



## Appendix A

### RF Test Data for BT V5.0(BDR/EDR) (Conducted Measurement)

Product Name: Carson Bluetooth® Speaker

Trade Mark: Gemline

Test Model: 101132-001B

#### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 24.6° C   |
| Relative Humidity: | 54.1%     |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | Carl Fu   |
| Supervised by:     | Li Huan   |

#### A.1 Maximum Conducted Peak Output Power

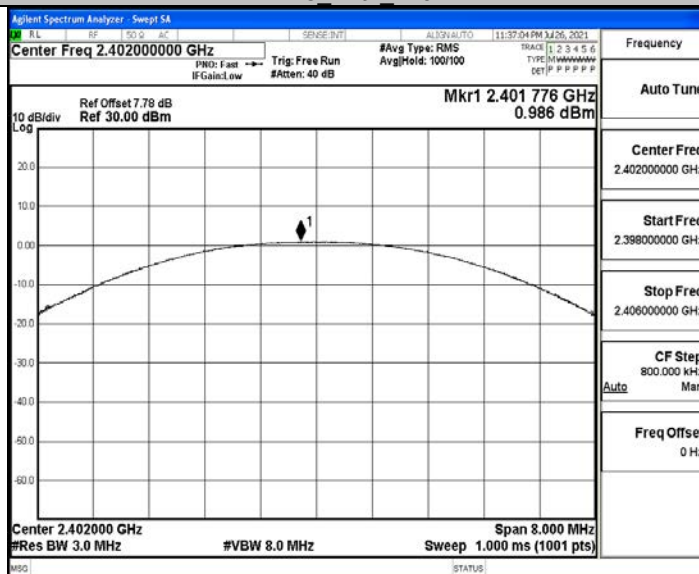
##### Test Result

| TestMode | Antenna | Channel | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-------------|------------|---------|
| DH5      | Ant1    | 2402    | 0.99        | ≤20.97     | PASS    |
|          |         | 2441    | -0.41       | ≤20.97     | PASS    |
|          |         | 2480    | 0.62        | ≤20.97     | PASS    |
| 2DH5     | Ant1    | 2402    | 0.08        | ≤20.97     | PASS    |
|          |         | 2441    | -1.05       | ≤20.97     | PASS    |
|          |         | 2480    | -0.29       | ≤20.97     | PASS    |
| 3DH5     | Ant1    | 2402    | 0.15        | ≤20.97     | PASS    |
|          |         | 2441    | -0.98       | ≤20.97     | PASS    |
|          |         | 2480    | -0.11       | ≤20.97     | PASS    |

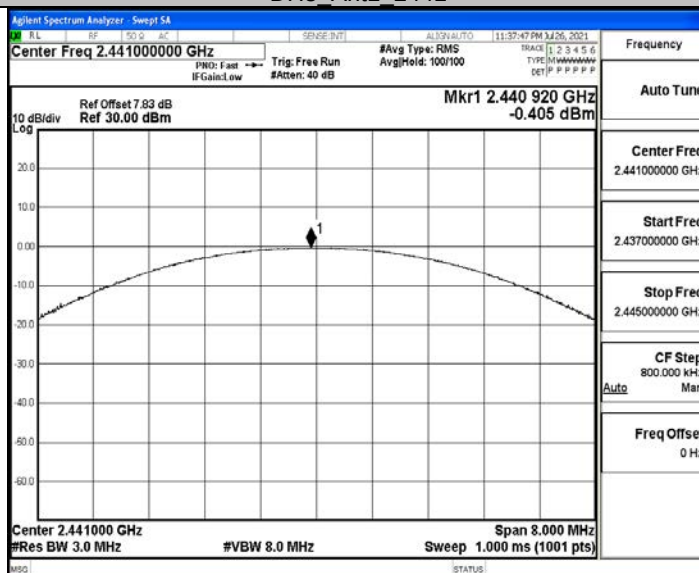


## Test Graphs

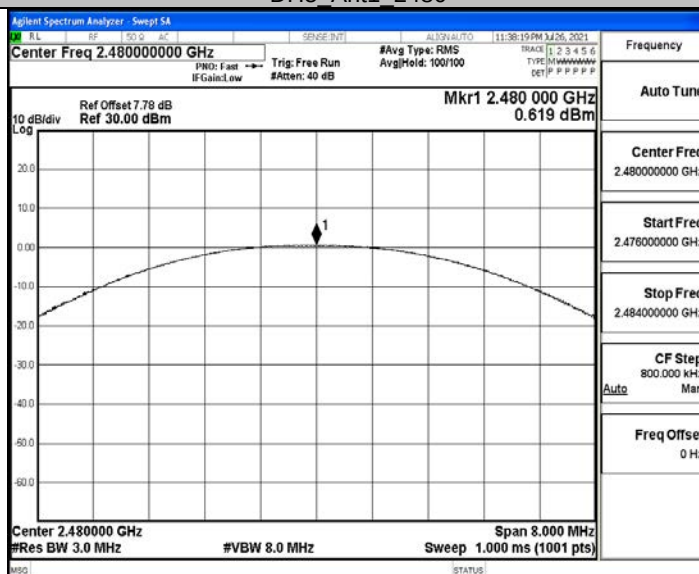
DH5\_Ant1\_2402



DH5\_Ant1\_2441

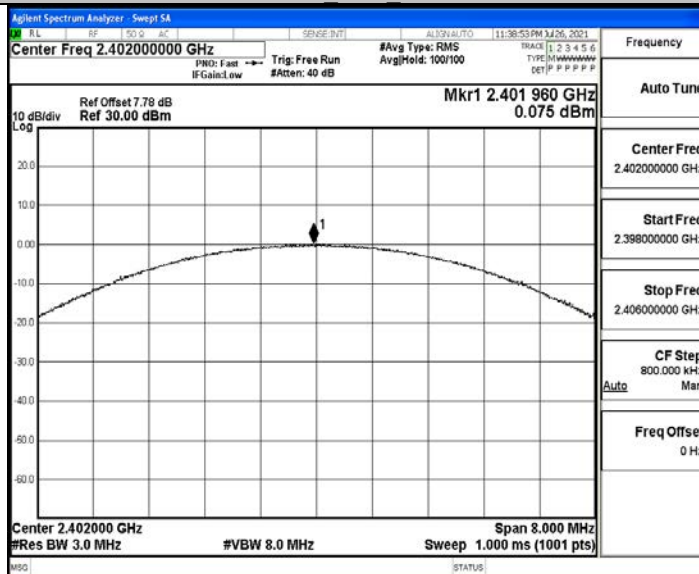


DH5\_Ant1\_2480

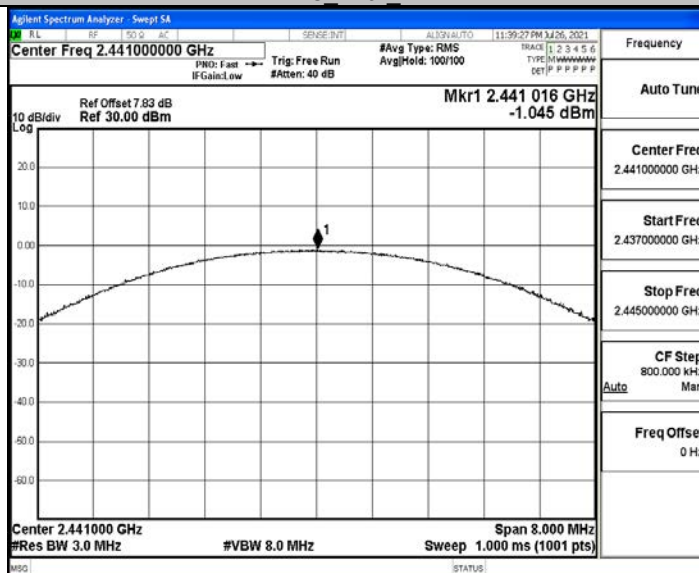




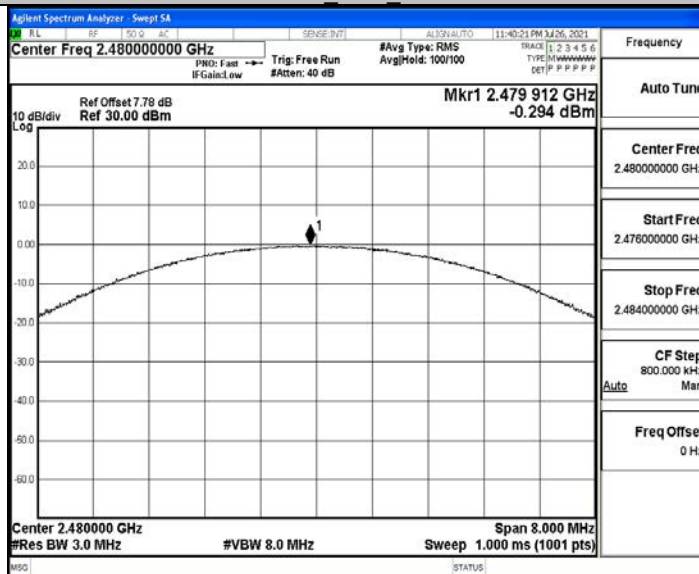
## 2DH5\_Ant1\_2402



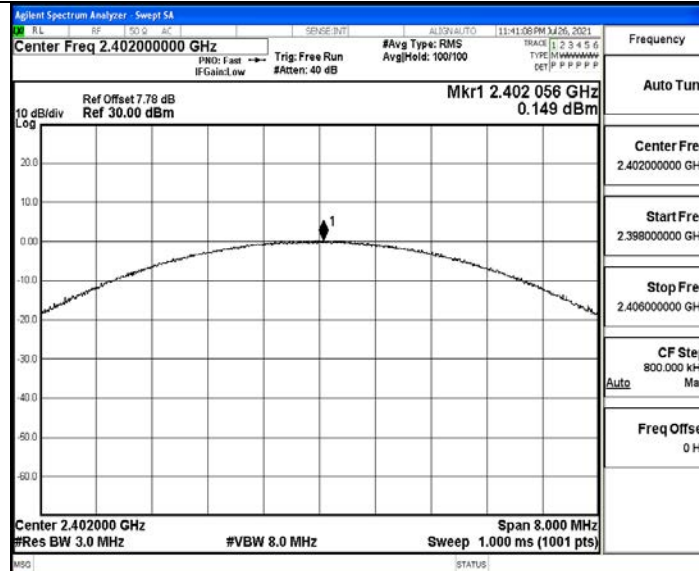
## 2DH5\_Ant1\_2441



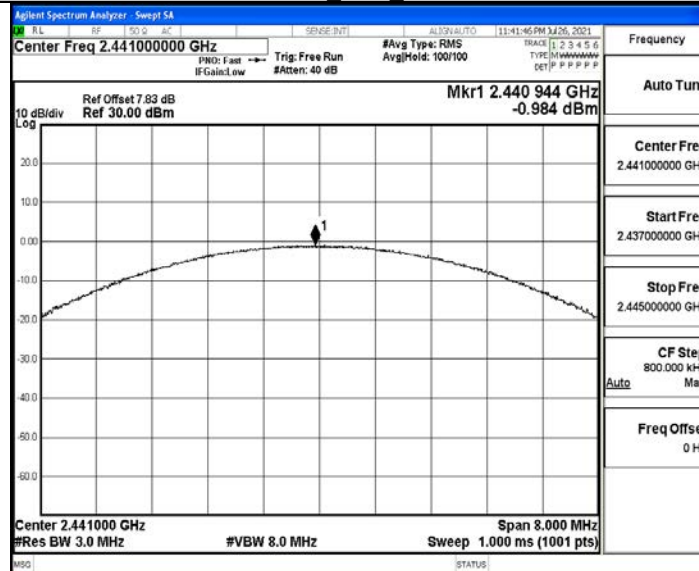
## 2DH5\_Ant1\_2480



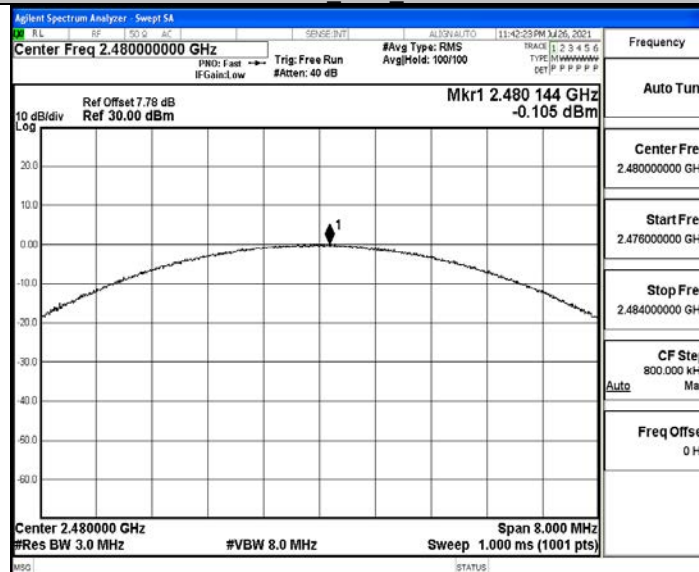
## 3DH5\_Ant1\_2402



3DH5\_Ant1\_2441



3DH5\_Ant1\_2480



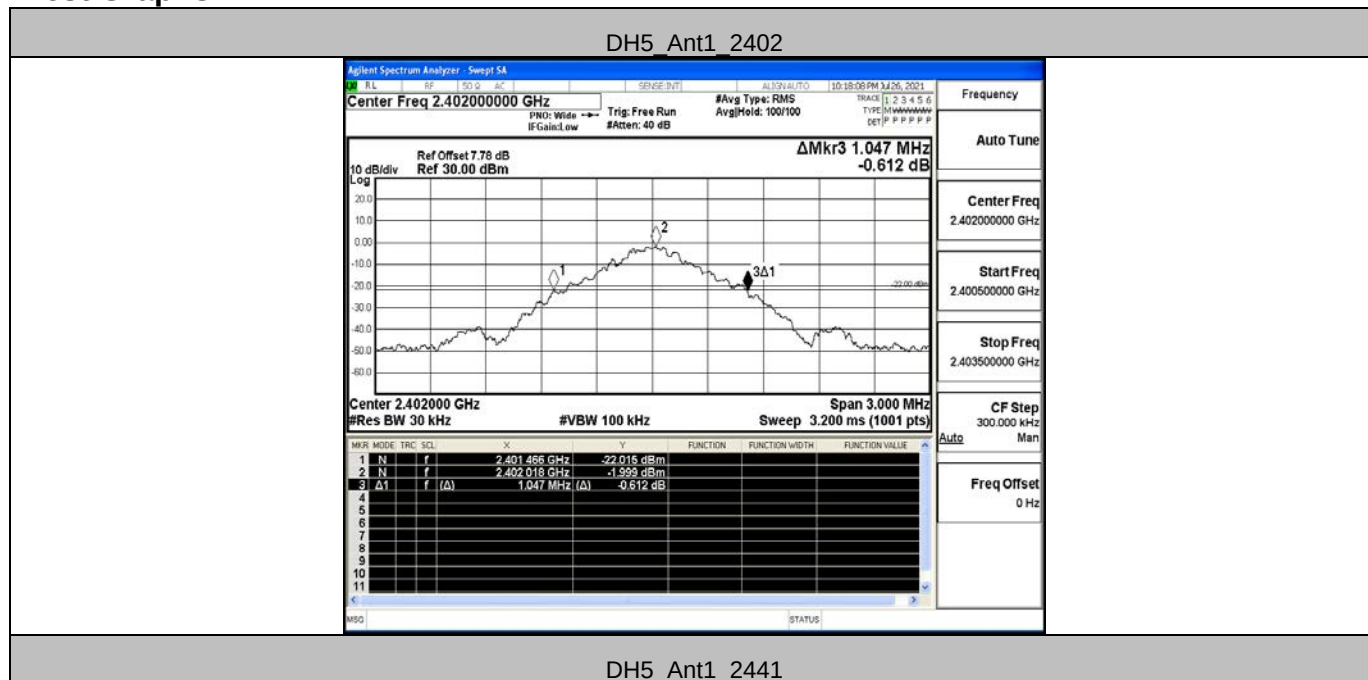


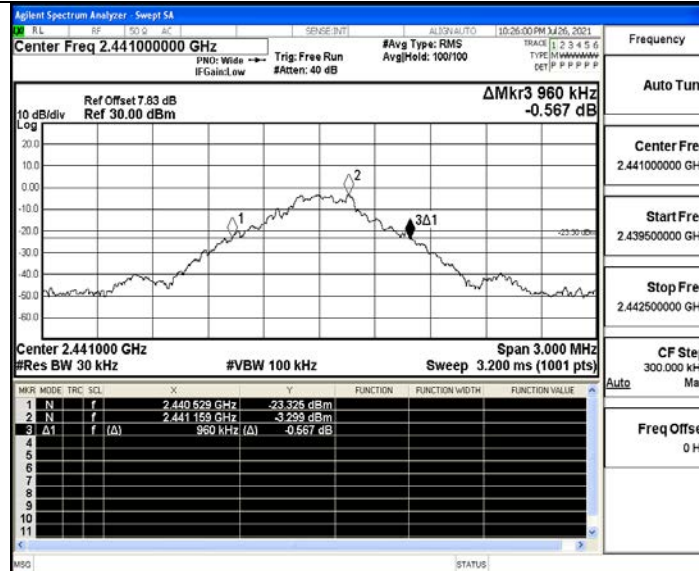
## A.2 20dB Bandwidth

### Test Result

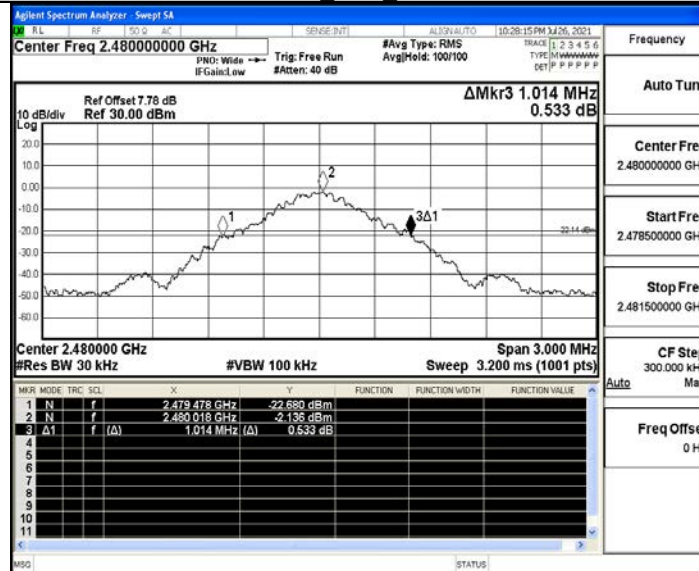
| TestMode | Antenna | Channel | 20db EBW[MHz] | FL[MHz]  | FH[MHz]  | Limit[MHz] | Verdict |
|----------|---------|---------|---------------|----------|----------|------------|---------|
| DH5      | Ant1    | 2402    | 1.047         | 2401.466 | 2402.513 | ---        | PASS    |
|          |         | 2441    | 0.960         | 2440.529 | 2441.489 | ---        | PASS    |
|          |         | 2480    | 1.014         | 2479.478 | 2480.492 | ---        | PASS    |
| 2DH5     | Ant1    | 2402    | 1.290         | 2401.364 | 2402.654 | ---        | PASS    |
|          |         | 2441    | 1.317         | 2440.343 | 2441.660 | ---        | PASS    |
|          |         | 2480    | 1.317         | 2479.337 | 2480.654 | ---        | PASS    |
| 3DH5     | Ant1    | 2402    | 1.281         | 2401.364 | 2402.645 | ---        | PASS    |
|          |         | 2441    | 1.299         | 2440.352 | 2441.651 | ---        | PASS    |
|          |         | 2480    | 1.353         | 2479.319 | 2480.672 | ---        | PASS    |

### Test Graphs

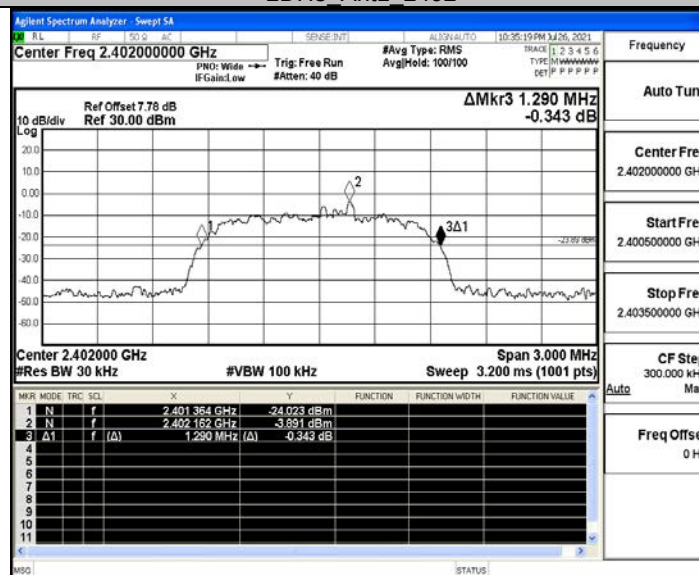




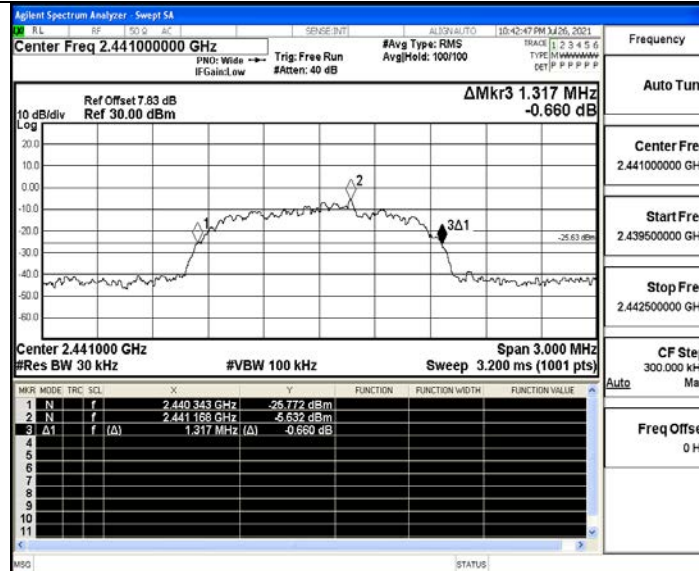
DH5\_Ant1\_2480



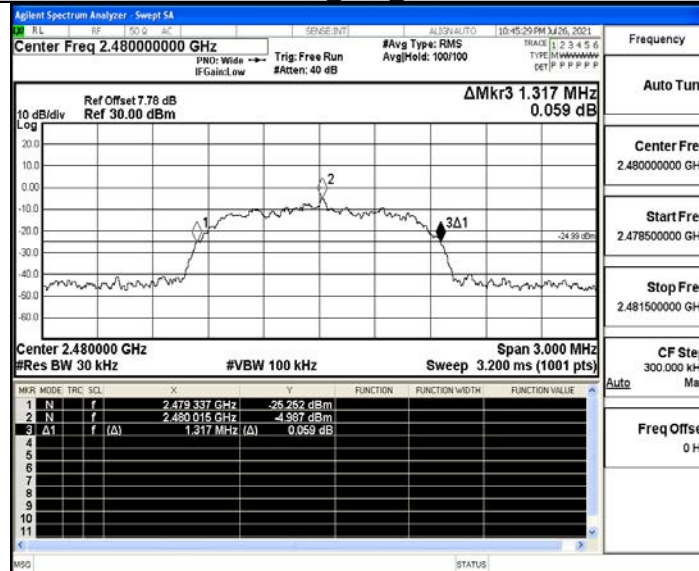
2DH5\_Ant1\_2402



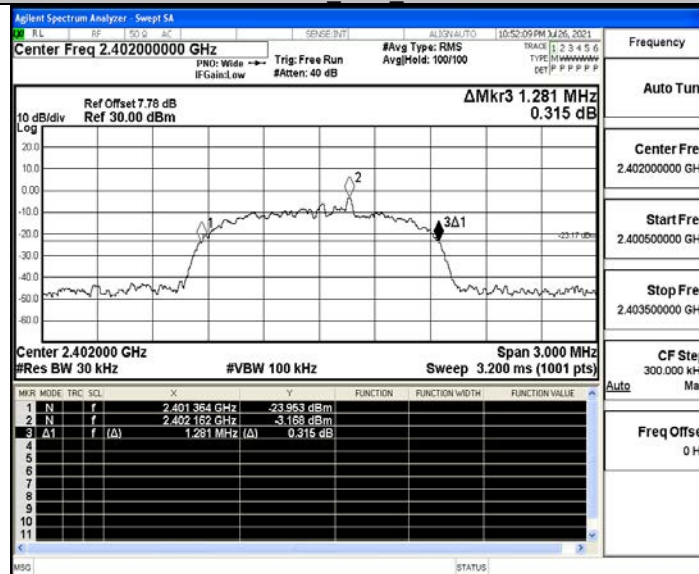
2DH5\_Ant1\_2441



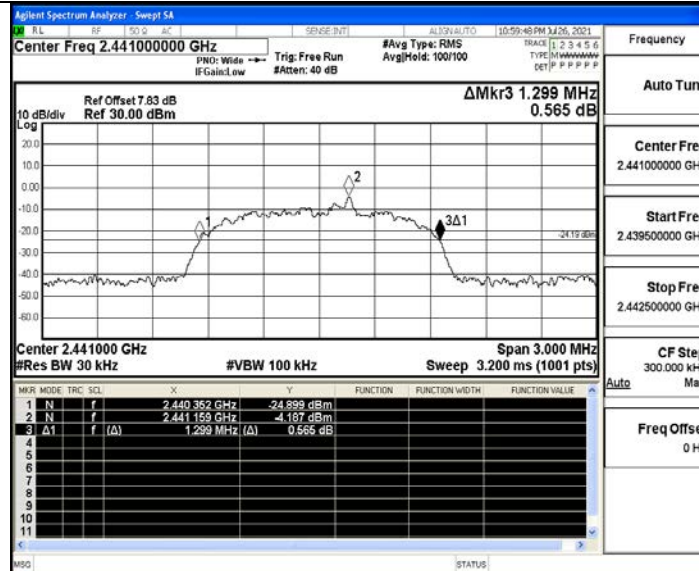
2DH5\_Ant1\_2480



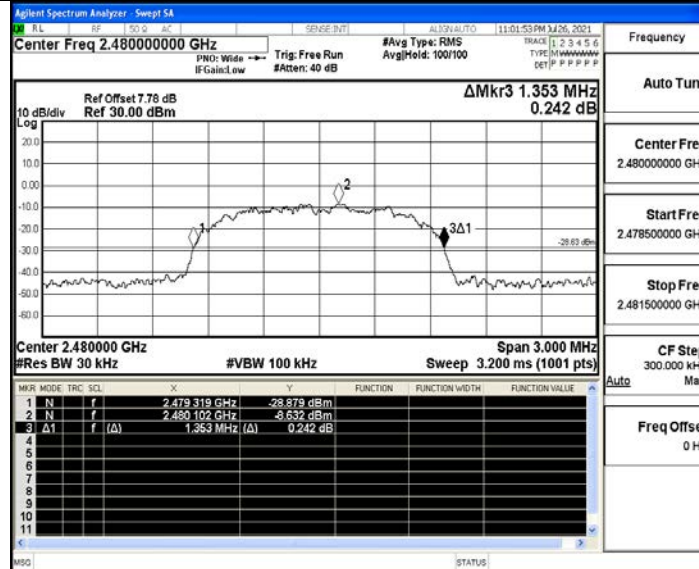
3DH5\_Ant1\_2402



3DH5\_Ant1\_2441



## 3DH5\_Ant1\_2480



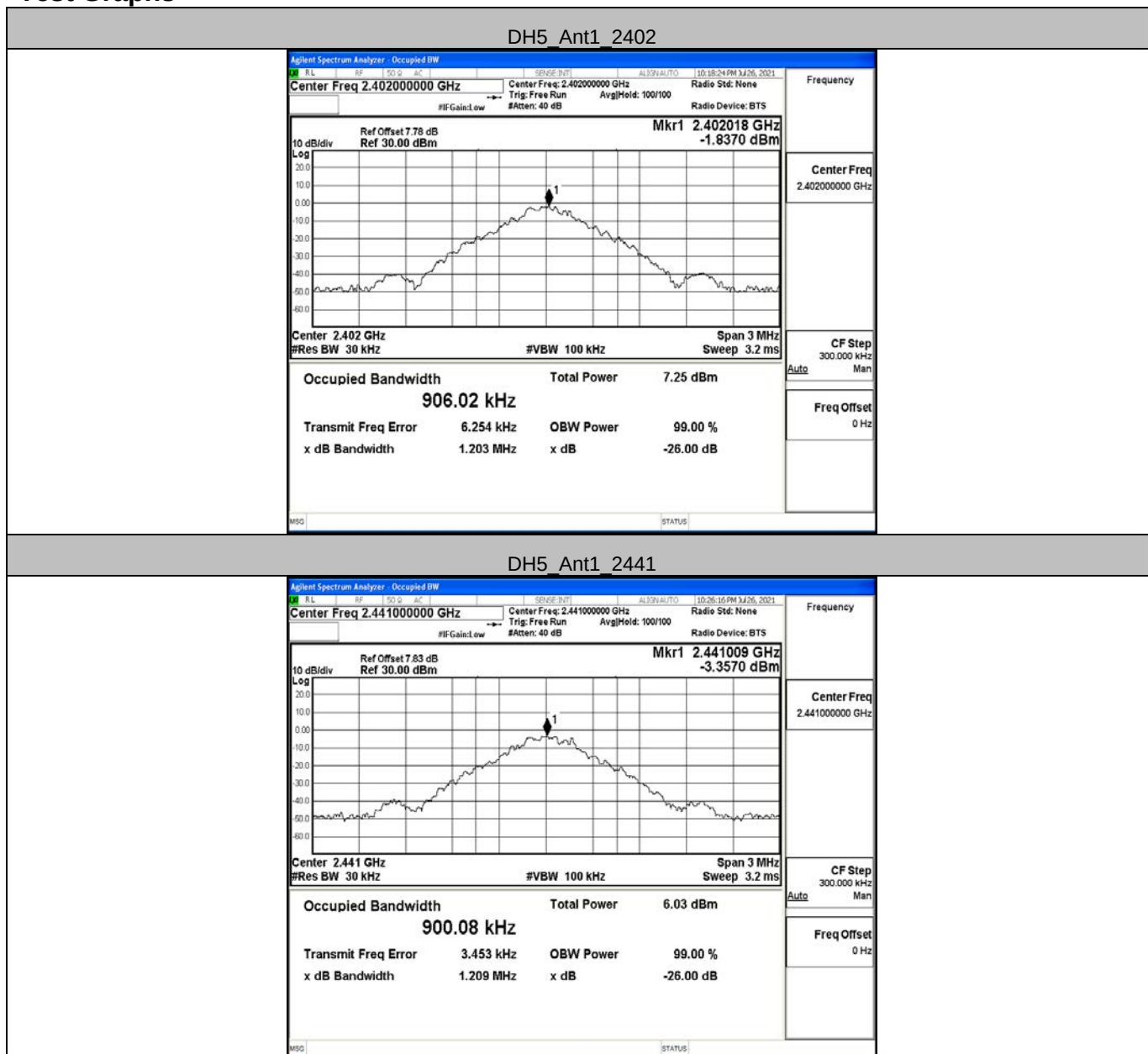


### A.3 Occupied Bandwidth

#### Test Result

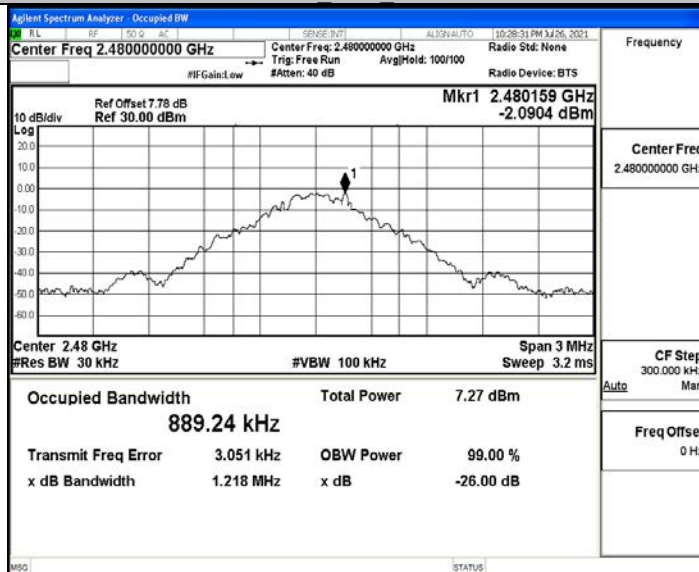
| TestMode | Antenna | Channel | OCB [MHz] | FL[MHz]  | FH[MHz]  | Limit[MHz] | Verdict |
|----------|---------|---------|-----------|----------|----------|------------|---------|
| DH5      | Ant1    | 2402    | 0.90602   | 2401.553 | 2402.459 | ---        | PASS    |
|          |         | 2441    | 0.90008   | 2440.553 | 2441.453 | ---        | PASS    |
|          |         | 2480    | 0.88924   | 2479.558 | 2480.448 | ---        | PASS    |
| 2DH5     | Ant1    | 2402    | 1.1778    | 2401.409 | 2402.587 | ---        | PASS    |
|          |         | 2441    | 1.2003    | 2440.400 | 2441.600 | ---        | PASS    |
|          |         | 2480    | 1.2002    | 2479.398 | 2480.598 | ---        | PASS    |
| 3DH5     | Ant1    | 2402    | 1.1913    | 2401.409 | 2402.600 | ---        | PASS    |
|          |         | 2441    | 1.2076    | 2440.392 | 2441.599 | ---        | PASS    |
|          |         | 2480    | 1.2091    | 2479.391 | 2480.600 | ---        | PASS    |

#### Test Graphs

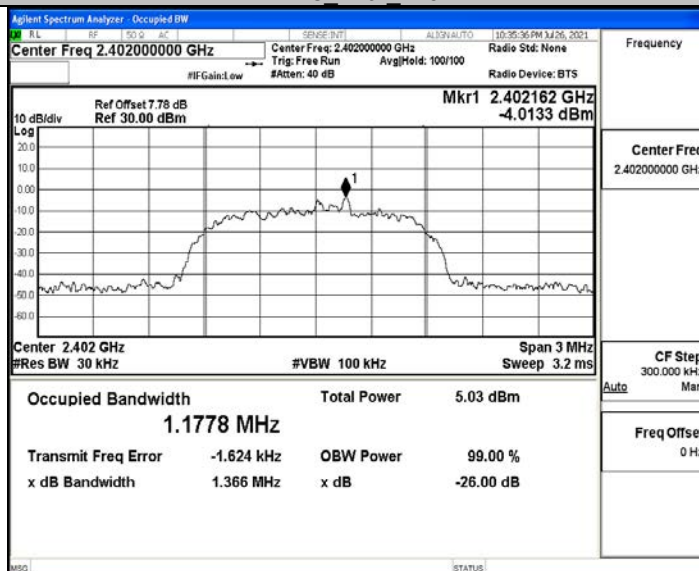




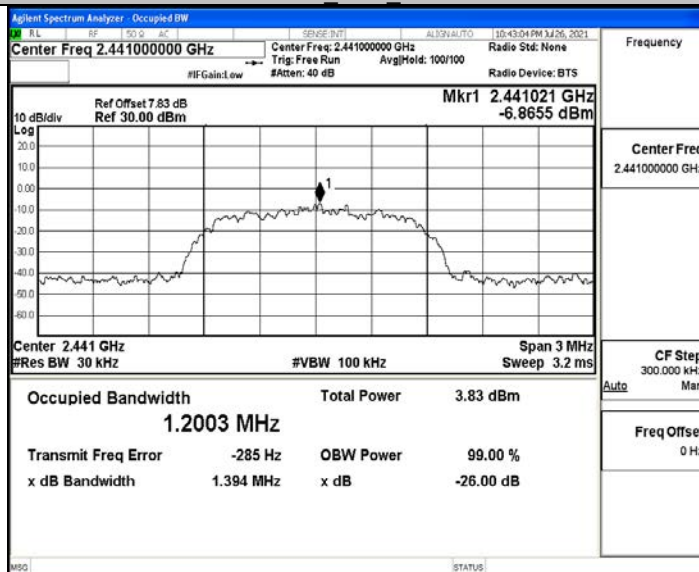
## DH5 Ant1 2480



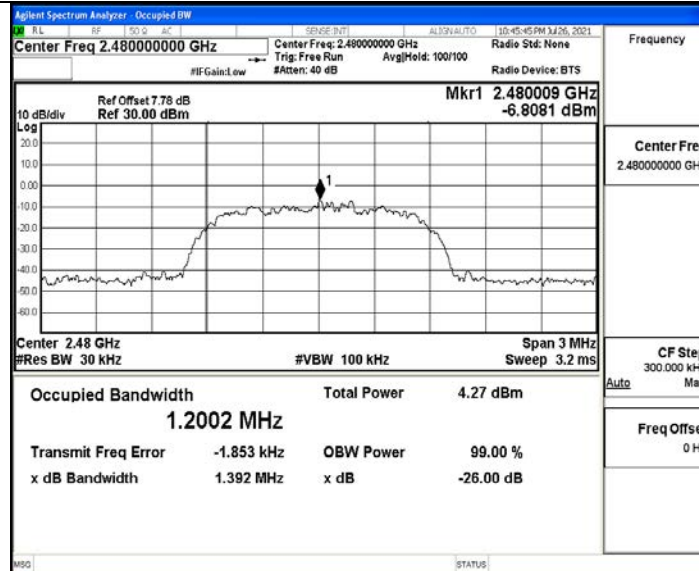
## 2DH5 Ant1 2402



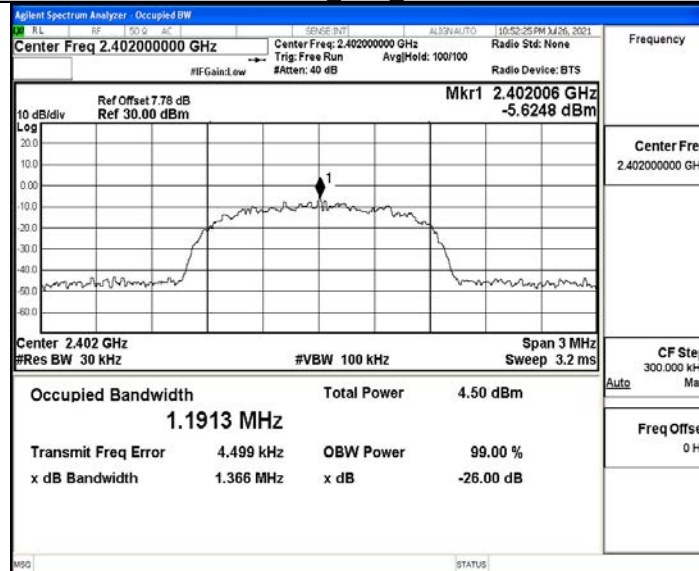
## 2DH5 Ant1 2441



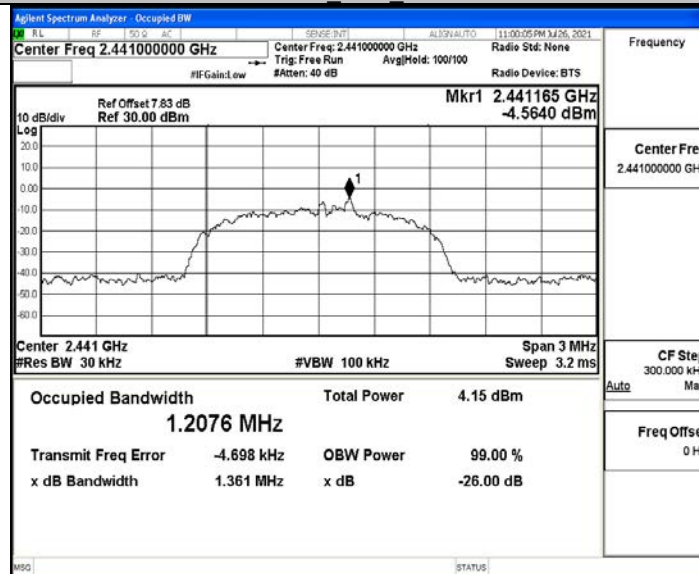
## 2DH5 Ant1 2480



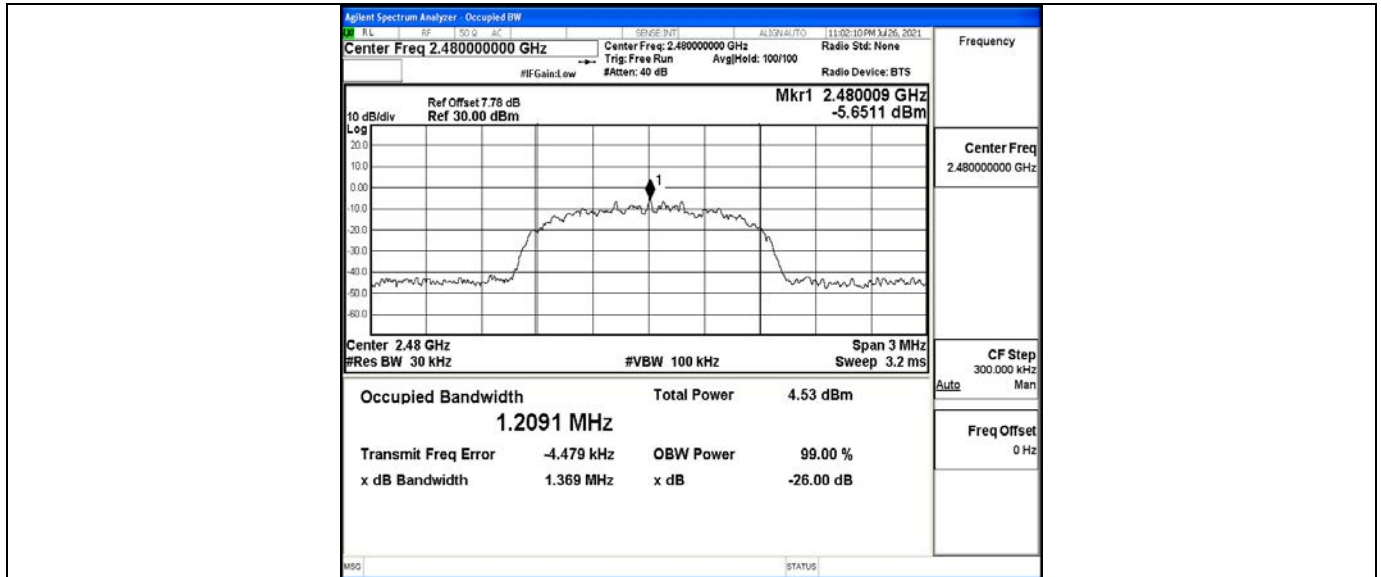
3DH5\_Ant1\_2402



3DH5\_Ant1\_2441



3DH5\_Ant1\_2480



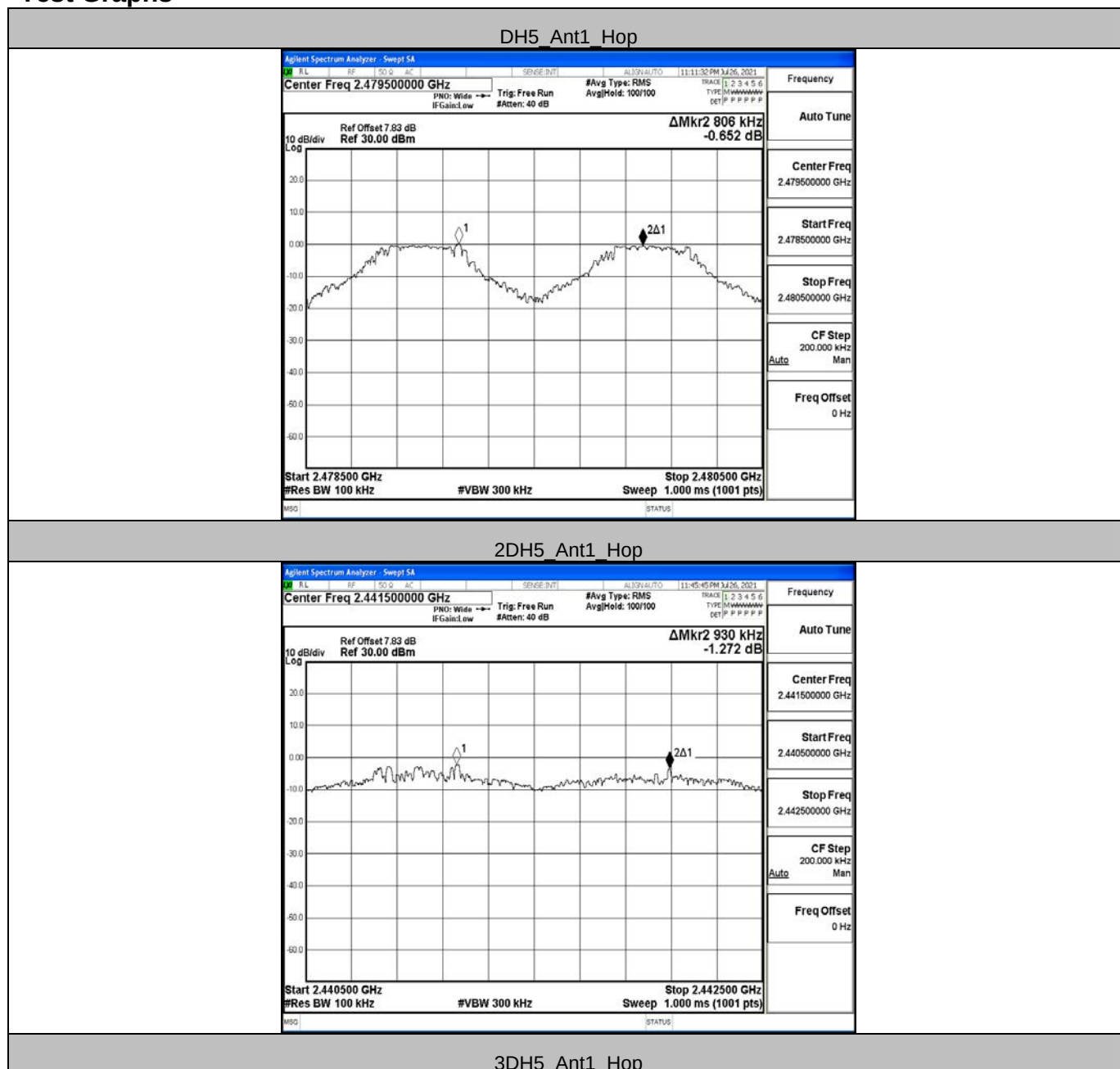


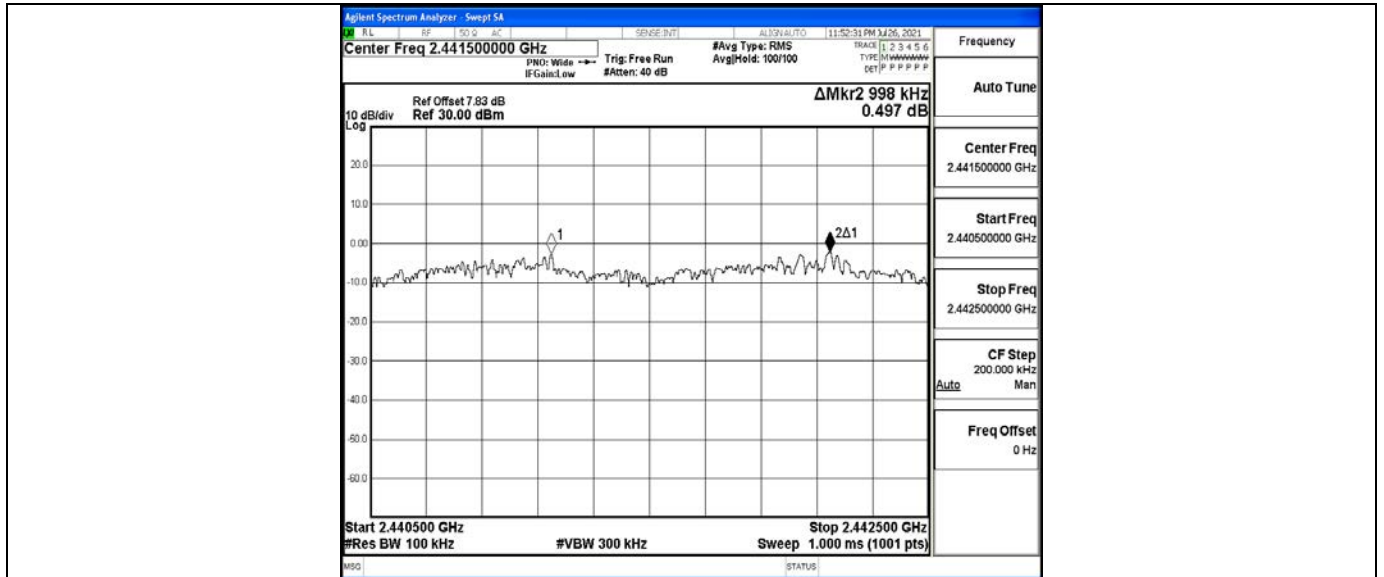
## A.4 Carrier Frequency Separation

### Test Result

| TestMode | Antenna | Channel | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-------------|------------|---------|
| DH5      | Ant1    | Hop     | 0.806       | ≥0.698     | PASS    |
| 2DH5     | Ant1    | Hop     | 0.93        | ≥0.878     | PASS    |
| 3DH5     | Ant1    | Hop     | 0.998       | ≥0.902     | PASS    |

### Test Graphs





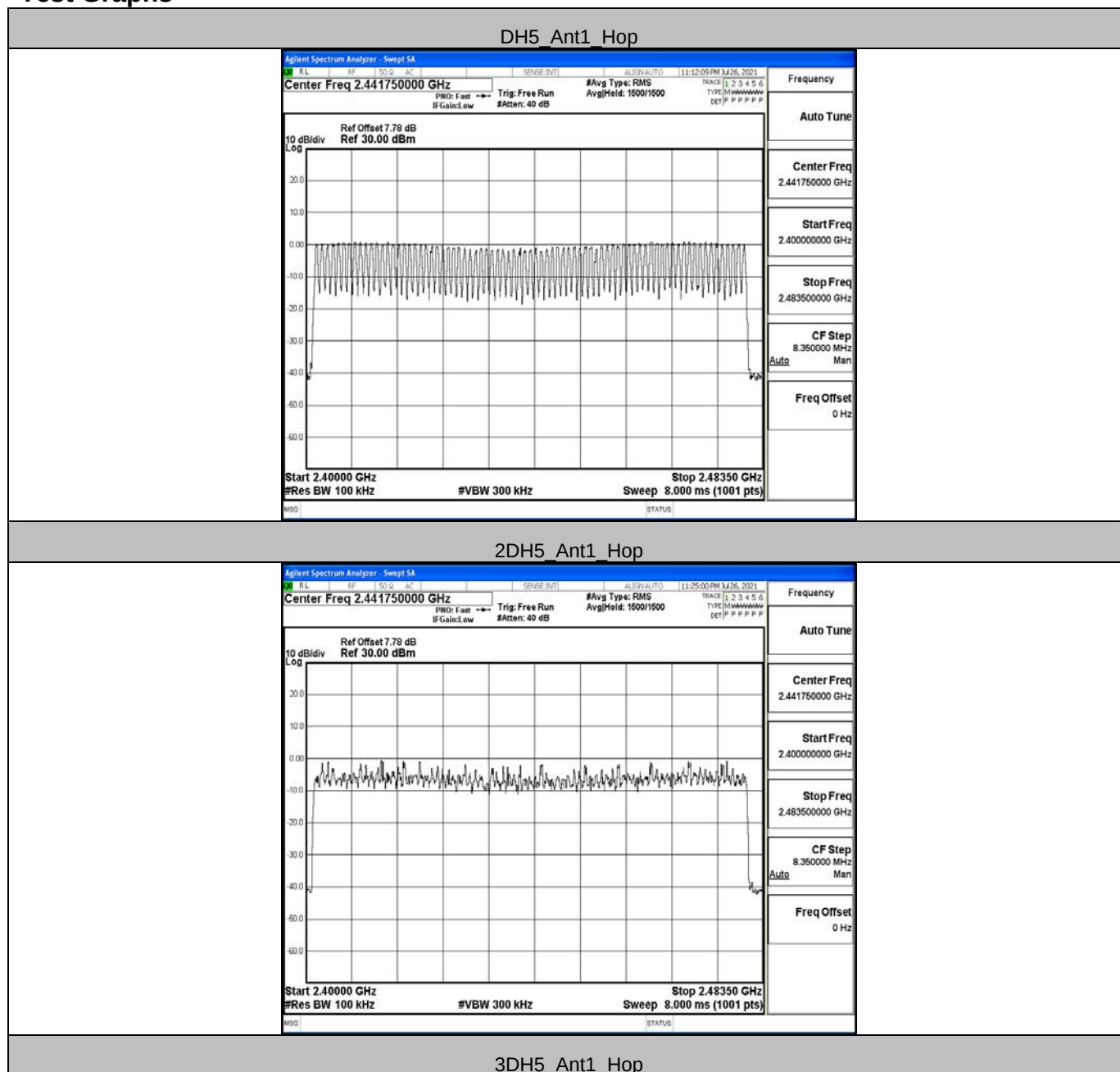


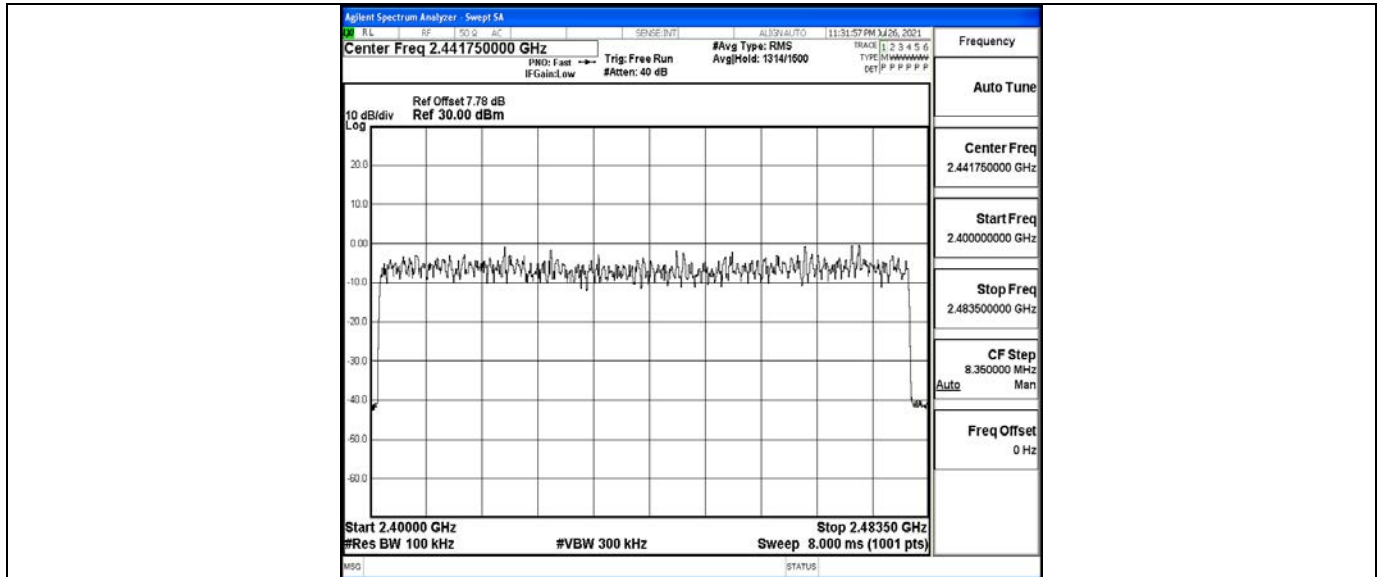
## A.5 Hopping Channel Number

### Test Result

| TestMode | Antenna | Channel | Result[Num] | Limit[Num] | Verdict |
|----------|---------|---------|-------------|------------|---------|
| DH5      | Ant1    | Hop     | 79          | ≥15        | PASS    |
| 2DH5     | Ant1    | Hop     | 79          | ≥15        | PASS    |
| 3DH5     | Ant1    | Hop     | 79          | ≥15        | PASS    |

### Test Graphs





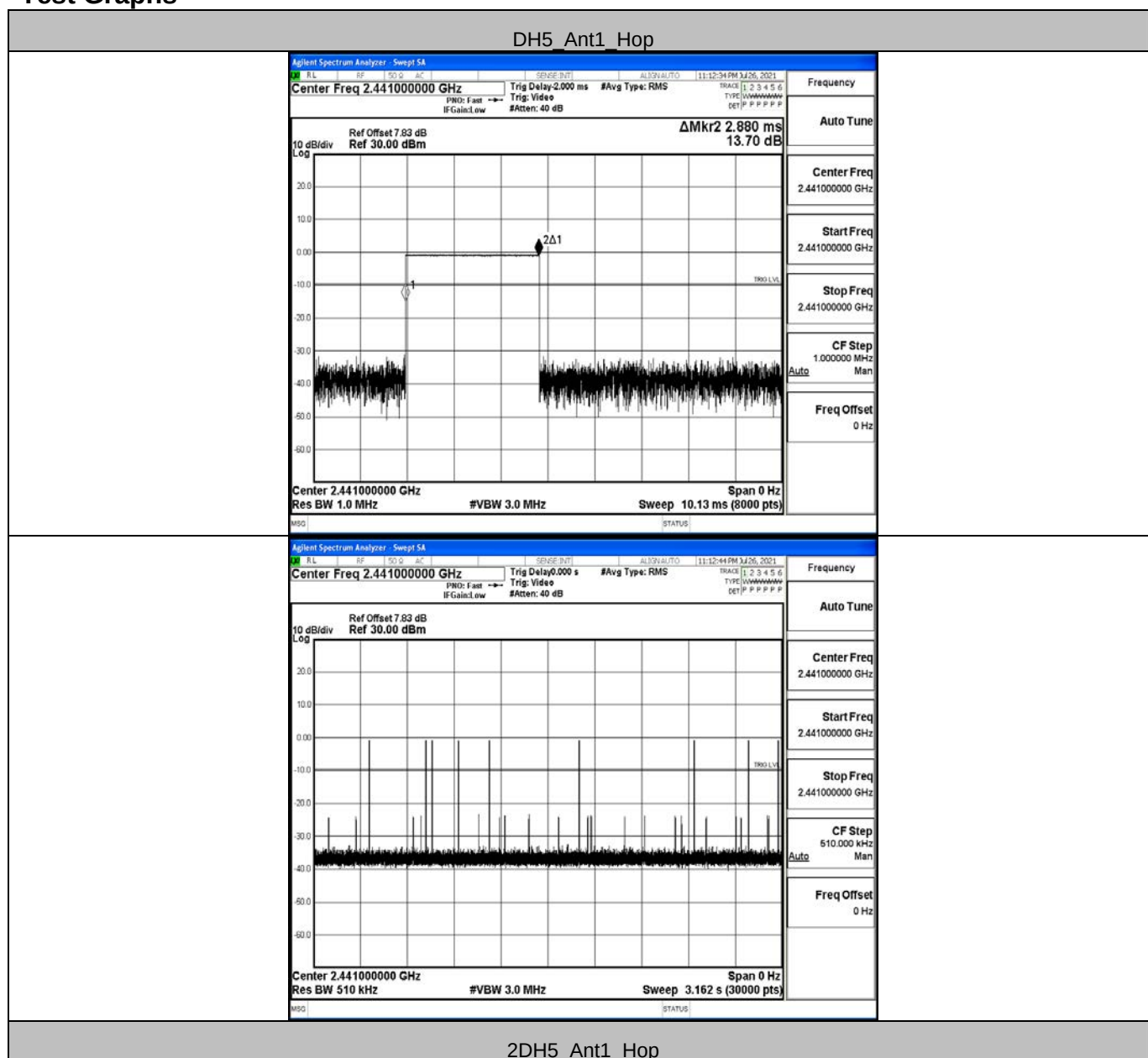


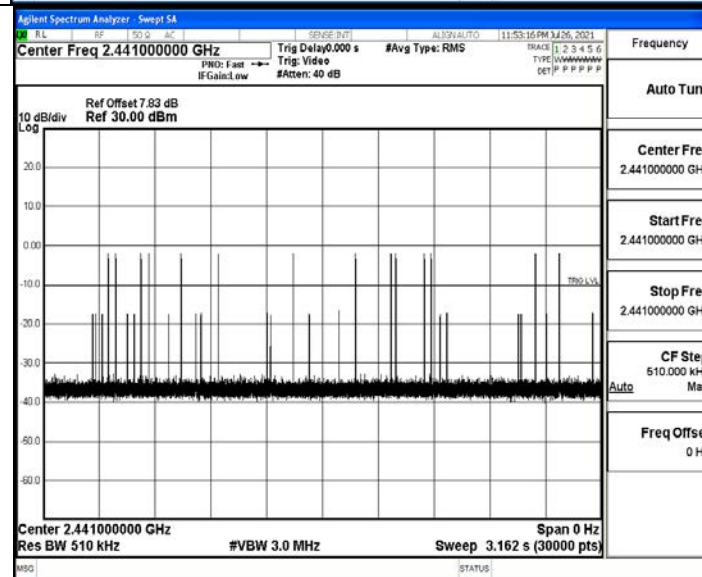
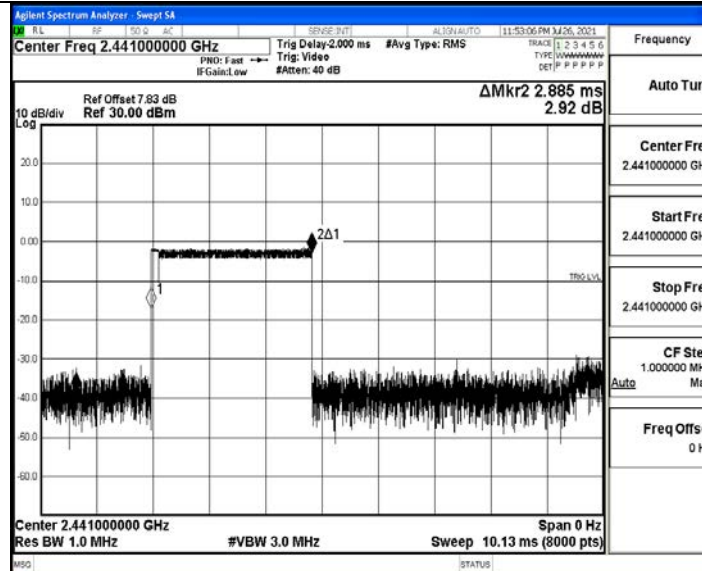
## A.6 Dwell Time

### Test Result

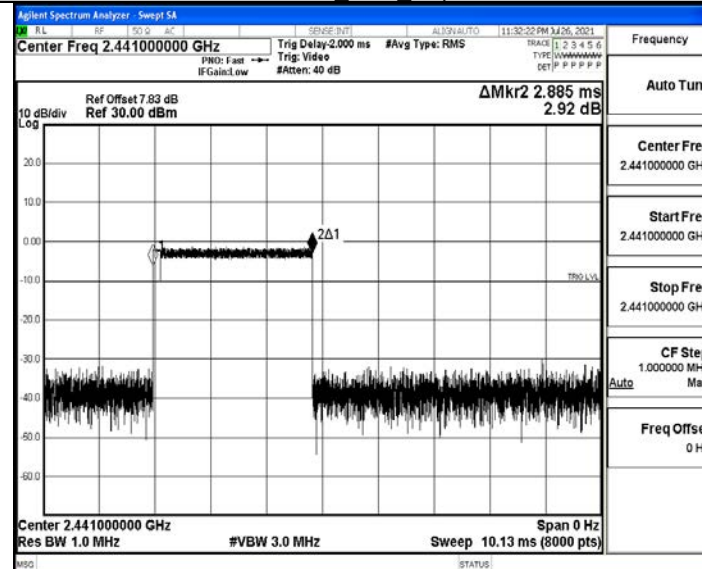
| TestMode | Antenna | Channel | BurstWidth<br>[ms] | TotalHops<br>[Num] | Result[s] | Limit[s] | Verdict |
|----------|---------|---------|--------------------|--------------------|-----------|----------|---------|
| DH5      | Ant1    | Hop     | 2.88               | 110                | 0.317     | ≤0.4     | PASS    |
| 2DH5     | Ant1    | Hop     | 2.89               | 110                | 0.317     | ≤0.4     | PASS    |
| 3DH5     | Ant1    | Hop     | 2.89               | 120                | 0.346     | ≤0.4     | PASS    |

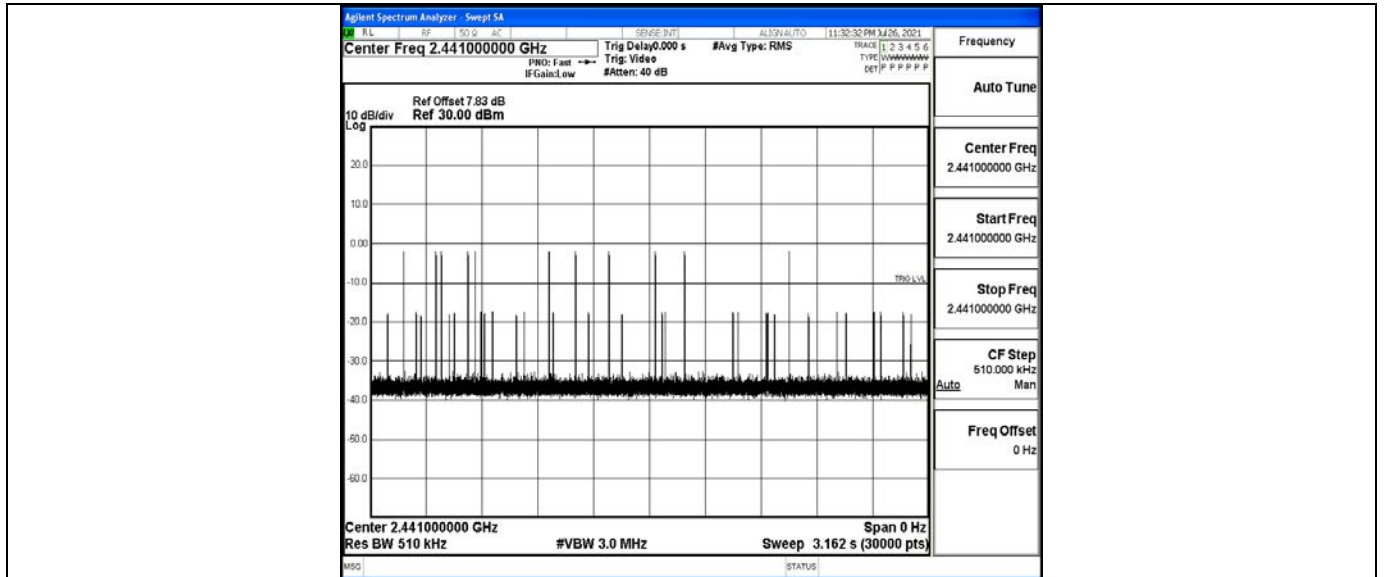
### Test Graphs





## 3DH5\_Ant1\_Hop







## A.7 RF Conducted Spurious Emissions

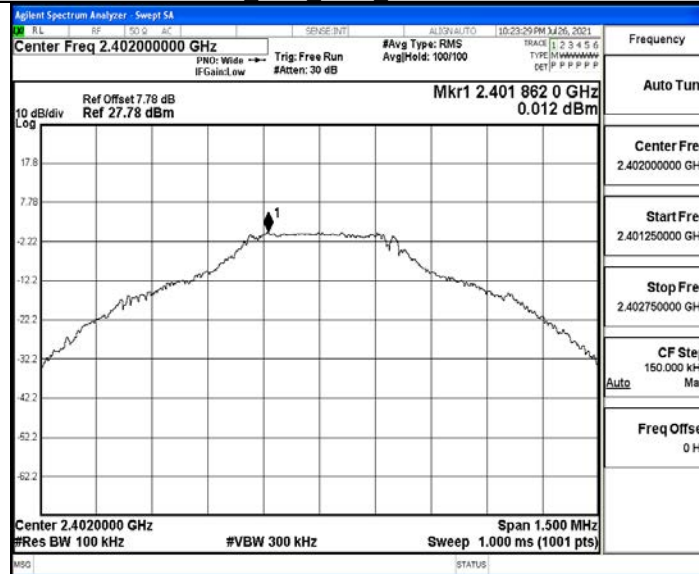
### Test Result

| TestMode | Antenna | Channel | FreqRange<br>[MHz] | RefLevel<br>[dBm] | Result<br>[dBm] | Limit<br>[dBm] | Verdict |
|----------|---------|---------|--------------------|-------------------|-----------------|----------------|---------|
| DH5      | Ant1    | 2402    | Reference          | 0.01              | 0.01            | ---            | PASS    |
|          |         |         | 30~1000            | 0.01              | -57.76          | ≤-19.99        | PASS    |
|          |         |         | 1000~26500         | 0.01              | -46.94          | ≤-19.99        | PASS    |
|          |         | 2441    | Reference          | -1.46             | -1.46           | ---            | PASS    |
|          |         |         | 30~1000            | -1.46             | -58.29          | ≤-21.46        | PASS    |
|          |         |         | 1000~26500         | -1.46             | -46.17          | ≤-21.46        | PASS    |
|          |         | 2480    | Reference          | 0.14              | 0.14            | ---            | PASS    |
|          |         |         | 30~1000            | 0.14              | -56.92          | ≤-19.86        | PASS    |
|          |         |         | 1000~26500         | 0.14              | -47             | ≤-19.86        | PASS    |
| 2DH5     | Ant1    | 2402    | Reference          | -2.03             | -2.03           | ---            | PASS    |
|          |         |         | 30~1000            | -2.03             | -57.75          | ≤-22.03        | PASS    |
|          |         |         | 1000~26500         | -2.03             | -47.22          | ≤-22.03        | PASS    |
|          |         | 2441    | Reference          | -2.29             | -2.29           | ---            | PASS    |
|          |         |         | 30~1000            | -2.29             | -58.84          | ≤-22.29        | PASS    |
|          |         |         | 1000~26500         | -2.29             | -47.7           | ≤-22.29        | PASS    |
|          |         | 2480    | Reference          | -1.58             | -1.58           | ---            | PASS    |
|          |         |         | 30~1000            | -1.58             | -57.64          | ≤-21.58        | PASS    |
|          |         |         | 1000~26500         | -1.58             | -46.44          | ≤-21.58        | PASS    |
| 3DH5     | Ant1    | 2402    | Reference          | -4.13             | -4.13           | ---            | PASS    |
|          |         |         | 30~1000            | -4.13             | -57.23          | ≤-24.13        | PASS    |
|          |         |         | 1000~26500         | -4.13             | -46.96          | ≤-24.13        | PASS    |
|          |         | 2441    | Reference          | -2.86             | -2.86           | ---            | PASS    |
|          |         |         | 30~1000            | -2.86             | -58.02          | ≤-22.86        | PASS    |
|          |         |         | 1000~26500         | -2.86             | -47.22          | ≤-22.86        | PASS    |
|          |         | 2480    | Reference          | -3.53             | -3.53           | ---            | PASS    |
|          |         |         | 30~1000            | -3.53             | -58.42          | ≤-23.53        | PASS    |
|          |         |         | 1000~26500         | -3.53             | -48.03          | ≤-23.53        | PASS    |

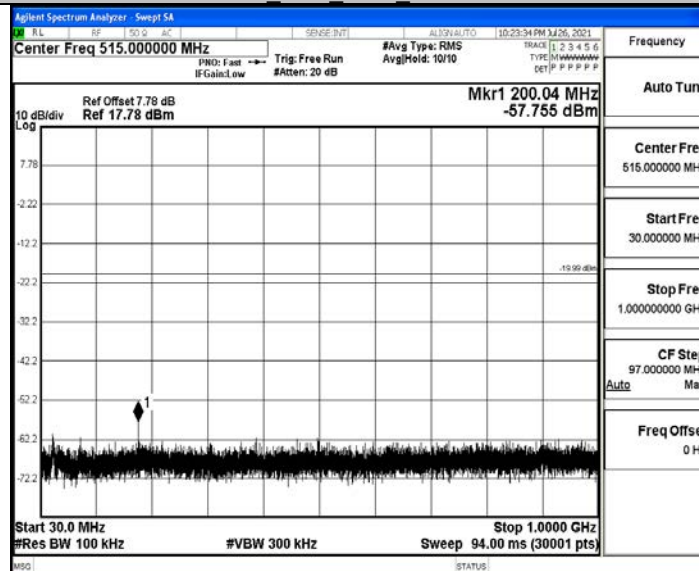


## Test Graphs

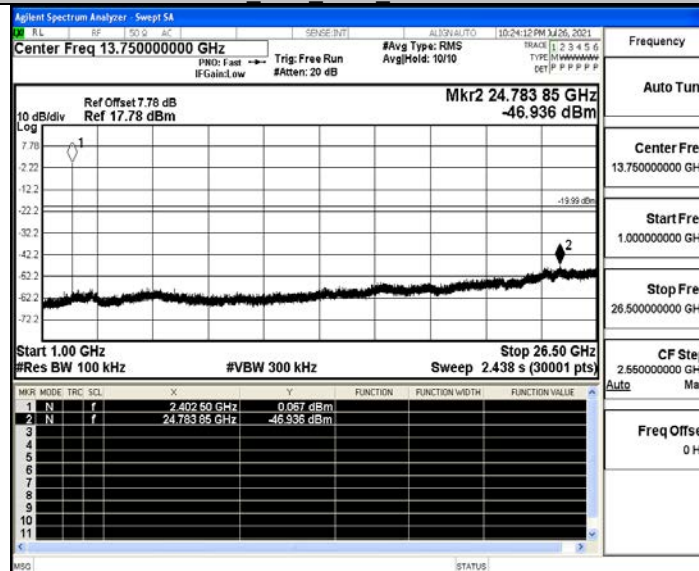
DH5\_Ant1\_2402\_0~Reference



DH5\_Ant1\_2402\_30~1000



DH5\_Ant1\_2402\_1000~26500

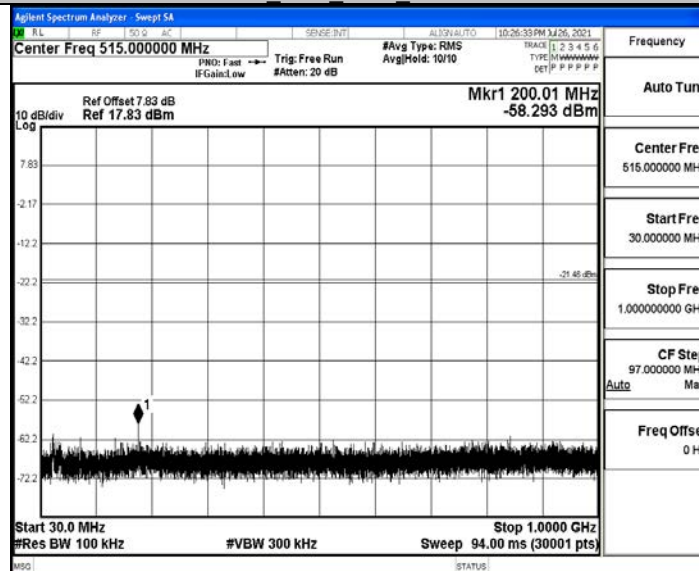




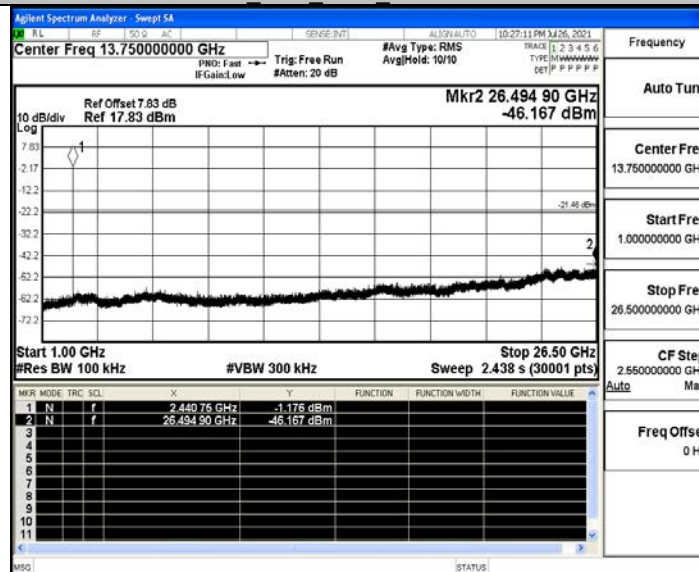
## DH5\_Ant1\_2441\_0~Reference



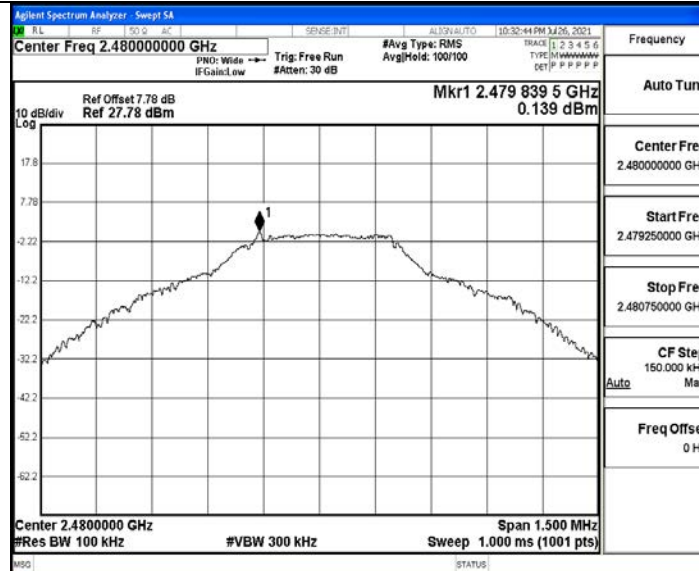
## DH5\_Ant1\_2441\_30~1000



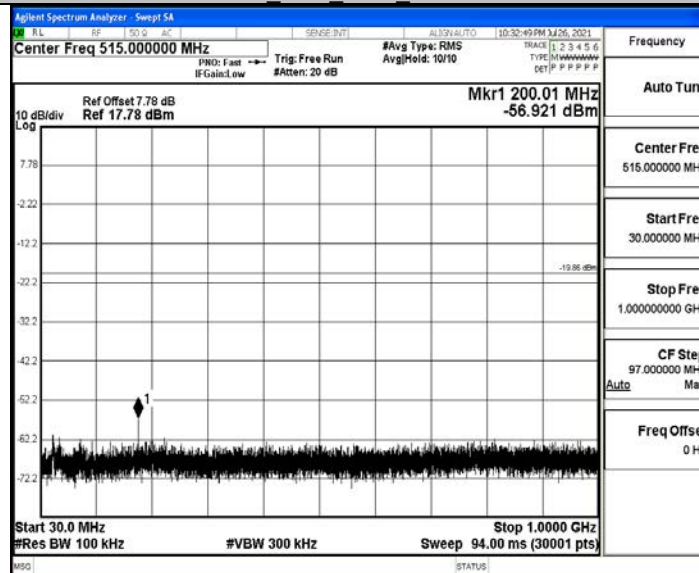
## DH5\_Ant1\_2441\_1000~26500



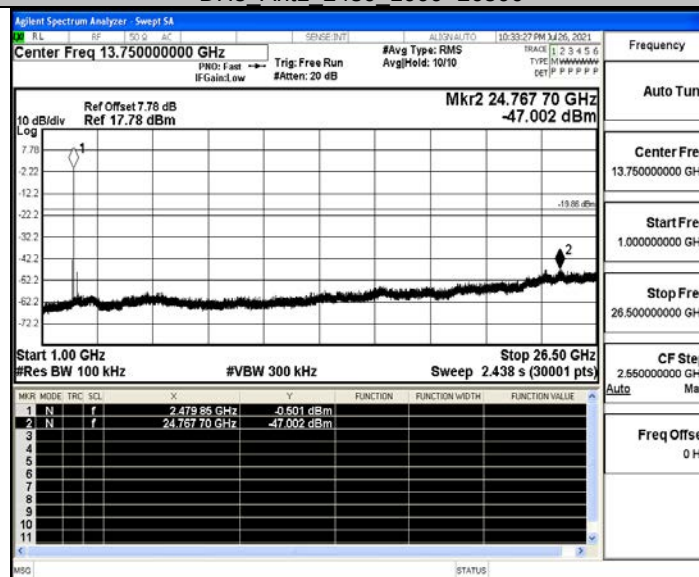
## DH5\_Ant1\_2480\_0~Reference



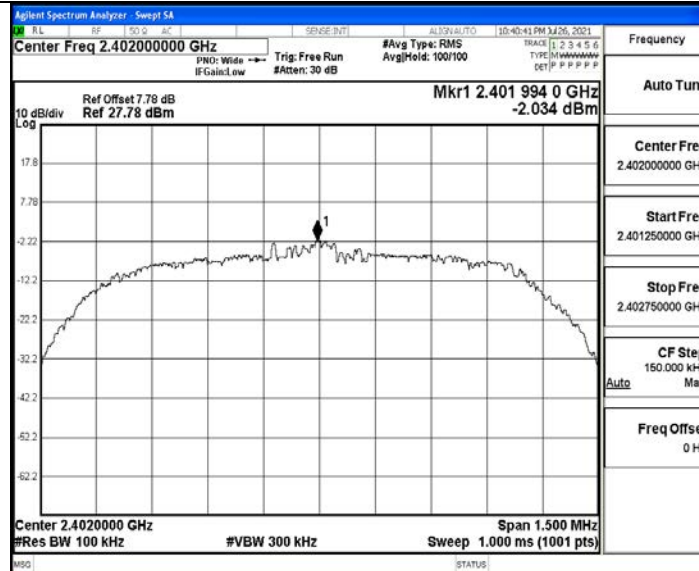
DH5\_Ant1\_2480\_30~1000



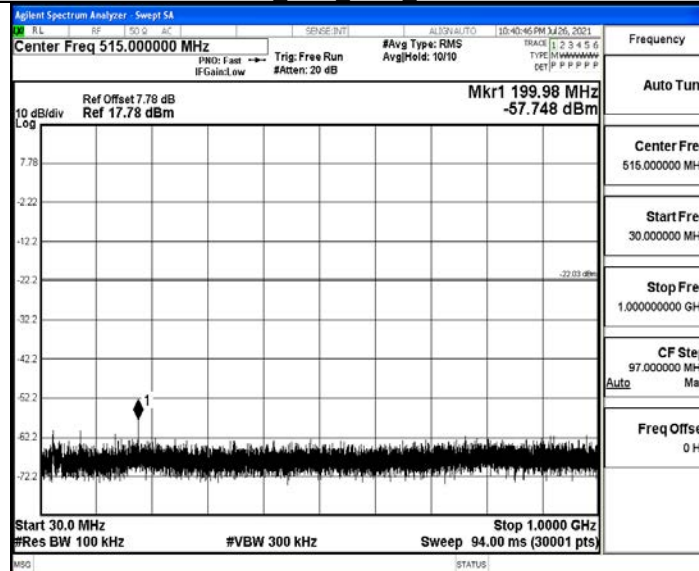
DH5\_Ant1\_2480\_1000~26500



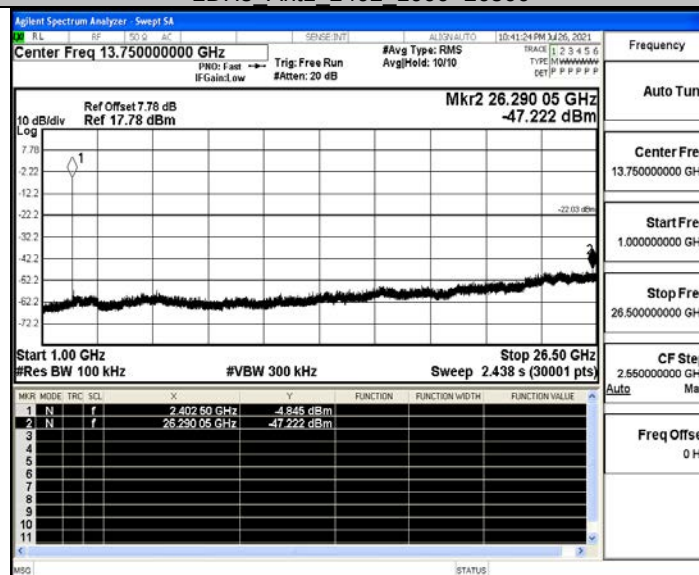
2DH5\_Ant1\_2402\_0~Reference



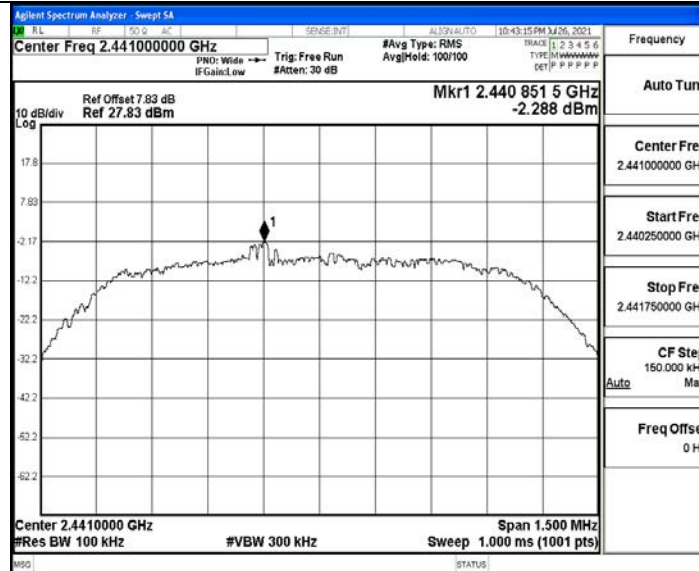
2DH5\_Ant1\_2402\_30~1000



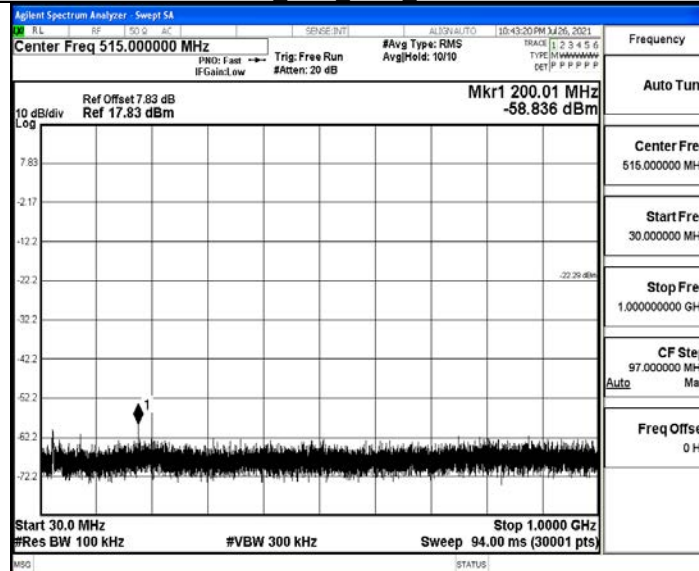
2DH5\_Ant1\_2402\_1000~26500



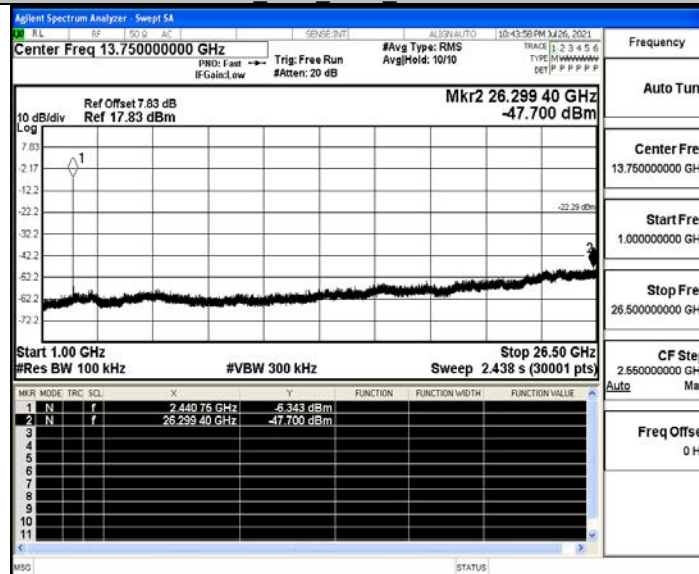
2DH5\_Ant1\_2441\_0~Reference



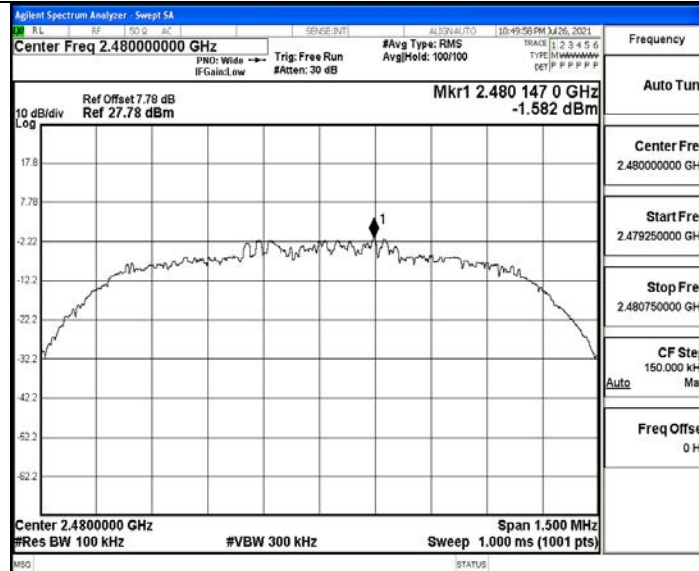
2DH5 Ant1 2441 30~1000



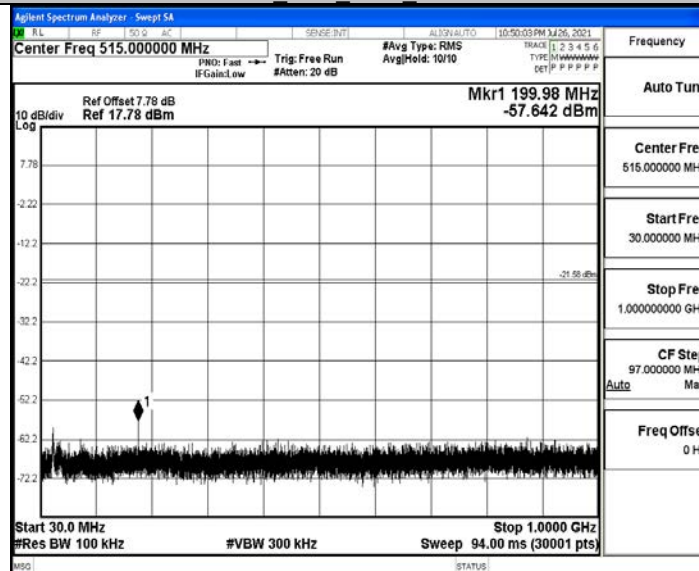
2DH5 Ant1 2441 1000~26500



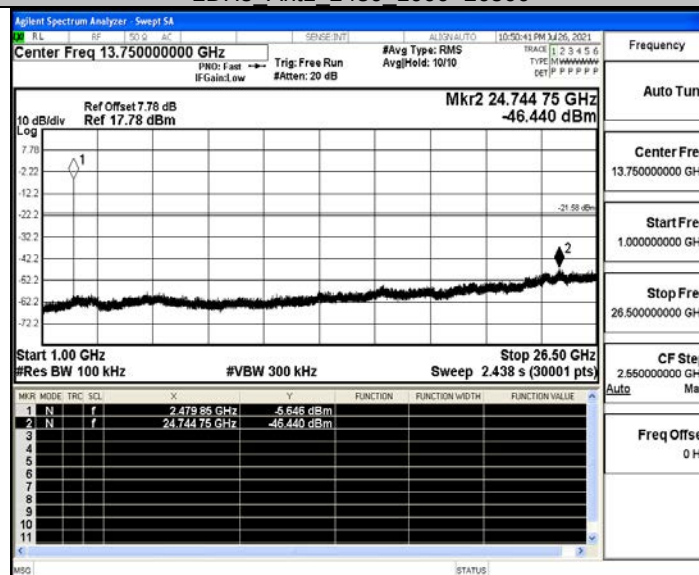
2DH5 Ant1 2480 0~Reference



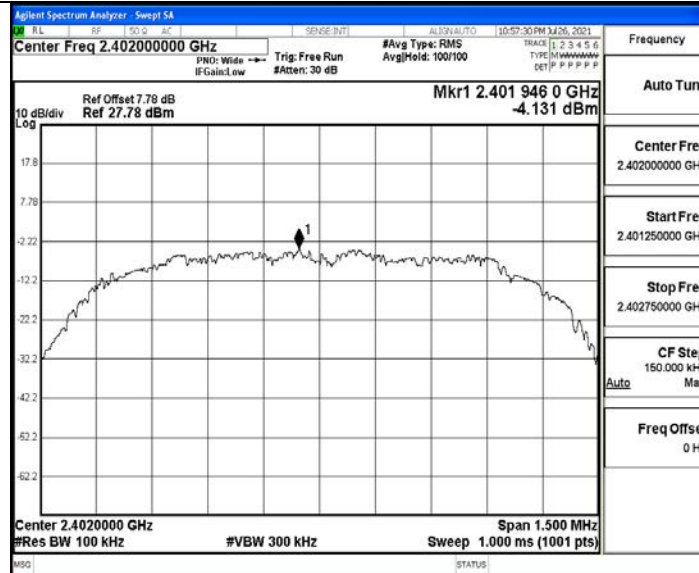
2DH5 Ant1 2480 30~1000



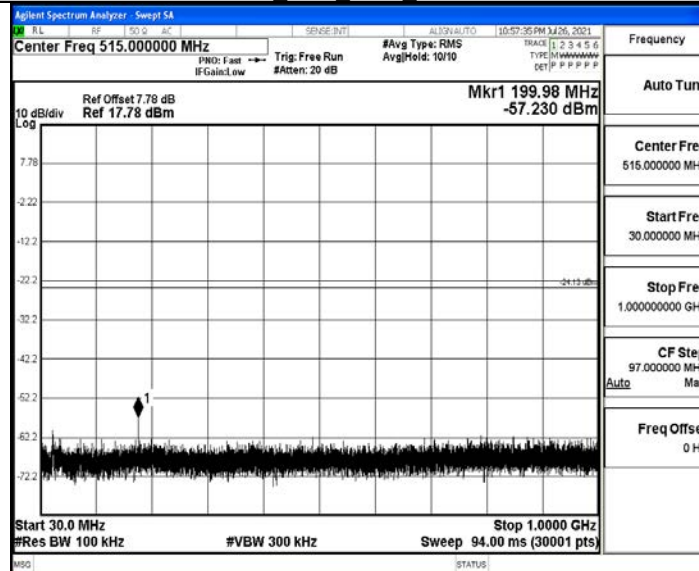
2DH5 Ant1 2480 1000~26500



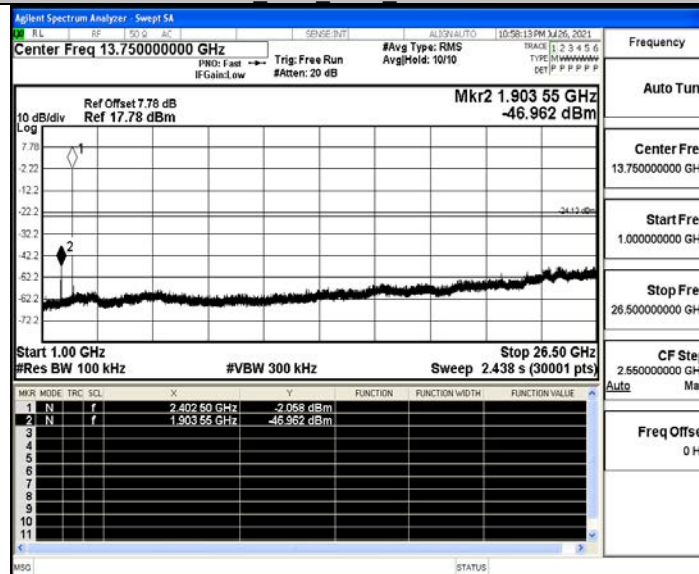
3DH5 Ant1 2402 0~Reference



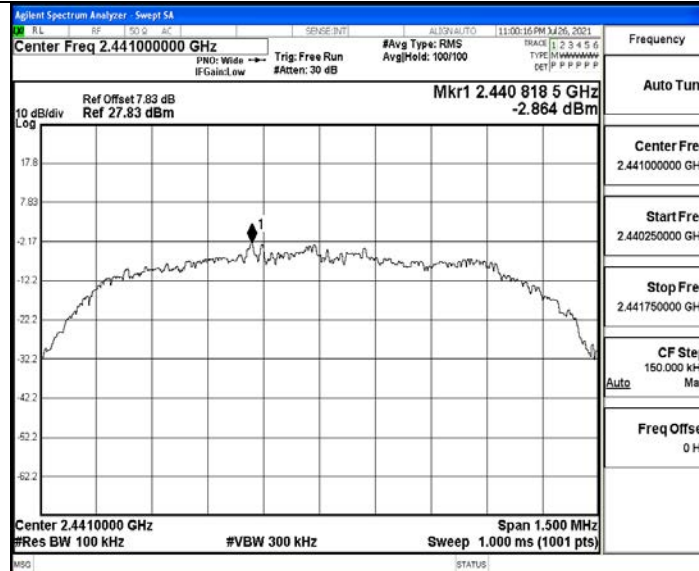
3DH5\_Ant1\_2402\_30~1000



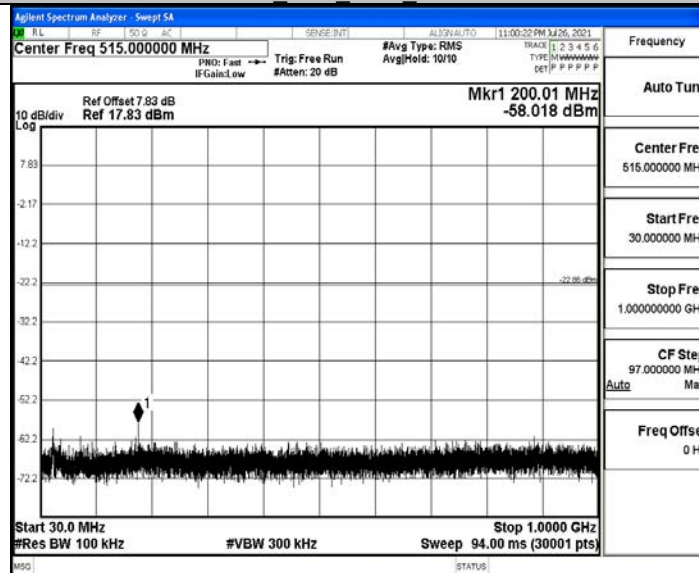
3DH5\_Ant1\_2402\_1000~26500



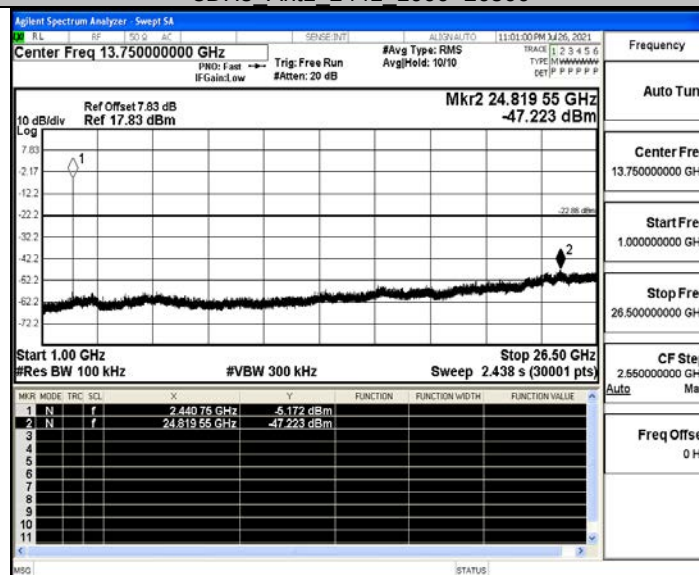
3DH5\_Ant1\_2441\_0~Reference



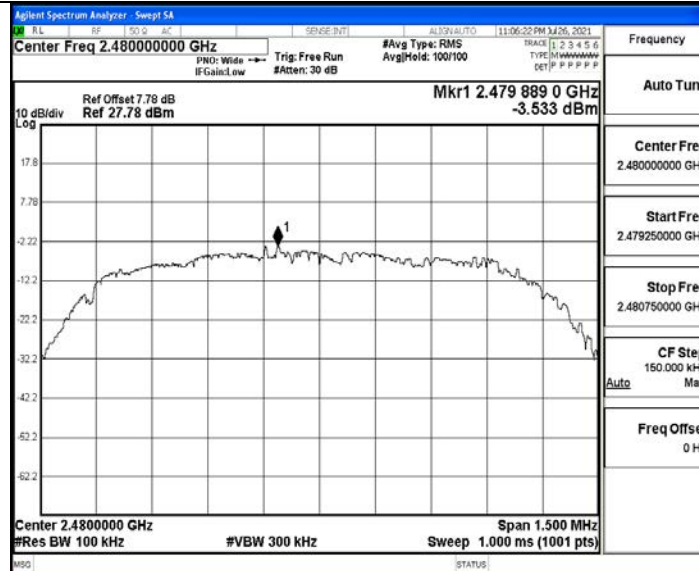
3DH5 Ant1 2441 30~1000



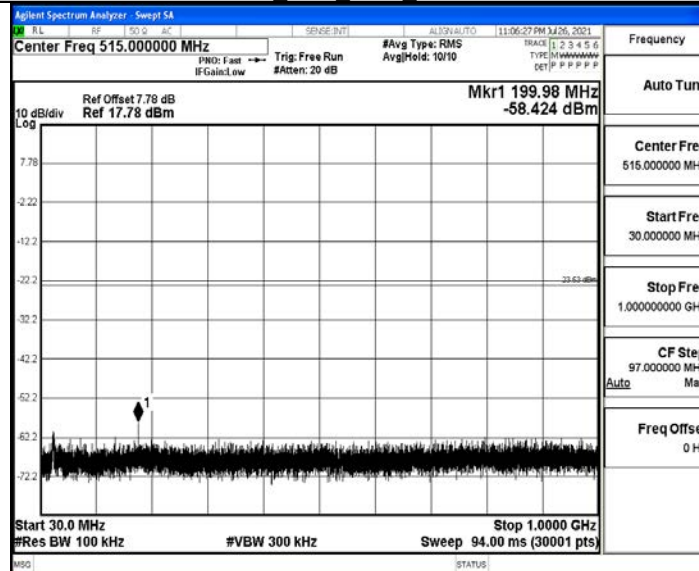
3DH5 Ant1 2441 1000~26500



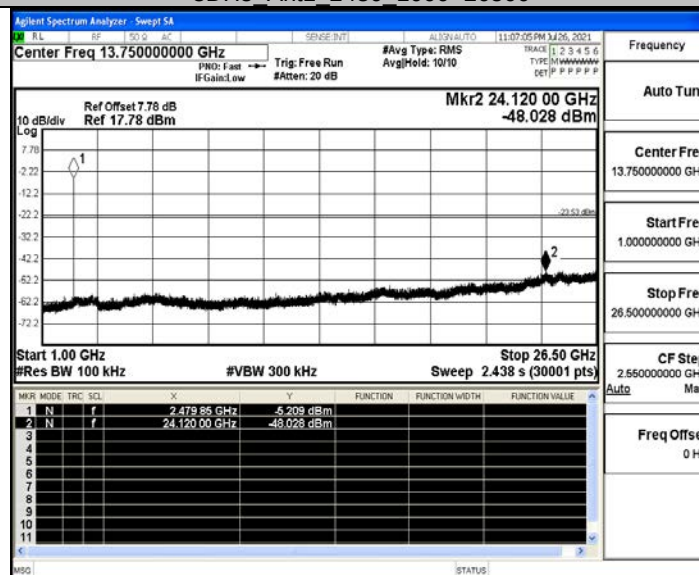
3DH5 Ant1 2480 0~Reference



3DH5 Ant1 2480 30~1000



3DH5 Ant1 2480 1000~26500





## A.8 Band-edge for RF Conducted Emissions

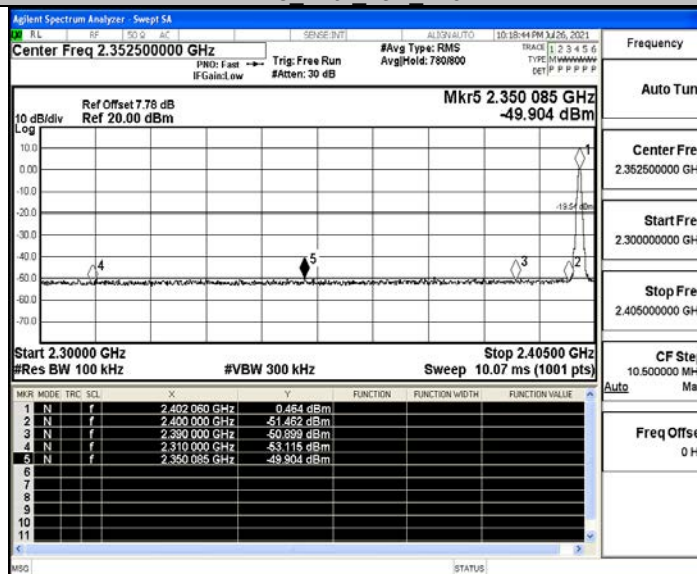
### Test Result

| TestMode | Antenna | ChName | Channel  | RefLevel<br>[dBm] | Result<br>[dBm] | Limit<br>[dBm] | Verdict |
|----------|---------|--------|----------|-------------------|-----------------|----------------|---------|
| DH5      | Ant1    | Low    | 2402     | 0.46              | -49.9           | $\leq -19.54$  | PASS    |
|          |         | High   | 2480     | 0.14              | -48.68          | $\leq -19.86$  | PASS    |
|          |         | Low    | Hop_2402 | 0.32              | -49.79          | $\leq -19.68$  | PASS    |
|          |         | High   | Hop_2480 | 0.73              | -47.52          | $\leq -19.27$  | PASS    |
| 2DH5     | Ant1    | Low    | 2402     | -1.07             | -49.1           | $\leq -21.07$  | PASS    |
|          |         | High   | 2480     | -1.26             | -48.75          | $\leq -21.26$  | PASS    |
|          |         | Low    | Hop_2402 | -5.36             | -49.23          | $\leq -25.36$  | PASS    |
|          |         | High   | Hop_2480 | -0.90             | -47.92          | $\leq -20.9$   | PASS    |
| 3DH5     | Ant1    | Low    | 2402     | -1.24             | -49.19          | $\leq -21.24$  | PASS    |
|          |         | High   | 2480     | -1.38             | -47.61          | $\leq -21.38$  | PASS    |
|          |         | Low    | Hop_2402 | -4.49             | -49.16          | $\leq -24.49$  | PASS    |
|          |         | High   | Hop_2480 | -2.03             | -48.42          | $\leq -22.03$  | PASS    |

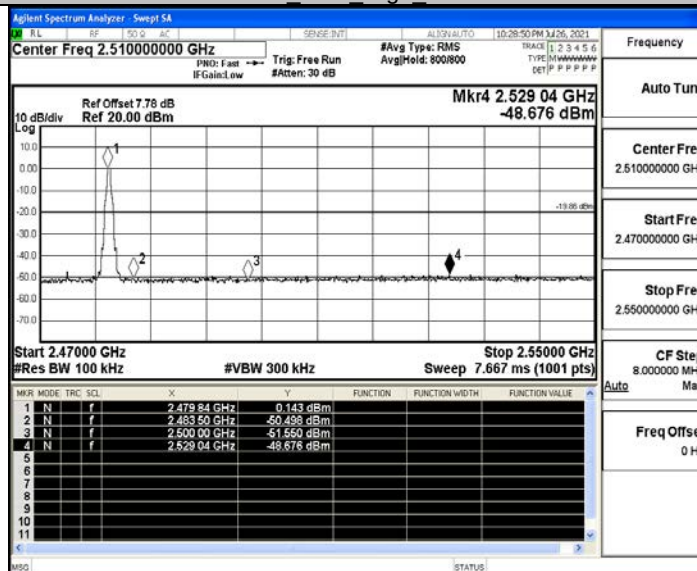


## Test Graphs

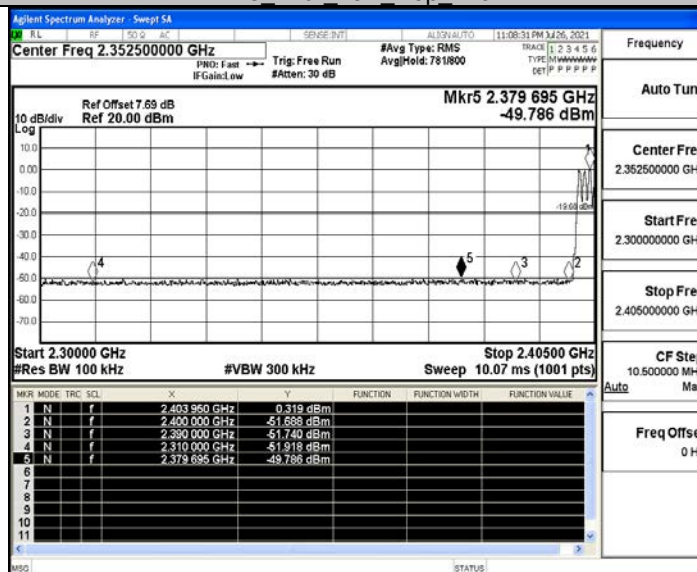
DH5\_Ant1\_Low\_2402



DH5\_Ant1\_High\_2480

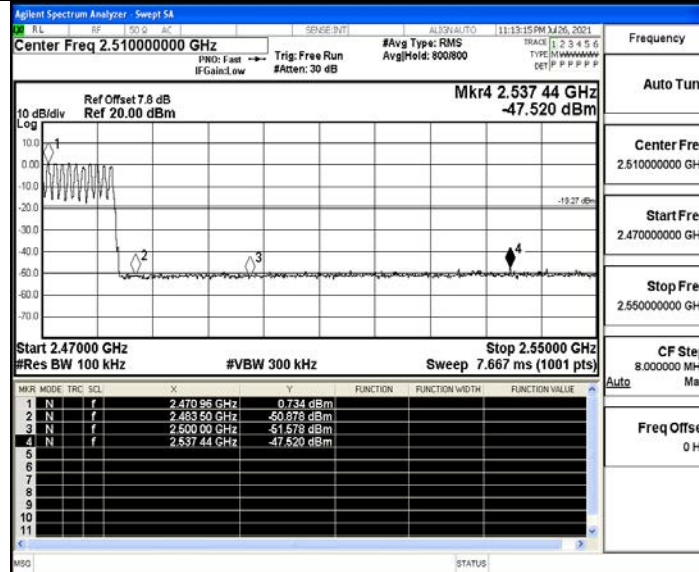


DH5\_Ant1\_Low\_Hop\_2402

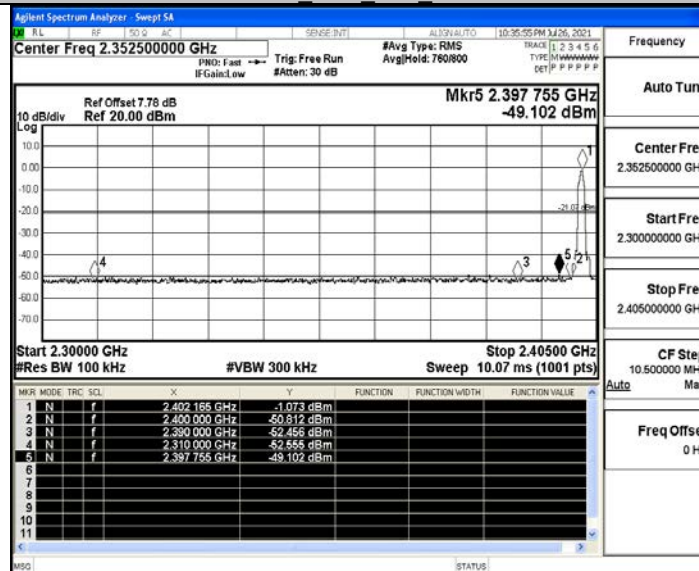




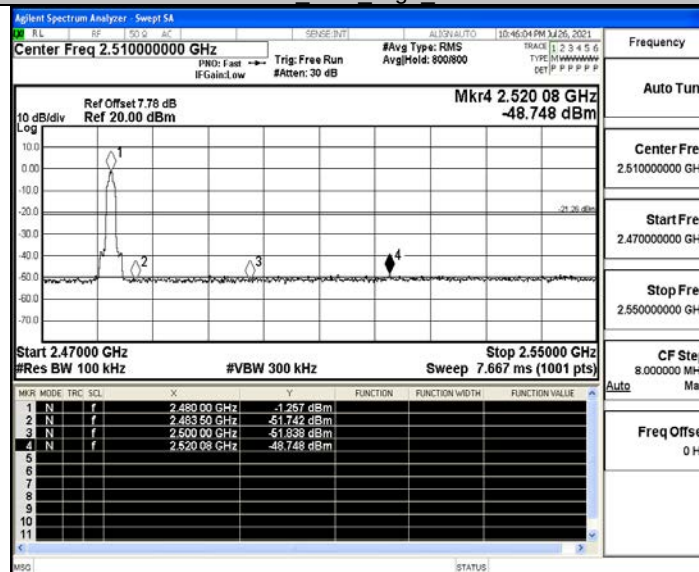
## DH5 Ant1 High Hop 2480



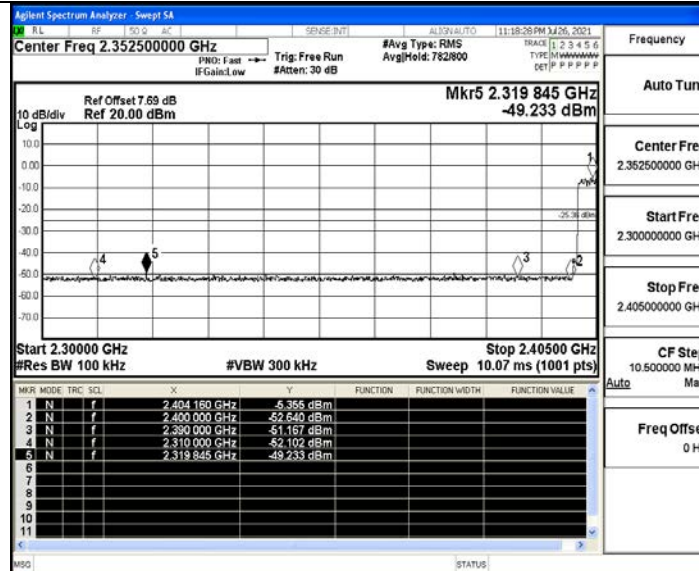
## 2DH5 Ant1 Low 2402



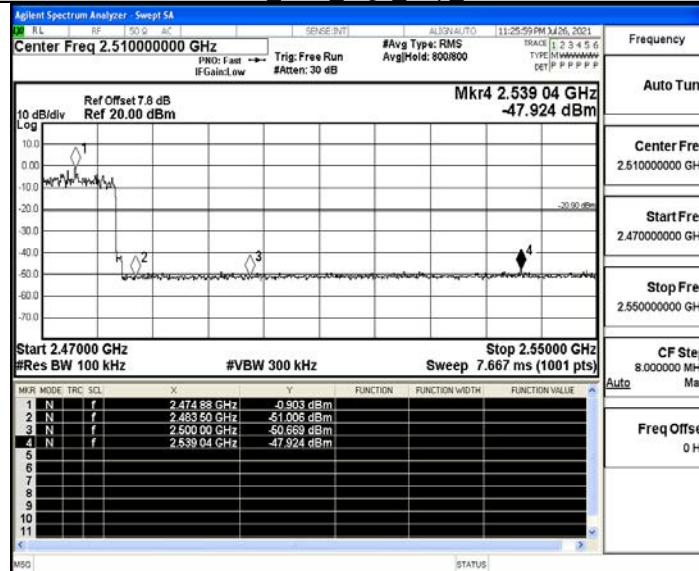
## 2DH5 Ant1 High 2480



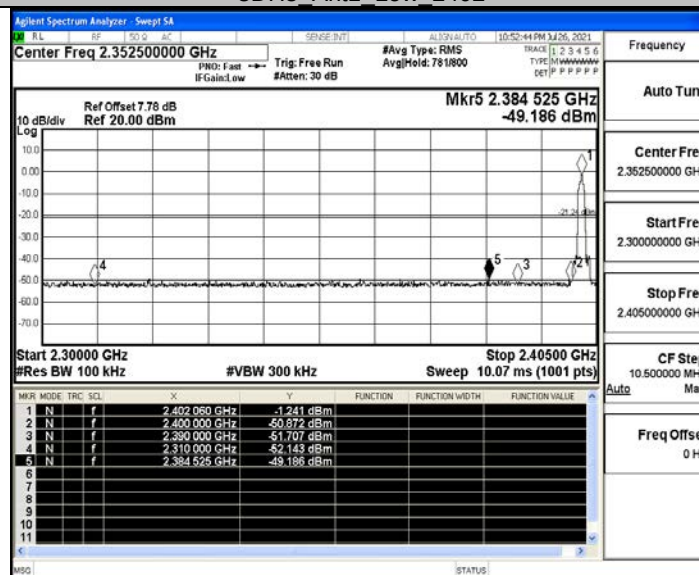
## 2DH5 Ant1 Low Hop 2402



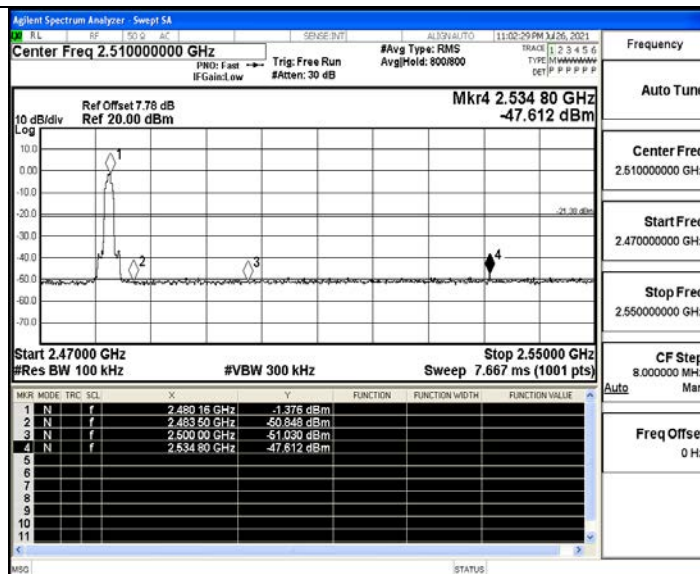
## 2DH5 Ant1 High Hop 2480



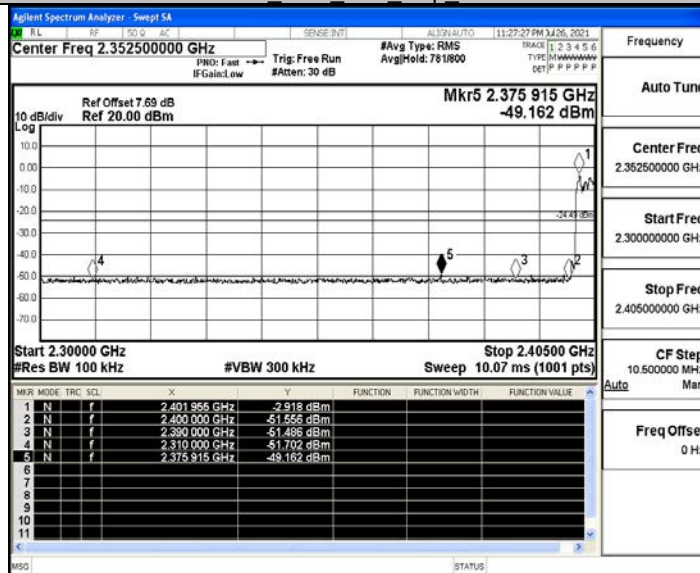
## 3DH5 Ant1 Low 2402



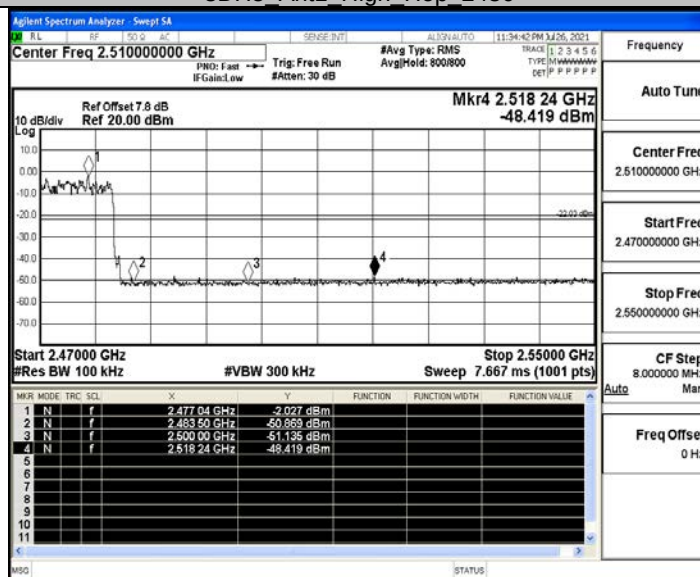
## 3DH5 Ant1 High 2480



## 3DH5 Ant1 Low Hop 2402



## 3DH5 Ant1 High Hop 2480





## A.9 Restrict-band band-edge measurements

### Test Result

| TestMode | Antenna | Channel | Detector | Freq. [MHz] | Result [dBm] | Limit [dBm] | Result [dBuV/m] | Limit [dBuV/m] | Verdict |      |
|----------|---------|---------|----------|-------------|--------------|-------------|-----------------|----------------|---------|------|
| DH5      | Ant1    | Low     | 2402     | AV          | 2310.000     | -48.93      | ≤-41.20         | 46.27          | ≤54     | PASS |
|          |         |         |          | AV          | 2387.150     | -48.42      | ≤-41.20         | 46.78          | ≤54     | PASS |
|          |         |         |          | AV          | 2390.000     | -48.44      | ≤-41.20         | 46.76          | ≤54     | PASS |
|          |         |         |          | Peak        | 2310.000     | -40.37      | ≤-21.20         | 54.83          | ≤74     | PASS |
|          |         |         |          | Peak        | 2389.040     | -37.73      | ≤-21.20         | 57.47          | ≤74     | PASS |
|          |         |         |          | Peak        | 2390.000     | -40.12      | ≤-21.20         | 55.08          | ≤74     | PASS |
|          |         | High    | 2480     | AV          | 2483.500     | -47.84      | ≤-41.20         | 47.36          | ≤54     | PASS |
|          |         |         |          | AV          | 2483.520     | -47.84      | ≤-41.20         | 47.36          | ≤54     | PASS |
|          |         |         |          | AV          | 2500.000     | -47.96      | ≤-41.20         | 47.24          | ≤54     | PASS |
|          |         |         |          | Peak        | 2483.500     | -39.62      | ≤-21.20         | 55.58          | ≤74     | PASS |
|          |         |         |          | Peak        | 2496.080     | -37.25      | ≤-21.20         | 57.95          | ≤74     | PASS |
|          |         |         |          | Peak        | 2500.000     | -39.97      | ≤-21.20         | 55.23          | ≤74     | PASS |
| 2DH5     | Ant1    | Low     | 2402     | AV          | 2310.000     | -48.94      | ≤-41.20         | 46.26          | ≤54     | PASS |
|          |         |         |          | AV          | 2389.460     | -48.4       | ≤-41.20         | 46.80          | ≤54     | PASS |
|          |         |         |          | AV          | 2390.000     | -48.55      | ≤-41.20         | 46.65          | ≤54     | PASS |
|          |         |         |          | Peak        | 2310.000     | -39.97      | ≤-21.20         | 55.23          | ≤74     | PASS |
|          |         |         |          | Peak        | 2373.395     | -37.95      | ≤-21.20         | 57.25          | ≤74     | PASS |
|          |         |         |          | Peak        | 2390.000     | -41.42      | ≤-21.20         | 53.78          | ≤74     | PASS |
|          |         | High    | 2480     | AV          | 2483.500     | -47.91      | ≤-41.20         | 47.29          | ≤54     | PASS |
|          |         |         |          | AV          | 2498.960     | -47.83      | ≤-41.20         | 47.37          | ≤54     | PASS |
|          |         |         |          | AV          | 2500.000     | -47.97      | ≤-41.20         | 47.23          | ≤54     | PASS |
|          |         |         |          | Peak        | 2483.500     | -38.61      | ≤-21.20         | 56.59          | ≤74     | PASS |
|          |         |         |          | Peak        | 2493.120     | -37.85      | ≤-21.20         | 57.35          | ≤74     | PASS |
|          |         |         |          | Peak        | 2500.000     | -38.48      | ≤-21.20         | 56.72          | ≤74     | PASS |
| 3DH5     | Ant1    | Low     | 2402     | AV          | 2310.000     | -48.97      | ≤-41.20         | 46.23          | ≤54     | PASS |
|          |         |         |          | AV          | 2388.830     | -48.4       | ≤-41.20         | 46.80          | ≤54     | PASS |
|          |         |         |          | AV          | 2390.000     | -48.52      | ≤-41.20         | 46.68          | ≤54     | PASS |
|          |         |         |          | Peak        | 2310.000     | -40.87      | ≤-21.20         | 54.33          | ≤74     | PASS |
|          |         |         |          | Peak        | 2372.030     | -38.01      | ≤-21.20         | 57.19          | ≤74     | PASS |
|          |         |         |          | Peak        | 2390.000     | -40.94      | ≤-21.20         | 54.26          | ≤74     | PASS |
|          |         | High    | 2480     | AV          | 2483.500     | -47.75      | ≤-41.20         | 47.45          | ≤54     | PASS |
|          |         |         |          | AV          | 2483.520     | -47.75      | ≤-41.20         | 47.45          | ≤54     | PASS |
|          |         |         |          | AV          | 2500.000     | -47.96      | ≤-41.20         | 47.24          | ≤54     | PASS |
|          |         |         |          | Peak        | 2483.500     | -40.25      | ≤-21.20         | 54.95          | ≤74     | PASS |
|          |         |         |          | Peak        | 2495.920     | -38.17      | ≤-21.20         | 57.03          | ≤74     | PASS |
|          |         |         |          |             |              |             |                 |                |         |      |



|  |  |  |  |      |          |        |               |       |           |      |
|--|--|--|--|------|----------|--------|---------------|-------|-----------|------|
|  |  |  |  | Peak | 2500.000 | -39.63 | $\leq -21.20$ | 55.57 | $\leq 74$ | PASS |
|--|--|--|--|------|----------|--------|---------------|-------|-----------|------|

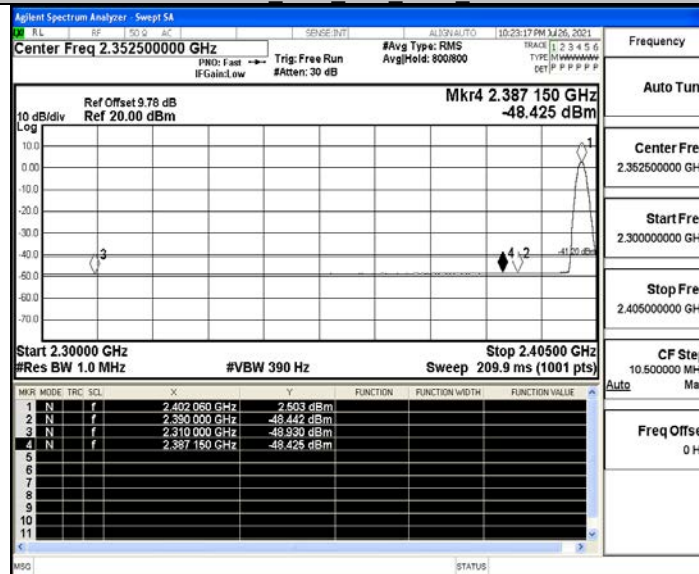
Note :

1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

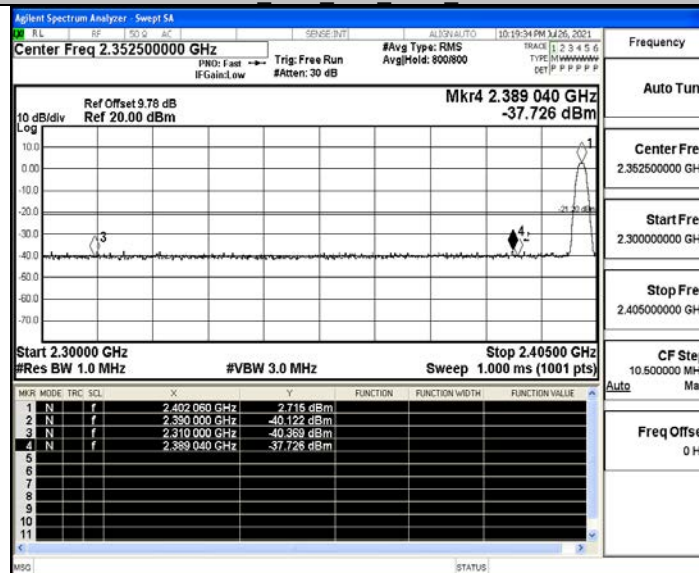


## Test Graphs

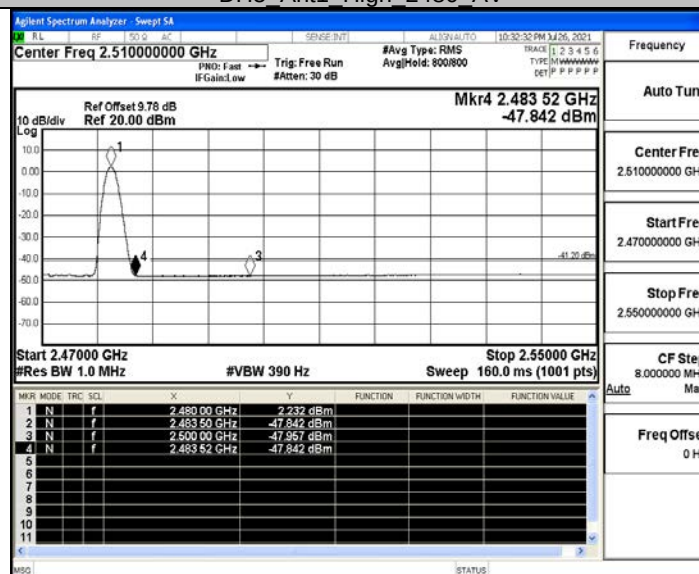
DH5 Ant1 Low 2402 AV



DH5 Ant1 Low 2402 Peak

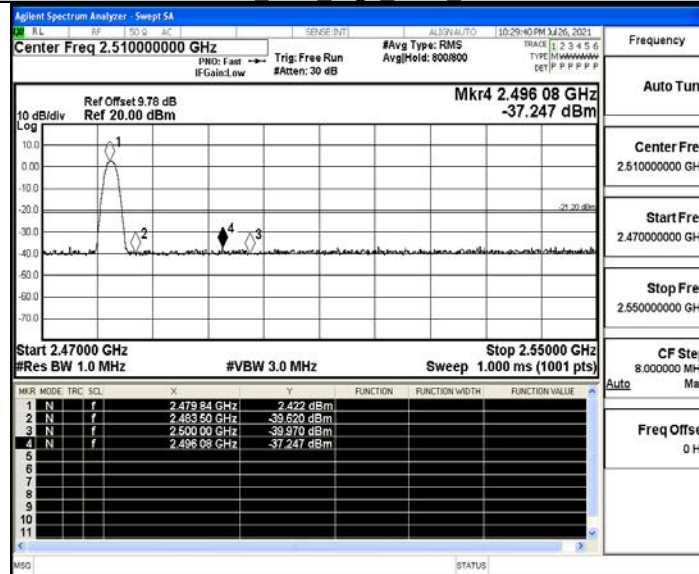


DH5 Ant1 High 2480 AV

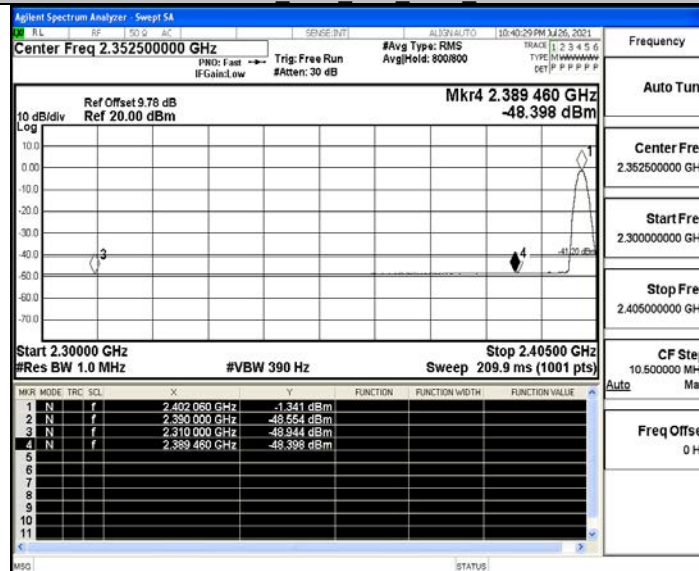




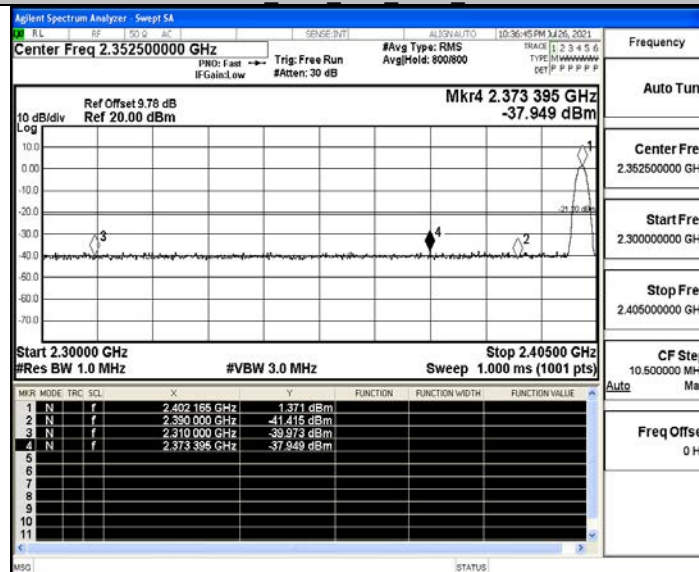
## DH5 Ant1 High 2480 Peak



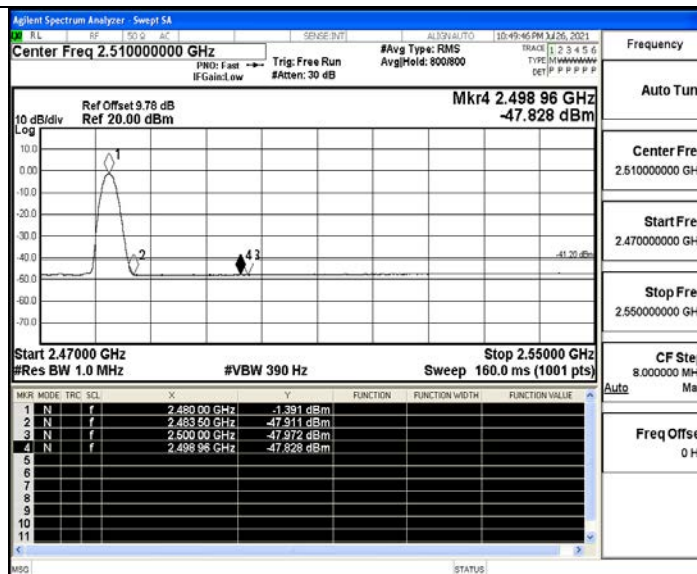
## 2DH5 Ant1 Low 2402 AV



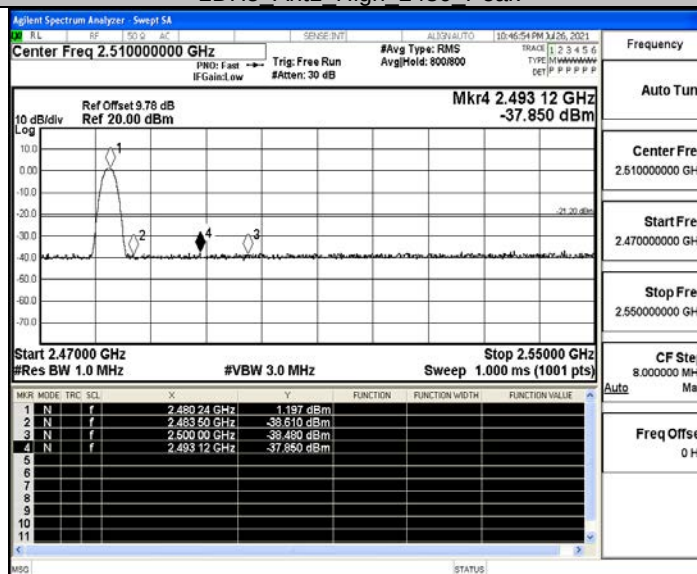
## 2DH5 Ant1 Low 2402 Peak



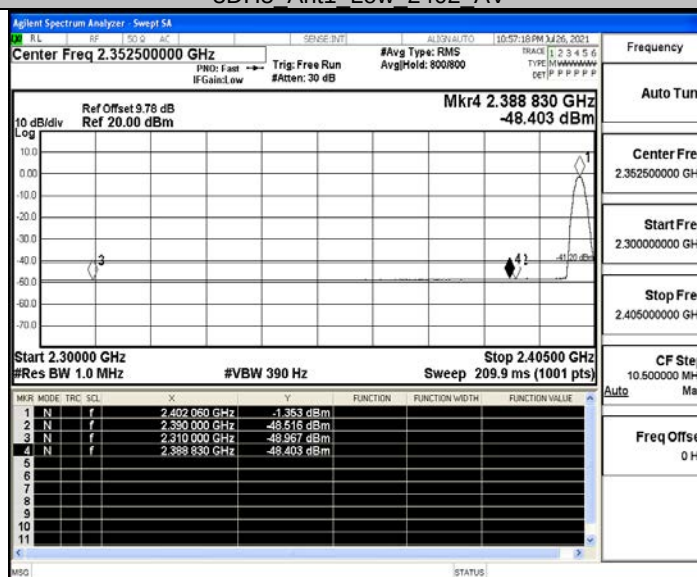
## 2DH5 Ant1 High 2480 AV



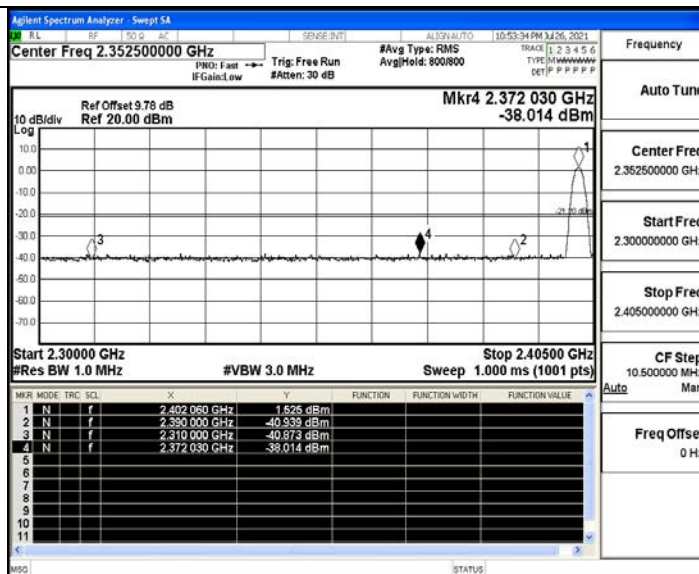
2DH5 Ant1 High 2480 Peak



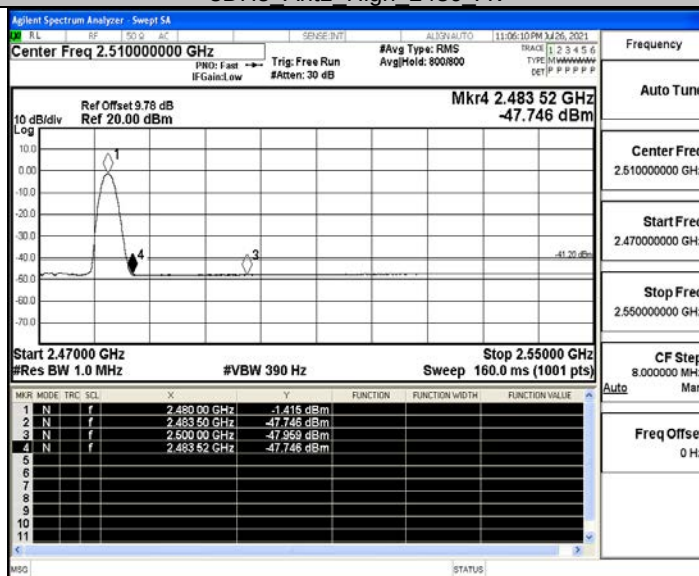
3DH5 Ant1 Low 2402 AV



3DH5 Ant1 Low 2402 Peak



## 3DH5 Ant1 High 2480 AV



## 3DH5 Ant1 High 2480 Peak

