



## Appendix D

### RF Test Data for Z-Wave(Conducted Measurement)

Product Name: Brivo Gateway

Test Model: B-Gateway V5-M2

#### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 23.5 ° C  |
| Relative Humidity: | 52.2%     |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | Taylor Hu |
| Supervised by:     | Ling Zhu  |



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## D.1 -6dB Bandwidth

| Condition | Mode   | Frequency (MHz) | Antenna | -6 dB Bandwidth (MHz) | Limit -6 dB Bandwidth (MHz) | Verdict |
|-----------|--------|-----------------|---------|-----------------------|-----------------------------|---------|
| NVNT      | Z-Wave | 912             | Ant2    | 0.613                 | $\geq 0.5$                  | Pass    |
| NVNT      | Z-Wave | 920             | Ant2    | 0.62                  | $\geq 0.5$                  | Pass    |

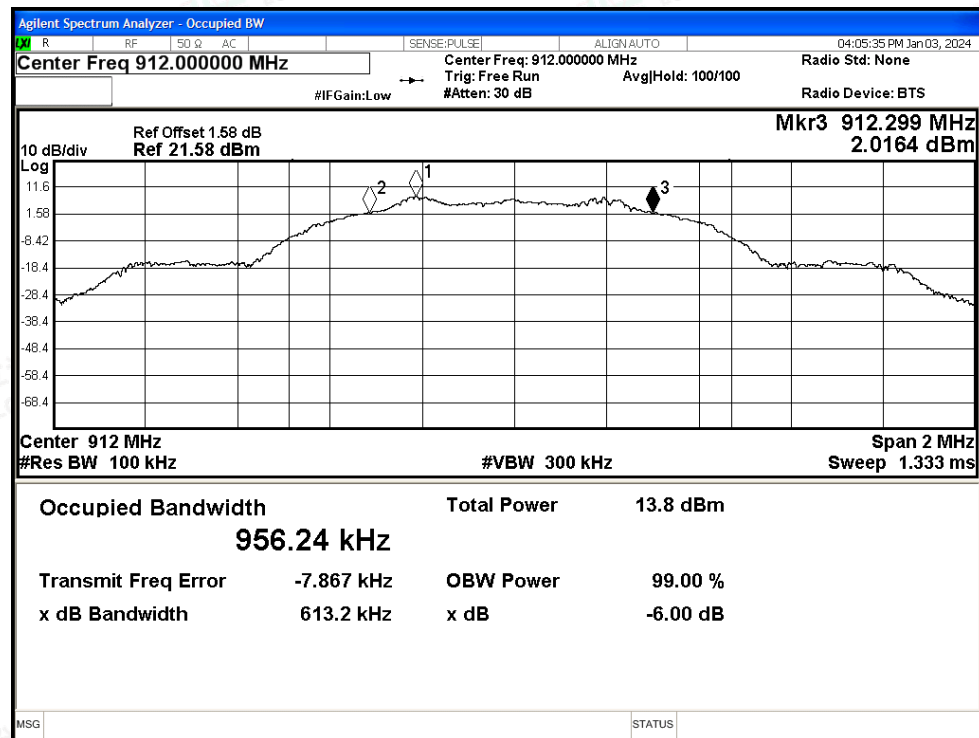


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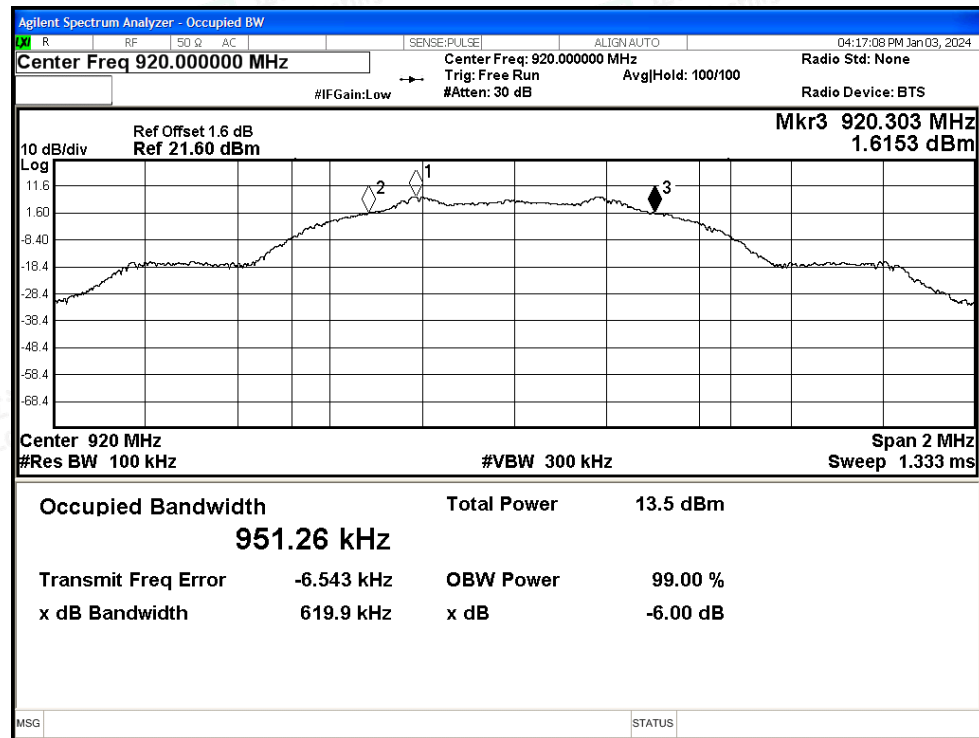


## Test Graphs

## -6dB Bandwidth NVNT Z-Wave 912MHz Ant2



## -6dB Bandwidth NVNT Z-Wave 920MHz Ant2



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## D.2 Maximum Conducted Output Power

| Condition | Mode   | Frequency (MHz) | Antenna | Conducted Power (dBm) | Limit (dBm) | Verdict |
|-----------|--------|-----------------|---------|-----------------------|-------------|---------|
| NVNT      | Z-Wave | 912             | Ant2    | 8.26                  | 30          | Pass    |
| NVNT      | Z-Wave | 920             | Ant2    | 7.86                  | 30          | Pass    |

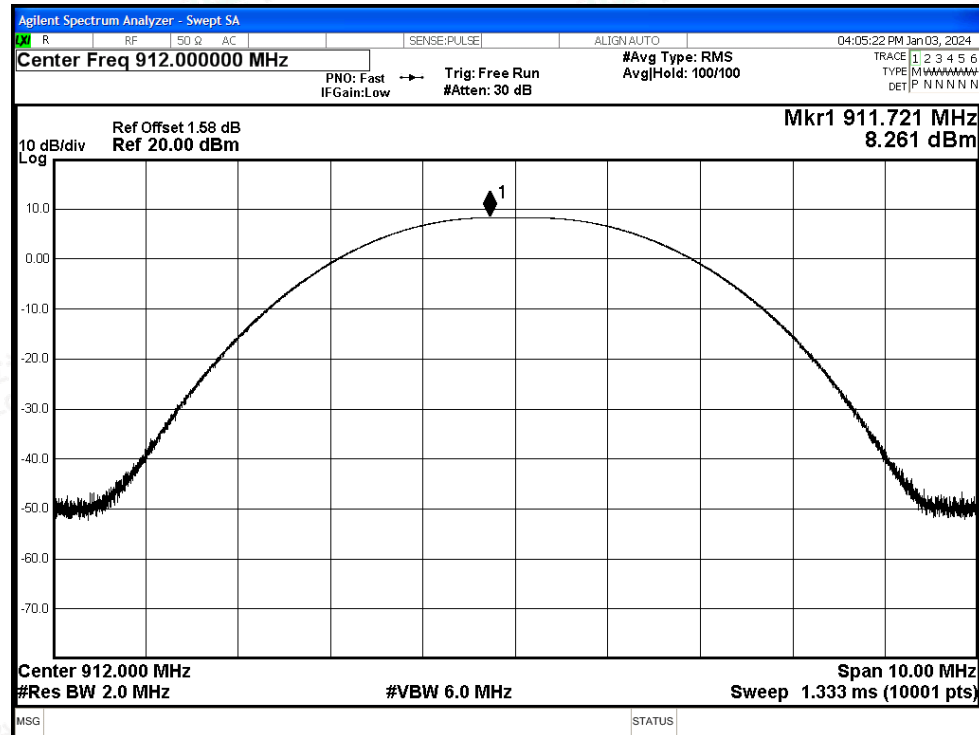


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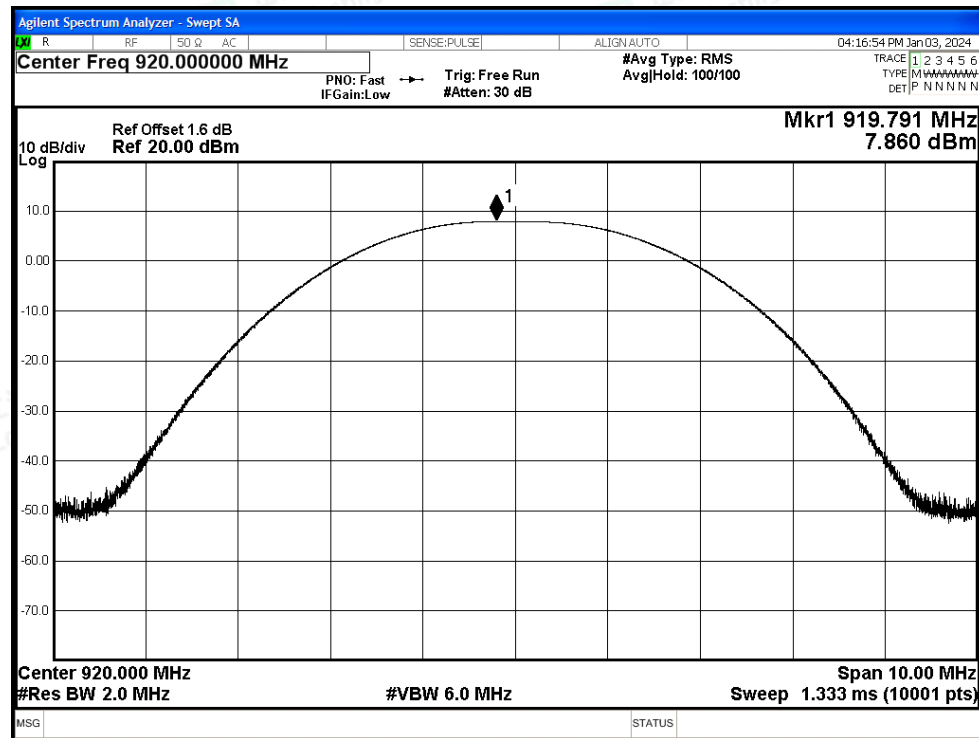


## Test Graphs

Power NVNT Z-Wave 912MHz Ant2



Power NVNT Z-Wave 920MHz Ant2



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### D.3 Maximum Power Spectral Density Level

| Condition | Mode   | Frequency (MHz) | Antenna | PSD (dBm/3kHz) | Limit (dBm/3kHz) | Verdict |
|-----------|--------|-----------------|---------|----------------|------------------|---------|
| NVNT      | Z-Wave | 912             | Ant2    | -4.43          | 8                | Pass    |
| NVNT      | Z-Wave | 920             | Ant2    | -4.38          | 8                | Pass    |

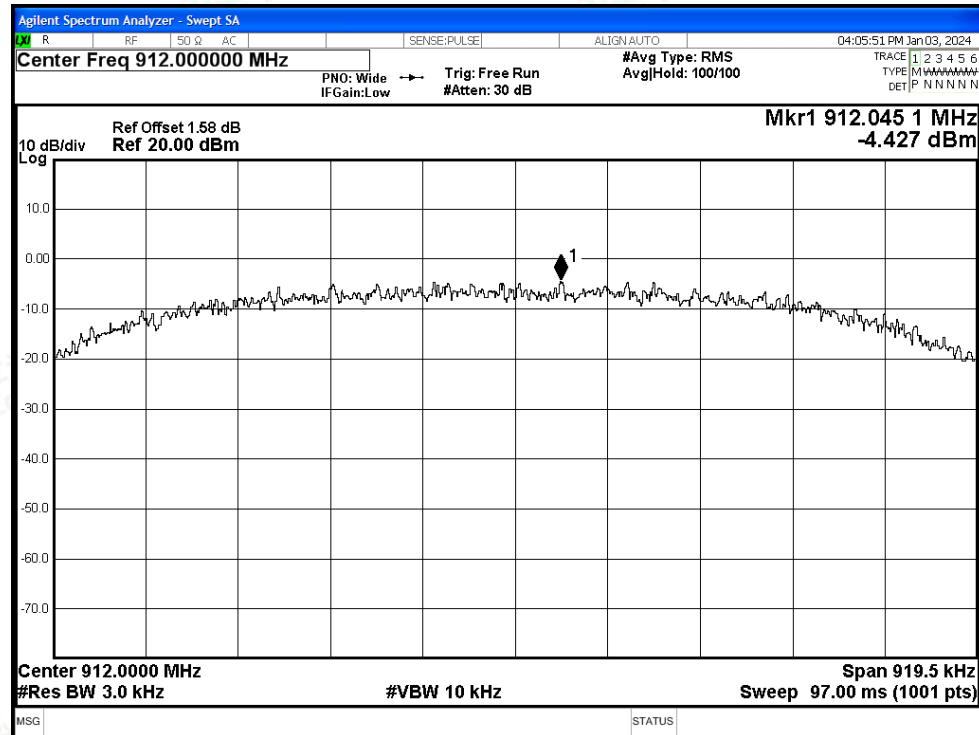


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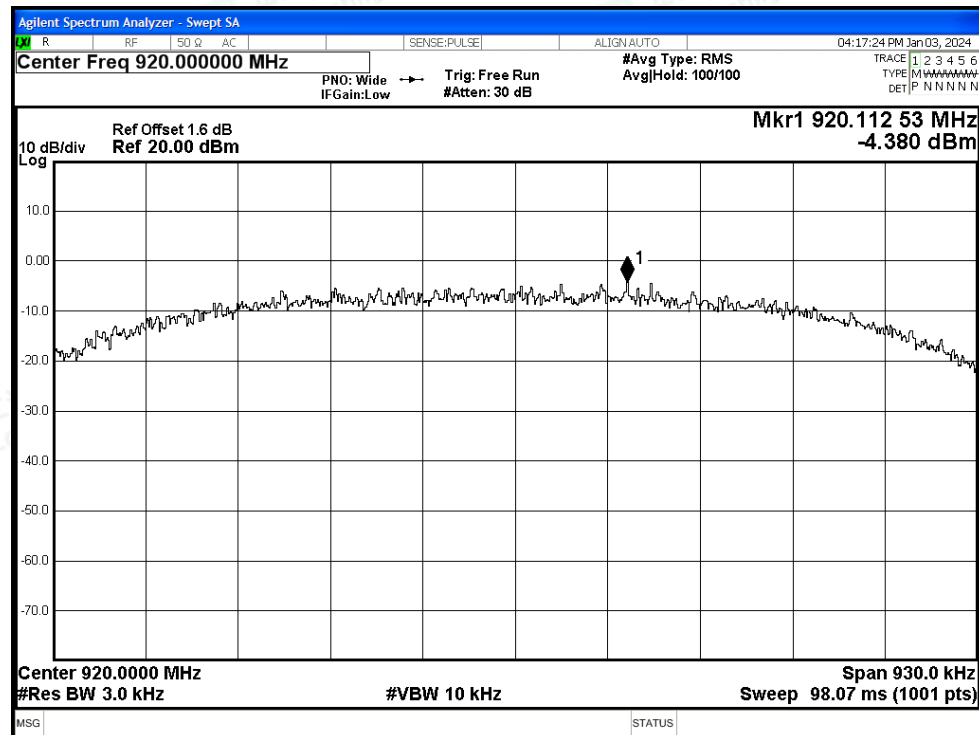


## Test Graphs

PSD NVNT Z-Wave 912MHz Ant2



PSD NVNT Z-Wave 920MHz Ant2



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### D.4 Band Edge

| Condition | Mode   | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|---------|
| NVNT      | Z-Wave | 912             | Ant2    | -68.95          | -20         | Pass    |
| NVNT      | Z-Wave | 927.4           | Ant2    | -68.17          | -20         | Pass    |

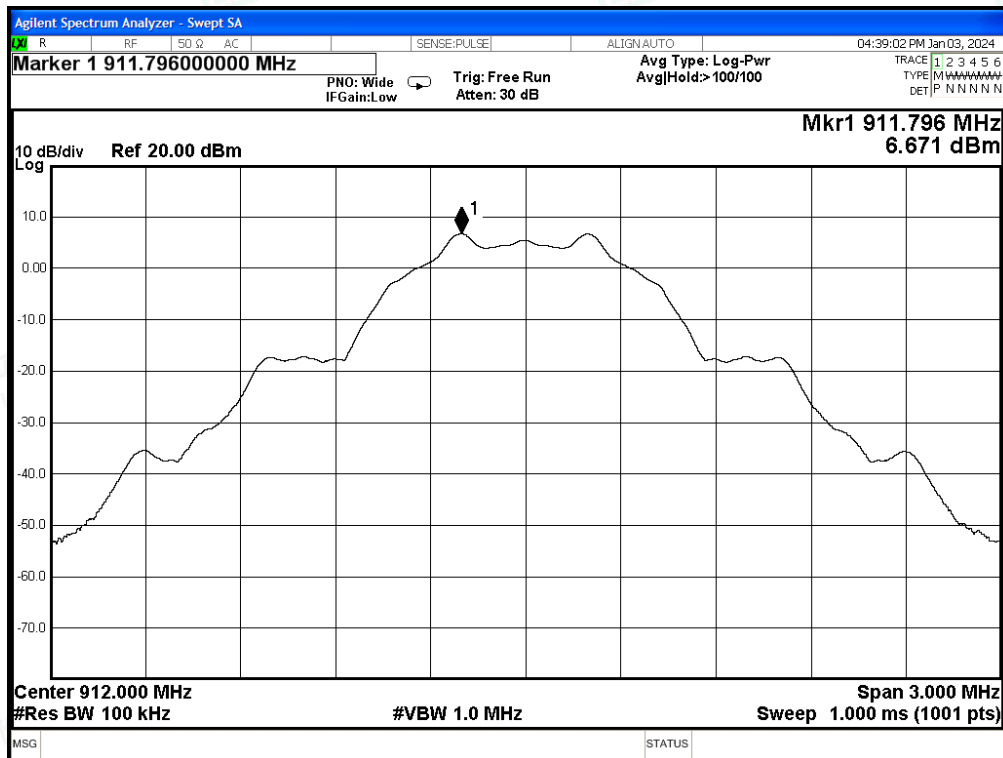


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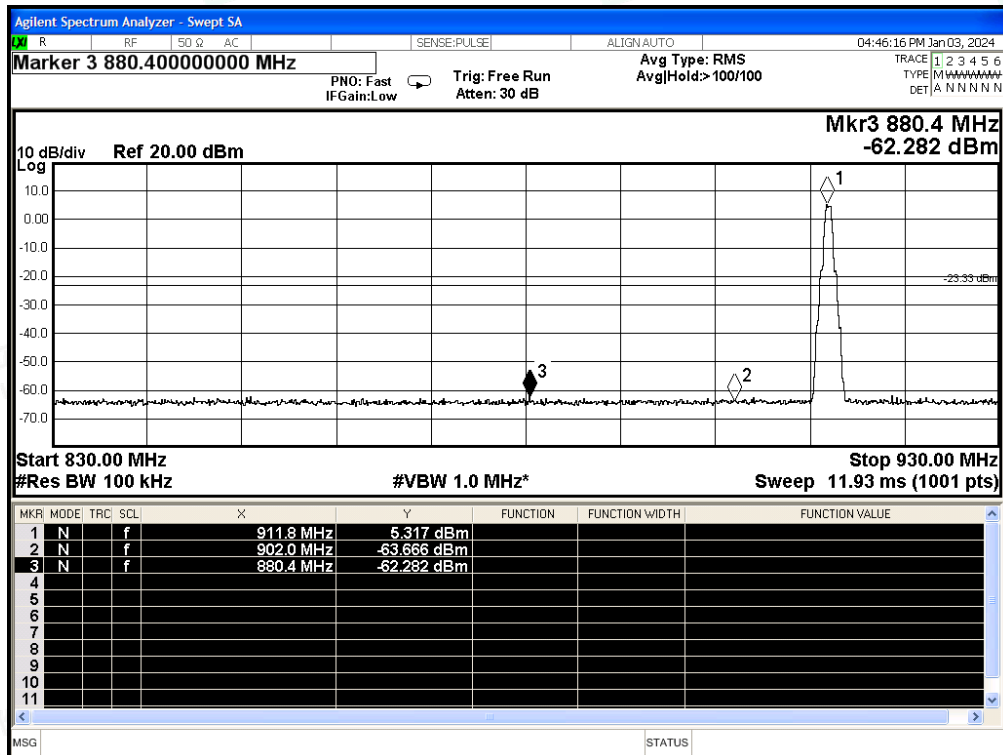


## Test Graphs

## Band Edge NVNT Z-Wave 912MHz Ant2 Ref



## Band Edge NVNT Z-Wave 912MHz Ant2 Emission



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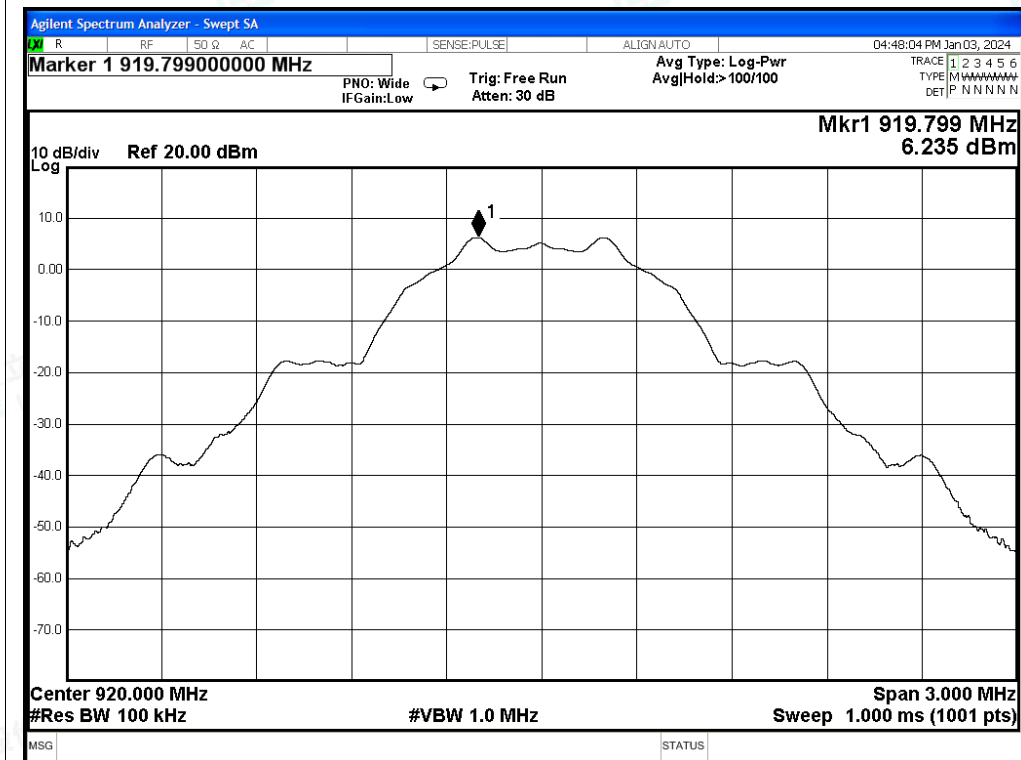
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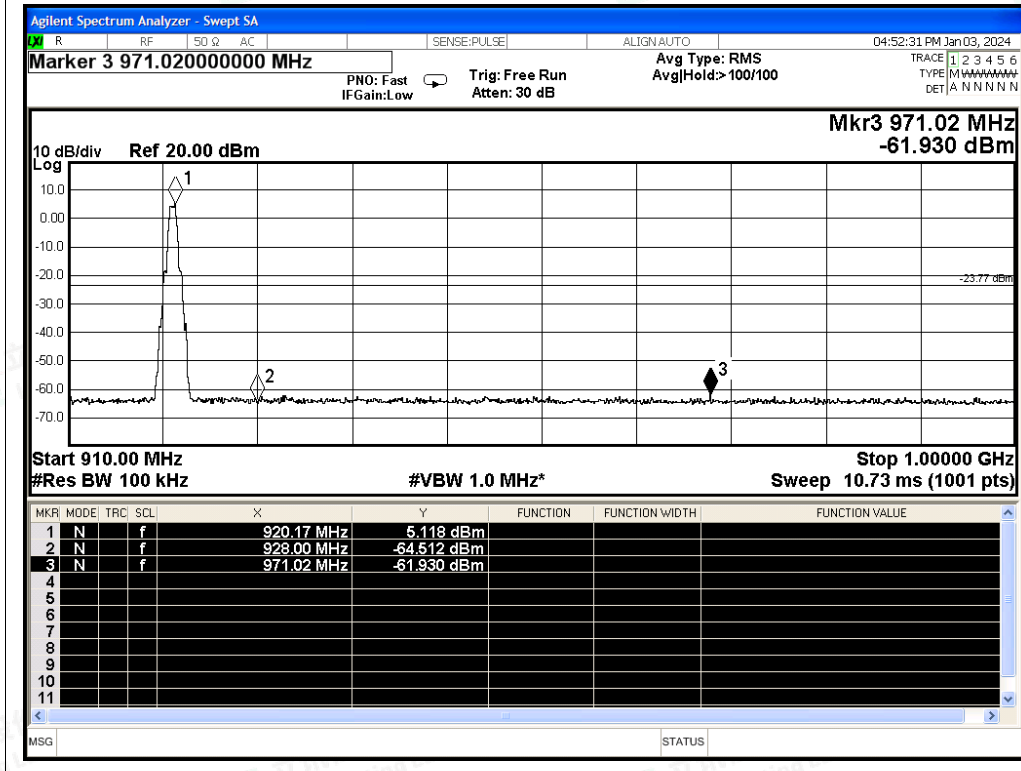
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## Band Edge NVNT Z-Wave 920MHz Ant2 Ref



## Band Edge NVNT Z-Wave 920MHz Ant2 Emission



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## D.5 Conducted RF Spurious Emission

| TestMode | Antenna | Channel | FreqRange<br>[MHz] | RefLevel<br>[dBm] | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|--------------------|-------------------|-------------|------------|---------|
| Z-Wave   | Ant2    | 912     | Reference          | 7.985             | 7.985       | ---        | PASS    |
|          |         |         | 30~26500           | 7.985             | -32.275     | ≤-12.02    | PASS    |
|          |         | 920     | Reference          | 7.655             | 7.655       | ---        | PASS    |
|          |         |         | 30~26500           | 7.655             | -29.534     | ≤-12.35    | PASS    |



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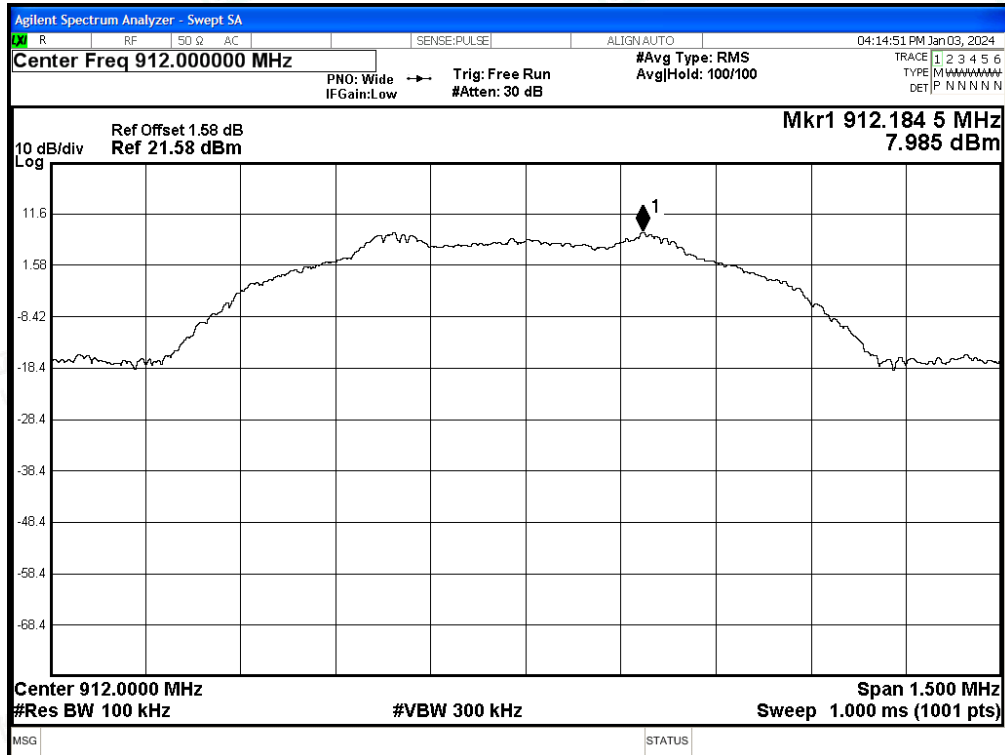
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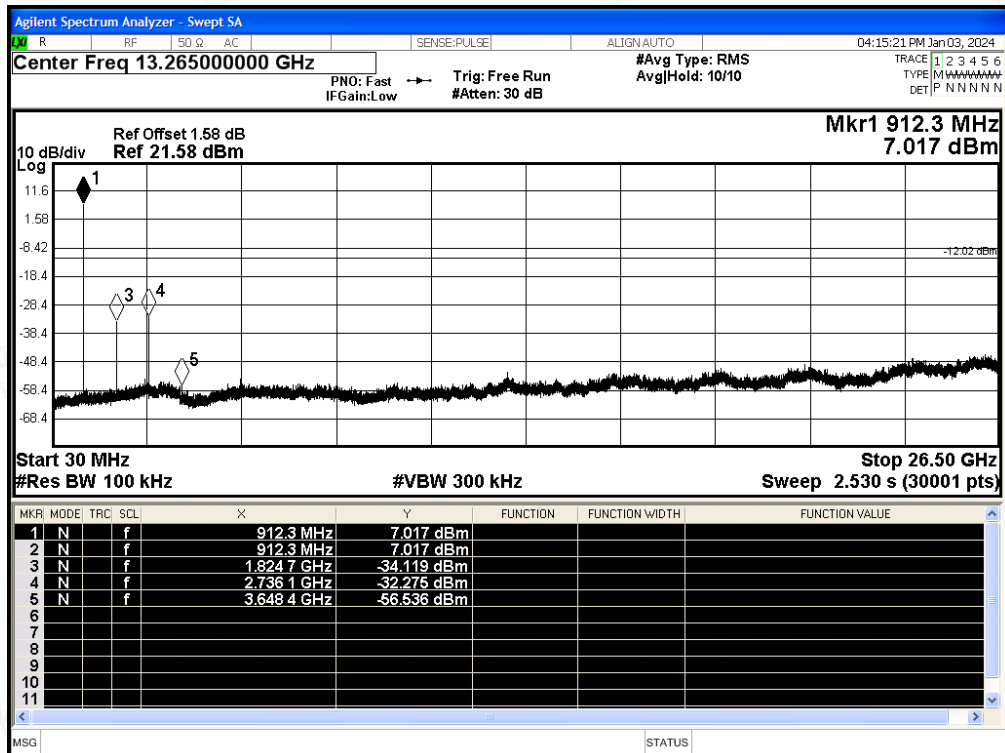


## Test Graphs

## Ant2\_912\_0~Reference



## Ant2\_912\_30~26500

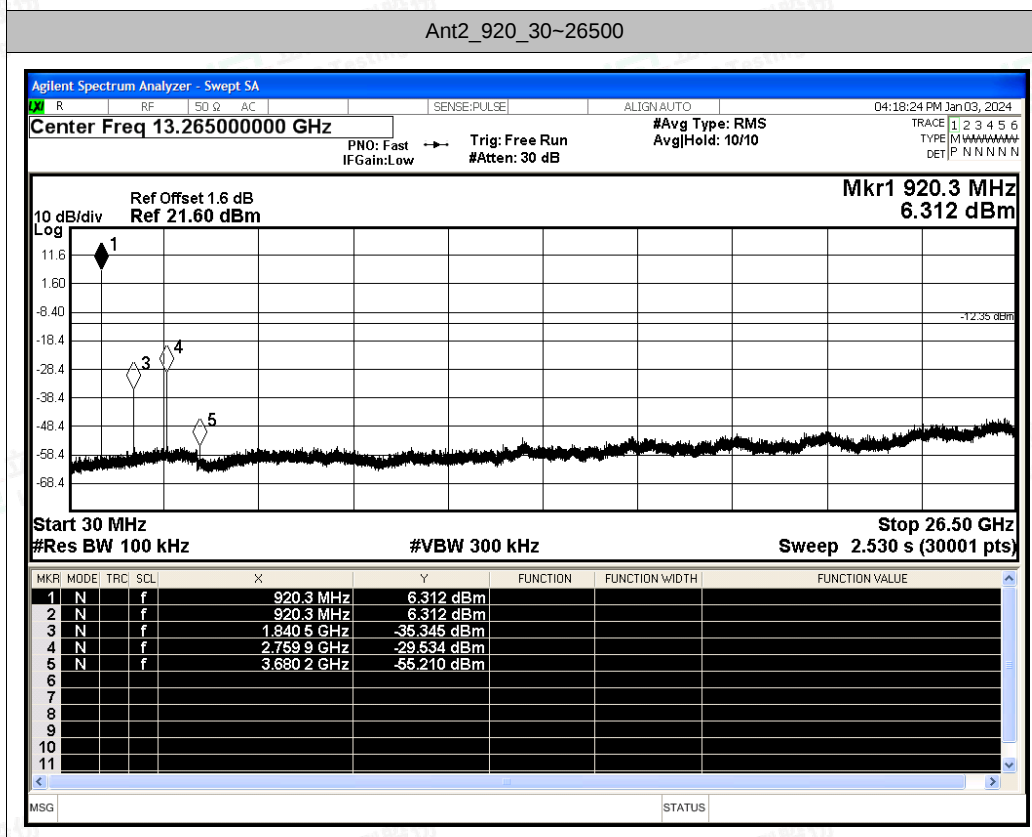
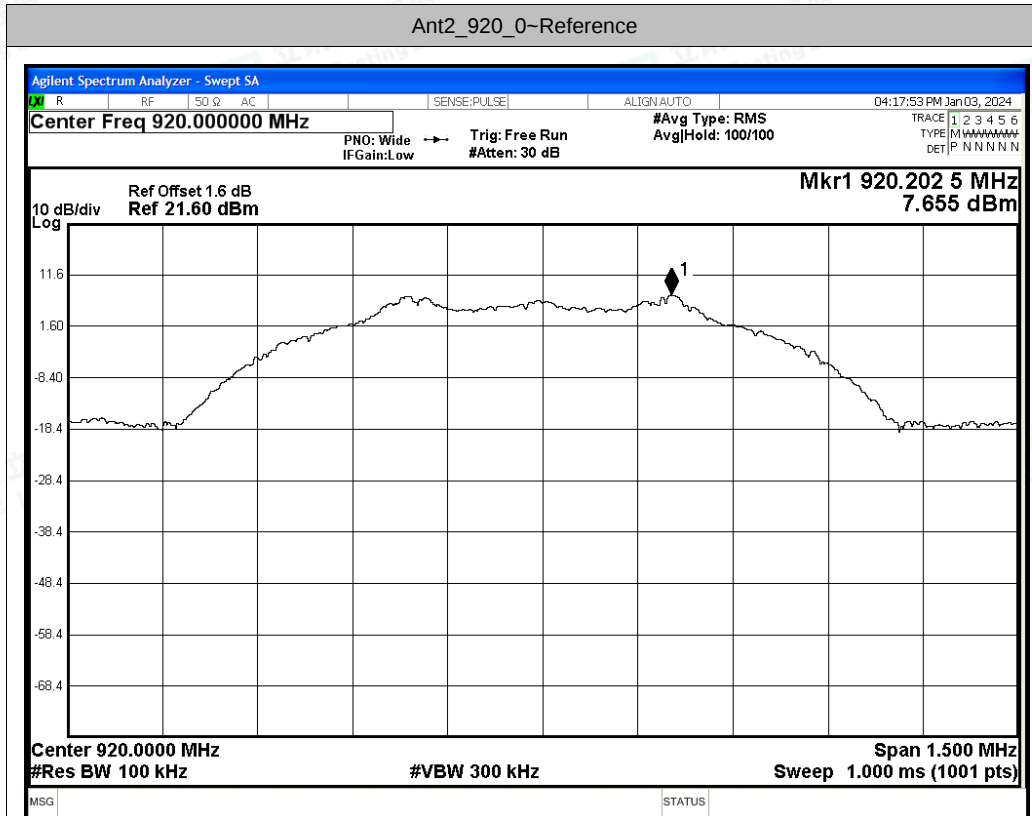


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## D.6 Duty Cycle

| Condition | Mode   | Frequency (MHz) | Antenna | Duty Cycle (%) | Correction Factor (dB) | 1/T (kHz) |
|-----------|--------|-----------------|---------|----------------|------------------------|-----------|
| NVNT      | Z-Wave | 912             | Ant2    | 100            | 0                      | 0.01      |
| NVNT      | Z-Wave | 920             | Ant2    | 100            | 0                      | 0.01      |

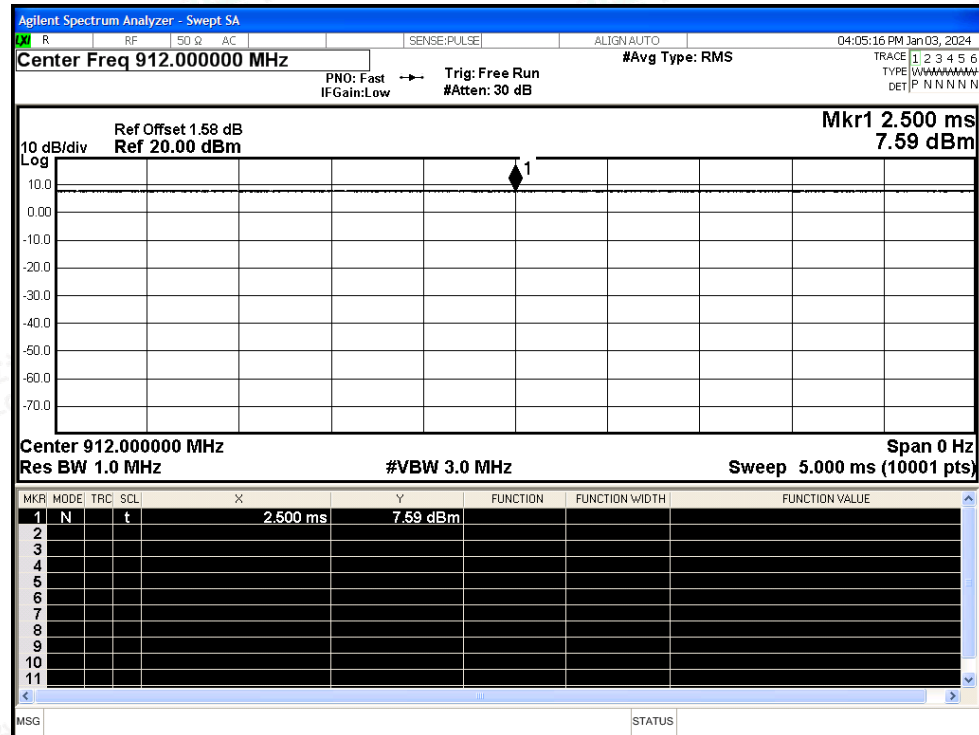


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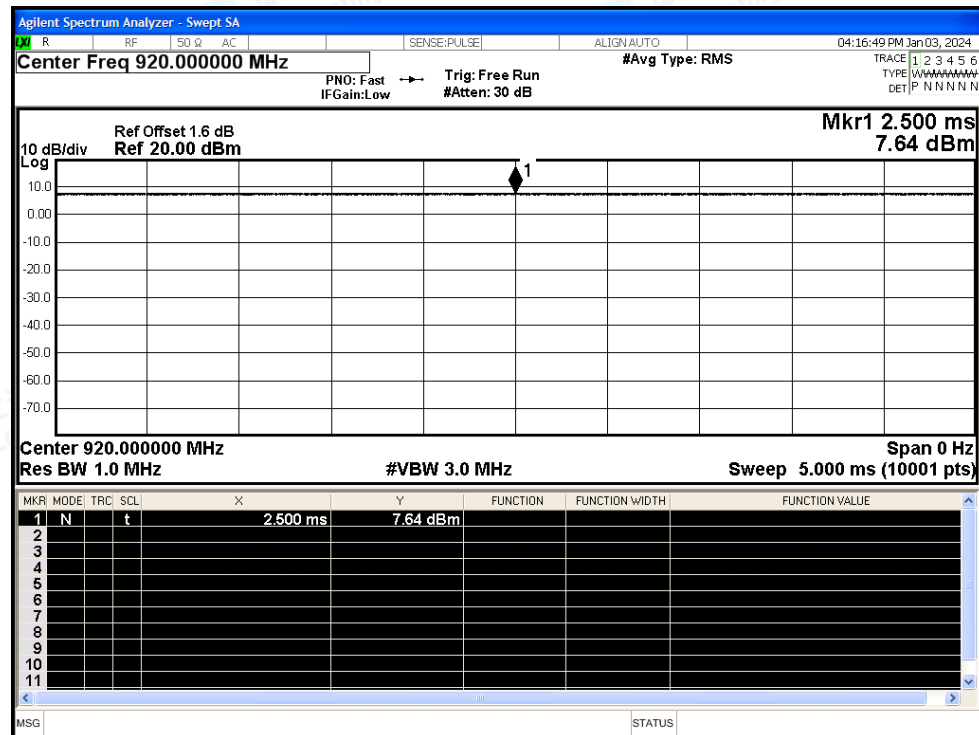


## Test Graphs

## Duty Cycle NVNT Z-Wave 912MHz Ant2



## Duty Cycle NVNT Z-Wave 920MHz Ant2



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## D.7 Restrict Band

| Condition | Mode   | Frequency (MHz) | Antenna | Spur Freq (MHz) | Power (dBm) | Gain (dBi) | E (dBuV/m) | Detector | Limit (dBuV/m) | Verdict |
|-----------|--------|-----------------|---------|-----------------|-------------|------------|------------|----------|----------------|---------|
| NVNT      | Z-Wave | 912             | Ant2    | 608             | -51.54      | 2          | 45.69      | Peak     | 74             | Pass    |
| NVNT      | Z-Wave | 912             | Ant2    | 608             | -54.87      | 2          | 42.36      | Average  | 54             | Pass    |
| NVNT      | Z-Wave | 912             | Ant2    | 814.88          | -49.57      | 2          | 47.66      | Peak     | 74             | Pass    |
| NVNT      | Z-Wave | 912             | Ant2    | 836.98          | -51.64      | 2          | 45.59      | Average  | 54             | Pass    |
| NVNT      | Z-Wave | 912             | Ant2    | 614             | -51.85      | 2          | 45.38      | Peak     | 74             | Pass    |
| NVNT      | Z-Wave | 912             | Ant2    | 614             | -55.03      | 2          | 42.20      | Average  | 54             | Pass    |
| NVNT      | Z-Wave | 920             | Ant2    | 960.0           | -51.57      | 2          | 45.66      | Peak     | 74             | Pass    |
| NVNT      | Z-Wave | 920             | Ant2    | 960.0           | -54.12      | 2          | 43.11      | Average  | 54             | Pass    |
| NVNT      | Z-Wave | 920             | Ant2    | 1056.8          | -50.17      | 2          | 47.06      | Peak     | 74             | Pass    |
| NVNT      | Z-Wave | 920             | Ant2    | 1115.6          | -52.58      | 2          | 44.65      | Average  | 54             | Pass    |
| NVNT      | Z-Wave | 920             | Ant2    | 1240.0          | -50.27      | 2          | 46.96      | Peak     | 74             | Pass    |
| NVNT      | Z-Wave | 920             | Ant2    | 1240.0          | -53.63      | 2          | 43.60      | Average  | 54             | Pass    |



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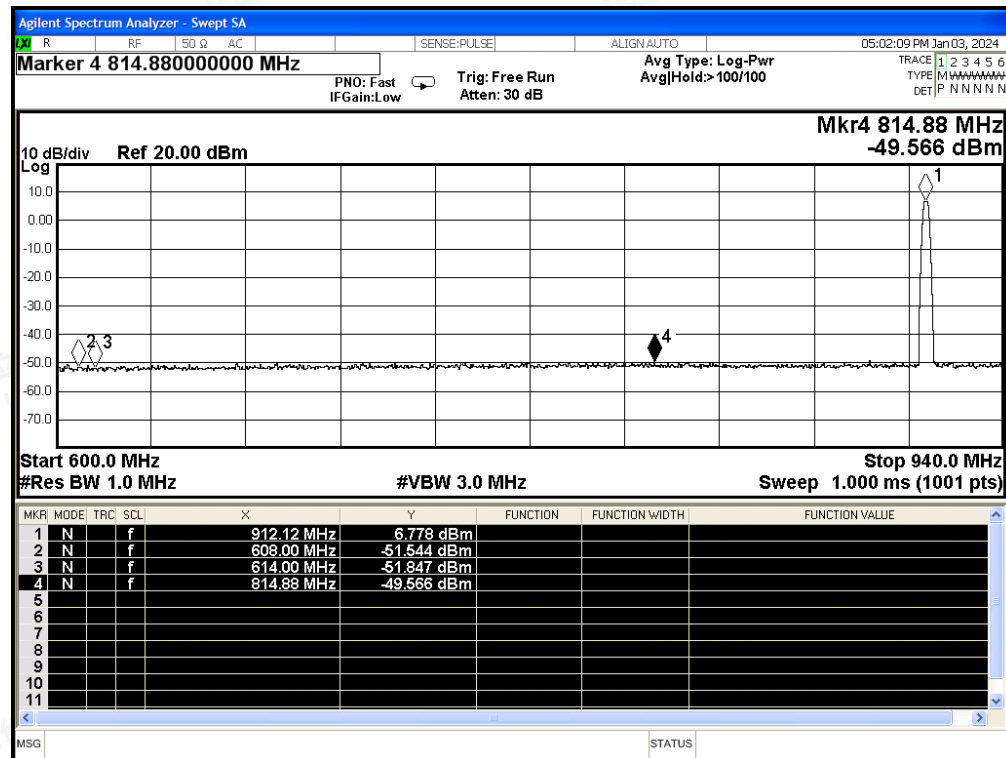
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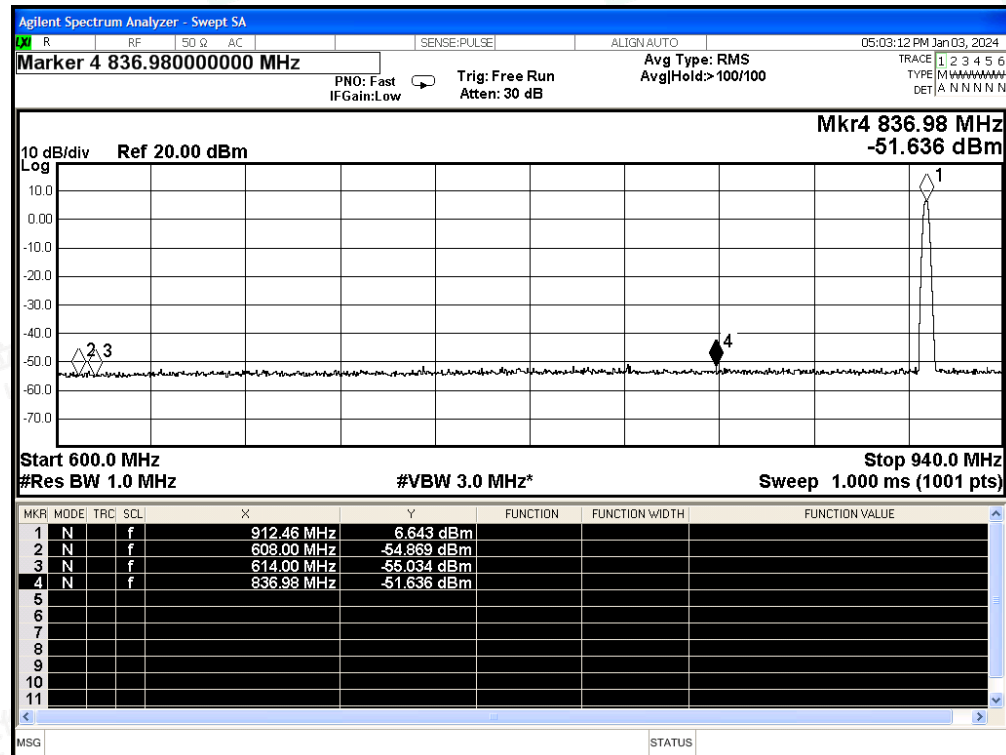


## Test Graphs

## Restrict Band NVNT Z-Wave 912MHz Ant2 Peak



## Restrict Band NVNT Z-Wave 912MHz Ant2 Average



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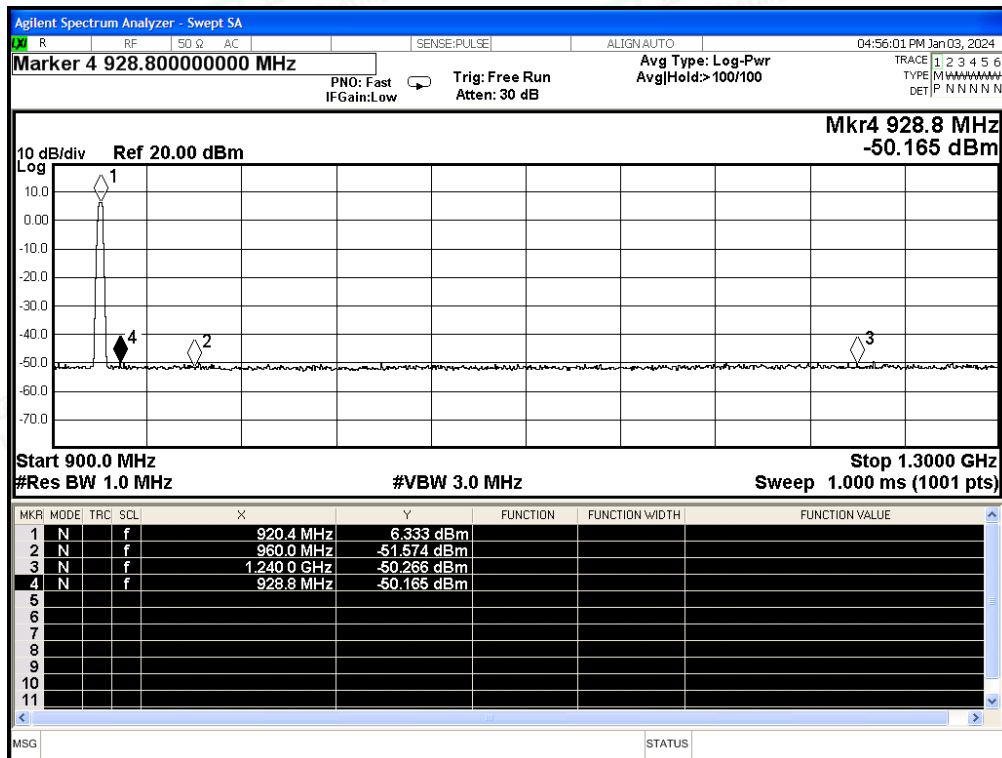
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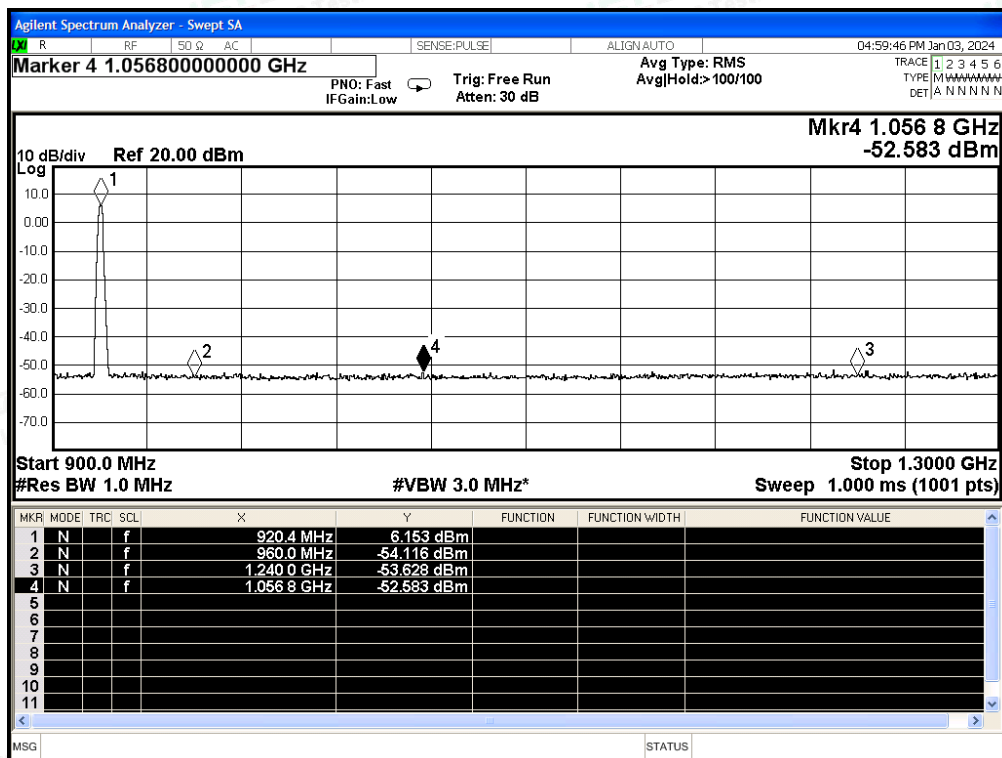
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## Restrict Band NVNT Z-Wave 927.4MHz Ant2 Peak



## Restrict Band NVNT Z-Wave 927.4MHz Ant2 Average



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