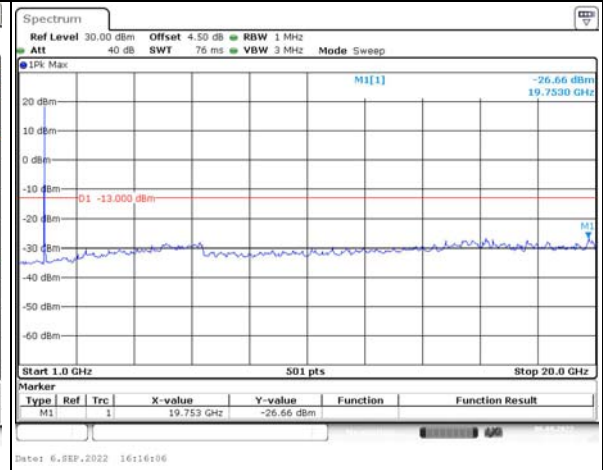
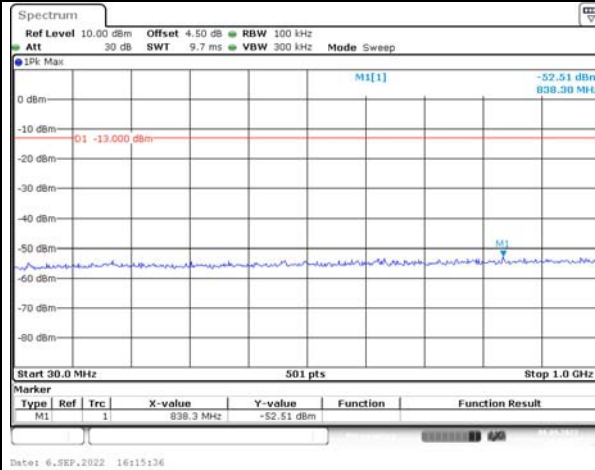


## Spurious Emissions at Antenna Terminal

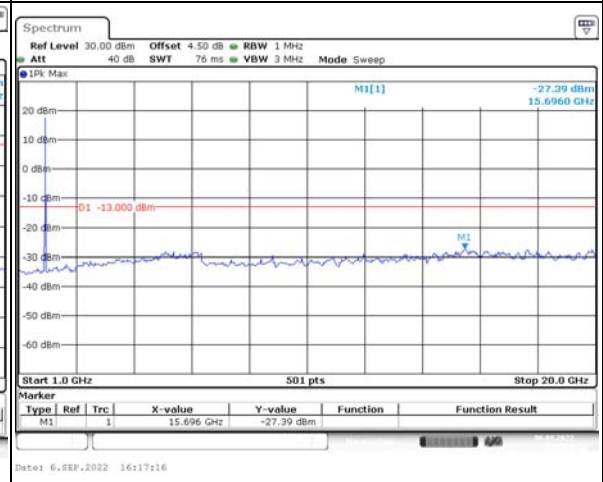
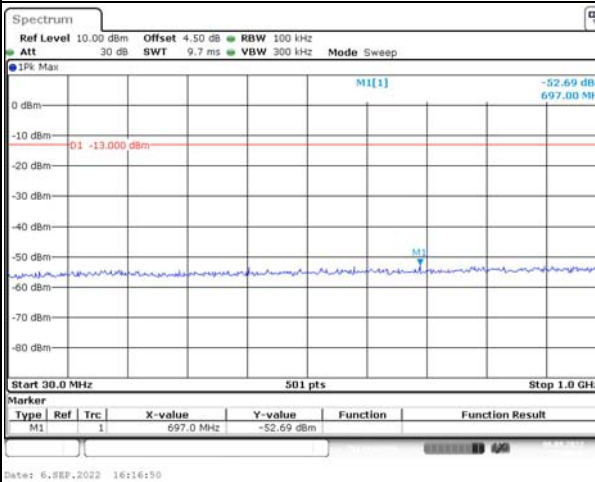
Channel

10MHz Bandwidth QPSK

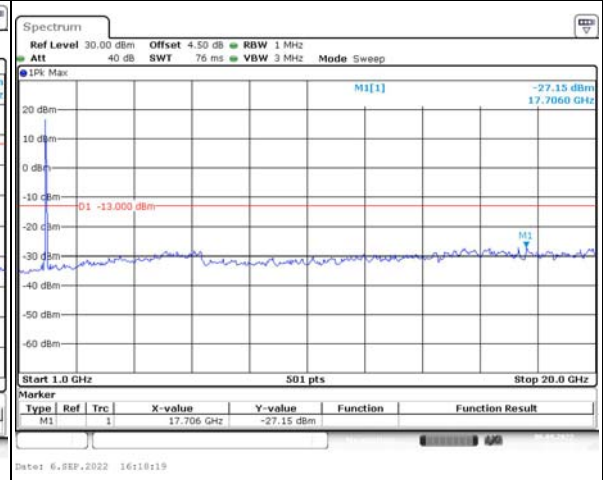
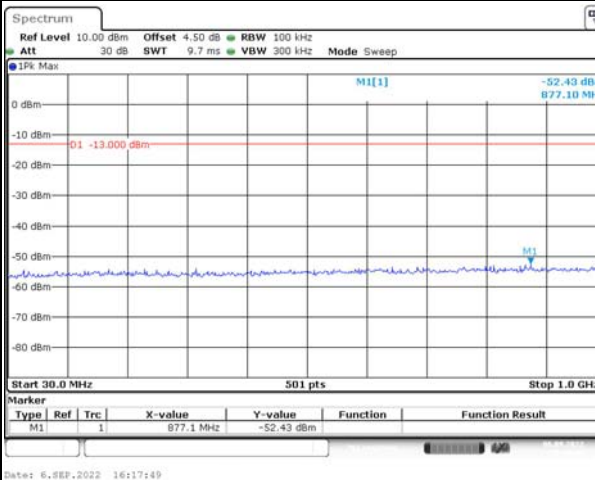
Lowest



Middle



Highest

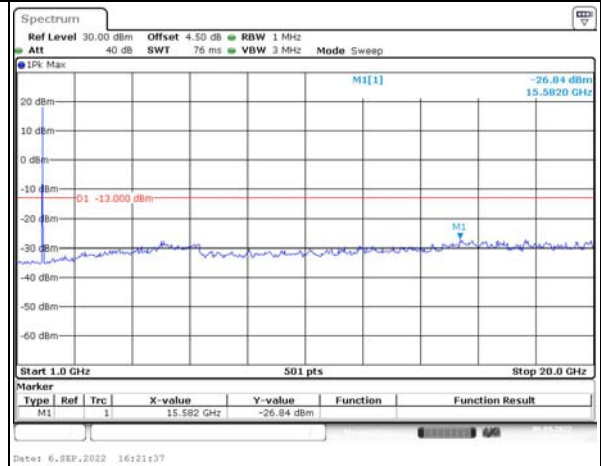
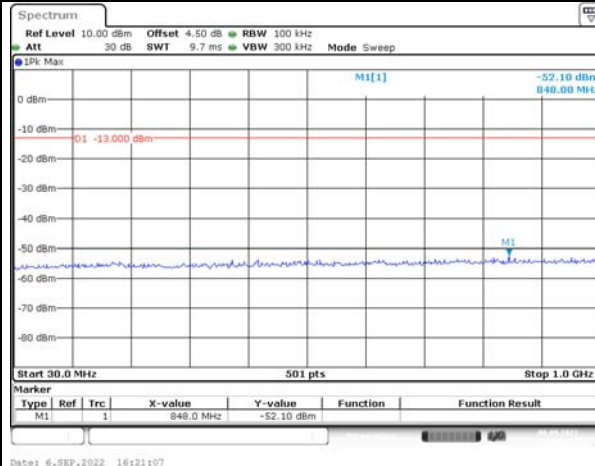


## Spurious Emissions at Antenna Terminal

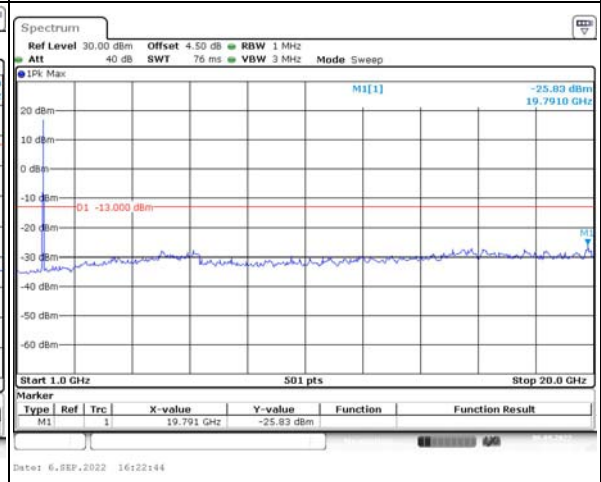
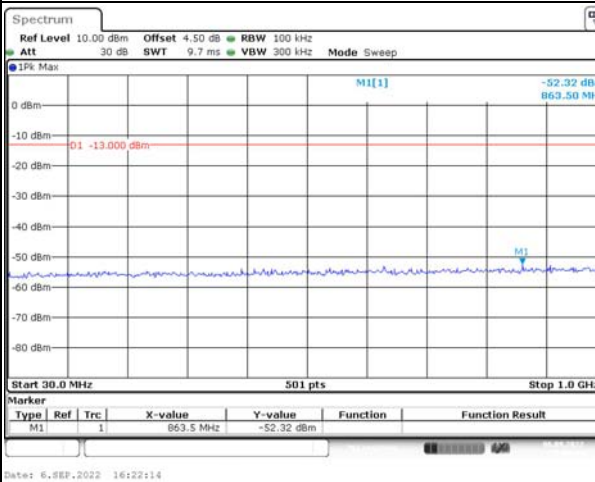
Channel

15MHz Bandwidth QPSK

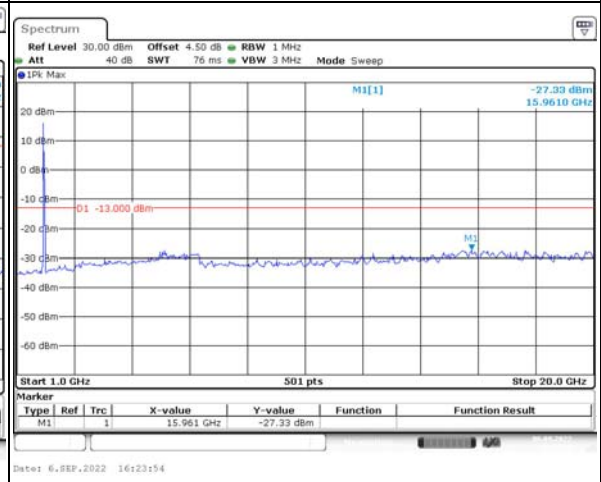
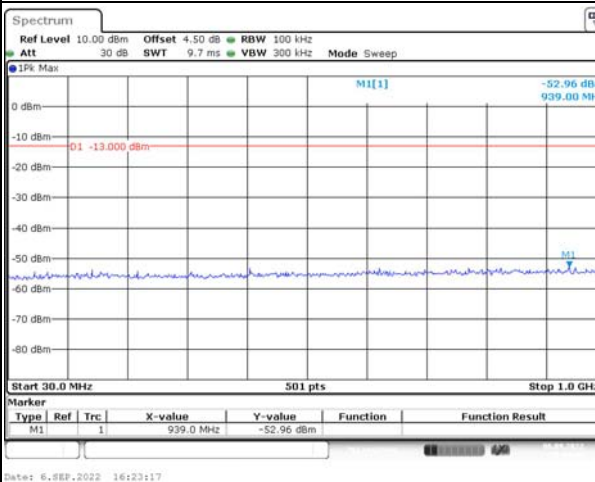
Lowest



Middle



Highest

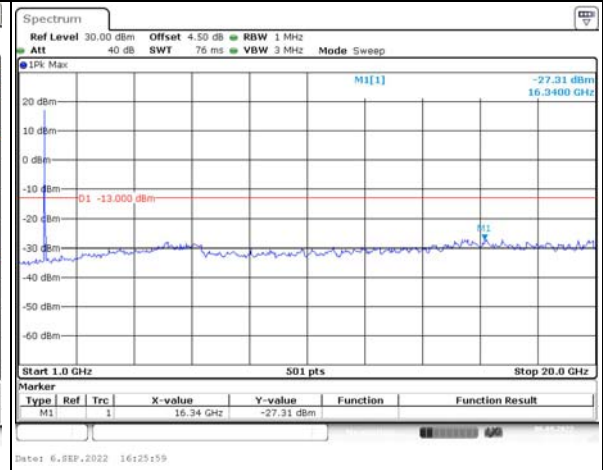
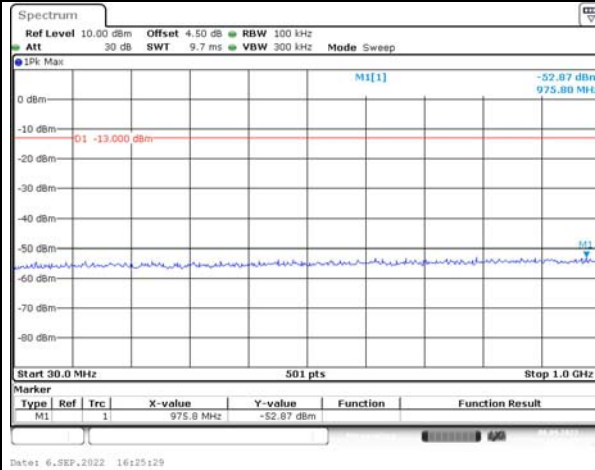


## Spurious Emissions at Antenna Terminal

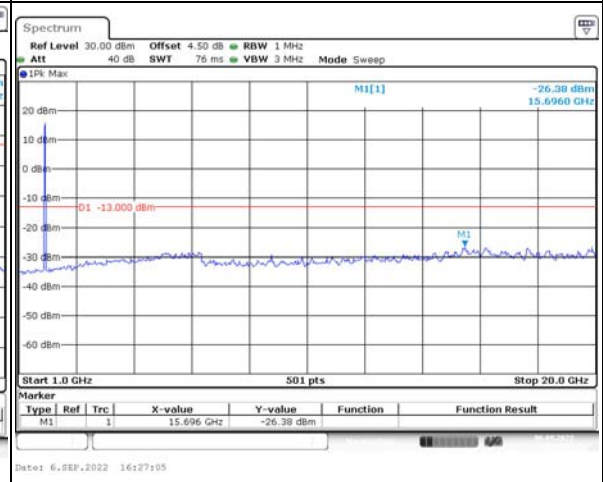
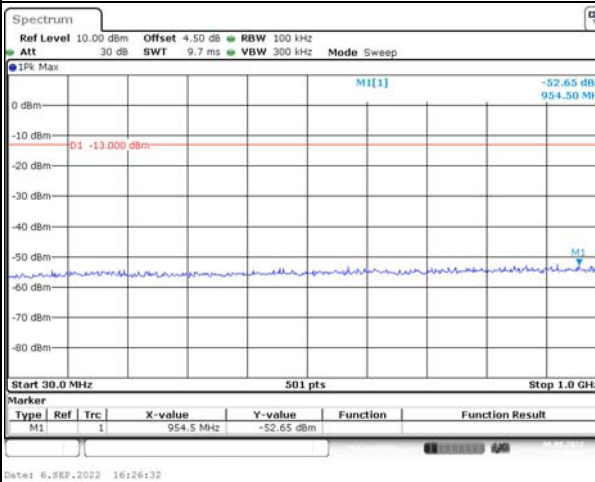
Channel

20MHz Bandwidth QPSK

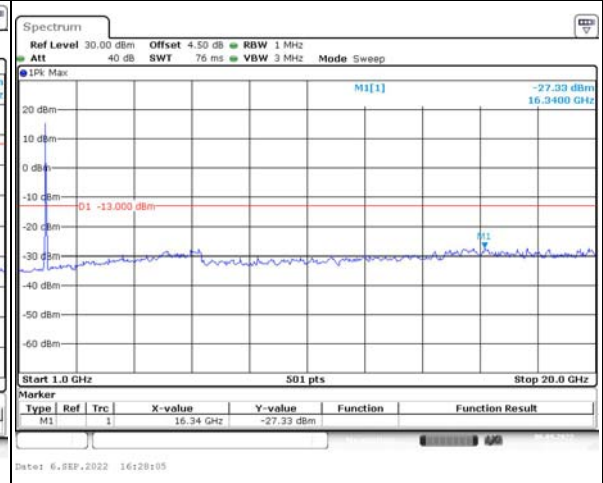
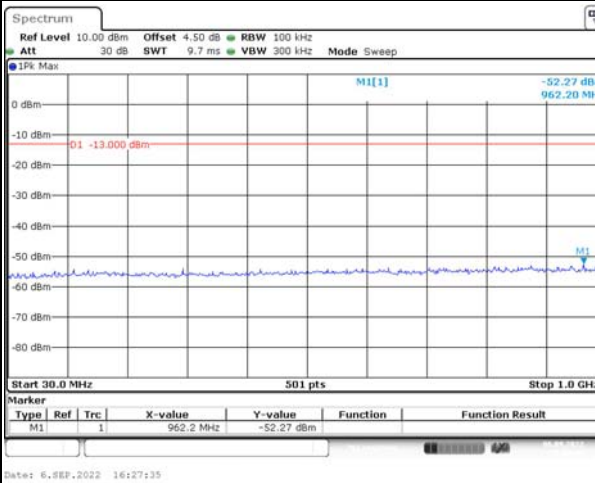
Lowest



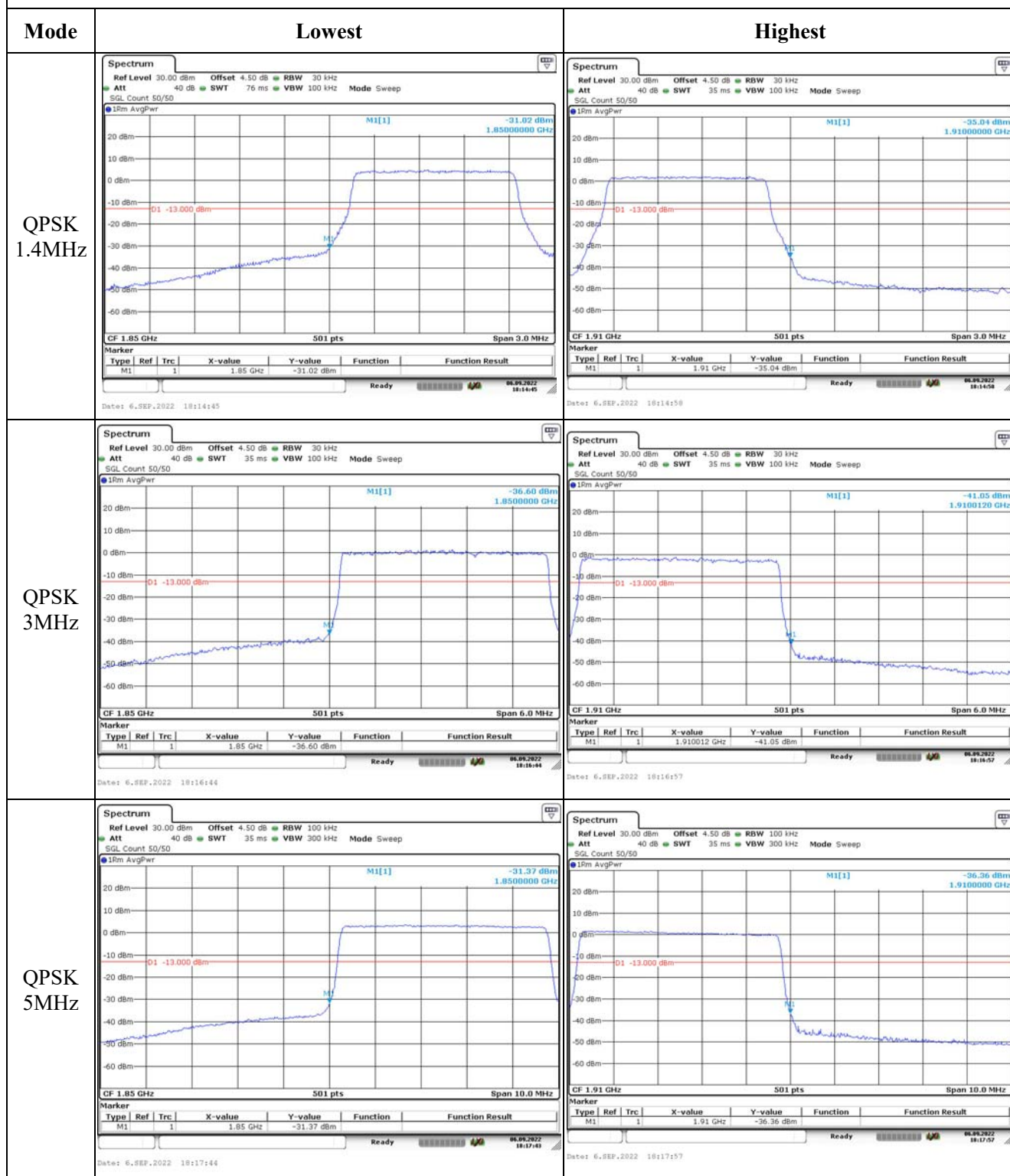
Middle



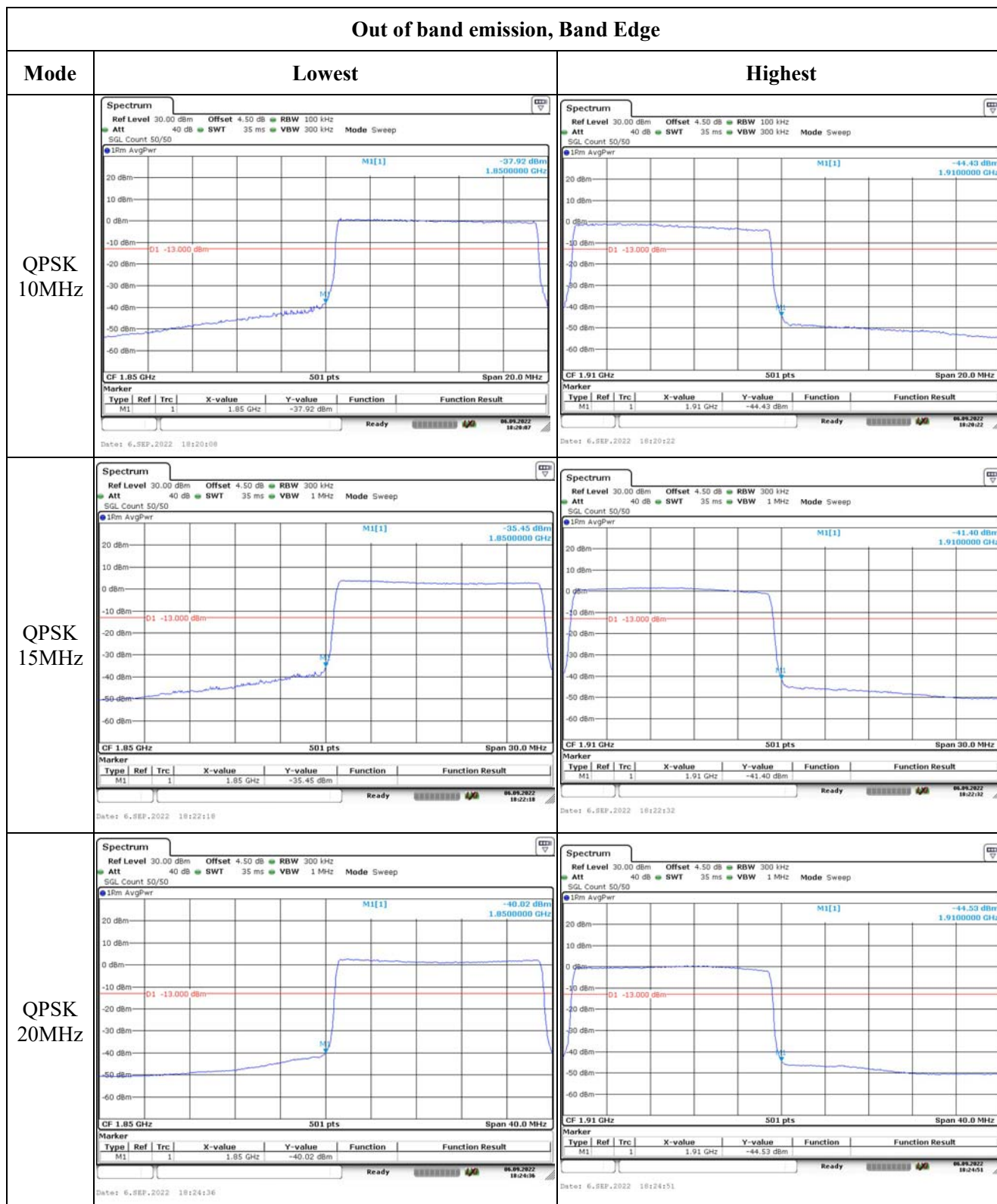
Highest



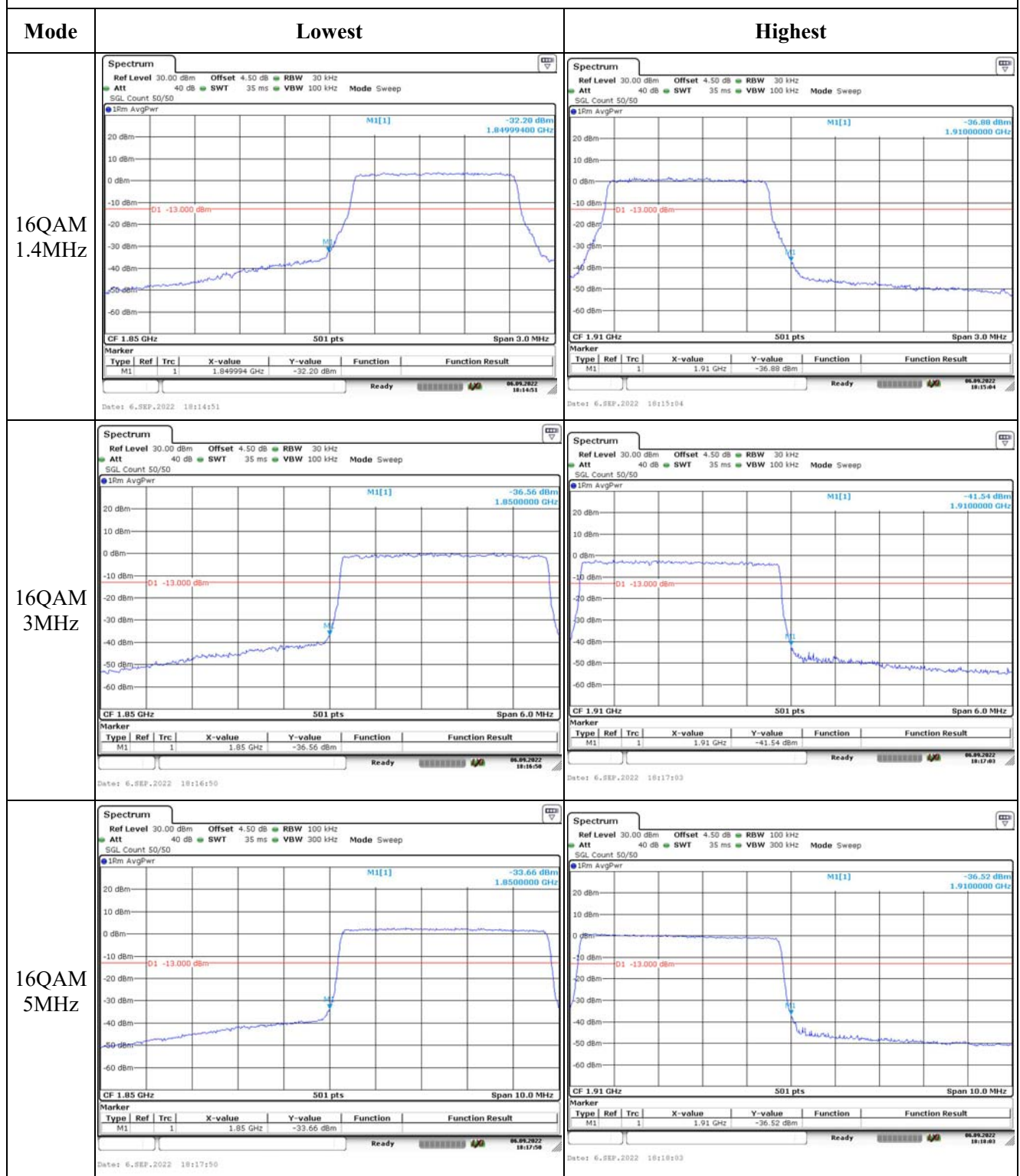
## Out of band emission, Band Edge



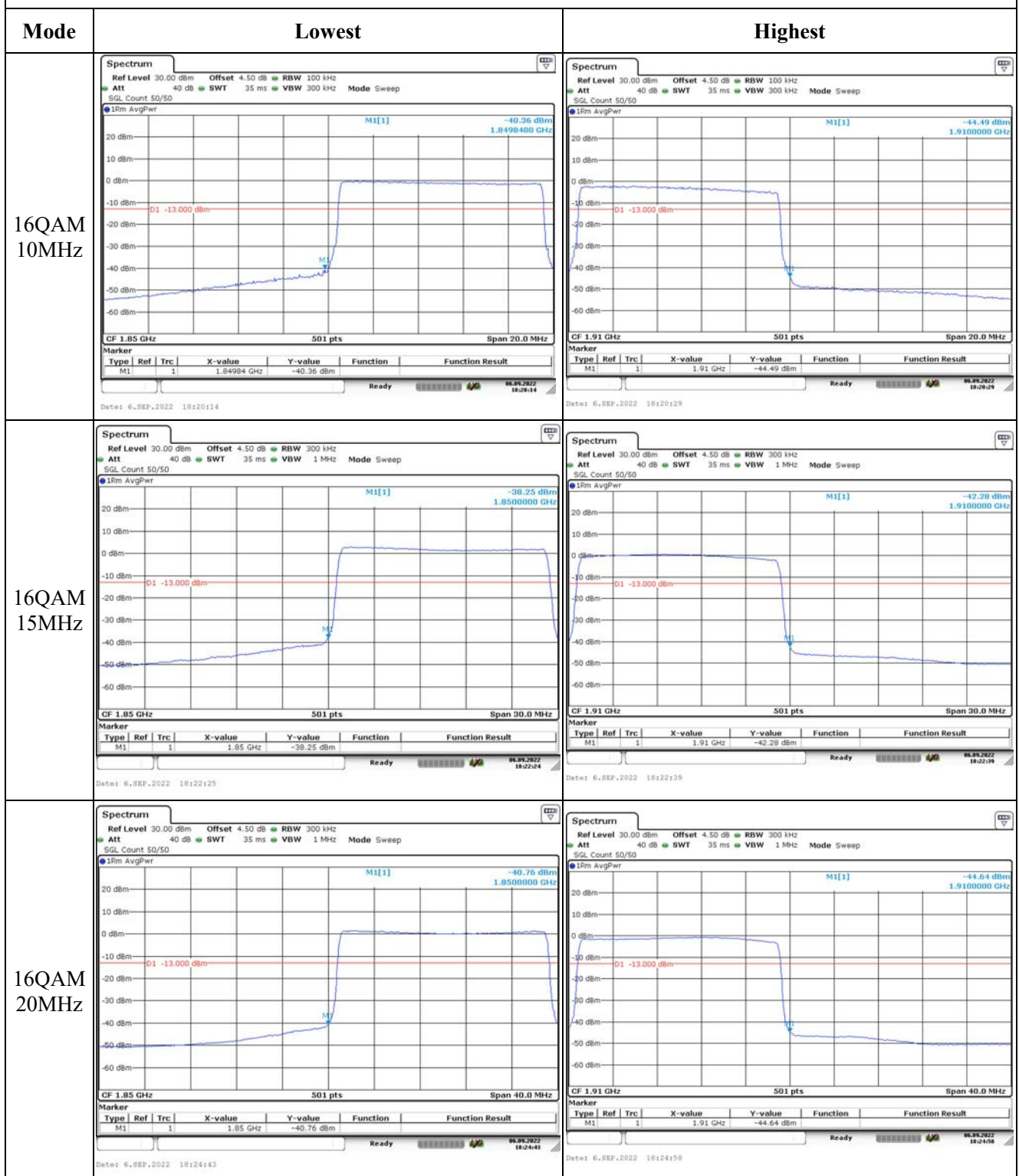
## Out of band emission, Band Edge



## 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: | CR22090006-RF-S1 | Test Date:   | 2022-09-06~2022-09-07 |
| Test Site:     | RF               | Test Mode:   | Transmitting          |
| Tester:        | George Chan      | Test Result: | Pass                  |

**Environmental Conditions:**

|                      |           |                           |       |                        |             |
|----------------------|-----------|---------------------------|-------|------------------------|-------------|
| Temperature:<br>(°C) | 25.1~25.6 | Relative Humidity:<br>(%) | 52~58 | ATM Pressure:<br>(kPa) | 100.1~100.8 |
|----------------------|-----------|---------------------------|-------|------------------------|-------------|

**Test Equipment List and Details:**

| Manufacturer  | Description                         | Model      | Serial Number   | Calibration Date | Calibration Due Date |
|---------------|-------------------------------------|------------|-----------------|------------------|----------------------|
| R&S           | Spectrum Analyzer                   | FSV40      | 101474          | 2022-07-15       | 2023-07-14           |
| zhuoxiang     | Coaxial Cable                       | SMA-178    | 211002          | Each time        | N/A                  |
| Unknown       | Coaxial tee connector               | Unknown    | 2204006         | Each time        | N/A                  |
| Weinschel     | Coaxial Attenuators                 | 53-20-34   | LN751           | Each time        | N/A                  |
| YINSAIGE      | Coaxial Cable                       | SS402      | SJ0100004       | Each time        | N/A                  |
| Mini-Circuits | DC Block                            | BLK-18-S+  | 1554404         | Each time        | N/A                  |
| R&S           | Wideband Radio Communication Tester | CMW500     | 149218          | 2022-07-15       | 2023-07-14           |
| BACL          | TEMP&HUMI Test Chamber              | BTH-150-40 | 30174           | 2022-04-06       | 2023-04-05           |
| UNI-T         | Multimeter                          | UT39A+     | C210582554      | 2021-09-30       | 2022-09-29           |
| 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).

**EUT Information@ LTE Band 4▲:**

|                                      |      |                     |      |
|--------------------------------------|------|---------------------|------|
| Antenna Gain<br>(dBi):               | 0.63 | Cable Loss<br>(dB): | 0.3  |
| Operation Voltage(V <sub>DC</sub> ): |      |                     |      |
| Lowest:                              | 3.3  | Normal:             | 3.87 |
|                                      |      | Highest:            | 4.45 |

**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                      | 24.06                               | 24.09          | 24.04           | 24.59              | 30               |
|                             | RB1#3                      | 24.22                               | 24.26          | 24.19           |                    |                  |
|                             | RB1#5                      | 24.06                               | 24.08          | 24.02           |                    |                  |
|                             | RB3#0                      | 24.15                               | 24.17          | 24.1            |                    |                  |
|                             | RB3#3                      | 24.14                               | 24.18          | 24.09           |                    |                  |
|                             | RB6#0                      | 23.12                               | 23.18          | 23.11           |                    |                  |
| 1.4MHz 16QAM                | RB1#0                      | 23.18                               | 23.07          | 22.99           | 23.69              | 30               |
|                             | RB1#3                      | 23.36                               | 23.22          | 23.17           |                    |                  |
|                             | RB1#5                      | 23.17                               | 23.11          | 22.99           |                    |                  |
|                             | RB3#0                      | 23.08                               | 23.19          | 23.21           |                    |                  |
|                             | RB3#3                      | 23.08                               | 23.2           | 23.27           |                    |                  |
|                             | RB6#0                      | 22.17                               | 22.09          | 22.09           |                    |                  |
| 3MHz QPSK                   | RB1#0                      | 24.15                               | 24.2           | 24.13           | 24.55              | 30               |
|                             | RB1#8                      | 24.19                               | 24.22          | 24.16           |                    |                  |
|                             | RB1#14                     | 24.16                               | 24.2           | 24.11           |                    |                  |
|                             | RB6#0                      | 23.12                               | 23.16          | 23.13           |                    |                  |
|                             | RB6#9                      | 23.15                               | 23.16          | 23.14           |                    |                  |
|                             | RB15#0                     | 23.15                               | 23.16          | 23.12           |                    |                  |
| 3MHz 16QAM                  | RB1#0                      | 23.26                               | 23.2           | 23.62           | 23.95              | 30               |
|                             | RB1#8                      | 23.32                               | 23.2           | 23.59           |                    |                  |
|                             | RB1#14                     | 23.28                               | 23.15          | 23.56           |                    |                  |
|                             | RB6#0                      | 22.13                               | 22.09          | 22.18           |                    |                  |
|                             | RB6#9                      | 22.19                               | 22.09          | 22.14           |                    |                  |
|                             | RB15#0                     | 22.09                               | 22.24          | 22.2            |                    |                  |
| 5MHz QPSK                   | RB1#0                      | 24.08                               | 24.06          | 23.99           | 24.56              | 30               |
|                             | RB1#13                     | 24.23                               | 24.21          | 24.16           |                    |                  |
|                             | RB1#24                     | 24.05                               | 24.06          | 24.05           |                    |                  |
|                             | RB15#0                     | 23.1                                | 23.22          | 23.16           |                    |                  |
|                             | RB15#10                    | 23.19                               | 23.2           | 23.18           |                    |                  |
|                             | RB25#0                     | 23.15                               | 23.16          | 23.13           |                    |                  |
| 5MHz 16QAM                  | RB1#0                      | 23.32                               | 23.16          | 22.9            | 23.81              | 30               |
|                             | RB1#13                     | 23.48                               | 23.25          | 23.02           |                    |                  |
|                             | RB1#24                     | 23.32                               | 23.13          | 22.91           |                    |                  |
|                             | RB15#0                     | 22.09                               | 22.24          | 22.18           |                    |                  |
|                             | RB15#10                    | 22.17                               | 22.23          | 22.2            |                    |                  |
|                             | RB25#0                     | 22.12                               | 22.24          | 22.21           |                    |                  |
| 10MHz QPSK                  | RB1#0                      | 24.17                               | 24.18          | 24.18           | 24.69              | 30               |
|                             | RB1#25                     | 24.36                               | 24.33          | 24.28           |                    |                  |
|                             | RB1#49                     | 24.21                               | 24.16          | 24.15           |                    |                  |

|             |         |       |       |       |       |    |
|-------------|---------|-------|-------|-------|-------|----|
|             | RB25#0  | 23.14 | 23.25 | 23.16 |       |    |
|             | RB25#25 | 23.25 | 23.24 | 23.18 |       |    |
|             | RB50#0  | 23.18 | 23.24 | 23.22 |       |    |
| 10MHz 16QAM | RB1#0   | 23.12 | 23.72 | 23.29 | 24.19 | 30 |
|             | RB1#25  | 23.3  | 23.86 | 23.38 |       |    |
|             | RB1#49  | 23.16 | 23.69 | 23.25 |       |    |
|             | RB25#0  | 22.24 | 22.29 | 22.23 |       |    |
|             | RB25#25 | 22.34 | 22.33 | 22.25 |       |    |
|             | RB50#0  | 22.2  | 22.27 | 22.21 |       |    |
| 15MHz QPSK  | RB1#0   | 24.04 | 24.12 | 24.06 | 24.58 | 30 |
|             | RB1#38  | 24.22 | 24.25 | 24.17 |       |    |
|             | RB1#74  | 24.12 | 24.1  | 24.05 |       |    |
|             | RB36#0  | 23.25 | 23.3  | 23.28 |       |    |
|             | RB36#39 | 23.32 | 23.3  | 23.27 |       |    |
|             | RB75#0  | 23.28 | 23.3  | 23.3  |       |    |
| 15MHz 16QAM | RB1#0   | 23.15 | 23.45 | 23.59 | 24.03 | 30 |
|             | RB1#38  | 23.33 | 23.56 | 23.7  |       |    |
|             | RB1#74  | 23.25 | 23.44 | 23.56 |       |    |
|             | RB36#0  | 22.18 | 22.19 | 22.24 |       |    |
|             | RB36#39 | 22.26 | 22.25 | 22.23 |       |    |
|             | RB75#0  | 22.26 | 22.24 | 22.27 |       |    |
| 20MHz QPSK  | RB1#0   | 23.85 | 23.95 | 23.9  | 24.73 | 30 |
|             | RB1#50  | 24.33 | 24.36 | 24.4  |       |    |
|             | RB1#99  | 23.95 | 24    | 23.94 |       |    |
|             | RB50#0  | 23.14 | 23.2  | 23.17 |       |    |
|             | RB50#50 | 23.21 | 23.22 | 23.18 |       |    |
|             | RB100#0 | 23.18 | 23.21 | 23.19 |       |    |
| 20MHz 16QAM | RB1#0   | 23.41 | 23.24 | 23.1  | 24.16 | 30 |
|             | RB1#50  | 23.83 | 23.62 | 23.54 |       |    |
|             | RB1#99  | 23.51 | 23.29 | 23.12 |       |    |
|             | RB50#0  | 22.14 | 22.2  | 22.2  |       |    |
|             | RB50#50 | 22.21 | 22.2  | 22.16 |       |    |
|             | RB100#0 | 22.22 | 22.25 | 22.2  |       |    |

Note: EIRP=Conducted Power(dBm) - Cable loss(dB) + Antenna Gain(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                      | 4.32                      | 4.81           | 3.54            | 13          |
|                             | RB100#0                    | 5.01                      | 5.01           | 4.49            | 13          |
| 20MHz 16QAM                 | RB1#0                      | 4.93                      | 5.22           | 4.7             | 13          |
|                             | RB100#0                    | 6.09                      | 5.97           | 5.42            | 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    | 1.096                        | 1.102          | 1.102        | 1.308                          | 1.29           | 1.332        |
| 1.4MHz 16QAM   | 1.102                        | 1.096          | 1.102        | 1.332                          | 1.296          | 1.314        |
| 3MHz QPSK      | 2.695                        | 2.695          | 2.683        | 2.88                           | 2.868          | 2.904        |
| 3MHz 16QAM     | 2.683                        | 2.683          | 2.683        | 2.904                          | 2.88           | 2.88         |
| 5MHz QPSK      | 4.491                        | 4.511          | 4.511        | 4.94                           | 4.94           | 4.96         |
| 5MHz 16QAM     | 4.531                        | 4.491          | 4.531        | 4.96                           | 4.94           | 4.96         |
| 10MHz QPSK     | 8.942                        | 8.942          | 8.942        | 9.68                           | 9.6            | 9.6          |
| 10MHz 16QAM    | 8.942                        | 8.942          | 8.942        | 9.56                           | 9.64           | 9.6          |
| 15MHz QPSK     | 13.533                       | 13.473         | 13.473       | 14.82                          | 14.76          | 14.76        |
| 15MHz 16QAM    | 13.533                       | 13.473         | 13.473       | 14.76                          | 14.7           | 14.7         |
| 20MHz QPSK     | 17.964                       | 17.964         | 17.964       | 19.36                          | 19.28          | 19.52        |
| 20MHz 16QAM    | 17.964                       | 17.964         | 17.964       | 19.28                          | 19.36          | 20           |

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**

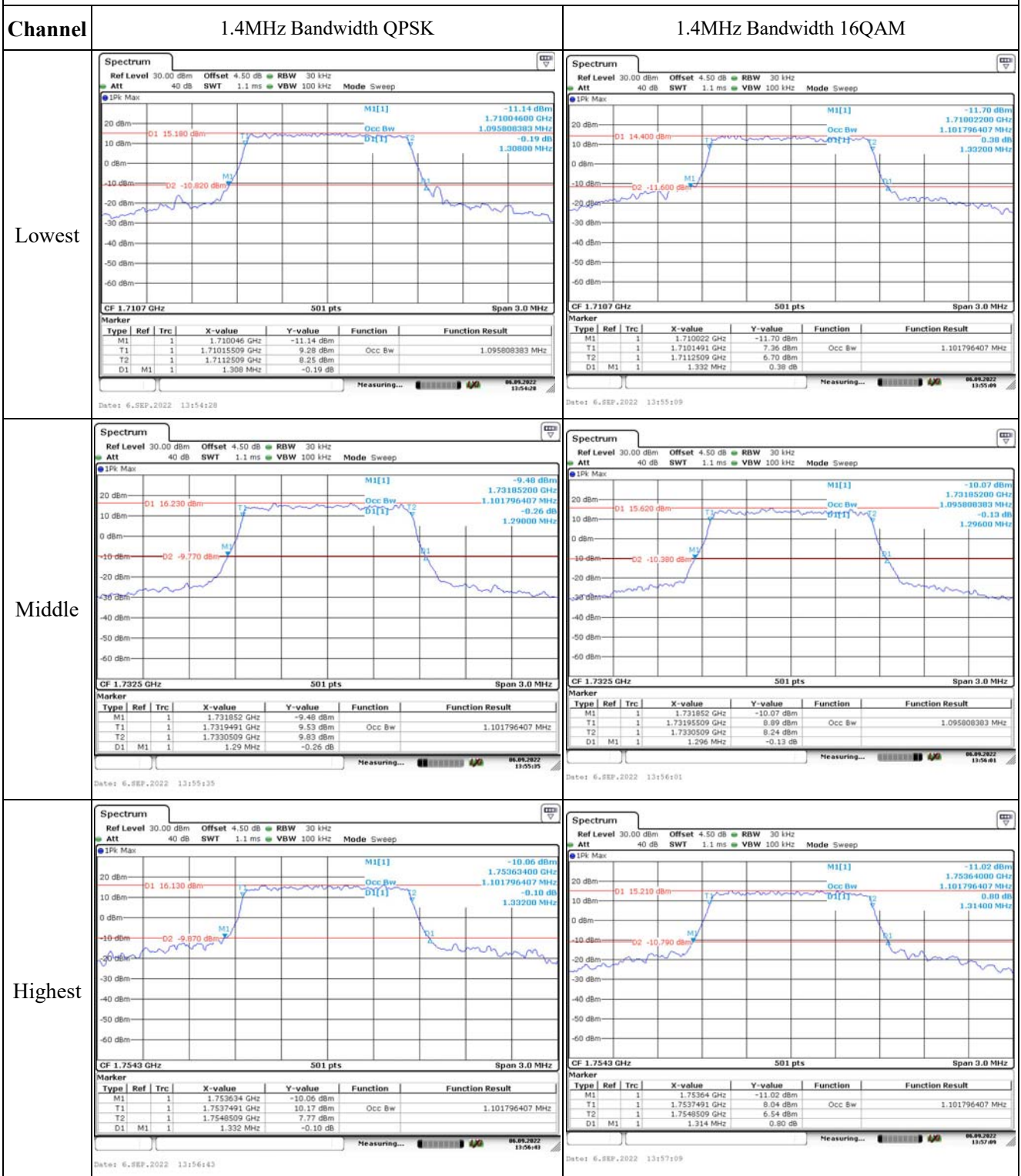
|                |                                                                                 |
|----------------|---------------------------------------------------------------------------------|
| <b>Result:</b> | <b>Pass, Please refer to the test plots of Out of band emission, Band Edge.</b>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

| 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              | 3.87                                                       | 1711.086         | 1710.00 | 1754.089         | 1755        |
|                                          | -20              | 3.87                                                       | 1711.007         | 1710.00 | 1754.089         | 1755        |
|                                          | -10              | 3.87                                                       | 1711.026         | 1710.00 | 1754.060         | 1755        |
|                                          | 0                | 3.87                                                       | 1711.029         | 1710.00 | 1754.060         | 1755        |
|                                          | 10               | 3.87                                                       | 1711.013         | 1710.00 | 1754.049         | 1755        |
|                                          | 20               | 3.87                                                       | 1711.058         | 1710.00 | 1754.022         | 1755        |
|                                          | 30               | 3.87                                                       | 1711.067         | 1710.00 | 1754.038         | 1755        |
|                                          | 40               | 3.87                                                       | 1711.084         | 1710.00 | 1754.050         | 1755        |
|                                          | 50               | 3.87                                                       | 1711.002         | 1710.00 | 1754.033         | 1755        |
| Frequency Stability vs. Voltage          | 20               | 3.3                                                        | 1711.048         | 1710.00 | 1754.067         | 1755        |
|                                          | 20               | 4.45                                                       | 1711.030         | 1710.00 | 1754.060         | 1755        |
|                                          |                  |                                                            |                  |         | <b>Result:</b>   | <b>Pass</b> |

| Test Mode:                          | 20M 16QAM        | 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              | 3.87                                                       | 1711.010         | 1710.00 | 1754.084         | 1755        |
|                                     | -20              | 3.87                                                       | 1711.078         | 1710.00 | 1754.021         | 1755        |
|                                     | -10              | 3.87                                                       | 1711.085         | 1710.00 | 1754.041         | 1755        |
|                                     | 0                | 3.87                                                       | 1711.037         | 1710.00 | 1754.076         | 1755        |
|                                     | 10               | 3.87                                                       | 1711.086         | 1710.00 | 1754.097         | 1755        |
|                                     | 20               | 3.87                                                       | 1711.058         | 1710.00 | 1754.022         | 1755        |
|                                     | 30               | 3.87                                                       | 1711.003         | 1710.00 | 1754.029         | 1755        |
|                                     | 40               | 3.87                                                       | 1711.024         | 1710.00 | 1754.030         | 1755        |
|                                     | 50               | 3.87                                                       | 1711.083         | 1710.00 | 1754.074         | 1755        |
| Frequency Stability vs. Voltage     | 20               | 3.3                                                        | 1711.029         | 1710.00 | 1754.019         | 1755        |
|                                     | 20               | 4.45                                                       | 1711.013         | 1710.00 | 1754.073         | 1755        |
|                                     |                  |                                                            |                  |         | <b>Result:</b>   | <b>Pass</b> |

## Test Plots:

## Occupied Bandwidth



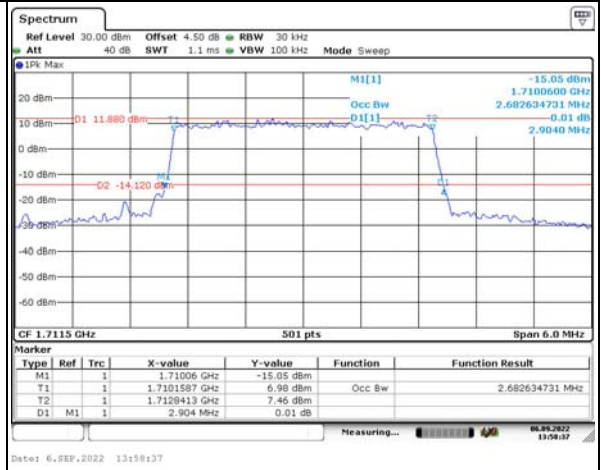
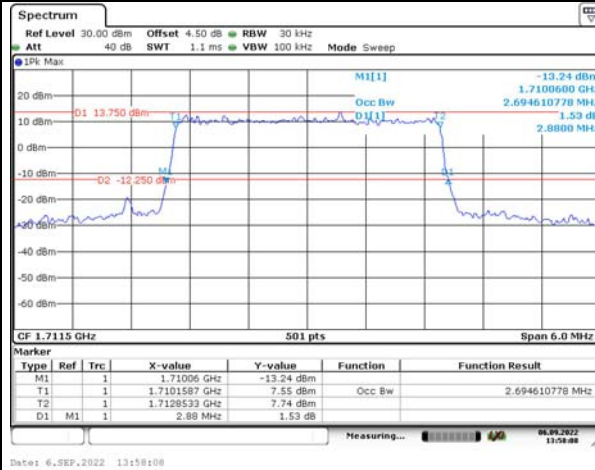
## Occupied Bandwidth

Channel

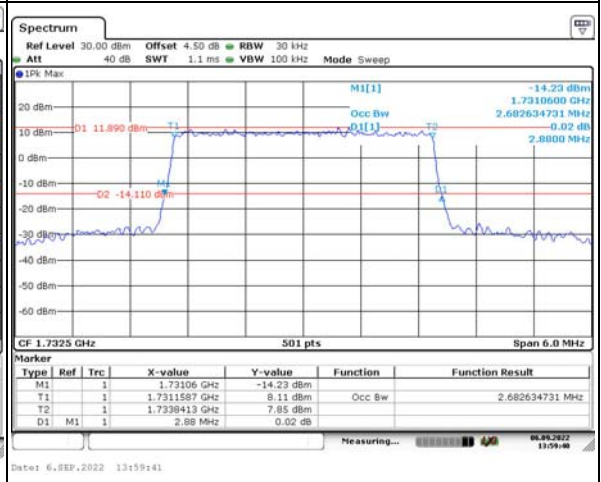
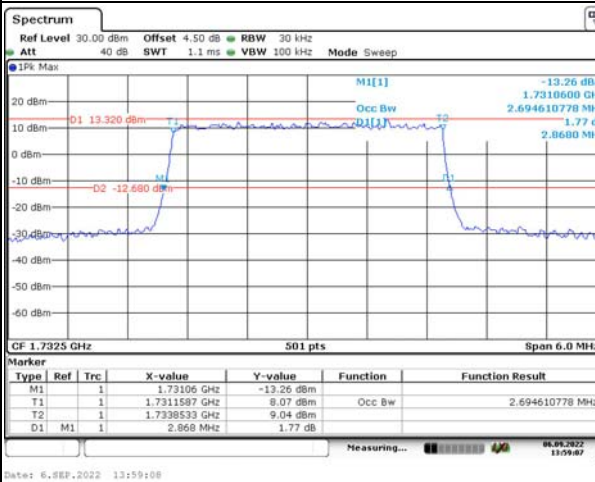
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

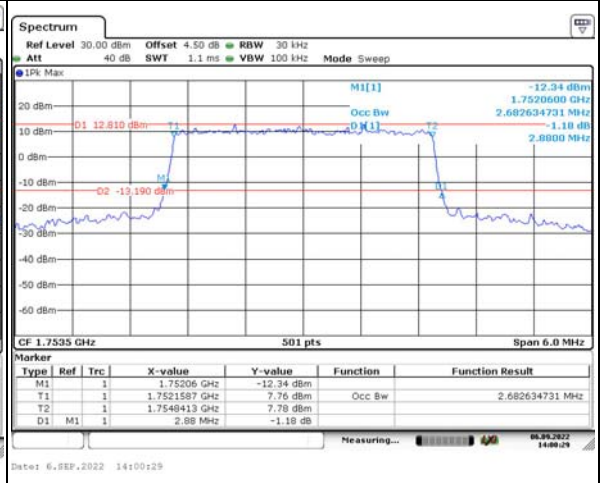
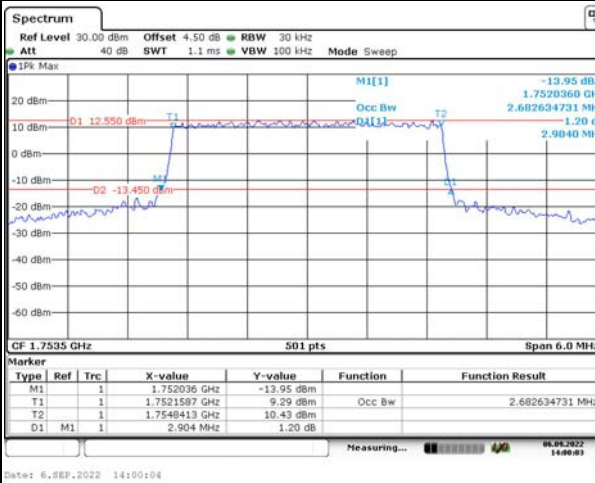
Lowest



Middle



Highest



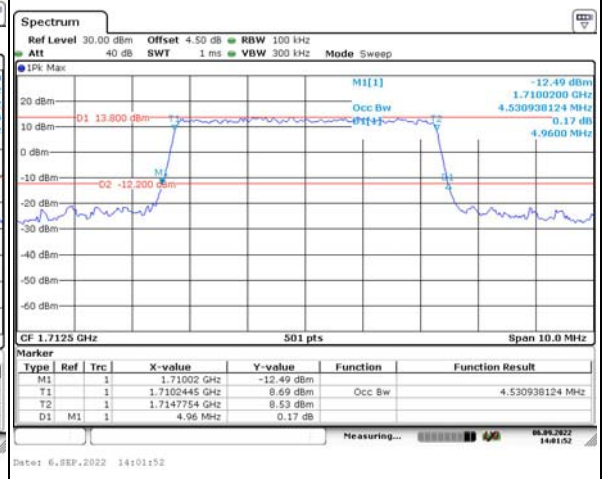
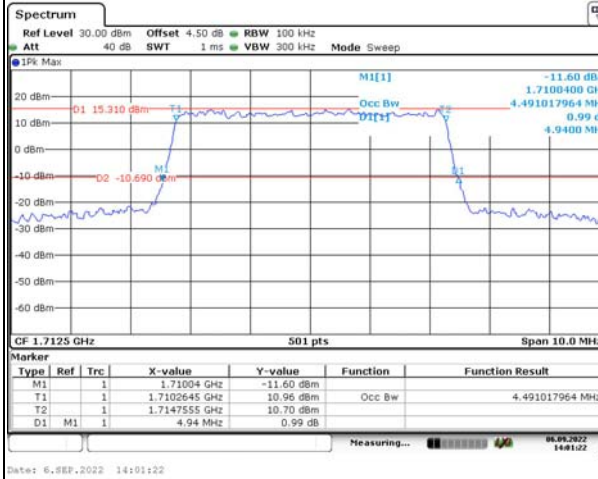
## Occupied Bandwidth

## Channel

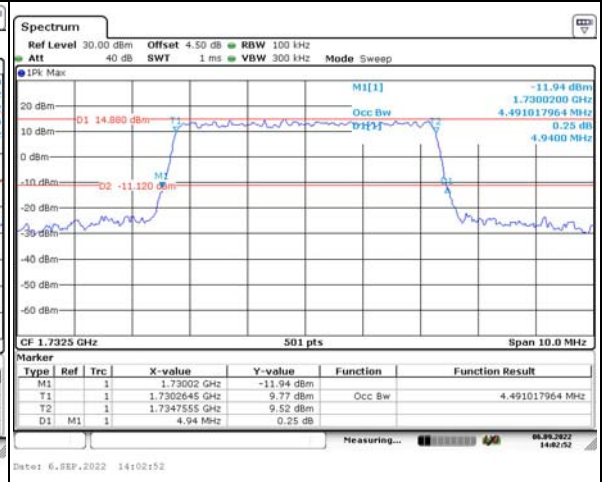
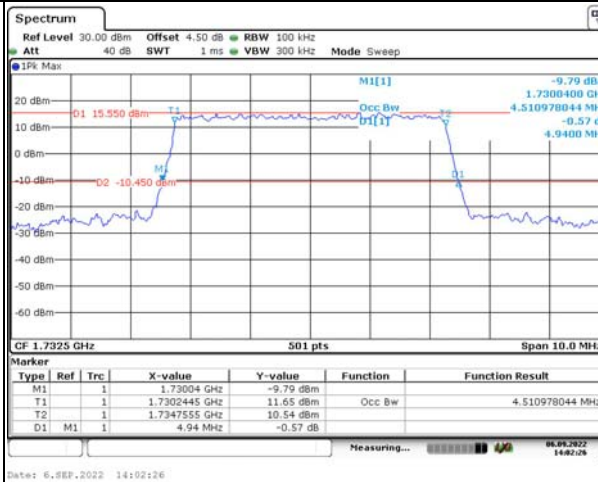
## 5MHz Bandwidth QPSK

## 5MHz Bandwidth 16QAM

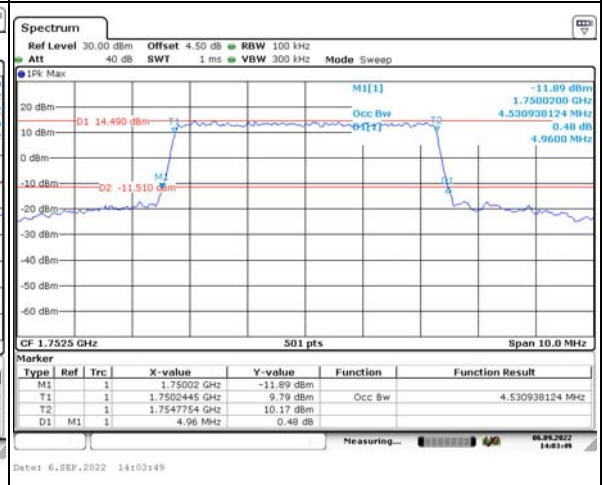
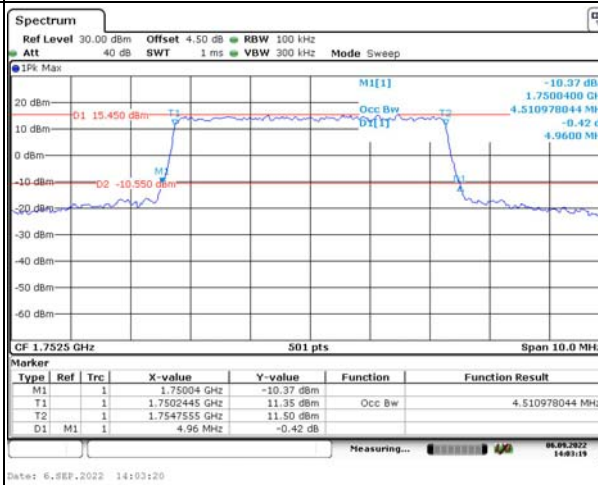
## Lowest



## Middle



## Highest



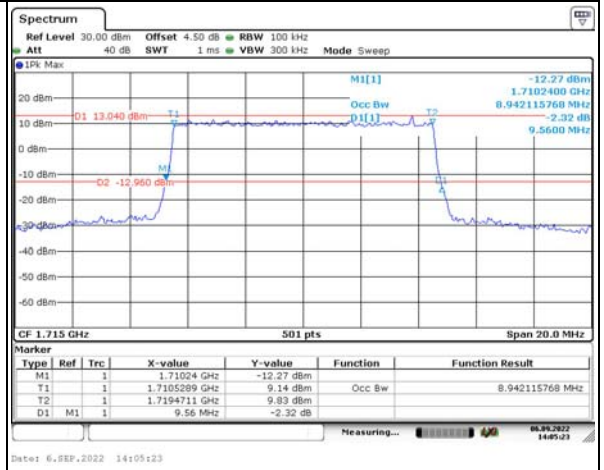
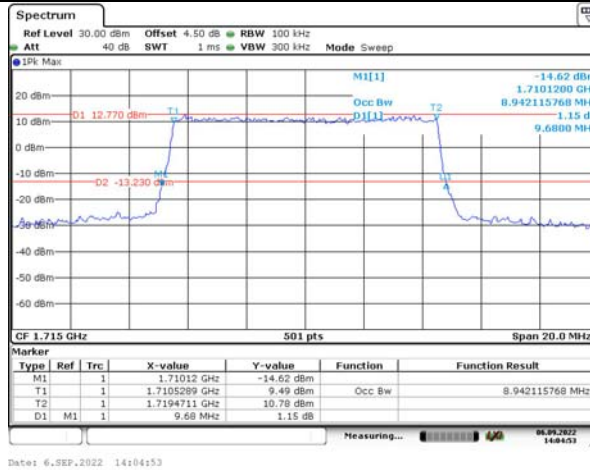
## Occupied Bandwidth

## Channel

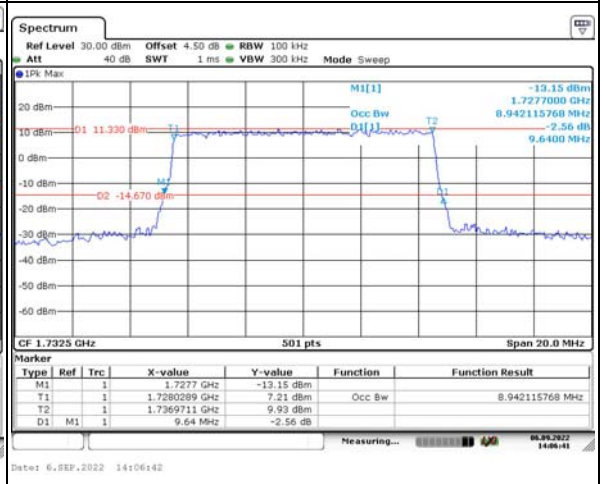
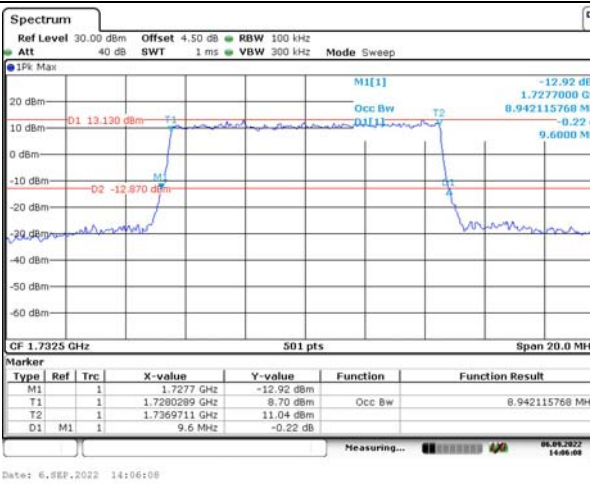
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

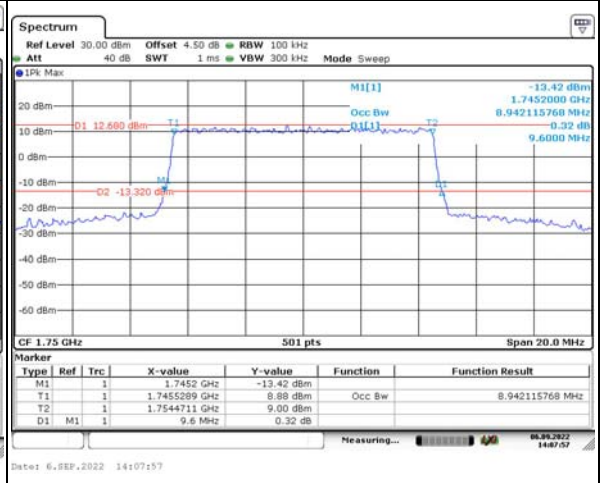
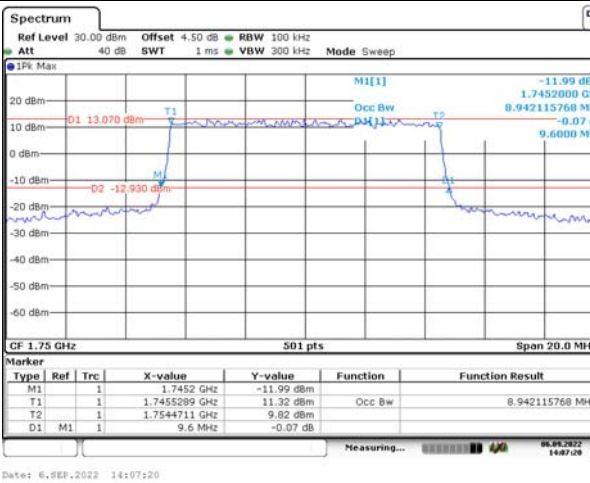
Lowest



Middle



Highest



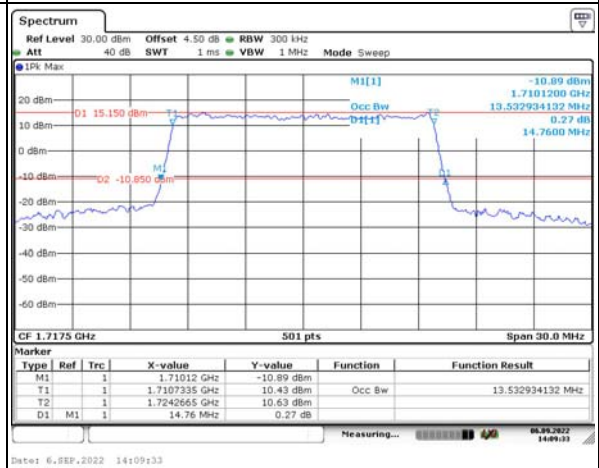
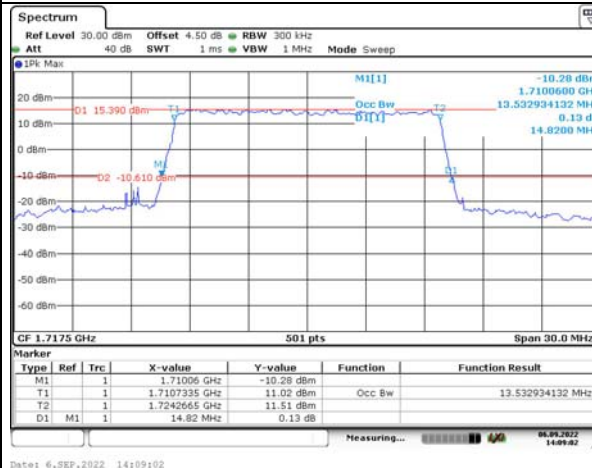
## Occupied Bandwidth

## Channel

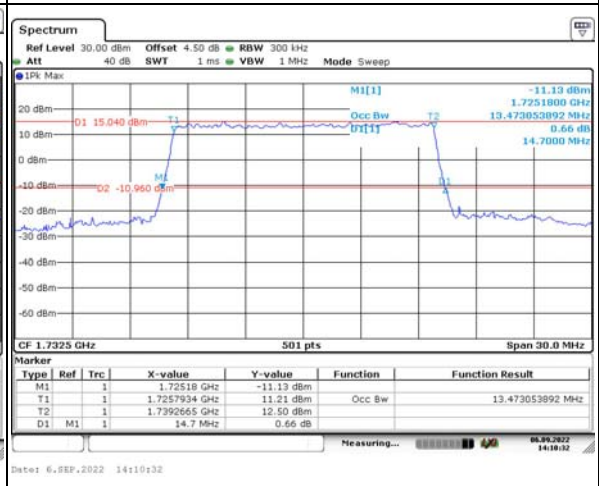
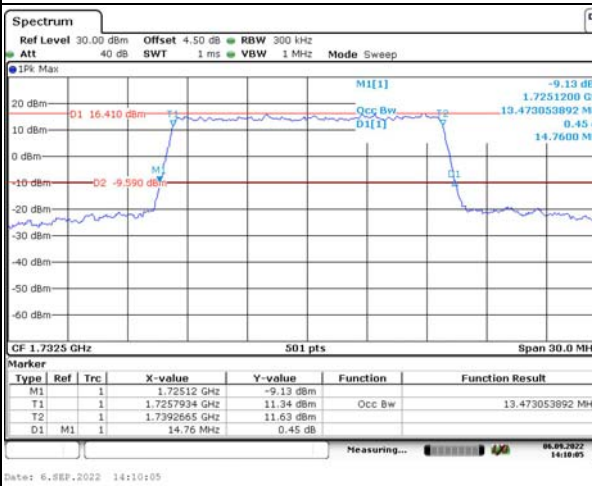
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

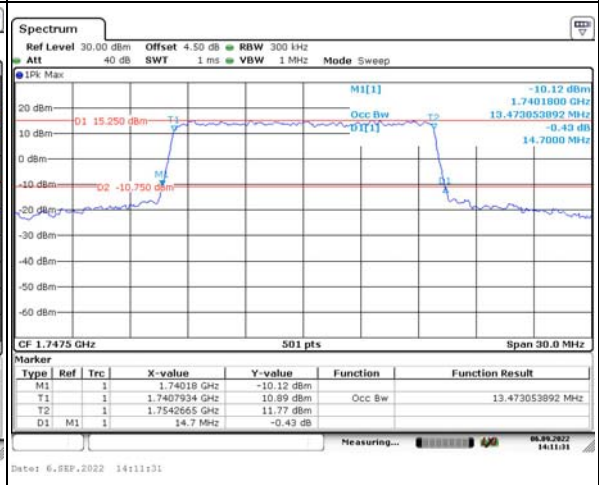
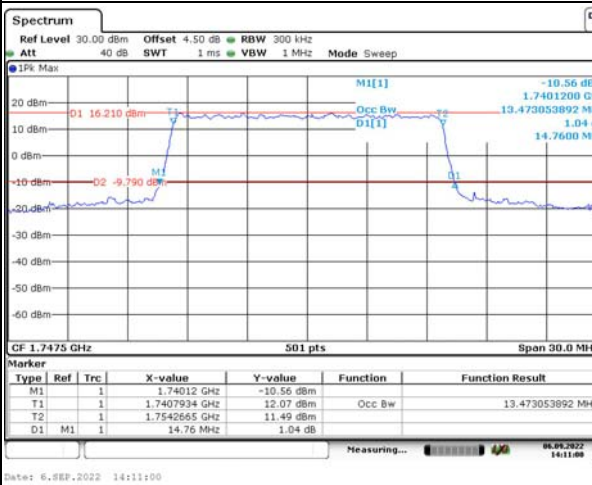
Lowest



Middle



Highest



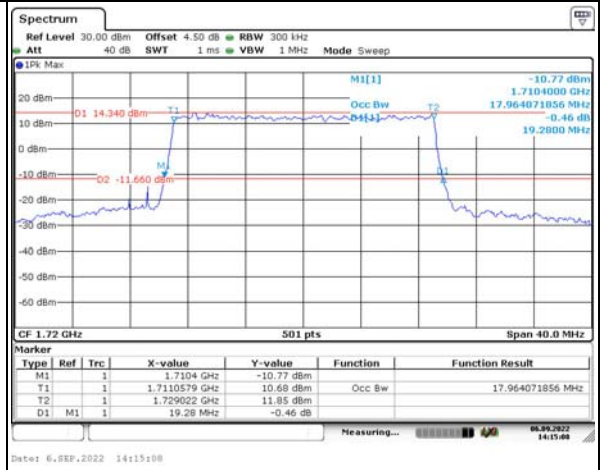
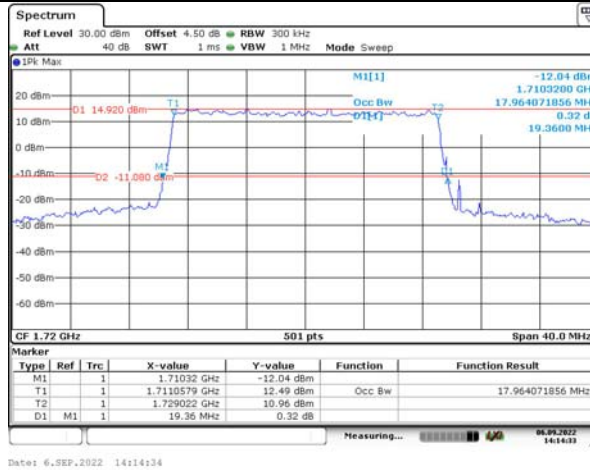
## Occupied Bandwidth

Channel

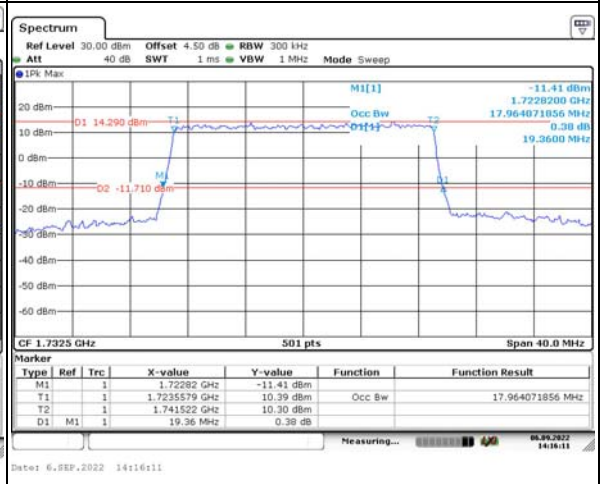
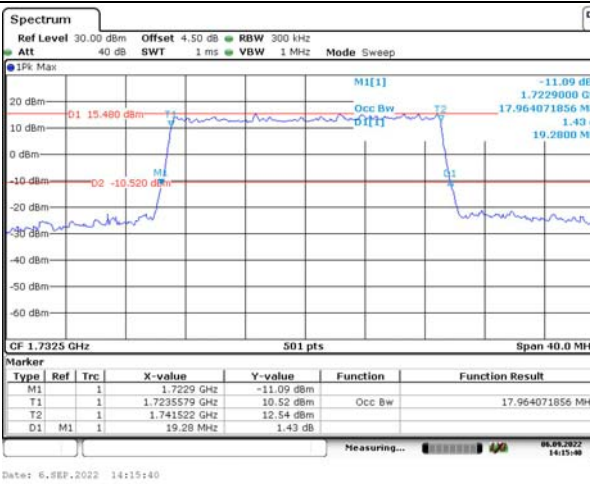
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

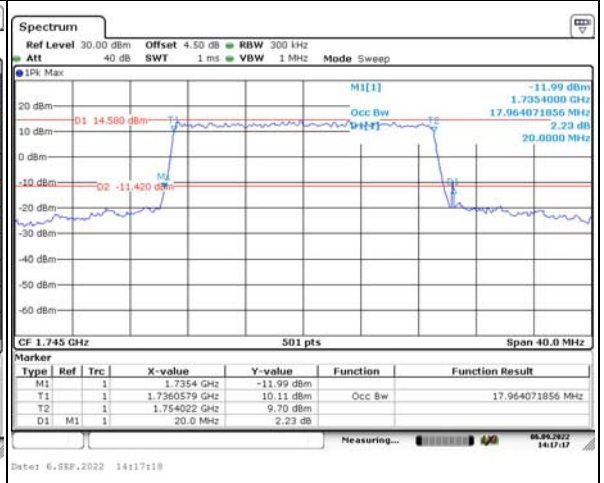
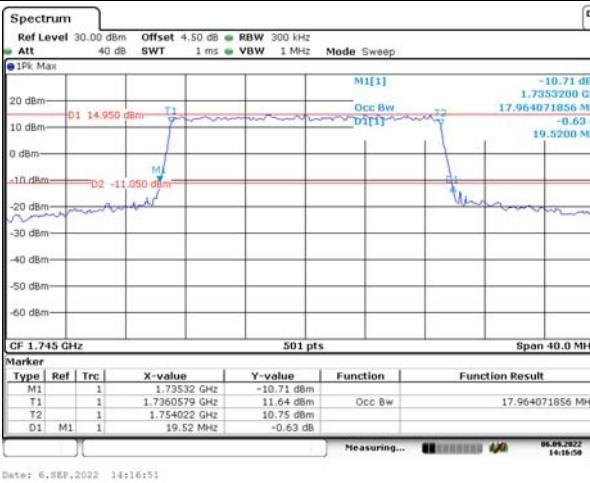
Lowest



Middle



Highest

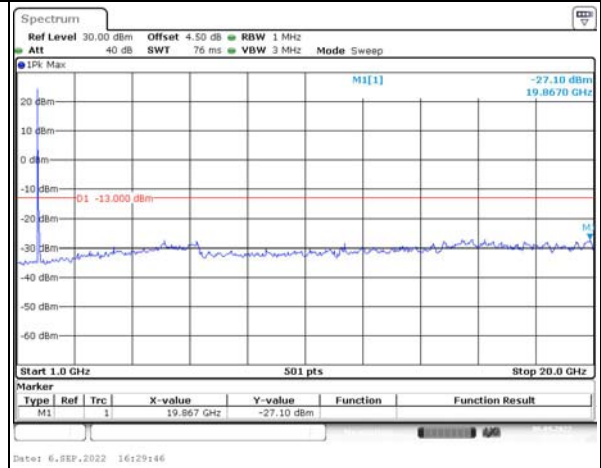
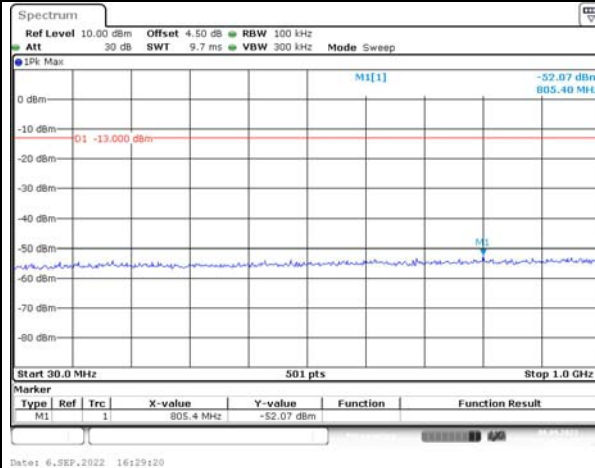


## Spurious Emissions at Antenna Terminal

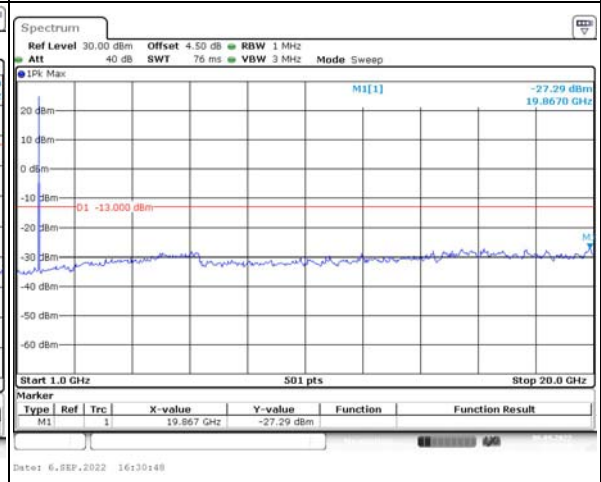
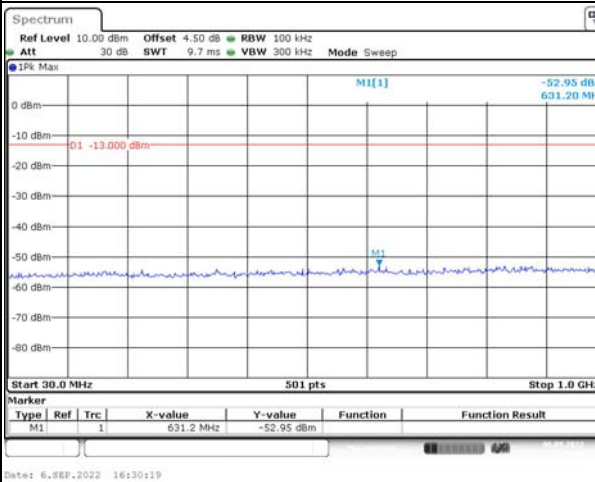
Channel

1.4MHz Bandwidth QPSK

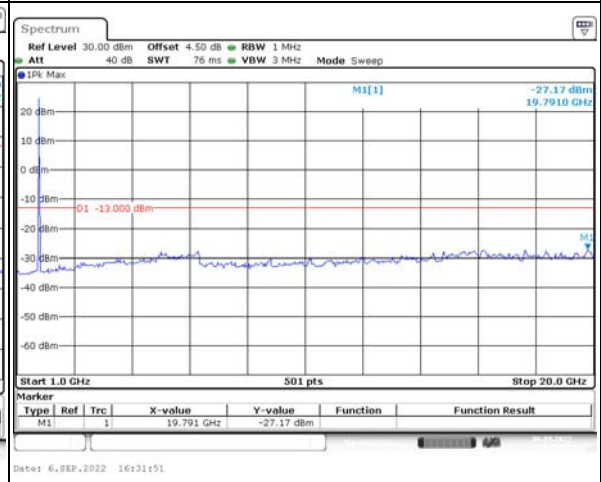
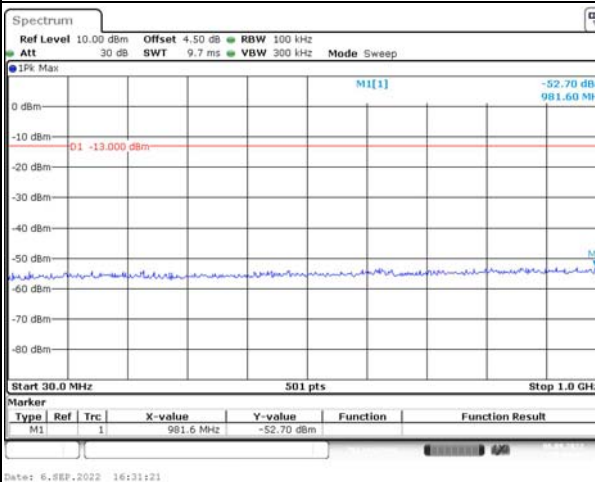
Lowest



Middle



Highest

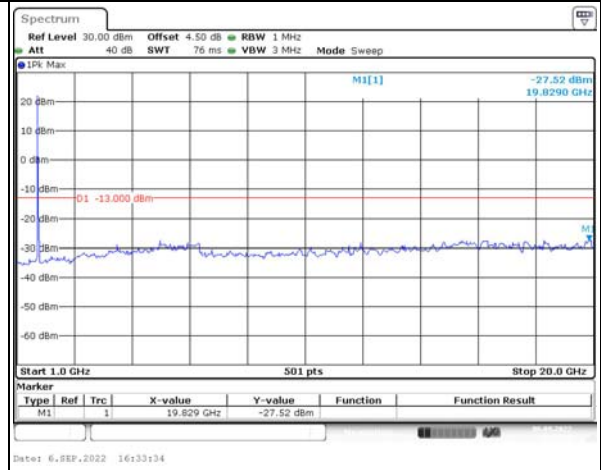
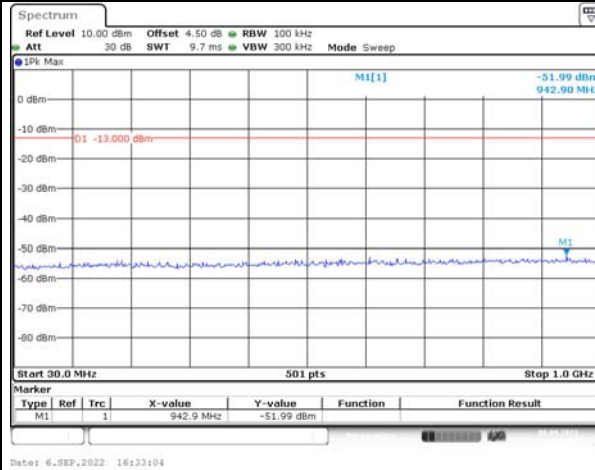


## Spurious Emissions at Antenna Terminal

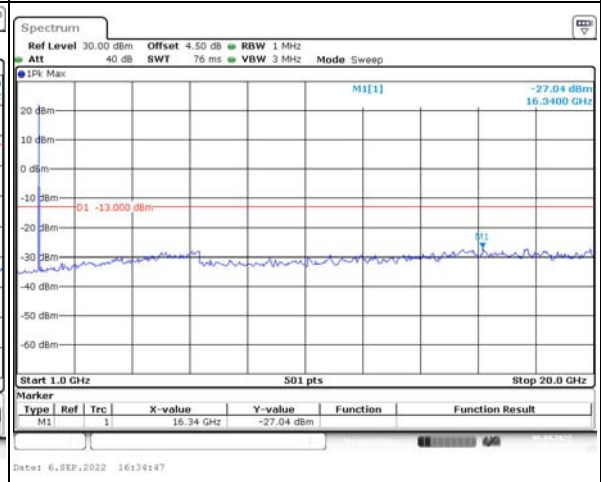
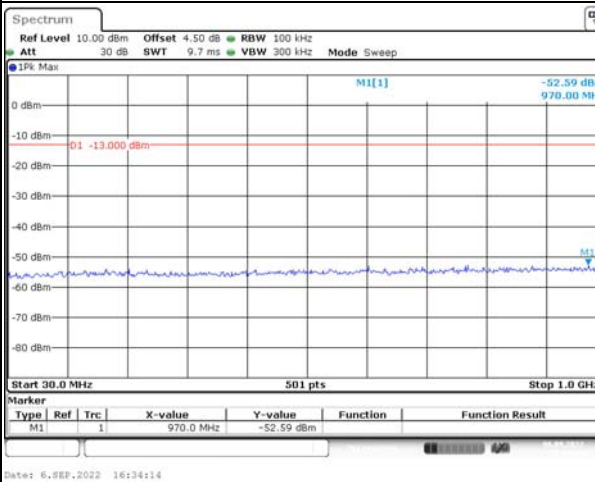
Channel

3MHz Bandwidth QPSK

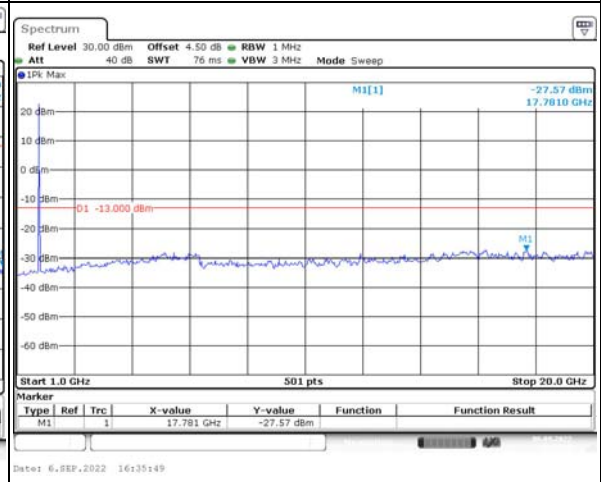
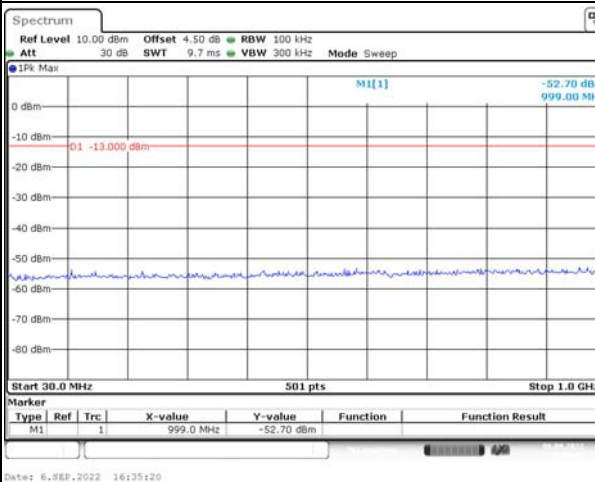
Lowest



Middle



Highest

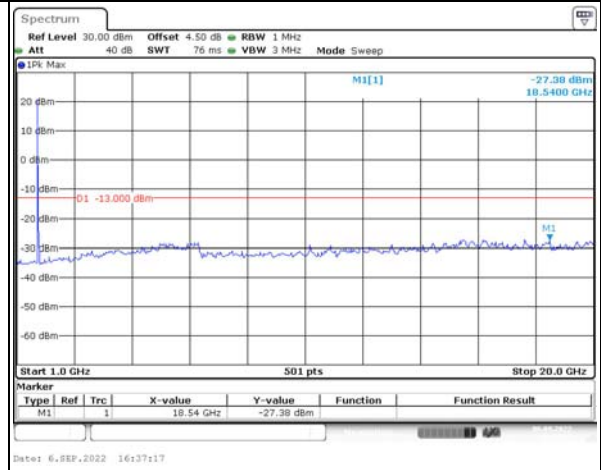
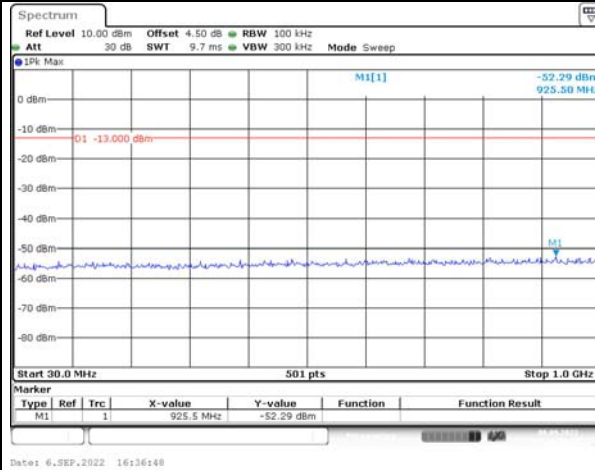


## Spurious Emissions at Antenna Terminal

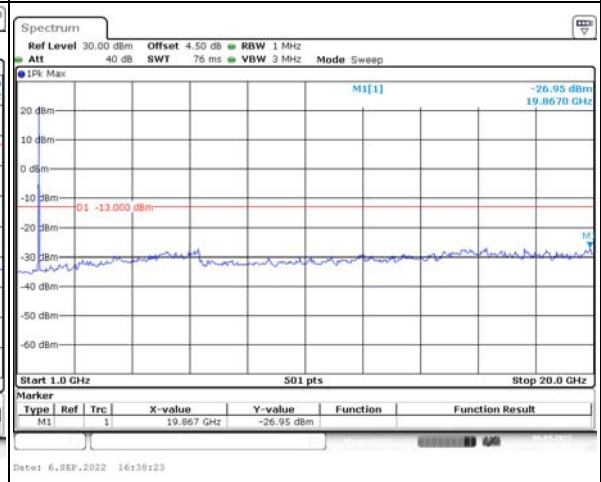
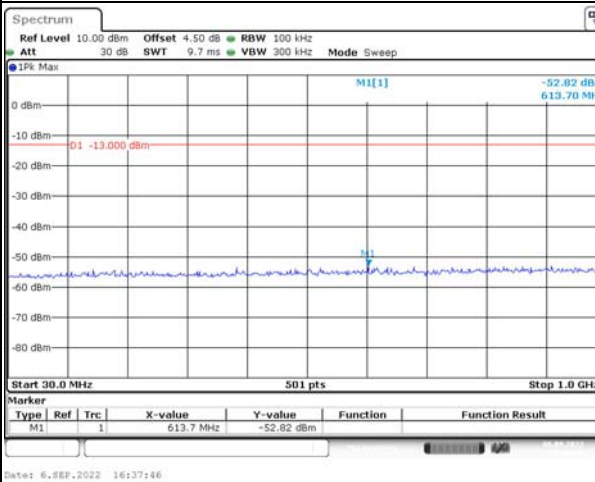
Channel

5MHz Bandwidth QPSK

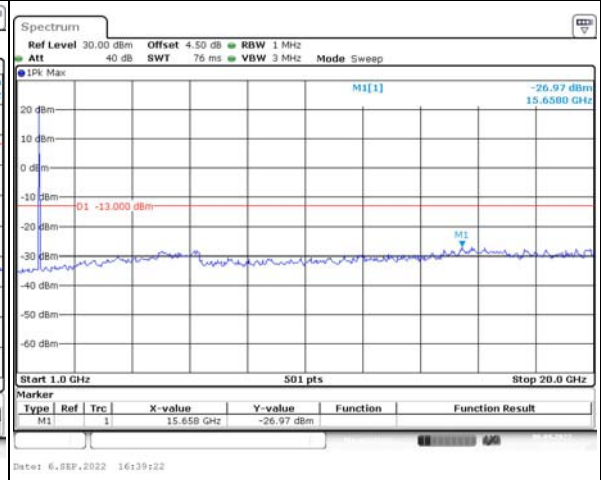
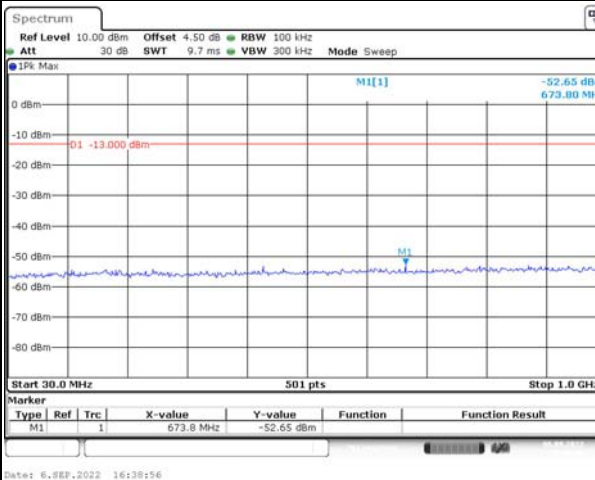
Lowest



Middle



Highest

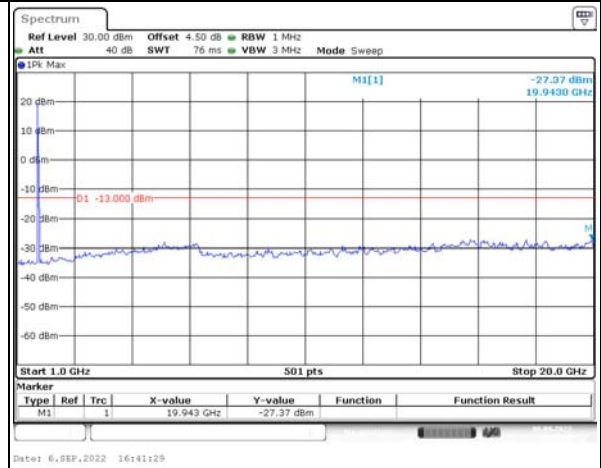
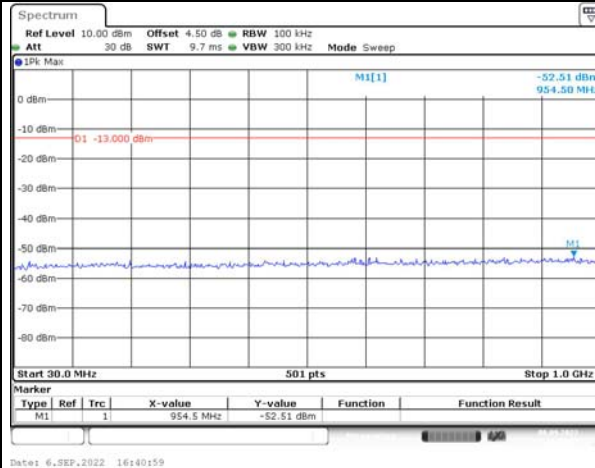


## Spurious Emissions at Antenna Terminal

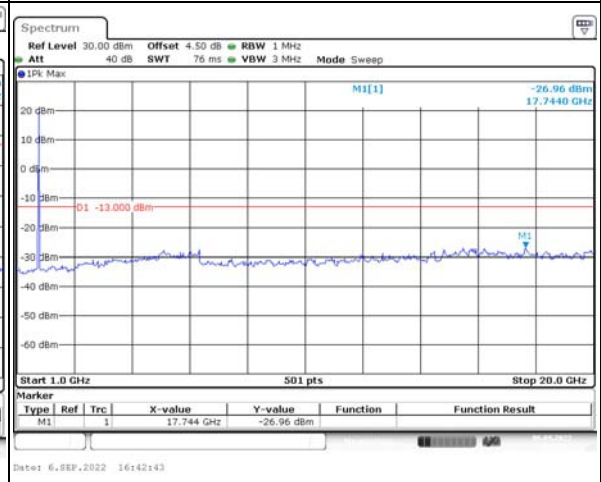
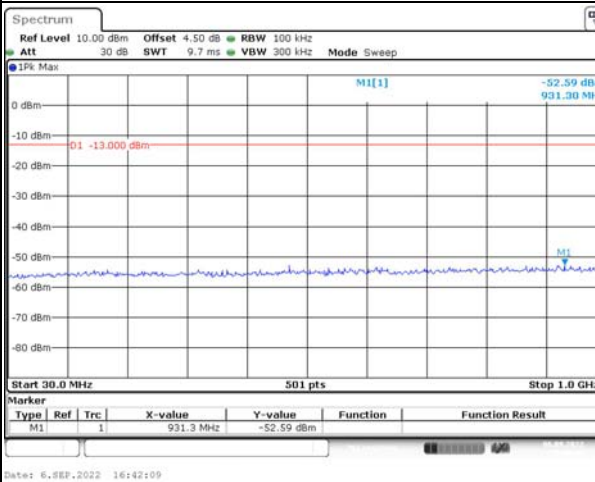
Channel

10MHz Bandwidth QPSK

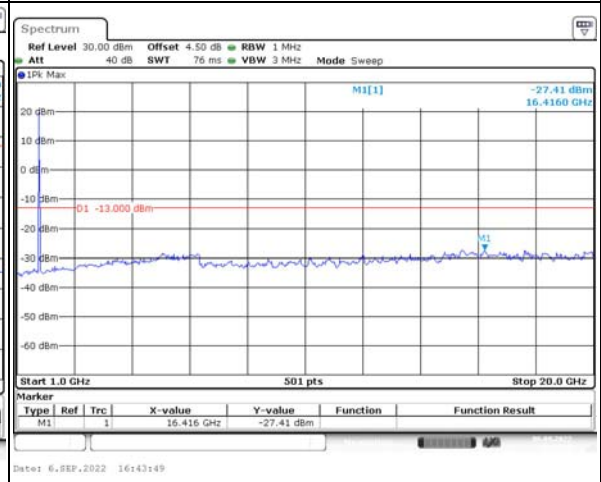
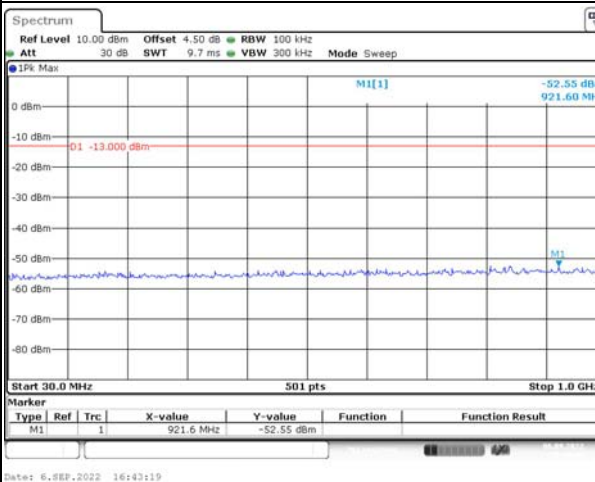
Lowest



Middle



Highest

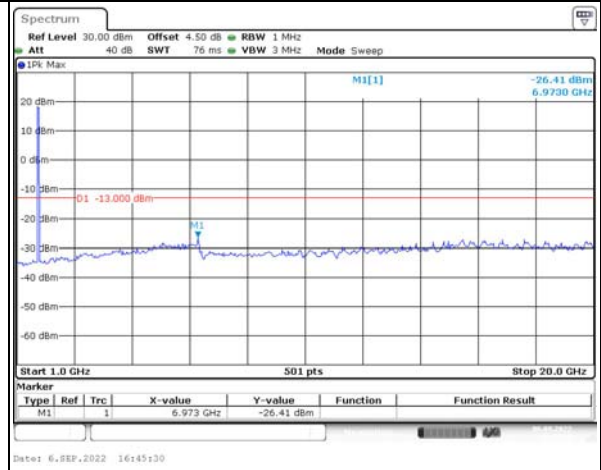
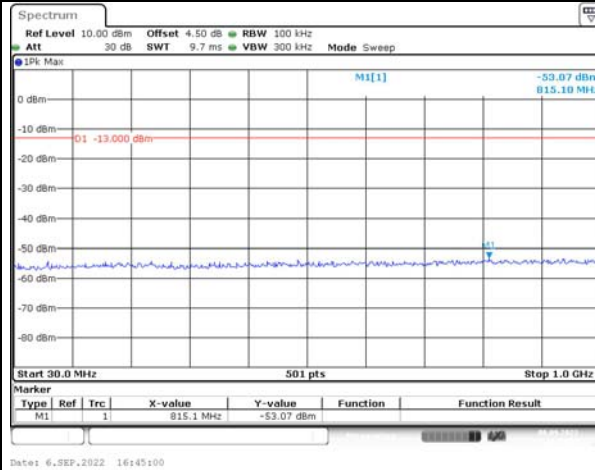


## Spurious Emissions at Antenna Terminal

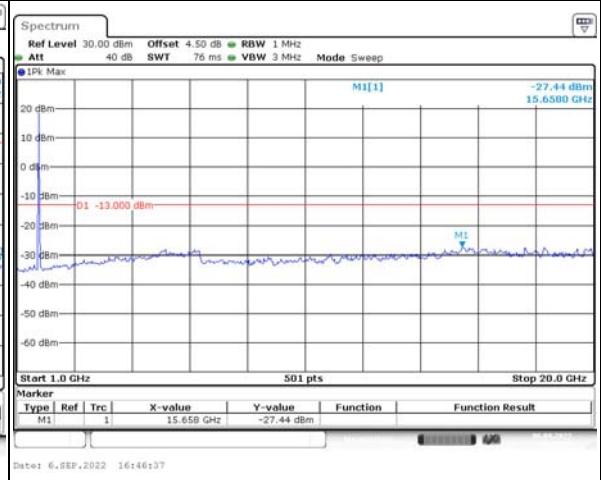
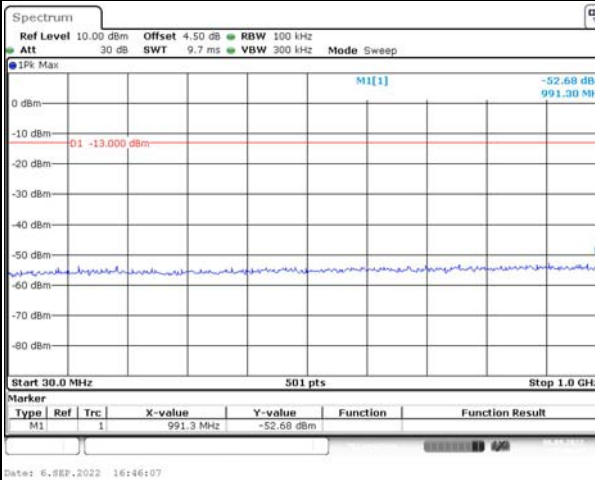
Channel

15MHz Bandwidth QPSK

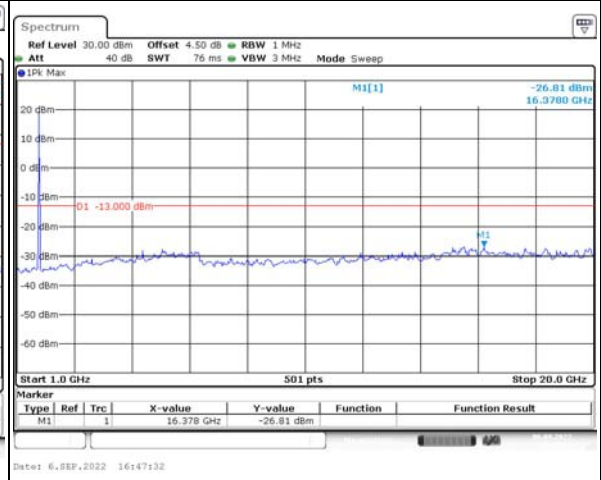
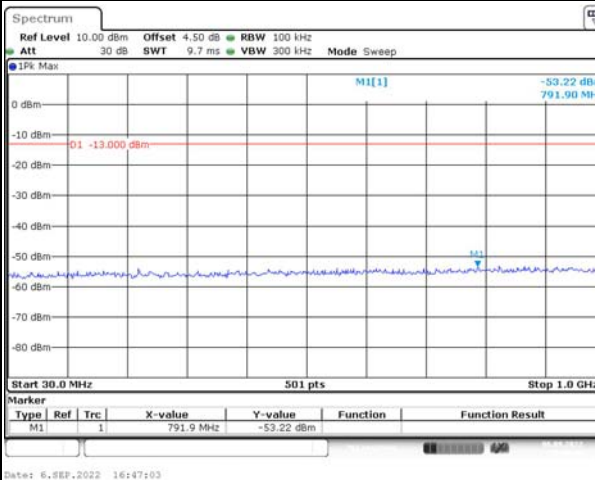
Lowest



Middle



Highest

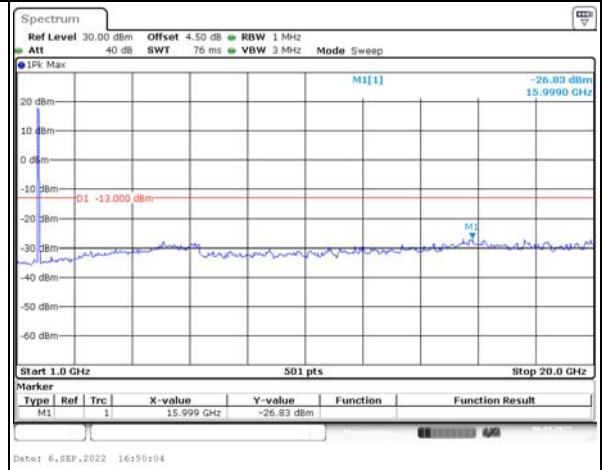
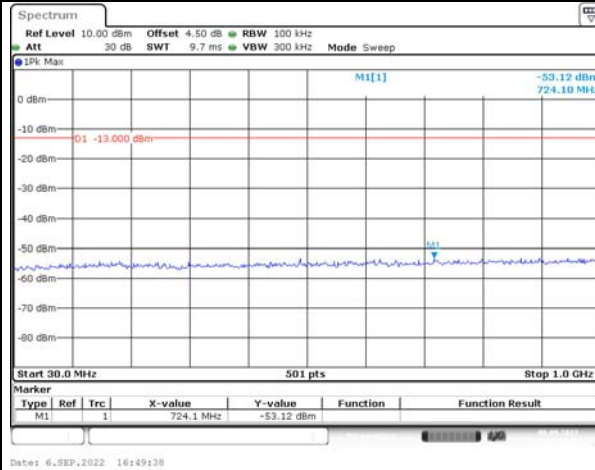


## Spurious Emissions at Antenna Terminal

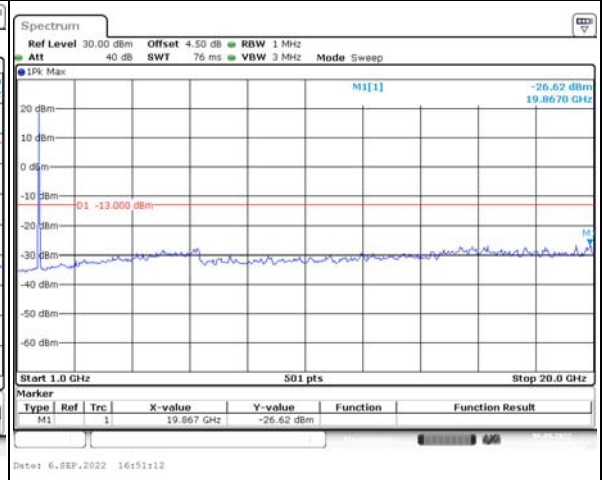
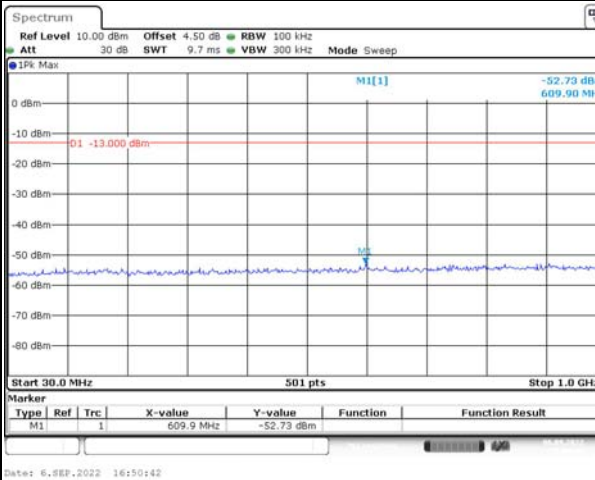
Channel

20MHz Bandwidth QPSK

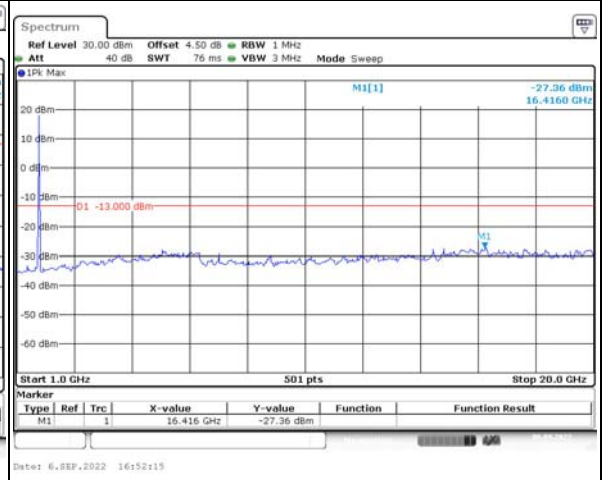
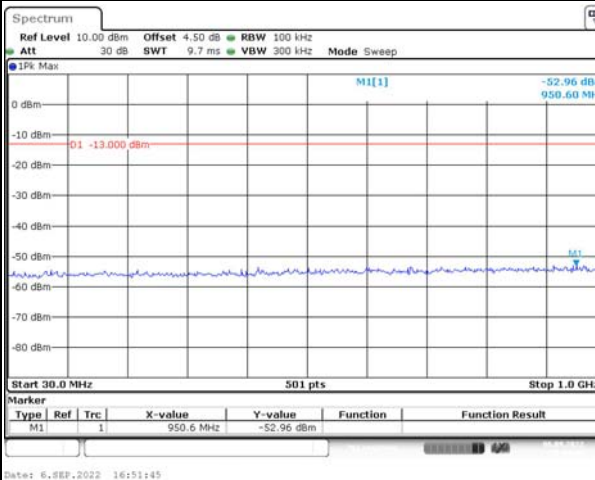
Lowest



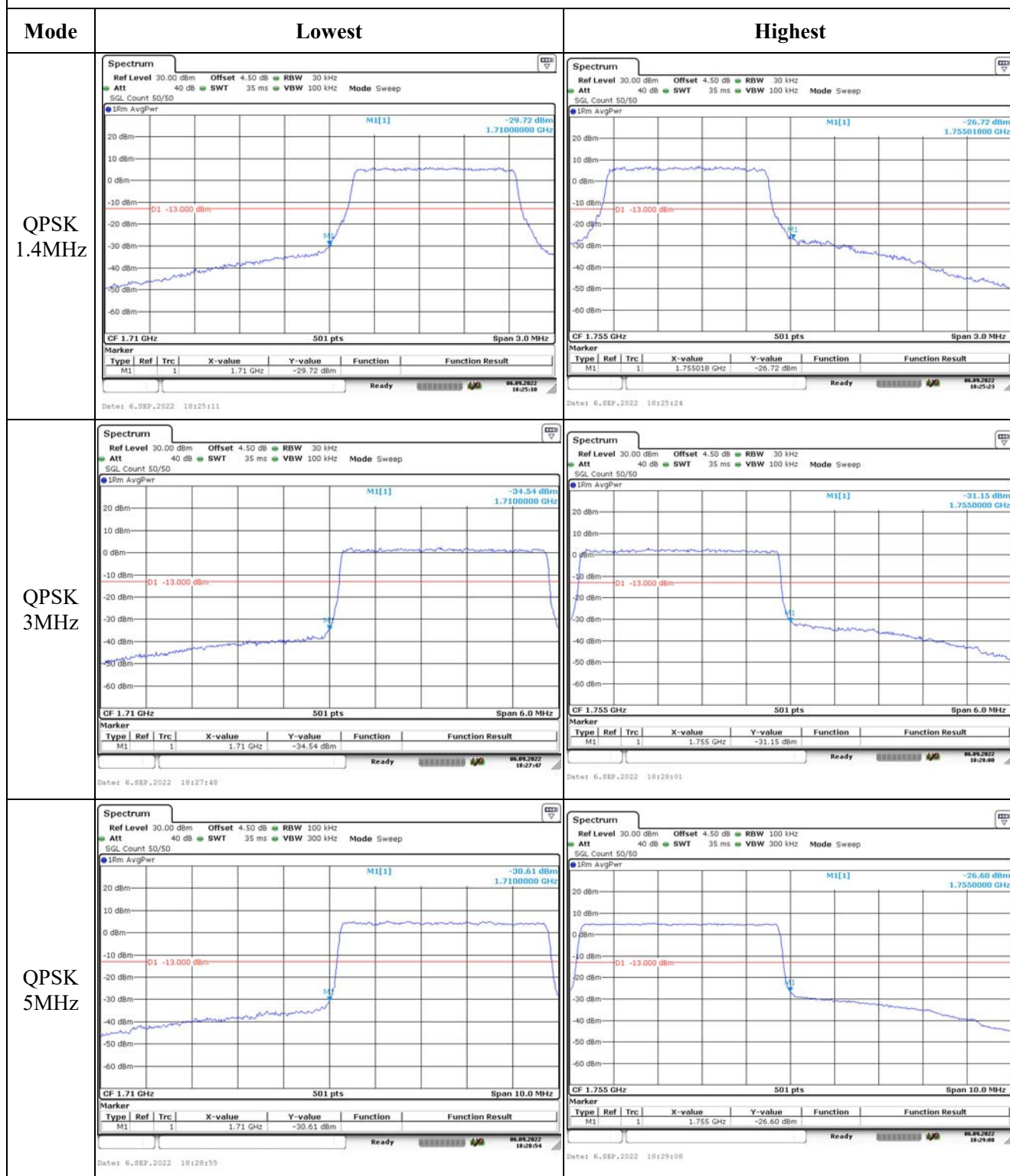
Middle



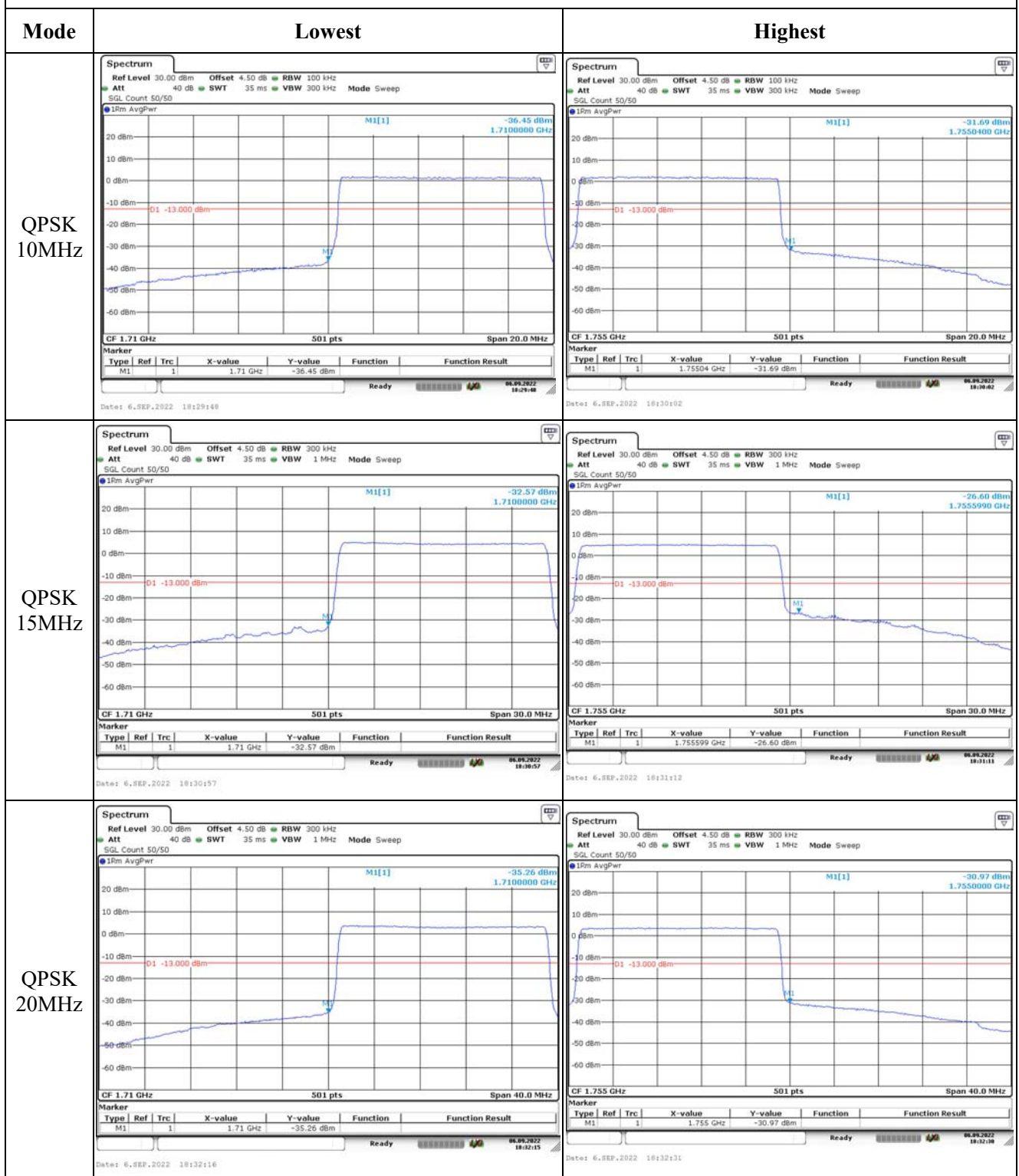
Highest



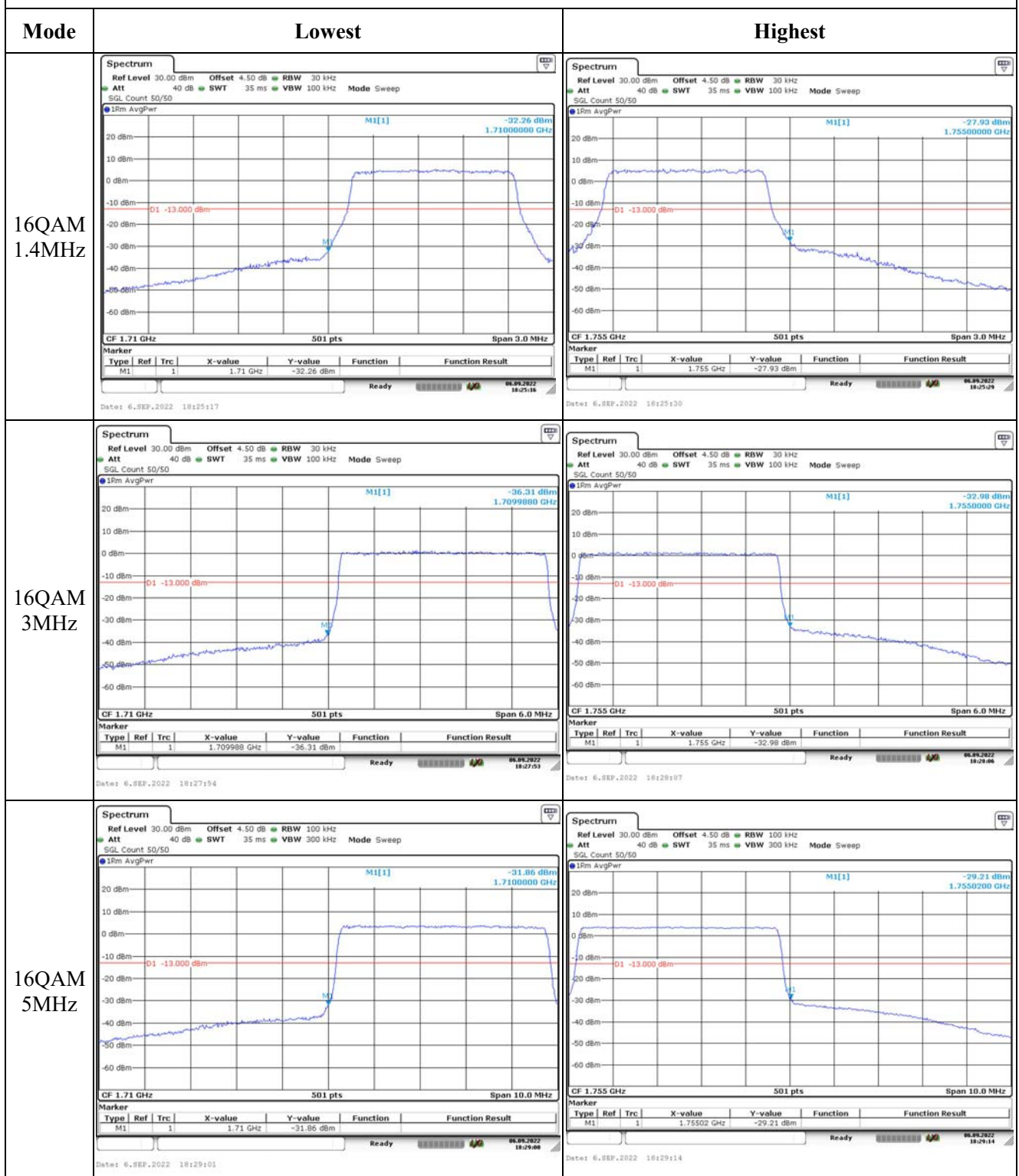
## Out of band emission, Band Edge



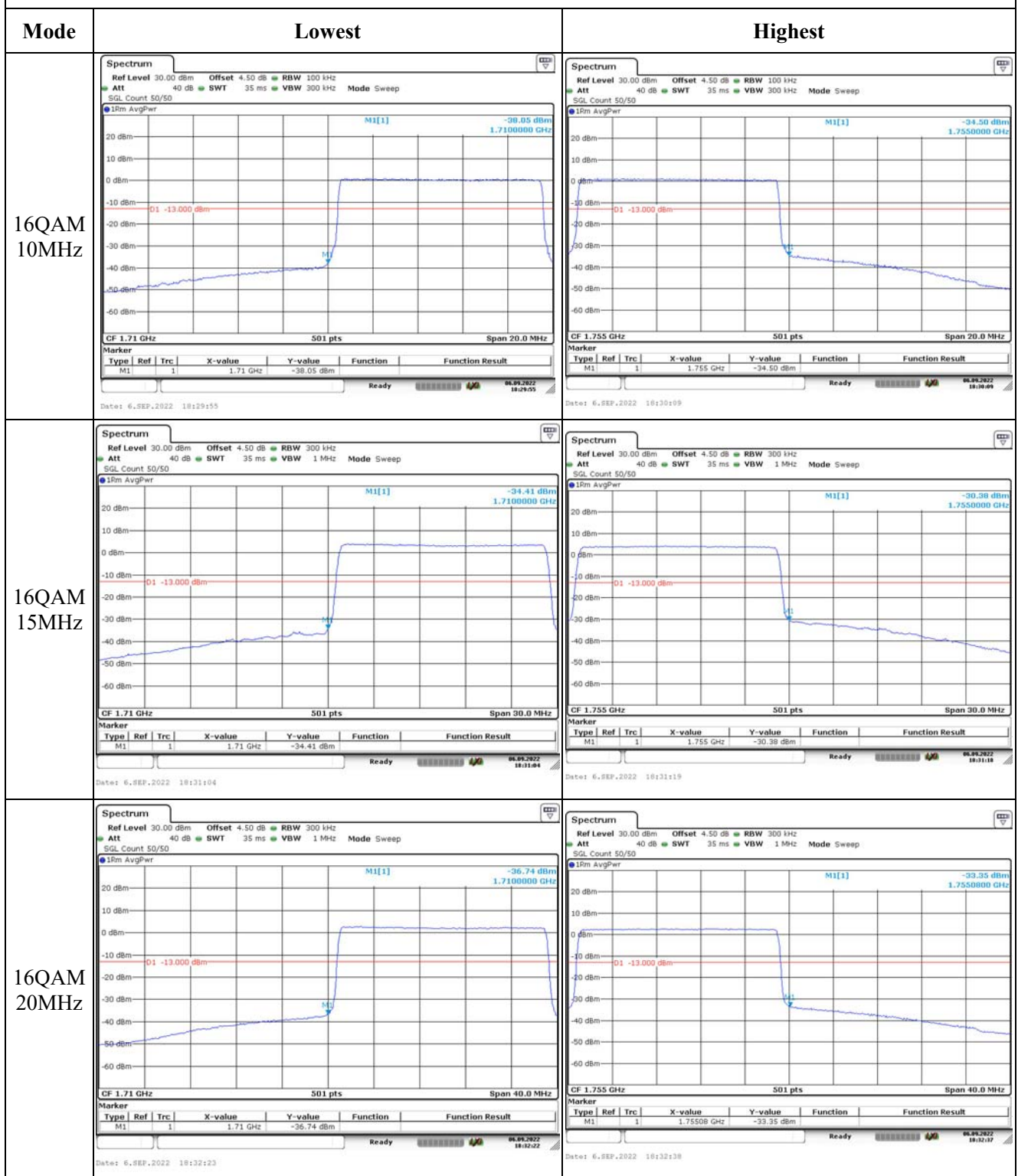
## Out of band emission, Band Edge



## Out of band emission, Band Edge



## Out of band emission, Band Edge



**4.8 Antenna Port Test Data and Results for LTE Band 5**

|                |                  |              |                       |
|----------------|------------------|--------------|-----------------------|
| Serial Number: | CR22090006-RF-S1 | Test Date:   | 2022-09-06~2022-09-07 |
| Test Site:     | RF               | Test Mode:   | Transmitting          |
| Tester:        | George Chan      | Test Result: | Pass                  |

**Environmental Conditions:**

|                      |           |                           |       |                        |             |
|----------------------|-----------|---------------------------|-------|------------------------|-------------|
| Temperature:<br>(°C) | 25.1~25.6 | Relative Humidity:<br>(%) | 52~58 | ATM Pressure:<br>(kPa) | 100.1~100.8 |
|----------------------|-----------|---------------------------|-------|------------------------|-------------|

**Test Equipment List and Details:**

| Manufacturer  | Description                         | Model      | Serial Number   | Calibration Date | Calibration Due Date |
|---------------|-------------------------------------|------------|-----------------|------------------|----------------------|
| R&S           | Spectrum Analyzer                   | FSV40      | 101474          | 2022-07-15       | 2023-07-14           |
| zhuoxiang     | Coaxial Cable                       | SMA-178    | 211002          | Each time        | N/A                  |
| Unknown       | Coaxial tee connector               | Unknown    | 2204006         | Each time        | N/A                  |
| Weinschel     | Coaxial Attenuators                 | 53-20-34   | LN751           | Each time        | N/A                  |
| YINSAIGE      | Coaxial Cable                       | SS402      | SJ0100004       | Each time        | N/A                  |
| Mini-Circuits | DC Block                            | BLK-18-S+  | 1554404         | Each time        | N/A                  |
| R&S           | Wideband Radio Communication Tester | CMW500     | 149218          | 2022-07-15       | 2023-07-14           |
| BACL          | TEMP&HUMI Test Chamber              | BTH-150-40 | 30174           | 2022-04-06       | 2023-04-05           |
| UNI-T         | Multimeter                          | UT39A+     | C210582554      | 2021-09-30       | 2022-09-29           |
| 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).

**EUT Information@ LTE Band 5▲:**

|                                 |      |                                 |       |                             |      |
|---------------------------------|------|---------------------------------|-------|-----------------------------|------|
| Antenna Gain<br>$G_T$<br>(dBi): | 0.36 | Antenna Gain<br>$G_T$<br>(dBd): | -1.79 | Path Loss<br>$L_C$<br>(dB): | 0.2  |
| Operation Voltage( $V_{DC}$ ):  |      |                                 |       |                             |      |
| Lowest:                         | 3.3  | Normal:                         | 3.87  | Highest:                    | 4.45 |

**Test Frequency For Each Mode:**

| Operation Bandwidth | Lowest Frequency (MHz) | Middle Frequency (MHz) | Highest Frequency (MHz) |
|---------------------|------------------------|------------------------|-------------------------|
| 1.4MHz              | 824.7                  | 836.5                  | 848.3                   |
| 3MHz                | 825.5                  | 836.5                  | 847.5                   |
| 5MHz                | 826.5                  | 836.5                  | 846.5                   |
| 10MHz               | 829                    | 836.5                  | 844                     |

**Test Data:****FCC§2.1046;§ 22.913 (a)****RF Output Power:**

| Test Bandwidth & Modulation | Resource Block & RB offset | Conducted Average Output Power(dBm) |                |                 | Maximum ERP (dBm) | ERP Limit (dBm) |
|-----------------------------|----------------------------|-------------------------------------|----------------|-----------------|-------------------|-----------------|
|                             |                            | Lowest Channel                      | Middle Channel | Highest Channel |                   |                 |
| 1.4MHz QPSK                 | RB1#0                      | 24.02                               | 23.87          | 23.86           | 22.18             | 38.45           |
|                             | RB1#3                      | 24.17                               | 24.08          | 24.07           |                   |                 |
|                             | RB1#5                      | 23.99                               | 23.9           | 23.9            |                   |                 |
|                             | RB3#0                      | 24.08                               | 23.94          | 23.97           |                   |                 |
|                             | RB3#3                      | 24.07                               | 23.99          | 23.95           |                   |                 |
|                             | RB6#0                      | 23.06                               | 23             | 23              |                   |                 |
| 1.4MHz 16QAM                | RB1#0                      | 23.07                               | 22.95          | 22.86           | 21.29             | 38.45           |
|                             | RB1#3                      | 23.28                               | 23.07          | 23.11           |                   |                 |
|                             | RB1#5                      | 23.08                               | 22.97          | 22.89           |                   |                 |
|                             | RB3#0                      | 22.99                               | 23.08          | 23.17           |                   |                 |
|                             | RB3#3                      | 23                                  | 23.07          | 23.12           |                   |                 |
|                             | RB6#0                      | 22.07                               | 21.92          | 22.01           |                   |                 |
| 3MHz QPSK                   | RB1#0                      | 24.19                               | 24.05          | 24.05           | 22.2              | 38.45           |
|                             | RB1#8                      | 24.12                               | 24.06          | 24.02           |                   |                 |
|                             | RB1#14                     | 24.11                               | 24.03          | 24.04           |                   |                 |
|                             | RB6#0                      | 23.12                               | 23.02          | 23.03           |                   |                 |
|                             | RB6#9                      | 23.05                               | 23.06          | 23.05           |                   |                 |
|                             | RB15#0                     | 23.13                               | 23.11          | 23.07           |                   |                 |
| 3MHz 16QAM                  | RB1#0                      | 23.63                               | 23.17          | 23.12           | 21.64             | 38.45           |
|                             | RB1#8                      | 23.53                               | 23.2           | 23.04           |                   |                 |
|                             | RB1#14                     | 23.59                               | 23.22          | 23.07           |                   |                 |
|                             | RB6#0                      | 22.14                               | 22.01          | 21.94           |                   |                 |
|                             | RB6#9                      | 22.12                               | 22.09          | 21.91           |                   |                 |
|                             | RB15#0                     | 22.11                               | 22.06          | 22.1            |                   |                 |
| 5MHz QPSK                   | RB1#0                      | 24.05                               | 23.98          | 23.91           | 22.2              | 38.45           |
|                             | RB1#13                     | 24.19                               | 24.06          | 24.02           |                   |                 |
|                             | RB1#24                     | 24.01                               | 23.97          | 23.94           |                   |                 |
|                             | RB15#0                     | 23.13                               | 23.09          | 23.12           |                   |                 |
|                             | RB15#10                    | 23.12                               | 23.08          | 23.07           |                   |                 |
|                             | RB25#0                     | 23.11                               | 23.08          | 23.04           |                   |                 |
| 5MHz 16QAM                  | RB1#0                      | 22.91                               | 23.27          | 23              | 21.36             | 38.45           |
|                             | RB1#13                     | 23.04                               | 23.35          | 23.08           |                   |                 |
|                             | RB1#24                     | 22.95                               | 23.22          | 23.04           |                   |                 |
|                             | RB15#0                     | 22.15                               | 22.04          | 22.11           |                   |                 |
|                             | RB15#10                    | 22.16                               | 22.07          | 22.09           |                   |                 |
|                             | RB25#0                     | 22.15                               | 22.09          | 22.07           |                   |                 |
| 10MHz QPSK                  | RB1#0                      | 24.08                               | 24.03          | 23.97           | 22.19             | 38.45           |
|                             | RB1#25                     | 24.18                               | 24.14          | 24.12           |                   |                 |
|                             | RB1#49                     | 24.04                               | 24.01          | 24.03           |                   |                 |

|             |         |       |       |       |       |       |
|-------------|---------|-------|-------|-------|-------|-------|
| 10MHz 16QAM | RB25#0  | 23.09 | 23.12 | 23.05 | 21.78 | 38.45 |
|             | RB25#25 | 23.17 | 23.13 | 23.03 |       |       |
|             | RB50#0  | 23.13 | 23.09 | 23.09 |       |       |
|             | RB1#0   | 23.54 | 23.19 | 23.02 |       |       |
|             | RB1#25  | 23.77 | 23.35 | 23.14 |       |       |
|             | RB1#49  | 23.61 | 23.21 | 23.01 |       |       |
|             | RB25#0  | 22.11 | 22.09 | 22.17 |       |       |
|             | RB25#25 | 22.18 | 22.1  | 22.12 |       |       |
|             | RB50#0  | 22.06 | 22.1  | 22.08 |       |       |

Note: ERP= Conducted Power(dBm) - L<sub>c</sub>(dB) + G<sub>T</sub>(dBd)

**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 |             |
| 10MHz QPSK                  | RB1#0                      | 4                         | 4.49           | 3.94            | 13          |
|                             | RB50#0                     | 4.99                      | 4.78           | 5.07            | 13          |
| 10MHz 16QAM                 | RB1#0                      | 4.75                      | 5.36           | 4.84            | 13          |
|                             | RB50#0                     | 6.14                      | 5.74           | 6.03            | 13          |
| <b>Result:</b>              |                            |                           |                |                 | <b>Pass</b> |

#### FCC §2.1049, §22.905: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                        | 1.102          | 1.096        | 1.308                          | 1.296          | 1.302        |
| 1.4MHz 16QAM   | 1.09                         | 1.102          | 1.102        | 1.284                          | 1.29           | 1.32         |
| 3MHz QPSK      | 2.683                        | 2.683          | 2.683        | 2.88                           | 2.892          | 2.868        |
| 3MHz 16QAM     | 2.683                        | 2.683          | 2.683        | 2.928                          | 2.88           | 2.892        |
| 5MHz QPSK      | 4.511                        | 4.491          | 4.511        | 4.98                           | 4.92           | 4.92         |
| 5MHz 16QAM     | 4.531                        | 4.531          | 4.491        | 4.94                           | 4.96           | 4.94         |
| 10MHz QPSK     | 8.942                        | 8.942          | 8.942        | 9.68                           | 9.84           | 9.6          |
| 10MHz 16QAM    | 8.942                        | 8.942          | 8.942        | 9.64                           | 9.6            | 9.6          |

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

#### FCC §2.1051, §22.917(a):Spurious Emissions at Antenna Terminal

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

#### FCC §2.1051, §22.917(a):Out of band emission, Band Edge

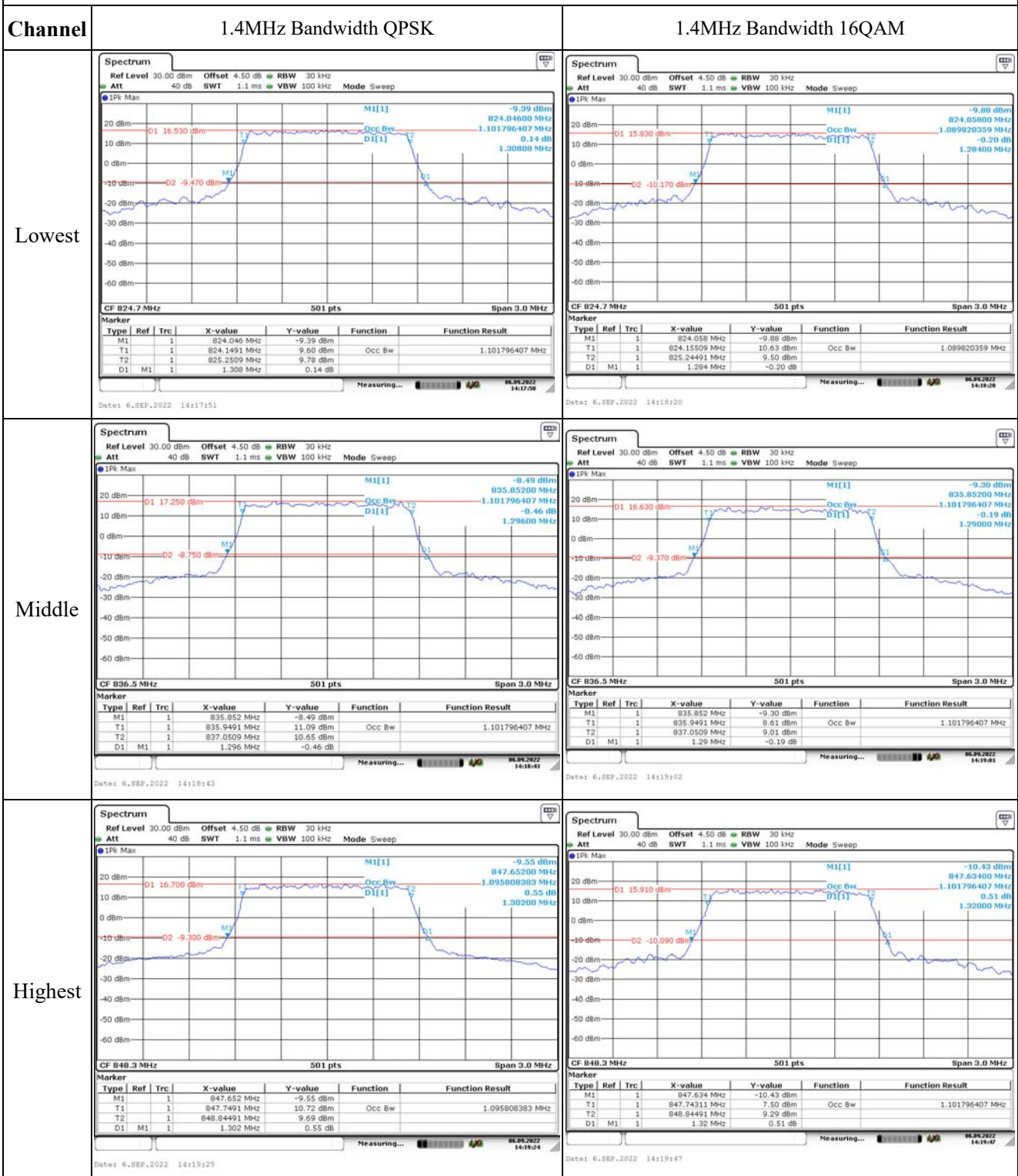
|                |                                                                          |
|----------------|--------------------------------------------------------------------------|
| <b>Result:</b> | Pass, Please refer to the test plots of Out of band emission, Band Edge. |
|----------------|----------------------------------------------------------------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

| FCC §2.1055, §22.355: Frequency Stability |                     |                               |                 |                |             |
|-------------------------------------------|---------------------|-------------------------------|-----------------|----------------|-------------|
| Test Mode:                                | 10 MHz QPSK         |                               | Test Channel:   | 836.5          | MHz         |
| Test Item                                 | Temperature<br>(°C) | Voltage<br>(V <sub>DC</sub> ) | Frequency Error |                | Limit       |
|                                           |                     |                               | (Hz)            | (ppm)          | (ppm)       |
| Frequency Stability vs. Temperature       | -30                 | 3.87                          | -8.18           | -0.010         | 2.5         |
|                                           | -20                 | 3.87                          | -6.97           | -0.008         | 2.5         |
|                                           | -10                 | 3.87                          | -5.5            | -0.007         | 2.5         |
|                                           | 0                   | 3.87                          | 6.06            | 0.007          | 2.5         |
|                                           | 10                  | 3.87                          | 9.8             | 0.012          | 2.5         |
|                                           | 20                  | 3.87                          | 5.03            | 0.006          | 2.5         |
|                                           | 30                  | 3.87                          | -6.62           | -0.008         | 2.5         |
|                                           | 40                  | 3.87                          | -8.73           | -0.010         | 2.5         |
|                                           | 50                  | 3.87                          | -7.05           | -0.008         | 2.5         |
| Frequency Stability vs. Voltage           | 20                  | 3.3                           | 8.99            | 0.011          | 2.5         |
|                                           | 20                  | 4.45                          | -7.17           | -0.009         | 2.5         |
|                                           |                     |                               |                 | <b>Result:</b> | <b>Pass</b> |

| Test Mode:                          | 10 MHz 16QAM        |                               | Test Channel:   | 836.5          | MHz         |
|-------------------------------------|---------------------|-------------------------------|-----------------|----------------|-------------|
| Test Item                           | Temperature<br>(°C) | Voltage<br>(V <sub>DC</sub> ) | Frequency Error |                | Limit       |
|                                     |                     |                               | (Hz)            | (ppm)          | (ppm)       |
| Frequency Stability vs. Temperature | -30                 | 3.87                          | -11.13          | -0.013         | 2.5         |
|                                     | -20                 | 3.87                          | 8.1             | 0.010          | 2.5         |
|                                     | -10                 | 3.87                          | -8.59           | -0.010         | 2.5         |
|                                     | 0                   | 3.87                          | 9.33            | 0.011          | 2.5         |
|                                     | 10                  | 3.87                          | -6.94           | -0.008         | 2.5         |
|                                     | 20                  | 3.87                          | 7.54            | 0.009          | 2.5         |
|                                     | 30                  | 3.87                          | 6.43            | 0.008          | 2.5         |
|                                     | 40                  | 3.87                          | -6.17           | -0.007         | 2.5         |
|                                     | 50                  | 3.87                          | -6.44           | -0.008         | 2.5         |
| Frequency Stability vs. Voltage     | 20                  | 3.3                           | 6.34            | 0.008          | 2.5         |
|                                     | 20                  | 4.45                          | -6.89           | -0.008         | 2.5         |
|                                     |                     |                               |                 | <b>Result:</b> | <b>Pass</b> |

## Test Plots:

## Occupied Bandwidth



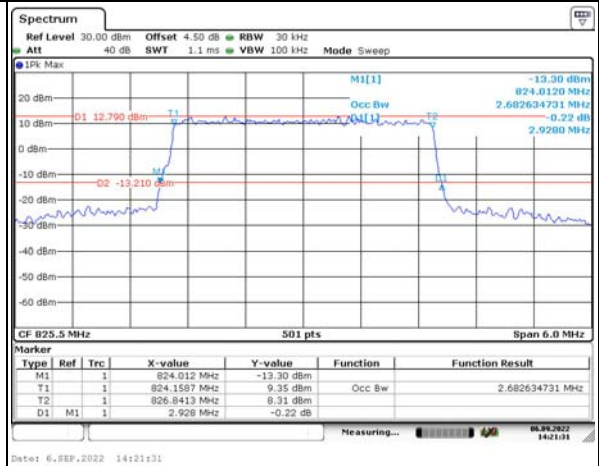
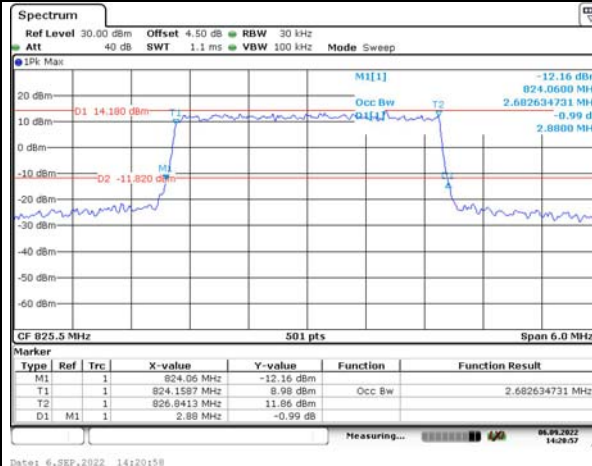
## Occupied Bandwidth

Channel

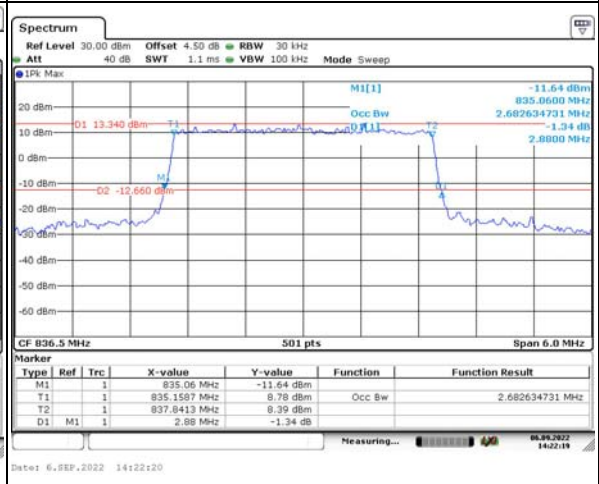
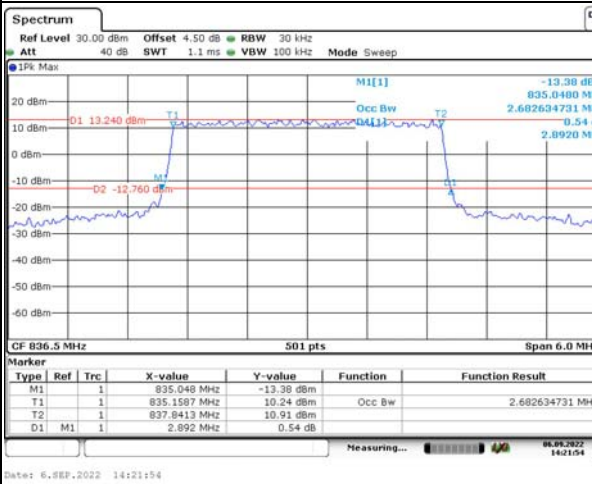
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

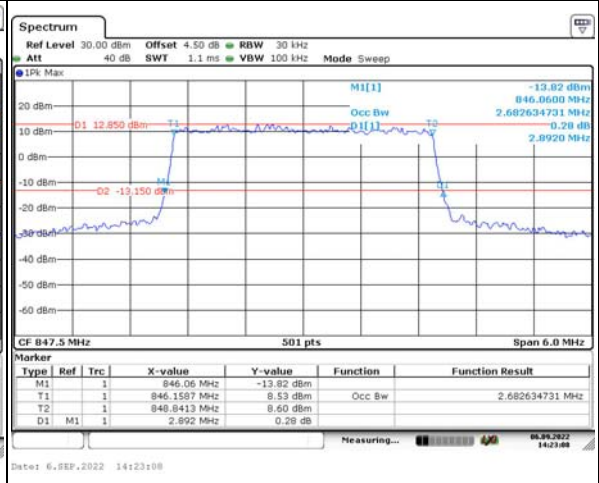
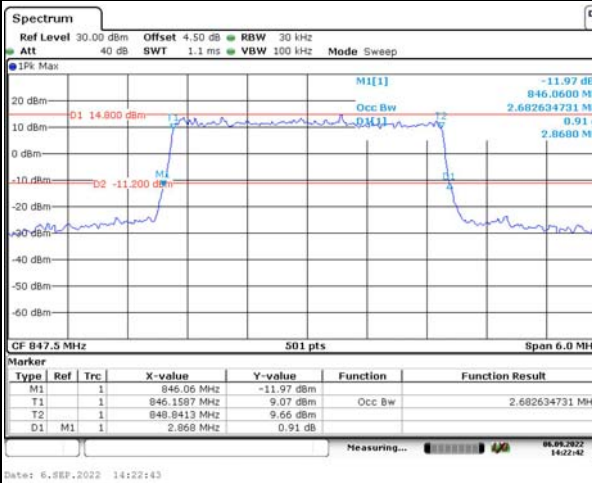
Lowest



Middle



Highest



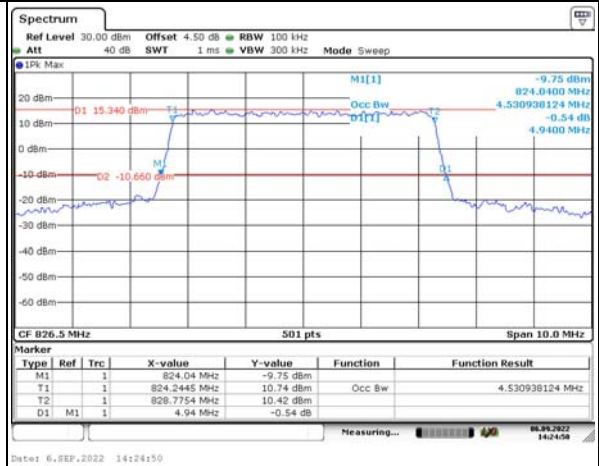
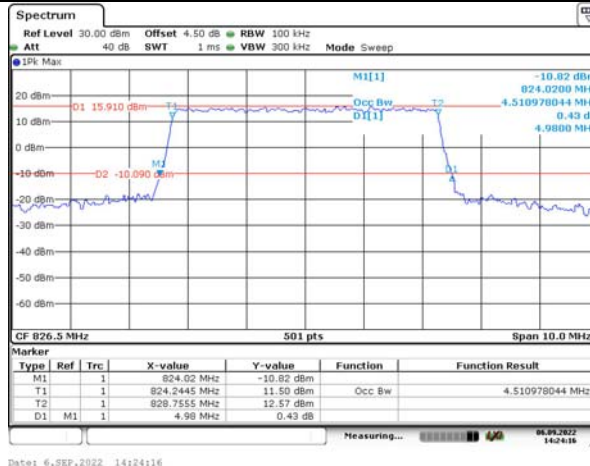
## Occupied Bandwidth

## Channel

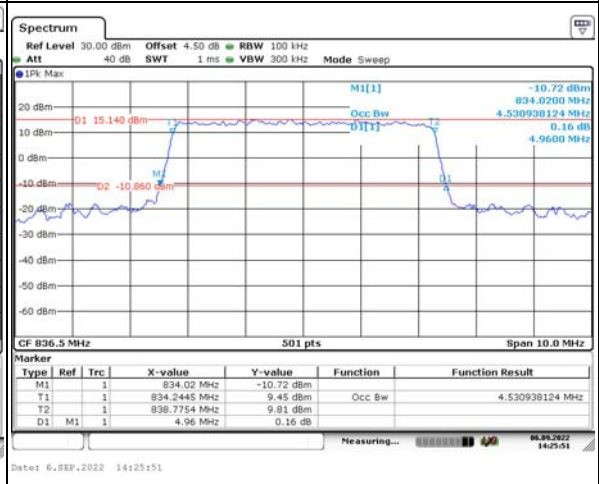
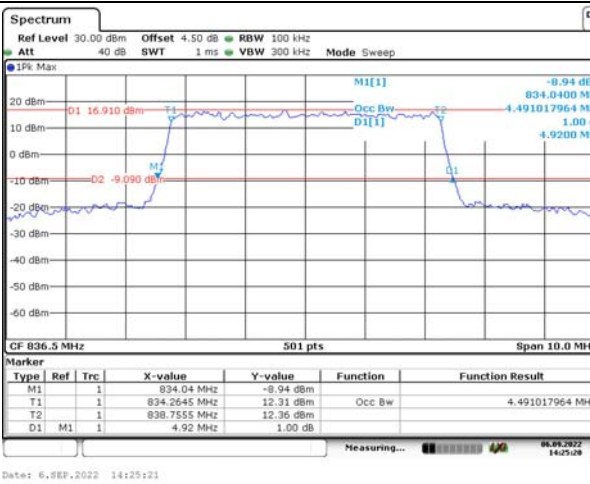
## 5MHz Bandwidth QPSK

## 5MHz Bandwidth 16QAM

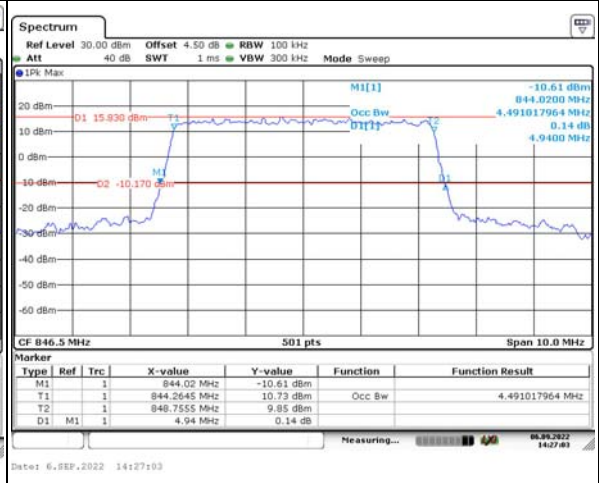
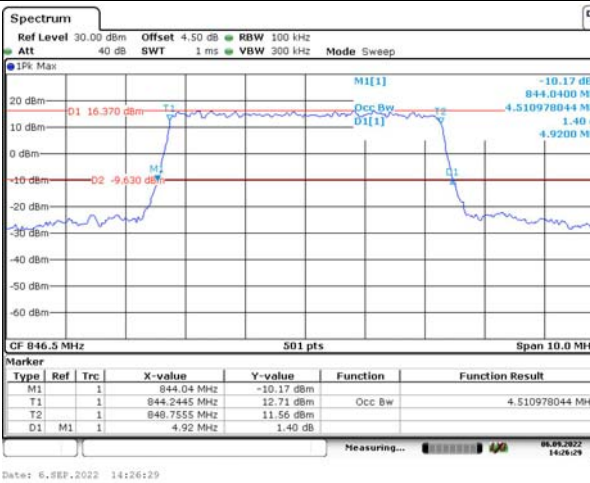
## Lowest



## Middle



## Highest



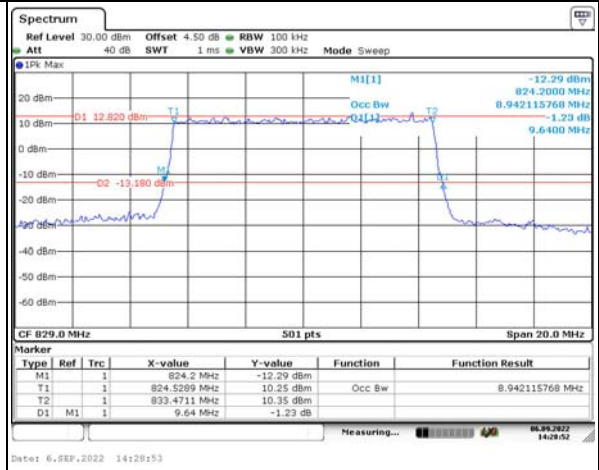
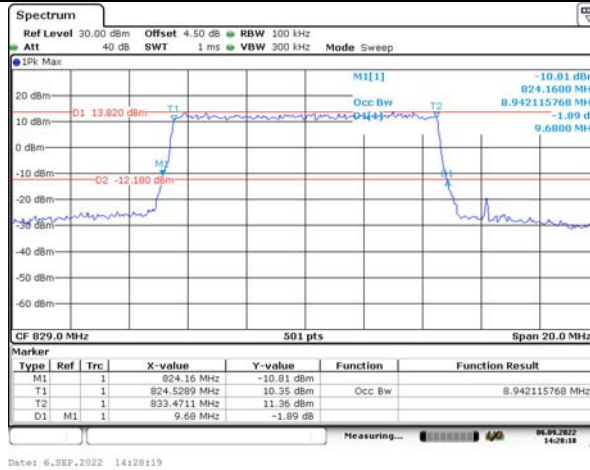
## Occupied Bandwidth

Channel

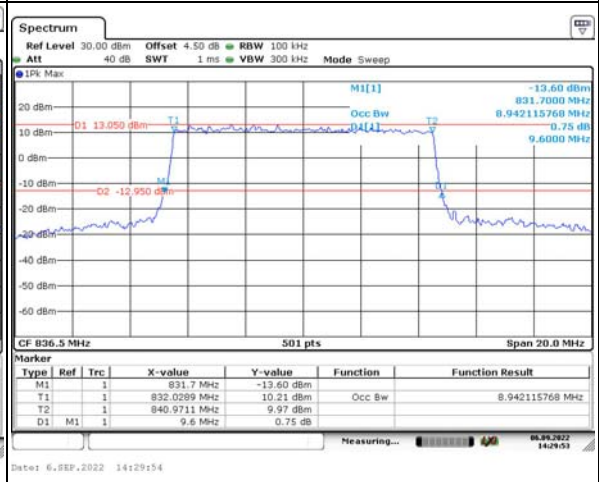
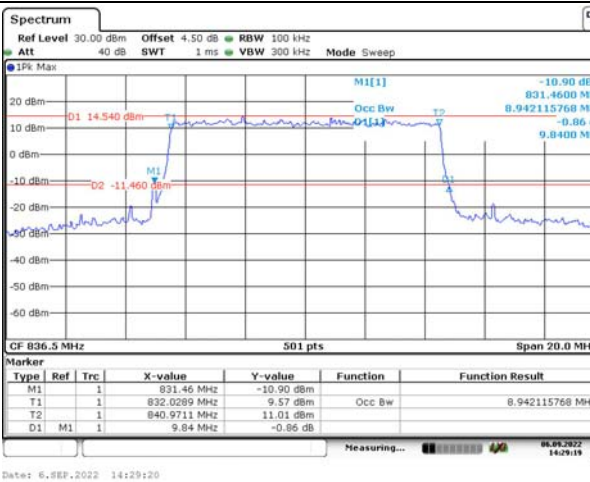
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

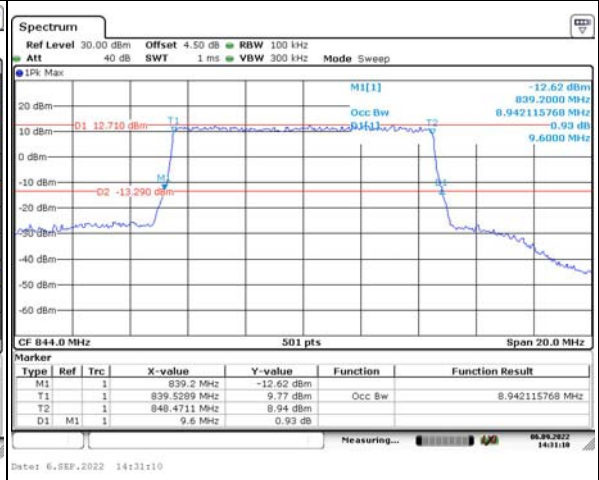
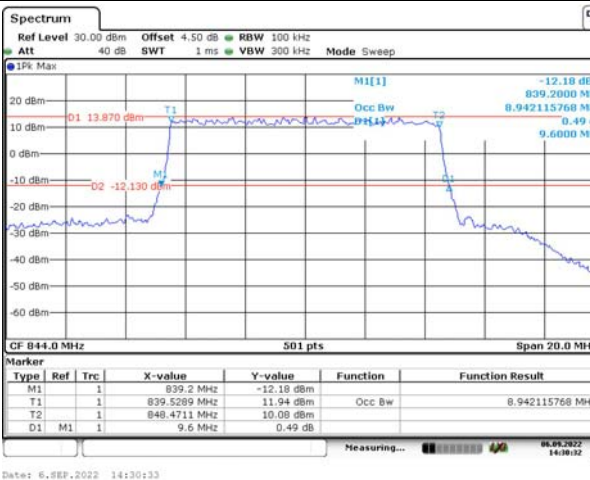
Lowest



Middle



Highest

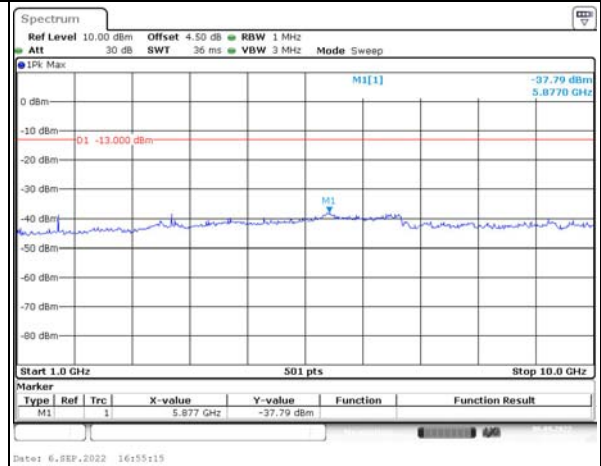
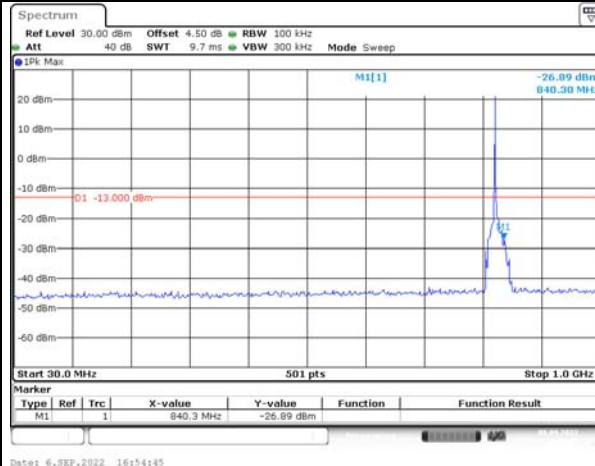


## Spurious Emissions at Antenna Terminal

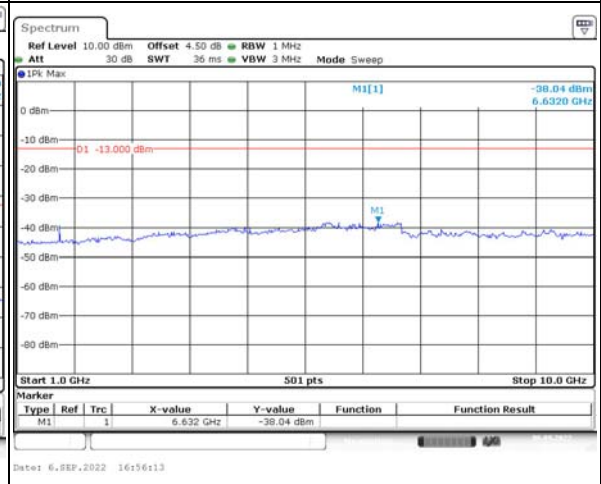
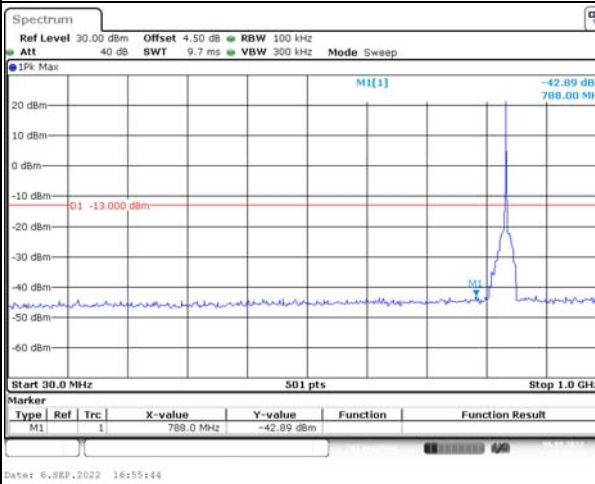
Channel

1.4MHz Bandwidth QPSK

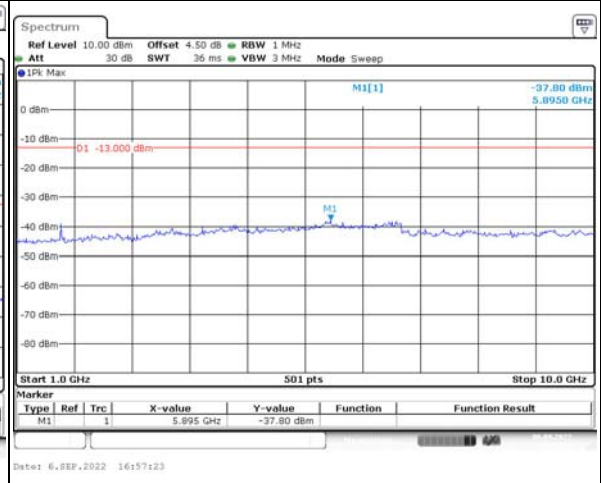
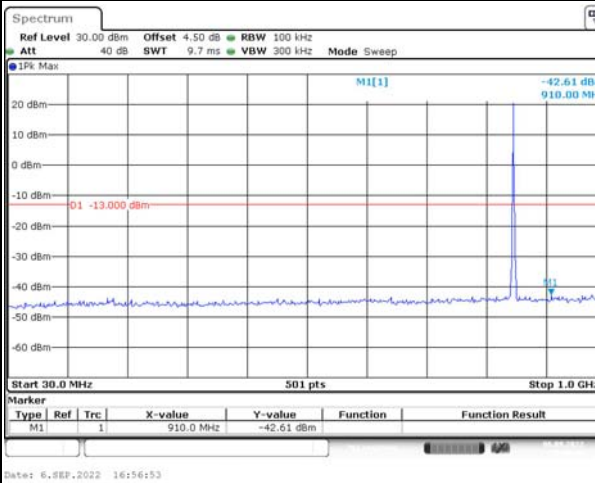
Lowest



Middle



Highest

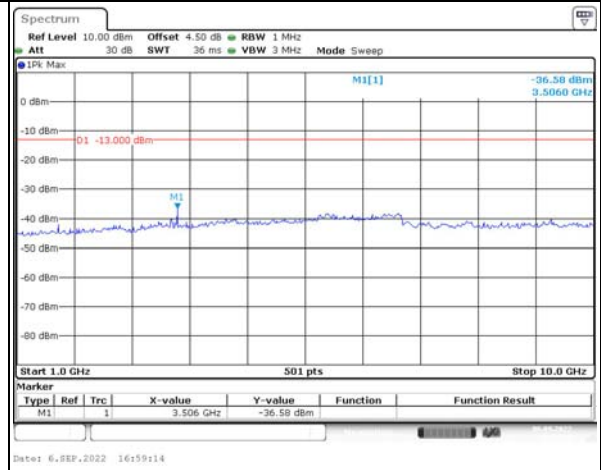
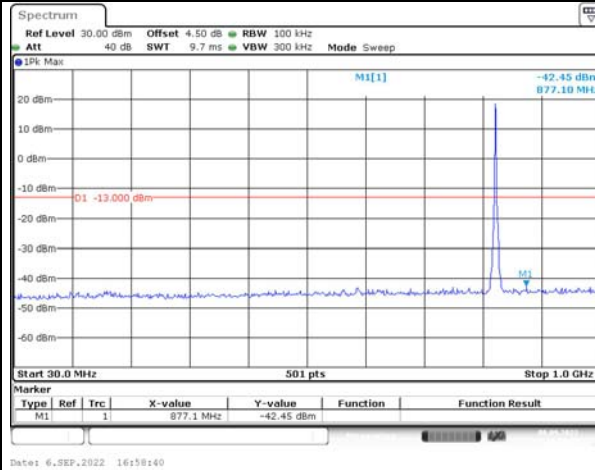


## Spurious Emissions at Antenna Terminal

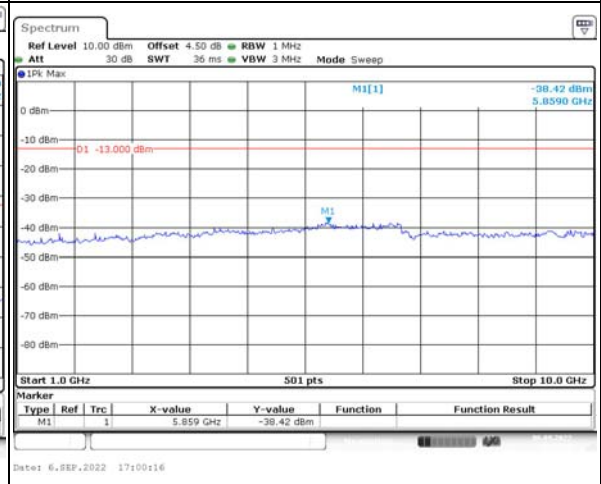
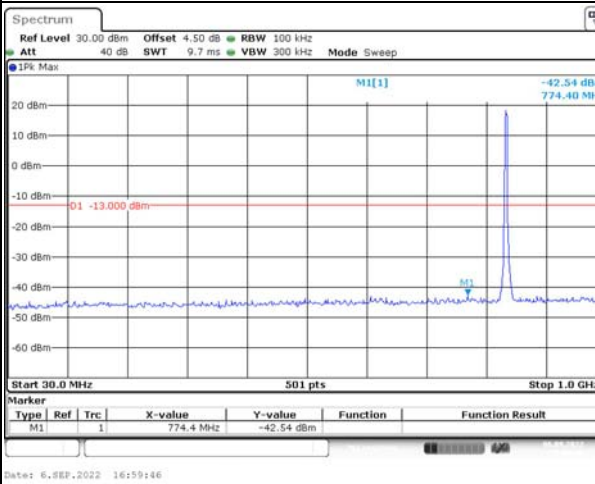
Channel

3MHz Bandwidth QPSK

Lowest



Middle



Highest

