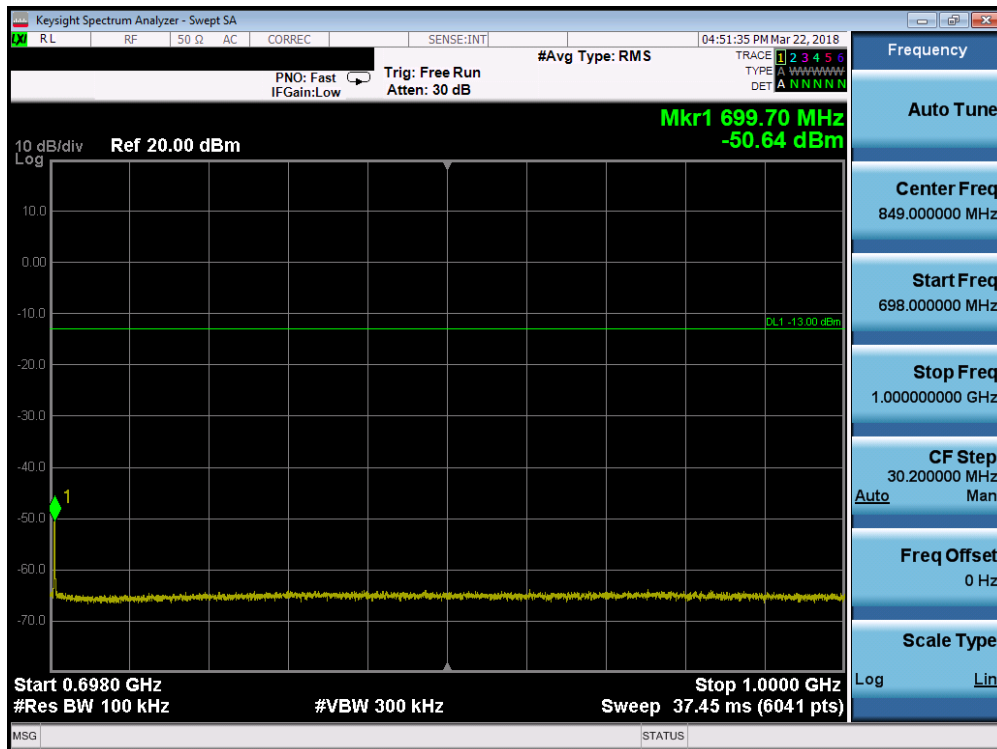


## Band 71

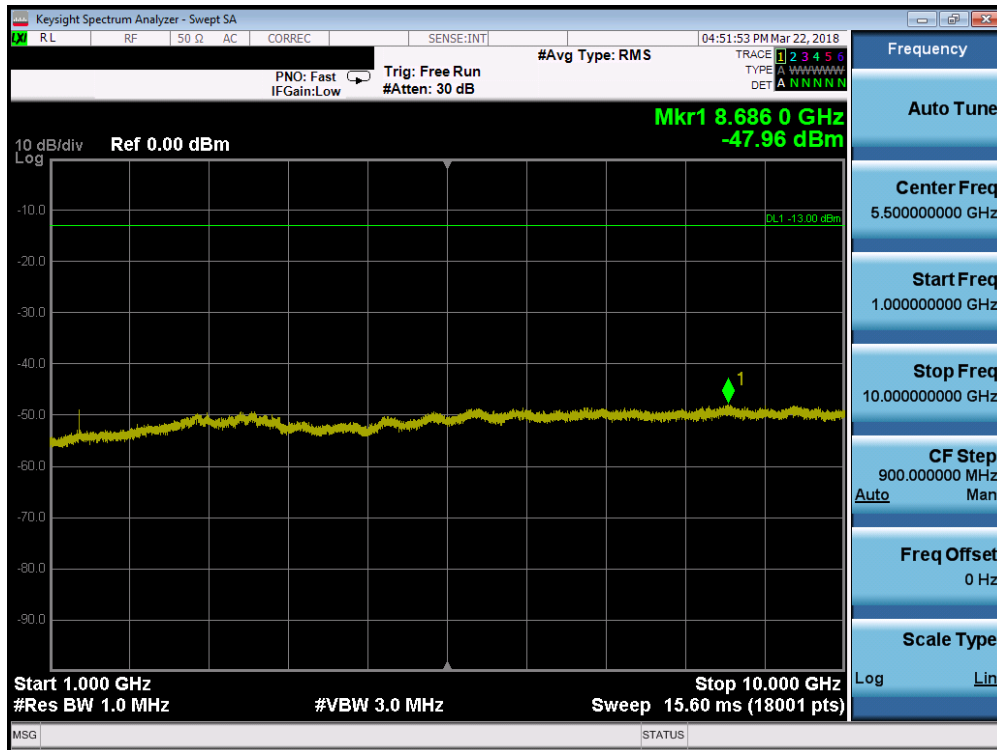


Plot 7-109. Conducted Spurious Plot (Band 71 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

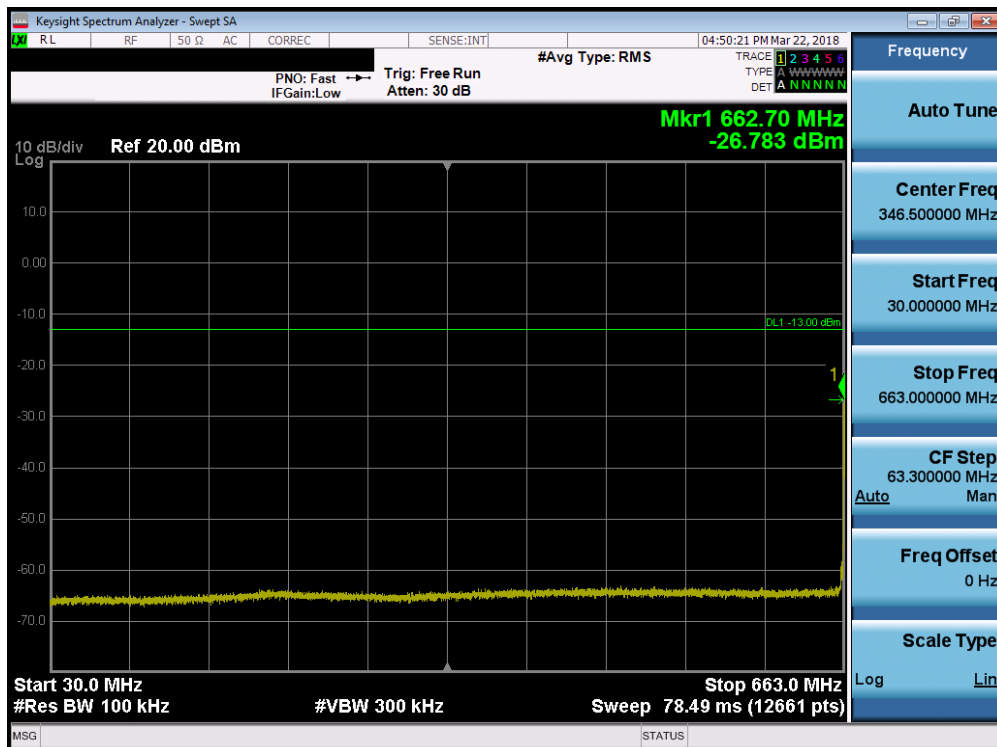


Plot 7-110. Conducted Spurious Plot (Band 71 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1-ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 72 of 262

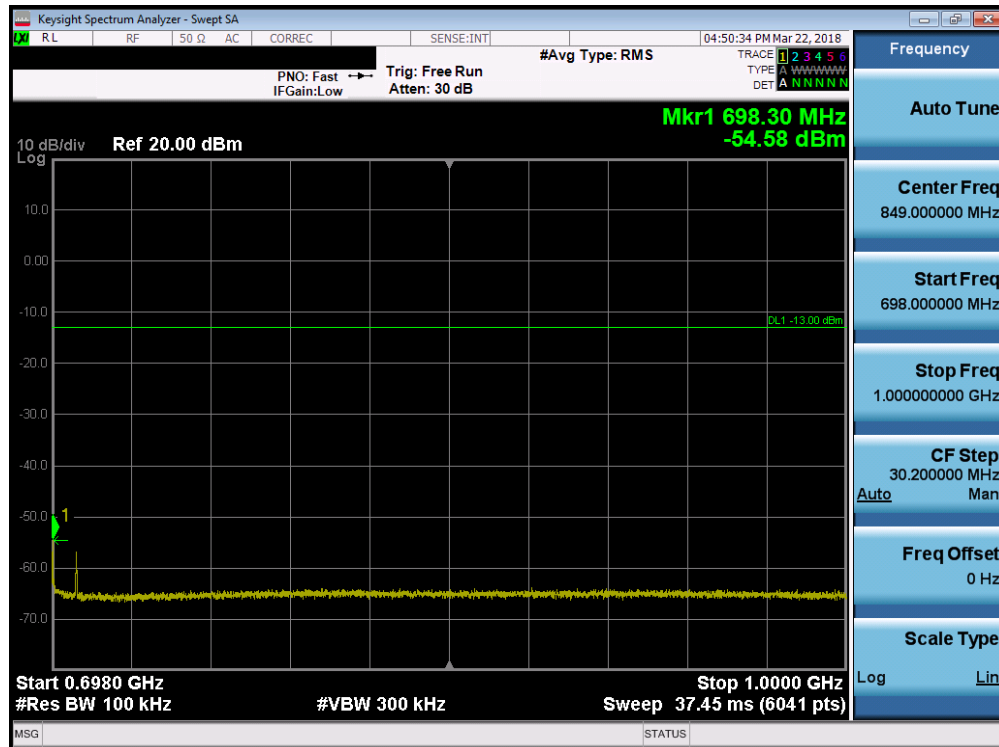


Plot 7-111. Conducted Spurious Plot (Band 71 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

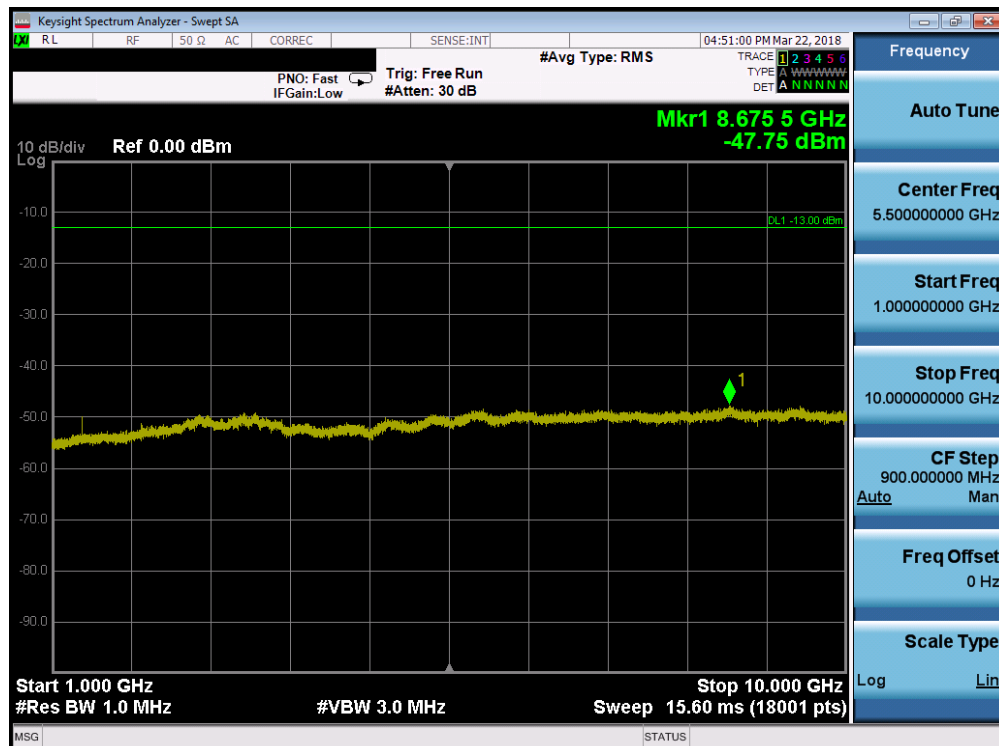


Plot 7-112. Conducted Spurious Plot (Band 71 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT</b> (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1-ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 73 of 262	

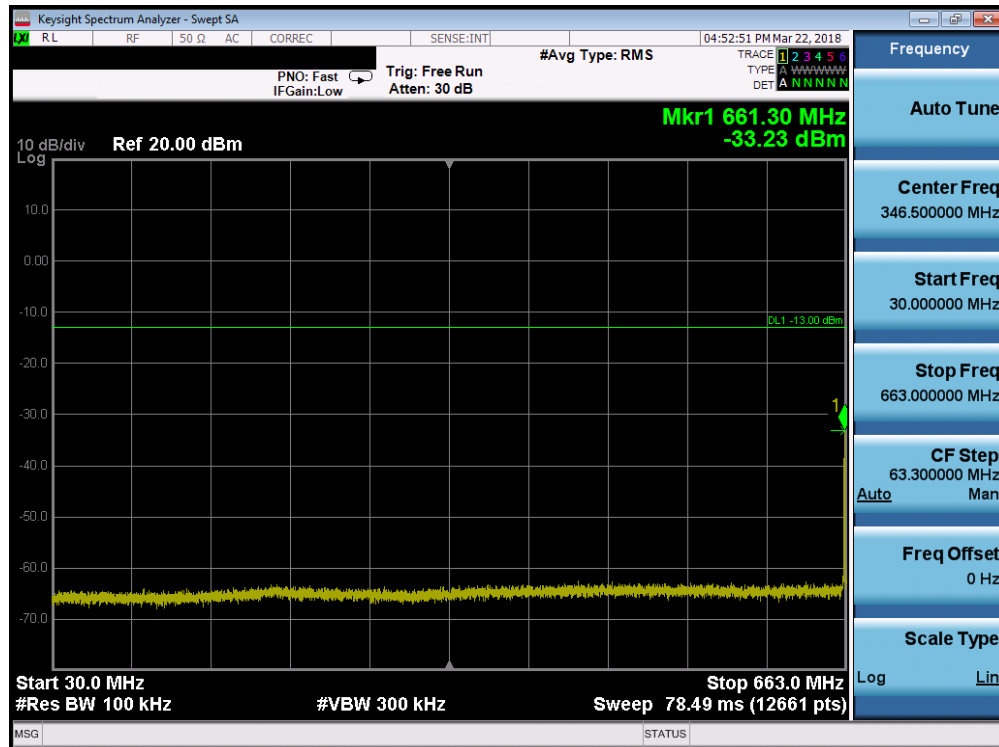


Plot 7-113. Conducted Spurious Plot (Band 71 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

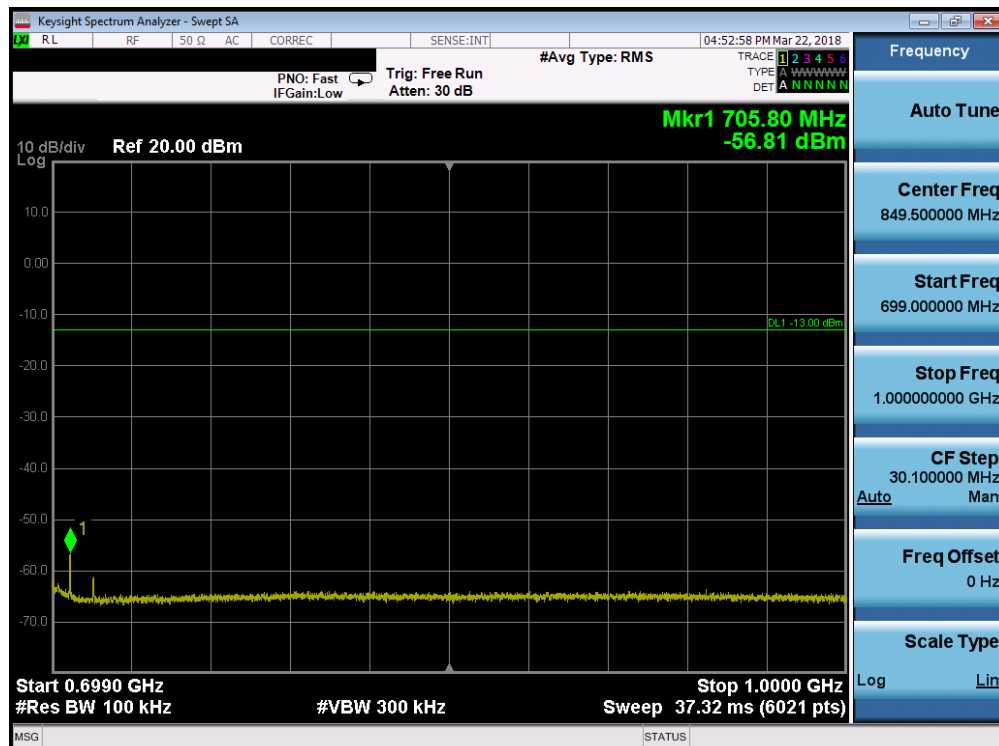


Plot 7-114. Conducted Spurious Plot (Band 71 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 74 of 262

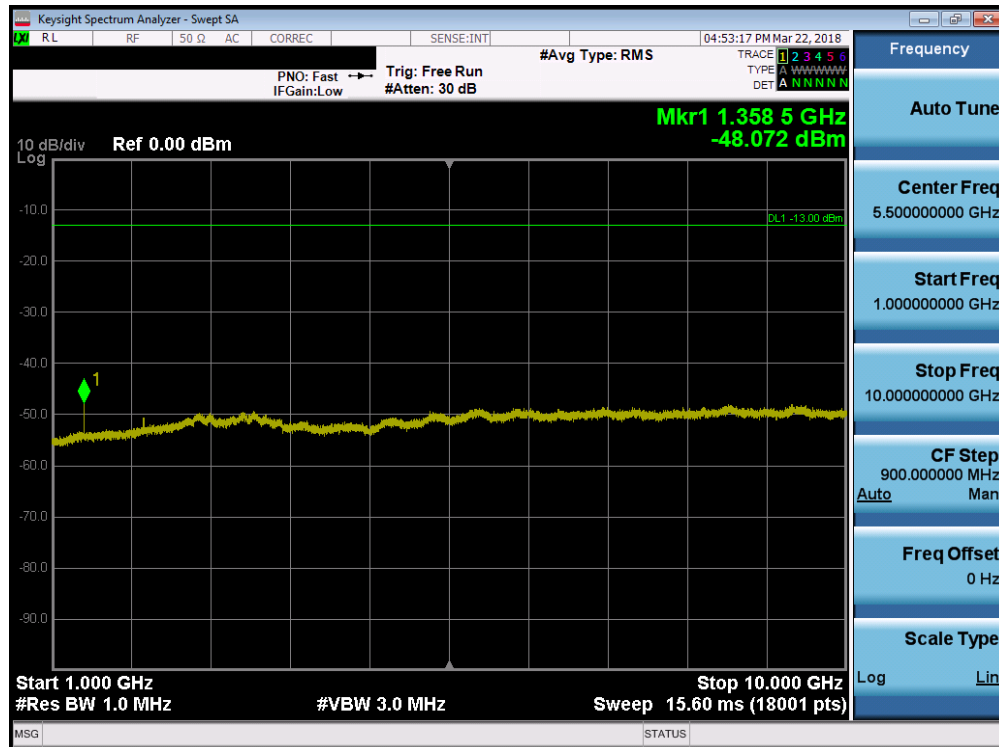


Plot 7-115. Conducted Spurious Plot (Band 71 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-116. Conducted Spurious Plot (Band 71 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

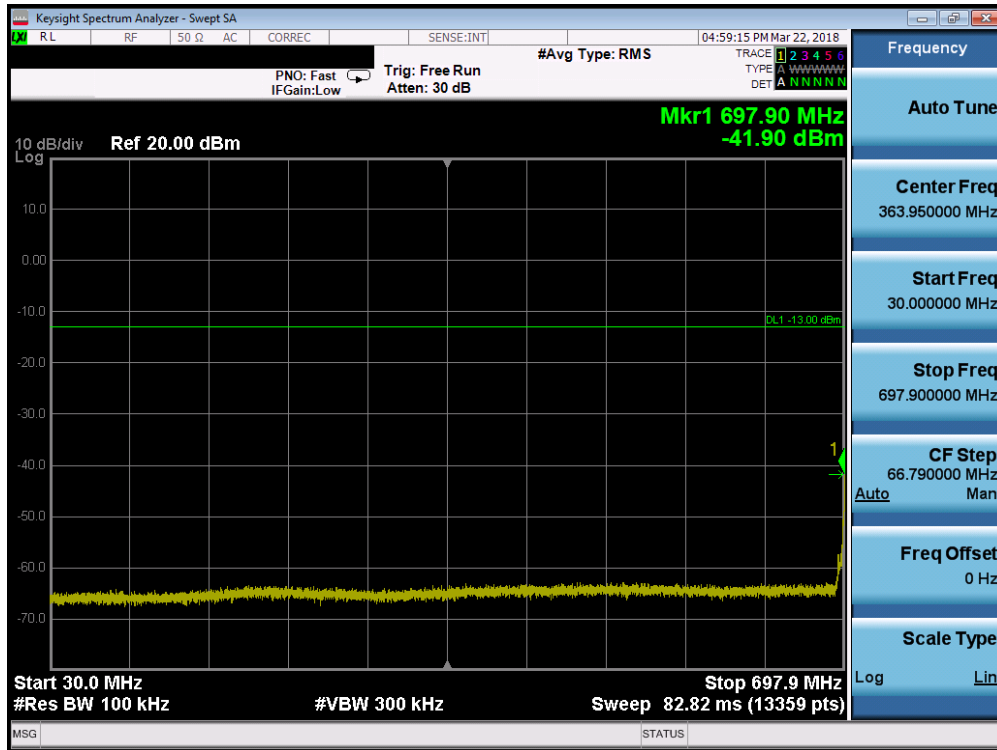
FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 75 of 262



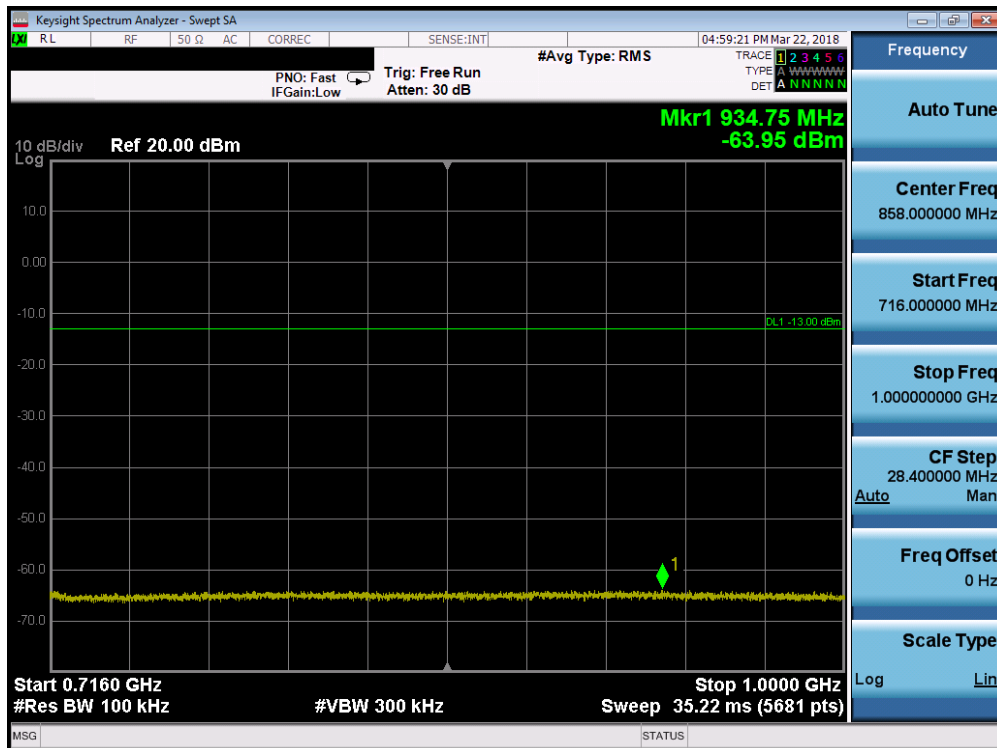
Plot 7-117. Conducted Spurious Plot (Band 71 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFG710TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1-ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 76 of 262

## Band 12/17

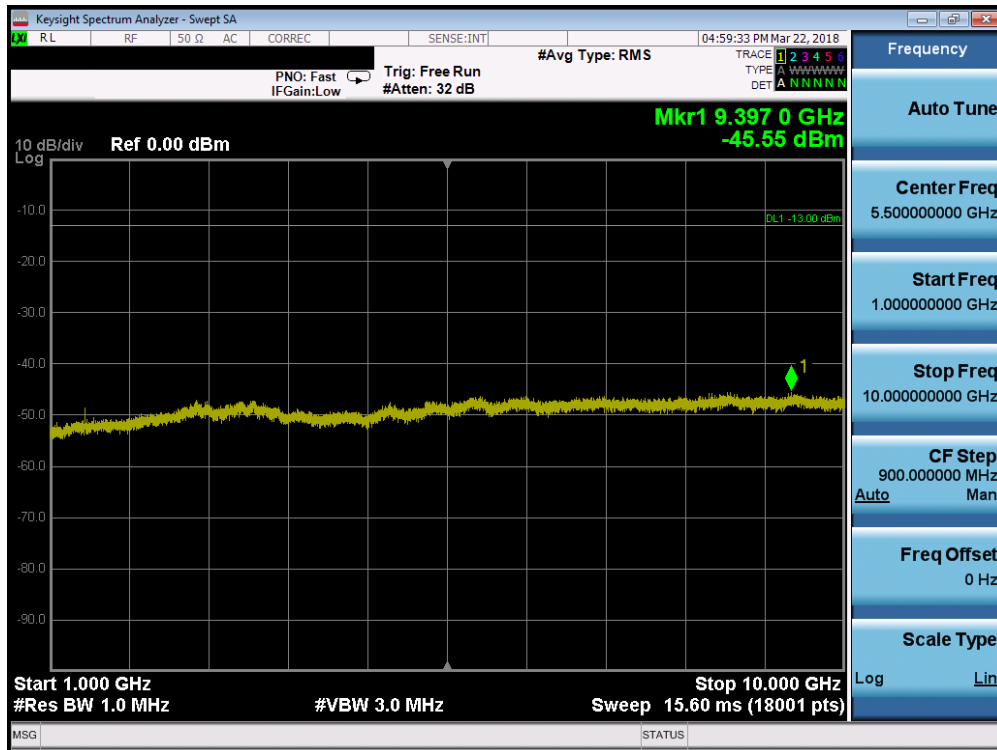


Plot 7-118. Conducted Spurious Plot (Band 12/17 - 5MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

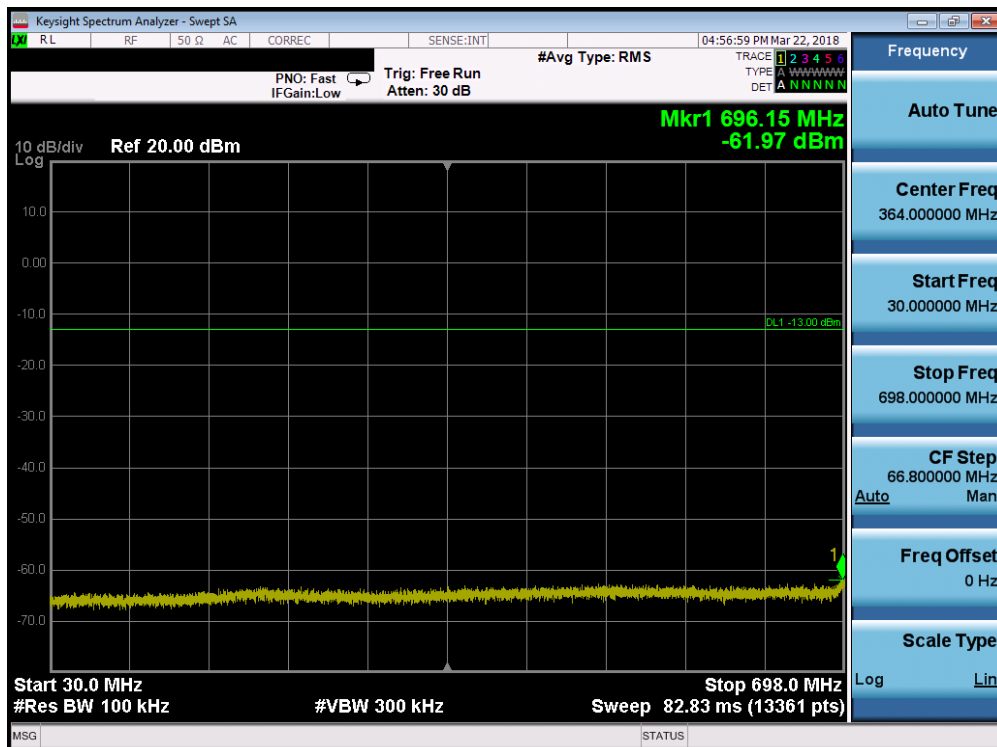


Plot 7-119. Conducted Spurious Plot (Band 12/17 - 5MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 77 of 262

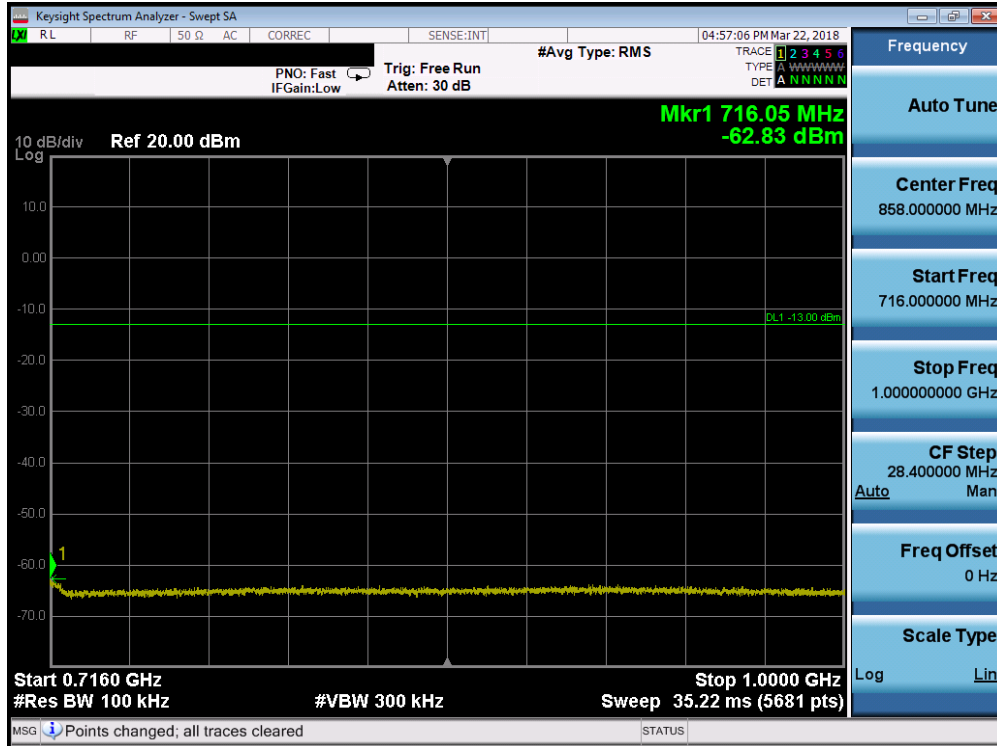


Plot 7-120. Conducted Spurious Plot (Band 12/17 - 5MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

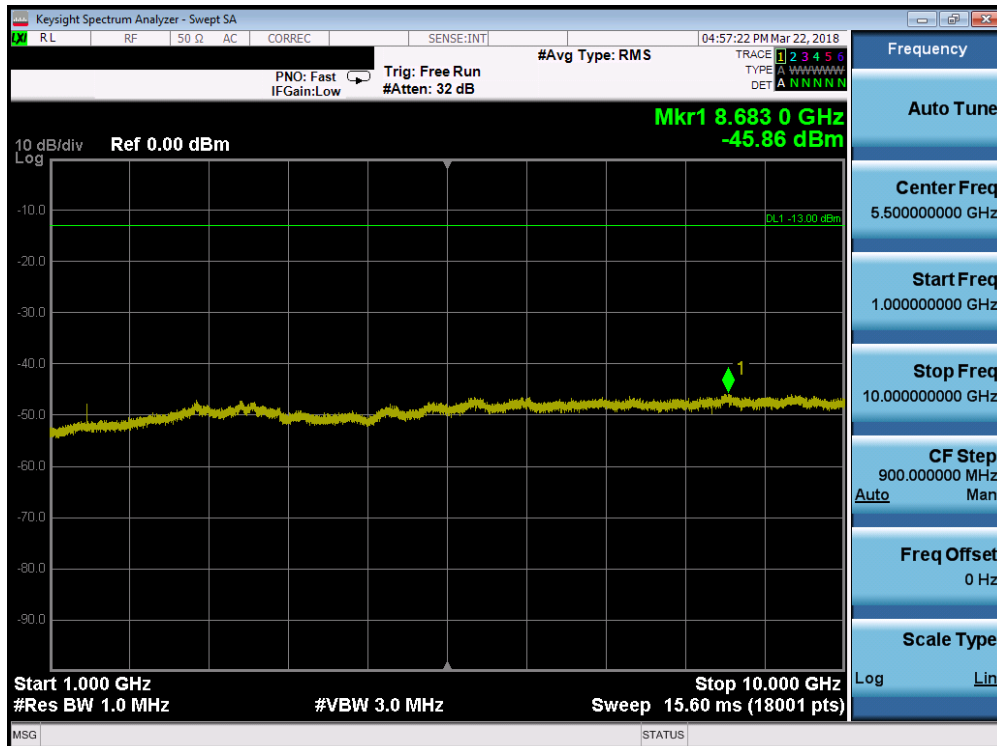


Plot 7-121. Conducted Spurious Plot (Band 12/17 - 5MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT</b> (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1-ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 78 of 262	



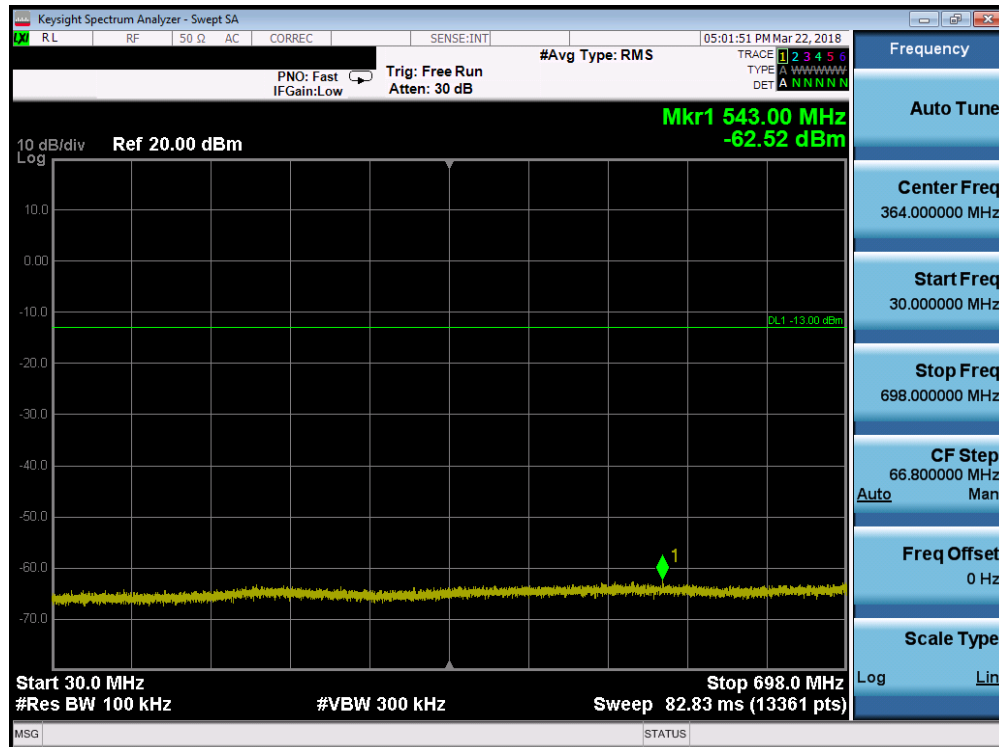
Plot 7-122. Conducted Spurious Plot (Band 12/17 - 5MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



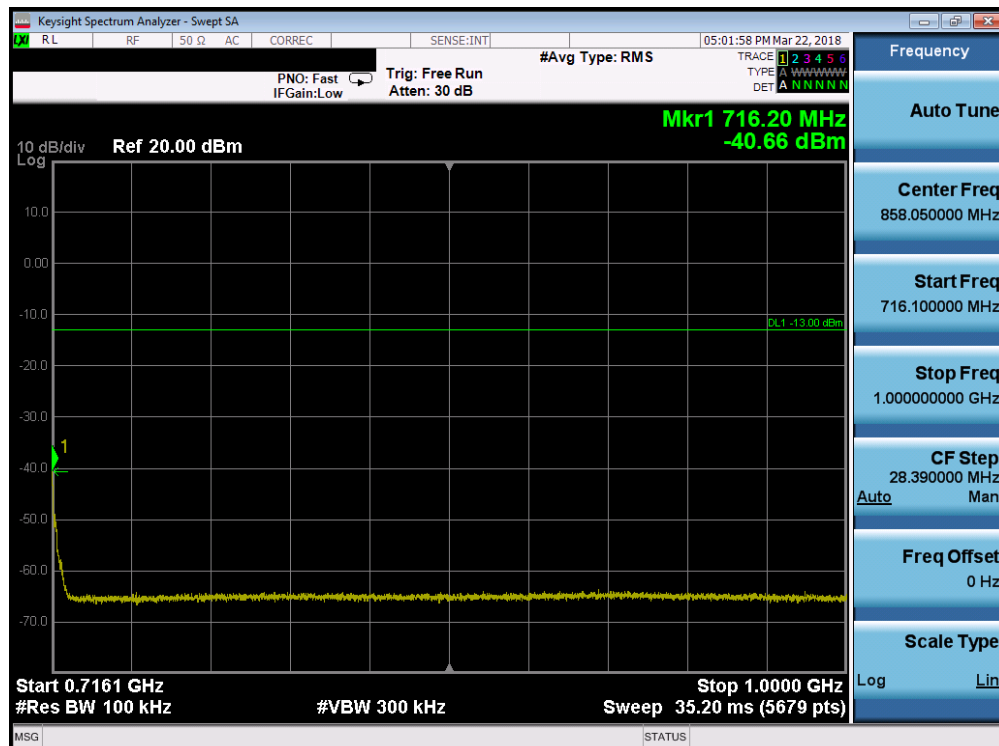
Plot 7-123. Conducted Spurious Plot (Band 12/17 - 5MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 79 of 262



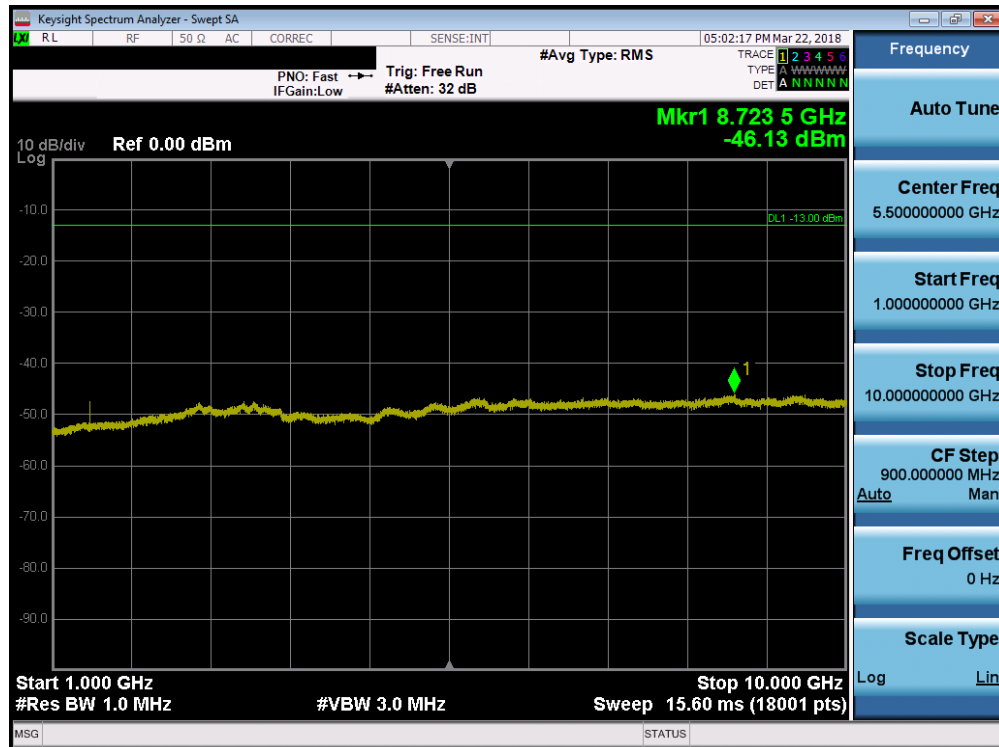


Plot 7-124. Conducted Spurious Plot (Band 12/17 - 5MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-125. Conducted Spurious Plot (Band 12/17 - 5MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

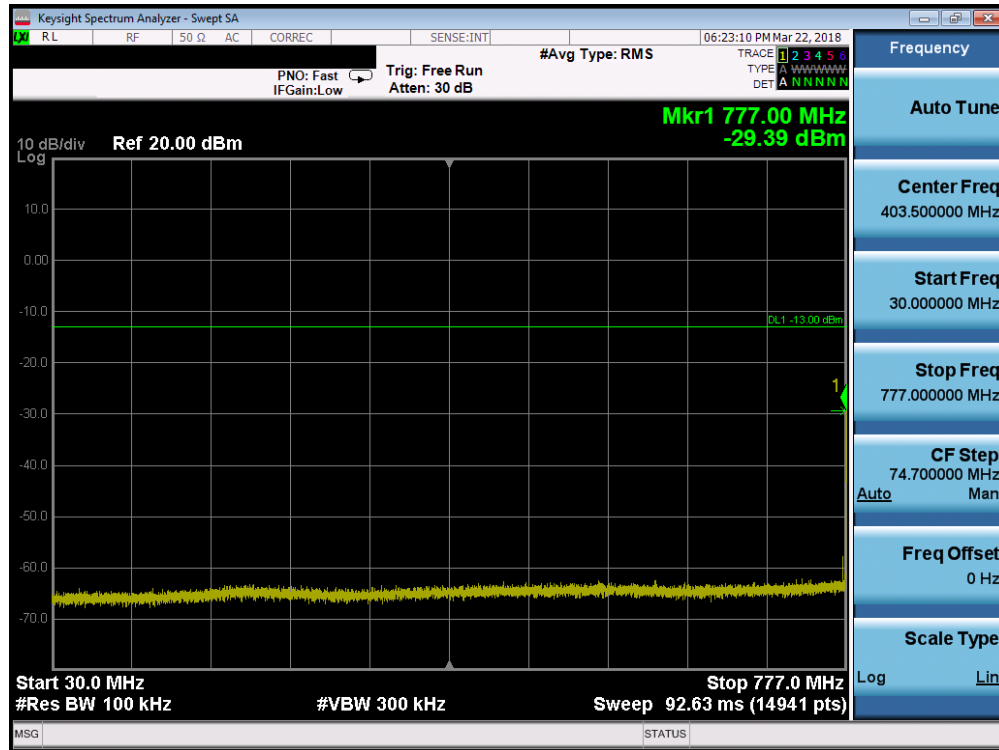
FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 80 of 262



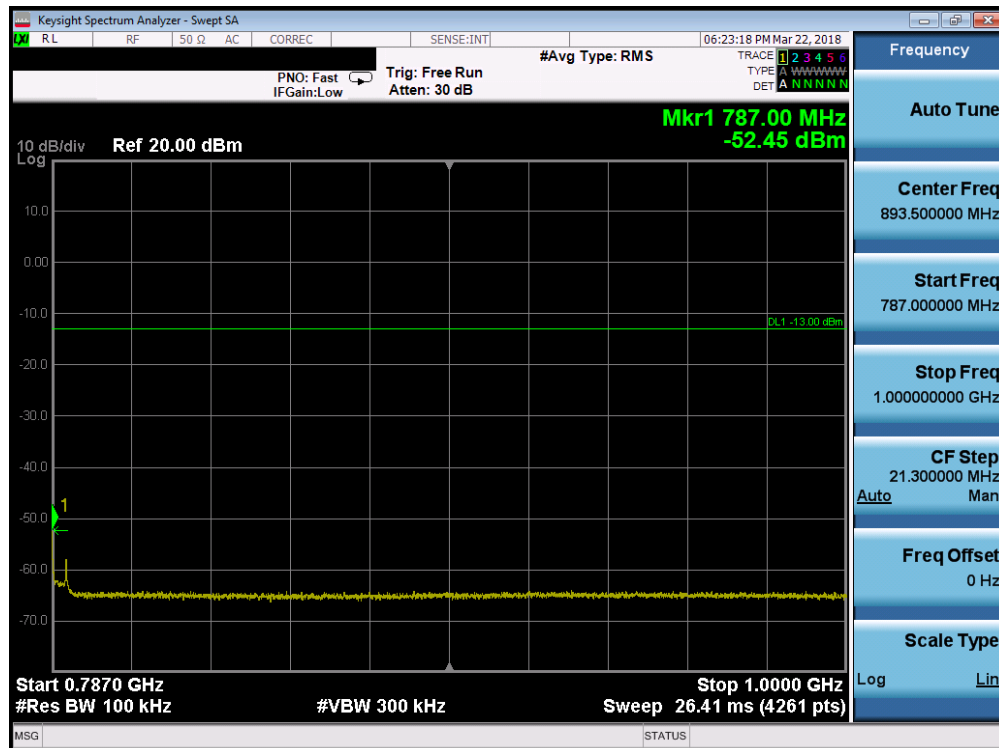
Plot 7-126. Conducted Spurious Plot (Band 12/17 - 5MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1-ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 81 of 262

## Band 13

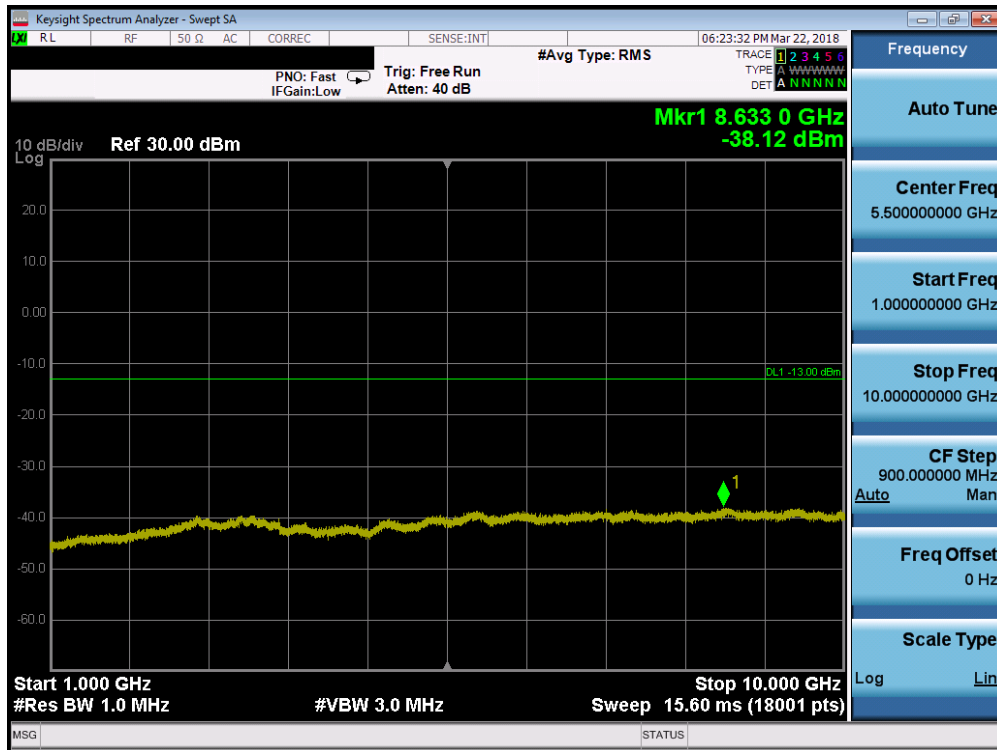


Plot 7-127. Conducted Spurious Plot (Band 13 - 10.0MHz QPSK - RB Size 1, RB Offset 0)



Plot 7-128. Conducted Spurious Plot (Band 13 - 10.0MHz QPSK - RB Size 1, RB Offset 0)

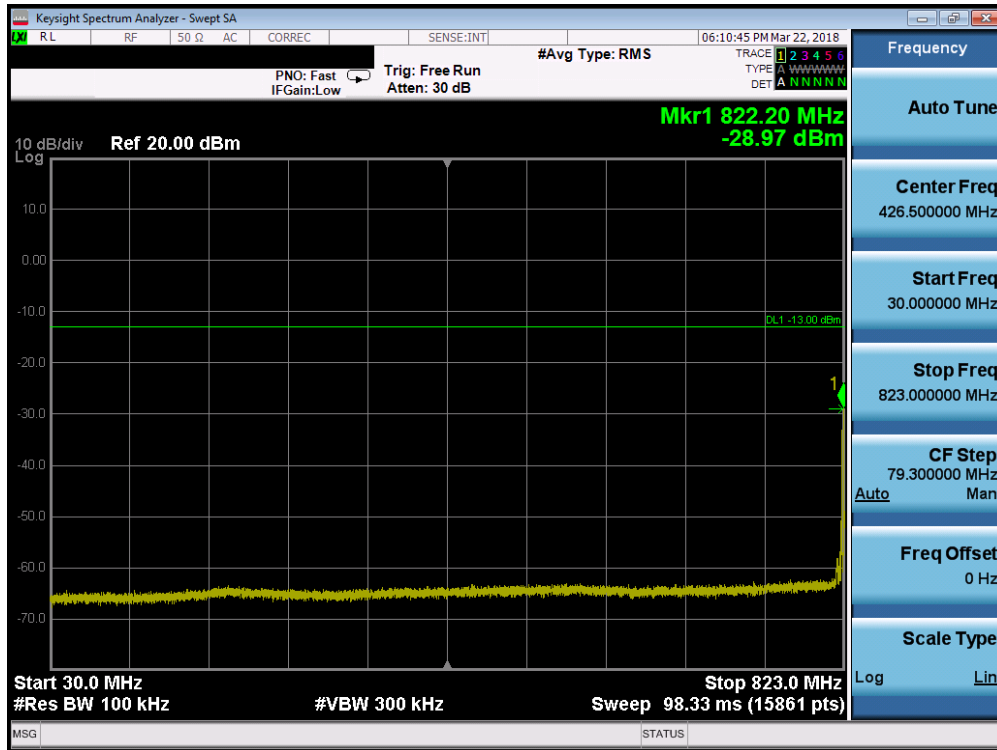
FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 82 of 262



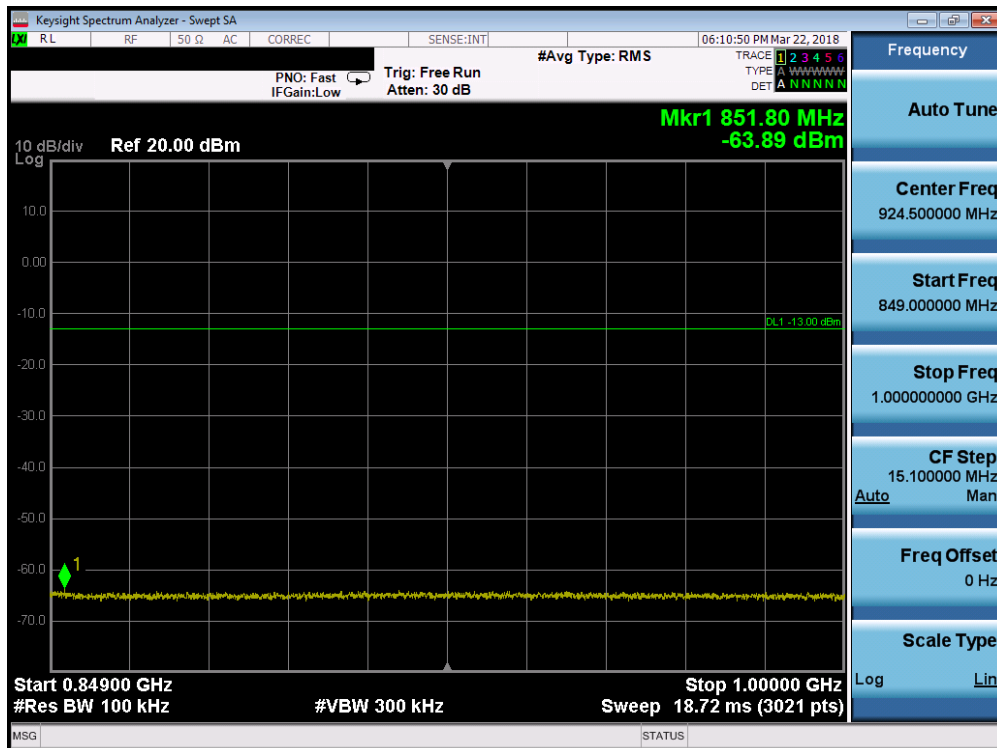
Plot 7-129. Conducted Spurious Plot (Band 13 - 10.0MHz QPSK - RB Size 1, RB Offset 0)

FCC ID: ZNFG710TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1-ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 83 of 262

## Band 5

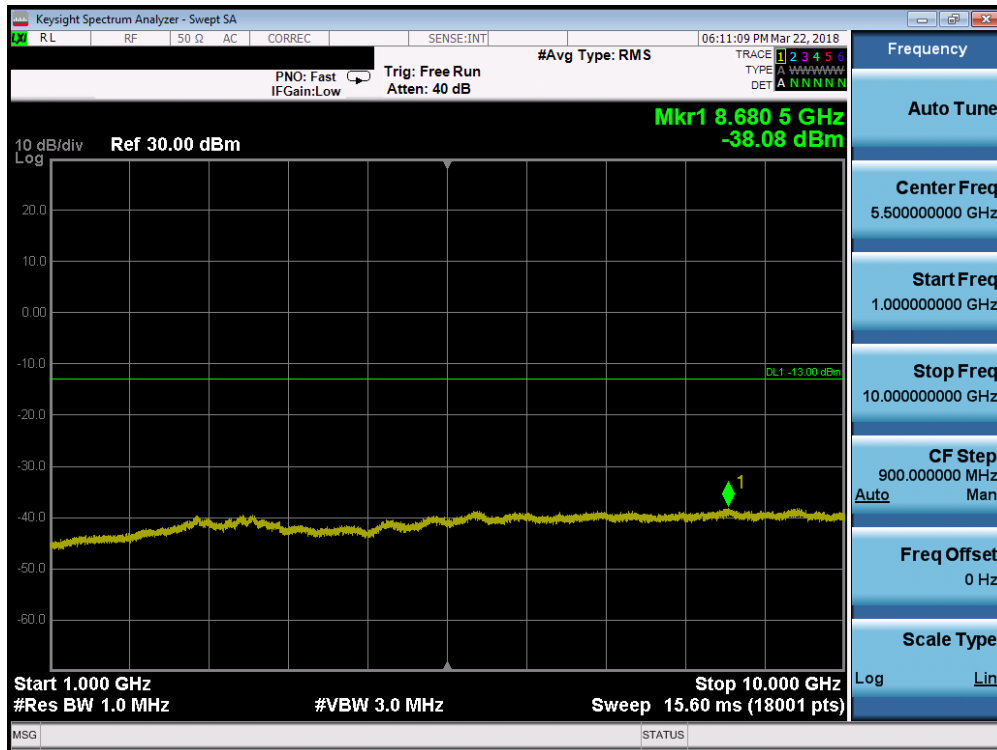


Plot 7-130. Conducted Spurious Plot (Band 5 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

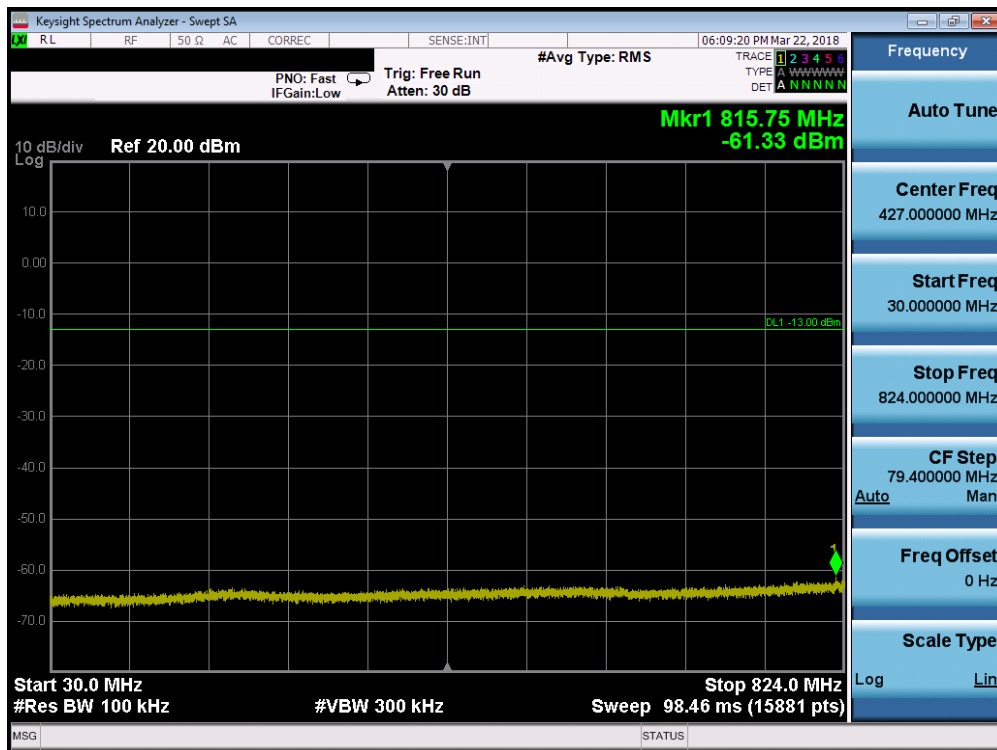


Plot 7-131. Conducted Spurious Plot (Band 5 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: ZNFG710TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1-ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 84 of 262

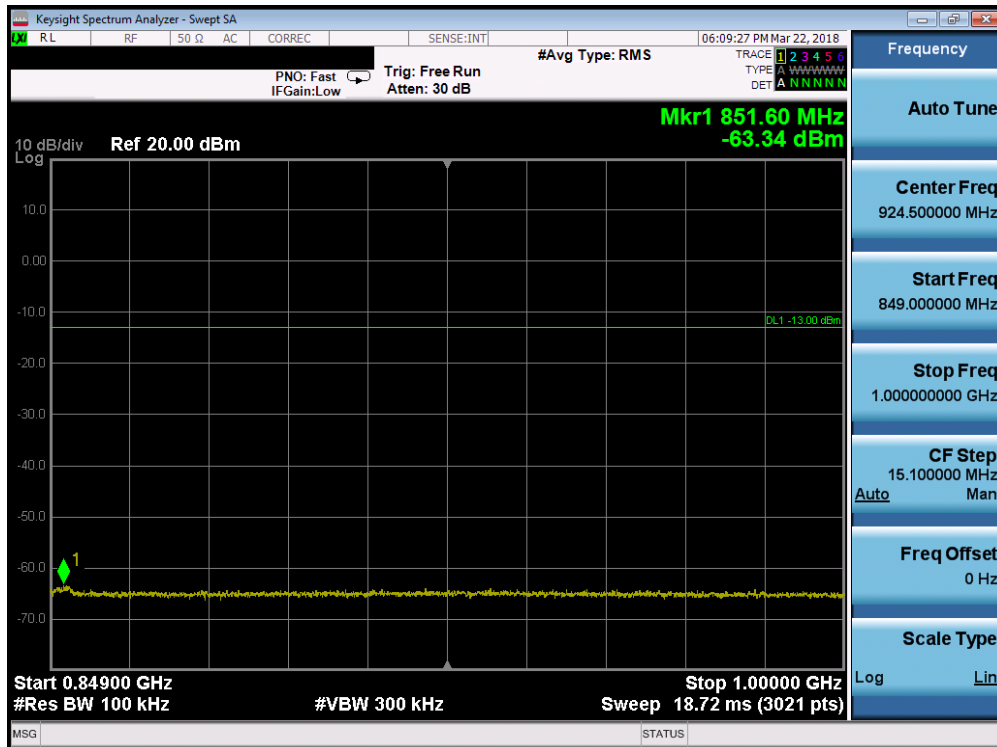


Plot 7-132. Conducted Spurious Plot (Band 5 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

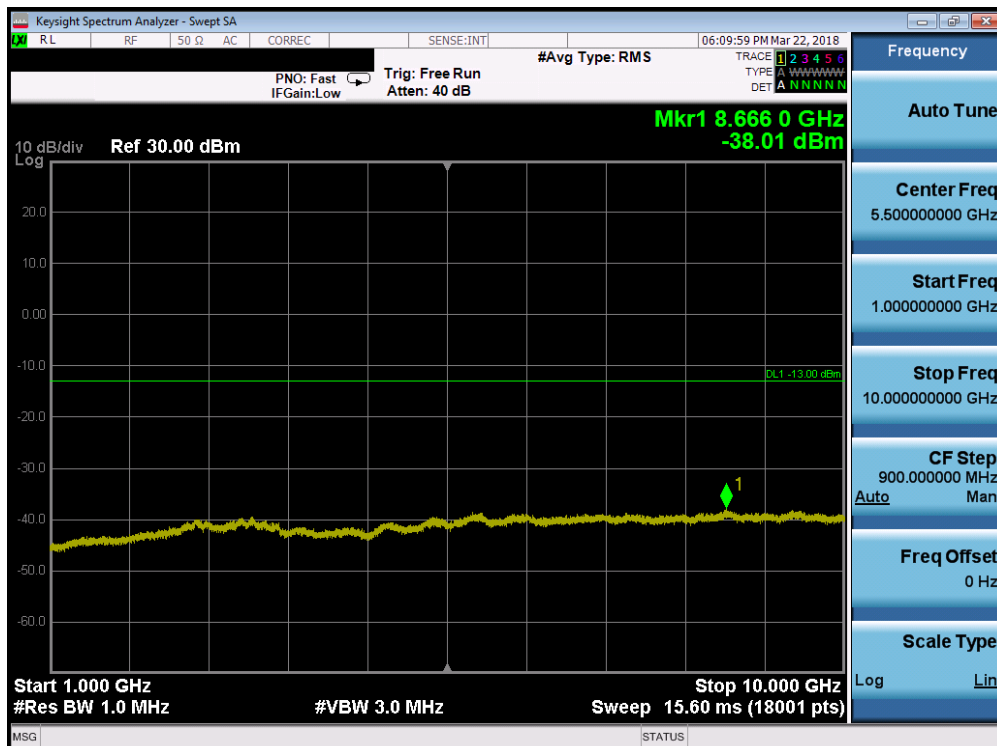


Plot 7-133. Conducted Spurious Plot (Band 5 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1-ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 85 of 262

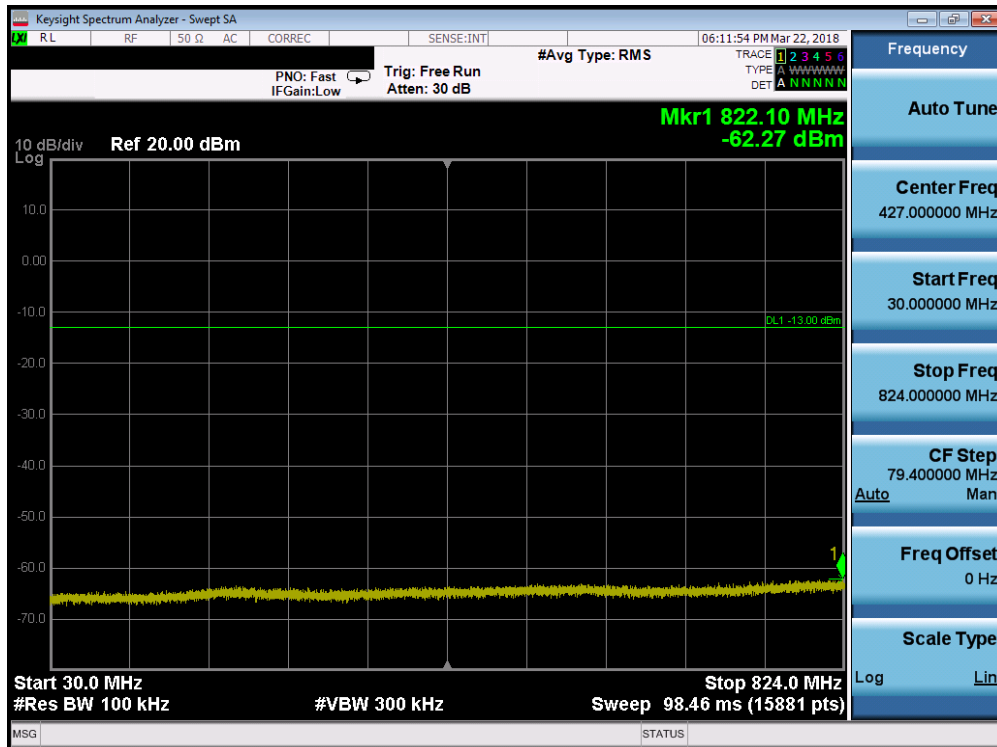


Plot 7-134. Conducted Spurious Plot (Band 5 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

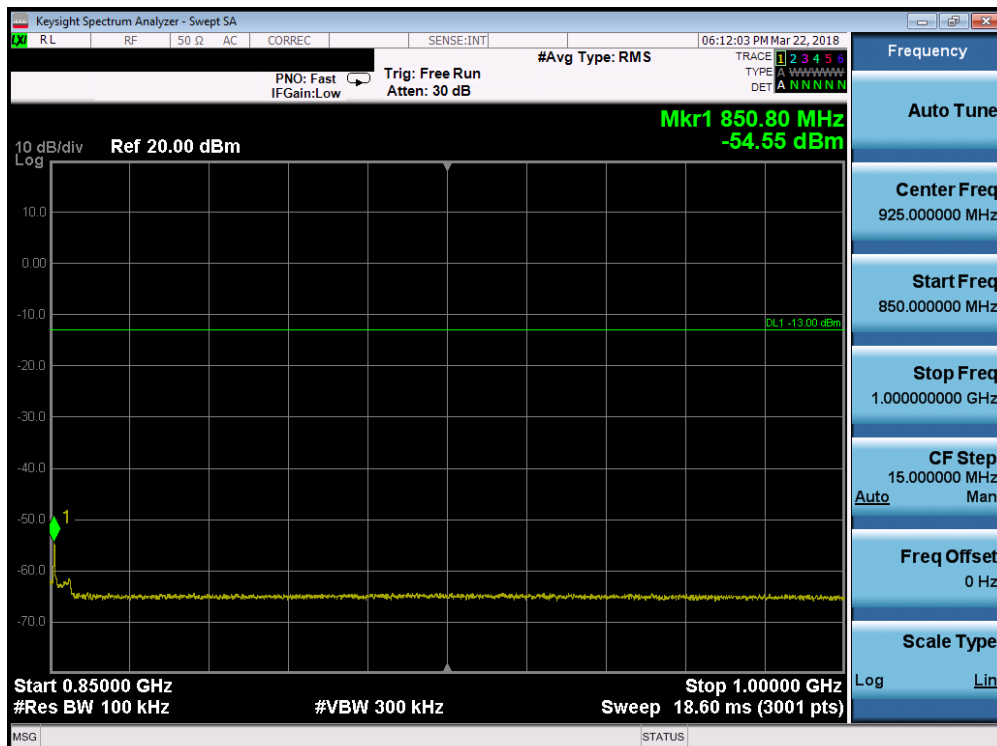


Plot 7-135. Conducted Spurious Plot (Band 5 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT</b> (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 86 of 262



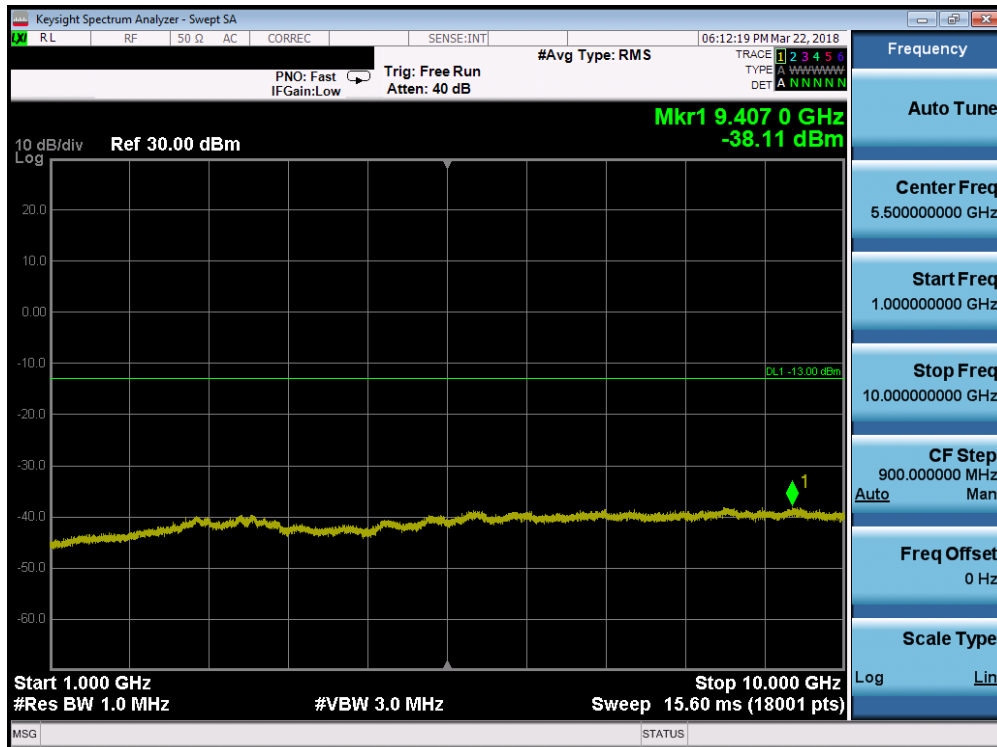
Plot 7-136. Conducted Spurious Plot (Band 5 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-137. Conducted Spurious Plot (Band 5 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFG710TM	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 87 of 262

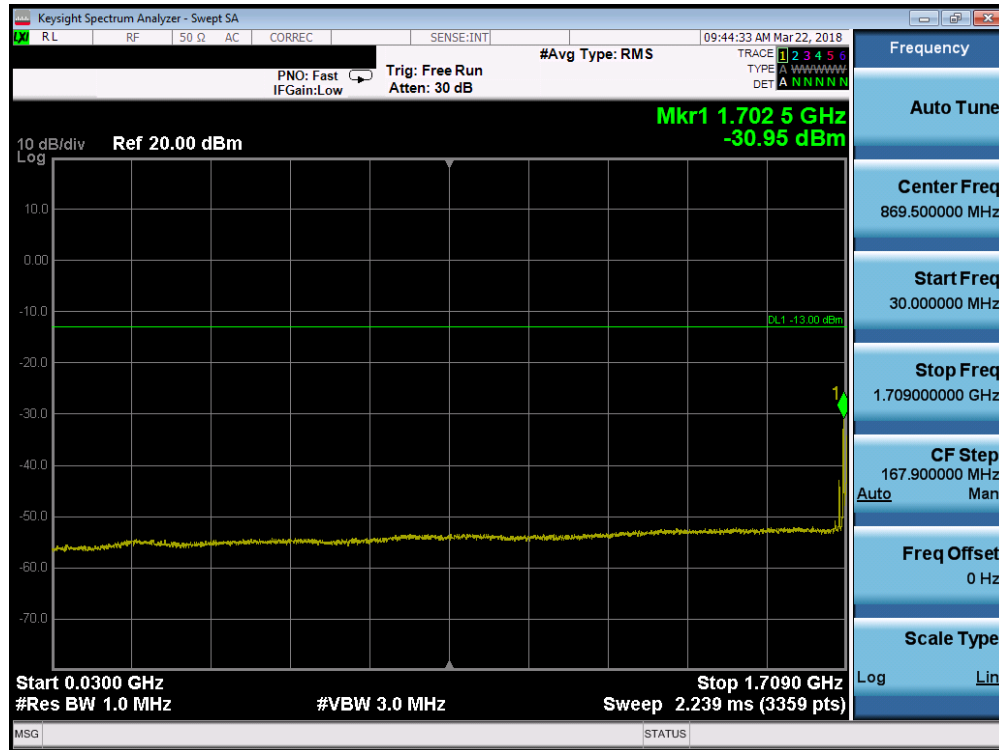




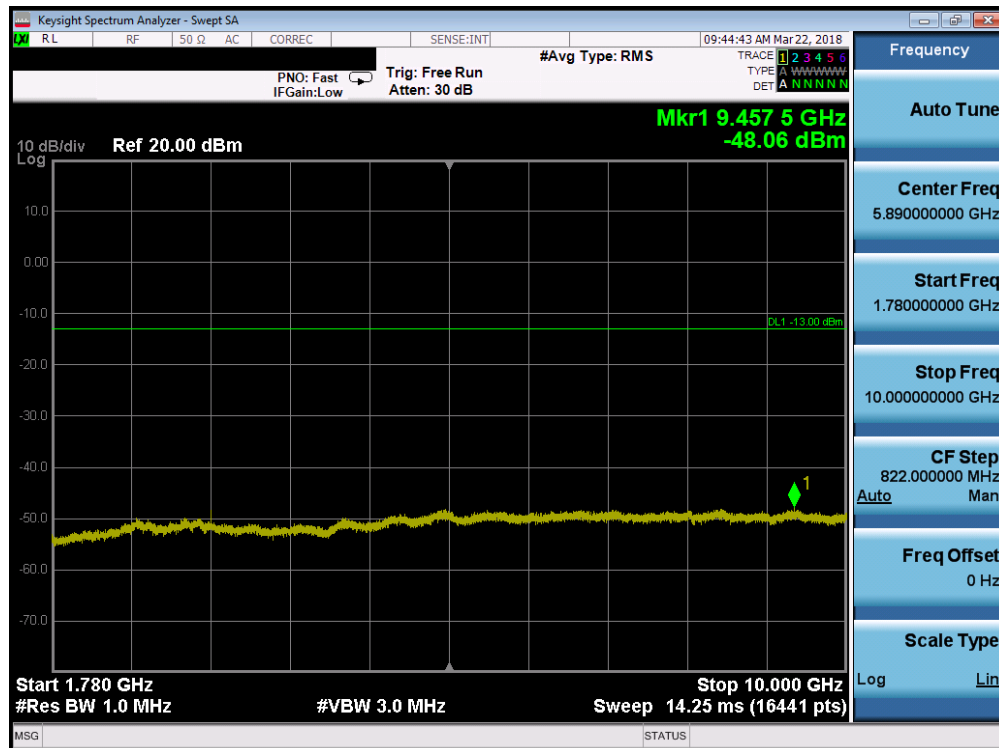
**Plot 7-138. Conducted Spurious Plot (Band 5 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)**

FCC ID: ZNFG710TM	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1802260030-03-R1.ZNF	<b>Test Dates:</b> 2/27-3/27/2018	<b>EUT Type:</b> Portable Handset	Page 88 of 262

## Band 66/4

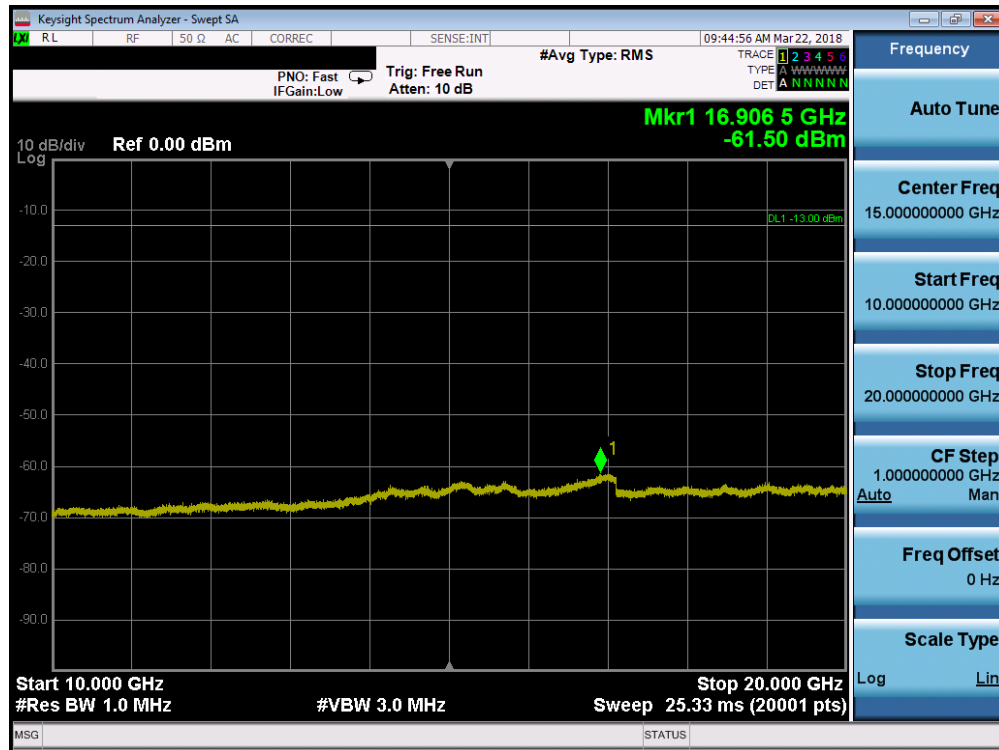


Plot 7-139. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

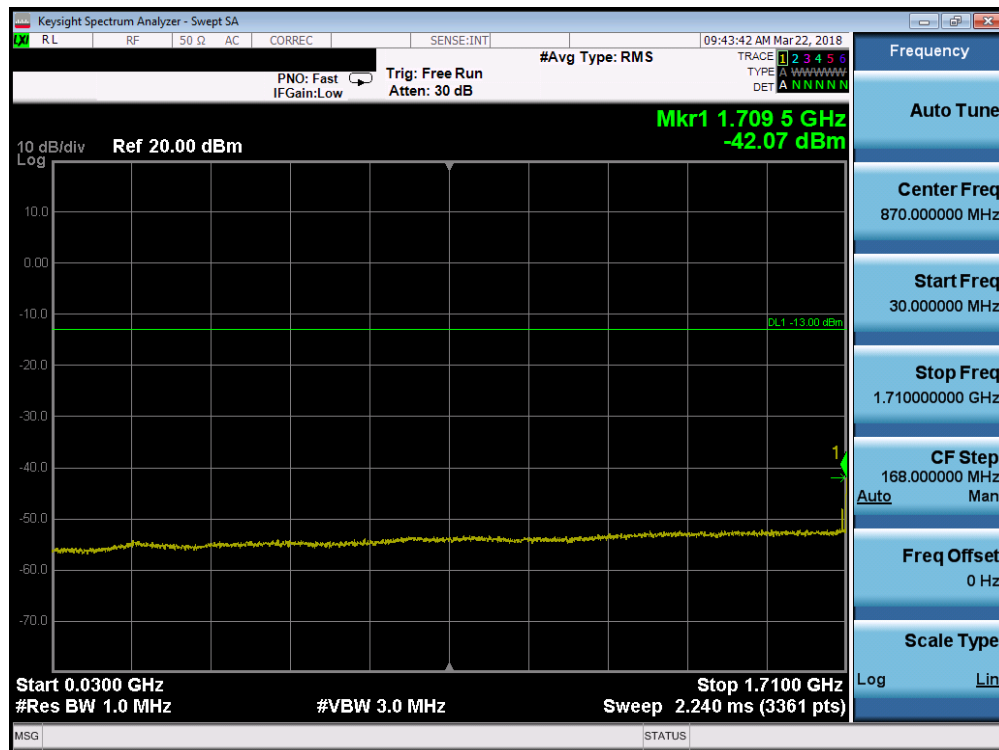


Plot 7-140. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 89 of 262

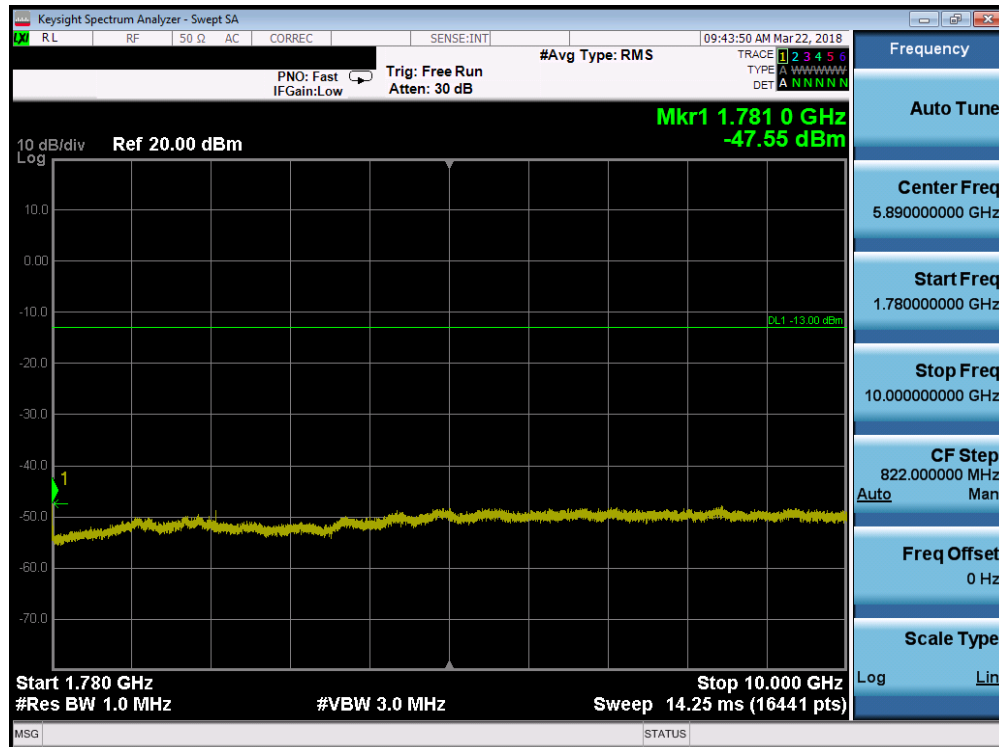


Plot 7-141. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

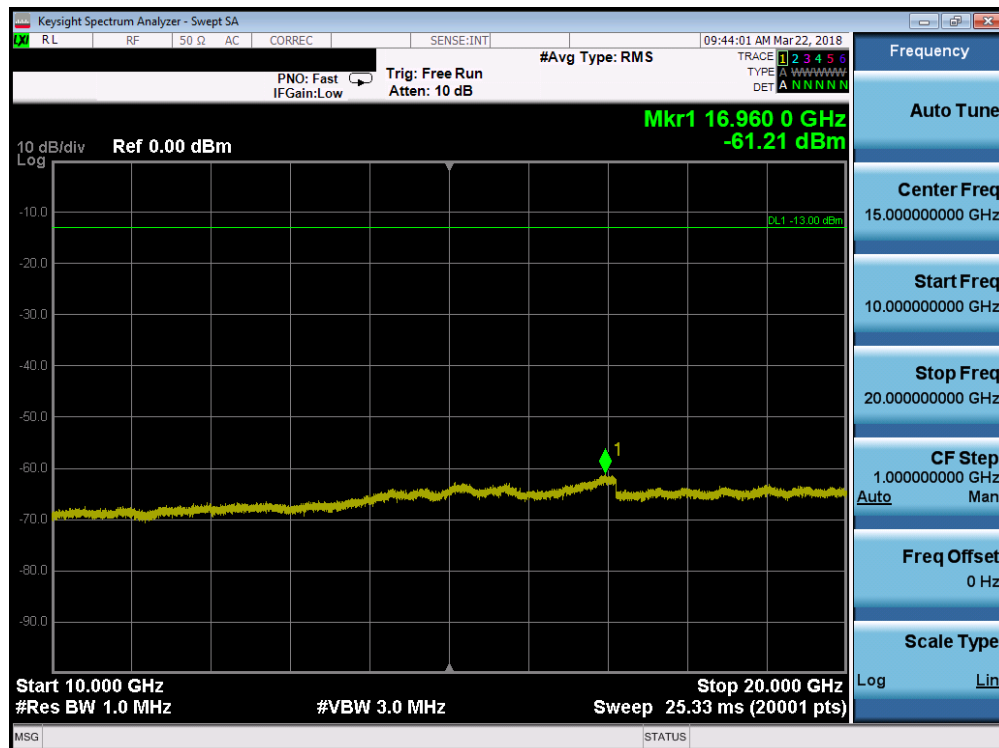


Plot 7-142. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1-ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 90 of 262

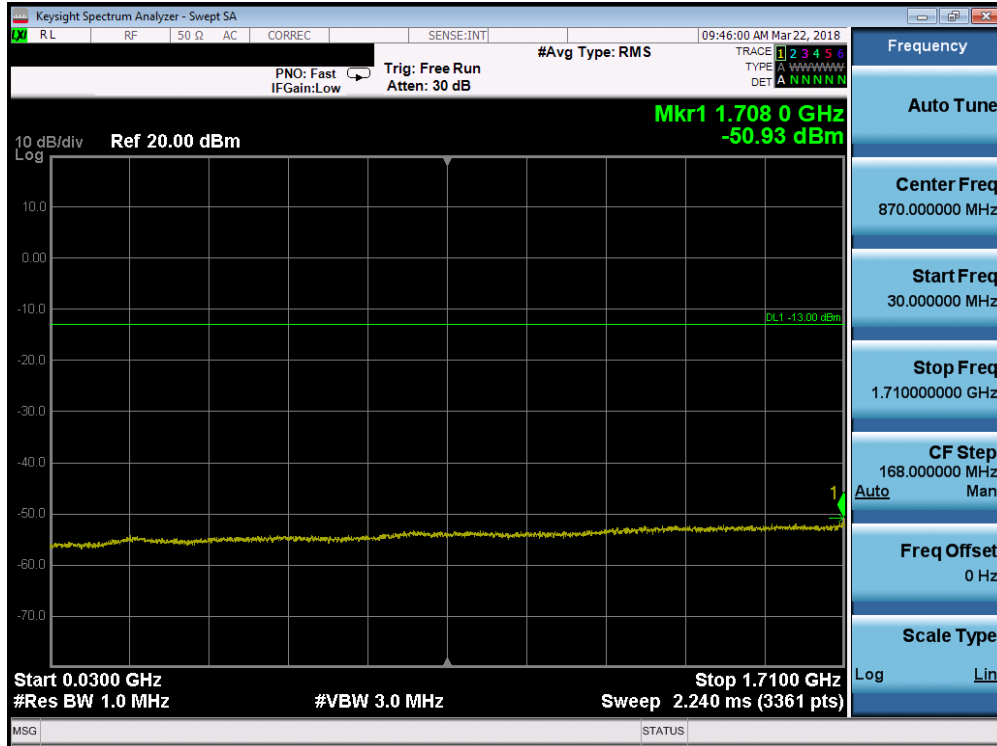


Plot 7-143. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

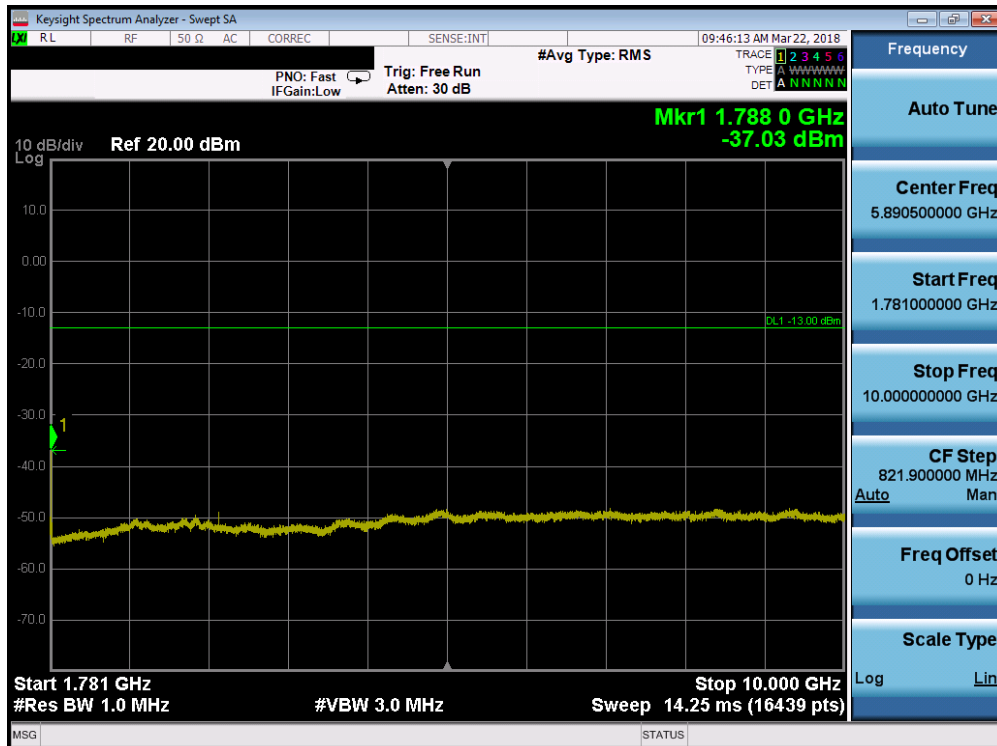


Plot 7-144. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFG710TM	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 91 of 262

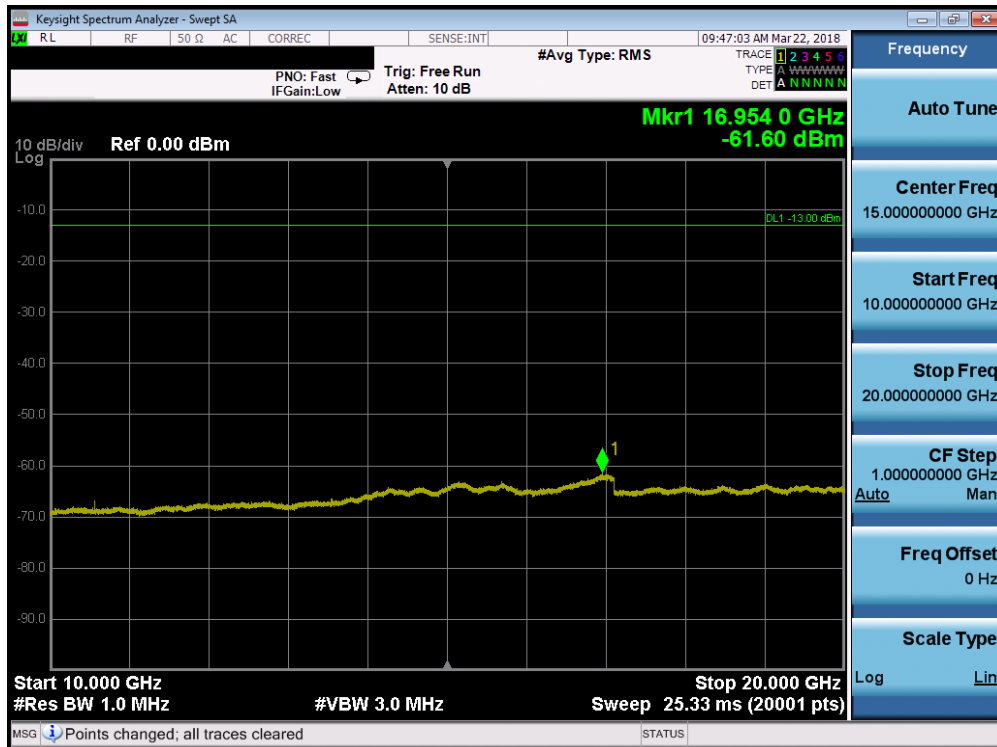


Plot 7-145. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-146. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

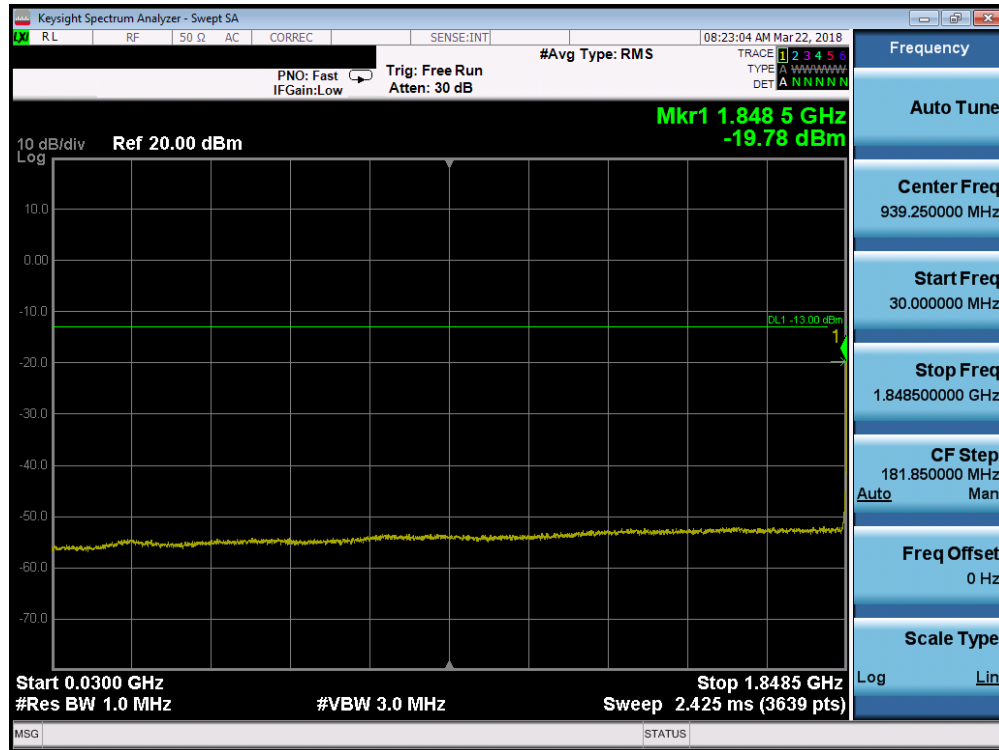
FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT</b> (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 92 of 262



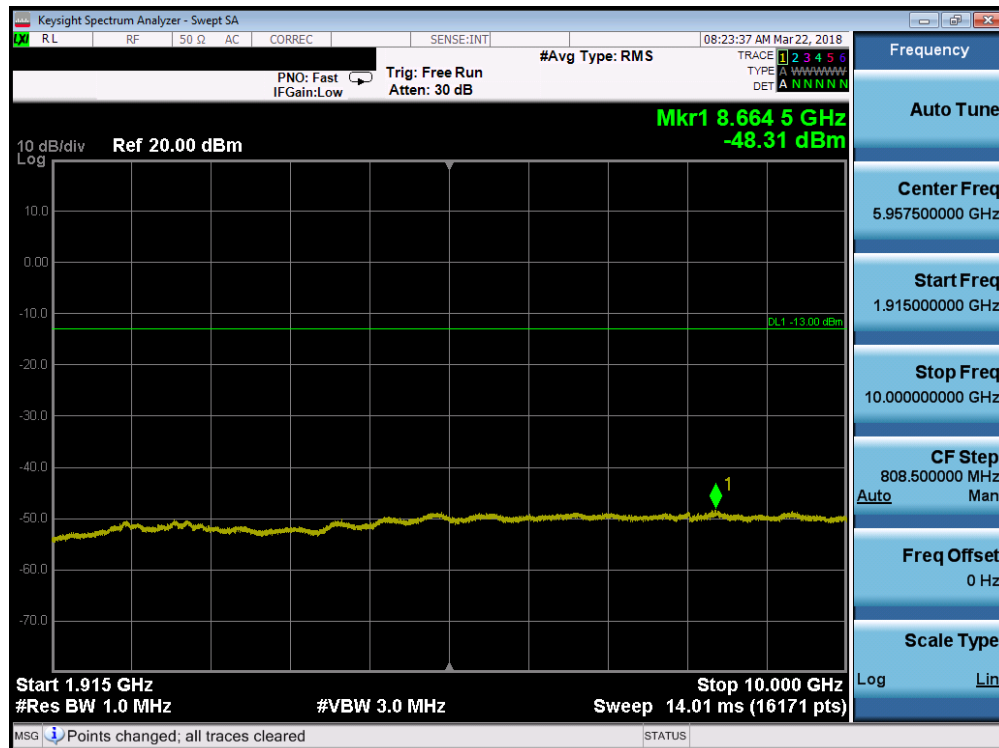
**Plot 7-147. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)**

FCC ID: ZNFG710TM	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1802260030-03-R1.ZNF	<b>Test Dates:</b> 2/27-3/27/2018	<b>EUT Type:</b> Portable Handset	Page 93 of 262

## Band 25/2

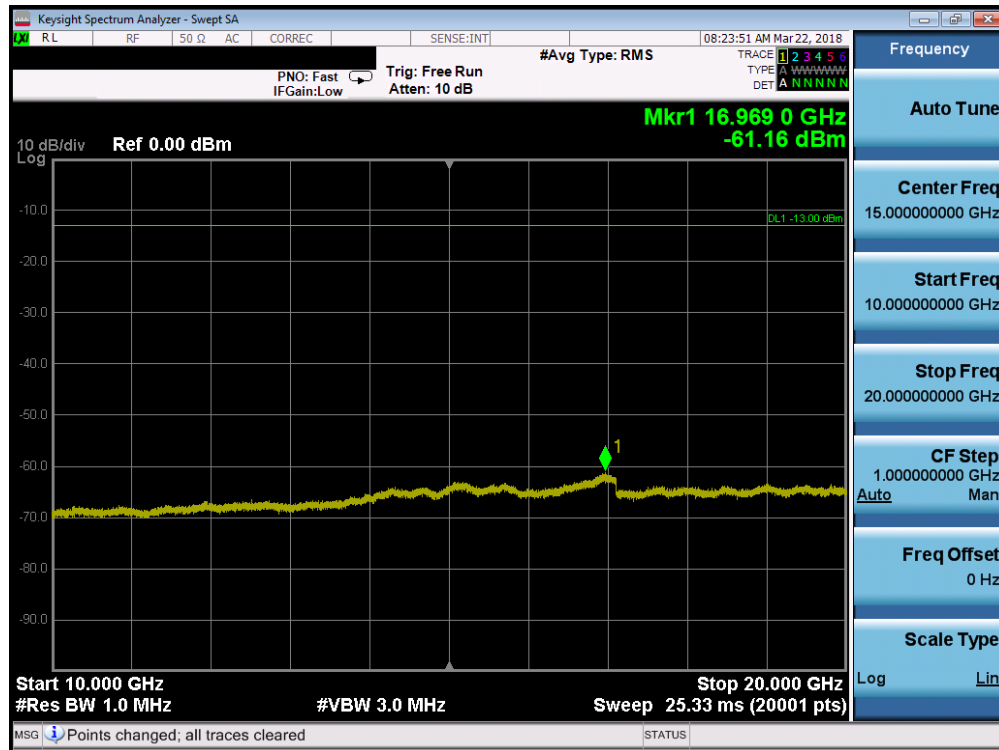


Plot 7-148. Conducted Spurious Plot (Band 25/2 - 1.4MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

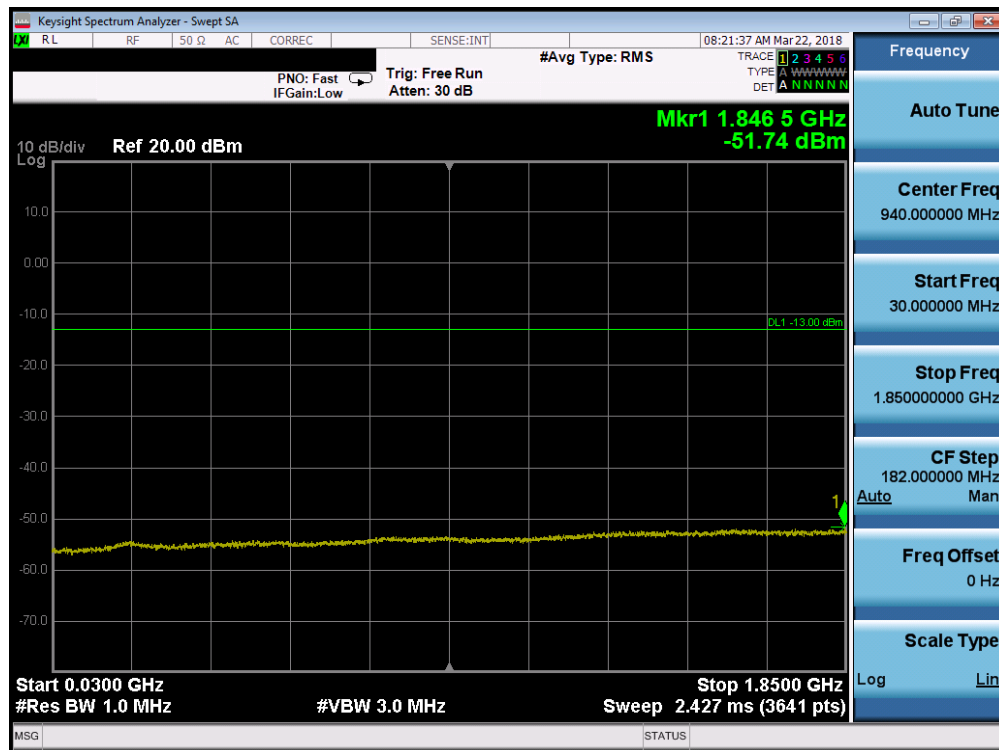


Plot 7-149. Conducted Spurious Plot (Band 25/2 - 1.4MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 94 of 262



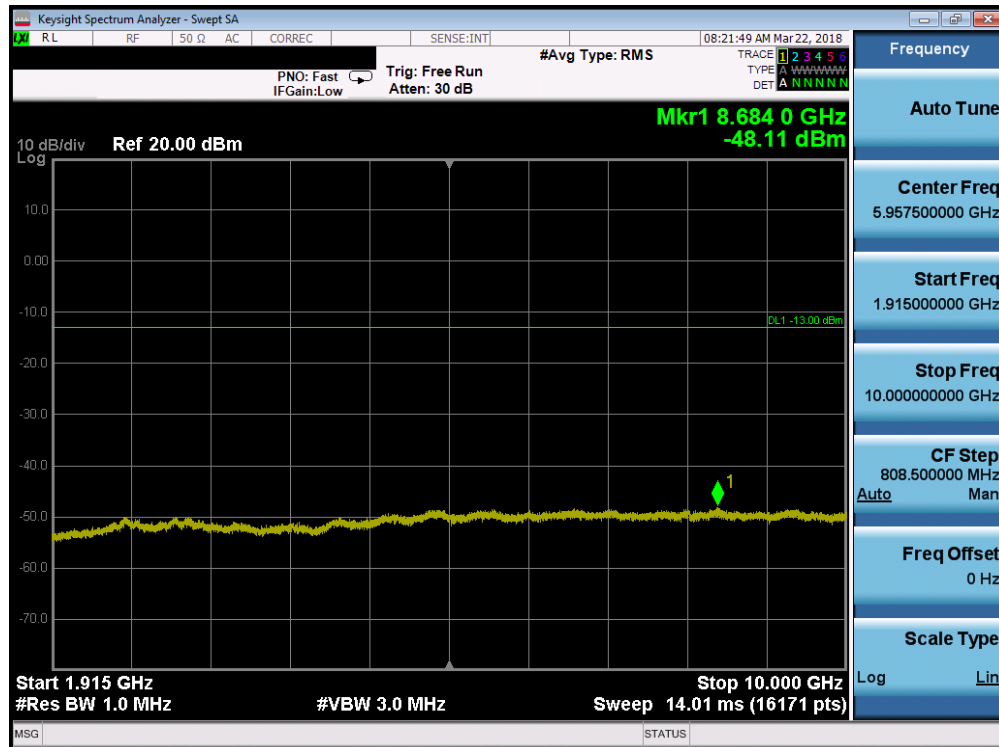
Plot 7-150. Conducted Spurious Plot (Band 25/2 - 1.4MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



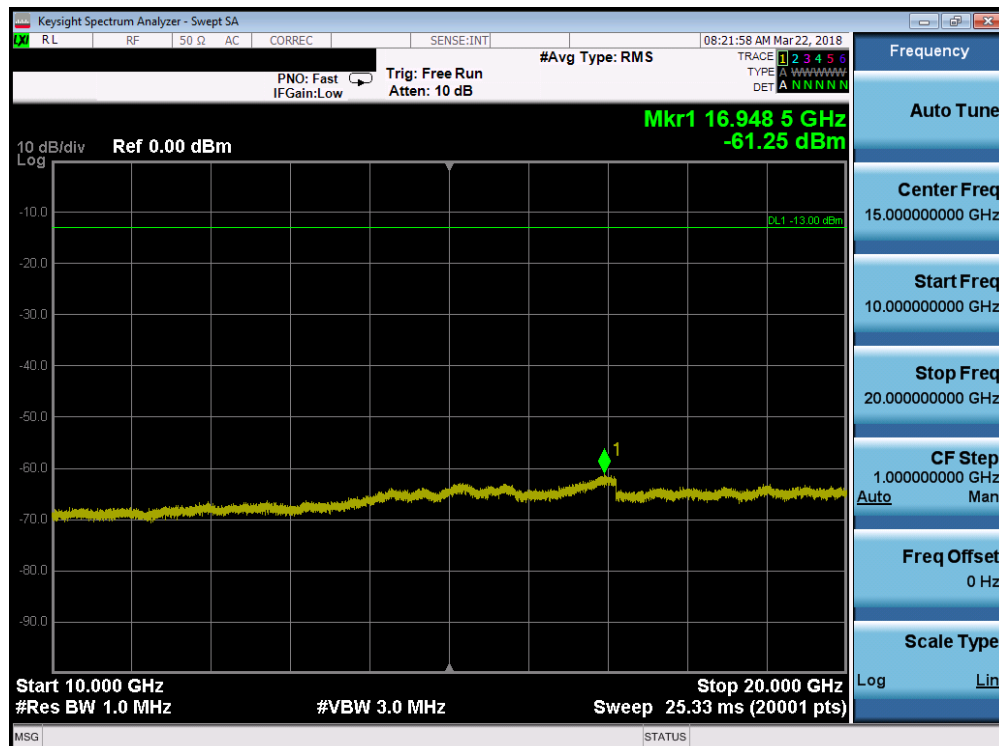
Plot 7-151. Conducted Spurious Plot (Band 25/2 - 1.4MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT</b> (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 95 of 262



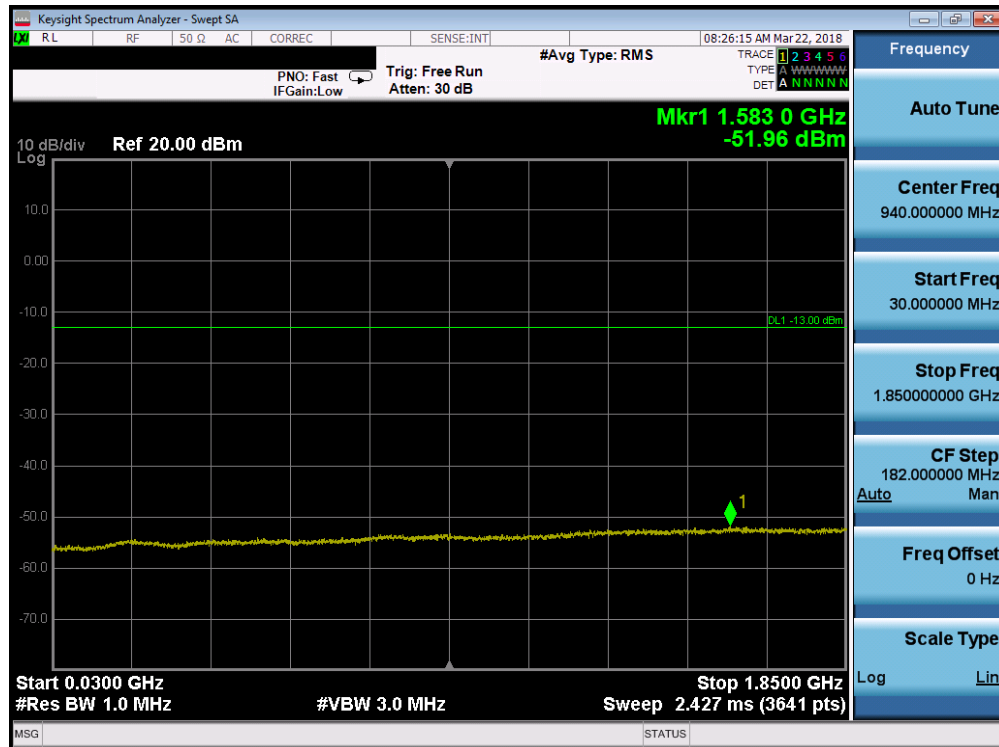


Plot 7-152. Conducted Spurious Plot (Band 25/2 - 1.4MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

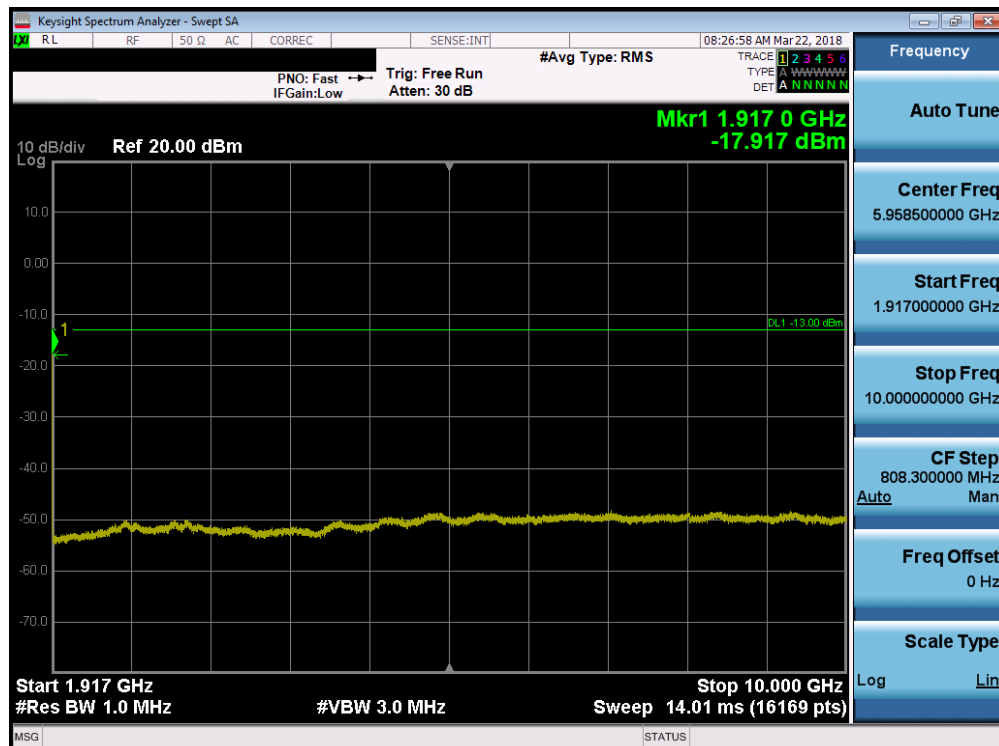


Plot 7-153. Conducted Spurious Plot (Band 25/2 - 1.4MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 96 of 262

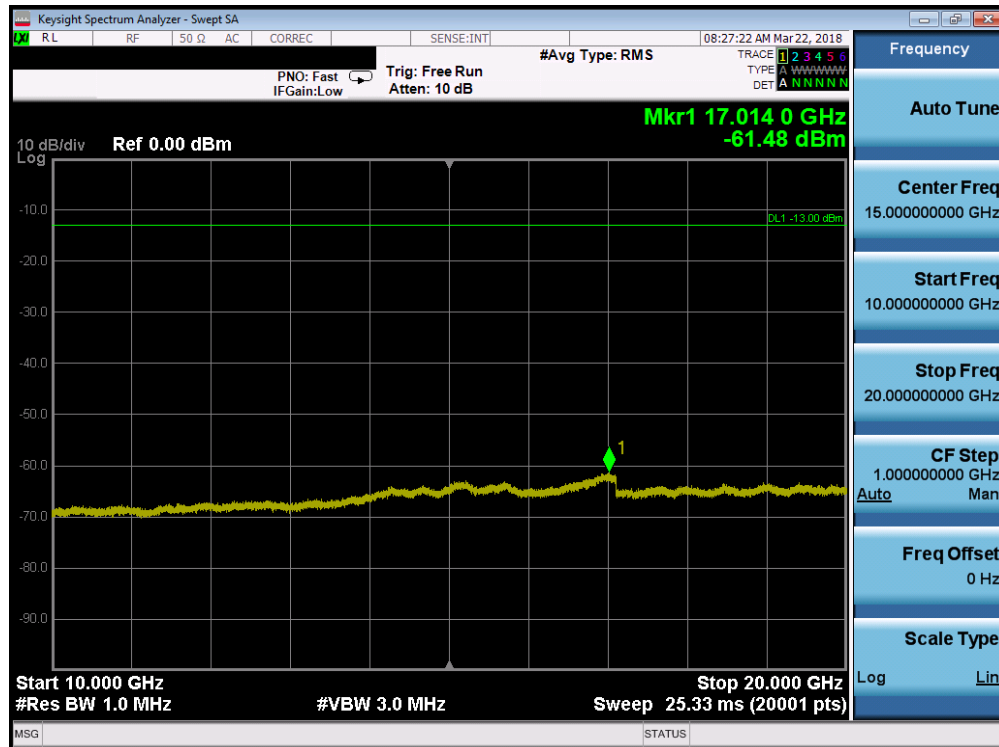


Plot 7-154. Conducted Spurious Plot (Band 25/2 - 1.4MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-155. Conducted Spurious Plot (Band 25/2 - 1.4MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

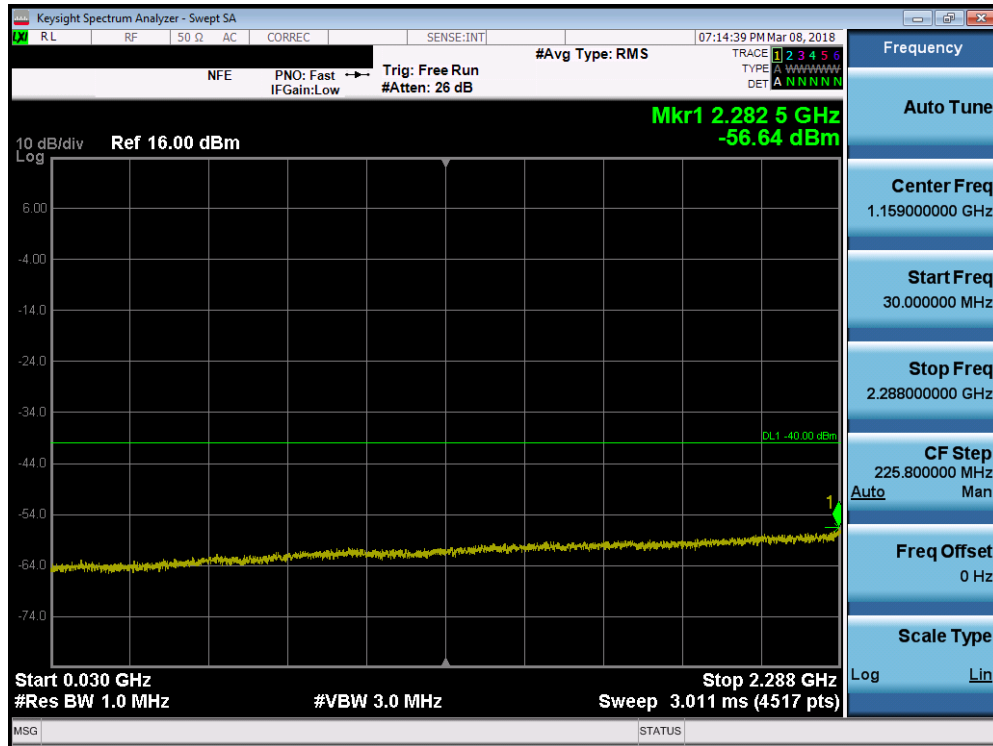
FCC ID: ZNFG710TM	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 97 of 262



Plot 7-156. Conducted Spurious Plot (Band 25/2 - 1.4MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFG710TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 98 of 262

## Band 30



Plot 7-157. Conducted Spurious Plot (Band 30 - 10.0MHz QPSK - RB Size 1, RB Offset 0)



Plot 7-158. Conducted Spurious Plot (Band 30 - 10.0MHz QPSK - RB Size 1, RB Offset 0)

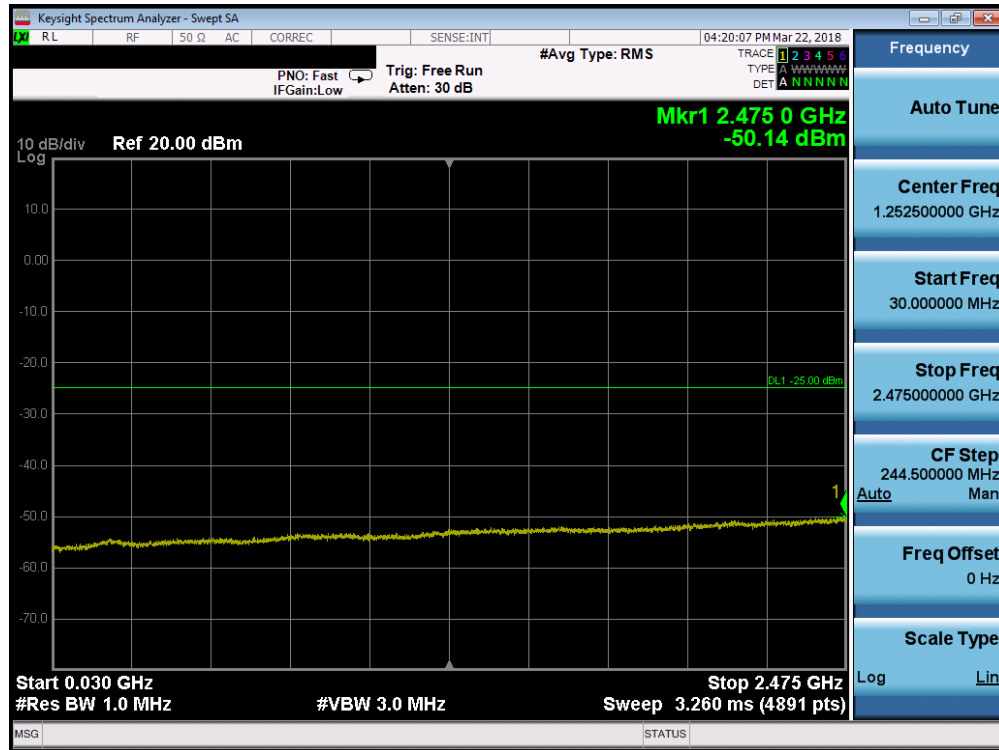
FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1-ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 99 of 262



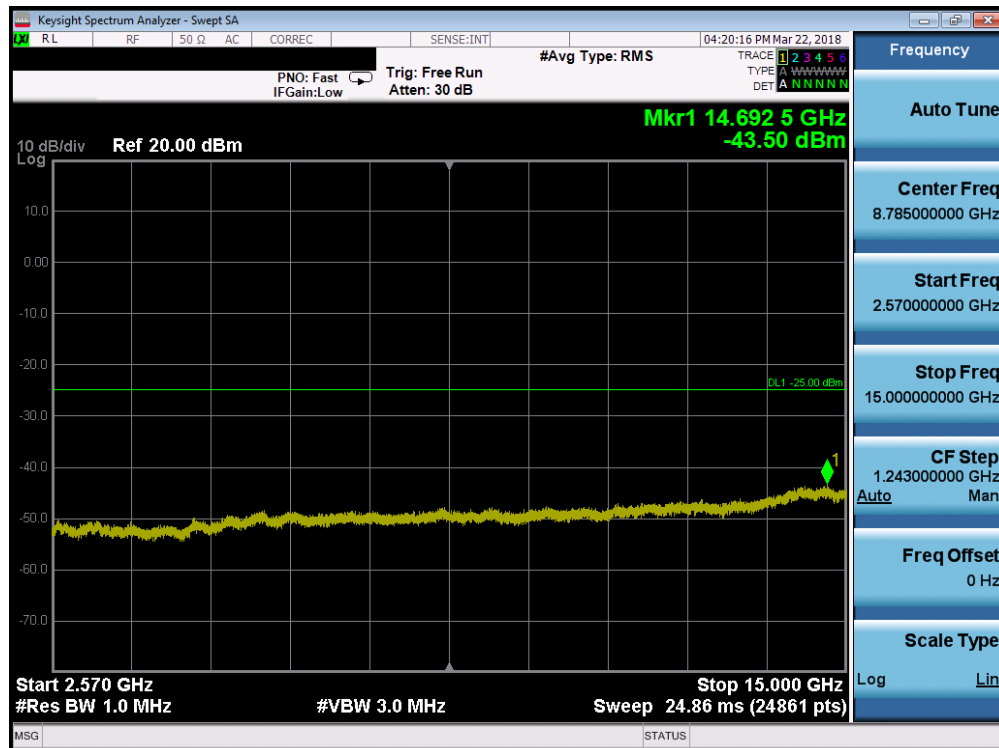
Plot 7-159. Conducted Spurious Plot (Band 30 - 10.0MHz QPSK - RB Size 1, RB Offset 0)

FCC ID: ZNFG710TM	 <b>MEASUREMENT REPORT</b> (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1-ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 100 of 262

## Band 7



Plot 7-160. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-161. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT</b> (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 101 of 262	



Plot 7-162. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

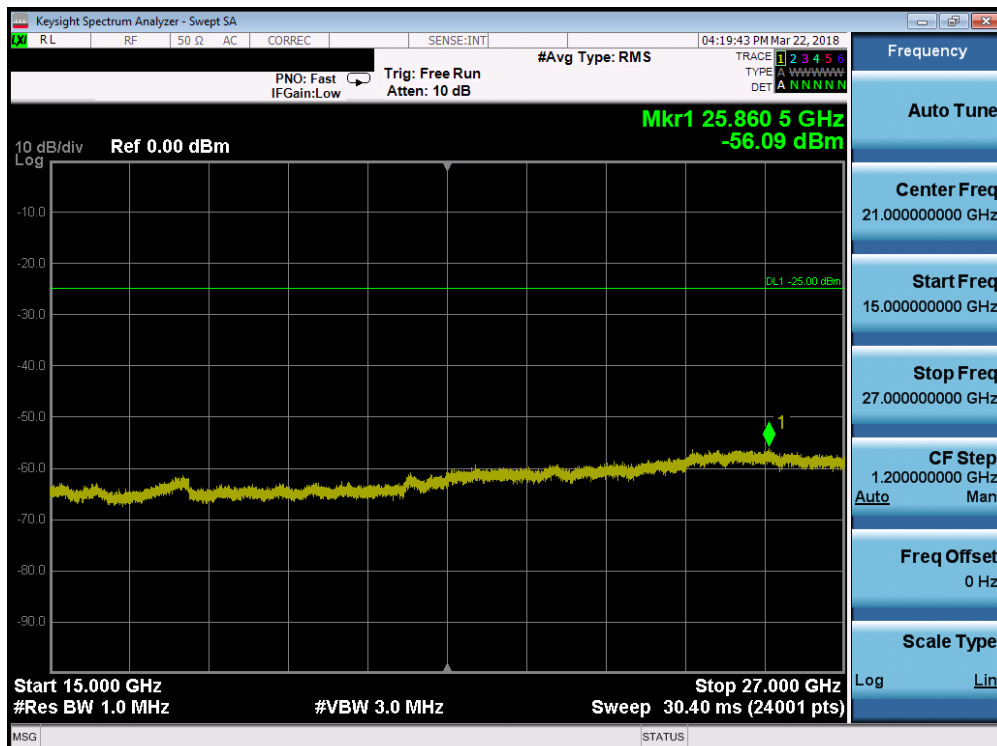


Plot 7-163. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 102 of 262



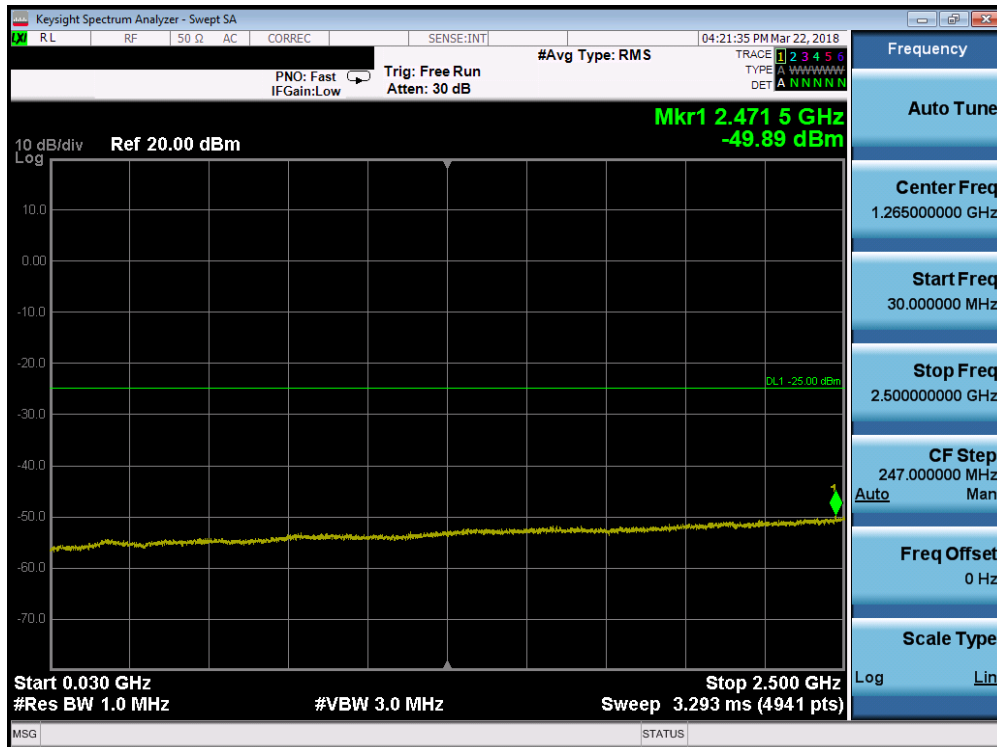
Plot 7-164. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



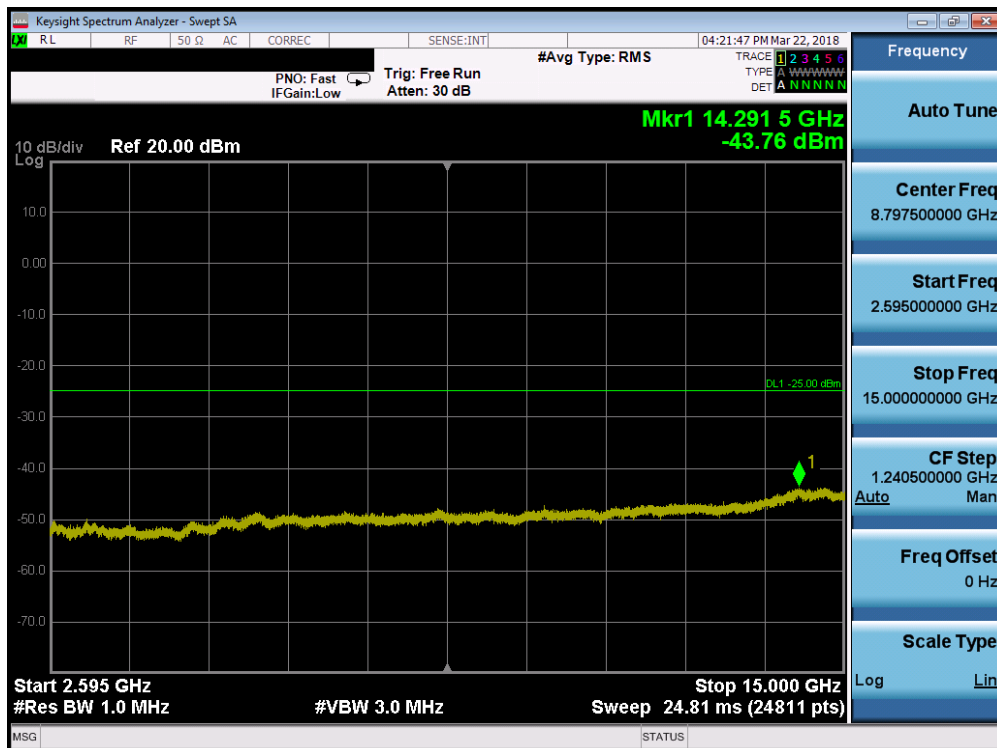
Plot 7-165. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 103 of 262





Plot 7-166. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-167. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

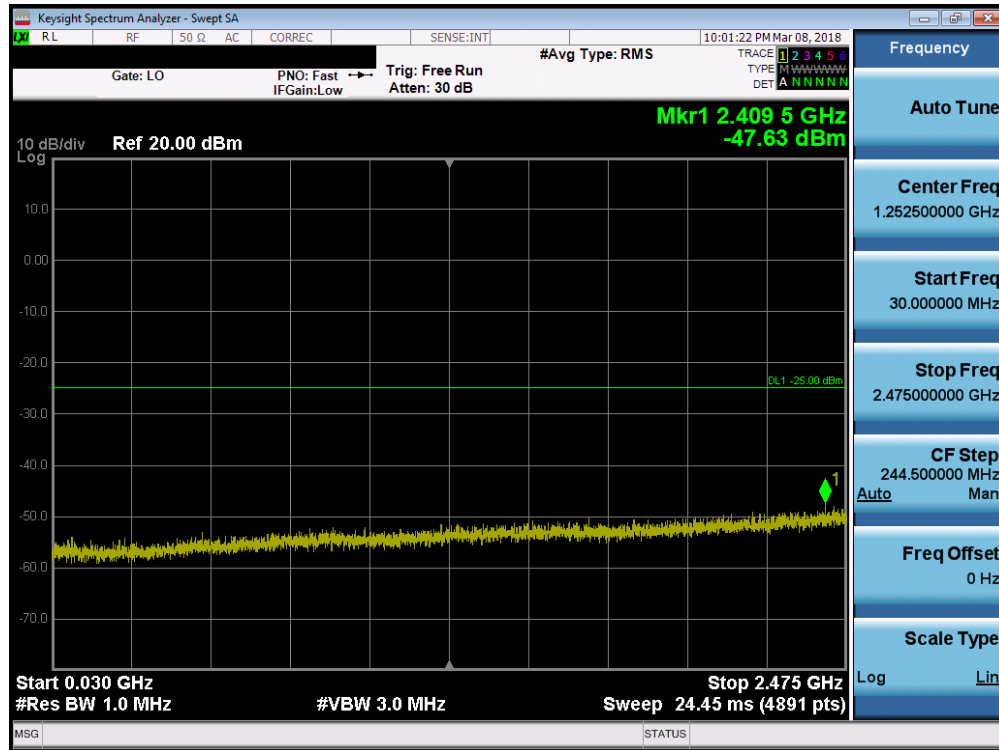
FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 104 of 262



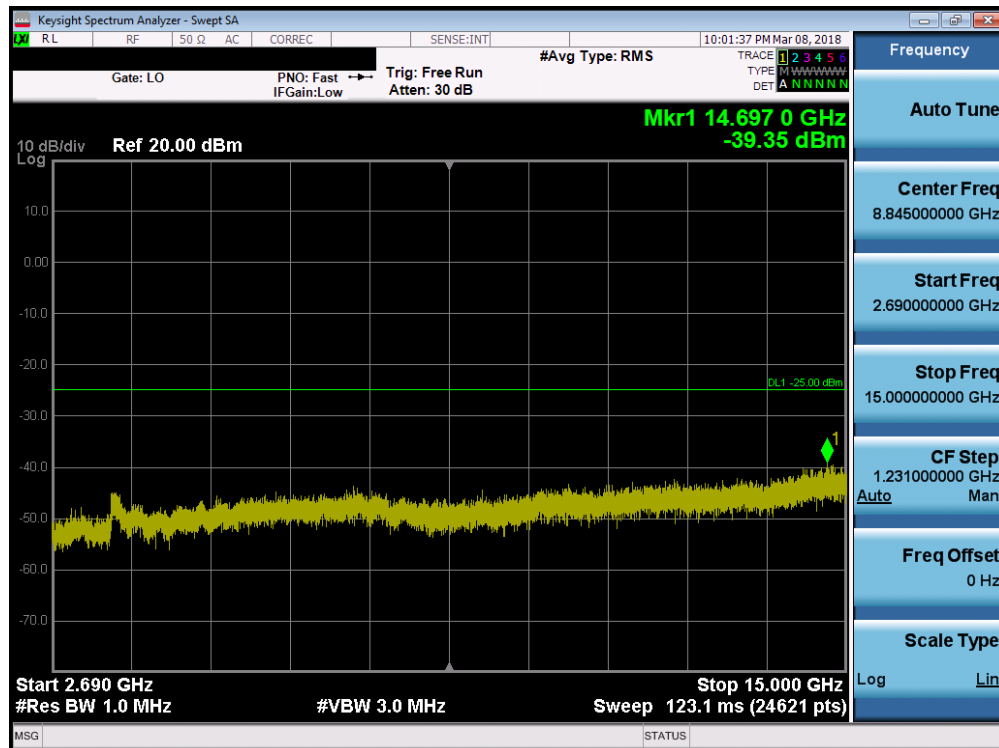
Plot 7-168. Conducted Spurious Plot (Band 7 - 5.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFG710TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 105 of 262

## Band 41

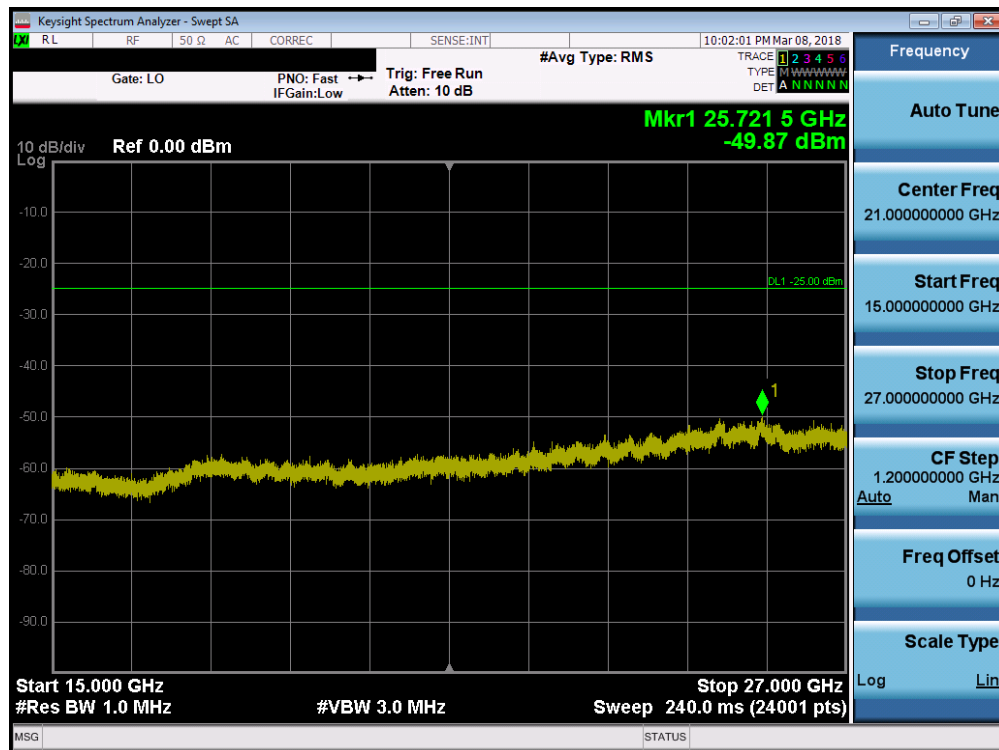


Plot 7-169. Conducted Spurious Plot (Band 41 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

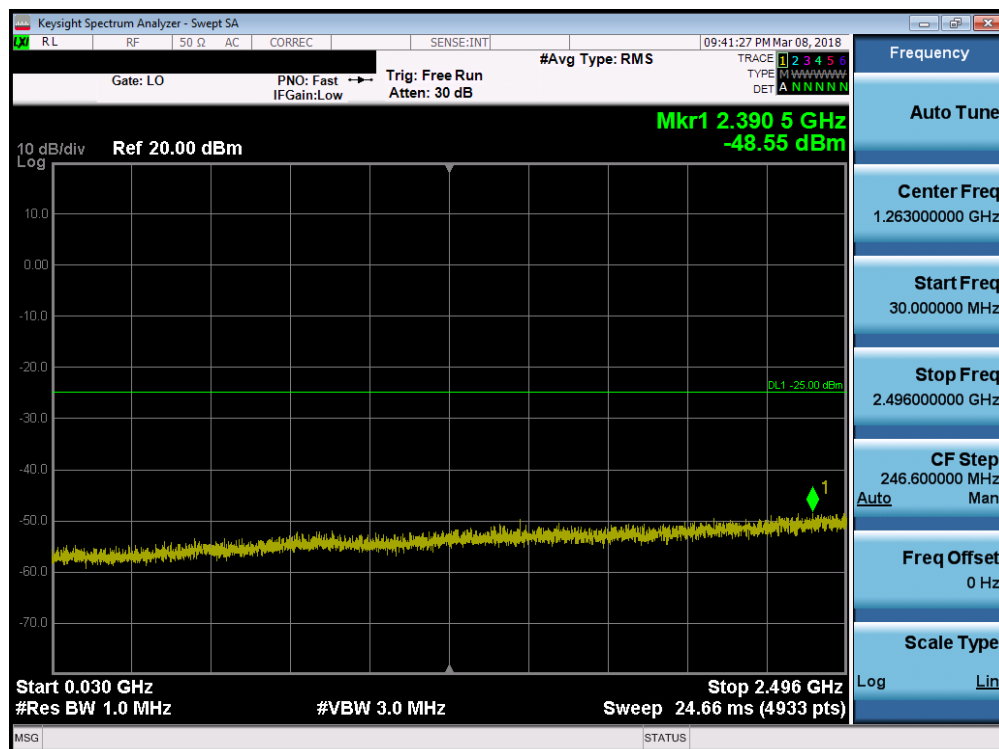


Plot 7-170. Conducted Spurious Plot (Band 41 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 106 of 262

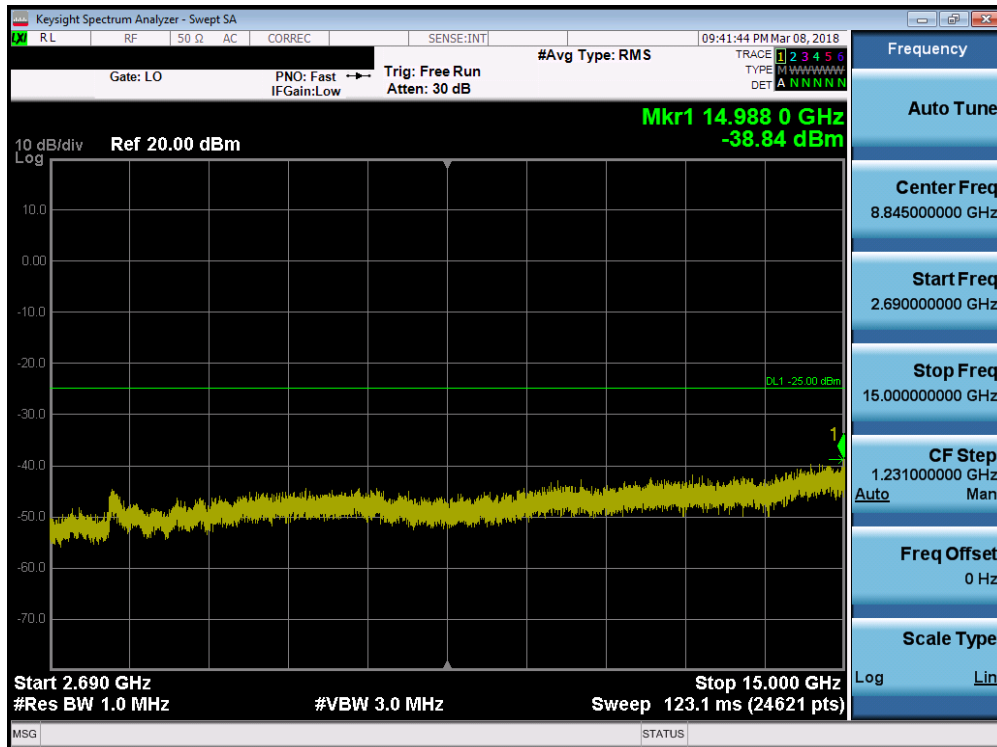


Plot 7-171. Conducted Spurious Plot (Band 41 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

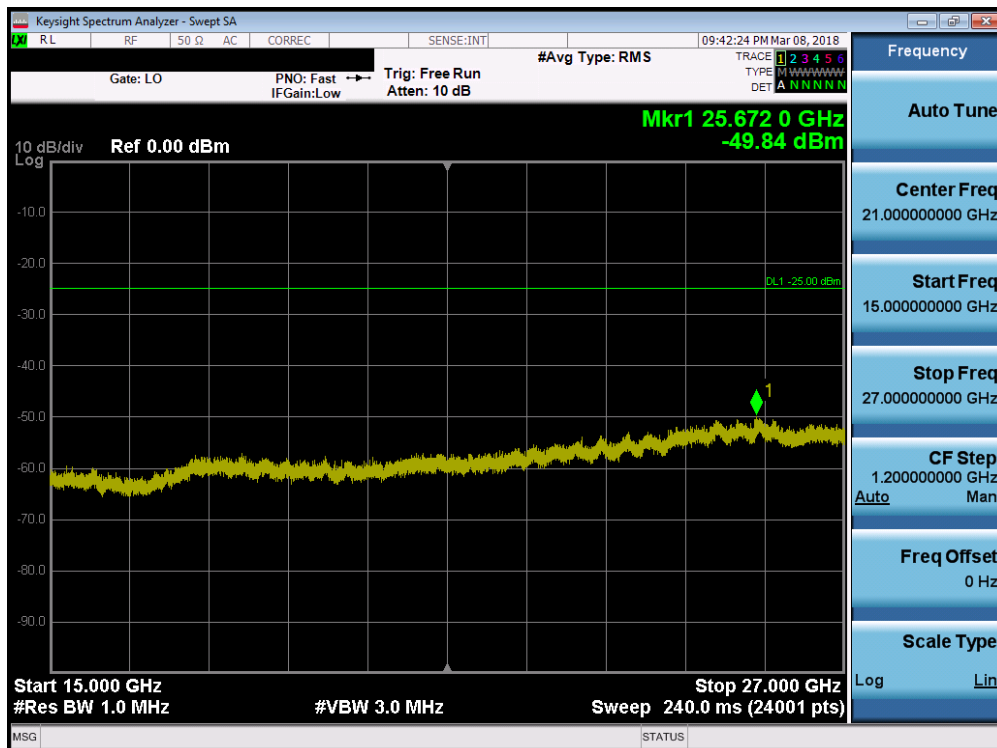


Plot 7-172. Conducted Spurious Plot (Band 41 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 107 of 262

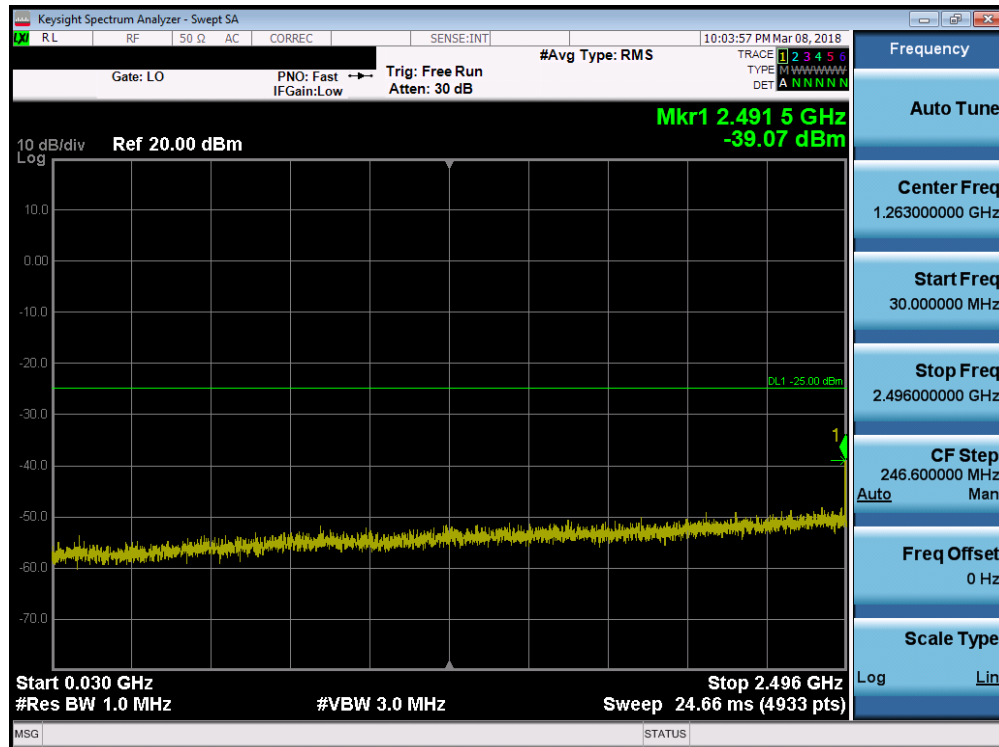


Plot 7-173. Conducted Spurious Plot (Band 41 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

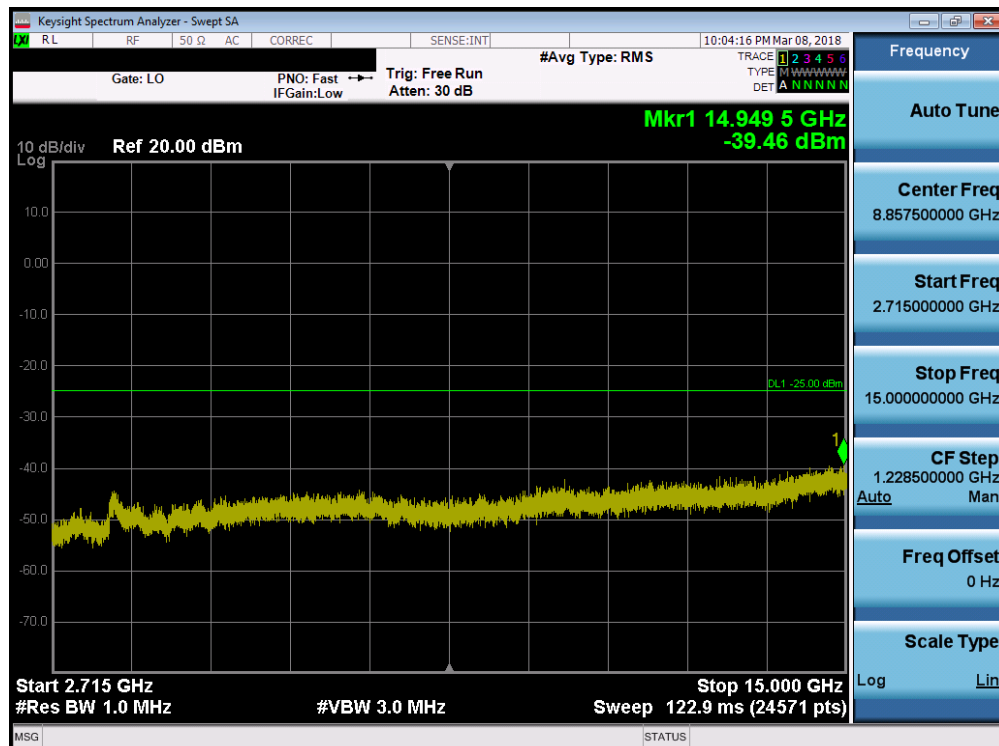


Plot 7-174. Conducted Spurious Plot (Band 41 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT</b> (CERTIFICATION)		<b>Approved by:</b> Quality Manager
Test Report S/N: 1M1802260030-03-R1-ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 108 of 262

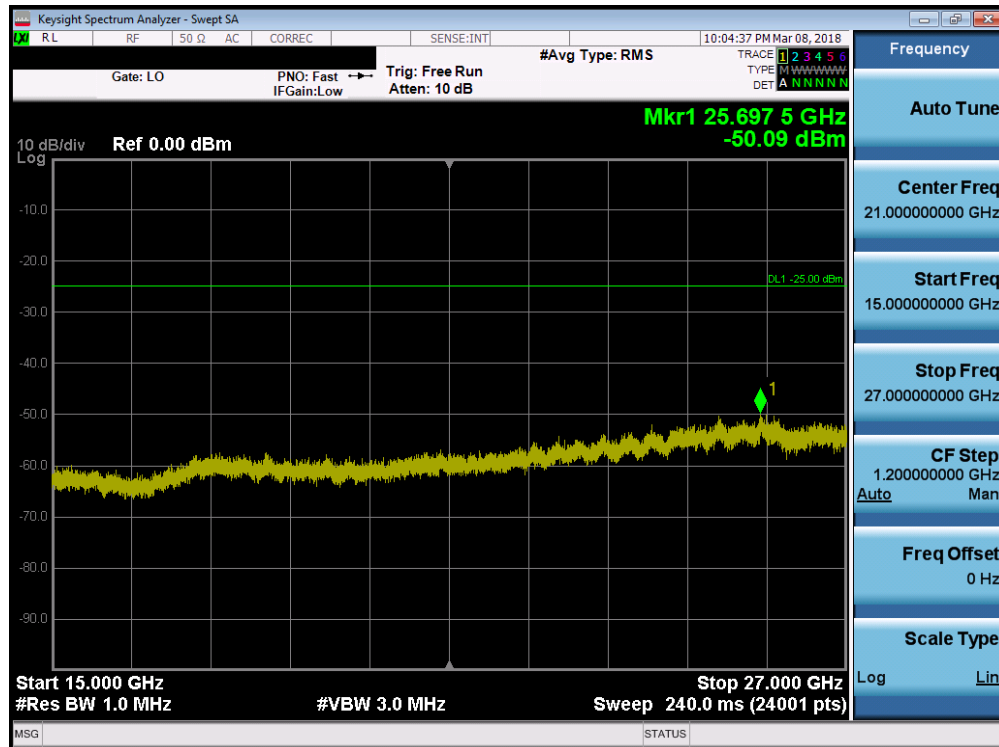


Plot 7-175. Conducted Spurious Plot (Band 41 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-176. Conducted Spurious Plot (Band 41 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT</b> (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 109 of 262



Plot 7-177. Conducted Spurious Plot (Band 41 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFG710TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 110 of 262

## 7.4 Band Edge Emissions at Antenna Terminal

§2.1051 §22.917(a) §24.238(a) §27.53(c) §27.53(g) §27.53(h) §27.53(m) §27.53(a)(4)

### Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

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

**The minimum permissible attenuation level for Band 30 is  $> 43 + 10\log_{10}(P[\text{Watts}])$  at 2300-2305MHz & 2345-2360MHz,  $> 55 + 10\log_{10}(P[\text{Watts}])$  at 2320-2324MHz & 2341-2345MHz,  $> 61 + 10\log_{10}(P[\text{Watts}])$  at 2324-2328MHz & 2337-2341MHz,  $> 67 + 10\log_{10}(P[\text{Watts}])$  at 2288-2292MHz & 2328-2337MHz, and  $> 70 + 10\log_{10}(P[\text{Watts}])$  at frequencies  $< 2288\text{MHz}$  &  $> 2365\text{MHz}$ .**

**The minimum permissible attenuation level for Band 7 and 41 is as noted in the Test Notes on the following page.**

### Test Procedure Used

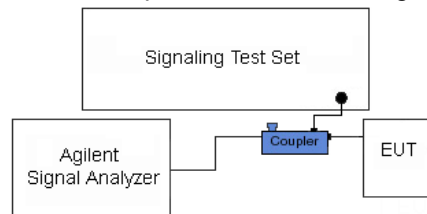
KDB 971168 D01 v03 – Section 6.0

### Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW  $\geq 1\%$  of the emission bandwidth
4. VBW  $\geq 3 \times$  RBW
5. Detector = RMS
6. Number of sweep points  $\geq 2 \times$  Span/RBW
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize

### Test Setup

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



**Figure 7-3. Test Instrument & Measurement Setup**

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	LG	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 111 of 262



## Test Notes

Per 22.917(b) 24.238(a) 27.53(h) in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to demonstrate compliance with the out-of-band emissions limit. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

Per 27.53(g) for operations in the 698-746 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

Per 27.53(c)(5) for operations in the 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

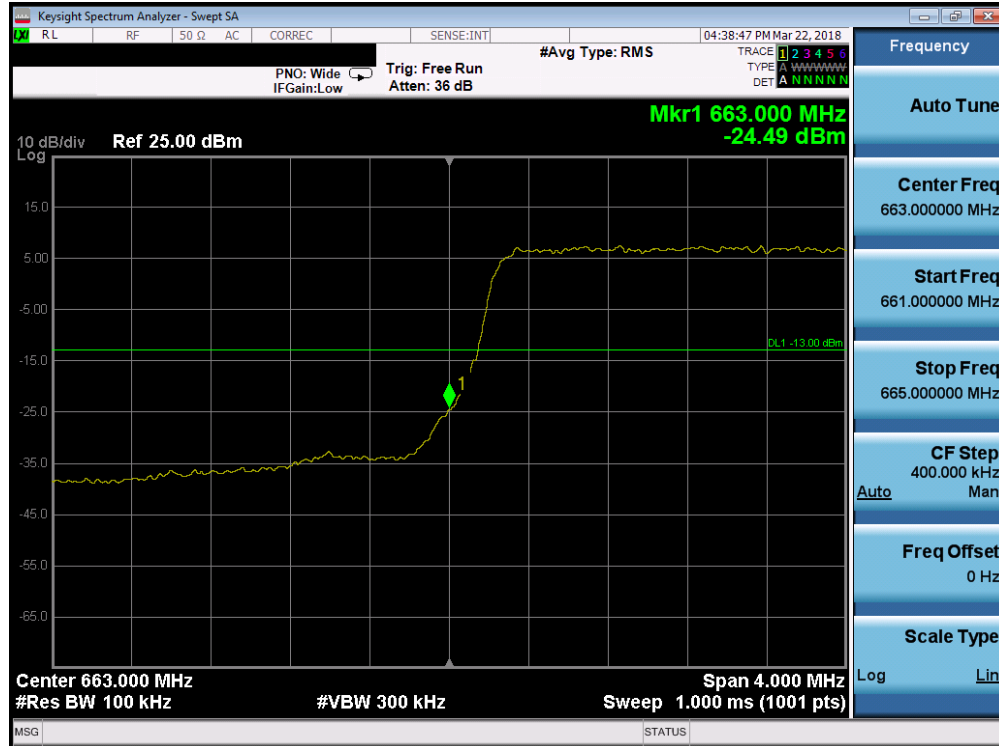
For all plots showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC limit per 27.53(c)(4) is  $65 + 10\log_{10}(P) = -35\text{dBm}$  in a 6.25kHz bandwidth.

Per 27.53(a)(5) in the 1 MHz bands immediately outside and adjacent to the channel blocks at 2305, 2310, 2315, 2320, 2345, 2350, 2355, and 2360 MHz, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e., 1 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

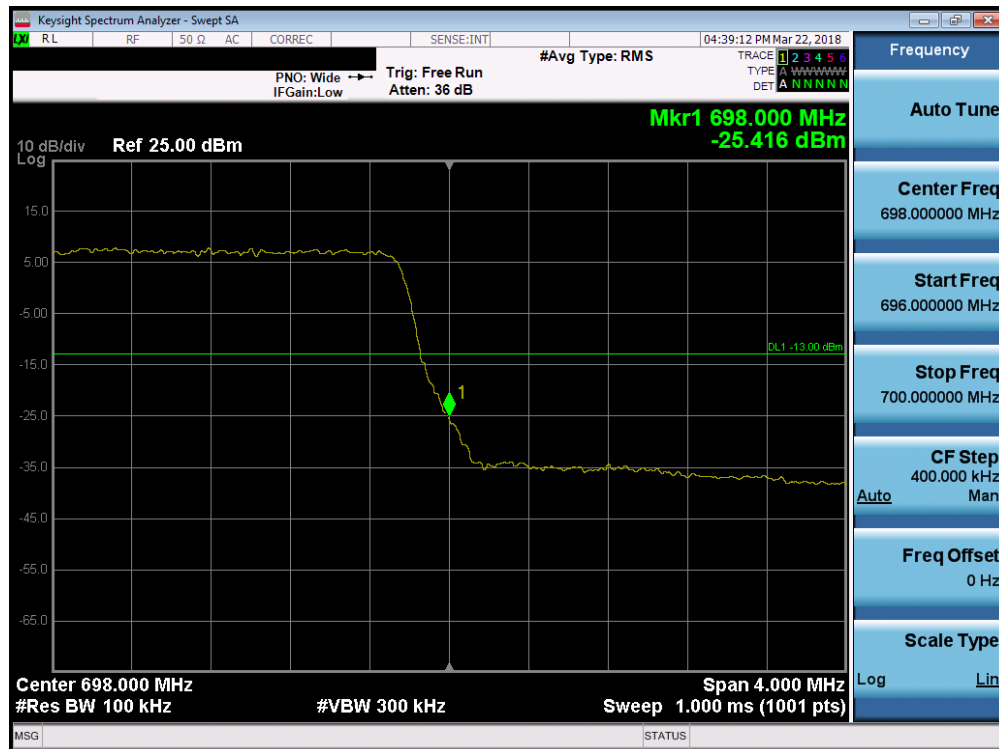
Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth. In addition, the attenuation factor shall not be less that  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz.

FCC ID: ZNFG710TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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## Band 71

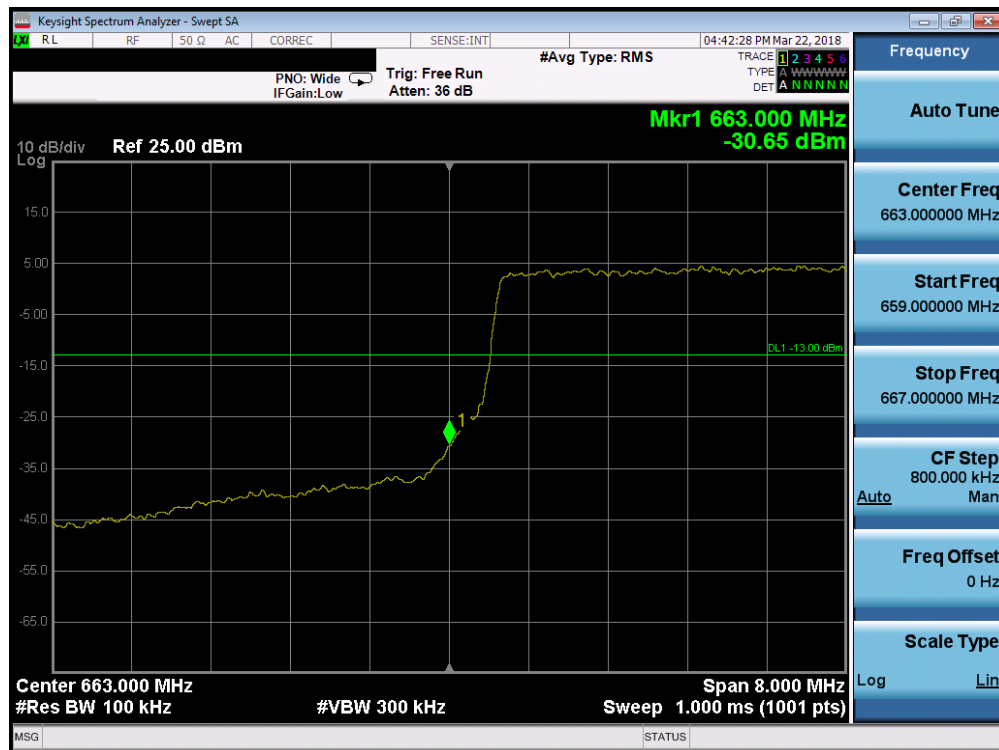


Plot 7-178. Lower Band Edge Plot (Band 71 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-179. Upper Band Edge Plot (Band 71 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 113 of 262

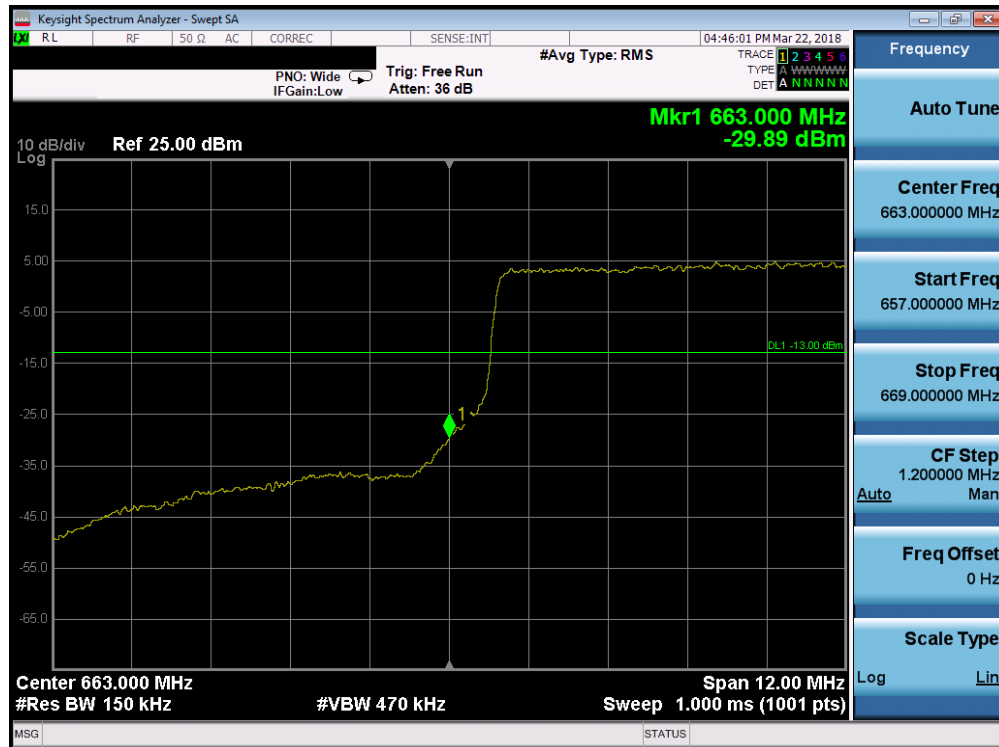


Plot 7-180. Lower Band Edge Plot (Band 71 - 10.0MHz QPSK - Full RB Configuration)

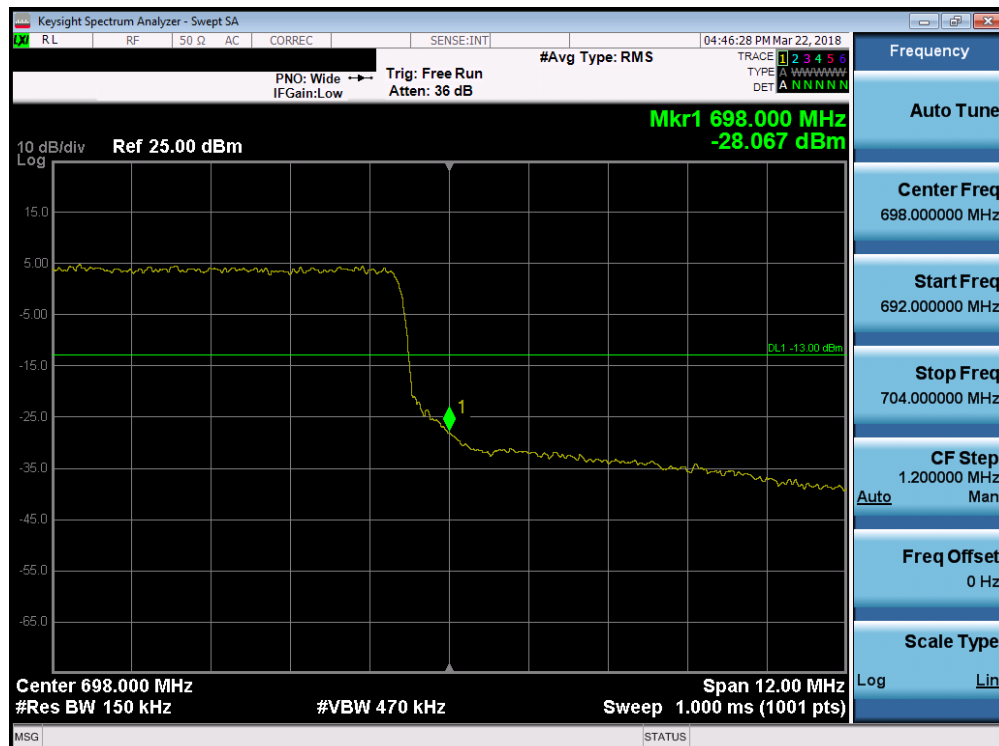


Plot 7-181. Upper Band Edge Plot (Band 71 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT</b> (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 114 of 262	

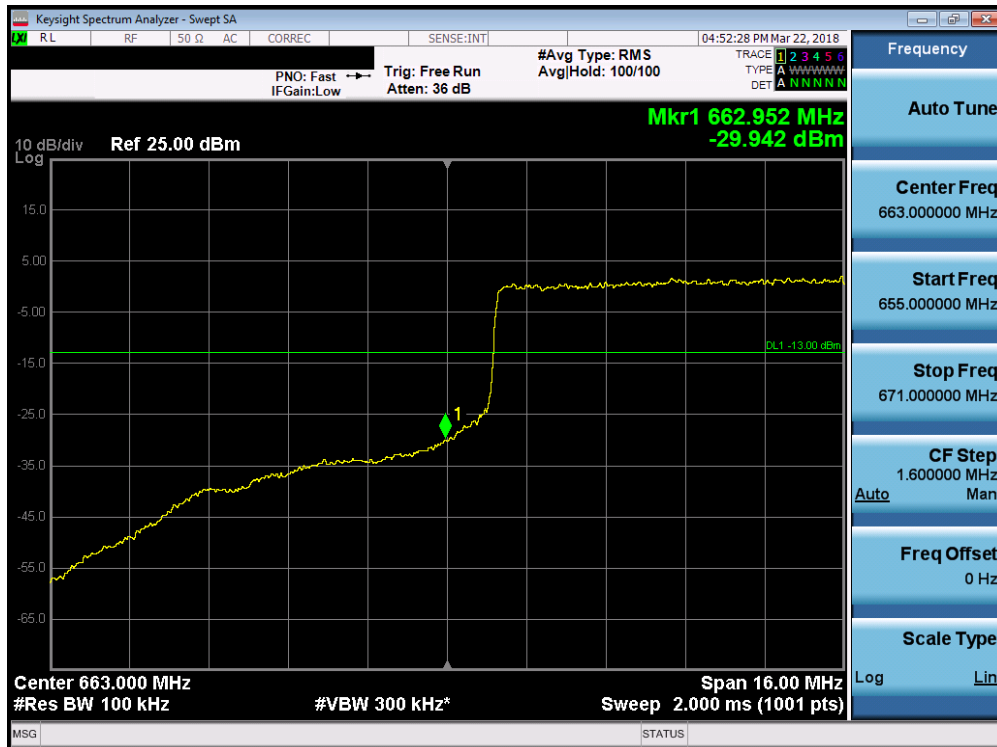


Plot 7-182. Lower Band Edge Plot (Band 71 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-183. Upper Band Edge Plot (Band 71 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 115 of 262

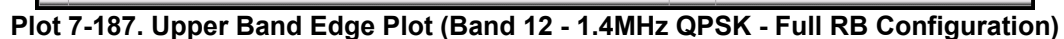


Plot 7-184. Lower Band Edge Plot (Band 71 - 20.0MHz QPSK - Full RB Configuration)

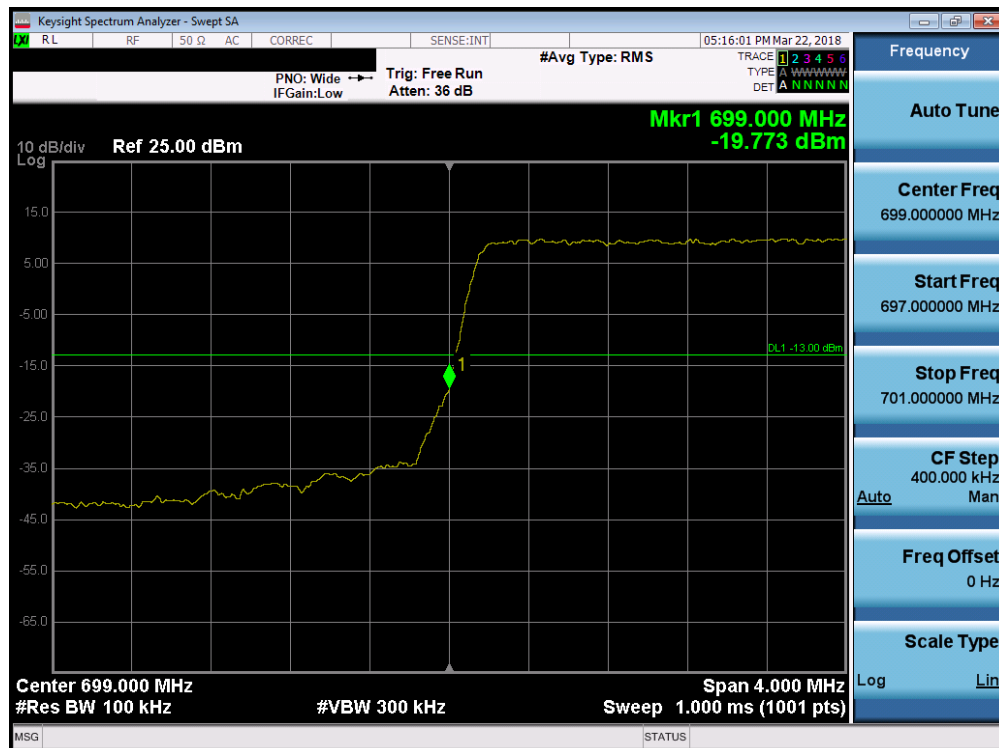


Plot 7-185. Upper Band Edge Plot (Band 71 - 20.0MHz QPSK - Full RB Configuration)

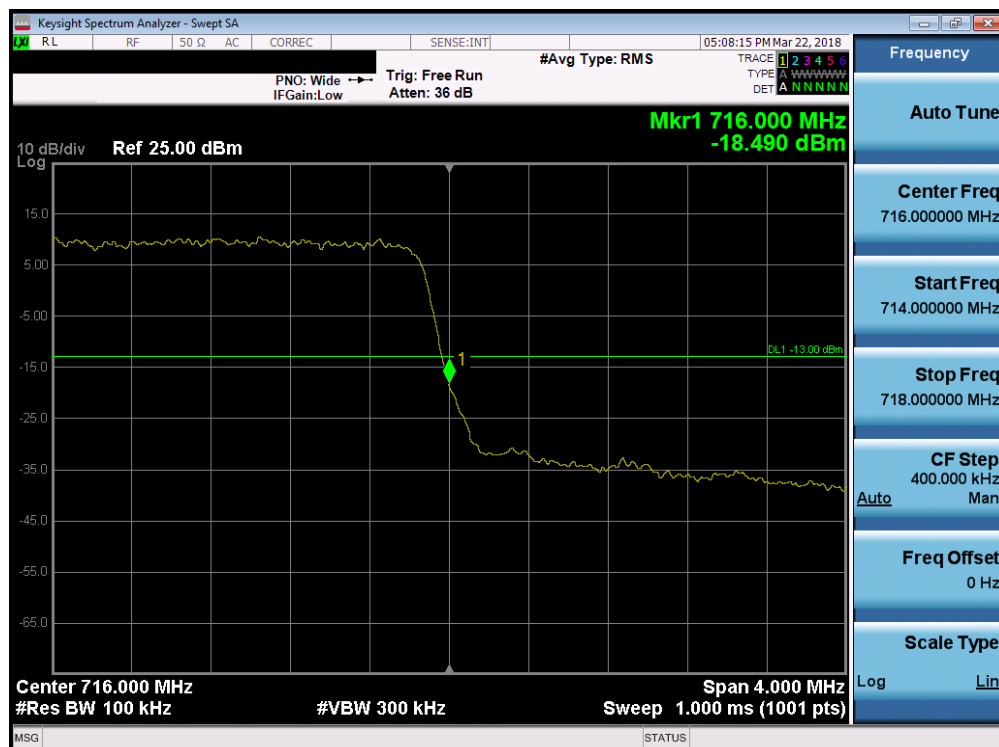
FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1-ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 116 of 262

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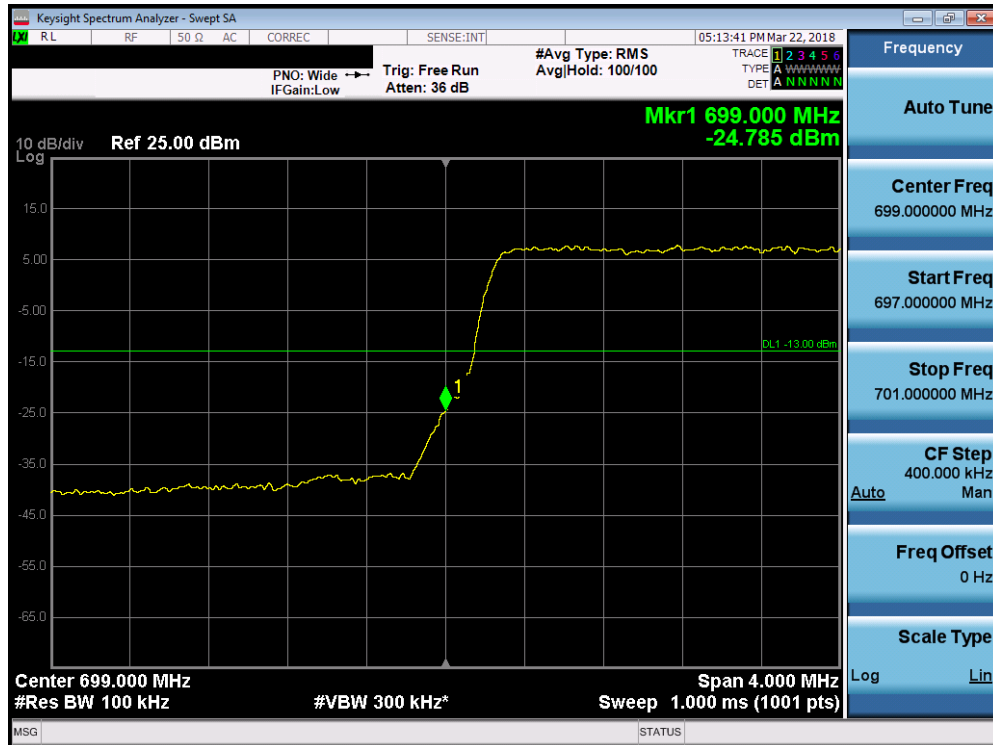
Plot 7-188. Lower Band Edge Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)



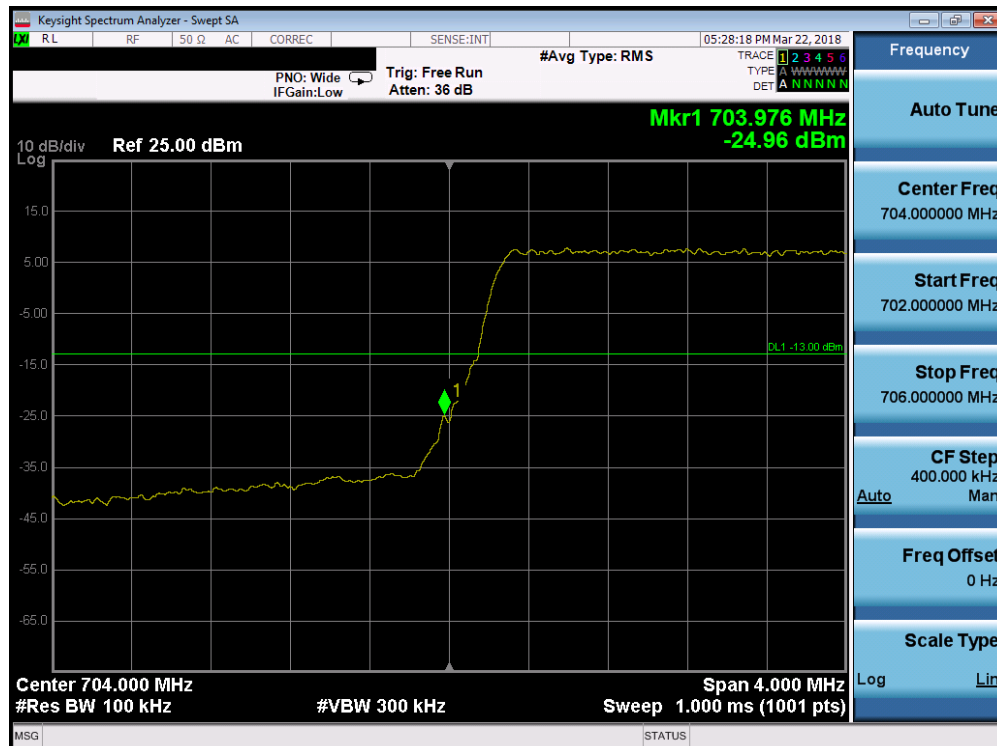
Plot 7-189. Upper Band Edge Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	 <b>MEASUREMENT REPORT</b> (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 118 of 262	





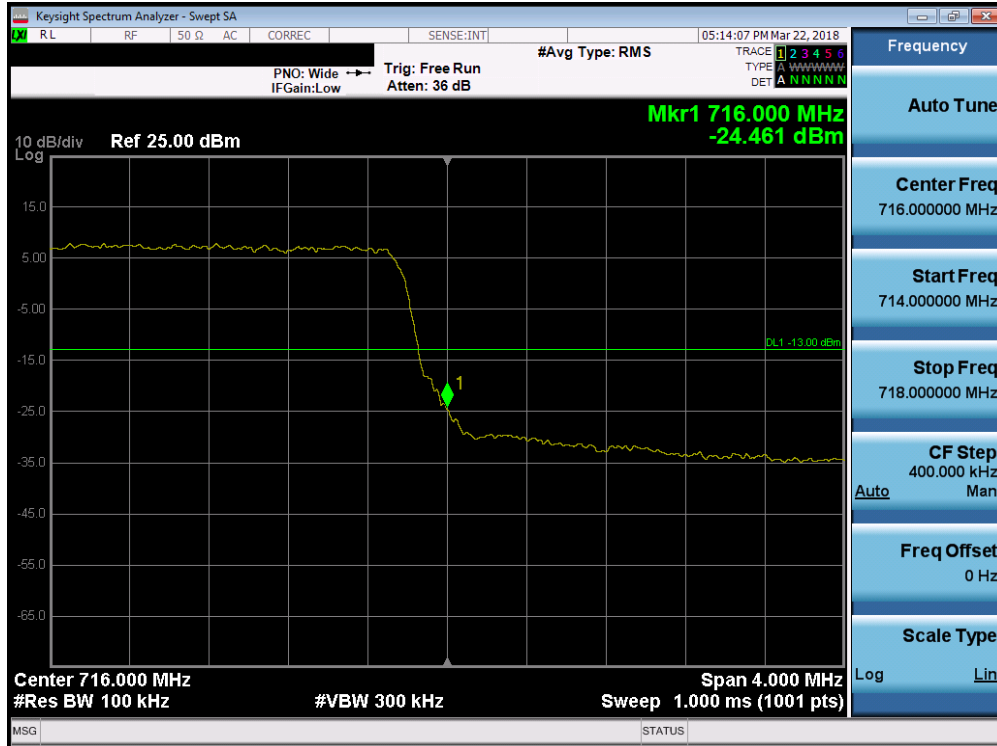
Plot 7-190. Lower Band Edge Plot (Band 12 - 5.0MHz QPSK - Full RB Configuration)



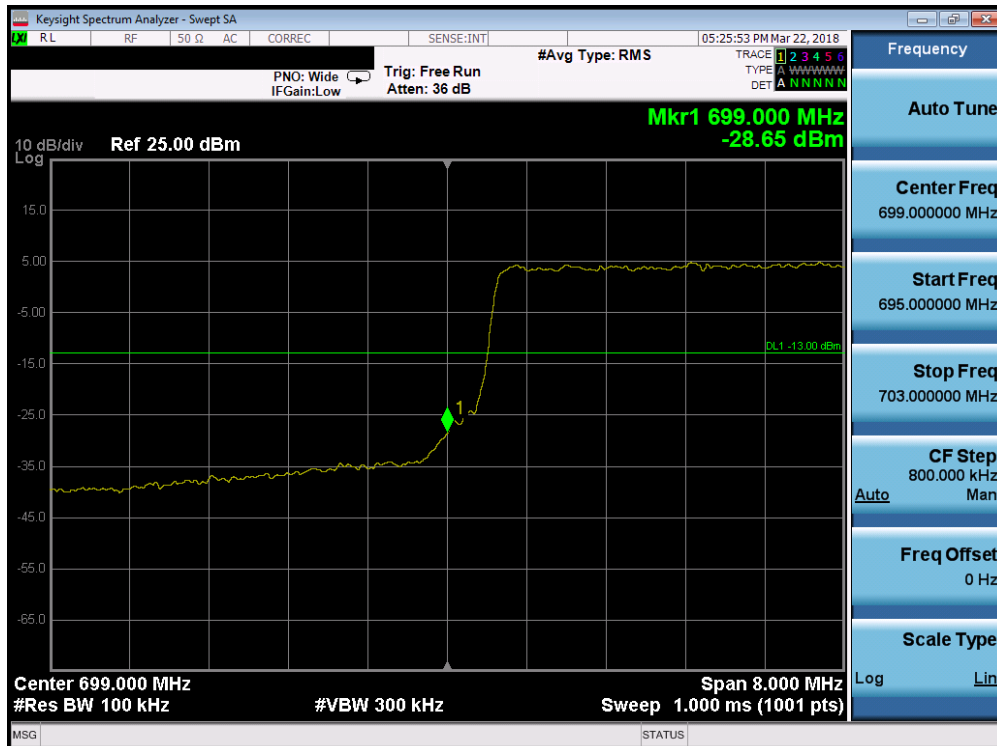
Plot 7-191. Lower Band Edge Plot (Band 17 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT</b> (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1-ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 119 of 262



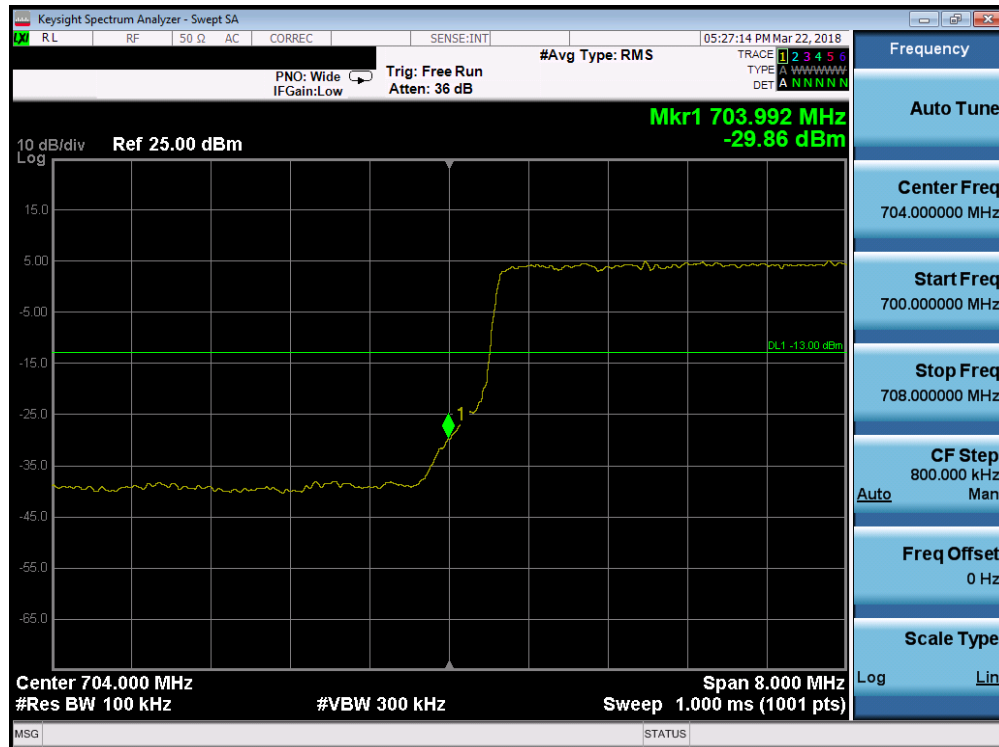


Plot 7-192. Upper Band Edge Plot (Band 12/17 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-193. Lower Band Edge Plot (Band 12 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
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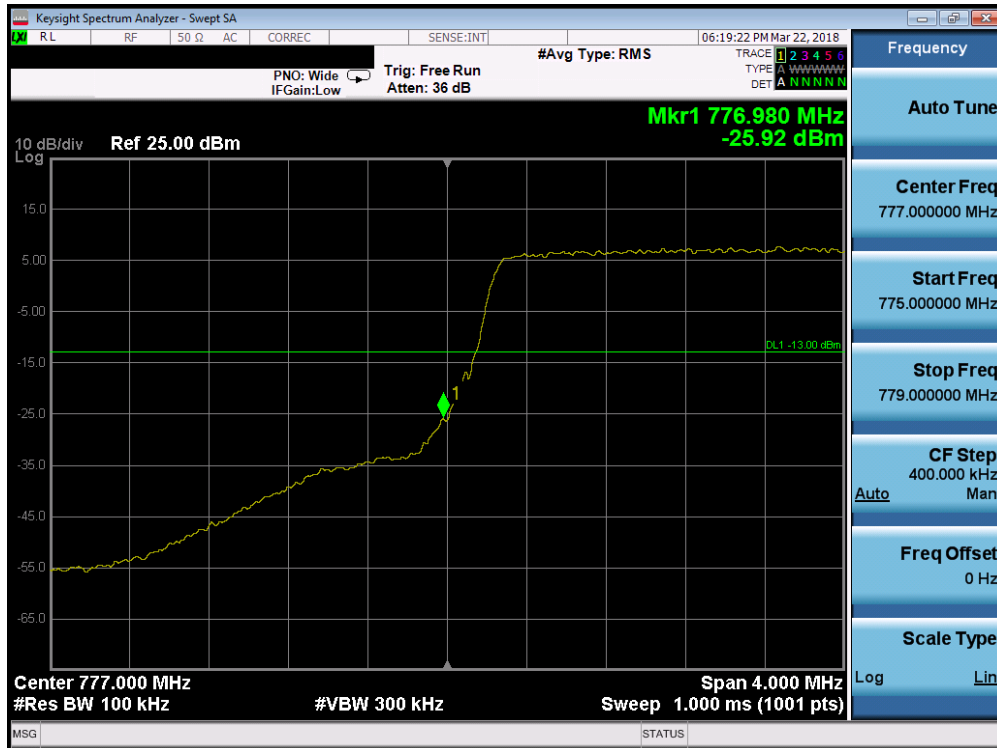
Plot 7-194. Lower Band Edge Plot (Band 17 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-195. Upper Band Edge Plot (Band 12/17 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
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## Band 13

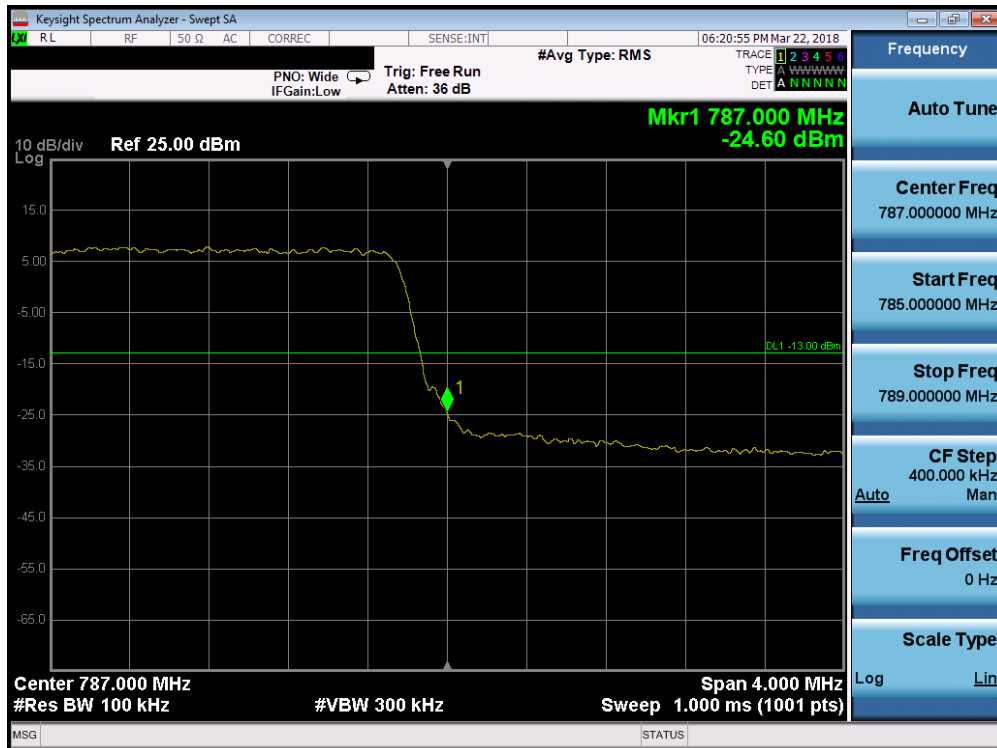


Plot 7-196. Lower Band Edge Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

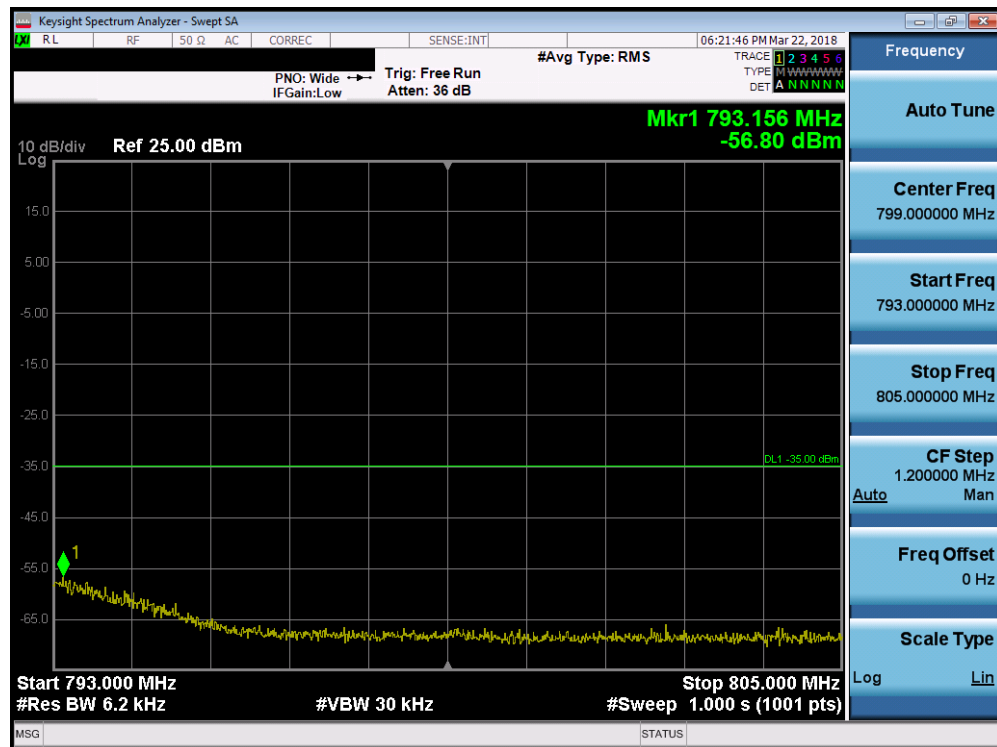


Plot 7-197. Lower Emission Mask Band Edge Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 122 of 262

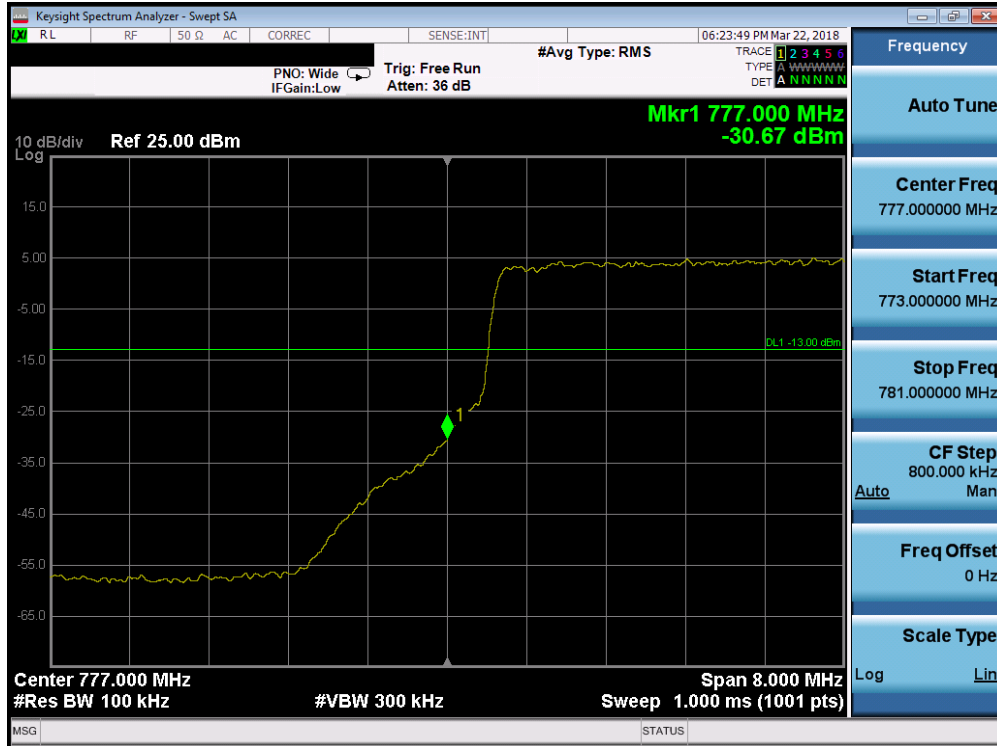


Plot 7-198. Upper Band Edge Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

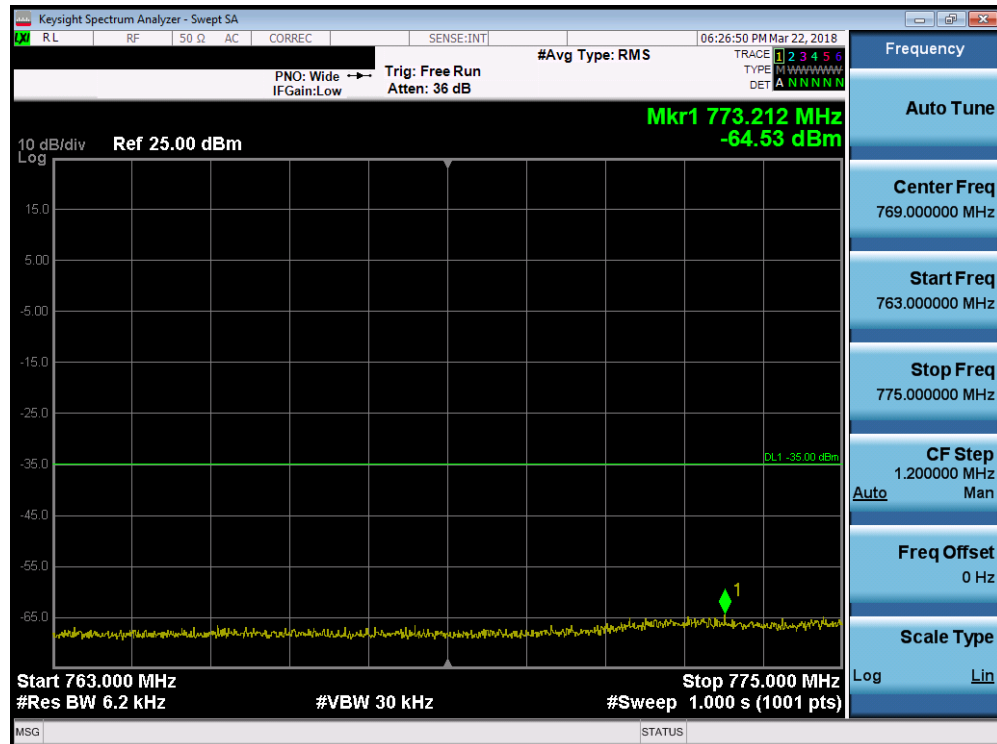


Plot 7-199. Upper Emission Mask Band Edge Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
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Plot 7-200. Lower Band Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

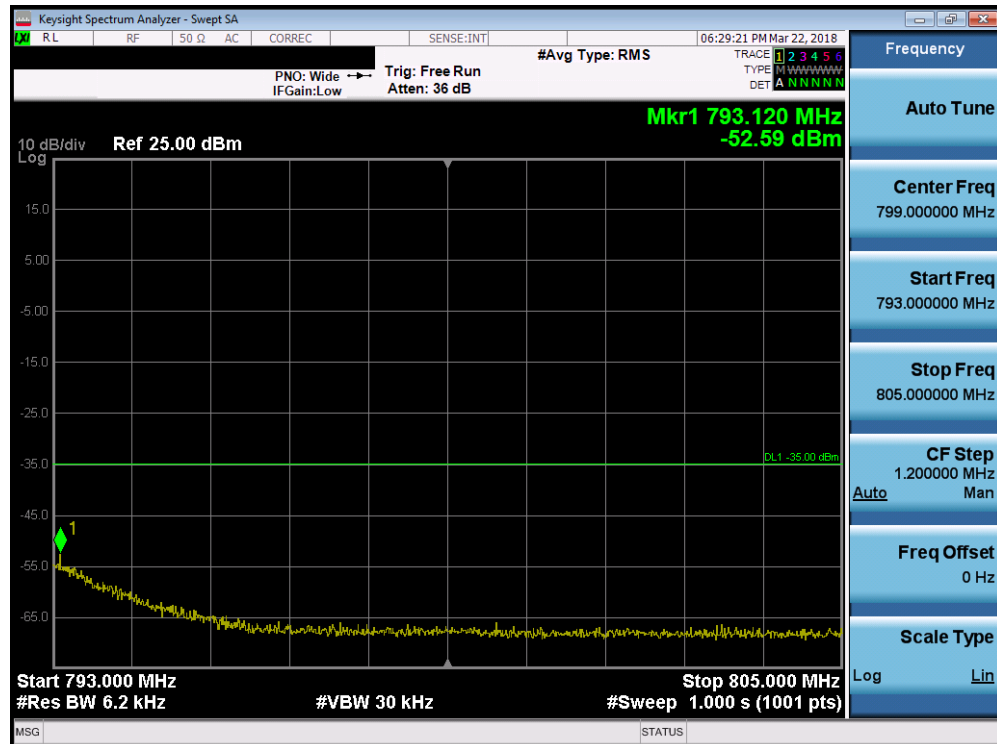


Plot 7-201. Lower Emission Mask Band Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
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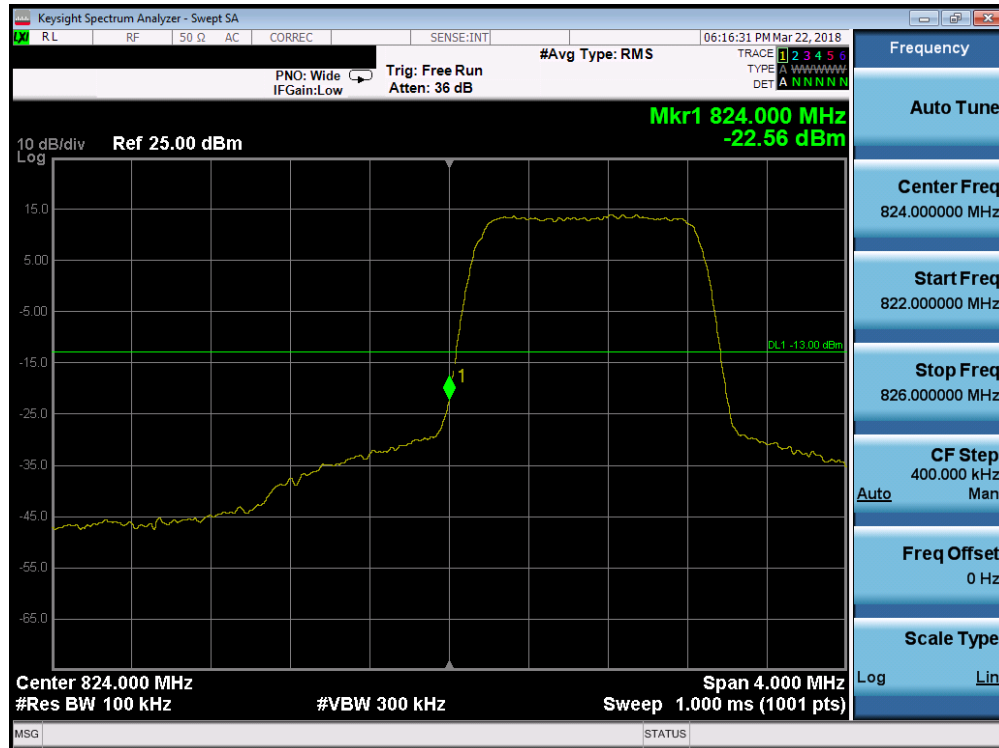
Plot 7-202. Upper Band Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)



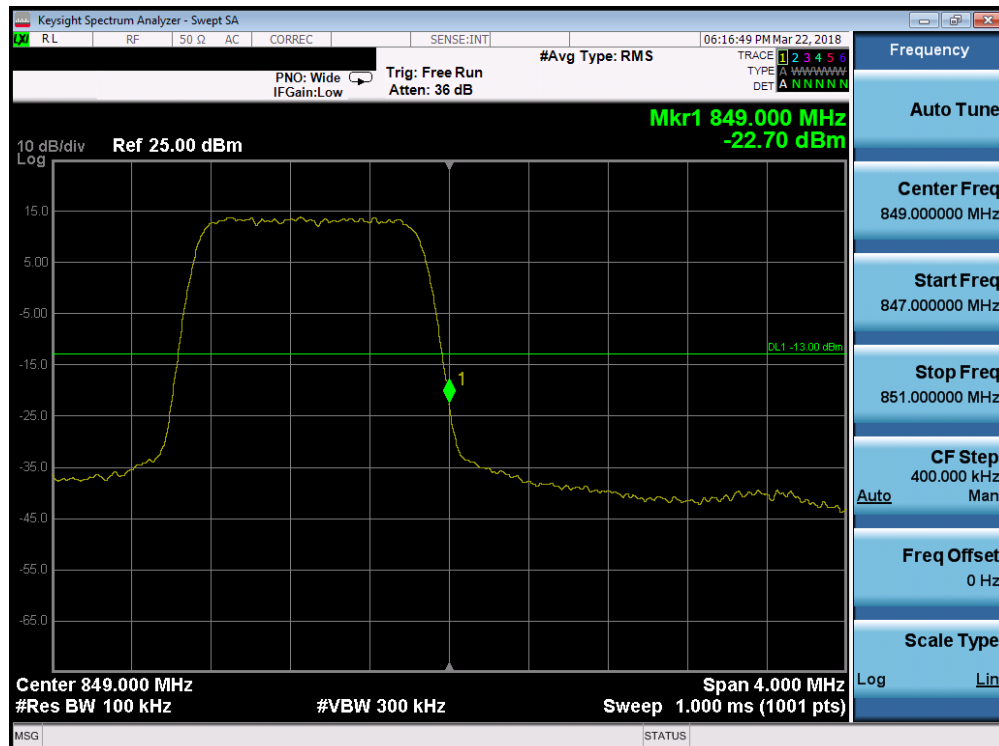
Plot 7-203. Upper Emission Mask Band Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 125 of 262

## Band 5



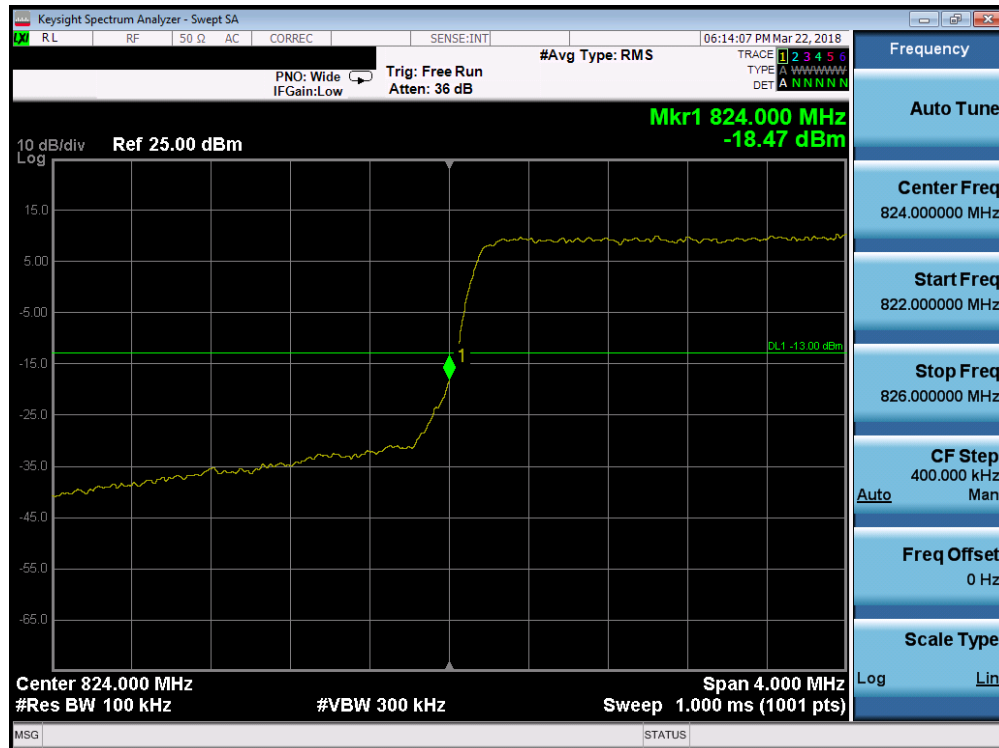
Plot 7-204. Lower Band Edge Plot (Band 5 - 1.4MHz QPSK - Full RB Configuration)



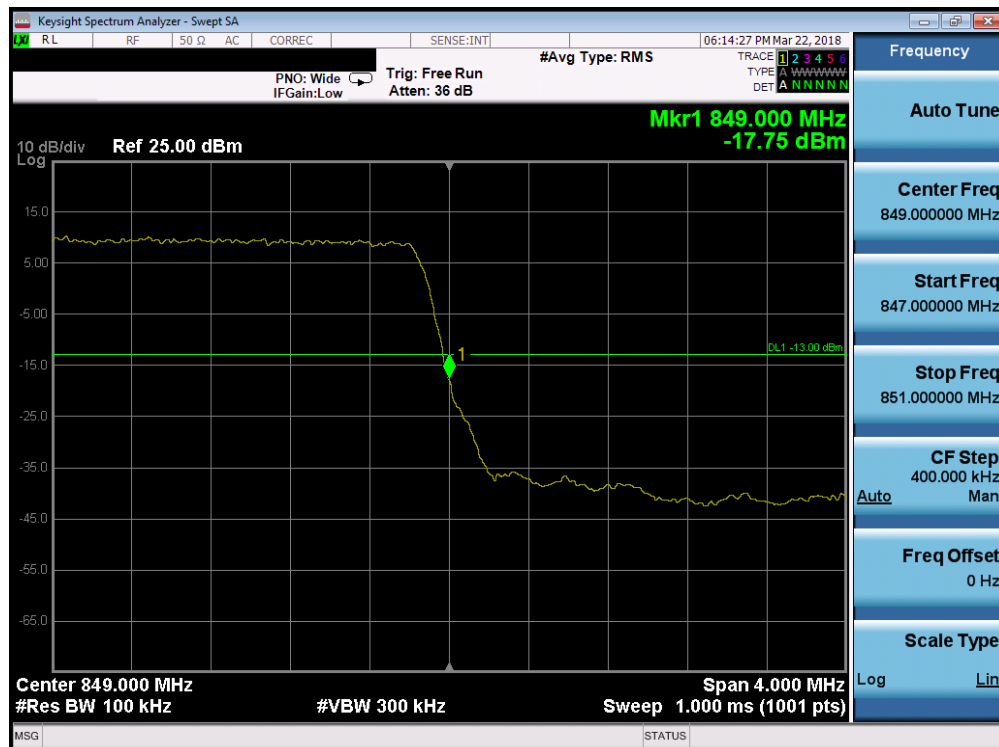
Plot 7-205. Upper Band Edge Plot (Band 5 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 126 of 262





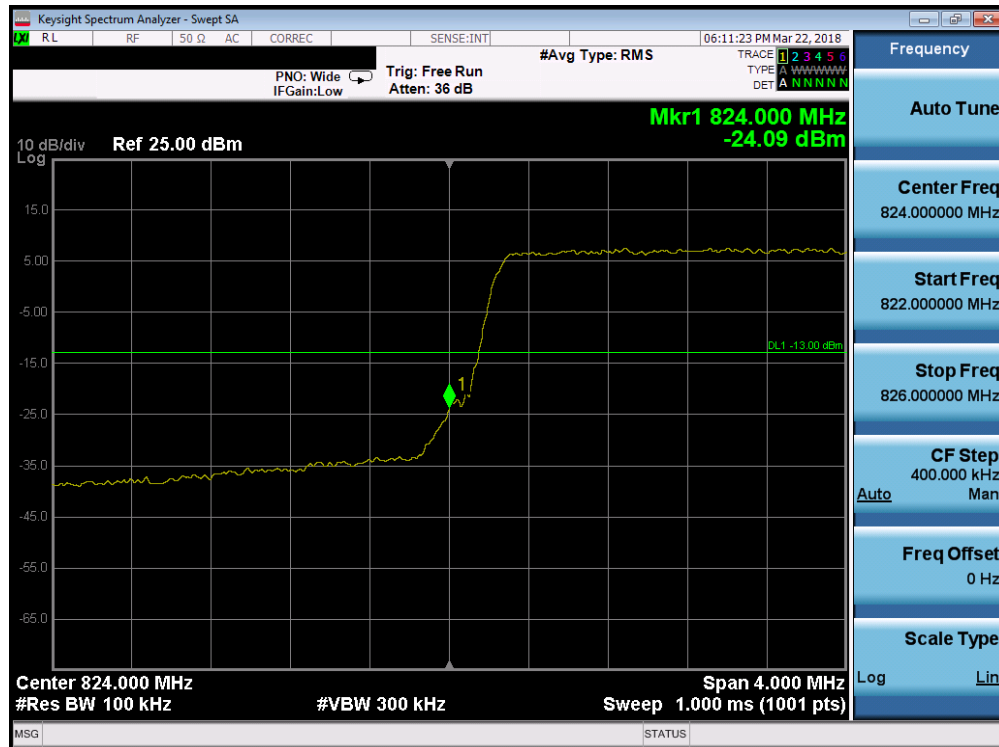
Plot 7-206. Lower Band Edge Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)



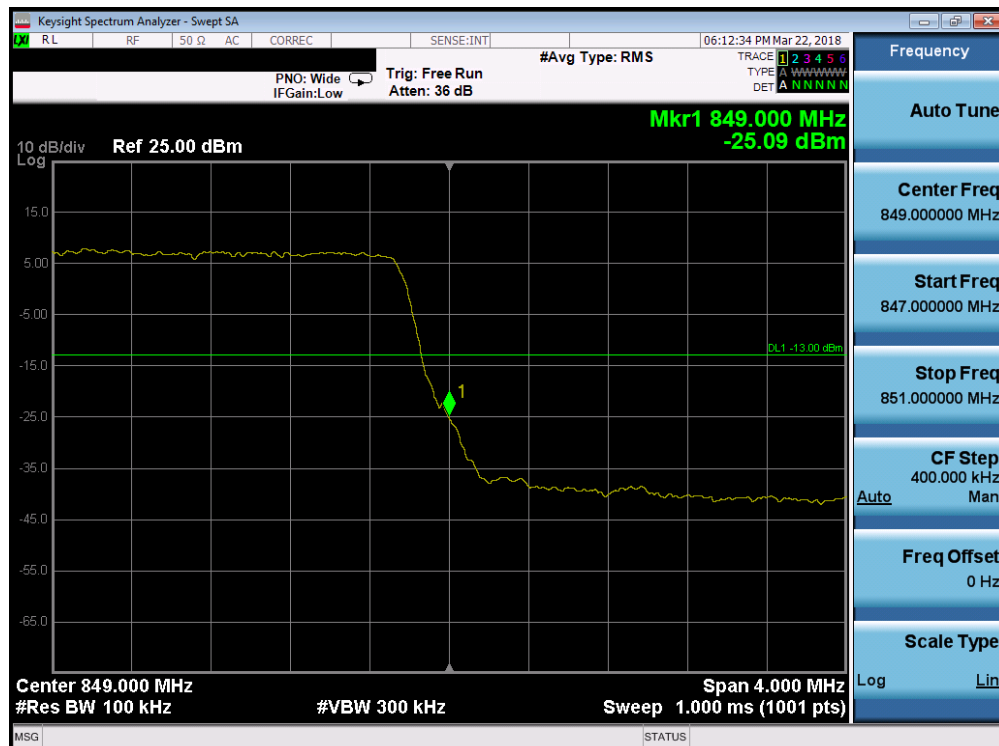
Plot 7-207. Upper Band Edge Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 127 of 262



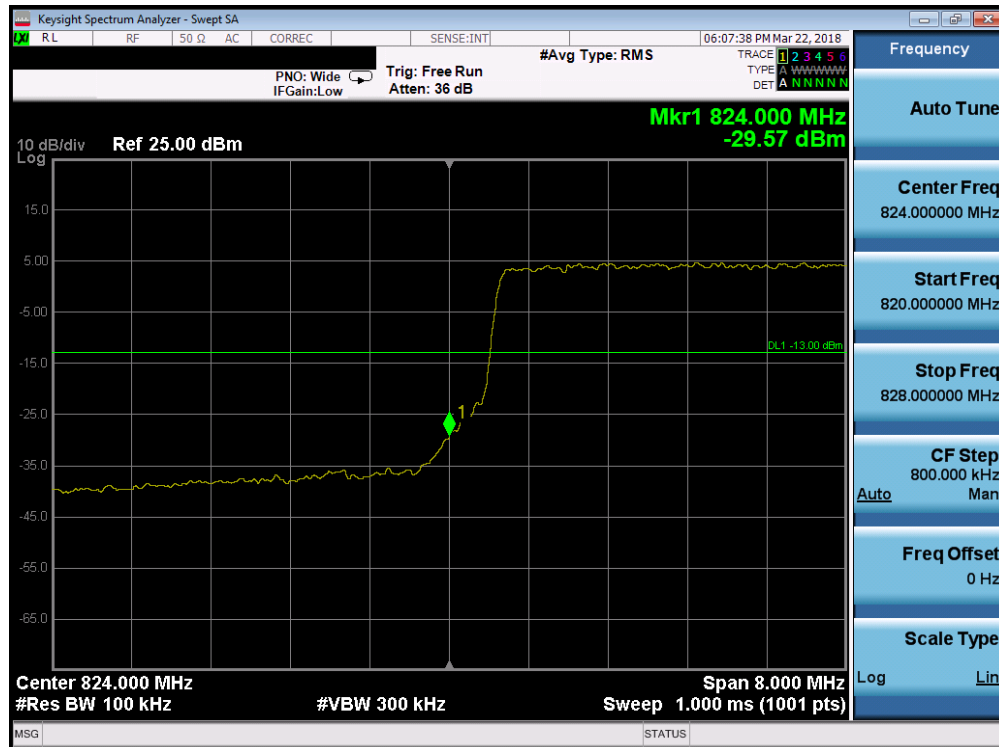


Plot 7-208. Lower Band Edge Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)

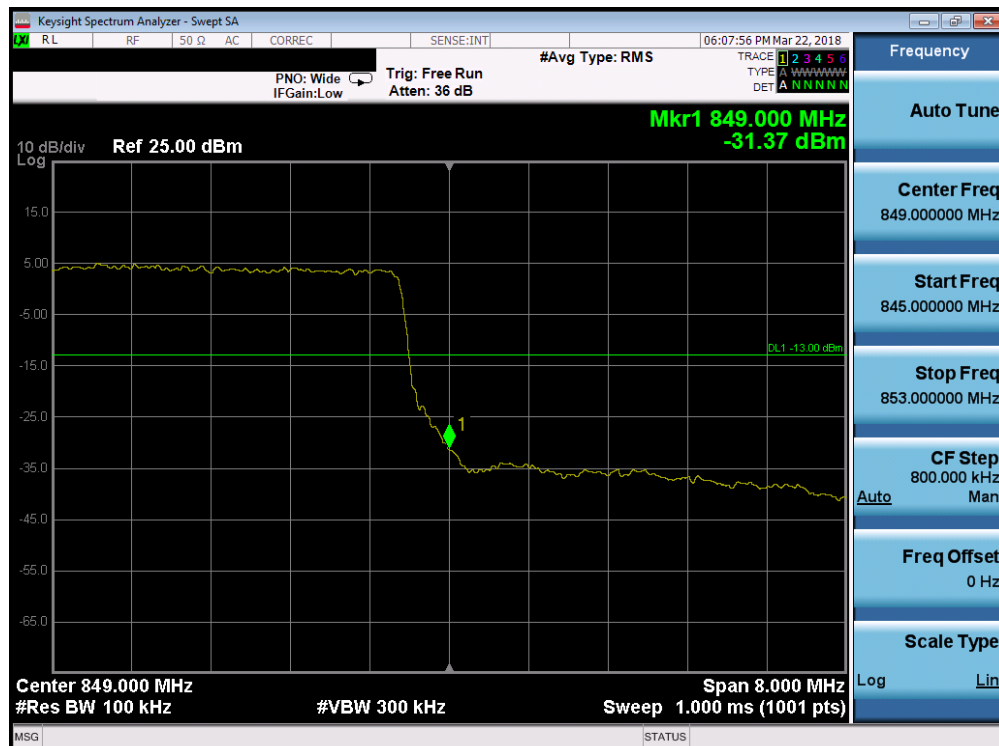


Plot 7-209. Upper Band Edge Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 128 of 262



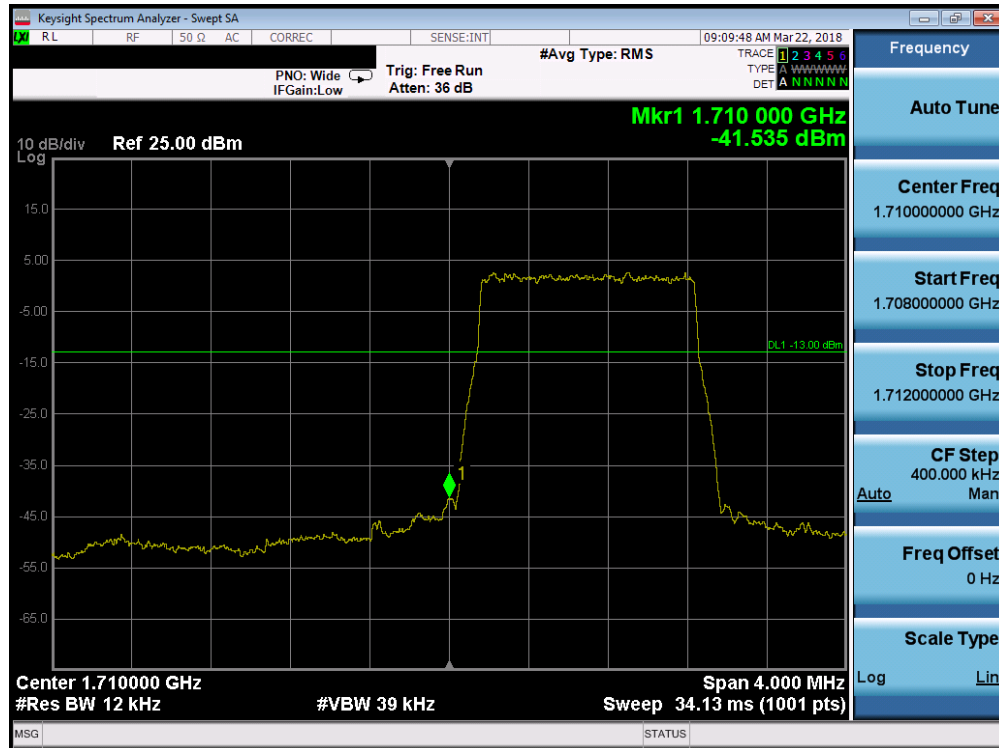
Plot 7-210. Lower Band Edge Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)



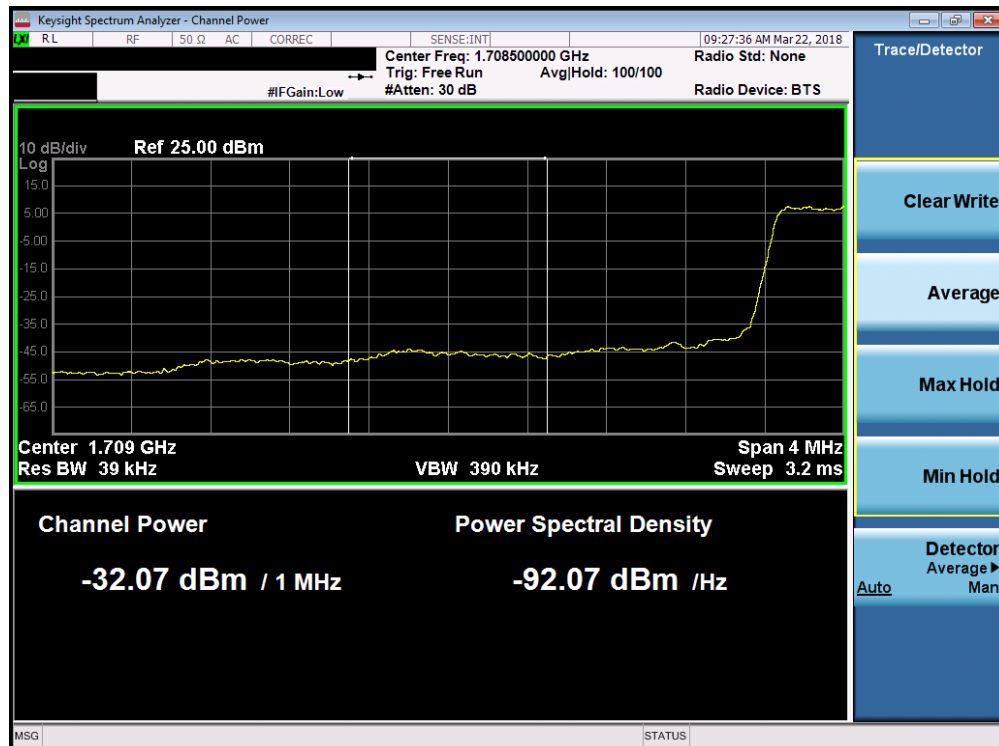
Plot 7-211. Upper Band Edge Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset	Page 129 of 262

## Band 66/4

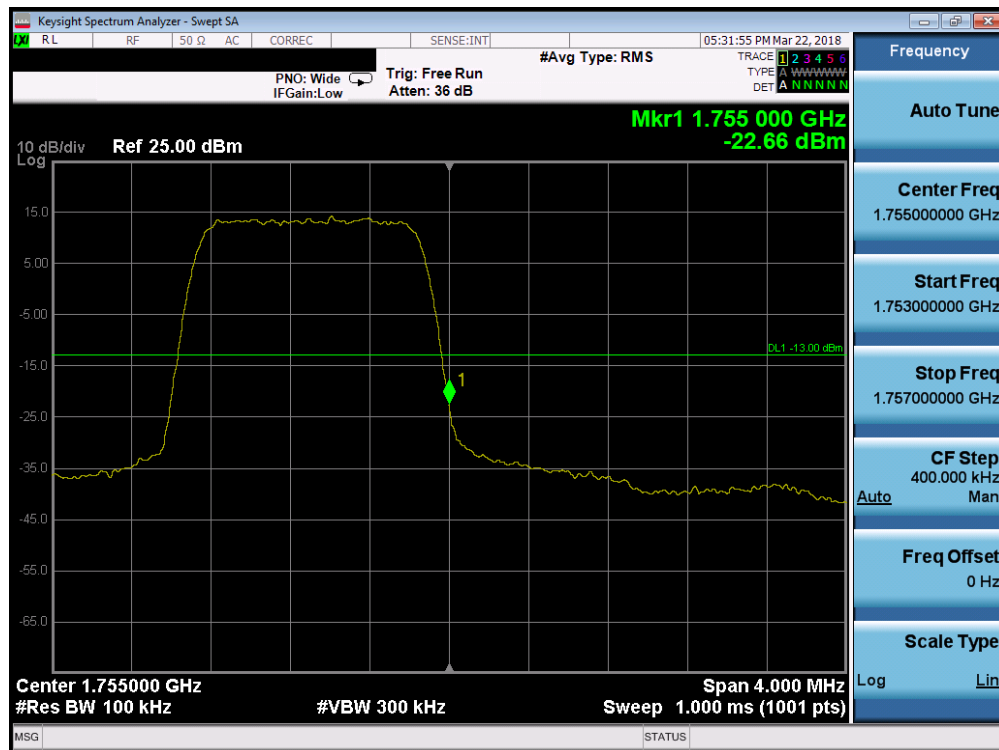


Plot 7-212. Lower Band Edge Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)

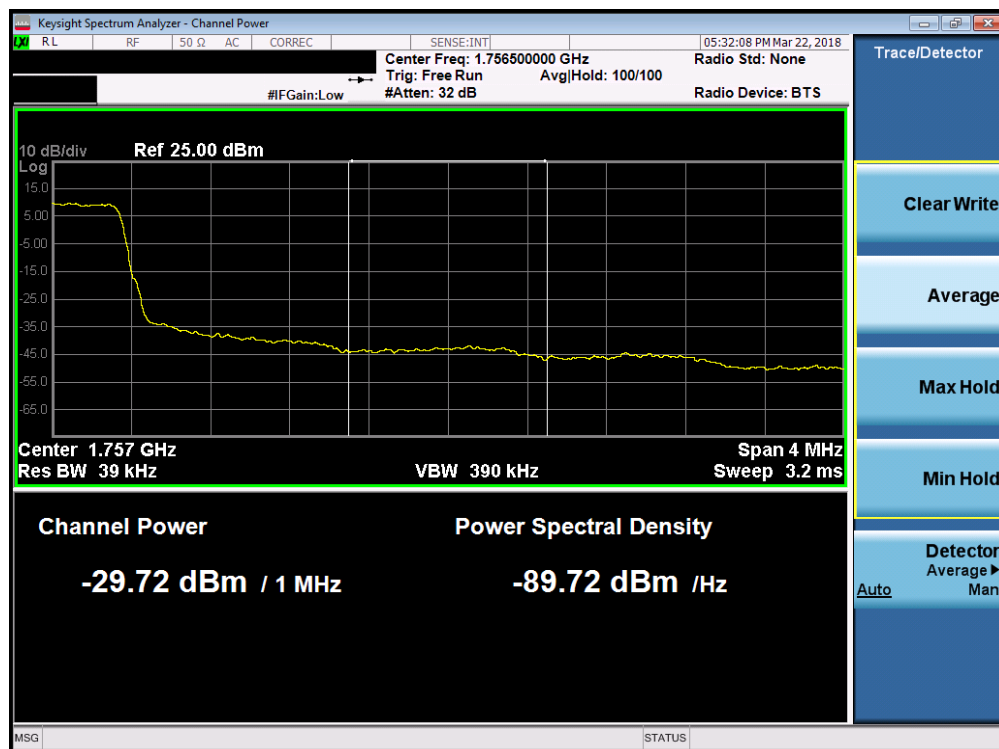


Plot 7-213. Lower Extended Band Edge Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 130 of 262

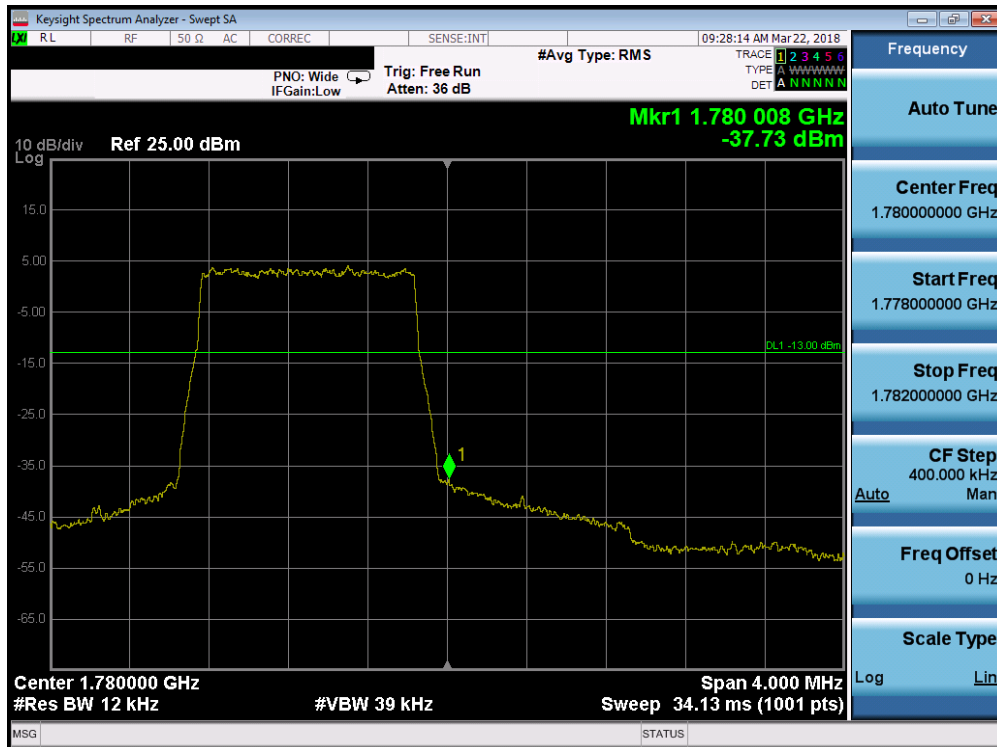


Plot 7-214. Upper Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

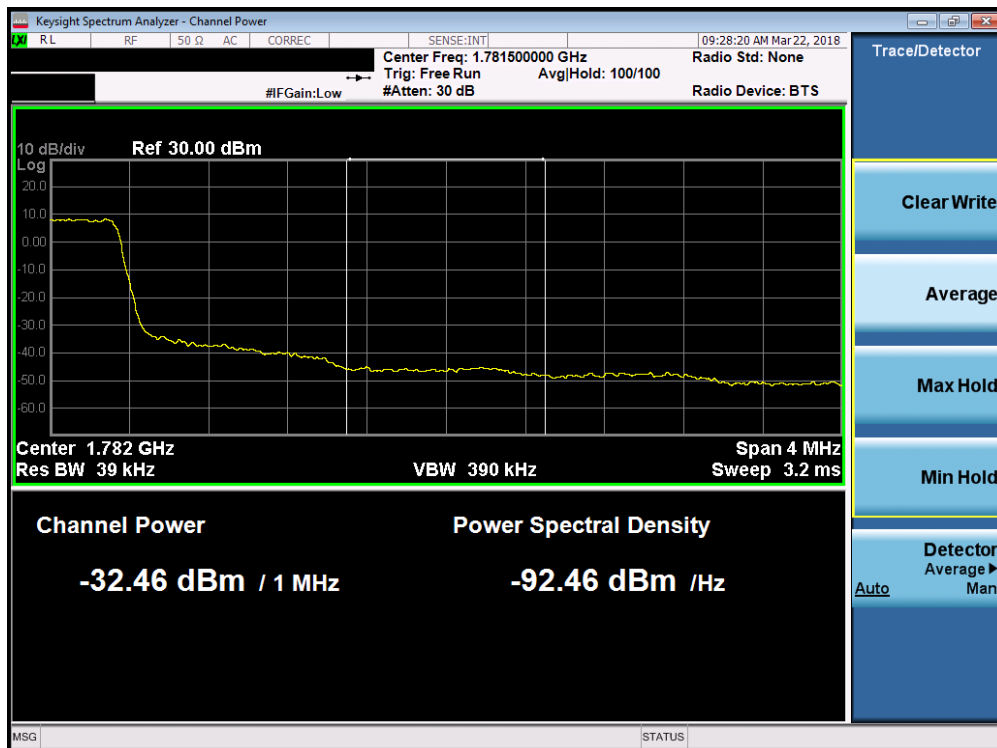


Plot 7-215. Upper Extended Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 131 of 262

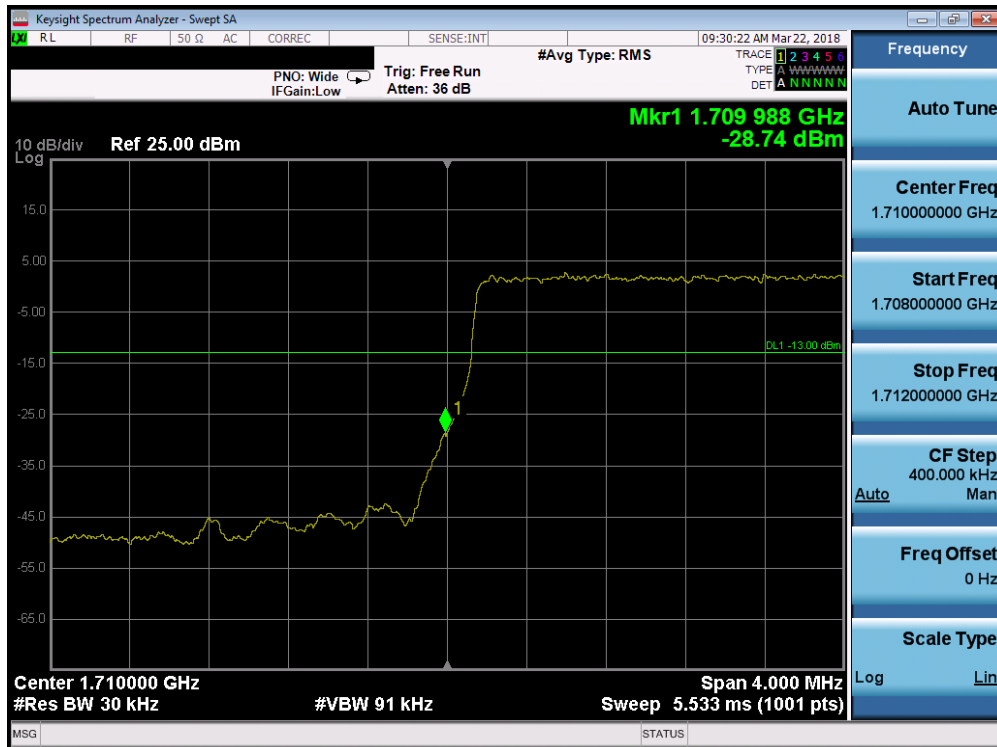


Plot 7-216. Upper Band Edge Plot (Band 66 - 1.4MHz QPSK - Full RB Configuration)

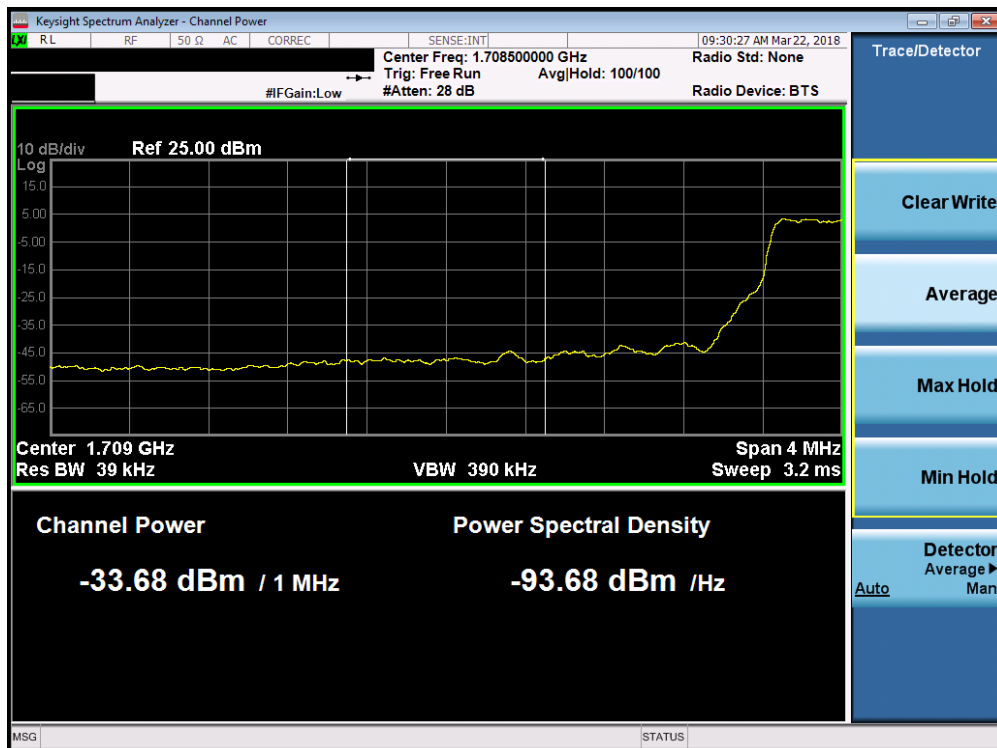


Plot 7-217. Upper Extended Band Edge Plot (Band 66 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 132 of 262



Plot 7-218. Lower Band Edge Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)

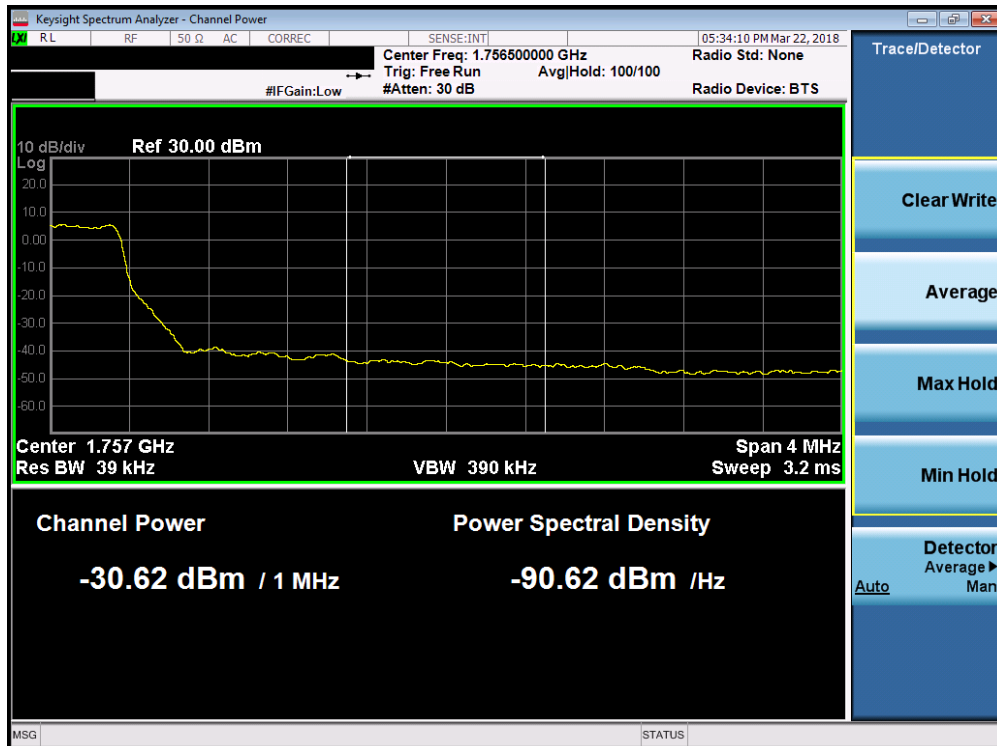


Plot 7-219. Lower Extended Band Edge Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 133 of 262

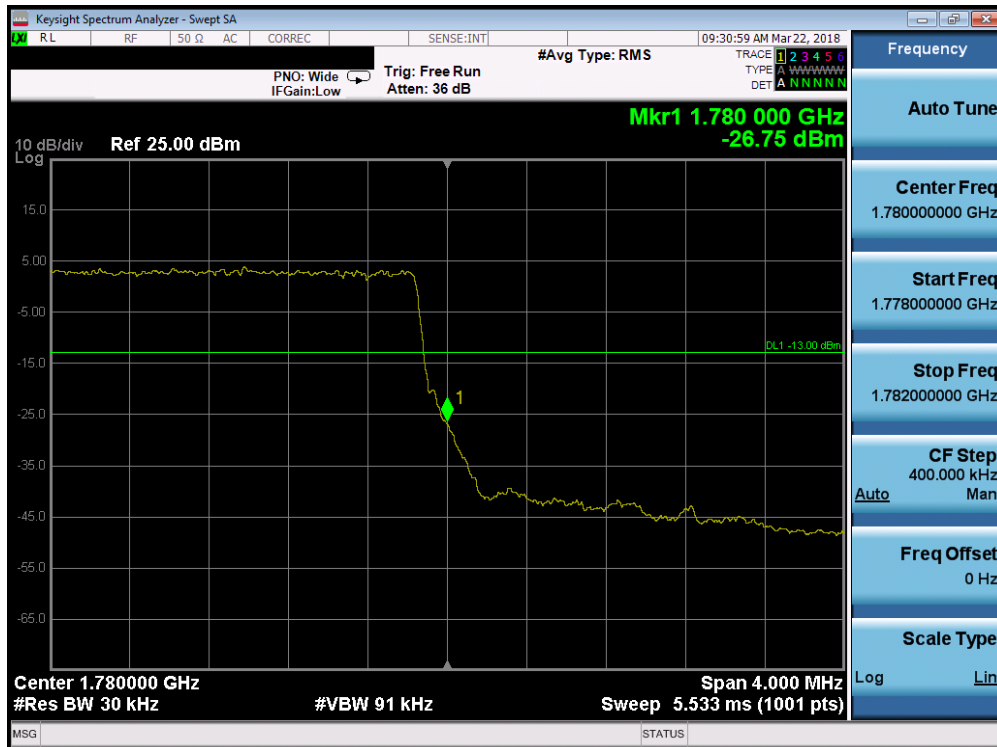


Plot 7-220. Upper Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

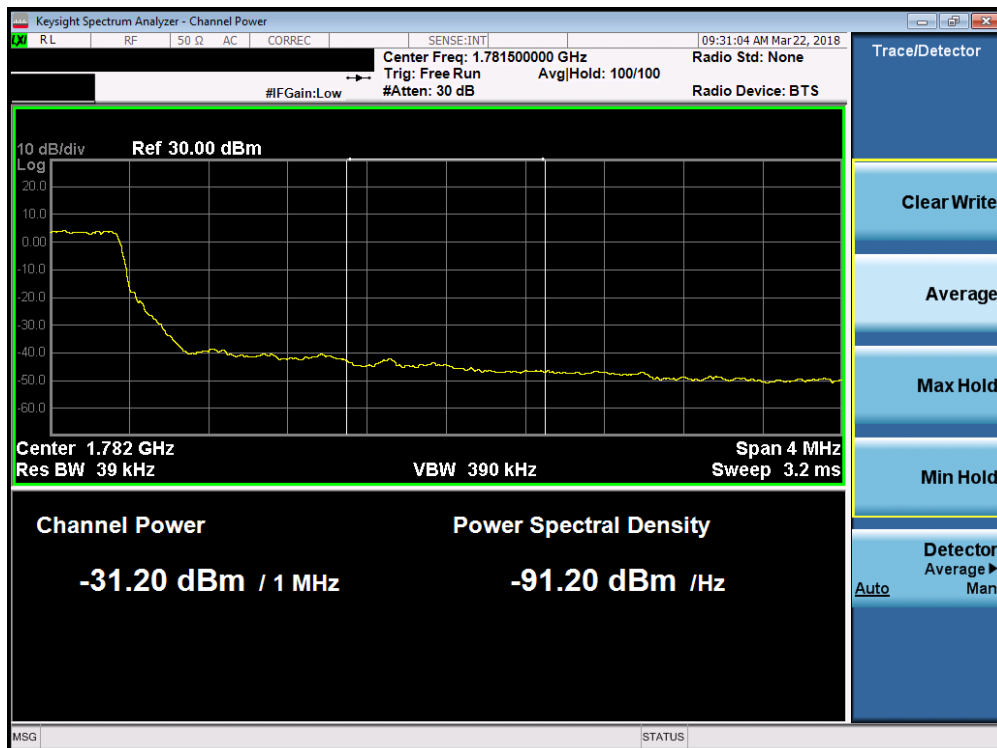


Plot 7-221. Upper Extended Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 134 of 262



Plot 7-222. Upper Band Edge Plot (Band 66 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-223. Upper Extended Band Edge Plot (Band 66 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG710TM	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	<b>LG</b>	Approved by: Quality Manager
Test Report S/N: 1M1802260030-03-R1.ZNF	Test Dates: 2/27-3/27/2018	EUT Type: Portable Handset		Page 135 of 262