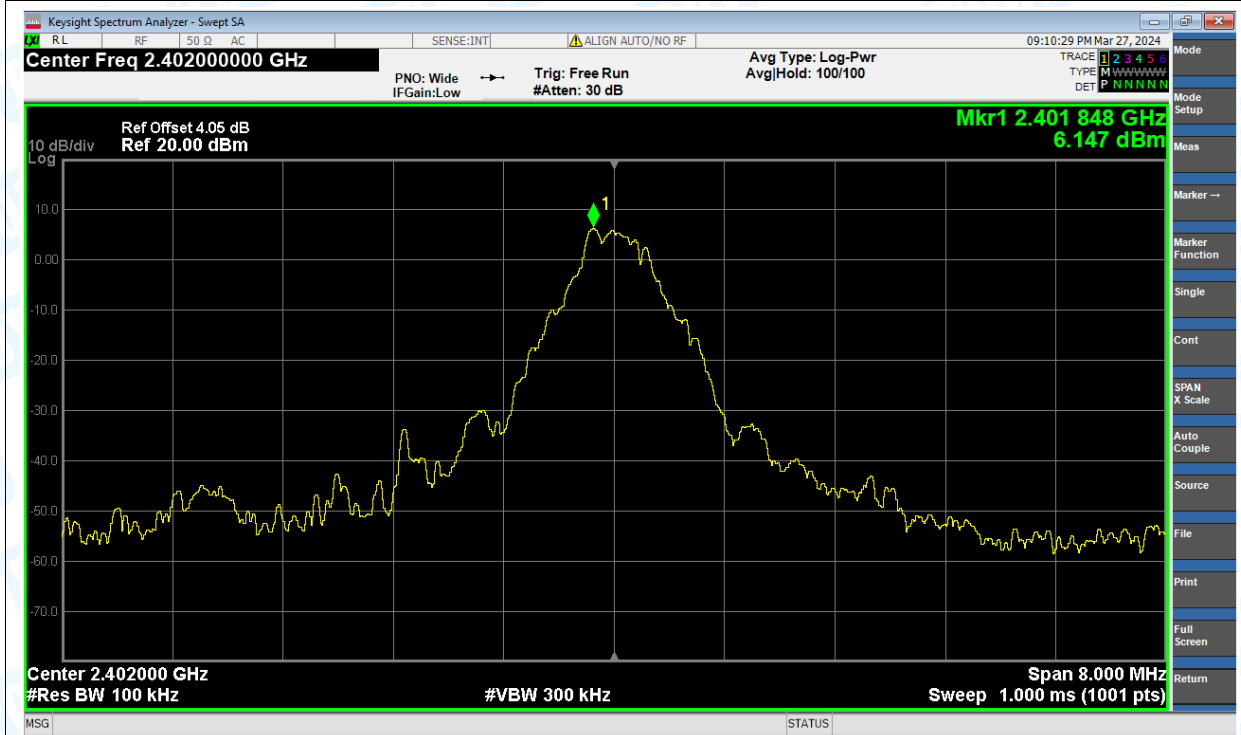
## 5. Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-59.45	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-48.36	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-59.61	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-49.30	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-59.56	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-45.95	-20	Pass

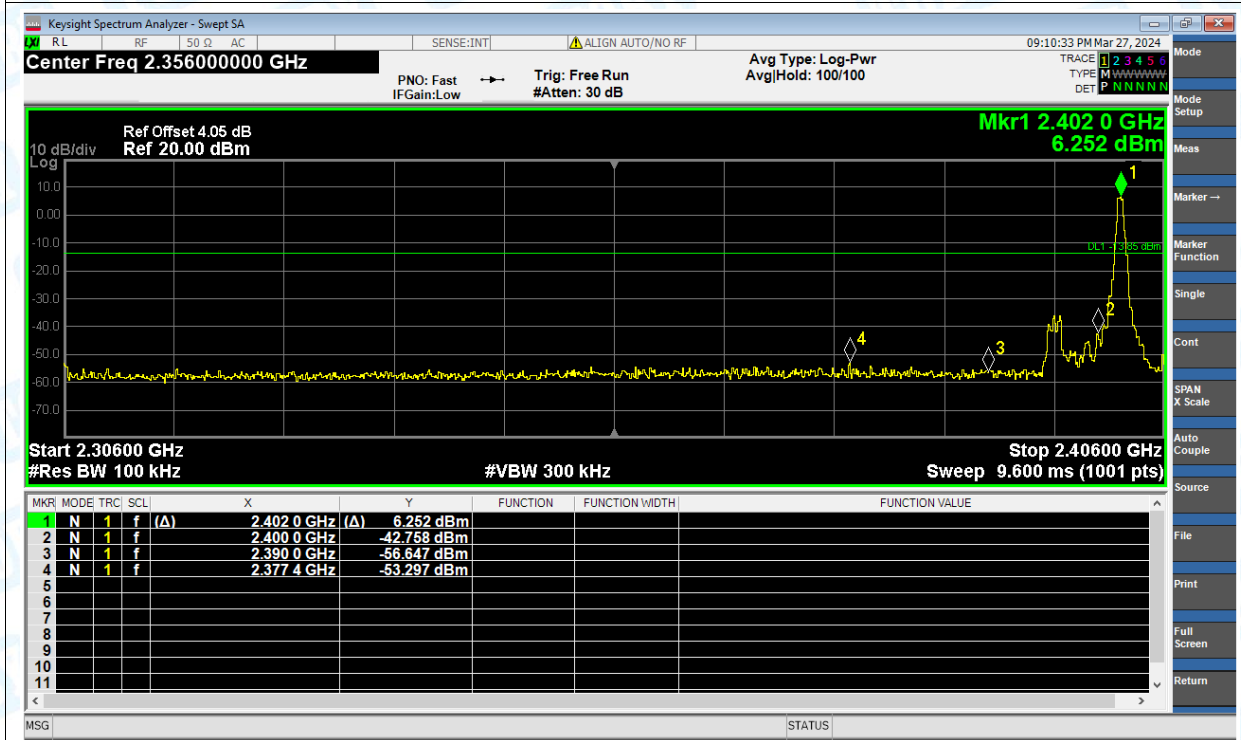


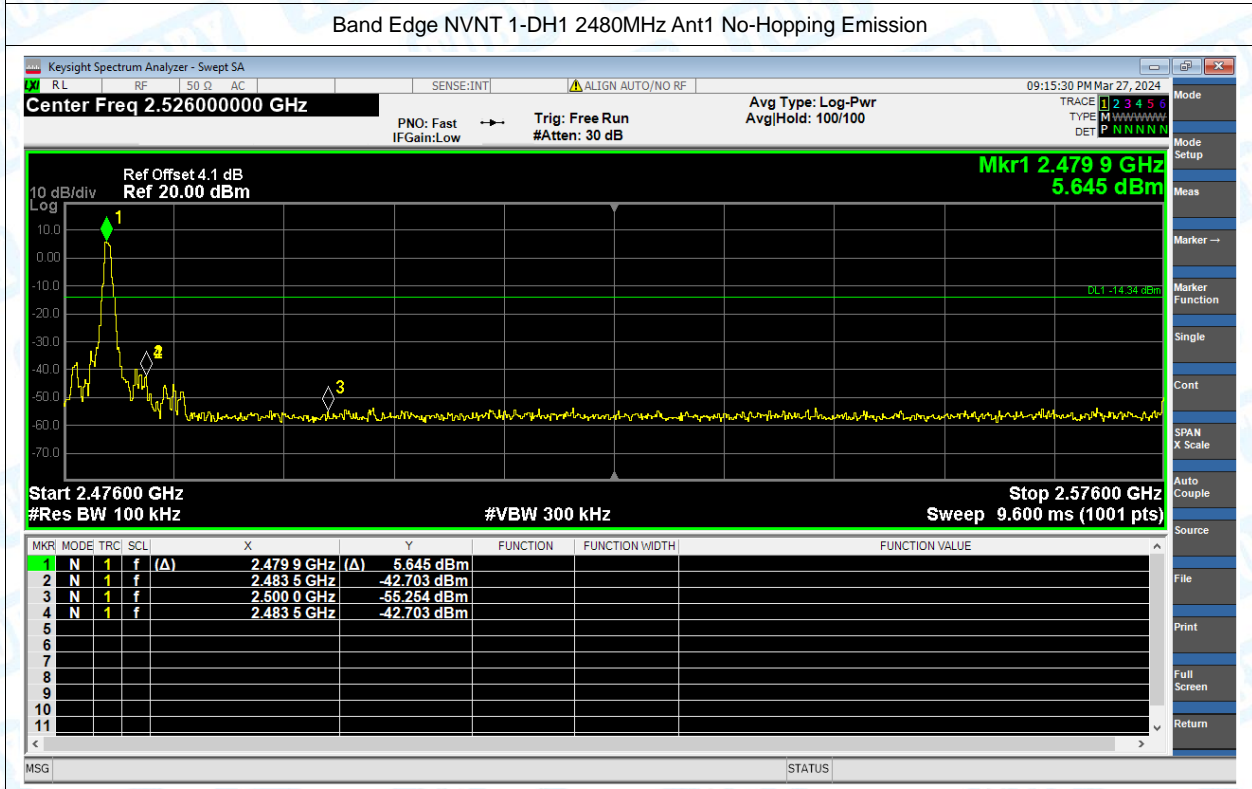
Test Graphs

Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref

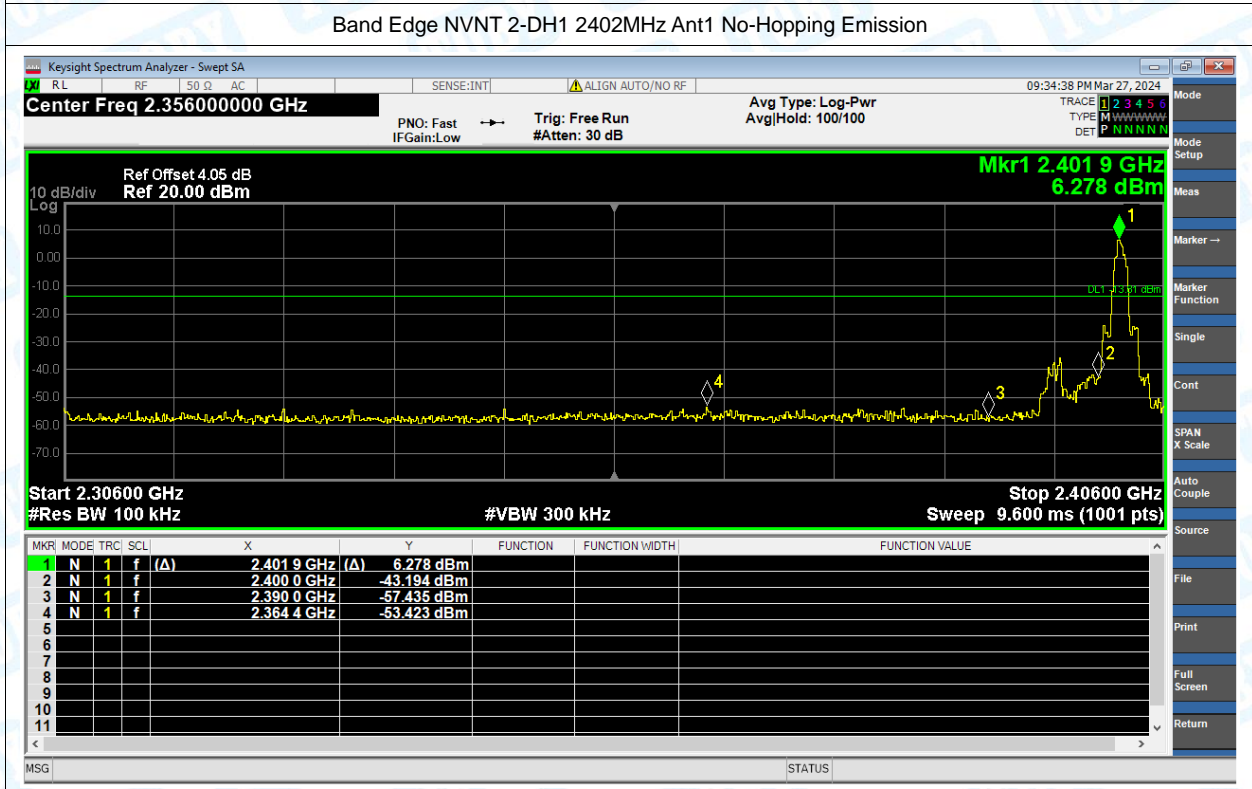


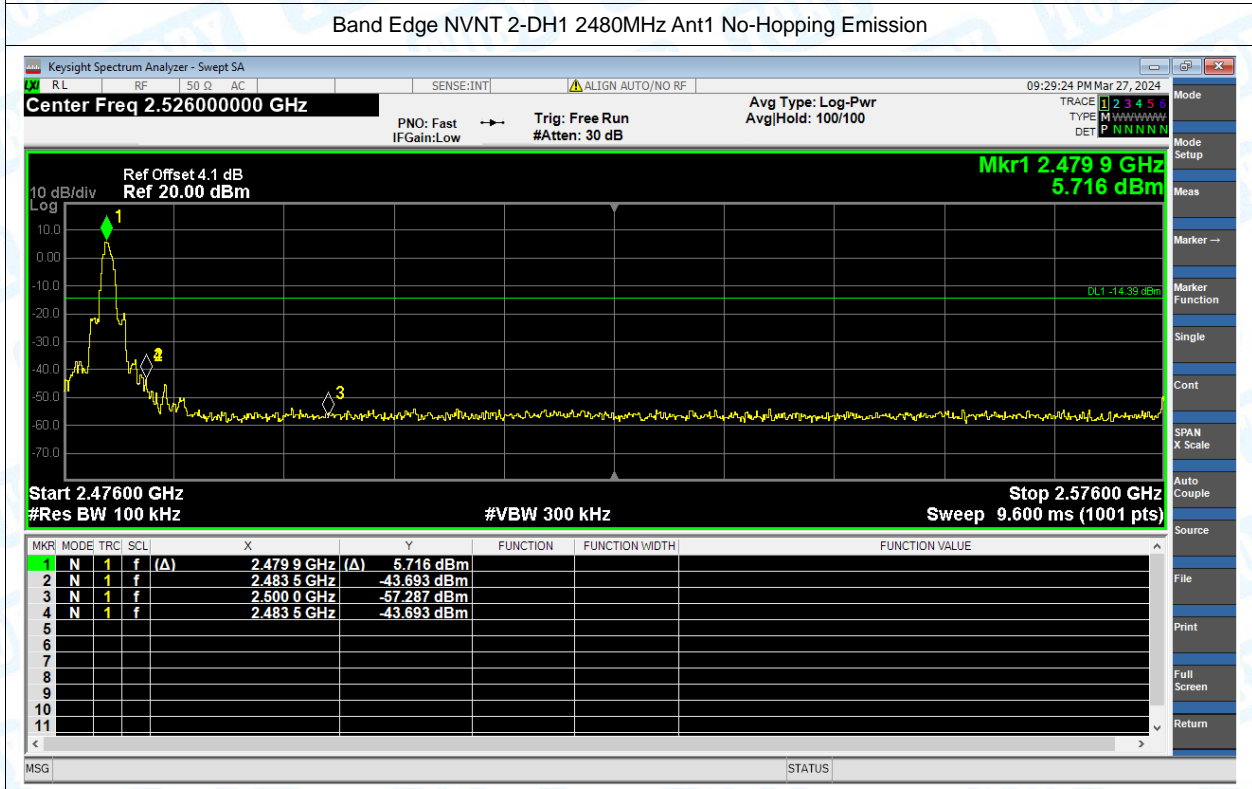
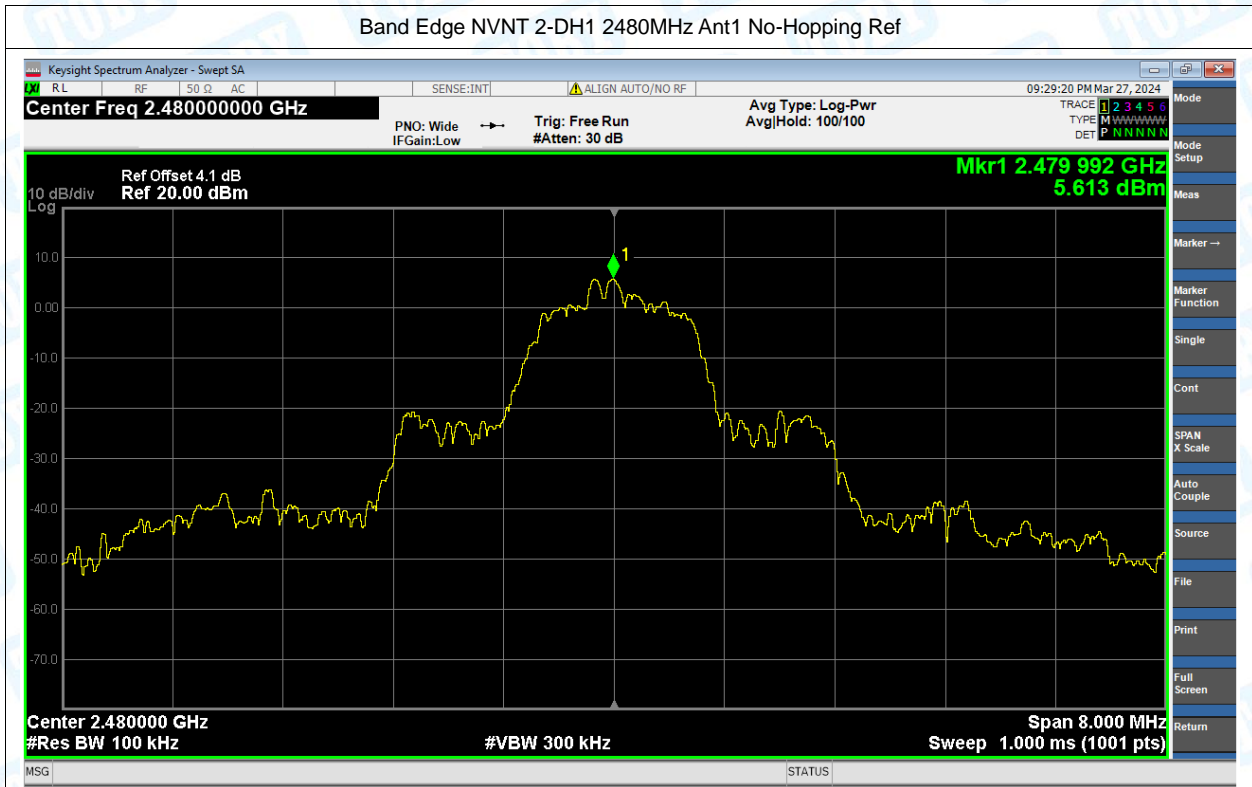
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



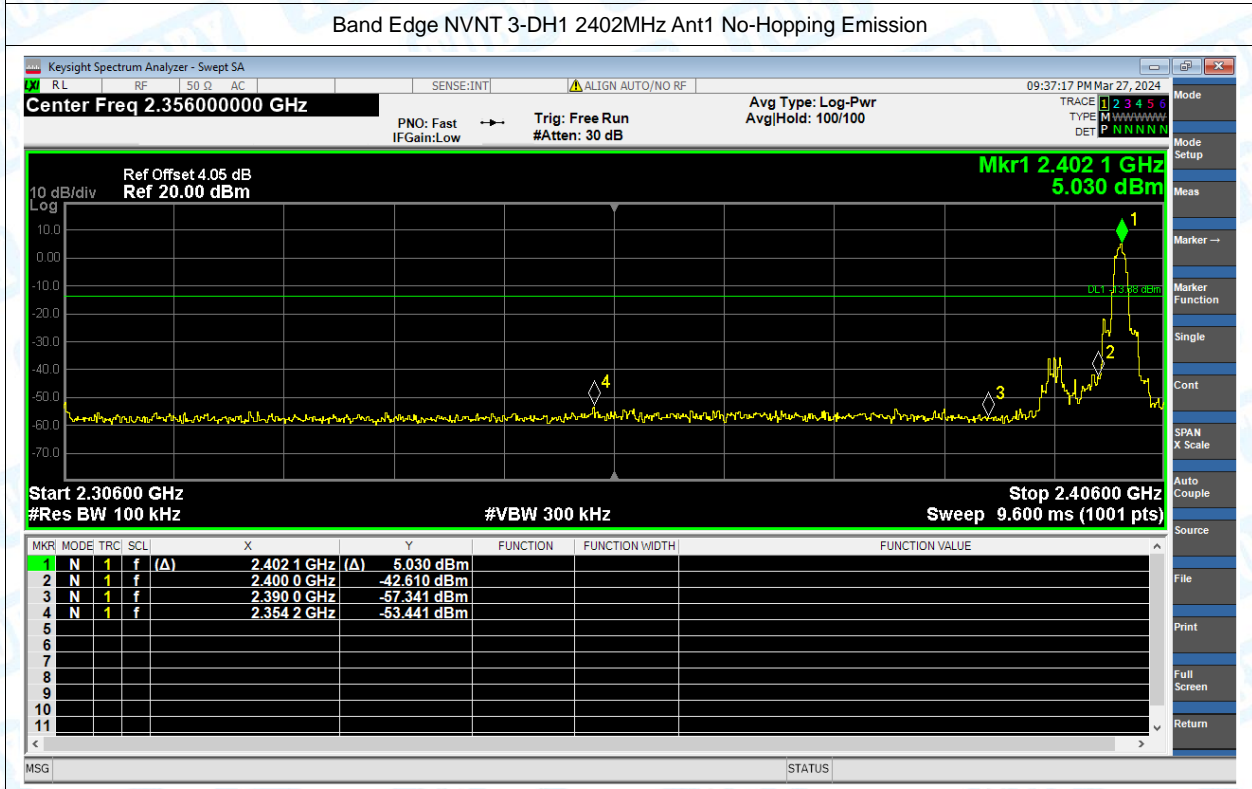
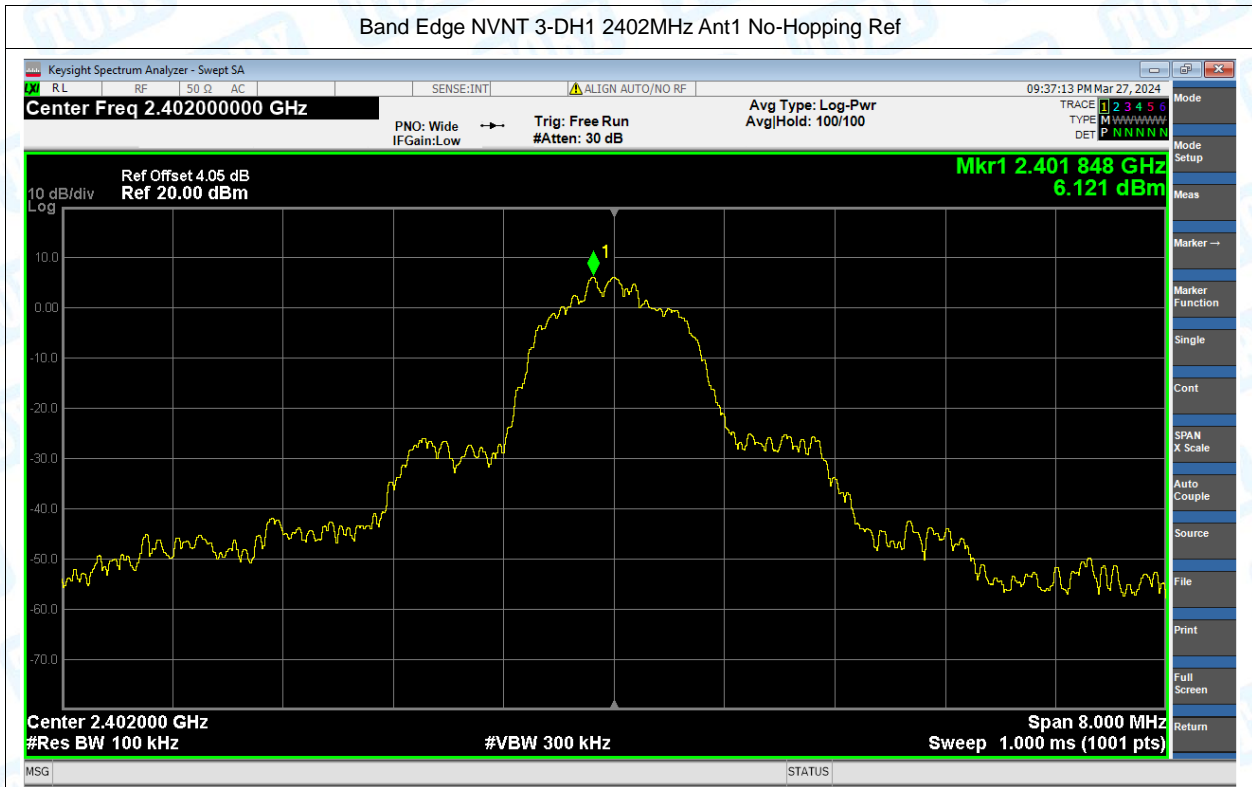








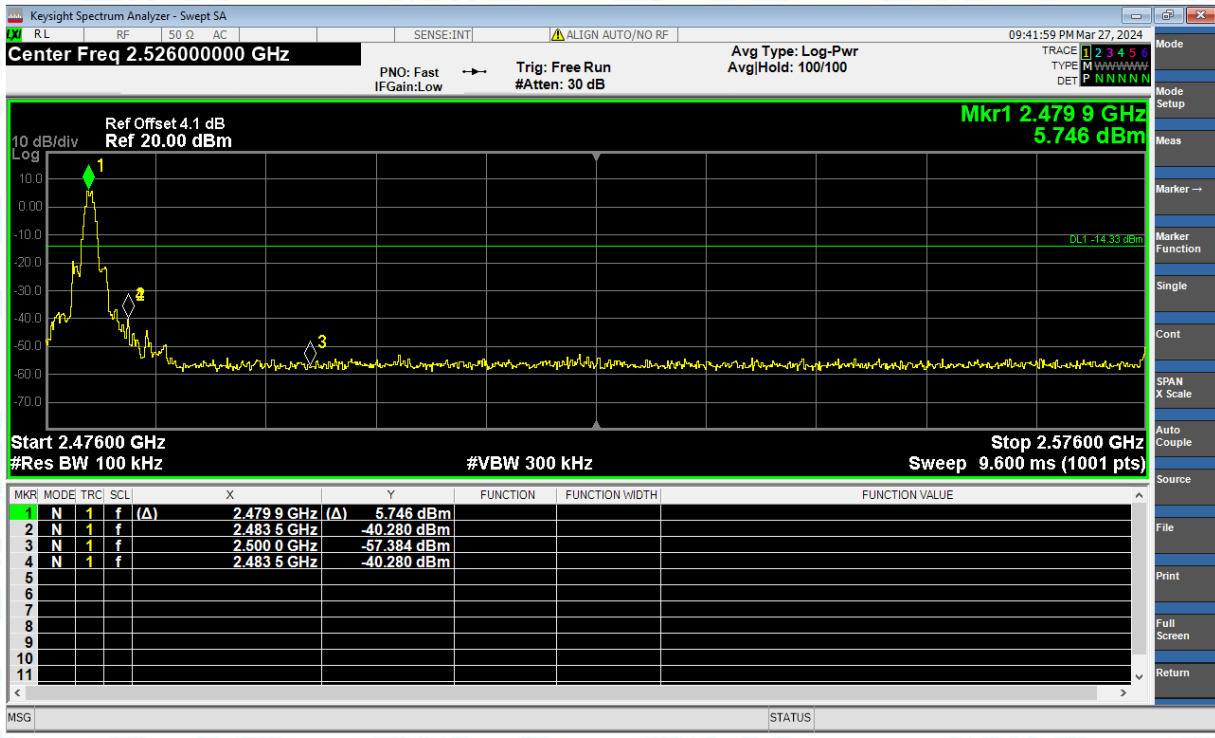




Band Edge NVNT 3-DH1 2480MHz Ant1 No-Hopping Ref



Band Edge NVNT 3-DH1 2480MHz Ant1 No-Hopping Emission



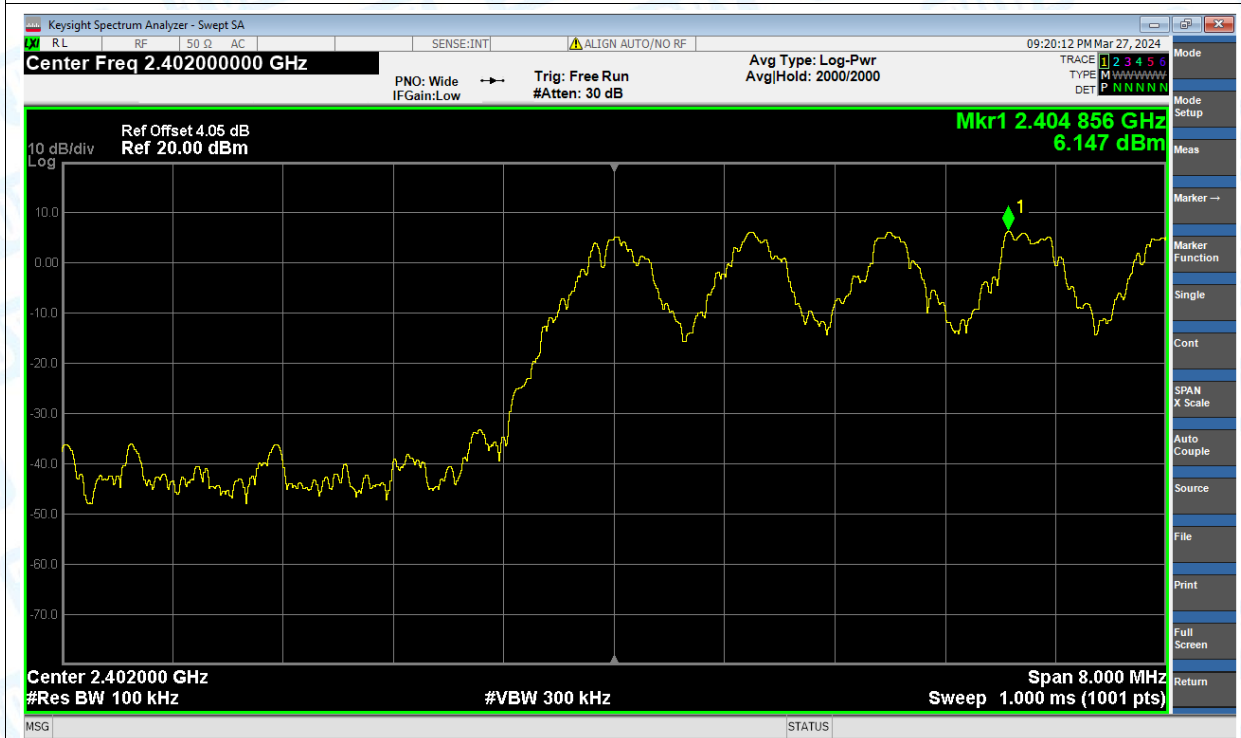


## 6. Band Edge(Hopping)

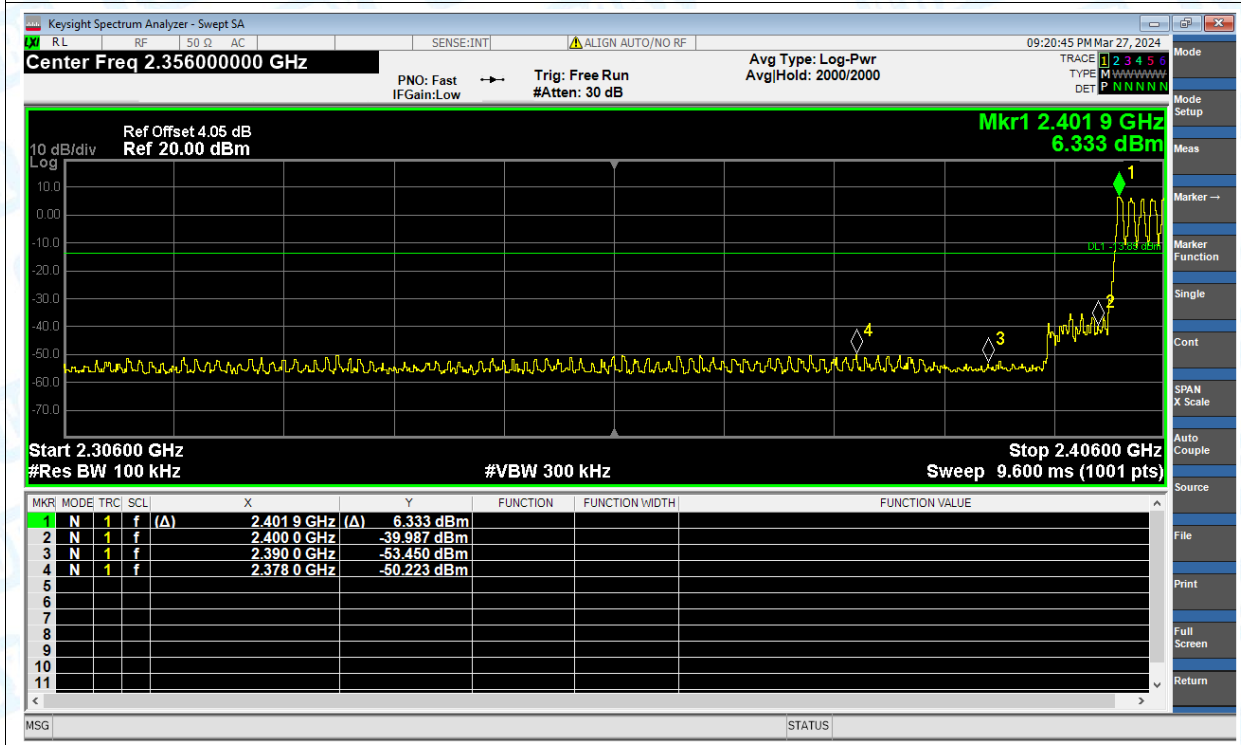
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-56.37	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-51.33	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-56.42	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-54.21	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-56.55	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-52.57	-20	Pass

Test Graphs

Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission

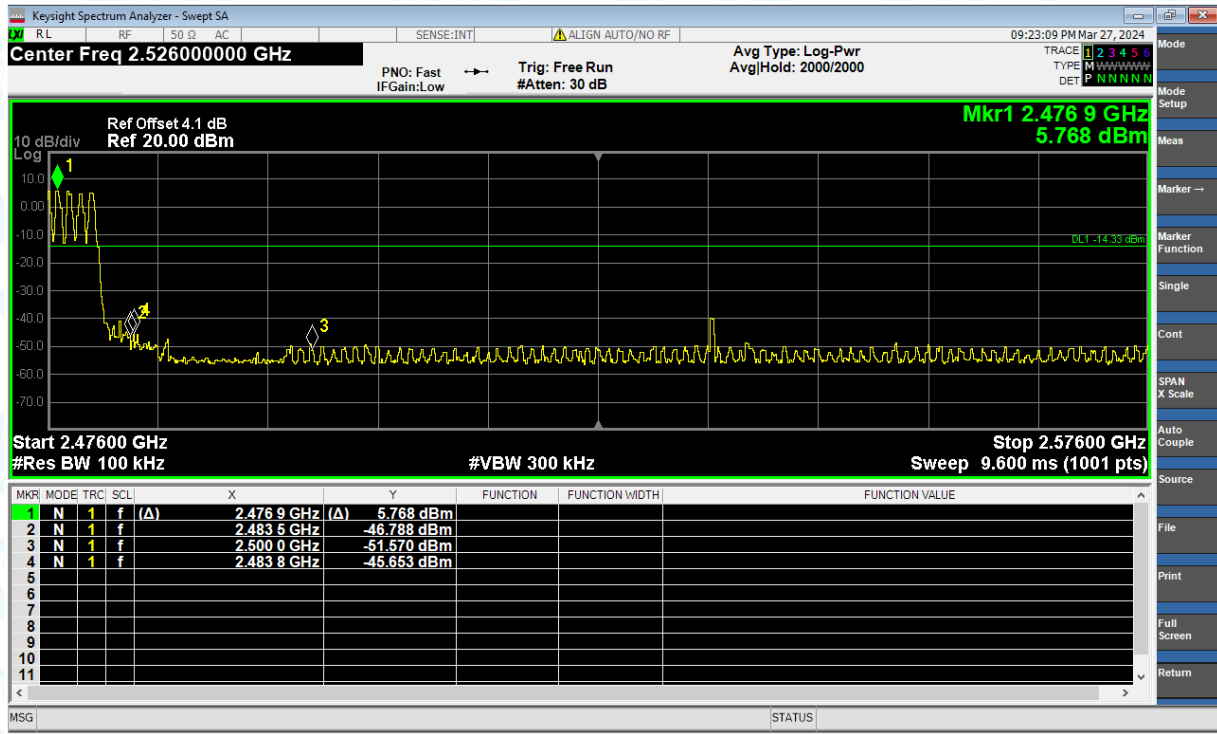




Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Ref



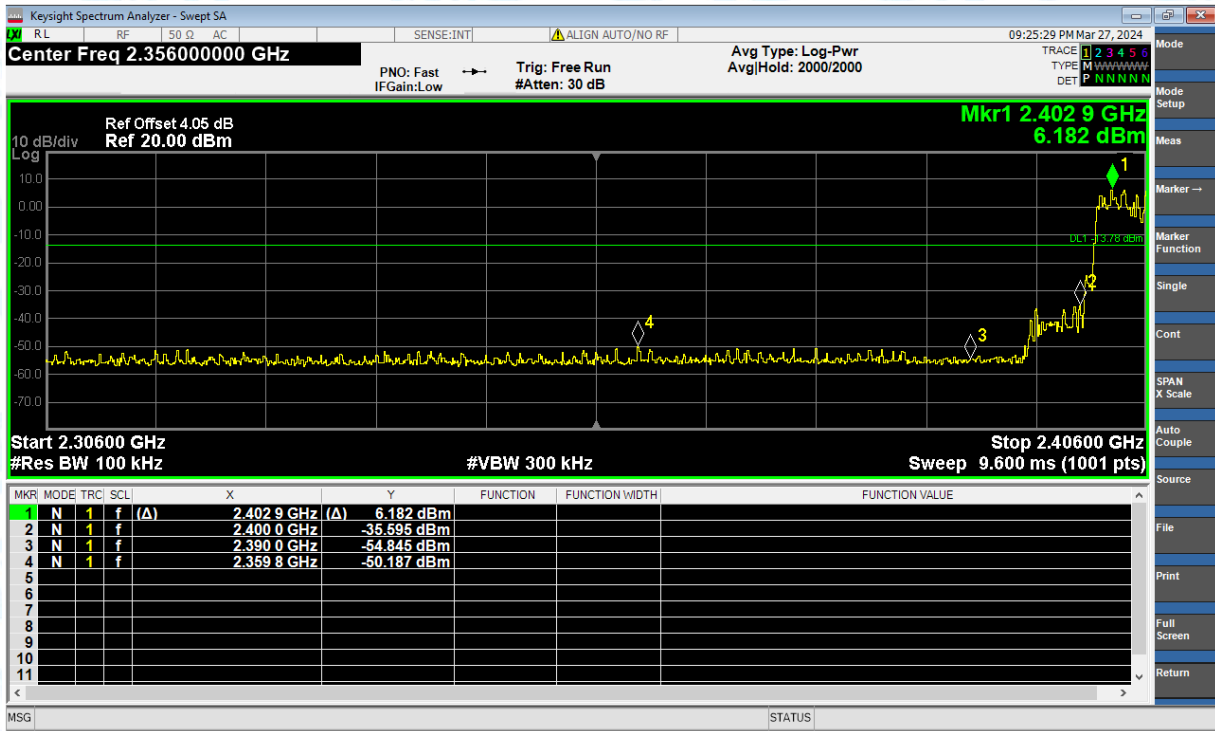
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Emission

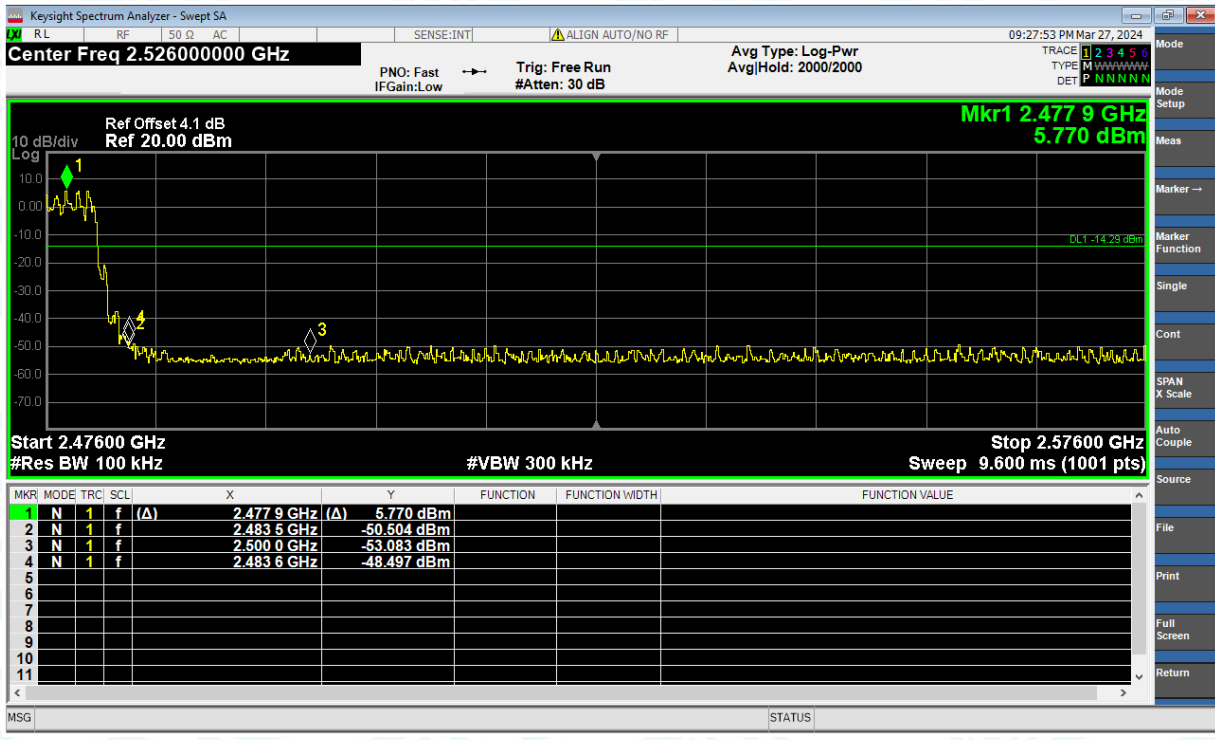




Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Ref



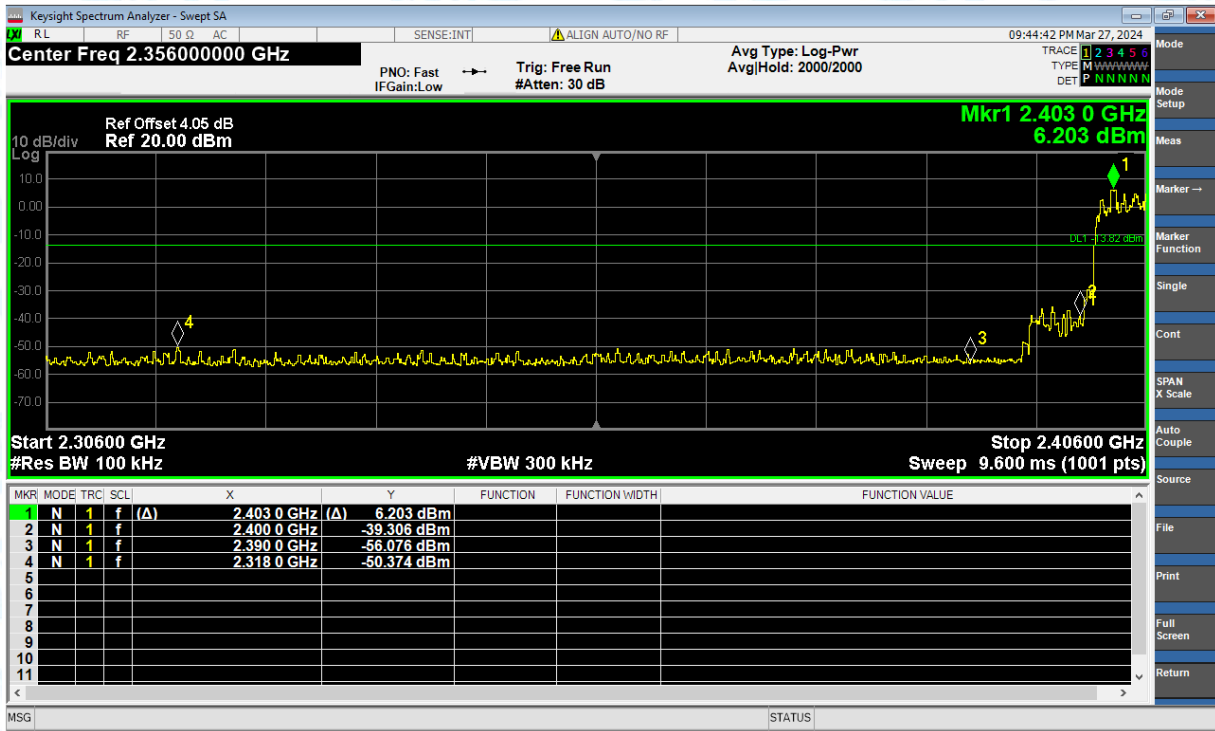
Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Emission

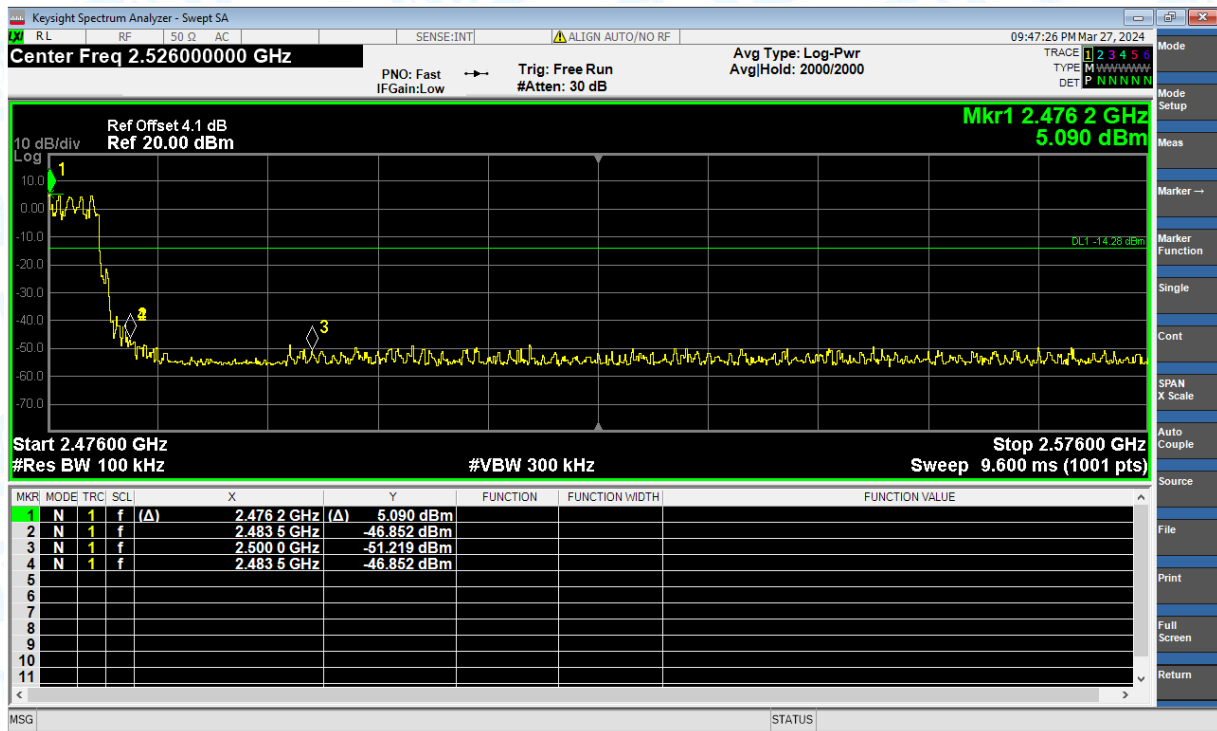




Band Edge(Hopping) NVNT 3-DH1 2480MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 3-DH1 2480MHz Ant1 Hopping Emission



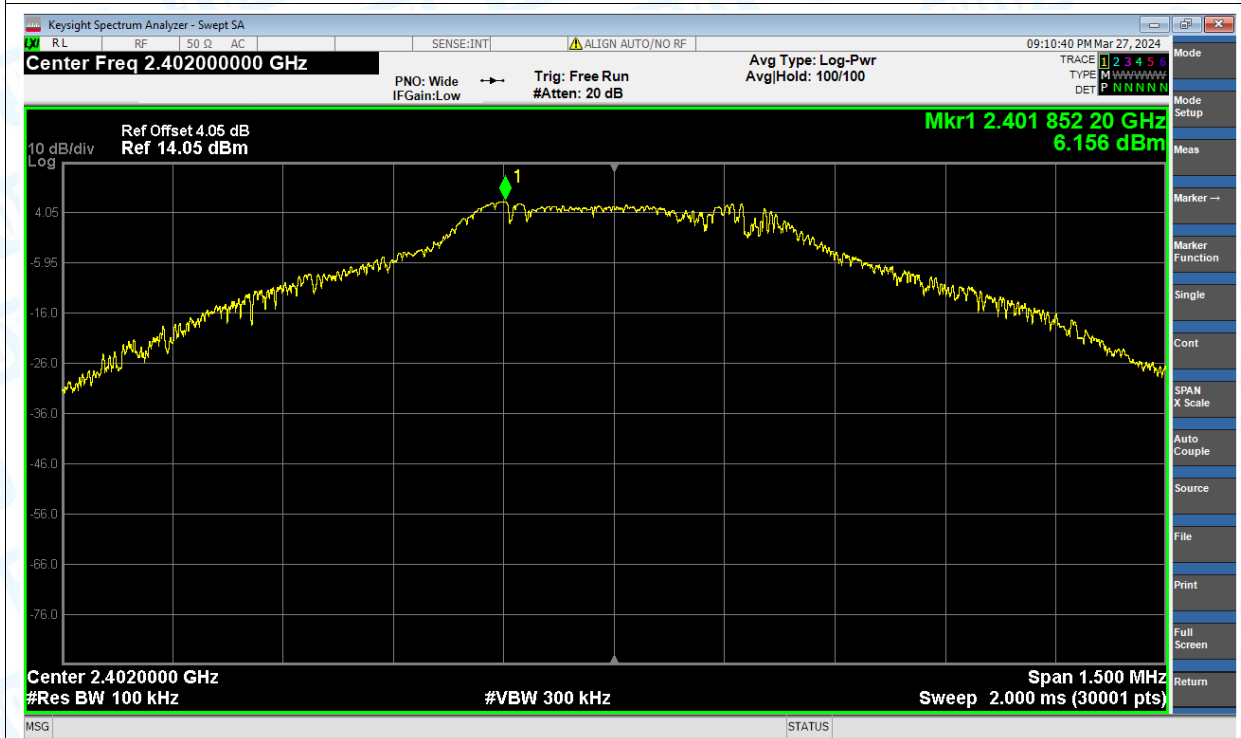
## 7. Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-51.56	-20	Pass
NVNT	1-DH1	2441	Ant1	-50.30	-20	Pass
NVNT	1-DH1	2480	Ant1	-48.71	-20	Pass
NVNT	2-DH1	2402	Ant1	-49.92	-20	Pass
NVNT	2-DH1	2441	Ant1	-48.82	-20	Pass
NVNT	2-DH1	2480	Ant1	-47.70	-20	Pass
NVNT	3-DH1	2402	Ant1	-50.05	-20	Pass
NVNT	3-DH1	2441	Ant1	-50.86	-20	Pass
NVNT	3-DH1	2480	Ant1	-49.71	-20	Pass

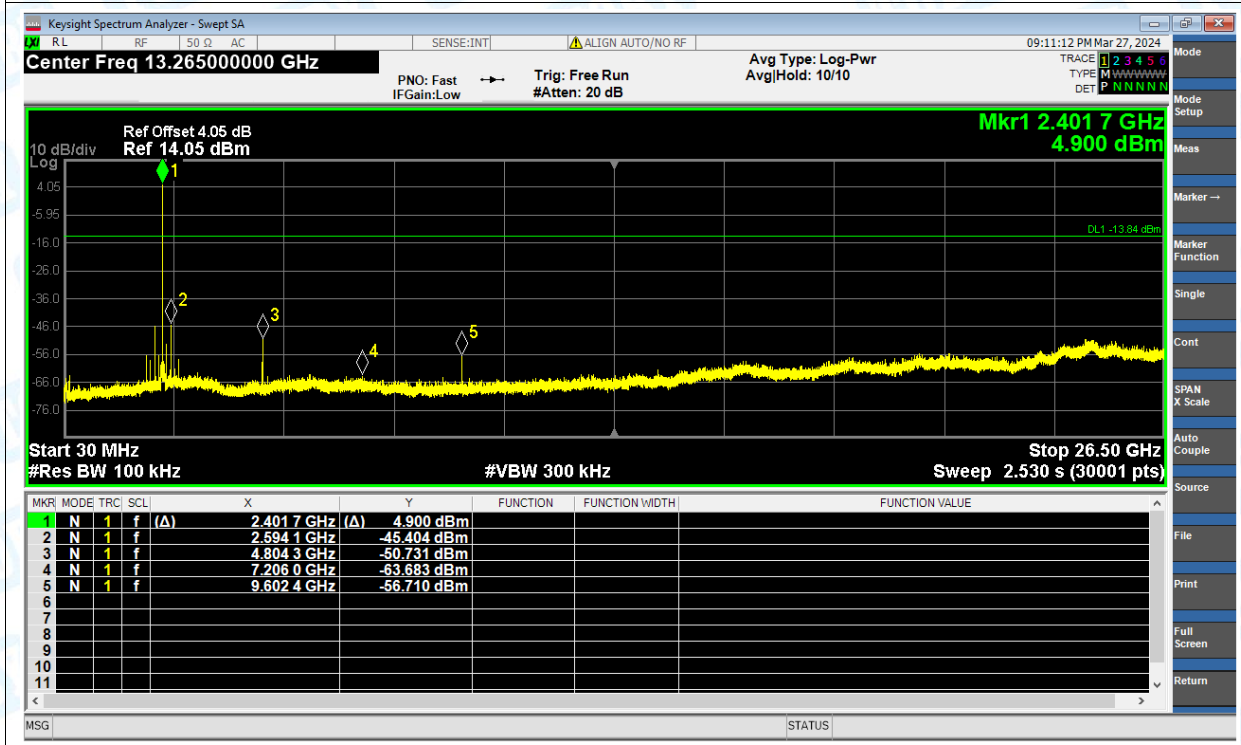


Test Graphs

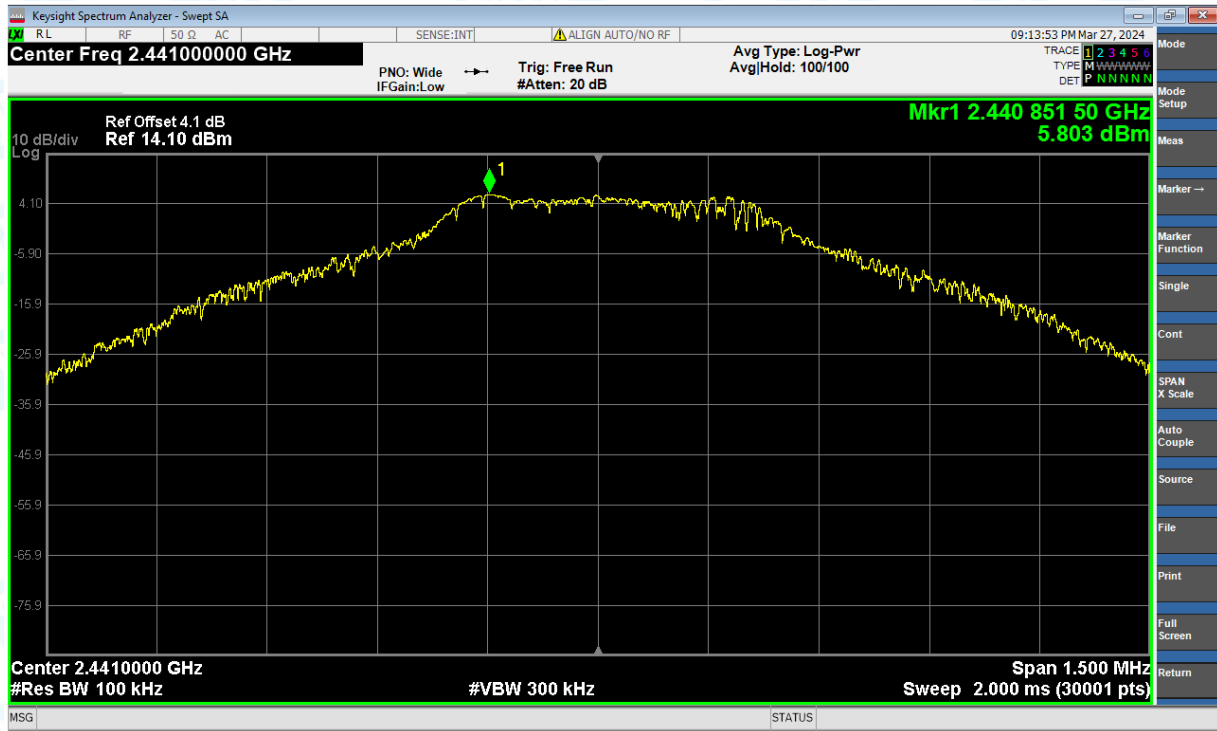
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



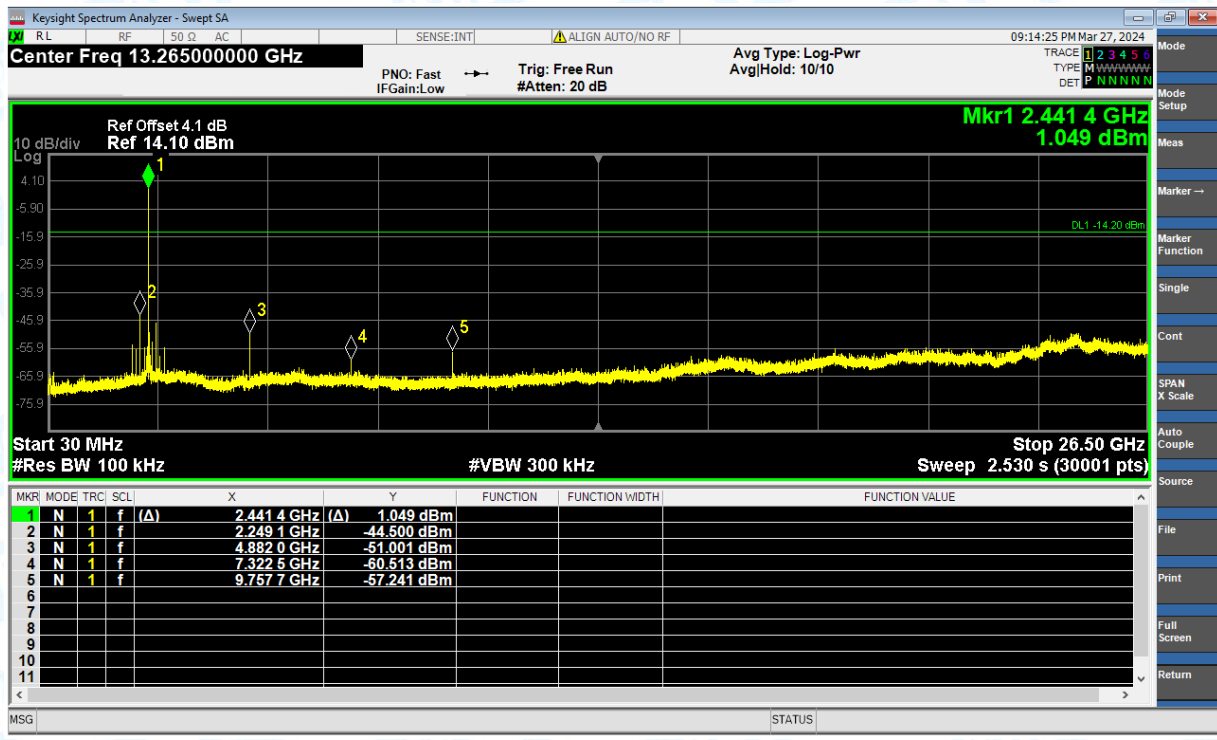
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref

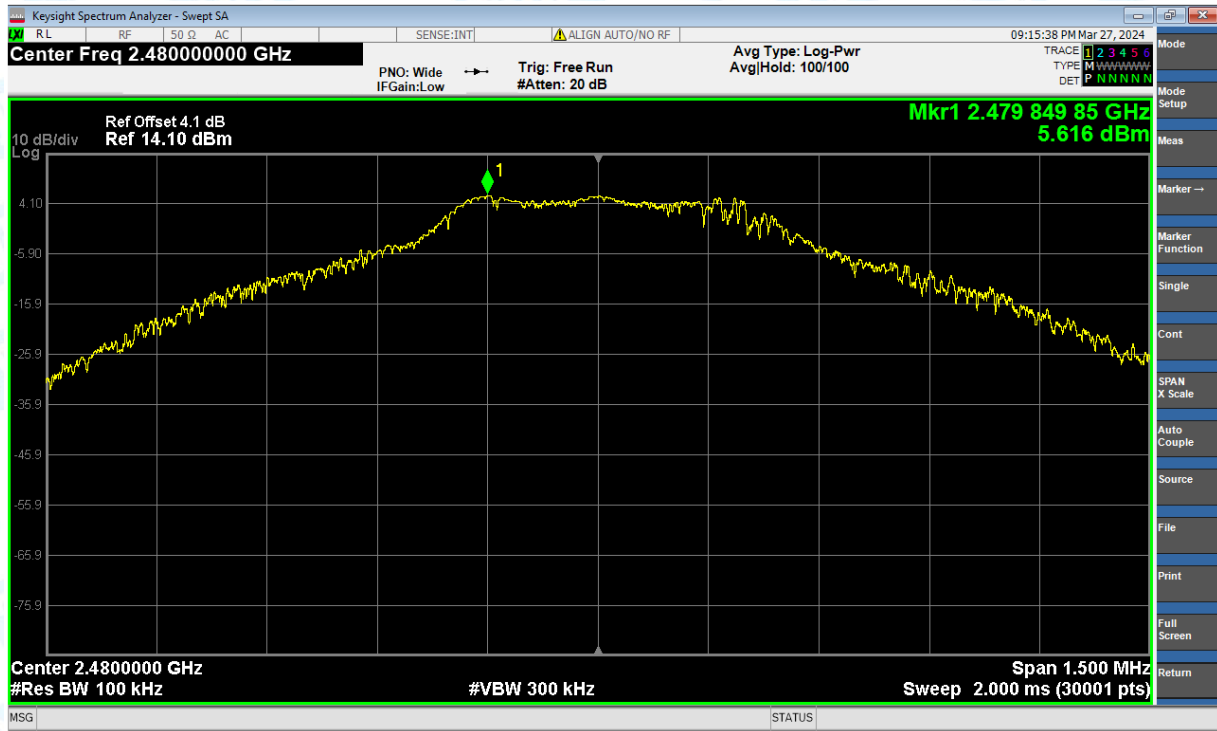


Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission





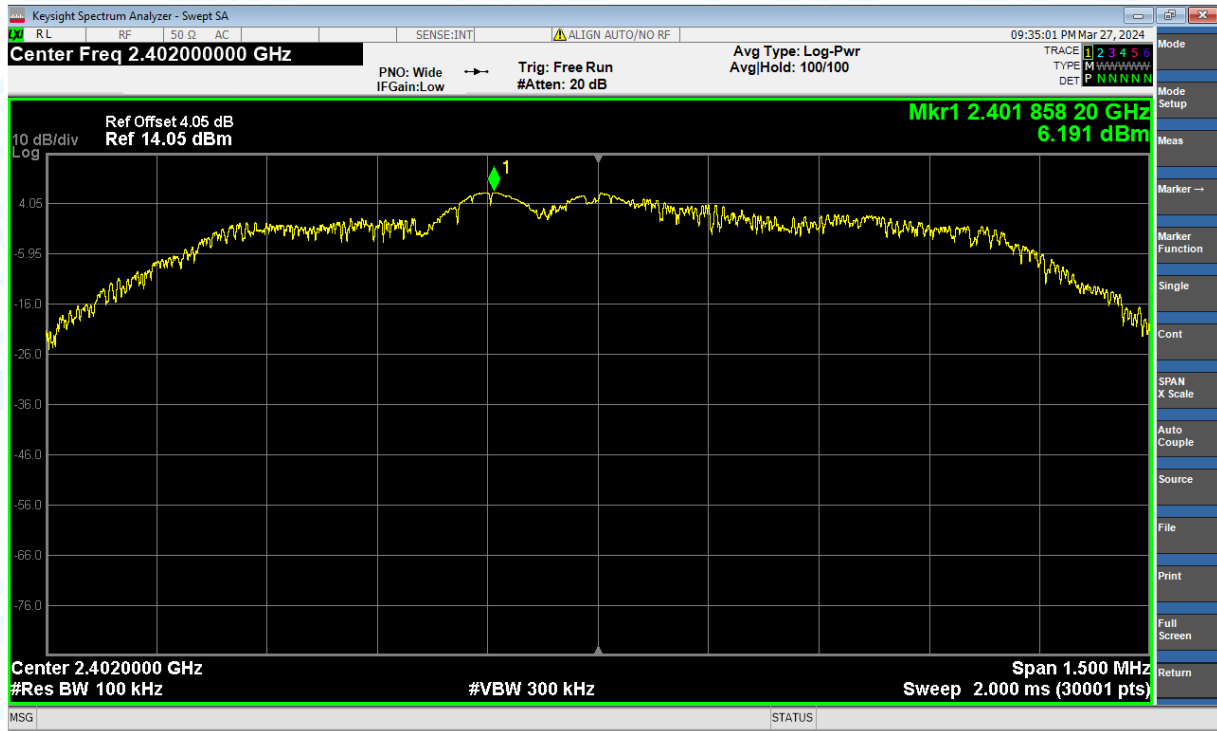
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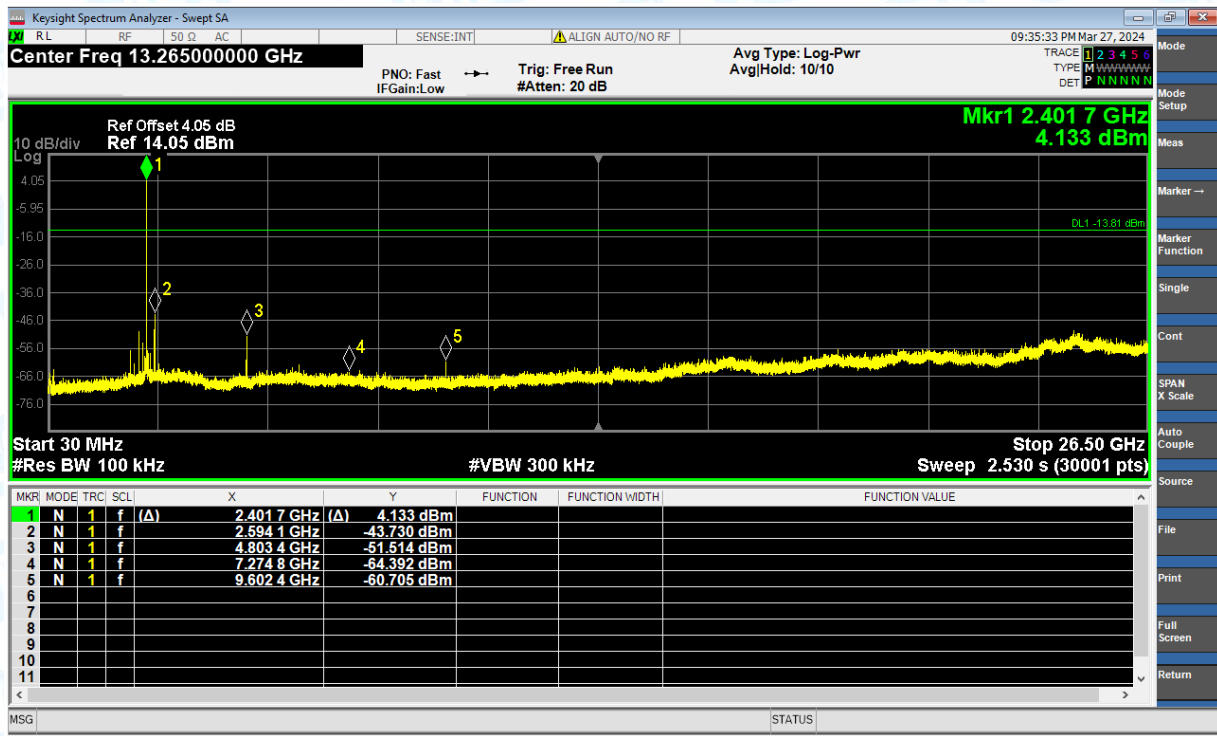
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission

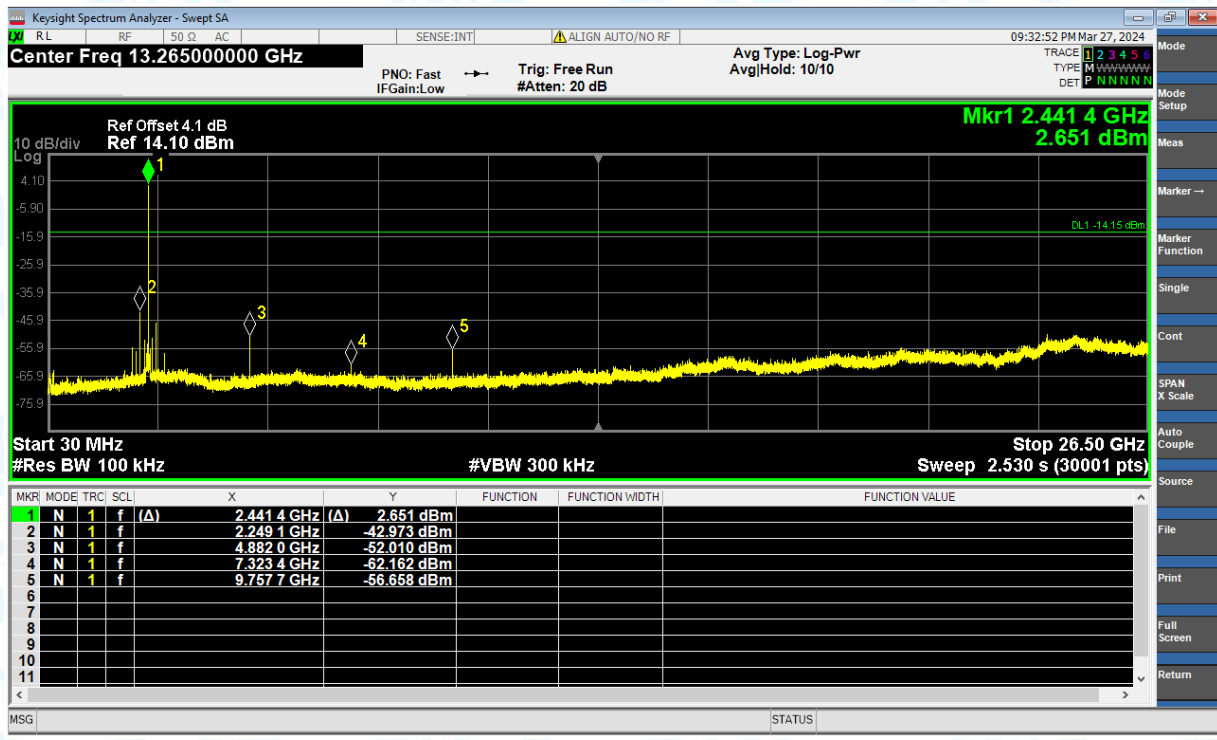




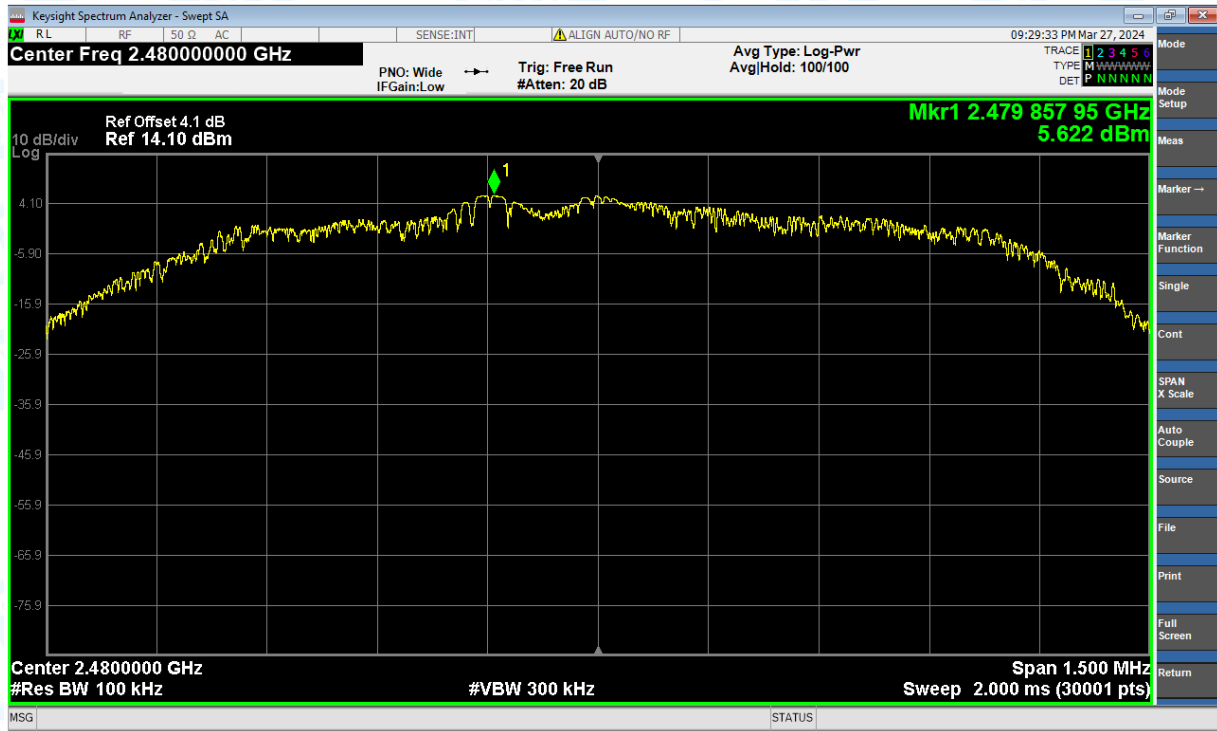
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



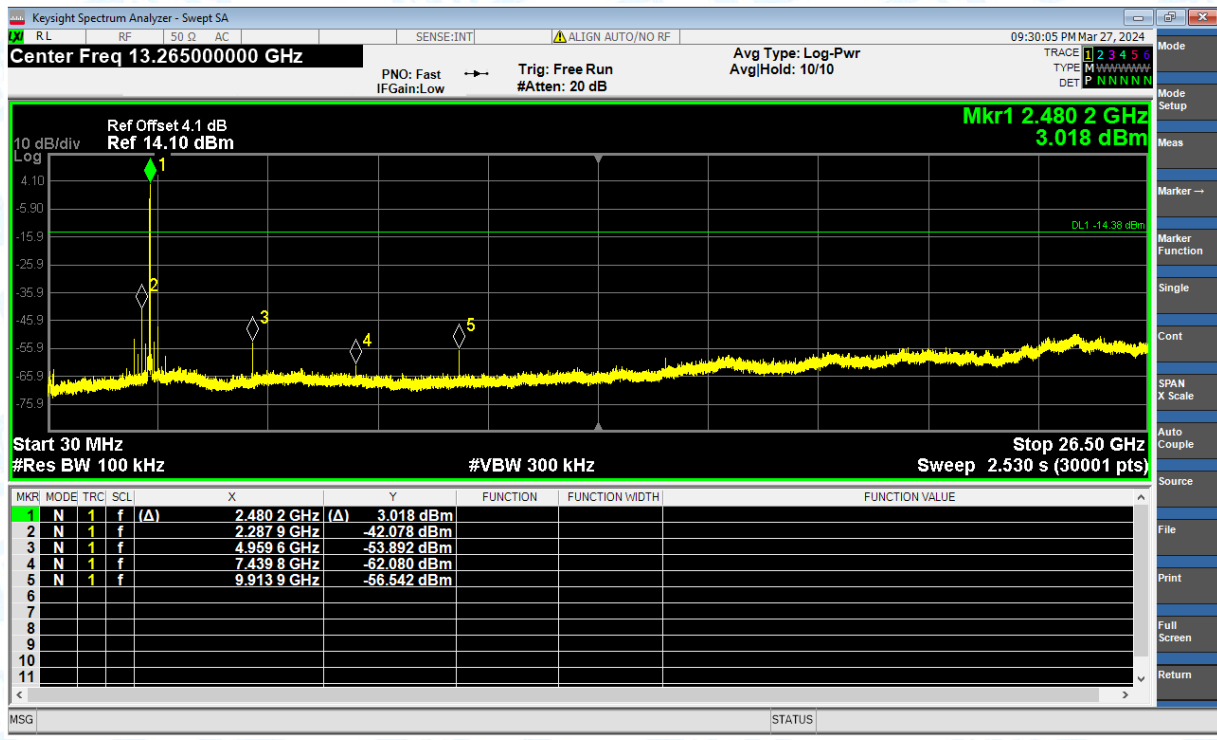
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref

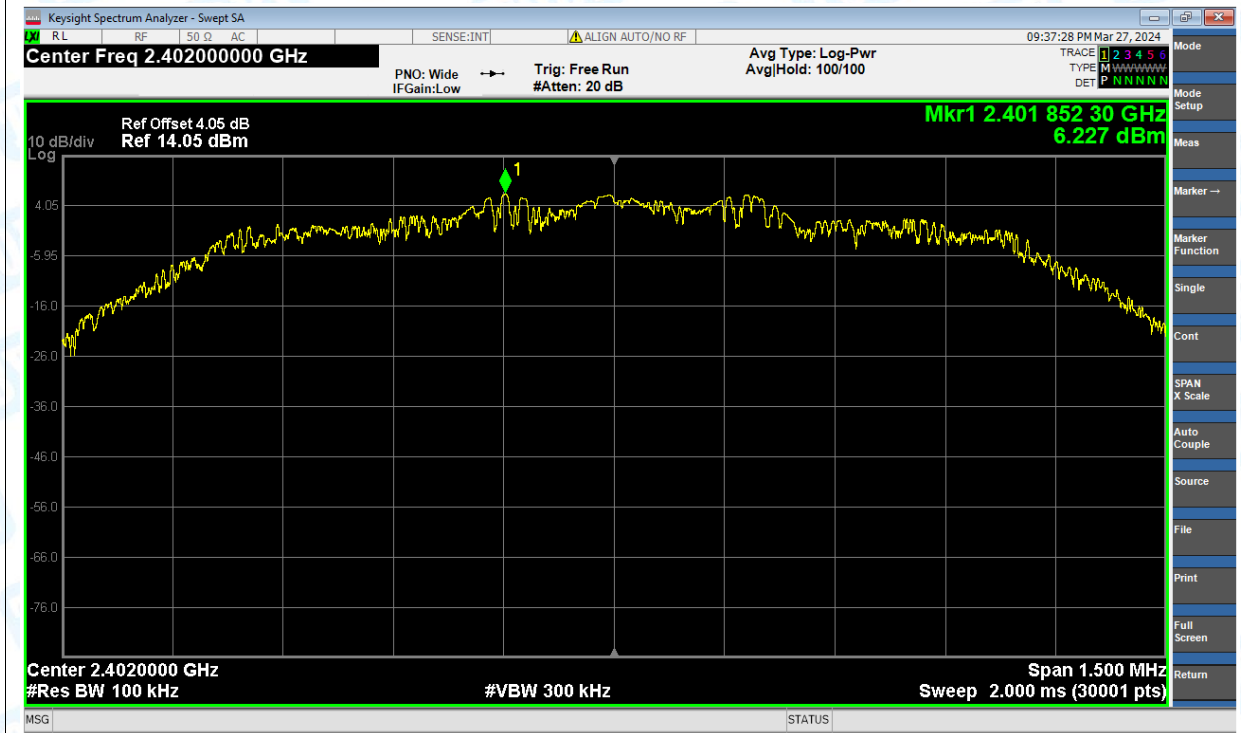


Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission

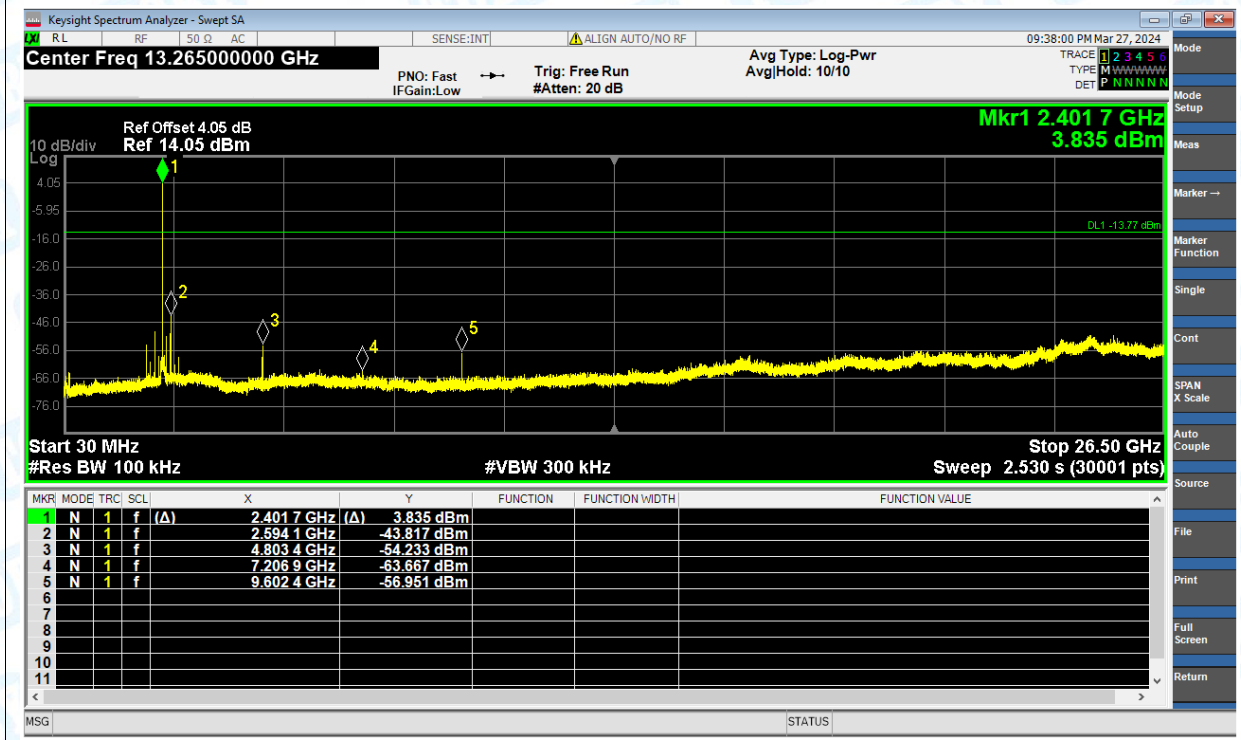




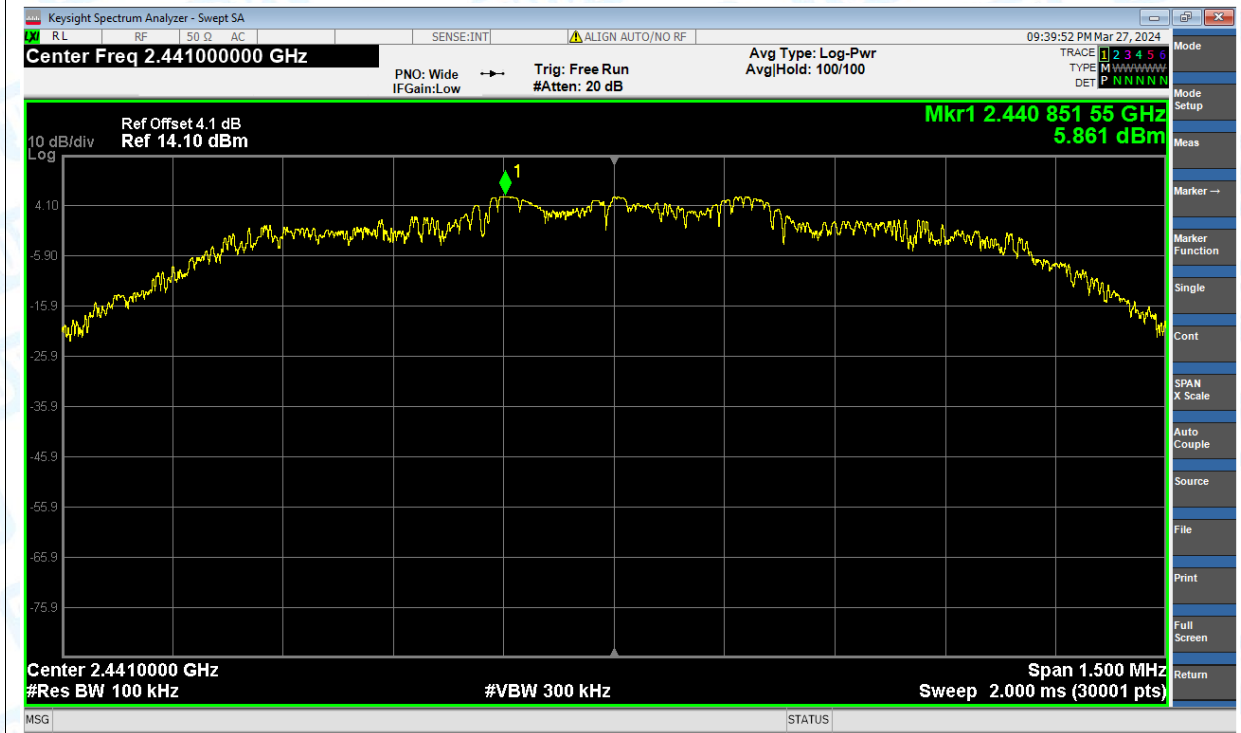
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



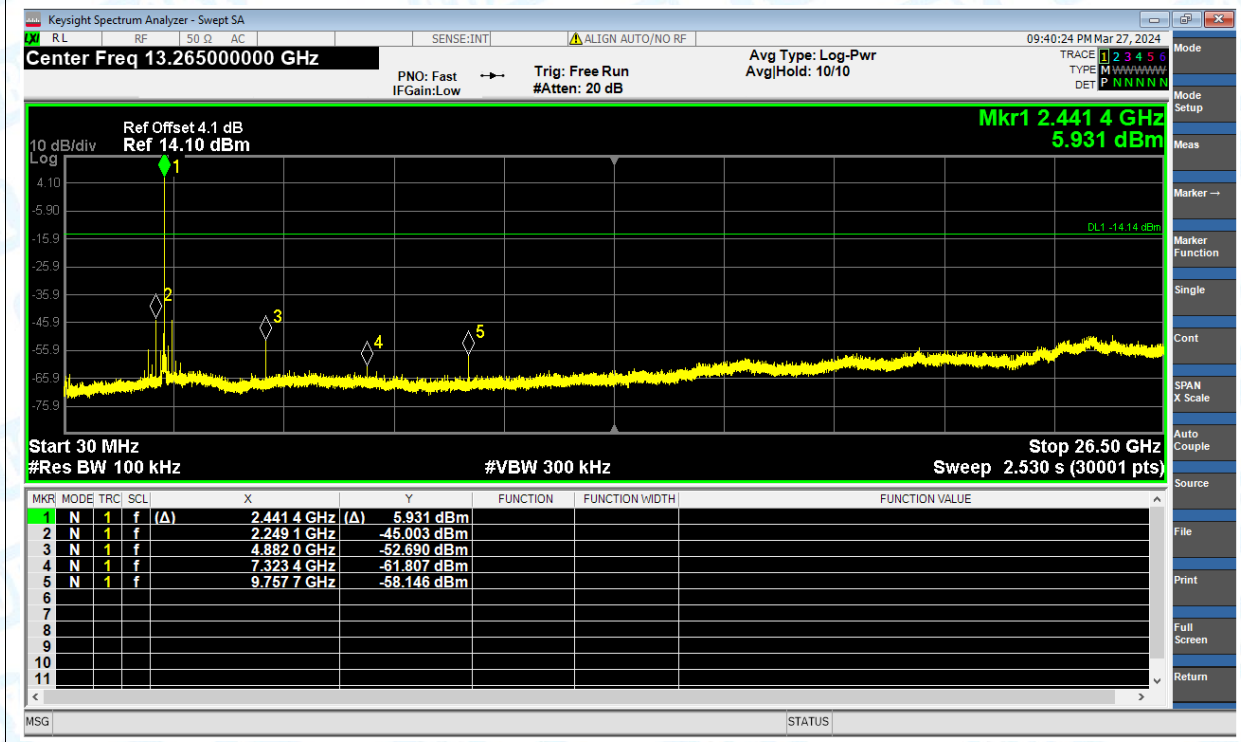
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref

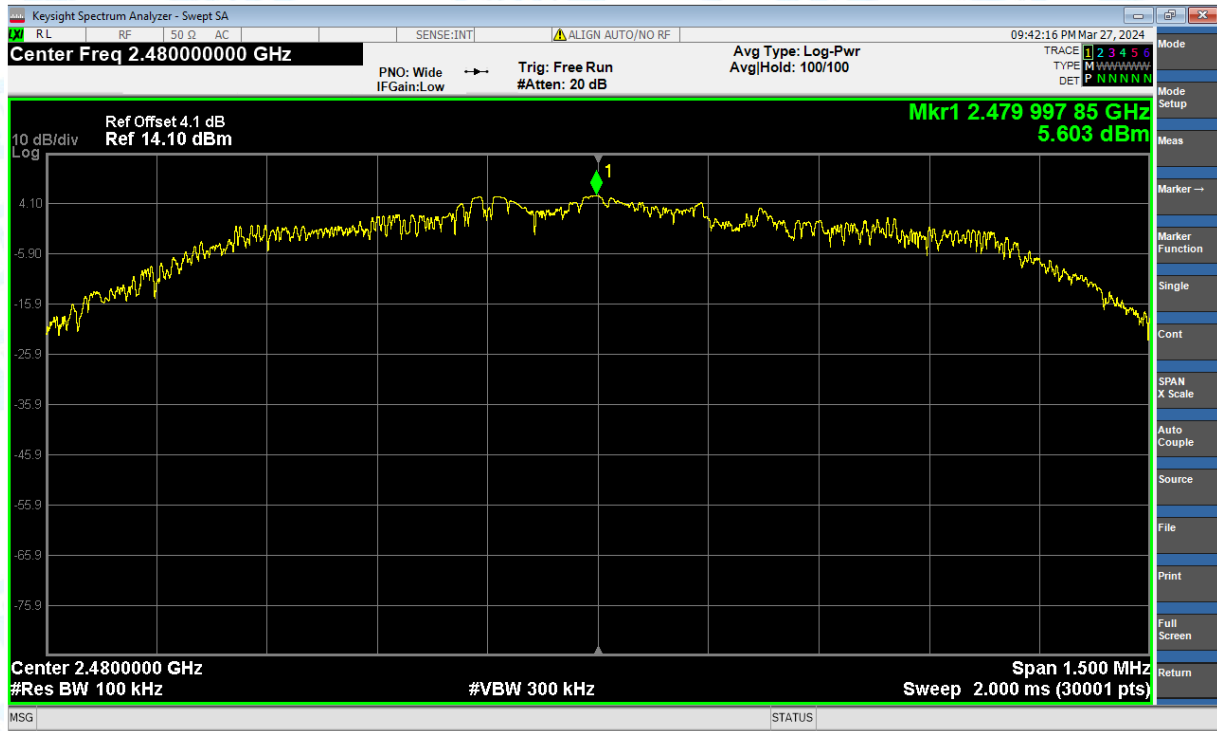


Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission

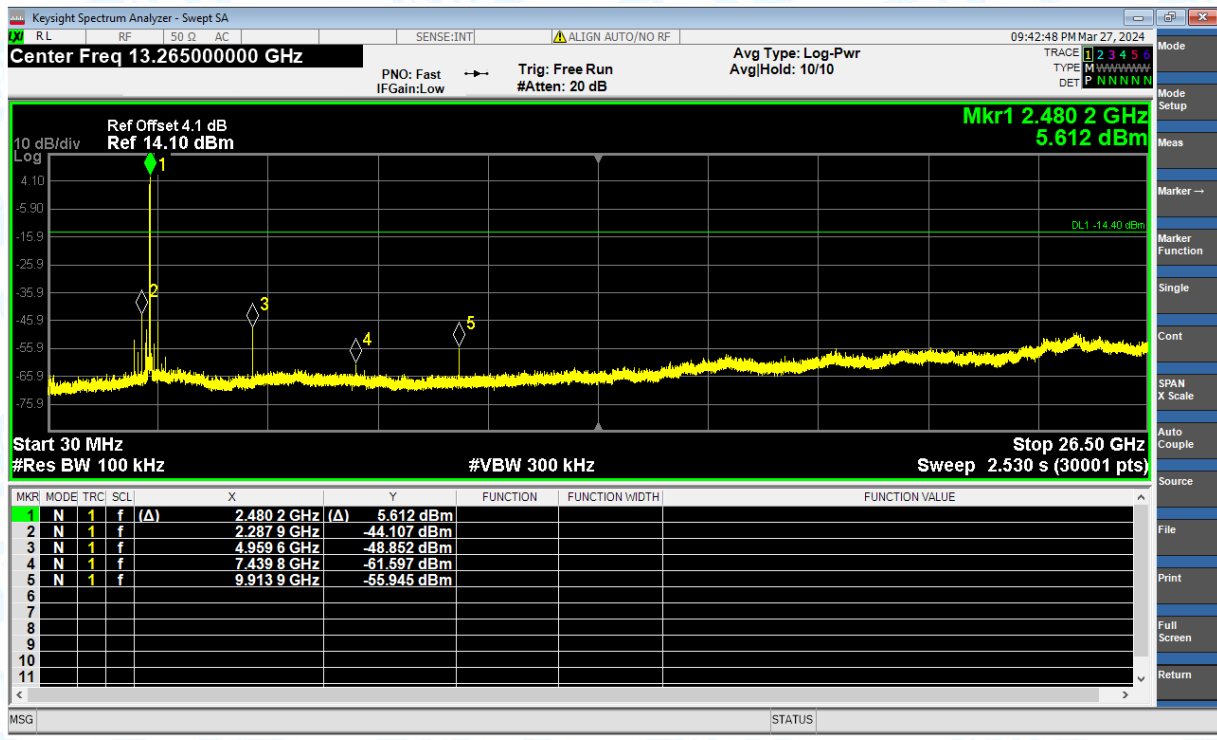




Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission



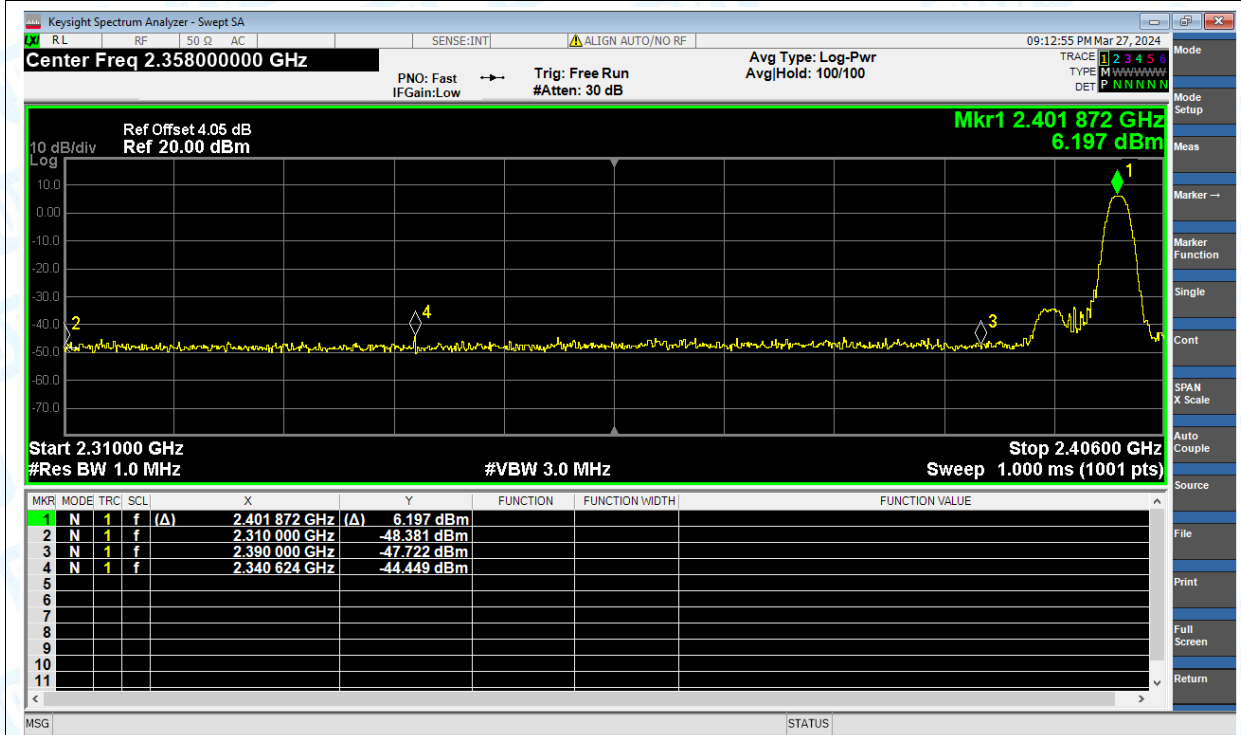
## 8. Restrict Band

Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-48.38	2	-	48.88	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.12	2	5.17	46.31	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2340.624	-44.45	2	-	52.81	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2353.008	-55.03	2	5.17	47.4	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-47.72	2	-	49.54	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-55.62	2	5.17	46.81	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-38.95	2	-	58.31	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-49.9	2	5.17	52.53	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.536	-38.54	2	-	58.72	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.56	-49.39	2	5.17	53.04	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-51.68	2	-	45.58	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-63.74	2	5.17	38.69	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-47.4	2	-	49.86	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.06	2	5.06	46.26	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2357.904	-44.16	2	-	53.1	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2378.352	-54.86	2	5.06	47.46	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-47.7	2	-	49.56	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-54.92	2	5.06	47.4	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-37.39	2	-	59.87	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-48.85	2	4.95	53.36	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.68	-35.13	2	-	62.13	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.608	-48.23	2	4.95	53.98	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-51.61	2	-	45.65	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-62.82	2	4.95	39.39	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-46.69	2	-	50.57	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-56.46	2	5.06	45.86	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2333.136	-44.2	2	-	53.06	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2361.648	-54.44	2	5.06	47.88	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-47.7	2	-	49.56	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-55.82	2	5.06	46.5	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-36.52	2	-	60.74	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-51.23	2	5.06	51.09	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.512	-36.52	2	-	60.74	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.56	-50.98	2	5.06	51.34	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-50.26	2	-	47	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-62.26	2	5.06	40.06	Average	54	Pass

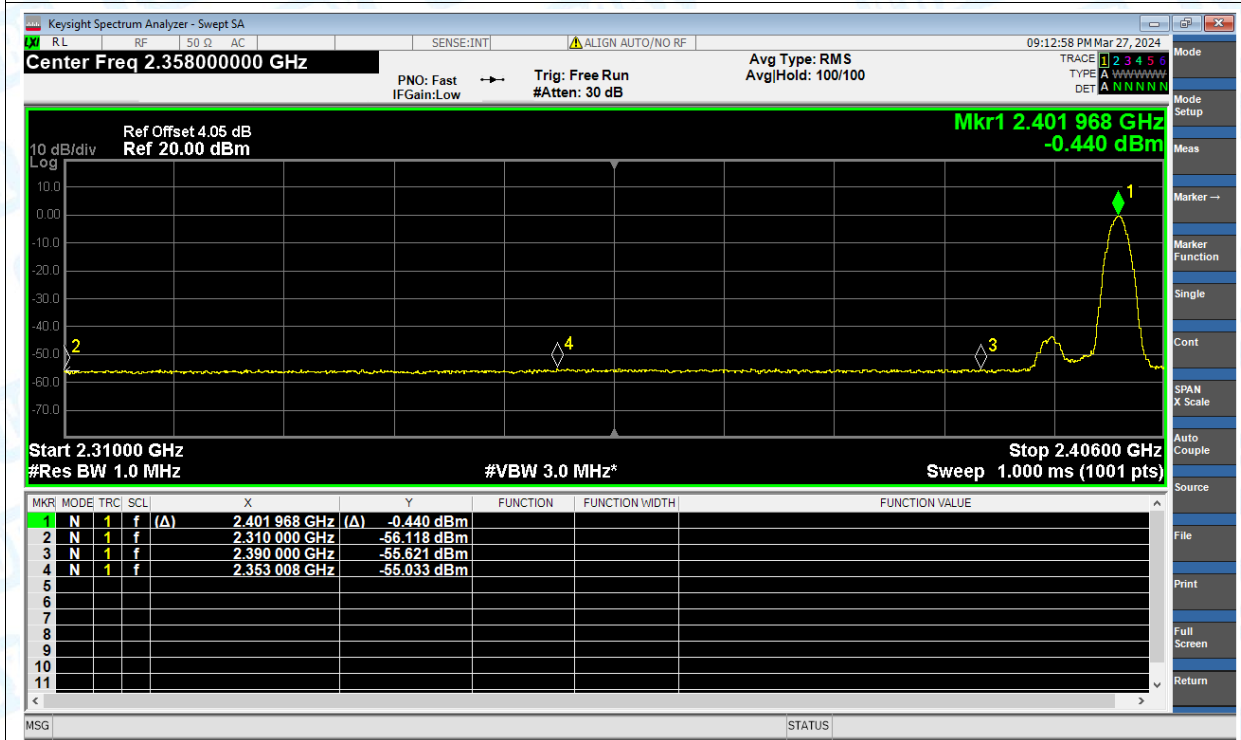


Test Graphs

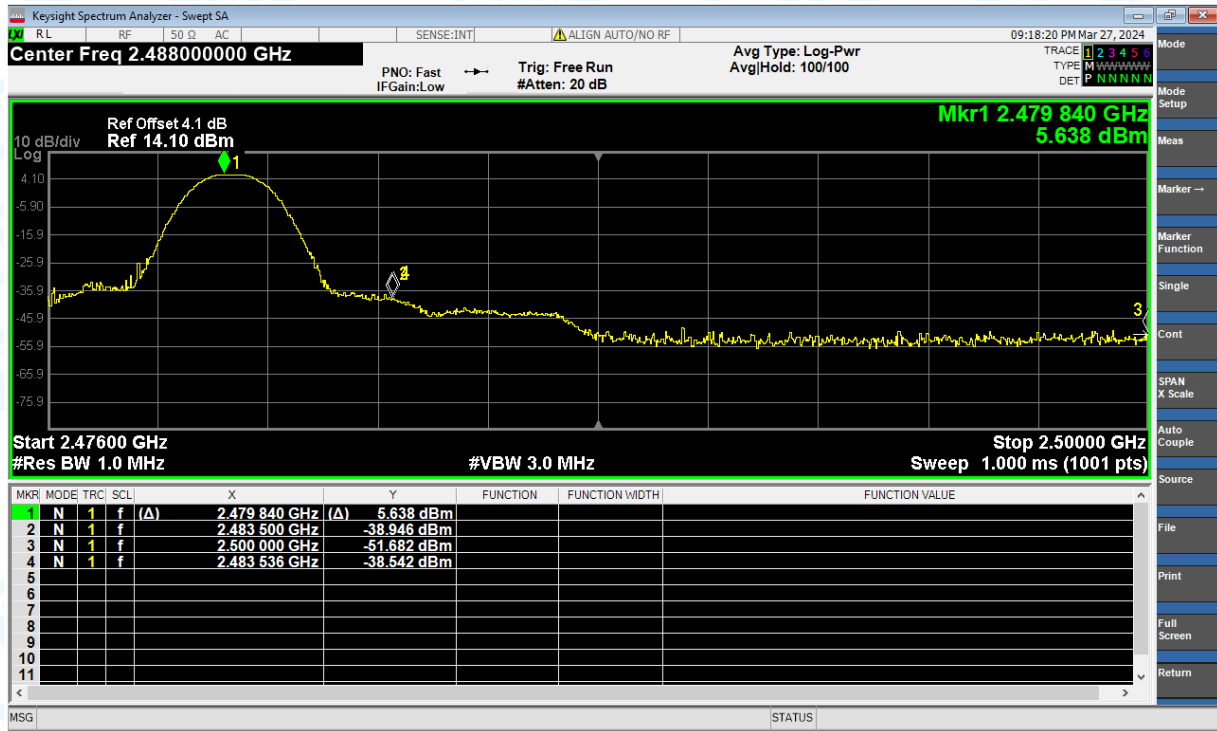
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



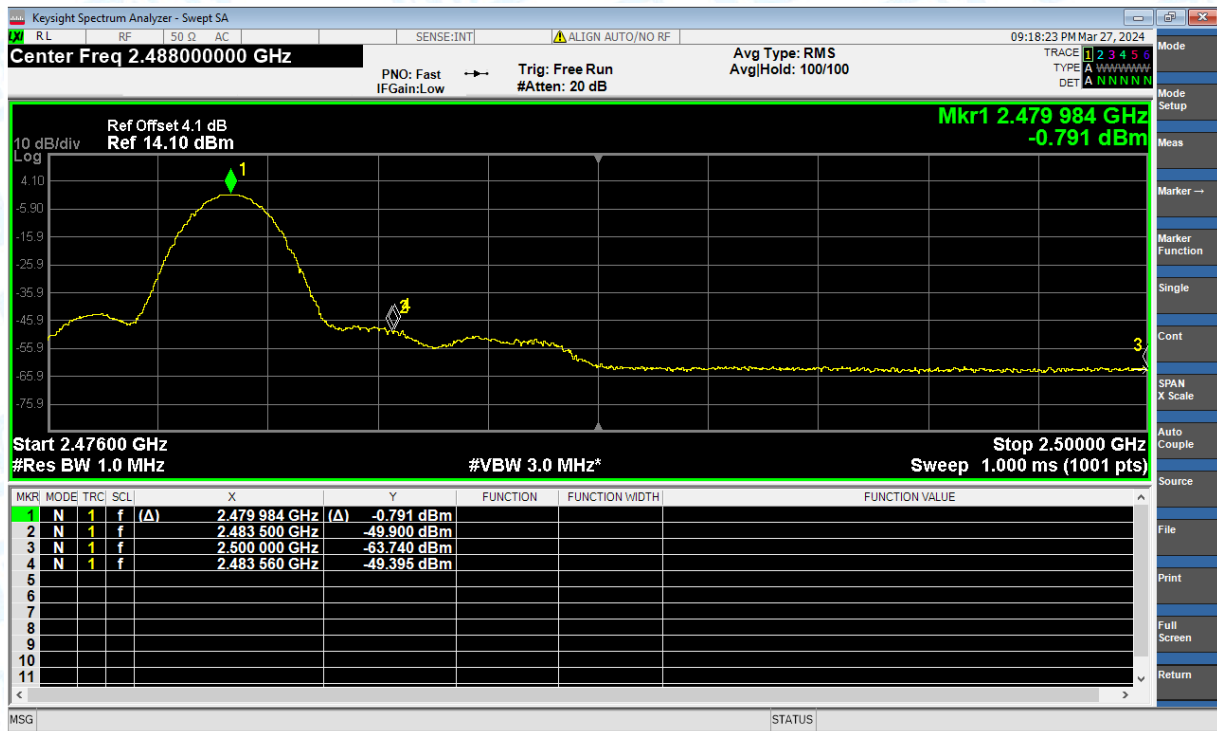
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak

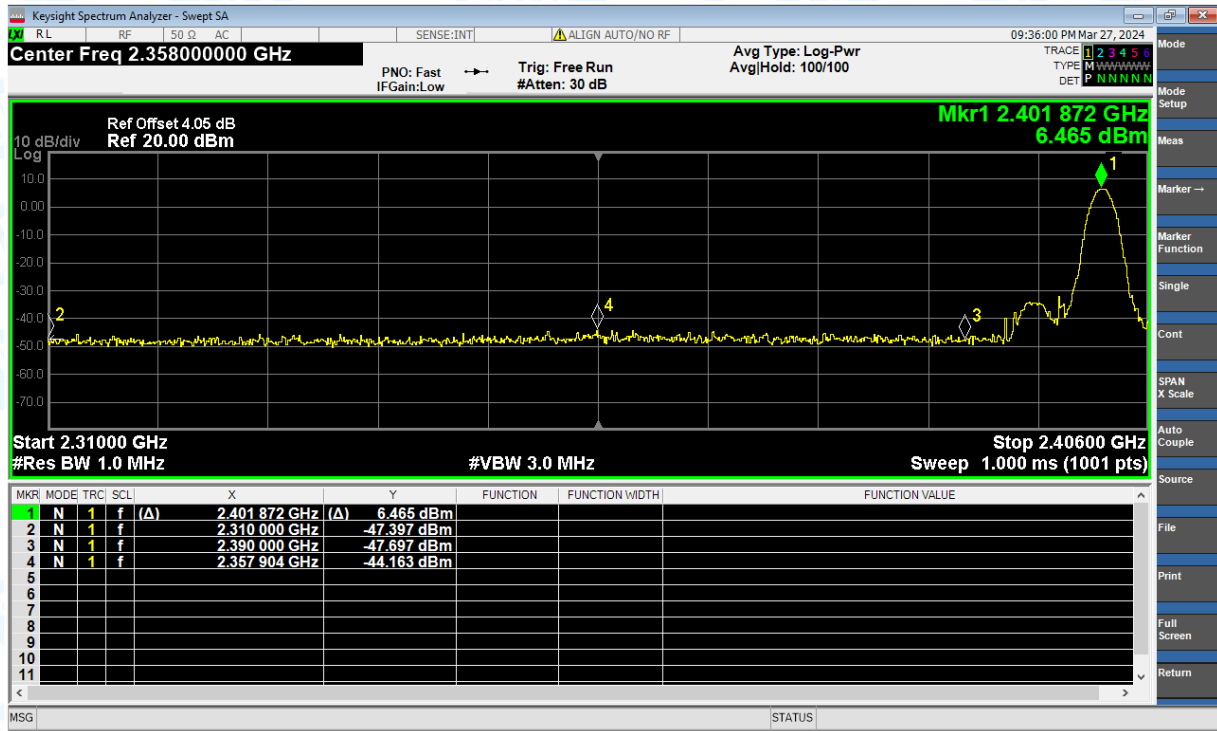


Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average

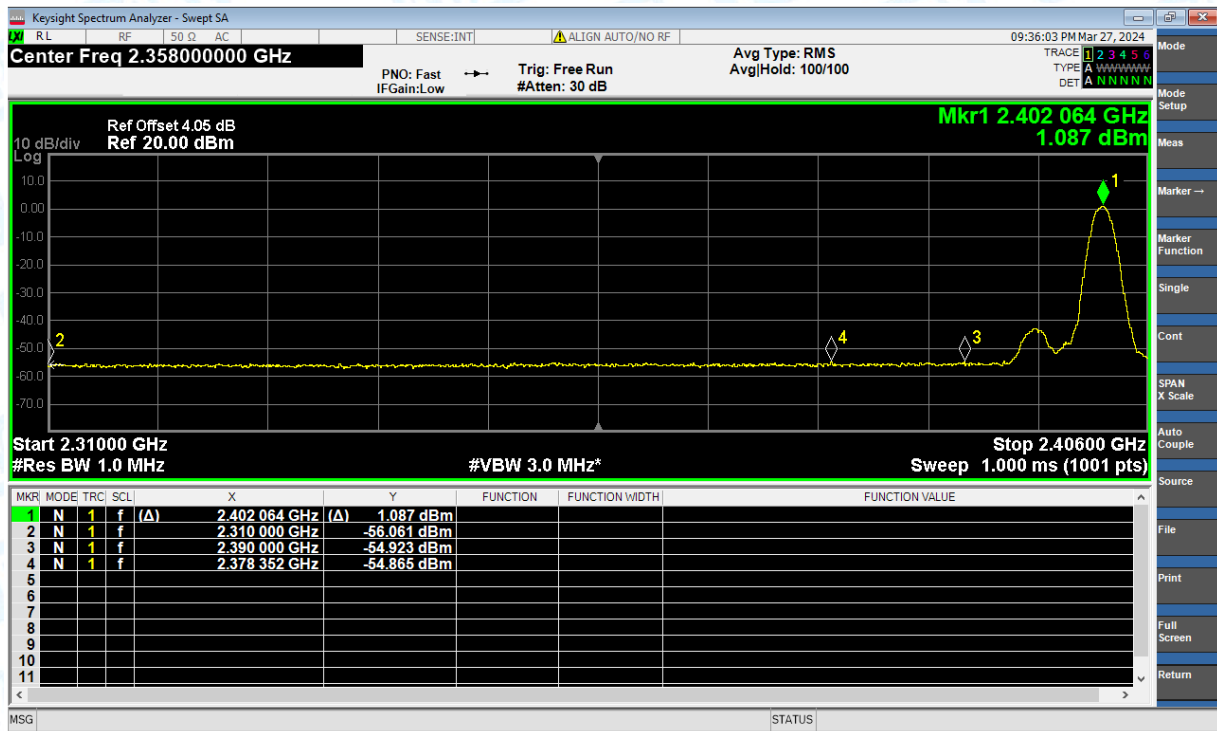




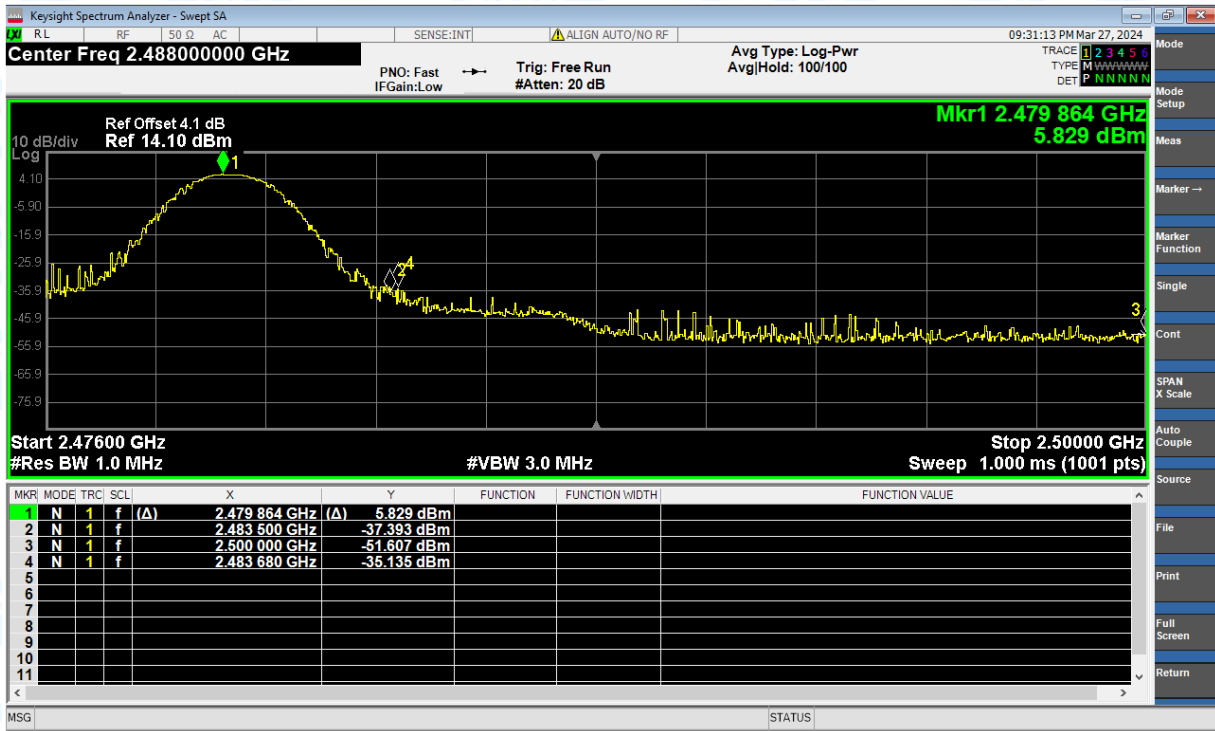
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



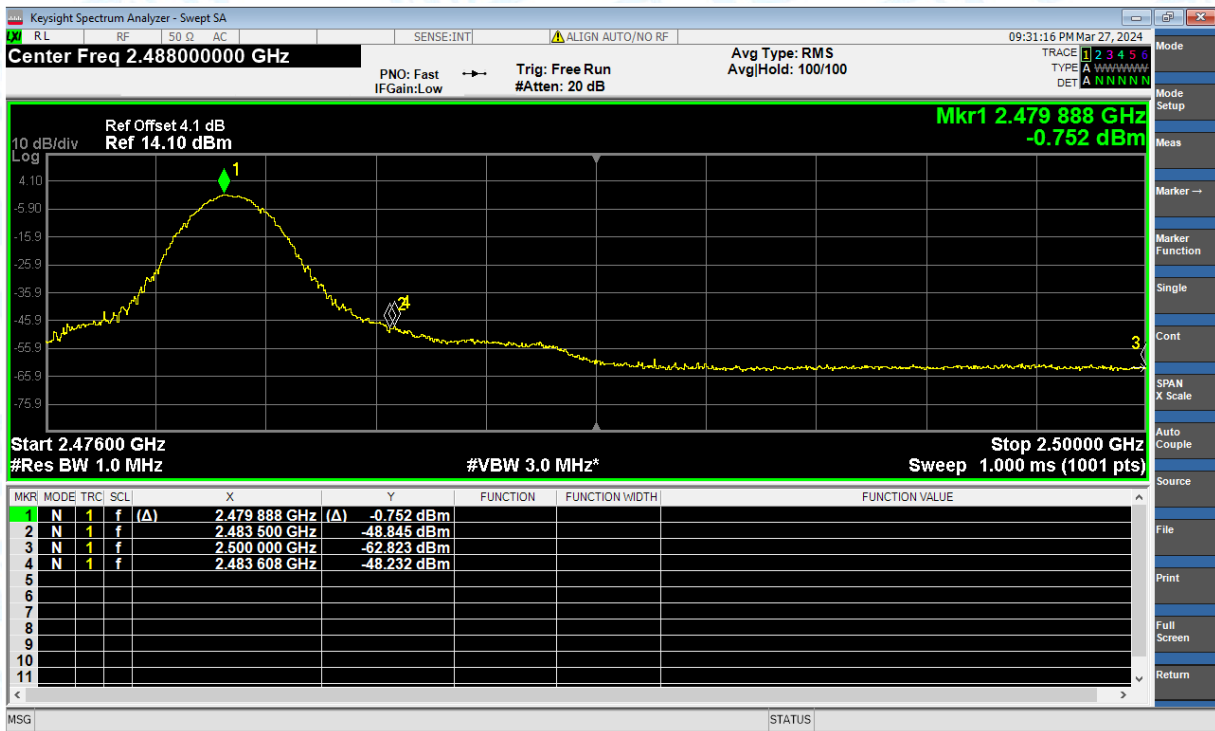
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak

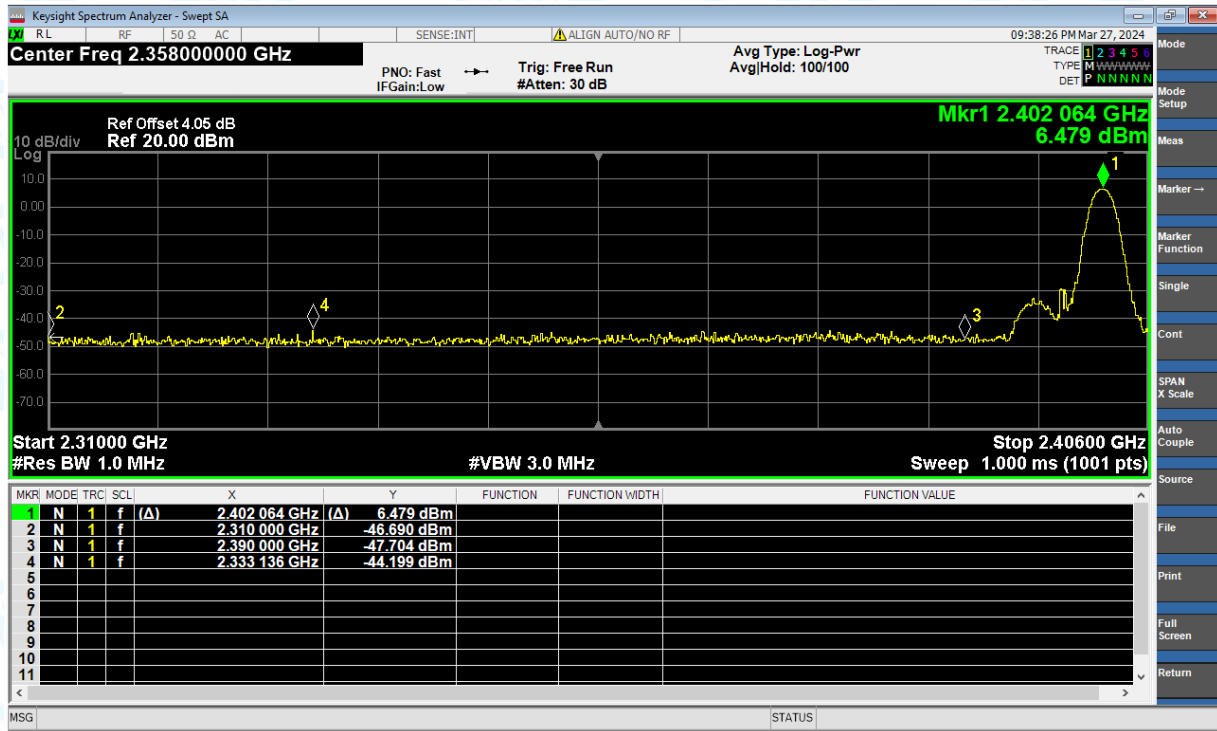


Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average

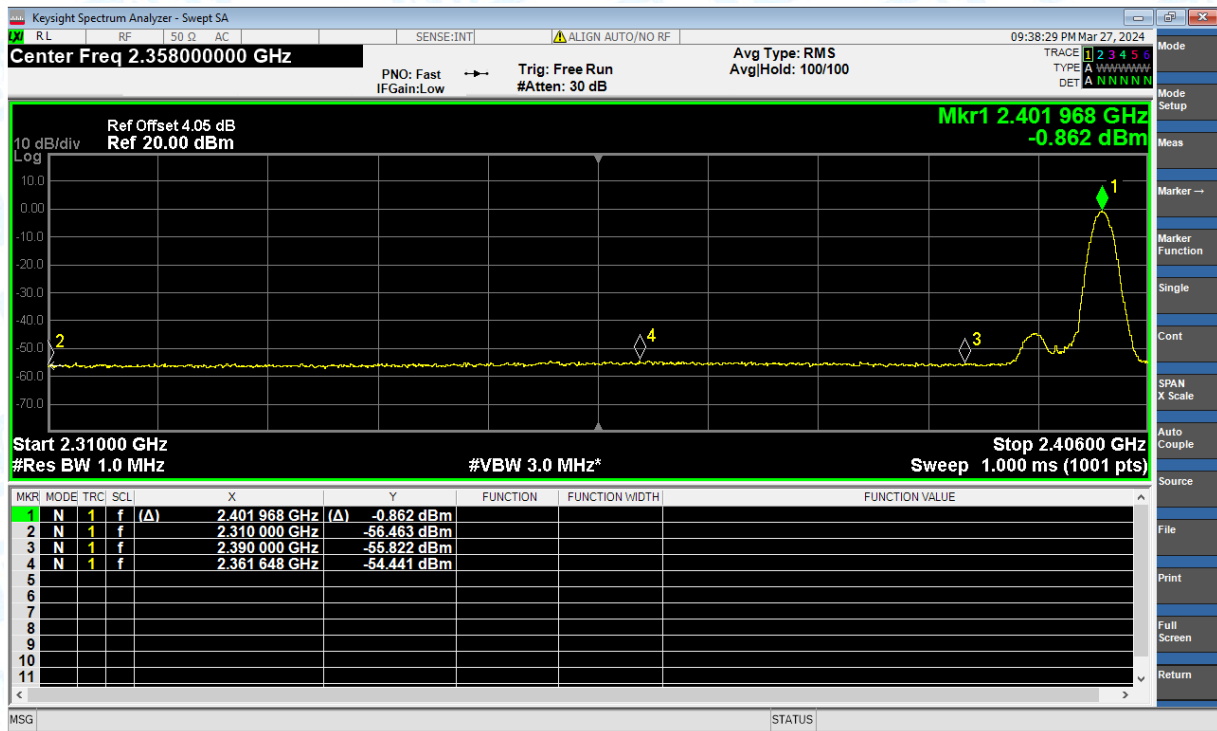




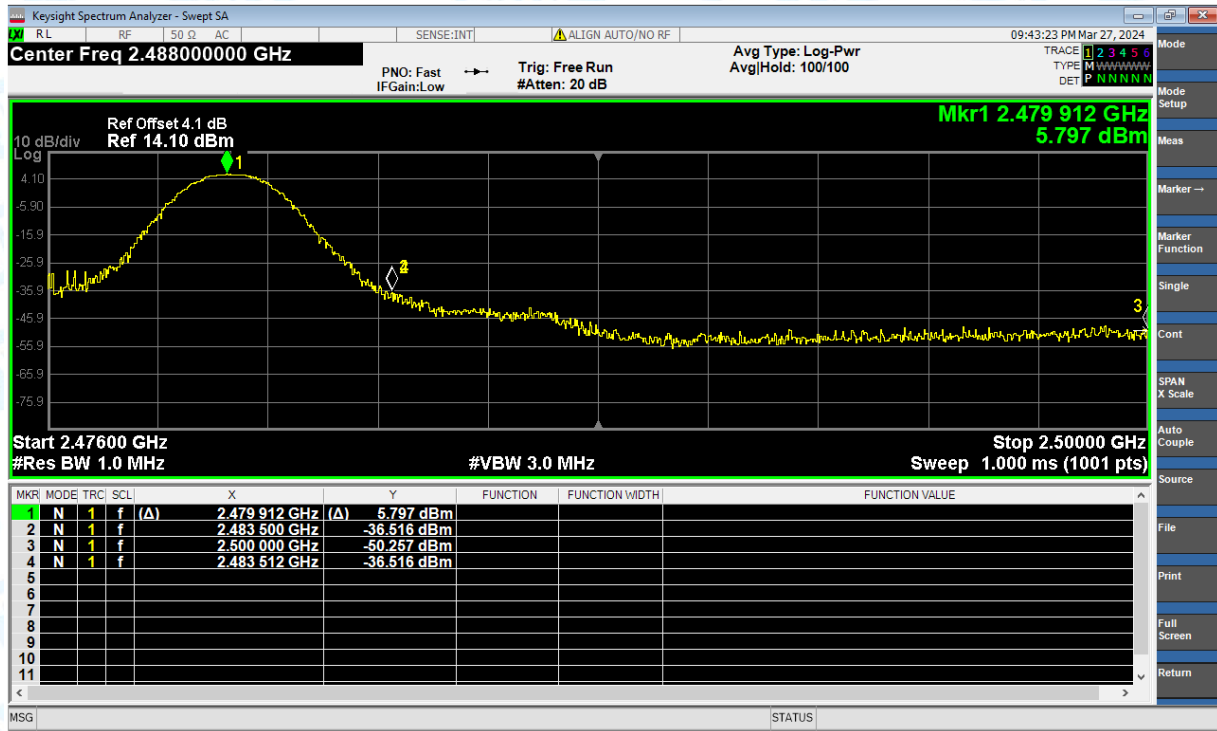
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



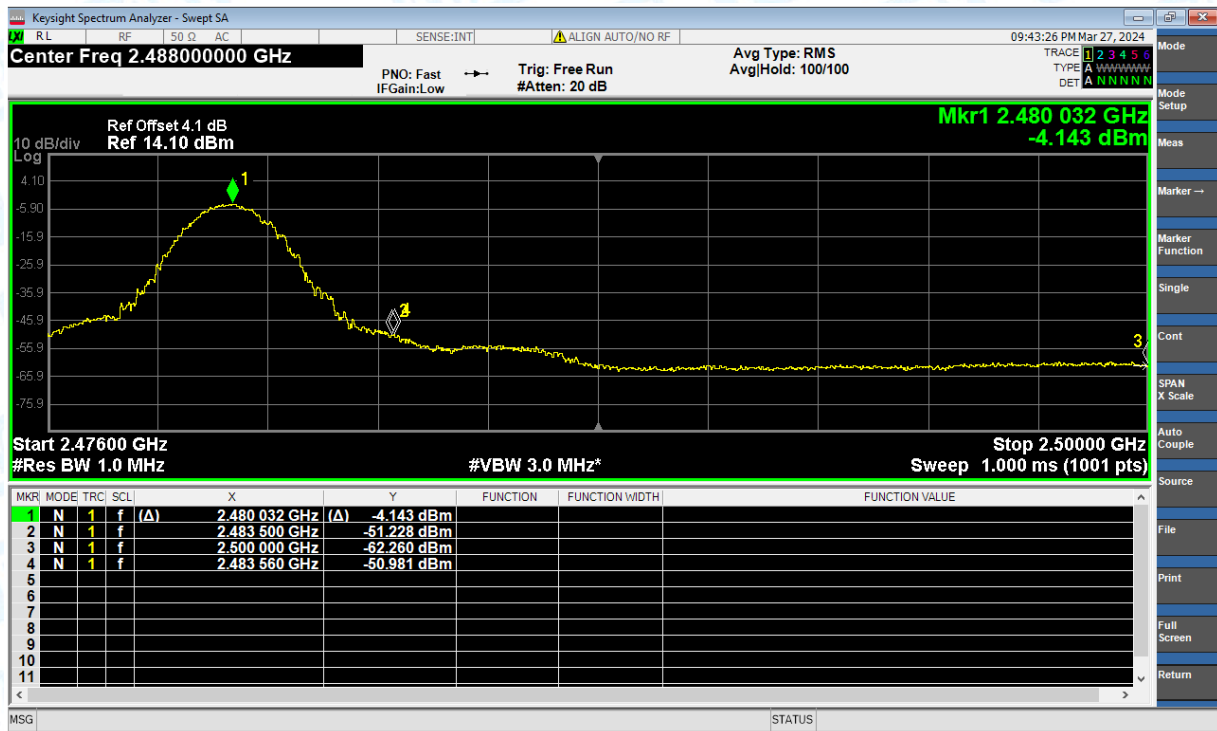
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



Restrict Band NVNT 3-DH1 2480MHz Ant1 No-Hopping Peak



Restrict Band NVNT 3-DH1 2480MHz Ant1 No-Hopping Average





## 9. Carrier Frequencies Separation

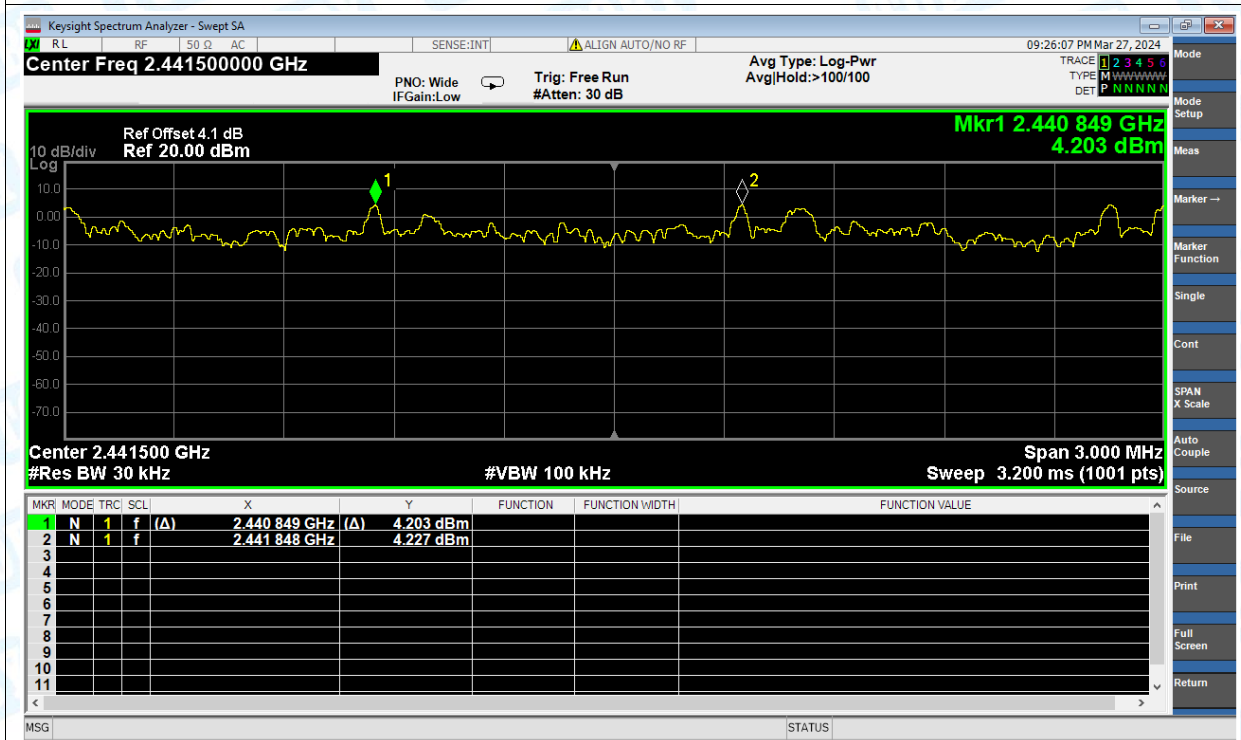
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.858	2441.845	0.987	0.580	Pass
NVNT	2-DH1	Ant1	2440.849	2441.848	0.999	0.847	Pass
NVNT	3-DH1	Ant1	2440.996	2441.845	0.849	0.827	Pass

Test Graphs

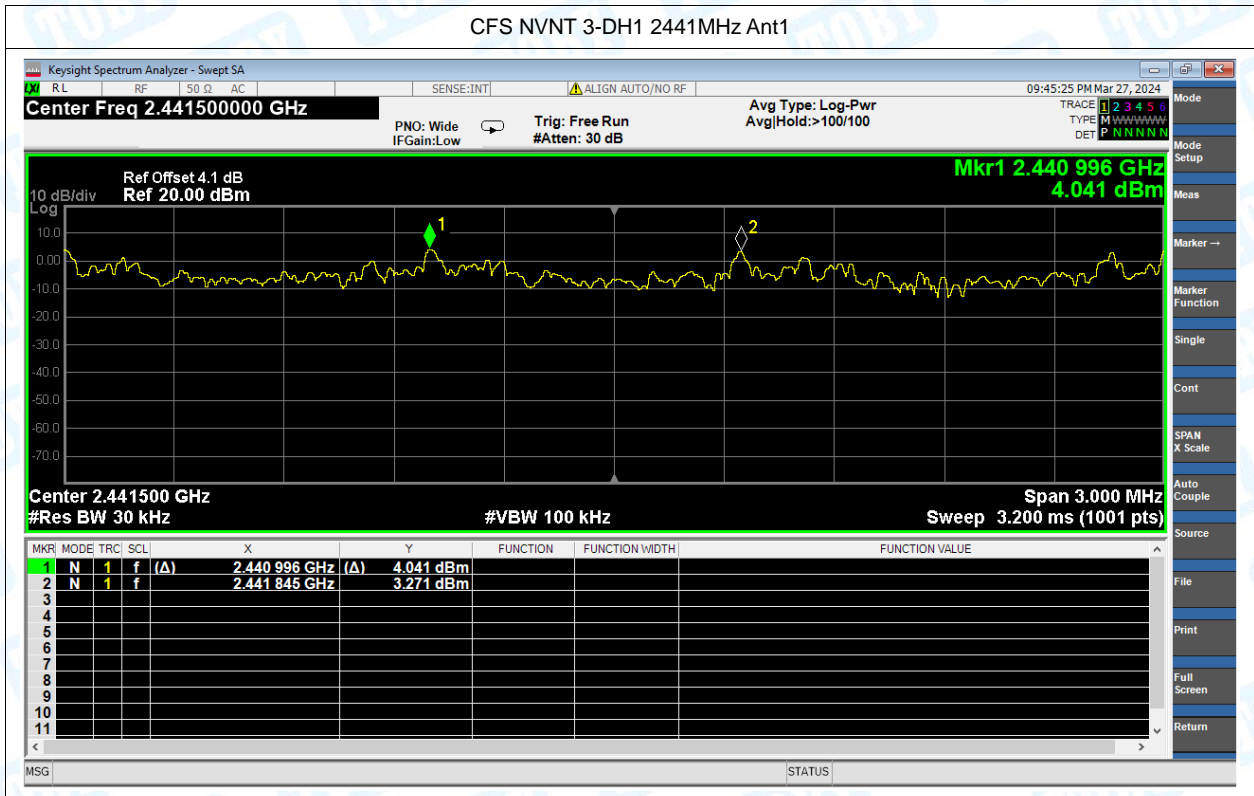
CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1







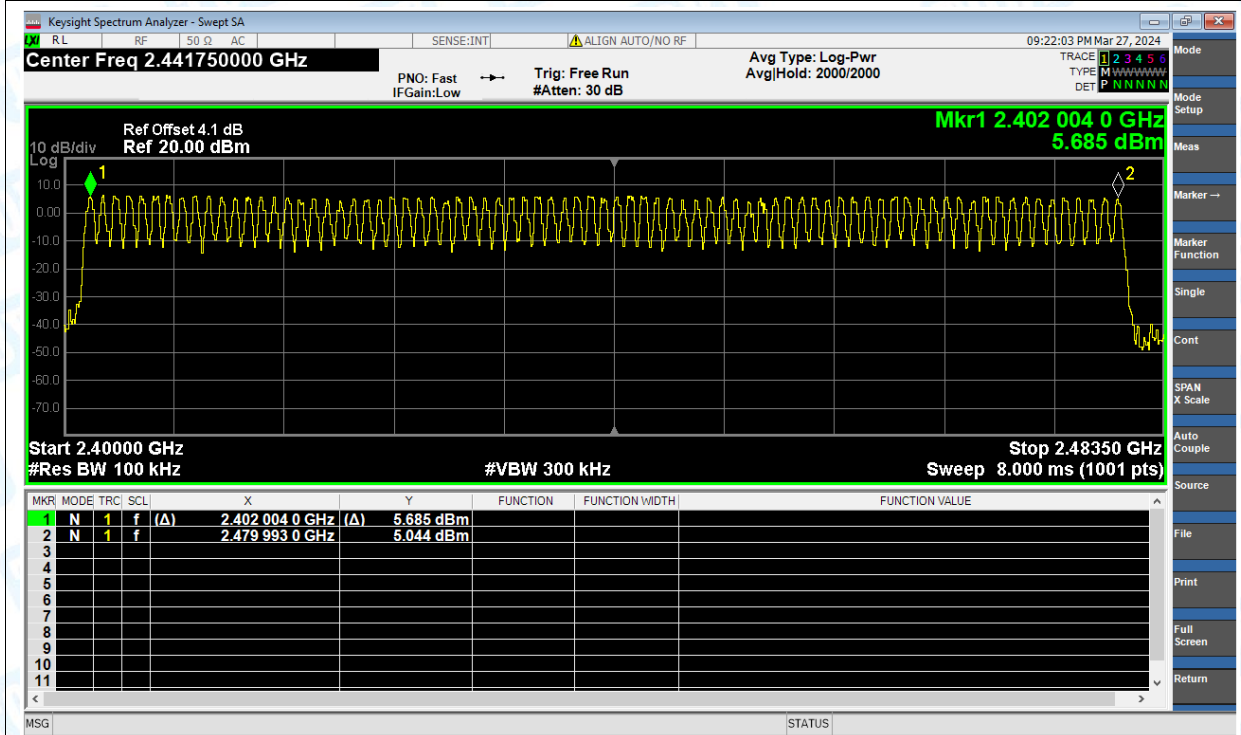
## 10. Number of Hopping Channel

Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

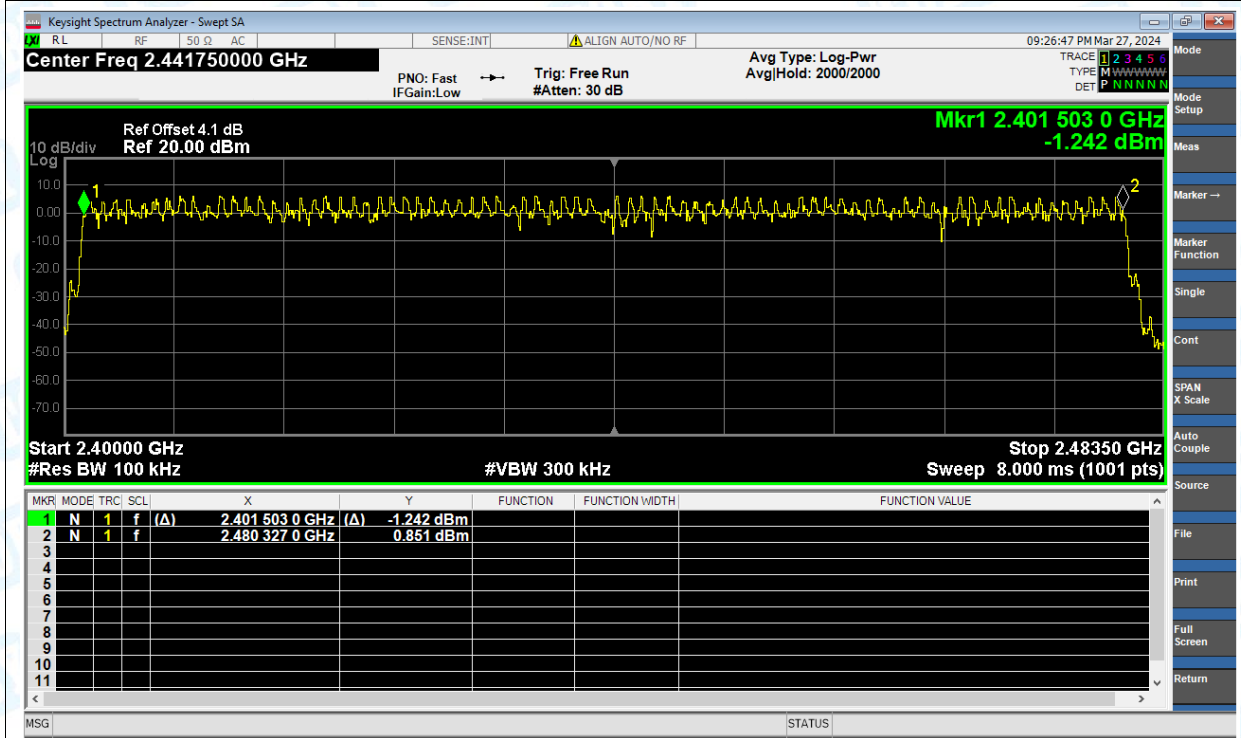


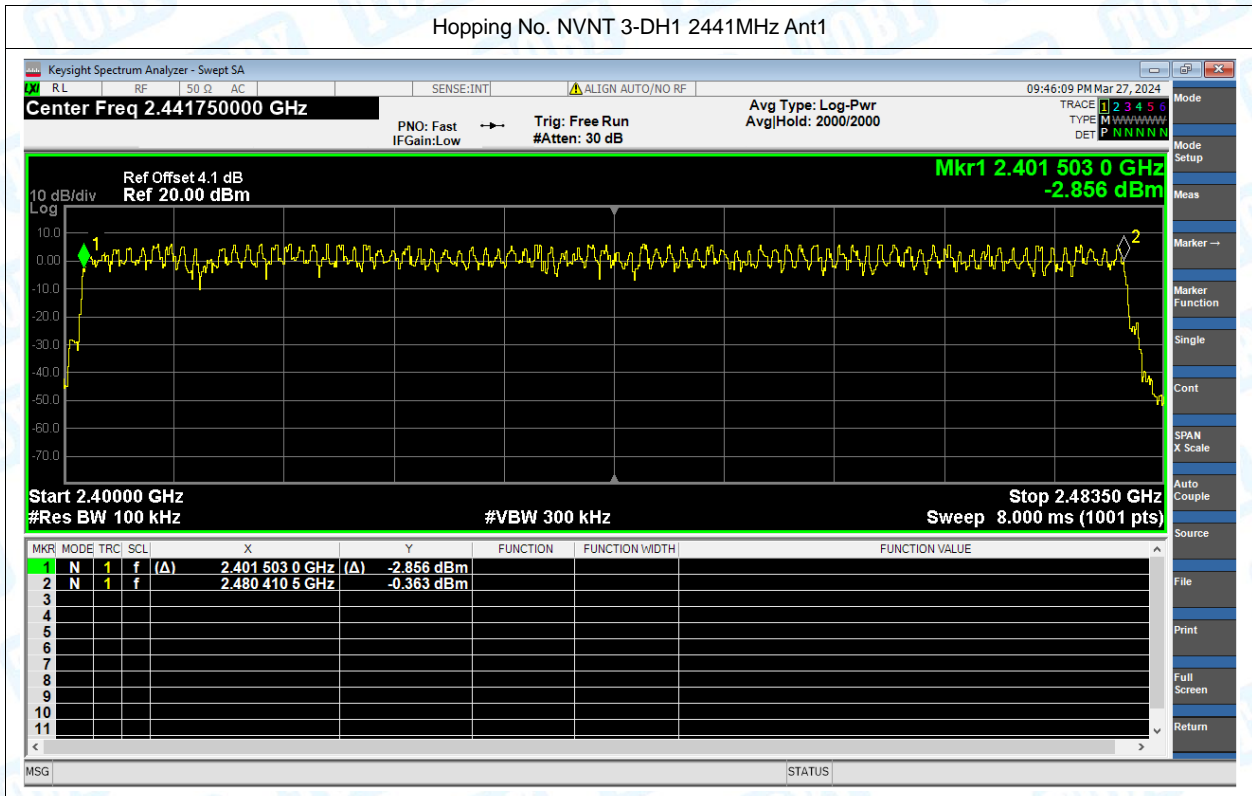
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1





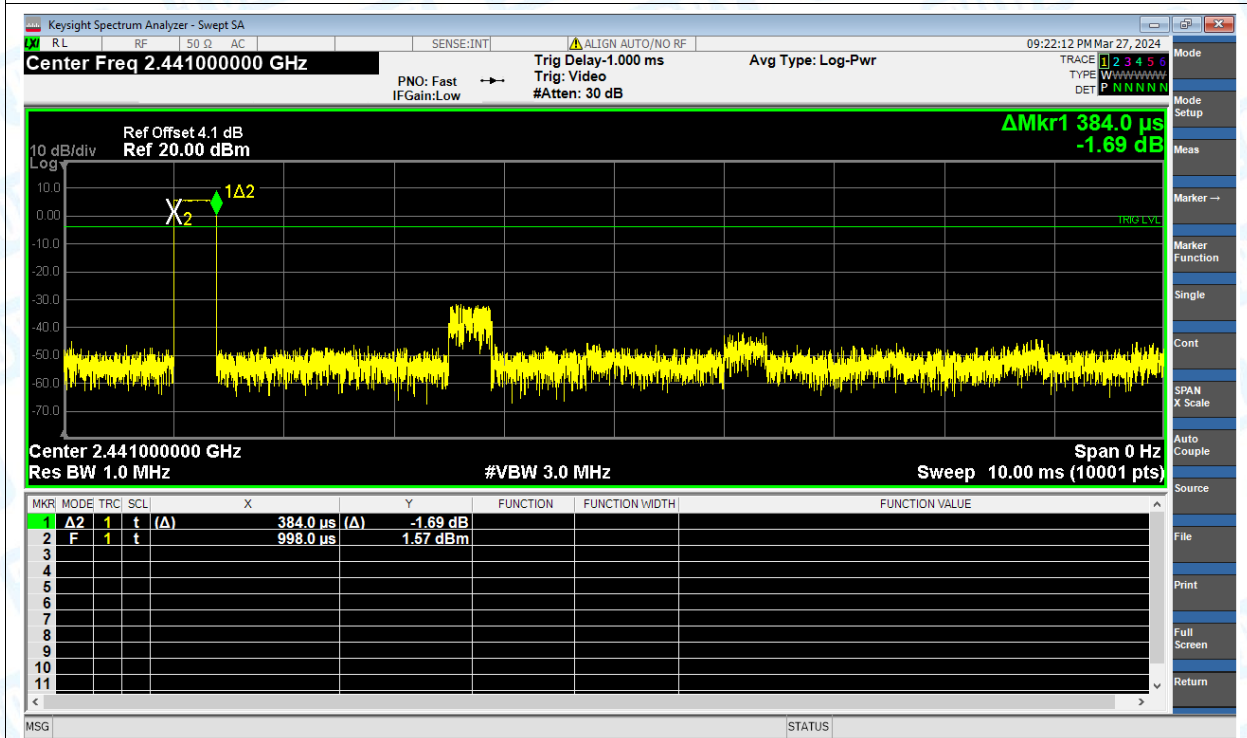


## 11. Dwell Time

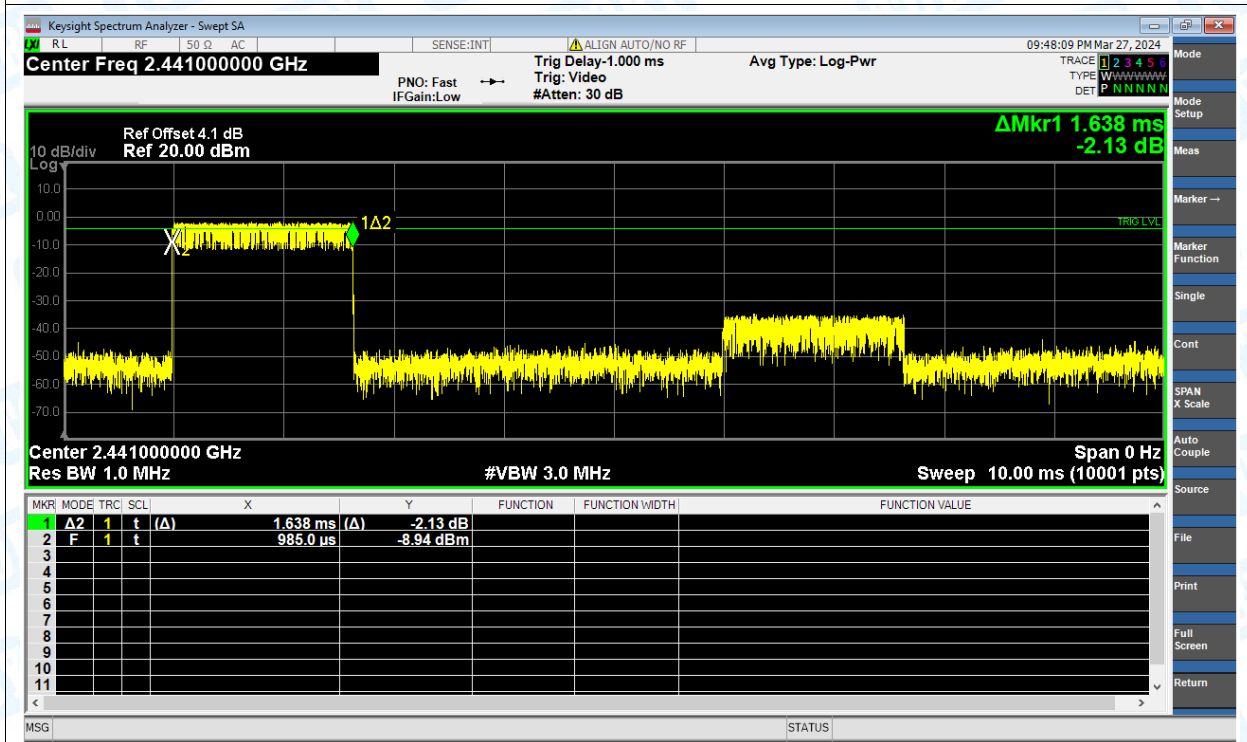
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.384	122.88	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.638	262.08	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.888	308.053	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.392	125.44	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.644	263.04	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.892	308.48	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.391	125.12	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.643	262.88	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.894	308.693	31600	400	Pass

Test Graphs

Dwell NVNT 1-DH1 2441MHz Ant1

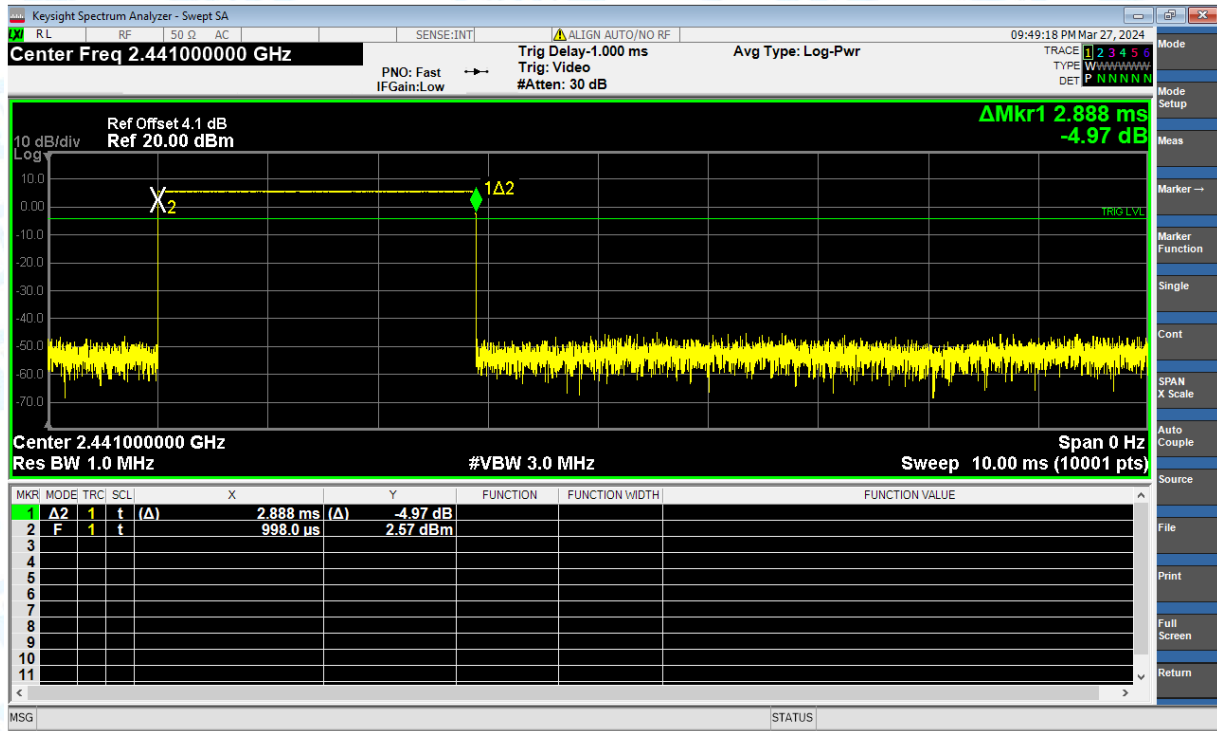


Dwell NVNT 1-DH3 2441MHz Ant1

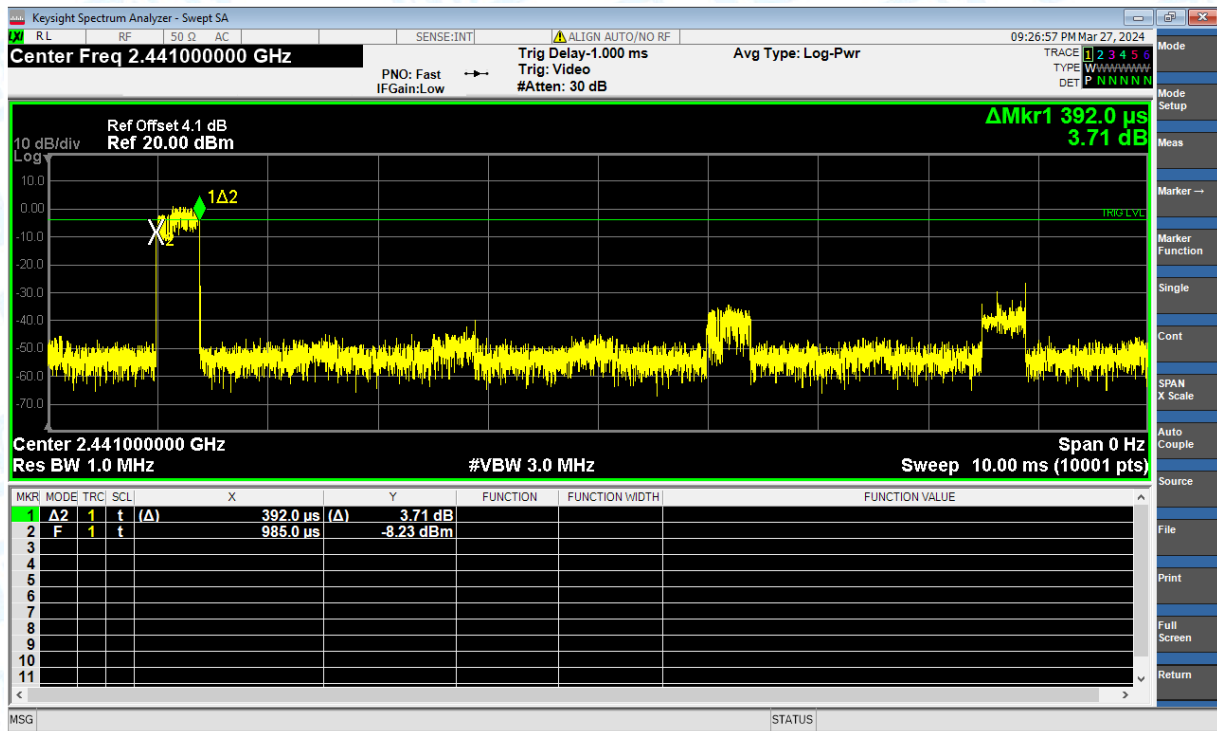




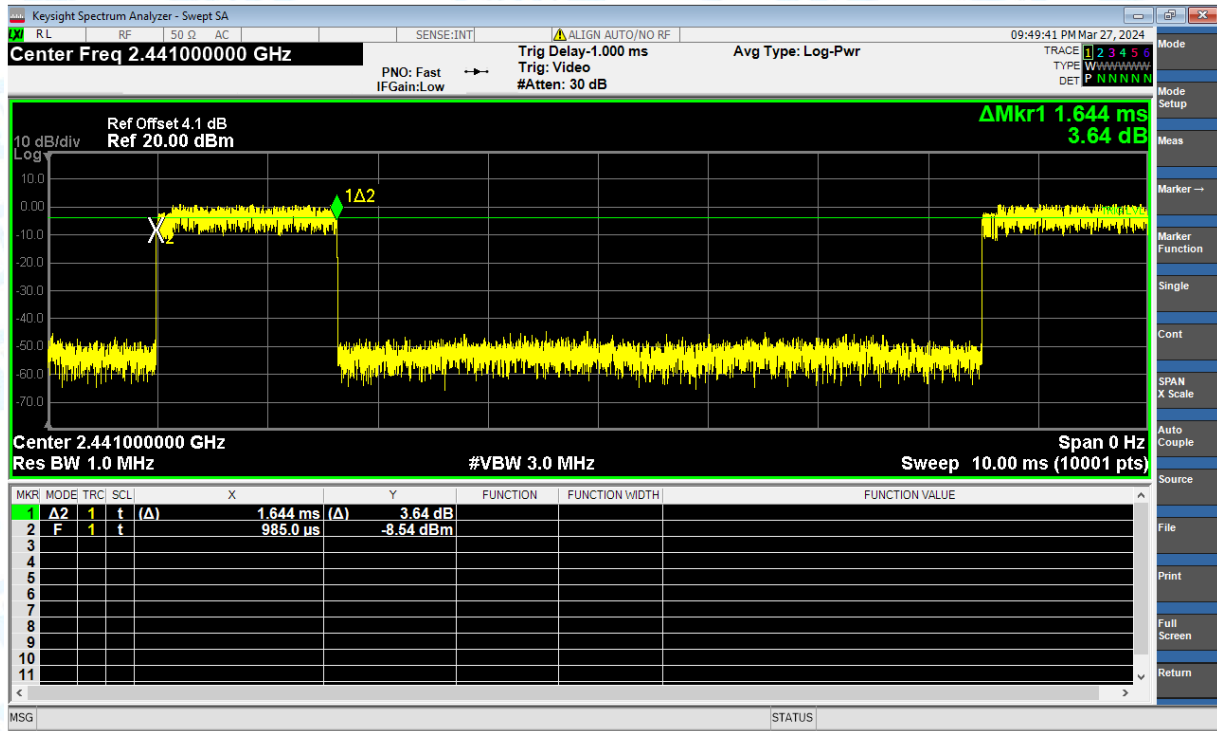
Dwell NVNT 1-DH5 2441MHz Ant1



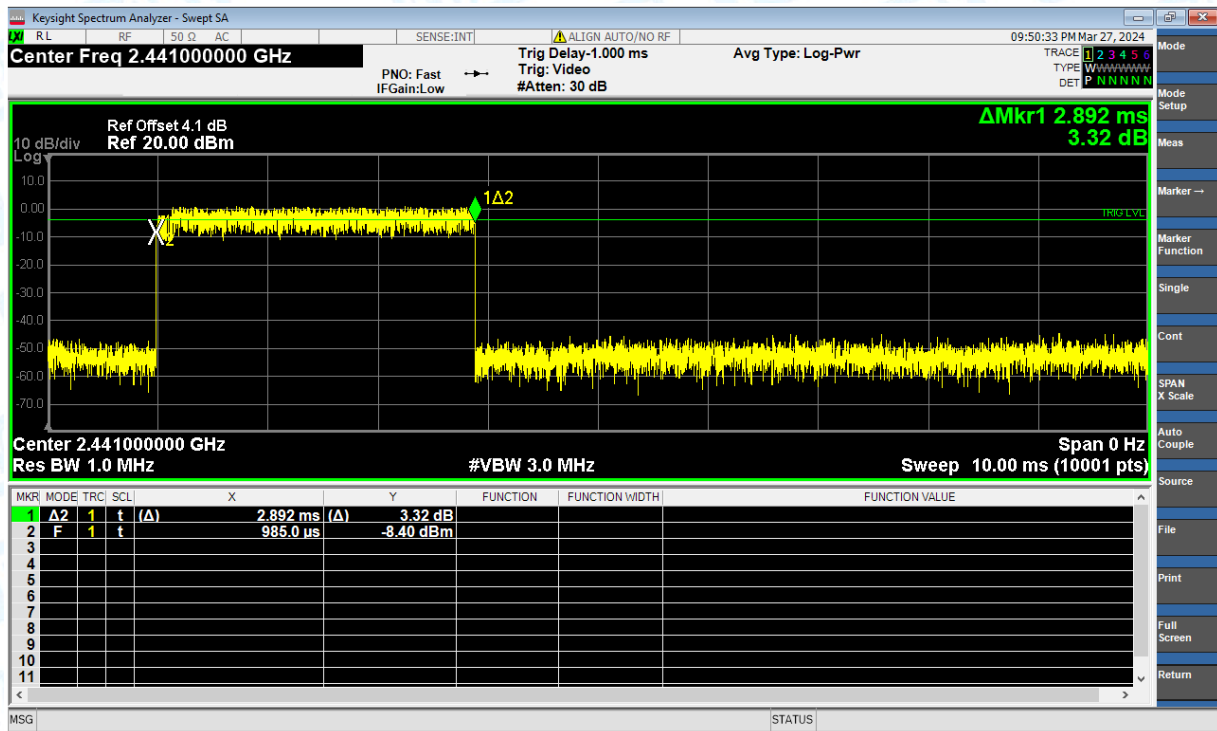
Dwell NVNT 2-DH1 2441MHz Ant1



Dwell NVNT 2-DH3 2441MHz Ant1

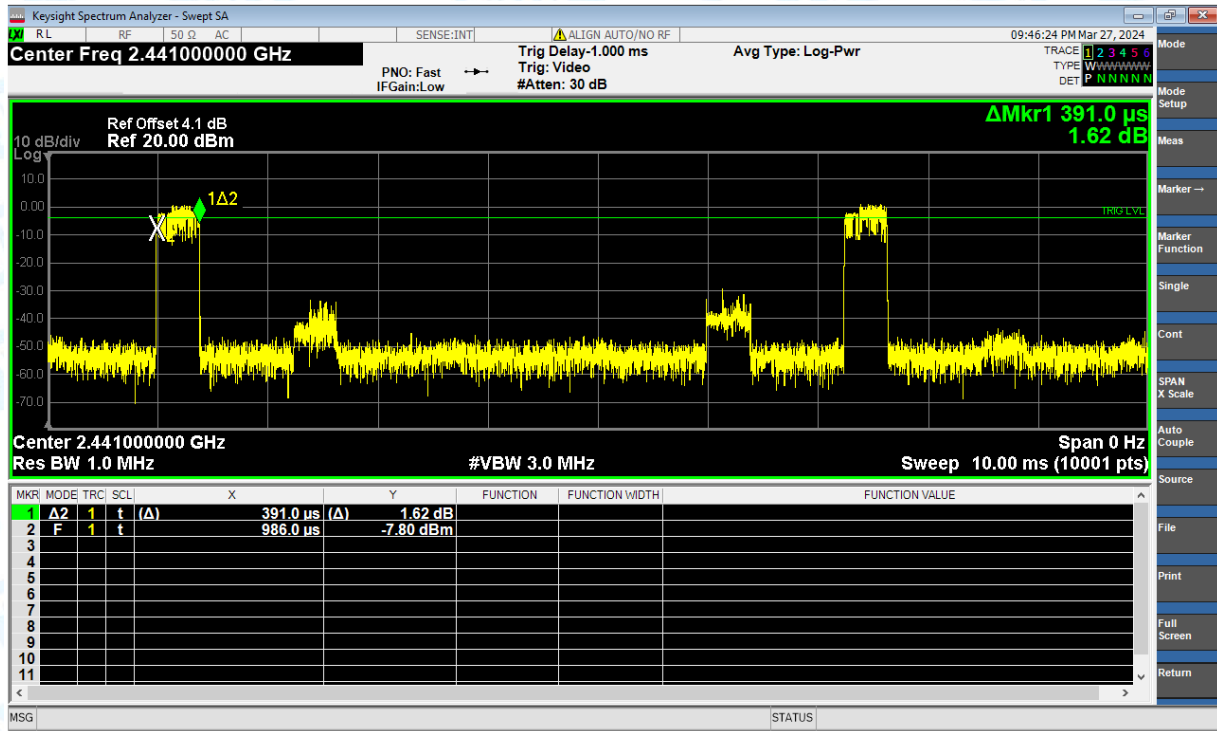


Dwell NVNT 2-DH5 2441MHz Ant1

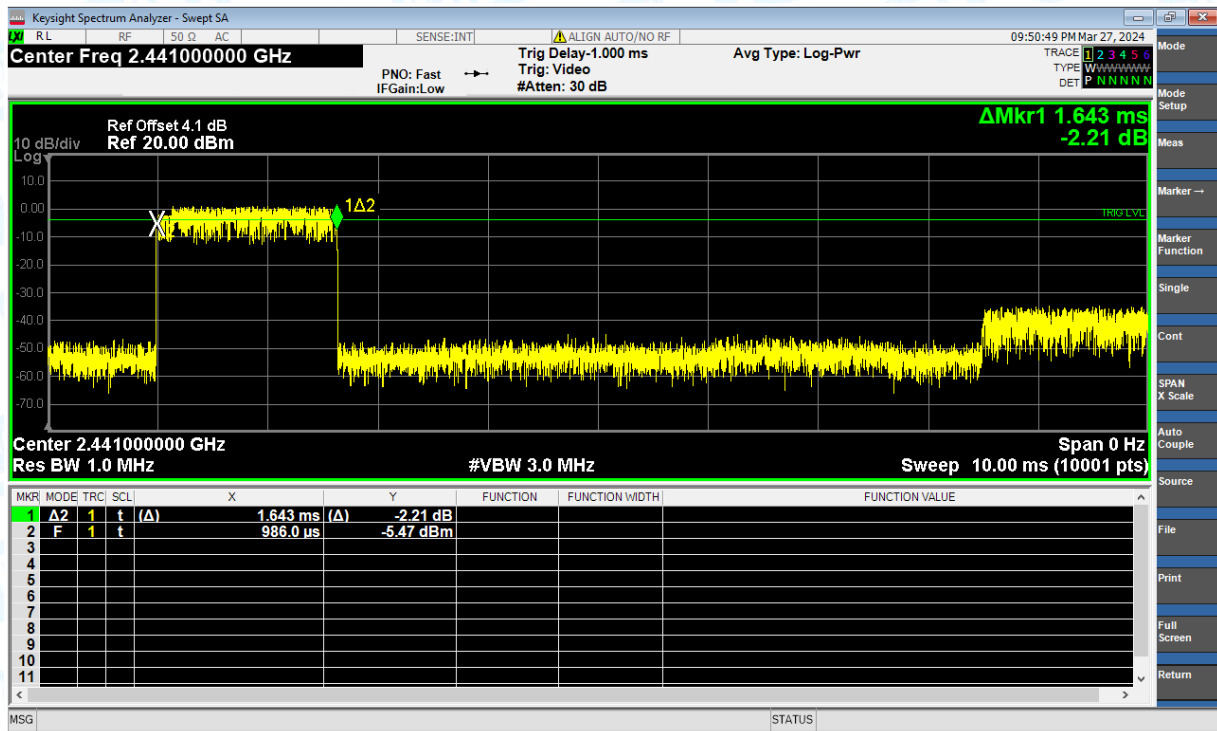


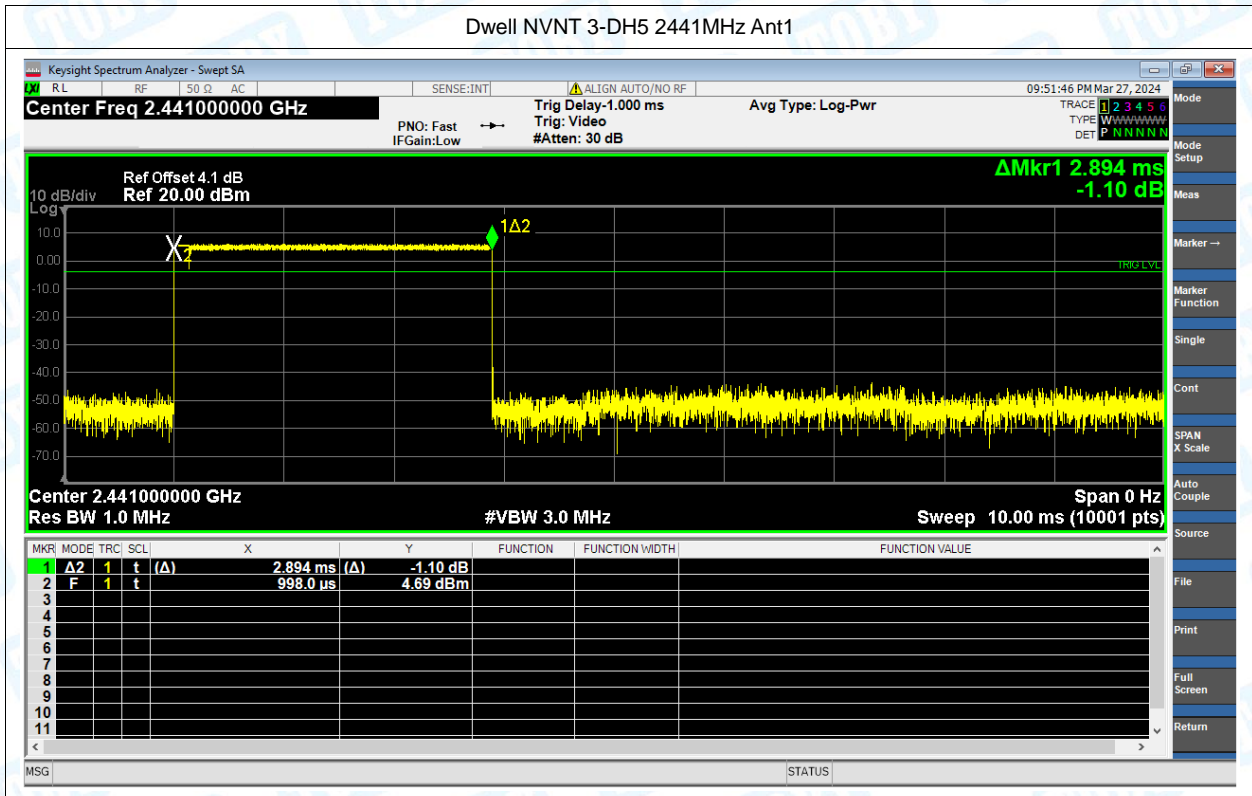


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1





-----END OF THE REPORT-----