

# 1. Effective (Isotropic) Radiated Power Output Data

## 1.1 Test Result

### 1.1.1 B13\_5MHz\_ERP

| Band: 13 / Bandwidth: 5MHz / NTVN            |                 |               |        |                       |            |           |         |         |
|----------------------------------------------|-----------------|---------------|--------|-----------------------|------------|-----------|---------|---------|
| Modulation                                   | Frequency (MHz) | RB Allocation |        | Conducted Power (dBm) | Gain (dBi) | ERP (dBm) |         | Verdict |
|                                              |                 | Size          | Offset |                       |            | Result    | Limit   |         |
| QPSK                                         | 779.5           | 1             | 0      | 23.87                 | 3.17       | 24.89     | <=34.77 | Pass    |
|                                              |                 |               | 13     | 23.53                 | 3.17       | 24.55     | <=34.77 | Pass    |
|                                              |                 |               | 24     | 22.86                 | 3.17       | 23.88     | <=34.77 | Pass    |
|                                              |                 | 12            | 0      | 23.36                 | 3.17       | 24.38     | <=34.77 | Pass    |
|                                              |                 |               | 6      | 22.82                 | 3.17       | 23.84     | <=34.77 | Pass    |
|                                              |                 |               | 13     | 22.10                 | 3.17       | 23.12     | <=34.77 | Pass    |
|                                              |                 | 25            | 0      | 22.78                 | 3.17       | 23.80     | <=34.77 | Pass    |
|                                              | 782             | 1             | 0      | 23.48                 | 3.17       | 24.50     | <=34.77 | Pass    |
|                                              |                 |               | 13     | 22.98                 | 3.17       | 24.00     | <=34.77 | Pass    |
|                                              |                 |               | 24     | 23.48                 | 3.17       | 24.50     | <=34.77 | Pass    |
|                                              |                 | 12            | 0      | 22.12                 | 3.17       | 23.14     | <=34.77 | Pass    |
|                                              |                 |               | 6      | 22.03                 | 3.17       | 23.05     | <=34.77 | Pass    |
|                                              |                 |               | 13     | 22.30                 | 3.17       | 23.32     | <=34.77 | Pass    |
|                                              | 25              | 0             | 22.20  | 3.17                  | 23.22      | <=34.77   | Pass    |         |
|                                              | 784.5           | 1             | 0      | 22.62                 | 3.17       | 23.64     | <=34.77 | Pass    |
|                                              |                 |               | 13     | 23.16                 | 3.17       | 24.18     | <=34.77 | Pass    |
|                                              |                 |               | 24     | 22.72                 | 3.17       | 23.74     | <=34.77 | Pass    |
|                                              |                 | 12            | 0      | 21.96                 | 3.17       | 22.98     | <=34.77 | Pass    |
|                                              |                 |               | 6      | 22.15                 | 3.17       | 23.17     | <=34.77 | Pass    |
|                                              |                 |               | 13     | 22.08                 | 3.17       | 23.10     | <=34.77 | Pass    |
|                                              |                 | 25            | 0      | 22.02                 | 3.17       | 23.04     | <=34.77 | Pass    |
| 16QAM                                        | 779.5           | 1             | 0      | 23.25                 | 3.17       | 24.27     | <=34.77 | Pass    |
|                                              |                 |               | 13     | 22.77                 | 3.17       | 23.79     | <=34.77 | Pass    |
|                                              |                 |               | 24     | 22.12                 | 3.17       | 23.14     | <=34.77 | Pass    |
|                                              |                 | 12            | 0      | 22.42                 | 3.17       | 23.44     | <=34.77 | Pass    |
|                                              |                 |               | 6      | 21.84                 | 3.17       | 22.86     | <=34.77 | Pass    |
|                                              |                 |               | 13     | 21.13                 | 3.17       | 22.15     | <=34.77 | Pass    |
|                                              |                 | 25            | 0      | 21.84                 | 3.17       | 22.86     | <=34.77 | Pass    |
|                                              | 782             | 1             | 0      | 22.63                 | 3.17       | 23.65     | <=34.77 | Pass    |
|                                              |                 |               | 13     | 22.15                 | 3.17       | 23.17     | <=34.77 | Pass    |
|                                              |                 |               | 24     | 22.67                 | 3.17       | 23.69     | <=34.77 | Pass    |
|                                              |                 | 12            | 0      | 21.05                 | 3.17       | 22.07     | <=34.77 | Pass    |
|                                              |                 |               | 6      | 20.98                 | 3.17       | 22.00     | <=34.77 | Pass    |
|                                              |                 |               | 13     | 21.26                 | 3.17       | 22.28     | <=34.77 | Pass    |
|                                              | 25              | 0             | 21.17  | 3.17                  | 22.19      | <=34.77   | Pass    |         |
|                                              | 784.5           | 1             | 0      | 21.93                 | 3.17       | 22.95     | <=34.77 | Pass    |
|                                              |                 |               | 13     | 22.50                 | 3.17       | 23.52     | <=34.77 | Pass    |
|                                              |                 |               | 24     | 22.07                 | 3.17       | 23.09     | <=34.77 | Pass    |
|                                              |                 | 12            | 0      | 20.98                 | 3.17       | 22.00     | <=34.77 | Pass    |
|                                              |                 |               | 6      | 21.17                 | 3.17       | 22.19     | <=34.77 | Pass    |
|                                              |                 |               | 13     | 21.09                 | 3.17       | 22.11     | <=34.77 | Pass    |
|                                              |                 | 25            | 0      | 21.08                 | 3.17       | 22.10     | <=34.77 | Pass    |
| Note1: ERP=Conducted Power+Antenna Gain-2.15 |                 |               |        |                       |            |           |         |         |

### 1.1.2 B13\_10MHz\_ERP

| Band: 13 / Bandwidth: 10MHz / NTNV           |                 |               |        |                       |            |           |         |         |
|----------------------------------------------|-----------------|---------------|--------|-----------------------|------------|-----------|---------|---------|
| Modulation                                   | Frequency (MHz) | RB Allocation |        | Conducted Power (dBm) | Gain (dBi) | ERP (dBm) |         | Verdict |
|                                              |                 | Size          | Offset |                       |            | Result    | Limit   |         |
| QPSK                                         | 782             | 1             | 0      | 24.18                 | 3.17       | 25.20     | <=34.77 | Pass    |
|                                              |                 |               | 25     | 23.04                 | 3.17       | 24.06     | <=34.77 | Pass    |
|                                              |                 |               | 49     | 23.24                 | 3.17       | 24.26     | <=34.77 | Pass    |
|                                              |                 | 25            | 0      | 22.79                 | 3.17       | 23.81     | <=34.77 | Pass    |
|                                              |                 |               | 13     | 22.22                 | 3.17       | 23.24     | <=34.77 | Pass    |
|                                              |                 |               | 25     | 22.41                 | 3.17       | 23.43     | <=34.77 | Pass    |
|                                              |                 | 50            | 0      | 22.61                 | 3.17       | 23.63     | <=34.77 | Pass    |
| 16QAM                                        | 782             | 1             | 0      | 23.27                 | 3.17       | 24.29     | <=34.77 | Pass    |
|                                              |                 |               | 25     | 22.24                 | 3.17       | 23.26     | <=34.77 | Pass    |
|                                              |                 |               | 49     | 22.47                 | 3.17       | 23.49     | <=34.77 | Pass    |
|                                              |                 | 12            | 0      | 23.24                 | 3.17       | 24.26     | <=34.77 | Pass    |
|                                              |                 |               | 19     | 22.07                 | 3.17       | 23.09     | <=34.77 | Pass    |
|                                              |                 |               | 38     | 22.52                 | 3.17       | 23.54     | <=34.77 | Pass    |
|                                              |                 | 27            | 0      | 21.75                 | 3.17       | 22.77     | <=34.77 | Pass    |
| Note1: ERP=Conducted Power+Antenna Gain-2.15 |                 |               |        |                       |            |           |         |         |

## 2. Frequency Stability

### 2.1 Test Result

#### 2.1.1 B13\_10MHz

| Band: 13 / Bandwidth: 10MHz |                 |               |        |            |               |                  |                       |             |         |
|-----------------------------|-----------------|---------------|--------|------------|---------------|------------------|-----------------------|-------------|---------|
| Modulation                  | Frequency (MHz) | RB Allocation |        | Temp. (°C) | Voltage (VDC) | Freq. Error (Hz) | Freq. vs. Rated (ppm) |             | Verdict |
|                             |                 | Size          | Offset |            |               |                  | Result                | Limit       |         |
| QPSK                        | 782             | 50            | 0      | 20         | 3.40          | -2.074           | -0.0027               | -2.5 to 2.5 | Pass    |
|                             |                 |               |        |            | 3.80          | -0.615           | -0.0008               | -2.5 to 2.5 | Pass    |
|                             |                 |               |        |            | 4.20          | -0.815           | -0.0010               | -2.5 to 2.5 | Pass    |
|                             |                 |               |        | -30        | 3.80          | -0.286           | -0.0004               | -2.5 to 2.5 | Pass    |
|                             |                 |               |        | -20        | 3.80          | -0.830           | -0.0011               | -2.5 to 2.5 | Pass    |
|                             |                 |               |        | -10        | 3.80          | -0.372           | -0.0005               | -2.5 to 2.5 | Pass    |
|                             |                 |               |        | 0          | 3.80          | -0.987           | -0.0013               | -2.5 to 2.5 | Pass    |
|                             |                 |               |        | 10         | 3.80          | -0.401           | -0.0005               | -2.5 to 2.5 | Pass    |
|                             |                 |               |        | 30         | 3.80          | 0.443            | 0.0006                | -2.5 to 2.5 | Pass    |
|                             |                 |               |        | 40         | 3.80          | 0.014            | 0.0000                | -2.5 to 2.5 | Pass    |
|                             |                 |               |        | 50         | 3.80          | -0.186           | -0.0002               | -2.5 to 2.5 | Pass    |

### 3. 99% & 26dB Bandwidth

#### 3.1 Test Result

##### 3.1.1 Band13\_OBW

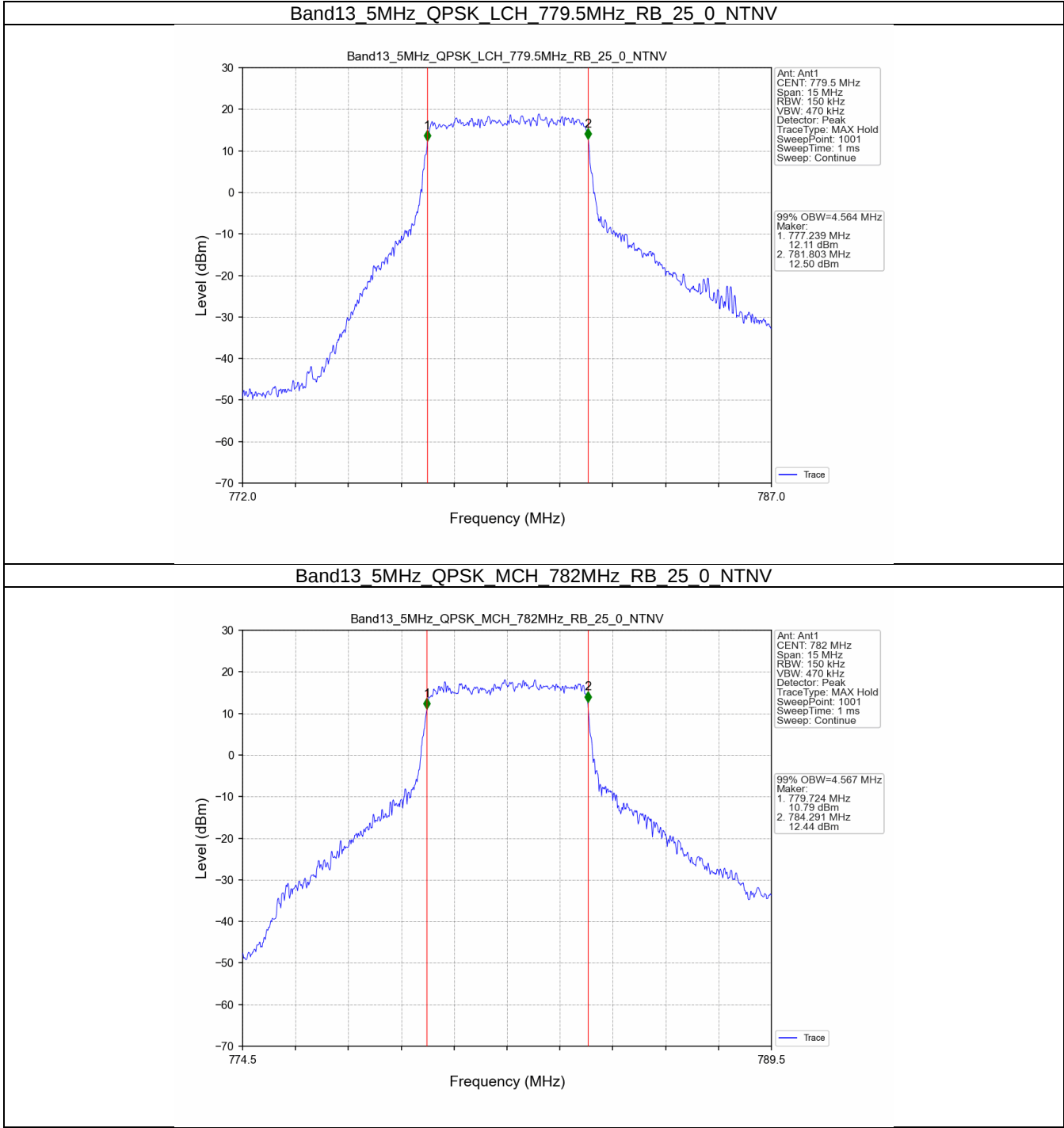
| Band: 13 / NTNV |            |                 |               |        |                              |       |         |
|-----------------|------------|-----------------|---------------|--------|------------------------------|-------|---------|
| Bandwidth (MHz) | Modulation | Frequency (MHz) | RB Allocation |        | 99% Occupied Bandwidth (MHz) |       | Verdict |
|                 |            |                 | Size          | Offset | Result                       | Limit |         |
| 5               | QPSK       | 779.5           | 25            | 0      | 4.564                        | /     | Pass    |
|                 |            | 782             | 25            | 0      | 4.567                        | /     | Pass    |
|                 |            | 784.5           | 25            | 0      | 4.575                        | /     | Pass    |
|                 | 16QAM      | 779.5           | 25            | 0      | 4.556                        | /     | Pass    |
|                 |            | 782             | 25            | 0      | 4.555                        | /     | Pass    |
|                 |            | 784.5           | 25            | 0      | 4.540                        | /     | Pass    |
| 10              | QPSK       | 782             | 50            | 0      | 9.052                        | /     | Pass    |
|                 | 16QAM      | 782             | 27            | 0      | 5.095                        | /     | Pass    |

##### 3.1.2 Band13\_XDB

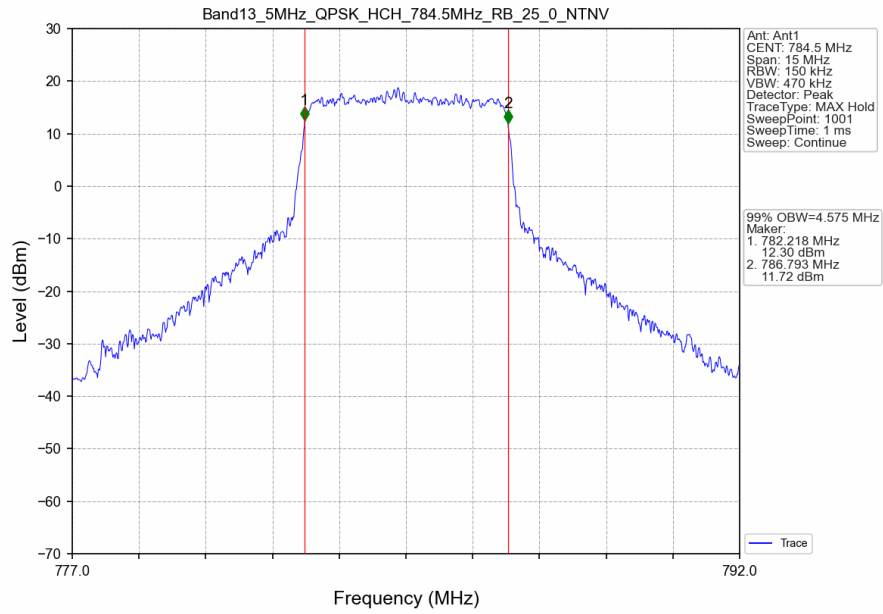
| Band: 13 / NTNV |            |                 |               |        |                      |       |         |
|-----------------|------------|-----------------|---------------|--------|----------------------|-------|---------|
| Bandwidth (MHz) | Modulation | Frequency (MHz) | RB Allocation |        | 26dB Bandwidth (MHz) |       | Verdict |
|                 |            |                 | Size          | Offset | Result               | Limit |         |
| 5               | QPSK       | 779.5           | 25            | 0      | 5.418                | /     | Pass    |
|                 |            | 782             | 25            | 0      | 5.476                | /     | Pass    |
|                 |            | 784.5           | 25            | 0      | 5.323                | /     | Pass    |
|                 | 16QAM      | 779.5           | 25            | 0      | 5.341                | /     | Pass    |
|                 |            | 782             | 25            | 0      | 5.306                | /     | Pass    |
|                 |            | 784.5           | 25            | 0      | 5.382                | /     | Pass    |
| 10              | QPSK       | 782             | 50            | 0      | 10.424               | /     | Pass    |
|                 | 16QAM      | 782             | 27            | 0      | 6.240                | /     | Pass    |

3.2 Test Graph

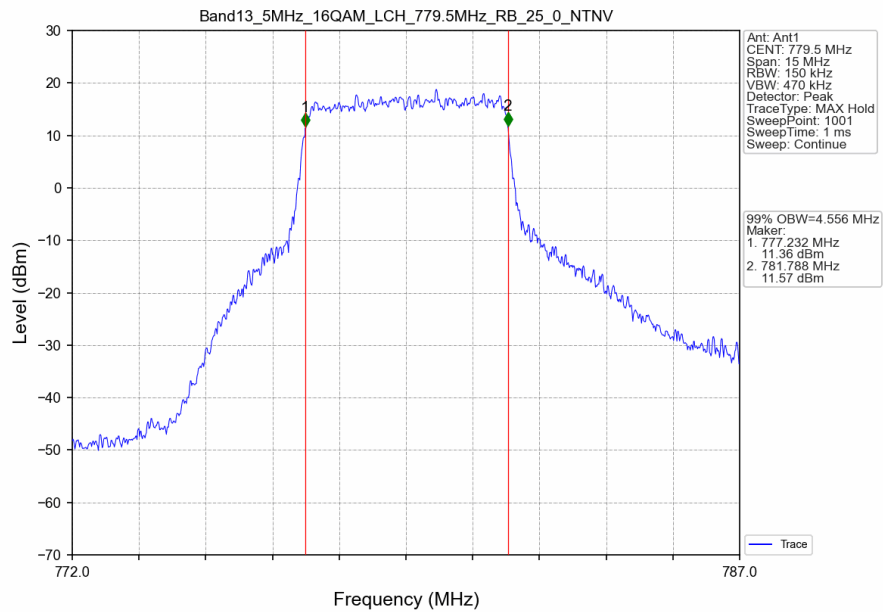
3.2.1 Band13\_OBW



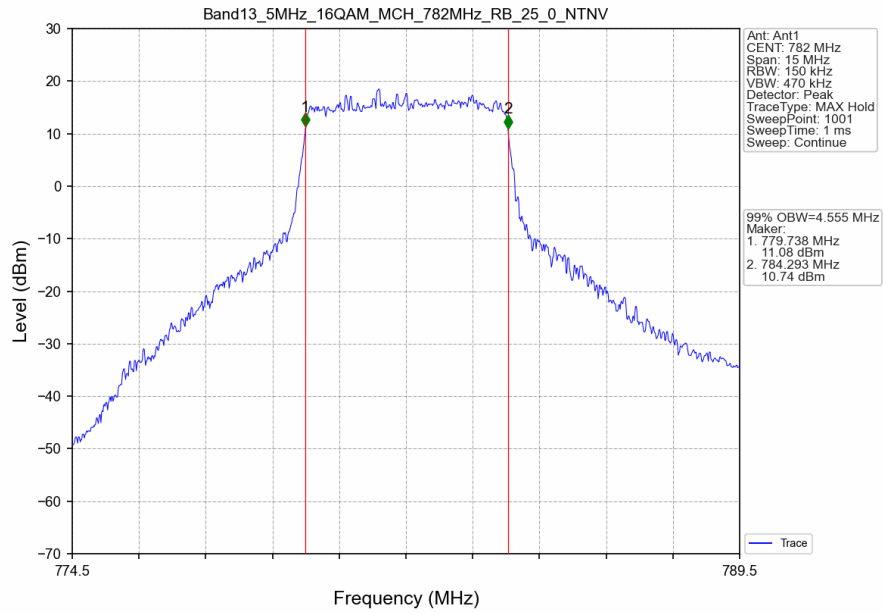
# Band13\_5MHz\_QPSK\_HCH\_784.5MHz\_RB\_25\_0\_NTNV



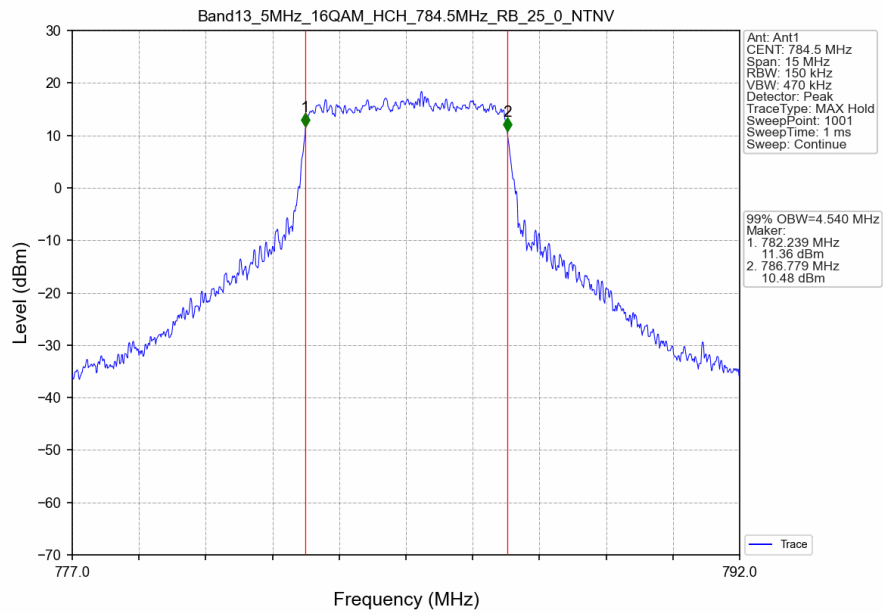
# Band13\_5MHz\_16QAM\_LCH\_779.5MHz\_RB\_25\_0\_NTNV



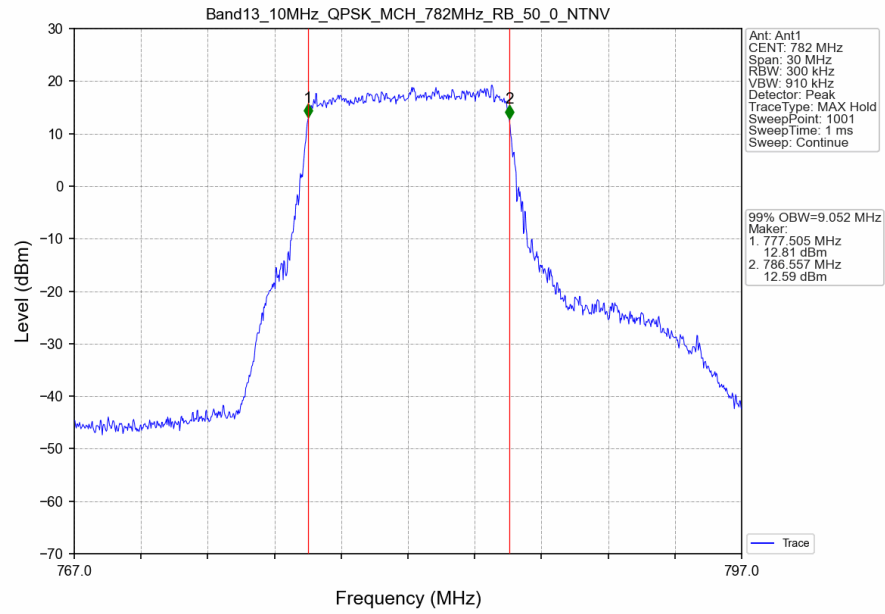
# Band13\_5MHz\_16QAM\_MCH\_782MHz\_RB\_25\_0\_NTNV



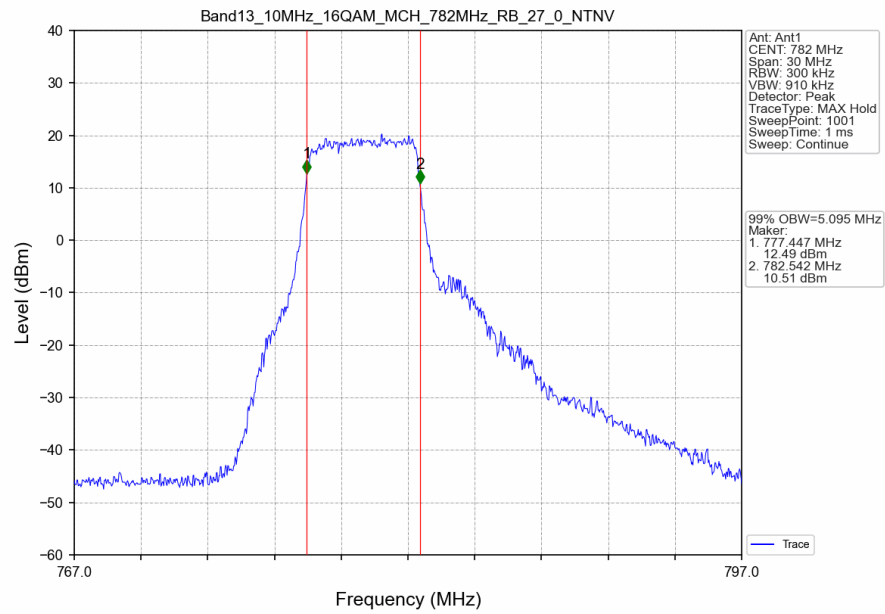
# Band13\_5MHz\_16QAM\_HCH\_784.5MHz\_RB\_25\_0\_NTNV



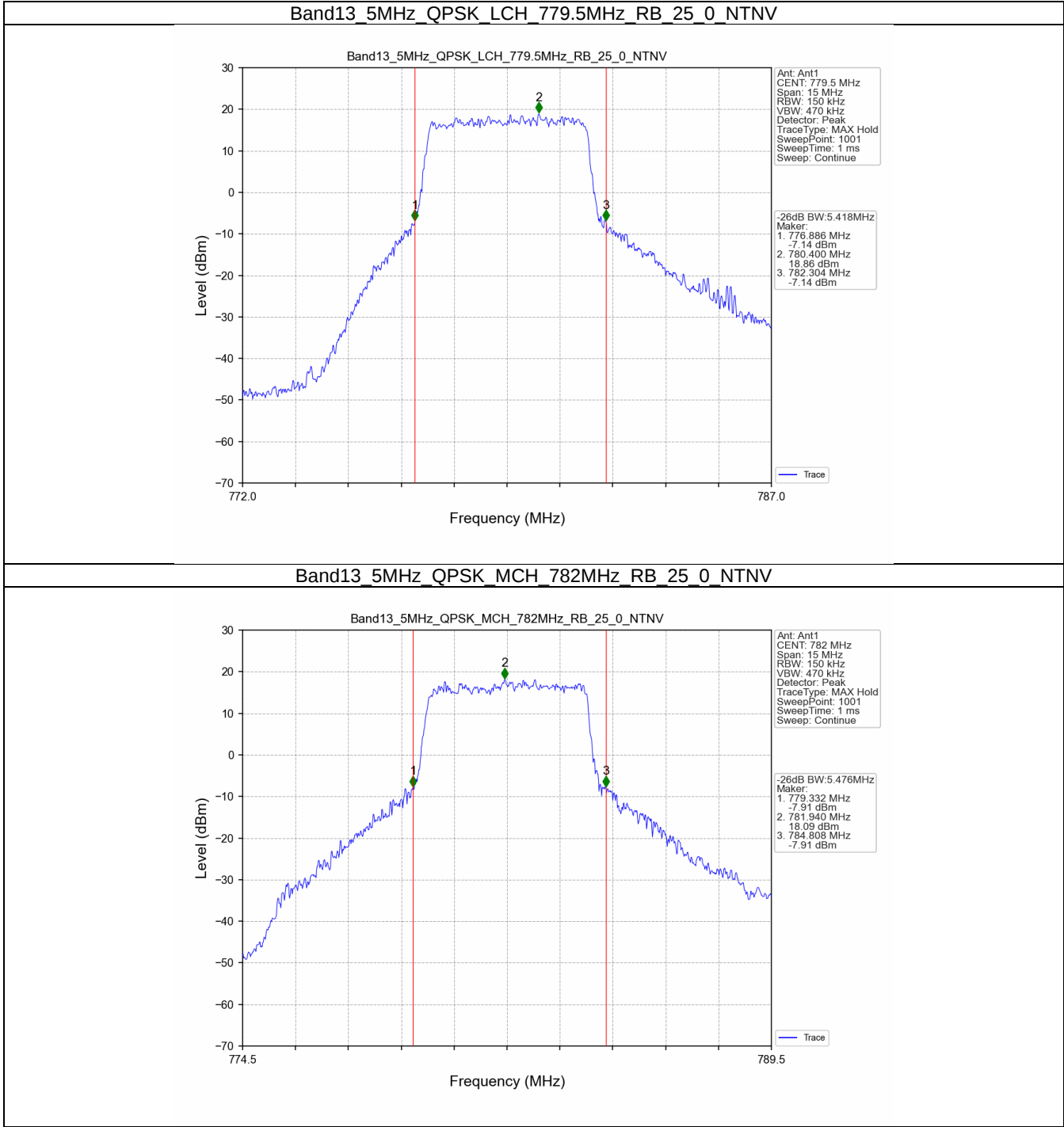
# Band13\_10MHz\_QPSK\_MCH\_782MHz\_RB\_50\_0\_NTNV



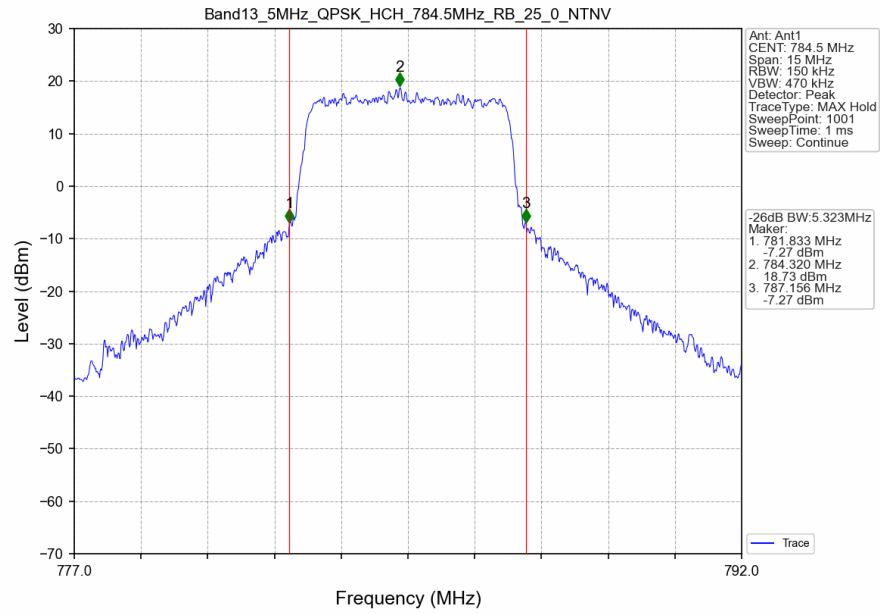
# Band13\_10MHz\_16QAM\_MCH\_782MHz\_RB\_27\_0\_NTNV



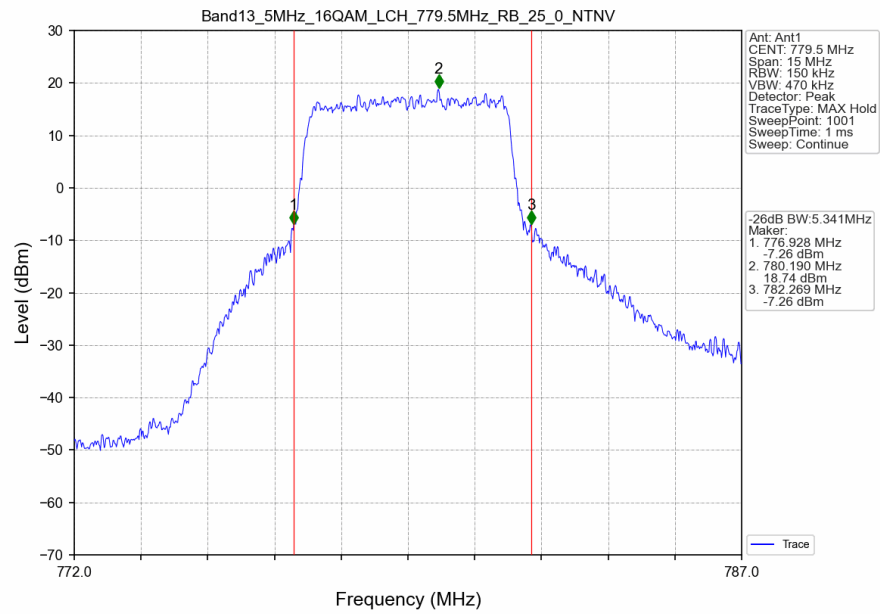
3.2.2 Band13\_XDB



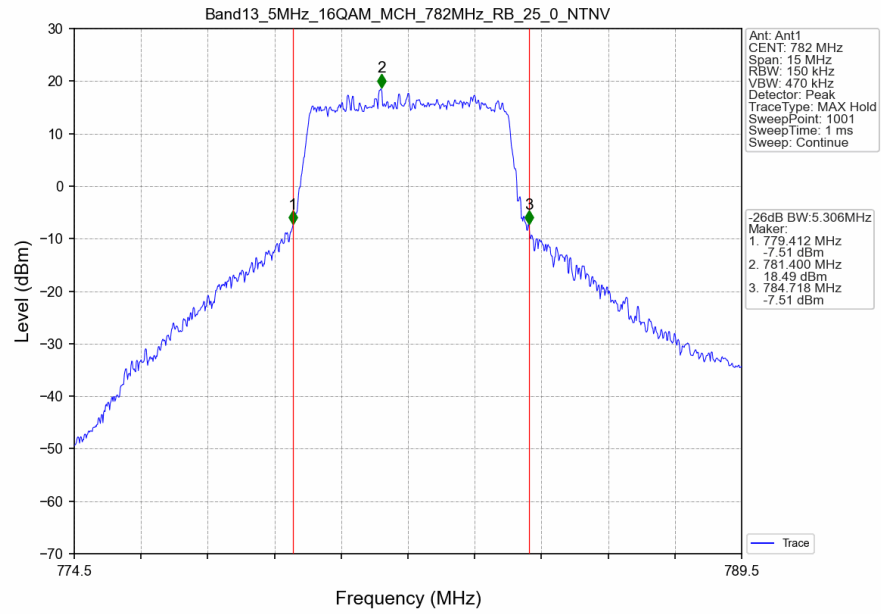
# Band13\_5MHz\_QPSK\_HCH\_784.5MHz\_RB\_25\_0\_NTNV



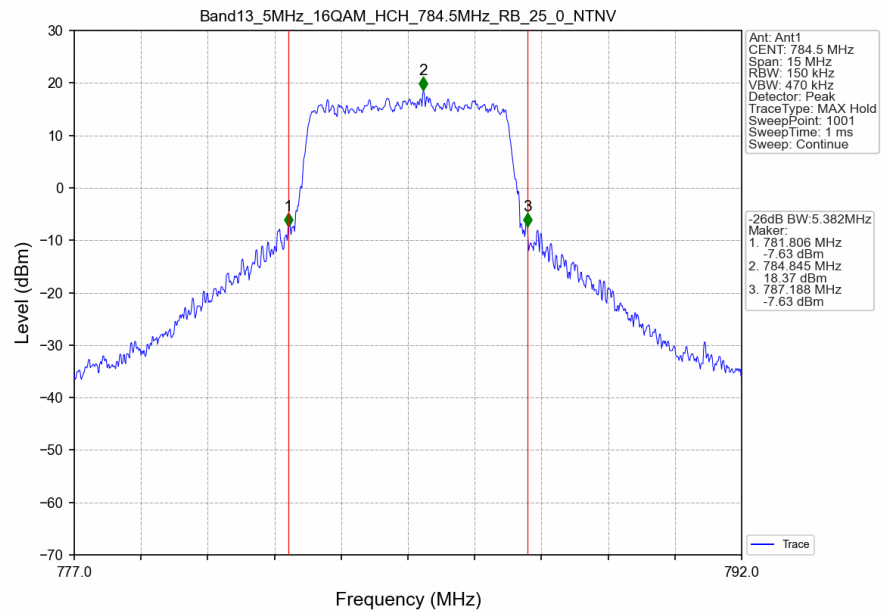
# Band13\_5MHz\_16QAM\_LCH\_779.5MHz\_RB\_25\_0\_NTNV



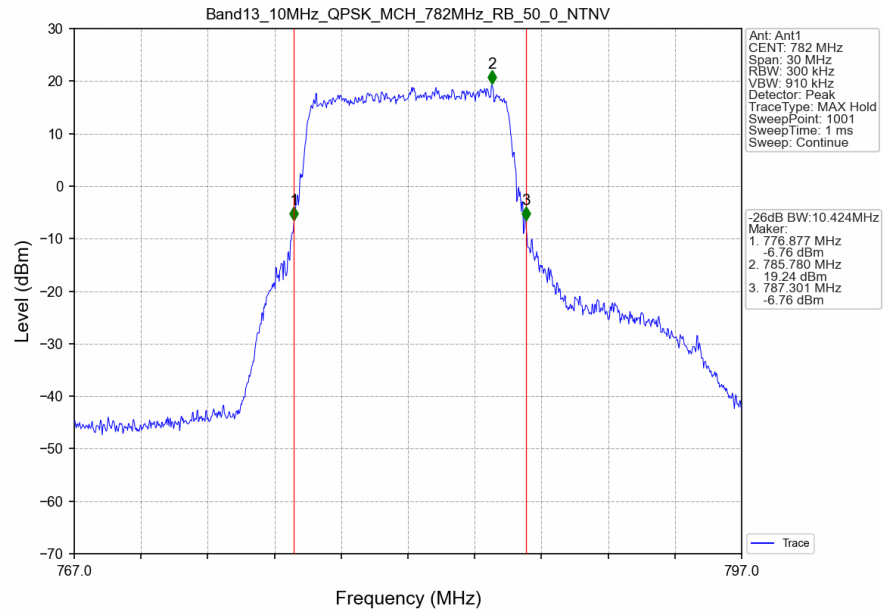
### Band13\_5MHz\_16QAM\_MCH\_782MHz\_RB\_25\_0\_NTNV



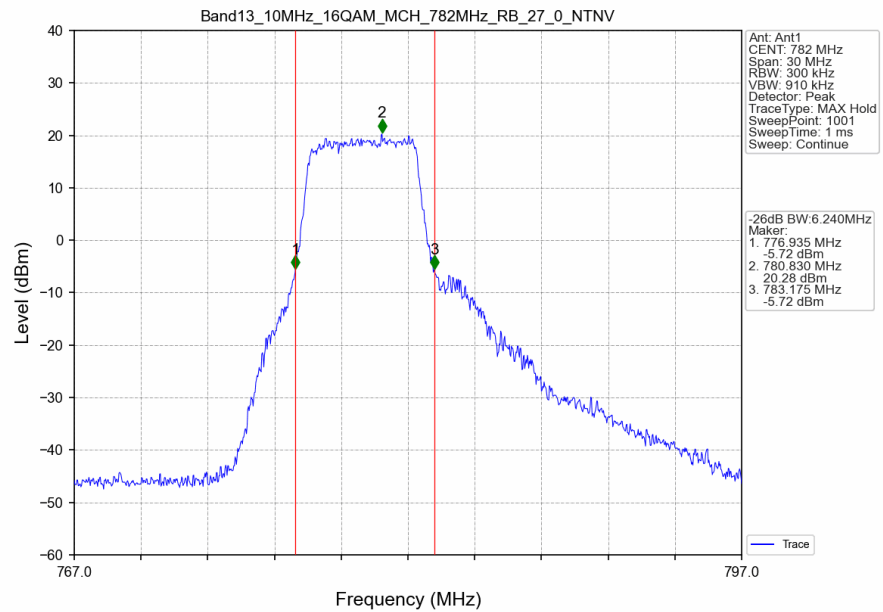
### Band13\_5MHz\_16QAM\_HCH\_784.5MHz\_RB\_25\_0\_NTNV



# Band13\_10MHz\_QPSK\_MCH\_782MHz\_RB\_50\_0\_NTNV



# Band13\_10MHz\_16QAM\_MCH\_782MHz\_RB\_27\_0\_NTNV



## 4. Peak-Average Ratio

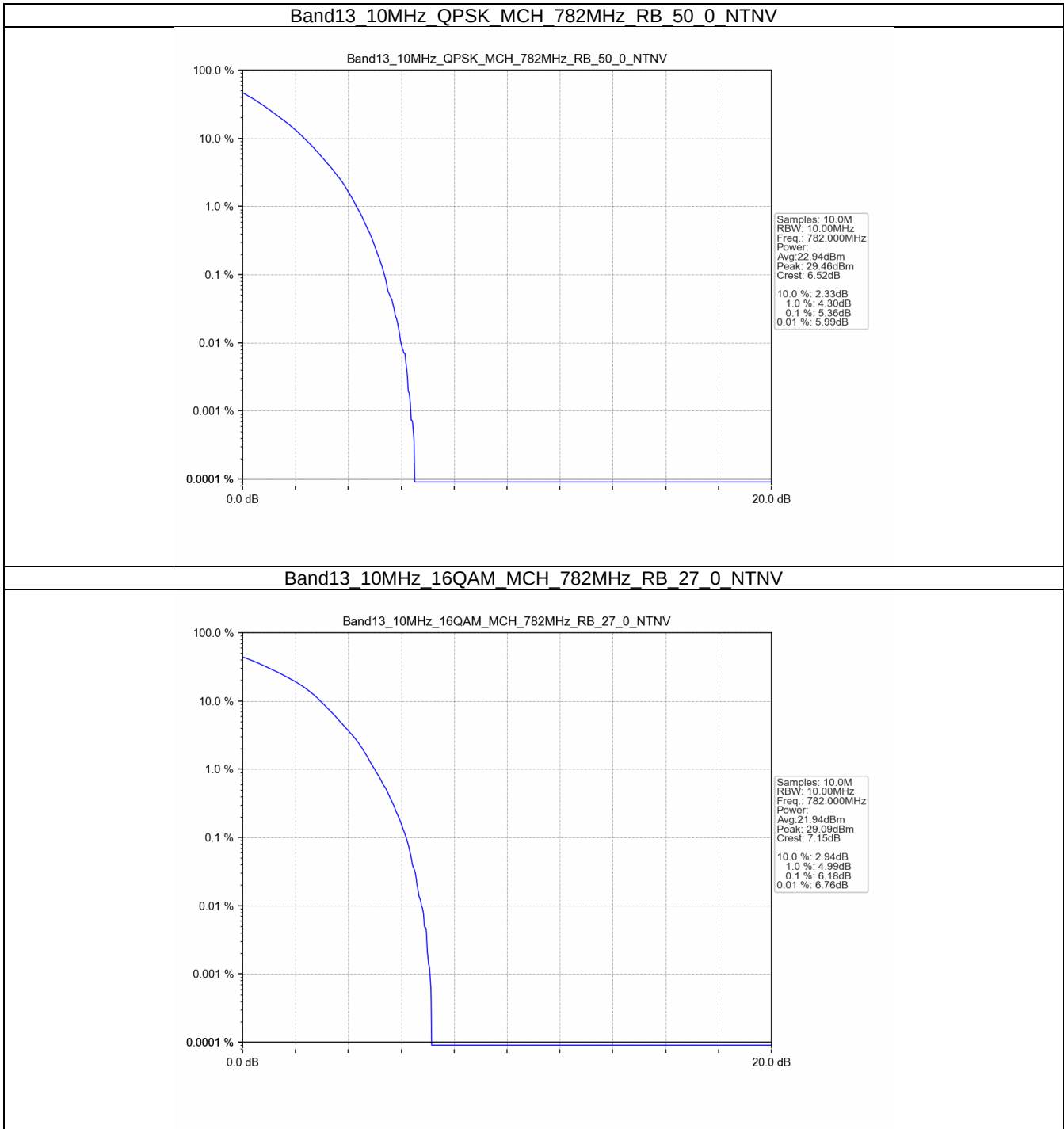
### 4.1 Test Result

#### 4.1.1 B13\_10MHz

| Band: 13 / Bandwidth: 10MHz / NTNV |                    |               |        |                         |       |         |
|------------------------------------|--------------------|---------------|--------|-------------------------|-------|---------|
| Modulation                         | Frequency<br>(MHz) | RB Allocation |        | Peak-Average Ratio (dB) |       | Verdict |
|                                    |                    | Size          | Offset | Result                  | Limit |         |
| QPSK                               | 782                | 50            | 0      | 5.36                    | <=13  | Pass    |
| 16QAM                              | 782                | 27            | 0      | 6.18                    | <=13  | Pass    |

4.2 Test Graph

4.2.1 B13\_10MHz



## 5. Spurious Emission

### 5.1 Test Result

#### 5.1.1 B13\_5MHz

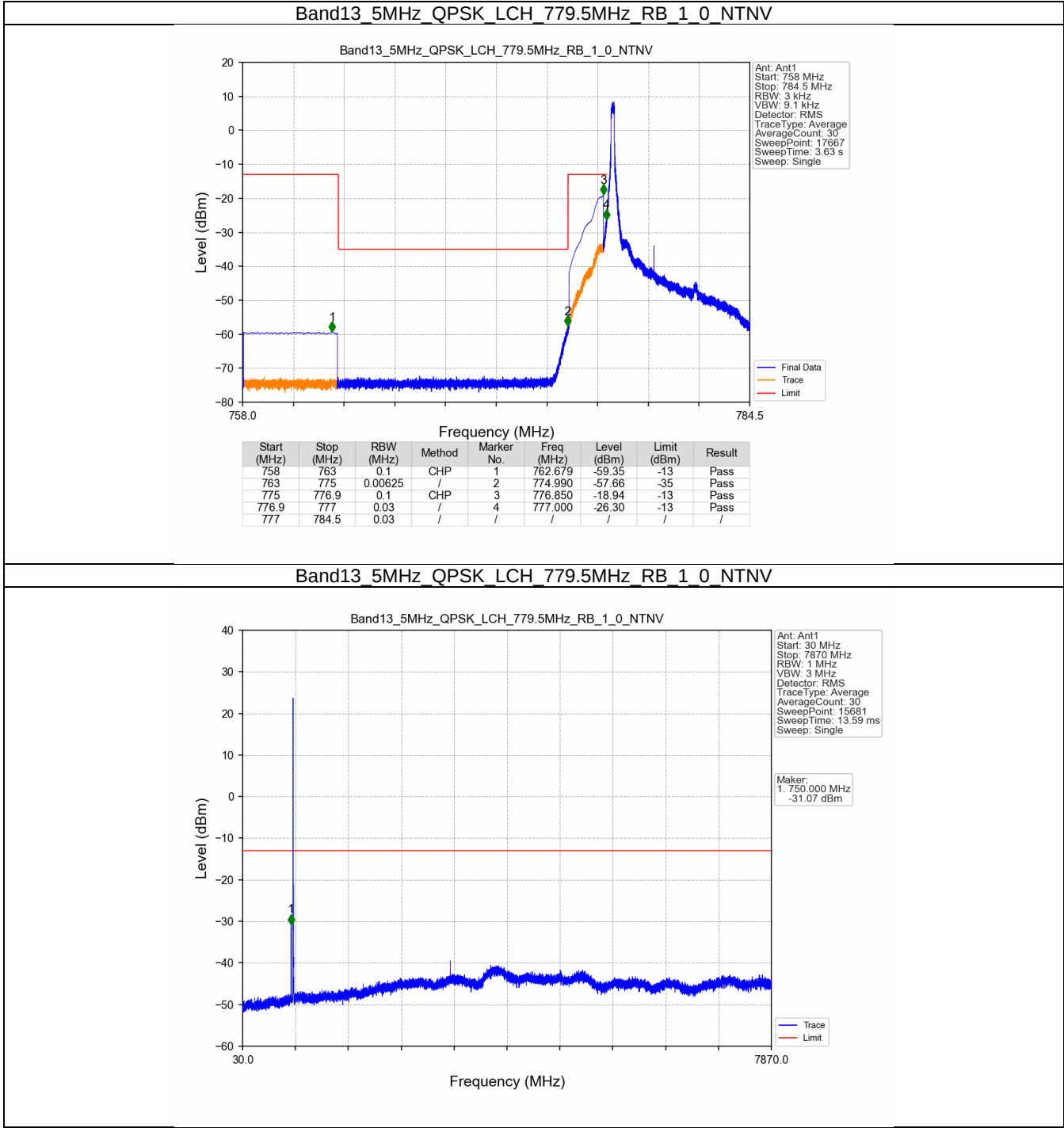
| Band: 13 / Bandwidth: 5MHz / NTV |                 |               |        |                     |       |         |
|----------------------------------|-----------------|---------------|--------|---------------------|-------|---------|
| Modulation                       | Frequency (MHz) | RB Allocation |        | Spurious Emission   |       | Verdict |
|                                  |                 | Size          | Offset | Result              | Limit |         |
| QPSK                             | 779.5           | 1             | 0      | Refer To Test Graph |       | Pass    |
|                                  |                 | 25            | 0      | Refer To Test Graph |       | Pass    |
|                                  | 782             | 1             | 0      | Refer To Test Graph |       | Pass    |
|                                  | 784.5           | 1             | 0      | Refer To Test Graph |       | Pass    |
|                                  |                 |               | 24     | Refer To Test Graph |       | Pass    |
|                                  |                 | 25            | 0      | Refer To Test Graph |       | Pass    |

#### 5.1.2 B13\_10MHz

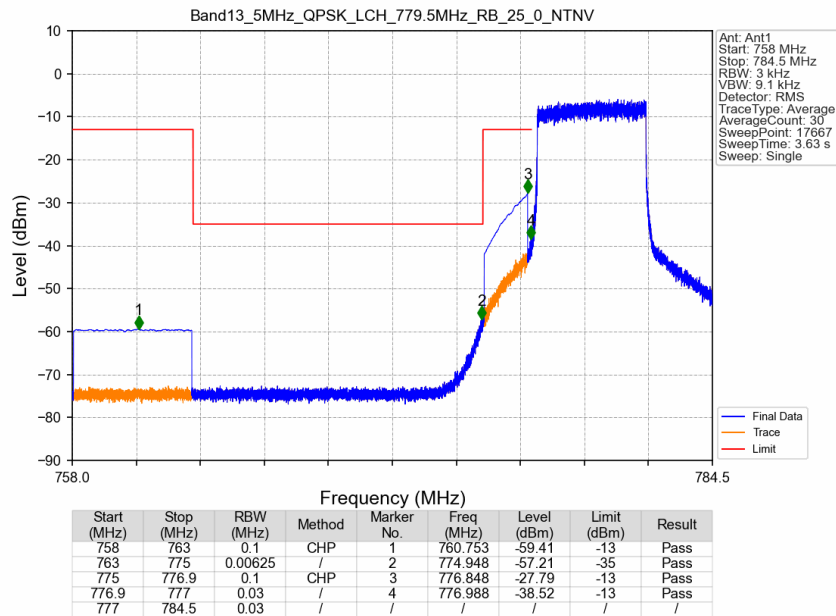
| Band: 13 / Bandwidth: 10MHz / NTNV |                 |               |        |                     |       |         |
|------------------------------------|-----------------|---------------|--------|---------------------|-------|---------|
| Modulation                         | Frequency (MHz) | RB Allocation |        | Spurious Emission   |       | Verdict |
|                                    |                 | Size          | Offset | Result              | Limit |         |
| QPSK                               | 782             | 1             | 0      | Refer To Test Graph |       | Pass    |
|                                    |                 | 50            | 0      | Refer To Test Graph |       | Pass    |
|                                    | 782             | 1             | 49     | Refer To Test Graph |       | Pass    |
|                                    |                 | 50            | 0      | Refer To Test Graph |       | Pass    |

5.2 Test Graph

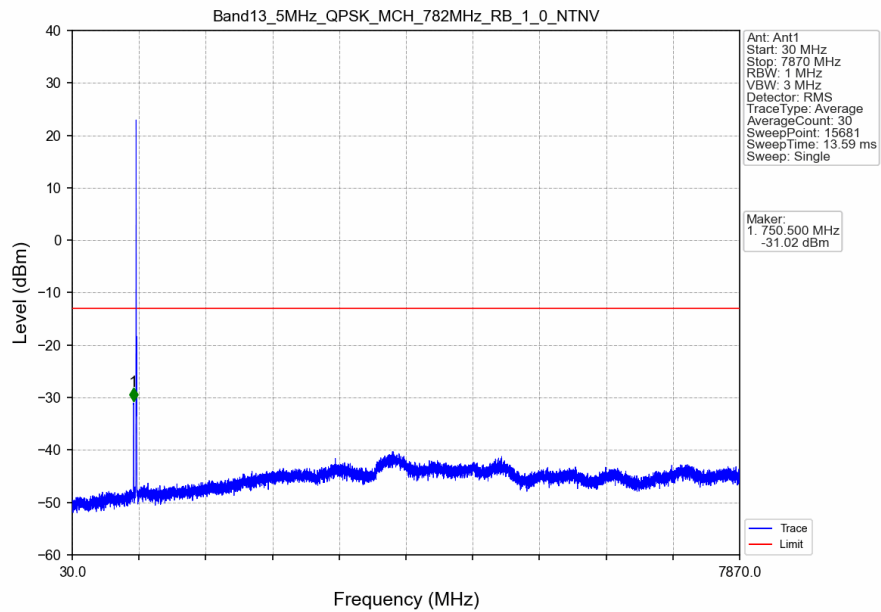
5.2.1 B13\_5MHz



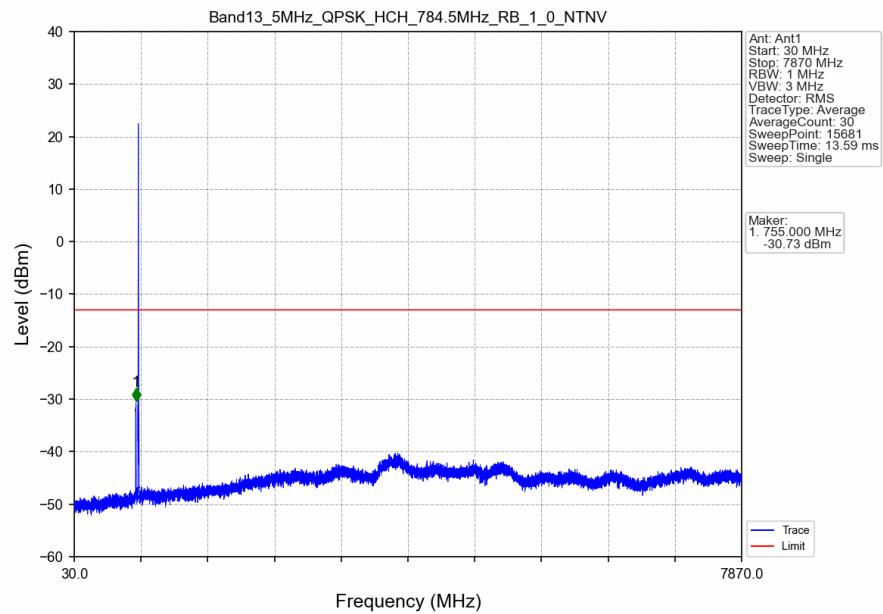
### Band13 5MHz QPSK LCH 779.5MHz RB 25 0 NTN



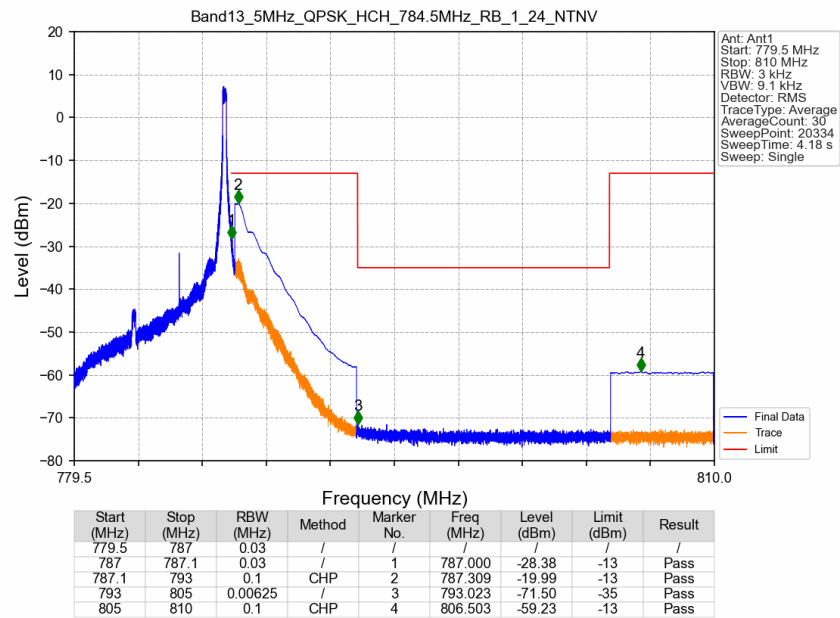
### Band13 5MHz QPSK MCH 782MHz RB 1 0 NTN



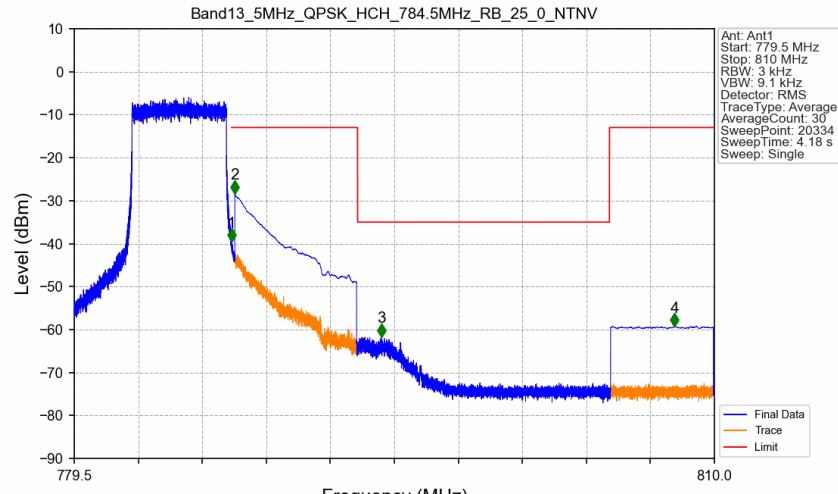
Band13 5MHz QPSK HCH 784.5MHz RB 1 0 NTV



Band13 5MHz QPSK HCH 784.5MHz RB 1 24 NTV

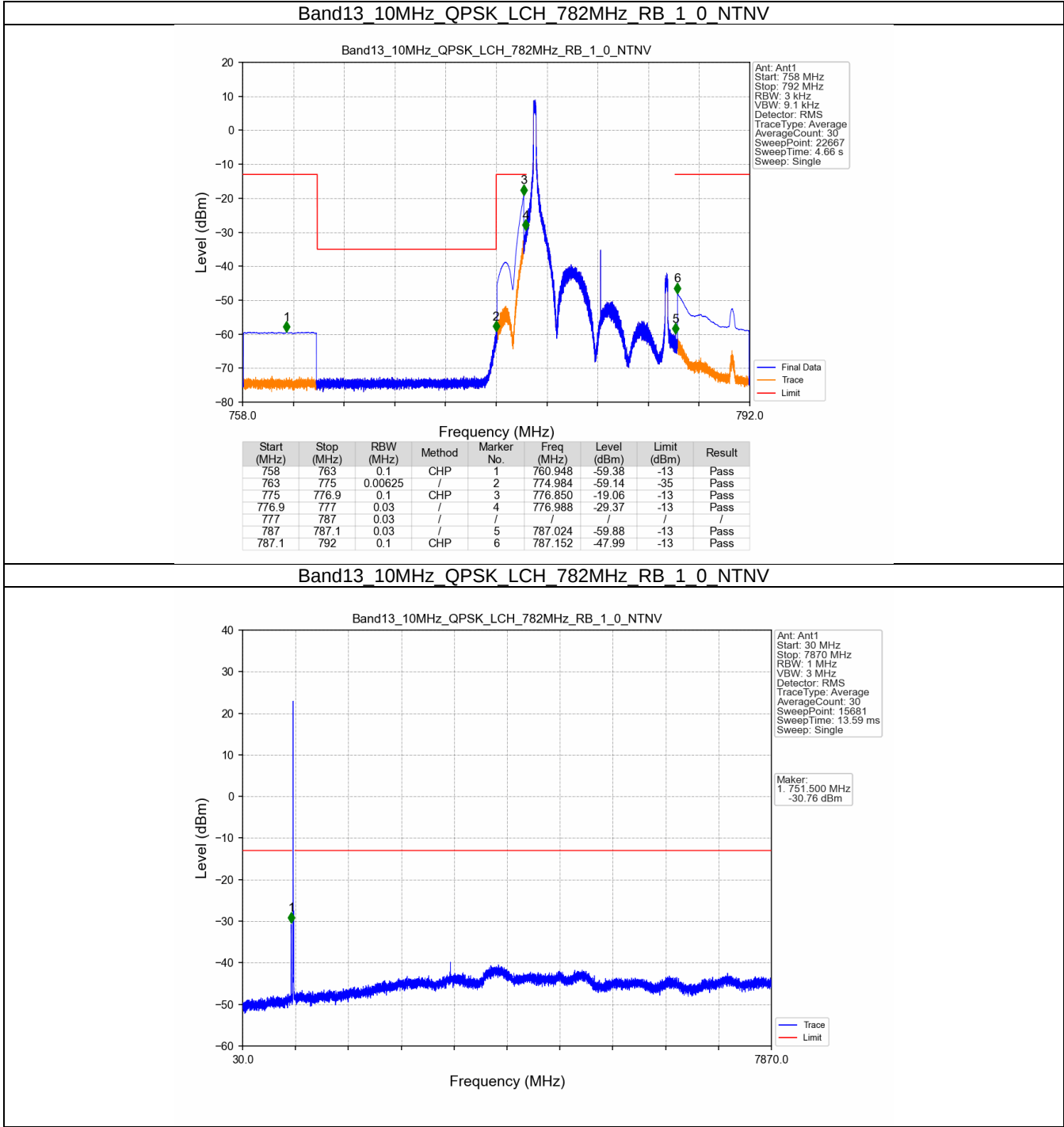


# Band13 5MHz QPSK HCH 784.5MHz RB 25 0\_NTNV

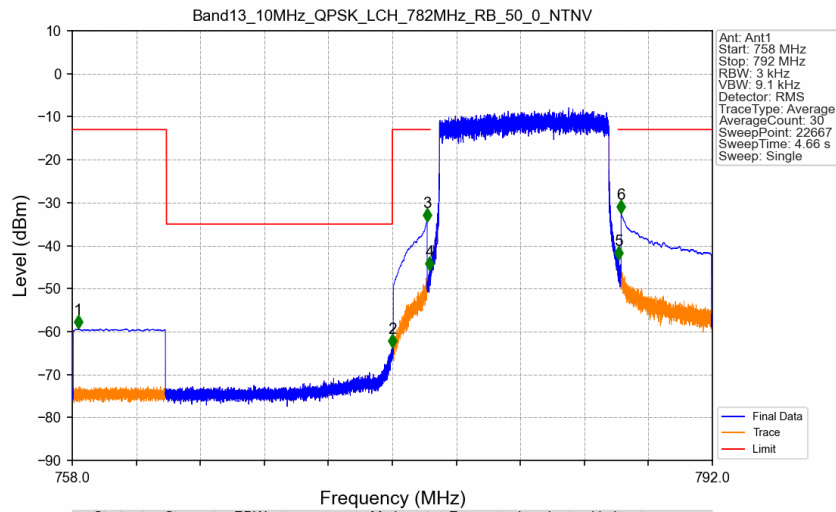


| Start (MHz) | Stop (MHz) | RBW (MHz) | Method | Marker No. | Freq (MHz) | Level (dBm) | Limit (dBm) | Result |
|-------------|------------|-----------|--------|------------|------------|-------------|-------------|--------|
| 779.5       | 787        | 0.03      | /      | /          | /          | /           | /           | /      |
| 787         | 787.1      | 0.03      | /      | 1          | 787.000    | -39.59      | -13         | Pass   |
| 787.1       | 793        | 0.1       | CHP    | 2          | 787.150    | -28.37      | -13         | Pass   |
| 793         | 805        | 0.00625   | /      | 3          | 794.152    | -61.70      | -35         | Pass   |
| 805         | 810        | 0.1       | CHP    | 4          | 808.107    | -59.27      | -13         | Pass   |

5.2.2 B13\_10MHz

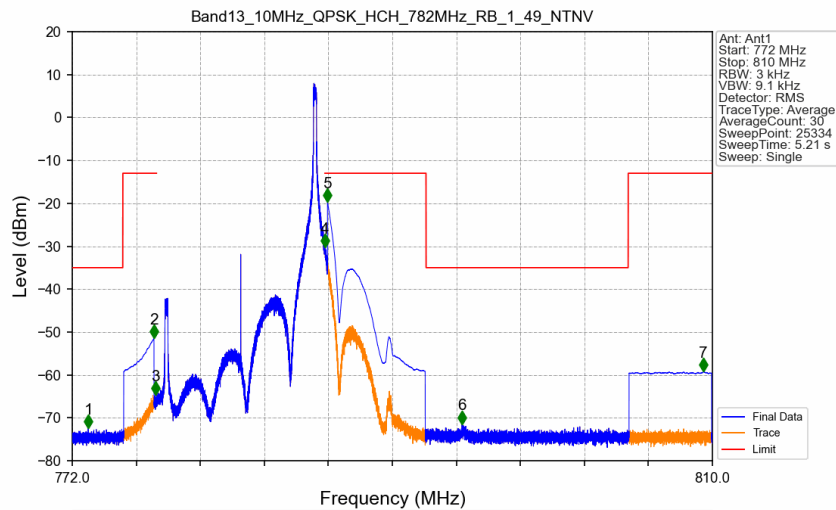


### Band13 10MHz QPSK LCH 782MHz RB 50 0 NTNV



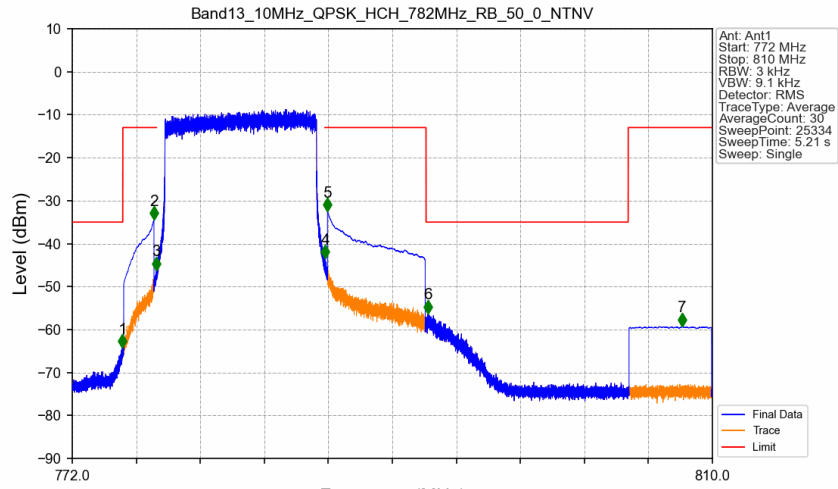
| Start (MHz) | Stop (MHz) | RBW (MHz) | Method | Marker No. | Freq (MHz) | Level (dBm) | Limit (dBm) | Result |
|-------------|------------|-----------|--------|------------|------------|-------------|-------------|--------|
| 758         | 763        | 0.1       | CHP    | 1          | 758.317    | -59.37      | -13         | Pass   |
| 763         | 775        | 0.00625   | /      | 2          | 775.000    | -63.79      | -35         | Pass   |
| 775         | 776.9      | 0.1       | CHP    | 3          | 776.836    | -34.39      | -13         | Pass   |
| 776.9       | 777        | 0.03      | /      | 4          | 776.983    | -45.81      | -13         | Pass   |
| 777         | 787        | 0.03      | /      | /          | /          | /           | /           | /      |
| 787         | 787.1      | 0.03      | /      | 5          | 787.017    | -43.28      | -13         | Pass   |
| 787.1       | 792        | 0.1       | CHP    | 6          | 787.150    | -32.47      | -13         | Pass   |

### Band13 10MHz QPSK HCH 782MHz RB 1 49 NTNV



| Start (MHz) | Stop (MHz) | RBW (MHz) | Method | Marker No. | Freq (MHz) | Level (dBm) | Limit (dBm) | Result |
|-------------|------------|-----------|--------|------------|------------|-------------|-------------|--------|
| 772         | 775        | 0.00625   | /      | 1          | 772.948    | -72.38      | -35         | Pass   |
| 775         | 776.9      | 0.1       | CHP    | 2          | 776.847    | -51.45      | -13         | Pass   |
| 776.9       | 777        | 0.03      | /      | 3          | 776.920    | -64.64      | -13         | Pass   |
| 777         | 787        | 0.03      | /      | /          | /          | /           | /           | /      |
| 787         | 787.1      | 0.03      | /      | 4          | 787.000    | -30.26      | -13         | Pass   |
| 787.1       | 793        | 0.1       | CHP    | 5          | 787.150    | -19.66      | -13         | Pass   |
| 793         | 805        | 0.00625   | /      | 6          | 795.136    | -71.46      | -35         | Pass   |
| 805         | 810        | 0.1       | CHP    | 7          | 809.472    | -59.24      | -13         | Pass   |

# Band13 10MHz QPSK HCH 782MHz RB 50 0 NTN



| Start (MHz) | Stop (MHz) | RBW (MHz) | Method | Marker No. | Freq (MHz) | Level (dBm) | Limit (dBm) | Result |
|-------------|------------|-----------|--------|------------|------------|-------------|-------------|--------|
| 772         | 775        | 0.00625   | /      | 1          | 774.969    | -64.27      | -35         | Pass   |
| 775         | 776.9      | 0.1       | CHP    | 2          | 776.850    | -34.50      | -13         | Pass   |
| 776.9       | 777        | 0.03      | /      | 3          | 776.998    | -46.17      | -13         | Pass   |
| 777         | 787        | 0.03      | /      | /          | /          | /           | /           | /      |
| 787         | 787.1      | 0.03      | /      | 4          | 787.017    | -43.43      | -13         | Pass   |
| 787.1       | 793        | 0.1       | CHP    | 5          | 787.150    | -32.54      | -13         | Pass   |
| 793         | 805        | 0.00625   | /      | 6          | 793.107    | -56.22      | -35         | Pass   |
| 805         | 810        | 0.1       | CHP    | 7          | 808.216    | -59.23      | -13         | Pass   |