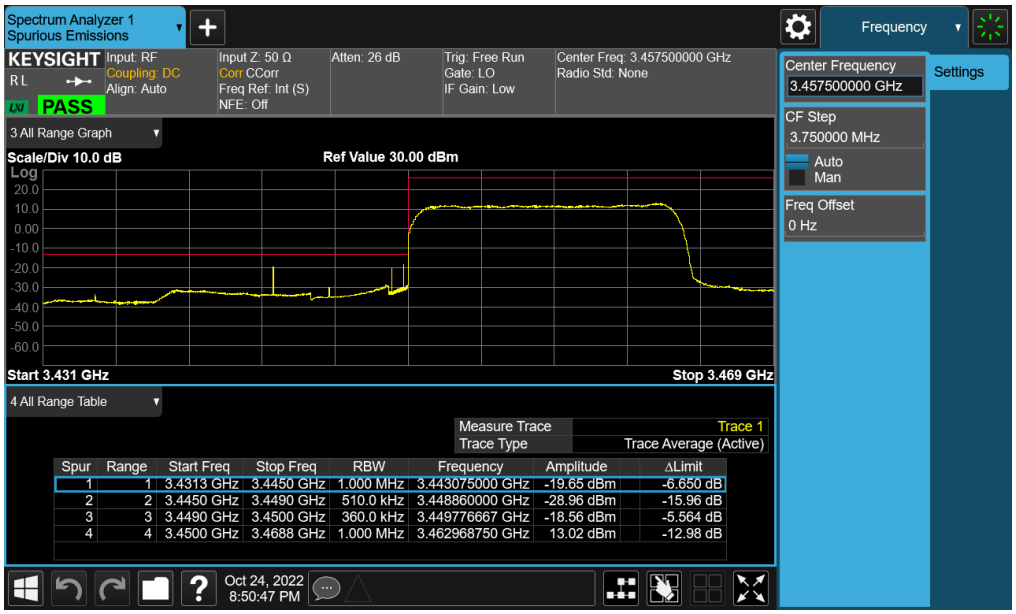
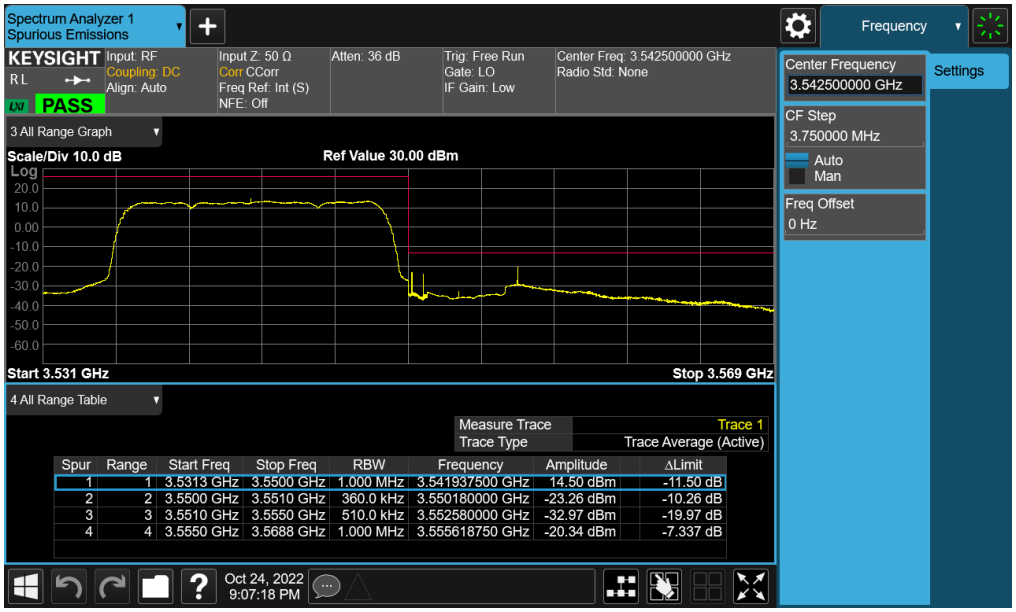
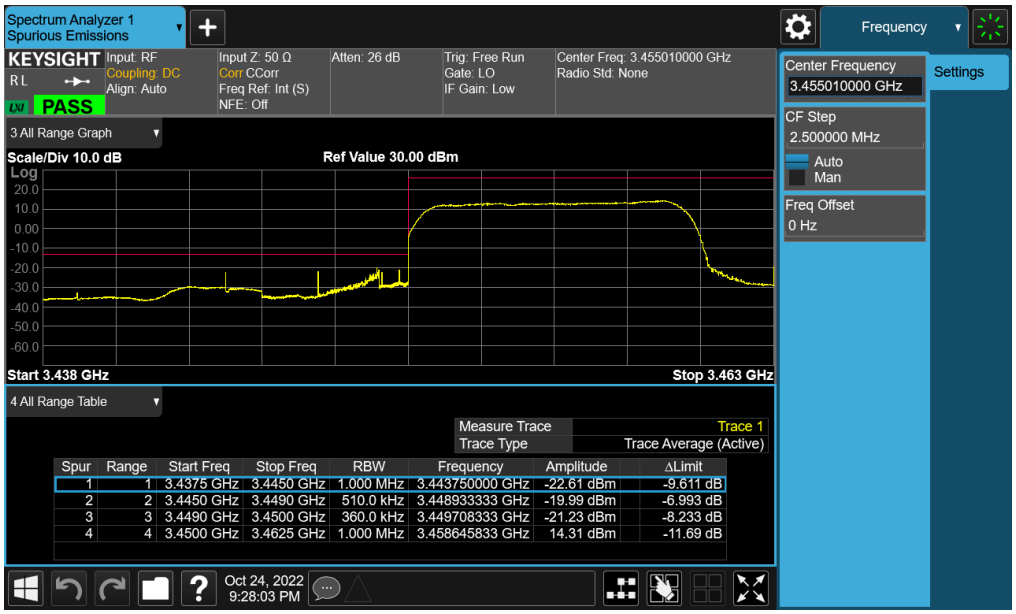


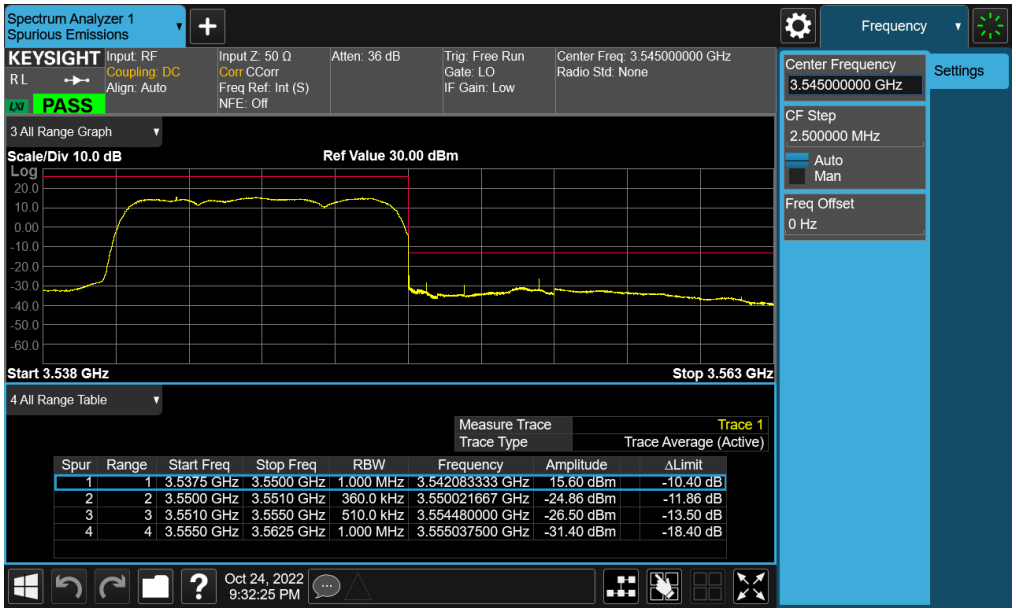
Plot 7-141. Lower ACP Plot (NR Band n77 - DoD Band – 15MHz DFT-s- π/2 BPSK – Full RB - SRS-1)



Plot 7-142. Upper ACP Plot (NR Band n77 - DoD Band – 15MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)

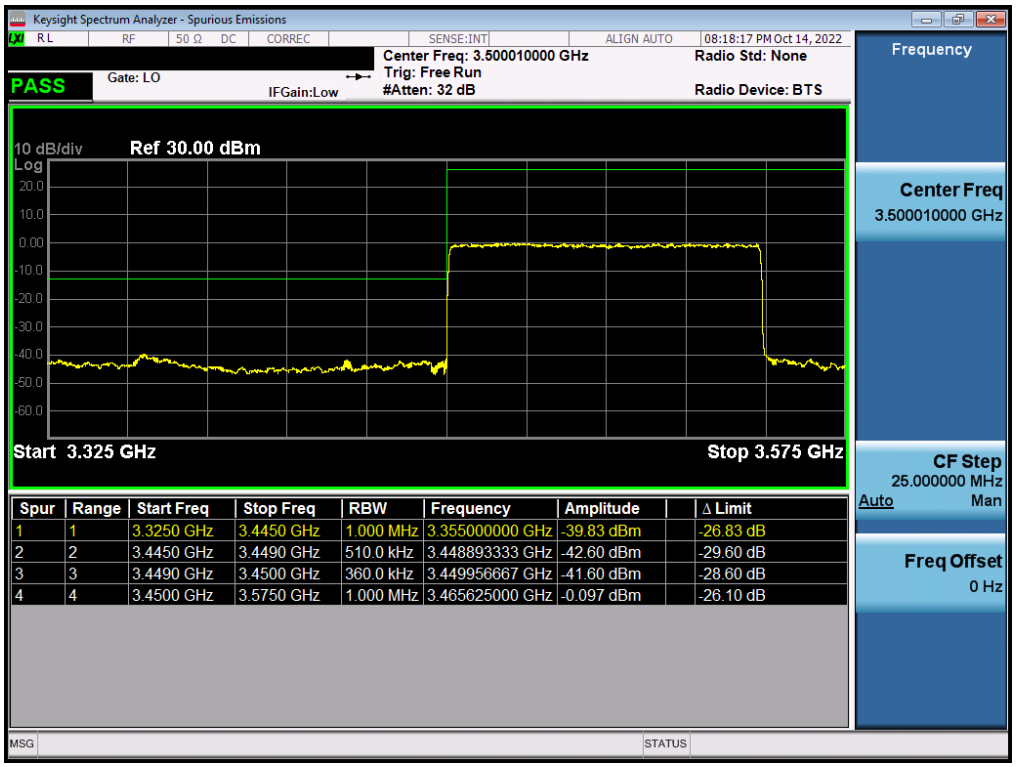


Plot 7-143. Lower ACP Plot (NR Band n77 - DoD Band – 10MHz CP-OFDM QPSK – Full RB - SRS-1)



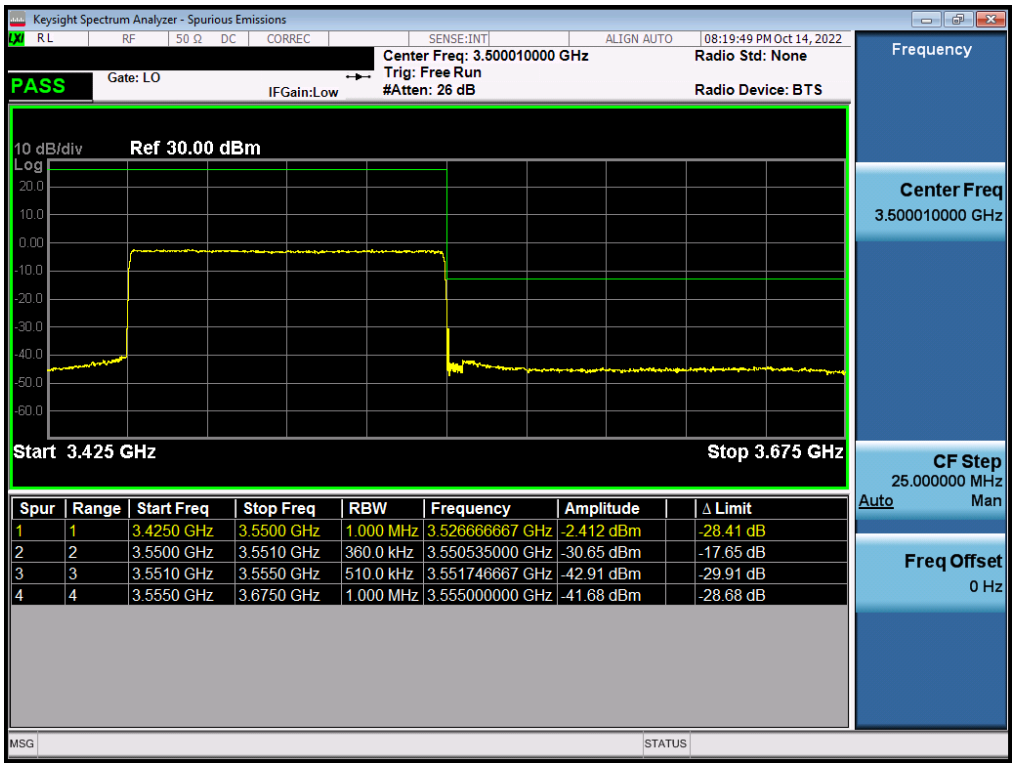
Plot 7-144. Upper ACP Plot (NR Band n77 - DoD Band – 10MHz CP-OFDM QPSK – Full RB - SRS-1)

NR Band n77 (PC2) - DoD Band – SRS-2



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	3.3250 GHz	3.4450 GHz	1.000 MHz	3.355000000 GHz	-39.83 dBm	-26.83 dB
2	2	3.4450 GHz	3.4490 GHz	510.0 kHz	3.448893333 GHz	-42.60 dBm	-29.60 dB
3	3	3.4490 GHz	3.4500 GHz	360.0 kHz	3.449956667 GHz	-41.60 dBm	-28.60 dB
4	4	3.4500 GHz	3.5750 GHz	1.000 MHz	3.465625000 GHz	-0.097 dBm	-26.10 dB

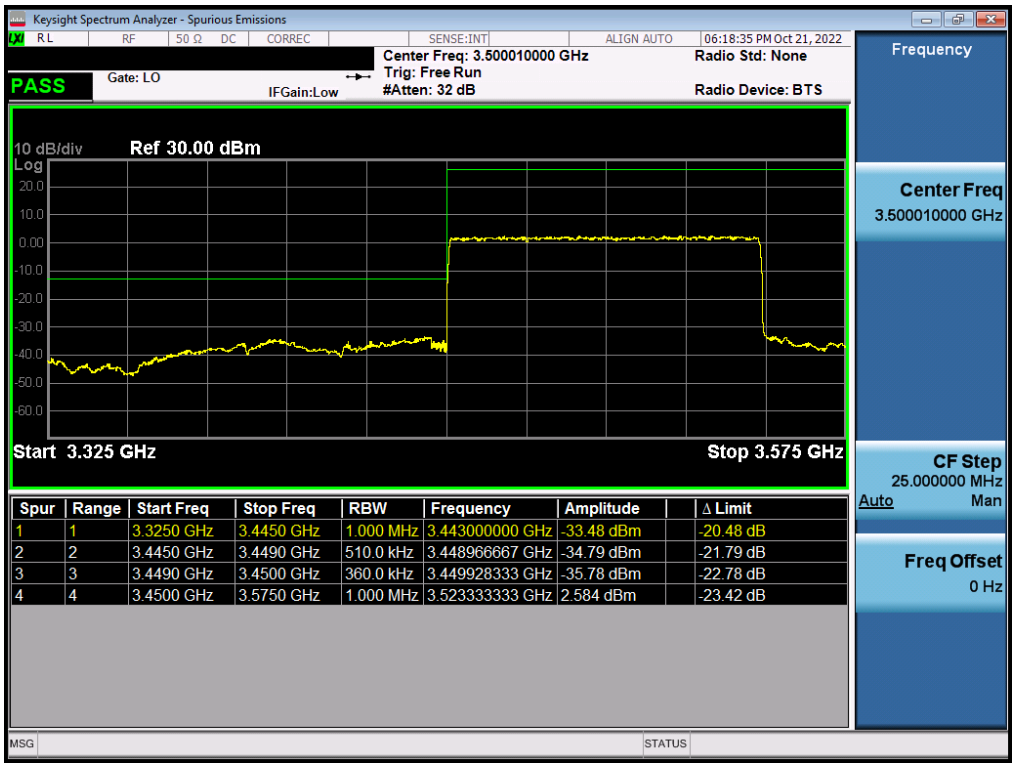
Plot 7-145. Lower ACP Plot (NR Band n77 - DoD Band – 100MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-2)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	3.4250 GHz	3.5500 GHz	1.000 MHz	3.526666667 GHz	-2.412 dBm	-28.41 dB
2	2	3.5500 GHz	3.5510 GHz	360.0 kHz	3.550535000 GHz	-30.65 dBm	-17.65 dB
3	3	3.5510 GHz	3.5550 GHz	510.0 kHz	3.551746667 GHz	-42.91 dBm	-29.91 dB
4	4	3.5550 GHz	3.6750 GHz	1.000 MHz	3.555000000 GHz	-41.68 dBm	-28.68 dB

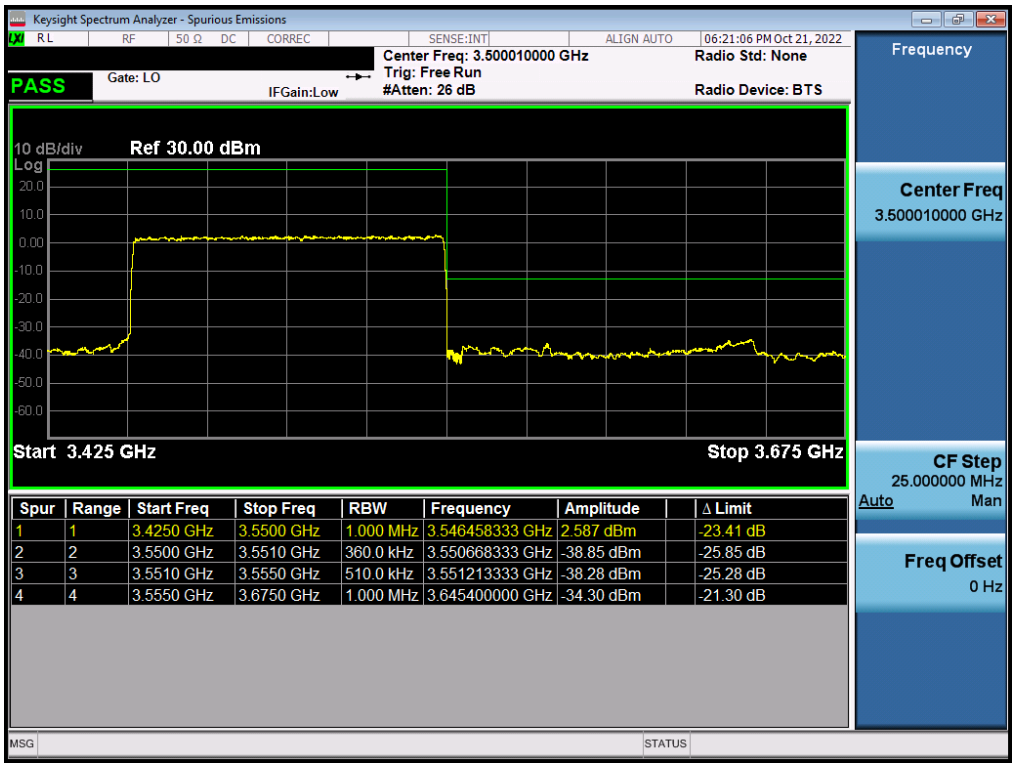
Plot 7-146. Upper ACP Plot (NR Band n77 - DoD Band – 100MHz CP-OFDM QPSK – Full RB - SRS-2)

NR Band n77 (PC2) - DoD Band – SRS-3



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	3.3250 GHz	3.4450 GHz	1.000 MHz	3.443000000 GHz	-33.48 dBm	-20.48 dB
2	2	3.4450 GHz	3.4490 GHz	510.0 kHz	3.448966667 GHz	-34.79 dBm	-21.79 dB
3	3	3.4490 GHz	3.4500 GHz	360.0 kHz	3.449928333 GHz	-35.78 dBm	-22.78 dB
4	4	3.4500 GHz	3.5750 GHz	1.000 MHz	3.523333333 GHz	2.584 dBm	-23.42 dB

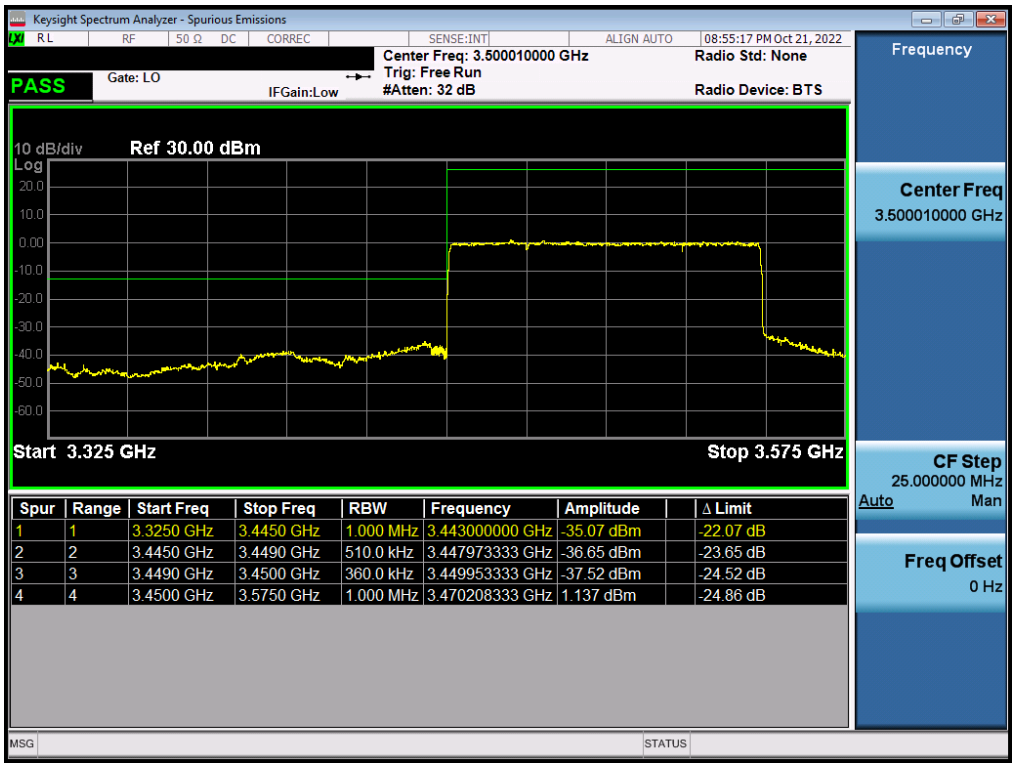
Plot 7-147. Lower ACP Plot (NR Band n77 - DoD Band – 100MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-3)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	3.4250 GHz	3.5500 GHz	1.000 MHz	3.546458333 GHz	2.587 dBm	-23.41 dB
2	2	3.5500 GHz	3.5510 GHz	360.0 kHz	3.550668333 GHz	-38.85 dBm	-25.85 dB
3	3	3.5510 GHz	3.5550 GHz	510.0 kHz	3.551213333 GHz	-38.28 dBm	-25.28 dB
4	4	3.5550 GHz	3.6750 GHz	1.000 MHz	3.645400000 GHz	-34.30 dBm	-21.30 dB

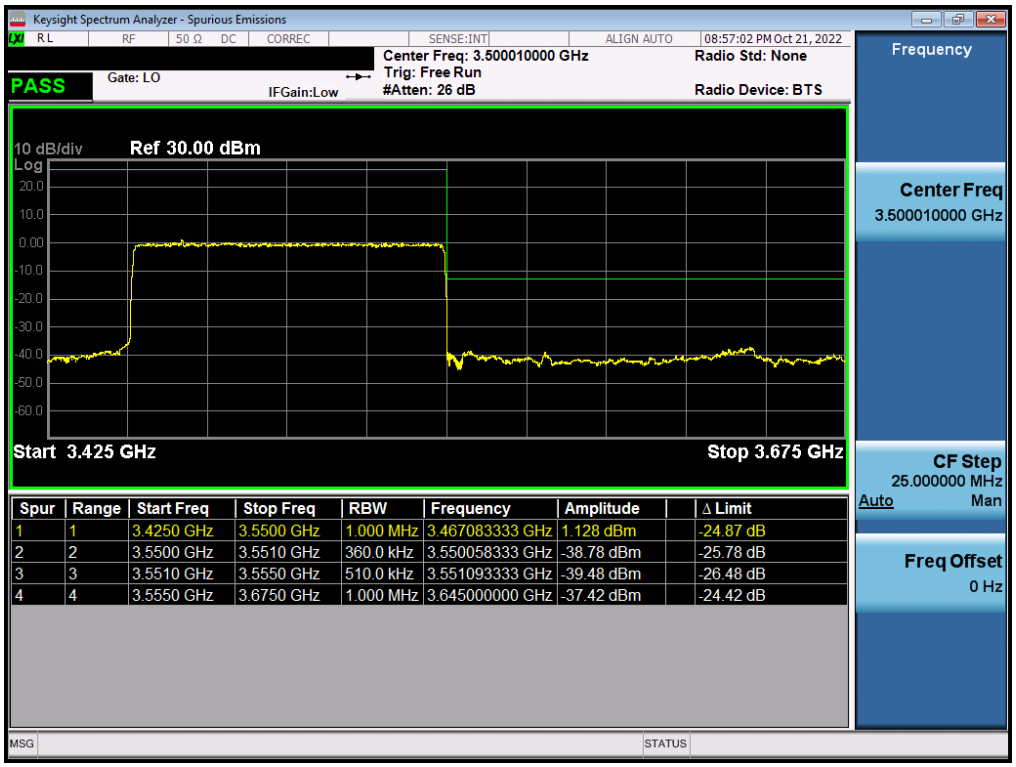
Plot 7-148. Upper ACP Plot (NR Band n77 - DoD Band – 100MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-3)

NR Band n77 (PC2) - DoD Band – SRS-4



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	3.3250 GHz	3.4450 GHz	1.000 MHz	3.443000000 GHz	-35.07 dBm	-22.07 dB
2	2	3.4450 GHz	3.4490 GHz	510.0 kHz	3.447973333 GHz	-36.65 dBm	-23.65 dB
3	3	3.4490 GHz	3.4500 GHz	360.0 kHz	3.449953333 GHz	-37.52 dBm	-24.52 dB
4	4	3.4500 GHz	3.5750 GHz	1.000 MHz	3.470208333 GHz	1.137 dBm	-24.86 dB

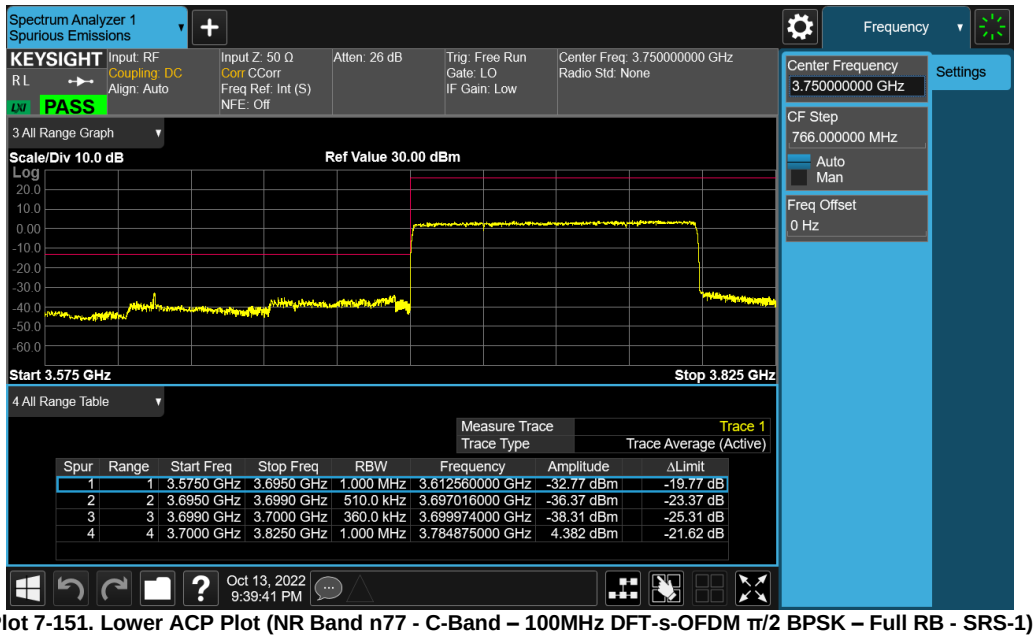
Plot 7-149. Lower ACP Plot (NR Band n77 - DoD Band – 100MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-4)



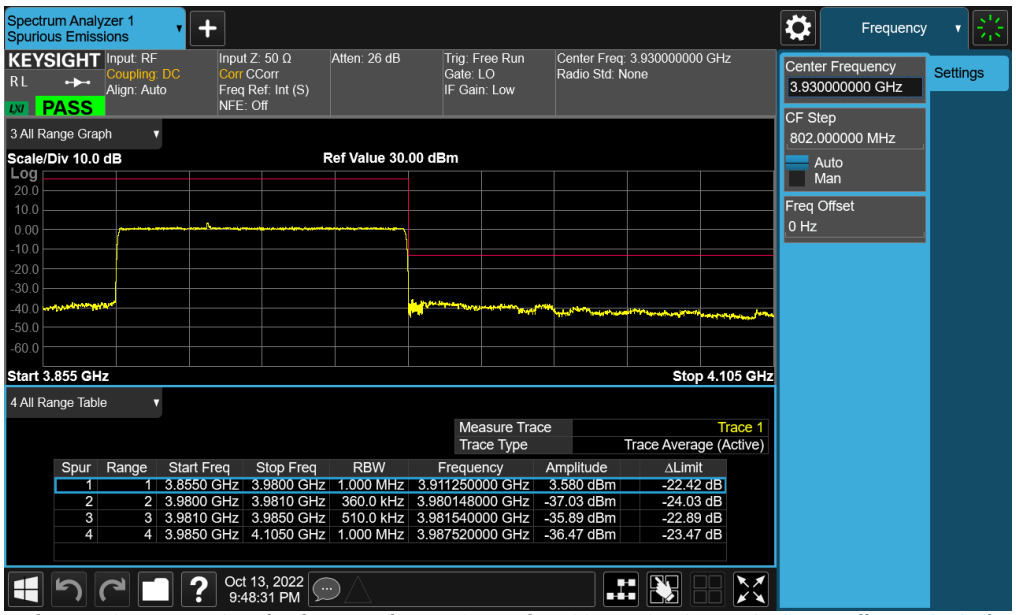
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	3.4250 GHz	3.5500 GHz	1.000 MHz	3.467083333 GHz	1.128 dBm	-24.87 dB
2	2	3.5500 GHz	3.5510 GHz	360.0 kHz	3.550058333 GHz	-38.78 dBm	-25.78 dB
3	3	3.5510 GHz	3.5550 GHz	510.0 kHz	3.551093333 GHz	-39.48 dBm	-26.48 dB
4	4	3.5550 GHz	3.6750 GHz	1.000 MHz	3.645000000 GHz	-37.42 dBm	-24.42 dB

Plot 7-150. Upper ACP Plot (NR Band n77 - DoD Band – 100MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-4)

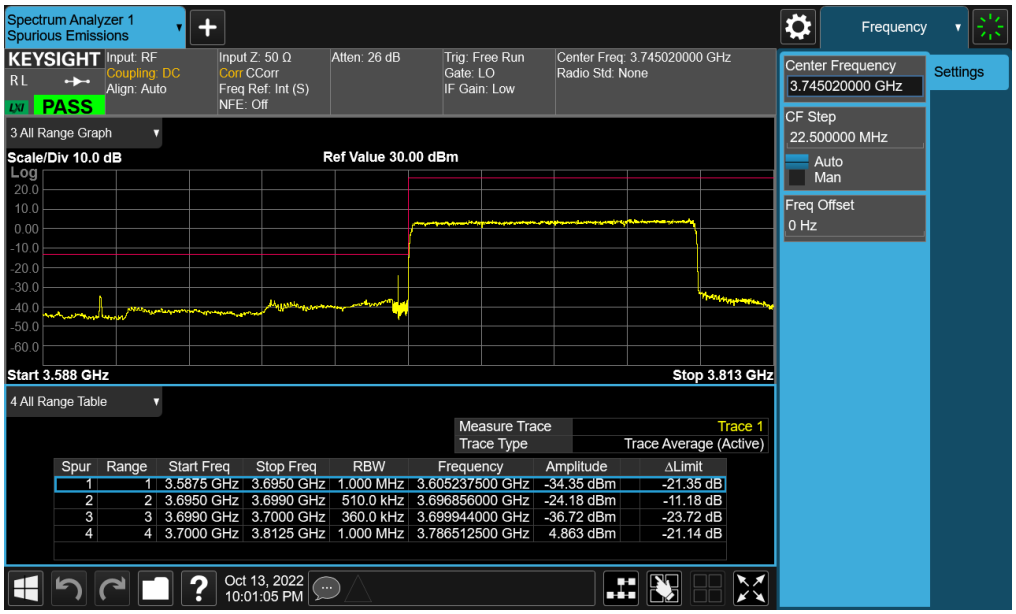
NR Band n77 (PC2) - C-Band – SRS-1



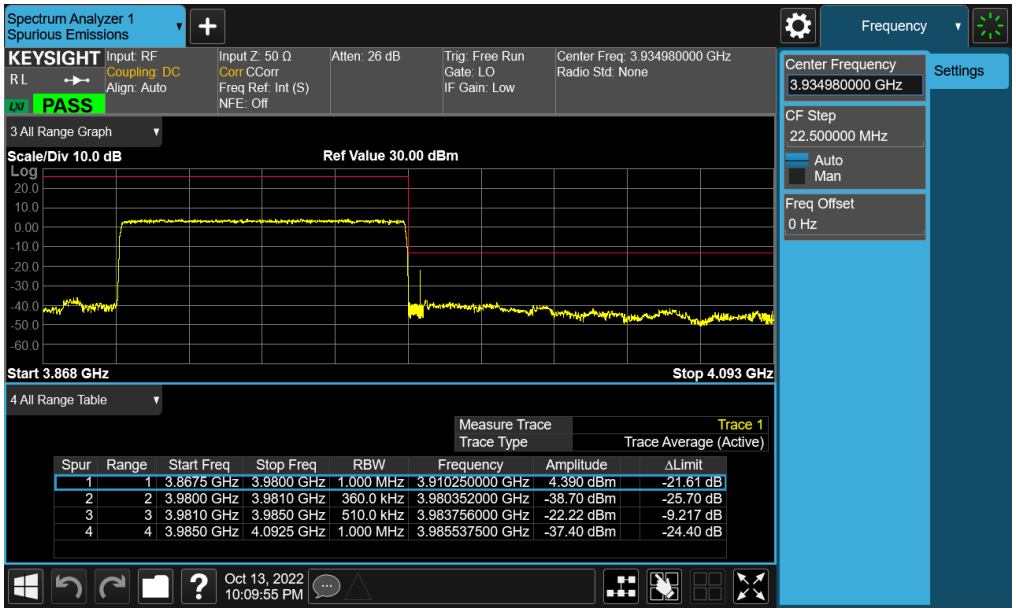
Plot 7-151. Lower ACP Plot (NR Band n77 - C-Band – 100MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)



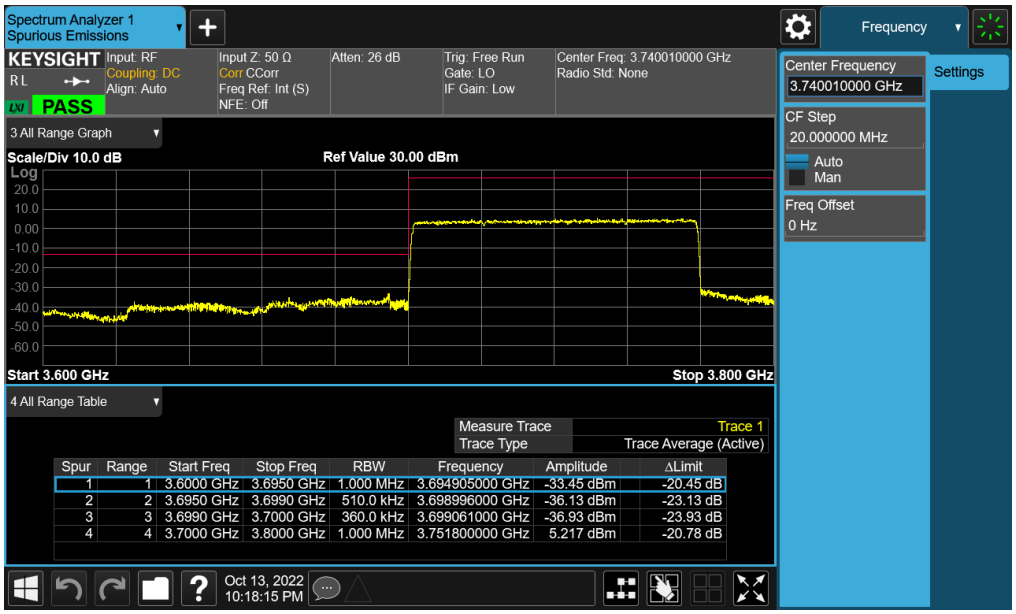
Plot 7-152. Upper ACP Plot (NR Band n77 - C-Band – 100MHz CP-OFDM QPSK – Full RB - SRS-1)



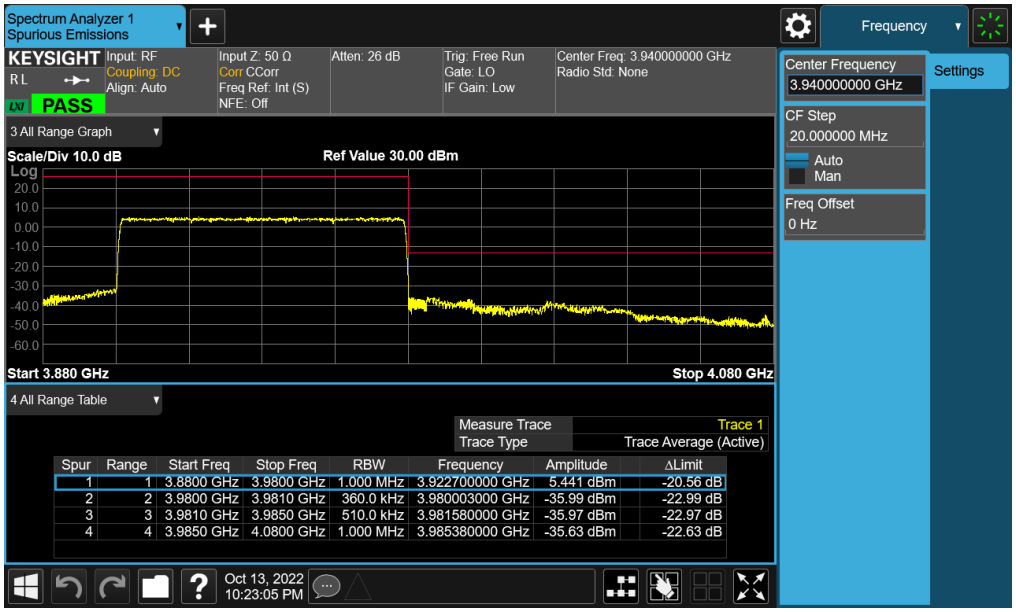
Plot 7-153. Lower ACP Plot (NR Band n77 - C-Band – 90MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)



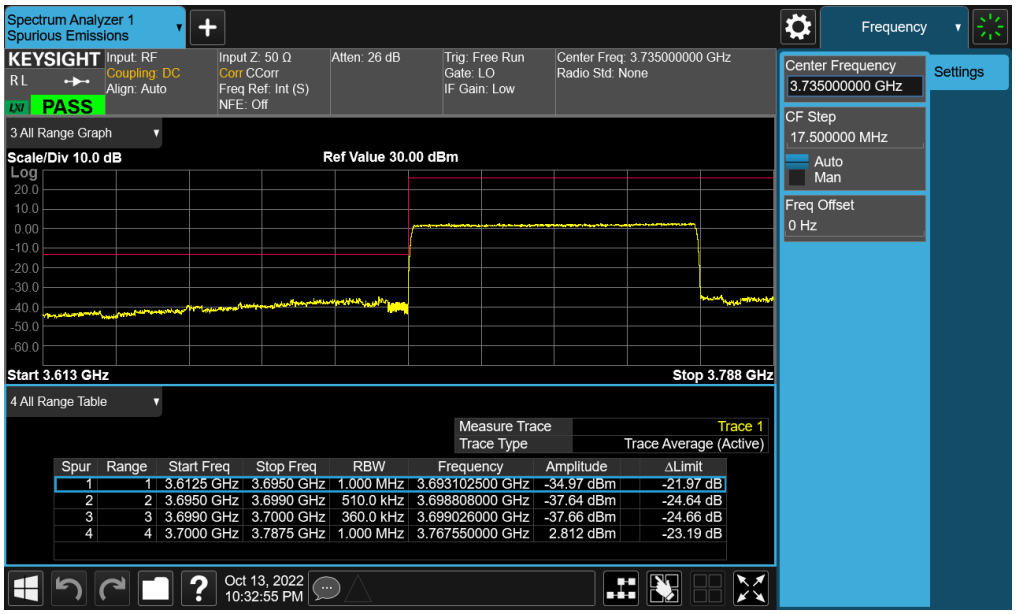
Plot 7-154. Upper ACP Plot (NR Band n77 - C-Band – 90MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)



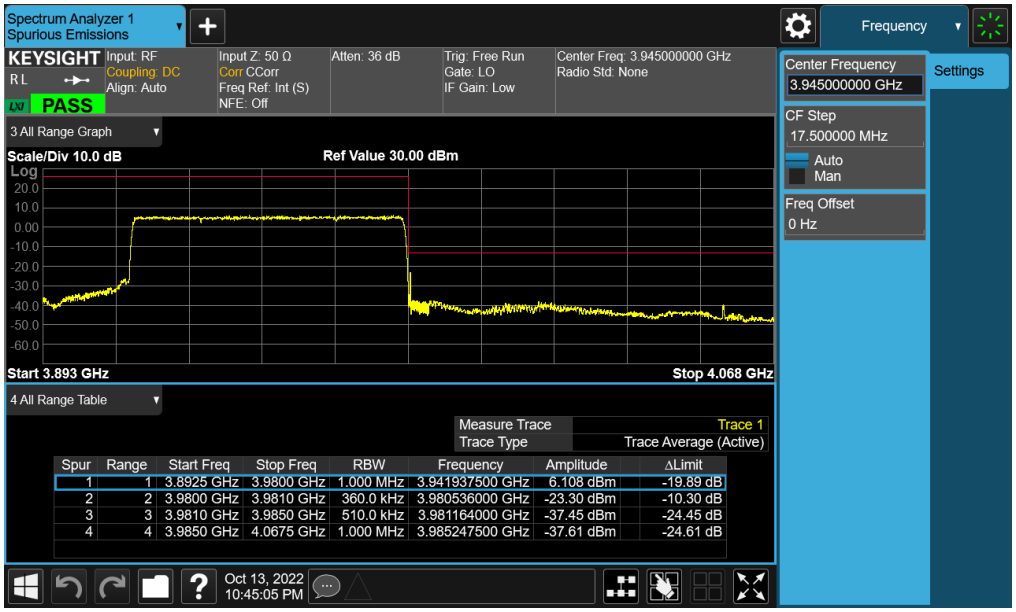
Plot 7-155. Lower ACP Plot (NR Band n77 - C-Band – 80MHz CP-OFDM π/2 BPSK – Full RB - SRS-1)



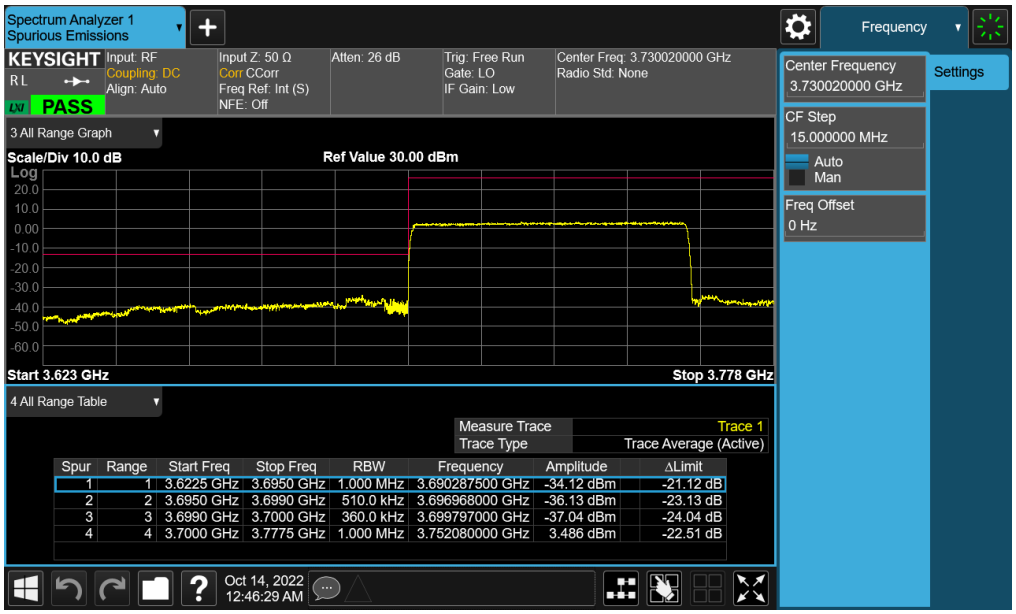
Plot 7-156. Upper ACP Plot (NR Band n77 - C-Band – 80MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)



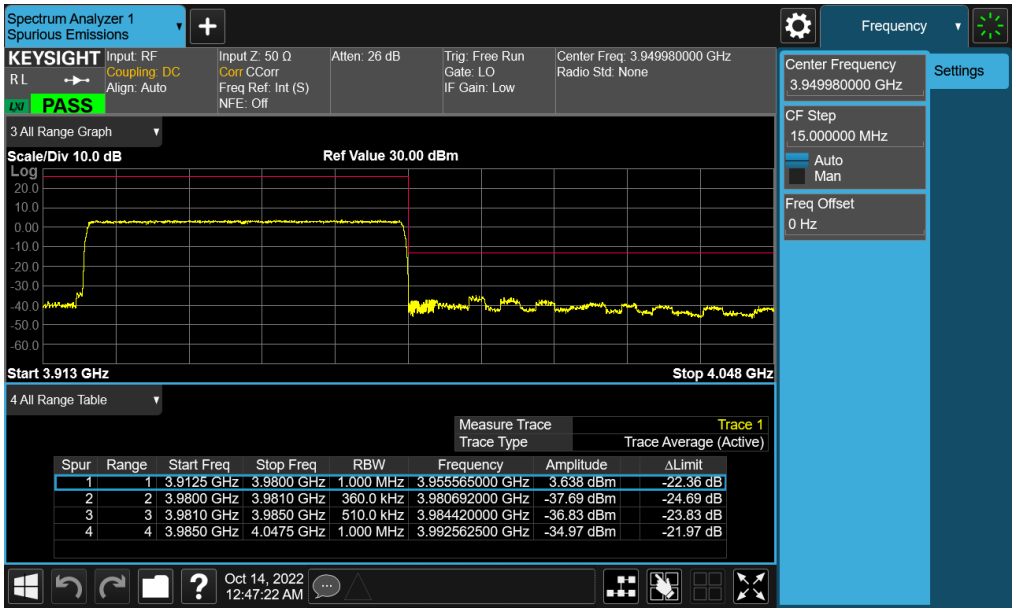
Plot 7-157. Lower ACP Plot (NR Band n77 - C-Band – 70MHz CP-OFDM QPSK – Full RB - SRS-1)



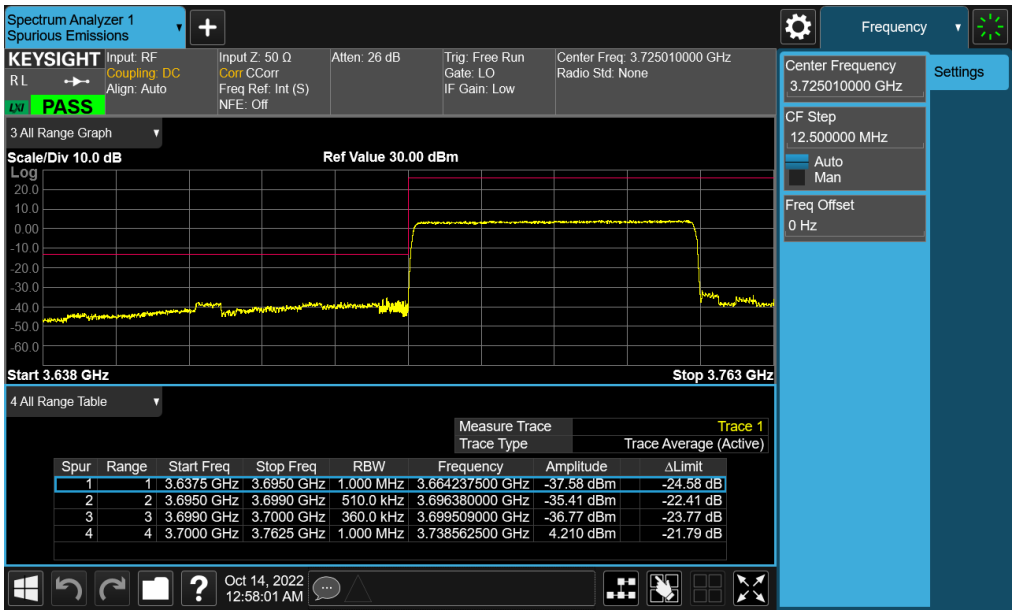
Plot 7-158. Upper ACP Plot (NR Band n77 - C-Band – 70MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)



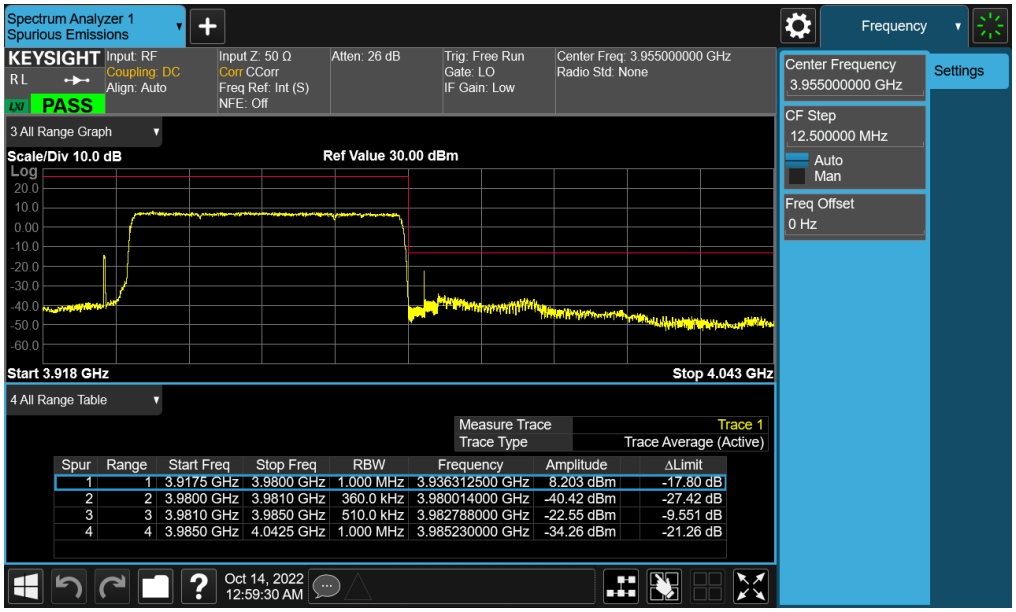
Plot 7-159. Lower ACP Plot (NR Band n77 - C-Band – 60MHz CP-OFDM QPSK – Full RB - SRS-1)



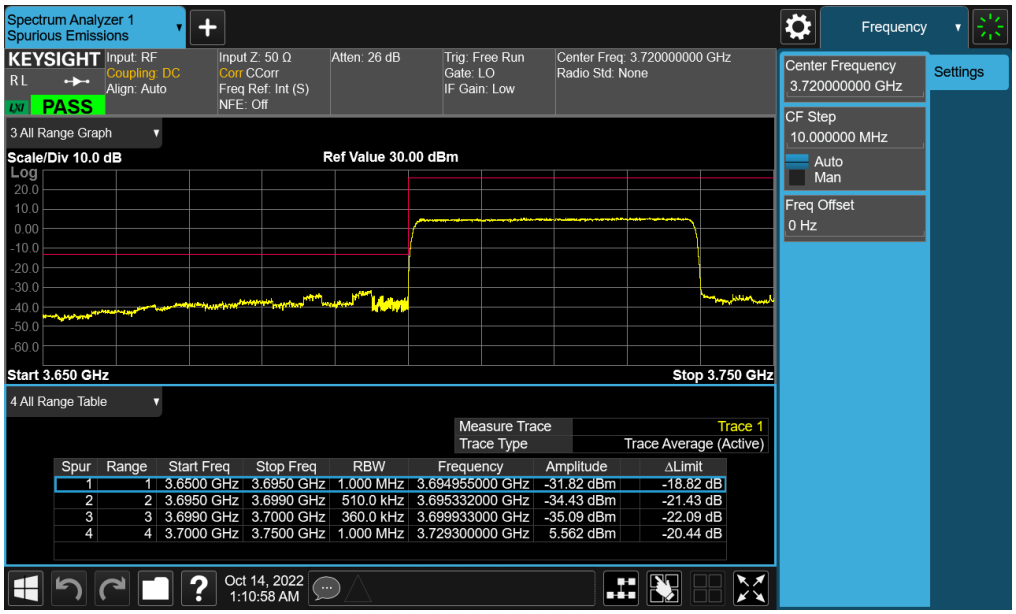
Plot 7-160. Upper ACP Plot (NR Band n77 - C-Band – 60MHz CP-OFDM QPSK – Full RB - SRS-1)



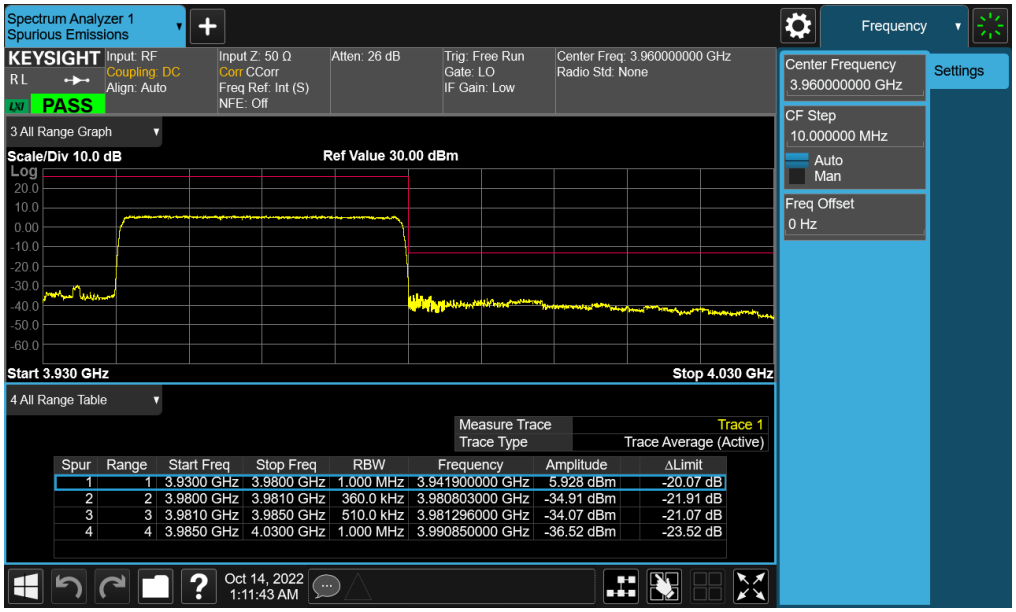
Plot 7-161. Lower ACP Plot (NR Band n77 - C-Band – 50MHz CP-OFDM QPSK – Full RB - SRS-1)



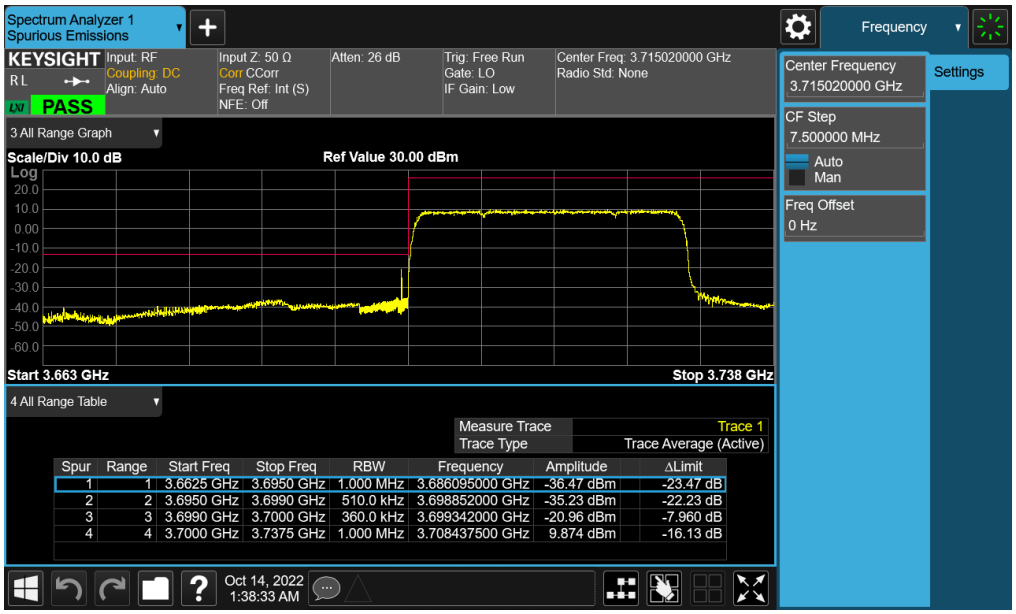
Plot 7-162. Upper ACP Plot (NR Band n77 - C-Band – 50MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)



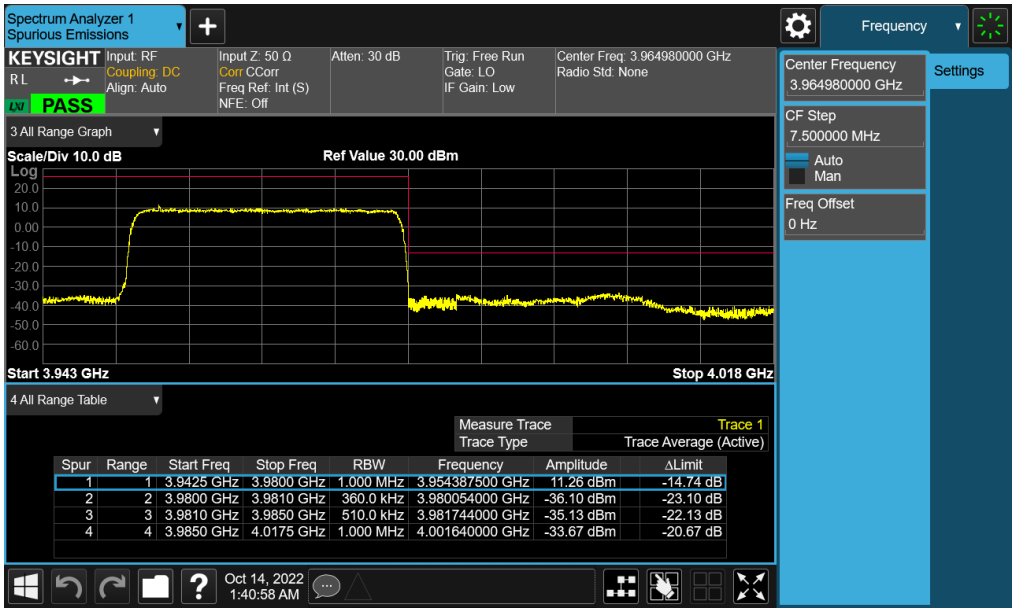
Plot 7-163. Lower ACP Plot (NR Band n77 - C-Band – 40MHz CP-OFDM QPSK – Full RB - SRS-1)



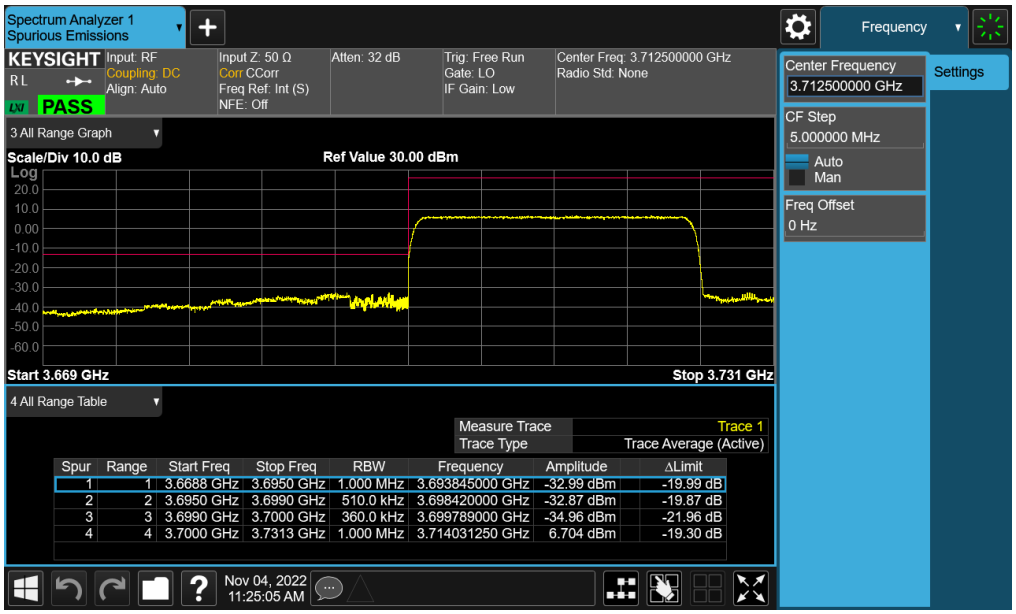
Plot 7-164. Upper ACP Plot (NR Band n77 - C-Band – 40MHz CP-OFDM QPSK – Full RB - SRS-1)



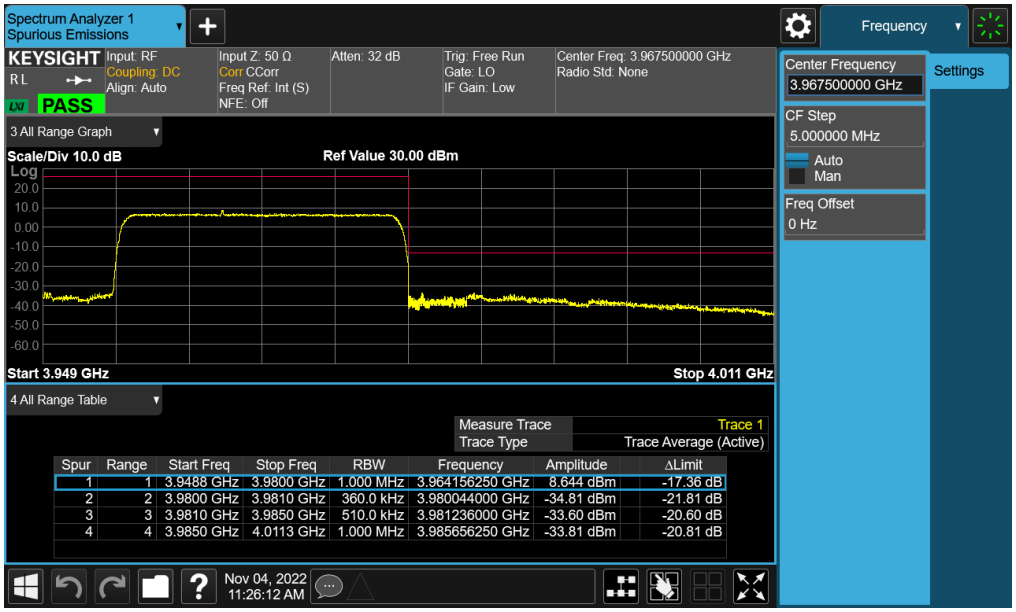
Plot 7-165. Lower ACP Plot (NR Band n77 - C-Band – 30MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)



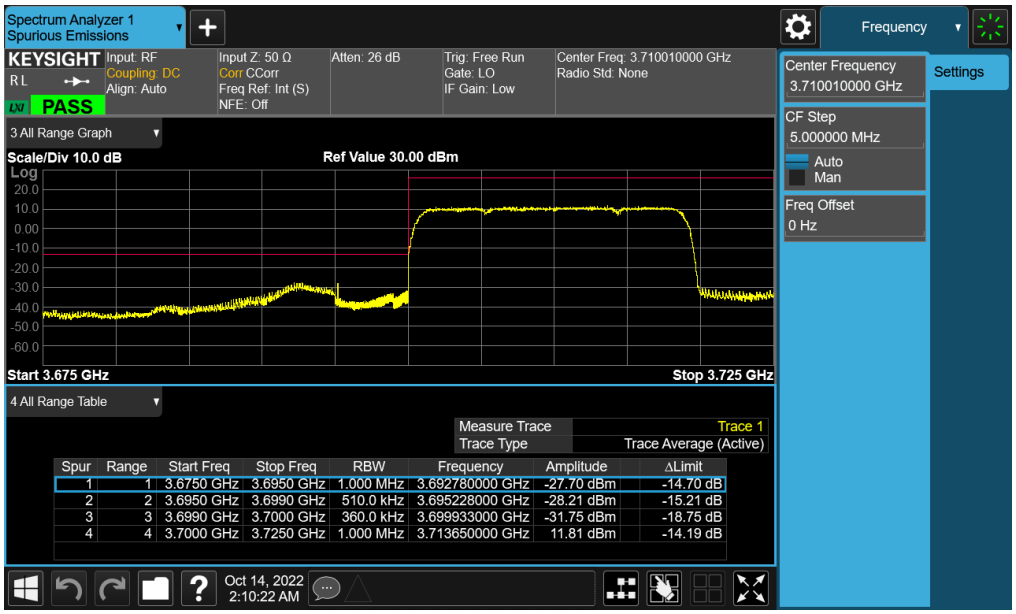
Plot 7-166. Upper ACP Plot (NR Band n77 - C-Band – 30MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)



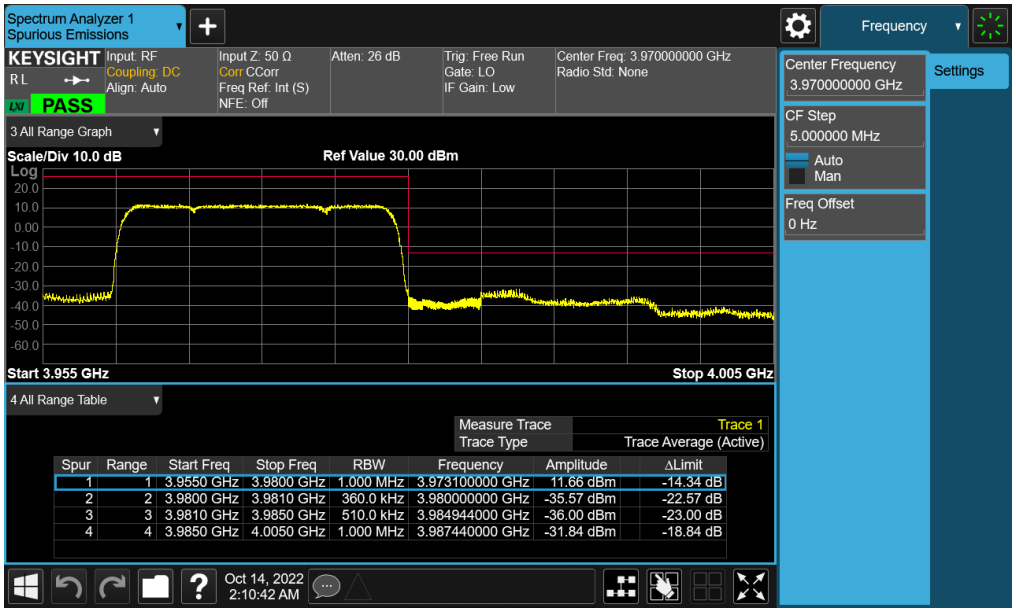
Plot 7-167. Lower ACP Plot (NR Band n77 - C-Band – 25MHz CP QPSK – Full RB - SRS-1)



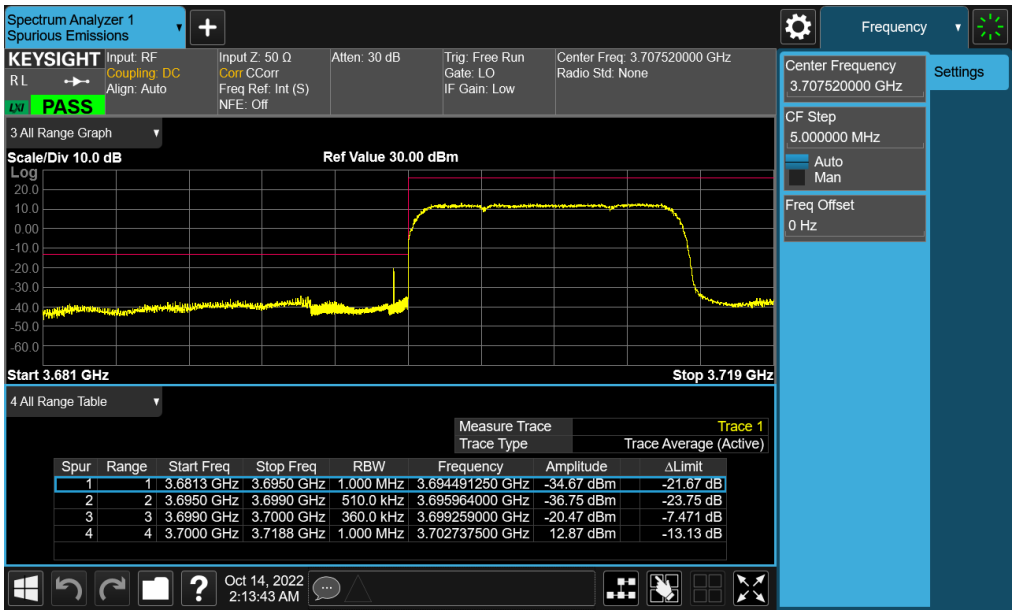
Plot 7-168. Upper ACP Plot (NR Band n77 - C-Band – 25MHz CP QPSK – Full RB - SRS-1)



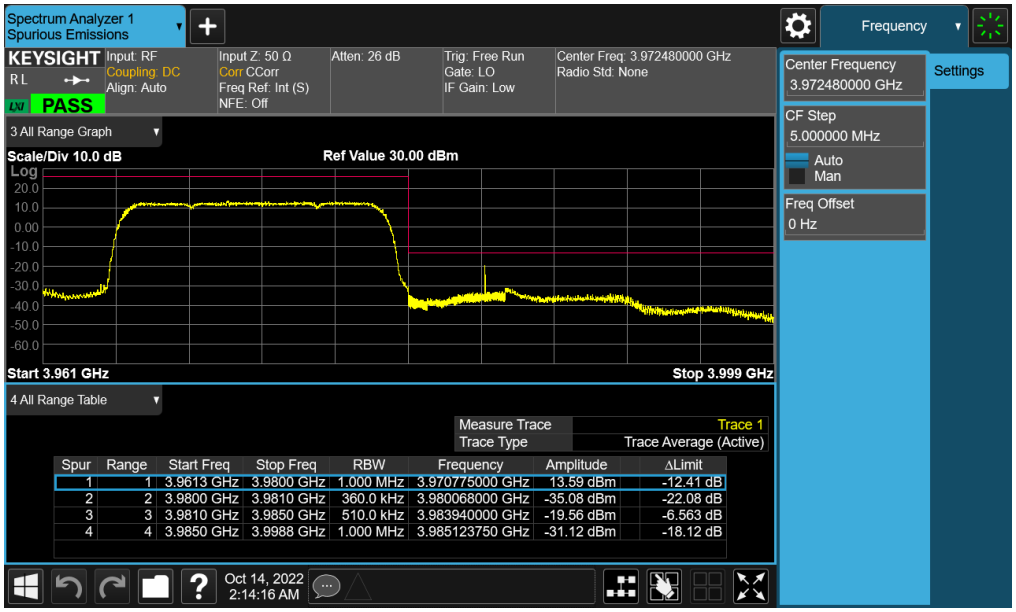
Plot 7-169. Lower ACP Plot (NR Band n77 - C-Band – 20MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)



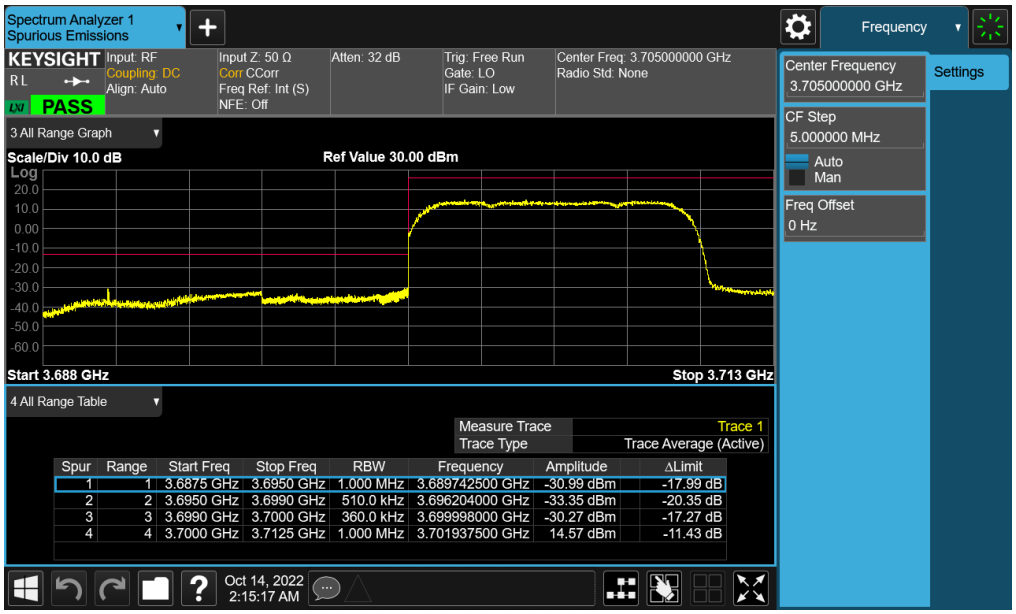
Plot 7-170. Upper ACP Plot (NR Band n77 - C-Band – 20MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)



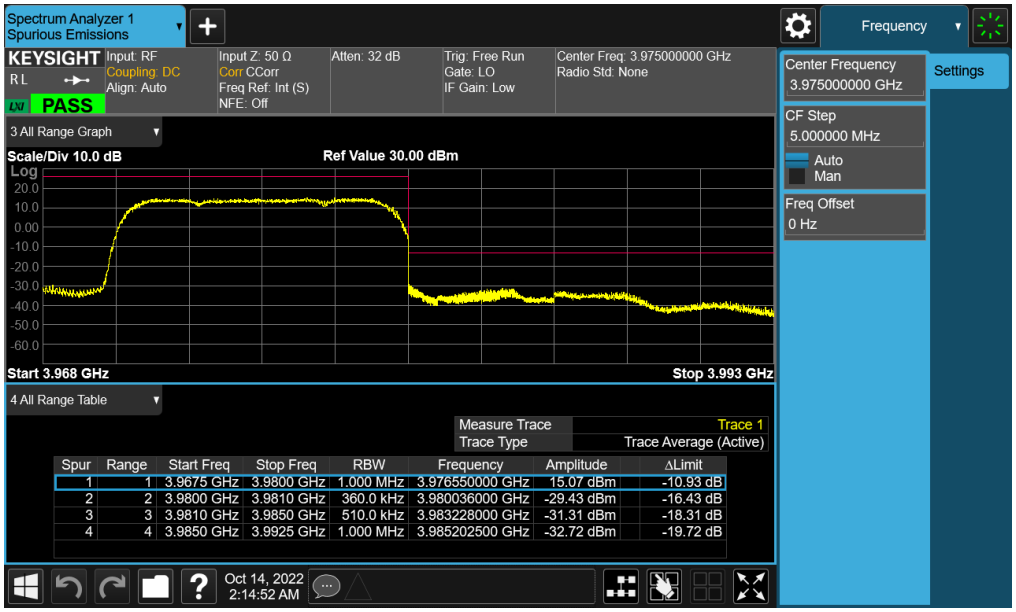
Plot 7-171. Lower ACP Plot (NR Band n77 - C-Band – 15MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)



Plot 7-172. Upper ACP Plot (NR Band n77 - C-Band – 15MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)

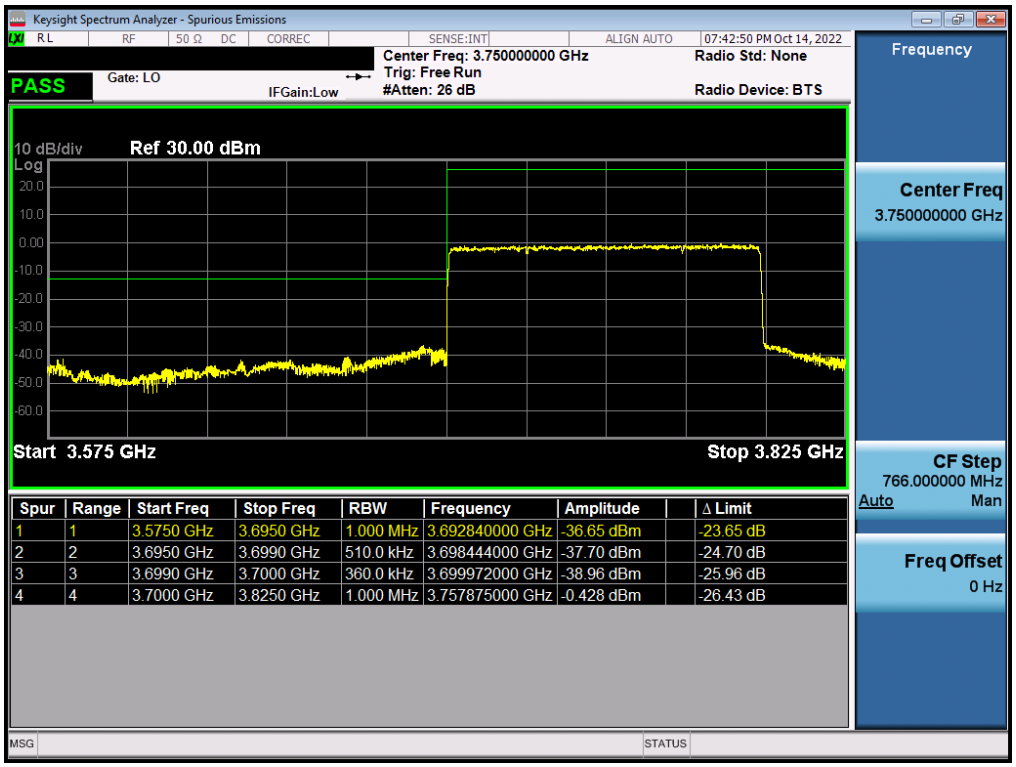


Plot 7-173. Lower ACP Plot (NR Band n77 - C-Band – 10MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)



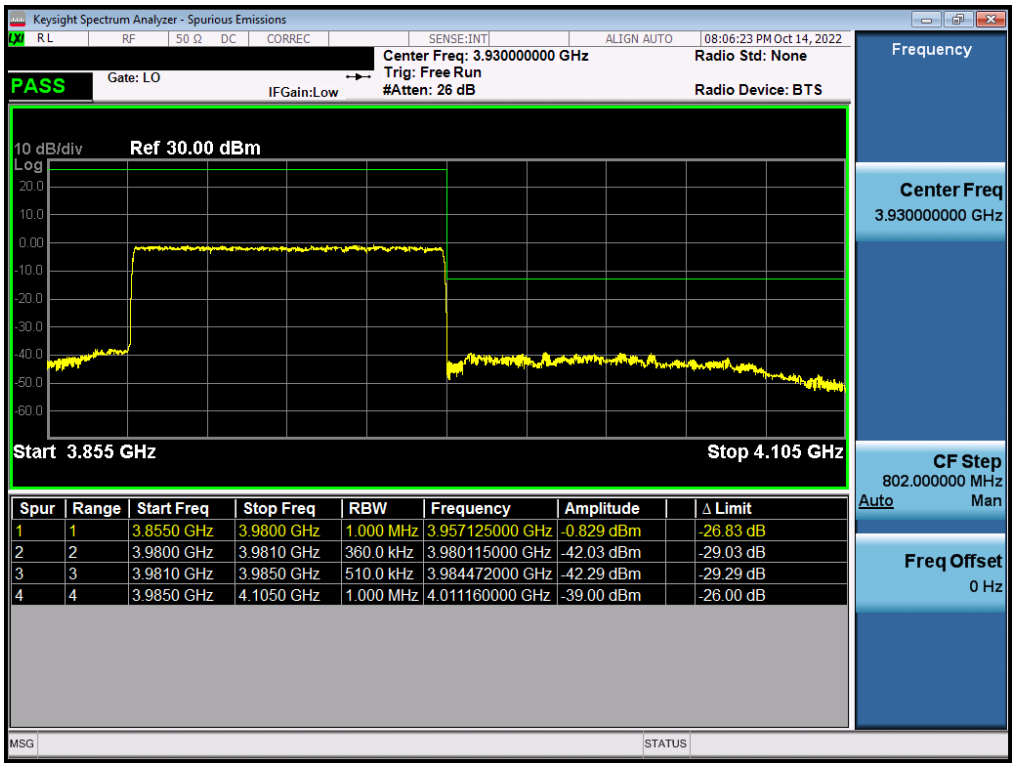
Plot 7-174. Upper ACP Plot (NR Band n77 - C-Band – 10MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-1)

NR Band n77 (PC2) - C-Band – SRS-2



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	3.5750 GHz	3.6950 GHz	1.000 MHz	3.692840000 GHz	-36.65 dBm	-23.65 dB
2	2	3.6950 GHz	3.6990 GHz	510.0 kHz	3.698444000 GHz	-37.70 dBm	-24.70 dB
3	3	3.6990 GHz	3.7000 GHz	360.0 kHz	3.699972000 GHz	-38.96 dBm	-25.96 dB
4	4	3.7000 GHz	3.8250 GHz	1.000 MHz	3.757875000 GHz	-0.428 dBm	-26.43 dB

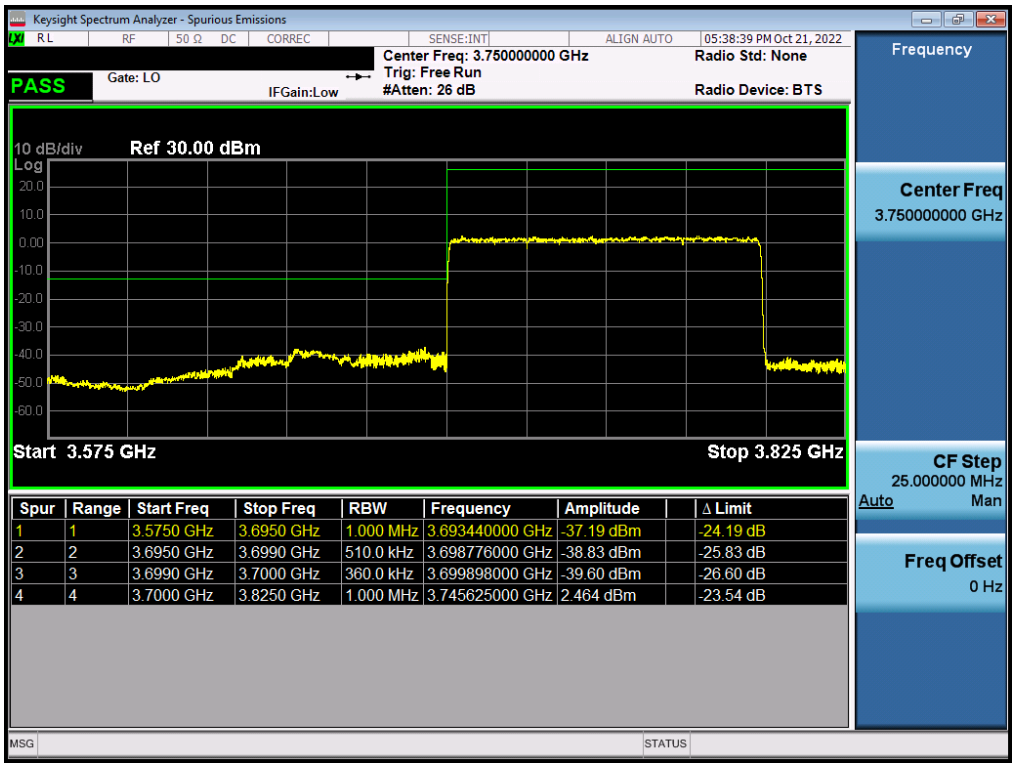
Plot 7-175. Lower ACP Plot (NR Band n77 - C-Band – 100MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-2)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	3.8550 GHz	3.9800 GHz	1.000 MHz	3.957125000 GHz	-0.829 dBm	-26.83 dB
2	2	3.9800 GHz	3.9810 GHz	360.0 kHz	3.980115000 GHz	-42.03 dBm	-29.03 dB
3	3	3.9810 GHz	3.9850 GHz	510.0 kHz	3.984472000 GHz	-42.29 dBm	-29.29 dB
4	4	3.9850 GHz	4.1050 GHz	1.000 MHz	4.011160000 GHz	-39.00 dBm	-26.00 dB

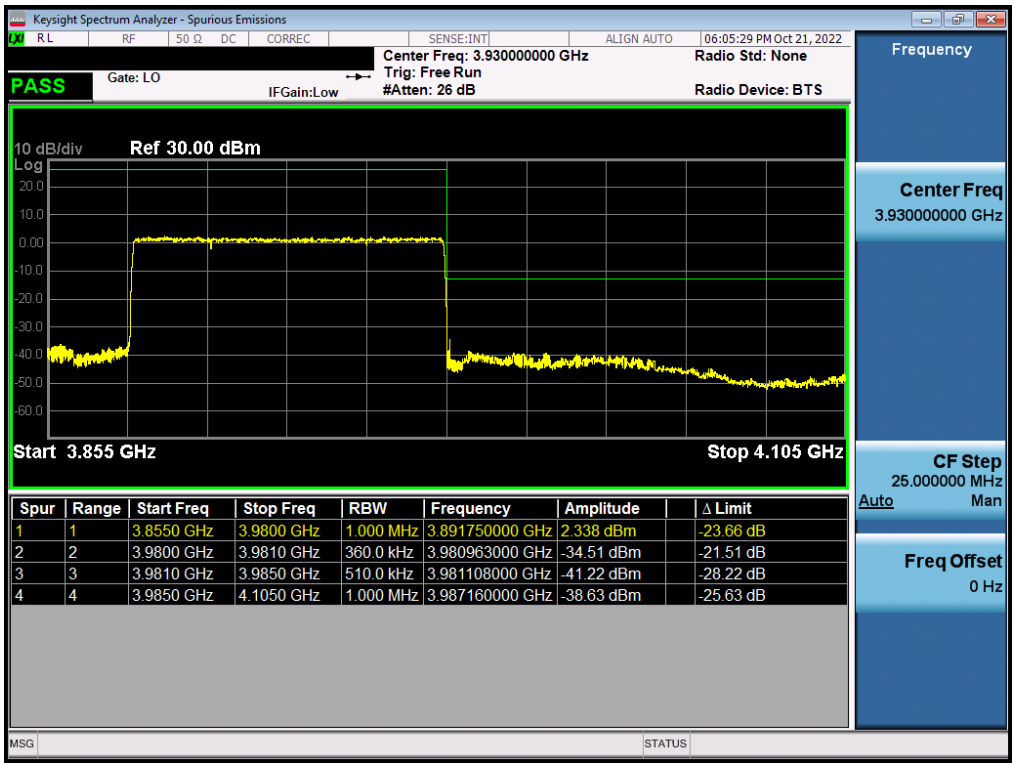
Plot 7-176. Upper ACP Plot (NR Band n77 - C-Band – 100MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-2)

NR Band n77 (PC2) - C-Band – SRS-3



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	3.5750 GHz	3.6950 GHz	1.000 MHz	3.693440000 GHz	-37.19 dBm	-24.19 dB
2	2	3.6950 GHz	3.6990 GHz	510.0 kHz	3.698776000 GHz	-38.83 dBm	-25.83 dB
3	3	3.6990 GHz	3.7000 GHz	360.0 kHz	3.699898000 GHz	-39.60 dBm	-26.60 dB
4	4	3.7000 GHz	3.8250 GHz	1.000 MHz	3.745625000 GHz	2.464 dBm	-23.54 dB

Plot 7-177. Lower ACP Plot (NR Band n77 - C-Band – 100MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-3)



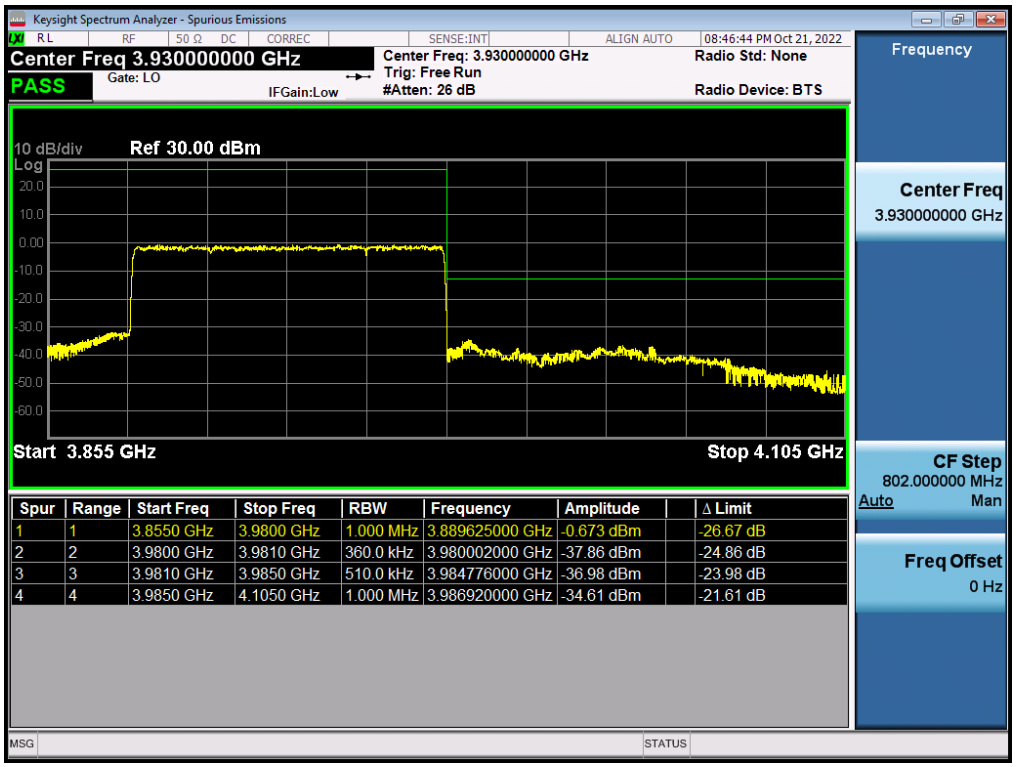
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	3.8550 GHz	3.9800 GHz	1.000 MHz	3.891750000 GHz	2.338 dBm	-23.66 dB
2	2	3.9800 GHz	3.9810 GHz	360.0 kHz	3.980963000 GHz	-34.51 dBm	-21.51 dB
3	3	3.9810 GHz	3.9850 GHz	510.0 kHz	3.981108000 GHz	-41.22 dBm	-28.22 dB
4	4	3.9850 GHz	4.1050 GHz	1.000 MHz	3.987160000 GHz	-38.63 dBm	-25.63 dB

Plot 7-178. Upper ACP Plot (NR Band n77 - C-Band – 100MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-3)

NR Band n77 (PC2) - C-Band – SRS-4

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	3.5750 GHz	3.6950 GHz	1.000 MHz	3.693080000 GHz	-31.17 dBm	-18.17 dB
2	2	3.6950 GHz	3.6990 GHz	510.0 kHz	3.697124000 GHz	-31.66 dBm	-18.66 dB
3	3	3.6990 GHz	3.7000 GHz	360.0 kHz	3.699833000 GHz	-33.86 dBm	-20.86 dB
4	4	3.7000 GHz	3.8250 GHz	1.000 MHz	3.766375000 GHz	-0.045 dBm	-26.05 dB

Plot 7-179. Lower ACP Plot (NR Band n77 - C-Band – 100MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-4)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	3.8550 GHz	3.9800 GHz	1.000 MHz	3.889625000 GHz	-0.673 dBm	-26.67 dB
2	2	3.9800 GHz	3.9810 GHz	360.0 kHz	3.980002000 GHz	-37.86 dBm	-24.86 dB
3	3	3.9810 GHz	3.9850 GHz	510.0 kHz	3.984776000 GHz	-36.98 dBm	-23.98 dB
4	4	3.9850 GHz	4.1050 GHz	1.000 MHz	3.986920000 GHz	-34.61 dBm	-21.61 dB

Plot 7-180. Upper ACP Plot (NR Band n77 - C-Band – 100MHz DFT-s-OFDM π/2 BPSK – Full RB - SRS-4)

7.6 Peak-Average Ratio

Test Overview

A peak to average ratio measurement is performed at the conducted port of the EUT. The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB.

Test Procedure Used

ANSI C63.26-2015 – Section 5.2.3.4

Test Settings

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW ≥ OBW or specified reference bandwidth
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

Test Setup

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

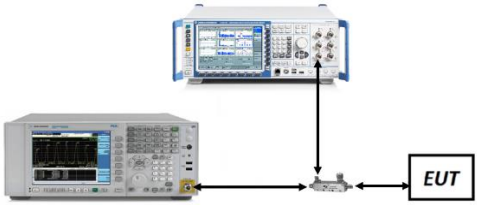


Figure 7-5. Test Instrument & Measurement Setup

Test Notes

The Peak to Average Ratio was only measured on the antenna (SRS-1) with the highest power for each band.

NR Band n77 (PC2) - DoD Band

Plot 7-181. PAR Plot (NR Band n77 - DoD Band – 100MHz DFT-s-OFDM π/2 BPSK - Full RB)

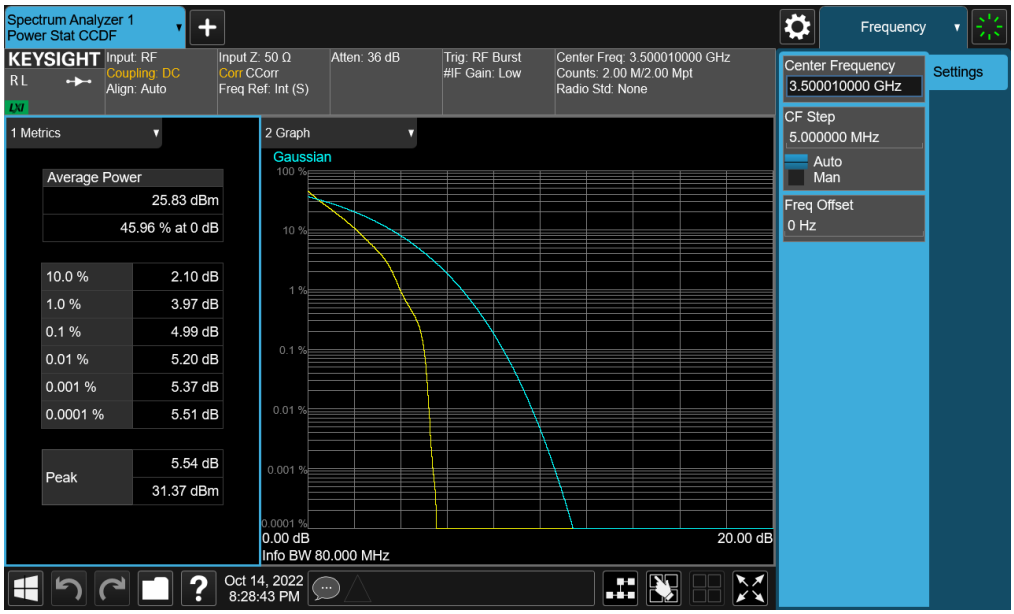
Plot 7-182. PAR Plot (NR Band n77 - DoD Band – 100MHz CP-OFDM QPSK - Full RB)

Plot 7-183. PAR Plot (NR Band n77 - DoD Band – 100MHz CP-OFDM 256-QAM - Full RB)

Plot 7-184. PAR Plot (NR Band n77 - DoD Band – 90MHz DFT-s-OFDM π/2 BPSK - Full RB)

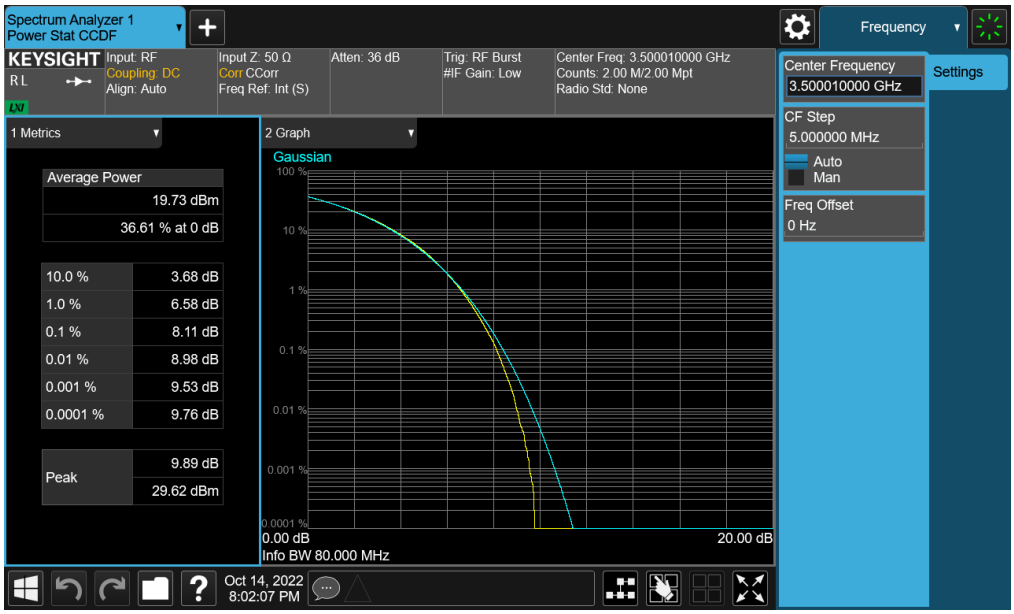
Plot 7-185. PAR Plot (NR Band n77 - DoD Band – 90MHz CP-OFDM QPSK - Full RB)

Plot 7-186. PAR Plot (NR Band n77 - DoD Band – 90MHz CP-OFDM 256-QAM - Full RB)



Plot 7-187. PAR Plot (NR Band n77 - DoD Band – 80MHz DFT-s-OFDM π/2 BPSK - Full RB)

Plot 7-188. PAR Plot (NR Band n77 - DoD Band – 80MHz CP-OFDM QPSK - Full RB)



Plot 7-189. PAR Plot (NR Band n77 - DoD Band – 80MHz CP-OFDM 256-QAM - Full RB)

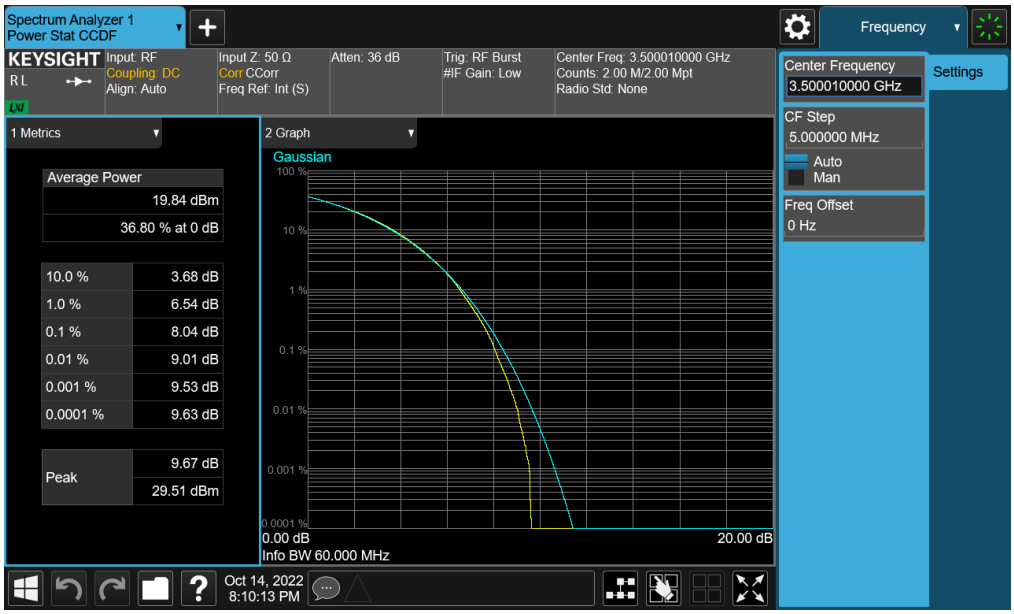
Plot 7-190. PAR Plot (NR Band n77 - DoD Band – 70MHz DFT-s-OFDM π/2 BPSK - Full RB)

Plot 7-191. PAR Plot (NR Band n77 - DoD Band – 70MHz CP-OFDM QPSK - Full RB)

Plot 7-192. PAR Plot (NR Band n77 - DoD Band – 70MHz CP-OFDM 256-QAM - Full RB)

Plot 7-193. PAR Plot (NR Band n77 - DoD Band – 60MHz DFT-s-OFDM π/2 BPSK - Full RB)

Plot 7-194. PAR Plot (NR Band n77 - DoD Band – 60MHz CP-OFDM QPSK - Full RB)



Plot 7-195. PAR Plot (NR Band n77 - DoD Band – 60MHz CP-OFDM 256-QAM - Full RB)

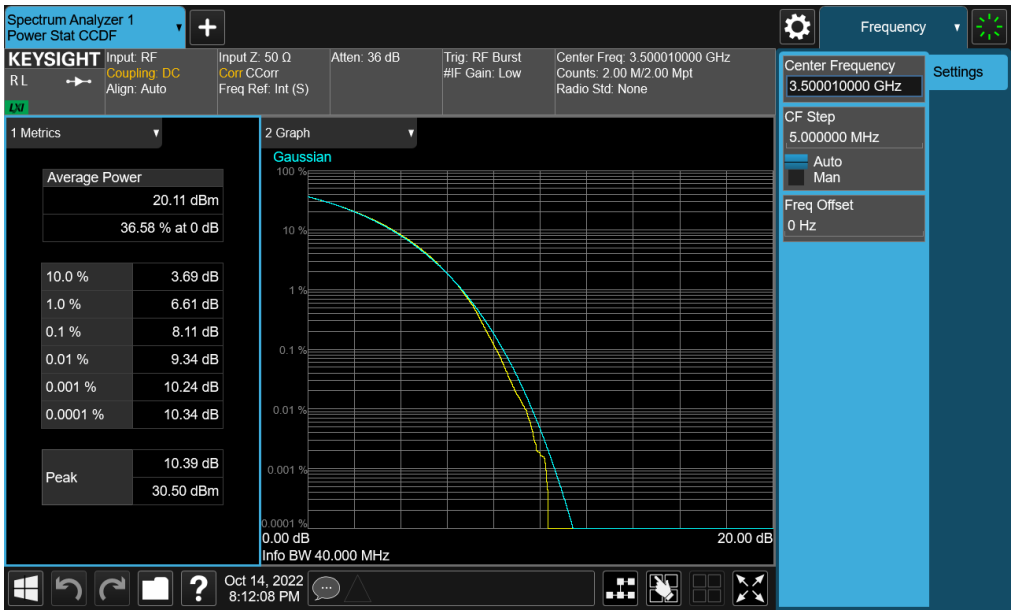
Plot 7-196. PAR Plot (NR Band n77 - DoD Band – 50MHz DFT-s-OFDM π/2 BPSK - Full RB)

Plot 7-197. PAR Plot (NR Band n77 - DoD Band – 50MHz CP-OFDM QPSK - Full RB)

Plot 7-198. PAR Plot (NR Band n77 - DoD Band – 50MHz CP-OFDM 256-QAM - Full RB)

Plot 7-199. PAR Plot (NR Band n77 - DoD Band – 40MHz DFT-s-OFDM π/2 BPSK - Full RB)

Plot 7-200. PAR Plot (NR Band n77 - DoD Band – 40MHz CP-OFDM QPSK - Full RB)



Plot 7-201. PAR Plot (NR Band n77 - DoD Band – 40MHz CP-OFDM 256-QAM - Full RB)

Plot 7-202. PAR Plot (NR Band n77 - DoD Band – 30MHz DFT-s-OFDM π/2 BPSK - Full RB)

Plot 7-203. PAR Plot (NR Band n77 - DoD Band – 30MHz CP-OFDM QPSK - Full RB)

Plot 7-204. PAR Plot (NR Band n77 - DoD Band – 30MHz CP-OFDM 256-QAM - Full RB)

Plot 7-205. PAR Plot (NR Band n77 - DoD Band – 25MHz DFT-s-OFDM π/2 BPSK - Full RB)

Plot 7-206. PAR Plot (NR Band n77 - DoD Band – 25MHz CP-OFDM QPSK - Full RB)

Plot 7-207. PAR Plot (NR Band n77 - DoD Band – 25MHz CP-OFDM 256-QAM - Full RB)

Plot 7-208. PAR Plot (NR Band n77 - DoD Band – 20MHz DFT-s-OFDM π/2 BPSK - Full RB)