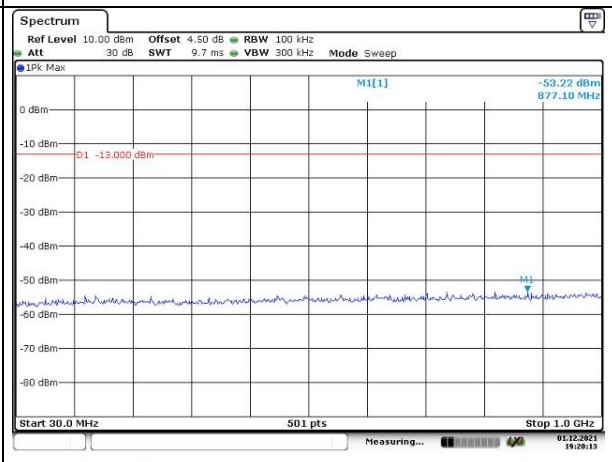
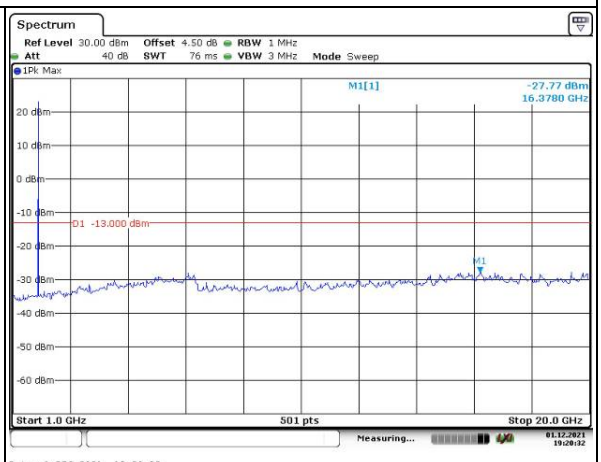
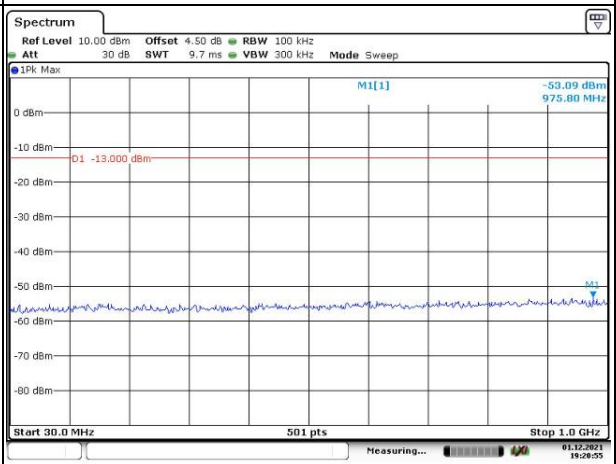
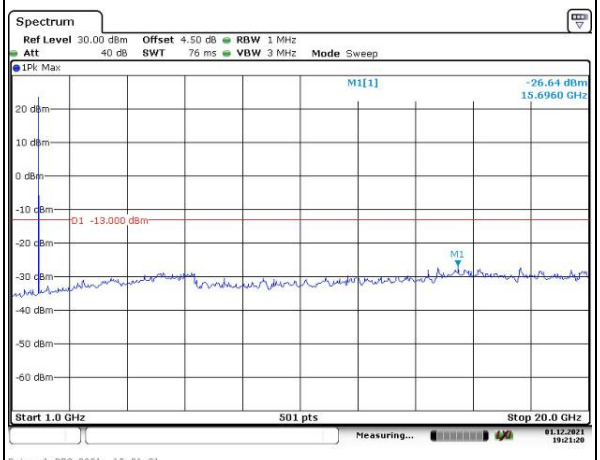
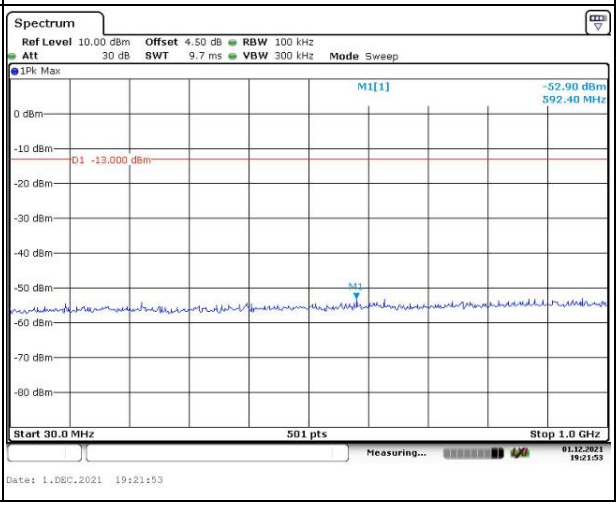
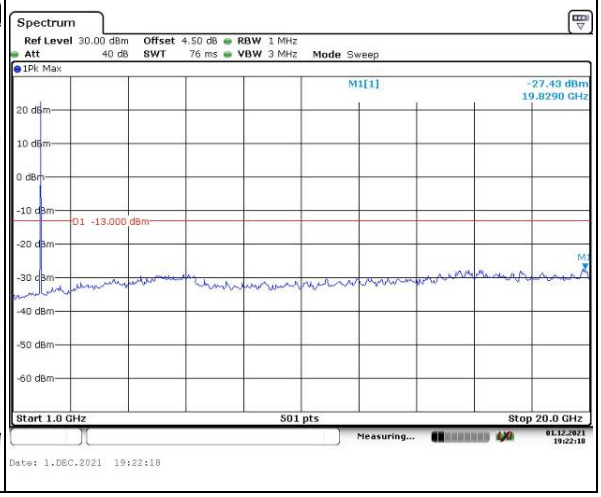
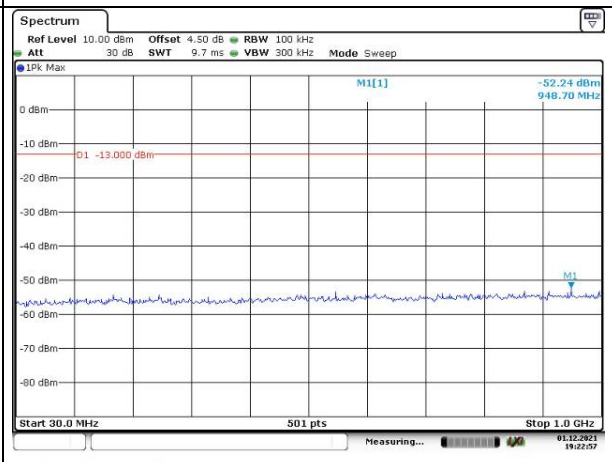
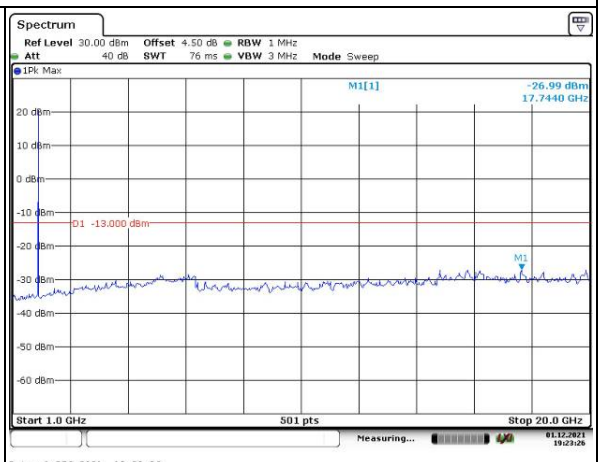
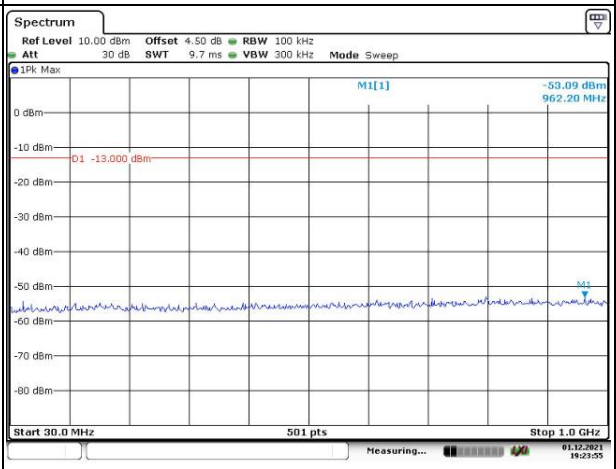
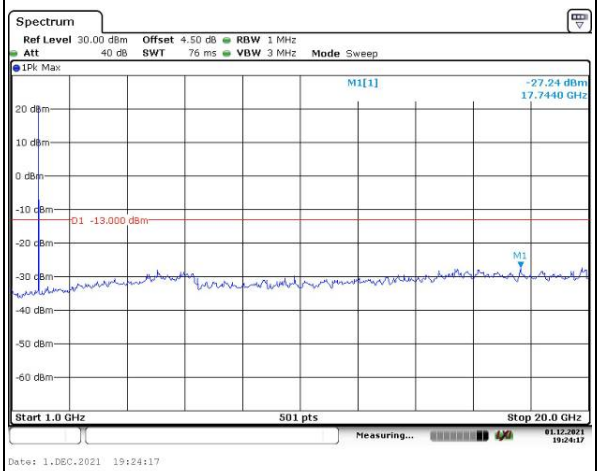
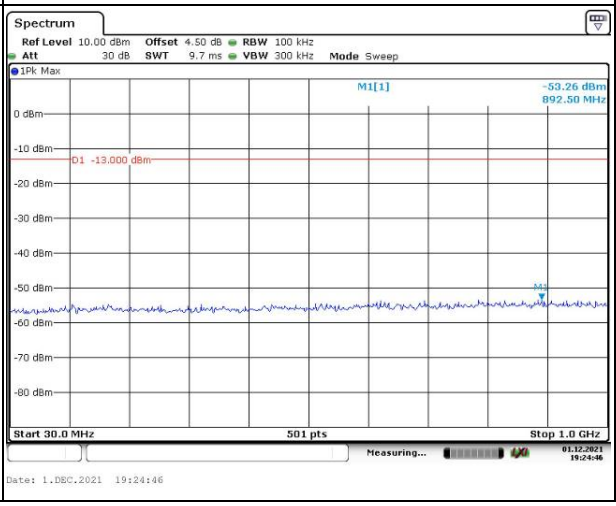
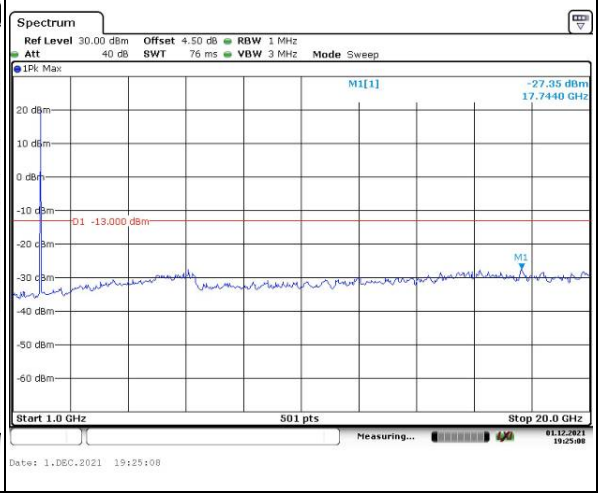
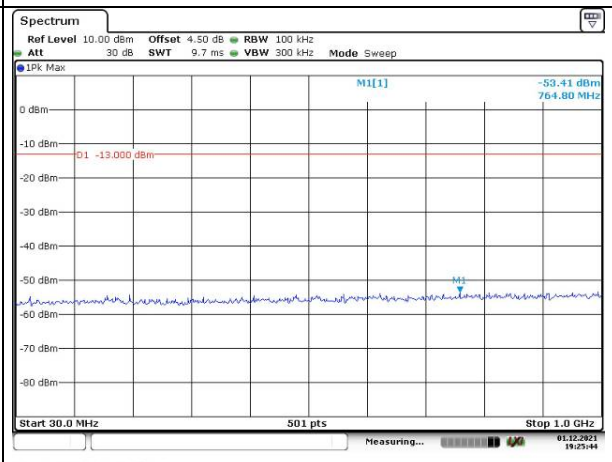
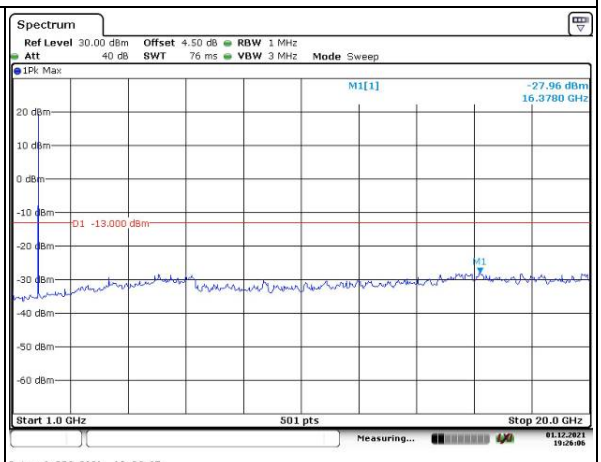
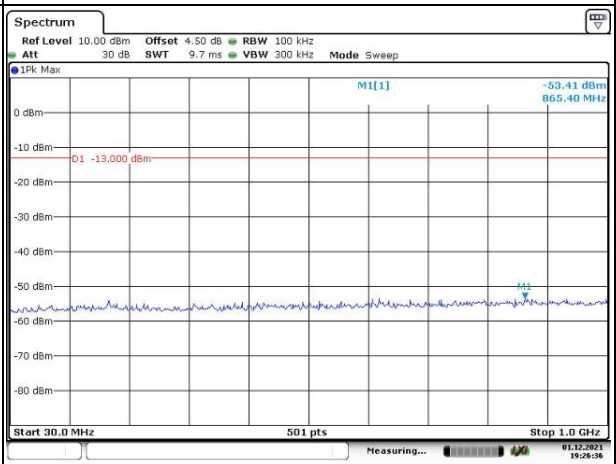
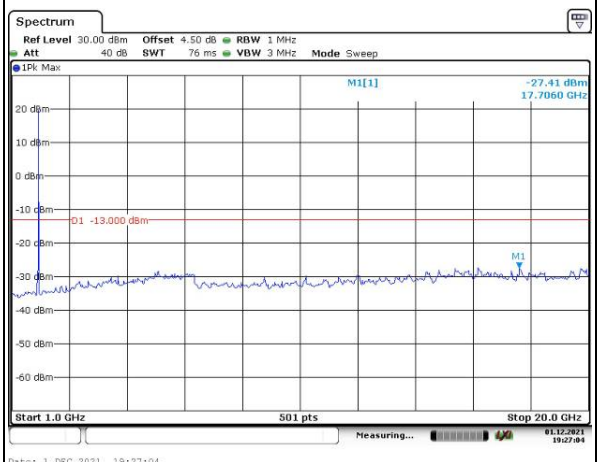
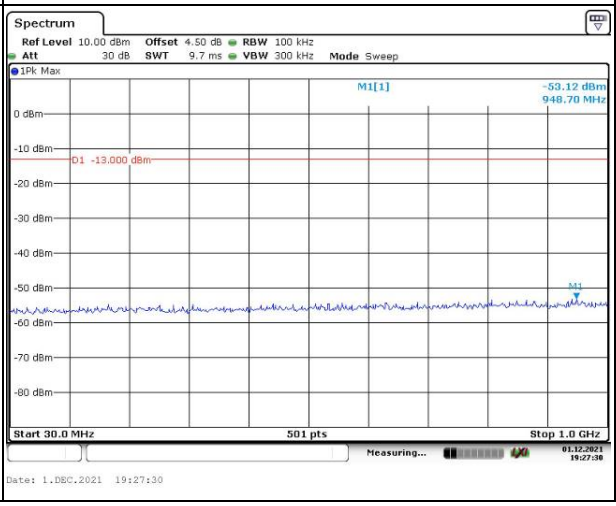
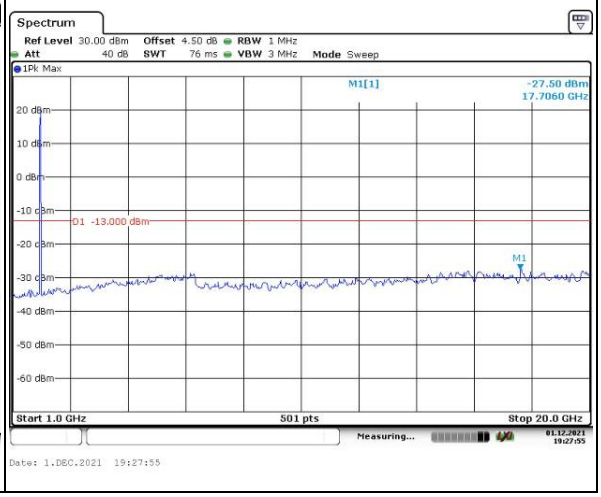
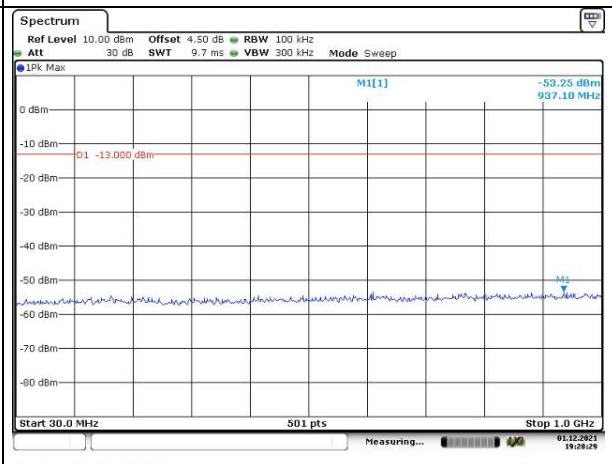
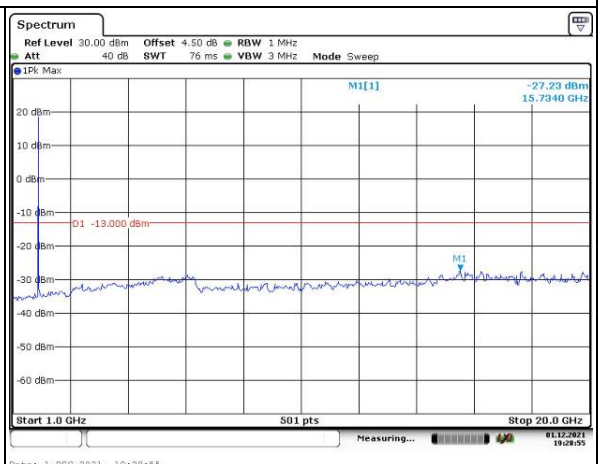
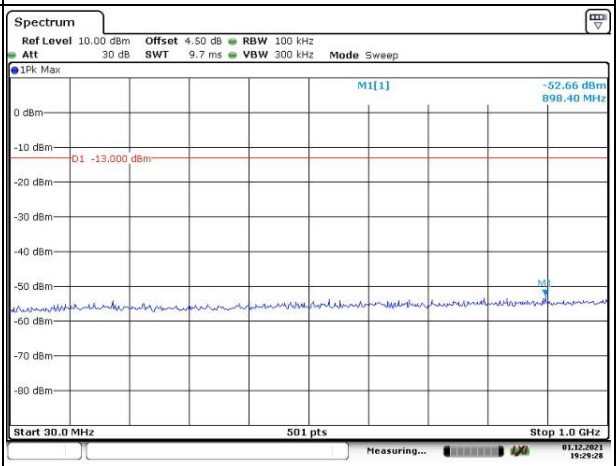
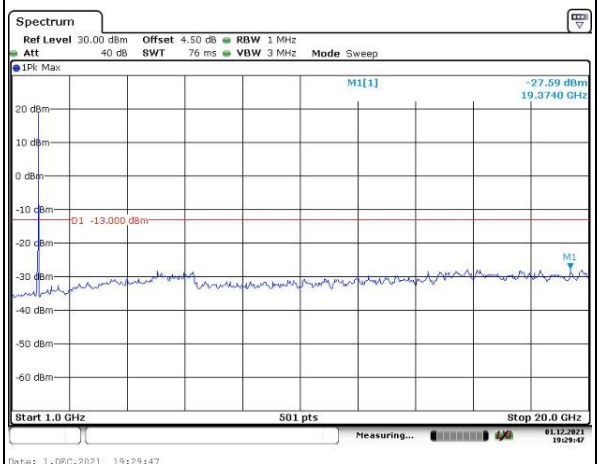
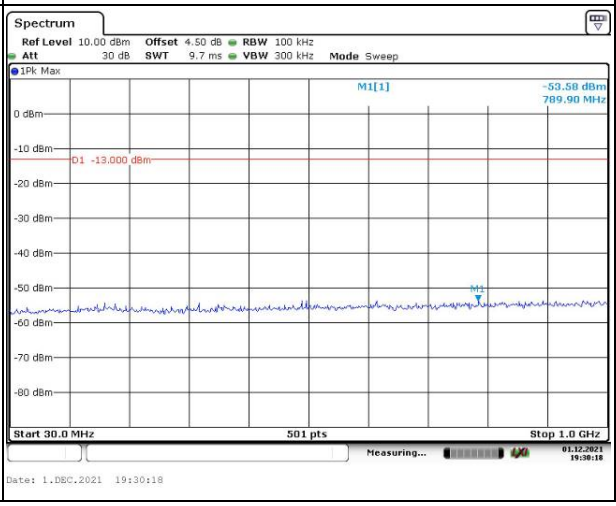
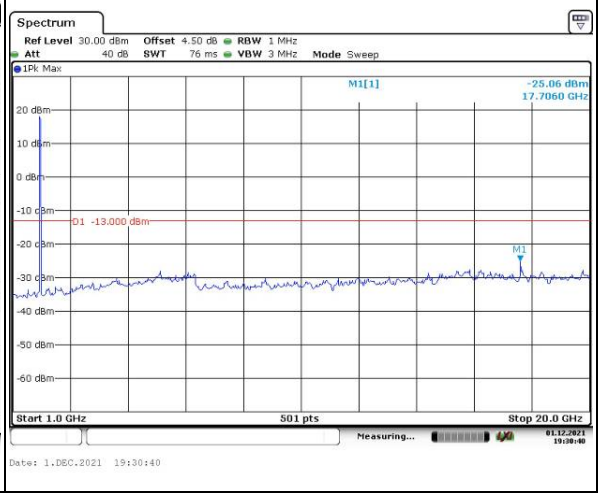
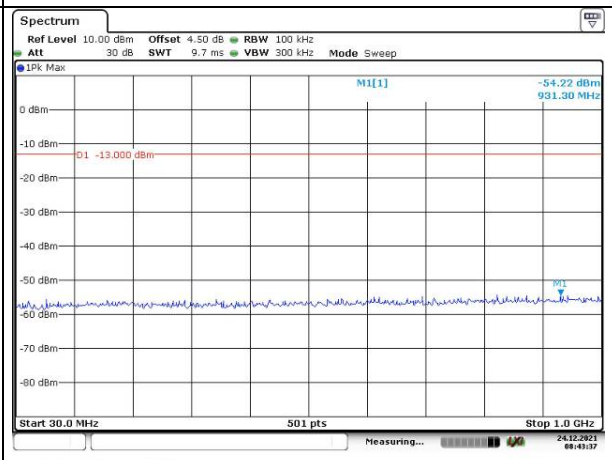
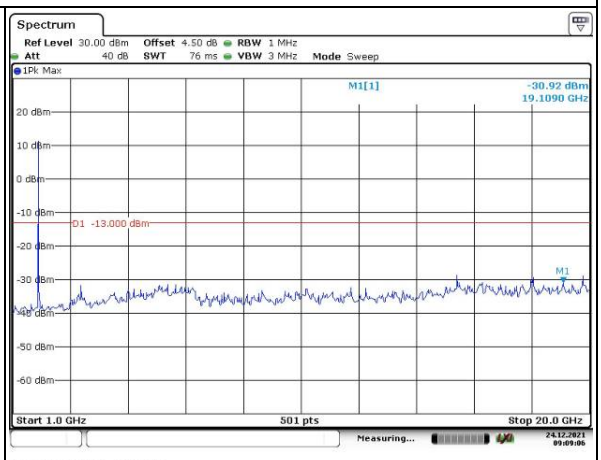
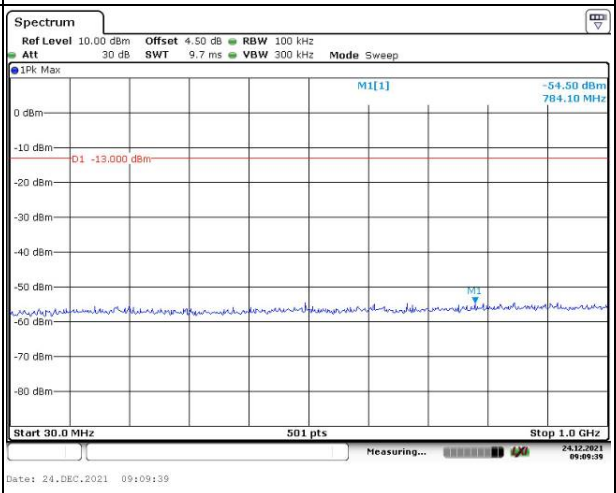
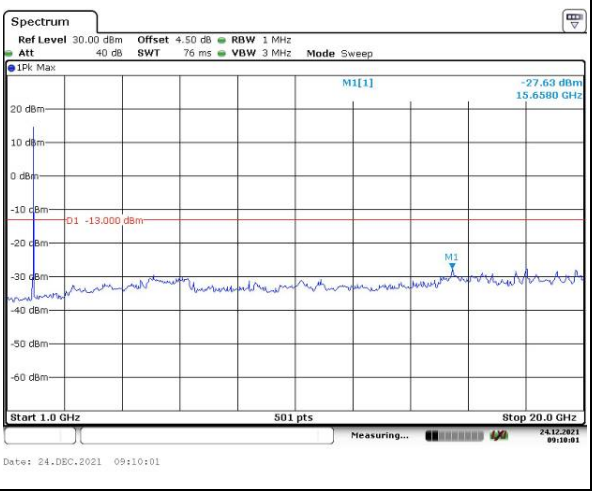
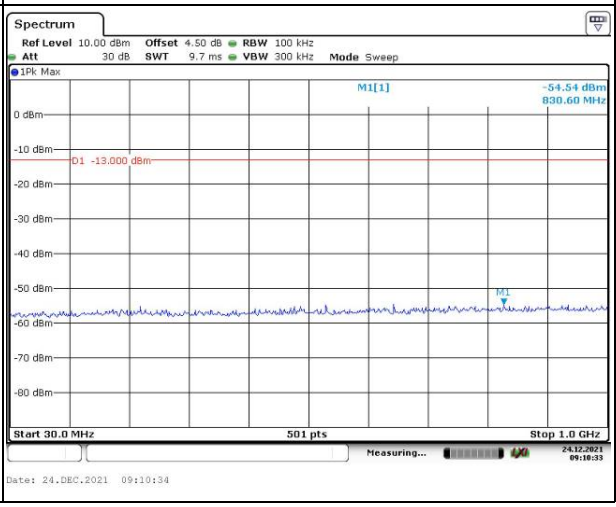
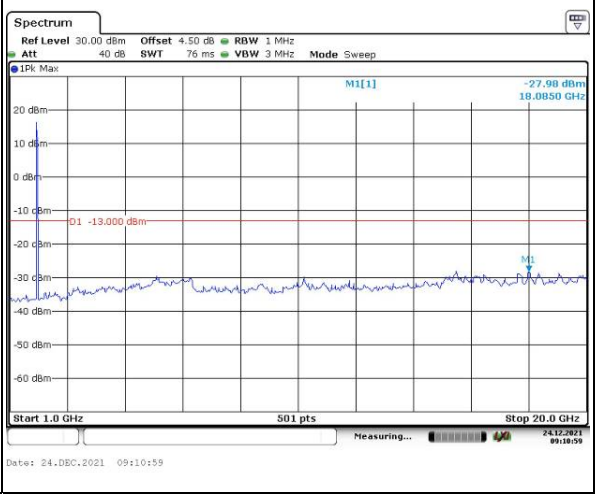
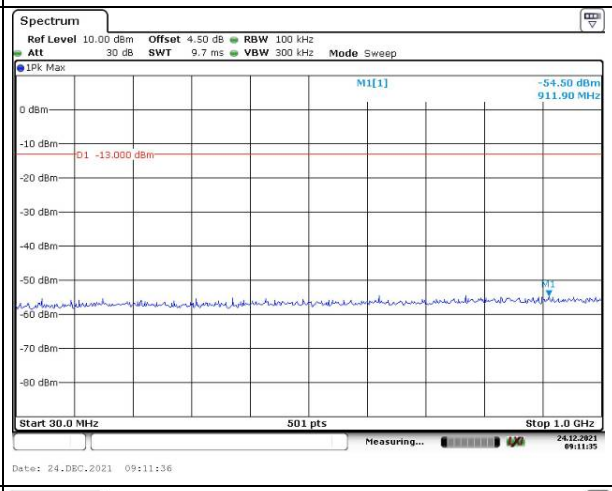
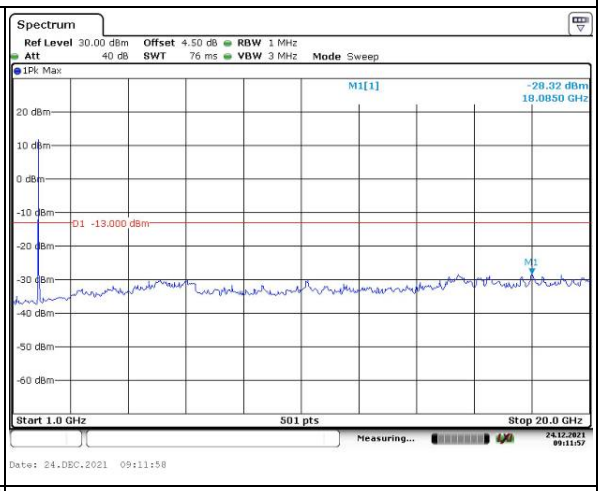
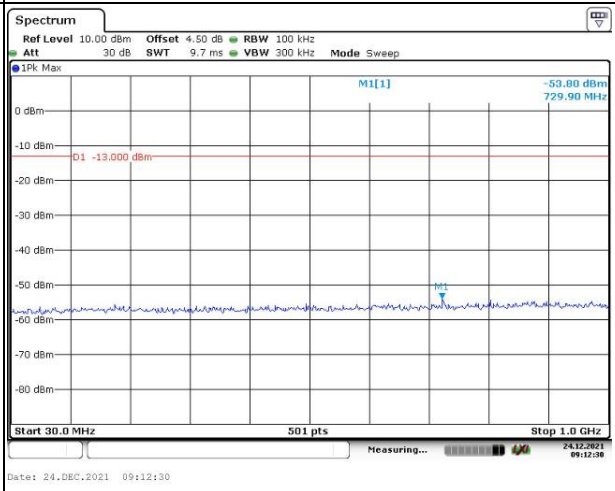
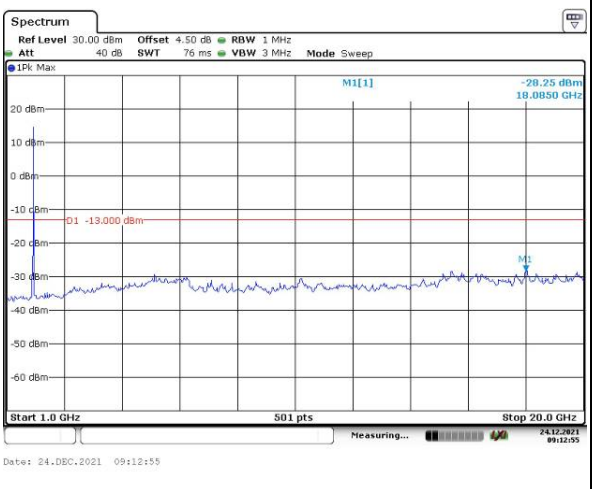
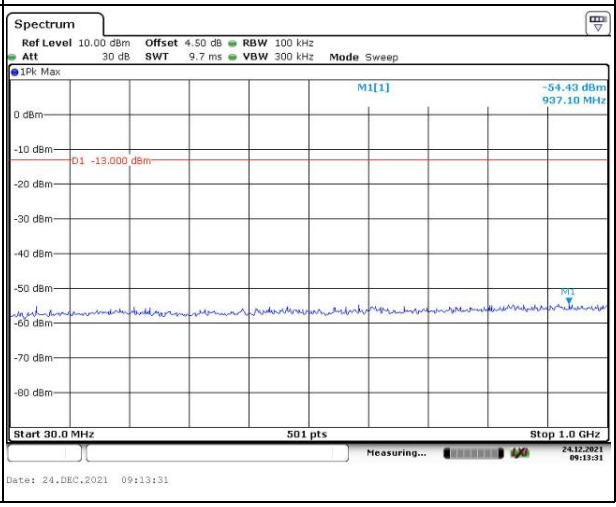
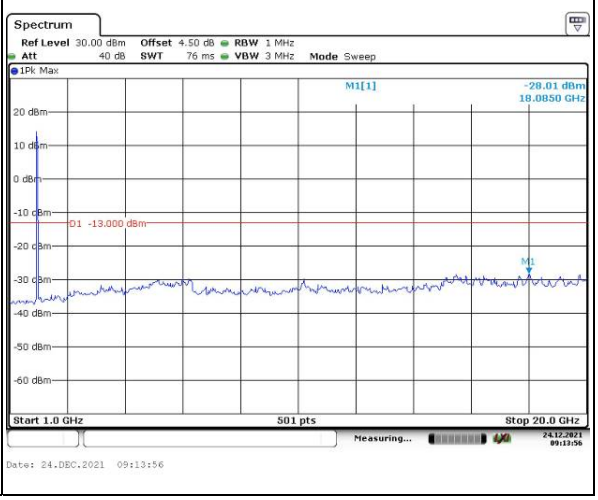
| Spurious Emissions at Antenna Terminal | | |
|---|---|---|
| **Channel** | **1.4MHz Bandwidth QPSK** | |
| Lowest |  |  |
| Middle |  |  |
| Highest |  |  |

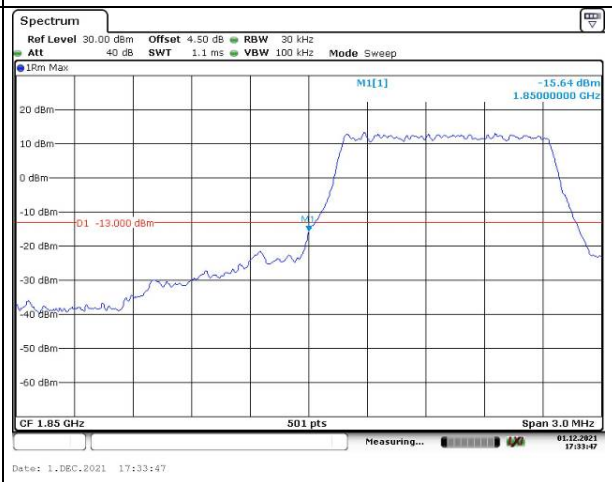
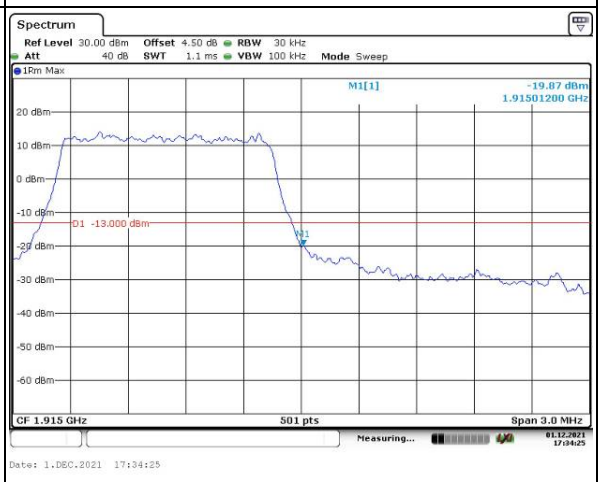
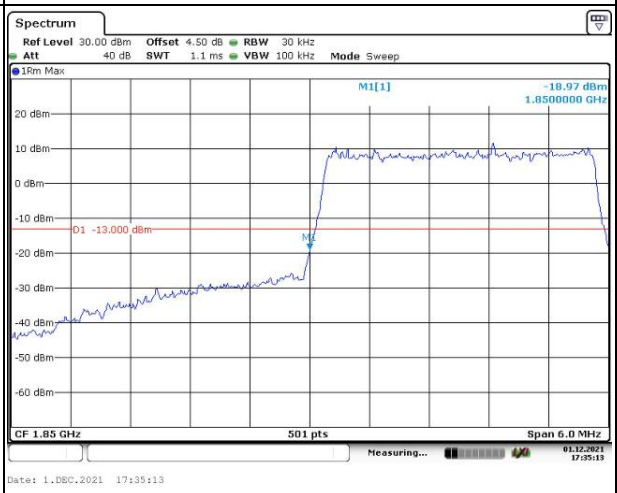
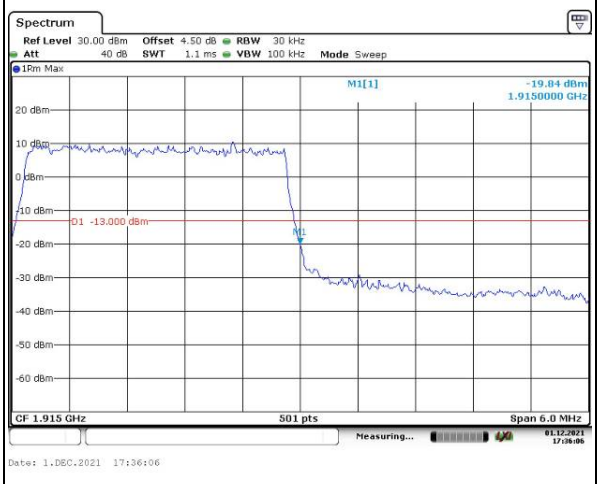
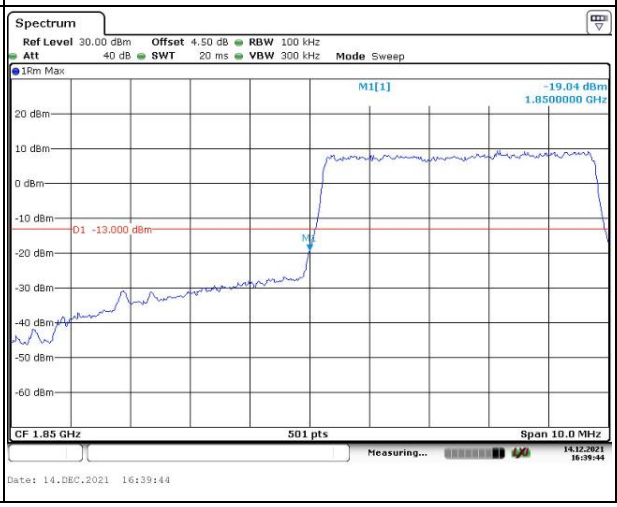
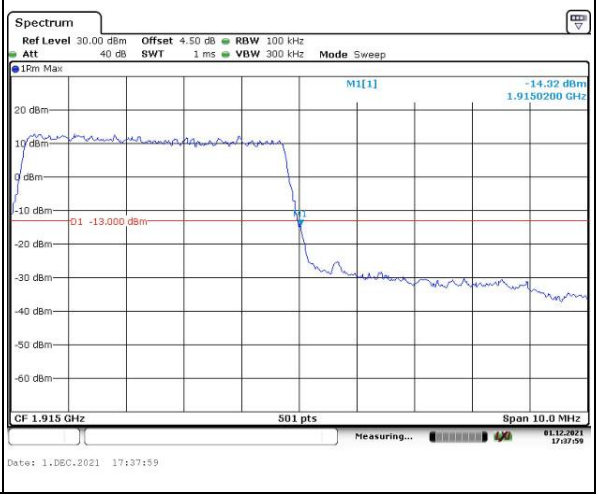
| Spurious Emissions at Antenna Terminal | | |
|---|---|---|
| **Channel** | **3MHz Bandwidth QPSK** | |
| Lowest |  |  |
| Middle |  |  |
| Highest |  |  |

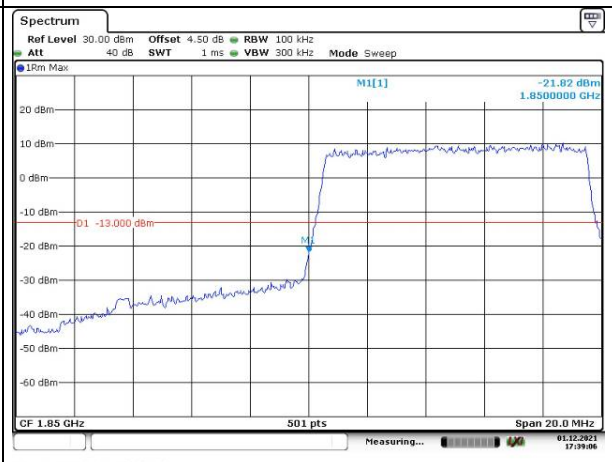
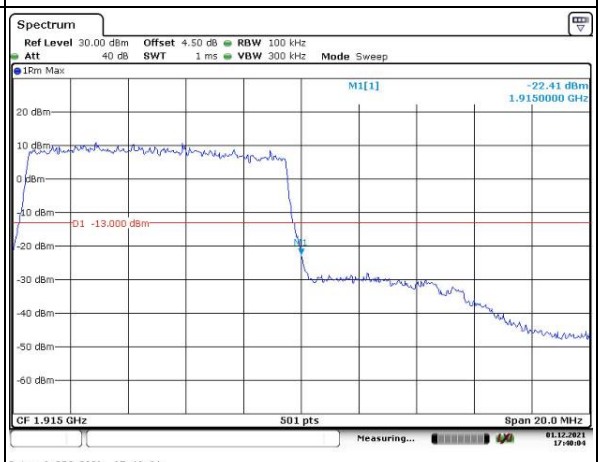
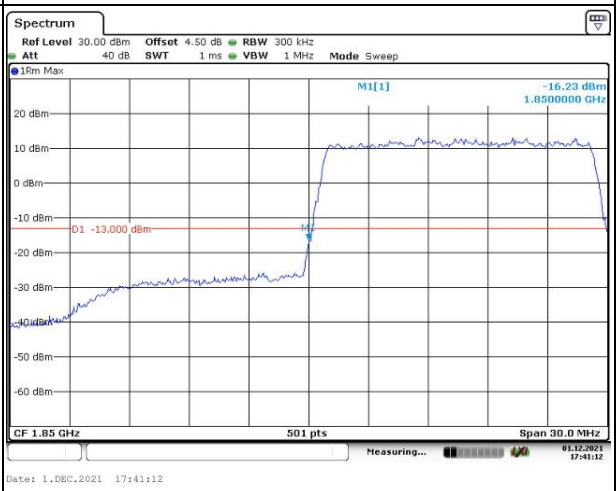
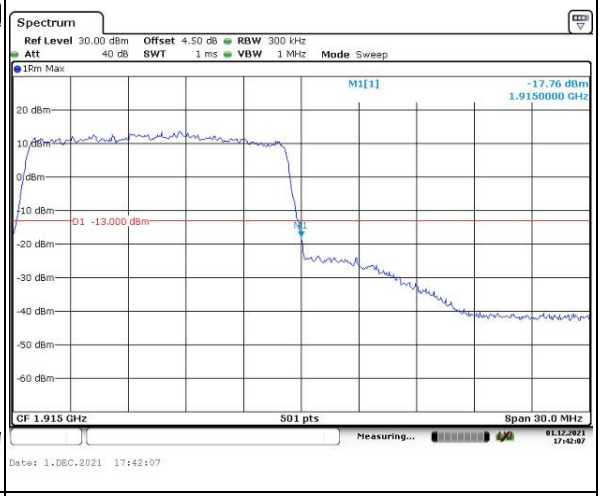
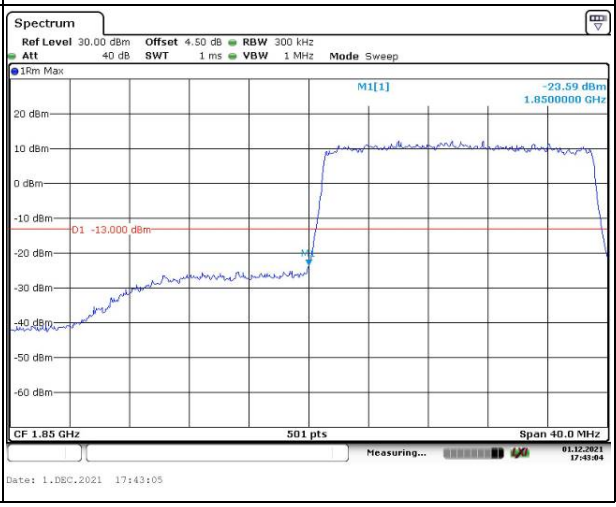
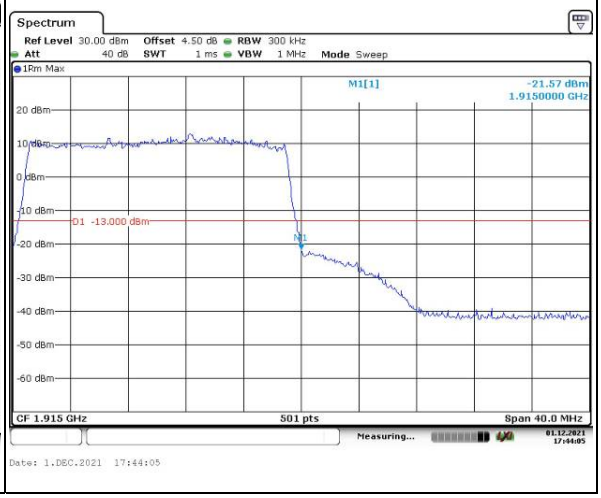
| Spurious Emissions at Antenna Terminal | | |
|---|---|---|
| **Channel** | **5MHz Bandwidth QPSK** | |
| Lowest |  |  |
| Middle |  |  |
| Highest |  |  |

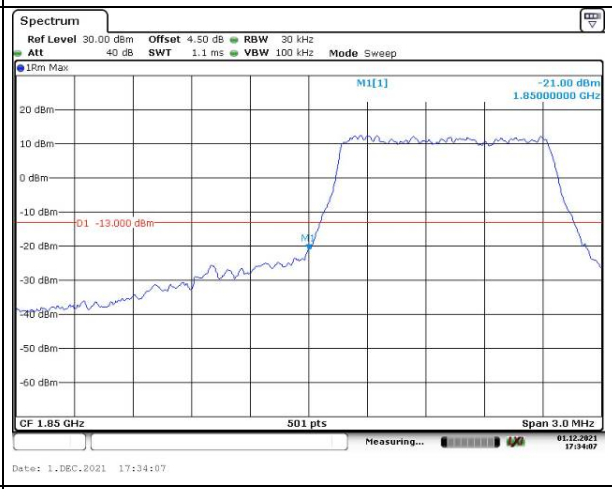
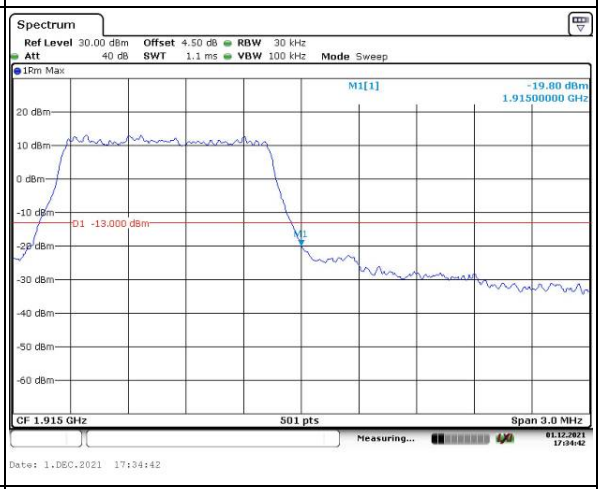
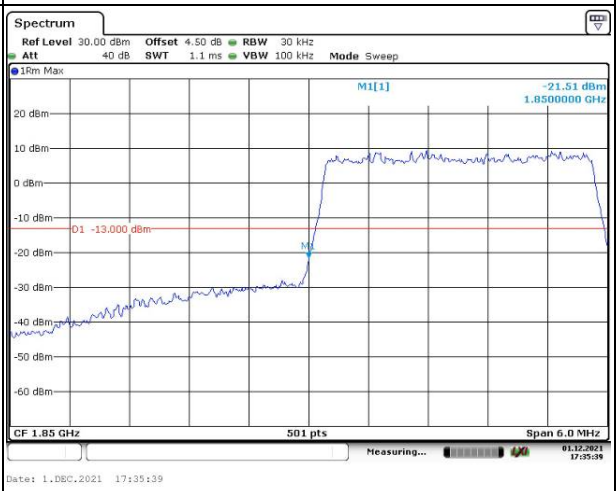
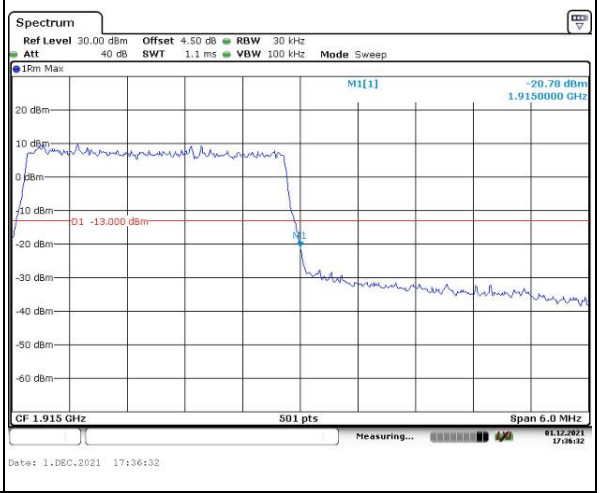
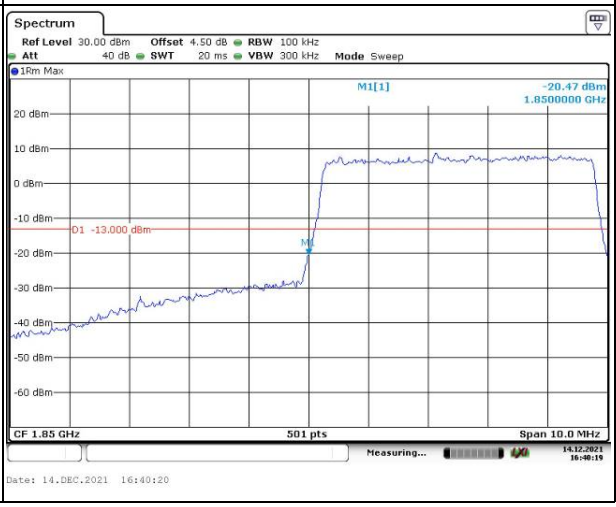
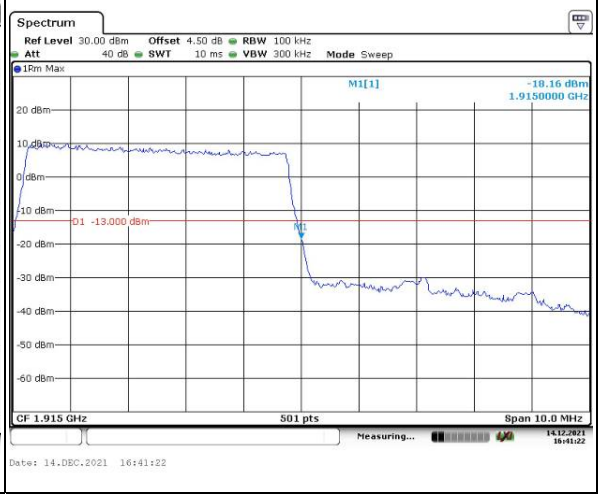
| Spurious Emissions at Antenna Terminal | | |
|---|---|---|
| **Channel** | **10MHz Bandwidth QPSK** | |
| Lowest |  |  |
| Middle |  |  |
| Highest |  |  |

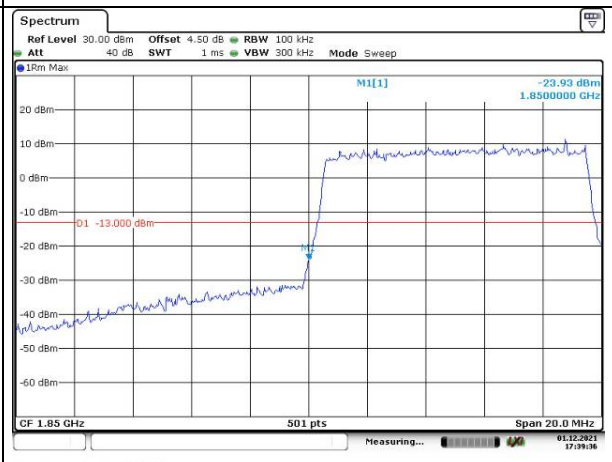
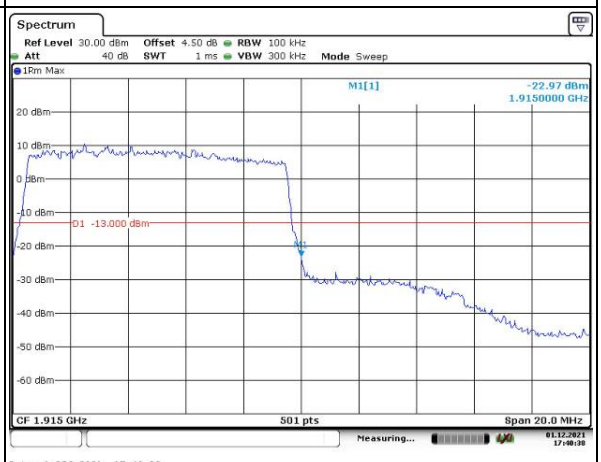
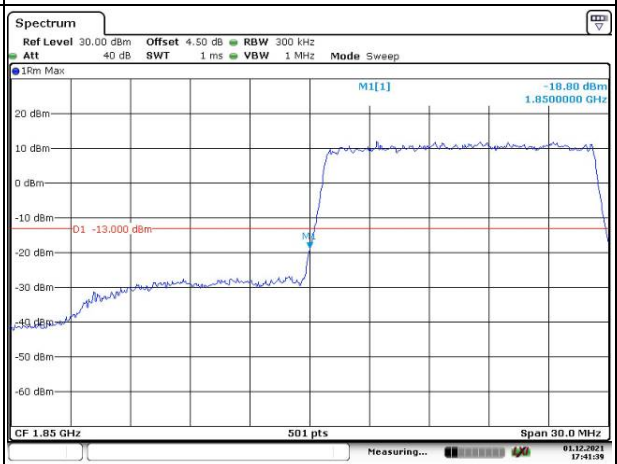
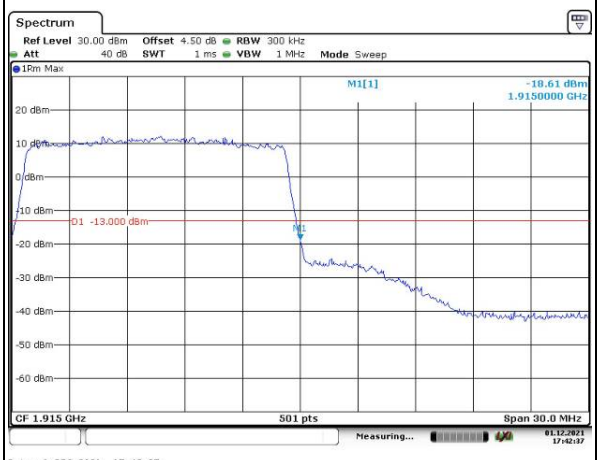
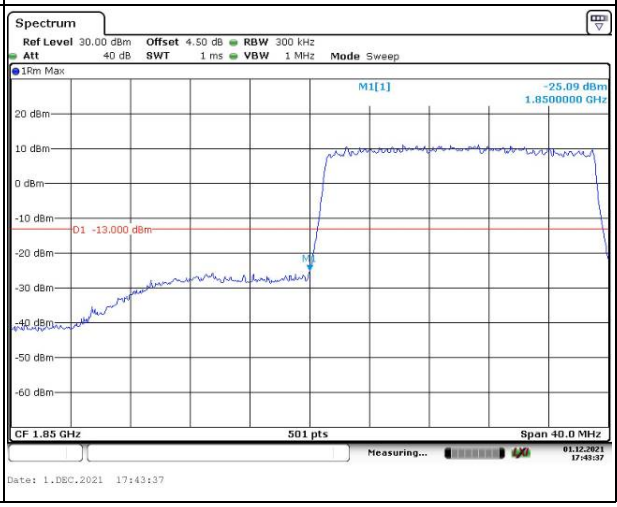
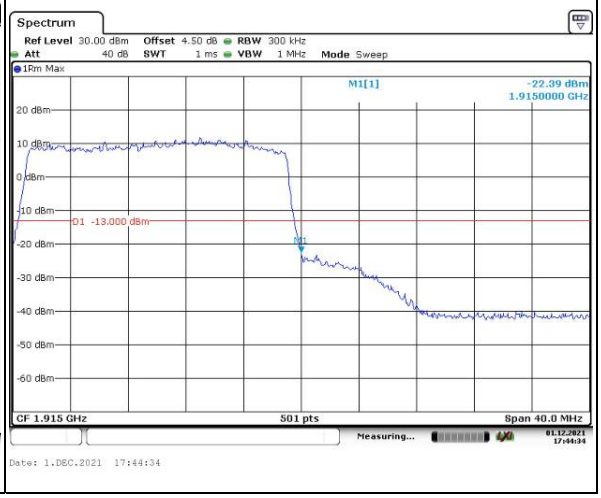
| Spurious Emissions at Antenna Terminal | | |
|---|---|---|
| **Channel** | **15MHz Bandwidth QPSK** | |
| Lowest |  |  |
| Middle |  |  |
| Highest |  |  |

| Spurious Emissions at Antenna Terminal | | |
|---|---|---|
| **Channel** | **20MHz Bandwidth QPSK** | |
| Lowest |  |  |
| Middle |  |  |
| Highest |  |  |

| Out of band emission, Band Edge | | |
|---|---|---|
| **Mode** | **Lowest** | **Highest** |
| QPSK 1.4MHz |  |  |
| QPSK 3MHz |  |  |
| QPSK 5MHz |  |  |

| Out of band emission, Band Edge | | |
|---|---|---|
| **Mode** | **Lowest** | **Highest** |
| QPSK 10MHz |  |  |
| QPSK 15MHz |  |  |
| QPSK 20MHz |  |  |

| Out of band emission, Band Edge | | |
|---|---|---|
| **Mode** | **Lowest** | **Highest** |
| 16QAM 1.4MHz |  |  |
| 16QAM 3MHz |  |  |
| 16QAM 5MHz |  |  |

| Out of band emission, Band Edge | | |
|---|---|---|
| **Mode** | **Lowest** | **Highest** |
| 16QAM 10MHz |  |  |
| 16QAM 15MHz |  |  |
| 16QAM 20MHz |  |  |

## 4.13 Antenna Port Test Data and Results for LTE Band 26:

| Serial Number: | CR21110087-S1 | Test Date: | 2021/12/01~2021/12/14 |
|---|---|---|---|
| Test Site: | RF | Test Mode: | Transmitting |
| Tester: | Wolf Mo | Test Result: | **Pass** |

| **Environmental Conditions:** | | | | | |
|---|---|---|---|---|---|
| Temperature: (℃) | 22.3~22.7 | Relative Humidity: (%) | 31~44 | ATM Pressure: (kPa) | 101.5~101.9 |

**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 |
| ZHAOXIN | DC Power Supply | RXN-6010D | 21R6010D09 | N/A | N/A |
| Weinschel | Coaxial Attenuators | 53-20-34 | LN751 | 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 Spliter | 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 26▲:** | | | | | |
|---|---|---|---|---|---|
| Antenna Gain (dBi): | 0 | Antenna Gain (dBd): | -2.15 | Cable Loss (dB): | 0.1 |
| Operation Voltage($V_{DC}$): | | | | | |
| Lowest: | 3.5 | Normal: | 3.7 | Highest: | 4.2 |

**Test Frequency For Each Mode:**

| Operation Bandwidth | Lowest Frequency (MHz) | Middle Frequency (MHz) | Highest Frequency (MHz) |
|---|---|---|---|
| 1.4MHz | 814.7 | 831.5 | 848.3 |
| 3MHz | 815.5 | 831.5 | 847.5 |
| 5MHz | 816.5 | 831.5 | 846.5 |
| 10MHz | 819 | 831.5 | 844 |
| 15MHz | 821.5 | 831.5 | 841.5 |

**Test Data:**

| FCC§2.1046;§ 22.913 (a),§ 90.542 | | | | | | |
|---|---|---|---|---|---|---|
| **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 | 23.50 | 23.22 | 21.25 | 38.45 |
| | RB1#3 | 23.33 | 23.23 | 23.34 | | |
| | RB1#5 | 23.16 | 23.46 | 23.24 | | |
| | RB3#0 | 23.23 | 23.46 | 23.20 | | |
| | RB3#3 | 23.12 | 23.50 | 23.24 | | |
| | RB6#0 | 22.17 | 22.58 | 22.27 | | |
| 1.4MHz 16QAM | RB1#0 | 22.11 | 22.68 | 22.34 | 20.5 | 38.45 |
| | RB1#3 | 22.07 | 22.60 | 22.31 | | |
| | RB1#5 | 22.55 | 22.67 | 21.98 | | |
| | RB3#0 | 22.29 | 22.75 | 22.42 | | |
| | RB3#3 | 22.07 | 22.44 | 22.26 | | |
| | RB6#0 | 21.38 | 21.48 | 21.35 | | |
| 3MHz QPSK | RB1#0 | 23.13 | 23.57 | 23.31 | 21.32 | 38.45 |
| | RB1#8 | 22.95 | 23.50 | 23.09 | | |
| | RB1#14 | 23.13 | 23.49 | 23.22 | | |
| | RB6#0 | 22.21 | 22.50 | 22.45 | | |
| | RB6#9 | 22.10 | 22.48 | 22.32 | | |
| | RB15#0 | 22.09 | 22.58 | 22.49 | | |
| 3MHz 16QAM | RB1#0 | 22.56 | 22.92 | 22.51 | 20.67 | 38.45 |
| | RB1#8 | 22.18 | 22.35 | 21.93 | | |
| | RB1#14 | 22.26 | 22.85 | 21.99 | | |
| | RB6#0 | 21.30 | 21.54 | 21.52 | | |
| | RB6#9 | 21.22 | 21.63 | 21.39 | | |
| | RB15#0 | 21.21 | 21.61 | 21.47 | | |
| 5MHz QPSK | RB1#0 | 23.04 | 23.53 | 23.32 | 21.38 | 38.45 |
| | RB1#13 | 23.02 | 23.34 | 23.17 | | |
| | RB1#24 | 23.24 | 23.63 | 23.23 | | |
| | RB15#0 | 22.06 | 22.64 | 22.43 | | |
| | RB15#10 | 22.12 | 22.56 | 22.32 | | |
| | RB25#0 | 22.21 | 22.58 | 22.42 | | |
| 5MHz 16QAM | RB1#0 | 21.61 | 22.66 | 22.49 | 20.45 | 38.45 |
| | RB1#13 | 21.23 | 22.42 | 21.80 | | |
| | RB1#24 | 21.48 | 22.70 | 21.89 | | |
| | RB15#0 | 21.11 | 21.56 | 21.55 | | |
| | RB15#10 | 21.18 | 21.29 | 21.20 | | |
| | RB25#0 | 21.28 | 21.44 | 21.38 | | |
| 10MHz QPSK | RB1#0 | 23.38 | 23.56 | 23.43 | 21.35 | 38.45 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | RB1#25 | 23.14 | 23.31 | 23.44 | | |
| | RB1#49 | 23.47 | 23.60 | 23.27 | | |
| | RB25#0 | 22.18 | 22.67 | 22.61 | | |
| | RB25#25 | 22.37 | 22.52 | 22.40 | | |
| | RB50#0 | 22.31 | 22.53 | 22.66 | | |
| 10MHz 16QAM | RB1#0 | 22.60 | 22.63 | 22.53 | 20.41 | 38.45 |
| | RB1#25 | 22.31 | 22.55 | 22.53 | | |
| | RB1#49 | 22.66 | 22.62 | 22.36 | | |
| | RB25#0 | 21.06 | 21.51 | 21.80 | | |
| | RB25#25 | 21.28 | 21.37 | 21.59 | | |
| | RB50#0 | 21.24 | 21.57 | 21.51 | | |
| 15MHz QPSK | RB1#0 | 23.26 | 23.63 | 23.66 | 21.43 | 38.45 |
| | RB1#38 | 23.30 | 23.29 | 23.33 | | |
| | RB1#74 | 23.64 | 23.68 | 23.52 | | |
| | RB36#0 | 22.32 | 22.71 | 22.68 | | |
| | RB36#39 | 22.58 | 22.63 | 22.57 | | |
| | RB75#0 | 22.48 | 22.61 | 22.62 | | |
| 15MHz 16QAM | RB1#0 | 23.23 | 22.98 | 22.95 | 21.15 | 38.45 |
| | RB1#38 | 22.48 | 22.55 | 22.65 | | |
| | RB1#74 | 22.82 | 23.40 | 22.77 | | |
| | RB36#0 | 21.35 | 21.74 | 21.54 | | |
| | RB36#39 | 21.54 | 21.45 | 21.40 | | |
| | RB75#0 | 21.44 | 21.57 | 21.55 | | |
| 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 | |
| 15MHz QPSK | RB1#0 | 4.38 | 4.12 | 4.03 | 13 |
| | RB75#0 | 4.61 | 4.87 | 4.78 | 13 |
| 15MHz 16QAM | RB1#0 | 5.28 | 5.04 | 4.96 | 13 |
| | RB75#0 | 5.62 | 5.80 | 5.59 | 13 |
| | | | | **Result:** | **Pass** |

| FCC §2.1049, §22.905, §90.209:Occupied Bandwidth | | | | | | |
|---|---|---|---|---|---|---|
| Operation Mode | 99% Occupied Bandwidth (MHz) | | | 26 dB Occupied Bandwidth (MHz) | | |
| | Low Channel | Middle channel | High Channel | Low Channel | Middle Channel | High Channel |
| 1.4MHz QPSK | 1.102 | 1.102 | 1.102 | 1.332 | 1.326 | 1.308 |
| 1.4MHz 16QAM | 1.102 | 1.096 | 1.102 | 1.320 | 1.302 | 1.326 |
| 3MHz QPSK | 2.695 | 2.695 | 2.683 | 2.952 | 2.952 | 2.964 |
| 3MHz 16QAM | 2.695 | 2.683 | 2.683 | 2.988 | 2.964 | 2.964 |
| 5MHz QPSK | 4.531 | 4.511 | 4.511 | 5.060 | 5.080 | 5.060 |
| 5MHz 16QAM | 4.511 | 4.551 | 4.551 | 5.060 | 5.060 | 5.080 |
| 10MHz QPSK | 8.942 | 8.942 | 8.981 | 9.720 | 9.800 | 9.800 |
| 10MHz 16QAM | 8.942 | 8.942 | 8.981 | 9.680 | 9.760 | 9.800 |
| 15MHz QPSK | 13.413 | 13.533 | 13.413 | 14.640 | 14.760 | 14.640 |
| 15MHz 16QAM | 13.473 | 13.593 | 13.473 | 14.640 | 14.760 | 14.700 |
| Note: The test plots please refer to the Plots of Occupied Bandwidth | | | | | | |

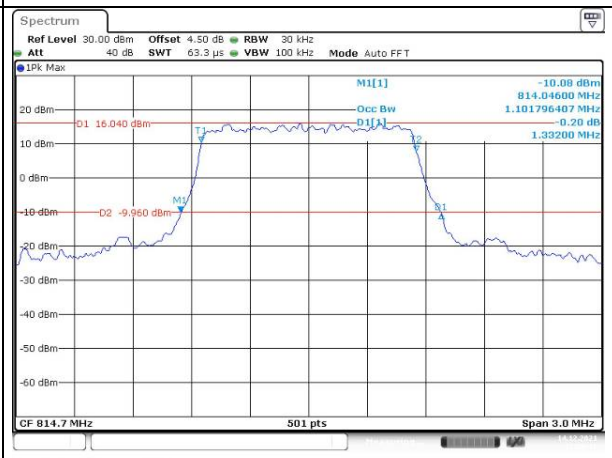
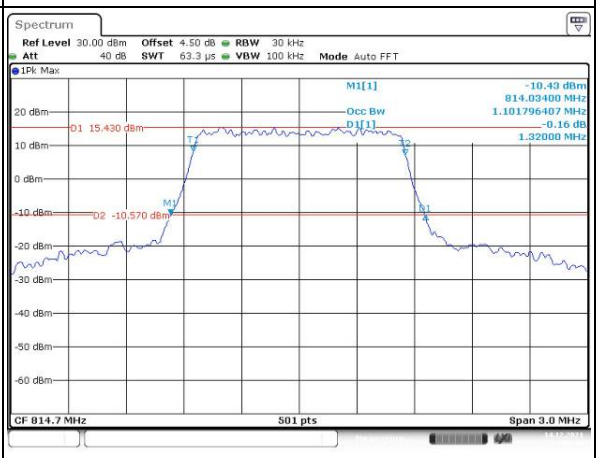
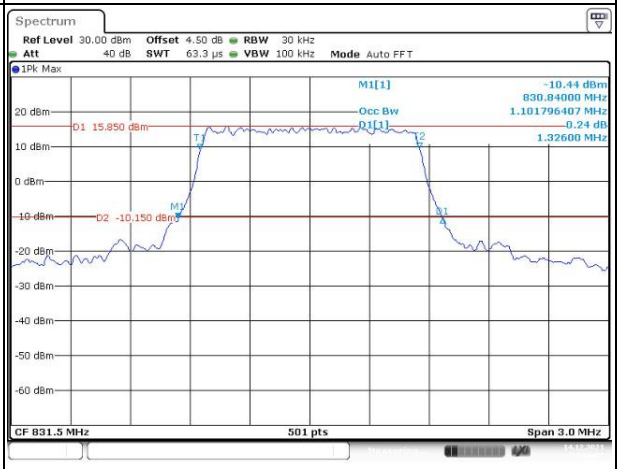
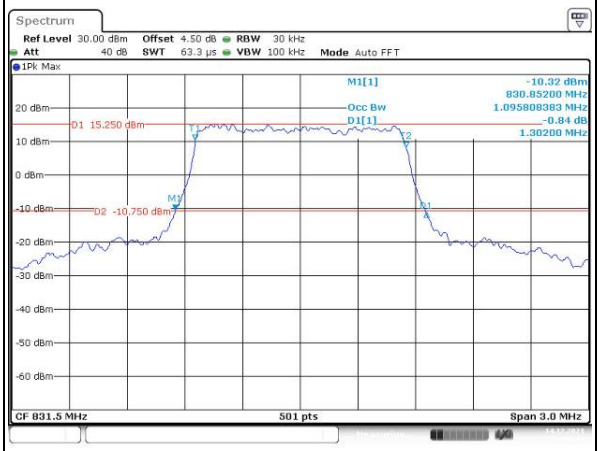
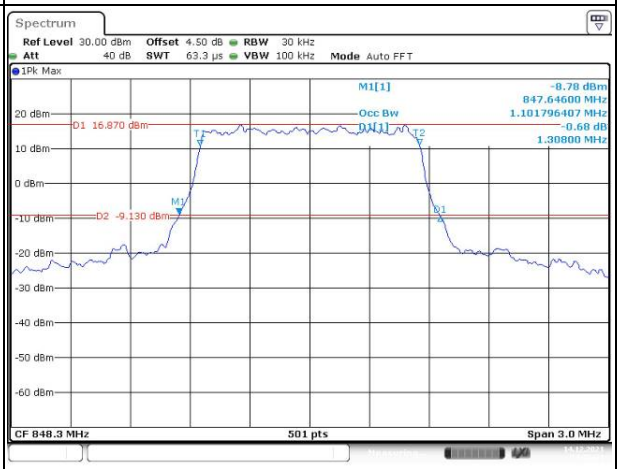
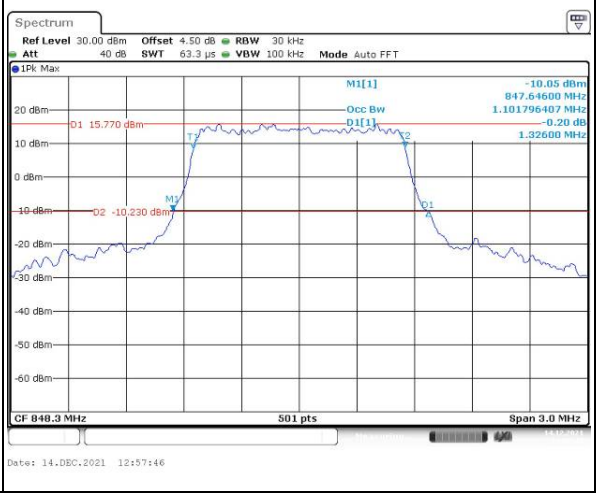
| FCC §2.1051, §22.917(a),§90.543:Spurious Emissions at Antenna Terminal | |
|---|---|
| **Result:** | **Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.** |

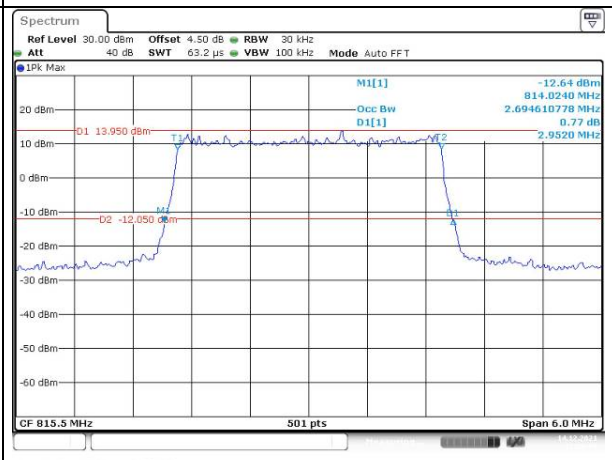
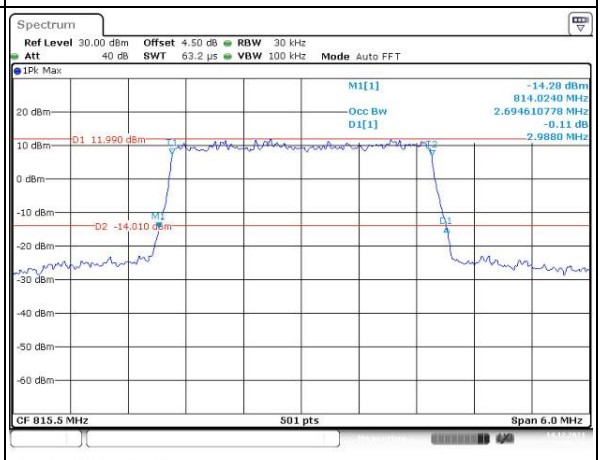
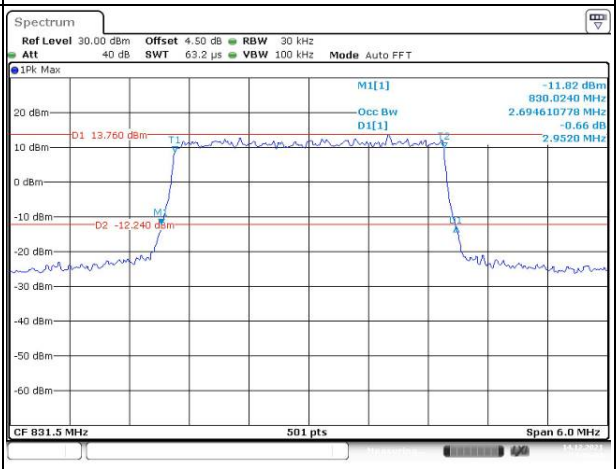
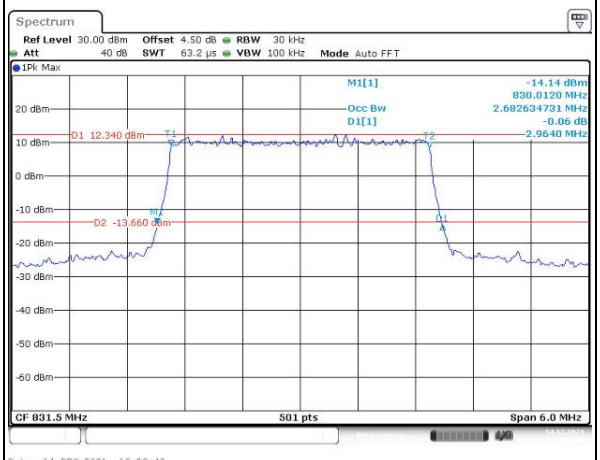
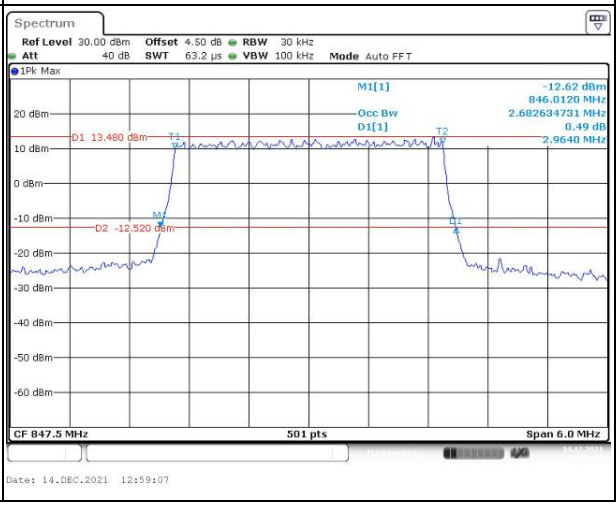
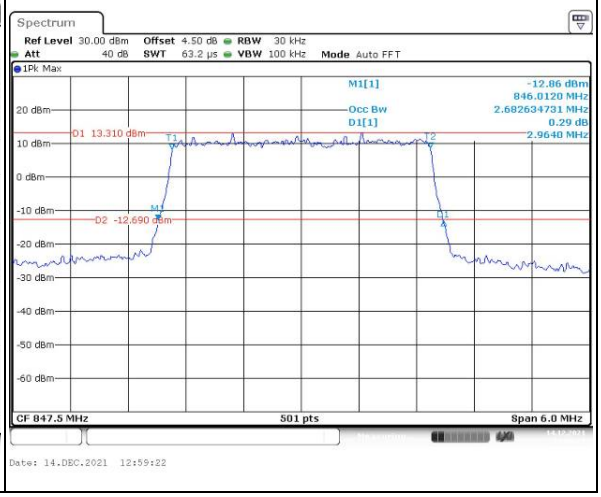
| FCC §2.1051, §22.917(a),§90.543:Out of band emission, Band Edge | |
|---|---|
| **Result:** | **Pass, Please refer to the test plots of Out of band emission, Band Edge.** |

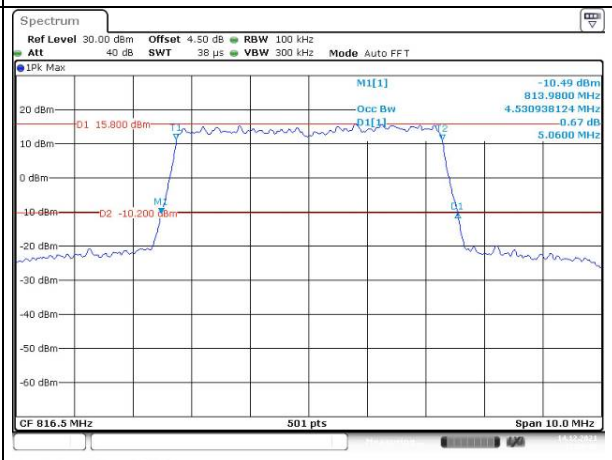
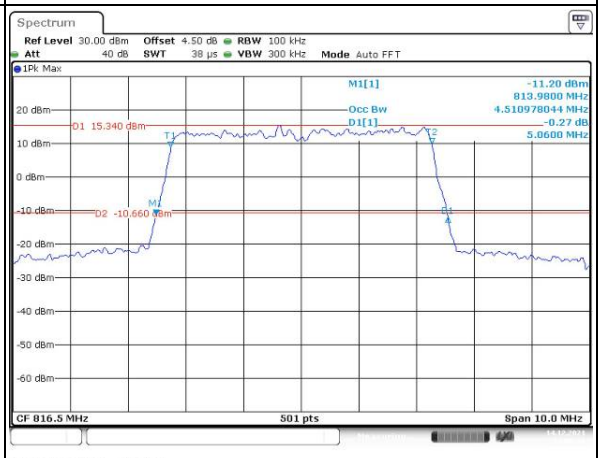
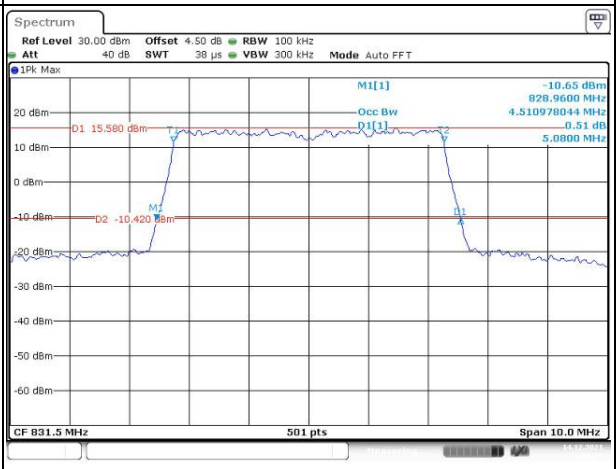
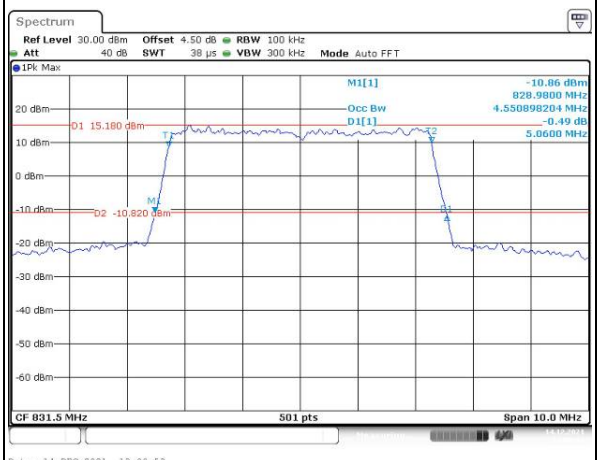
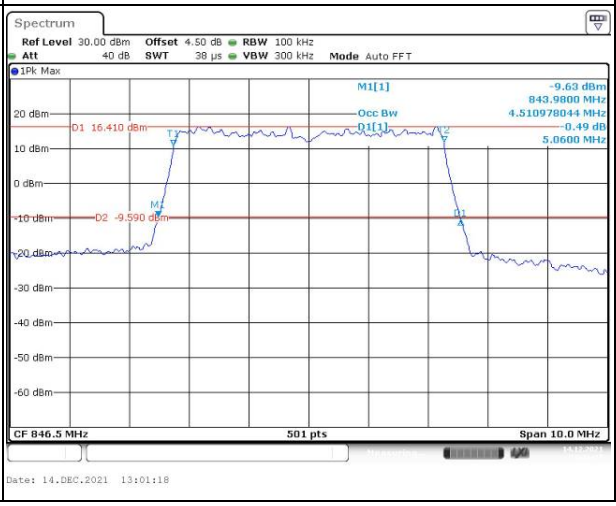
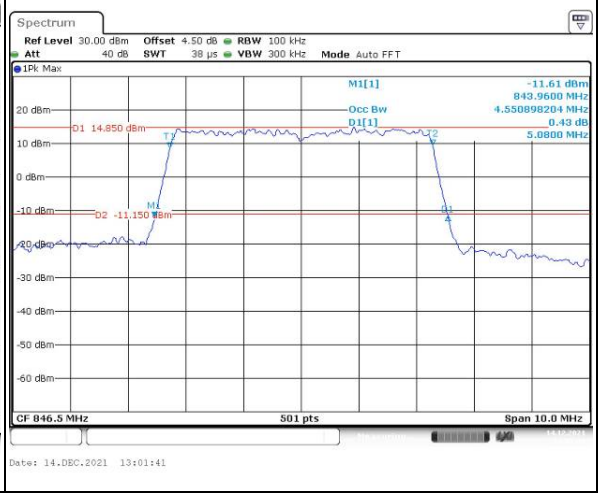
| FCC §2.1055, §22.355,§90.213: Frequency Stability | | | | | |
|---|---|---|---|---|---|
| Test Mode: | 15 MHz QPSK | | Test Channel: | 831.5 | MHz |
| Test Item | Temperature (℃) | Voltage ($V_{DC}$) | Frequency Error | | Limit |
| | | | (Hz) | (ppm) | (ppm) |
| Frequency Stability vs. Temperature | -30 | 3.7 | -0.10 | 0.000 | 2.5 |
| | -20 | 3.7 | 8.00 | 0.010 | 2.5 |
| | -10 | 3.7 | -7.44 | -0.009 | 2.5 |
| | 0 | 3.7 | 6.91 | 0.008 | 2.5 |
| | 10 | 3.7 | 7.97 | 0.010 | 2.5 |
| | 20 | 3.7 | 6.02 | 0.007 | 2.5 |
| | 30 | 3.7 | -9.56 | -0.011 | 2.5 |
| | 40 | 3.7 | 7.94 | 0.010 | 2.5 |
| | 50 | 3.7 | -9.49 | -0.011 | 2.5 |
| Frequency Stability vs. Voltage | 20 | 3.5 | -6.63 | -0.008 | 2.5 |
| | 20 | 4.2 | 5.70 | 0.007 | 2.5 |
| | | | | **Result:** | **Pass** |

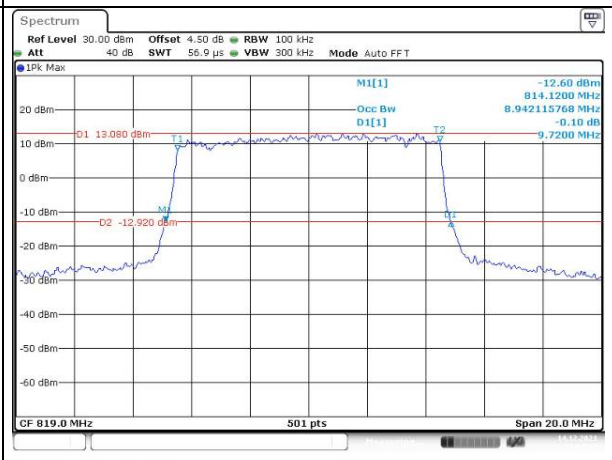
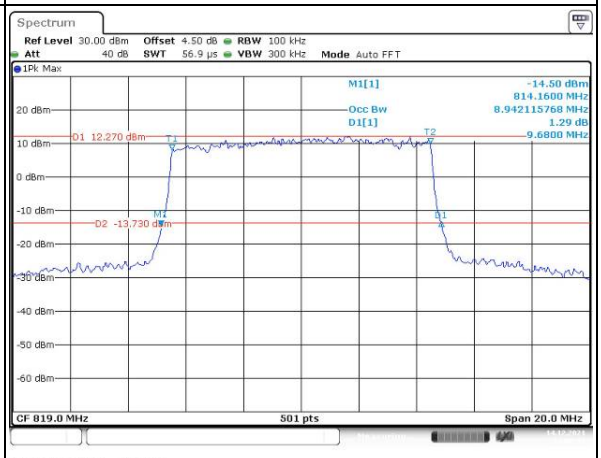
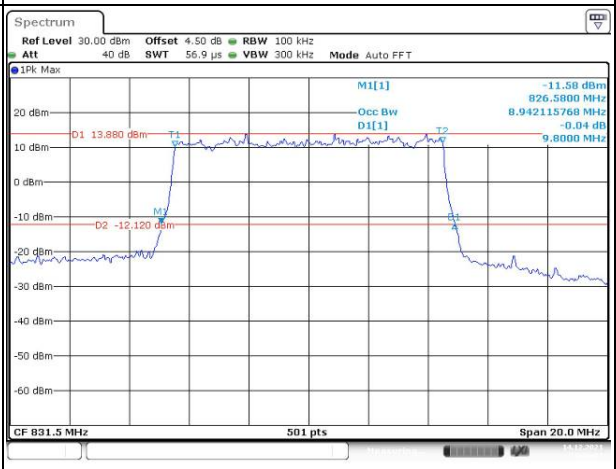
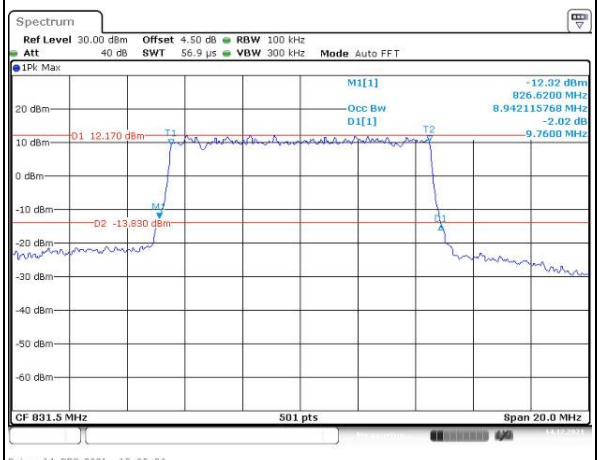
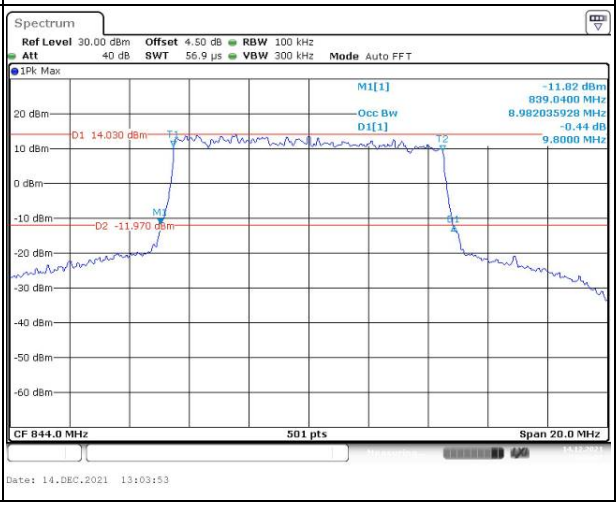
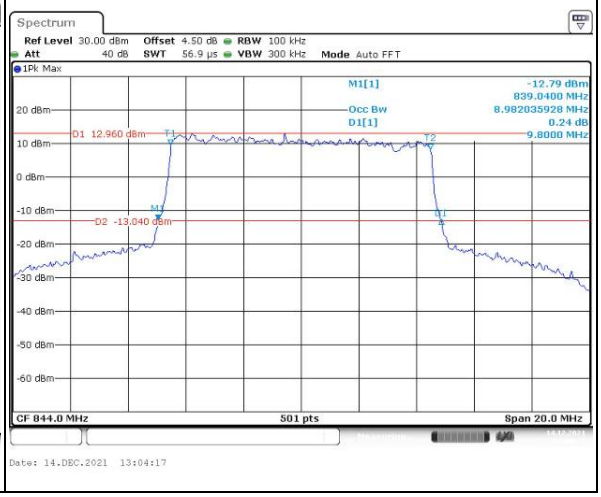
| Test Mode: | 15 MHz 16QAM | | Test Channel: | 831.5 | MHz |
|---|---|---|---|---|---|
| Test Item | Temperature (℃) | Voltage ($V_{DC}$) | Frequency Error | | Limit |
| | | | (Hz) | (ppm) | (ppm) |
| Frequency Stability vs. Temperature | -30 | 3.7 | -0.51 | -0.001 | 2.5 |
| | -20 | 3.7 | -7.47 | -0.009 | 2.5 |
| | -10 | 3.7 | 8.36 | 0.010 | 2.5 |
| | 0 | 3.7 | -5.08 | -0.006 | 2.5 |
| | 10 | 3.7 | 9.49 | 0.011 | 2.5 |
| | 20 | 3.7 | 6.03 | 0.007 | 2.5 |
| | 30 | 3.7 | 5.01 | 0.006 | 2.5 |
| | 40 | 3.7 | 5.41 | 0.007 | 2.5 |
| | 50 | 3.7 | 6.35 | 0.008 | 2.5 |
| Frequency Stability vs. Voltage | 20 | 3.5 | -8.15 | -0.010 | 2.5 |
| | 20 | 4.2 | 5.94 | 0.007 | 2.5 |
| | | | | **Result:** | **Pass** |

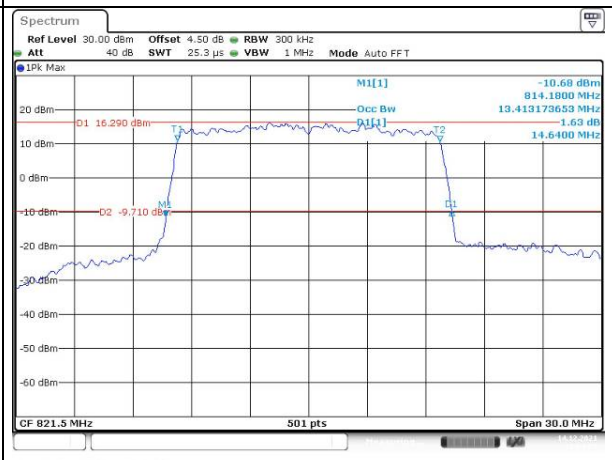
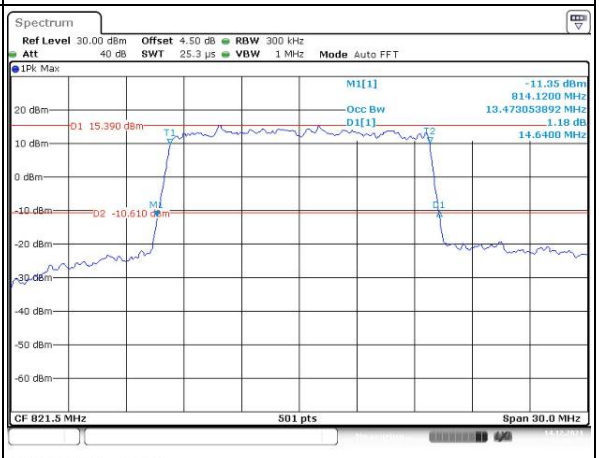
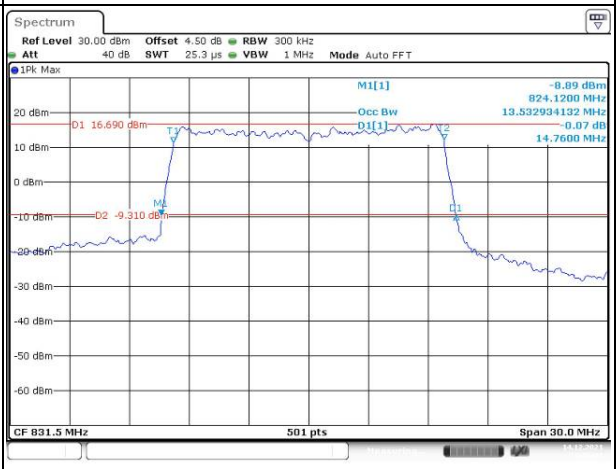
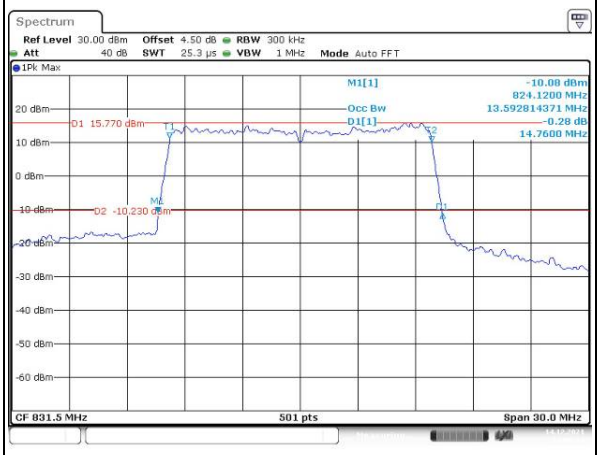
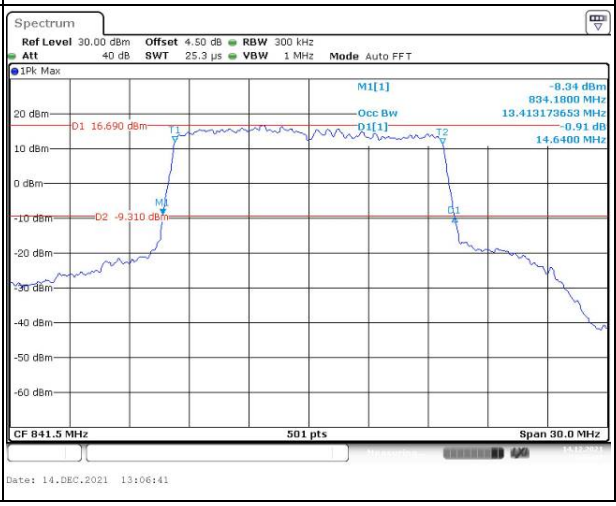
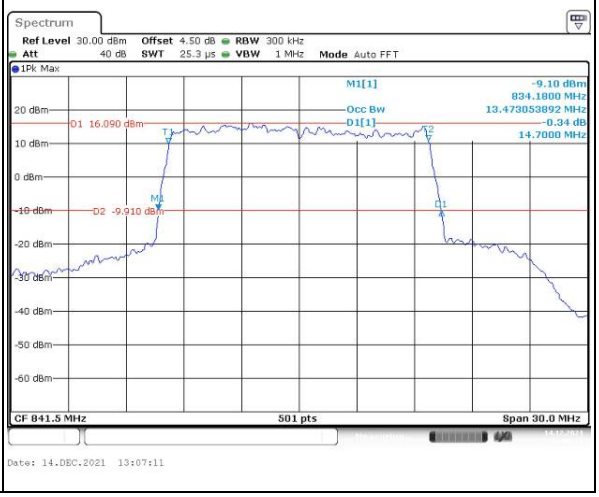
**Test Plots:**

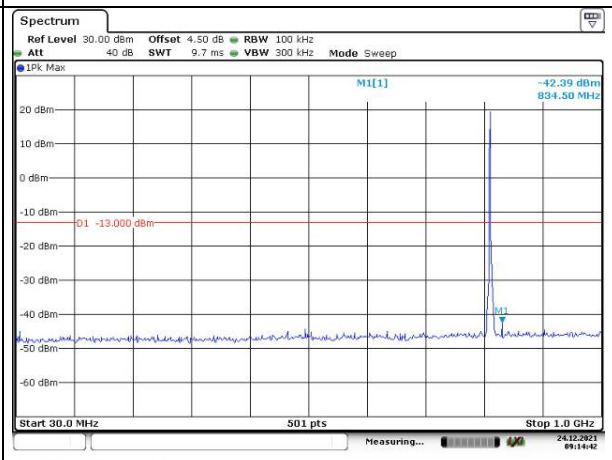
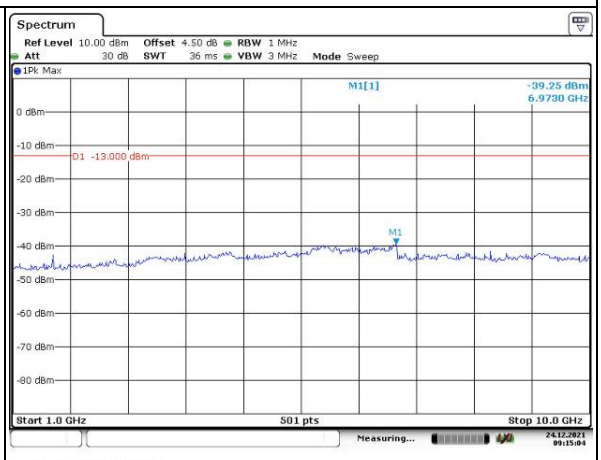
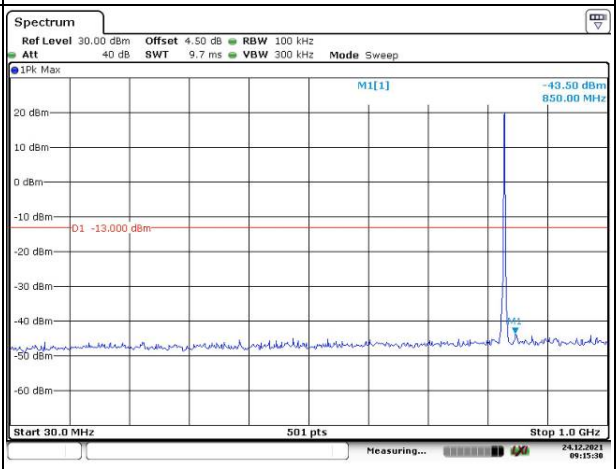
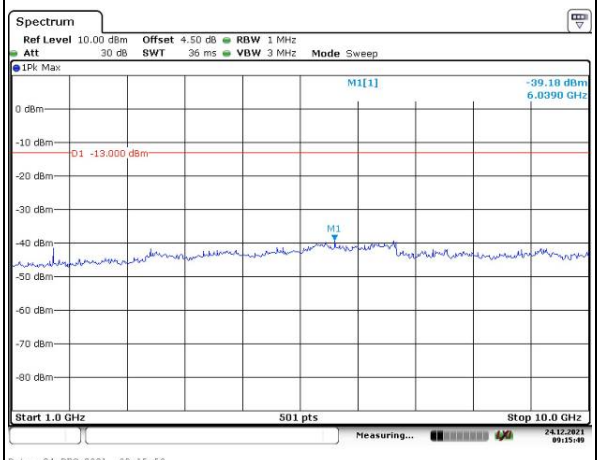
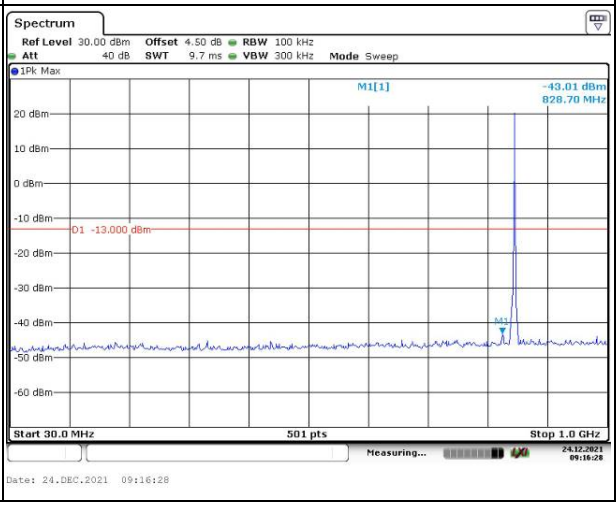
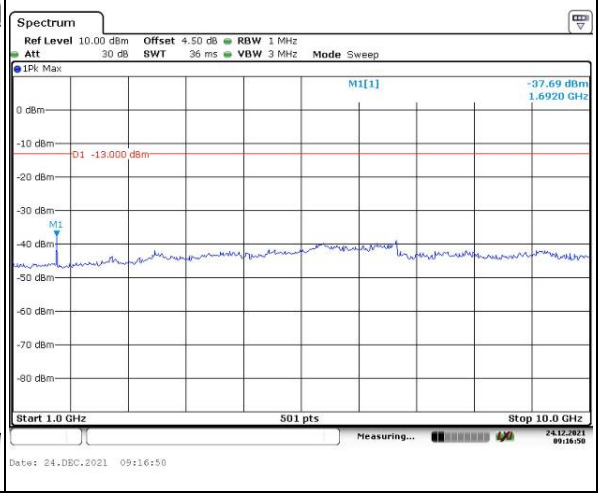
| Occupied Bandwidth | | |
|---|---|---|
| **Channel** | 1.4MHz Bandwidth QPSK | 1.4MHz Bandwidth 16QAM |
| Lowest |  |  |
| Middle |  |  |
| Highest |  |  |

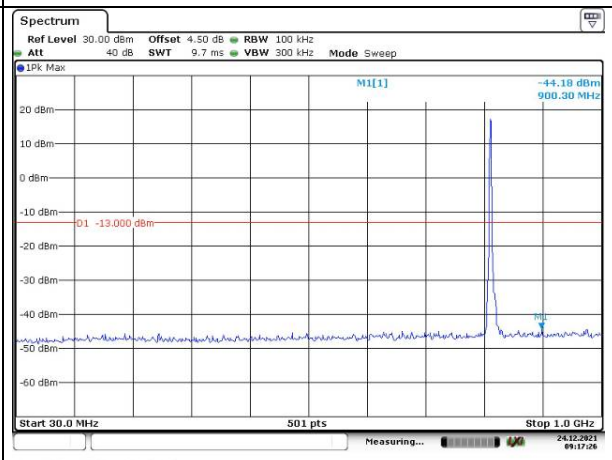
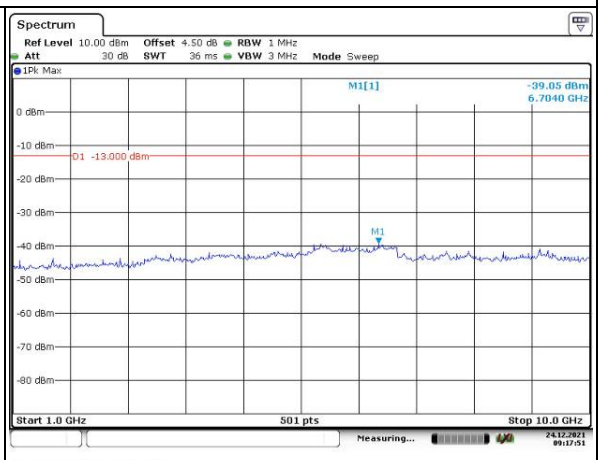
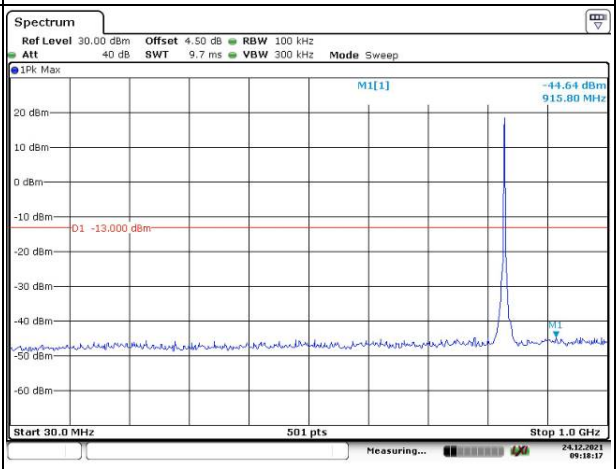
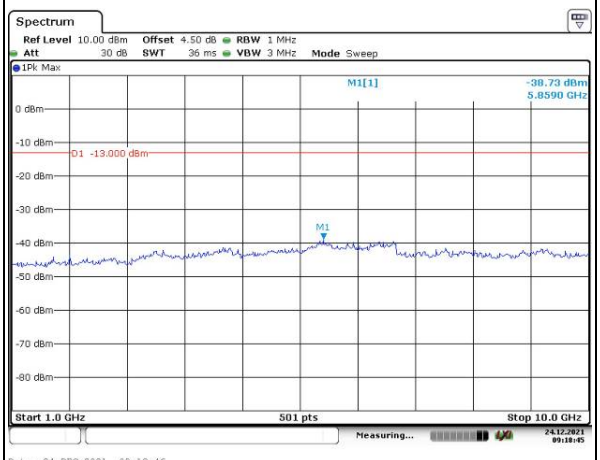
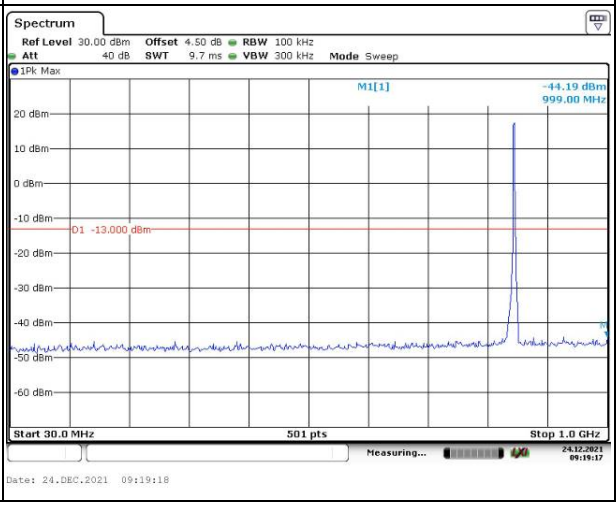
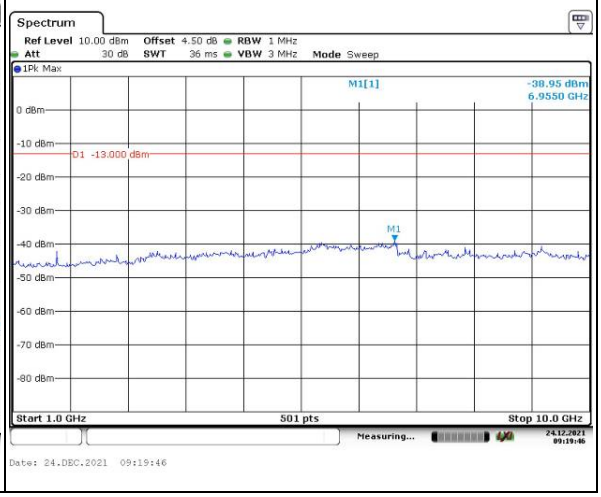
| Occupied Bandwidth | | |
|---|---|---|
| **Channel** | 3MHz Bandwidth QPSK | 3MHz Bandwidth 16QAM |
| Lowest |  |  |
| Middle |  |  |
| Highest |  |  |

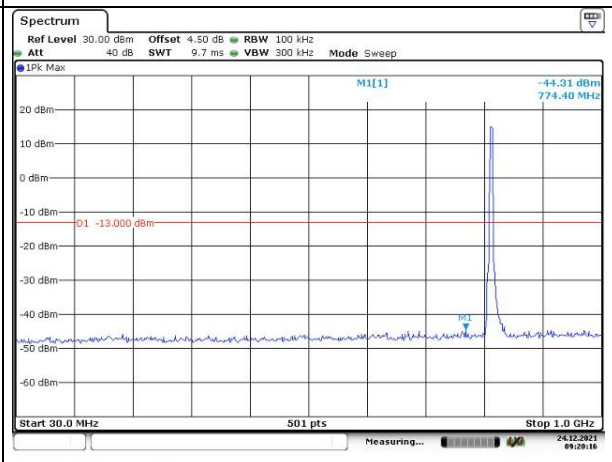
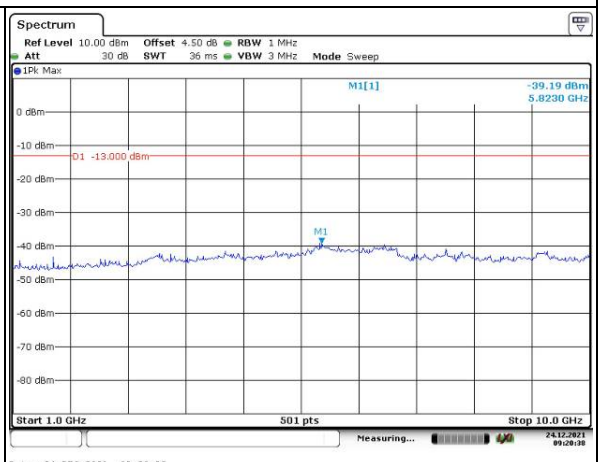
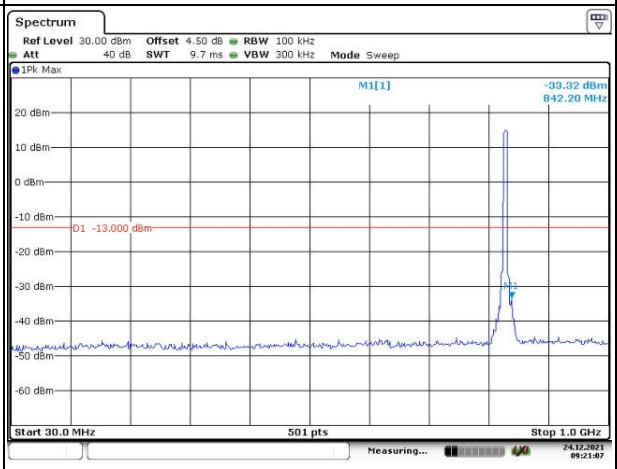
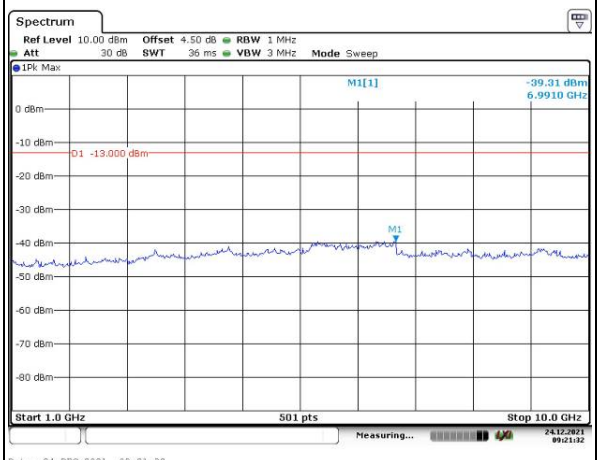
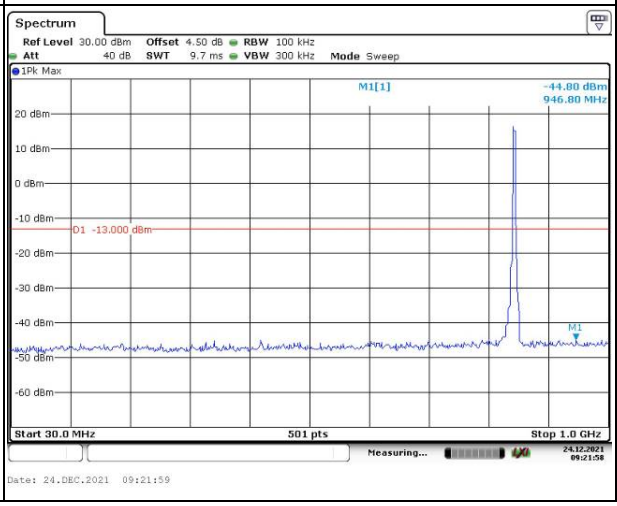
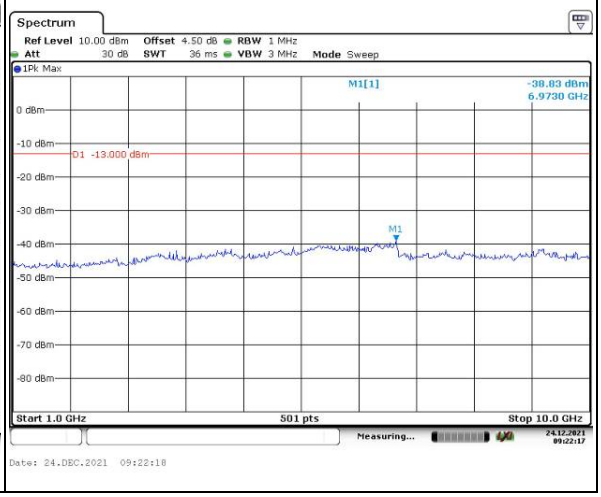
| Occupied Bandwidth | | |
|---|---|---|
| **Channel** | 5MHz Bandwidth QPSK | 5MHz Bandwidth 16QAM |
| Lowest |  |  |
| Middle |  |  |
| Highest |  |  |

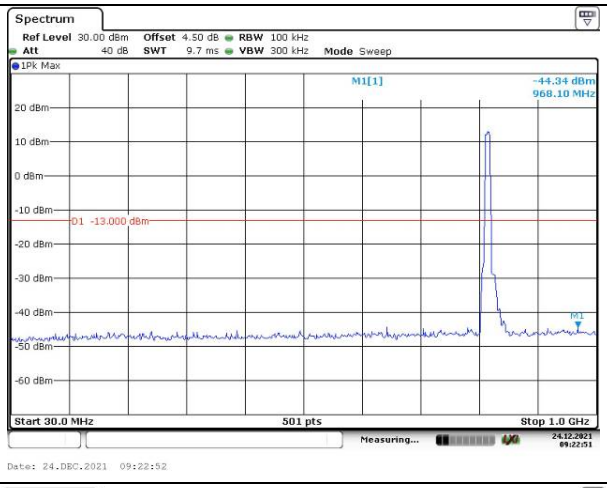
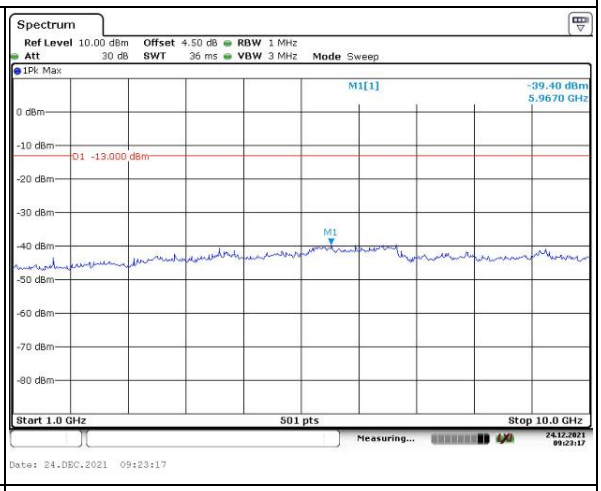
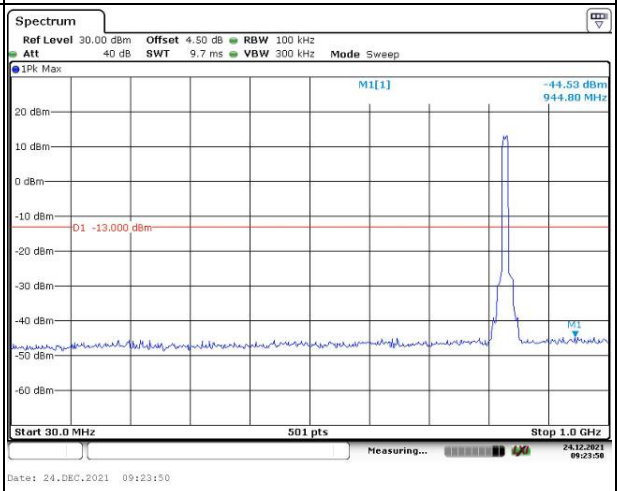
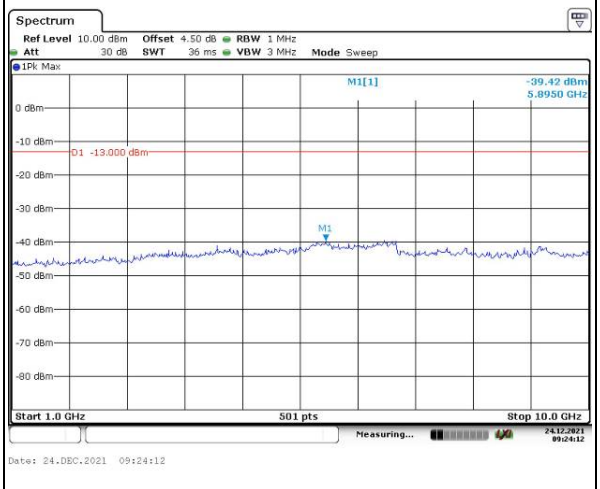
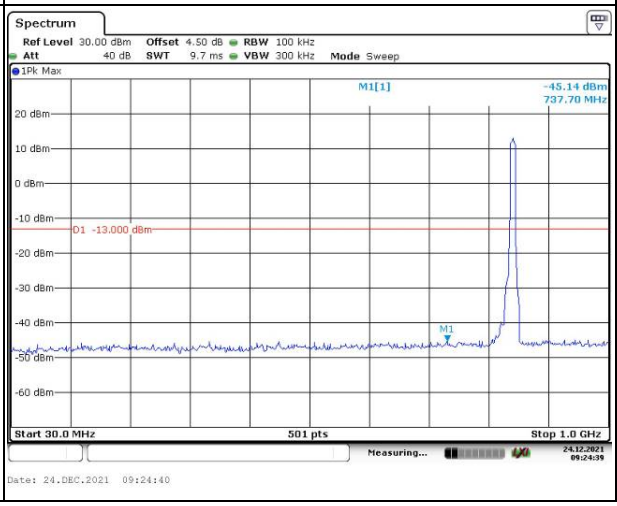
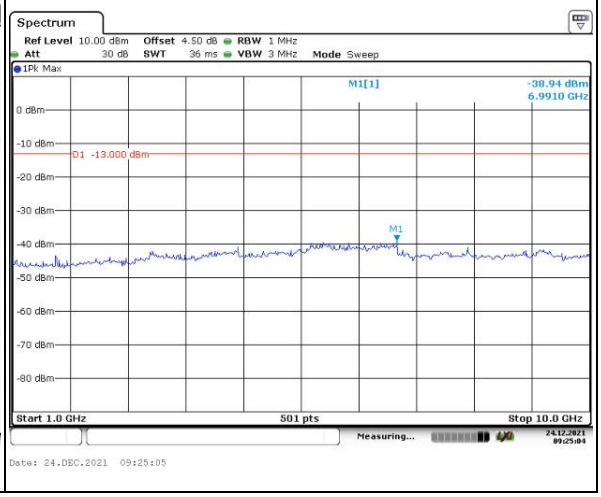
| Occupied Bandwidth | | |
|---|---|---|
| **Channel** | 10MHz Bandwidth QPSK | 10MHz Bandwidth 16QAM |
| Lowest |  |  |
| Middle |  |  |
| Highest |  |  |

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

| Spurious Emissions at Antenna Terminal | | |
|---|---|---|
| **Channel** | **1.4MHz Bandwidth QPSK** | |
| Lowest |  |  |
| Middle |  |  |
| Highest |  |  |

| Spurious Emissions at Antenna Terminal | | |
|---|---|---|
| **Channel** | **3MHz Bandwidth QPSK** | |
| Lowest |  |  |
| Middle |  |  |
| Highest |  |  |

| Spurious Emissions at Antenna Terminal | | |
|---|---|---|
| **Channel** | **5MHz Bandwidth QPSK** | |
| Lowest |  |  |
| Middle |  |  |
| Highest |  |  |

| Spurious Emissions at Antenna Terminal | | |
|---|---|---|
| **Channel** | **10MHz Bandwidth QPSK** | |
| Lowest |  |  |
| Middle |  |  |
| Highest |  |  |