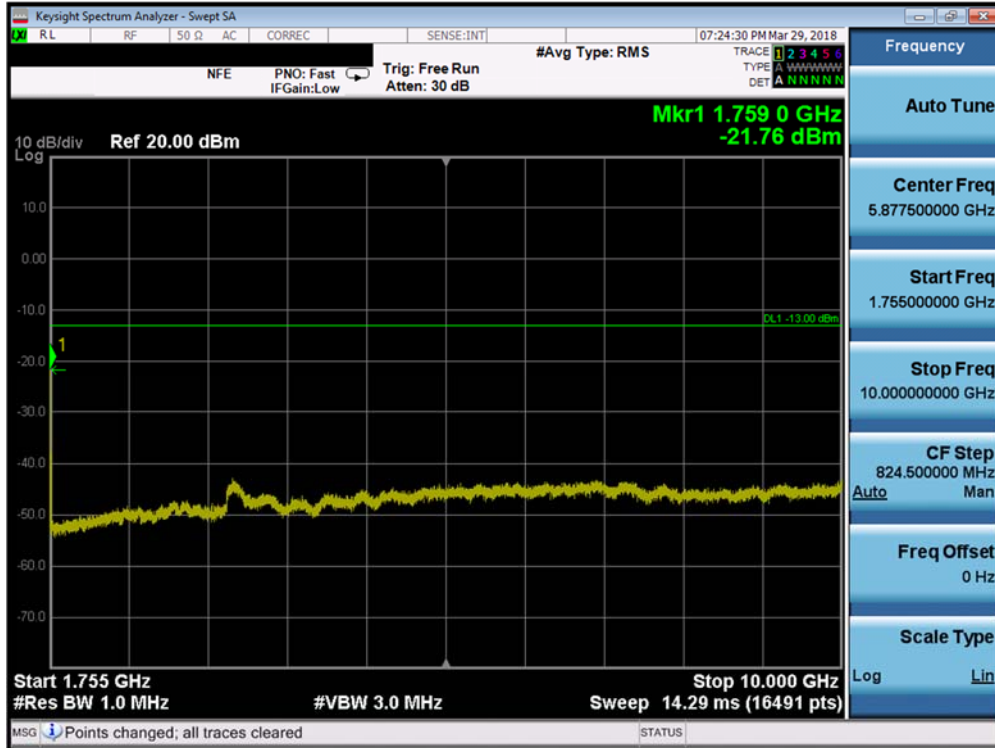
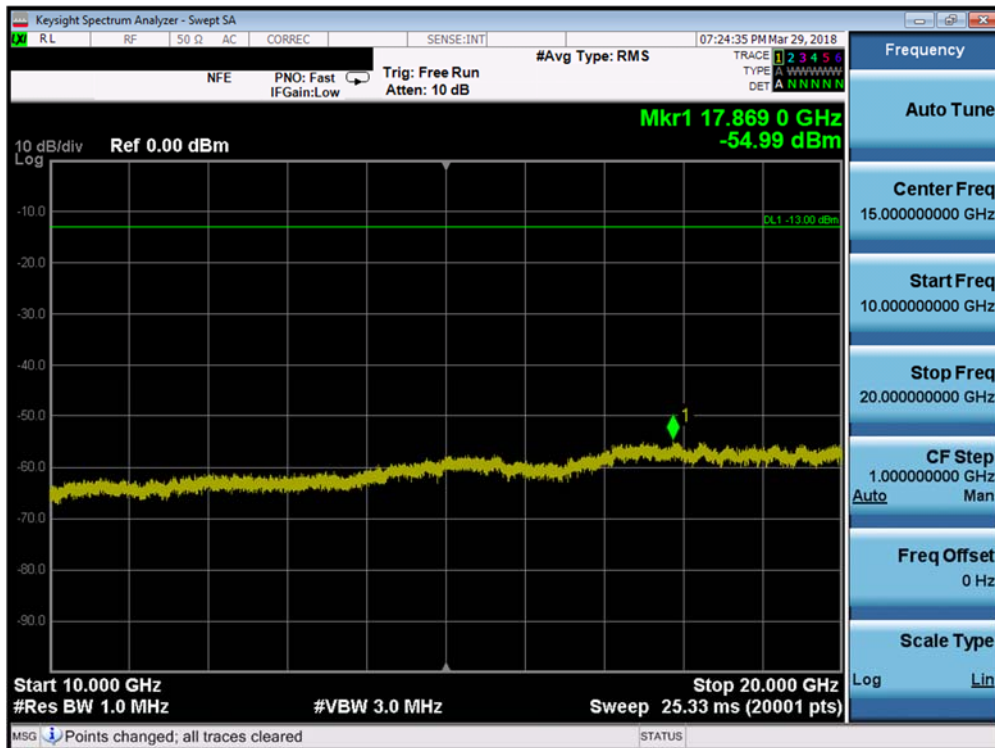


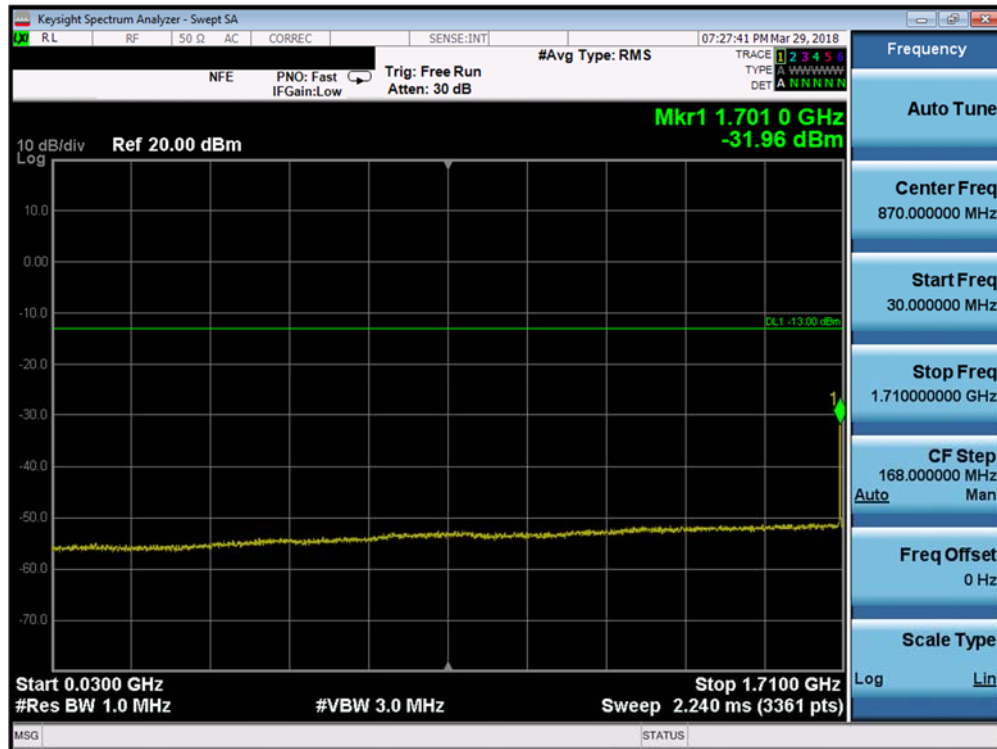


Plot 7-94. Conducted Spurious Plot (Band 4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

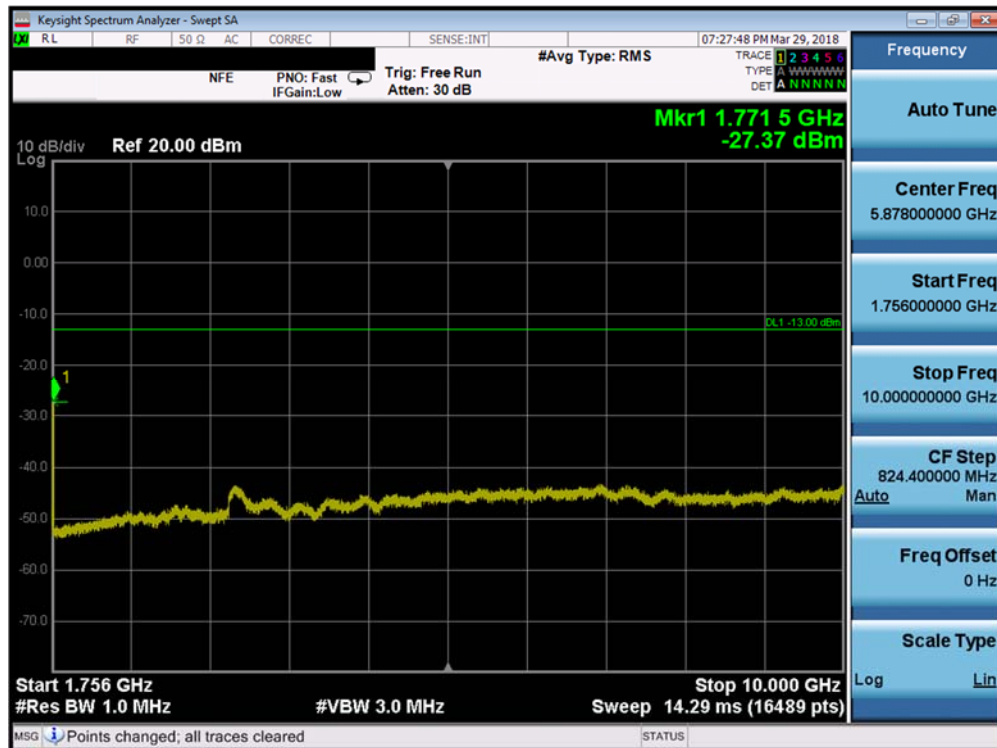


Plot 7-95. Conducted Spurious Plot (Band 4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 66 of 179

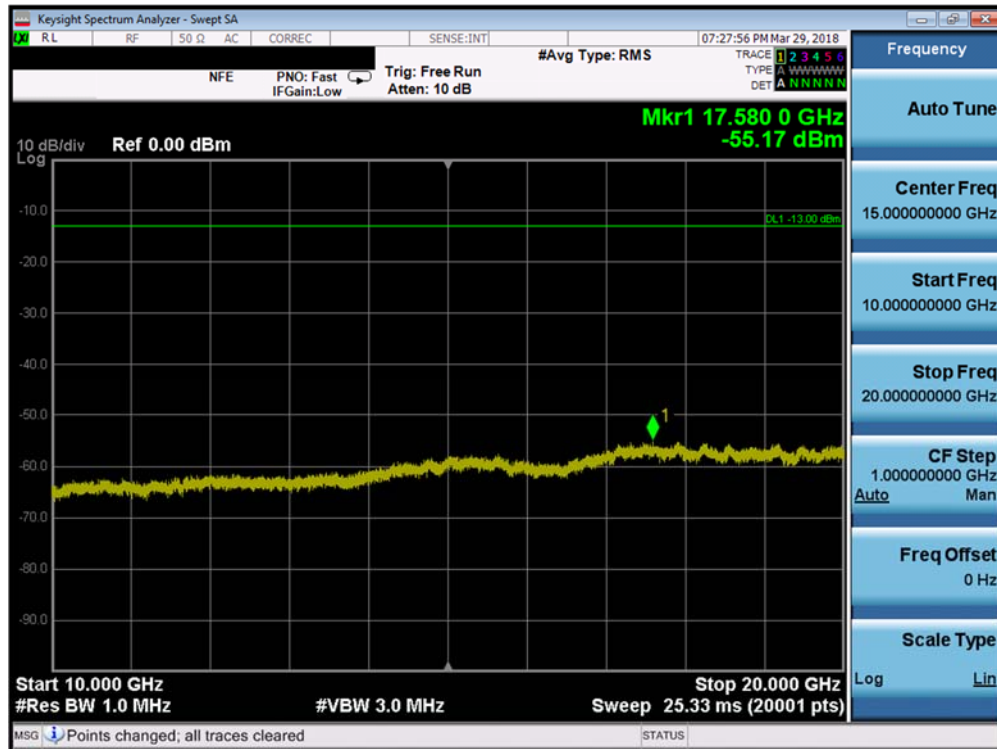


Plot 7-96. Conducted Spurious Plot (Band 4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-97. Conducted Spurious Plot (Band 4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

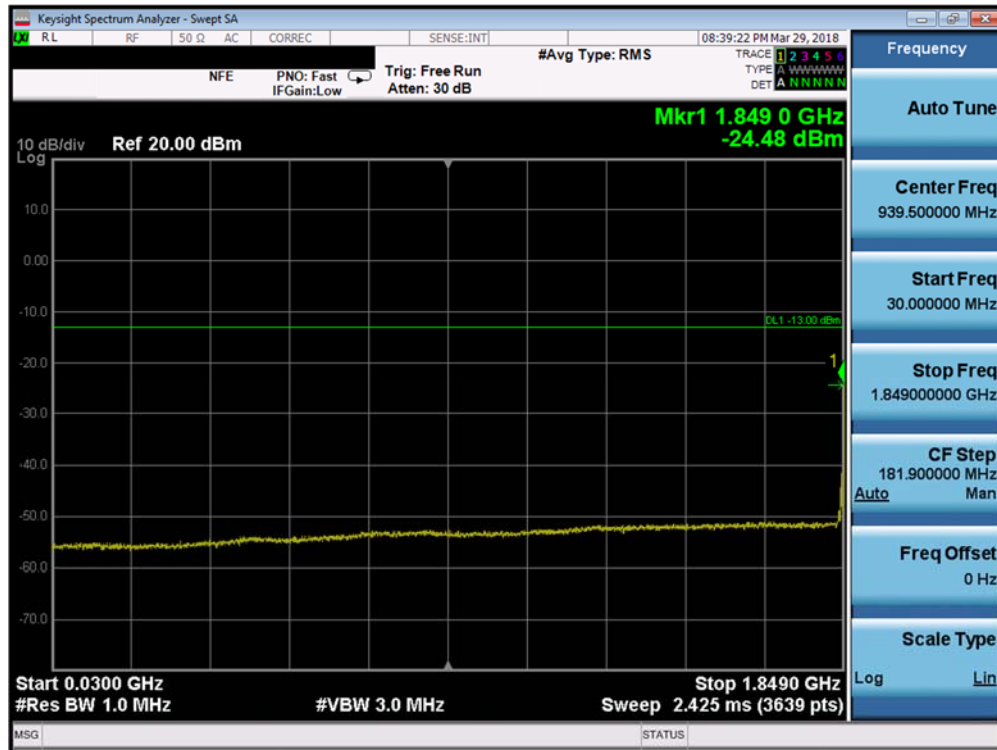
FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1-ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 67 of 179



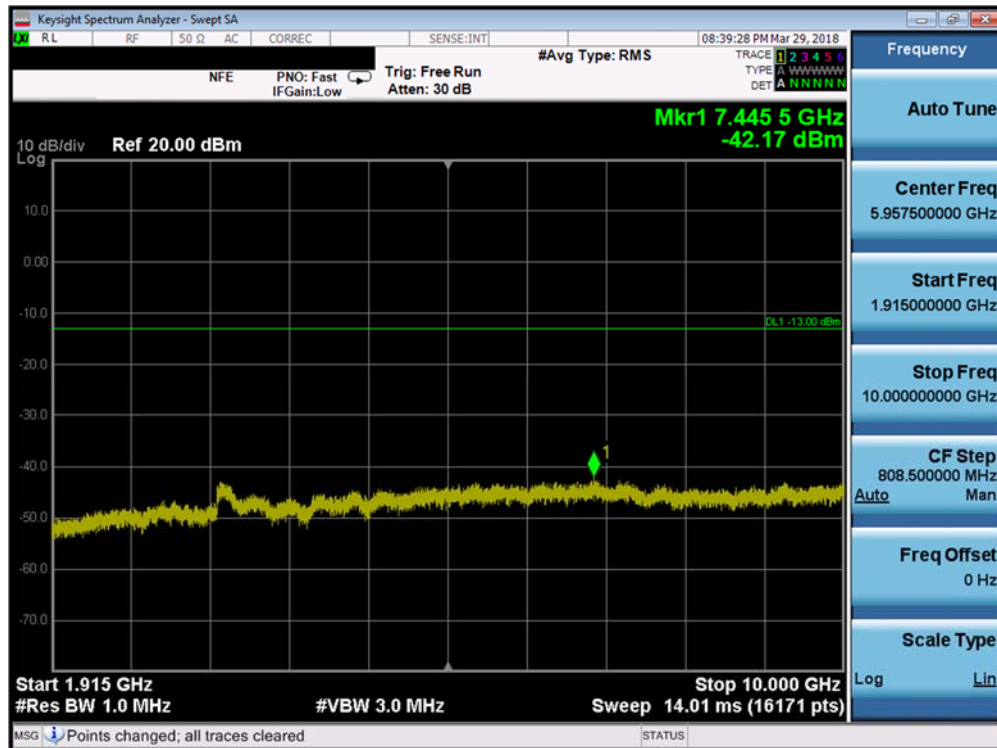
Plot 7-98. Conducted Spurious Plot (Band 4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 68 of 179

Band 25/2

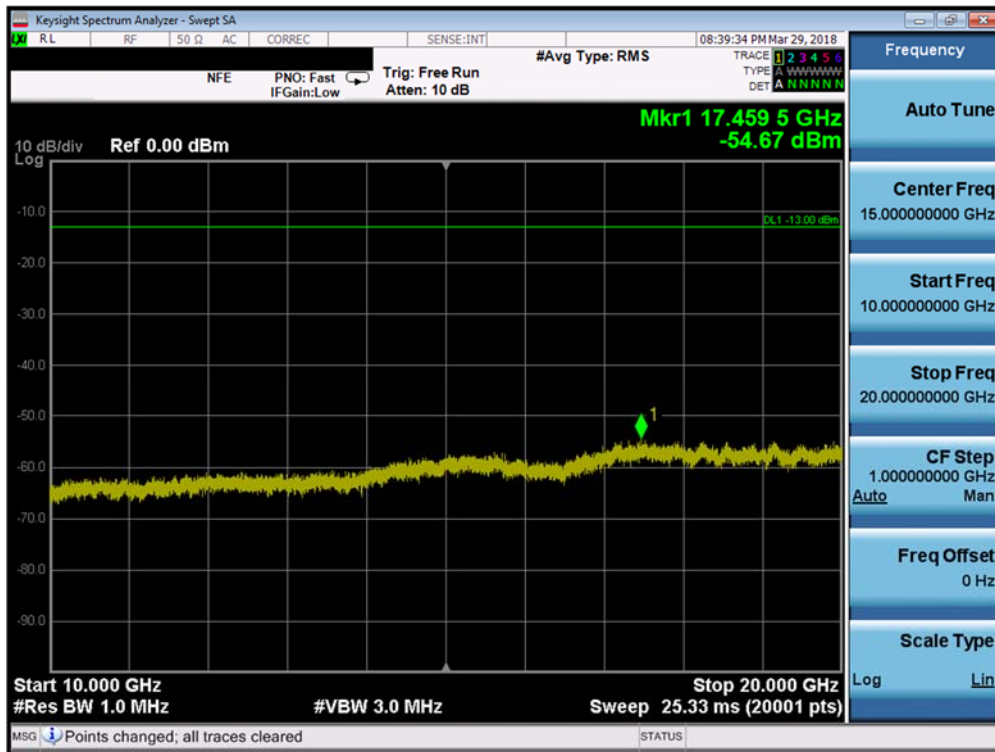


Plot 7-99. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-100. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 69 of 179

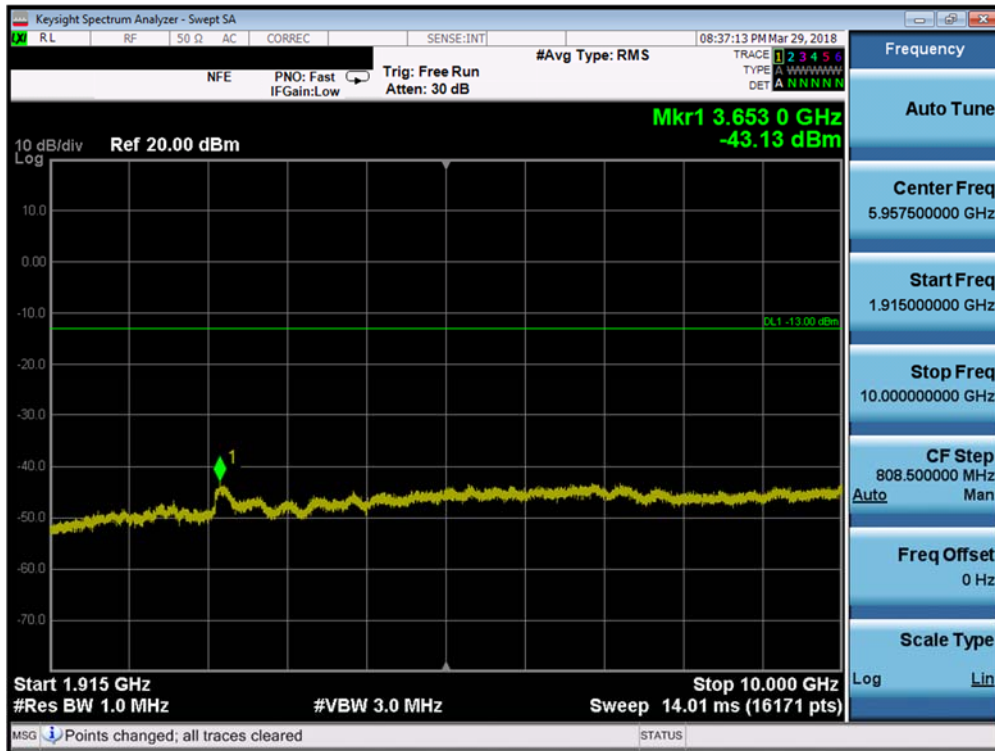


Plot 7-101. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

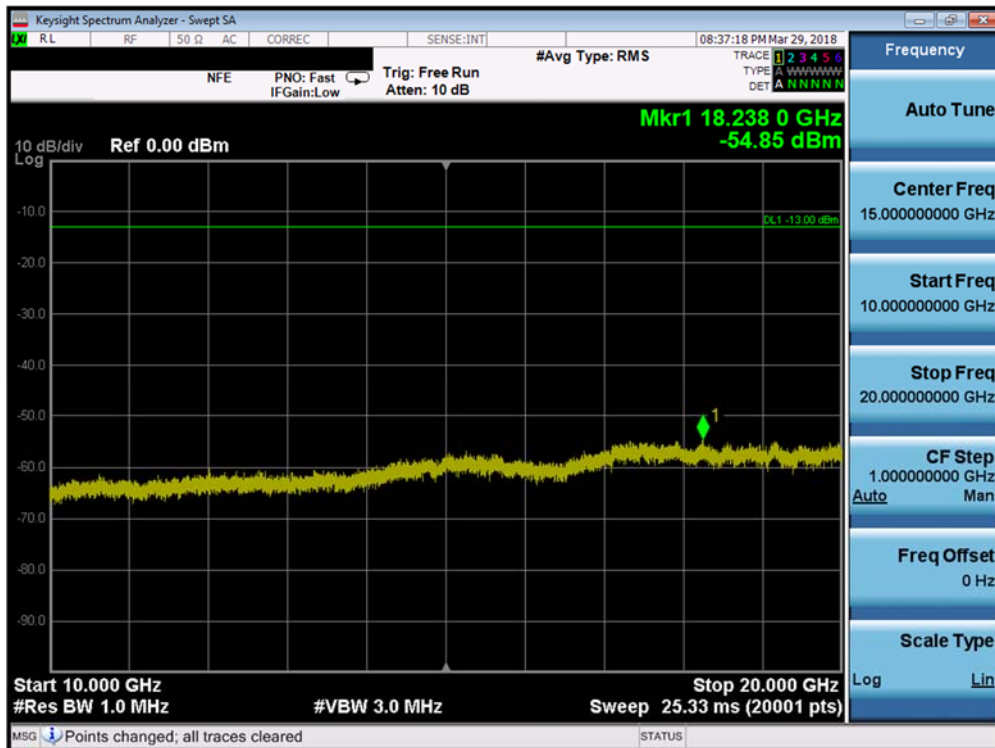


Plot 7-102. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 70 of 179

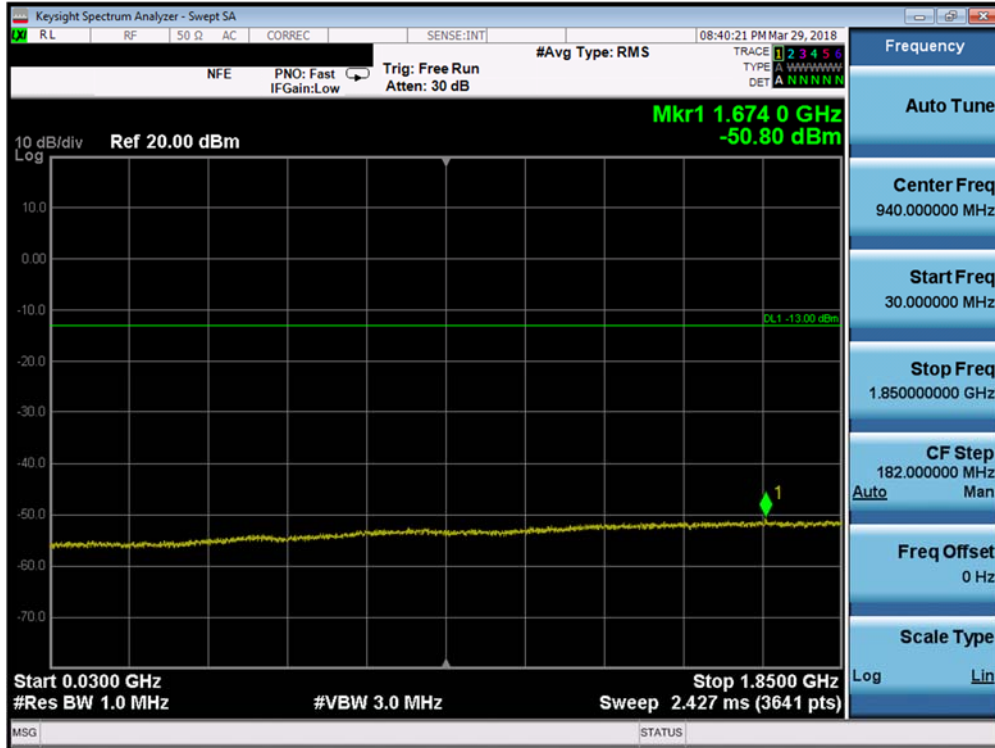


Plot 7-103. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

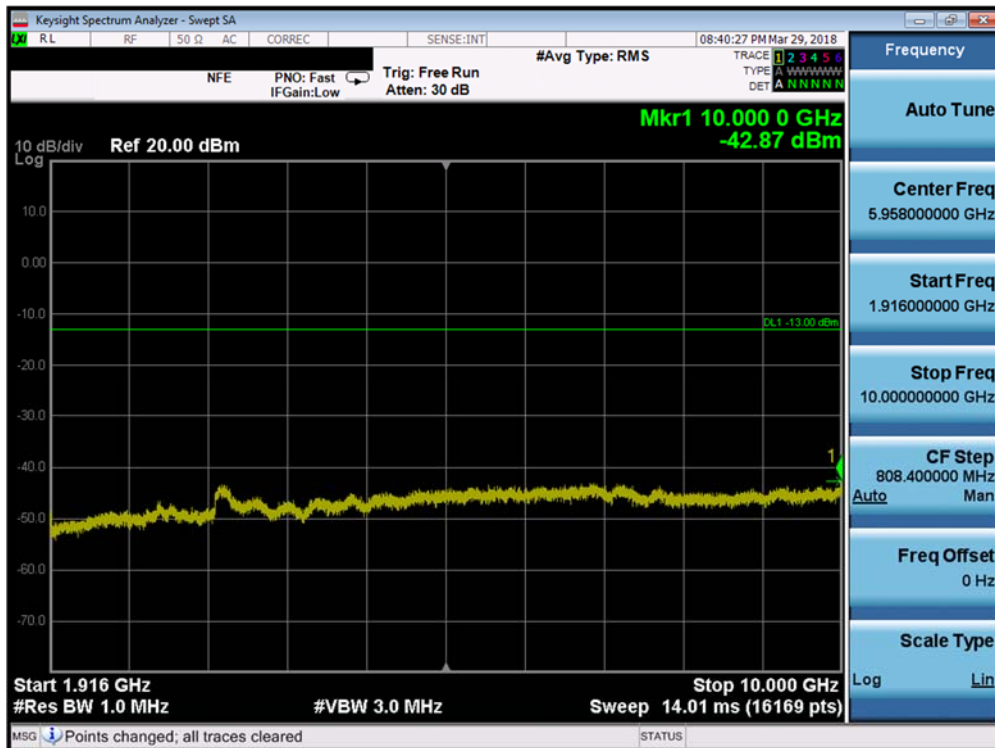


Plot 7-104. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1-ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 71 of 179

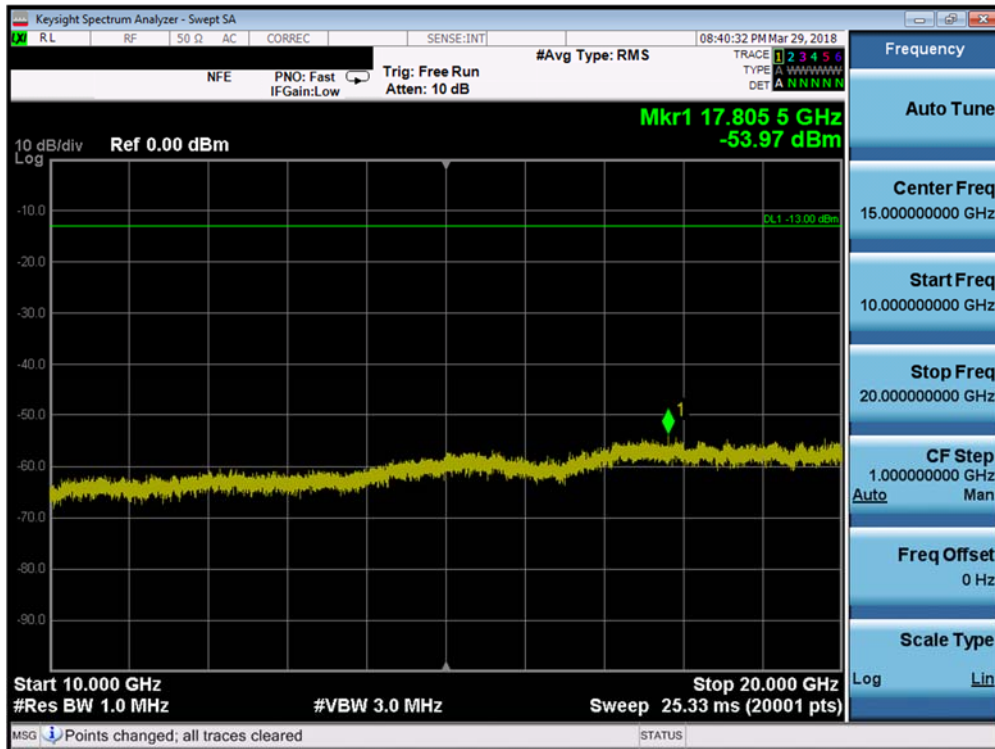


Plot 7-105. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-106. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

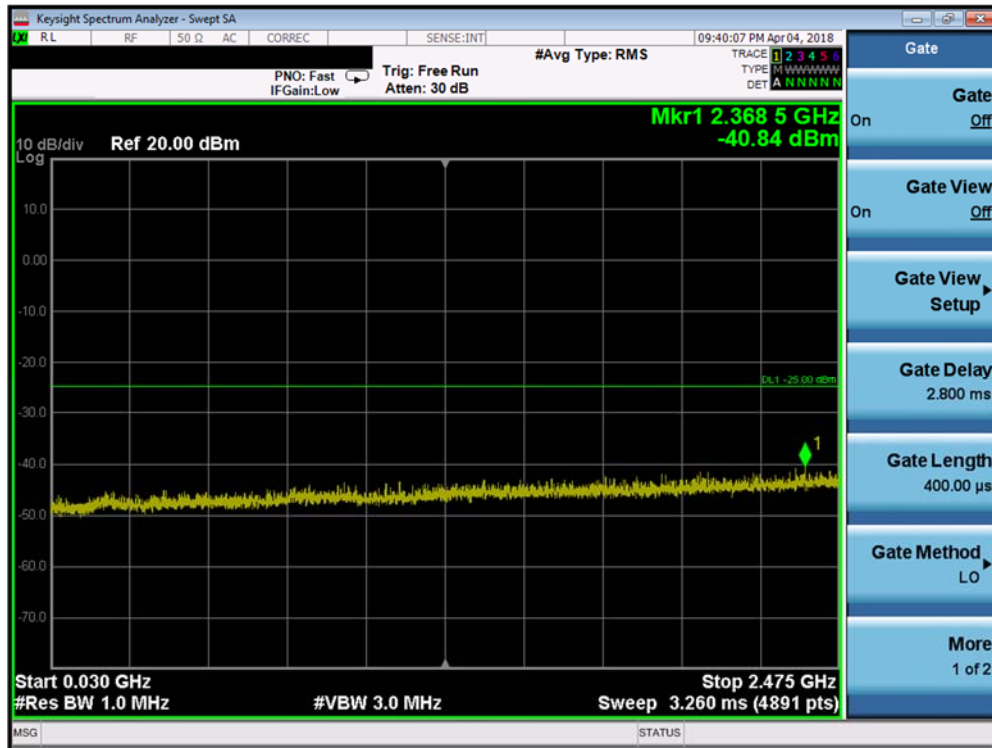
FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 72 of 179



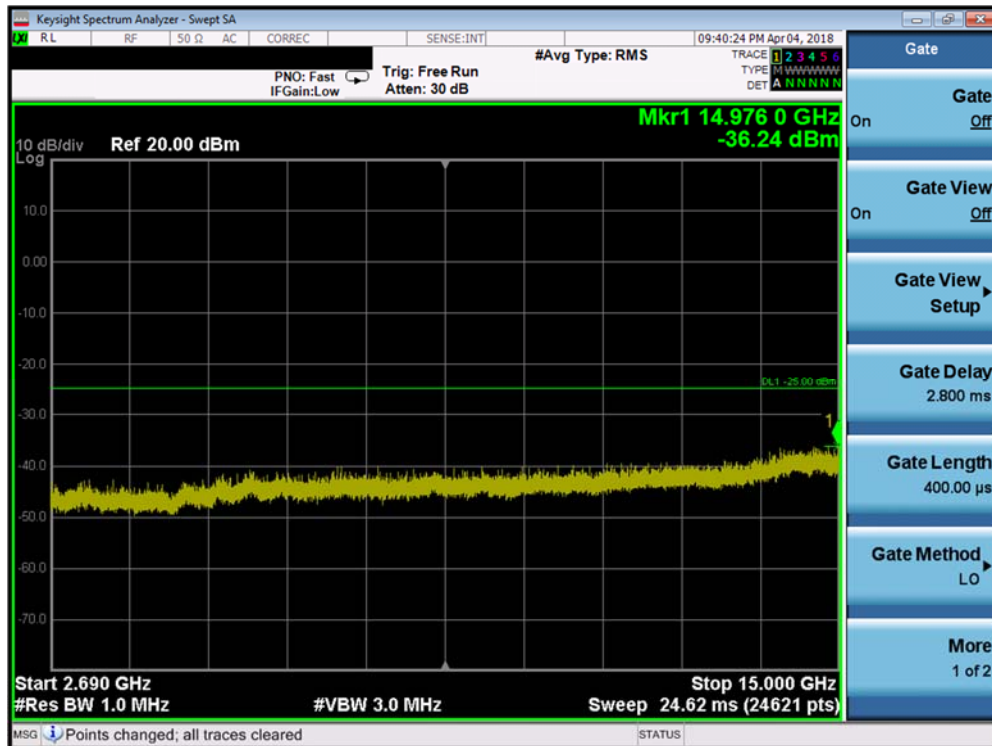
Plot 7-107. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFQ710AL	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset	Page 73 of 179

Band 41 PC2

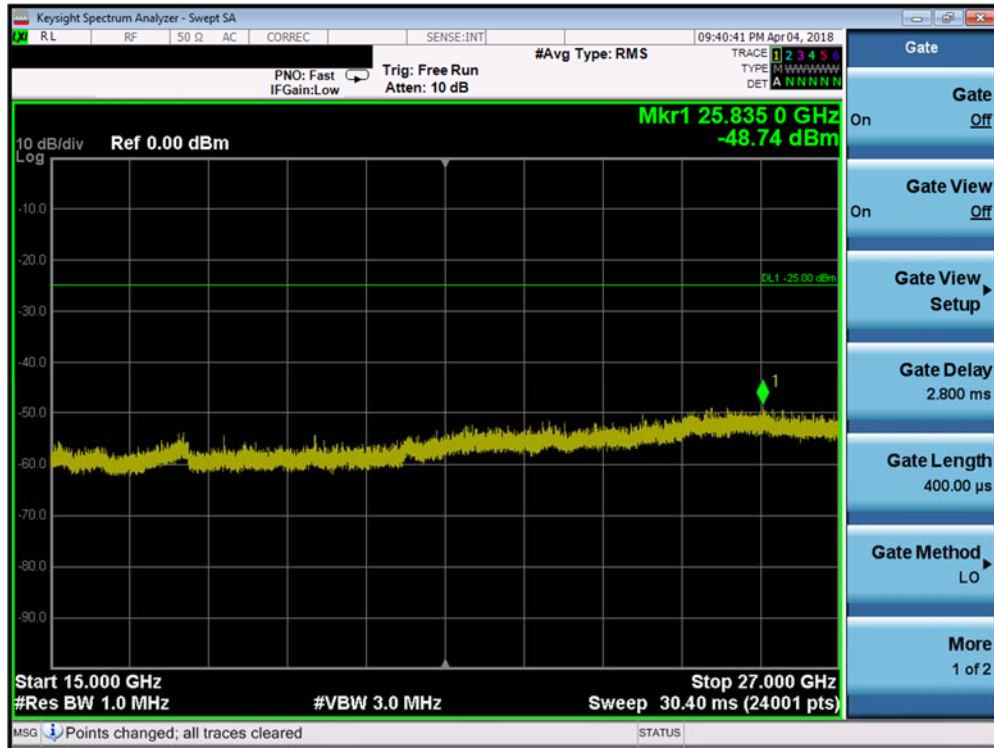


Plot 7-108. Conducted Spurious Plot (Band 41 PC2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

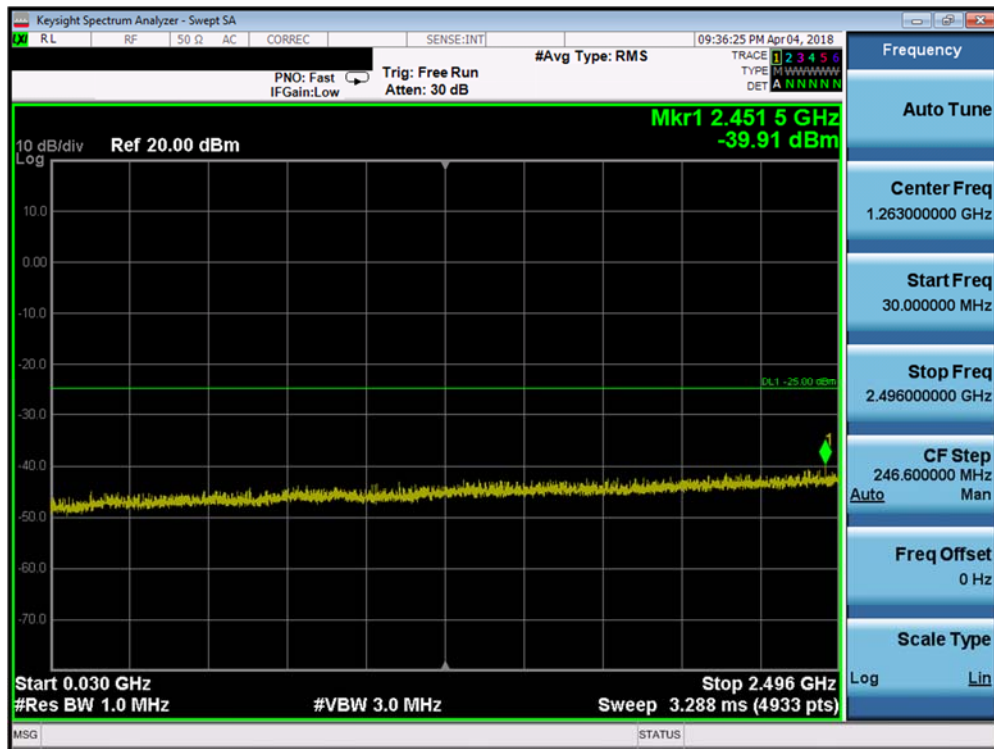


Plot 7-109. Conducted Spurious Plot (Band 41 PC2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 74 of 179

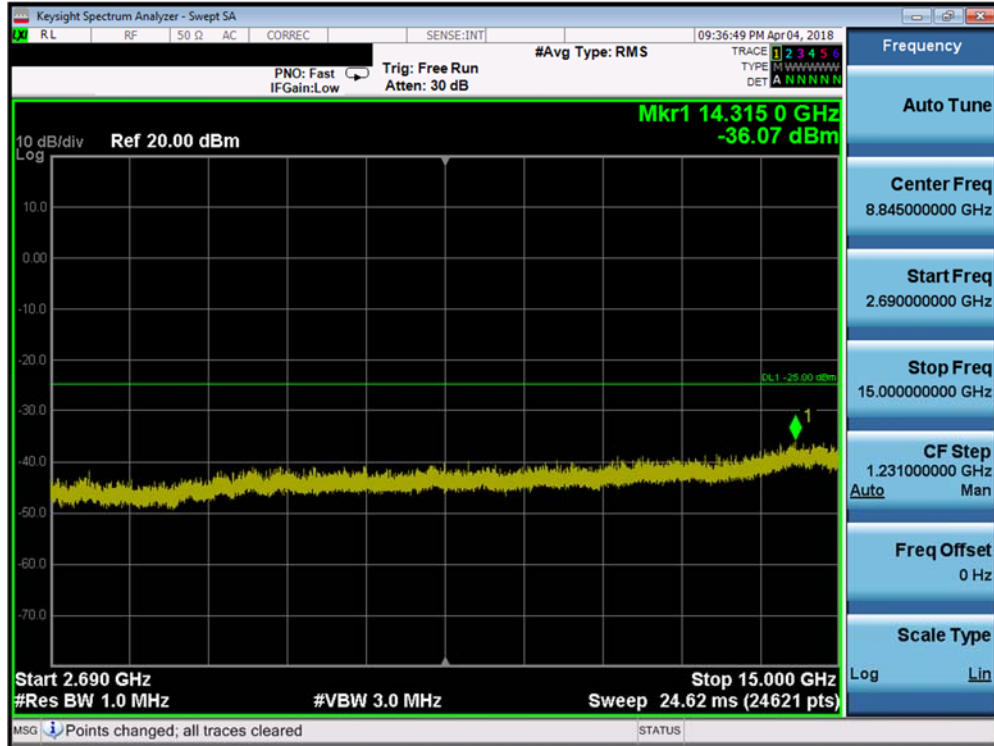


Plot 7-110. Conducted Spurious Plot (Band 41 PC2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

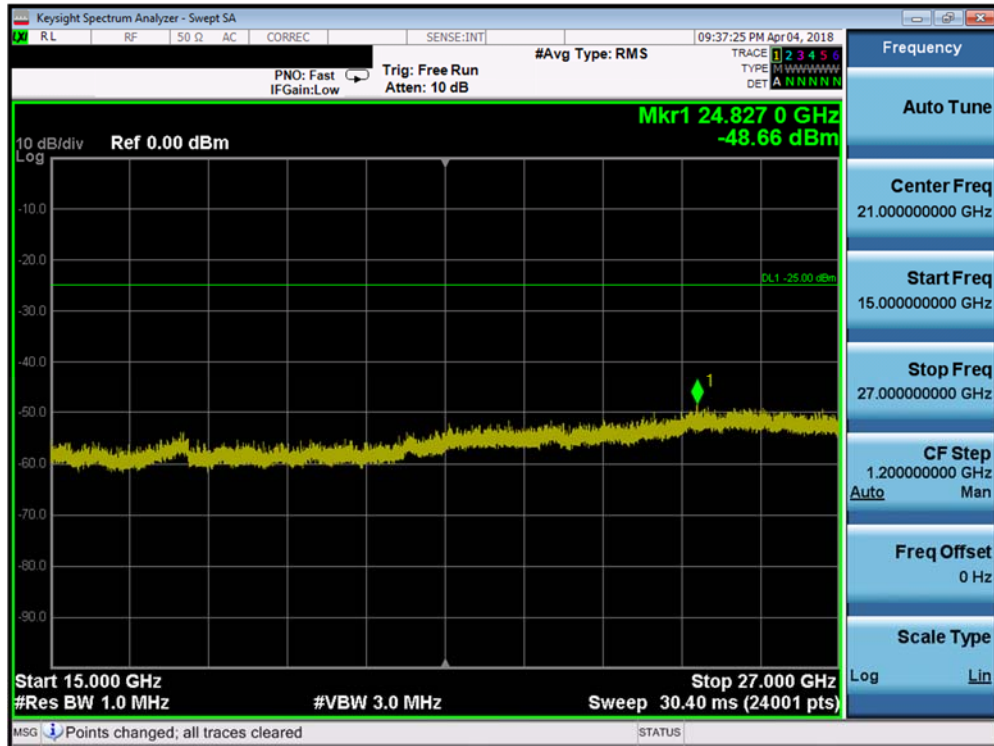


Plot 7-111. Conducted Spurious Plot (Band 41 PC2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 75 of 179

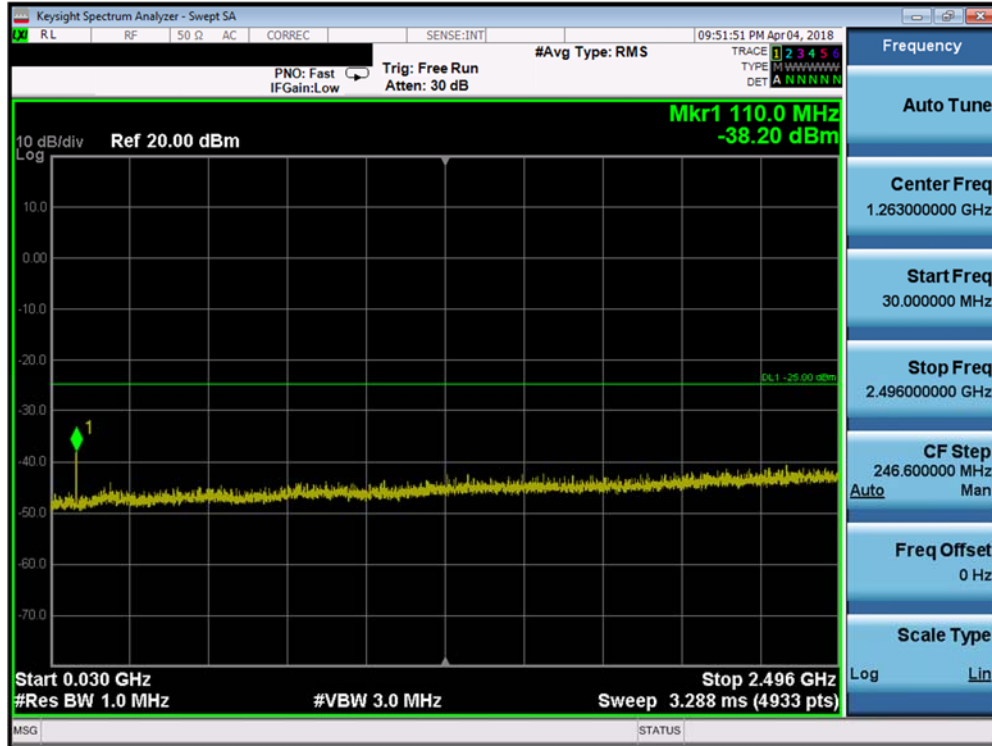


Plot 7-112. Conducted Spurious Plot (Band 41 PC2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

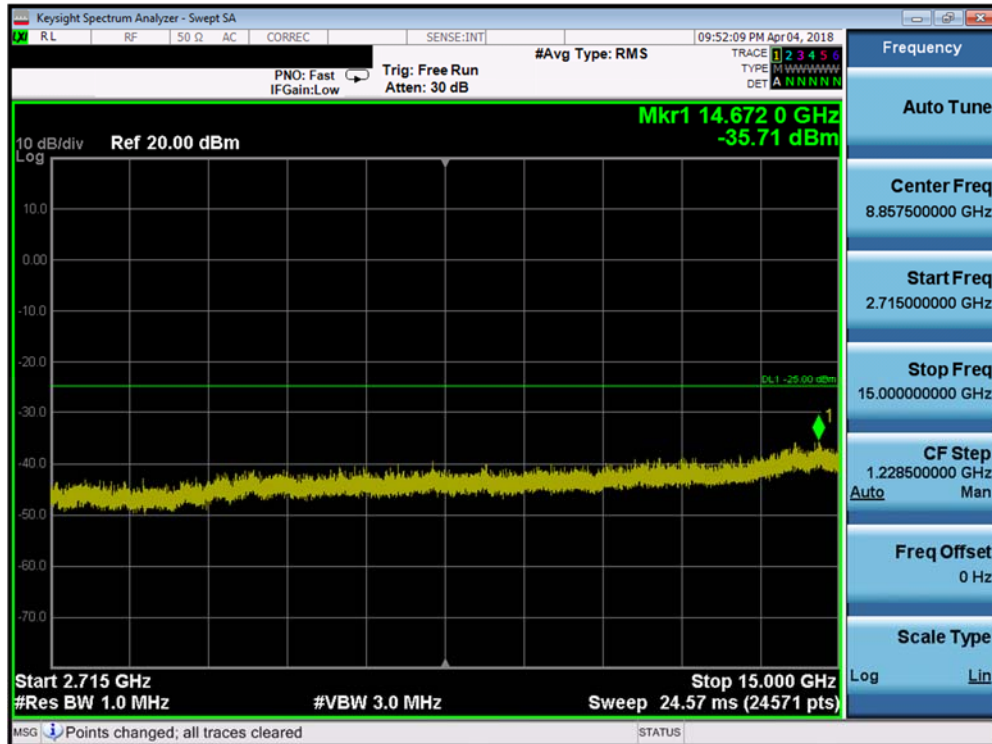


Plot 7-113. Conducted Spurious Plot (Band 41 PC2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1-ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 76 of 179

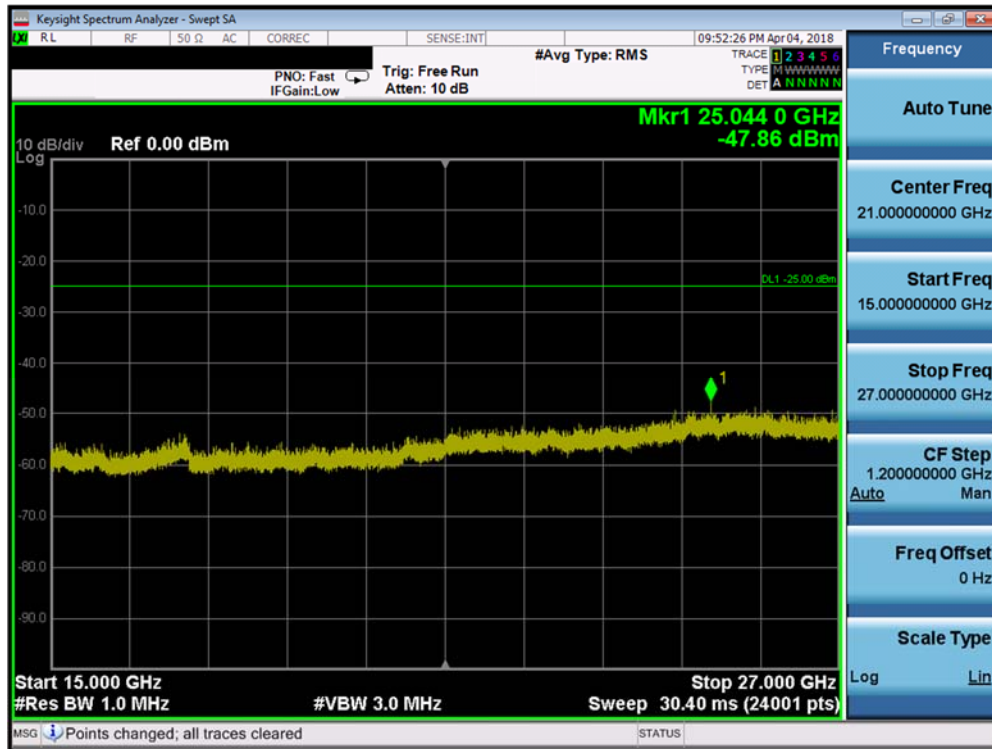


Plot 7-114. Conducted Spurious Plot (Band 41 PC2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-115. Conducted Spurious Plot (Band 41 PC2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1-ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 77 of 179



Plot 7-116. Conducted Spurious Plot (Band 41 PC2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFQ710AL	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset	Page 78 of 179

7.4 Band Edge Emissions at Antenna Terminal

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 $43 + \log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

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

Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

Test Settings

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

Test Setup

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



Figure 7-3. Test Instrument & Measurement Setup

FCC ID: ZNFQ710AL	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset	Page 79 of 179

Test Notes

Per 22.917(b), 24.238(a), and 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.

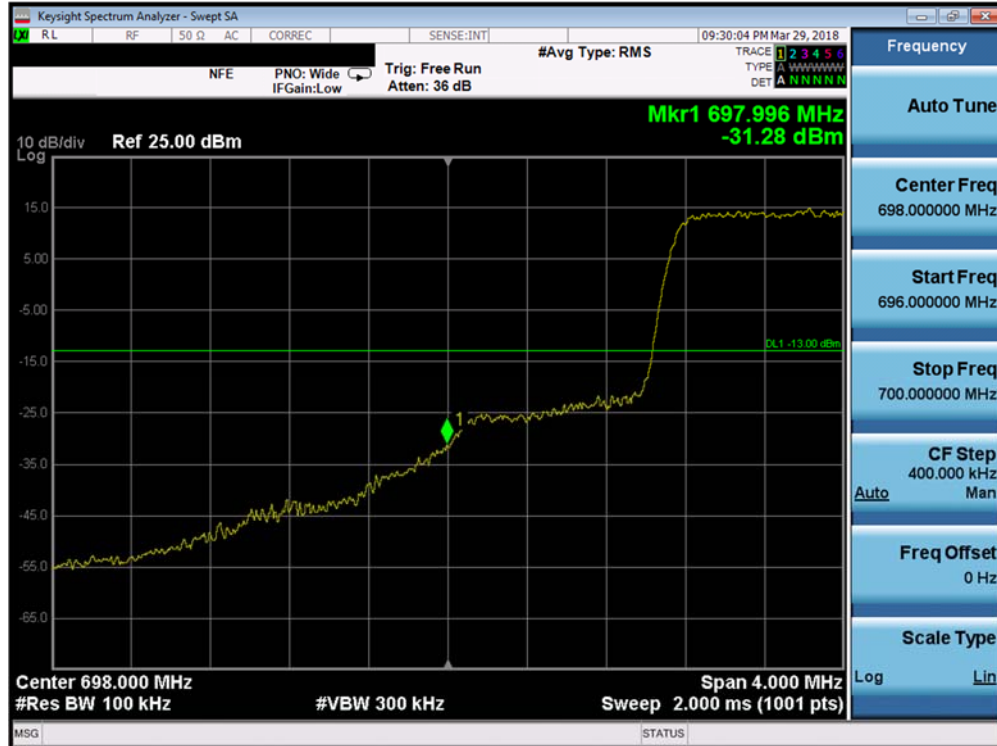
Per 27.53(c)(5) for operations in the 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

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

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 than $43 + 10 \log (P)$ 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: ZNFQ710AL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 80 of 179

Band 12/17

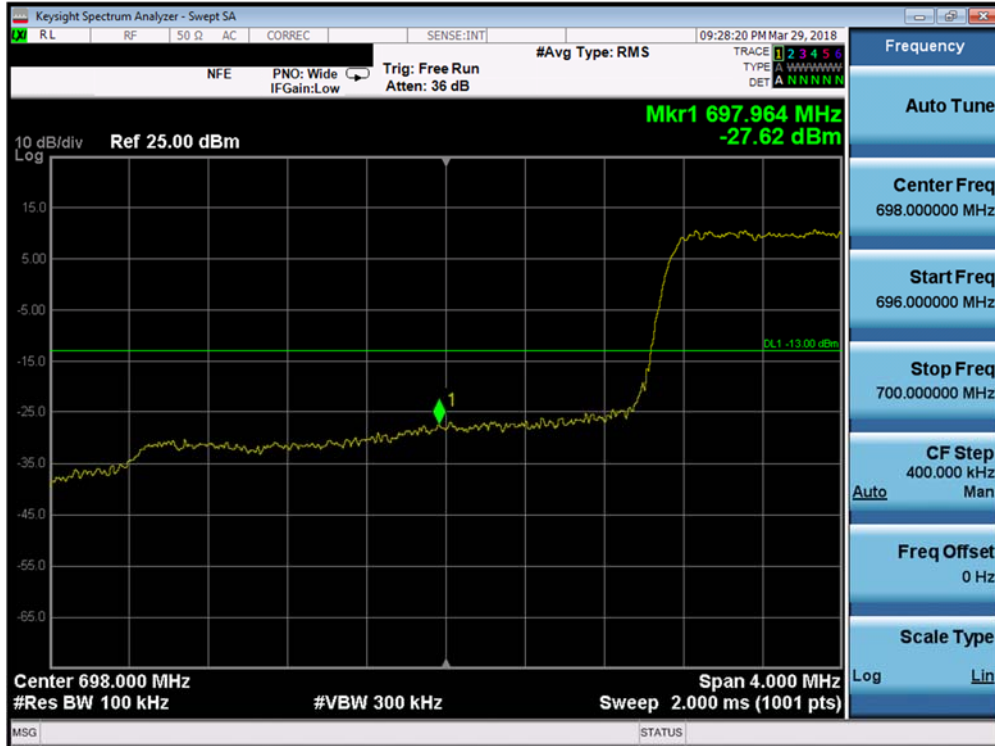


Plot 7-117. Lower Band Edge Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)

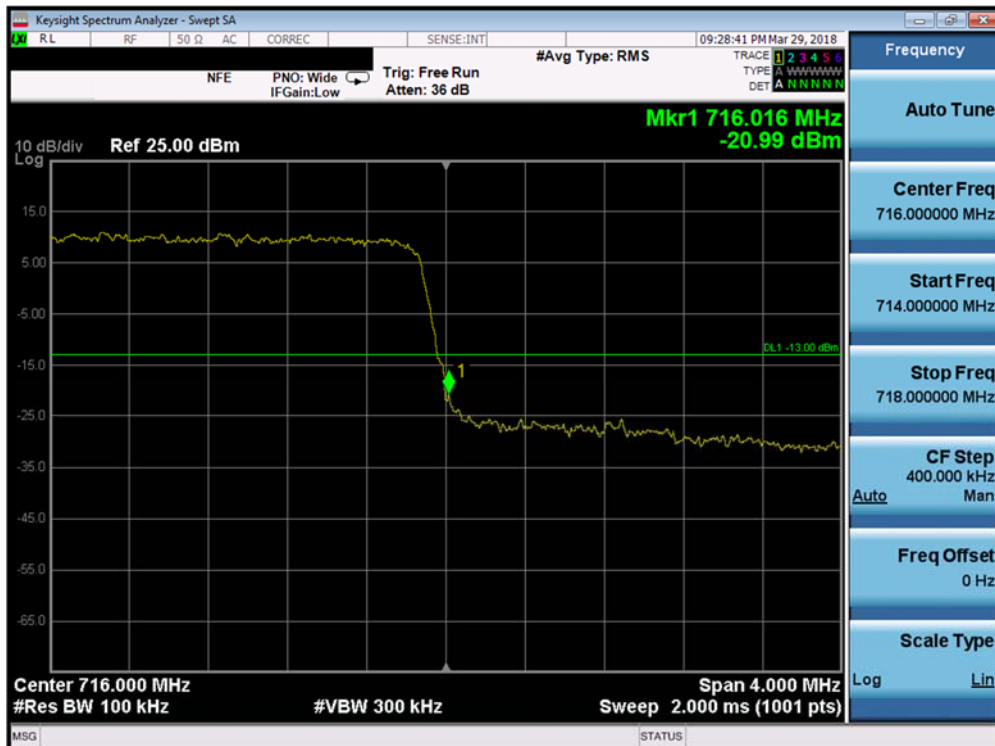


Plot 7-118. Upper Band Edge Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 81 of 179

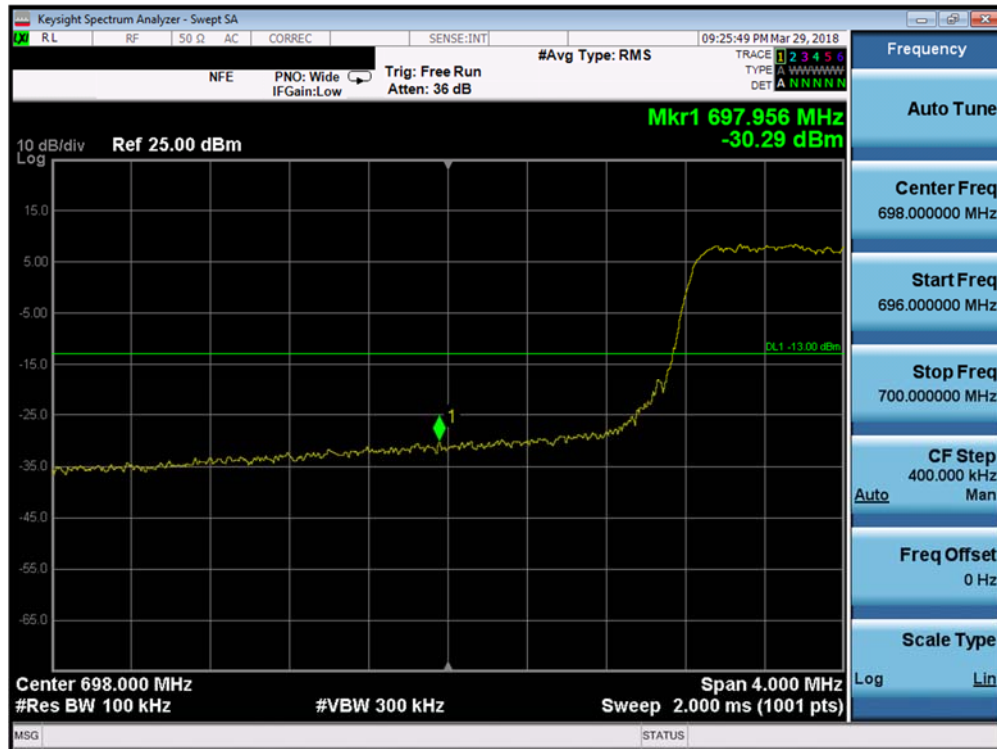


Plot 7-119. Lower Band Edge Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)

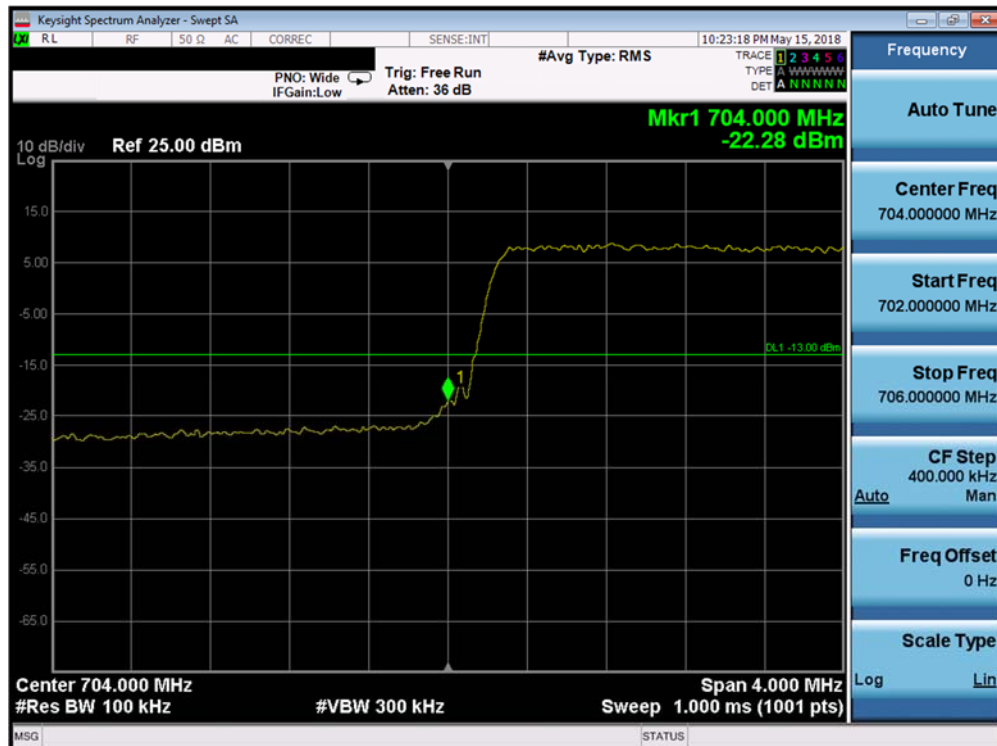


Plot 7-120. Upper Band Edge Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 82 of 179

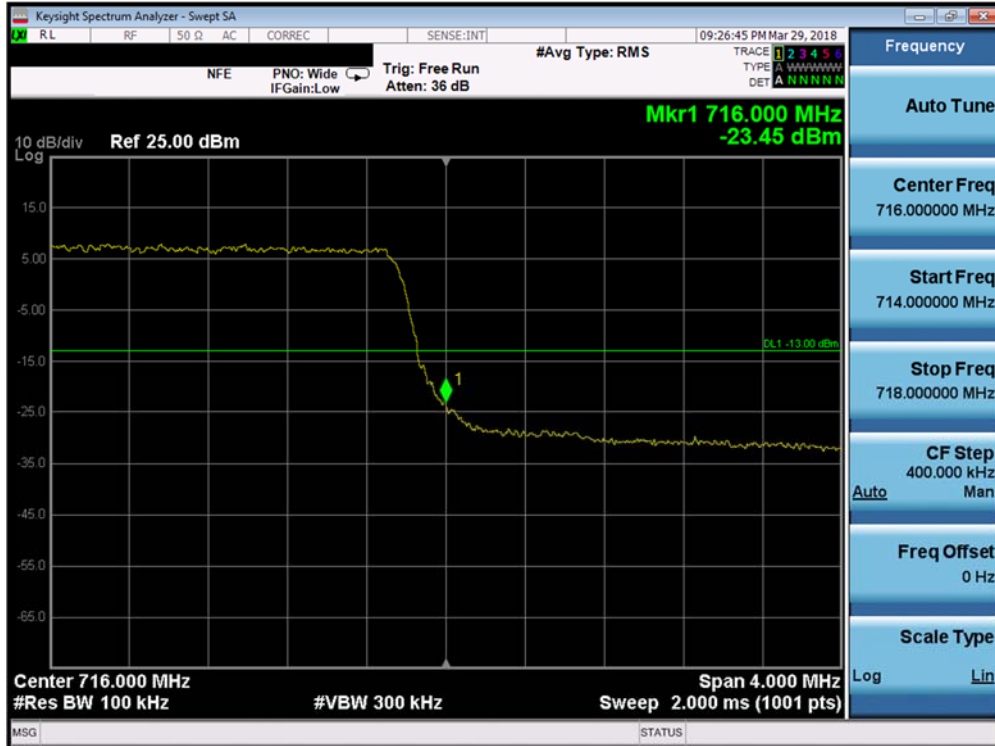


Plot 7-121. Lower Band Edge Plot (Band 12 - 5.0MHz QPSK - Full RB Configuration)

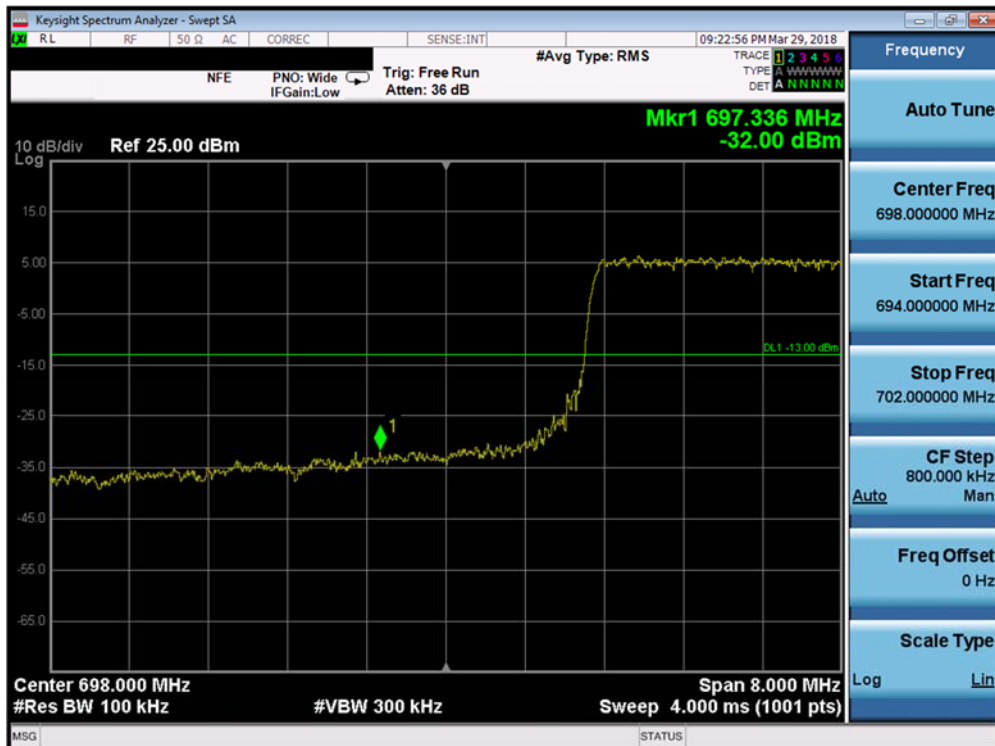


Plot 7-122. Lower Band Edge Plot (Band 17 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 83 of 179

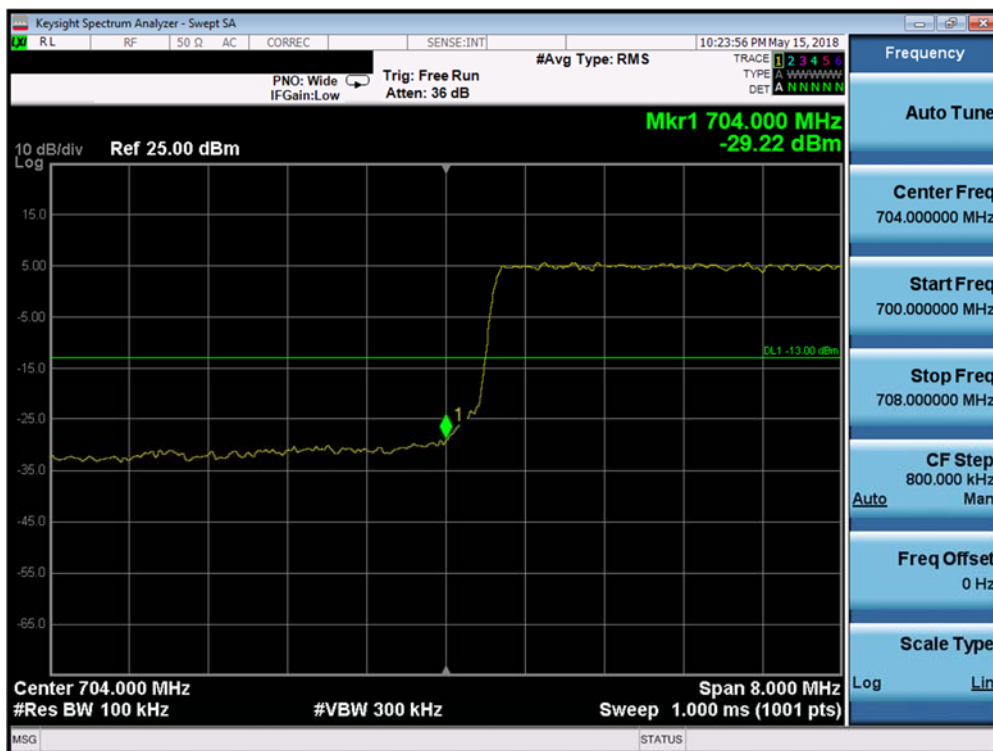


Plot 7-123. Upper Band Edge Plot (Band 12/17 - 5.0MHz QPSK - Full RB Configuration)

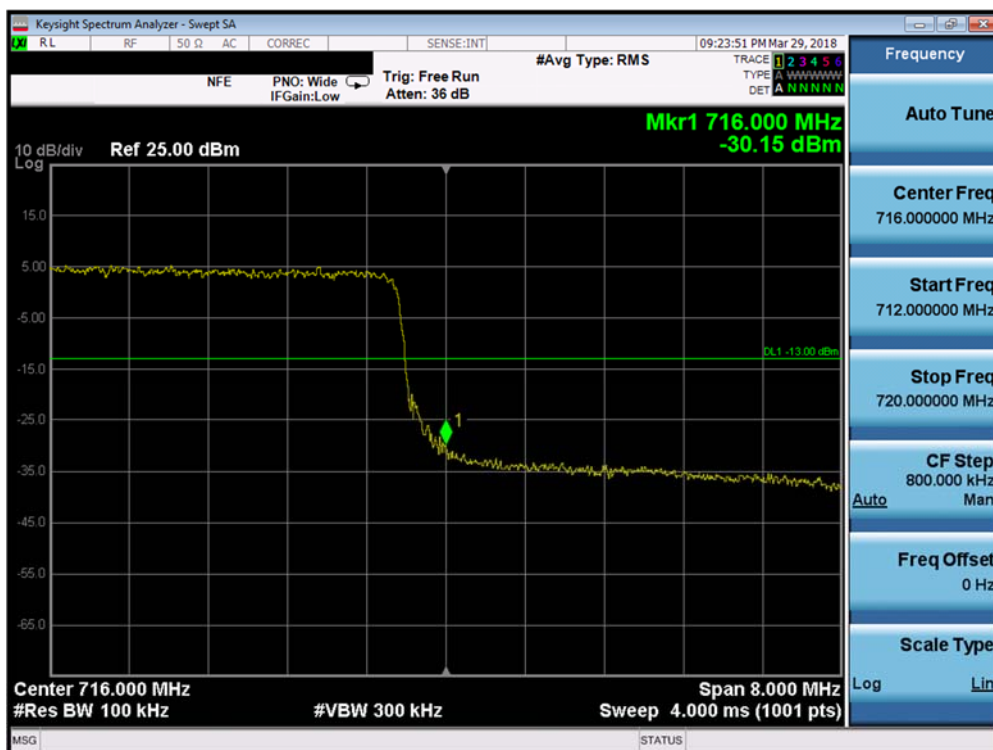


Plot 7-124. Lower Band Edge Plot (Band 12 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 84 of 179



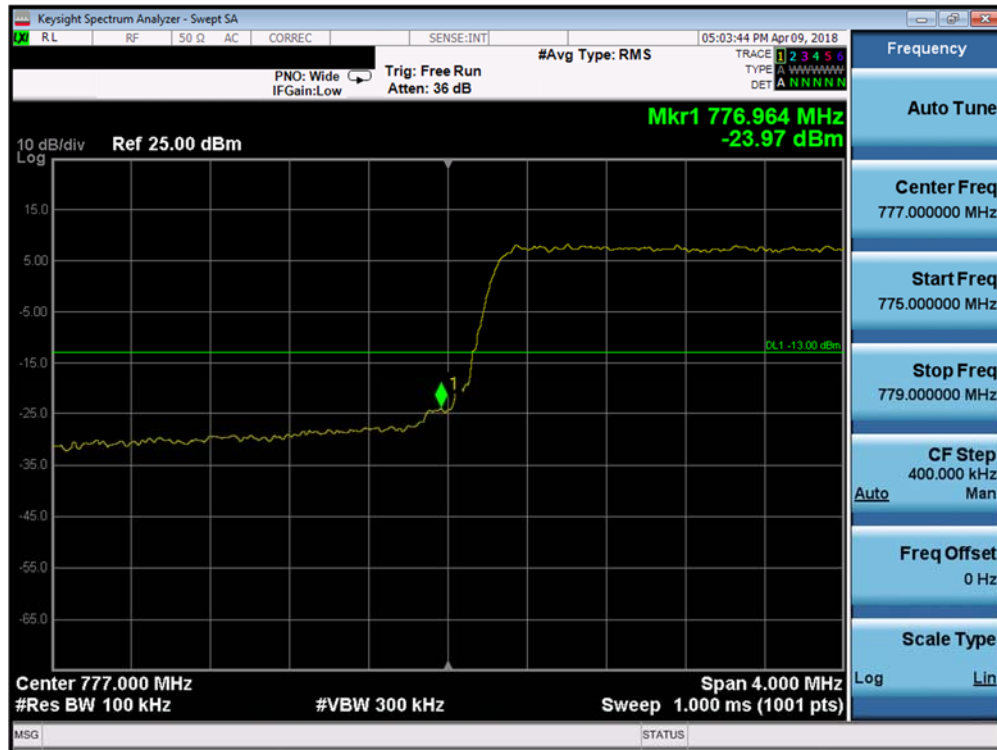
Plot 7-125. Lower Band Edge Plot (Band 17 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-126. Upper Band Edge Plot (Band 12/17 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset	Page 85 of 179

Band 13

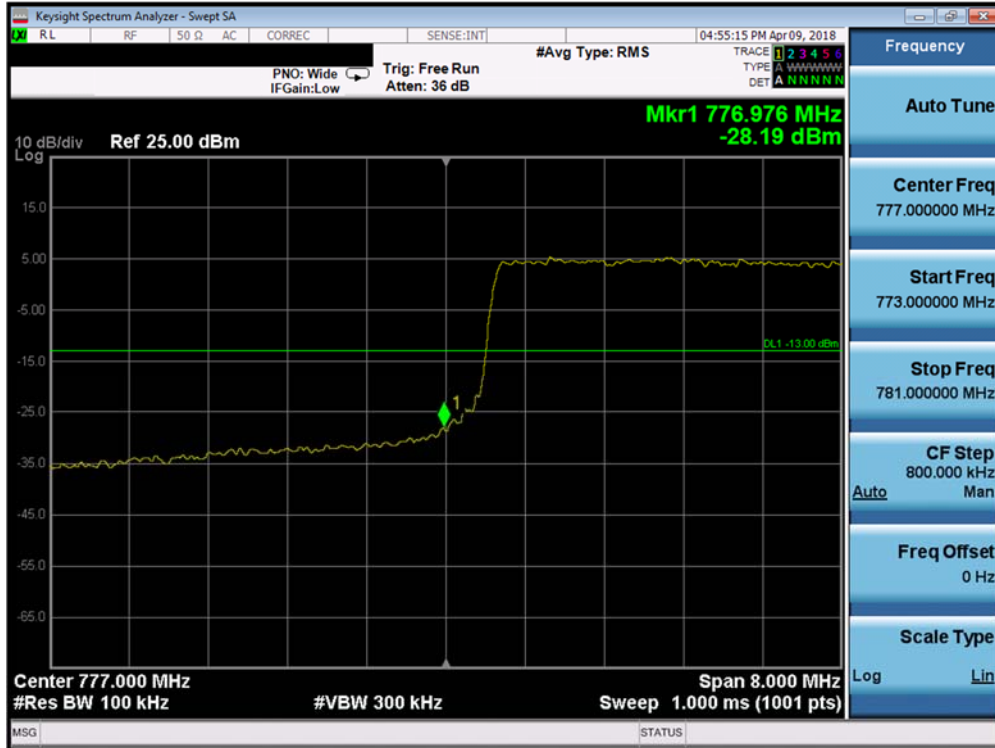


Plot 7-127. Lower Band Edge Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

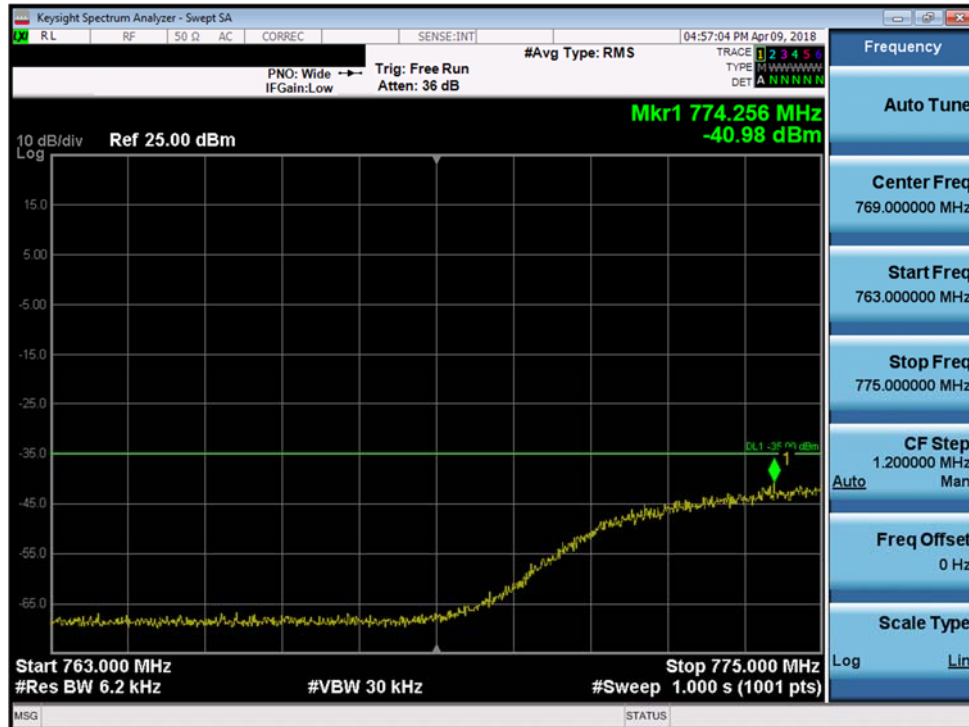


Plot 7-128. Lower Emission Mask Edge Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 86 of 179

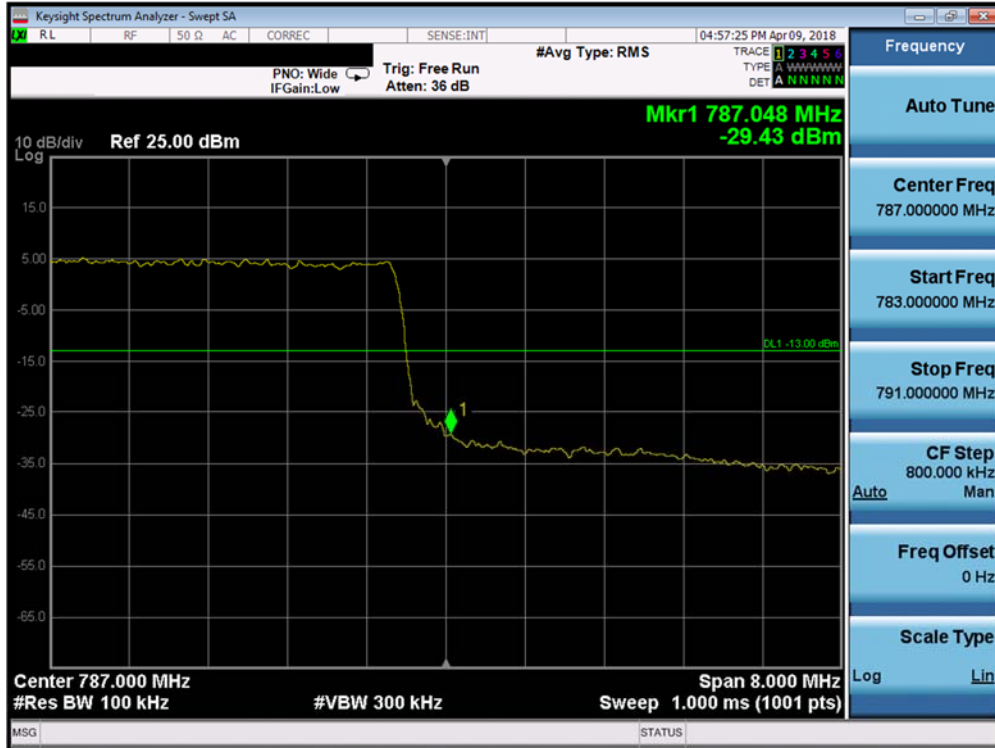


Plot 7-131. Lower Band Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-132. Lower Emission Mask Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 88 of 179



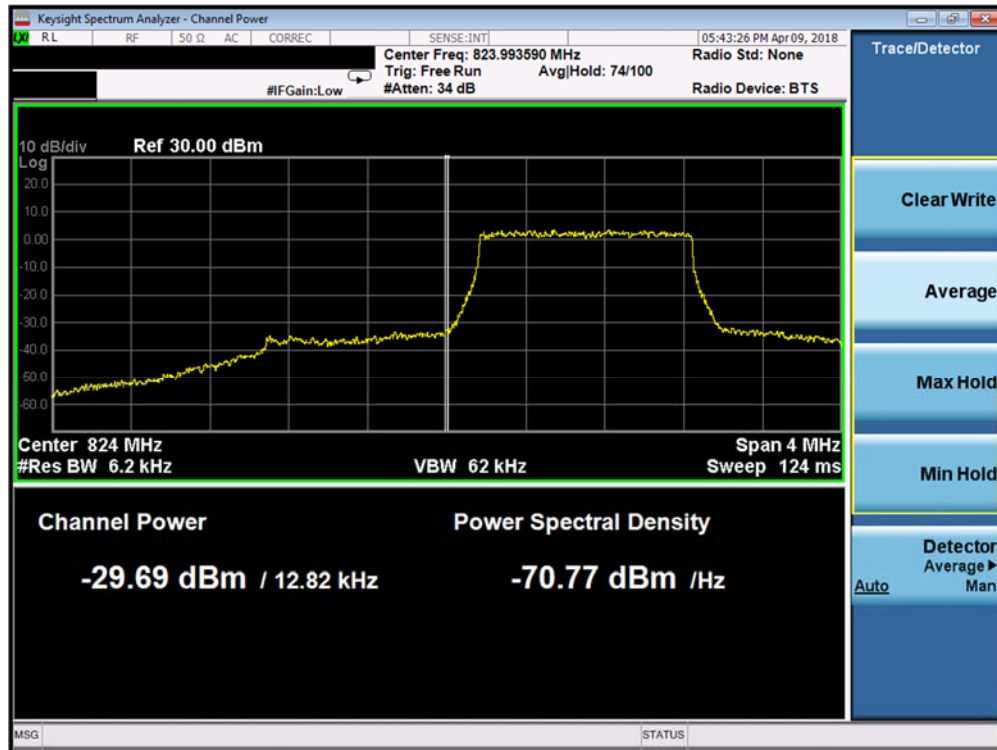
Plot 7-133. Upper Band Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-134. Upper Emission Mask Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1-ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 89 of 179

Band 26/5

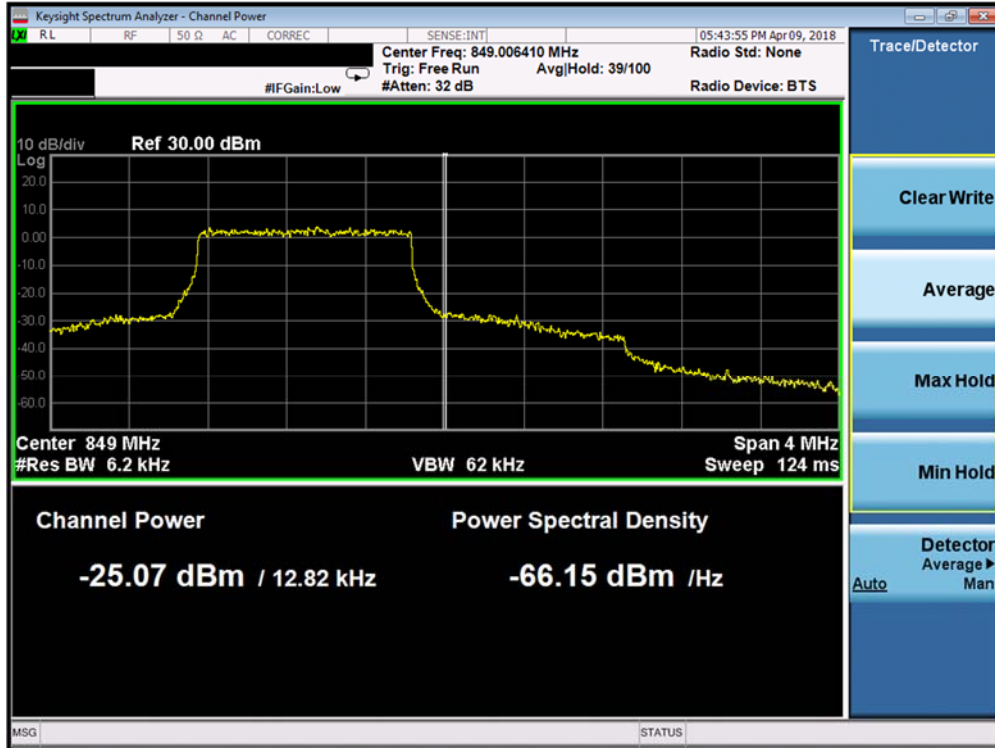


Plot 7-135. Lower Band Edge Plot (Band 26/5 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-136. Lower Extended Band Edge Plot (Band 26/5 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 90 of 179

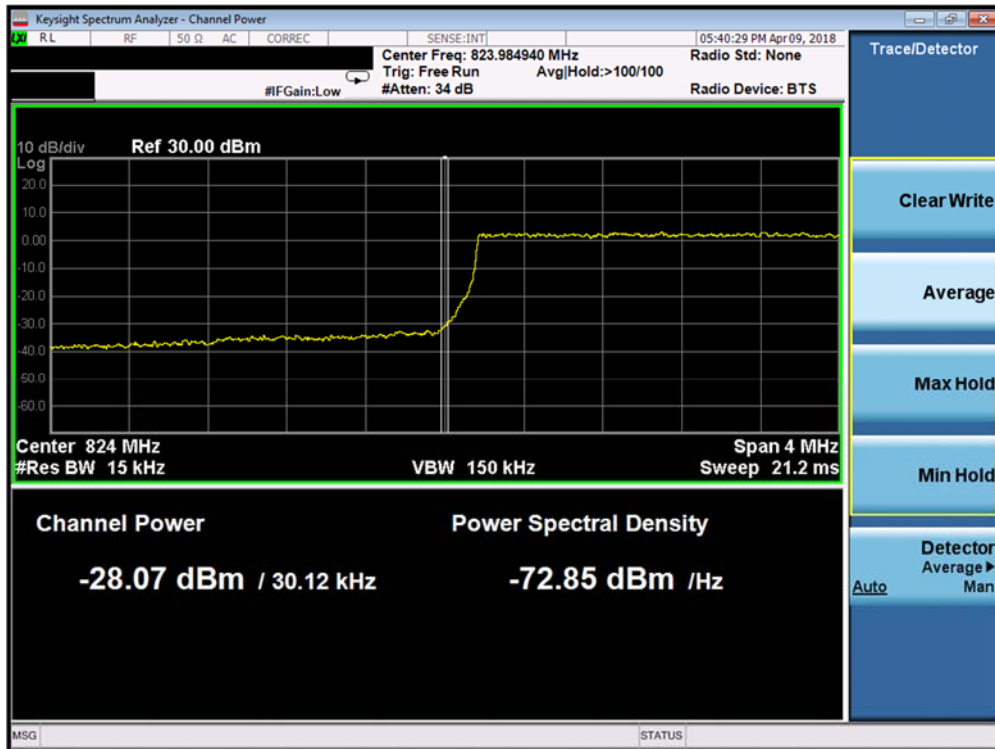


Plot 7-137. Upper Band Edge Plot (Band 26/5 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-138. Upper Extended Band Edge Plot (Band 26/5 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 91 of 179



Plot 7-139. Lower Band Edge Plot (Band 26/5 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-140. Lower Extended Band Edge Plot (Band 26/5 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ710AL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1804240083-03-R1.ZNF	Test Dates: 3/22-5/17/2018	EUT Type: Portable Handset		Page 92 of 179