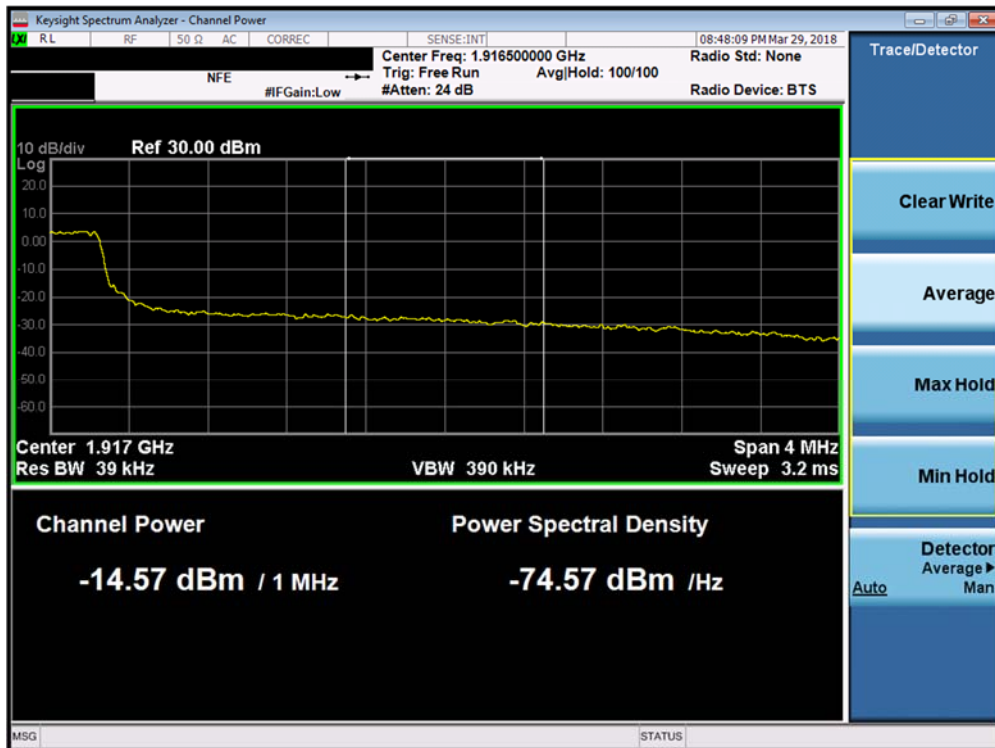


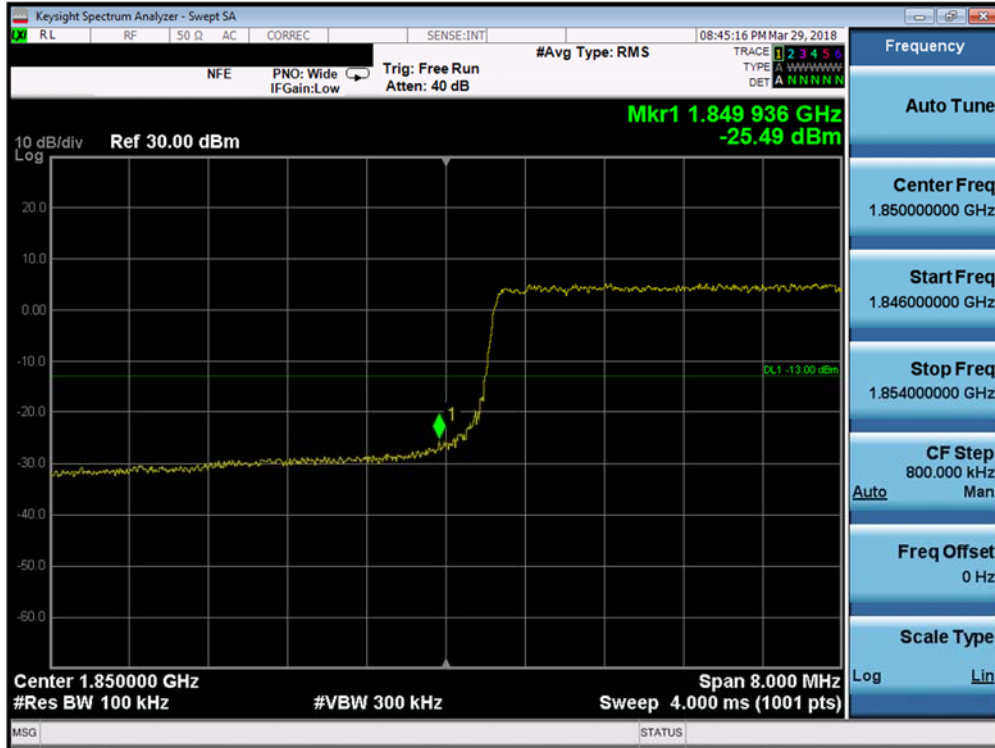


Plot 7-189. Upper Band Edge Plot (Band 25 - 5.0MHz QPSK - Full RB Configuration)

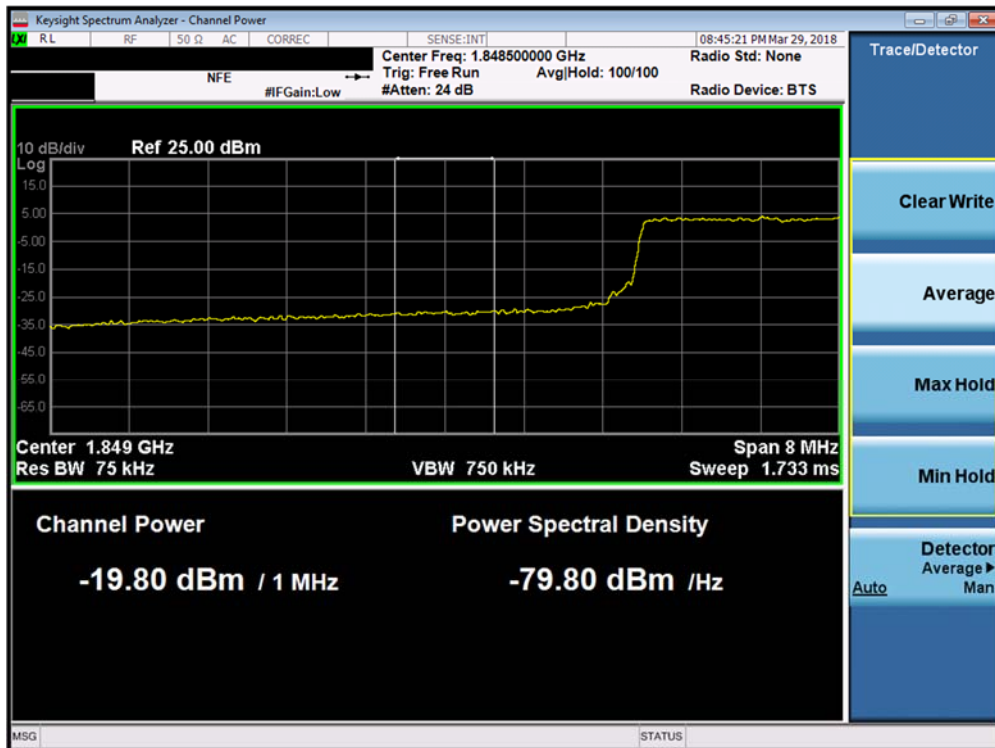


Plot 7-190. Upper Extended Band Edge Plot (Band 25 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 117 of 179

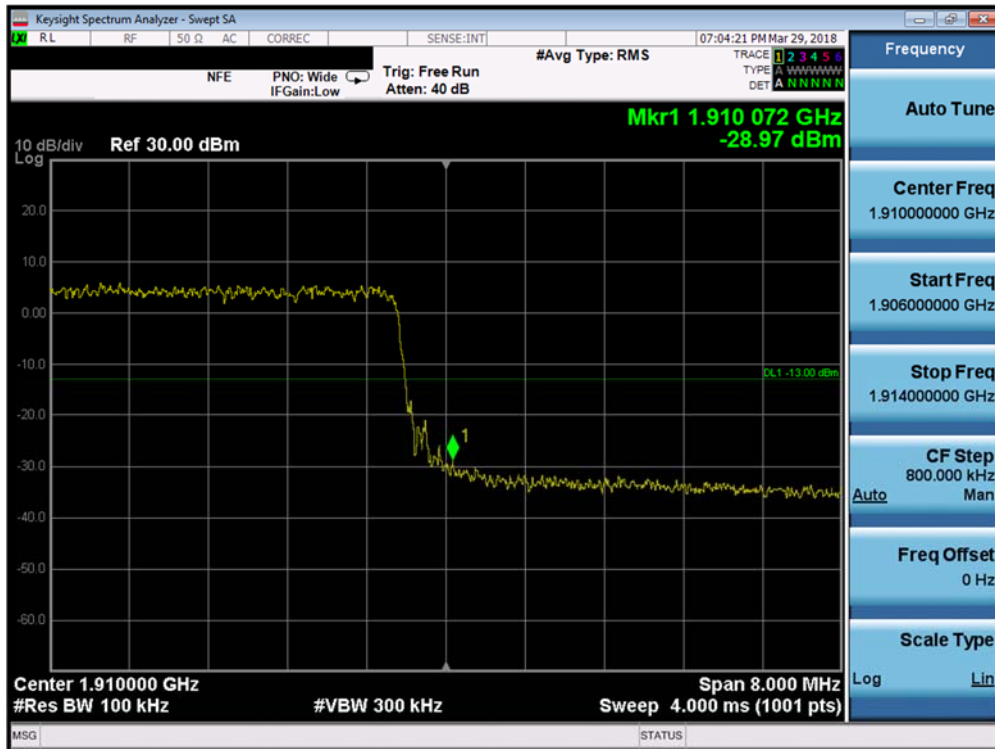


Plot 7-191. Lower Band Edge Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

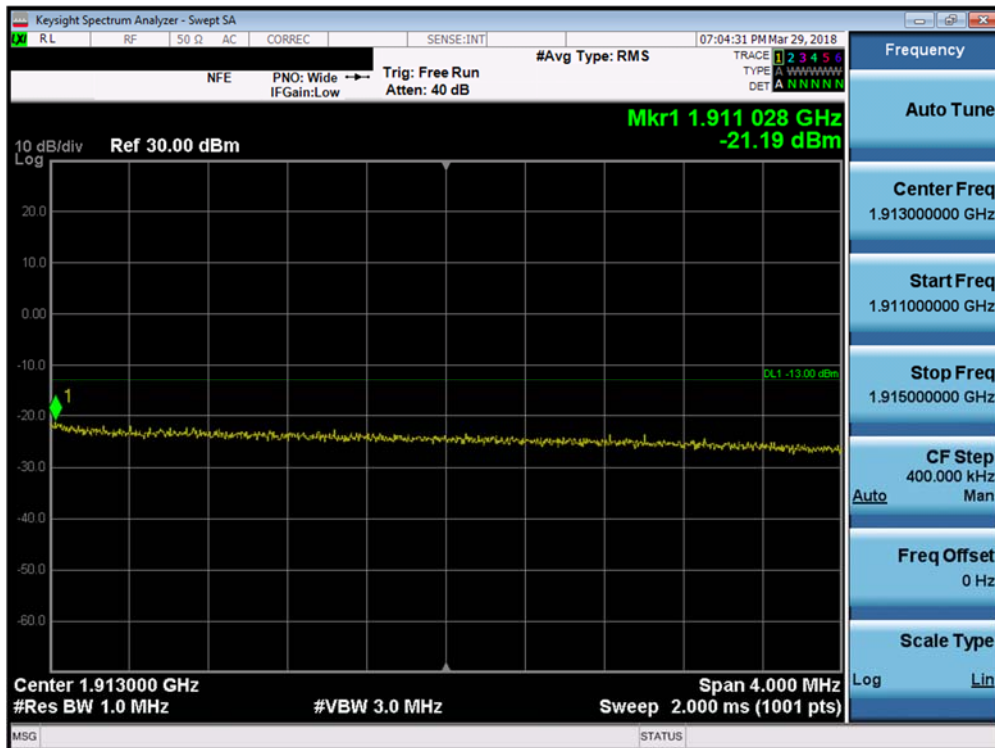


Plot 7-192. Lower Extended Band Edge Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 118 of 179

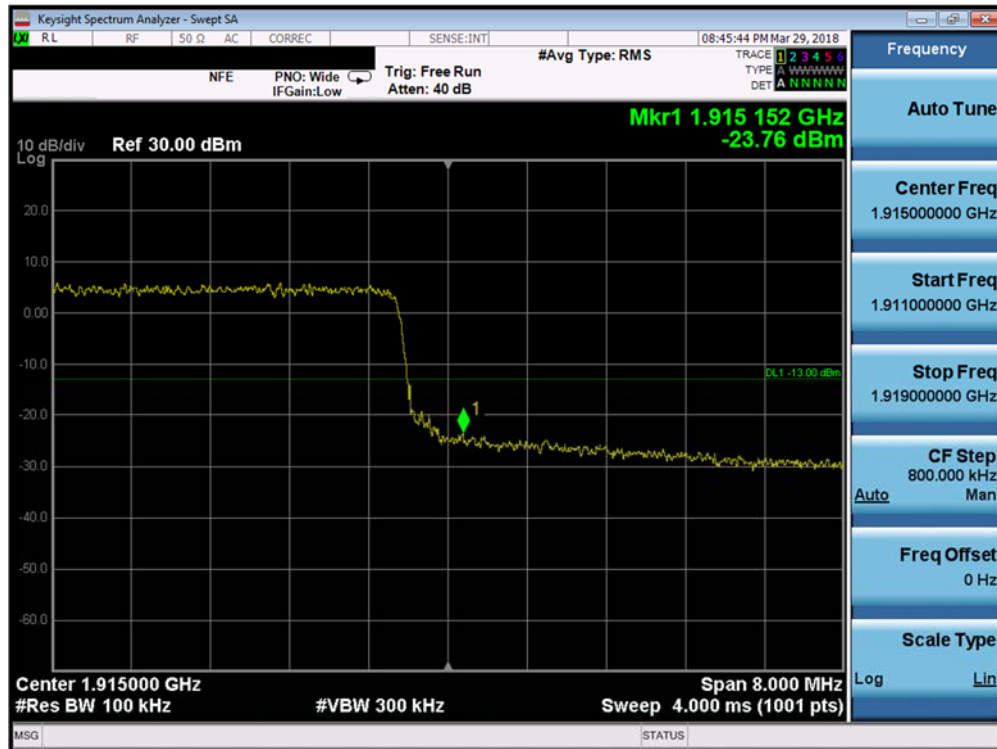


Plot 7-193. Upper Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

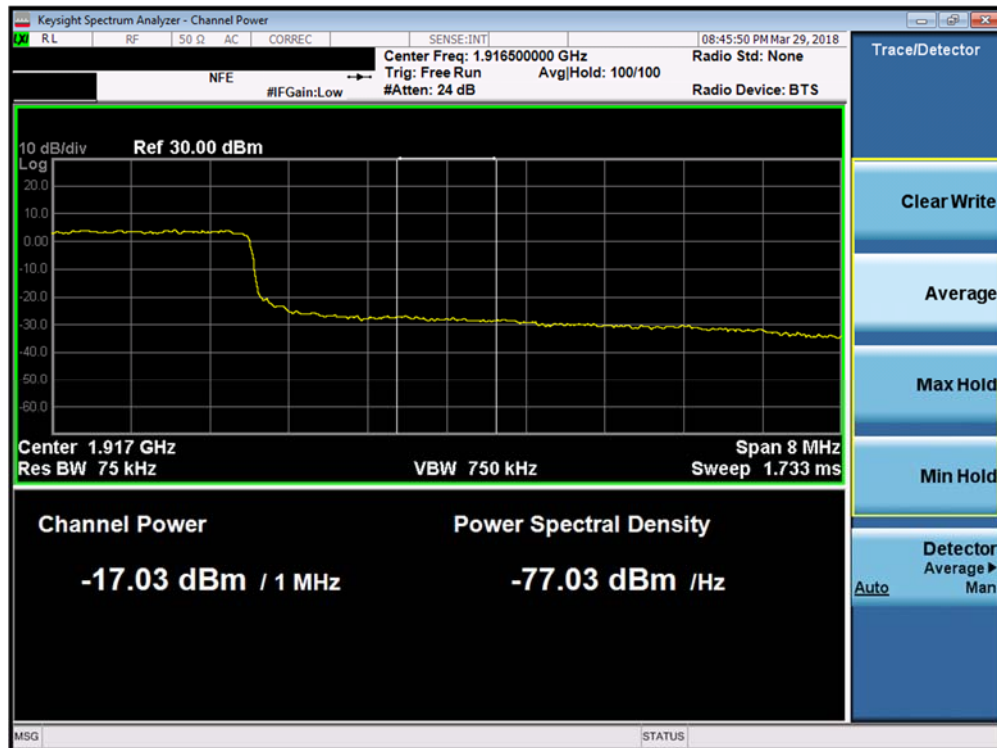


Plot 7-194. Upper Extended Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 119 of 179

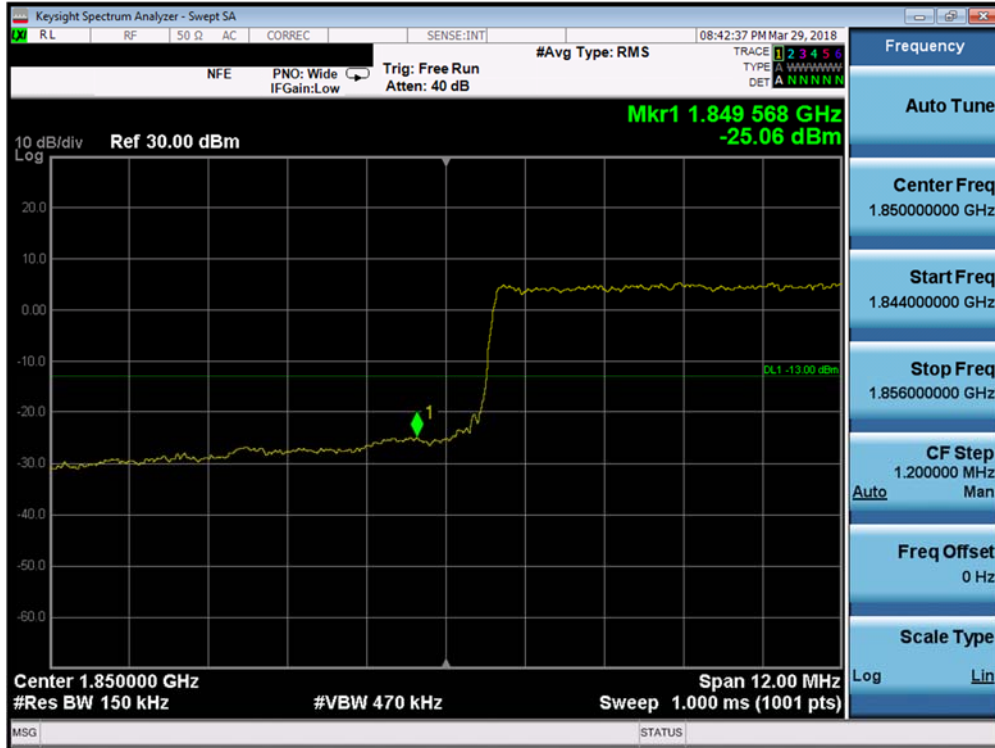


Plot 7-195. Upper Band Edge Plot (Band 25 - 10.0MHz QPSK - Full RB Configuration)

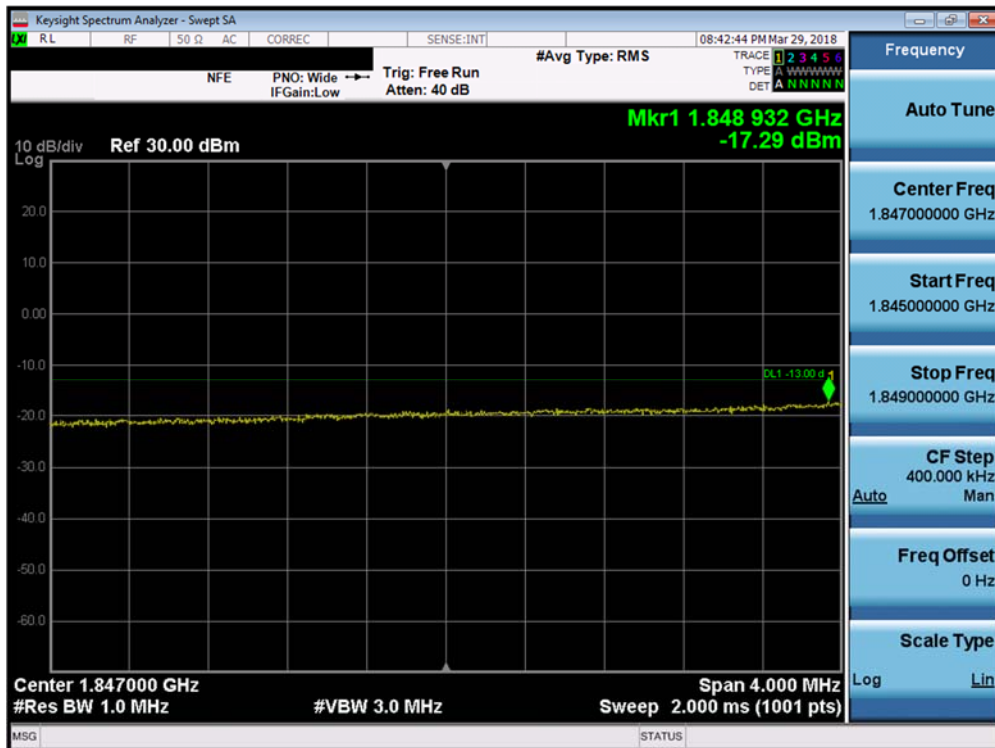


Plot 7-196. Upper Extended Band Edge Plot (Band 25 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 120 of 179



Plot 7-197. Lower Band Edge Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)

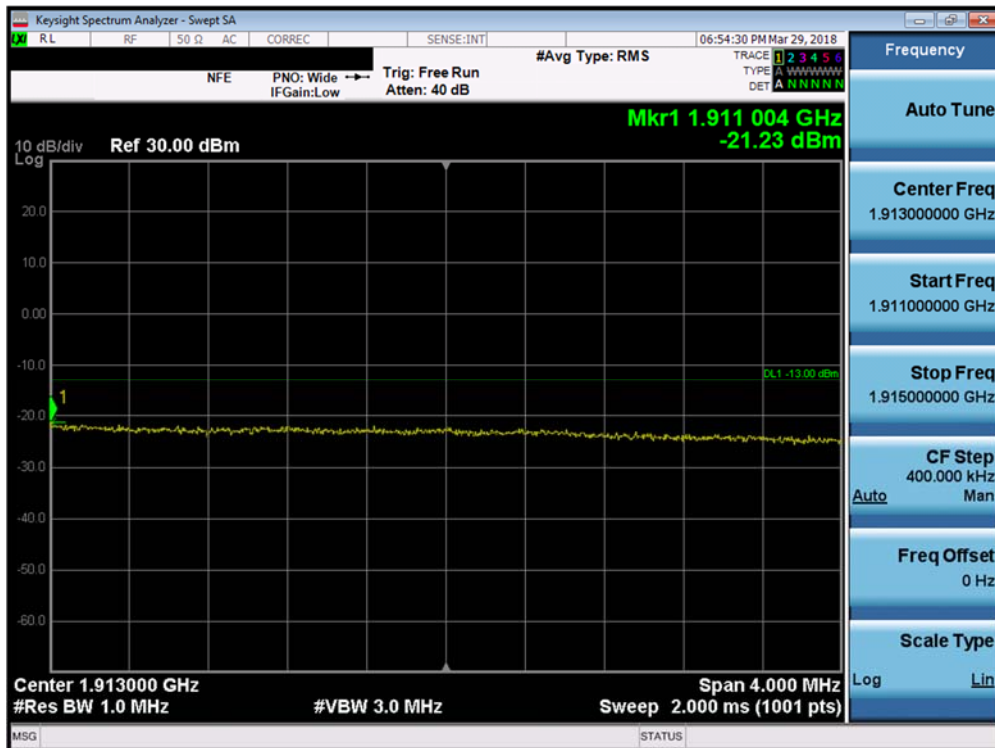


Plot 7-198. Lower Extended Band Edge Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 121 of 179



Plot 7-199. Upper Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

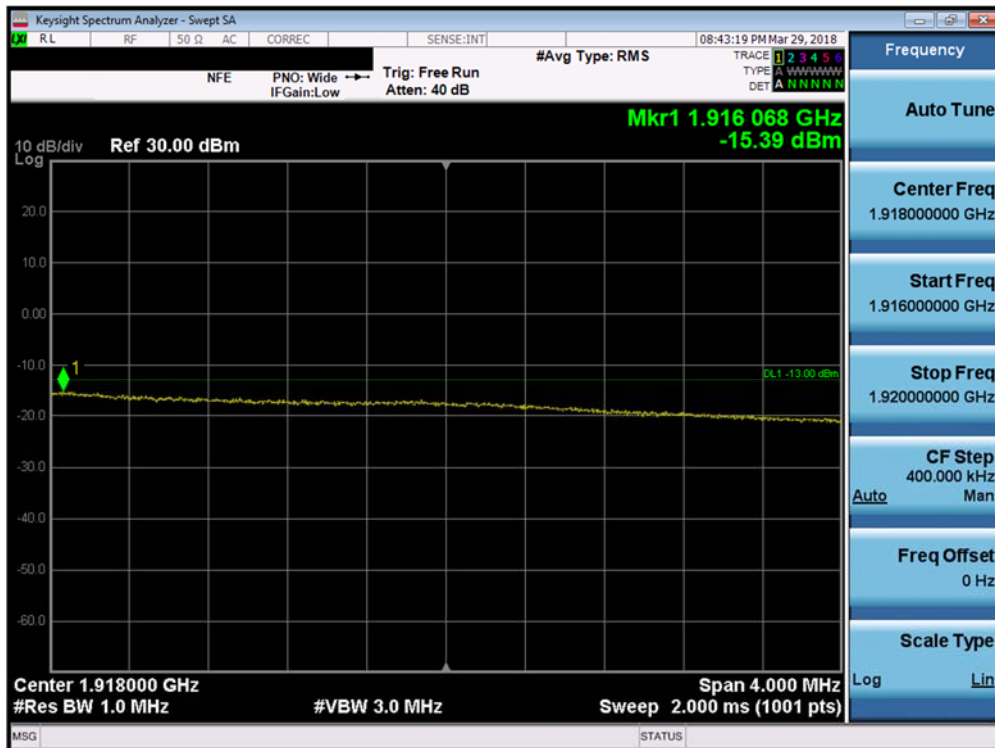


Plot 7-200. Upper Extended Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 122 of 179

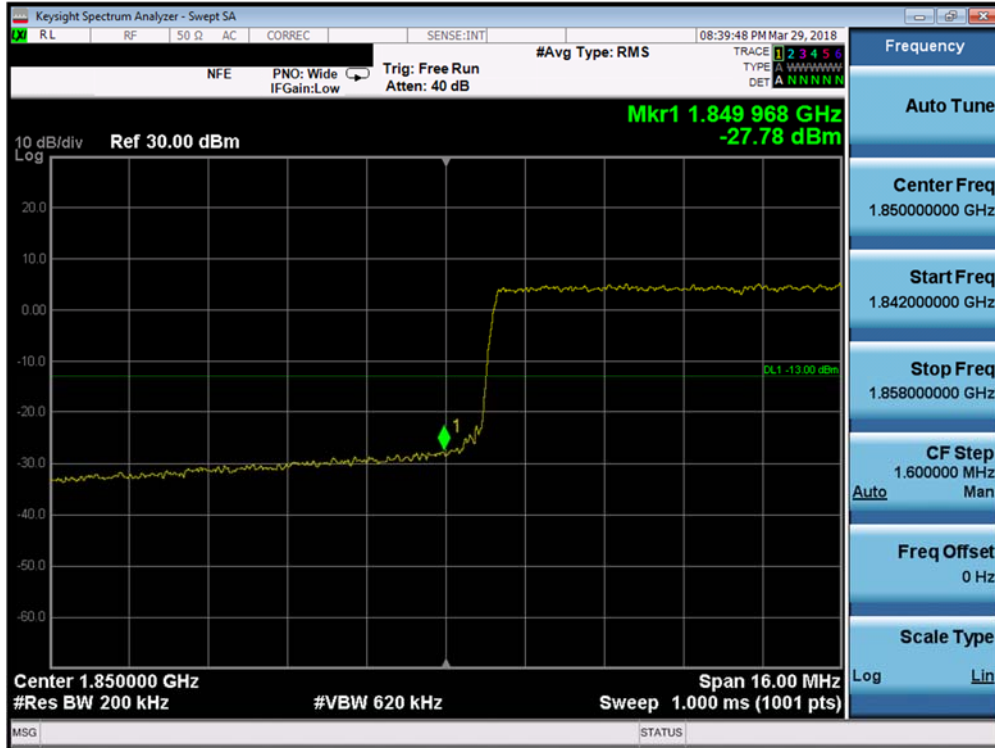


Plot 7-201. Upper Band Edge Plot (Band 25 - 15.0MHz QPSK - Full RB Configuration)

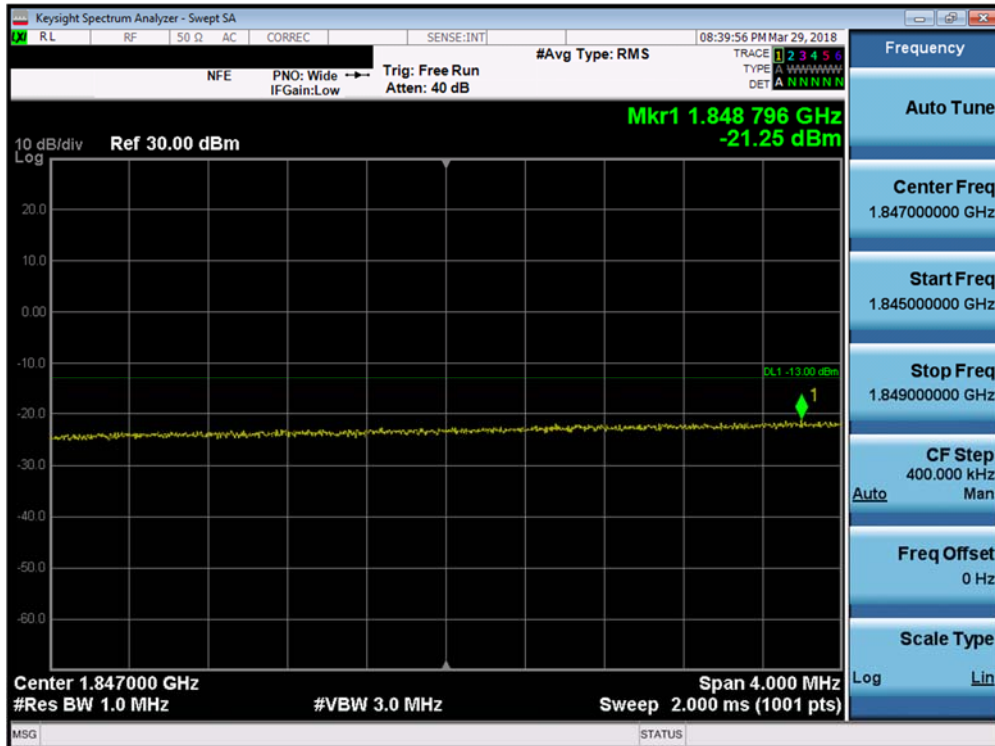


Plot 7-202. Upper Extended Band Edge Plot (Band 25 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 123 of 179



Plot 7-203. Lower Band Edge Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

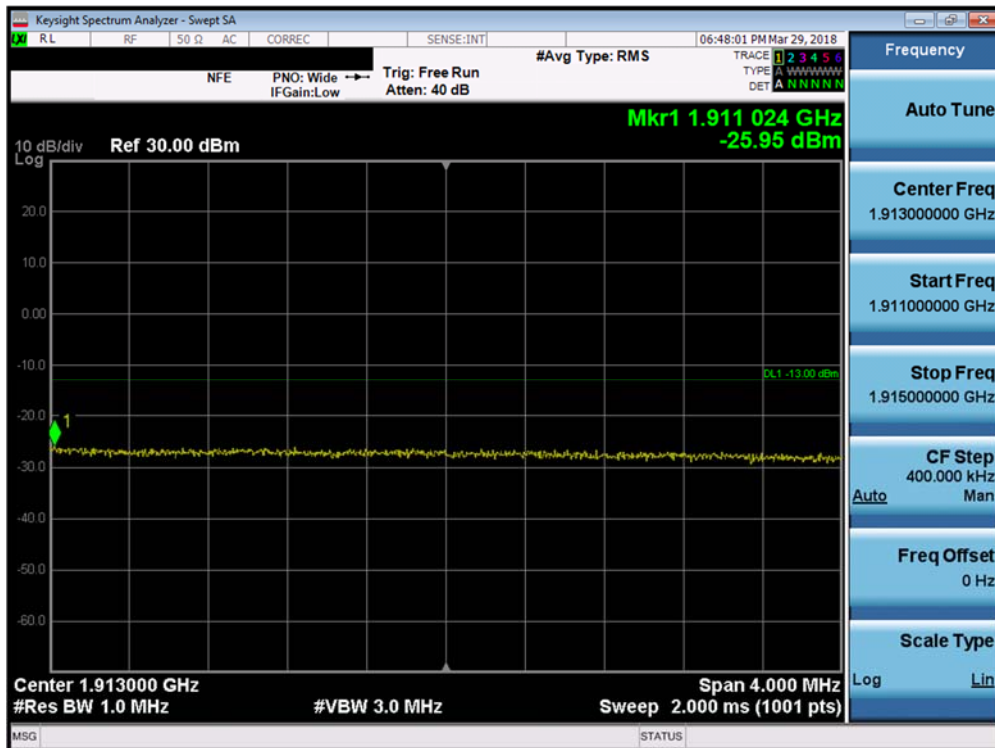


Plot 7-204. Lower Extended Band Edge Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 124 of 179



Plot 7-205. Upper Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

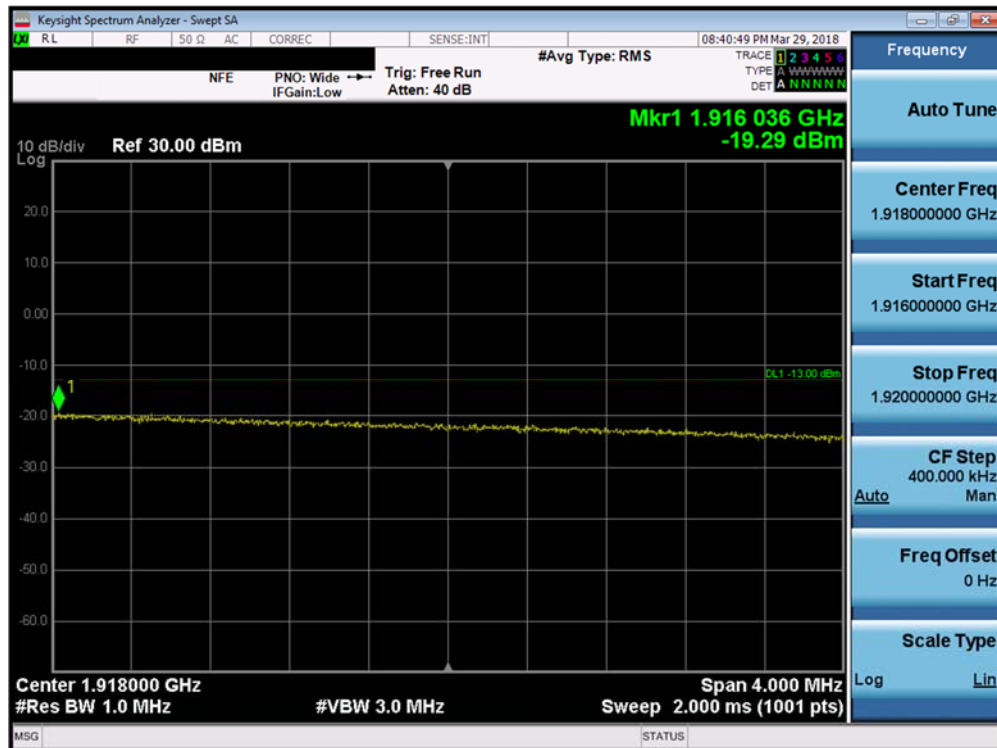


Plot 7-206. Upper Extended Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 125 of 179



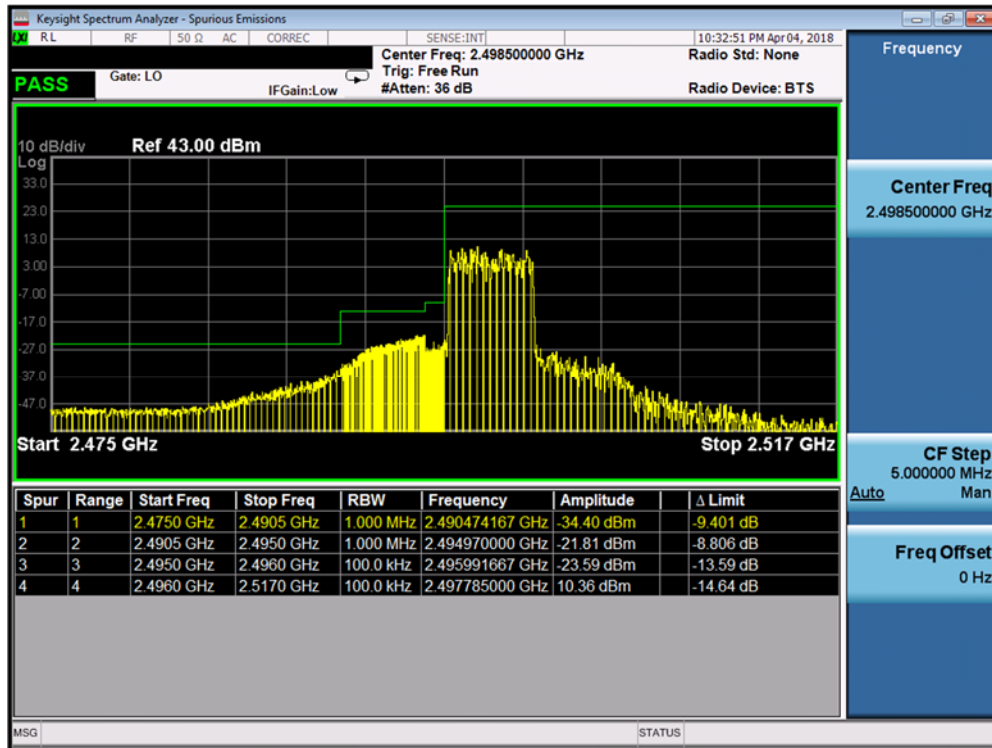
Plot 7-207. Upper Band Edge Plot (Band 25 - 20.0MHz QPSK - Full RB Configuration)



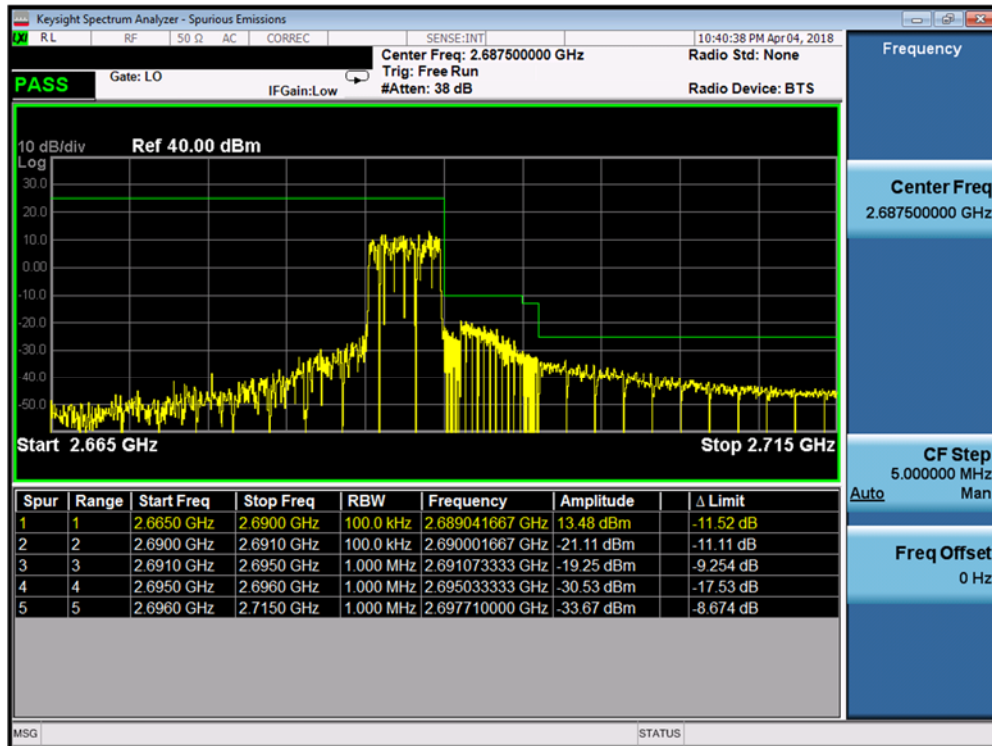
Plot 7-208. Upper Extended Band Edge Plot (Band 25 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 126 of 179

Band 41 PC2

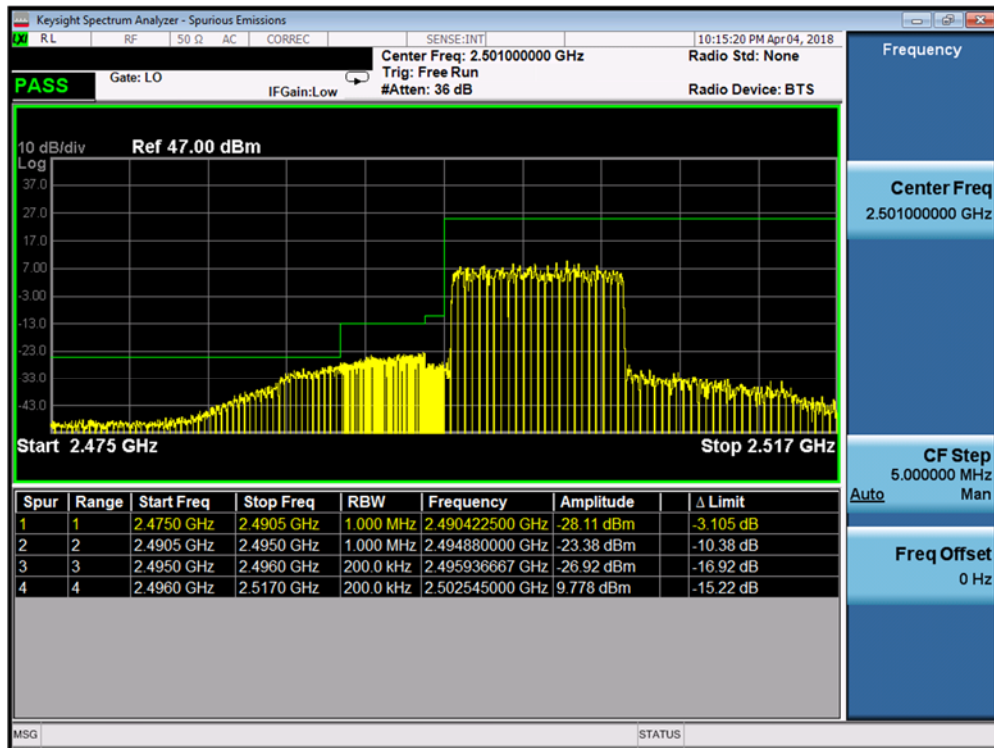


Plot 7-209. Lower ACP Plot (Band 41 PC2 – 5.0MHz QPSK - Full RB Configuration)

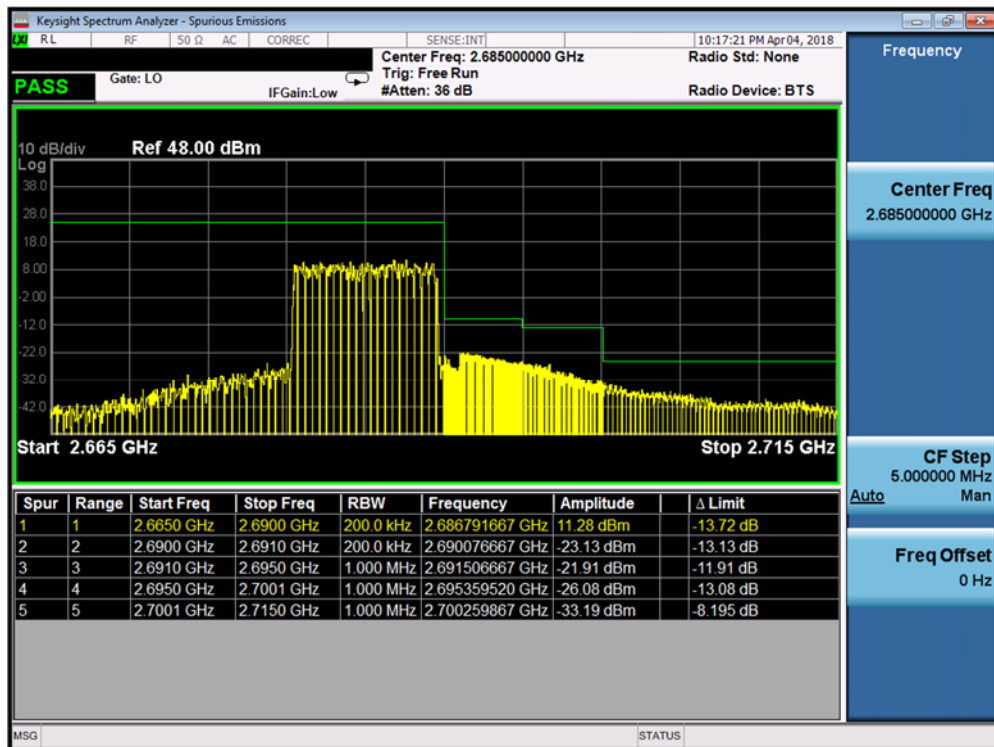


Plot 7-210. Upper ACP Plot (Band 41 PC2 – 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 127 of 179

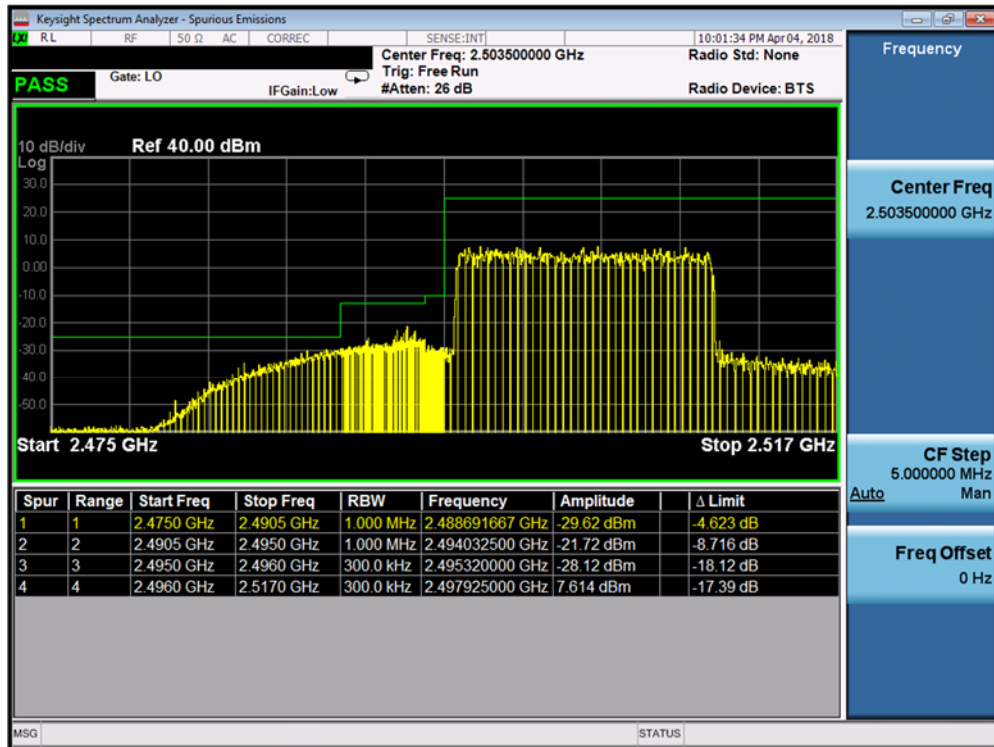


Plot 7-211. Lower ACP Plot (Band 41 PC2 – 10.0MHz QPSK - Full RB Configuration)

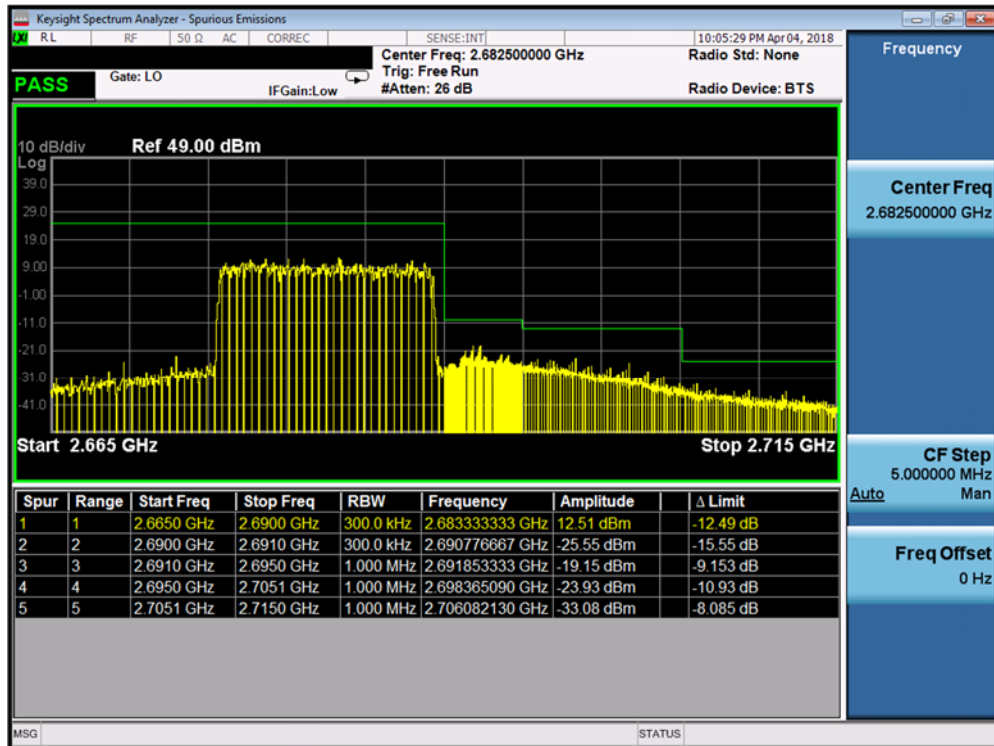


Plot 7-212. Upper ACP Plot (Band 41 PC2 – 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 128 of 179

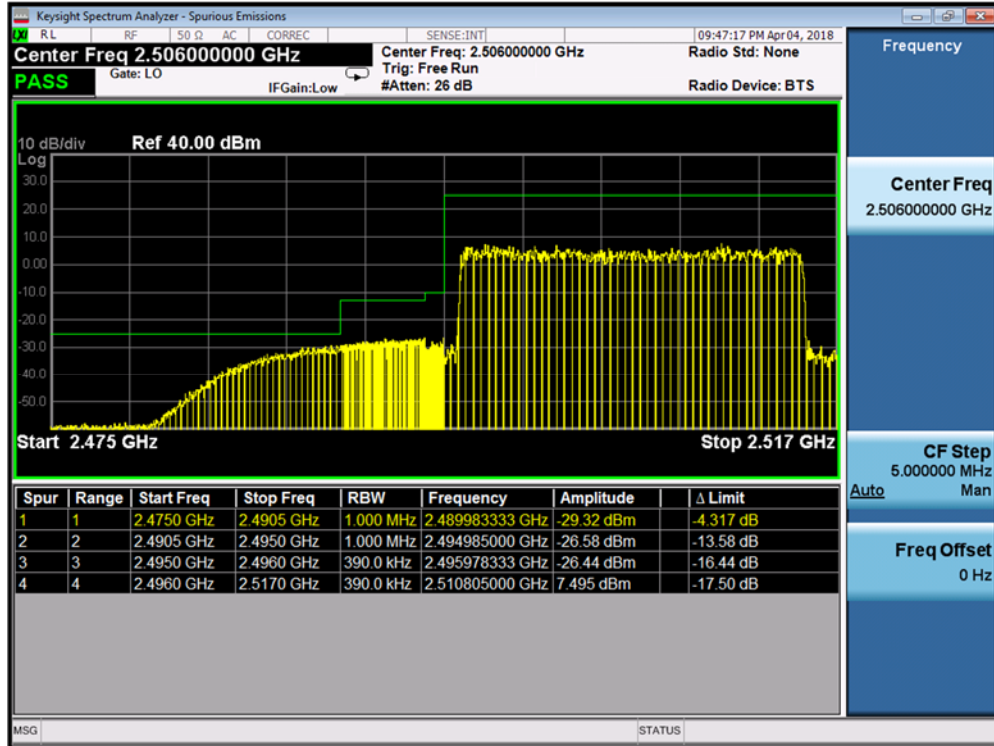


Plot 7-213. Lower ACP Plot (Band 41 PC2 – 15.0MHz QPSK - Full RB Configuration)

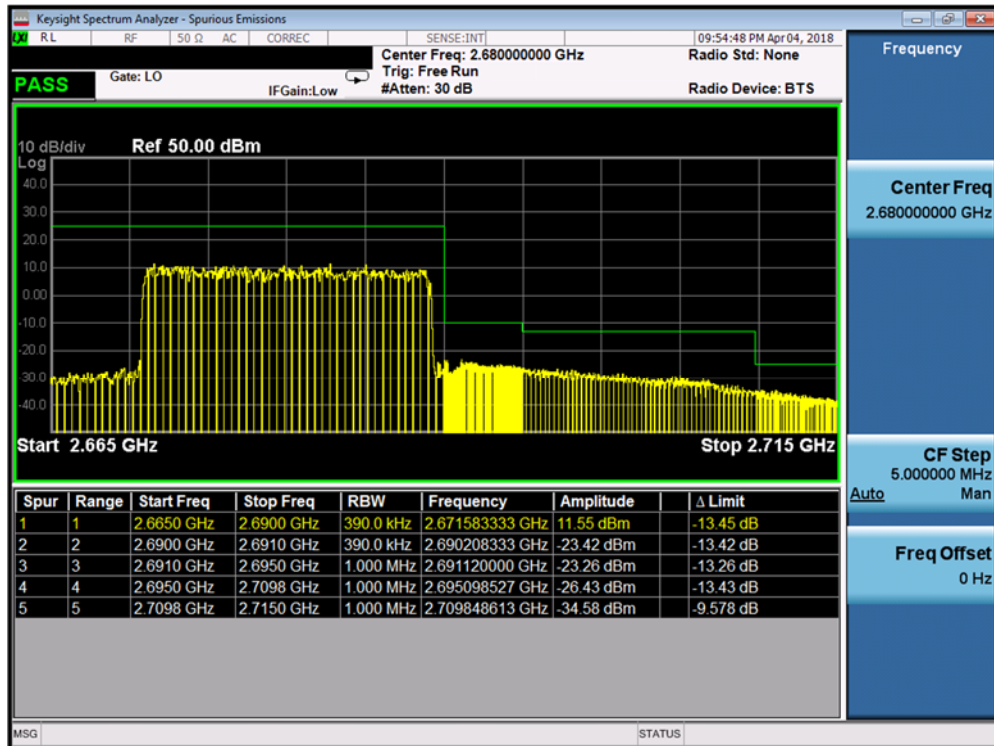


Plot 7-214. Upper ACP Plot (Band 41 PC2 – 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset	Page 129 of 179



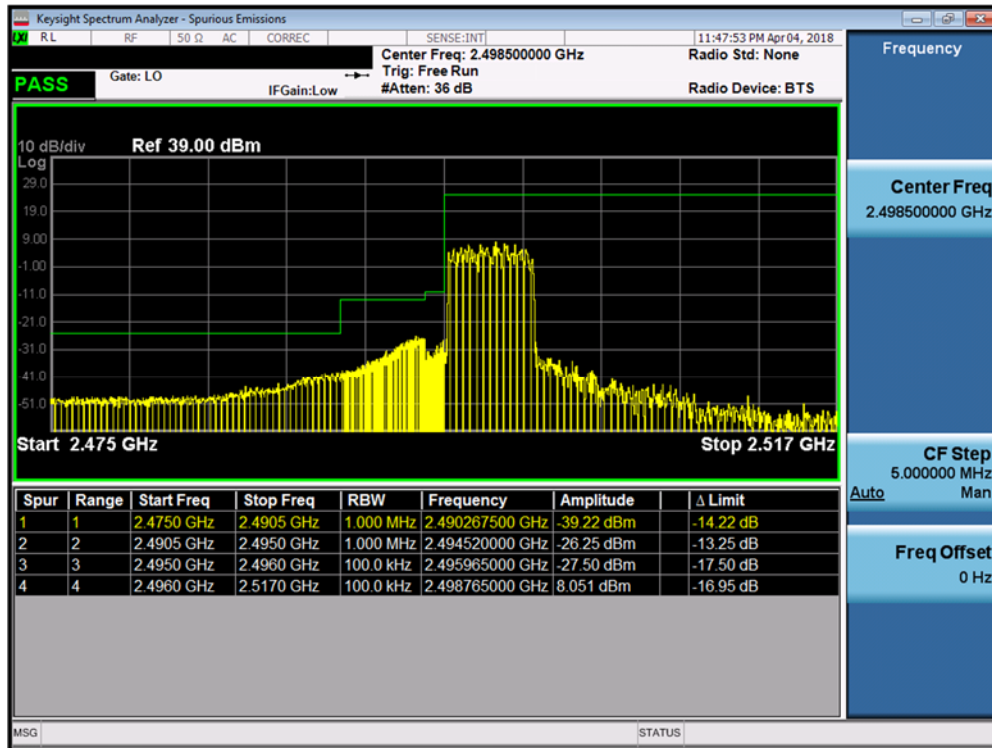
Plot 7-215. Lower ACP Plot (Band 41 PC2 – 20.0MHz QPSK - Full RB Configuration)



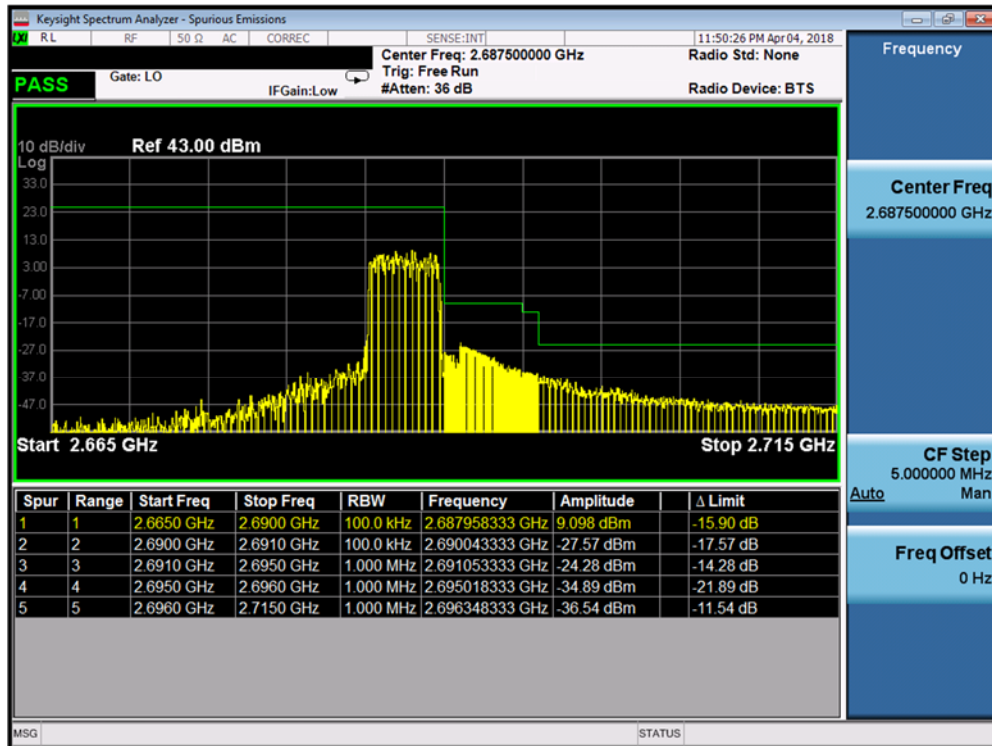
Plot 7-216. Upper ACP Plot (Band 41 PC2 – 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset	Page 130 of 179

Band 41 PC3

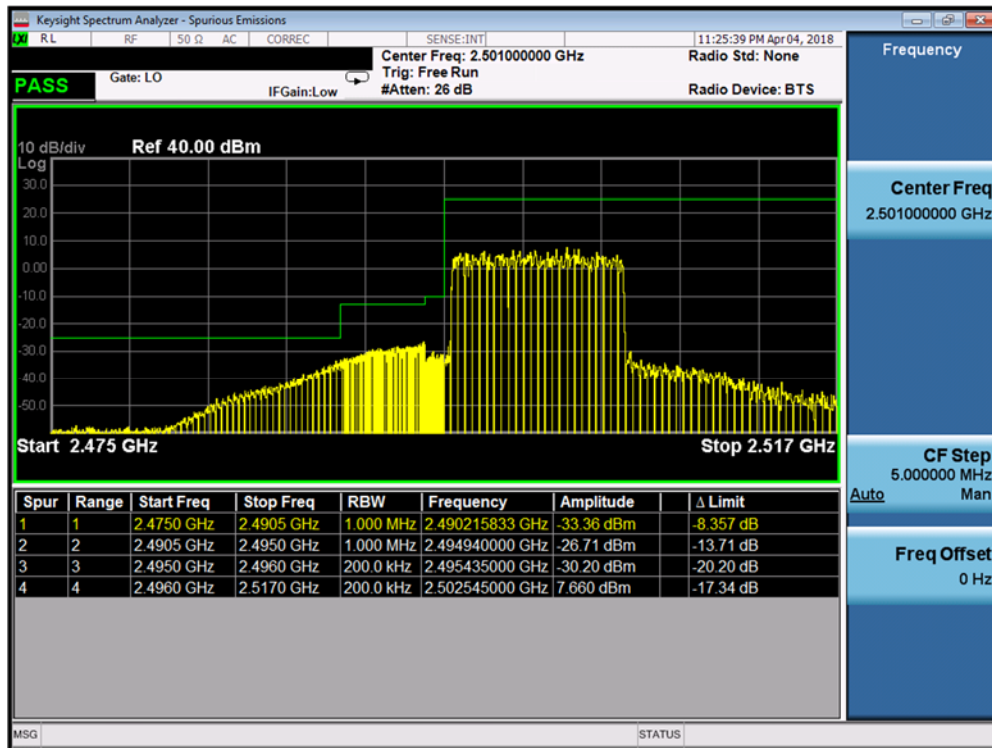


Plot 7-217. Lower ACP Plot (Band 41 PC3 – 5.0MHz QPSK - Full RB Configuration)

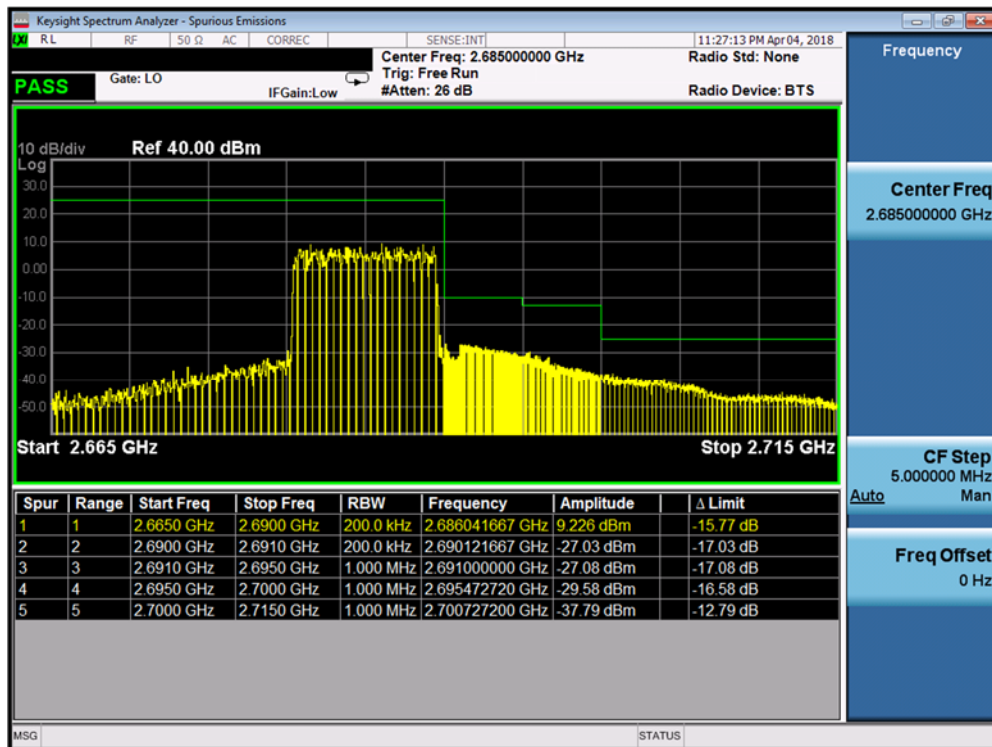


Plot 7-218. Upper ACP Plot (Band 41 PC3 – 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset	Page 131 of 179

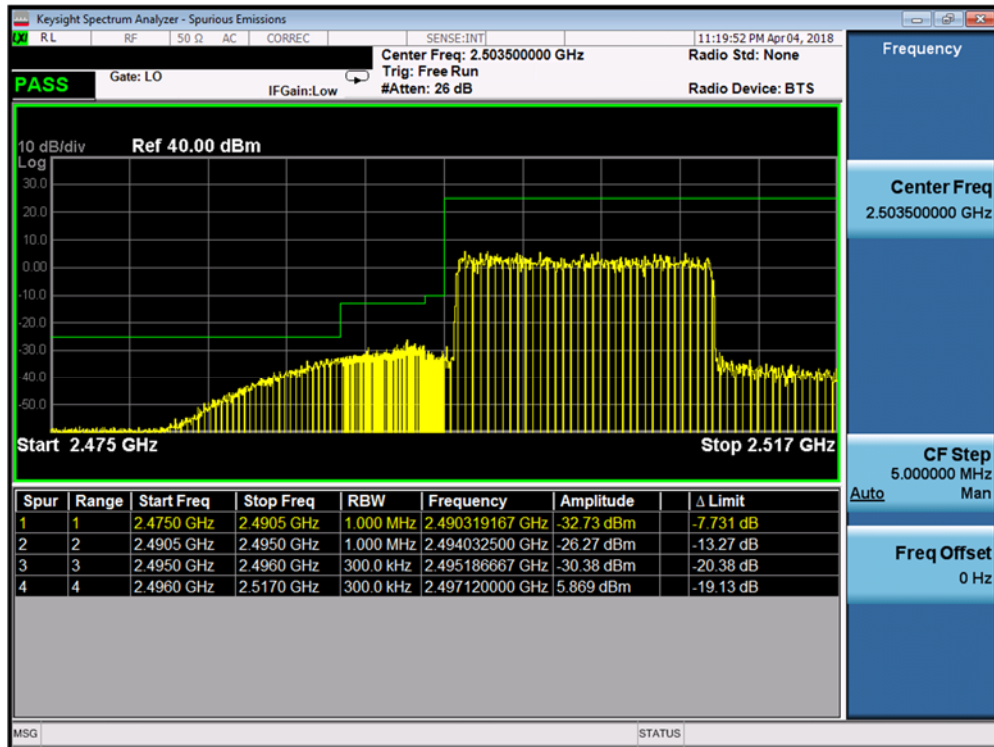


Plot 7-219. Lower ACP Plot (Band 41 PC3 – 10.0MHz QPSK - Full RB Configuration)

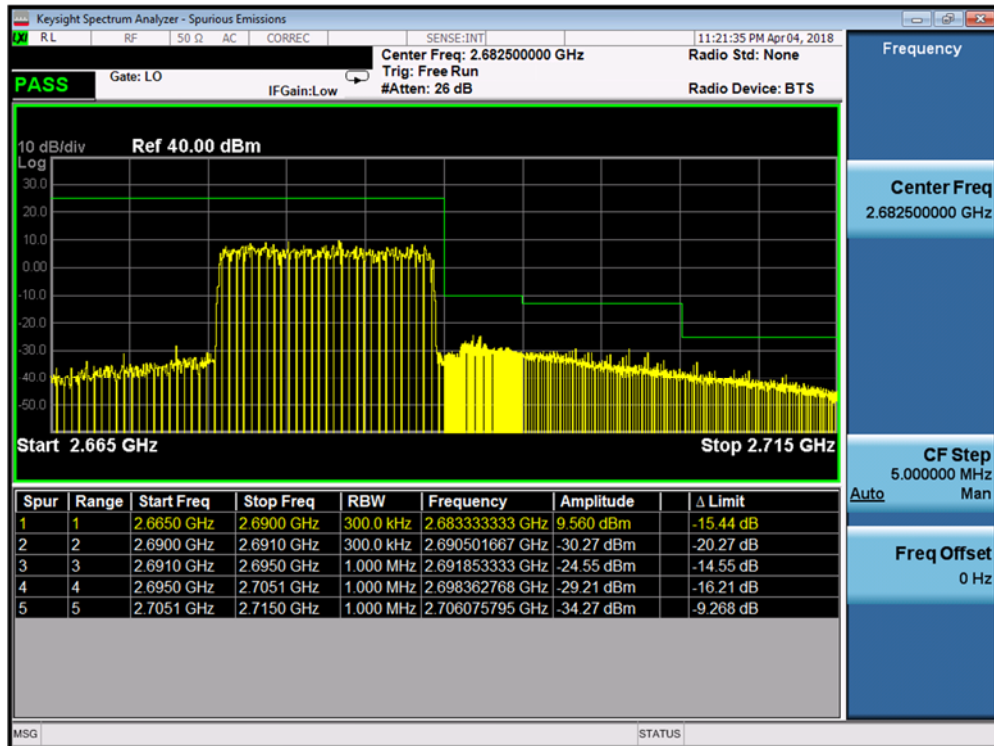


Plot 7-220. Upper ACP Plot (Band 41 PC3 – 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 132 of 179

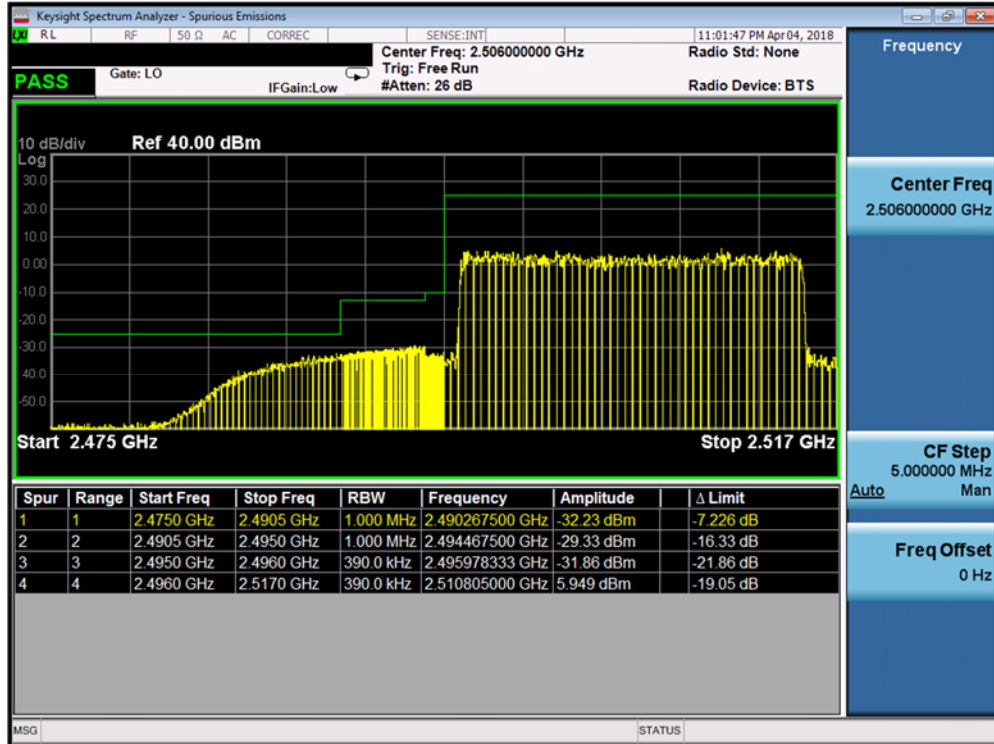


Plot 7-221. Lower ACP Plot (Band 41 PC3 – 15.0MHz QPSK - Full RB Configuration)

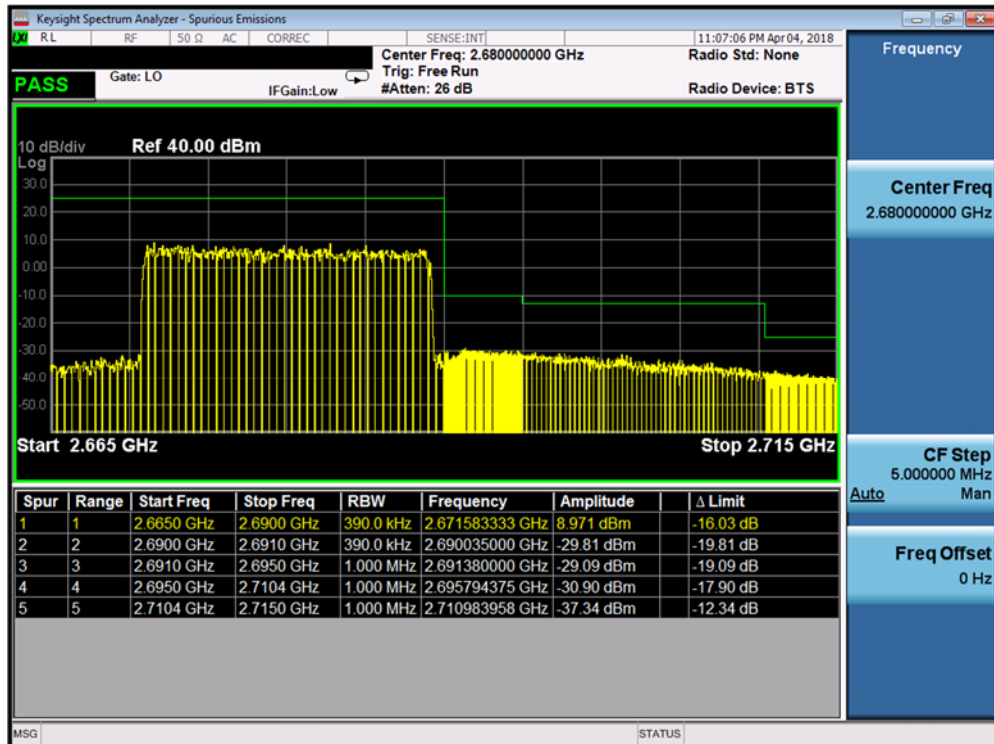


Plot 7-222. Upper ACP Plot (Band 41 PC3 – 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1-ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 133 of 179



Plot 7-223. Lower ACP Plot (Band 41 PC3 – 20.0MHz QPSK - Full RB Configuration)



Plot 7-224. Upper ACP Plot (Band 41 PC3 – 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 134 of 179

7.5 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.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 5.7.1

Test Settings

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW > Emission bandwidth of signal
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.

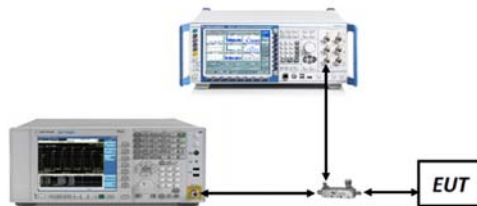


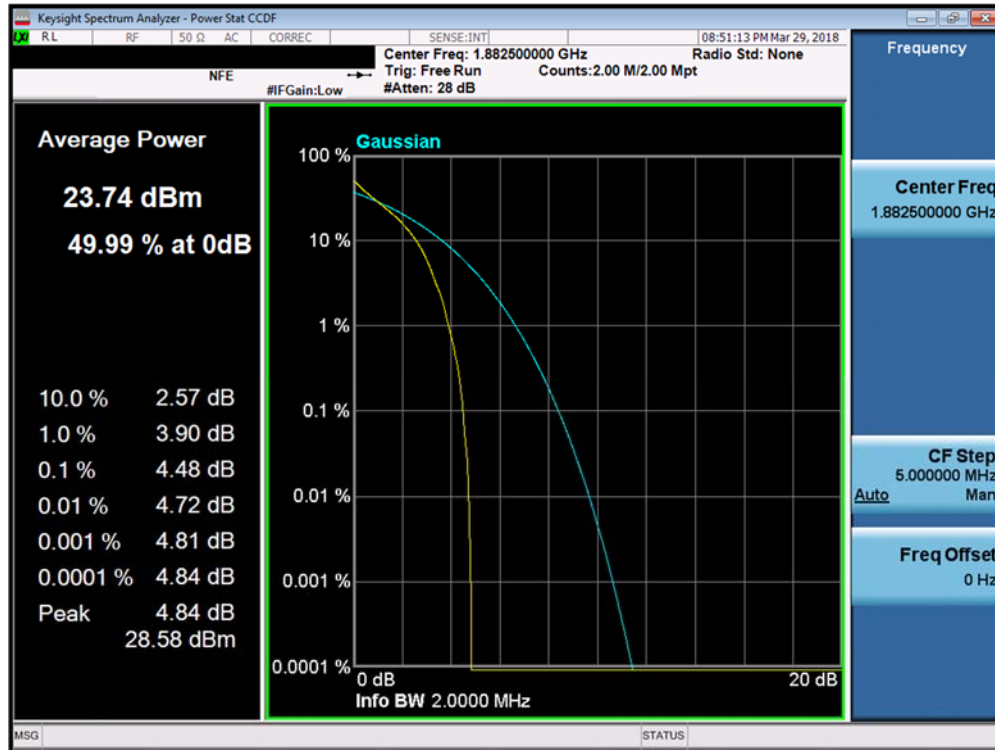
Figure 7-4. Test Instrument & Measurement Setup

Test Notes

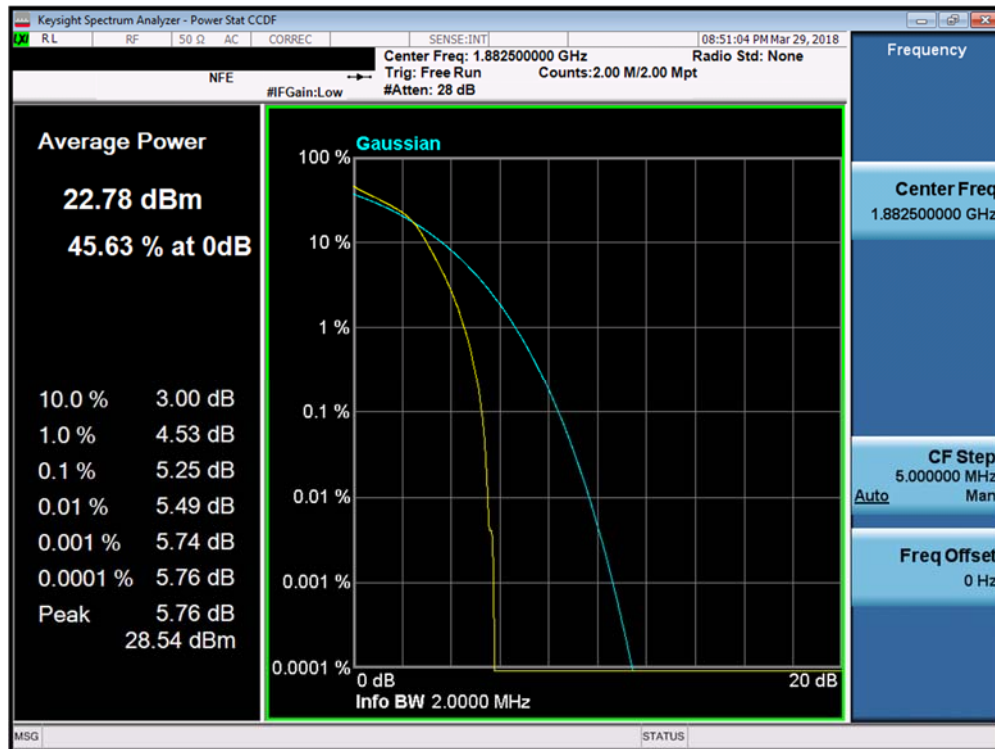
None.

FCC ID: ZNFQ710AL	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset	Page 135 of 179

Band 25/2

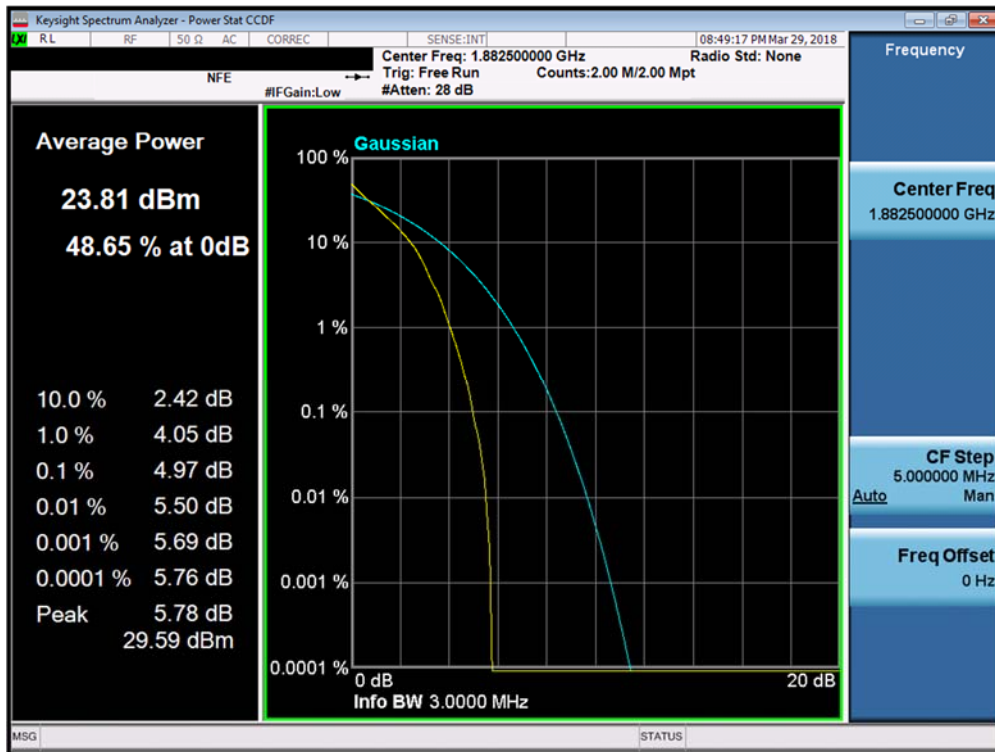


Plot 7-225. PAR Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)

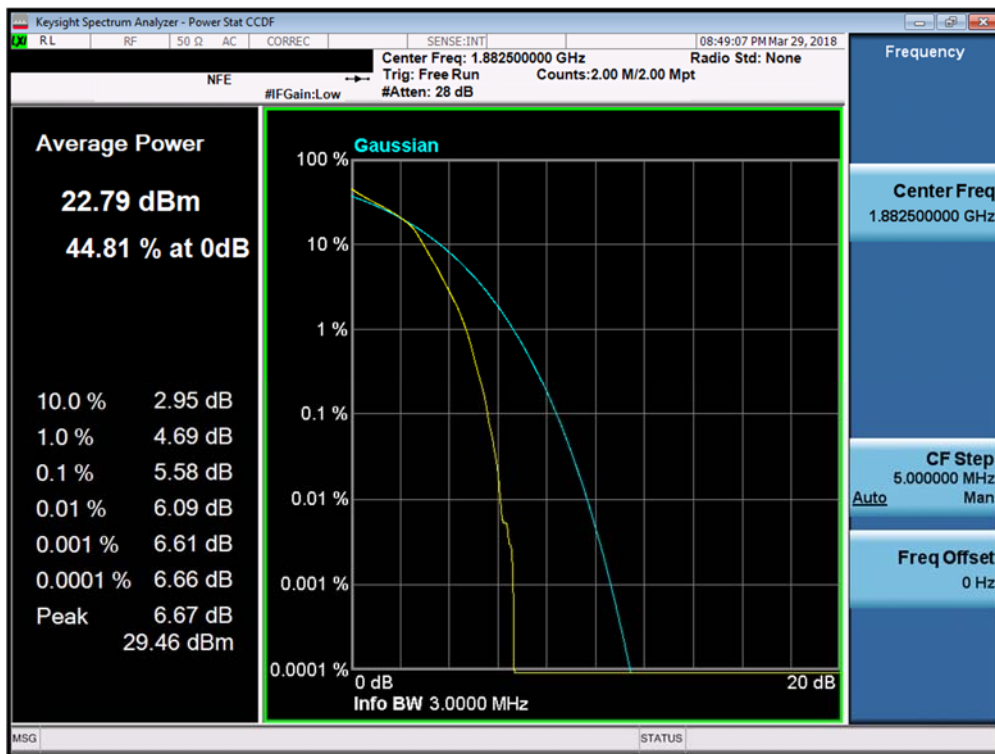


Plot 7-226. PAR Plot (Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 136 of 179



Plot 7-227. PAR Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-228. PAR Plot (Band 25/2 - 3.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 137 of 179