

## Appendix Test Data for LTE band 13(Conducted Measurement)

Product Name: 4G Poc Radio

Trade Mark: N/A

Test Model: N580

FCC ID: 2BQXTP300N

### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 23.5℃     |
| Relative Humidity: | 58%       |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | Allen Lai |
| Supervised by:     | Max Zhang |
| NOTE               | N/A       |

## Appendix A: RF output power

### Test Result

| Band | Bandwidth<br>(MHz) | UL Frequency<br>(MHz) | Modulation | RB Size | RB Offset | Average Power<br>(dBm) | Peak Power<br>(dBm) | PAR<br>(dB) | Limit<br>(dB) | AntGain<br>(dBi) | ERP<br>(dBm) | Limit<br>(dBm) | Conclusion |
|------|--------------------|-----------------------|------------|---------|-----------|------------------------|---------------------|-------------|---------------|------------------|--------------|----------------|------------|
| 13   | 5                  | 779.5                 | QPSK       | 25      | LOW       | 23.12                  | 29.24               | 6.12        | 13            | 1                | 21.97        | 34.8           | Pass       |
| 13   | 5                  | 779.5                 | QPSK       | 12      | LOW       | 23.11                  | 29.25               | 6.14        | 13            | 1                | 21.96        | 34.8           | Pass       |
| 13   | 5                  | 779.5                 | QPSK       | 12      | MID       | 23.09                  | 29.25               | 6.16        | 13            | 1                | 21.94        | 34.8           | Pass       |
| 13   | 5                  | 779.5                 | QPSK       | 12      | HIGH      | 23.1                   | 29.23               | 6.13        | 13            | 1                | 21.95        | 34.8           | Pass       |
| 13   | 5                  | 779.5                 | QPSK       | 1       | LOW       | 24.35                  | 29.22               | 4.87        | 13            | 1                | 23.20        | 34.8           | Pass       |
| 13   | 5                  | 779.5                 | QPSK       | 1       | MID       | 24.34                  | 29.16               | 4.82        | 13            | 1                | 23.19        | 34.8           | Pass       |
| 13   | 5                  | 779.5                 | QPSK       | 1       | HIGH      | 24.23                  | 29.17               | 4.94        | 13            | 1                | 23.08        | 34.8           | Pass       |
| 13   | 5                  | 779.5                 | 16QAM      | 25      | LOW       | 22.13                  | 28.95               | 6.82        | 13            | 1                | 20.98        | 34.8           | Pass       |
| 13   | 5                  | 779.5                 | 16QAM      | 12      | LOW       | 22.18                  | 29.18               | 7           | 13            | 1                | 21.03        | 34.8           | Pass       |
| 13   | 5                  | 779.5                 | 16QAM      | 12      | MID       | 22.18                  | 29.11               | 6.93        | 13            | 1                | 21.03        | 34.8           | Pass       |
| 13   | 5                  | 779.5                 | 16QAM      | 12      | HIGH      | 22.14                  | 29.15               | 7.01        | 13            | 1                | 20.99        | 34.8           | Pass       |
| 13   | 5                  | 779.5                 | 16QAM      | 1       | LOW       | 23.29                  | 29.01               | 5.72        | 13            | 1                | 22.14        | 34.8           | Pass       |
| 13   | 5                  | 779.5                 | 16QAM      | 1       | MID       | 23.28                  | 29.13               | 5.85        | 13            | 1                | 22.13        | 34.8           | Pass       |
| 13   | 5                  | 779.5                 | 16QAM      | 1       | HIGH      | 23.27                  | 29.08               | 5.81        | 13            | 1                | 22.12        | 34.8           | Pass       |
| 13   | 5                  | 782                   | QPSK       | 25      | LOW       | 23.16                  | 29.46               | 6.30        | 13            | 1                | 22.01        | 34.8           | Pass       |
| 13   | 5                  | 782                   | QPSK       | 12      | LOW       | 23.08                  | 29.5                | 6.42        | 13            | 1                | 21.93        | 34.8           | Pass       |
| 13   | 5                  | 782                   | QPSK       | 12      | MID       | 23.08                  | 29.6                | 6.52        | 13            | 1                | 21.93        | 34.8           | Pass       |
| 13   | 5                  | 782                   | QPSK       | 12      | HIGH      | 23.17                  | 29.52               | 6.35        | 13            | 1                | 22.02        | 34.8           | Pass       |
| 13   | 5                  | 782                   | QPSK       | 1       | LOW       | 24.27                  | 29.52               | 5.25        | 13            | 1                | 23.12        | 34.8           | Pass       |
| 13   | 5                  | 782                   | QPSK       | 1       | MID       | 24.41                  | 29.62               | 5.21        | 13            | 1                | 23.26        | 34.8           | Pass       |
| 13   | 5                  | 782                   | QPSK       | 1       | HIGH      | 24.33                  | 29.59               | 5.26        | 13            | 1                | 23.18        | 34.8           | Pass       |
| 13   | 5                  | 782                   | 16QAM      | 25      | LOW       | 22.2                   | 29.16               | 6.96        | 13            | 1                | 21.05        | 34.8           | Pass       |





| Band | Bandwidth<br>(MHz) | UL Frequency<br>(MHz) | Modulation | RB Size | RB Offset | Average Power<br>(dBm) | Peak Power<br>(dBm) | PAR<br>(dB) | Limit<br>(dB) | AntGain<br>(dBi) | ERP<br>(dBm) | Limit<br>(dBm) | Conclusion |
|------|--------------------|-----------------------|------------|---------|-----------|------------------------|---------------------|-------------|---------------|------------------|--------------|----------------|------------|
| 13   | 5                  | 782                   | 16QAM      | 12      | LOW       | 22.13                  | 29.26               | 7.13        | 13            | 1                | 20.98        | 34.8           | Pass       |
| 13   | 5                  | 782                   | 16QAM      | 12      | MID       | 22.13                  | 29.29               | 7.16        | 13            | 1                | 20.98        | 34.8           | Pass       |
| 13   | 5                  | 782                   | 16QAM      | 12      | HIGH      | 22.23                  | 29.26               | 7.03        | 13            | 1                | 21.08        | 34.8           | Pass       |
| 13   | 5                  | 782                   | 16QAM      | 1       | LOW       | 23.29                  | 29.1                | 5.81        | 13            | 1                | 22.14        | 34.8           | Pass       |
| 13   | 5                  | 782                   | 16QAM      | 1       | MID       | 23.38                  | 29.2                | 5.82        | 13            | 1                | 22.23        | 34.8           | Pass       |
| 13   | 5                  | 782                   | 16QAM      | 1       | HIGH      | 23.35                  | 29.15               | 5.80        | 13            | 1                | 22.20        | 34.8           | Pass       |
| 13   | 5                  | 784.5                 | QPSK       | 25      | LOW       | 23.24                  | 29.9                | 6.66        | 13            | 1                | 22.09        | 34.8           | Pass       |
| 13   | 5                  | 784.5                 | QPSK       | 12      | LOW       | 23.18                  | 30.02               | 6.84        | 13            | 1                | 22.03        | 34.8           | Pass       |
| 13   | 5                  | 784.5                 | QPSK       | 12      | MID       | 23.18                  | 29.96               | 6.78        | 13            | 1                | 22.03        | 34.8           | Pass       |
| 13   | 5                  | 784.5                 | QPSK       | 12      | HIGH      | 23.23                  | 30.1                | 6.87        | 13            | 1                | 22.08        | 34.8           | Pass       |
| 13   | 5                  | 784.5                 | QPSK       | 1       | LOW       | 24.26                  | 29.14               | 4.88        | 13            | 1                | 23.11        | 34.8           | Pass       |
| 13   | 5                  | 784.5                 | QPSK       | 1       | MID       | 24.44                  | 29.3                | 4.86        | 13            | 1                | 23.29        | 34.8           | Pass       |
| 13   | 5                  | 784.5                 | QPSK       | 1       | HIGH      | 24.34                  | 29.16               | 4.82        | 13            | 1                | 23.19        | 34.8           | Pass       |
| 13   | 5                  | 784.5                 | 16QAM      | 25      | LOW       | 22.23                  | 29.2                | 6.97        | 13            | 1                | 21.08        | 34.8           | Pass       |
| 13   | 5                  | 784.5                 | 16QAM      | 12      | LOW       | 22.26                  | 29.23               | 6.97        | 13            | 1                | 21.11        | 34.8           | Pass       |
| 13   | 5                  | 784.5                 | 16QAM      | 12      | MID       | 22.26                  | 29.4                | 7.14        | 13            | 1                | 21.11        | 34.8           | Pass       |
| 13   | 5                  | 784.5                 | 16QAM      | 12      | HIGH      | 22.31                  | 29.3                | 6.99        | 13            | 1                | 21.16        | 34.8           | Pass       |
| 13   | 5                  | 784.5                 | 16QAM      | 1       | LOW       | 23.43                  | 28.99               | 5.56        | 13            | 1                | 22.28        | 34.8           | Pass       |
| 13   | 5                  | 784.5                 | 16QAM      | 1       | MID       | 23.62                  | 29.15               | 5.53        | 13            | 1                | 22.47        | 34.8           | Pass       |
| 13   | 5                  | 784.5                 | 16QAM      | 1       | HIGH      | 23.51                  | 29.05               | 5.54        | 13            | 1                | 22.36        | 34.8           | Pass       |
| 13   | 10                 | 782                   | QPSK       | 50      | LOW       | 22.98                  | 29.22               | 6.24        | 13            | 1                | 21.83        | 34.8           | Pass       |
| 13   | 10                 | 782                   | QPSK       | 25      | LOW       | 22.9                   | 29.24               | 6.34        | 13            | 1                | 21.75        | 34.8           | Pass       |
| 13   | 10                 | 782                   | QPSK       | 25      | MID       | 22.96                  | 29.29               | 6.33        | 13            | 1                | 21.81        | 34.8           | Pass       |
| 13   | 10                 | 782                   | QPSK       | 25      | HIGH      | 23.01                  | 29.26               | 6.25        | 13            | 1                | 21.86        | 34.8           | Pass       |
| 13   | 10                 | 782                   | QPSK       | 1       | LOW       | 24.16                  | 29.41               | 5.25        | 13            | 1                | 23.01        | 34.8           | Pass       |
| 13   | 10                 | 782                   | QPSK       | 1       | MID       | 24.2                   | 29.55               | 5.35        | 13            | 1                | 23.05        | 34.8           | Pass       |
| 13   | 10                 | 782                   | QPSK       | 1       | HIGH      | 24.11                  | 29.45               | 5.34        | 13            | 1                | 22.96        | 34.8           | Pass       |
| 13   | 10                 | 782                   | 16QAM      | 25      | LOW       | 21.98                  | 29.78               | 7.80        | 13            | 1                | 20.83        | 34.8           | Pass       |
| 13   | 10                 | 782                   | 16QAM      | 25      | MID       | 21.98                  | 29.64               | 7.66        | 13            | 1                | 20.83        | 34.8           | Pass       |
| 13   | 10                 | 782                   | 16QAM      | 25      | HIGH      | 22.05                  | 29.94               | 7.89        | 13            | 1                | 20.90        | 34.8           | Pass       |
| 13   | 10                 | 782                   | 16QAM      | 1       | LOW       | 23.38                  | 28.91               | 5.53        | 13            | 1                | 22.23        | 34.8           | Pass       |
| 13   | 10                 | 782                   | 16QAM      | 1       | MID       | 23.4                   | 28.96               | 5.56        | 13            | 1                | 22.25        | 34.8           | Pass       |
| 13   | 10                 | 782                   | 16QAM      | 1       | HIGH      | 23.33                  | 28.89               | 5.56        | 13            | 1                | 22.18        | 34.8           | Pass       |





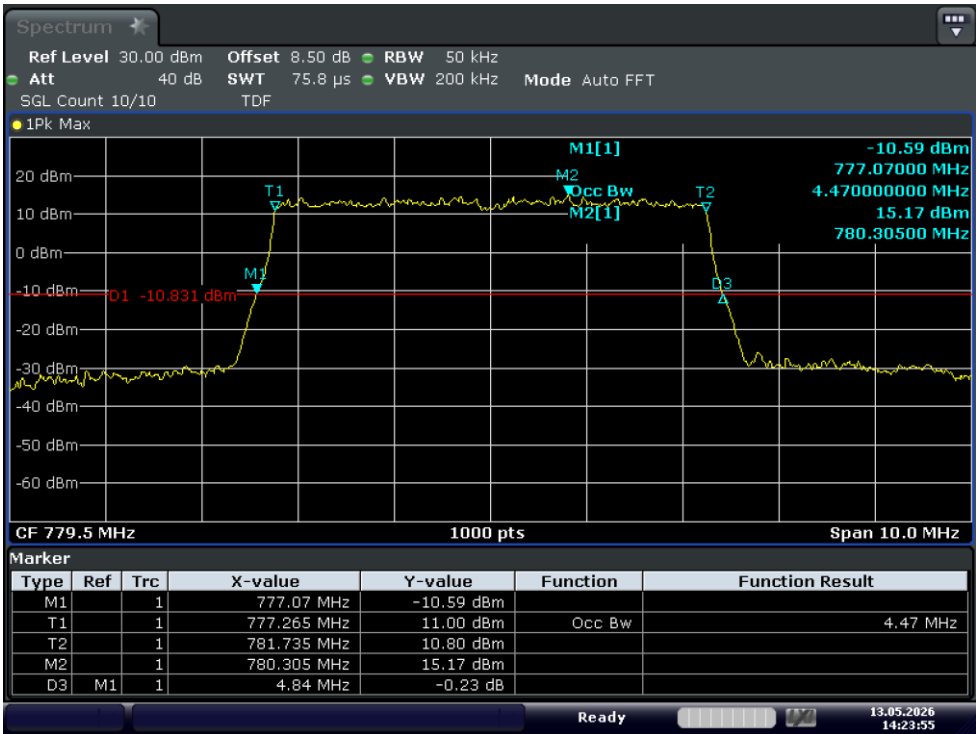
## Appendix B: Occupied bandwidth

### Test Result

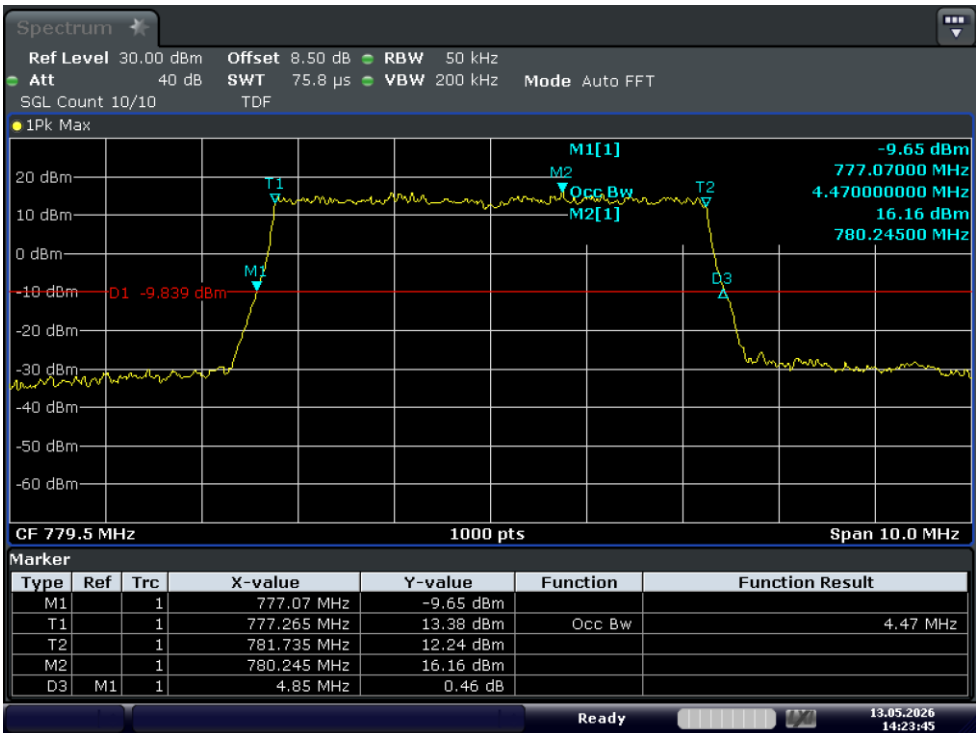
| Band | Bandwidth<br>(MHz) | UL Frequency<br>(MHz) | Modulation | RB Size | RB Offset | Occupied Bandwidth<br>(MHz) | Emission Bandwidth<br>(MHz) | Limit    |
|------|--------------------|-----------------------|------------|---------|-----------|-----------------------------|-----------------------------|----------|
| 13   | 5                  | 779.5                 | QPSK       | 25      | LOW       | 4.47                        | 4.85                        | No limit |
| 13   | 5                  | 779.5                 | 16QAM      | 25      | LOW       | 4.47                        | 4.84                        | No limit |
| 13   | 5                  | 782                   | QPSK       | 25      | LOW       | 4.48                        | 4.87                        | No limit |
| 13   | 5                  | 782                   | 16QAM      | 25      | LOW       | 4.47                        | 4.83                        | No limit |
| 13   | 5                  | 784.5                 | QPSK       | 25      | LOW       | 4.47                        | 4.83                        | No limit |
| 13   | 5                  | 784.5                 | 16QAM      | 25      | LOW       | 4.47                        | 4.88                        | No limit |
| 13   | 10                 | 782                   | QPSK       | 50      | LOW       | 8.96                        | 9.6                         | No limit |



Test Graphs

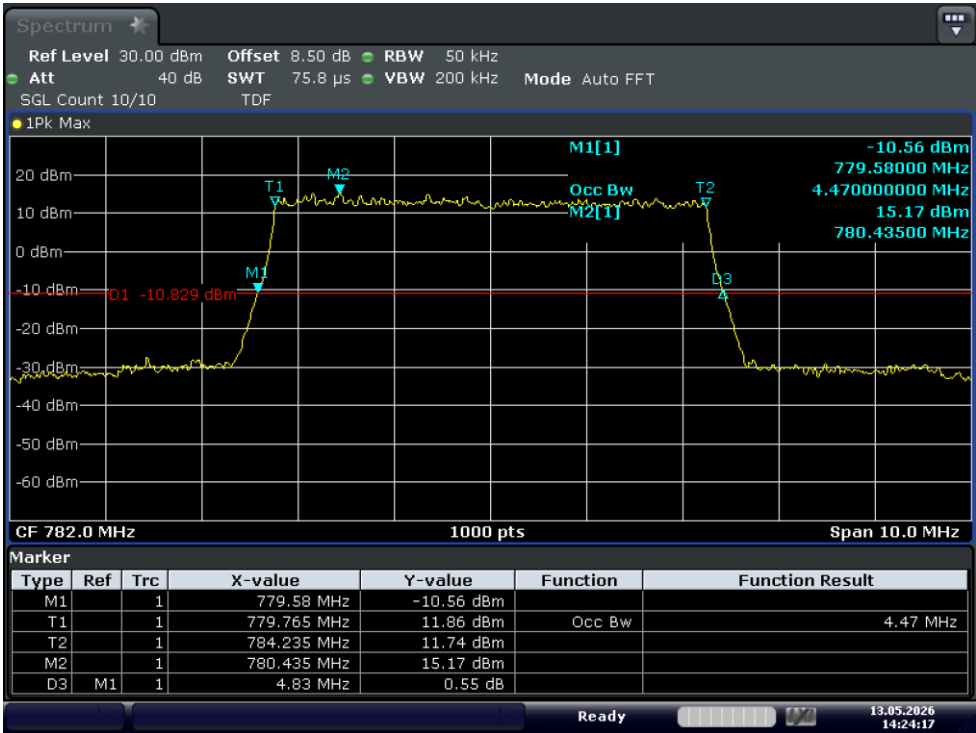


Test\_Graph\_band13\_779.5MHz\_5M\_16QAM\_25RB#LOW\_OBW&EBW

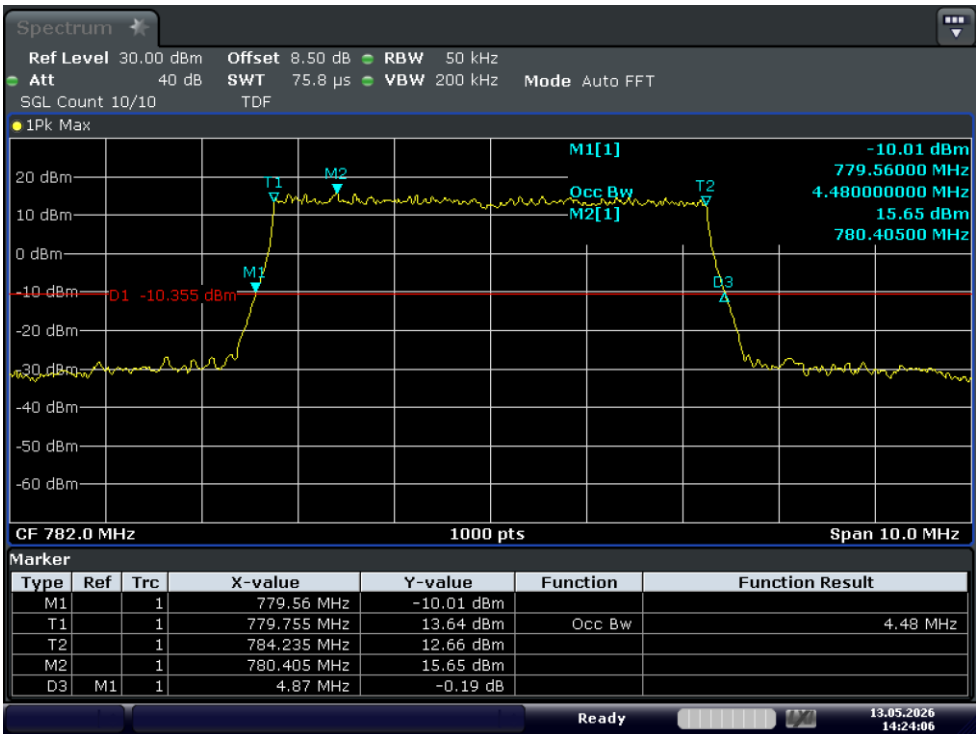


Test\_Graph\_band13\_779.5MHz\_5M\_QPSK\_25RB#LOW\_OBW&EBW



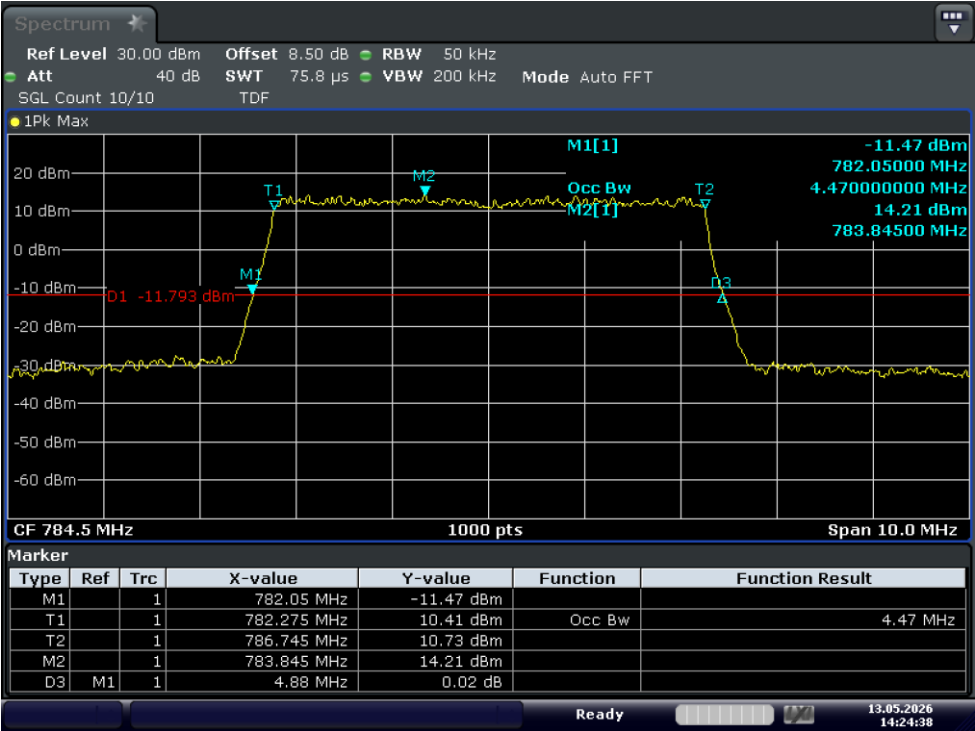


Test\_Graph\_band13\_782MHz\_5M\_16QAM\_25RB#LOW\_OBW&EBW

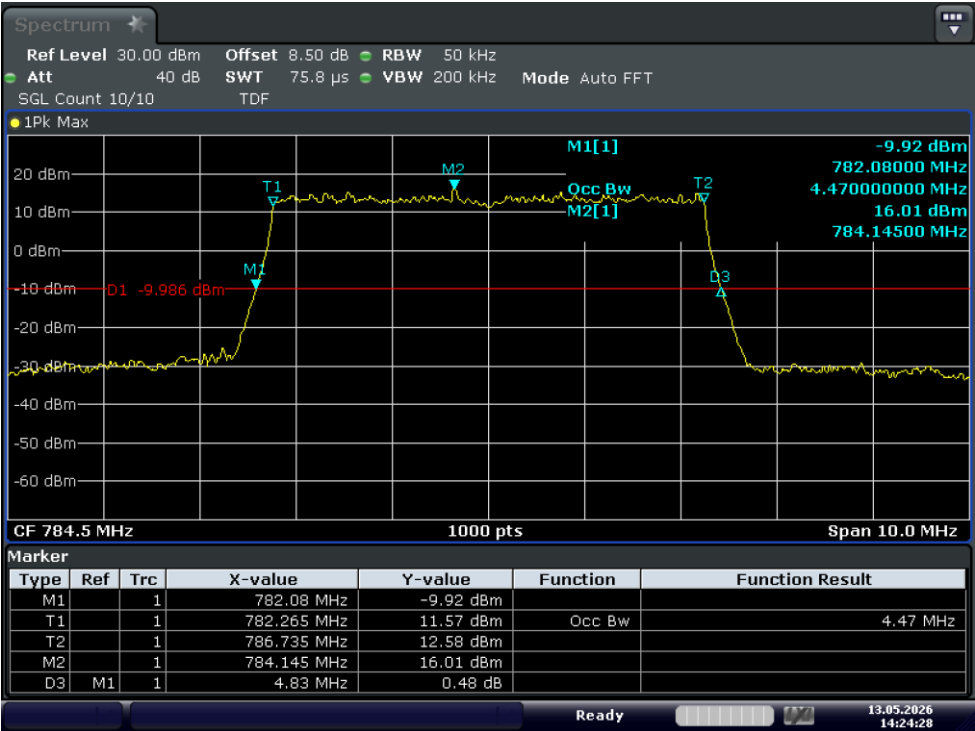


Test\_Graph\_band13\_782MHz\_5M\_QPSK\_25RB#LOW\_OBW&EBW



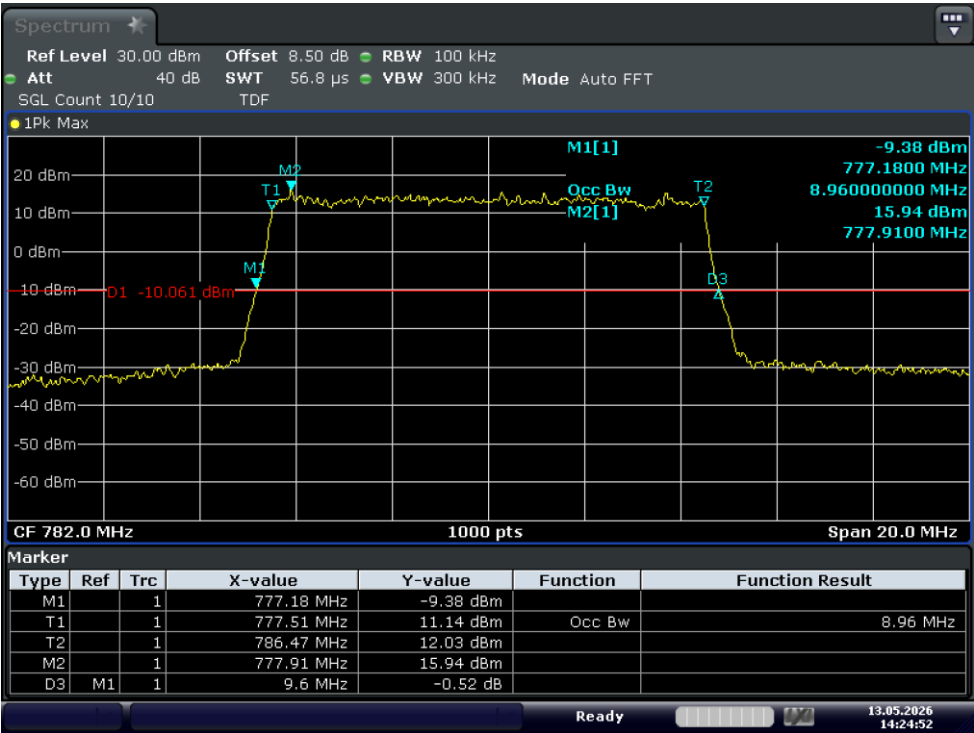


Test\_Graph\_band13\_784.5MHz\_5M\_16QAM\_25RB#LOW\_OBW&EBW



Test\_Graph\_band13\_784.5MHz\_5M\_QPSK\_25RB#LOW\_OBW&EBW





Test\_Graph\_band13\_782MHz\_10M\_QPSK\_50RB#LOW\_OBW&EBW





## Appendix C: Band edge emissions

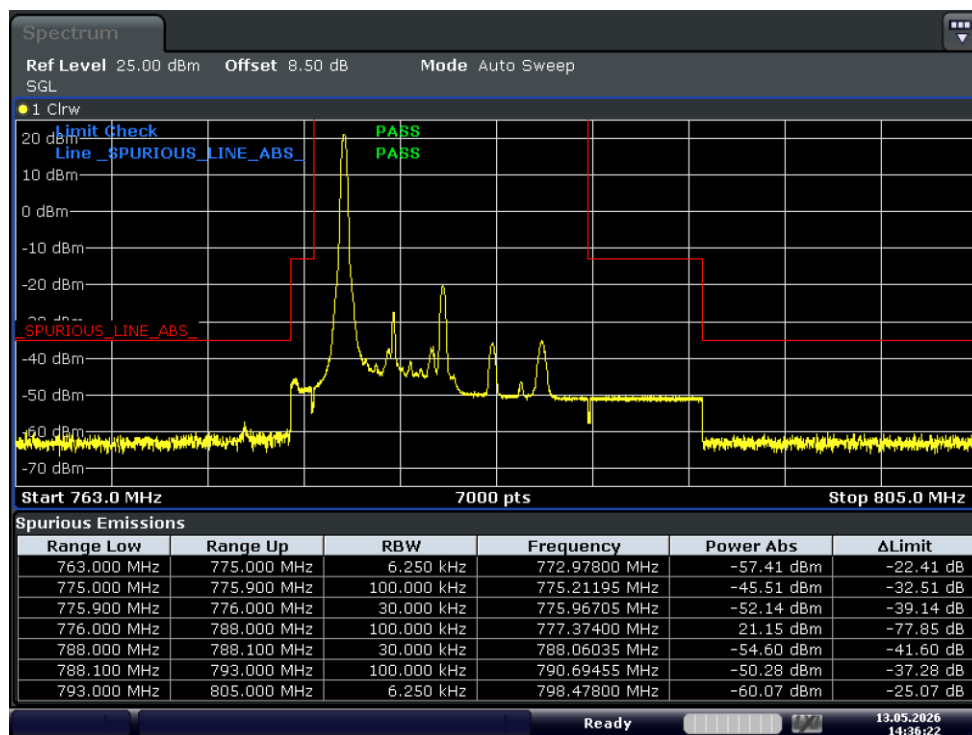
### Test Result

| Band | Bandwidth (MHz) | UL Frequency (MHz) | Modulation | RB Size | RB Offset | Conclusion |
|------|-----------------|--------------------|------------|---------|-----------|------------|
| 13   | 5               | 779.5              | QPSK       | 1       | LOW       | Pass       |
| 13   | 5               | 779.5              | QPSK       | 25      | LOW       | Pass       |
| 13   | 5               | 779.5              | 16QAM      | 1       | LOW       | Pass       |
| 13   | 5               | 779.5              | 16QAM      | 25      | LOW       | Pass       |
| 13   | 5               | 784.5              | QPSK       | 1       | HIGH      | Pass       |
| 13   | 5               | 784.5              | QPSK       | 25      | LOW       | Pass       |
| 13   | 5               | 784.5              | 16QAM      | 1       | HIGH      | Pass       |
| 13   | 5               | 784.5              | 16QAM      | 25      | LOW       | Pass       |
| 13   | 10              | 782                | QPSK       | 1       | LOW       | Pass       |
| 13   | 10              | 782                | QPSK       | 50      | LOW       | Pass       |
| 13   | 10              | 782                | 16QAM      | 1       | LOW       | Pass       |

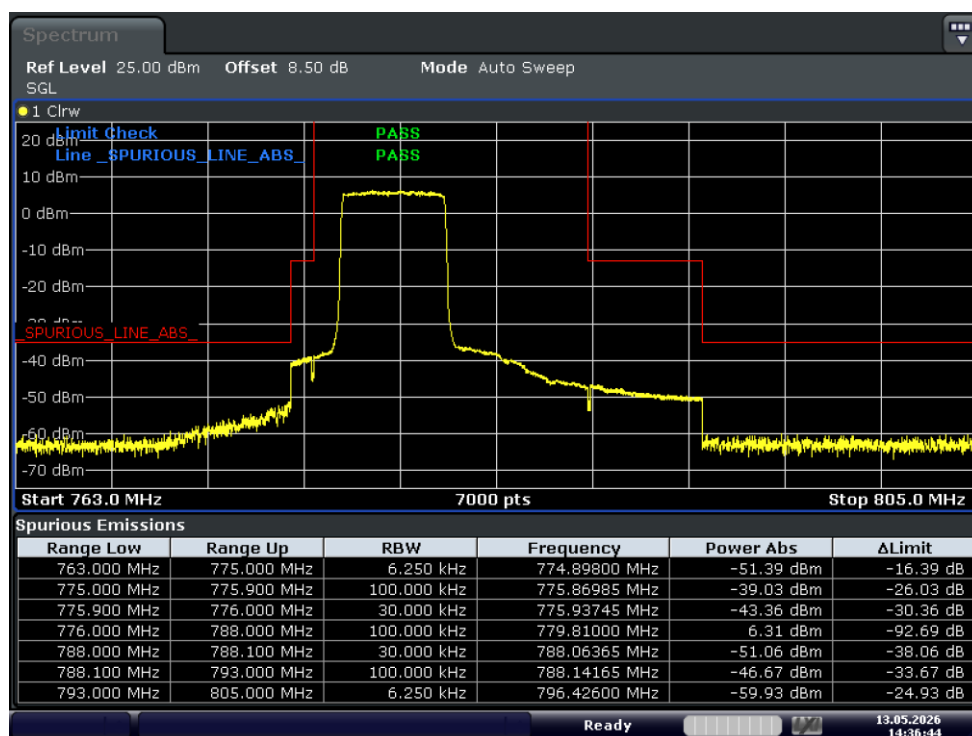




## Test Graphs

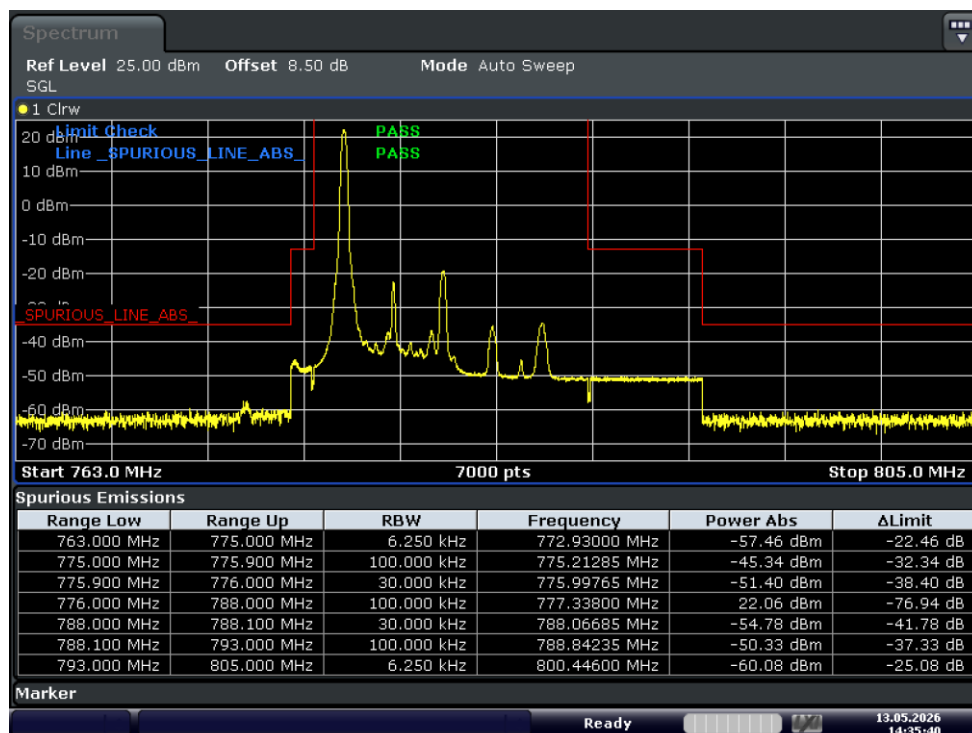


Test\_Graph\_band13\_779.5MHz\_5M\_16QAM\_1RB#LOW\_Band edge

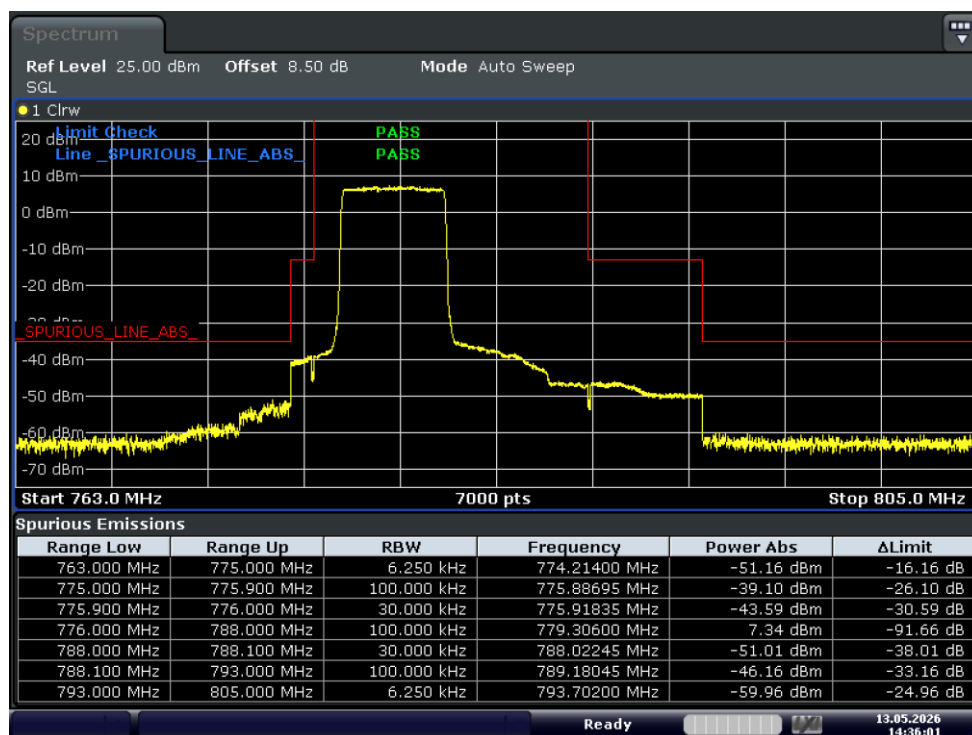


Test\_Graph\_band13\_779.5MHz\_5M\_16QAM\_25RB#LOW\_Band edge



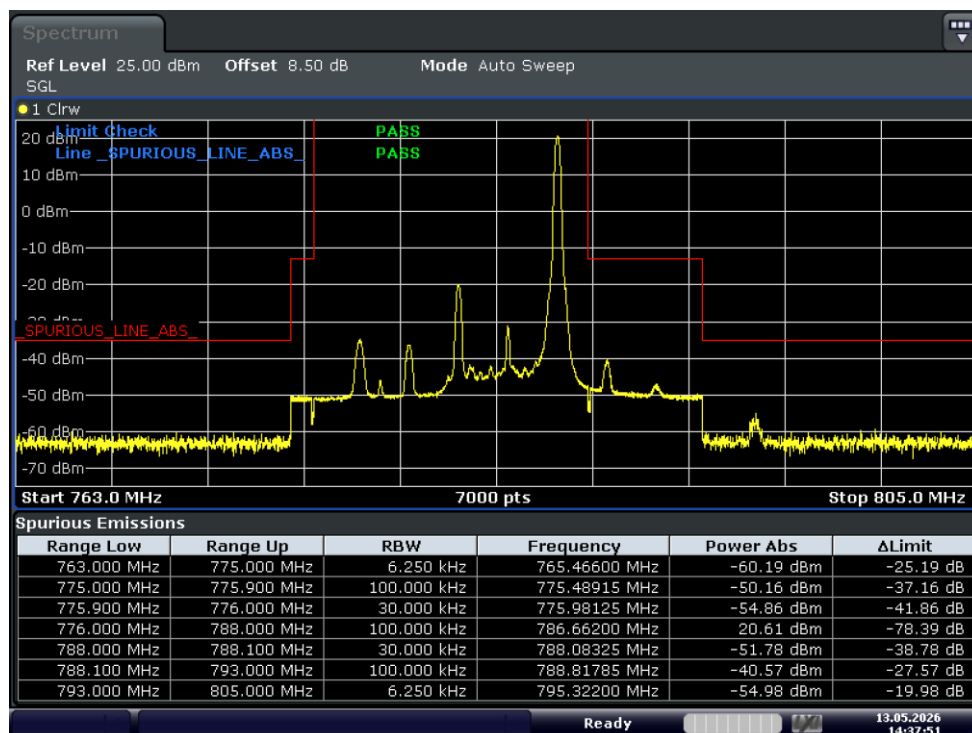


Test\_Graph\_band13\_779.5MHz\_5M\_QPSK\_1RB#LOW\_Band edge

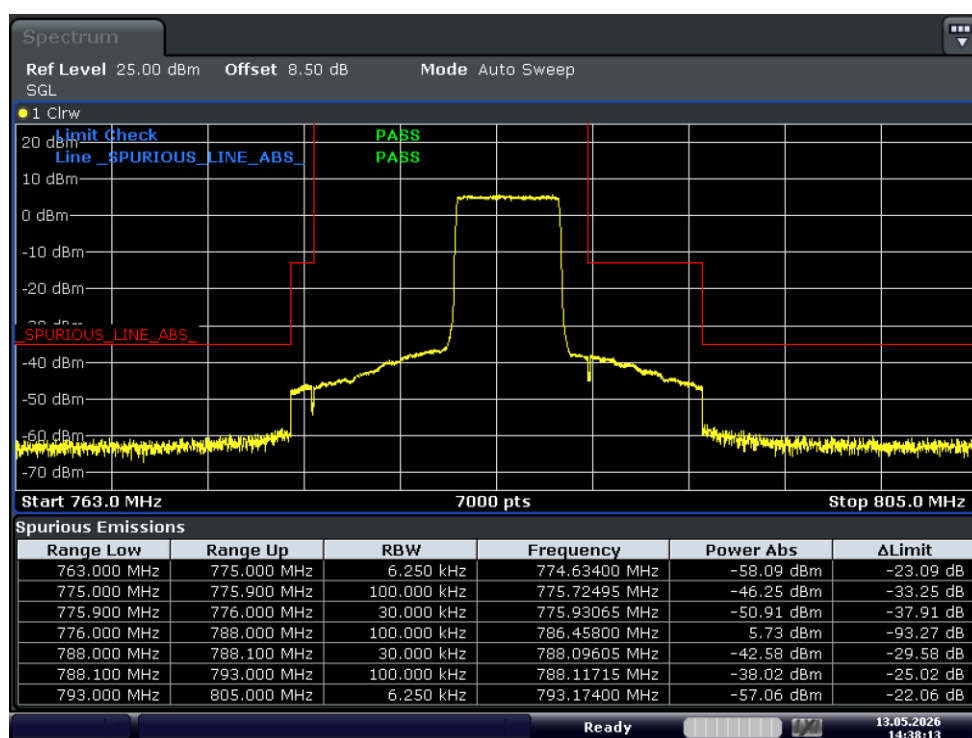


Test\_Graph\_band13\_779.5MHz\_5M\_QPSK\_25RB#LOW\_Band edge



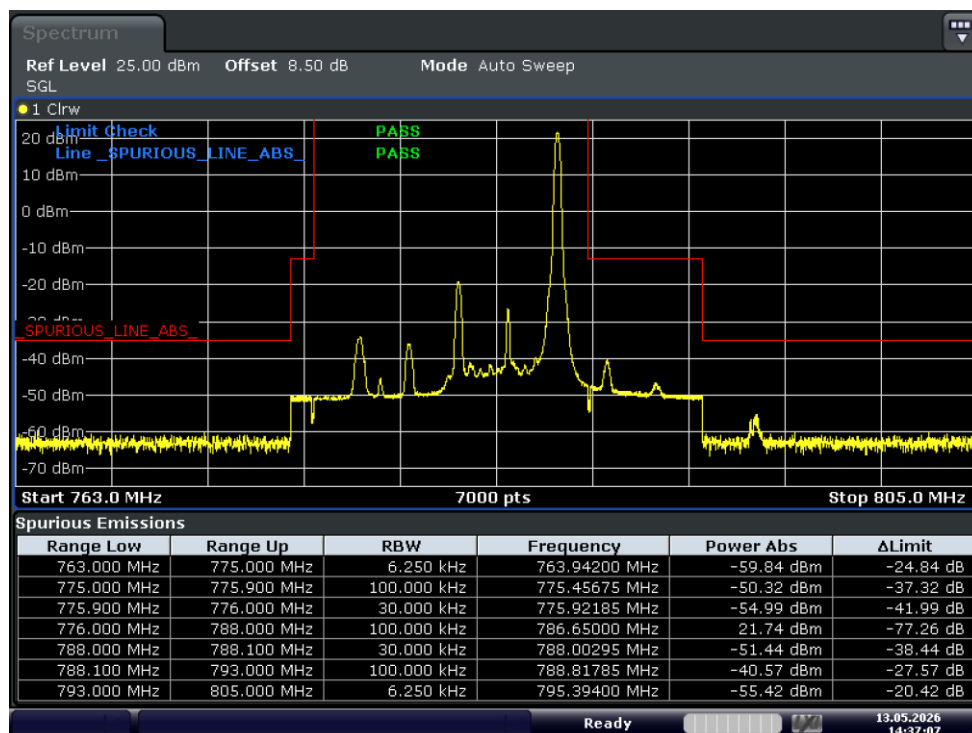


Test\_Graph\_band13\_784.5MHz\_5M\_16QAM\_1RB#HIGH\_Band edge

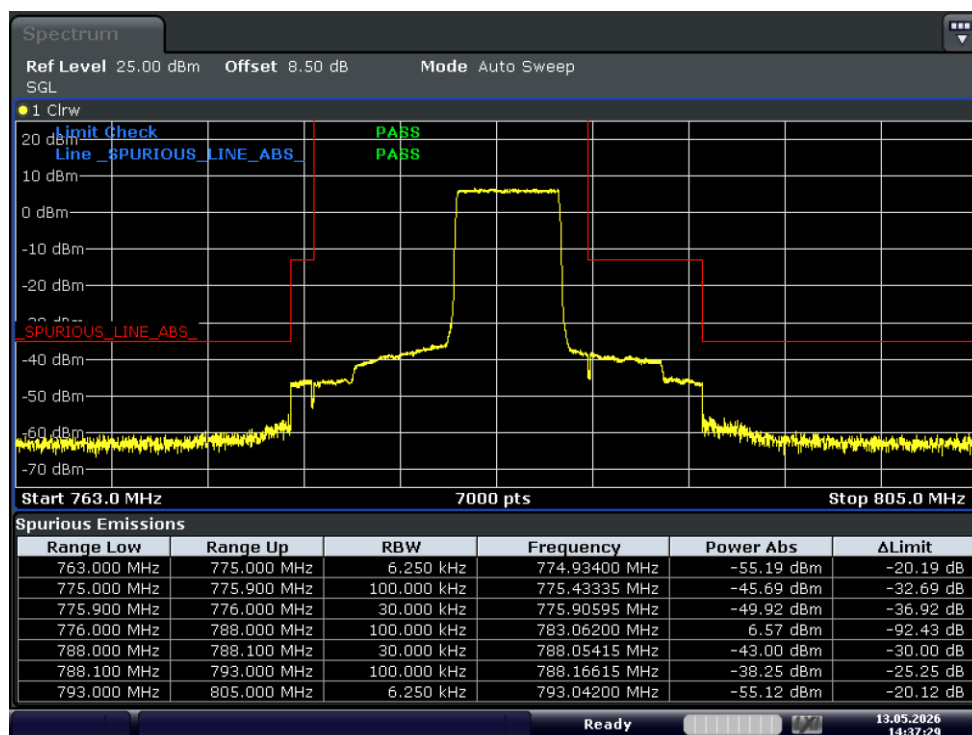


Test\_Graph\_band13\_784.5MHz\_5M\_16QAM\_25RB#LOW\_Band edge



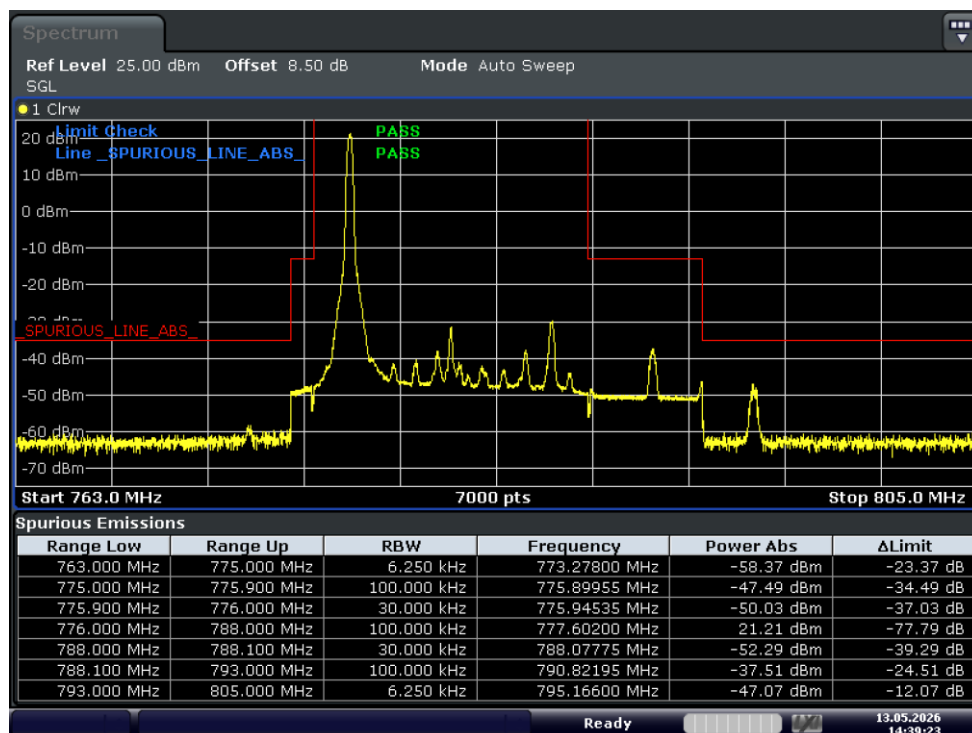


Test\_Graph\_band13\_784.5MHz\_5M\_QPSK\_1RB#HIGH\_Band edge

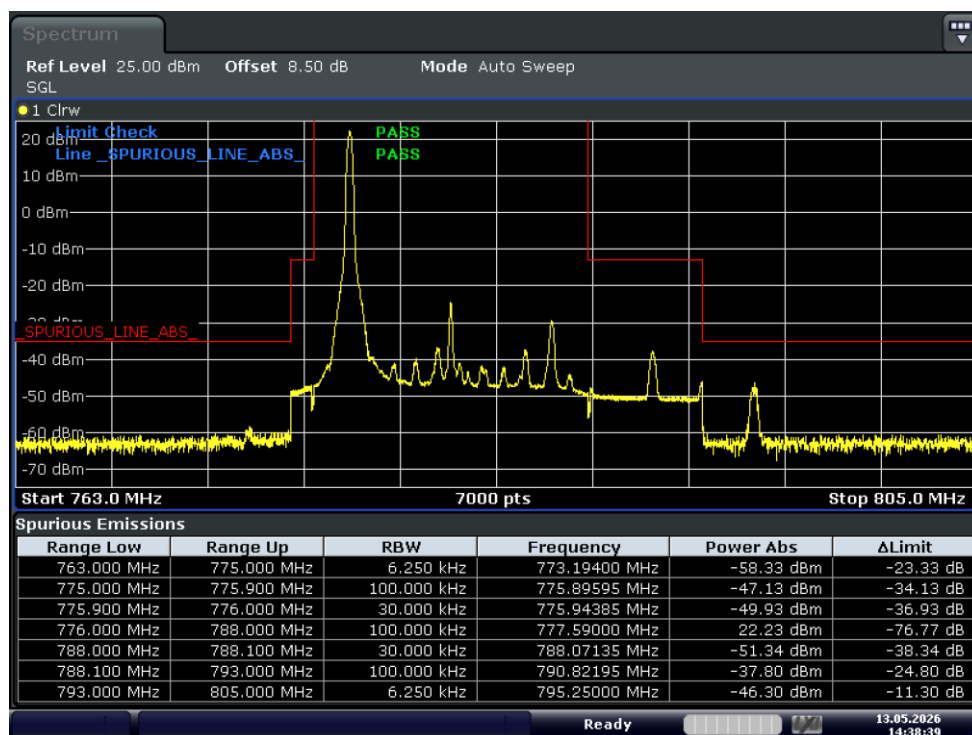


Test\_Graph\_band13\_784.5MHz\_5M\_QPSK\_25RB#LOW\_Band edge



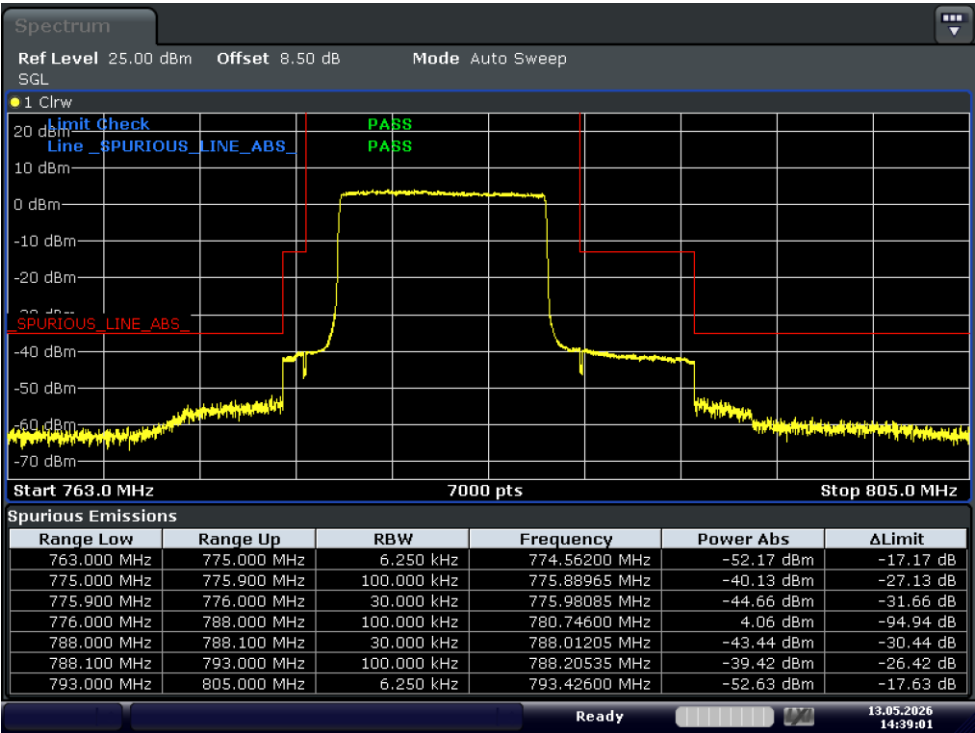


Test\_Graph\_band13\_782MHz\_10M\_16QAM\_1RB#LOW\_Band edge



Test\_Graph\_band13\_782MHz\_10M\_QPSK\_1RB#LOW\_Band edge





Test\_Graph\_band13\_782MHz\_10M\_QPSK\_50RB#LOW\_Band edge



## Appendix D: Unwanted spurious emissions at antenna terminals

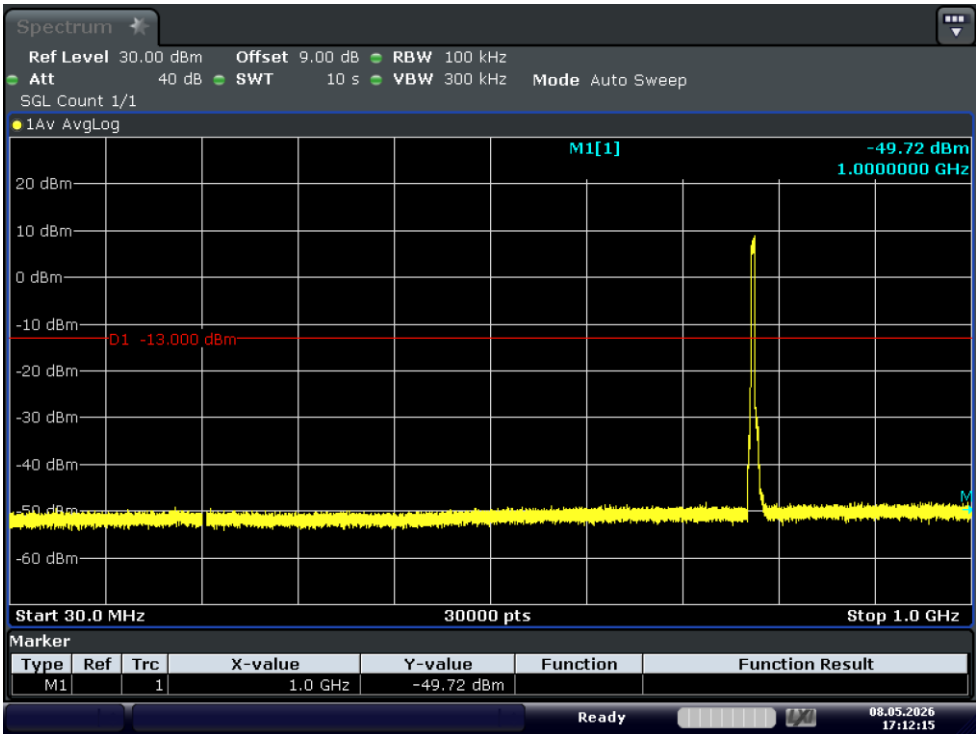
### Test Result

| Band | Bandwidth (MHz) | UL Frequency (MHz) | Modulation | RB Size | RB Offset | Conclusion |
|------|-----------------|--------------------|------------|---------|-----------|------------|
| 13   | 5               | 779.5              | QPSK       | 25      | LOW       | Pass       |
| 13   | 5               | 782                | QPSK       | 25      | LOW       | Pass       |
| 13   | 5               | 784.5              | QPSK       | 25      | LOW       | Pass       |
| 13   | 10              | 782                | QPSK       | 50      | LOW       | Pass       |

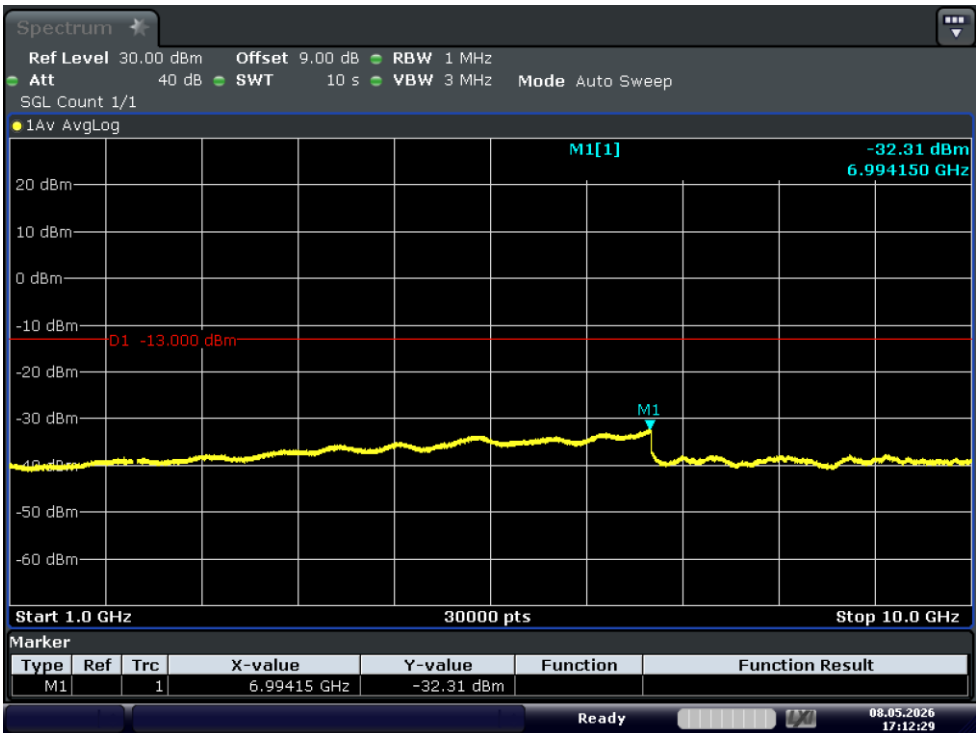
Note: Both QPSK and 16QAM modulation modes were tested. Since the QPSK mode produced the worst-case results, only the corresponding QPSK test results are included in this report.



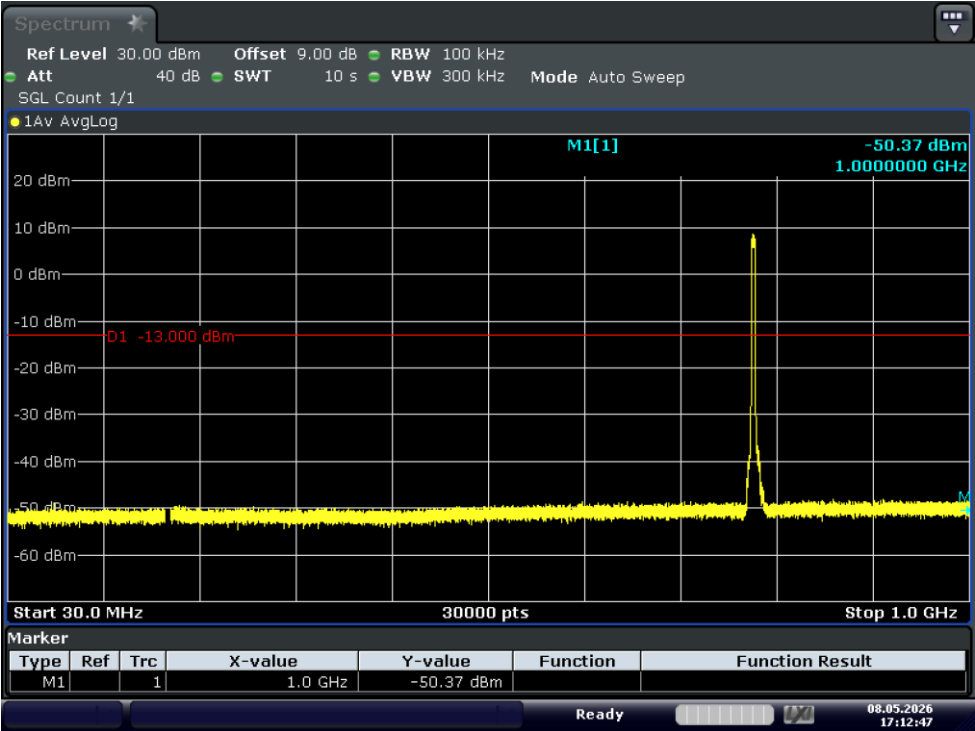
Test Graphs



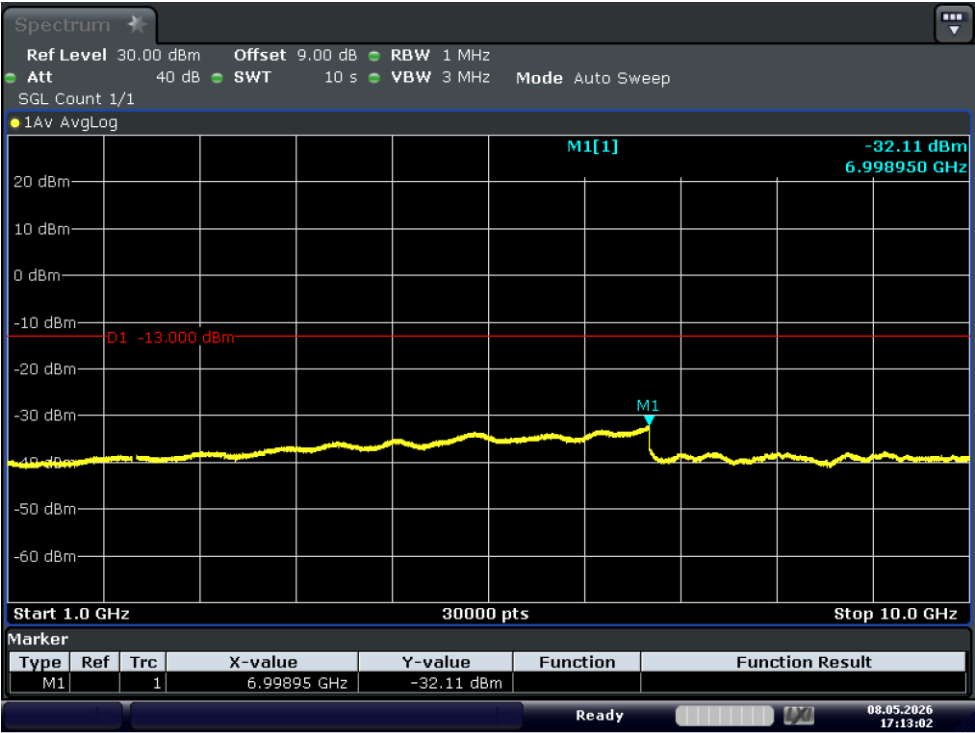
Test\_Graph\_band13\_779.5MHz\_5M\_QPSK\_25RB#LOW\_30M\_1G\_TX



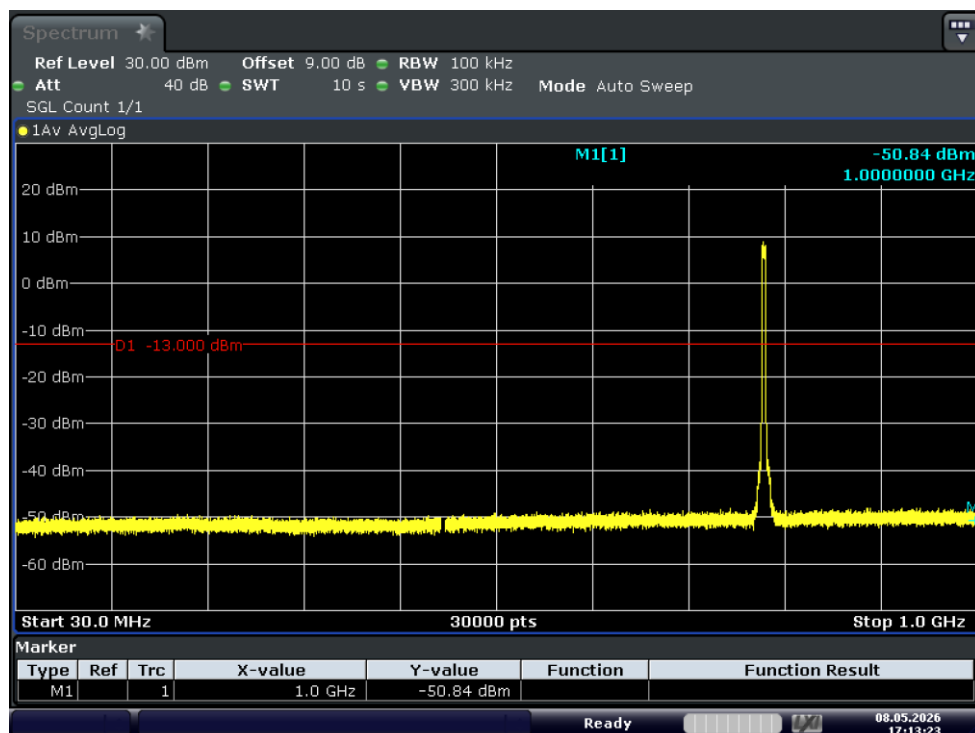
Test\_Graph\_band13\_779.5MHz\_5M\_QPSK\_25RB#LOW\_1G\_10G\_TX



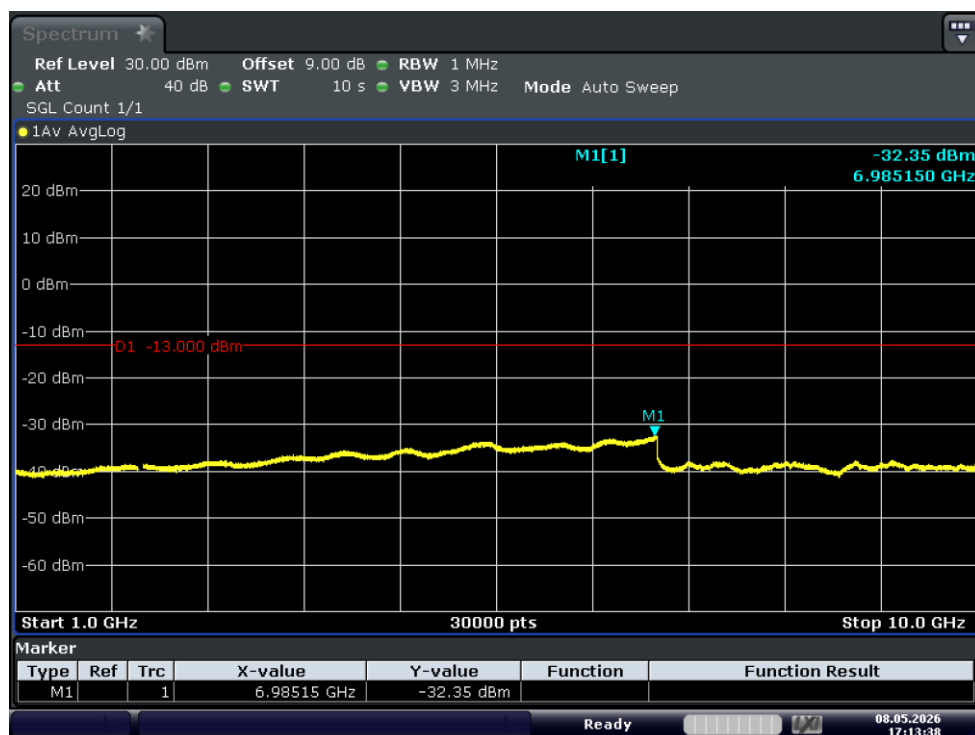
Test\_Graph\_band13\_782MHz\_5M\_QPSK\_25RB#LOW\_30M\_1G\_TX



Test\_Graph\_band13\_782MHz\_5M\_QPSK\_25RB#LOW\_1G\_10G\_TX

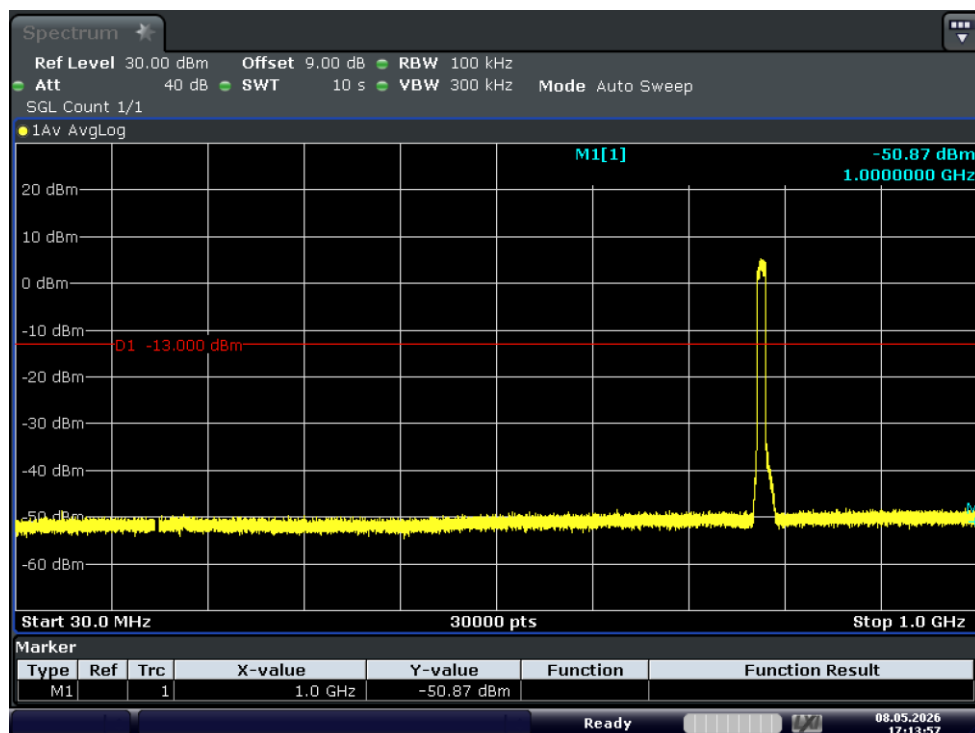


Test\_Graph\_band13\_784.5MHz\_5M\_QPSK\_25RB#LOW\_30M\_1G\_TX

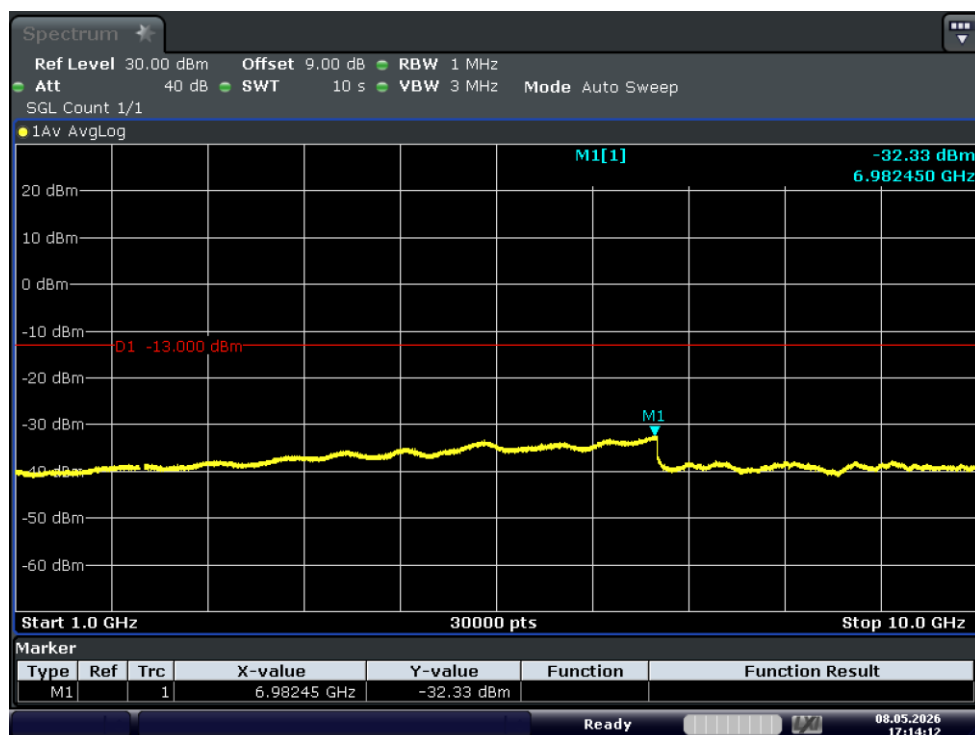


Test\_Graph\_band13\_784.5MHz\_5M\_QPSK\_25RB#LOW\_1G\_10G\_TX





Test\_Graph\_band13\_782MHz\_10M\_QPSK\_50RB#LOW\_30M\_1G\_TX



Test\_Graph\_band13\_782MHz\_10M\_QPSK\_50RB#LOW\_1G\_10G\_TX



## Appendix E: Frequency stability

### Test Result

| Test Conditions<br>(LTE Band 13(QPSK) /BW 10MHz) |                   | Frequency Range                            |                                             | Frequency Error | Verdict |
|--------------------------------------------------|-------------------|--------------------------------------------|---------------------------------------------|-----------------|---------|
| Temperature<br>(°C)                              | Voltage (Volt)    | >777<br>Freq Reading<br>@ Low End<br>(MHz) | <787<br>Freq Reading<br>@ High End<br>(MHz) | Middle Channel  |         |
|                                                  |                   |                                            |                                             | ≤2.5ppm         |         |
| 50                                               | Normal Voltage    | 777.5413                                   | 786.4660                                    | 0.0066          | PASS    |
| 40                                               | Normal Voltage    | 777.5415                                   | 786.4660                                    | 0.0066          |         |
| 30                                               | Normal Voltage    | 777.5414                                   | 786.4661                                    | 0.0066          |         |
| 20(Ref.)                                         | Normal Voltage    | 777.5414                                   | 786.4660                                    | 0.0062          |         |
| 10                                               | Normal Voltage    | 777.5415                                   | 786.4660                                    | 0.0066          |         |
| 0                                                | Normal Voltage    | 777.5414                                   | 786.4660                                    | 0.0070          |         |
| -10                                              | Normal Voltage    | 777.5414                                   | 786.4661                                    | 0.0063          |         |
| -20                                              | Normal Voltage    | 777.5414                                   | 786.4660                                    | 0.0061          |         |
| -30                                              | Normal Voltage    | 777.5414                                   | 786.4661                                    | 0.0063          |         |
| 20                                               | +15%              | 777.5414                                   | 786.4660                                    | 0.0060          |         |
| 20                                               | -15%              | 777.5414                                   | 786.4660                                    | 0.0068          |         |
| 20                                               | Battery End Point | 777.5414                                   | 786.4660                                    | 0.0065          |         |

