

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 $43 + \log_{10}(P_{\text{Watts}})$, 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.

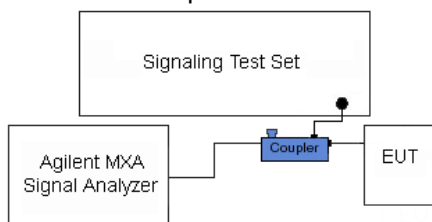


Figure 7-3. Test Instrument & Measurement Setup

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.

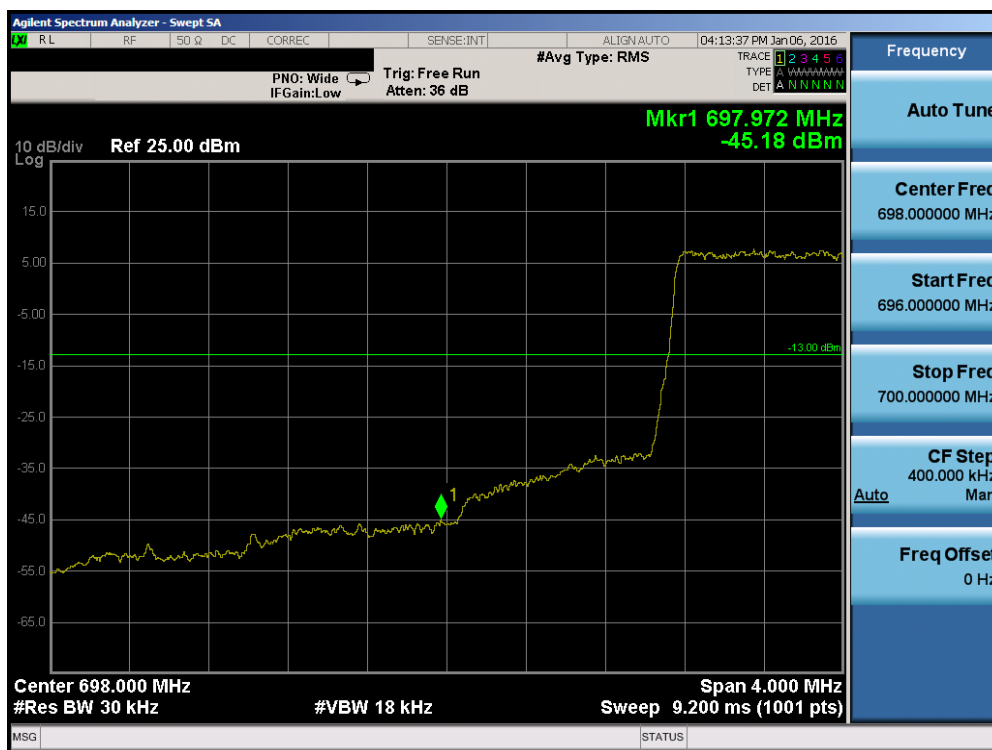
FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Per 27.53(g) for operations in the 698-746 MHz band, in the 100 kHz bands immediately outside and 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 than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz.

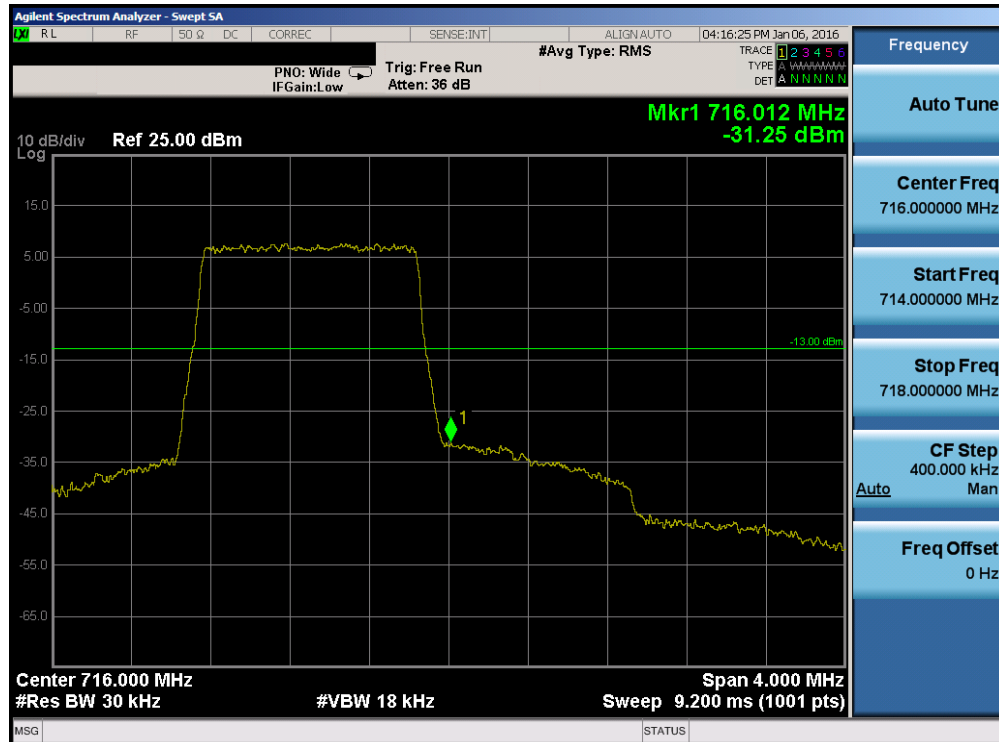


Plot 7-109. Lower Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)

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Plot 7-110. Lower Extended Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)

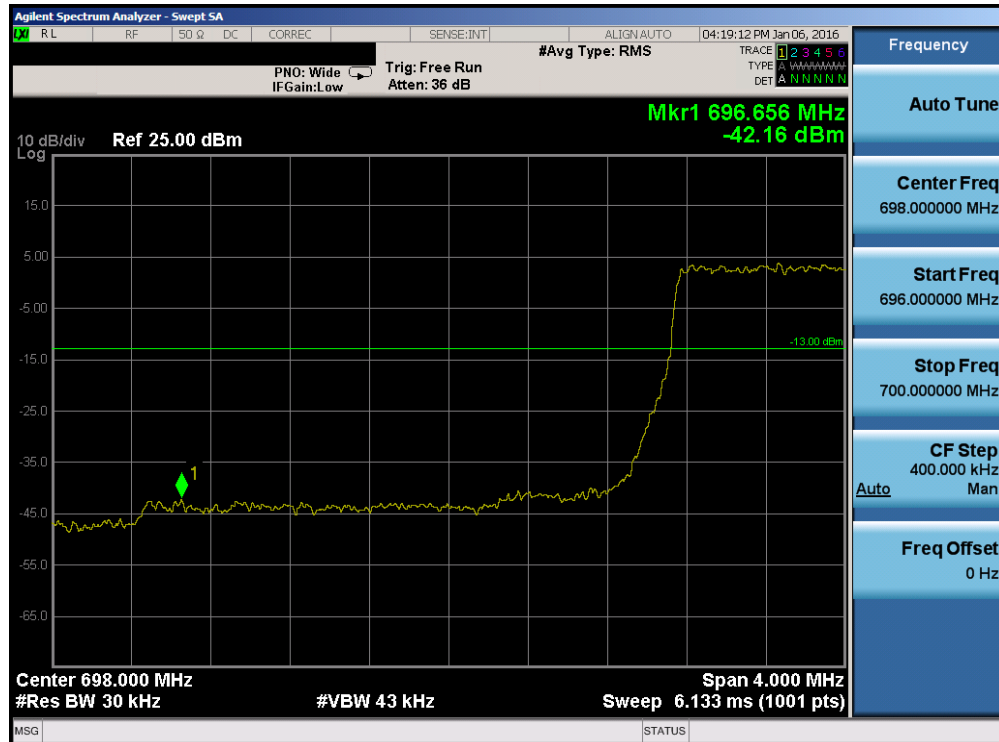


Plot 7-111. Upper Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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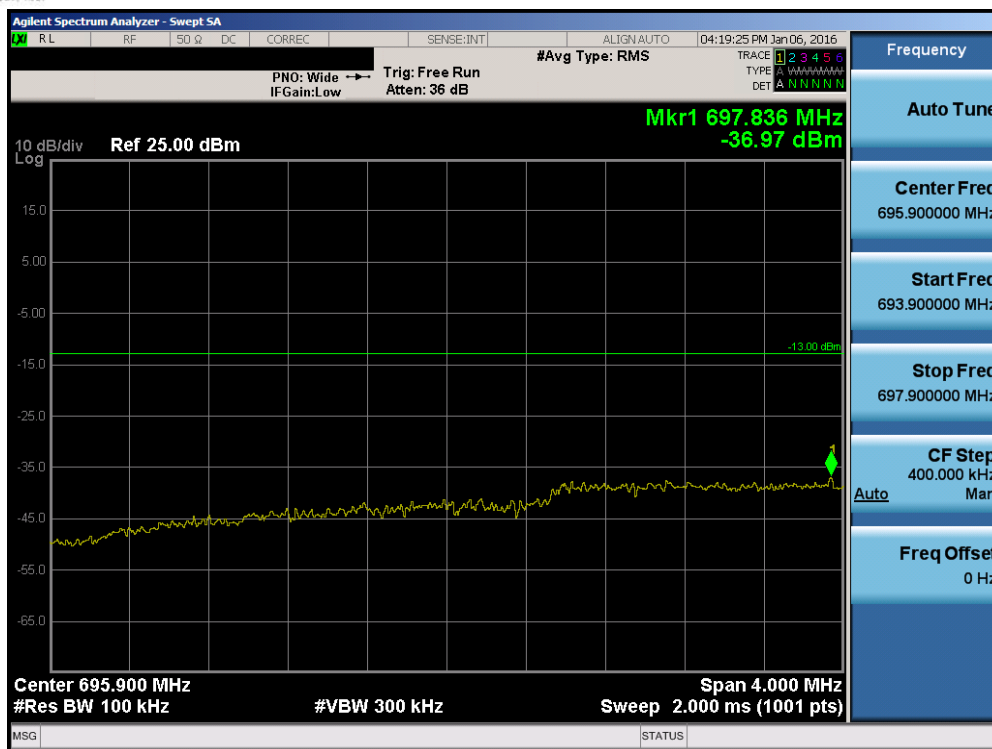


Plot 7-112. Upper Extended Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)

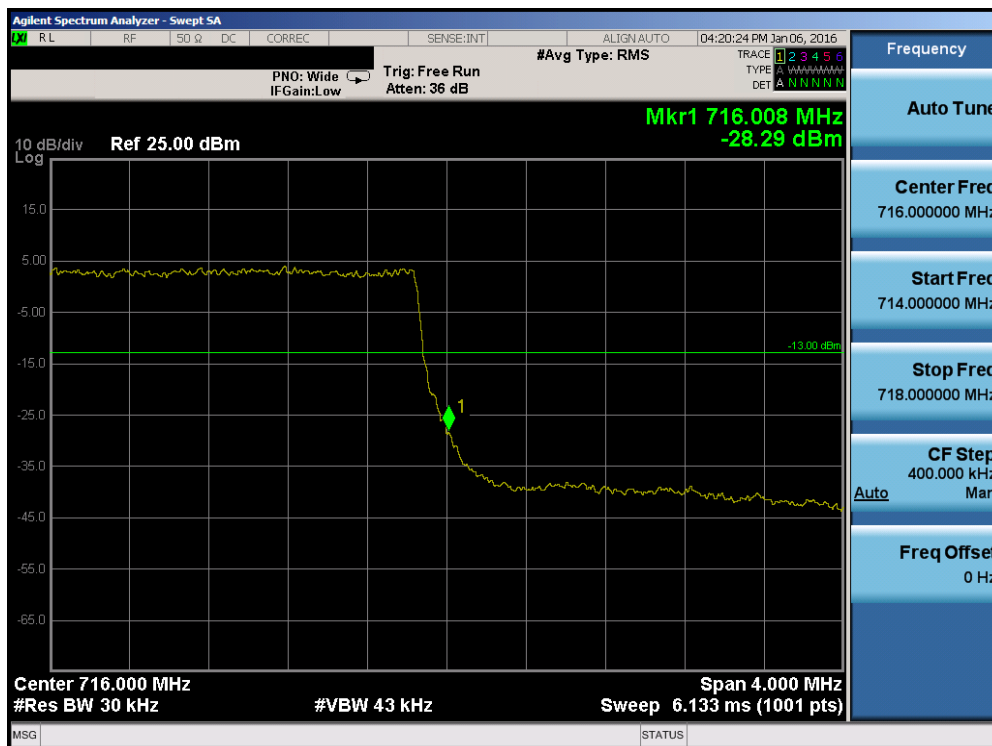


Plot 7-113. Lower Band Edge Plot (Band 12 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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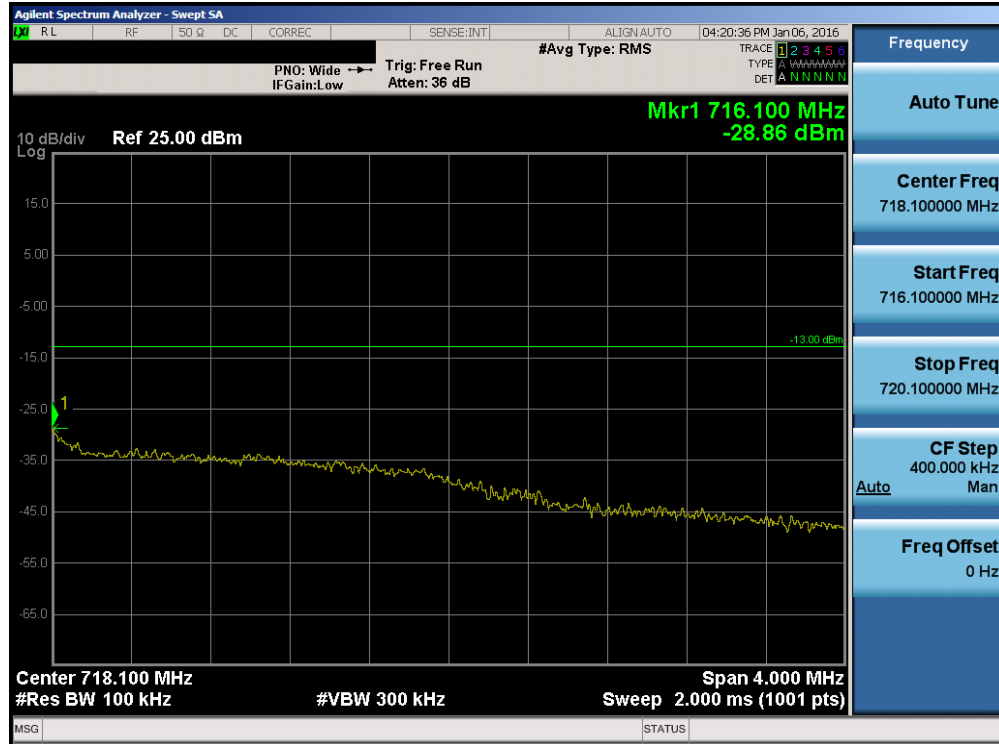


Plot 7-114. Lower Extended Band Edge Plot (Band 12 – 3.0MHz QPSK – RB Size 15)

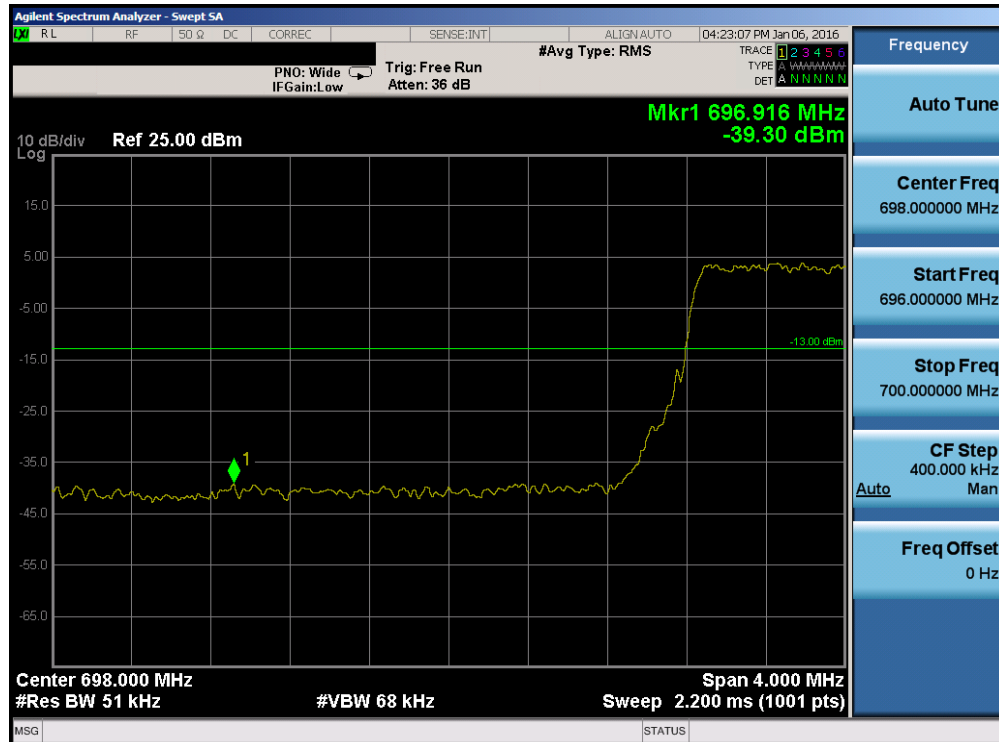


Plot 7-115. Upper Band Edge Plot (Band 12 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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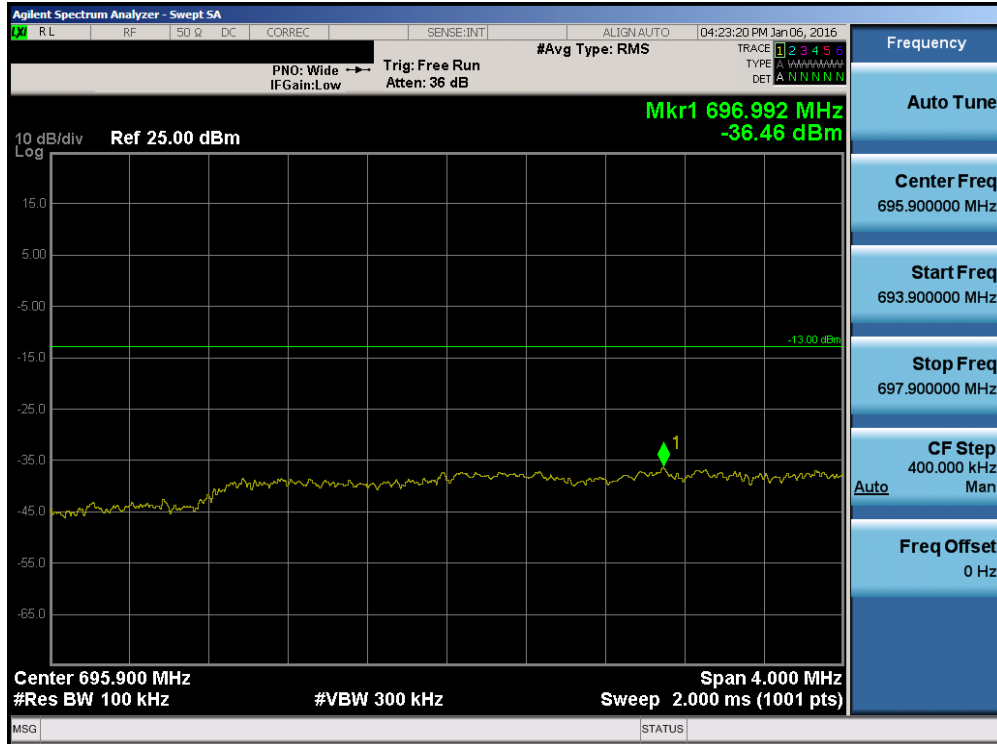


Plot 7-116. Upper Extended Band Edge Plot (Band 12 – 3.0MHz QPSK – RB Size 15)

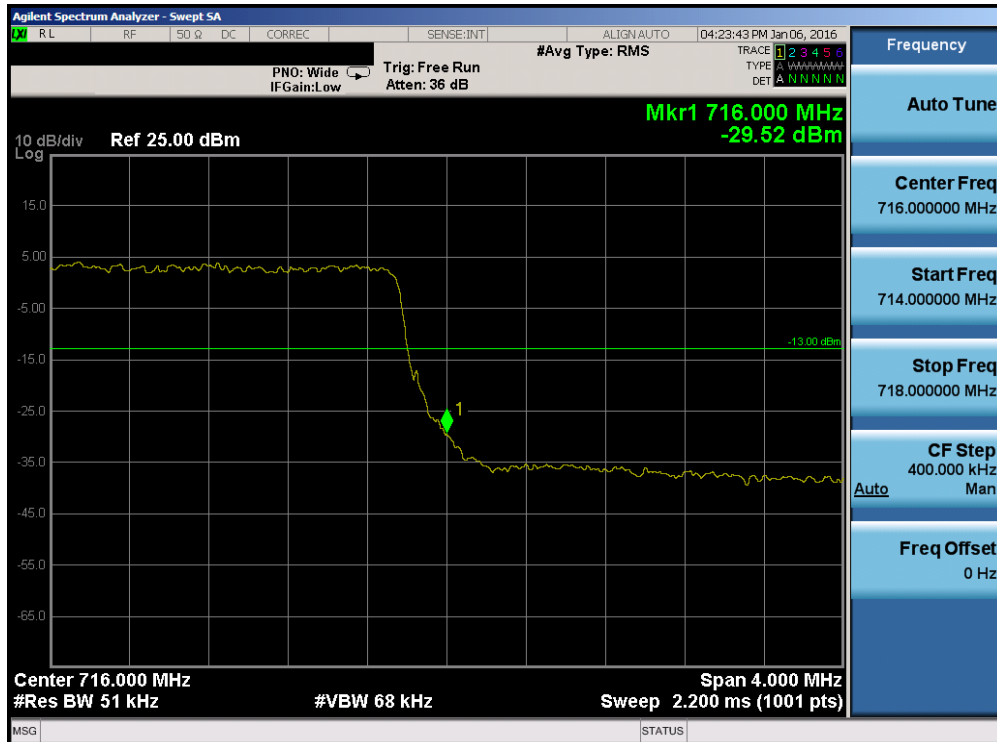


Plot 7-117. Lower Band Edge Plot (Band 12/17 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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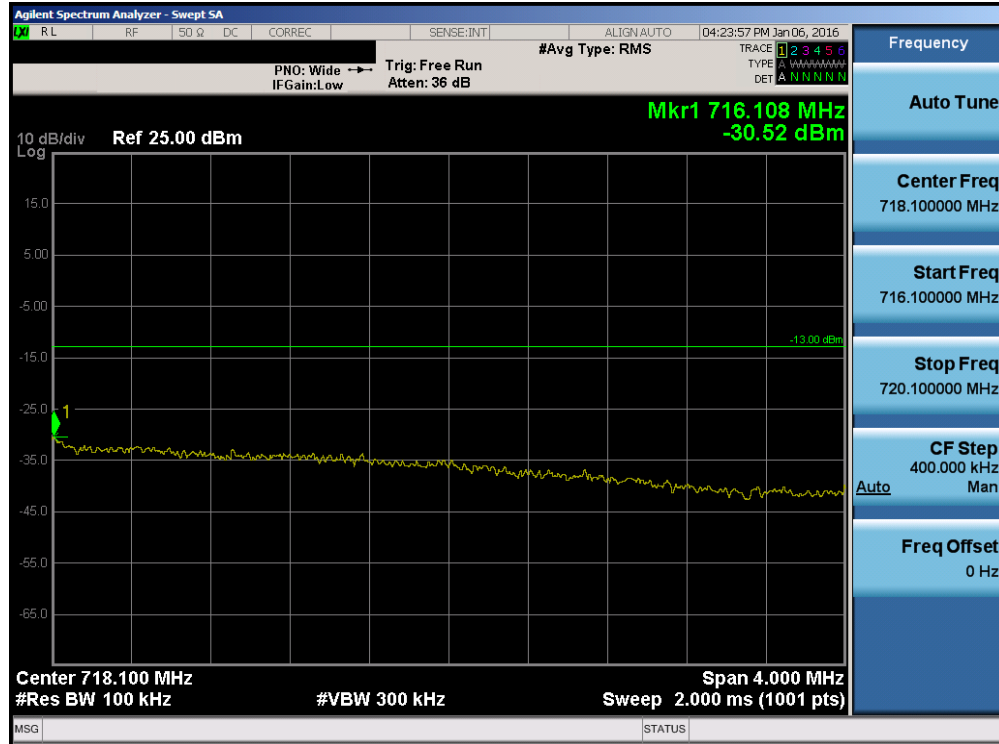


Plot 7-118. Lower Extended Band Edge Plot (Band 12/17 - 5.0MHz QPSK - RB Size 25)

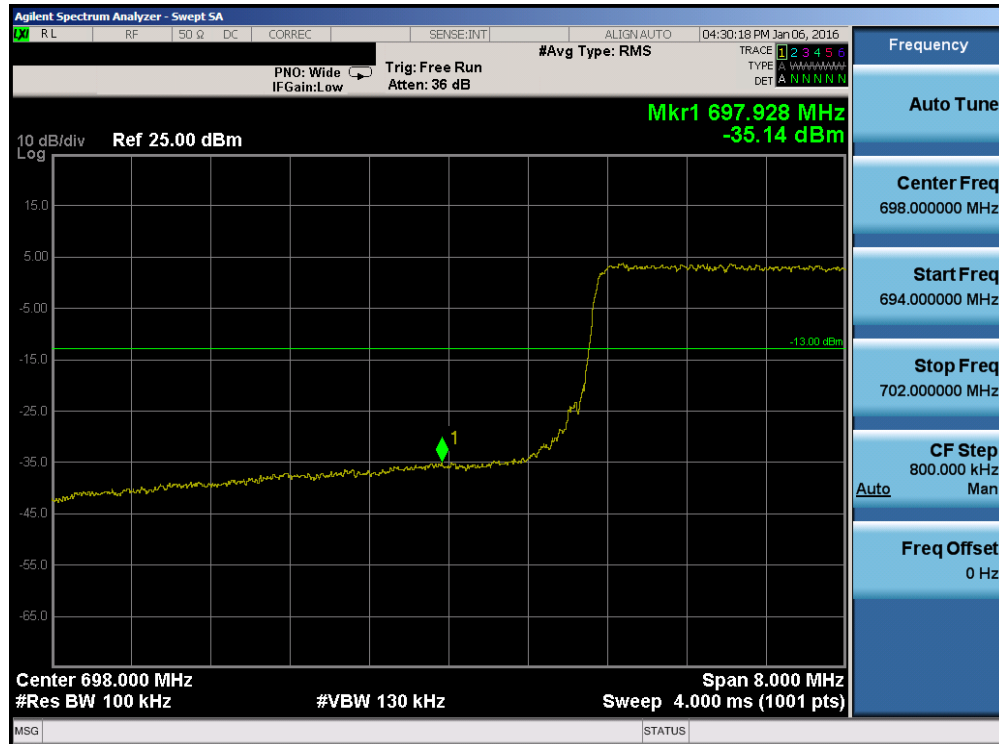


Plot 7-119. Upper Band Edge Plot (Band 12/17 - 5.0MHz QPSK - RB Size 25)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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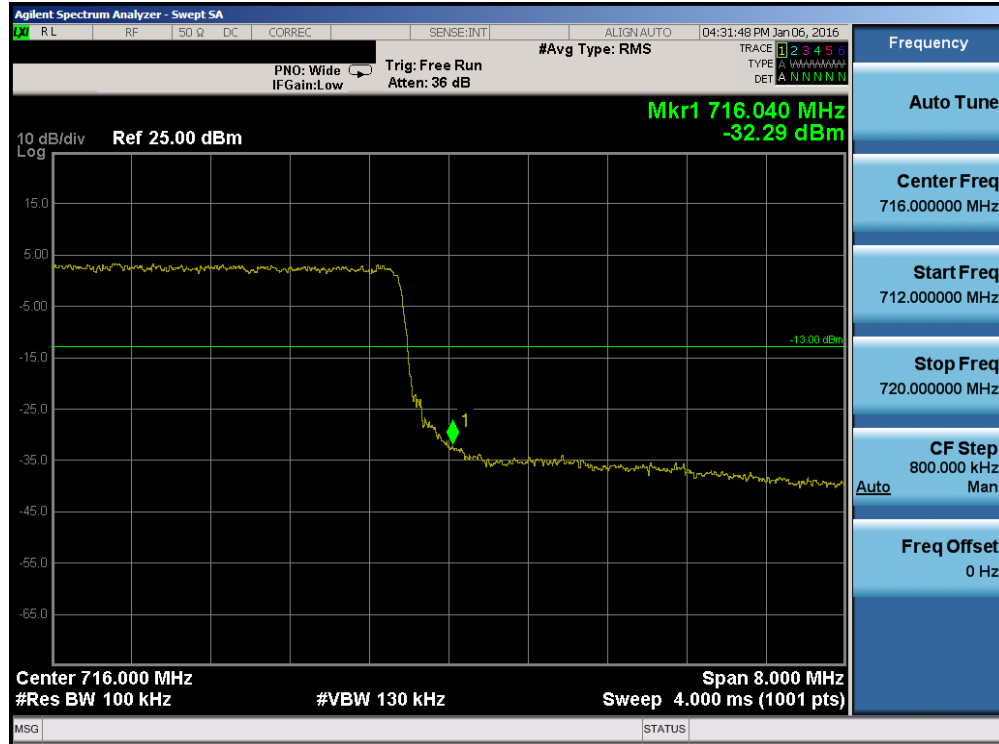


Plot 7-120. Upper Extended Band Edge Plot (Band 12/17 - 5.0MHz QPSK - RB Size 25)

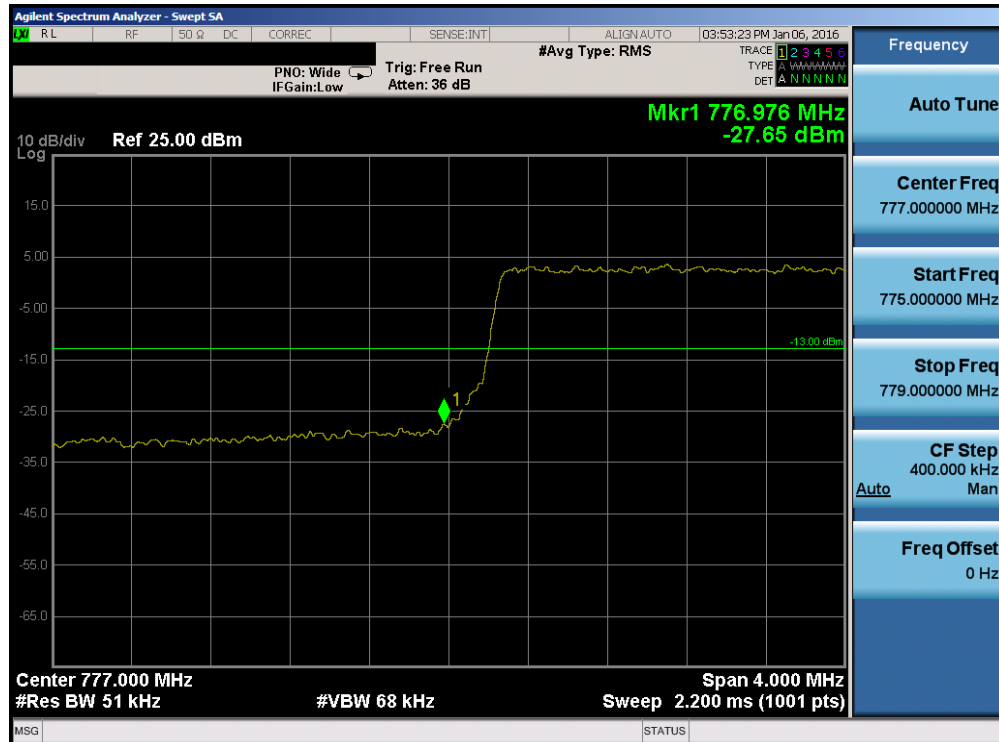


Plot 7-121. Lower Band Edge Plot (Band 12/17 - 10.0MHz QPSK - RB Size 50)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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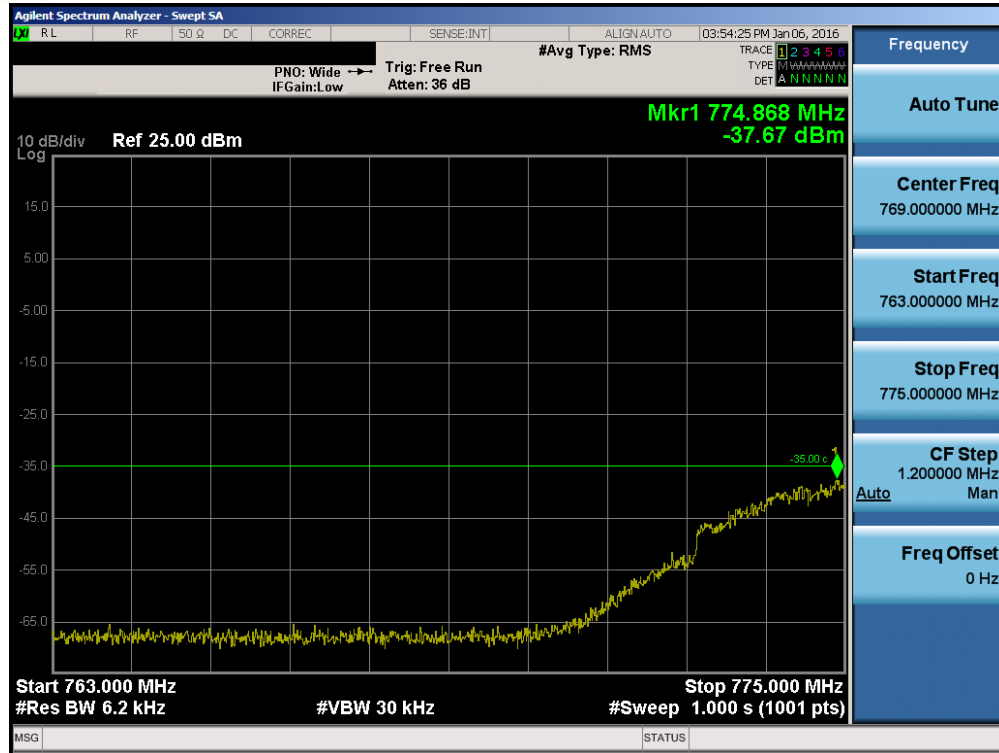


Plot 7-122. Upper Band Edge Plot (Band 12/17 – 10.0MHz QPSK – RB Size 50)

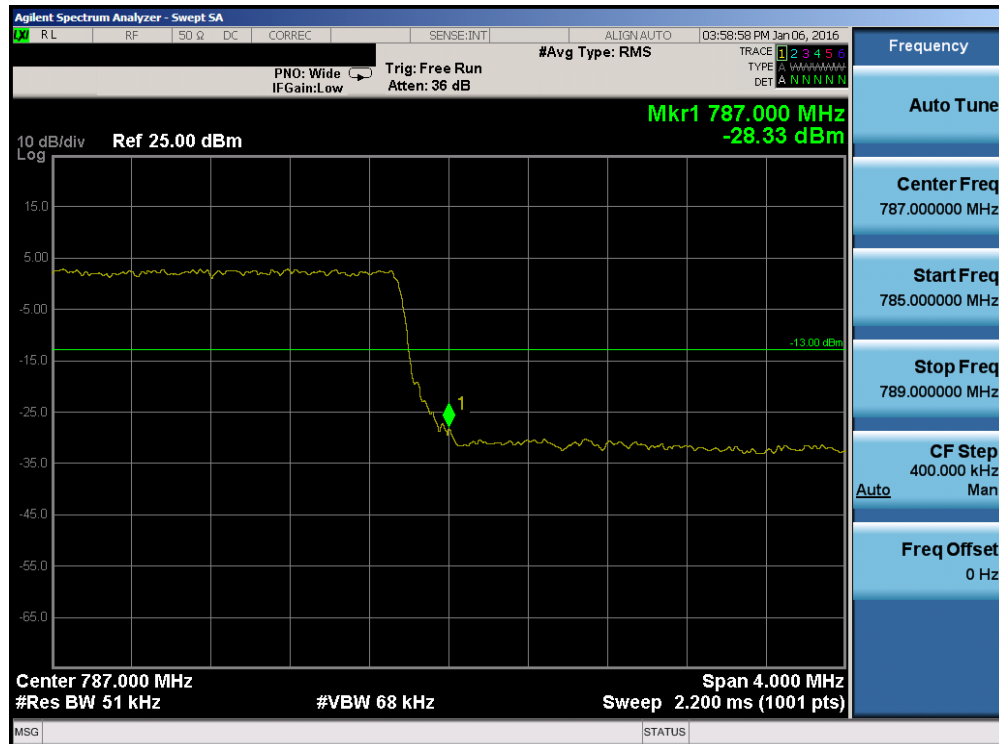


Plot 7-123. Lower Band Edge Plot (Band 13 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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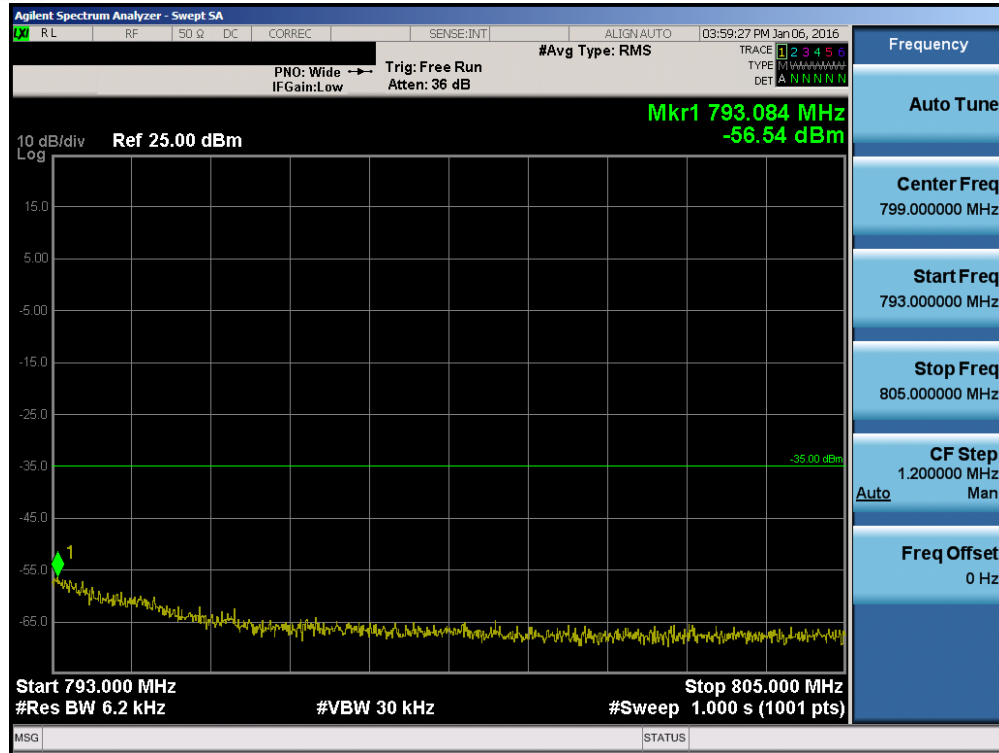


Plot 7-124. Lower Emission Mask Edge Plot (Band 13 – 5.0MHz QPSK – RB Size 25)

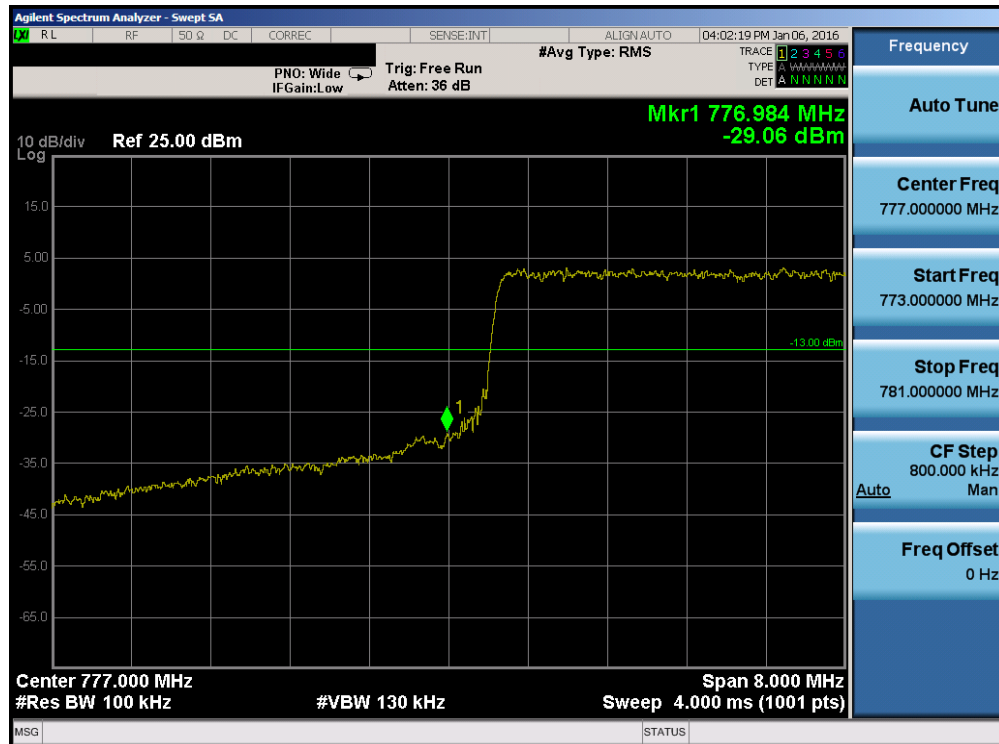


Plot 7-125. Upper Band Edge Plot (Band 13 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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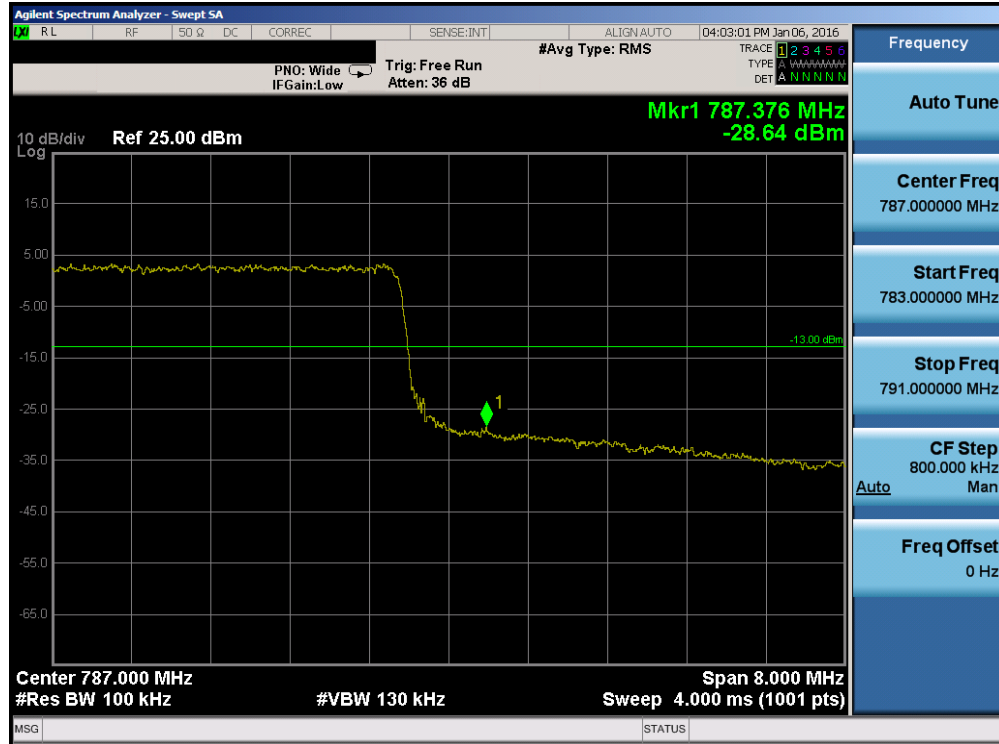


Plot 7-126. Upper Emission Mask Edge Plot (Band 13 - 5.0MHz QPSK - RB Size 25)

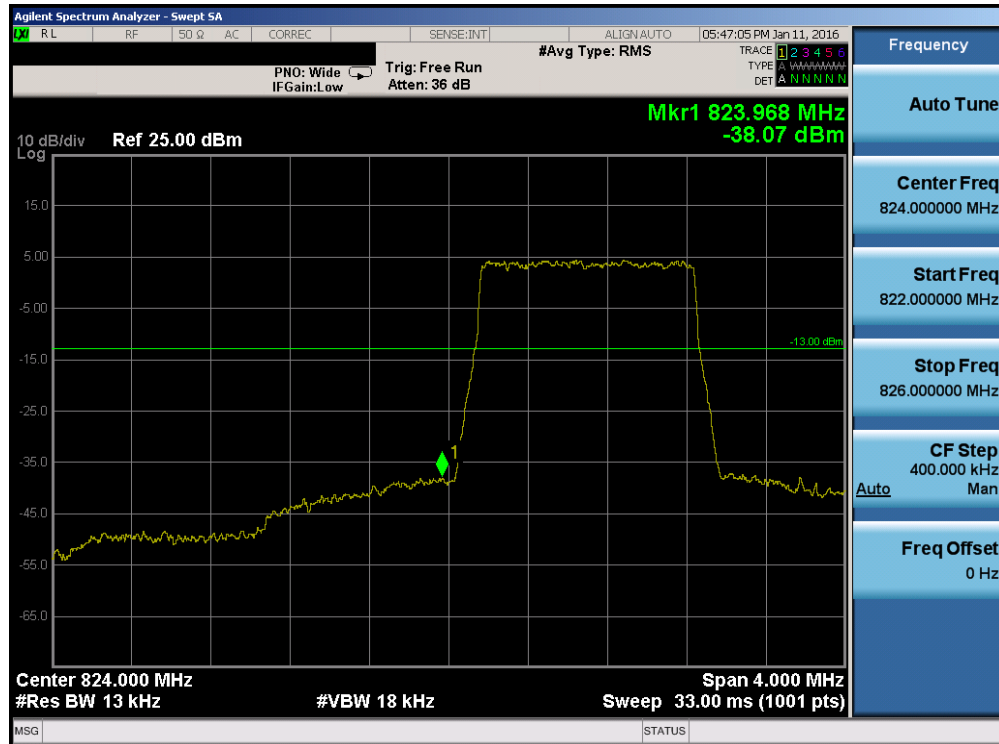


Plot 7-127. Lower Band Edge Plot (Band 13 - 10.0MHz QPSK - RB Size 50)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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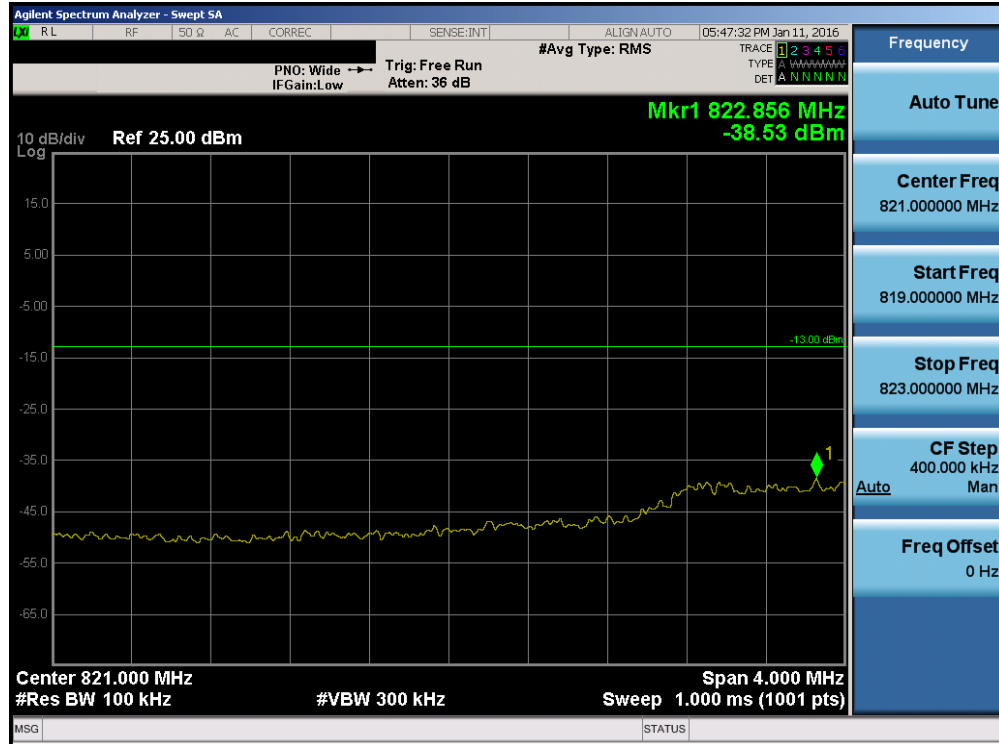


Plot 7-128. Upper Band Edge Plot (Band 13 – 10.0MHz QPSK – RB Size 50)

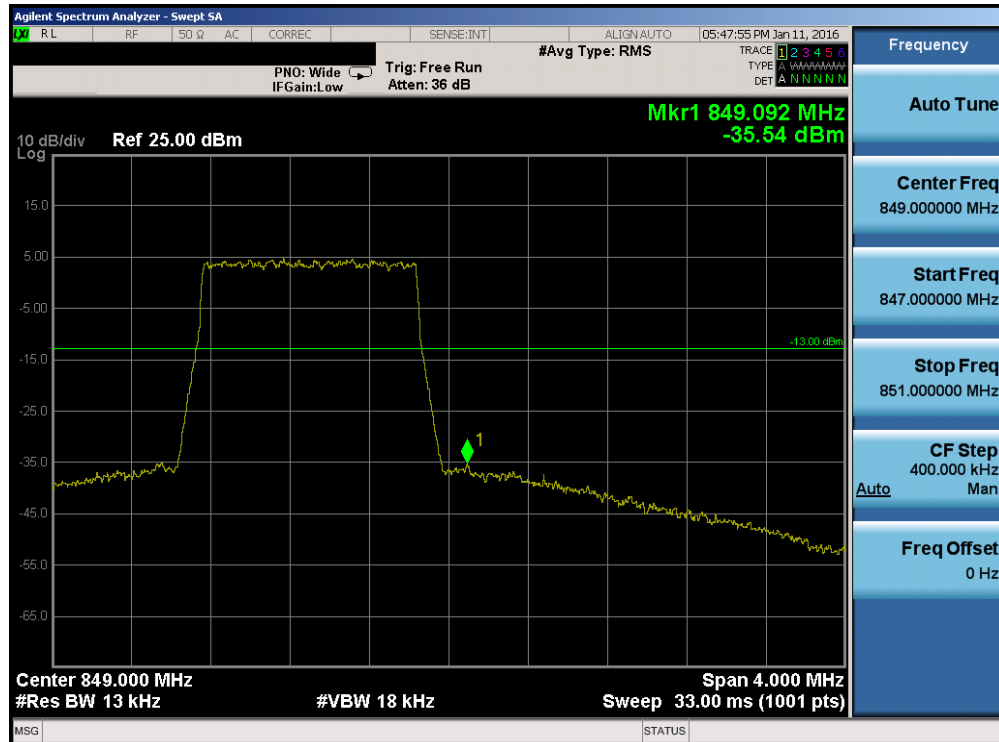


Plot 7-129. Lower Band Edge Plot (Band 5/26 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 7-130. Lower Extended Band Edge Plot (Band 5/26 – 1.4MHz QPSK – RB Size 6)

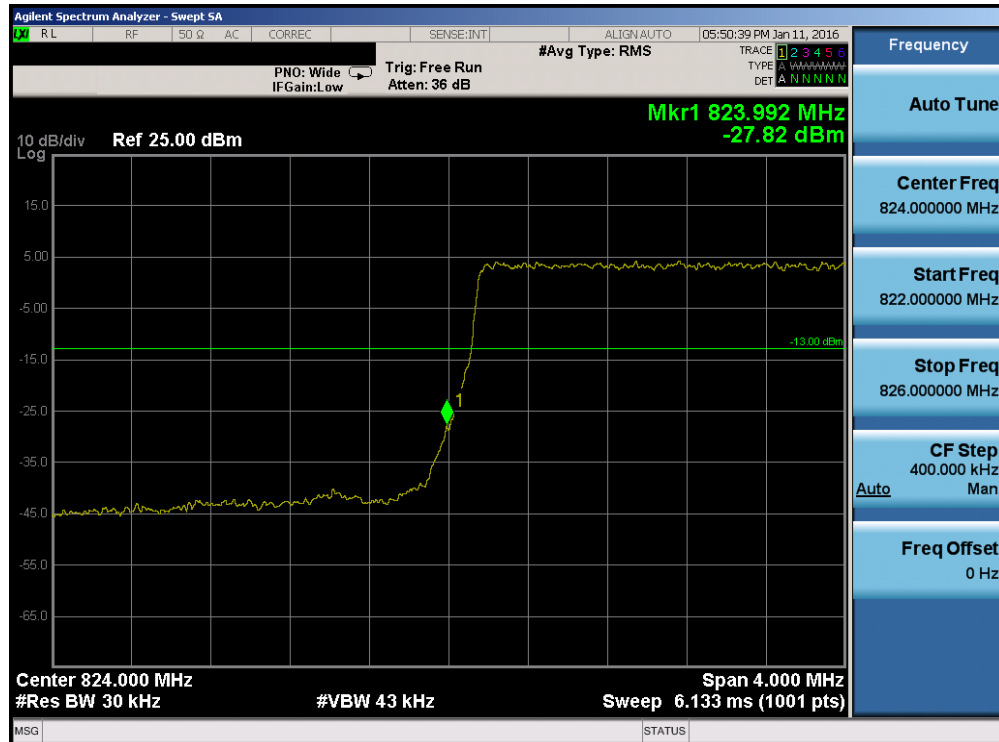


Plot 7-131. Upper Band Edge Plot (Band 5/26 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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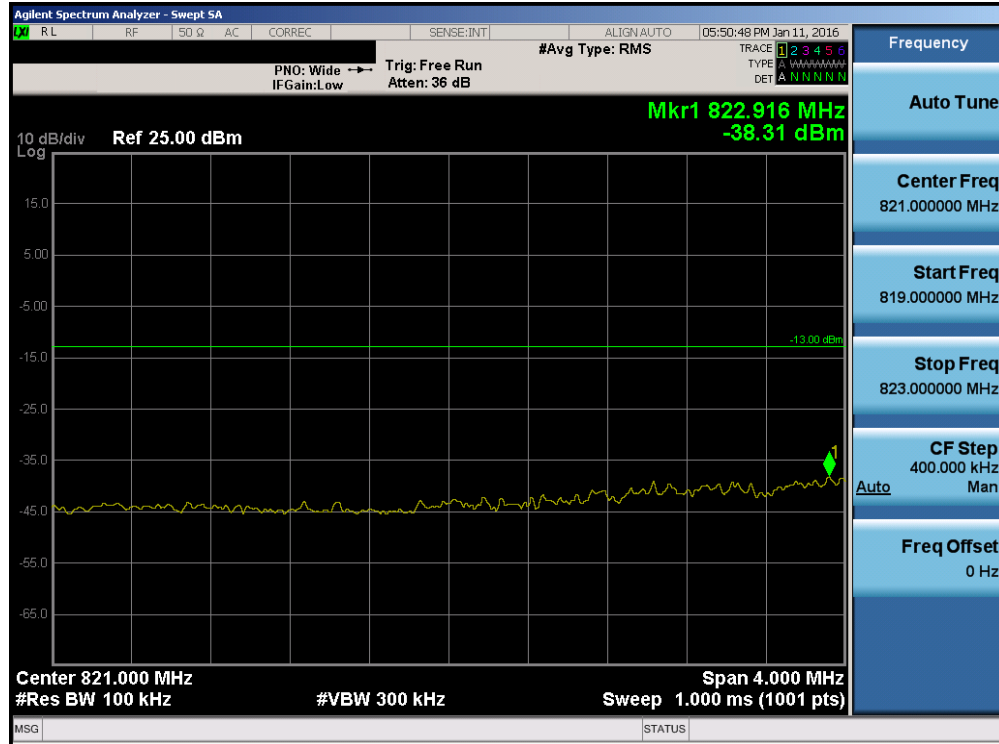


Plot 7-132. Upper Extended Band Edge Plot (Band 5/26 - 1.4MHz QPSK - RB Size 6)

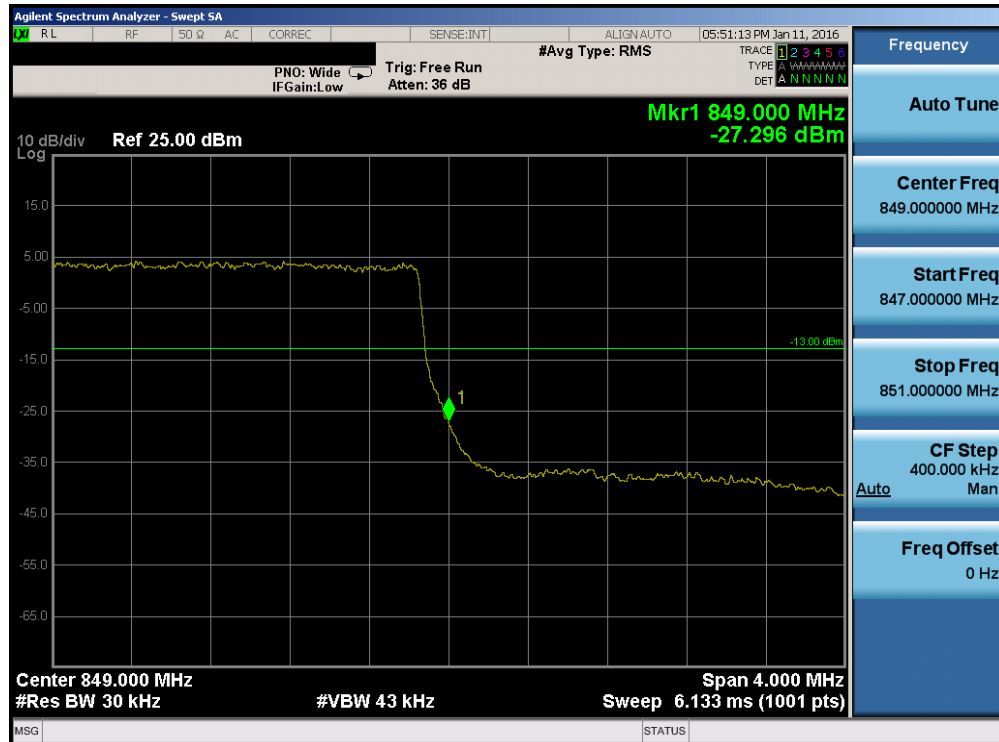


Plot 7-133. Lower Band Edge Plot (Band 5/26 - 3.0MHz QPSK - RB Size 15)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 7-134. Lower Extended Band Edge Plot (Band 5/26 - 3.0MHz QPSK - RB Size 15)

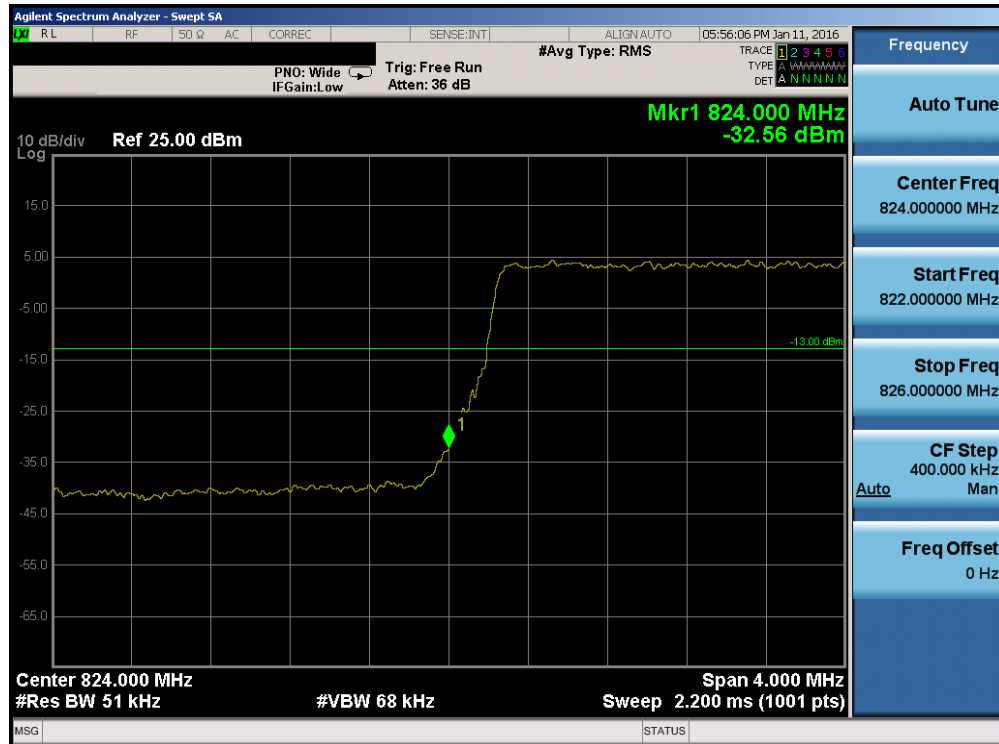


Plot 7-135. Upper Band Edge Plot (Band 5/26 - 3.0MHz QPSK - RB Size 15)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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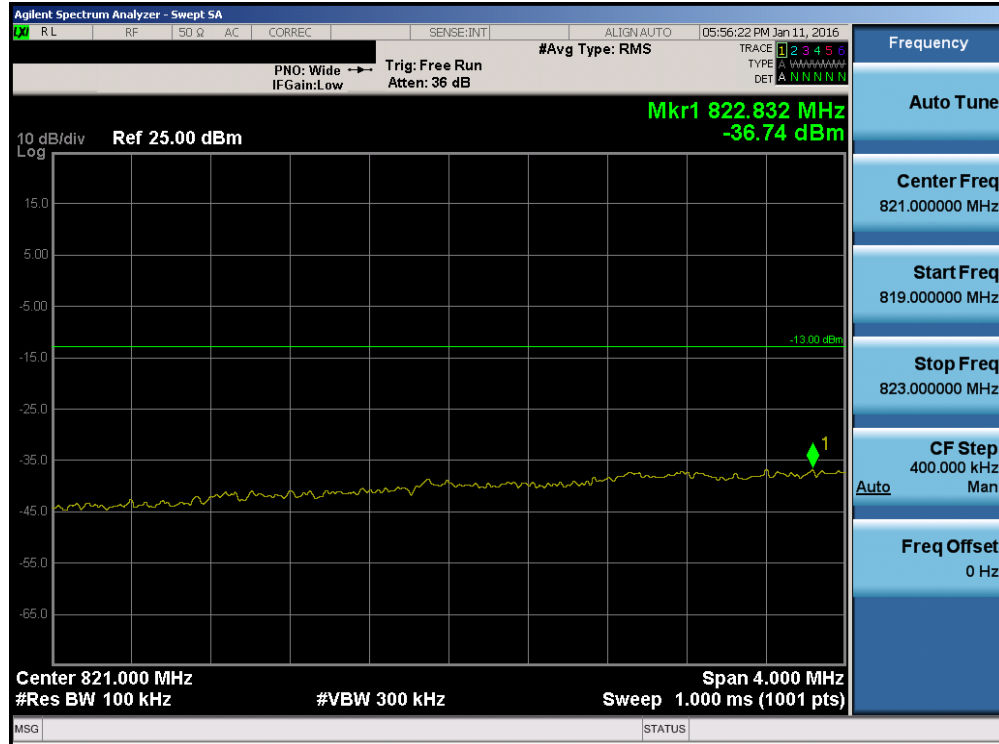


Plot 7-136. Upper Extended Band Edge Plot (Band 5/26 – Band 5 – 3.0MHz QPSK – RB Size 15)

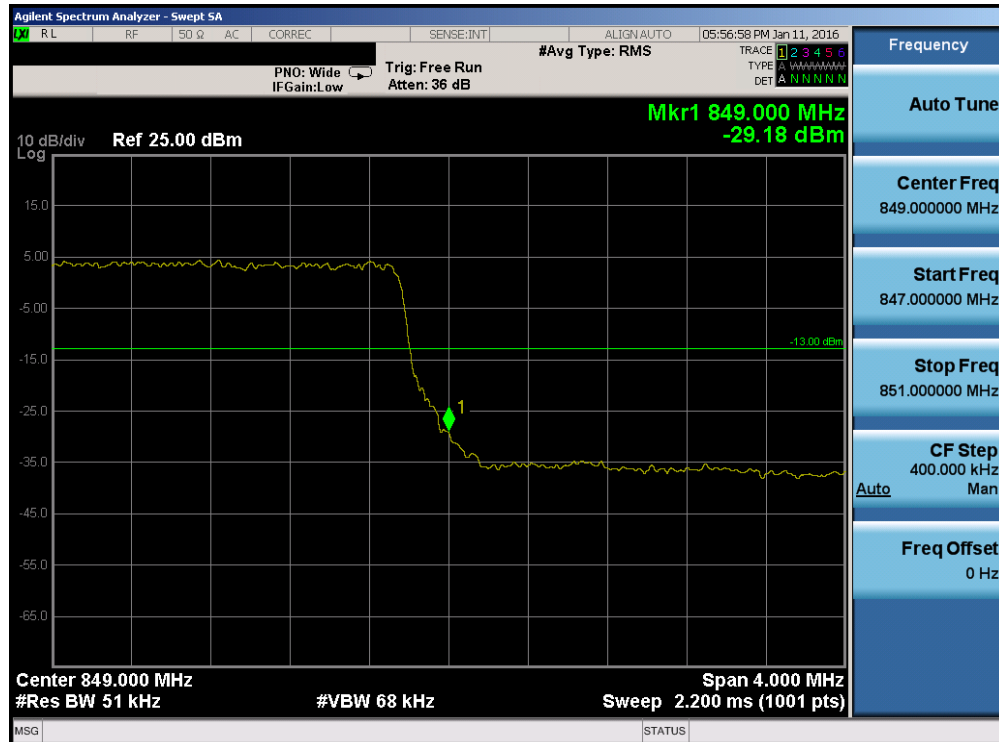


Plot 7-137. Lower Band Edge Plot (Band 5/26 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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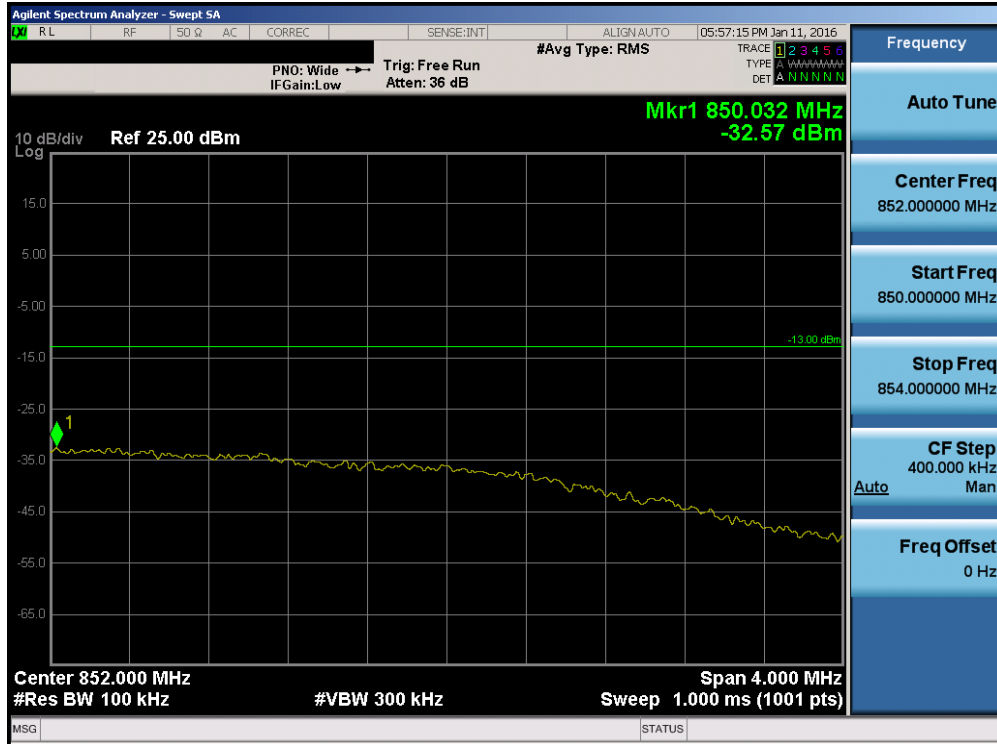


Plot 7-138. Lower Extended Band Edge Plot (Band 5/26 - 5.0MHz QPSK - RB Size 25)

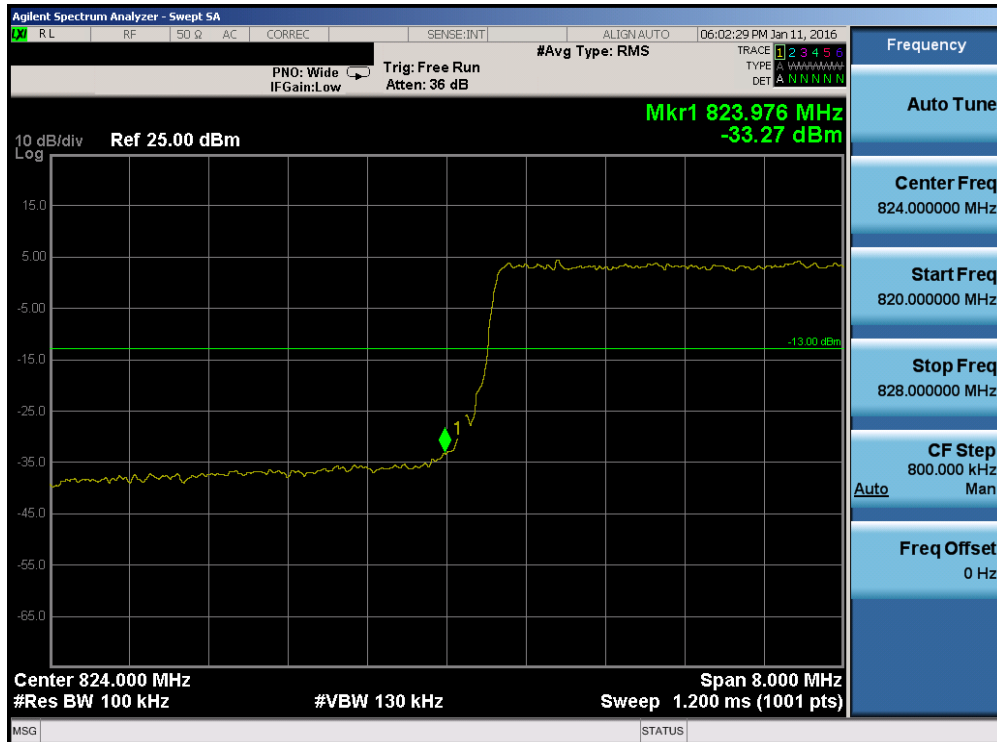


Plot 7-139. Upper Band Edge Plot (Band 5/26 - 5.0MHz QPSK - RB Size 25)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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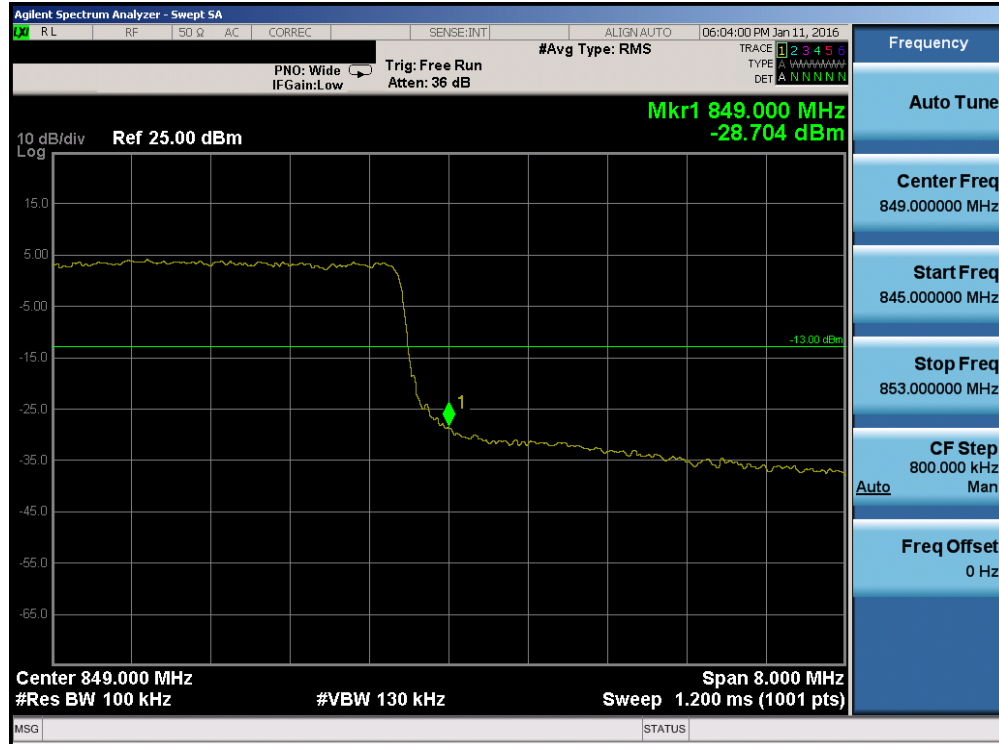


Plot 7-140. Upper Extended Band Edge Plot (Band 5/26 - 5.0MHz QPSK - RB Size 25)

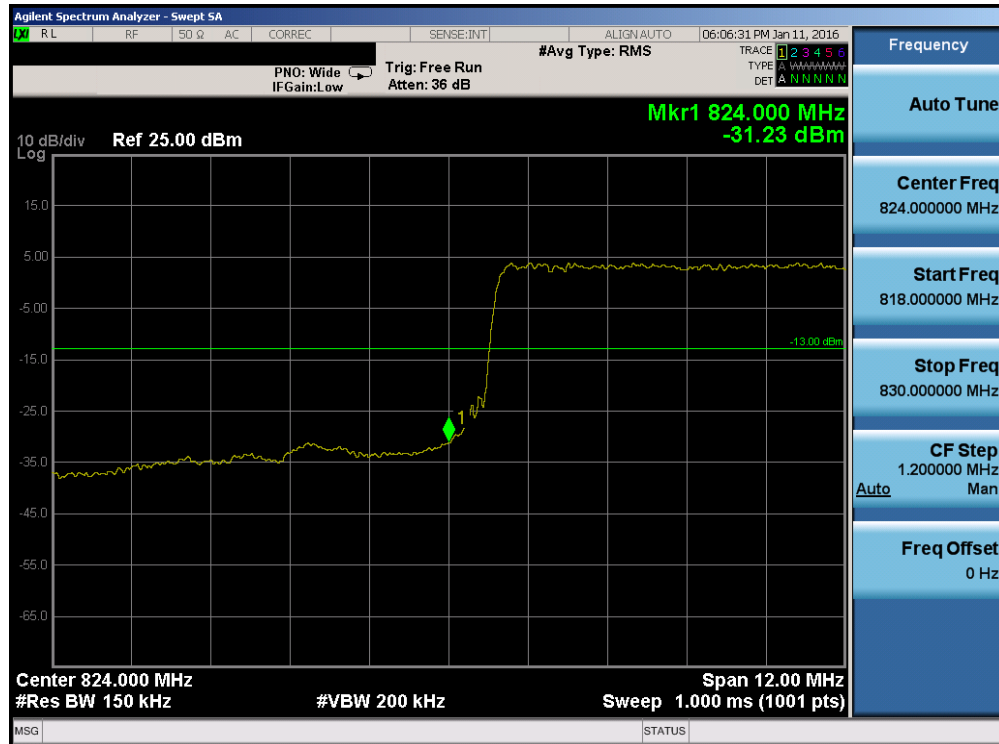


Plot 7-141. Lower Band Edge Plot (Band 5/26 - 10.0MHz QPSK - RB Size 50)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 7-142. Upper Band Edge Plot (Band 5/26 – 10.0MHz QPSK – RB Size 50)

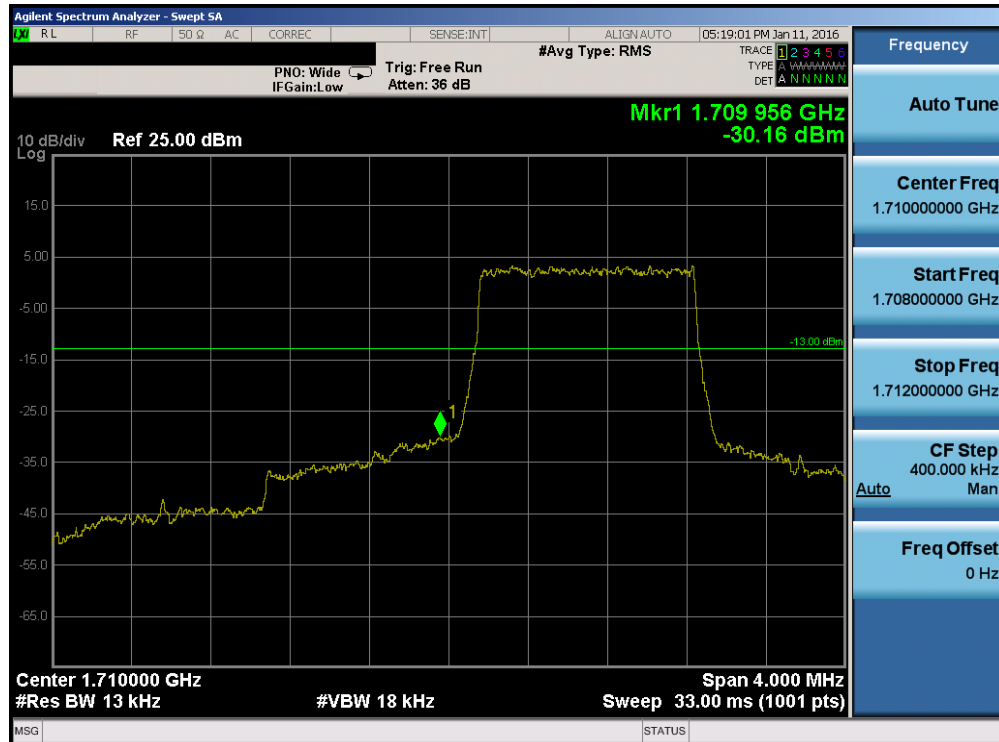


Plot 7-143. Lower Band Edge Plot (Band 26 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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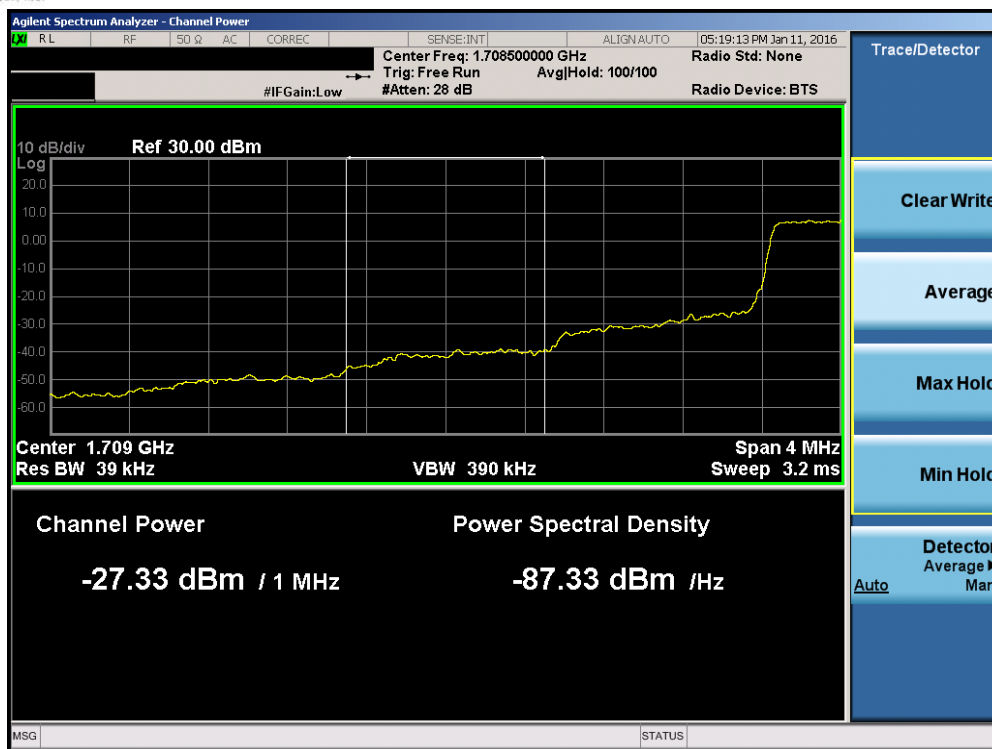


Plot 7-144. Upper Band Edge Plot (Band 26 – 15.0MHz QPSK – RB Size 75)

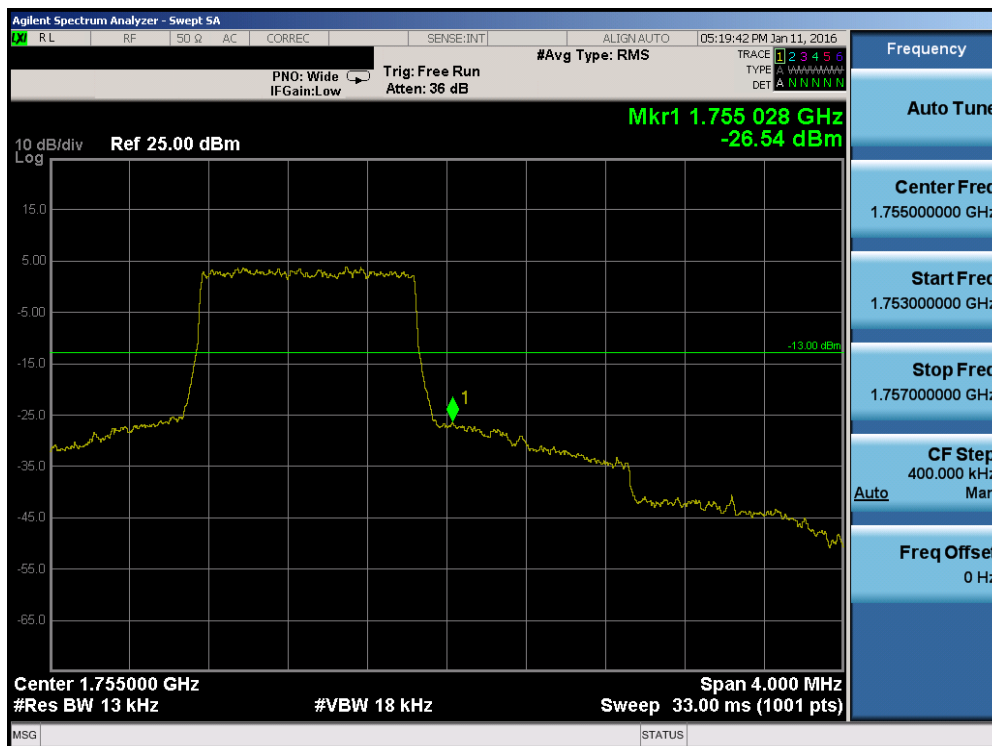


Plot 7-145. Lower Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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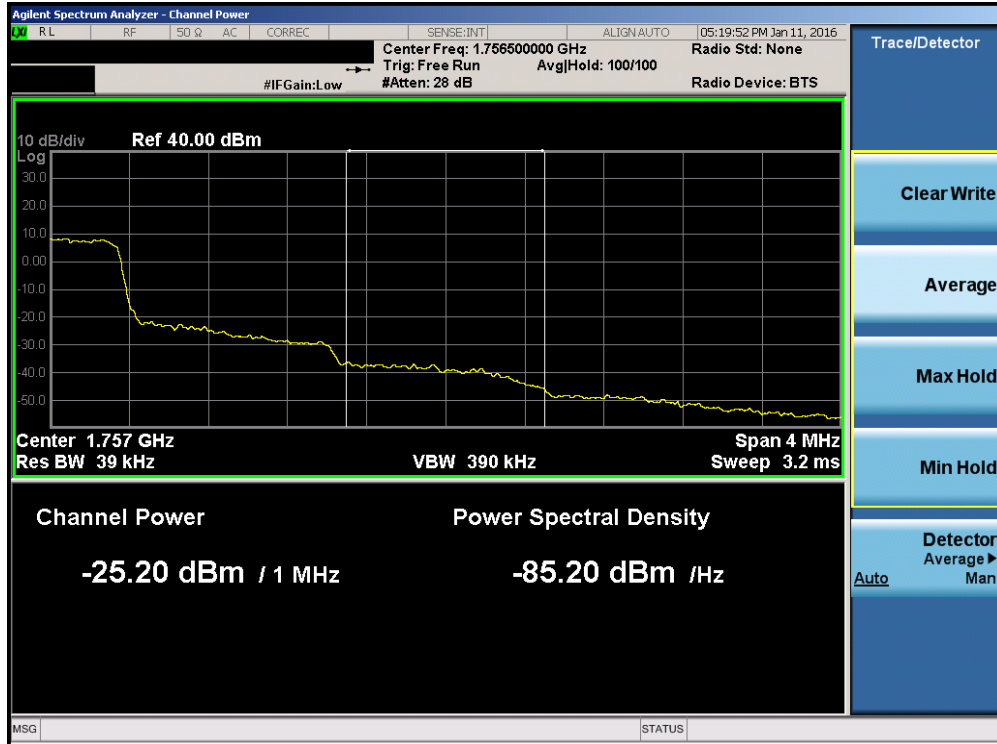


Plot 7-146. Lower Extended Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)

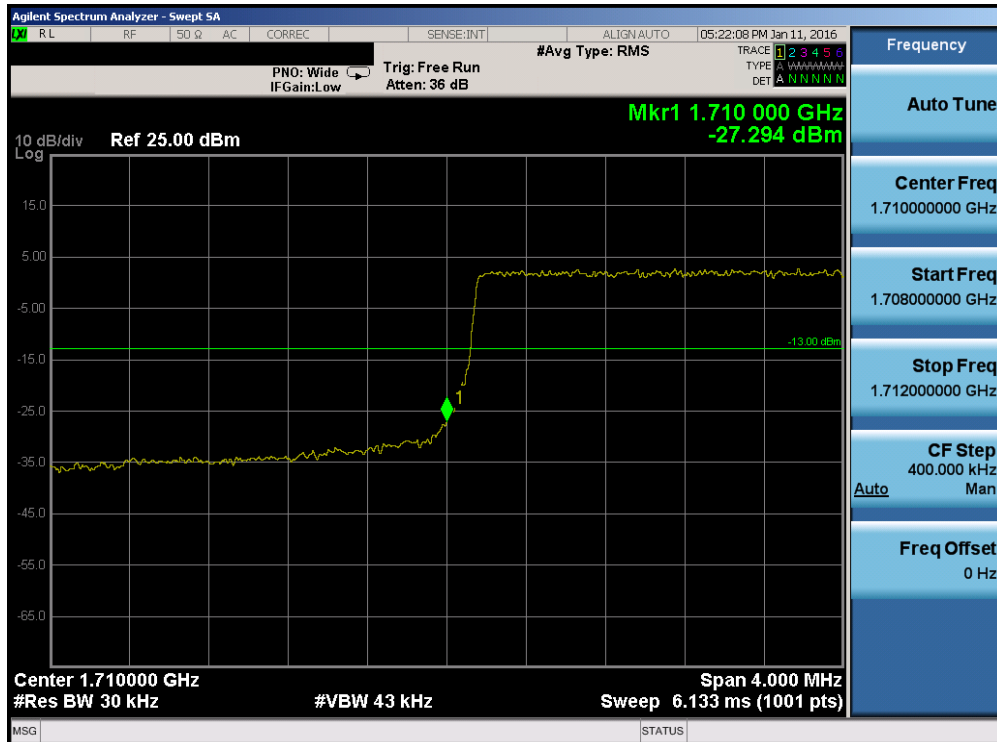


Plot 7-147. Upper Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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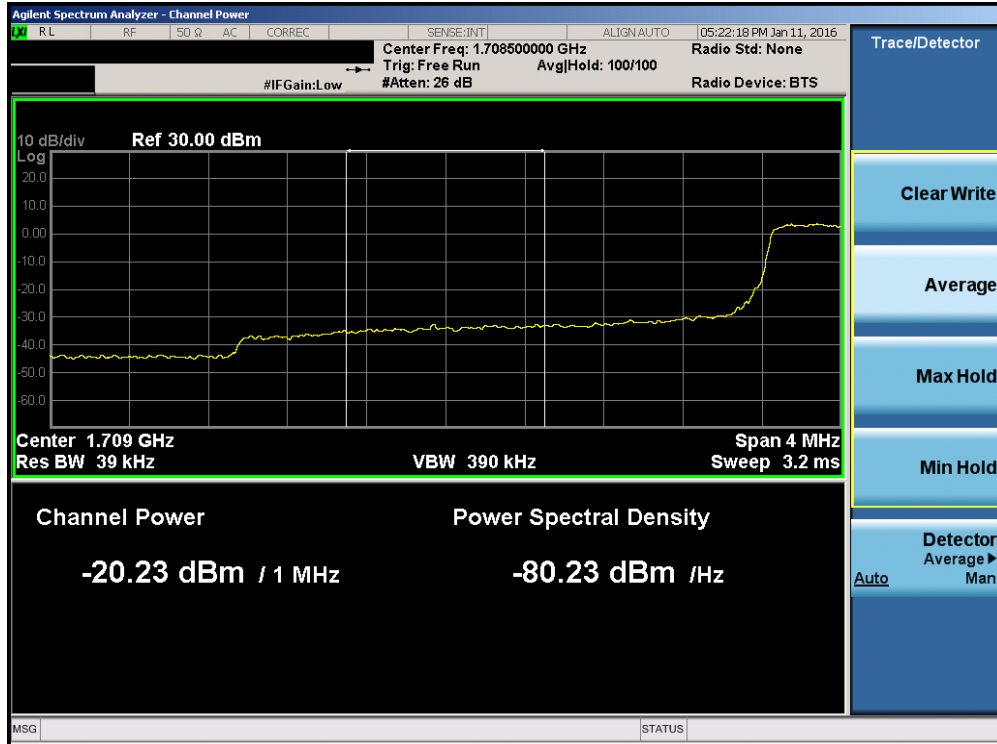


Plot 7-148. Upper Extended Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)

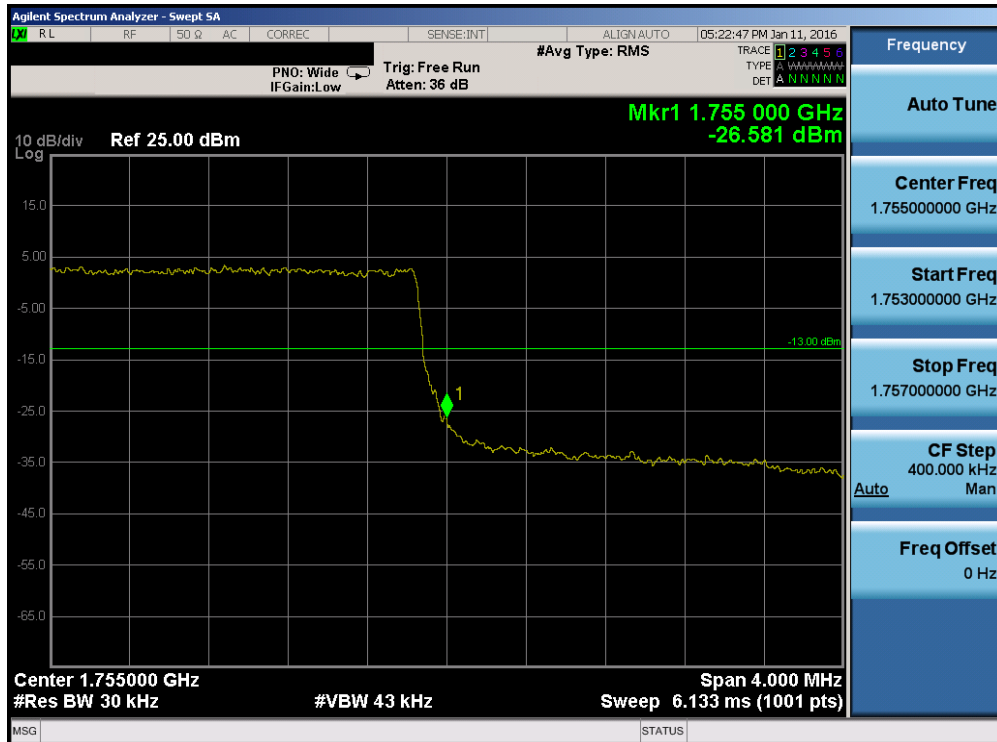


Plot 7-149. Lower Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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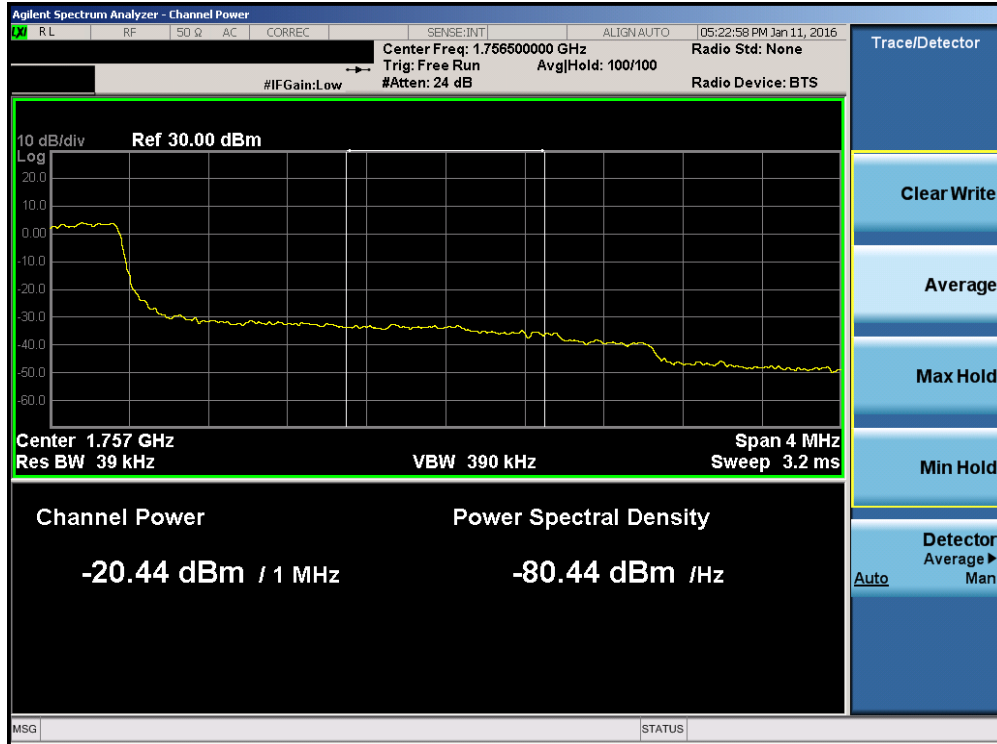


Plot 7-150. Lower Extended Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)

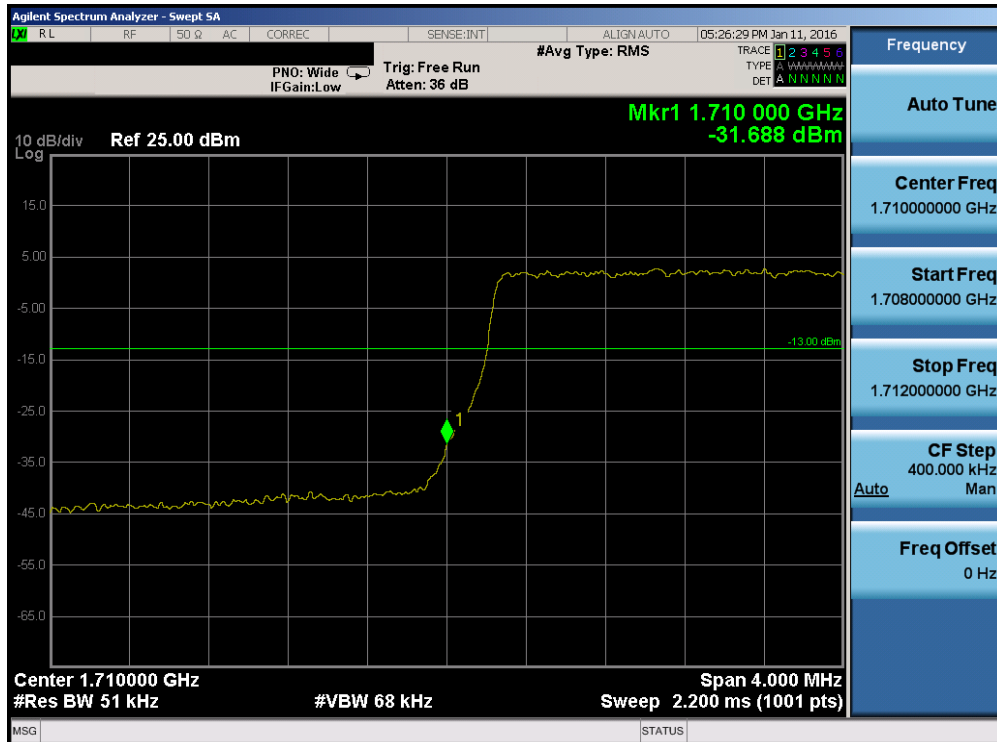


Plot 7-151. Upper Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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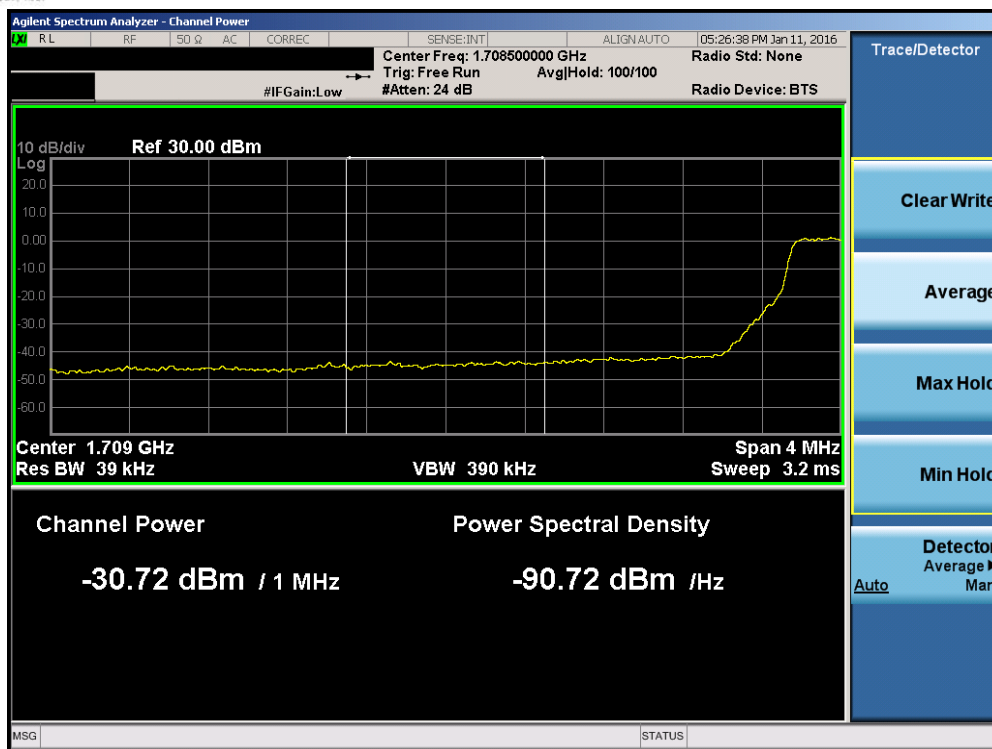


Plot 7-152. Upper Extended Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)

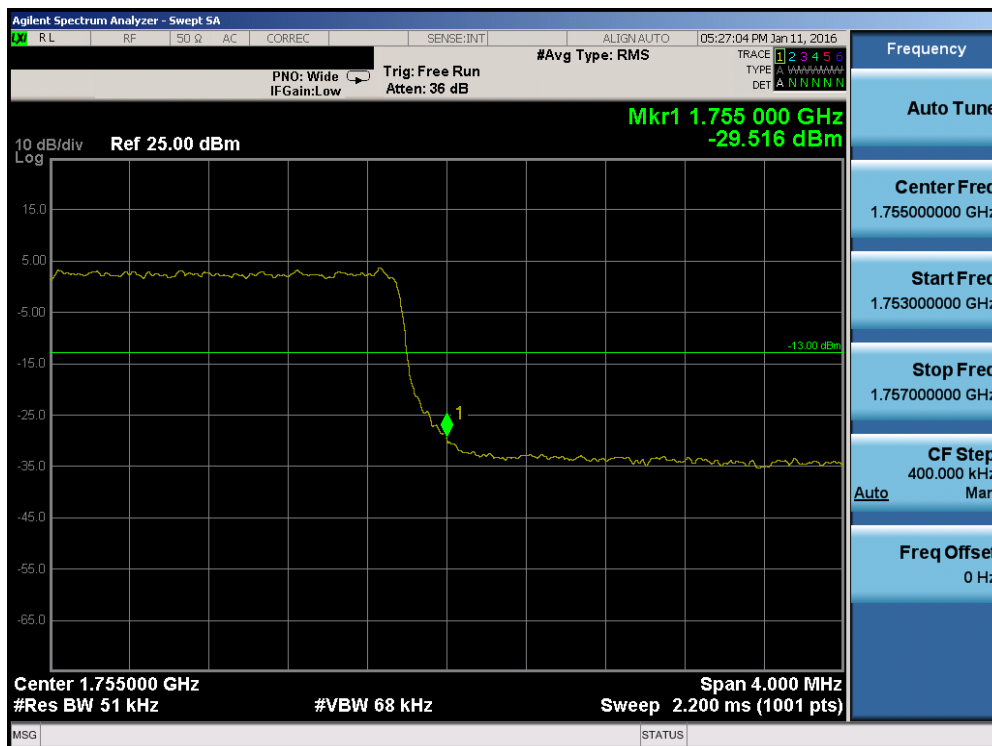


Plot 7-153. Lower Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 93 of 162

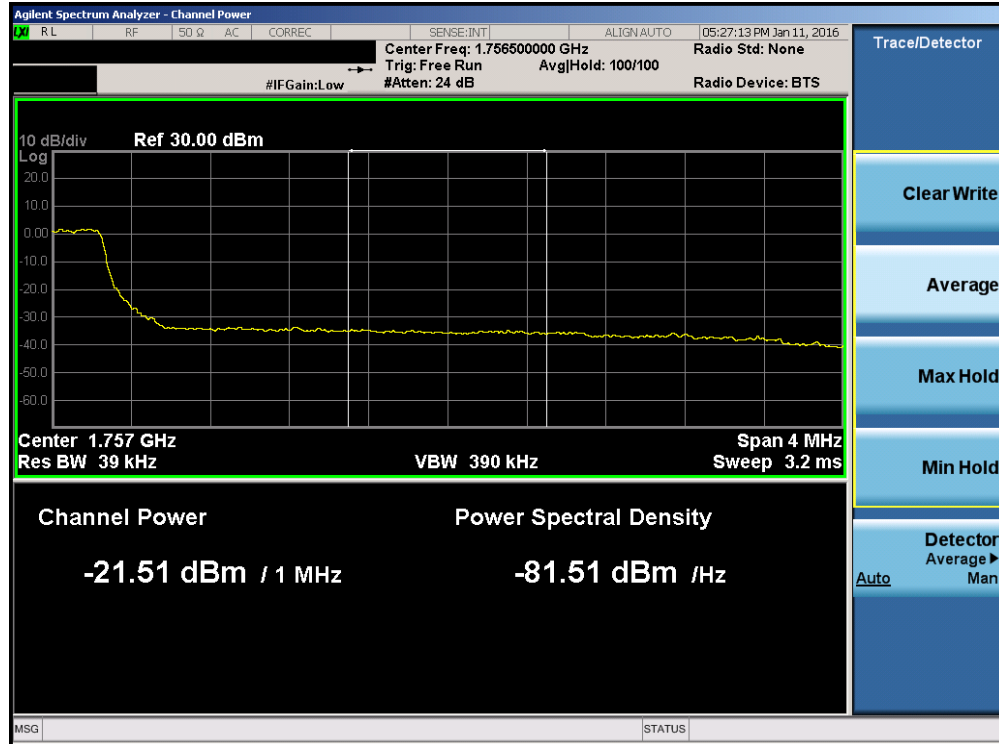


Plot 7-154. Lower Extended Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)

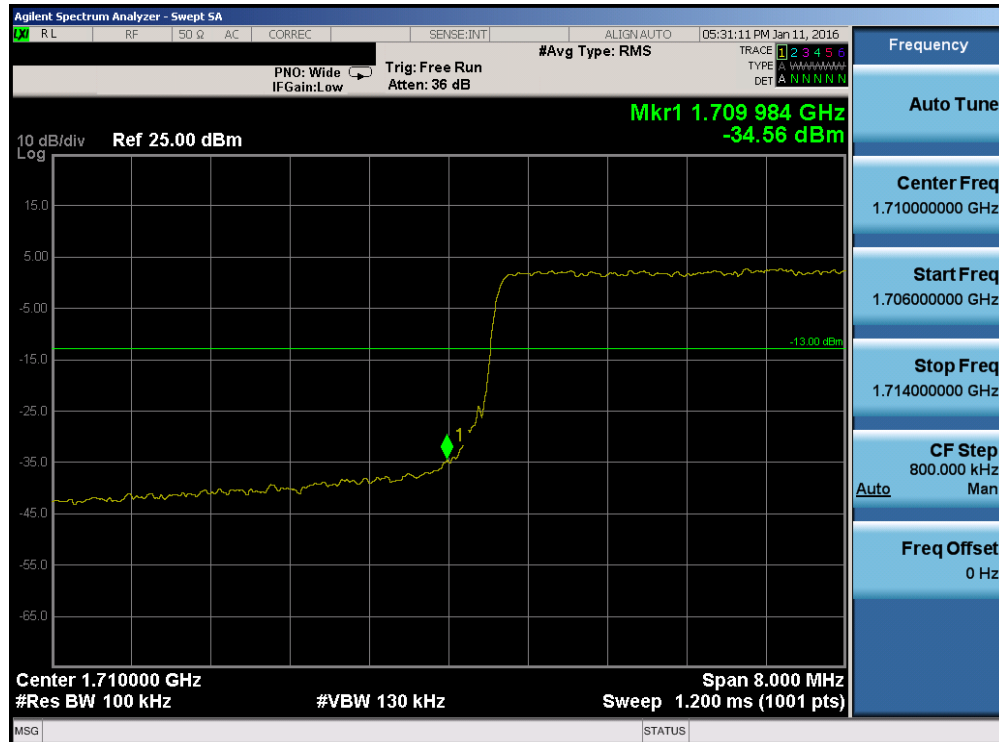


Plot 7-155. Upper Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 94 of 162

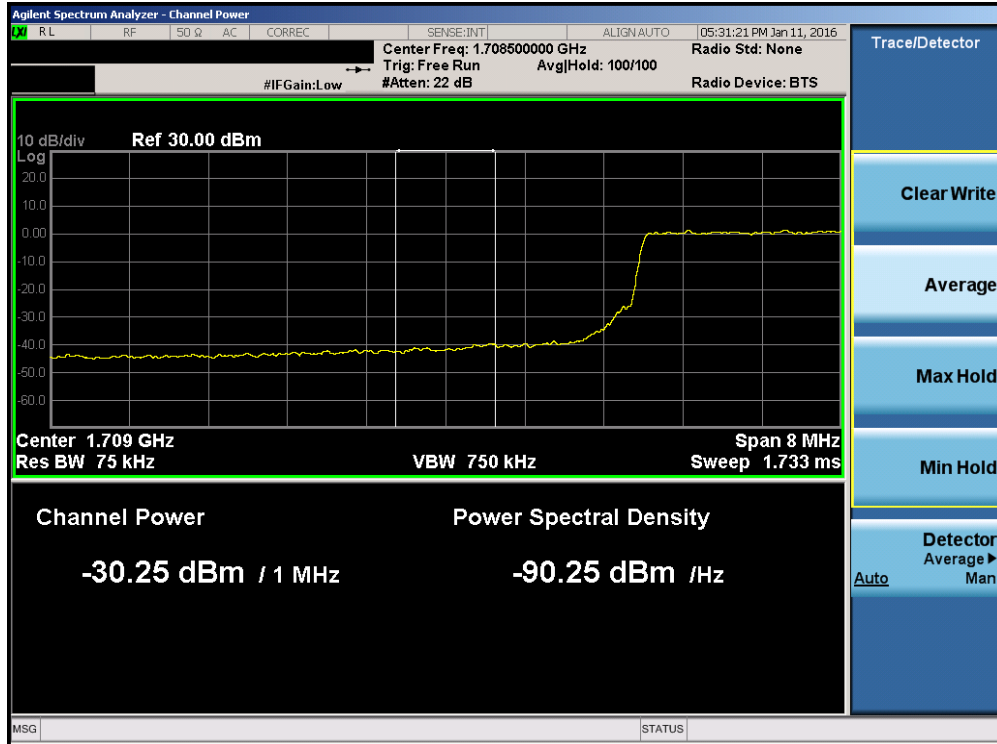


Plot 7-156. Upper Extended Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)

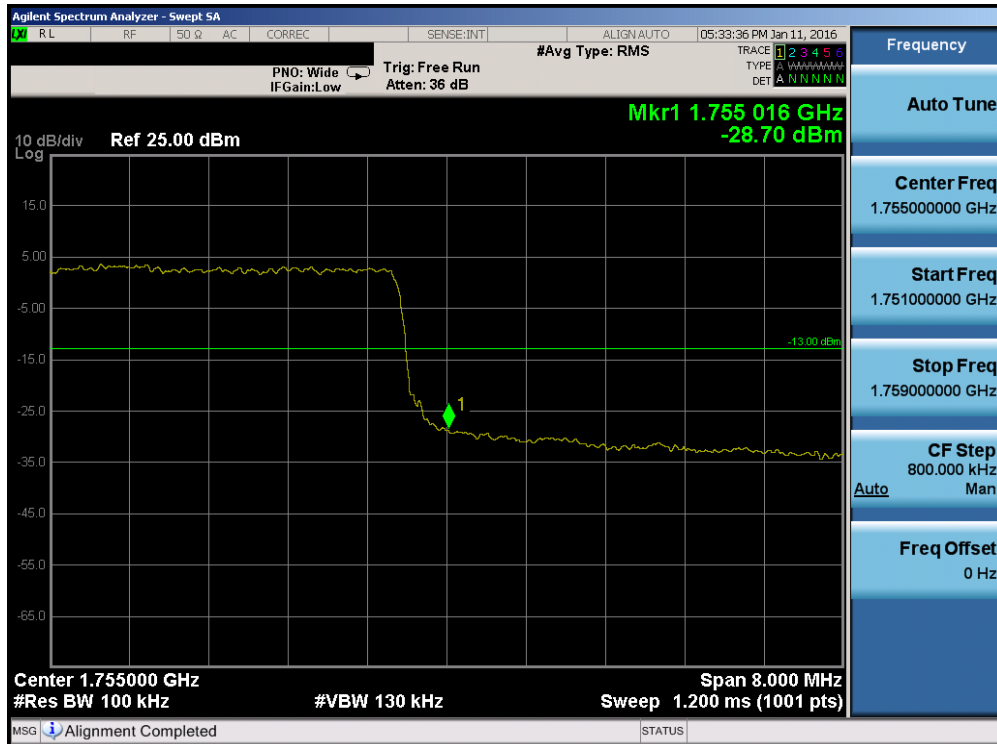


Plot 7-157. Lower Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 95 of 162

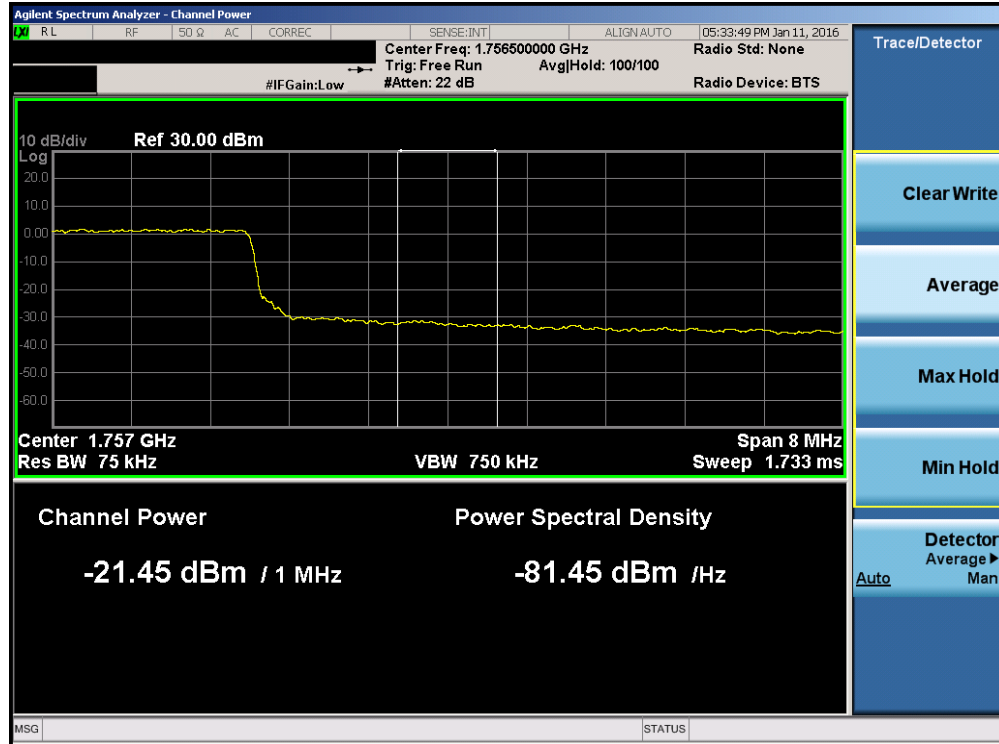


Plot 7-158. Lower Extended Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)

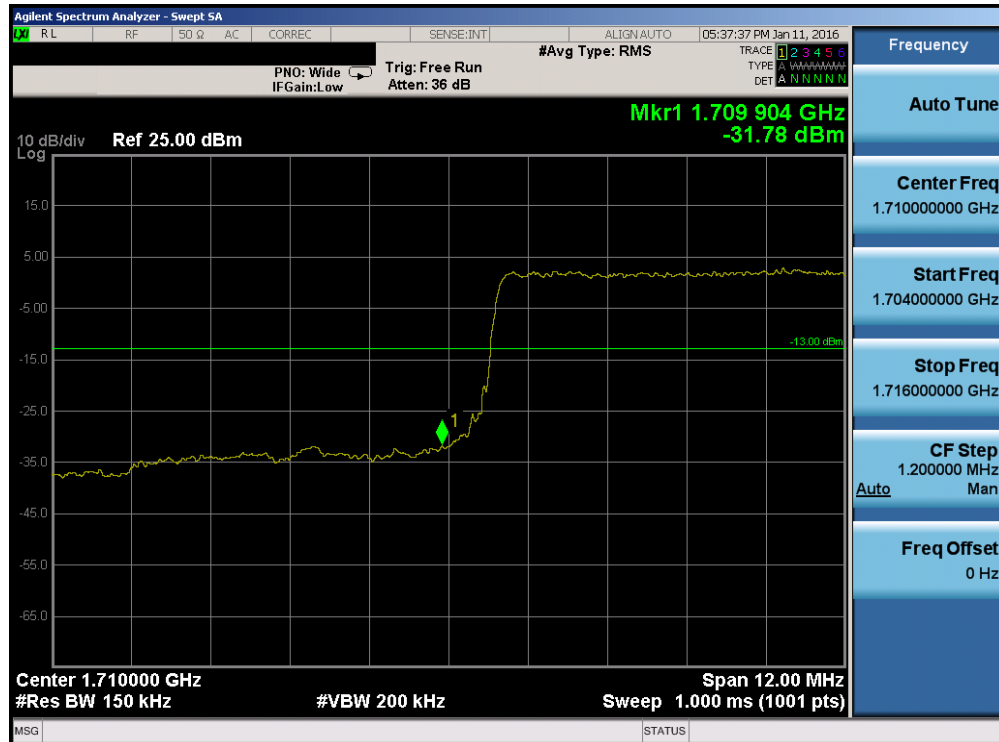


Plot 7-159. Upper Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 96 of 162

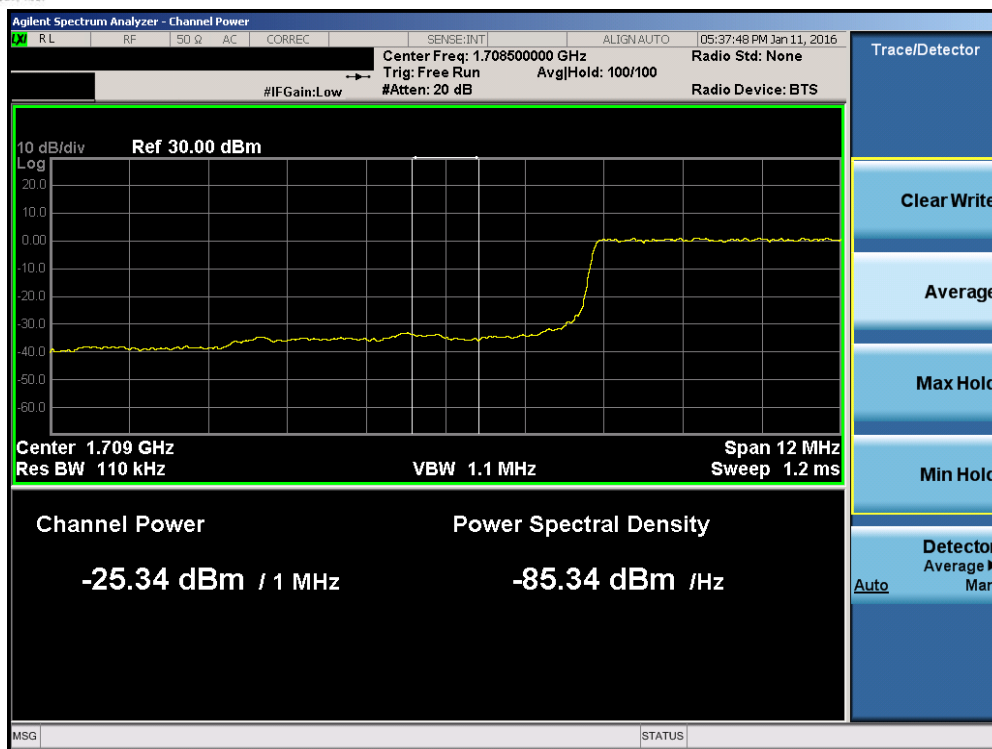


Plot 7-160. Upper Extended Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)

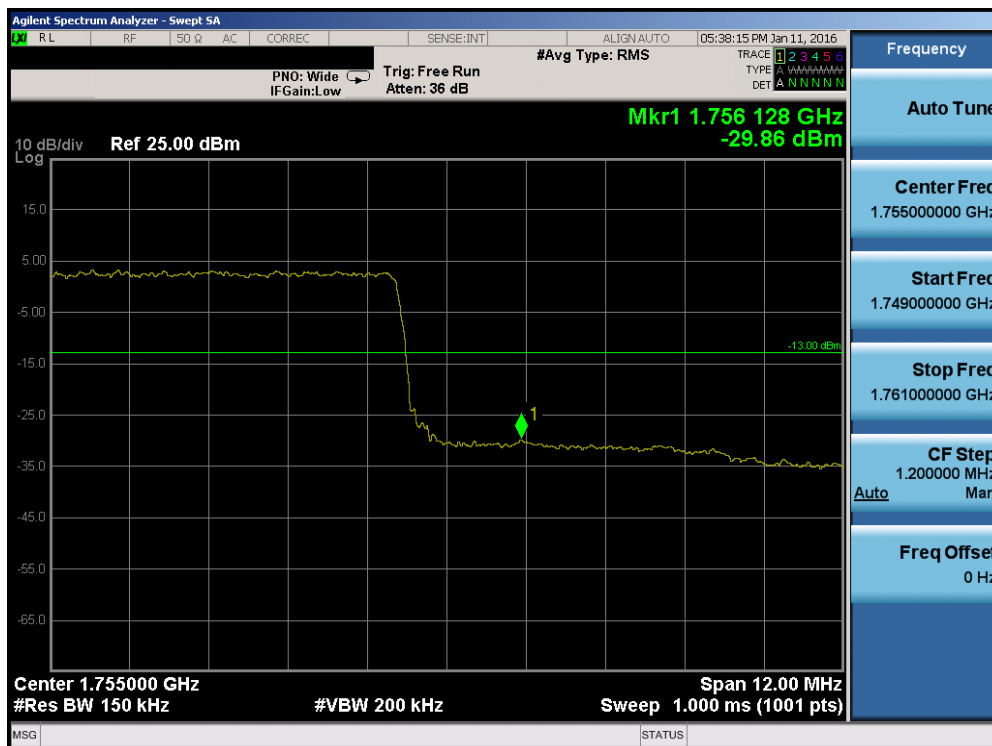


Plot 7-161. Lower Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 97 of 162

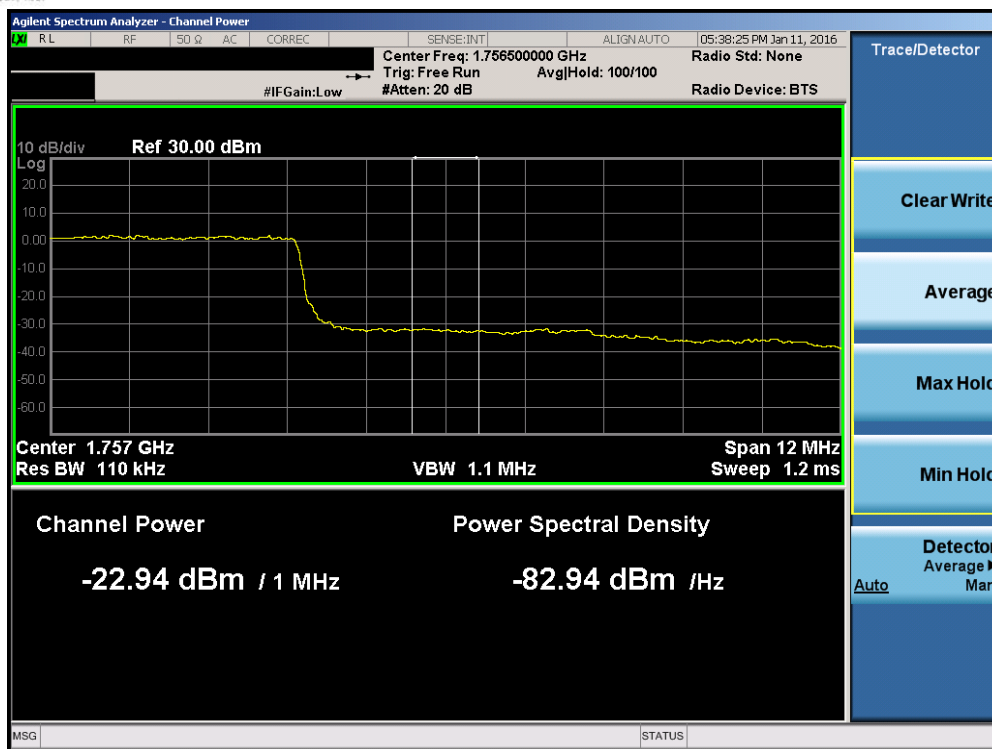


Plot 7-162. Lower Extended Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

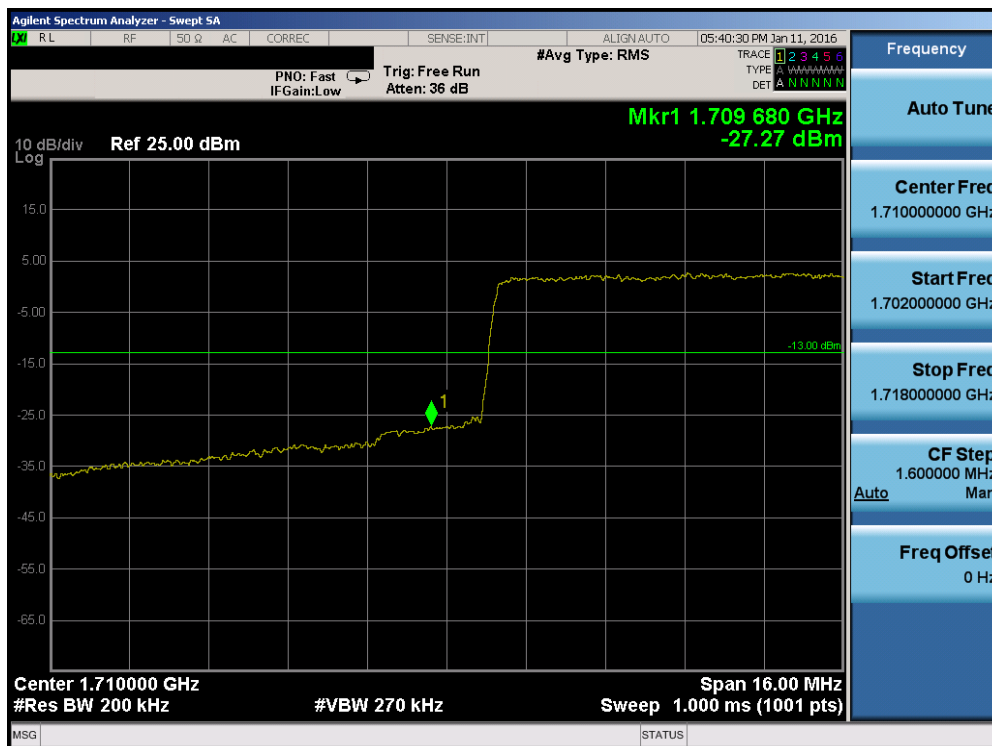


Plot 7-163. Upper Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 98 of 162

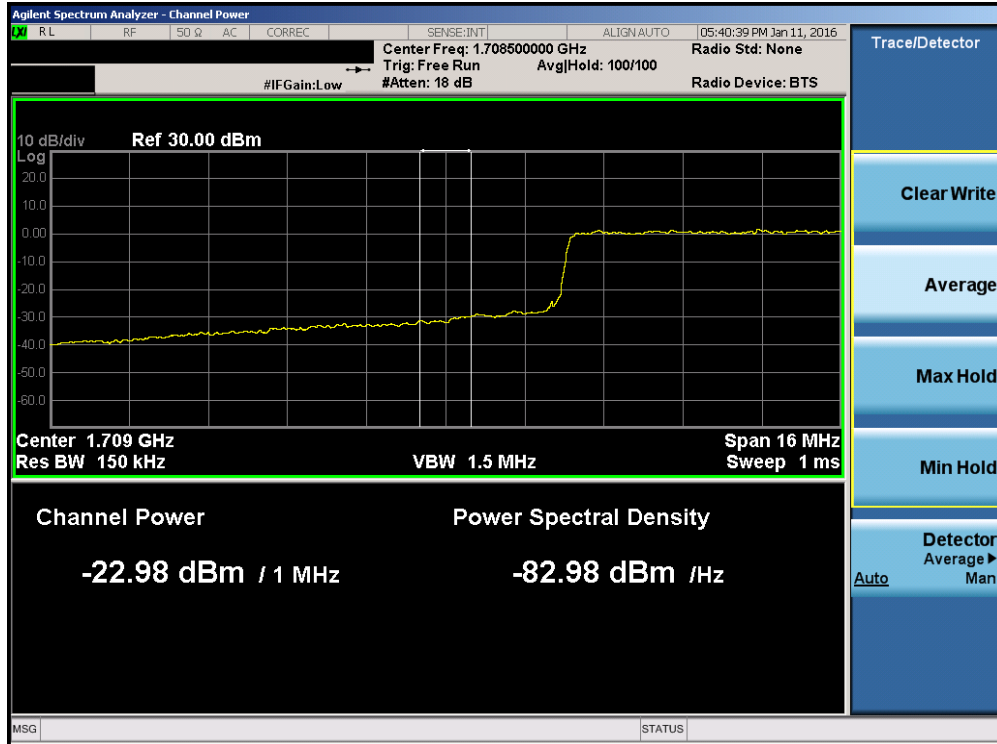


Plot 7-164. Upper Extended Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

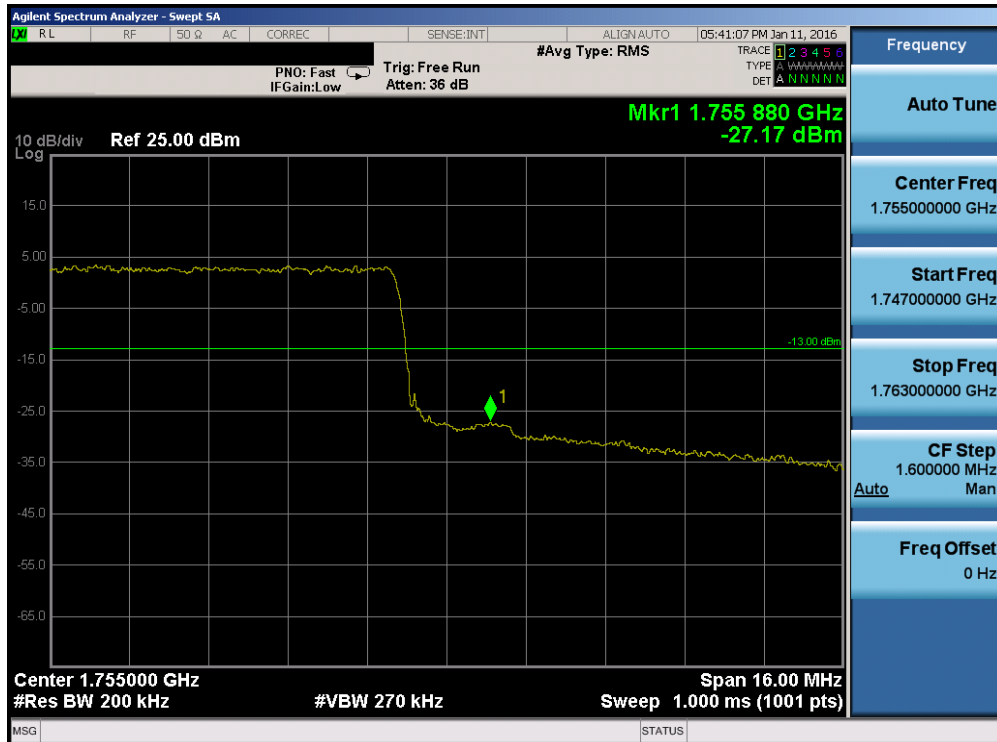


Plot 7-165. Lower Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 99 of 162

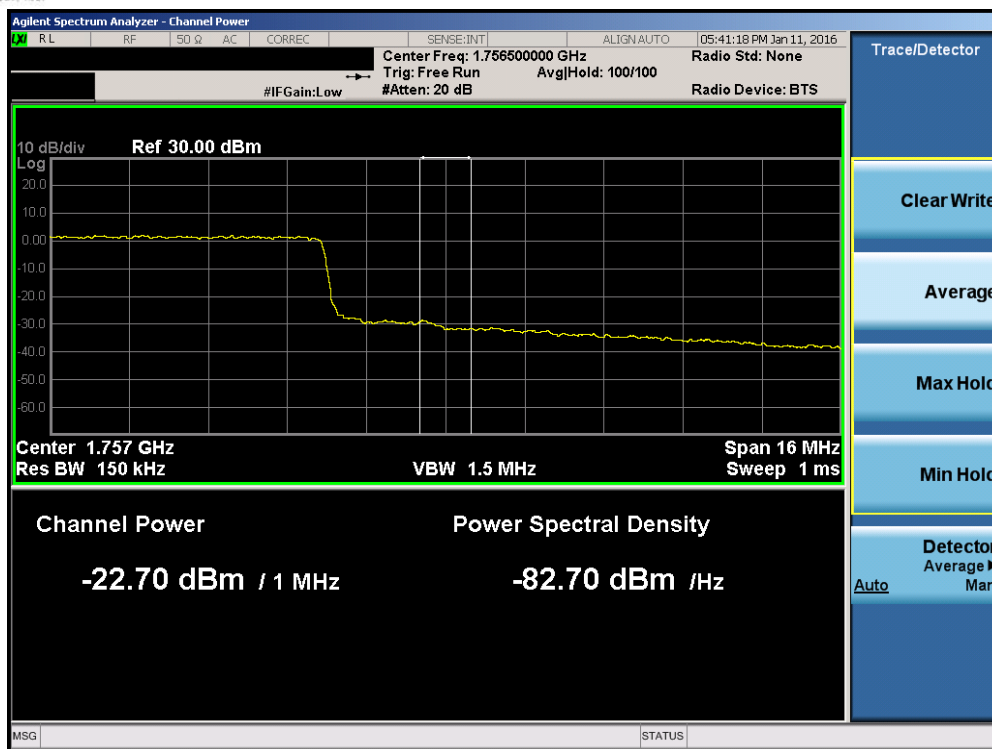


Plot 7-166. Lower Extended Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)

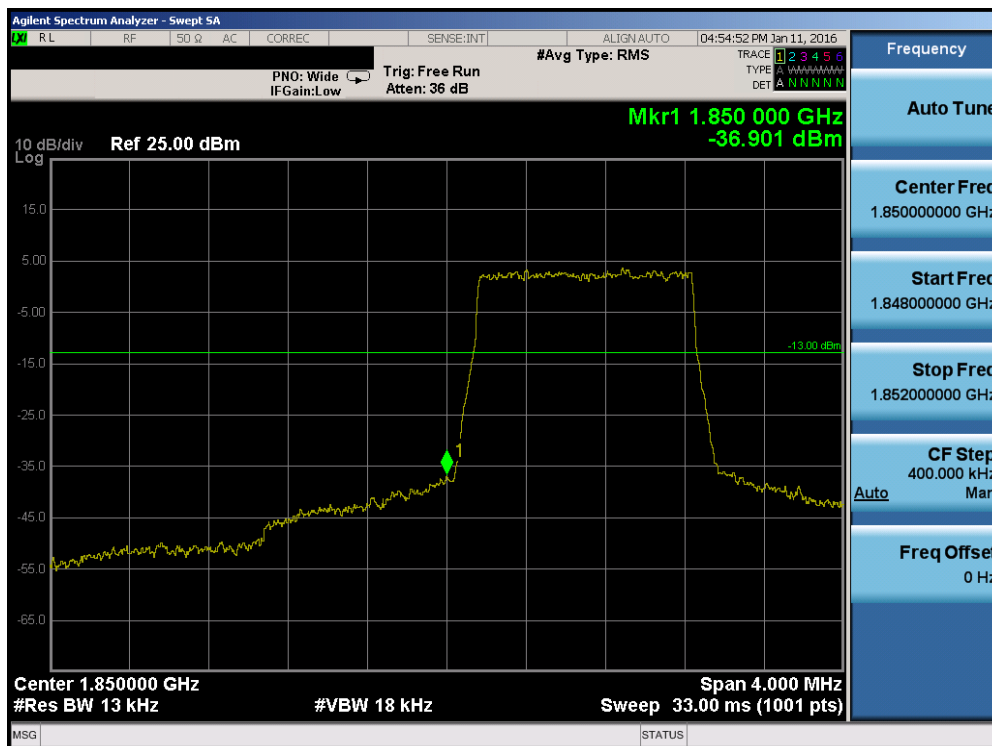


Plot 7-167. Upper Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 100 of 162

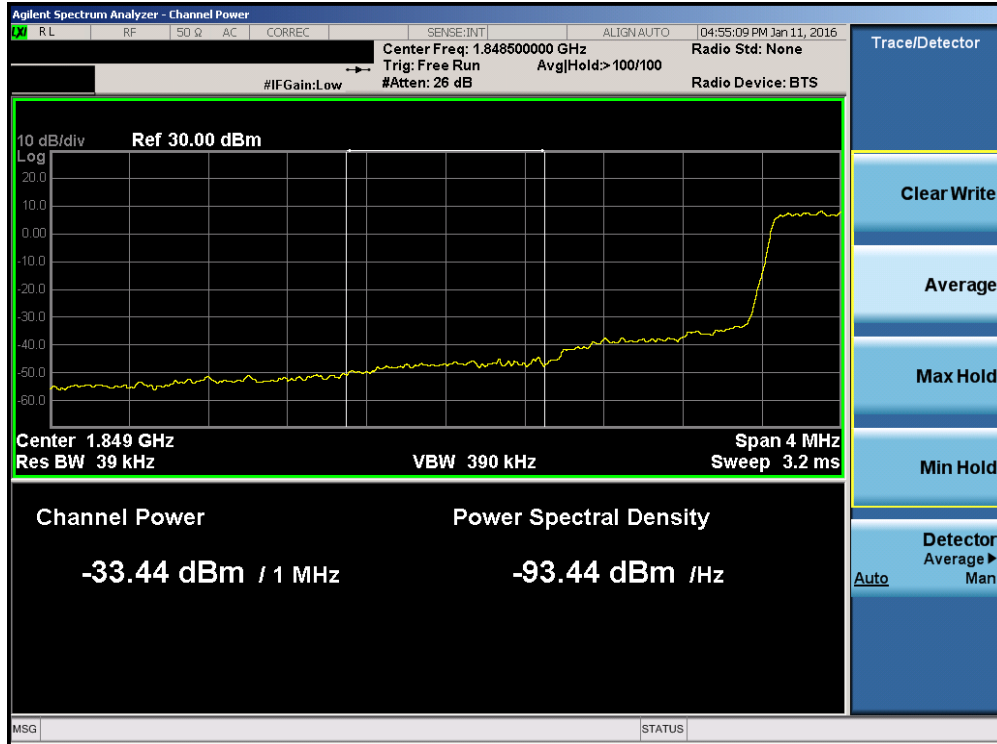


Plot 7-168. Upper Extended Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)

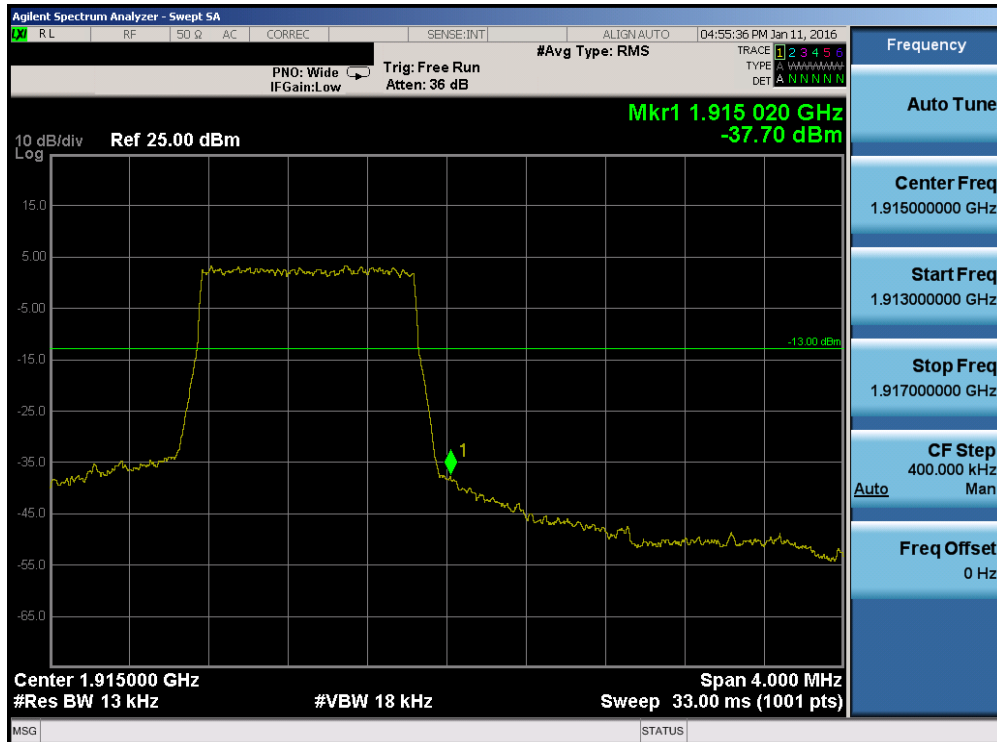


Plot 7-169. Lower Band Edge Plot (Band 2/25 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 101 of 162

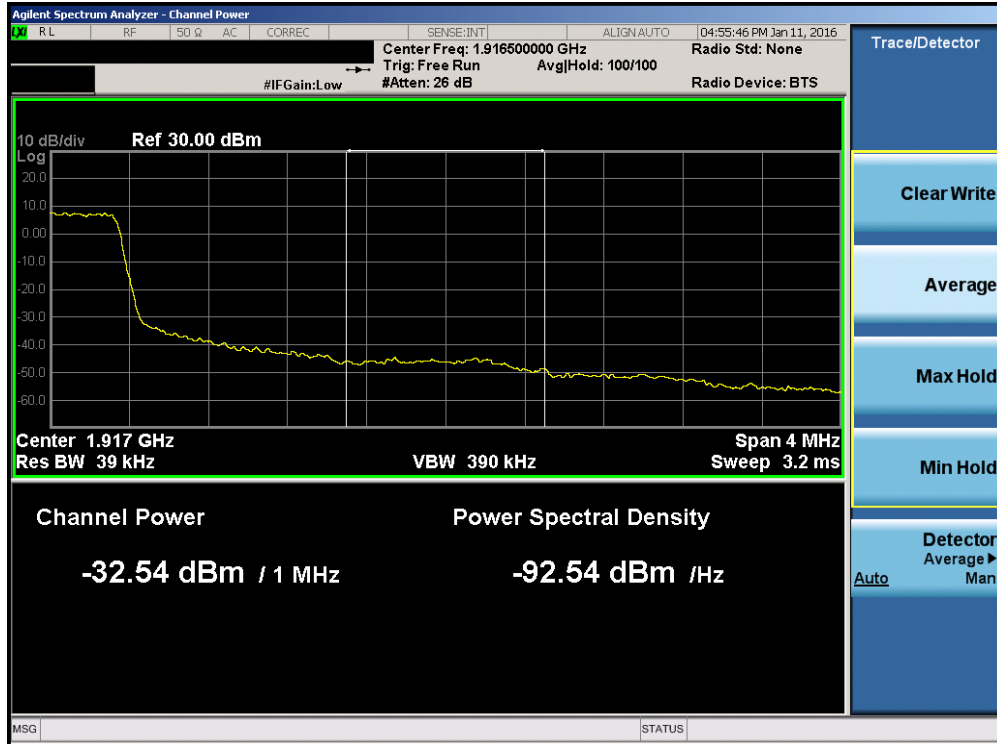


Plot 7-170. Lower Extended Band Edge Plot (Band 2/25 – 1.4MHz QPSK – RB Size 6)

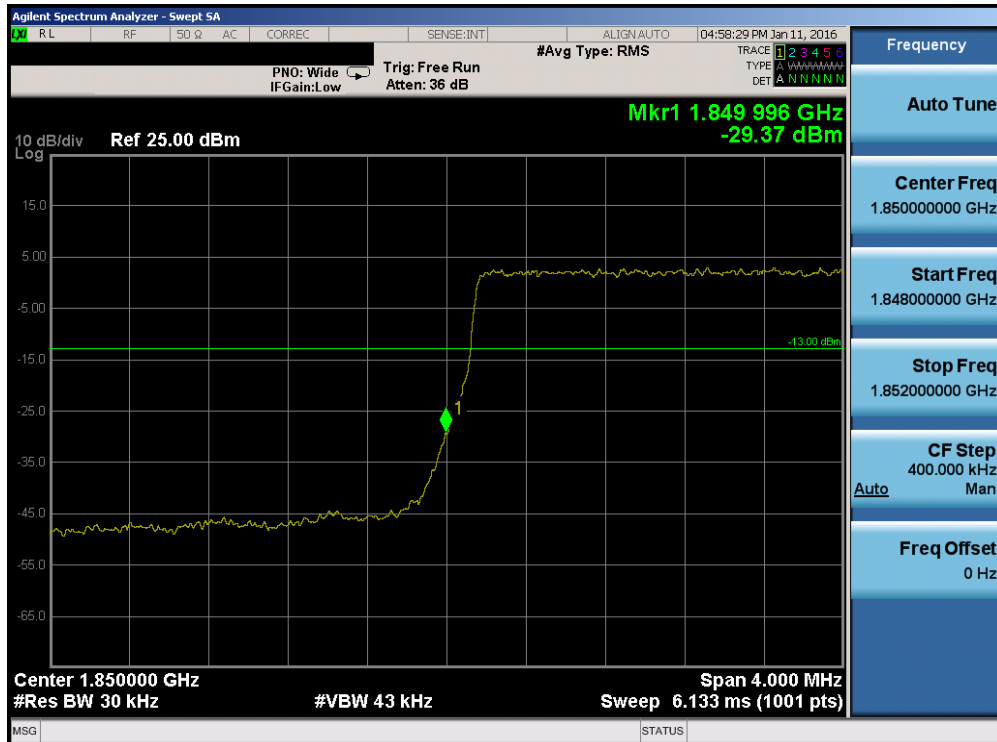


Plot 7-171. Upper Band Edge Plot (Band 2/25 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 102 of 162

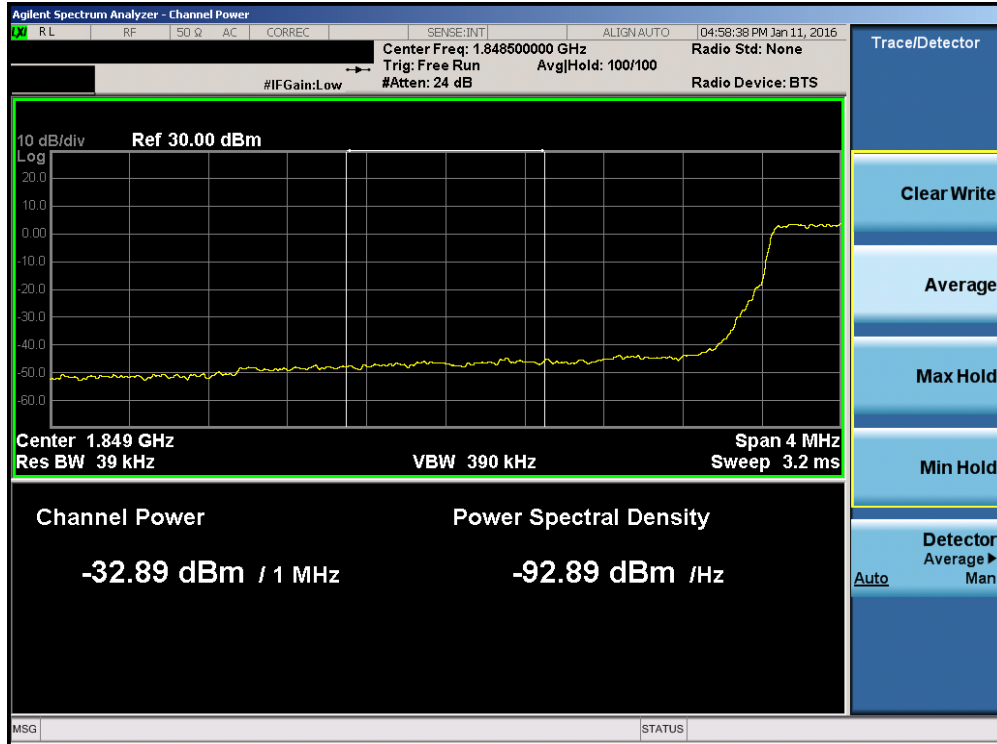


Plot 7-172. Upper Extended Band Edge Plot (Band 2/25 – 1.4MHz QPSK – RB Size 6)

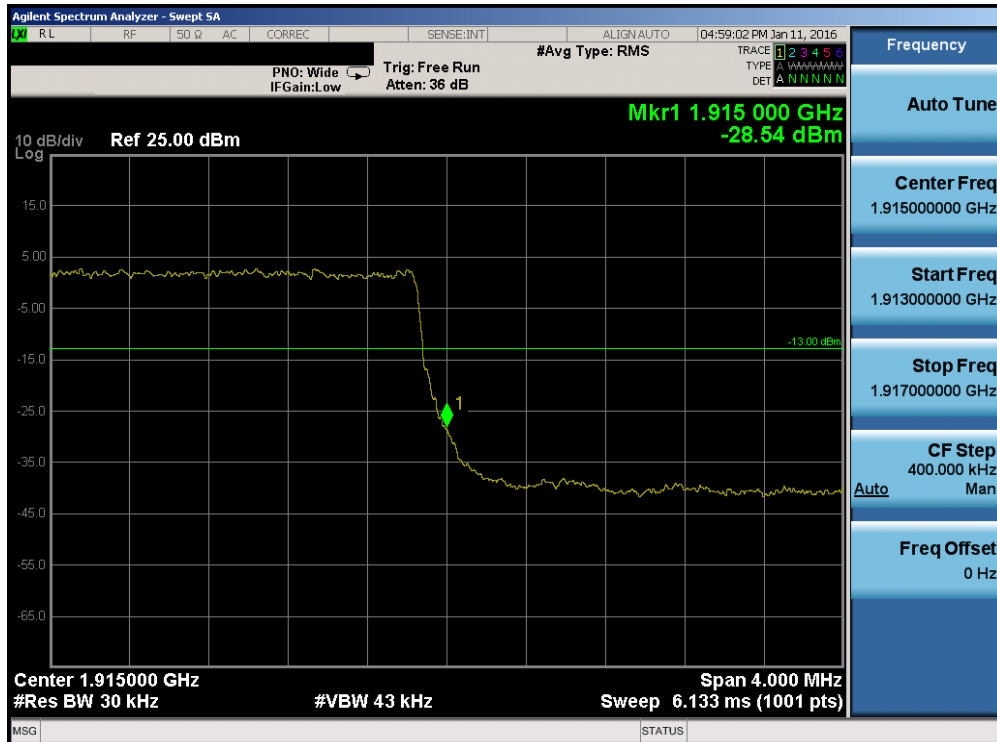


Plot 7-173. Lower Band Edge Plot (Band 2/25 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 103 of 162

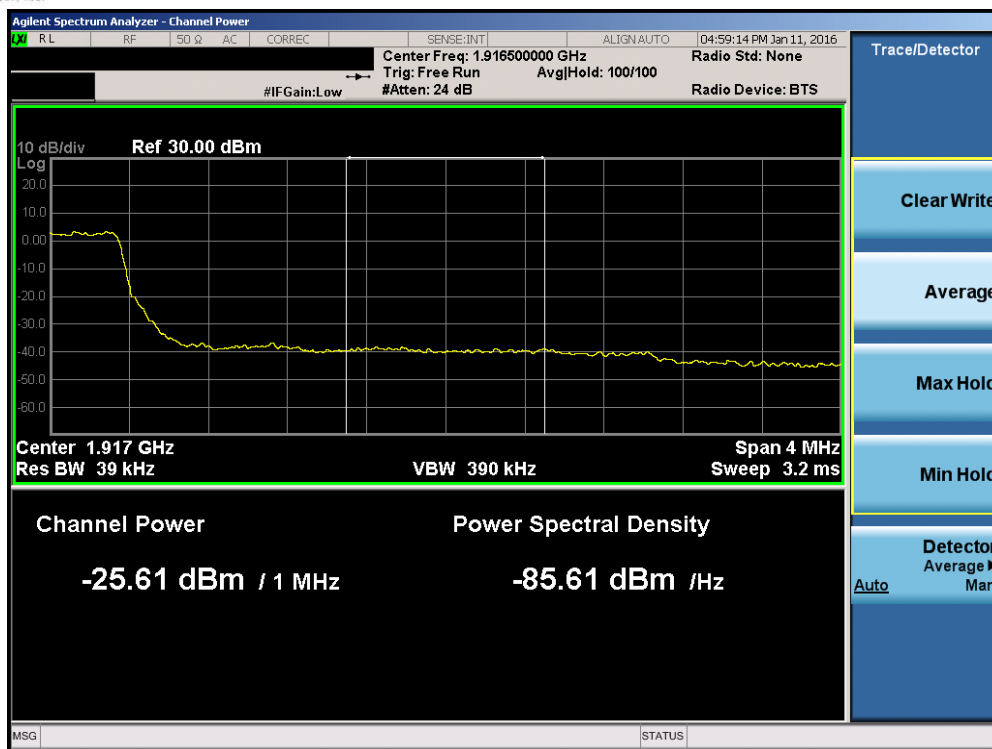


Plot 7-174. Lower Extended Band Edge Plot (Band 2/25 – 3.0MHz QPSK – RB Size 15)

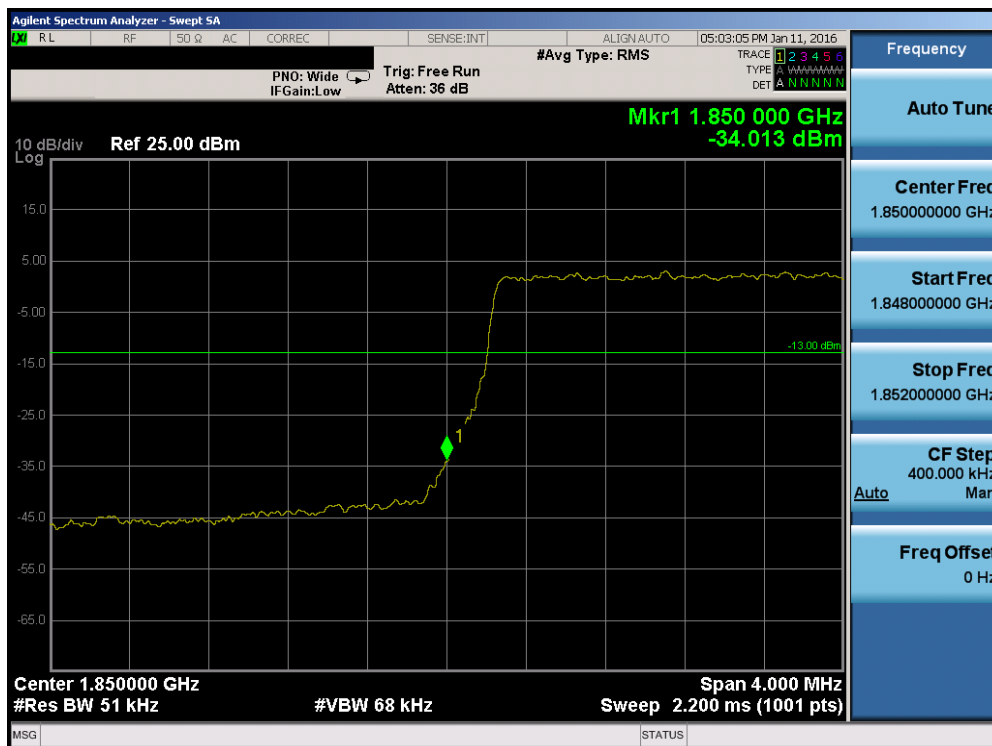


Plot 7-175. Upper Band Edge Plot (Band 2/25 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 104 of 162

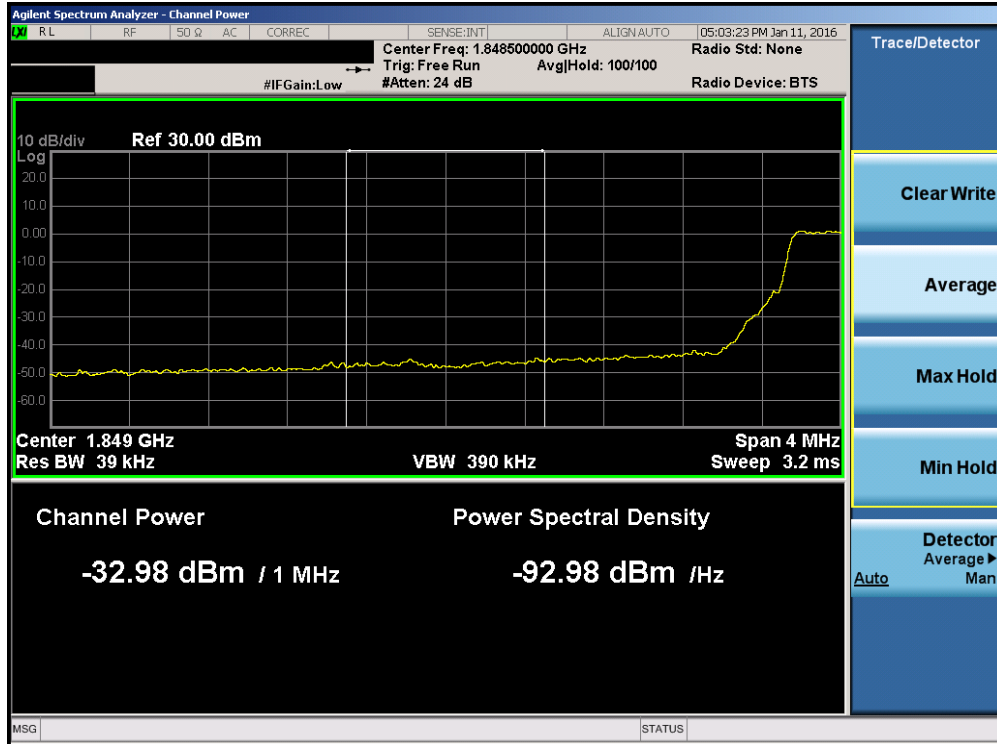


Plot 7-176. Upper Extended Band Edge Plot (Band 2/25 – 3.0MHz QPSK – RB Size 15)



Plot 7-177. Lower Band Edge Plot (Band 2/25 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 105 of 162

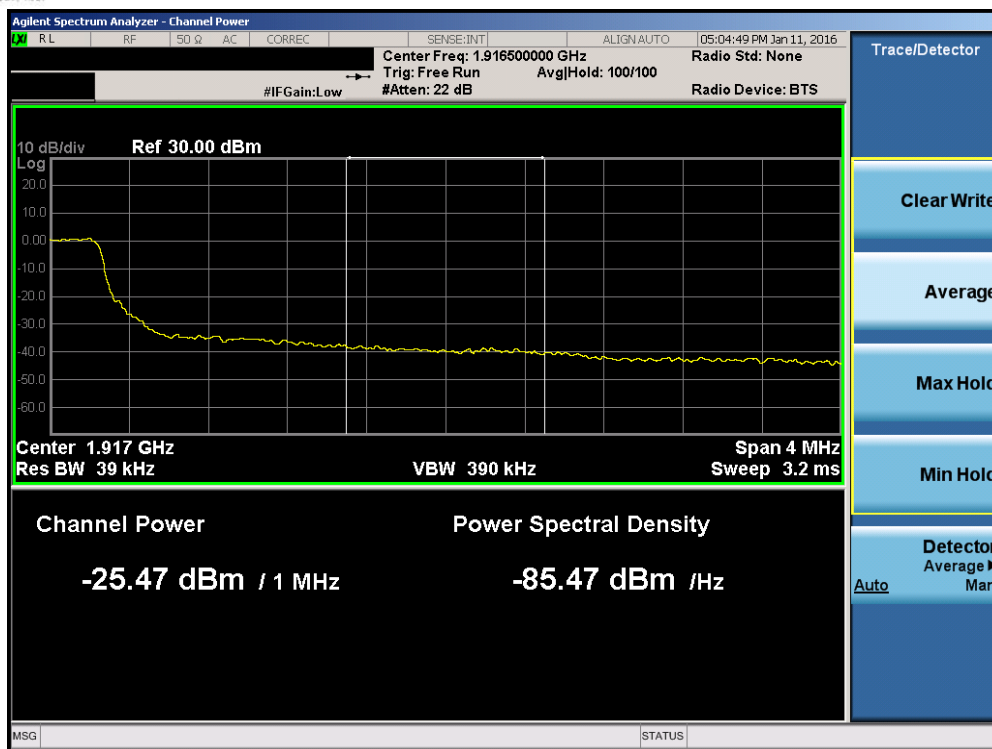


Plot 7-178. Lower Extended Band Edge Plot (Band 2/25 – 5.0MHz QPSK – RB Size 25)

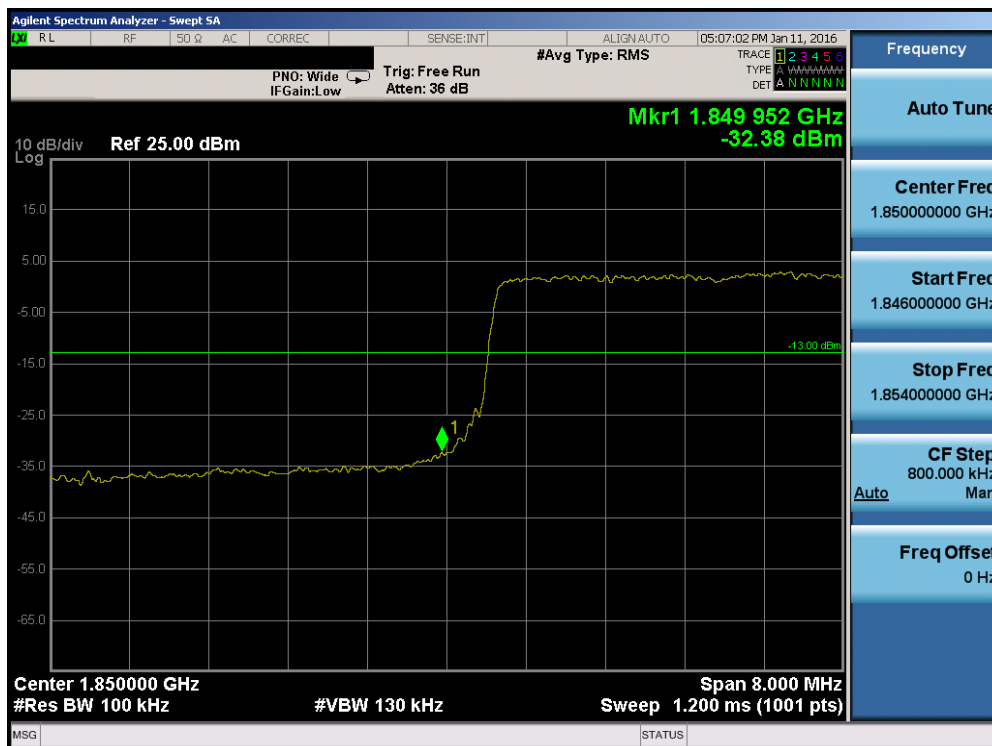


Plot 7-179. Upper Band Edge Plot (Band 2/25 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 106 of 162

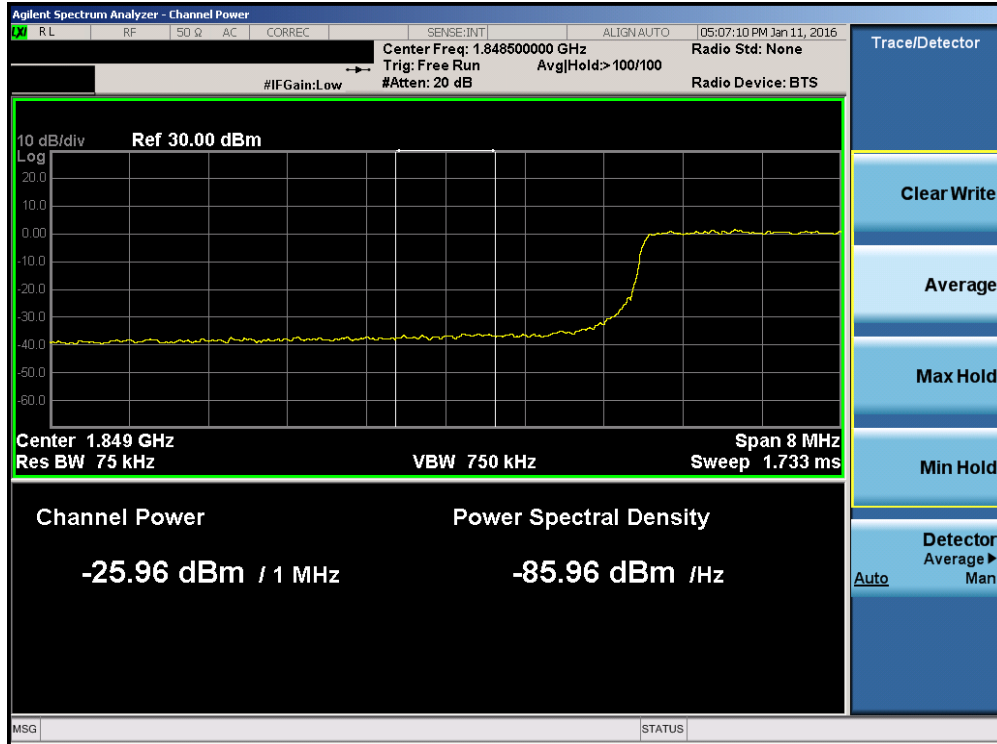


Plot 7-180. Upper Extended Band Edge Plot (Band 2/25 – 5.0MHz QPSK – RB Size 25)

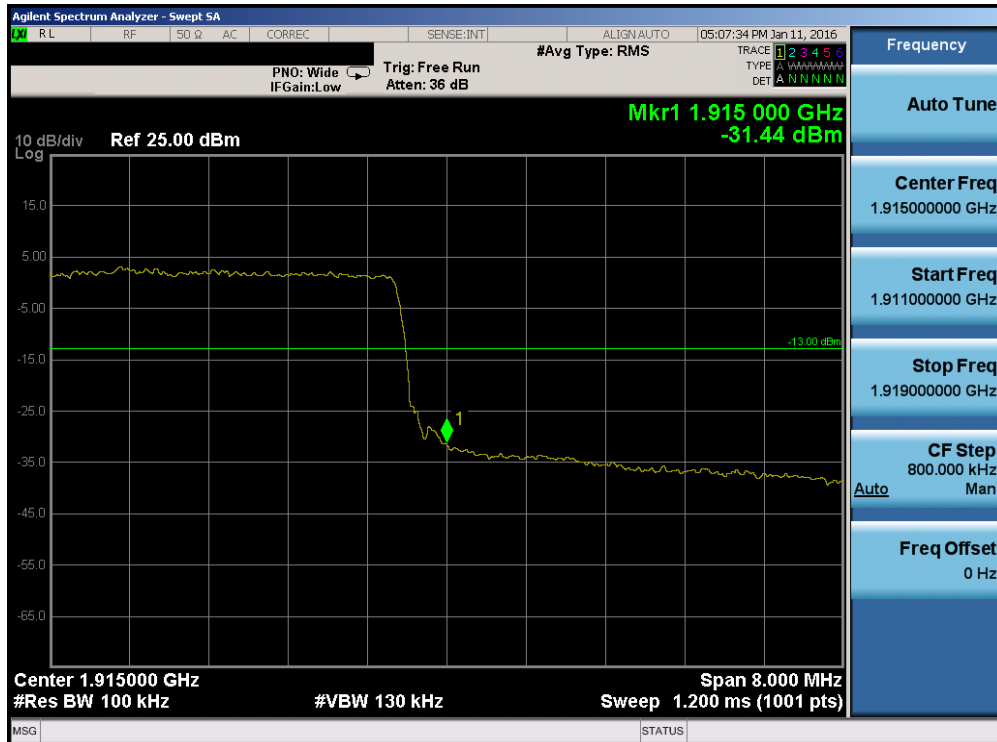


Plot 7-181. Lower Band Edge Plot (Band 2/25 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 107 of 162

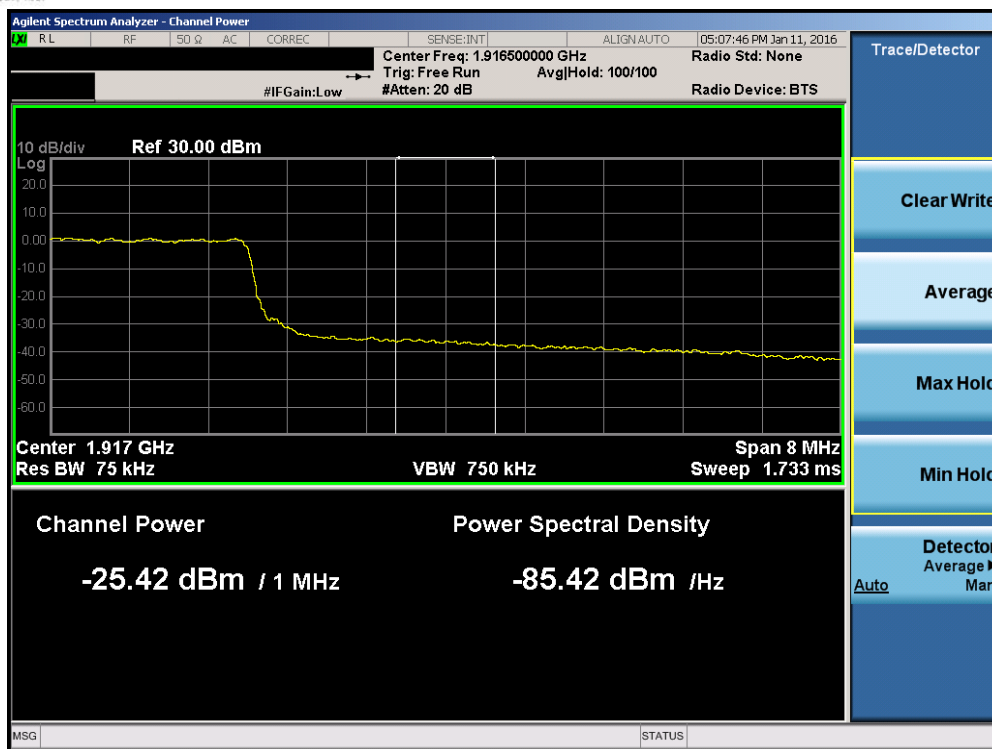


Plot 7-182. Lower Extended Band Edge Plot (Band 2/25 – 10.0MHz QPSK – RB Size 50)

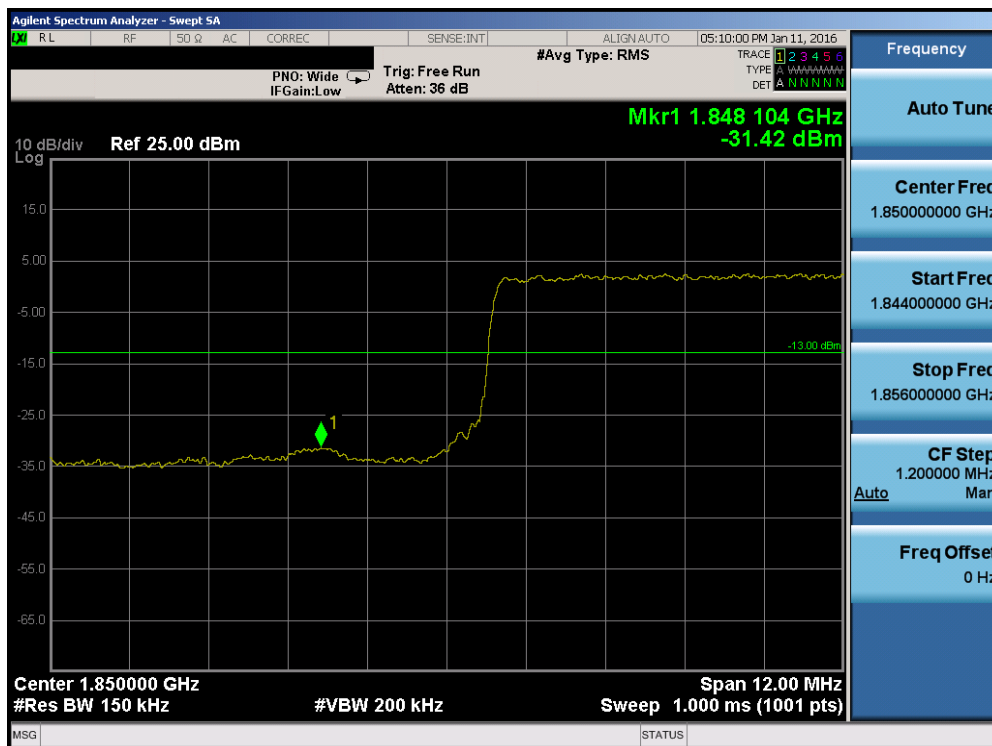


Plot 7-183. Upper Band Edge Plot (Band 2/25 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 108 of 162

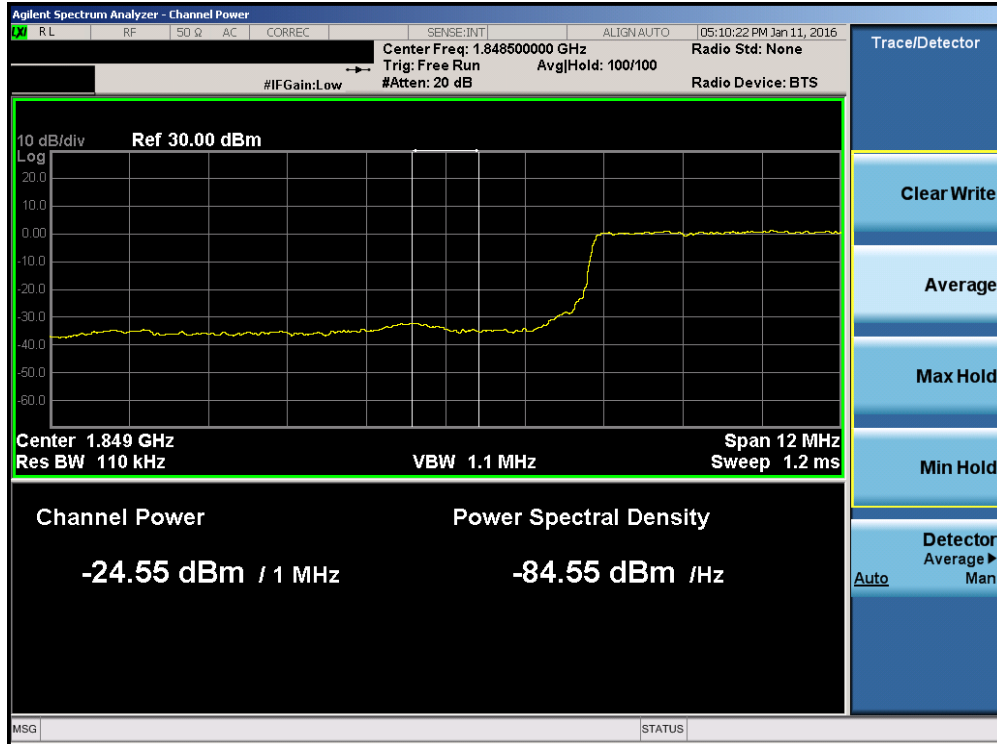


Plot 7-184. Upper Extended Band Edge Plot (Band 2/25 – 10.0MHz QPSK – RB Size 50)

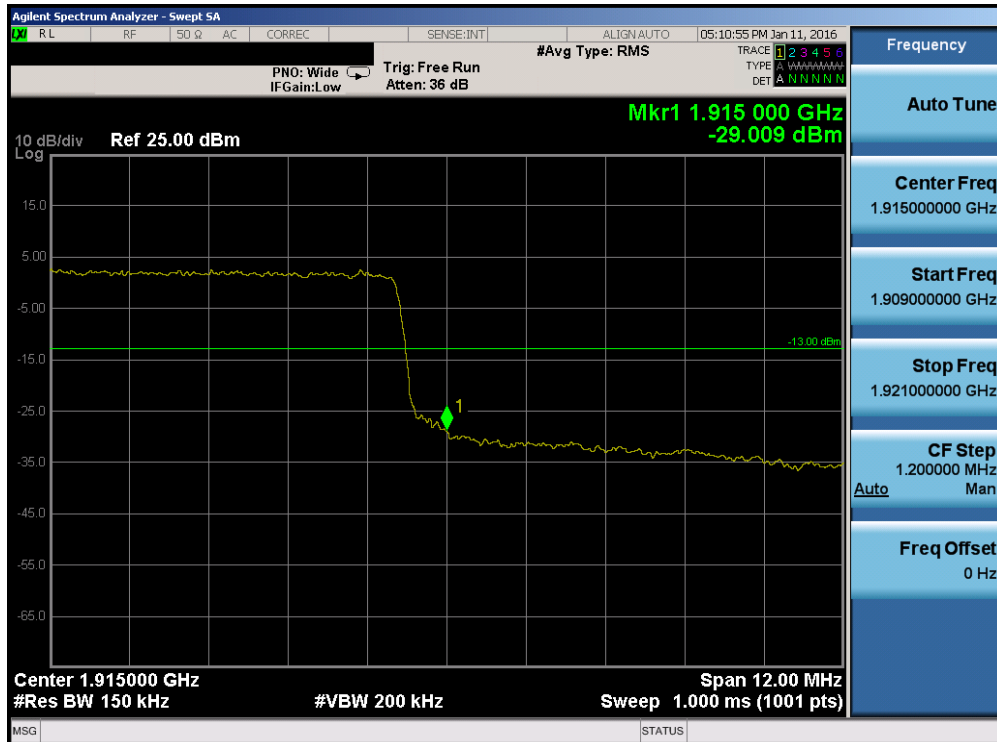


Plot 7-185. Lower Band Edge Plot (Band 2/25 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 109 of 162

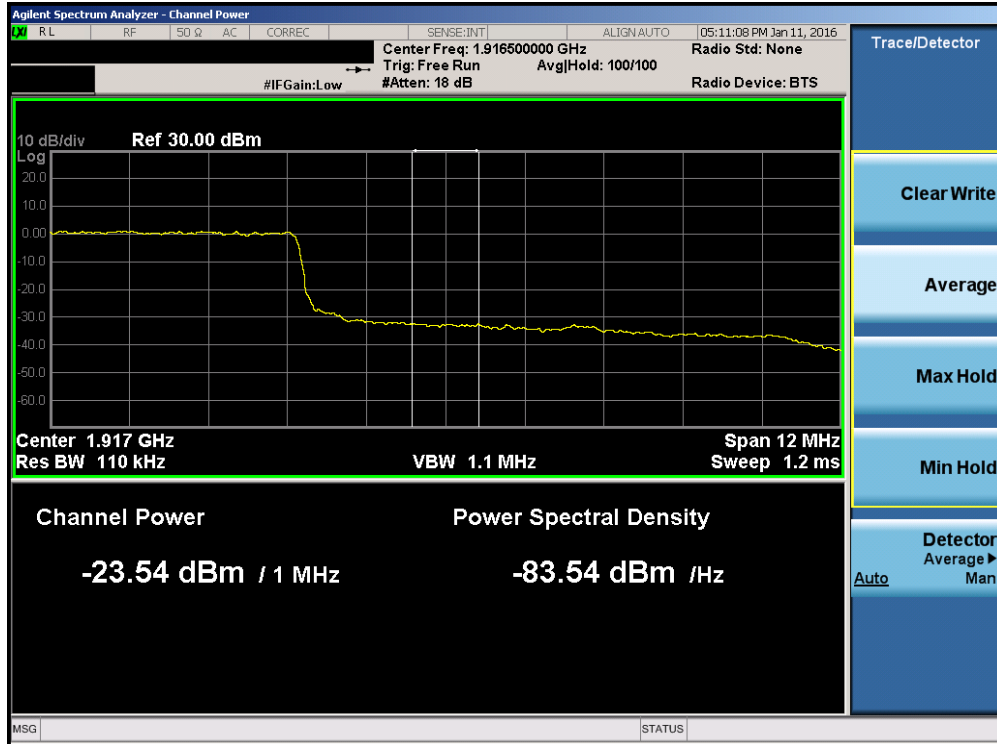


Plot 7-186. Lower Extended Band Edge Plot (Band 2/25 – 15.0MHz QPSK – RB Size 75)

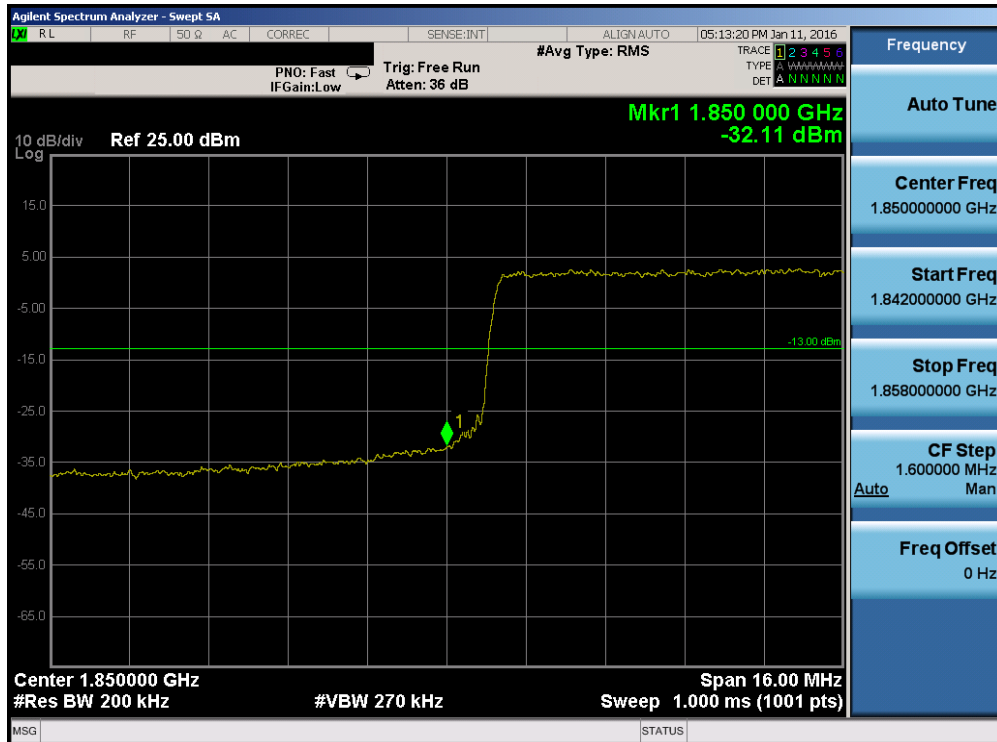


Plot 7-187. Upper Band Edge Plot (Band 2/25 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 110 of 162

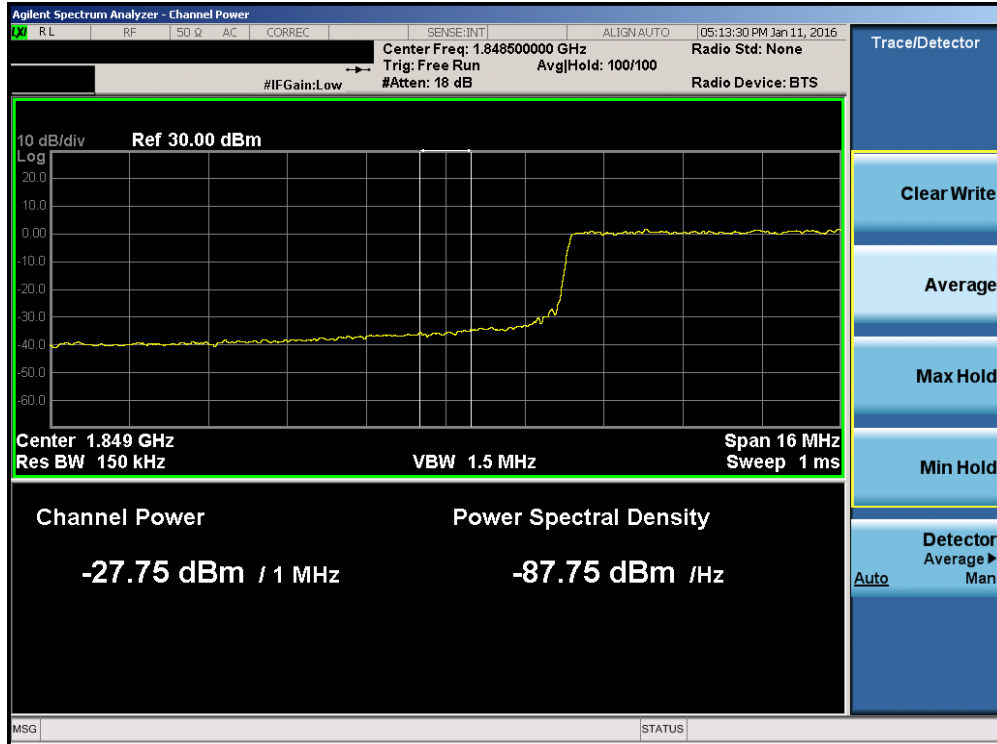


Plot 7-188. Upper Extended Band Edge Plot (Band 2/25 – 15.0MHz QPSK – RB Size 75)

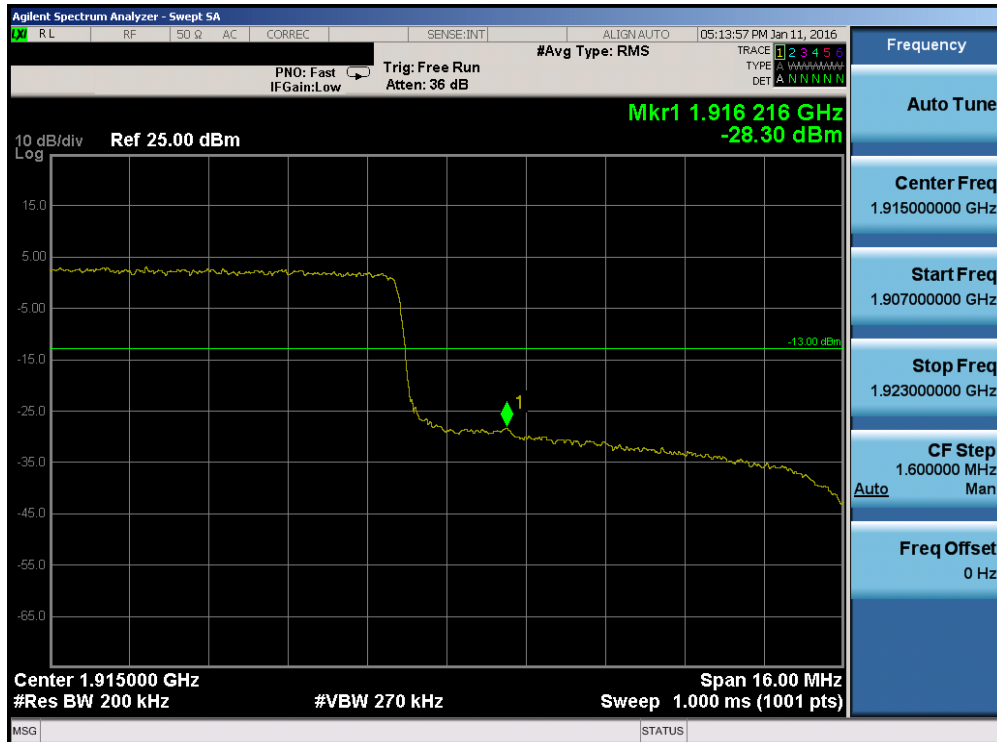


Plot 7-189. Lower Band Edge Plot (Band 2/25 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 111 of 162

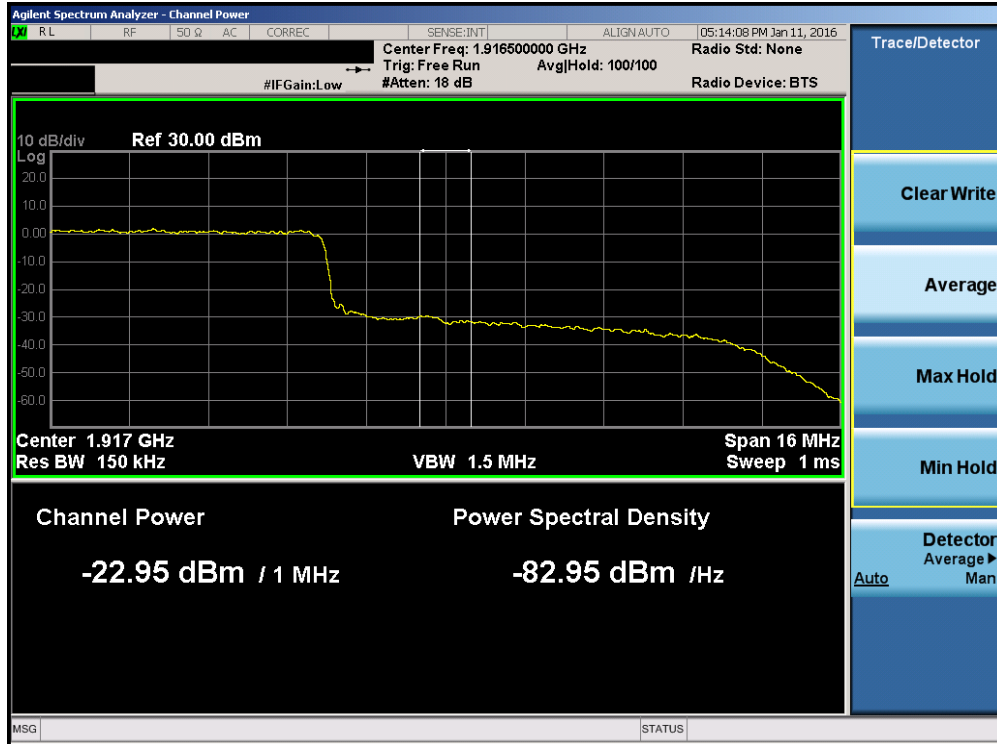


Plot 7-190. Lower Extended Band Edge Plot (Band 2/25 – 20.0MHz QPSK – RB Size 100)

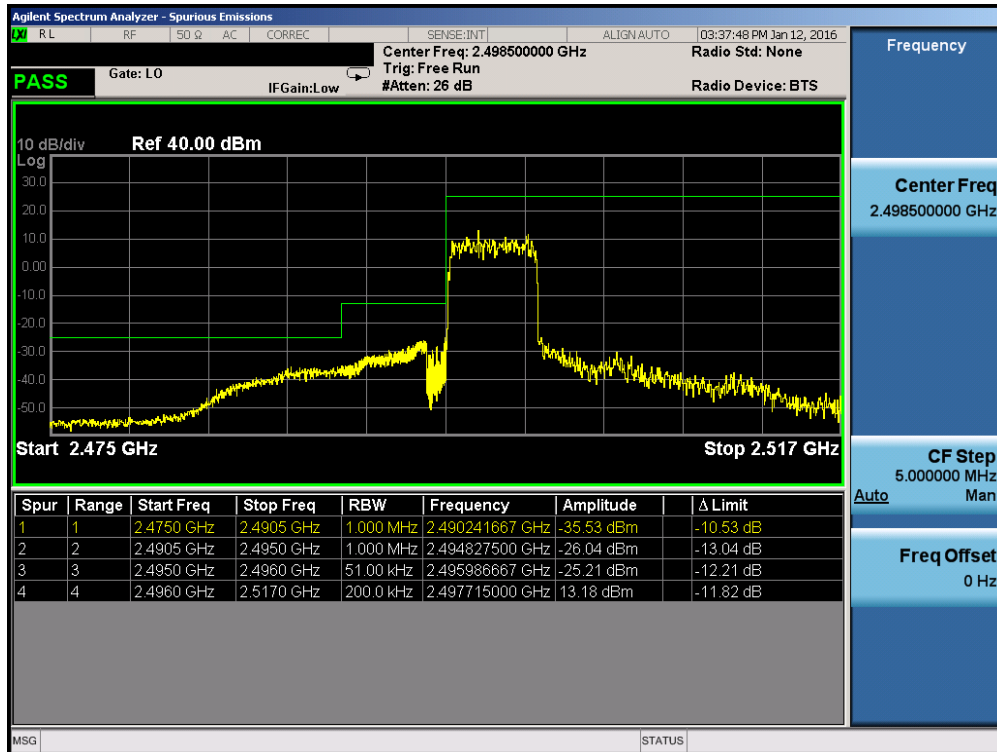


Plot 7-191. Upper Band Edge Plot (Band 2/25 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 112 of 162

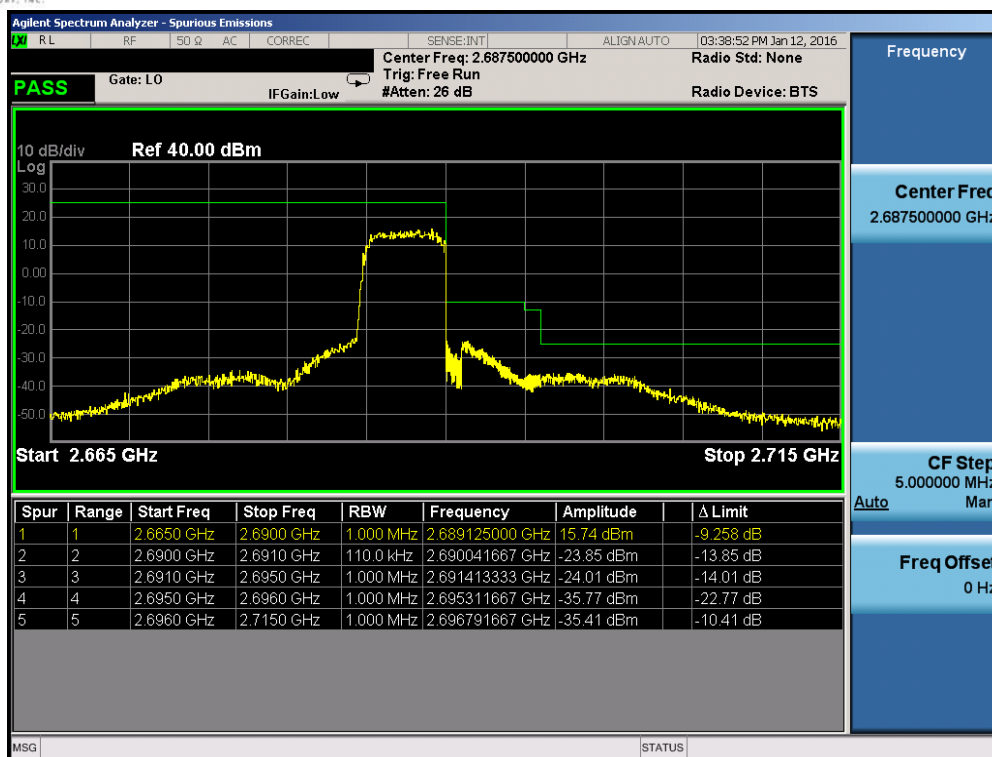


Plot 7-192. Upper Extended Band Edge Plot (Band 2/25 – 20.0MHz QPSK – RB Size 100)



Plot 7-193. Lower ACP Plot (Band 41 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 113 of 162

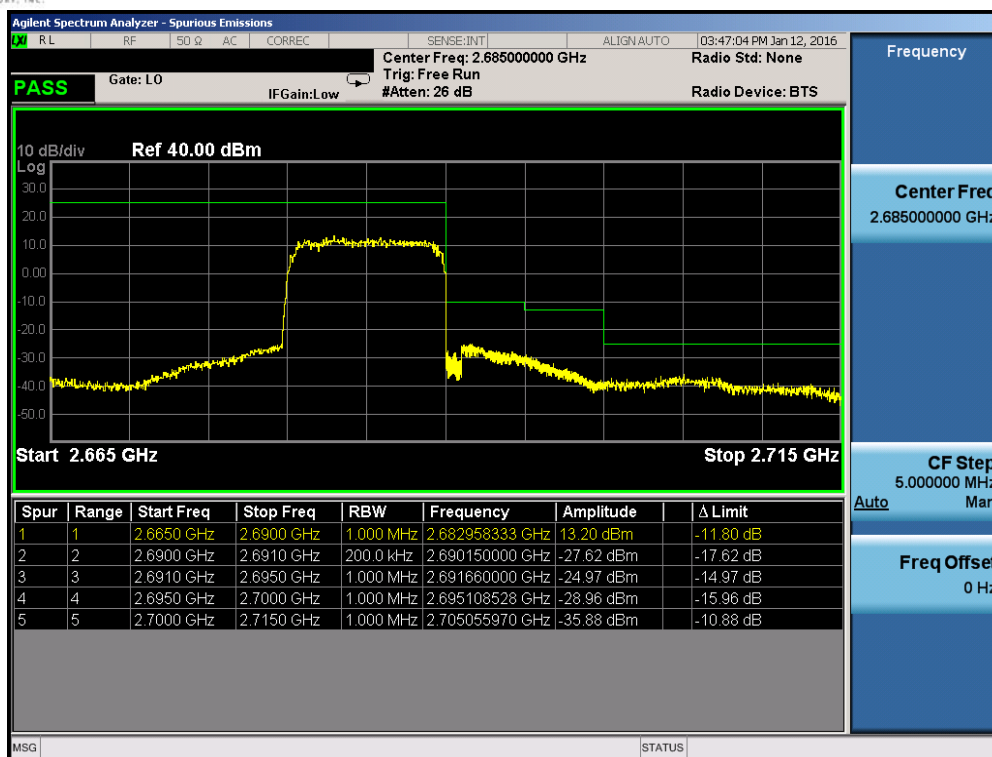


Plot 7-194. Upper ACP Plot (Band 41 – 5.0MHz QPSK – RB Size 25)

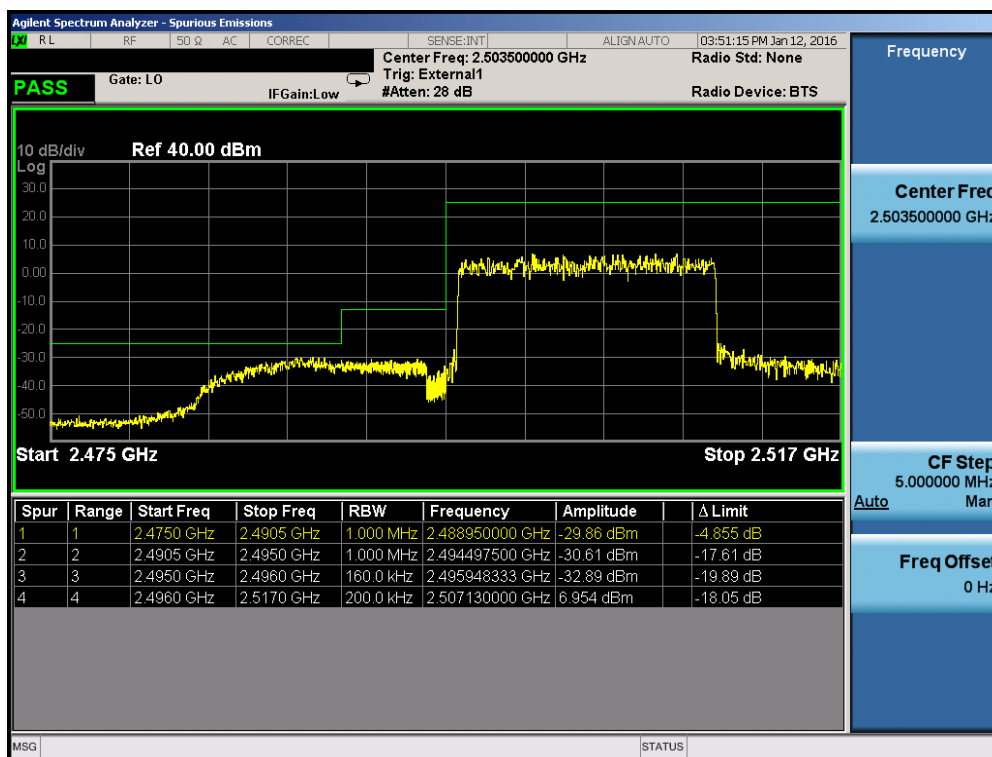


Plot 7-195. Lower ACP Plot (Band 41 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 114 of 162

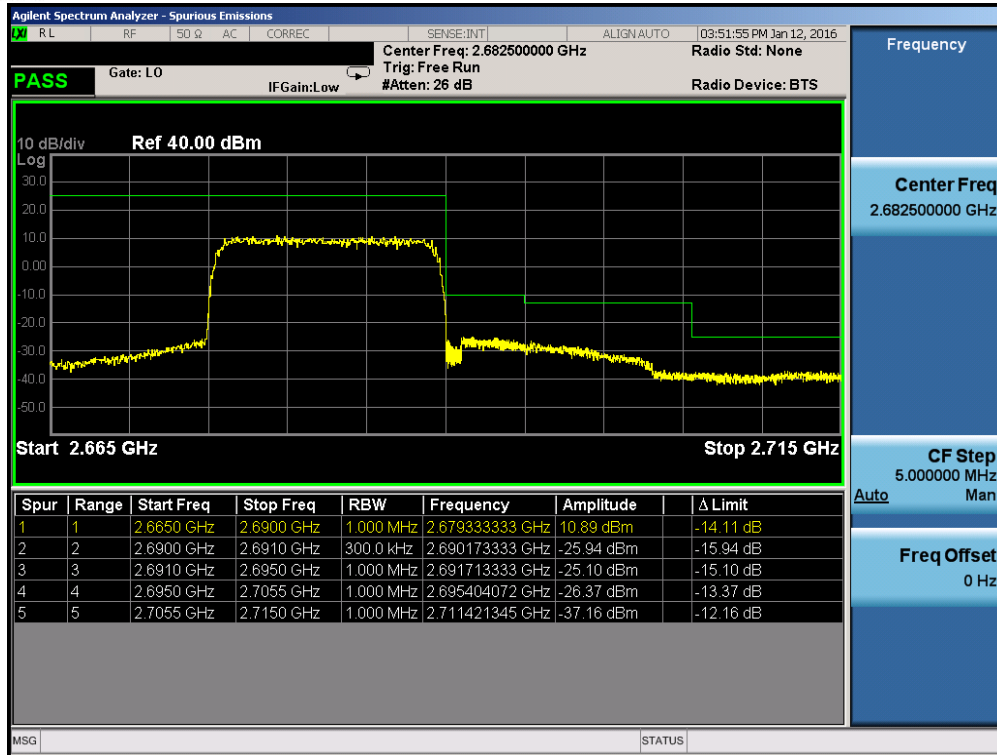


Plot 7-196. Upper ACP Plot (Band 41 – 10.0MHz QPSK – RB Size 50)

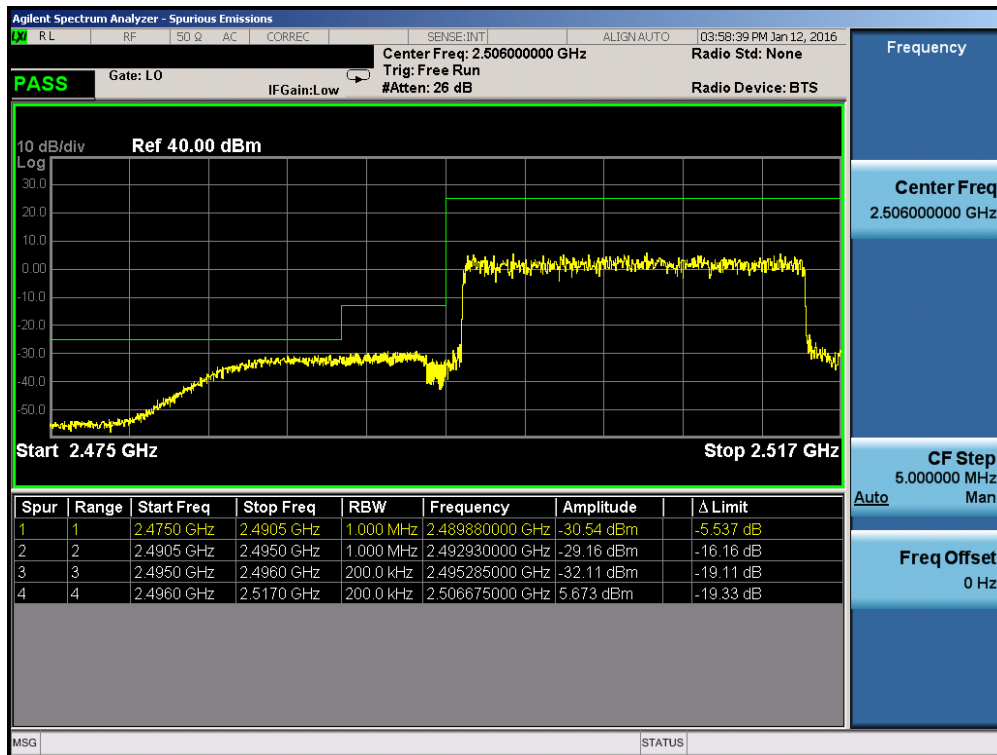


Plot 7-197. Lower ACP Plot (Band 41 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 115 of 162

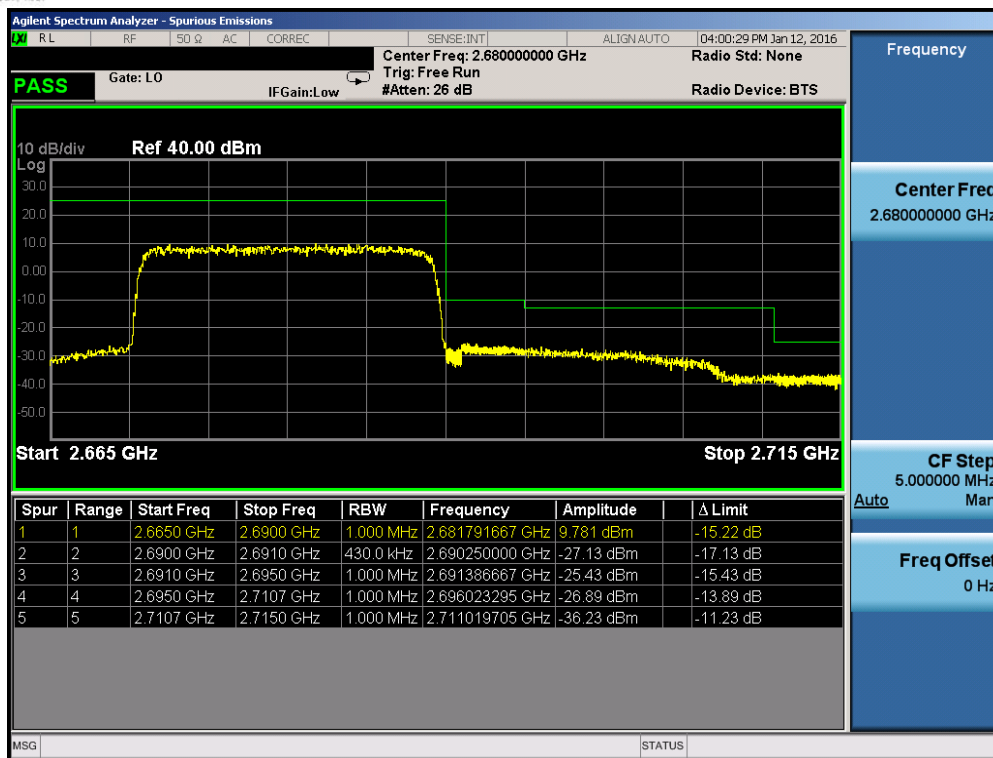


Plot 7-198. Upper ACP Plot (Band 41 – 15.0MHz QPSK – RB Size 75)



Plot 7-199. Lower ACP Plot (Band 41 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 116 of 162



Plot 7-200. Upper ACP Plot (Band 41 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMG9300	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 117 of 162

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.

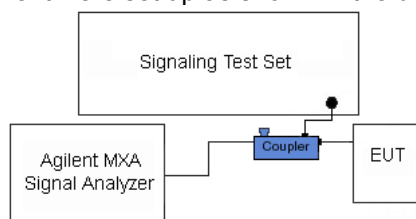
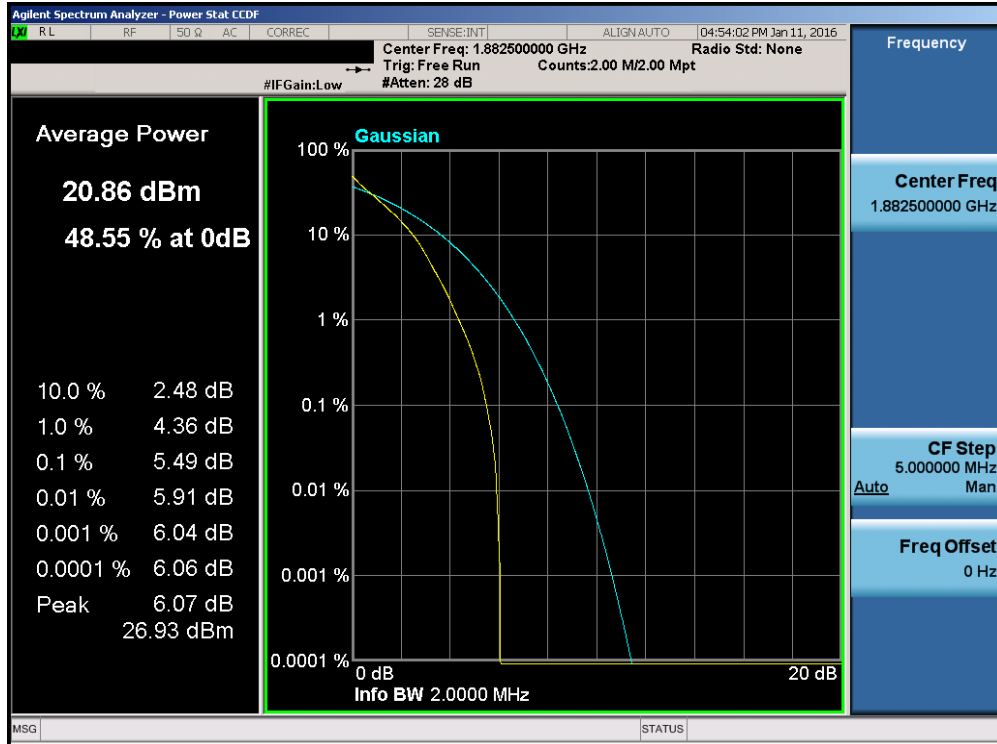


Figure 7-4. Test Instrument & Measurement Setup

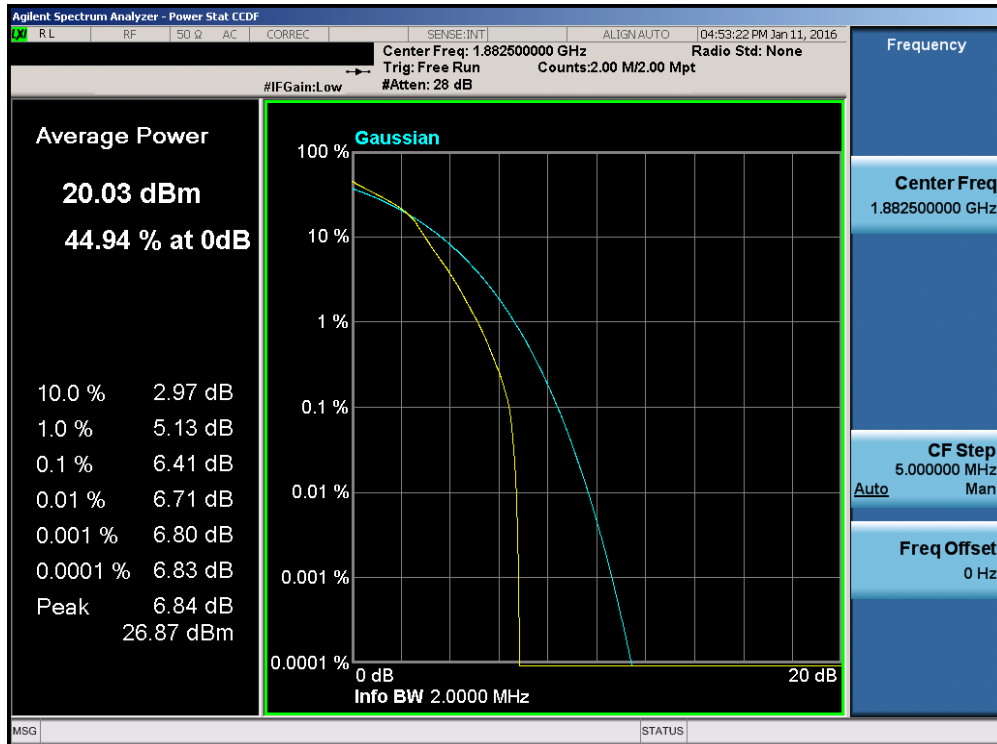
Test Notes

None.

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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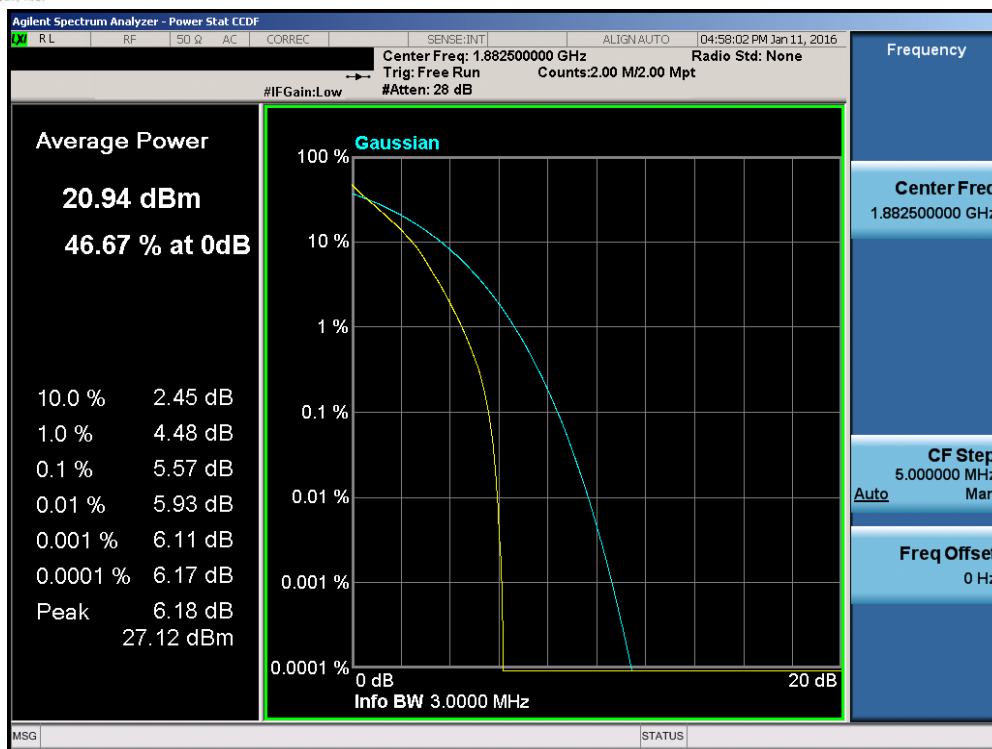


Plot 7-201. PAR Plot (Band 2/25 – 1.4MHz QPSK – RB Size 6)

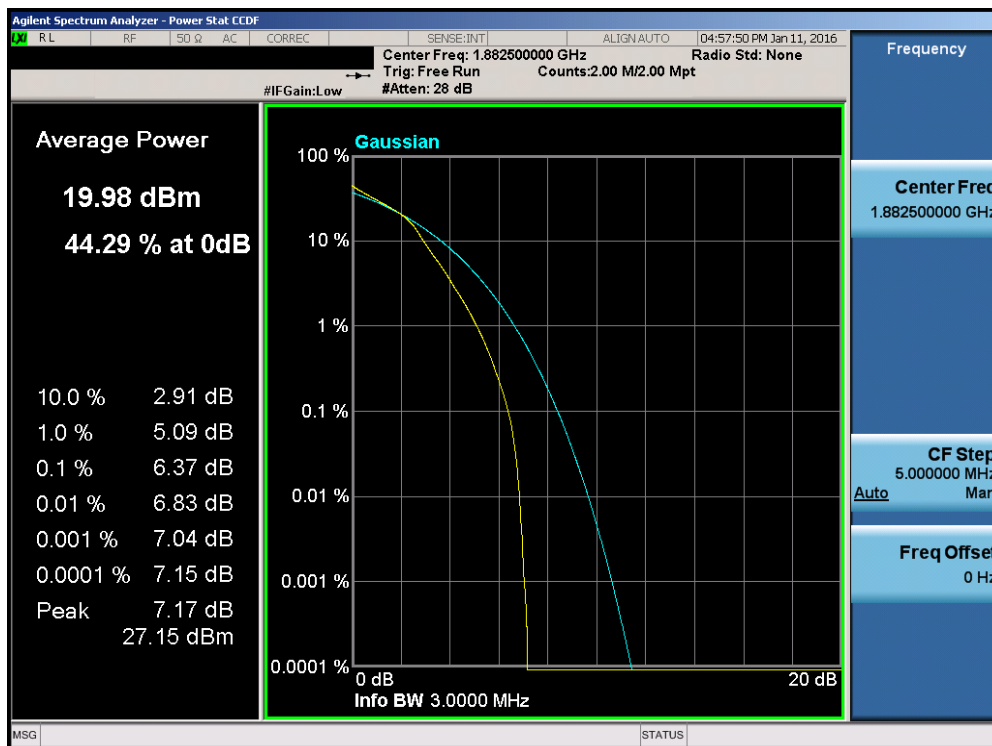


Plot 7-202. PAR Plot (Band 2/25 – 1.4MHz 16-QAM – RB Size 6)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 119 of 162

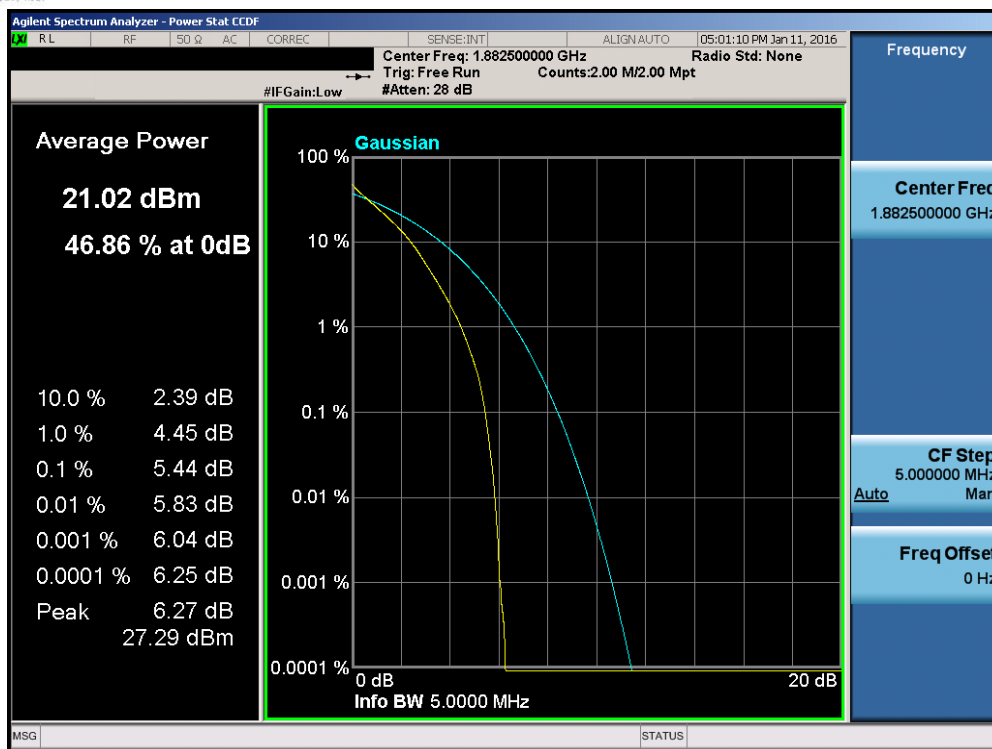


Plot 7-203. PAR Plot (Band 2/25 – 3.0MHz QPSK – RB Size 15)

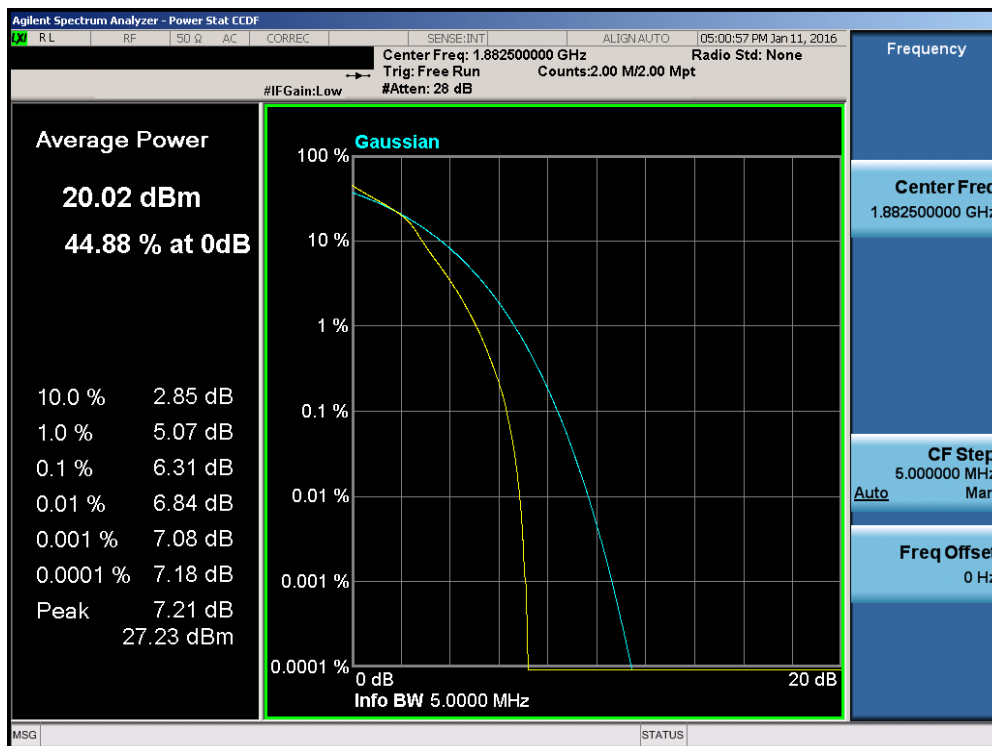


Plot 7-204. PAR Plot (Band 2/25 – 3.0MHz 16-QAM – RB Size 15)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 120 of 162

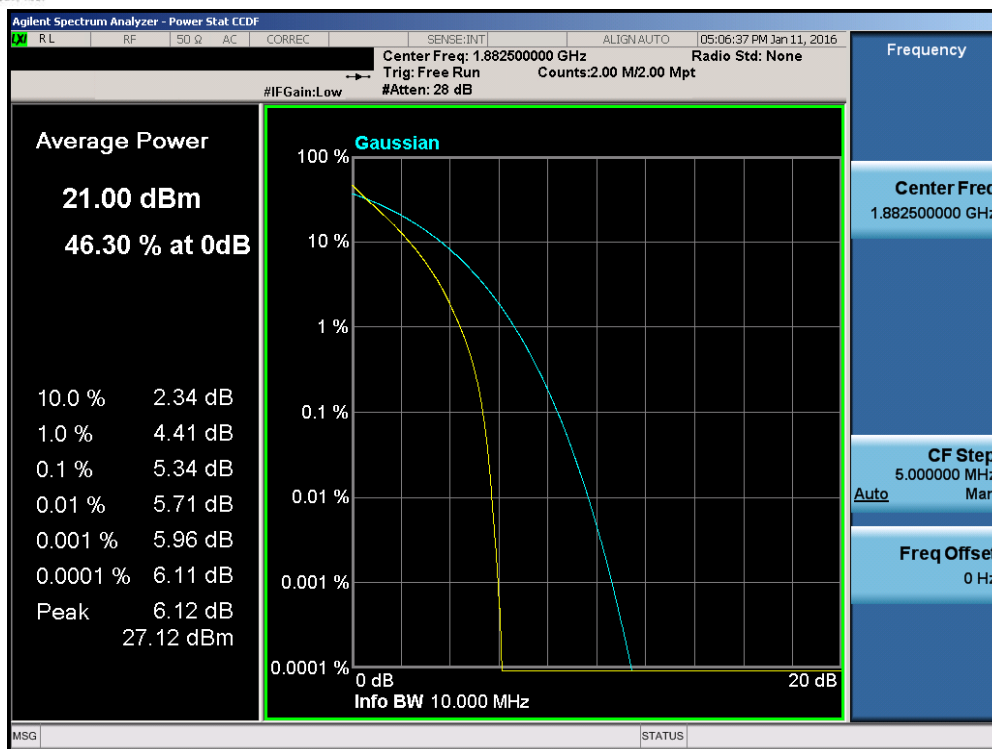


Plot 7-205. PAR Plot (Band 2/25 – 5.0MHz QPSK – RB Size 25)

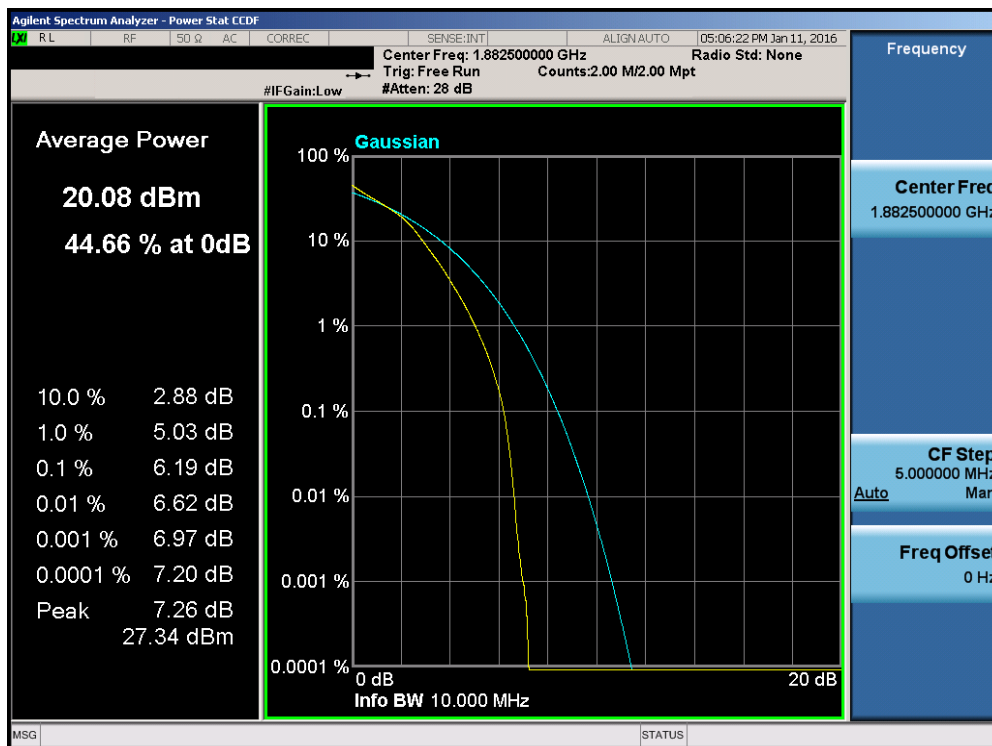


Plot 7-206. PAR Plot (Band 2/25 – 5.0MHz 16-QAM – RB Size 25)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 121 of 162

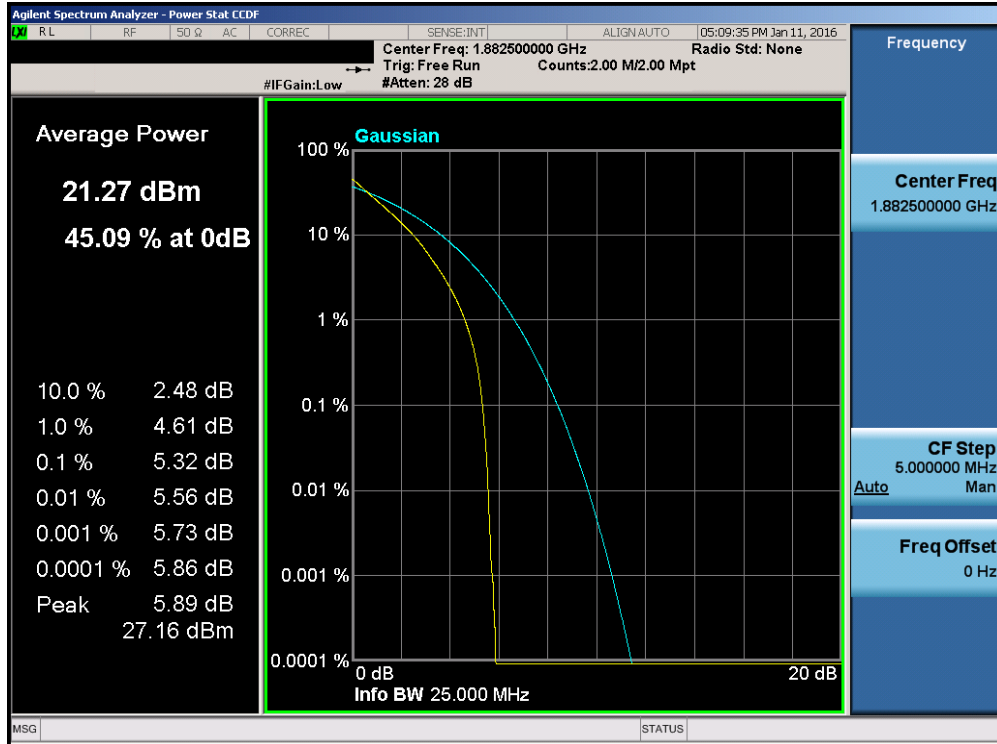


Plot 7-207. PAR Plot (Band 2/25 – 10.0MHz QPSK – RB Size 50)

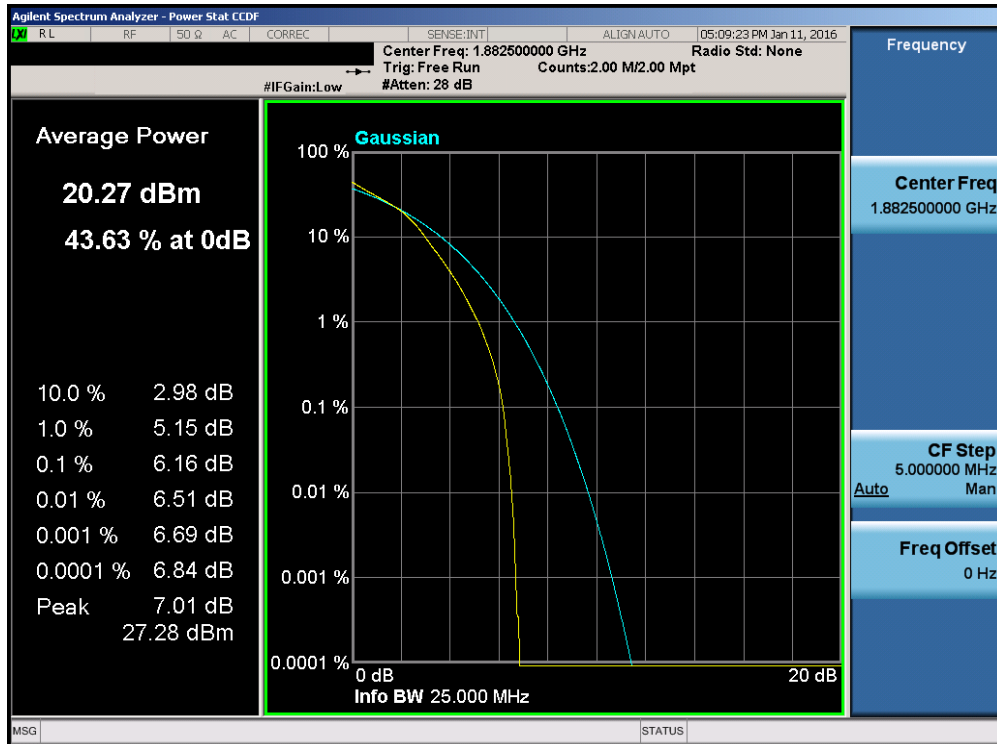


Plot 7-208. PAR Plot (Band 2/25 – 10.0MHz 16-QAM – RB Size 50)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 122 of 162

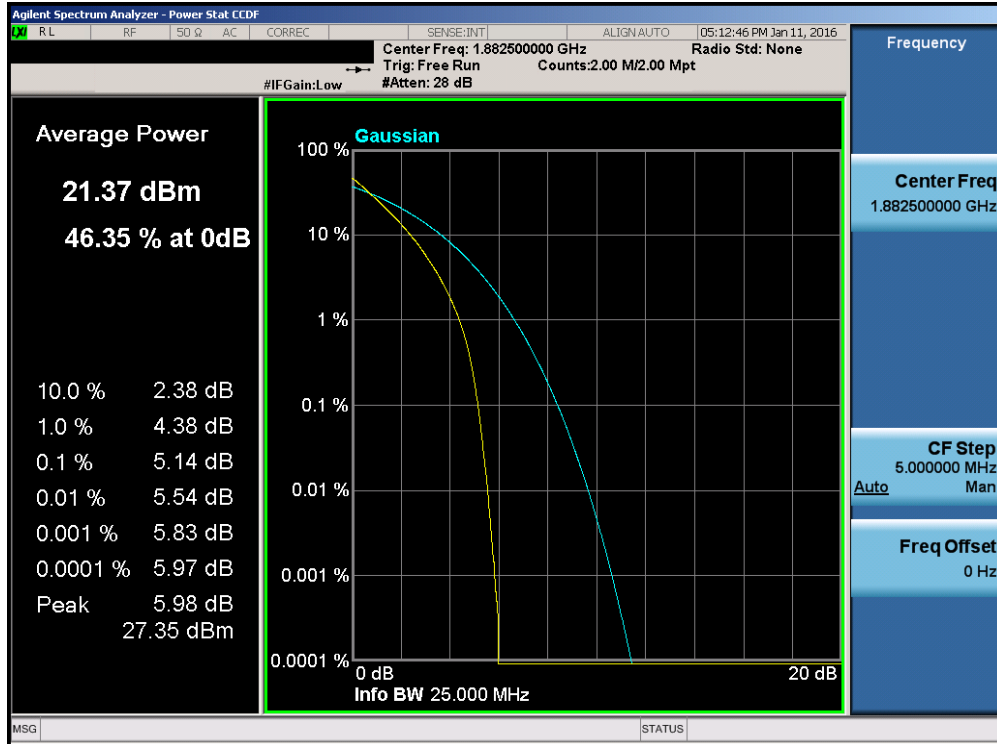


Plot 7-209. PAR Plot (Band 2/25 – 15.0MHz QPSK – RB Size 75)

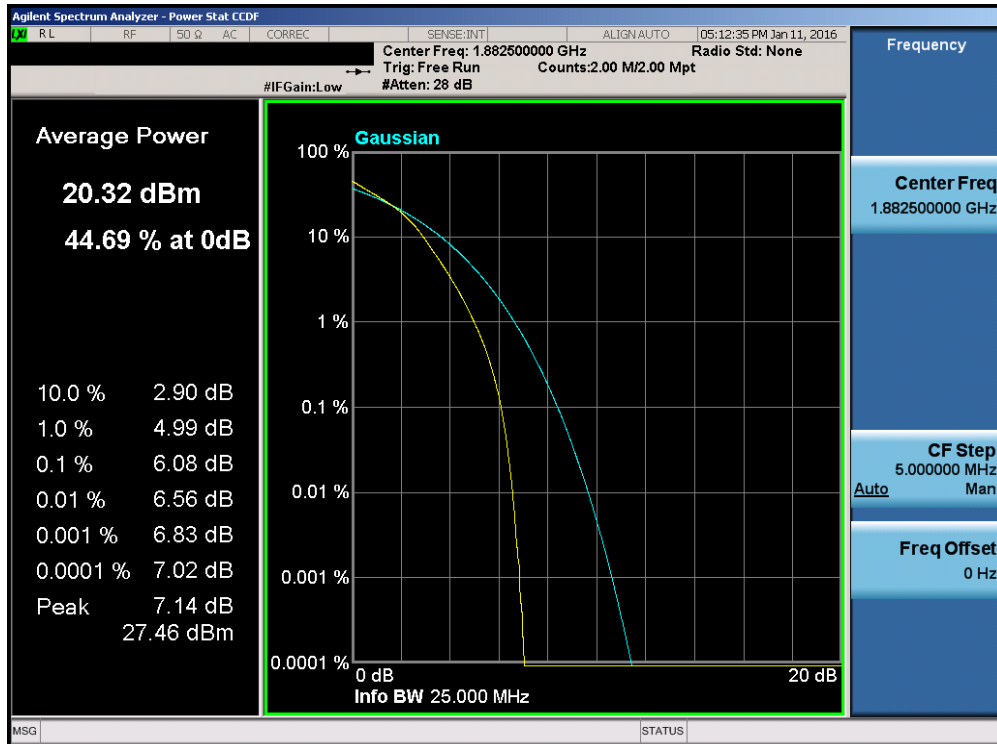


Plot 7-210. PAR Plot (Band 2/25 – 15.0MHz 16-QAM – RB Size 75)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 7-211. PAR Plot (Band 2/25 – 20.0MHz QPSK – RB Size 100)



Plot 7-212. PAR Plot (Band 2/25 – 20.0MHz 16-QAM – RB Size 100)

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 124 of 162

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-C-2004 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically 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-C-2004 – 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

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Test Setup

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

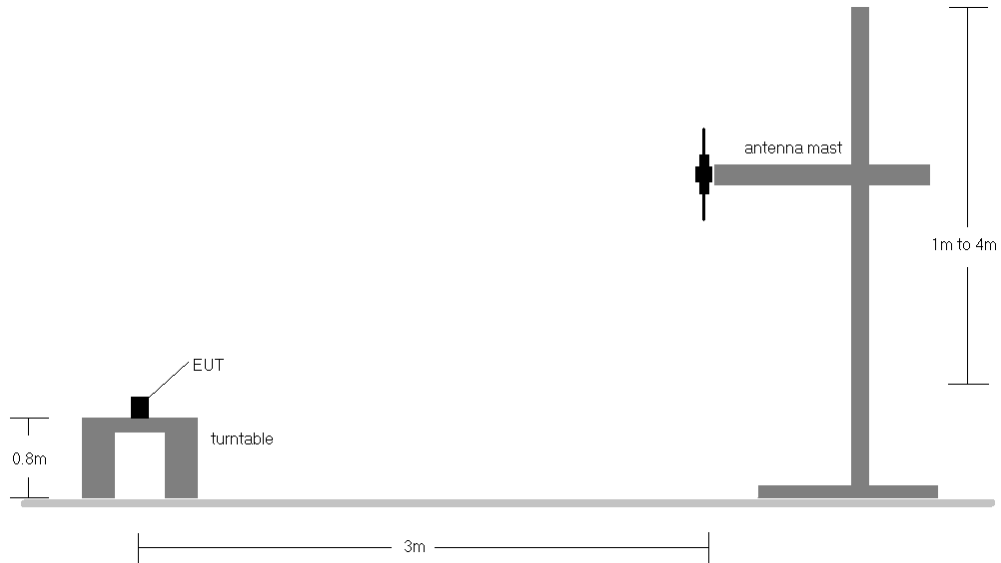


Figure 7-5. Radiated Test Setup <1GHz

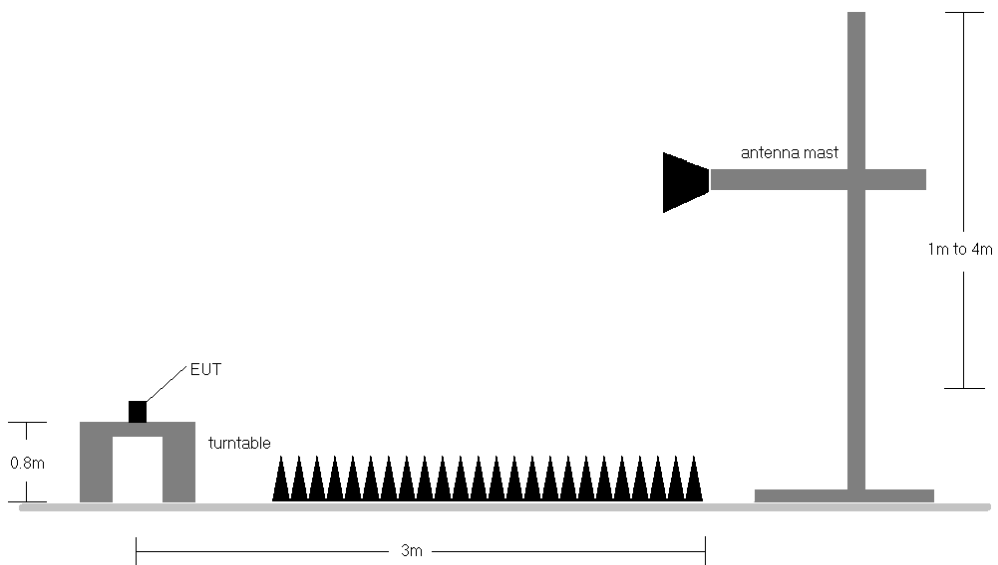


Figure 7-6. Radiated Test Setup >1GHz

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.

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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	V	159	87	3 / 2	14.18	0.87	15.05	34.77	-19.72
707.50	1.4	QPSK	V	159	94	1 / 5	14.83	1.07	15.90	34.77	-18.87
715.30	1.4	QPSK	V	163	101	3 / 2	15.05	1.23	16.28	34.77	-18.50
699.70	1.4	16-QAM	V	159	87	3 / 2	13.24	0.87	14.11	34.77	-20.66
707.50	1.4	16-QAM	V	159	94	1 / 5	13.98	1.07	15.05	34.77	-19.72
715.30	1.4	16-QAM	V	163	101	3 / 2	14.11	1.23	15.34	34.77	-19.44
700.50	3	QPSK	V	174	75	1 / 0	14.94	0.92	15.86	34.77	-18.91
707.50	3	QPSK	V	142	75	1 / 14	15.22	1.07	16.29	34.77	-18.48
714.50	3	QPSK	V	169	96	1 / 0	14.83	1.21	16.04	34.77	-18.73
700.50	3	16-QAM	V	174	75	1 / 0	14.09	0.92	15.01	34.77	-19.76
707.50	3	16-QAM	V	142	75	1 / 14	14.44	1.07	15.51	34.77	-19.26
714.50	3	16-QAM	V	169	96	1 / 0	13.94	1.21	15.15	34.77	-19.62

Table 7-2. ERP Data (Band 12)

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	V	161	84	1 / 0	14.84	0.94	15.78	34.77	-18.99
707.50	5	QPSK	V	161	108	1 / 24	15.55	1.07	16.62	34.77	-18.15
713.50	5	QPSK	V	157	82	1 / 0	15.19	1.19	16.38	34.77	-18.39
701.50	5	16-QAM	V	161	84	1 / 0	14.14	0.94	15.08	34.77	-19.69
707.50	5	16-QAM	V	161	108	1 / 24	14.79	1.07	15.86	34.77	-18.91
713.50	5	16-QAM	V	157	82	1 / 0	14.41	1.19	15.60	34.77	-19.17
704.00	10	QPSK	V	169	68	1 / 49	14.89	1.00	15.89	34.77	-18.88
707.50	10	QPSK	V	168	54	1 / 49	14.97	1.07	16.04	34.77	-18.73
711.00	10	QPSK	V	169	93	1 / 0	13.95	1.14	15.09	34.77	-19.68
704.00	10	16-QAM	V	169	68	1 / 49	14.14	1.00	15.14	34.77	-19.63
707.50	10	16-QAM	V	168	54	1 / 49	14.51	1.07	15.58	34.77	-19.19
711.00	10	16-QAM	V	169	93	1 / 0	13.18	1.14	14.32	34.77	-20.45

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

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)					Reviewed 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]
779.50	5	QPSK	V	145	246	1 / 24	14.69	2.47	17.16	34.77	-17.61
782.00	5	QPSK	V	141	256	1 / 0	14.68	2.51	17.19	34.77	-17.58
784.50	5	QPSK	V	151	243	1 / 0	14.62	2.56	17.18	34.77	-17.59
779.50	5	16QAM	V	145	246	1 / 24	13.97	2.47	16.44	34.77	-18.33
782.00	5	16QAM	V	141	256	1 / 0	13.96	2.51	16.47	34.77	-18.30
784.50	5	16QAM	V	151	243	1 / 0	13.94	2.56	16.50	34.77	-18.27
782.00	10	QPSK	V	143	252	1 / 0	14.25	2.51	16.76	34.77	-18.01
782.00	10	16QAM	V	143	252	1 / 0	13.66	2.51	16.17	34.77	-18.60

Table 7-4. ERP Data (Band 13)

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset	Page 128 of 162	

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	V	145	247	3 / 2	15.01	2.98	17.99	38.45	-20.46
836.50	1.4	QPSK	V	143	249	1 / 0	12.58	3.04	15.62	38.45	-22.83
848.30	1.4	QPSK	V	140	245	1 / 0	9.54	3.10	12.64	38.45	-25.81
824.70	1.4	16-QAM	V	145	247	3 / 2	14.08	2.98	17.06	38.45	-21.39
836.50	1.4	16-QAM	V	143	249	1 / 0	11.78	3.04	14.82	38.45	-23.63
848.30	1.4	16-QAM	V	140	245	1 / 0	8.54	3.10	11.64	38.45	-26.81
825.50	3	QPSK	V	142	269	1 / 0	15.45	2.98	18.43	38.45	-20.02
836.50	3	QPSK	V	145	252	1 / 0	12.52	3.04	15.56	38.45	-22.89
847.50	3	QPSK	V	136	247	1 / 0	11.31	3.10	14.41	38.45	-24.04
825.50	3	16-QAM	V	142	269	1 / 0	14.60	2.98	17.58	38.45	-20.87
836.50	3	16-QAM	V	145	252	1 / 0	11.66	3.04	14.70	38.45	-23.75
847.50	3	16-QAM	V	136	247	1 / 0	10.55	3.10	13.65	38.45	-24.80
826.50	5	QPSK	V	141	245	1 / 0	15.42	2.99	18.41	38.45	-20.04
836.50	5	QPSK	V	145	261	1 / 0	12.95	3.04	15.99	38.45	-22.46
846.50	5	QPSK	V	140	270	1 / 0	11.80	3.09	14.89	38.45	-23.56
826.50	5	16-QAM	V	141	245	1 / 0	14.70	2.99	17.69	38.45	-20.76
836.50	5	16-QAM	V	145	261	1 / 0	12.19	3.04	15.23	38.45	-23.22
846.50	5	16-QAM	V	140	270	1 / 0	10.85	3.09	13.94	38.45	-24.51
829.00	10	QPSK	V	149	244	1 / 0	15.55	3.00	18.55	38.45	-19.90
836.50	10	QPSK	V	141	253	1 / 0	13.65	3.04	16.69	38.45	-21.76
844.00	10	QPSK	V	134	241	1 / 0	11.76	3.08	14.84	38.45	-23.61
829.00	10	16-QAM	V	149	244	1 / 0	14.65	3.00	17.65	38.45	-20.80
836.50	10	16-QAM	V	141	253	1 / 0	12.79	3.04	15.83	38.45	-22.62
844.00	10	16-QAM	V	134	241	1 / 0	10.99	3.08	14.07	38.45	-24.38

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

FCC ID: A3LSMG9300	 FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION) 			Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 129 of 162

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	V	145	252	1 / 0	14.37	3.01	17.38	38.45	-21.07
836.50	15	QPSK	V	145	300	1 / 0	13.53	3.04	16.57	38.45	-21.88
841.50	15	QPSK	V	145	270	1 / 0	12.28	3.07	15.35	38.45	-23.10
831.50	15	16-QAM	V	145	252	1 / 0	13.44	3.01	16.45	38.45	-22.00
836.50	15	16-QAM	V	145	300	1 / 0	12.63	3.04	15.67	38.45	-22.78
841.50	15	16-QAM	V	145	270	1 / 0	11.42	3.07	14.49	38.45	-23.96

Table 7-6. ERP Data (Band 26)

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed 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 [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	V	101	85	1 / 0	7.88	9.28	17.16	30.00	-12.84
1732.50	1.4	QPSK	V	116	52	3 / 2	8.28	9.00	17.28	30.00	-12.72
1754.30	1.4	QPSK	V	106	86	3 / 2	8.49	8.72	17.21	30.00	-12.79
1710.70	1.4	16-QAM	V	101	85	1 / 0	6.91	9.28	16.19	30.00	-13.81
1732.50	1.4	16-QAM	V	116	52	3 / 2	7.30	9.00	16.30	30.00	-13.70
1754.30	1.4	16-QAM	V	106	86	3 / 2	7.62	8.72	16.34	30.00	-13.66
1711.50	3	QPSK	V	121	83	1 / 0	8.46	9.27	17.73	30.00	-12.27
1732.50	3	QPSK	V	112	51	1 / 0	8.67	9.00	17.67	30.00	-12.33
1753.50	3	QPSK	V	108	17	1 / 0	9.15	8.73	17.88	30.00	-12.12
1711.50	3	16-QAM	V	121	83	1 / 0	7.49	9.27	16.76	30.00	-13.24
1732.50	3	16-QAM	V	112	51	1 / 0	7.74	9.00	16.74	30.00	-13.26
1753.50	3	16-QAM	V	108	17	1 / 0	8.37	8.73	17.10	30.00	-12.90
1712.50	5	QPSK	V	119	63	1 / 24	8.23	9.26	17.49	30.00	-12.51
1732.50	5	QPSK	V	117	55	1 / 0	8.98	9.00	17.98	30.00	-12.02
1752.50	5	QPSK	V	108	60	1 / 0	9.02	8.74	17.76	30.00	-12.24
1712.50	5	16-QAM	V	119	63	1 / 24	7.49	9.26	16.75	30.00	-13.25
1732.50	5	16-QAM	V	117	55	1 / 0	8.31	9.00	17.31	30.00	-12.69
1752.50	5	16-QAM	V	108	60	1 / 0	8.31	8.74	17.05	30.00	-12.95
1715.00	10	QPSK	V	121	73	1 / 0	8.26	9.22	17.48	30.00	-12.52
1732.50	10	QPSK	V	116	52	1 / 0	8.76	9.00	17.76	30.00	-12.24
1750.00	10	QPSK	V	125	23	1 / 0	9.41	8.77	18.18	30.00	-11.82
1715.00	10	16-QAM	V	121	73	1 / 0	7.44	9.22	16.66	30.00	-13.34
1732.50	10	16-QAM	V	116	52	1 / 0	8.09	9.00	17.09	30.00	-12.91
1750.00	10	16-QAM	V	125	23	1 / 0	8.68	8.77	17.45	30.00	-12.55
1717.50	15	QPSK	V	128	64	1 / 74	7.82	9.19	17.01	30.00	-12.99
1732.50	15	QPSK	V	117	51	1 / 0	8.25	9.00	17.25	30.00	-12.75
1747.50	15	QPSK	V	121	20	1 / 0	8.64	8.80	17.44	30.00	-12.56
1717.50	15	16-QAM	V	128	64	1 / 74	6.99	9.19	16.18	30.00	-13.82
1732.50	15	16-QAM	V	117	51	1 / 0	7.34	9.00	16.34	30.00	-13.66
1747.50	15	16-QAM	V	121	20	1 / 0	7.59	8.80	16.39	30.00	-13.61
1720.00	20	QPSK	V	121	81	1 / 0	8.56	9.16	17.72	30.00	-12.28
1732.50	20	QPSK	V	130	79	1 / 0	8.43	9.00	17.43	30.00	-12.57
1745.00	20	QPSK	V	108	19	1 / 99	8.79	8.83	17.62	30.00	-12.38
1720.00	20	16-QAM	V	121	81	1 / 0	7.53	9.16	16.69	30.00	-13.31
1732.50	20	16-QAM	V	130	79	1 / 0	7.56	9.00	16.56	30.00	-13.44
1745.00	20	16-QAM	V	108	19	1 / 99	7.97	8.83	16.80	30.00	-13.20

Table 7-7. EIRP Data (Band 4)

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)					Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset				Page 131 of 162	

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	V	100	331	3 / 2	10.68	8.34	19.02	33.01	-13.99
1882.50	1.4	QPSK	V	100	328	3 / 2	11.83	8.47	20.30	33.01	-12.71
1914.30	1.4	QPSK	V	100	26	3 / 2	11.31	8.70	20.01	33.01	-13.00
1850.70	1.4	16-QAM	V	100	331	3 / 2	9.80	8.34	18.14	33.01	-14.87
1882.50	1.4	16-QAM	V	100	328	3 / 2	10.85	8.47	19.32	33.01	-13.69
1914.30	1.4	16-QAM	V	100	26	3 / 2	10.35	8.70	19.05	33.01	-13.96
1851.50	3	QPSK	V	100	331	1 / 14	11.51	8.35	19.86	33.01	-13.15
1882.50	3	QPSK	V	100	328	1 / 0	12.01	8.47	20.48	33.01	-12.53
1913.50	3	QPSK	V	100	26	1 / 0	11.60	8.69	20.29	33.01	-12.72
1851.50	3	16-QAM	V	100	331	1 / 14	10.58	8.35	18.93	33.01	-14.08
1882.50	3	16-QAM	V	100	328	1 / 0	11.38	8.47	19.85	33.01	-13.16
1913.50	3	16-QAM	V	100	26	1 / 0	10.82	8.69	19.51	33.01	-13.50
1852.50	5	QPSK	V	100	333	1 / 24	11.78	8.35	20.13	33.01	-12.88
1882.50	5	QPSK	V	100	333	1 / 0	12.41	8.47	20.88	33.01	-12.13
1912.50	5	QPSK	V	100	24	1 / 0	11.73	8.68	20.41	33.01	-12.60
1852.50	5	16-QAM	V	100	333	1 / 24	11.24	8.35	19.59	33.01	-13.42
1882.50	5	16-QAM	V	100	333	1 / 0	11.63	8.47	20.10	33.01	-12.91
1912.50	5	16-QAM	V	100	24	1 / 0	10.98	8.68	19.66	33.01	-13.35
1855.00	10	QPSK	V	100	333	1 / 49	12.07	8.36	20.43	33.01	-12.58
1882.50	10	QPSK	V	106	328	1 / 0	12.07	8.47	20.54	33.01	-12.47
1910.00	10	QPSK	V	100	24	1 / 49	11.55	8.65	20.20	33.01	-12.81
1855.00	10	16-QAM	V	100	333	1 / 49	11.29	8.36	19.65	33.01	-13.36
1882.50	10	16-QAM	V	106	328	1 / 0	11.38	8.47	19.85	33.01	-13.16
1910.00	10	16-QAM	V	100	24	1 / 49	10.68	8.65	19.33	33.01	-13.68
1857.50	15	QPSK	V	103	333	1 / 74	11.78	8.37	20.15	33.01	-12.86
1882.50	15	QPSK	V	100	327	1 / 0	12.15	8.47	20.62	33.01	-12.39
1907.50	15	QPSK	V	100	24	1 / 0	11.80	8.62	20.42	33.01	-12.59
1857.50	15	16-QAM	V	103	333	1 / 74	10.79	8.37	19.16	33.01	-13.85
1882.50	15	16-QAM	V	100	327	1 / 0	11.17	8.47	19.64	33.01	-13.37
1907.50	15	16-QAM	V	100	24	1 / 0	10.82	8.62	19.44	33.01	-13.57
1860.00	20	QPSK	V	101	333	1 / 0	11.99	8.38	20.37	33.01	-12.64
1882.50	20	QPSK	V	100	327	1 / 0	12.29	8.47	20.76	33.01	-12.25
1905.00	20	QPSK	V	101	327	1 / 0	11.95	8.59	20.54	33.01	-12.47
1860.00	20	16-QAM	V	101	333	1 / 0	11.12	8.38	19.50	33.01	-13.51
1882.50	20	16-QAM	V	100	327	1 / 0	11.45	8.47	19.92	33.01	-13.09
1905.00	20	16-QAM	V	101	327	1 / 0	10.99	8.59	19.58	33.01	-13.43

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

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)				Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset			Page 132 of 162	

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	V	104	269	1 / 24	9.53	7.09	16.62	33.01	-16.39
2593.00	5	QPSK	V	100	268	1 / 24	13.75	7.55	21.30	33.01	-11.71
2687.50	5	QPSK	V	128	268	1 / 0	8.21	7.82	16.03	33.01	-16.98
2498.50	5	16-QAM	V	104	269	1 / 24	8.42	7.09	15.51	33.01	-17.50
2593.00	5	16-QAM	V	100	268	1 / 24	13.47	7.55	21.02	33.01	-11.99
2687.50	5	16-QAM	V	128	268	1 / 0	7.26	7.82	15.08	33.01	-17.93
2501.00	10	QPSK	V	104	269	1 / 0	9.31	7.08	16.39	33.01	-16.62
2593.00	10	QPSK	V	100	269	1 / 49	13.68	7.55	21.23	33.01	-11.78
2685.00	10	QPSK	V	127	268	1 / 0	8.25	7.81	16.06	33.01	-16.95
2501.00	10	16-QAM	V	104	269	1 / 0	9.30	7.08	16.38	33.01	-16.63
2593.00	10	16-QAM	V	100	269	1 / 49	12.69	7.55	20.24	33.01	-12.77
2685.00	10	16-QAM	V	127	268	1 / 0	8.82	7.81	16.63	33.01	-16.38
2503.50	15	QPSK	V	104	271	1 / 0	9.69	7.10	16.79	33.01	-16.22
2593.00	15	QPSK	V	100	269	1 / 74	13.12	7.55	20.67	33.01	-12.34
2682.50	15	QPSK	V	127	269	1 / 0	8.06	7.81	15.87	33.01	-17.14
2503.50	15	16-QAM	V	104	271	1 / 0	8.83	7.10	15.93	33.01	-17.08
2593.00	15	16-QAM	V	100	269	1 / 74	12.65	7.55	20.20	33.01	-12.81
2682.50	15	16-QAM	V	127	269	1 / 0	8.31	7.81	16.12	33.01	-16.89
2506.00	20	QPSK	V	104	268	1 / 0	9.68	7.11	16.79	33.01	-16.22
2593.00	20	QPSK	V	101	268	1 / 0	13.23	7.55	20.78	33.01	-12.23
2680.00	20	QPSK	V	197	268	1 / 0	8.51	7.80	16.31	33.01	-16.70
2506.00	20	16-QAM	V	104	268	1 / 0	9.89	7.11	17.00	33.01	-16.01
2593.00	20	16-QAM	V	101	268	1 / 0	12.46	7.55	20.01	33.01	-13.00
2680.00	20	16-QAM	V	197	268	1 / 0	8.12	7.80	15.92	33.01	-17.09

Table 7-9. EIRP Data (Band 41)

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset	Page 133 of 162	

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-C-2004 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-C-2004 – Section 2.2.12

Test Settings

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

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 134 of 162

Test Setup

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

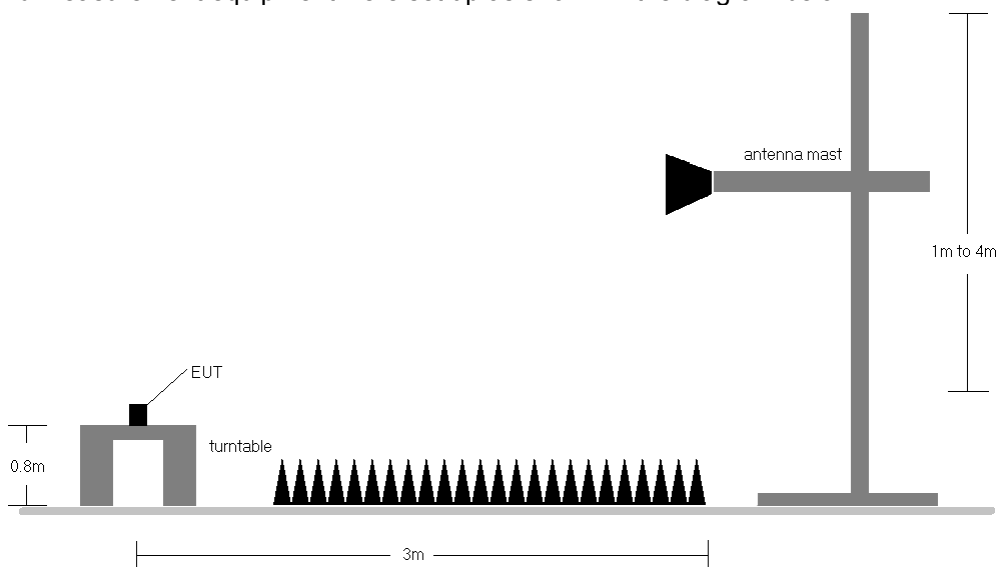


Figure 7-7. Test Instrument & Measurement Setup

Test Notes

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

FCC ID: A3LSMG9300	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 135 of 162

OPERATING FREQUENCY: 701.50 MHz
 CHANNEL: 23035
 MEASURED OUTPUT POWER: 15.78 dBm = 0.038 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 28.78 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]
1403.00	V	165	328	-58.55	2.44	-56.11	71.9
2104.50	V	-	-	-57.79	2.96	-54.83	70.6
2806.00	V	-	-	-57.72	4.73	-52.99	68.8

Table 7-10. Radiated Spurious Data (Band 12/17 – Low Channel)

OPERATING FREQUENCY: 707.50 MHz
 CHANNEL: 23095
 MEASURED OUTPUT POWER: 16.62 dBm = 0.046 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 29.62 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	V	110	284	-56.60	2.57	-54.03	70.6
2122.50	V	-	-	-57.32	3.02	-54.30	70.9
2830.00	V	-	-	-58.08	4.72	-53.36	70.0

Table 7-11. Radiated Spurious Data (Band 12/17 – Mid Channel)

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 136 of 162

OPERATING FREQUENCY: 713.50 MHz
 CHANNEL: 23155
 MEASURED OUTPUT POWER: 16.38 dBm = 0.043 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 29.38 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]
1427.00	V	110	286	-55.21	2.71	-52.50	68.9
2140.50	V	-	-	-56.09	3.07	-53.02	69.4
2854.00	V	-	-	-57.71	4.71	-53.00	69.4

Table 7-12. Radiated Spurious Data (Band 12/17 – High Channel)

OPERATING FREQUENCY: 707.50 MHz
 CHANNEL: 23095
 MEASURED OUTPUT POWER: 16.62 dBm = 0.046 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 29.62 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	151	340	-58.85	2.57	-56.28	72.9
2122.50	H	-	-	-59.01	3.02	-55.99	72.6
2830.00	H	-	-	-60.54	4.72	-55.82	72.4

Table 7-13. Radiated Spurious Data with WCP (Band 12/17 – Mid Channel)

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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OPERATING FREQUENCY: 779.50 MHz
 CHANNEL: 23205
 MEASURED OUTPUT POWER: 17.16 dBm = 0.052 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 30.16 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]
2338.50	H	-	-	-58.71	3.67	-55.04	72.2
3118.00	H	-	-	-58.98	5.13	-53.84	71.0

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

OPERATING FREQUENCY: 782.00 MHz
 CHANNEL: 23230
 MEASURED OUTPUT POWER: 17.19 dBm = 0.052 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 30.19 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	-	-	-57.58	3.67	-53.91	71.1
3128.00	H	-	-	-57.22	5.17	-52.05	69.2

Table 7-15. Radiated Spurious Data (Band 13 – Mid Channel)

OPERATING FREQUENCY: 784.50 MHz
 CHANNEL: 23255
 MEASURED OUTPUT POWER: 17.18 dBm = 0.052 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) = 30.18$ 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]
2353.50	H	-	-	-57.80	3.66	-54.14	71.3
3138.00	H	-	-	-57.77	5.21	-52.56	69.7

Table 7-16. Radiated Spurious Data (Band 13 – High Channel)

MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.00 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]
1559.00	H	235	306	-55.90	3.68	-52.22	-12.2
1564.00	H	305	33	-54.94	3.69	-51.25	-11.2
1569.00	H	165	306	-52.67	3.71	-48.97	-9.0

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

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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OPERATING FREQUENCY: 782.00 MHz
 CHANNEL: 23230
 MEASURED OUTPUT POWER: 17.19 dBm = 0.052 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 30.19 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	-	-	-57.73	3.67	-54.06	71.3
3128.00	H	-	-	-57.89	5.17	-52.72	69.9

Table 7-18. Radiated Spurious Data with WCP (Band 13 – Mid Channel)

OPERATING FREQUENCY: 829.00 MHz
 CHANNEL: 26840
 MEASURED OUTPUT POWER: 18.55 dBm = 0.072 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 31.55 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]
1658.00	H	106	145	-56.00	3.58	-52.42	71.0
2487.00	H	106	326	-56.06	3.56	-52.50	71.1
3316.00	H	-	-	-59.94	5.71	-54.23	72.8

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

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 26915
 MEASURED OUTPUT POWER: 16.69 dBm = 0.047 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 29.69 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	263	135	-55.51	3.53	-51.99	68.7
2509.50	H	263	320	-55.26	3.57	-51.69	68.4
3346.00	H	-	-	-59.23	5.78	-53.44	70.1

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

OPERATING FREQUENCY: 844.00 MHz
 CHANNEL: 26990
 MEASURED OUTPUT POWER: 14.84 dBm = 0.030 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 27.84 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]
1688.00	H	145	135	-55.62	3.47	-52.15	67.0
2532.00	H	145	315	-54.92	3.62	-51.30	66.1
3376.00	H	-	-	-59.21	5.86	-53.35	68.2

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

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)					Reviewed by: Quality Manager
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OPERATING FREQUENCY: 829.00 MHz
 CHANNEL: 26840
 MEASURED OUTPUT POWER: 18.55 dBm = 0.072 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 31.55 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]
1658.00	H	119	176	-57.96	3.58	-54.38	72.9
2487.00	H	-	-	-59.18	3.56	-55.62	74.2
3316.00	H	-	-	-60.44	5.71	-54.73	73.3

Table 7-22. Radiated Spurious Data with WCP (Band 5/26 – Low Channel)

OPERATING FREQUENCY: 1715.00 MHz
 CHANNEL: 20000
 MEASURED OUTPUT POWER: 17.48 dBm = 0.056 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 30.48 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]
3430.00	V	104	10	-52.79	8.16	-44.62	62.1
5145.00	V	104	0	-56.95	10.27	-46.68	64.2
6860.00	V	-	-	-56.14	11.39	-44.75	62.2

Table 7-23. Radiated Spurious Data (Band 4 – Low Channel)

OPERATING FREQUENCY: 1732.50 MHz
 CHANNEL: 20175
 MEASURED OUTPUT POWER: 17.76 dBm = 0.060 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 30.76 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]
3465.00	V	103	360	-54.46	8.28	-46.17	63.9
5197.50	V	-	-	-56.77	10.32	-46.45	64.2
6930.00	V	-	-	-55.51	11.48	-44.03	61.8

Table 7-24. Radiated Spurious Data (Band 4 – Mid Channel)

OPERATING FREQUENCY: 1750.00 MHz
 CHANNEL: 20350
 MEASURED OUTPUT POWER: 18.18 dBm = 0.066 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 31.18 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]
3500.00	V	123	360	-53.01	8.40	-44.61	62.8
5250.00	V	-	-	-57.25	10.34	-46.91	65.1
7000.00	V	-	-	-55.33	11.54	-43.79	62.0

Table 7-25. Radiated Spurious Data (Band 4 – High Channel)

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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OPERATING FREQUENCY: 1750.00 MHz
 CHANNEL: 20350
 MEASURED OUTPUT POWER: 18.18 dBm = 0.066 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 31.18 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]
3500.00	H	232	343	-50.49	8.40	-42.09	60.3
5250.00	H	-	-	-57.63	10.34	-47.29	65.5
7000.00	H	-	-	-55.61	11.54	-44.07	62.3

Table 7-26. Radiated Spurious Data with WCP (Band 4 – High Channel)

OPERATING FREQUENCY: 1852.50 MHz
 CHANNEL: 26065
 MEASURED OUTPUT POWER: 20.13 dBm = 0.103 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 33.13 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]
3705.00	V	187	348	-55.70	8.39	-47.31	67.4
5557.50	V	-	-	-56.29	10.56	-45.73	65.9
7410.00	V	-	-	-55.71	12.04	-43.67	63.8

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

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)					Reviewed by: Quality Manager
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OPERATING FREQUENCY: 1882.50 MHz
 CHANNEL: 26365
 MEASURED OUTPUT POWER: 20.88 dBm = 0.122 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 33.88 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	V	210	349	-53.10	8.38	-44.73	65.6
5647.50	V	-	-	-57.37	10.71	-46.66	67.5
7530.00	V	-	-	-55.66	12.10	-43.56	64.4

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

OPERATING FREQUENCY: 1912.50 MHz
 CHANNEL: 26665
 MEASURED OUTPUT POWER: 20.41 dBm = 0.110 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 33.41 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]
3825.00	V	143	148	-55.89	8.41	-47.48	67.9
5737.50	V	-	-	-56.40	10.76	-45.64	66.1
7650.00	V	143	349	-54.06	12.21	-41.85	62.3

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

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)				Reviewed by: Quality Manager
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OPERATING FREQUENCY: 1882.50 MHz
 CHANNEL: 26365
 MEASURED OUTPUT POWER: 20.88 dBm = 0.122 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 33.88 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	100	140	-48.93	8.38	-40.56	61.4
5647.50	H	100	0	-54.95	10.71	-44.24	65.1
7530.00	H	-	-	-55.25	12.10	-43.15	64.0

Table 7-30. Radiated Spurious Data with WCP (Band 2/25 – Mid Channel)

OPERATING FREQUENCY: 2498.50 MHz
 CHANNEL: 39675
 MEASURED OUTPUT POWER: 16.62 dBm = 0.046 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10} (W) =$ 41.62 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]
4997.00	H	123	326	-50.07	10.14	-39.93	56.6
7495.50	H	-	-	-56.56	12.08	-44.47	61.1
9994.00	H	-	-	-54.28	13.25	-41.03	57.6

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

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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OPERATING FREQUENCY: 2593.00 MHz
 CHANNEL: 40620
 MEASURED OUTPUT POWER: 21.30 dBm = 0.135 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 46.30 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	175	221	-48.59	10.33	-38.26	59.6
7779.00	H	-	-	-56.83	12.32	-44.50	65.8
10372.00	H	-	-	-53.99	13.18	-40.81	62.1

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

OPERATING FREQUENCY: 2687.50 MHz
 CHANNEL: 41565
 MEASURED OUTPUT POWER: 16.03 dBm = 0.040 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 41.03 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]
5375.00	H	104	26	-53.21	10.37	-42.85	58.9
8062.50	H	-	-	-55.84	12.61	-43.23	59.3
10750.00	H	-	-	-52.52	12.95	-39.58	55.6

Table 7-33. Radiated Spurious Data (Band 41 – High Channel)

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)					Reviewed by: Quality Manager
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OPERATING FREQUENCY: 2593.00 MHz
 CHANNEL: 40620
 MEASURED OUTPUT POWER: 21.30 dBm = 0.135 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10} (W)$ 46.30 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	145	360	-52.35	10.33	-42.02	63.3
7779.00	H	-	-	-54.60	12.32	-42.27	63.6
10372.00	H	-	-	-51.82	13.18	-38.64	59.9

Table 7-34. Radiated Spurious Data with WCP (Band 41 – Mid Channel)

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed 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-C-2004. 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-C-2004

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)	707,499,984	-16	-0.0000023
100 %		- 30	707,499,989	-11	-0.0000016
100 %		- 20	707,499,759	-241	-0.0000341
100 %		- 10	707,499,598	-402	-0.0000568
100 %		0	707,499,876	-124	-0.0000175
100 %		+ 10	707,499,801	-199	-0.0000281
100 %		+ 20	707,500,394	394	0.0000557
100 %		+ 30	707,500,053	53	0.0000075
100 %		+ 40	707,499,931	-69	-0.0000098
100 %		+ 50	707,499,692	-308	-0.0000435
BATT. ENDPOINT	3.45	+ 20	707,500,034	34	0.0000048

Table 7-35. Frequency Stability Data (Band 12/17)

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 12/17 Frequency Stability Measurements
§2.1055 §27.54

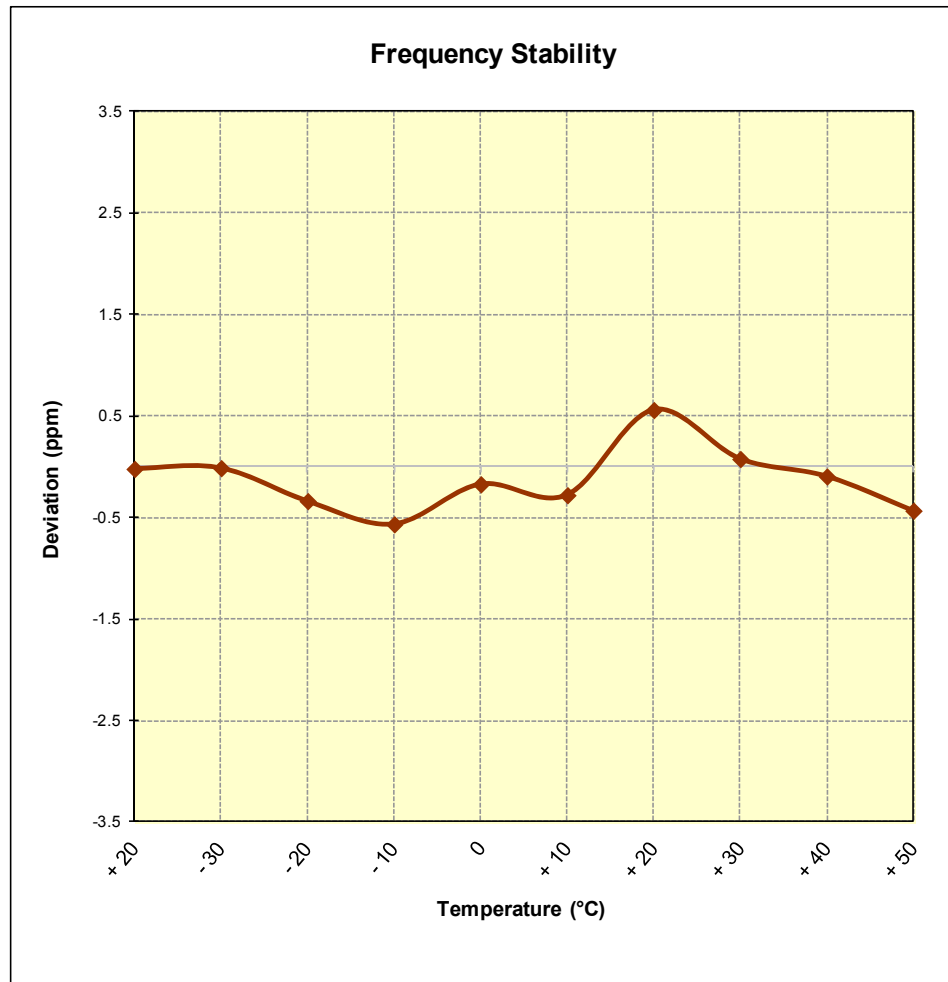


Figure 7-8. Frequency Stability Graph (Band 12/17)

FCC ID: A3LSMG9300			FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	 Reviewed 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)	781,999,859	-141	-0.0000180
100 %		- 30	781,999,951	-49	-0.0000063
100 %		- 20	782,000,071	71	0.0000091
100 %		- 10	782,000,344	344	0.0000440
100 %		0	781,999,922	-78	-0.0000100
100 %		+ 10	781,999,583	-417	-0.0000533
100 %		+ 20	782,000,008	8	0.0000010
100 %		+ 30	781,999,925	-75	-0.0000096
100 %		+ 40	782,000,217	217	0.0000277
100 %		+ 50	781,999,944	-56	-0.0000072
BATT. ENDPOINT	3.45	+ 20	781,999,981	-19	-0.0000024

Table 7-36. Frequency Stability Data (Band 13)

Note:

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

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
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Band 13 Frequency Stability Measurements

§2.1055 §27.54

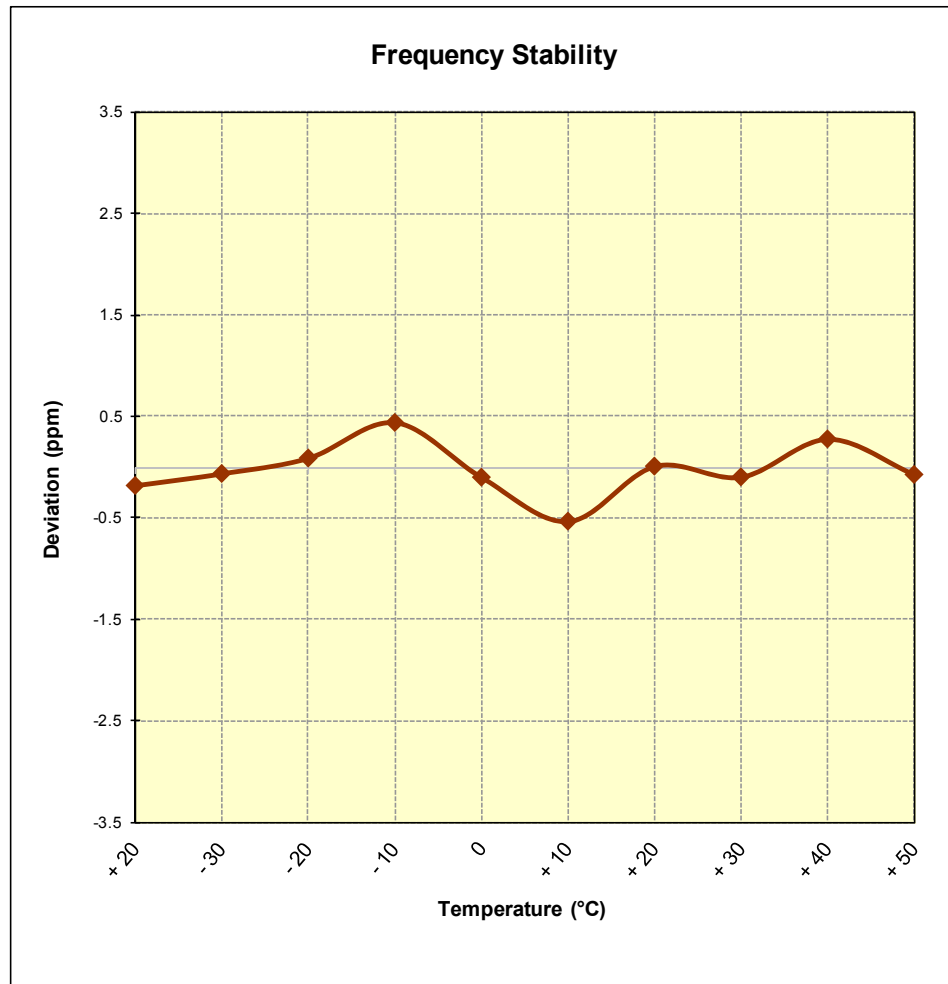


Figure 7-9. Frequency Stability Graph (Band 13)

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed 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)	831,499,724	-276	-0.0000332
100 %		- 30	831,499,965	-35	-0.0000042
100 %		- 20	831,499,911	-89	-0.0000107
100 %		- 10	831,500,093	93	0.0000112
100 %		0	831,499,812	-188	-0.0000226
100 %		+ 10	831,500,090	90	0.0000108
100 %		+ 20	831,499,781	-219	-0.0000263
100 %		+ 30	831,500,147	147	0.0000177
100 %		+ 40	831,500,078	78	0.0000094
100 %		+ 50	831,499,677	-323	-0.0000388
BATT. ENDPOINT	3.45	+ 20	831,500,079	79	0.0000095

Table 7-37. Frequency Stability Data (Band 5/26)

Band 5/26 Frequency Stability Measurements
§2.1055 §22.355

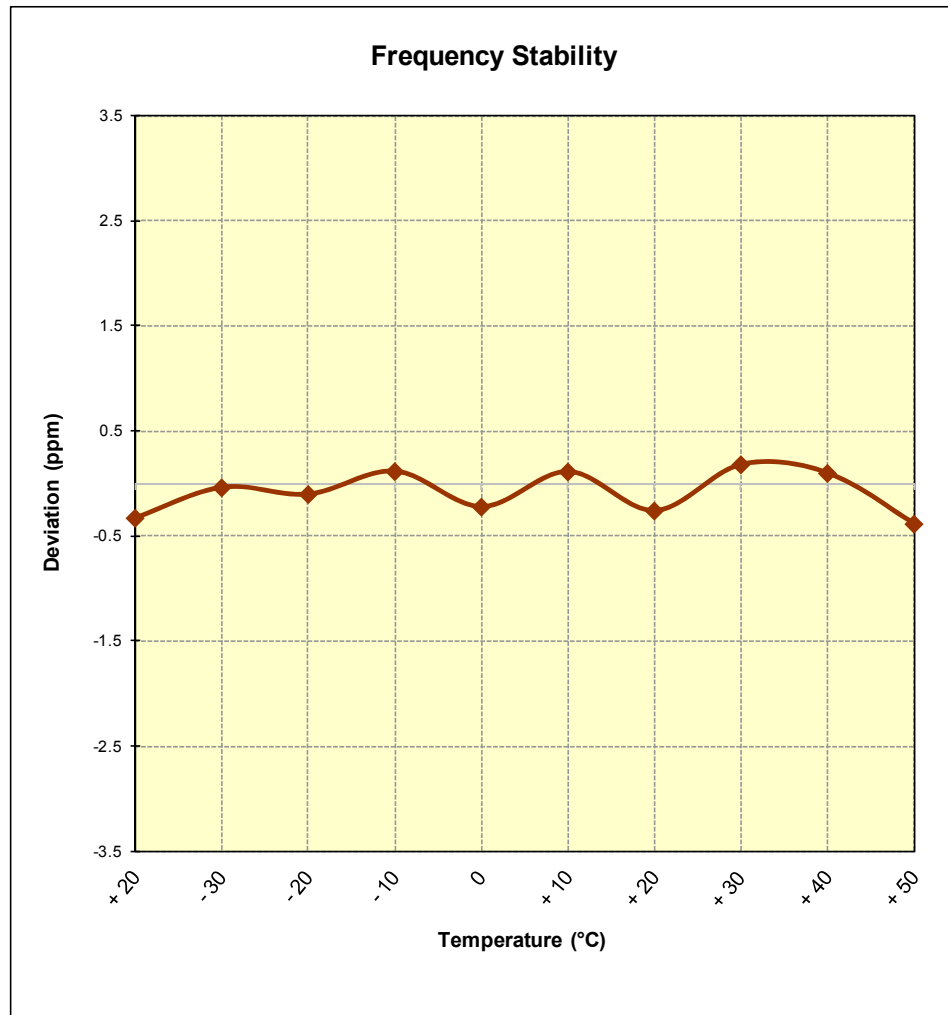


Figure 7-10. Frequency Stability Graph (Band 5/26)

FCC ID: A3LSMG9300			FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Band 4 Frequency Stability Measurements

§2.1055 §§27.54

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

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,732,500,003	3	0.0000002
100 %		- 30	1,732,499,781	-219	-0.0000126
100 %		- 20	1,732,499,580	-420	-0.0000242
100 %		- 10	1,732,500,076	76	0.0000044
100 %		0	1,732,499,978	-22	-0.0000013
100 %		+ 10	1,732,499,961	-39	-0.0000023
100 %		+ 20	1,732,499,763	-237	-0.0000137
100 %		+ 30	1,732,500,089	89	0.0000051
100 %		+ 40	1,732,500,002	2	0.0000001
100 %		+ 50	1,732,500,011	11	0.0000006
BATT. ENDPOINT	3.45	+ 20	1,732,499,840	-160	-0.0000092

Table 7-38. Frequency Stability Data (Band 4)

Note:

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

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Band 4 Frequency Stability Measurements

§2.1055 §§27.54

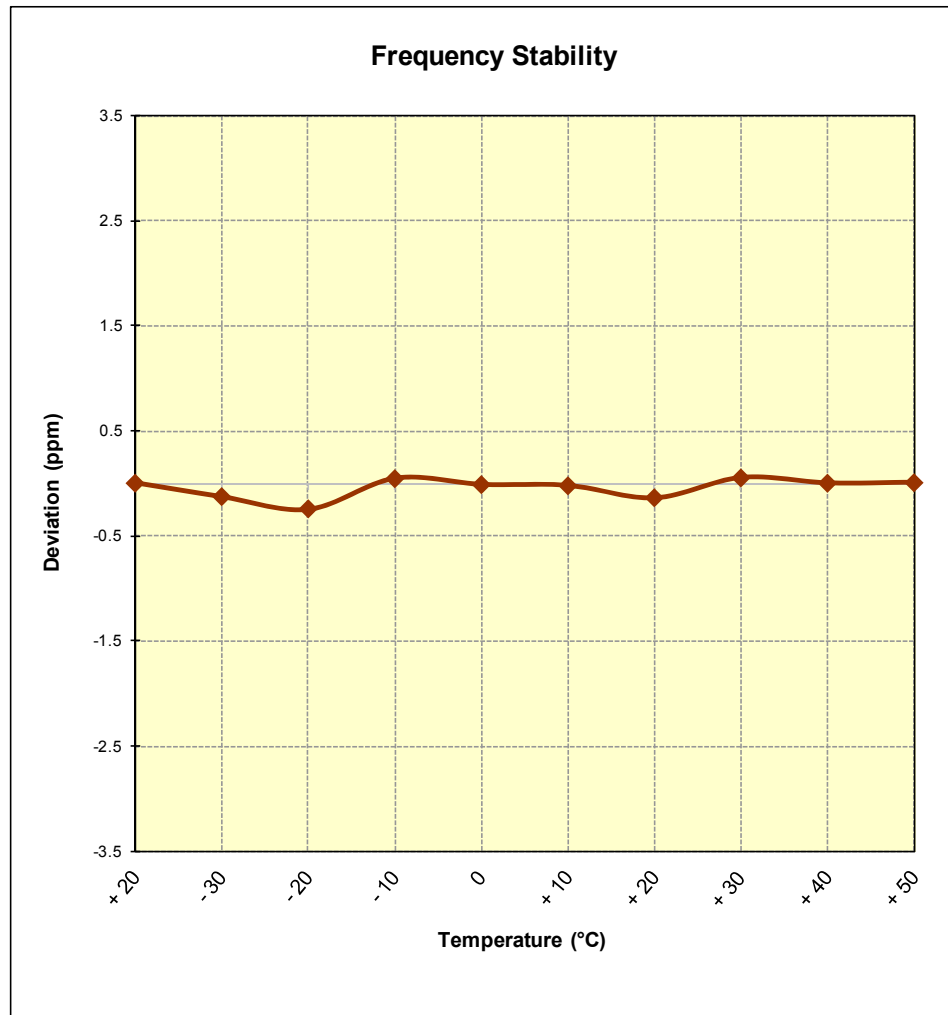


Figure 7-11. Frequency Stability Graph (Band 4)

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed 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)	1,882,500,065	65	0.0000035
100 %		- 30	1,882,500,164	164	0.0000087
100 %		- 20	1,882,500,025	25	0.0000013
100 %		- 10	1,882,500,034	34	0.0000018
100 %		0	1,882,499,724	-276	-0.0000147
100 %		+ 10	1,882,499,801	-199	-0.0000106
100 %		+ 20	1,882,500,083	83	0.0000044
100 %		+ 30	1,882,499,944	-56	-0.0000030
100 %		+ 40	1,882,500,134	134	0.0000071
100 %		+ 50	1,882,500,005	5	0.0000003
BATT. ENDPOINT	3.45	+ 20	1,882,499,828	-172	-0.0000091

Table 7-39. 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.

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Band 2/25 Frequency Stability Measurements
§2.1055 §24.235

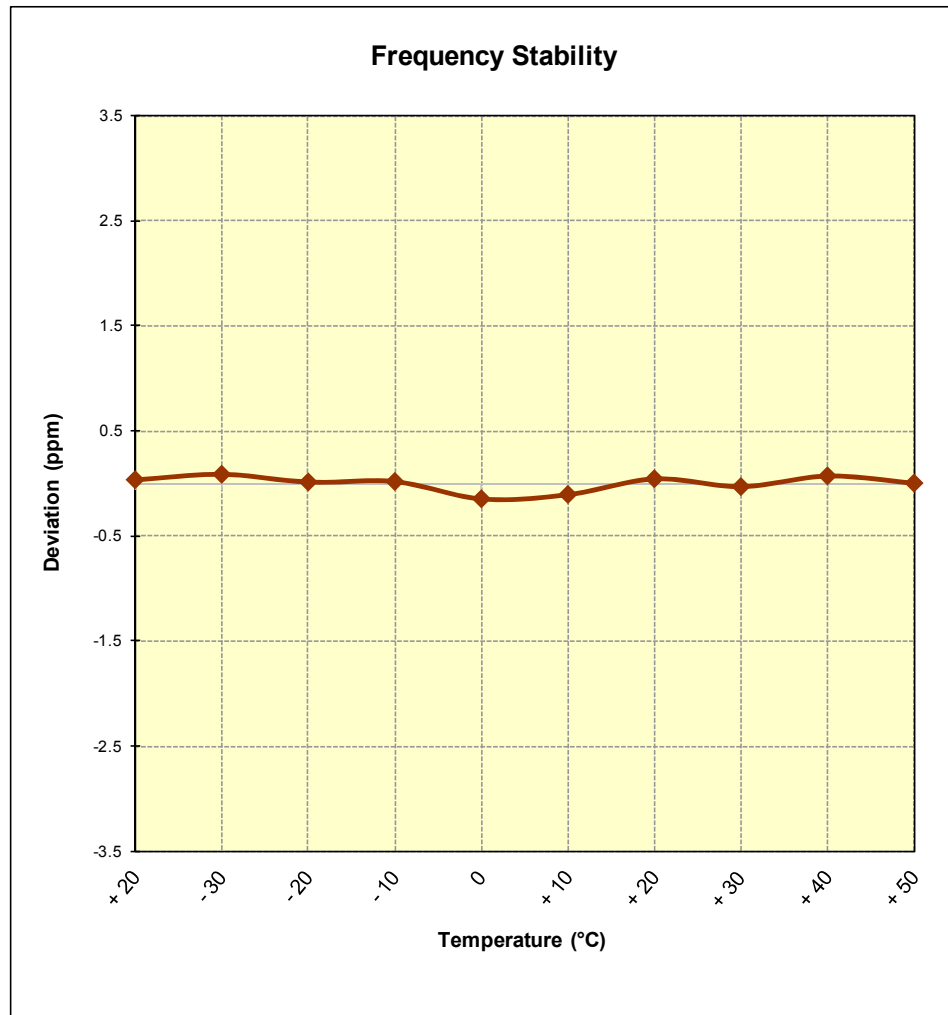


Figure 7-12. Frequency Stability Graph (Band 2/25)

FCC ID: A3LSMG9300	 FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset	Page 159 of 162	

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)	2,593,000,351	351	0.0000135
100 %		- 30	2,593,000,055	55	0.0000021
100 %		- 20	2,592,999,945	-55	-0.0000021
100 %		- 10	2,593,000,087	87	0.0000034
100 %		0	2,593,000,300	300	0.0000116
100 %		+ 10	2,592,999,714	-286	-0.0000110
100 %		+ 20	2,593,000,058	58	0.0000022
100 %		+ 30	2,592,999,768	-232	-0.0000089
100 %		+ 40	2,593,000,048	48	0.0000019
100 %		+ 50	2,592,999,989	-11	-0.0000004
BATT. ENDPOINT	3.45	+ 20	2,593,000,221	221	0.0000085

Table 7-40. 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.

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
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Band 41 Frequency Stability Measurements
§2.1055 §27.54

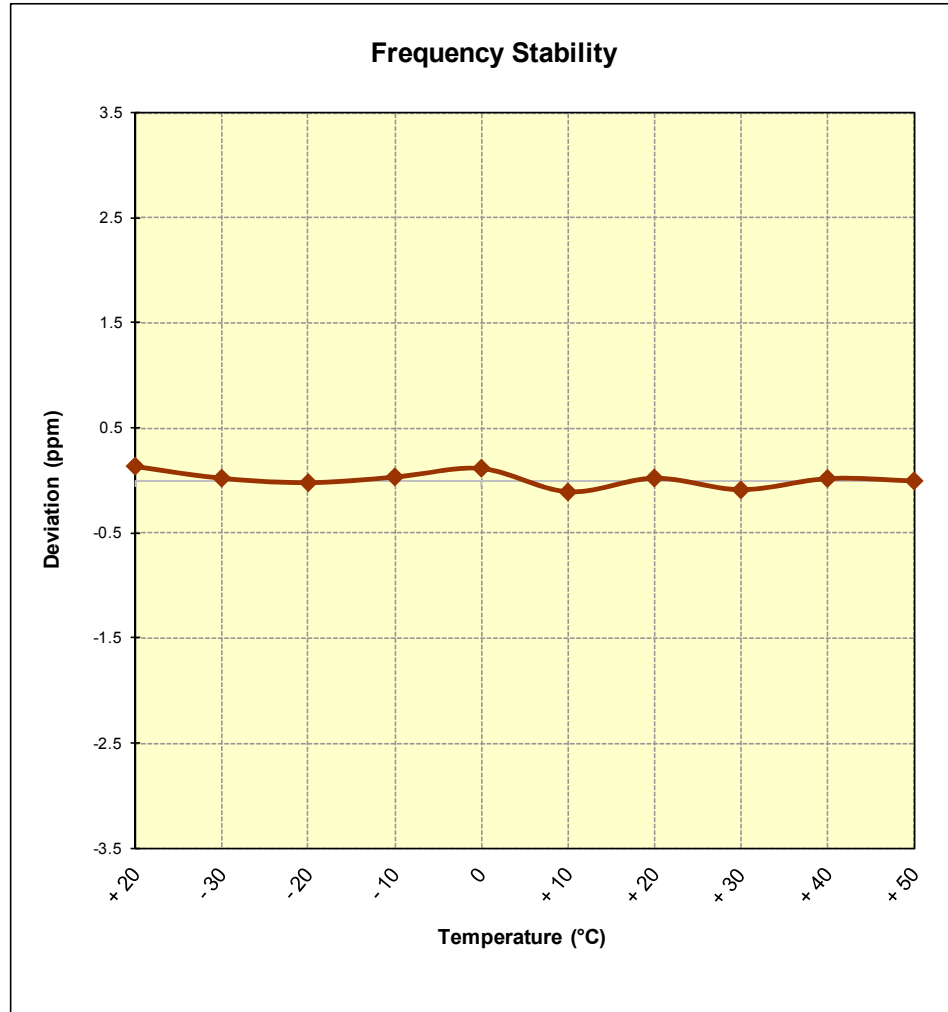


Figure 7-13. Frequency Stability Graph (Band 41)

FCC ID: A3LSMG9300			FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	 Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset		Page 161 of 162

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMG9300** complies with all the requirements of Parts 22, 24, & 27 of the FCC rules for LTE operation only.

FCC ID: A3LSMG9300		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1512282252.A3L	Test Dates: 12/30/2015 - 1/12/2016	EUT Type: Portable Handset	Page 162 of 162	