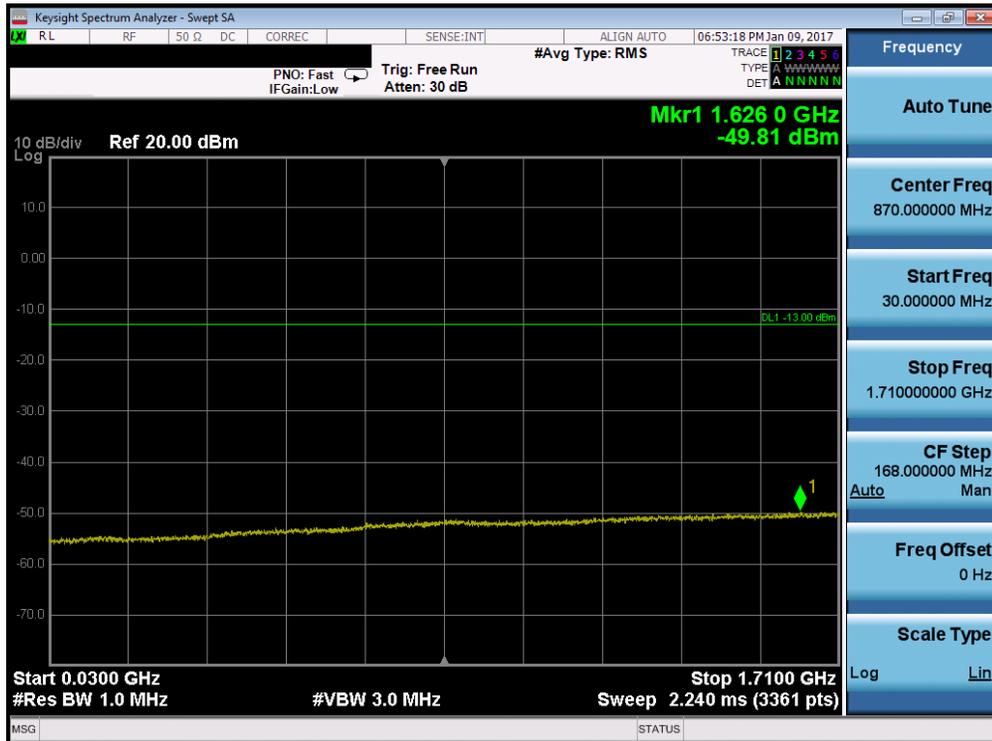
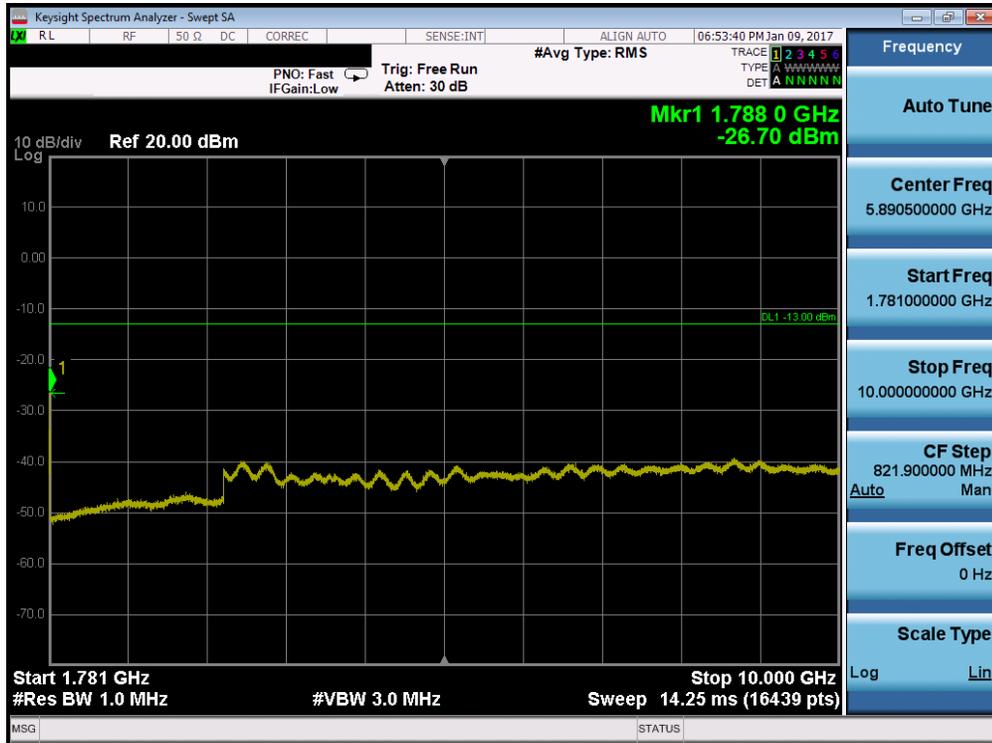


Plot 7-108. Conducted Spurious Plot (Band 4/66 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

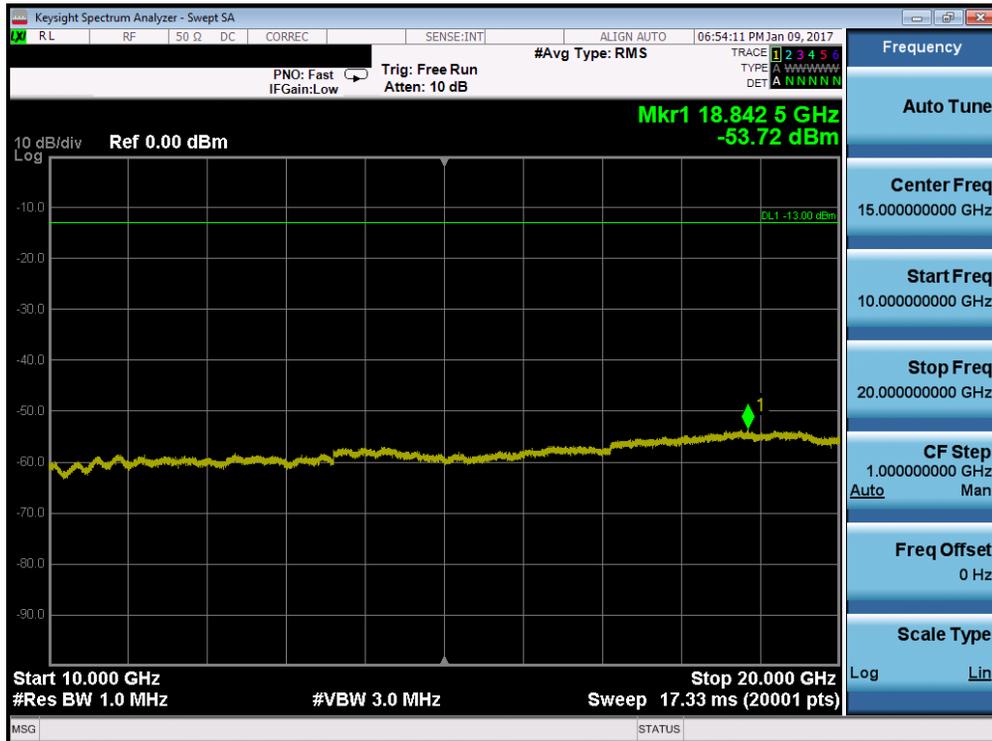


Plot 7-109. Conducted Spurious Plot (Band 4/66 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 72 of 174

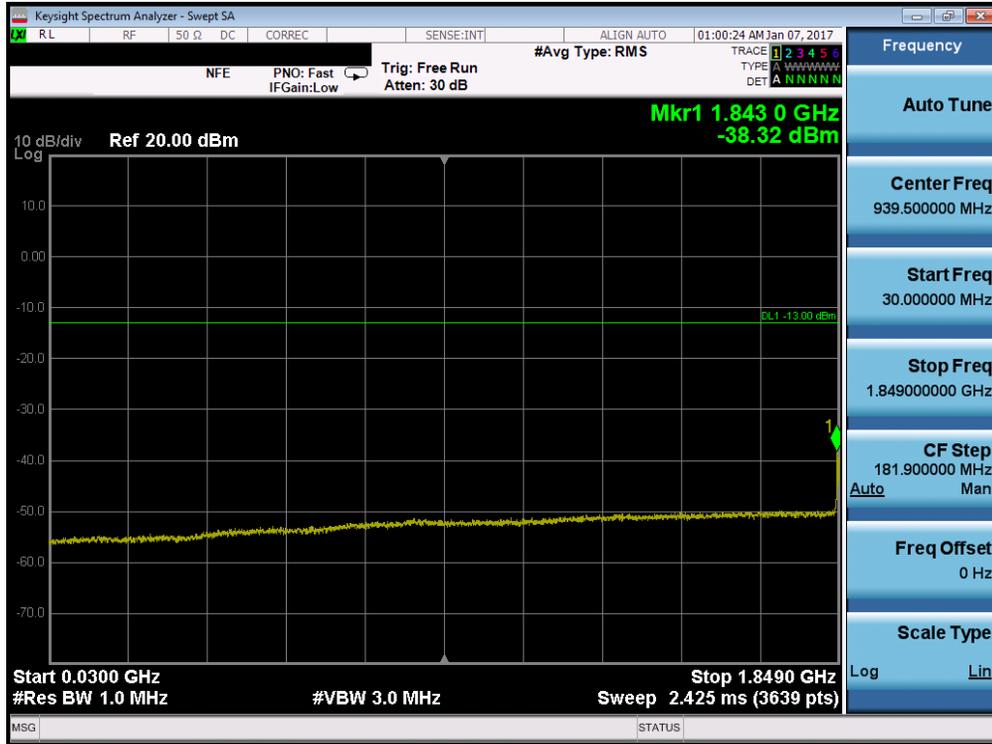


Plot 7-110. Conducted Spurious Plot (Band 4/66 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

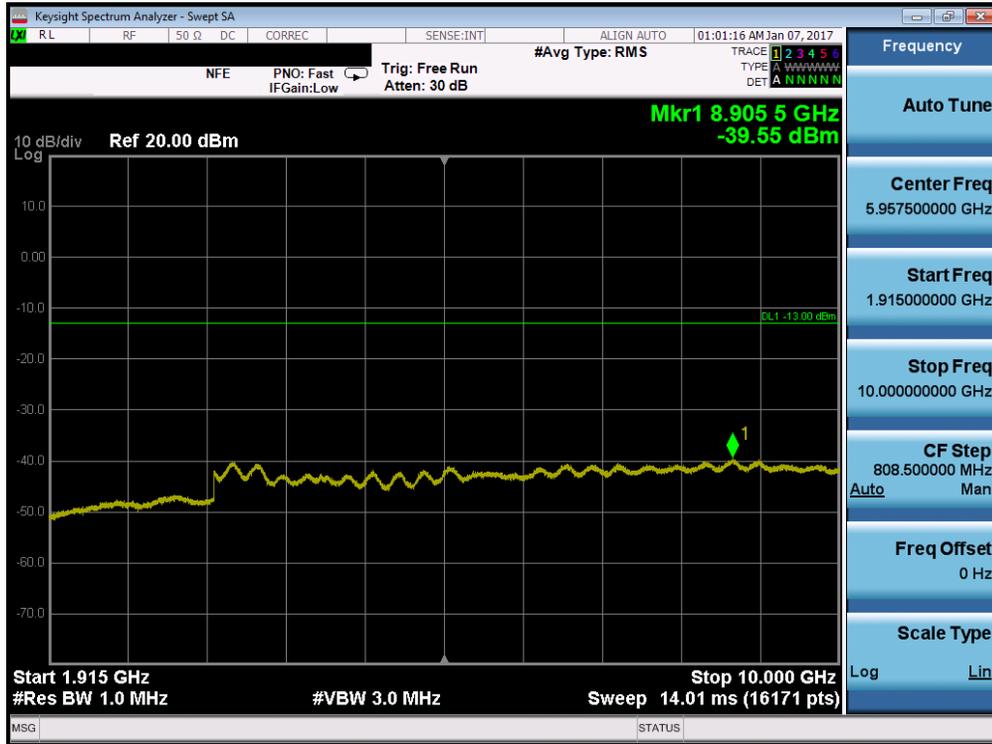


Plot 7-111. Conducted Spurious Plot (Band 4/66 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 73 of 174

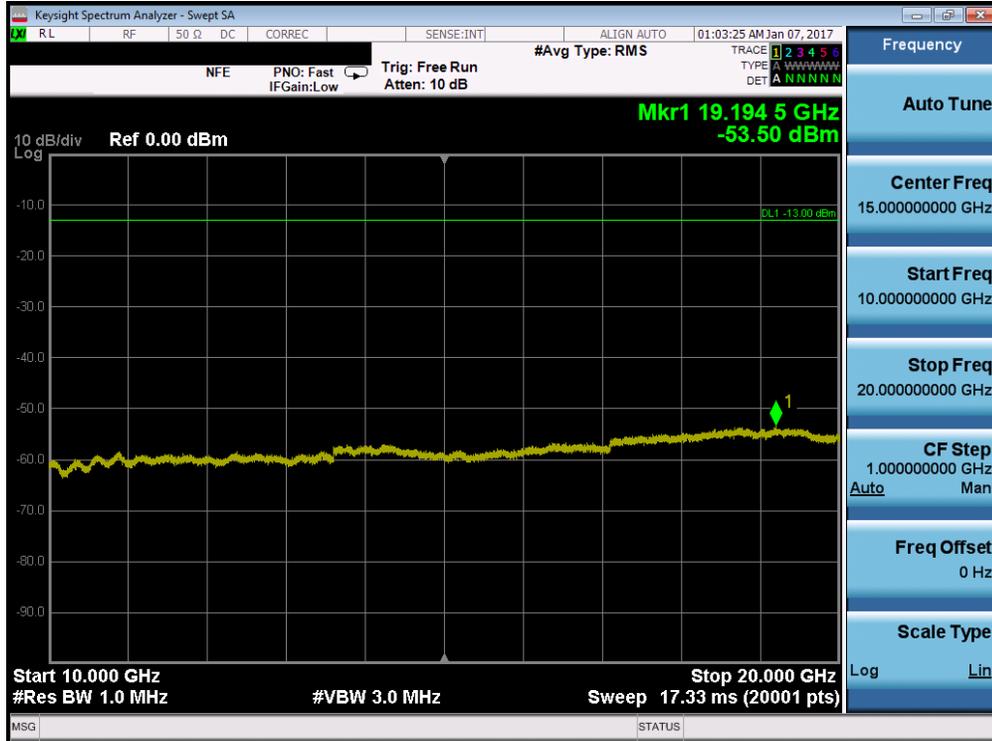


Plot 7-112. Conducted Spurious Plot (Band 2/25 – 20.0MHz QPSK – RB Size 1, RB Offset 0– Low Channel)

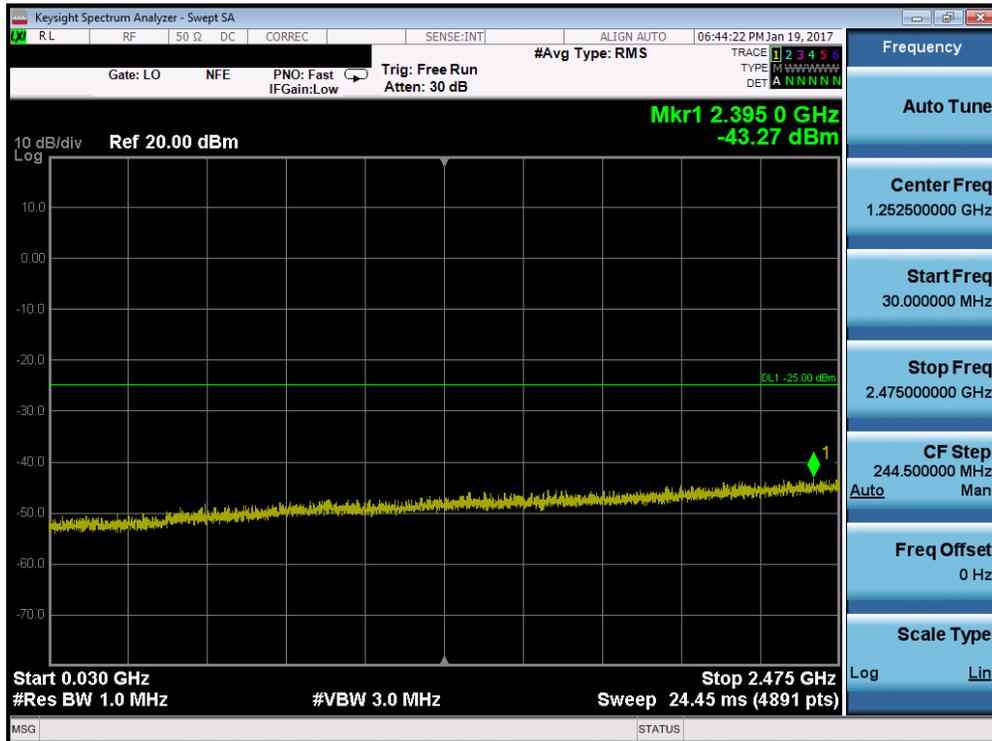


Plot 7-113. Conducted Spurious Plot (Band 2/25 – 20.0MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 74 of 174

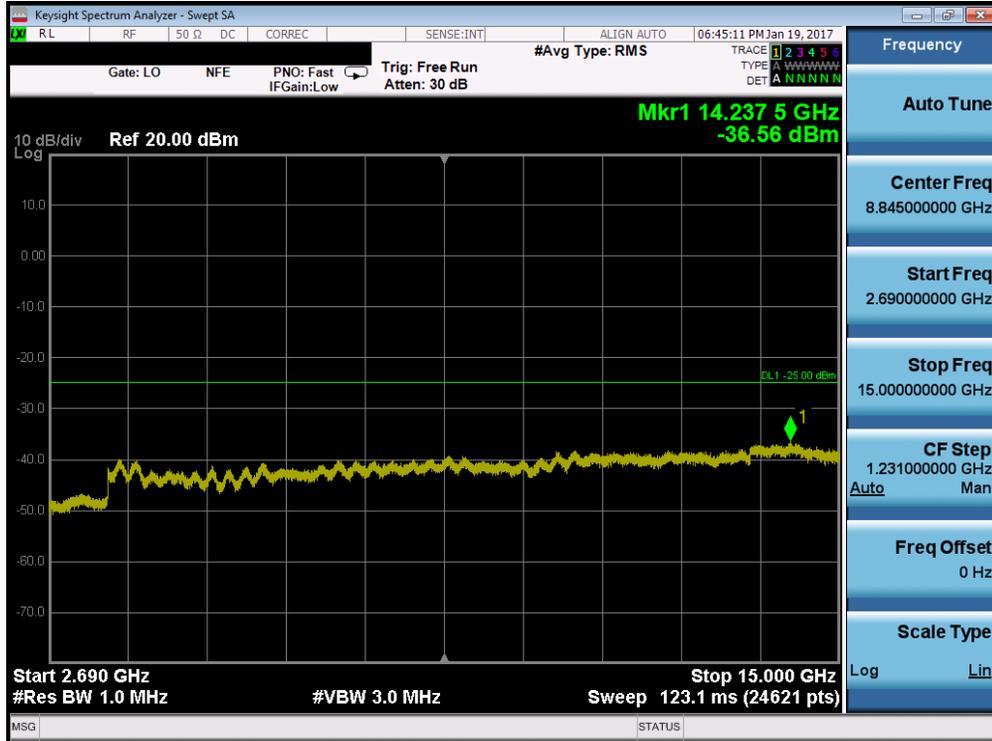


Plot 7-120. Conducted Spurious Plot (Band 2/25 – 20.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)



Plot 7-121. Conducted Spurious Plot (Band 41 – 10.0MHz QPSK – RB Size 1, RB Offset 0– Low Channel)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 78 of 174

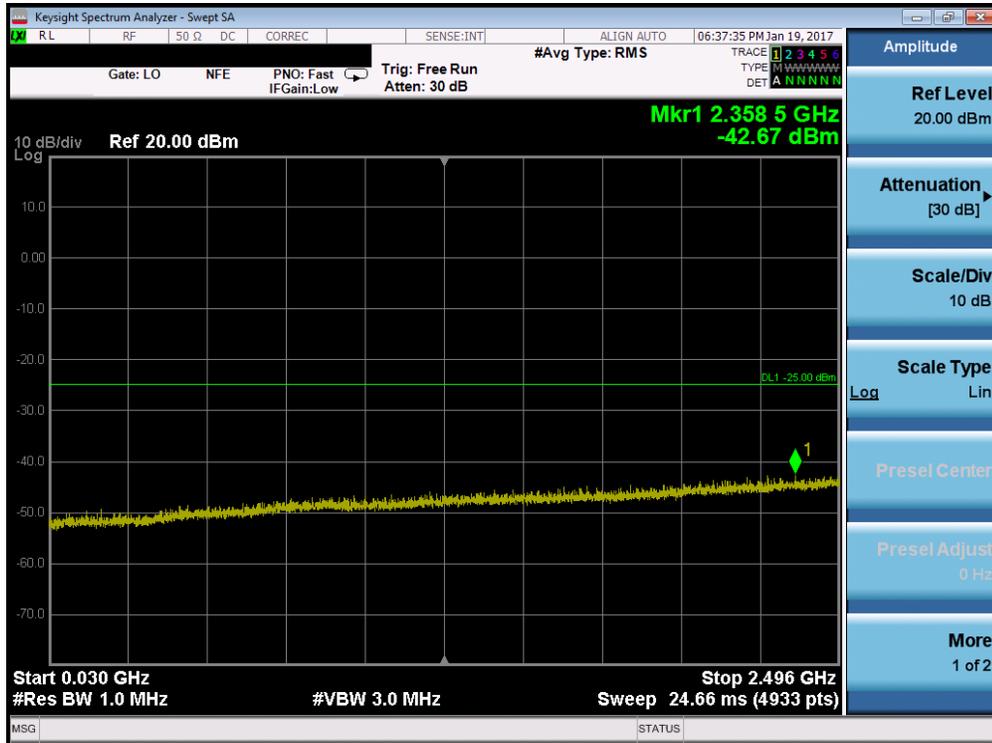


Plot 7-122. Conducted Spurious Plot (Band 41 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

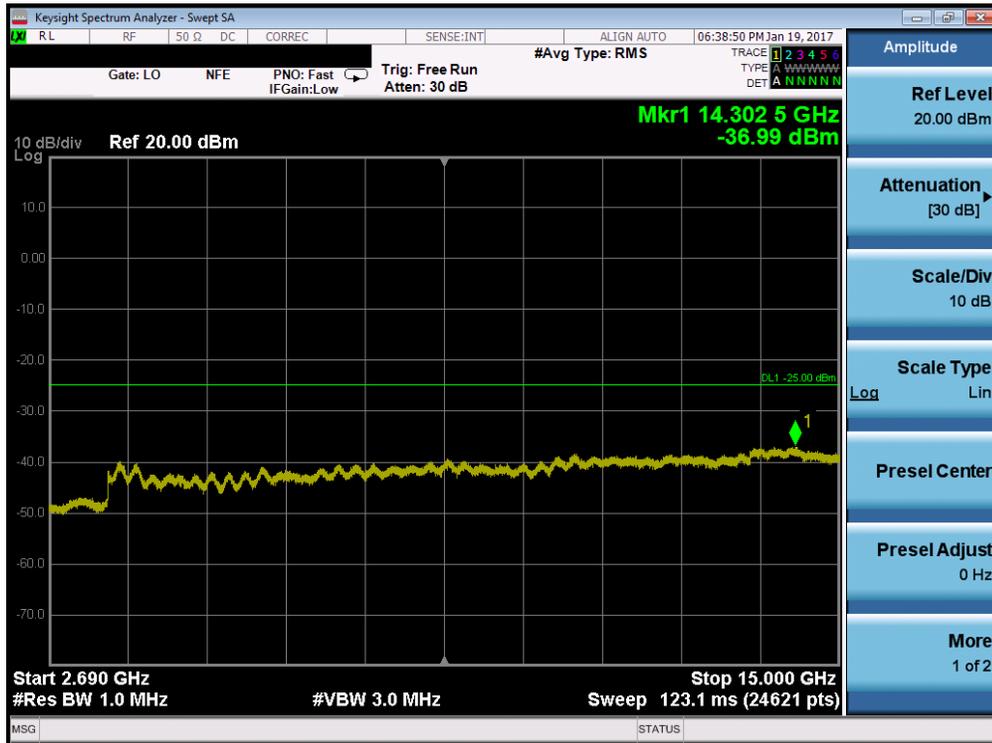


Plot 7-123. Conducted Spurious Plot (Band 41 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 79 of 174



Plot 7-124. Conducted Spurious Plot (Band 41 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

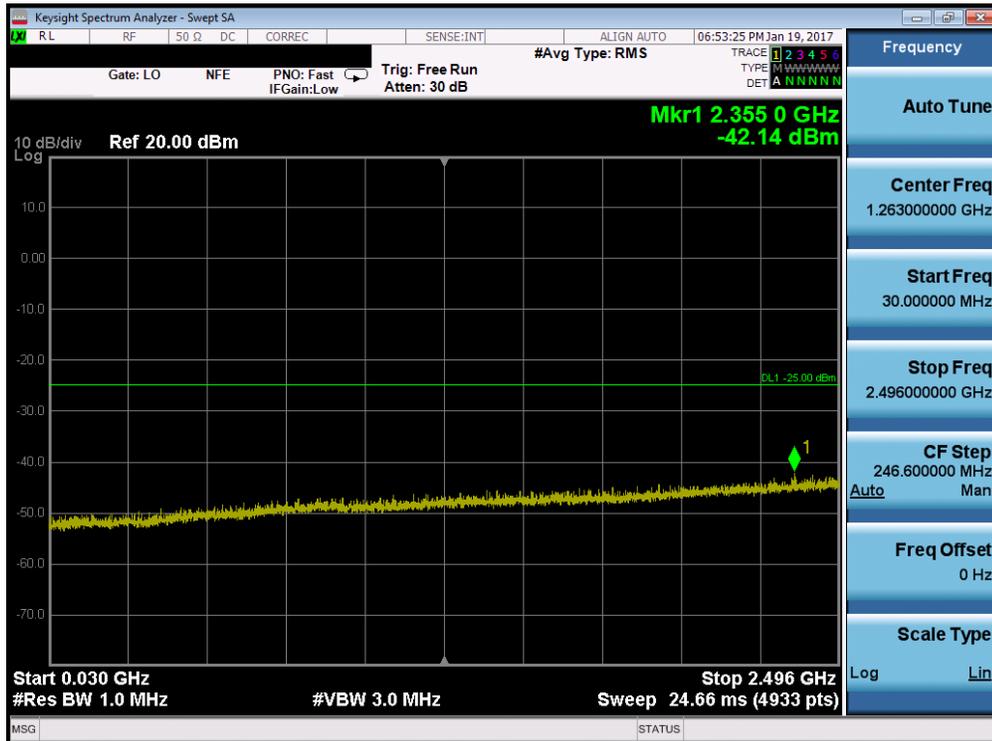


Plot 7-125. Conducted Spurious Plot (Band 41 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 80 of 174

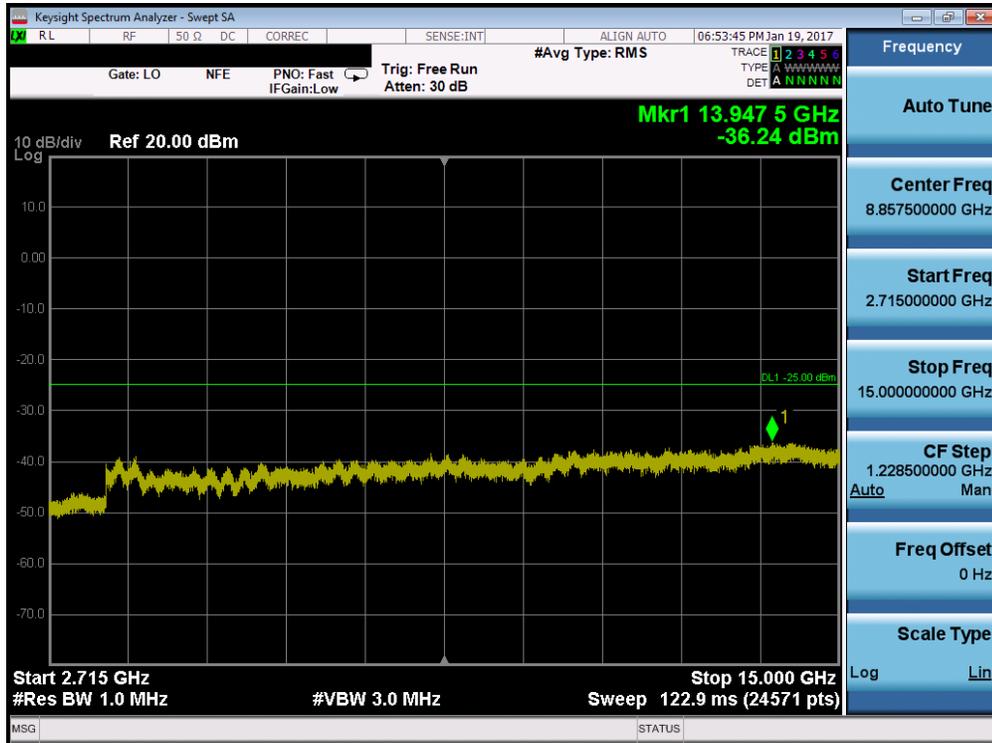


Plot 7-126. Conducted Spurious Plot (Band 41 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – Mid Channel)

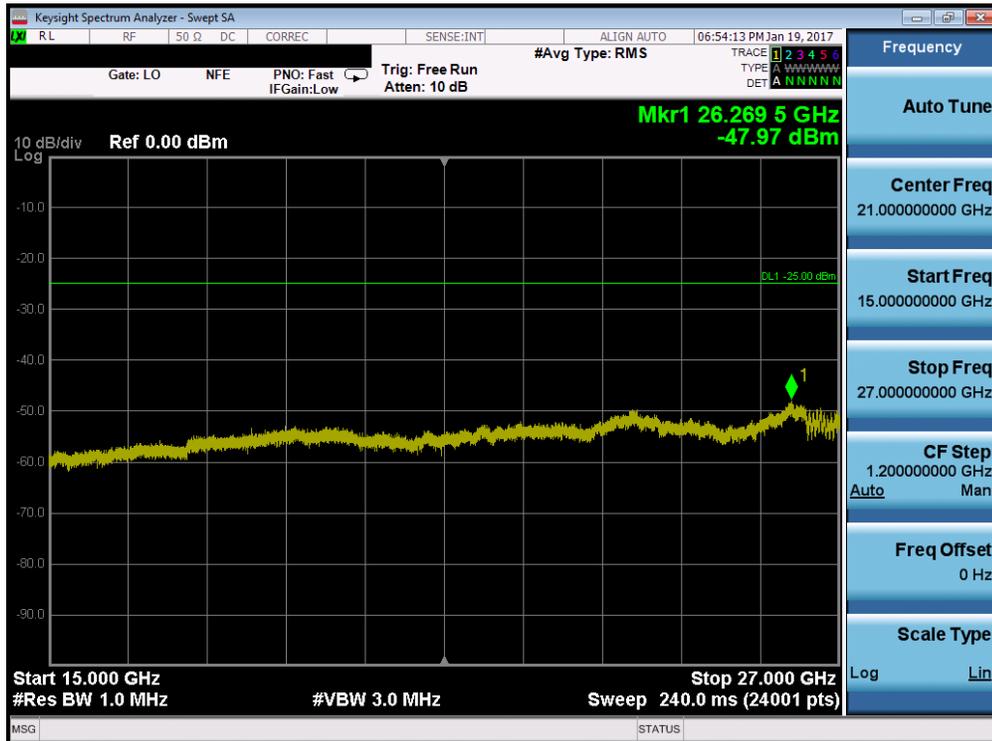


Plot 7-127. Conducted Spurious Plot (Band 41 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 81 of 174



Plot 7-128. Conducted Spurious Plot (Band 41 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)



Plot 7-129. Conducted Spurious Plot (Band 41 – 10.0MHz QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 82 of 174

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)

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 for Band 41 is as noted in the Test Notes on the following page.

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

Test Procedure Used

KDB 971168 D01 v02r02 – 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.

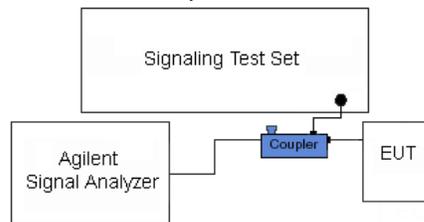


Figure 7-3. Test Instrument & Measurement Setup

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.

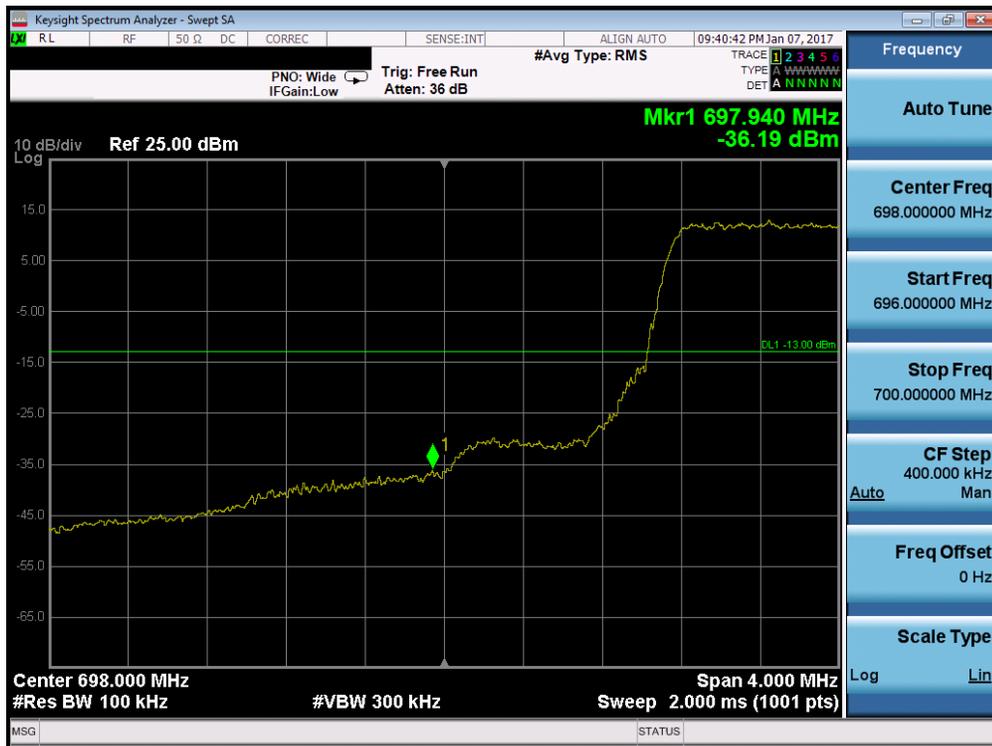
FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset	Page 83 of 174	

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.

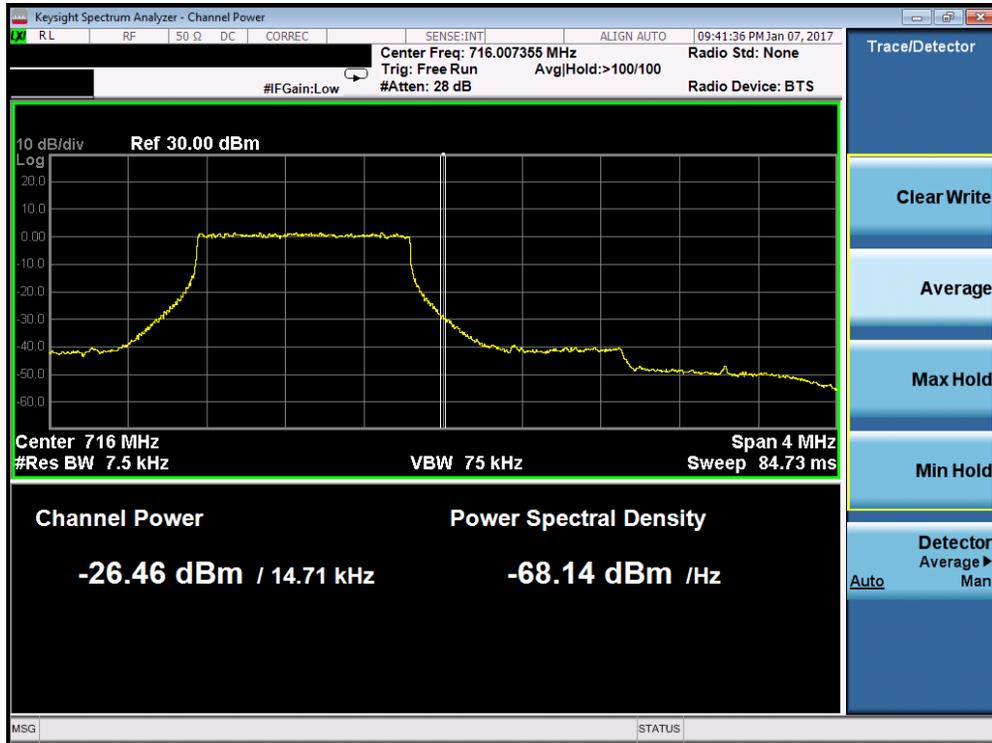
For all plots showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC limit per 27.53(c.4) is $65 + 10\log_{10}(P) = -35\text{dBm}$ in a 6.25kHz bandwidth.

Per 27.53(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.

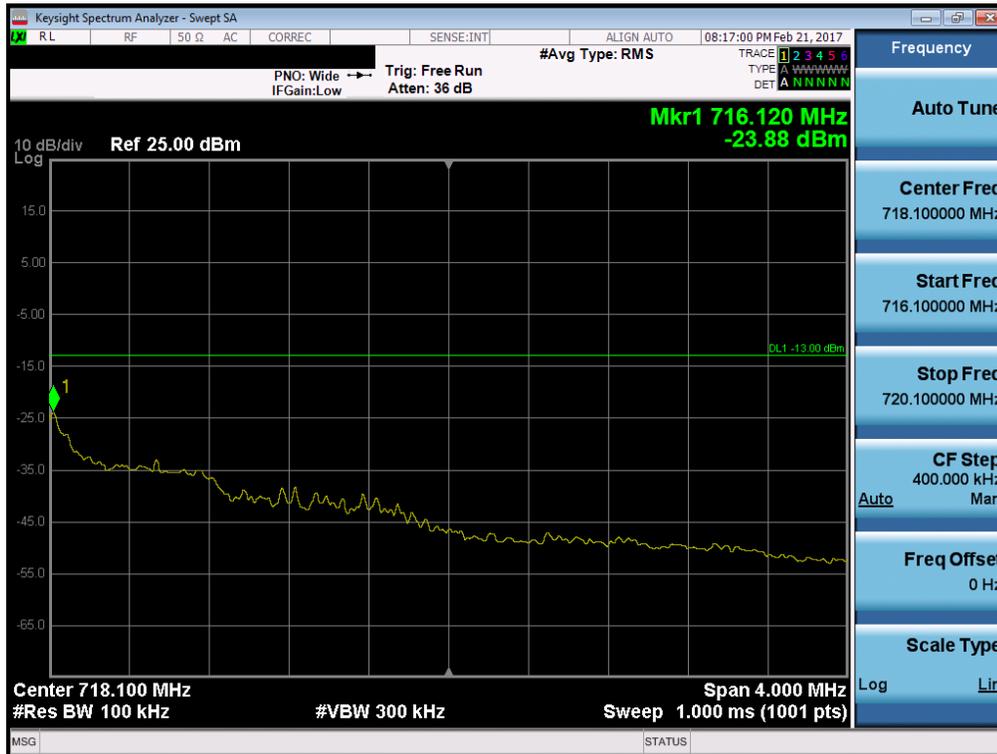


Plot 7-130. Lower Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 84 of 174

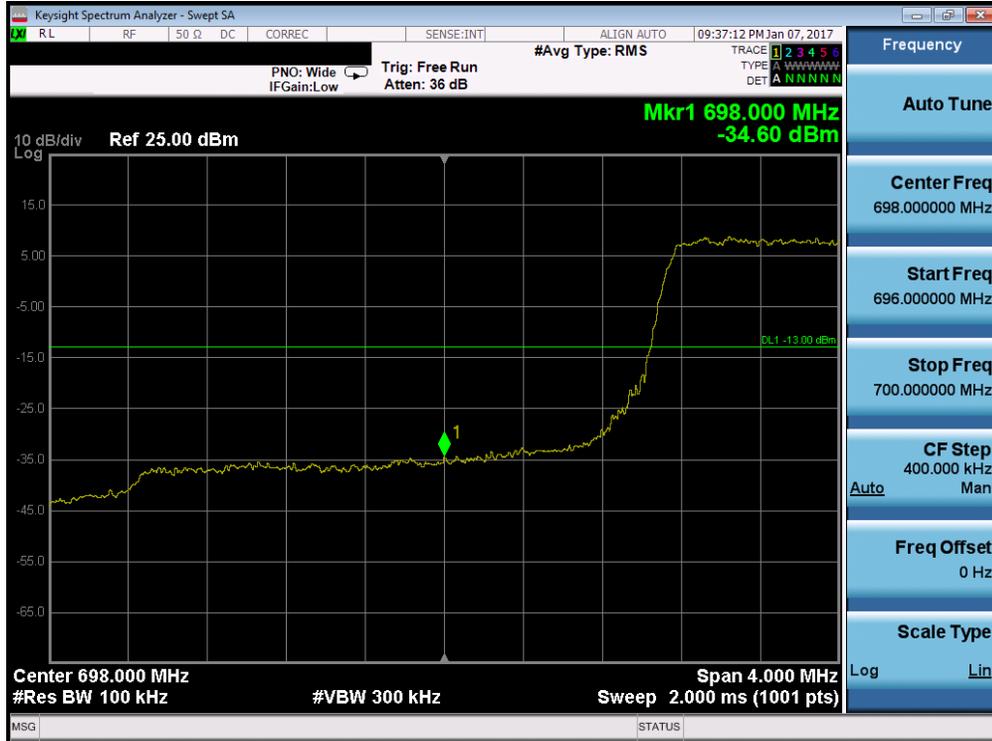


Plot 7-131. Upper Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)

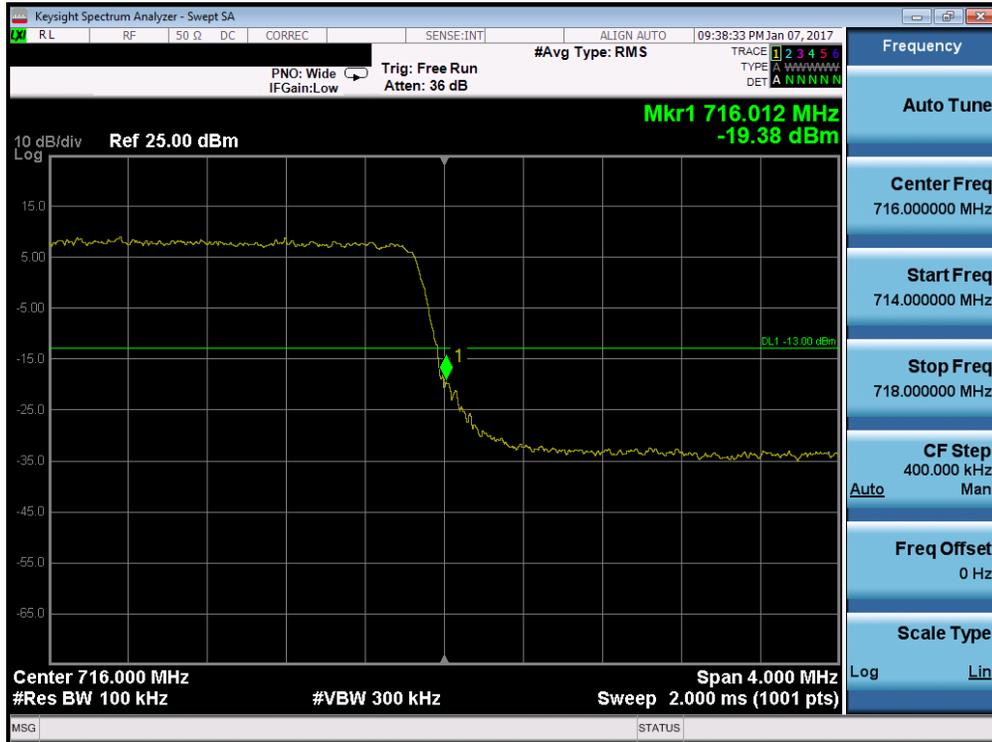


Plot 7-132. Upper Extended Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 85 of 174

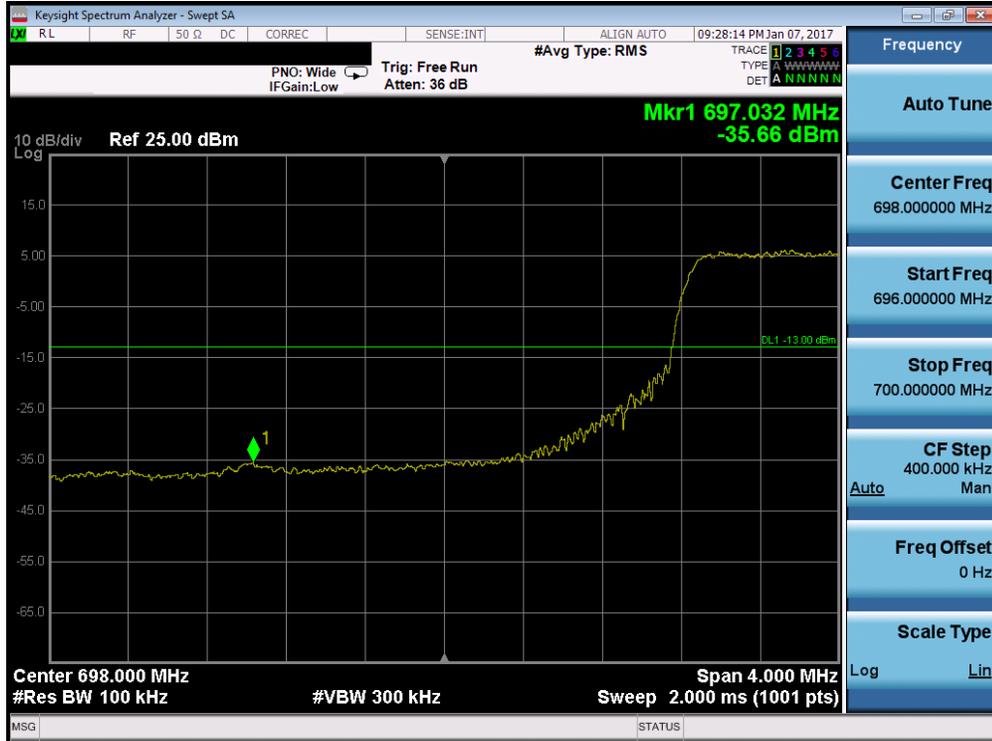


Plot 7-133. Lower Band Edge Plot (Band 12 – 3.0MHz QPSK – RB Size 15)



Plot 7-134. Upper Band Edge Plot (Band 12 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 86 of 174

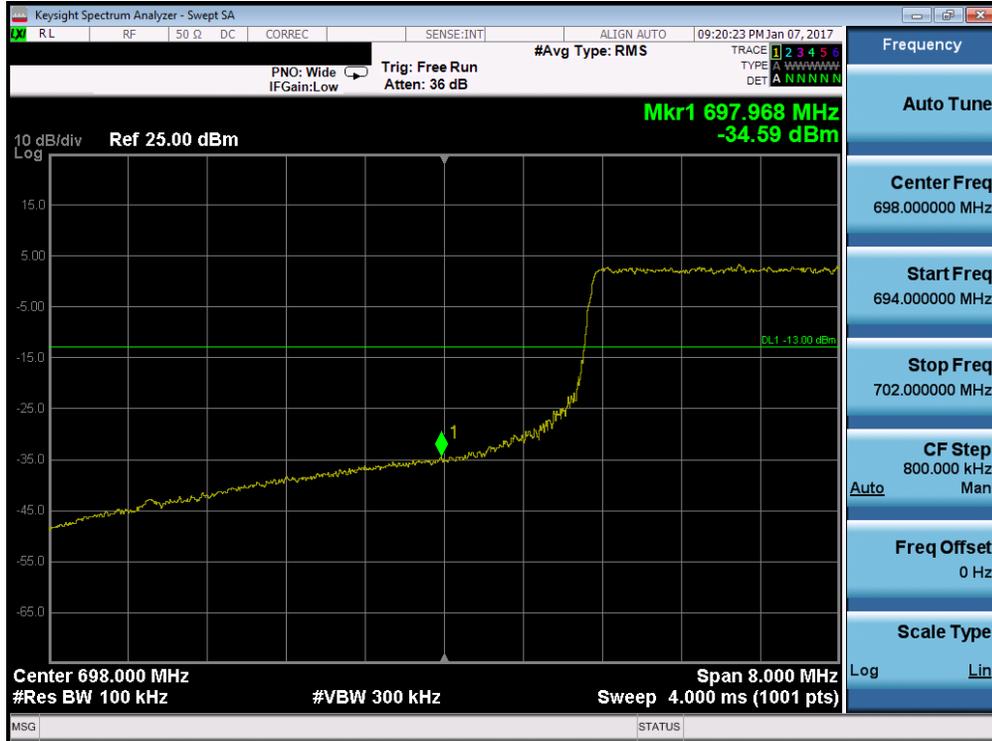


Plot 7-135. Lower Band Edge Plot (Band 12/17 – 5.0MHz QPSK – RB Size 25)

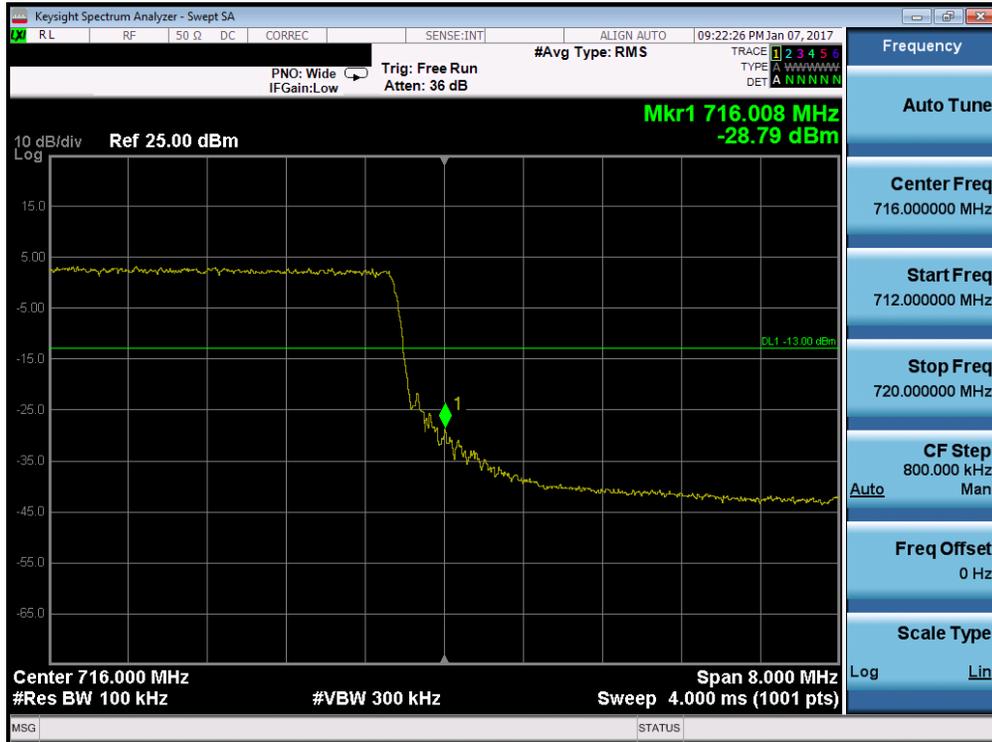


Plot 7-136. Upper Band Edge Plot (Band 12/17 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 87 of 174

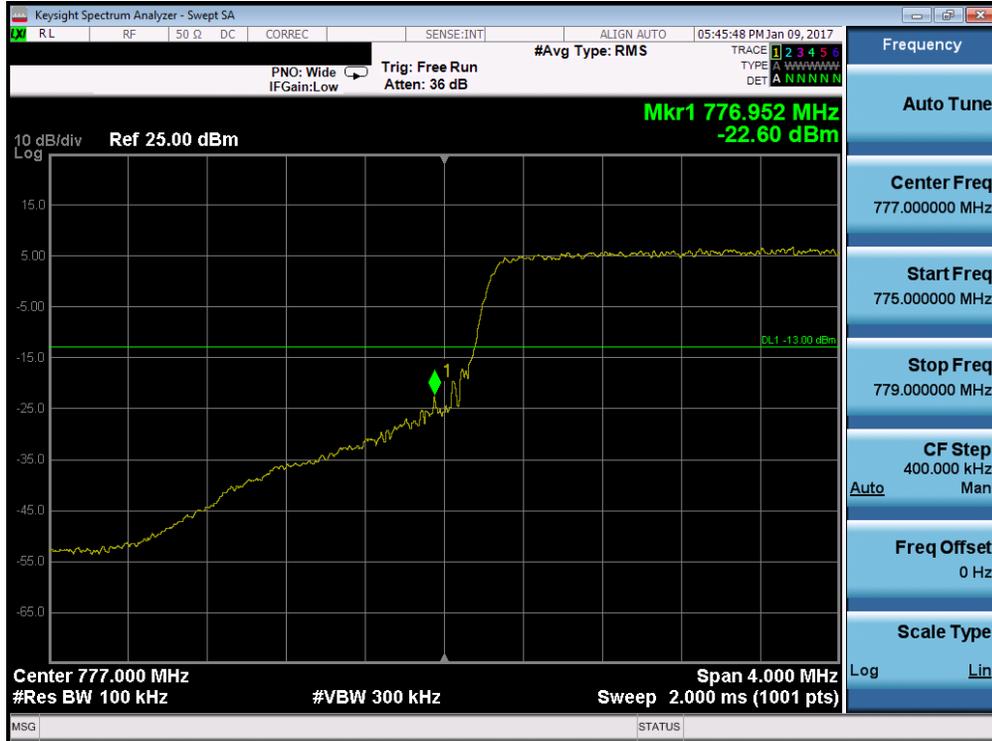


Plot 7-137. Lower Band Edge Plot (Band 12/17 – 10.0MHz QPSK – RB Size 50)

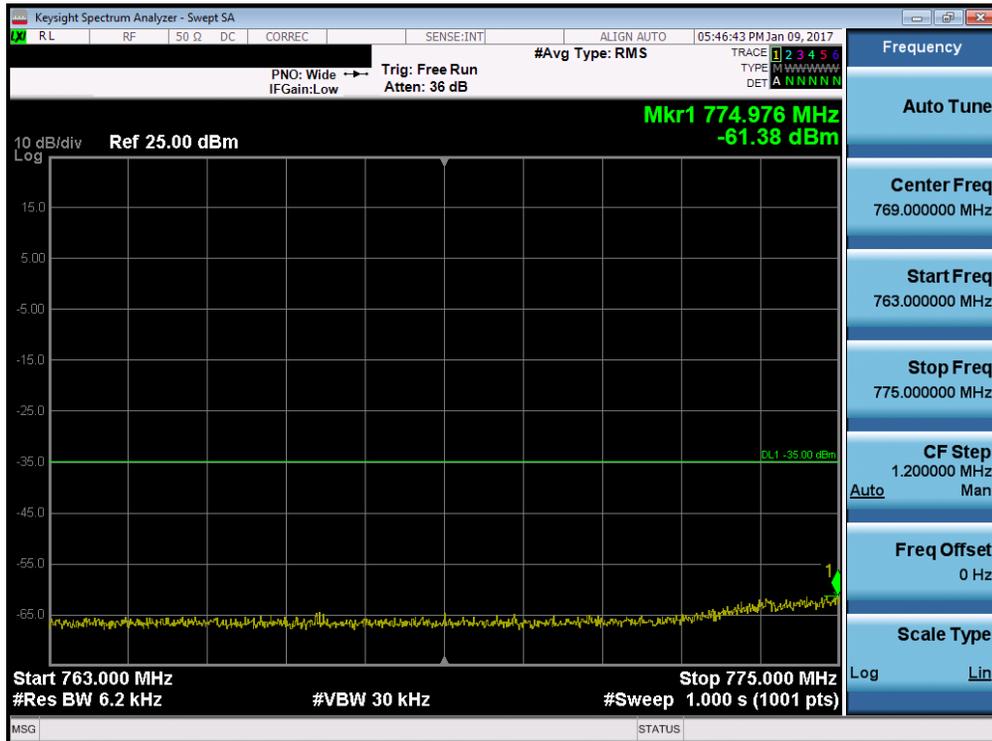


Plot 7-138. Upper Band Edge Plot (Band 12/17 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 88 of 174



Plot 7-139. Lower Band Edge Plot (Band 13 – 5.0MHz QPSK – RB Size 25)

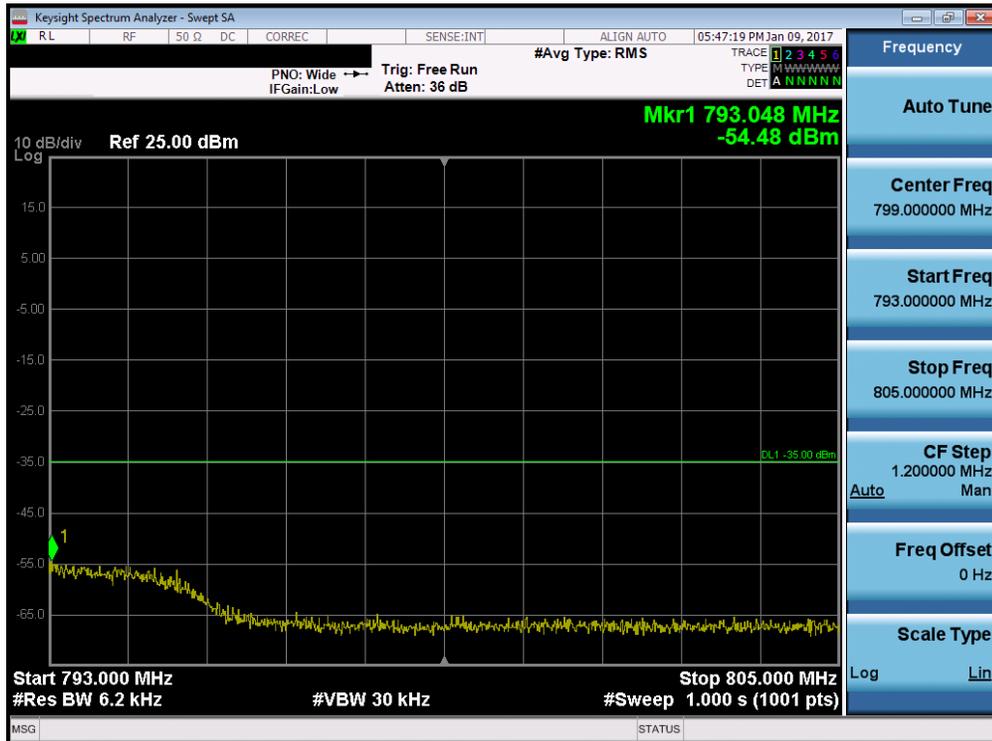


Plot 7-140. Lower Emission Mask Edge Plot (Band 13 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG950F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 89 of 174

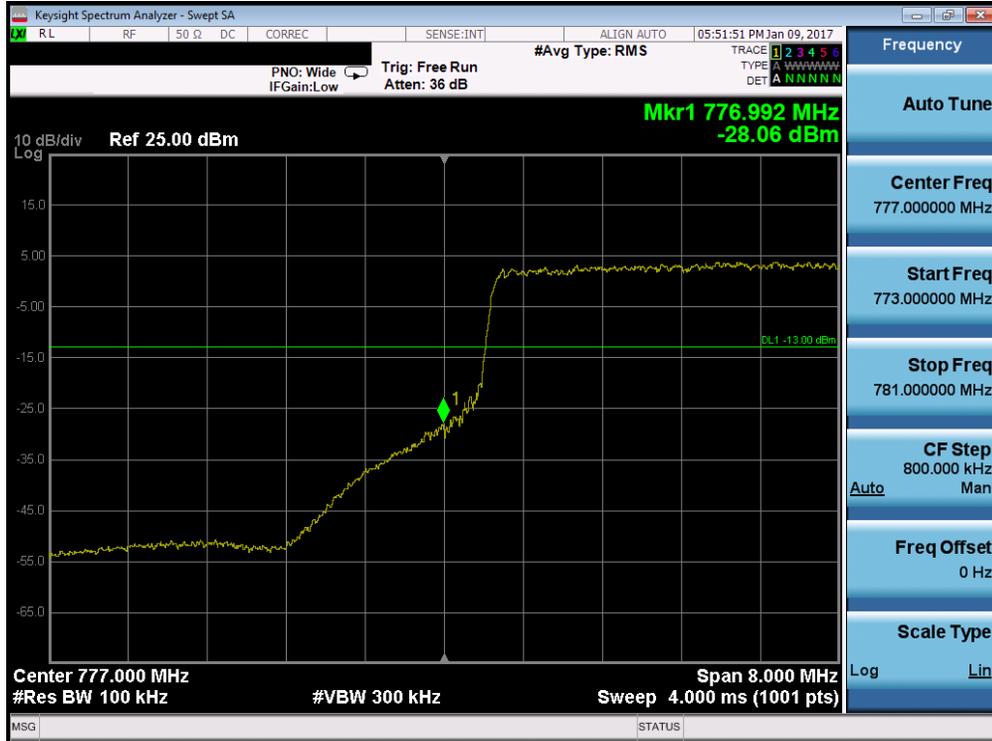


Plot 7-141. Upper Band Edge Plot (Band 13 – 5.0MHz QPSK – RB Size 25)

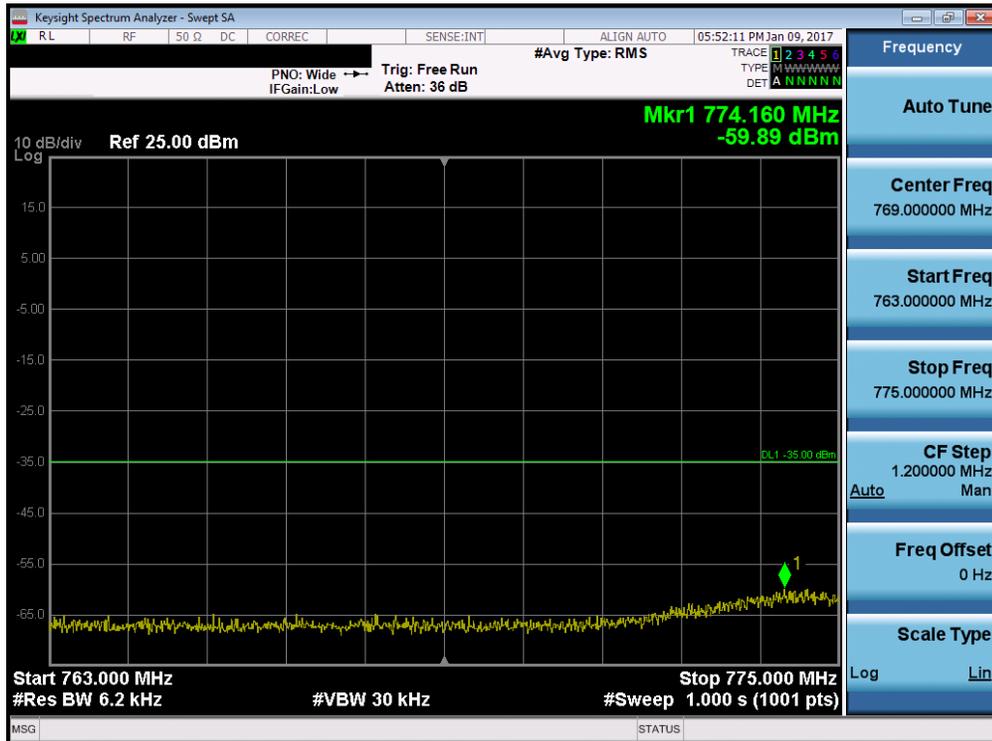


Plot 7-142. Upper Emission Mask Edge Plot (Band 13 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 90 of 174

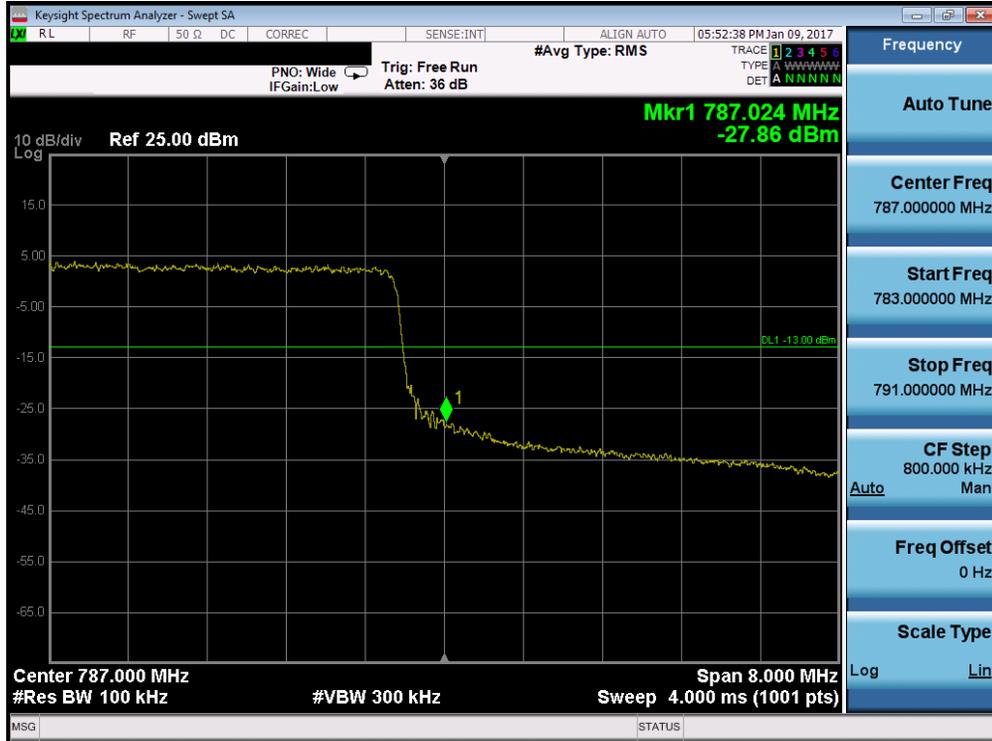


Plot 7-143. Lower Band Edge Plot (Band 13 – 10.0MHz QPSK – RB Size 50)

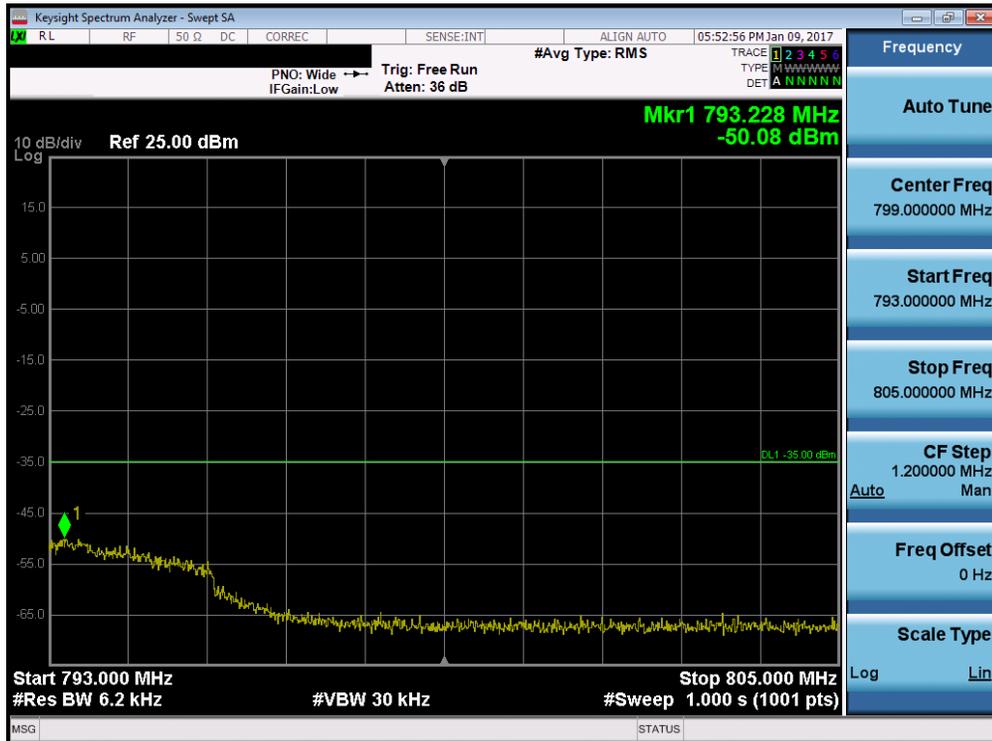


Plot 7-144. Lower Emission Mask Edge Plot (Band 13 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 91 of 174

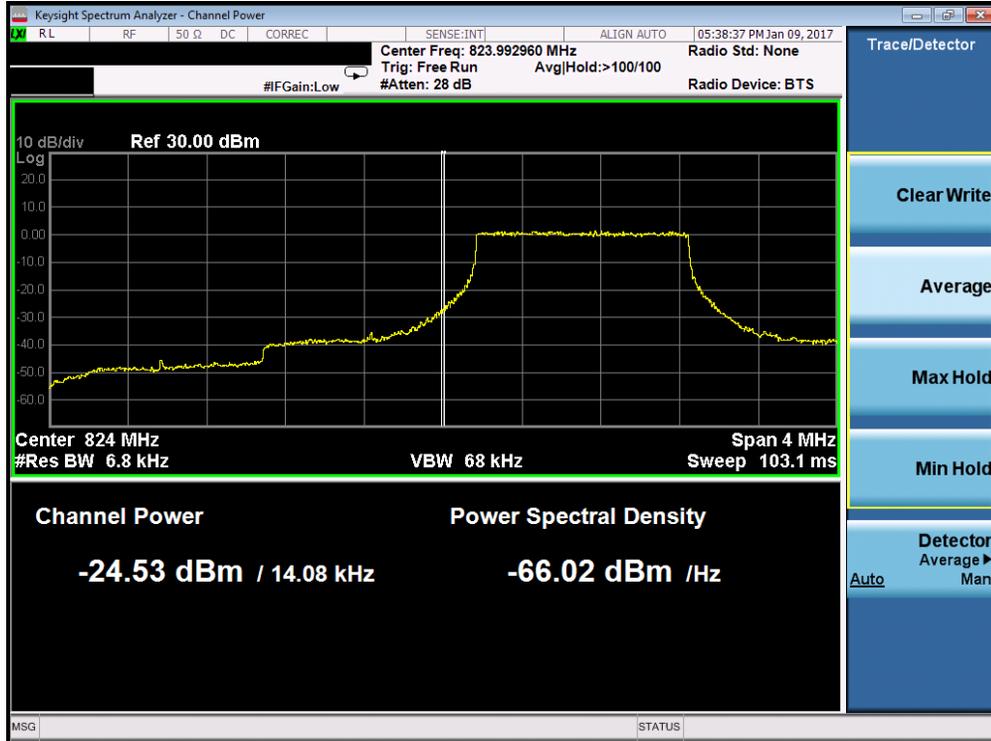


Plot 7-145. Upper Band Edge Plot (Band 13 – 10.0MHz QPSK – RB Size 50)



Plot 7-146. Upper Emission Mask Edge Plot (Band 13 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 92 of 174

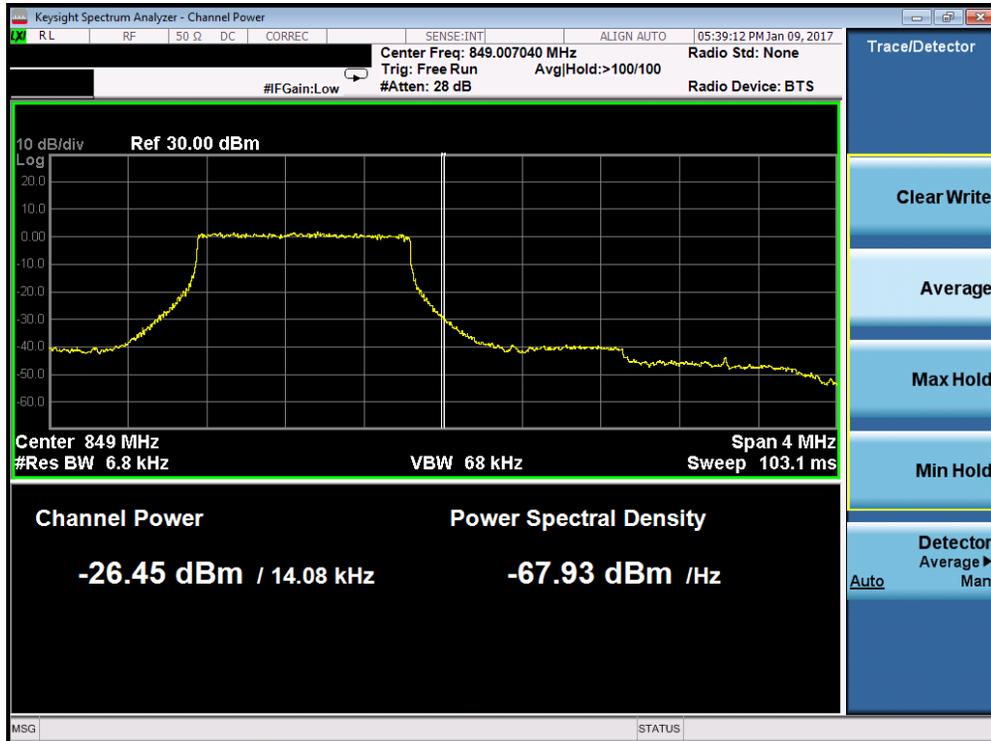


Plot 7-147. Lower Band Edge Plot (Band 5/26 – 1.4MHz QPSK – RB Size 6)



Plot 7-148. Lower Extended Band Edge Plot (Band 5/26 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 93 of 174

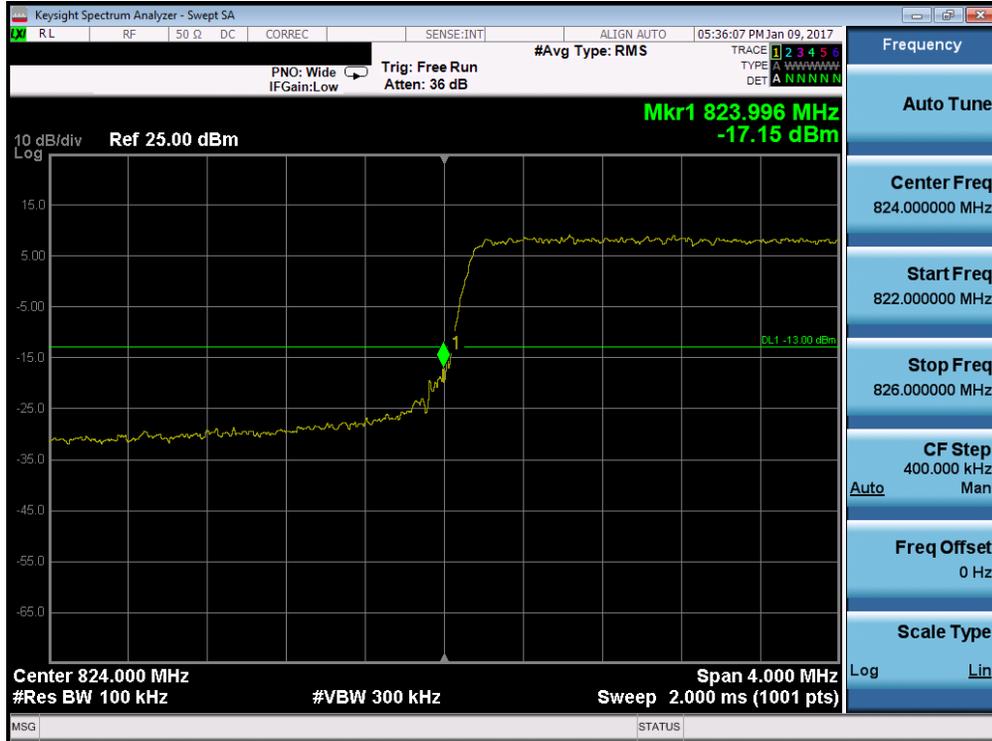


Plot 7-149. Upper Band Edge Plot (Band 5/26 – 1.4MHz QPSK – RB Size 6)

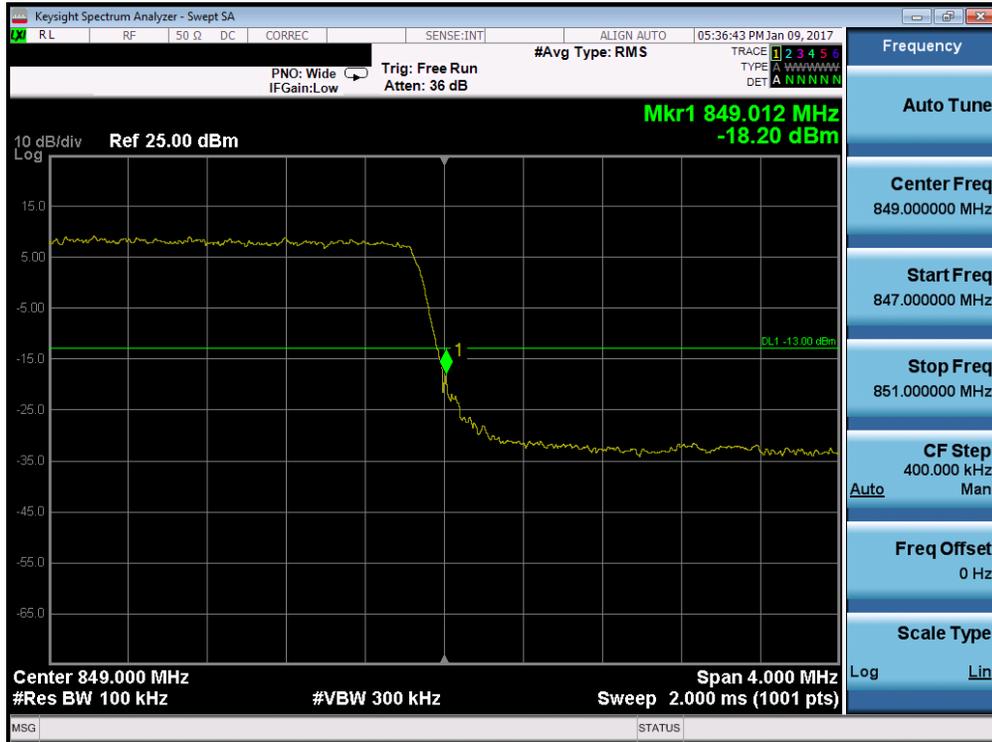


Plot 7-150. Upper Extended Band Edge Plot (Band 5/26 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 94 of 174

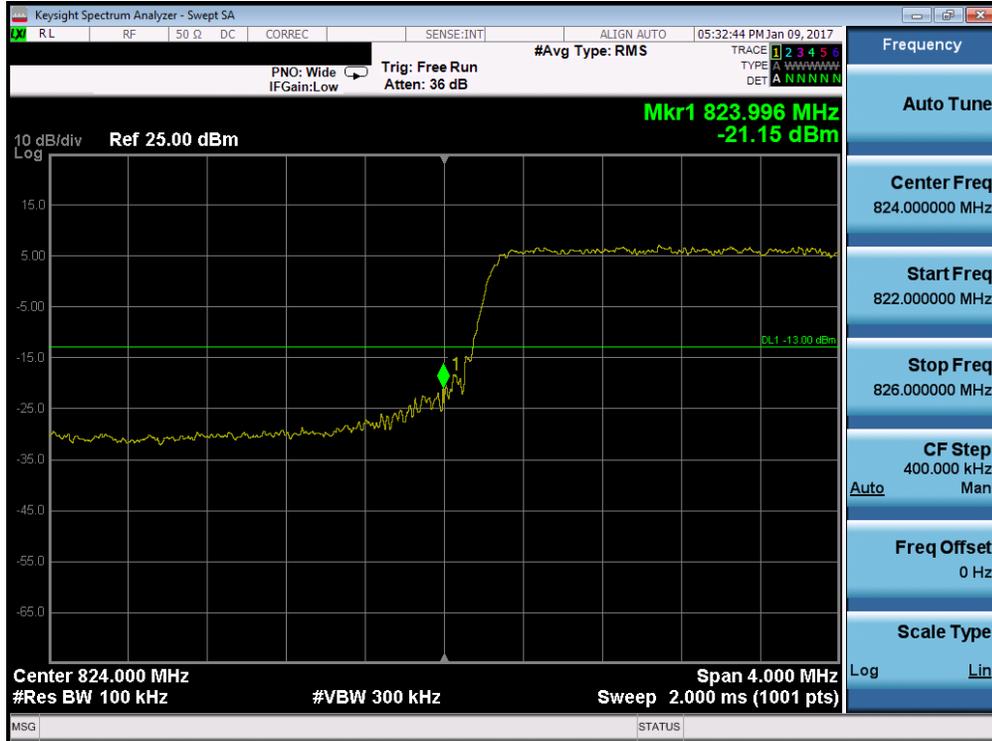


Plot 7-151. Lower Band Edge Plot (Band 5/26 – 3.0MHz QPSK – RB Size 15)

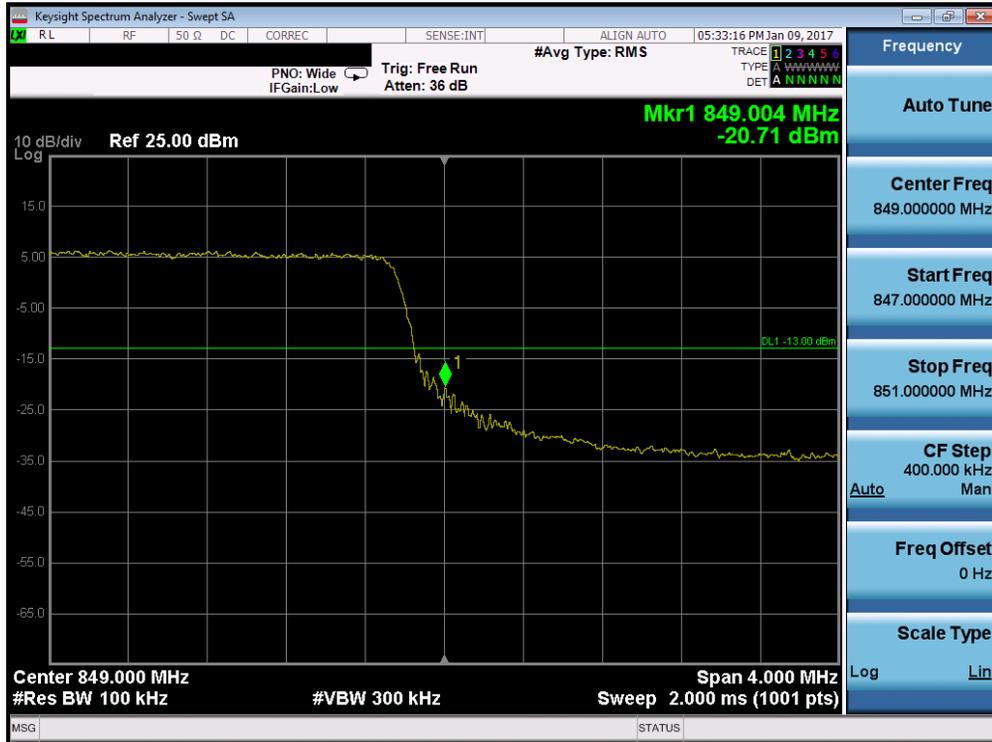


Plot 7-152. Upper Band Edge Plot (Band 5/26 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 95 of 174

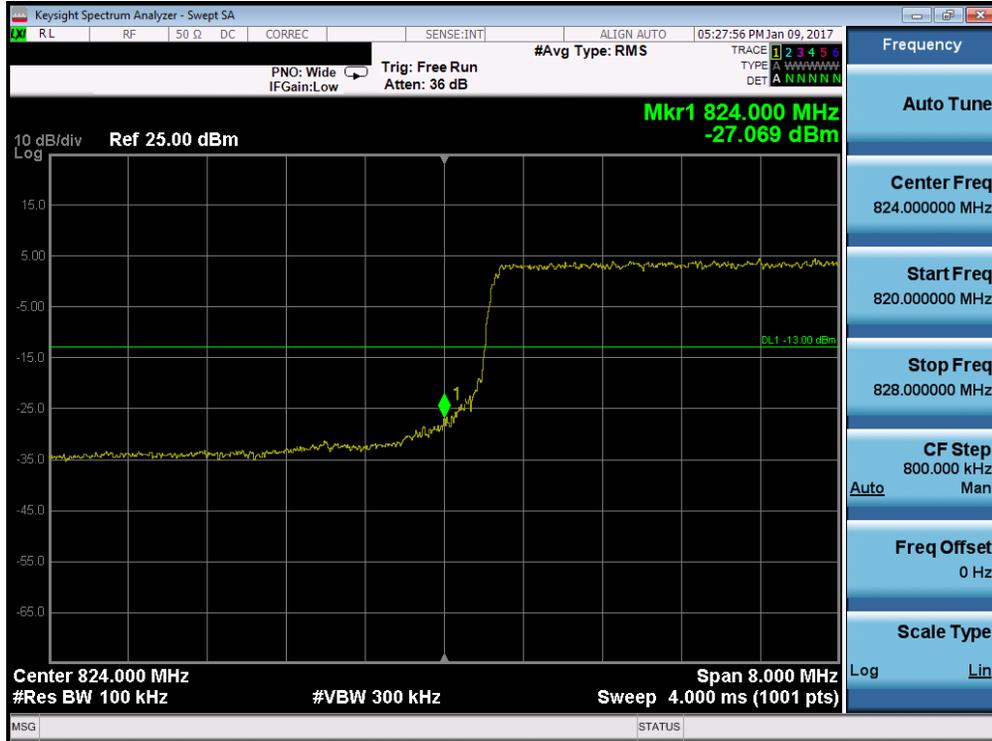


Plot 7-153. Lower Band Edge Plot (Band 5/26 – 5.0MHz QPSK – RB Size 25)

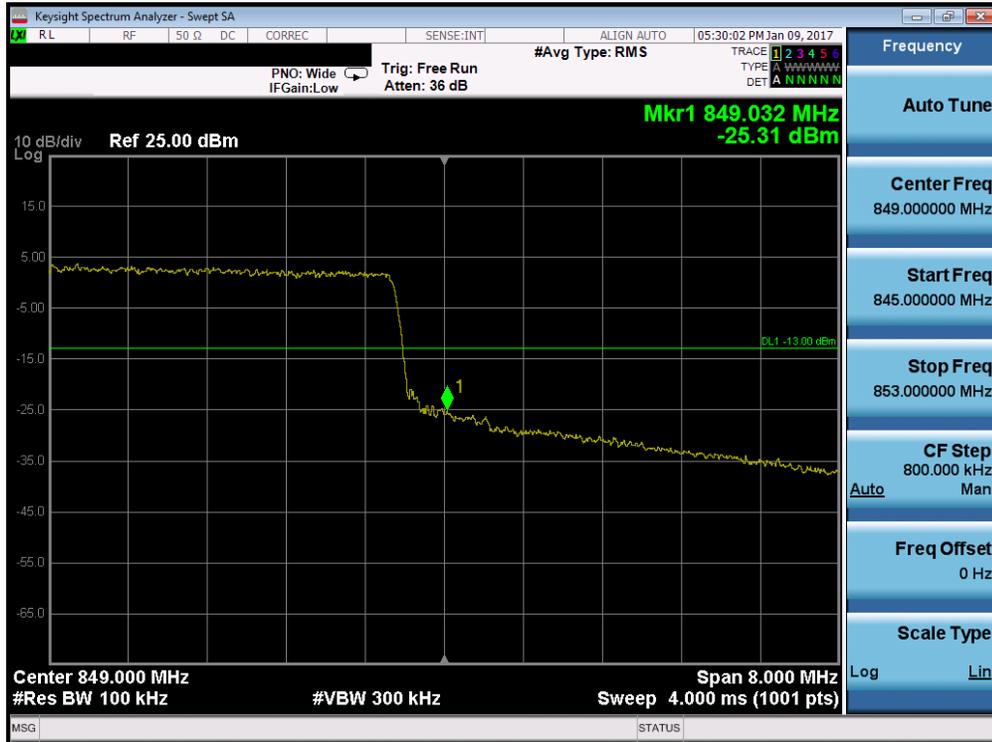


Plot 7-154. Upper Band Edge Plot (Band 5/26 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 96 of 174

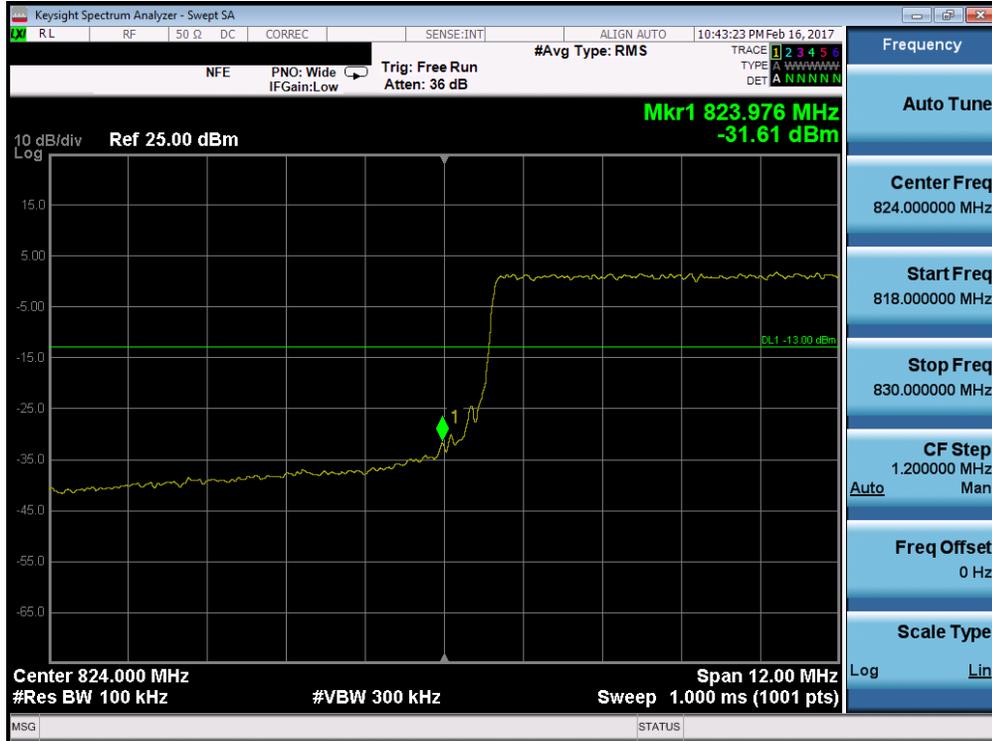


Plot 7-155. Lower Band Edge Plot (Band 5/26 – 10.0MHz QPSK – RB Size 50)



Plot 7-156. Upper Band Edge Plot (Band 5/26 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 97 of 174

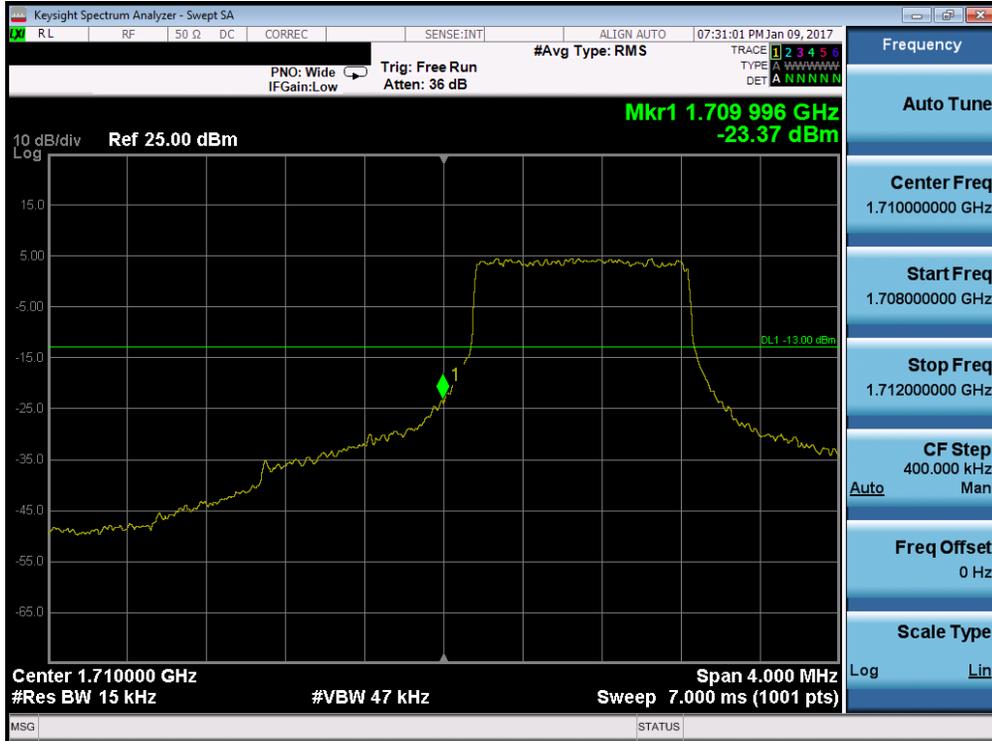


Plot 7-157. Lower Band Edge Plot (Band 5/26 – 15.0MHz QPSK – RB Size 75)

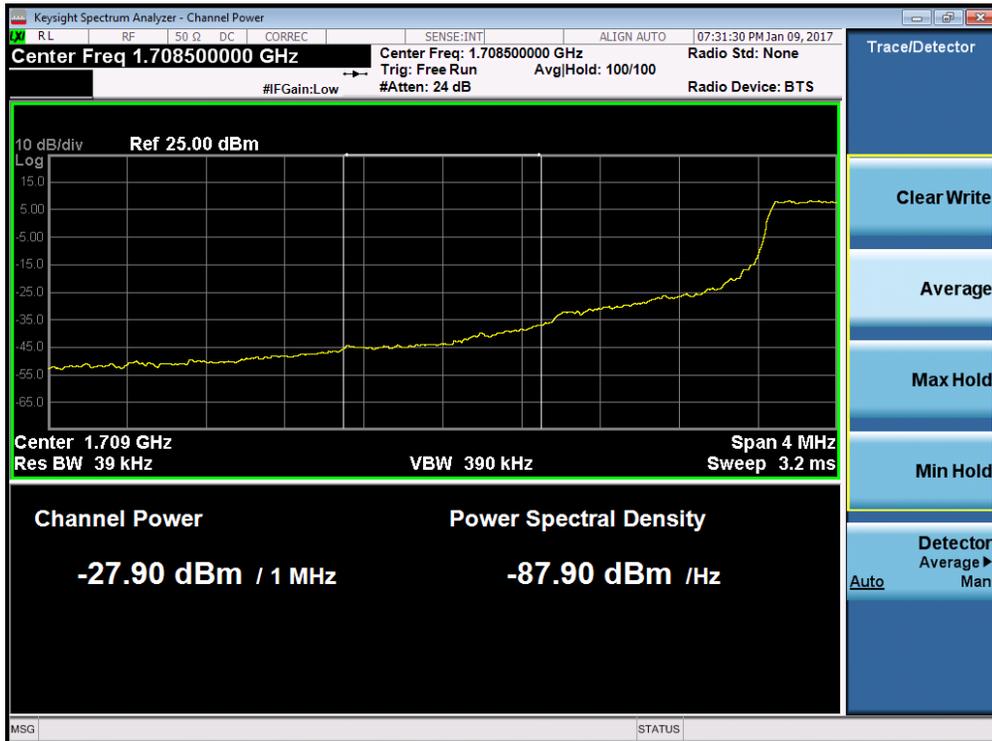


Plot 7-158. Upper Band Edge Plot (Band 5/26 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 98 of 174



Plot 7-159. Lower Band Edge Plot (Band 4/66 – 1.4MHz QPSK – RB Size 6)

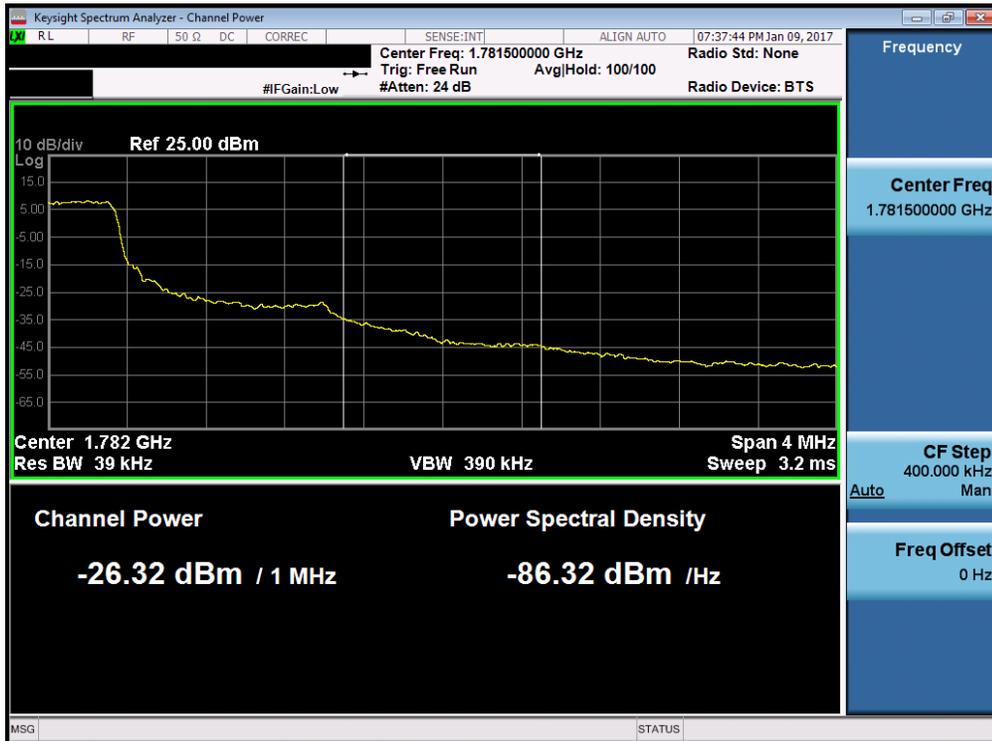


Plot 7-160. Lower Extended Band Edge Plot (Band 4/66 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 99 of 174

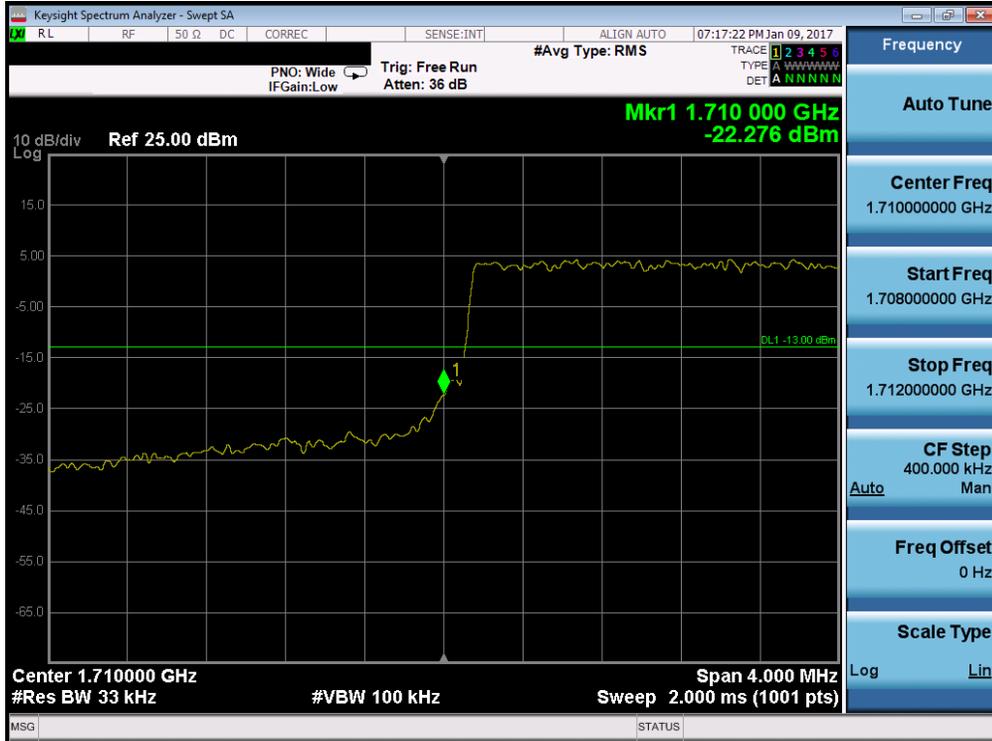


Plot 7-161. Upper Band Edge Plot (Band 4/66 – 1.4MHz QPSK – RB Size 6)

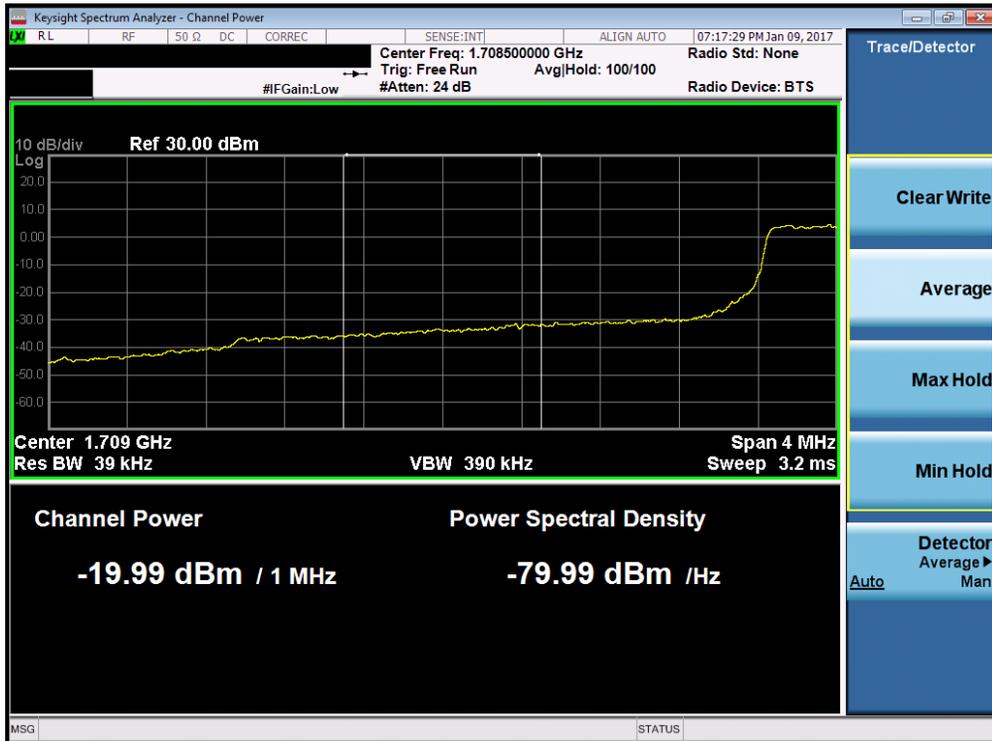


Plot 7-162. Upper Extended Band Edge Plot (Band 4/66 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 100 of 174



Plot 7-163. Lower Band Edge Plot (Band 4/66 – 3.0MHz QPSK – RB Size 15)

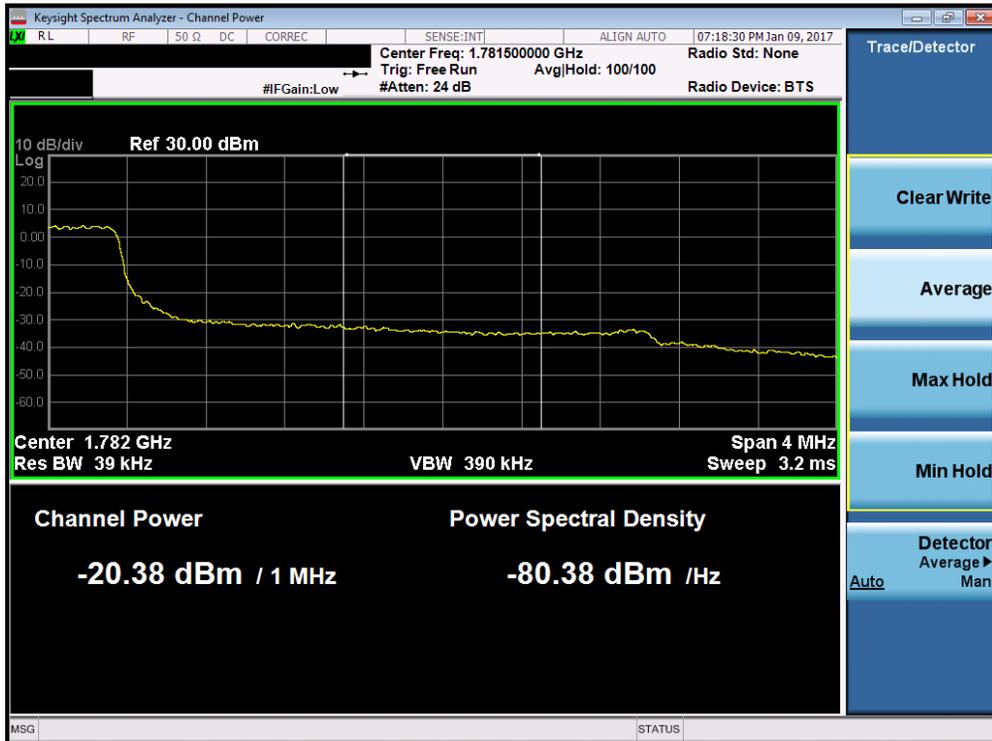


Plot 7-164. Lower Extended Band Edge Plot (Band 4/66 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMG950F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 101 of 174

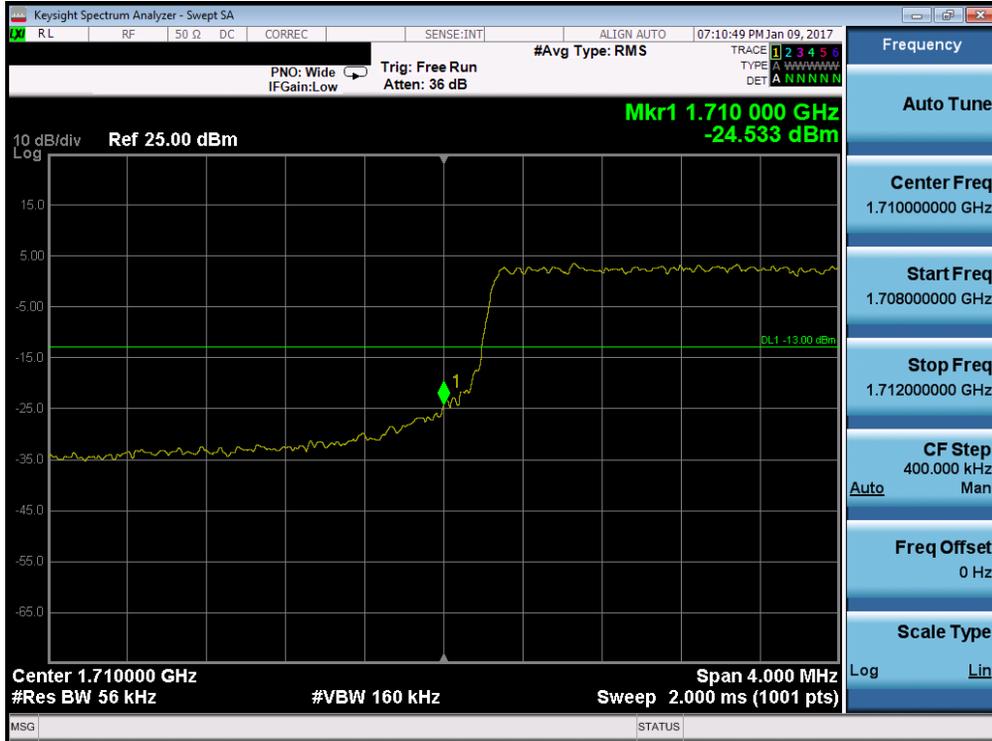


Plot 7-165. Upper Band Edge Plot (Band 4/66 – 3.0MHz QPSK – RB Size 15)

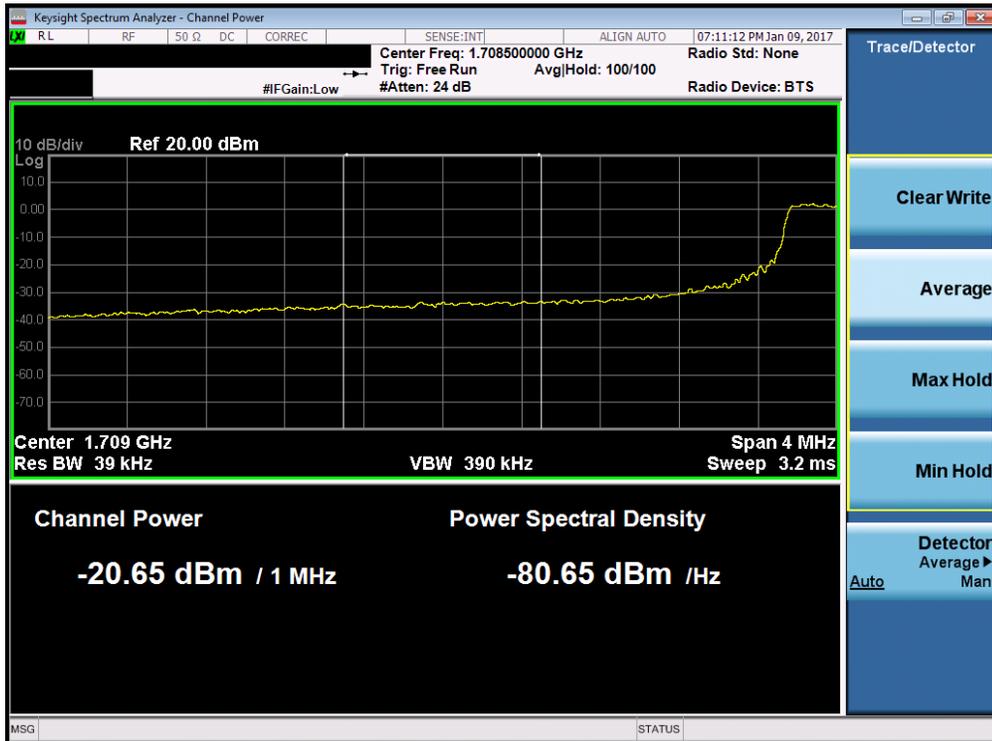


Plot 7-166. Upper Extended Band Edge Plot (Band 4/66 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 102 of 174

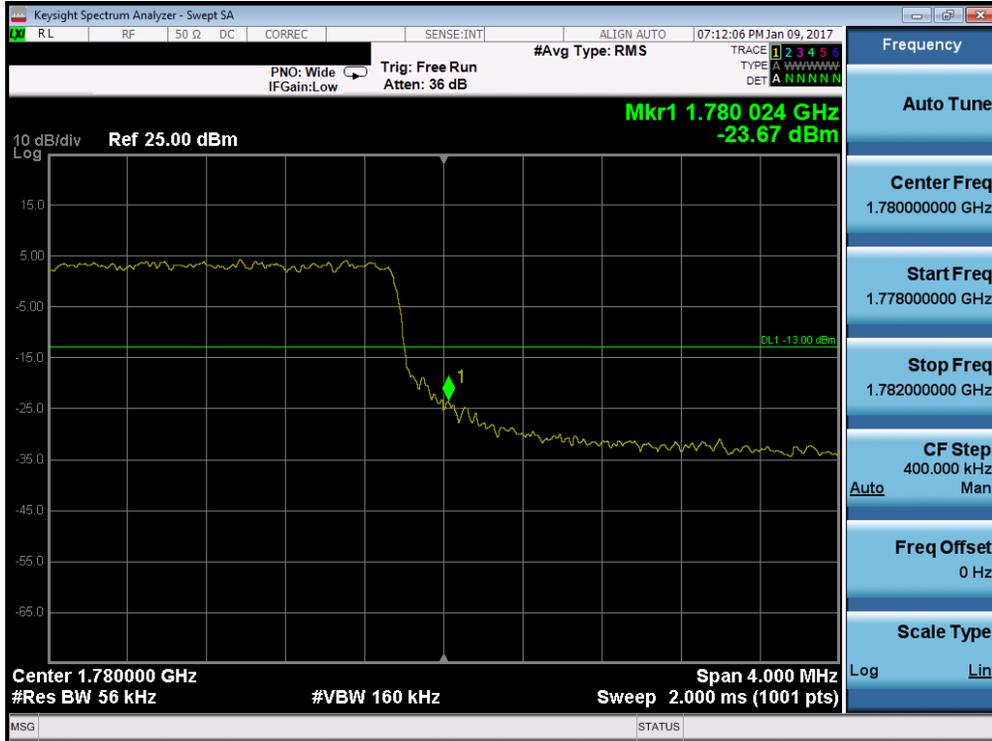


Plot 7-167. Lower Band Edge Plot (Band 4/66 – 5.0MHz QPSK – RB Size 25)

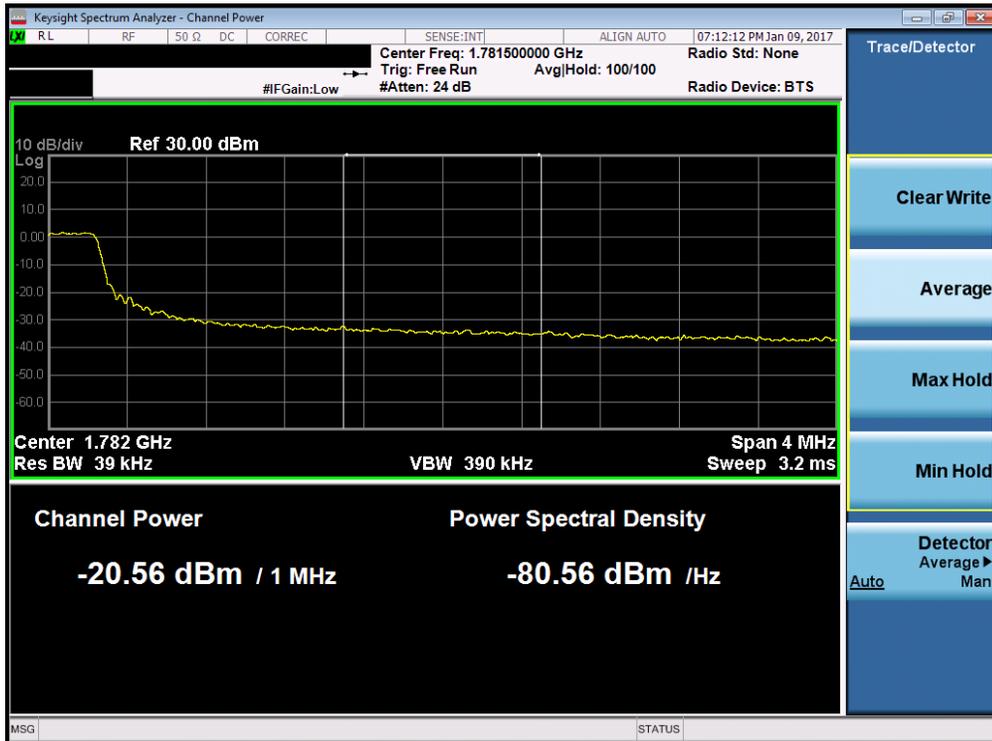


Plot 7-168. Lower Extended Band Edge Plot (Band 4/66 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 103 of 174

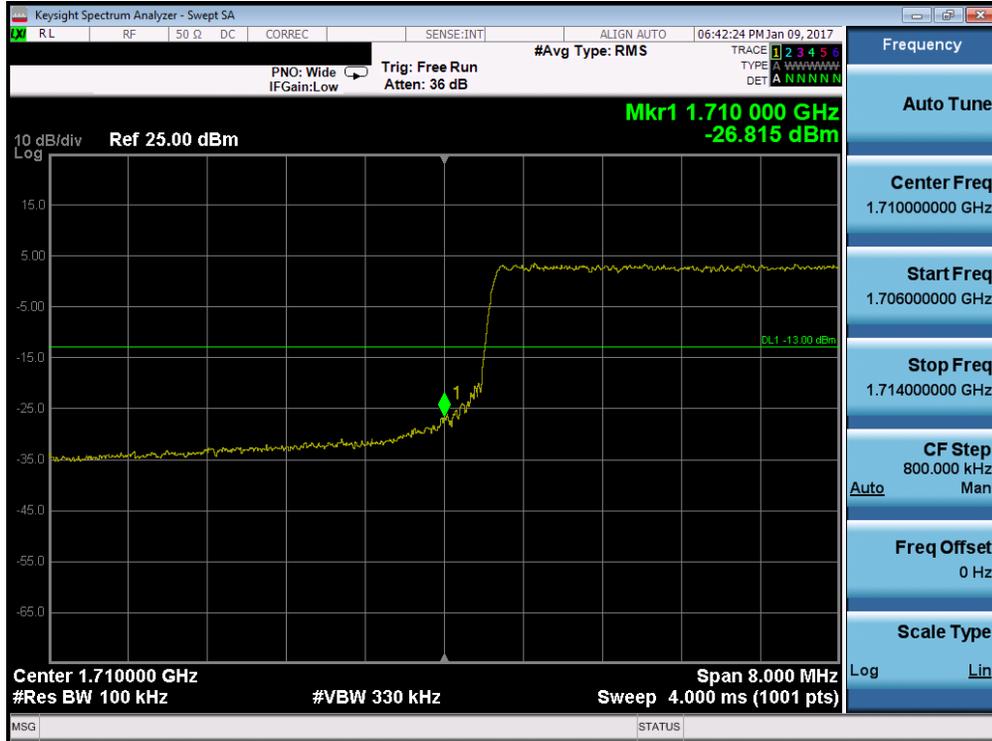


Plot 7-169. Upper Band Edge Plot (Band 4/66 – 5.0MHz QPSK – RB Size 25)

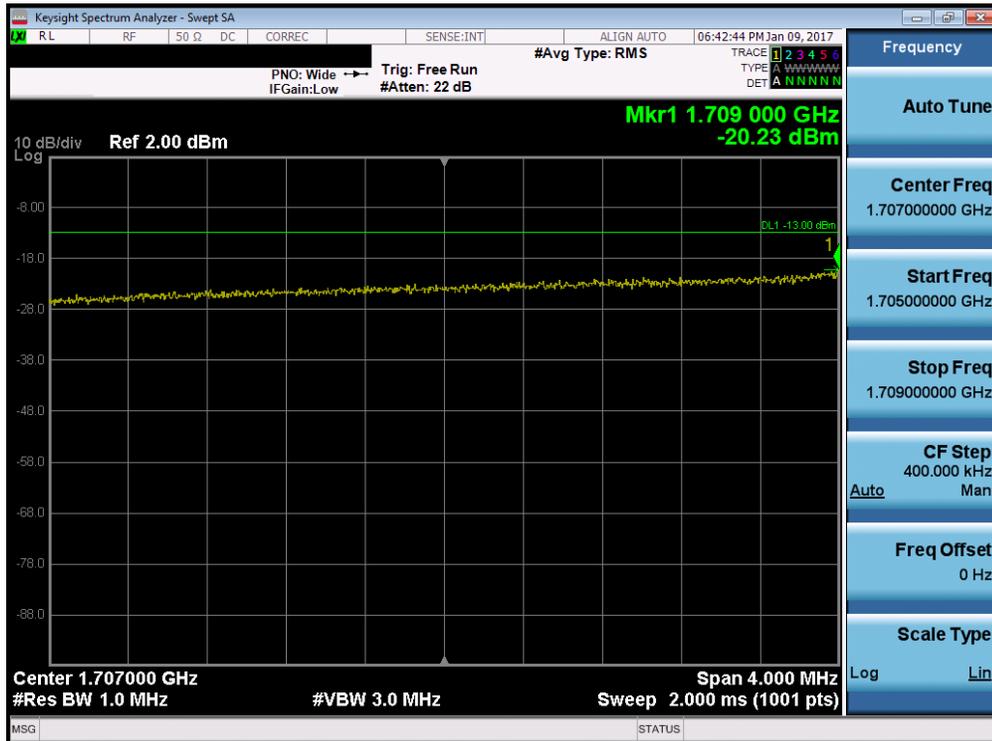


Plot 7-170. Upper Extended Band Edge Plot (Band 4/66 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 104 of 174

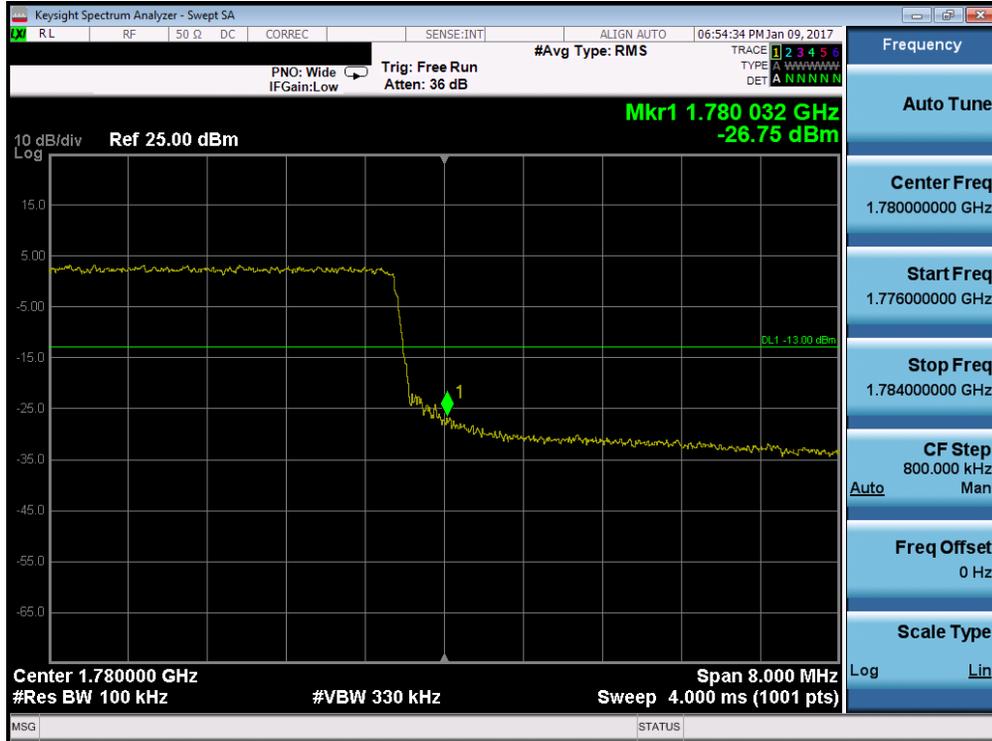


Plot 7-171. Lower Band Edge Plot (Band 4/66 – 10.0MHz QPSK – RB Size 50)

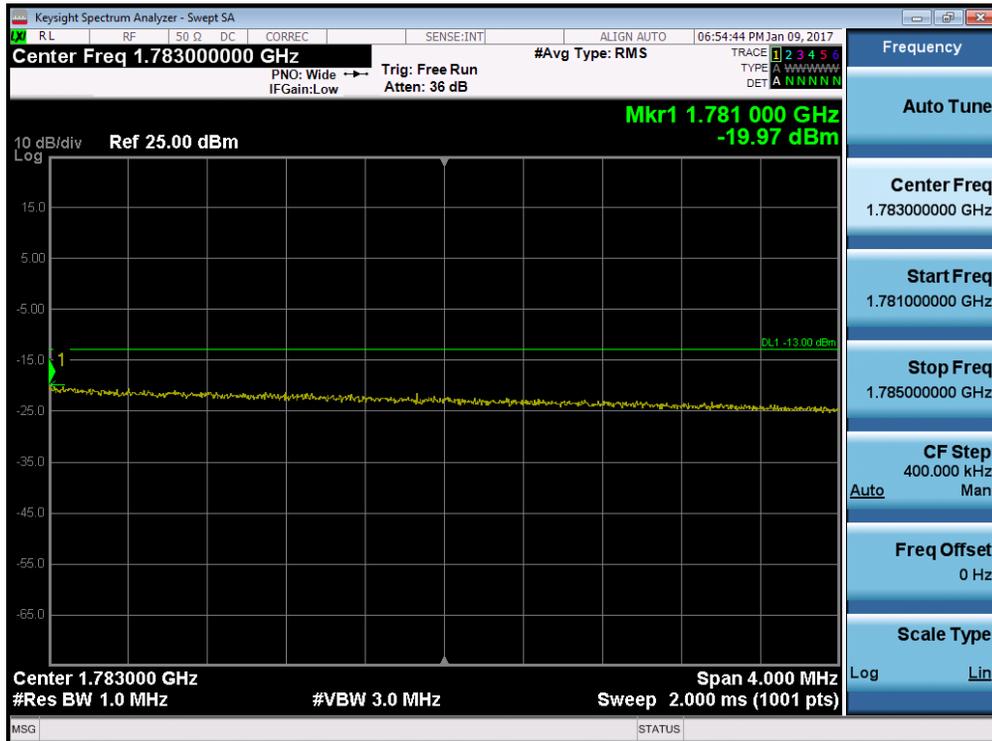


Plot 7-172. Lower Extended Band Edge Plot (Band 4/66 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 105 of 174

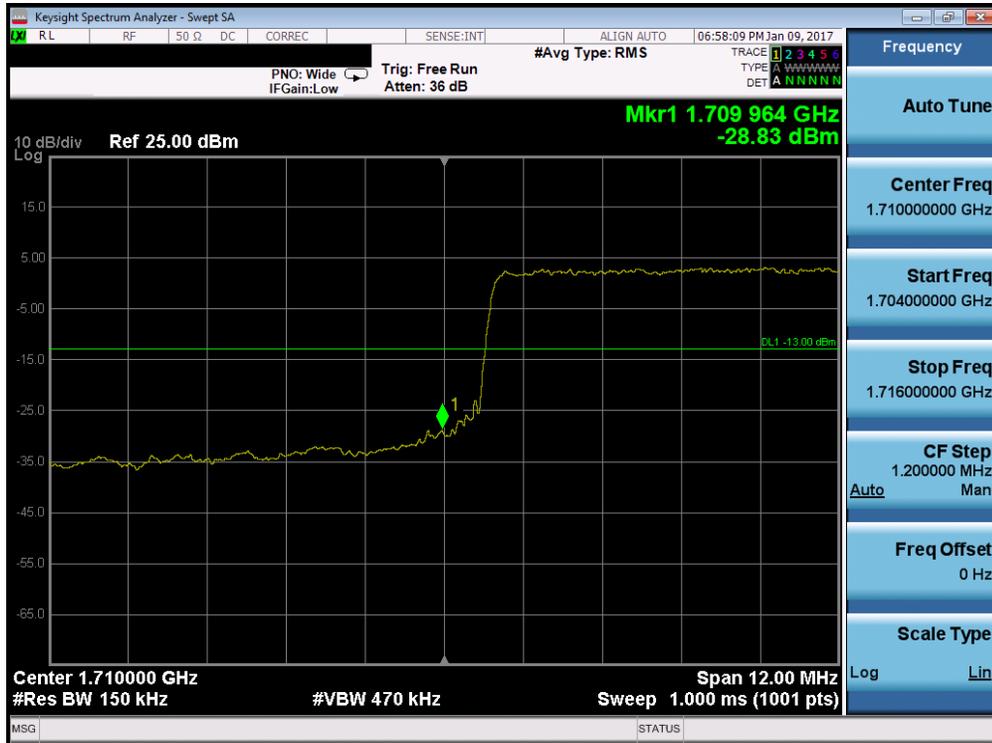


Plot 7-173. Upper Band Edge Plot (Band 4/66 – 10.0MHz QPSK – RB Size 50)

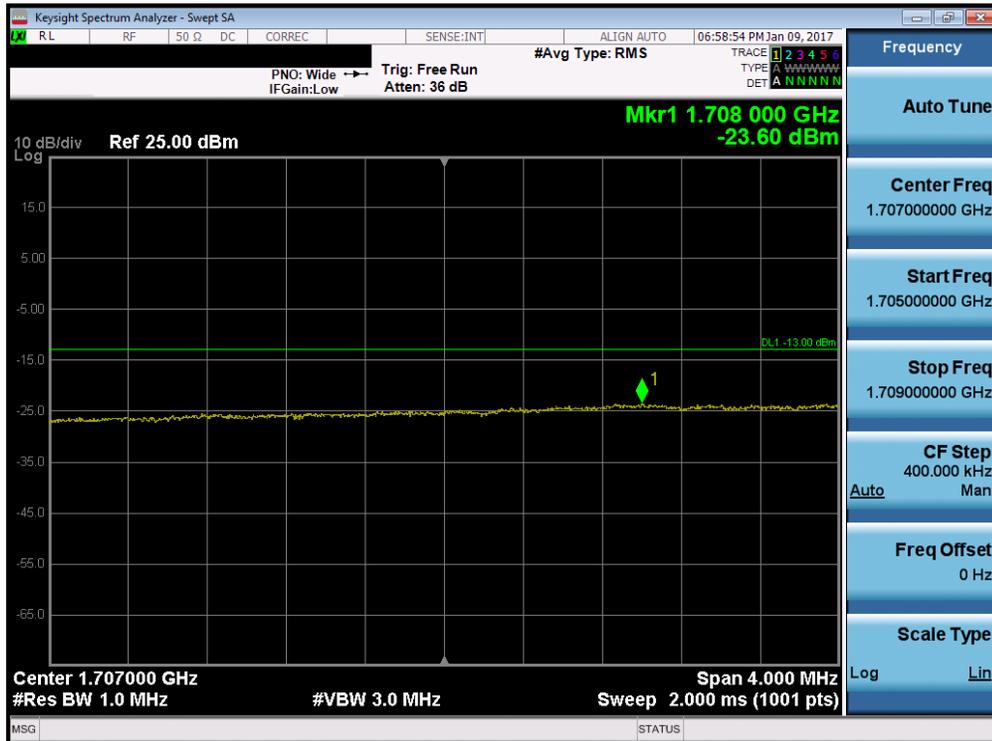


Plot 7-174. Upper Extended Band Edge Plot (Band 4/66 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 106 of 174

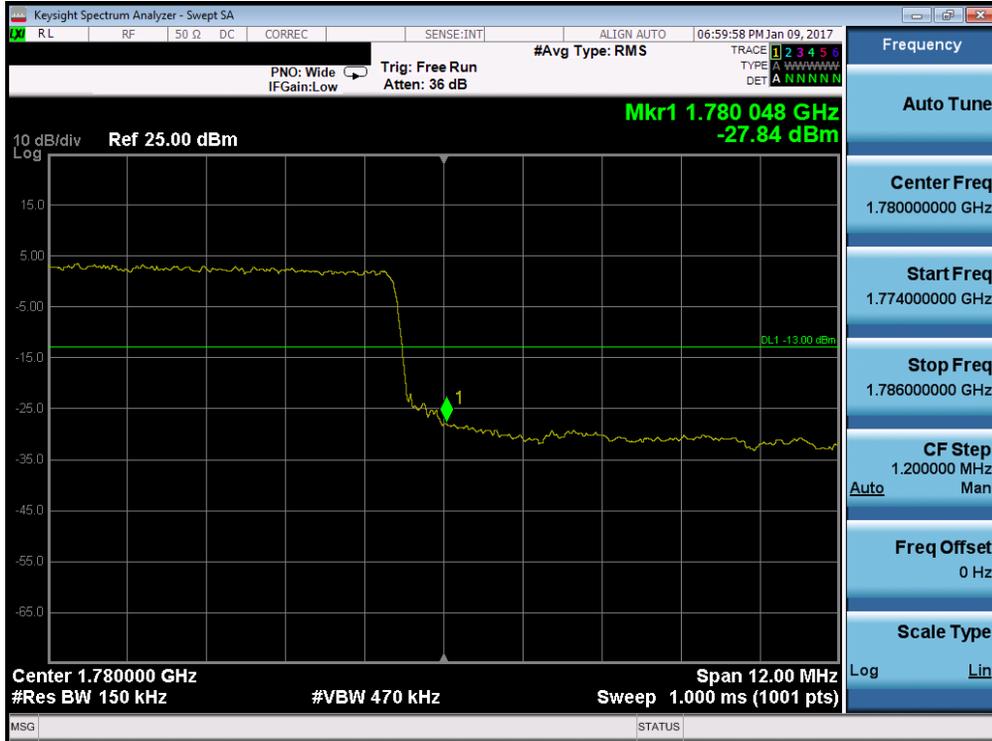


Plot 7-175. Lower Band Edge Plot (Band 4/66 – 15.0MHz QPSK – RB Size 75)

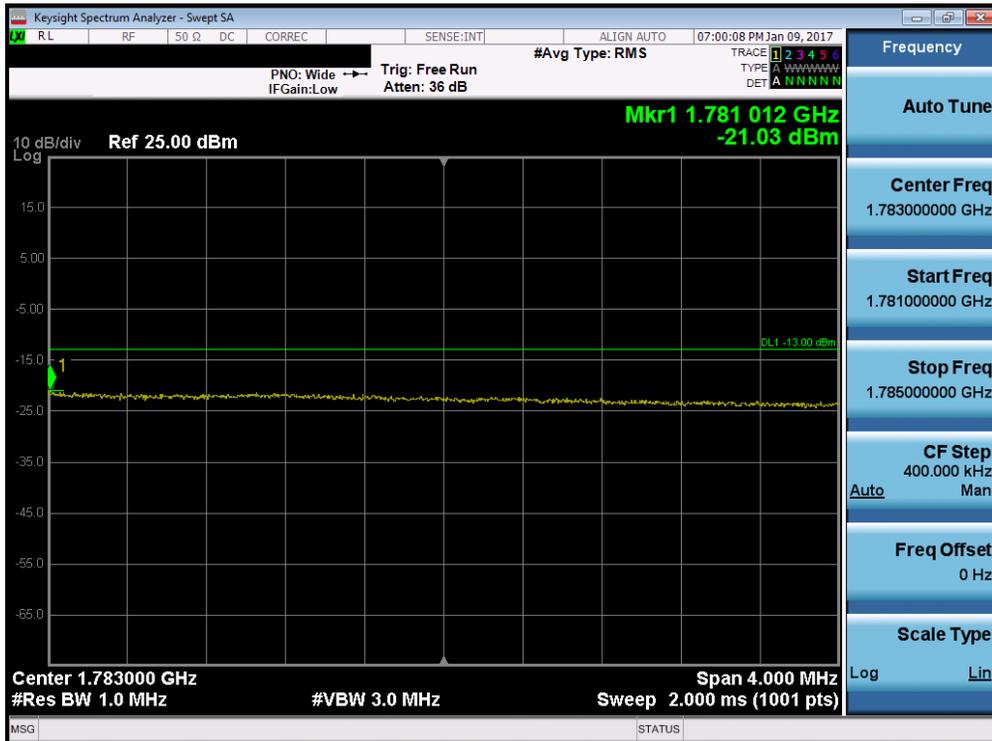


Plot 7-176. Lower Extended Band Edge Plot (Band 4/66 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 107 of 174

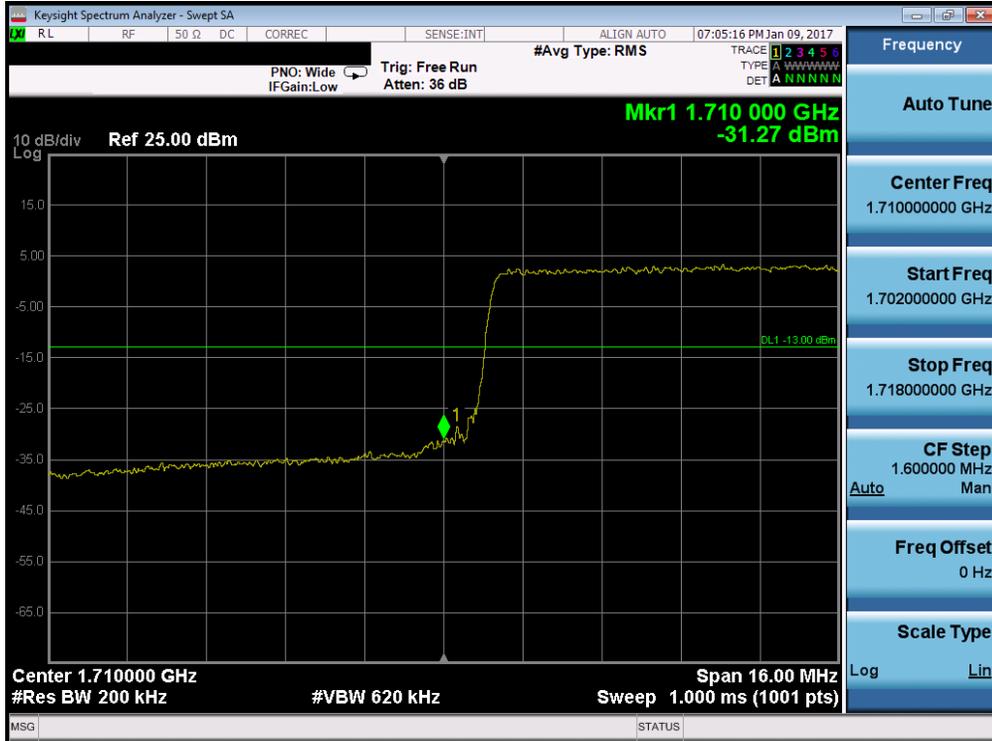


Plot 7-177. Upper Band Edge Plot (Band 4/66 – 15.0MHz QPSK – RB Size 75)

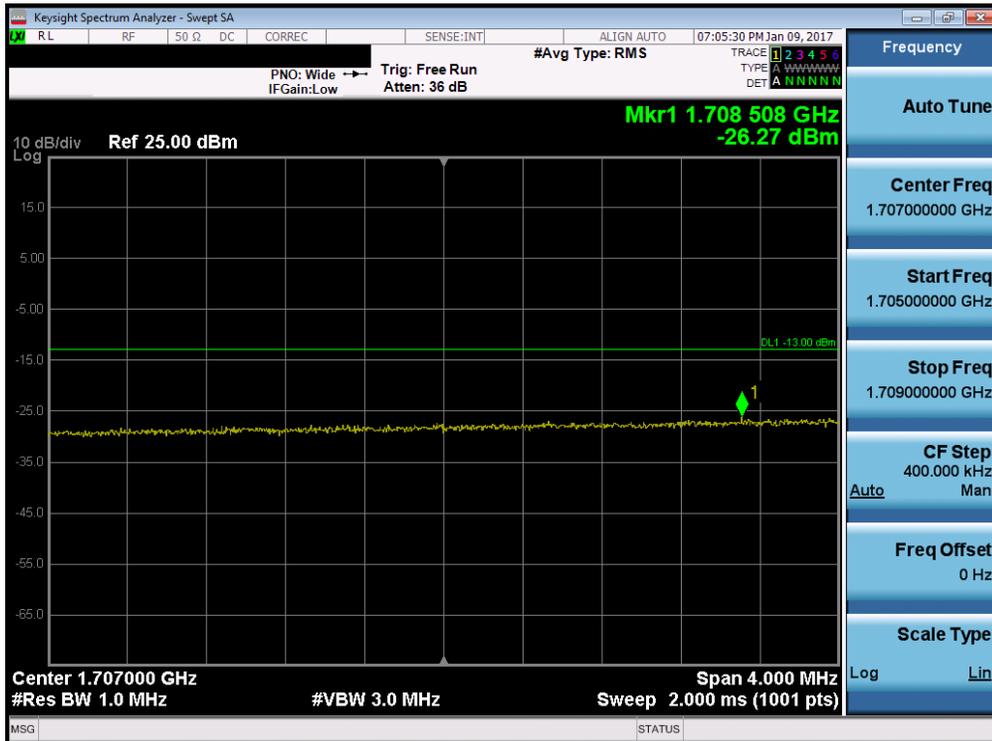


Plot 7-178. Upper Extended Band Edge Plot (Band 4/66 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 108 of 174

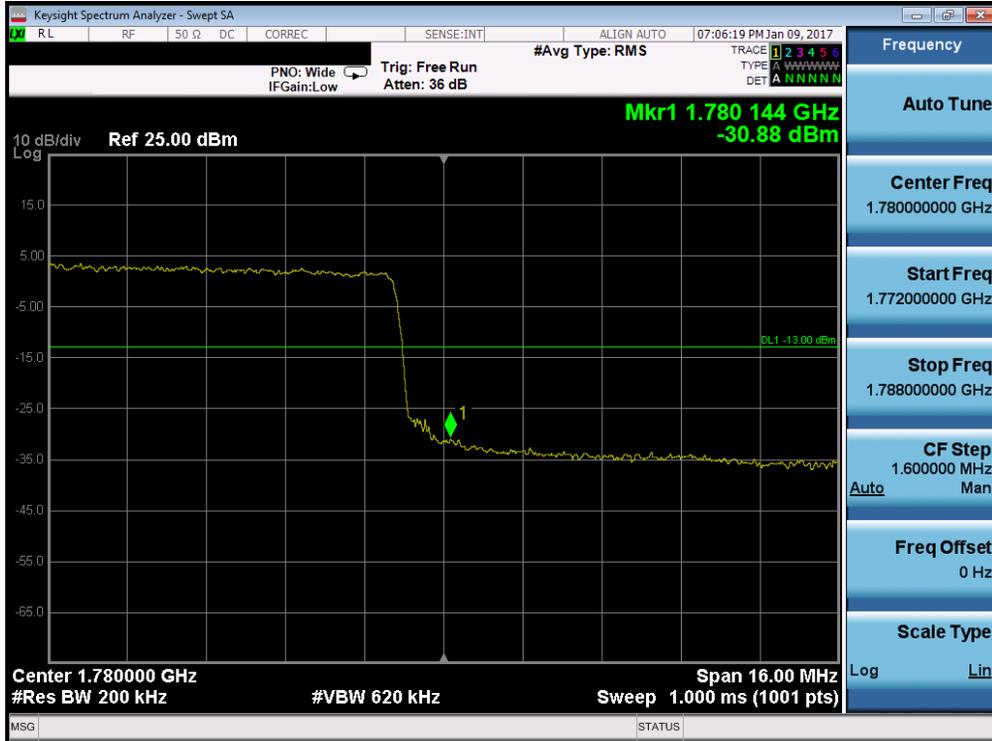


Plot 7-179. Lower Band Edge Plot (Band 4/66 – 20.0MHz QPSK – RB Size 100)

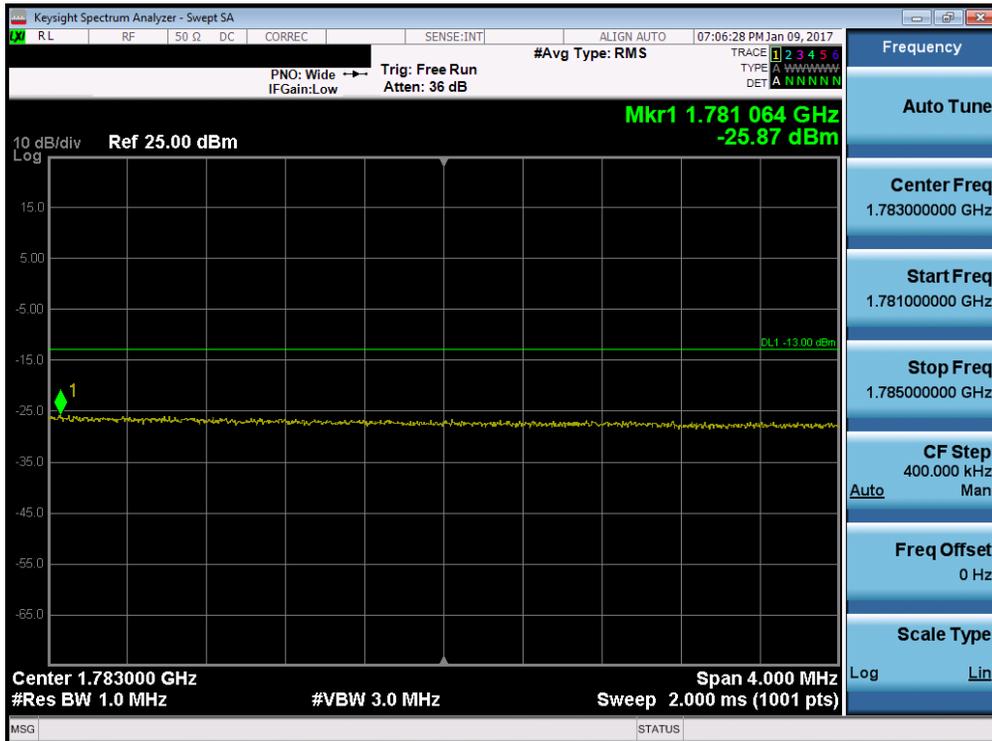


Plot 7-180. Lower Extended Band Edge Plot (Band 4/66 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 109 of 174

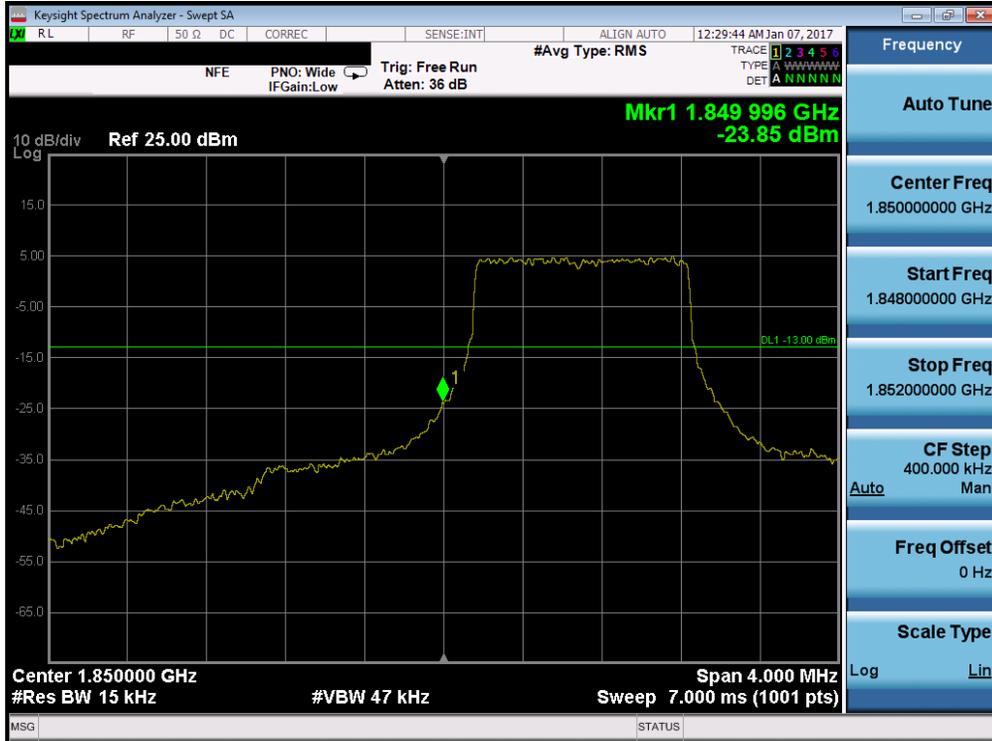


Plot 7-181. Upper Band Edge Plot (Band 4/66 – 20.0MHz QPSK – RB Size 100)

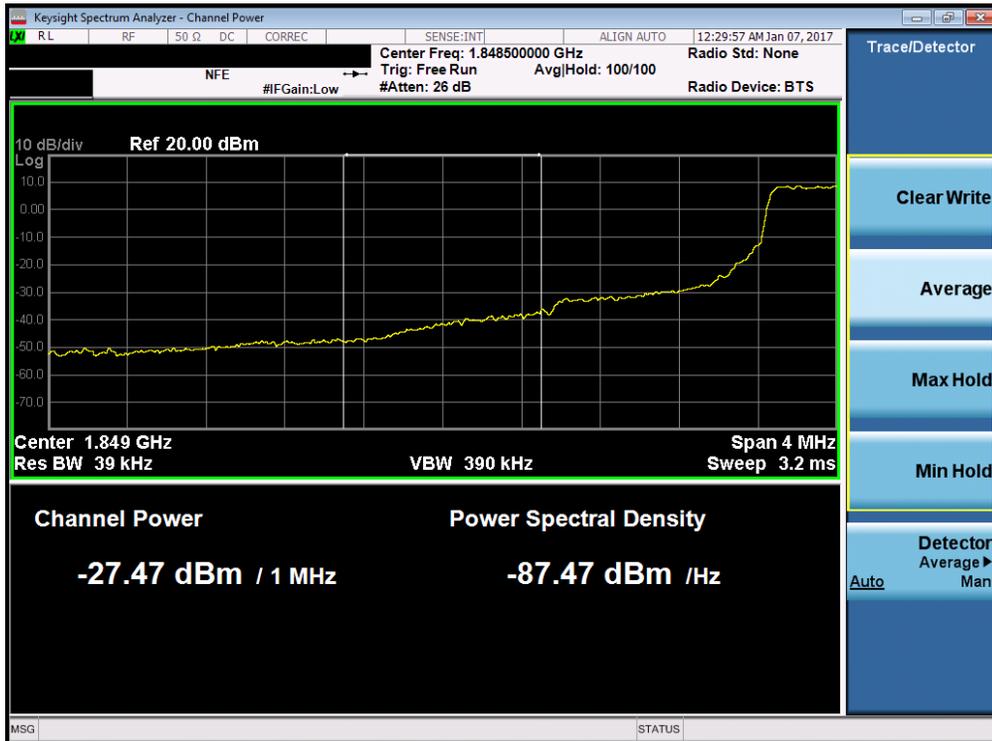


Plot 7-182. Upper Extended Band Edge Plot (Band 4/66 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 110 of 174



Plot 7-183. Lower Band Edge Plot (Band 2/25 – 1.4MHz QPSK – RB Size 6)

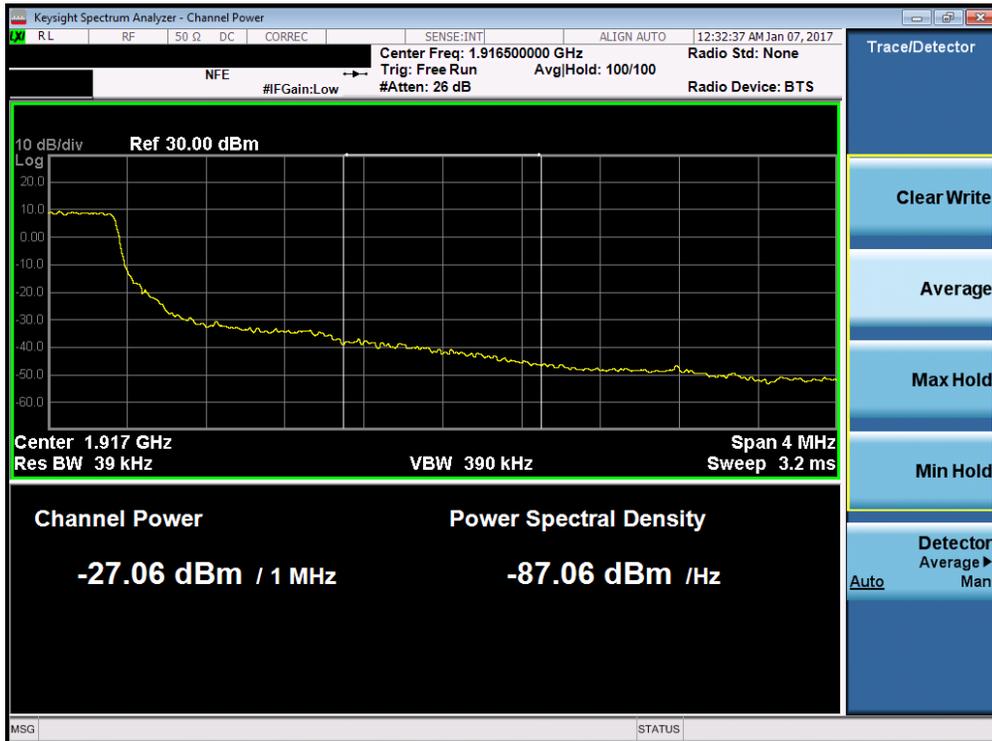


Plot 7-184. Lower Extended Band Edge Plot (Band 2/25 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 111 of 174

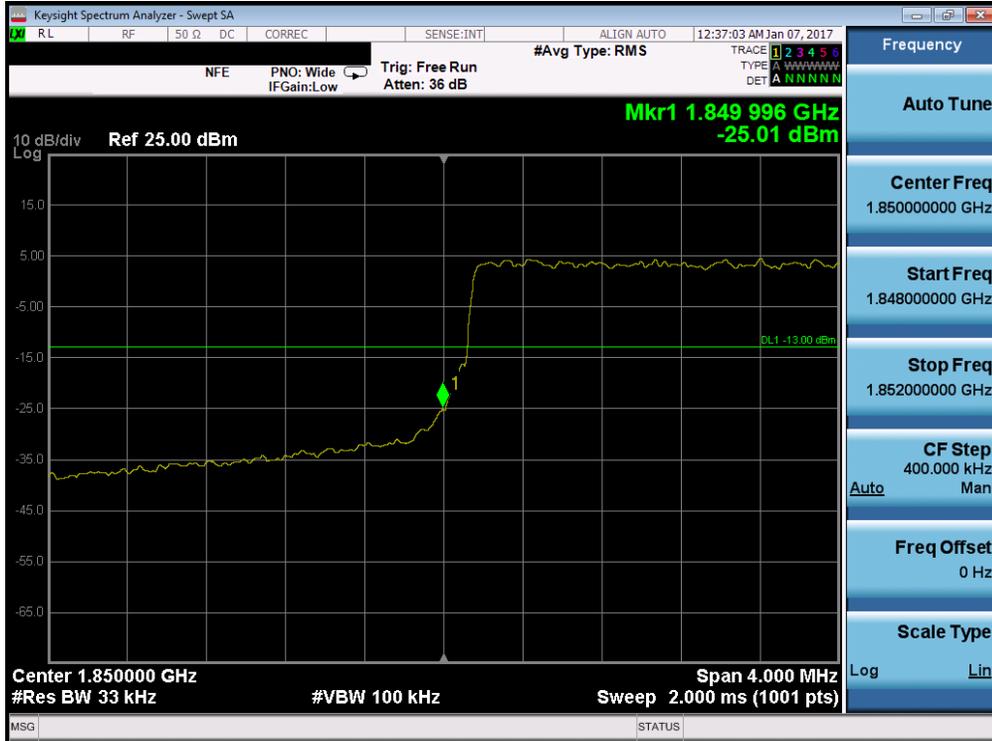


Plot 7-185. Upper Band Edge Plot (Band 2/25 – 1.4MHz QPSK – RB Size 6)

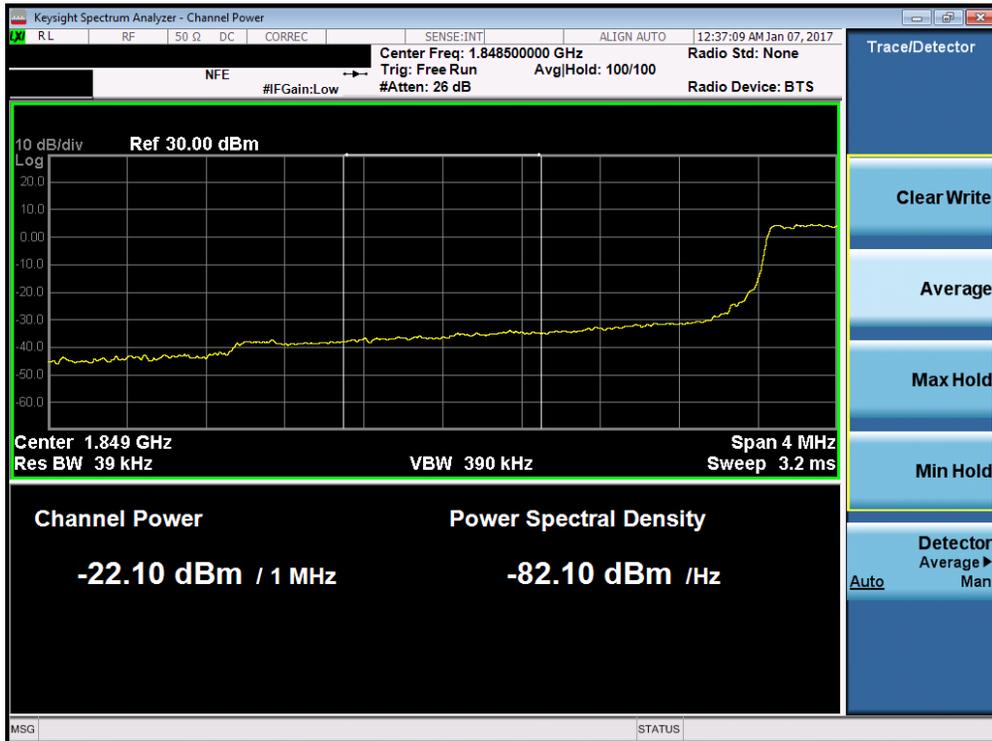


Plot 7-186. Upper Extended Band Edge Plot (Band 2/25 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 112 of 174



Plot 7-187. Lower Band Edge Plot (Band 2/25 – 3.0MHz QPSK – RB Size 15)

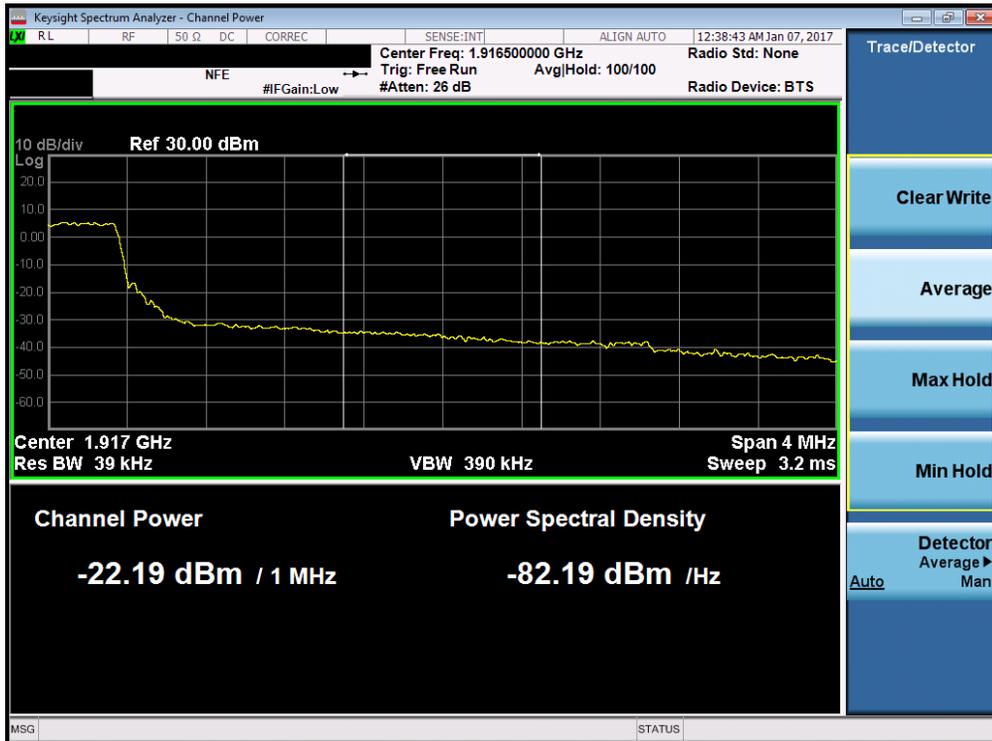


Plot 7-188. Lower Extended Band Edge Plot (Band 2/25 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 113 of 174

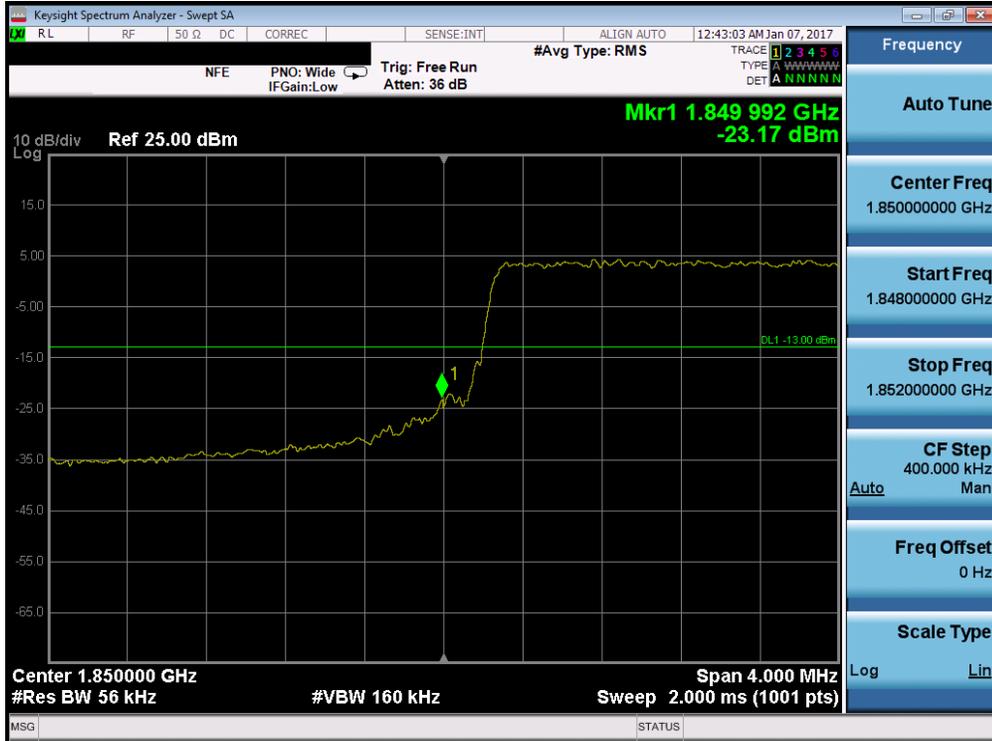


Plot 7-189. Upper Band Edge Plot (Band 2/25 – 3.0MHz QPSK – RB Size 15)

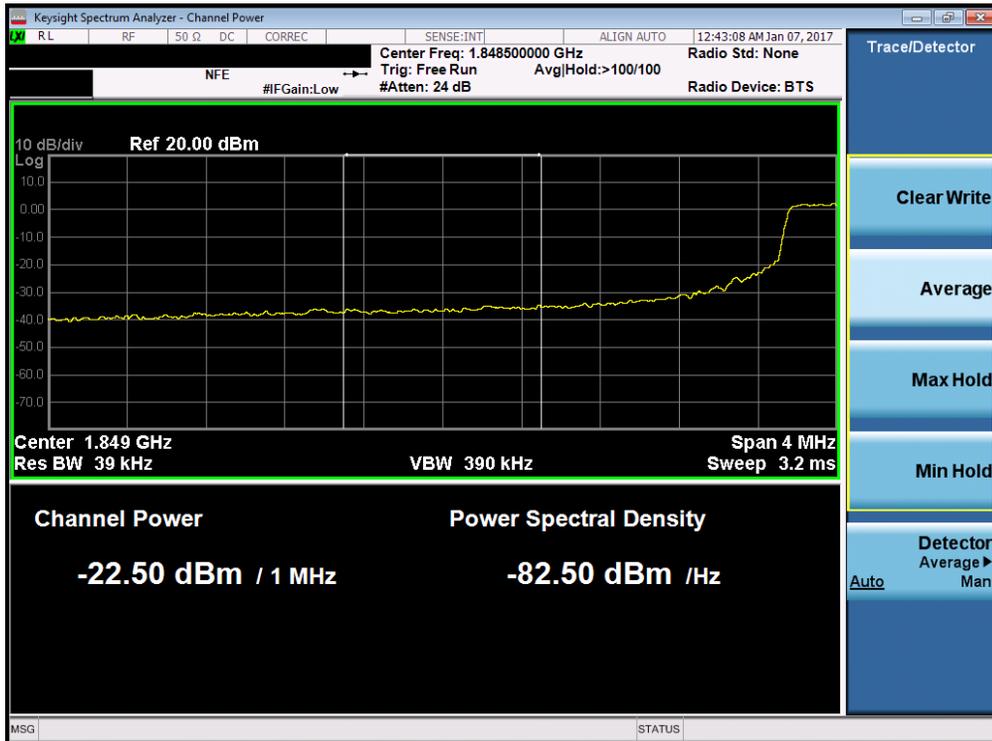


Plot 7-190. Upper Extended Band Edge Plot (Band 2/25 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 114 of 174



Plot 7-191. Lower Band Edge Plot (Band 2/25 – 5.0MHz QPSK – RB Size 25)

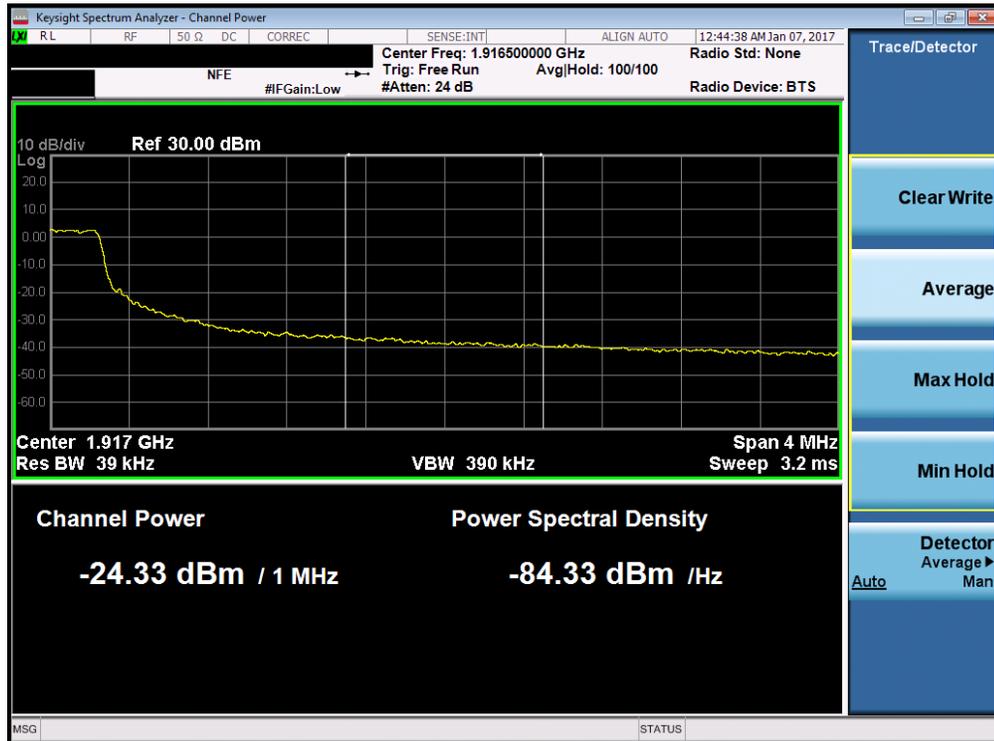


Plot 7-192. Lower Extended Band Edge Plot (Band 2/25 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 115 of 174

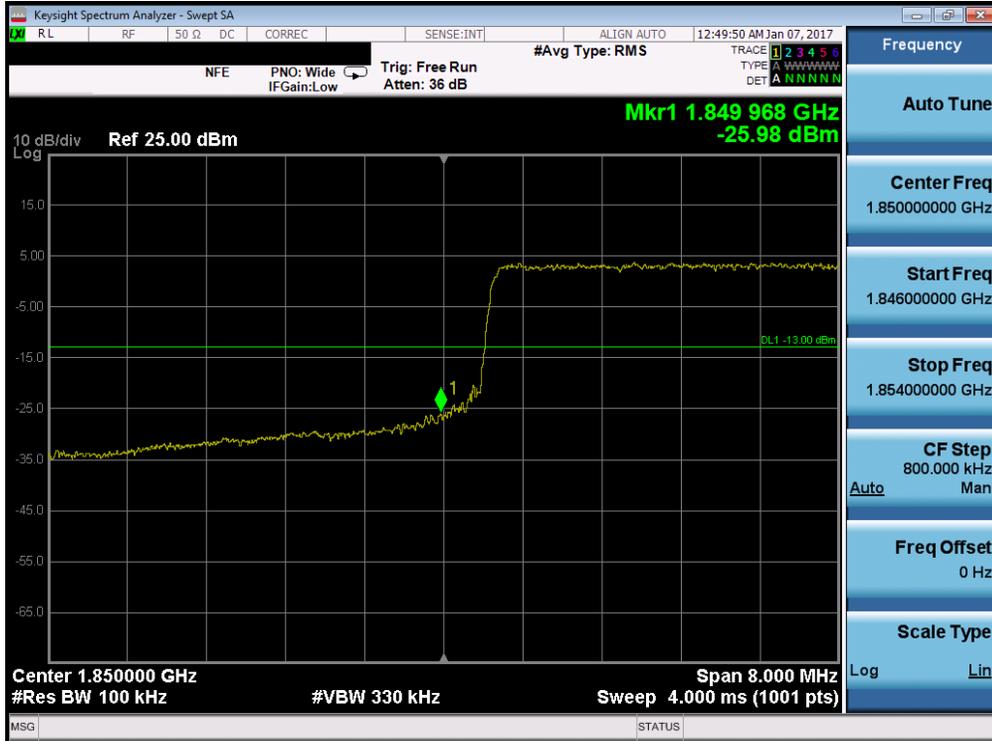


Plot 7-193. Upper Band Edge Plot (Band 2/25 – 5.0MHz QPSK – RB Size 25)

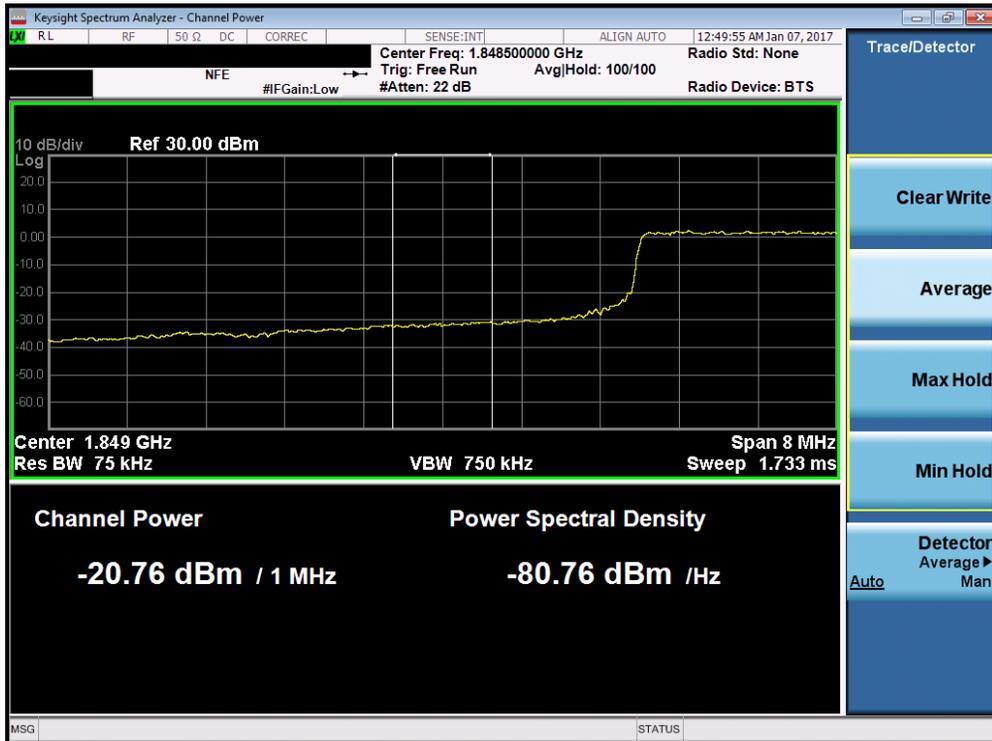


Plot 7-194. Upper Extended Band Edge Plot (Band 2/25 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 116 of 174

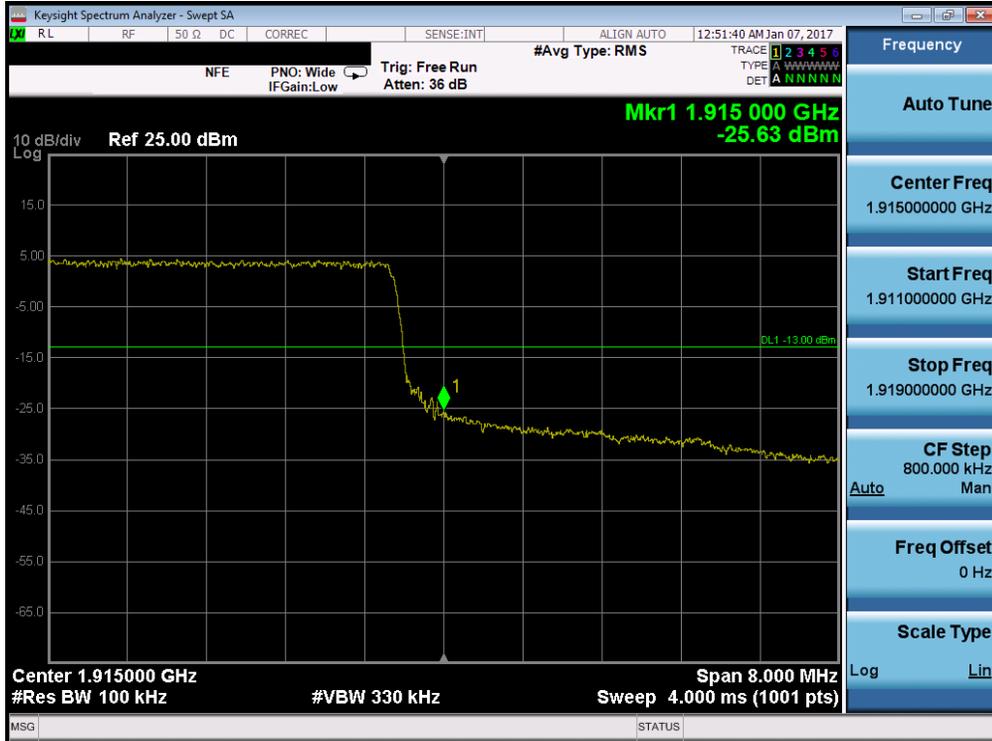


Plot 7-195. Lower Band Edge Plot (Band 2/25 – 10.0MHz QPSK – RB Size 50)

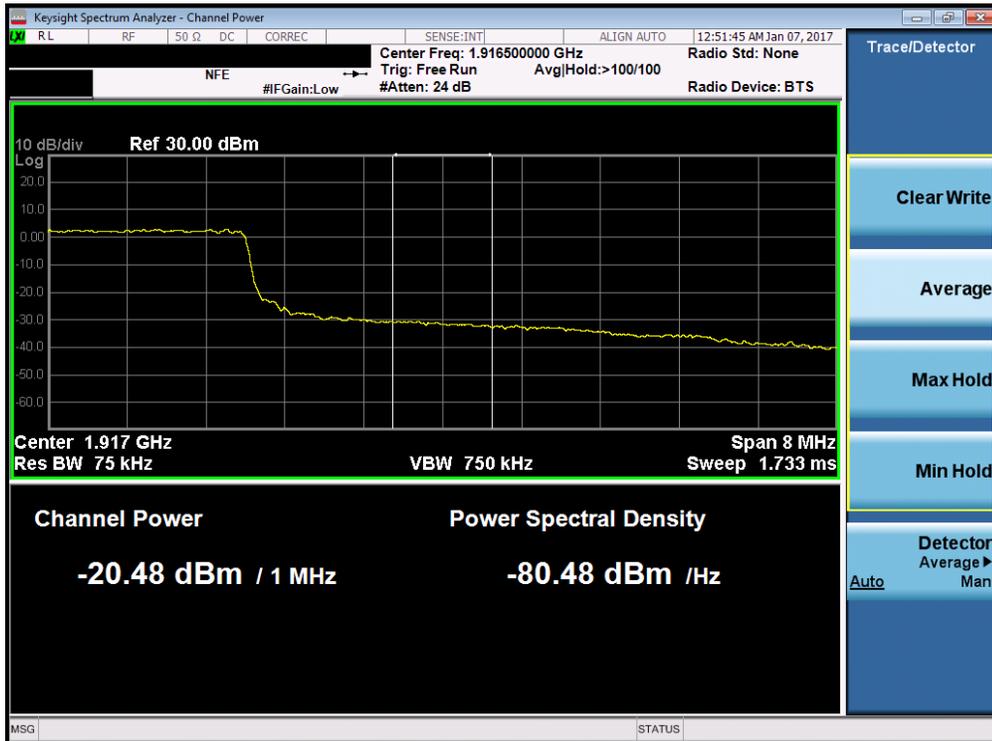


Plot 7-196. Lower Extended Band Edge Plot (Band 2/25 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 117 of 174

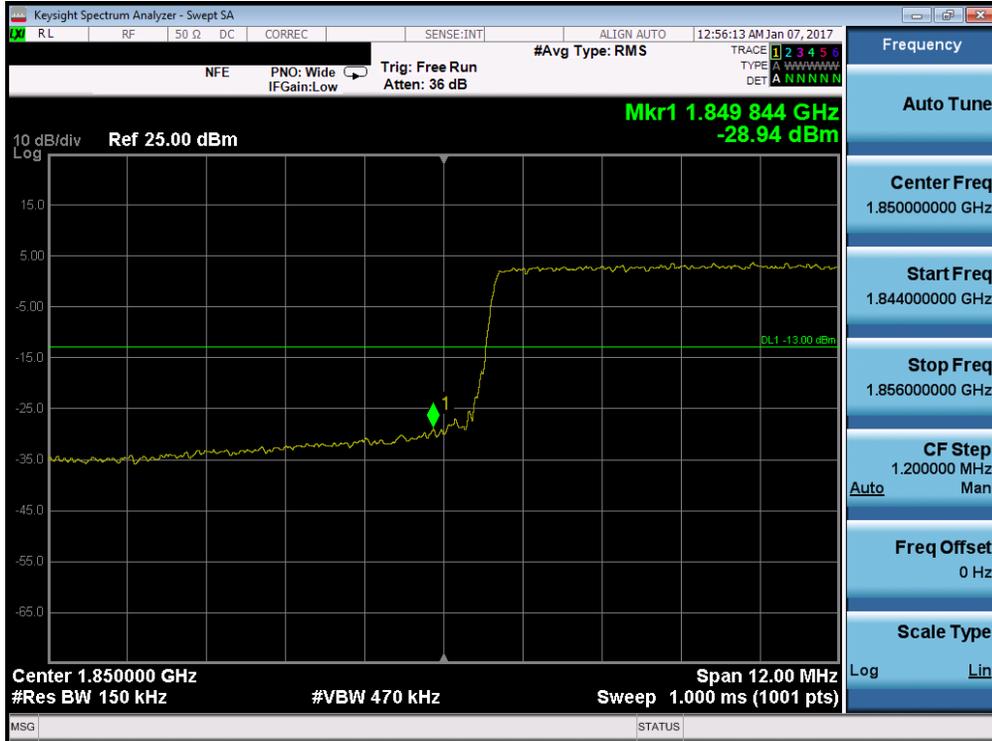


Plot 7-197. Upper Band Edge Plot (Band 2/25 – 10.0MHz QPSK – RB Size 50)

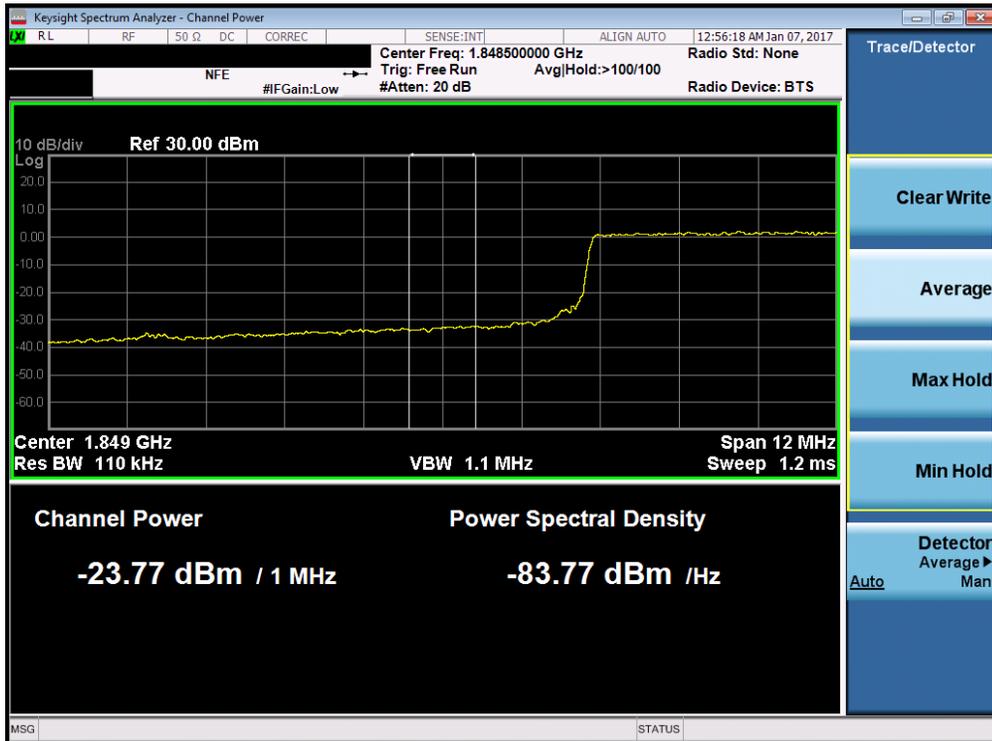


Plot 7-198. Upper Extended Band Edge Plot (Band 2/25 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 118 of 174



Plot 7-199. Lower Band Edge Plot (Band 2/25 – 15.0MHz QPSK – RB Size 75)

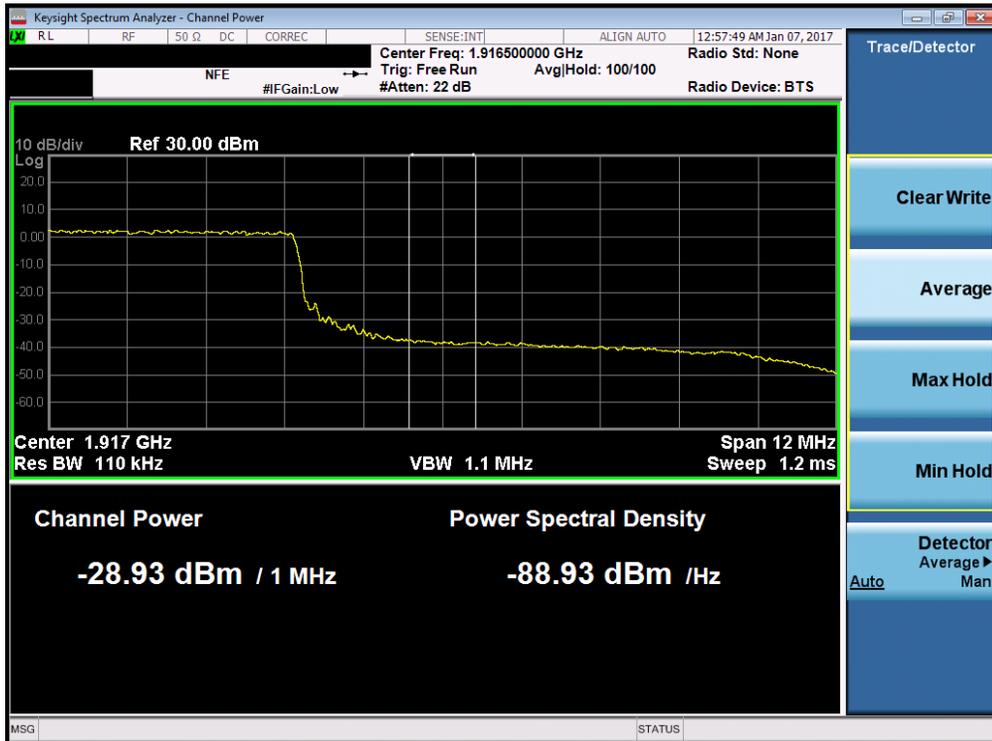


Plot 7-200. Lower Extended Band Edge Plot (Band 2/25 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 119 of 174

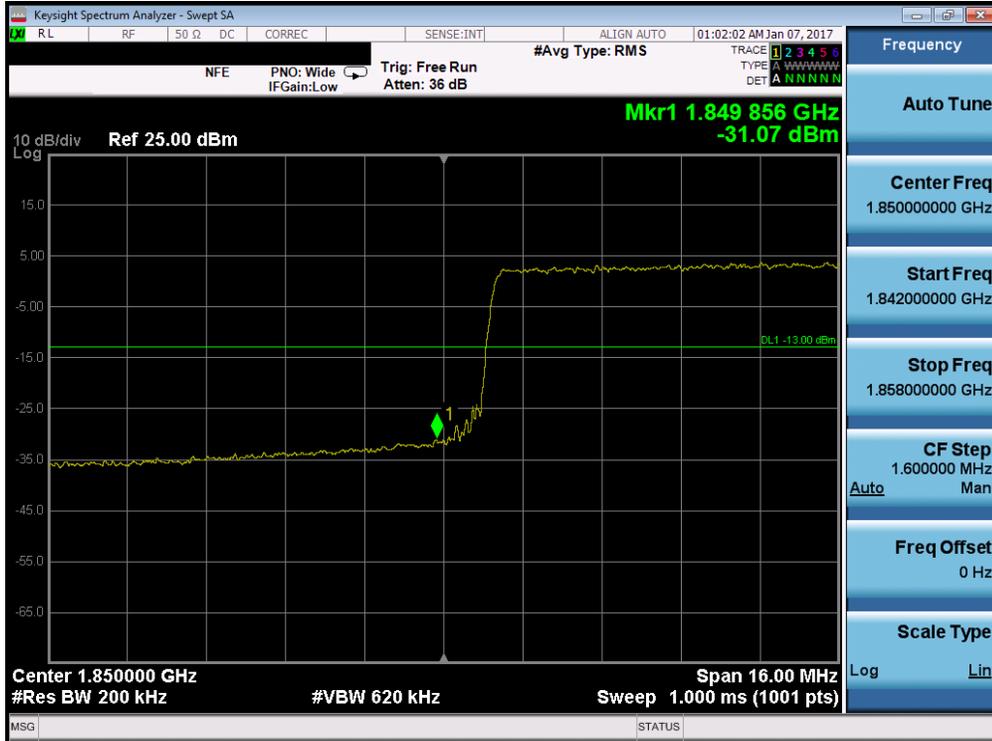


Plot 7-201. Upper Band Edge Plot (Band 2/25 – 15.0MHz QPSK – RB Size 75)

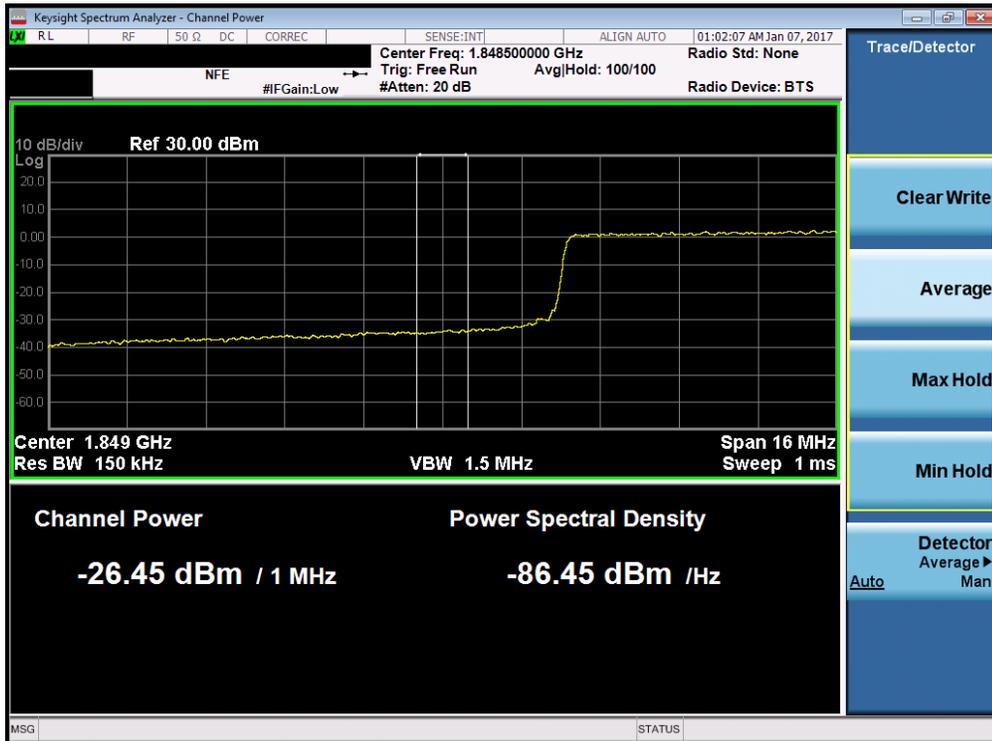


Plot 7-202. Upper Extended Band Edge Plot (Band 2/25 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 120 of 174



Plot 7-203. Lower Band Edge Plot (Band 2/25 – 20.0MHz QPSK – RB Size 100)

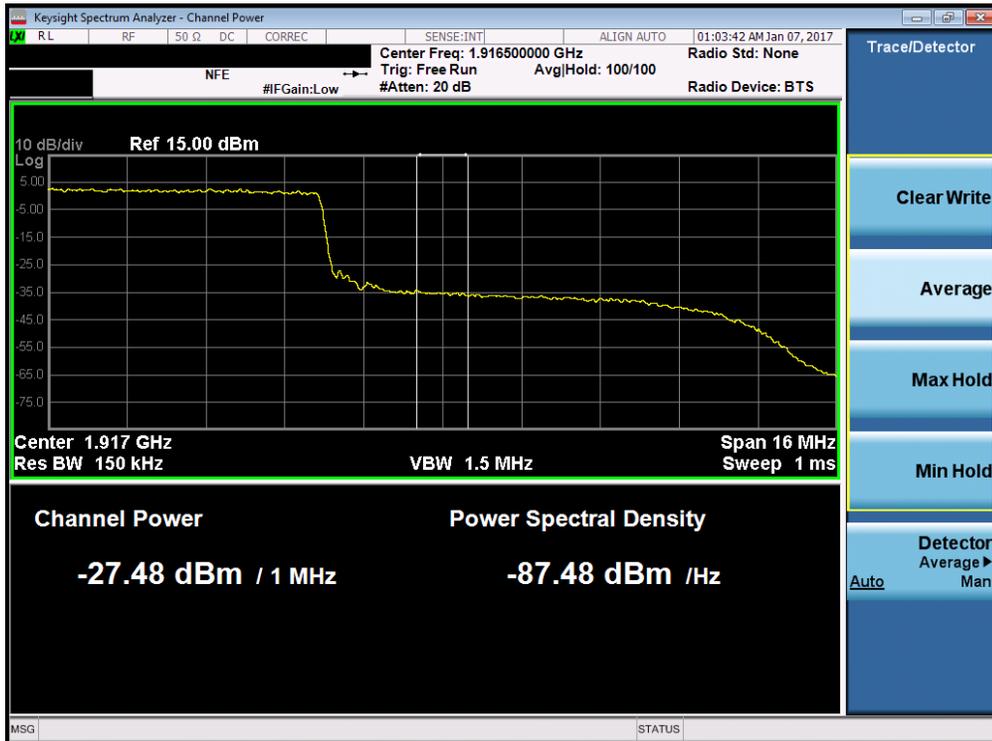


Plot 7-204. Lower Extended Band Edge Plot (Band 2/25 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 121 of 174

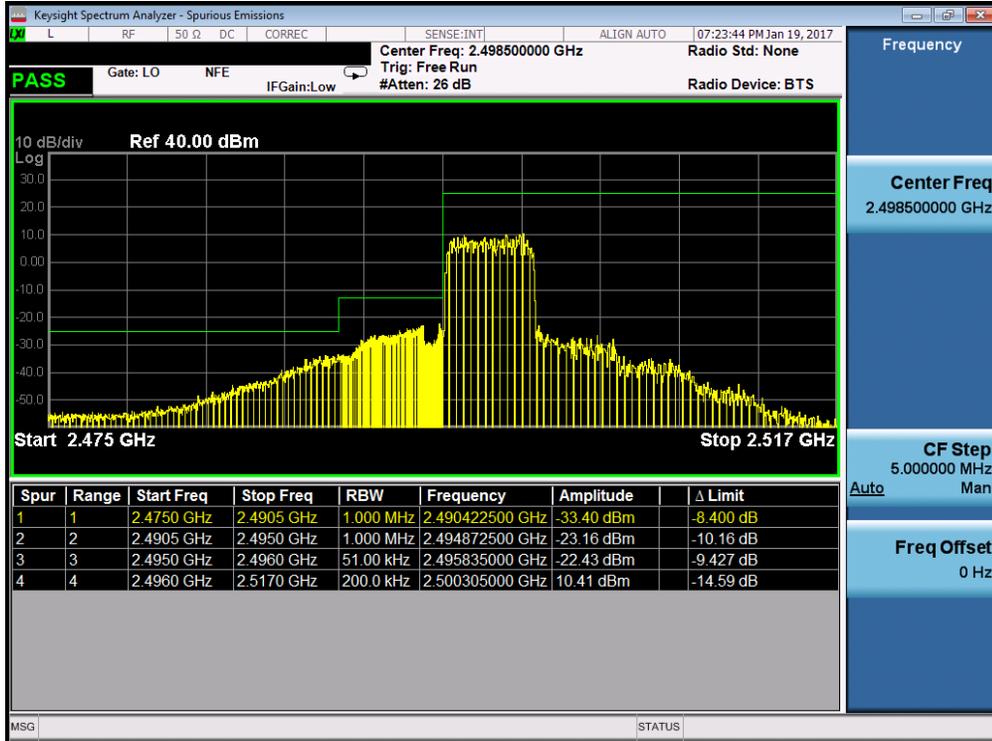


Plot 7-205. Upper Band Edge Plot (Band 2/25 – 20.0MHz QPSK – RB Size 100)

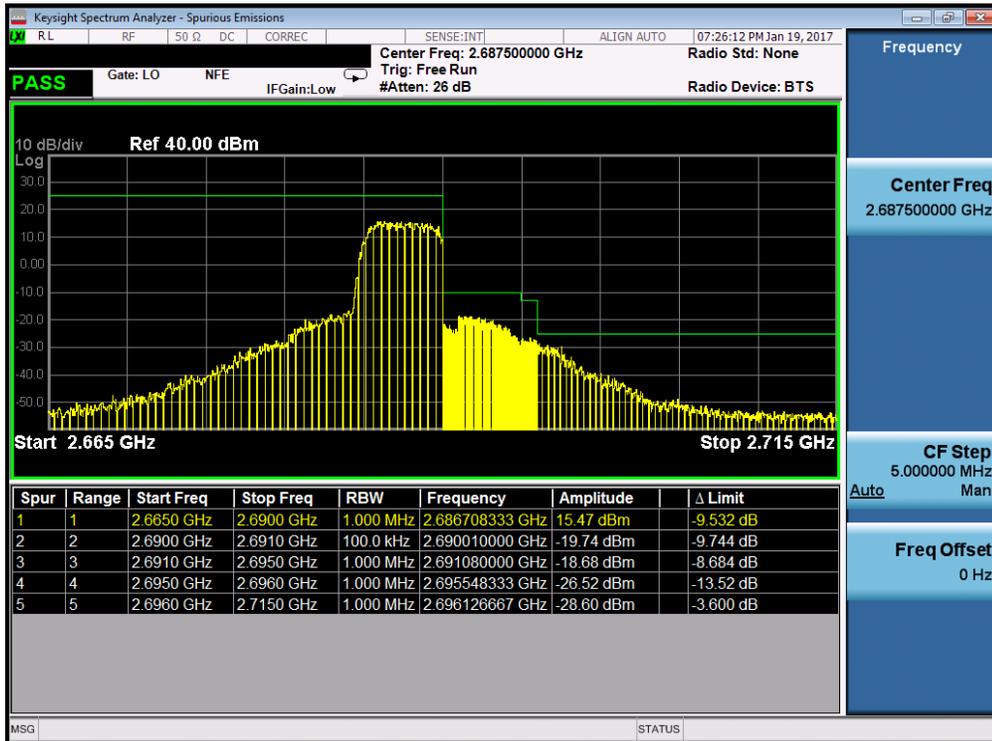


Plot 7-206. Upper Extended Band Edge Plot (Band 2/25 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 122 of 174

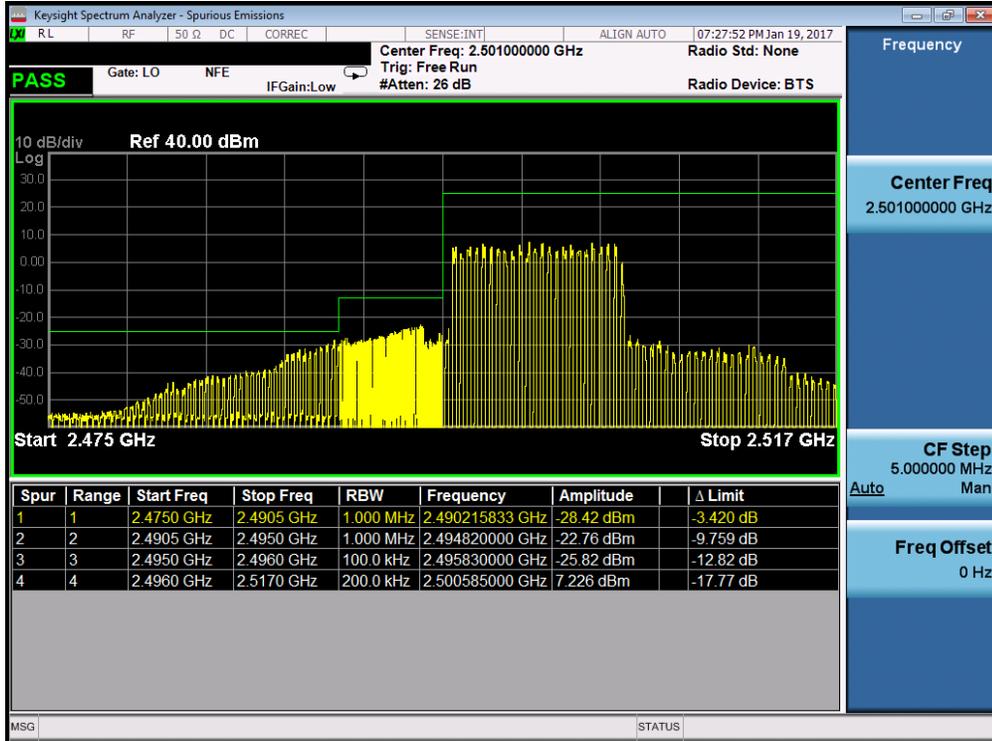


Plot 7-207. Lower ACP Plot (Band 41 – 5.0MHz QPSK – RB Size 25)

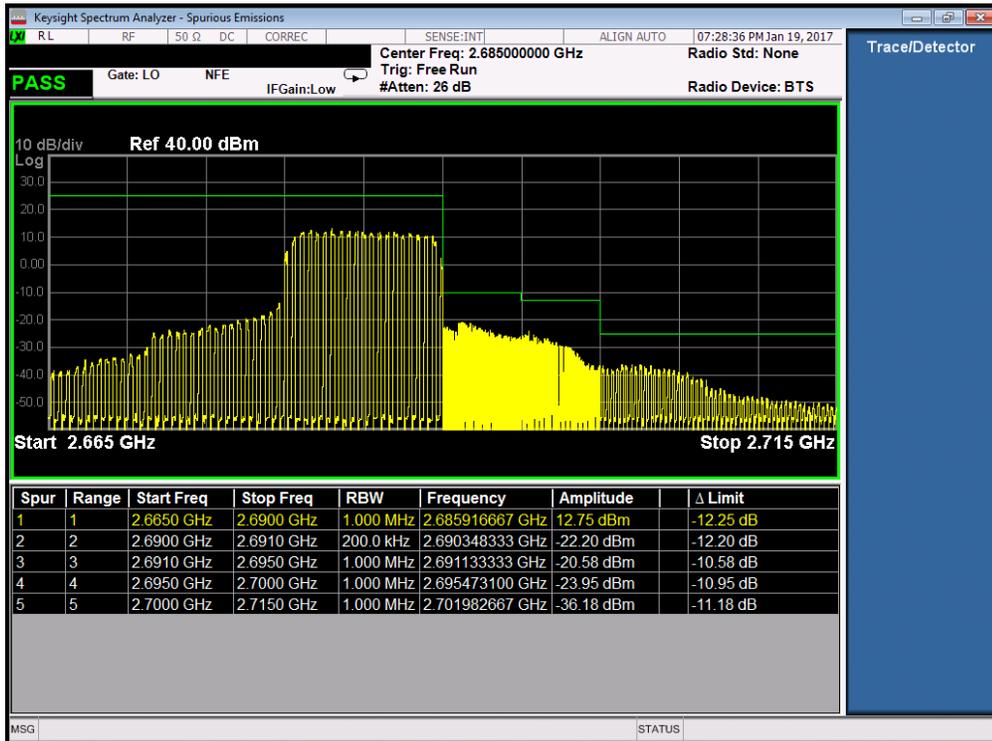


Plot 7-208. Upper ACP Plot (Band 41 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-209. Lower ACP Plot (Band 41 – 10.0MHz QPSK – RB Size 50)



Plot 7-210. Upper ACP Plot (Band 41 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 124 of 174

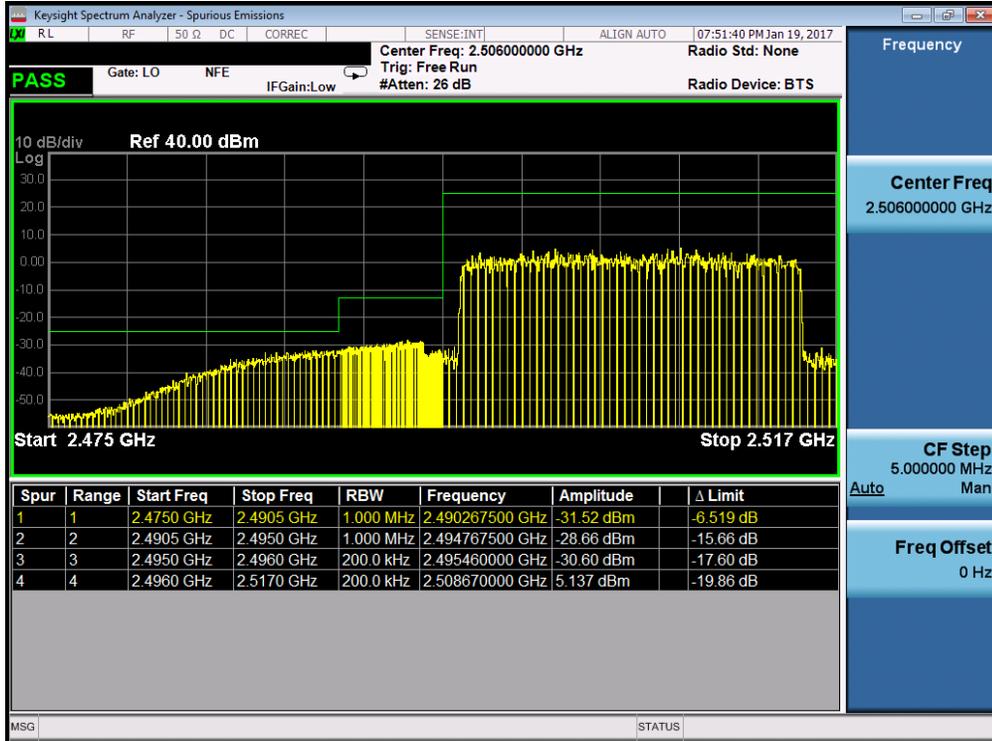


Plot 7-211. Lower ACP Plot (Band 41 – 15.0MHz QPSK – RB Size 75)



Plot 7-212. Upper ACP Plot (Band 41 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 125 of 174



Plot 7-213. Lower ACP Plot (Band 41 – 20.0MHz QPSK – RB Size 100)



Plot 7-214. Upper ACP Plot (Band 41 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 126 of 174

7.5 Peak-Average Ratio

§24.232(d)

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 v02r02 – Section 5.7.1

Test Settings

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

Test Setup

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

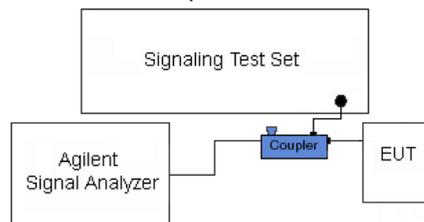
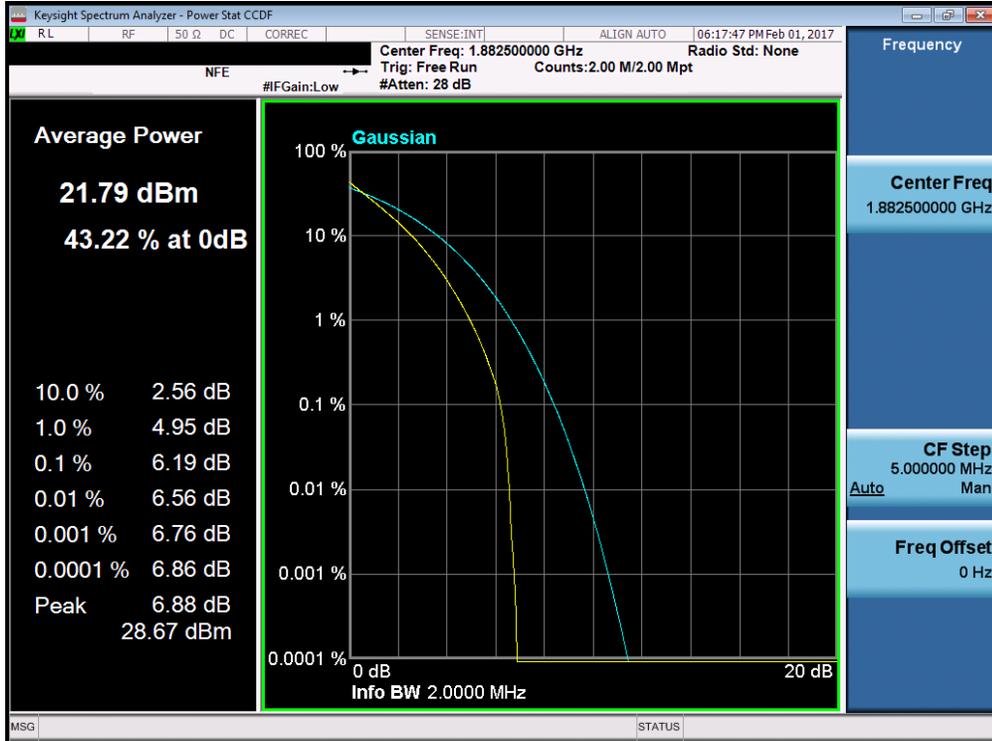


Figure 7-4. Test Instrument & Measurement Setup

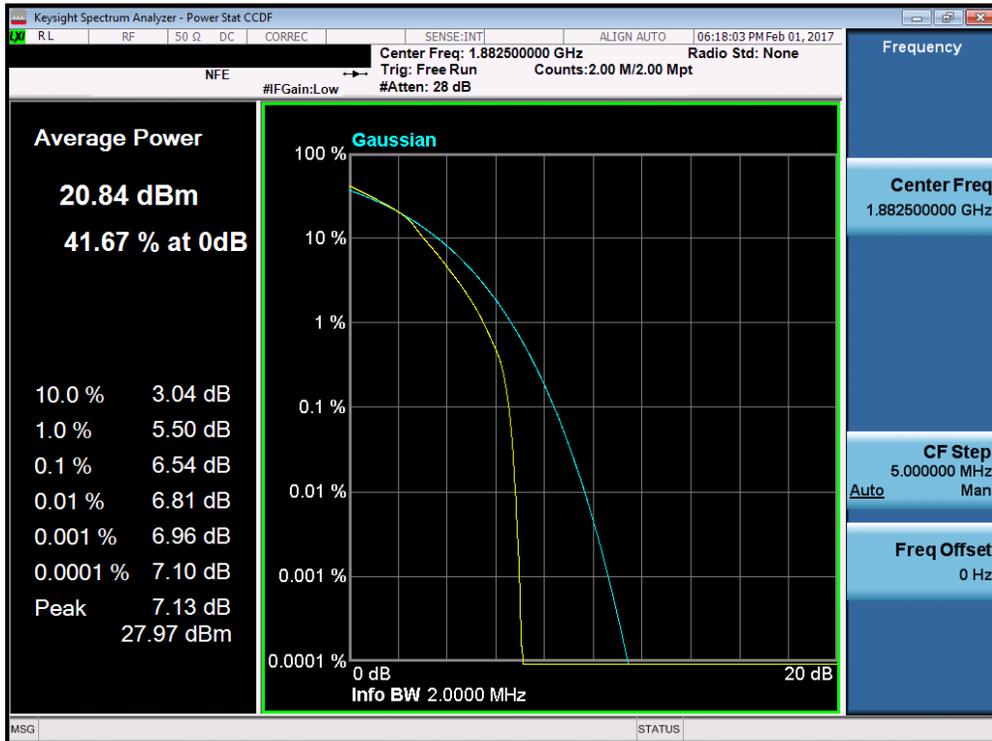
Test Notes

None.

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset	Page 127 of 174	

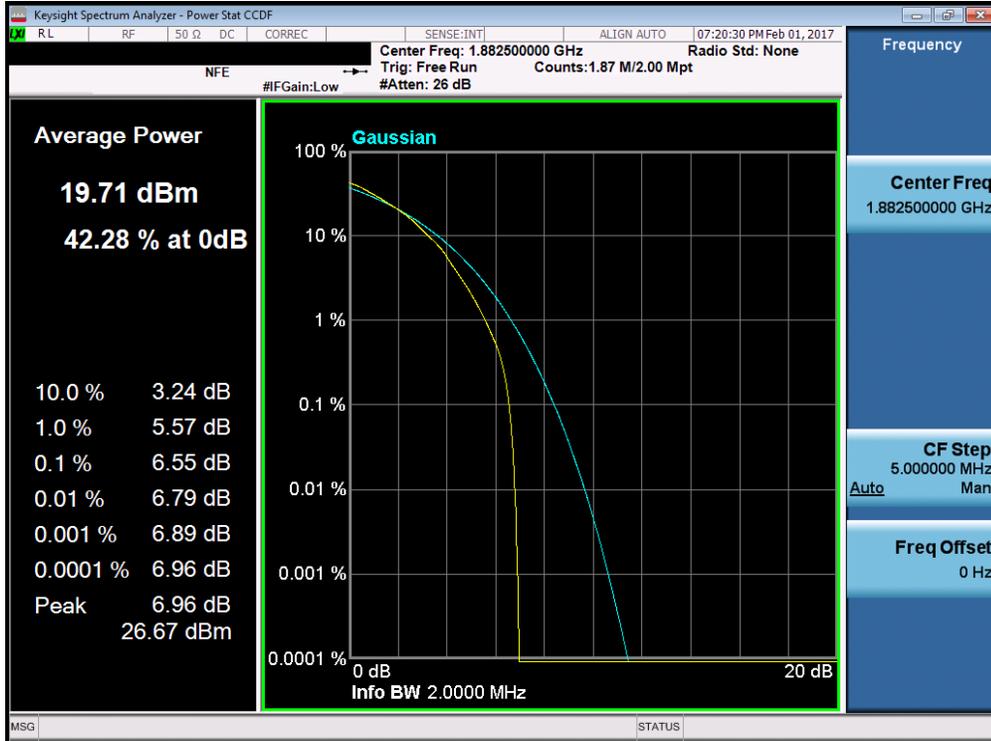


Plot 7-215. PAR Plot (Band 2/25 – 1.4MHz QPSK – RB Size 6)

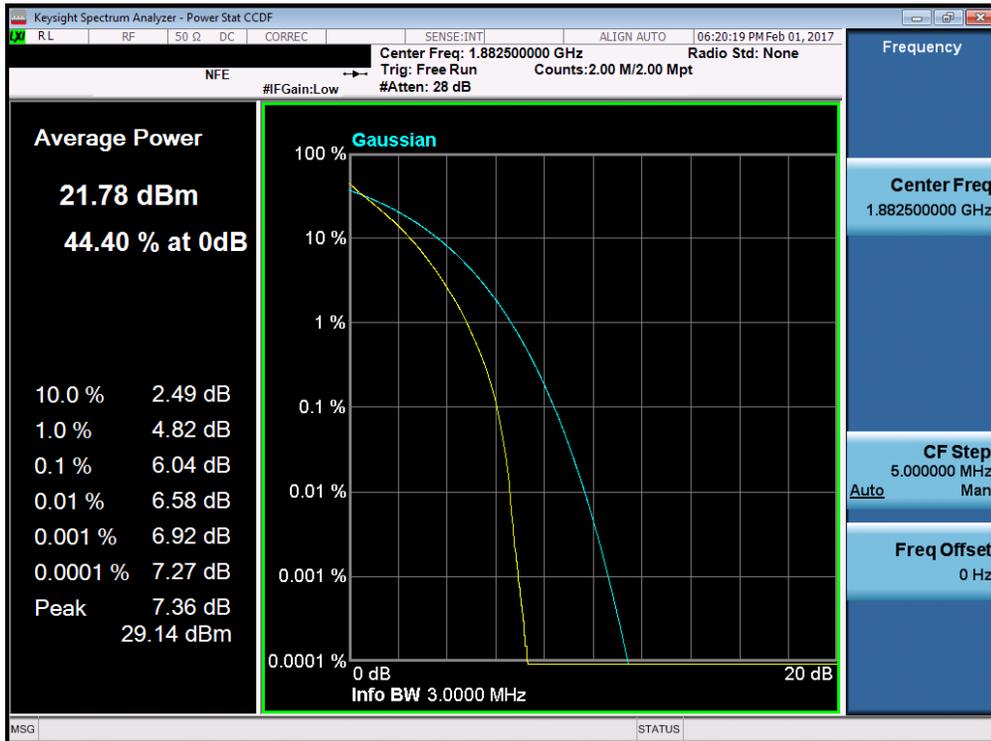


Plot 7-216. PAR Plot (Band 2/25 – 1.4MHz 16-QAM – RB Size 6)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 128 of 174

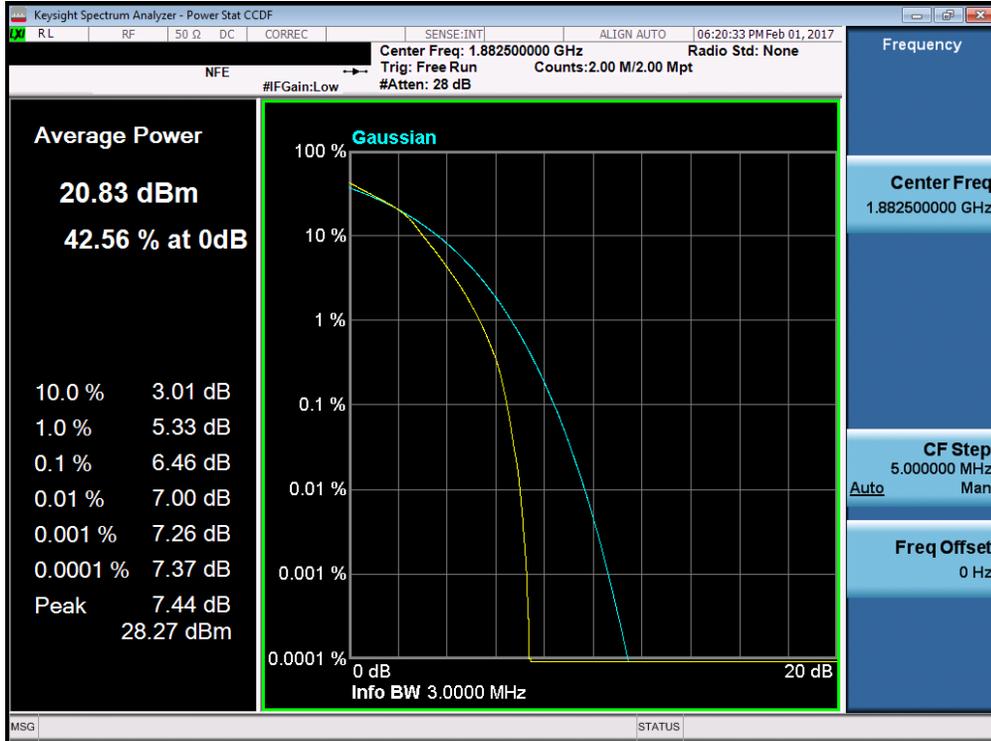


Plot 7-217. PAR Plot (Band 2/25 – 1.4MHz 64-QAM – RB Size 6)

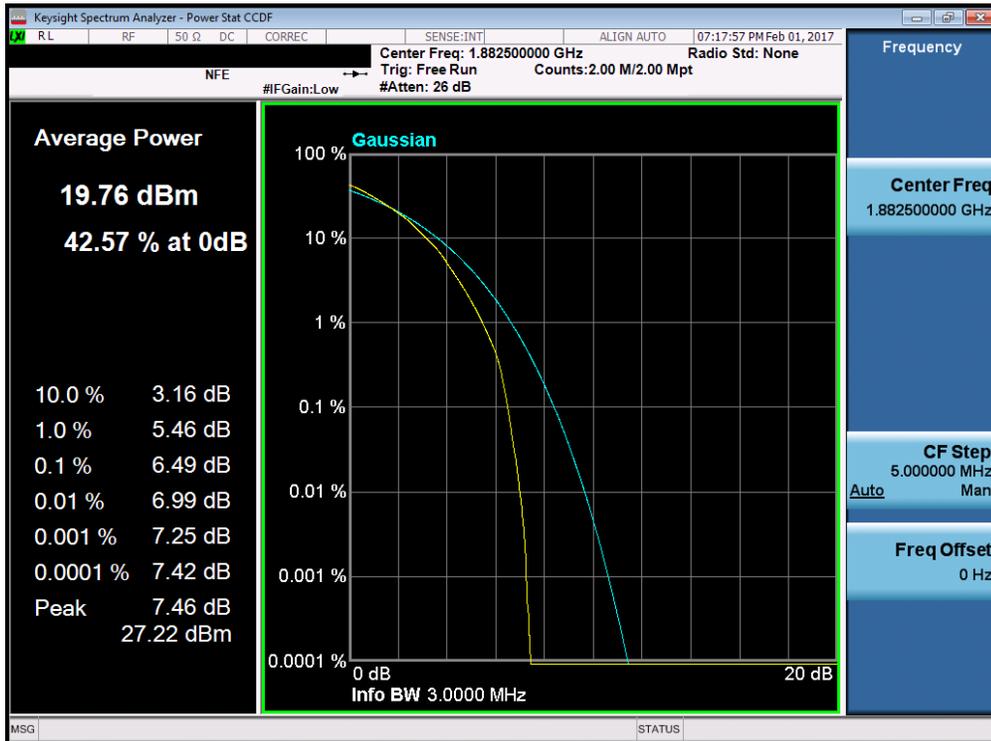


Plot 7-218. PAR Plot (Band 2/25 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 129 of 174

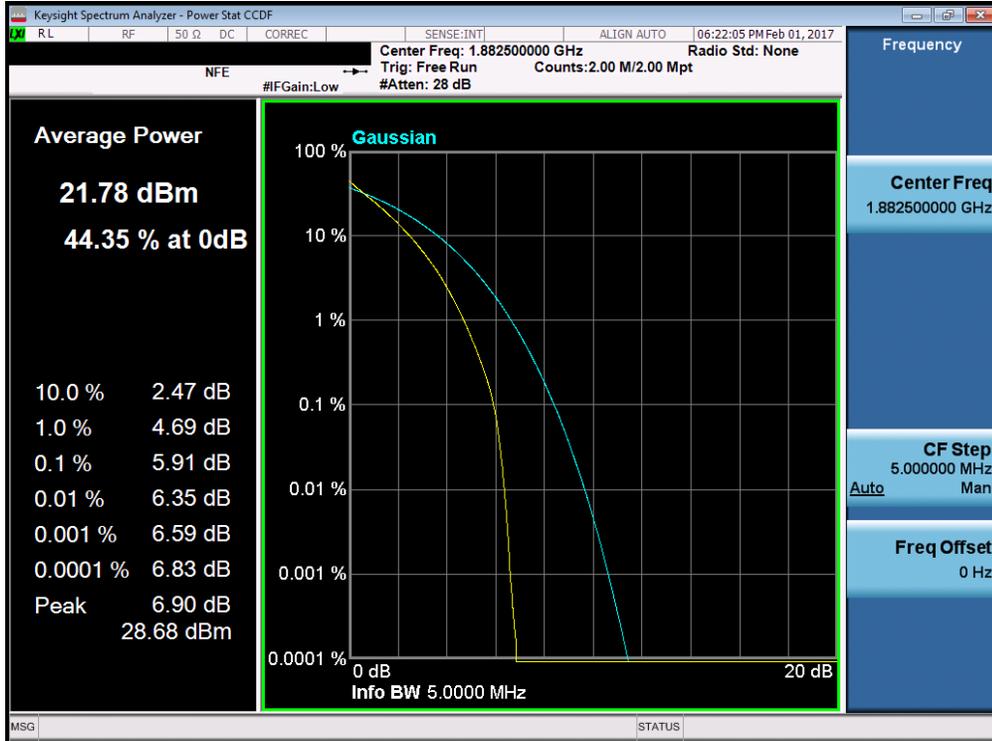


Plot 7-219. PAR Plot (Band 2/25 – 3.0MHz 16-QAM – RB Size 15)

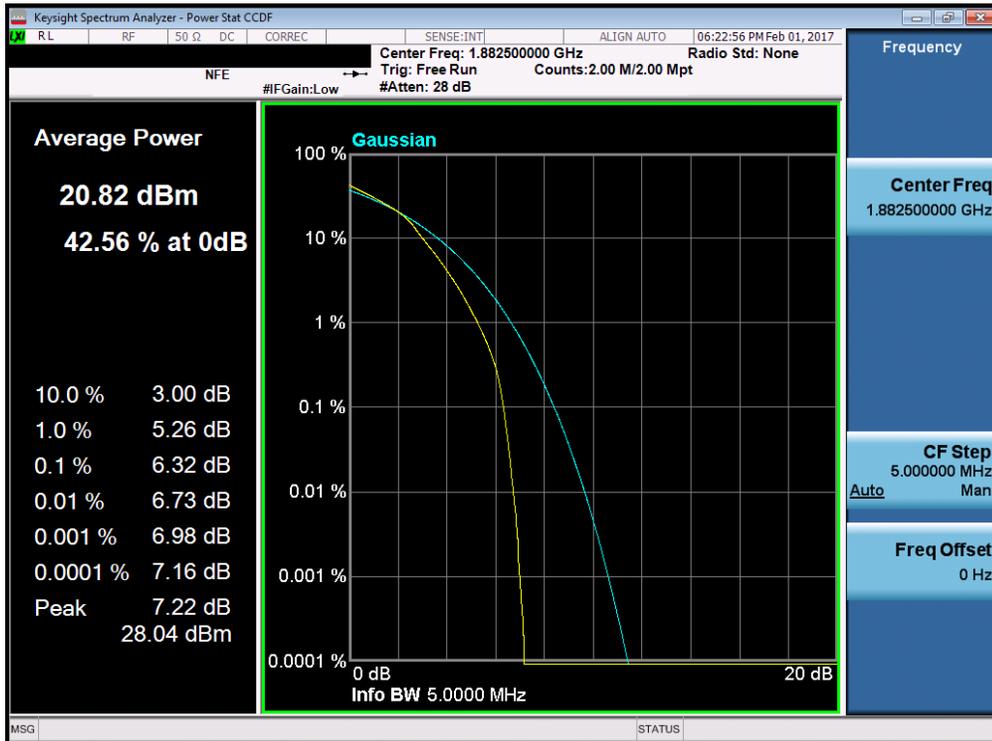


Plot 7-220. PAR Plot (Band 2/25 – 3.0MHz 64-QAM – RB Size 15)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 130 of 174

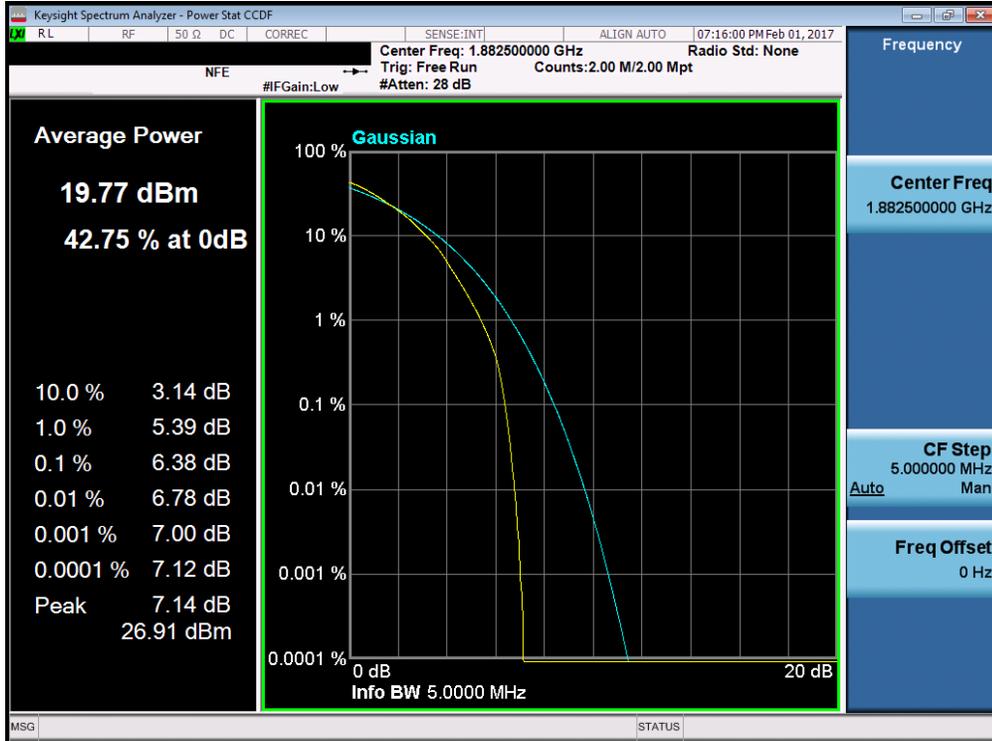


Plot 7-221. PAR Plot (Band 2/25 – 5.0MHz QPSK – RB Size 25)

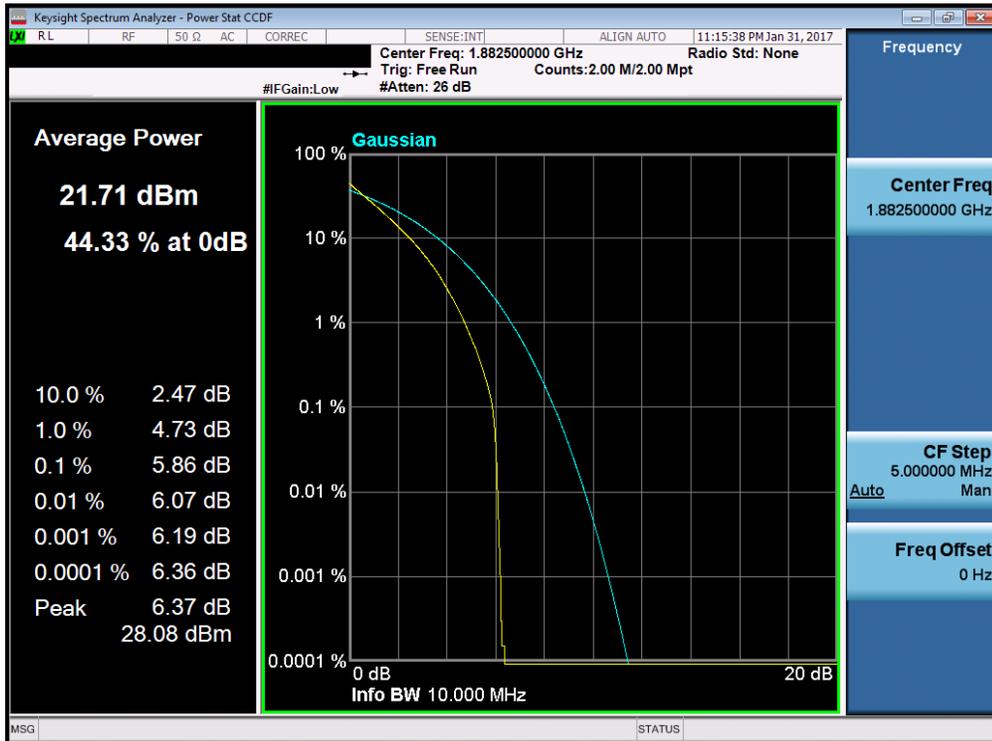


Plot 7-222. PAR Plot (Band 2/25 – 5.0MHz 16-QAM – RB Size 25)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 131 of 174

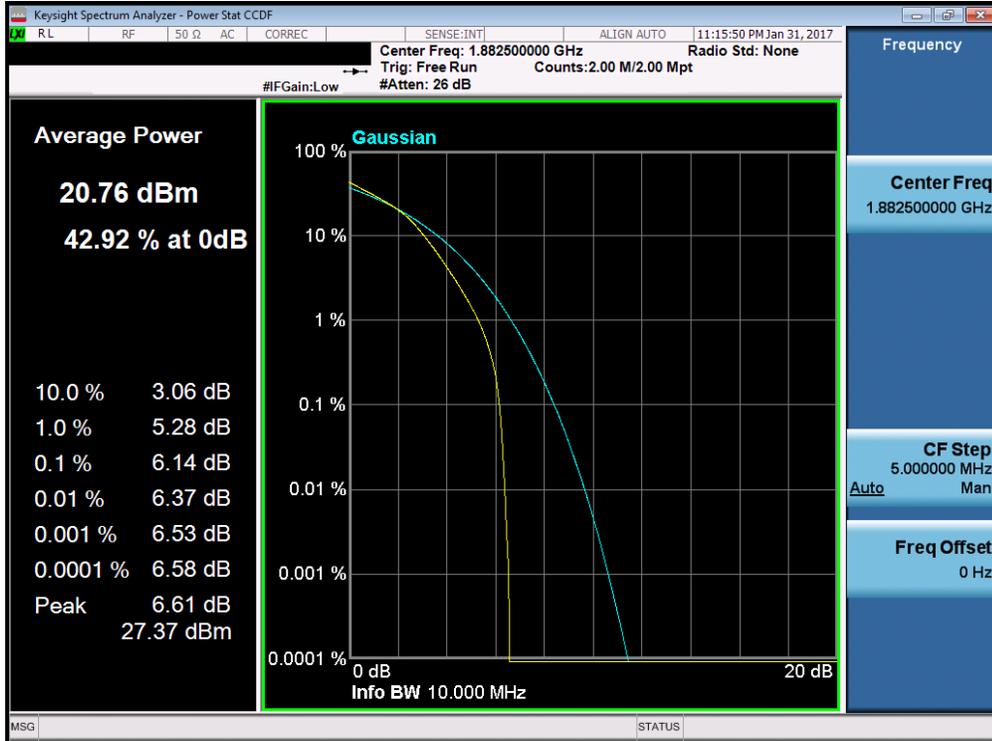


Plot 7-223. PAR Plot (Band 2/25 – 5.0MHz 64-QAM – RB Size 25)

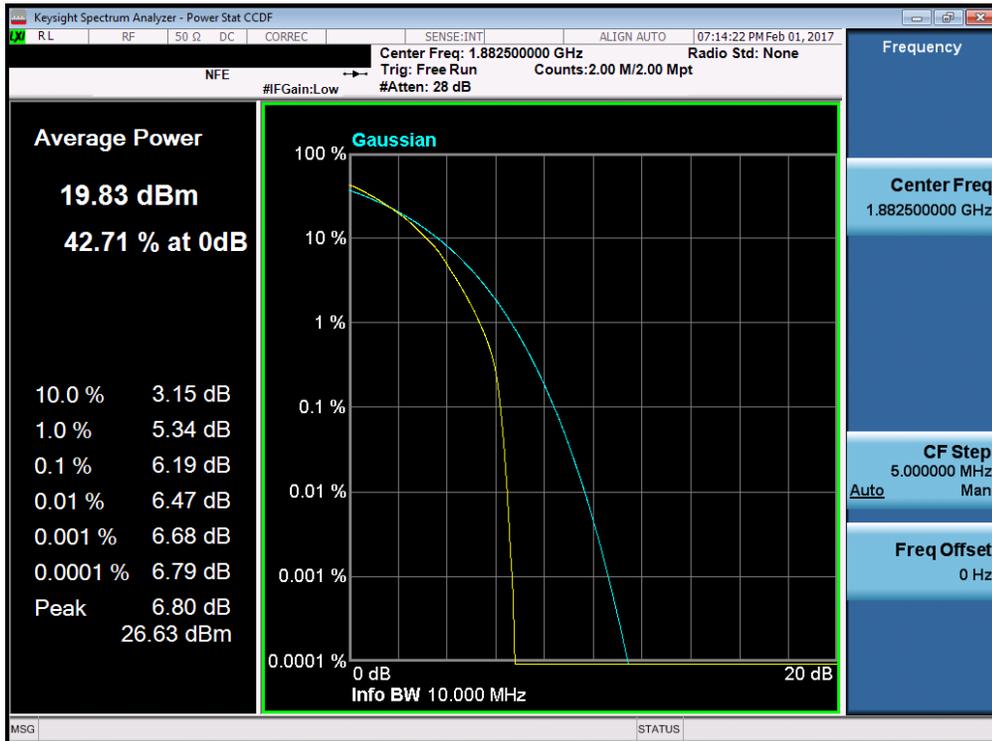


Plot 7-224. PAR Plot (Band 2/25 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 132 of 174

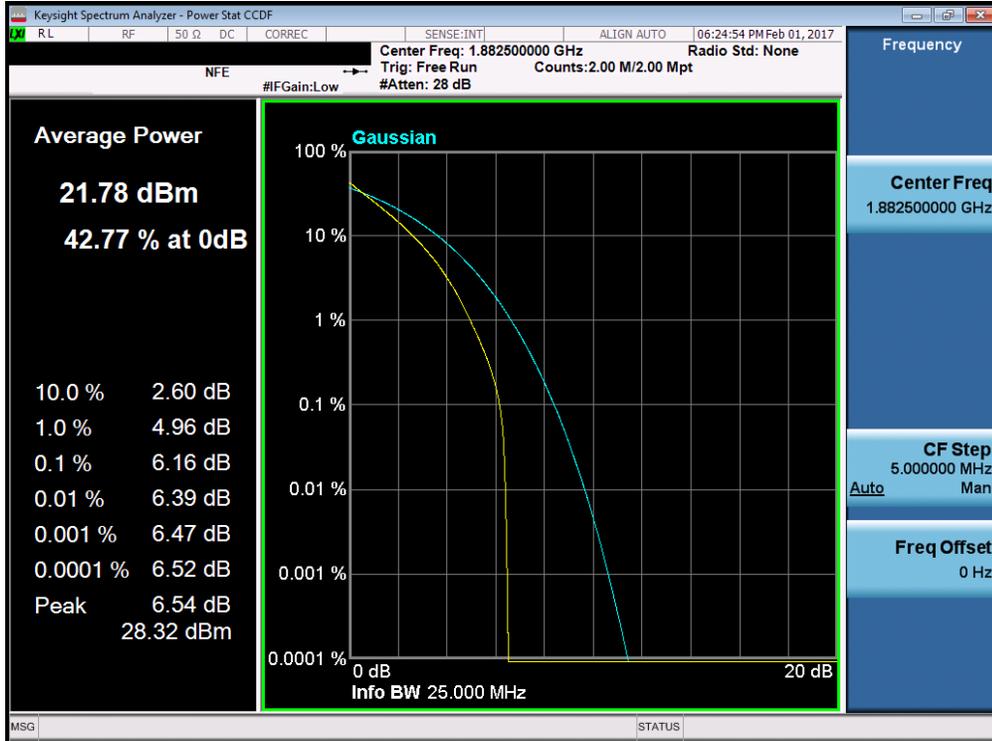


Plot 7-225. PAR Plot (Band 2/25 – 10.0MHz 16-QAM – RB Size 50)

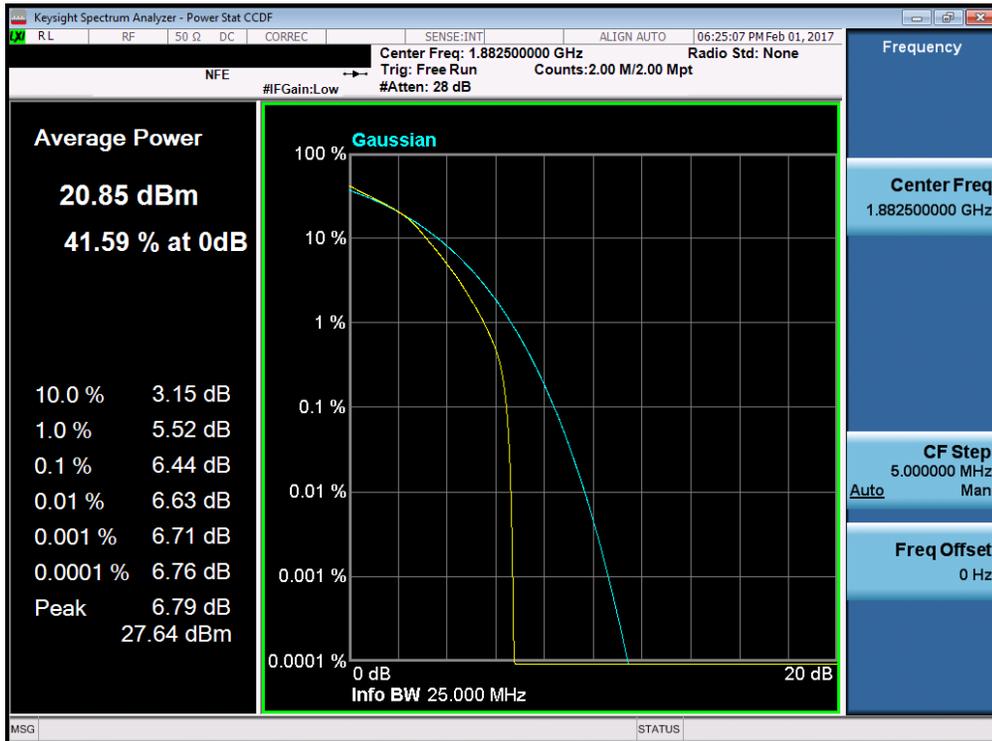


Plot 7-226. PAR Plot (Band 2/25 – 10.0MHz 64-QAM – RB Size 50)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 133 of 174

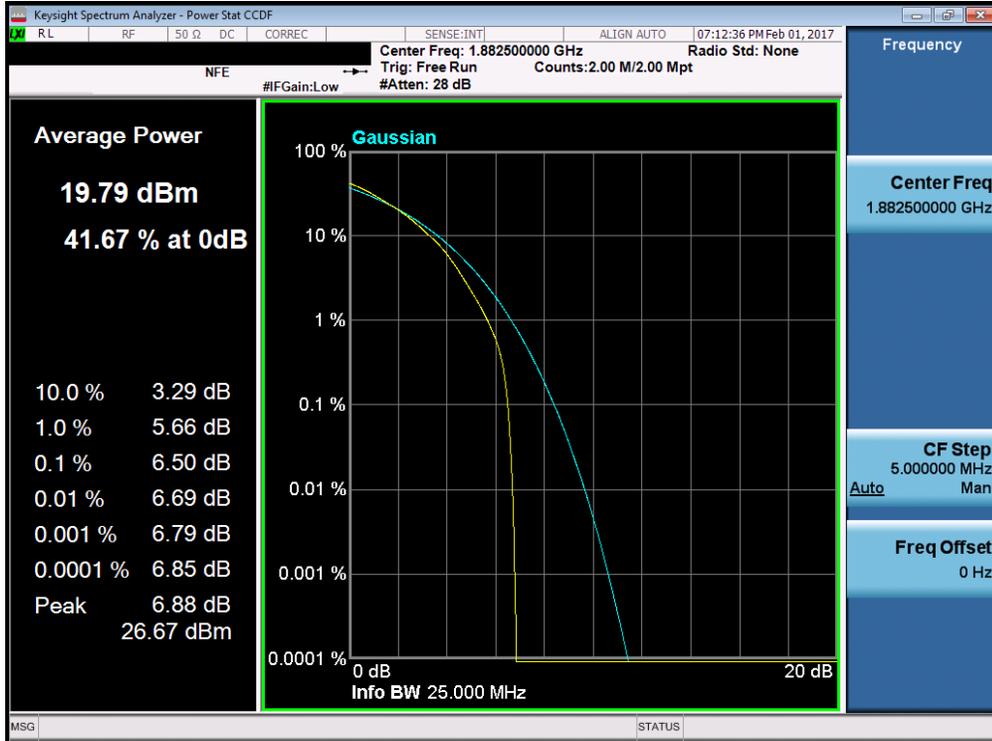


Plot 7-227. PAR Plot (Band 2/25 – 15.0MHz QPSK – RB Size 75)

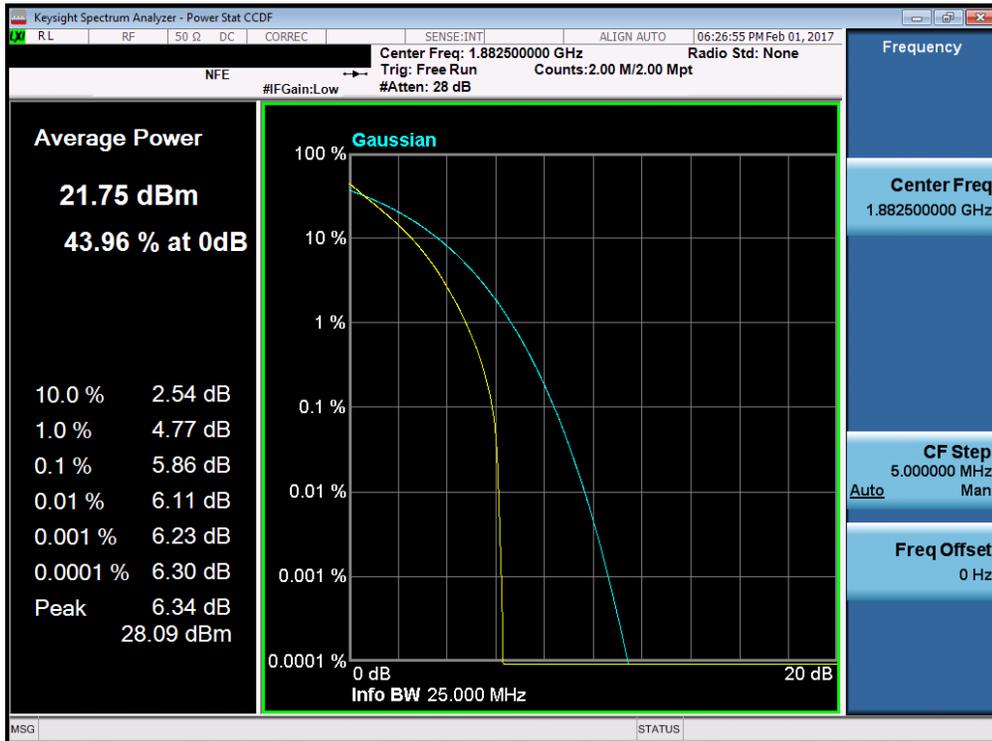


Plot 7-228. PAR Plot (Band 2/25 – 15.0MHz 16-QAM – RB Size 75)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 134 of 174

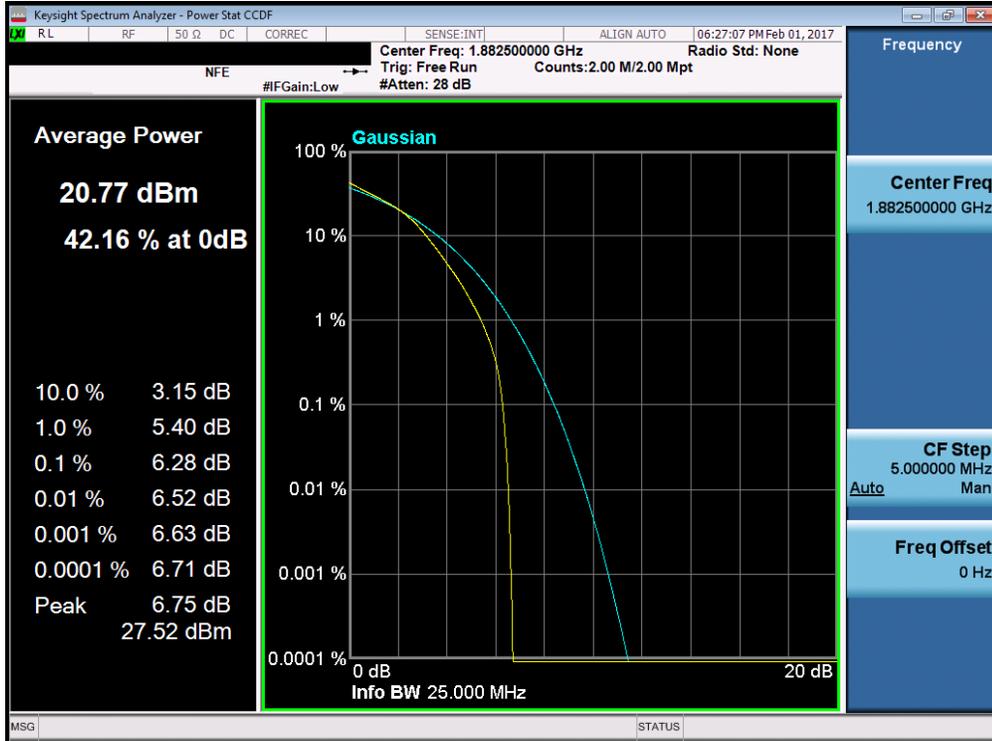


Plot 7-229. PAR Plot (Band 2/25 – 15.0MHz 64-QAM – RB Size 75)

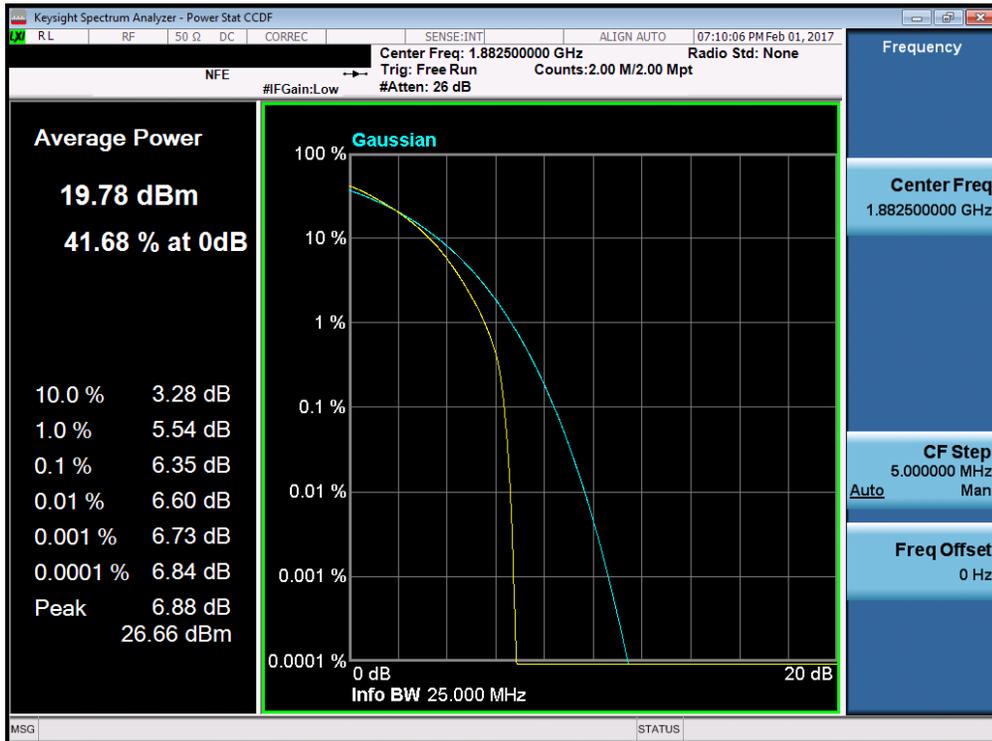


Plot 7-230. PAR Plot (Band 2/25 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 135 of 174



Plot 7-231. PAR Plot (Band 2/25 – 20.0MHz 16-QAM – RB Size 100)



Plot 7-232. PAR Plot (Band 2/25 – 20.0MHz 64-QAM – RB Size 100)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 136 of 174

7.6 Radiated Power (ERP/EIRP)

§22.913(a.2) §24.232(c.2) §27.50(h.2) §27.50(b.10) §27.50(c.10) §27.50(d.4)

Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 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 v02r02 – Section 5.2.1

ANSI/TIA-603-D-2010 – 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. For signals with burst transmission, the signal analyzer's "time domain power" measurement capability is used
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW \geq 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points \geq 2 x span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto". Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the "gating" function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset	Page 137 of 174	

Test Setup

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

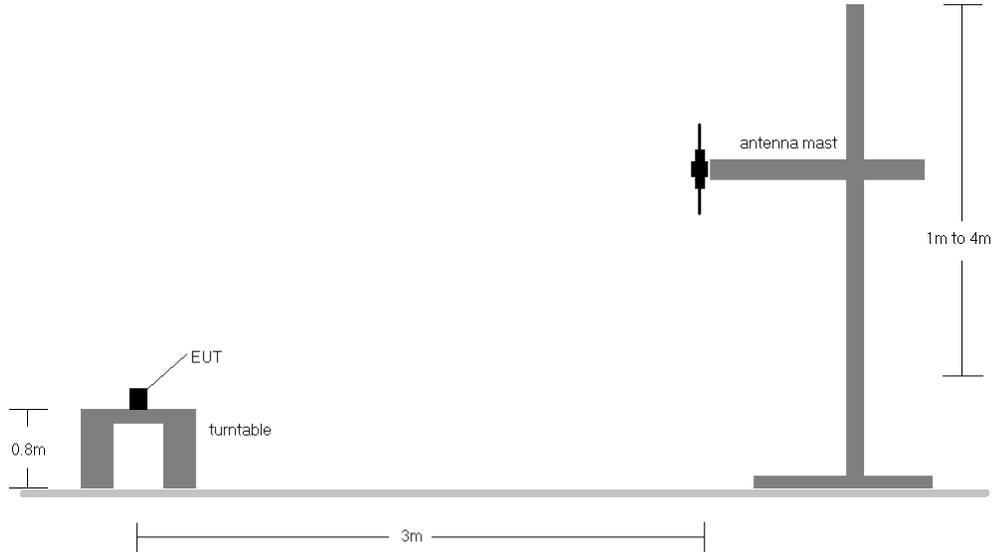


Figure 7-5. Radiated Test Setup <1GHz

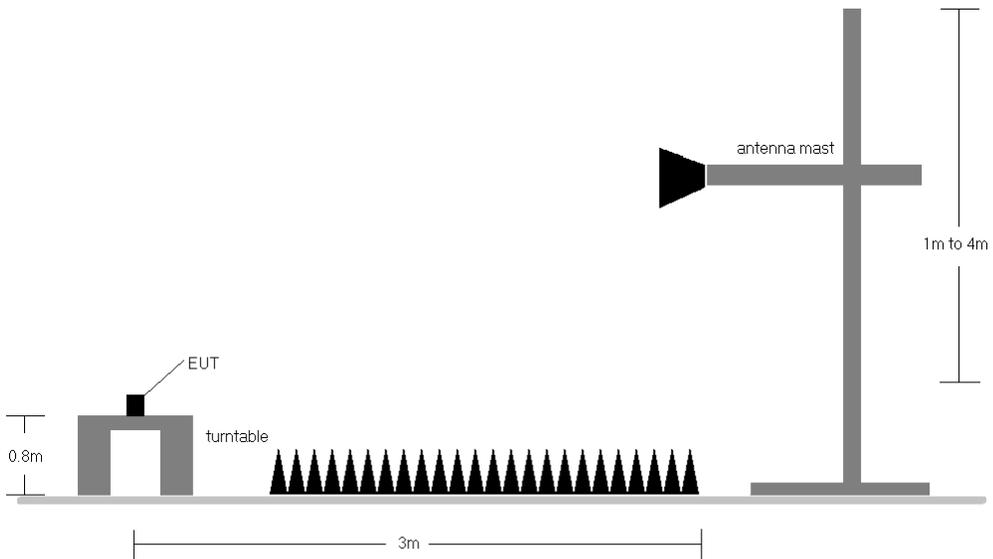


Figure 7-6. Radiated Test Setup >1GHz

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: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	H	150	89	1 / 5	13.75	-1.05	12.70	34.77	-22.07
707.50	1.4	QPSK	H	150	88	1 / 5	15.30	-1.02	14.28	34.77	-20.49
715.30	1.4	QPSK	H	150	84	1 / 5	16.57	-0.99	15.58	34.77	-19.19
699.70	1.4	16-QAM	H	150	89	1 / 5	12.67	-1.05	11.62	34.77	-23.15
707.50	1.4	16-QAM	H	150	88	1 / 5	14.27	-1.02	13.25	34.77	-21.52
715.30	1.4	16-QAM	H	150	84	1 / 5	15.60	-0.99	14.61	34.77	-20.16
699.70	1.4	64-QAM	H	150	89	1 / 5	11.59	-1.05	10.54	34.77	-24.23
707.50	1.4	64-QAM	H	150	88	1 / 5	12.99	-1.02	11.97	34.77	-22.80
715.30	1.4	64-QAM	H	150	84	1 / 5	14.39	-0.99	13.40	34.77	-21.37
700.50	3	QPSK	H	150	81	1 / 14	14.12	-1.05	13.07	34.77	-21.70
707.50	3	QPSK	H	150	91	1 / 14	15.18	-1.02	14.16	34.77	-20.61
714.50	3	QPSK	H	150	89	1 / 14	16.60	-0.99	15.61	34.77	-19.16
700.50	3	16-QAM	H	150	81	1 / 14	13.00	-1.05	11.95	34.77	-22.82
707.50	3	16-QAM	H	150	91	1 / 14	13.98	-1.02	12.96	34.77	-21.81
714.50	3	16-QAM	H	150	89	1 / 14	15.48	-0.99	14.49	34.77	-20.28
700.50	3	64-QAM	H	150	81	1 / 14	11.89	-1.05	10.84	34.77	-23.93
707.50	3	64-QAM	H	150	91	1 / 14	12.84	-1.02	11.82	34.77	-22.95
714.50	3	64-QAM	H	150	89	1 / 14	14.39	-0.99	13.40	34.77	-21.37
714.50	3	QPSK	V	150	360	1 / 74	16.29	-0.99	15.30	34.77	-19.47
714.50	3 (WCP)	QPSK	H	150	86	1 / 74	15.39	-0.99	14.40	34.77	-20.37

Table 7-2. ERP Data (Band 12)

FCC ID: A3LSMG950F	 FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset	Page 139 of 174

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
701.50	5	QPSK	H	150	87	1 / 24	14.37	-1.05	13.32	34.77	-21.45
707.50	5	QPSK	H	150	90	1 / 24	15.20	-1.02	14.18	34.77	-20.59
713.50	5	QPSK	H	150	93	1 / 24	16.26	-0.99	15.27	34.77	-19.50
701.50	5	16-QAM	H	150	87	1 / 24	13.42	-1.05	12.37	34.77	-22.40
707.50	5	16-QAM	H	150	90	1 / 24	14.30	-1.02	13.28	34.77	-21.49
713.50	5	16-QAM	H	150	93	1 / 24	15.20	-0.99	14.21	34.77	-20.56
701.50	5	64-QAM	H	150	87	1 / 24	11.05	-1.05	10.00	34.77	-24.77
707.50	5	64-QAM	H	150	90	1 / 24	11.94	-1.02	10.92	34.77	-23.85
713.50	5	64-QAM	H	150	93	1 / 24	12.87	-0.99	11.88	34.77	-22.89
704.00	10	QPSK	H	150	230	1 / 49	14.98	-1.05	13.93	34.77	-20.84
707.50	10	QPSK	H	150	230	1 / 49	15.66	-1.02	14.64	34.77	-20.13
711.00	10	QPSK	H	150	231	1 / 49	16.46	-0.99	15.47	34.77	-19.30
704.00	10	16-QAM	H	150	230	1 / 49	13.90	-1.05	12.85	34.77	-21.92
707.50	10	16-QAM	H	150	230	1 / 49	14.69	-1.02	13.67	34.77	-21.10
711.00	10	16-QAM	H	150	231	1 / 49	15.30	-0.99	14.31	34.77	-20.46
704.00	10	64-QAM	H	150	230	1 / 49	12.77	-1.05	11.72	34.77	-23.05
707.50	10	64-QAM	H	150	230	1 / 49	13.39	-1.02	12.37	34.77	-22.40
711.00	10	64-QAM	H	150	231	1 / 49	14.19	-0.99	13.20	34.77	-21.57

Table 7-3. ERP Data (Band 12/17)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset	Page 140 of 174	

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
779.50	5	QPSK	H	150	82	1 / 0	20.98	-0.83	20.15	34.77	-14.62
782.00	5	QPSK	H	150	79	1 / 0	20.97	-0.82	20.15	34.77	-14.62
784.50	5	QPSK	H	150	78	1 / 24	20.74	-0.81	19.93	34.77	-14.84
779.50	5	16-QAM	H	150	82	1 / 0	19.84	-0.83	19.01	34.77	-15.76
782.00	5	16-QAM	H	150	79	1 / 0	19.69	-0.82	18.87	34.77	-15.90
784.50	5	16-QAM	H	150	78	1 / 24	19.56	-0.81	18.75	34.77	-16.02
779.50	5	64-QAM	H	150	82	1 / 0	18.79	-0.83	17.96	34.77	-16.81
782.00	5	64-QAM	H	150	79	1 / 0	18.67	-0.82	17.85	34.77	-16.92
784.50	5	64-QAM	H	150	78	1 / 24	18.49	-0.81	17.68	34.77	-17.09
782.00	10	QPSK	H	150	79	1 / 0	21.27	-0.82	20.45	34.77	-14.32
782.00	10	16-QAM	H	150	79	1 / 0	19.50	-0.82	18.68	34.77	-16.09
782.00	10	64-QAM	H	150	79	1 / 0	18.57	-0.82	17.75	34.77	-17.02
782.00	10	QPSK	V	150	326	1 / 74	19.09	-0.82	18.27	34.77	-16.50
782.00	10 (WCP)	QPSK	H	150	79	1 / 0	19.79	-0.82	18.97	34.77	-15.80

Table 7-4. ERP Data (Band 13)

FCC ID: A3LSMG950F	 FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	H	150	69	1 / 5	20.14	-0.65	19.49	38.45	-18.96
836.50	1.4	QPSK	H	150	75	1 / 5	21.34	-0.65	20.69	38.45	-17.76
848.30	1.4	QPSK	H	150	79	1 / 5	21.84	-0.65	21.19	38.45	-17.26
824.70	1.4	16-QAM	H	150	69	1 / 5	18.90	-0.65	18.25	38.45	-20.20
836.50	1.4	16-QAM	H	150	75	1 / 5	20.12	-0.65	19.47	38.45	-18.98
848.30	1.4	16-QAM	H	150	79	1 / 5	20.80	-0.65	20.15	38.45	-18.30
824.70	1.4	64-QAM	H	150	69	1 / 5	17.88	-0.65	17.23	38.45	-21.22
836.50	1.4	64-QAM	H	150	75	1 / 5	18.93	-0.65	18.28	38.45	-20.17
848.30	1.4	64-QAM	H	150	79	1 / 5	19.38	-0.65	18.73	38.45	-19.72
825.50	3	QPSK	H	150	73	1 / 14	20.36	-0.65	19.71	38.45	-18.74
836.50	3	QPSK	H	150	72	1 / 14	21.17	-0.65	20.52	38.45	-17.93
847.50	3	QPSK	H	150	77	1 / 0	22.08	-0.65	21.43	38.45	-17.02
825.50	3	16-QAM	H	150	73	1 / 14	19.18	-0.65	18.53	38.45	-19.92
836.50	3	16-QAM	H	150	72	1 / 14	20.06	-0.65	19.41	38.45	-19.04
847.50	3	16-QAM	H	150	77	1 / 14	20.95	-0.65	20.30	38.45	-18.15
825.50	3	64-QAM	H	150	73	1 / 14	18.18	-0.65	17.53	38.45	-20.92
836.50	3	64-QAM	H	150	72	1 / 14	19.03	-0.65	18.38	38.45	-20.07
847.50	3	64-QAM	H	150	77	1 / 14	17.18	-0.65	16.53	38.45	-21.92
826.50	5	QPSK	H	150	72	1 / 24	20.60	-0.65	19.95	38.45	-18.50
836.50	5	QPSK	H	150	75	1 / 24	21.31	-0.65	20.66	38.45	-17.79
846.50	5	QPSK	H	150	58	1 / 24	21.99	-0.65	21.34	38.45	-17.11
826.50	5	16-QAM	H	150	72	1 / 24	19.29	-0.65	18.64	38.45	-19.81
836.50	5	16-QAM	H	150	75	1 / 24	20.18	-0.65	19.53	38.45	-18.92
846.50	5	16-QAM	H	150	58	1 / 0	20.65	-0.65	20.00	38.45	-18.45
826.50	5	64-QAM	H	150	72	1 / 24	18.08	-0.65	17.43	38.45	-21.02
836.50	5	64-QAM	H	150	75	1 / 24	19.78	-0.65	19.13	38.45	-19.32
846.50	5	64-QAM	H	150	58	1 / 24	17.96	-0.65	17.31	38.45	-21.14
829.00	10	QPSK	H	150	68	1 / 49	21.02	-0.65	20.37	38.45	-18.08
836.50	10	QPSK	H	150	79	1 / 49	21.50	-0.65	20.85	38.45	-17.60
844.00	10	QPSK	H	150	73	1 / 49	22.07	-0.65	21.42	38.45	-17.03
829.00	10	16-QAM	H	150	68	1 / 49	19.72	-0.65	19.07	38.45	-19.38
836.50	10	16-QAM	H	150	79	1 / 49	20.36	-0.65	19.71	38.45	-18.74
844.00	10	16-QAM	H	150	73	1 / 49	21.02	-0.65	20.37	38.45	-18.08
829.00	10	64-QAM	H	150	68	1 / 49	17.68	-0.65	17.03	38.45	-21.42
836.50	10	64-QAM	H	150	79	1 / 49	18.08	-0.65	17.43	38.45	-21.02
844.00	10	64-QAM	H	150	73	1 / 49	15.53	-0.65	14.88	38.45	-23.57
847.50	3	QPSK	V	150	91	1 / 74	18.10	-0.65	17.45	38.45	-21.00
847.50	3 (WCP)	QPSK	H	150	267	1 / 99	18.28	-0.65	17.63	38.45	-20.82

Table 7-5. ERP Data (Band 5/26)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset	Page 142 of 174	

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
831.50	15	QPSK	H	150	110	1 / 74	21.28	-0.65	20.63	38.45	-17.82
836.50	15	QPSK	H	150	112	1 / 74	21.18	-0.65	20.53	38.45	-17.92
841.50	15	QPSK	H	150	115	1 / 74	20.83	-0.65	20.18	38.45	-18.27
831.50	15	16-QAM	H	150	110	1 / 74	20.43	-0.65	19.78	38.45	-18.67
836.50	15	16-QAM	H	150	112	1 / 74	20.29	-0.65	19.64	38.45	-18.81
841.50	15	16-QAM	H	150	115	1 / 74	19.53	-0.65	18.88	38.45	-19.57
831.50	15	64-QAM	H	150	110	1 / 74	17.60	-0.65	16.95	38.45	-21.50
836.50	15	64-QAM	H	150	112	1 / 74	17.33	-0.65	16.68	38.45	-21.77
841.50	15	64-QAM	H	150	115	1 / 74	17.18	-0.65	16.53	38.45	-21.92

Table 7-6. ERP Data (Band 26)

FCC ID: A3LSMG950F	 FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset		Page 143 of 174

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 Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	H	150	360	1 / 0	7.20	5.56	12.76	30.00	-17.24
1745.00	1.4	QPSK	H	150	3	1 / 0	8.50	5.32	13.82	30.00	-16.18
1779.30	1.4	QPSK	H	150	360	3 / 2	15.25	5.09	20.34	30.00	-9.66
1710.70	1.4	16-QAM	H	150	360	1 / 0	6.20	5.56	11.76	30.00	-18.24
1745.00	1.4	16-QAM	H	150	3	1 / 5	7.47	5.32	12.79	30.00	-17.21
1779.30	1.4	16-QAM	H	150	360	1 / 5	14.15	5.09	19.24	30.00	-10.78
1710.70	1.4	64-QAM	H	150	360	1 / 0	4.80	5.56	10.36	30.00	-19.64
1745.00	1.4	64-QAM	H	150	3	1 / 0	6.25	5.32	11.57	30.00	-18.43
1779.30	1.4	64-QAM	H	150	360	3 / 2	12.75	5.09	17.84	30.00	-12.16
1711.50	3	QPSK	H	150	335	1 / 14	14.75	5.55	20.30	30.00	-9.70
1745.00	3	QPSK	H	150	360	1 / 14	15.75	5.32	21.07	30.00	-8.93
1778.50	3	QPSK	H	150	306	1 / 14	8.88	5.10	13.98	30.00	-16.02
1711.50	3	16-QAM	H	150	335	1 / 14	13.45	5.55	19.00	30.00	-11.00
1745.00	3	16-QAM	H	150	360	1 / 14	14.57	5.32	19.89	30.00	-10.11
1778.50	3	16-QAM	H	150	306	1 / 14	7.83	5.10	12.93	30.00	-17.07
1711.50	3	64-QAM	H	150	335	1 / 14	12.24	5.55	17.79	30.00	-12.21
1745.00	3	64-QAM	H	150	360	1 / 14	13.20	5.32	18.52	30.00	-11.48
1778.50	3	64-QAM	H	150	306	1 / 14	7.05	5.10	12.15	30.00	-17.85
1712.50	5	QPSK	H	150	360	1 / 24	15.15	5.55	20.70	30.00	-9.30
1745.00	5	QPSK	H	150	360	1 / 24	15.65	5.32	20.97	30.00	-9.03
1777.50	5	QPSK	H	150	322	1 / 24	9.05	5.10	14.15	30.00	-15.85
1712.50	5	16-QAM	H	150	360	1 / 24	14.08	5.55	19.63	30.00	-10.37
1745.00	5	16-QAM	H	150	360	1 / 24	14.50	5.32	19.82	30.00	-10.18
1777.50	5	16-QAM	H	150	322	1 / 24	7.75	5.10	12.85	30.00	-17.15
1712.50	5	64-QAM	H	150	360	1 / 24	12.85	5.55	18.40	30.00	-11.60
1745.00	5	64-QAM	H	150	360	1 / 24	13.25	5.32	18.57	30.00	-11.43
1777.50	5	64-QAM	H	150	322	1 / 0	7.05	5.10	12.15	30.00	-17.85
1715.00	10	QPSK	H	150	360	1 / 0	15.38	5.53	20.91	30.00	-9.09
1745.00	10	QPSK	H	150	189	1 / 0	15.69	5.32	21.01	30.00	-8.99
1775.00	10	QPSK	H	150	320	1 / 0	15.50	5.12	20.62	30.00	-9.38
1715.00	10	16-QAM	H	150	360	1 / 0	14.65	5.53	20.18	30.00	-9.82
1745.00	10	16-QAM	H	150	189	1 / 0	14.61	5.32	19.93	30.00	-10.07
1775.00	10	16-QAM	H	150	320	1 / 0	14.34	5.12	19.46	30.00	-10.54
1715.00	10	64-QAM	H	150	360	1 / 0	13.20	5.53	18.73	30.00	-11.27
1745.00	10	64-QAM	H	150	189	1 / 0	12.25	5.32	17.57	30.00	-12.43
1775.00	10	64-QAM	H	150	320	1 / 0	12.18	5.12	17.30	30.00	-12.70
1717.50	15	QPSK	H	150	360	1 / 0	15.24	5.51	20.75	30.00	-9.25
1745.00	15	QPSK	H	150	360	1 / 0	15.62	5.32	20.94	30.00	-9.06
1772.50	15	QPSK	H	150	321	1 / 0	15.65	5.14	20.79	30.00	-9.21
1717.50	15	16-QAM	H	150	360	1 / 0	14.08	5.51	19.59	30.00	-10.41
1745.00	15	16-QAM	H	150	360	1 / 0	14.45	5.32	19.77	30.00	-10.23
1772.50	15	16-QAM	H	150	321	1 / 0	14.38	5.14	19.52	30.00	-10.48
1717.50	15	64-QAM	H	150	360	1 / 0	11.75	5.51	17.26	30.00	-12.74
1745.00	15	64-QAM	H	150	360	1 / 0	13.24	5.32	18.56	30.00	-11.44
1772.50	15	64-QAM	H	150	321	1 / 0	11.70	5.14	16.84	30.00	-13.16
1720.00	20	QPSK	H	150	322	1 / 0	15.59	5.49	21.08	30.00	-8.92
1745.00	20	QPSK	H	150	327	1 / 0	15.69	5.32	21.01	30.00	-8.99
1770.00	20	QPSK	H	150	369	1 / 0	15.47	5.15	20.62	30.00	-9.38
1720.00	20	16-QAM	H	150	322	1 / 0	14.47	5.49	19.96	30.00	-10.04
1745.00	20	16-QAM	H	150	327	1 / 0	14.65	5.32	19.97	30.00	-10.03
1770.00	20	16-QAM	H	150	369	1 / 0	14.35	5.15	19.50	30.00	-10.50
1720.00	20	64-QAM	H	150	322	1 / 0	13.25	5.49	18.74	30.00	-11.26
1745.00	20	64-QAM	H	150	327	1 / 0	13.30	5.32	18.62	30.00	-11.38
1770.00	20	64-QAM	H	150	369	1 / 0	13.00	5.15	18.15	30.00	-11.85
1720.00	20	QPSK	V	150	0	1 / 0	14.59	5.49	20.08	30.00	-9.92
1720.00	20 (WCP)	QPSK	H	150	327	1 / 99	15.49	5.49	20.98	30.00	-9.02

Table 7-7. EIRP Data (Band 4/66)

FCC ID: A3LSMG950F	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset	Page 144 of 174	

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 Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	H	150	13	1 / 0	16.47	4.82	21.29	33.01	-11.72
1882.50	1.4	QPSK	H	150	44	1 / 5	15.96	4.73	20.69	33.01	-12.32
1914.30	1.4	QPSK	H	150	6	1 / 0	16.48	4.68	21.16	33.01	-11.85
1850.70	1.4	16-QAM	H	150	13	1 / 0	15.31	4.82	20.13	33.01	-12.88
1882.50	1.4	16-QAM	H	150	44	1 / 0	14.90	4.73	19.63	33.01	-13.38
1914.30	1.4	16-QAM	H	150	6	1 / 0	15.30	4.68	19.98	33.01	-13.03
1850.70	1.4	64-QAM	H	150	13	1 / 0	14.06	4.82	18.88	33.01	-14.13
1882.50	1.4	64-QAM	H	150	44	1 / 0	13.76	4.73	18.49	33.01	-14.52
1914.30	1.4	64-QAM	H	150	6	1 / 0	14.16	4.68	18.84	33.01	-14.17
1851.50	3	QPSK	H	150	18	1 / 14	16.12	4.82	20.94	33.01	-12.07
1882.50	3	QPSK	H	150	43	1 / 0	16.09	4.73	20.82	33.01	-12.19
1913.50	3	QPSK	H	150	13	1 / 14	16.26	4.68	20.94	33.01	-12.07
1851.50	3	16-QAM	H	150	18	1 / 0	15.10	4.82	19.92	33.01	-13.09
1882.50	3	16-QAM	H	150	43	1 / 0	15.08	4.73	19.81	33.01	-13.20
1913.50	3	16-QAM	H	150	13	1 / 14	15.05	4.68	19.73	33.01	-13.28
1851.50	3	64-QAM	H	150	18	1 / 0	13.96	4.82	18.78	33.01	-14.23
1882.50	3	64-QAM	H	150	43	1 / 0	13.66	4.73	18.39	33.01	-14.62
1913.50	3	64-QAM	H	150	13	1 / 14	13.76	4.68	18.44	33.01	-14.57
1852.50	5	QPSK	H	150	7	1 / 0	16.30	4.81	21.11	33.01	-11.90
1882.50	5	QPSK	H	150	42	1 / 0	16.08	4.73	20.81	33.01	-12.20
1912.50	5	QPSK	H	150	8	1 / 0	16.42	4.68	21.10	33.01	-11.91
1852.50	5	16-QAM	H	150	7	1 / 0	15.24	4.81	20.05	33.01	-12.96
1882.50	5	16-QAM	H	150	42	1 / 0	14.98	4.73	19.71	33.01	-13.30
1912.50	5	16-QAM	H	150	8	1 / 24	15.23	4.68	19.91	33.01	-13.10
1852.50	5	64-QAM	H	150	7	1 / 0	13.86	4.81	18.67	33.01	-14.34
1882.50	5	64-QAM	H	150	42	1 / 0	13.96	4.73	18.69	33.01	-14.32
1912.50	5	64-QAM	H	150	8	1 / 24	13.16	4.68	17.84	33.01	-15.17
1855.00	10	QPSK	H	150	5	1 / 49	16.53	4.81	21.34	33.01	-11.67
1882.50	10	QPSK	H	150	44	1 / 0	15.87	4.73	20.60	33.01	-12.41
1910.00	10	QPSK	H	150	8	1 / 0	16.48	4.68	21.16	33.01	-11.85
1855.00	10	16-QAM	H	150	5	1 / 49	15.48	4.81	20.29	33.01	-12.72
1882.50	10	16-QAM	H	150	44	1 / 49	14.76	4.73	19.49	33.01	-13.52
1910.00	10	16-QAM	H	150	8	1 / 0	15.26	4.68	19.94	33.01	-13.07
1855.00	10	64-QAM	H	150	5	1 / 49	14.06	4.81	18.87	33.01	-14.14
1882.50	10	64-QAM	H	150	44	1 / 49	13.56	4.73	18.29	33.01	-14.72
1910.00	10	64-QAM	H	150	8	1 / 0	12.96	4.68	17.64	33.01	-15.37
1857.50	15	QPSK	H	150	8	1 / 0	16.37	4.80	21.17	33.01	-11.84
1882.50	15	QPSK	H	150	45	1 / 0	15.88	4.73	20.61	33.01	-12.40
1907.50	15	QPSK	H	150	15	1 / 0	16.24	4.68	20.92	33.01	-12.09
1857.50	15	16-QAM	H	150	8	1 / 0	15.19	4.80	19.99	33.01	-13.02
1882.50	15	16-QAM	H	150	45	1 / 74	14.26	4.73	18.99	33.01	-14.02
1907.50	15	16-QAM	H	150	15	1 / 0	15.30	4.68	19.98	33.01	-13.03
1857.50	15	64-QAM	H	150	8	1 / 0	14.06	4.80	18.86	33.01	-14.15
1882.50	15	64-QAM	H	150	45	1 / 0	13.46	4.73	18.19	33.01	-14.82
1907.50	15	64-QAM	H	150	15	1 / 74	13.86	4.68	18.54	33.01	-14.47
1860.00	20	QPSK	H	150	7	1 / 0	16.67	4.79	21.46	33.01	-11.55
1882.50	20	QPSK	H	150	47	1 / 0	15.71	4.73	20.44	33.01	-12.57
1905.00	20	QPSK	H	150	8	1 / 99	16.47	4.68	21.15	33.01	-11.86
1860.00	20	16-QAM	H	150	7	1 / 0	15.43	4.79	20.22	33.01	-12.79
1882.50	20	16-QAM	H	150	47	1 / 99	14.83	4.73	19.56	33.01	-13.45
1905.00	20	16-QAM	H	150	8	1 / 99	15.27	4.68	19.95	33.01	-13.06
1860.00	20	64-QAM	H	150	7	1 / 99	13.86	4.79	18.65	33.01	-14.36
1882.50	20	64-QAM	H	150	47	1 / 99	13.06	4.73	17.79	33.01	-15.22
1905.00	20	64-QAM	H	150	8	1 / 99	13.04	4.68	17.72	33.01	-15.29
1860.00	20	QPSK	V	150	273	1 / 0	16.49	4.79	21.28	33.01	-11.73
1860.00	20 (WCP)	QPSK	H	150	347	1 / 0	16.26	4.79	21.05	33.01	-11.96

Table 7-8. EIRP Data (Band 2/25)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1701030006-03.A3L	Test Dates: 12/27/2016 - 2/21/2017	EUT Type: Portable Handset	Page 145 of 174	

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 Limit [dBm]	Margin [dB]
2498.50	5	QPSK	H	150	360	25 / 0	14.69	5.73	20.42	33.01	-12.59
2593.00	5	QPSK	H	150	108	1 / 0	16.22	6.07	22.29	33.01	-10.72
2687.50	5	QPSK	H	150	360	25 / 0	14.51	6.48	20.99	33.01	-12.02
2498.50	5	16-QAM	H	150	360	25 / 0	13.78	5.73	19.51	33.01	-13.50
2593.00	5	16-QAM	H	150	108	1 / 0	15.21	6.07	21.28	33.01	-11.73
2687.50	5	16-QAM	H	150	360	25 / 0	13.81	6.48	20.29	33.01	-12.72
2498.50	5	64-QAM	H	150	360	25 / 0	12.31	5.73	18.04	33.01	-14.97
2593.00	5	64-QAM	H	150	108	1 / 0	13.81	6.07	19.88	33.01	-13.13
2687.50	5	64-QAM	H	150	360	25 / 0	12.21	6.48	18.69	33.01	-14.32
2501.00	10	QPSK	H	150	217	1 / 49	16.88	5.73	22.61	33.01	-10.40
2593.00	10	QPSK	H	150	227	1 / 0	15.60	6.07	21.67	33.01	-11.34
2685.00	10	QPSK	H	150	60	1 / 0	15.39	6.47	21.86	33.01	-11.15
2501.00	10	16-QAM	H	150	217	1 / 49	15.94	5.73	21.67	33.01	-11.34
2593.00	10	16-QAM	H	150	227	1 / 0	15.00	6.07	21.07	33.01	-11.94
2685.00	10	16-QAM	H	150	60	1 / 0	14.26	6.47	20.73	33.01	-12.28
2501.00	10	64-QAM	H	150	217	1 / 49	14.51	5.73	20.24	33.01	-12.77
2593.00	10	64-QAM	H	150	227	1 / 0	13.33	6.07	19.40	33.01	-13.61
2685.00	10	64-QAM	H	150	60	1 / 0	12.81	6.47	19.28	33.01	-13.73
2503.50	15	QPSK	H	150	222	1 / 0	13.44	5.74	19.18	33.01	-13.83
2593.00	15	QPSK	H	150	224	1 / 0	16.08	6.07	22.15	33.01	-10.86
2682.50	15	QPSK	H	150	191	1 / 0	16.06	6.46	22.52	33.01	-10.49
2503.50	15	16-QAM	H	150	222	1 / 0	12.51	5.74	18.25	33.01	-14.76
2593.00	15	16-QAM	H	150	224	1 / 0	14.77	6.07	20.84	33.01	-12.17
2682.50	15	16-QAM	H	150	191	1 / 0	15.00	6.46	21.46	33.01	-11.55
2503.50	15	64-QAM	H	150	222	1 / 0	11.31	5.74	17.05	33.01	-15.96
2593.00	15	64-QAM	H	150	224	1 / 0	13.81	6.07	19.88	33.01	-13.13
2682.50	15	64-QAM	H	150	191	1 / 0	10.31	6.46	16.77	33.01	-16.24
2506.00	20	QPSK	H	150	227	1 / 0	16.81	5.75	22.56	33.01	-10.45
2593.00	20	QPSK	H	150	228	1 / 0	15.83	6.07	21.90	33.01	-11.11
2680.00	20	QPSK	H	150	25	1 / 0	14.21	6.45	20.66	33.01	-12.35
2506.00	20	16-QAM	H	150	227	1 / 0	15.84	5.75	21.59	33.01	-11.42
2593.00	20	16-QAM	H	150	228	1 / 0	14.93	6.07	21.00	33.01	-12.01
2680.00	20	16-QAM	H	150	25	1 / 0	13.31	6.45	19.76	33.01	-13.25
2506.00	20	64-QAM	H	150	227	1 / 0	14.76	5.75	20.51	33.01	-12.50
2593.00	20	64-QAM	H	150	228	1 / 0	13.31	6.07	19.38	33.01	-13.63
2680.00	20	64-QAM	H	150	25	1 / 0	11.81	6.45	18.26	33.01	-14.75
2501.00	10	QPSK	V	150	112	1 / 99	14.18	5.73	19.91	33.01	-13.10
2501.00	10 (WCP)	QPSK	H	150	105	1 / 99	14.91	5.73	20.64	33.01	-12.37

Table 7-9. EIRP Data (Band 41)

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7.7 Radiated Spurious Emissions Measurements

§2.1053 §22.917(a) §24.238(a) §27.53(c) §27.53(f) §27.53(g) §27.53(h) §27.53(m)

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 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 peak 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 v02r02 – Section 5.8

ANSI/TIA-603-D-2010 – Section 2.2.12

Test Settings

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

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

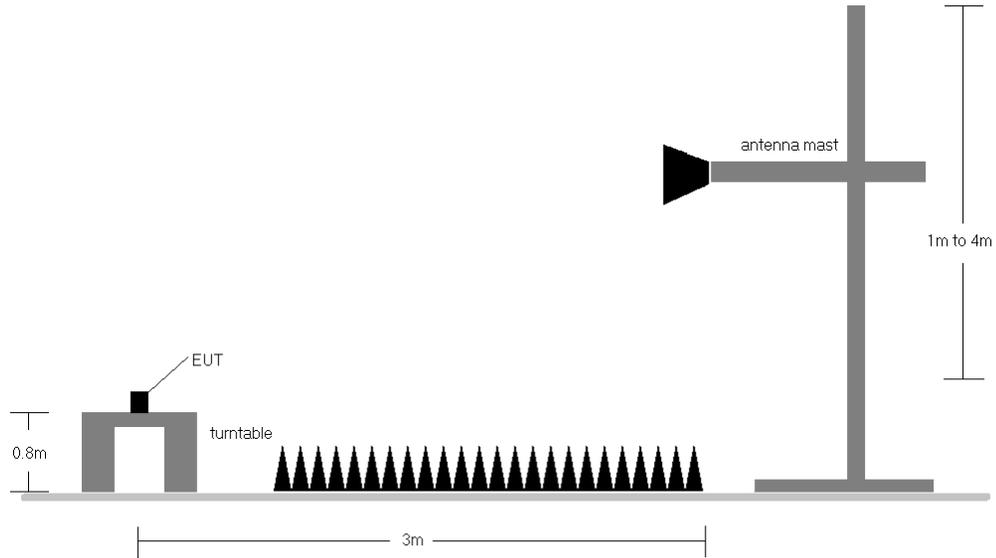


Figure 7-7. Test Instrument & Measurement Setup

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.

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OPERATING FREQUENCY: 700.50 MHz
 CHANNEL: 23025
 MEASURED OUTPUT POWER: 13.07 dBm = 0.020 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 26.07 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1401.00	H	-	-	-74.62	5.91	-68.70	81.8
2101.50	H	127	31	-68.47	6.79	-61.68	74.7
2802.00	H	-	-	-72.09	8.12	-63.97	77.0

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

OPERATING FREQUENCY: 707.50 MHz
 CHANNEL: 23095
 MEASURED OUTPUT POWER: 14.16 dBm = 0.026 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 27.16 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1415.00	H	-	-	-70.81	5.96	-64.85	79.0
2122.50	H	-	-	-72.03	6.84	-65.18	79.3
2830.00	H	100	40	-69.90	8.13	-61.77	75.9
3537.50	H	-	-	-68.30	7.79	-60.51	74.7

Table 7-11. Radiated Spurious Data (Band 12 – Mid Channel)

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OPERATING FREQUENCY: 714.50 MHz
 CHANNEL: 23165
 MEASURED OUTPUT POWER: 15.61 dBm = 0.036 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 28.61 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1429.00	H	-	-	-75.03	6.02	-69.02	84.6
2143.50	H	-	-	-72.57	6.90	-65.68	81.3

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

OPERATING FREQUENCY: 714.50 MHz
 CHANNEL: 23165
 MEASURED OUTPUT POWER: 14.40 dBm = 0.028 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 27.40 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1429.00	H	-	-	-76.57	6.02	-70.56	85.0
2143.50	H	-	-	-72.35	6.90	-65.46	79.9

Table 7-13. Radiated Spurious Data with WCP (Band 12 – High Channel)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 782.00 MHz
 CHANNEL: 23230
 MEASURED OUTPUT POWER: 20.45 dBm = 0.111 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 33.45 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
2346.00	H	219	380	-69.79	7.00	-62.79	83.2
3128.00	H	-	-	-68.87	7.21	-61.65	82.1

Table 7-14. Radiated Spurious Data (Band 13 – Mid Channel)

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 [dBd]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	H	129	227	-74.79	6.41	-68.38	-28.4

Table 7-15. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 782.00 MHz
 CHANNEL: 23230
 MEASURED OUTPUT POWER: 18.97 dBm = 0.079 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 31.97 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
2346.00	H	-	-	-70.03	7.00	-63.03	82.0
3128.00	H	-	-	-68.88	7.21	-61.66	80.6

Table 7-16. Radiated Spurious Data with WCP (Band 13 – Mid Channel)

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 [dBd]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	H	-	-	-73.88	6.41	-67.47	-27.5

Table 7-17. Radiated Spurious Data with WCP (Band 13 – 1559-1610MHz Band)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 825.50 MHz
 CHANNEL: 26805
 MEASURED OUTPUT POWER: 19.71 dBm = 0.094 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 32.71 dBc

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]	[dBc]
1651.00	H	-	-	-74.56	6.26	-68.29	88.0
2476.50	H	-	-	-73.36	6.84	-66.52	86.2

Table 7-18. Radiated Spurious Data (Band 5/26 – Low Channel)

OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 26915
 MEASURED OUTPUT POWER: 20.52 dBm = 0.113 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 33.52 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1673.00	H	-	-	-74.17	6.21	-67.96	88.5
2509.50	H	-	-	-72.99	6.86	-66.13	86.6

Table 7-19. Radiated Spurious Data (Band 5/26 – Mid Channel)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 847.50 MHz
 CHANNEL: 27025
 MEASURED OUTPUT POWER: 21.43 dBm = 0.139 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 34.43 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1695.00	H	-	-	-72.46	6.15	-66.31	87.7
2542.50	H	-	-	-72.99	6.93	-66.07	87.5

Table 7-20. Radiated Spurious Data (Band 5/26 – High Channel)

OPERATING FREQUENCY: 847.50 MHz
 CHANNEL: 27025
 MEASURED OUTPUT POWER: 17.63 dBm = 0.058 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 30.63 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1695.00	H	-	-	-71.33	6.15	-65.18	82.8
2542.50	H	-	-	-71.42	6.93	-64.50	82.1

Table 7-21. Radiated Spurious Data with WCP (Band 5/26 – High Channel)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 1720.00 MHz
 CHANNEL: 132072
 MEASURED OUTPUT POWER: 21.08 dBm = 0.128 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 34.08 dBc

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]	[dBc]
3440.00	H	120	201	-62.30	9.70	-52.61	73.7
5160.00	H	-	-	-64.33	10.87	-53.46	74.5

Table 7-22. Radiated Spurious Data (Band 4/66 – Low Channel)

OPERATING FREQUENCY: 1745.00 MHz
 CHANNEL: 132322
 MEASURED OUTPUT POWER: 21.01 dBm = 0.126 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 34.01 dBc

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]	[dBc]
3490.00	H	101	293	-60.09	9.85	-50.24	71.2
5235.00	H	-	-	-64.43	10.88	-53.55	74.6

Table 7-23. Radiated Spurious Data (Band 4/66 – Mid Channel)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 1770.00 MHz
 CHANNEL: 132572
 MEASURED OUTPUT POWER: 20.62 dBm = 0.115 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 33.62 dBc

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]	[dBc]
3540.00	H	101	142	-57.20	9.95	-47.25	67.9
5310.00	H	-	-	-64.80	11.02	-53.78	74.4

Table 7-24. Radiated Spurious Data (Band 4/66 – High Channel)

OPERATING FREQUENCY: 1720.00 MHz
 CHANNEL: 132072
 MEASURED OUTPUT POWER: 20.98 dBm = 0.125 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 33.98 dBc

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]	[dBc]
3440.00	H	101	292	-62.63	9.70	-52.94	73.9
5160.00	H	-	-	-64.39	10.87	-53.52	74.5

Table 7-25. Radiated Spurious Data with WCP (Band 4/66 - Low Channel)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 1860.00 MHz
 CHANNEL: 26140
 MEASURED OUTPUT POWER: 21.46 dBm = 0.140 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 34.46 dBc

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]	[dBc]
3720.00	H	100	277	-58.75	9.95	-48.80	70.3
5580.00	H	-	-	-64.83	11.25	-53.58	75.0

Table 7-26. Radiated Spurious Data (Band 2/25 – Low Channel)

OPERATING FREQUENCY: 1882.50 MHz
 CHANNEL: 26365
 MEASURED OUTPUT POWER: 20.44 dBm = 0.111 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 33.44 dBc

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]	[dBc]
3765.00	H	101	288	-58.30	9.76	-48.53	69.0
5647.50	H	-	-	-64.76	11.36	-53.40	73.8

Table 7-27. Radiated Spurious Data (Band 2/25 – Mid Channel)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 1905.00 MHz
 CHANNEL: 26590
 MEASURED OUTPUT POWER: 21.15 dBm = 0.130 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 34.15 dBc

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]	[dBc]
3810.00	H	306	216	-57.79	9.59	-48.21	69.4
5715.00	H	-	-	-64.72	11.43	-53.29	74.4

Table 7-28. Radiated Spurious Data (Band 2/25 – High Channel)

OPERATING FREQUENCY: 1860.00 MHz
 CHANNEL: 26140
 MEASURED OUTPUT POWER: 21.05 dBm = 0.127 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 34.05 dBc

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]	[dBc]
3720.00	H	142	240	-58.47	9.95	-48.52	69.6
5580.00	H	-	-	-62.89	11.25	-51.64	72.7

Table 7-29. Radiated Spurious Data with WCP (Band 2/25 – Low Channel)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 2501.00 MHz
 CHANNEL: 39700
 MEASURED OUTPUT POWER: 22.61 dBm = 0.183 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 47.61 dBc

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]	[dBc]
5002.00	H	-	-	-60.98	11.18	-49.79	72.4
7503.00	H	-	-	-53.55	11.16	-42.39	65.0

Table 7-30. Radiated Spurious Data (Band 41 – Low Channel)

OPERATING FREQUENCY: 2593.00 MHz
 CHANNEL: 40620
 MEASURED OUTPUT POWER: 21.67 dBm = 0.147 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 46.67 dBc

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]	[dBc]
5186.00	H	-	-	-60.52	10.83	-49.69	71.4
7779.00	H	-	-	-52.36	11.60	-40.76	62.4

Table 7-31. Radiated Spurious Data (Band 41 – Mid Channel)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 2685.00 MHz
 CHANNEL: 41540
 MEASURED OUTPUT POWER: 21.86 dBm = 0.154 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 46.86 dBc

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]	[dBc]
5370.00	H	-	-	-59.51	11.09	-48.42	70.3
8055.00	H	-	-	-51.08	11.55	-39.53	61.4

Table 7-32. Radiated Spurious Data (Band 41 – High Channel)

OPERATING FREQUENCY: 2501.00 MHz
 CHANNEL: 39700
 MEASURED OUTPUT POWER: 20.64 dBm = 0.116 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 45.64 dBc

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]	[dBc]
5002.00	H	-	-	-62.60	11.18	-51.41	72.1
7503.00	H	-	-	-53.72	11.16	-42.56	63.2

Table 7-33. Radiated Spurious Data with WCP (Band 41 – Low Channel)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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7.8 Frequency Stability / Temperature Variation

\$2.1055 \$22.355 \$24.235 \$27.54

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-D-2010. 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 $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency. For Part 24 and 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-D-2010

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

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Band 12/17 Frequency Stability Measurements
§2.1055 §27.54

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	+ 20 (Ref)	707,499,973	-27	-0.0000039
100 %		- 30	707,499,972	-28	-0.0000040
100 %		- 20	707,499,902	-98	-0.0000139
100 %		- 10	707,499,879	-121	-0.0000171
100 %		0	707,499,873	-127	-0.0000180
100 %		+ 10	707,499,952	-48	-0.0000068
100 %		+ 20	707,499,944	-56	-0.0000079
100 %		+ 30	707,499,862	-138	-0.0000195
100 %		+ 40	707,499,848	-152	-0.0000214
100 %		+ 50	707,499,857	-143	-0.0000202
BATT. ENDPOINT	3.45	+ 20	707,499,978	-22	-0.0000031

Table 7-34. Frequency Stability Data (Band 12/17)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 12/17 Frequency Stability Measurements
§2.1055 §27.54

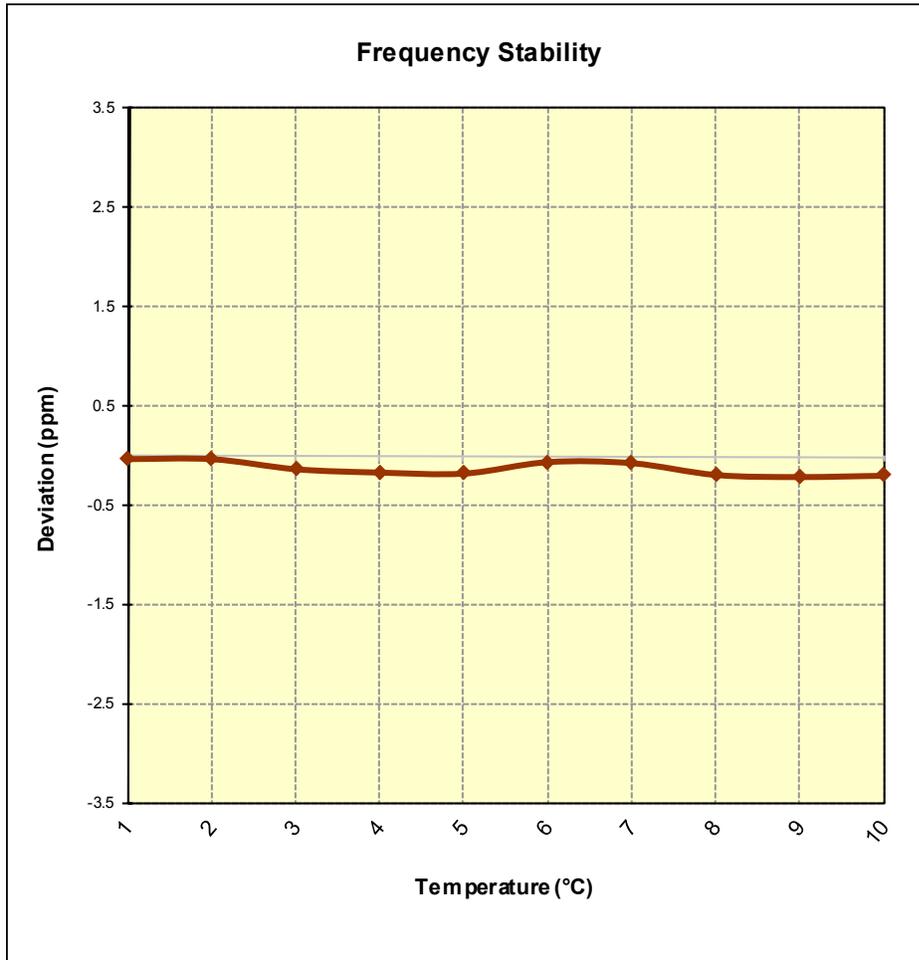


Figure 7-8. Frequency Stability Graph (Band 12/17)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 13 Frequency Stability Measurements
§2.1055 §27.54

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	+ 20 (Ref)	781,999,855	-145	-0.0000185
100 %		- 30	781,999,905	-95	-0.0000122
100 %		- 20	781,999,938	-62	-0.0000079
100 %		- 10	781,999,801	-199	-0.0000254
100 %		0	781,999,884	-116	-0.0000149
100 %		+ 10	781,999,805	-195	-0.0000250
100 %		+ 20	781,999,994	-6	-0.0000008
100 %		+ 30	781,999,847	-153	-0.0000195
100 %		+ 40	781,999,831	-169	-0.0000216
100 %		+ 50	781,999,841	-159	-0.0000203
BATT. ENDPOINT	3.45	+ 20	781,999,875	-125	-0.0000159

Table 7-35. Frequency Stability Data (Band 13)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 13 Frequency Stability Measurements
§2.1055 §27.54

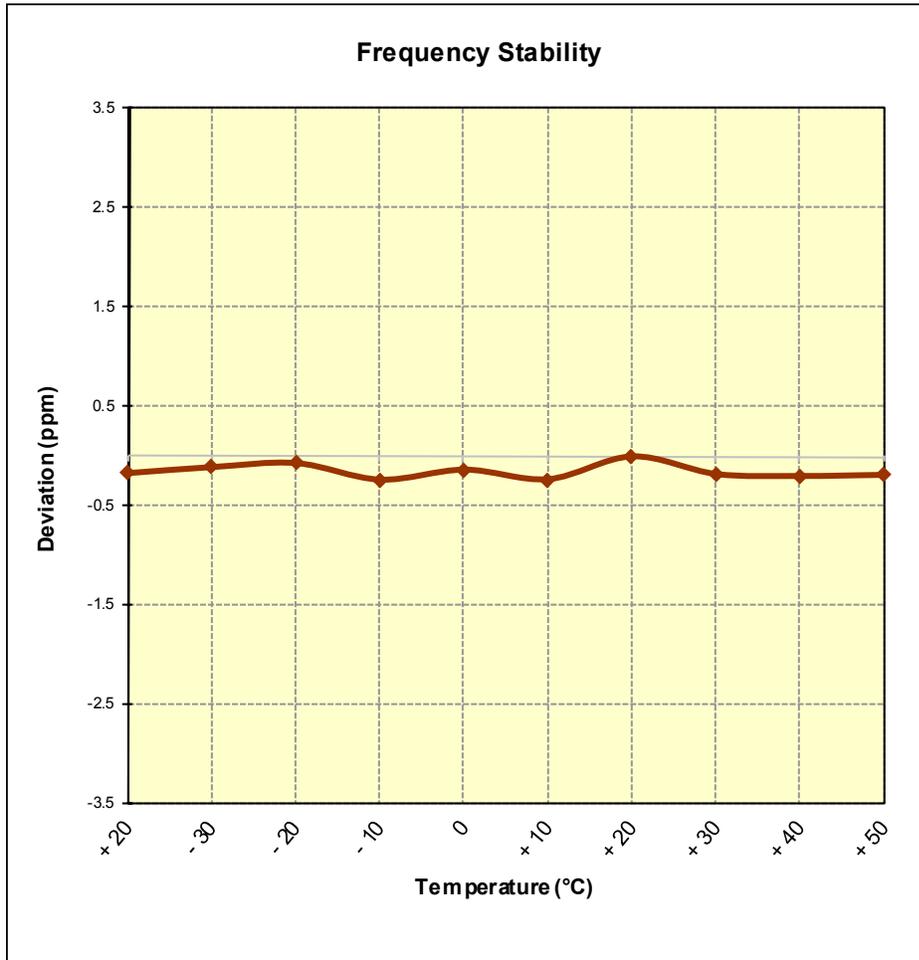


Figure 7-9. Frequency Stability Graph (Band 13)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 5/26 Frequency Stability Measurements
§2.1055 §22.355

OPERATING FREQUENCY: 831,500,000 Hz
 CHANNEL: 26865
 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	+ 20 (Ref)	831,499,853	-147	-0.0000177
100 %		- 30	831,499,884	-116	-0.0000140
100 %		- 20	831,499,968	-32	-0.0000039
100 %		- 10	831,499,971	-29	-0.0000035
100 %		0	831,499,805	-195	-0.0000234
100 %		+ 10	831,499,965	-35	-0.0000042
100 %		+ 20	831,499,937	-63	-0.0000076
100 %		+ 30	831,499,880	-120	-0.0000145
100 %		+ 40	831,499,900	-100	-0.0000120
100 %		+ 50	831,499,864	-136	-0.0000163
BATT. ENDPOINT	3.45	+ 20	831,499,800	-200	-0.0000240

Table 7-36. Frequency Stability Data (Band 5/26)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 5/26 Frequency Stability Measurements
§2.1055 §22.355

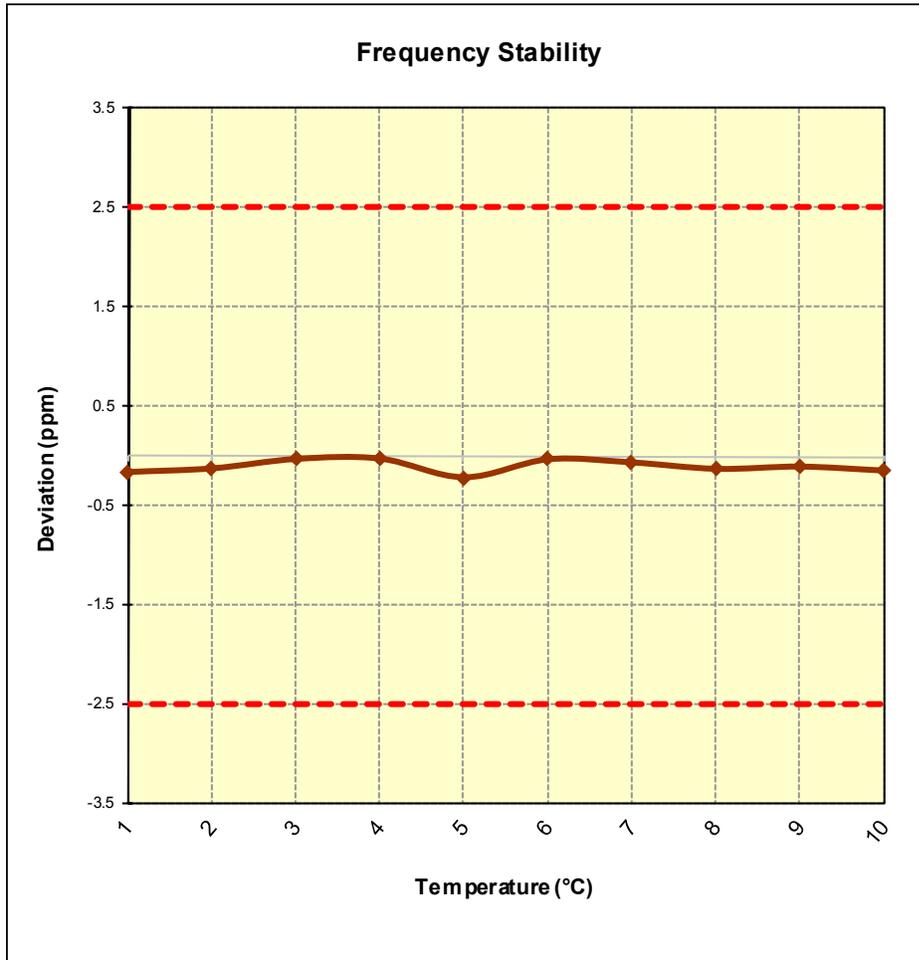


Figure 7-10. Frequency Stability Graph (Band 5/26)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 4/66 Frequency Stability Measurements

§2.1055 §§27.54

OPERATING FREQUENCY: 1,745,000,000 Hz
 CHANNEL: 132322
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,744,999,975	-25	-0.0000014
100 %		- 30	1,744,999,934	-66	-0.0000038
100 %		- 20	1,744,999,890	-110	-0.0000063
100 %		- 10	1,744,999,962	-38	-0.0000022
100 %		0	1,744,999,981	-19	-0.0000011
100 %		+ 10	1,744,999,815	-185	-0.0000106
100 %		+ 20	1,744,999,911	-89	-0.0000051
100 %		+ 30	1,744,999,983	-17	-0.0000010
100 %		+ 40	1,744,999,999	-1	-0.0000001
100 %		+ 50	1,744,999,976	-24	-0.0000014
BATT. ENDPOINT	3.45	+ 20	1,744,999,953	-47	-0.0000027

Table 7-37. Frequency Stability Data (Band 4/66)

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: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 4/66 Frequency Stability Measurements
§2.1055 §§27.54

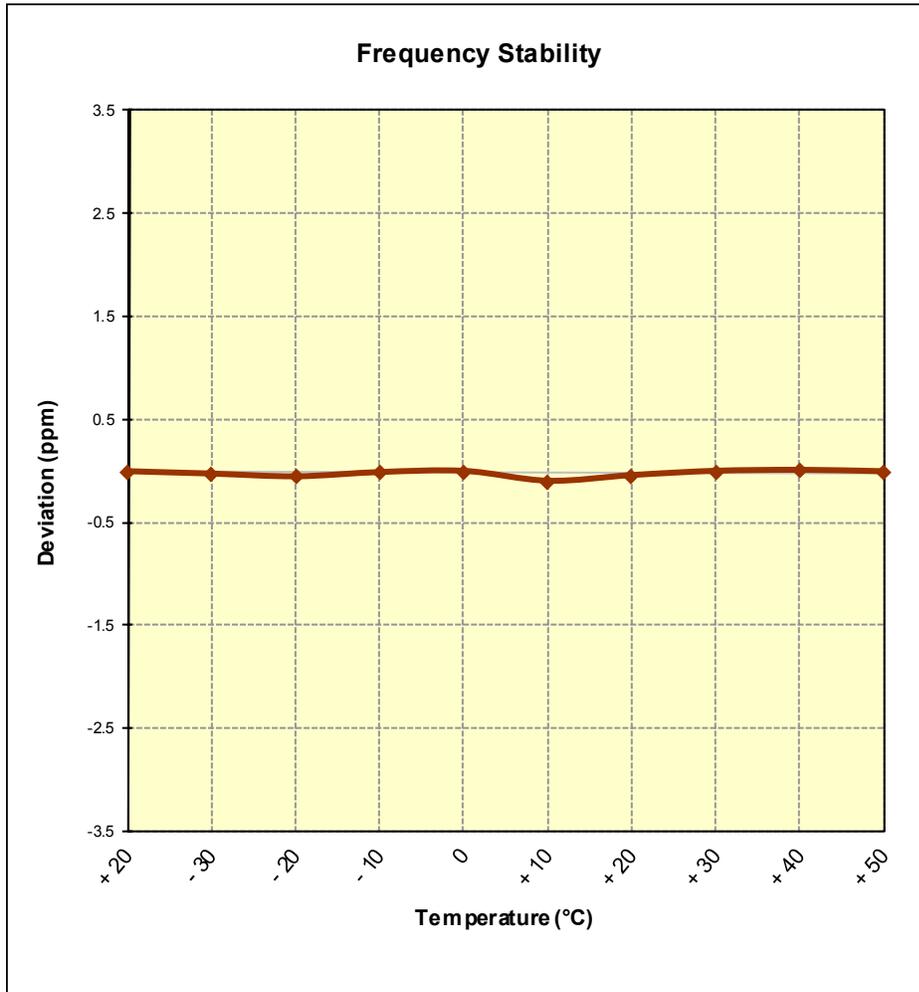


Figure 7-11. Frequency Stability Graph (Band 4/66)

FCC ID: A3LSMG950F	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band 2/25 Frequency Stability Measurements

§2.1055 §24.235

OPERATING FREQUENCY: 1,882,500,000 Hz
 CHANNEL: 26365
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,882,499,877	-123	-0.0000065
100 %		- 30	1,882,499,870	-130	-0.0000069
100 %		- 20	1,882,499,860	-140	-0.0000074
100 %		- 10	1,882,499,992	-8	-0.0000004
100 %		0	1,882,499,841	-159	-0.0000085
100 %		+ 10	1,882,499,957	-43	-0.0000023
100 %		+ 20	1,882,499,800	-200	-0.0000106
100 %		+ 30	1,882,499,969	-31	-0.0000016
100 %		+ 40	1,882,499,917	-83	-0.0000044
100 %		+ 50	1,882,499,942	-58	-0.0000031
BATT. ENDPOINT	3.45	+ 20	1,882,499,922	-78	-0.0000041

Table 7-38. Frequency Stability Data (Band 2/25)

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: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 2/25 Frequency Stability Measurements
§2.1055 §24.235

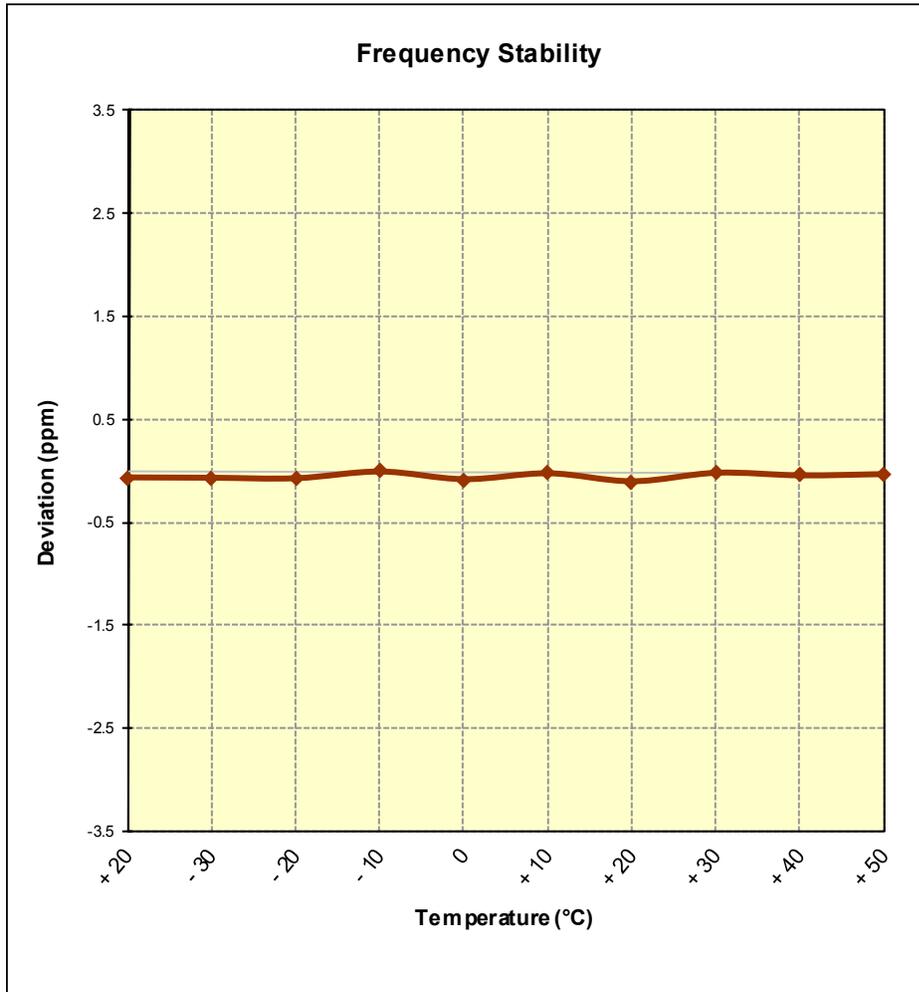


Figure 7-12. Frequency Stability Graph (Band 2/25)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 41 Frequency Stability Measurements

§2.1055 §27.54

OPERATING FREQUENCY: 2,593,000,000 Hz
 CHANNEL: 40620
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	2,592,999,824	-176	-0.0000068
100 %		- 30	2,592,999,818	-182	-0.0000070
100 %		- 20	2,592,999,906	-94	-0.0000036
100 %		- 10	2,592,999,872	-128	-0.0000049
100 %		0	2,592,999,838	-162	-0.0000063
100 %		+ 10	2,592,999,985	-15	-0.0000006
100 %		+ 20	2,592,999,845	-155	-0.0000060
100 %		+ 30	2,592,999,998	-2	-0.0000001
100 %		+ 40	2,592,999,923	-77	-0.0000030
100 %		+ 50	2,592,999,903	-97	-0.0000037
BATT. ENDPOINT	3.45	+ 20	2,592,999,865	-135	-0.0000052

Table 7-39. Frequency Stability Data (Band 41)

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.

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Band 41 Frequency Stability Measurements
§2.1055 §27.54

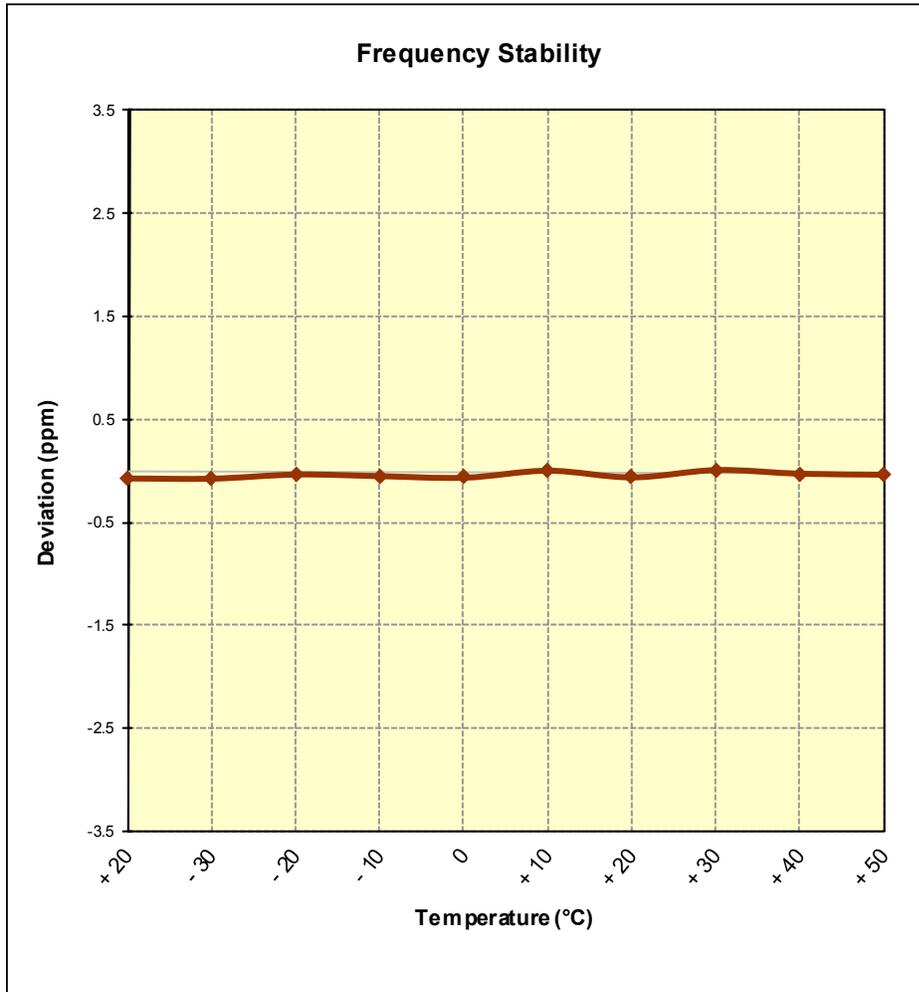


Figure 7-13. Frequency Stability Graph (Band 41)

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMG950F** complies with all the requirements of Parts 22, 24, & 27 of the FCC rules for LTE operation only.

FCC ID: A3LSMG950F		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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