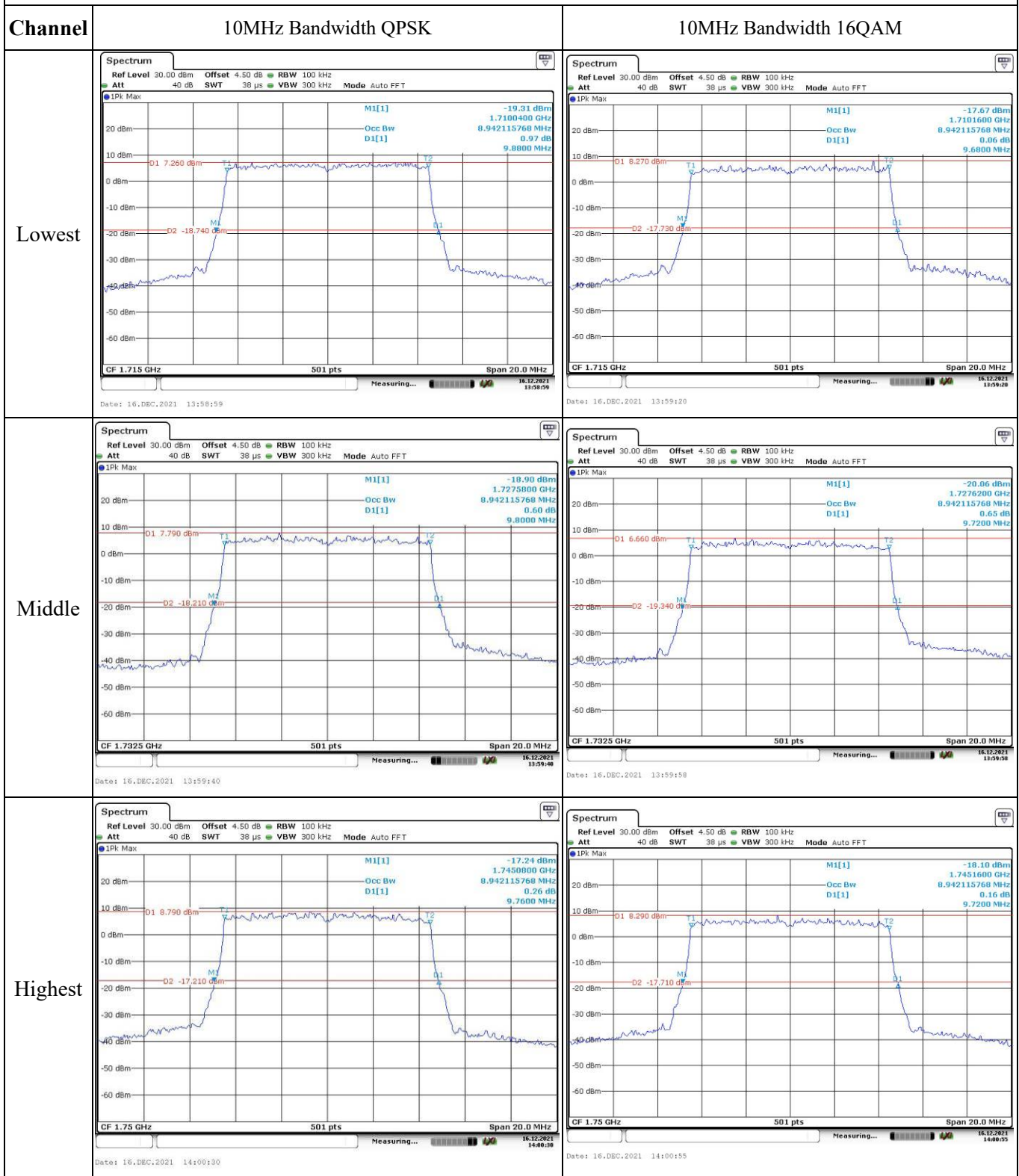
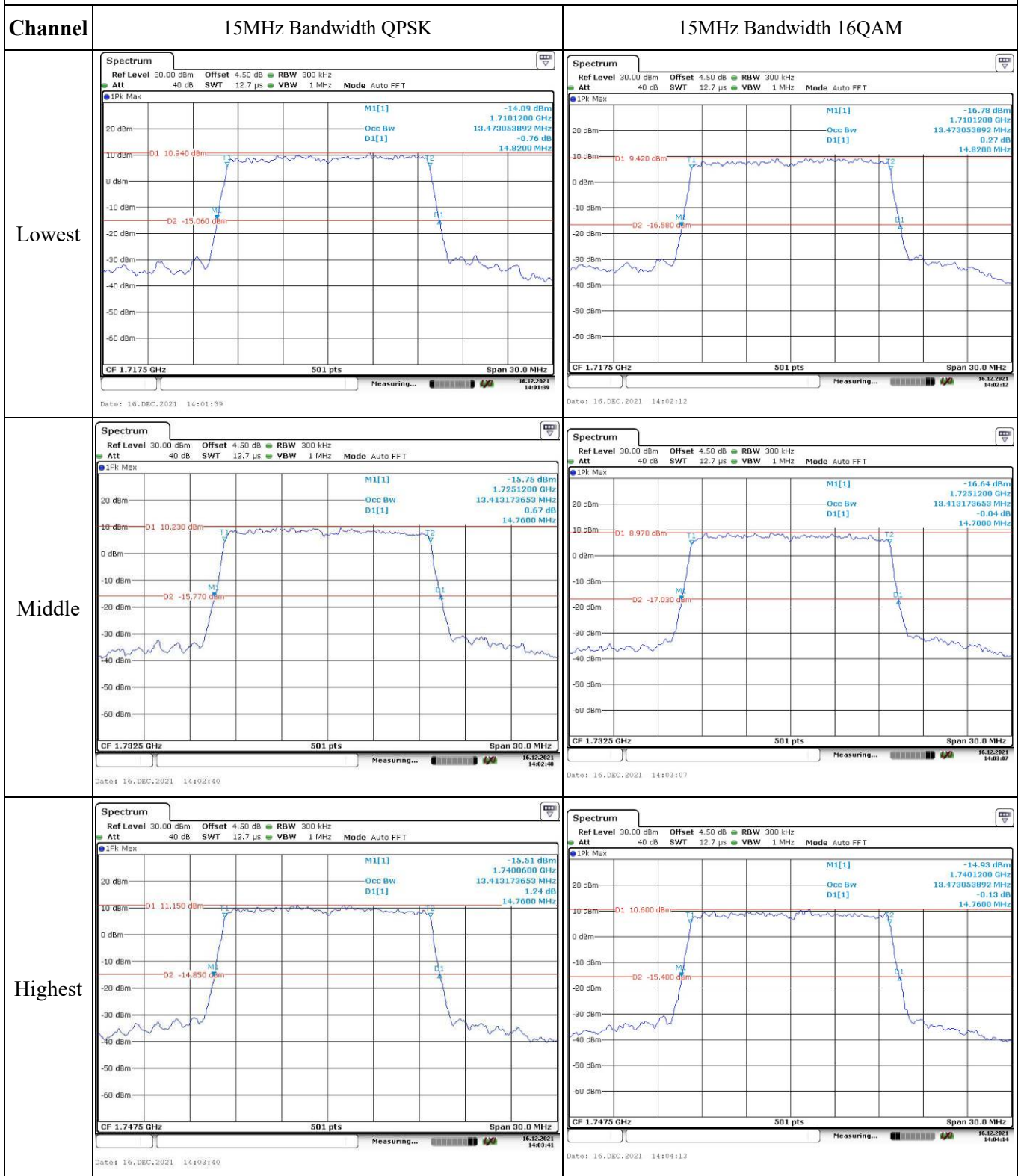


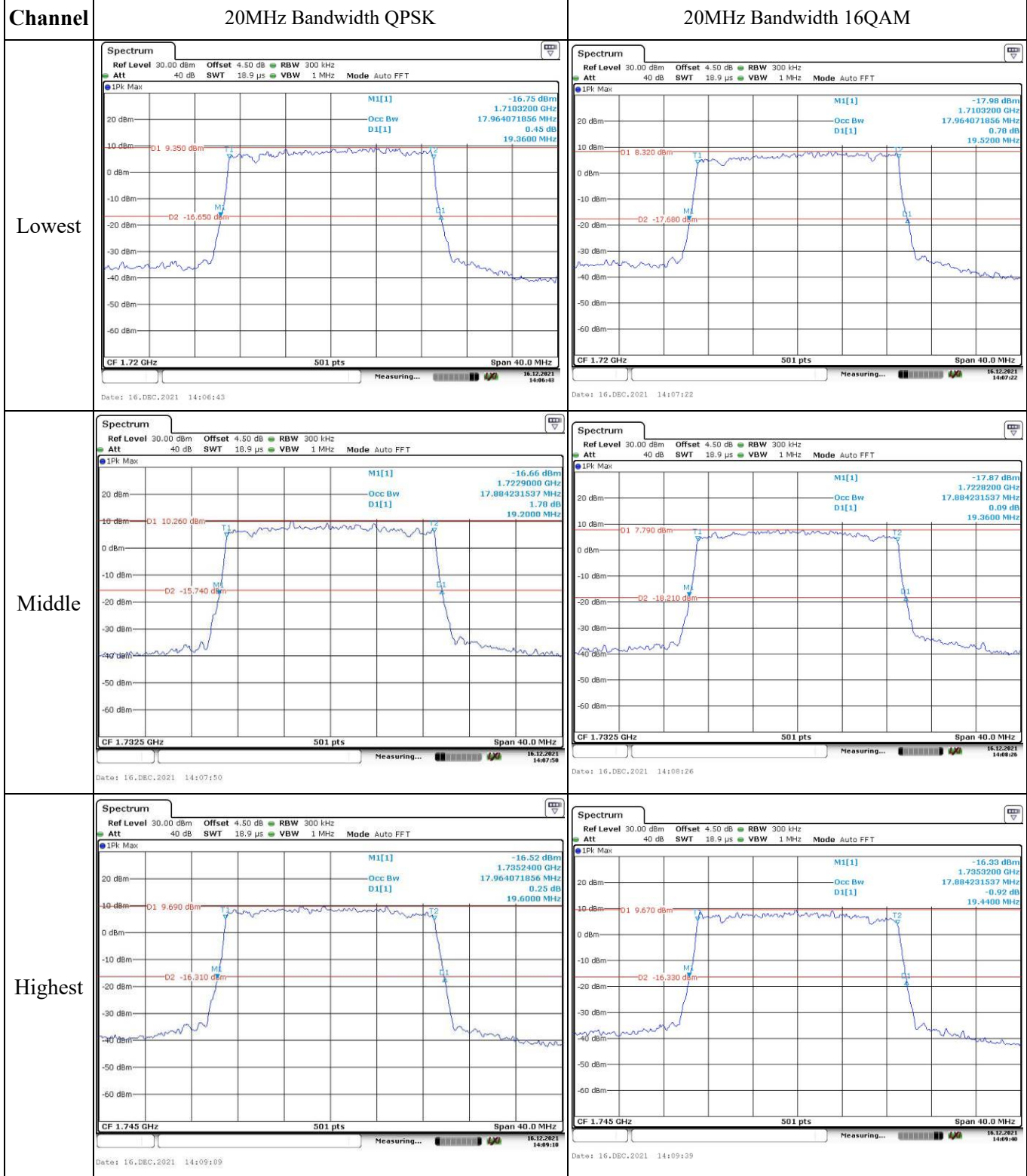
## Occupied Bandwidth



## Occupied Bandwidth



## Occupied Bandwidth

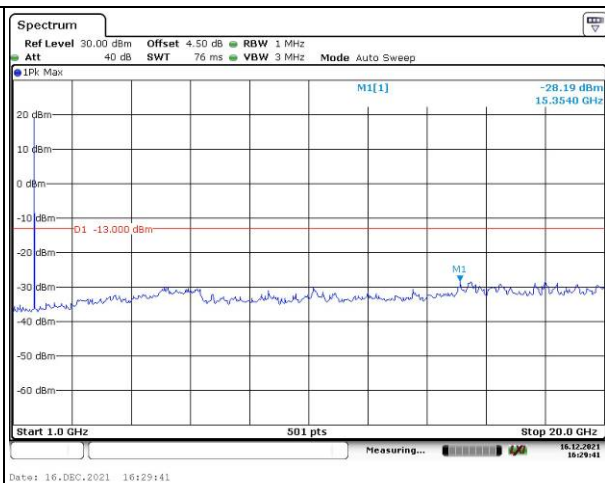
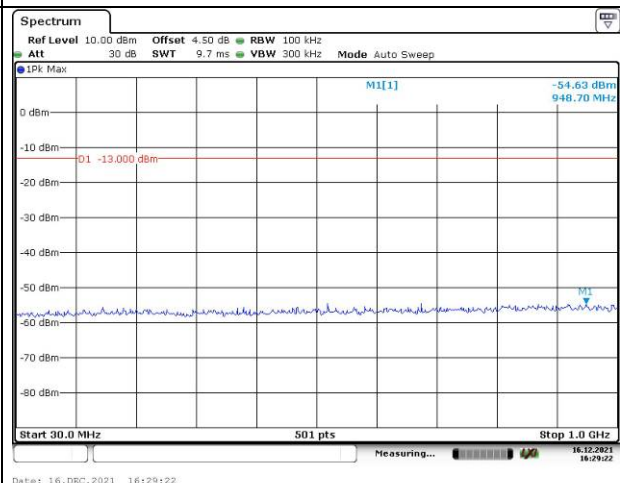


## Spurious Emissions at Antenna Terminal

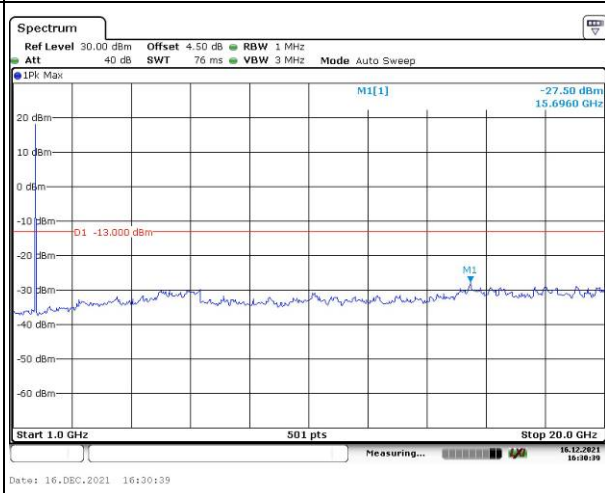
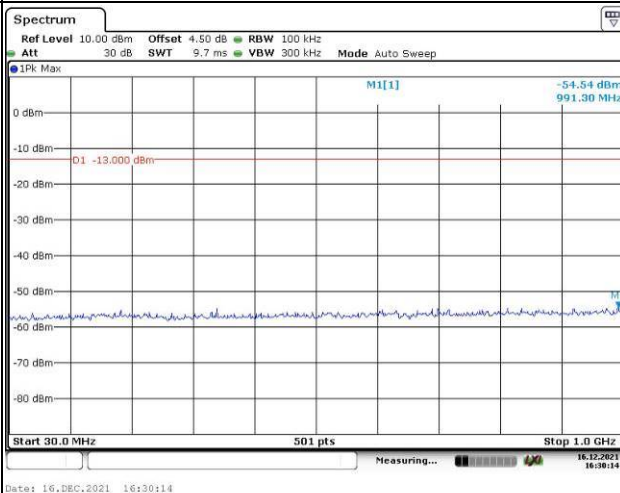
Channel

1.4MHz Bandwidth QPSK

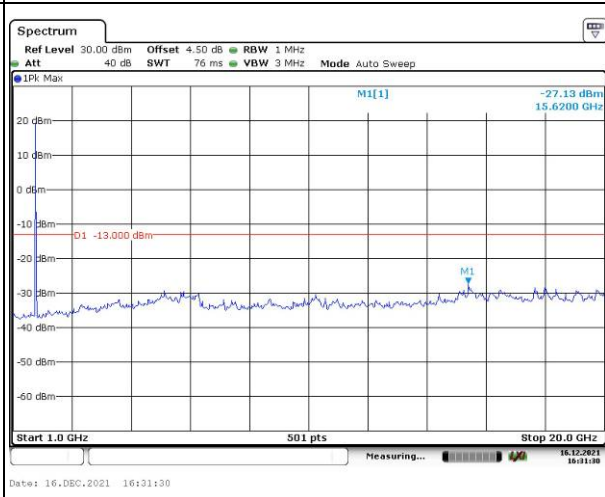
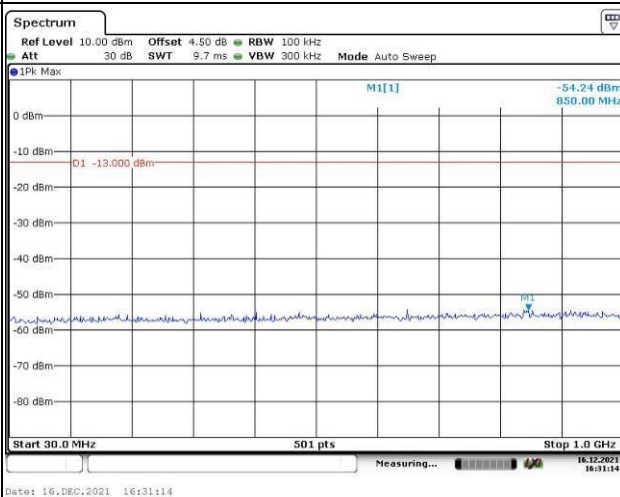
Lowest



Middle



Highest

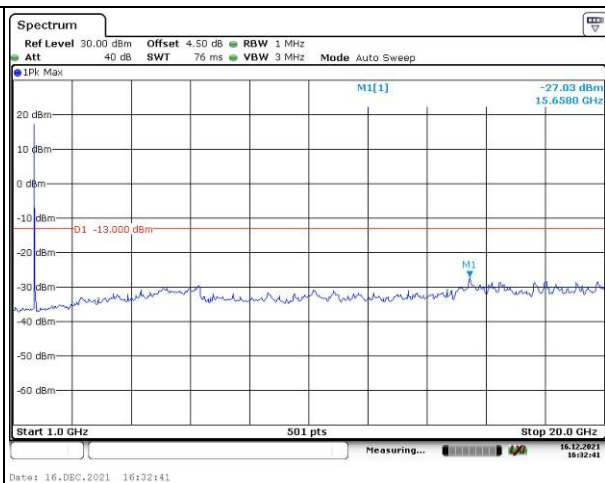
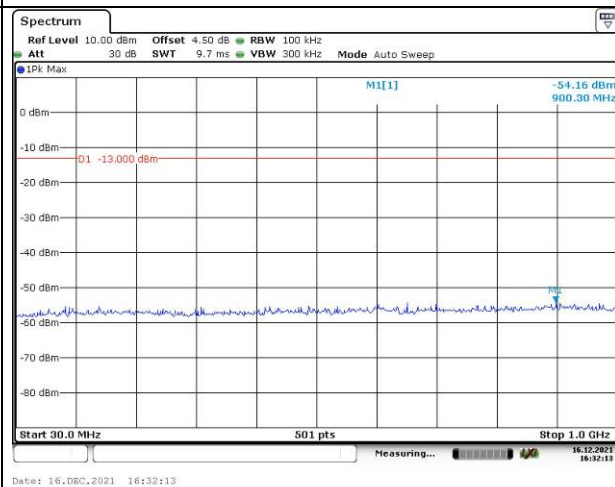


## Spurious Emissions at Antenna Terminal

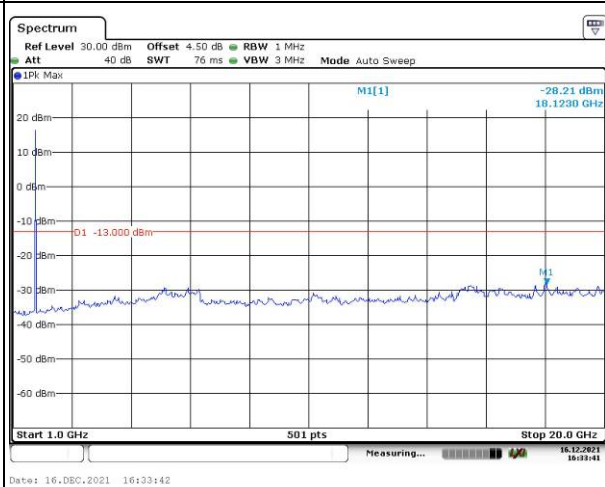
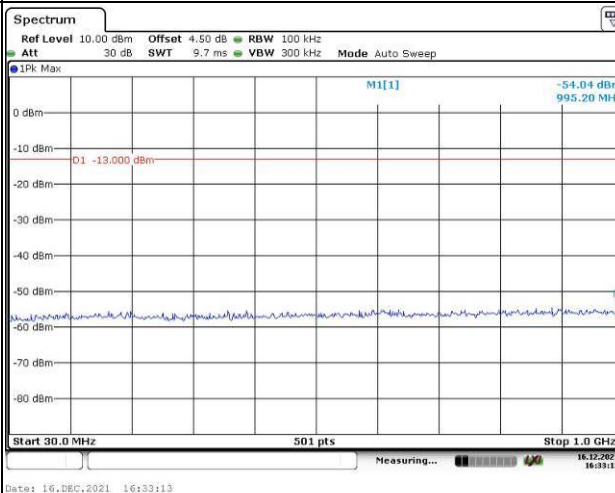
Channel

3MHz Bandwidth QPSK

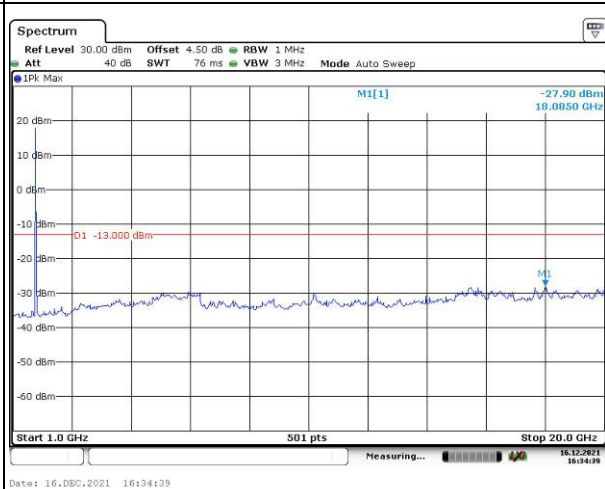
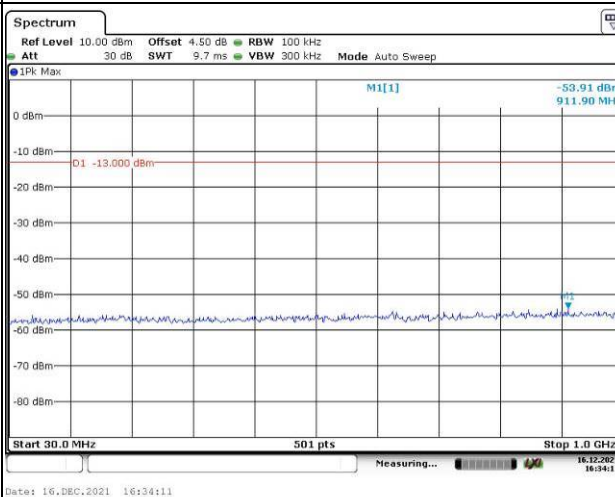
Lowest



Middle



Highest

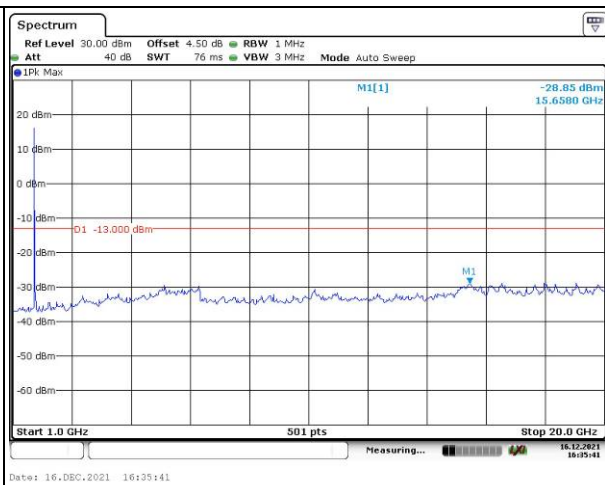
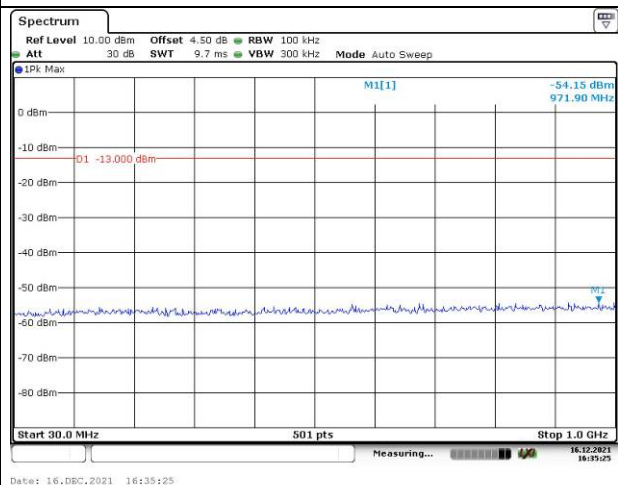


## Spurious Emissions at Antenna Terminal

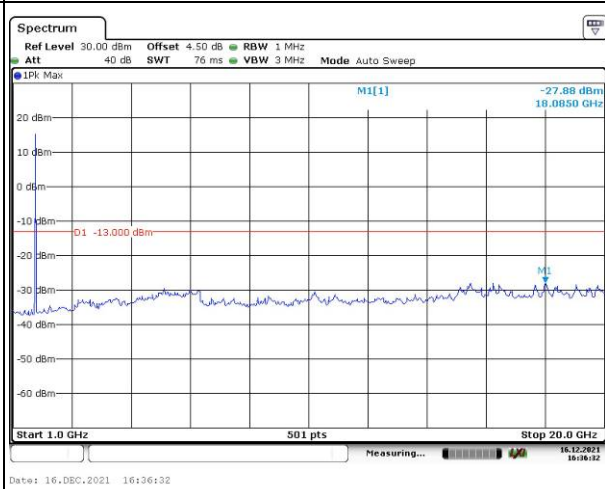
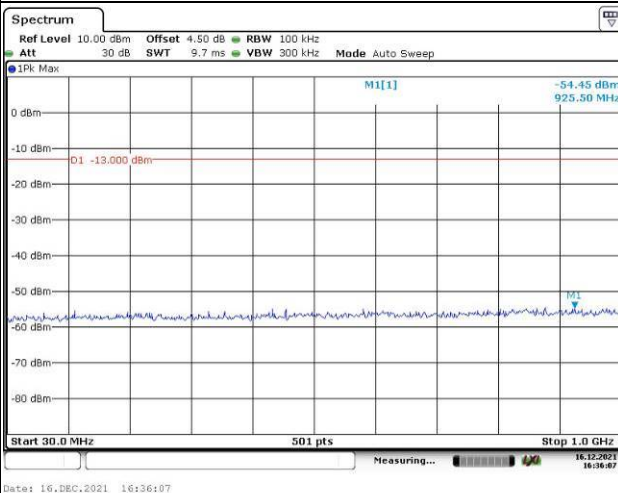
Channel

5MHz Bandwidth QPSK

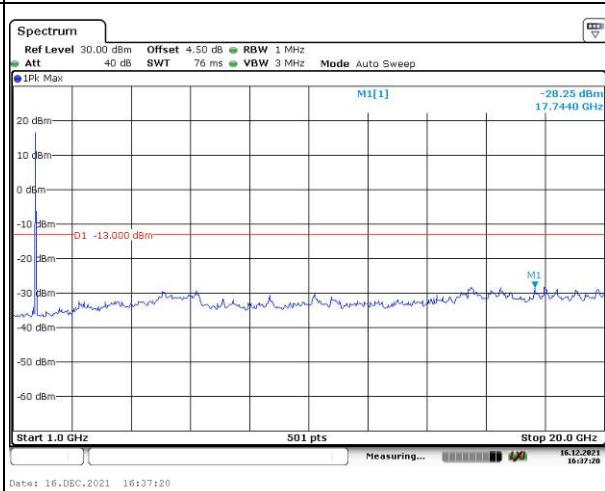
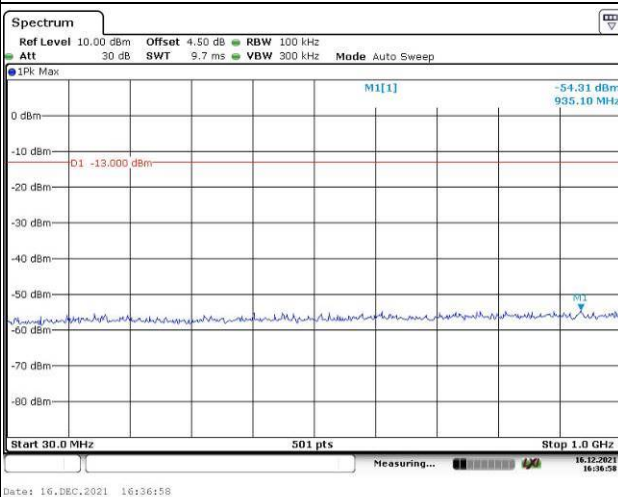
Lowest



Middle



Highest

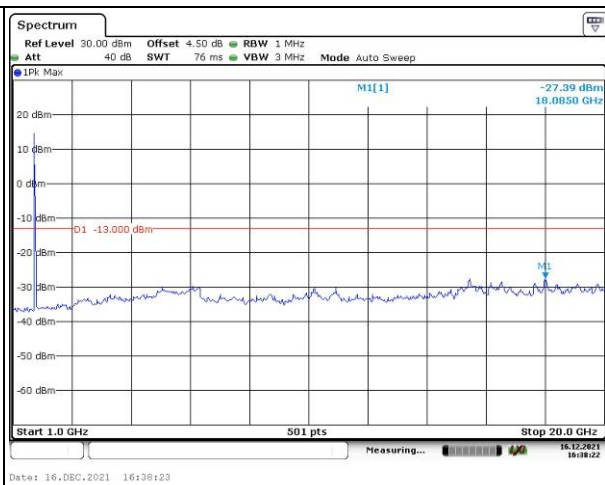
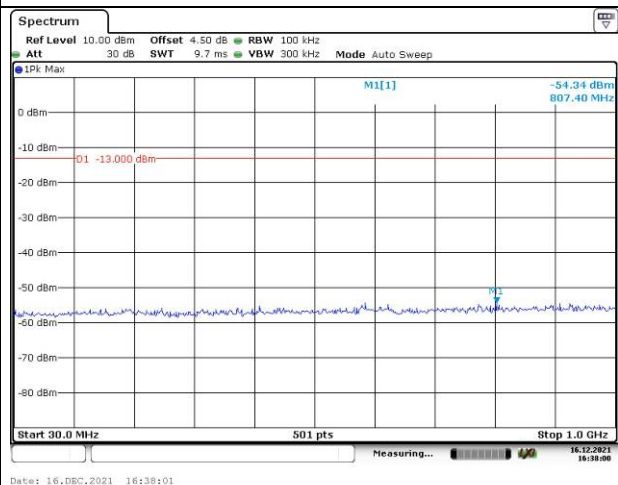


## Spurious Emissions at Antenna Terminal

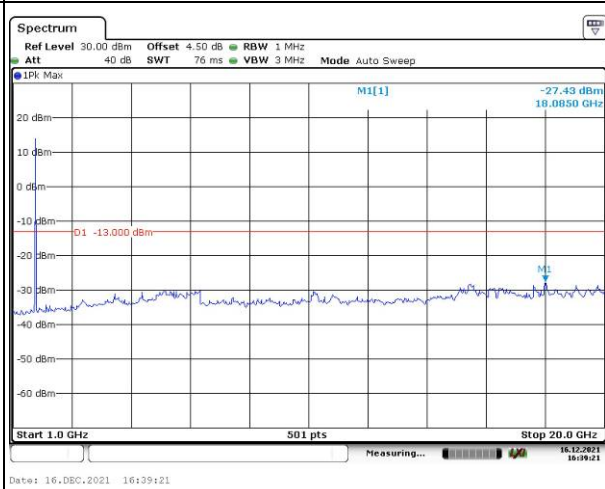
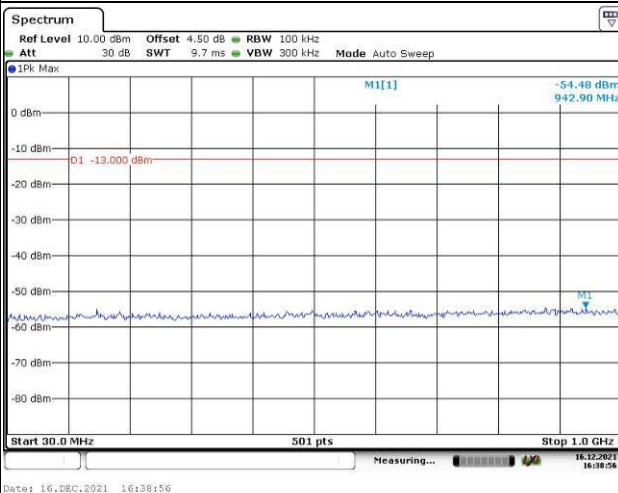
Channel

10MHz Bandwidth QPSK

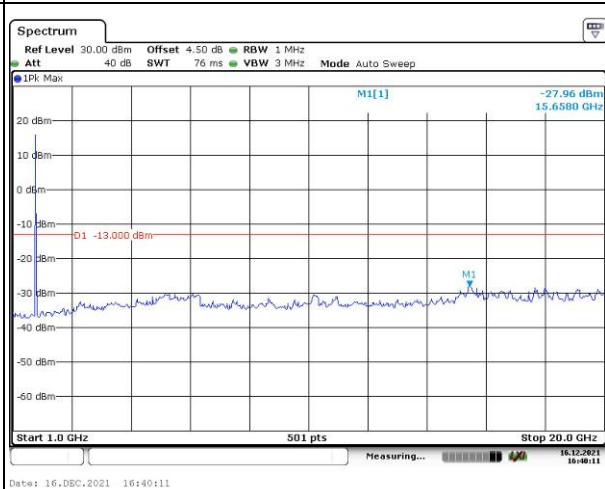
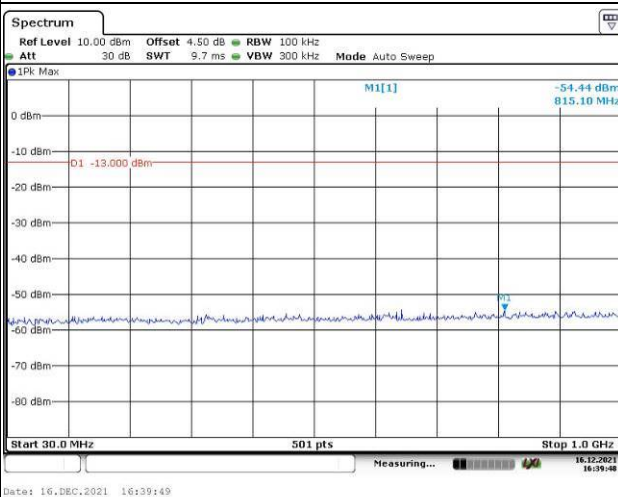
Lowest



Middle



Highest

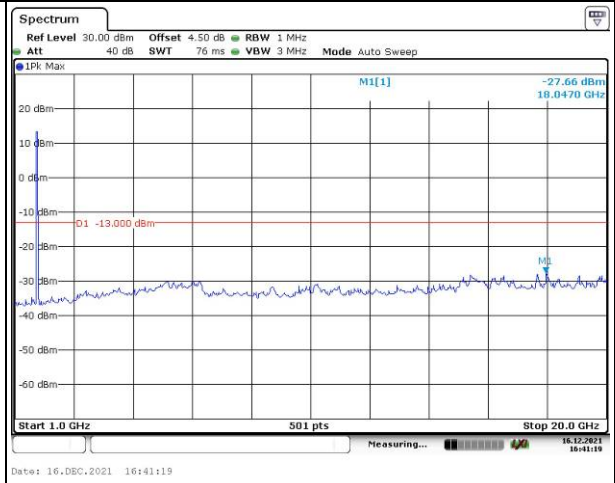
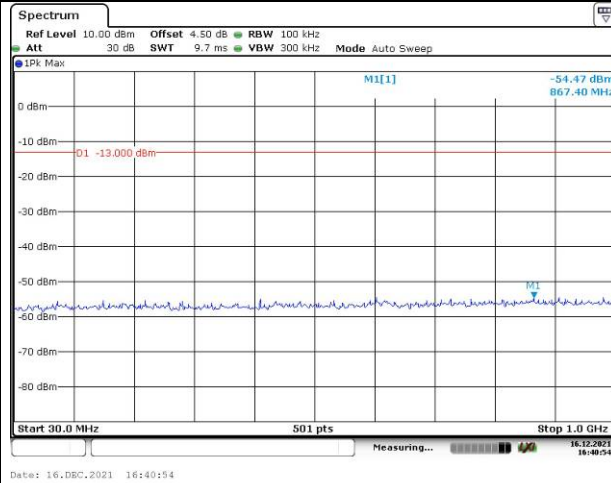


## Spurious Emissions at Antenna Terminal

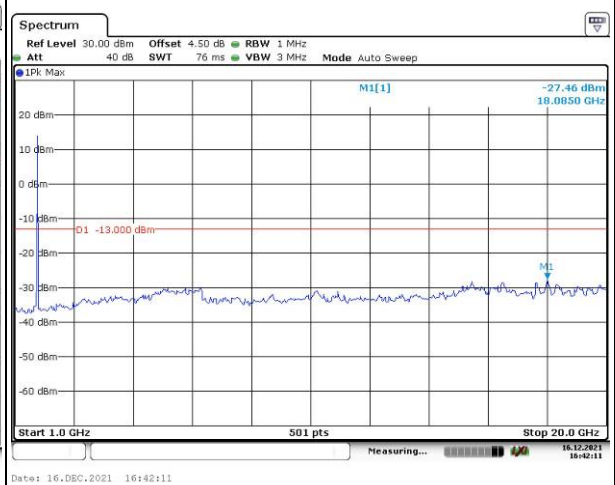
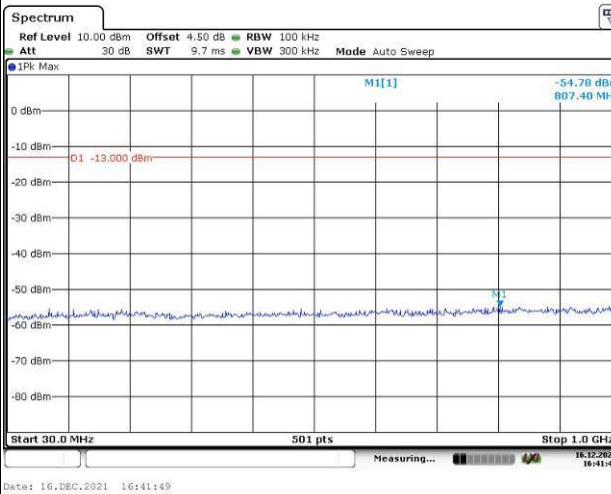
Channel

15MHz Bandwidth QPSK

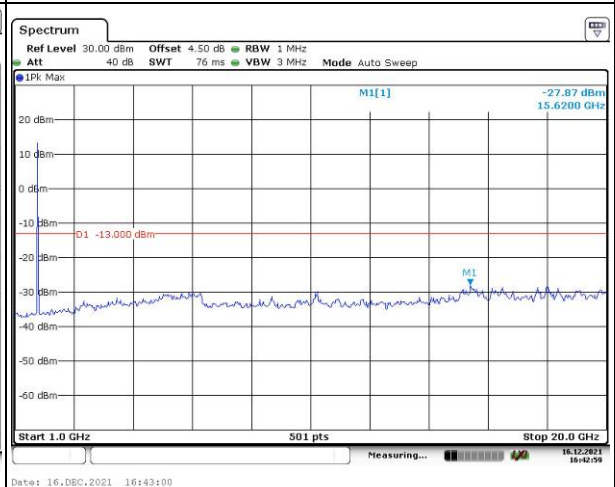
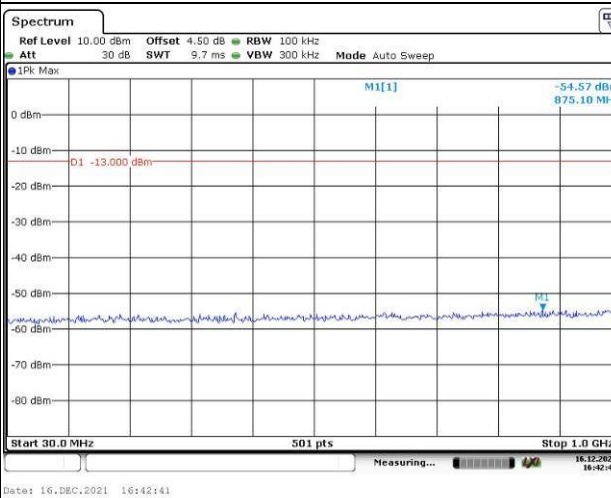
Lowest



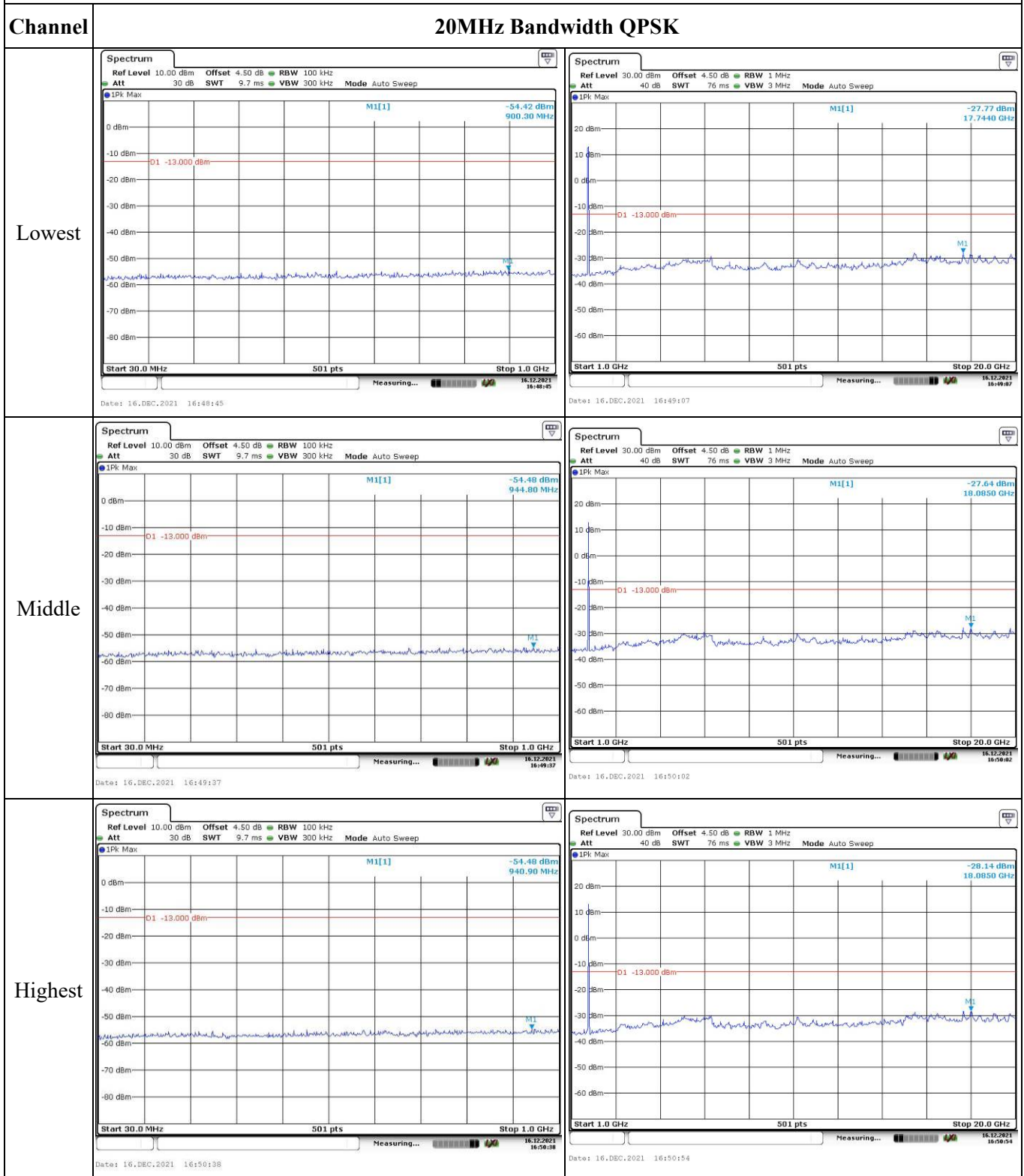
Middle



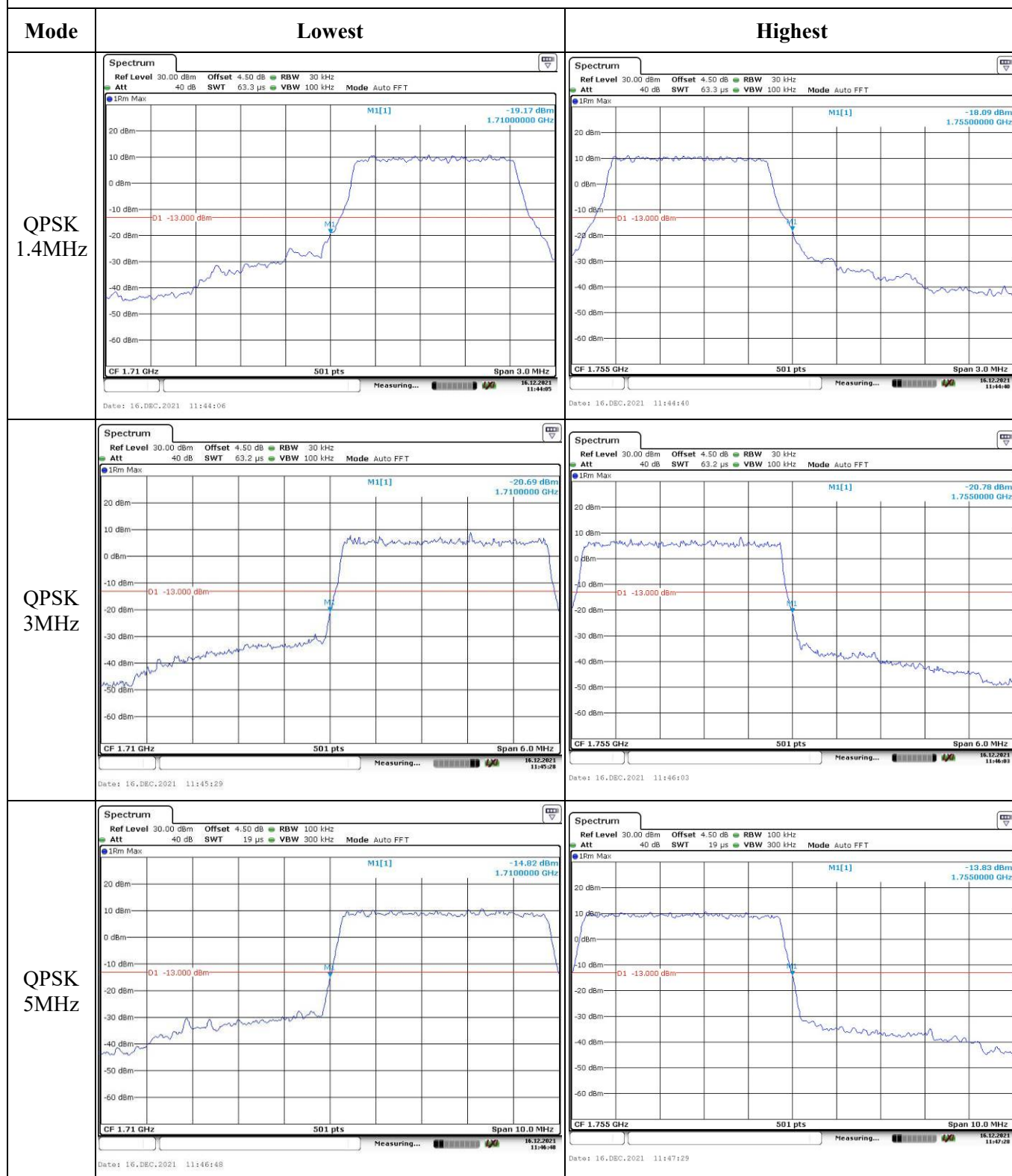
Highest



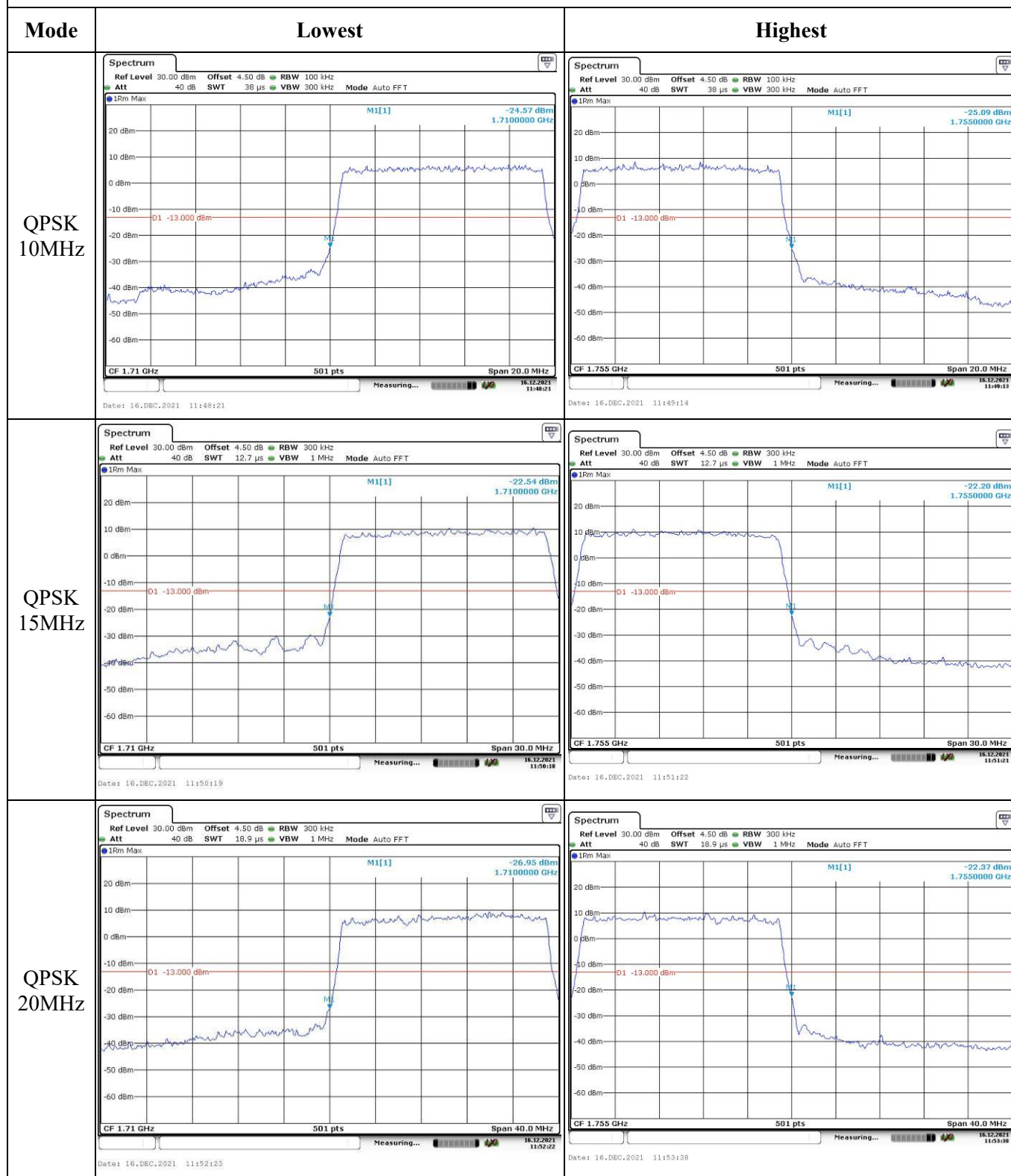
## Spurious Emissions at Antenna Terminal



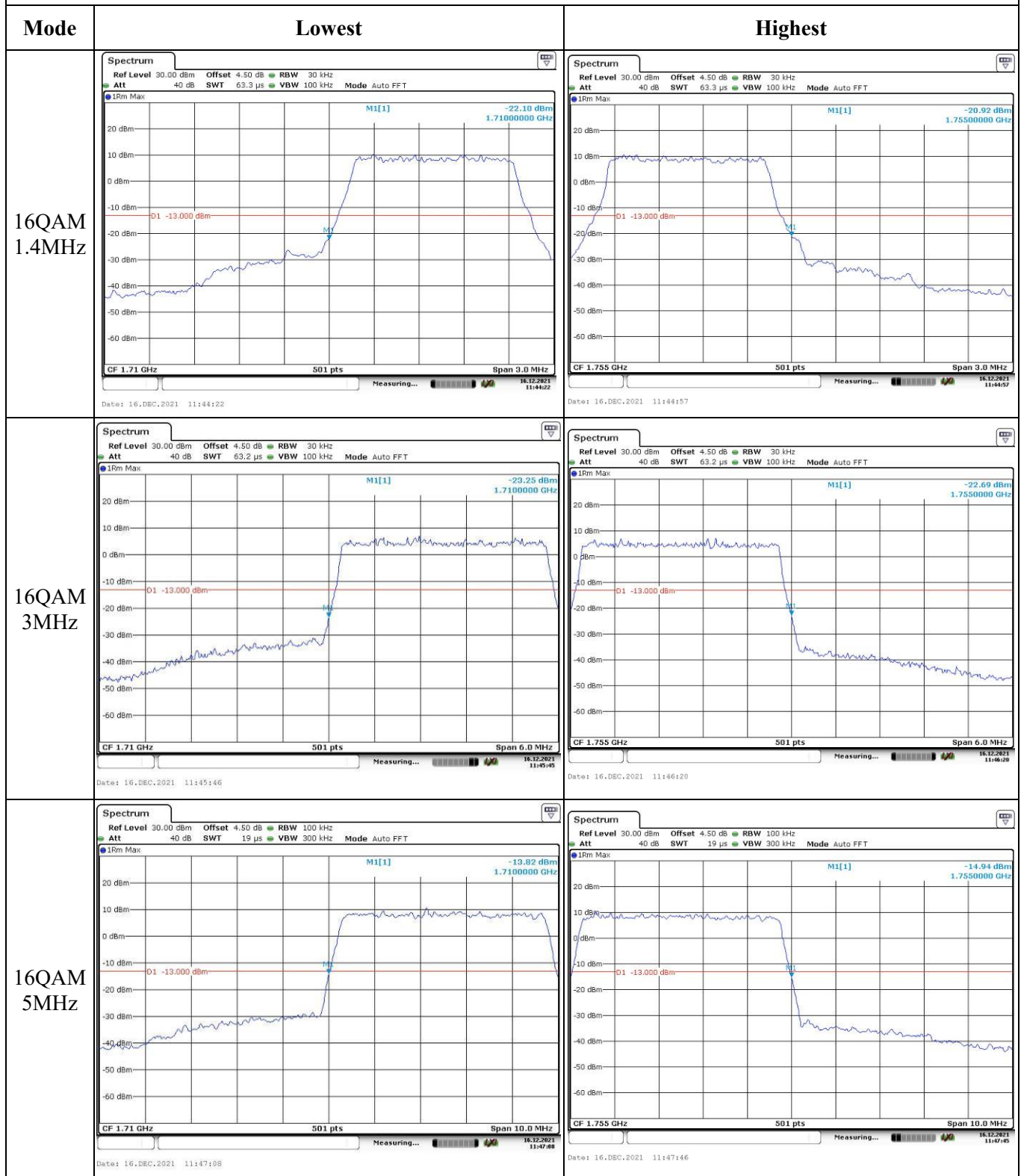
## Out of band emission, Band Edge



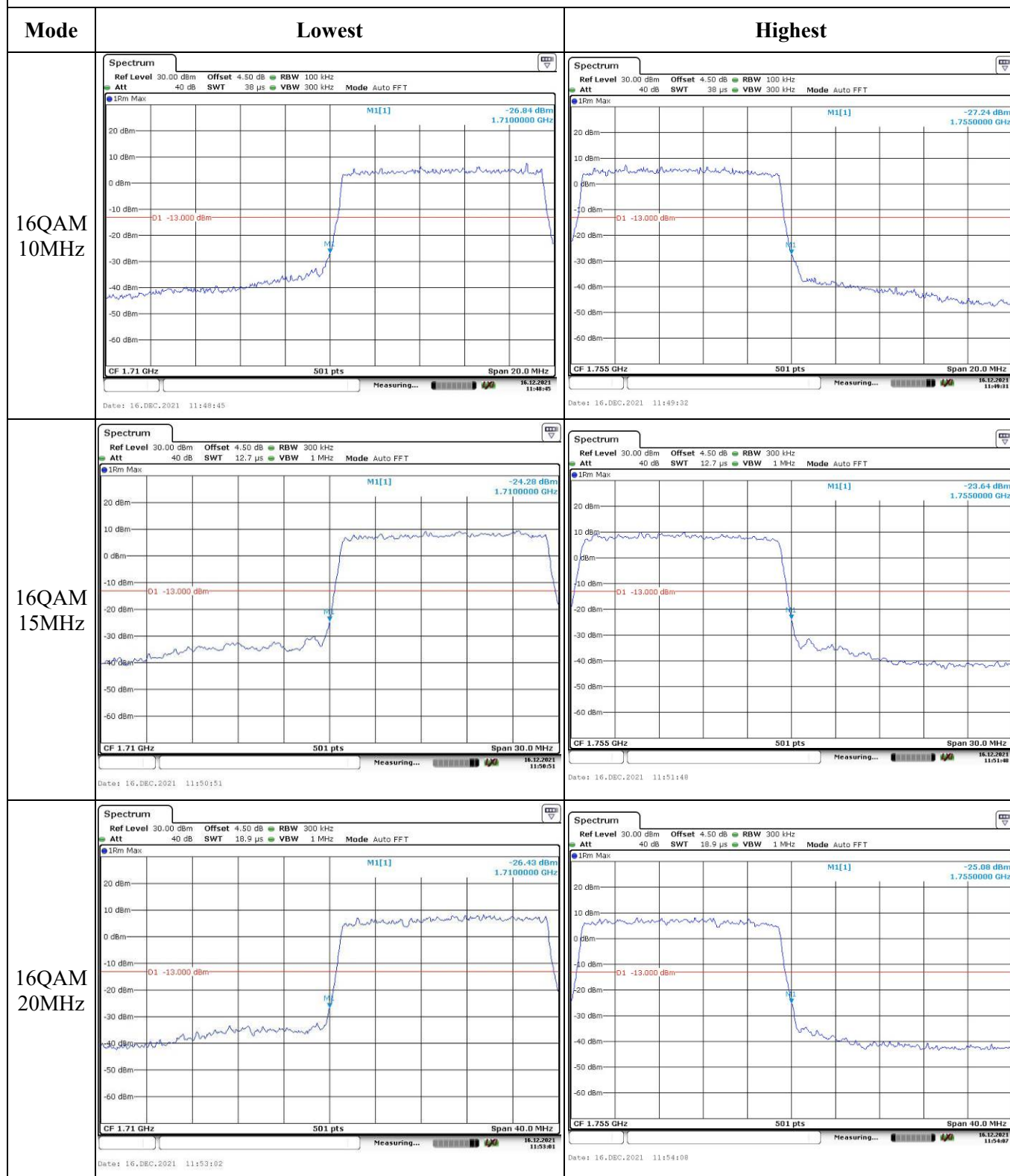
## Out of band emission, Band Edge



## 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: | CR21100097-RF-S1 | Test Date:   | 2021/10/26~2021/12/20 |
| Test Site:     | RF               | Test Mode:   | Transmitting          |
| Tester:        | LE Qiao          | Test Result: | Pass                  |

**Environmental Conditions:**

|                      |           |                              |       |                           |             |
|----------------------|-----------|------------------------------|-------|---------------------------|-------------|
| Temperature:<br>(°C) | 21.7~25.1 | Relative<br>Humidity:<br>(%) | 37~59 | ATM<br>Pressure:<br>(kPa) | 101.1~101.3 |
|----------------------|-----------|------------------------------|-------|---------------------------|-------------|

**Test Equipment List and Details:**

| Manufacturer  | Description                         | Model             | Serial Number | Calibration Date | Calibration Due Date |
|---------------|-------------------------------------|-------------------|---------------|------------------|----------------------|
| R&S           | Spectrum Analyzer                   | Spectrum Analyzer | 101474        | 2021/7/22        | 2022/7/21            |
| zhuoxiang     | Coaxial Cable                       | SMA-178           | 211001        | Each time        | N/A                  |
| Mini-Circuits | DC Block                            | BLK-18-S+         | 1554403       | Each time        | N/A                  |
| YINSAIGE      | Coaxial Cable                       | SS402             | SJ0100001     | Each time        | N/A                  |
| R&S           | Wideband Radio Communication Tester | CMW500            | 149218        | 2021/7/22        | 2022/7/21            |
| BACL          | TEMP&HUMI Test Chamber              | BTH-150           | 30026         | 2021/7/22        | 2022/7/22            |
| UNI-T         | Multimeter                          | UT39A+            | C210582554    | 2021/9/30        | 2022/9/30            |
| E-Microwave   | Two-way Splitter                    | ODP-1-6           | OE0120176     | Each Time        | 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>(dBi):               | 2   | Antenna Gain<br>(dBd): | -0.15 | Cable Loss<br>(dB): | 0   |
| Operation Voltage(V <sub>DC</sub> ): |     |                        |       |                     |     |
| Lowest:                              | 3.2 | Normal:                | 3.8   | Highest:            | 4.4 |

**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                      | 23.11                               | 23.23          | 23.09           | 23.08             | 38.45           |
|                             | RB1#3                      | 23.07                               | 23.18          | 23.16           |                   |                 |
|                             | RB1#5                      | 23.05                               | 23.10          | 23.04           |                   |                 |
|                             | RB3#0                      | 23.08                               | 23.19          | 23.06           |                   |                 |
|                             | RB3#3                      | 22.91                               | 23.01          | 23.06           |                   |                 |
|                             | RB6#0                      | 22.95                               | 22.88          | 22.81           |                   |                 |
| 1.4MHz 16QAM                | RB1#0                      | 23.02                               | 23.23          | 23.10           | 23.08             | 38.45           |
|                             | RB1#3                      | 23.04                               | 23.17          | 23.16           |                   |                 |
|                             | RB1#5                      | 23.03                               | 23.05          | 22.99           |                   |                 |
|                             | RB3#0                      | 23.00                               | 23.18          | 23.12           |                   |                 |
|                             | RB3#3                      | 22.98                               | 23.04          | 23.00           |                   |                 |
|                             | RB6#0                      | 22.97                               | 22.97          | 22.93           |                   |                 |
| 3MHz QPSK                   | RB1#0                      | 23.19                               | 23.32          | 23.27           | 23.23             | 38.45           |
|                             | RB1#8                      | 23.17                               | 23.38          | 23.25           |                   |                 |
|                             | RB1#14                     | 23.07                               | 23.25          | 23.18           |                   |                 |
|                             | RB6#0                      | 23.17                               | 23.27          | 23.10           |                   |                 |
|                             | RB6#9                      | 23.02                               | 23.24          | 23.11           |                   |                 |
|                             | RB15#0                     | 22.97                               | 23.15          | 23.07           |                   |                 |
| 3MHz 16QAM                  | RB1#0                      | 23.06                               | 23.32          | 23.34           | 23.19             | 38.45           |
|                             | RB1#8                      | 23.04                               | 23.33          | 23.19           |                   |                 |
|                             | RB1#14                     | 23.02                               | 23.11          | 23.01           |                   |                 |
|                             | RB6#0                      | 23.08                               | 23.19          | 23.14           |                   |                 |
|                             | RB6#9                      | 22.99                               | 23.15          | 23.02           |                   |                 |
|                             | RB15#0                     | 22.84                               | 23.12          | 22.89           |                   |                 |
| 5MHz QPSK                   | RB1#0                      | 23.35                               | 23.35          | 23.35           | 23.26             | 38.45           |
|                             | RB1#13                     | 23.31                               | 23.41          | 23.29           |                   |                 |
|                             | RB1#24                     | 23.16                               | 23.31          | 23.19           |                   |                 |
|                             | RB15#0                     | 23.30                               | 23.40          | 23.37           |                   |                 |
|                             | RB15#10                    | 23.11                               | 23.23          | 23.12           |                   |                 |
|                             | RB25#0                     | 23.09                               | 23.22          | 22.97           |                   |                 |
| 5MHz 16QAM                  | RB1#0                      | 23.35                               | 23.25          | 23.33           | 23.22             | 38.45           |
|                             | RB1#13                     | 23.30                               | 23.37          | 23.15           |                   |                 |
|                             | RB1#24                     | 23.03                               | 23.21          | 23.14           |                   |                 |
|                             | RB15#0                     | 23.17                               | 23.34          | 23.15           |                   |                 |

|             |         |       |       |       |       |       |
|-------------|---------|-------|-------|-------|-------|-------|
|             | RB15#10 | 22.98 | 23.24 | 23.15 |       |       |
|             | RB25#0  | 23.05 | 23.06 | 22.93 |       |       |
| 10MHz QPSK  | RB1#0   | 23.36 | 23.47 | 23.44 | 23.32 | 38.45 |
|             | RB1#25  | 23.24 | 23.41 | 23.28 |       |       |
|             | RB1#49  | 23.22 | 23.33 | 23.15 |       |       |
|             | RB25#0  | 23.25 | 23.39 | 23.42 |       |       |
|             | RB25#25 | 23.14 | 23.32 | 23.19 |       |       |
|             | RB50#0  | 23.15 | 23.30 | 23.05 |       |       |
| 10MHz 16QAM | RB1#0   | 23.26 | 23.34 | 23.40 | 23.25 | 38.45 |
|             | RB1#25  | 23.24 | 23.38 | 23.20 |       |       |
|             | RB1#49  | 23.28 | 23.15 | 23.15 |       |       |
|             | RB25#0  | 23.21 | 23.37 | 23.35 |       |       |
|             | RB25#25 | 23.26 | 23.25 | 23.15 |       |       |
|             | RB50#0  | 23.09 | 23.16 | 23.08 |       |       |

Note: ERP=Conducted Power(dBm) - Cable loss(dB) + Antenna Gain(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                      | 4.32                      | 4.46           | 4.46            | 13          |
|                             | RB50#0                     | 4.75                      | 4.93           | 4.55            | 13          |
| 10MHz 16QAM                 | RB1#0                      | 5.39                      | 5.48           | 5.42            | 13          |
|                             | RB50#0                     | 5.74                      | 5.86           | 5.83            | 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          | 1.102        | 1.308                          | 1.314          | 1.296        |
| 1.4MHz 16QAM   | 1.102                        | 1.096          | 1.102        | 1.320                          | 1.296          | 1.314        |
| 3MHz QPSK      | 2.695                        | 2.695          | 2.695        | 2.940                          | 2.940          | 2.976        |
| 3MHz 16QAM     | 2.695                        | 2.683          | 2.695        | 2.964                          | 2.952          | 2.964        |
| 5MHz QPSK      | 4.531                        | 4.511          | 4.491        | 5.040                          | 5.060          | 5.000        |
| 5MHz 16QAM     | 4.491                        | 4.531          | 4.511        | 5.040                          | 5.040          | 5.040        |
| 10MHz QPSK     | 8.901                        | 8.942          | 8.901        | 9.760                          | 9.800          | 9.600        |
| 10MHz 16QAM    | 8.901                        | 8.942          | 8.901        | 9.640                          | 9.720          | 9.560        |

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**

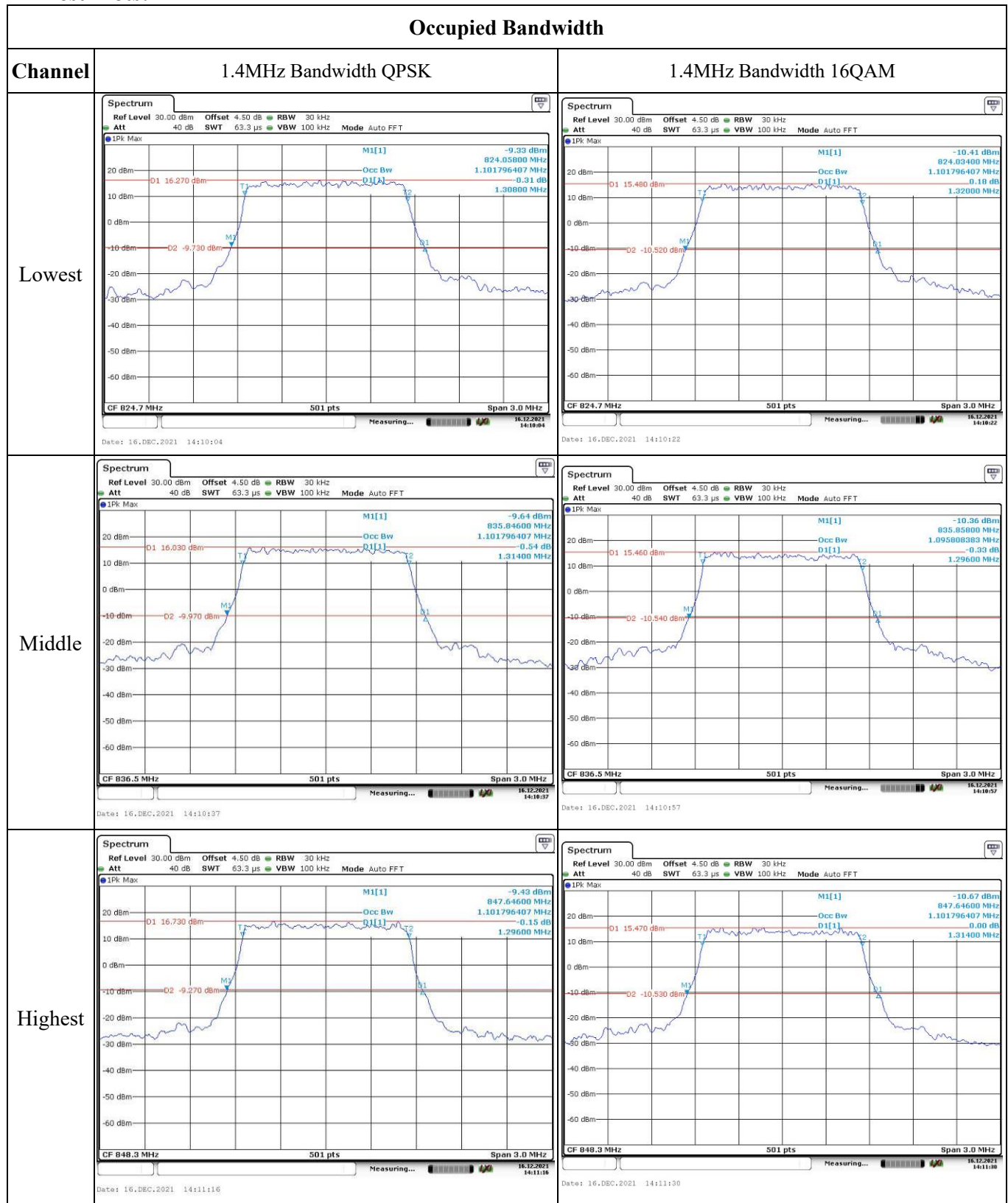
|                |                                                                                 |
|----------------|---------------------------------------------------------------------------------|
| <b>Result:</b> | <b>Pass, Please refer to the test plots of Out of band emission, Band Edge.</b>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

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

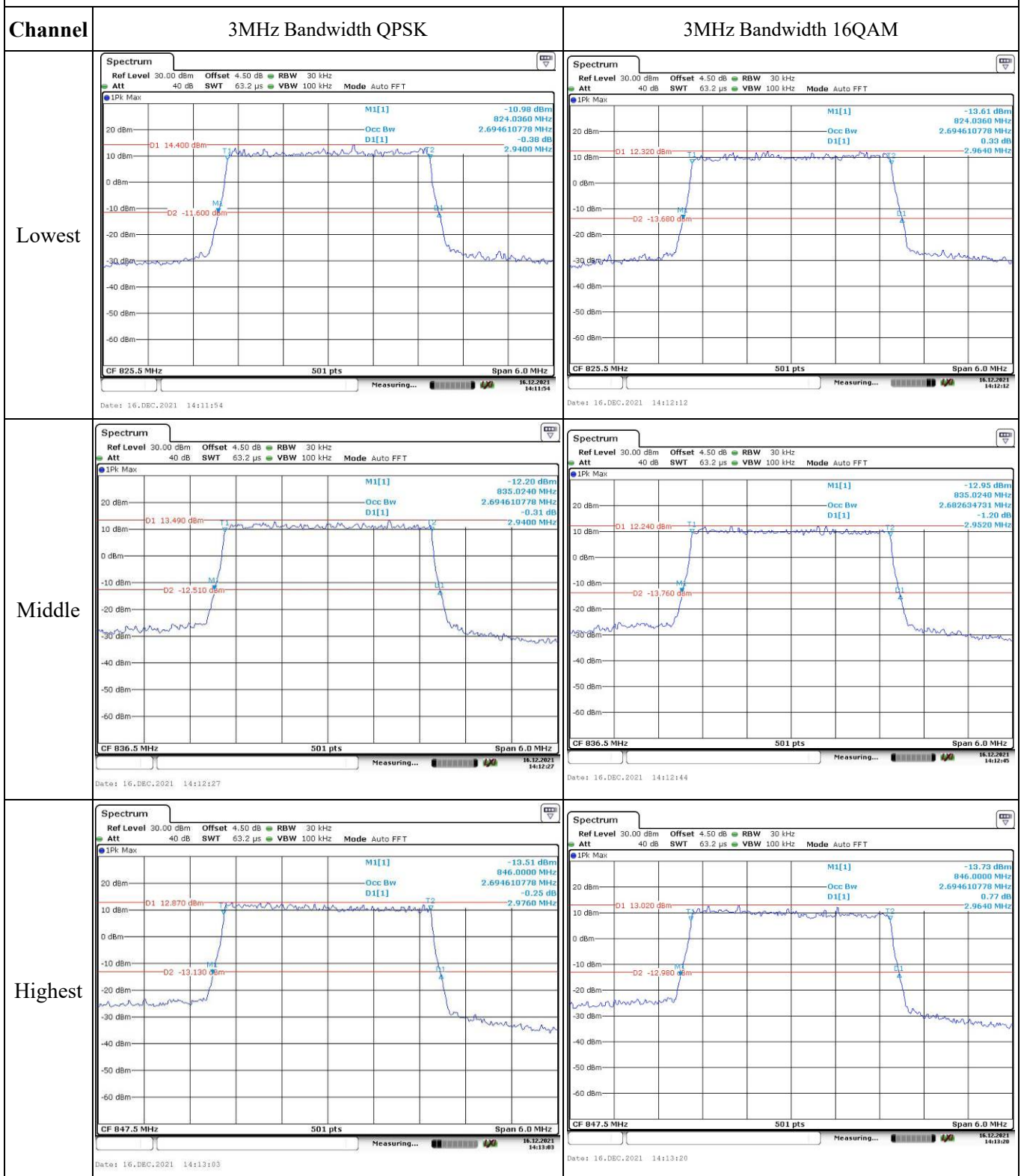
| Test Mode:                          | 10 MHz QPSK      |                            | Test Channel:   | 836.5          | MHz         |
|-------------------------------------|------------------|----------------------------|-----------------|----------------|-------------|
| Test Item                           | Temperature (°C) | Voltage (V <sub>DC</sub> ) | Frequency Error |                | Limit       |
|                                     |                  |                            | (Hz)            | (ppm)          | (ppm)       |
| Frequency Stability vs. Temperature | -30              | 3.8                        | -0.73           | -0.001         | 2.5         |
|                                     | -20              | 3.8                        | 8.60            | 0.010          | 2.5         |
|                                     | -10              | 3.8                        | 8.93            | 0.011          | 2.5         |
|                                     | 0                | 3.8                        | -7.75           | -0.009         | 2.5         |
|                                     | 10               | 3.8                        | -5.29           | -0.006         | 2.5         |
|                                     | 20               | 3.8                        | 6.07            | 0.007          | 2.5         |
|                                     | 30               | 3.8                        | -5.27           | -0.006         | 2.5         |
|                                     | 40               | 3.8                        | 7.39            | 0.009          | 2.5         |
| Frequency Stability vs. Voltage     | 20               | 3.2                        | 6.71            | 0.008          | 2.5         |
|                                     | 20               | 4.4                        | -6.58           | -0.008         | 2.5         |
|                                     |                  |                            |                 | <b>Result:</b> | <b>Pass</b> |

| Test Mode:                          | 10 MHz 16QAM     |                            | Test Channel:   | 836.5          | MHz         |
|-------------------------------------|------------------|----------------------------|-----------------|----------------|-------------|
| Test Item                           | Temperature (°C) | Voltage (V <sub>DC</sub> ) | Frequency Error |                | Limit       |
|                                     |                  |                            | (Hz)            | (ppm)          | (ppm)       |
| Frequency Stability vs. Temperature | -30              | 3.8                        | -0.67           | -0.001         | 2.5         |
|                                     | -20              | 3.8                        | 6.13            | 0.007          | 2.5         |
|                                     | -10              | 3.8                        | 6.15            | 0.007          | 2.5         |
|                                     | 0                | 3.8                        | -8.52           | -0.010         | 2.5         |
|                                     | 10               | 3.8                        | -8.24           | -0.010         | 2.5         |
|                                     | 20               | 3.8                        | -5.02           | -0.006         | 2.5         |
|                                     | 30               | 3.8                        | 8.08            | 0.010          | 2.5         |
|                                     | 40               | 3.8                        | 7.22            | 0.009          | 2.5         |
| Frequency Stability vs. Voltage     | 20               | 3.2                        | 5.02            | 0.006          | 2.5         |
|                                     | 20               | 4.4                        | 9.15            | 0.011          | 2.5         |
|                                     |                  |                            |                 | <b>Result:</b> | <b>Pass</b> |

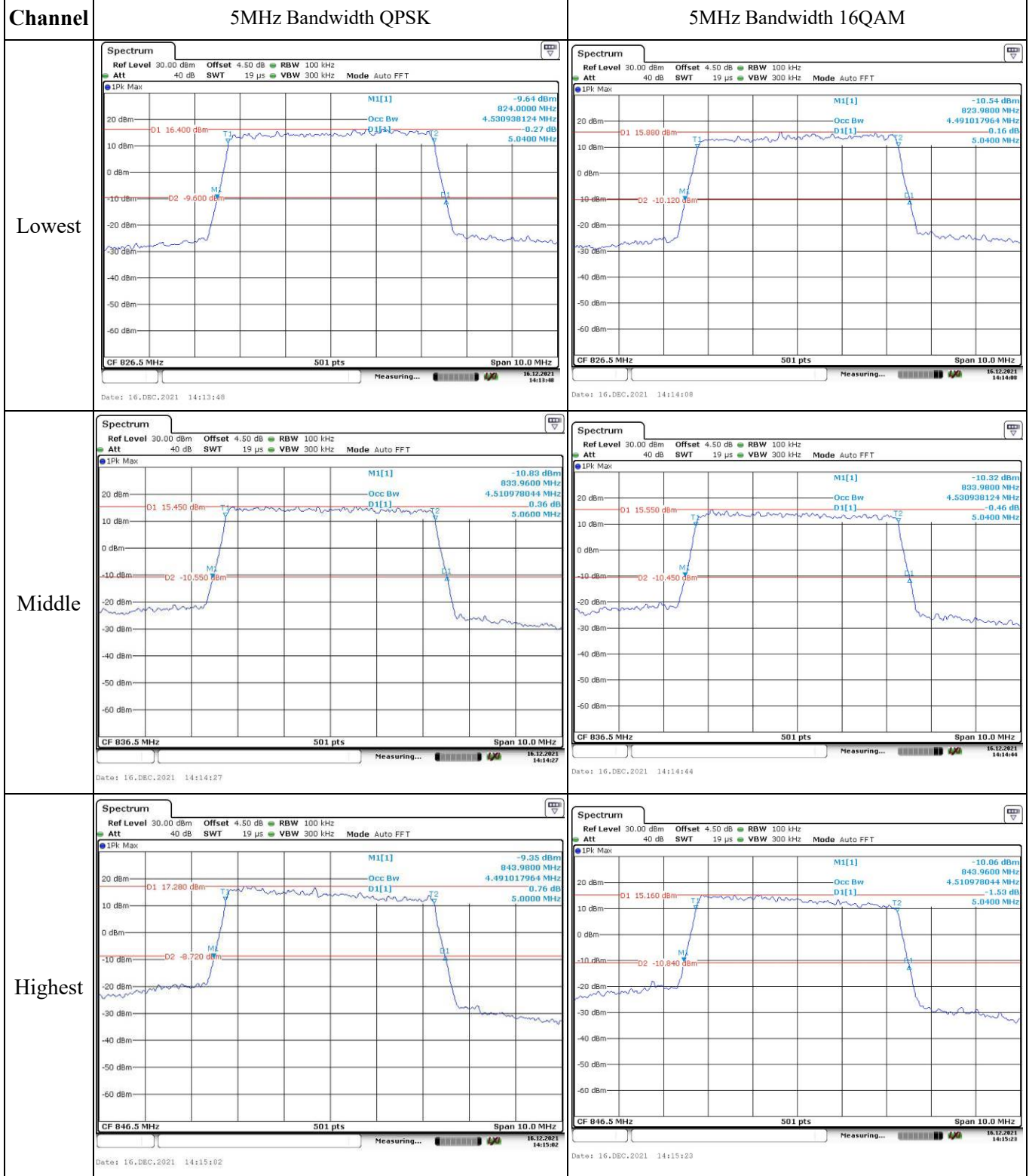
## Test Plots:



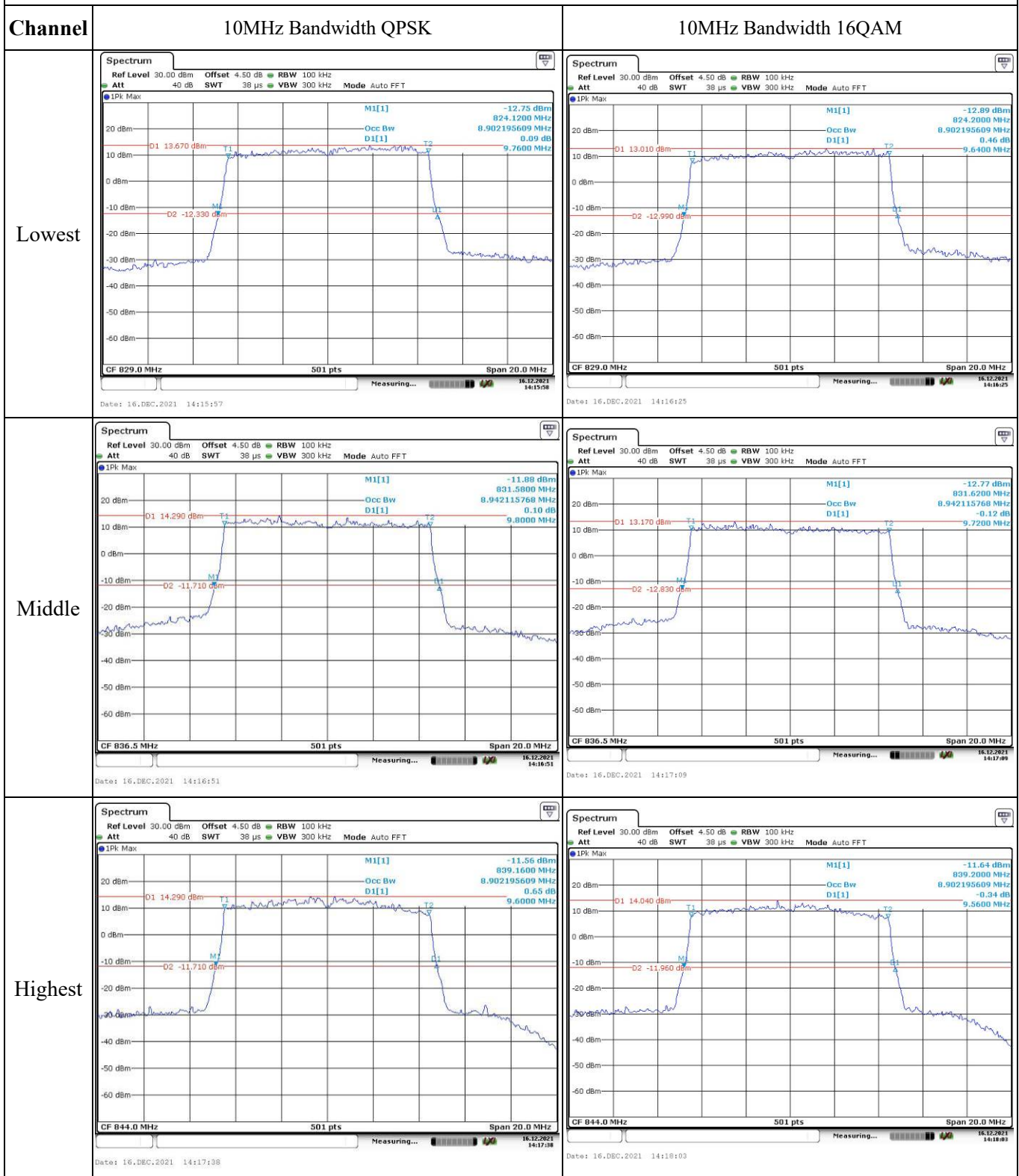
## Occupied Bandwidth



## Occupied Bandwidth



## Occupied Bandwidth

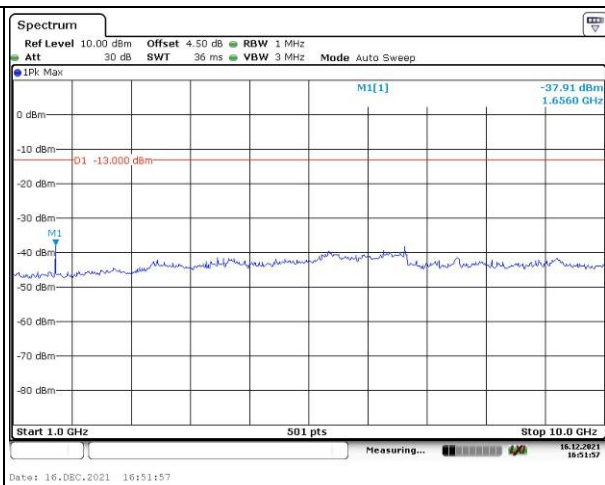
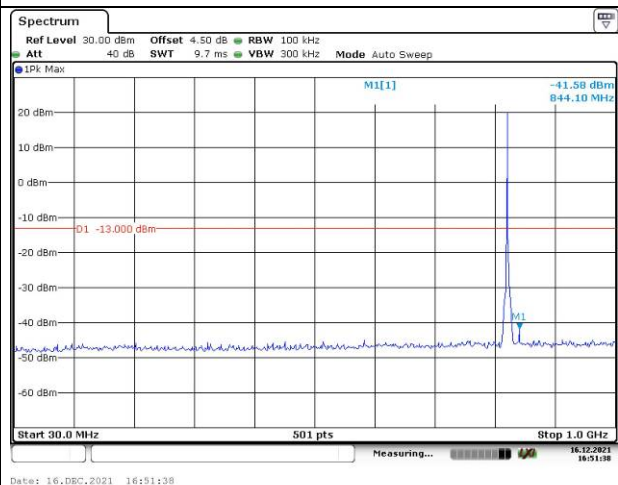


## Spurious Emissions at Antenna Terminal

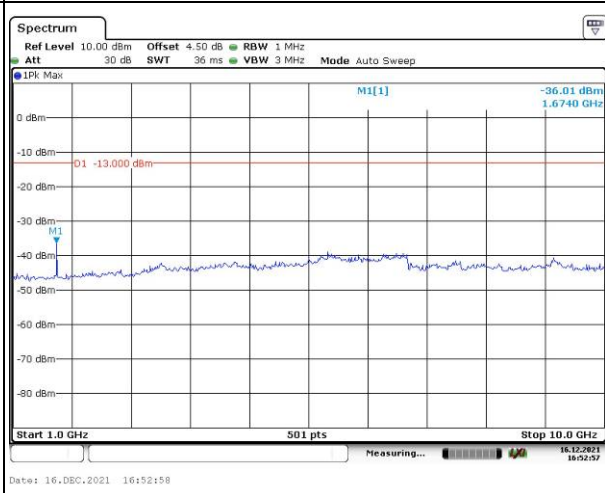
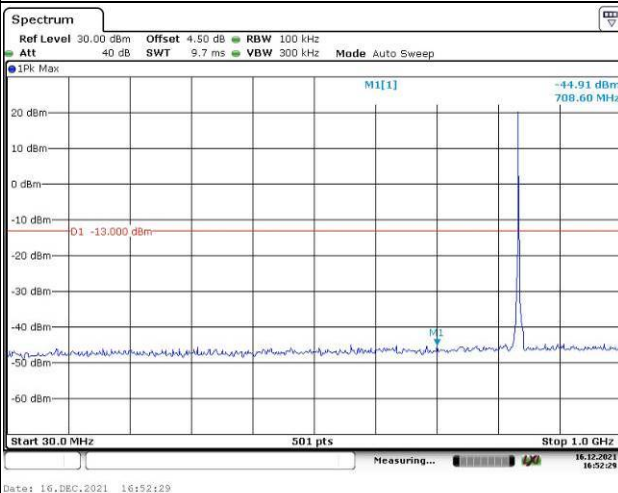
Channel

1.4MHz Bandwidth QPSK

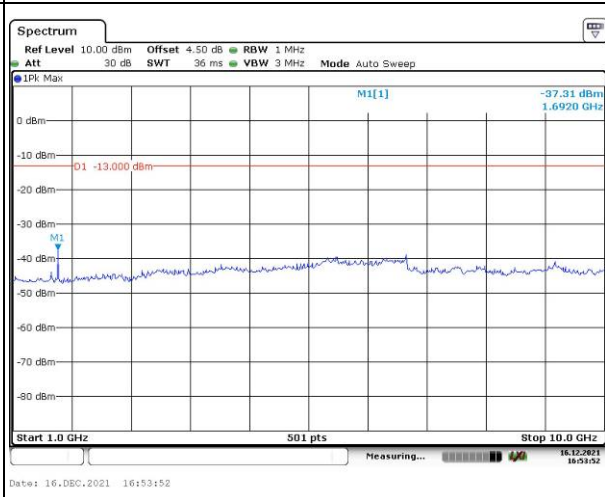
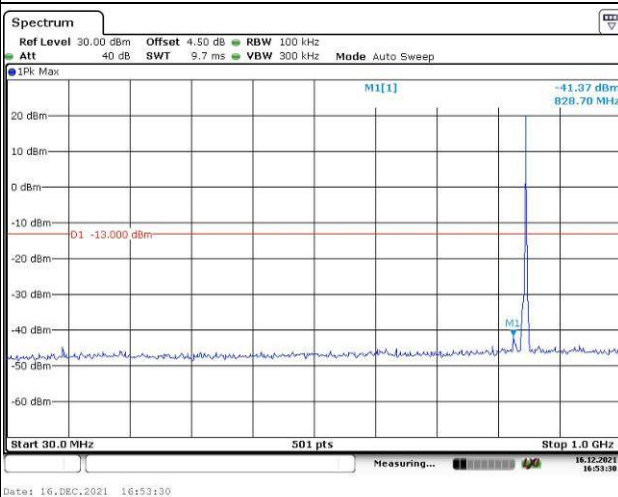
Lowest



Middle



Highest

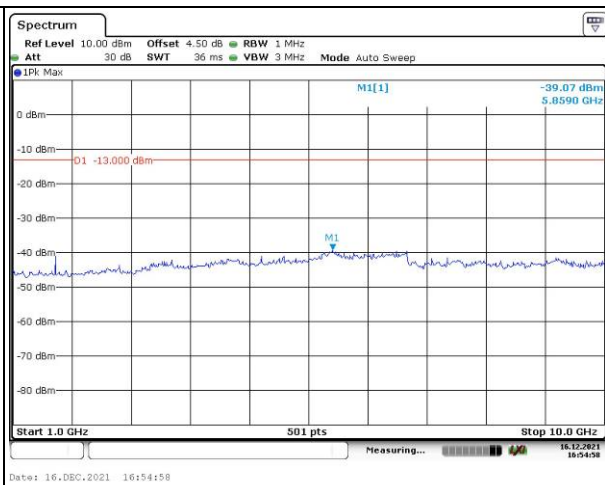
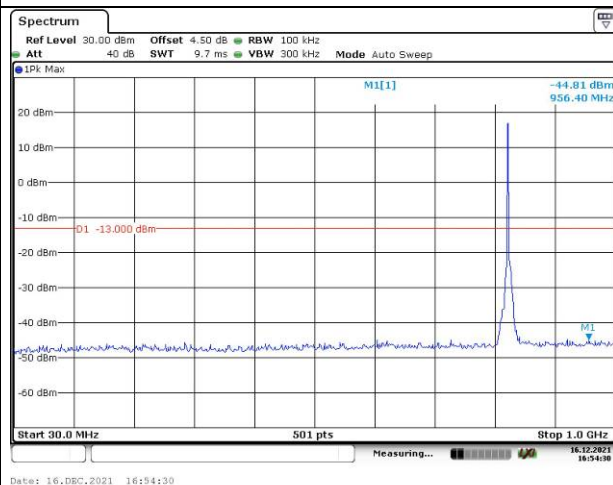


## Spurious Emissions at Antenna Terminal

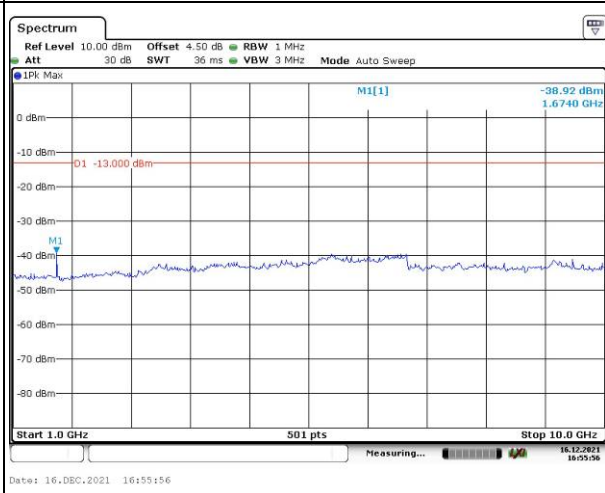
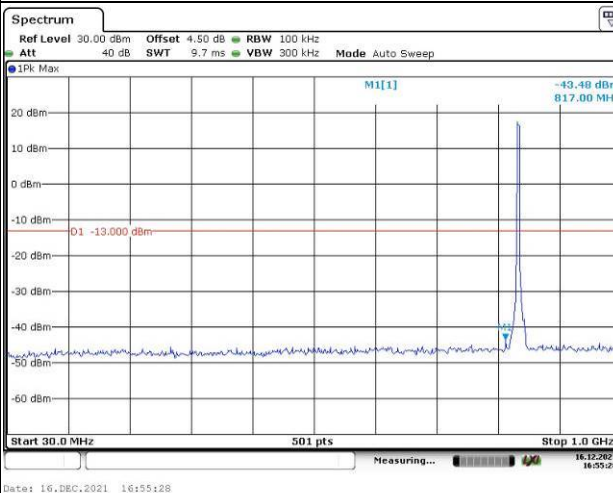
Channel

3MHz Bandwidth QPSK

Lowest



Middle



Highest

