



## Appendix A

### RF Test Data for BT (Conducted Measurement)

Product Name: Karaoke machine

Test Model: K29-L

#### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 23.8°C    |
| Relative Humidity: | 52.1%     |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | Can Kun   |
| Supervised by:     | Nick Peng |





### A.1 -20dB Bandwidth

| Condition | Mode  | Frequency (MHz) | Antenna | -20 dB Bandwidth (MHz) | Limit -20 dB Bandwidth (MHz) | Verdict |
|-----------|-------|-----------------|---------|------------------------|------------------------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant1    | 0.949                  | N/A                          | Pass    |
| NVNT      | 1-DH5 | 2441            | Ant1    | 0.958                  | N/A                          | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | 0.955                  | N/A                          | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | 1.288                  | N/A                          | Pass    |
| NVNT      | 2-DH5 | 2441            | Ant1    | 1.288                  | N/A                          | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | 1.288                  | N/A                          | Pass    |

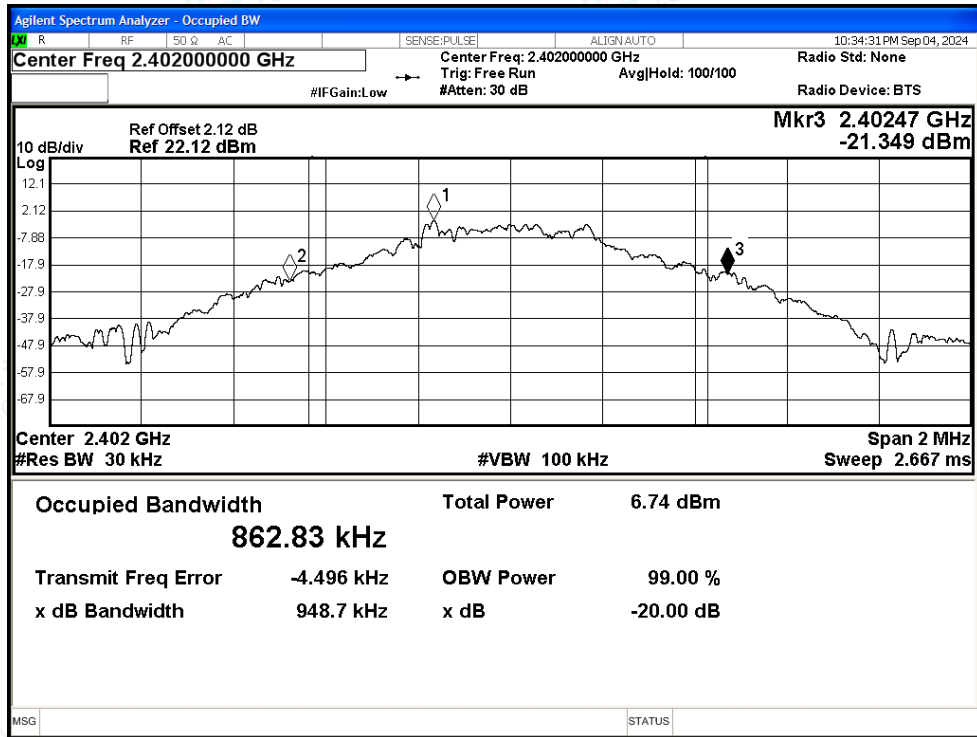


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Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1

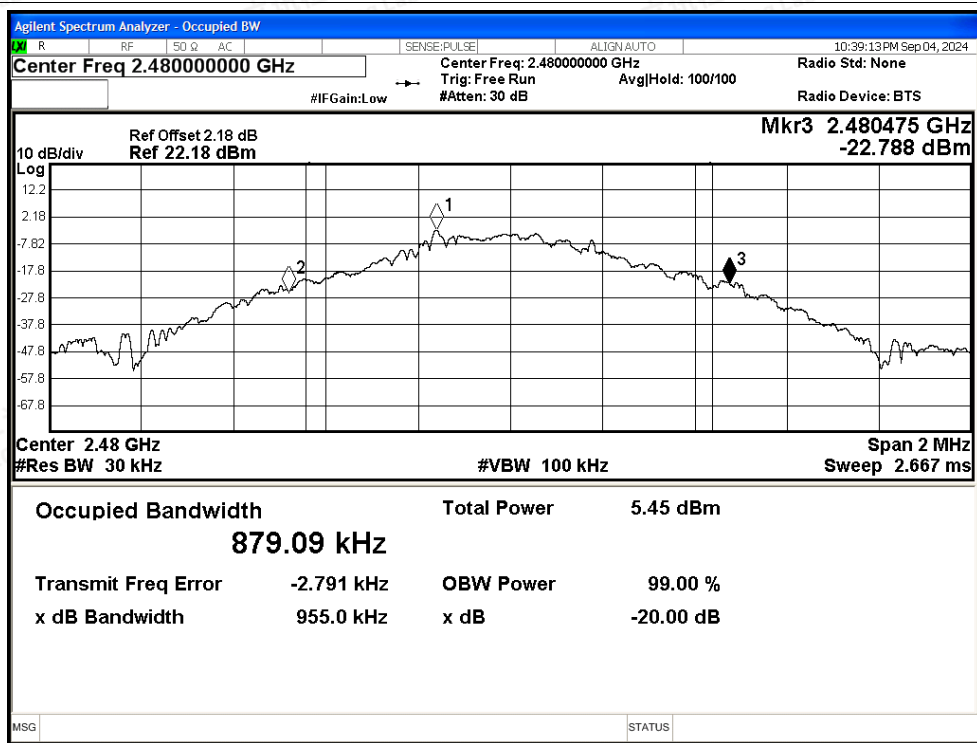


-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1





-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1

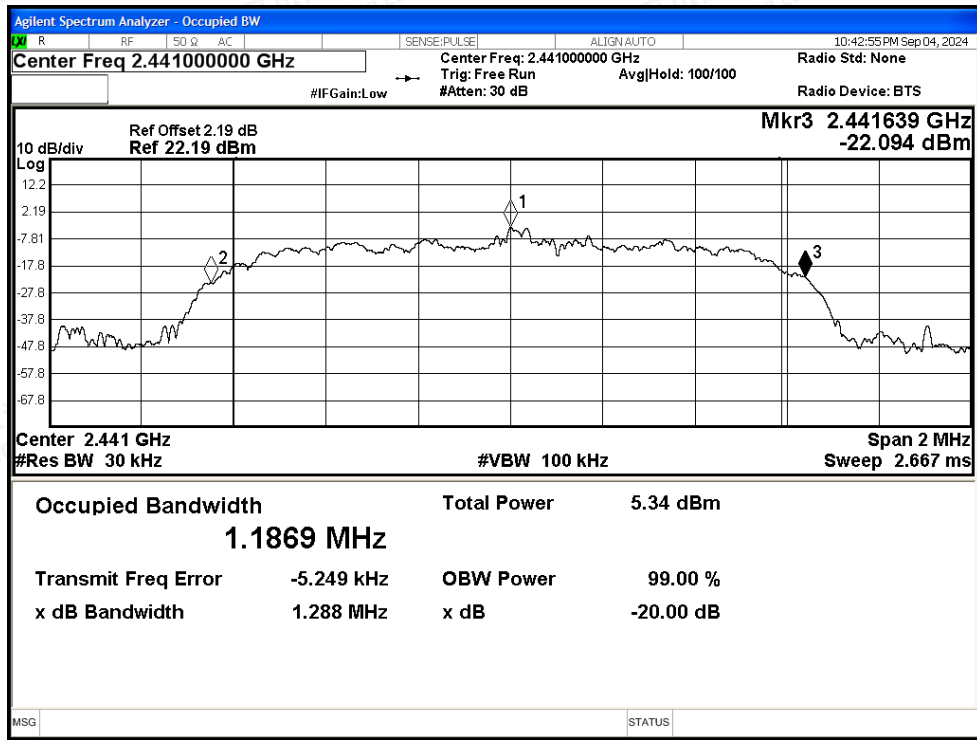


-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1

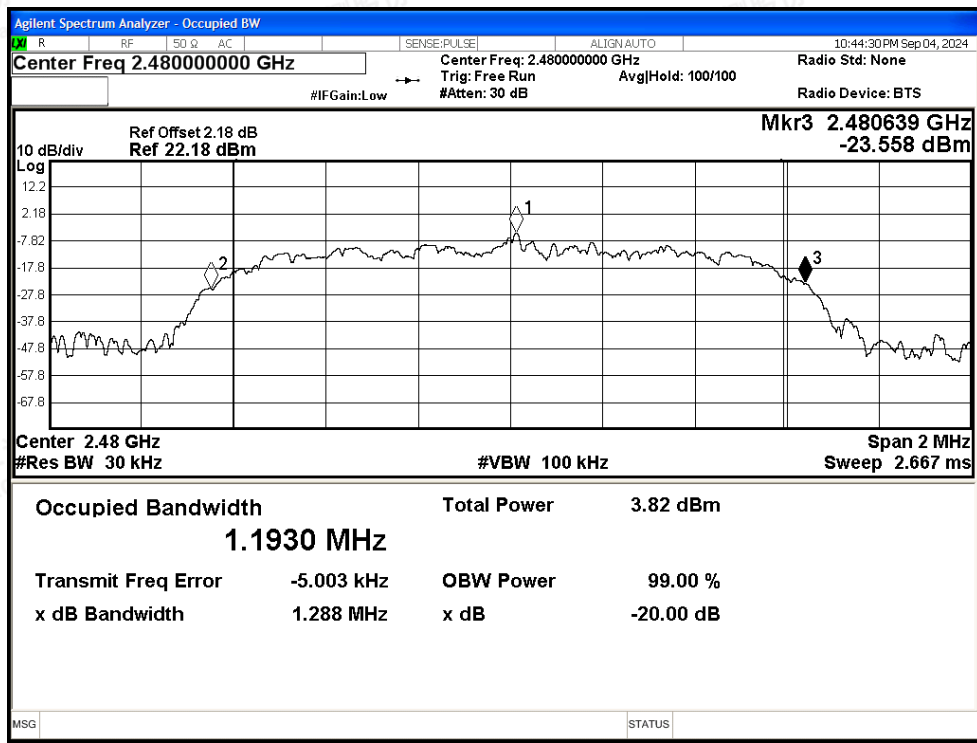




-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1



-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1





## A.2 Maximum Peak Conducted Output Power

| Condition | Mode  | Frequency (MHz) | Antenna | Conducted Power (dBm) | Limit (dBm) | Verdict |
|-----------|-------|-----------------|---------|-----------------------|-------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant1    | 0.13                  | 21          | Pass    |
| NVNT      | 1-DH5 | 2441            | Ant1    | -0.1                  | 21          | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | -0.92                 | 21          | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | 0.58                  | 21          | Pass    |
| NVNT      | 2-DH5 | 2441            | Ant1    | 0.98                  | 21          | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | -0.3                  | 21          | Pass    |

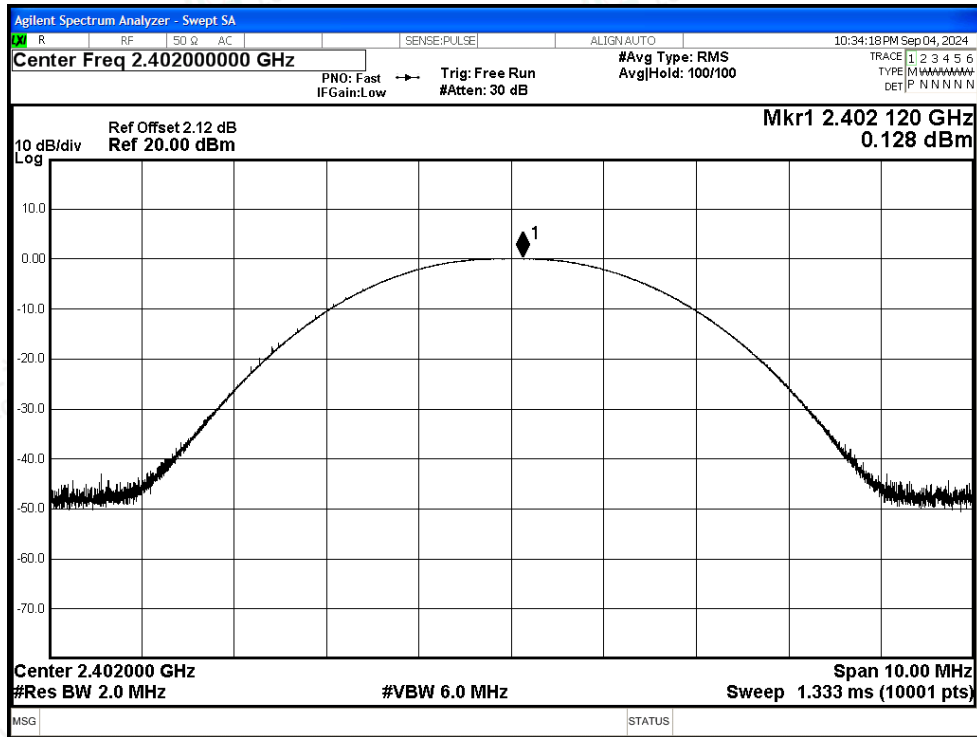


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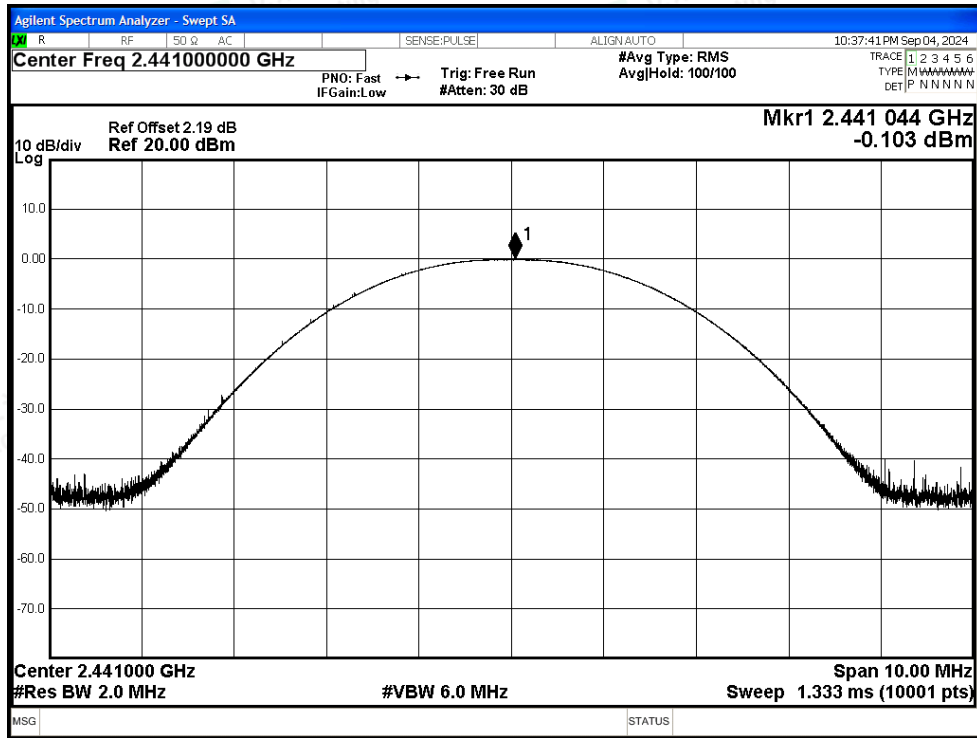


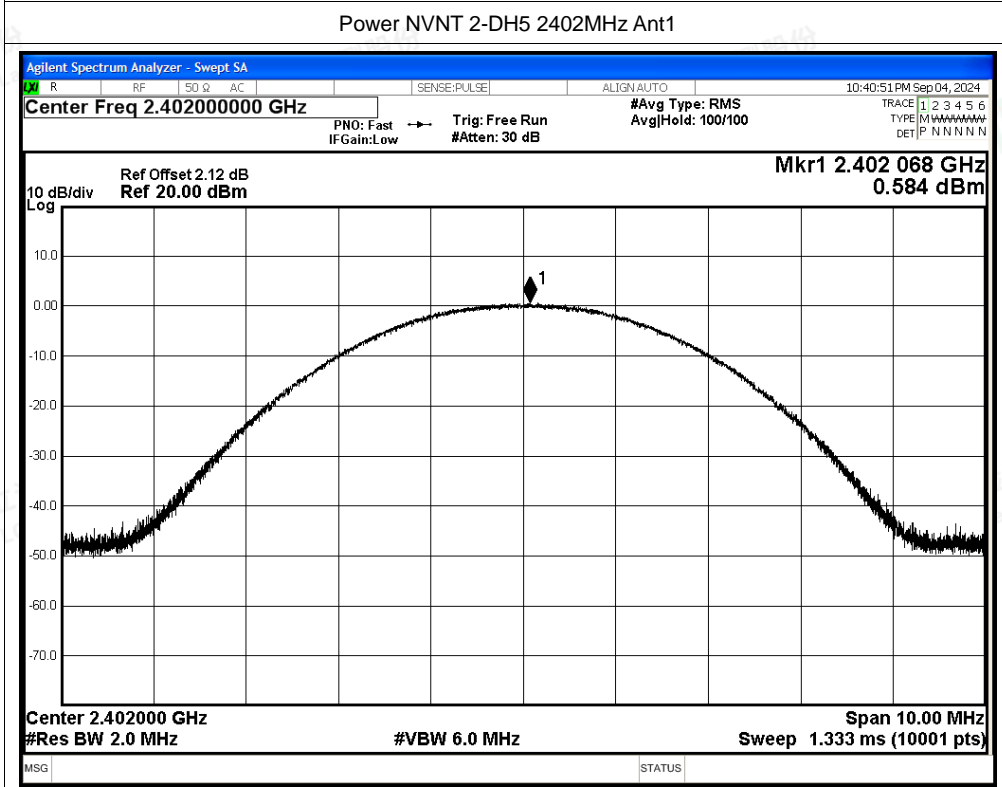
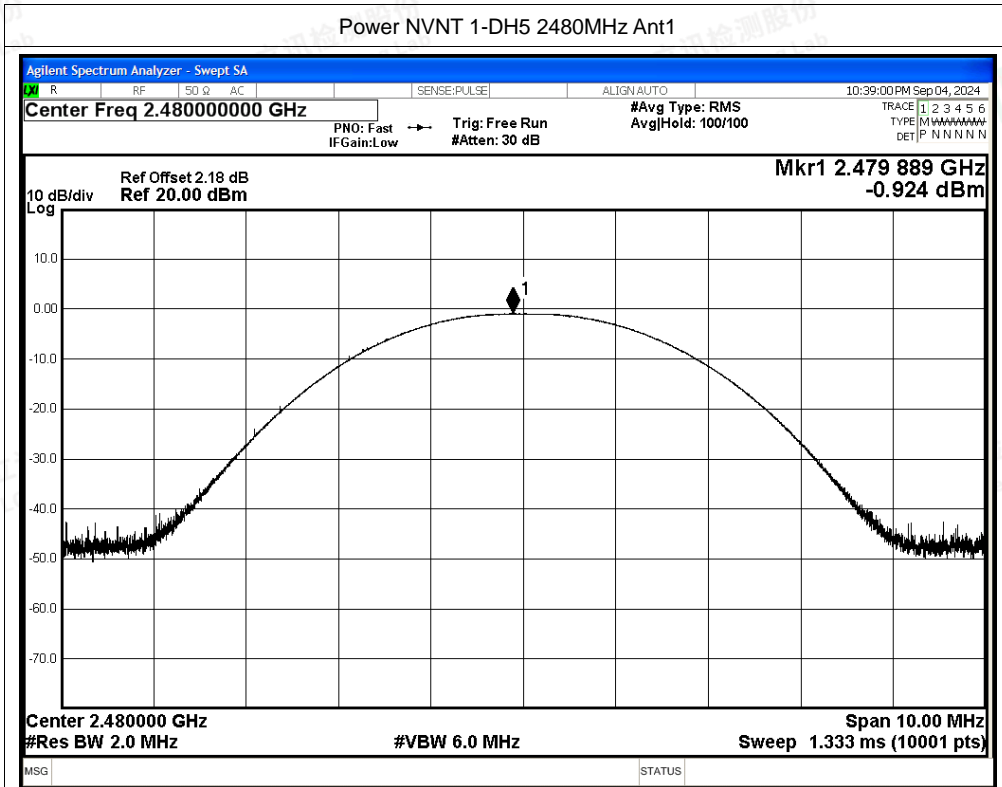
Test Graphs

Power NVNT 1-DH5 2402MHz Ant1

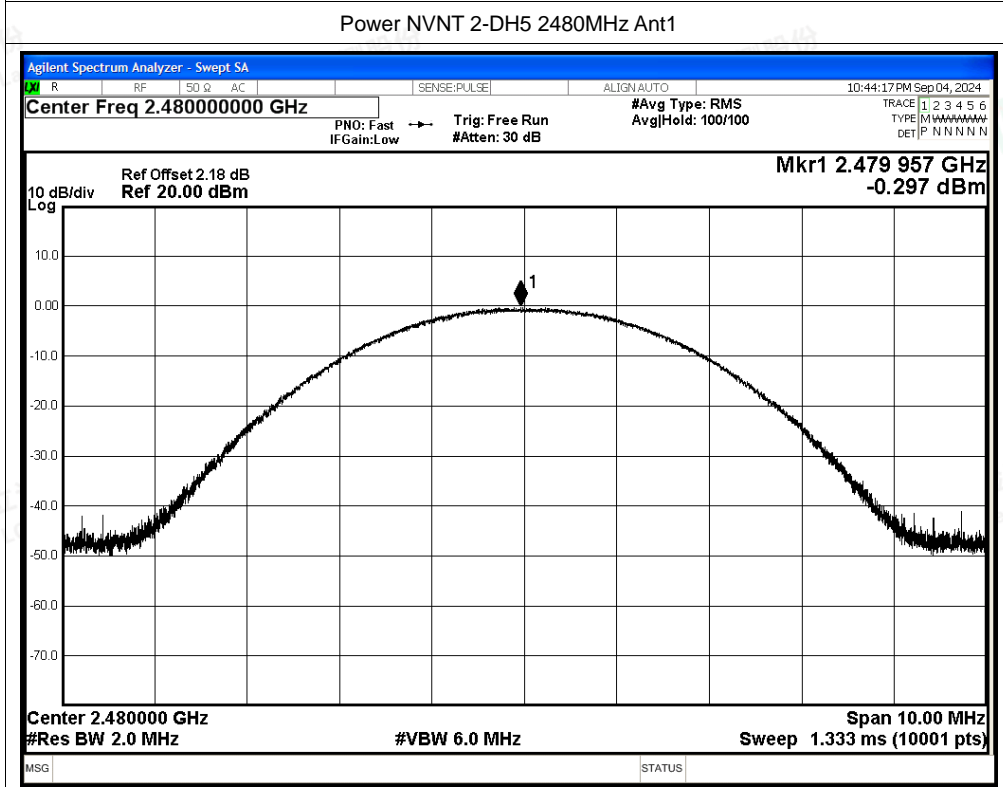
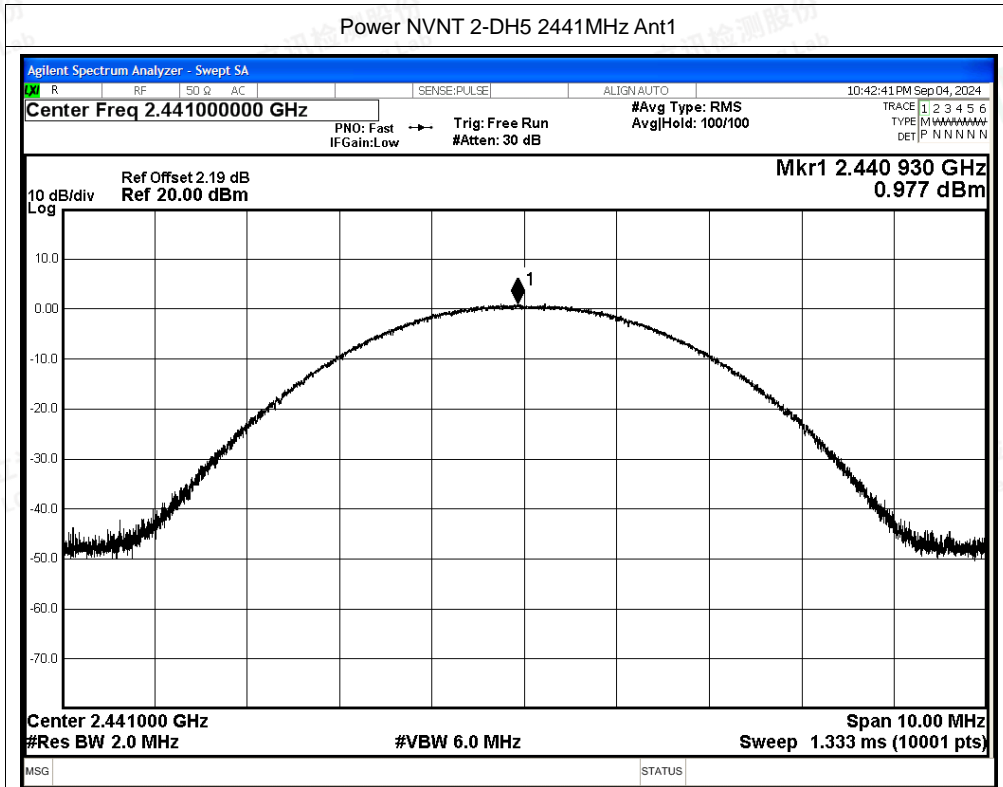


Power NVNT 1-DH5 2441MHz Ant1











### A.3 Carrier Frequencies Separation

| Condition | Mode  | Antenna | Hopping Freq1 (MHz) | Hopping Freq2 (MHz) | HFS (MHz) | Limit (MHz) | Verdict |
|-----------|-------|---------|---------------------|---------------------|-----------|-------------|---------|
| NVNT      | 1-DH5 | Ant1    | 2402.16             | 2402.986            | 0.826     | 0.639       | Pass    |
| NVNT      | 2-DH5 | Ant1    | 2402.152            | 2403.012            | 0.86      | 0.859       | Pass    |

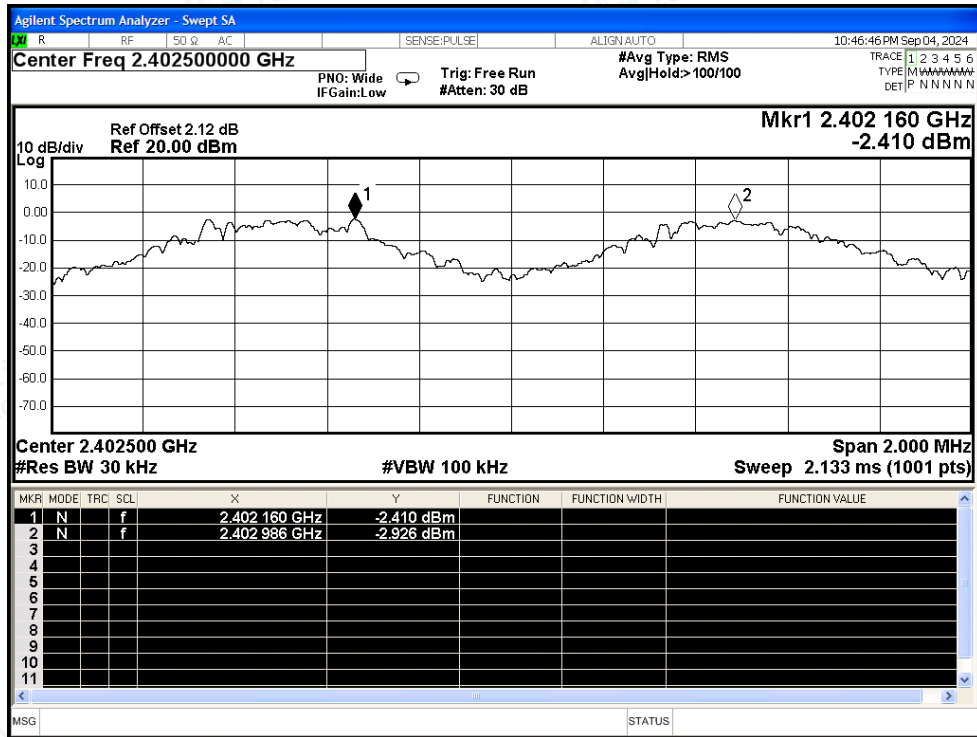


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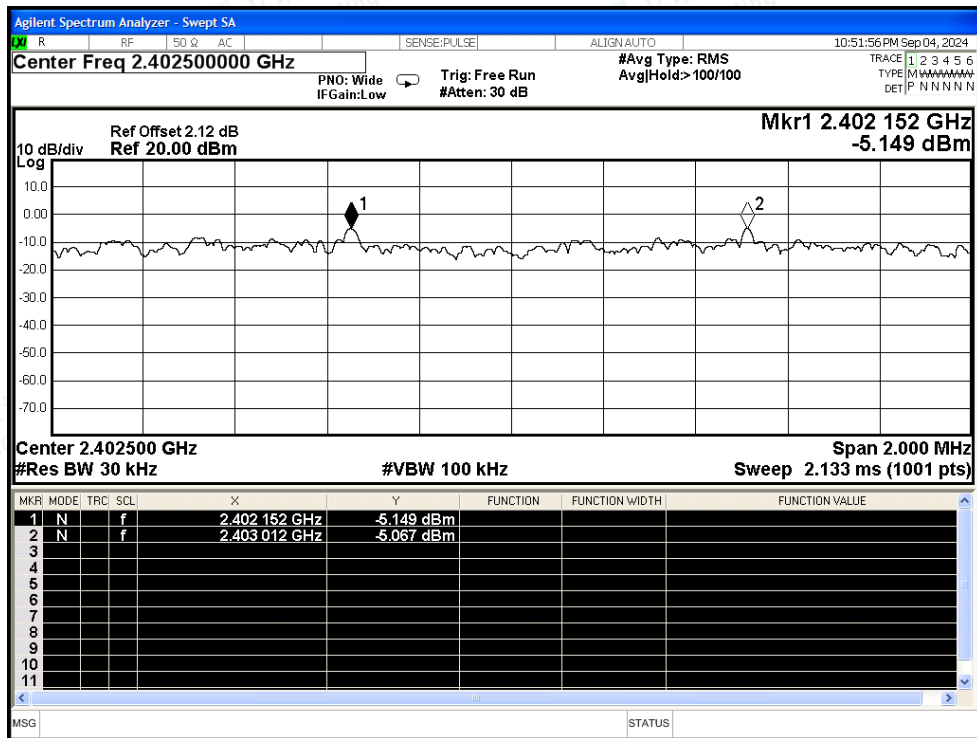


Test Graphs

CFS NVNT 1-DH5 2402MHz Ant1



CFS NVNT 2-DH5 2402MHz Ant1





### A.4 Dwell Time

| Condition | Mode  | Frequency (MHz) | Antenna | Pulse Time (ms) | Total Dwell Time (ms) | Burst Count | Period Time (ms) | Limit (ms) | Verdict |
|-----------|-------|-----------------|---------|-----------------|-----------------------|-------------|------------------|------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant1    | 2.91            | 320.1                 | 110         | 31600            | 400        | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | 2.898           | 318.78                | 110         | 31600            | 400        | Pass    |

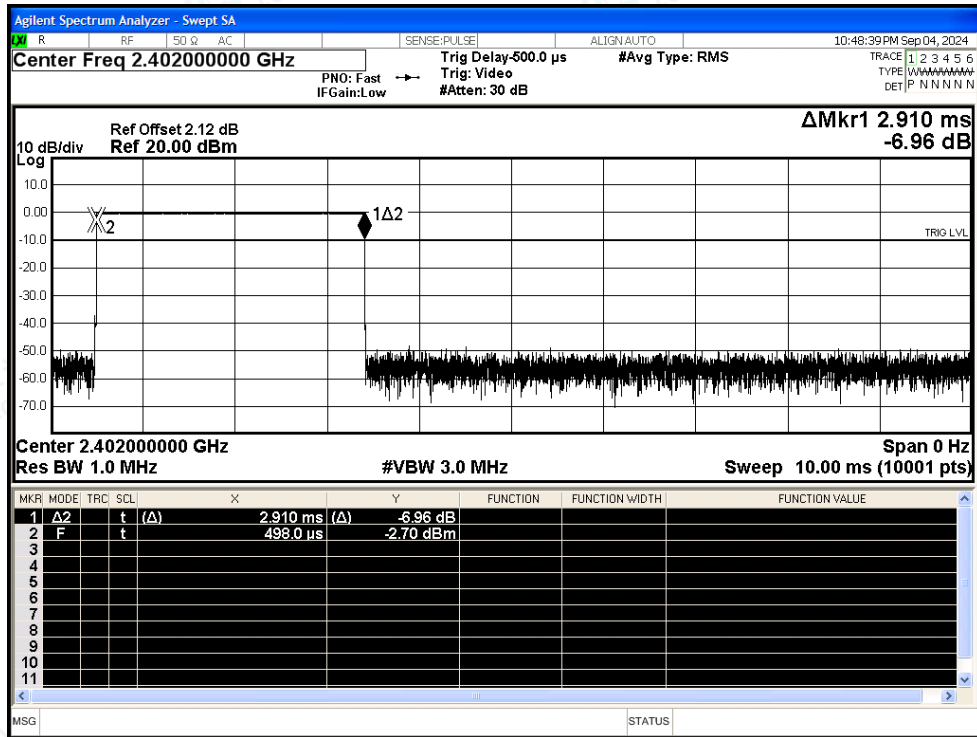


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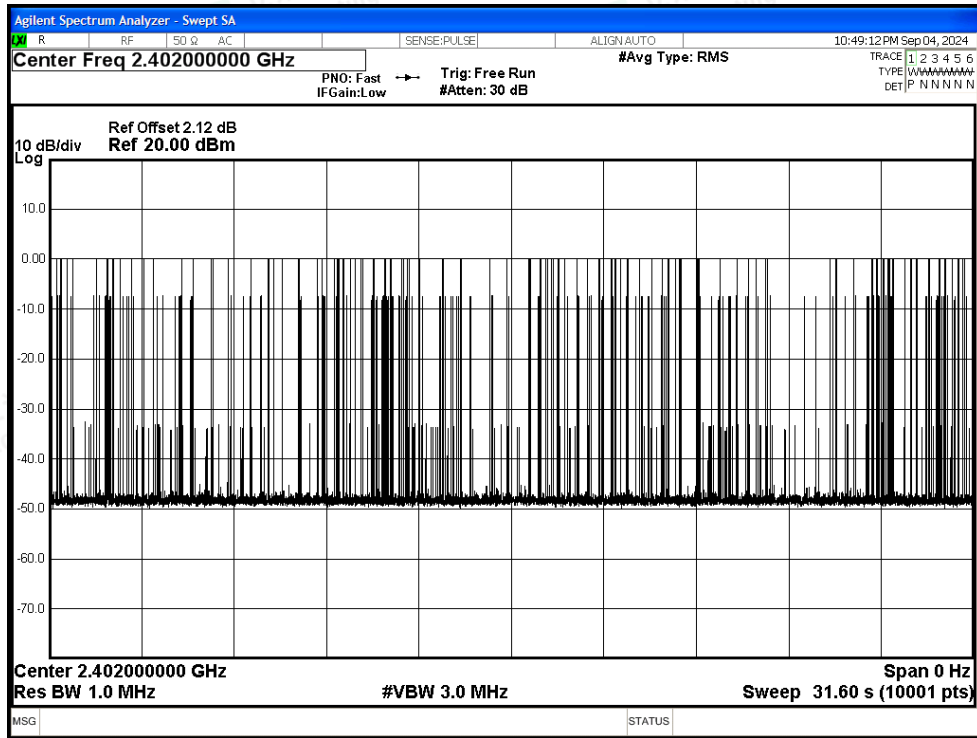


Test Graphs

Dwell NVNT 1-DH5 2402MHz Ant1 One Burst

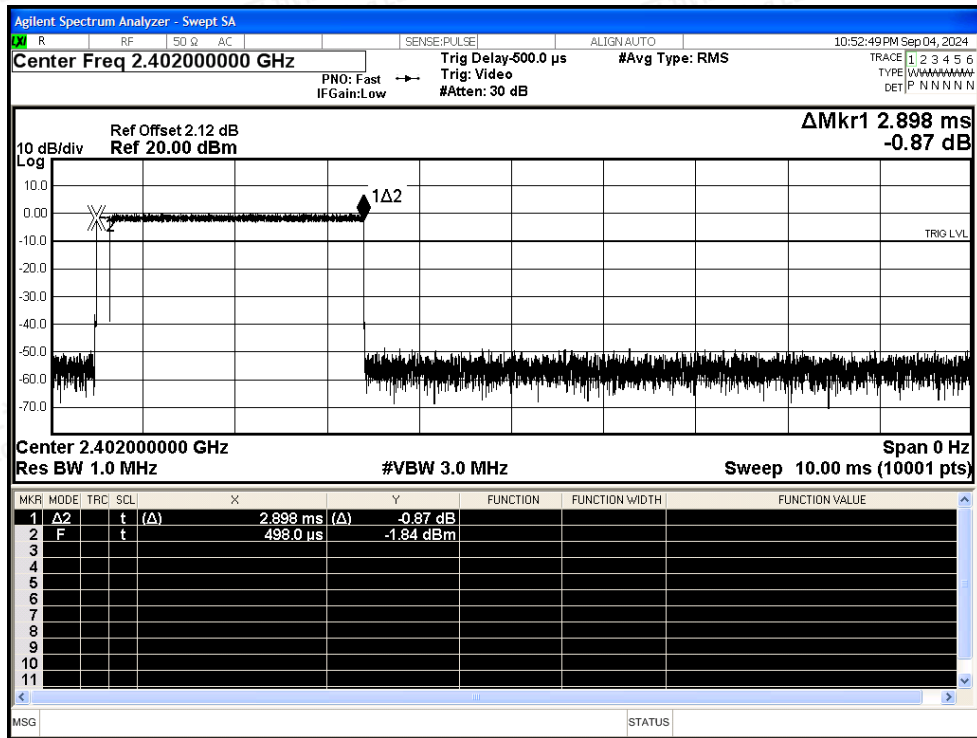


Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated

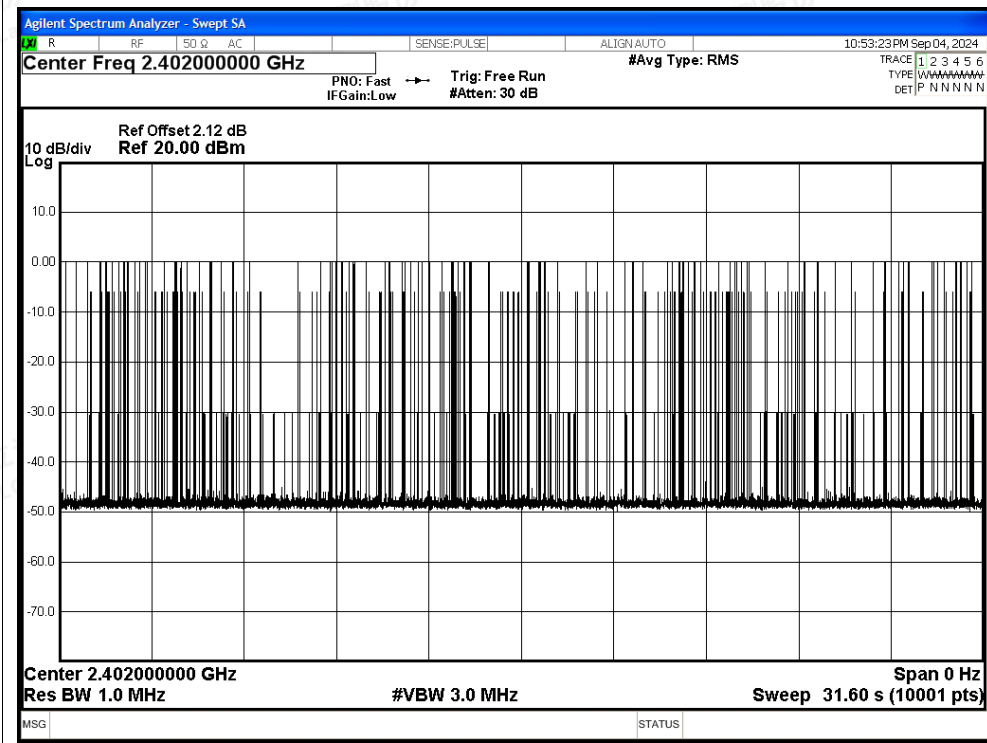




Dwell NVNT 2-DH5 2402MHz Ant1 One Burst



Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated





## A.5 Number of Hopping Channel

| Condition | Mode  | Antenna | Hopping Number | Limit | Verdict |
|-----------|-------|---------|----------------|-------|---------|
| NVNT      | 1-DH5 | Ant1    | 79             | 15    | Pass    |
| NVNT      | 2-DH5 | Ant1    | 79             | 15    | Pass    |

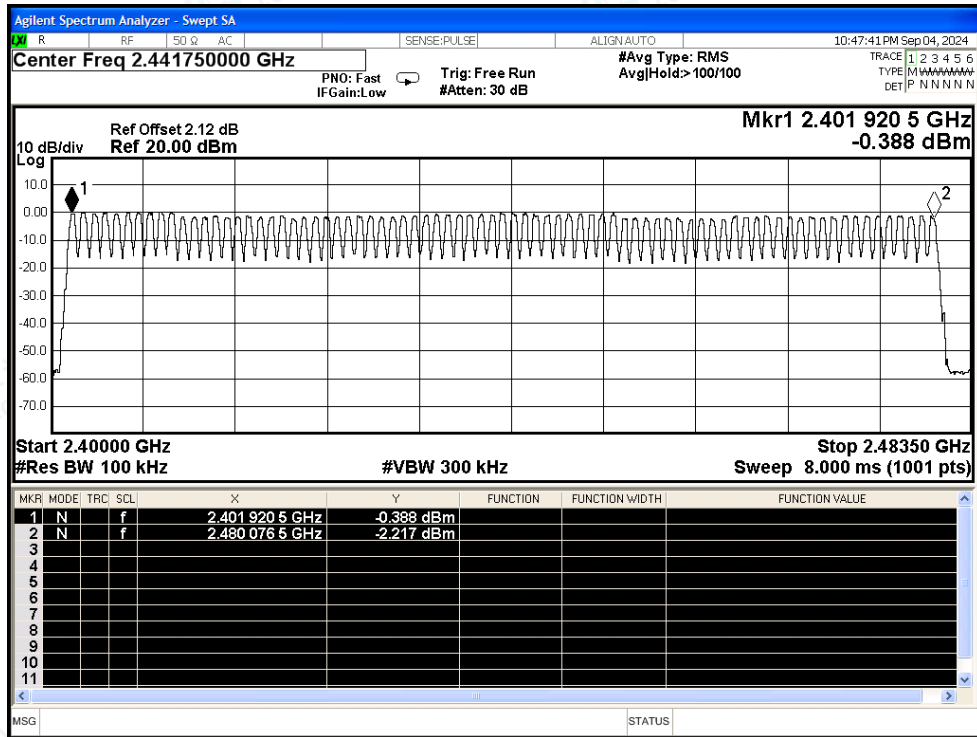


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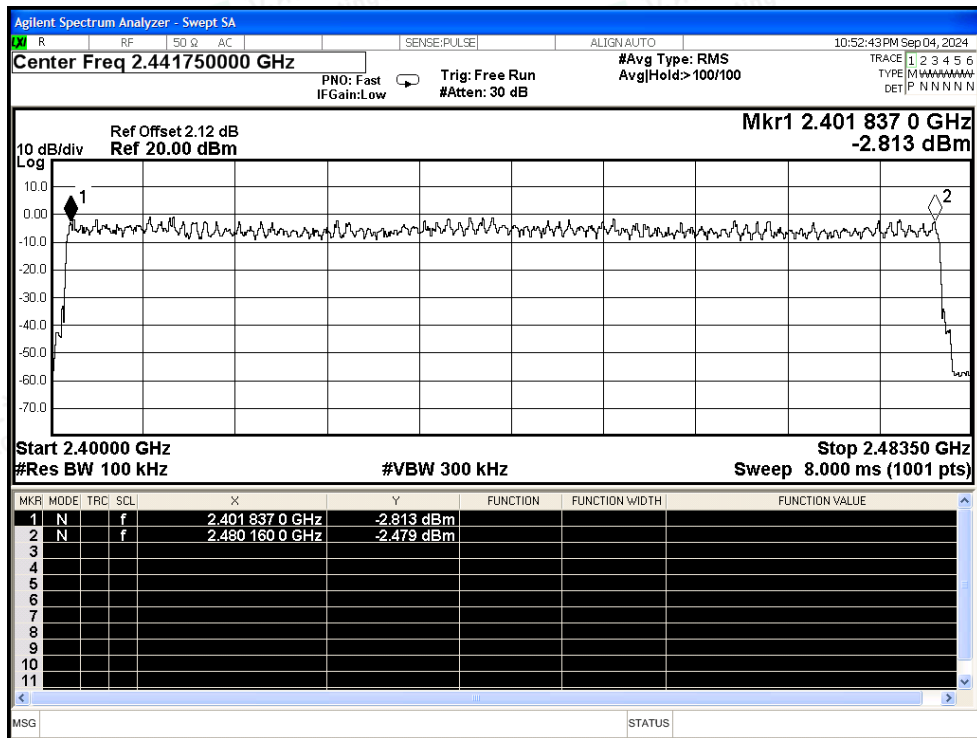


Test Graphs

Hopping No. NVNT 1-DH5 2402MHz Ant1



Hopping No. NVNT 2-DH5 2402MHz Ant1







## A.6 Band Edge

| Condition | Mode  | Frequency (MHz) | Antenna | Hopping Mode | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|-------|-----------------|---------|--------------|-----------------|-------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant1    | No-Hopping   | -55.82          | -20         | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | -54.87          | -20         | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | No-Hopping   | -54             | -20         | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | No-Hopping   | -53.38          | -20         | Pass    |

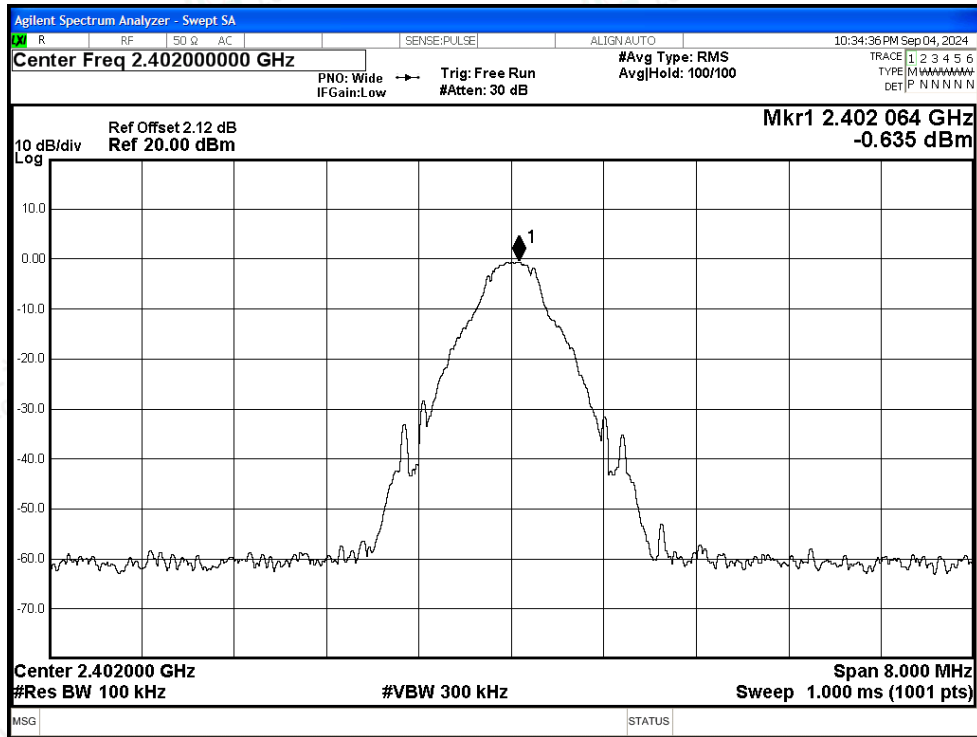


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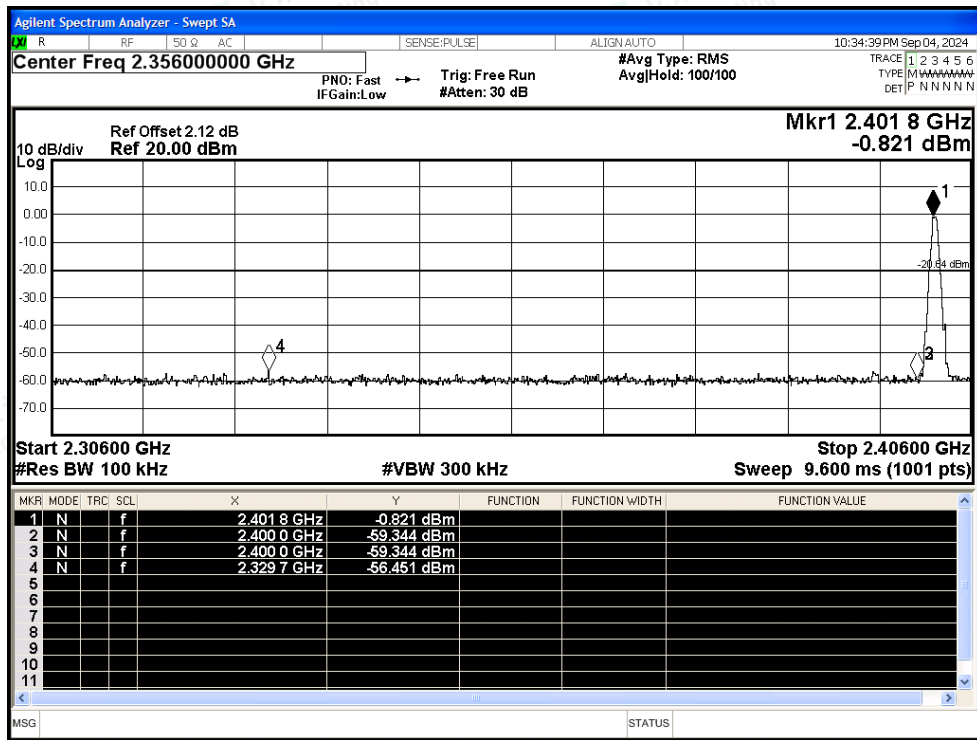


Test Graphs

Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Ref

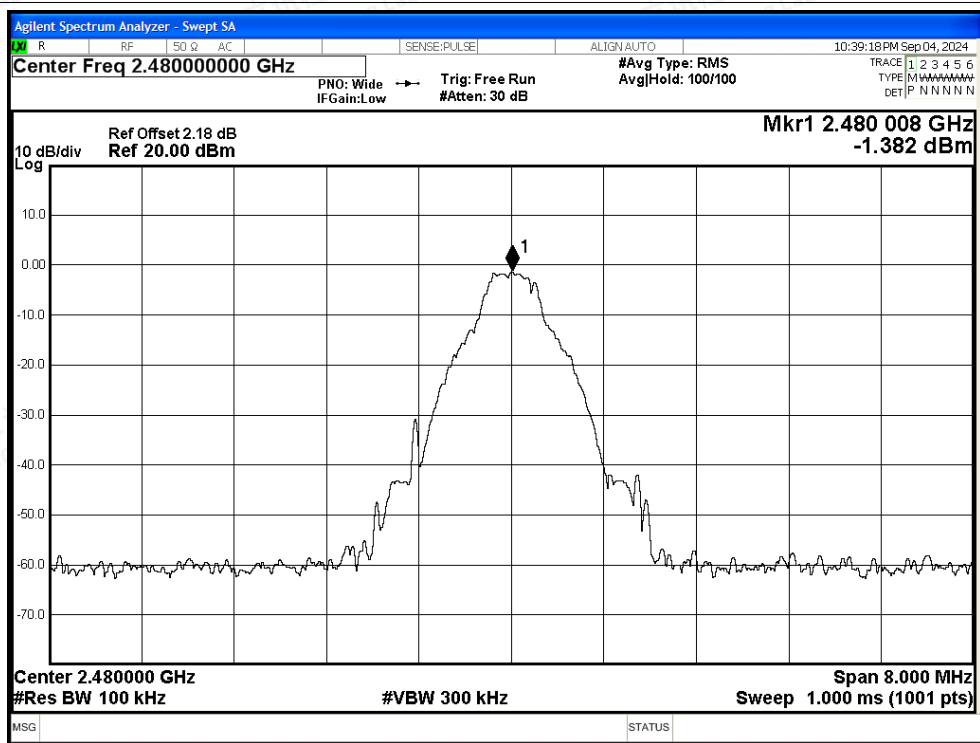


Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission

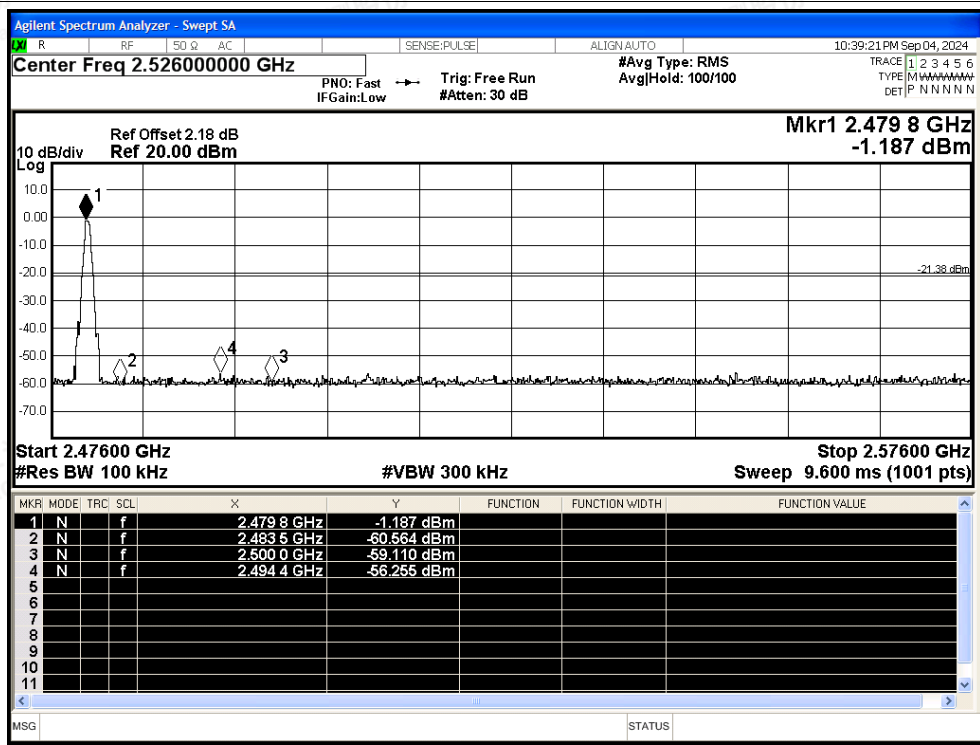




Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref

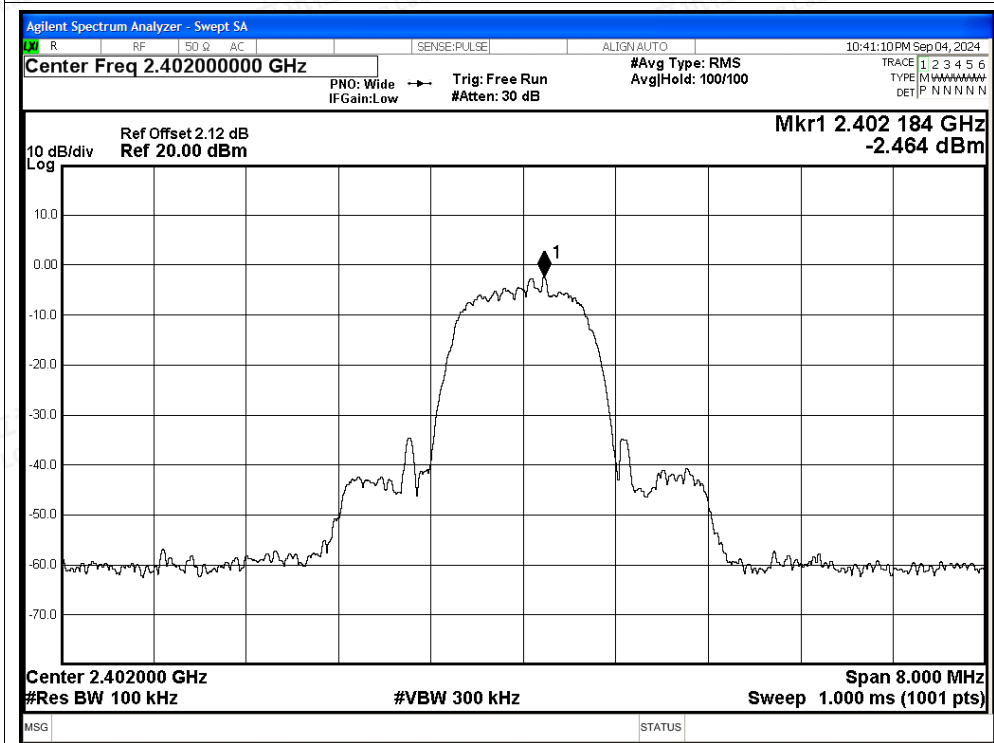


Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission

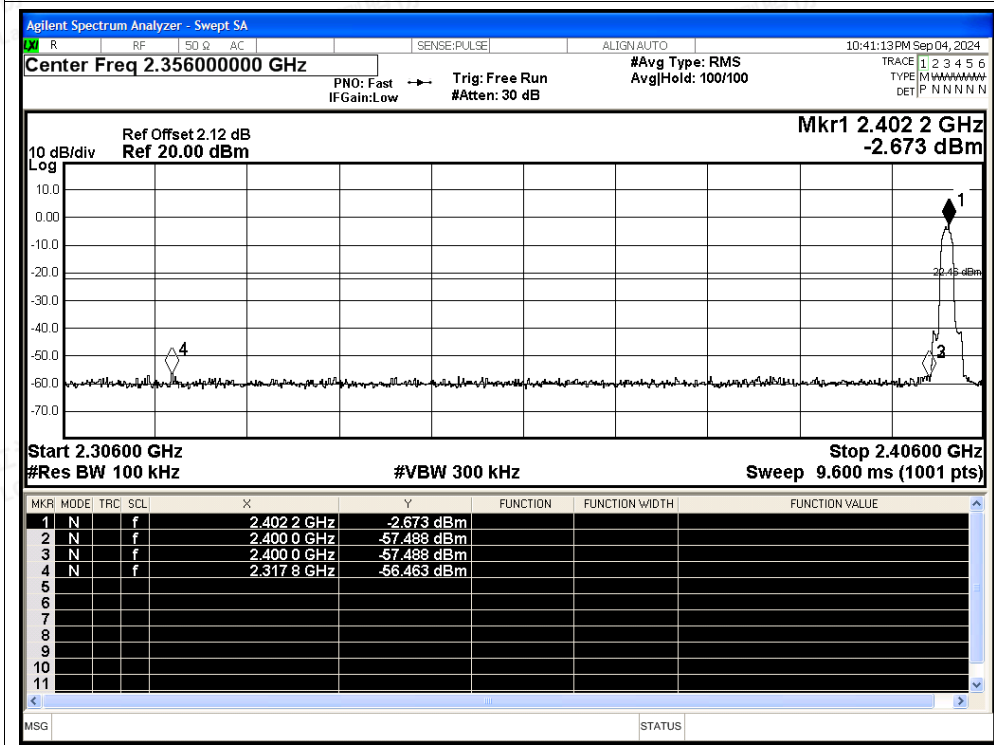




Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref

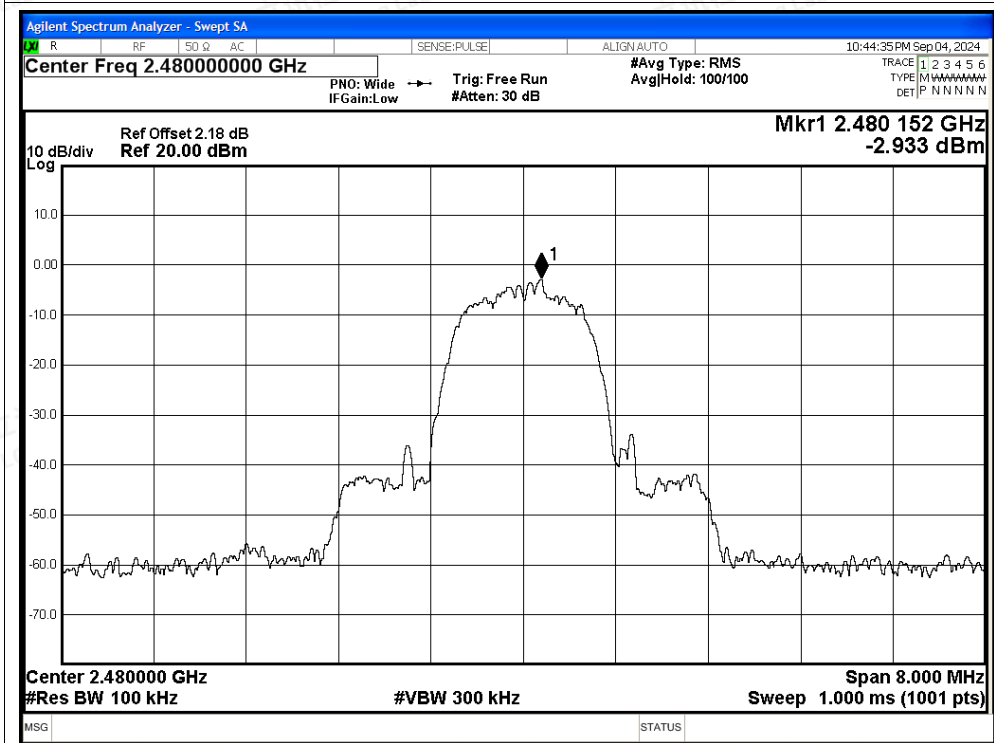


Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission

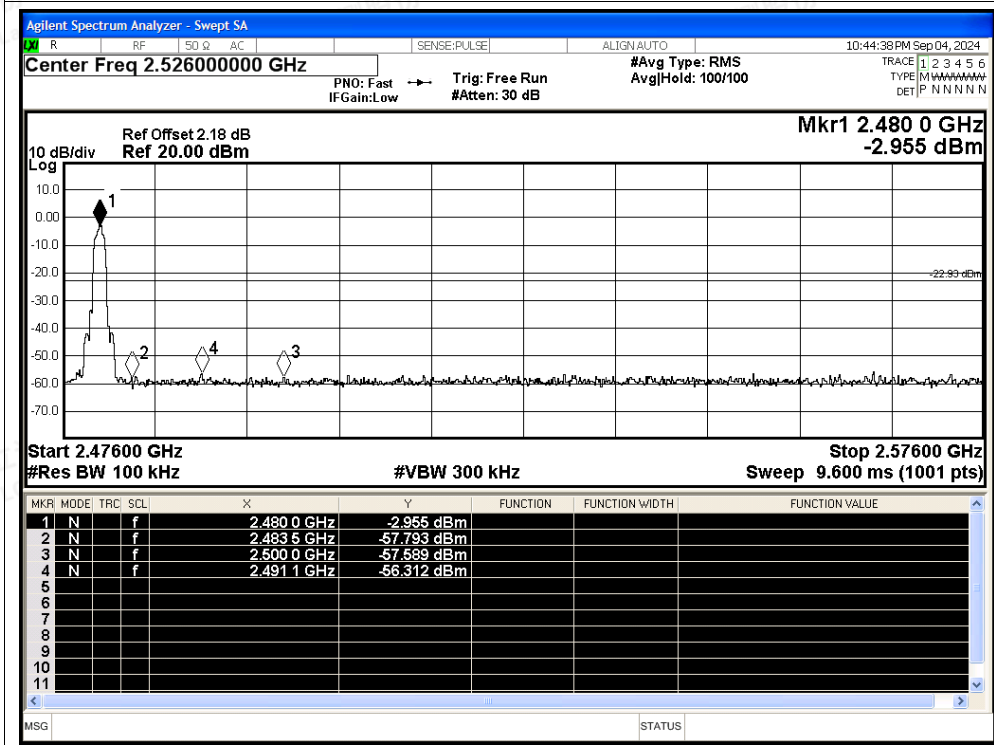




Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Ref



Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Emission





### (Hopping)

| Condition | Mode  | Frequency (MHz) | Antenna | Hopping Mode | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|-------|-----------------|---------|--------------|-----------------|-------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant1    | Hopping      | -56.02          | -20         | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | Hopping      | -54.11          | -20         | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | Hopping      | -55.09          | -20         | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | Hopping      | -54.05          | -20         | Pass    |

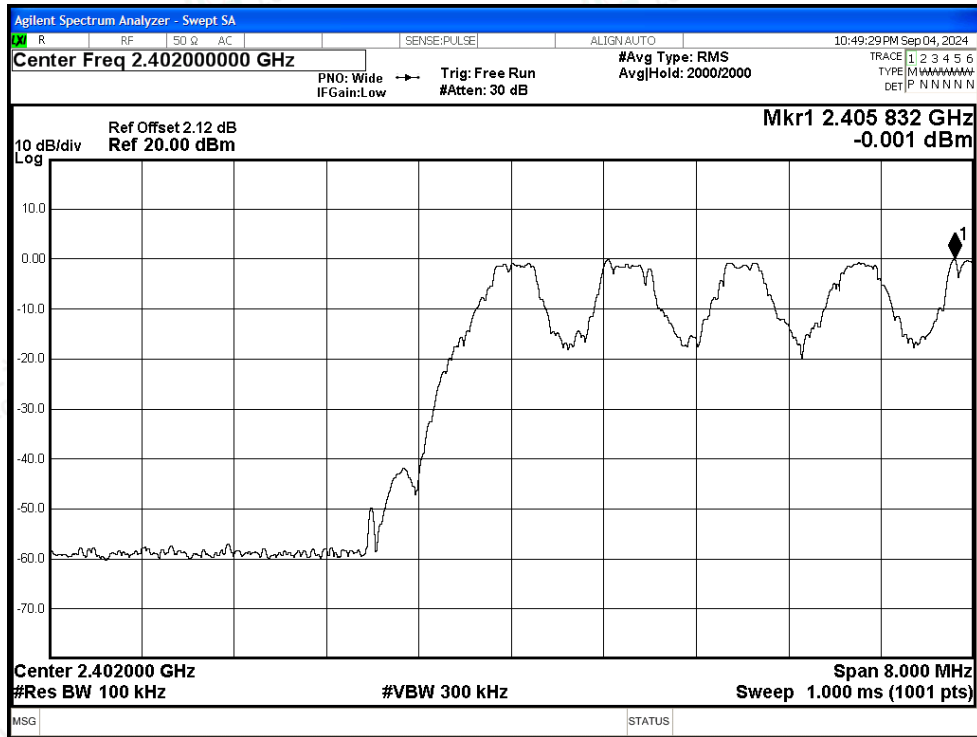


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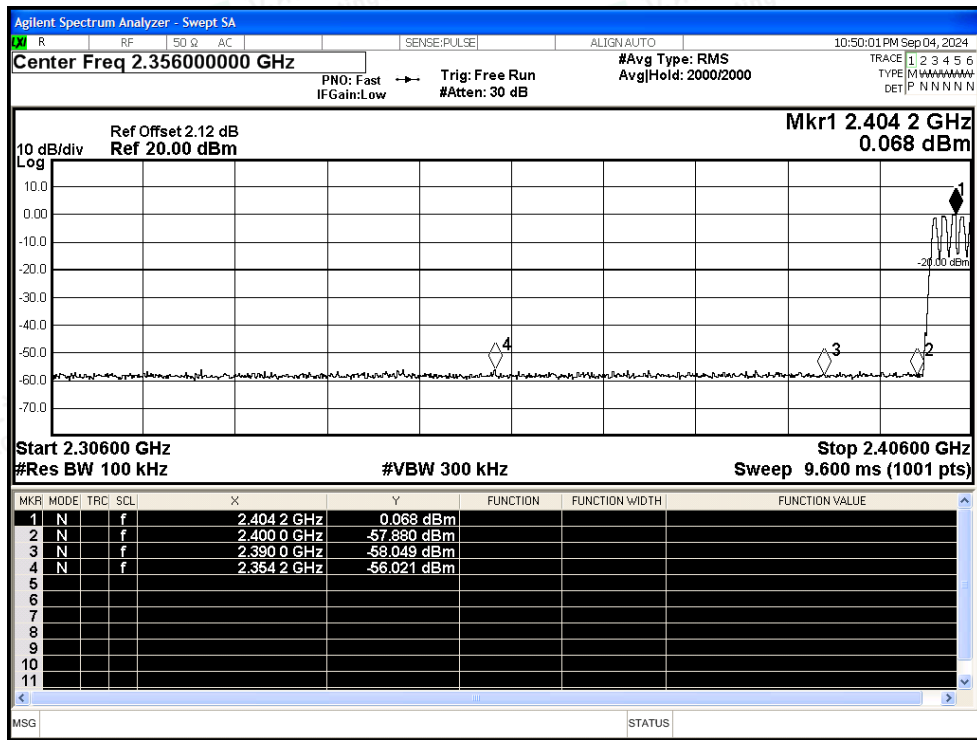


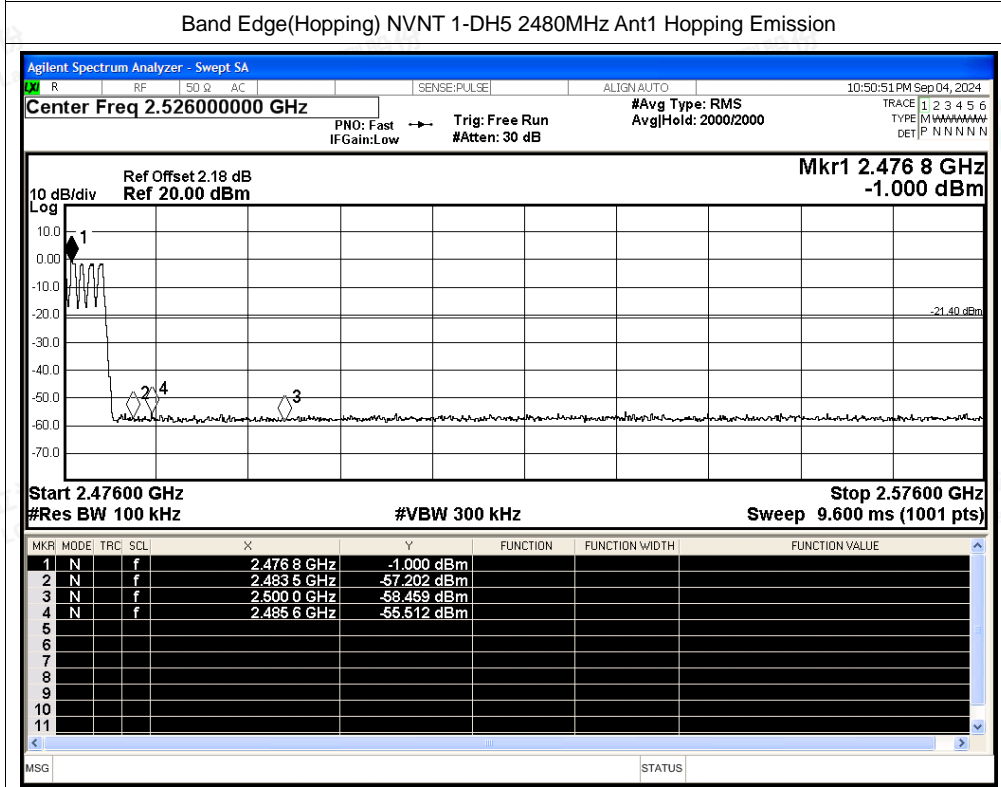
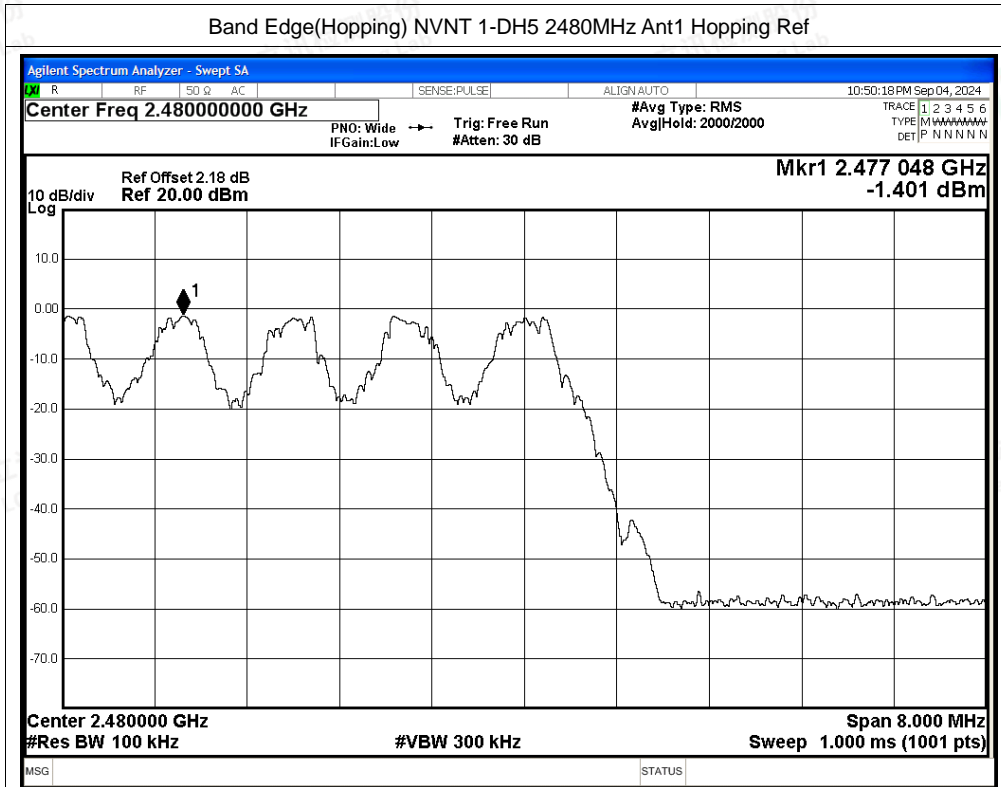
Test Graphs

Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Ref

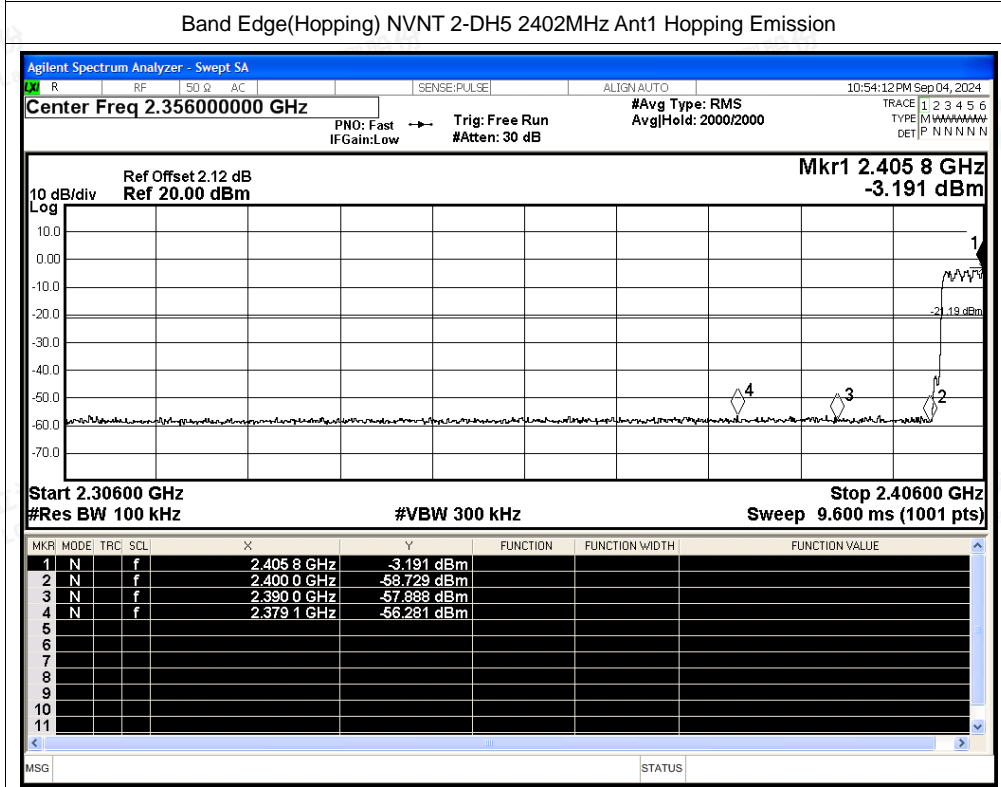
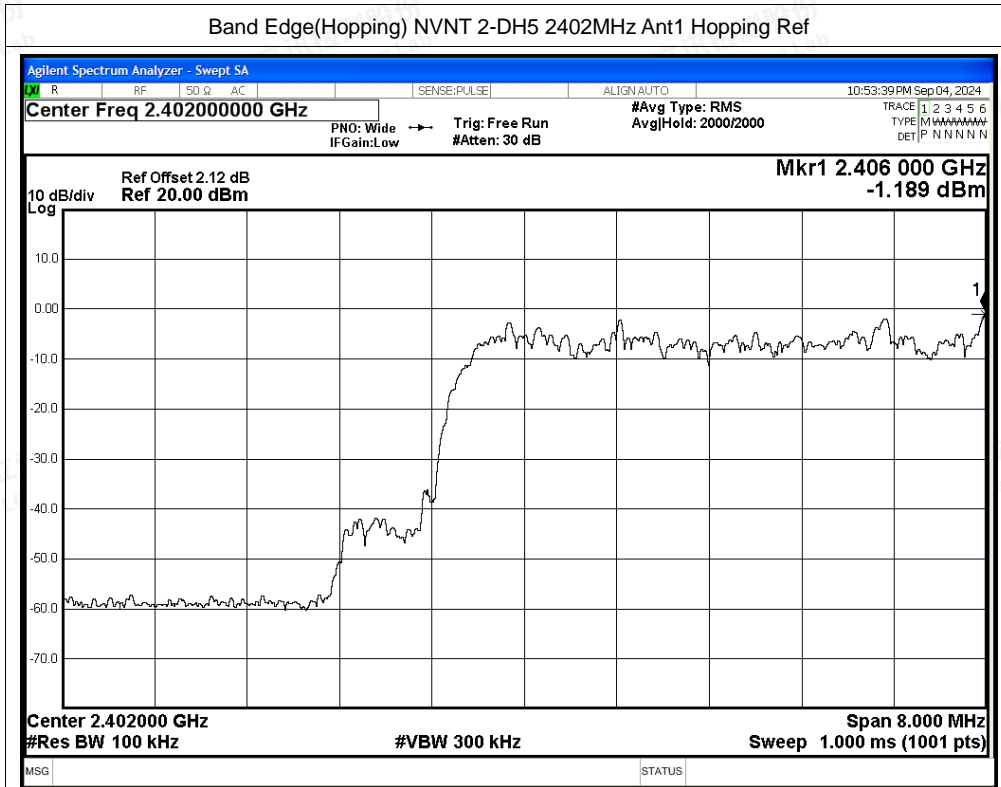


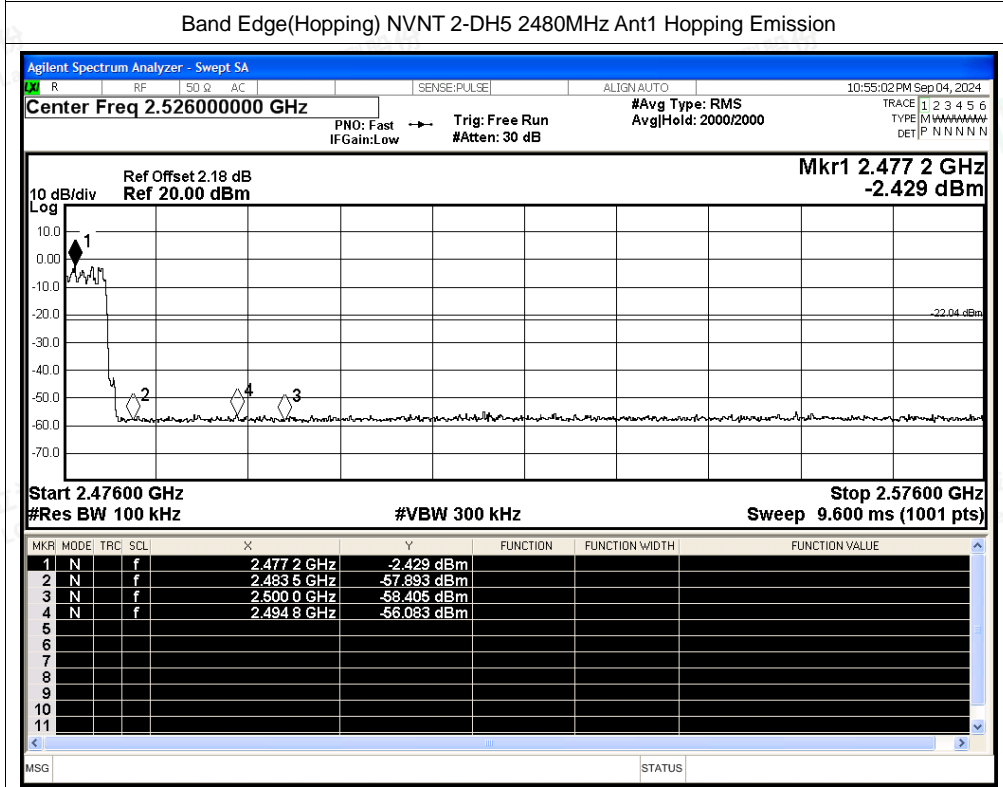
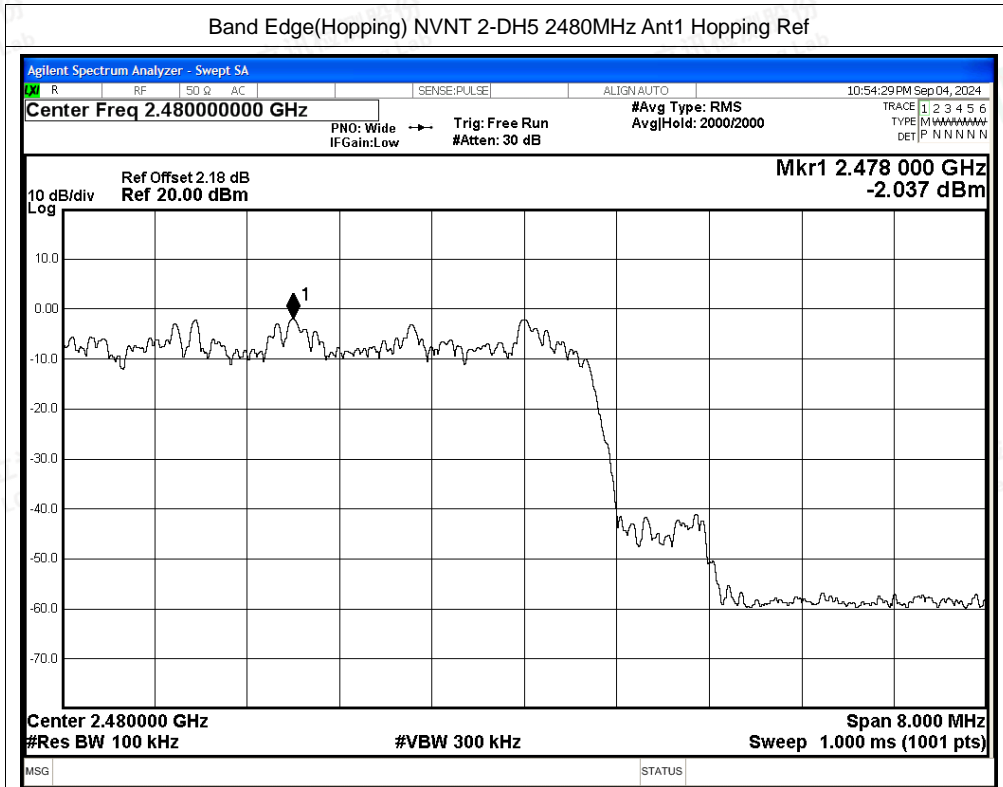
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission













## A.7 Conducted RF Spurious Emission

| Condition | Mode  | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|-------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | 1-DH5 | 2402            | Ant1    | -54.38          | -20         | Pass    |
| NVNT      | 1-DH5 | 2441            | Ant1    | -54.18          | -20         | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | -53.61          | -20         | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | -53.48          | -20         | Pass    |
| NVNT      | 2-DH5 | 2441            | Ant1    | -52.74          | -20         | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | -52.85          | -20         | Pass    |

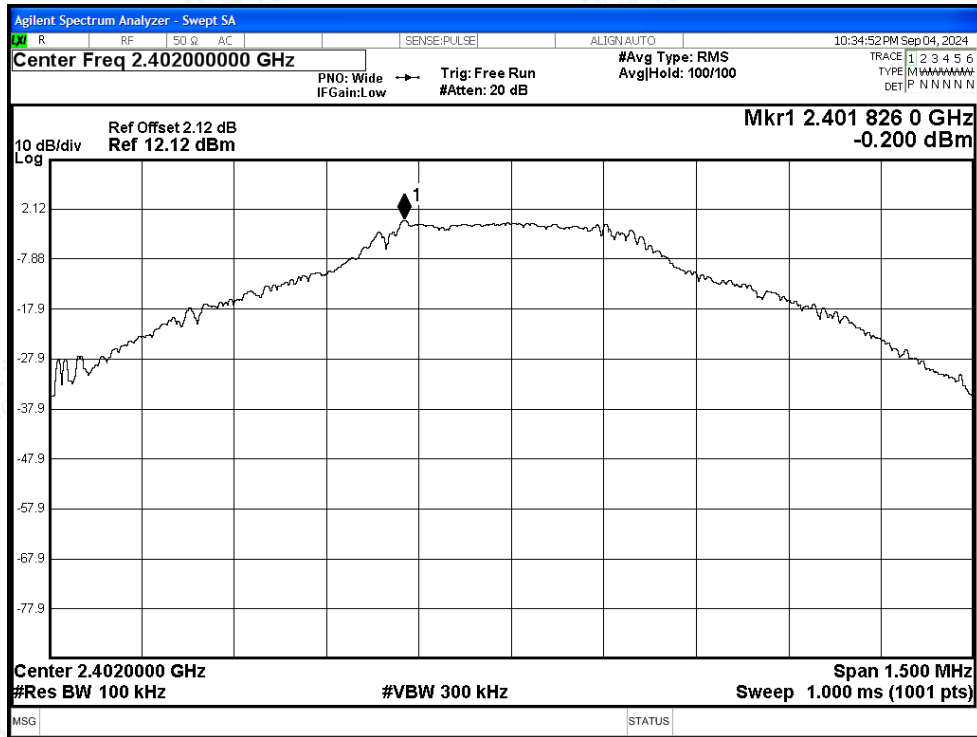


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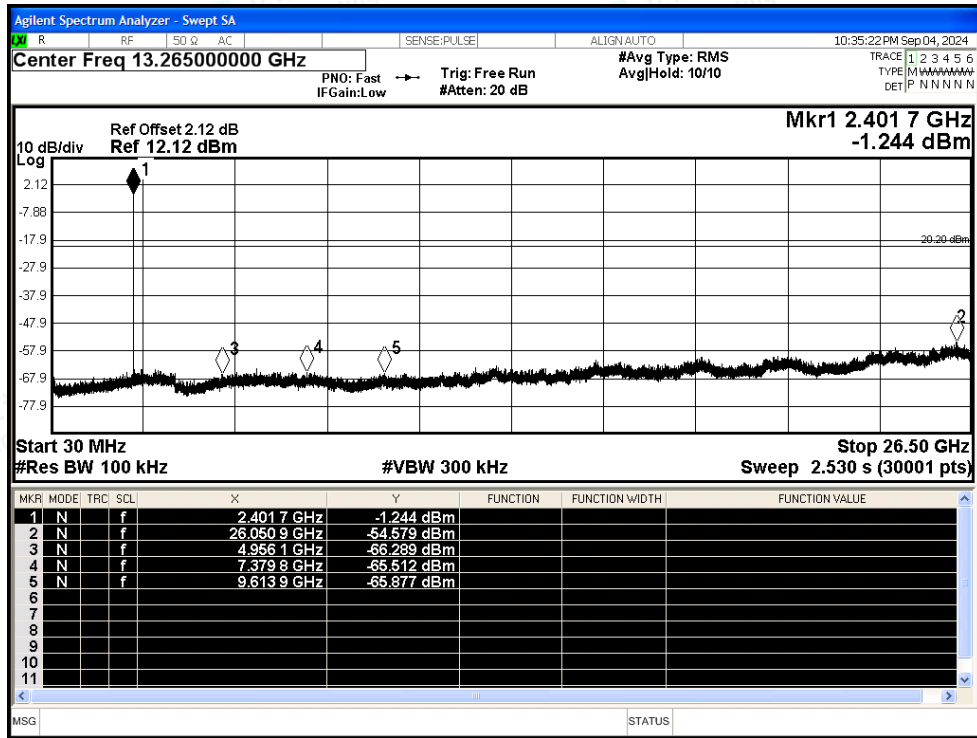


Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref

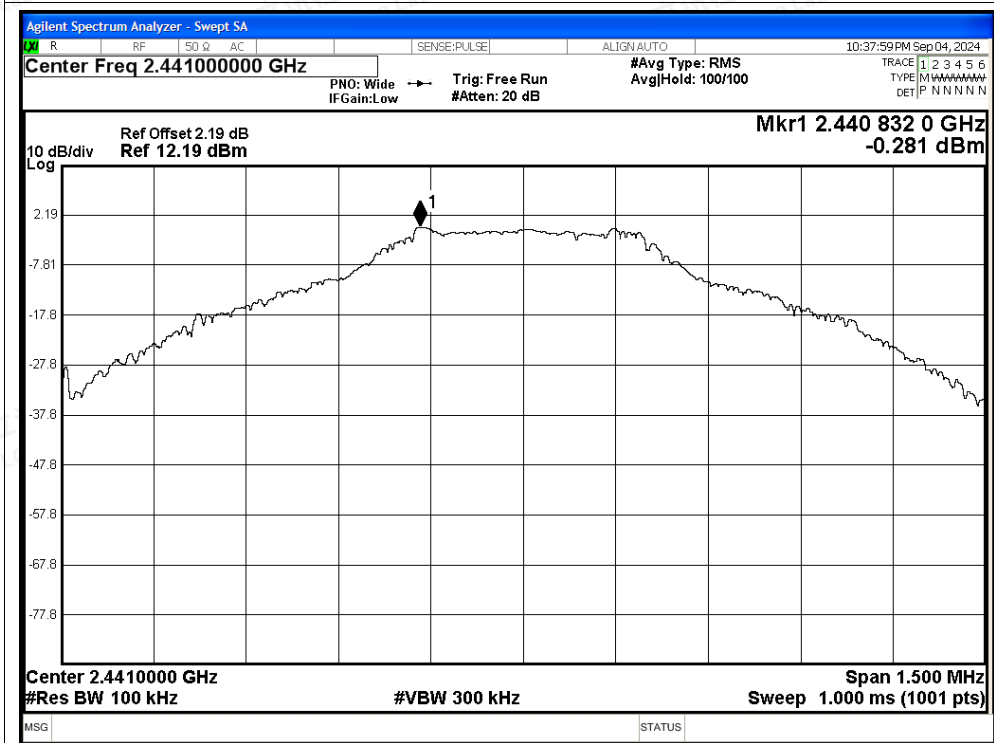


Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission

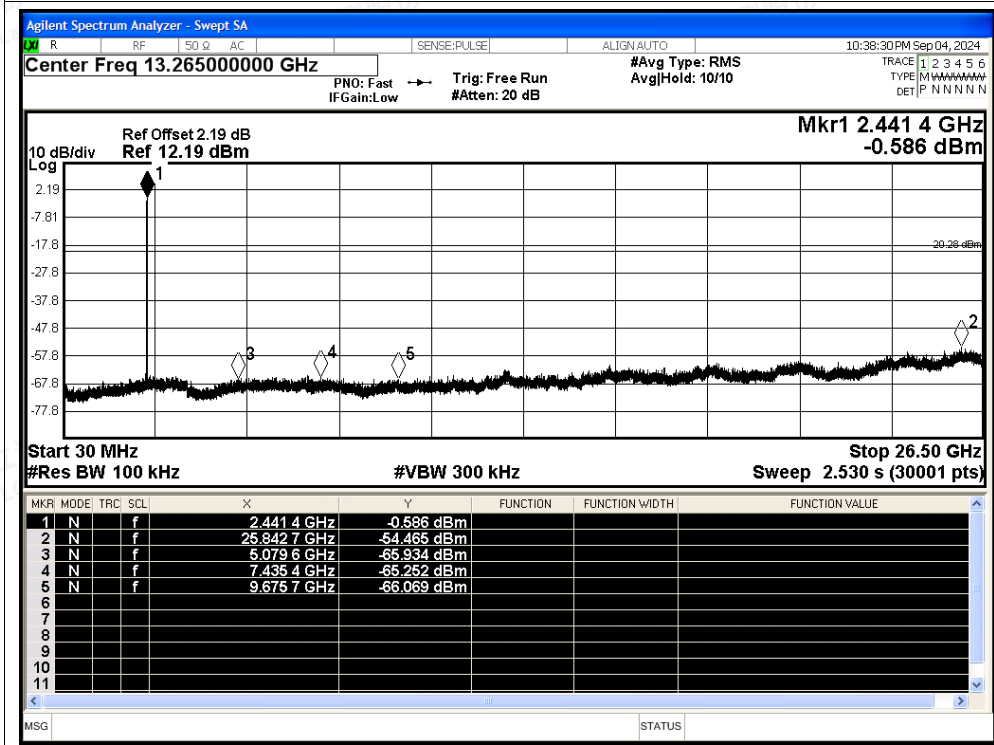




Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref

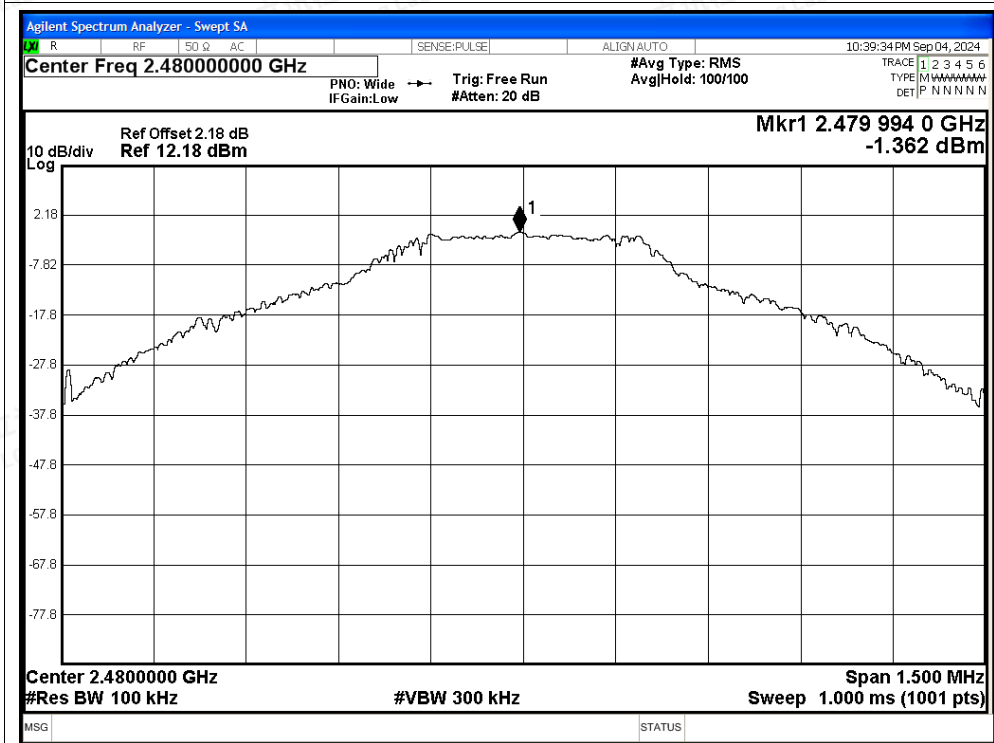


Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission

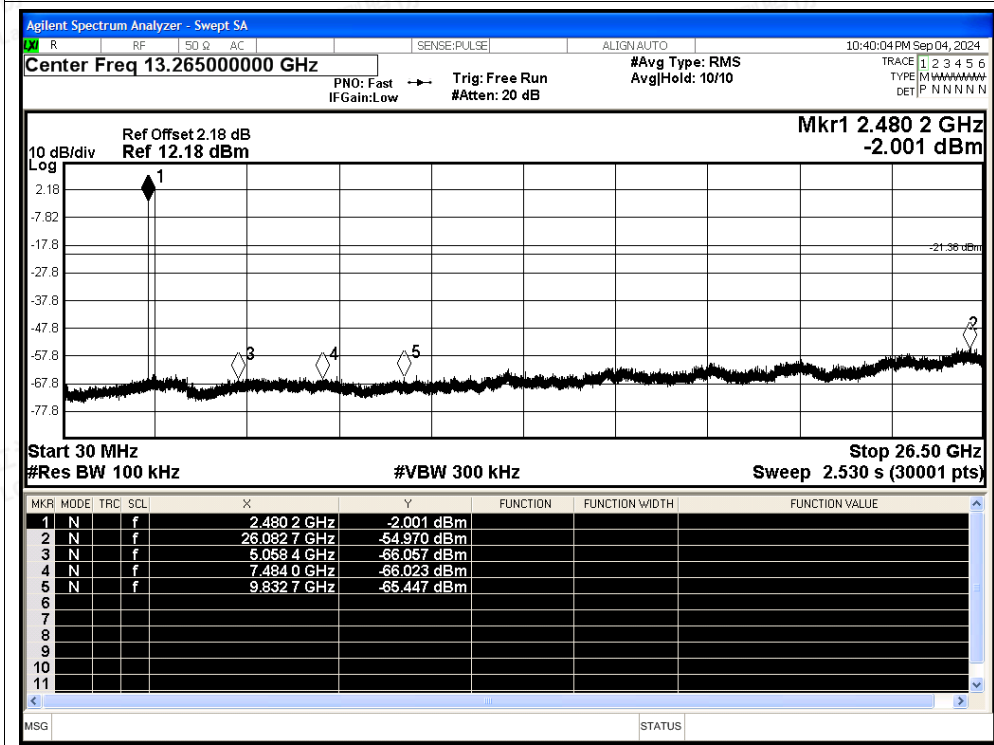




Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref

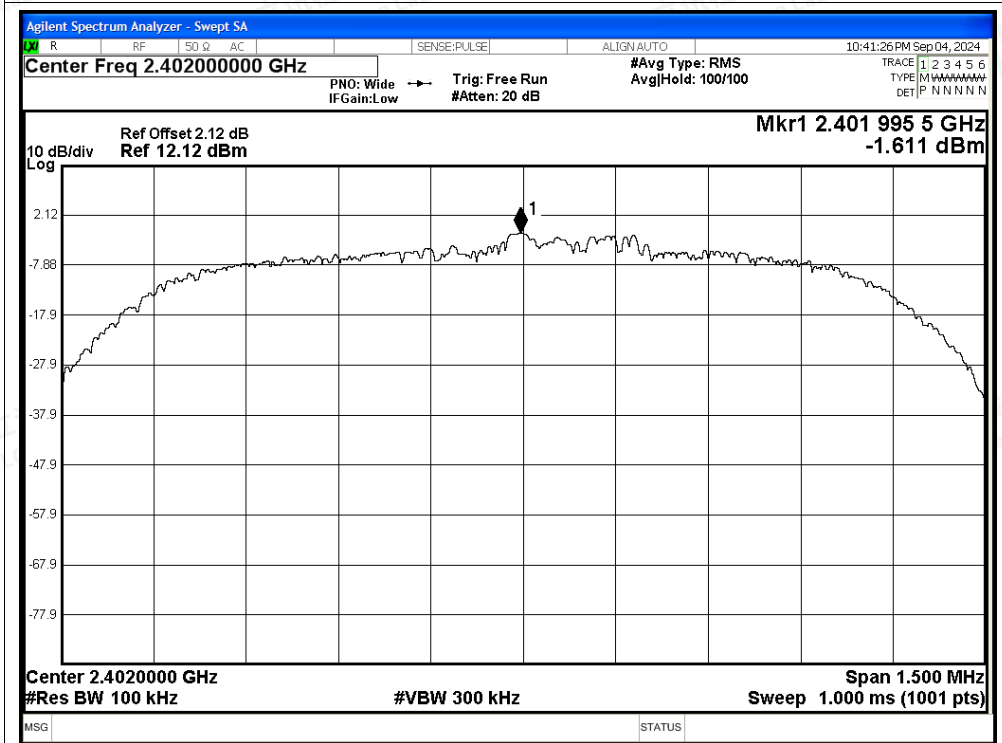


Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission

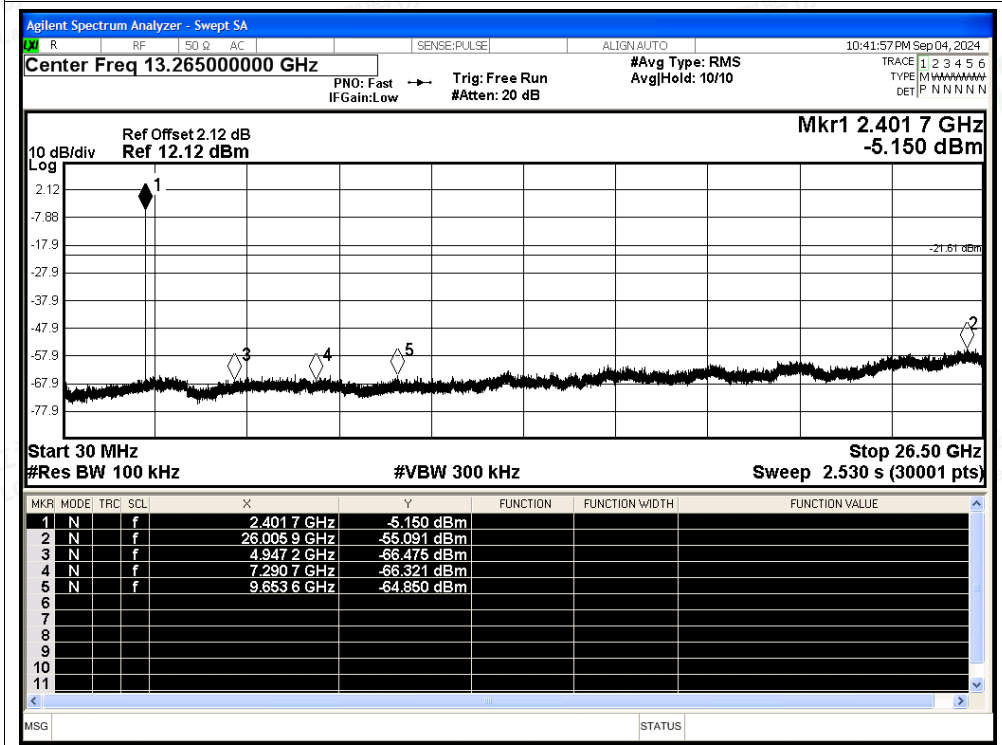




Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Ref

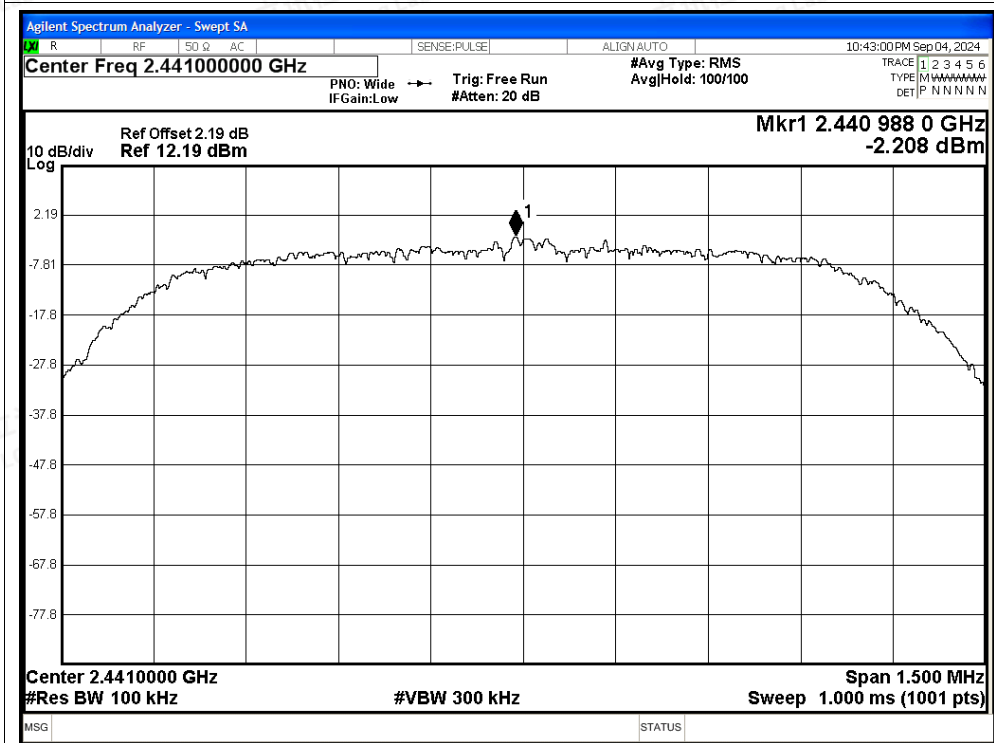


Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Emission

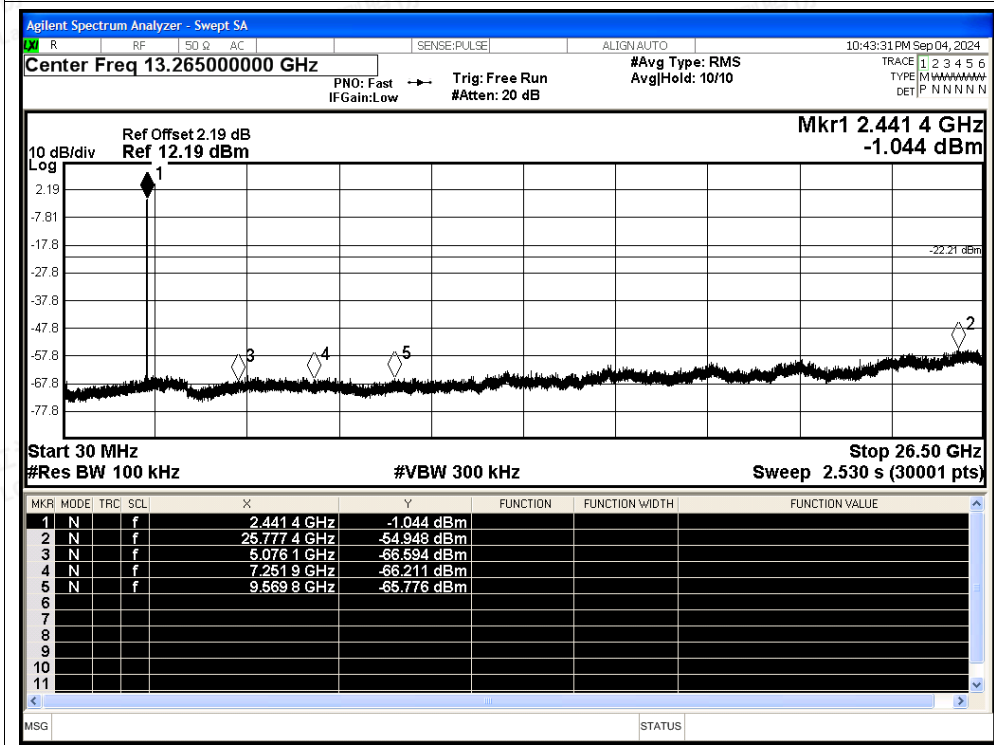




Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Ref



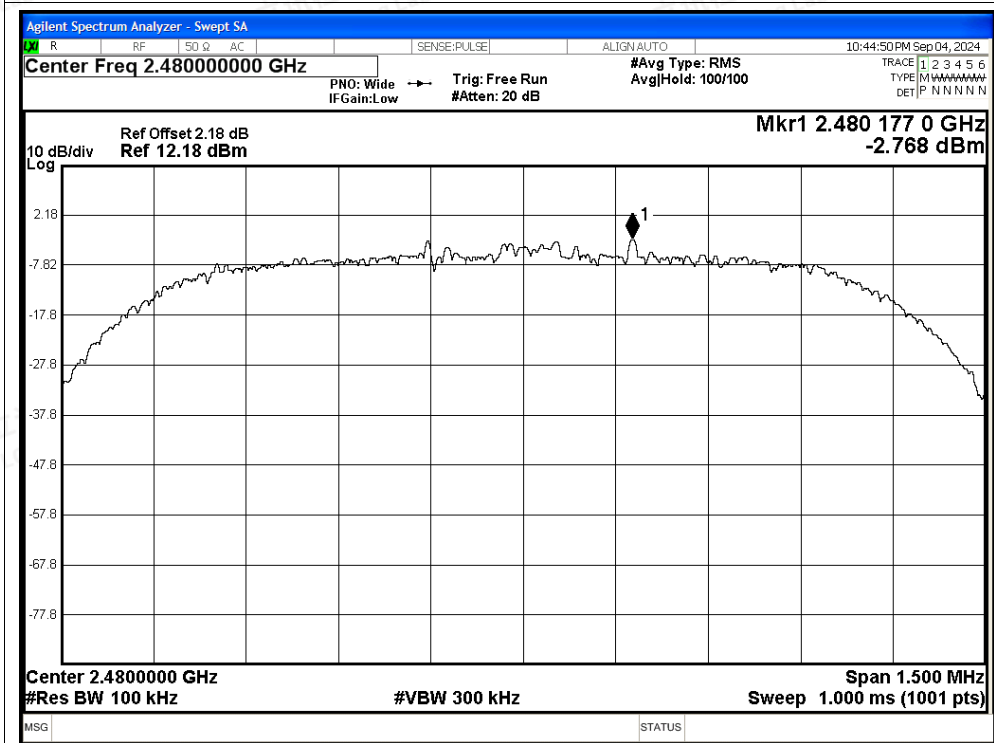
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Emission



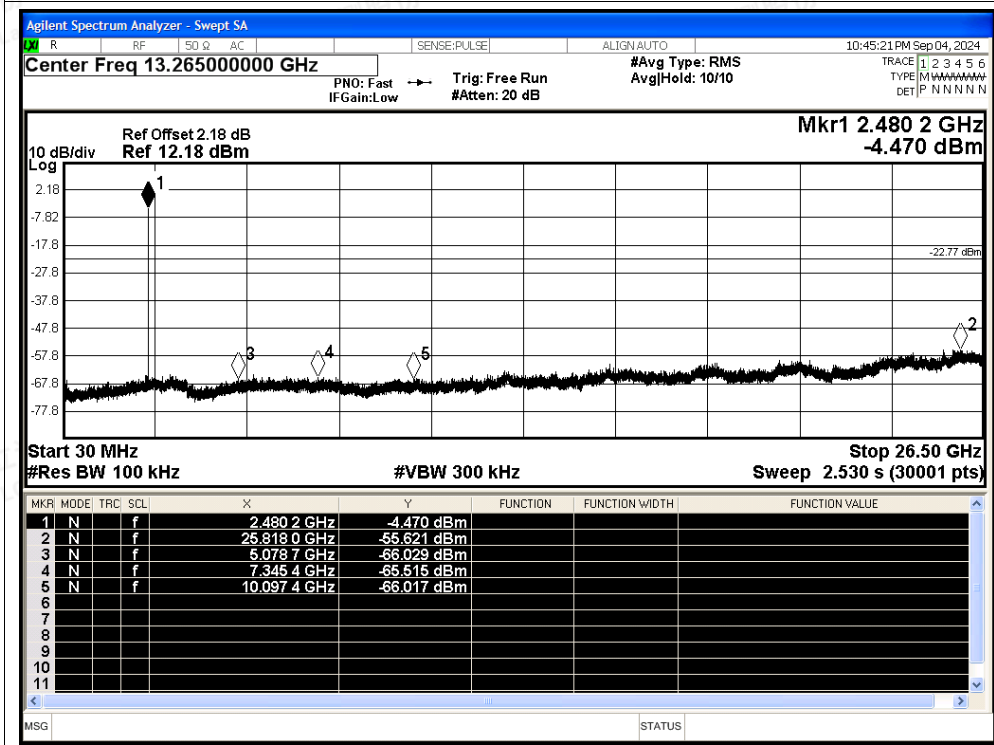




Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Ref



Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Emission





## A.8 Duty Cycle

| Condition | Mode  | Frequency (MHz) | Antenna | Duty Cycle (%) | Correction Factor (dB) | 1/T (kHz) |
|-----------|-------|-----------------|---------|----------------|------------------------|-----------|
| NVNT      | 1-DH5 | 2402            | Ant1    | 77.6           | 1.1                    | 0.34      |
| NVNT      | 1-DH5 | 2441            | Ant1    | 77.63          | 1.1                    | 0.34      |
| NVNT      | 1-DH5 | 2480            | Ant1    | 77.6           | 1.1                    | 0.34      |
| NVNT      | 2-DH5 | 2402            | Ant1    | 77.28          | 1.12                   | 0.35      |
| NVNT      | 2-DH5 | 2441            | Ant1    | 77.33          | 1.12                   | 0.34      |
| NVNT      | 2-DH5 | 2480            | Ant1    | 77.28          | 1.12                   | 0.35      |

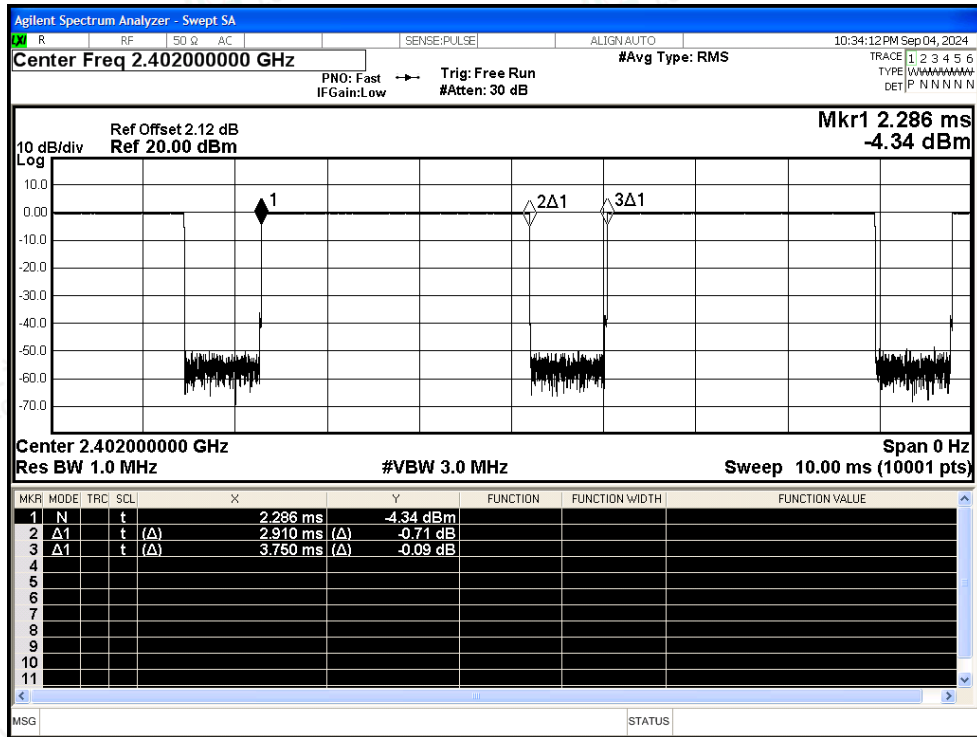


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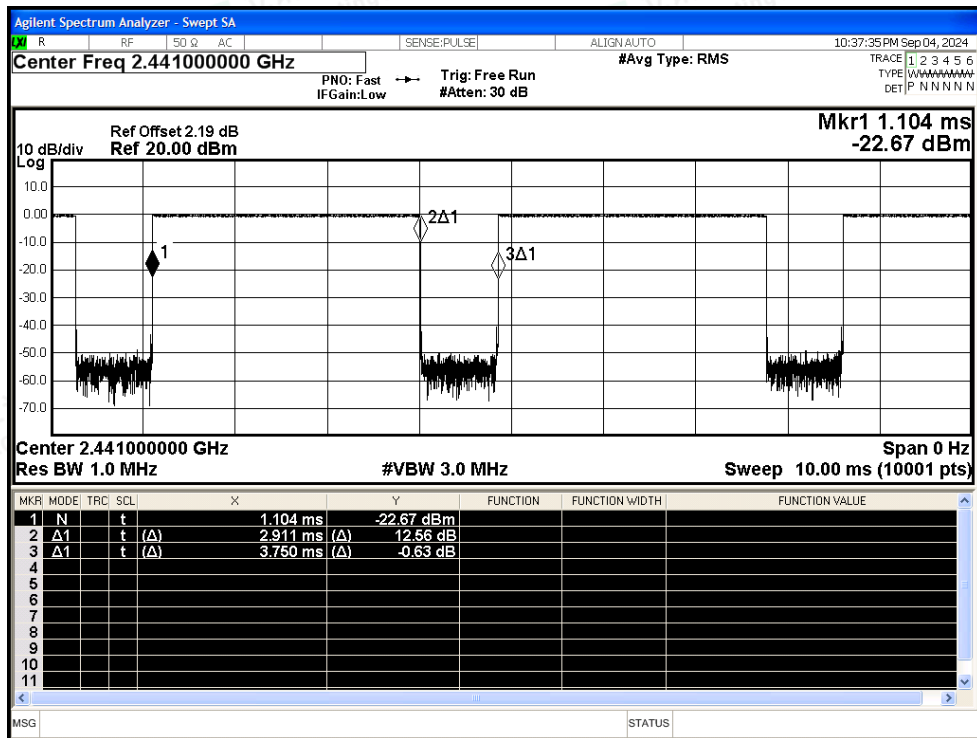


Test Graphs

Duty Cycle NVNT 1-DH5 2402MHz Ant1

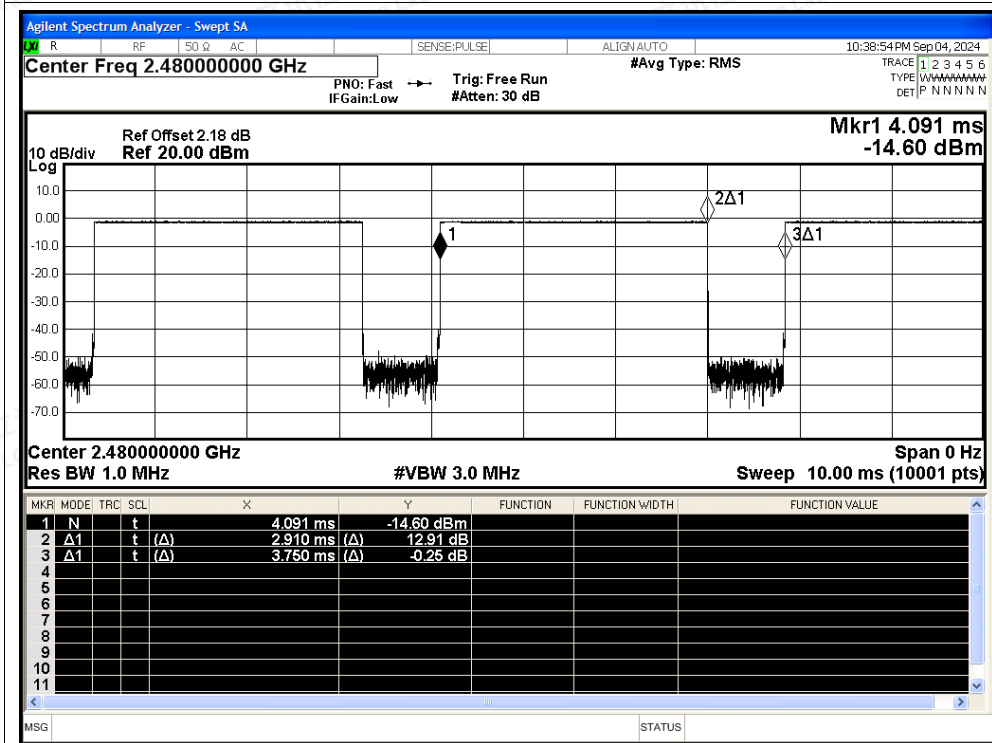


Duty Cycle NVNT 1-DH5 2441MHz Ant1

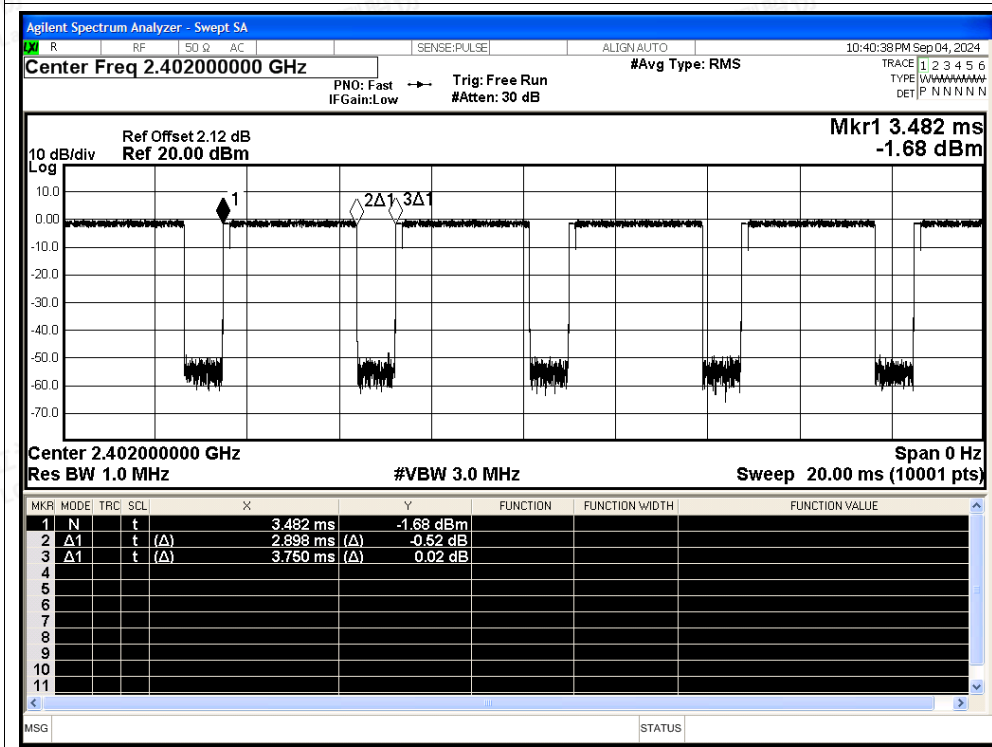




Duty Cycle NVNT 1-DH5 2480MHz Ant1

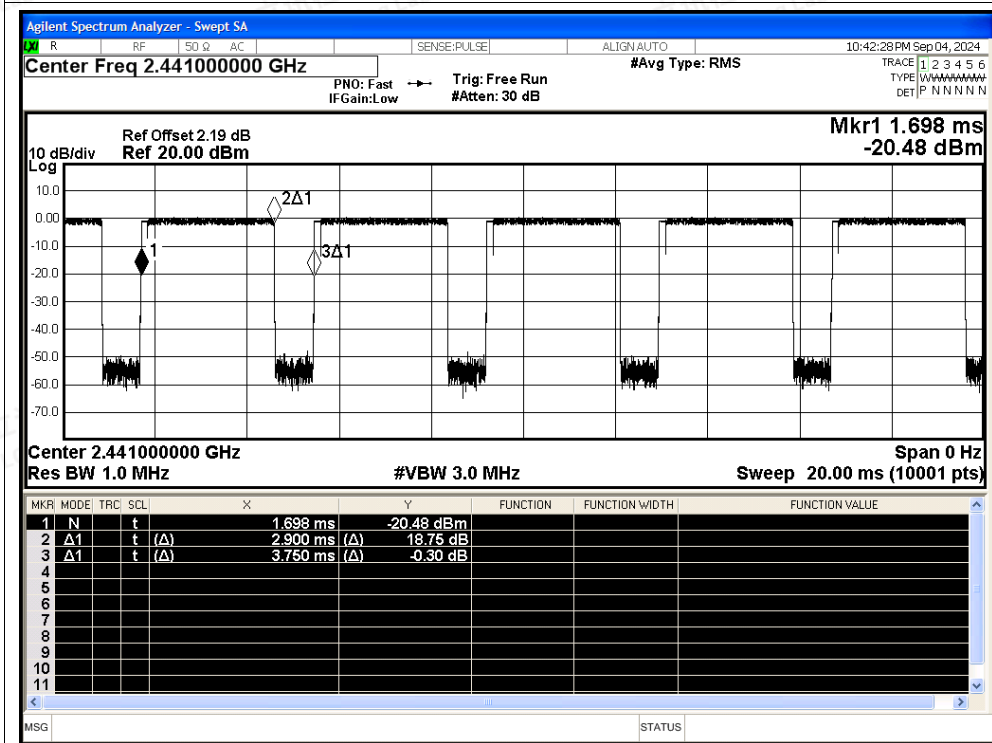


Duty Cycle NVNT 2-DH5 2402MHz Ant1

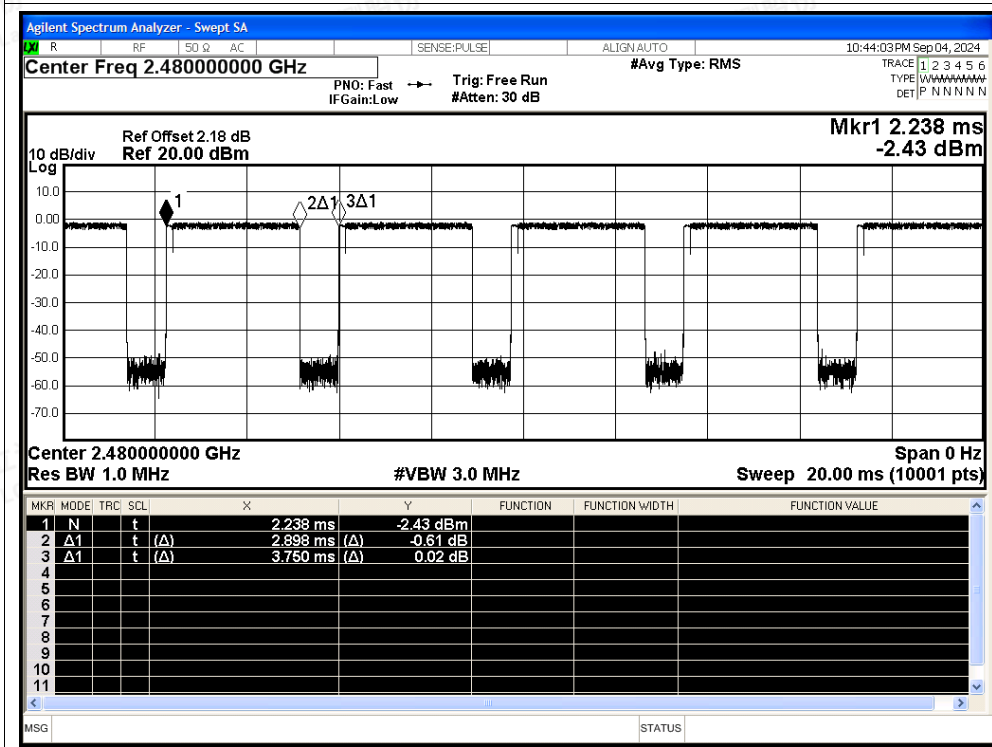




Duty Cycle NVNT 2-DH5 2441MHz Ant1



Duty Cycle NVNT 2-DH5 2480MHz Ant1





### A.9 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-DH5 | 2402            | Ant1    | No-Hopping   | 2310            | -50.53      | 2          | -                | 46.73      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant1    | No-Hopping   | 2310            | -58.55      | 2          | 1.1              | 39.81      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant1    | No-Hopping   | 2355.696        | -47.4       | 2          | -                | 49.86      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant1    | No-Hopping   | 2383.056        | -57.44      | 2          | 1.1              | 40.92      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant1    | No-Hopping   | 2390            | -50.59      | 2          | -                | 46.67      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2402            | Ant1    | No-Hopping   | 2390            | -58.47      | 2          | 1.1              | 39.89      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | 2483.5          | -50.63      | 2          | -                | 46.63      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | 2483.5          | -57.88      | 2          | 1.1              | 40.48      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | 2499.136        | -46.89      | 2          | -                | 50.37      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | 2493.88         | -56.98      | 2          | 1.1              | 41.38      | Average  | 54             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | 2500            | -49.8       | 2          | -                | 47.46      | Peak     | 74             | Pass    |
| NVNT      | 1-DH5 | 2480            | Ant1    | No-Hopping   | 2500            | -57.67      | 2          | 1.1              | 40.69      | Average  | 54             | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | No-Hopping   | 2310            | -50.69      | 2          | -                | 46.57      | Peak     | 74             | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | No-Hopping   | 2310            | -59.06      | 2          | 1.12             | 39.32      | Average  | 54             | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | No-Hopping   | 2375.472        | -46.83      | 2          | -                | 50.43      | Peak     | 74             | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | No-Hopping   | 2385.264        | -57.64      | 2          | 1.12             | 40.74      | Average  | 54             | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | No-Hopping   | 2390            | -50.18      | 2          | -                | 47.08      | Peak     | 74             | Pass    |
| NVNT      | 2-DH5 | 2402            | Ant1    | No-Hopping   | 2390            | -58.42      | 2          | 1.12             | 39.96      | Average  | 54             | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | No-Hopping   | 2483.5          | -50.48      | 2          | -                | 46.78      | Peak     | 74             | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | No-Hopping   | 2483.5          | -58.06      | 2          | 1.12             | 40.32      | Average  | 54             | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | No-Hopping   | 2492.32         | -46.71      | 2          | -                | 50.55      | Peak     | 74             | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | No-Hopping   | 2492.872        | -57         | 2          | 1.12             | 41.38      | Average  | 54             | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | No-Hopping   | 2500            | -50.23      | 2          | -                | 47.03      | Peak     | 74             | Pass    |
| NVNT      | 2-DH5 | 2480            | Ant1    | No-Hopping   | 2500            | -57.61      | 2          | 1.12             | 40.77      | Average  | 54             | Pass    |

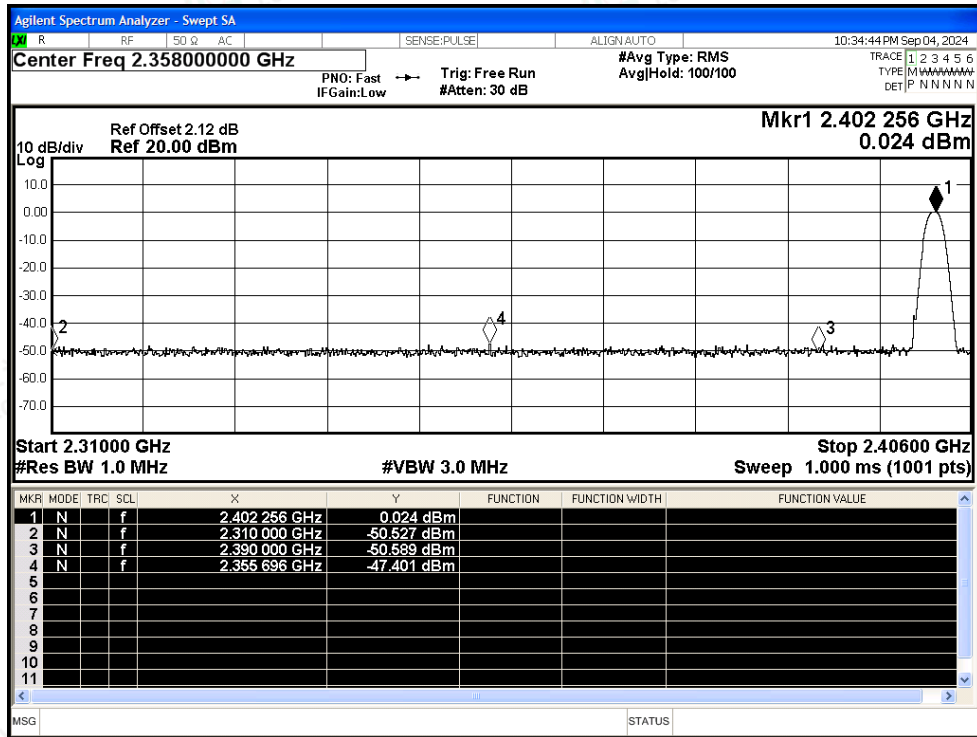


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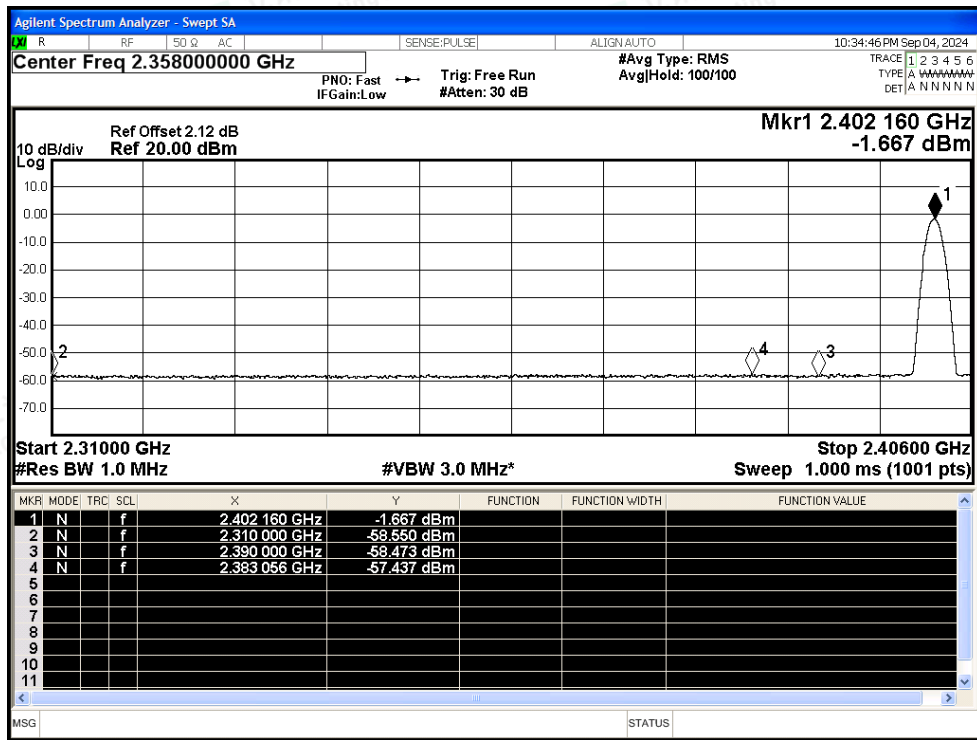


Test Graphs

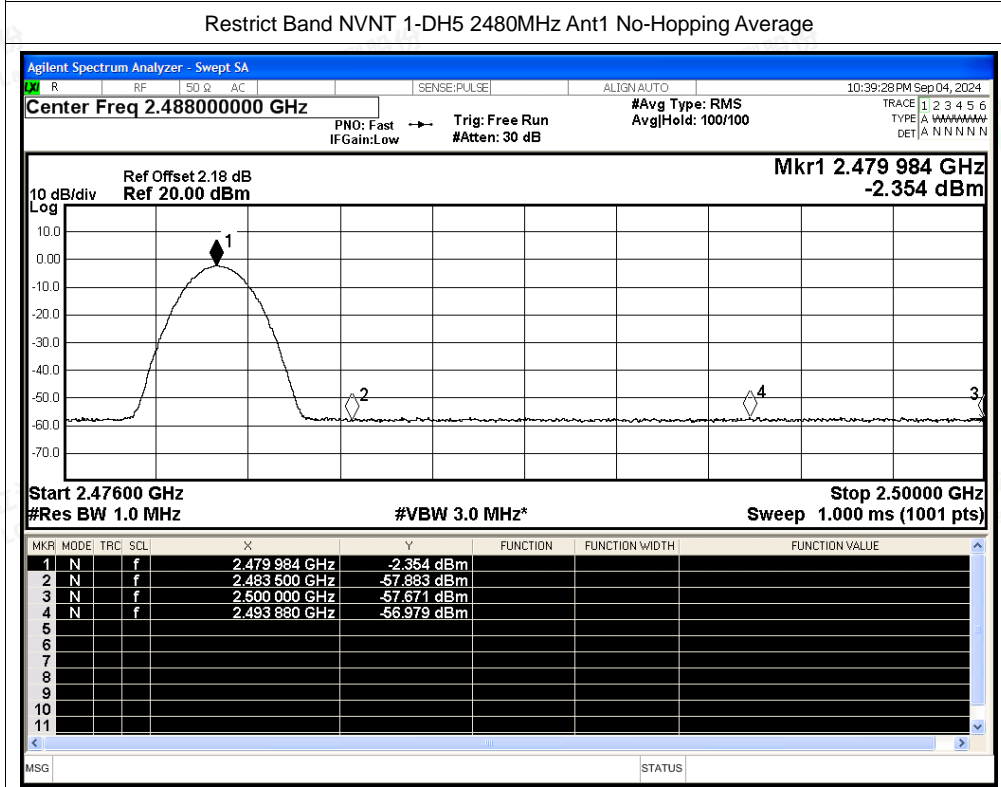
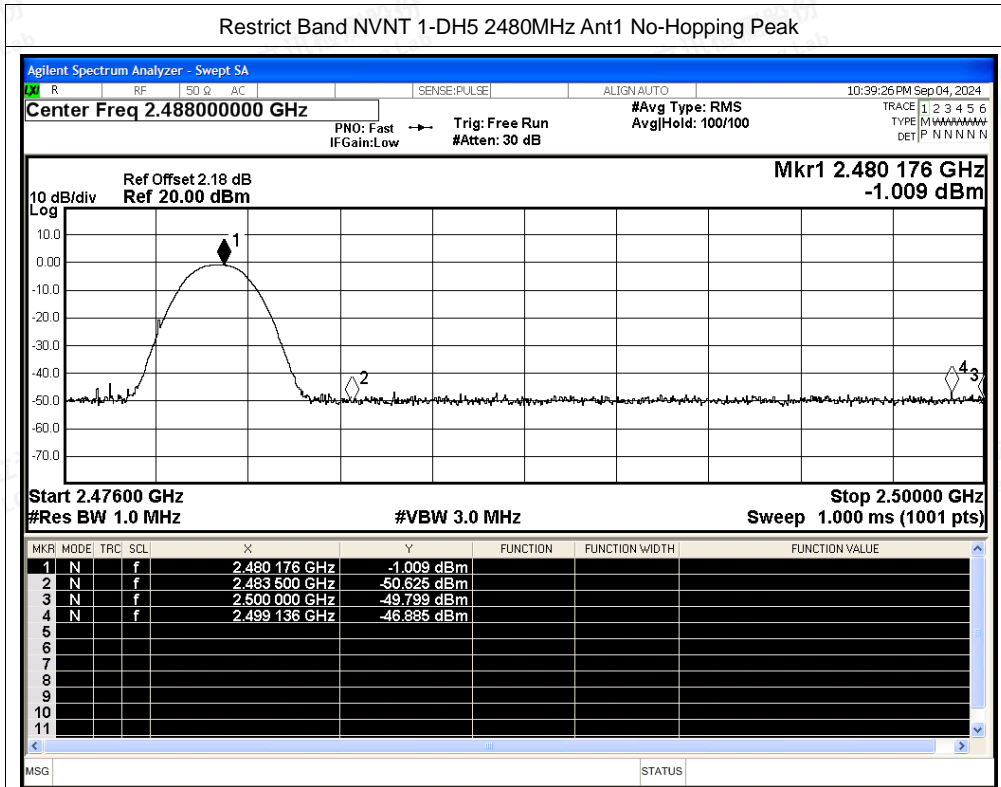
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Peak



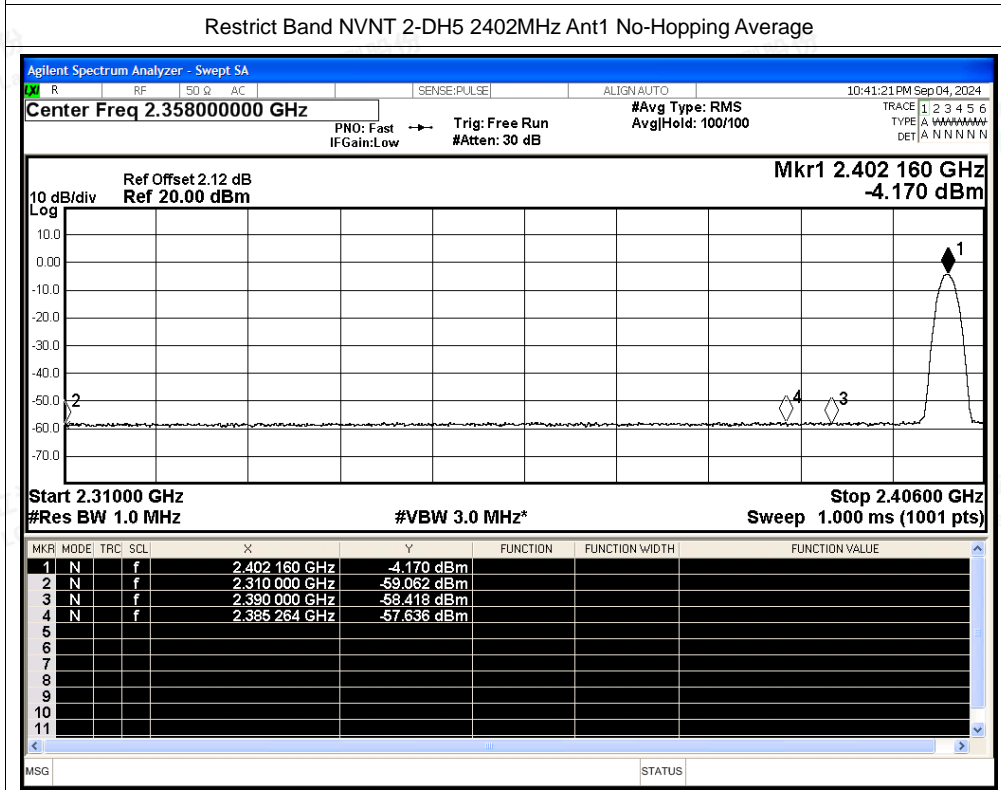
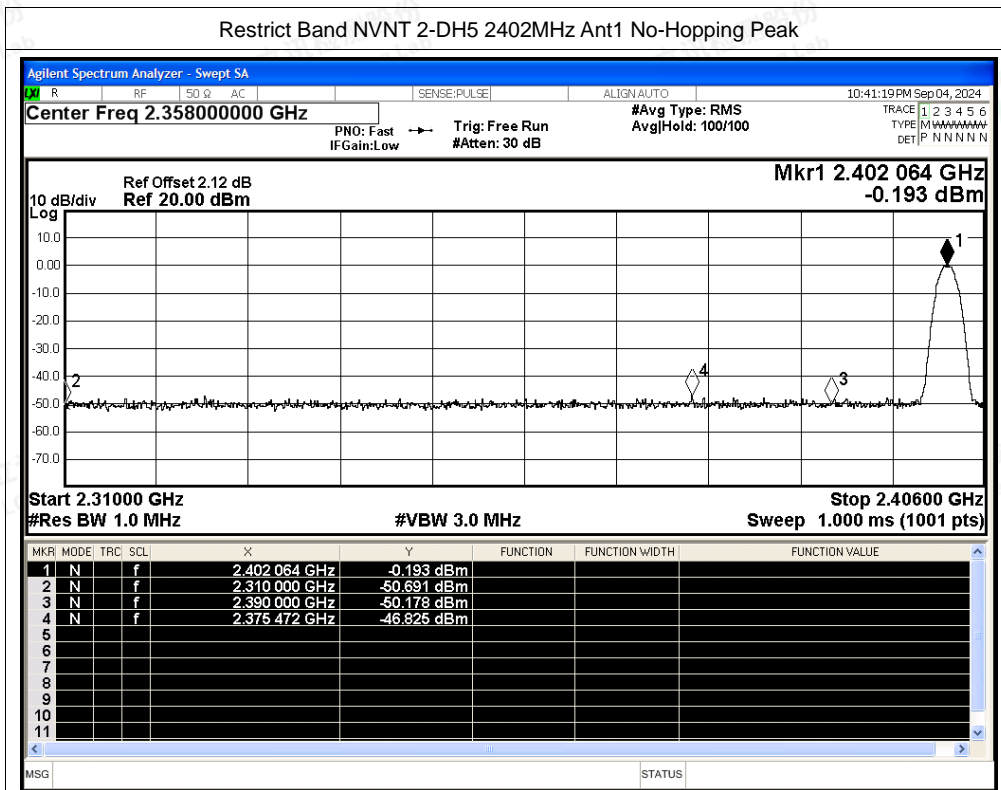
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Average





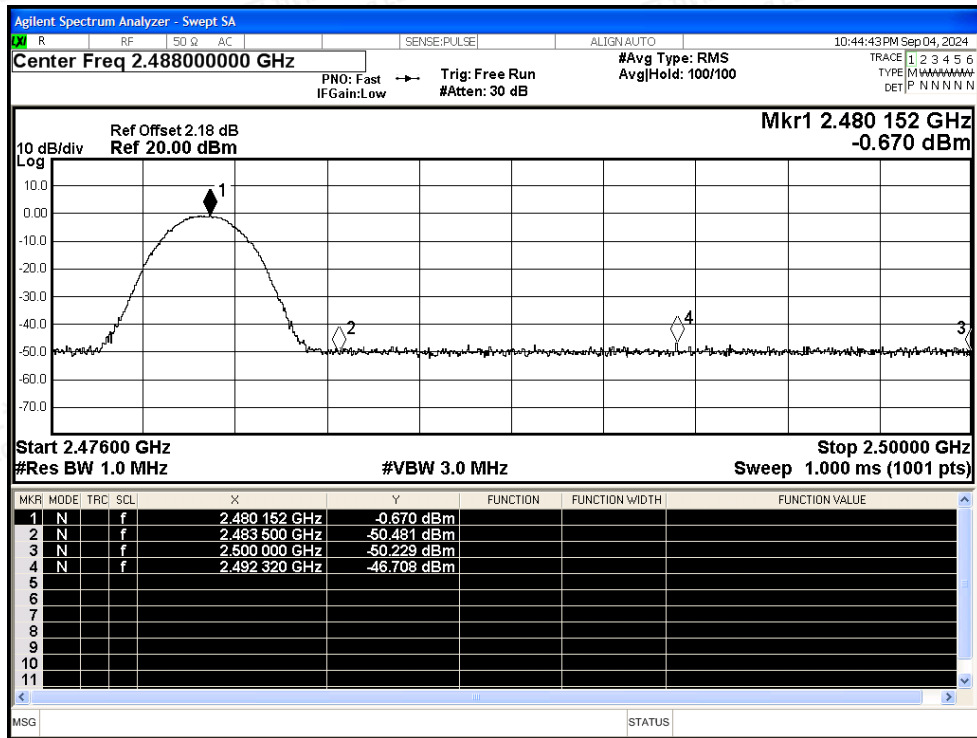








Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Peak



Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Average

