

**4.6 Antenna Port Test Data and Results for WCDMA Band 5:**

|                |         |              |                       |
|----------------|---------|--------------|-----------------------|
| Serial Number: | 291M-2  | Test Date:   | 2023/08/04~2023/08/05 |
| Test Site:     | RF      | Test Mode:   | Transmitting          |
| Tester:        | One Luo | Test Result: | <b>Pass</b>           |

**Environmental Conditions:**

|                      |           |                           |       |                        |            |
|----------------------|-----------|---------------------------|-------|------------------------|------------|
| Temperature:<br>(°C) | 24.2~26.5 | Relative Humidity:<br>(%) | 42~58 | ATM Pressure:<br>(kPa) | 99.7~102.2 |
|----------------------|-----------|---------------------------|-------|------------------------|------------|

**Test Equipment List and Details:**

| Manufacturer  | Description                         | Model      | Serial Number   | Calibration Date | Calibration Due Date |
|---------------|-------------------------------------|------------|-----------------|------------------|----------------------|
| R&S           | Spectrum Analyzer                   | FSV40      | 101474          | 2023/07/15       | 2024/07/14           |
| zhuoxiang     | Coaxial Cable                       | SMA-178    | 211001          | Each time        | N/A                  |
| YINSAIGE      | Coaxial Cable                       | SS402      | SJ0100001       | Each time        | N/A                  |
| Mini-Circuits | DC Block                            | BLK-18-S+  | 1554403         | Each time        | N/A                  |
| Unknow        | Coaxial tee connector               | Unknow     | 2204004         | Each time        | N/A                  |
| R&S           | Wideband Radio Communication Tester | CMW500     | 149218          | 2023/07/15       | 2024/07/14           |
| BACL          | TEMP&HUMI Test Chamber              | BTH-150-40 | 30174           | 2022/09/29       | 2023/09/28           |
| 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:**

| Operation Modes | Lowest Frequency (MHz) | Middle Frequency (MHz) | Highest Frequency (MHz) |
|-----------------|------------------------|------------------------|-------------------------|
| WCDMA           | 826.4                  | 836.6                  | 846.6                   |

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

| Test Mode                                                                                                            | Conducted Average Output Power(dBm) |                |                 | Maximum ERP (dBm) | ERP Limit (dBm) |
|----------------------------------------------------------------------------------------------------------------------|-------------------------------------|----------------|-----------------|-------------------|-----------------|
|                                                                                                                      | Lowest Channel                      | Middle Channel | Highest Channel |                   |                 |
| WCDMA R99                                                                                                            | 22.58                               | 22.89          | 23.15           | 14.93             | 38.45           |
| HSDPA Subtest 1                                                                                                      | 22.45                               | 22.79          | 22.95           | 14.73             | 38.45           |
| HSDPA Subtest 2                                                                                                      | 22.28                               | 22.74          | 22.3            | 14.52             | 38.45           |
| HSDPA Subtest 3                                                                                                      | 22.23                               | 22.25          | 22.24           | 14.03             | 38.45           |
| HSDPA Subtest 4                                                                                                      | 22.2                                | 22.54          | 22.4            | 14.32             | 38.45           |
| HSUPA Subtest 1                                                                                                      | 22.27                               | 22.69          | 22.46           | 14.47             | 38.45           |
| HSUPA Subtest 2                                                                                                      | 22.2                                | 22.25          | 22.22           | 14.03             | 38.45           |
| HSUPA Subtest 3                                                                                                      | 22.05                               | 22.59          | 22.49           | 14.37             | 38.45           |
| HSUPA Subtest 4                                                                                                      | 21.92                               | 22.18          | 22.11           | 13.96             | 38.45           |
| HSUPA Subtest 5                                                                                                      | 21.74                               | 22.2           | 22.32           | 14.1              | 38.45           |
| DC-HSDPA Subtest 1                                                                                                   | 21.77                               | 21.86          | 22.15           | 13.93             | 38.45           |
| DC-HSDPA Subtest 2                                                                                                   | 21.76                               | 22.17          | 21.83           | 13.95             | 38.45           |
| DC-HSDPA Subtest 3                                                                                                   | 21.68                               | 22.02          | 22.1            | 13.88             | 38.45           |
| DC-HSDPA Subtest 4                                                                                                   | 21.54                               | 22.04          | 21.95           | 13.82             | 38.45           |
| HSPA+ Subtest 1                                                                                                      | 21.4                                | 21.66          | 21.78           | 13.56             | 38.45           |
| Note:<br>ERP= Conducted Power(dBm) - Lc(dB) + G <sub>T</sub> (dBd)<br>G <sub>T</sub> (dBd)=G <sub>T</sub> (dBi)-2.15 |                                     |                |                 |                   |                 |
|                                                                                                                      |                                     |                |                 | <b>Result:</b>    | <b>Pass</b>     |

**Peak-to-average Ratio(PAR)**

| Test Mode | Peak-to-average Ratio(dB) |                |                 | Limit (dB)   |
|-----------|---------------------------|----------------|-----------------|--------------|
|           | Lowest Channel            | Middle Channel | Highest Channel |              |
| WCDMA R99 | 3.54                      | 3.01           | 3.13            | 13           |
| HSDPA     | 4.61                      | 5.1            | 4.72            | 13           |
| HSUPA     | 5.83                      | 5.16           | 5.65            | 13           |
|           |                           |                |                 | Result: Pass |

**FCC §2.1049, §22.917, §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 |
| WCDMA R99                                                            | 4.124                        | 4.124          | 4.139        | 4.732                          | 4.761          | 4.747        |
| HSDPA                                                                | 4.182                        | 4.211          | 4.197        | 6.194                          | 6.078          | 5.311        |
| HSUPA                                                                | 4.24                         | 4.255          | 4.255        | 6.223                          | 6.382          | 6.281        |
| 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> | <b>Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.</b> |
|----------------|----------------------------------------------------------------------------------------|

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

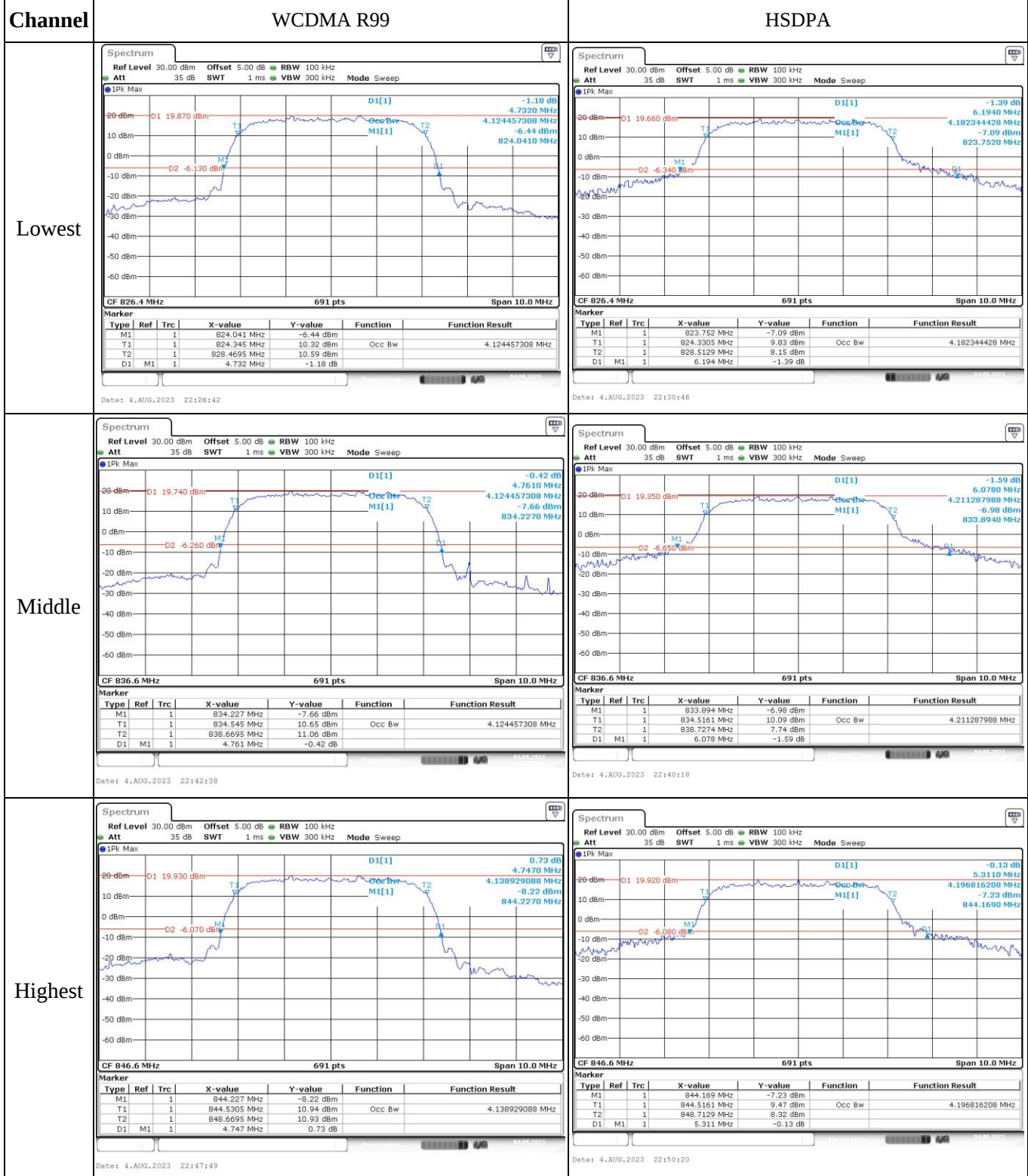
|                |                                                                                 |
|----------------|---------------------------------------------------------------------------------|
| <b>Result:</b> | <b>Pass, Please refer to the test plots of Out of band emission, Band Edge.</b>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

**FCC §2.1055, §22.355: Frequency Stability**

| Test Modulation:                    | WCDMA R99        |                            | Test Channel:   | 836.6       | MHz   |
|-------------------------------------|------------------|----------------------------|-----------------|-------------|-------|
| Test Item                           | Temperature (°C) | Voltage (V <sub>DC</sub> ) | Frequency Error |             | Limit |
|                                     |                  |                            | (Hz)            | (ppm)       | (ppm) |
| Frequency Stability vs. Temperature | -30              | 3.8                        | -3.25           | -0.004      | 2.5   |
|                                     | -20              | 3.8                        | -6.65           | -0.008      | 2.5   |
|                                     | -10              | 3.8                        | 9.78            | 0.012       | 2.5   |
|                                     | 0                | 3.8                        | -7.66           | -0.009      | 2.5   |
|                                     | 10               | 3.8                        | -9.94           | -0.012      | 2.5   |
|                                     | 20               | 3.8                        | -9.82           | -0.012      | 2.5   |
|                                     | 30               | 3.8                        | -6.64           | -0.008      | 2.5   |
|                                     | 40               | 3.8                        | -8.85           | -0.011      | 2.5   |
|                                     | 50               | 3.8                        | 5.64            | 0.007       | 2.5   |
| Frequency Stability vs. Voltage     | 20               | 3.55                       | 6.06            | 0.007       | 2.5   |
|                                     | 20               | 4.35                       | 7.59            | 0.009       | 2.5   |
| <b>Result:</b>                      |                  |                            |                 | <b>Pass</b> |       |

**Test Plots**(Note: The 5.0dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer):

### Occupied Bandwidth

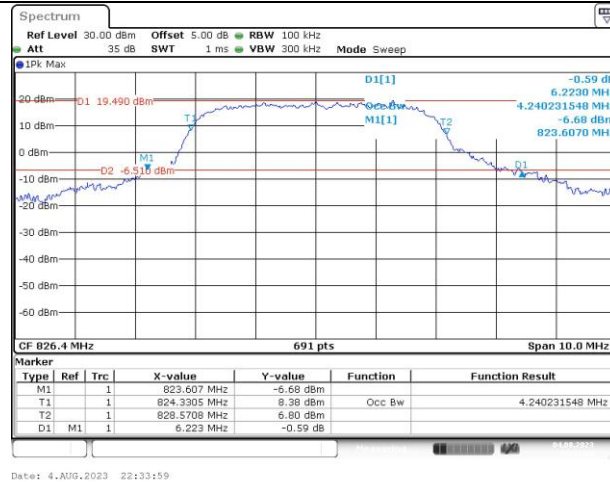


## Occupied Bandwidth

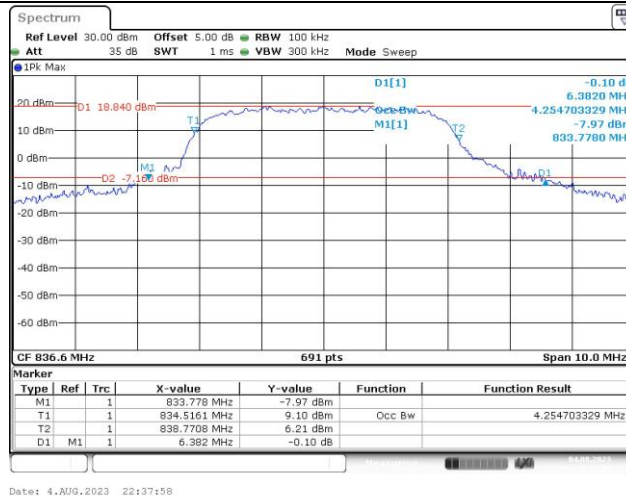
Channel

HSUPA

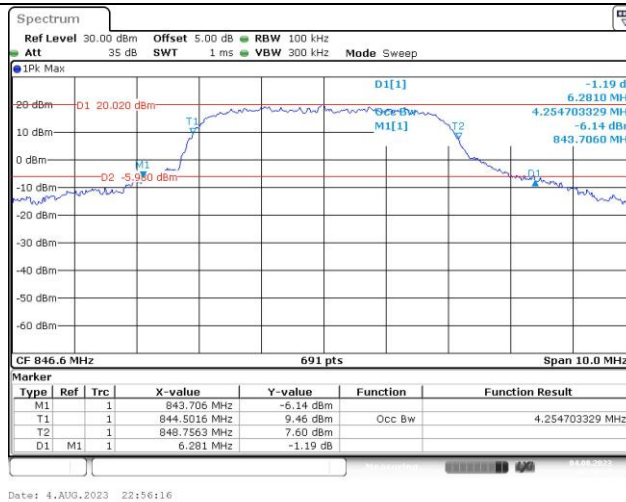
Lowest



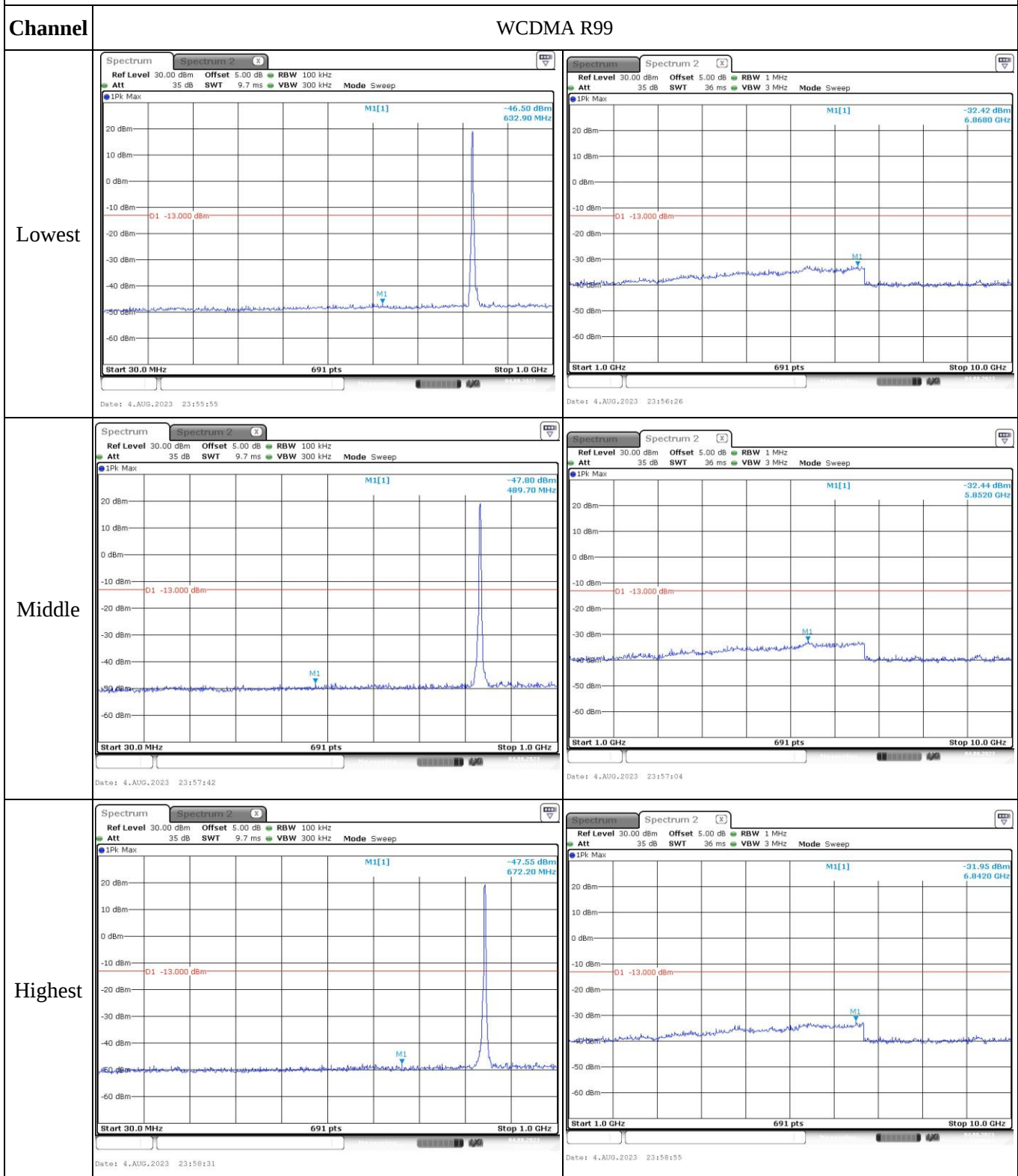
Middle



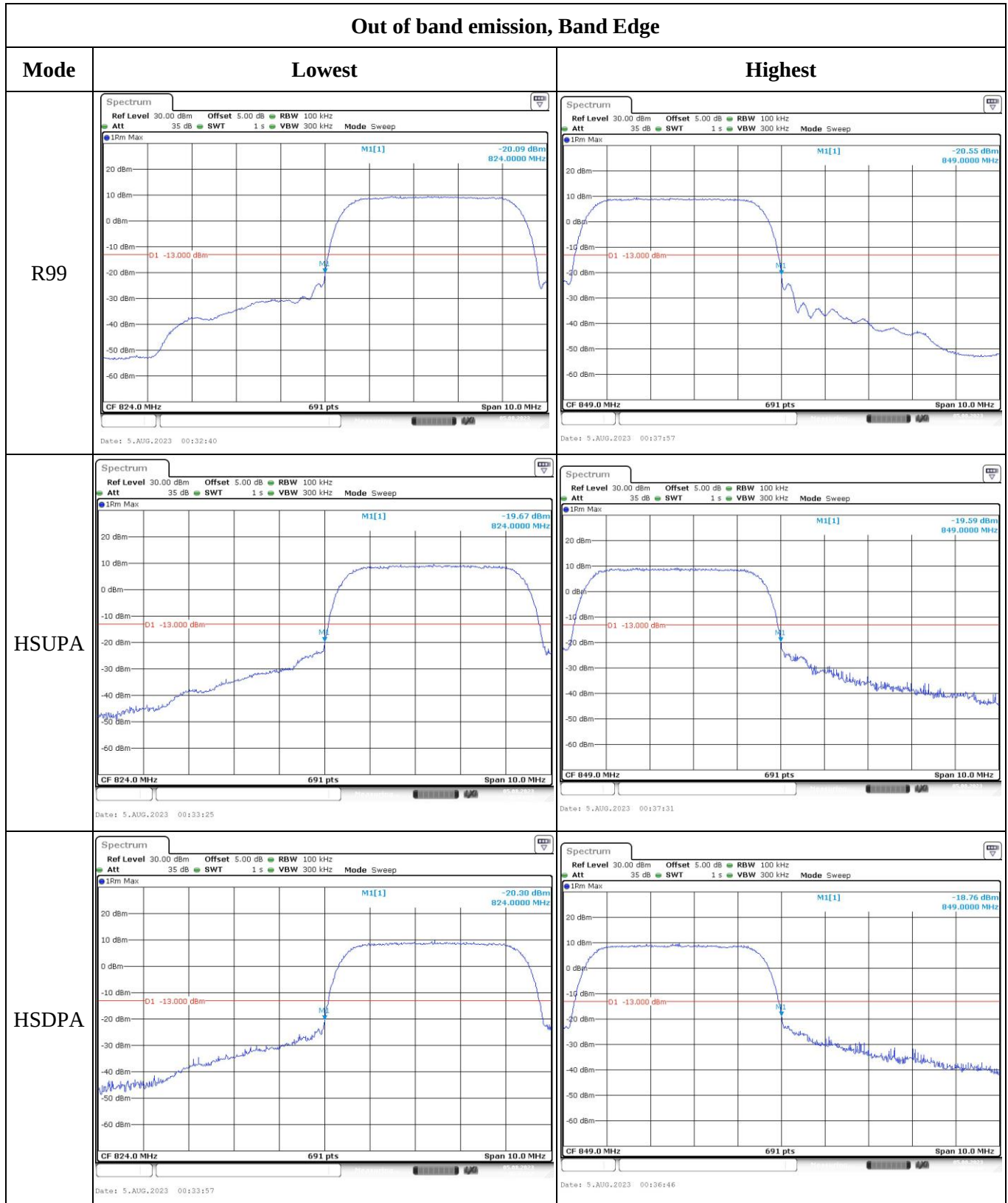
Highest



## Spurious Emissions at Antenna Terminal



## Out of band emission, Band Edge



**4.7 Antenna Port Test Data and Results for LTE Band 2**

|                |         |              |                       |
|----------------|---------|--------------|-----------------------|
| Serial Number: | 291M-2  | Test Date:   | 2023/08/05~2023/08/07 |
| Test Site:     | RF      | Test Mode:   | Transmitting          |
| Tester:        | One Luo | Test Result: | Pass                  |

**Environmental Conditions:**

|                   |           |                        |       |                     |            |
|-------------------|-----------|------------------------|-------|---------------------|------------|
| Temperature: (°C) | 24.2~26.5 | Relative Humidity: (%) | 42~58 | ATM Pressure: (kPa) | 99.7~102.2 |
|-------------------|-----------|------------------------|-------|---------------------|------------|

**Test Equipment List and Details:**

| Manufacturer  | Description                         | Model      | Serial Number   | Calibration Date | Calibration Due Date |
|---------------|-------------------------------------|------------|-----------------|------------------|----------------------|
| R&S           | Spectrum Analyzer                   | FSV40      | 101474          | 2023/07/15       | 2024/07/14           |
| zhuoxiang     | Coaxial Cable                       | SMA-178    | 211001          | Each time        | N/A                  |
| YINSAIGE      | Coaxial Cable                       | SS402      | SJ0100001       | Each time        | N/A                  |
| Mini-Circuits | DC Block                            | BLK-18-S+  | 1554403         | Each time        | N/A                  |
| Weinschel     | Power Splitter                      | 1515       | RA914           | Each time        | N/A                  |
| R&S           | Wideband Radio Communication Tester | CMW500     | 149218          | 2023/07/15       | 2024/07/14           |
| BACL          | TEMP&HUMI Test Chamber              | BTH-150-40 | 30174           | 2022/09/29       | 2023/09/28           |
| 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              | 1850.7                 | 1880                   | 1909.3                  |
| 3MHz                | 1851.5                 | 1880                   | 1908.5                  |
| 5MHz                | 1852.5                 | 1880                   | 1907.5                  |
| 10MHz               | 1855                   | 1880                   | 1905                    |
| 15MHz               | 1857.5                 | 1880                   | 1902.5                  |
| 20MHz               | 1860                   | 1880                   | 1900                    |

**Test Data:****FCC §2.1046; § 24.232****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                      | 23.15                               | 23.32          | 22.99           | 19.14              | 33               |
|                             | RB1#3                      | 23.2                                | 23.36          | 22.77           |                    |                  |
|                             | RB1#5                      | 22.98                               | 23.08          | 22.64           |                    |                  |
|                             | RB3#0                      | 23.11                               | 23.14          | 22.79           |                    |                  |
|                             | RB3#3                      | 23.02                               | 23.06          | 22.68           |                    |                  |
|                             | RB6#0                      | 21.95                               | 22             | 21.79           |                    |                  |
| 1.4MHz 16QAM                | RB1#0                      | 22.07                               | 22.12          | 21.95           | 18.26              | 33               |
|                             | RB1#3                      | 22.26                               | 22.48          | 21.75           |                    |                  |
|                             | RB1#5                      | 22.06                               | 22.46          | 21.61           |                    |                  |
|                             | RB3#0                      | 22.01                               | 22.06          | 22.01           |                    |                  |
|                             | RB3#3                      | 22.11                               | 21.92          | 21.71           |                    |                  |
|                             | RB6#0                      | 20.74                               | 21.15          | 20.95           |                    |                  |
| 3MHz QPSK                   | RB1#0                      | 23.23                               | 23.11          | 22.81           | 19.1               | 33               |
|                             | RB1#8                      | 23.2                                | 22.99          | 22.57           |                    |                  |
|                             | RB1#14                     | 23.05                               | 23.32          | 22.73           |                    |                  |
|                             | RB6#0                      | 22.01                               | 22.12          | 21.83           |                    |                  |
|                             | RB6#9                      | 22.04                               | 21.96          | 21.8            |                    |                  |
|                             | RB15#0                     | 21.94                               | 22.13          | 21.95           |                    |                  |
| 3MHz 16QAM                  | RB1#0                      | 22.88                               | 22.39          | 22.14           | 18.66              | 33               |
|                             | RB1#8                      | 22.28                               | 22.43          | 21.3            |                    |                  |
|                             | RB1#14                     | 22.2                                | 22.44          | 21.28           |                    |                  |
|                             | RB6#0                      | 20.86                               | 21.46          | 21.06           |                    |                  |
|                             | RB6#9                      | 20.96                               | 21.55          | 20.97           |                    |                  |
|                             | RB15#0                     | 20.95                               | 21.32          | 21              |                    |                  |
| 5MHz QPSK                   | RB1#0                      | 23.36                               | 23.05          | 22.79           | 19.18              | 33               |
|                             | RB1#13                     | 23.4                                | 22.95          | 22.7            |                    |                  |
|                             | RB1#24                     | 23.14                               | 23.15          | 22.81           |                    |                  |
|                             | RB15#0                     | 22                                  | 22.15          | 21.9            |                    |                  |
|                             | RB15#10                    | 22.05                               | 22.1           | 21.78           |                    |                  |
|                             | RB25#0                     | 22.06                               | 22.17          | 21.89           |                    |                  |
| 5MHz 16QAM                  | RB1#0                      | 22.19                               | 21.86          | 21.37           | 18.31              | 33               |
|                             | RB1#13                     | 22.48                               | 21.63          | 21.08           |                    |                  |
|                             | RB1#24                     | 22.53                               | 21.61          | 21.02           |                    |                  |
|                             | RB15#0                     | 20.7                                | 21.19          | 21.13           |                    |                  |
|                             | RB15#10                    | 20.87                               | 21.14          | 20.64           |                    |                  |
|                             | RB25#0                     | 20.9                                | 21.11          | 20.99           |                    |                  |

|                                                    |         |       |       |       |         |      |
|----------------------------------------------------|---------|-------|-------|-------|---------|------|
| 10MHz QPSK                                         | RB1#0   | 23.12 | 23.17 | 23.16 | 19.16   | 33   |
|                                                    | RB1#25  | 23.29 | 23.38 | 23.07 |         |      |
|                                                    | RB1#49  | 23.09 | 23.17 | 22.31 |         |      |
|                                                    | RB25#0  | 22.13 | 21.93 | 22.05 |         |      |
|                                                    | RB25#25 | 22.19 | 22.07 | 21.87 |         |      |
|                                                    | RB50#0  | 22.13 | 21.95 | 21.99 |         |      |
| 10MHz 16QAM                                        | RB1#0   | 22.29 | 21.55 | 22.31 | 18.41   | 33   |
|                                                    | RB1#25  | 22.63 | 21.58 | 22.62 |         |      |
|                                                    | RB1#49  | 22.55 | 21.54 | 21.69 |         |      |
|                                                    | RB25#0  | 21.09 | 21.13 | 21.04 |         |      |
|                                                    | RB25#25 | 21.24 | 21.1  | 20.91 |         |      |
|                                                    | RB50#0  | 21.07 | 21.08 | 21.06 |         |      |
| 15MHz QPSK                                         | RB1#0   | 23.33 | 23.06 | 22.88 | 19.11   | 33   |
|                                                    | RB1#38  | 23.15 | 22.97 | 22.93 |         |      |
|                                                    | RB1#74  | 23.32 | 23.19 | 22.33 |         |      |
|                                                    | RB36#0  | 22.19 | 21.94 | 22.02 |         |      |
|                                                    | RB36#39 | 22.18 | 22    | 21.93 |         |      |
|                                                    | RB75#0  | 22.11 | 22.07 | 21.84 |         |      |
| 15MHz 16QAM                                        | RB1#0   | 22.35 | 22.52 | 21.86 | 18.78   | 33   |
|                                                    | RB1#38  | 22.23 | 22.69 | 21.9  |         |      |
|                                                    | RB1#74  | 22.46 | 23    | 21.25 |         |      |
|                                                    | RB36#0  | 20.89 | 20.92 | 20.91 |         |      |
|                                                    | RB36#39 | 20.9  | 20.82 | 20.99 |         |      |
|                                                    | RB75#0  | 20.95 | 20.98 | 20.87 |         |      |
| 20MHz QPSK                                         | RB1#0   | 22.92 | 23.19 | 22.89 | 19.54   | 33   |
|                                                    | RB1#50  | 23.4  | 23.76 | 23.27 |         |      |
|                                                    | RB1#99  | 23.24 | 23.32 | 22.22 |         |      |
|                                                    | RB50#0  | 22.18 | 22    | 22.06 |         |      |
|                                                    | RB50#50 | 22.28 | 22.07 | 21.93 |         |      |
|                                                    | RB100#0 | 22.16 | 21.98 | 21.89 |         |      |
| 20MHz 16QAM                                        | RB1#0   | 22.26 | 22.01 | 22.65 | 18.78   | 33   |
|                                                    | RB1#50  | 22.8  | 22.07 | 23    |         |      |
|                                                    | RB1#99  | 22.32 | 21.79 | 21.91 |         |      |
|                                                    | RB50#0  | 21.05 | 20.99 | 20.86 |         |      |
|                                                    | RB50#50 | 21.07 | 20.96 | 20.98 |         |      |
|                                                    | RB100#0 | 21    | 20.99 | 20.98 |         |      |
| Note: EIRP=Conducted Power(dBm) - Lc(dB) + Gr(dBi) |         |       |       |       | Result: | Pass |

| <b>Peak-to-average Ratio(PAR)</b> |                            |                           |                |                 |             |
|-----------------------------------|----------------------------|---------------------------|----------------|-----------------|-------------|
| Test Bandwidth & Modulation       | Resource Block & RB offset | Peak-to-average Ratio(dB) |                |                 | Limit (dB)  |
|                                   |                            | Lowest Channel            | Middle Channel | Highest Channel |             |
| 20MHz QPSK                        | RB1#0                      | 4.75                      | 4.78           | 4.7             | 13          |
|                                   | RB100#0                    | 3.97                      | 4.03           | 3.94            | 13          |
| 20MHz 16QAM                       | RB1#0                      | 5.8                       | 5.57           | 5.68            | 13          |
|                                   | RB100#0                    | 5.77                      | 5.83           | 5.77            | 13          |
|                                   |                            |                           |                | <b>Result:</b>  | <b>Pass</b> |

| <b>FCC §2.1049, §24.238:Occupied Bandwidth</b>                       |                              |                |              |                                |                |              |
|----------------------------------------------------------------------|------------------------------|----------------|--------------|--------------------------------|----------------|--------------|
| 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                                                          | 1.108                        | 1.102          | 1.108        | 1.29                           | 1.302          | 1.32         |
| 1.4MHz 16QAM                                                         | 1.102                        | 1.108          | 1.096        | 1.314                          | 1.32           | 1.296        |
| 3MHz QPSK                                                            | 2.695                        | 2.683          | 2.695        | 2.94                           | 2.964          | 2.94         |
| 3MHz 16QAM                                                           | 2.683                        | 2.683          | 2.683        | 2.964                          | 2.94           | 2.964        |
| 5MHz QPSK                                                            | 4.531                        | 4.511          | 4.511        | 5.02                           | 5.04           | 4.98         |
| 5MHz 16QAM                                                           | 4.511                        | 4.531          | 4.511        | 5.02                           | 5.06           | 5.06         |
| 10MHz QPSK                                                           | 8.942                        | 8.942          | 8.942        | 9.72                           | 9.76           | 9.72         |
| 10MHz 16QAM                                                          | 8.942                        | 8.942          | 8.902        | 9.68                           | 9.76           | 9.64         |
| 15MHz QPSK                                                           | 13.473                       | 13.413         | 13.413       | 14.76                          | 14.76          | 14.76        |
| 15MHz 16QAM                                                          | 13.473                       | 13.473         | 13.413       | 14.82                          | 14.82          | 14.76        |
| 20MHz QPSK                                                           | 17.884                       | 17.884         | 17.884       | 19.36                          | 19.6           | 19.2         |
| 20MHz 16QAM                                                          | 17.884                       | 17.884         | 17.804       | 19.52                          | 19.44          | 19.36        |
| Note: The test plots please refer to the Plots of Occupied Bandwidth |                              |                |              |                                |                |              |

| <b>FCC §2.1051, §24.238 (a):Spurious Emissions at Antenna Terminal</b> |                                                                                        |
|------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| <b>Result:</b>                                                         | <b>Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.</b> |

| <b>FCC §2.1051, §24.238 (a):Out of band emission, Band Edge</b> |                                                                                 |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------|
| <b>Result:</b>                                                  | <b>Pass, Please refer to the test plots of Out of band emission, Band Edge.</b> |

**FCC §2.1055, §24.235: 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                                                        | 1851.164         | 1850.000 | 1908.978         | 1910.000    |
|                                     | -20              | 3.8                                                        | 1851.163         | 1850.000 | 1908.927         | 1910.000    |
|                                     | -10              | 3.8                                                        | 1851.102         | 1850.000 | 1908.917         | 1910.000    |
|                                     | 0                | 3.8                                                        | 1851.181         | 1850.000 | 1908.978         | 1910.000    |
|                                     | 10               | 3.8                                                        | 1851.147         | 1850.000 | 1908.998         | 1910.000    |
|                                     | 20               | 3.8                                                        | 1851.138         | 1850.000 | 1908.942         | 1910.000    |
|                                     | 30               | 3.8                                                        | 1851.179         | 1850.000 | 1908.930         | 1910.000    |
|                                     | 40               | 3.8                                                        | 1851.154         | 1850.000 | 1908.975         | 1910.000    |
|                                     | 50               | 3.8                                                        | 1851.190         | 1850.000 | 1908.910         | 1910.000    |
| Frequency Stability vs. Voltage     | 20               | 3.55                                                       | 1851.101         | 1850.000 | 1908.967         | 1910.000    |
|                                     | 20               | 4.35                                                       | 1851.199         | 1850.000 | 1908.969         | 1910.000    |
|                                     |                  |                                                            |                  |          | <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              | 3.8                                                        | 1851.070         | 1850.000 | 1908.973         | 1910.000    |
|                                     | -20              | 3.8                                                        | 1851.027         | 1850.000 | 1908.941         | 1910.000    |
|                                     | -10              | 3.8                                                        | 1851.082         | 1850.000 | 1908.918         | 1910.000    |
|                                     | 0                | 3.8                                                        | 1851.011         | 1850.000 | 1908.988         | 1910.000    |
|                                     | 10               | 3.8                                                        | 1851.079         | 1850.000 | 1908.920         | 1910.000    |
|                                     | 20               | 3.8                                                        | 1851.058         | 1850.000 | 1908.942         | 1910.000    |
|                                     | 30               | 3.8                                                        | 1851.043         | 1850.000 | 1908.927         | 1910.000    |
|                                     | 40               | 3.8                                                        | 1851.074         | 1850.000 | 1908.918         | 1910.000    |
|                                     | 50               | 3.8                                                        | 1851.076         | 1850.000 | 1908.972         | 1910.000    |
| Frequency Stability vs. Voltage     | 20               | 3.55                                                       | 1851.014         | 1850.000 | 1908.910         | 1910.000    |
|                                     | 20               | 4.35                                                       | 1851.034         | 1850.000 | 1908.998         | 1910.000    |
|                                     |                  |                                                            |                  |          | <b>Result:</b>   | <b>Pass</b> |

**Test Plots**(Note: The 7.5dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer):

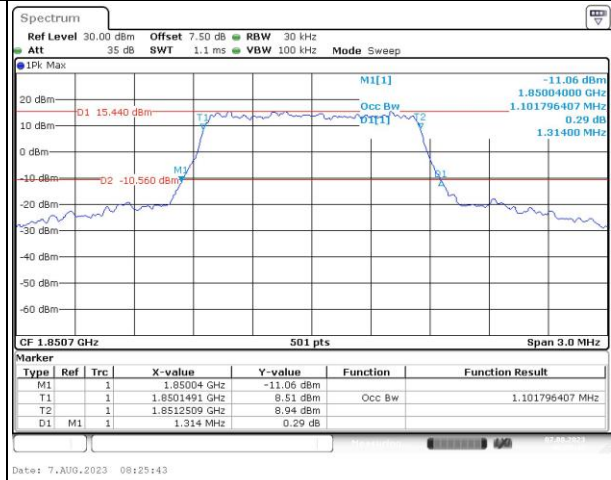
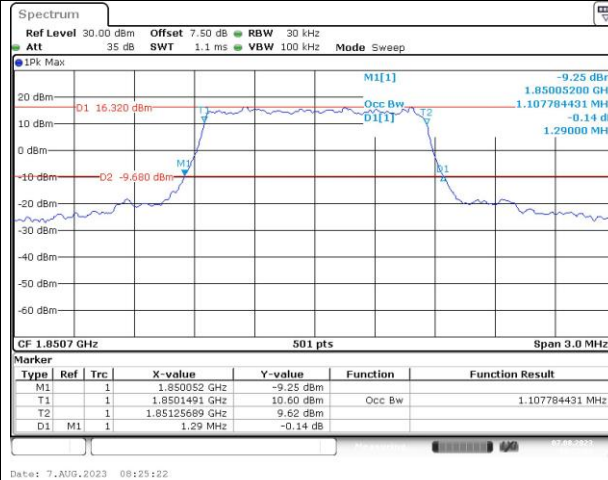
### Occupied Bandwidth

#### Channel

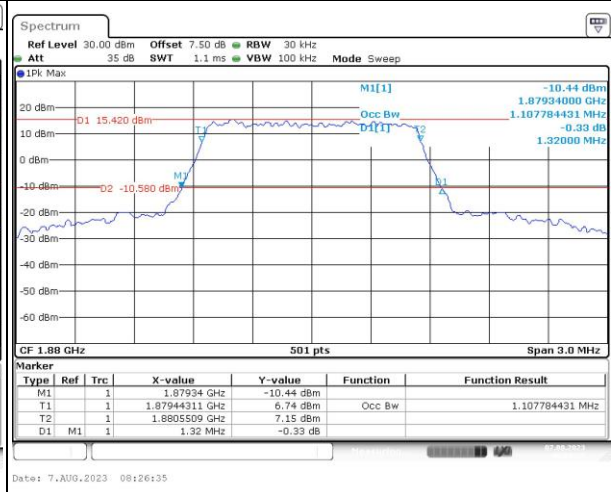
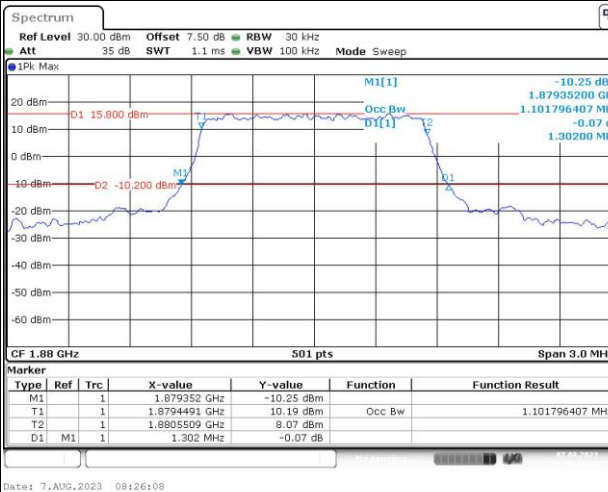
#### 1.4MHz Bandwidth QPSK

#### 1.4MHz Bandwidth 16QAM

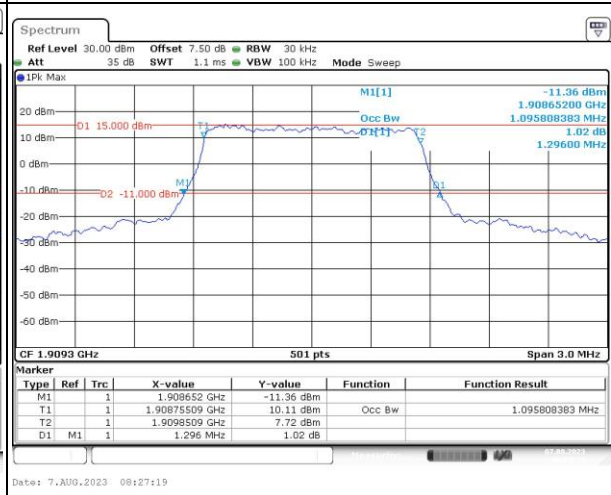
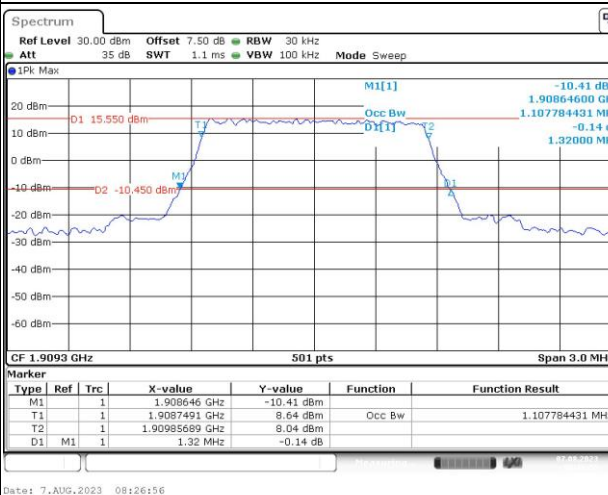
Lowest



Middle



Highest



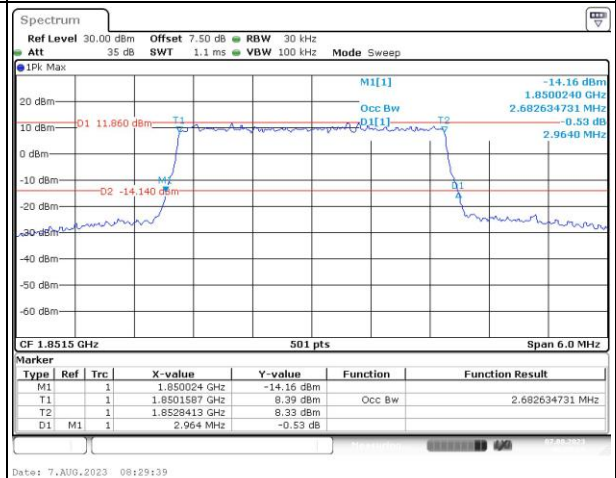
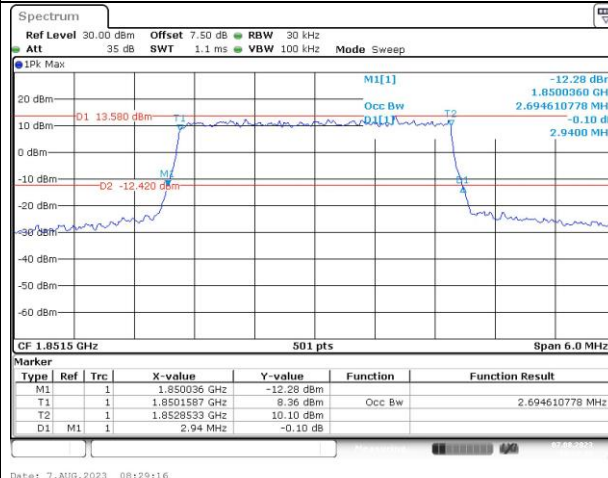
## Occupied Bandwidth

## Channel

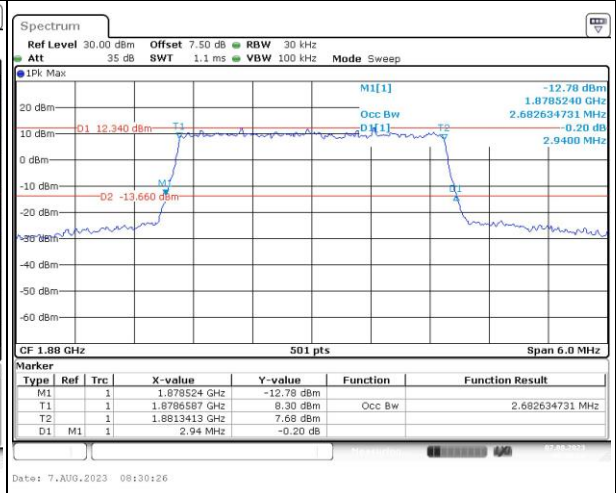
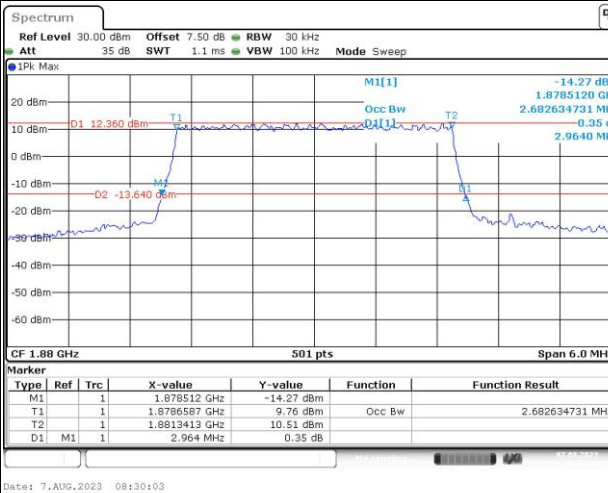
## 3MHz Bandwidth QPSK

## 3MHz Bandwidth 16QAM

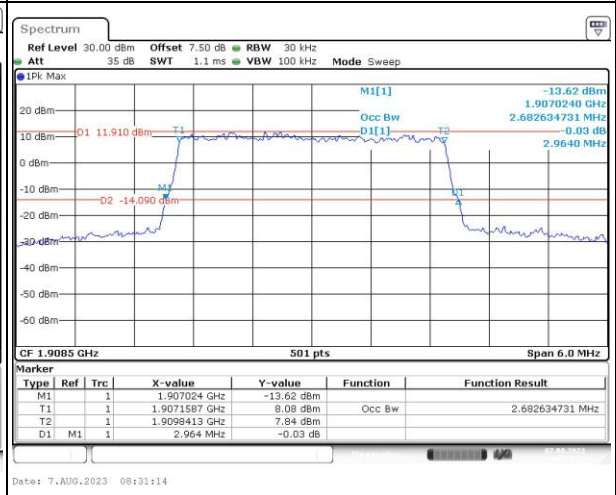
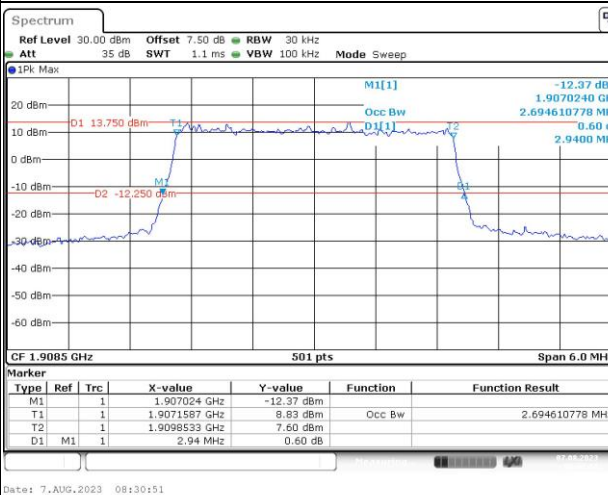
## Lowest



## Middle



## Highest



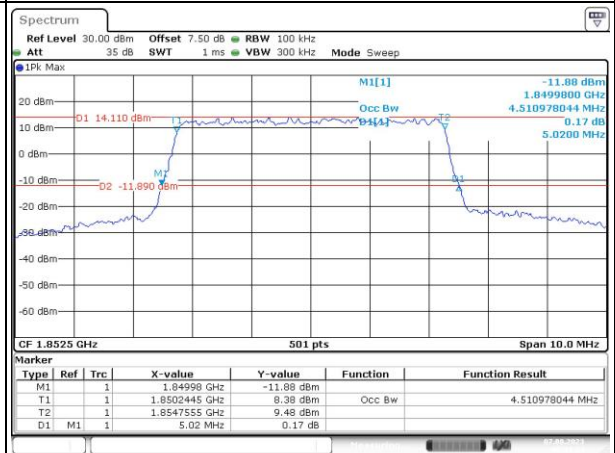
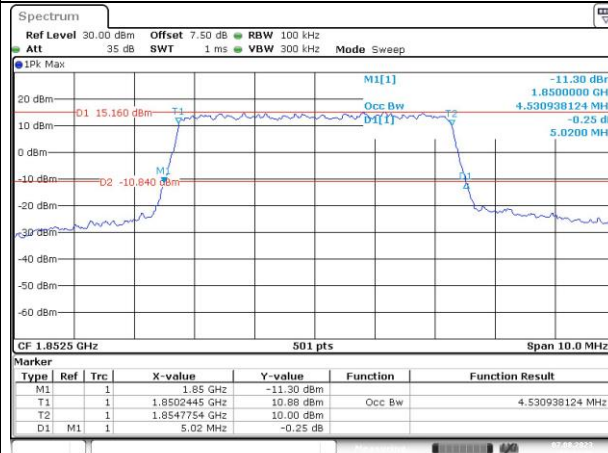
## Occupied Bandwidth

Channel

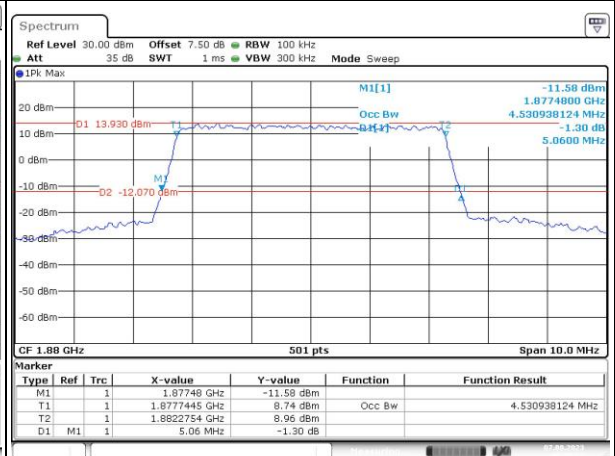
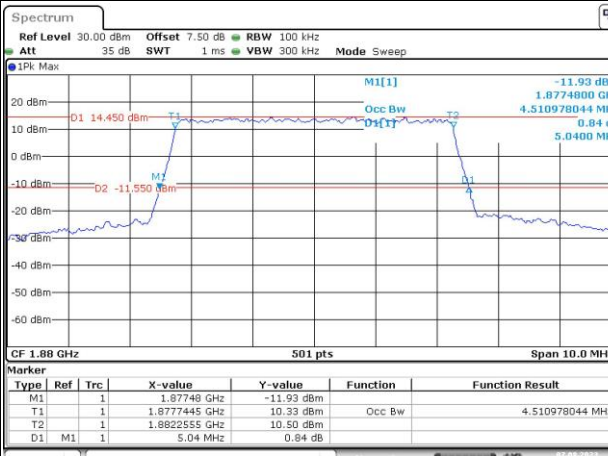
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

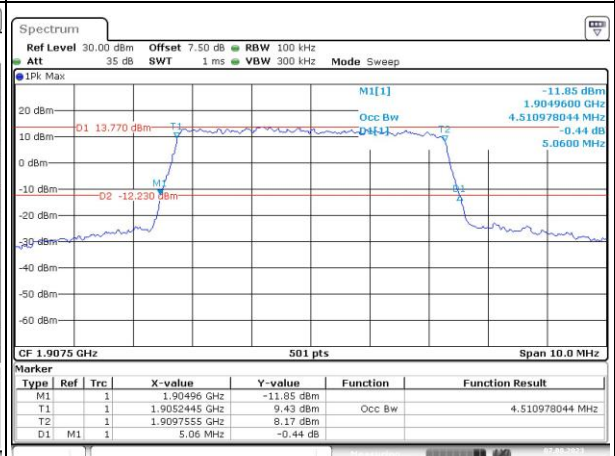
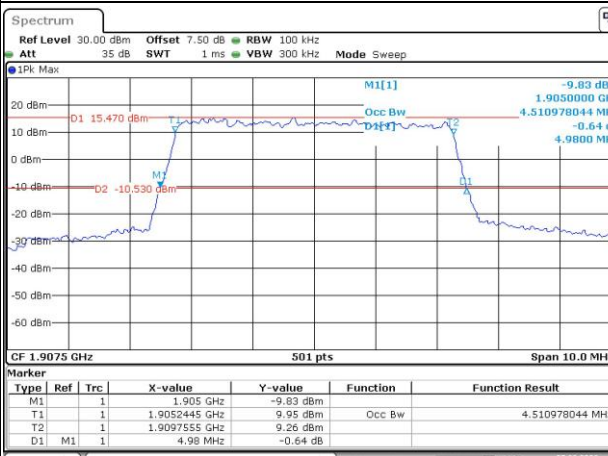
Lowest



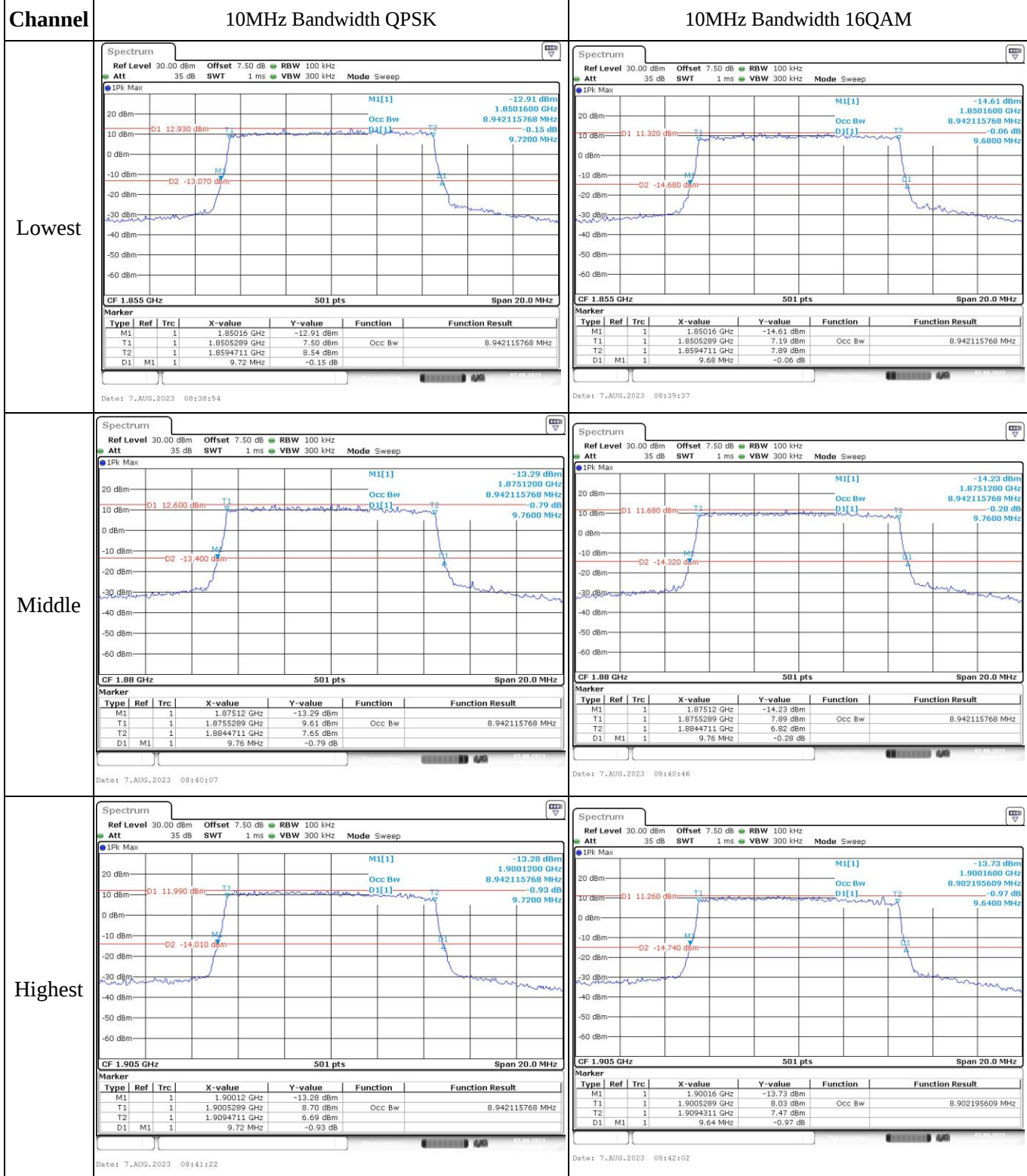
Middle



Highest



## Occupied Bandwidth



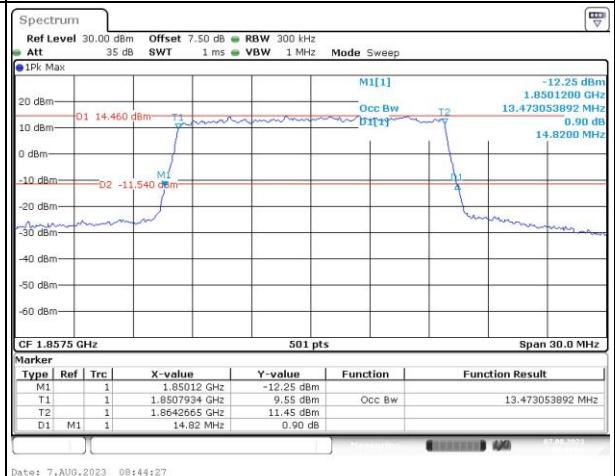
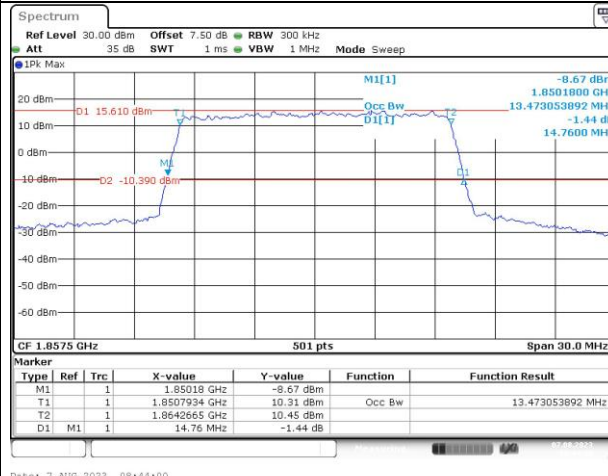
## Occupied Bandwidth

## Channel

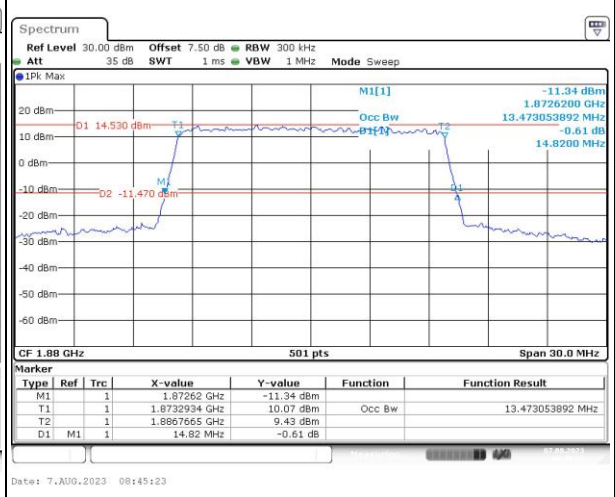
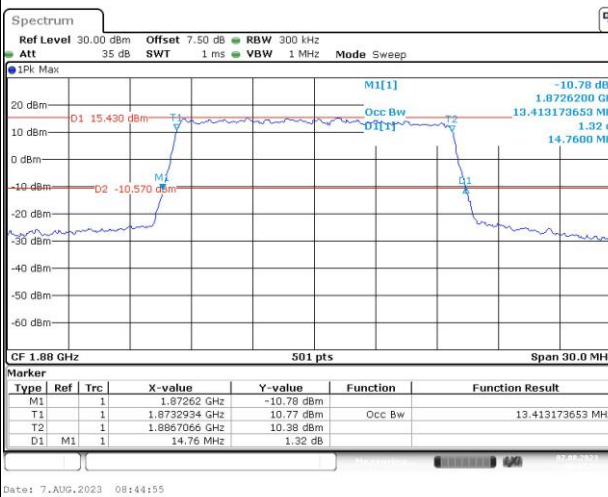
## 15MHz Bandwidth QPSK

## 15MHz Bandwidth 16QAM

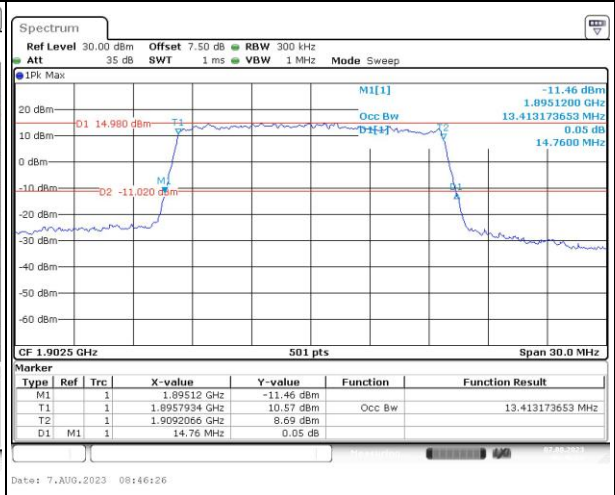
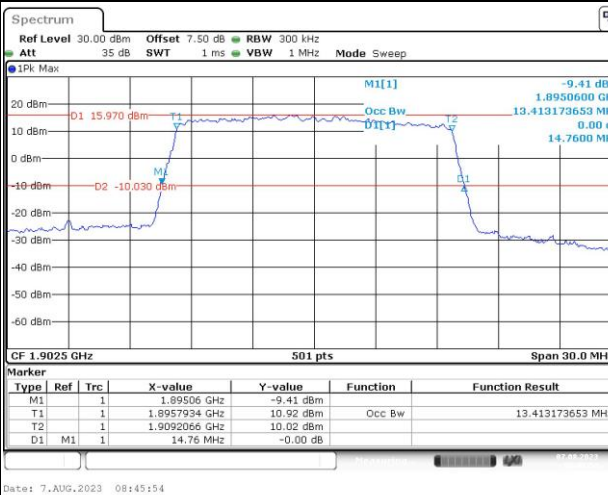
## Lowest



## Middle



## Highest



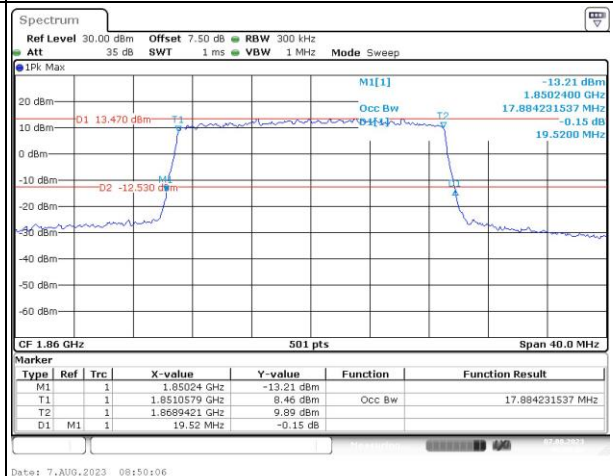
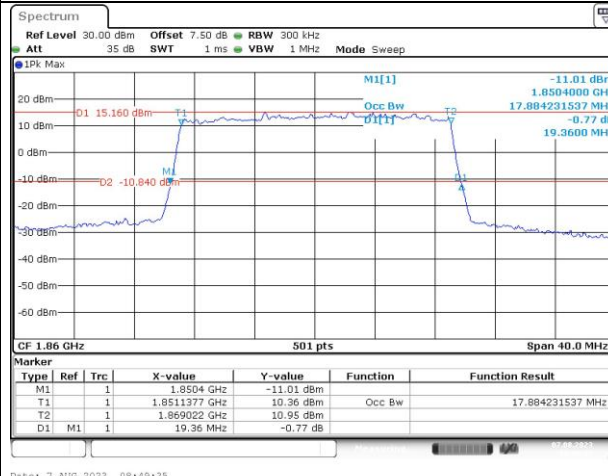
## Occupied Bandwidth

Channel

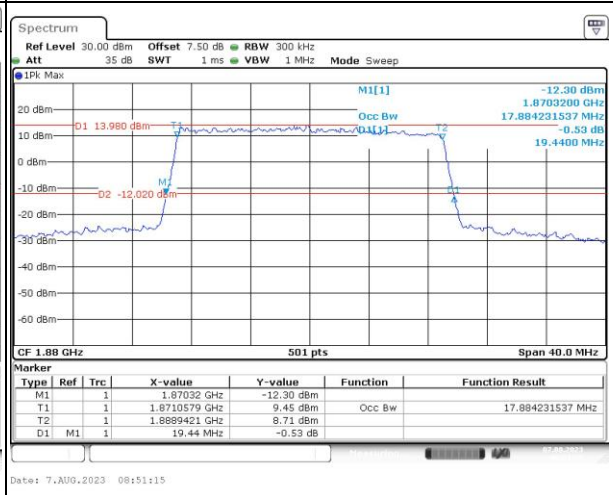
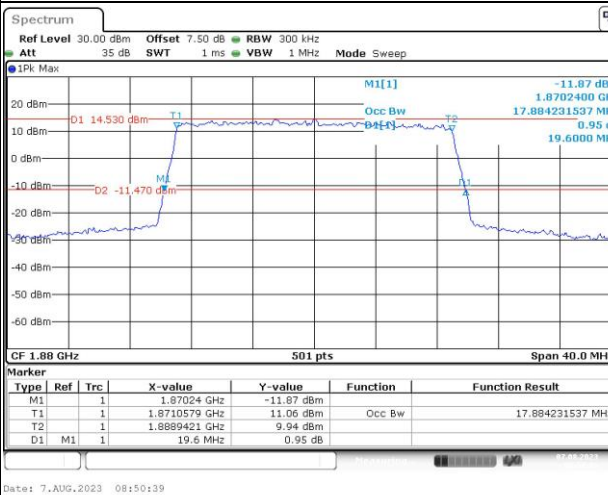
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

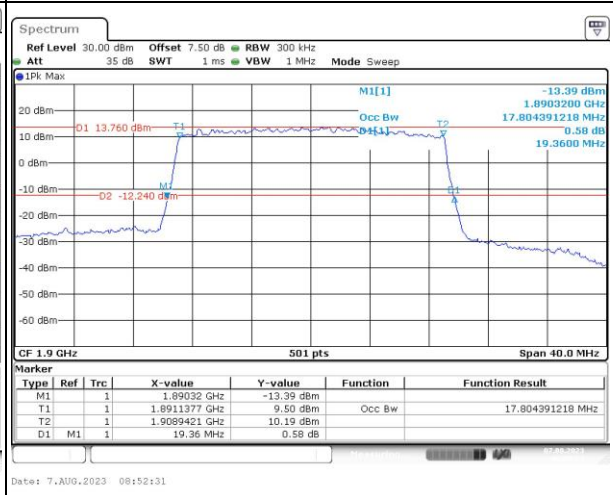
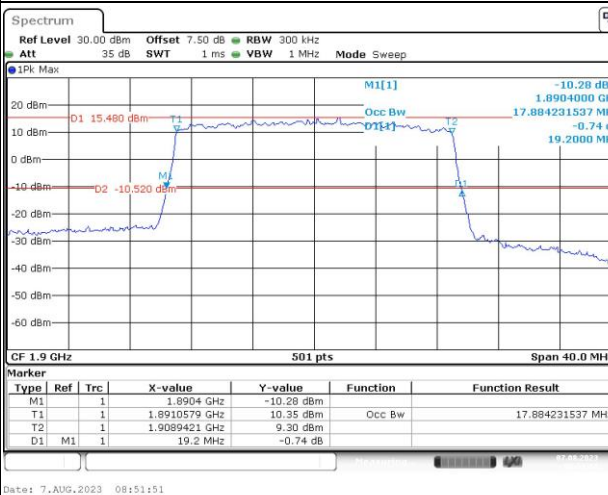
Lowest



Middle



Highest

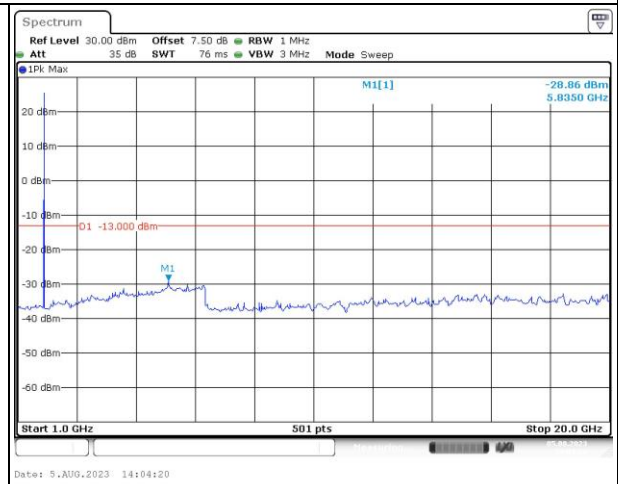
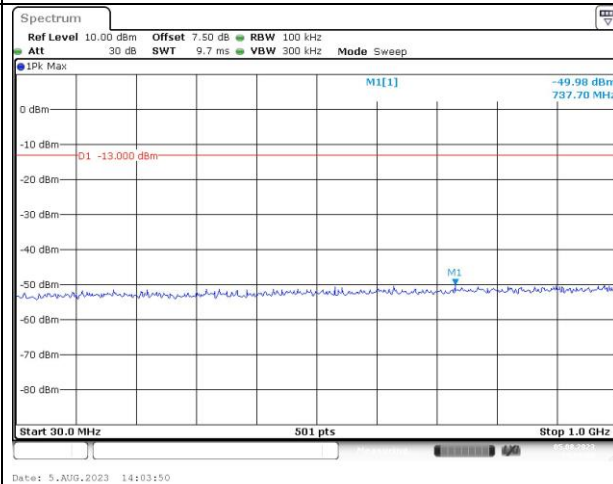


## Spurious Emissions at Antenna Terminal

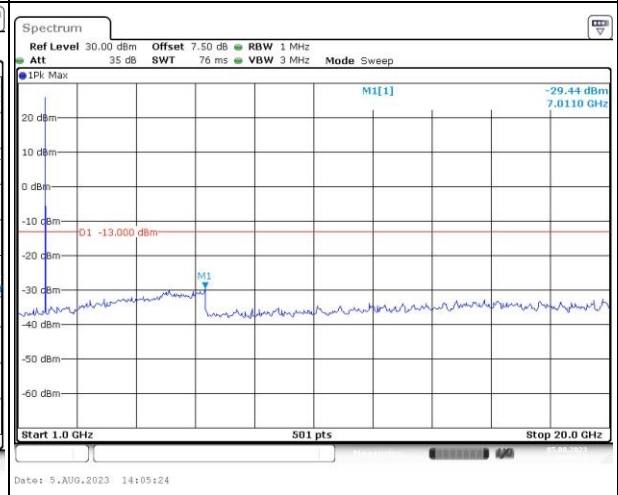
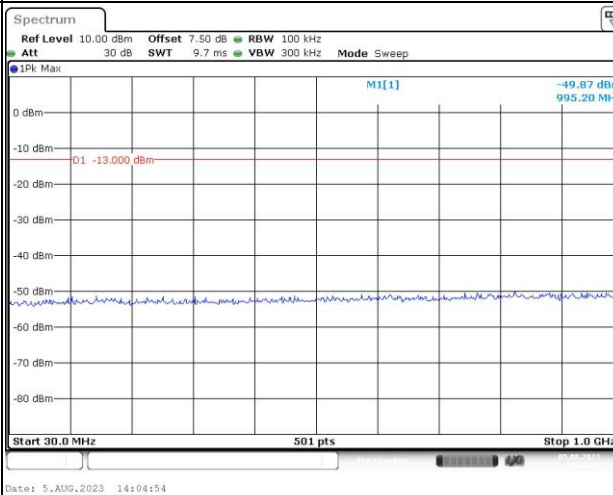
Channel

1.4MHz Bandwidth QPSK

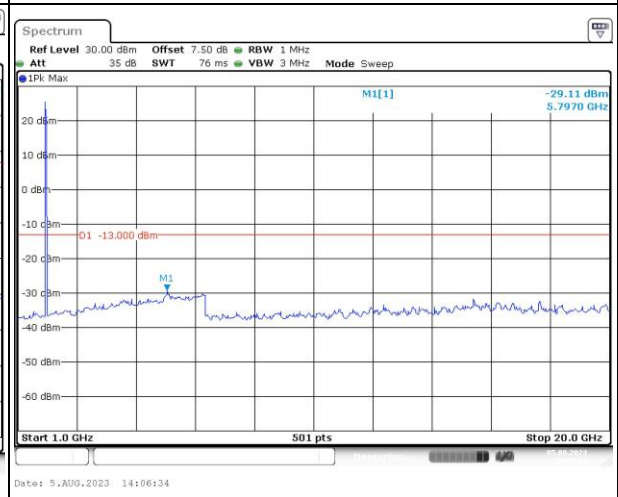
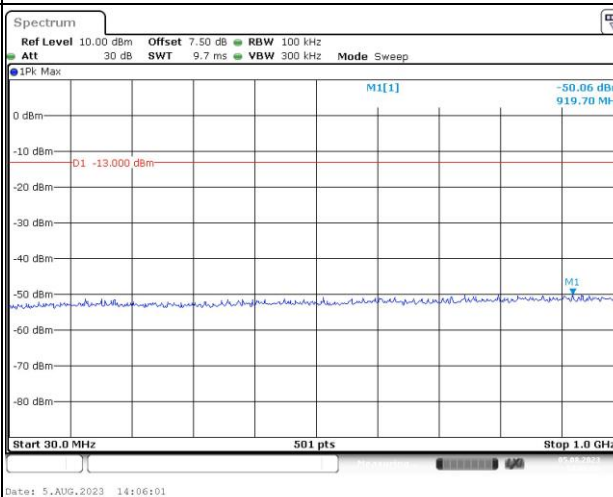
Lowest



Middle



Highest

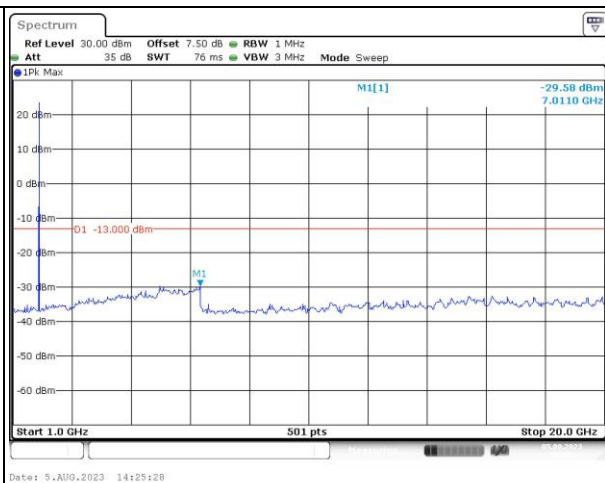
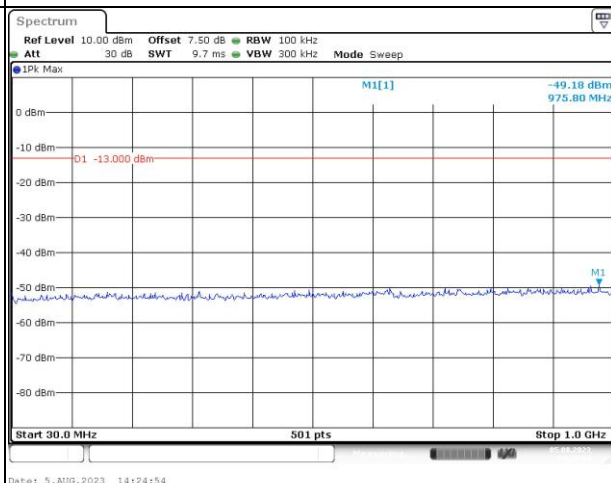


## Spurious Emissions at Antenna Terminal

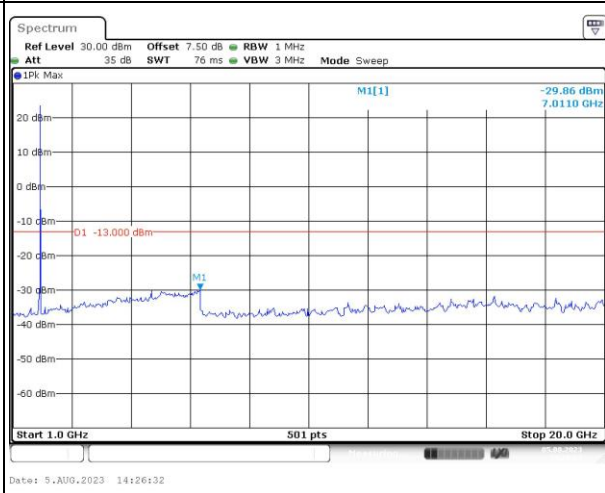
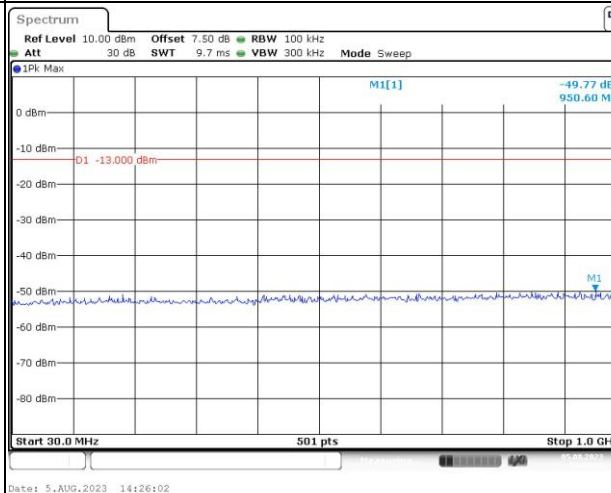
Channel

3MHz Bandwidth QPSK

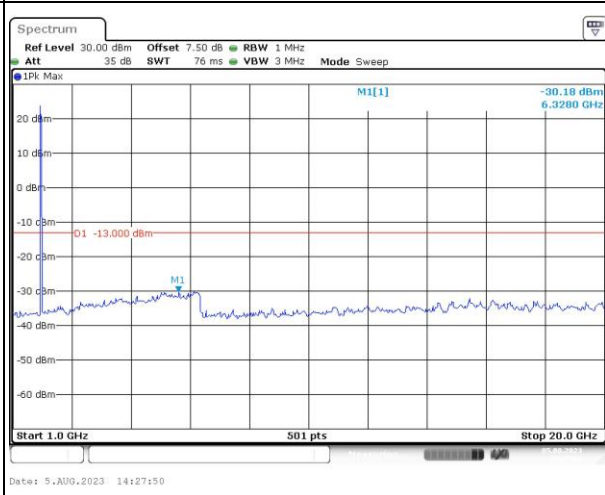
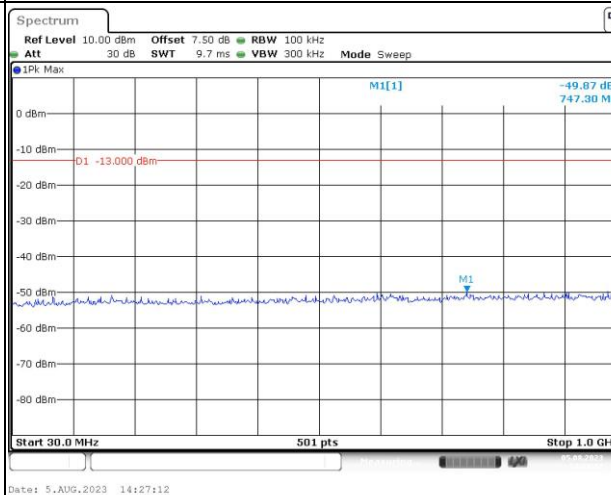
Lowest



Middle



Highest

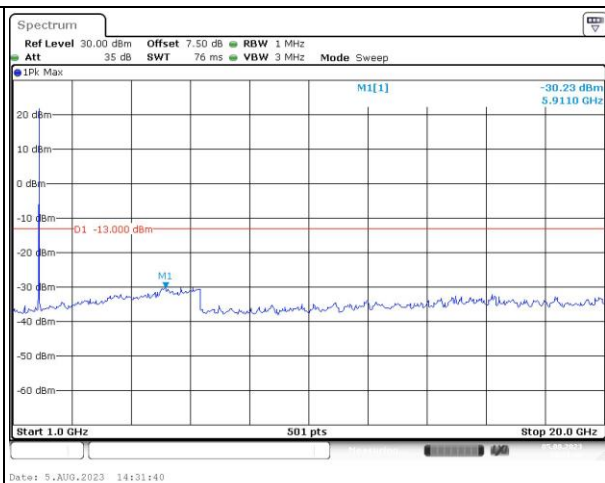
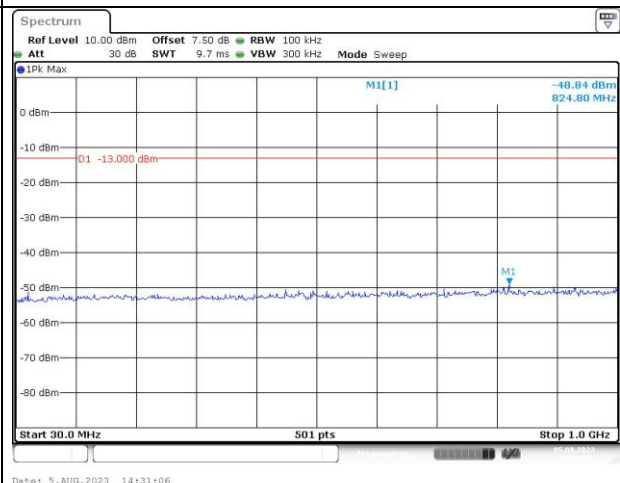


## Spurious Emissions at Antenna Terminal

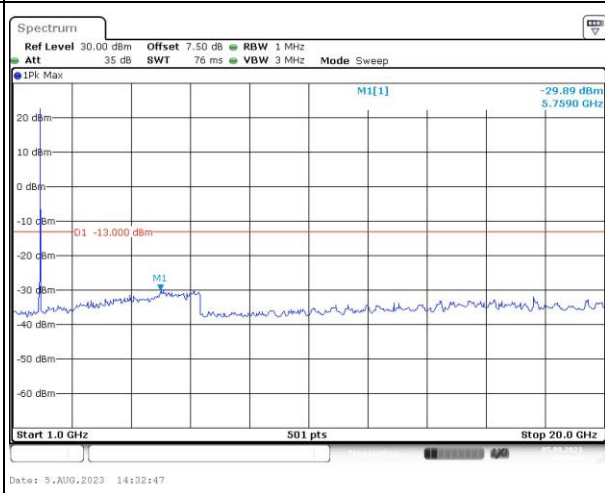
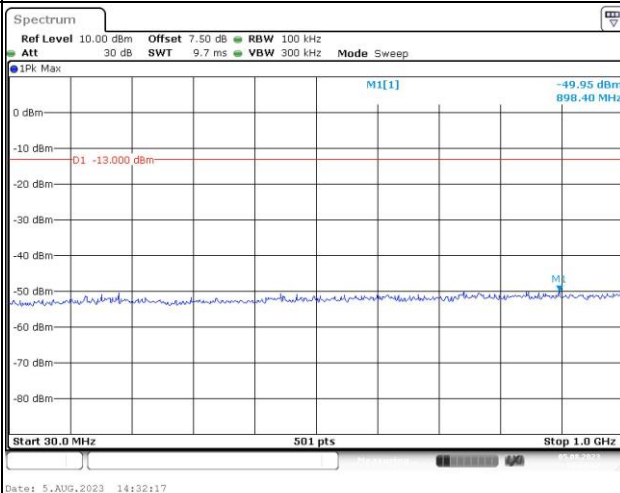
Channel

5MHz Bandwidth QPSK

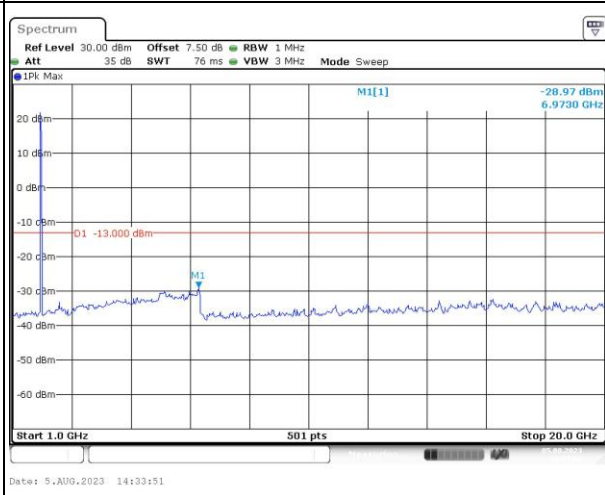
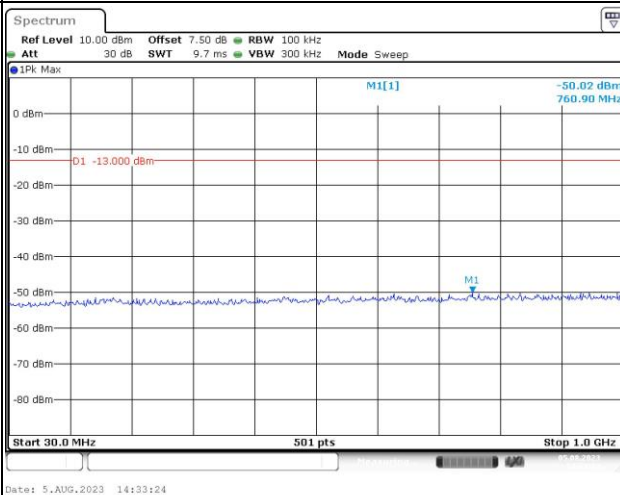
Lowest



Middle



Highest

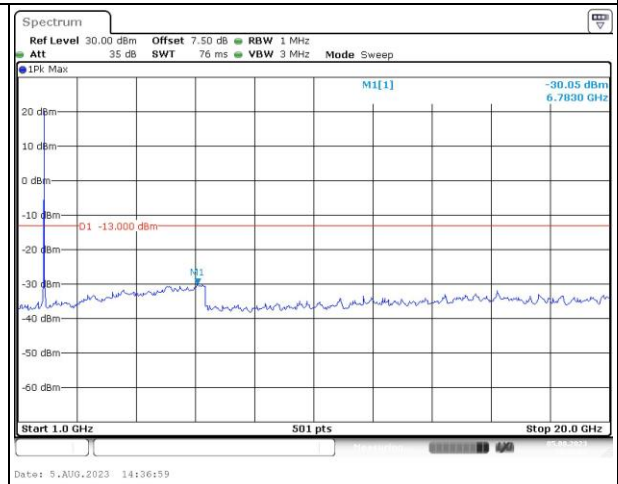
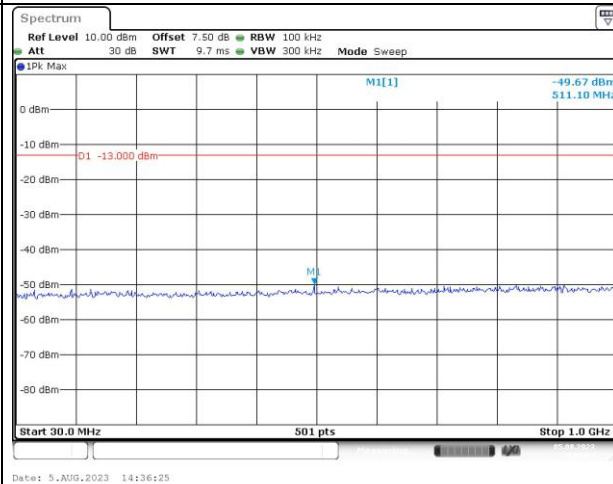


## Spurious Emissions at Antenna Terminal

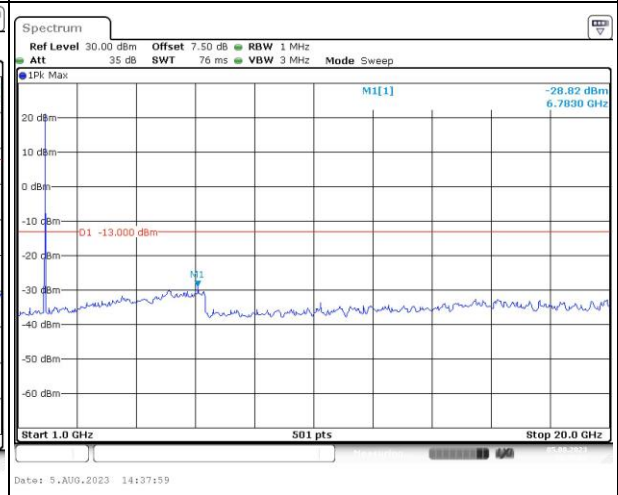
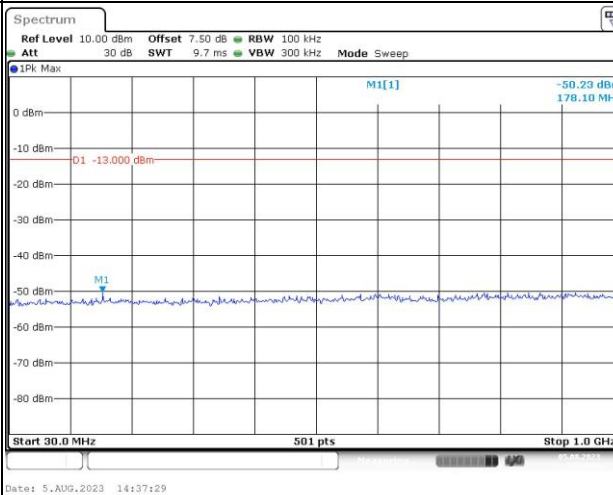
Channel

10MHz Bandwidth QPSK

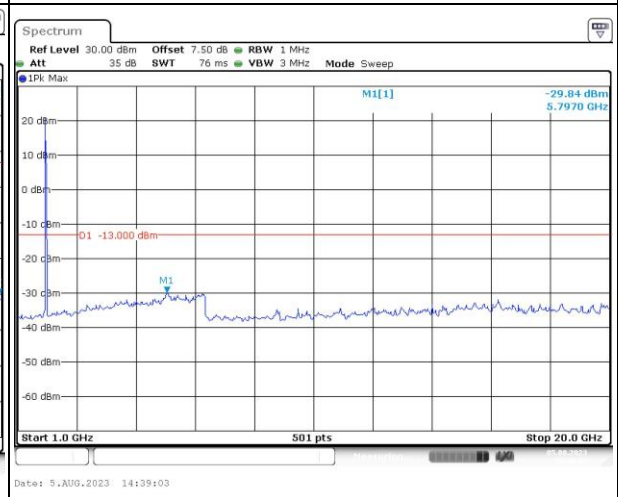
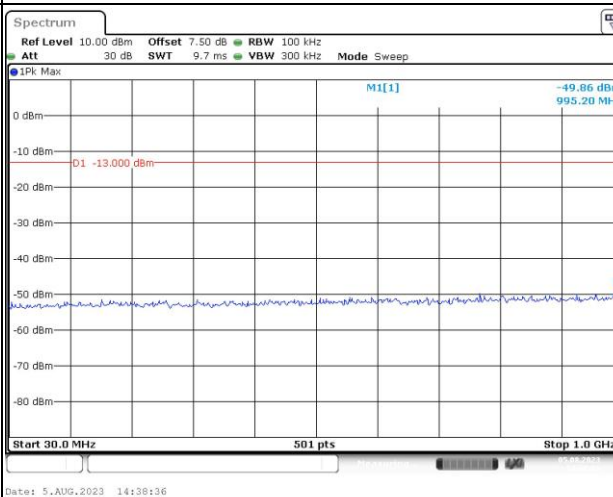
Lowest



Middle



Highest

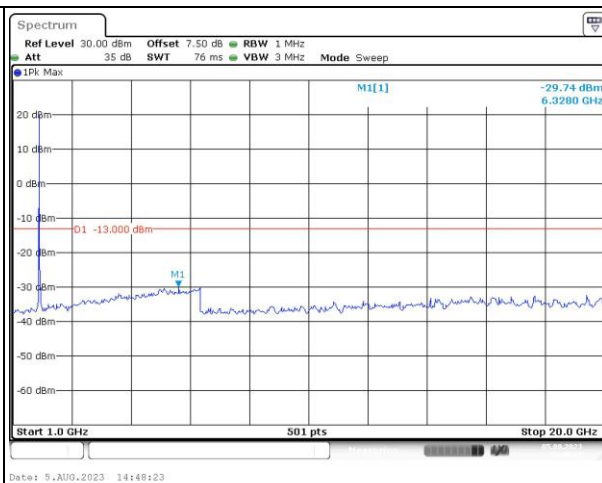
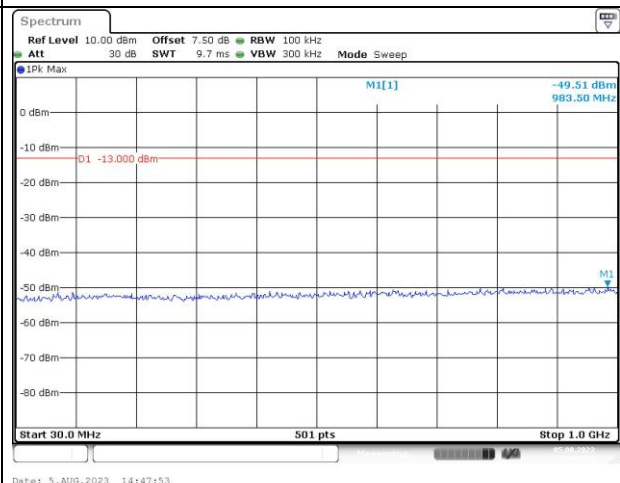


## Spurious Emissions at Antenna Terminal

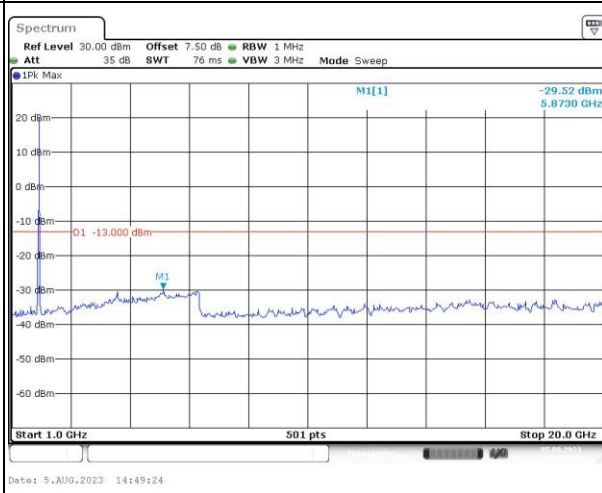
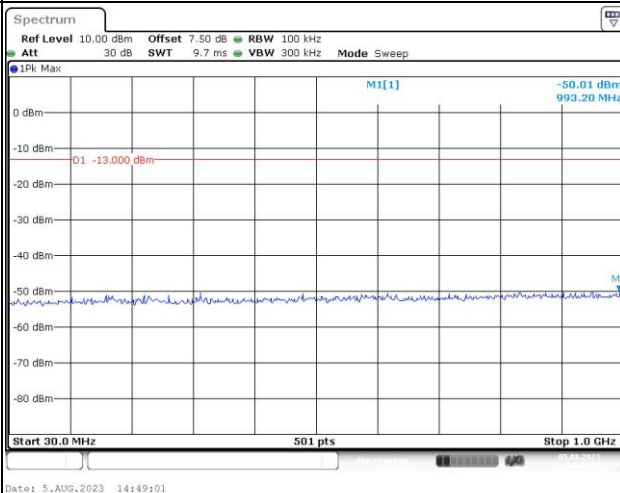
Channel

15MHz Bandwidth QPSK

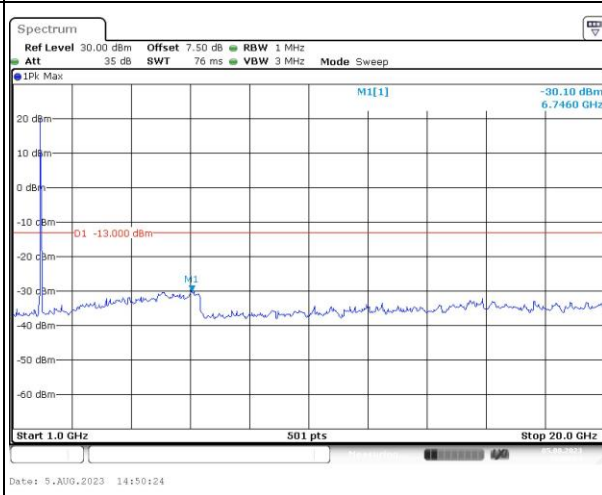
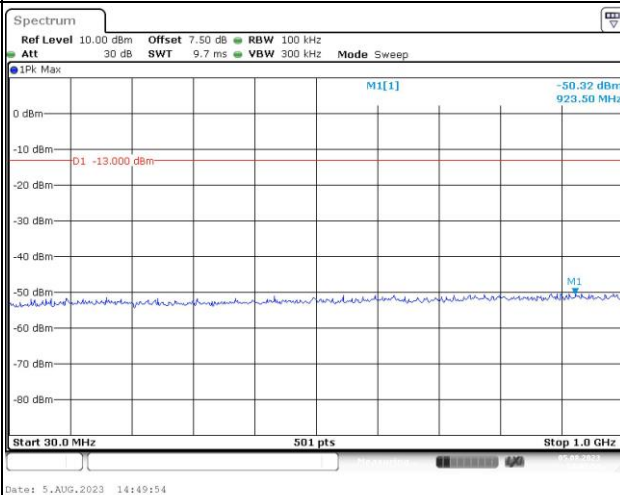
Lowest



Middle



Highest

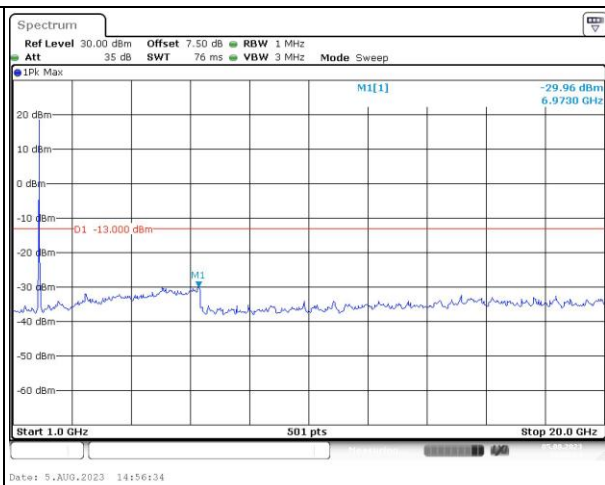
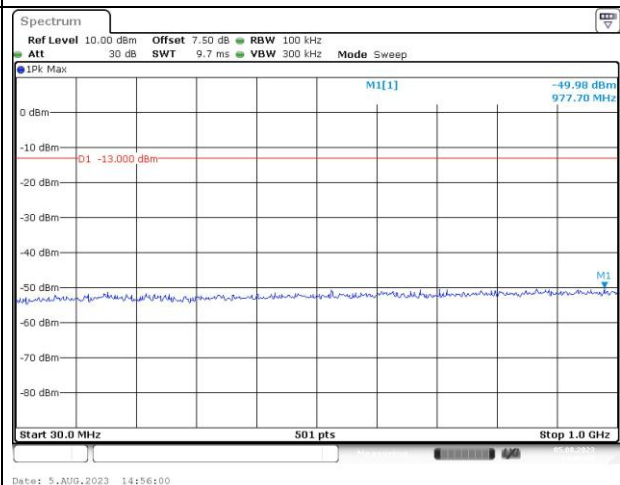


## Spurious Emissions at Antenna Terminal

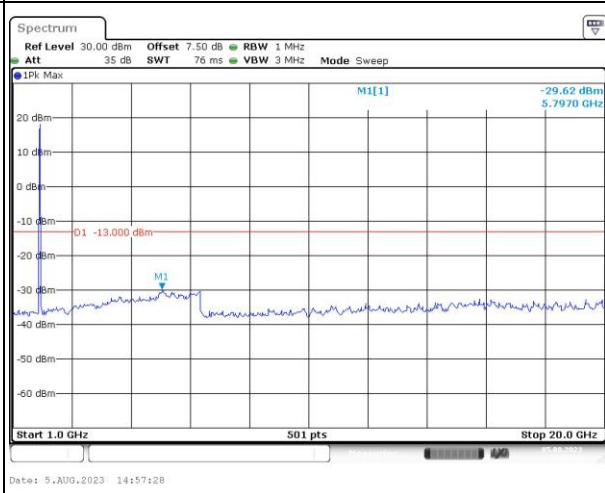
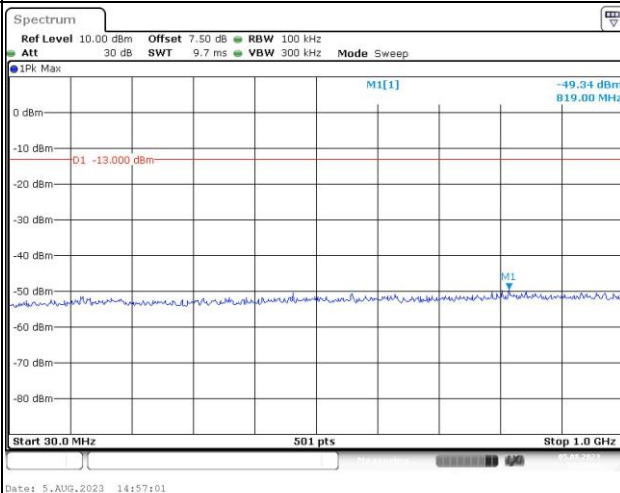
Channel

20MHz Bandwidth QPSK

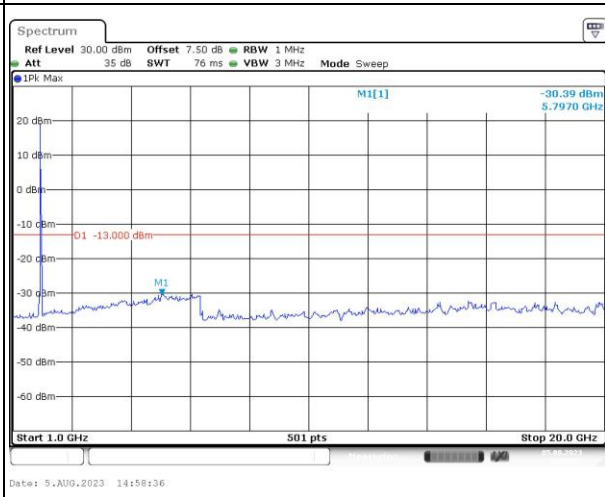
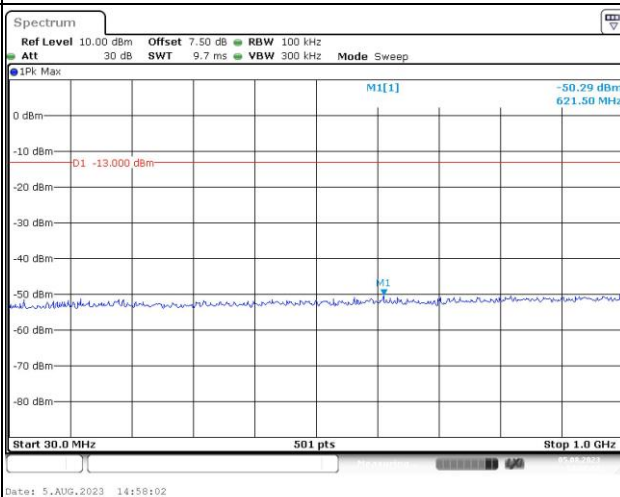
Lowest



Middle



Highest



## Out of band emission, Band Edge

