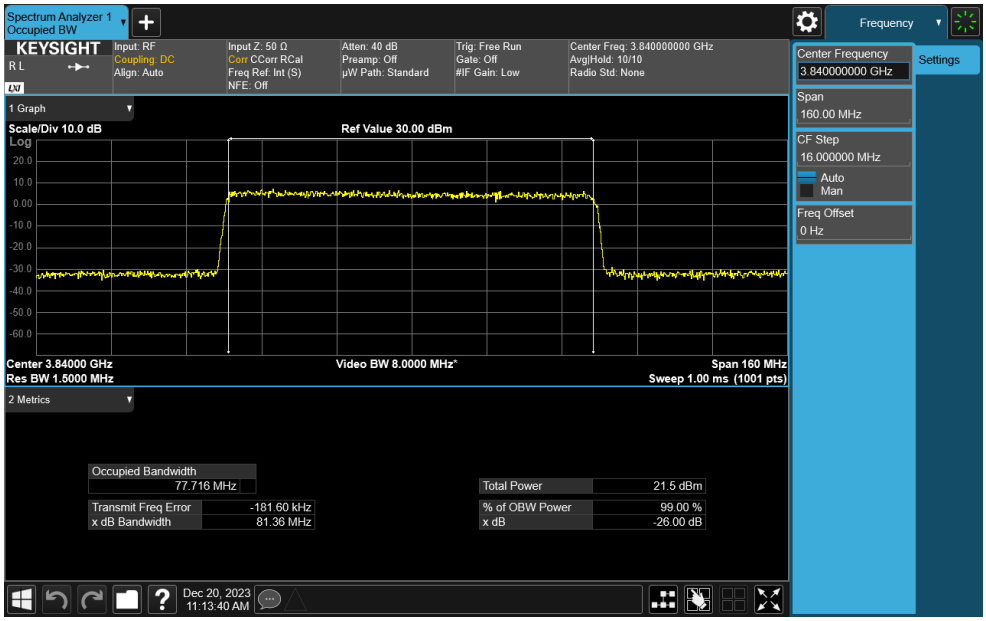
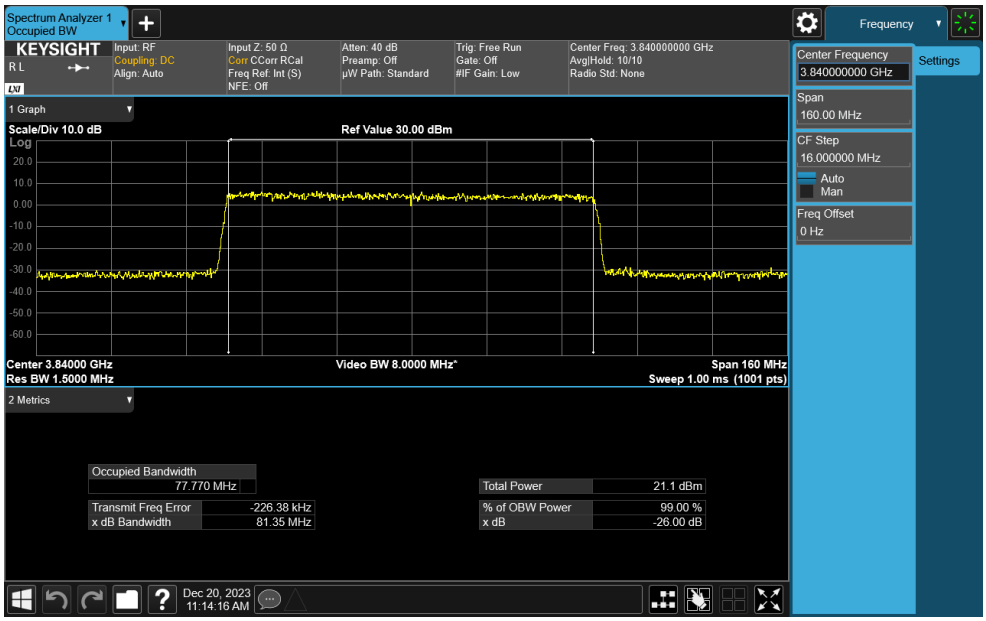
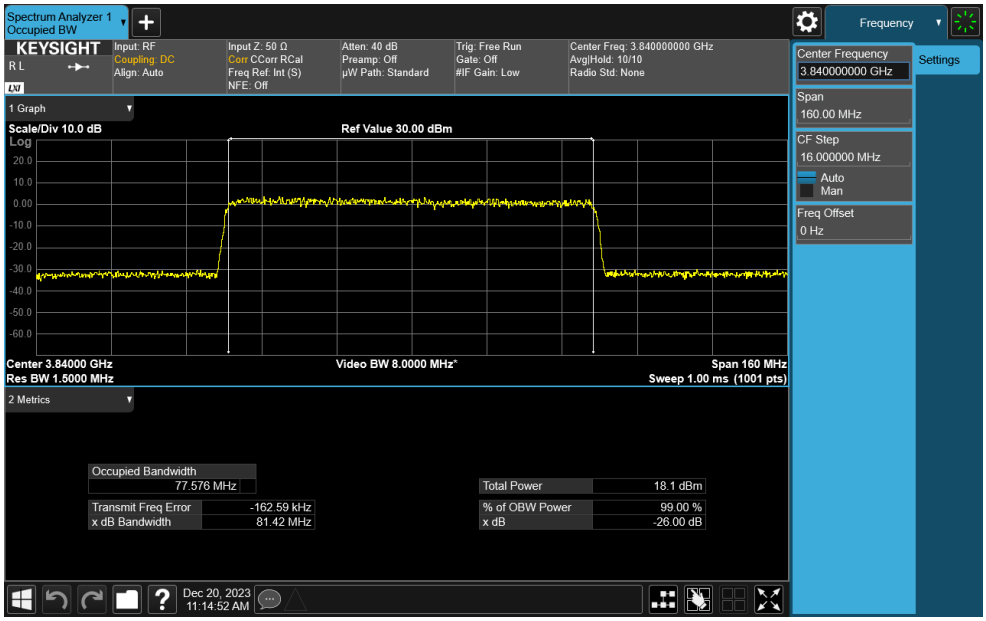


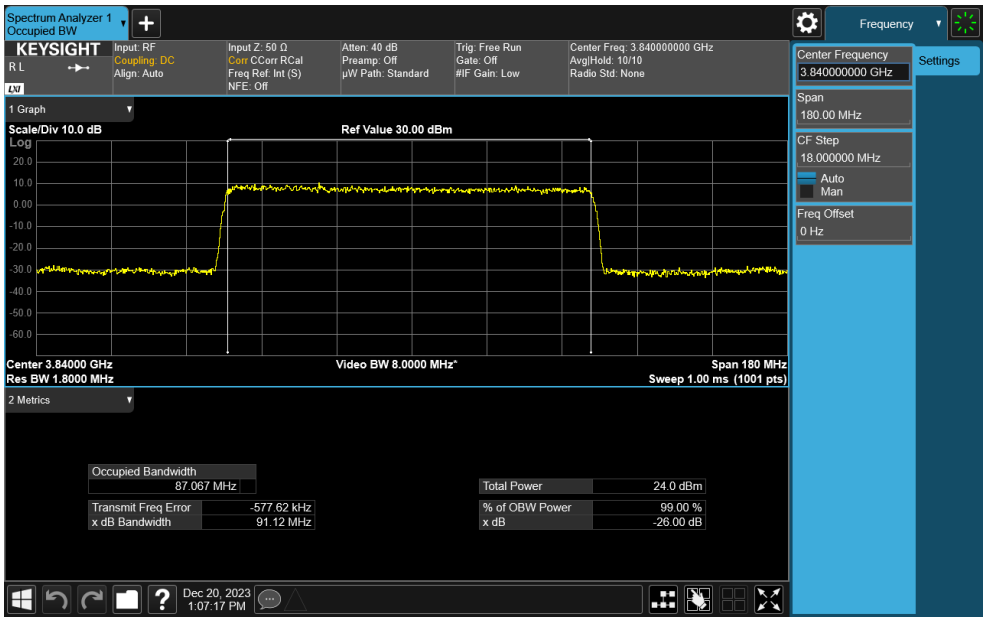
Plot 7-98. Occupied Bandwidth Plot (NR Band n77 C-Band - 80MHz CP-OFDM 16-QAM - Full RB)



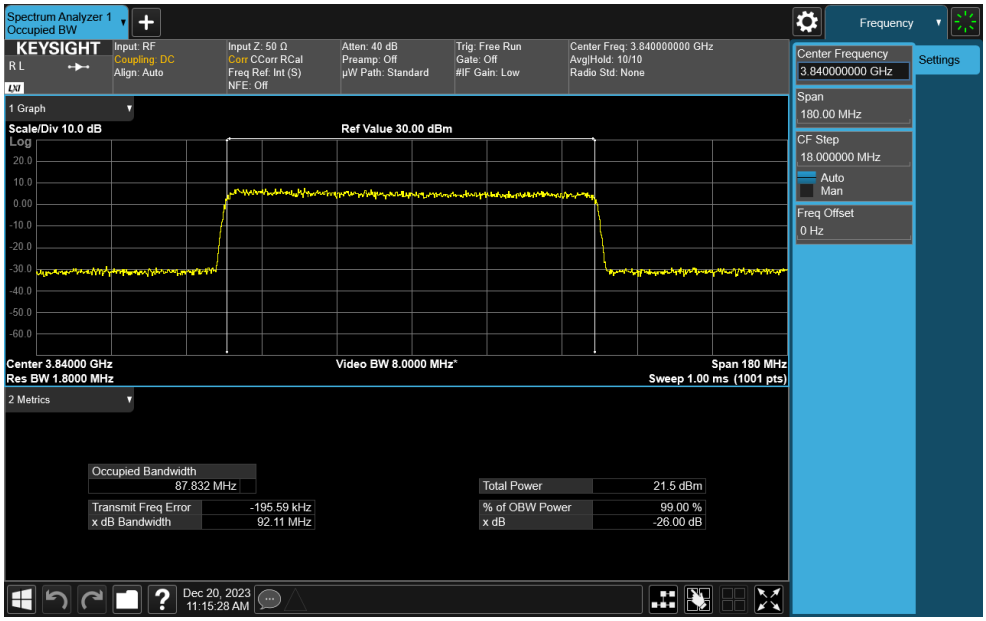
Plot 7-99. Occupied Bandwidth Plot (NR Band n77 C-Band - 80MHz CP-OFDM 64-QAM - Full RB)



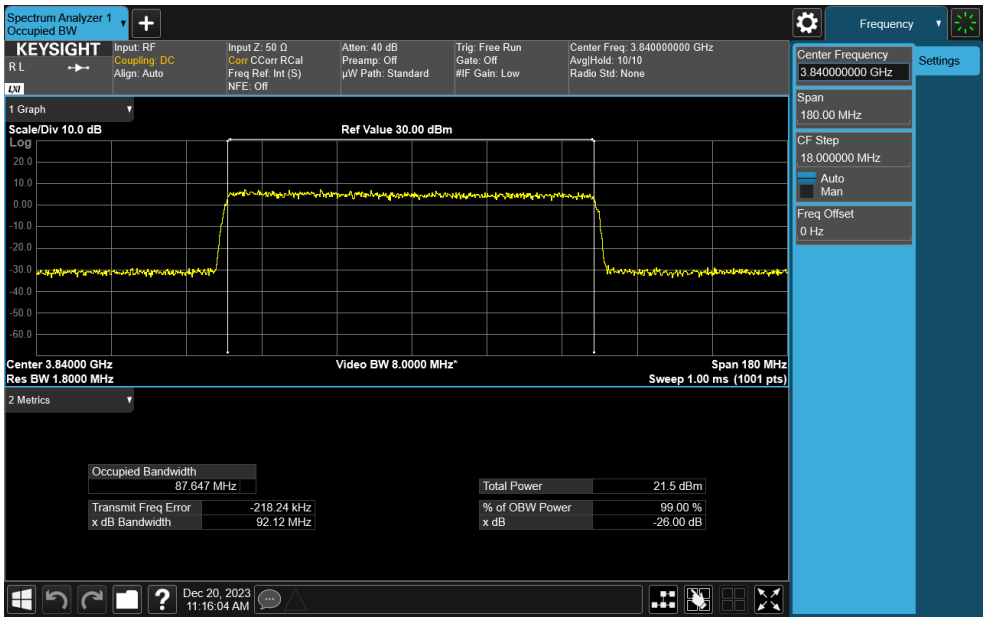
Plot 7-100. Occupied Bandwidth Plot (NR Band n77 C-Band - 80MHz CP-OFDM 256-QAM - Full RB)



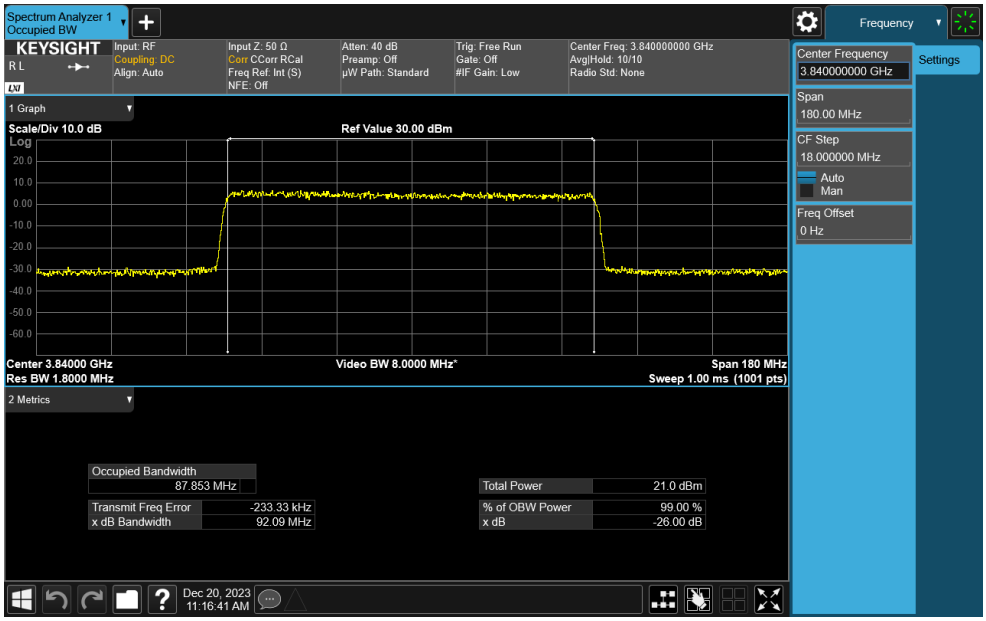
Plot 7-101. Occupied Bandwidth Plot (NR Band n77 C-Band - 90MHz DFT-s-OFDM π/2 BPSK - Full RB)



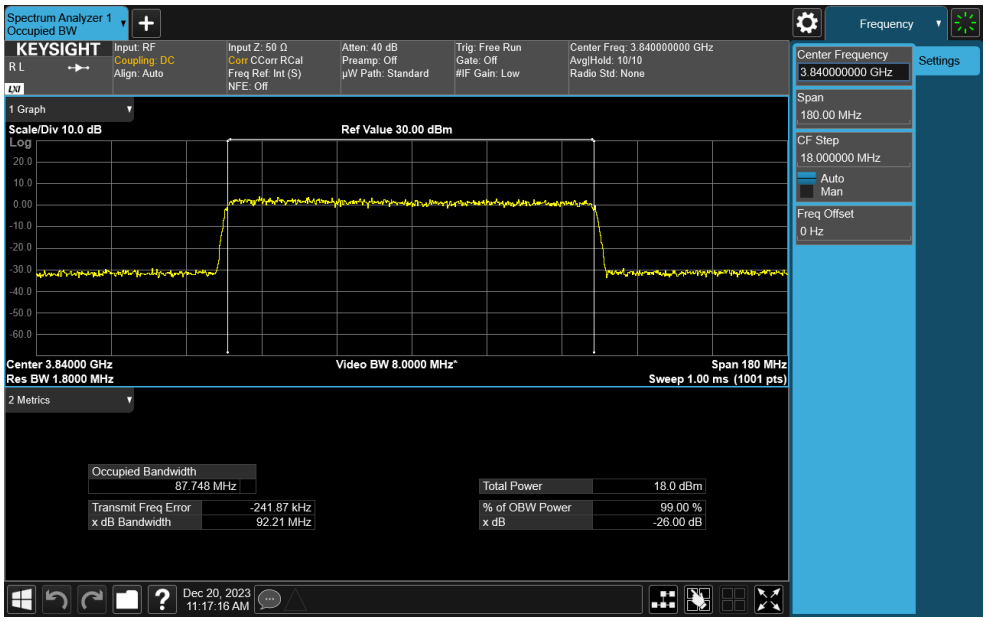
Plot 7-102. Occupied Bandwidth Plot (NR Band n77 C-Band - 90MHz CP-OFDM QPSK - Full RB)



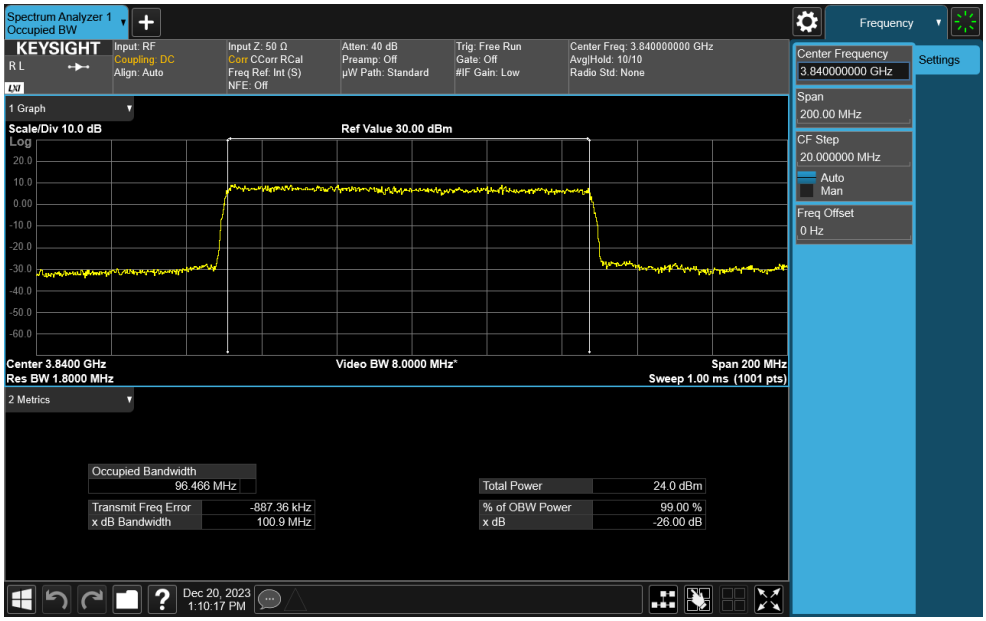
Plot 7-103. Occupied Bandwidth Plot (NR Band n77 C-Band - 90MHz CP-OFDM 16-QAM - Full RB)



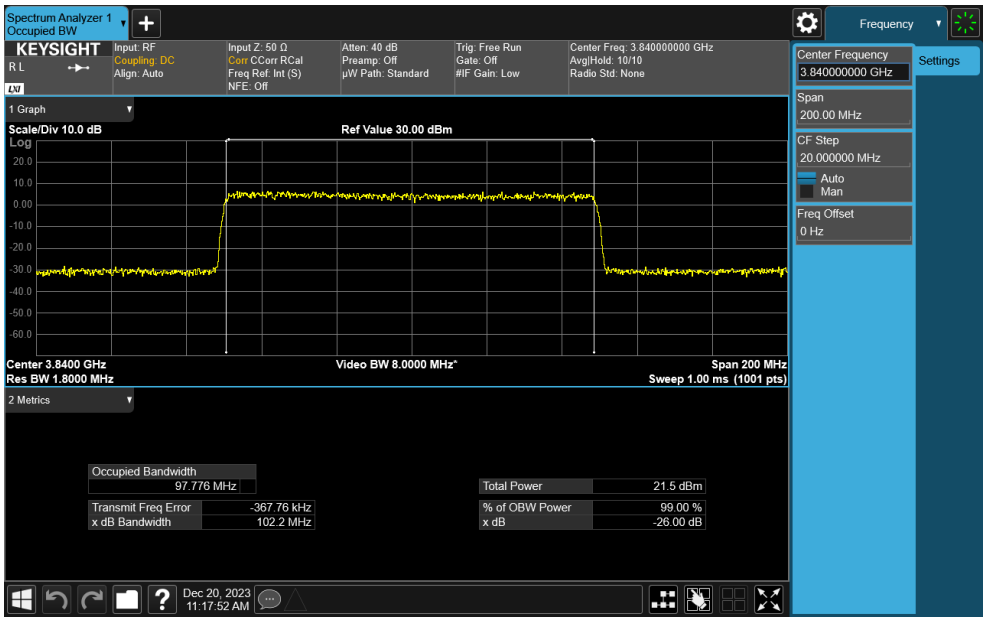
Plot 7-104. Occupied Bandwidth Plot (NR Band n77 C-Band - 90MHz CP-OFDM 64-QAM - Full RB)



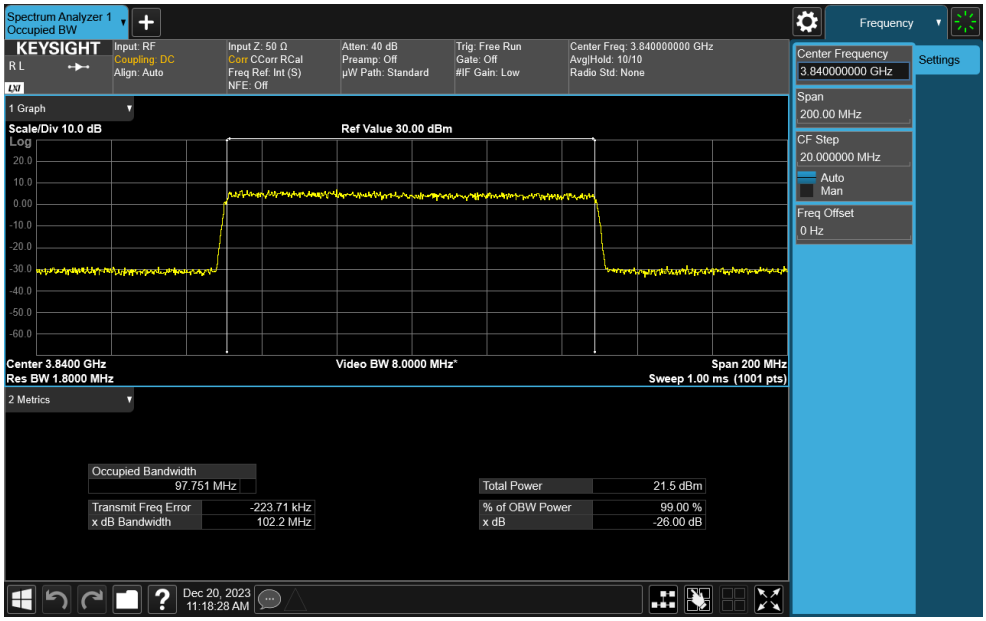
Plot 7-105. Occupied Bandwidth Plot (NR Band n77 C-Band - 90MHz CP-OFDM 256-QAM - Full RB)



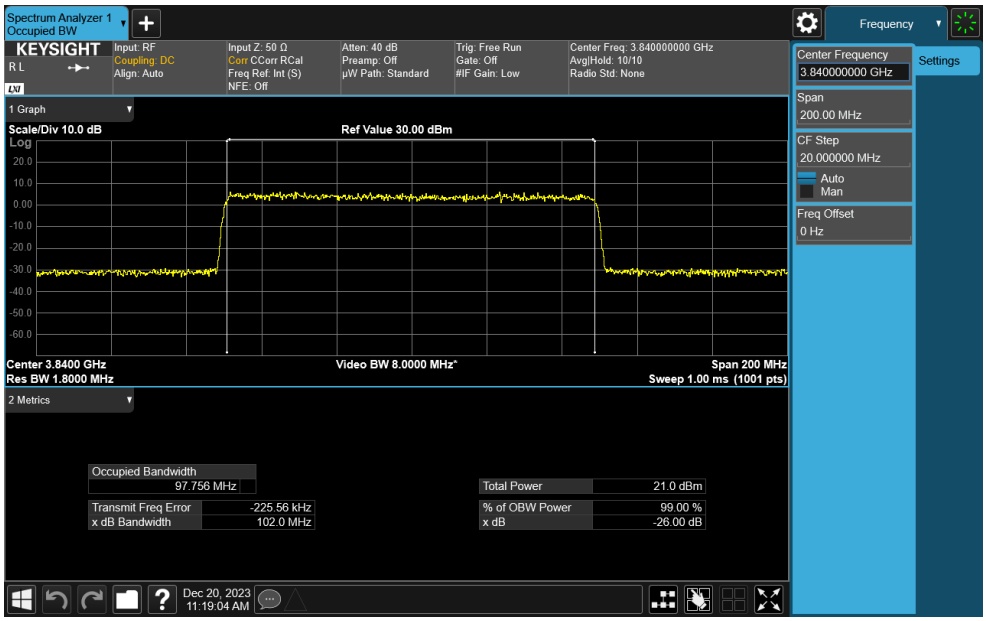
Plot 7-106. Occupied Bandwidth Plot (NR Band n77 C-Band - 100MHz DFT-s-OFDM π/2 BPSK - Full RB)



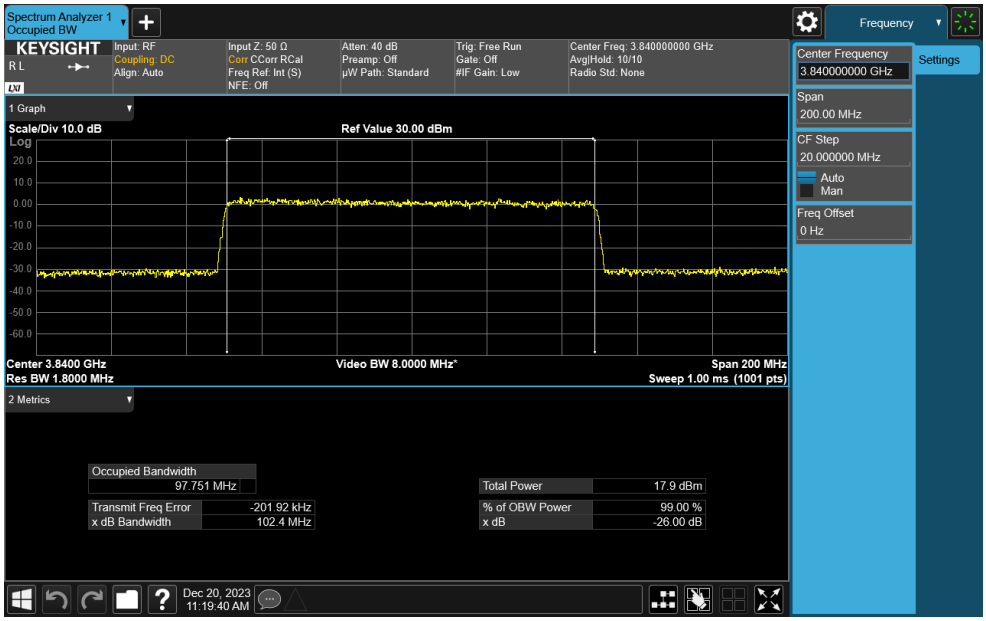
Plot 7-107. Occupied Bandwidth Plot (NR Band n77 C-Band - 100MHz CP-OFDM QPSK - Full RB)



Plot 7-108. Occupied Bandwidth Plot (NR Band n77 C-Band - 100MHz CP-OFDM 16-QAM - Full RB)



Plot 7-109. Occupied Bandwidth Plot (NR Band n77 C-Band - 100MHz CP-OFDM 64-QAM - Full RB)



Plot 7-110. Occupied Bandwidth Plot (NR Band n77 C-Band - 100MHz CP-OFDM 256-QAM - Full RB)

7.3 Spurious and Harmonic Emissions at Antenna Terminal

§2.1051, §27.53(l), §27.53(n)

Test Overview and Limit

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.

The minimum permissible attenuation level of any spurious emission is 43 + 10 $log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to 10GHz (separated into at least two plots per channel)
2. Detector = RMS
3. 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.

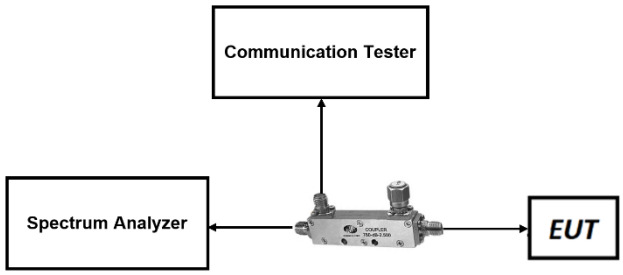


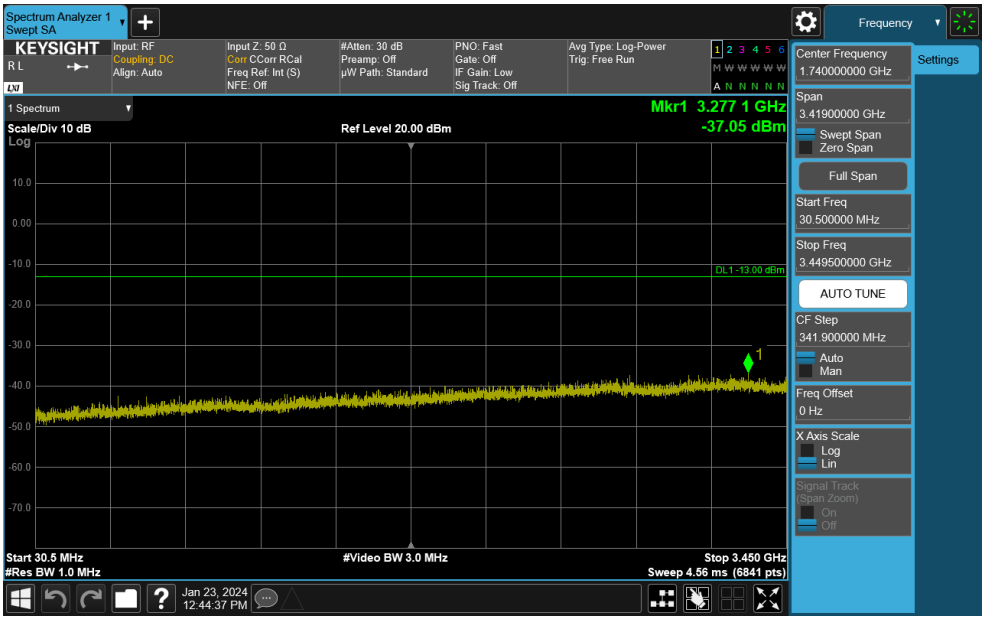
Figure 7-2. Test Instrument & Measurement Setup

Test Notes

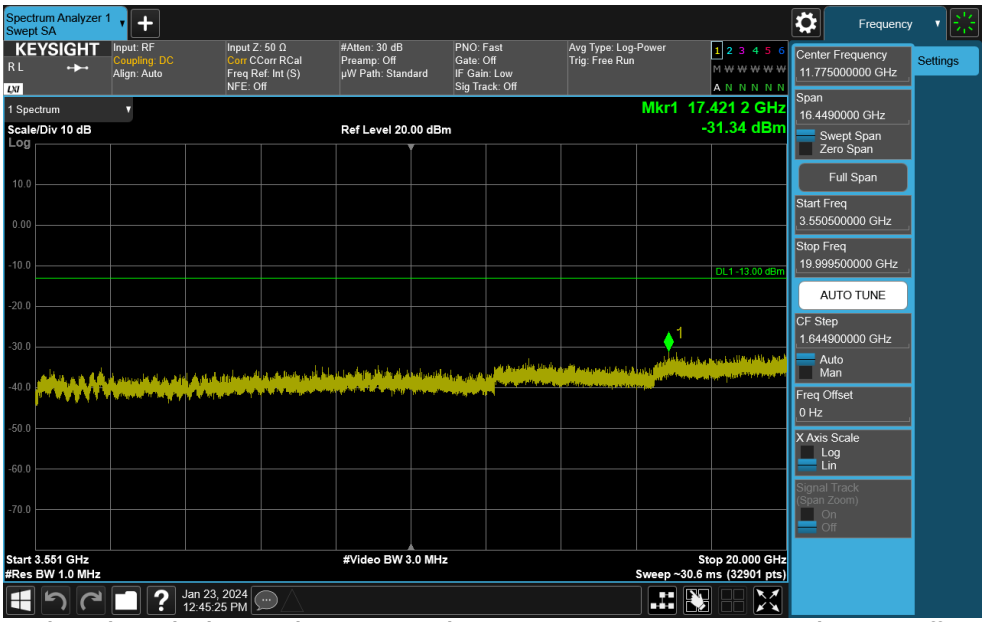
1. Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth 100 kHz or greater for measurements below 1GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. 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 emission 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.

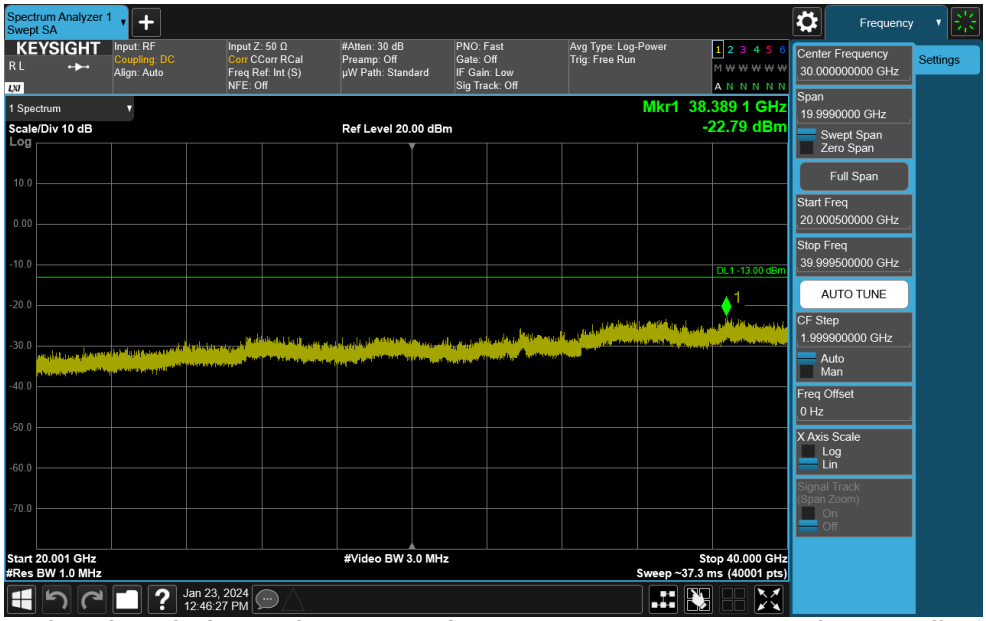
NR Band n77 PC2 DoD-Band



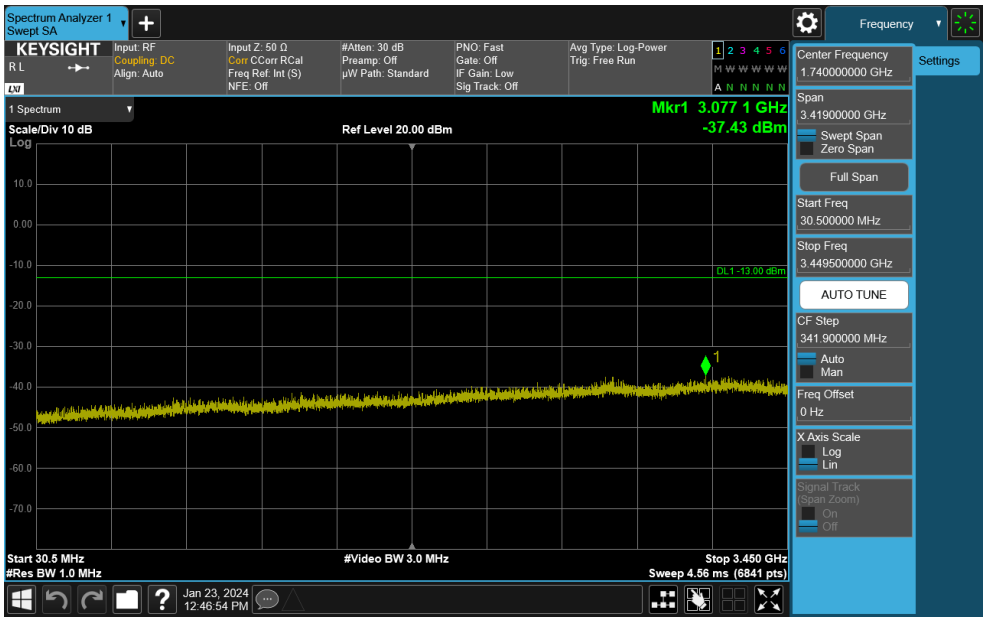
Plot 7-111. Conducted Spurious Plot (NR Band n77 DoD Band - 90MHz DFT-s-OFDM QPSK – RB Size 1, RB Offset 0 – Low Channel)



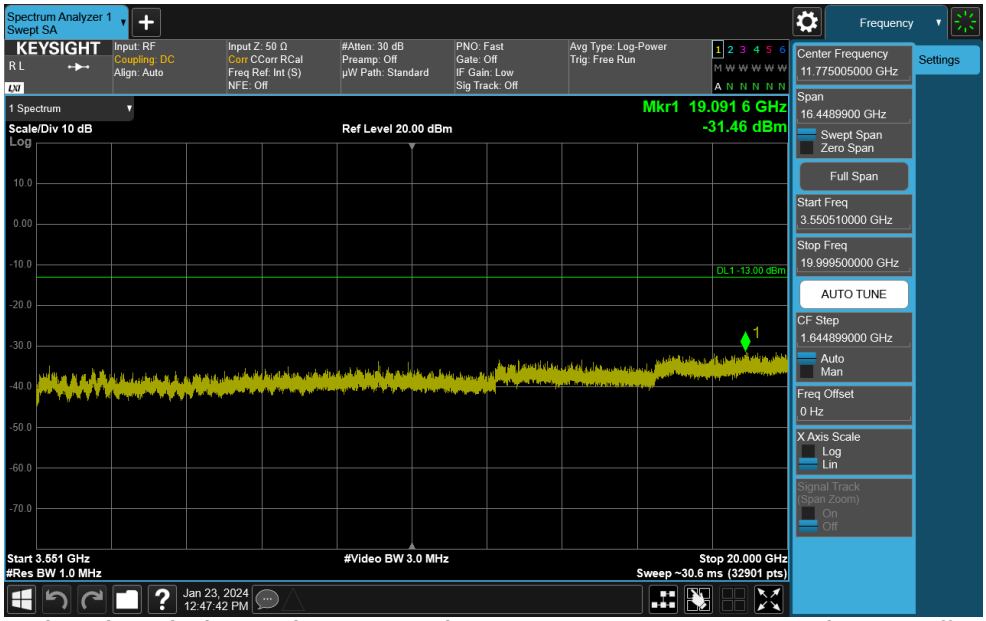
Plot 7-112. Conducted Spurious Plot (NR Band n77 DoD Band - 90MHz DFT-s-OFDM QPSK – RB Size 1, RB Offset 0 – Low Channel)



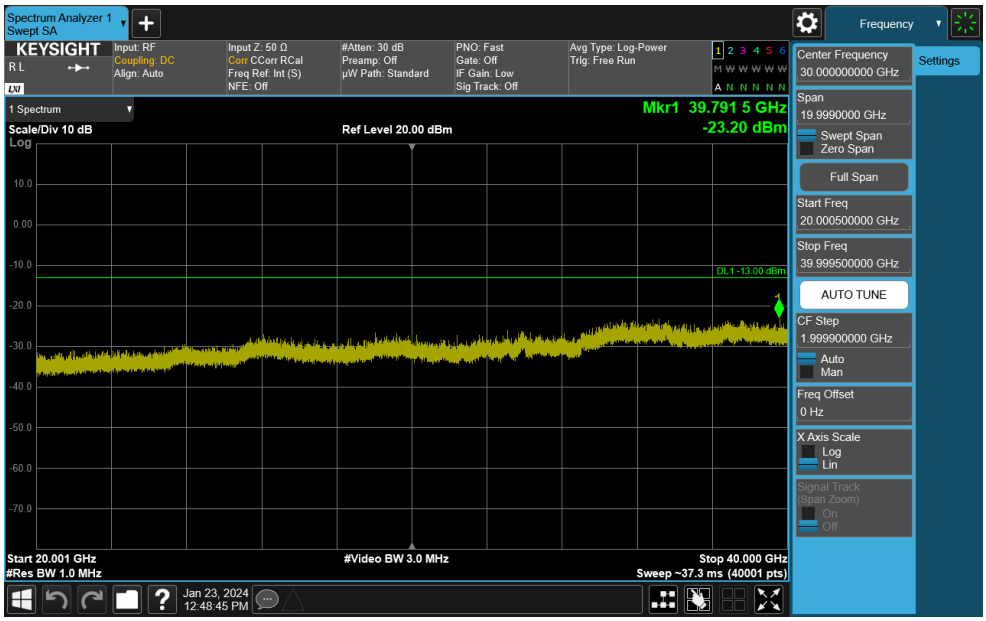
Plot 7-113. Conducted Spurious Plot (NR Band n77 DoD Band - 90MHz DFT-s-OFDM QPSK – RB Size 1, RB Offset 0 – Low Channel)



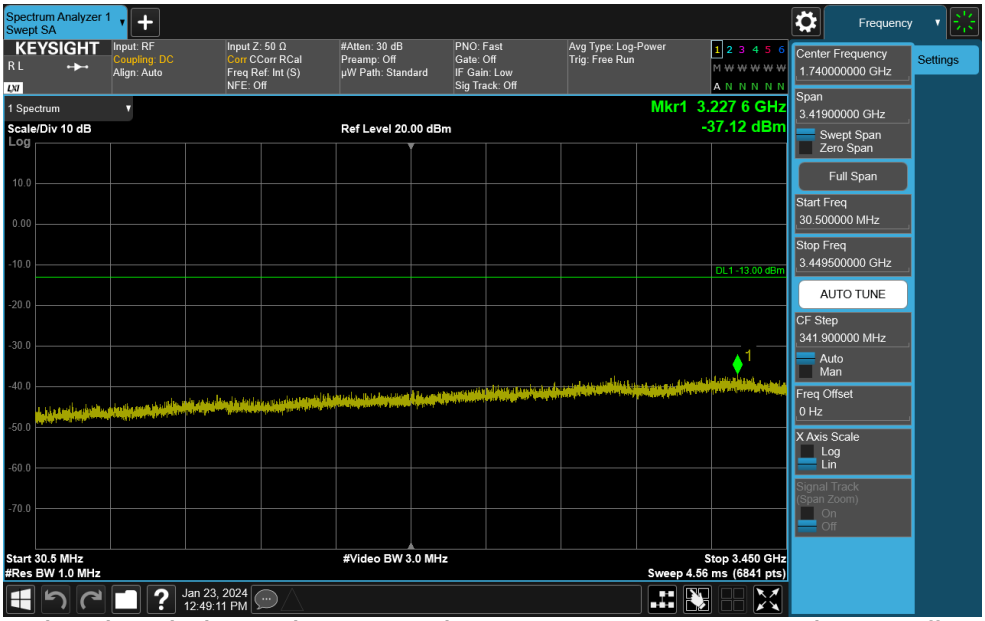
Plot 7-114. Conducted Spurious Plot (NR Band n77 DoD Band - 100MHz DFT-s-OFDM QPSK – RB Size 1, RB Offset 0 – Mid Channel)



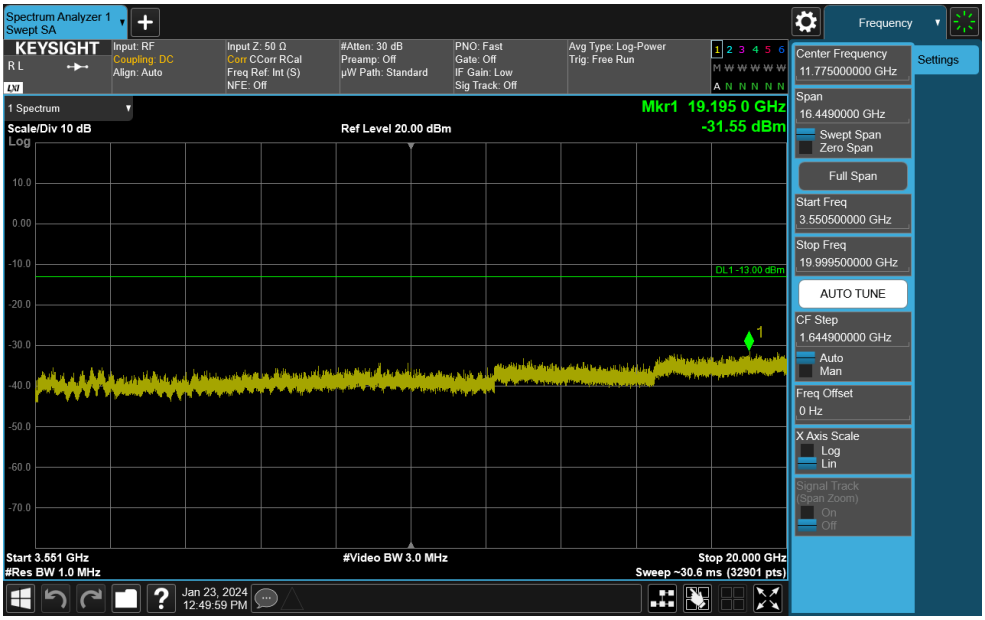
Plot 7-115. Conducted Spurious Plot (NR Band n77 DoD Band - 100MHz DFT-s-OFDM QPSK – RB Size 1, RB Offset 0 – Mid Channel)



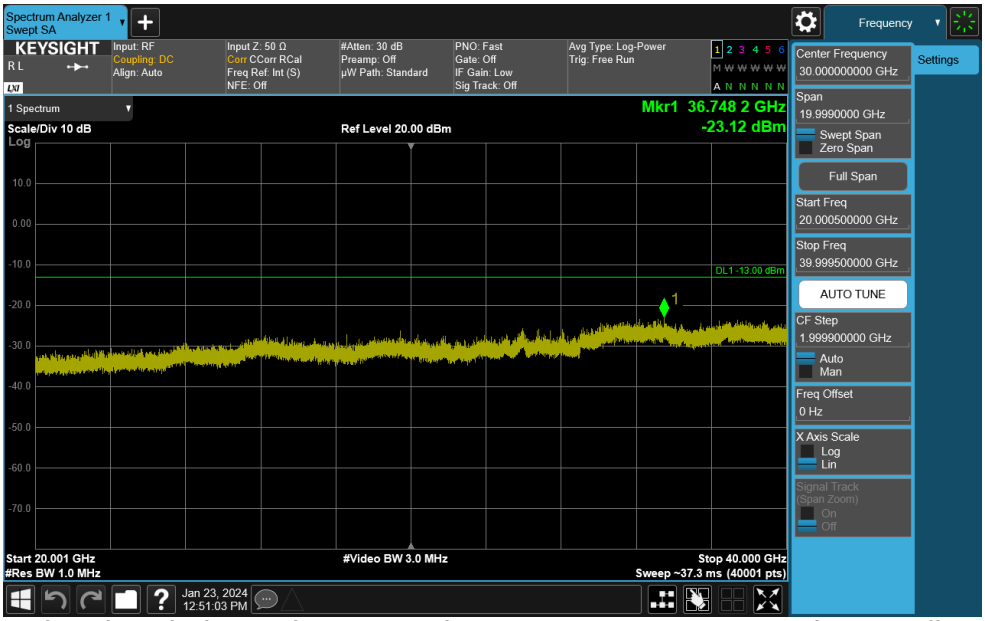
Plot 7-116. Conducted Spurious Plot (NR Band n77 DoD Band - 100MHz DFT-s-OFDM QPSK – RB Size 1, RB Offset 0 – Mid Channel)



Plot 7-117. Conducted Spurious Plot (NR Band n77 DoD Band - 90MHz DFT-s-OFDM QPSK – RB Size 1, RB Offset 0 – High Channel)

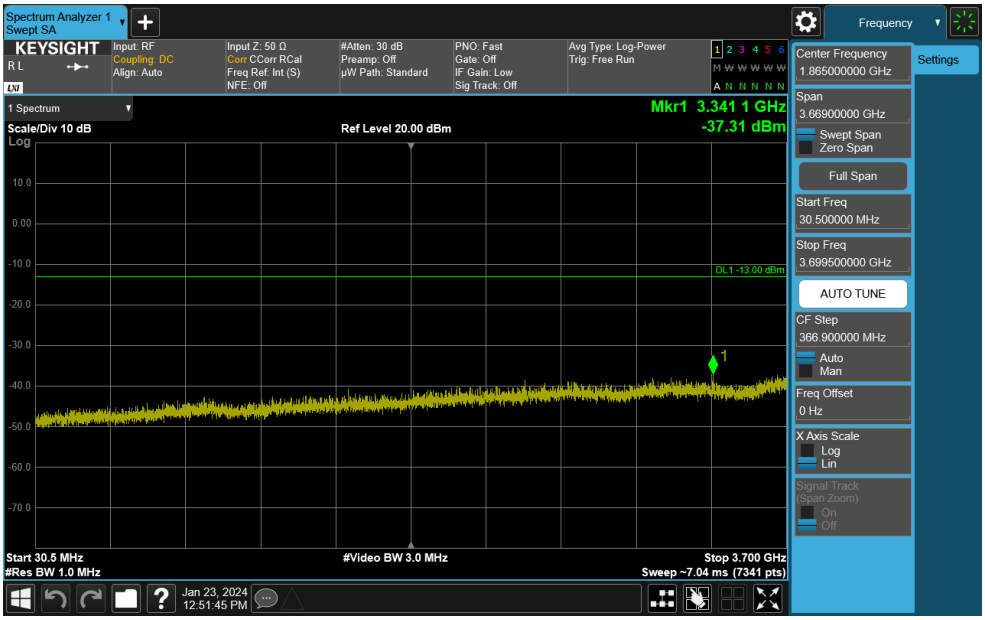


Plot 7-118. Conducted Spurious Plot (NR Band n77 DoD Band - 90MHz DFT-s-OFDM QPSK – RB Size 1, RB Offset 0 – High Channel)

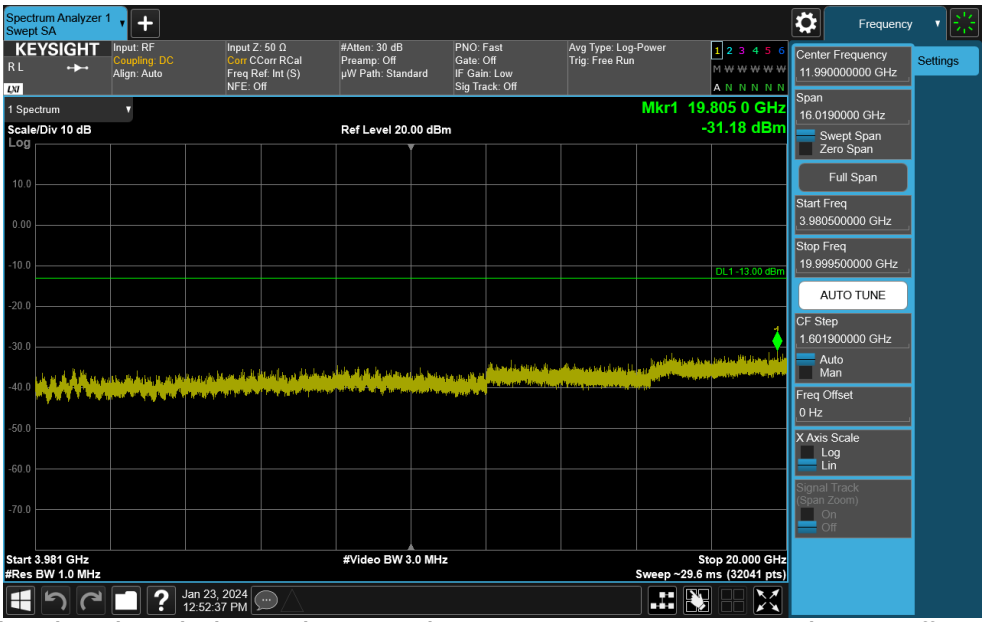


Plot 7-119. Conducted Spurious Plot (NR Band n77 DoD Band - 90MHz DFT-s-OFDM QPSK – RB Size 1, RB Offset 0 – High Channel)

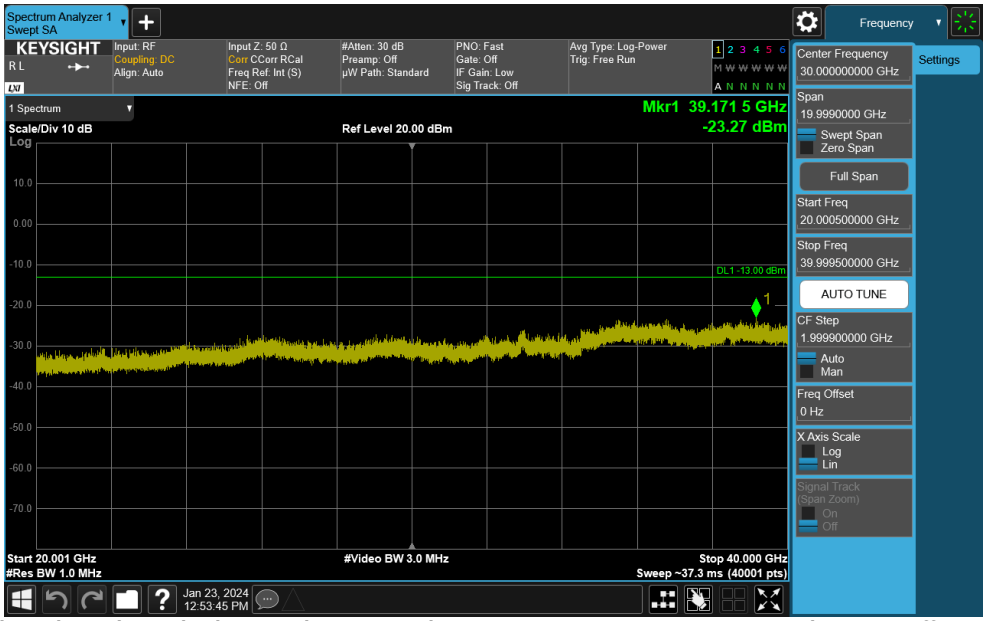
NR Band n77 PC2 C-Band



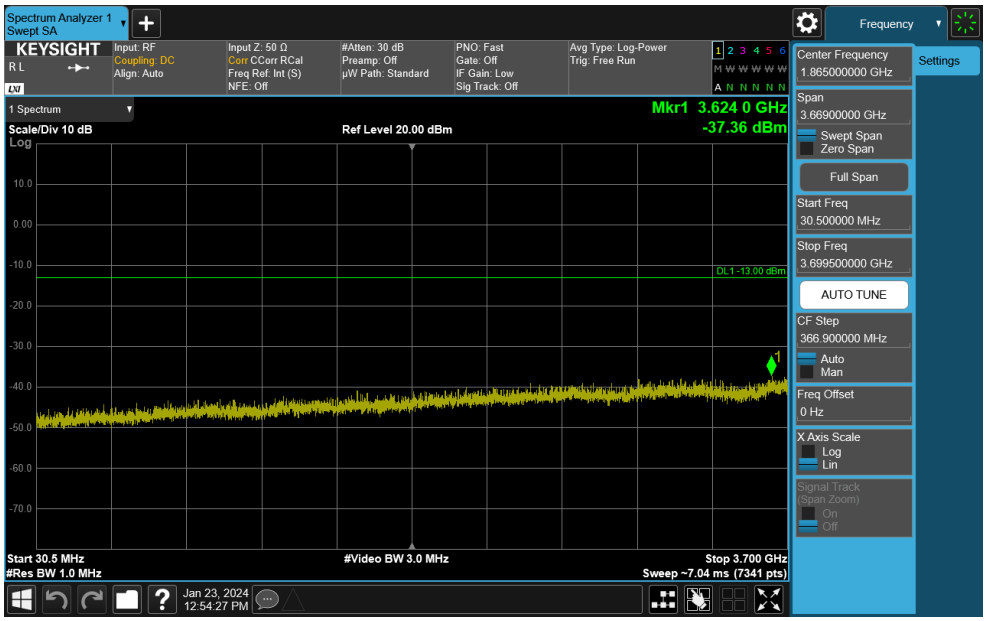
Plot 7-120. Conducted Spurious Plot (NR Band n77 C-Band - 100MHz DFT-s-OFDM QPSK – RB Size 1, RB Offset 0 – Low Channel)



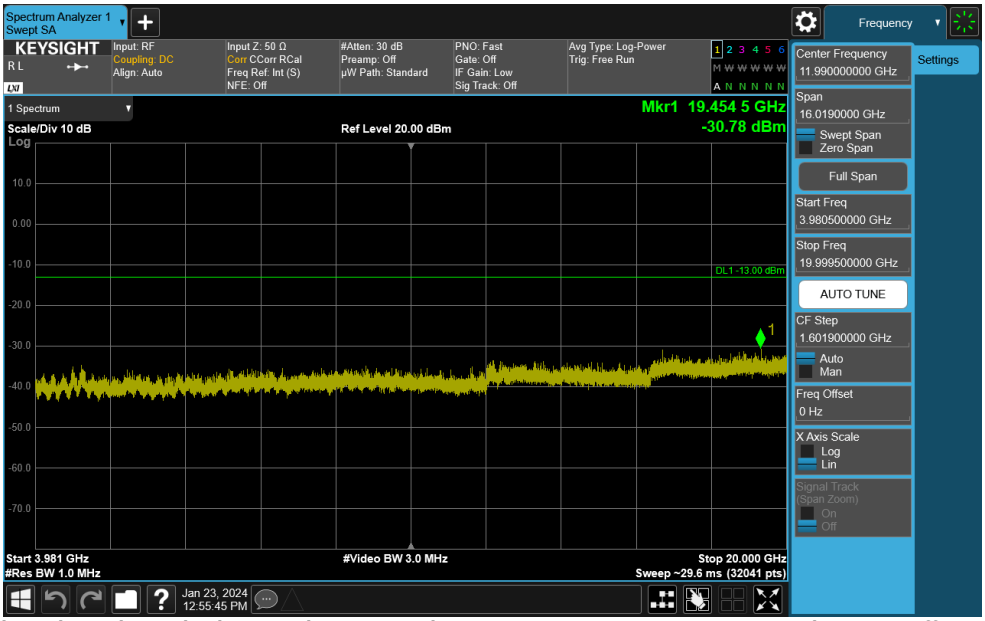
Plot 7-121. Conducted Spurious Plot (NR Band n77 C-Band - 100MHz DFT-s-OFDM QPSK – RB Size 1, RB Offset 0 – Low Channel)



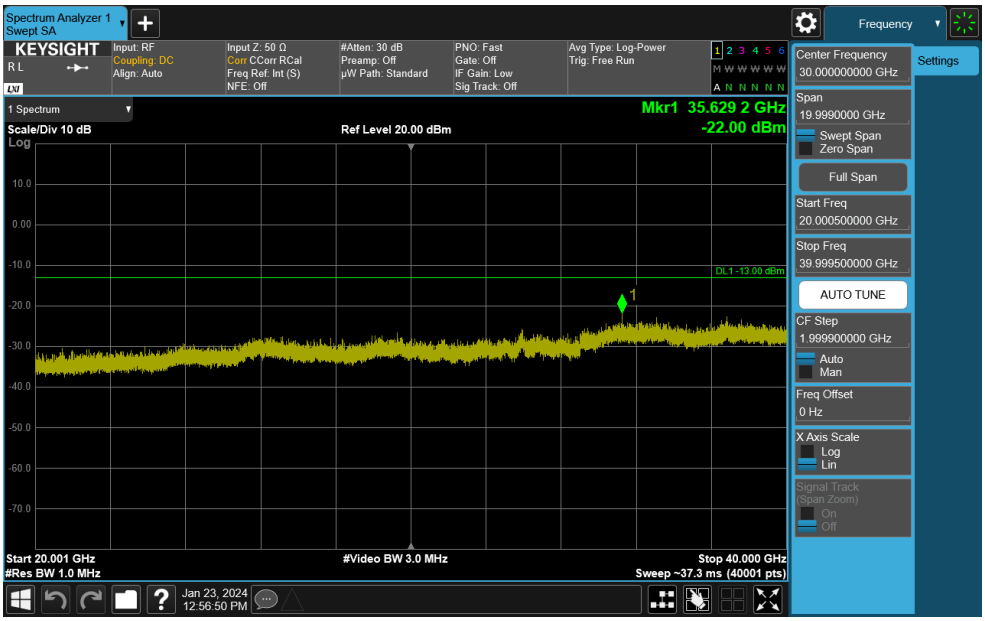
Plot 7-122. Conducted Spurious Plot (NR Band n77 C-Band - 100MHz DFT-s-OFDM QPSK – RB Size 1, RB Offset 0 – Low Channel)



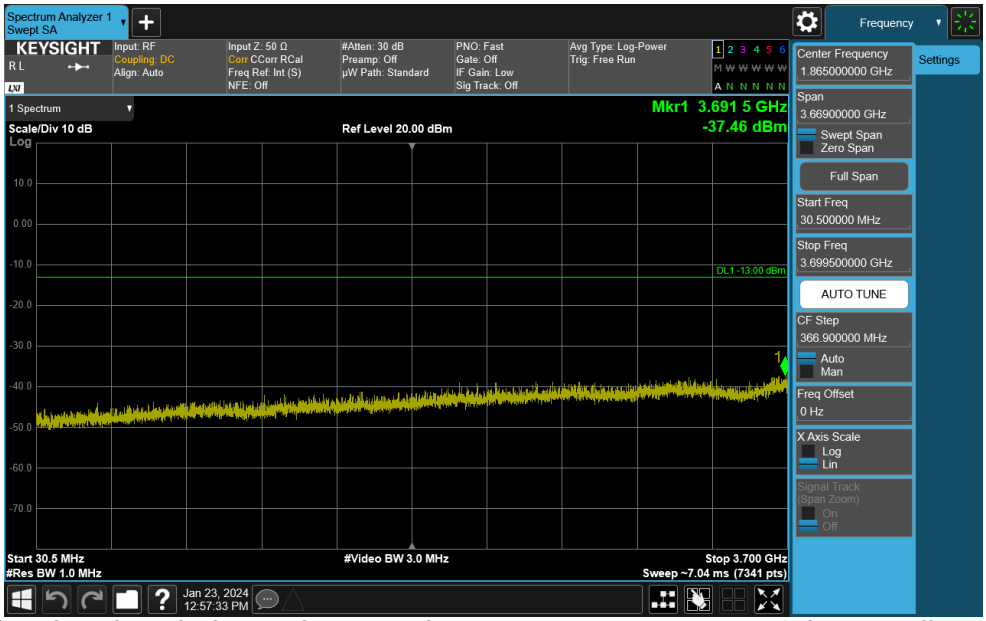
Plot 7-123. Conducted Spurious Plot (NR Band n77 C-Band - 100MHz DFT-s-OFDM QPSK – RB Size 1, RB Offset 0 – Mid Channel)



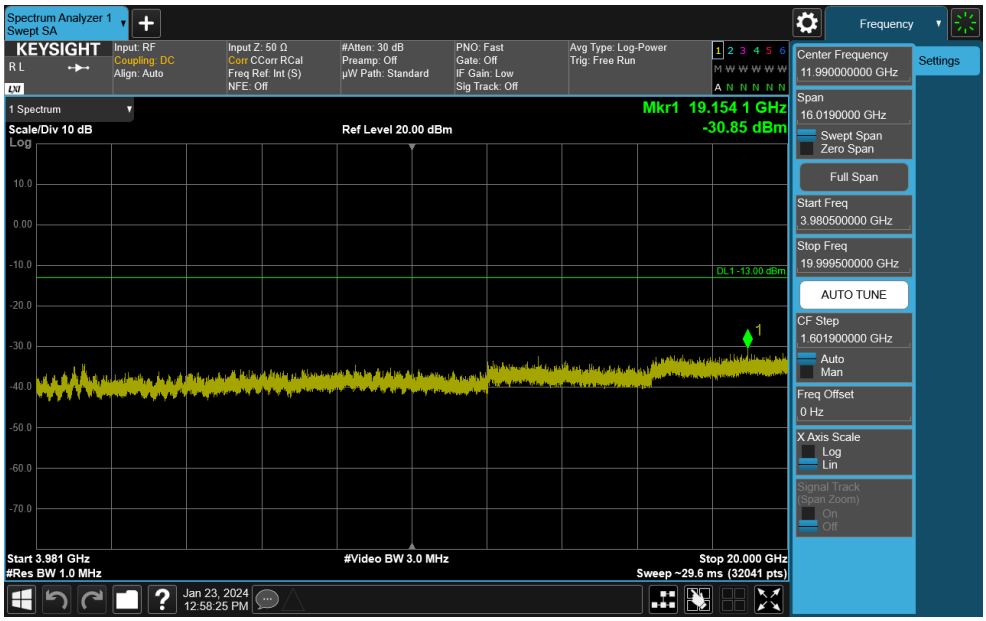
Plot 7-124. Conducted Spurious Plot (NR Band n77 C-Band - 100MHz DFT-s-OFDM QPSK – RB Size 1, RB Offset 0 – Mid Channel)



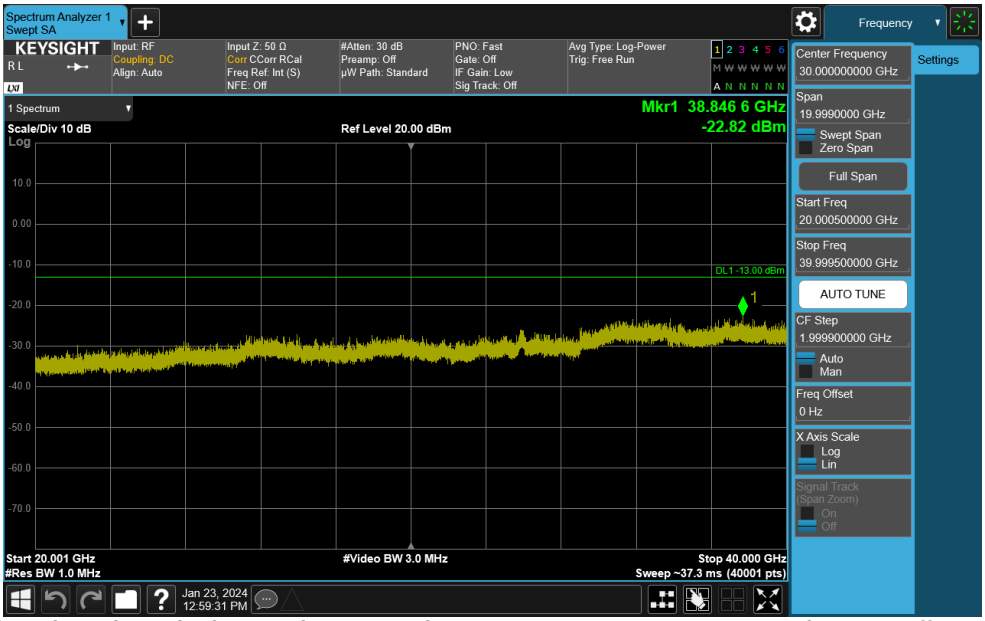
Plot 7-125. Conducted Spurious Plot (NR Band n77 C-Band - 100MHz DFT-s-OFDM QPSK – RB Size 1, RB Offset 0 – Mid Channel)



Plot 7-126. Conducted Spurious Plot (NR Band n77 C-Band - 100MHz DFT-s-OFDM QPSK – RB Size 1, RB Offset 0 – High Channel)



Plot 7-127. Conducted Spurious Plot (NR Band n77 C-Band - 100MHz DFT-s-OFDM QPSK – RB Size 1, RB Offset 0 – High Channel)



Plot 7-128. Conducted Spurious Plot (NR Band n77 C-Band - 100MHz DFT-s-OFDM QPSK – RB Size 1, RB Offset 0 – High Channel)

7.4 Band Edge Emissions at Antenna Terminal

§2.1051, §27.53(l), §27.53(n)

Test Overview and Limit

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. All ports were tested and only the worst case data was reported.

For NR FR1 Band n77, the minimum permissible attenuation level of any spurious emission is 43 + 10 $log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

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 x RBW
5. Detector = RMS
6. Number of sweep points ≥ 2 x Span/RBW
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
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.

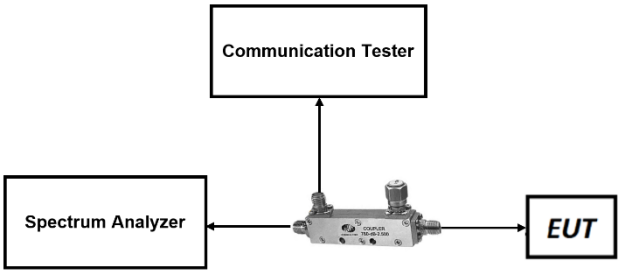


Figure 7-3. Test Instrument & Measurement Setup

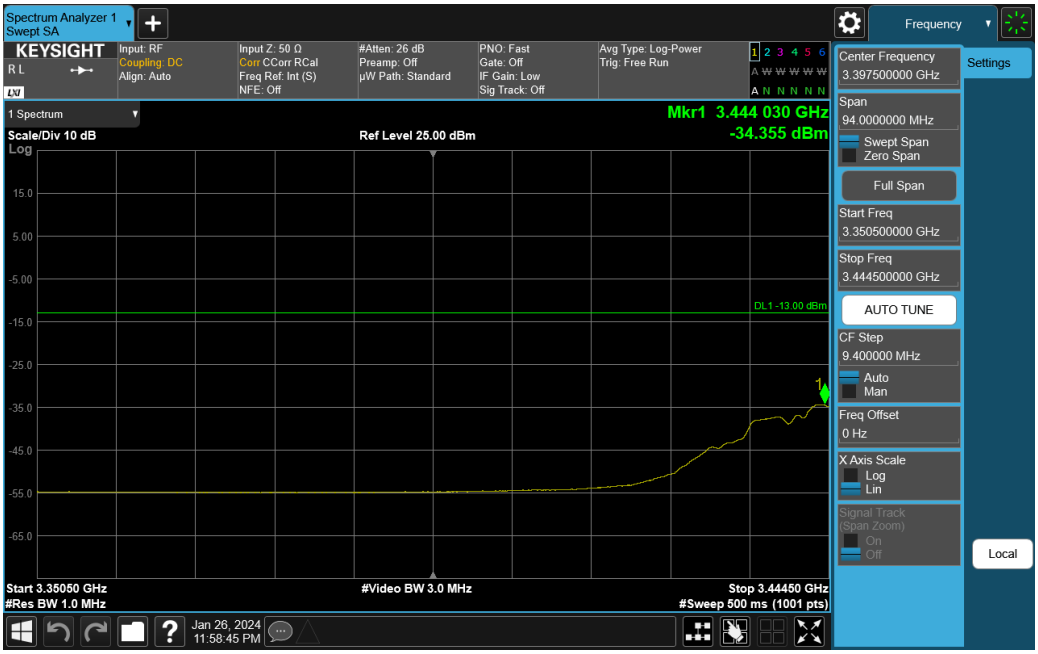
Test Notes

1. Per Part 27.53(l), compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth 1MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth shall be 500kHz. 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 emission are attenuated at least 26 dB below the transmitter power.

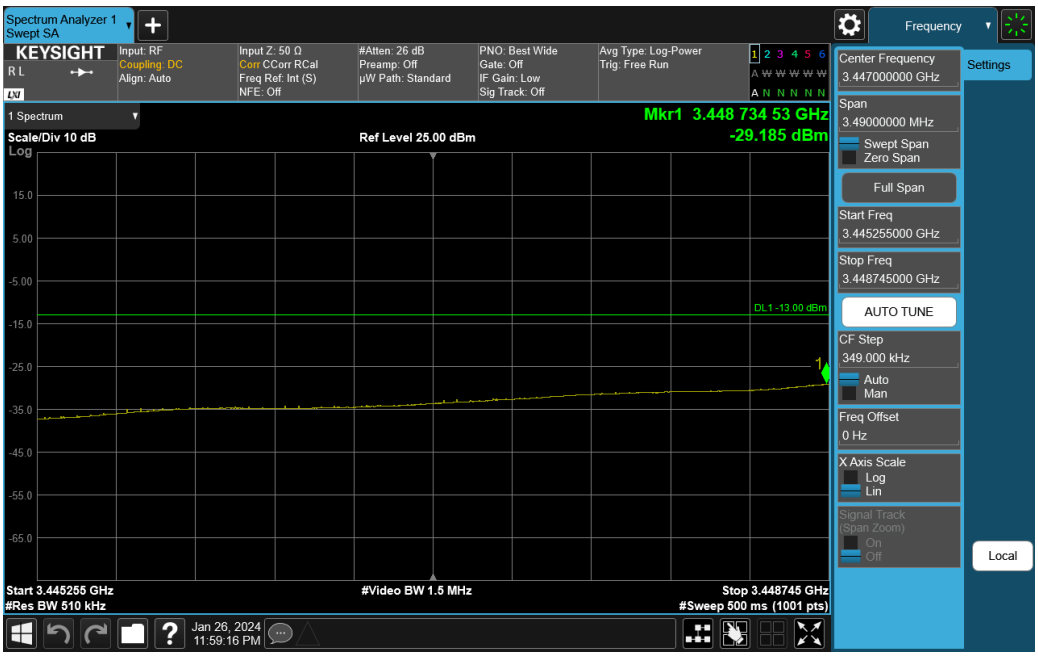
2. Per Part 27.53(n), compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth 1MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission 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 shall be 500kHz. 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 emission are attenuated at least 26 dB below the transmitter power.

3. 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.

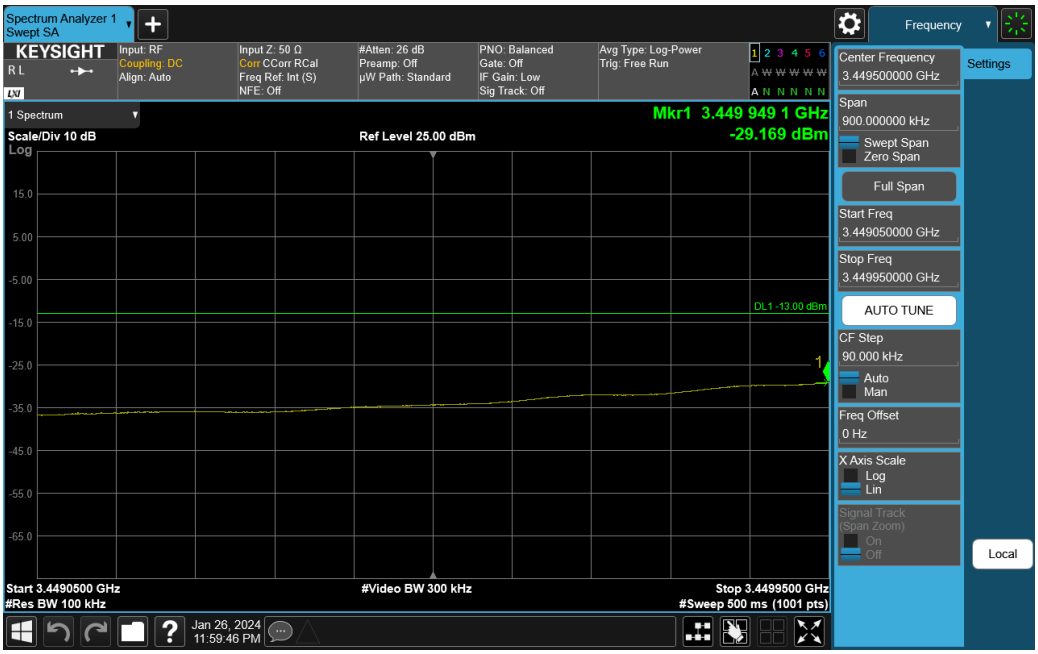
NR Band n77 DoD-Band



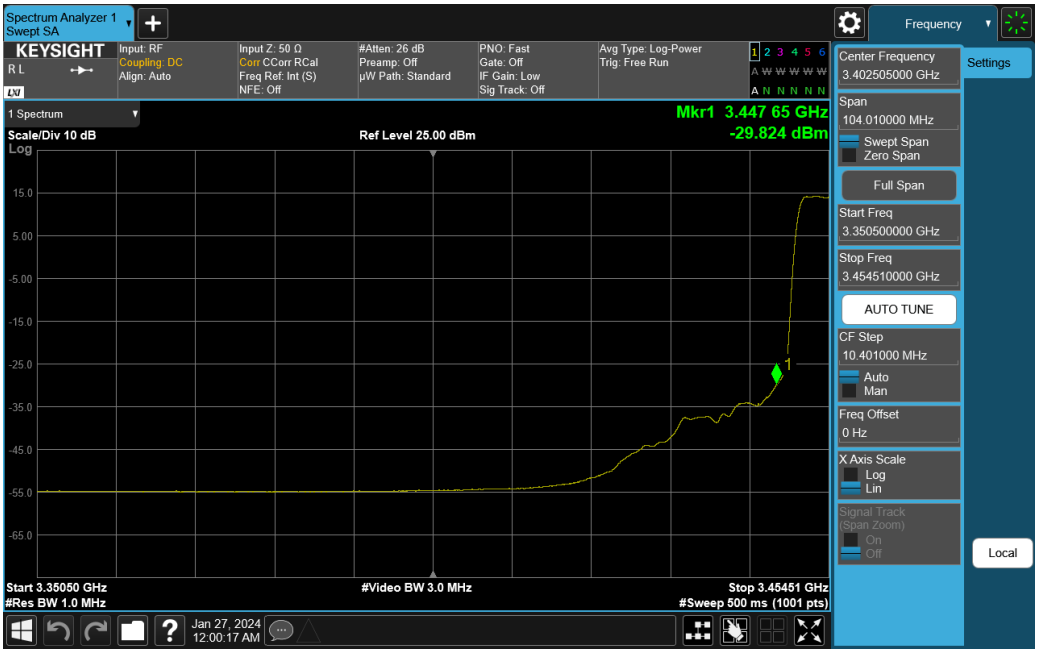
Plot 7-129. Lower ACP Plot (NR Band n77 DoD-Band - 10MHz DFT-s-OFDM QPSK – Full RB)



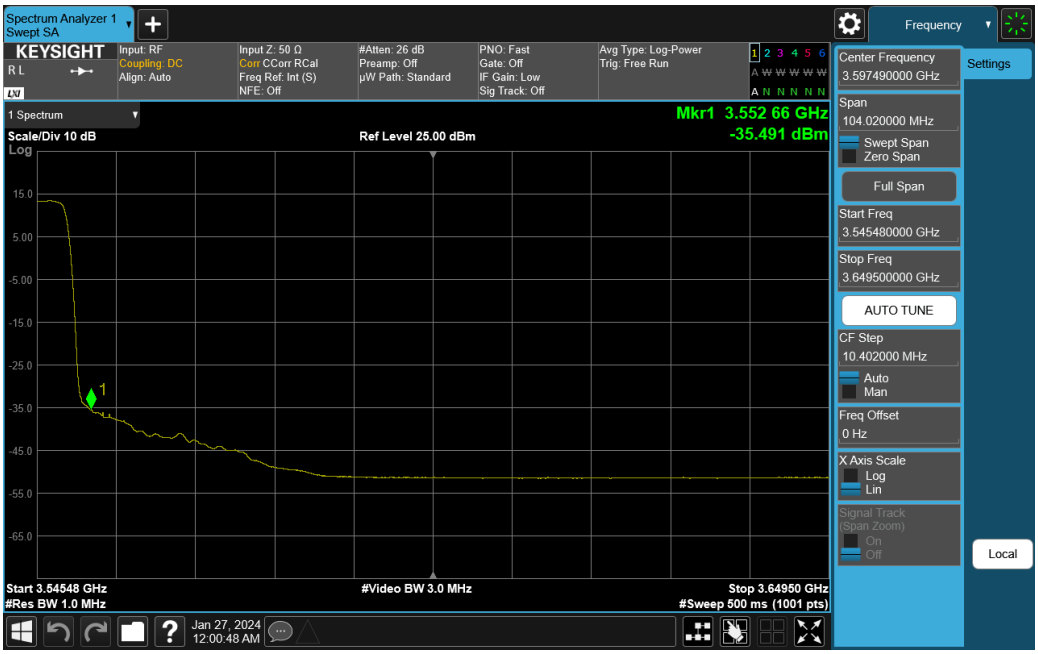
Plot 7-130. Lower ACP Plot (NR Band n77 DoD-Band - 10MHz DFT-s-OFDM QPSK – Full RB)



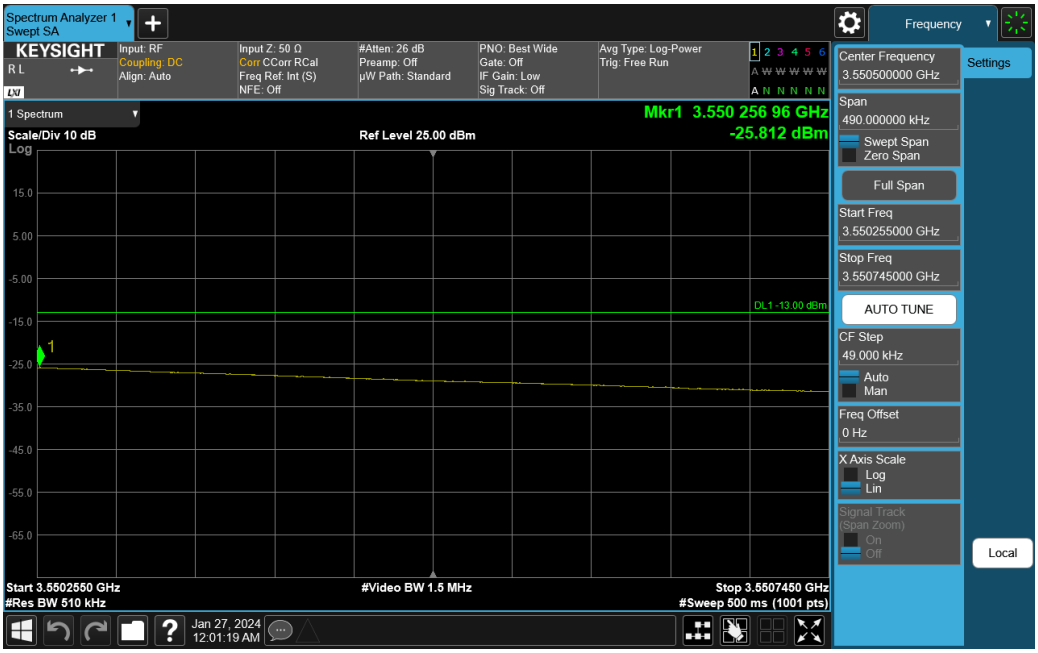
Plot 7-131. Lower ACP Plot (NR Band n77 DoD-Band - 10MHz DFT-s-OFDM QPSK – Full RB)



Plot 7-132. Lower ACP Plot (NR Band n77 DoD-Band - 10MHz DFT-s-OFDM QPSK – Full RB)

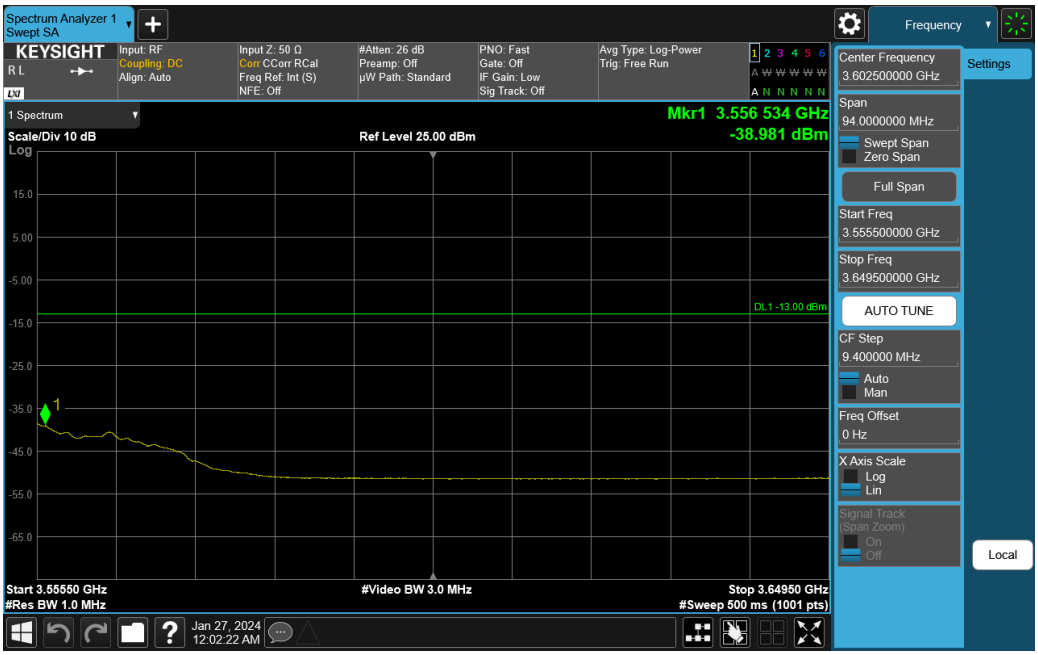


Plot 7-133. Upper ACP Plot (NR Band n77 DoD-Band - 10MHz DFT-s-OFDM QPSK – Full RB)

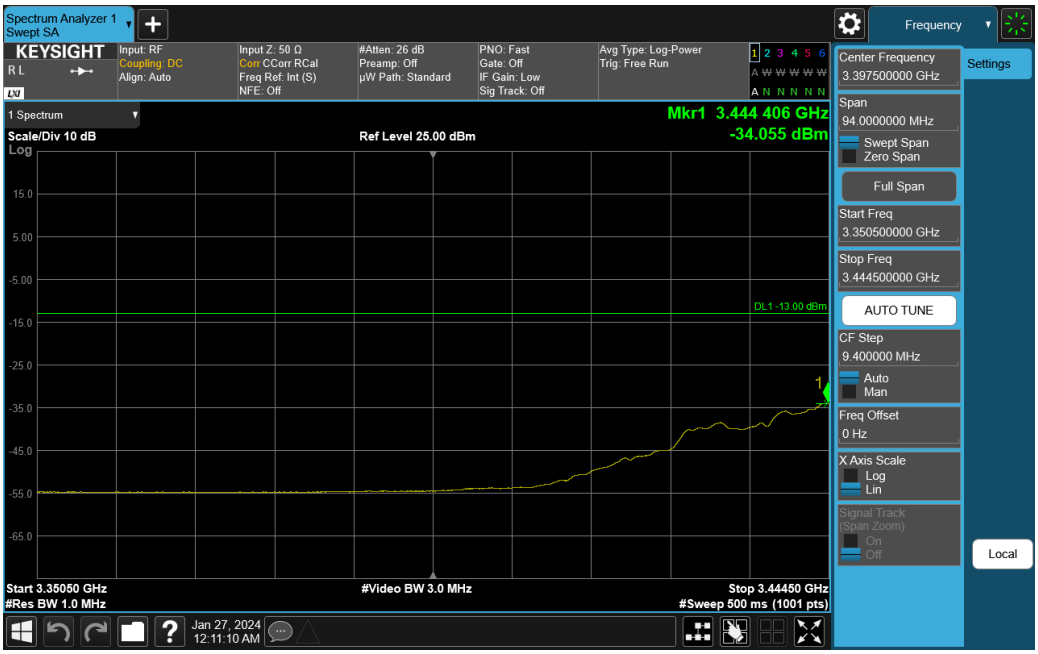


Plot 7-134. Upper ACP Plot (NR Band n77 DoD-Band - 10MHz DFT-s-OFDM QPSK – Full RB)

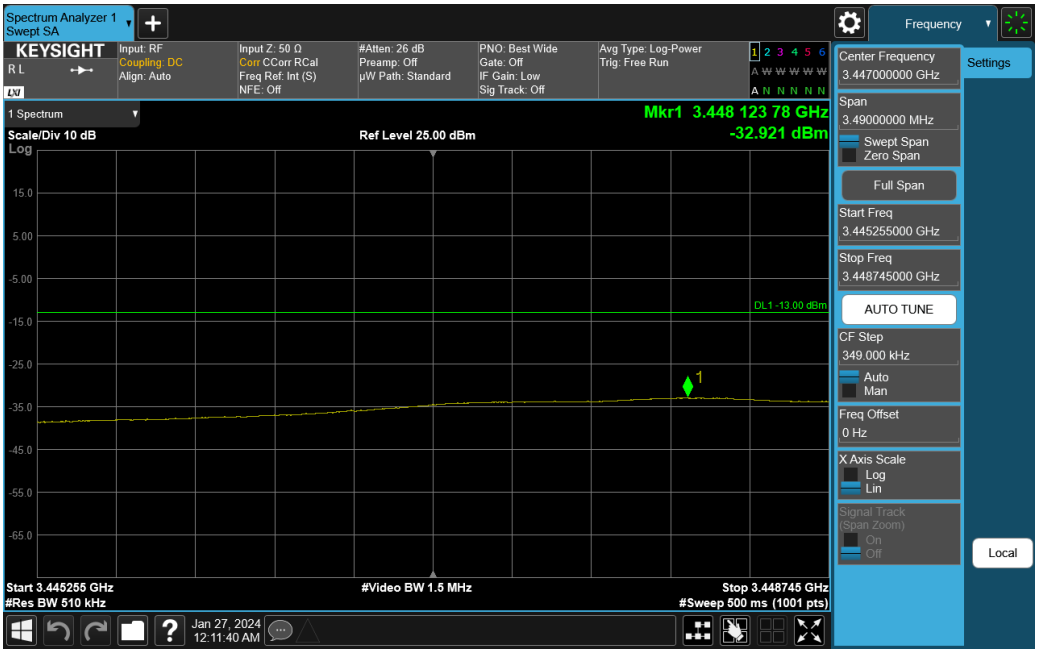
Plot 7-135. Upper ACP Plot (NR Band n77 DoD-Band - 10MHz DFT-s-OFDM QPSK – Full RB)



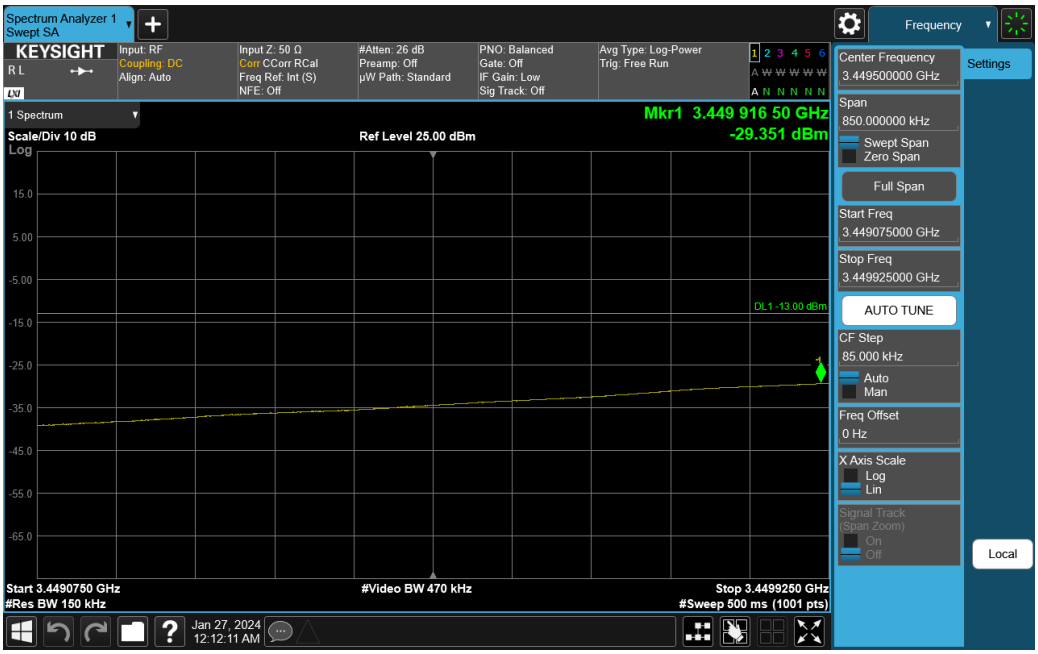
Plot 7-136. Upper ACP Plot (NR Band n77 DoD-Band - 10MHz DFT-s-OFDM QPSK – Full RB)



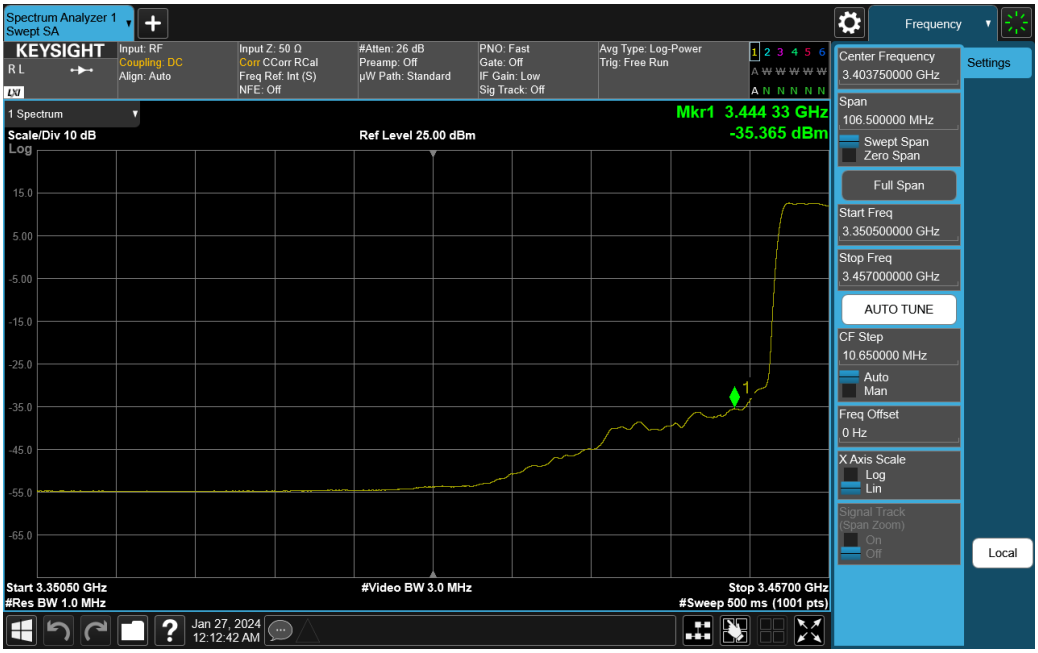
Plot 7-137. Lower ACP Plot (NR Band n77 DoD-Band - 15MHz DFT-s-OFDM QPSK – Full RB)



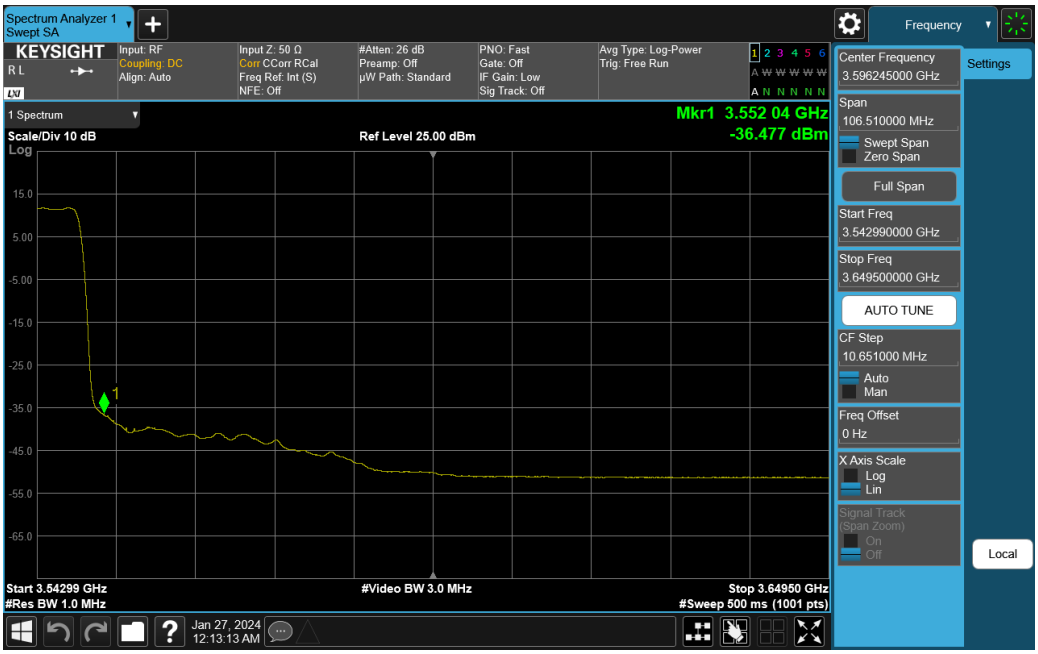
Plot 7-138. Lower ACP Plot (NR Band n77 DoD-Band - 15MHz DFT-s-OFDM QPSK – Full RB)



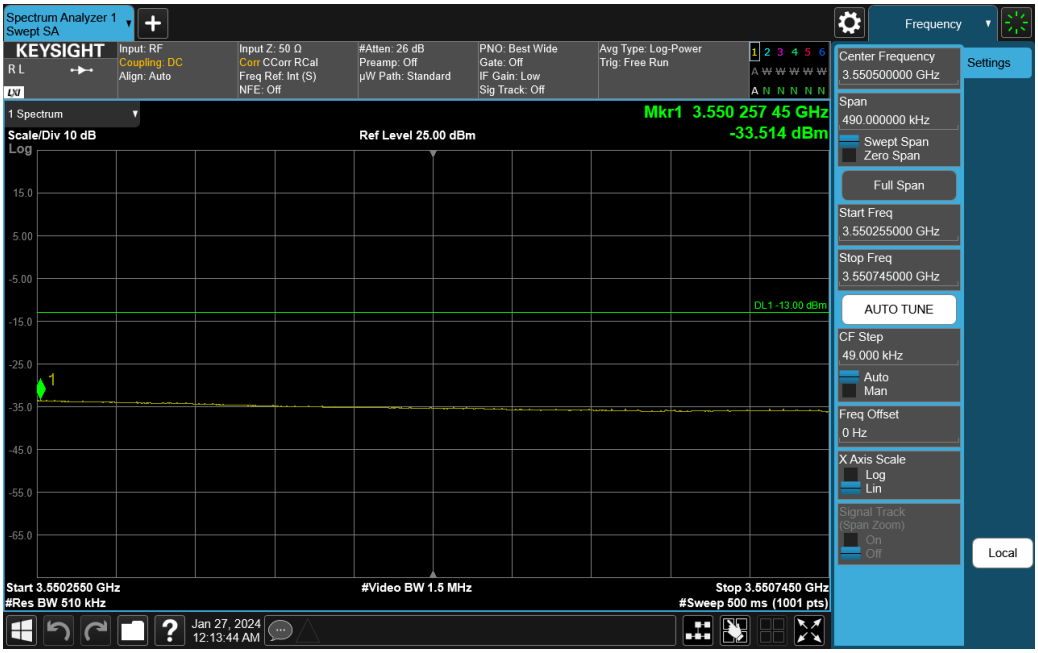
Plot 7-139. Lower ACP Plot (NR Band n77 DoD-Band - 15MHz DFT-s-OFDM QPSK – Full RB)



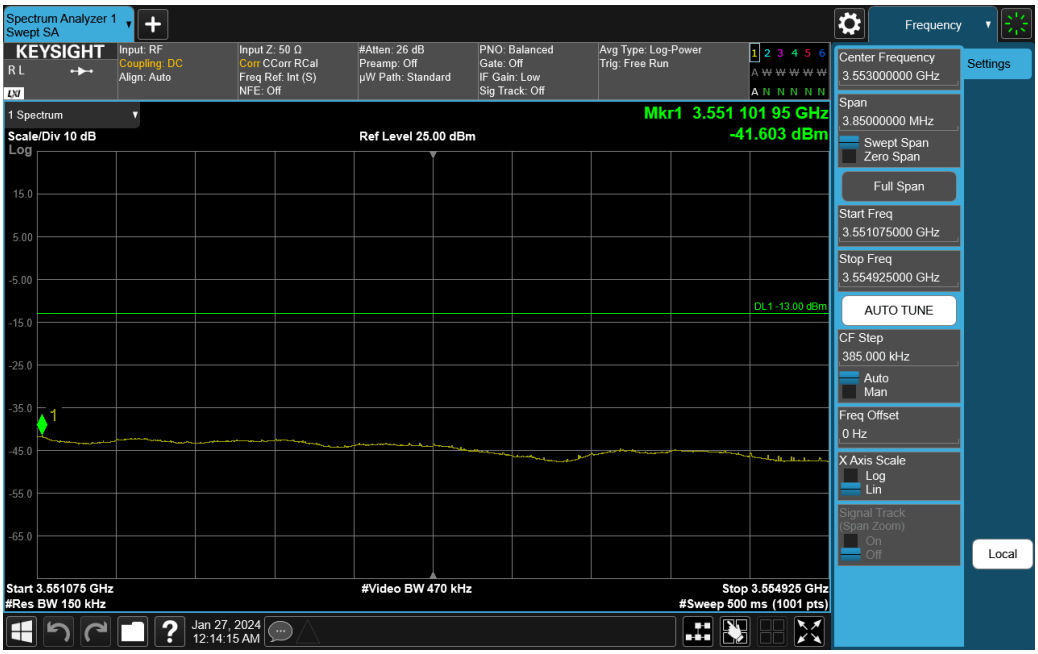
Plot 7-140. Lower ACP Plot (NR Band n77 DoD-Band - 15MHz DFT-s-OFDM QPSK – Full RB)



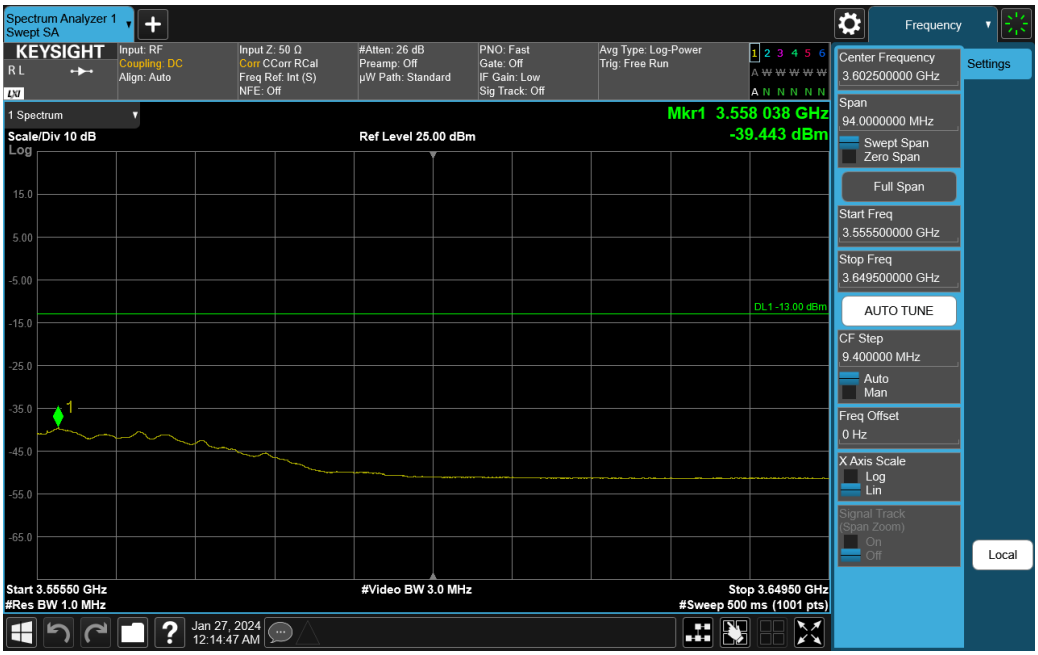
Plot 7-141. Upper ACP Plot (NR Band n77 DoD-Band - 15MHz DFT-s-OFDM QPSK – Full RB)



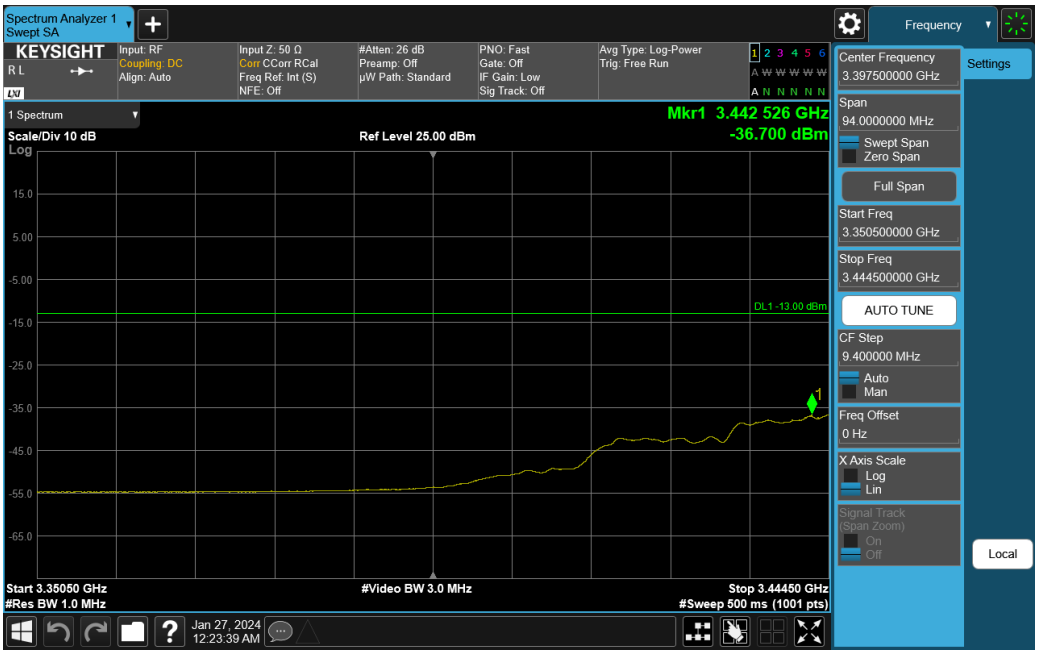
Plot 7-142. Upper ACP Plot (NR Band n77 DoD-Band - 15MHz DFT-s-OFDM QPSK – Full RB)



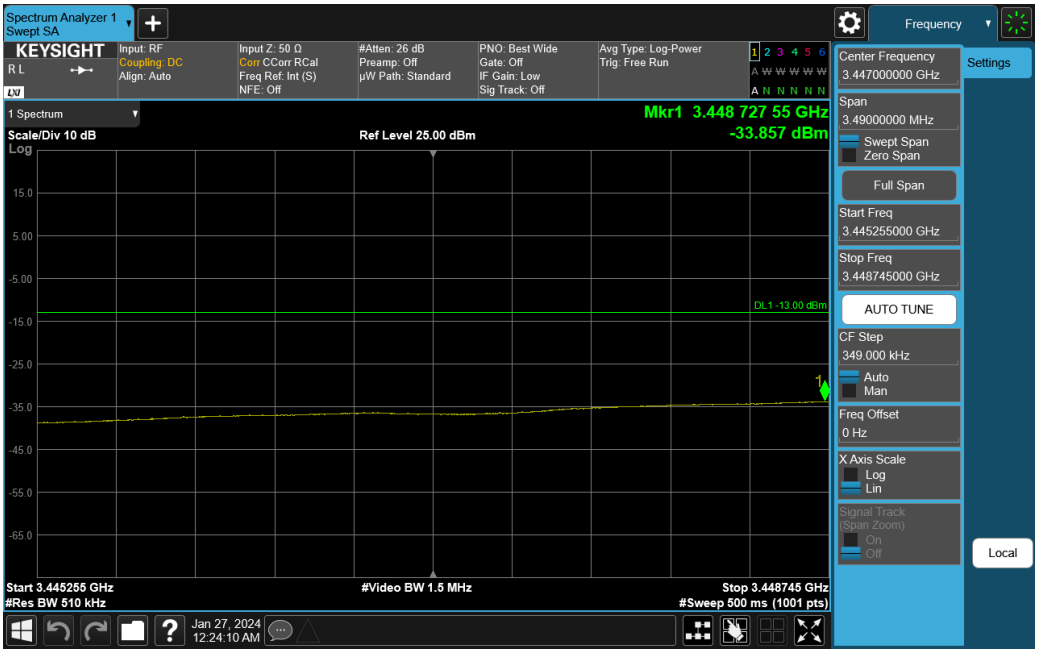
Plot 7-143. Upper ACP Plot (NR Band n77 DoD-Band - 15MHz DFT-s-OFDM QPSK – Full RB)



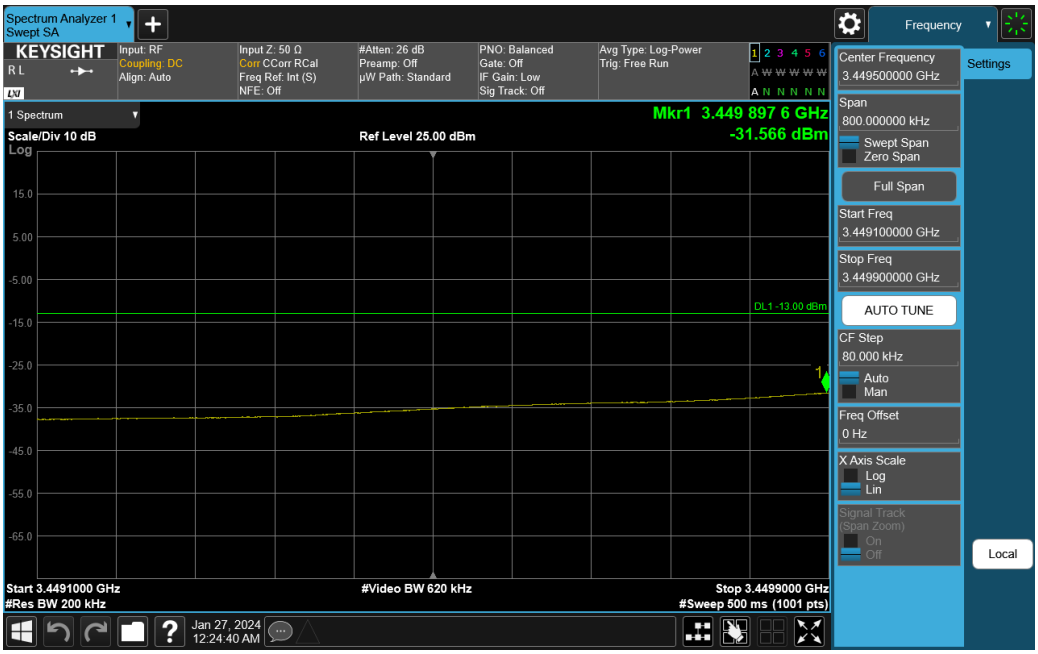
Plot 7-144. Upper ACP Plot (NR Band n77 DoD-Band - 15MHz DFT-s-OFDM QPSK – Full RB)



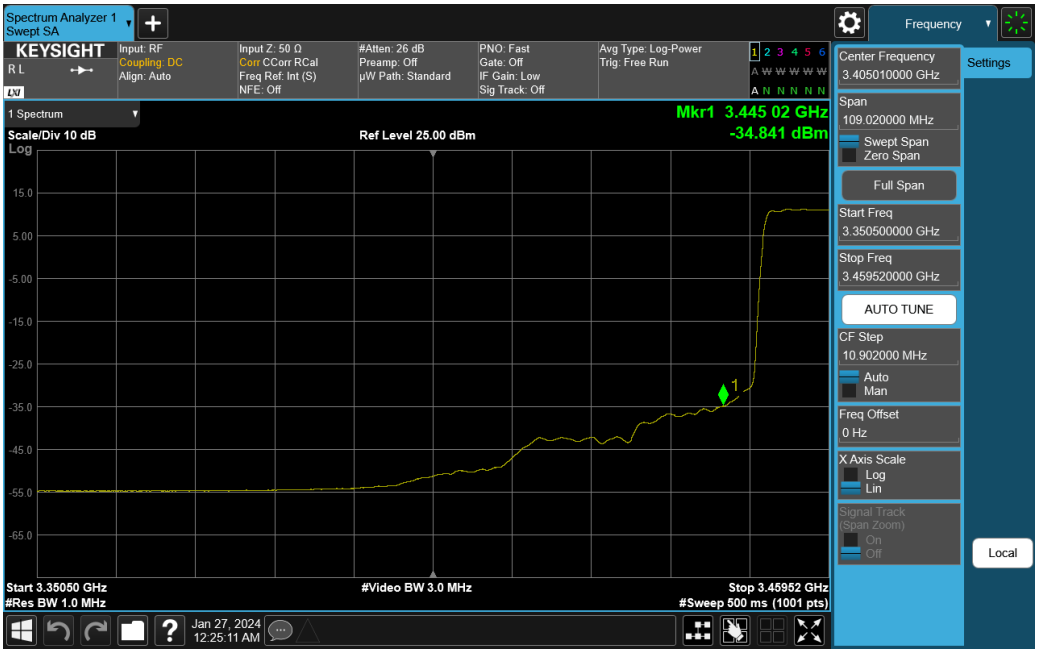
Plot 7-145. Lower ACP Plot (NR Band n77 DoD-Band - 20MHz DFT-s-OFDM QPSK – Full RB)



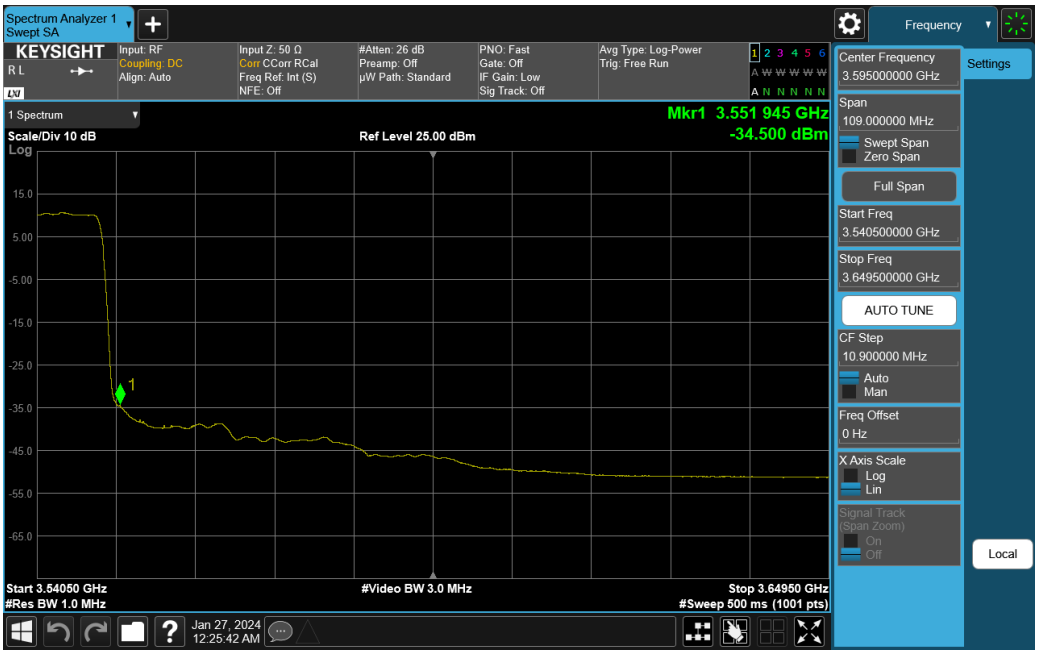
Plot 7-146. Lower ACP Plot (NR Band n77 DoD-Band - 20MHz DFT-s-OFDM QPSK – Full RB)



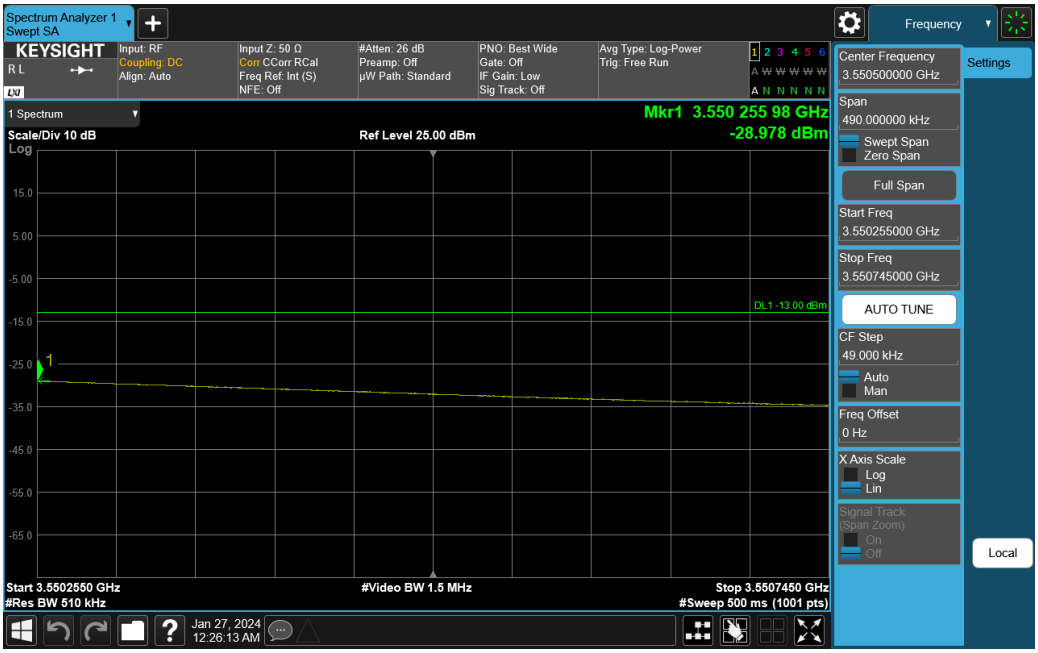
Plot 7-147. Lower ACP Plot (NR Band n77 DoD-Band - 20MHz DFT-s-OFDM QPSK – Full RB)



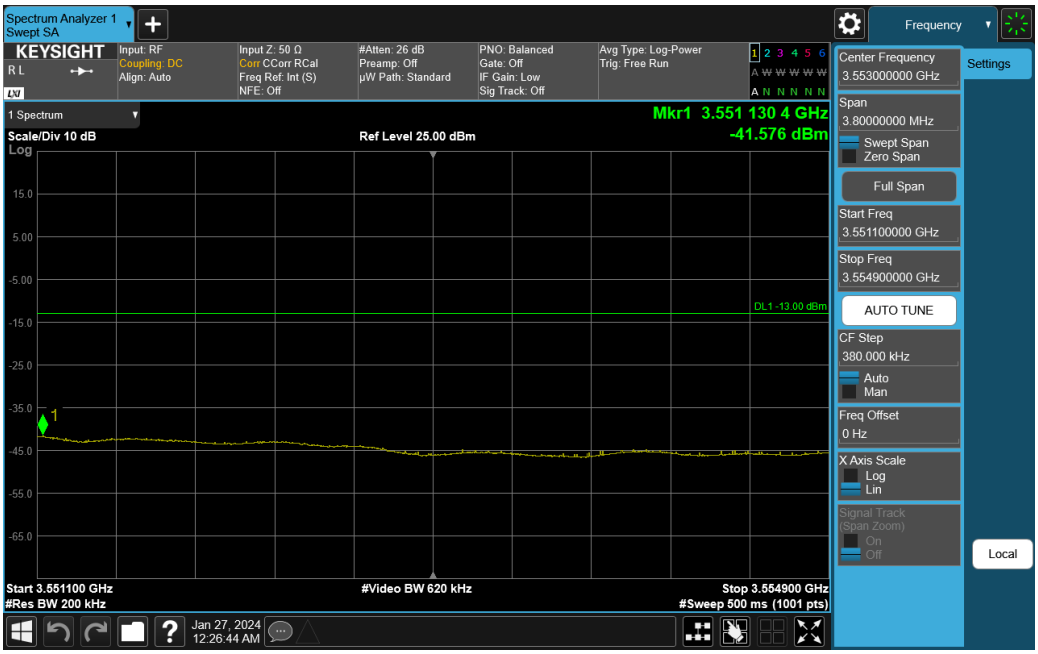
Plot 7-148. Lower ACP Plot (NR Band n77 DoD-Band - 20MHz DFT-s-OFDM QPSK – Full RB)



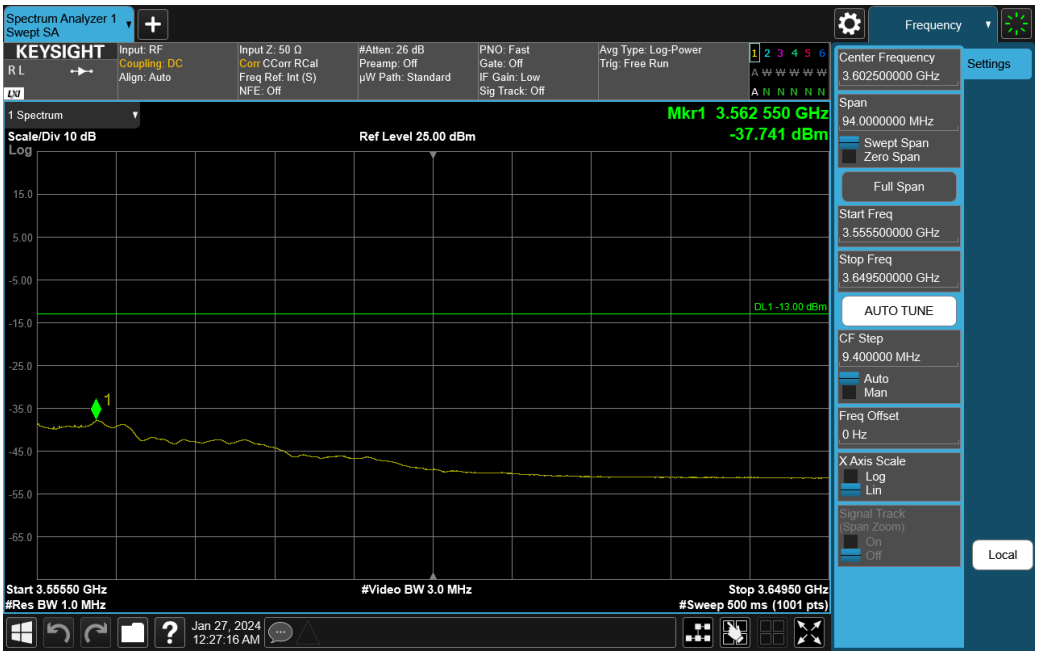
Plot 7-149. Upper ACP Plot (NR Band n77 DoD-Band - 20MHz DFT-s-OFDM QPSK – Full RB)



Plot 7-150. Upper ACP Plot (NR Band n77 DoD-Band - 20MHz DFT-s-OFDM QPSK – Full RB)

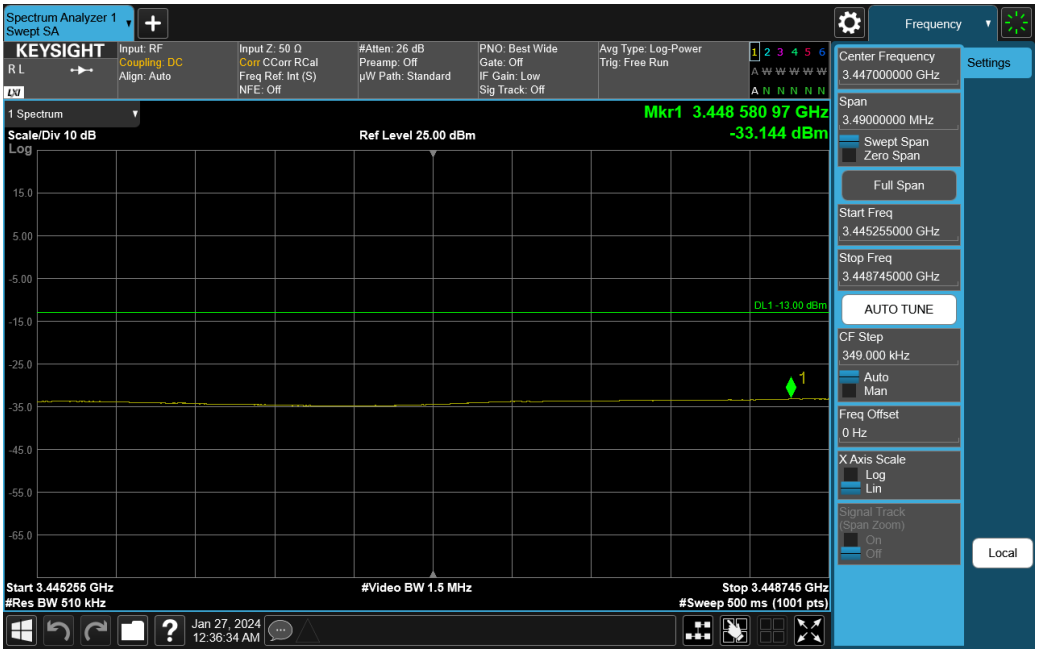


Plot 7-151. Upper ACP Plot (NR Band n77 DoD-Band - 20MHz DFT-s-OFDM QPSK – Full RB)

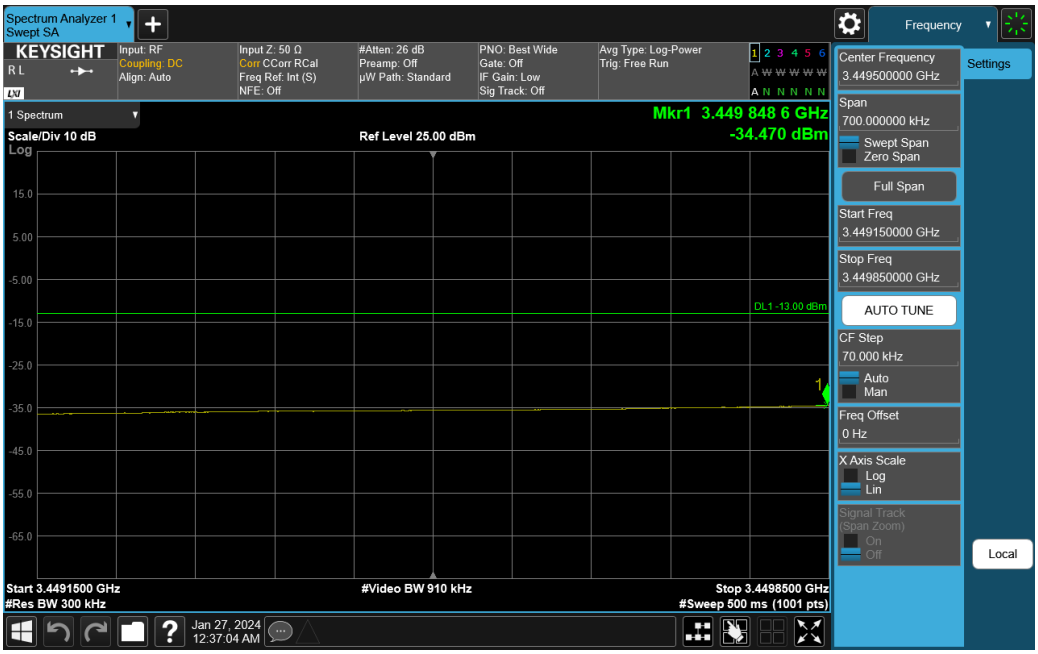


Plot 7-152. Upper ACP Plot (NR Band n77 DoD-Band - 20MHz DFT-s-OFDM QPSK – Full RB)

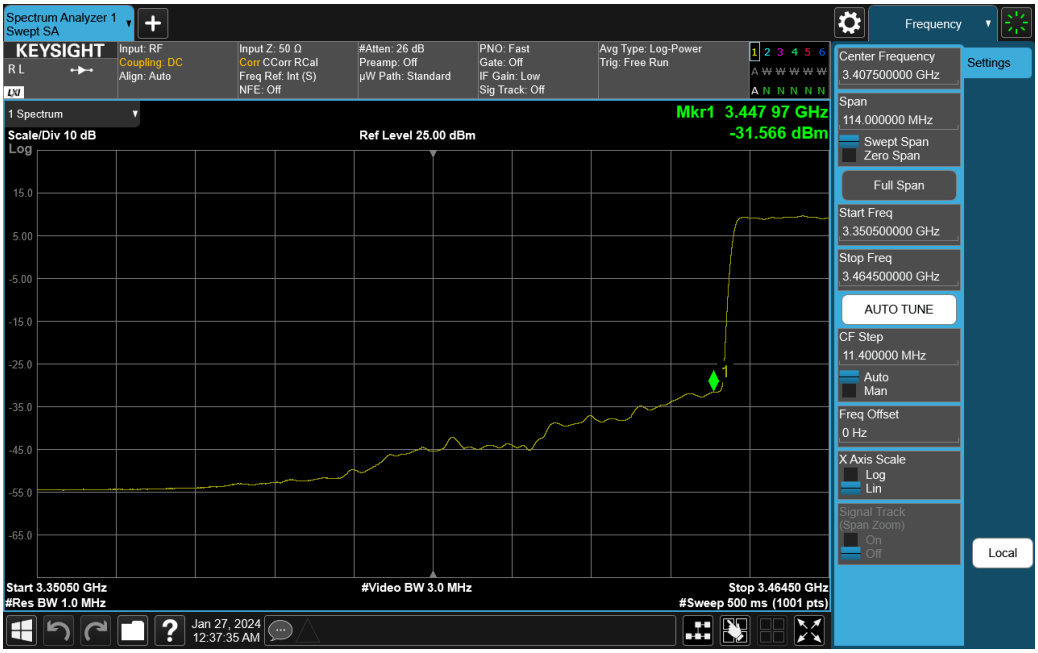
Plot 7-153. Lower ACP Plot (NR Band n77 DoD-Band - 30MHz DFT-s-OFDM QPSK – Full RB)



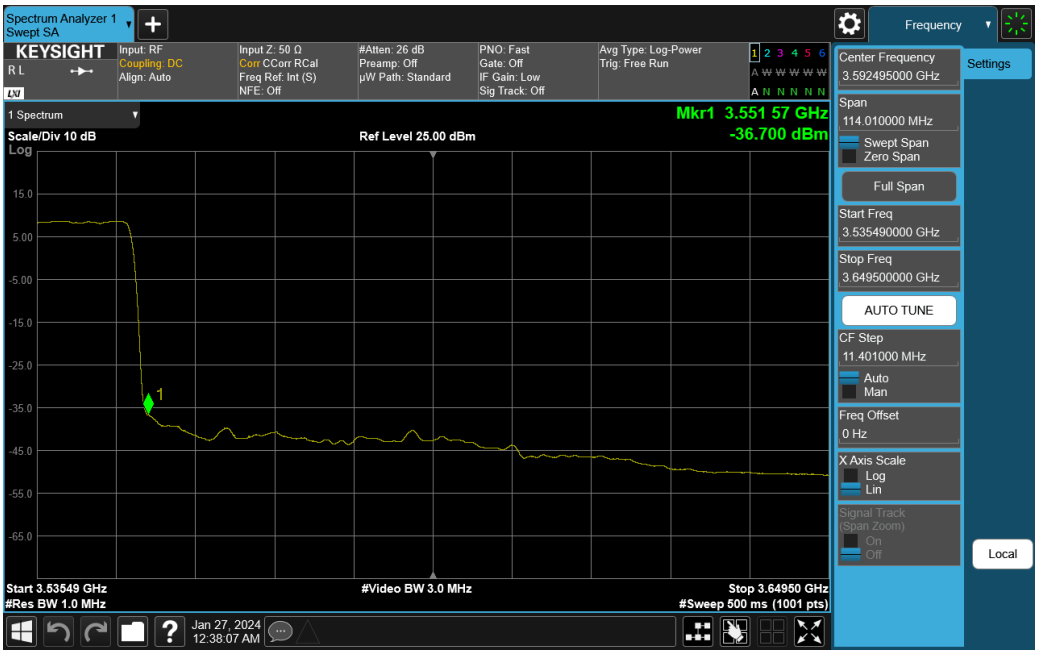
Plot 7-154. Lower ACP Plot (NR Band n77 DoD-Band - 30MHz DFT-s-OFDM QPSK – Full RB)



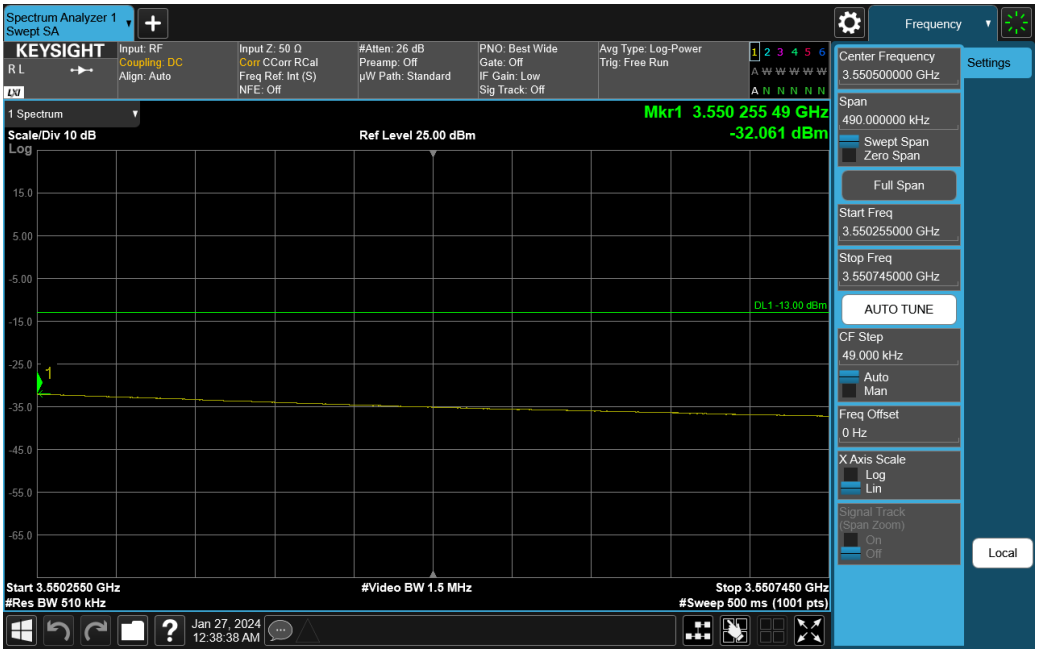
Plot 7-155. Lower ACP Plot (NR Band n77 DoD-Band - 30MHz DFT-s-OFDM QPSK – Full RB)



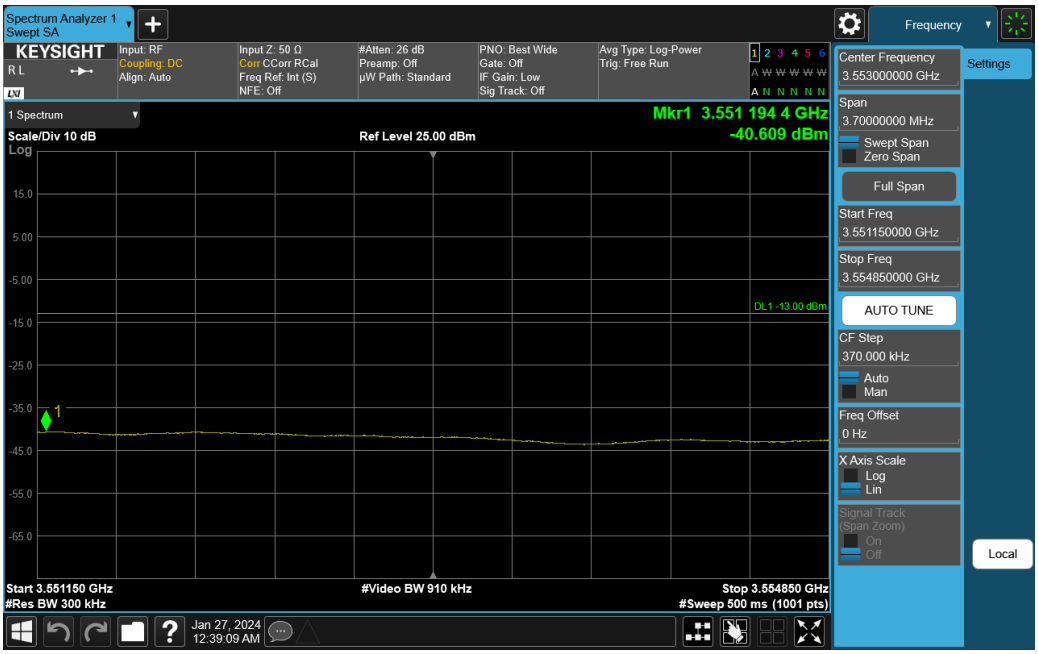
Plot 7-156. Lower ACP Plot (NR Band n77 DoD-Band - 30MHz DFT-s-OFDM QPSK – Full RB)



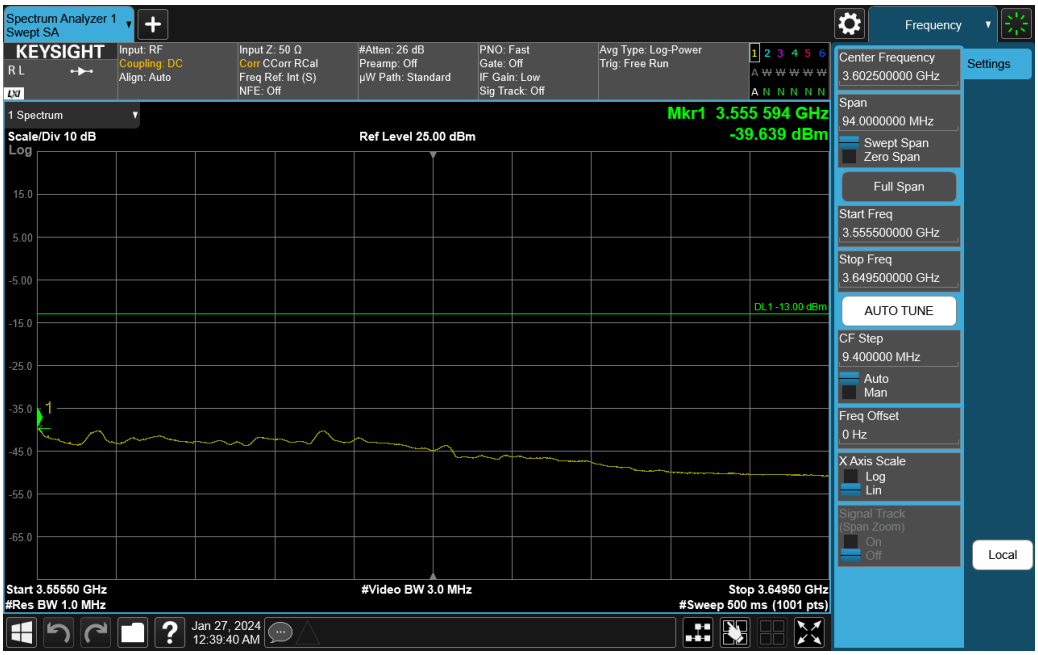
Plot 7-157. Upper ACP Plot (NR Band n77 DoD-Band - 30MHz DFT-s-OFDM QPSK – Full RB)



Plot 7-158. Upper ACP Plot (NR Band n77 DoD-Band - 30MHz DFT-s-OFDM QPSK – Full RB)

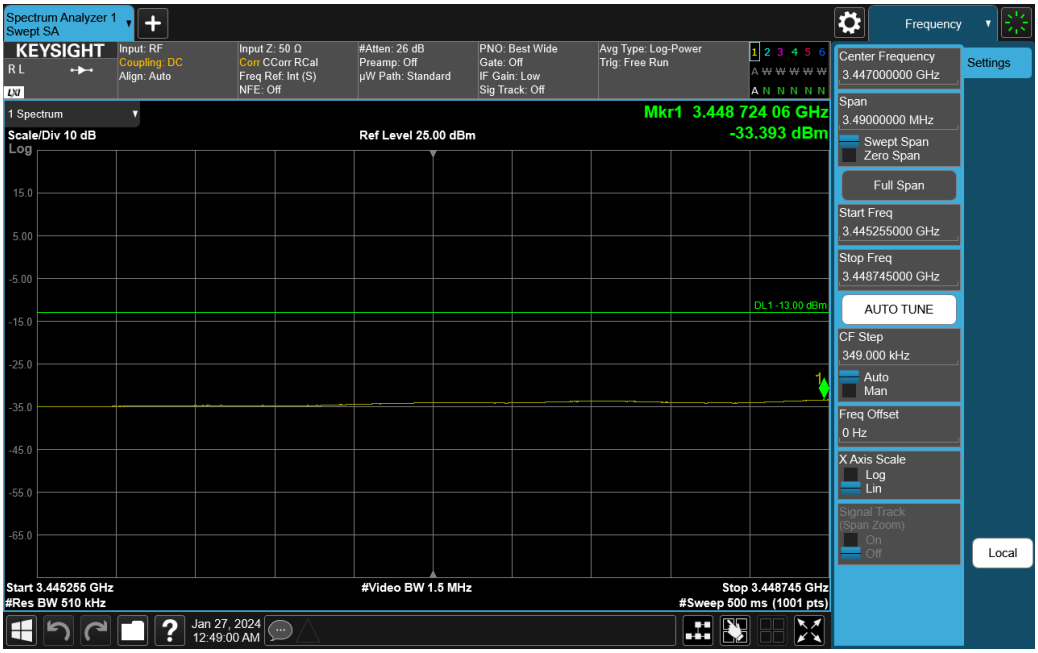


Plot 7-159. Upper ACP Plot (NR Band n77 DoD-Band - 30MHz DFT-s-OFDM QPSK – Full RB)

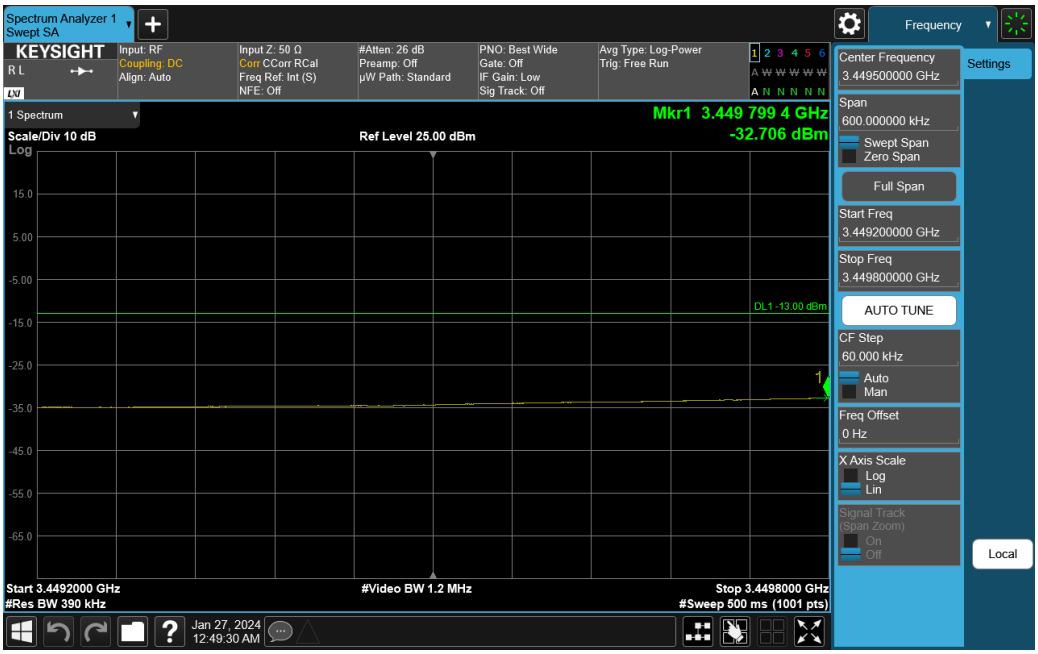


Plot 7-160. Upper ACP Plot (NR Band n77 DoD-Band - 30MHz DFT-s-OFDM QPSK – Full RB)

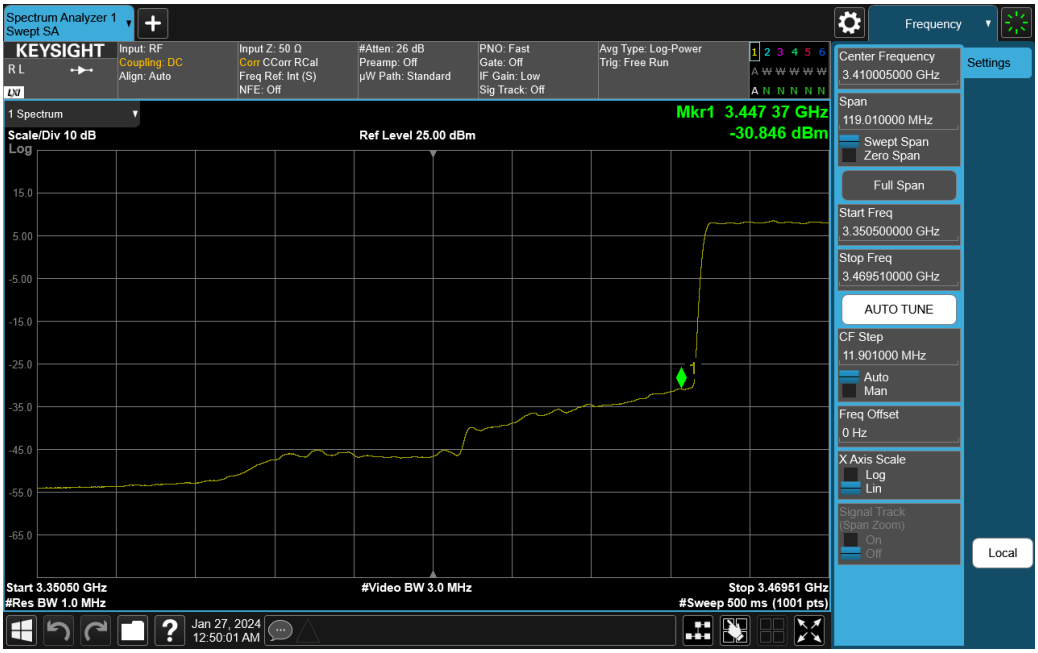
Plot 7-161. Lower ACP Plot (NR Band n77 DoD-Band - 40MHz DFT-s-OFDM QPSK – Full RB)



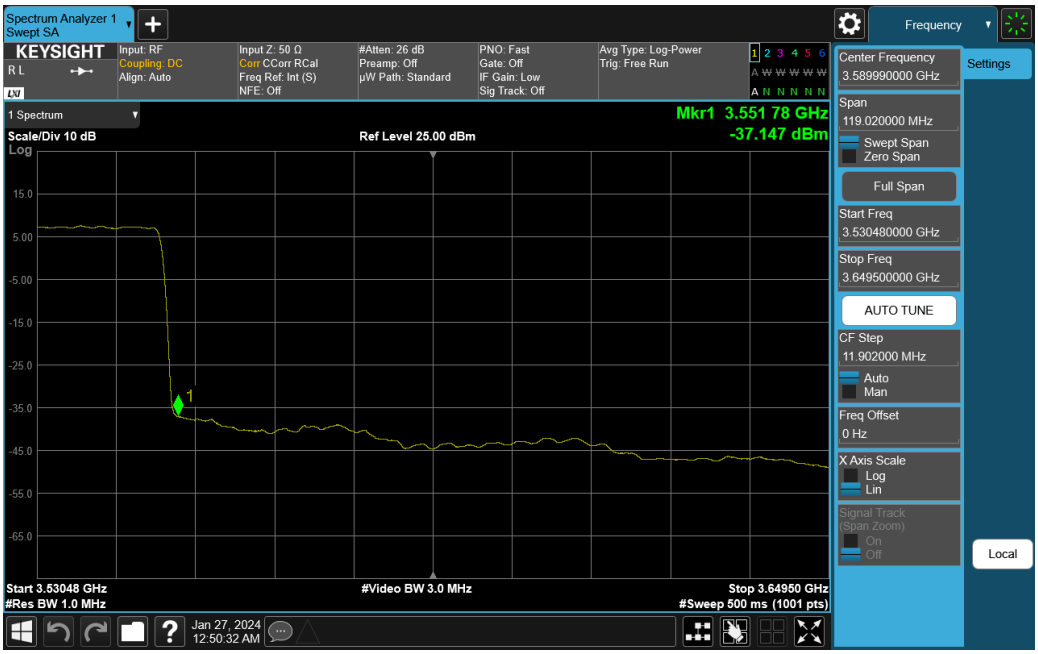
Plot 7-162. Lower ACP Plot (NR Band n77 DoD-Band - 40MHz DFT-s-OFDM QPSK – Full RB)



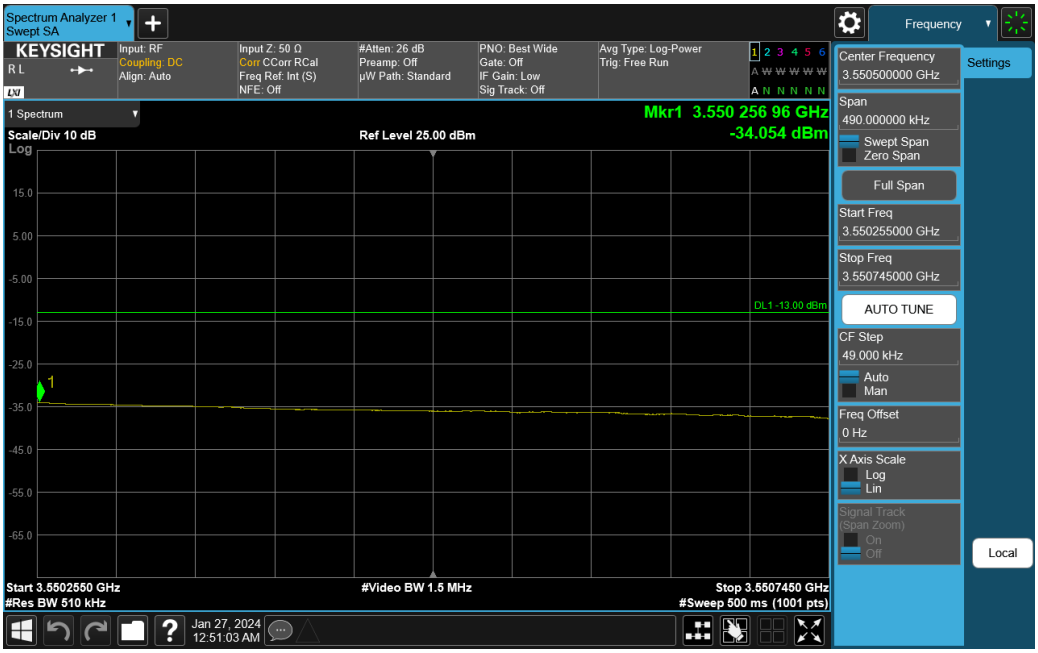
Plot 7-163. Lower ACP Plot (NR Band n77 DoD-Band - 40MHz DFT-s-OFDM QPSK – Full RB)



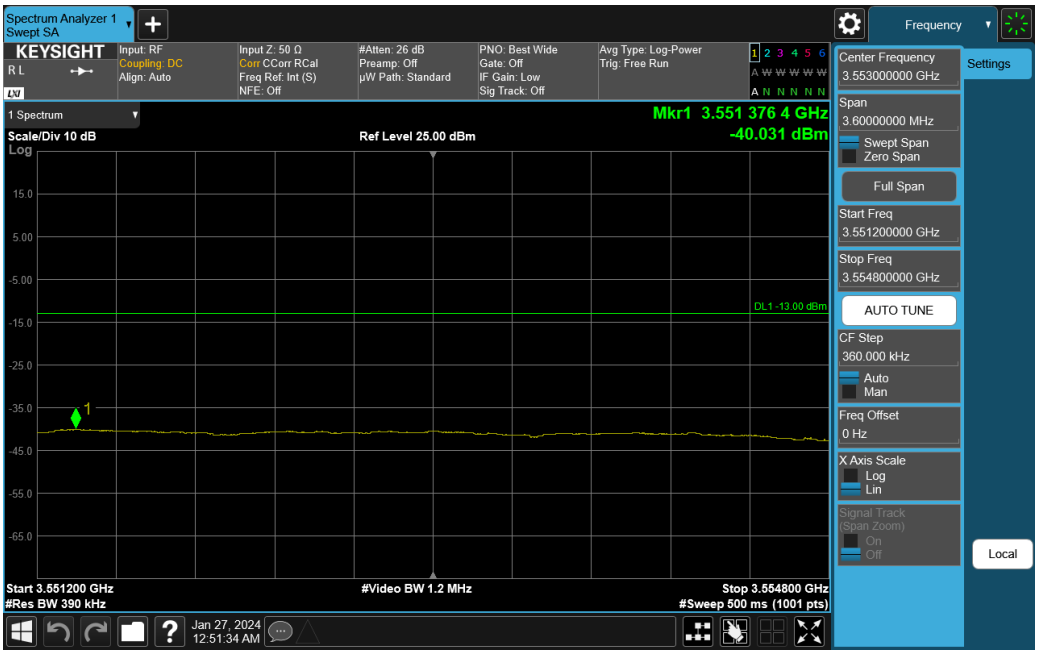
Plot 7-164. Lower ACP Plot (NR Band n77 DoD-Band - 40MHz DFT-s-OFDM QPSK – Full RB)



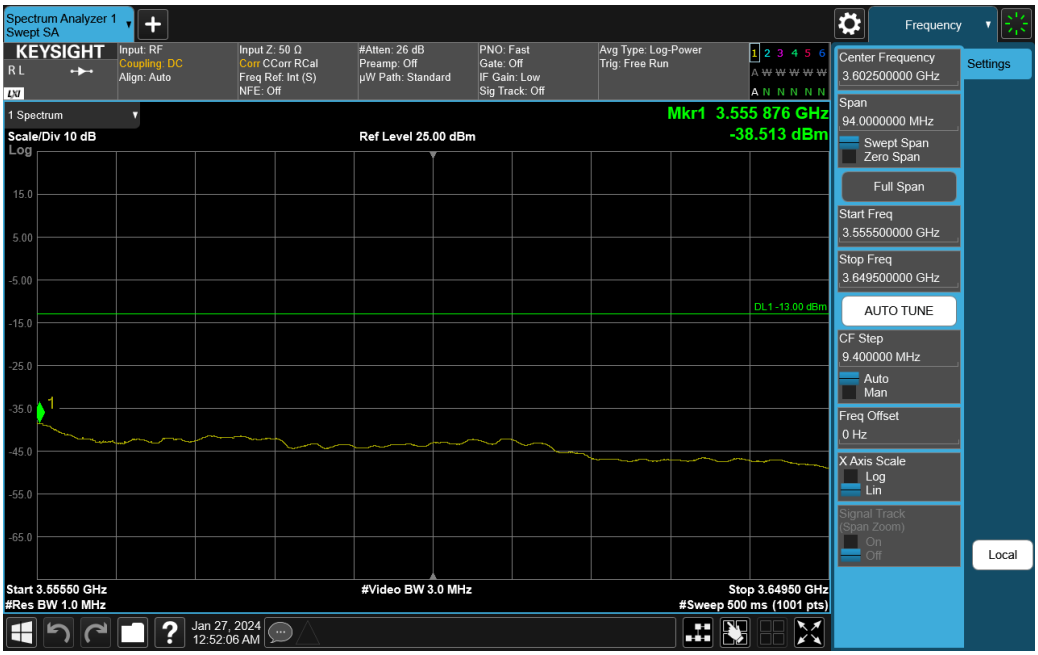
Plot 7-165. Upper ACP Plot (NR Band n77 DoD-Band - 40MHz DFT-s-OFDM QPSK – Full RB)



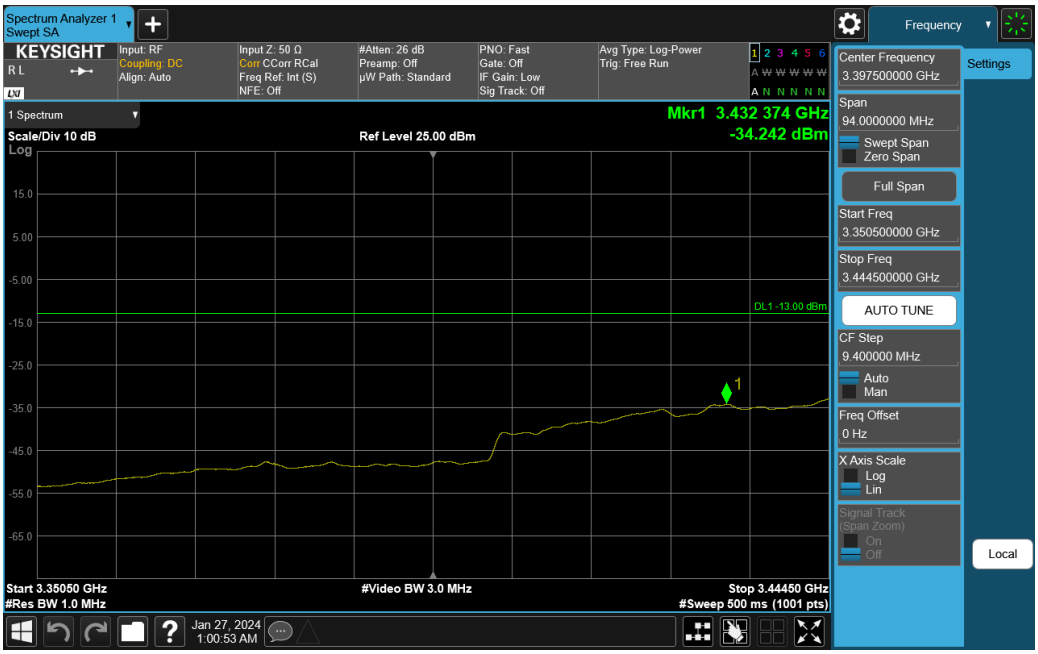
Plot 7-166. Upper ACP Plot (NR Band n77 DoD-Band - 40MHz DFT-s-OFDM QPSK – Full RB)



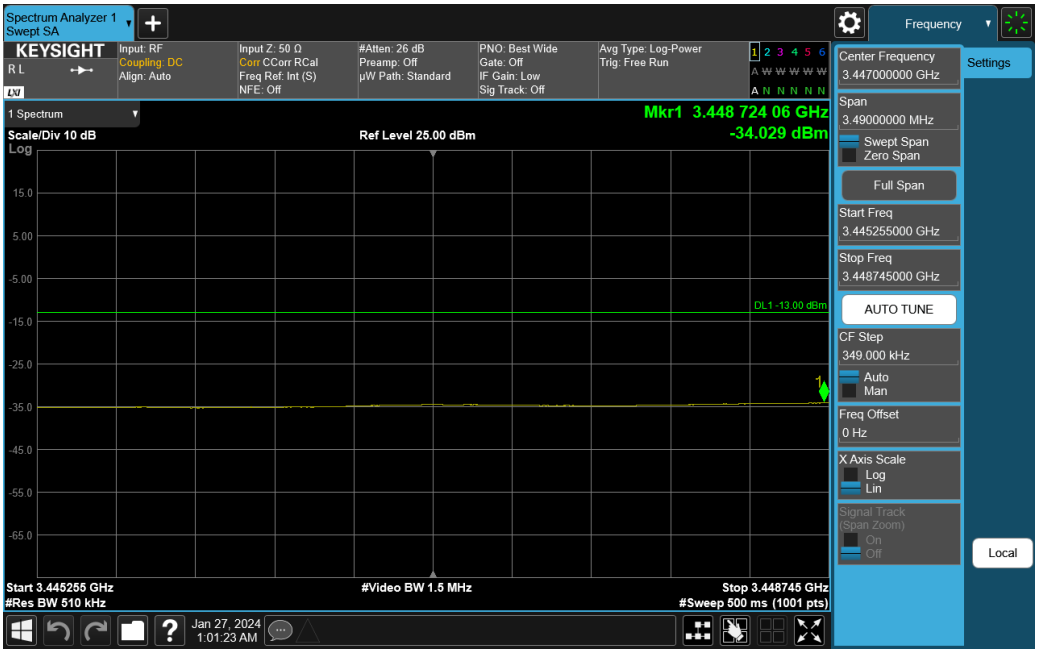
Plot 7-167. Upper ACP Plot (NR Band n77 DoD-Band - 40MHz DFT-s-OFDM QPSK – Full RB)



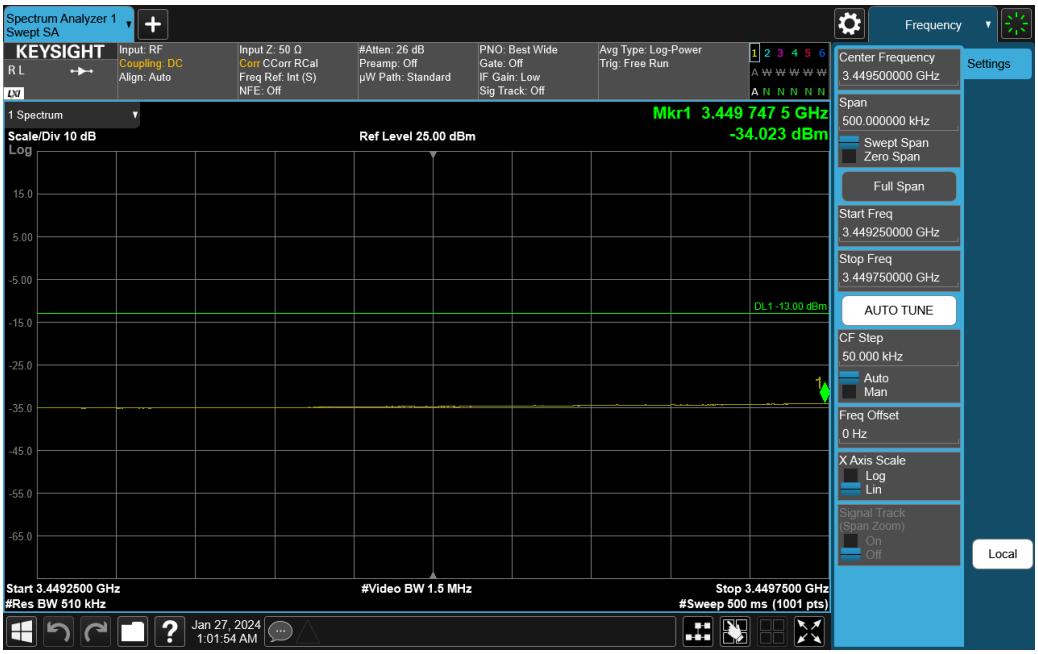
Plot 7-168. Upper ACP Plot (NR Band n77 DoD-Band - 40MHz DFT-s-OFDM QPSK – Full RB)



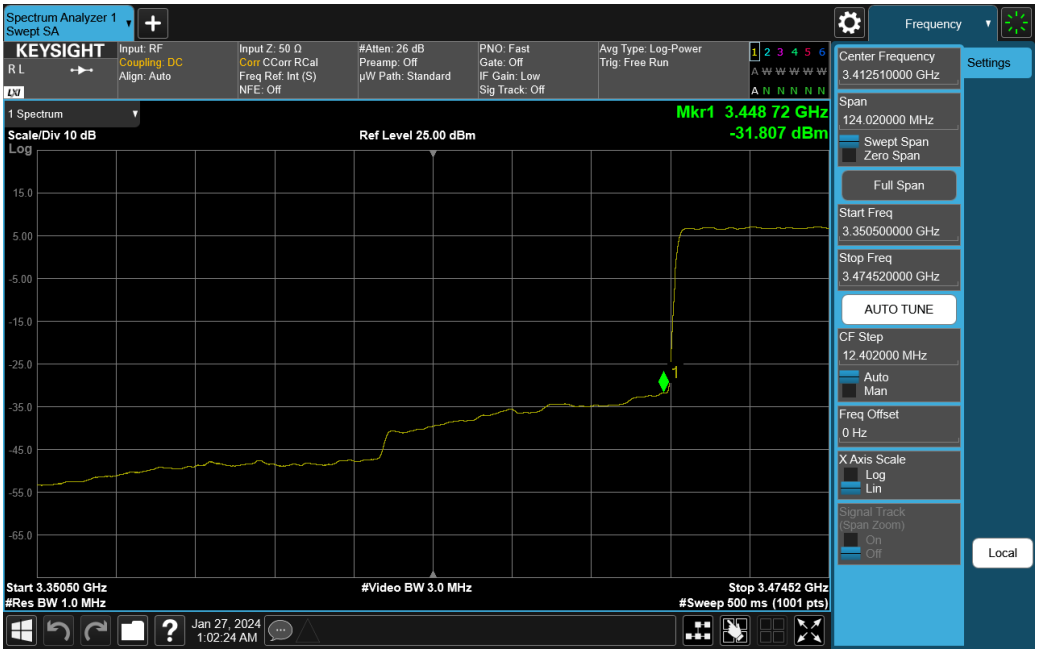
Plot 7-169. Lower ACP Plot (NR Band n77 DoD-Band - 50MHz DFT-s-OFDM QPSK – Full RB)



Plot 7-170. Lower ACP Plot (NR Band n77 DoD-Band - 50MHz DFT-s-OFDM QPSK – Full RB)

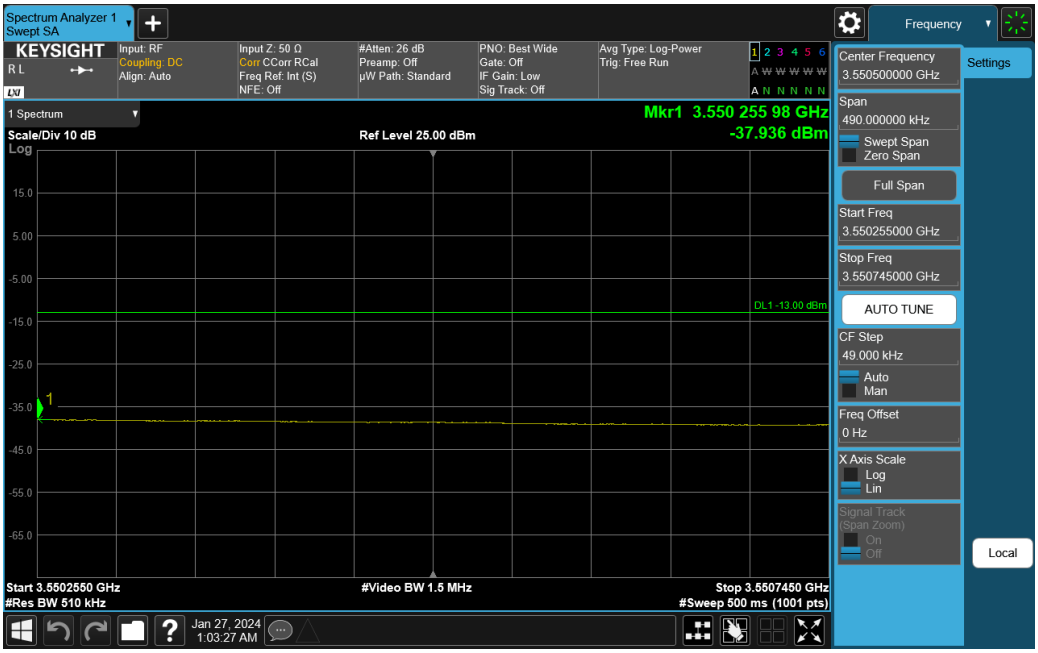


Plot 7-171. Lower ACP Plot (NR Band n77 DoD-Band - 50MHz DFT-s-OFDM QPSK – Full RB)

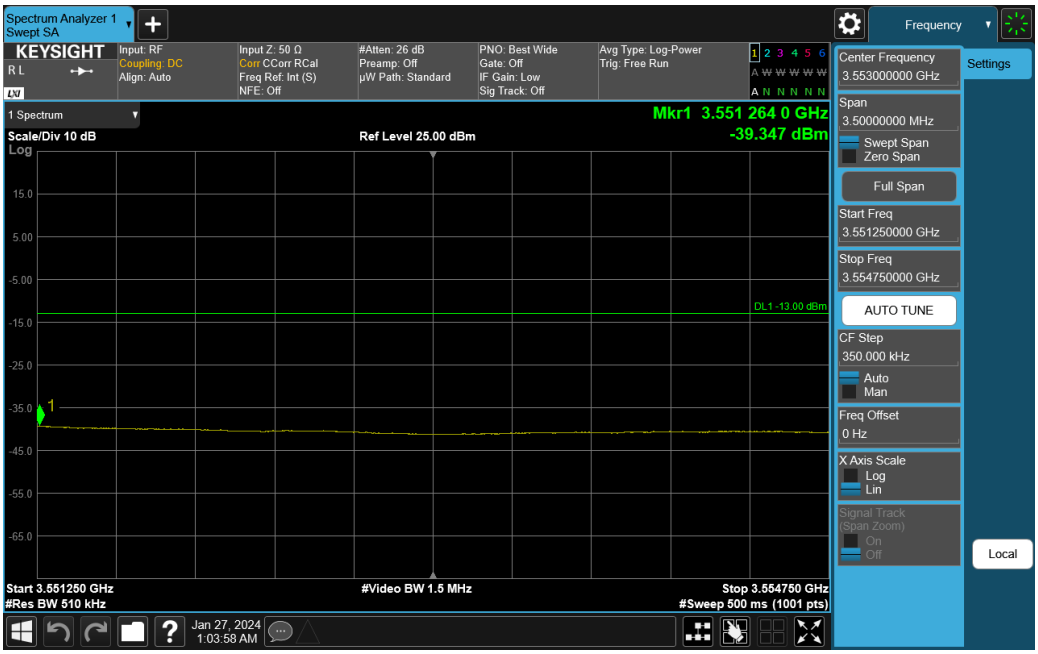


Plot 7-172. Lower ACP Plot (NR Band n77 DoD-Band - 50MHz DFT-s-OFDM QPSK – Full RB)

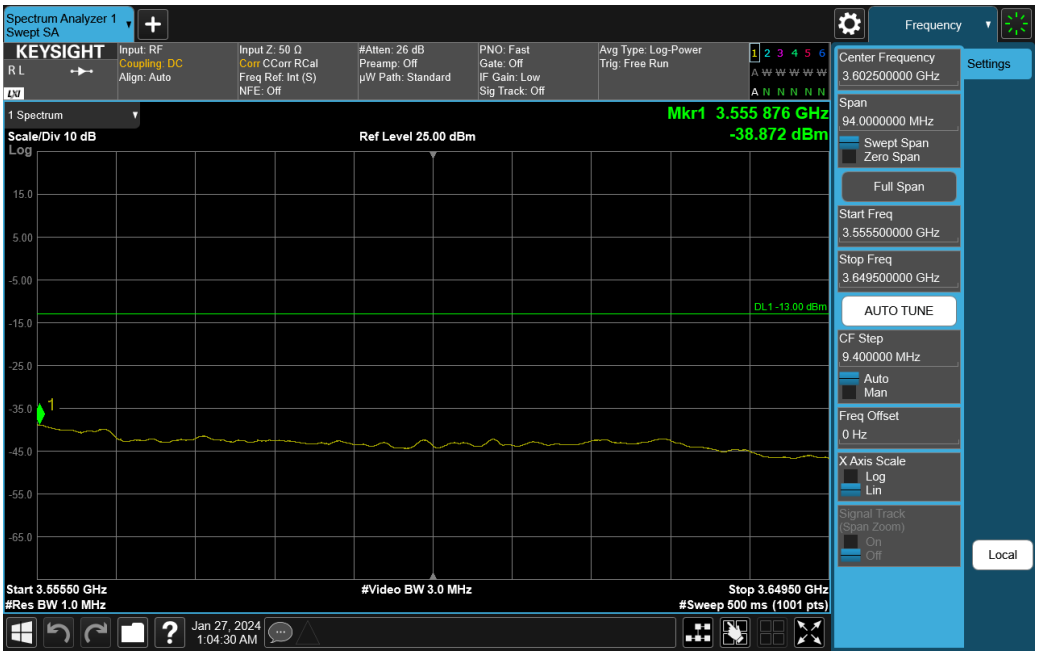
Plot 7-173. Upper ACP Plot (NR Band n77 DoD-Band - 50MHz DFT-s-OFDM QPSK – Full RB)



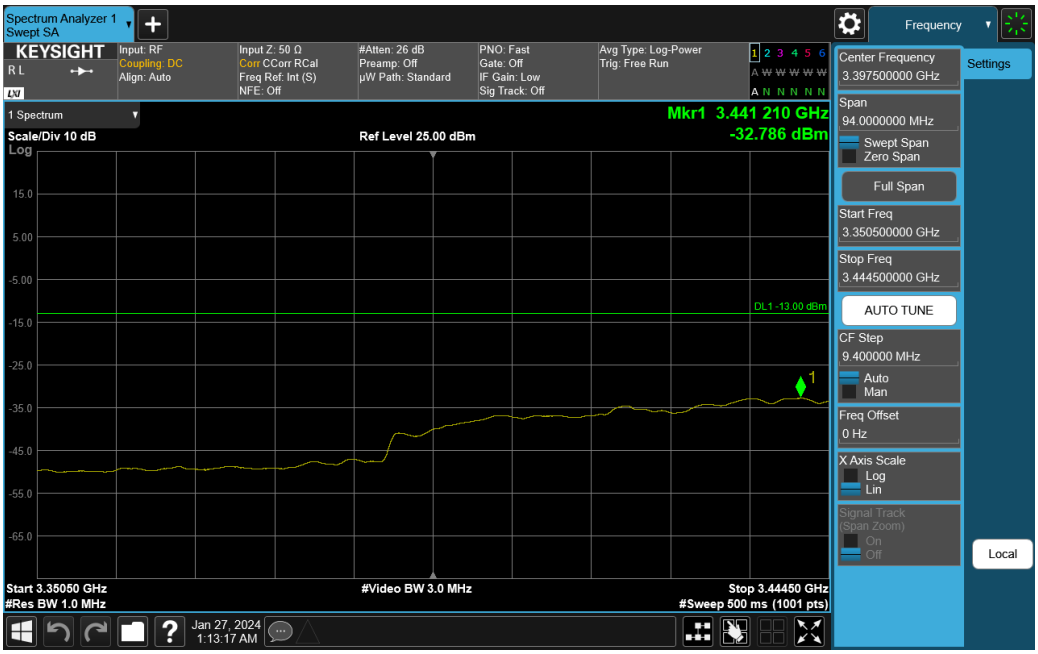
Plot 7-174. Upper ACP Plot (NR Band n77 DoD-Band - 50MHz DFT-s-OFDM QPSK – Full RB)



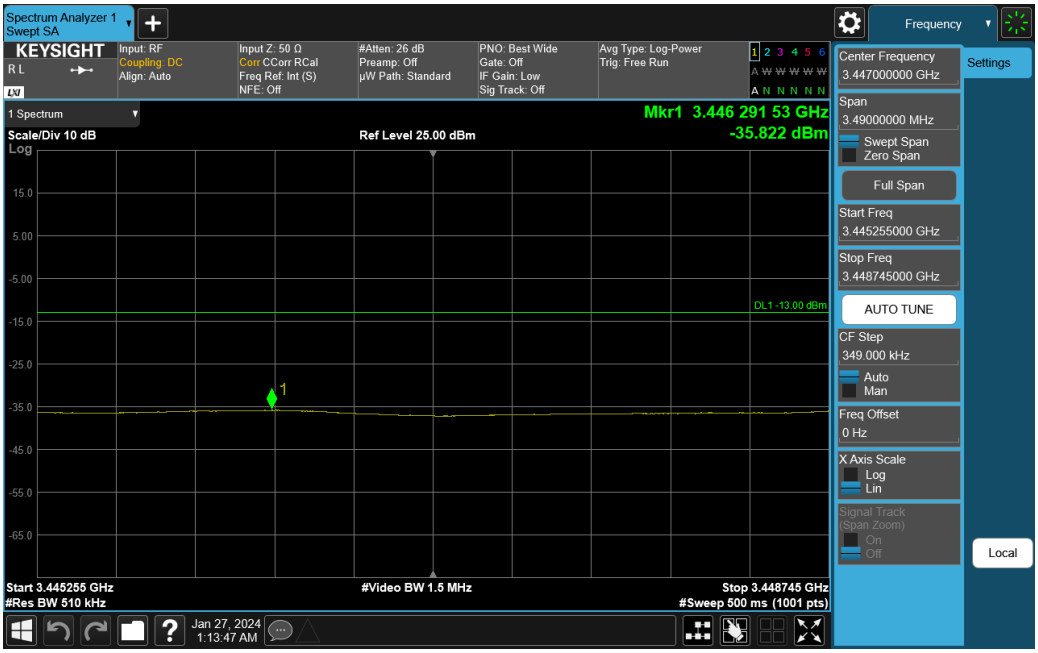
Plot 7-175. Upper ACP Plot (NR Band n77 DoD-Band - 50MHz DFT-s-OFDM QPSK – Full RB)



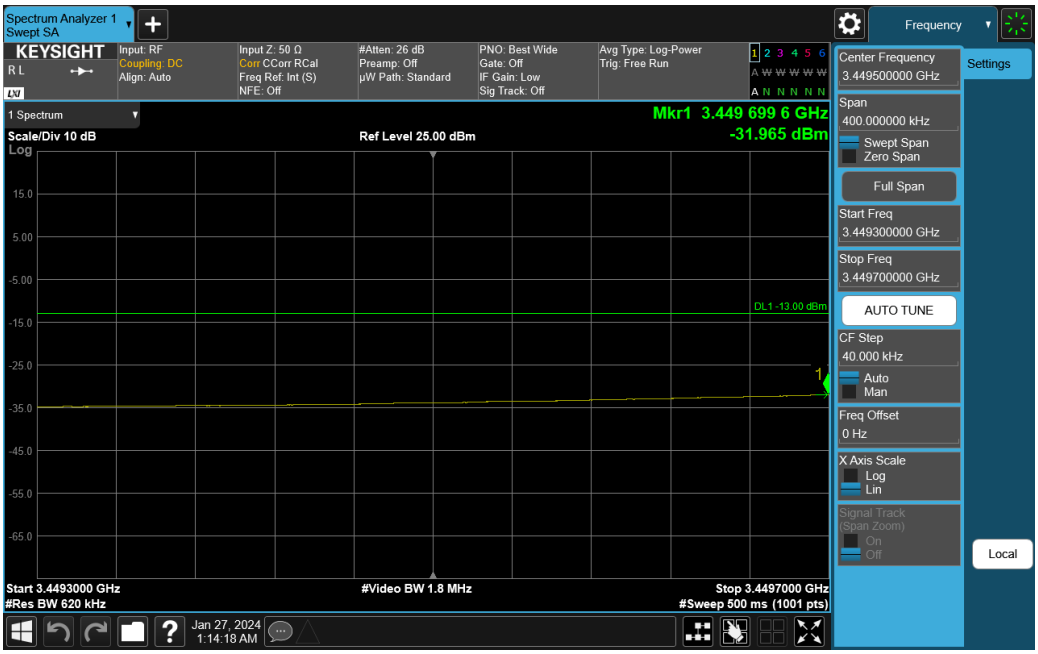
Plot 7-176. Upper ACP Plot (NR Band n77 DoD-Band - 50MHz DFT-s-OFDM QPSK – Full RB)



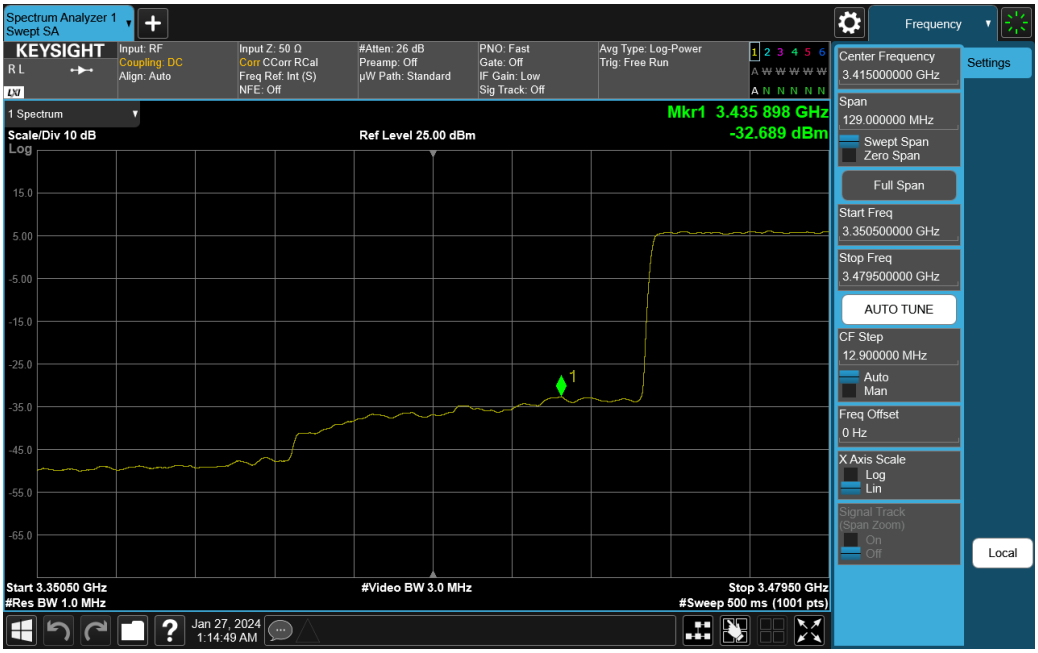
Plot 7-177. Lower ACP Plot (NR Band n77 DoD-Band - 60MHz DFT-s-OFDM QPSK – Full RB)



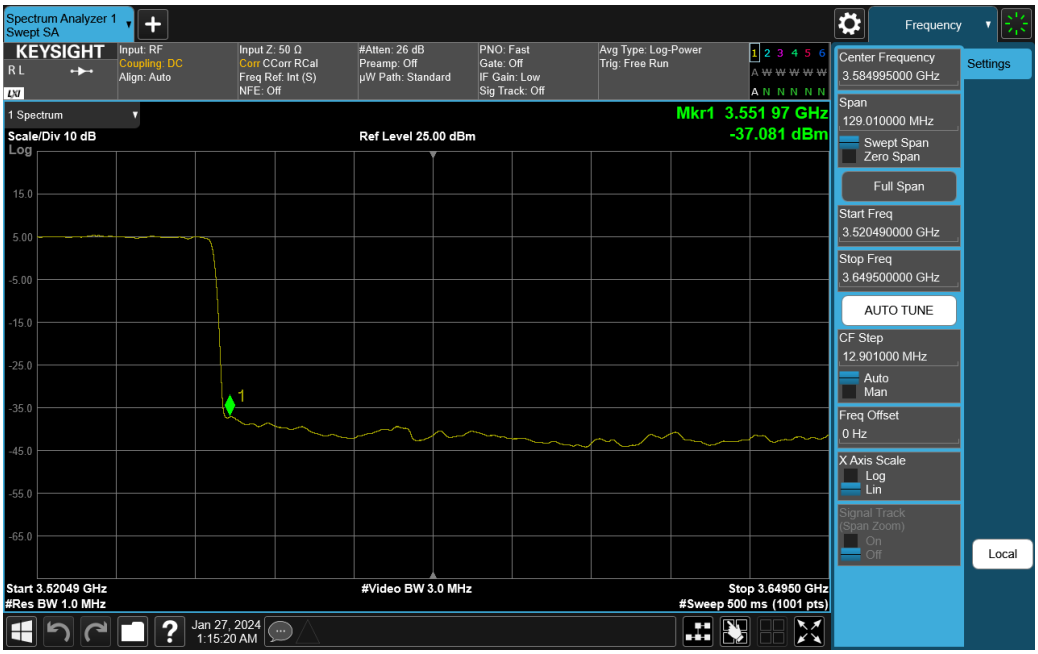
Plot 7-178. Lower ACP Plot (NR Band n77 DoD-Band - 60MHz DFT-s-OFDM QPSK – Full RB)



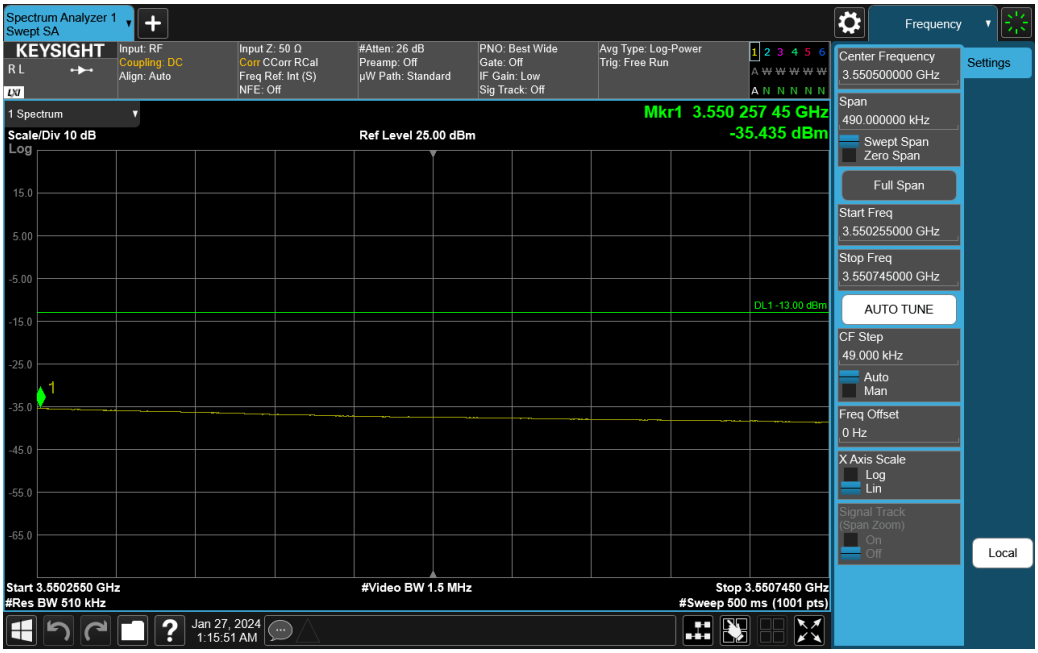
Plot 7-179. Lower ACP Plot (NR Band n77 DoD-Band - 60MHz DFT-s-OFDM QPSK – Full RB)



Plot 7-180. Lower ACP Plot (NR Band n77 DoD-Band - 60MHz DFT-s-OFDM QPSK – Full RB)

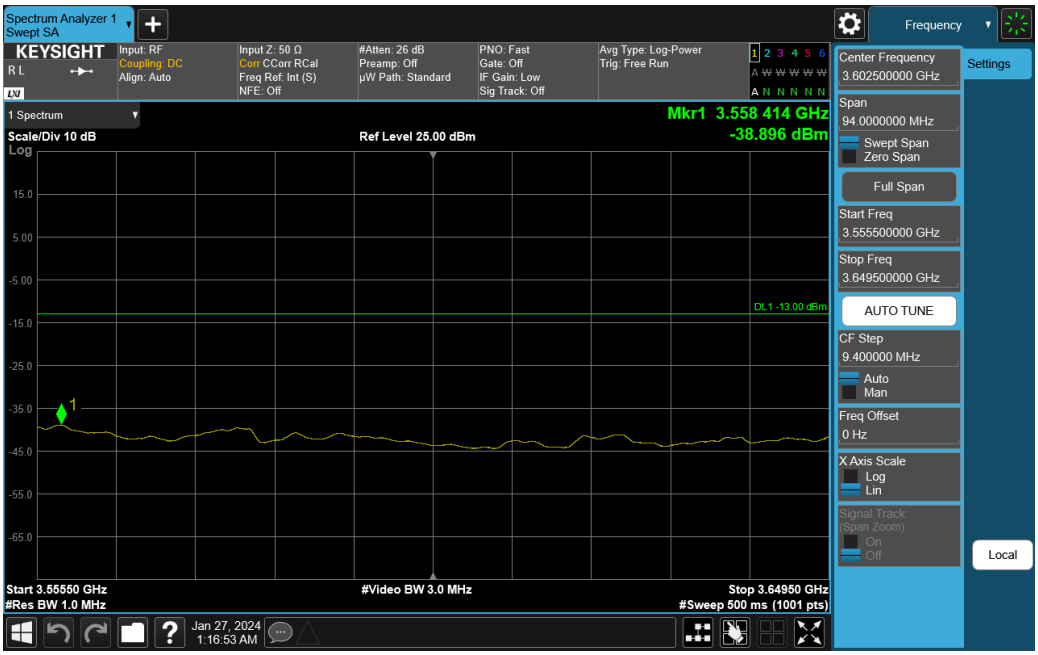


Plot 7-181. Upper ACP Plot (NR Band n77 DoD-Band - 60MHz DFT-s-OFDM QPSK – Full RB)

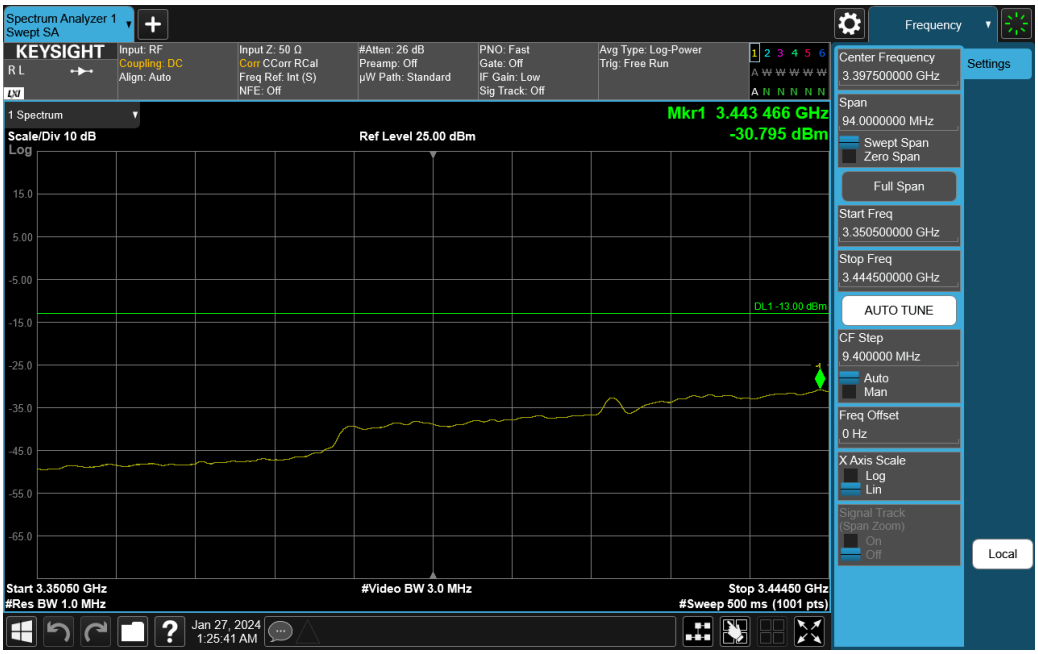


Plot 7-182. Upper ACP Plot (NR Band n77 DoD-Band - 60MHz DFT-s-OFDM QPSK – Full RB)

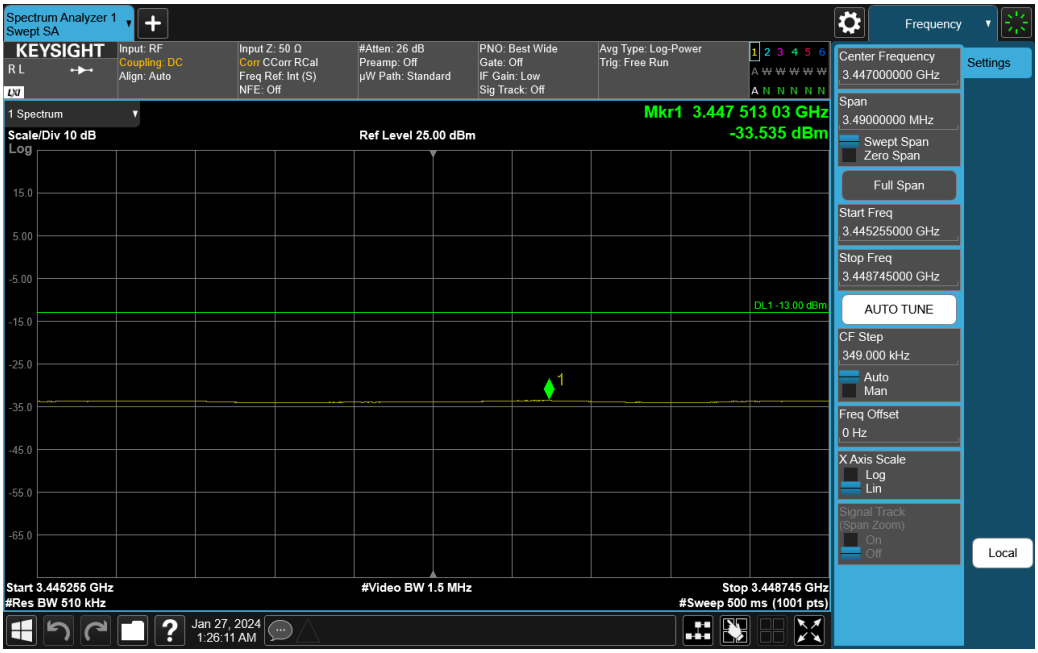
Plot 7-183. Upper ACP Plot (NR Band n77 DoD-Band - 60MHz DFT-s-OFDM QPSK – Full RB)



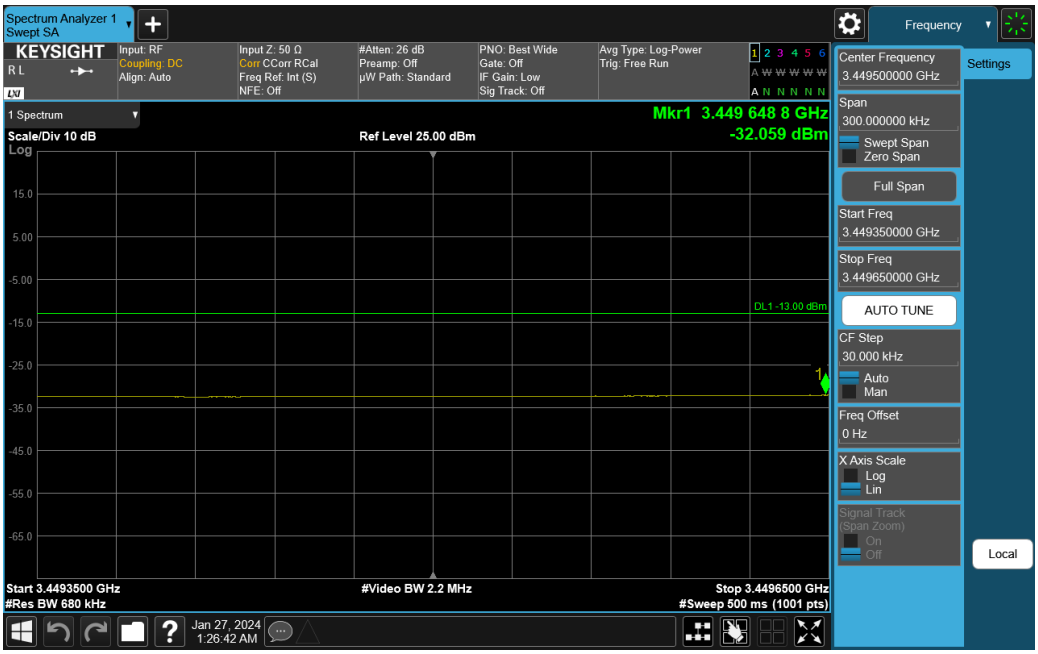
Plot 7-184. Upper ACP Plot (NR Band n77 DoD-Band - 60MHz DFT-s-OFDM QPSK – Full RB)



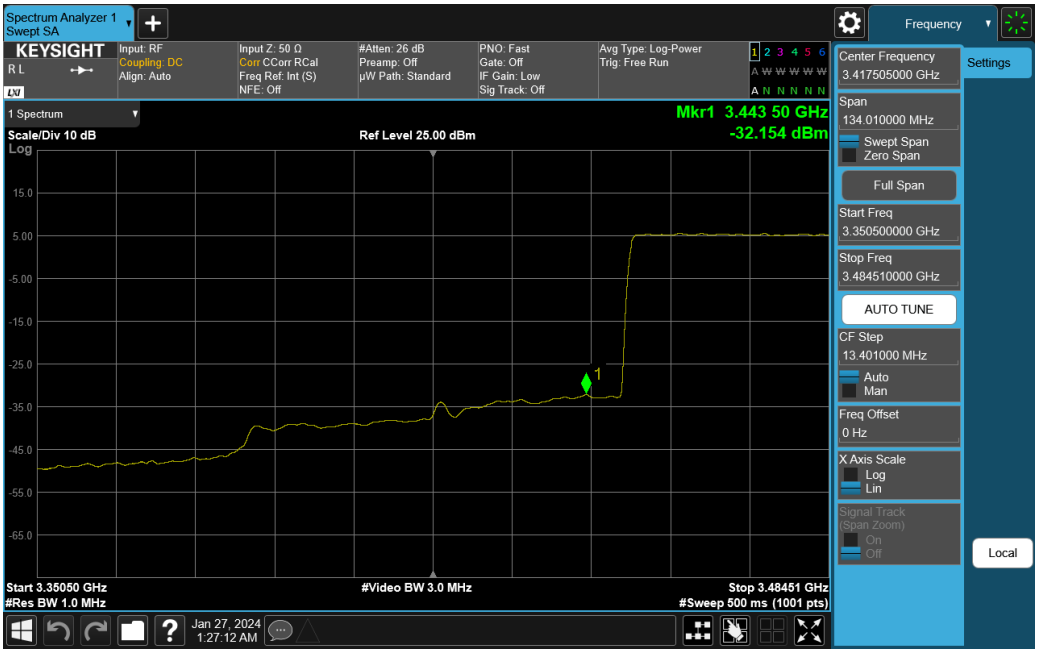
Plot 7-185. Lower ACP Plot (NR Band n77 DoD-Band - 70MHz DFT-s-OFDM QPSK – Full RB)



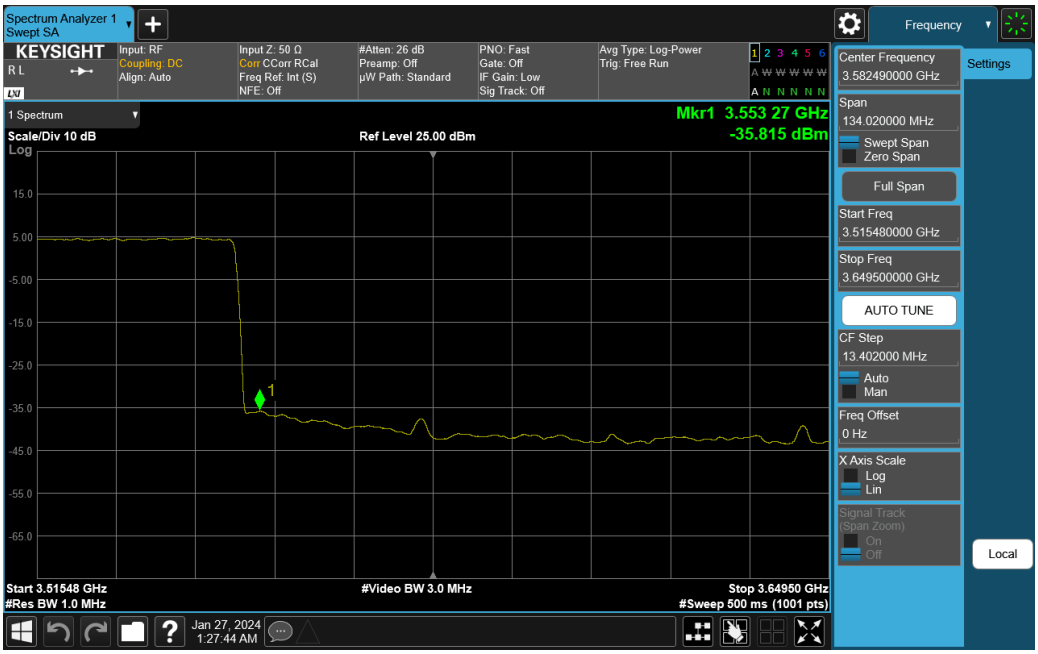
Plot 7-186. Lower ACP Plot (NR Band n77 DoD-Band - 70MHz DFT-s-OFDM QPSK – Full RB)



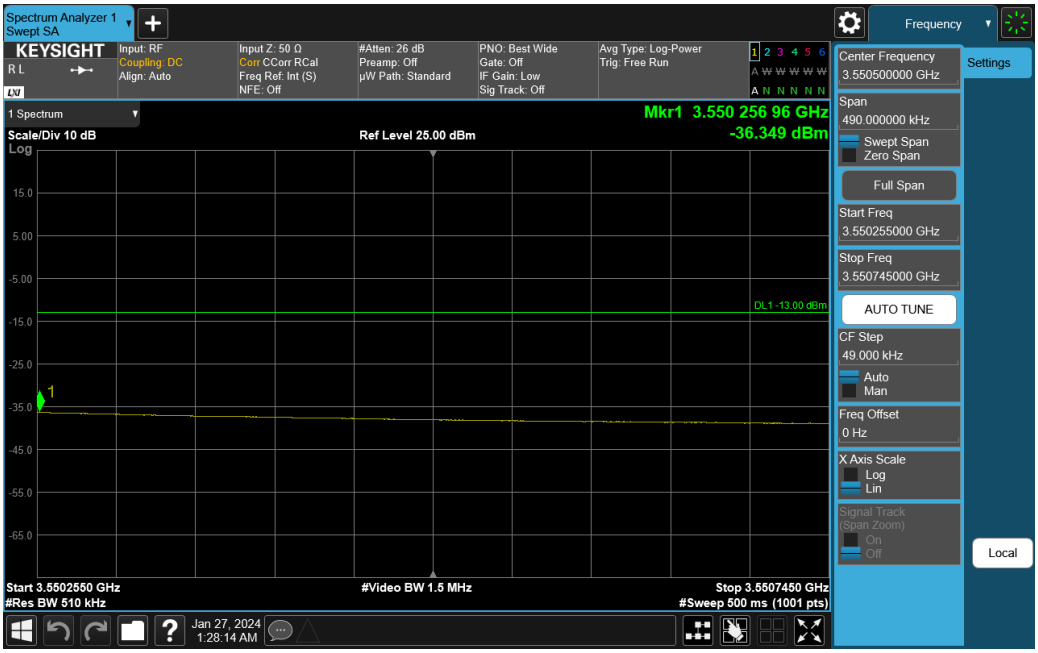
Plot 7-187. Lower ACP Plot (NR Band n77 DoD-Band - 70MHz DFT-s-OFDM QPSK – Full RB)



Plot 7-188. Lower ACP Plot (NR Band n77 DoD-Band - 70MHz DFT-s-OFDM QPSK – Full RB)



Plot 7-189. Upper ACP Plot (NR Band n77 DoD-Band - 70MHz DFT-s-OFDM QPSK – Full RB)



Plot 7-190. Upper ACP Plot (NR Band n77 DoD-Band - 70MHz DFT-s-OFDM QPSK – Full RB)