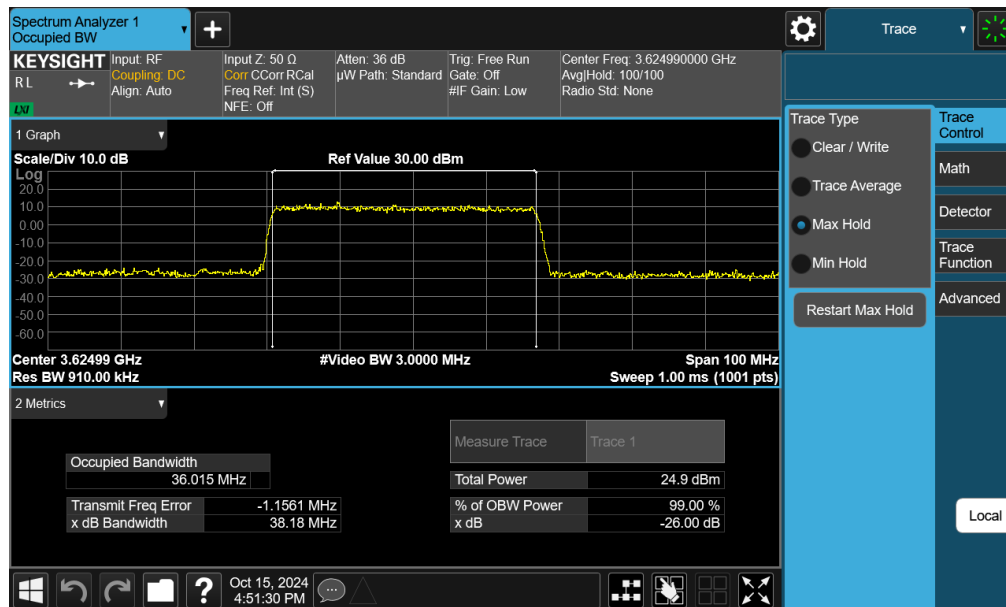
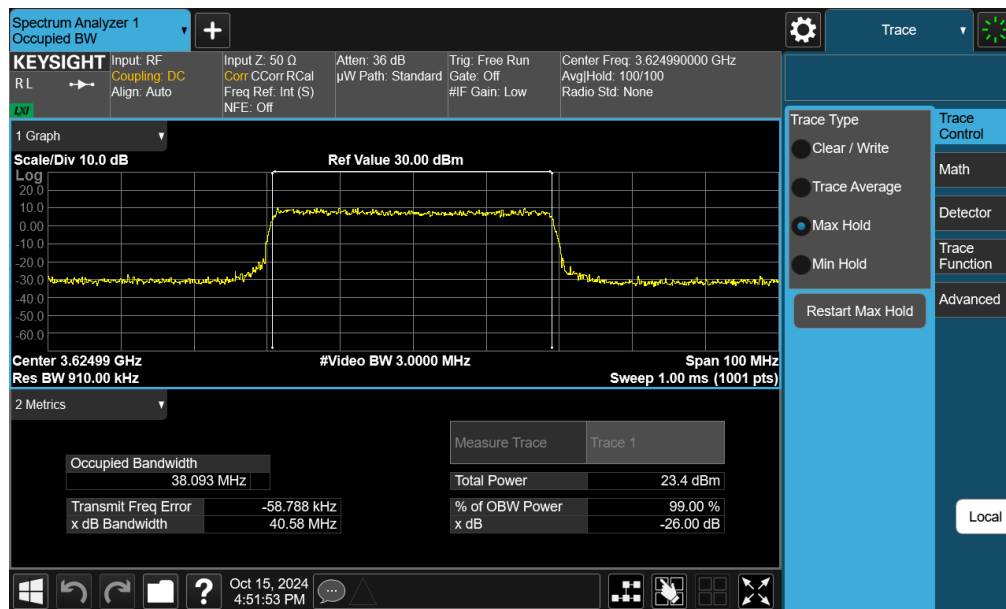


## NR Band n48 – Ant D

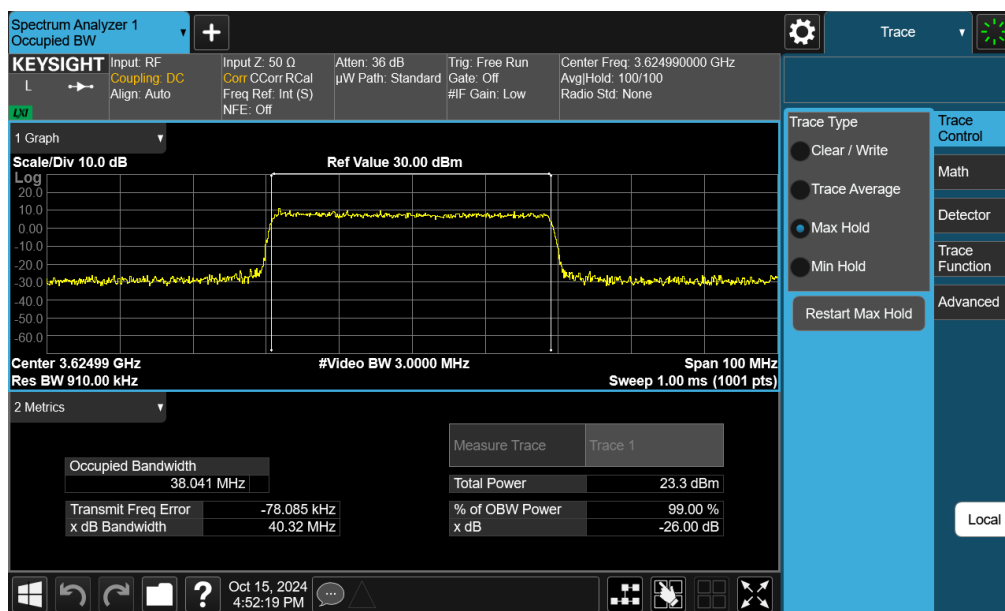


Plot 7-38. Occupied Bandwidth Plot (NR Band n48 - 40MHz  $\pi/2$  BPSK - Full RB Configuration - Ant D)



Plot 7-39. Occupied Bandwidth Plot (NR Band n48 - 40MHz QPSK - Full RB Configuration - Ant D)

|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 41 of 118                    |



Plot 7-40. Occupied Bandwidth Plot (NR Band n48 - 40MHz 16-QAM - Full RB Configuration - Ant D)

|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 42 of 118                    |

## 7.4 Spurious and Harmonic Emissions at Antenna Terminal

### Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10<sup>th</sup> harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

***The conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40 dBm/MHz.***

### Test Procedure Used

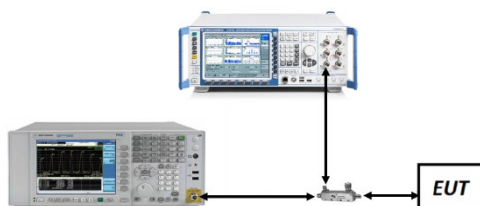
ANSI C63.26-2015 – Section 5.7.4

### Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to at least 10 \* the fundamental frequency (separated into at least two plots per channel)
2. Detector = RMS
3. Trace mode = Max Hold
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. Please see test notes below for RBW and VBW settings

### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



**Figure 7-3. Test Instrument & Measurement Setup**

### Test Notes

1. Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz.
2. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

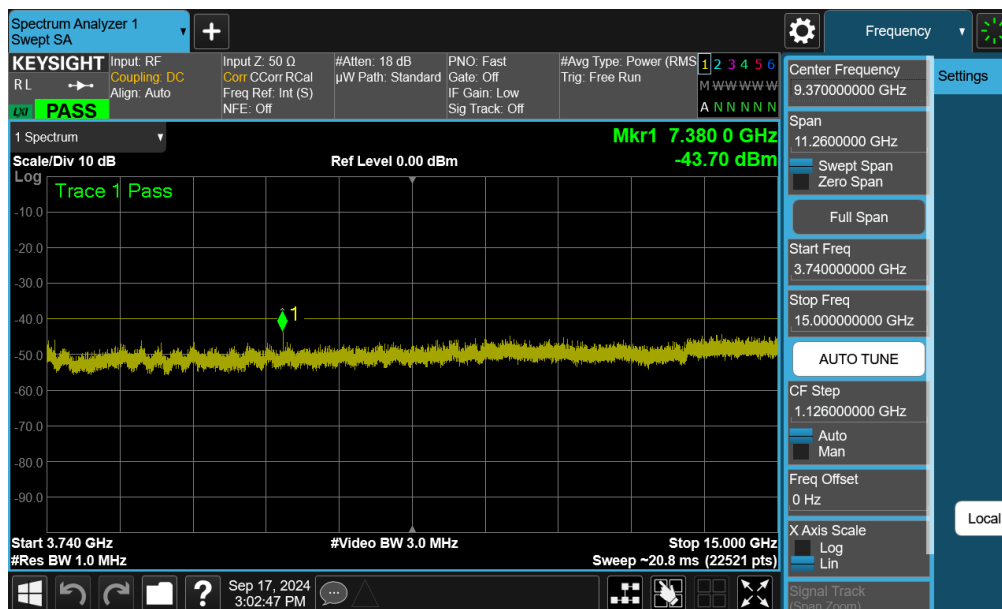
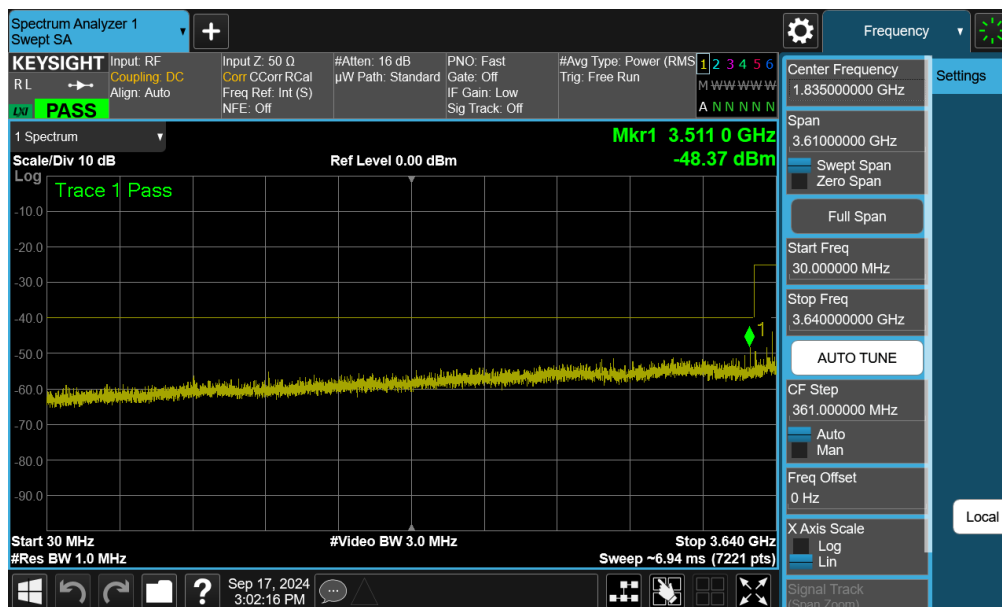
|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 43 of 118                    |

| Mode    | Bandwidth | Channel | Range [MHz]       | Level [dBm] | Limit [dBm] | Margin [dB] |
|---------|-----------|---------|-------------------|-------------|-------------|-------------|
| LTE-B48 | 20MHz     | Low     | 30.0 - 3510.0     | -43.71      | -40.0       | -3.71       |
|         |           | Low     | 3610.0 - 15000.0  | -46.09      | -40.0       | -6.09       |
|         |           | Low     | 15000.0 - 27000.0 | -45.51      | -40.0       | -5.51       |
|         |           | Low     | 27000.0 - 40000.0 | -44.72      | -40.0       | -4.72       |
|         |           | Mid     | 30.0 - 35750.0    | -45.69      | -40.0       | -5.69       |
|         |           | Mid     | 3675.0 - 15000.0  | -44.08      | -40.0       | -4.08       |
|         |           | Mid     | 15000.0 - 27000.0 | -45.68      | -40.0       | -5.68       |
|         |           | Mid     | 27000.0 - 40000.0 | -45.1       | -40.0       | -5.10       |
|         |           | High    | 30.0 - 3640.0     | -48.37      | -40.0       | -8.37       |
|         |           | High    | 3740.0 - 15000.0  | -43.7       | -40.0       | -3.70       |
|         |           | High    | 15000.0 - 27000.0 | -45.89      | -40.0       | -5.89       |
|         |           | High    | 27000.0 - 40000.0 | -44.87      | -40.0       | -4.87       |

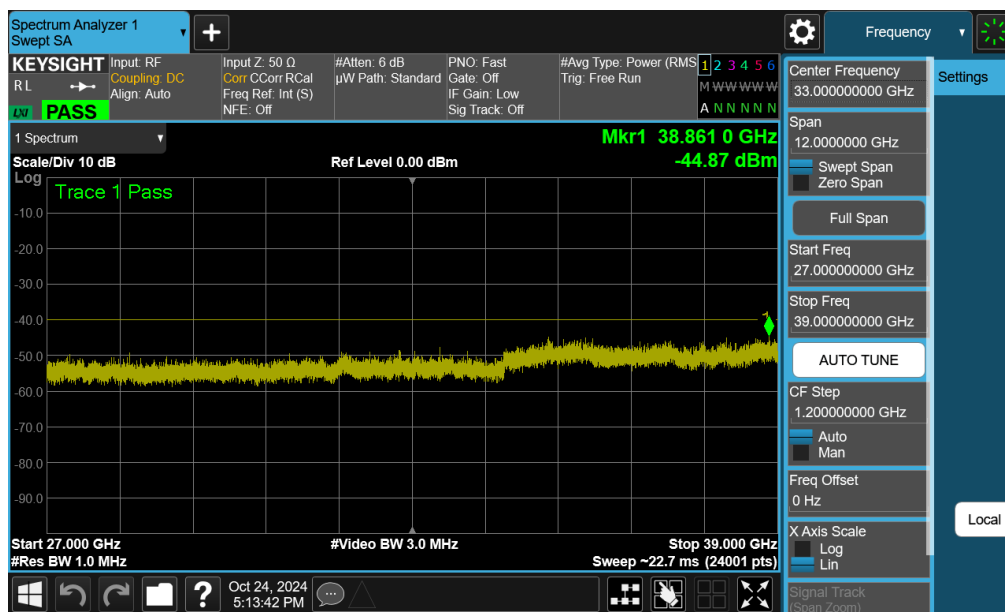
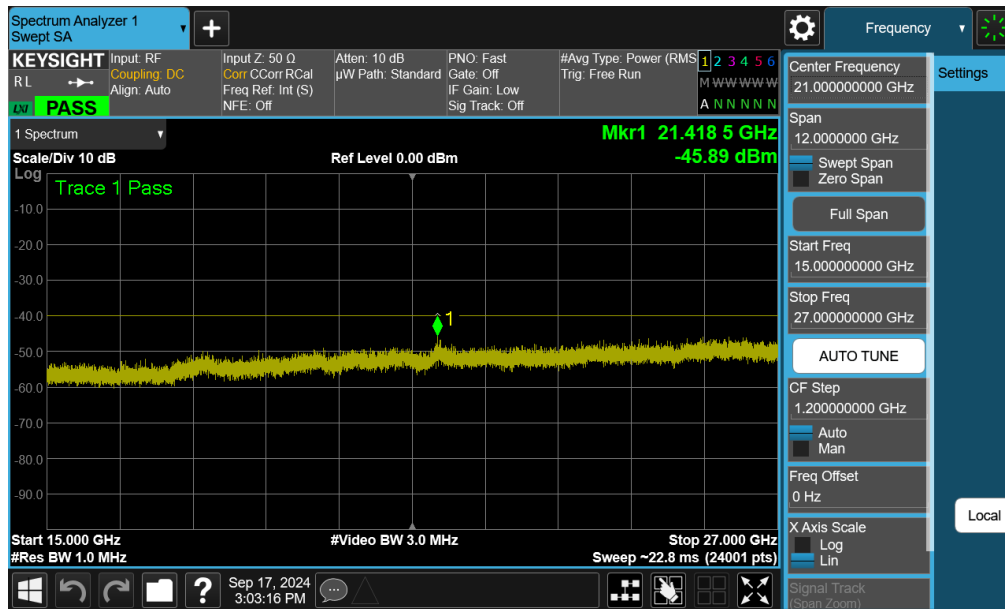
**Table 7-14. Conducted Emission Test Results – LTE Band 48 – Ant F**

|                                                |                                               |                                      |                                          |
|------------------------------------------------|-----------------------------------------------|--------------------------------------|------------------------------------------|
| <b>FCC ID:</b> A3LSMS936U                      | <b>PART 96 MEASUREMENT REPORT</b>             |                                      | <b>Approved by:</b><br>Technical Manager |
| <b>Test Report S/N:</b><br>1M2408260064-07.A3L | <b>Test Dates:</b><br>09/03/2024 - 10/25/2024 | <b>EUT Type:</b><br>Portable Handset | Page 44 of 118                           |

## LTE Band 48 – Ant F



|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 45 of 118                    |



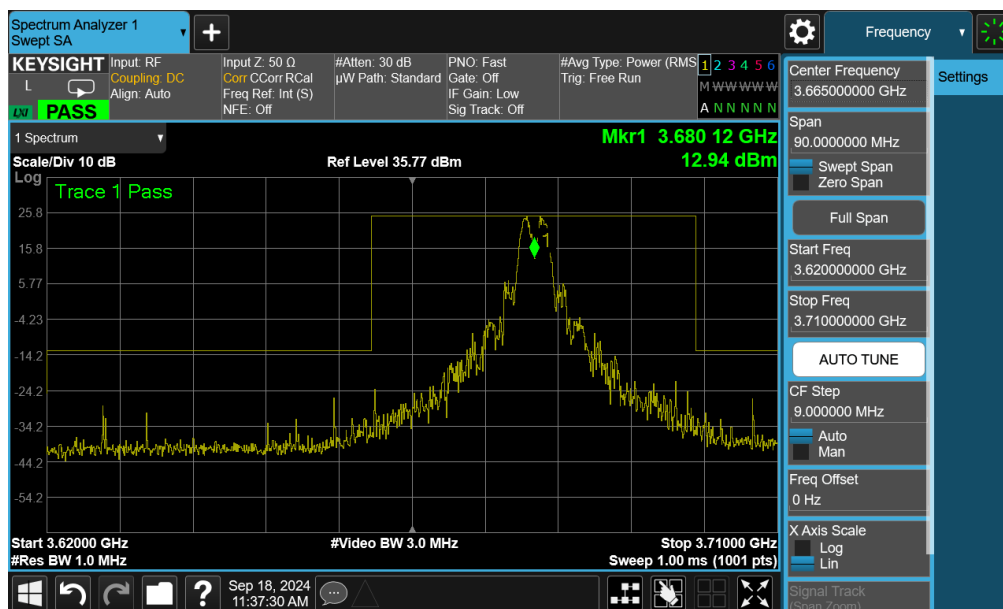
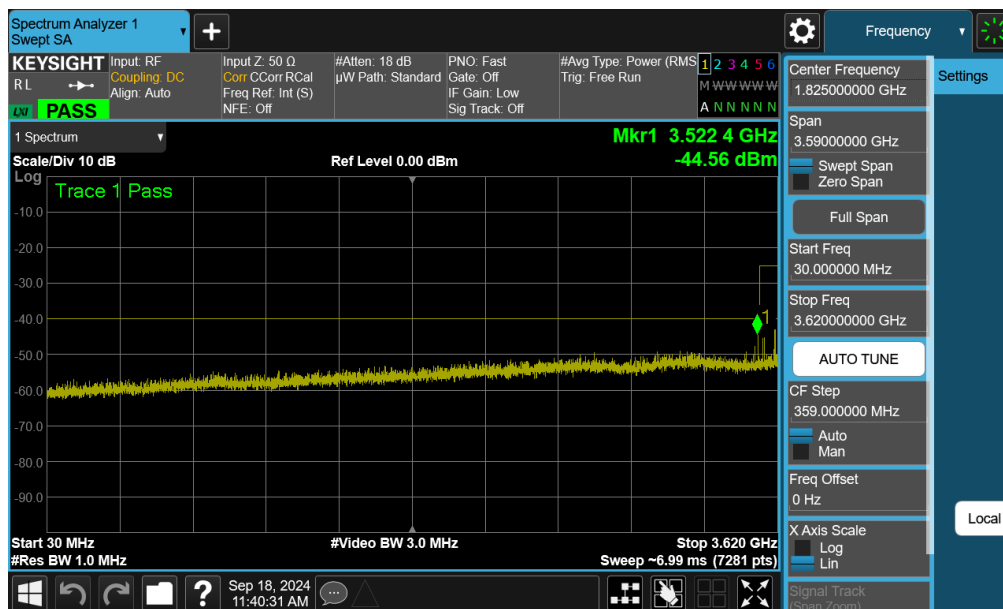
|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 46 of 118                    |

| Mode                | Bandwidth | Channel | Range [MHz]       | Level [dBm] | Limit [dBm] | Margin [dB] |
|---------------------|-----------|---------|-------------------|-------------|-------------|-------------|
| LTE Band 48<br>ULCA | 20+20MHz  | Low     | 30.0 - 3510.0     | -44.62      | -40.0       | -4.62       |
|                     |           | Low     | 3540.0 - 3630.0   | 12.54       | -           | -           |
|                     |           | Low     | 3610.0 - 15000.0  | -44.62      | -40.0       | -4.62       |
|                     |           | Low     | 15000.0 - 27000.0 | -45.2       | -40.0       | -5.20       |
|                     |           | Low     | 27000.0 - 40000.0 | -44.25      | -40.0       | -4.25       |
|                     |           | Mid     | 30.0 - 3575.0     | -46.07      | -40.0       | -6.07       |
|                     |           | Mid     | 3575.0 - 3720.0   | 14.31       | -           | -           |
|                     |           | Mid     | 3675.0 - 15000.0  | -44.67      | -40.0       | -4.67       |
|                     |           | Mid     | 15000.0 - 27000.0 | -45.77      | -40.0       | -5.76       |
|                     |           | Mid     | 27000.0 - 40000.0 | -45.36      | -40.0       | -5.36       |
|                     |           | High    | 30.0 - 3640.0     | -44.56      | -40.0       | -4.56       |
|                     |           | High    | 3620.0 - 3710.0   | 12.94       | -           | -           |
|                     |           | High    | 3740.0 - 15000.0  | -44.04      | -40.0       | -4.04       |
|                     |           | High    | 15000.0 - 27000.0 | -44.96      | -40.0       | -4.96       |
|                     |           | High    | 27000.0 - 40000.0 | -45.06      | -40.0       | -5.06       |

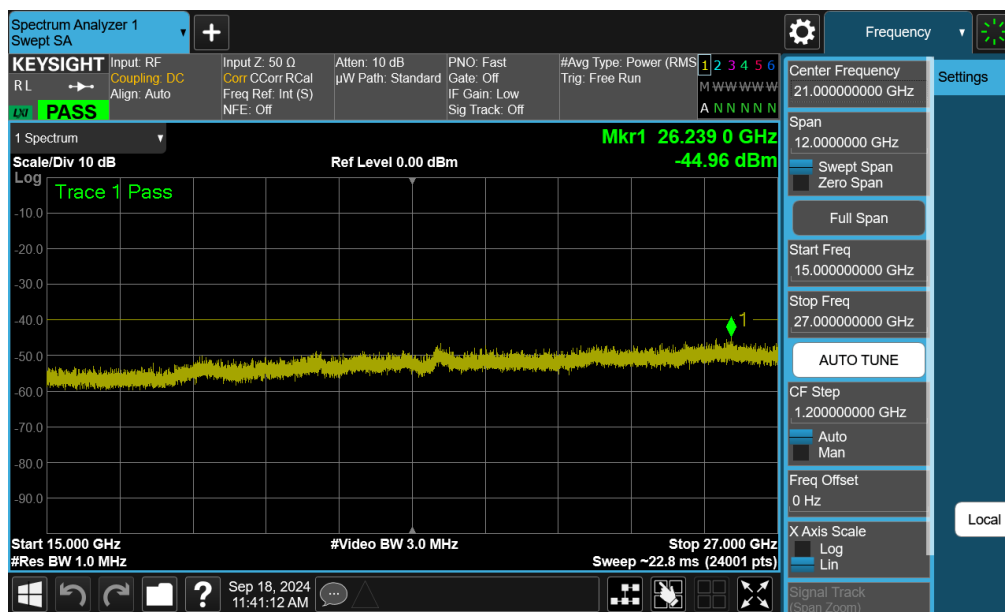
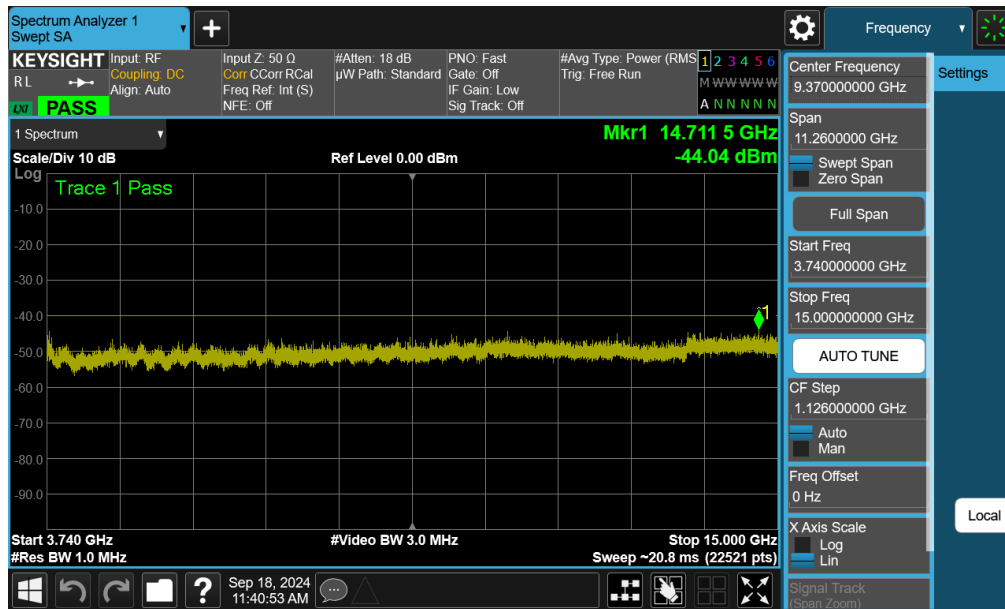
**Table 7-15. Conducted Emission Test Results – ULCA LTE Band 48 – Ant F**

|                                                |                                               |                                      |                                          |
|------------------------------------------------|-----------------------------------------------|--------------------------------------|------------------------------------------|
| <b>FCC ID:</b> A3LSMS936U                      | <b>PART 96 MEASUREMENT REPORT</b>             |                                      | <b>Approved by:</b><br>Technical Manager |
| <b>Test Report S/N:</b><br>1M2408260064-07.A3L | <b>Test Dates:</b><br>09/03/2024 - 10/25/2024 | <b>EUT Type:</b><br>Portable Handset | Page 47 of 118                           |

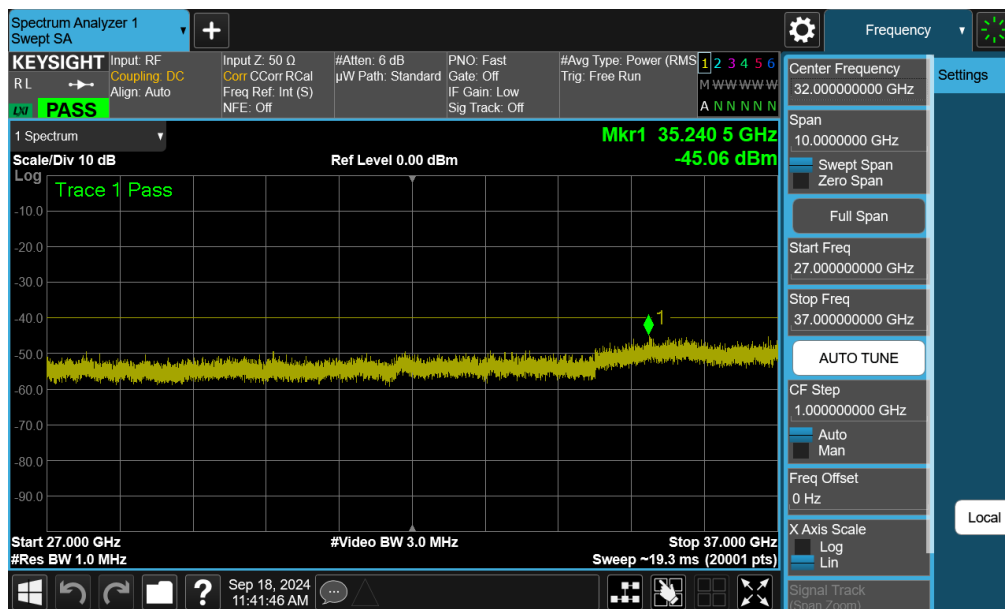
## ULCA LB48 – Ant F



|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 48 of 118                    |



|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 49 of 118                    |



Plot 7-49. Conducted Spurious Plot (ULCA LB48 - 20+20MHz QPSK - High Channel - Ant F)

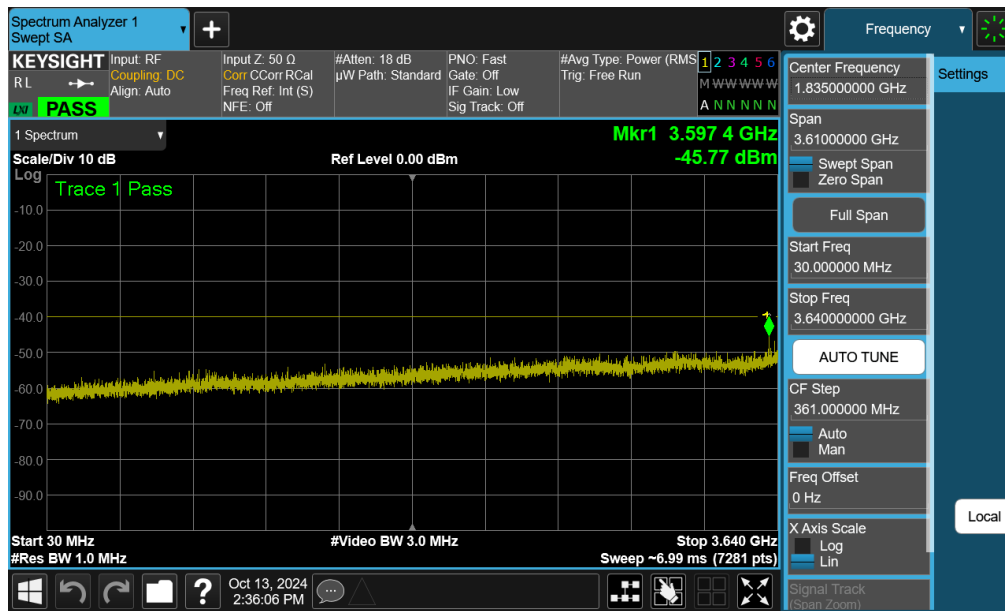
|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 50 of 118                    |

| Mode   | Bandwidth | Channel | Range [MHz]       | Level [dBm] | Limit [dBm] | Margin [dB] |
|--------|-----------|---------|-------------------|-------------|-------------|-------------|
| NR-n48 | 40MHz     | Low     | 30.0 - 3510.0     | -45.99      | -40.0       | -5.99       |
|        |           | Low     | 3610.0 - 15000.0  | -44.48      | -40.0       | -4.48       |
|        |           | Low     | 15000.0 - 27000.0 | -46.11      | -40.0       | -6.11       |
|        |           | Low     | 27000.0 - 40000.0 | -44.55      | -40.0       | -4.55       |
|        |           | Mid     | 30.0 - 35750.0    | -45.7       | -40.0       | -5.70       |
|        |           | Mid     | 3675.0 - 15000.0  | -44.37      | -40.0       | -4.37       |
|        |           | Mid     | 15000.0 - 27000.0 | -44.89      | -40.0       | -4.89       |
|        |           | Mid     | 27000.0 - 40000.0 | -43.97      | -40.0       | -3.96       |
|        |           | High    | 30.0 - 3640.0     | -45.77      | -40.0       | -5.77       |
|        |           | High    | 3740.0 - 15000.0  | -43.83      | -40.0       | -3.83       |
|        |           | High    | 15000.0 - 27000.0 | -45.82      | -40.0       | -5.82       |
|        |           | High    | 27000.0 - 40000.0 | -44.41      | -40.0       | -4.41       |

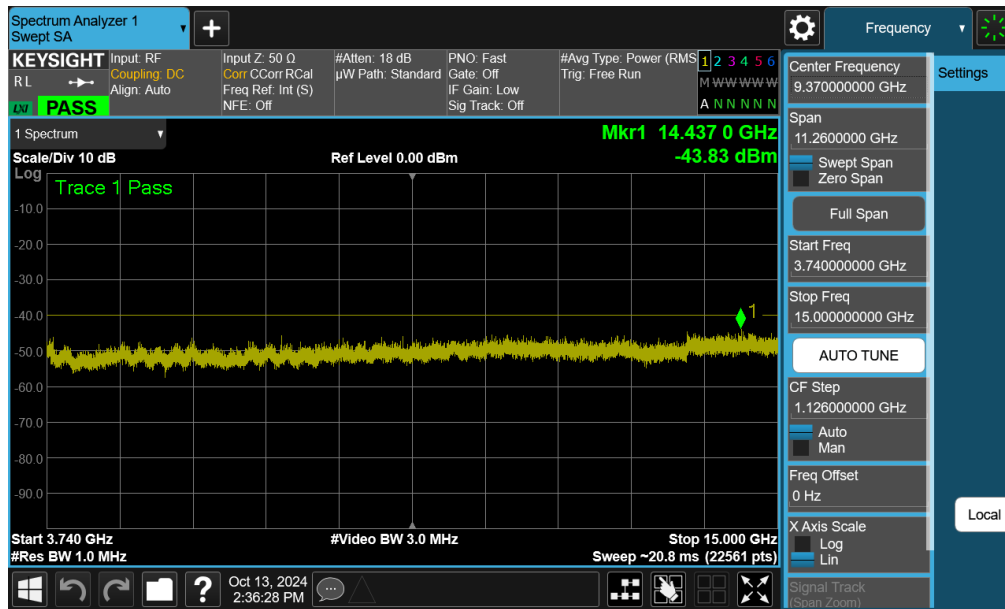
**Table 7-16. Conducted Emission Test Results – NR Band n48 – Ant F**

|                                                |                                               |                                      |                                          |
|------------------------------------------------|-----------------------------------------------|--------------------------------------|------------------------------------------|
| <b>FCC ID:</b> A3LSMS936U                      | <b>PART 96 MEASUREMENT REPORT</b>             |                                      | <b>Approved by:</b><br>Technical Manager |
| <b>Test Report S/N:</b><br>1M2408260064-07.A3L | <b>Test Dates:</b><br>09/03/2024 - 10/25/2024 | <b>EUT Type:</b><br>Portable Handset | Page 51 of 118                           |

## NR Band n48 – Ant F

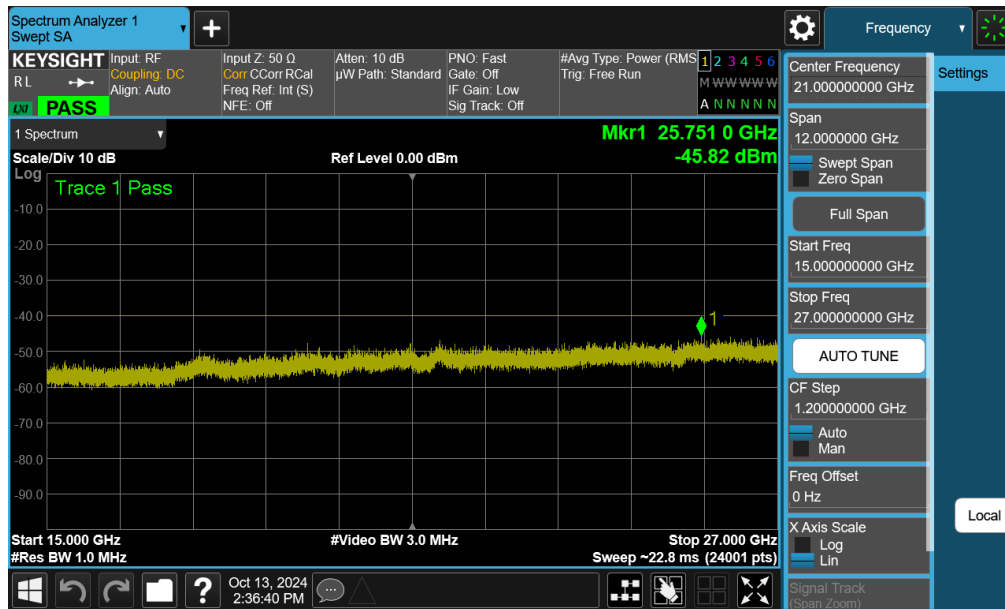


Plot 7-50. Conducted Spurious Plot (NR Band n48 - 40MHz QPSK - High Channel - Ant F)

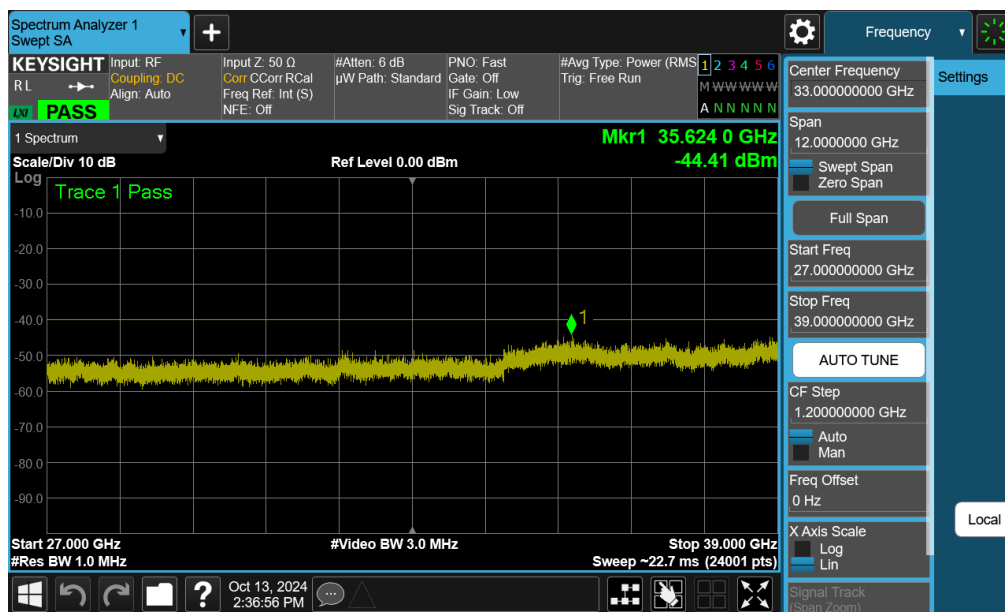


Plot 7-51. Conducted Spurious Plot (NR Band n48 - 40MHz QPSK - High Channel - Ant F)

|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 52 of 118                    |



Plot 7-52. Conducted Spurious Plot (NR Band n48 - 40MHz QPSK - High Channel - Ant F)



Plot 7-53. Conducted Spurious Plot (NR Band n48 - 40MHz QPSK - High Channel - Ant F)

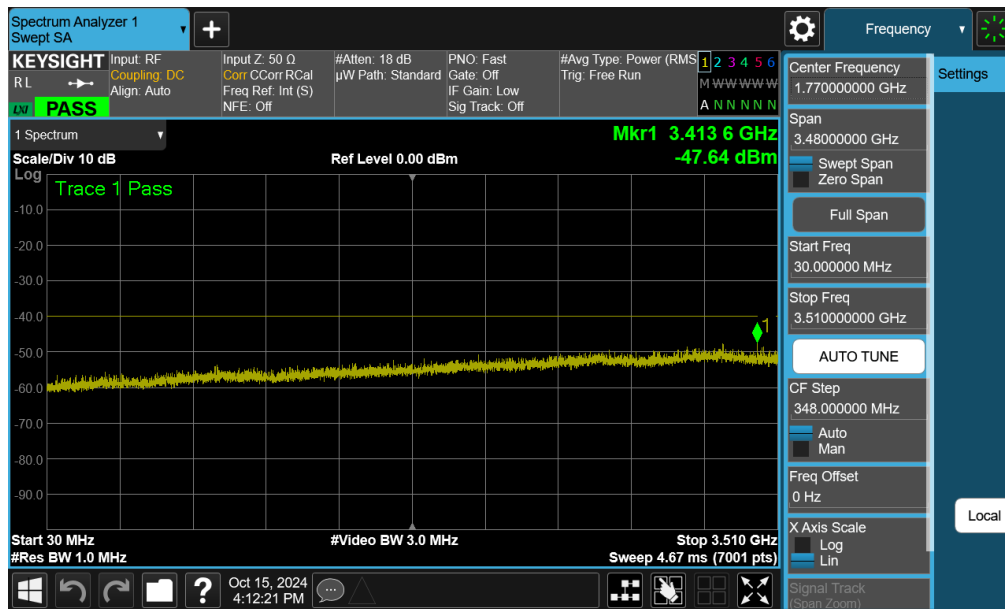
|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 53 of 118                    |

| Mode   | Bandwidth | Channel | Range [MHz]       | Level [dBm] | Limit [dBm] | Margin [dB] |
|--------|-----------|---------|-------------------|-------------|-------------|-------------|
| NR-n48 | 40MHz     | Low     | 30.0 - 3510.0     | -47.64      | -40.0       | -7.64       |
|        |           | Low     | 3610.0 - 15000.0  | -46.35      | -40.0       | -6.35       |
|        |           | Low     | 15000.0 - 27000.0 | -46.34      | -40.0       | -6.34       |
|        |           | Low     | 27000.0 - 40000.0 | -44.05      | -40.0       | -4.05       |
|        |           | Mid     | 30.0 - 35750.0    | -47.89      | -40.0       | -7.89       |
|        |           | Mid     | 3675.0 - 15000.0  | -46.45      | -40.0       | -6.45       |
|        |           | Mid     | 15000.0 - 27000.0 | -45.58      | -40.0       | -5.58       |
|        |           | Mid     | 27000.0 - 40000.0 | -44.96      | -40.0       | -4.96       |
|        |           | High    | 30.0 - 3640.0     | -44.32      | -40.0       | -4.32       |
|        |           | High    | 3740.0 - 15000.0  | -46.14      | -40.0       | -6.14       |
|        |           | High    | 15000.0 - 27000.0 | -45.42      | -40.0       | -5.42       |
|        |           | High    | 27000.0 - 40000.0 | -44.33      | -40.0       | -4.33       |

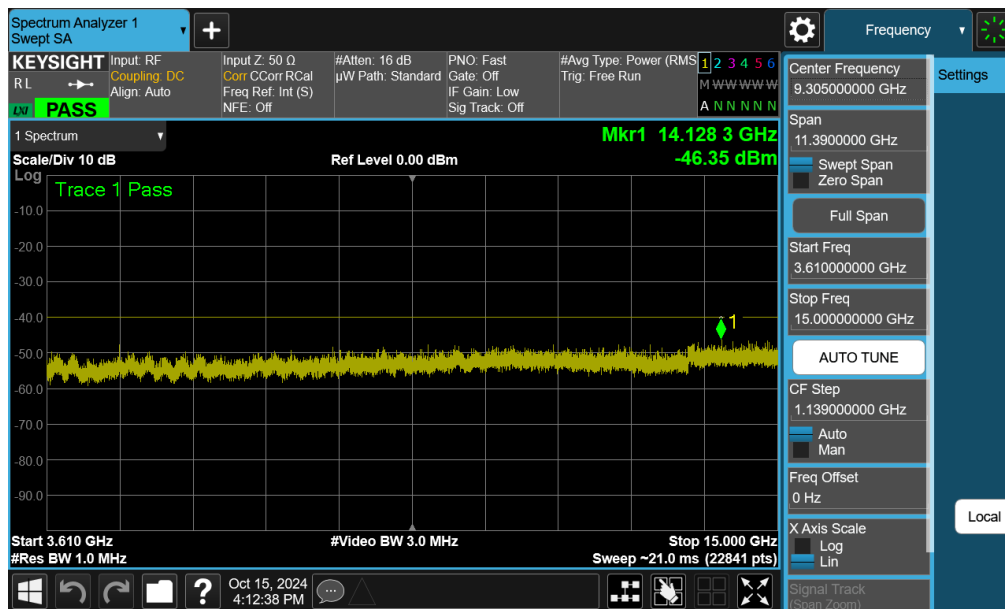
**Table 7-17. Conducted Emission Test Results – NR Band n48 – Ant C**

|                                                |                                               |                                      |                                          |
|------------------------------------------------|-----------------------------------------------|--------------------------------------|------------------------------------------|
| <b>FCC ID:</b> A3LSMS936U                      | <b>PART 96 MEASUREMENT REPORT</b>             |                                      | <b>Approved by:</b><br>Technical Manager |
| <b>Test Report S/N:</b><br>1M2408260064-07.A3L | <b>Test Dates:</b><br>09/03/2024 - 10/25/2024 | <b>EUT Type:</b><br>Portable Handset | Page 54 of 118                           |

## NR Band n48 – Ant C

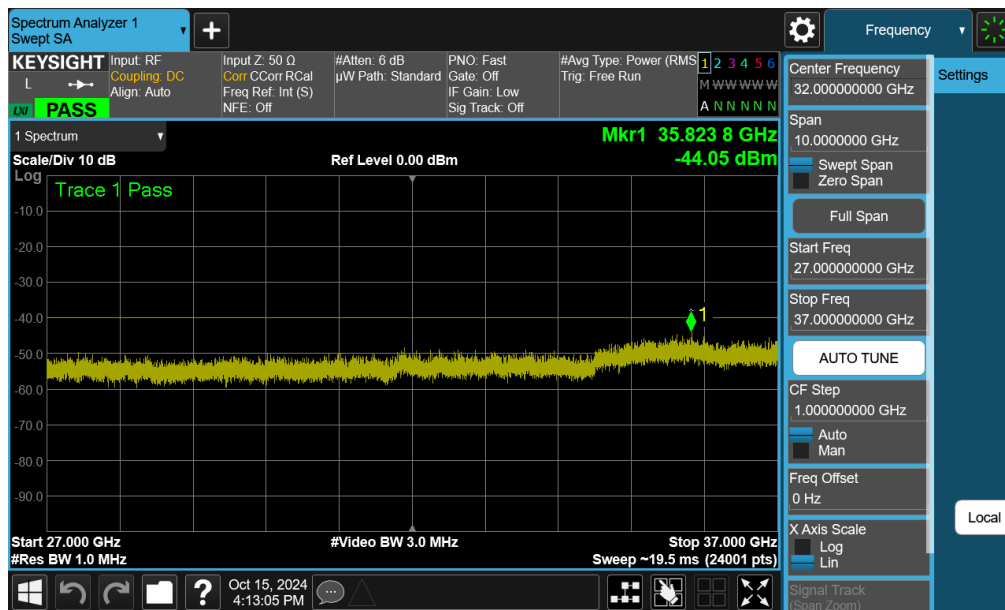
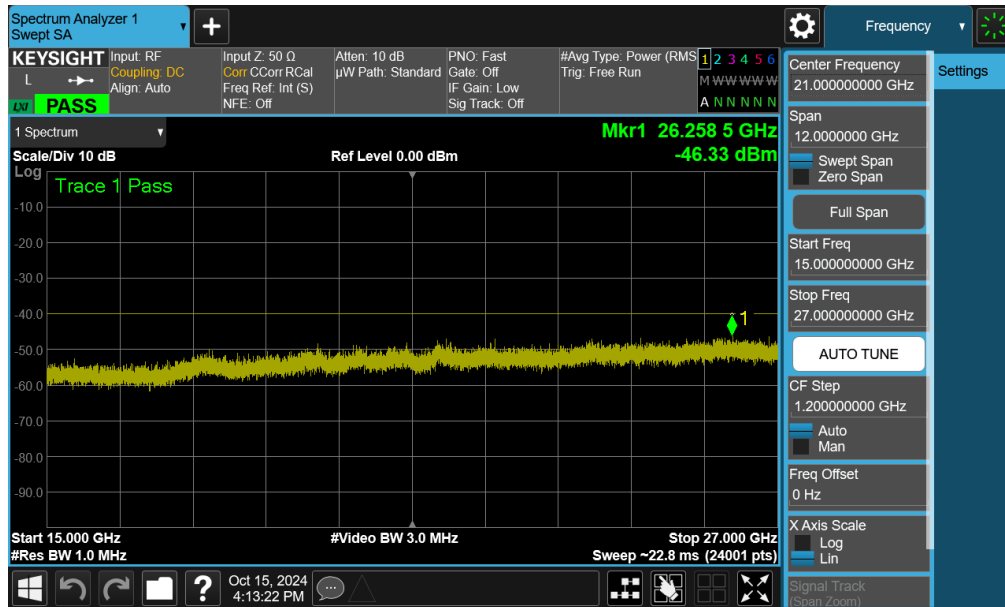


Plot 7-54. Conducted Spurious Plot (NR Band n48 - 40MHz QPSK - Low Channel - Ant C)



Plot 7-55. Conducted Spurious Plot (NR Band n48 - 40MHz QPSK - Low Channel - Ant C)

|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 55 of 118                    |



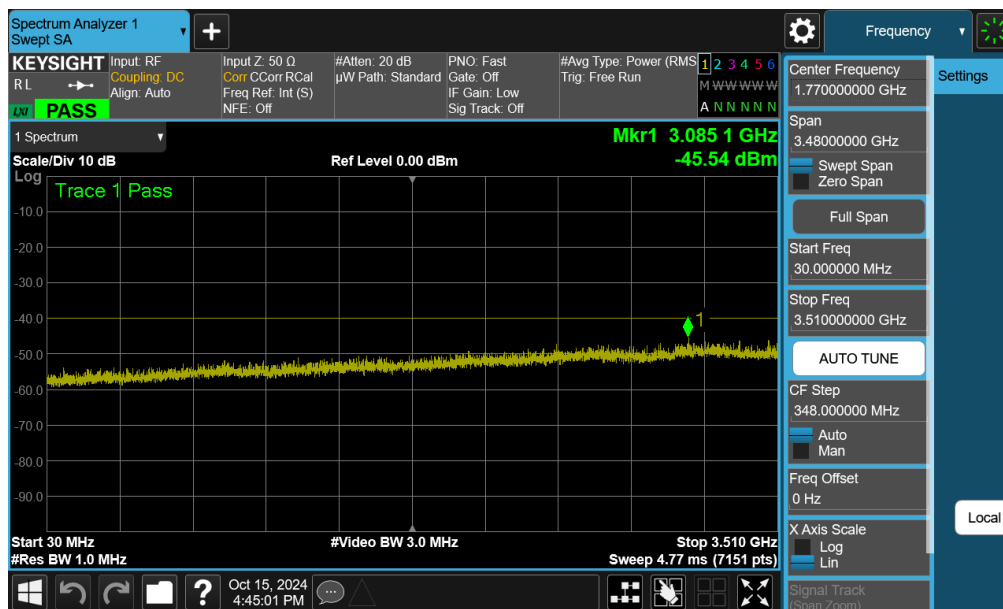
|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 56 of 118                    |

| Mode   | Bandwidth | Channel | Range [MHz]       | Level [dBm] | Limit [dBm] | Margin [dB] |
|--------|-----------|---------|-------------------|-------------|-------------|-------------|
| NR-n48 | 40MHz     | Low     | 30.0 - 3510.0     | -43.98      | -40.0       | -3.98       |
|        |           | Low     | 3610.0 - 15000.0  | -44.91      | -40.0       | -4.91       |
|        |           | Low     | 15000.0 - 27000.0 | -46.4       | -40.0       | -6.40       |
|        |           | Low     | 27000.0 - 40000.0 | -44.81      | -40.0       | -4.81       |
|        |           | Mid     | 30.0 - 35750.0    | -45.54      | -40.0       | -5.54       |
|        |           | Mid     | 3675.0 - 15000.0  | -43.26      | -40.0       | -3.26       |
|        |           | Mid     | 15000.0 - 27000.0 | -45.1       | -40.0       | -5.10       |
|        |           | Mid     | 27000.0 - 40000.0 | -44.89      | -40.0       | -4.88       |
|        |           | High    | 30.0 - 3640.0     | -43.44      | -40.0       | -3.44       |
|        |           | High    | 3740.0 - 15000.0  | -44.96      | -40.0       | -4.96       |
|        |           | High    | 15000.0 - 27000.0 | -45.57      | -40.0       | -5.57       |
|        |           | High    | 27000.0 - 40000.0 | -44.98      | -40.0       | -4.98       |

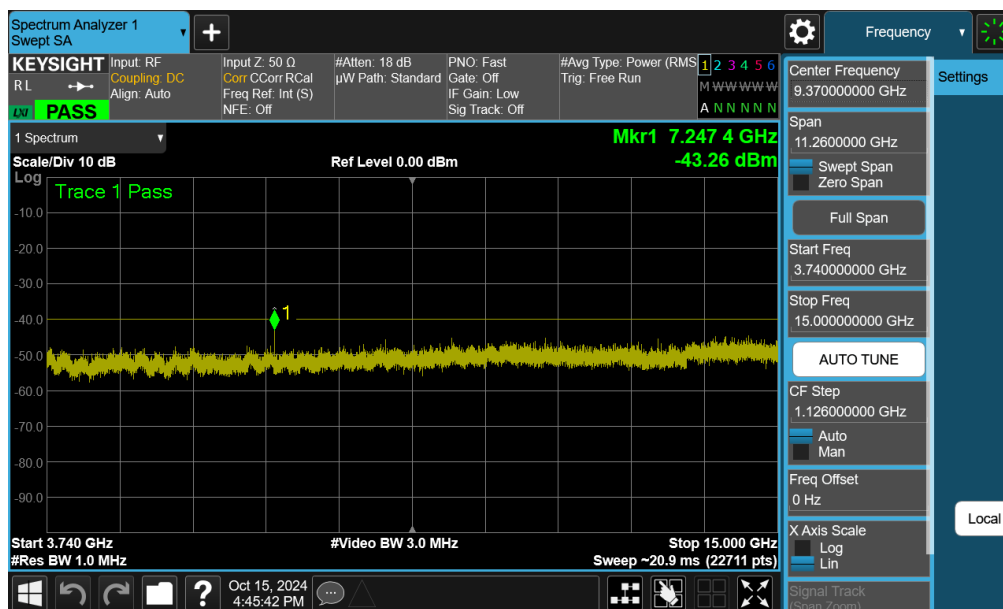
**Table 7-18. Conducted Emission Test Results – NR Band n48 – Ant I**

|                                                |                                               |                                      |                                          |
|------------------------------------------------|-----------------------------------------------|--------------------------------------|------------------------------------------|
| <b>FCC ID:</b> A3LSMS936U                      | <b>PART 96 MEASUREMENT REPORT</b>             |                                      | <b>Approved by:</b><br>Technical Manager |
| <b>Test Report S/N:</b><br>1M2408260064-07.A3L | <b>Test Dates:</b><br>09/03/2024 - 10/25/2024 | <b>EUT Type:</b><br>Portable Handset | Page 57 of 118                           |

## NR Band n48 – Ant I

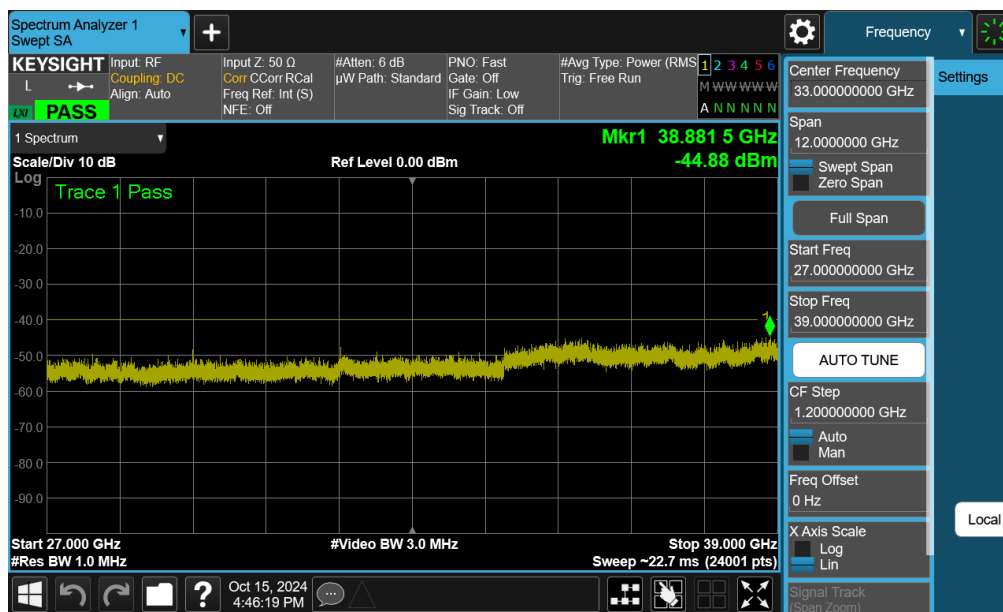
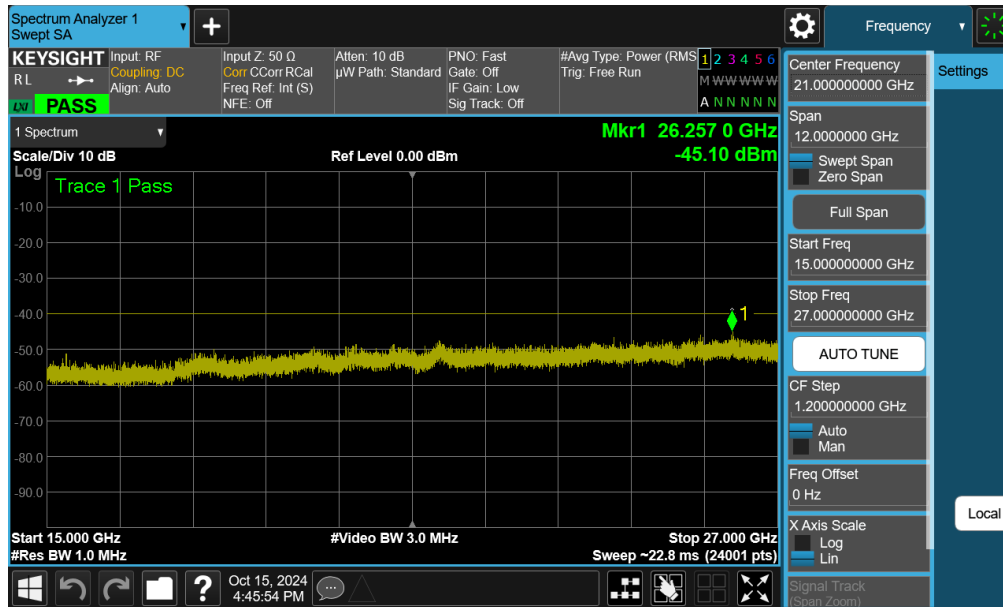


Plot 7-58. Conducted Spurious Plot (NR Band n48 - 40MHz QPSK - Mid Channel - Ant I)



Plot 7-59. Conducted Spurious Plot (NR Band n48 - 40MHz QPSK - Mid Channel - Ant I)

|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 58 of 118                    |



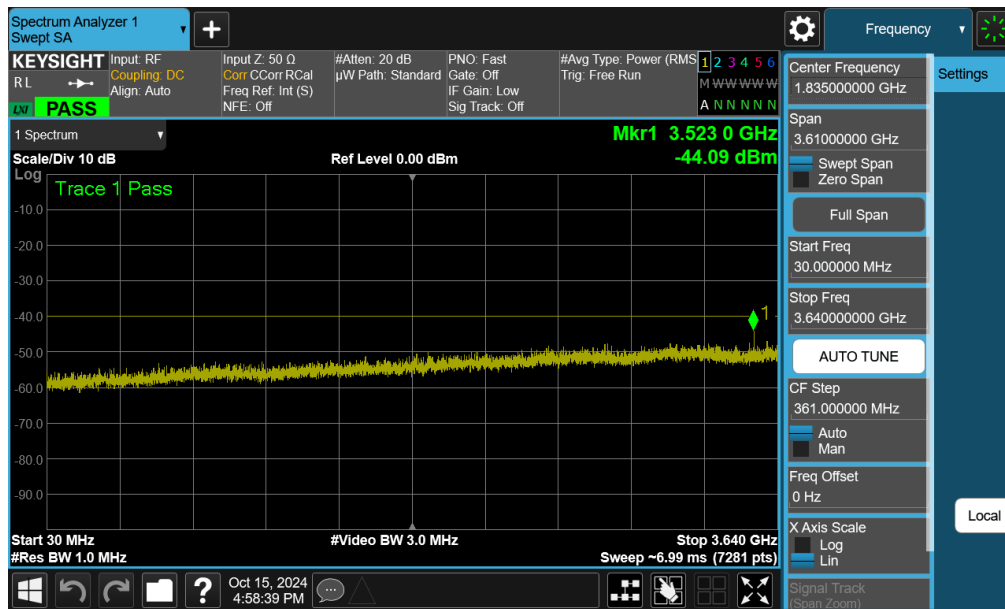
|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 59 of 118                    |

| Mode   | Bandwidth | Channel | Range [MHz]       | Level [dBm] | Limit [dBm] | Margin [dB] |
|--------|-----------|---------|-------------------|-------------|-------------|-------------|
| NR-n48 | 40MHz     | Low     | 30.0 - 3510.0     | -46.4       | -40.0       | -6.40       |
|        |           | Low     | 3610.0 - 15000.0  | -45.11      | -40.0       | -5.11       |
|        |           | Low     | 15000.0 - 27000.0 | -45.42      | -40.0       | -5.42       |
|        |           | Low     | 27000.0 - 40000.0 | -44.38      | -40.0       | -4.38       |
|        |           | Mid     | 30.0 - 35750.0    | -46.6       | -40.0       | -6.60       |
|        |           | Mid     | 3675.0 - 15000.0  | -45.07      | -40.0       | -5.07       |
|        |           | Mid     | 15000.0 - 27000.0 | -45.76      | -40.0       | -5.76       |
|        |           | Mid     | 27000.0 - 40000.0 | -44.16      | -40.0       | -4.16       |
|        |           | High    | 30.0 - 3640.0     | -44.09      | -40.0       | -4.09       |
|        |           | High    | 3740.0 - 15000.0  | -44.42      | -40.0       | -4.42       |
|        |           | High    | 15000.0 - 27000.0 | -46.1       | -40.0       | -6.10       |
|        |           | High    | 27000.0 - 40000.0 | -44.21      | -40.0       | -4.21       |

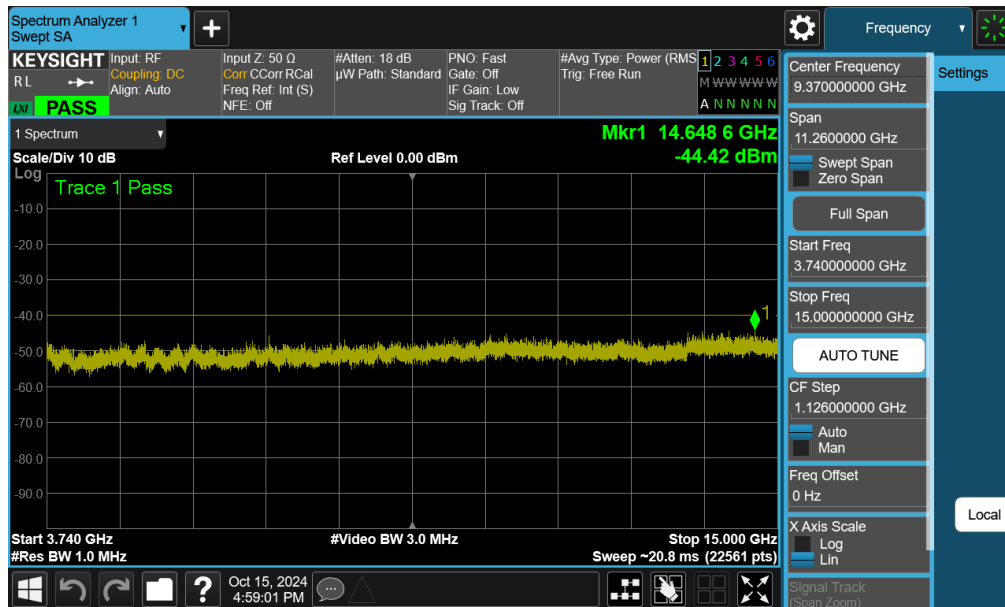
**Table 7-19. Conducted Emission Test Results – NR Band n48 – Ant D**

|                                                |                                               |                                      |                                          |
|------------------------------------------------|-----------------------------------------------|--------------------------------------|------------------------------------------|
| <b>FCC ID:</b> A3LSMS936U                      | <b>PART 96 MEASUREMENT REPORT</b>             |                                      | <b>Approved by:</b><br>Technical Manager |
| <b>Test Report S/N:</b><br>1M2408260064-07.A3L | <b>Test Dates:</b><br>09/03/2024 - 10/25/2024 | <b>EUT Type:</b><br>Portable Handset | Page 60 of 118                           |

## NR Band n48 – Ant D

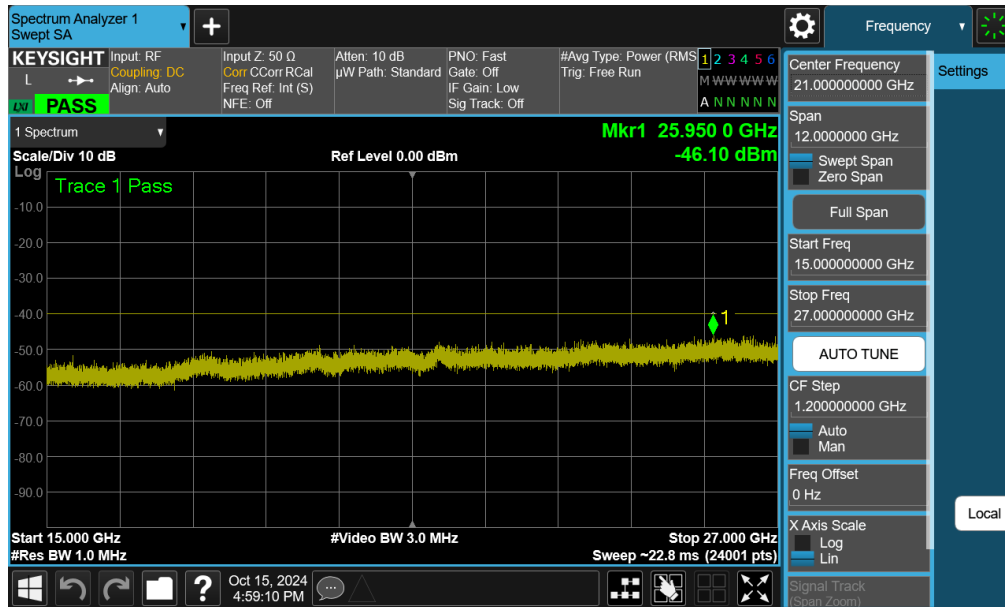


Plot 7-62. Conducted Spurious Plot (NR Band n48 - 40MHz QPSK - High Channel - Ant D)

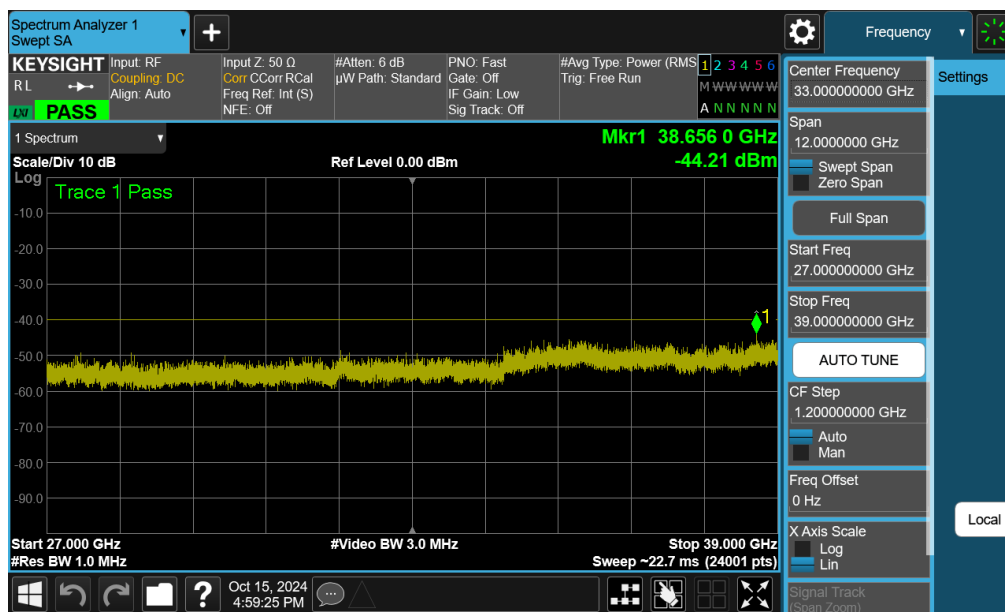


Plot 7-63. Conducted Spurious Plot (NR Band n48 - 40MHz QPSK - High Channel - Ant D)

|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 61 of 118                    |



Plot 7-64. Conducted Spurious Plot (NR Band n48 - 40MHz QPSK - High Channel - Ant D)



Plot 7-65. Conducted Spurious Plot (NR Band n48 - 40MHz QPSK - High Channel - Ant D)

|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 62 of 118                    |

## 7.5 Band Edge Emissions at Antenna Terminal

### Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

***For an End User Device, the conducted power of any emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed  $-13$  dBm/MHz within 0 to B MHz (where B is the bandwidth in MHz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B MHz below the lower CBSD-assigned channel edge. At all frequencies greater than B MHz above the upper CBSD assigned channel edge and less than B MHz below the lower CBSD-assigned channel edge, the conducted power of any end user device emission shall not exceed  $-25$  dBm/MHz. The conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed  $-40$  dBm/MHz.***

### Test Procedure Used

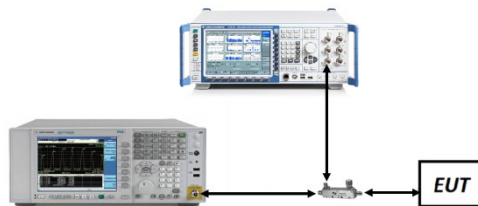
ANSI C63.26-2015 – Section 5.7.3

### Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW  $\geq 1\%$  of the emission bandwidth
4. VBW  $\geq 3 \times$  RBW
5. Detector = RMS
6. Number of sweep points  $\geq 2 \times$  Span/RBW
7. Trace mode = trace average
8. Sweep time = auto couple
9. The trace was allowed to stabilize

### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



**Figure 7-4. Test Instrument & Measurement Setup**

|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 63 of 118                    |

## Test Notes

1. Per 96.41(e)(3)(i), compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's authorized frequency channel, a resolution bandwidth of no less than one percent of the fundamental emission bandwidth may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full reference bandwidth (i.e., 1 MHz or 1 percent of emission bandwidth, as specified). The fundamental emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.
2. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

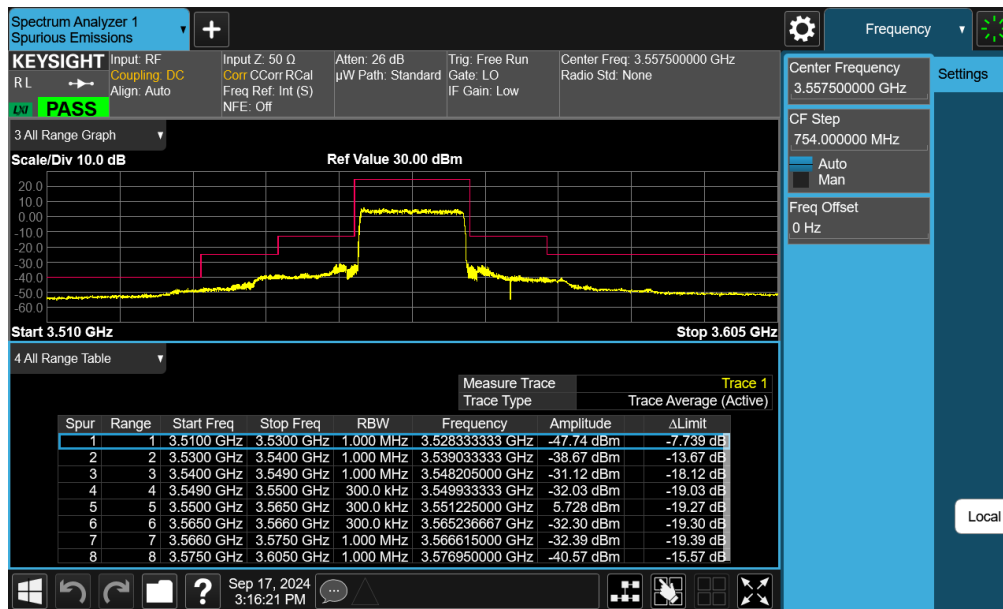
|                                                |                                               |                                      |                                          |
|------------------------------------------------|-----------------------------------------------|--------------------------------------|------------------------------------------|
| <b>FCC ID:</b> A3LSMS936U                      | <b>PART 96 MEASUREMENT REPORT</b>             |                                      | <b>Approved by:</b><br>Technical Manager |
| <b>Test Report S/N:</b><br>1M2408260064-07.A3L | <b>Test Dates:</b><br>09/03/2024 - 10/25/2024 | <b>EUT Type:</b><br>Portable Handset | Page 64 of 118                           |

| Mode      | Bandwidth | Channel | Test Case | Level [dBm] | Limit [dBm] | Margin [dB] |
|-----------|-----------|---------|-----------|-------------|-------------|-------------|
| LTE-B48   | 20 MHz    | Low     | Band Edge | -47.42      | -40         | -7.42       |
|           |           | Mid     | Band Edge | -40.39      | -25         | -15.39      |
|           |           | High    | Band Edge | -46.91      | -40         | -6.91       |
|           | 15 MHz    | Low     | Band Edge | -47.74      | -40         | -7.74       |
|           |           | Mid     | Band Edge | -39.89      | -25         | -14.89      |
|           |           | High    | Band Edge | -46.18      | -40         | -6.18       |
|           | 10 MHz    | Low     | Band Edge | -51.90      | -40         | -11.90      |
|           |           | Mid     | Band Edge | -33.05      | -13         | -20.05      |
|           |           | High    | Band Edge | -48.91      | -40         | -8.91       |
|           | 5 MHz     | Low     | Band Edge | -53.15      | -40         | -13.15      |
|           |           | Mid     | Band Edge | -31.66      | -13         | -18.66      |
|           |           | High    | Band Edge | -49.40      | -40         | -9.40       |
| ULCA LB48 | 20+20MHz  | Low     | Band Edge | -49.80      | -40         | -9.80       |
|           |           | Mid     | Band Edge | -33.19      | -13         | -20.19      |
|           |           | High    | Band Edge | -55.36      | -40         | -15.36      |

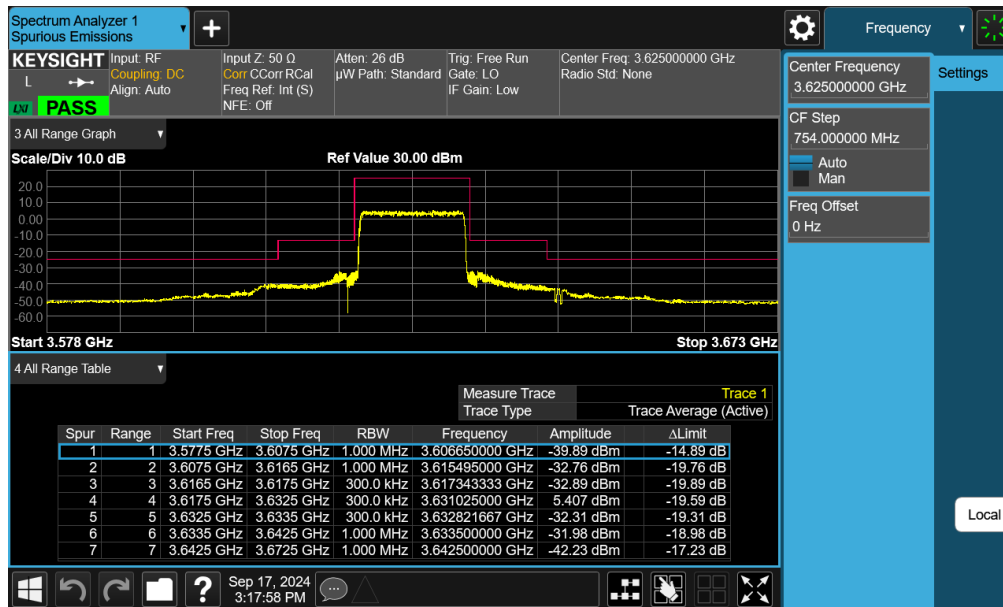
**Table 7-20. Conducted Band Edge Test Results – LTE – Ant F**

|                                                |                                               |                                      |                                          |
|------------------------------------------------|-----------------------------------------------|--------------------------------------|------------------------------------------|
| <b>FCC ID:</b> A3LSMS936U                      | <b>PART 96 MEASUREMENT REPORT</b>             |                                      | <b>Approved by:</b><br>Technical Manager |
| <b>Test Report S/N:</b><br>1M2408260064-07.A3L | <b>Test Dates:</b><br>09/03/2024 - 10/25/2024 | <b>EUT Type:</b><br>Portable Handset | Page 65 of 118                           |

## LTE Band 48 – Ant F

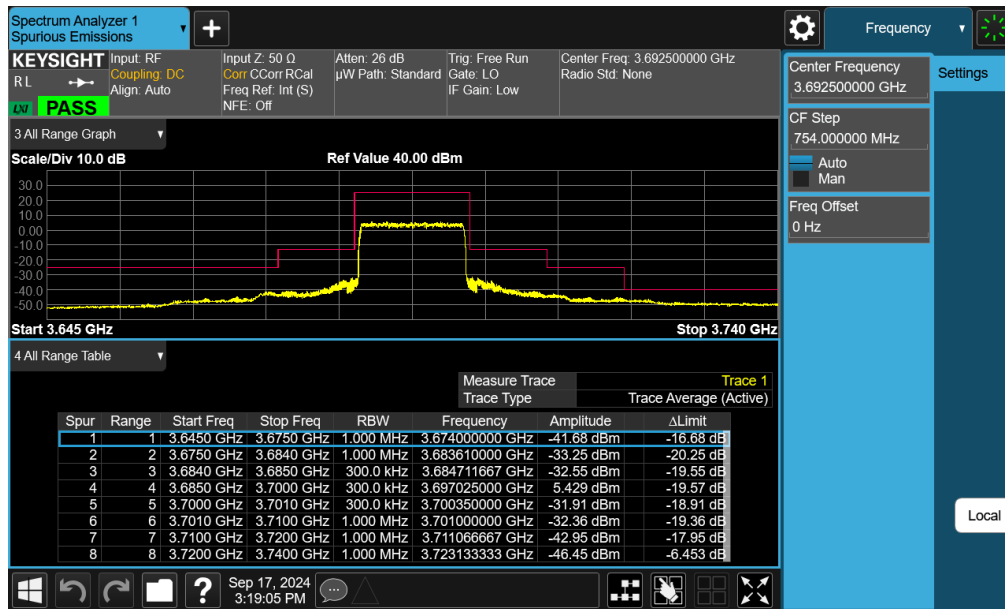


Plot 7-66. Channel - Ant F Edge Plot (LTE Band 48 - 15MHz QPSK - Low Channel - Ant F)



Plot 7-67. Channel - Ant F Edge Plot (LTE Band 48 - 15MHz QPSK - Mid Channel - Ant F)

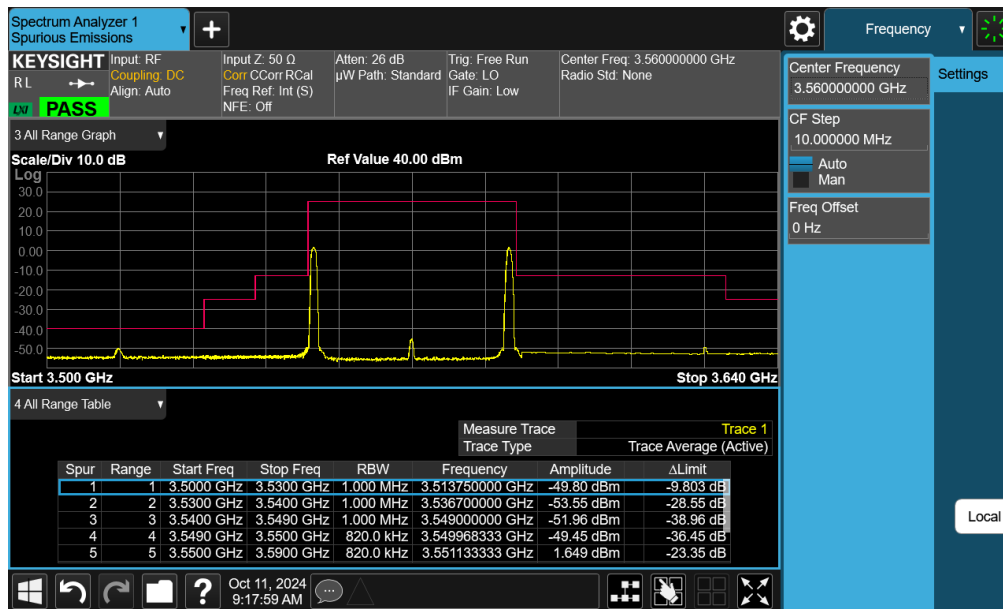
|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 66 of 118                    |



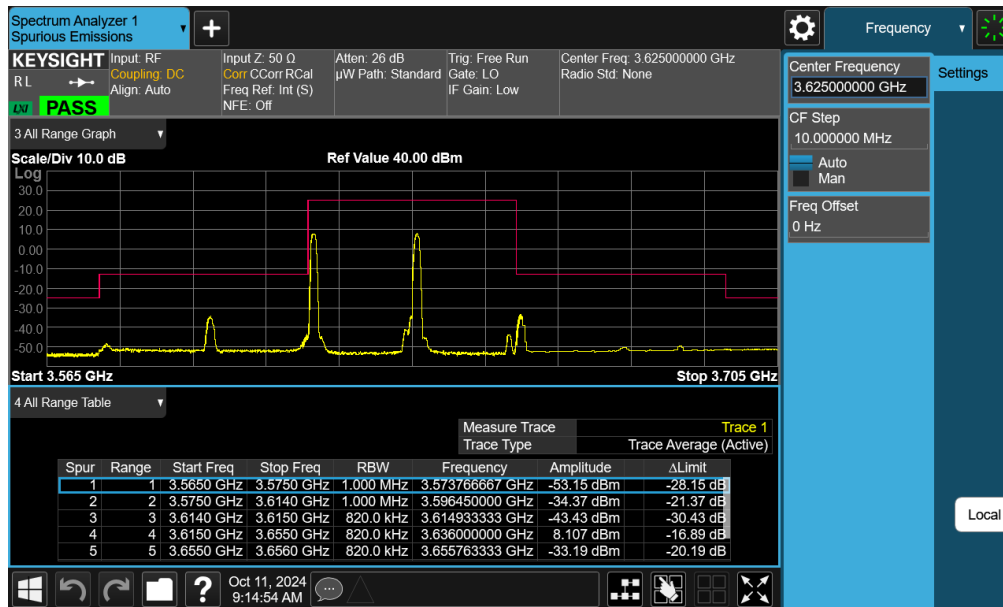
Plot 7-68. Channel - Ant F Edge Plot (LTE Band 48 - 15MHz QPSK - High Channel - Ant F)

|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 67 of 118                    |

## ULCA LB48 – Ant F

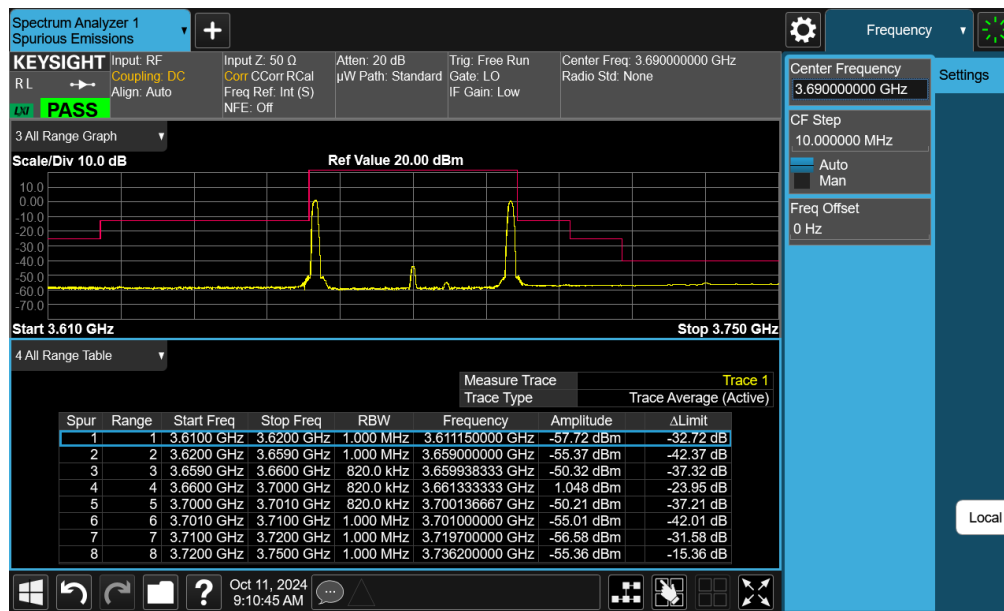


Plot 7-69. Channel - Ant F Edge Plot (LTE Band 48 – 20+20MHz QPSK - Low Channel - Ant F)



Plot 7-70. Channel - Ant F Edge Plot (LTE Band 48 – 20+20MHz QPSK - Mid Channel - Ant F)

|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 68 of 118                    |



Plot 7-71. Channel - Ant F Edge Plot (LTE Band 48 – 20+20MHz QPSK - High Channel - Ant F)

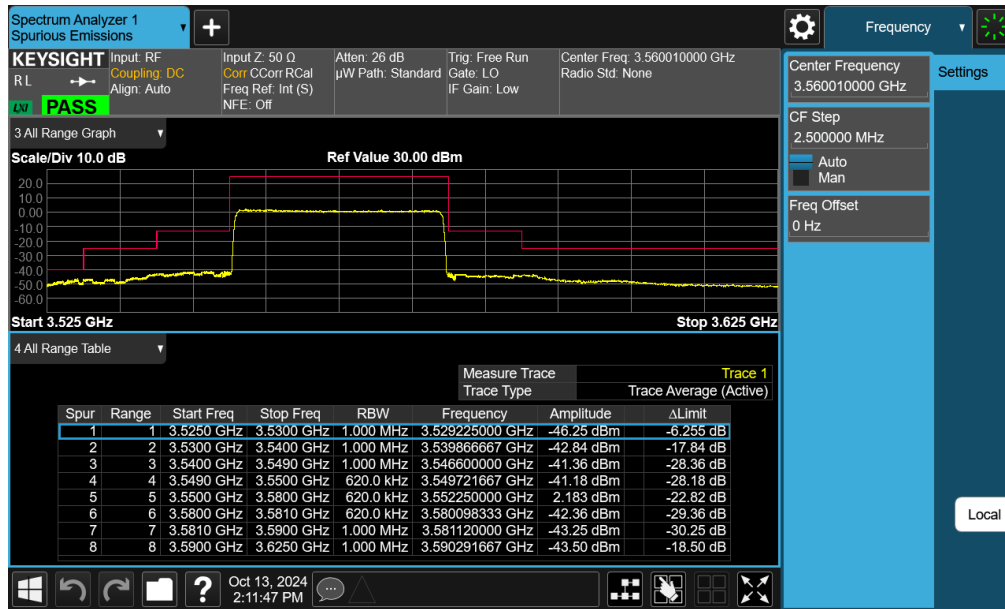
|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 69 of 118                    |

| Mode   | Bandwidth | Channel | Test Case | Level [dBm] | Limit [dBm] | Margin [dB] |
|--------|-----------|---------|-----------|-------------|-------------|-------------|
| NR-n48 | 40MHz     | Low     | Band Edge | -44.74      | -40         | -4.74       |
|        |           | Mid     | Band Edge | -43.58      | -25         | -18.58      |
|        |           | High    | Band Edge | -43.13      | -40         | -3.13       |
|        | 30MHz     | Low     | Band Edge | -46.25      | -40         | -6.25       |
|        |           | Mid     | Band Edge | -42.05      | -25         | -17.05      |
|        |           | High    | Band Edge | -42.47      | -40         | -2.47       |
|        | 20MHz     | Low     | Band Edge | -48.51      | -40         | -8.51       |
|        |           | Mid     | Band Edge | -42.66      | -25         | -17.66      |
|        |           | High    | Band Edge | -46.20      | -40         | -6.20       |
|        | 15MHz     | Low     | Band Edge | -48.97      | -40         | -8.97       |
|        |           | Mid     | Band Edge | -43.78      | -25         | -18.78      |
|        |           | High    | Band Edge | -44.59      | -40         | -4.59       |
|        | 10MHz     | Low     | Band Edge | -51.92      | -40         | -11.92      |
|        |           | Mid     | Band Edge | -42.36      | -25         | -17.36      |
|        |           | High    | Band Edge | -48.53      | -40         | -8.53       |

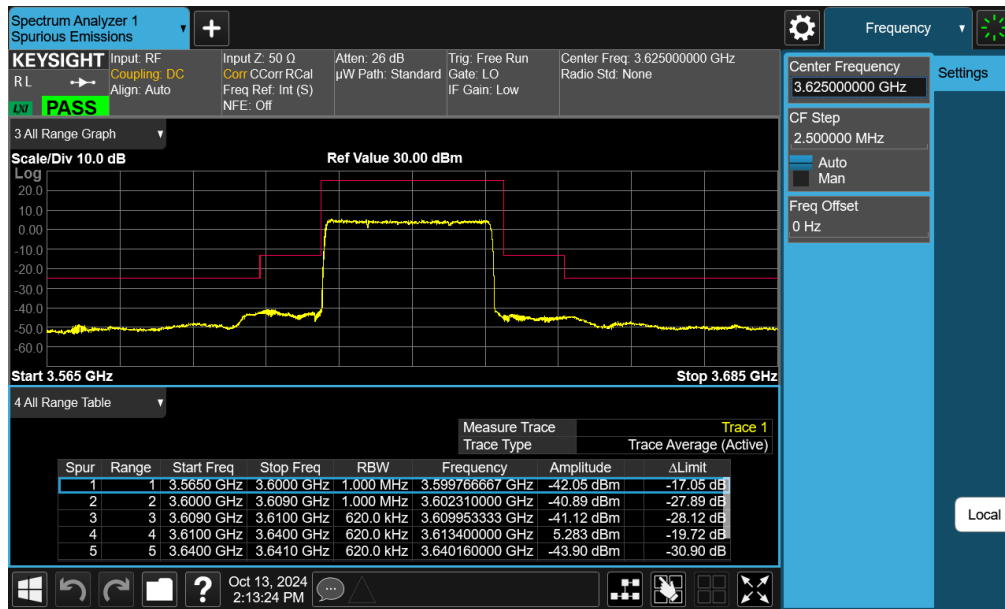
Table 7-21. Conducted Band Edge Test Results – NR Band n48 – Ant F

|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 70 of 118                    |

## NR Band n48 – Ant F

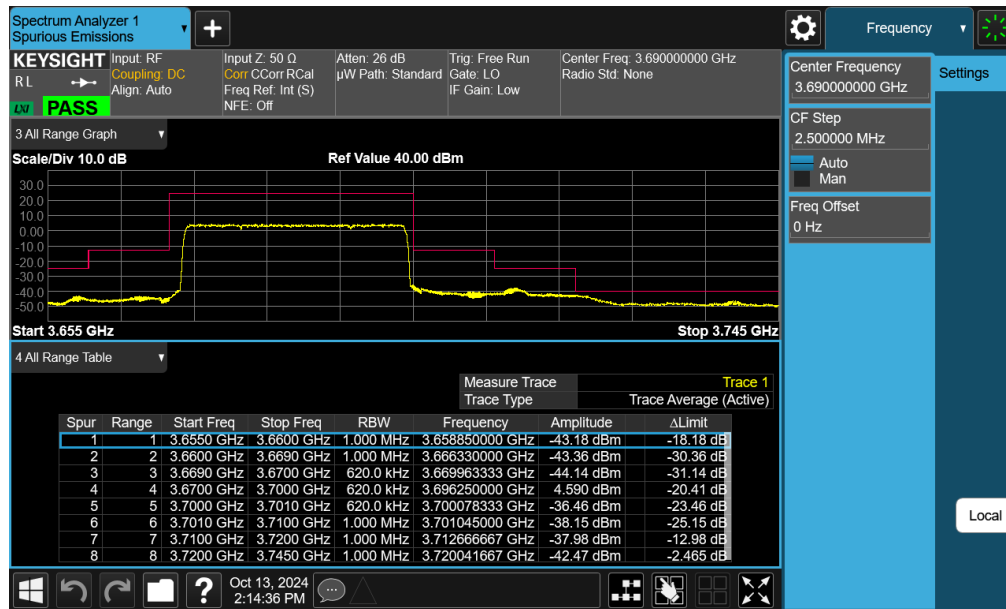


Plot 7-72. Channel Edge Plot (NR Band n48 - 30MHz CP-OFDM-QPSK - Low Channel - Ant F)



Plot 7-73. Channel Edge Plot (NR Band n48 - 30MHz DFT-s-OFDM-BPSK - Mid Channel - Ant F)

|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 71 of 118                    |



Plot 7-74. Channel Edge Plot (NR Band n48 - 30MHz DFT-s-OFDM-BPSK - High Channel - Ant F)

|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 72 of 118                    |

| Mode   | Bandwidth | Channel | Test Case | Level [dBm] | Limit [dBm] | Margin [dB] |
|--------|-----------|---------|-----------|-------------|-------------|-------------|
| NR-n48 | 40MHz     | Low     | Band Edge | -48.77      | -40         | -8.77       |
|        |           | Mid     | Band Edge | -44.81      | -25         | -19.81      |
|        |           | High    | Band Edge | -46.72      | -40         | -6.72       |

Table 7-22. Conducted Band Edge Test Results – NR Band n48 – Ant C

| Mode   | Bandwidth | Channel | Test Case | Level [dBm] | Limit [dBm] | Margin [dB] |
|--------|-----------|---------|-----------|-------------|-------------|-------------|
| NR-n48 | 40MHz     | Low     | Band Edge | -46.89      | -40         | -6.89       |
|        |           | Mid     | Band Edge | -43.89      | -25         | -18.89      |
|        |           | High    | Band Edge | -43.17      | -40         | -3.17       |

Table 7-23. Conducted Band Edge Test Results – NR Band n48 – Ant I

| Mode   | Bandwidth | Channel | Test Case | Level [dBm] | Limit [dBm] | Margin [dB] |
|--------|-----------|---------|-----------|-------------|-------------|-------------|
| NR-n48 | 40MHz     | Low     | Band Edge | -49.41      | -40         | -9.41       |
|        |           | Mid     | Band Edge | -47.03      | -25         | -22.03      |
|        |           | High    | Band Edge | -48.28      | -40         | -8.28       |

Table 7-24. Conducted Band Edge Test Results – NR Band n48 – Ant D

|                                         |                                        |                               |                                   |
|-----------------------------------------|----------------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMS936U                      | PART 96 MEASUREMENT REPORT             |                               | Approved by:<br>Technical Manager |
| Test Report S/N:<br>1M2408260064-07.A3L | Test Dates:<br>09/03/2024 - 10/25/2024 | EUT Type:<br>Portable Handset | Page 73 of 118                    |