

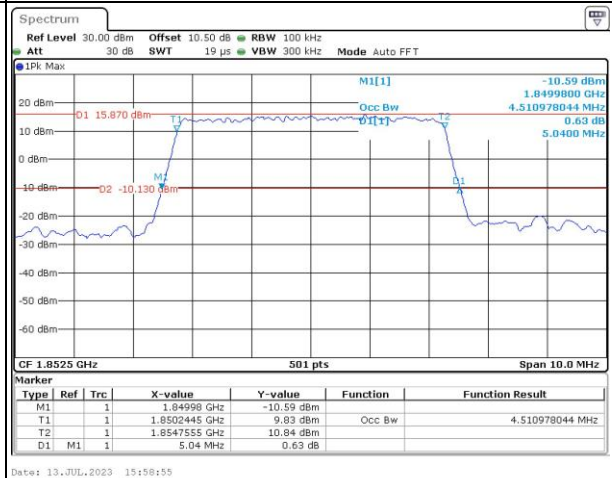
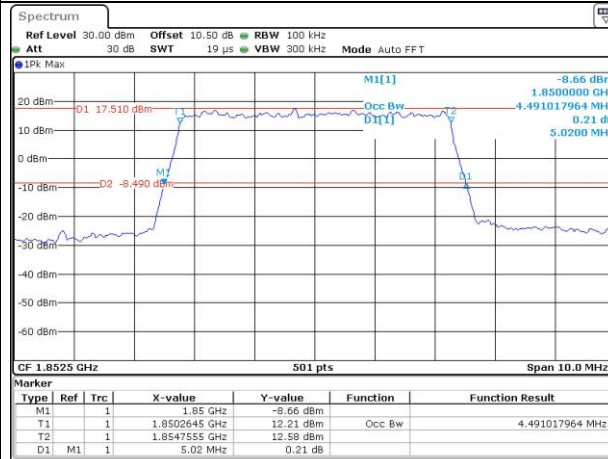
## Occupied Bandwidth

## Channel

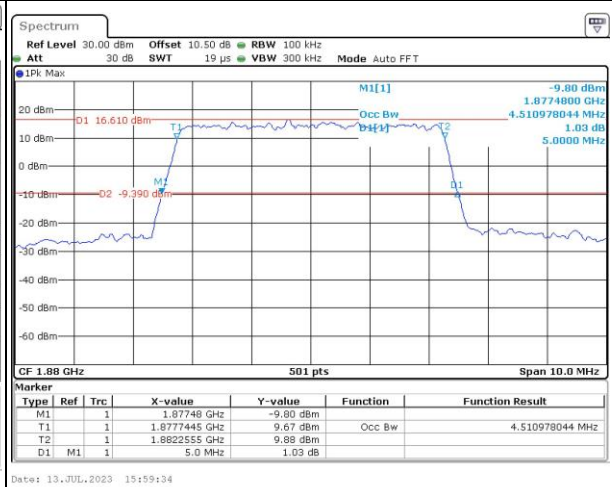
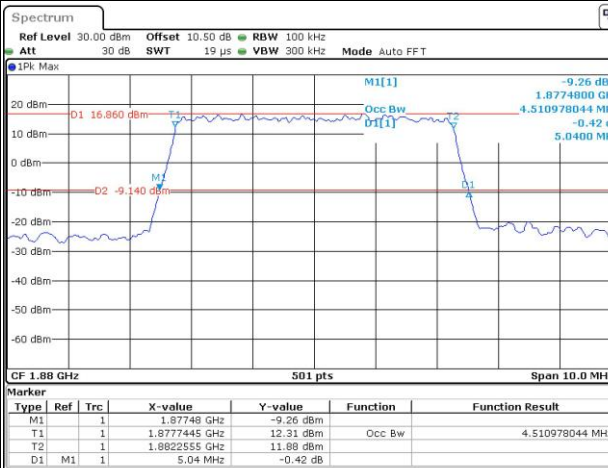
## 5MHz Bandwidth QPSK

## 5MHz Bandwidth 16QAM

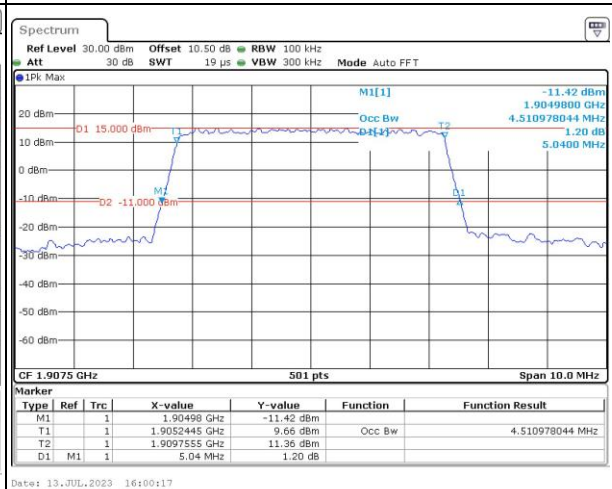
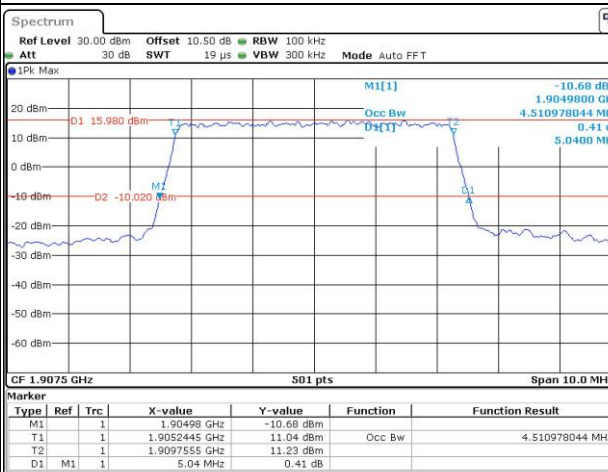
## Lowest



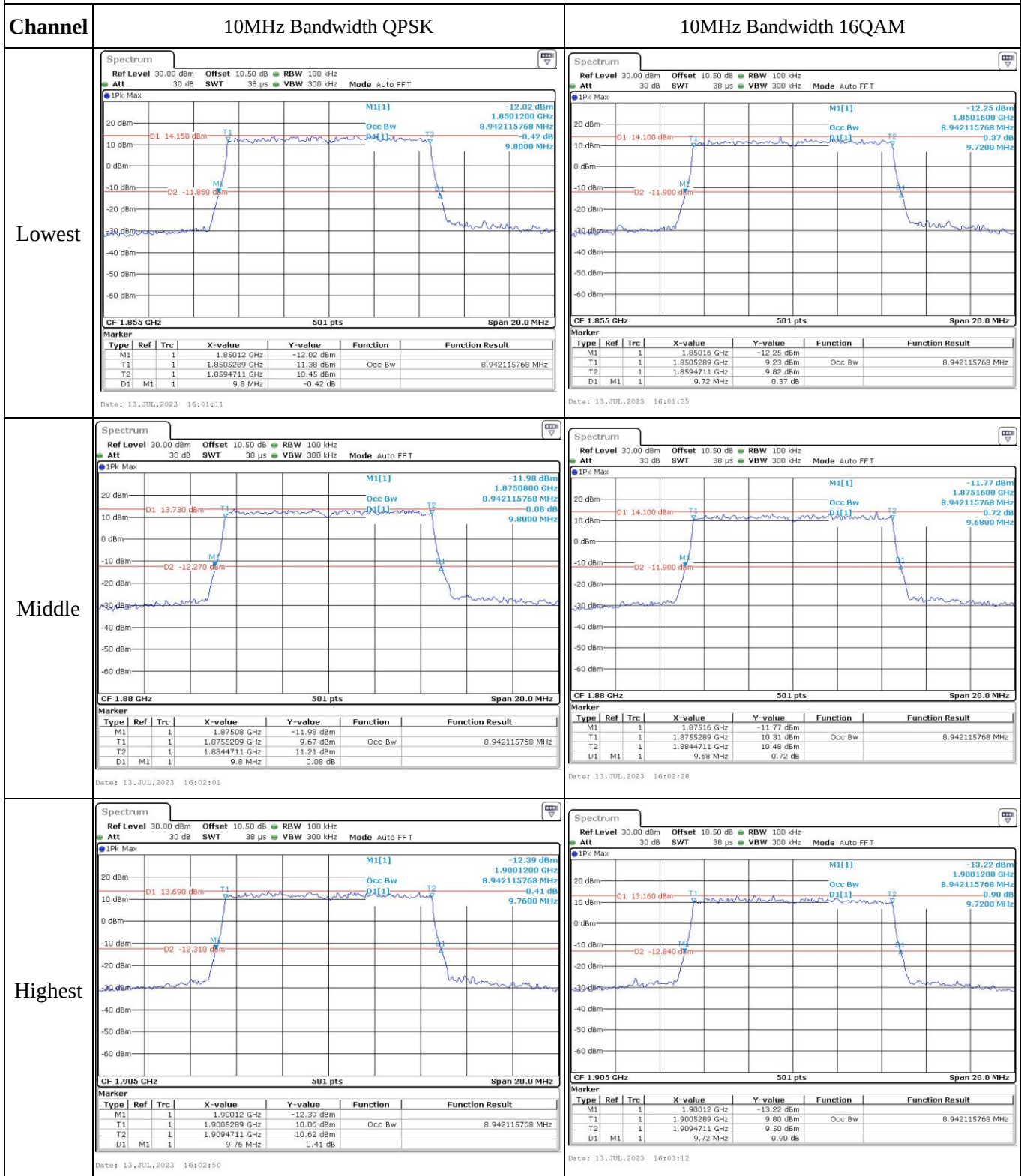
## Middle



## Highest



## Occupied Bandwidth



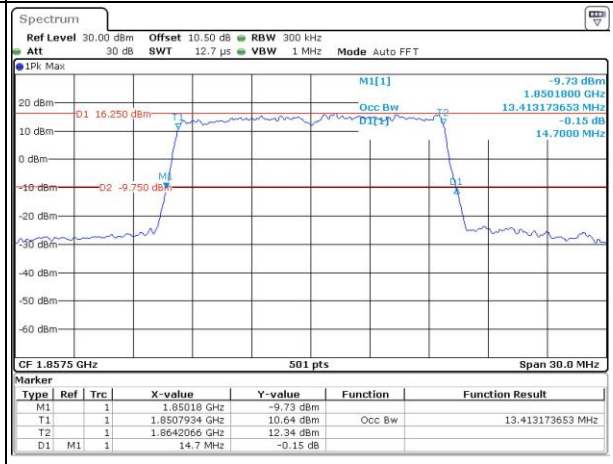
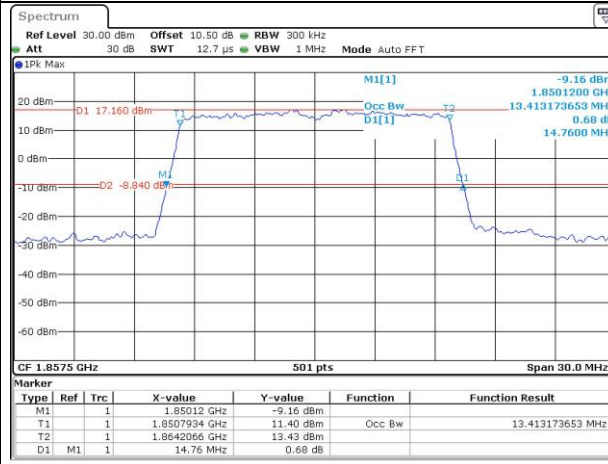
## Occupied Bandwidth

## Channel

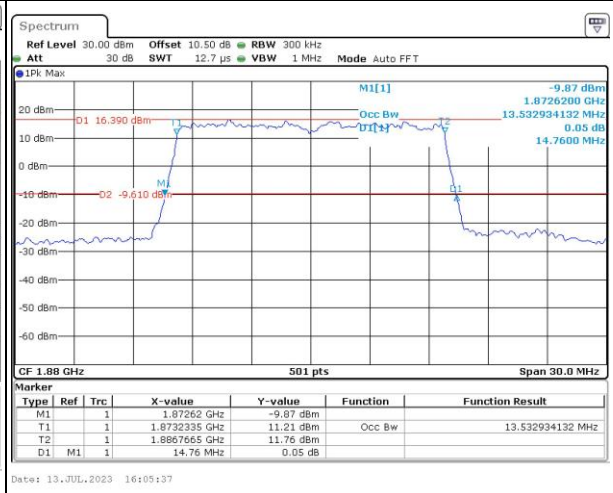
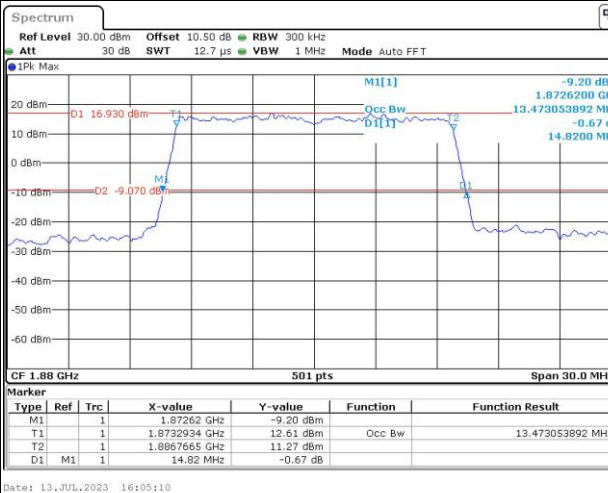
## 15MHz Bandwidth QPSK

## 15MHz Bandwidth 16QAM

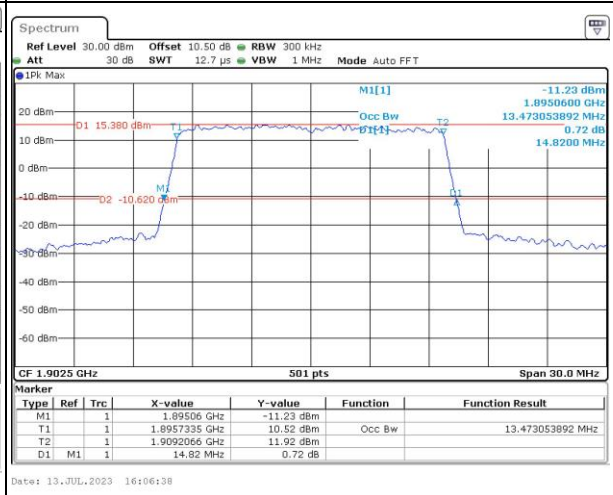
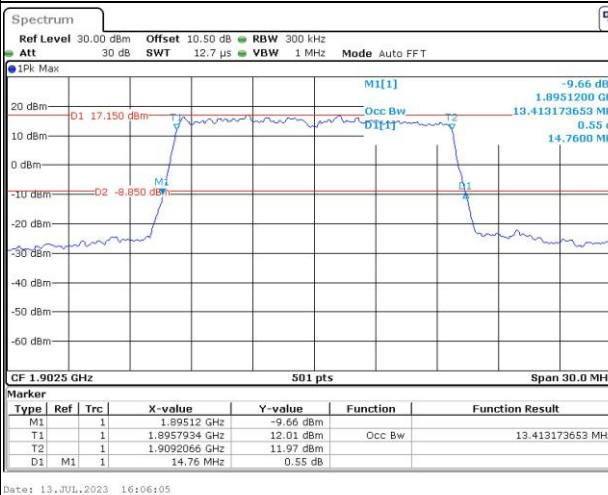
## Lowest



## Middle



## Highest



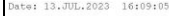
## Channel

20MHz Bandwidth 16QAM

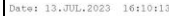
Date: 13.JUL.2023 16:07:29



Date: 13.JUL.2023 16:08:31



Date: 13.JUL.2023 16:09:39



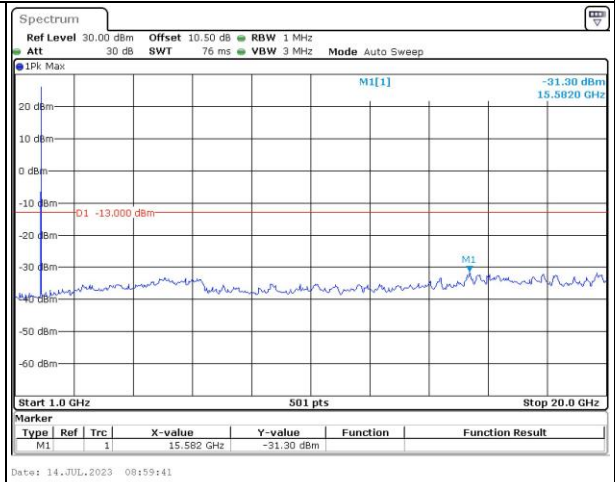
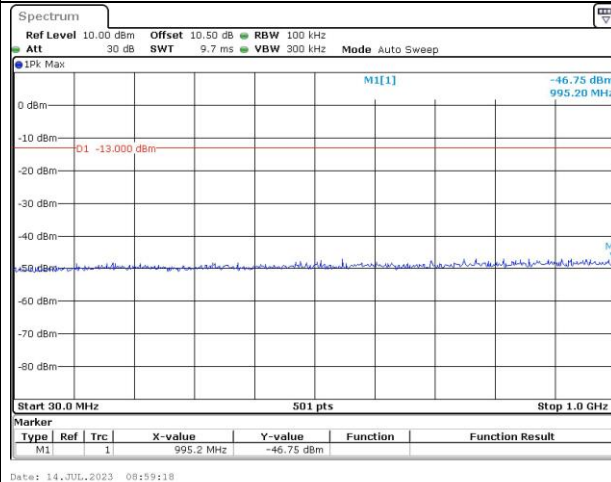


## Spurious Emissions at Antenna Terminal

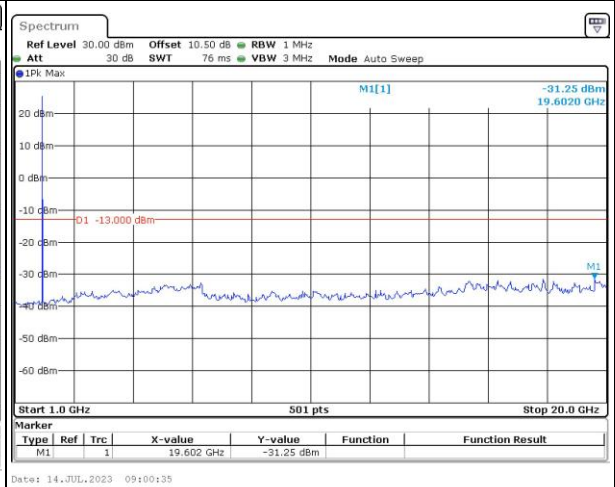
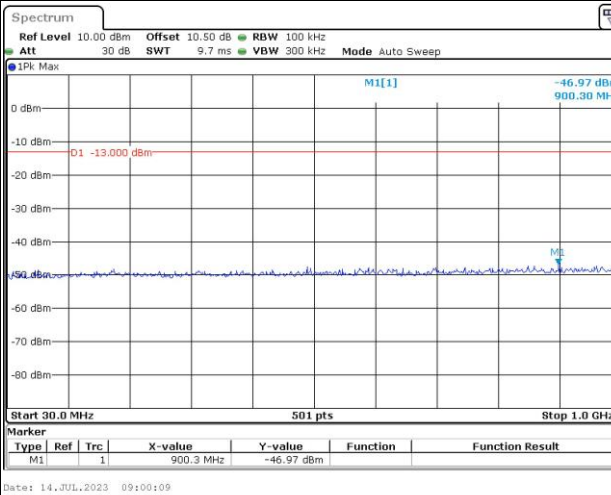
Channel

1.4MHz Bandwidth QPSK

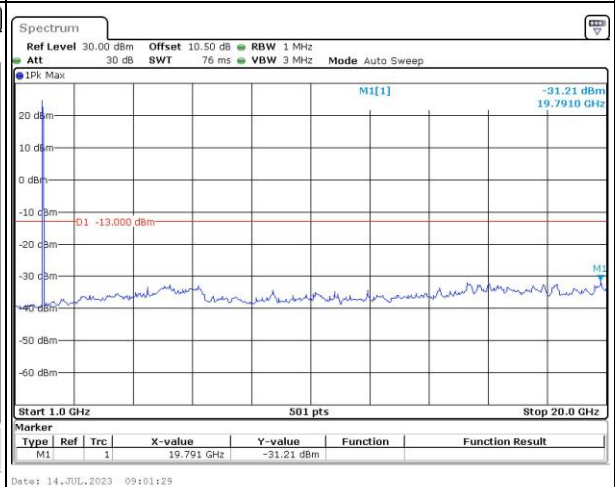
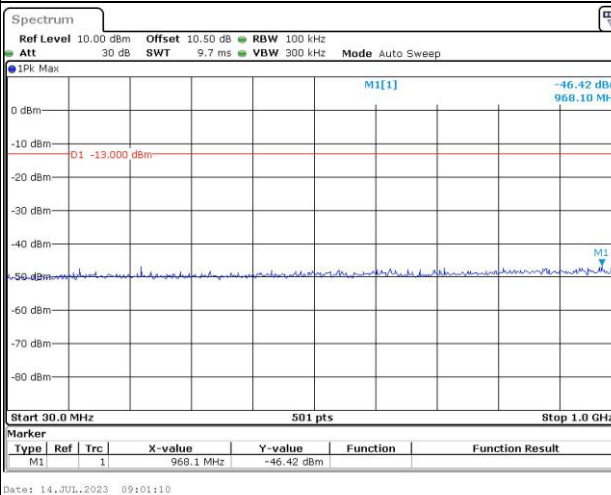
Lowest



Middle



Highest

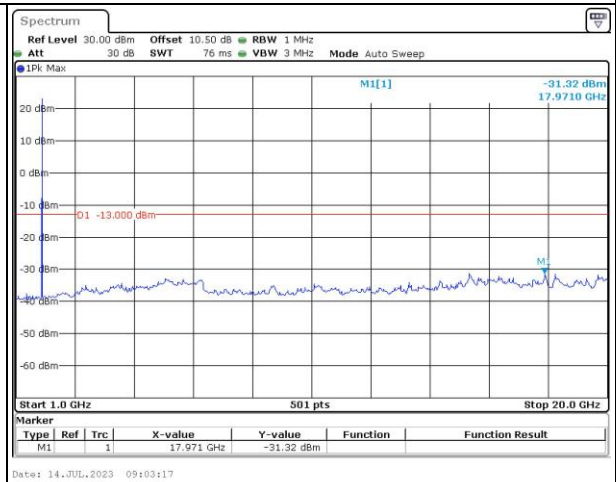
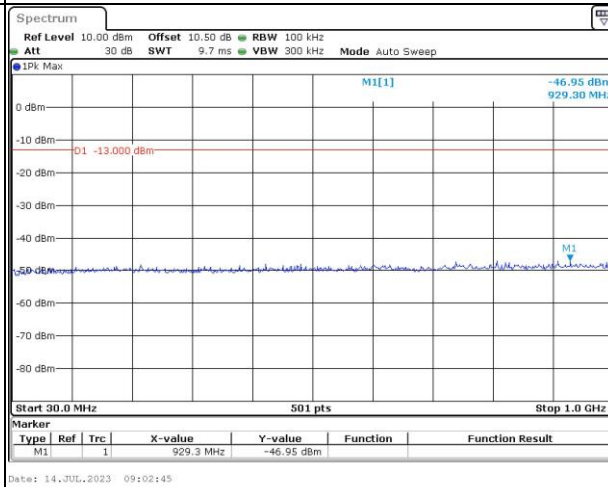


## Spurious Emissions at Antenna Terminal

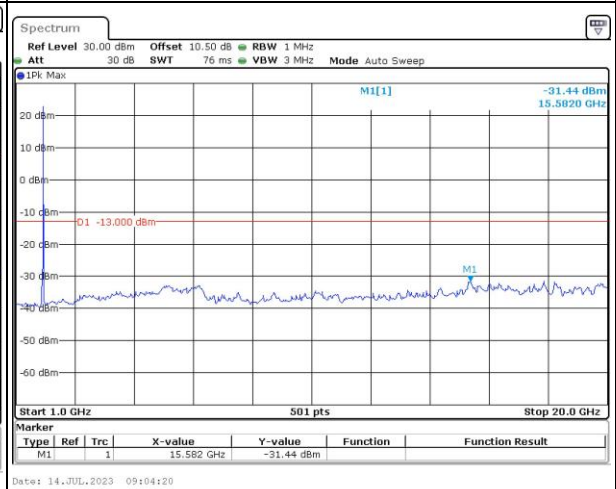
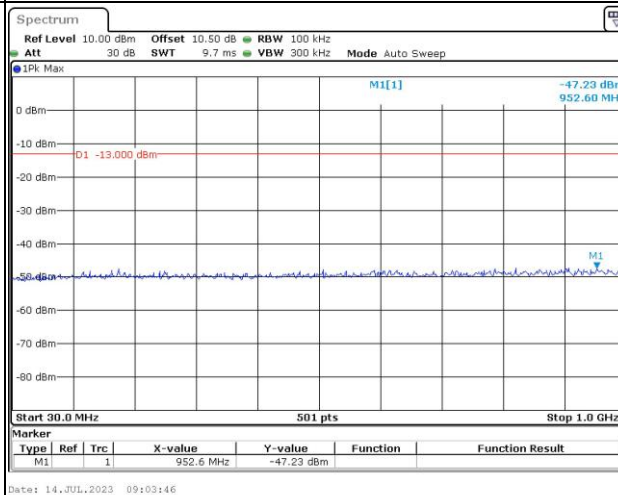
Channel

3MHz Bandwidth QPSK

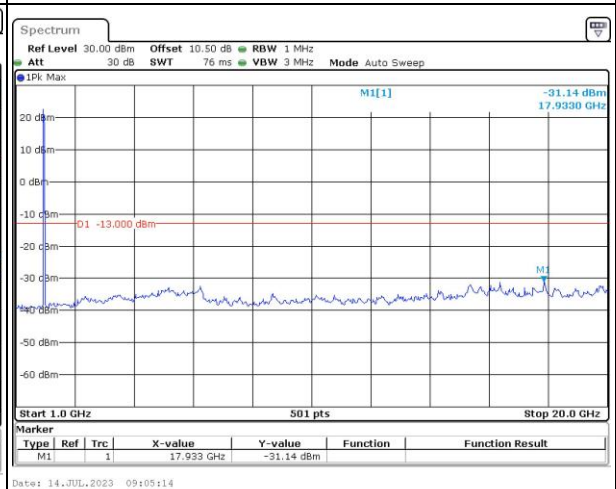
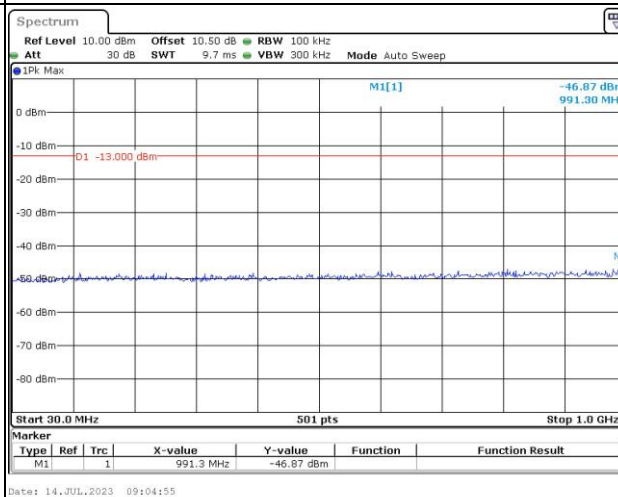
Lowest



Middle



Highest

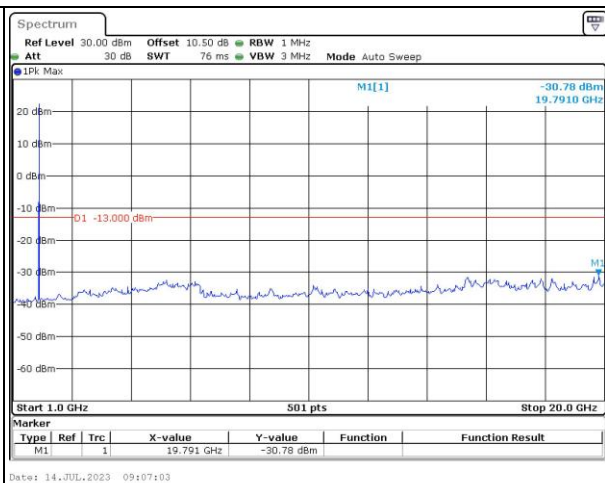
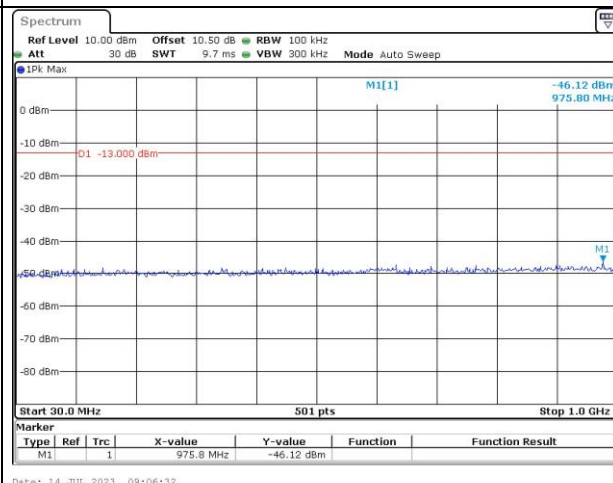


## Spurious Emissions at Antenna Terminal

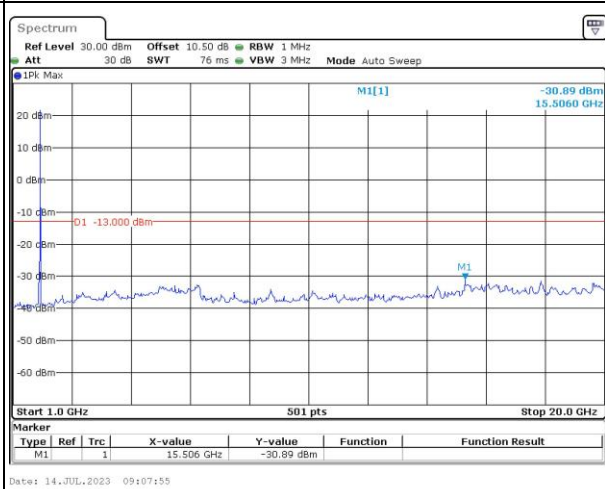
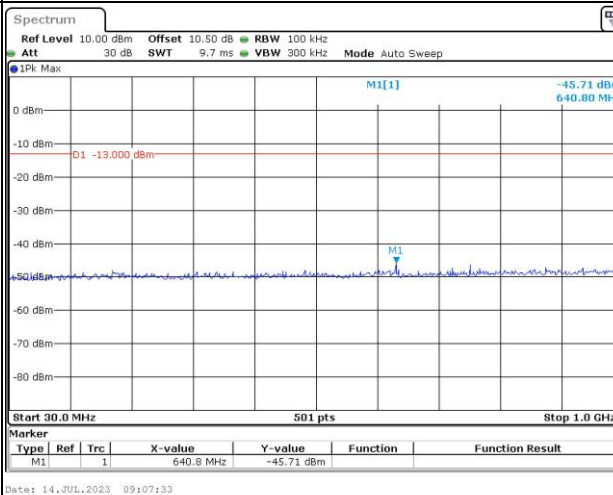
Channel

5MHz Bandwidth QPSK

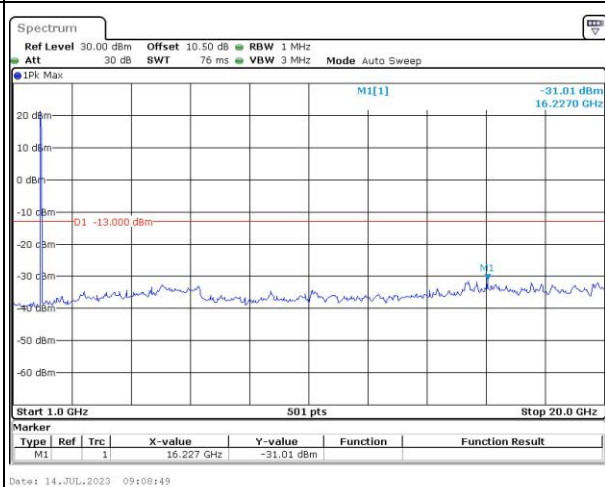
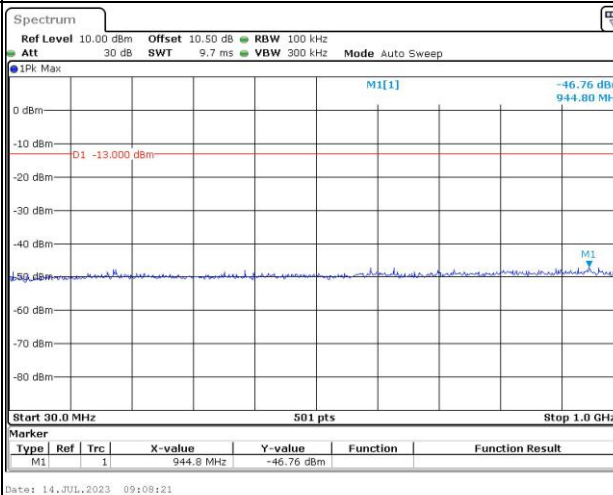
Lowest



Middle



Highest

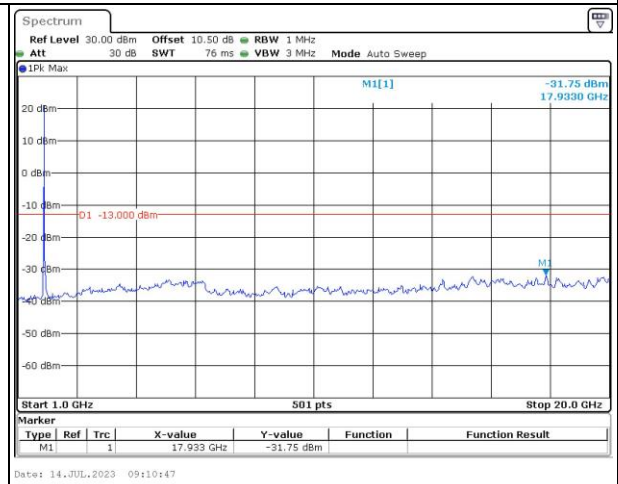
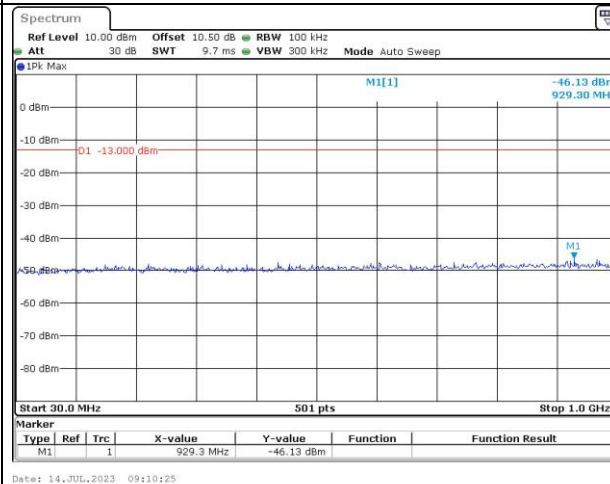


## Spurious Emissions at Antenna Terminal

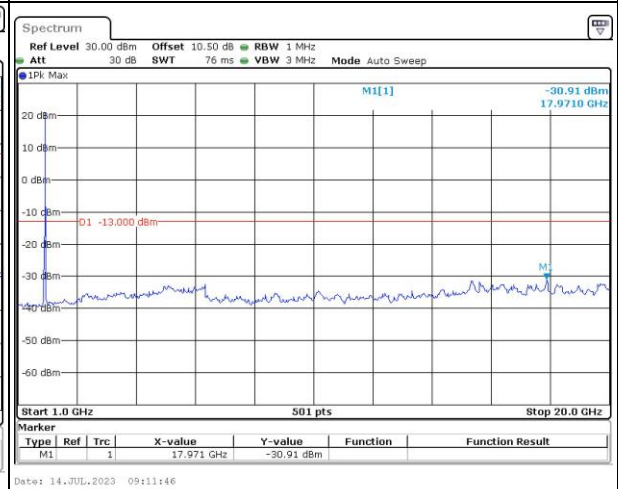
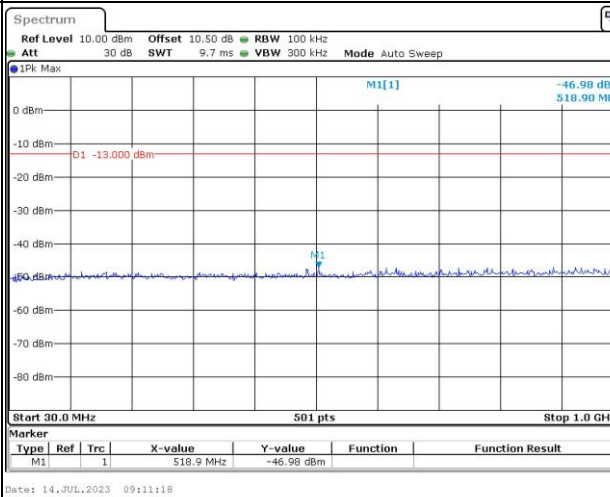
Channel

10MHz Bandwidth QPSK

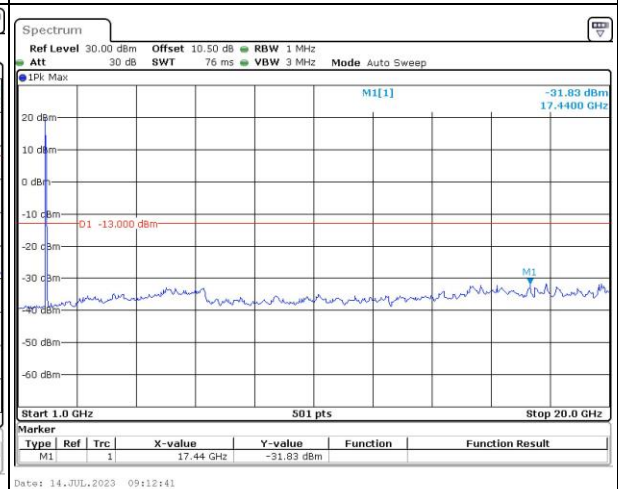
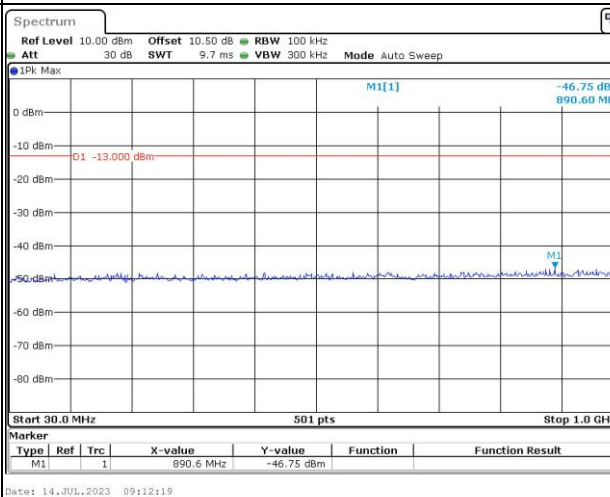
Lowest



Middle



Highest



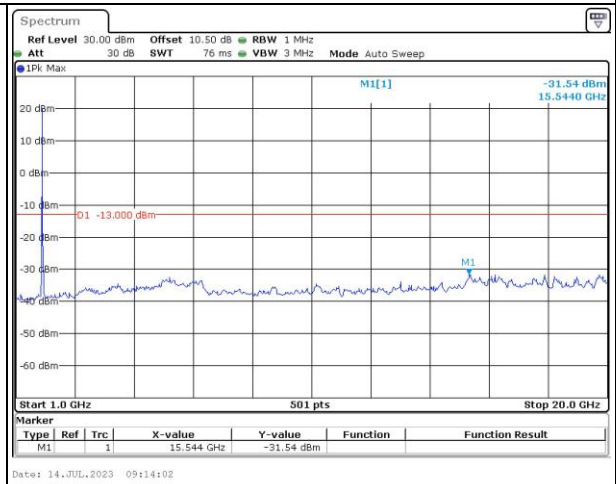
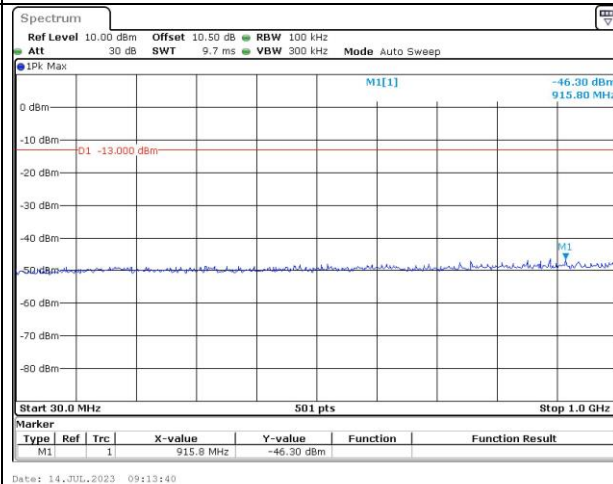


## Spurious Emissions at Antenna Terminal

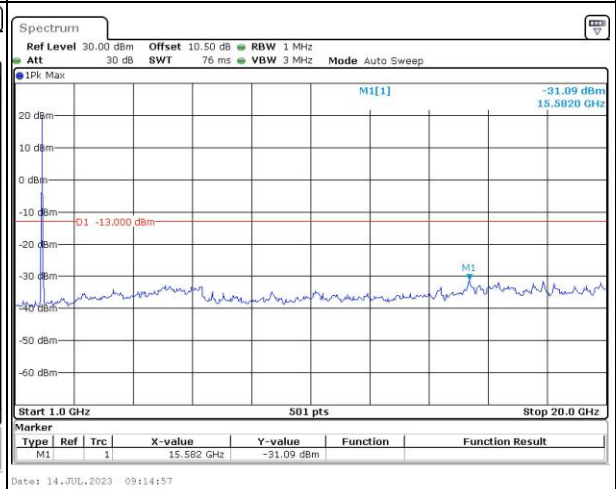
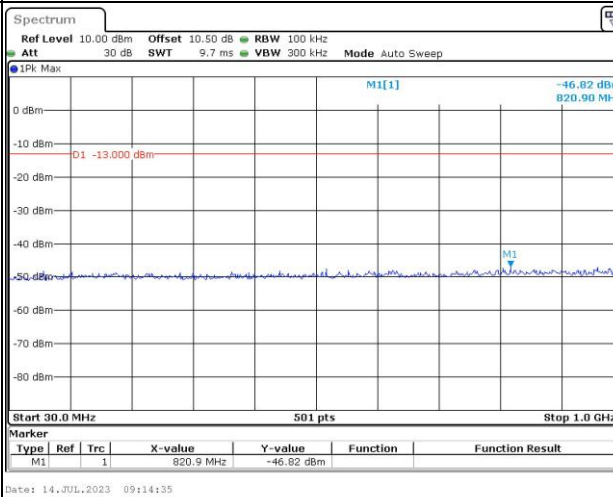
Channel

15MHz Bandwidth QPSK

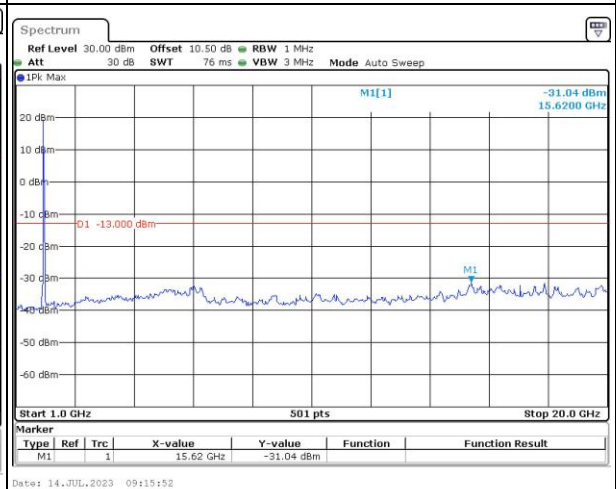
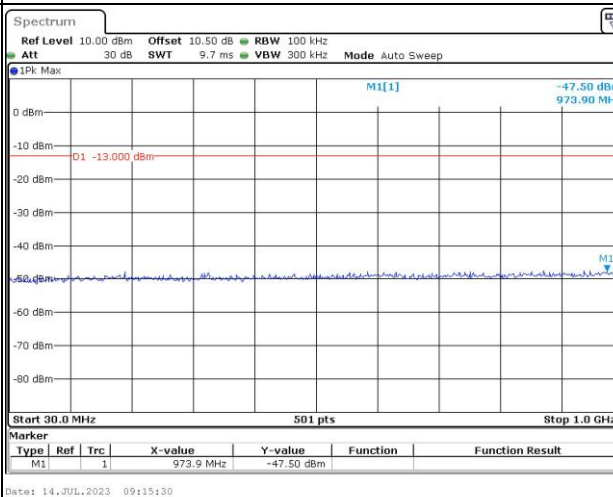
Lowest



Middle



Highest

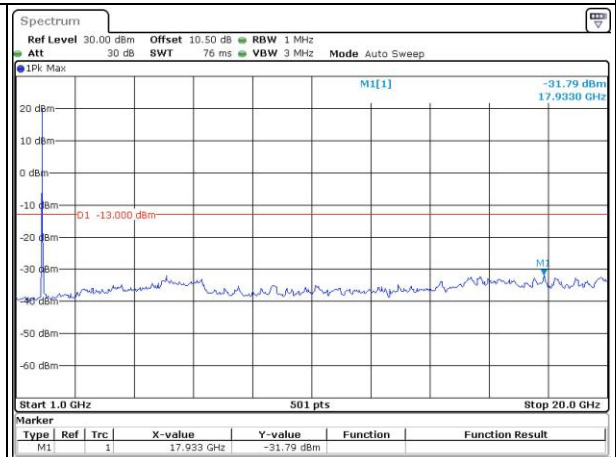
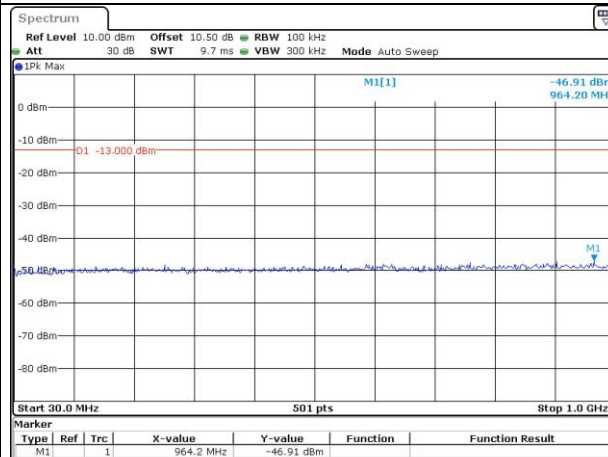


## Spurious Emissions at Antenna Terminal

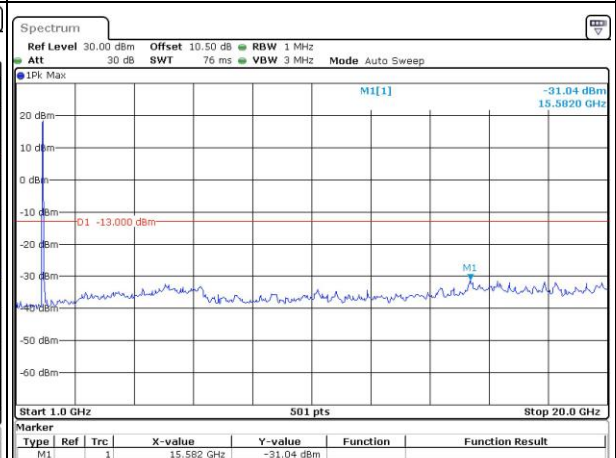
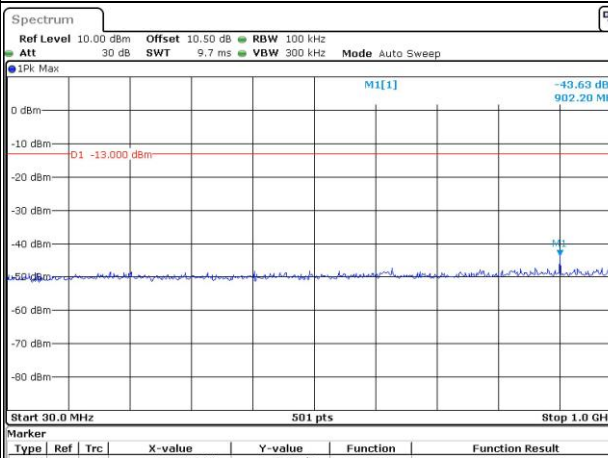
Channel

20MHz Bandwidth QPSK

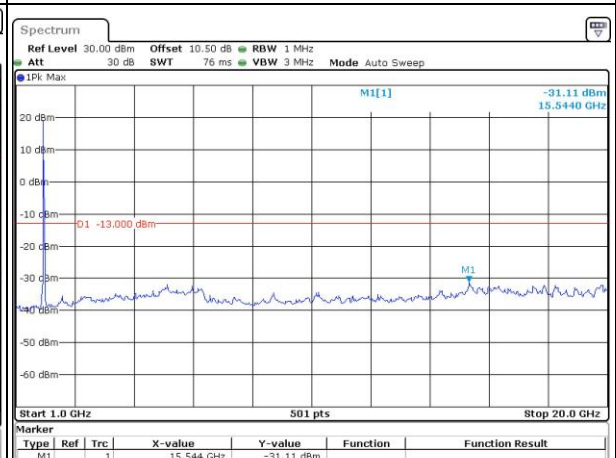
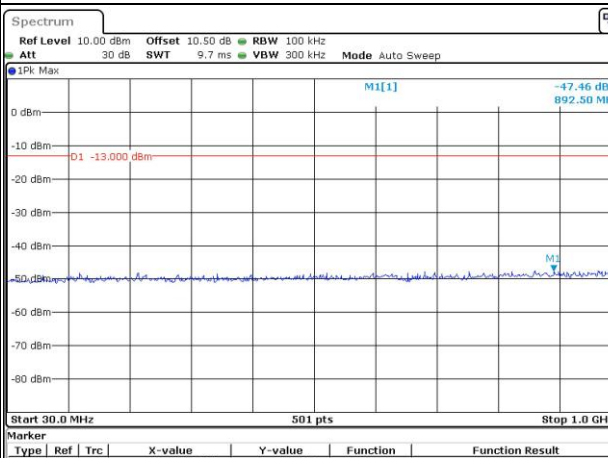
Lowest



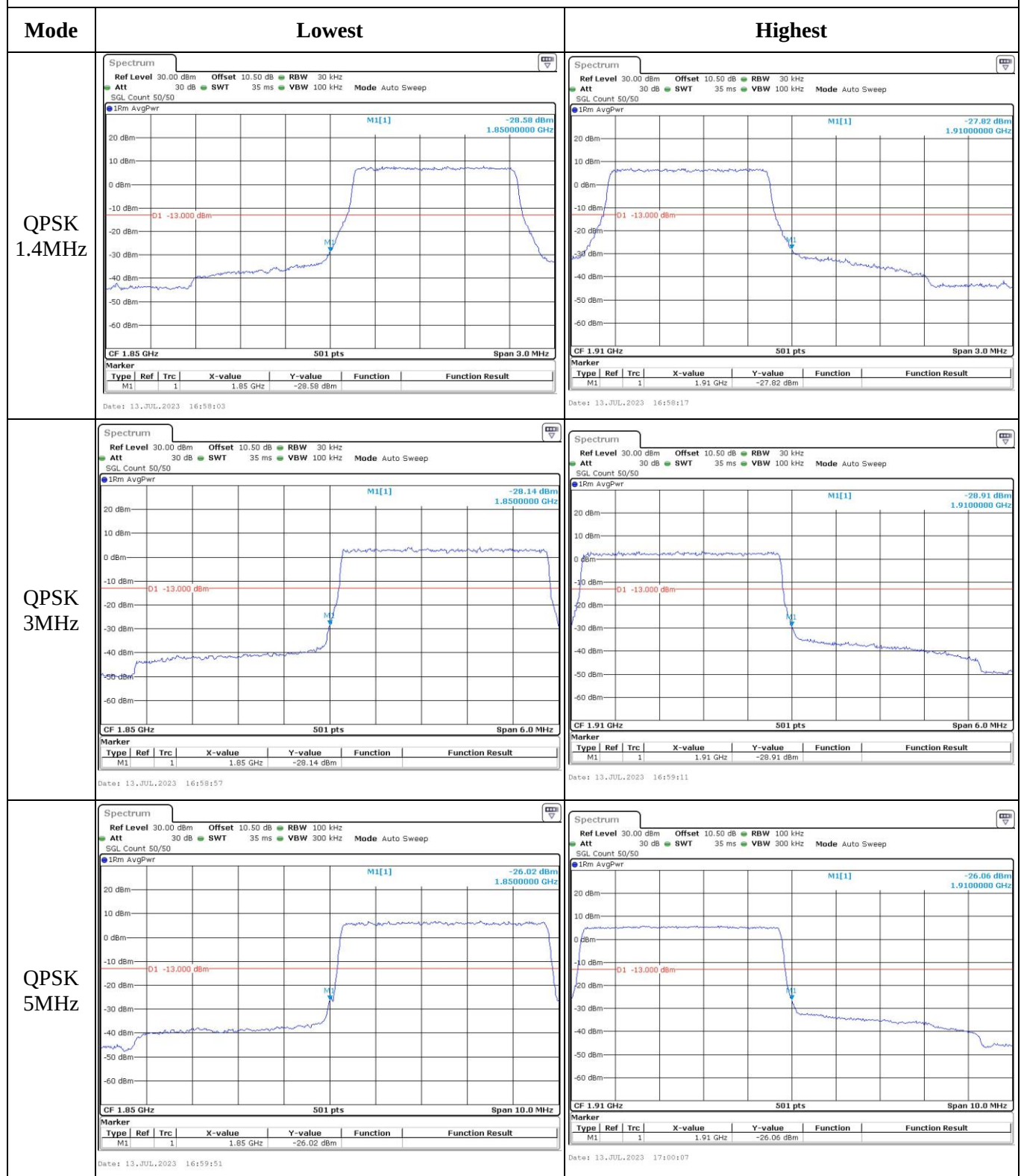
Middle



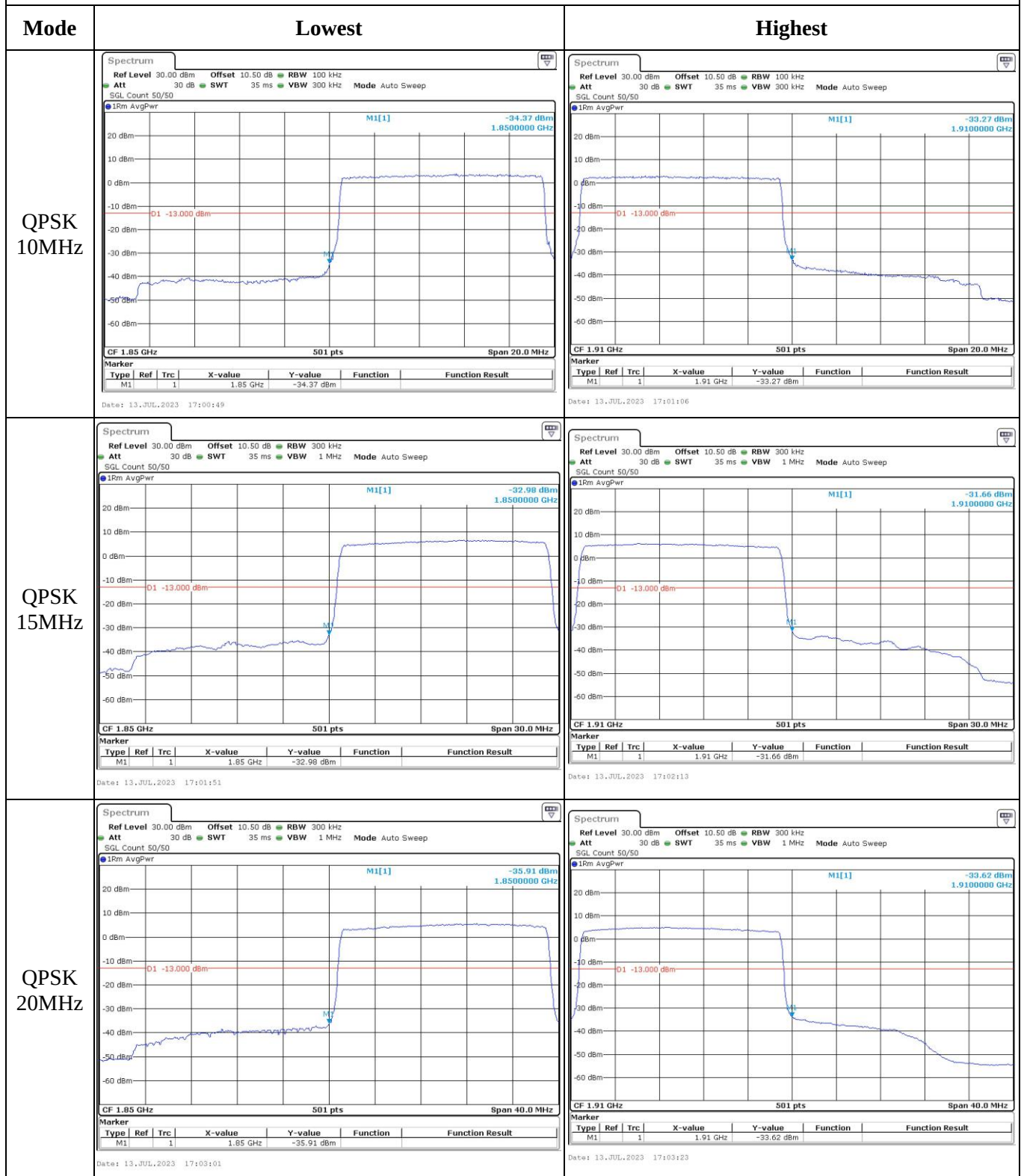
Highest



## Out of band emission, Band Edge

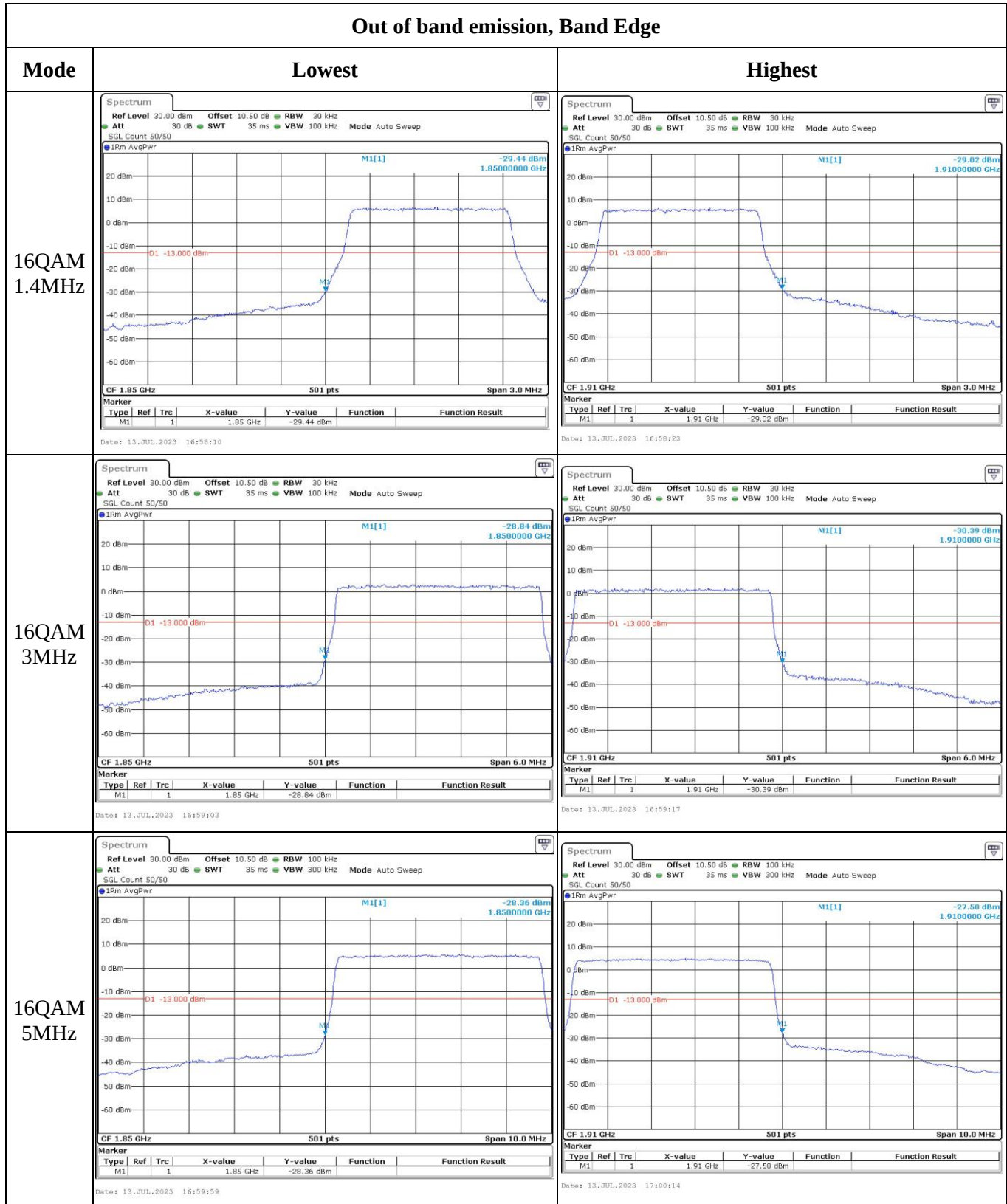


## Out of band emission, Band Edge

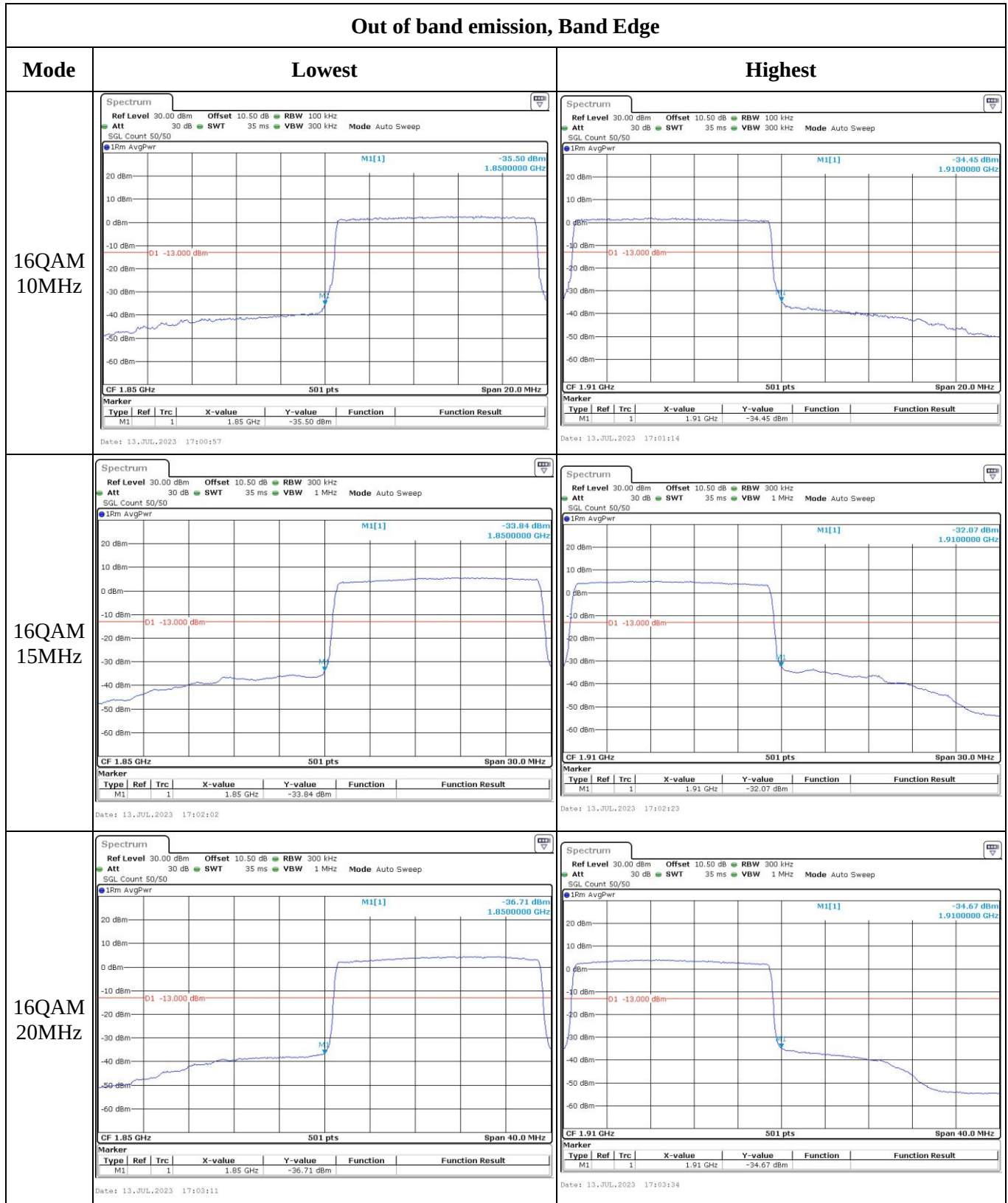




## Out of band emission, Band Edge



## Out of band emission, Band Edge



**4.7 Antenna Port Test Data and Results for LTE Band 4**

|                |           |              |                     |
|----------------|-----------|--------------|---------------------|
| Serial Number: | 27YJ-1    | Test Date:   | 2023/7/13~2023/7/15 |
| Test Site:     | RF        | Test Mode:   | Transmitting        |
| Tester:        | Arthur Su | Test Result: | Pass                |

**Environmental Conditions:**

|                      |           |                              |       |                        |           |
|----------------------|-----------|------------------------------|-------|------------------------|-----------|
| Temperature:<br>(°C) | 25.8~26.5 | Relative<br>Humidity:<br>(%) | 48~53 | ATM Pressure:<br>(kPa) | 100.2~101 |
|----------------------|-----------|------------------------------|-------|------------------------|-----------|

**Test Equipment List and Details:**

| Manufacturer | Description                         | Model         | Serial Number   | Calibration Date | Calibration Due Date |
|--------------|-------------------------------------|---------------|-----------------|------------------|----------------------|
| R&S          | Spectrum Analyzer                   | FSV40         | 101943          | 2023/3/31        | 2024/3/30            |
| YINSAIGE     | Coaxial Cable                       | SS402         | SJ0100001       | Each time        | N/A                  |
| zhuoxiang    | Coaxial Cable                       | SMA-178       | 211003          | Each time        | N/A                  |
| R&S          | Wideband Radio Communication Tester | CMW500        | 143458          | 2023/3/31        | 2024/3/30            |
| eastsheep    | Coaxial Attenuator                  | 2W-SMA-JK-18G | 21060301        | Each time        | N/A                  |
| Weinschel    | Power Splitter                      | 1515          | RA914           | Each time        | N/A                  |
| BACL         | TEMP&HUMI Test Chamber              | BTH-150-40    | 30174           | 2023/3/31        | 2024/3/30            |
| UNI-T        | Multimeter                          | UT39A+        | C210582554      | 2022/9/29        | 2023/9/28            |
| ZHAOXIN      | DC Power Supply                     | RXN-6010D     | 21R6010D0912386 | N/A              | N/A                  |

\* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

**Test Frequency For Each Mode:**

| Operation Bandwidth | Lowest Frequency (MHz) | Middle Frequency (MHz) | Highest Frequency (MHz) |
|---------------------|------------------------|------------------------|-------------------------|
| 1.4MHz              | 1710.7                 | 1732.5                 | 1754.3                  |
| 3MHz                | 1711.5                 | 1732.5                 | 1753.5                  |
| 5MHz                | 1712.5                 | 1732.5                 | 1752.5                  |
| 10MHz               | 1715                   | 1732.5                 | 1750                    |
| 15MHz               | 1717.5                 | 1732.5                 | 1747.5                  |
| 20MHz               | 1720                   | 1732.5                 | 1745                    |

**Test Data:****FCC §2.1046; § 27.50(d)(4)****RF Output Power:**

| Test Bandwidth & Modulation | Resource Block & RB offset | Conducted Average Output Power(dBm) |                |                 | Maximum EIRP(dBm) | EIRP Limit(dBm) |
|-----------------------------|----------------------------|-------------------------------------|----------------|-----------------|-------------------|-----------------|
|                             |                            | Lowest Channel                      | Middle Channel | Highest Channel |                   |                 |
| 1.4MHz QPSK                 | RB1#0                      | 23.41                               | 23.52          | 23.74           | 27.54             | 30              |
|                             | RB1#3                      | 23.66                               | 23.68          | 23.74           |                   |                 |
|                             | RB1#5                      | 23.59                               | 23.55          | 23.72           |                   |                 |
|                             | RB3#0                      | 23.48                               | 23.73          | 23.44           |                   |                 |
|                             | RB3#3                      | 23.48                               | 23.59          | 23.49           |                   |                 |
|                             | RB6#0                      | 22.52                               | 22.56          | 22.52           |                   |                 |
| 1.4MHz 16QAM                | RB1#0                      | 23.02                               | 22.76          | 22.61           | 27.01             | 30              |
|                             | RB1#3                      | 23.21                               | 22.5           | 22.83           |                   |                 |
|                             | RB1#5                      | 23.16                               | 22.37          | 22.68           |                   |                 |
|                             | RB3#0                      | 22.36                               | 22.9           | 22.46           |                   |                 |
|                             | RB3#3                      | 22.59                               | 22.77          | 22.49           |                   |                 |
|                             | RB6#0                      | 21.69                               | 21.47          | 21.49           |                   |                 |
| 3MHz QPSK                   | RB1#0                      | 23.37                               | 23.52          | 23.5            | 27.32             | 30              |
|                             | RB1#8                      | 23.44                               | 23.4           | 23.46           |                   |                 |
|                             | RB1#14                     | 23.52                               | 23.48          | 23.47           |                   |                 |
|                             | RB6#0                      | 22.49                               | 22.66          | 22.38           |                   |                 |
|                             | RB6#9                      | 22.65                               | 22.54          | 22.52           |                   |                 |
|                             | RB15#0                     | 22.51                               | 22.53          | 22.38           |                   |                 |
| 3MHz 16QAM                  | RB1#0                      | 22.32                               | 22.98          | 22.46           | 26.84             | 30              |
|                             | RB1#8                      | 22.38                               | 23.04          | 22.63           |                   |                 |
|                             | RB1#14                     | 22.44                               | 22.96          | 22.84           |                   |                 |
|                             | RB6#0                      | 21.24                               | 21.84          | 21.49           |                   |                 |
|                             | RB6#9                      | 21.42                               | 21.76          | 21.45           |                   |                 |
|                             | RB15#0                     | 21.73                               | 21.47          | 21.36           |                   |                 |
| 5MHz QPSK                   | RB1#0                      | 23.38                               | 23.4           | 23.65           | 27.45             | 30              |
|                             | RB1#13                     | 23.61                               | 23.32          | 23.22           |                   |                 |
|                             | RB1#24                     | 23.45                               | 23.28          | 23.47           |                   |                 |
|                             | RB15#0                     | 22.46                               | 22.6           | 22.47           |                   |                 |
|                             | RB15#10                    | 22.63                               | 22.48          | 22.54           |                   |                 |
|                             | RB25#0                     | 22.65                               | 22.49          | 22.42           |                   |                 |
| 5MHz 16QAM                  | RB1#0                      | 22.08                               | 21.93          | 23.22           | 27.07             | 30              |
|                             | RB1#13                     | 22.36                               | 22.62          | 23.27           |                   |                 |
|                             | RB1#24                     | 22.42                               | 22.15          | 23.06           |                   |                 |
|                             | RB15#0                     | 21.38                               | 21.71          | 21.32           |                   |                 |
|                             | RB15#10                    | 21.57                               | 21.56          | 21.39           |                   |                 |
|                             | RB25#0                     | 21.55                               | 21.51          | 21.62           |                   |                 |
| 10MHz QPSK                  | RB1#0                      | 23.34                               | 23.49          | 23.67           | 27.63             | 30              |
|                             | RB1#25                     | 23.83                               | 23.4           | 23.49           |                   |                 |
|                             | RB1#49                     | 23.46                               | 23.28          | 23.47           |                   |                 |



|             |         |       |       |       |       |    |
|-------------|---------|-------|-------|-------|-------|----|
|             | RB25#0  | 22.65 | 22.67 | 22.57 |       |    |
|             | RB25#25 | 22.59 | 22.41 | 22.41 |       |    |
|             | RB50#0  | 22.61 | 22.44 | 22.56 |       |    |
| 10MHz 16QAM | RB1#0   | 22.28 | 23.02 | 22.98 | 27.55 | 30 |
|             | RB1#25  | 22.57 | 23.75 | 23.12 |       |    |
|             | RB1#49  | 22.27 | 22.91 | 23.35 |       |    |
|             | RB25#0  | 21.85 | 21.7  | 21.62 |       |    |
|             | RB25#25 | 21.92 | 21.51 | 21.31 |       |    |
|             | RB50#0  | 21.61 | 21.5  | 21.57 |       |    |
| 15MHz QPSK  | RB1#0   | 23.36 | 23.35 | 23.74 | 27.54 | 30 |
|             | RB1#38  | 23.36 | 23.24 | 23.42 |       |    |
|             | RB1#74  | 23.39 | 23.19 | 23.33 |       |    |
|             | RB36#0  | 22.57 | 22.61 | 22.56 |       |    |
|             | RB36#39 | 22.4  | 22.32 | 22.42 |       |    |
|             | RB75#0  | 22.51 | 22.34 | 22.47 |       |    |
| 15MHz 16QAM | RB1#0   | 22.24 | 22.86 | 23.11 | 27.41 | 30 |
|             | RB1#38  | 22.4  | 23.61 | 22.81 |       |    |
|             | RB1#74  | 22.18 | 22.81 | 23.09 |       |    |
|             | RB36#0  | 21.51 | 21.57 | 21.54 |       |    |
|             | RB36#39 | 21.44 | 21.28 | 21.51 |       |    |
|             | RB75#0  | 21.53 | 21.3  | 21.56 |       |    |
| 20MHz QPSK  | RB1#0   | 23.21 | 23.53 | 23.53 | 27.51 | 30 |
|             | RB1#50  | 23.48 | 23.64 | 23.71 |       |    |
|             | RB1#99  | 23.36 | 23.27 | 23.59 |       |    |
|             | RB50#0  | 22.49 | 22.41 | 22.58 |       |    |
|             | RB50#50 | 22.52 | 22.37 | 22.48 |       |    |
|             | RB100#0 | 22.54 | 22.44 | 22.53 |       |    |
| 20MHz 16QAM | RB1#0   | 23.2  | 22.74 | 22.61 | 27.53 | 30 |
|             | RB1#50  | 23.59 | 23.26 | 22.66 |       |    |
|             | RB1#99  | 23.73 | 22.24 | 22.34 |       |    |
|             | RB50#0  | 21.47 | 21.43 | 21.62 |       |    |
|             | RB50#50 | 21.54 | 21.41 | 21.55 |       |    |
|             | RB100#0 | 21.44 | 21.41 | 21.52 |       |    |

Note: EIRP=Conducted Power(dBm) - Lc(dB) + Gr(dBi)

**Result:****Pass****Peak-to-average Ratio(PAR)**

| Test Bandwidth & Modulation | Resource Block & RB offset | Peak-to-average Ratio(dB) |                |                 | Limit (dB)  |
|-----------------------------|----------------------------|---------------------------|----------------|-----------------|-------------|
|                             |                            | Lowest Channel            | Middle Channel | Highest Channel |             |
| 20MHz QPSK                  | RB1#0                      | 5.97                      | 5.13           | 5.77            | 13          |
|                             | RB100#0                    | 5.3                       | 5.28           | 5.3             | 13          |
| 20MHz 16QAM                 | RB1#0                      | 6.38                      | 6.9            | 6.29            | 13          |
|                             | RB100#0                    | 6.32                      | 6.32           | 6.12            | 13          |
|                             |                            |                           |                | <b>Result:</b>  | <b>Pass</b> |

**FCC §2.1049, §27.53:Occupied Bandwidth**

| Operation Mode | 99% Occupied Bandwidth (MHz) |                |              | 26 dB Occupied Bandwidth (MHz) |                |              |
|----------------|------------------------------|----------------|--------------|--------------------------------|----------------|--------------|
|                | Low Channel                  | Middle channel | High Channel | Low Channel                    | Middle Channel | High Channel |
| 1.4MHz QPSK    | 1.102                        | 1.108          | 1.102        | 1.32                           | 1.29           | 1.308        |
| 1.4MHz 16QAM   | 1.096                        | 1.102          | 1.102        | 1.296                          | 1.302          | 1.326        |
| 3MHz QPSK      | 2.683                        | 2.695          | 2.695        | 2.952                          | 2.94           | 2.928        |
| 3MHz 16QAM     | 2.683                        | 2.695          | 2.683        | 2.94                           | 2.952          | 2.952        |
| 5MHz QPSK      | 4.491                        | 4.531          | 4.511        | 5.02                           | 5.04           | 5.02         |
| 5MHz 16QAM     | 4.511                        | 4.491          | 4.511        | 5.02                           | 5              | 5.04         |
| 10MHz QPSK     | 8.942                        | 8.942          | 8.942        | 9.8                            | 9.72           | 9.76         |
| 10MHz 16QAM    | 8.942                        | 8.942          | 8.942        | 9.68                           | 9.76           | 9.72         |
| 15MHz QPSK     | 13.413                       | 13.413         | 13.413       | 14.64                          | 14.88          | 14.82        |
| 15MHz 16QAM    | 13.473                       | 13.413         | 13.413       | 14.76                          | 14.7           | 14.7         |
| 20MHz QPSK     | 17.804                       | 17.884         | 17.884       | 19.28                          | 19.44          | 19.2         |
| 20MHz 16QAM    | 17.884                       | 17.884         | 17.964       | 19.44                          | 19.36          | 19.36        |

Note: The test plots please refer to the Plots of Occupied Bandwidth

**FCC §2.1051, §27.53:Spurious Emissions at Antenna Terminal**

|                |                                                                                        |
|----------------|----------------------------------------------------------------------------------------|
| <b>Result:</b> | <b>Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.</b> |
|----------------|----------------------------------------------------------------------------------------|

**FCC §2.1051, §27.53:Out of band emission, Band Edge**

|                |                                                                                 |
|----------------|---------------------------------------------------------------------------------|
| <b>Result:</b> | <b>Pass, Please refer to the test plots of Out of band emission, Band Edge.</b> |
|----------------|---------------------------------------------------------------------------------|

**FCC §2.1055, §27.54: Frequency Stability**

| Test Mode:                          | 20M QPSK         | Test Channel: Lowest for Lower Edge,Highest for Upper Edge |                  |         |                  |             |
|-------------------------------------|------------------|------------------------------------------------------------|------------------|---------|------------------|-------------|
| Test Item                           | Temperature (°C) | Voltage (V <sub>DC</sub> )                                 | Lower Edge (MHz) |         | Upper Edge (MHz) |             |
|                                     |                  |                                                            | Result           | Limit   | Result           | Limit       |
| Frequency Stability vs. Temperature | -30              | 3.8                                                        | 1710.021         | 1710.00 | 1754.981         | 1755        |
|                                     | -20              | 3.8                                                        | 1710.016         | 1710.00 | 1754.980         | 1755        |
|                                     | -10              | 3.8                                                        | 1710.016         | 1710.00 | 1754.986         | 1755        |
|                                     | 0                | 3.8                                                        | 1710.012         | 1710.00 | 1754.980         | 1755        |
|                                     | 10               | 3.8                                                        | 1710.020         | 1710.00 | 1754.979         | 1755        |
|                                     | 20               | 3.8                                                        | 1710.023         | 1710.00 | 1754.978         | 1755        |
|                                     | 30               | 3.8                                                        | 1710.020         | 1710.00 | 1754.980         | 1755        |
|                                     | 40               | 3.8                                                        | 1710.011         | 1710.00 | 1754.989         | 1755        |
|                                     | 50               | 3.8                                                        | 1710.011         | 1710.00 | 1754.982         | 1755        |
| Frequency Stability vs. Voltage     | 20               | 3.5                                                        | 1710.013         | 1710.00 | 1754.983         | 1755        |
|                                     | 20               | 4.4                                                        | 1710.023         | 1710.00 | 1754.983         | 1755        |
|                                     |                  |                                                            |                  |         | <b>Result:</b>   | <b>Pass</b> |

| Test Mode:                                | 20M<br>16QAM        | Test Channel: Lowest for Lower Edge,Highest for Upper Edge |                     |         |                     |             |
|-------------------------------------------|---------------------|------------------------------------------------------------|---------------------|---------|---------------------|-------------|
| Test Item                                 | Temperature<br>(°C) | Voltage<br>(V <sub>DC</sub> )                              | Lower Edge<br>(MHz) |         | Upper Edge<br>(MHz) |             |
|                                           |                     |                                                            | Result              | Limit   | Result              | Limit       |
| Frequency<br>Stability vs.<br>Temperature | -30                 | 3.8                                                        | 1710.011            | 1710.00 | 1754.978            | 1755        |
|                                           | -20                 | 3.8                                                        | 1710.011            | 1710.00 | 1754.988            | 1755        |
|                                           | -10                 | 3.8                                                        | 1710.019            | 1710.00 | 1754.989            | 1755        |
|                                           | 0                   | 3.8                                                        | 1710.018            | 1710.00 | 1754.980            | 1755        |
|                                           | 10                  | 3.8                                                        | 1710.018            | 1710.00 | 1754.988            | 1755        |
|                                           | 20                  | 3.8                                                        | 1710.019            | 1710.00 | 1754.979            | 1755        |
|                                           | 30                  | 3.8                                                        | 1710.022            | 1710.00 | 1754.979            | 1755        |
|                                           | 40                  | 3.8                                                        | 1710.017            | 1710.00 | 1754.984            | 1755        |
|                                           | 50                  | 3.8                                                        | 1710.022            | 1710.00 | 1754.986            | 1755        |
| Frequency<br>Stability vs.<br>Voltage     | 20                  | 3.5                                                        | 1710.018            | 1710.00 | 1754.979            | 1755        |
|                                           | 20                  | 4.4                                                        | 1710.018            | 1710.00 | 1754.985            | 1755        |
|                                           |                     |                                                            |                     |         | <b>Result:</b>      | <b>Pass</b> |

**Test Plots**(Note: The 10.5dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer):

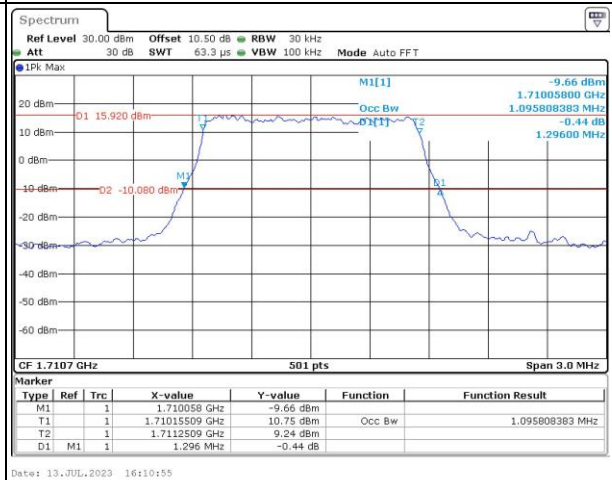
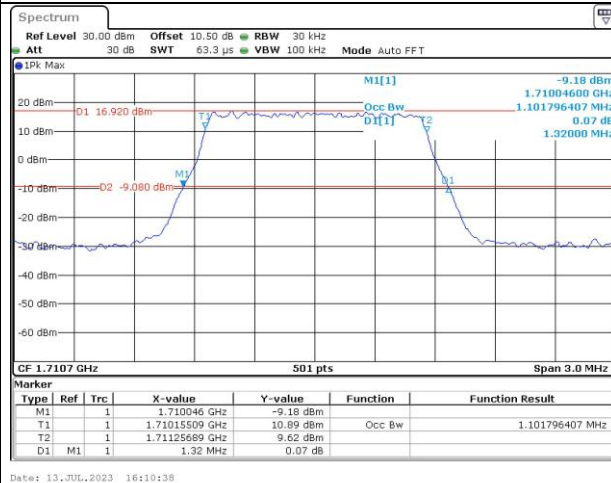
### Occupied Bandwidth

#### Channel

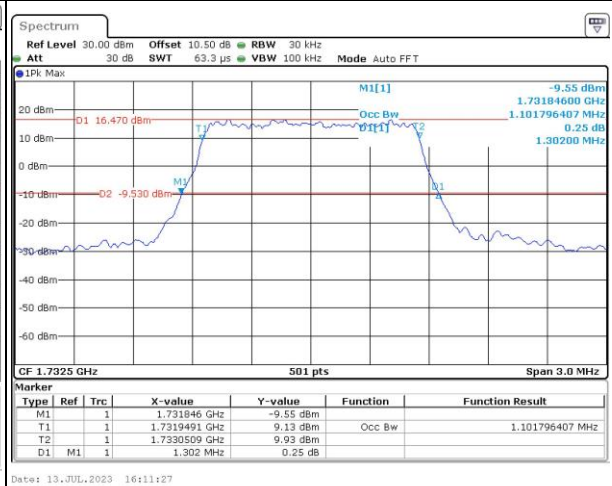
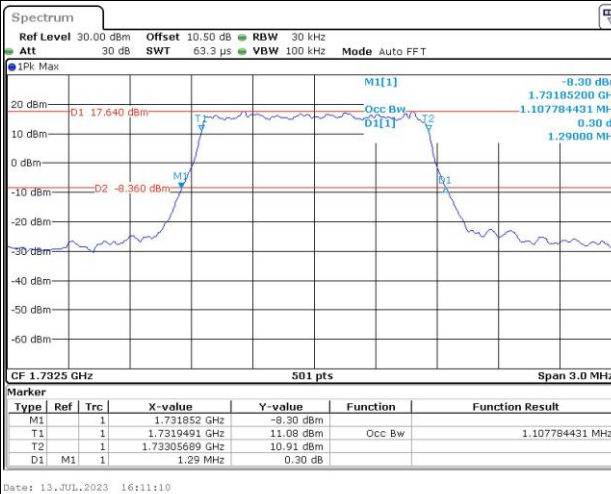
#### 1.4MHz Bandwidth QPSK

#### 1.4MHz Bandwidth 16QAM

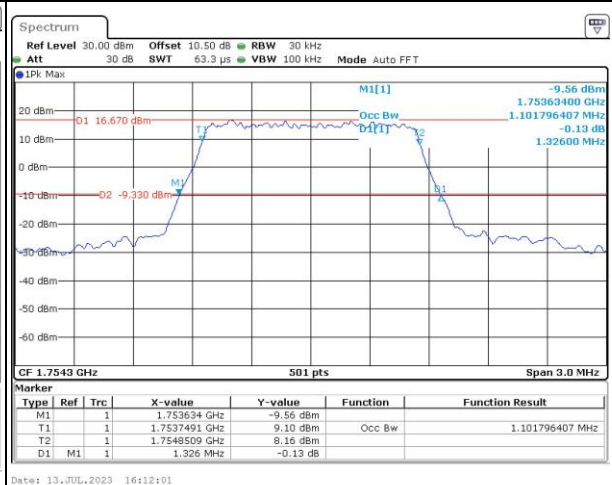
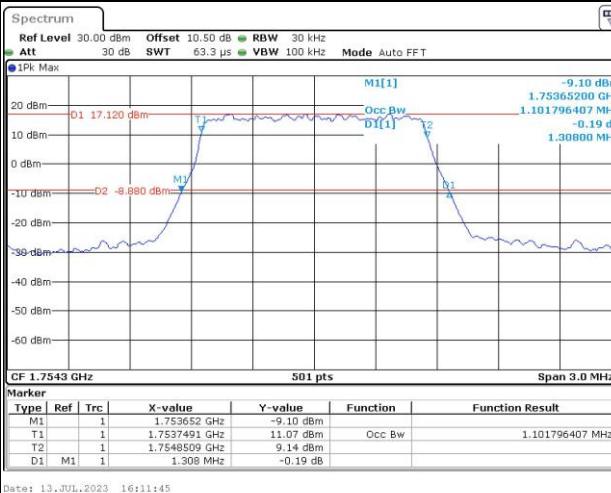
Lowest



Middle



Highest



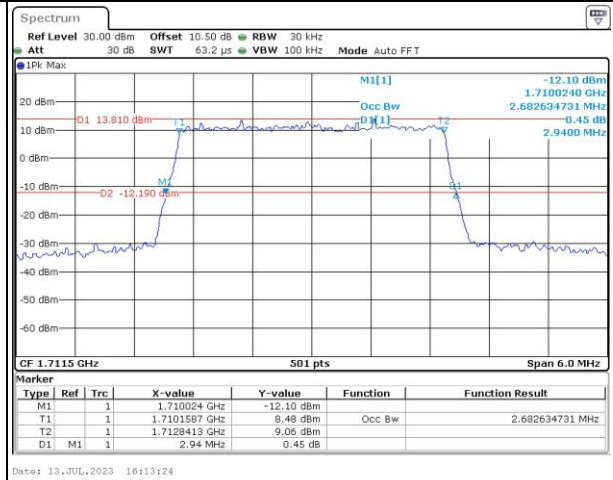
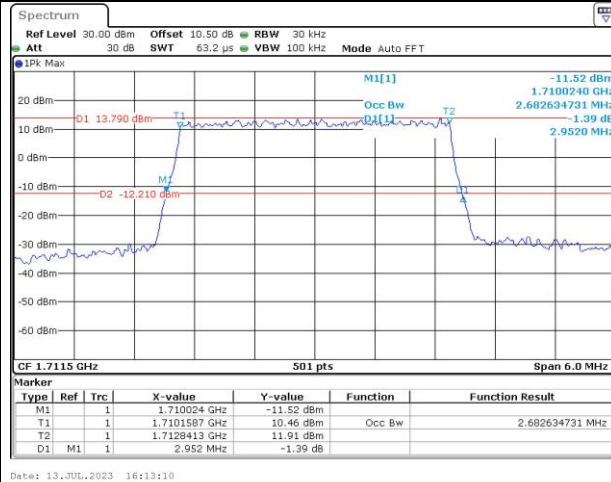
## Occupied Bandwidth

## Channel

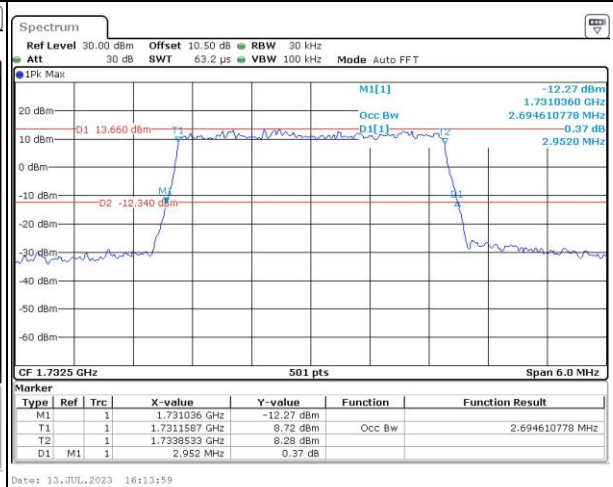
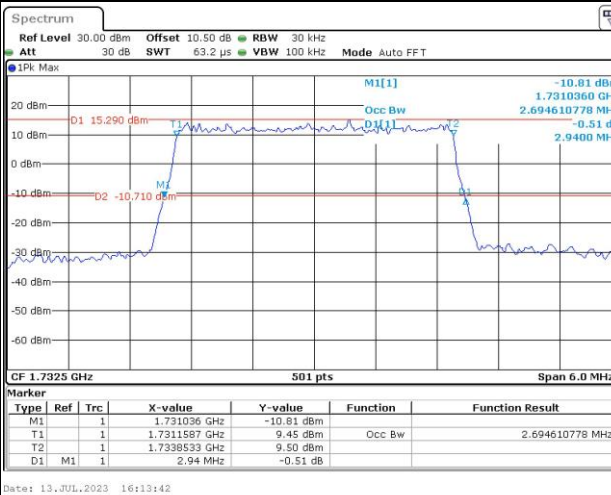
## 3MHz Bandwidth QPSK

## 3MHz Bandwidth 16QAM

## Lowest



## Middle



## Highest

