

4.5 Antenna Port Test Data and Results for WCDMA Band 5:

| | | | |
|----------------|-----------|--------------|-----------------------|
| Serial Number: | 2DMI-1 | Test Date: | 2023/11/22~2023/11/28 |
| Test Site: | RF | Test Mode: | Transmitting |
| Tester: | Len Huang | Test Result: | Pass |

Environmental Conditions:

| | | | | | |
|----------------------|---------|---------------------------|-------|------------------------|-----|
| Temperature: (°C) | 24.3~26 | Relative Humidity: (%) | 40~55 | ATM Pressure: (kPa) | 101 |
|----------------------|---------|---------------------------|-------|------------------------|-----|

Test Equipment List and Details:

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---------------|-------------------------------------|--------------|-----------------|------------------|----------------------|
| R&S | Spectrum Analyzer | FSV40-N | 102259 | 2023/4/18 | 2024/4/17 |
| zhuoxiang | Coaxial Cable | SMA-178 | 211002 | Each time | N/A |
| Minl-Circuits | Power Splitter | ZFRSC-183-S+ | S F448201619 | Each time | N/A |
| R&S | Wideband Radio Communication Tester | CMW500 | 143458 | 2023/3/31 | 2024/3/30 |
| BACL | TEMP&HUMI Test Chamber | BTH-150-40 | 30174 | 2023/3/31 | 2024/3/30 |
| UNI-T | Multimeter | UT39A+ | C210582554 | 2023/9/28 | 2024/9/27 |
| 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 | 23.71 | 23.07 | 22.81 | 16.66 | 38.45 |
| HSDPA Subtest 1 | 20.83 | 20.84 | 20.77 | 13.79 | 38.45 |
| HSDPA Subtest 2 | 20.91 | 20.89 | 20.79 | 13.86 | 38.45 |
| HSDPA Subtest 3 | 20.96 | 20.92 | 20.82 | 13.91 | 38.45 |
| HSDPA Subtest 4 | 21.03 | 20.96 | 20.87 | 13.98 | 38.45 |
| HSUPA Subtest 1 | 21.00 | 20.58 | 20.39 | 13.95 | 38.45 |
| HSUPA Subtest 2 | 21.04 | 20.65 | 20.42 | 13.99 | 38.45 |
| HSUPA Subtest 3 | 21.08 | 20.72 | 20.46 | 14.03 | 38.45 |
| HSUPA Subtest 4 | 21.12 | 20.76 | 20.50 | 14.07 | 38.45 |
| HSUPA Subtest 5 | 21.17 | 20.82 | 20.53 | 14.12 | 38.45 |
| HSPA+ Subtest 1 | 21.24 | 20.83 | 20.69 | 14.19 | 38.45 |

Note:
 $ERP = \text{Conducted Power(dBm)} - L_c(\text{dB}) + G_T(\text{dBd})$
 $G_T(\text{dBd}) = G_T(\text{dBi}) - 2.15$

| | |
|----------------|-------------|
| Result: | Pass |
|----------------|-------------|

Peak-to-average Ratio(PAR)

| Test Mode | Peak-to-average Ratio(dB) | | | Limit (dB) |
|-----------|---------------------------|----------------|-----------------|------------|
| | Lowest Channel | Middle Channel | Highest Channel | |
| WCDMA R99 | 3.04 | 2.9 | 3.07 | 13 |
| HSDPA | 3.33 | 3.33 | 4.75 | 13 |
| HSUPA | 5.74 | 5.86 | 5.74 | 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 | 4.136 | 4.146 | 4.136 | 4.695 | 4.715 | 4.705 |
| HSDPA | 4.146 | 4.146 | 4.146 | 4.685 | 4.695 | 4.695 |
| HSUPA | 4.146 | 4.146 | 4.156 | 4.695 | 4.695 | 4.675 |

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

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

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

FCC §2.1051, §22.917(a):Out of band emission, Band Edge**Result: Pass, Please refer to the test plots of Out of band emission, Band Edge.****FCC §2.1055, §22.355: Frequency Stability**

| Test Modulation: | WCDMA R99 | | Test Channel: | 836.6 | MHz |
|-------------------------------------|------------------|----------------------------|-----------------|-------------|-------|
| Test Item | Temperature (°C) | Voltage (V _{DC}) | Frequency Error | | Limit |
| | | | (Hz) | (ppm) | (ppm) |
| Frequency Stability vs. Temperature | -30 | 3.91 | -14 | -0.017 | 2.5 |
| | -20 | 3.91 | -11 | -0.013 | 2.5 |
| | -10 | 3.91 | -12 | -0.014 | 2.5 |
| | 0 | 3.91 | -6 | -0.007 | 2.5 |
| | 10 | 3.91 | -3 | -0.004 | 2.5 |
| | 20 | 3.91 | -4 | -0.005 | 2.5 |
| | 30 | 3.91 | -11 | -0.013 | 2.5 |
| | 40 | 3.91 | -5 | -0.006 | 2.5 |
| Frequency Stability vs. Voltage | 50 | 3.91 | -4 | -0.005 | 2.5 |
| | 20 | 3.45 | -7 | -0.008 | 2.5 |
| | 20 | 4.5 | -16 | -0.019 | 2.5 |
| Result: | | | | Pass | |

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

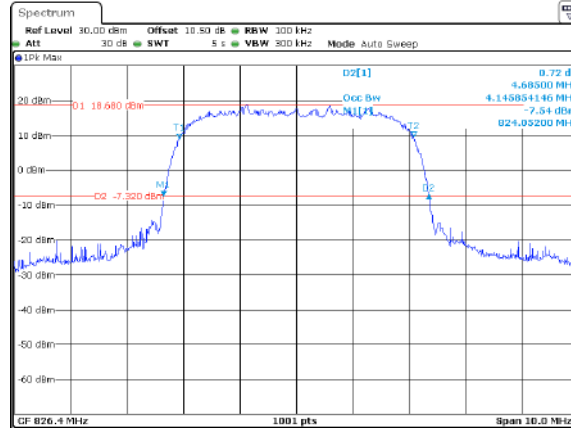
| Occupied Bandwidth | | |
|---------------------------|---|---|
| Channel | WCDMA R99 | HSDPA |
| Lowest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 22.NOV.2023 09:51:20</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 22.NOV.2023 10:27:43</p> |
| Middle | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 22.NOV.2023 09:47:14</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 22.NOV.2023 10:22:15</p> |
| Highest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 22.NOV.2023 09:39:38</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 22.NOV.2023 10:16:51</p> |

Occupied Bandwidth

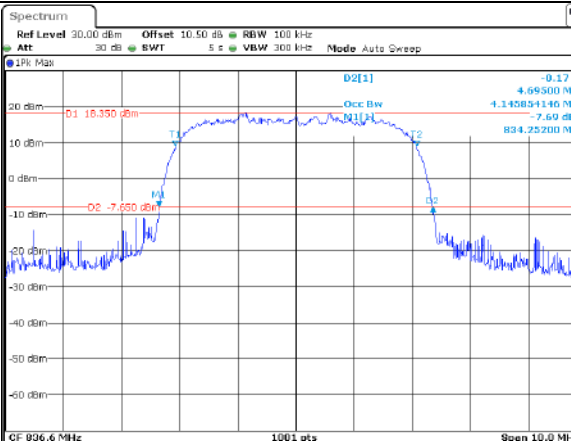
Channel

HSUPA

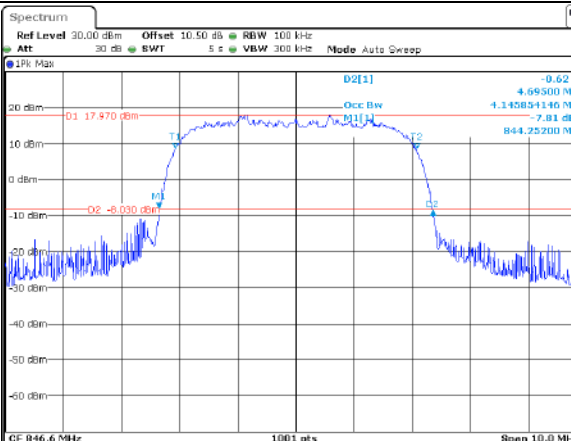
Lowest



Middle



Highest



Spurious Emissions at Antenna Terminal

| Channel | WCDMA R99 | |
|---------|--|---|
| Lowest | <p>Spectrum Ref Level 30.00 dBm Offset 10.50 dB RBW 1 MHz Att 30 dB SWT 30 ms VBW 3 MHz Mode Auto Sweep IPK Max M1[1] -32.83 dBm 6.91360 GHz Start 1.0 GHz 1001 pts Stop 10.0 GHz ProjectNo.:CR231167220 Tester:Len Huang Date: 22.NOV.2023 09:53:03</p> | <p>Spectrum Ref Level 30.00 dBm Offset 10.50 dB RBW 100 kHz Att 30 dB SWT 0.7 ms VBW 300 kHz Mode Auto Sweep IPK Max M1[1] -45.98 dBm 859.010 MHz Start 30.0 MHz 1001 pts Stop 1.0 GHz ProjectNo.:CR231167220 Tester:Len Huang Date: 22.NOV.2023 09:52:42</p> |
| Middle | <p>Spectrum Ref Level 30.00 dBm Offset 10.50 dB RBW 1 MHz Att 30 dB SWT 36 ms VBW 3 MHz Mode Auto Sweep IPK Max M1[1] -34.15 dBm 6.90350 GHz Start 1.0 GHz 1001 pts Stop 10.0 GHz ProjectNo.:CR231167220 Tester:Len Huang Date: 22.NOV.2023 09:48:25</p> | <p>Spectrum Ref Level 30.00 dBm Offset 10.50 dB RBW 100 kHz Att 30 dB SWT 0.7 ms VBW 300 kHz Mode Auto Sweep IPK Max M1[1] -45.89 dBm 862.260 MHz Start 30.0 MHz 1001 pts Stop 1.0 GHz ProjectNo.:CR231167220 Tester:Len Huang Date: 22.NOV.2023 09:48:16</p> |
| Highest | <p>Spectrum Ref Level 30.00 dBm Offset 10.50 dB RBW 1 MHz Att 30 dB SWT 36 ms VBW 3 MHz Mode Auto Sweep IPK Max M1[1] -39.01 dBm 6.90260 GHz Start 1.0 GHz 1001 pts Stop 10.0 GHz ProjectNo.:CR231167220 Tester:Len Huang Date: 22.NOV.2023 09:42:25</p> | <p>Spectrum Ref Level 30.00 dBm Offset 10.50 dB RBW 100 kHz Att 30 dB SWT 0.7 ms VBW 300 kHz Mode Auto Sweep IPK Max M1[1] -49.40 dBm 824.120 MHz Start 30.0 MHz 1001 pts Stop 1.0 GHz ProjectNo.:CR231167220 Tester:Len Huang Date: 22.NOV.2023 09:42:16</p> |

Out of band emission, Band Edge

| Mode | Lowest | Highest |
|-------|--------|---------|
| R99 | | |
| HSUPA | | |
| HSDPA | | |

4.6 Antenna Port Test Data and Results for LTE Band 2

| | | | |
|----------------|-----------|--------------|-----------------------|
| Serial Number: | 2DMI-1 | Test Date: | 2023/11/22~2023/12/20 |
| Test Site: | RF | Test Mode: | Transmitting |
| Tester: | Len Huang | Test Result: | Pass |

Environmental Conditions:

| | | | | | |
|----------------------|---------|---------------------------|-------|------------------------|-----|
| Temperature: (°C) | 24.3~26 | Relative Humidity: (%) | 40~55 | ATM Pressure: (kPa) | 101 |
|----------------------|---------|---------------------------|-------|------------------------|-----|

Test Equipment List and Details:

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---------------|-------------------------------------|--------------|-----------------|------------------|----------------------|
| R&S | Spectrum Analyzer | FSV40-N | 102259 | 2023/4/18 | 2024/4/17 |
| zhuoxiang | Coaxial Cable | SMA-178 | 211002 | Each time | N/A |
| Minl-Circuits | Power Splitter | ZFRSC-183-S+ | S F448201619 | Each time | N/A |
| R&S | Wideband Radio Communication Tester | CMW500 | 143458 | 2023/3/31 | 2024/3/30 |
| BACL | TEMP&HUMI Test Chamber | BTH-150-40 | 30174 | 2023/3/31 | 2024/3/30 |
| UNI-T | Multimeter | UT39A+ | C210582554 | 2023/9/28 | 2024/9/27 |
| 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 | 23.35 | 23.02 | 23.07 | 19.51 | 33 |
| | RB1#3 | 23.33 | 23.05 | 23.09 | | |
| | RB1#5 | 23.35 | 23.07 | 23.08 | | |
| | RB3#0 | 23.46 | 23.08 | 23.21 | | |
| | RB3#3 | 23.44 | 23.08 | 23.19 | | |
| | RB6#0 | 22.44 | 22.12 | 22.17 | | |
| 1.4MHz 16QAM | RB1#0 | 22.50 | 22.29 | 22.16 | 18.69 | 33 |
| | RB1#3 | 22.51 | 22.30 | 22.19 | | |
| | RB1#5 | 22.50 | 22.25 | 22.18 | | |
| | RB3#0 | 22.59 | 22.05 | 22.17 | | |
| | RB3#3 | 22.64 | 22.07 | 22.17 | | |
| | RB6#0 | 21.44 | 21.15 | 21.07 | | |
| 3MHz QPSK | RB1#0 | 23.34 | 23.14 | 22.96 | 19.47 | 33 |
| | RB1#8 | 23.37 | 23.07 | 23.04 | | |
| | RB1#14 | 23.42 | 23.03 | 23.04 | | |
| | RB6#0 | 22.44 | 22.16 | 22.13 | | |
| | RB6#9 | 22.47 | 22.07 | 22.15 | | |
| | RB15#0 | 22.49 | 22.06 | 22.10 | | |
| 3MHz 16QAM | RB1#0 | 22.48 | 22.64 | 22.27 | 18.69 | 33 |
| | RB1#8 | 22.47 | 22.57 | 22.27 | | |
| | RB1#14 | 22.49 | 22.51 | 22.28 | | |
| | RB6#0 | 21.41 | 21.16 | 21.16 | | |
| | RB6#9 | 21.45 | 21.11 | 21.19 | | |
| | RB15#0 | 21.53 | 21.15 | 21.13 | | |
| 5MHz QPSK | RB1#0 | 23.43 | 23.17 | 23.30 | 19.51 | 33 |
| | RB1#13 | 23.46 | 23.15 | 23.31 | | |
| | RB1#24 | 23.46 | 23.09 | 23.37 | | |
| | RB15#0 | 22.51 | 22.21 | 22.21 | | |
| | RB15#10 | 22.52 | 22.07 | 22.03 | | |
| | RB25#0 | 22.49 | 22.13 | 22.10 | | |
| 5MHz 16QAM | RB1#0 | 22.79 | 22.21 | 21.97 | 18.84 | 33 |
| | RB1#13 | 22.79 | 22.16 | 21.97 | | |
| | RB1#24 | 22.76 | 22.12 | 22.06 | | |
| | RB15#0 | 21.50 | 21.22 | 21.23 | | |
| | RB15#10 | 21.47 | 21.10 | 21.07 | | |
| | RB25#0 | 21.47 | 21.15 | 21.20 | | |
| 10MHz QPSK | RB1#0 | 23.42 | 23.19 | 22.74 | 19.5 | 33 |

| | | | | | | |
|-------------|---------|-------|-------|-------|-------|----|
| | RB1#25 | 23.45 | 23.16 | 22.82 | | |
| | RB1#49 | 23.43 | 23.01 | 22.86 | | |
| | RB25#0 | 22.43 | 22.17 | 21.79 | | |
| | RB25#25 | 22.54 | 21.70 | 21.75 | | |
| | RB50#0 | 22.53 | 21.80 | 21.79 | | |
| 10MHz 16QAM | RB1#0 | 22.47 | 21.98 | 21.75 | 18.55 | 33 |
| | RB1#25 | 22.50 | 21.97 | 21.82 | | |
| | RB1#49 | 22.48 | 21.80 | 21.86 | | |
| | RB25#0 | 21.52 | 20.82 | 20.93 | | |
| | RB25#25 | 21.63 | 20.70 | 20.84 | | |
| | RB50#0 | 21.53 | 20.74 | 20.80 | | |
| 15MHz QPSK | RB1#0 | 23.00 | 22.75 | 22.62 | 19.09 | 33 |
| | RB1#38 | 23.04 | 22.73 | 22.75 | | |
| | RB1#74 | 22.86 | 22.52 | 22.77 | | |
| | RB36#0 | 22.05 | 21.76 | 21.70 | | |
| | RB36#39 | 22.08 | 21.56 | 21.67 | | |
| | RB75#0 | 22.07 | 21.65 | 21.73 | | |
| 15MHz 16QAM | RB1#0 | 22.47 | 22.30 | 21.79 | 18.58 | 33 |
| | RB1#38 | 22.53 | 22.26 | 21.94 | | |
| | RB1#74 | 22.28 | 22.07 | 21.93 | | |
| | RB36#0 | 21.09 | 20.76 | 20.74 | | |
| | RB36#39 | 21.04 | 20.58 | 20.72 | | |
| | RB75#0 | 21.08 | 20.66 | 20.73 | | |
| 20MHz QPSK | RB1#0 | 22.98 | 22.72 | 22.58 | 19.06 | 33 |
| | RB1#50 | 23.01 | 22.71 | 22.66 | | |
| | RB1#99 | 22.69 | 22.47 | 22.70 | | |
| | RB50#0 | 22.11 | 21.76 | 21.62 | | |
| | RB50#50 | 22.02 | 21.54 | 21.59 | | |
| | RB100#0 | 22.07 | 21.67 | 21.63 | | |
| 20MHz 16QAM | RB1#0 | 22.71 | 22.06 | 21.78 | 18.76 | 33 |
| | RB1#50 | 22.66 | 22.03 | 21.92 | | |
| | RB1#99 | 22.36 | 21.76 | 21.93 | | |
| | RB50#0 | 21.05 | 20.72 | 20.59 | | |
| | RB50#50 | 20.98 | 20.53 | 20.58 | | |
| | RB100#0 | 20.98 | 20.68 | 20.64 | | |

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

| | |
|----------------|-------------|
| Result: | Pass |
|----------------|-------------|

| Peak-to-average Ratio(PAR) | | | | | |
|-----------------------------------|----------------------------|---------------------------|----------------|-----------------|-------------|
| Test Bandwidth & Modulation | Resource Block & RB offset | Peak-to-average Ratio(dB) | | | Limit (dB) |
| | | Lowest Channel | Middle Channel | Highest Channel | |
| 20MHz QPSK | RB1#0 | 4.20 | 4.32 | 8.90 | 13 |
| | RB100#0 | 4.99 | 5.10 | 4.93 | 13 |
| 20MHz 16QAM | RB1#0 | 4.93 | 5.19 | 5.57 | 13 |
| | RB100#0 | 5.91 | 6.03 | 5.86 | 13 |
| Result: | | | | | Pass |

| FCC §2.1049, §24.238: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 | 1.096 | 1.096 | 1.290 | 1.296 | 1.290 |
| 1.4MHz 16QAM | 1.096 | 1.102 | 1.090 | 1.296 | 1.320 | 1.284 |
| 3MHz QPSK | 2.695 | 2.683 | 2.683 | 2.880 | 2.916 | 2.904 |
| 3MHz 16QAM | 2.683 | 2.683 | 2.683 | 2.904 | 2.892 | 2.916 |
| 5MHz QPSK | 4.511 | 4.511 | 4.531 | 5.000 | 4.960 | 5.000 |
| 5MHz 16QAM | 4.511 | 4.511 | 4.491 | 5.000 | 5.020 | 4.980 |
| 10MHz QPSK | 8.942 | 8.942 | 8.942 | 9.680 | 9.640 | 9.640 |
| 10MHz 16QAM | 8.942 | 8.942 | 8.942 | 9.680 | 9.560 | 9.640 |
| 15MHz QPSK | 13.473 | 13.533 | 13.413 | 14.700 | 14.940 | 14.640 |
| 15MHz 16QAM | 13.473 | 13.533 | 13.473 | 14.640 | 14.640 | 14.580 |
| 20MHz QPSK | 17.964 | 17.884 | 17.884 | 19.120 | 19.280 | 19.280 |
| 20MHz 16QAM | 17.964 | 17.964 | 17.884 | 19.280 | 19.200 | 19.200 |

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

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

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

| 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 _{DC}) | Lower Edge (MHz) | | Upper Edge (MHz) | |
| | | | Result | Limit | Result | Limit |
| Frequency Stability vs. Temperature | -30 | 3.91 | 1850.125 | 1850.000 | 1909.876 | 1910.000 |
| | -20 | 3.91 | 1850.125 | 1850.000 | 1909.870 | 1910.000 |
| | -10 | 3.91 | 1850.115 | 1850.000 | 1909.885 | 1910.000 |
| | 0 | 3.91 | 1850.121 | 1850.000 | 1909.853 | 1910.000 |
| | 10 | 3.91 | 1850.128 | 1850.000 | 1909.877 | 1910.000 |
| | 20 | 3.91 | 1850.111 | 1850.000 | 1909.843 | 1910.000 |
| | 30 | 3.91 | 1850.099 | 1850.000 | 1909.876 | 1910.000 |
| | 40 | 3.91 | 1850.122 | 1850.000 | 1909.853 | 1910.000 |
| | 50 | 3.91 | 1850.123 | 1850.000 | 1909.875 | 1910.000 |
| Frequency Stability vs. Voltage | 20 | 3.45 | 1850.127 | 1850.000 | 1909.844 | 1910.000 |
| | 20 | 4.5 | 1850.105 | 1850.000 | 1909.864 | 1910.000 |
| | | | | | 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 | 3.91 | 1850.103 | 1850.000 | 1909.876 | 1910.000 |
| | -20 | 3.91 | 1850.131 | 1850.000 | 1909.883 | 1910.000 |
| | -10 | 3.91 | 1850.109 | 1850.000 | 1909.866 | 1910.000 |
| | 0 | 3.91 | 1850.123 | 1850.000 | 1909.897 | 1910.000 |
| | 10 | 3.91 | 1850.104 | 1850.000 | 1909.886 | 1910.000 |
| | 20 | 3.91 | 1850.112 | 1850.000 | 1909.868 | 1910.000 |
| | 30 | 3.91 | 1850.115 | 1850.000 | 1909.877 | 1910.000 |
| | 40 | 3.91 | 1850.116 | 1850.000 | 1909.870 | 1910.000 |
| | 50 | 3.91 | 1850.112 | 1850.000 | 1909.868 | 1910.000 |
| Frequency Stability vs. Voltage | 20 | 3.45 | 1850.124 | 1850.000 | 1909.868 | 1910.000 |
| | 20 | 4.5 | 1850.097 | 1850.000 | 1909.869 | 1910.000 |
| | | | | | Result: | Pass |

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

Occupied Bandwidth

| Channel | 1.4MHz Bandwidth QPSK | 1.4MHz Bandwidth 16QAM |
|---------|---|---|
| Lowest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:46:36</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:46:56</p> |
| Middle | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:47:15</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:47:32</p> |
| Highest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:47:51</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:48:08</p> |

Occupied Bandwidth

| Channel | 3MHz Bandwidth QPSK | 3MHz Bandwidth 16QAM |
|---------|---|---|
| Lowest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:49:07</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:49:25</p> |
| Middle | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:49:46</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:50:04</p> |
| Highest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:50:22</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:50:37</p> |

Occupied Bandwidth

| Channel | 5MHz Bandwidth QPSK | 5MHz Bandwidth 16QAM |
|---------|---|---|
| Lowest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:51:31</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:51:55</p> |
| Middle | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:52:17</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:52:34</p> |
| Highest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:52:50</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:53:17</p> |

Occupied Bandwidth

| Channel | 10MHz Bandwidth QPSK | 10MHz Bandwidth 16QAM |
|---------|---|---|
| Lowest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:54:12</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:54:36</p> |
| Middle | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:55:05</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:55:26</p> |
| Highest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:55:57</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:56:22</p> |

Occupied Bandwidth

| Channel | 15MHz Bandwidth QPSK | 15MHz Bandwidth 16QAM |
|---------|---|---|
| Lowest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:57:24</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:57:57</p> |
| Middle | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:58:27</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:58:51</p> |
| Highest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:59:18</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 13:59:47</p> |

Occupied Bandwidth

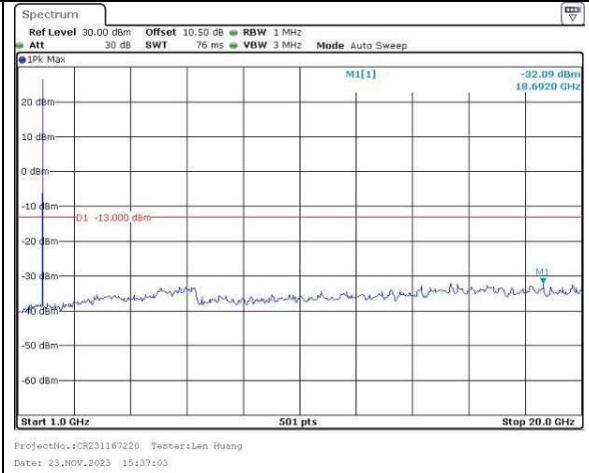
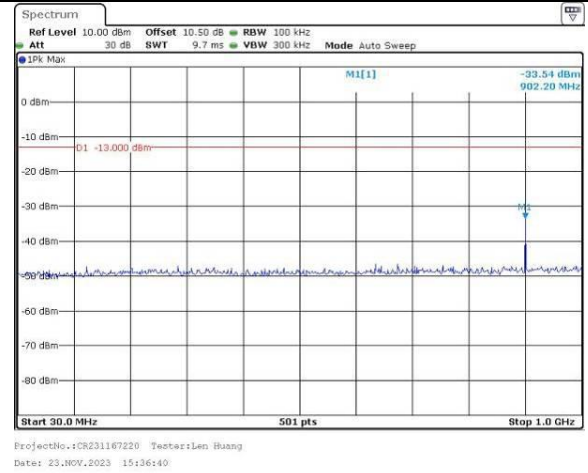
| Channel | 20MHz Bandwidth QPSK | 20MHz Bandwidth 16QAM |
|---------|---|---|
| Lowest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:02:41</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:03:11</p> |
| Middle | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:03:41</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:04:01</p> |
| Highest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:05:19</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:05:52</p> |

Spurious Emissions at Antenna Terminal

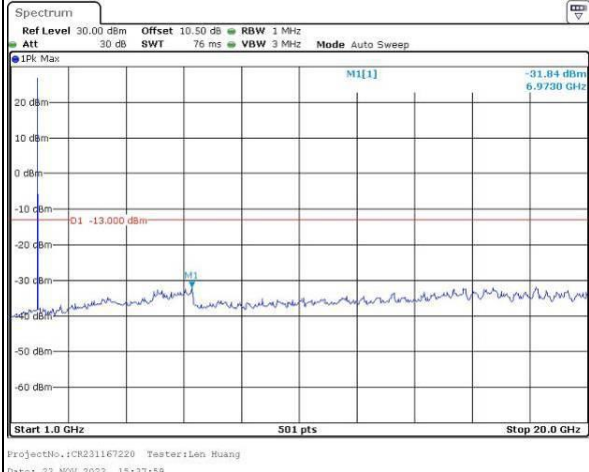
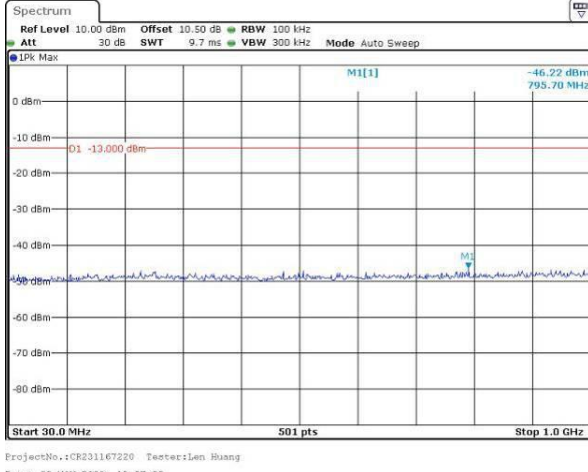
Channel

1.4MHz Bandwidth QPSK

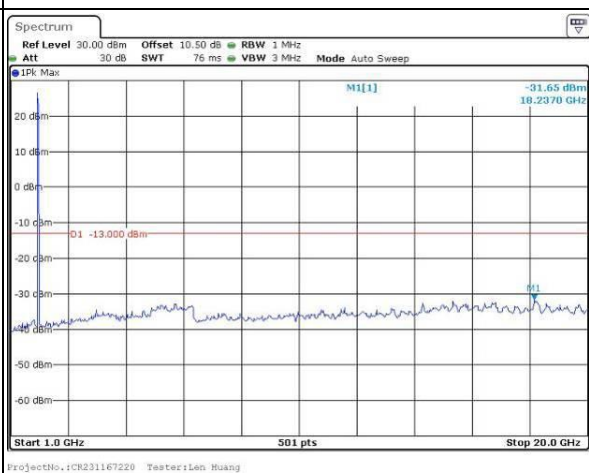
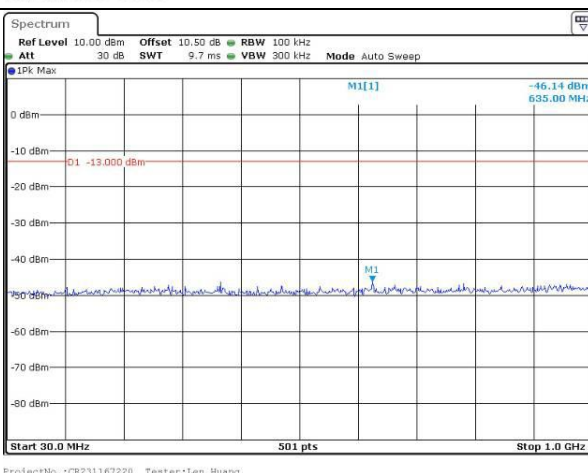
Lowest



Middle



Highest

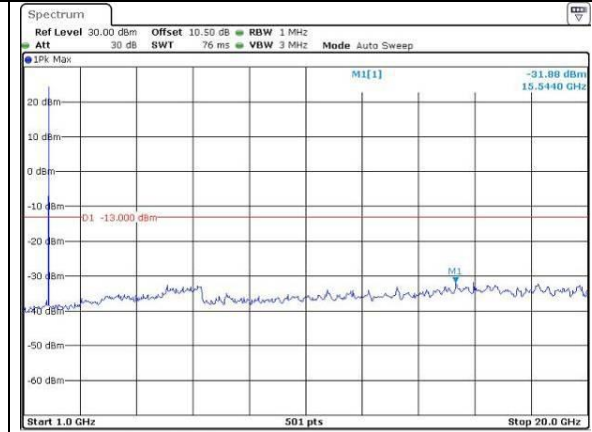
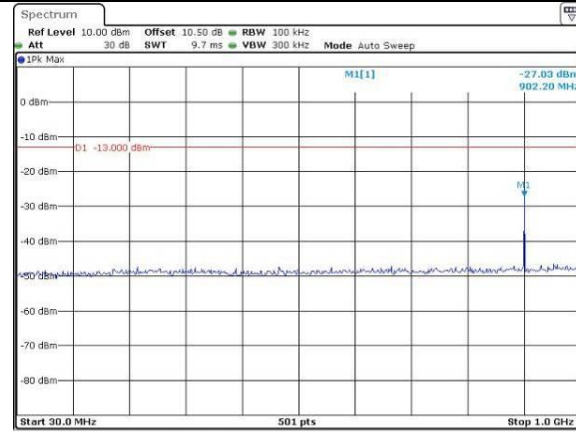


Spurious Emissions at Antenna Terminal

Channel

3MHz Bandwidth QPSK

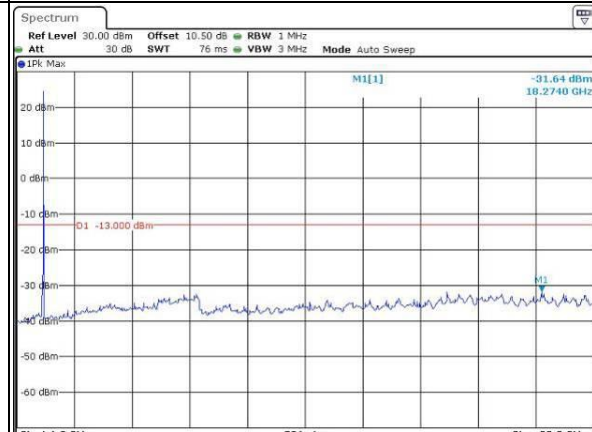
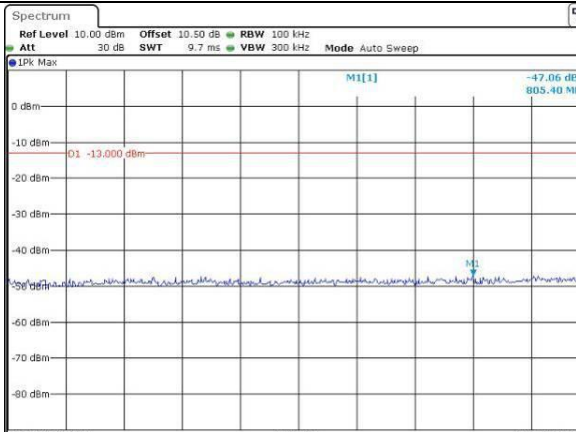
Lowest



ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 15:39:49

ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 15:40:16

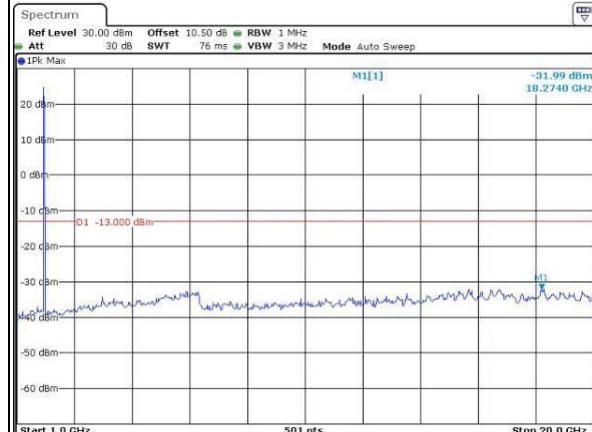
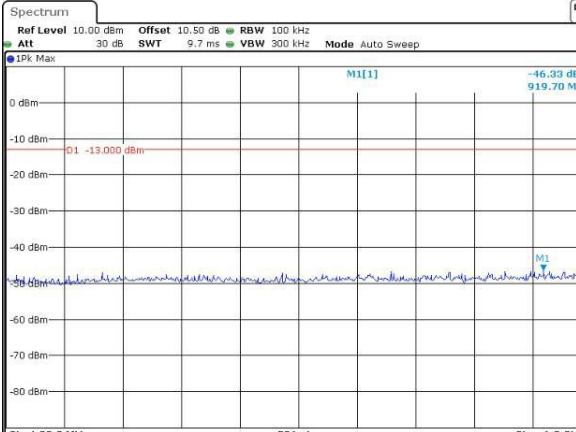
Middle



ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 15:40:45

ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 15:41:08

Highest



ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 15:41:34

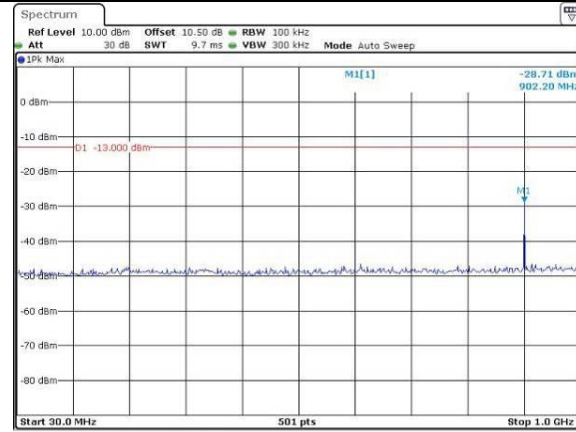
ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 15:42:03

Spurious Emissions at Antenna Terminal

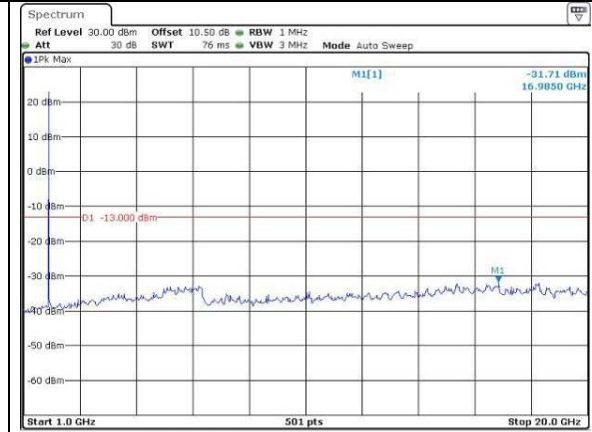
Channel

5MHz Bandwidth QPSK

Lowest

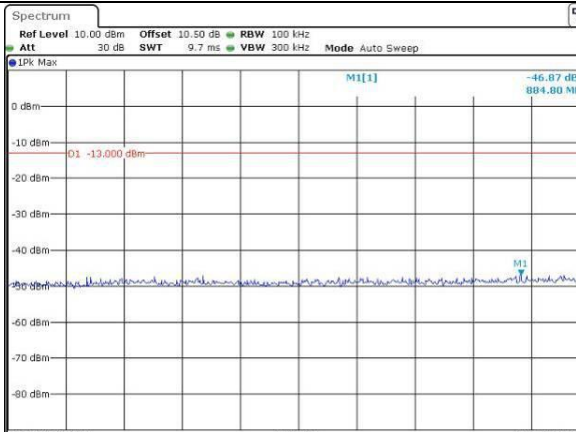


ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 15:43:05

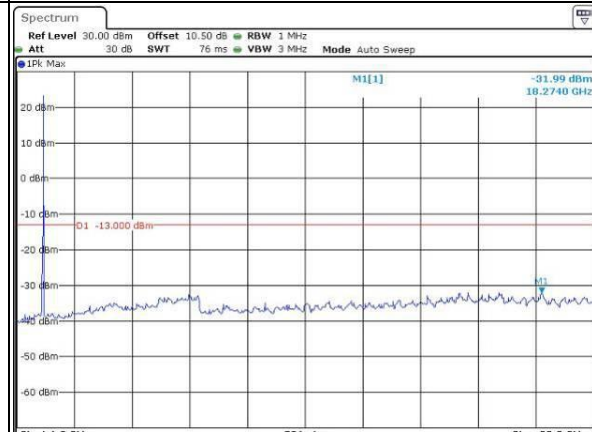


ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 15:43:28

Middle

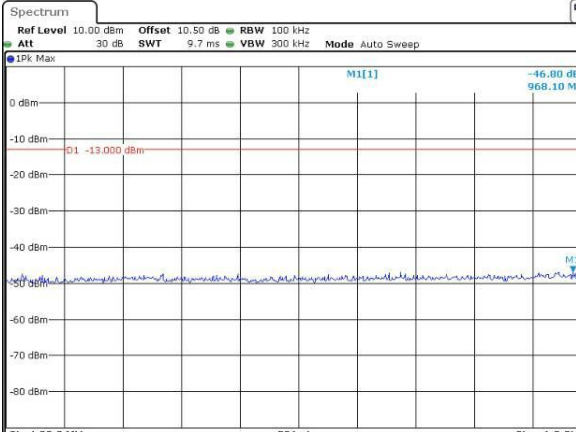


ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 15:43:54

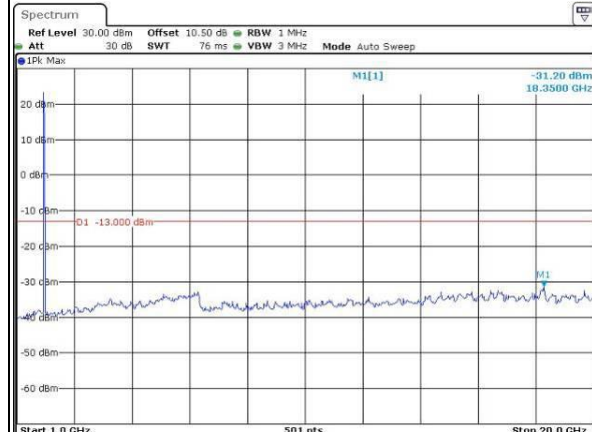


ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 15:44:24

Highest

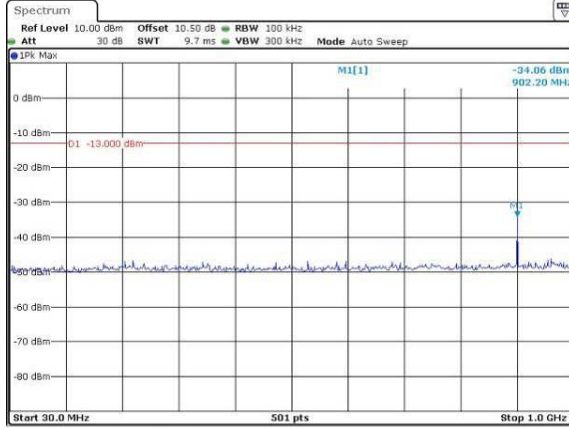
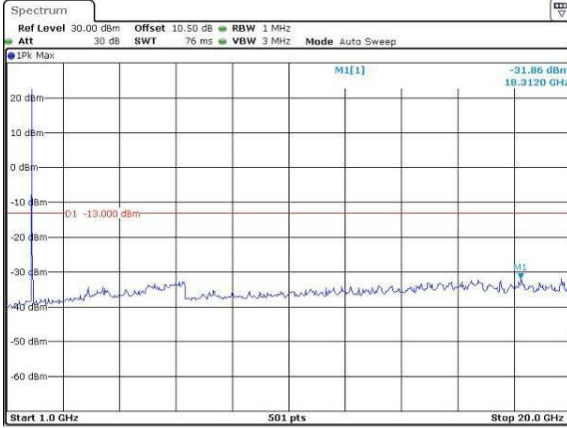
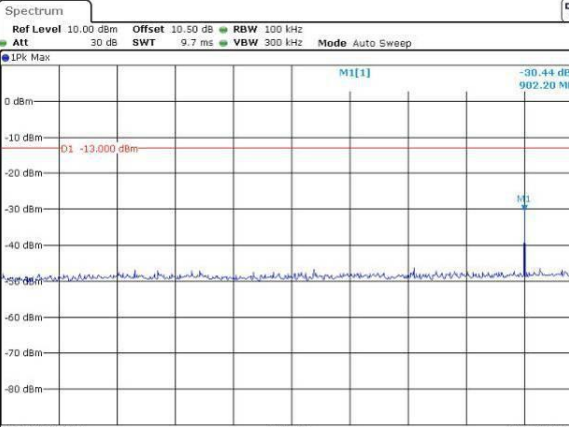
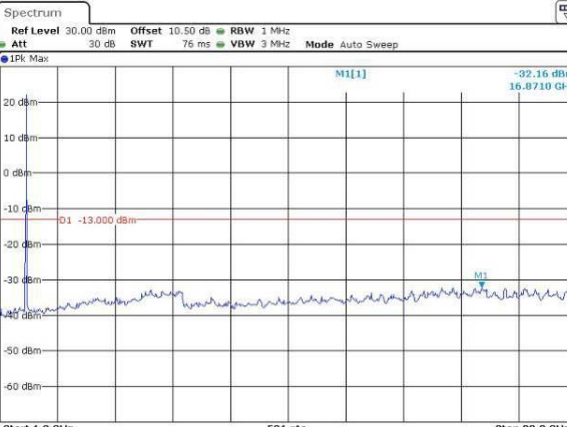
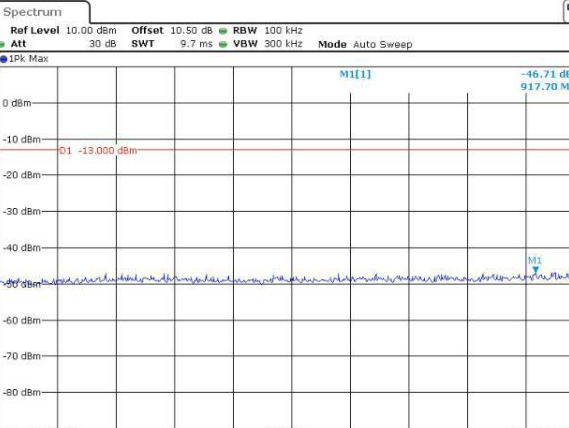
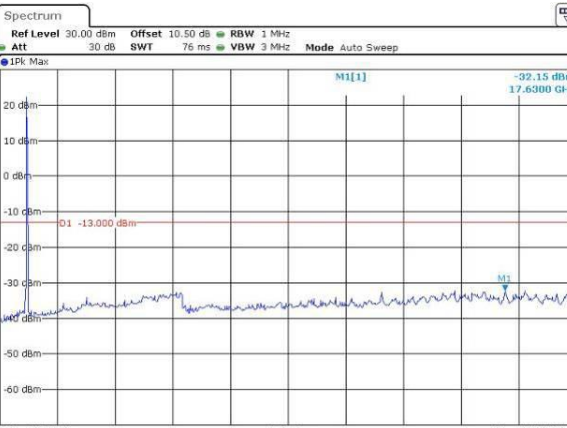


ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 15:44:56



ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 15:45:16

Spurious Emissions at Antenna Terminal

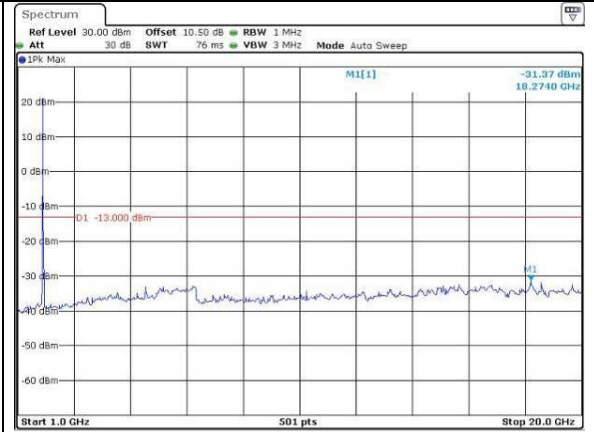
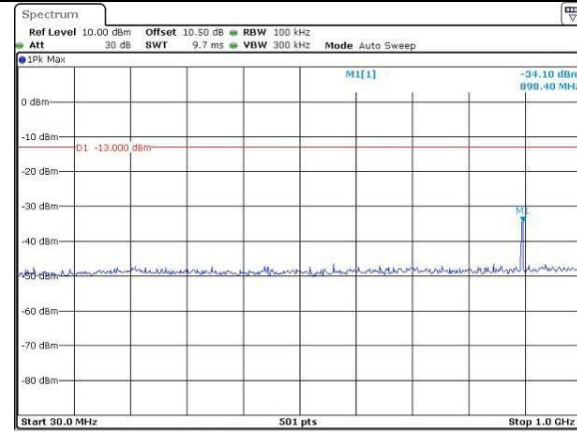
| Channel | 10MHz Bandwidth QPSK | |
|---------|---|--|
| Lowest |  <p>Ref Level 10.00 dBm Offset 10.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep</p> <p>1Pk Max M1[1] -34.06 dBm 902.20 MHz</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:46:11</p> |  <p>Ref Level 30.00 dBm Offset 10.50 dB RBW 1 MHz Att 30 dB SWT 76 ms VBW 3 MHz Mode Auto Sweep</p> <p>1Pk Max M1[1] -31.86 dBm 18.3120 GHz</p> <p>Start 1.0 GHz 501 pts Stop 20.0 GHz</p> <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:46:34</p> |
| Middle |  <p>Ref Level 10.00 dBm Offset 10.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep</p> <p>1Pk Max M1[1] -30.44 dBm 902.20 MHz</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:47:10</p> |  <p>Ref Level 30.00 dBm Offset 10.50 dB RBW 1 MHz Att 30 dB SWT 76 ms VBW 3 MHz Mode Auto Sweep</p> <p>1Pk Max M1[1] -32.16 dBm 16.8710 GHz</p> <p>Start 1.0 GHz 501 pts Stop 20.0 GHz</p> <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:47:42</p> |
| Highest |  <p>Ref Level 10.00 dBm Offset 10.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep</p> <p>1Pk Max M1[1] -46.71 dBm 917.70 MHz</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:48:12</p> |  <p>Ref Level 30.00 dBm Offset 10.50 dB RBW 1 MHz Att 30 dB SWT 76 ms VBW 3 MHz Mode Auto Sweep</p> <p>1Pk Max M1[1] -32.15 dBm 17.6300 GHz</p> <p>Start 1.0 GHz 501 pts Stop 20.0 GHz</p> <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:48:35</p> |

Spurious Emissions at Antenna Terminal

Channel

15MHz Bandwidth QPSK

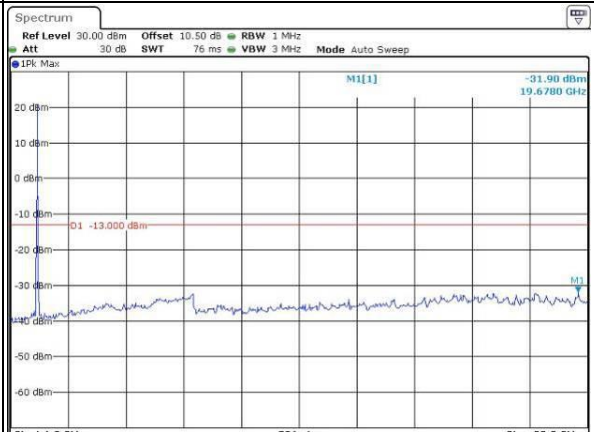
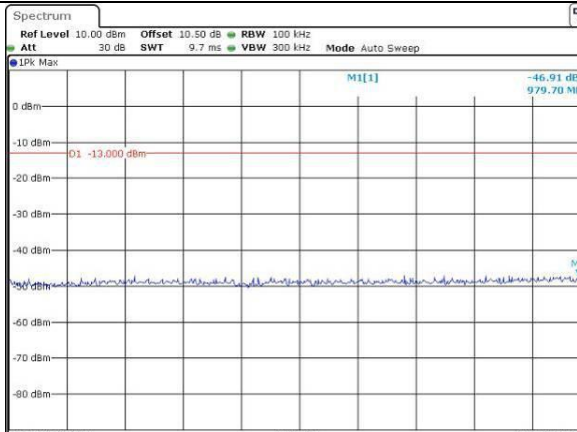
Lowest



ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 15:49:35

ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 15:50:02

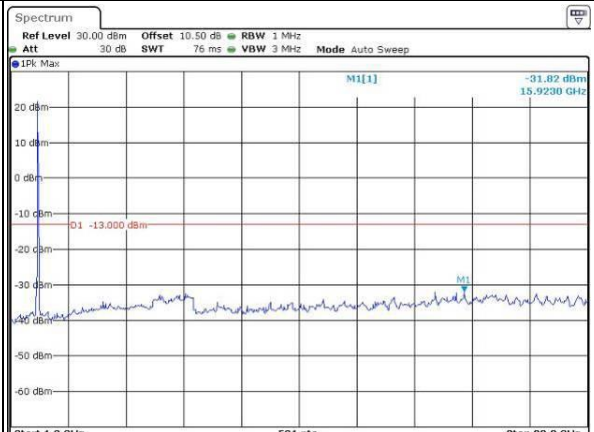
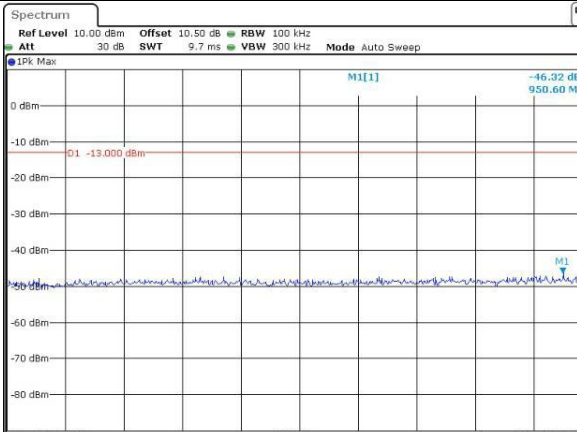
Middle



ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 15:50:32

ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 15:51:02

Highest



ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 15:51:29

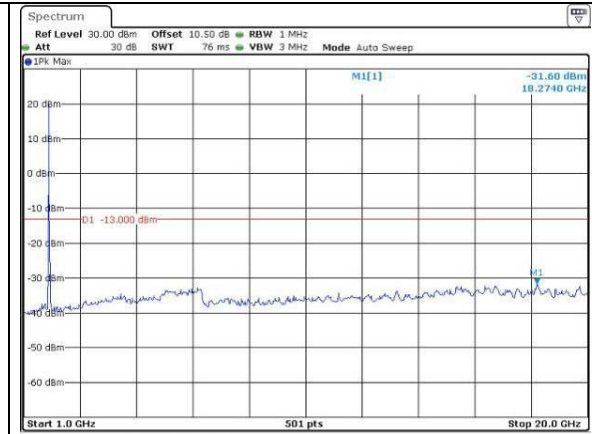
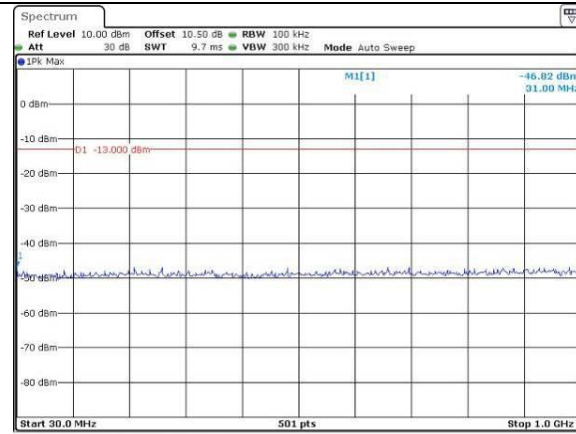
ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 15:51:58

Spurious Emissions at Antenna Terminal

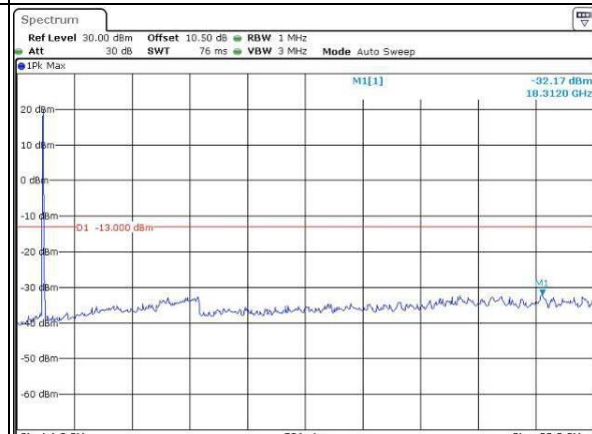
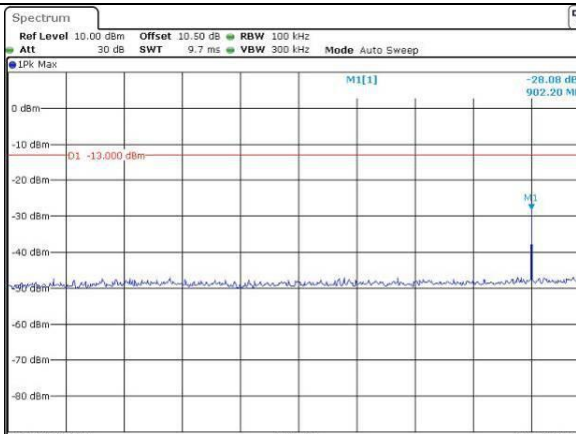
Channel

20MHz Bandwidth QPSK

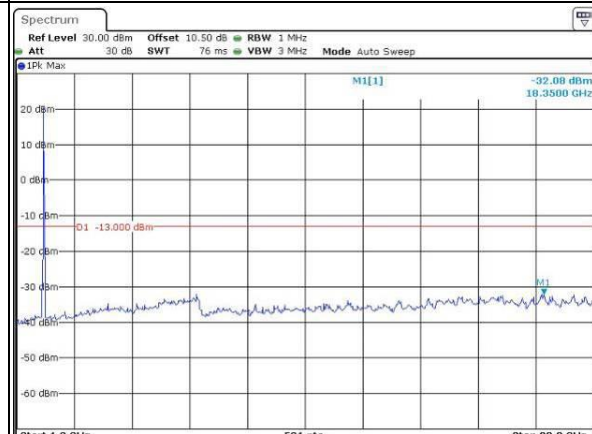
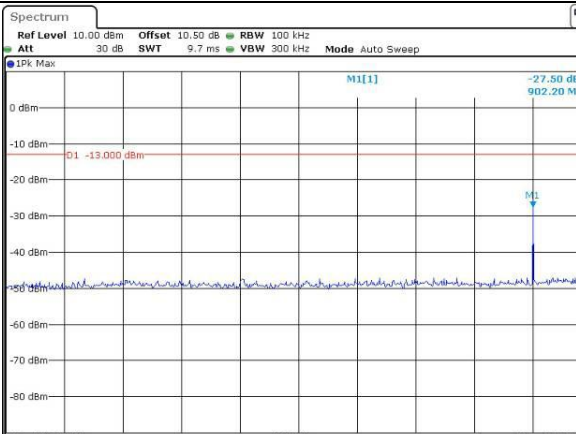
Lowest



Middle



Highest



Out of band emission, Band Edge

| Mode | Lowest/1RB0 | Highest/1RBmax |
|----------------|---|---|
| QPSK 1.4MHz | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20,DEC,2023 15:33:39</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20,DEC,2023 15:40:05</p> |
| | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23,NOV,2023 15:15:30</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23,NOV,2023 15:15:45</p> |

Out of band emission, Band Edge

| Mode | Lowest/1RB0 | Highest/1RBmax |
|--------------|---|---|
| QPSK 3MHz | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20.DEC.2023 16:57:17</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20.DEC.2023 17:01:21</p> |
| | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:16:26</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:16:42</p> |

Out of band emission, Band Edge

| Mode | Lowest/1RB0 | Highest/1RBmax |
|--------------|---|---|
| QPSK 5MHz | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20.DEC.2023 16:08:00</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20.DEC.2023 16:09:08</p> |
| | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:17:25</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:17:42</p> |

Out of band emission, Band Edge

| Mode | Lowest/1RB0 | Highest/1RBmax |
|---------------|---|---|
| QPSK 10MHz | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20,DEC,2023 16:18:24</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20,DEC,2023 16:19:56</p> |
| | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23,NOV,2023 15:19:05</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23,NOV,2023 15:19:23</p> |

Out of band emission, Band Edge

| Mode | Lowest/1RB0 | Highest/1RBmax |
|---------------|---|---|
| QPSK 15MHz | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20.DEC.2023 16:21:53</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20.DEC.2023 16:25:28</p> |
| | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:20:07</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:20:26</p> |

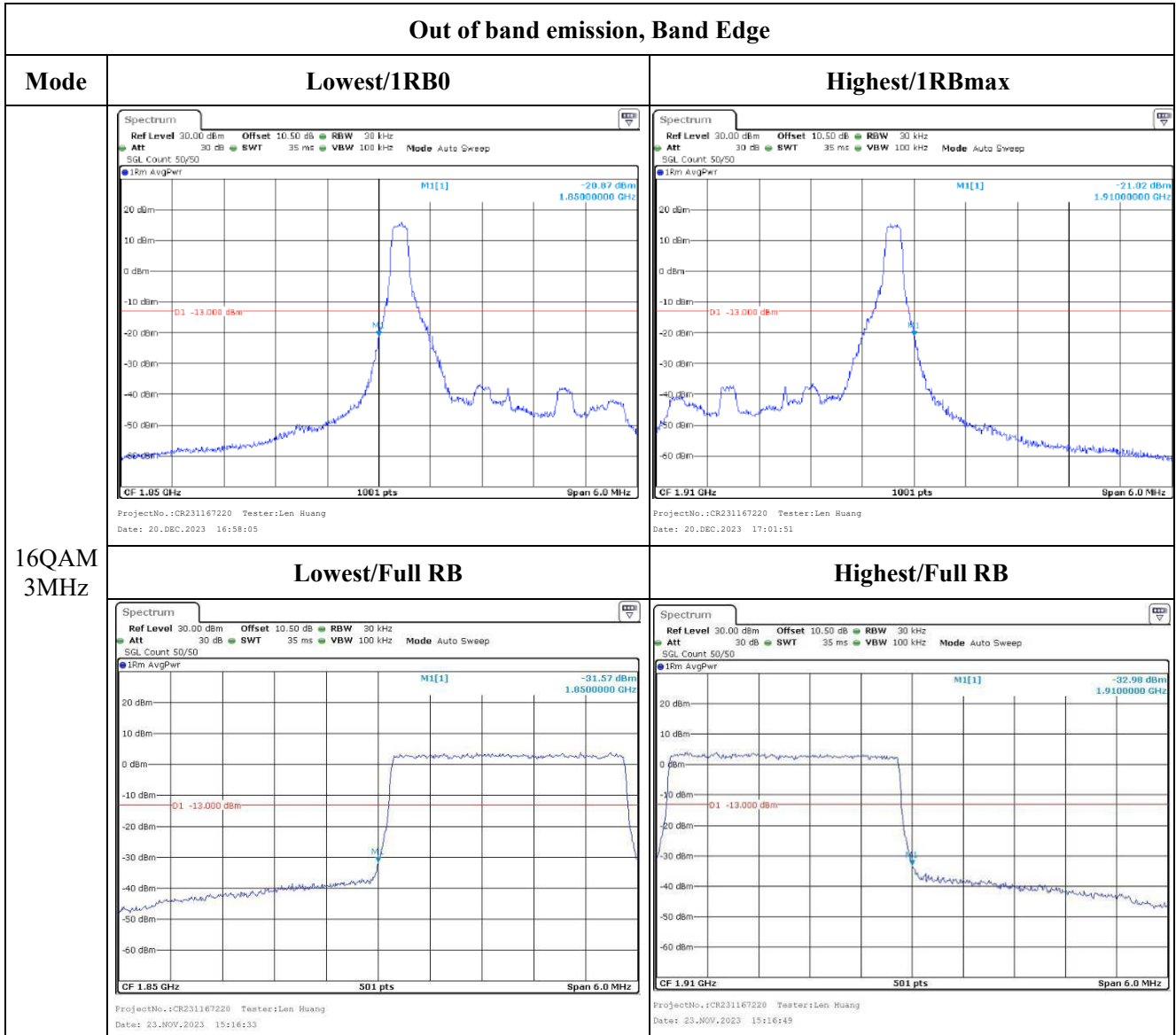
Out of band emission, Band Edge

| Mode | Lowest/1RB0 | Highest/1RBmax |
|---------------|---|---|
| QPSK 20MHz | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20.DEC.2023 16:29:05</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20.DEC.2023 16:32:38</p> |
| | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:21:11</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:21:38</p> |

Out of band emission, Band Edge

| Mode | Lowest/1RB0 | Highest/1RBmax |
|-----------------|---|---|
| 16QAM 1.4MHz | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20,DEC,2023 15:34:30</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20,DEC,2023 15:40:52</p> |
| | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23,NOV,2023 15:15:37</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23,NOV,2023 15:15:52</p> |

Out of band emission, Band Edge



Out of band emission, Band Edge

| Mode | Lowest/1RB0 | Highest/1RBmax |
|---------------|---|---|
| 16QAM 5MHz | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20.DEC.2023 16:08:32</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20.DEC.2023 16:09:44</p> |
| | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:17:33</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:17:49</p> |

Out of band emission, Band Edge

| Mode | Lowest/1RB0 | Highest/1RBmax |
|----------------|---|---|
| 16QAM 10MHz | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20,DEC,2023 16:18:57</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20,DEC,2023 16:20:27</p> |
| | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23,NOV,2023 15:19:14</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23,NOV,2023 15:19:32</p> |

Out of band emission, Band Edge

| Mode | Lowest/1RB0 | Highest/1RBmax |
|----------------|---|---|
| 16QAM 15MHz | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20.DEC.2023 16:22:31</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20.DEC.2023 16:26:07</p> |
| | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:20:16</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:20:35</p> |

Out of band emission, Band Edge

| Mode | Lowest/1RB0 | Highest/1RBmax |
|----------------|---|---|
| 16QAM 20MHz | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20.DEC.2023 16:29:37</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 20.DEC.2023 16:33:07</p> |
| | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:21:20</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 15:21:39</p> |

4.7 Antenna Port Test Data and Results for LTE Band 4

| | | | |
|----------------|-----------|--------------|-----------------------|
| Serial Number: | 2DMI-1 | Test Date: | 2023/11/22~2023/12/20 |
| Test Site: | RF | Test Mode: | Transmitting |
| Tester: | Len Huang | Test Result: | Pass |

Environmental Conditions:

| | | | | | |
|----------------------|---------|---------------------------|-------|------------------------|-----|
| Temperature: (°C) | 24.3~26 | Relative Humidity: (%) | 40~55 | ATM Pressure: (kPa) | 101 |
|----------------------|---------|---------------------------|-------|------------------------|-----|

Test Equipment List and Details:

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---------------|-------------------------------------|--------------|---------------------|------------------|----------------------|
| R&S | Spectrum Analyzer | FSV40-N | 102259 | 2023/4/18 | 2024/4/17 |
| zhuoxiang | Coaxial Cable | SMA-178 | 211002 | Each time | N/A |
| Minl-Circuits | Power Splitter | ZFRSC-183-S+ | S F448201619 | Each time | N/A |
| R&S | Wideband Radio Communication Tester | CMW500 | 143458 | 2023/3/31 | 2024/3/30 |
| BACL | TEMP&HUMI Test Chamber | BTH-150-40 | 30174 | 2023/3/31 | 2024/3/30 |
| UNI-T | Multimeter | UT39A+ | C210582554 | 2023/9/28 | 2024/9/27 |
| ZHAOXIN | DC Power Supply | RXN-6010D | 21R6010D0912 386 | N/A | N/A |

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

Test Frequency for Each Mode:

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

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

| Test Bandwidth & Modulation | Resource Block & RB offset | Conducted Average Output Power(dBm) | | | Maximum EIRP(dBm) | EIRP Limit(dBm) |
|-----------------------------|----------------------------|-------------------------------------|----------------|-----------------|-------------------|-----------------|
| | | Lowest Channel | Middle Channel | Highest Channel | | |
| 1.4MHz QPSK | RB1#0 | 22.76 | 23.10 | 23.11 | 19.58 | 30 |
| | RB1#3 | 22.74 | 23.13 | 23.14 | | |
| | RB1#5 | 22.78 | 23.12 | 23.14 | | |
| | RB3#0 | 22.84 | 23.12 | 23.17 | | |
| | RB3#3 | 22.82 | 23.11 | 23.23 | | |
| | RB6#0 | 21.84 | 22.18 | 22.17 | | |
| 1.4MHz 16QAM | RB1#0 | 21.84 | 22.32 | 22.23 | 18.69 | 30 |
| | RB1#3 | 21.83 | 22.34 | 22.20 | | |
| | RB1#5 | 21.83 | 22.33 | 22.25 | | |
| | RB3#0 | 21.98 | 22.14 | 22.22 | | |
| | RB3#3 | 22.00 | 22.13 | 22.20 | | |
| | RB6#0 | 20.84 | 21.20 | 21.13 | | |
| 3MHz QPSK | RB1#0 | 22.78 | 23.16 | 23.24 | 19.59 | 30 |
| | RB1#8 | 22.73 | 23.15 | 23.16 | | |
| | RB1#14 | 22.71 | 23.18 | 23.17 | | |
| | RB6#0 | 21.84 | 22.13 | 22.23 | | |
| | RB6#9 | 21.82 | 22.14 | 22.20 | | |
| | RB15#0 | 21.78 | 22.14 | 22.18 | | |
| 3MHz 16QAM | RB1#0 | 21.99 | 22.21 | 22.73 | 19.08 | 30 |
| | RB1#8 | 21.95 | 22.21 | 22.68 | | |
| | RB1#14 | 21.91 | 22.22 | 22.67 | | |
| | RB6#0 | 20.86 | 21.08 | 21.28 | | |
| | RB6#9 | 20.85 | 21.12 | 21.24 | | |
| | RB15#0 | 20.75 | 21.20 | 21.25 | | |
| 5MHz QPSK | RB1#0 | 23.01 | 23.15 | 23.25 | 19.62 | 30 |
| | RB1#13 | 23.01 | 23.22 | 23.27 | | |
| | RB1#24 | 23.02 | 23.24 | 23.26 | | |
| | RB15#0 | 21.83 | 22.18 | 22.30 | | |
| | RB15#10 | 21.81 | 22.20 | 22.23 | | |
| | RB25#0 | 21.82 | 22.18 | 22.23 | | |
| 5MHz 16QAM | RB1#0 | 21.76 | 22.44 | 22.30 | 18.86 | 30 |
| | RB1#13 | 21.72 | 22.51 | 22.29 | | |
| | RB1#24 | 21.74 | 22.49 | 22.28 | | |
| | RB15#0 | 20.88 | 21.15 | 21.33 | | |
| | RB15#10 | 20.84 | 21.15 | 21.25 | | |
| | RB25#0 | 20.87 | 21.18 | 21.27 | | |
| 10MHz QPSK | RB1#0 | 22.87 | 23.08 | 23.22 | 19.58 | 30 |

| | | | | | | |
|-------------|---------|-------|-------|-------|-------|----|
| | RB1#25 | 22.87 | 23.23 | 23.20 | | |
| | RB1#49 | 22.90 | 23.19 | 23.15 | | |
| | RB25#0 | 21.82 | 22.15 | 22.28 | | |
| | RB25#25 | 21.90 | 22.18 | 22.20 | | |
| | RB50#0 | 21.88 | 22.19 | 22.23 | | |
| 10MHz 16QAM | RB1#0 | 22.41 | 22.27 | 22.25 | 18.77 | 30 |
| | RB1#25 | 22.40 | 22.38 | 22.24 | | |
| | RB1#49 | 22.42 | 22.35 | 22.18 | | |
| | RB25#0 | 20.85 | 21.17 | 21.37 | | |
| | RB25#25 | 20.95 | 21.22 | 21.31 | | |
| | RB50#0 | 20.84 | 21.15 | 21.25 | | |
| 15MHz QPSK | RB1#0 | 22.76 | 22.95 | 23.17 | 19.54 | 30 |
| | RB1#38 | 22.87 | 23.11 | 23.19 | | |
| | RB1#74 | 22.93 | 23.12 | 23.18 | | |
| | RB36#0 | 21.85 | 22.04 | 22.17 | | |
| | RB36#39 | 21.87 | 22.17 | 22.15 | | |
| | RB75#0 | 21.87 | 22.17 | 22.18 | | |
| 15MHz 16QAM | RB1#0 | 21.95 | 22.41 | 22.74 | 19.09 | 30 |
| | RB1#38 | 22.05 | 22.61 | 22.73 | | |
| | RB1#74 | 22.09 | 22.57 | 22.66 | | |
| | RB36#0 | 20.83 | 21.05 | 21.28 | | |
| | RB36#39 | 20.93 | 21.15 | 21.19 | | |
| | RB75#0 | 20.92 | 21.08 | 21.24 | | |
| 20MHz QPSK | RB1#0 | 22.73 | 22.88 | 23.22 | 19.60 | 30 |
| | RB1#50 | 22.88 | 23.22 | 23.25 | | |
| | RB1#99 | 22.95 | 23.10 | 23.07 | | |
| | RB50#0 | 21.84 | 22.12 | 22.28 | | |
| | RB50#50 | 22.00 | 22.23 | 22.27 | | |
| | RB100#0 | 21.93 | 22.17 | 22.27 | | |
| 20MHz 16QAM | RB1#0 | 22.40 | 22.22 | 22.42 | 18.93 | 30 |
| | RB1#50 | 22.54 | 22.55 | 22.51 | | |
| | RB1#99 | 22.58 | 22.41 | 22.33 | | |
| | RB50#0 | 20.85 | 21.09 | 21.25 | | |
| | RB50#50 | 21.01 | 21.16 | 21.24 | | |
| | RB100#0 | 20.94 | 21.13 | 21.26 | | |

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

Result:

Pass

| Peak-to-average Ratio(PAR) | | | | | |
|-----------------------------------|----------------------------|---------------------------|----------------|-----------------|-------------|
| Test Bandwidth & Modulation | Resource Block & RB offset | Peak-to-average Ratio(dB) | | | Limit (dB) |
| | | Lowest Channel | Middle Channel | Highest Channel | |
| 20MHz QPSK | RB1#0 | 4.20 | 4.43 | 4.67 | 13 |
| | RB100#0 | 5.07 | 5.22 | 5.19 | 13 |
| 20MHz 16QAM | RB1#0 | 5.16 | 5.16 | 5.62 | 13 |
| | RB100#0 | 6.03 | 6.17 | 6.12 | 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 | 1.096 | 1.102 | 1.102 | 1.302 | 1.326 | 1.296 |
| 1.4MHz 16QAM | 1.102 | 1.090 | 1.096 | 1.326 | 1.284 | 1.308 |
| 3MHz QPSK | 2.683 | 2.683 | 2.683 | 2.904 | 2.892 | 2.904 |
| 3MHz 16QAM | 2.683 | 2.683 | 2.683 | 2.916 | 2.916 | 2.892 |
| 5MHz QPSK | 4.511 | 4.511 | 4.511 | 5.000 | 5.020 | 4.980 |
| 5MHz 16QAM | 4.511 | 4.511 | 4.511 | 4.960 | 5.020 | 5.020 |
| 10MHz QPSK | 8.942 | 8.942 | 8.942 | 9.680 | 9.640 | 9.680 |
| 10MHz 16QAM | 8.942 | 8.942 | 8.942 | 9.560 | 9.680 | 9.640 |
| 15MHz QPSK | 13.473 | 13.473 | 13.533 | 14.700 | 14.640 | 14.760 |
| 15MHz 16QAM | 13.473 | 13.533 | 13.533 | 14.700 | 14.640 | 14.820 |
| 20MHz QPSK | 17.964 | 17.884 | 17.964 | 19.200 | 19.280 | 19.280 |
| 20MHz 16QAM | 17.964 | 17.964 | 17.884 | 19.360 | 19.360 | 19.040 |

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 | 3.91 | 1710.288 | 1710.00 | 1754.781 | 1755 |
| | -20 | 3.91 | 1710.304 | 1710.00 | 1754.759 | 1755 |
| | -10 | 3.91 | 1710.283 | 1710.00 | 1754.784 | 1755 |
| | 0 | 3.91 | 1710.249 | 1710.00 | 1754.749 | 1755 |
| | 10 | 3.91 | 1710.279 | 1710.00 | 1754.723 | 1755 |
| | 20 | 3.91 | 1710.265 | 1710.00 | 1754.763 | 1755 |
| | 30 | 3.91 | 1710.270 | 1710.00 | 1754.775 | 1755 |
| | 40 | 3.91 | 1710.260 | 1710.00 | 1754.765 | 1755 |
| | 50 | 3.91 | 1710.254 | 1710.00 | 1754.757 | 1755 |
| Frequency Stability vs. Voltage | 20 | 3.45 | 1710.253 | 1710.00 | 1754.735 | 1755 |
| | 20 | 4.5 | 1710.249 | 1710.00 | 1754.745 | 1755 |
| | | | | | 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 | 3.91 | 1710.112 | 1710.00 | 1754.863 | 1755 |
| | -20 | 3.91 | 1710.135 | 1710.00 | 1754.851 | 1755 |
| | -10 | 3.91 | 1710.122 | 1710.00 | 1754.884 | 1755 |
| | 0 | 3.91 | 1710.128 | 1710.00 | 1754.866 | 1755 |
| | 10 | 3.91 | 1710.117 | 1710.00 | 1754.888 | 1755 |
| | 20 | 3.91 | 1710.122 | 1710.00 | 1754.879 | 1755 |
| | 30 | 3.91 | 1710.112 | 1710.00 | 1754.878 | 1755 |
| | 40 | 3.91 | 1710.098 | 1710.00 | 1754.875 | 1755 |
| | 50 | 3.91 | 1710.112 | 1710.00 | 1754.863 | 1755 |
| Frequency Stability vs. Voltage | 20 | 3.45 | 1710.102 | 1710.00 | 1754.894 | 1755 |
| | 20 | 4.5 | 1710.095 | 1710.00 | 1754.879 | 1755 |
| | | | | | Result: | Pass |

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

| Occupied Bandwidth | | |
|---------------------------|---|---|
| Channel | 1.4MHz Bandwidth QPSK | 1.4MHz Bandwidth 16QAM |
| Lowest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:07:28</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:07:45</p> |
| Middle | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:08:13</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:08:27</p> |
| Highest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:08:46</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:09:03</p> |

Occupied Bandwidth

| Channel | 3MHz Bandwidth QPSK | 3MHz Bandwidth 16QAM |
|---------|---|---|
| Lowest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:10:12</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:10:33</p> |
| Middle | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:10:55</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:11:13</p> |
| Highest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:11:31</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:11:52</p> |

Occupied Bandwidth

| Channel | 5MHz Bandwidth QPSK | 5MHz Bandwidth 16QAM |
|---------|---------------------|----------------------|
| Lowest | | |
| Middle | | |
| Highest | | |

Occupied Bandwidth

| Channel | 10MHz Bandwidth QPSK | 10MHz Bandwidth 16QAM |
|---------|---|---|
| Lowest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:18:12</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:18:40</p> |
| Middle | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:19:05</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:19:29</p> |
| Highest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:20:00</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:20:34</p> |

Occupied Bandwidth

| Channel | 15MHz Bandwidth QPSK | 15MHz Bandwidth 16QAM |
|---------|----------------------|-----------------------|
| Lowest | | |
| Middle | | |
| Highest | | |

Occupied Bandwidth

| Channel | 20MHz Bandwidth QPSK | 20MHz Bandwidth 16QAM |
|---------|---|---|
| Lowest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:25:42</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:26:11</p> |
| Middle | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:26:45</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:27:08</p> |
| Highest | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:27:35</p> | <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 14:28:05</p> |

Spurious Emissions at Antenna Terminal

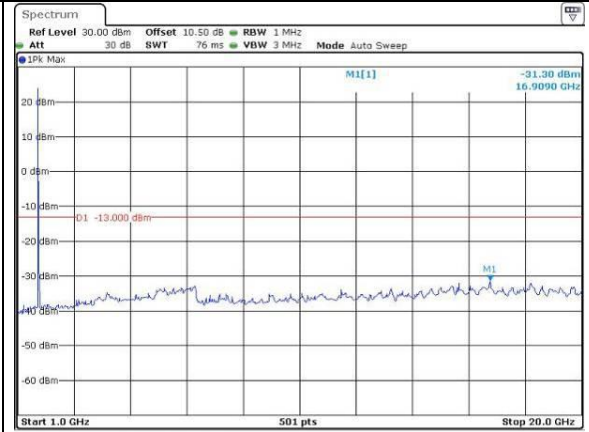
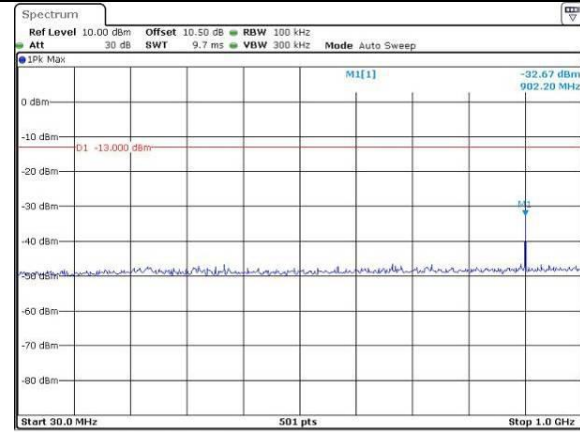
| Channel | 1.4MHz Bandwidth QPSK | |
|---------|---|---|
| Lowest | <p>Ref Level 10.00 dBm Offset 10.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep</p> <p>IPk Max M1[1] -37.75 dBm 982.20 MHz</p> <p>01 -13.000 dBm</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 16:00:36</p> | <p>Ref Level 30.00 dBm Offset 10.50 dB RBW 1 MHz Att 30 dB SWT 76 ms VBW 3 MHz Mode Auto Sweep</p> <p>IPk Max M1[1] -31.68 dBm 15.6960 GHz</p> <p>01 -13.000 dBm</p> <p>Start 1.0 GHz 501 pts Stop 20.0 GHz</p> <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 16:01:03</p> |
| Middle | <p>Ref Level 10.00 dBm Offset 10.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep</p> <p>IPk Max M1[1] -46.84 dBm 271.00 MHz</p> <p>01 -13.000 dBm</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 16:01:29</p> | <p>Ref Level 30.00 dBm Offset 10.50 dB RBW 1 MHz Att 30 dB SWT 76 ms VBW 3 MHz Mode Auto Sweep</p> <p>IPk Max M1[1] -31.64 dBm 15.6200 GHz</p> <p>01 -13.000 dBm</p> <p>Start 1.0 GHz 501 pts Stop 20.0 GHz</p> <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 16:01:52</p> |
| Highest | <p>Ref Level 10.00 dBm Offset 10.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep</p> <p>IPk Max M1[1] -46.04 dBm 995.20 MHz</p> <p>01 -13.000 dBm</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 16:02:24</p> | <p>Ref Level 30.00 dBm Offset 10.50 dB RBW 1 MHz Att 30 dB SWT 76 ms VBW 3 MHz Mode Auto Sweep</p> <p>IPk Max M1[1] -32.15 dBm 15.5440 GHz</p> <p>01 -13.000 dBm</p> <p>Start 1.0 GHz 501 pts Stop 20.0 GHz</p> <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 16:02:48</p> |

Spurious Emissions at Antenna Terminal

Channel

3MHz Bandwidth QPSK

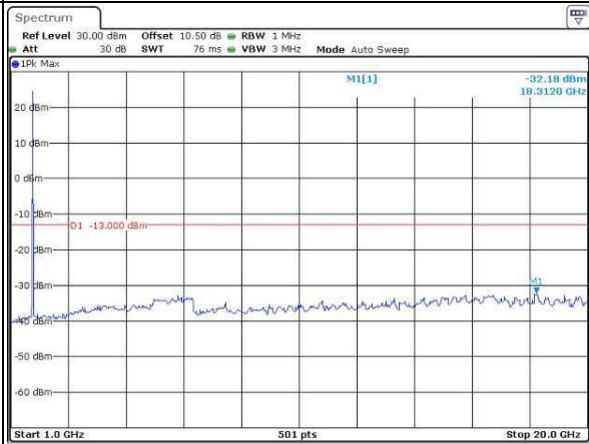
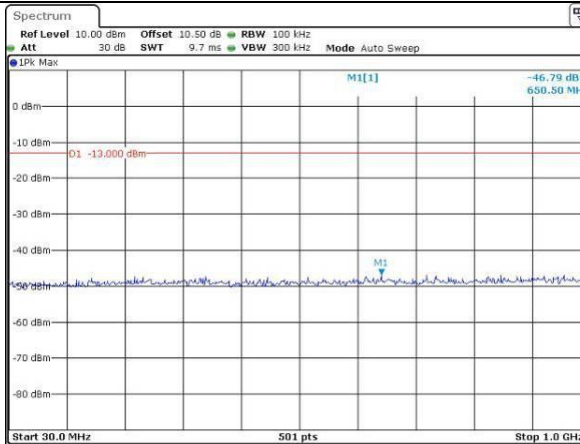
Lowest



ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 16:03:49

ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 16:04:09

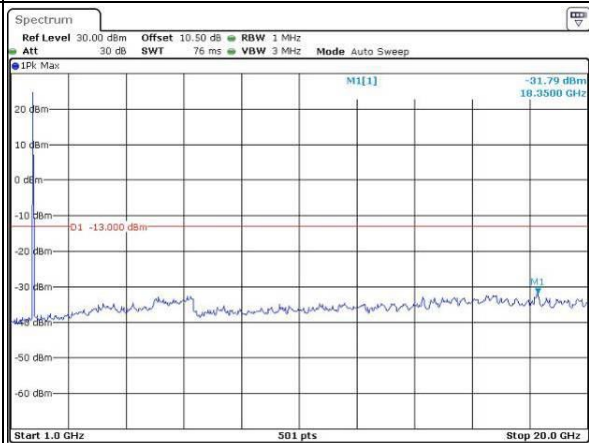
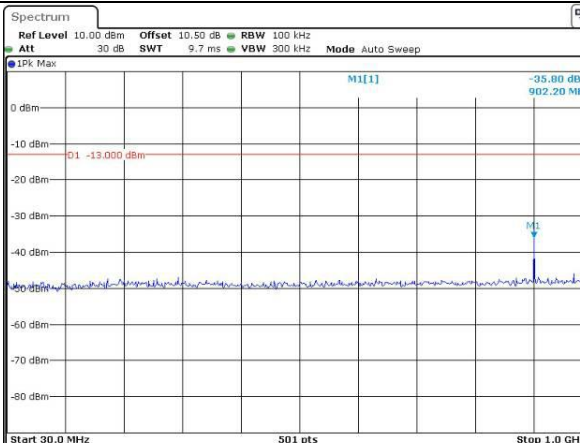
Middle



ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 16:04:35

ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 16:04:58

Highest



ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 16:07:52

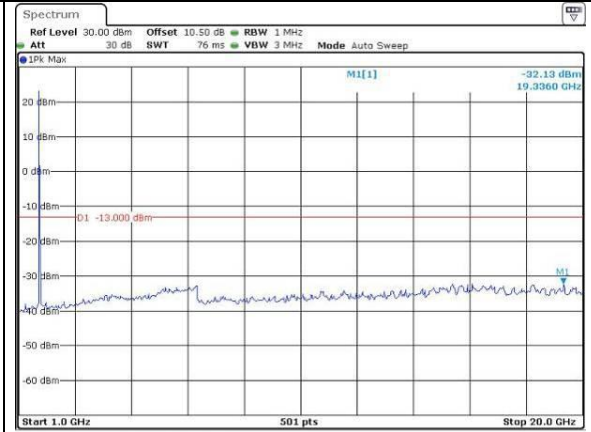
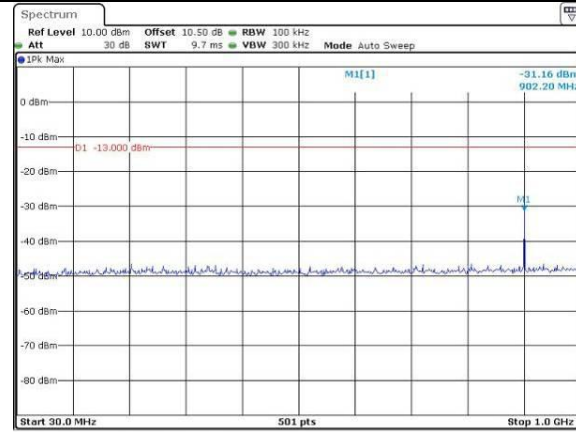
ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 16:08:15

Spurious Emissions at Antenna Terminal

Channel

5MHz Bandwidth QPSK

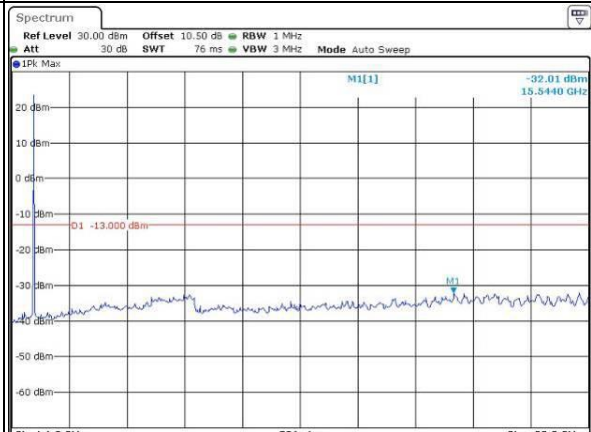
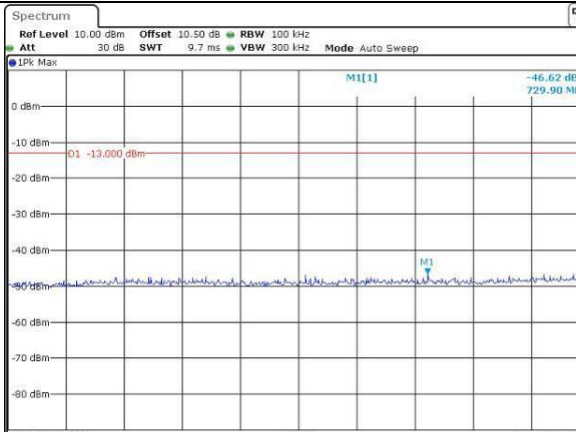
Lowest



ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 16:09:22

ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 16:09:52

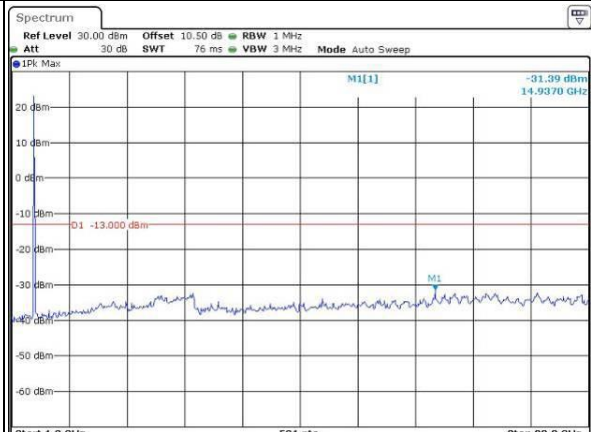
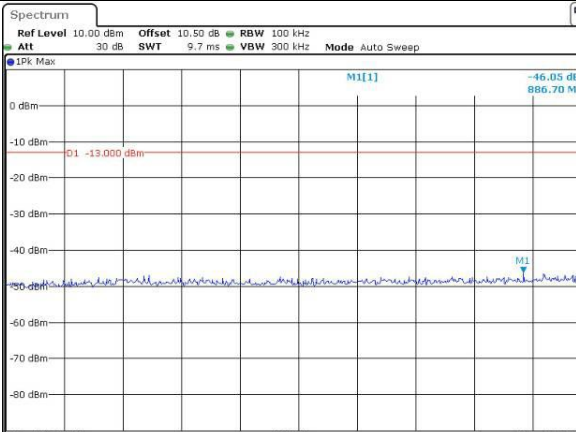
Middle



ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 16:10:18

ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 16:10:50

Highest



ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 16:11:20

ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 16:11:46

Spurious Emissions at Antenna Terminal

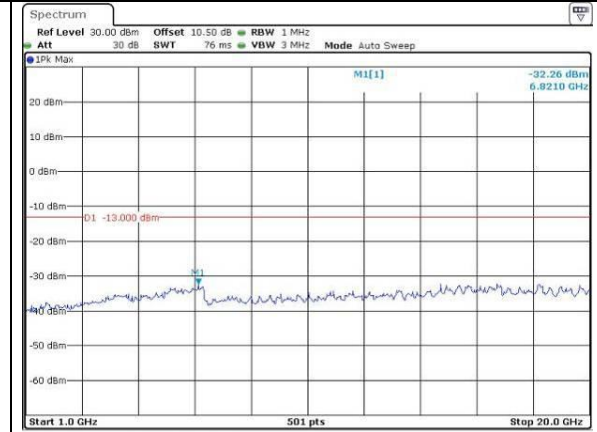
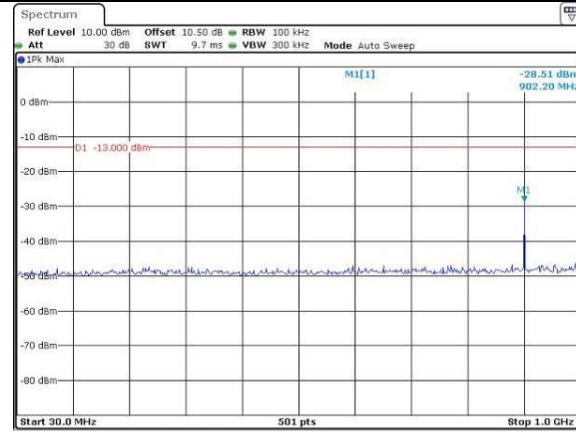
| Channel | 10MHz Bandwidth QPSK | |
|---------|--|--|
| Lowest | <p>Ref Level 10.00 dBm Offset 10.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep</p> <p>1Pk Max M1[1] -46.70 dBm 365.90 MHz</p> <p>0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm -80 dBm</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 16:12:57</p> | <p>Ref Level 30.00 dBm Offset 10.50 dB RBW 1 MHz Att 30 dB SWT 76 ms VBW 3 MHz Mode Auto Sweep</p> <p>1Pk Max M1[1] -32.13 dBm 16.9090 GHz</p> <p>20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm</p> <p>Start 1.0 GHz 501 pts Stop 20.0 GHz</p> <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 16:13:23</p> |
| Middle | <p>Ref Level 10.00 dBm Offset 10.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep</p> <p>1Pk Max M1[1] -46.43 dBm 970.00 MHz</p> <p>0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm -80 dBm</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 16:13:56</p> | <p>Ref Level 30.00 dBm Offset 10.50 dB RBW 1 MHz Att 30 dB SWT 76 ms VBW 3 MHz Mode Auto Sweep</p> <p>1Pk Max M1[1] -31.93 dBm 18.3120 GHz</p> <p>20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm</p> <p>Start 1.0 GHz 501 pts Stop 20.0 GHz</p> <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 16:14:19</p> |
| Highest | <p>Ref Level 10.00 dBm Offset 10.50 dB RBW 100 kHz Att 30 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep</p> <p>1Pk Max M1[1] -27.89 dBm 902.20 MHz</p> <p>0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm -80 dBm</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 16:14:52</p> | <p>Ref Level 30.00 dBm Offset 10.50 dB RBW 1 MHz Att 30 dB SWT 76 ms VBW 3 MHz Mode Auto Sweep</p> <p>1Pk Max M1[1] -31.70 dBm 17.9710 GHz</p> <p>20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm</p> <p>Start 1.0 GHz 501 pts Stop 20.0 GHz</p> <p>ProjectNo.:CR231167220 Tester:Len Huang Date: 23.NOV.2023 16:15:18</p> |

Spurious Emissions at Antenna Terminal

Channel

15MHz Bandwidth QPSK

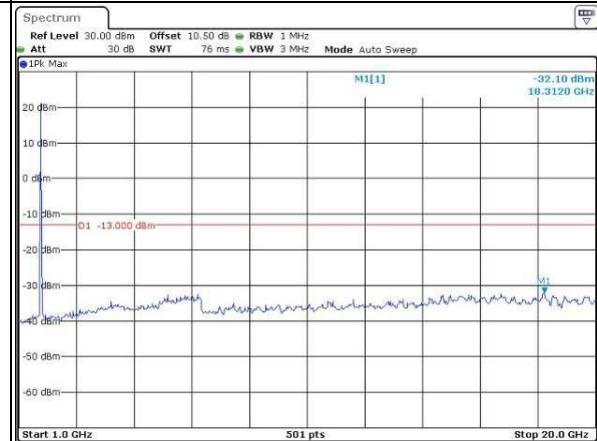
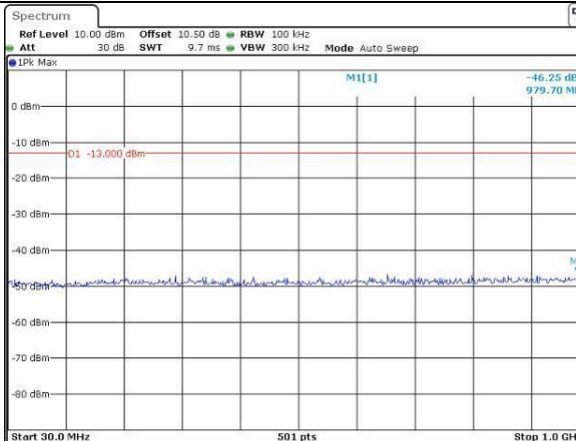
Lowest



ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 16:16:16

ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 16:16:43

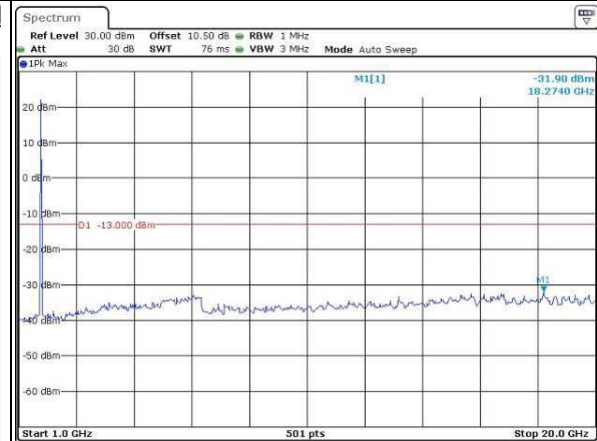
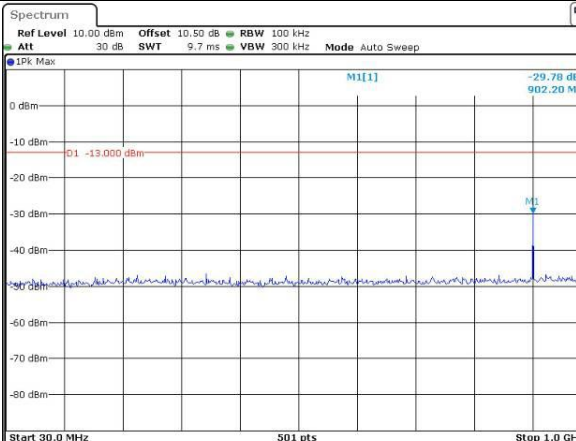
Middle



ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 16:19:19

ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 16:19:47

Highest



ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 16:20:18

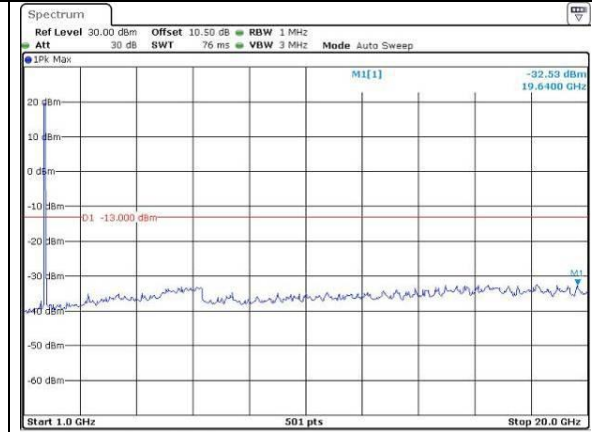
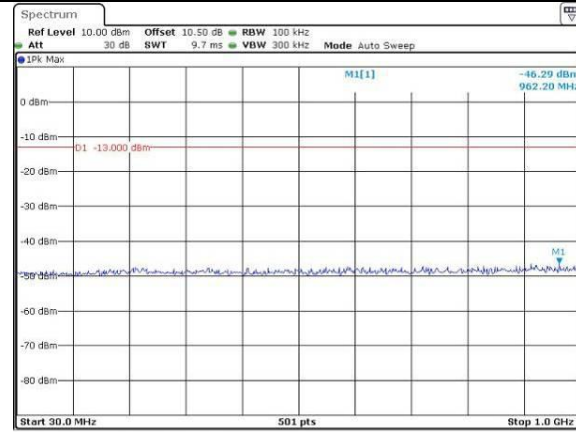
ProjectNo.:CR231167220 Tester:Len Huang
Date: 23.NOV.2023 16:20:41

Spurious Emissions at Antenna Terminal

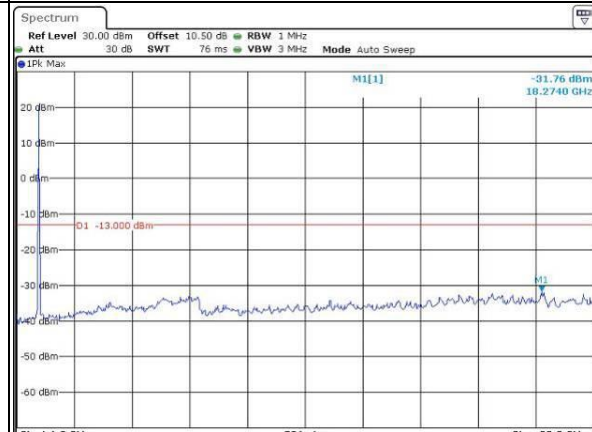
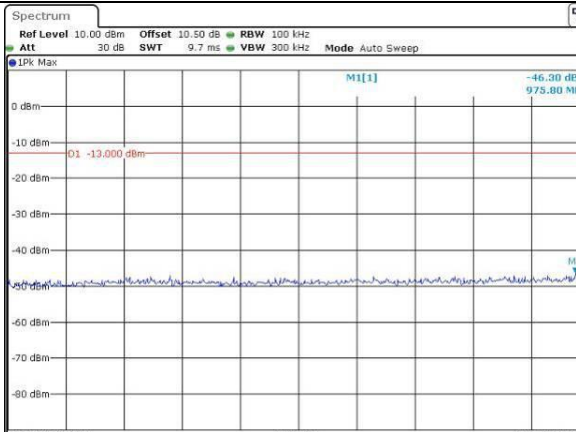
Channel

20MHz Bandwidth QPSK

Lowest



Middle



Highest

