



2DH5 Ant1 2402



2DH5 Ant1 2441



## 2DH5\_Ant1\_2480



## 3DH5\_Ant1\_2402



## 3DH5\_Ant1\_2441



## 3DH5 Ant1 2480



## 9.6 CONDUCTED SUPRIIOUS EMISSION

### 9.6.1 Applicable Standard

According to FCC Part 15.247(d) and KDB 558074 D01 15.247 MEAS GUIDANCE v05r02

According to IC RSS-247.5.5

### 9.6.2 Conformance Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted, provided the transmitter demonstrates compliance with the peak conducted power limits.

### 9.6.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

### 9.6.4 Test Procedure

The transmitter output (antenna port) was connected to the spectrum analyzer

#### ■ Reference level measurement

Establish a reference level by using the following procedure:

Set instrument center frequency to DSS channel center frequency.

Set Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel.

Set the RBW = 100 kHz. Set the VBW  $\geq 3 \times$  RBW.

Set Detector = peak. Set Sweep time = auto couple.

Set Trace mode = max hold. Allow trace to fully stabilize.

Use the peak marker function to determine the maximum Maximumconducetedlevel.

Note that the channel found to contain the maximum conduceted level can be used to establish the reference level.

#### ■ Band-edge measurement

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the emission operating on the channel closest to the band-edge, as well as any modulation products which fall outside of the authorized band of operation

Set RBW  $\geq 1\%$  of the span=100kHzSet VBW  $\geq 3 \times$  RBW

Set Sweep = autoSet Detector function = peakSet Trace = max hold

Allow the trace to stabilize. Set the marker on the emission at the bandedge, or on the highest modulation product outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. The marker-delta value now displayed must comply with the limit specified in this Section.

Now, using the same instrument settings, enable the hopping function of the EUT. Allow the trace to stabilize. Follow the same procedure listed above to determine if any spurious emissions caused by the hopping function also comply with the specified limit.

#### ■ Emission level measurement

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic.(30MHz to 25GHz).Set RBW = 100 kHzSet VBW  $\geq$  RBW

Set Sweep = autoSet Detector function = peakSet Trace = max hold

Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded. The level displayed must comply with the limit specified in this Section.

### 9.6.5 Test Results

|                    |           |
|--------------------|-----------|
| Temperature:       | 25°C      |
| Relative Humidity: | 45%       |
| ATM Pressure:      | 1011 mbar |

Note: N/A

All the antenna(Antenna 1) and modes(GFSK,  $\pi/4$ -DQPSK, 8DPSK, Hopping) mode have been tested, and the worst(Antenna 1,GFSK, Hopping) result recorded was report as below:

#### Reference level measurement

| TestMode | Antenna | Freq(MHz) | Max.Point[MHz] | Result[dBm] |
|----------|---------|-----------|----------------|-------------|
| DH5      | Ant1    | 2402      | 2401.84        | -1.54       |
|          |         | 2441      | 2440.84        | -1.40       |
|          |         | 2480      | 2479.84        | -1.79       |
| 2DH5     | Ant1    | 2402      | 2402.16        | -1.46       |
|          |         | 2441      | 2441.16        | -1.36       |
|          |         | 2480      | 2480.16        | -1.81       |
| 3DH5     | Ant1    | 2402      | 2401.84        | -1.43       |
|          |         | 2441      | 2440.84        | -1.34       |
|          |         | 2480      | 2479.84        | -1.77       |

## 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

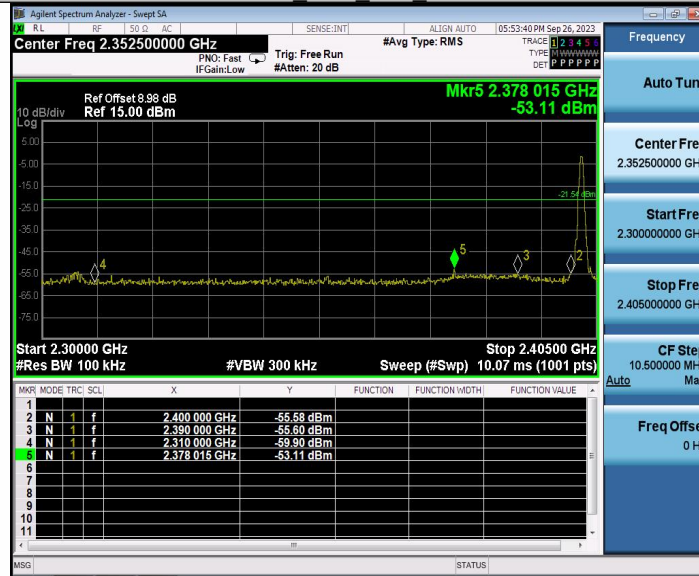


# Band edge measurements

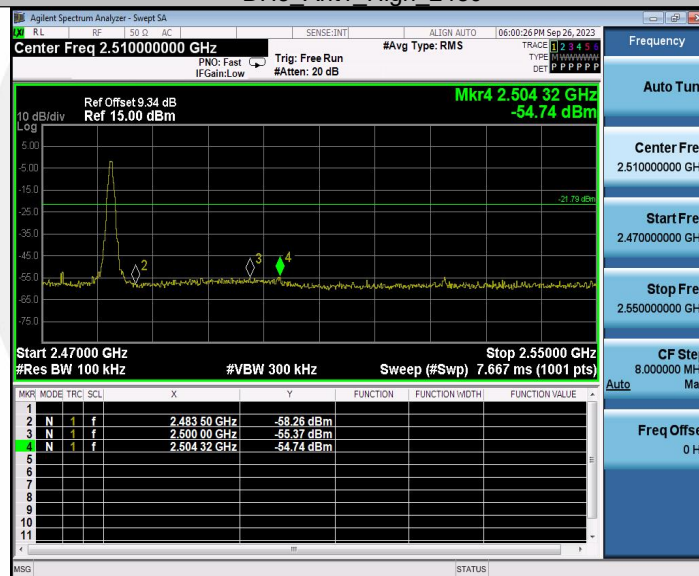
| TestMode | Antenna | ChName | Frequency[MHz] | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|----------|---------|--------|----------------|----------------|--------------|-------------|---------|
| DH5      | Ant1    | Low    | 2402           | -1.54          | -53.11       | ≤-21.54     | PASS    |
|          |         | High   | 2480           | -1.79          | -54.74       | ≤-21.79     | PASS    |
|          |         | Low    | Hop_2402       | -2.65          | -50.32       | ≤-22.65     | PASS    |
|          |         | High   | Hop_2480       | -2.01          | -49          | ≤-22.01     | PASS    |
| 2DH5     | Ant1    | Low    | 2402           | -1.46          | -51.45       | ≤-21.46     | PASS    |
|          |         | High   | 2480           | -1.81          | -54.45       | ≤-21.81     | PASS    |
| 3DH5     | Ant1    | Low    | 2402           | -1.43          | -53.72       | ≤-21.43     | PASS    |
|          |         | High   | 2480           | -1.77          | -40.22       | ≤-21.77     | PASS    |



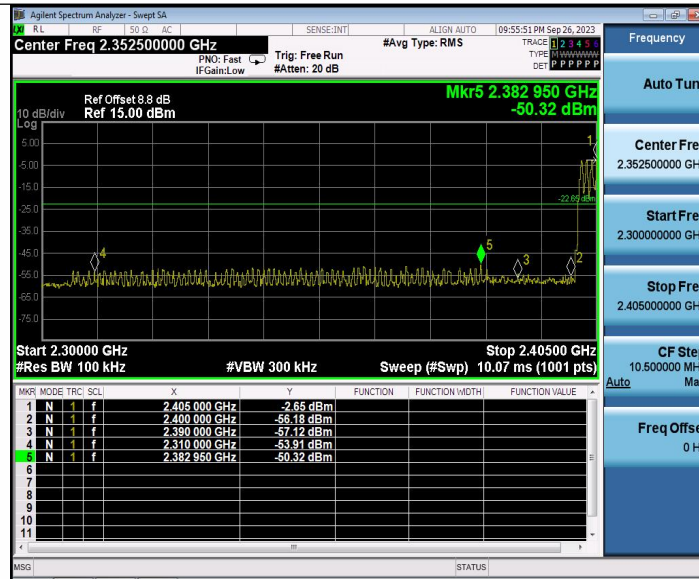
### DH5\_Ant1\_Low\_2402



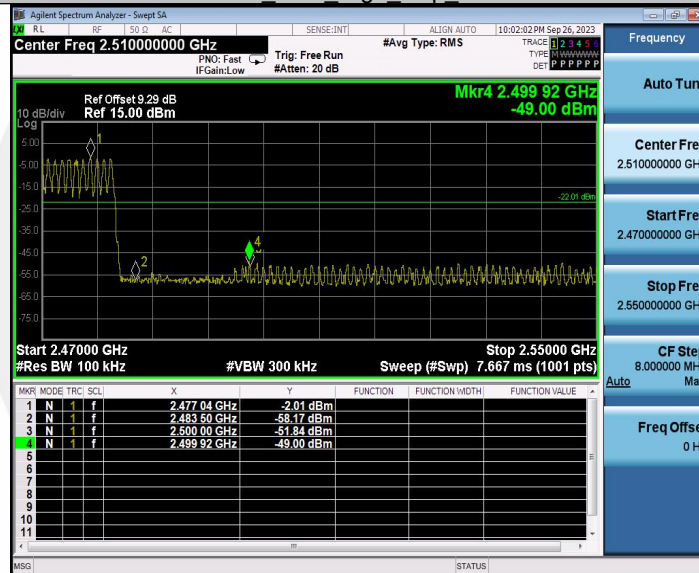
### DH5\_Ant1\_High\_2480



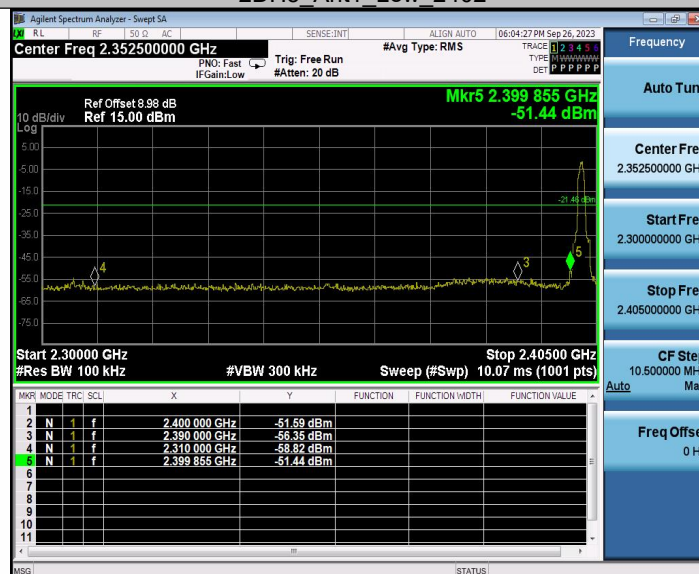
### DH5\_Ant1\_Low\_Hop\_2402



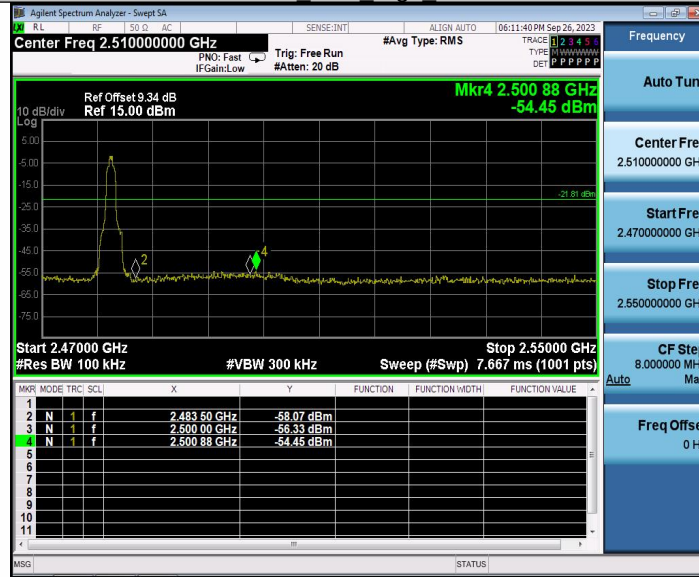
DH5 Ant1 High Hop 2480



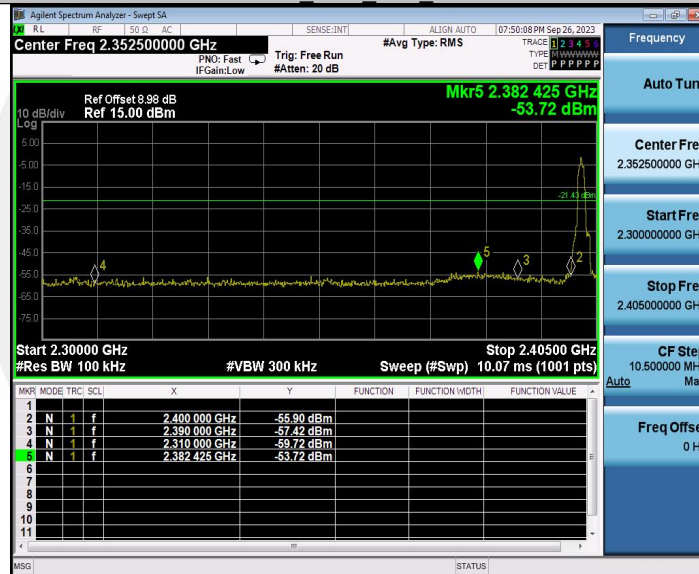
2DH5 Ant1 Low 2402



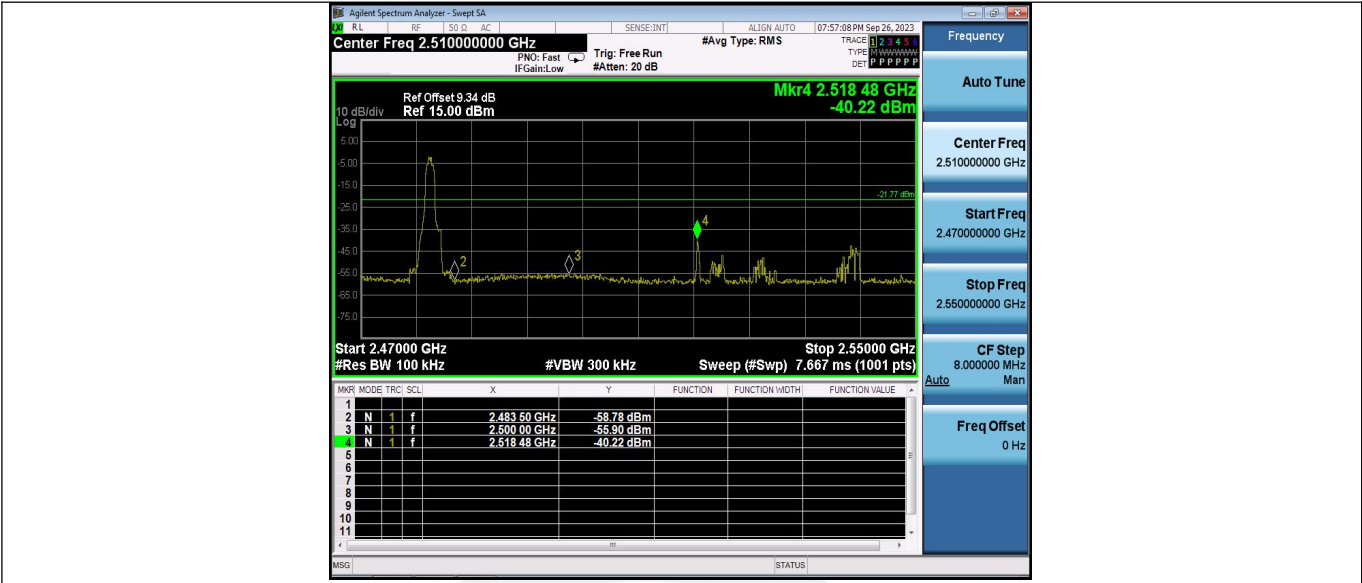
## 2DH5 Ant1 High 2480



## 3DH5 Ant1 Low 2402



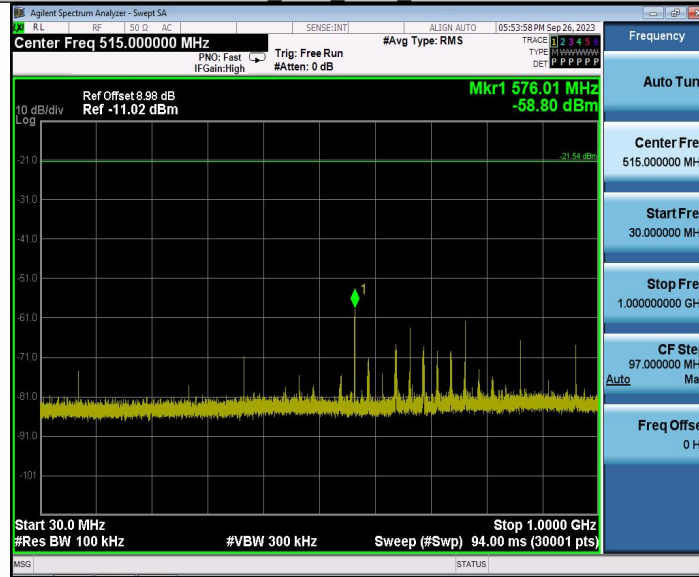
## 3DH5 Ant1 High 2480



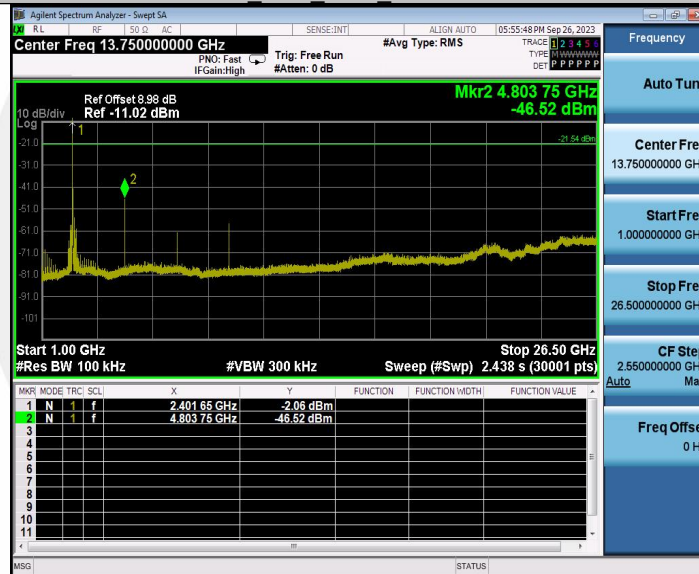
### Conducted Spurious Emission

| TestMode | Antenna | Frequency[MHz] | FreqRange [MHz] | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|----------|---------|----------------|-----------------|----------------|--------------|-------------|---------|
| DH5      | Ant1    | 2402           | 30~1000         | -1.54          | -58.8        | ≤-21.54     | PASS    |
|          |         |                | 1000~26500      | -1.54          | -46.53       | ≤-21.54     | PASS    |
|          |         | 2441           | 30~1000         | -1.40          | -59.88       | ≤-21.4      | PASS    |
|          |         |                | 1000~26500      | -1.40          | -45.45       | ≤-21.4      | PASS    |
|          |         | 2480           | 30~1000         | -1.79          | -58.94       | ≤-21.79     | PASS    |
|          |         |                | 1000~26500      | -1.79          | -42.98       | ≤-21.79     | PASS    |
| 2DH5     | Ant1    | 2402           | 30~1000         | -1.46          | -59.97       | ≤-21.46     | PASS    |
|          |         |                | 1000~26500      | -1.46          | -39.83       | ≤-21.46     | PASS    |
|          |         | 2441           | 30~1000         | -1.36          | -62.24       | ≤-21.36     | PASS    |
|          |         |                | 1000~26500      | -1.36          | -37.11       | ≤-21.36     | PASS    |
|          |         | 2480           | 30~1000         | -1.81          | -59.42       | ≤-21.81     | PASS    |
|          |         |                | 1000~26500      | -1.81          | -46.78       | ≤-21.81     | PASS    |
| 3DH5     | Ant1    | 2402           | 30~1000         | -1.43          | -60.06       | ≤-21.43     | PASS    |
|          |         |                | 1000~26500      | -1.43          | -49.72       | ≤-21.43     | PASS    |
|          |         | 2441           | 30~1000         | -1.34          | -59.79       | ≤-21.34     | PASS    |
|          |         |                | 1000~26500      | -1.34          | -47.68       | ≤-21.34     | PASS    |
|          |         | 2480           | 30~1000         | -1.77          | -59.49       | ≤-21.77     | PASS    |
|          |         |                | 1000~26500      | -1.77          | -43.36       | ≤-21.77     | PASS    |

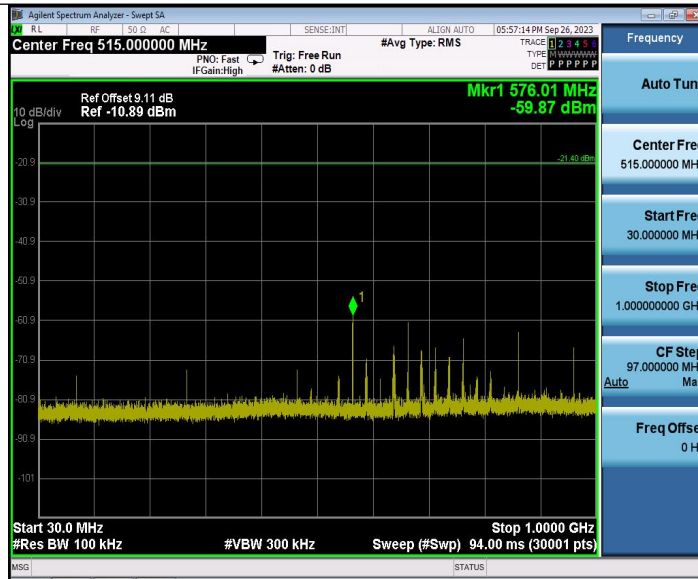
## DH5 Ant1 2402 30~1000



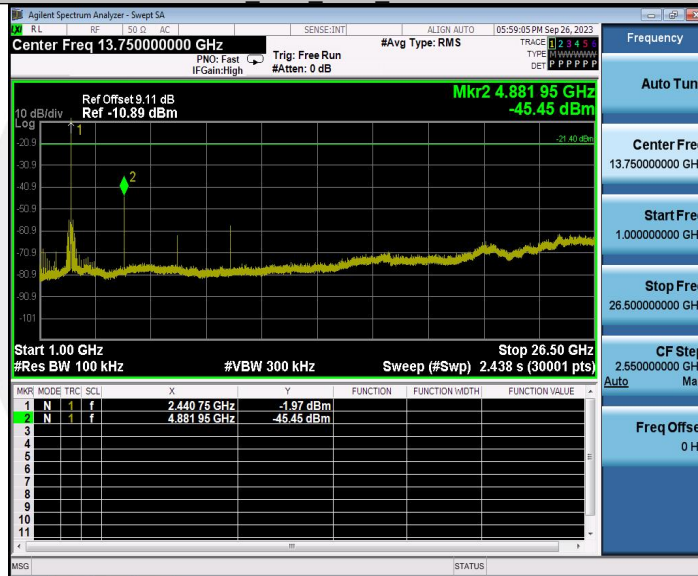
## DH5 Ant1 2402 1000~26500



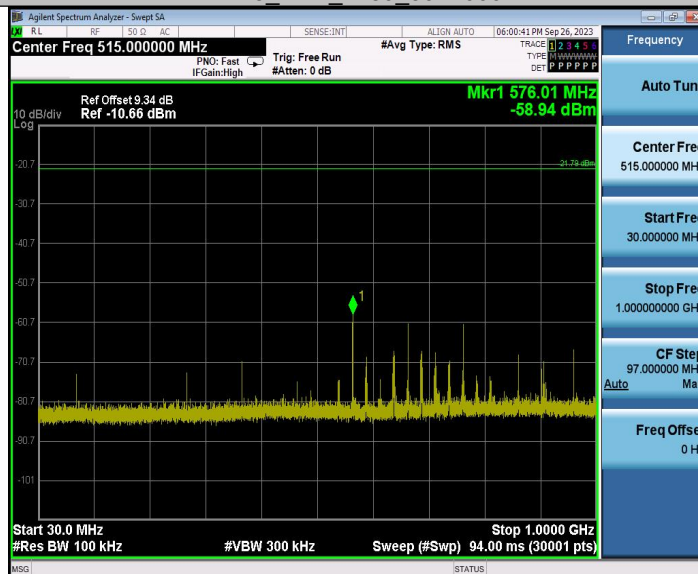
## DH5 Ant1 2441 30~1000



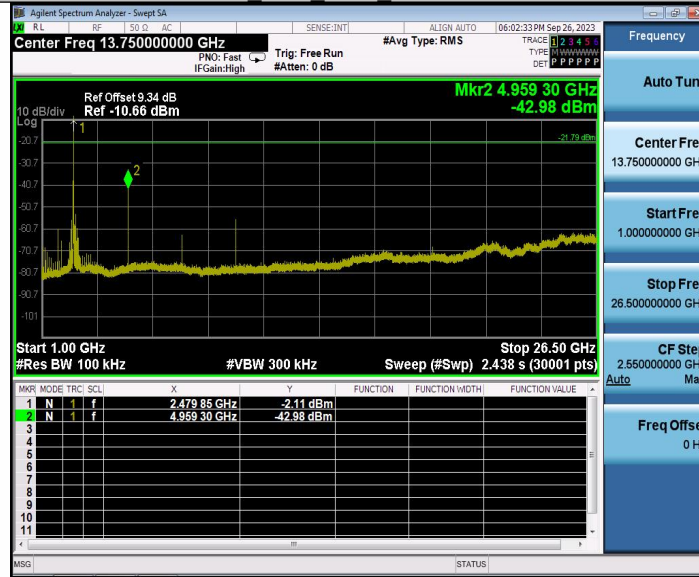
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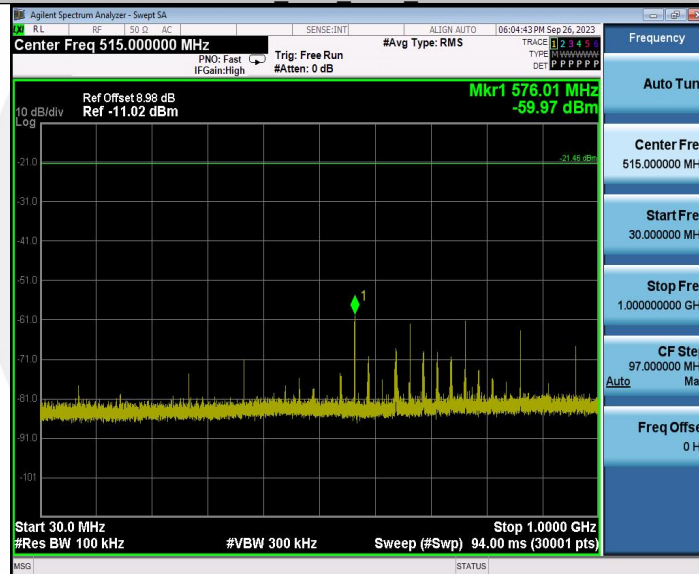
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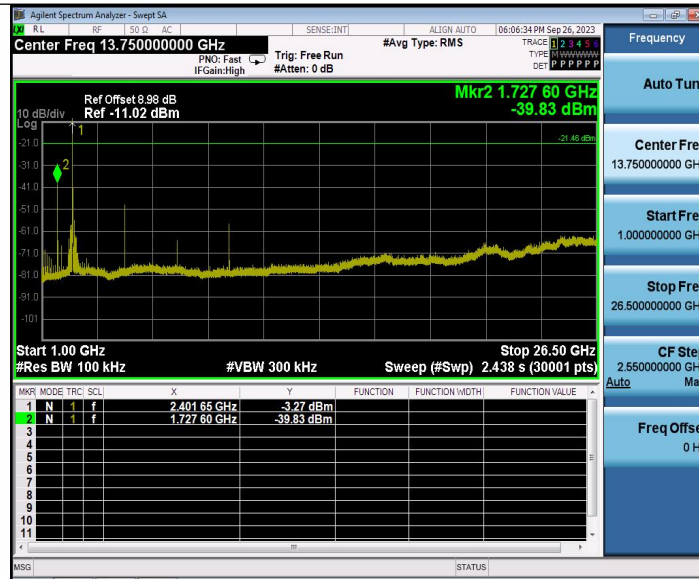
## DH5 Ant1 2480 1000~26500



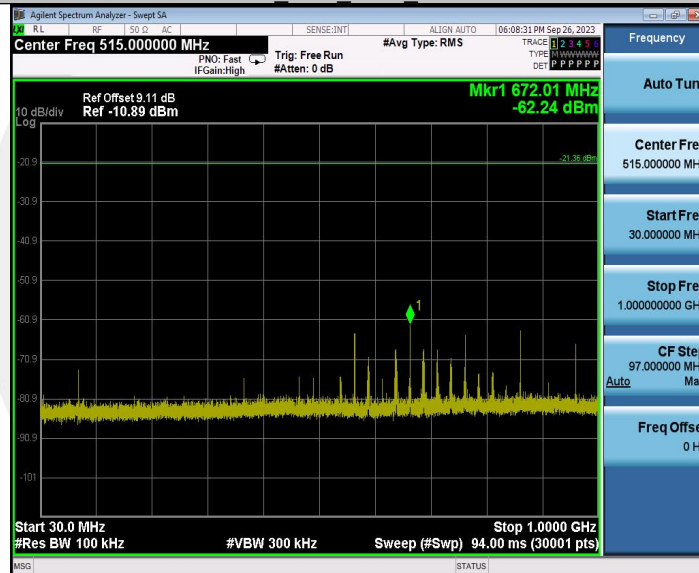
## 2DH5 Ant1 2402 30~1000



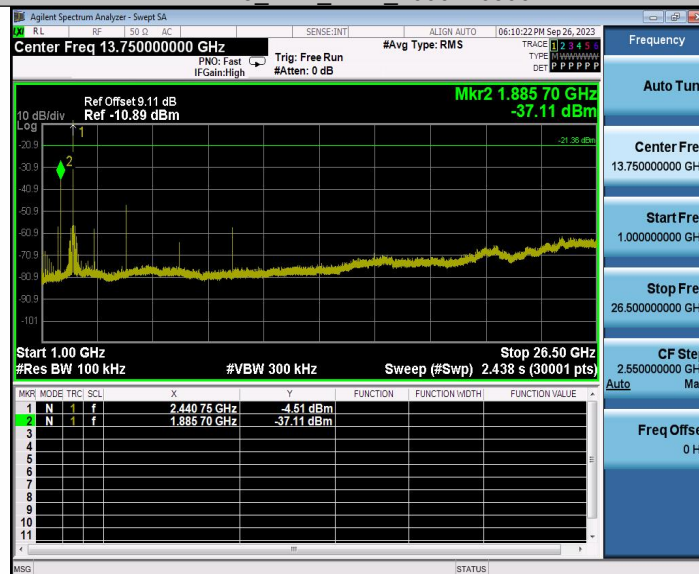
## 2DH5 Ant1 2402 1000~26500

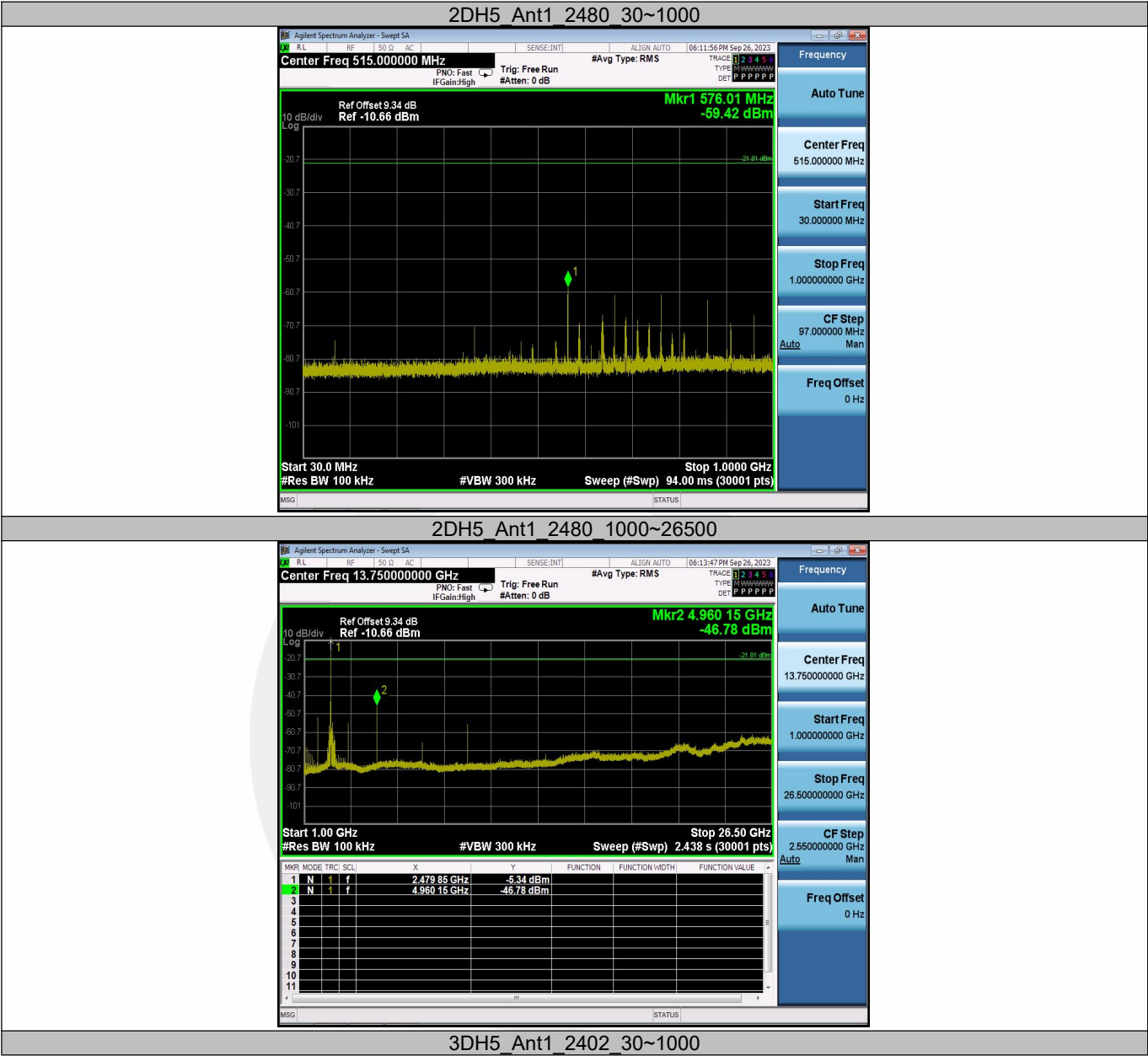


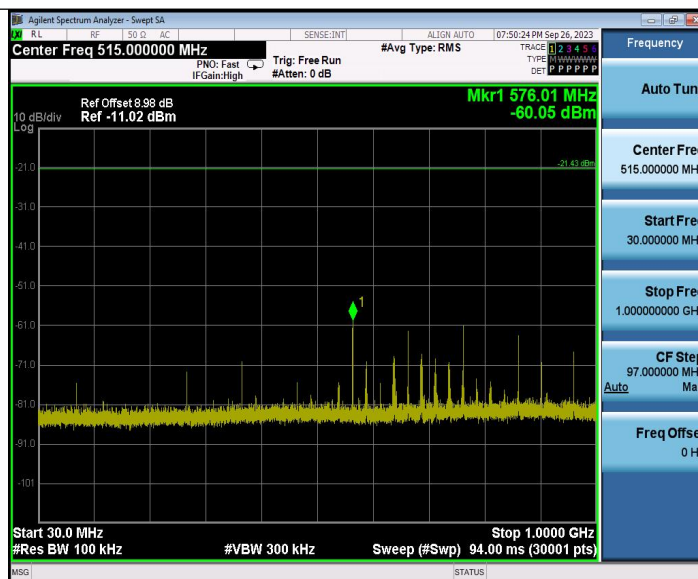
2DH5\_Ant1\_2441\_30~1000



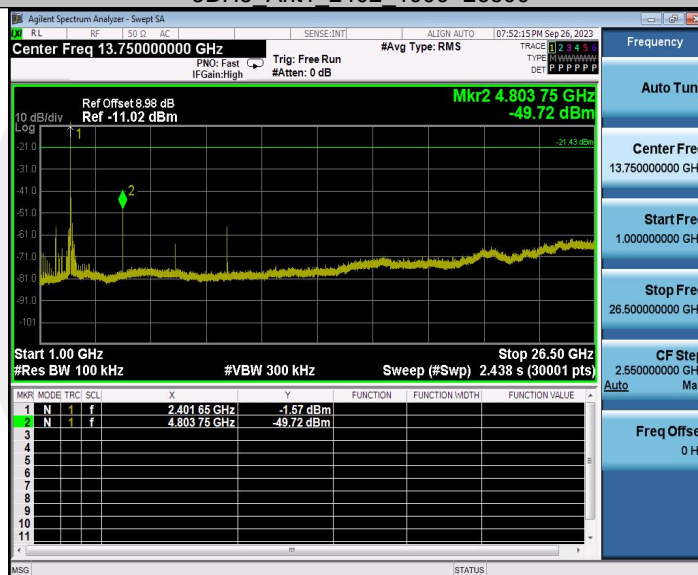
2DH5\_Ant1\_2441\_1000~26500







## 3DH5\_Ant1\_2402\_1000~26500



## 3DH5\_Ant1\_2441\_30~1000

