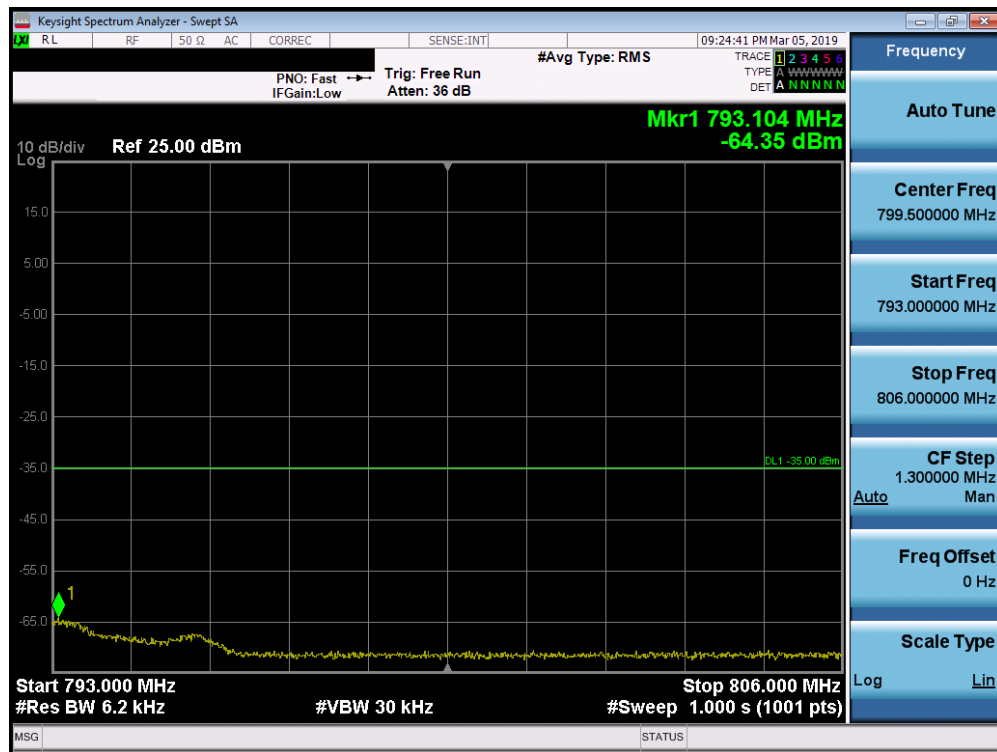


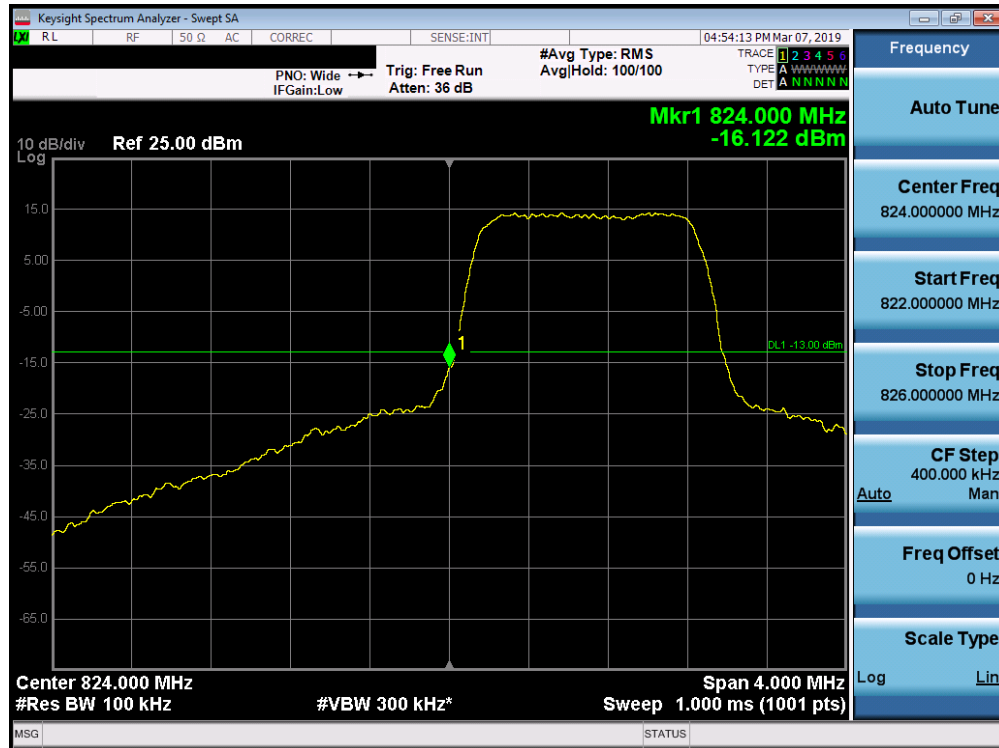
Plot 7-112. Upper Band Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)



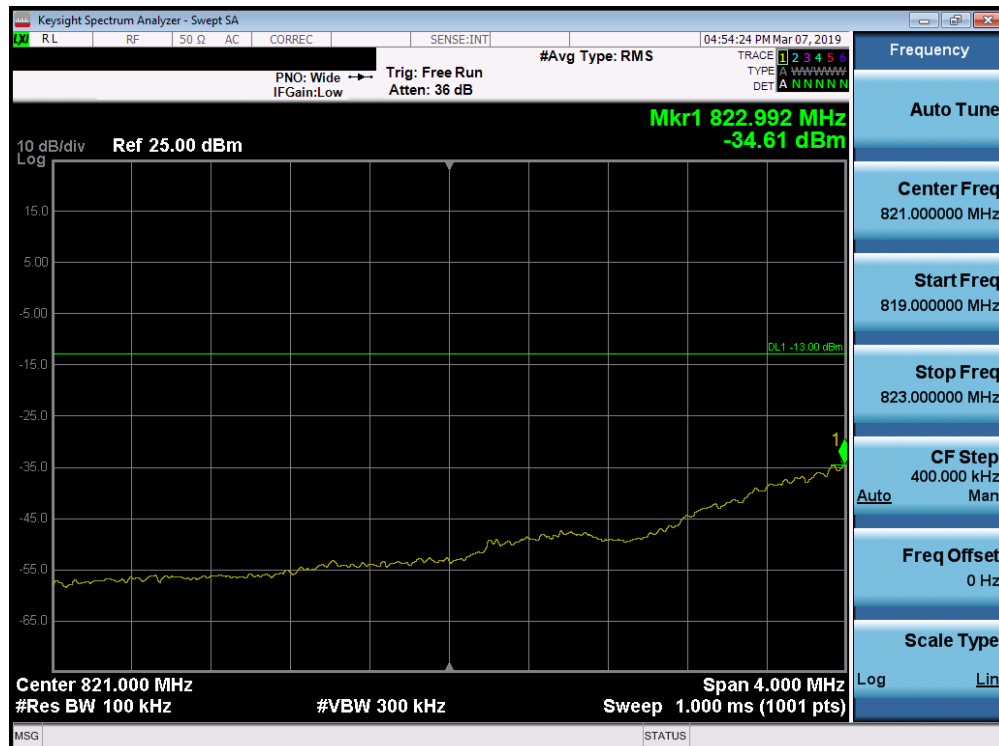
Plot 7-113. Upper Emission Mask Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 78 of 154

## Band 5

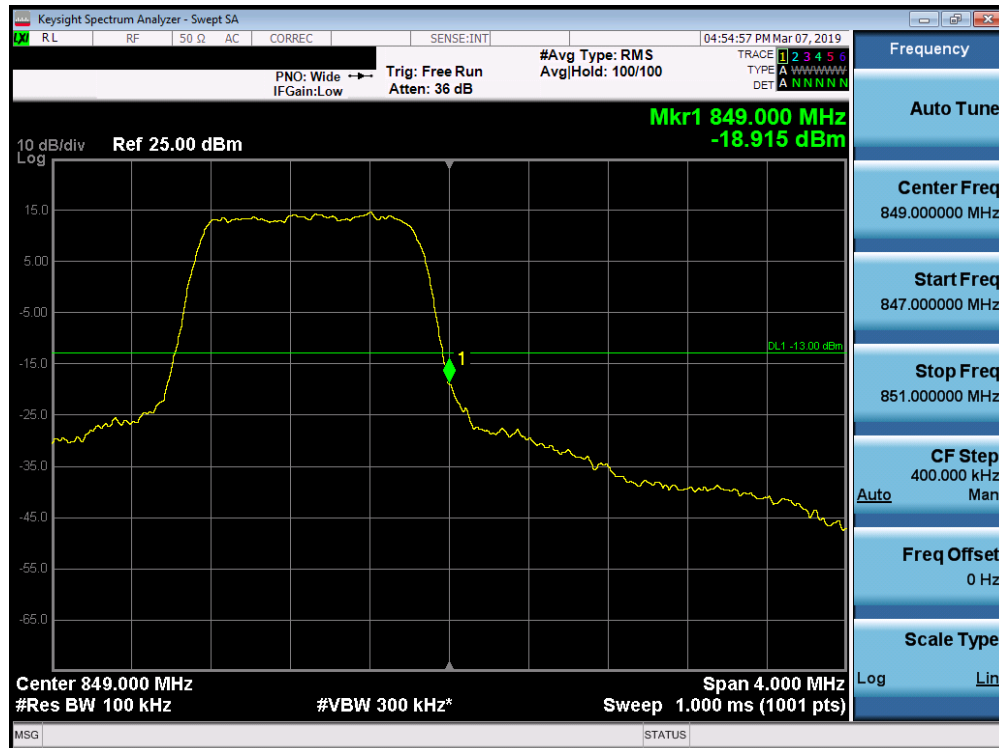


Plot 7-114. Lower Band Edge Plot (Band 5 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-115. Lower Extended Band Edge Plot (Band 5 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 79 of 154

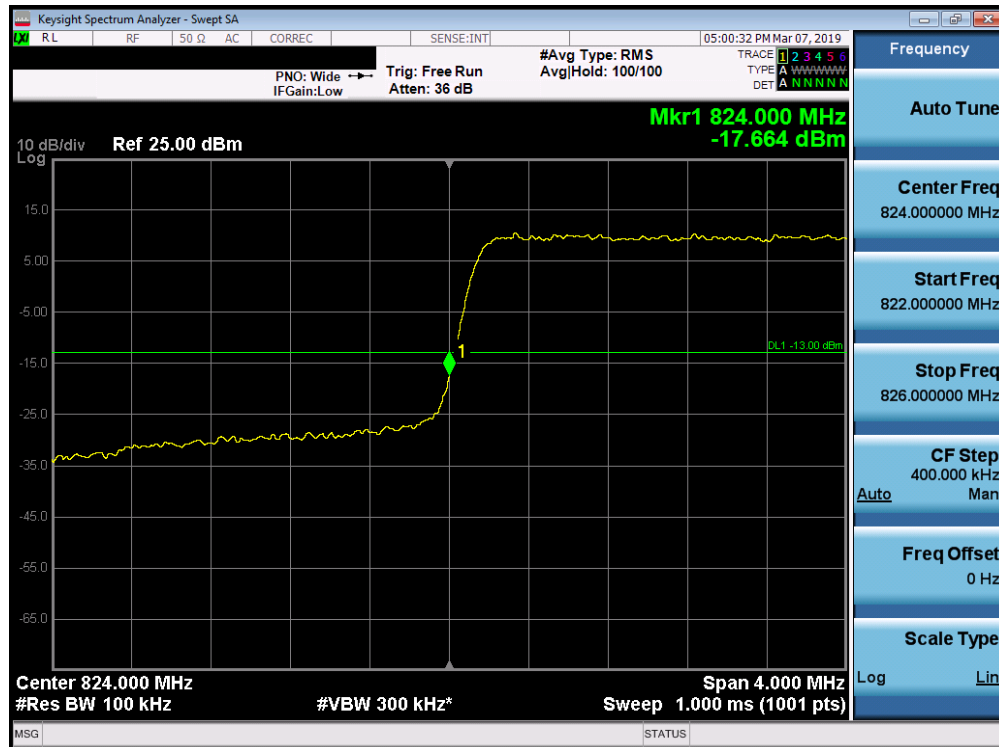


Plot 7-116. Upper Band Edge Plot (Band 5 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-117. Upper Extended Band Edge Plot (Band 5 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1-ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 80 of 154



Plot 7-118. Lower Band Edge Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-119. Lower Extended Band Edge Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 81 of 154

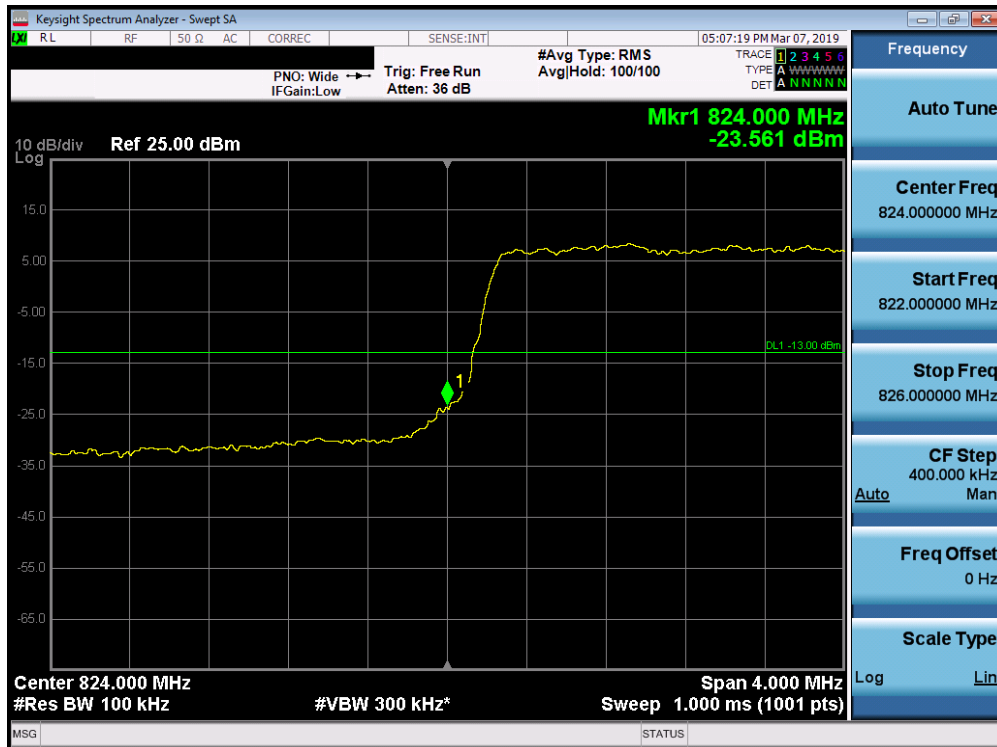


Plot 7-120. Upper Band Edge Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)

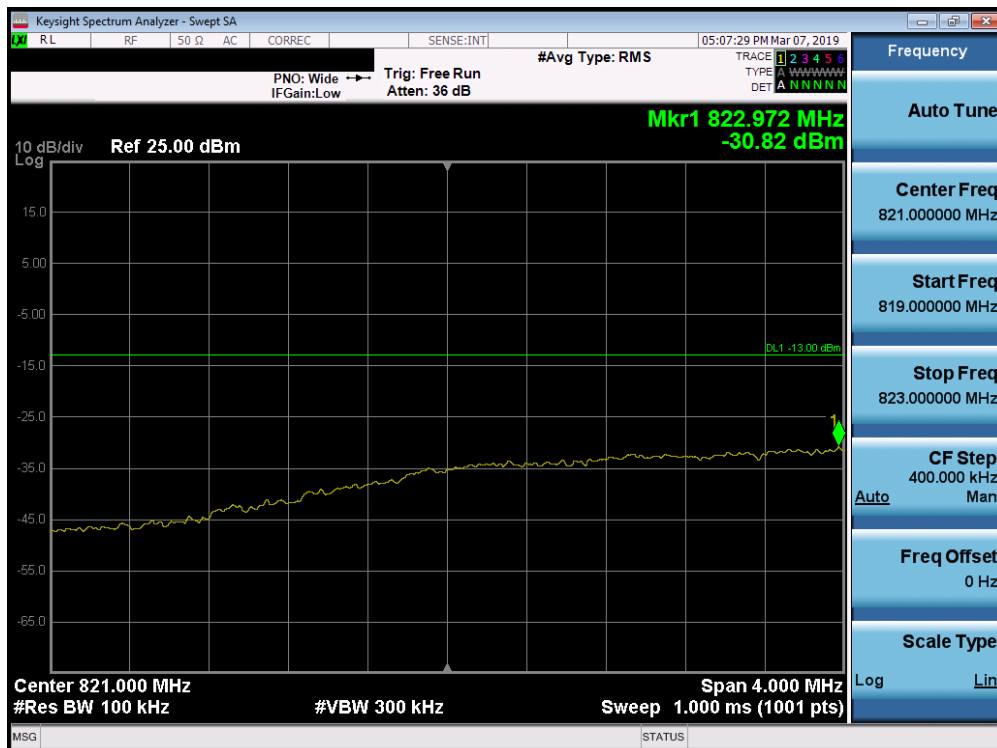


Plot 7-121. Upper Extended Band Edge Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 82 of 154

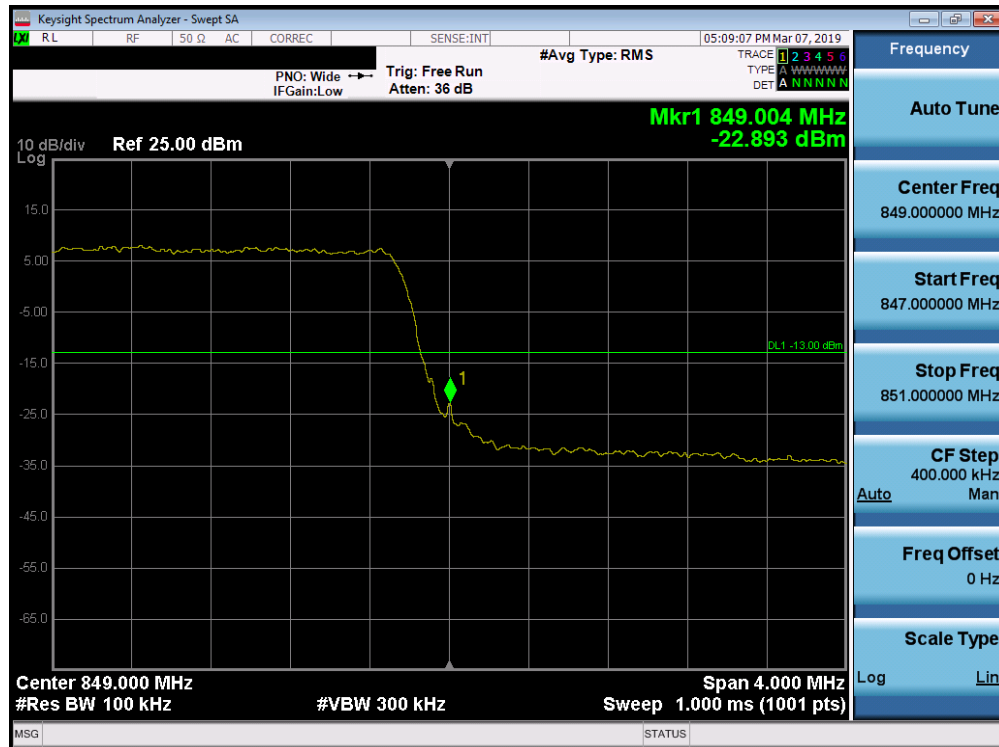


Plot 7-122. Lower Band Edge Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)

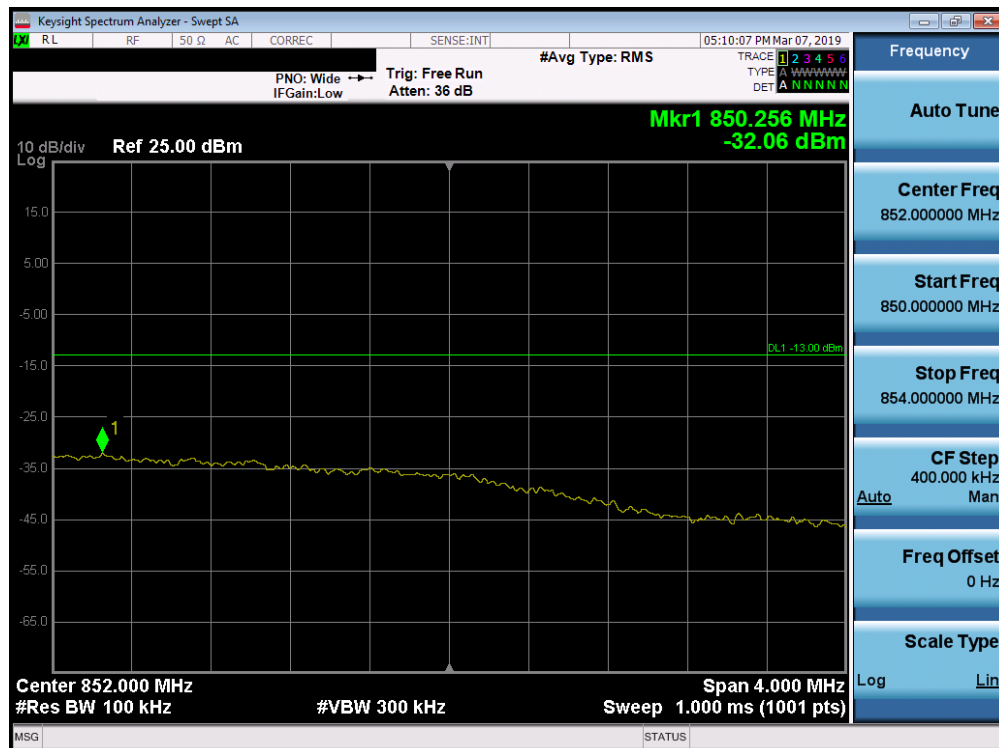


Plot 7-123. Lower Extended Band Edge Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 83 of 154

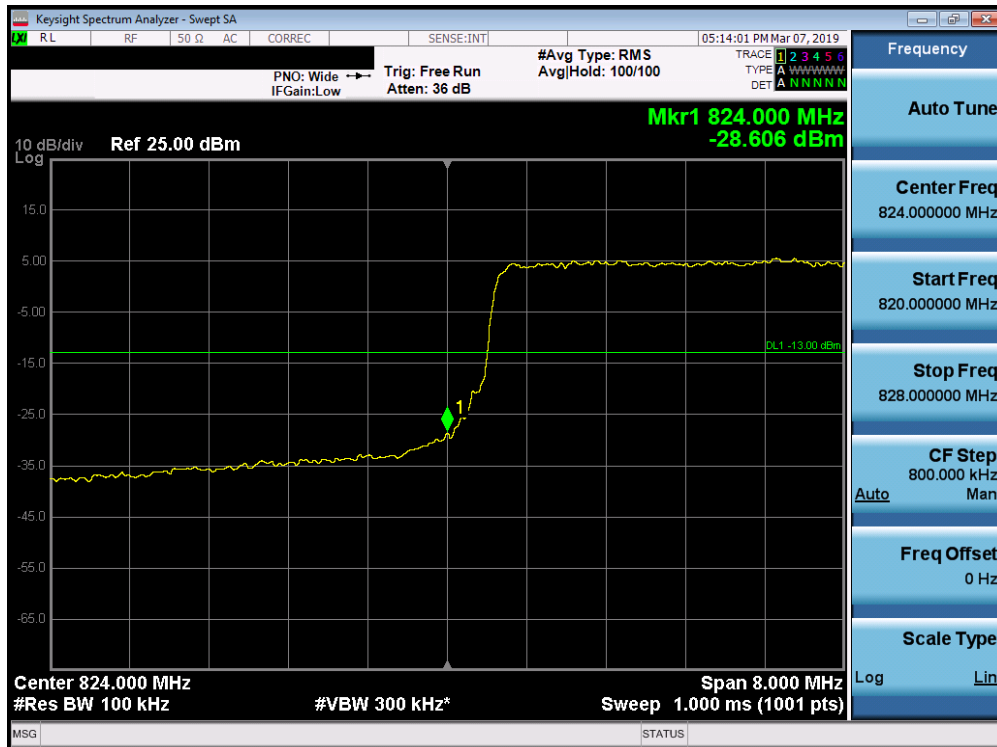


Plot 7-124. Upper Band Edge Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)

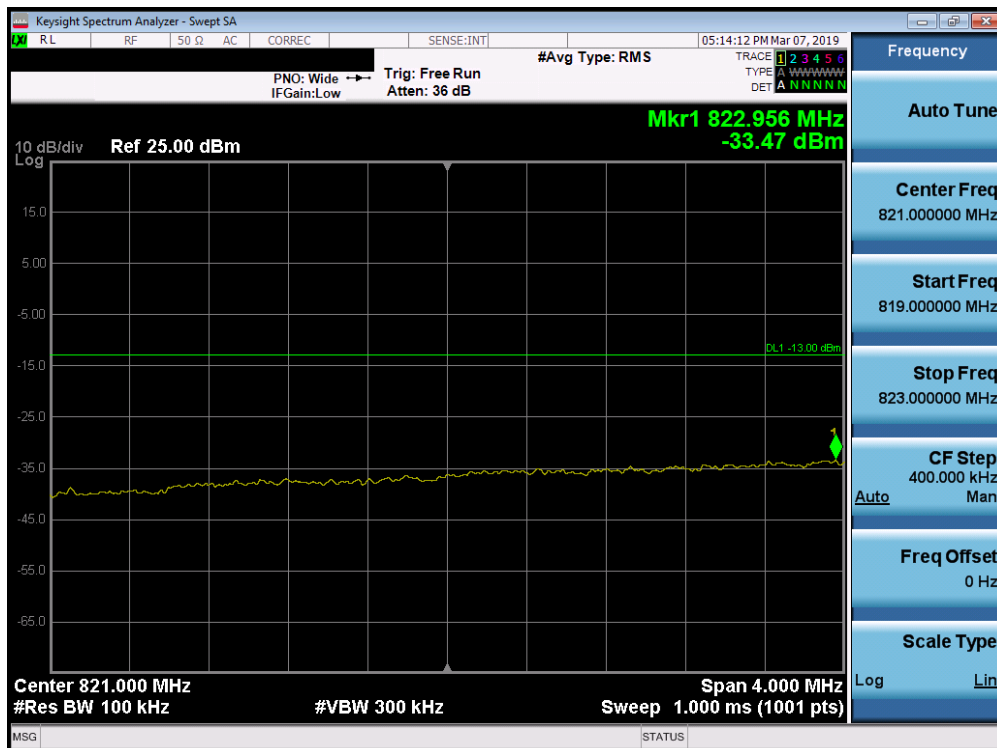


Plot 7-125. Upper Extended Band Edge Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 84 of 154



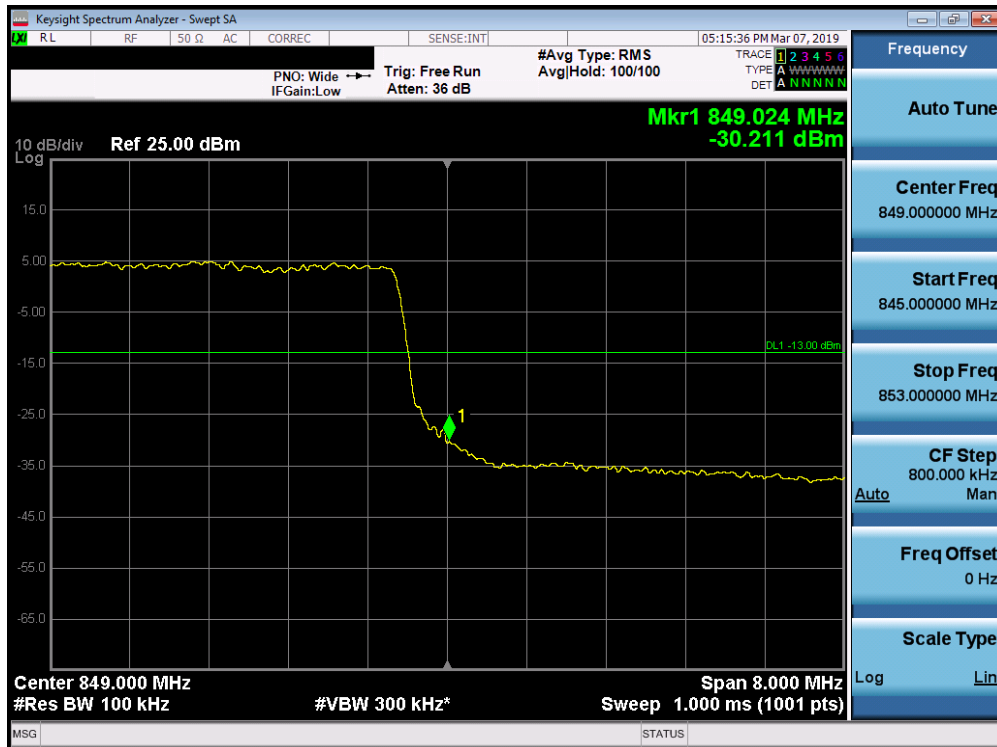
Plot 7-126. Lower Band Edge Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)



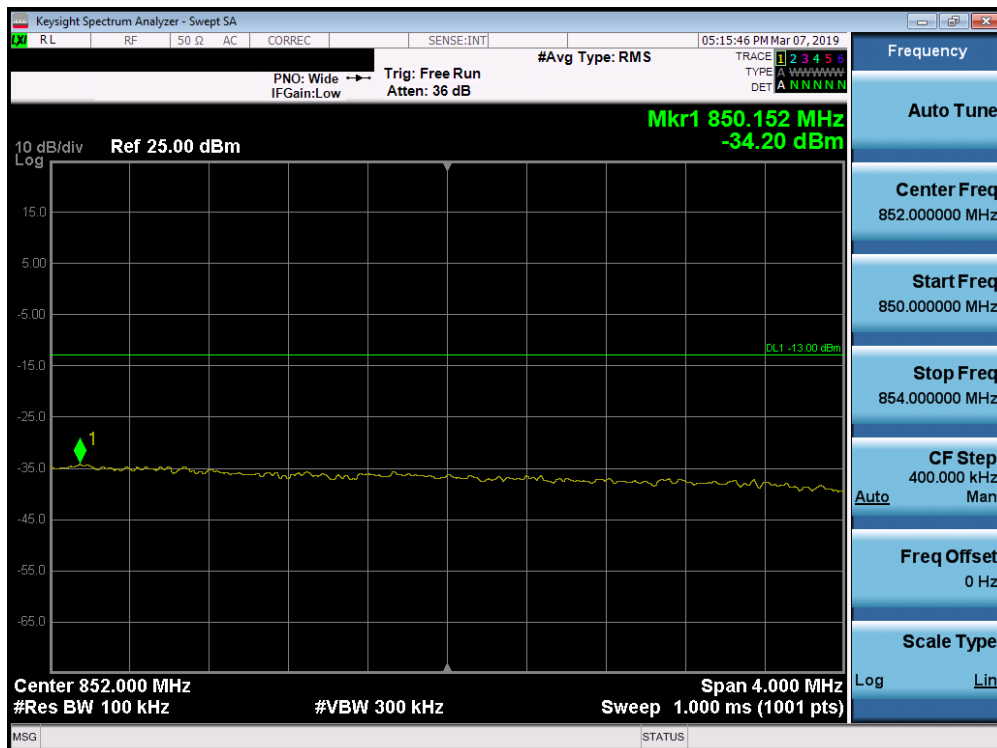
Plot 7-127. Lower Extended Band Edge Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1-ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 85 of 154





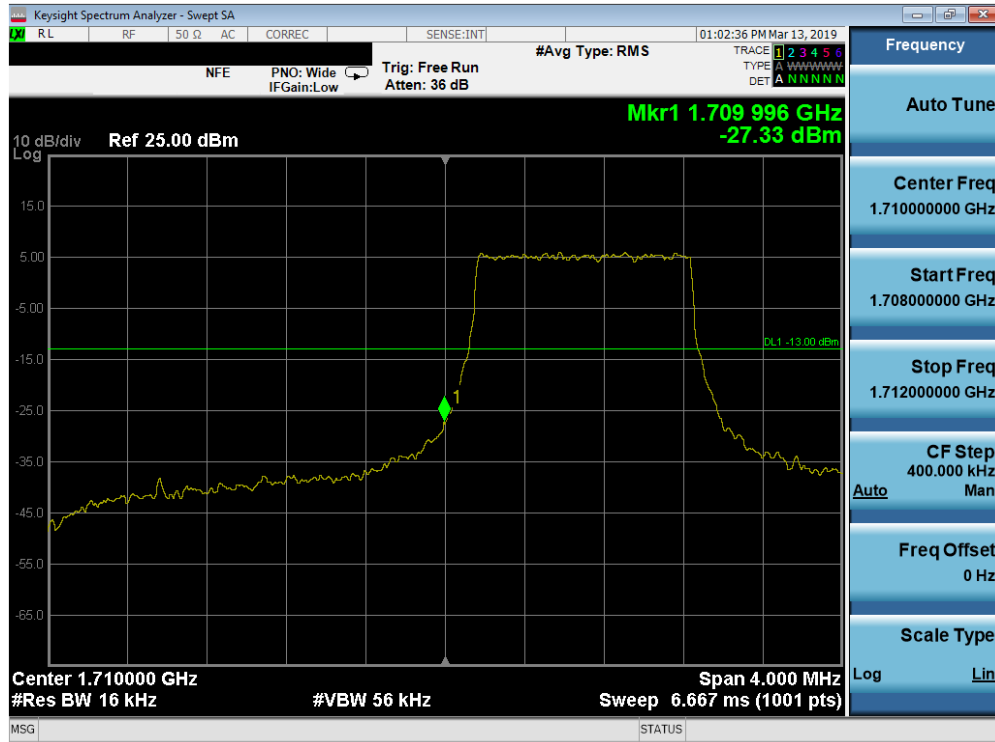
Plot 7-128. Upper Band Edge Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)



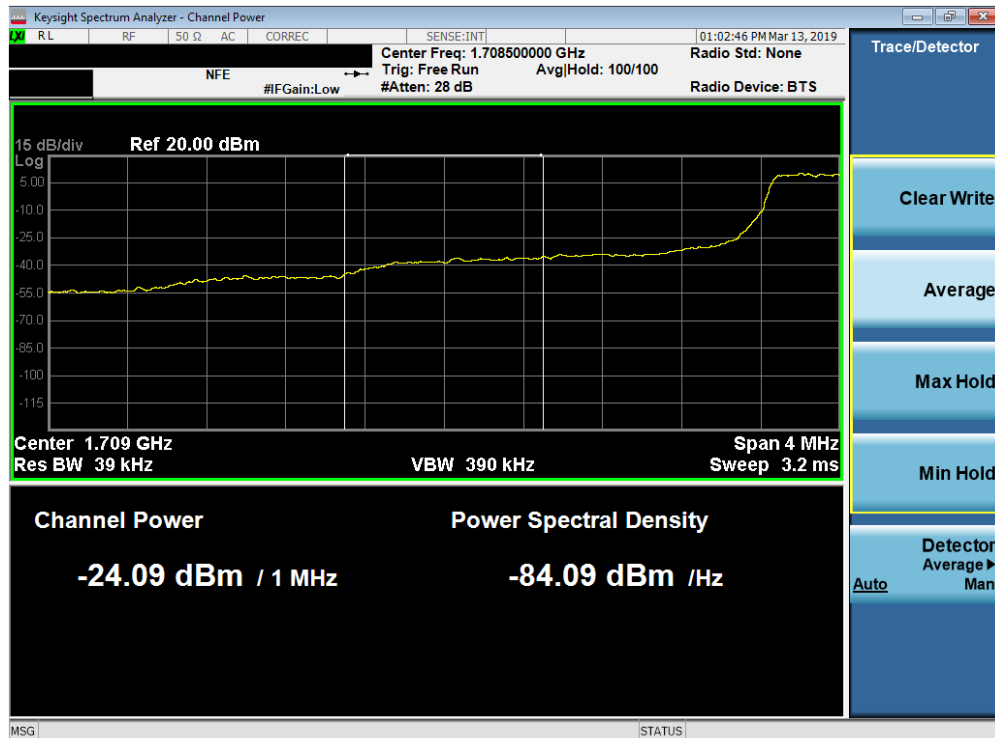
Plot 7-129. Upper Extended Band Edge Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 86 of 154

## Band 4

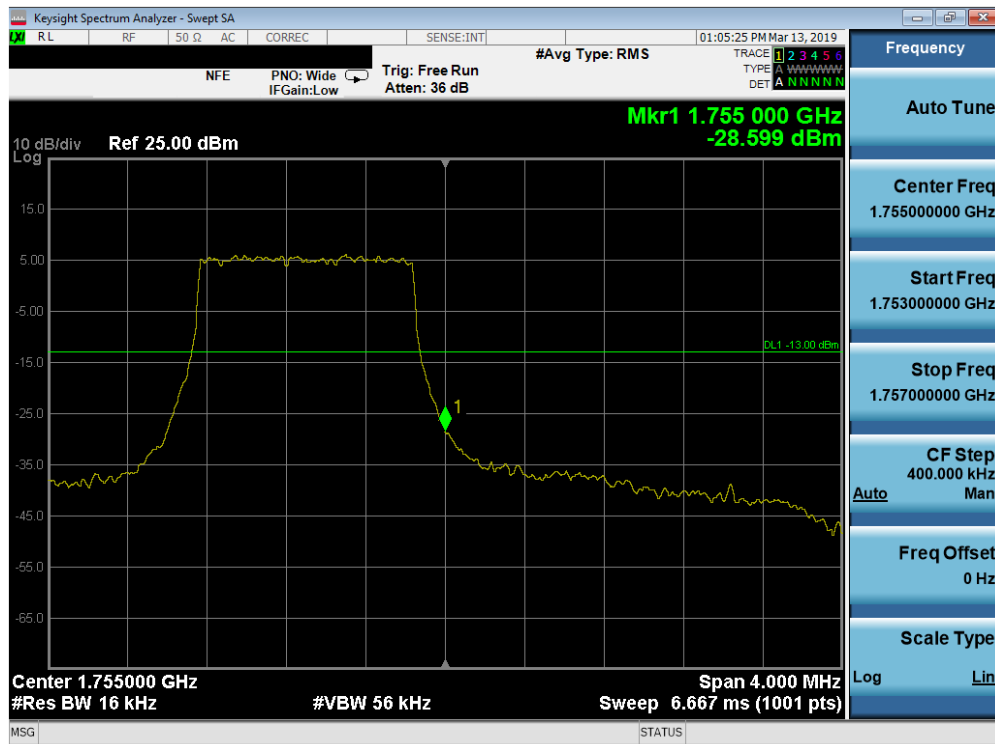


Plot 7-130. Lower Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

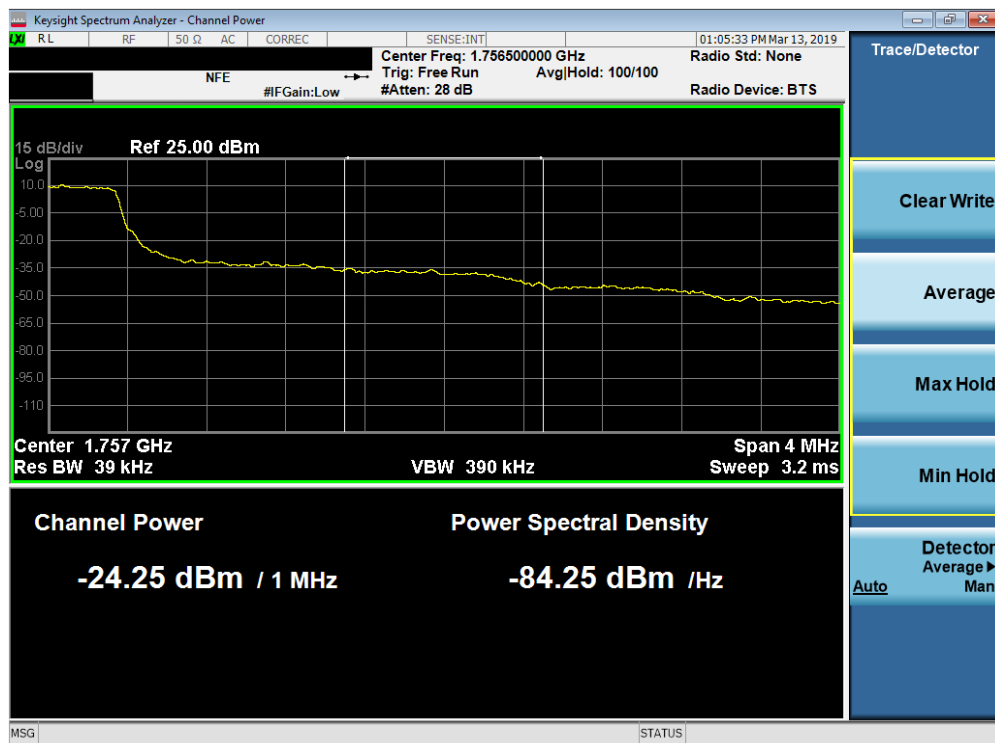


Plot 7-131. Lower Extended Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 87 of 154

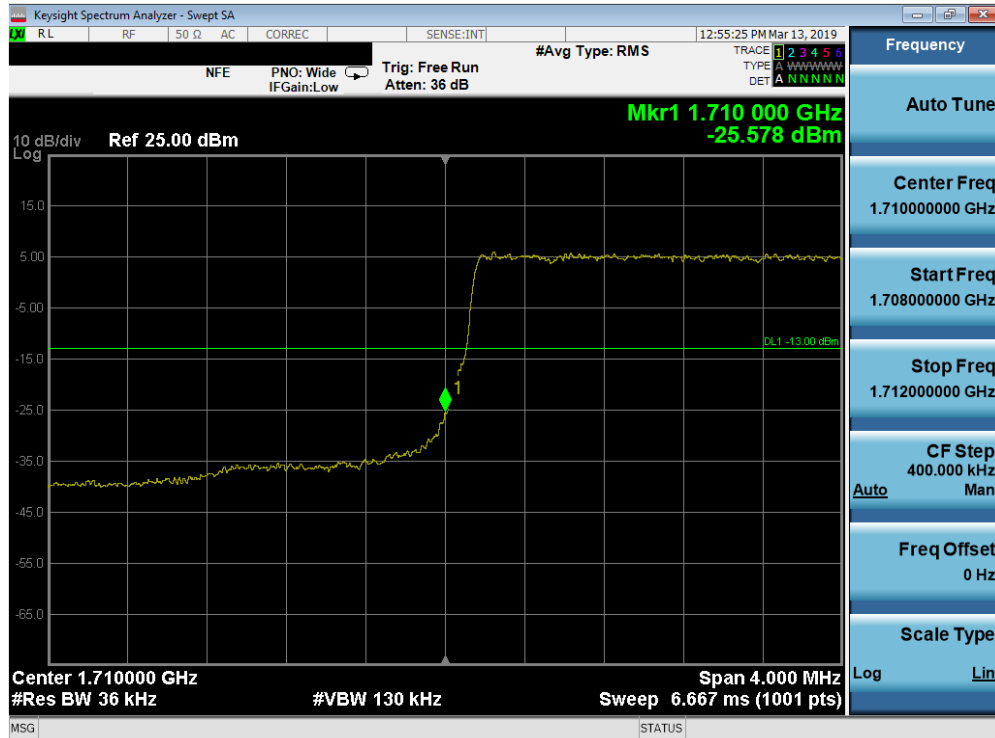


Plot 7-132. Upper Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

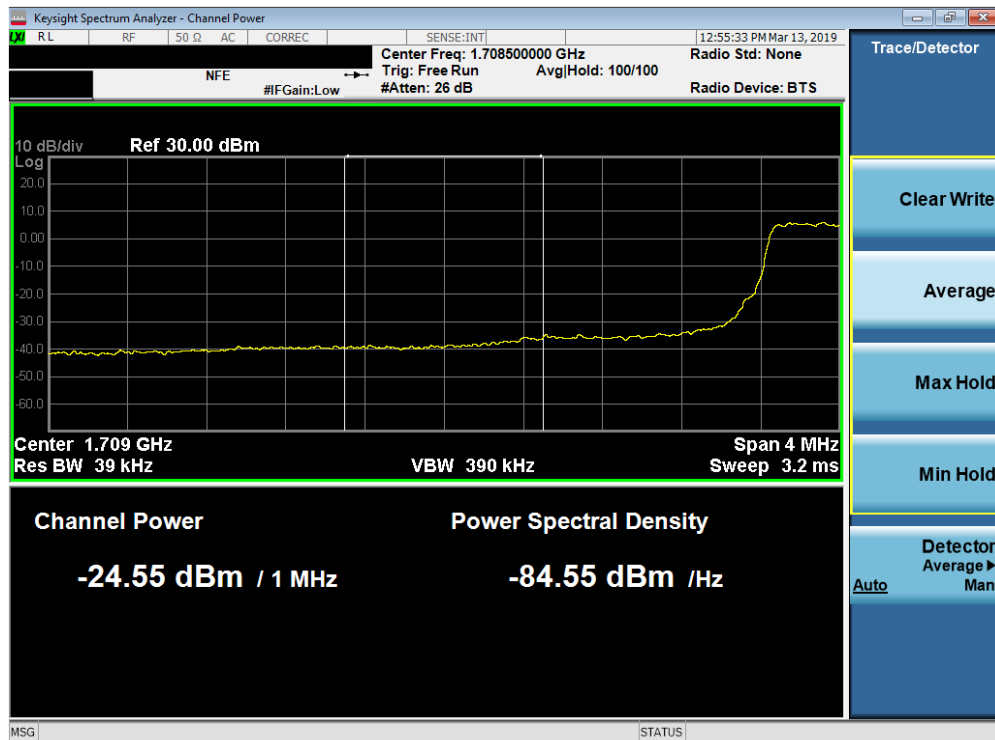


Plot 7-133. Upper Extended Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 88 of 154

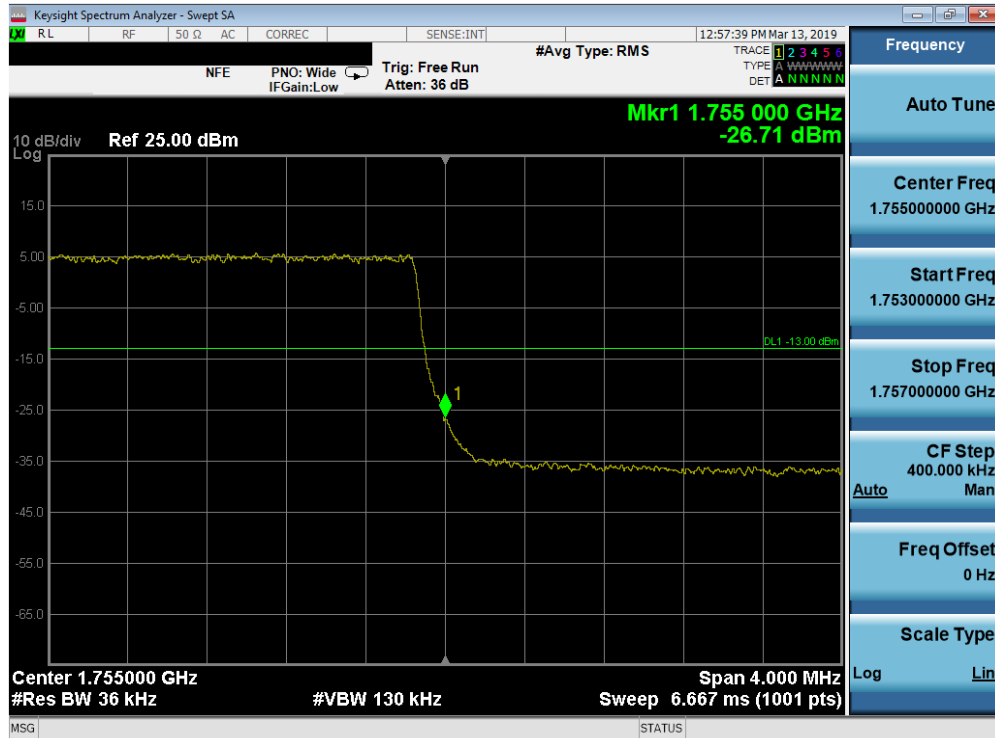


Plot 7-134. Lower Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

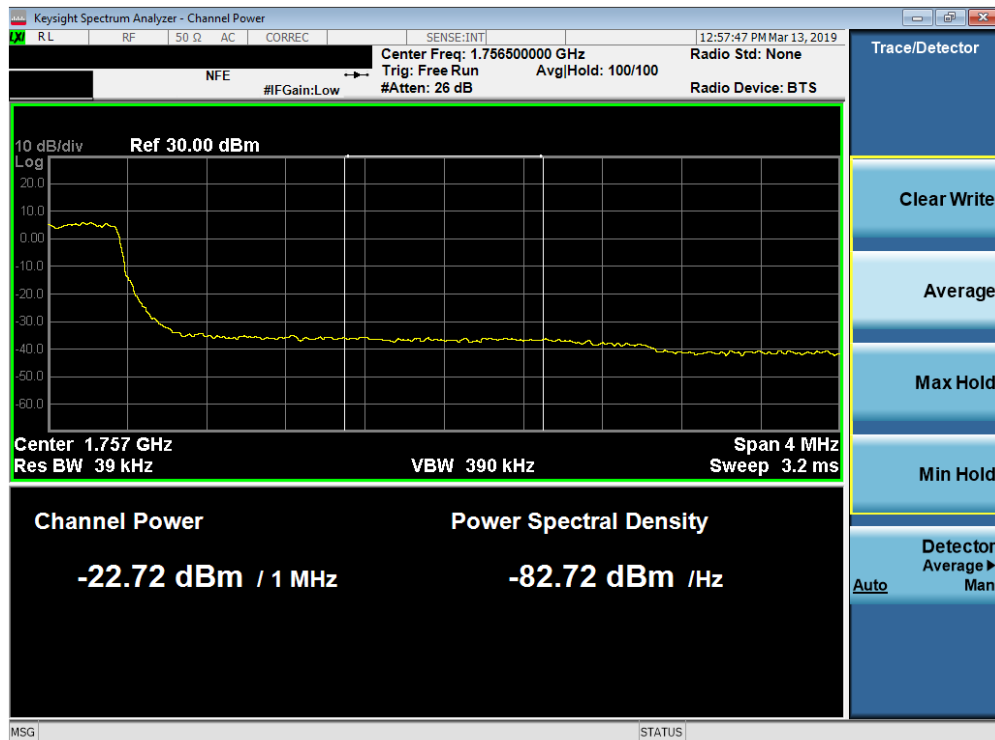


Plot 7-135. Lower Extended Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1-ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 89 of 154

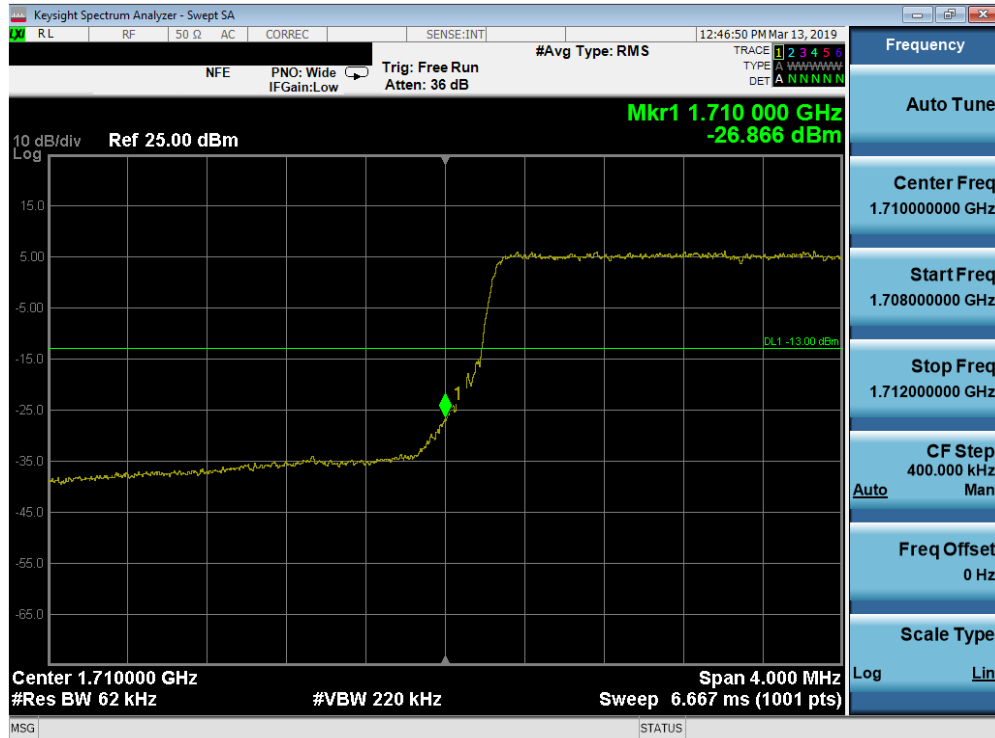


Plot 7-136. Upper Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

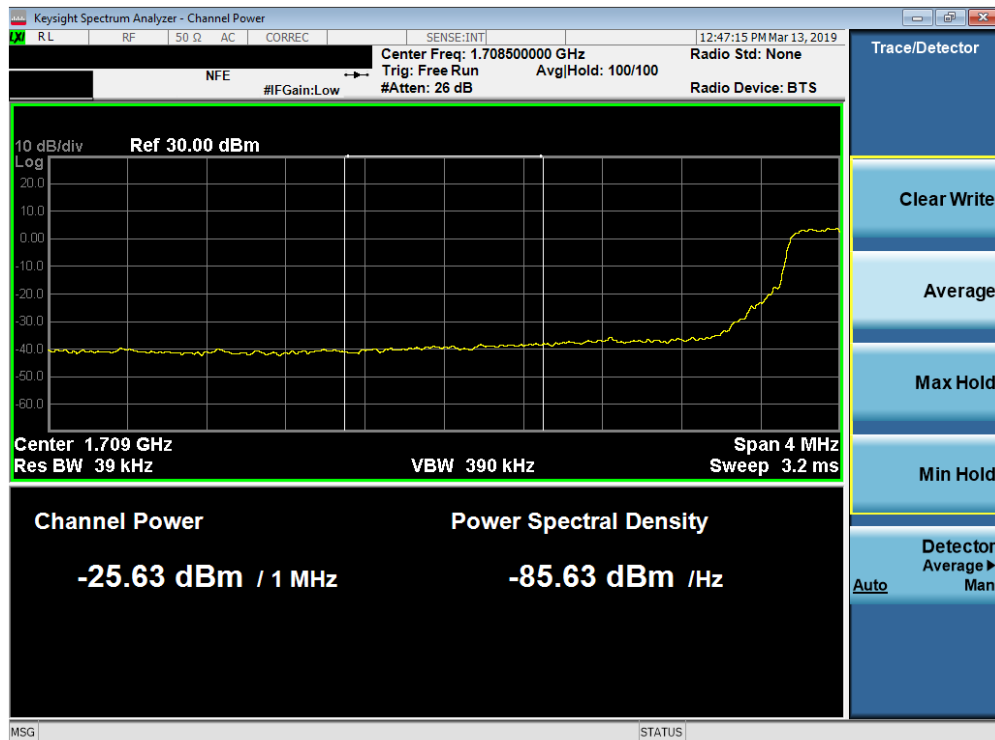


Plot 7-137. Upper Extended Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1-ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 90 of 154

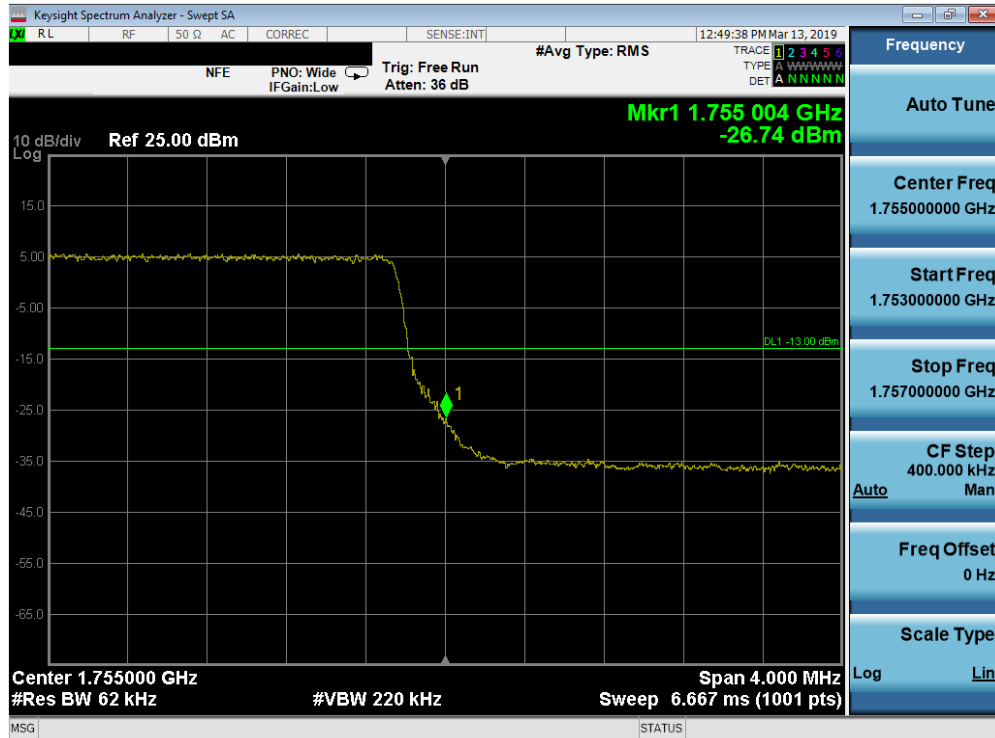


Plot 7-138. Lower Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

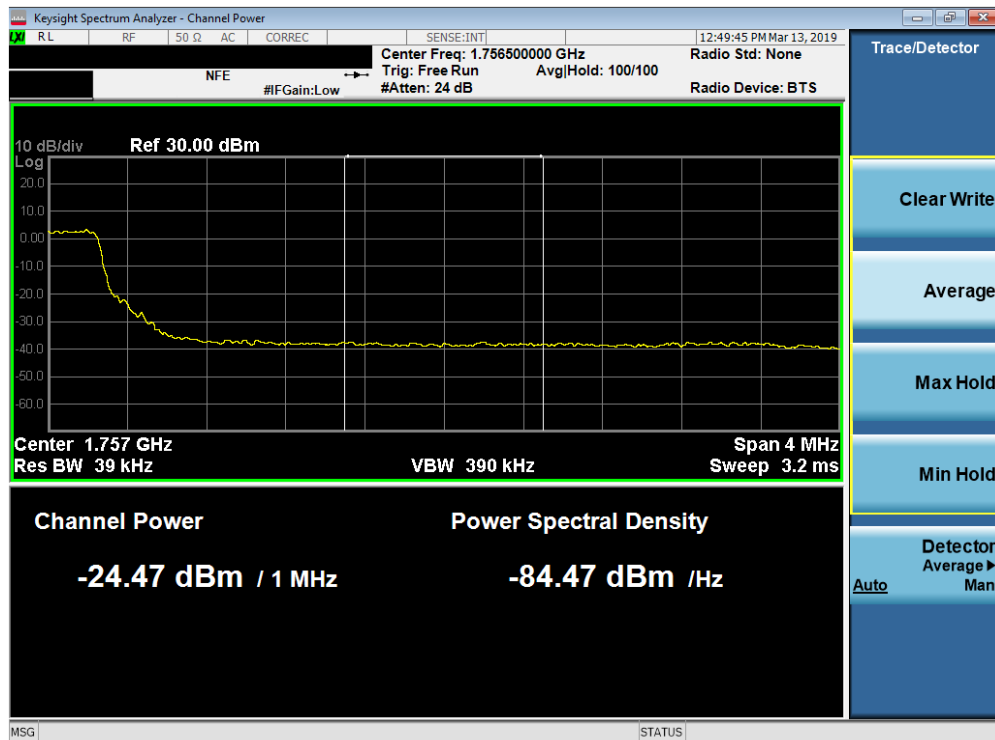


Plot 7-139. Lower Extended Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1-ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 91 of 154

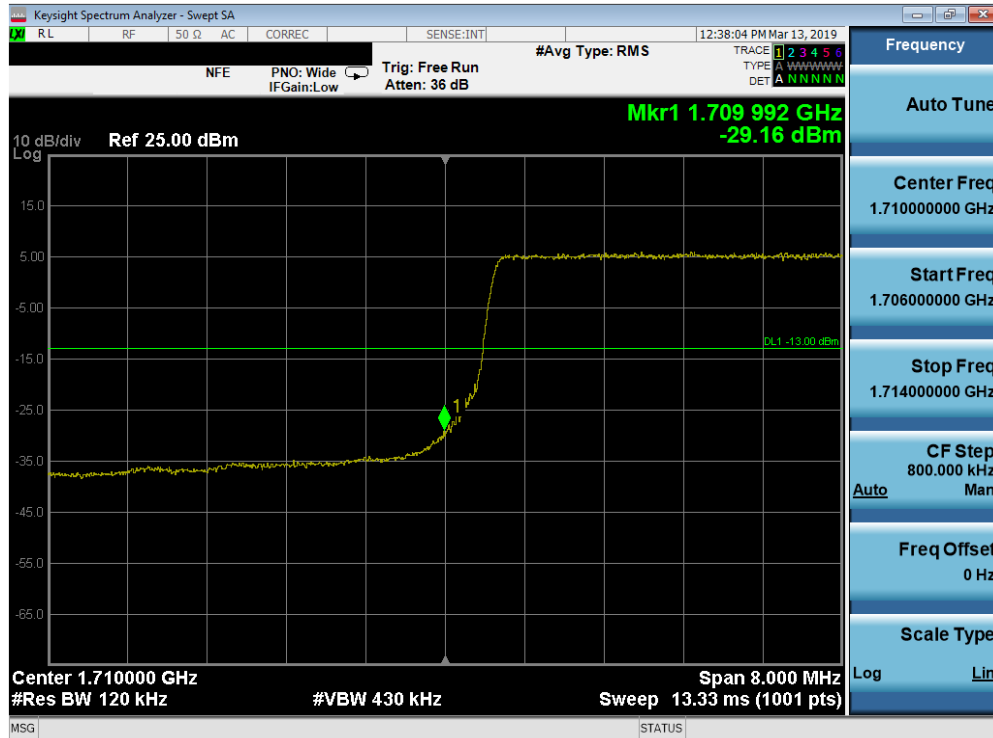


Plot 7-140. Upper Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

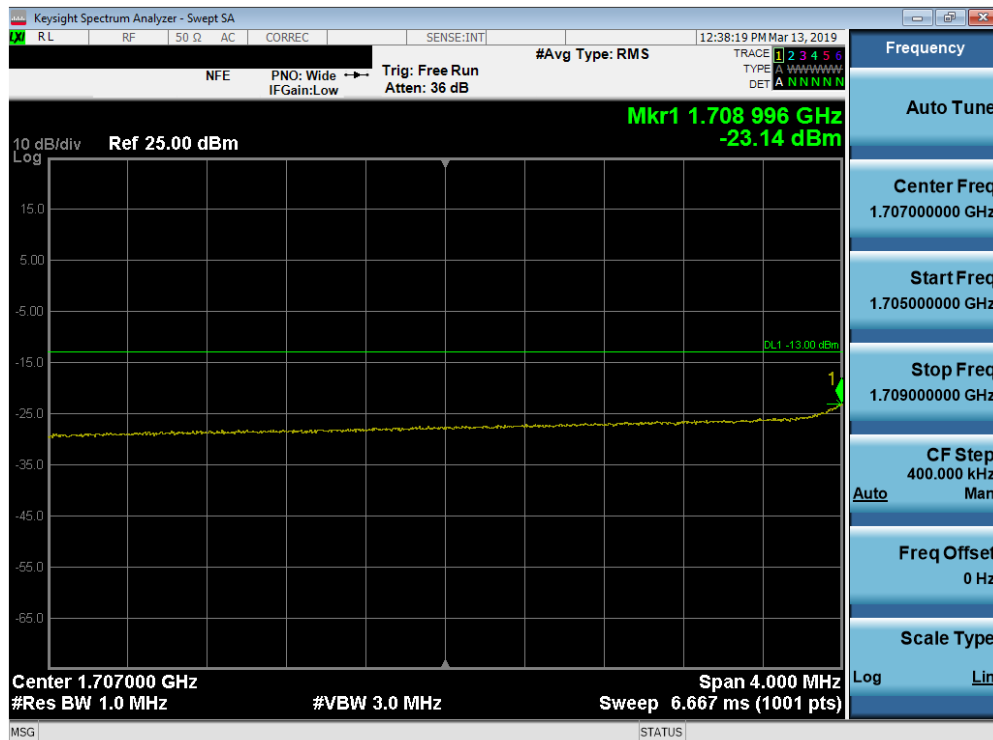


Plot 7-141. Upper Extended Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1-ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 92 of 154



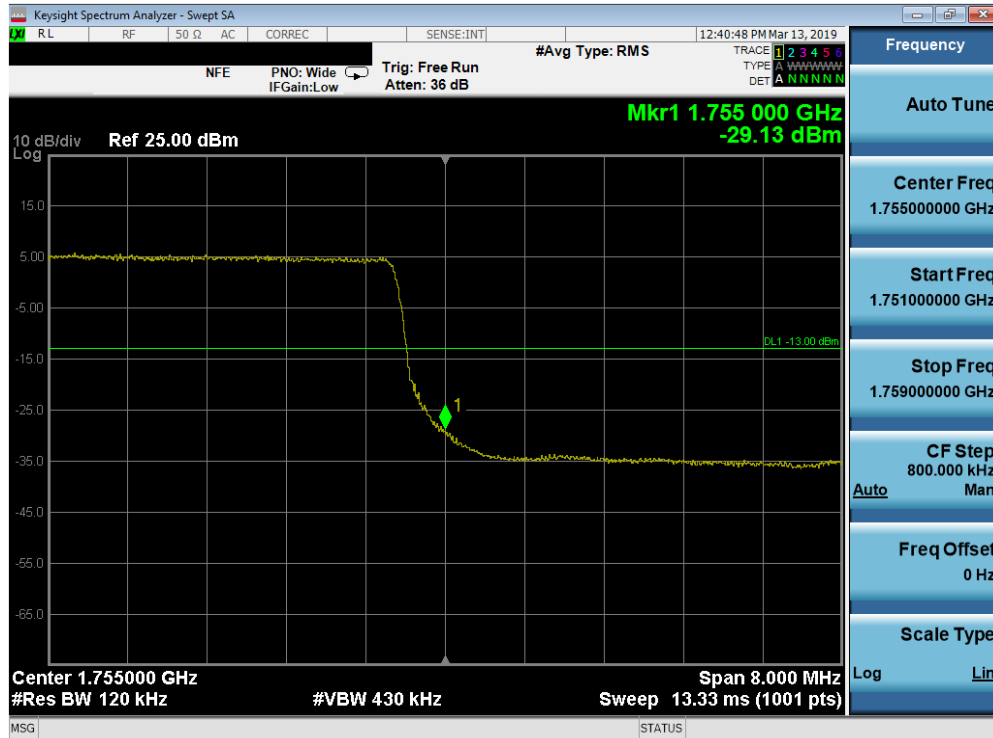
Plot 7-142. Lower Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)



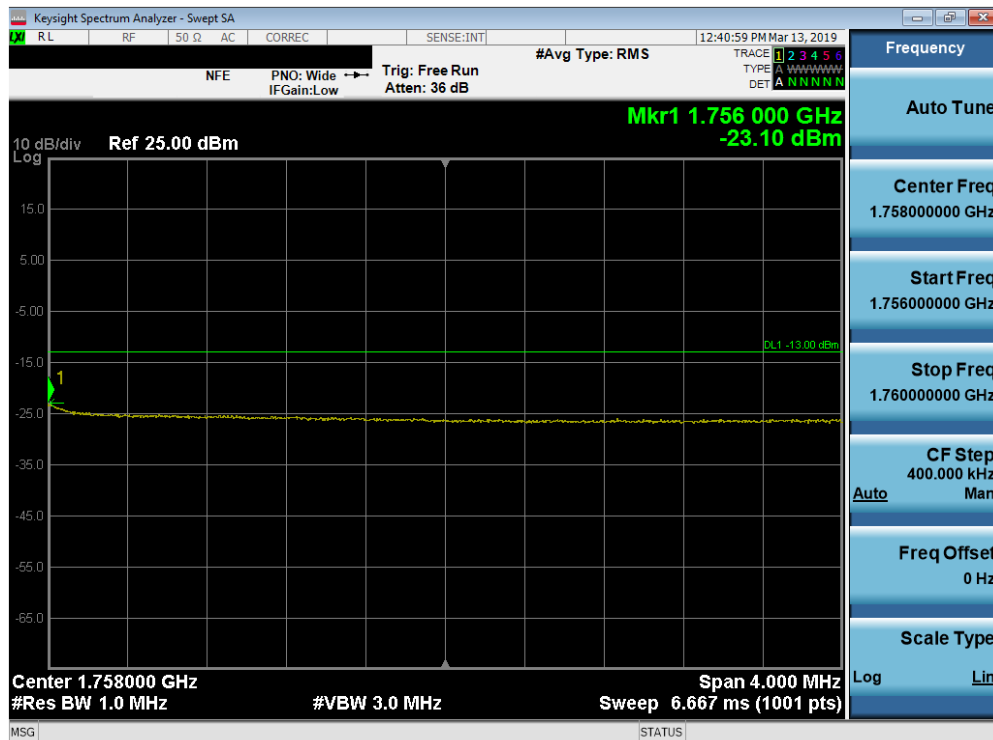
Plot 7-143. Lower Extended Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 93 of 154



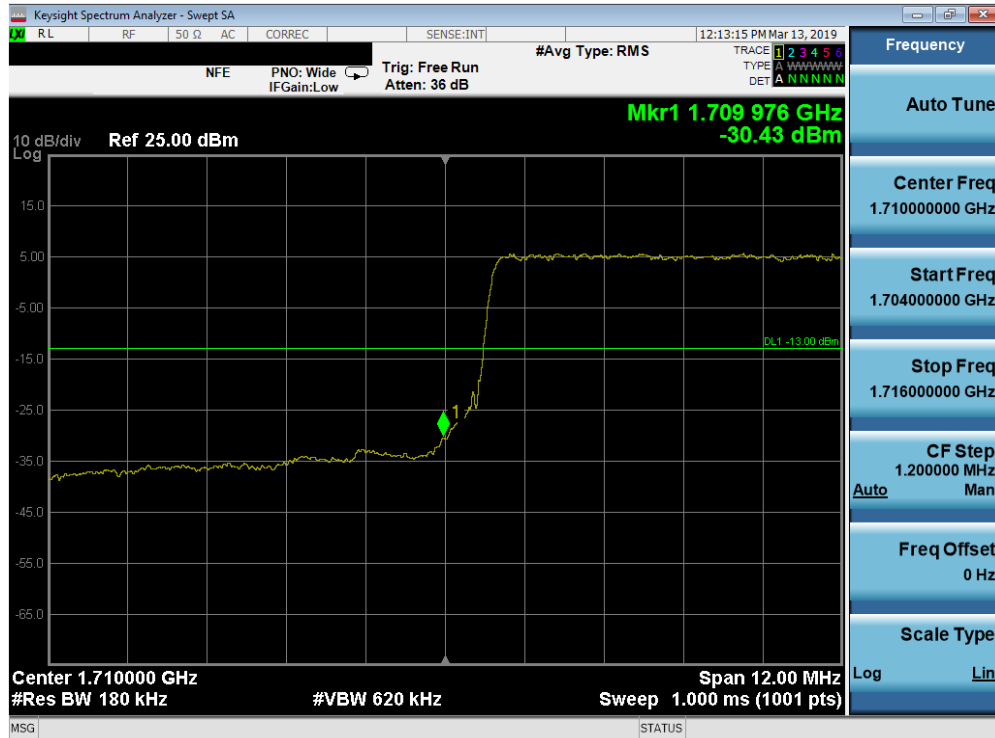


Plot 7-144. Upper Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

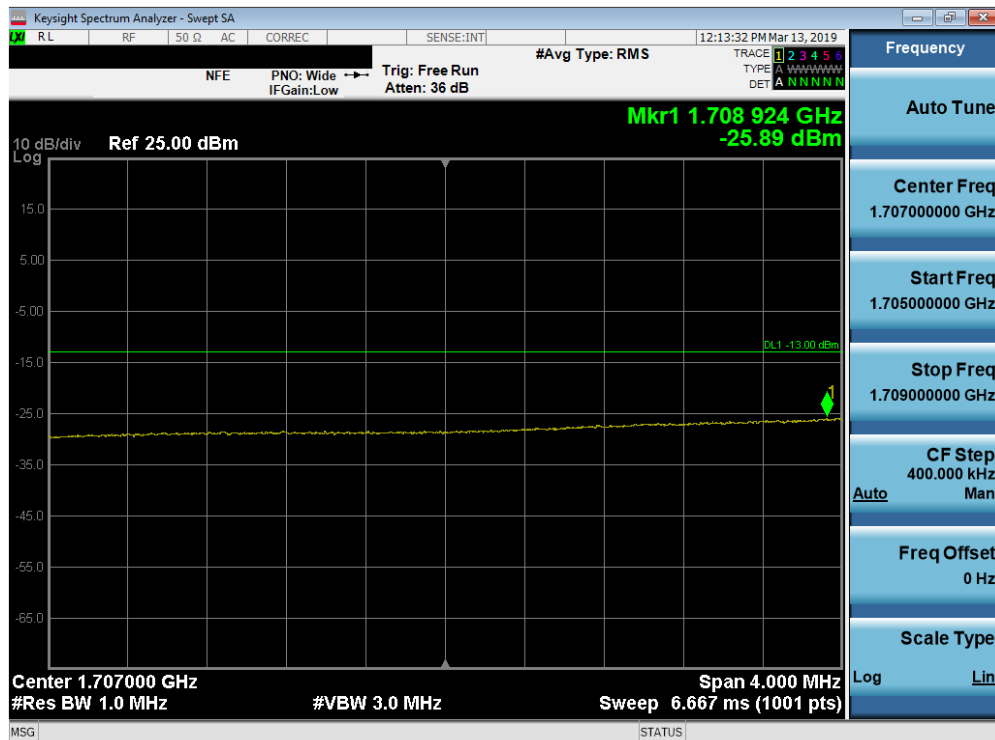


Plot 7-145. Upper Extended Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1-ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 94 of 154

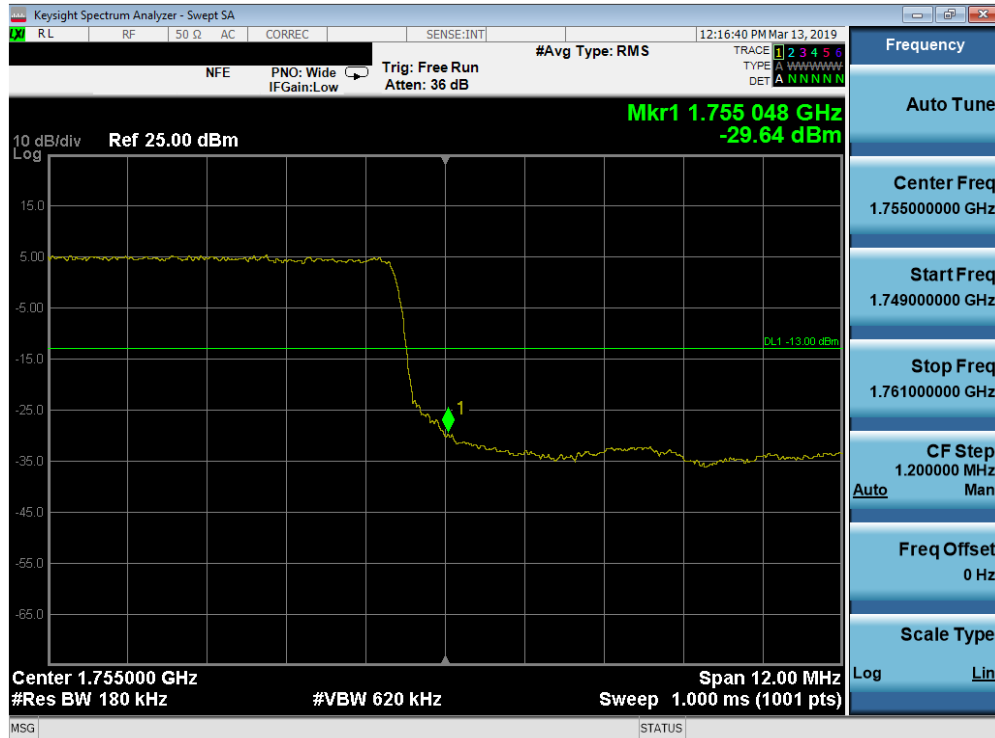


Plot 7-146. Lower Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

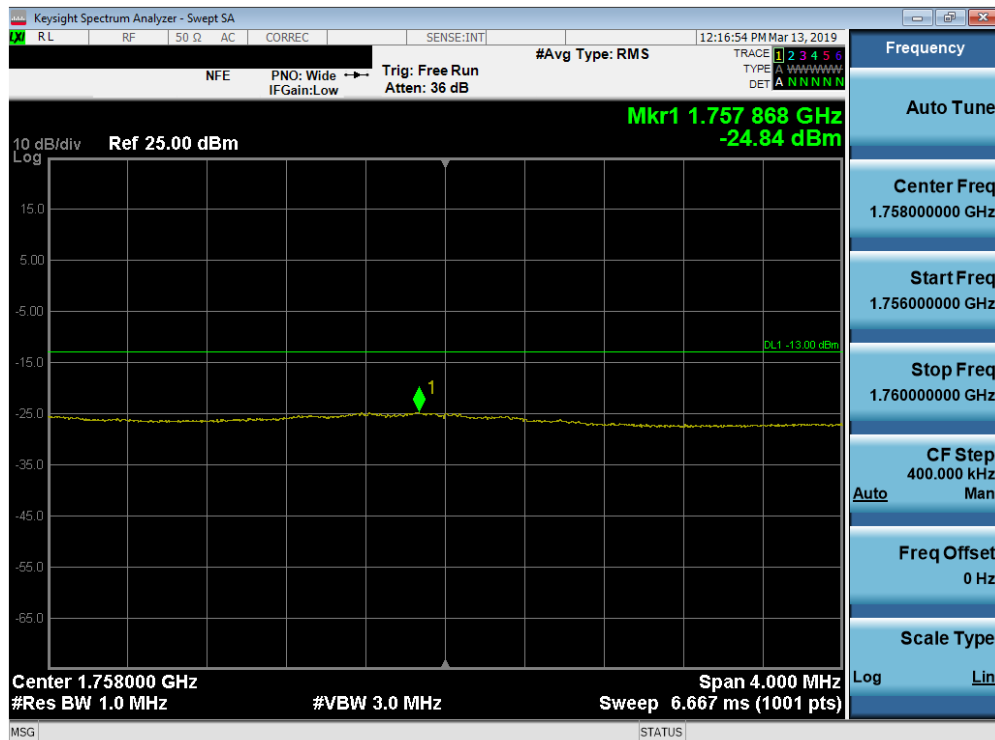


Plot 7-147. Lower Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 95 of 154

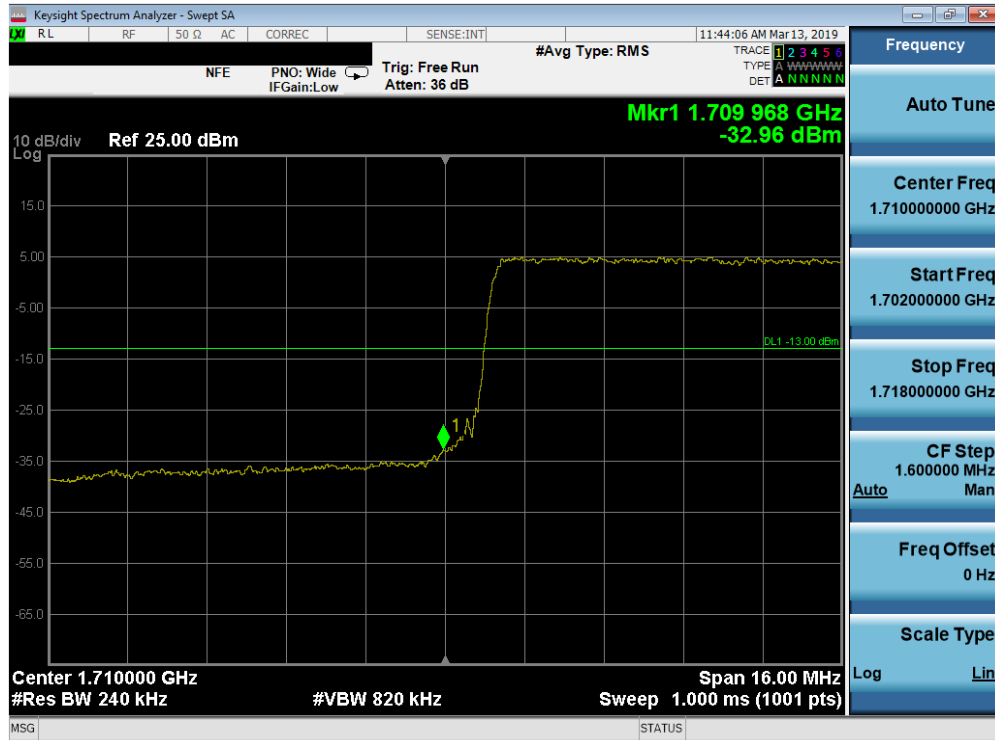


Plot 7-148. Upper Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

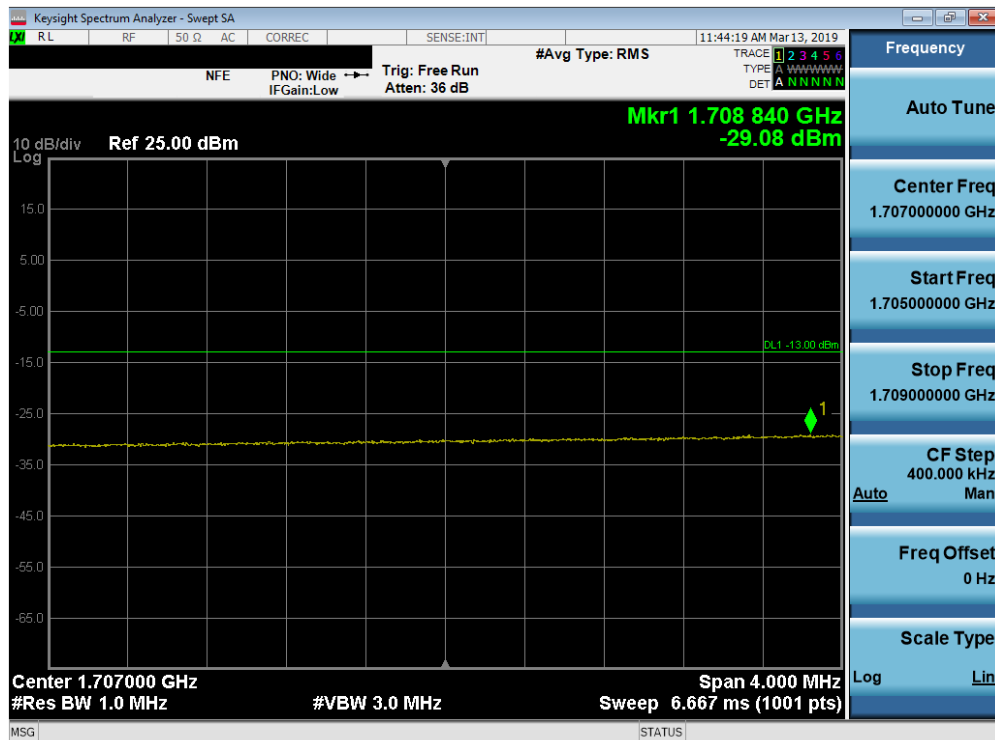


Plot 7-149. Upper Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 96 of 154

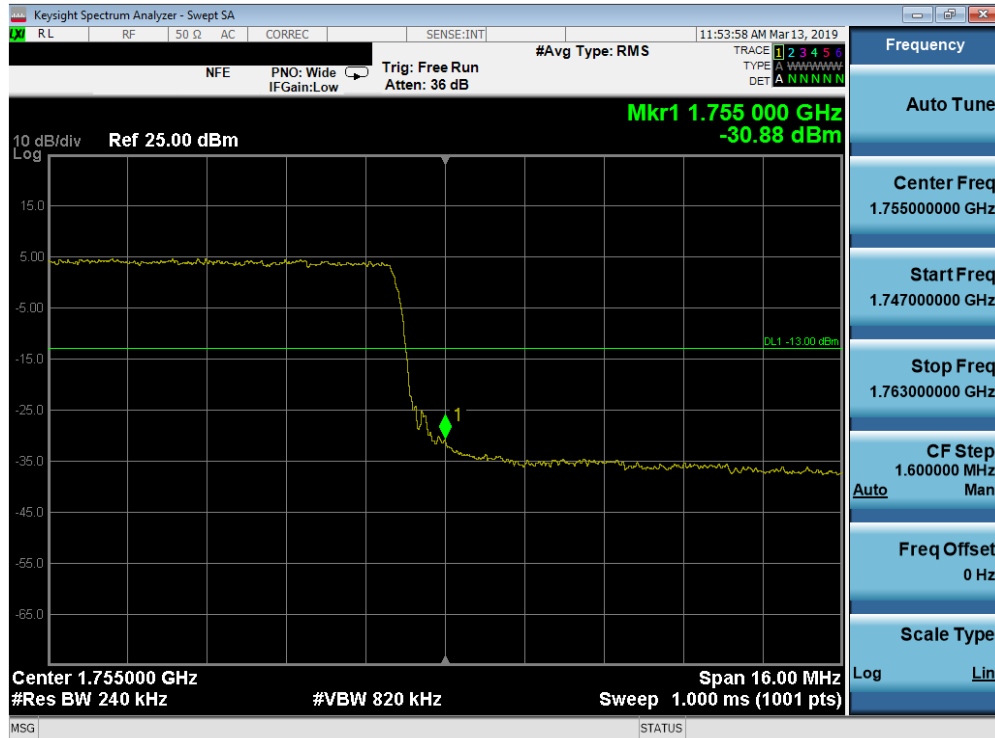


Plot 7-150. Lower Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

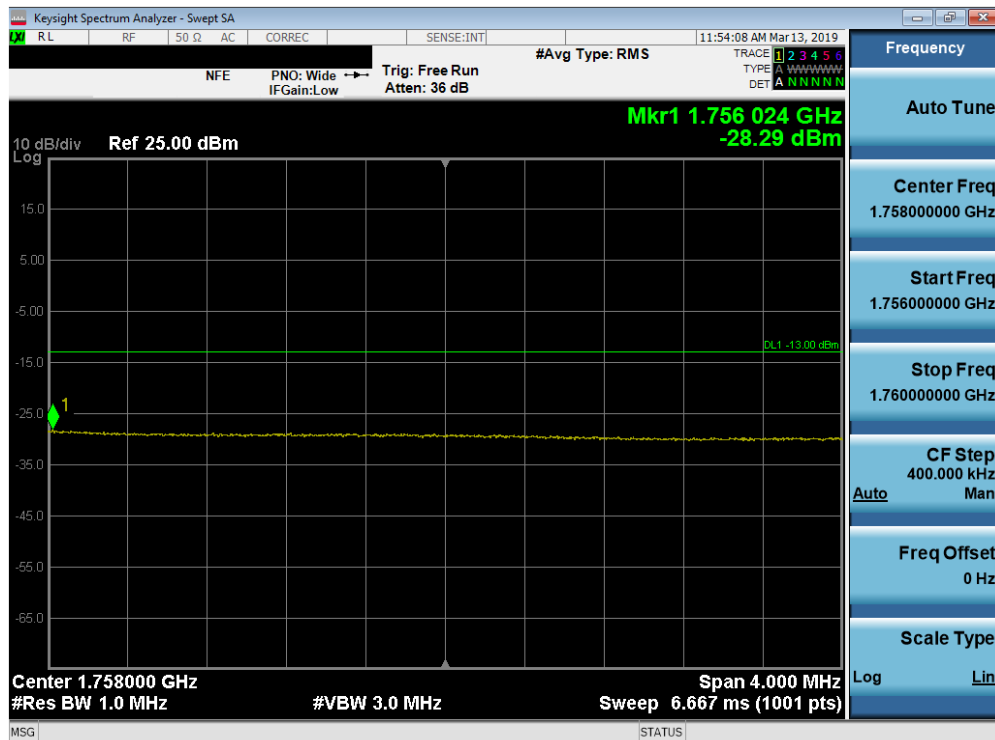


Plot 7-151. Lower Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1-ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 97 of 154



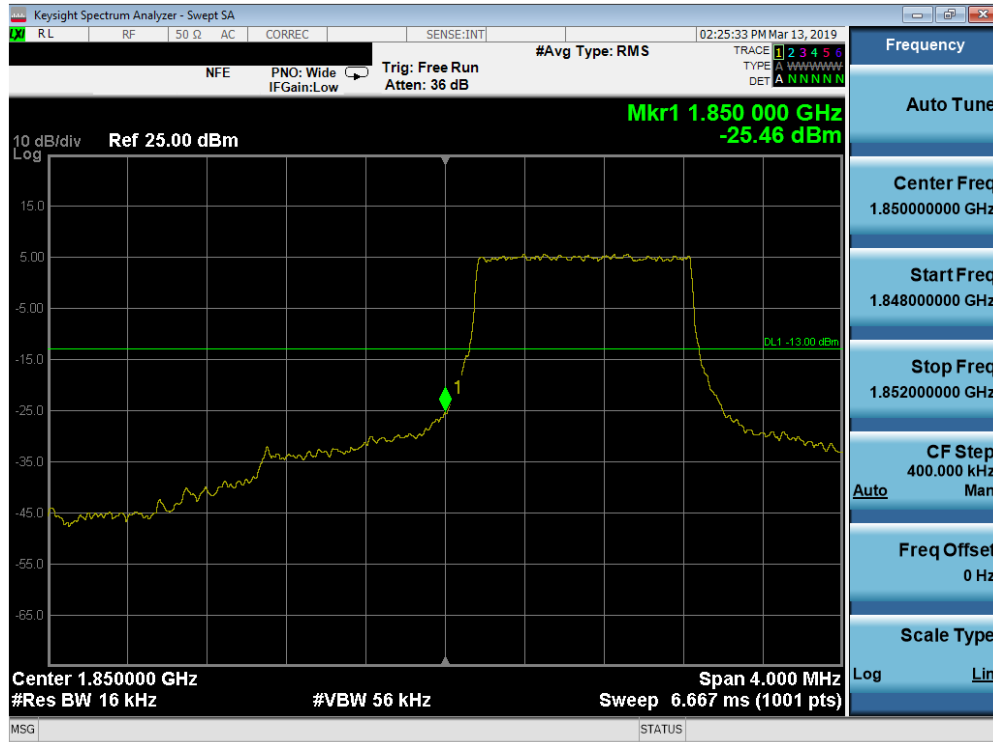
Plot 7-152. Upper Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)



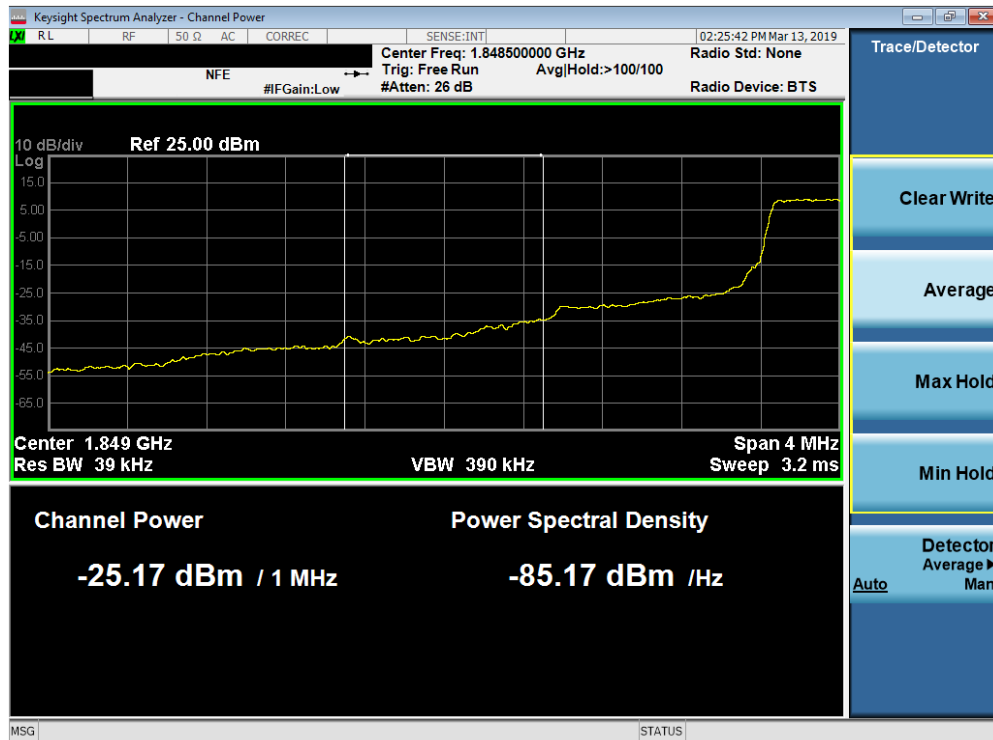
Plot 7-153. Upper Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1-ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 98 of 154

## Band 25/2



Plot 7-154. Lower Band Edge Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)

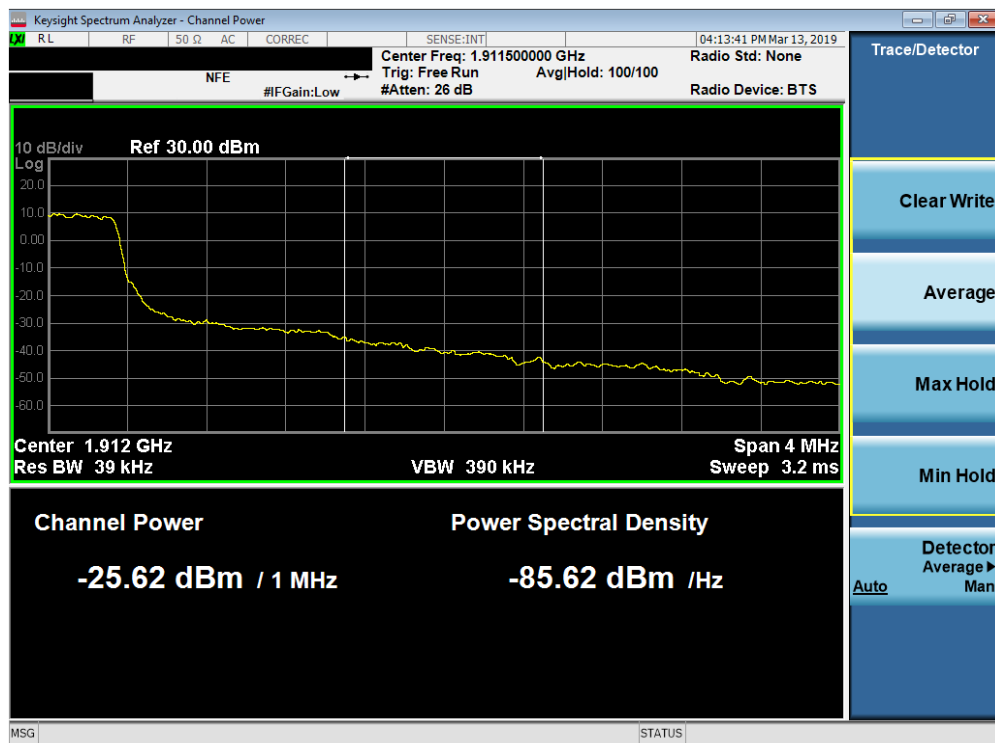


Plot 7-155. Lower Extended Band Edge Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1-ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 99 of 154



Plot 7-156. Upper Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)

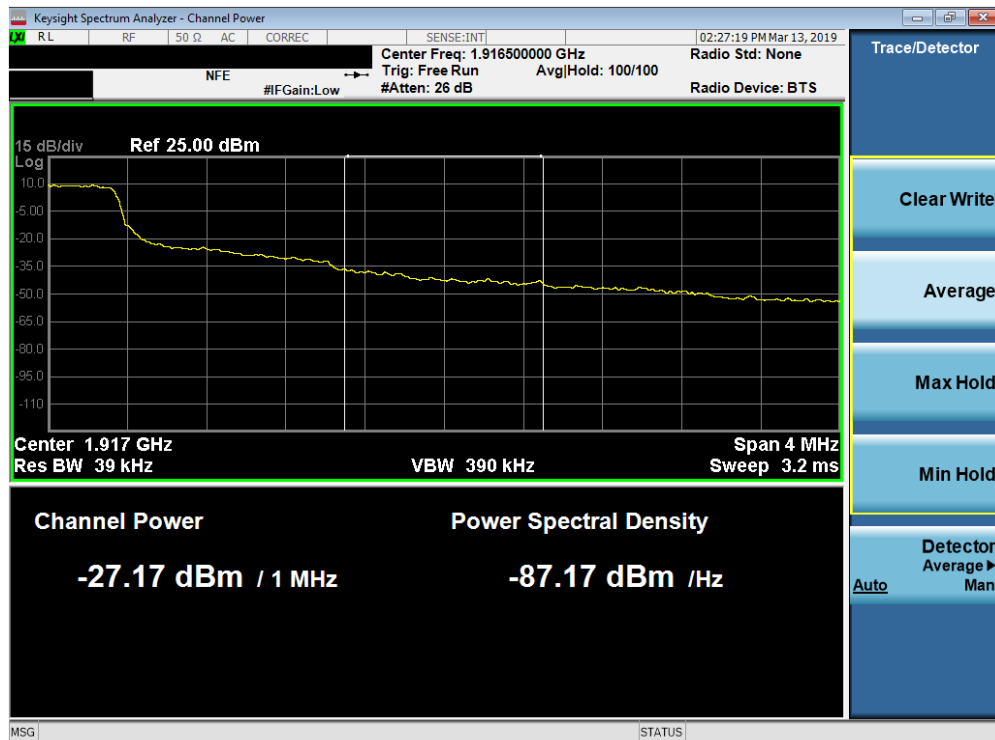


Plot 7-157. Upper Extended Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 100 of 154



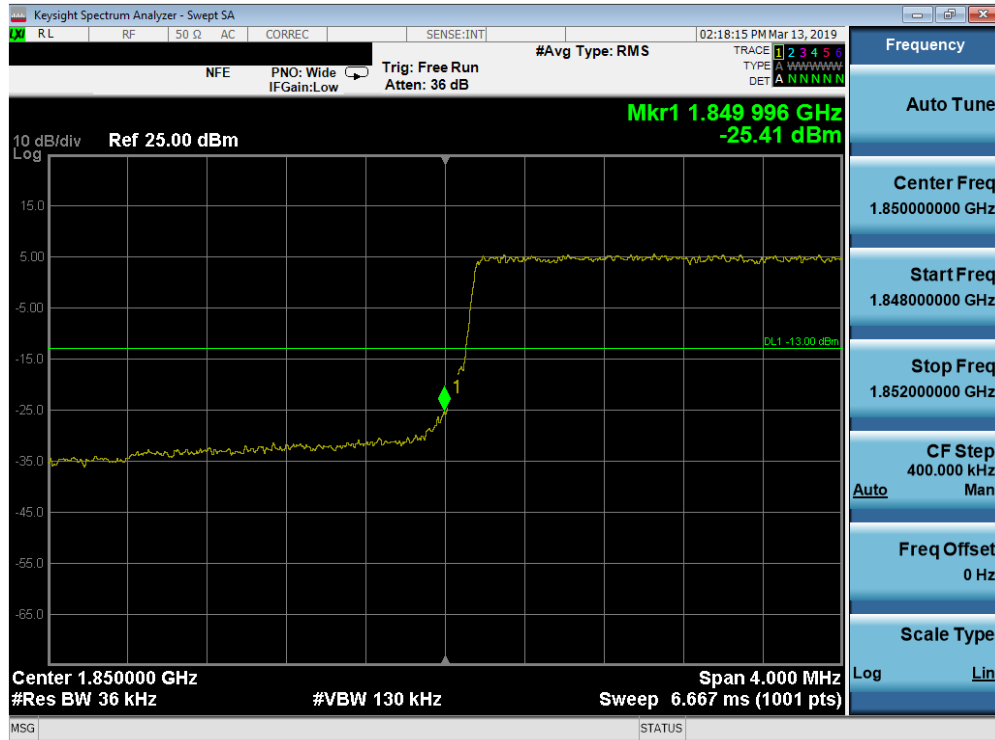
Plot 7-158. Upper Band Edge Plot (Band 25 - 1.4MHz QPSK - Full RB Configuration)



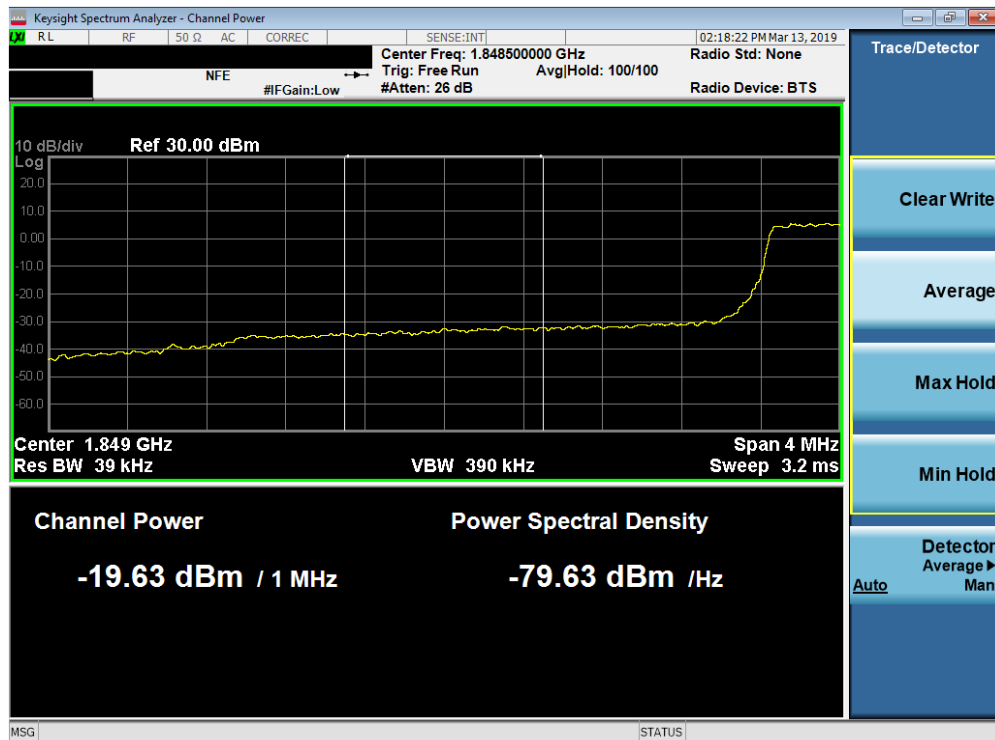
Plot 7-159. Upper Extended Band Edge Plot (Band 25 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 101 of 154



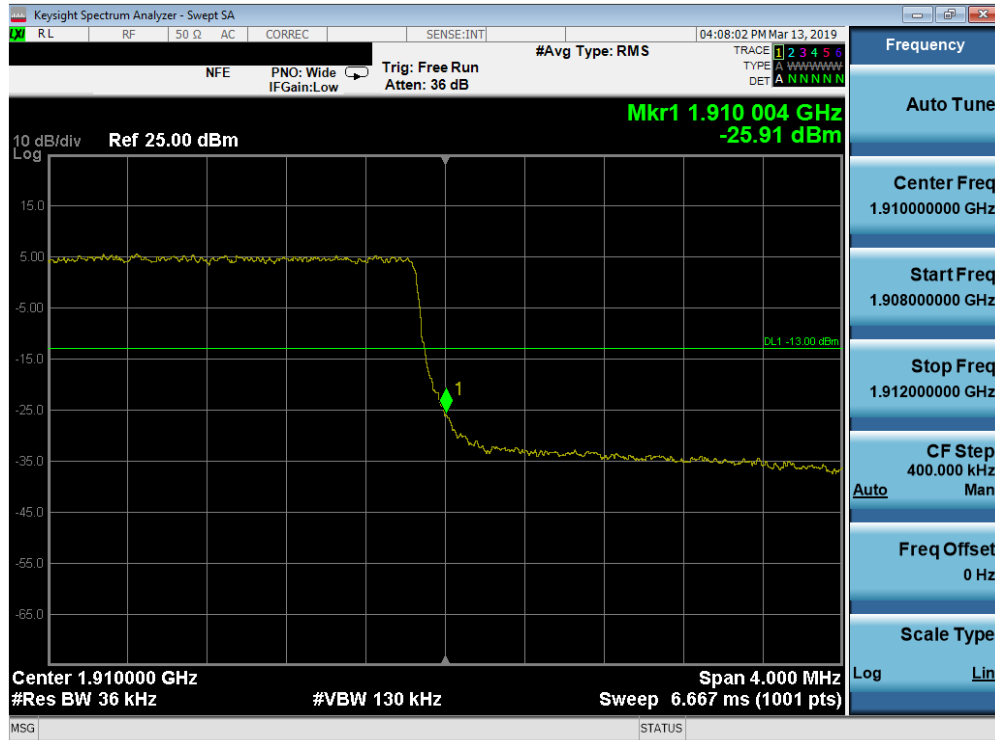


Plot 7-160. Lower Band Edge Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)

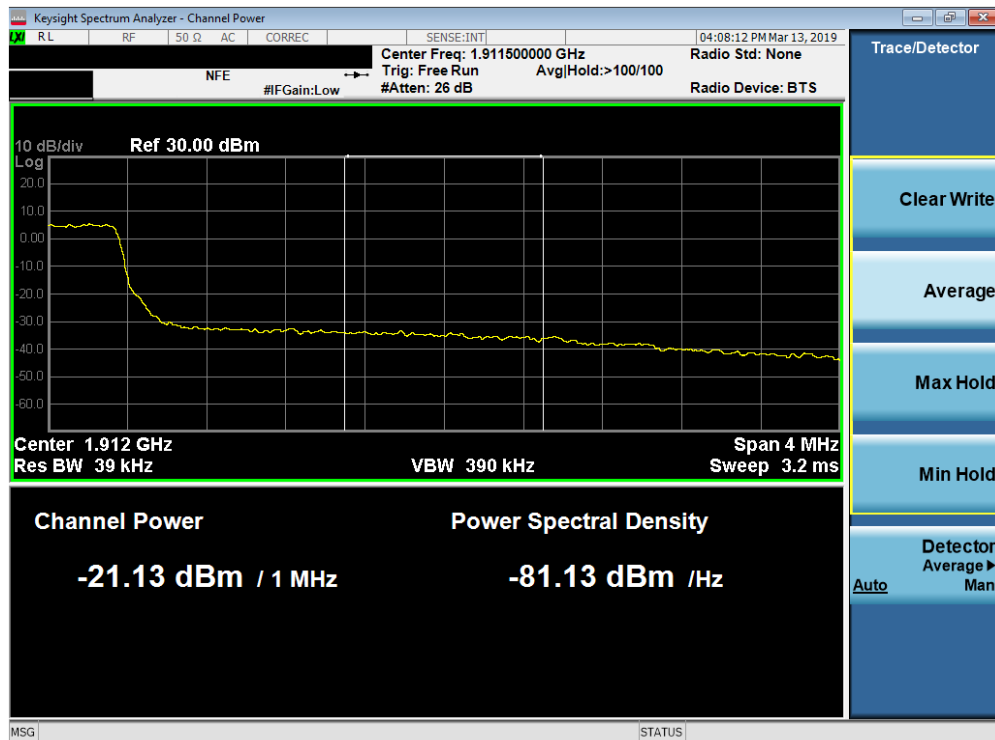


Plot 7-161. Lower Extended Band Edge Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1-ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 102 of 154



Plot 7-162. Upper Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

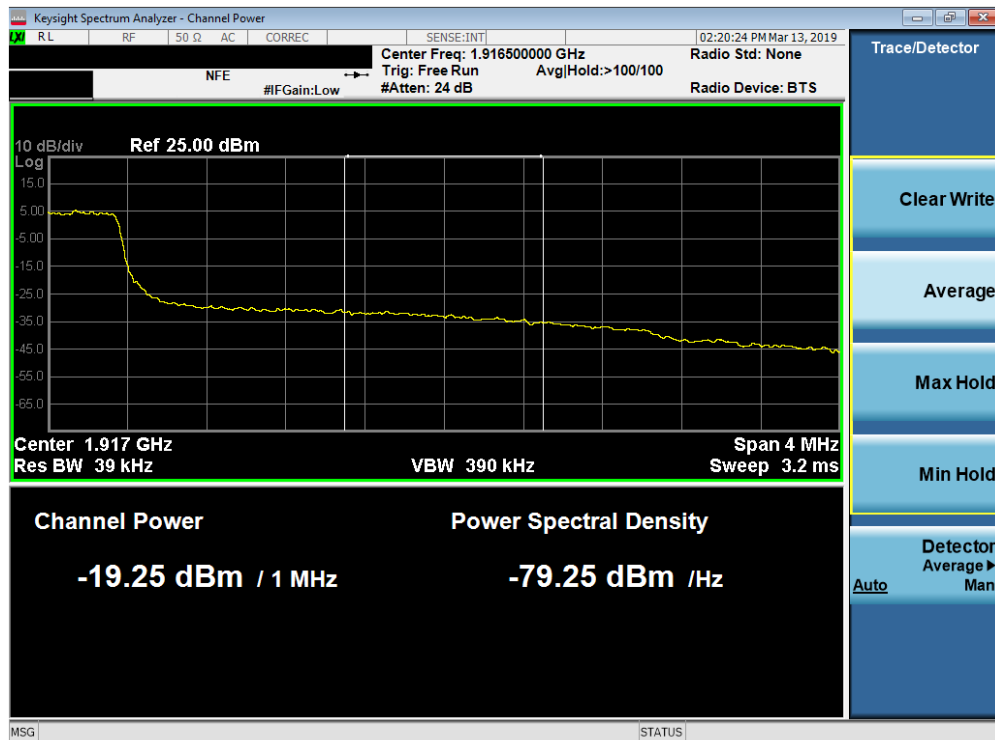


Plot 7-163. Upper Extended Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1-ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 103 of 154

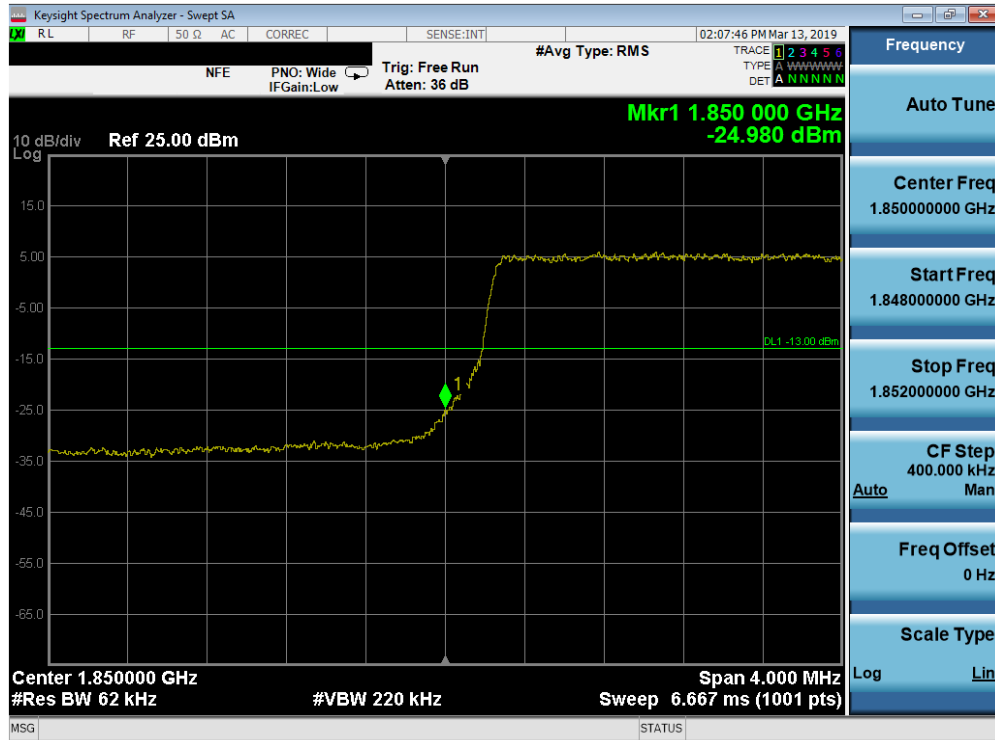


Plot 7-164. Upper Band Edge Plot (Band 25 - 3.0MHz QPSK - Full RB Configuration)

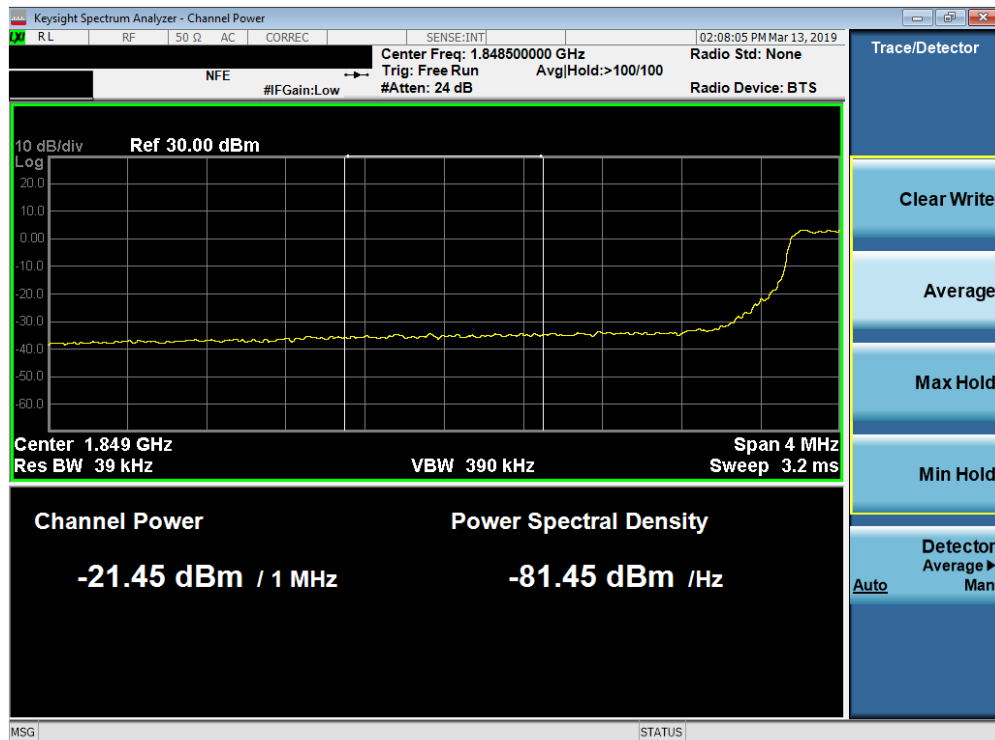


Plot 7-165. Upper Extended Band Edge Plot (Band 25 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 104 of 154

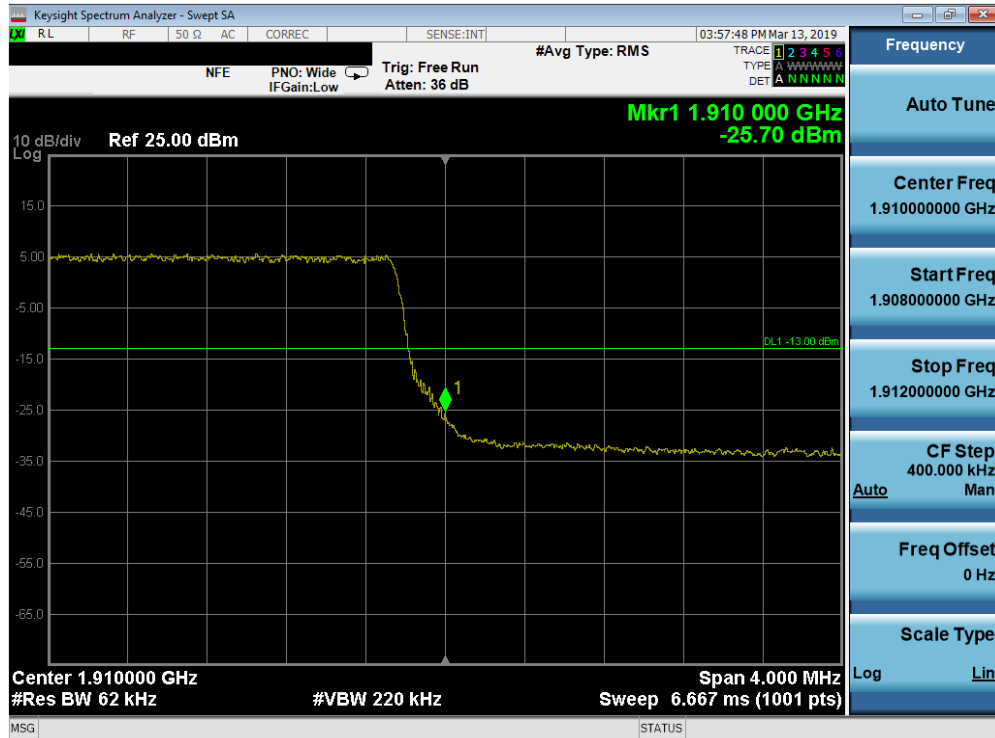


Plot 7-166. Lower Band Edge Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)

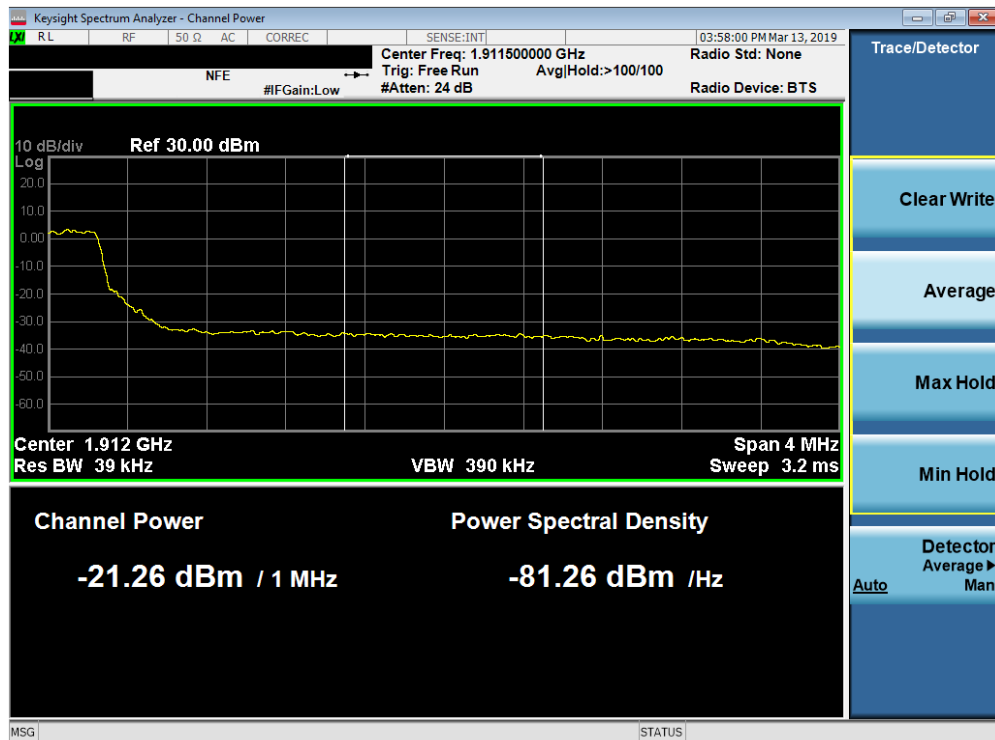


Plot 7-167. Lower Extended Band Edge Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1-ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 105 of 154

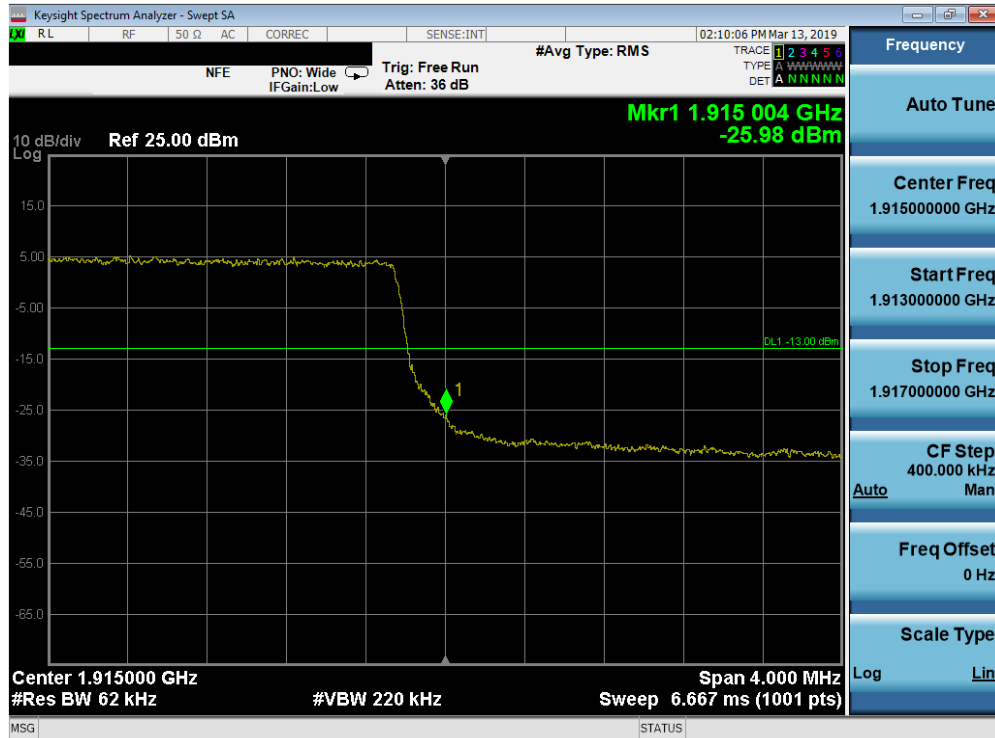


Plot 7-168. Upper Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

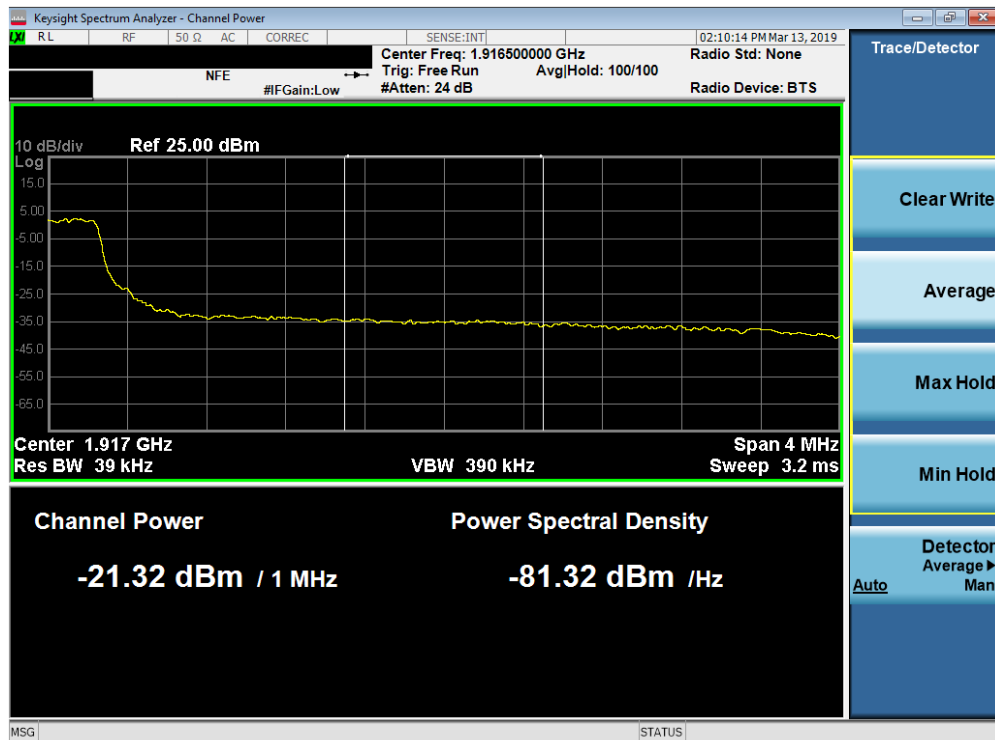


Plot 7-169. Upper Extended Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1-ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 106 of 154

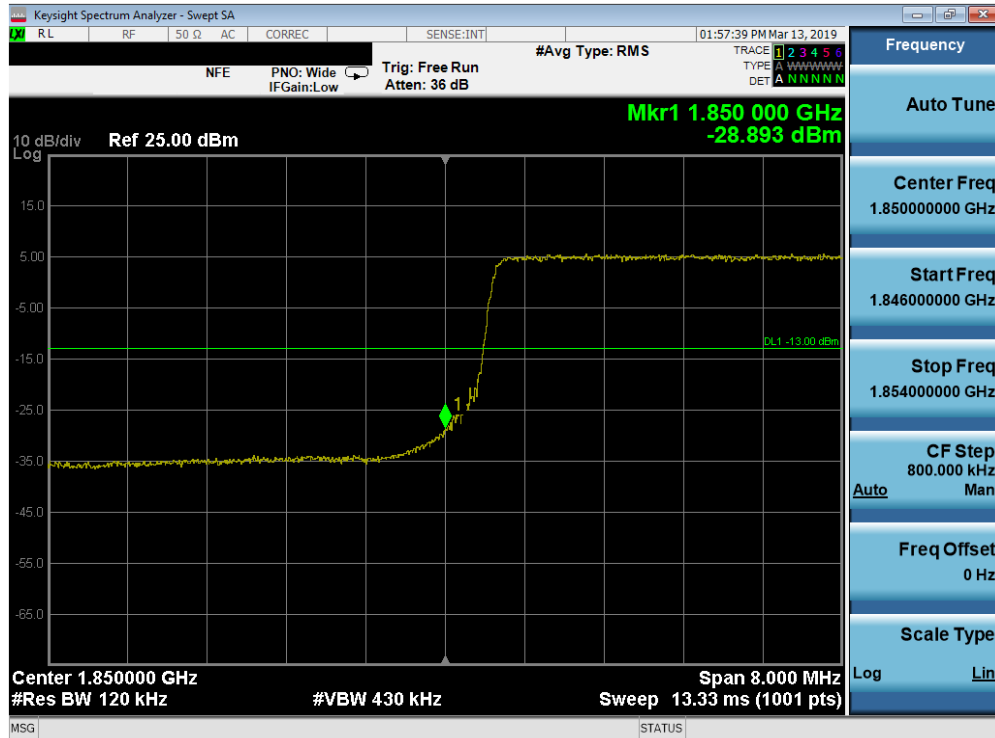


Plot 7-170. Upper Band Edge Plot (Band 25 - 5.0MHz QPSK - Full RB Configuration)

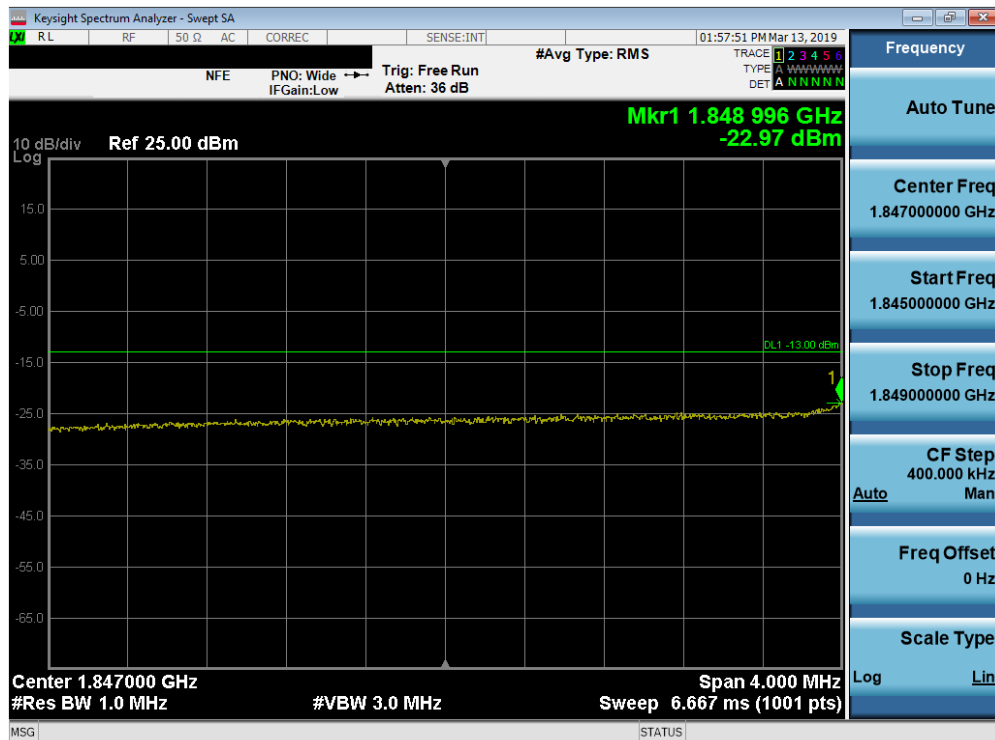


Plot 7-171. Upper Extended Band Edge Plot (Band 25 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 107 of 154

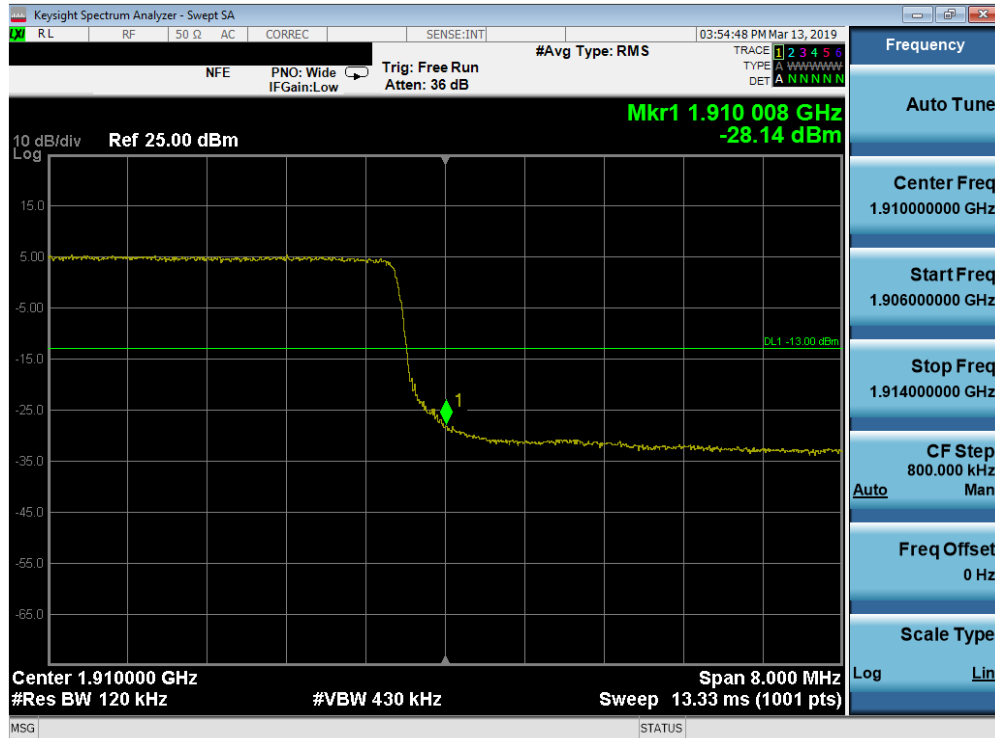


Plot 7-172. Lower Band Edge Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-173. Lower Extended Band Edge Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1-ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 108 of 154



Plot 7-174. Upper Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)



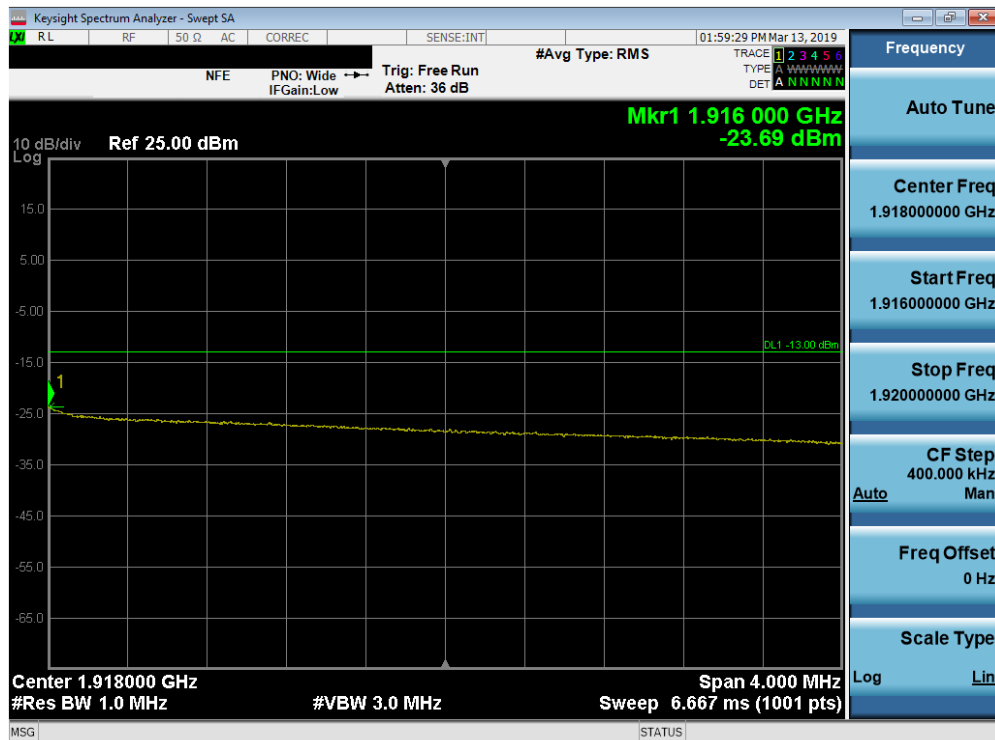
Plot 7-175. Upper Extended Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 109 of 154



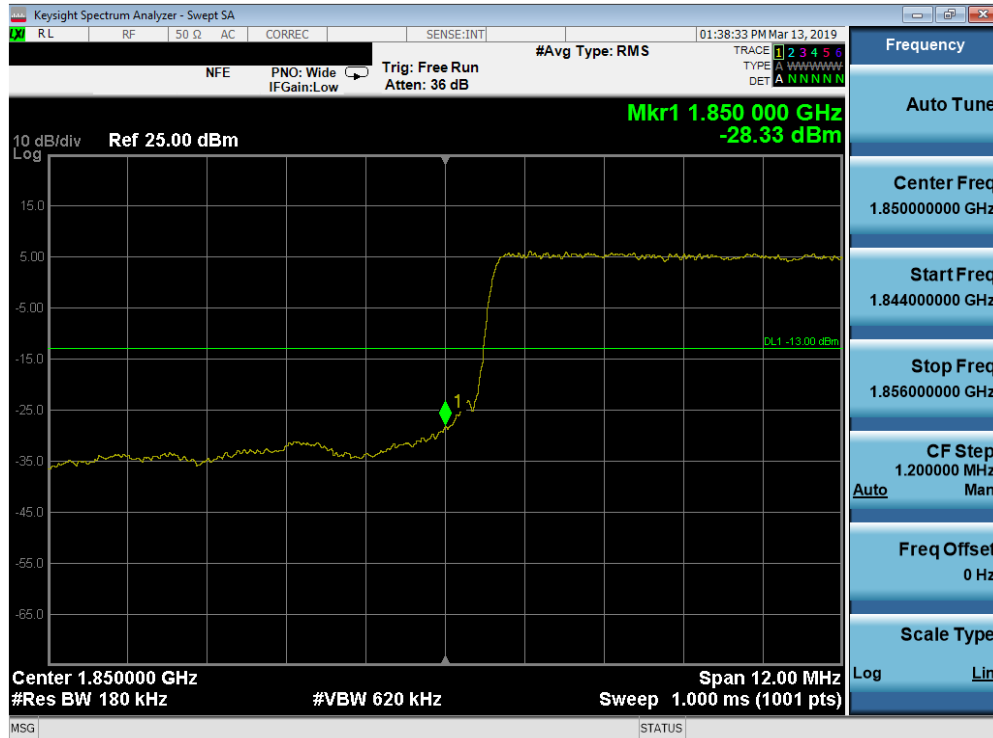


Plot 7-176. Upper Band Edge Plot (Band 25 - 10.0MHz QPSK - Full RB Configuration)

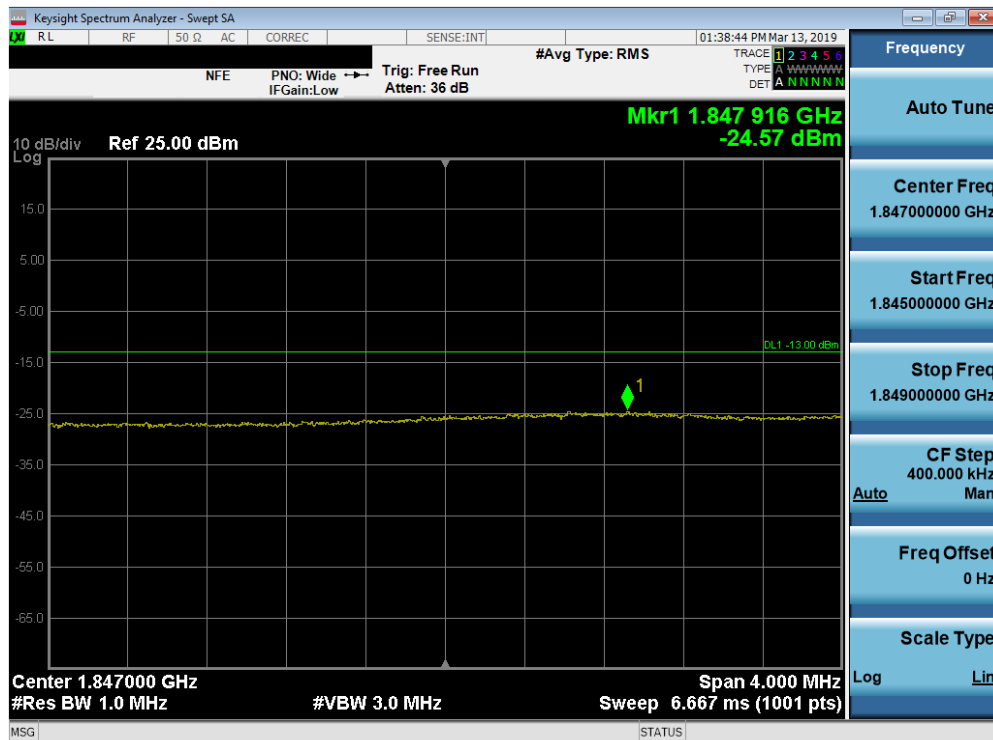


Plot 7-177. Upper Extended Band Edge Plot (Band 25 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 110 of 154

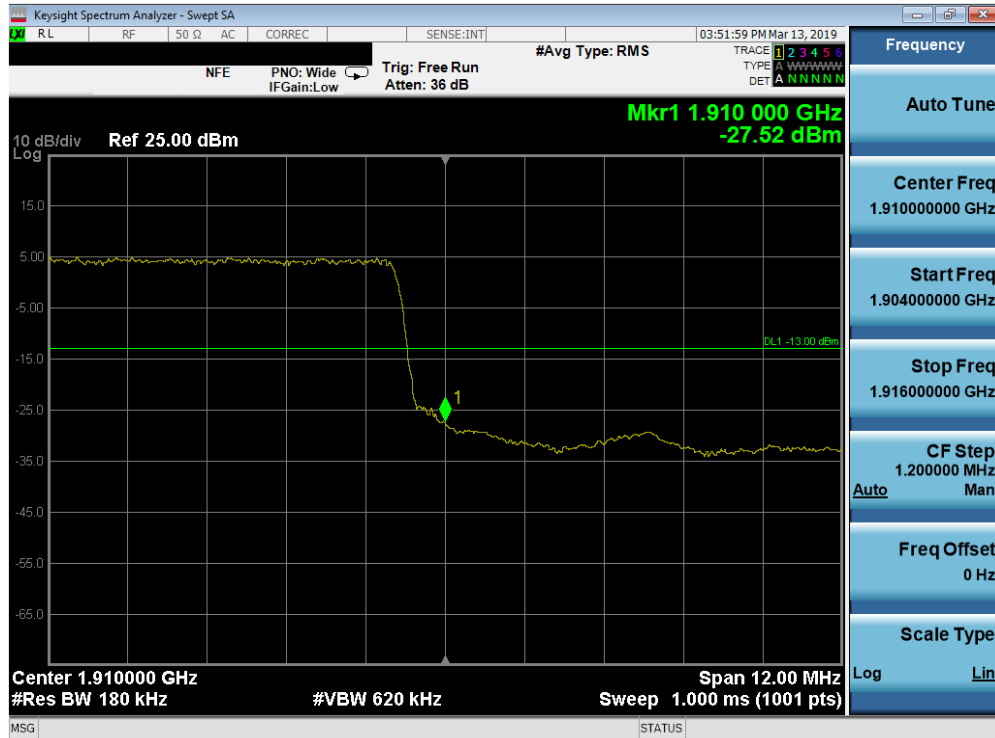


Plot 7-178. Lower Band Edge Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)

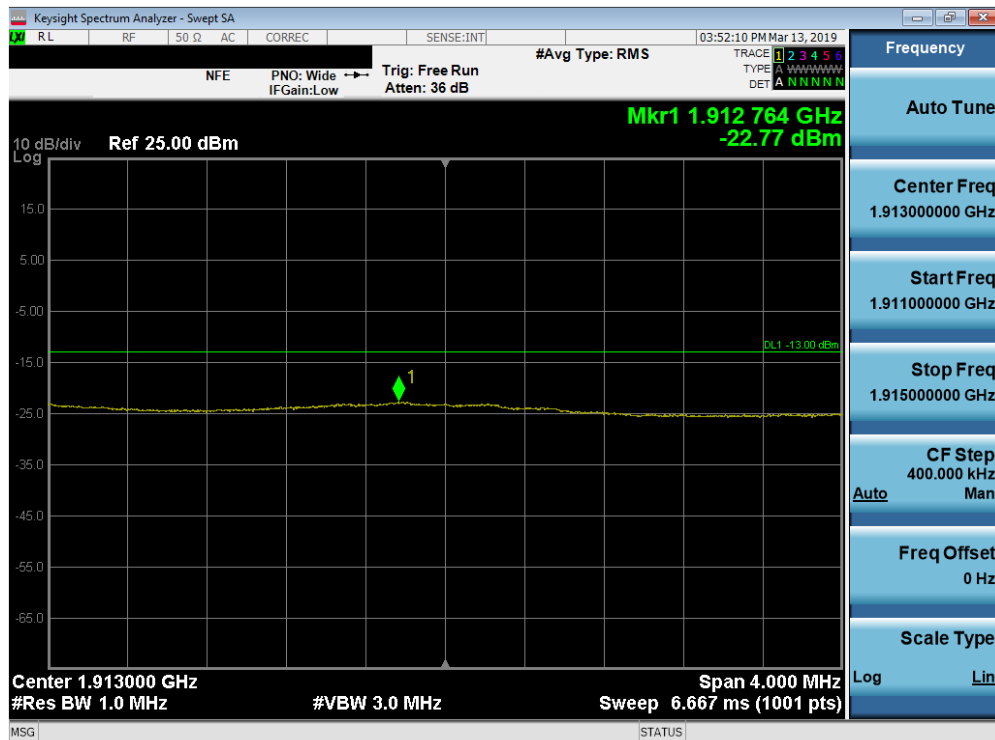


Plot 7-179. Lower Extended Band Edge Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 111 of 154

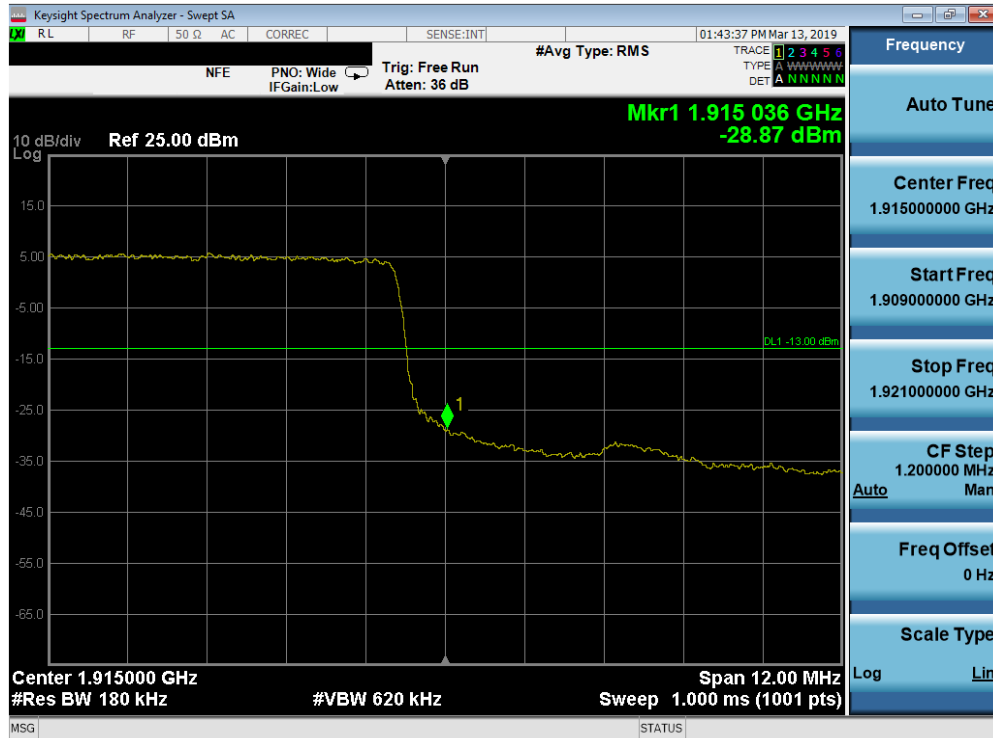


Plot 7-180. Upper Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

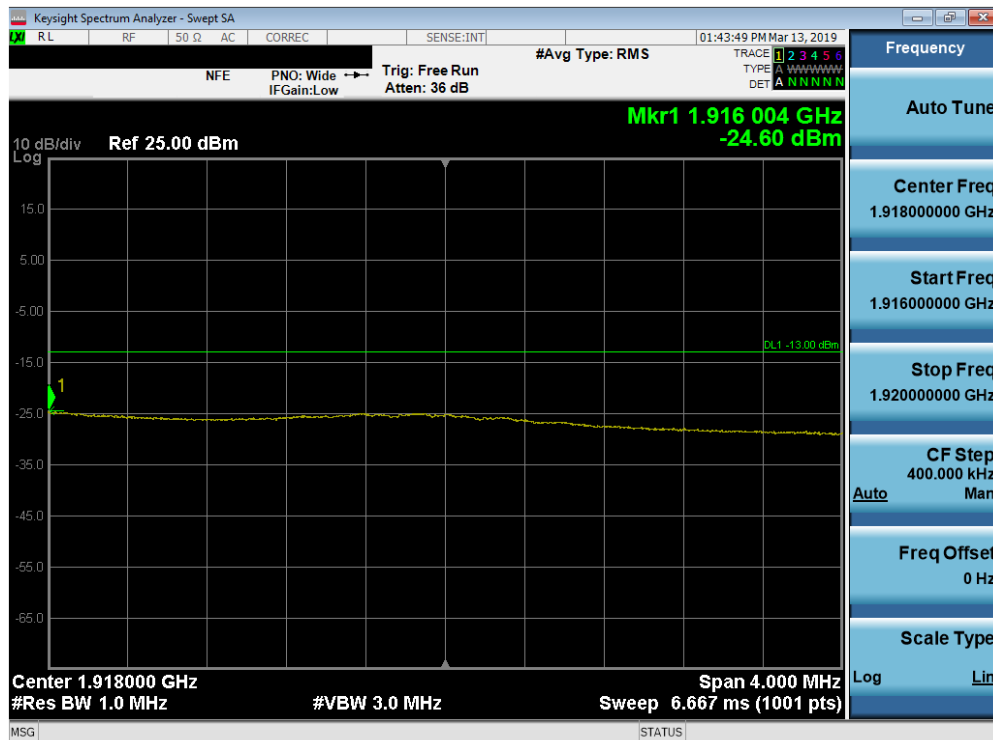


Plot 7-181. Upper Extended Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1-ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 112 of 154

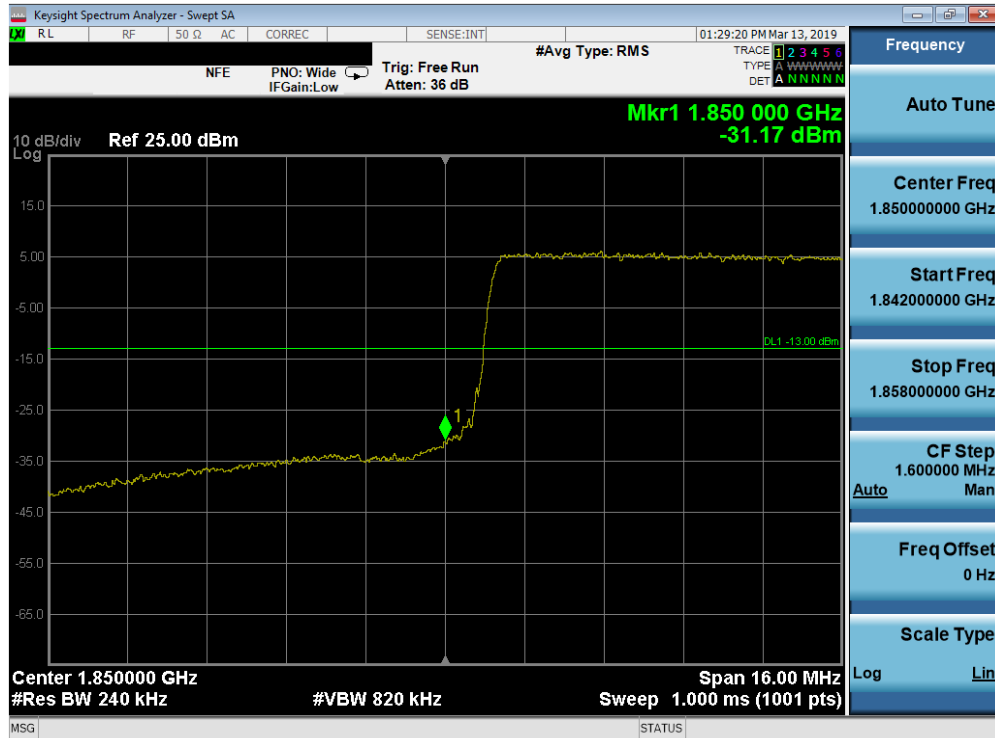


Plot 7-182. Upper Band Edge Plot (Band 25 - 15.0MHz QPSK - Full RB Configuration)

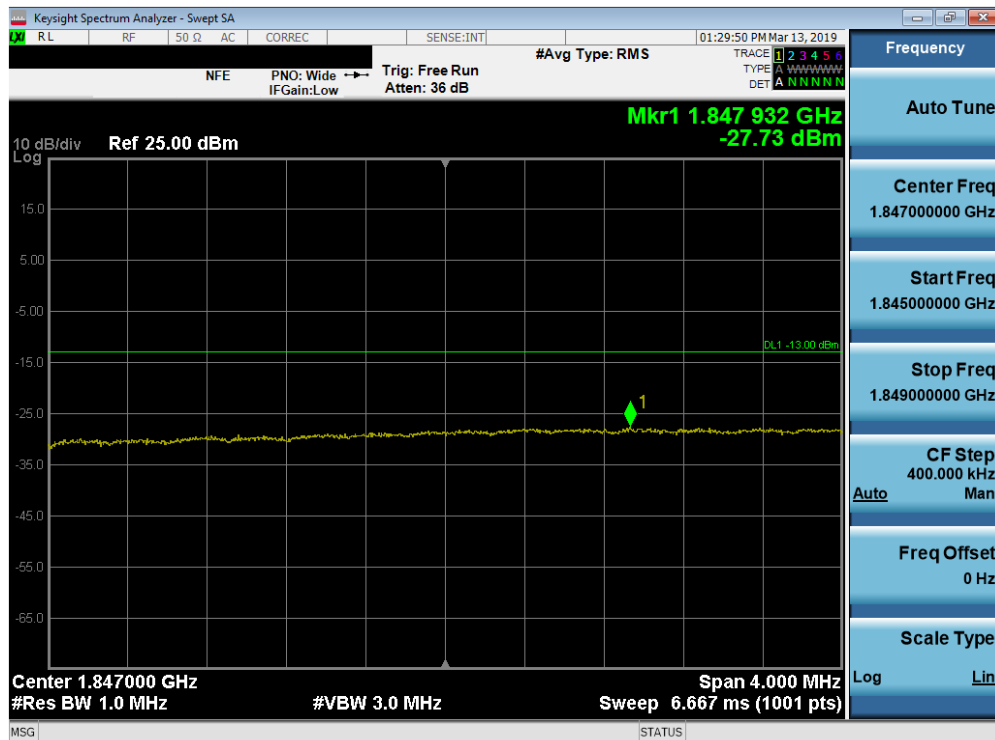


Plot 7-183. Upper Extended Band Edge Plot (Band 25 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1-ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 113 of 154

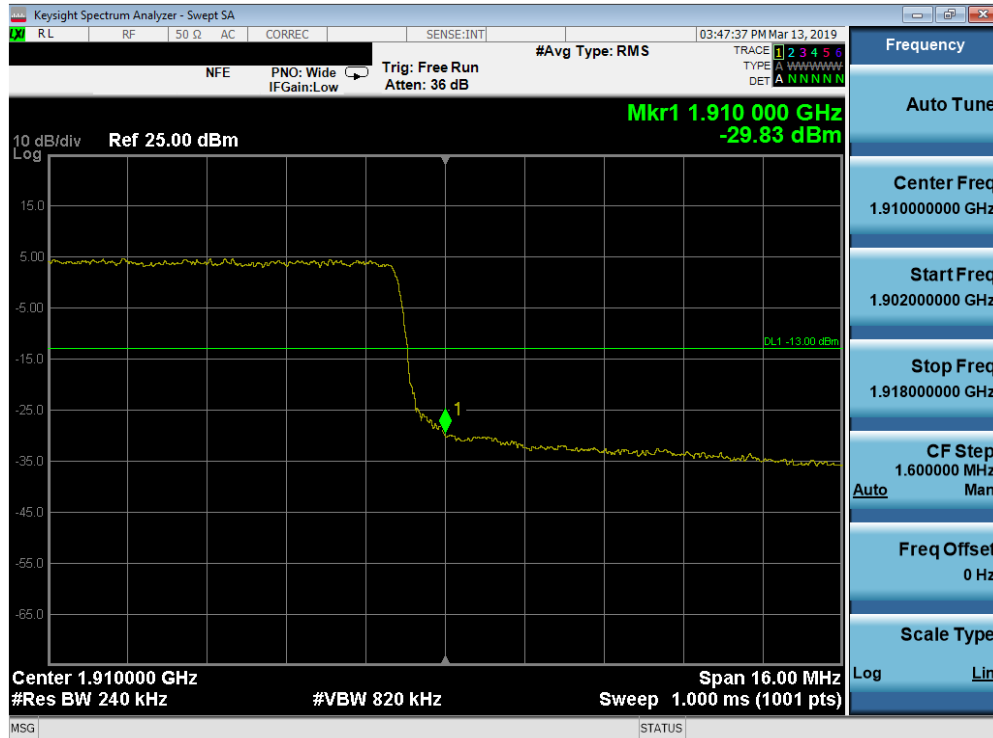


Plot 7-184. Lower Band Edge Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

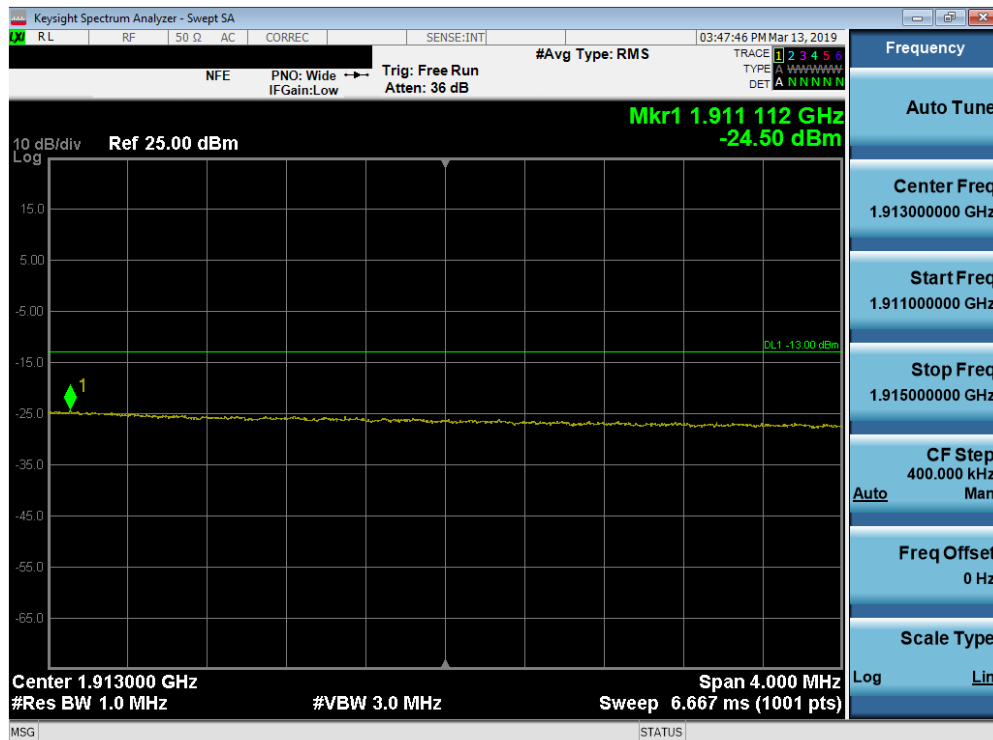


Plot 7-185. Lower Extended Band Edge Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 114 of 154

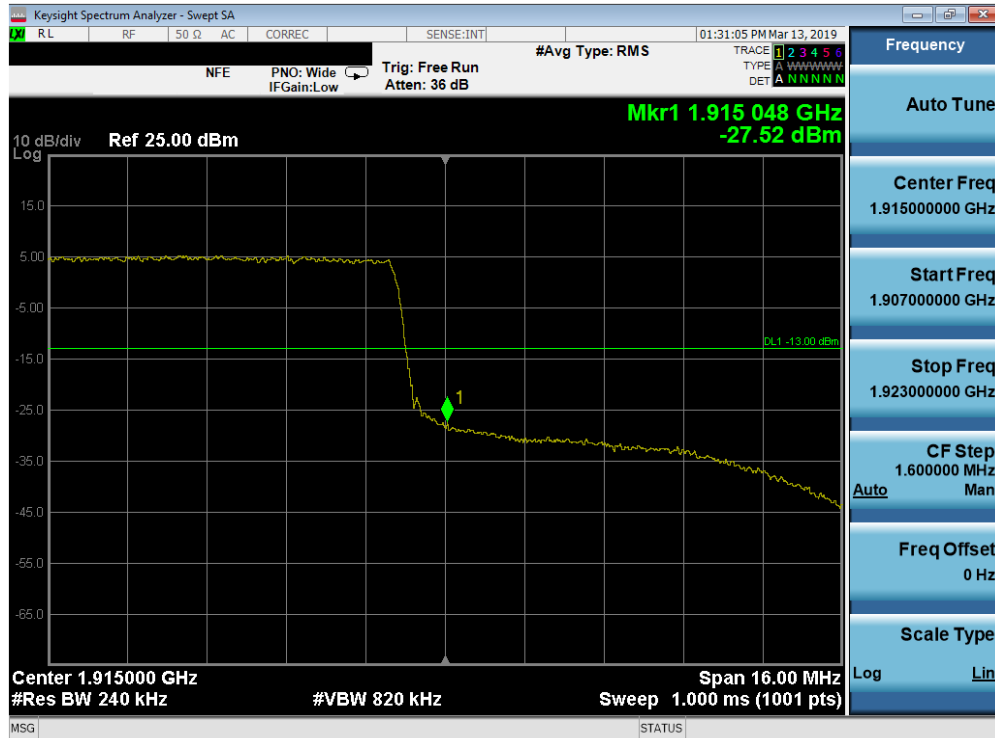


Plot 7-186. Upper Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

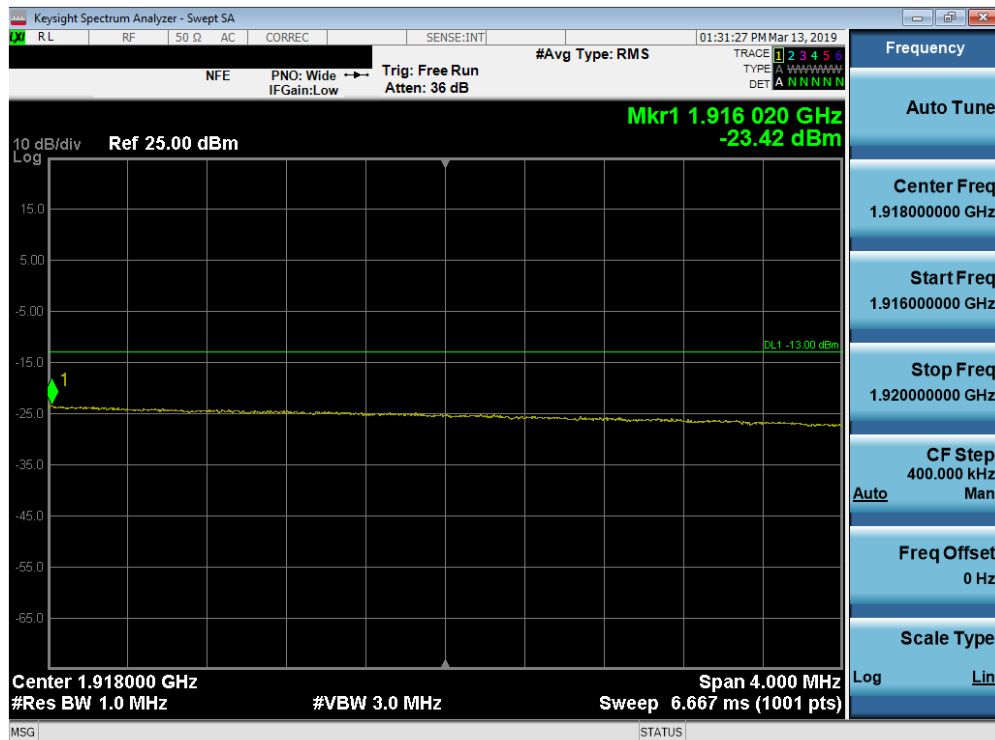


Plot 7-187. Upper Extended Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 115 of 154



Plot 7-188. Upper Band Edge Plot (Band 25 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-189. Upper Extended Band Edge Plot (Band 25 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 116 of 154

## 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

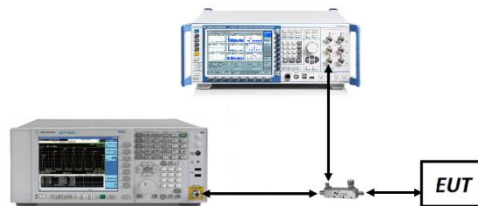
KDB 971168 D01 v03r01 – Section 5.7.1

### Test Settings

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW  $\geq$  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.

### Test Setup

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



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

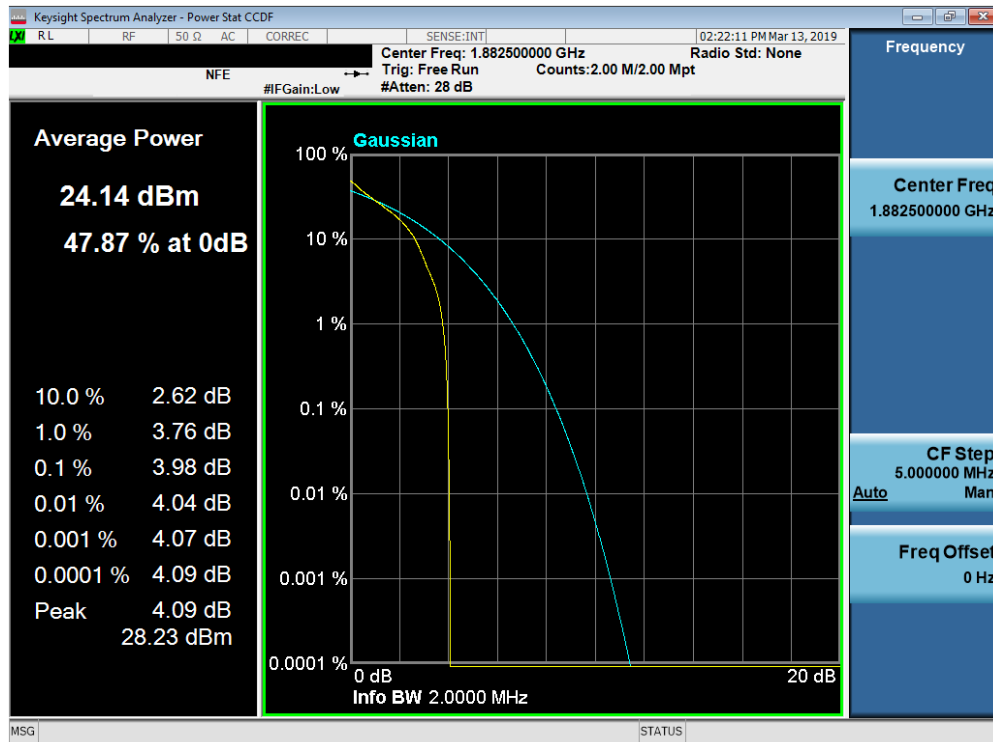
### Test Notes

None.

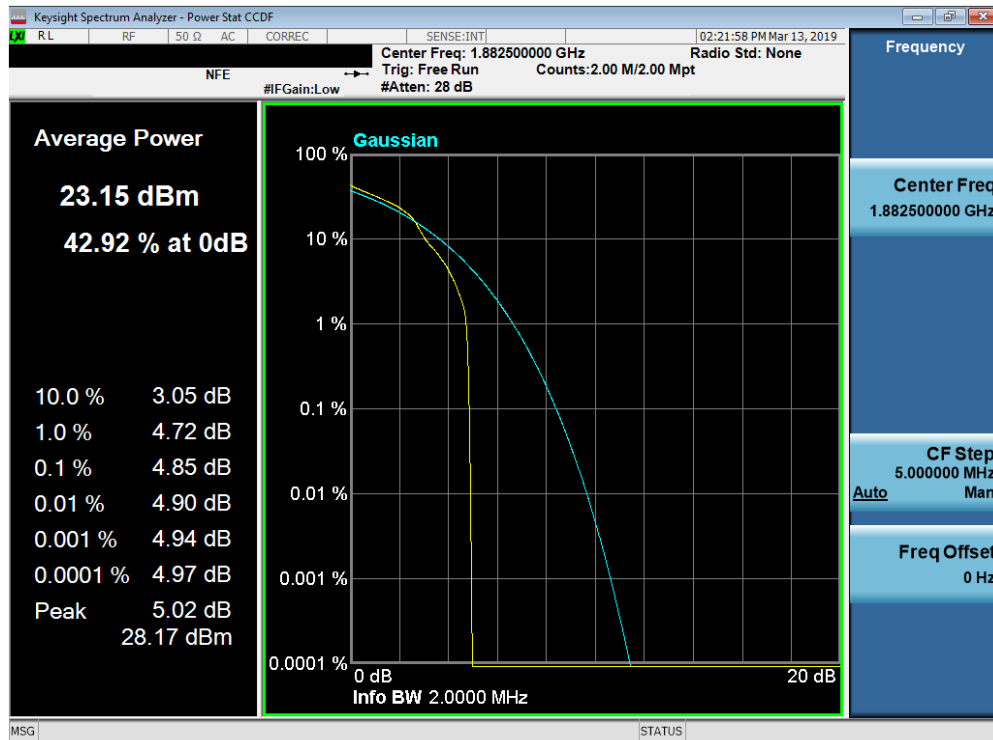
FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 117 of 154



## Band 25/2

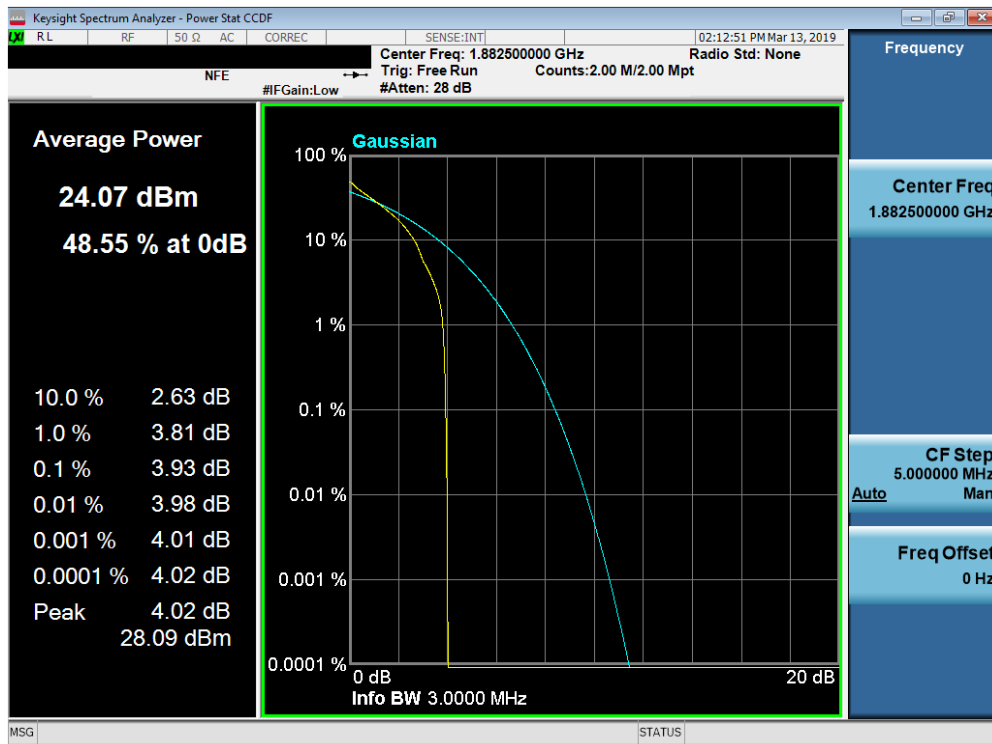


Plot 7-190. PAR Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)

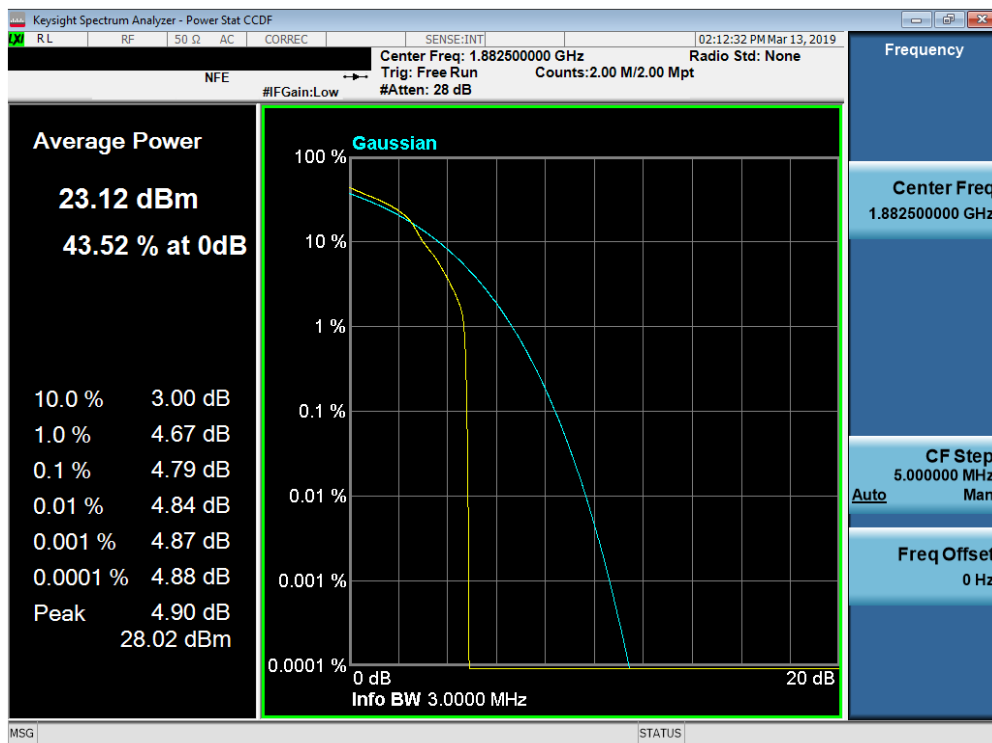


Plot 7-191. PAR Plot (Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 118 of 154

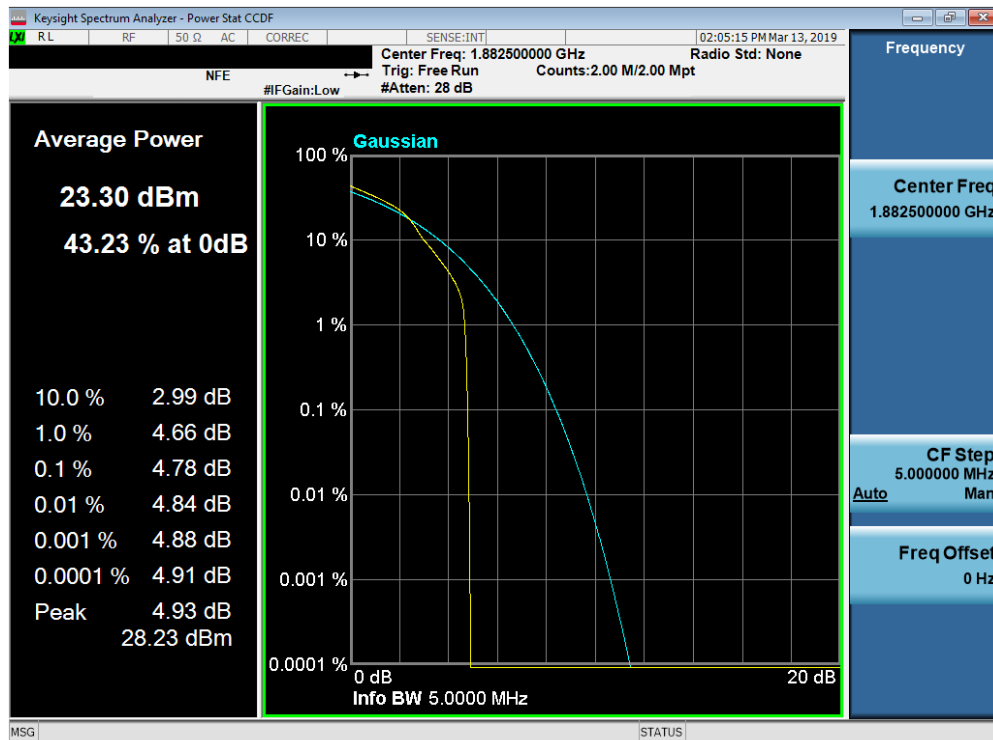
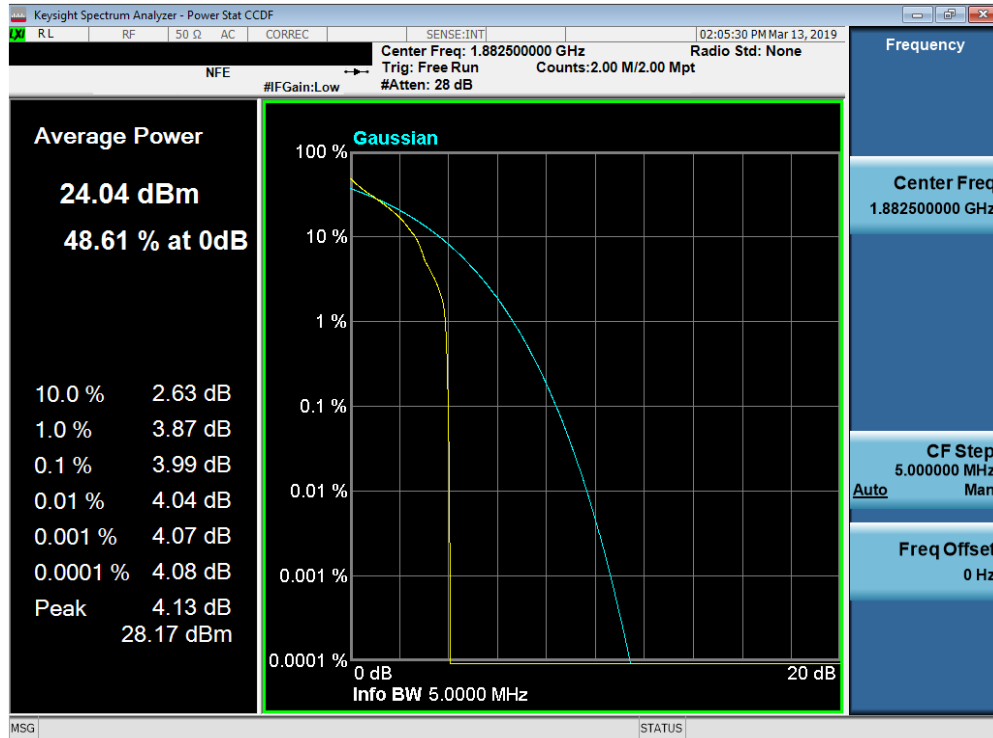


Plot 7-192. PAR Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)

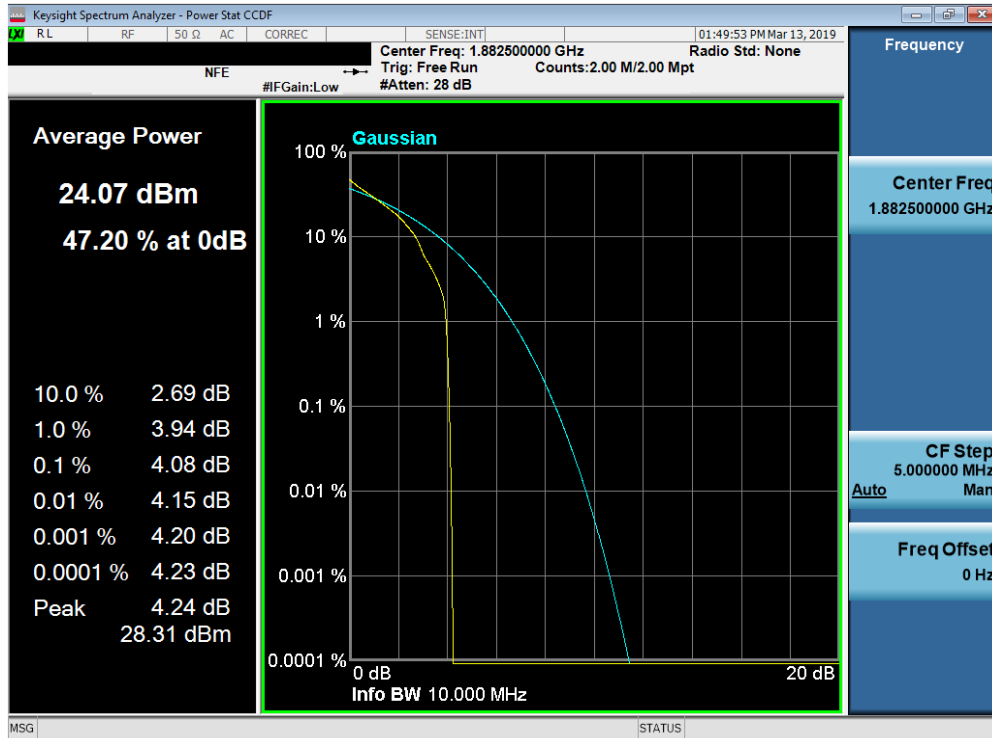


Plot 7-193. PAR Plot (Band 25/2 - 3.0MHz 16-QAM - Full RB Configuration)

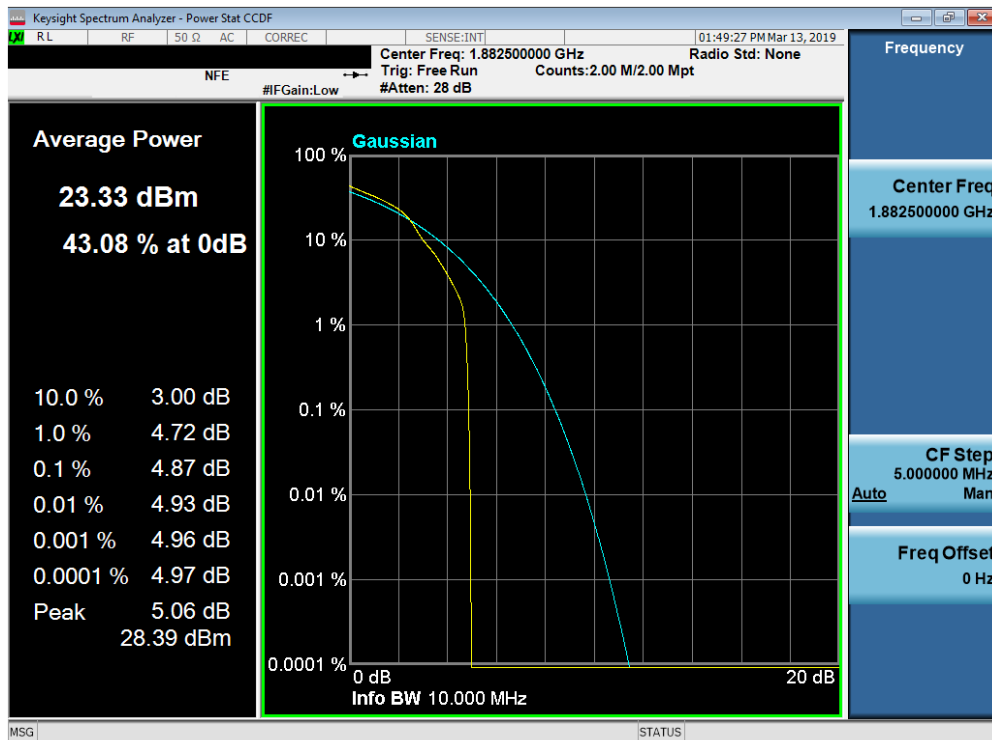
FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>Approved by:</b> Quality Manager
Test Report S/N: 1M1902260030-03-R1-ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset	Page 119 of 154



FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>Approved by:</b> Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset	Page 120 of 154

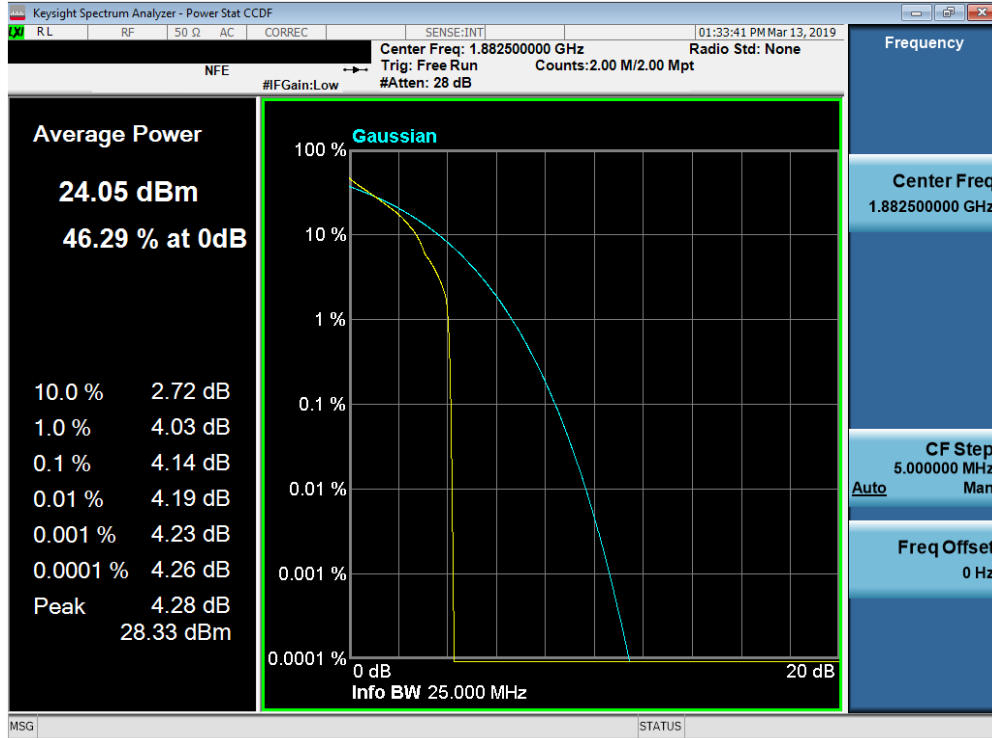


Plot 7-196. PAR Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

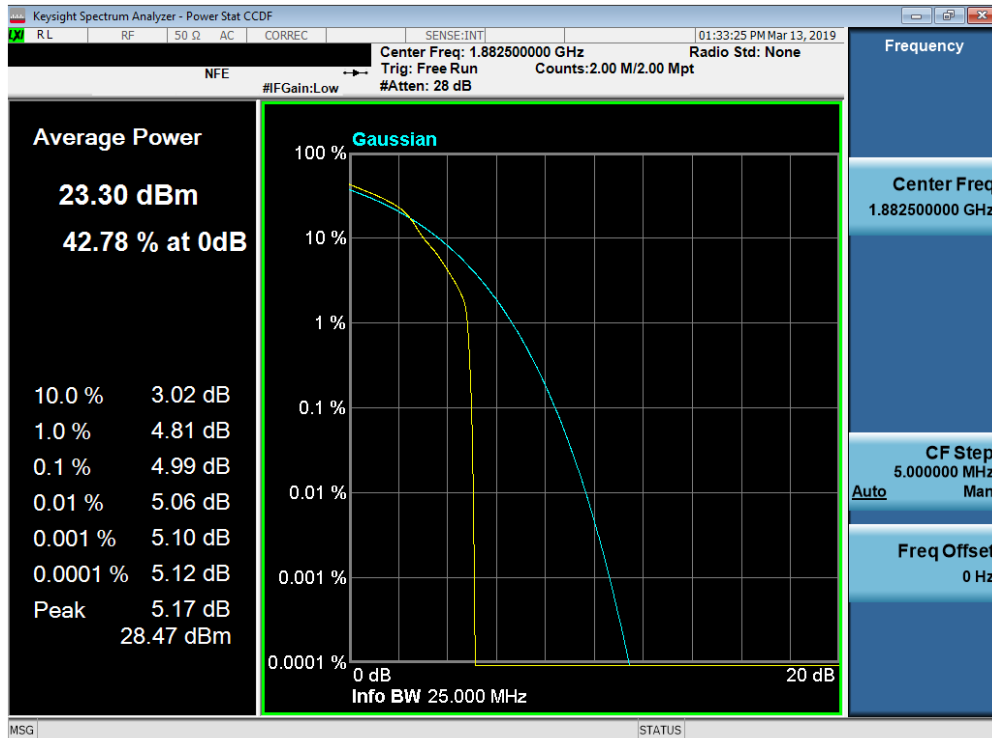


Plot 7-197. PAR Plot (Band 25/2 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 121 of 154

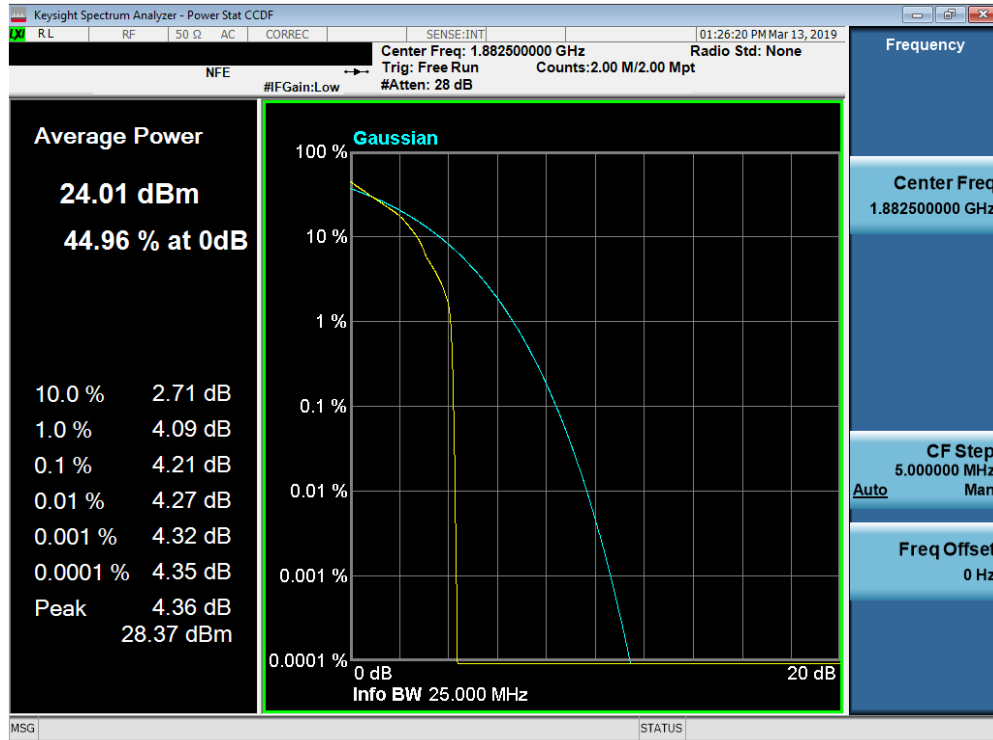


Plot 7-198. PAR Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)

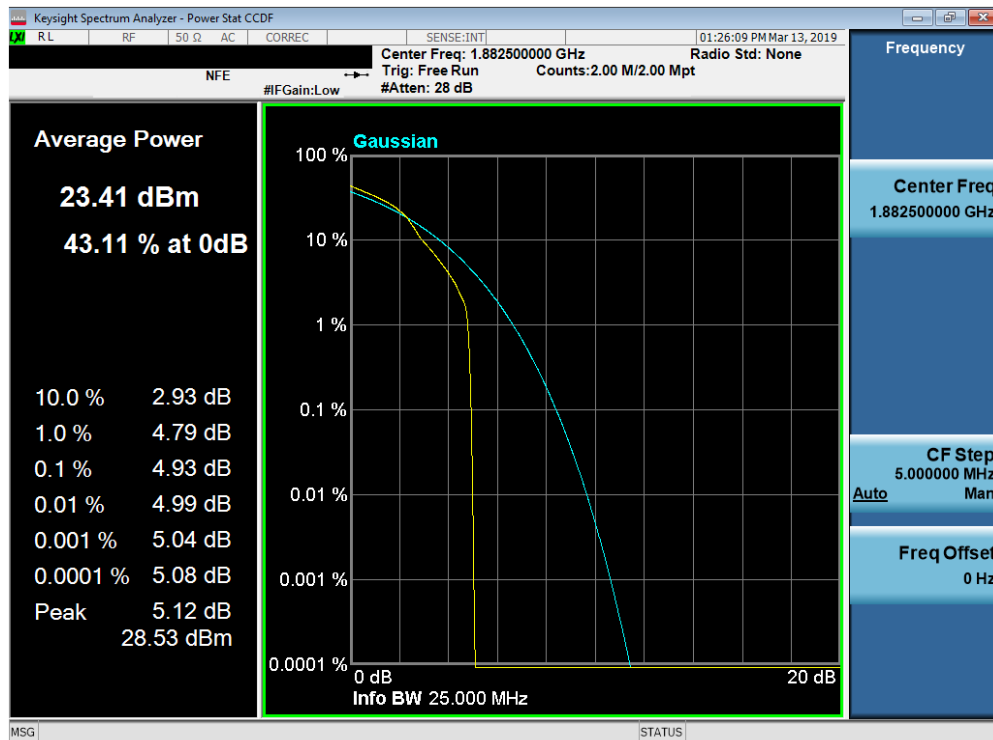


Plot 7-199. PAR Plot (Band 25/2 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 122 of 154



Plot 7-200. PAR Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-201. PAR Plot (Band 25/2 - 20.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 123 of 154

## 7.6 Radiated Power (ERP/EIRP)

### Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

### Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.2.1

ANSI/TIA-603-E-2016 – Section 2.2.17

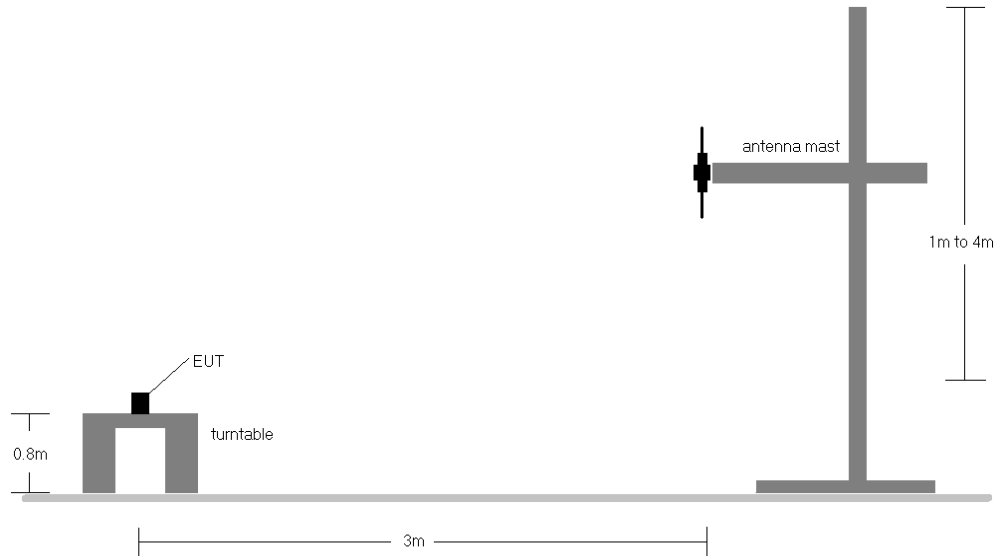
### Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW  $\geq 3 \times$  RBW
4. Span = 1.5 times the OBW
5. No. of sweep points  $\geq 2 \times$  span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

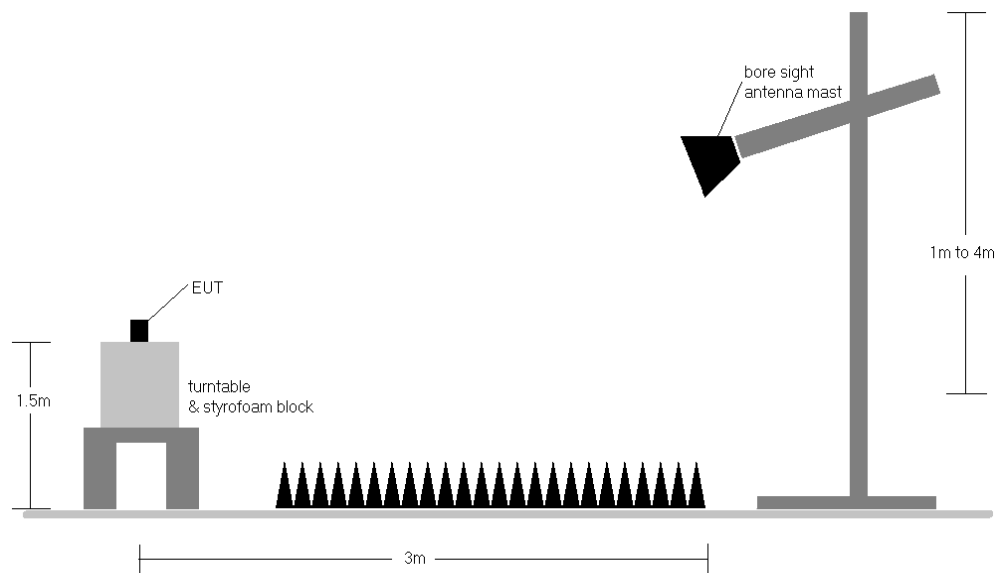
FCC ID: ZNFX420QM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 124 of 154

## Test Setup

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



**Figure 7-5. Radiated Test Setup <1GHz**



**Figure 7-6. Radiated Test Setup >1GHz**

## Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.

FCC ID: ZNFX420QM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 125 of 154



Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]
699.70	1.4	QPSK	H	284	278	1 / 5	14.73	4.00	16.58	0.045	34.77	-18.19	18.73
707.50	1.4	QPSK	H	280	284	1 / 5	16.44	4.22	<b>18.51</b>	0.071	34.77	-16.27	<b>20.66</b>
715.30	1.4	QPSK	H	288	280	1 / 5	15.98	4.44	18.27	0.067	34.77	-16.50	20.42
707.50	1.4	16-QAM	H	280	284	1 / 5	15.54	4.22	17.61	0.058	34.77	-17.17	19.76
700.50	3	QPSK	H	279	272	1 / 14	16.87	4.01	18.73	0.075	34.77	-16.04	20.88
707.50	3	QPSK	H	281	273	1 / 14	16.84	4.22	<b>18.91</b>	0.078	34.77	-15.87	<b>21.06</b>
714.50	3	QPSK	H	283	277	1 / 14	16.36	4.41	18.62	0.073	34.77	-16.15	20.77
707.50	3	16-QAM	H	281	273	1 / 14	15.75	4.22	<b>17.82</b>	0.060	34.77	-16.96	<b>19.97</b>
701.50	5	QPSK	H	279	272	1 / 24	17.79	4.04	<b>19.68</b>	0.093	34.77	-15.09	<b>21.83</b>
707.50	5	QPSK	H	278	273	1 / 24	16.92	4.22	18.99	0.079	34.77	-15.79	21.14
713.50	5	QPSK	H	288	277	1 / 24	17.32	4.39	19.56	0.090	34.77	-15.21	21.71
701.50	5	16-QAM	H	279	272	1 / 24	16.49	4.04	18.38	0.069	34.77	-16.39	20.53
704.00	10	QPSK	H	285	271	1 / 49	17.23	4.12	19.20	0.083	34.77	-15.58	21.35
707.50	10	QPSK	H	283	282	1 / 49	17.64	4.22	<b>19.71</b>	<b>0.093</b>	34.77	-15.07	<b>21.86</b>
711.00	10	QPSK	H	283	276	1 / 49	17.06	4.32	19.23	0.084	34.77	-15.55	21.38
707.50	10	16-QAM	H	283	282	1 / 49	17.45	4.22	<b>19.52</b>	0.089	34.77	-15.26	<b>21.67</b>
707.50	10	QPSK	V	171	255	17.64	16.64	4.22	18.71	0.074	34.77	-16.06	20.86

Table 7-3. ERP Data (Band 12)

FCC ID: ZNFX420QM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 126 of 154

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
779.50	5	QPSK	H	105	282	1 / 0	16.45	6.18	20.48	0.112	34.77	-14.30	22.63	0.183	36.99	-14.36
782.00	5	QPSK	H	100	286	1 / 0	17.27	6.24	21.36	0.137	34.77	-13.41	23.51	0.224	36.99	-13.48
784.50	5	QPSK	H	102	286	1 / 0	17.42	6.30	<b>21.57</b>	0.144	34.77	-13.20	<b>23.72</b>	0.236	36.99	-13.27
784.50	5	16-QAM	H	102	286	1 / 0	16.36	6.30	<b>20.51</b>	0.113	34.77	-14.26	<b>22.66</b>	0.185	36.99	-14.33
782.00	10	QPSK	H	100	281	1 / 0	17.58	6.24	<b>21.67</b>	<b>0.147</b>	34.77	-13.10	<b>23.82</b>	<b>0.241</b>	36.99	-13.17
782.00	10	16-QAM	H	100	281	1 / 0	15.90	6.24	<b>19.99</b>	0.100	34.77	-14.78	<b>22.14</b>	0.164	36.99	-14.85
782.00	10	QPSK	V	218	281	1 / 0	9.97	6.30	14.12	0.026	34.77	-20.65	16.27	0.042	36.99	-20.72

**Table 7-4. ERP Data (Band 13)**

FCC ID: ZNFX420QM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 127 of 154

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	V	140	304	1 / 0	15.42	7.20	<b>20.47</b>	0.111	38.45	-17.98	<b>22.62</b>	0.183	40.61	-17.99
836.50	1.4	QPSK	V	233	338	1 / 0	15.05	7.34	20.24	0.106	38.45	-18.21	22.39	0.173	40.61	-18.22
848.30	1.4	QPSK	V	251	216	1 / 5	13.51	7.47	18.83	0.076	38.45	-19.62	20.98	0.125	40.61	-19.63
836.50	1.4	16-QAM	V	233	338	1 / 0	14.44	7.34	<b>19.63</b>	0.092	38.45	-18.82	<b>21.78</b>	0.151	40.61	-18.83
825.50	3	QPSK	V	140	304	1 / 0	15.29	7.20	20.34	0.108	38.45	-18.11	22.49	0.177	40.61	-18.12
836.50	3	QPSK	V	233	338	1 / 0	15.17	7.34	<b>20.36</b>	0.109	38.45	-18.09	<b>22.51</b>	0.178	40.61	-18.10
847.50	3	QPSK	V	251	216	1 / 14	12.74	7.47	18.06	0.064	38.45	-20.39	20.21	0.105	40.61	-20.40
836.50	3	16-QAM	V	233	338	1 / 0	14.32	7.34	<b>19.51</b>	0.089	38.45	-18.94	<b>21.66</b>	0.147	40.61	-18.95
826.50	5	QPSK	V	140	304	1 / 0	15.29	7.20	20.34	0.108	38.45	-18.11	22.49	0.177	40.61	-18.12
836.50	5	QPSK	V	233	338	1 / 0	15.32	7.34	<b>20.51</b>	<b>0.112</b>	38.45	-17.94	<b>22.66</b>	<b>0.185</b>	40.61	-17.95
846.50	5	QPSK	V	251	216	1 / 0	13.72	7.47	19.04	0.080	38.45	-19.41	21.19	0.132	40.61	-19.42
836.50	5	16-QAM	V	233	338	1 / 0	14.23	7.34	<b>19.42</b>	0.087	38.45	-19.03	<b>21.57</b>	0.144	40.61	-19.04
829.00	10	QPSK	V	140	304	1 / 0	15.29	7.20	20.34	0.108	38.45	-18.11	22.49	0.177	40.61	-18.12
836.50	10	QPSK	V	233	338	1 / 0	15.22	7.34	<b>20.41</b>	0.110	38.45	-18.04	<b>22.56</b>	0.180	40.61	-18.05
844.00	10	QPSK	V	251	216	1 / 49	13.72	7.47	19.04	0.080	38.45	-19.41	21.19	0.132	40.61	-19.42
836.50	10	16-QAM	V	233	338	1 / 0	14.18	7.34	<b>19.37</b>	0.086	38.45	-19.08	<b>21.52</b>	0.142	40.61	-19.09
836.50	5	QPSK	H	138	188	15.32	7.91	7.34	13.10	0.020	38.45	-25.35	15.25	0.033	40.61	-25.36

Table 7-5. ERP Data (Band 5)

FCC ID: ZNFX420QM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 128 of 154

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	H	365	113	1 / 5	15.22	9.59	<b>24.81</b>	0.303	30.00	-5.19
1732.50	1.4	QPSK	H	150	114	1 / 5	15.11	9.54	24.65	0.292	30.00	-5.35
1754.30	1.4	QPSK	H	365	113	1 / 5	15.31	9.49	24.80	0.302	30.00	-5.20
1710.70	1.4	16-QAM	H	365	113	1 / 5	14.32	9.59	<b>23.91</b>	0.246	30.00	-6.09
1711.50	3	QPSK	H	365	113	1 / 14	15.12	9.59	24.71	0.296	30.00	-5.29
1732.50	3	QPSK	H	150	114	1 / 14	15.13	9.54	24.67	0.293	30.00	-5.33
1753.50	3	QPSK	H	365	113	1 / 14	15.35	9.49	<b>24.84</b>	0.304	30.00	-5.16
1711.50	3	16-QAM	H	365	113	1 / 14	14.06	9.59	<b>23.65</b>	0.232	30.00	-6.35
1712.50	5	QPSK	H	365	113	1 / 24	15.14	9.59	<b>24.73</b>	0.297	30.00	-5.27
1732.50	5	QPSK	H	150	114	1 / 24	15.16	9.54	24.70	0.295	30.00	-5.30
1752.50	5	QPSK	H	365	113	1 / 24	15.22	9.49	24.71	0.295	30.00	-5.29
1712.50	5	16-QAM	H	365	113	1 / 24	14.15	9.59	<b>23.74</b>	0.237	30.00	-6.26
1715.00	10	QPSK	H	365	113	1 / 49	15.07	9.59	24.66	0.292	30.00	-5.34
1732.50	10	QPSK	H	150	114	1 / 49	15.10	9.54	24.64	0.291	30.00	-5.36
1750.00	10	QPSK	H	365	113	1 / 49	15.23	9.49	<b>24.72</b>	0.296	30.00	-5.28
1715.00	10	16-QAM	H	365	113	1 / 49	14.25	9.59	<b>23.84</b>	0.242	30.00	-6.16
1717.50	15	QPSK	H	365	113	1 / 74	15.10	9.59	24.69	0.294	30.00	-5.31
1732.50	15	QPSK	H	150	114	1 / 74	15.28	9.54	24.82	0.303	30.00	-5.18
1747.50	15	QPSK	H	365	113	1 / 74	15.36	9.49	<b>24.85</b>	0.305	30.00	-5.15
1717.50	15	16-QAM	H	365	113	1 / 74	14.10	9.59	<b>23.69</b>	0.234	30.00	-6.31
1720.00	20	QPSK	H	365	113	1 / 0	15.31	9.59	<b>24.90</b>	<b>0.309</b>	30.00	-5.10
1732.50	20	QPSK	H	150	114	1 / 0	15.24	9.54	24.78	0.300	30.00	-5.22
1745.00	20	QPSK	H	365	113	1 / 0	15.22	9.49	24.71	0.295	30.00	-5.29
1720.00	20	16-QAM	H	365	113	1 / 0	14.26	9.59	23.85	0.243	30.00	-6.15
1720.00	20	QPSK	V	115	100	15.31	13.16	9.59	22.75	0.188	30.00	-7.25

Table 7-6. EIRP Data (Band 4)

FCC ID: ZNFX420QM	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset	Page 129 of 154

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	V	157	97	1 / 3	15.18	9.06	<b>24.24</b>	0.265	33.01	-8.77
1882.50	1.4	QPSK	V	151	70	3 / 2	14.60	9.09	23.69	0.234	33.01	-9.32
1914.30	1.4	QPSK	V	117	95	1 / 3	14.06	9.19	23.25	0.211	33.01	-9.76
1850.70	1.4	16-QAM	V	157	97	1 / 3	14.15	9.06	<b>23.21</b>	0.209	33.01	-9.80
1851.50	3	QPSK	V	106	108	1 / 0	14.40	9.06	23.46	0.222	33.01	-9.55
1882.50	3	QPSK	V	150	75	1 / 0	14.61	9.09	<b>23.70</b>	0.235	33.01	-9.31
1913.50	3	QPSK	V	117	93	1 / 14	14.22	9.19	23.41	0.219	33.01	-9.60
1882.50	3	16-QAM	V	150	75	1 / 0	13.49	9.09	<b>22.58</b>	0.181	33.01	-10.43
1852.50	5	QPSK	V	155	98	1 / 24	15.54	9.06	<b>24.60</b>	<b>0.289</b>	33.01	-8.41
1882.50	5	QPSK	V	151	70	1 / 24	14.99	9.09	24.08	0.256	33.01	-8.93
1912.50	5	QPSK	V	115	83	1 / 0	14.09	9.18	23.27	0.212	33.01	-9.74
1852.50	5	16-QAM	V	155	98	1 / 24	14.39	9.06	<b>23.45</b>	0.221	33.01	-9.56
1855.00	10	QPSK	V	157	101	1 / 25	15.02	9.06	<b>24.08</b>	0.256	33.01	-8.93
1882.50	10	QPSK	V	153	68	1 / 0	14.67	9.09	23.76	0.238	33.01	-9.25
1910.00	10	QPSK	V	111	103	1 / 25	14.04	9.17	23.21	0.209	33.01	-9.80
1855.00	10	16-QAM	V	157	101	1 / 25	14.16	9.06	<b>23.22</b>	0.210	33.01	-9.79
1857.50	15	QPSK	V	153	98	1 / 0	14.99	9.07	<b>24.06</b>	0.254	33.01	-8.95
1882.50	15	QPSK	V	147	70	1 / 36	14.57	9.09	23.66	0.232	33.01	-9.35
1907.50	15	QPSK	V	104	110	1 / 74	13.37	9.15	22.52	0.179	33.01	-10.49
1857.50	15	16-QAM	V	153	98	1 / 0	14.32	9.07	<b>23.39</b>	0.218	33.01	-9.62
1860.00	20	QPSK	V	153	98	1 / 0	15.13	9.07	<b>24.20</b>	0.263	33.01	-8.81
1882.50	20	QPSK	V	149	72	1 / 50	14.61	9.09	23.70	0.235	33.01	-9.31
1905.00	20	QPSK	V	106	111	1 / 50	14.67	9.14	23.81	0.240	33.01	-9.20
1882.50	20	16-QAM	V	149	72	1 / 50	14.43	9.09	<b>23.52</b>	0.225	33.01	-9.49
1852.50	5	QPSK	H	169	7	1 / 24	15.36	9.07	24.43	0.277	33.01	-8.58

Table 7-7. EIRP Data (Band 25/2)

FCC ID: ZNFX420QM	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset	Page 130 of 154

## 7.7 Radiated Spurious Emissions Measurements

### Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas.

### Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.8

ANSI/TIA-603-E-2016 – Section 2.2.12

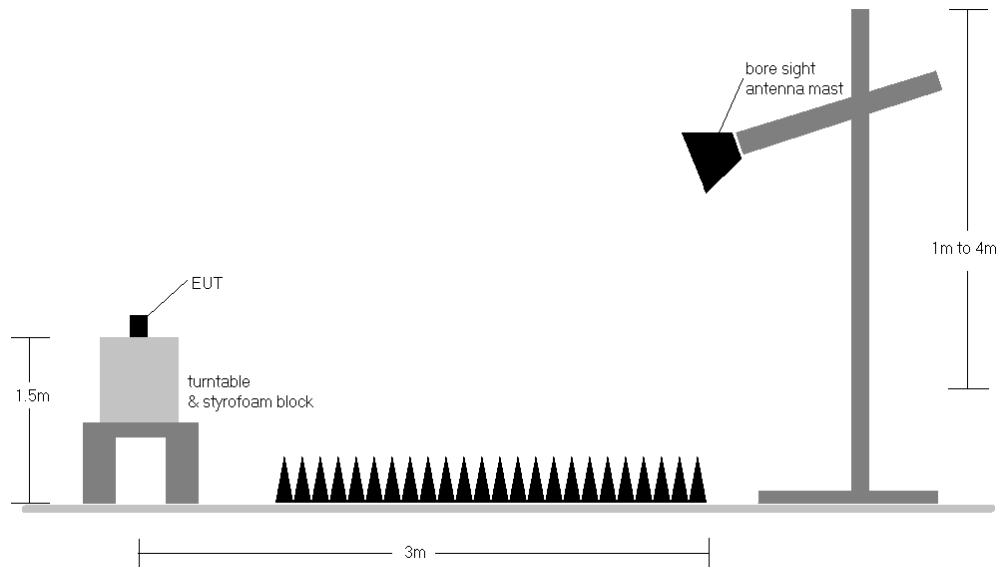
### Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW  $\geq 3 \times$  RBW
3. Span = 1.5 times the OBW
4. No. of sweep points  $\geq 2 \times$  span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

FCC ID: ZNFX420QM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 131 of 154

## Test Setup

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



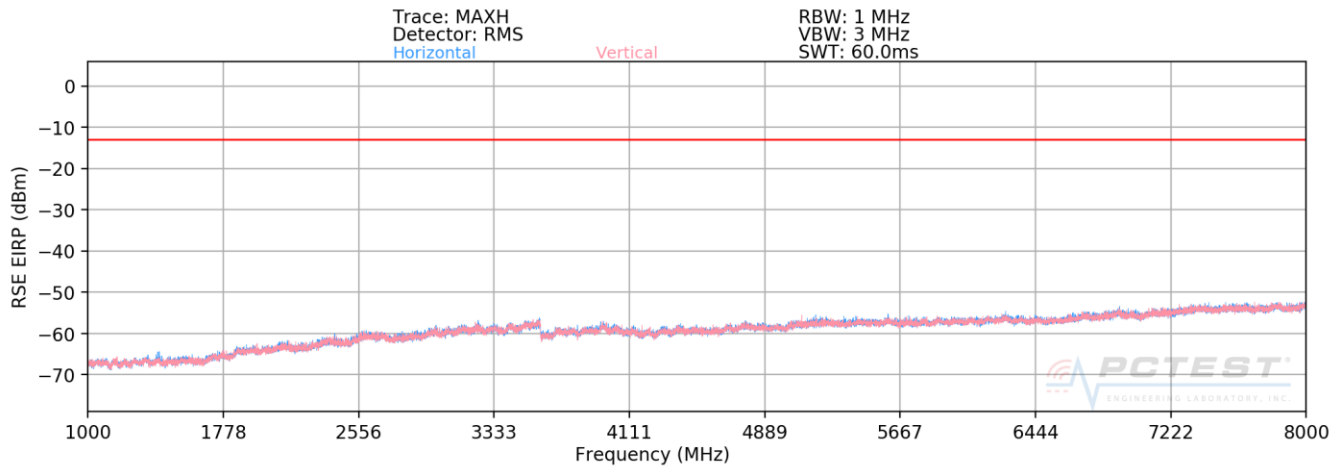
**Figure 7-7. Test Instrument & Measurement Setup**

## Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 4) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 5) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

FCC ID: ZNFX420QM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 132 of 154

## Band 12



**Plot 7-202. Radiated Spurious Plot above 1GHz (Band 12)**

OPERATING FREQUENCY: 704.00 MHz  
MODULATION SIGNAL: QPSK  
BANDWIDTH: 10.0 MHz  
DISTANCE: 3 meters  
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1408.00	H	154	121	-73.41	7.54	-65.87	-52.9
2112.00	H	-	-	-73.45	8.85	-64.60	-51.6
2816.00	H	-	-	-76.80	10.12	-66.68	-53.7

**Table 7-8. Radiated Spurious Data (Band 12 – Low Channel)**

FCC ID: ZNFX420QM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 133 of 154



OPERATING FREQUENCY: 707.50 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1415.00	H	157	124	-71.37	7.63	-63.74	-50.7
2122.50	H	-	-	-73.52	8.86	-64.66	-51.7
2830.00	H	-	-	-76.44	10.10	-66.35	-53.3

Table 7-9. Radiated Spurious Data (Band 12 – Mid Channel)

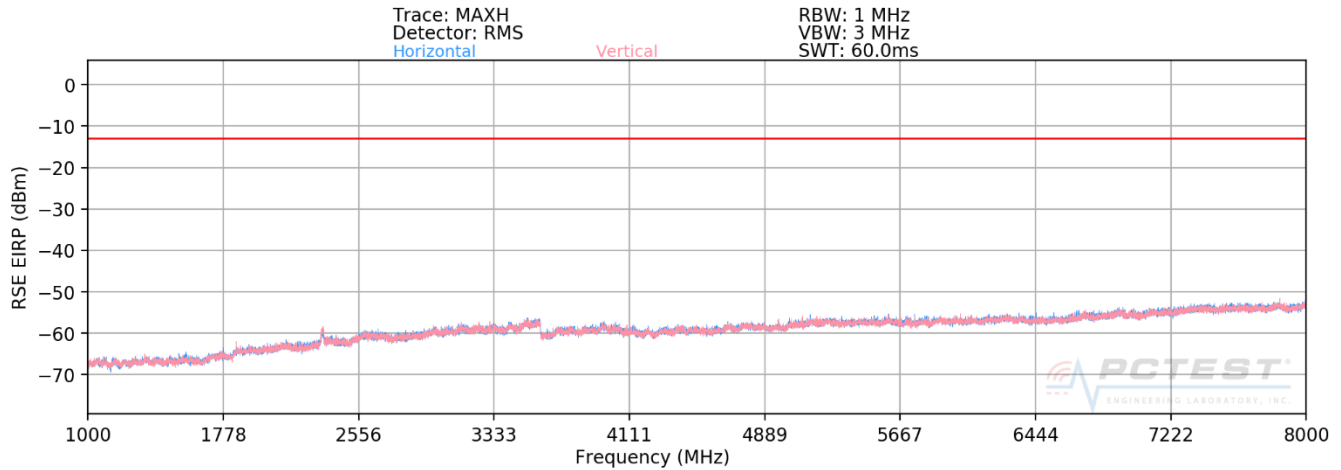
OPERATING FREQUENCY: 711.00 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1422.00	H	163	309	-77.44	7.72	-69.72	-56.7
2133.00	H	-	-	-75.62	8.87	-66.75	-53.7
2844.00	H	-	-	-76.45	10.07	-66.38	-53.4

Table 7-10. Radiated Spurious Data (Band 12 – High Channel)

FCC ID: ZNFX420QM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 134 of 154

## Band 13



**Plot 7-203. Radiated Spurious Plot above 1GHz (Band 13)**

OPERATING FREQUENCY: 782.00 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2346.00	H	-	-	-77.03	9.43	-67.60	-54.6
3128.00	H	-	-	-74.05	9.34	-64.71	-51.7

**Table 7-11. Radiated Spurious Data (Band 13 – Mid Channel)**

FCC ID: ZNFX420QM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 135 of 154

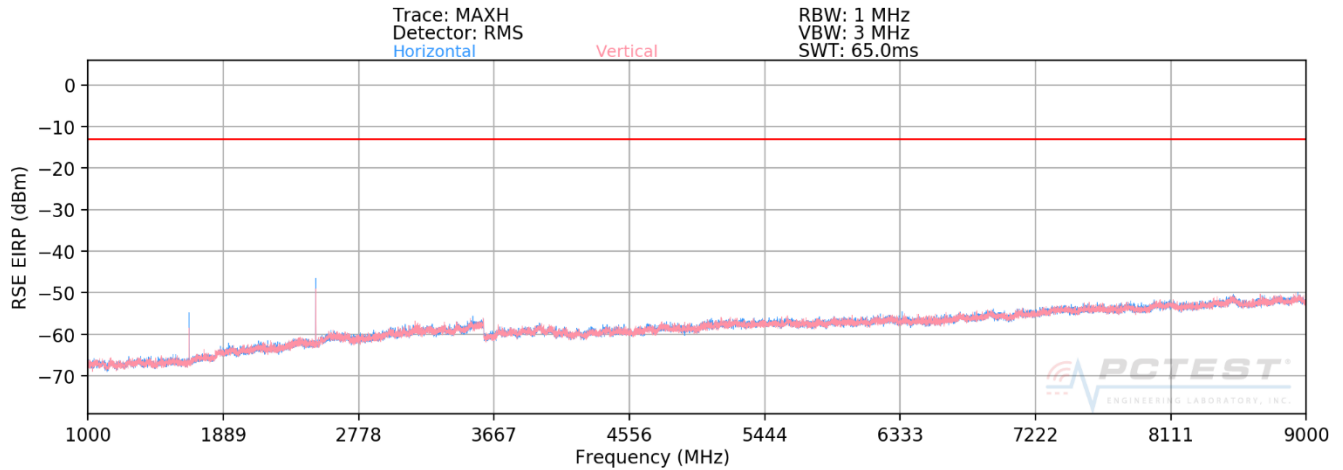
MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.00 MHz  
 DISTANCE: 3 meters  
 NARROWBAND EMISSION LIMIT: -50 dBm  
 WIDEBAND EMISSION LIMIT: -40 dBm/MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	H	121	326	-78.34	8.53	-69.81	-29.8

Table 7-12. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

FCC ID: ZNFX420QM	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset	Page 136 of 154

## Band 5



**Plot 7-204. Radiated Spurious Plot above 1GHz (Band 5)**

OPERATING FREQUENCY: 829.00 MHz  
MODULATION SIGNAL: QPSK  
BANDWIDTH: 10.0 MHz  
DISTANCE: 3 meters  
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1658.00	H	209	53	-76.38	8.95	-67.43	-54.4
2487.00	H	-	-	-76.12	9.70	-66.42	-53.4
3316.00	H	-	-	-74.12	9.59	-64.53	-51.5

**Table 7-13. Radiated Spurious Data (Band 5 – Low Channel)**

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 137 of 154

OPERATING FREQUENCY: 836.50 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.00	H	273	48	-76.70	8.95	-67.74	-54.7
2509.50	H	-	-	-77.34	9.75	-67.59	-54.6

Table 7-14. Radiated Spurious Data (Band 5 – Mid Channel)

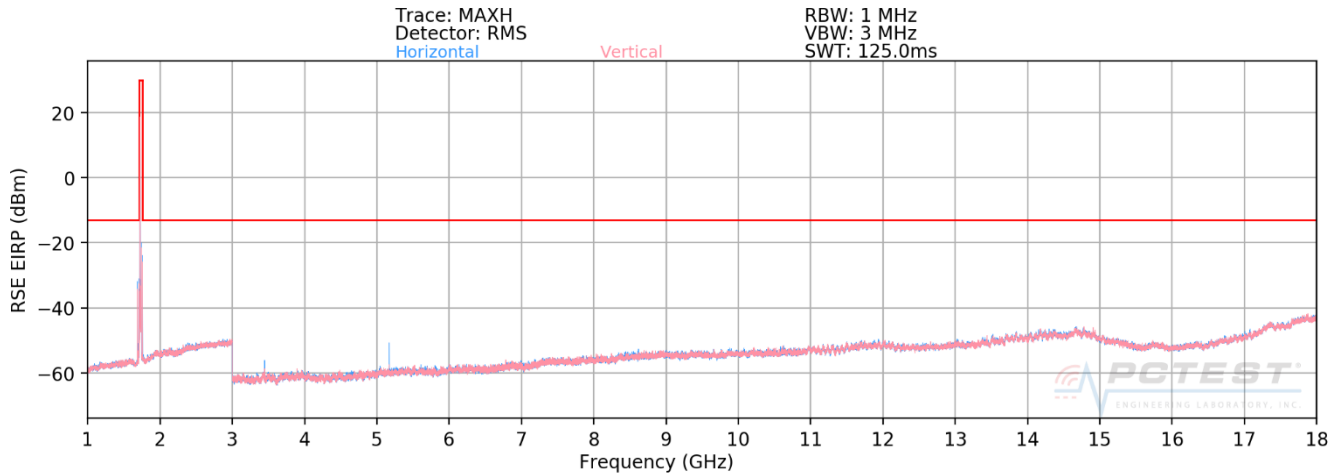
OPERATING FREQUENCY: 844.00 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1688.00	H	138	194	-71.12	8.95	-62.17	-49.2
2532.00	H	-	-	-76.12	9.75	-66.37	-53.4
3376.00	H	-	-	-74.21	9.71	-64.50	-51.5

Table 7-15. Radiated Spurious Data (Band 5 – High Channel)

FCC ID: ZNFX420QM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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## Band 4



**Plot 7-205. Radiated Spurious Plot above 1GHz (Band 4)**

OPERATING FREQUENCY: 1720.00 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 20.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3440.00	H	152	33	-64.52	9.84	-54.68	-41.7
5160.00	H	120	22	-69.07	10.71	-58.36	-45.4
6880.00	H	-	-	-67.95	11.68	-56.27	-43.3

**Table 7-16. Radiated Spurious Data (Band 4 – Low Channel)**

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 139 of 154

OPERATING FREQUENCY: 1732.50 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 20.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3465.00	H	173	28	-62.36	9.88	-52.48	-39.5
5197.50	H	150	270	-64.50	10.76	-53.75	-40.7
6930.00	H	-	-	-62.45	11.74	-50.70	-37.7

Table 7-17. Radiated Spurious Data (Band 4 – Mid Channel)

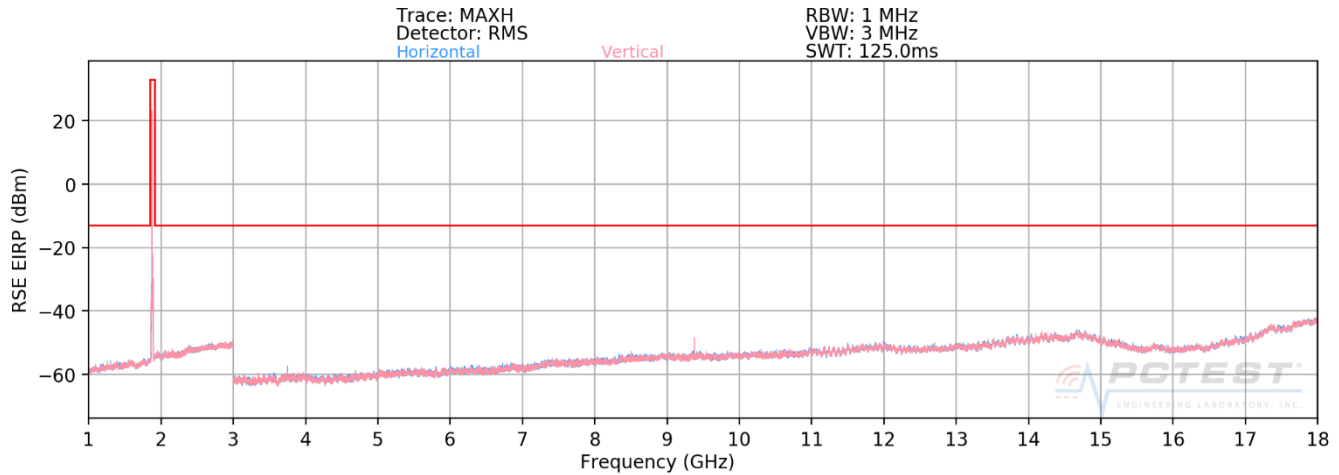
OPERATING FREQUENCY: 1745.00 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 20.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3490.00	H	102	143	-61.91	9.91	-51.99	-39.0
5235.00	H	245	140	-68.35	10.73	-57.62	-44.6
6980.00	H	-	-	-68.22	11.82	-56.39	-43.4

Table 7-18. Radiated Spurious Data (Band 4 – High Channel)

FCC ID: ZNFX420QM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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## Band 25/2



**Plot 7-206. Radiated Spurious Plot above 1GHz (Band 25/2)**

OPERATING FREQUENCY: 1852.50 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 5.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3705.00	H	120	34	-69.93	9.57	-60.37	-47.4
5557.50	H	-	-	-72.02	10.95	-61.07	-48.1

**Table 7-19. Radiated Spurious Data (Band 25/2 – Low Channel)**

FCC ID: ZNFX420QM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 141 of 154



OPERATING FREQUENCY: 1882.50 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 5.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3765.00	H	128	18	-68.17	9.36	-58.82	-45.8
5647.50	H	-	-	-71.87	11.19	-60.67	-47.7

Table 7-20. Radiated Spurious Data (Band 25/2 – Mid Channel)

OPERATING FREQUENCY: 1912.50 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 5.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3825.00	H	113	20	-68.69	9.31	-59.38	-46.4
5737.50	H	-	-	-72.64	11.41	-61.23	-48.2

Table 7-21. Radiated Spurious Data (Band 25/2 – High Channel)

FCC ID: ZNFX420QM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 142 of 154

## 7.8 Frequency Stability / Temperature Variation

### Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

***For Part 22, the frequency stability of the transmitter shall be maintained within  $\pm 0.00025\%$  ( $\pm 2.5$  ppm) of the center frequency. For Part 24, Part 27, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.***

### Test Procedure Used

ANSI/TIA-603-E-2016

### Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

### Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

### Test Notes

None

FCC ID: ZNFX420QM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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## Band 12 Frequency Stability Measurements

OPERATING FREQUENCY: 707,500,000 Hz  
 CHANNEL: 23790  
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	707,499,862	-138	-0.0000195
100 %		- 20	707,500,099	99	0.0000140
100 %		- 10	707,500,003	3	0.0000004
100 %		0	707,499,966	-34	-0.0000048
100 %		+ 10	707,500,378	378	0.0000534
100 %		+ 20	707,499,786	-214	-0.0000302
100 %		+ 30	707,499,821	-179	-0.0000253
100 %		+ 40	707,499,868	-132	-0.0000187
100 %		+ 50	707,499,832	-168	-0.0000237
BATT. ENDPOINT	3.40	+ 20	707,499,874	-126	-0.0000178

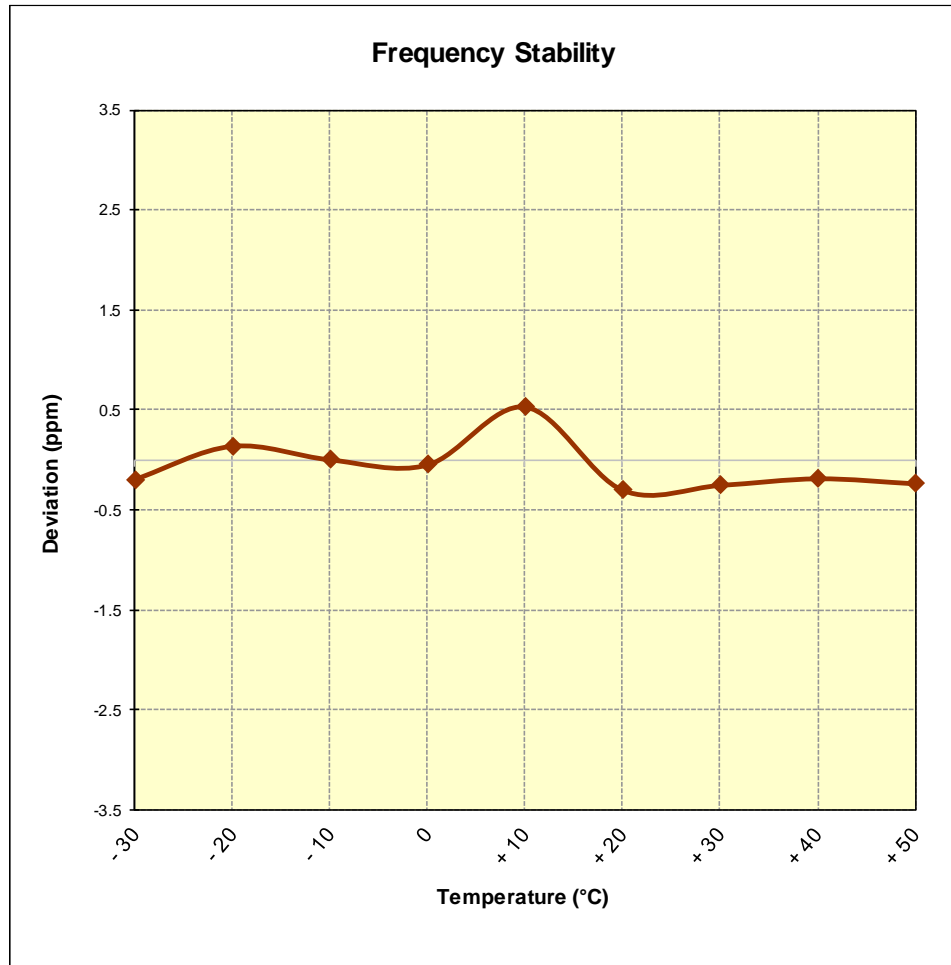
**Table 7-22. Frequency Stability Data (Band 12)**

### Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: ZNFX420QM	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset	Page 144 of 154

## Band 12 Frequency Stability Measurements



**Figure 7-8. Frequency Stability Graph (Band 12)**

<b>FCC ID:</b> ZNFX420QM		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1902260030-03-R1.ZNF	<b>Test Dates:</b> 2/26 - 4/9/2019	<b>EUT Type:</b> Portable Handset		Page 145 of 154

## Band 13 Frequency Stability Measurements

OPERATING FREQUENCY: 782,000,000 Hz  
 CHANNEL: 23230  
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	781,999,941	-59	-0.0000075
100 %		- 20	781,999,747	-253	-0.0000324
100 %		- 10	781,999,836	-164	-0.0000210
100 %		0	781,999,982	-18	-0.0000023
100 %		+ 10	781,999,942	-58	-0.0000074
100 %		+ 20	781,999,707	-293	-0.0000375
100 %		+ 30	781,999,953	-47	-0.0000060
100 %		+ 40	781,999,982	-18	-0.0000023
100 %		+ 50	781,999,987	-13	-0.0000017
BATT. ENDPOINT	3.40	+ 20	781,999,979	-21	-0.0000027

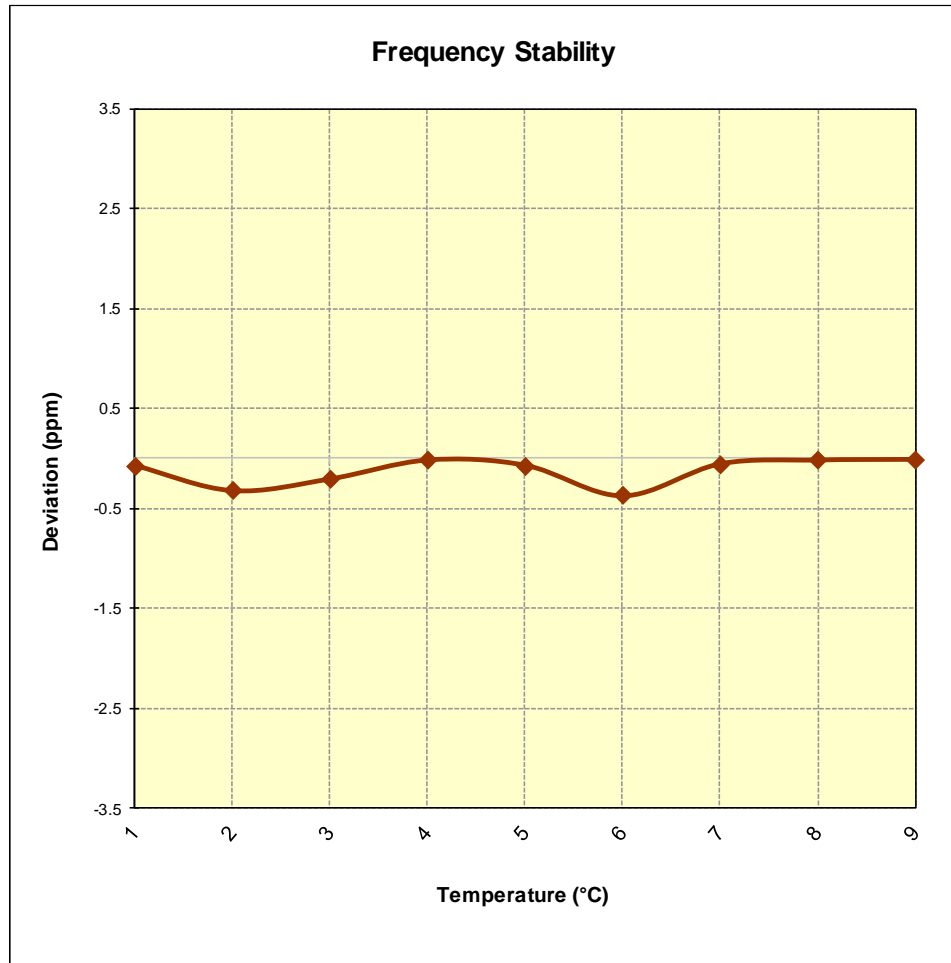
**Table 7-23. Frequency Stability Data (Band 13)**

### Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: ZNFX420QM	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset	Page 146 of 154

## Band 13 Frequency Stability Measurements



**Figure 7-9. Frequency Stability Graph (Band 13)**

FCC ID: ZNFX420QM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 147 of 154

## Band 5 Frequency Stability Measurements

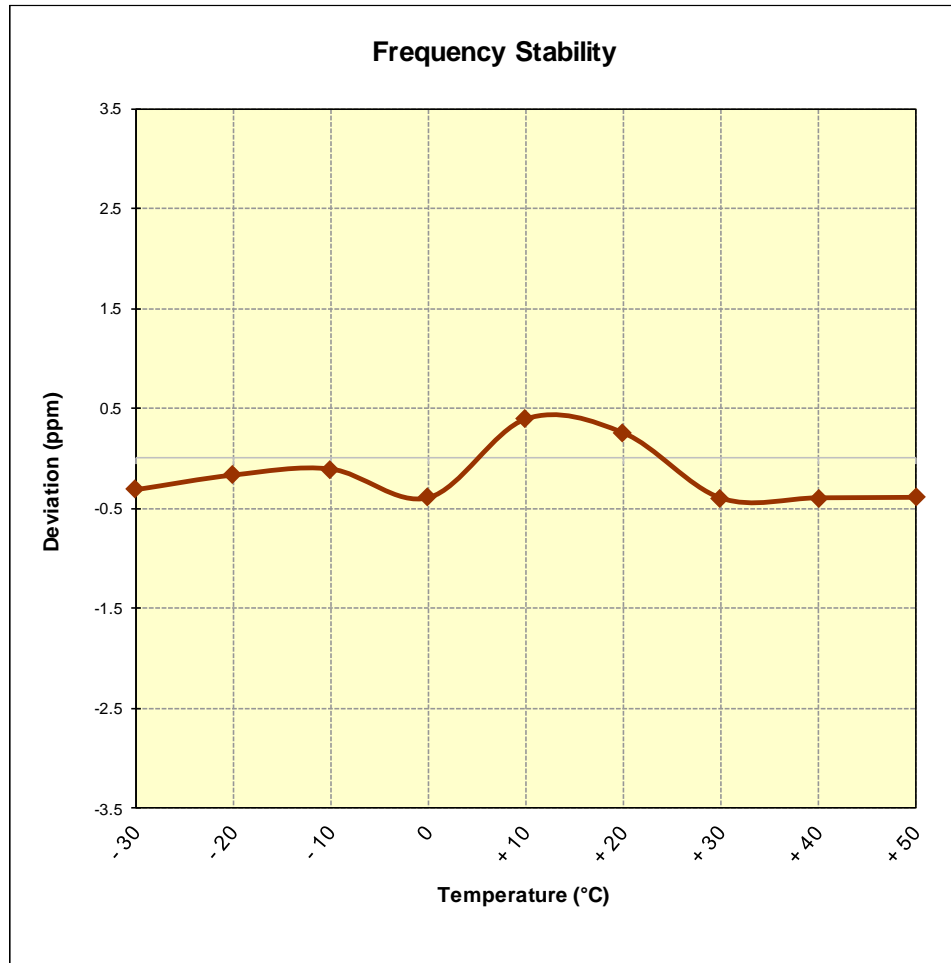
OPERATING FREQUENCY: 836,500,000 Hz  
 CHANNEL: 20525  
 REFERENCE VOLTAGE: 3.85 VDC  
 DEVIATION LIMIT:  $\pm 0.00025$  % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	836,499,739	-261	-0.0000312
100 %		- 20	836,499,862	-138	-0.0000165
100 %		- 10	836,499,912	-88	-0.0000105
100 %		0	836,499,672	-328	-0.0000392
100 %		+ 10	836,500,332	332	0.0000397
100 %		+ 20	836,500,215	215	0.0000257
100 %		+ 30	836,499,669	-331	-0.0000396
100 %		+ 40	836,499,671	-329	-0.0000393
100 %		+ 50	836,499,675	-325	-0.0000389
BATT. ENDPOINT	3.40	+ 20	836,500,053	53	0.0000063

Table 7-24. Frequency Stability Data (Band 5)

FCC ID: ZNFX420QM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 148 of 154

## Band 5 Frequency Stability Measurements



**Figure 7-10. Frequency Stability Graph (Band 5)**

<b>FCC ID:</b> ZNFX420QM		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1902260030-03-R1.ZNF	<b>Test Dates:</b> 2/26 - 4/9/2019	<b>EUT Type:</b> Portable Handset		Page 149 of 154



## Band 4 Frequency Stability Measurements

OPERATING FREQUENCY: 1,732,500,000 Hz  
 CHANNEL: 20175  
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	1,732,499,974	-26	-0.0000015
100 %		- 20	1,732,500,082	82	0.0000047
100 %		- 10	1,732,500,045	45	0.0000026
100 %		0	1,732,499,842	-158	-0.0000091
100 %		+ 10	1,732,500,052	52	0.0000030
100 %		+ 20	1,732,499,997	-3	-0.0000002
100 %		+ 30	1,732,499,812	-188	-0.0000109
100 %		+ 40	1,732,500,004	4	0.0000002
100 %		+ 50	1,732,500,109	109	0.0000063
BATT. ENDPOINT	3.40	+ 20	1,732,499,801	-199	-0.0000115

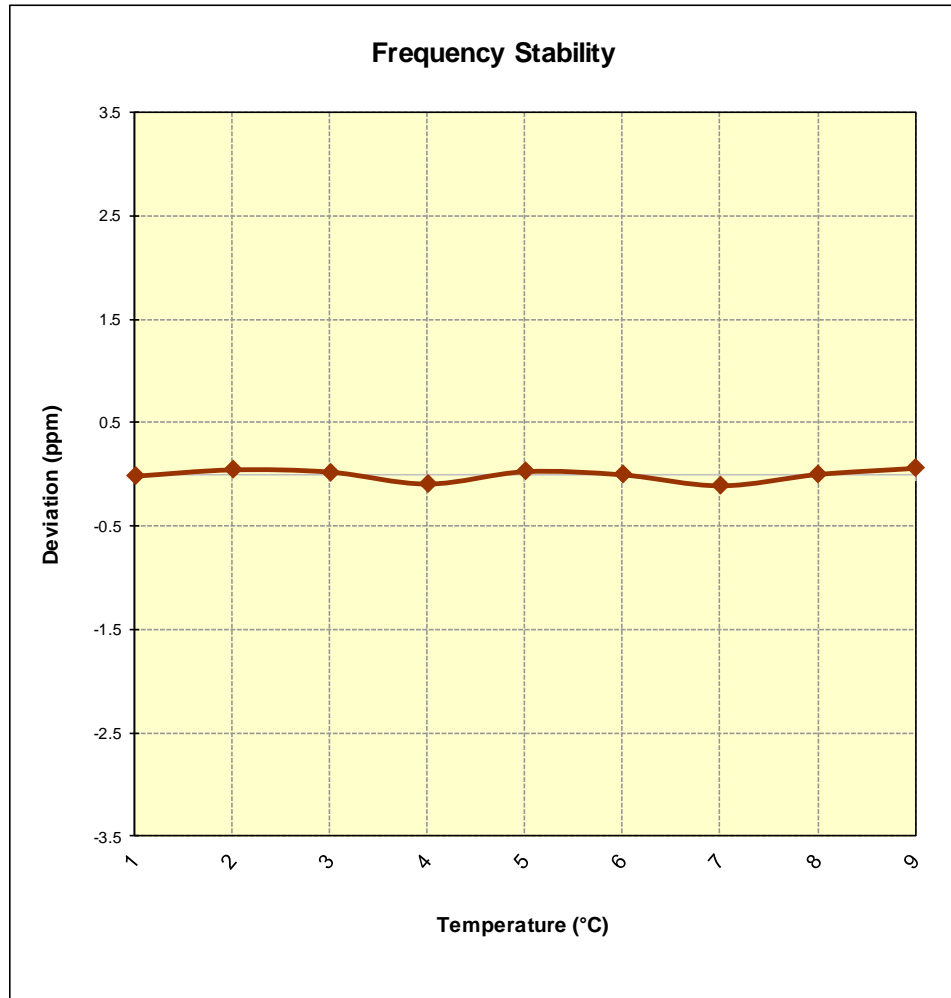
**Table 7-25. Frequency Stability Data (Band 4)**

### Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: ZNFX420QM	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
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## Band 4 Frequency Stability Measurements



**Figure 7-11. Frequency Stability Graph (Band 4)**

<b>FCC ID:</b> ZNFX420QM		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1902260030-03-R1.ZNF	<b>Test Dates:</b> 2/26 - 4/9/2019	<b>EUT Type:</b> Portable Handset		Page 151 of 154

## Band 25/2 Frequency Stability Measurements

OPERATING FREQUENCY: 1,882,500,000 Hz

CHANNEL: 26365

REFERENCE VOLTAGE: 3.85 VDC

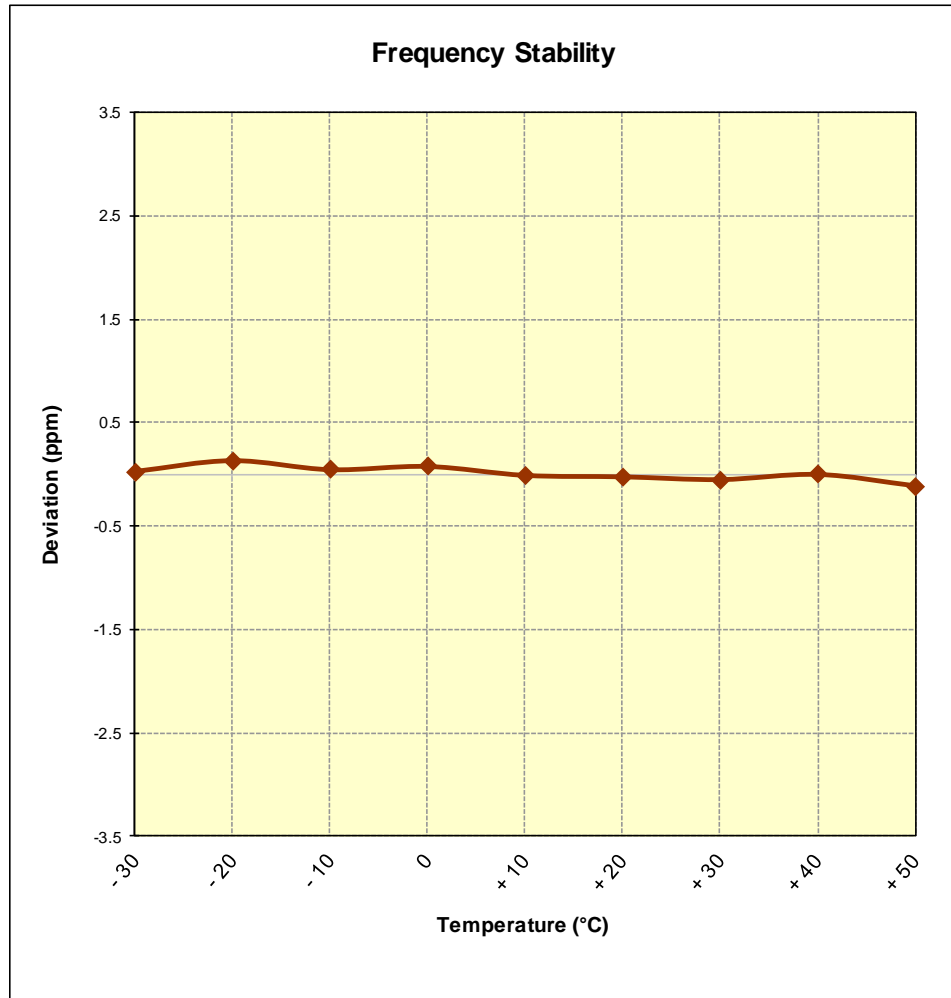
DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	1,882,500,049	49	0.0000026
100 %		- 20	1,882,500,245	245	0.0000130
100 %		- 10	1,882,500,082	82	0.0000044
100 %		0	1,882,500,140	140	0.0000074
100 %		+ 10	1,882,499,979	-21	-0.0000011
100 %		+ 20	1,882,499,953	-47	-0.0000025
100 %		+ 30	1,882,499,903	-97	-0.0000052
100 %		+ 40	1,882,499,996	-4	-0.0000002
100 %		+ 50	1,882,499,789	-211	-0.0000112
BATT. ENDPOINT	3.40	+ 20	1,882,500,238	238	0.0000126

Table 7-26. Frequency Stability Data (Band 25/2)

FCC ID: ZNFX420QM	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
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## Band 25/2 Frequency Stability Measurements



**Figure 7-12. Frequency Stability Graph (Band 25/2)**

<b>FCC ID:</b> ZNFX420QM		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1902260030-03-R1.ZNF	<b>Test Dates:</b> 2/26 - 4/9/2019	<b>EUT Type:</b> Portable Handset		Page 153 of 154

## 8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFX420QM** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.

FCC ID: ZNFX420QM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1902260030-03-R1.ZNF	Test Dates: 2/26 - 4/9/2019	EUT Type: Portable Handset		Page 154 of 154