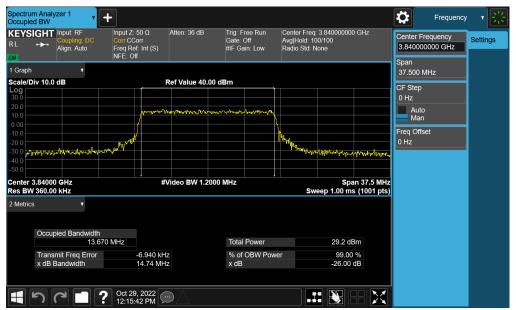




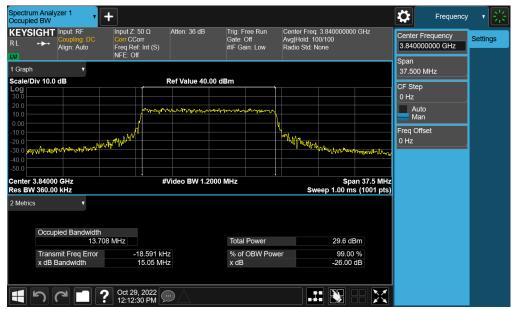
Plot 7-67. Occupied Bandwidth Plot (NR Band n77 - C-Band – 15MHz – π/2 BPSK - Full RB)



Plot 7-68. Occupied Bandwidth Plot (NR Band n77 - C-Band - 15MHz - QPSK - Full RB)

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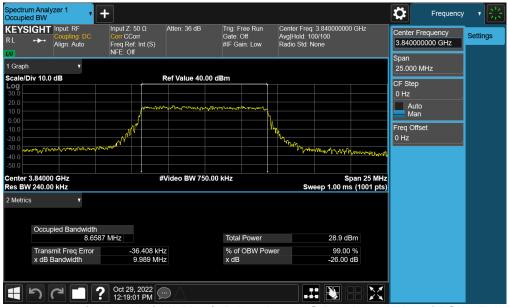
Plot 7-69. Occupied Bandwidth Plot (NR Band n77 - C-Band - 15MHz - 16-QAM - Full RB)



Plot 7-70. Occupied Bandwidth Plot (NR Band n77 - C-Band – 10MHz – π/2 BPSK - Full RB)

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Plot 7-71. Occupied Bandwidth Plot (NR Band n77 - C-Band - 10MHz - QPSK - Full RB)



Plot 7-72. Occupied Bandwidth Plot (NR Band n77 - C-Band - 10MHz - 16-QAM - Full RB)

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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 10th 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 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 operations in the 3700 - 3980MHz band and the 3450 - 3550MHz band, the maximum permissible conducted power level of any spurious emission is -13dBm/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 the tenth harmonic of the highest transmit frequency (separated into at least two plots per channel)
- 2. Detector = RMS
- Trace mode = trace average for continuous emissions, max hold for pulse emissions
- 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. Per Part 27.53(k), Part 27.53(l), 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.

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Plot 7-73. Conducted Spurious Plot (NR Band n77 - DoD Band - 100MHz QPSK - RB Size 1, RB Offset 0 - SRS-1)



Plot 7-74. Conducted Spurious Plot (NR Band n77 - DoD Band - 100MHz QPSK - RB Size 1, RB Offset - SRS-1)

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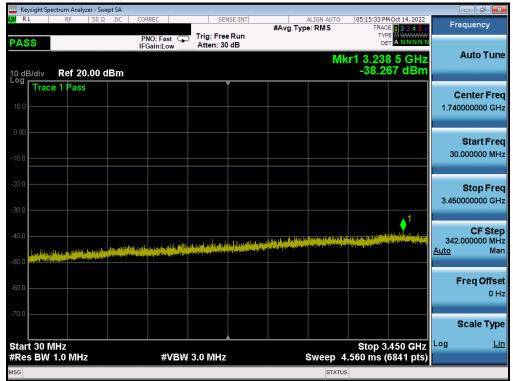


Plot 7-75. Conducted Spurious Plot (NR Band n77 - DoD Band - 100MHz QPSK - RB Size 1, RB Offset 0 - SRS-1)

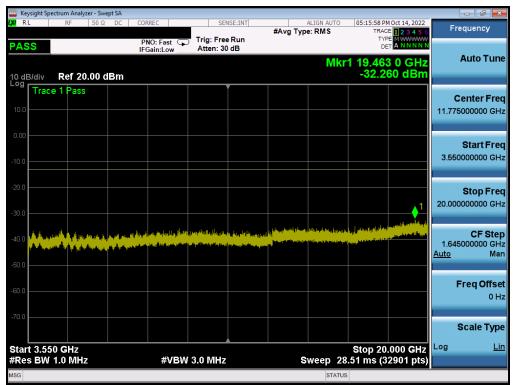
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Plot 7-76. Conducted Spurious Plot (NR Band n77 - DoD Band - 100MHz QPSK - RB Size 1, RB Offset 0 - SRS-2)



Plot 7-77. Conducted Spurious Plot (NR Band n77 - DoD Band - 100MHz QPSK - RB Size 1, RB Offset 0 - SRS-2)

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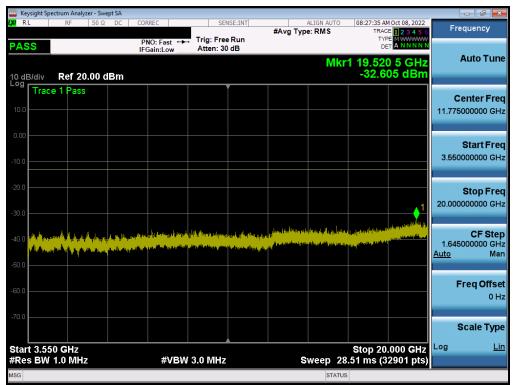
Plot 7-78. Conducted Spurious Plot (NR Band n77 - DoD Band - 100MHz QPSK - RB Size 1, RB Offset 0 - SRS-2)

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Plot 7-79. Conducted Spurious Plot (NR Band n77 - DoD Band - 100MHz QPSK - RB Size 1, RB Offset 0 - SRS-3)



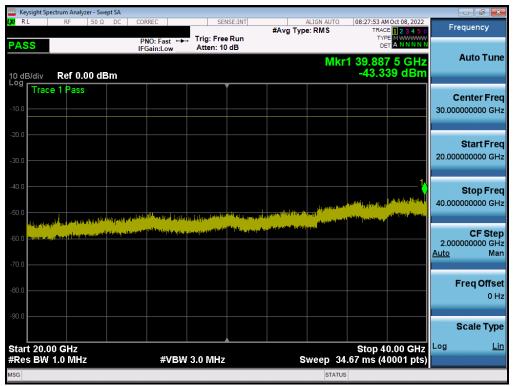
Plot 7-80. Conducted Spurious Plot (NR Band n77 - DoD Band - 100MHz QPSK - RB Size 1, RB Offset 0 - SRS-3)

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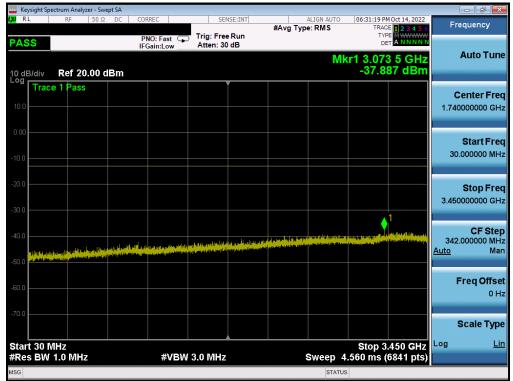




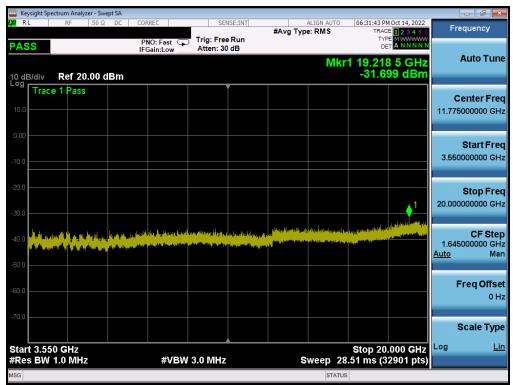
Plot 7-81. Conducted Spurious Plot (NR Band n77 - DoD Band - 100MHz QPSK - RB Size 1, RB Offset 0 - SRS-3)

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Plot 7-82. Conducted Spurious Plot (NR Band n77 - DoD Band - 100MHz QPSK - RB Size 1, RB Offset 0 - SRS-4)



Plot 7-83. Conducted Spurious Plot (NR Band n77 - DoD Band - 100MHz QPSK - RB Size 1, RB Offset 0 - SRS-4)

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Plot 7-84. Conducted Spurious Plot (NR Band n77 - DoD Band - 100MHz QPSK - RB Size 1, RB Offset 0 - SRS-4)

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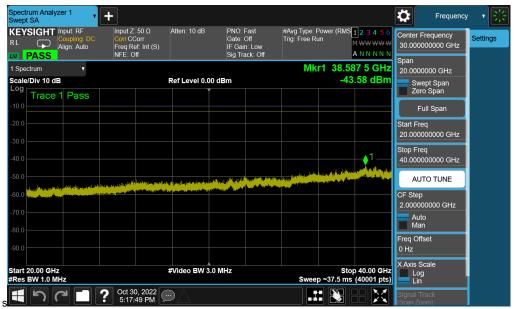
Plot 7-85. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - SRS-1)



Plot 7-86. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - SRS-1)

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Plot 7-87. Conducted Spurious Plot (NR Band n77 - C-Band – 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - SRS-1)



Plot 7-88. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - SRS-1)

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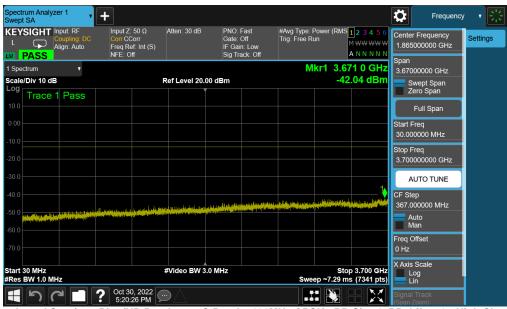
Plot 7-89. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - SRS-1)



Plot 7-90. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - SRS-1)

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Plot 7-91. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel - SRS-1)



Plot 7-92. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel - SRS-1)

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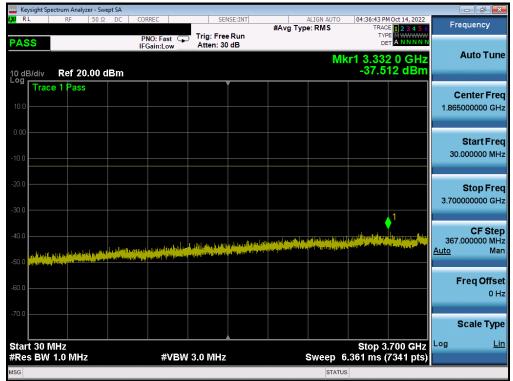




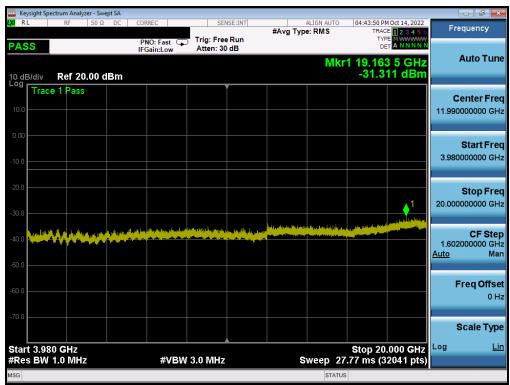
Plot 7-93. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel - SRS-1)

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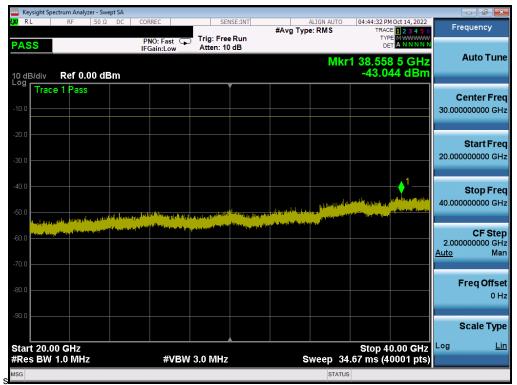
Plot 7-94. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - SRS-2)



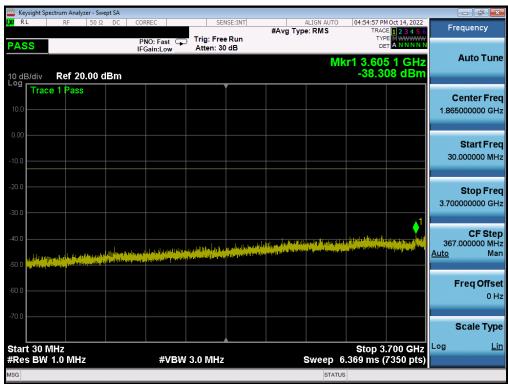
Plot 7-95. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - SRS-2)

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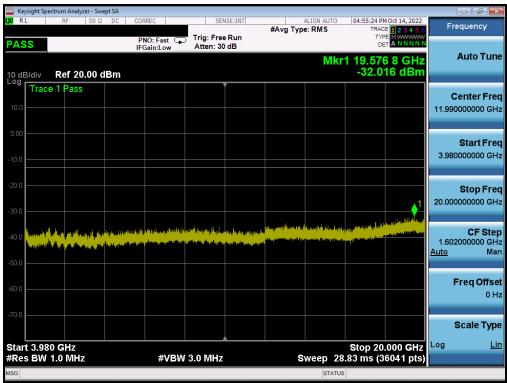
Plot 7-96. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - SRS-2)



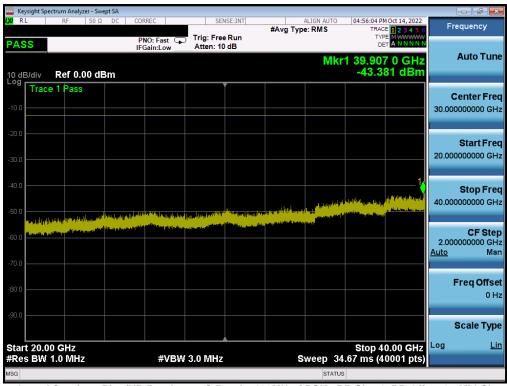
Plot 7-97. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - SRS-2)

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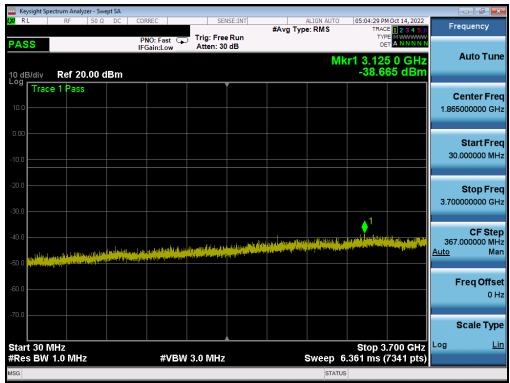
Plot 7-98. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - SRS-2)



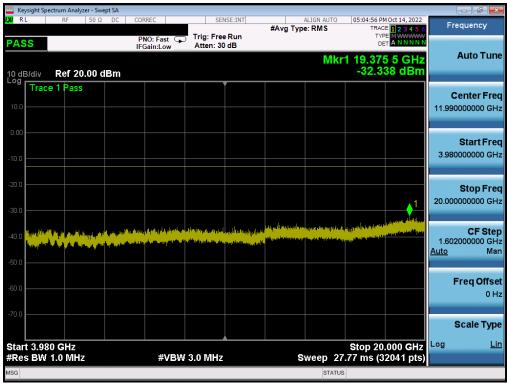
Plot 7-99. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - SRS-2)

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Plot 7-100. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel - SRS-2)



Plot 7-101. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel - SRS-2)

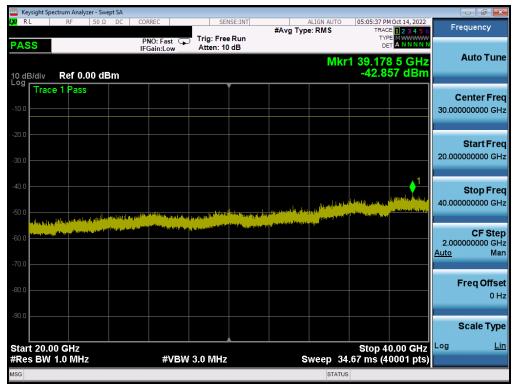
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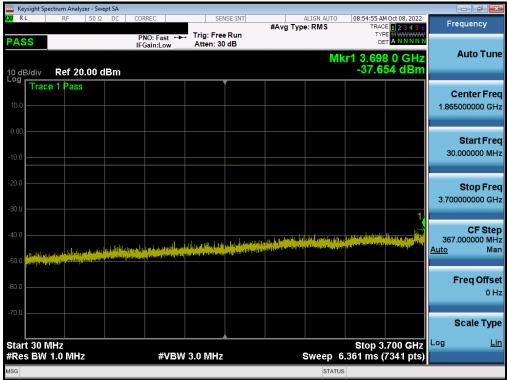




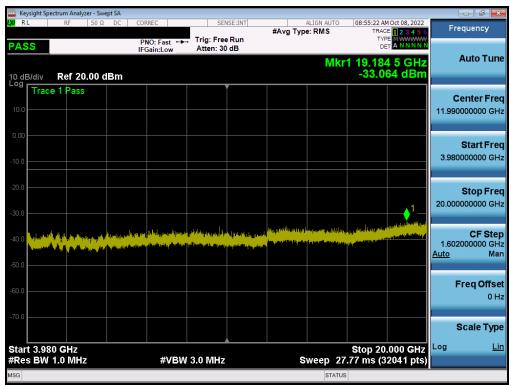
Plot 7-102. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel - SRS-2)

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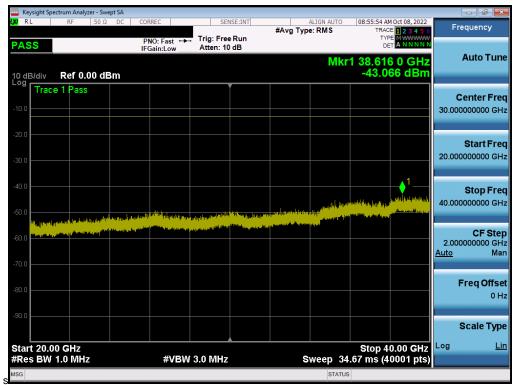
Plot 7-103. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - SRS-3)



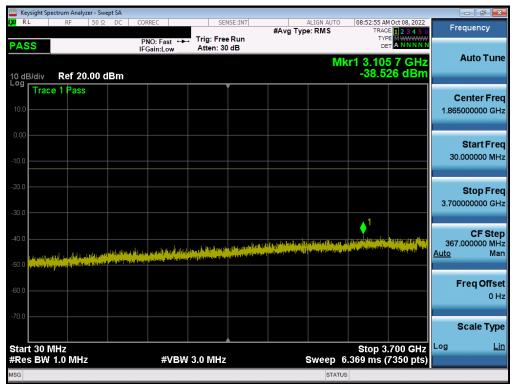
Plot 7-104. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - SRS-3)

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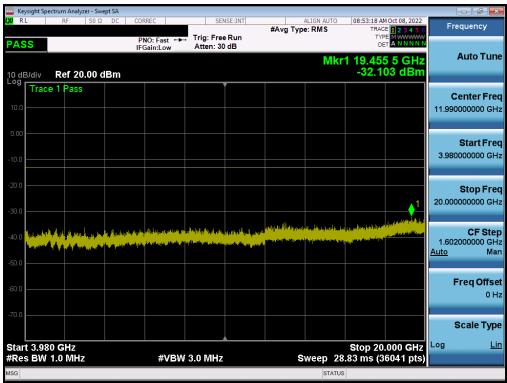
Plot 7-105. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - SRS-3)



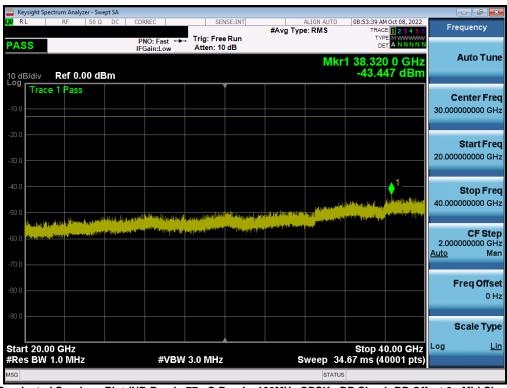
Plot 7-106. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - SRS-3)

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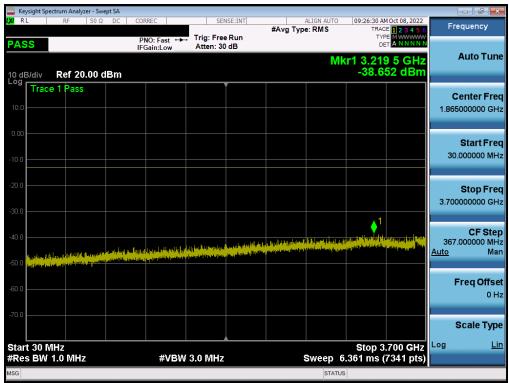
Plot 7-107. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - SRS-3)



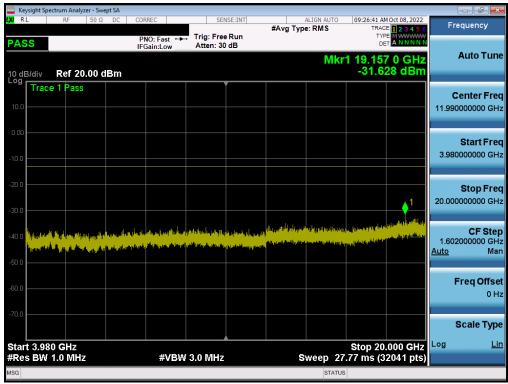
Plot 7-108. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - SRS-3)

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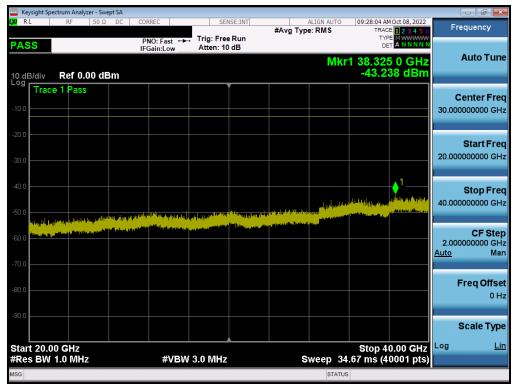
Plot 7-109. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel - SRS-3)



Plot 7-110. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel - SRS-3)

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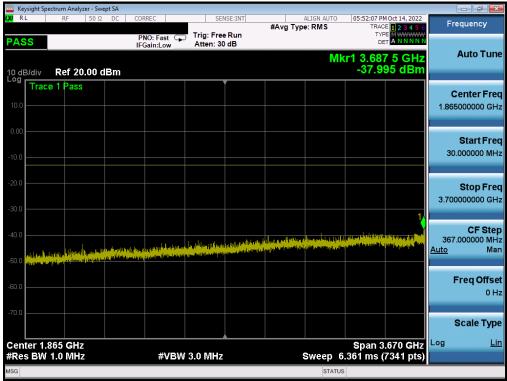




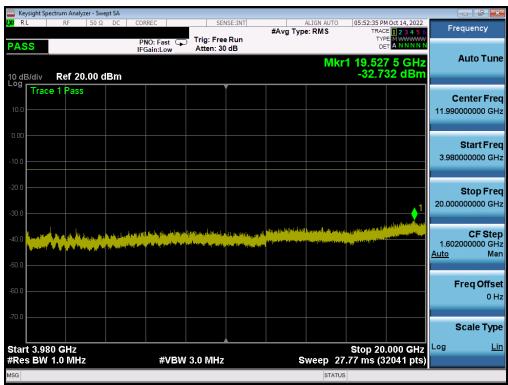
Plot 7-111. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel - SRS-3)

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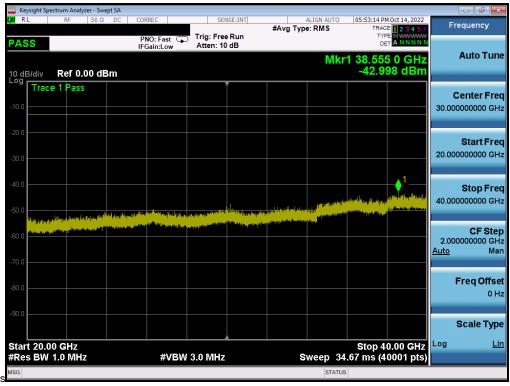
Plot 7-112. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - SRS-4)



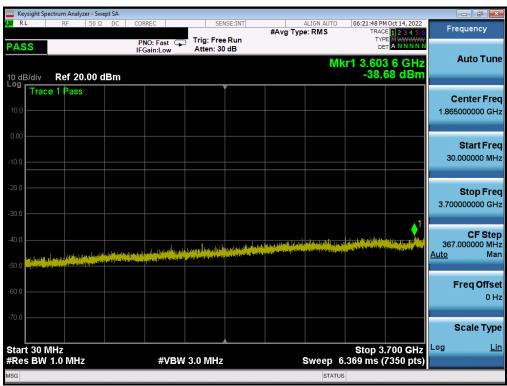
Plot 7-113. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - SRS-4)

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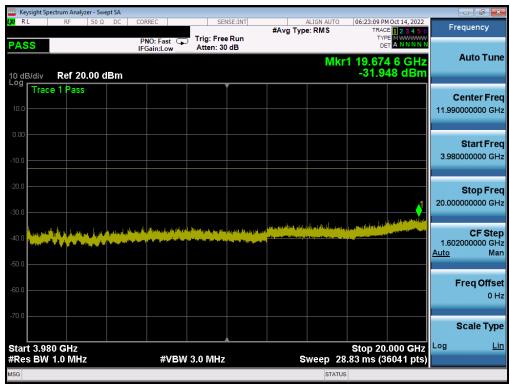
Plot 7-114. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - SRS-4)



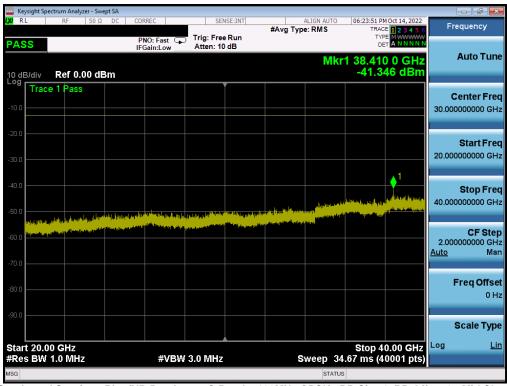
Plot 7-115. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - SRS-4)

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Plot 7-116. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - SRS-4)



Plot 7-117. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - SRS-4)

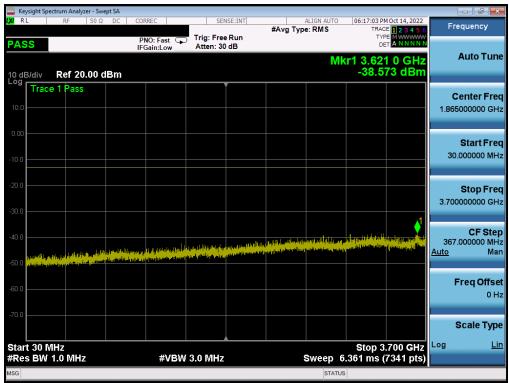
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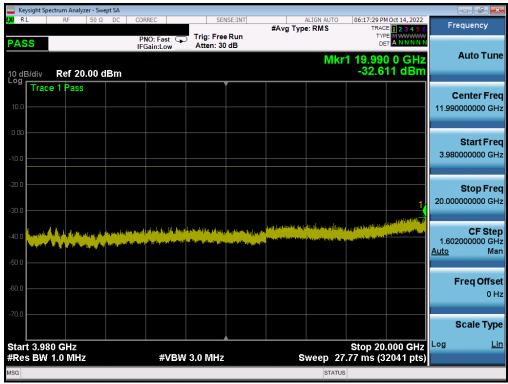
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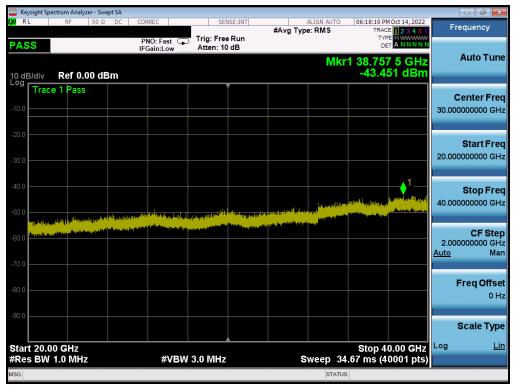
Plot 7-118. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel - SRS-4)



Plot 7-119. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel - SRS-4)

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Plot 7-120. Conducted Spurious Plot (NR Band n77 - C-Band - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel - SRS-4)

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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 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 operations in the 3700 - 3980MHz band and the 3450 - 3550MHz band, the maximum permissible conducted power level of any out-of-band emission is -13dBm/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 > 1% of the emission bandwidth
- 4. $VBW > 3 \times RBW$
- 5. Detector = RMS
- 6. Number of sweep points ≥ 2 x Span/RBW
- 7. Trace mode = trace averaging
- 8. Trigger is set to "free run" for signals with continuous operation. Trigger is set to enable sweeps only during full power bursts for signals with pulsed operation.
- 9. Sweep time = auto couple for signals with continuous operation; sweep set less than burst duration for signals with pulsed operation.
- 10. 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

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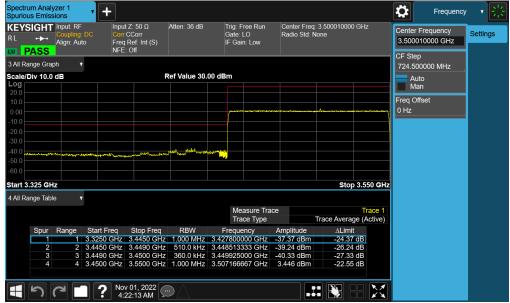


Test Notes

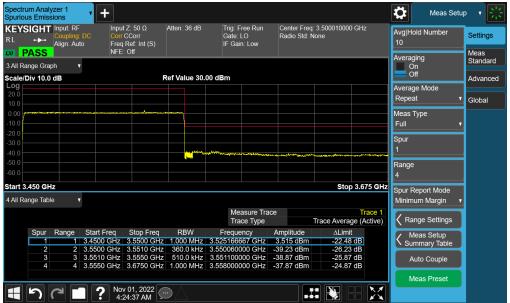
- 1. Per Part 27.53(I), compliance with the -13dBm/MHz conducted power limit for out-of-band emissions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz.
- 2. Per Part 27.53(n), compliance with the -13dBm/MHz conducted power limit for out-of-band emissions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed, but limited to a maximum of 200 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz.
- 3. The 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.
- 4. 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.

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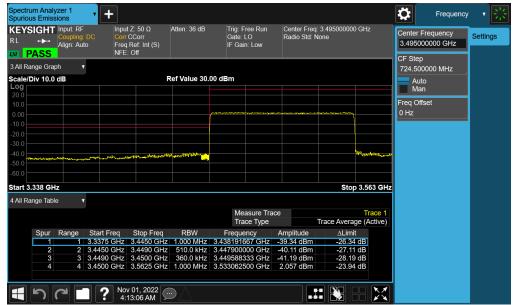
Plot 7-121. Lower ACP Plot (NR Band n77 - DoD Band - 100MHz CP-OFDM QPSK - Full RB - SRS-1)



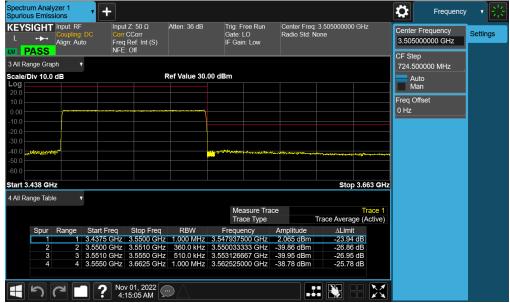
Plot 7-122. Upper ACP Plot (NR Band n77 - DoD Band - 100MHz DFT-s-OFDM π/2 BPSK - Full RB - SRS-1)

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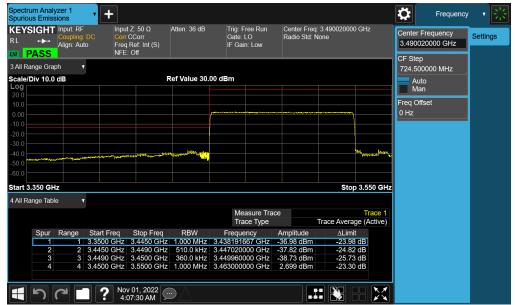
Plot 7-123. Lower ACP Plot (NR Band n77 - DoD Band – 90MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)



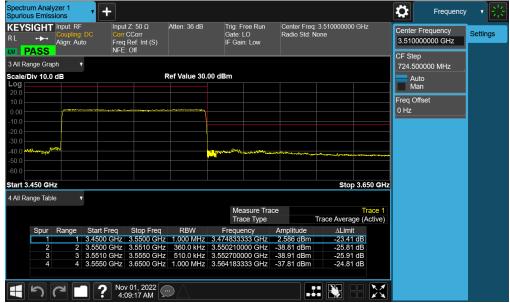
Plot 7-124. Upper ACP Plot (NR Band n77 - DoD Band – 90MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)

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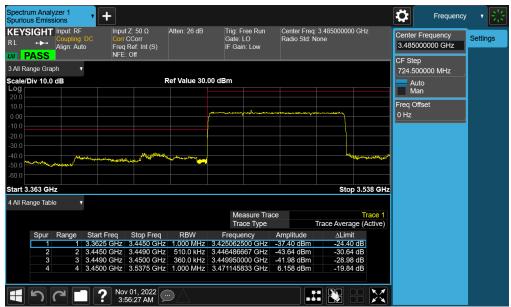
Plot 7-125. Lower ACP Plot (NR Band n77 - DoD Band – 80MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)



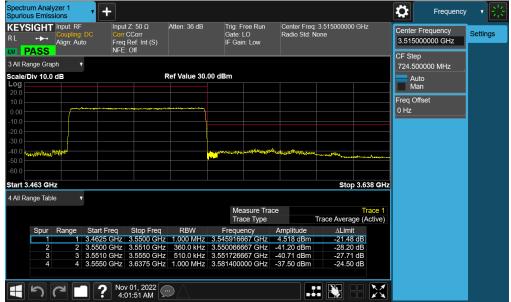
Plot 7-126. Upper ACP Plot (NR Band n77 - DoD Band – 80MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)

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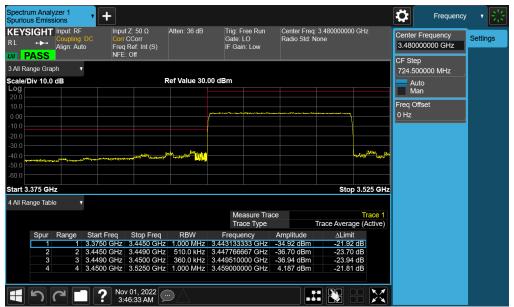
Plot 7-127. Lower ACP Plot (NR Band n77 - DoD Band - 70MHz CP-OFDM QPSK - Full RB - SRS-1)



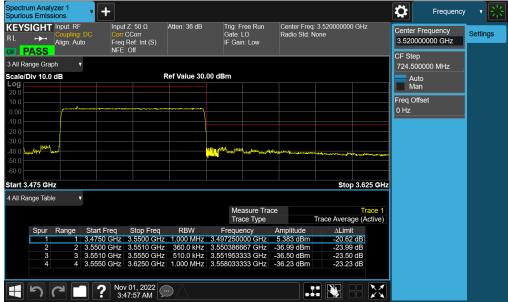
Plot 7-128. Upper ACP Plot (NR Band n77 - DoD Band – 70MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)

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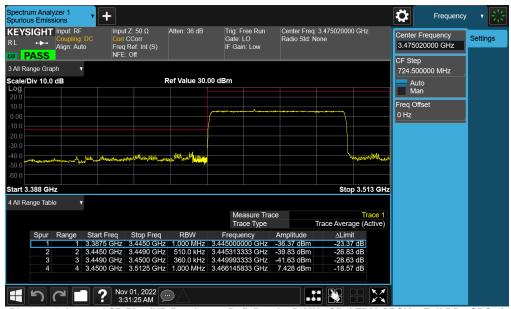
Plot 7-129. Lower ACP Plot (NR Band n77 - DoD Band – 60MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)



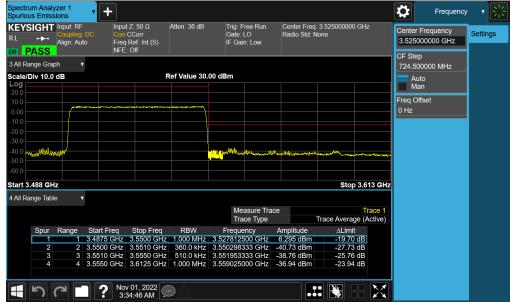
Plot 7-130. Upper ACP Plot (NR Band n77 - DoD Band - 60MHz CP-OFDM QPSK - Full RB - SRS-1)

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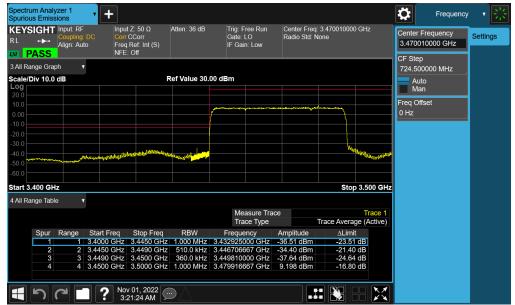
Plot 7-131. Lower ACP Plot (NR Band n77 - DoD Band - 50MHz CP-OFDM QPSK - Full RB - SRS-1)



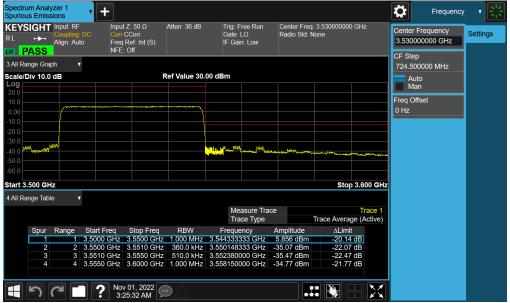
Plot 7-132. Upper ACP Plot (NR Band n77 - DoD Band – 50MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)

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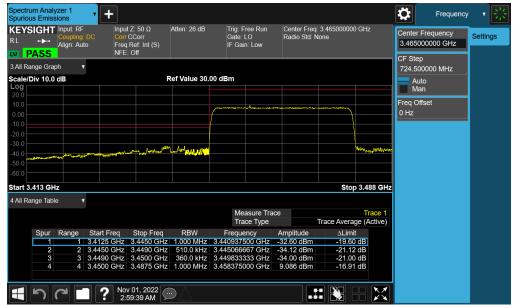
Plot 7-133. Lower ACP Plot (NR Band n77 - DoD Band - 40MHz DFT-s-OFDM π/2 BPSK - Full RB - SRS-1)



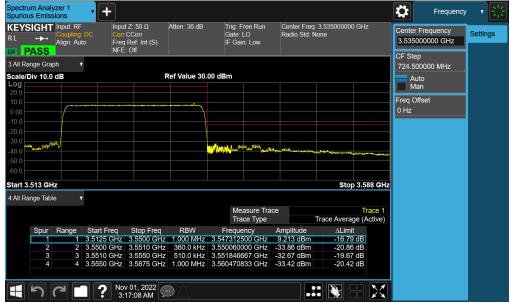
Plot 7-134. Upper ACP Plot (NR Band n77 - DoD Band – 40MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)

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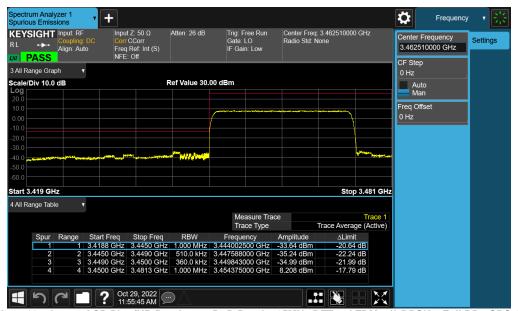
Plot 7-135. Lower ACP Plot (NR Band n77 - DoD Band – 30MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)



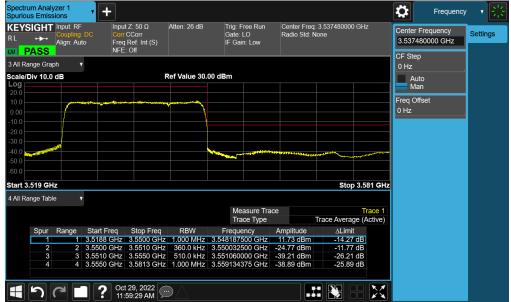
Plot 7-136. Upper ACP Plot (NR Band n77 - DoD Band – 30MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)

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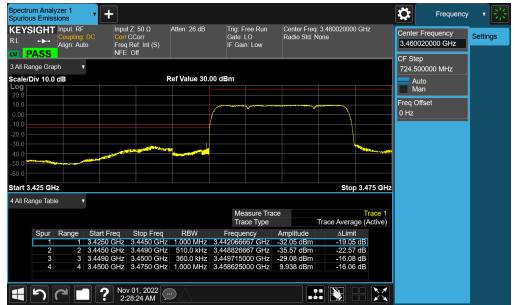
Plot 7-137. Lower ACP Plot (NR Band n77 - DoD Band – 25MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)



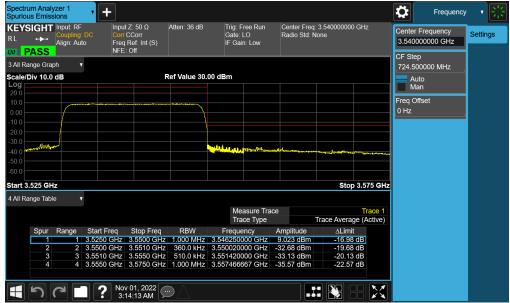
Plot 7-138. Upper ACP Plot (NR Band n77 - DoD Band – 25MHz CP-OFDM QPSK – Full RB - SRS-1)

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Plot 7-139. Lower ACP Plot (NR Band n77 - DoD Band – 20MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)



Plot 7-140. Upper ACP Plot (NR Band n77 - DoD Band – 20MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)

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