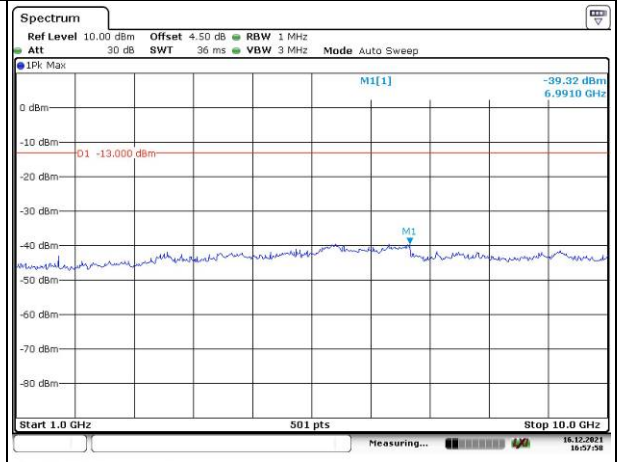
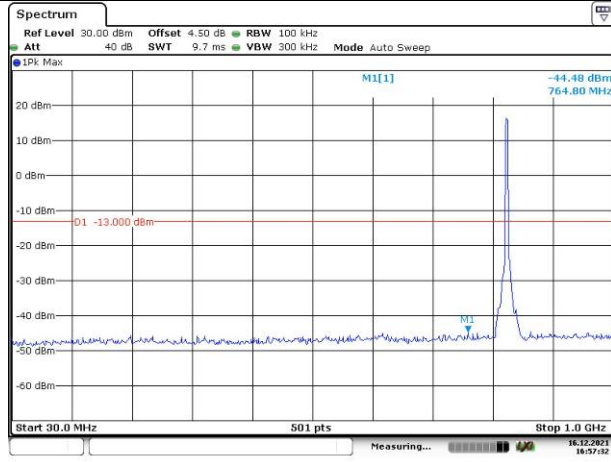


Spurious Emissions at Antenna Terminal

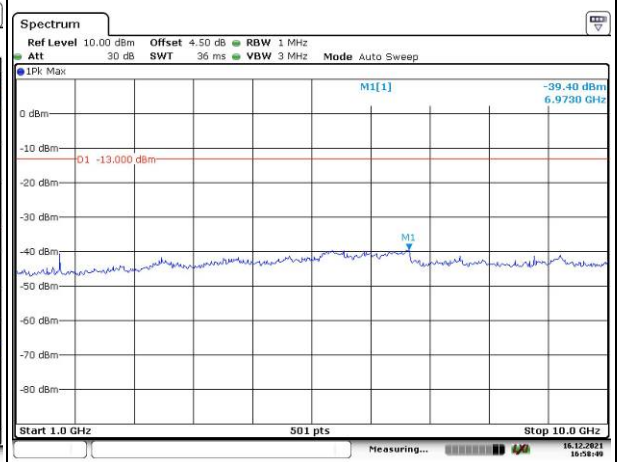
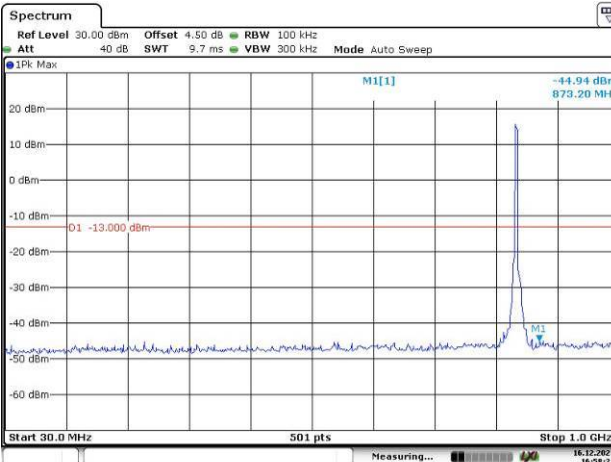
Channel

5MHz Bandwidth QPSK

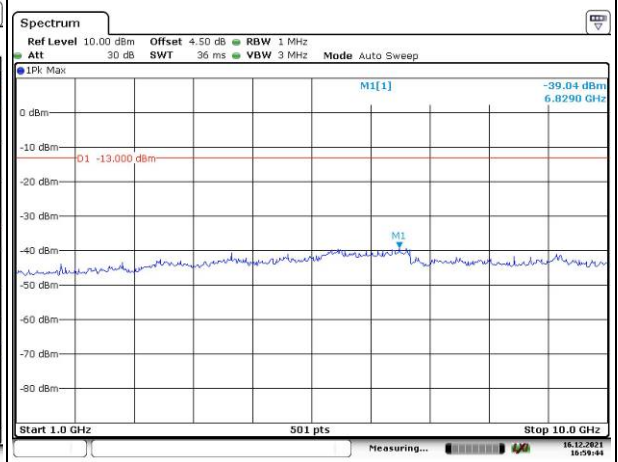
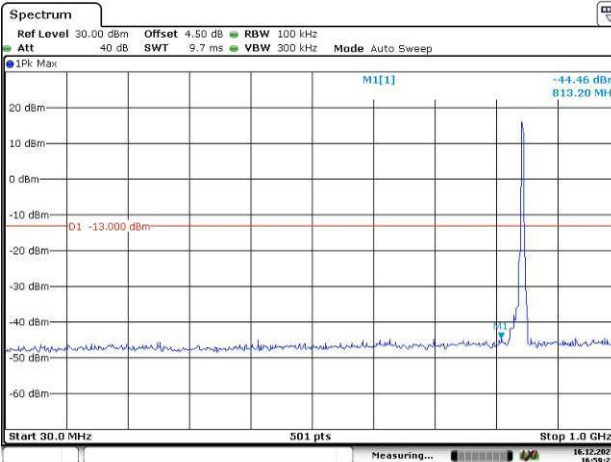
Lowest



Middle



Highest

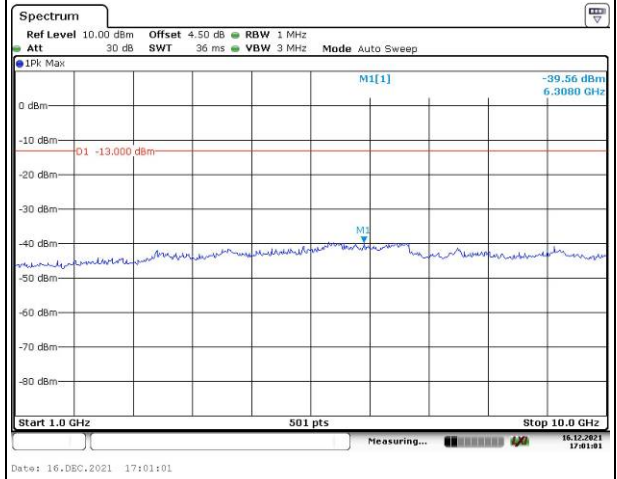
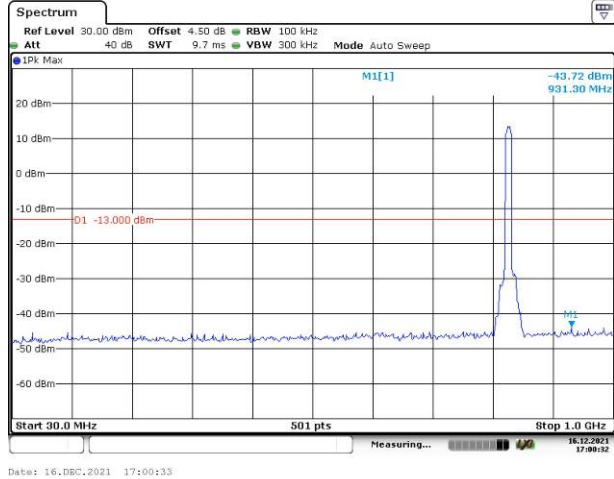


Spurious Emissions at Antenna Terminal

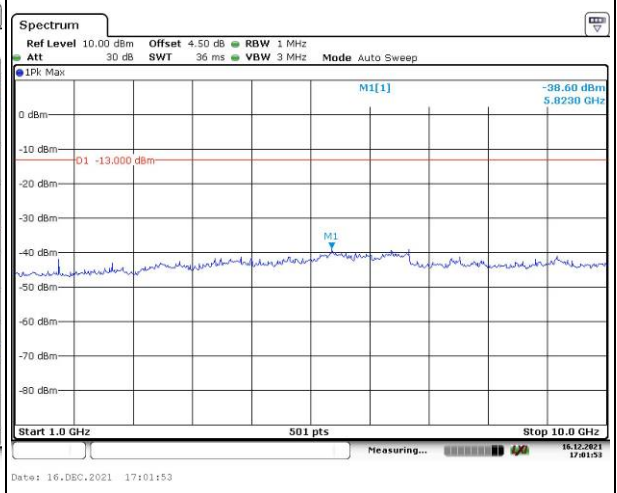
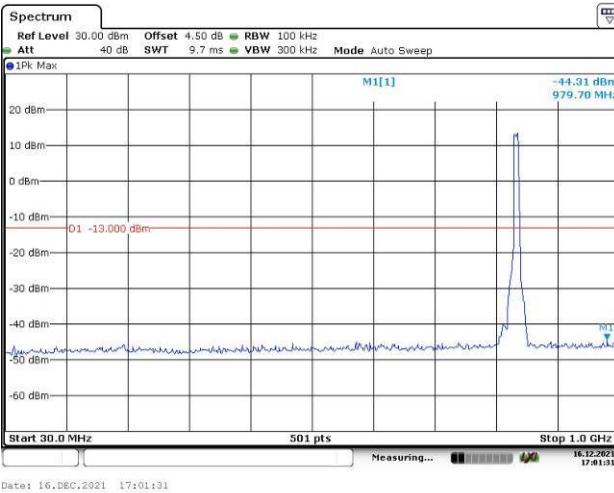
Channel

10MHz Bandwidth QPSK

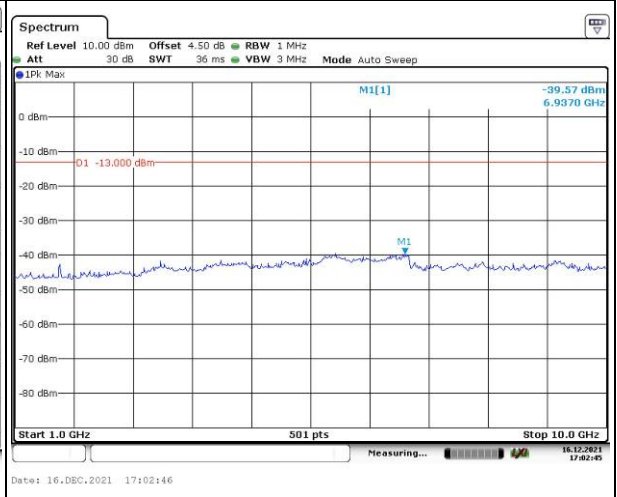
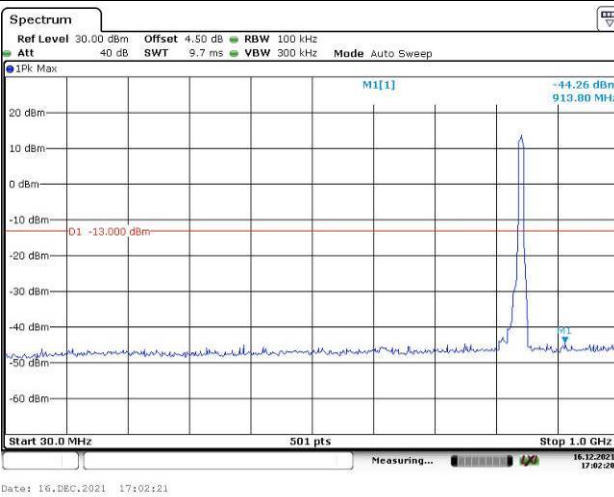
Lowest



Middle



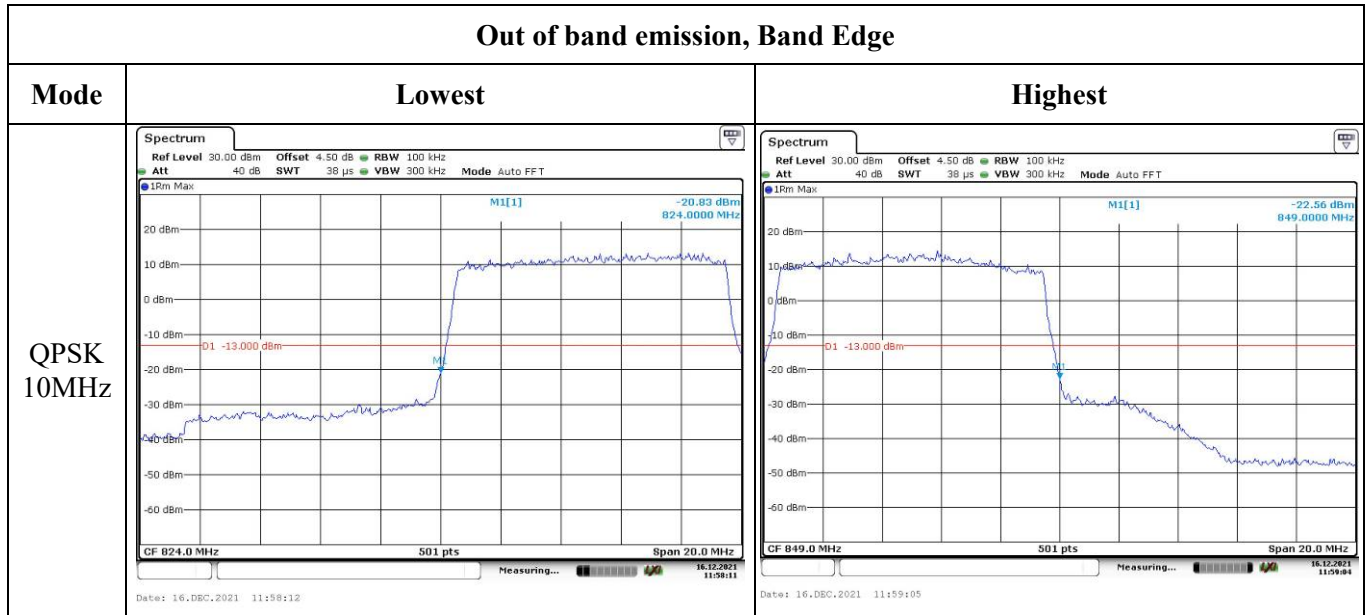
Highest



Out of band emission, Band Edge

| Mode | Lowest | Highest |
|----------------|--------|---------|
| QPSK 1.4MHz | | |
| QPSK 3MHz | | |
| QPSK 5MHz | | |

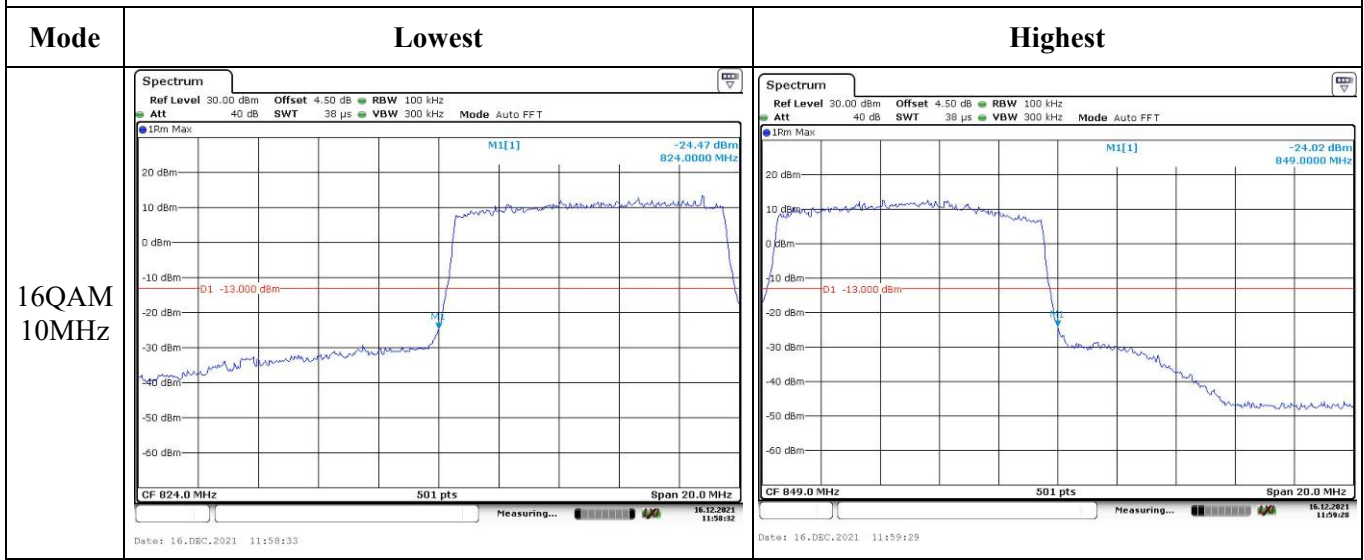
Out of band emission, Band Edge



Out of band emission, Band Edge

| Mode | Lowest | Highest |
|-----------------|--------|---------|
| 16QAM 1.4MHz | | |
| 16QAM 3MHz | | |
| 16QAM 5MHz | | |

Out of band emission, Band Edge



4.9 Antenna Port Test Data and Results for LTE Band 7:

| | | | |
|----------------|------------------|--------------|-----------------------|
| 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: (°C) | 21.7~25.1 | Relative Humidity: (%) | 37~59 | ATM Pressure: (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 7▲:

| | | | |
|--------------------------------------|-----|---------------------|-----|
| Antenna Gain (dBi): | 2 | Cable Loss (dB): | 0 |
| Operation Voltage(V _{DC}): | | | |
| 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) |
|---------------------|------------------------|------------------------|-------------------------|
| 5MHz | 2502.5 | 2535 | 2567.5 |
| 10MHz | 2505 | 2535 | 2565 |
| 15MHz | 2507.5 | 2535 | 2562.5 |
| 20MHz | 2510 | 2535 | 2560 |

Test Data:**FCC§2.1046;§ 27.50(h)(2)****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 | | |
| 5MHz QPSK | RB1#0 | 22.36 | 22.61 | 22.54 | 24.61 | 33 |
| | RB1#13 | 22.26 | 22.48 | 22.29 | | |
| | RB1#24 | 22.02 | 22.27 | 22.25 | | |
| | RB15#0 | 22.27 | 22.34 | 22.17 | | |
| | RB15#10 | 22.01 | 22.23 | 22.13 | | |
| | RB25#0 | 22.03 | 22.23 | 22.09 | | |
| 5MHz 16QAM | RB1#0 | 22.23 | 22.41 | 22.50 | 24.5 | 33 |
| | RB1#13 | 22.03 | 22.33 | 22.22 | | |
| | RB1#24 | 22.02 | 22.21 | 22.22 | | |
| | RB15#0 | 22.18 | 22.31 | 22.16 | | |
| | RB15#10 | 22.04 | 22.20 | 21.99 | | |
| | RB25#0 | 22.00 | 22.12 | 21.88 | | |
| 10MHz QPSK | RB1#0 | 22.62 | 22.71 | 22.56 | 24.71 | 33 |
| | RB1#25 | 22.25 | 22.62 | 22.49 | | |
| | RB1#49 | 22.12 | 22.52 | 22.49 | | |
| | RB25#0 | 22.36 | 22.71 | 22.29 | | |
| | RB25#25 | 22.09 | 22.39 | 22.30 | | |
| | RB50#0 | 21.98 | 22.31 | 22.30 | | |
| 10MHz 16QAM | RB1#0 | 22.51 | 22.51 | 22.46 | 24.51 | 33 |
| | RB1#25 | 22.27 | 22.43 | 22.37 | | |
| | RB1#49 | 22.05 | 22.42 | 22.44 | | |
| | RB25#0 | 22.23 | 22.49 | 22.25 | | |
| | RB25#25 | 22.09 | 22.48 | 22.21 | | |
| | RB50#0 | 22.09 | 22.34 | 22.11 | | |
| 15MHz QPSK | RB1#0 | 22.99 | 23.41 | 23.35 | 25.41 | 33 |
| | RB1#38 | 23.08 | 23.22 | 23.29 | | |
| | RB1#74 | 23.07 | 23.26 | 23.13 | | |
| | RB36#0 | 23.02 | 23.14 | 23.09 | | |
| | RB36#39 | 23.04 | 23.16 | 23.07 | | |
| | RB75#0 | 22.87 | 23.17 | 22.72 | | |
| 15MHz 16QAM | RB1#0 | 23.09 | 23.29 | 23.18 | 25.31 | 33 |
| | RB1#38 | 23.01 | 23.31 | 23.26 | | |
| | RB1#74 | 22.96 | 23.18 | 23.18 | | |
| | RB36#0 | 22.96 | 23.29 | 23.13 | | |

| | | | | | | |
|-------------|---------|-------|-------|-------|-------|----|
| | RB36#39 | 22.99 | 23.11 | 23.08 | | |
| | RB75#0 | 22.96 | 23.08 | 23.02 | | |
| 20MHz QPSK | RB1#0 | 23.30 | 23.47 | 23.37 | 25.47 | 33 |
| | RB1#50 | 23.25 | 23.27 | 23.28 | | |
| | RB1#99 | 23.22 | 23.36 | 23.16 | | |
| | RB50#0 | 23.30 | 23.45 | 23.37 | | |
| | RB50#50 | 23.30 | 23.21 | 23.14 | | |
| | RB100#0 | 23.20 | 23.27 | 22.99 | | |
| 20MHz 16QAM | RB1#0 | 23.23 | 23.33 | 23.24 | 25.34 | 33 |
| | RB1#50 | 23.27 | 23.28 | 23.14 | | |
| | RB1#99 | 23.25 | 23.34 | 23.15 | | |
| | RB50#0 | 23.23 | 23.25 | 23.22 | | |
| | RB50#50 | 23.22 | 23.33 | 23.16 | | |
| | RB100#0 | 23.22 | 23.31 | 23.10 | | |

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 | 3.68 | 3.71 | 3.71 | 13 |
| | RB100#0 | 4.70 | 4.81 | 4.87 | 13 |
| 20MHz 16QAM | RB1#0 | 4.64 | 4.61 | 4.67 | 13 |
| | RB100#0 | 5.77 | 5.77 | 5.86 | 13 |
| Result: | | | | | Pass |

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 |
| 5MHz QPSK | 4.531 | 4.511 | 4.491 | 5.020 | 5.040 | 5.020 |
| 5MHz 16QAM | 4.491 | 4.531 | 4.531 | 5.000 | 5.060 | 5.040 |
| 10MHz QPSK | 8.942 | 8.901 | 8.942 | 9.760 | 9.760 | 9.760 |
| 10MHz 16QAM | 8.901 | 8.942 | 8.942 | 9.600 | 9.760 | 9.720 |
| 15MHz QPSK | 13.413 | 13.413 | 13.473 | 14.820 | 14.700 | 14.760 |
| 15MHz 16QAM | 13.353 | 13.473 | 13.533 | 14.700 | 14.700 | 14.820 |
| 20MHz QPSK | 17.804 | 17.884 | 18.044 | 19.200 | 19.280 | 19.600 |
| 20MHz 16QAM | 17.884 | 17.884 | 17.964 | 19.200 | 19.280 | 19.280 |

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

| | |
|--|--|
| FCC §2.1051, § 27.53:Spurious Emissions at Antenna Terminal | |
| Result: | Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal. |

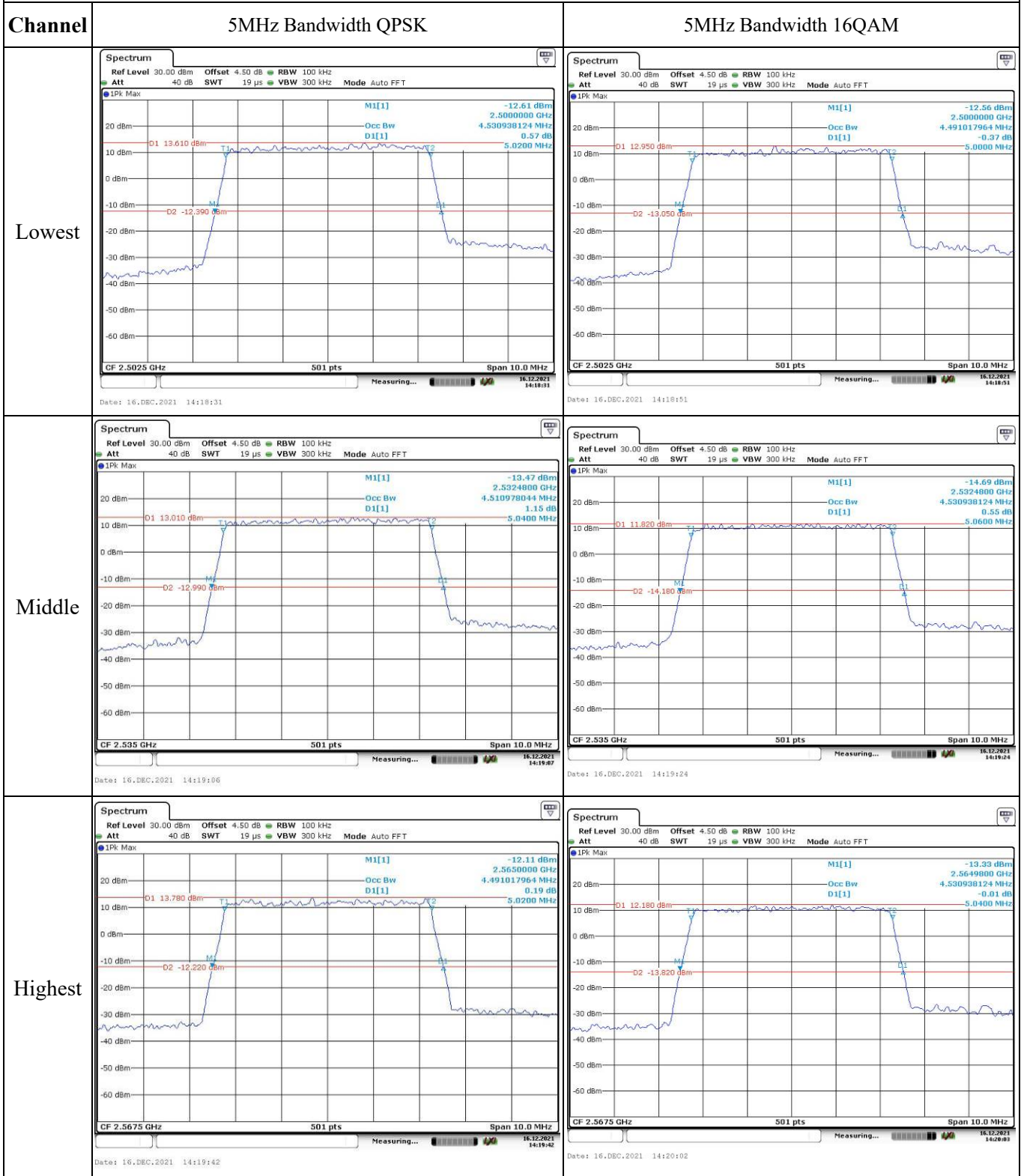
| | |
|---|---|
| FCC §2.1051, § 27.53:Out of band emission, Band Edge | |
| Result: | Pass, Please refer to the test plots of Out of band emission, Band Edge. |

| 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 _{DC}) | Lower Edge (MHz) | | Upper Edge (MHz) | |
| | | | Result | Limit | Result | Limit |
| Frequency Stability vs. Temperature | -30 | 3.8 | 2500.566 | 2500.00 | 2569.474 | 2570 |
| | -20 | 3.8 | 2500.565 | 2500.00 | 2569.475 | 2570 |
| | -10 | 3.8 | 2500.564 | 2500.00 | 2569.476 | 2570 |
| | 0 | 3.8 | 2500.563 | 2500.00 | 2569.477 | 2570 |
| | 10 | 3.8 | 2500.567 | 2500.00 | 2569.478 | 2570 |
| | 20 | 3.8 | 2500.569 | 2500.00 | 2569.471 | 2570 |
| | 30 | 3.8 | 2500.568 | 2500.00 | 2569.475 | 2570 |
| | 40 | 3.8 | 2500.566 | 2500.00 | 2569.474 | 2570 |
| Frequency Stability vs. Voltage | 20 | 3.2 | 2500.569 | 2500.00 | 2569.471 | 2570 |
| | 20 | 4.4 | 2500.565 | 2500.00 | 2569.472 | 2570 |
| | | | | | Result: | Pass |

| Test Mode: | 20M 16QAM | Test Channel: Lowest for Lower Edge,Highest for Upper Edge | | | | |
|-------------------------------------|------------------|--|------------------|---------|------------------|-------------|
| Test Item | Temperature (°C) | Voltage (V _{DC}) | Lower Edge (MHz) | | Upper Edge (MHz) | |
| | | | Result | Limit | Result | Limit |
| Frequency Stability vs. Temperature | -30 | 3.8 | 2500.566 | 2500.00 | 2569.472 | 2570 |
| | -20 | 3.8 | 2500.567 | 2500.00 | 2569.473 | 2570 |
| | -10 | 3.8 | 2500.566 | 2500.00 | 2569.474 | 2570 |
| | 0 | 3.8 | 2500.563 | 2500.00 | 2569.475 | 2570 |
| | 10 | 3.8 | 2500.562 | 2500.00 | 2569.475 | 2570 |
| | 20 | 3.8 | 2500.569 | 2500.00 | 2569.471 | 2570 |
| | 30 | 3.8 | 2500.564 | 2500.00 | 2569.476 | 2570 |
| | 40 | 3.8 | 2500.564 | 2500.00 | 2569.477 | 2570 |
| Frequency Stability vs. Voltage | 20 | 3.2 | 2500.566 | 2500.00 | 2569.478 | 2570 |
| | 20 | 4.4 | 2500.569 | 2500.00 | 2569.471 | 2570 |
| | | | | | Result: | Pass |

Test Plots:

Occupied Bandwidth



Occupied Bandwidth

| Channel | 10MHz Bandwidth QPSK | 10MHz Bandwidth 16QAM |
|---------|----------------------|-----------------------|
| Lowest | | |
| Middle | | |
| Highest | | |

Occupied Bandwidth

| Channel | 15MHz Bandwidth QPSK | 15MHz Bandwidth 16QAM |
|---------|---|---|
| Lowest | <p>Ref Level 30.00 dBm Offset 4.50 dB RBW 300 kHz Att 40 dB SWT 12.7 μs VBW 1 MHz Mode Auto FFT</p> <p>M1[1] -13.19 dBm 2.5000600 GHz Occ Bw 13.413173653 MHz D1[1] 0.12 dB</p> <p>D1 13.220 dBm D2 -12.780 dBm</p> <p>CF 2.5075 GHz 501 pts Span 30.0 MHz</p> <p>Date: 16. DEC. 2021 14:23:08</p> | <p>Ref Level 30.00 dBm Offset 4.50 dB RBW 300 kHz Att 40 dB SWT 12.7 μs VBW 1 MHz Mode Auto FFT</p> <p>M1[1] -13.33 dBm 2.5001800 GHz Occ Bw 13.353293413 MHz D1[1] -0.93 dB</p> <p>D1 12.380 dBm D2 -13.620 dBm</p> <p>CF 2.5075 GHz 501 pts Span 30.0 MHz</p> <p>Date: 16. DEC. 2021 14:23:29</p> |
| Middle | <p>Ref Level 30.00 dBm Offset 4.50 dB RBW 300 kHz Att 40 dB SWT 12.7 μs VBW 1 MHz Mode Auto FFT</p> <p>M1[1] -11.98 dBm 2.5276800 GHz Occ Bw 13.413173653 MHz D1[1] 0.20 dB</p> <p>D1 13.750 dBm D2 -12.250 dBm</p> <p>CF 2.535 GHz 501 pts Span 30.0 MHz</p> <p>Date: 16. DEC. 2021 14:23:57</p> | <p>Ref Level 30.00 dBm Offset 4.50 dB RBW 300 kHz Att 40 dB SWT 12.7 μs VBW 1 MHz Mode Auto FFT</p> <p>M1[1] -12.71 dBm 2.5276800 GHz Occ Bw 13.473053892 MHz D1[1] 0.41 dB</p> <p>D1 13.480 dBm D2 -12.520 dBm</p> <p>CF 2.535 GHz 501 pts Span 30.0 MHz</p> <p>Date: 16. DEC. 2021 14:24:27</p> |
| Highest | <p>Ref Level 30.00 dBm Offset 4.50 dB RBW 300 kHz Att 40 dB SWT 12.7 μs VBW 1 MHz Mode Auto FFT</p> <p>M1[1] -11.65 dBm 2.5551200 GHz Occ Bw 13.473053892 MHz D1[1] -0.45 dB</p> <p>D1 13.600 dBm D2 -12.400 dBm</p> <p>CF 2.5625 GHz 501 pts Span 30.0 MHz</p> <p>Date: 16. DEC. 2021 14:25:04</p> | <p>Ref Level 30.00 dBm Offset 4.50 dB RBW 300 kHz Att 40 dB SWT 12.7 μs VBW 1 MHz Mode Auto FFT</p> <p>M1[1] -12.85 dBm 2.5551200 GHz Occ Bw 13.532934132 MHz D1[1] 0.75 dB</p> <p>D1 13.250 dBm D2 -12.750 dBm</p> <p>CF 2.5625 GHz 501 pts Span 30.0 MHz</p> <p>Date: 16. DEC. 2021 14:25:34</p> |

Occupied Bandwidth

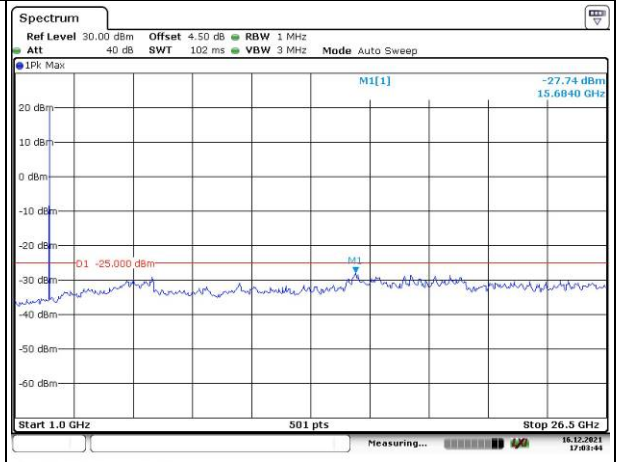
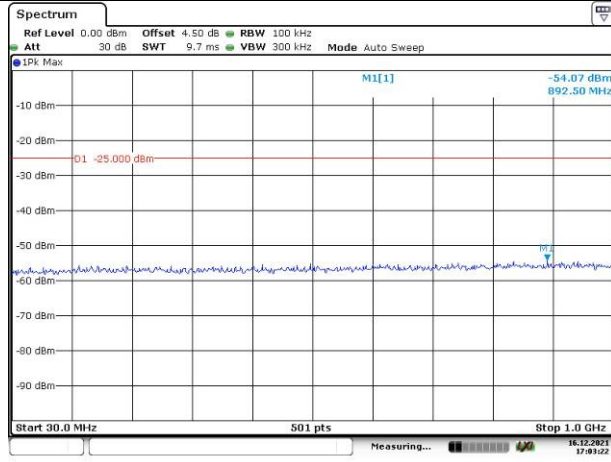
| Channel | 20MHz Bandwidth QPSK | 20MHz Bandwidth 16QAM |
|---------|---|---|
| Lowest | <p>Ref Level 30.00 dBm Offset 4.50 dB RBW 300 kHz Att 40 dB SWT 18.9 μs VBW 1 MHz Mode Auto FFT</p> <p>M1[1] -13.38 dBm 2.5004000 GHz Occ Bw 17.804391218 MHz D1[1] 0.07 dB</p> <p>D1 12.330 dBm D2 -13.670 dBm</p> <p>CF 2.51 GHz 501 pts Span 40.0 MHz</p> <p>Date: 16.DEC.2021 14:26:05</p> | <p>Ref Level 30.00 dBm Offset 4.50 dB RBW 300 kHz Att 40 dB SWT 18.9 μs VBW 1 MHz Mode Auto FFT</p> <p>M1[1] -14.38 dBm 2.5004000 GHz Occ Bw 17.804291537 MHz D1[1] -0.20 dB</p> <p>D1 11.750 dBm D2 -14.250 dBm</p> <p>CF 2.51 GHz 501 pts Span 40.0 MHz</p> <p>Date: 16.DEC.2021 14:26:38</p> |
| Middle | <p>Ref Level 30.00 dBm Offset 4.50 dB RBW 300 kHz Att 40 dB SWT 18.9 μs VBW 1 MHz Mode Auto FFT</p> <p>M1[1] -12.73 dBm 2.5254000 GHz Occ Bw 17.804291537 MHz D1[1] 0.76 dB</p> <p>D1 13.410 dBm D2 -13.590 dBm</p> <p>CF 2.535 GHz 501 pts Span 40.0 MHz</p> <p>Date: 16.DEC.2021 14:27:09</p> | <p>Ref Level 30.00 dBm Offset 4.50 dB RBW 300 kHz Att 40 dB SWT 18.9 μs VBW 1 MHz Mode Auto FFT</p> <p>M1[1] -14.58 dBm 2.5254000 GHz Occ Bw 17.804291537 MHz D1[1] 0.76 dB</p> <p>D1 12.200 dBm D2 -13.800 dBm</p> <p>CF 2.535 GHz 501 pts Span 40.0 MHz</p> <p>Date: 16.DEC.2021 14:27:39</p> |
| Highest | <p>Ref Level 30.00 dBm Offset 4.50 dB RBW 300 kHz Att 40 dB SWT 18.9 μs VBW 1 MHz Mode Auto FFT</p> <p>M1[1] -13.16 dBm 2.5502400 GHz Occ Bw 18.043912176 MHz D1[1] 0.08 dB</p> <p>D1 12.580 dBm D2 -13.420 dBm</p> <p>CF 2.56 GHz 501 pts Span 40.0 MHz</p> <p>Date: 16.DEC.2021 14:28:10</p> | <p>Ref Level 30.00 dBm Offset 4.50 dB RBW 300 kHz Att 40 dB SWT 18.9 μs VBW 1 MHz Mode Auto FFT</p> <p>M1[1] -13.78 dBm 2.5504000 GHz Occ Bw 17.964071856 MHz D1[1] 0.45 dB</p> <p>D1 12.380 dBm D2 -13.620 dBm</p> <p>CF 2.56 GHz 501 pts Span 40.0 MHz</p> <p>Date: 16.DEC.2021 14:28:46</p> |

Spurious Emissions at Antenna Terminal

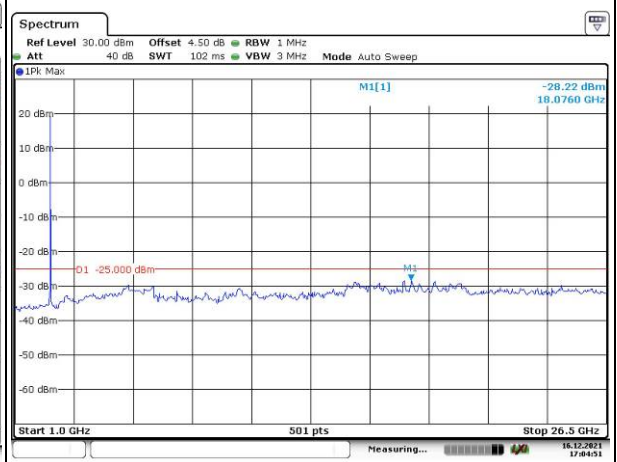
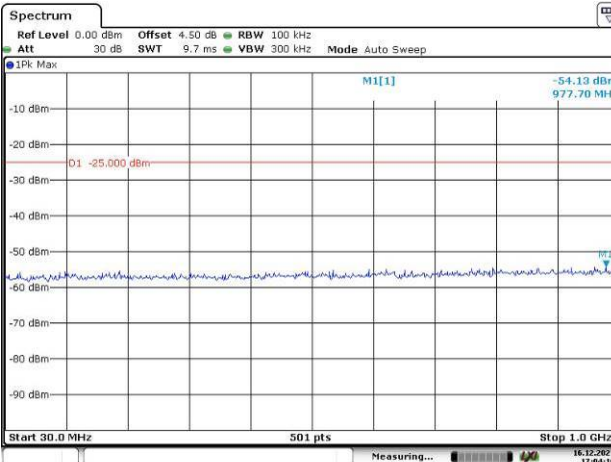
Channel

5MHz Bandwidth QPSK

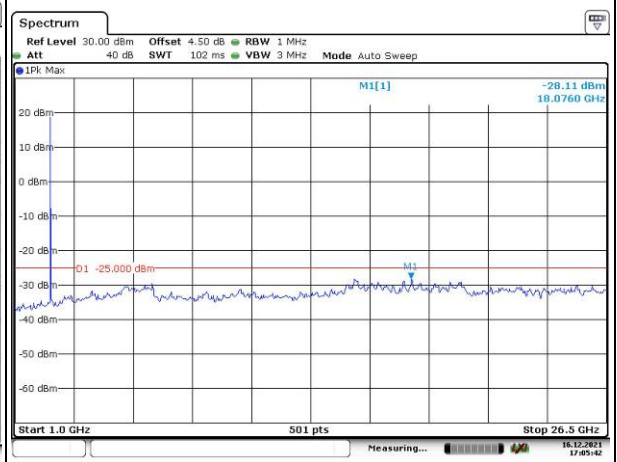
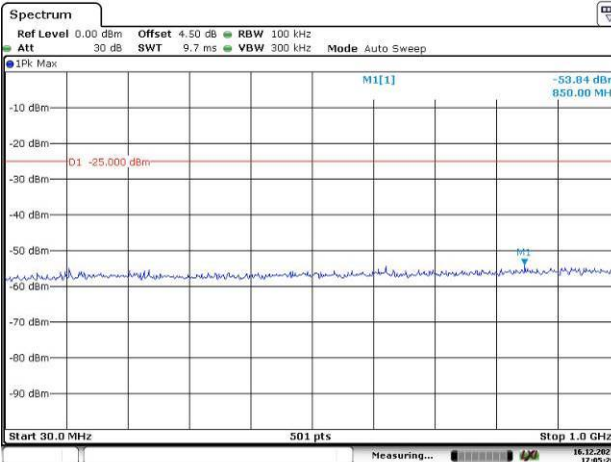
Lowest



Middle



Highest



Spurious Emissions at Antenna Terminal

| Channel | 10MHz Bandwidth QPSK | |
|---------|--|--|
| Lowest | <p>Spectrum Ref Level 0.00 dBm Offset 4.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep IPk Max M1[1] -53.48 dBm 896.40 MHz -25.000 dBm Start 30.0 MHz 501 pts Stop 1.0 GHz Date: 16.DEC.2021 17:06:14</p> | <p>Spectrum Ref Level 30.00 dBm Offset 4.50 dB RBW 1 MHz Att 40 dB SWT 102 ms VBW 3 MHz Mode Auto Sweep IPk Max M1[1] -27.99 dBm 15.6840 GHz -25.000 dBm Start 1.0 GHz 501 pts Stop 26.5 GHz Date: 16.DEC.2021 17:06:36</p> |
| Middle | <p>Spectrum Ref Level 0.00 dBm Offset 4.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep IPk Max M1[1] -54.45 dBm 894.50 MHz -25.000 dBm Start 30.0 MHz 501 pts Stop 1.0 GHz Date: 16.DEC.2021 17:07:09</p> | <p>Spectrum Ref Level 30.00 dBm Offset 4.50 dB RBW 1 MHz Att 40 dB SWT 102 ms VBW 3 MHz Mode Auto Sweep IPk Max M1[1] -28.35 dBm 15.6840 GHz -25.000 dBm Start 1.0 GHz 501 pts Stop 26.5 GHz Date: 16.DEC.2021 17:07:31</p> |
| Highest | <p>Spectrum Ref Level 0.00 dBm Offset 4.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep IPk Max M1[1] -54.54 dBm 962.20 MHz -25.000 dBm Start 30.0 MHz 501 pts Stop 1.0 GHz Date: 16.DEC.2021 17:07:59</p> | <p>Spectrum Ref Level 30.00 dBm Offset 4.50 dB RBW 1 MHz Att 40 dB SWT 102 ms VBW 3 MHz Mode Auto Sweep IPk Max M1[1] -27.90 dBm 18.0760 GHz -25.000 dBm Start 1.0 GHz 501 pts Stop 26.5 GHz Date: 16.DEC.2021 17:08:21</p> |

Spurious Emissions at Antenna Terminal

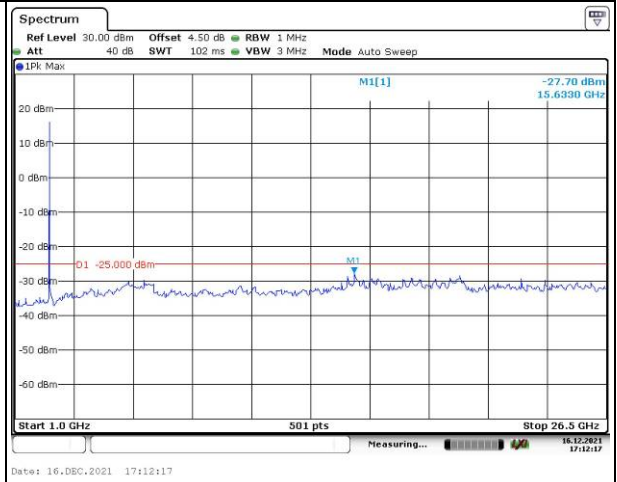
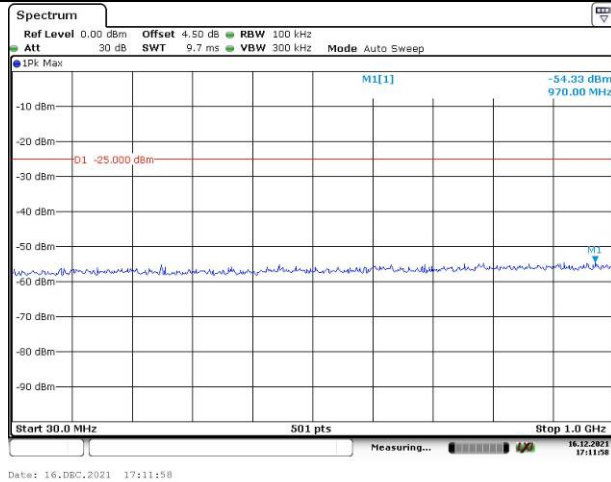
| Channel | 15MHz Bandwidth QPSK | |
|---------|--|--|
| Lowest | <p>Spectrum Ref Level 0.00 dBm Offset 4.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep MI[1] -54.13 dBm 942.90 MHz -01 -25.000 dBm Start 30.0 MHz 501 pts Stop 1.0 GHz Measuring... 16.12.2021 17:08:57 Date: 16. DEC. 2021 17:08:58</p> | <p>Spectrum Ref Level 30.00 dBm Offset 4.50 dB RBW 1 MHz Att 40 dB SWT 102 ms VBW 3 MHz Mode Auto Sweep MI[1] -27.44 dBm 18.0760 GHz -01 -25.000 dBm Start 1.0 GHz 501 pts Stop 26.5 GHz Measuring... 16.12.2021 17:09:22 Date: 16. DEC. 2021 17:09:23</p> |
| | Middle | <p>Spectrum Ref Level 0.00 dBm Offset 4.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep MI[1] -54.25 dBm 615.70 MHz -01 -25.000 dBm Start 30.0 MHz 501 pts Stop 1.0 GHz Measuring... 16.12.2021 17:09:55 Date: 16. DEC. 2021 17:09:56</p> |
| Highest | | <p>Spectrum Ref Level 0.00 dBm Offset 4.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep MI[1] -54.53 dBm 651.90 MHz -01 -25.000 dBm Start 30.0 MHz 501 pts Stop 1.0 GHz Measuring... 16.12.2021 17:10:58 Date: 16. DEC. 2021 17:10:57</p> |

Spurious Emissions at Antenna Terminal

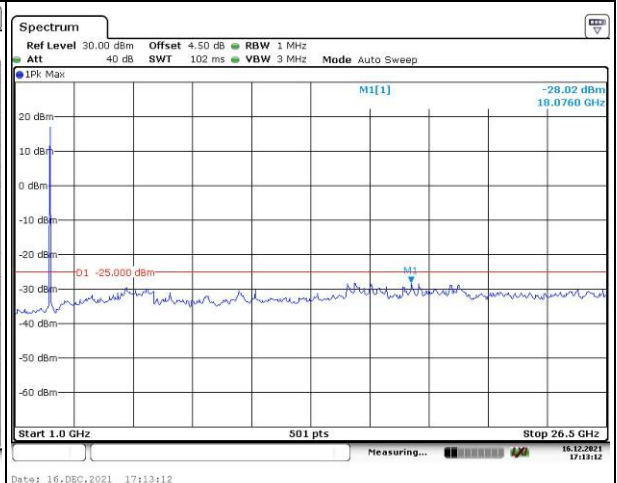
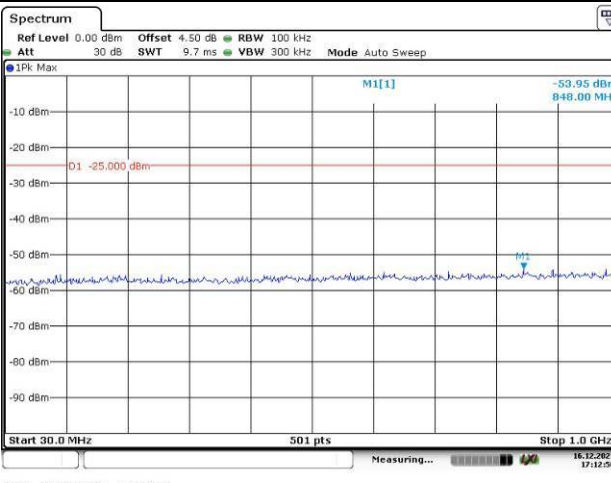
Channel

20MHz Bandwidth QPSK

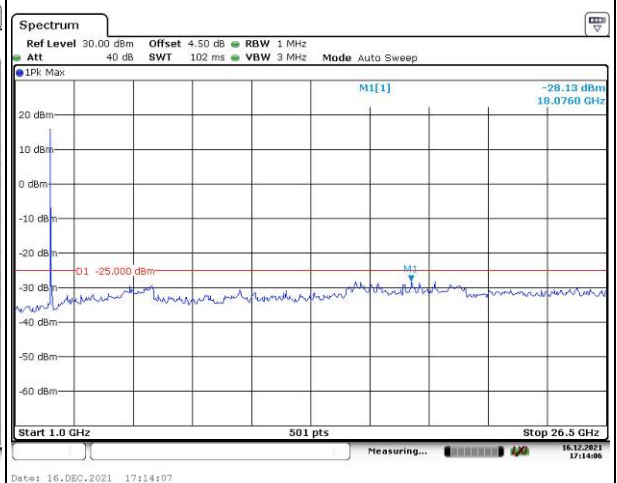
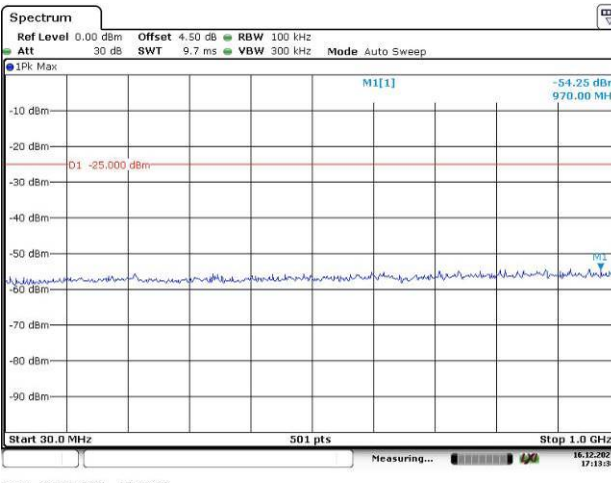
Lowest



Middle



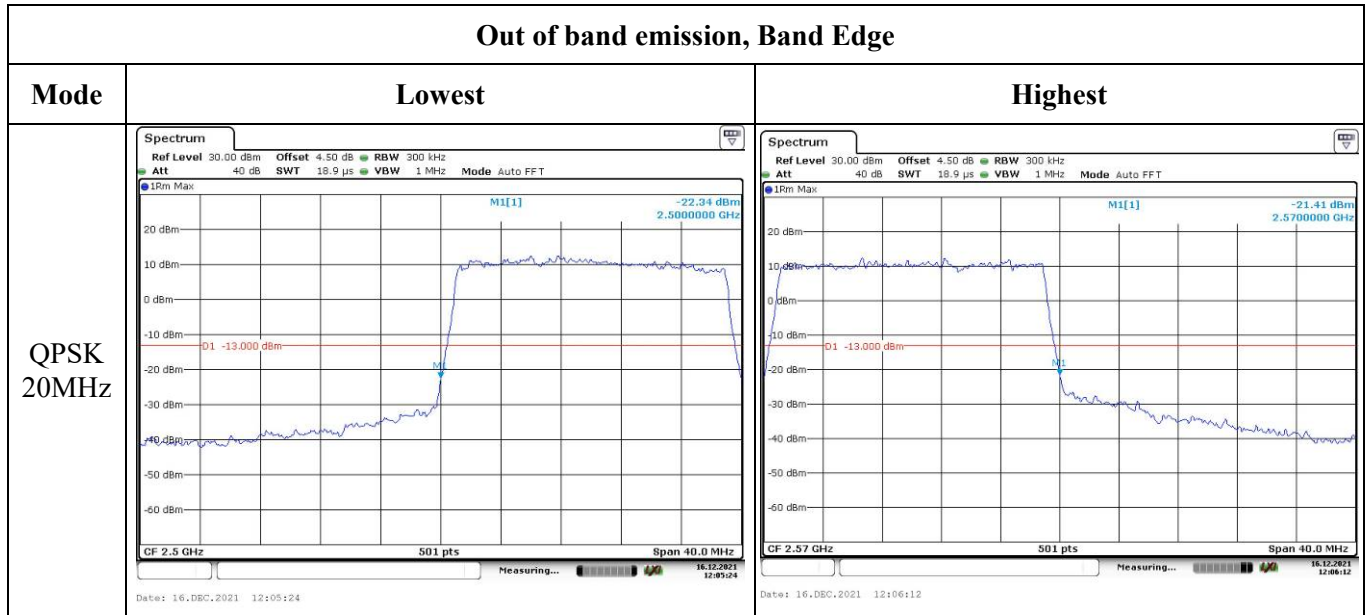
Highest



Out of band emission, Band Edge

| Mode | Lowest | Highest |
|---------------|--------|---------|
| QPSK 5MHz | | |
| QPSK 10MHz | | |
| QPSK 15MHz | | |

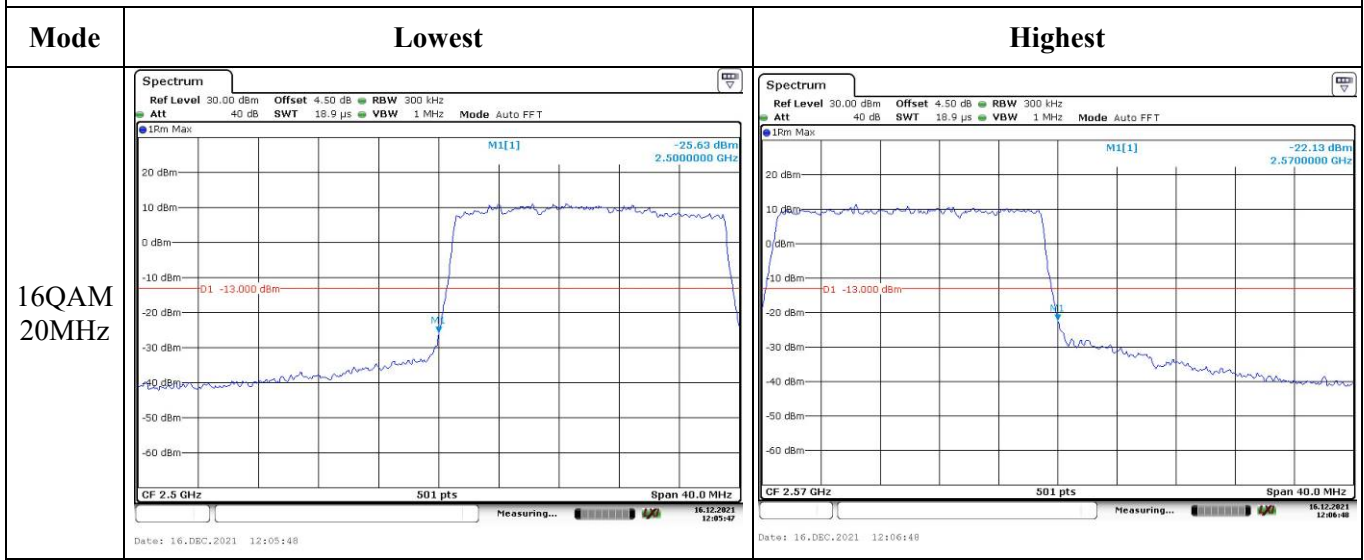
Out of band emission, Band Edge



Out of band emission, Band Edge

| Mode | Lowest | Highest |
|----------------|--------|---------|
| 16QAM 5MHz | | |
| 16QAM 10MHz | | |
| 16QAM 15MHz | | |

Out of band emission, Band Edge



4.10 Antenna Port Test Data and Results for LTE Band 12:

| | | | |
|----------------|------------------|--------------|-----------------------|
| 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: (°C) | 21.7~25.1 | Relative Humidity: (%) | 37~59 | ATM Pressure: (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 12▲:

| | | | | | |
|--------------------------------------|-----|------------------------|-------|---------------------|-----|
| Antenna Gain (dBi): | 2 | Antenna Gain (dBd): | -0.15 | Cable Loss (dB): | 0 |
| Operation Voltage(V _{DC}): | | | | | |
| 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 | 699.7 | 707.5 | 715.3 |
| 3MHz | 700.5 | 707.5 | 714.5 |
| 5MHz | 701.5 | 707.5 | 713.5 |
| 10MHz | 704 | 707.5 | 711 |

Test Data:**FCC§2.1046;§ 27.50(c) (10)****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 | 23.26 | 23.55 | 23.34 | 23.4 | 34.77 |
| | RB1#3 | 23.07 | 23.35 | 23.19 | | |
| | RB1#5 | 22.99 | 23.25 | 22.78 | | |
| | RB3#0 | 23.00 | 23.22 | 23.18 | | |
| | RB3#3 | 22.95 | 23.08 | 23.19 | | |
| | RB6#0 | 22.84 | 23.03 | 22.83 | | |
| 1.4MHz 16QAM | RB1#0 | 23.21 | 23.37 | 23.32 | 23.22 | 34.77 |
| | RB1#3 | 22.87 | 23.25 | 23.11 | | |
| | RB1#5 | 22.85 | 23.10 | 22.75 | | |
| | RB3#0 | 22.92 | 23.32 | 23.13 | | |
| | RB3#3 | 22.87 | 23.28 | 23.08 | | |
| | RB6#0 | 22.84 | 23.07 | 22.58 | | |
| 3MHz QPSK | RB1#0 | 23.42 | 23.46 | 23.49 | 23.37 | 34.77 |
| | RB1#8 | 23.21 | 23.52 | 23.29 | | |
| | RB1#14 | 22.99 | 23.26 | 22.92 | | |
| | RB6#0 | 23.21 | 23.23 | 23.34 | | |
| | RB6#9 | 22.95 | 23.23 | 23.14 | | |
| | RB15#0 | 22.85 | 23.19 | 22.78 | | |
| 3MHz 16QAM | RB1#0 | 23.36 | 23.37 | 23.37 | 23.22 | 34.77 |
| | RB1#8 | 23.09 | 23.25 | 23.21 | | |
| | RB1#14 | 23.08 | 23.22 | 22.91 | | |
| | RB6#0 | 22.93 | 23.33 | 23.32 | | |
| | RB6#9 | 22.94 | 23.26 | 23.13 | | |
| | RB15#0 | 22.82 | 23.08 | 22.79 | | |
| 5MHz QPSK | RB1#0 | 23.48 | 23.66 | 23.51 | 23.51 | 34.77 |
| | RB1#13 | 23.31 | 23.63 | 23.41 | | |
| | RB1#24 | 23.11 | 23.40 | 23.01 | | |
| | RB15#0 | 23.30 | 23.62 | 23.56 | | |
| | RB15#10 | 22.98 | 23.32 | 23.31 | | |
| | RB25#0 | 23.01 | 23.23 | 22.94 | | |
| 5MHz 16QAM | RB1#0 | 23.46 | 23.43 | 23.55 | 23.4 | 34.77 |
| | RB1#13 | 23.26 | 23.33 | 23.45 | | |
| | RB1#24 | 23.12 | 23.24 | 22.92 | | |

| | | | | | | |
|---|---------|-------|-------|-------|----------------|-------------|
| | RB15#0 | 23.19 | 23.48 | 23.48 | | |
| | RB15#10 | 22.99 | 23.27 | 23.32 | | |
| | RB25#0 | 22.87 | 23.23 | 22.92 | | |
| 10MHz QPSK | RB1#0 | 23.57 | 23.69 | 23.59 | 23.54 | 34.77 |
| | RB1#25 | 23.40 | 23.60 | 23.39 | | |
| | RB1#49 | 23.18 | 23.47 | 23.12 | | |
| | RB25#0 | 23.44 | 23.65 | 23.58 | | |
| | RB25#25 | 23.09 | 23.37 | 23.28 | | |
| | RB50#0 | 23.05 | 23.32 | 23.10 | | |
| 10MHz 16QAM | RB1#0 | 23.54 | 23.65 | 23.48 | 23.5 | 34.77 |
| | RB1#25 | 23.26 | 23.30 | 23.40 | | |
| | RB1#49 | 23.09 | 23.36 | 23.01 | | |
| | RB25#0 | 23.34 | 23.51 | 23.43 | | |
| | RB25#25 | 23.12 | 23.38 | 23.40 | | |
| | RB50#0 | 23.00 | 23.21 | 23.02 | | |
| 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 | 5.91 | 6.03 | 4.43 | 13 |
| | RB50#0 | 4.96 | 4.96 | 4.35 | 13 |
| 10MHz 16QAM | RB1#0 | 5.83 | 5.97 | 5.42 | 13 |
| | RB50#0 | 5.80 | 6.00 | 5.68 | 13 |
| Result: | | | | | Pass |

| 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 | 1.108 | 1.102 | 1.108 | 1.650 | 1.326 | 1.296 |
| 1.4MHz 16QAM | 1.114 | 1.096 | 1.096 | 1.380 | 1.296 | 1.302 |
| 3MHz QPSK | 2.707 | 2.683 | 2.683 | 2.976 | 2.928 | 2.952 |
| 3MHz 16QAM | 2.695 | 2.695 | 2.683 | 2.976 | 2.940 | 2.952 |
| 5MHz QPSK | 4.551 | 4.491 | 4.491 | 5.060 | 5.000 | 4.940 |
| 5MHz 16QAM | 4.531 | 4.511 | 4.511 | 5.060 | 5.000 | 5.000 |
| 10MHz QPSK | 8.981 | 8.901 | 8.821 | 9.880 | 9.640 | 9.520 |

| | | | | | | |
|--|-------|-------|-------|-------|-------|-------|
| 10MHz 16QAM | 8.981 | 8.901 | 8.821 | 9.600 | 9.640 | 9.480 |
| Note: The test plots please refer to the Plots of Occupied Bandwidth | | | | | | |

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

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

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

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

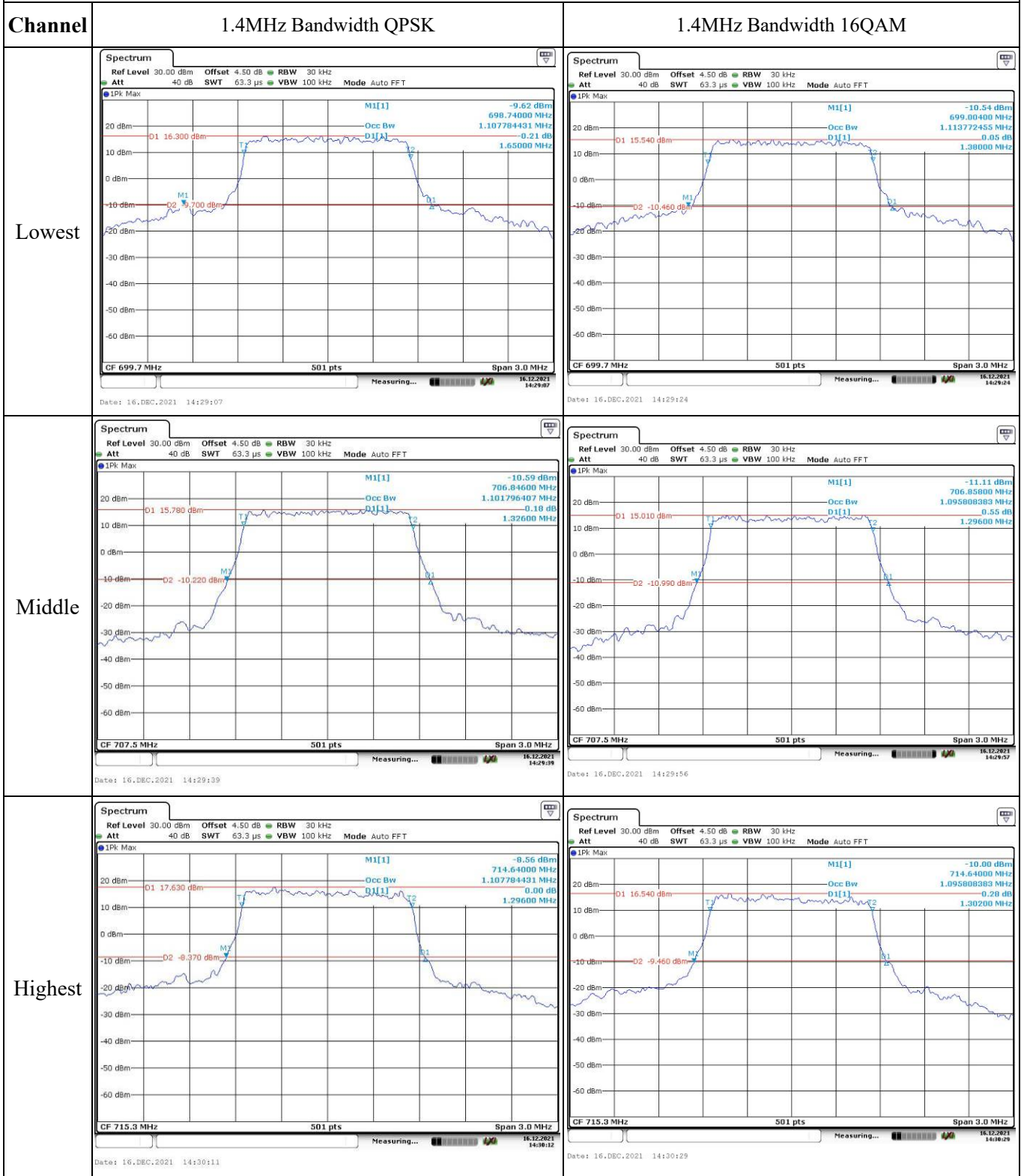
FCC §2.1055, §27.54: Frequency Stability

| Test Mode: | 10M QPSK | Test Channel: Lowest for Lower Edge,Highest for Upper Edge | | | | |
|-------------------------------------|------------------|--|------------------|--------|------------------|--------|
| Test Item | Temperature (°C) | Voltage (V _{DC}) | Lower Edge (MHz) | | Upper Edge (MHz) | |
| | | | Result | Limit | Result | Limit |
| Frequency Stability vs. Temperature | -30 | 3.8 | 699.526 | 699.00 | 715.433 | 716.00 |
| | -20 | 3.8 | 699.524 | 699.00 | 715.435 | 716.00 |
| | -10 | 3.8 | 699.525 | 699.00 | 715.436 | 716.00 |
| | 0 | 3.8 | 699.527 | 699.00 | 715.431 | 716.00 |
| | 10 | 3.8 | 699.528 | 699.00 | 715.432 | 716.00 |
| | 20 | 3.8 | 699.529 | 699.00 | 715.431 | 716.00 |
| | 30 | 3.8 | 699.528 | 699.00 | 715.435 | 716.00 |
| | 40 | 3.8 | 699.526 | 699.00 | 715.435 | 716.00 |
| Frequency Stability vs. Voltage | 20 | 3.2 | 699.524 | 699.00 | 715.434 | 716.00 |
| | 20 | 4.4 | 699.529 | 699.00 | 715.431 | 716.00 |
| Result: | | | | | Pass | |

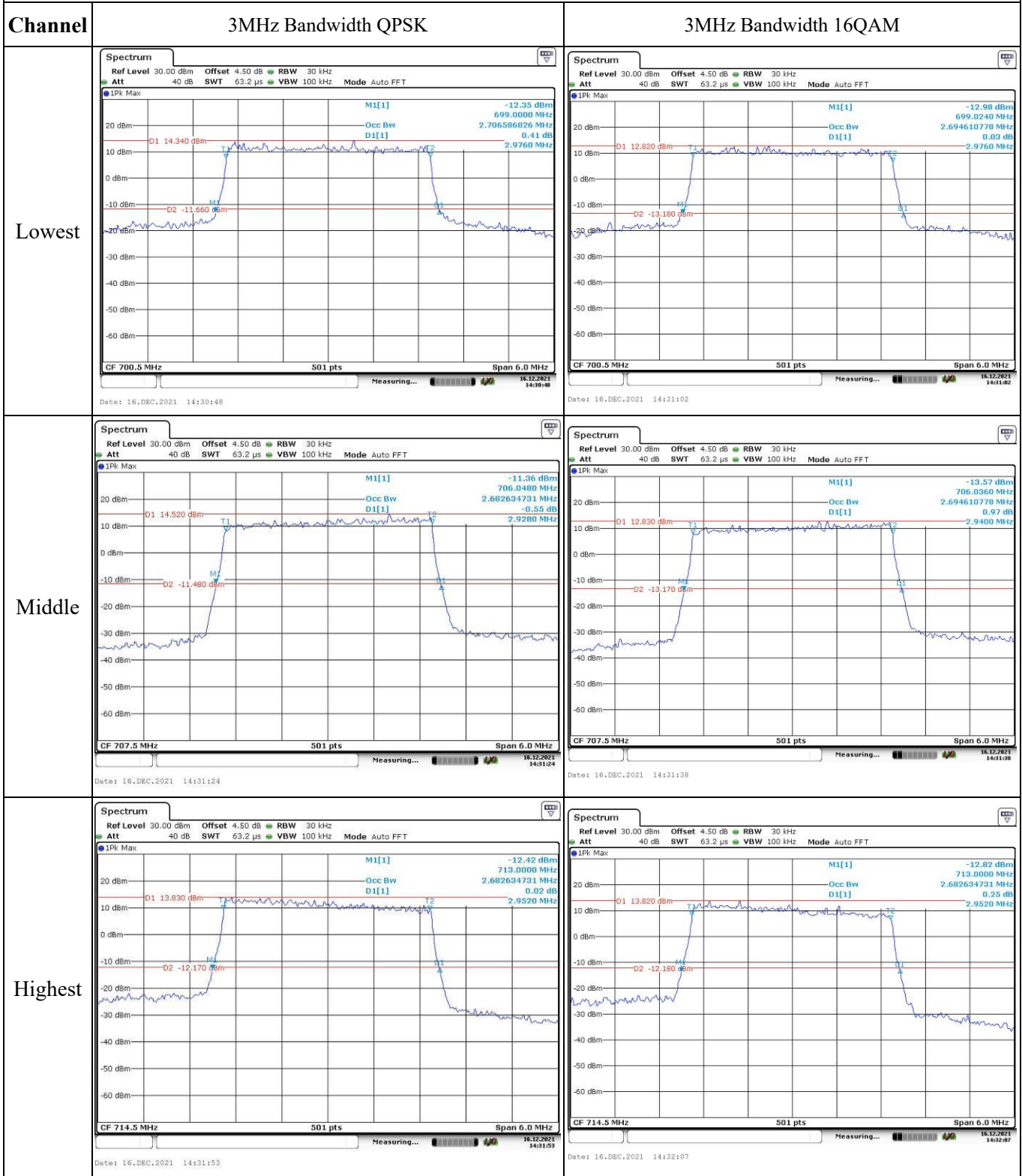
| Test Mode: | 10M 16QAM | Test Channel: Lowest for Lower Edge,Highest for Upper Edge | | | | |
|-------------------------------------|------------------|--|------------------|--------|------------------|--------|
| Test Item | Temperature (°C) | Voltage (V _{DC}) | Lower Edge (MHz) | | Upper Edge (MHz) | |
| | | | Result | Limit | Result | Limit |
| Frequency Stability vs. Temperature | -30 | 3.8 | 699.524 | 699.00 | 715.391 | 716.00 |
| | -20 | 3.8 | 699.525 | 699.00 | 715.394 | 716.00 |
| | -10 | 3.8 | 699.527 | 699.00 | 715.396 | 716.00 |
| | 0 | 3.8 | 699.526 | 699.00 | 715.397 | 716.00 |
| | 10 | 3.8 | 699.527 | 699.00 | 715.399 | 716.00 |
| | 20 | 3.8 | 699.529 | 699.00 | 715.391 | 716.00 |
| | 30 | 3.8 | 699.528 | 699.00 | 715.392 | 716.00 |
| | 40 | 3.8 | 699.529 | 699.00 | 715.397 | 716.00 |
| Frequency Stability vs. Voltage | 20 | 3.2 | 699.525 | 699.00 | 715.397 | 716.00 |
| | 20 | 4.4 | 699.529 | 699.00 | 715.391 | 716.00 |
| Result: | | | | | Pass | |

Test Plots:

Occupied Bandwidth



Occupied Bandwidth



Occupied Bandwidth

| Channel | 5MHz Bandwidth QPSK | 5MHz Bandwidth 16QAM |
|---------|---|--|
| Lowest | <p>Spectrum Ref Level 30.00 dBm Offset 4.50 dB RBW 100 kHz Att 40 dB SWT 19 μs VBW 300 kHz Mode Auto FFT IPk Max M1[1] -9.40 dBm 698.9800 MHz Occ Bw 4.550898204 MHz D1[1] -1.23 dB 5.0600 MHz M2 -10.040 dBm D2 -10.040 dBm CF 701.5 MHz 501 pts Span 10.0 MHz Measuring... 16.12.2021 14:32:30 Date: 16. DEC. 2021 14:32:29</p> | <p>Spectrum Ref Level 30.00 dBm Offset 4.50 dB RBW 100 kHz Att 40 dB SWT 19 μs VBW 300 kHz Mode Auto FFT IPk Max M1[1] -10.24 dBm 698.9600 MHz Occ Bw 4.530938124 MHz D1[1] -0.19 dB 5.0600 MHz M2 -9.930 dBm D2 -9.930 dBm CF 701.5 MHz 501 pts Span 10.0 MHz Measuring... 16.12.2021 14:32:53 Date: 16. DEC. 2021 14:32:53</p> |
| Middle | <p>Spectrum Ref Level 30.00 dBm Offset 4.50 dB RBW 100 kHz Att 40 dB SWT 19 μs VBW 300 kHz Mode Auto FFT IPk Max M1[1] -9.28 dBm 705.0400 MHz Occ Bw 4.491017964 MHz D1[1] -0.24 dB 5.0000 MHz M2 -9.220 dBm D2 -9.220 dBm CF 707.5 MHz 501 pts Span 10.0 MHz Measuring... 16.12.2021 14:33:11 Date: 16. DEC. 2021 14:33:11</p> | <p>Spectrum Ref Level 30.00 dBm Offset 4.50 dB RBW 100 kHz Att 40 dB SWT 19 μs VBW 300 kHz Mode Auto FFT IPk Max M1[1] -10.04 dBm 705.0400 MHz Occ Bw 4.510978044 MHz D1[1] -0.49 dB 5.0000 MHz M2 -10.220 dBm D2 -10.220 dBm CF 707.5 MHz 501 pts Span 10.0 MHz Measuring... 16.12.2021 14:33:32 Date: 16. DEC. 2021 14:33:32</p> |
| Highest | <p>Spectrum Ref Level 30.00 dBm Offset 4.50 dB RBW 100 kHz Att 40 dB SWT 19 μs VBW 300 kHz Mode Auto FFT IPk Max M1[1] -7.32 dBm 711.0000 MHz Occ Bw 4.491017964 MHz D1[1] -0.47 dB 4.9400 MHz M2 -7.970 dBm D2 -7.970 dBm CF 713.5 MHz 501 pts Span 10.0 MHz Measuring... 16.12.2021 14:33:53 Date: 16. DEC. 2021 14:33:53</p> | <p>Spectrum Ref Level 30.00 dBm Offset 4.50 dB RBW 100 kHz Att 40 dB SWT 19 μs VBW 300 kHz Mode Auto FFT IPk Max M1[1] -9.46 dBm 710.9600 MHz Occ Bw 4.510978044 MHz D1[1] -0.62 dB 5.0000 MHz M2 -10.100 dBm D2 -10.100 dBm CF 713.5 MHz 501 pts Span 10.0 MHz Measuring... 16.12.2021 14:34:17 Date: 16. DEC. 2021 14:34:17</p> |

Occupied Bandwidth

| Channel | 10MHz Bandwidth QPSK | 10MHz Bandwidth 16QAM |
|---------|---|--|
| Lowest | <p>Ref Level 30.00 dBm Offset 4.50 dB RBW 100 kHz Att 40 dB SWT 38 μs VBW 300 kHz Mode Auto FFT</p> <p>MI[1] -12.35 dBm 699.0000 MHz Occ Bw 8.982035928 MHz 0.42 dB D1[1] 9.8800 MHz</p> <p>D2 -11.810 dBm</p> <p>CF 704.0 MHz 501 pts Span 20.0 MHz</p> <p>Date: 16. DEC. 2021 14:34:43</p> | <p>Ref Level 30.00 dBm Offset 4.50 dB RBW 100 kHz Att 40 dB SWT 38 μs VBW 300 kHz Mode Auto FFT</p> <p>MI[1] -10.20 dBm 699.2400 MHz Occ Bw 8.982035928 MHz 0.34 dB D1[1] 9.6000 MHz</p> <p>D2 -10.360 dBm</p> <p>CF 704.0 MHz 501 pts Span 20.0 MHz</p> <p>Date: 16. DEC. 2021 14:35:08</p> |
| Middle | <p>Ref Level 30.00 dBm Offset 4.50 dB RBW 100 kHz Att 40 dB SWT 38 μs VBW 300 kHz Mode Auto FFT</p> <p>MI[1] -11.13 dBm 702.7000 MHz Occ Bw 8.902195609 MHz 0.33 dB D1[1] 9.6400 MHz</p> <p>D2 -10.490 dBm</p> <p>CF 707.5 MHz 501 pts Span 20.0 MHz</p> <p>Date: 16. DEC. 2021 14:35:31</p> | <p>Ref Level 30.00 dBm Offset 4.50 dB RBW 100 kHz Att 40 dB SWT 38 μs VBW 300 kHz Mode Auto FFT</p> <p>MI[1] -12.71 dBm 702.7400 MHz Occ Bw 8.902195609 MHz 0.59 dB D1[1] 9.6400 MHz</p> <p>D2 -12.480 dBm</p> <p>CF 707.5 MHz 501 pts Span 20.0 MHz</p> <p>Date: 16. DEC. 2021 14:35:55</p> |
| Highest | <p>Ref Level 30.00 dBm Offset 4.50 dB RBW 100 kHz Att 40 dB SWT 38 μs VBW 300 kHz Mode Auto FFT</p> <p>MI[1] -10.68 dBm 706.2400 MHz Occ Bw 8.822355289 MHz -1.41 dB D1[1] 9.5200 MHz</p> <p>D2 -11.230 dBm</p> <p>CF 711.0 MHz 501 pts Span 20.0 MHz</p> <p>Date: 16. DEC. 2021 14:36:24</p> | <p>Ref Level 30.00 dBm Offset 4.50 dB RBW 100 kHz Att 40 dB SWT 38 μs VBW 300 kHz Mode Auto FFT</p> <p>MI[1] -11.92 dBm 706.2400 MHz Occ Bw 8.822355289 MHz 0.53 dB D1[1] 9.4800 MHz</p> <p>D2 -11.420 dBm</p> <p>CF 711.0 MHz 501 pts Span 20.0 MHz</p> <p>Date: 16. DEC. 2021 14:36:55</p> |