

7.4 Band Edge Emissions at Antenna Terminal

§2.1051 §22.917(a) §24.238(a) §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 $\geq 3 \times$ RBW
5. Detector = RMS
6. Number of sweep points $\geq 2 \times$ Span/RBW
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Test Setup

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

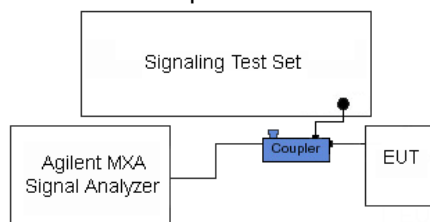


Figure 7-3. Test Instrument & Measurement Setup

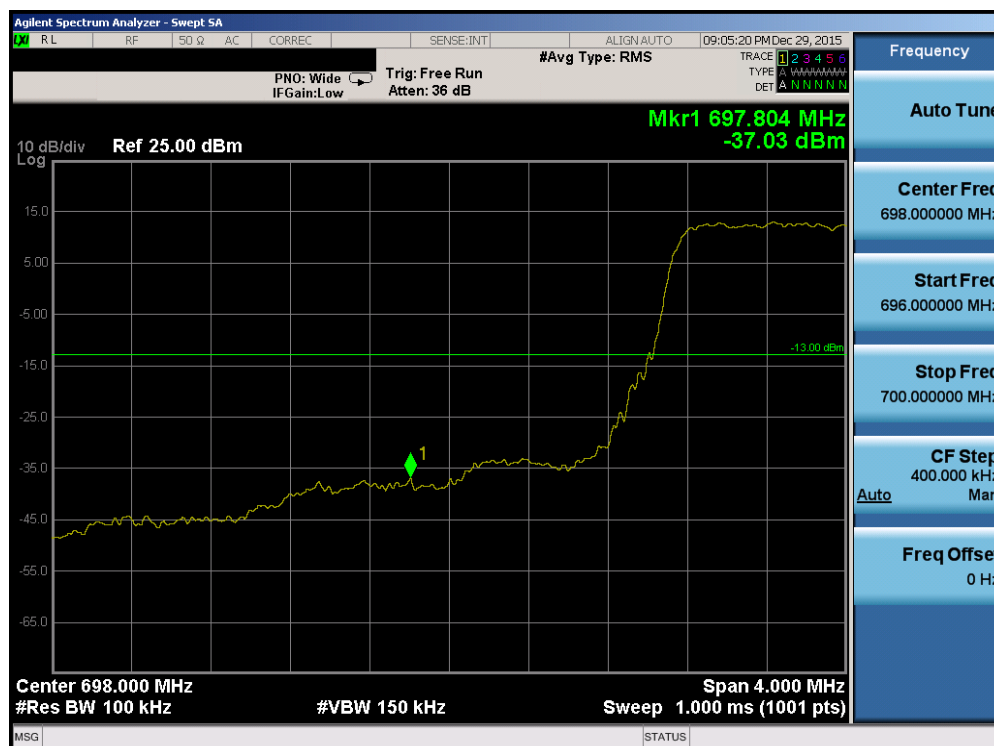
Test Notes

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.

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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(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.

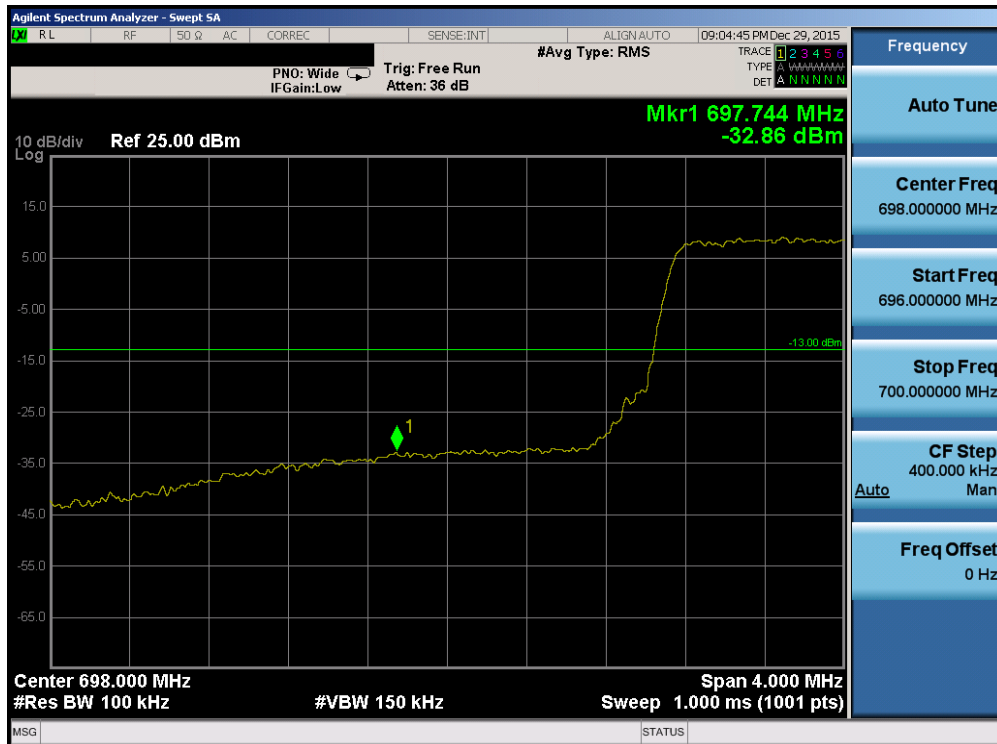


Plot 7-113. Lower Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)

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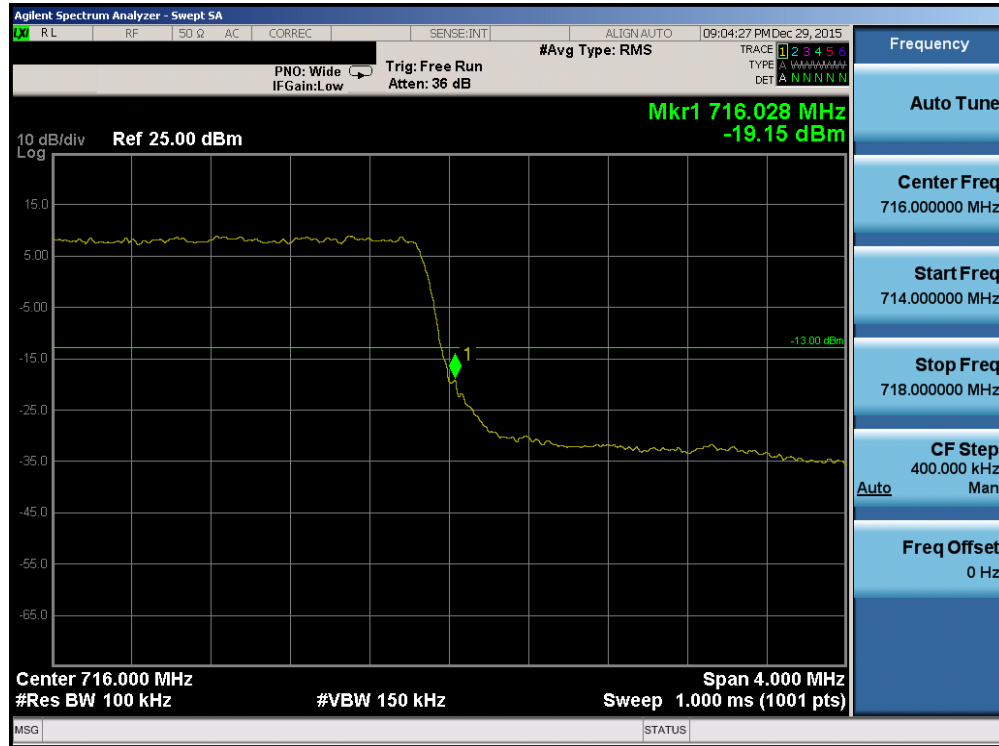


Plot 7-114. Upper Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)

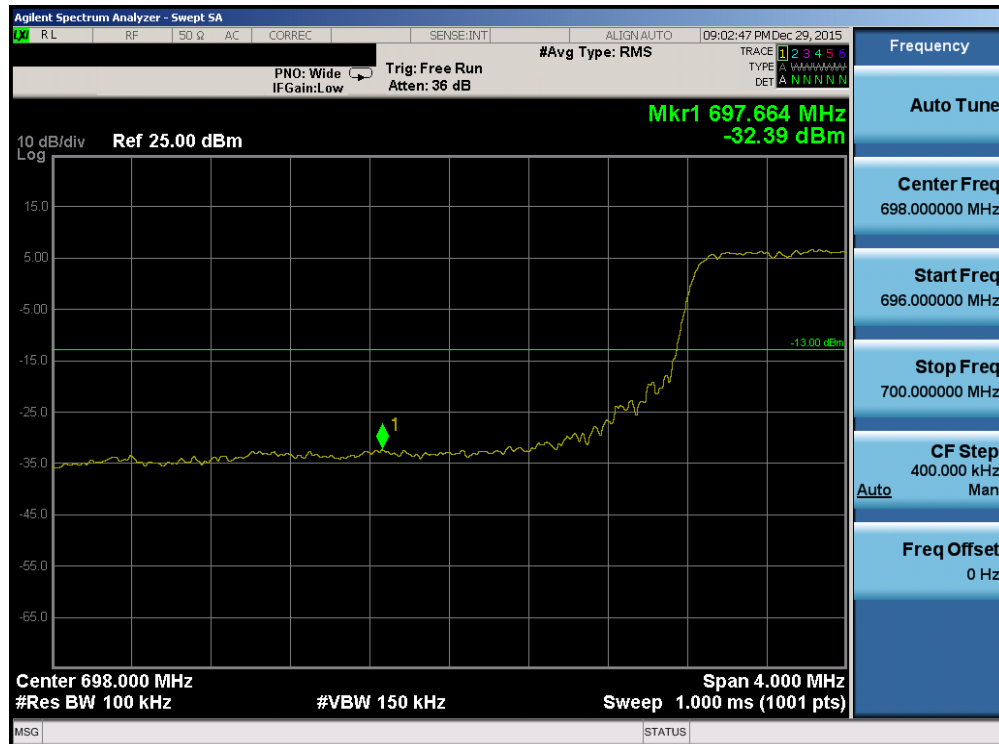


Plot 7-115. Lower Band Edge Plot (Band 12 – 3.0MHz QPSK – RB Size 15)

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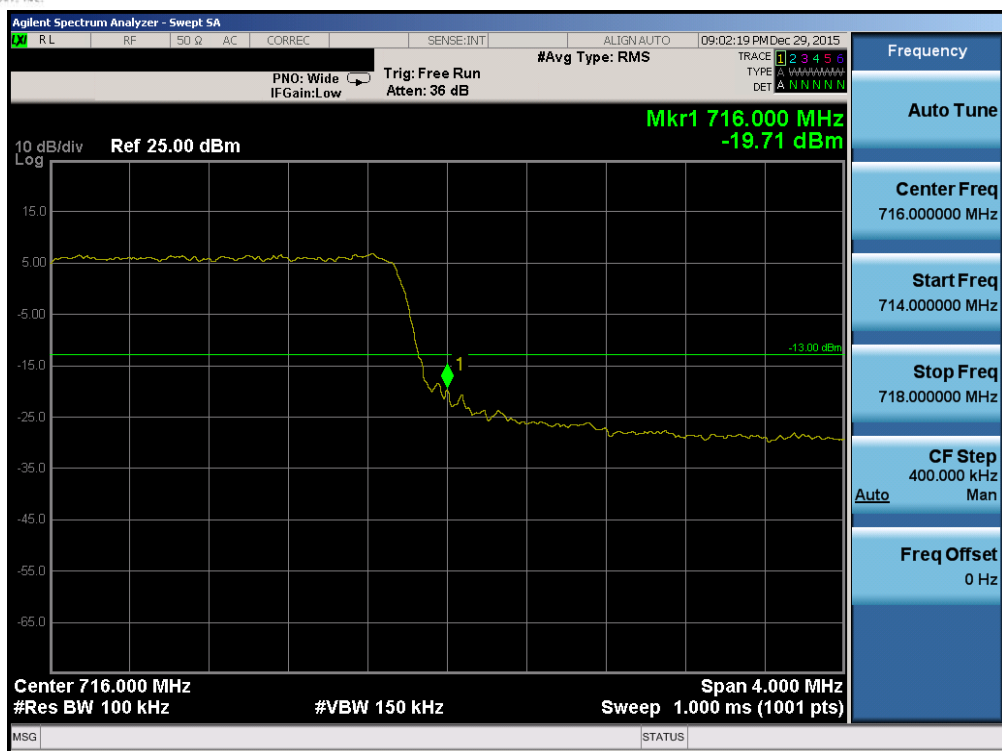


Plot 7-116. Upper Band Edge Plot (Band 12 – 3.0MHz QPSK – RB Size 15)

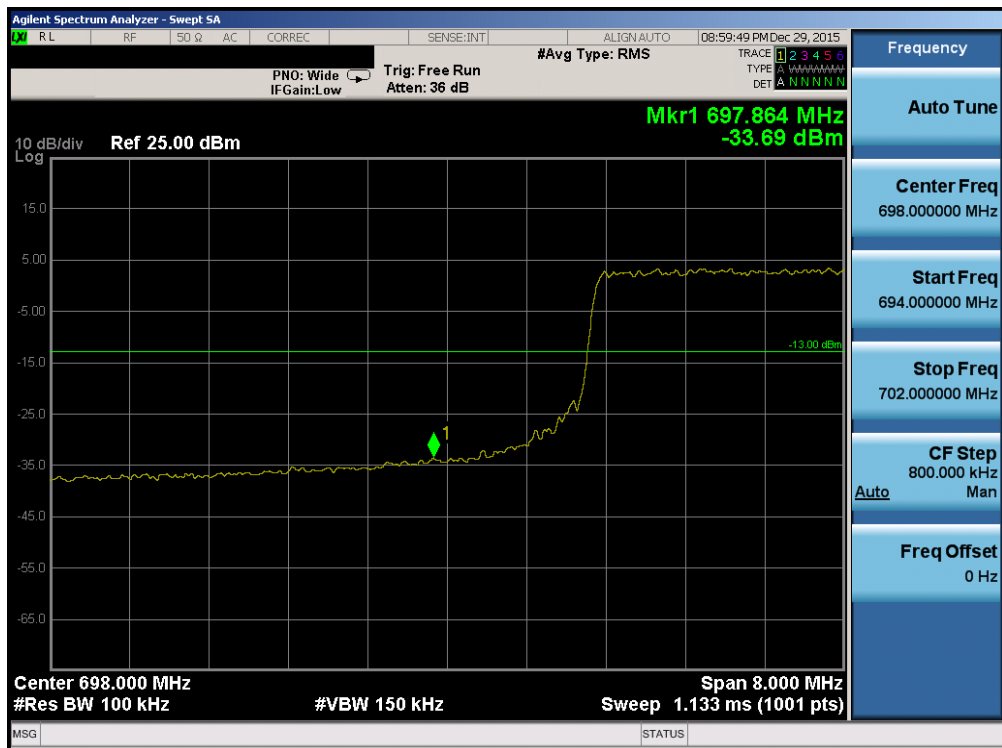


Plot 7-117. Lower Band Edge Plot (Band 12/17 – 5.0MHz QPSK – RB Size 25)

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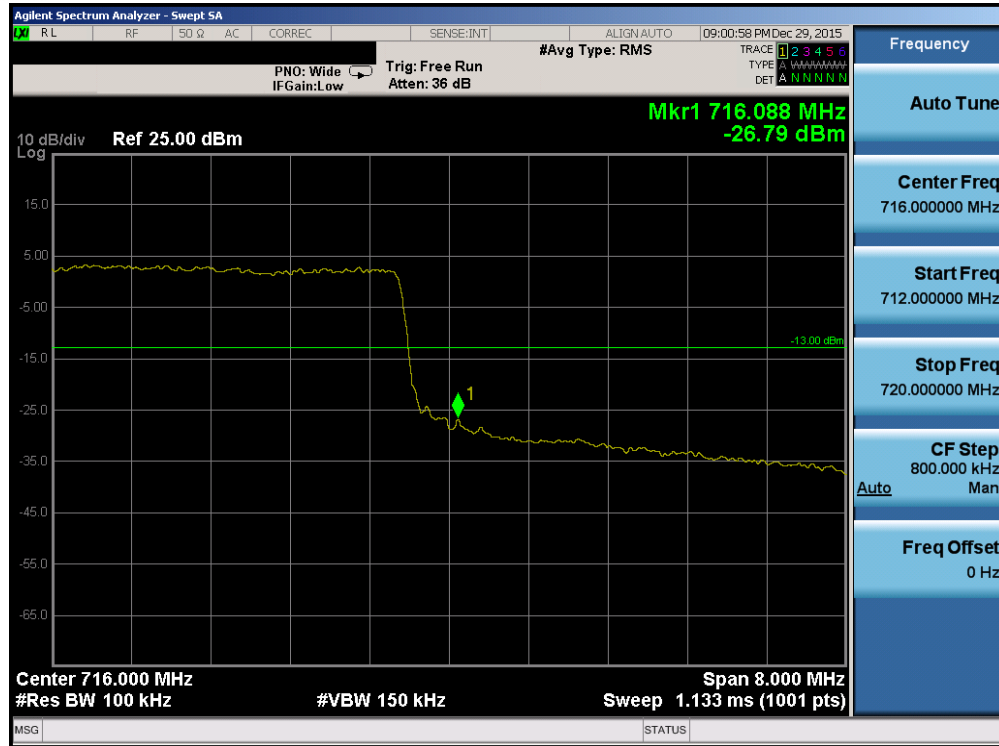


Plot 7-118. Upper Band Edge Plot (Band 12/17 – 5.0MHz QPSK – RB Size 25)

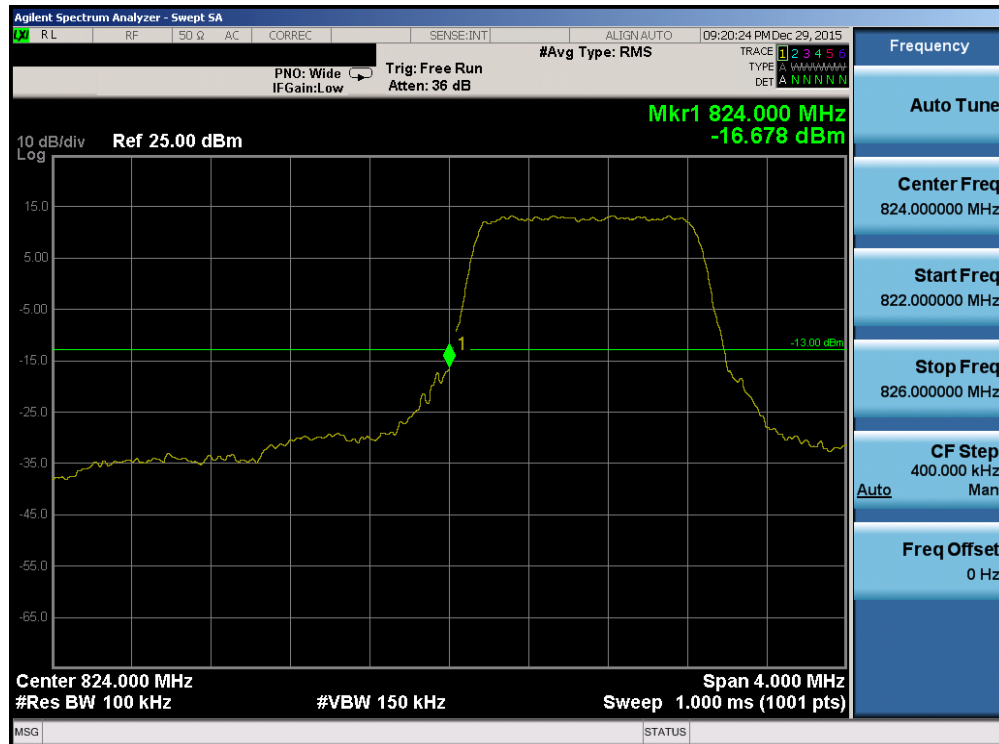


Plot 7-119. Lower Band Edge Plot (Band 12/17 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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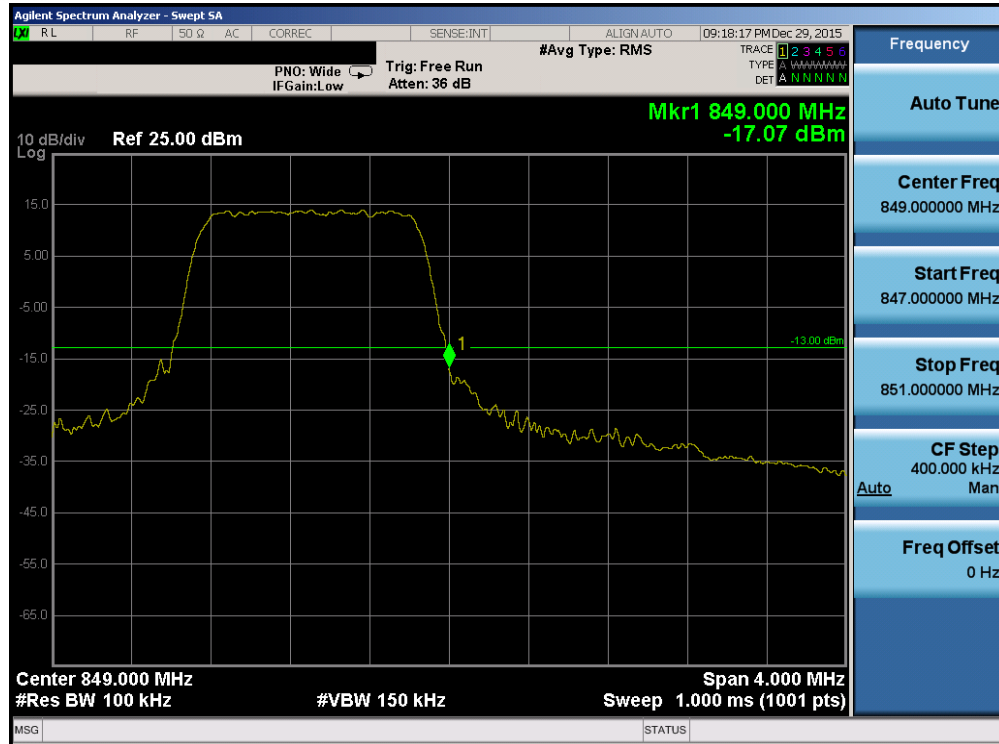


Plot 7-120. Upper Band Edge Plot (Band 12/17 – 10.0MHz QPSK – RB Size 50)

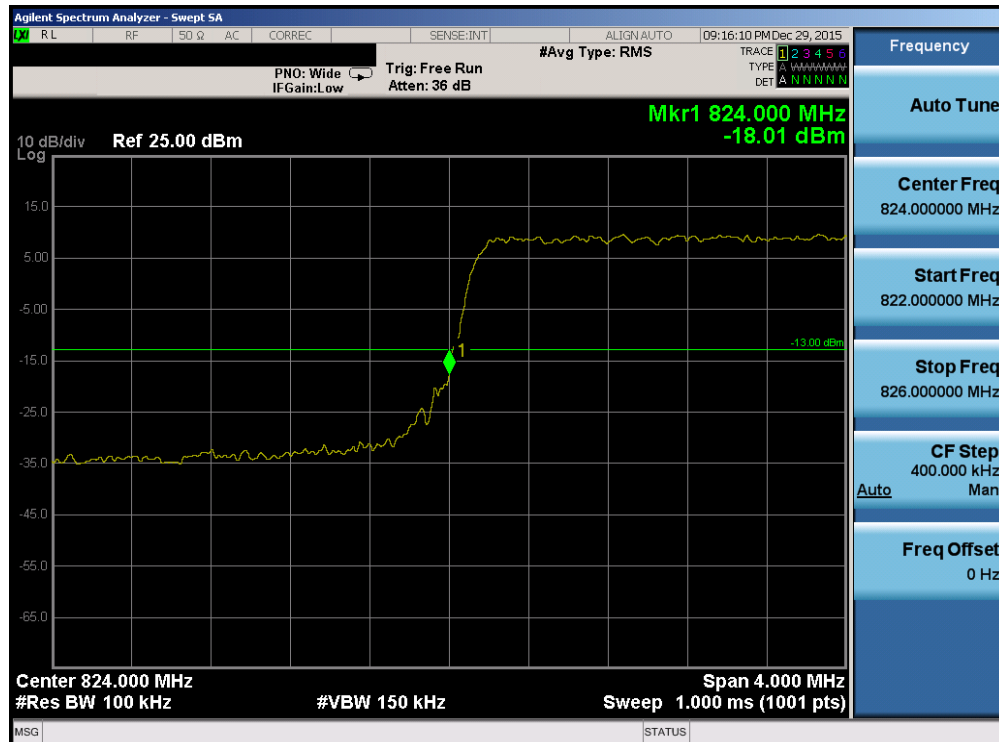


Plot 7-121. Lower Band Edge Plot (Band 5 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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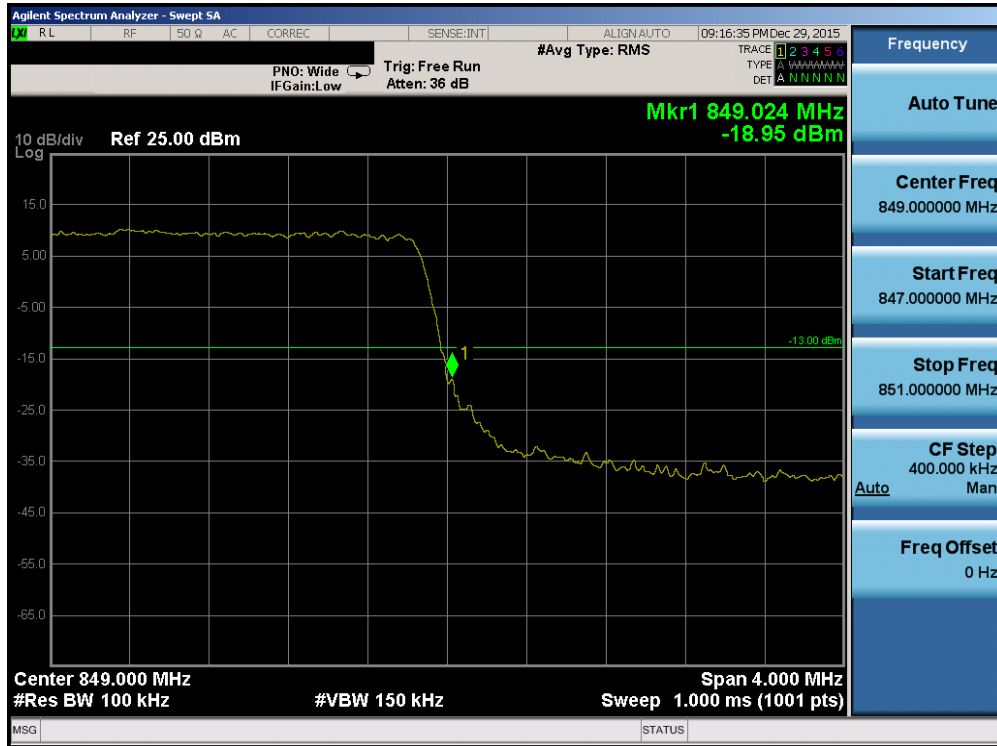


Plot 7-122. Upper Band Edge Plot (Band 5 – 1.4MHz QPSK – RB Size 6)

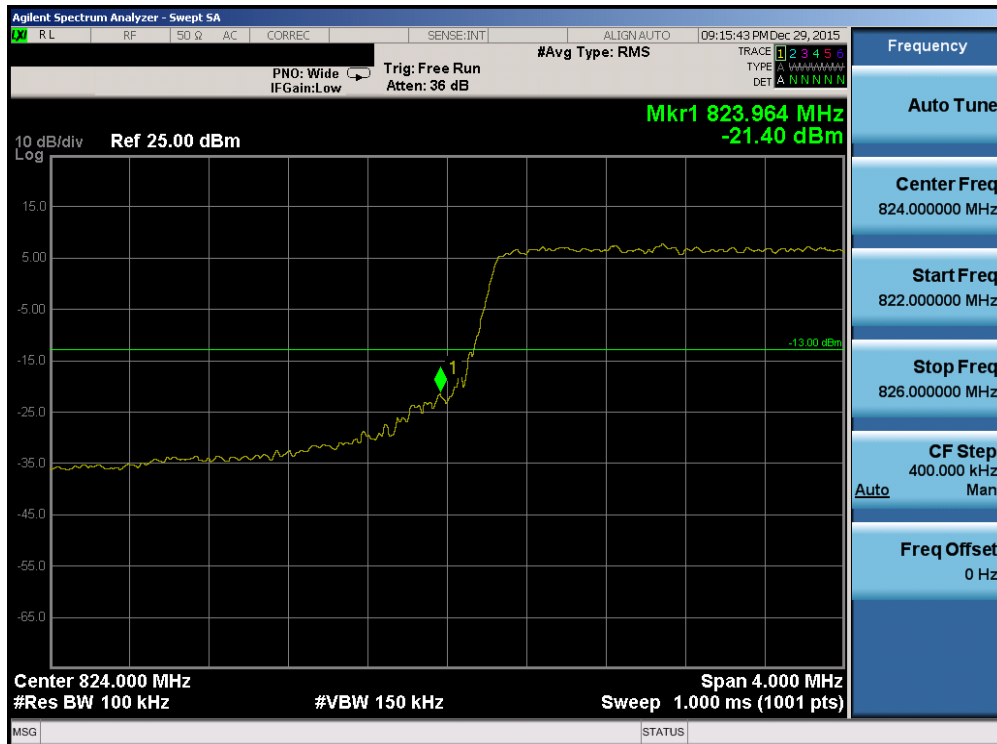


Plot 7-123. Lower Band Edge Plot (Band 5 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMG935KOR	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. Upper Band Edge Plot (Band 5 – 3.0MHz QPSK – RB Size 15)

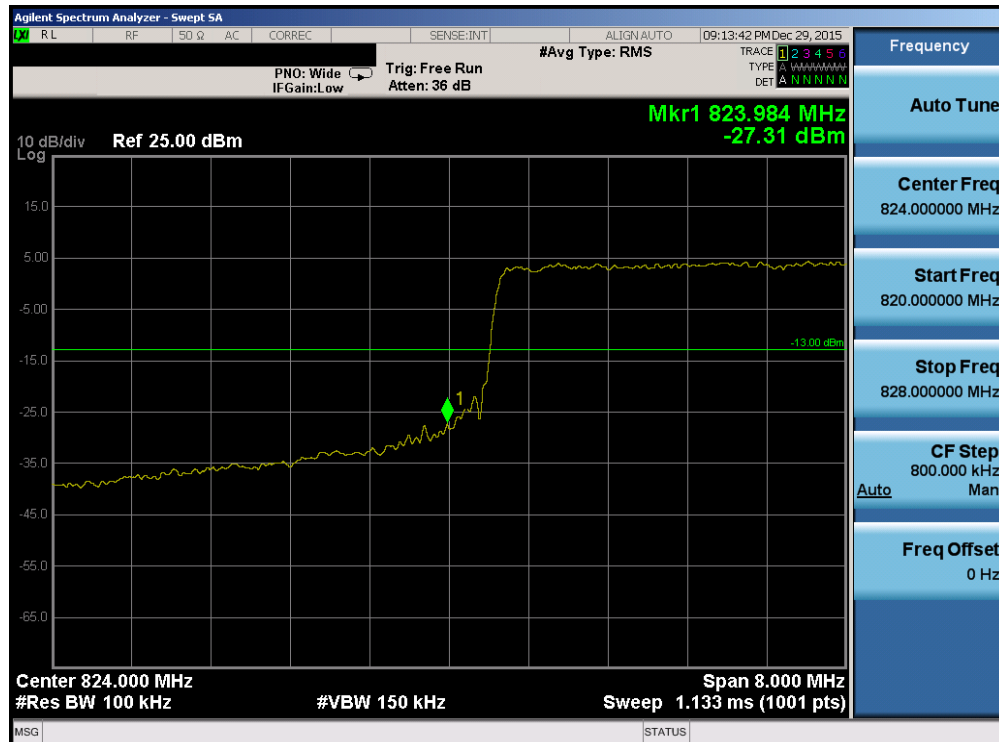


Plot 7-125. Lower Band Edge Plot (Band 5 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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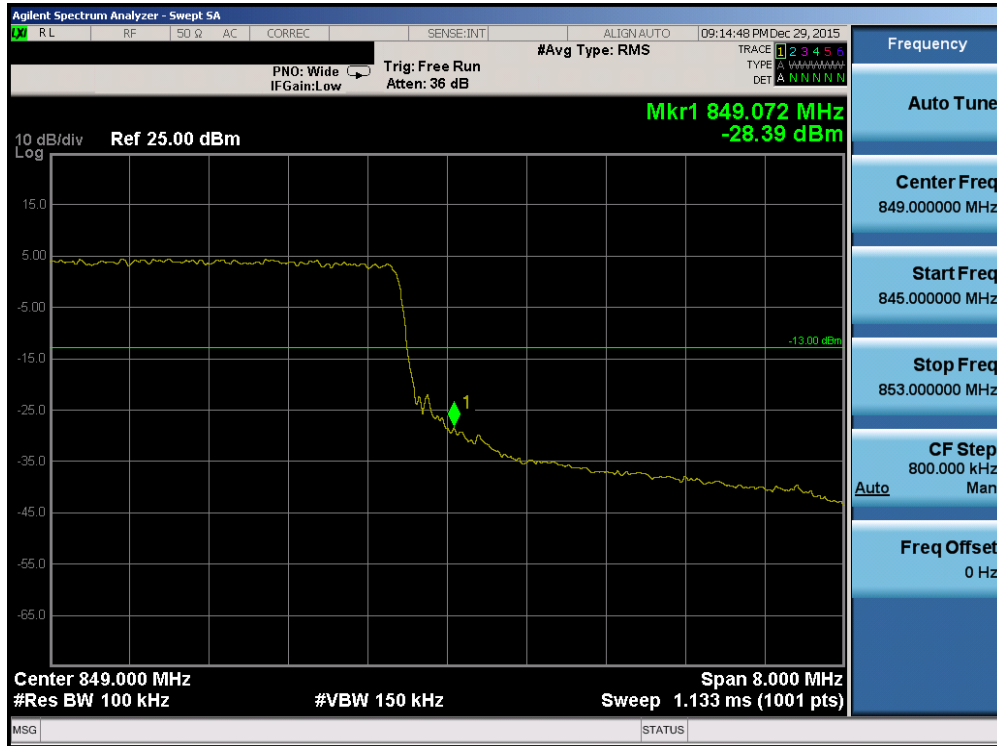


Plot 7-126. Upper Band Edge Plot (Band 5 – 5.0MHz QPSK – RB Size 25)

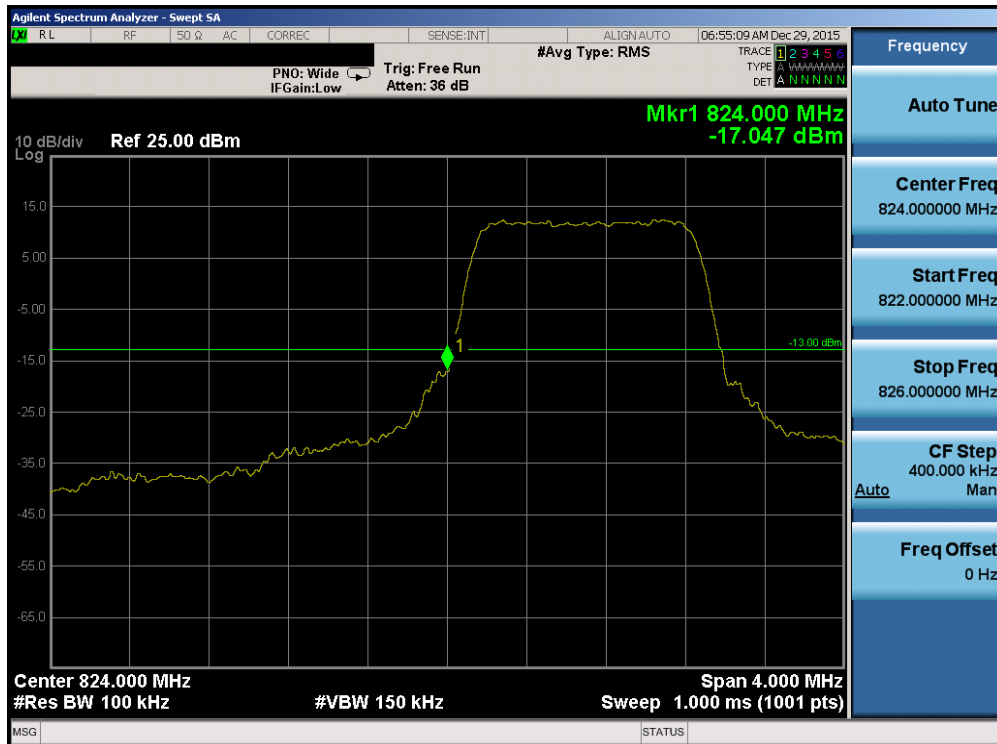


Plot 7-127. Lower Band Edge Plot (Band 5 – 10.0MHz QPSK – RB Size 50)

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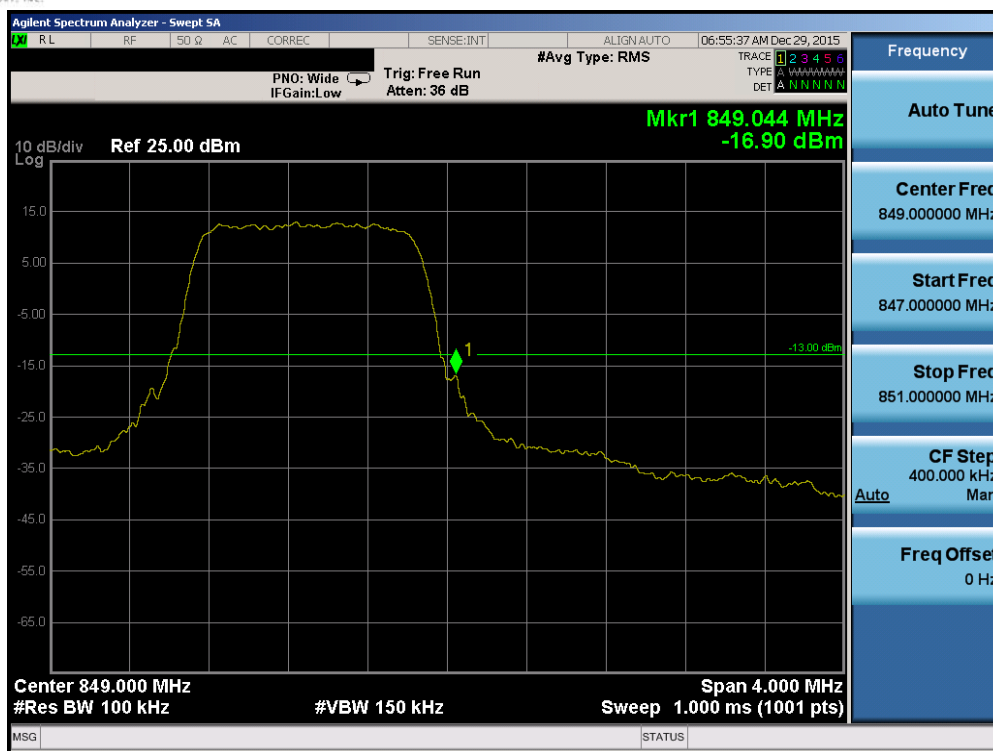


Plot 7-128. Upper Band Edge Plot (Band 5 – 10.0MHz QPSK – RB Size 50)

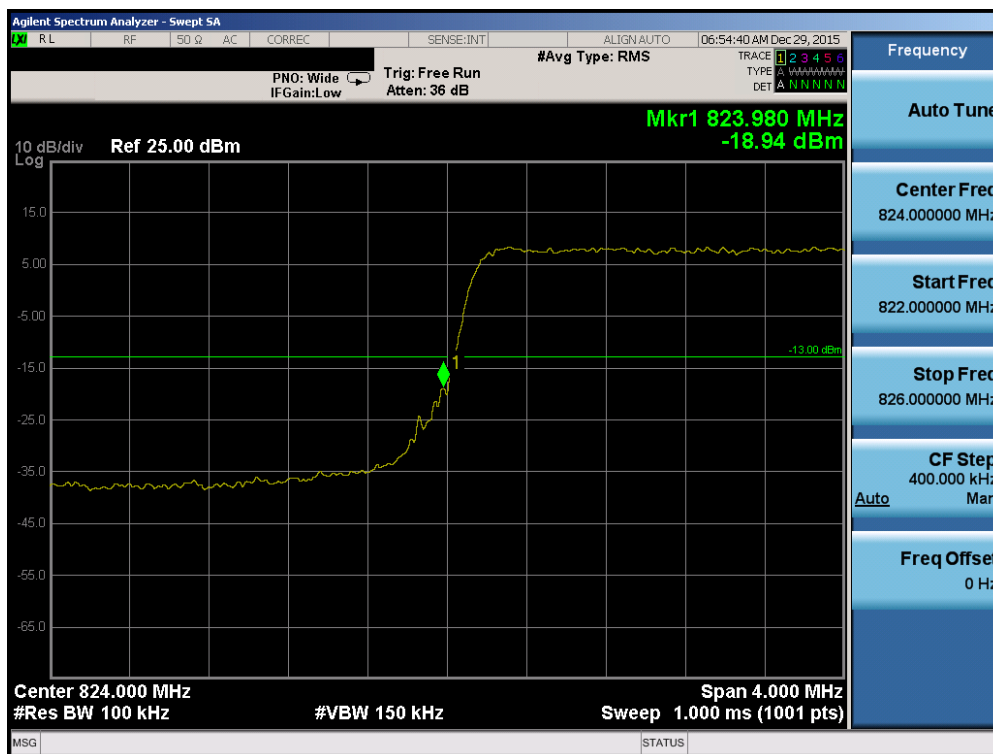


Plot 7-129. Lower Band Edge Plot (Band 26 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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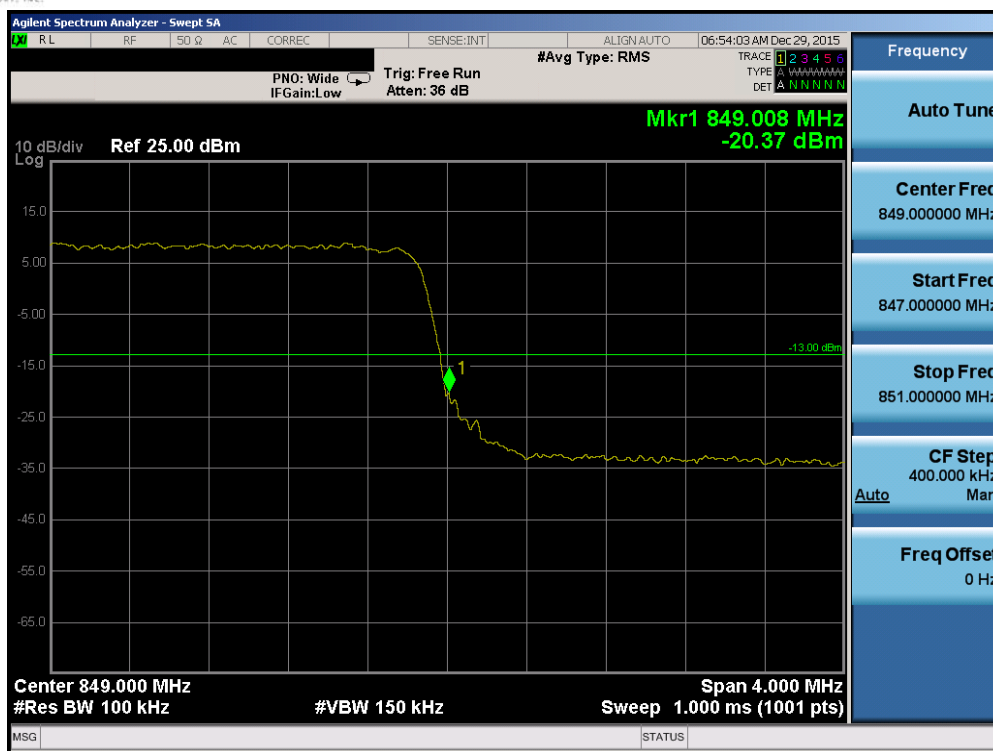


Plot 7-130. Upper Band Edge Plot (Band 26 – 1.4MHz QPSK – RB Size 6)

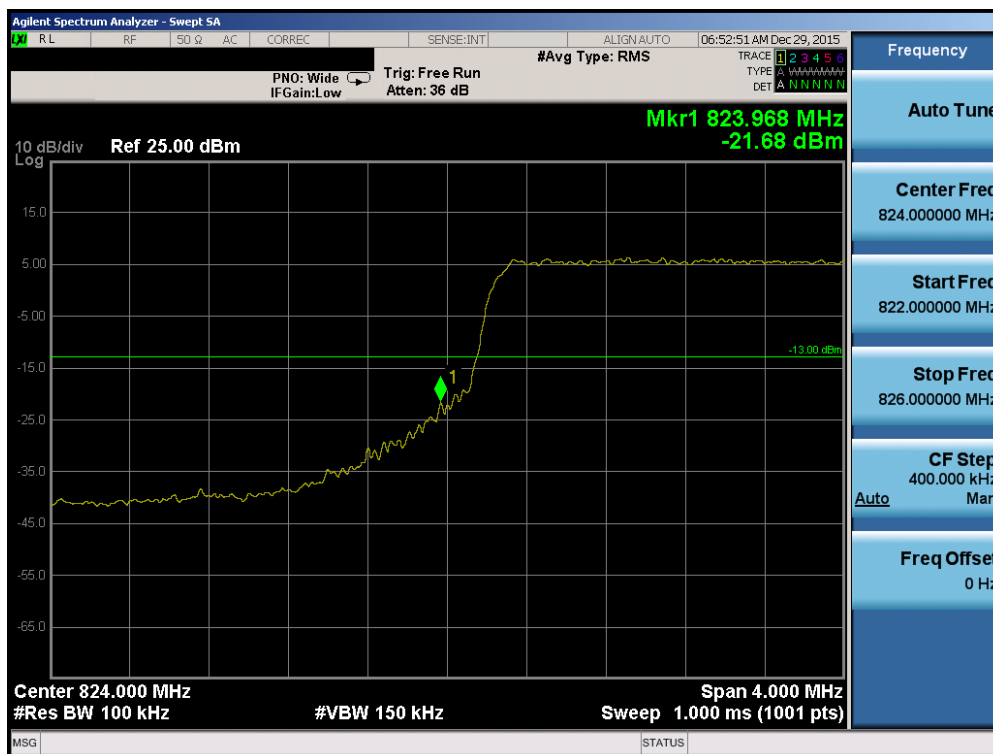


Plot 7-131. Lower Band Edge Plot (Band 26 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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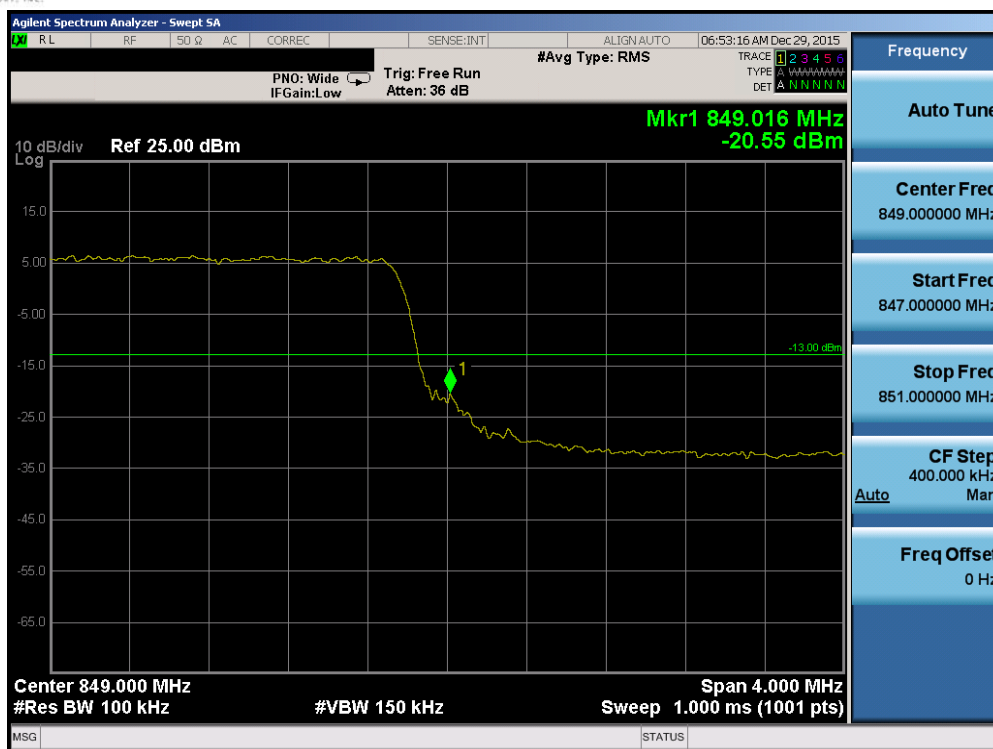


Plot 7-132. Upper Band Edge Plot (Band 26 – 3.0MHz QPSK – RB Size 15)

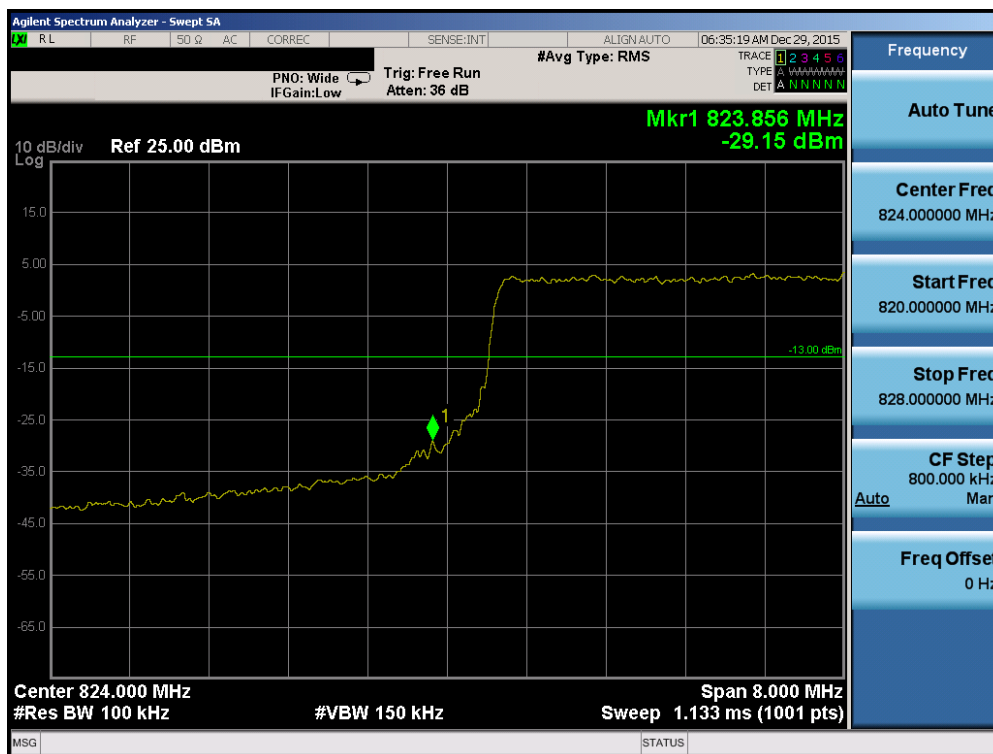


Plot 7-133. Lower Band Edge Plot (Band 26 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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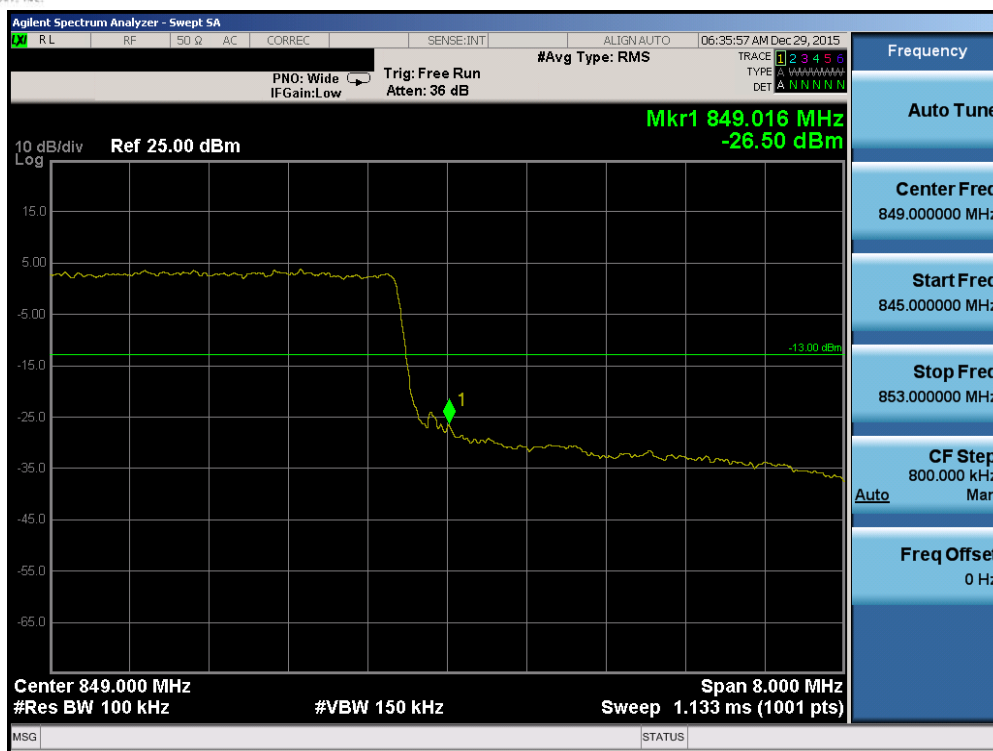


Plot 7-134. Upper Band Edge Plot (Band 26 – 5.0MHz QPSK – RB Size 25)

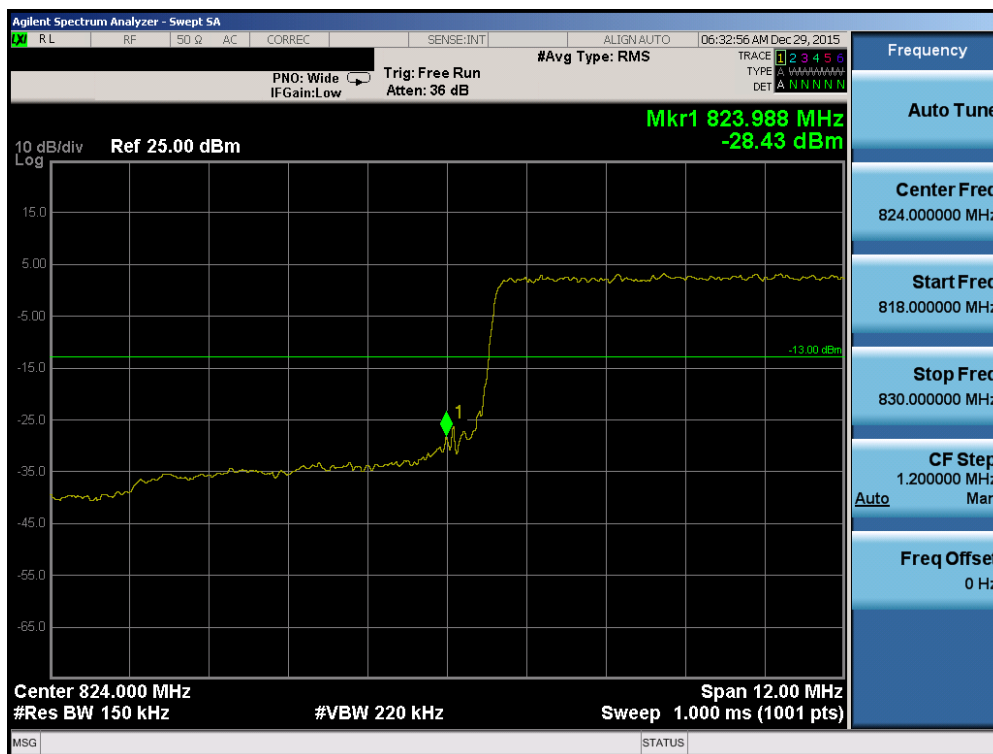


Plot 7-135. Lower Band Edge Plot (Band 26 – 10.0MHz QPSK – RB Size 50)

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Plot 7-136. Upper Band Edge Plot (Band 26 – 10.0MHz QPSK – RB Size 50)

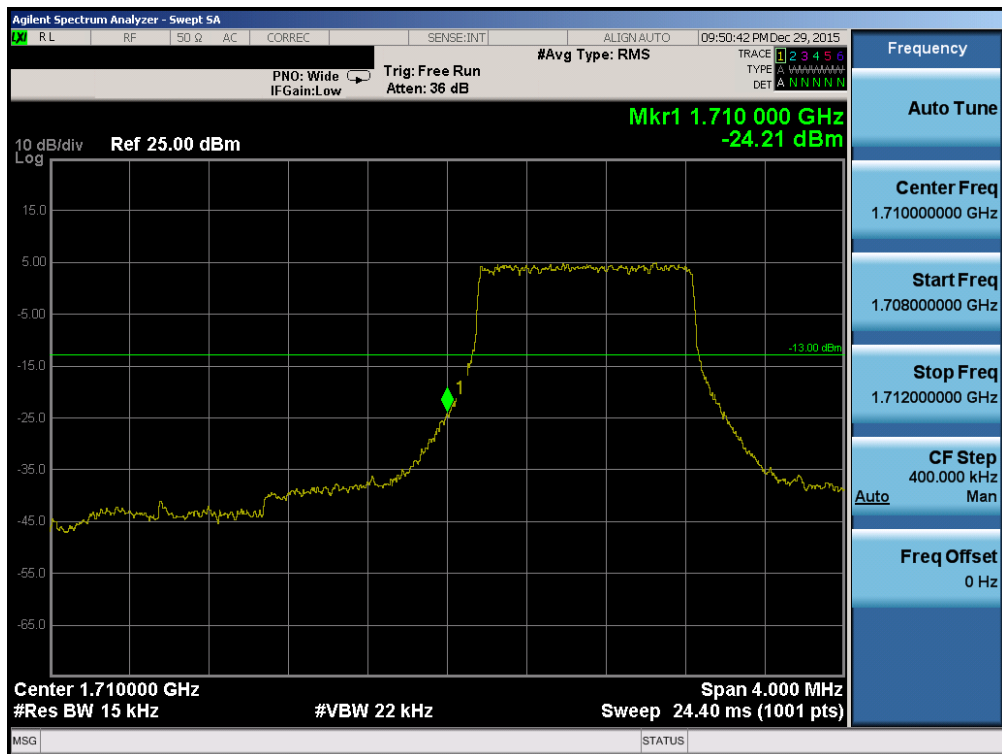


Plot 7-137. Lower Band Edge Plot (Band 26 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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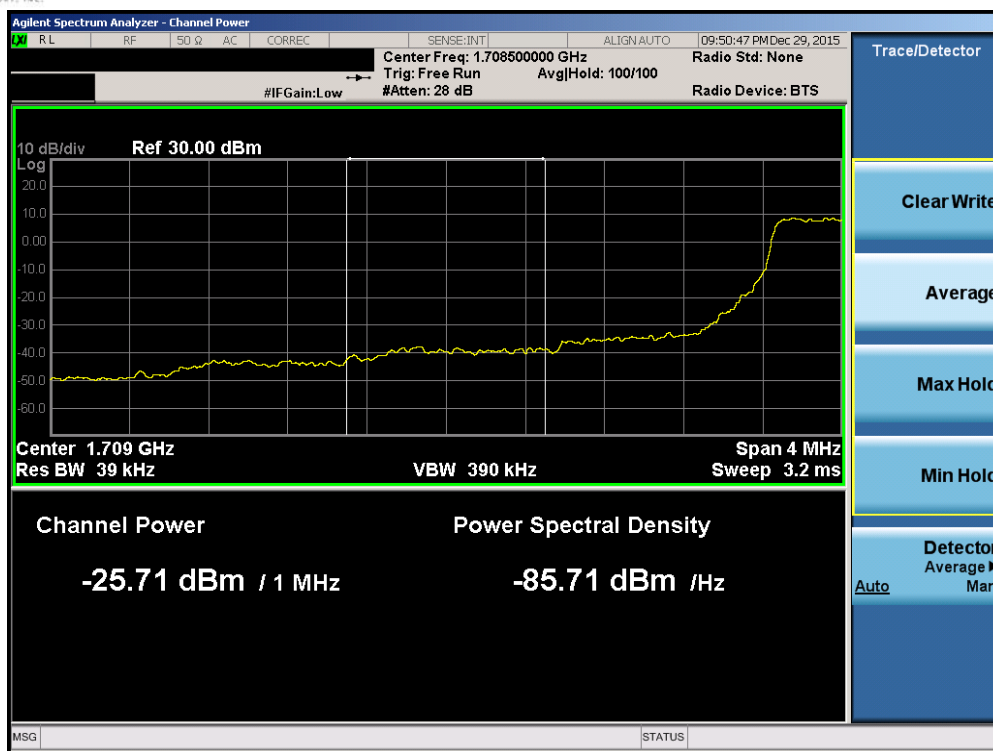


Plot 7-138. Upper Band Edge Plot (Band 26 – 15.0MHz QPSK – RB Size 75)

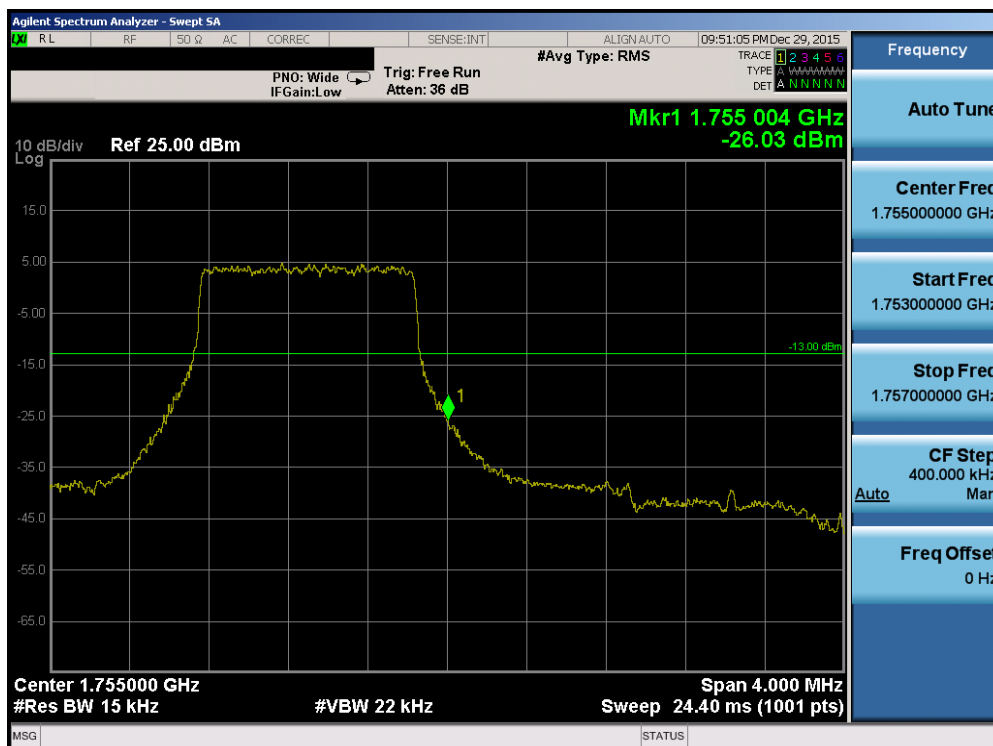


Plot 7-139. Lower Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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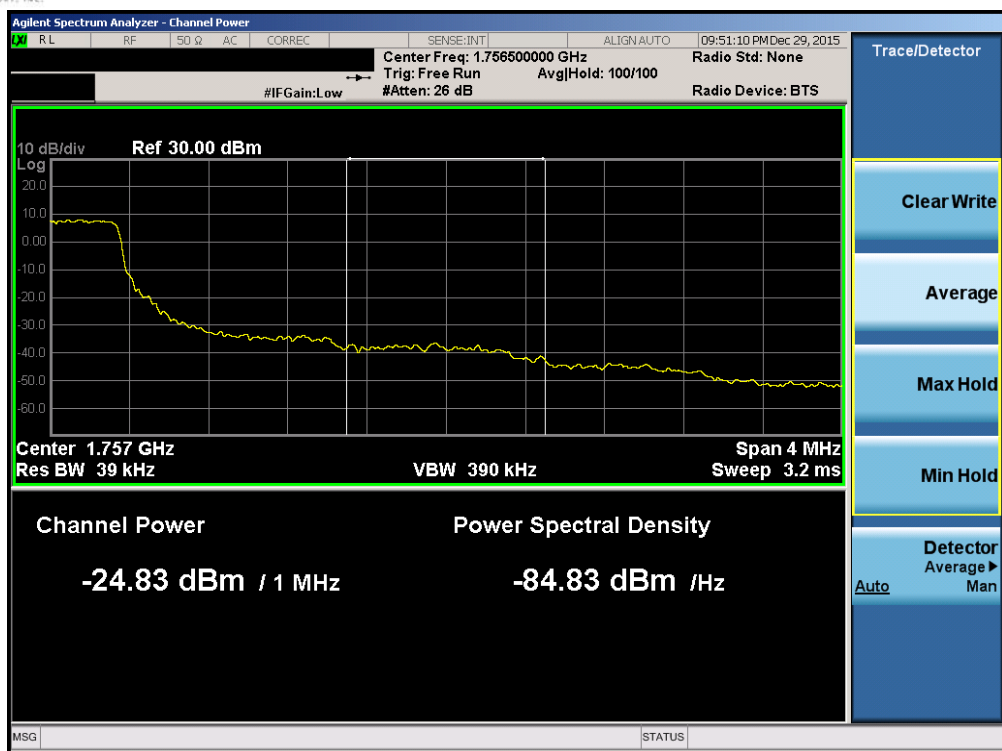


Plot 7-140. Lower Extended Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)

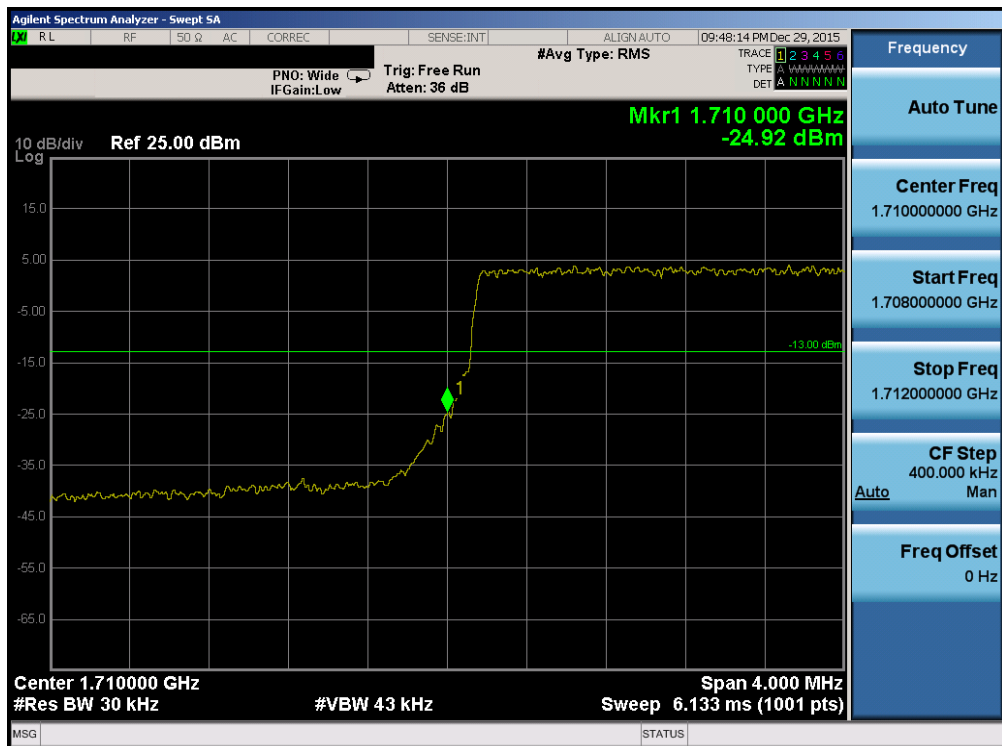


Plot 7-141. Upper Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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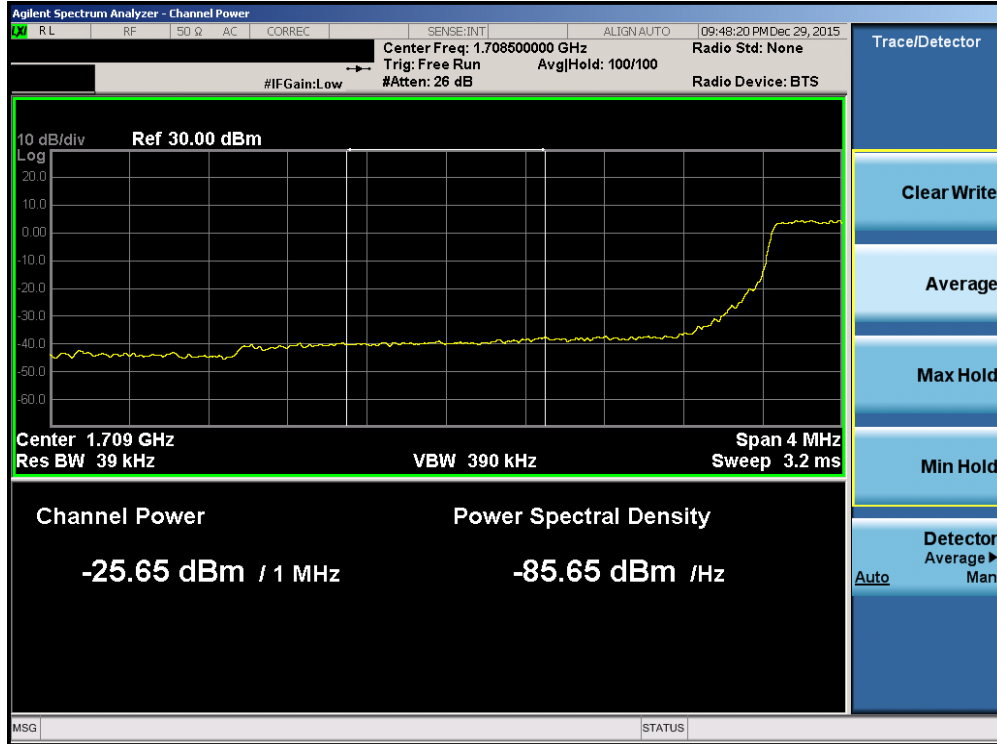


Plot 7-142. Upper Extended Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)



Plot 7-143. Lower Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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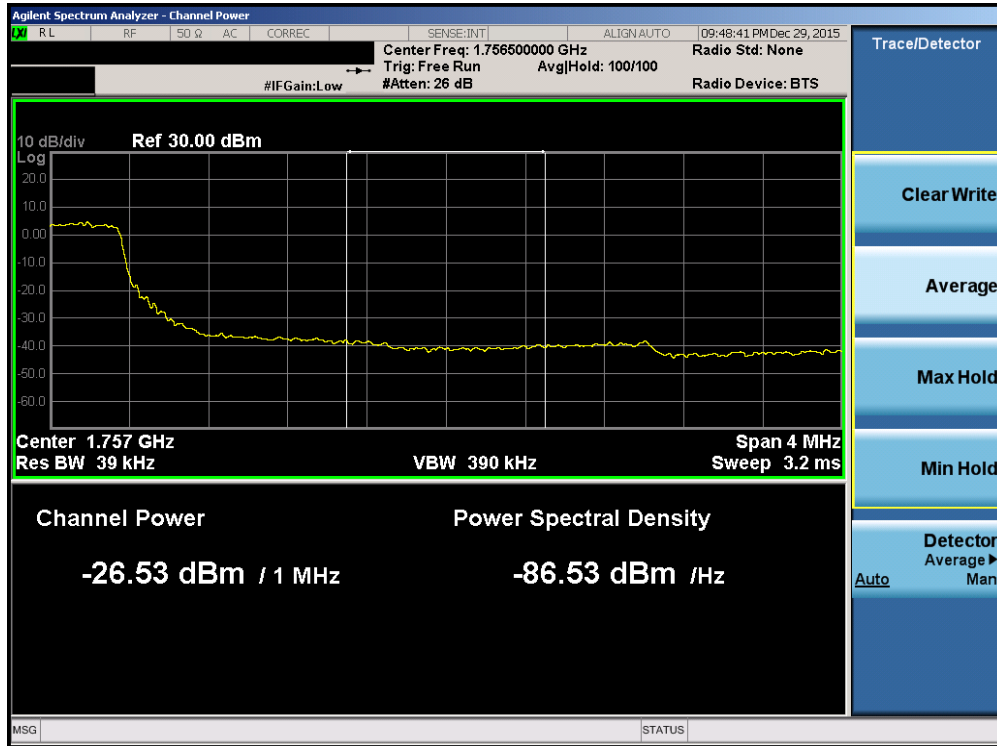


Plot 7-144. Lower Extended Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)

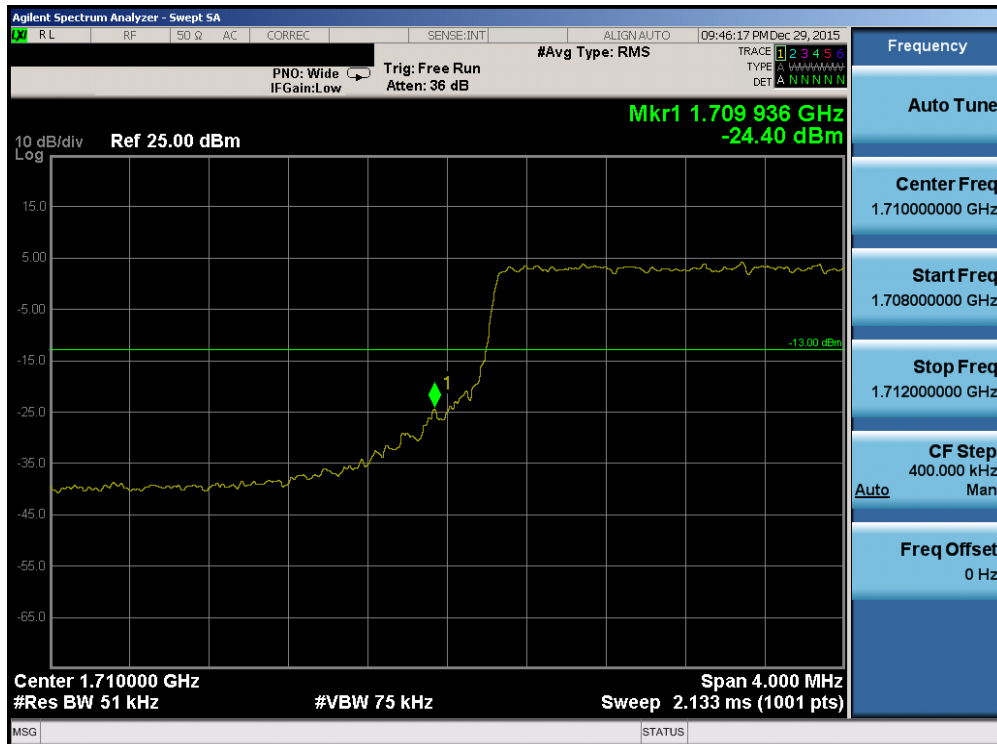


Plot 7-145. Upper Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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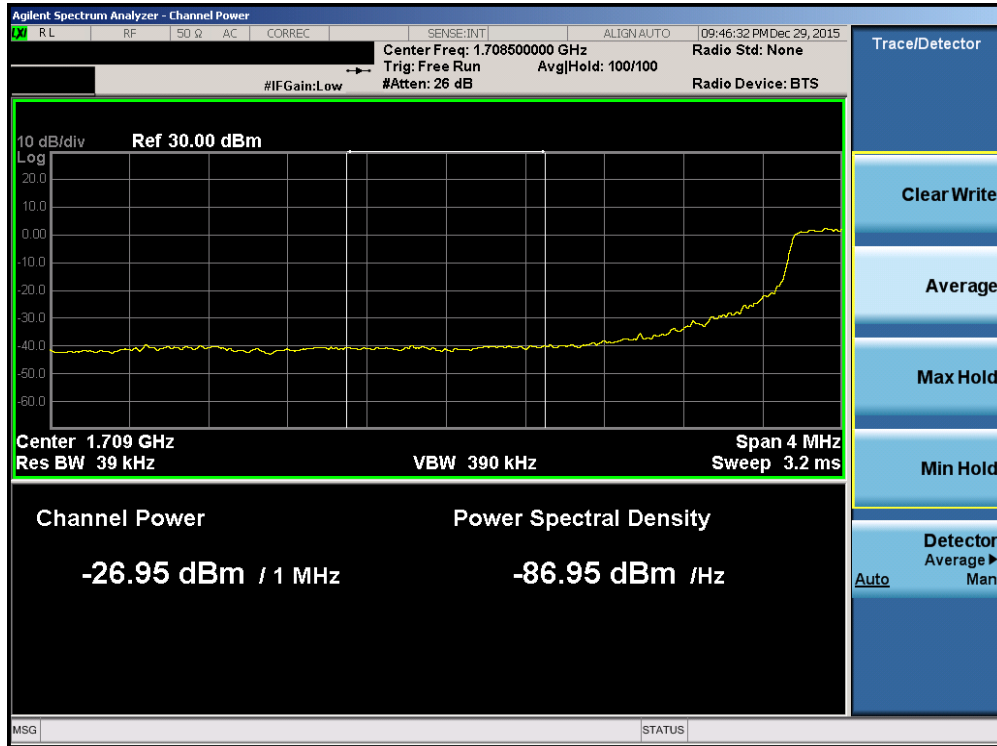


Plot 7-146. Upper Extended Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)

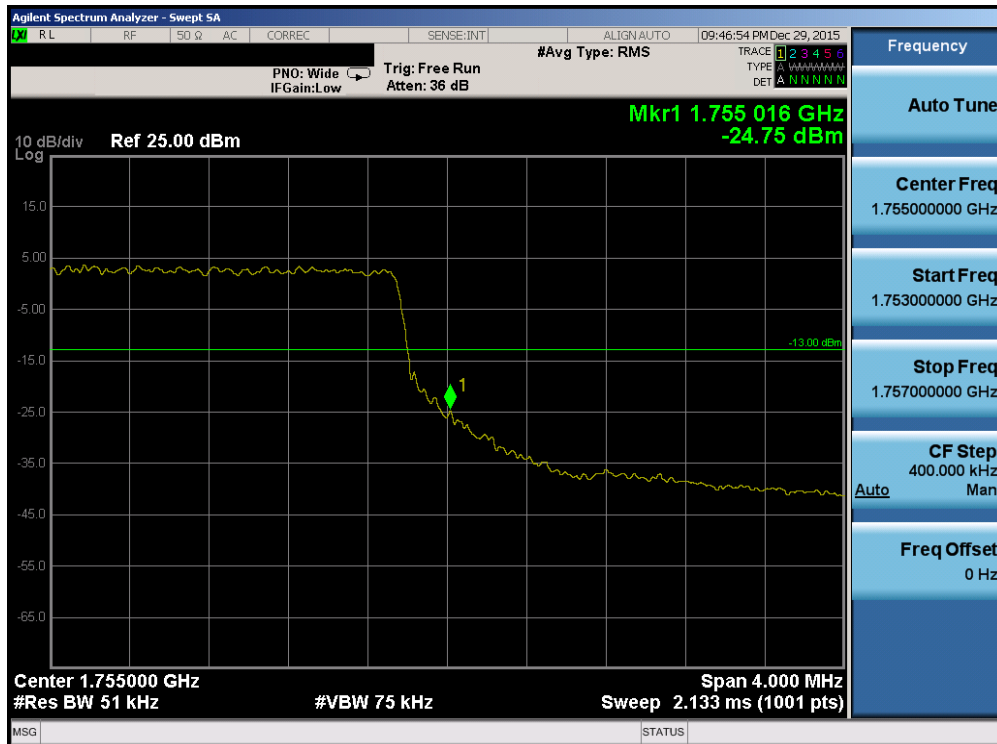


Plot 7-147. Lower Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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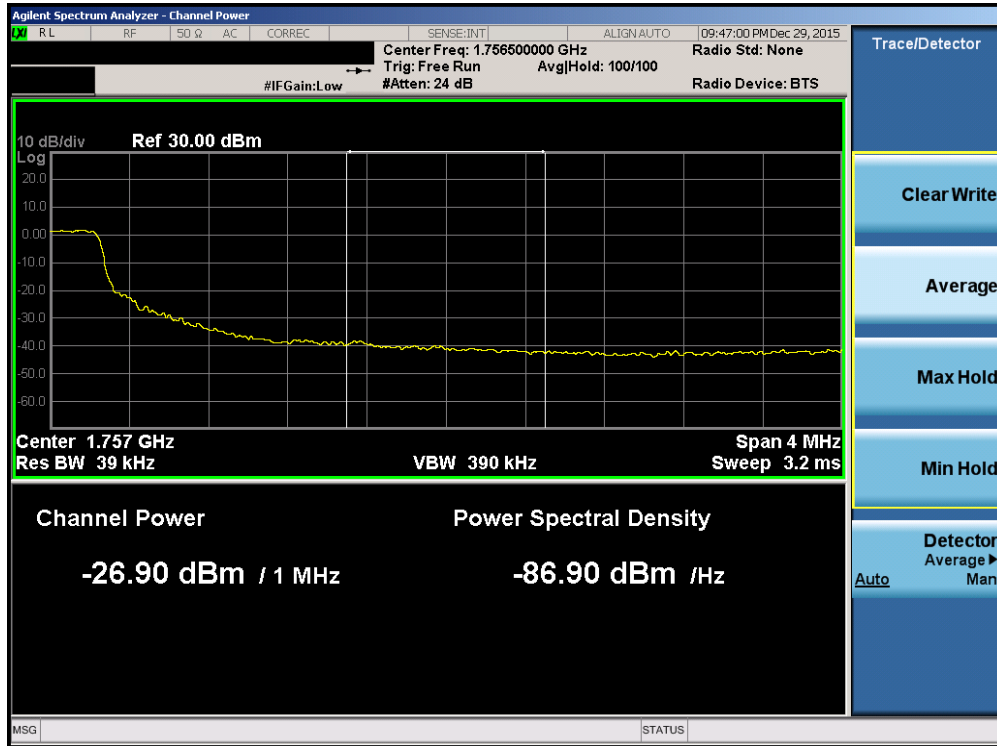


Plot 7-148. Lower Extended Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)

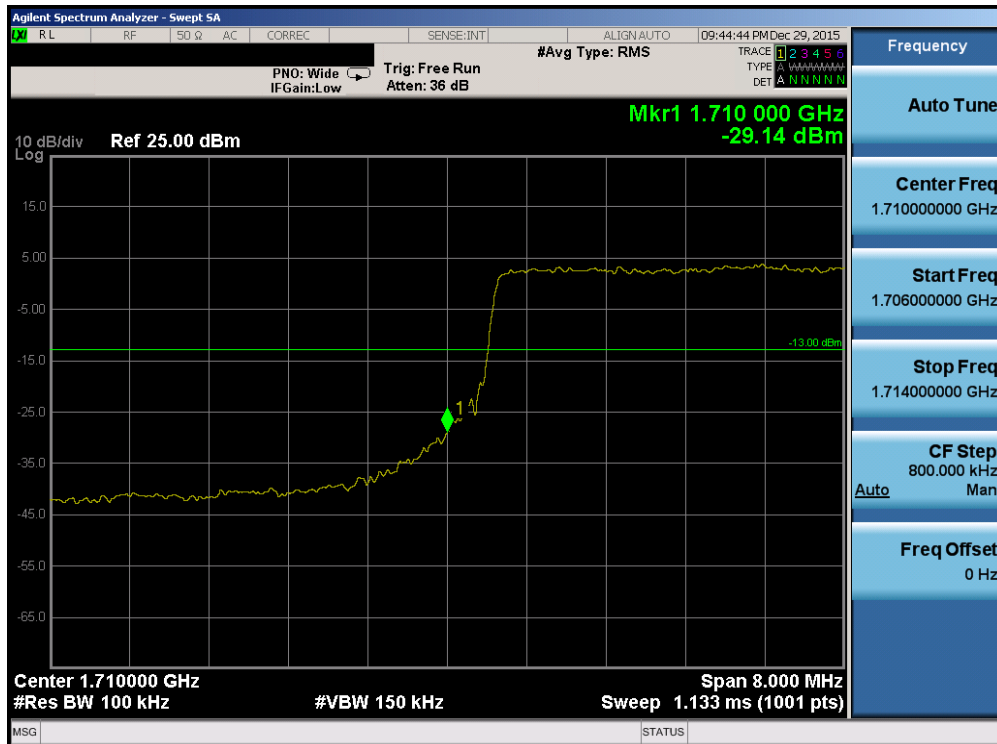


Plot 7-149. Upper Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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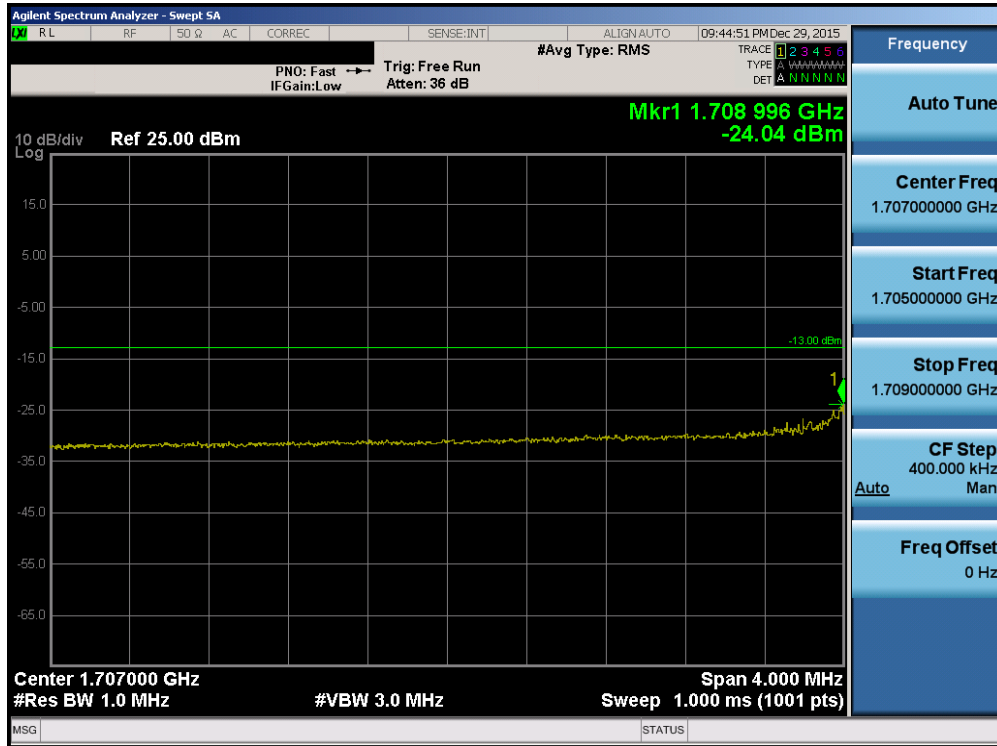


Plot 7-150. Upper Extended Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)

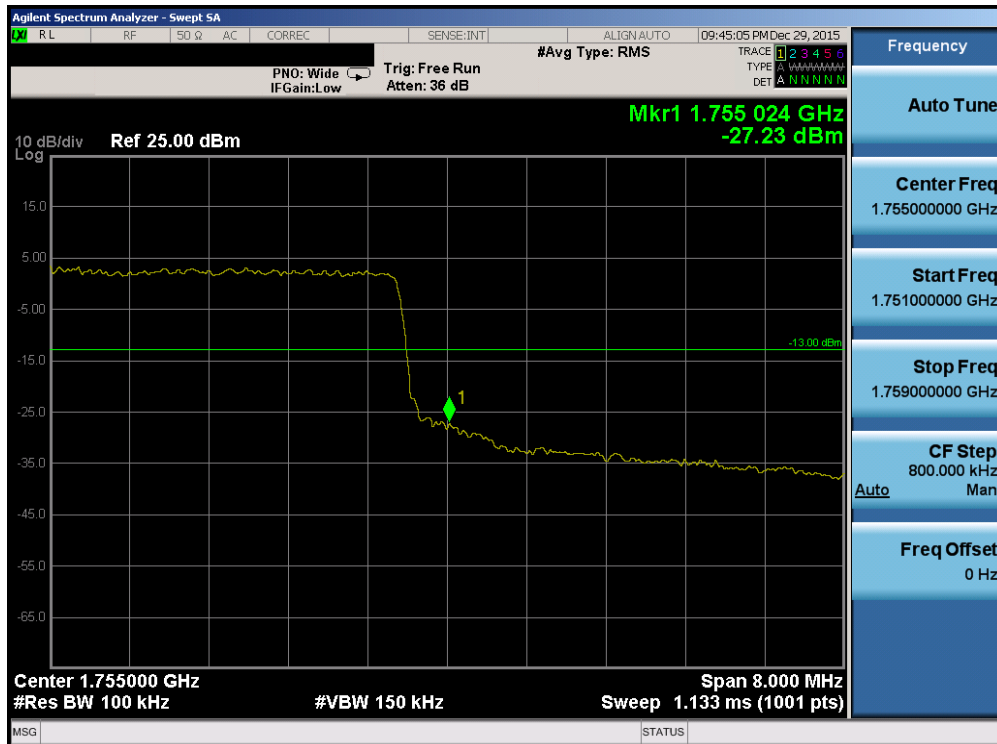


Plot 7-151. Lower Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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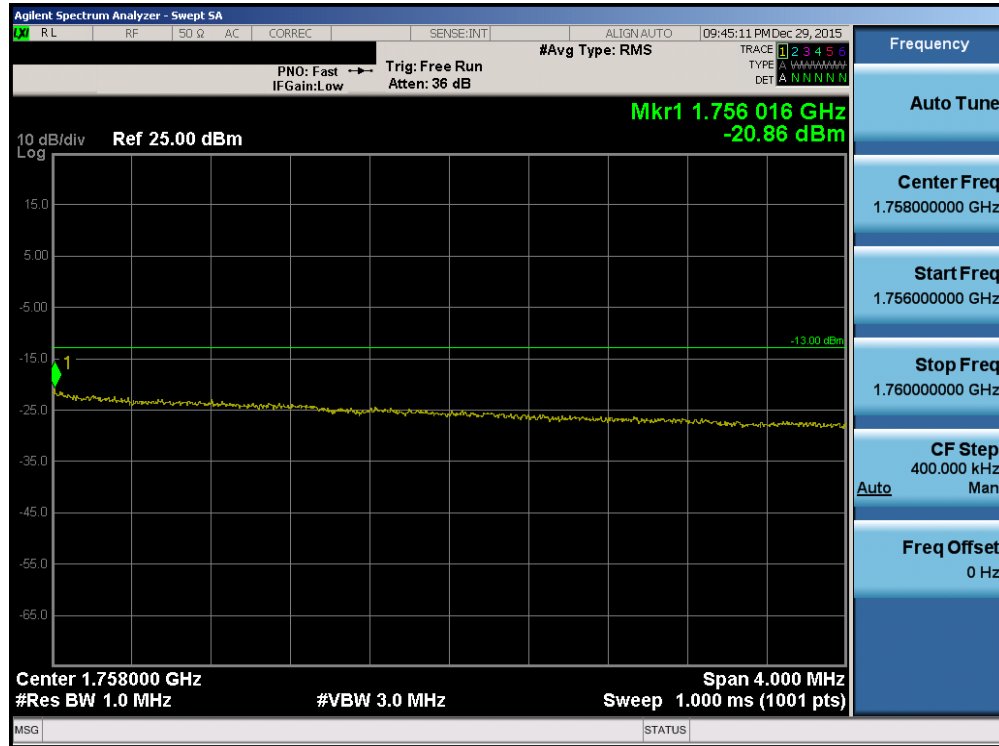


Plot 7-152. Lower Extended Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)

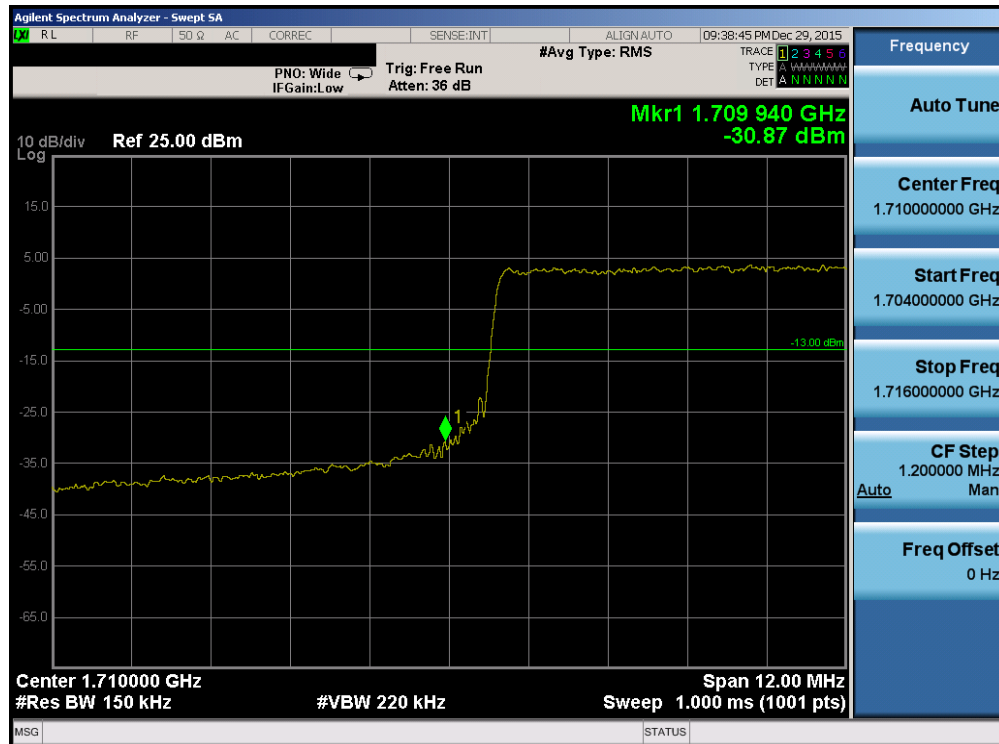


Plot 7-153. Upper Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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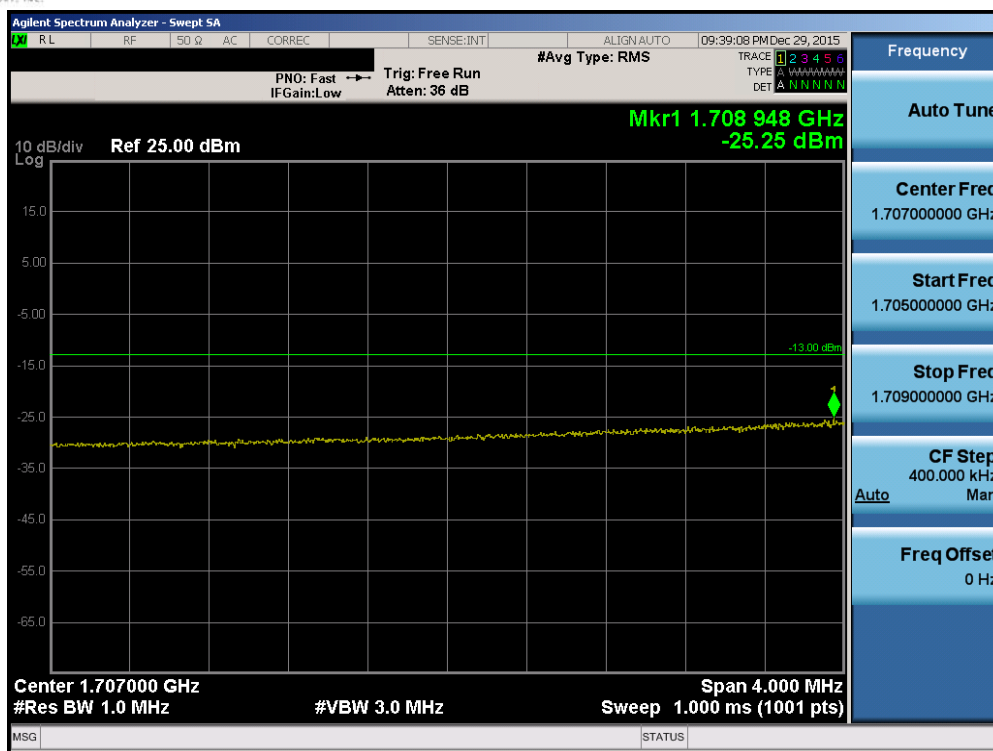


Plot 7-154. Upper Extended Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)

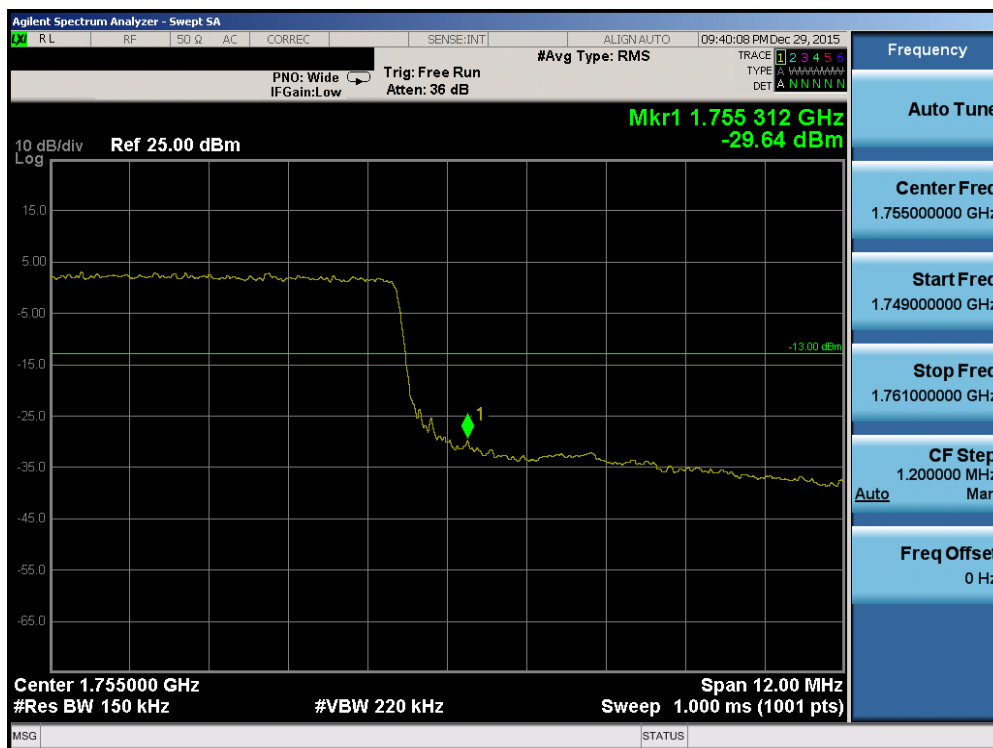


Plot 7-155. Lower Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 7-156. Lower Extended Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

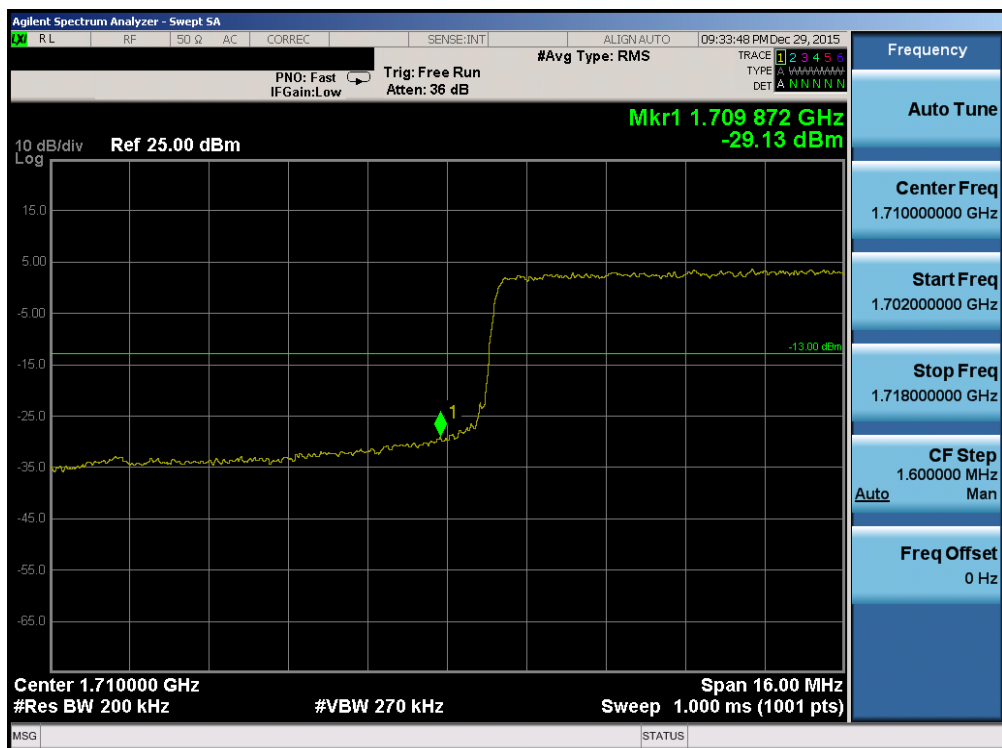


Plot 7-157. Upper Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282263.A3L	Test Dates: 12/19/2015-01/18/2016	EUT Type: Portable Handset		Page 95 of 164

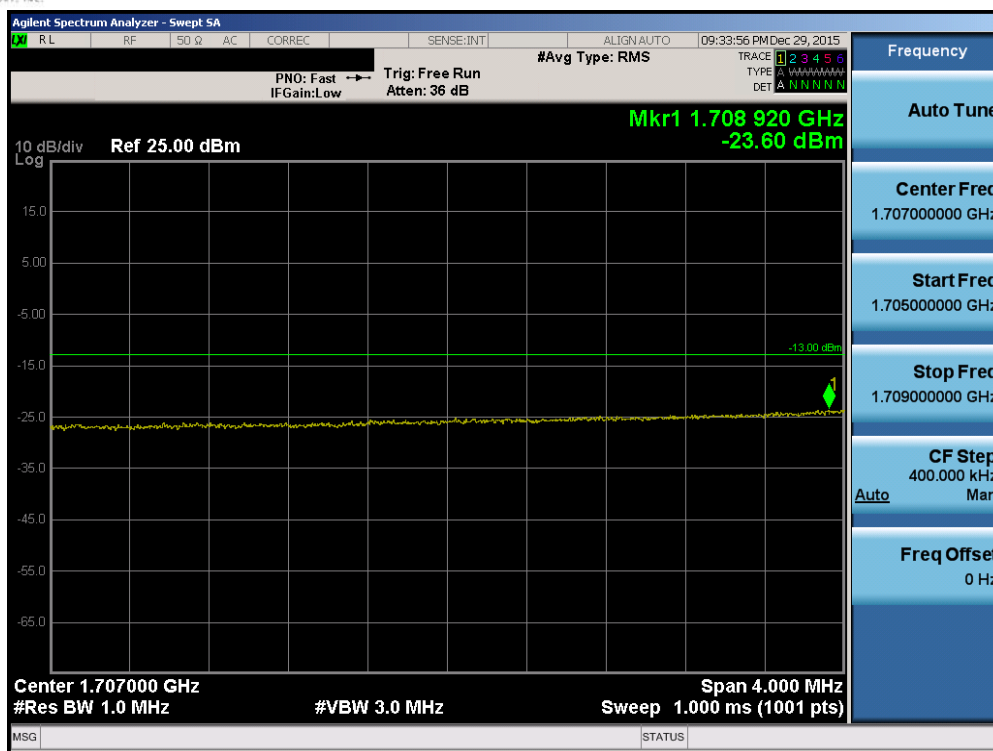


Plot 7-158. Upper Extended Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

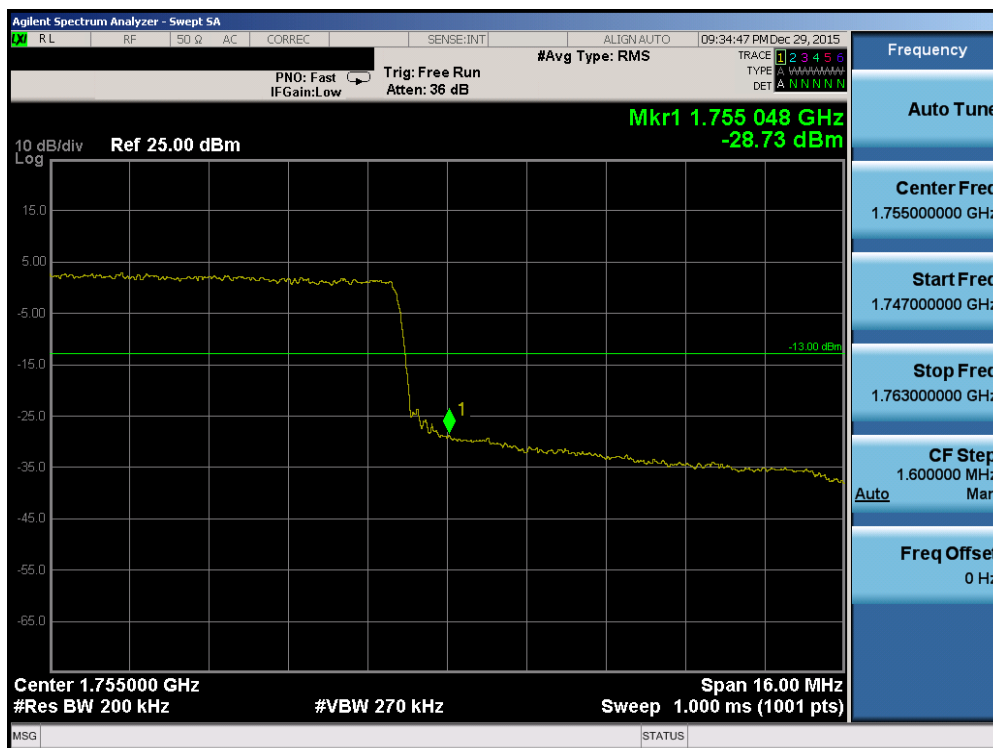


Plot 7-159. Lower Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282263.A3L	Test Dates: 12/19/2015-01/18/2016	EUT Type: Portable Handset		Page 96 of 164

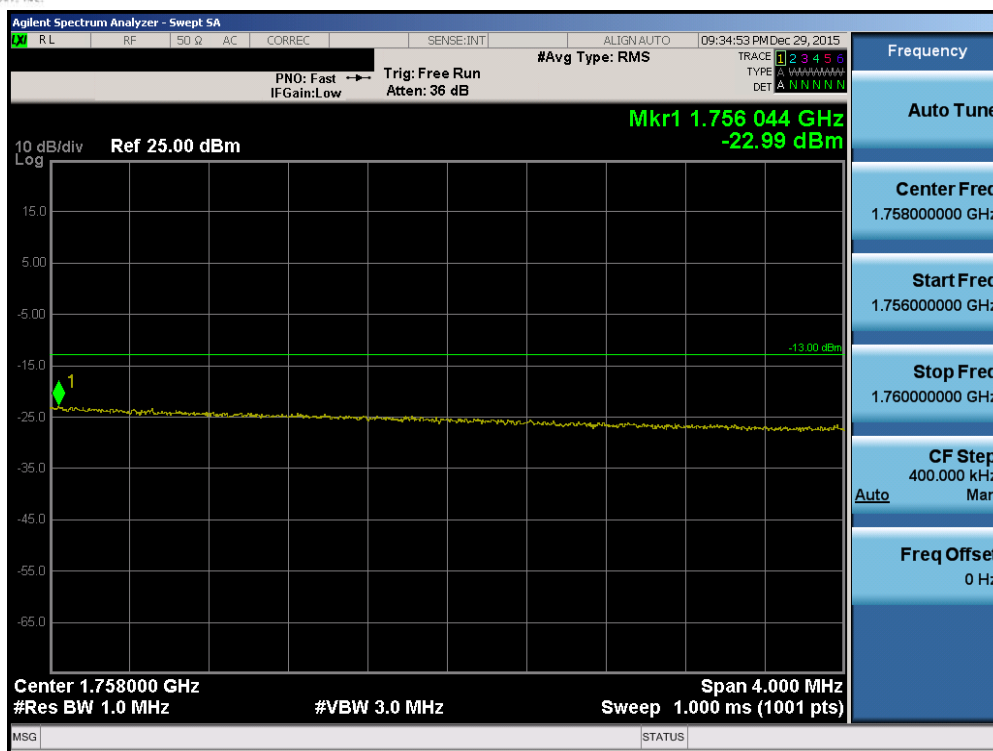


Plot 7-160. Lower Extended Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)

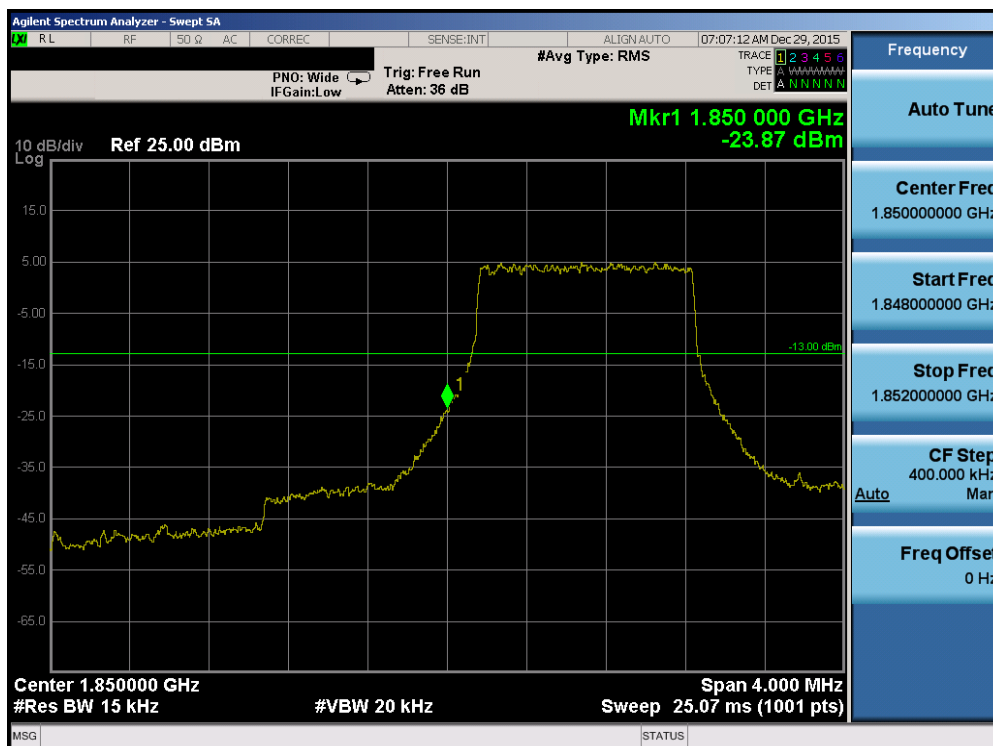


Plot 7-161. Upper Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282263.A3L	Test Dates: 12/19/2015-01/18/2016	EUT Type: Portable Handset		Page 97 of 164

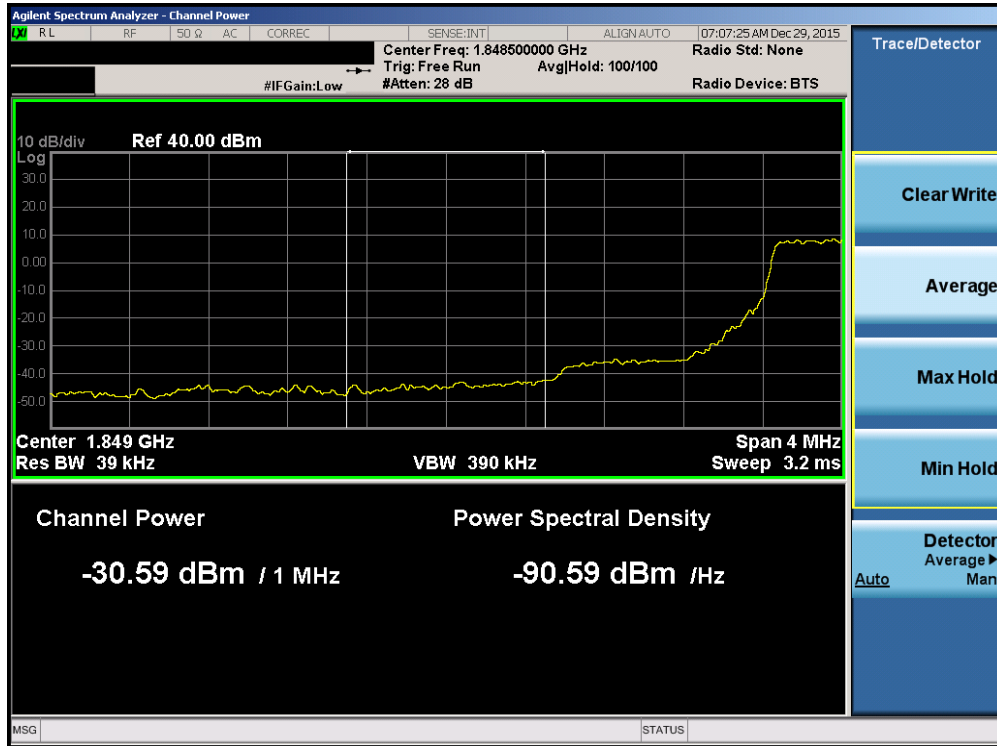


Plot 7-162. Upper Extended Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)



Plot 7-163. Lower Band Edge Plot (Band 25/2 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282263.A3L	Test Dates: 12/19/2015-01/18/2016	EUT Type: Portable Handset		Page 98 of 164

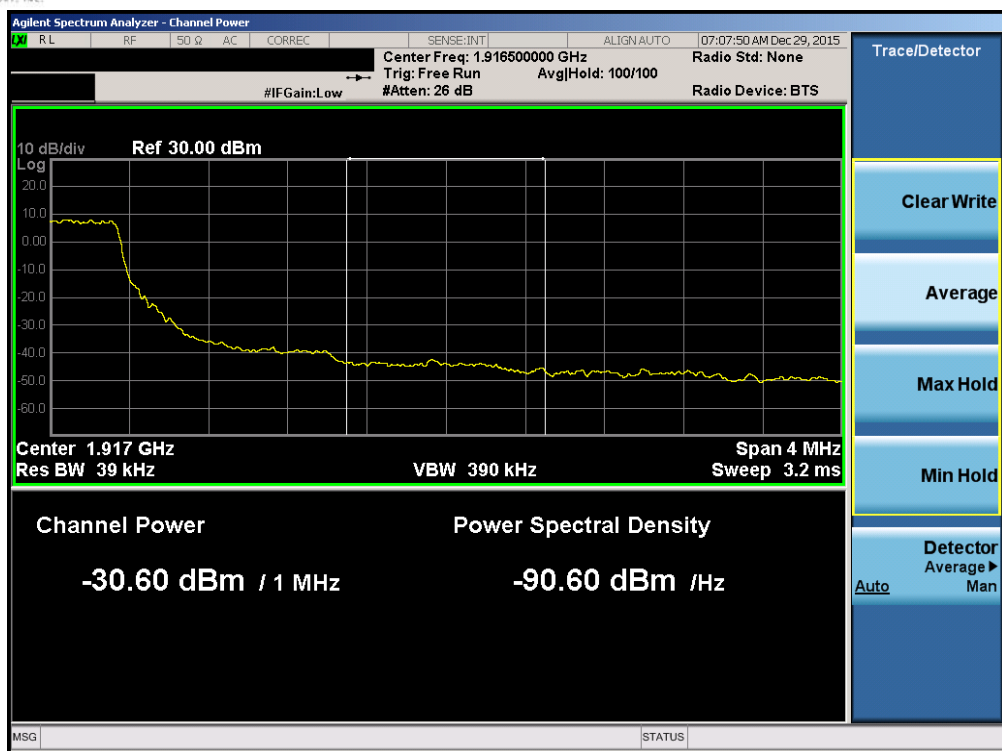


Plot 7-164. Lower Extended Band Edge Plot (Band 25/2 – 1.4MHz QPSK – RB Size 6)

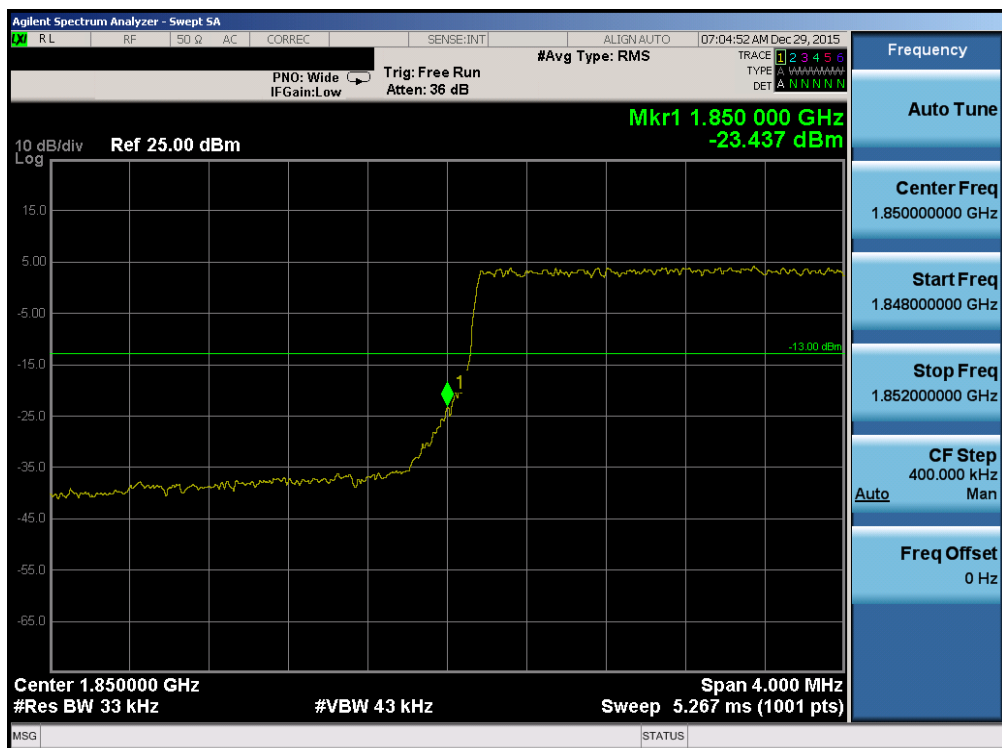


Plot 7-165. Upper Band Edge Plot (Band 25/2 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282263.A3L	Test Dates: 12/19/2015-01/18/2016	EUT Type: Portable Handset		Page 99 of 164

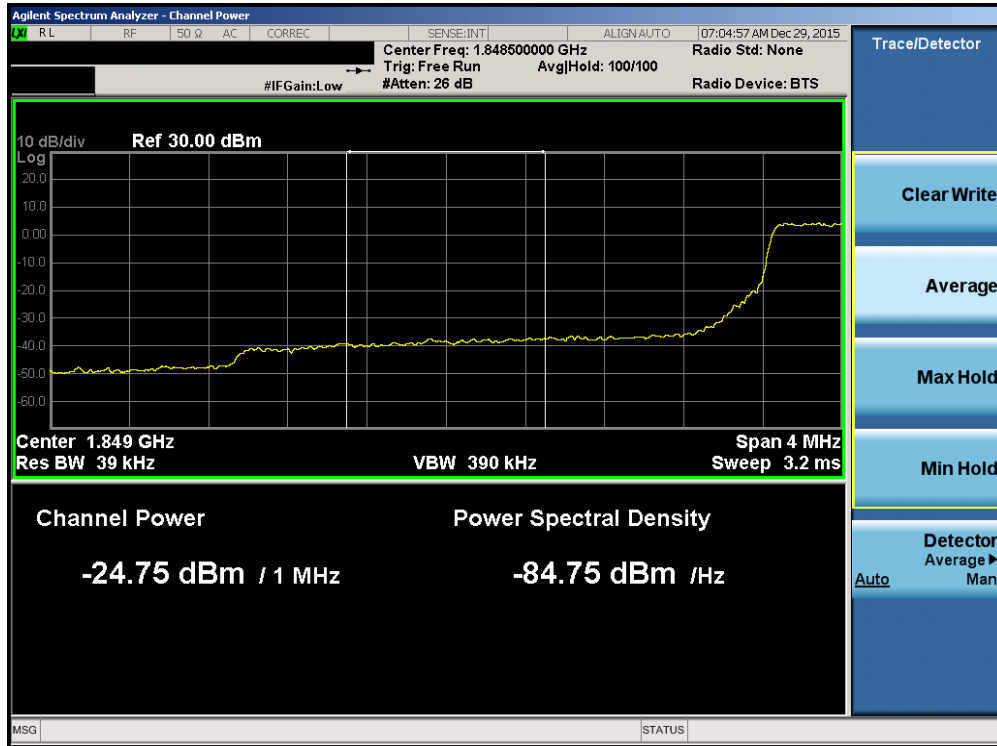


Plot 7-166. Upper Extended Band Edge Plot (Band 25/2 – 1.4MHz QPSK – RB Size 6)

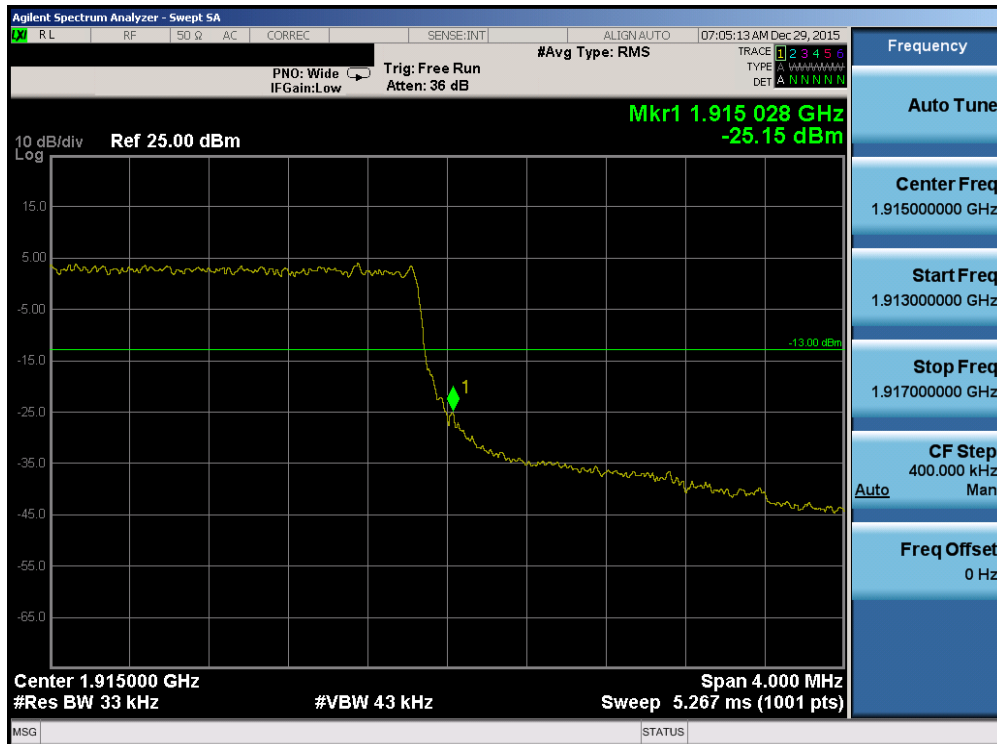


Plot 7-167. Lower Band Edge Plot (Band 25/2 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282263.A3L	Test Dates: 12/19/2015-01/18/2016	EUT Type: Portable Handset		Page 100 of 164

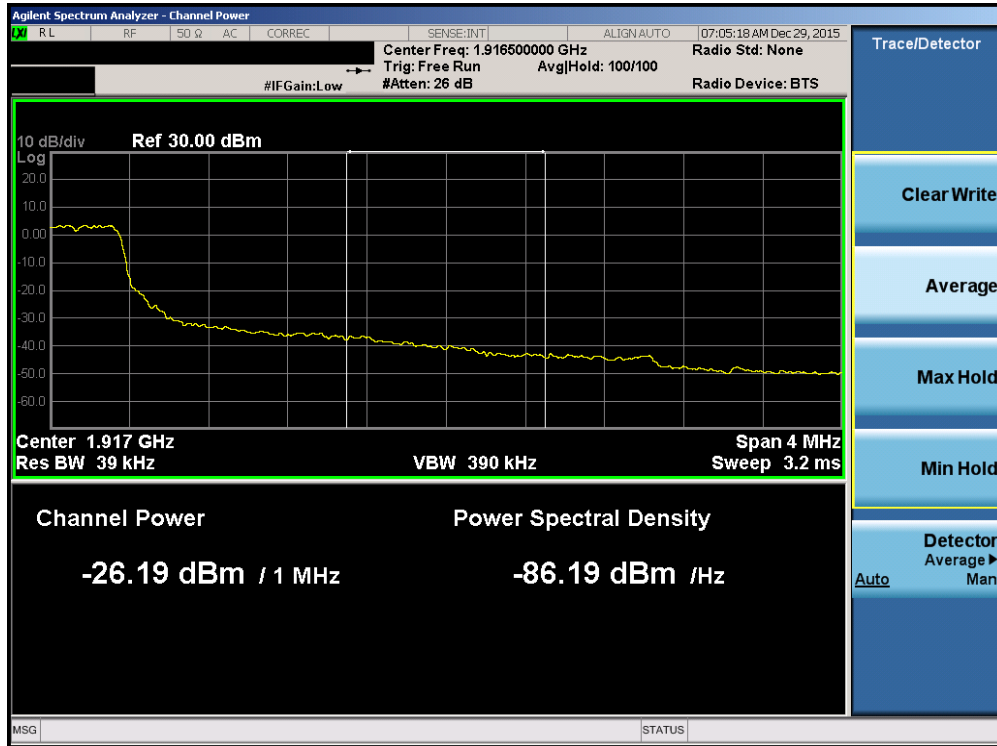


Plot 7-168. Lower Extended Band Edge Plot (Band 25/2 – 3.0MHz QPSK – RB Size 15)

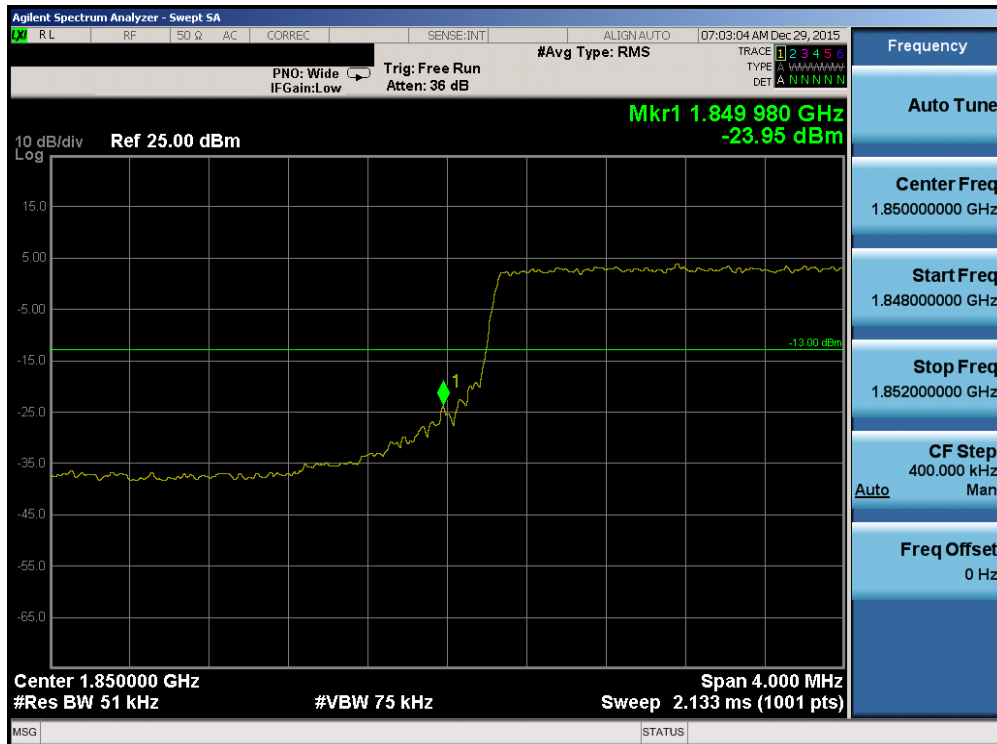


Plot 7-169. Upper Band Edge Plot (Band 25/2 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282263.A3L	Test Dates: 12/19/2015-01/18/2016	EUT Type: Portable Handset		Page 101 of 164

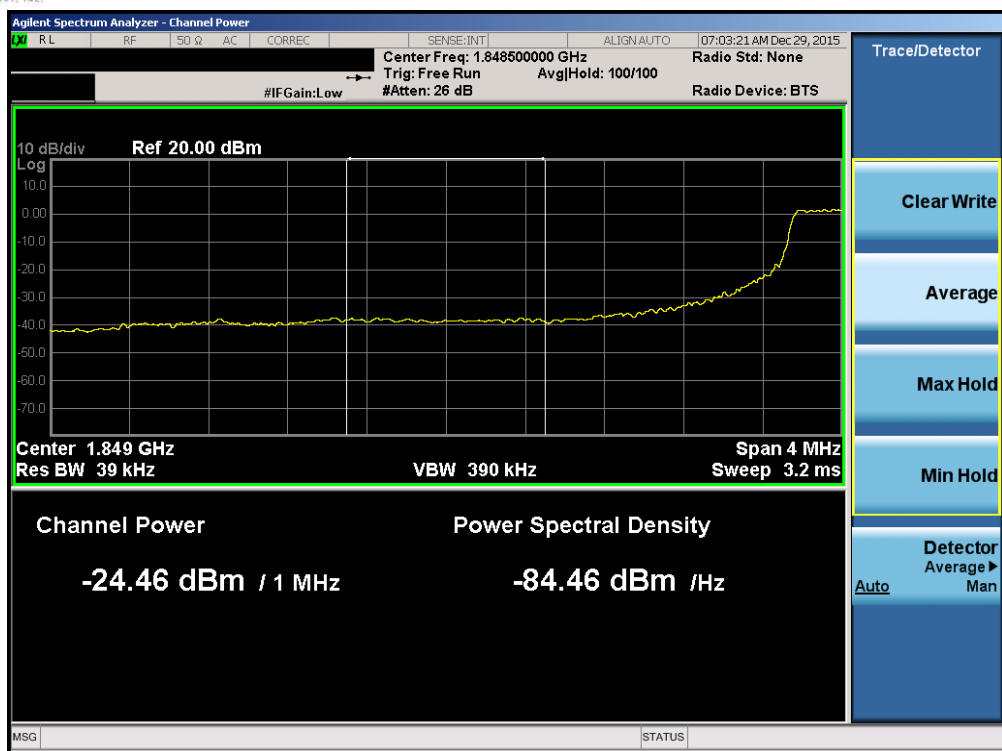


Plot 7-170. Upper Extended Band Edge Plot (Band 25/2 – 3.0MHz QPSK – RB Size 15)

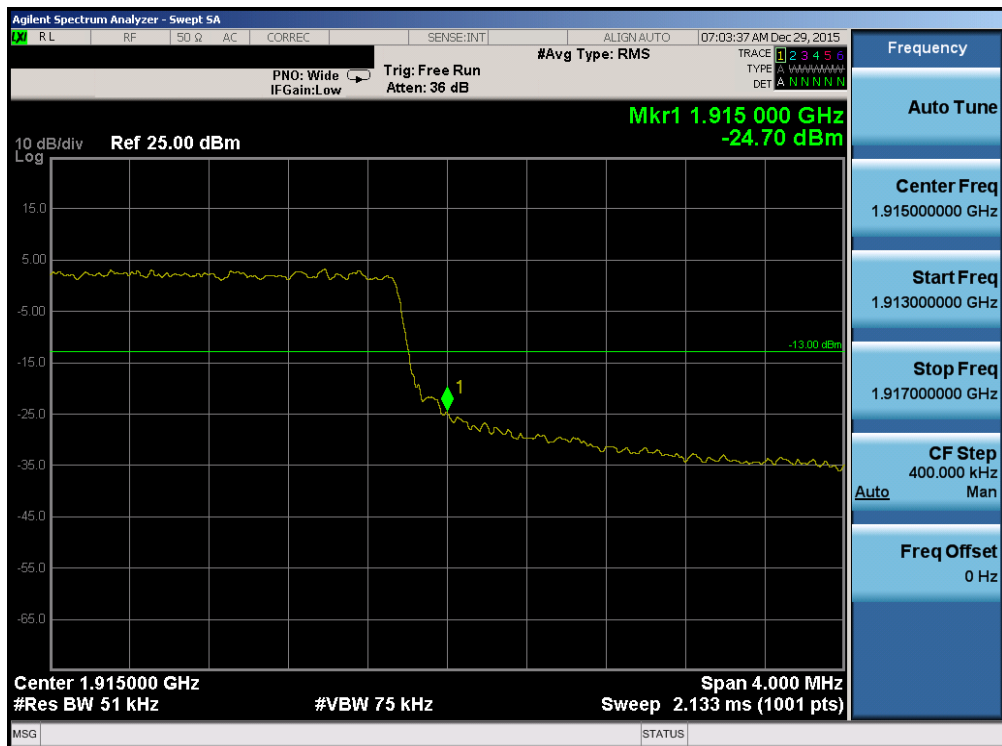


Plot 7-171. Lower Band Edge Plot (Band 25/2 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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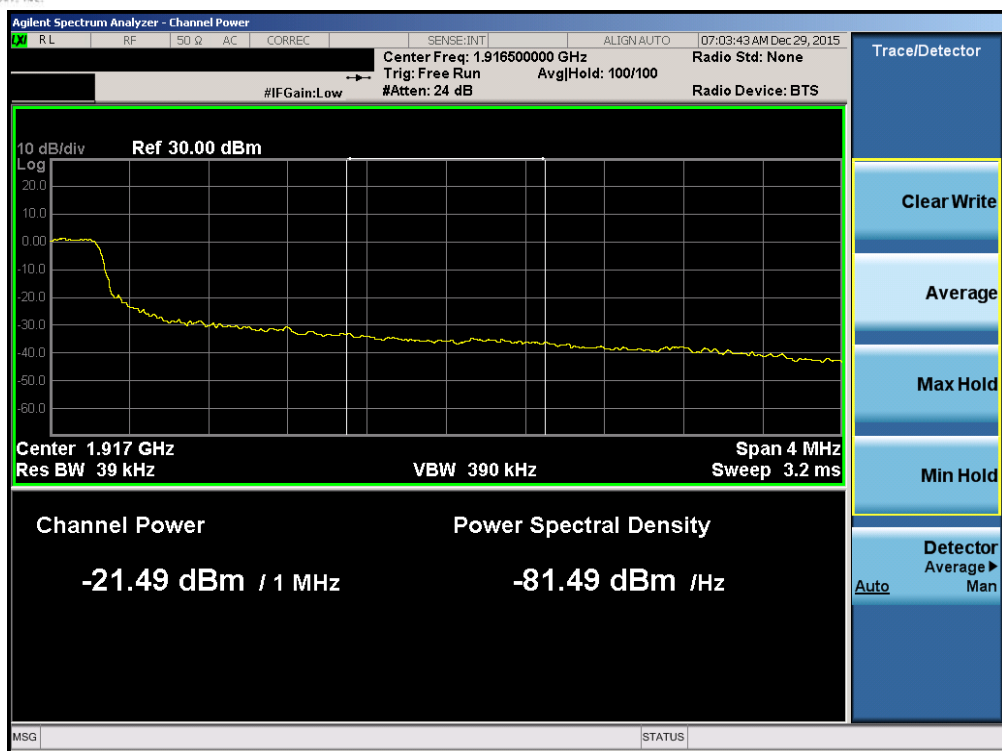


Plot 7-172. Lower Extended Band Edge Plot (Band 25/2 – 5.0MHz QPSK – RB Size 25)

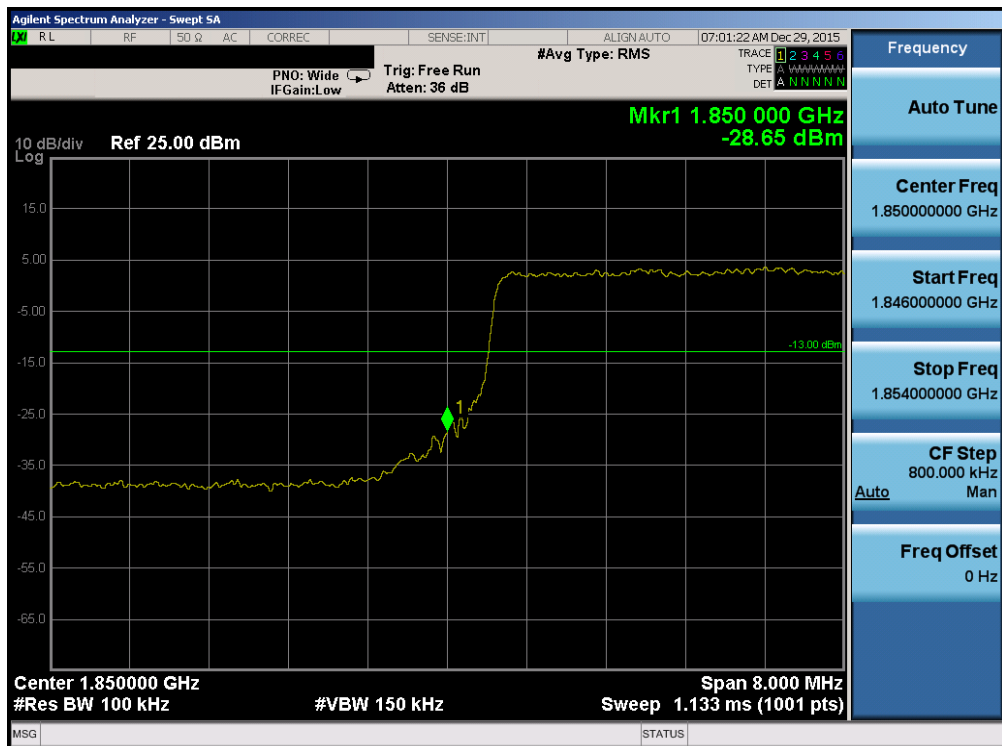


Plot 7-173. Upper Band Edge Plot (Band 25/2 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282263.A3L	Test Dates: 12/19/2015-01/18/2016	EUT Type: Portable Handset		Page 103 of 164

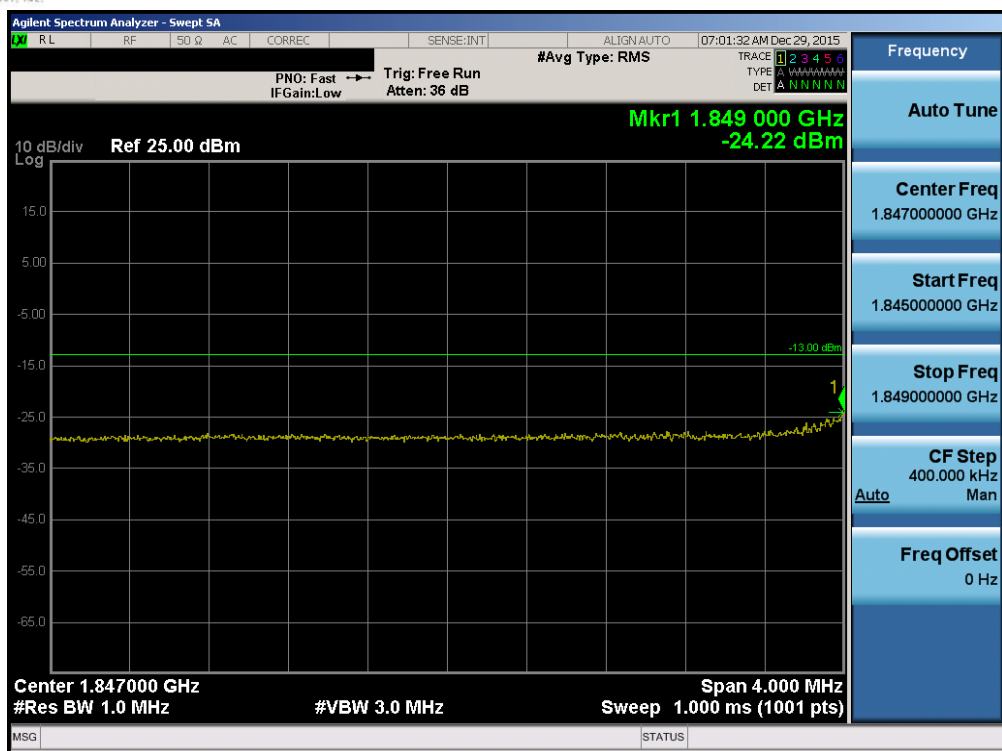


Plot 7-174. Upper Extended Band Edge Plot (Band 25/2 – 5.0MHz QPSK – RB Size 25)

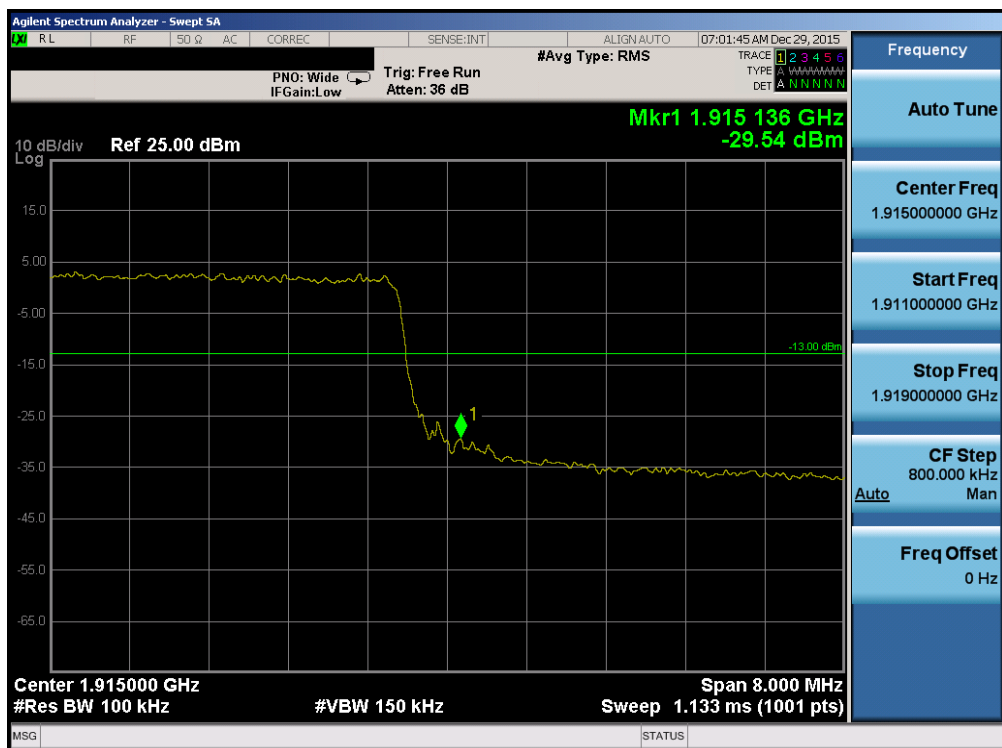


Plot 7-175. Lower Band Edge Plot (Band 25/2 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282263.A3L	Test Dates: 12/19/2015-01/18/2016	EUT Type: Portable Handset		Page 104 of 164

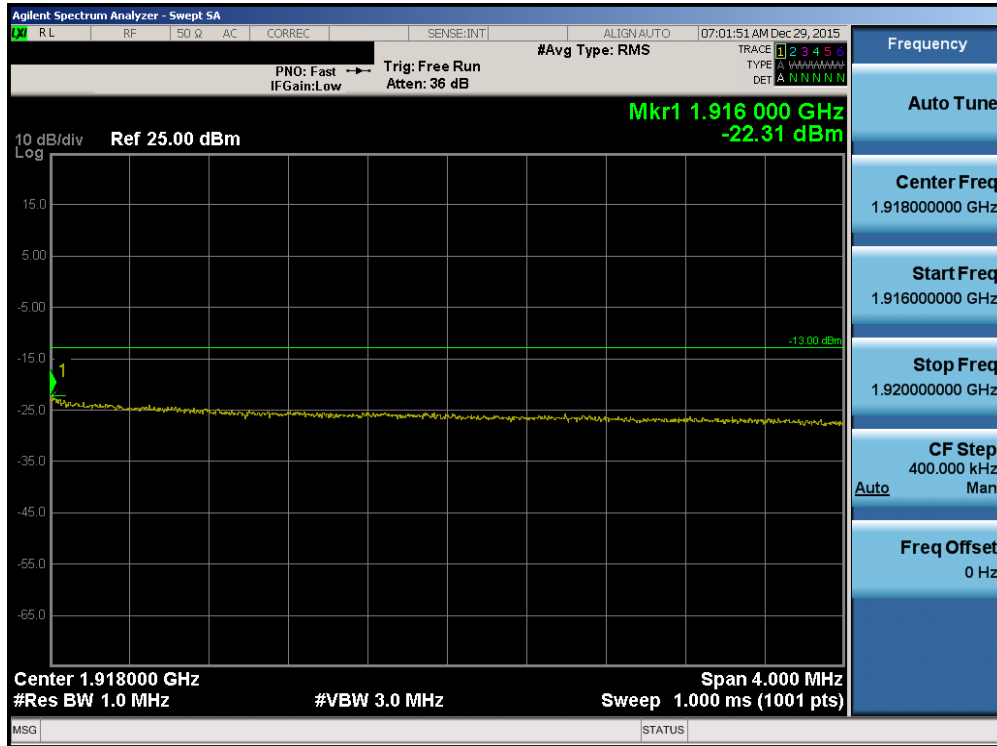


Plot 7-176. Lower Extended Band Edge Plot (Band 25/2 – 10.0MHz QPSK – RB Size 50)

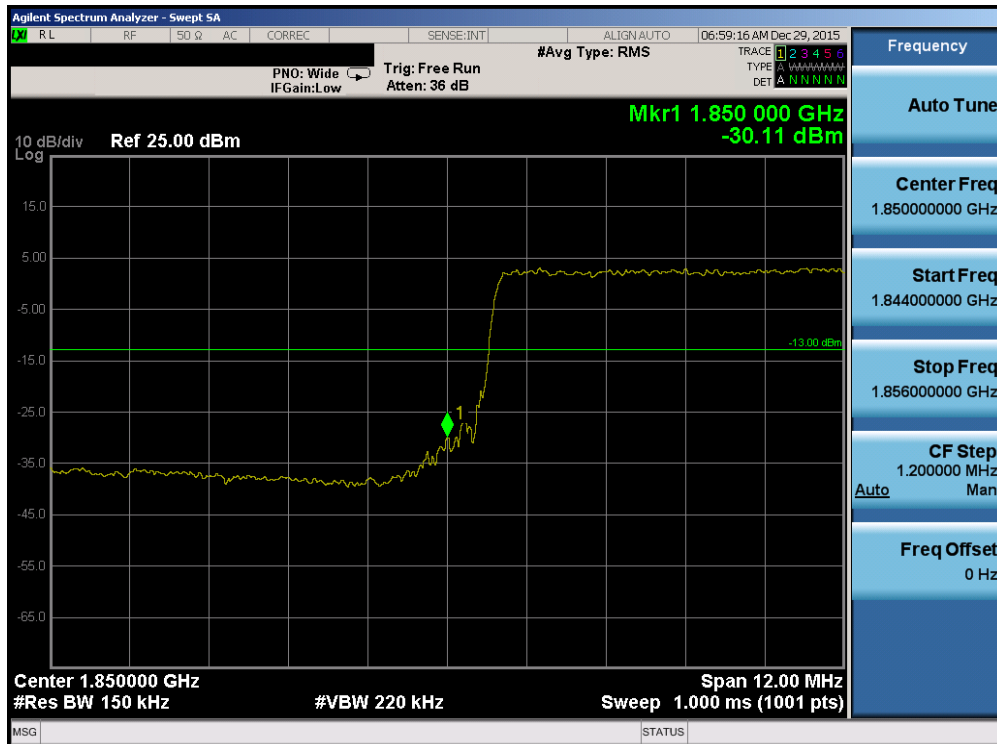


Plot 7-177. Upper Band Edge Plot (Band 25/2 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282263.A3L	Test Dates: 12/19/2015-01/18/2016	EUT Type: Portable Handset		Page 105 of 164

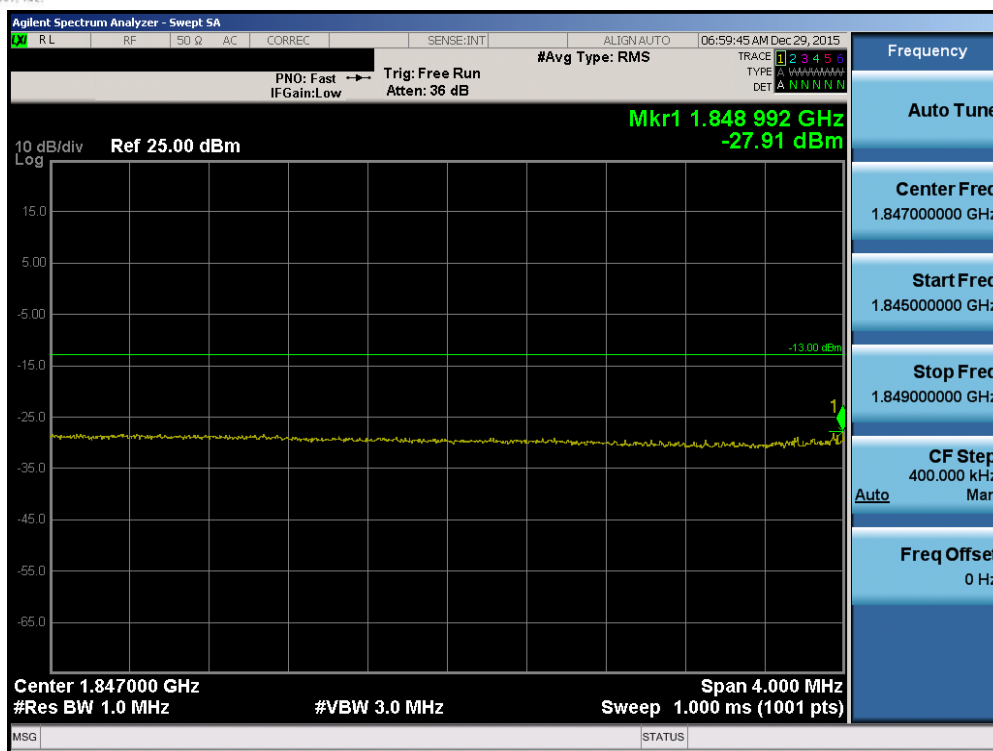


Plot 7-178. Upper Extended Band Edge Plot (Band 25/2 – 10.0MHz QPSK – RB Size 50)

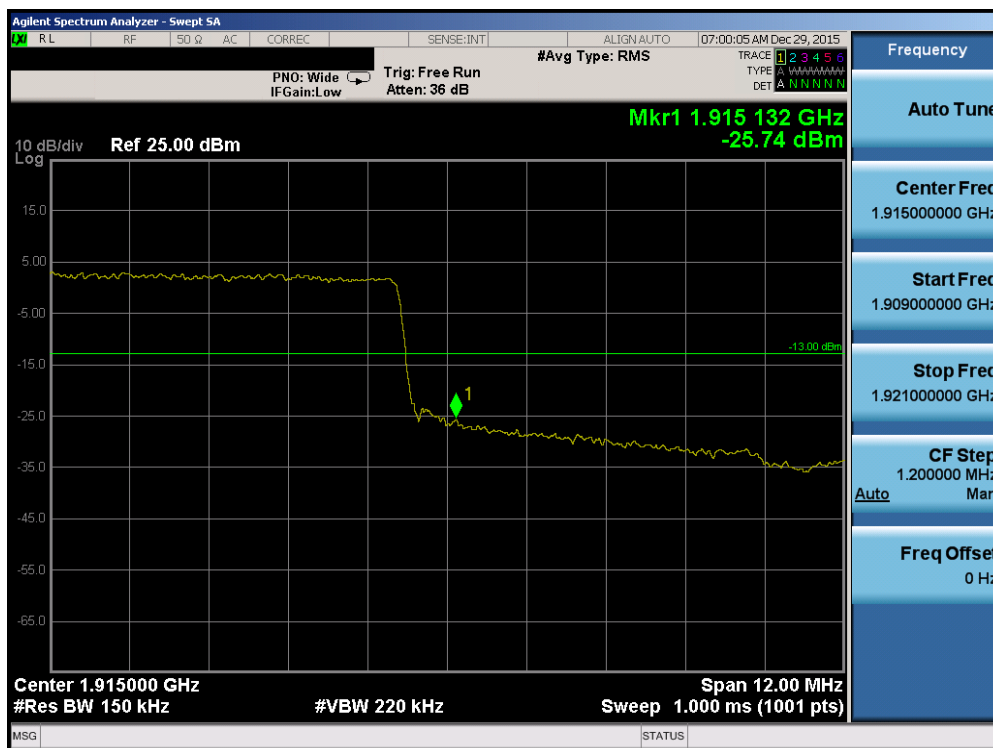


Plot 7-179. Lower Band Edge Plot (Band 25/2 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282263.A3L	Test Dates: 12/19/2015-01/18/2016	EUT Type: Portable Handset		Page 106 of 164

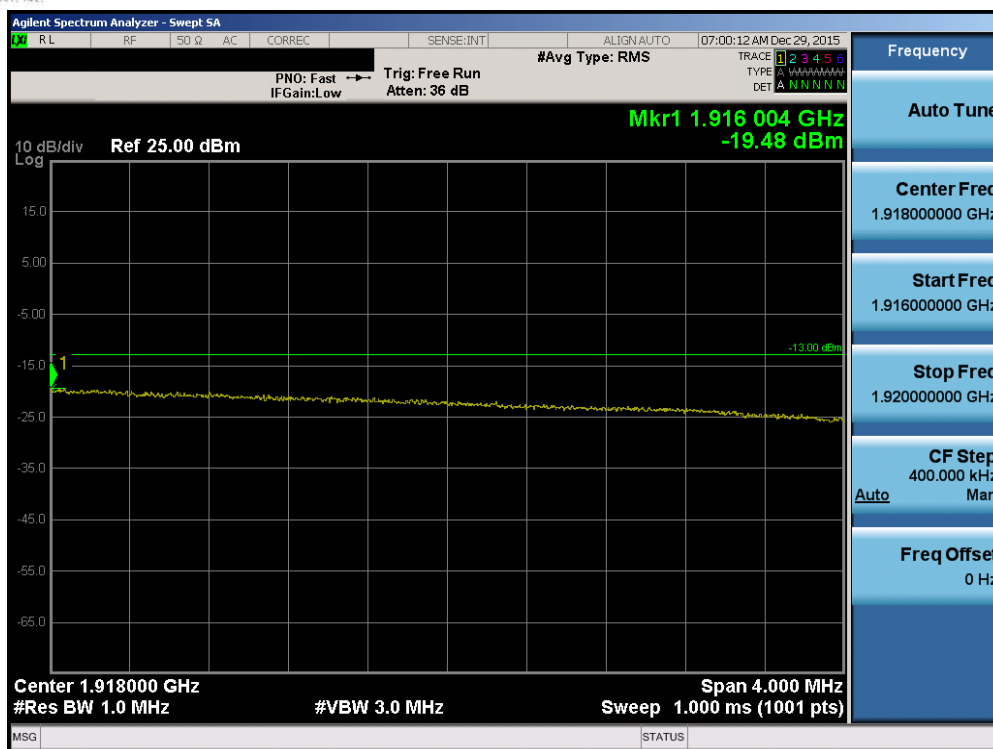


Plot 7-180. Lower Extended Band Edge Plot (Band 25/2 – 15.0MHz QPSK – RB Size 75)

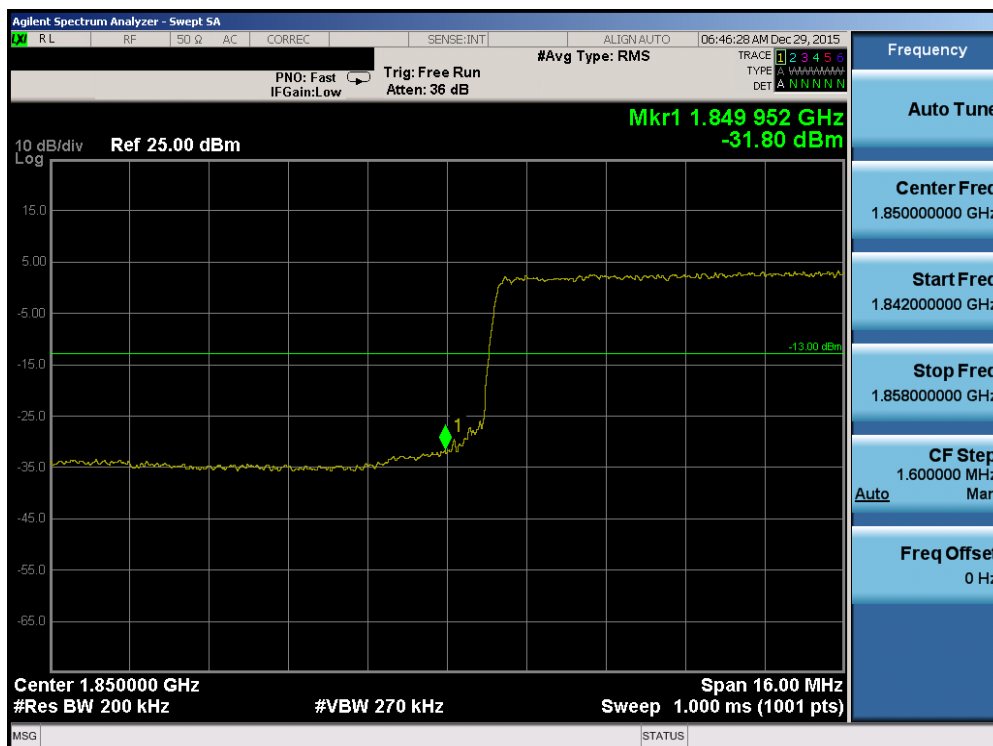


Plot 7-181. Upper Band Edge Plot (Band 25/2 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282263.A3L	Test Dates: 12/19/2015-01/18/2016	EUT Type: Portable Handset		Page 107 of 164

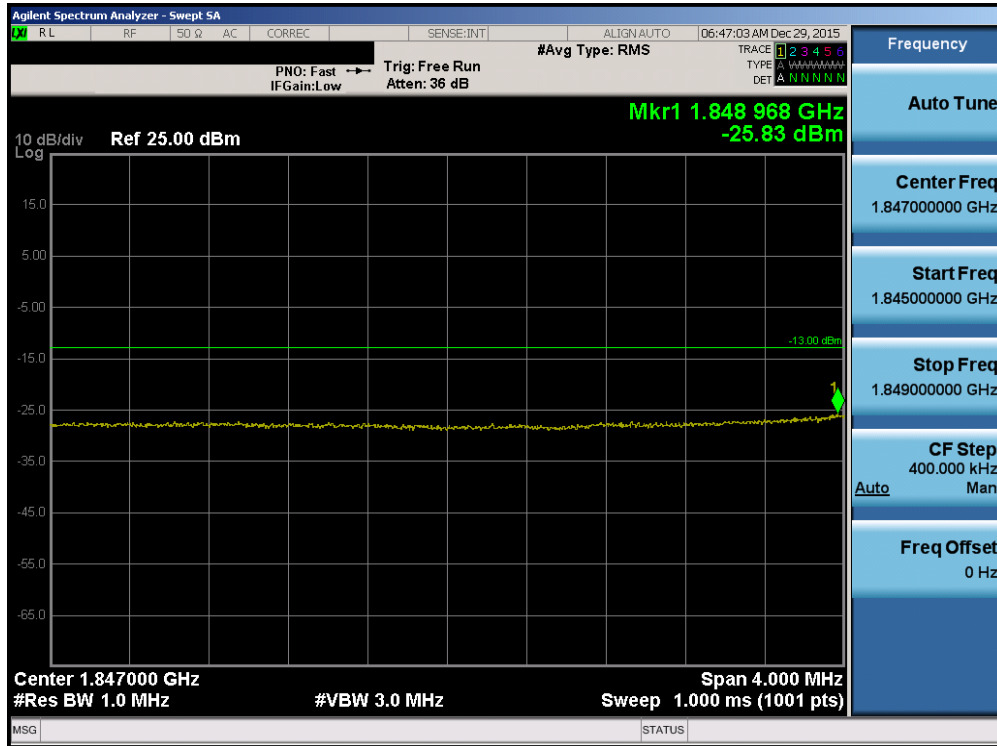


Plot 7-182. Upper Extended Band Edge Plot (Band 25/2 – 15.0MHz QPSK – RB Size 75)



Plot 7-183. Lower Band Edge Plot (Band 25/2 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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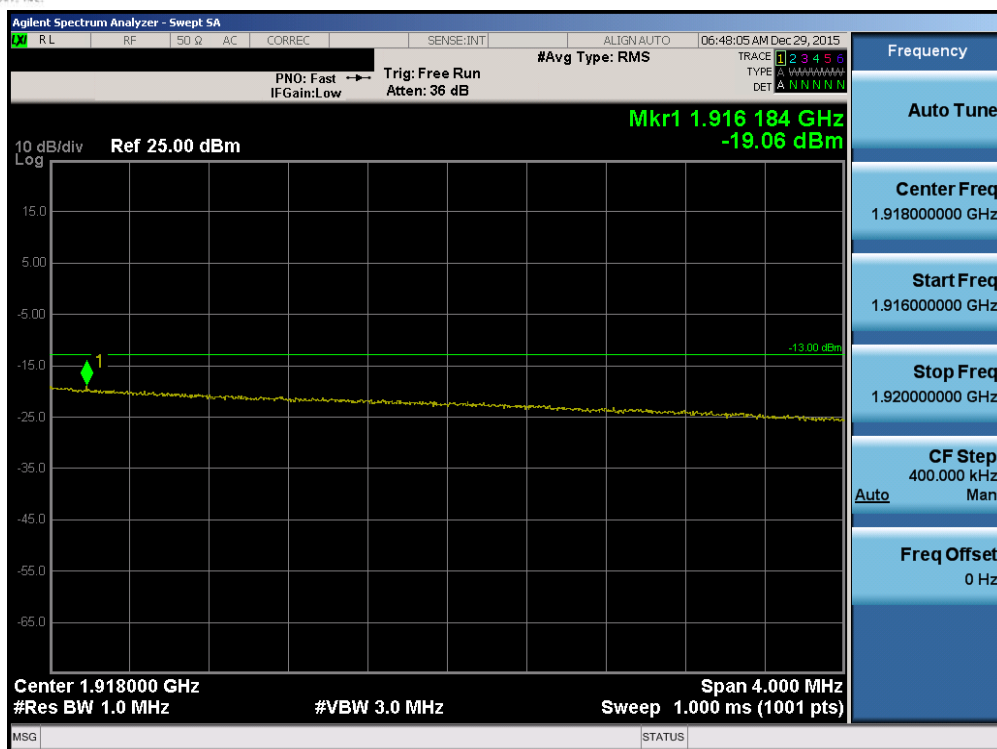


Plot 7-184. Lower Extended Band Edge Plot (Band 25/2 – 20.0MHz QPSK – RB Size 100)

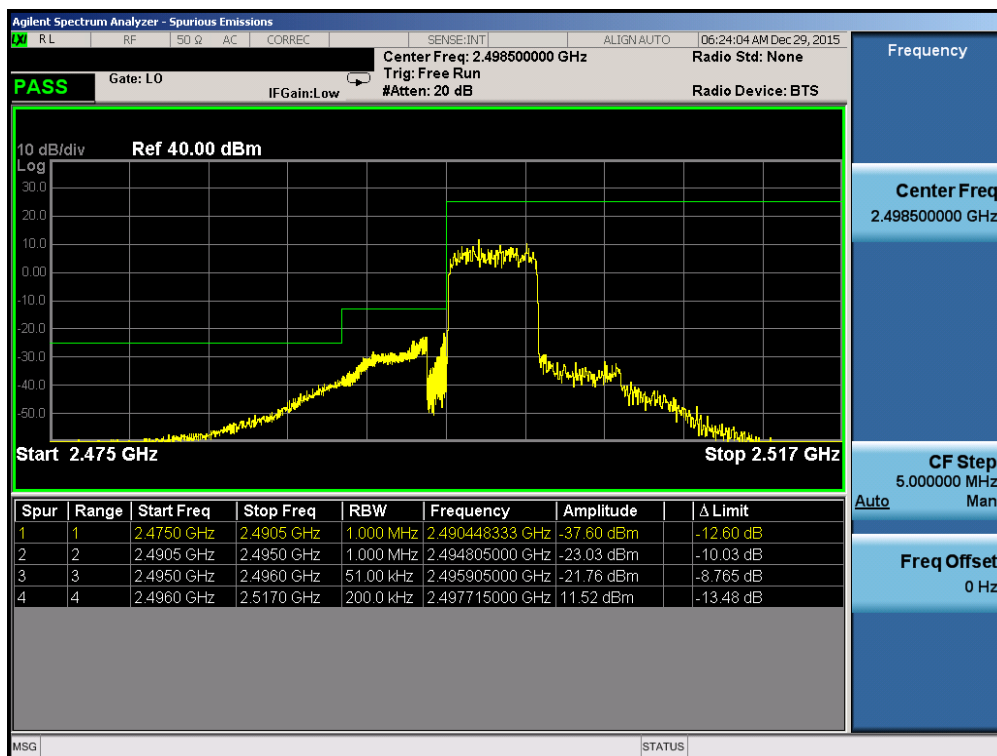


Plot 7-185. Upper Band Edge Plot (Band 25/2 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282263.A3L	Test Dates: 12/19/2015-01/18/2016	EUT Type: Portable Handset		Page 109 of 164

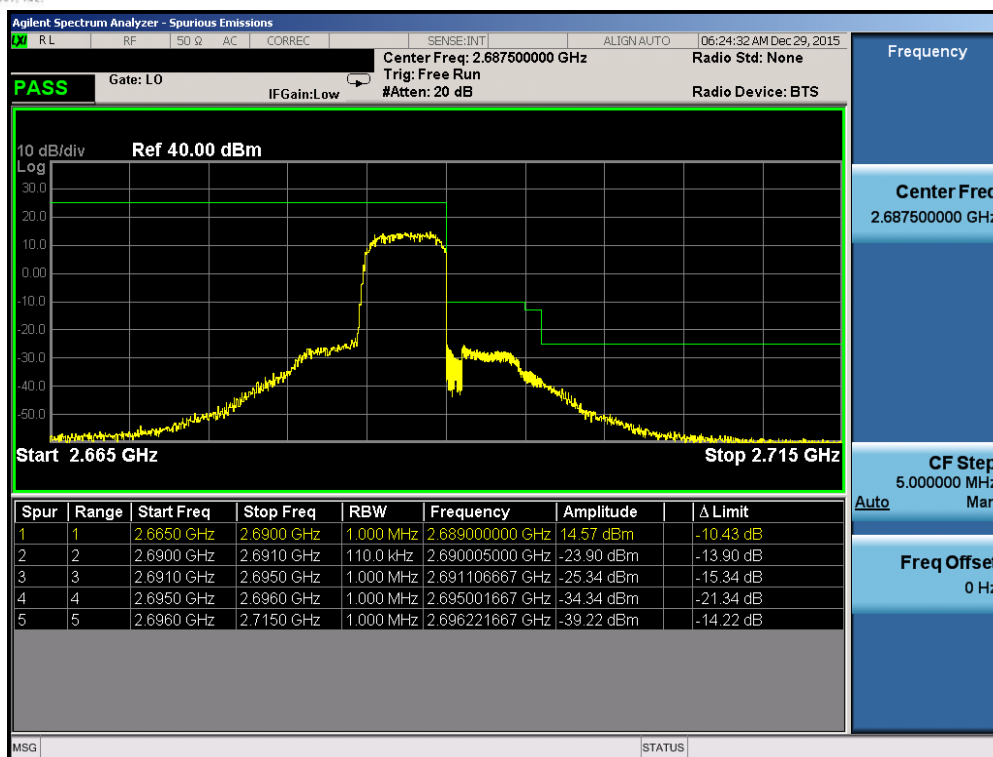


Plot 7-186. Upper Extended Band Edge Plot (Band 25/2 – 20.0MHz QPSK – RB Size 100)

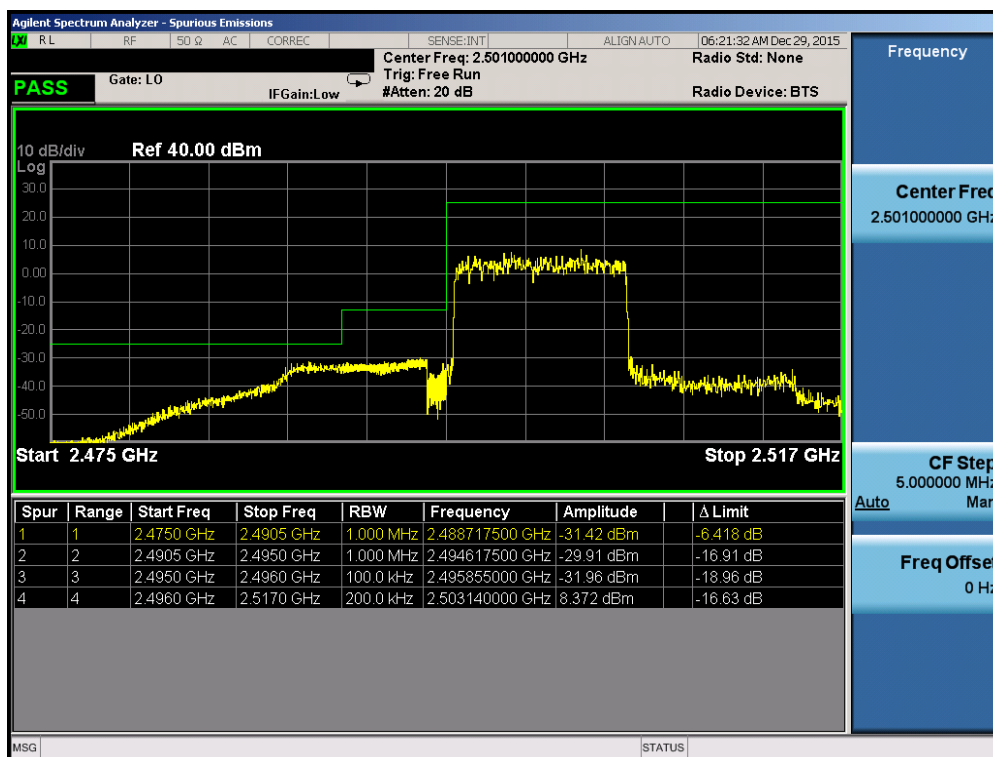


Plot 7-187. Lower ACP Plot (Band 41 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282263.A3L	Test Dates: 12/19/2015-01/18/2016	EUT Type: Portable Handset		Page 110 of 164

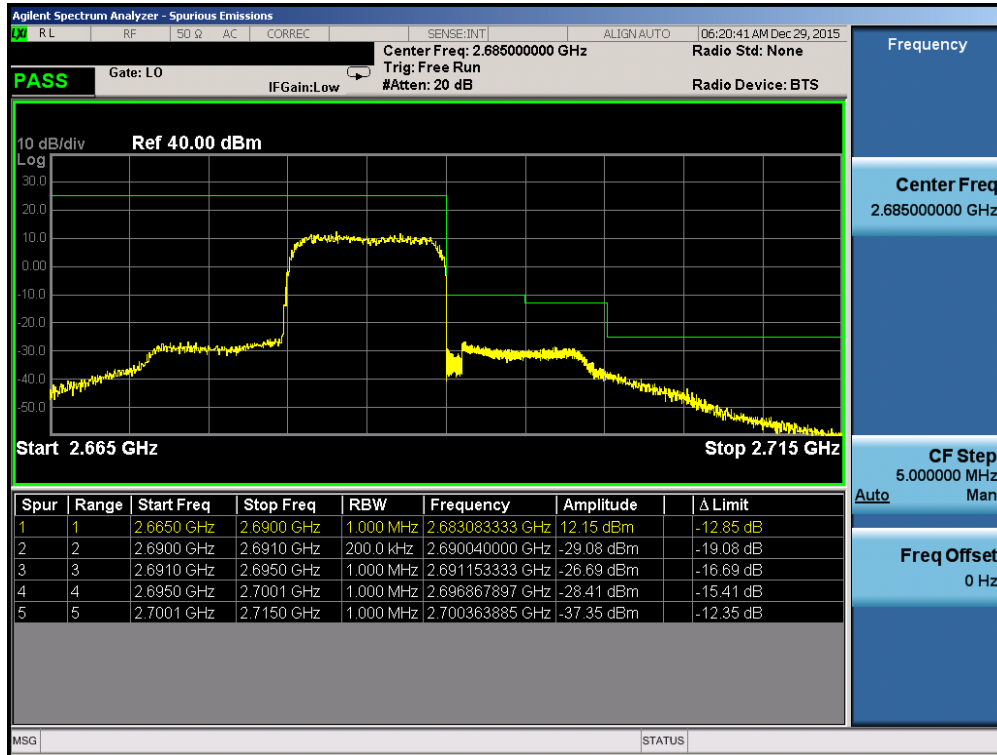


Plot 7-188. Upper ACP Plot (Band 41 – 5.0MHz QPSK – RB Size 25)

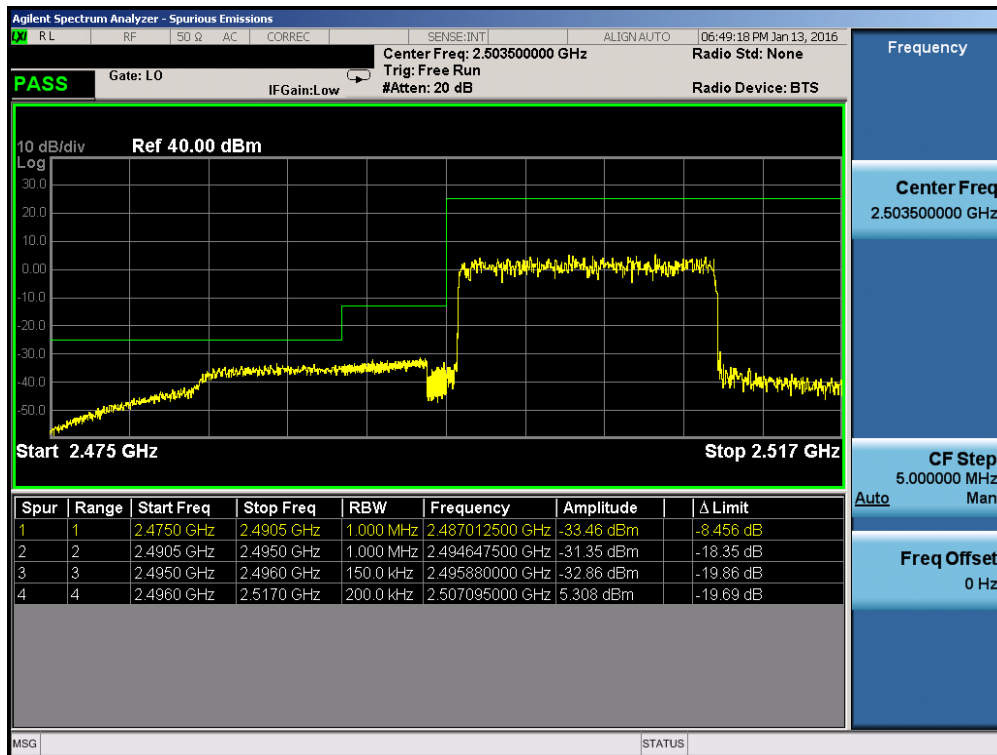


Plot 7-189. Lower ACP Plot (Band 41 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282263.A3L	Test Dates: 12/19/2015-01/18/2016	EUT Type: Portable Handset		Page 111 of 164

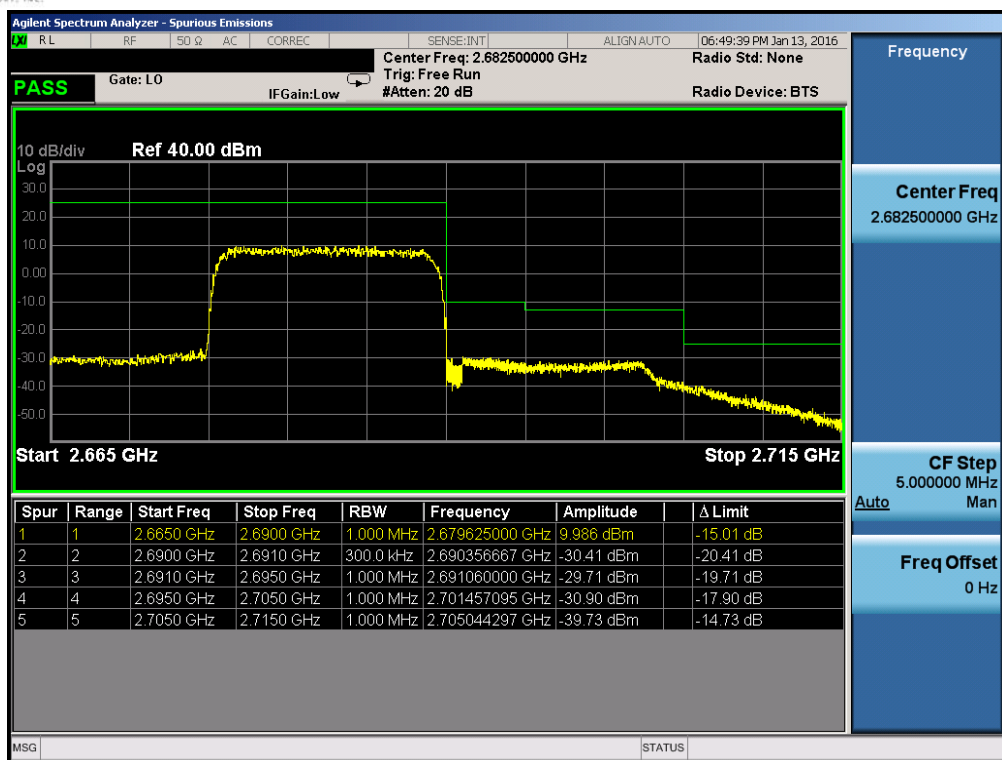


Plot 7-190. Upper ACP Plot (Band 41 – 10.0MHz QPSK – RB Size 50)



Plot 7-191. Lower ACP Plot (Band 41 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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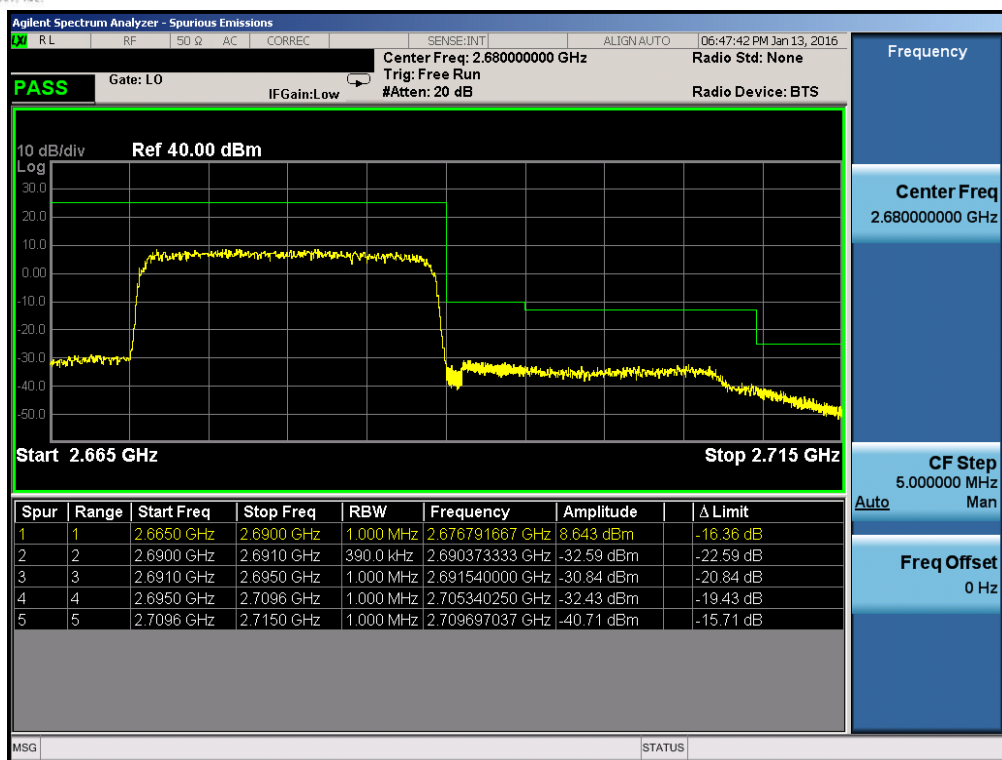


Plot 7-192. Upper ACP Plot (Band 41 – 15.0MHz QPSK – RB Size 75)



Plot 7-193. Lower ACP Plot (Band 41 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 7-194. Upper ACP Plot (Band 41 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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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.

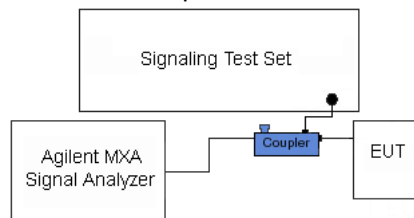
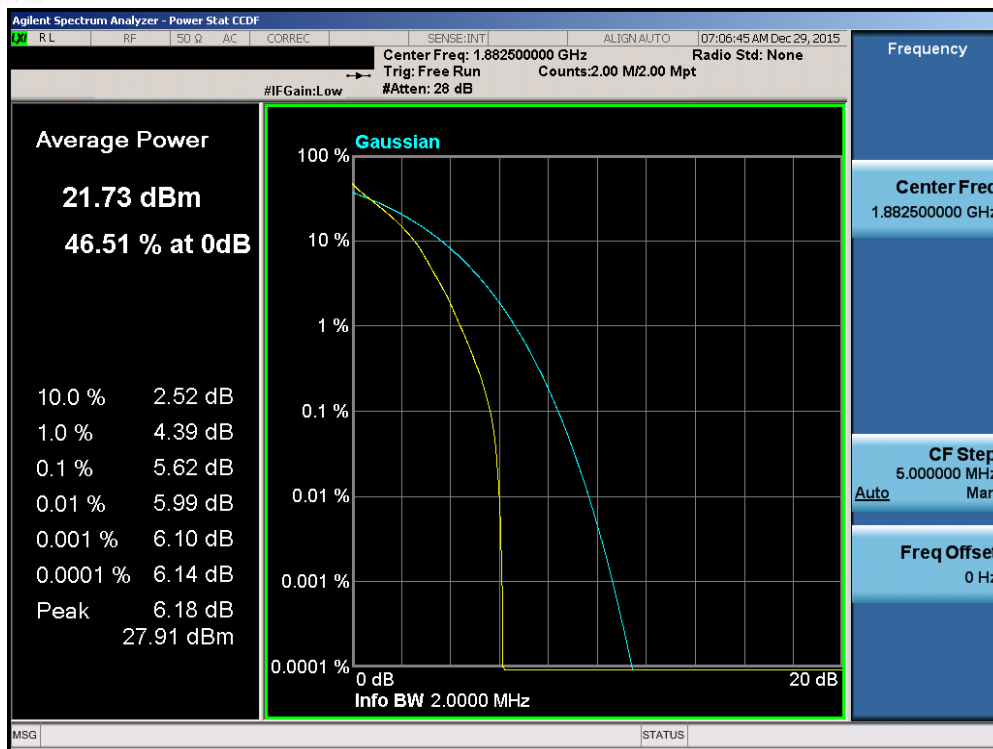


Figure 7-4. Test Instrument & Measurement Setup

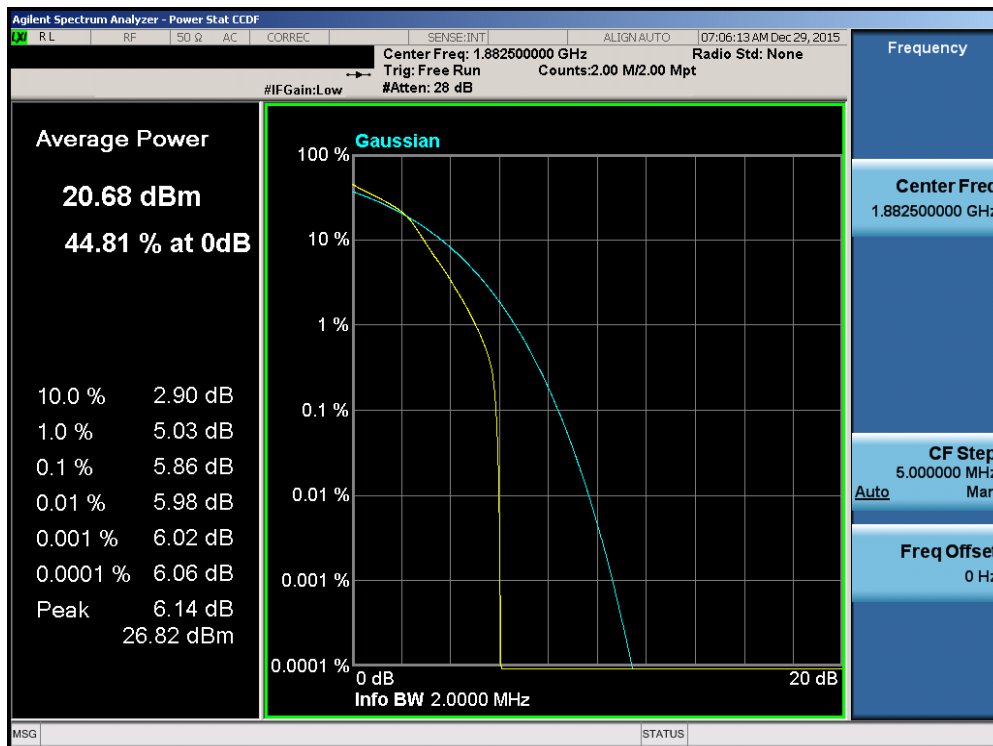
Test Notes

None.

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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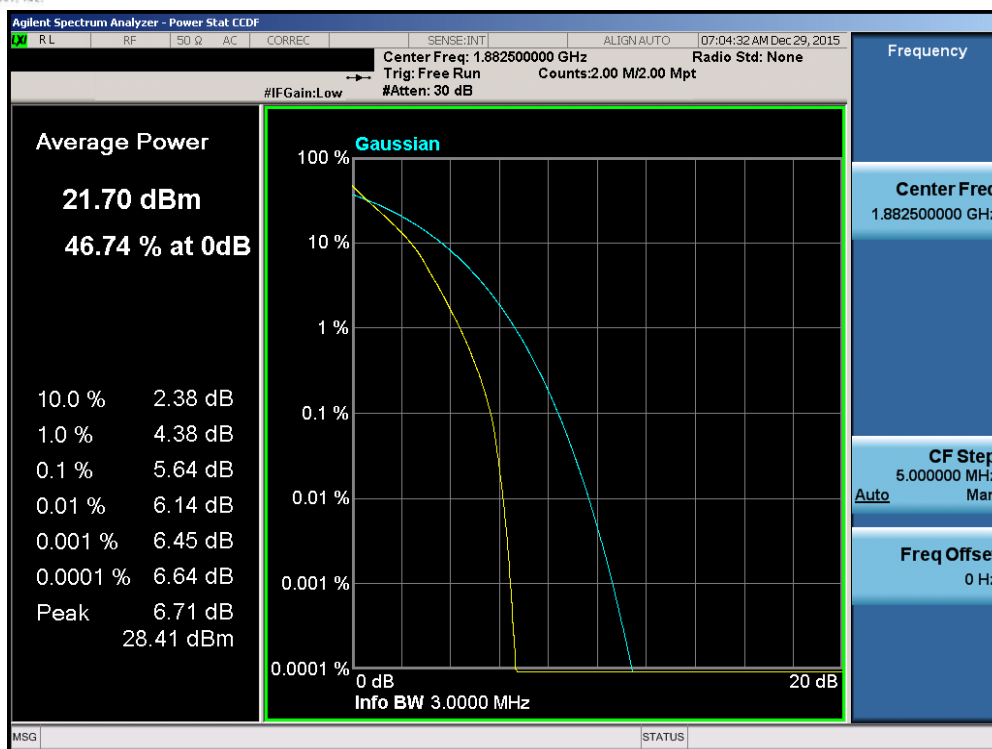


Plot 7-195. PAR Plot (Band 25/2 – 1.4MHz QPSK – RB Size 6)

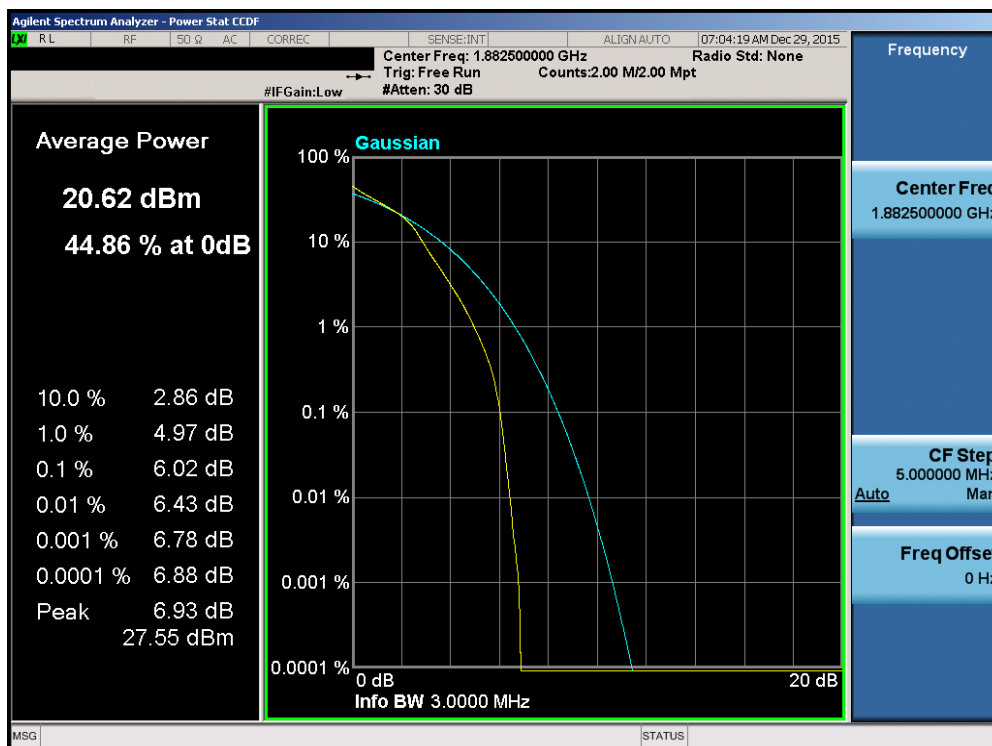


Plot 7-196. PAR Plot (Band 25/2 – 1.4MHz 16-QAM – RB Size 6)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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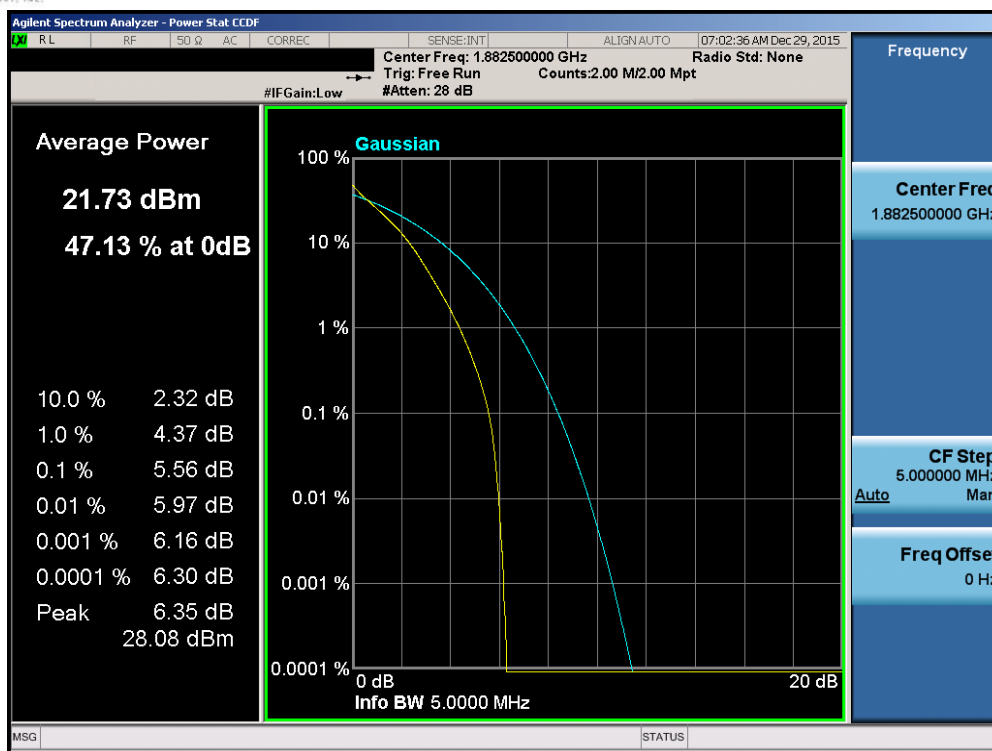


Plot 7-197. PAR Plot (Band 25/2 – 3.0MHz QPSK – RB Size 15)

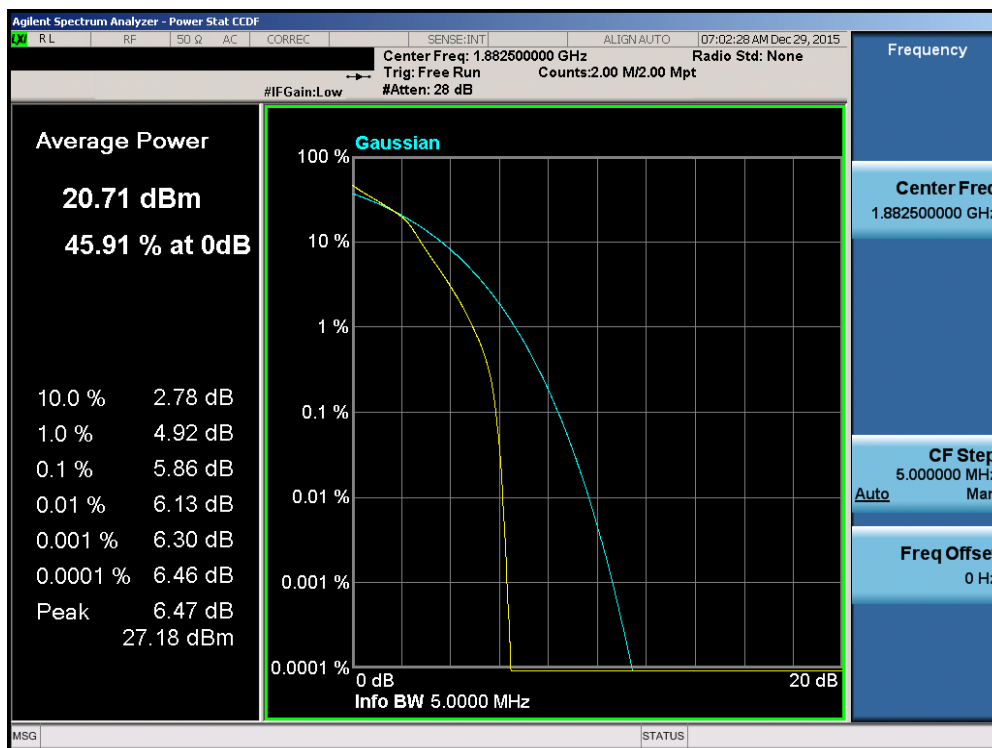


Plot 7-198. PAR Plot (Band 25/2 – 3.0MHz 16-QAM – RB Size 15)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282263.A3L	Test Dates: 12/19/2015-01/18/2016	EUT Type: Portable Handset		Page 117 of 164

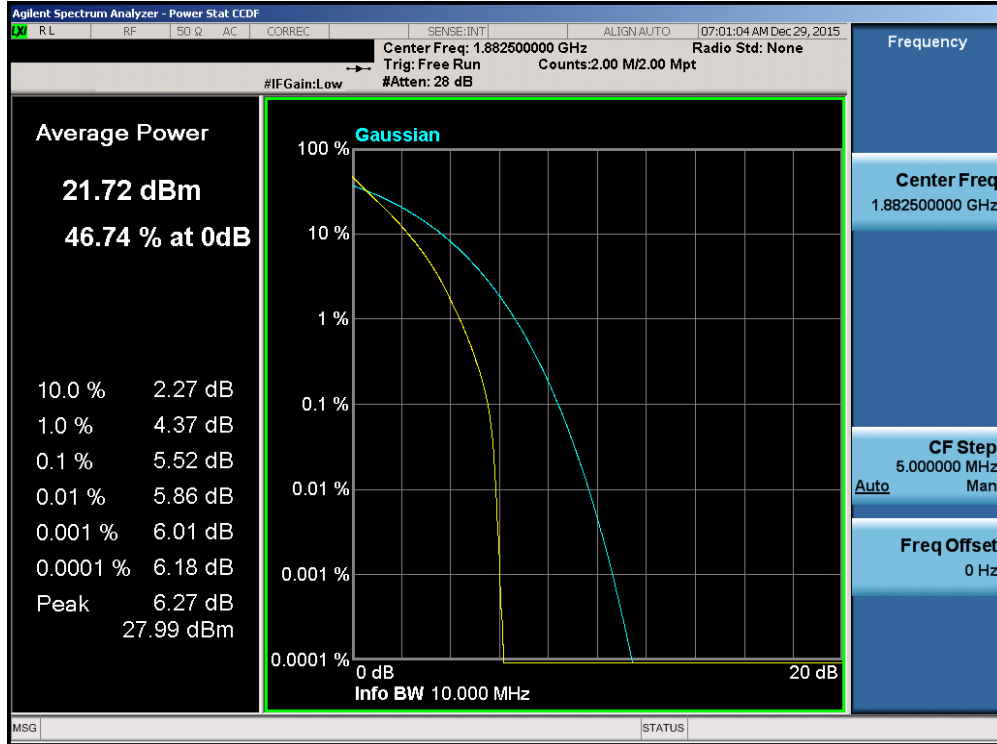


Plot 7-199. PAR Plot (Band 25/2 – 5.0MHz QPSK – RB Size 25)

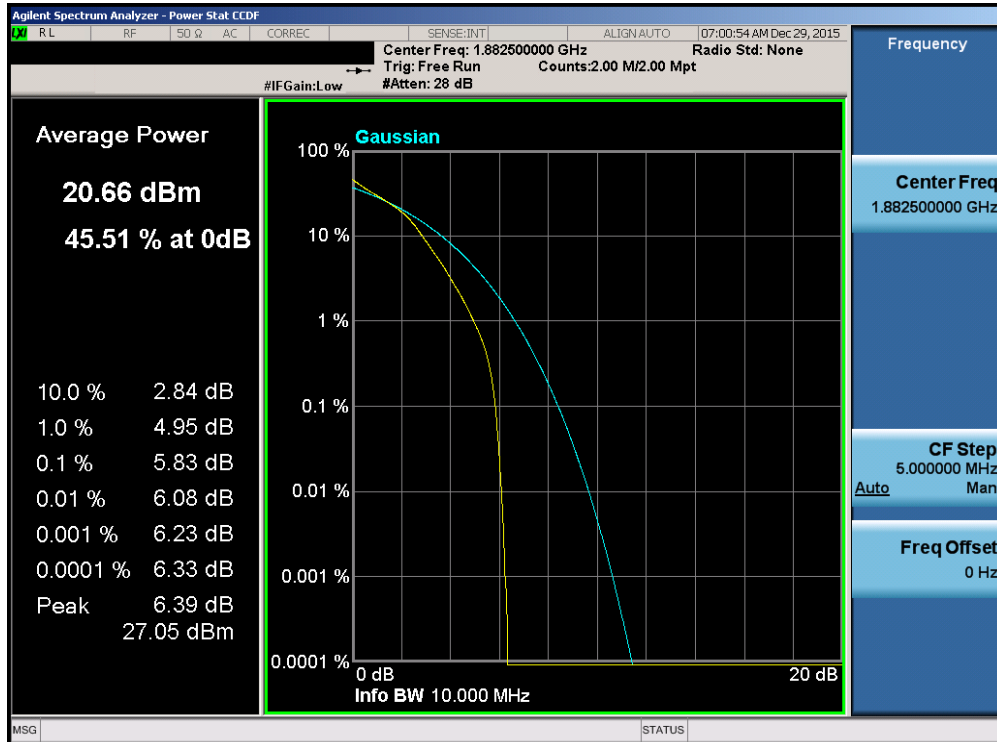


Plot 7-200. PAR Plot (Band 25/2 – 5.0MHz 16-QAM – RB Size 25)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1512282263.A3L	Test Dates: 12/19/2015-01/18/2016	EUT Type: Portable Handset		Page 118 of 164

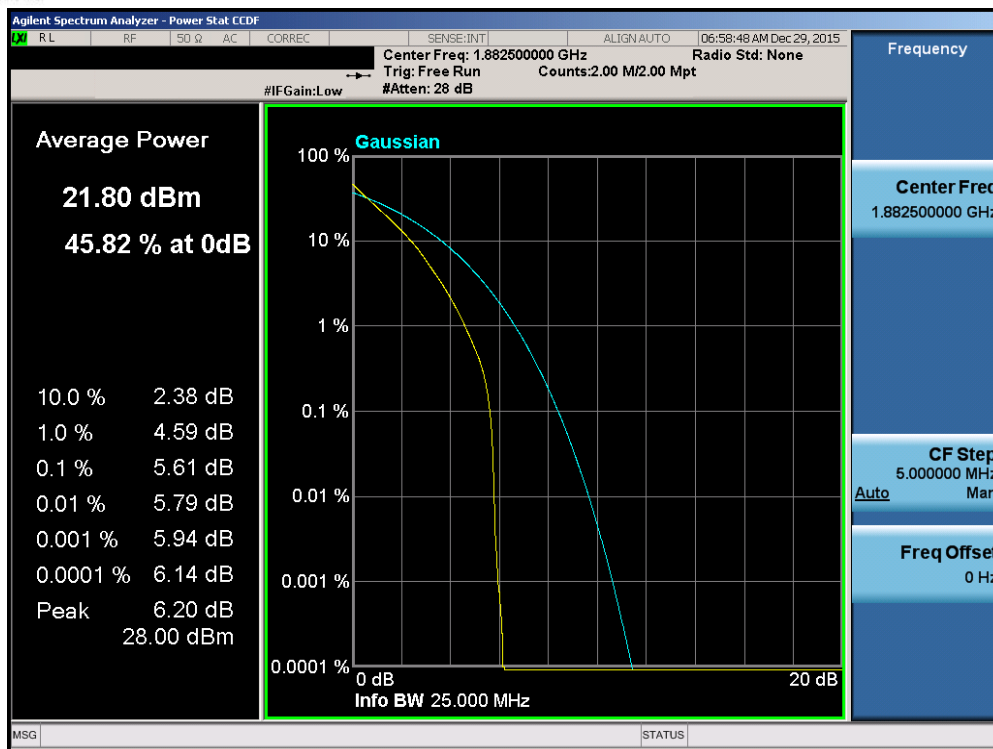


Plot 7-201. PAR Plot (Band 25/2 – 10.0MHz QPSK – RB Size 50)

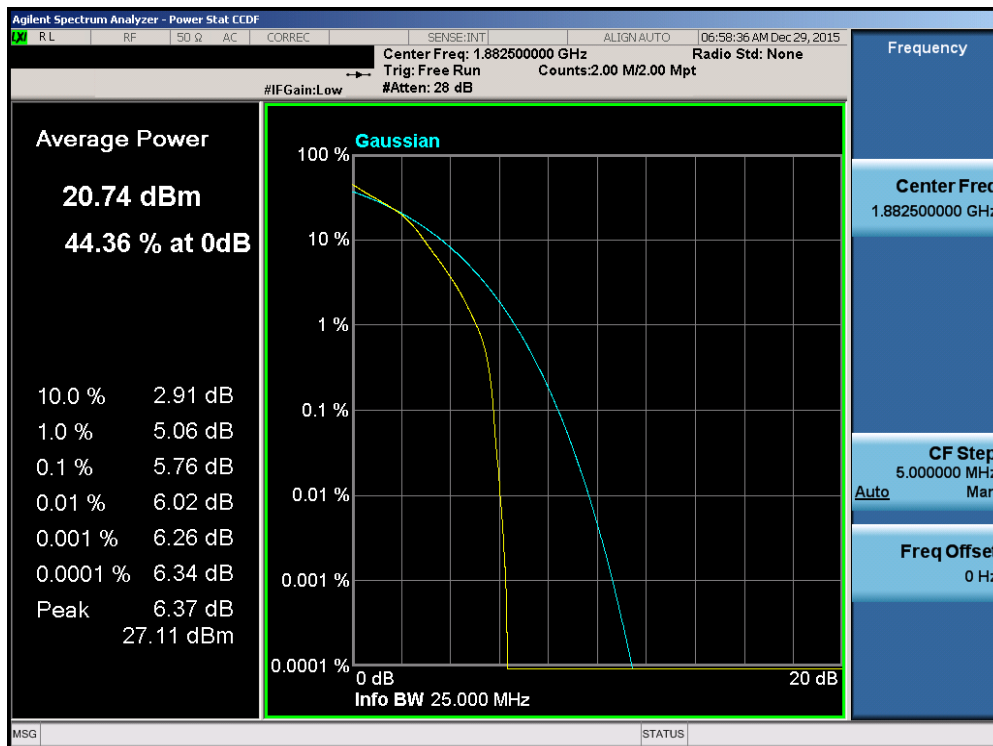


Plot 7-202. PAR Plot (Band 25/2 – 10.0MHz 16-QAM – RB Size 50)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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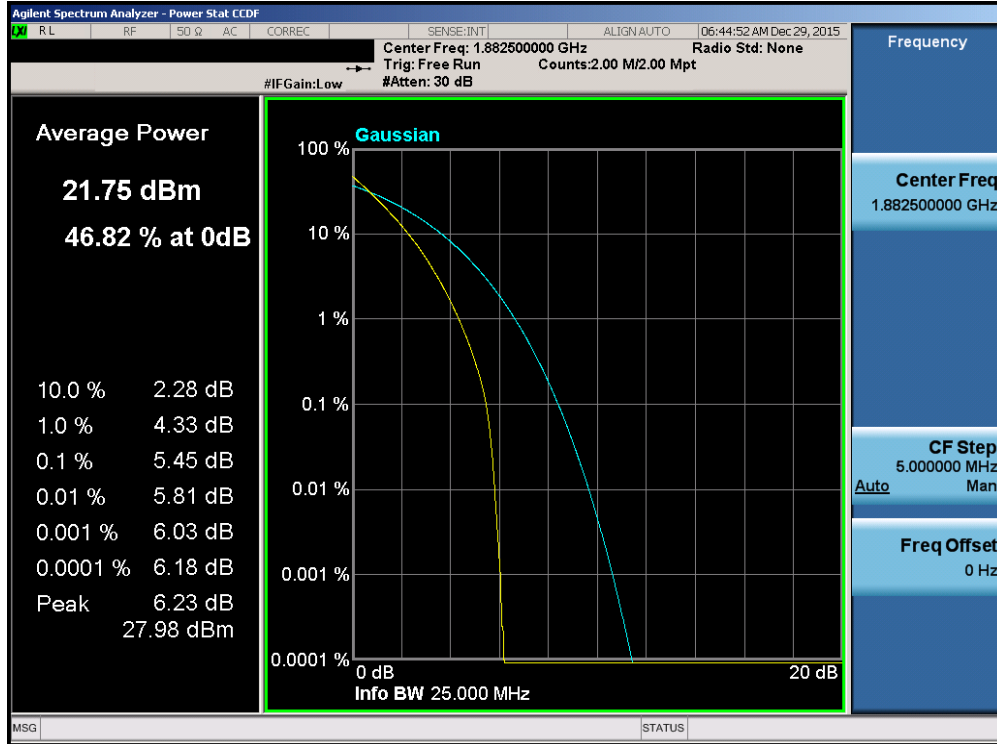


Plot 7-203. PAR Plot (Band 25/2 – 15.0MHz QPSK – RB Size 75)

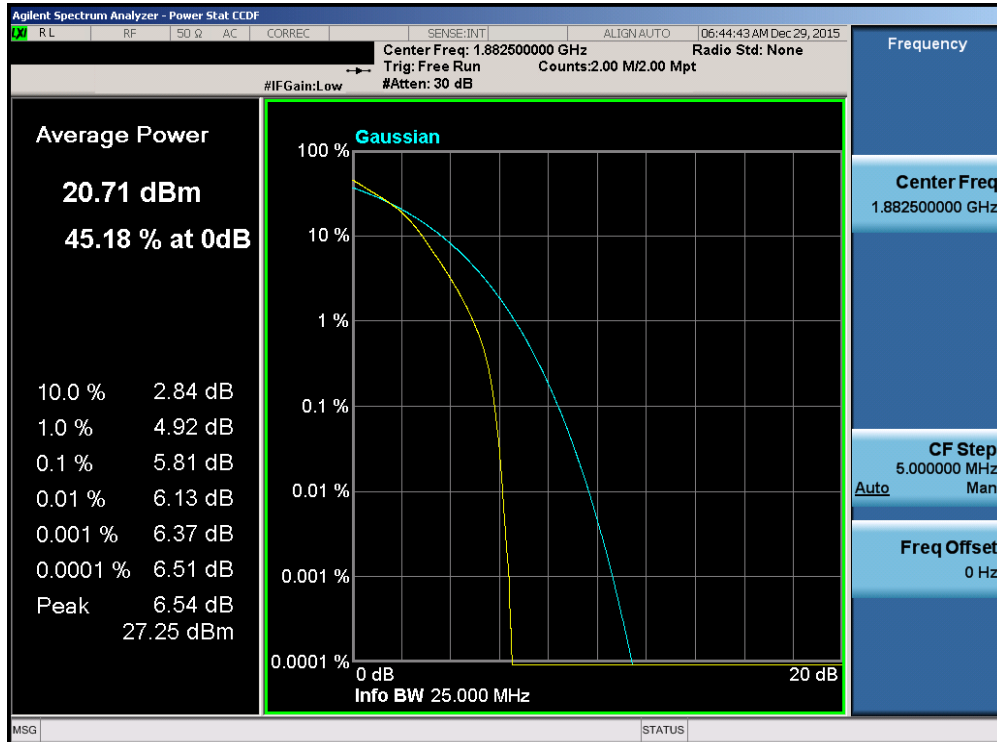


Plot 7-204. PAR Plot (Band 25/2 – 15.0MHz 16-QAM – RB Size 75)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 7-205. PAR Plot (Band 25/2 – 20.0MHz QPSK – RB Size 100)



Plot 7-206. PAR Plot (Band 25/2 – 20.0MHz 16-QAM – RB Size 100)

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7.6 Radiated Power (ERP/EIRP)

§22.913(a.2) §24.232(c.2) §27.50(h.2) §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 $\geq 3 \times$ RBW
4. Span = 1.5 times the OBW
5. No. of sweep points $\geq 2 \times$ span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
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.

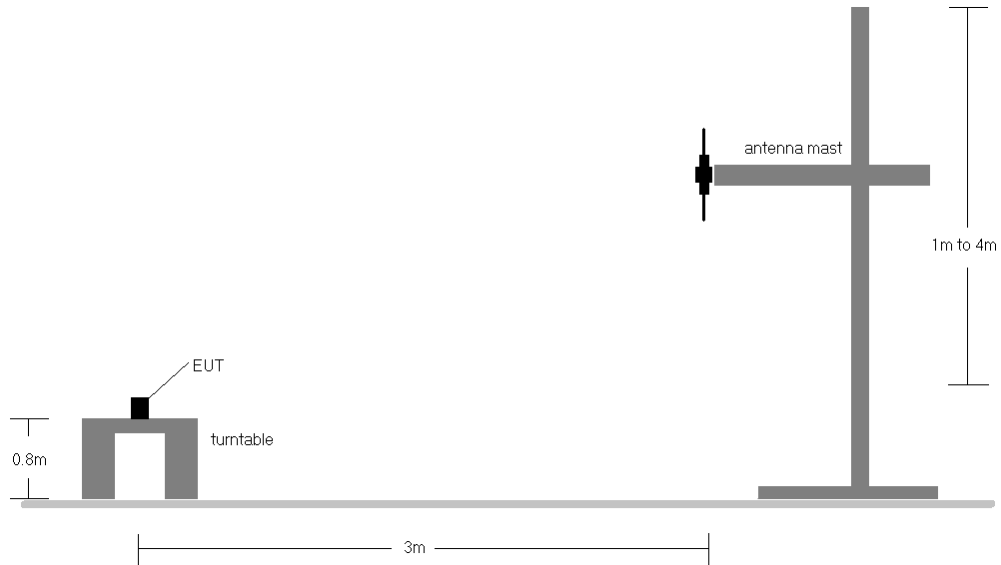


Figure 7-5. Radiated Test Setup <1GHz

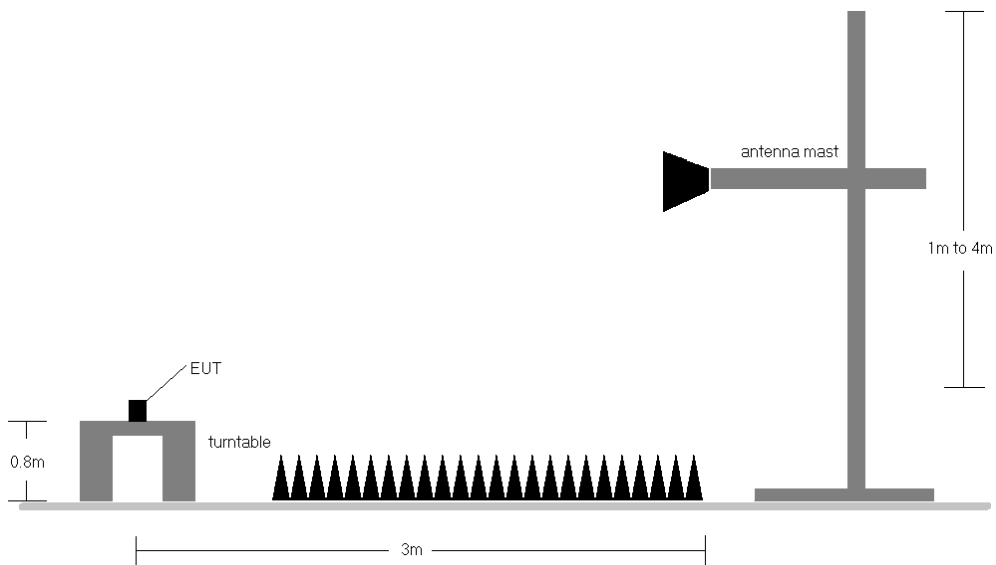


Figure 7-6. Radiated Test Setup >1GHz

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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7.6.1 Antenna-0 Radiated Power (ERP/EIRP)

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	187	75	1 / 0	12.51	0.92	13.43	34.77	-21.34
707.50	1.4	QPSK	V	189	78	1 / 5	12.72	1.07	13.79	34.77	-20.98
715.30	1.4	QPSK	V	188	82	1 / 5	13.07	1.23	14.30	34.77	-20.48
699.70	1.4	16-QAM	V	187	75	1 / 0	11.42	0.92	12.34	34.77	-22.43
707.50	1.4	16-QAM	V	189	78	1 / 5	11.44	1.07	12.51	34.77	-22.26
715.30	1.4	16-QAM	V	188	82	1 / 5	11.93	1.23	13.16	34.77	-21.62
700.50	3	QPSK	V	189	80	1 / 14	12.73	0.92	13.65	34.77	-21.12
707.50	3	QPSK	V	191	77	1 / 14	12.82	1.07	13.89	34.77	-20.88
714.50	3	QPSK	V	188	79	1 / 14	13.28	1.21	14.49	34.77	-20.28
700.50	3	16-QAM	V	189	80	1 / 14	11.68	0.92	12.60	34.77	-22.17
707.50	3	16-QAM	V	191	77	1 / 14	11.71	1.07	12.78	34.77	-21.99
714.50	3	16-QAM	V	188	79	1 / 14	12.21	1.21	13.42	34.77	-21.35

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	185	75	1 / 0	12.84	0.94	13.78	34.77	-20.99
707.50	5	QPSK	V	192	79	1 / 0	13.05	1.07	14.12	34.77	-20.65
713.50	5	QPSK	V	187	75	1 / 24	13.43	1.19	14.62	34.77	-20.15
701.50	5	16-QAM	V	185	75	1 / 0	11.83	0.94	12.77	34.77	-22.00
707.50	5	16-QAM	V	192	79	1 / 0	11.73	1.07	12.80	34.77	-21.97
713.50	5	16-QAM	V	187	75	1 / 24	12.43	1.19	13.62	34.77	-21.15
704.00	10	QPSK	V	182	74	1 / 49	12.63	1.00	13.63	34.77	-21.14
707.50	10	QPSK	V	187	75	1 / 49	12.37	1.07	13.44	34.77	-21.33
711.00	10	QPSK	V	192	77	1 / 49	12.66	1.14	13.80	34.77	-20.97
704.00	10	16-QAM	V	182	74	1 / 49	11.43	1.00	12.43	34.77	-22.34
707.50	10	16-QAM	V	187	75	1 / 49	11.29	1.07	12.36	34.77	-22.41
711.00	10	16-QAM	V	192	77	1 / 49	11.86	1.14	13.00	34.77	-21.77

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

FCC ID: A3LSMG935KOR	 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]
824.70	1.4	QPSK	V	123	256	1 / 5	15.11	2.98	18.09	38.45	-20.36
836.50	1.4	QPSK	V	137	255	1 / 0	16.18	3.04	19.22	38.45	-19.23
848.30	1.4	QPSK	V	129	254	1 / 0	14.43	3.10	17.53	38.45	-20.92
824.70	1.4	16-QAM	V	123	256	1 / 5	13.87	2.98	16.85	38.45	-21.60
836.50	1.4	16-QAM	V	137	255	1 / 0	14.96	3.04	18.00	38.45	-20.45
848.30	1.4	16-QAM	V	129	254	1 / 0	13.16	3.10	16.26	38.45	-22.19
825.50	3	QPSK	V	124	261	1 / 14	15.59	2.98	18.57	38.45	-19.88
836.50	3	QPSK	V	136	254	1 / 0	16.68	3.04	19.72	38.45	-18.73
847.50	3	QPSK	V	132	250	1 / 0	15.23	3.10	18.33	38.45	-20.12
825.50	3	16-QAM	V	124	261	1 / 14	14.60	2.98	17.58	38.45	-20.87
836.50	3	16-QAM	V	136	254	1 / 0	15.45	3.04	18.49	38.45	-19.96
847.50	3	16-QAM	V	132	250	1 / 0	14.31	3.10	17.41	38.45	-21.04
826.50	5	QPSK	V	129	259	1 / 24	16.08	2.99	19.07	38.45	-19.38
836.50	5	QPSK	V	137	249	1 / 0	16.91	3.04	19.95	38.45	-18.50
846.50	5	QPSK	V	135	250	1 / 0	15.58	3.09	18.67	38.45	-19.78
826.50	5	16-QAM	V	129	259	1 / 24	14.98	2.99	17.97	38.45	-20.48
836.50	5	16-QAM	V	137	249	1 / 0	15.81	3.04	18.85	38.45	-19.60
846.50	5	16-QAM	V	135	250	1 / 0	14.55	3.09	17.64	38.45	-20.81
829.00	10	QPSK	V	134	255	1 / 49	16.52	3.00	19.52	38.45	-18.93
836.50	10	QPSK	V	135	250	1 / 0	16.53	3.04	19.57	38.45	-18.88
844.00	10	QPSK	V	140	250	1 / 0	15.98	3.08	19.06	38.45	-19.39
829.00	10	16-QAM	V	134	255	1 / 49	15.30	3.00	18.30	38.45	-20.15
836.50	10	16-QAM	V	135	250	1 / 0	15.32	3.04	18.36	38.45	-20.09
844.00	10	16-QAM	V	140	250	1 / 0	14.85	3.08	17.93	38.45	-20.52

Table 7-4. ERP Data (Band 5)

FCC ID: A3LSMG935KOR	 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]
824.70	1.4	QPSK	V	131	246	1 / 5	14.05	2.98	17.03	38.45	-21.42
836.50	1.4	QPSK	V	142	252	1 / 0	15.27	3.04	18.31	38.45	-20.14
848.30	1.4	QPSK	V	137	242	1 / 0	13.82	3.10	16.92	38.45	-21.53
824.70	1.4	16-QAM	V	131	246	1 / 5	12.84	2.98	15.82	38.45	-22.63
836.50	1.4	16-QAM	V	142	252	1 / 0	14.12	3.04	17.16	38.45	-21.29
848.30	1.4	16-QAM	V	137	242	1 / 0	12.63	3.10	15.73	38.45	-22.72
825.50	3	QPSK	V	127	249	1 / 14	14.77	2.98	17.75	38.45	-20.70
836.50	3	QPSK	V	145	252	1 / 0	15.89	3.04	18.93	38.45	-19.52
847.50	3	QPSK	V	136	243	1 / 0	14.74	3.10	17.84	38.45	-20.61
825.50	3	16-QAM	V	127	249	1 / 14	13.57	2.98	16.55	38.45	-21.90
836.50	3	16-QAM	V	145	252	1 / 0	14.79	3.04	17.83	38.45	-20.62
847.50	3	16-QAM	V	136	243	1 / 0	13.59	3.10	16.69	38.45	-21.76
826.50	5	QPSK	V	129	253	1 / 24	15.09	2.99	18.08	38.45	-20.37
836.50	5	QPSK	V	141	256	1 / 0	15.78	3.04	18.82	38.45	-19.63
846.50	5	QPSK	V	132	246	1 / 0	14.88	3.09	17.97	38.45	-20.48
826.50	5	16-QAM	V	129	253	1 / 24	13.90	2.99	16.89	38.45	-21.56
836.50	5	16-QAM	V	141	256	1 / 0	14.78	3.04	17.82	38.45	-20.63
846.50	5	16-QAM	V	132	246	1 / 0	13.85	3.09	16.94	38.45	-21.51
829.00	10	QPSK	V	134	252	1 / 49	15.40	3.00	18.40	38.45	-20.05
836.50	10	QPSK	V	137	251	1 / 0	15.52	3.04	18.56	38.45	-19.89
844.00	10	QPSK	V	130	250	1 / 0	15.35	3.08	18.43	38.45	-20.02
829.00	10	16-QAM	V	134	252	1 / 49	14.35	3.00	17.35	38.45	-21.10
836.50	10	16-QAM	V	137	251	1 / 0	14.29	3.04	17.33	38.45	-21.12
844.00	10	16-QAM	V	130	250	1 / 0	14.38	3.08	17.46	38.45	-20.99
831.50	15	QPSK	V	138	249	1 / 74	15.03	3.01	18.04	38.45	-20.41
836.50	15	QPSK	V	134	247	1 / 0	14.81	3.04	17.85	38.45	-20.60
841.50	15	QPSK	V	132	245	1 / 0	15.36	3.07	18.43	38.45	-20.02
831.50	15	16-QAM	V	138	249	1 / 74	13.82	3.01	16.83	38.45	-21.62
836.50	15	16-QAM	V	134	247	1 / 0	13.92	3.04	16.96	38.45	-21.49
841.50	15	16-QAM	V	132	245	1 / 0	14.40	3.07	17.47	38.45	-20.98

Table 7-5. ERP Data (Band 26)

FCC ID: A3LSMG935KOR	 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	159	195	1 / 5	10.28	9.28	19.56	30.00	-10.44
1732.50	1.4	QPSK	V	134	197	1 / 0	11.17	9.00	20.17	30.00	-9.83
1754.30	1.4	QPSK	V	154	194	1 / 0	10.49	8.72	19.21	30.00	-10.79
1710.70	1.4	16-QAM	V	159	195	1 / 5	9.09	9.28	18.37	30.00	-11.63
1732.50	1.4	16-QAM	V	134	197	1 / 0	10.03	9.00	19.03	30.00	-10.97
1754.30	1.4	16-QAM	V	154	194	1 / 0	9.28	8.72	18.00	30.00	-12.00
1711.50	3	QPSK	V	159	193	1 / 14	10.92	9.27	20.19	30.00	-9.81
1732.50	3	QPSK	V	137	195	1 / 0	11.64	9.00	20.64	30.00	-9.36
1753.50	3	QPSK	V	158	198	1 / 0	10.49	8.73	19.22	30.00	-10.78
1711.50	3	16-QAM	V	159	193	1 / 14	9.99	9.27	19.26	30.00	-10.74
1732.50	3	16-QAM	V	137	195	1 / 0	10.45	9.00	19.45	30.00	-10.55
1753.50	3	16-QAM	V	158	198	1 / 0	9.50	8.73	18.23	30.00	-11.77
1712.50	5	QPSK	V	159	193	1 / 24	10.78	9.26	20.04	30.00	-9.96
1732.50	5	QPSK	V	142	190	1 / 0	11.77	9.00	20.77	30.00	-9.23
1752.50	5	QPSK	V	157	203	1 / 0	11.13	8.74	19.87	30.00	-10.13
1712.50	5	16-QAM	V	159	193	1 / 24	9.72	9.26	18.98	30.00	-11.02
1732.50	5	16-QAM	V	142	190	1 / 0	10.76	9.00	19.76	30.00	-10.24
1752.50	5	16-QAM	V	157	203	1 / 0	10.06	8.74	18.80	30.00	-11.20
1715.00	10	QPSK	V	156	194	1 / 49	10.01	9.22	19.23	30.00	-10.77
1732.50	10	QPSK	V	147	192	1 / 0	11.40	9.00	20.40	30.00	-9.60
1750.00	10	QPSK	V	158	199	1 / 0	10.88	8.77	19.65	30.00	-10.35
1715.00	10	16-QAM	V	156	194	1 / 49	9.33	9.22	18.55	30.00	-11.45
1732.50	10	16-QAM	V	147	192	1 / 0	10.43	9.00	19.43	30.00	-10.57
1750.00	10	16-QAM	V	158	199	1 / 0	9.74	8.77	18.51	30.00	-11.49
1717.50	15	QPSK	V	153	196	1 / 74	10.73	9.19	19.92	30.00	-10.08
1732.50	15	QPSK	V	152	197	1 / 0	11.06	9.00	20.06	30.00	-9.94
1747.50	15	QPSK	V	161	204	1 / 74	10.25	8.80	19.05	30.00	-10.95
1717.50	15	16-QAM	V	153	196	1 / 74	9.70	9.19	18.89	30.00	-11.11
1732.50	15	16-QAM	V	152	197	1 / 0	10.11	9.00	19.11	30.00	-10.89
1747.50	15	16-QAM	V	161	204	1 / 0	9.85	8.80	18.65	30.00	-11.35
1720.00	20	QPSK	V	150	198	1 / 99	11.21	9.16	20.37	30.00	-9.63
1732.50	20	QPSK	V	154	201	1 / 0	10.88	9.00	19.88	30.00	-10.12
1745.00	20	QPSK	V	159	200	1 / 0	10.44	8.83	19.27	30.00	-10.73
1720.00	20	16-QAM	V	150	198	1 / 99	10.13	9.16	19.29	30.00	-10.71
1732.50	20	16-QAM	V	154	201	1 / 0	9.85	9.00	18.85	30.00	-11.15
1745.00	20	16-QAM	V	159	200	1 / 0	9.39	8.83	18.22	30.00	-11.78

Table 7-6. EIRP Data (Band 4)

FCC ID: A3LSMG935KOR		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]
1850.70	1.4	QPSK	V	99	352	1 / 5	10.56	8.34	18.90	33.01	-14.11
1882.50	1.4	QPSK	V	116	331	1 / 0	11.52	8.47	19.99	33.01	-13.02
1914.30	1.4	QPSK	V	145	307	1 / 0	9.85	8.70	18.55	33.01	-14.46
1850.70	1.4	16-QAM	V	99	352	1 / 5	9.41	8.34	17.75	33.01	-15.26
1882.50	1.4	16-QAM	V	116	331	1 / 0	10.36	8.47	18.83	33.01	-14.18
1914.30	1.4	16-QAM	V	145	307	1 / 0	8.91	8.70	17.61	33.01	-15.40
1851.50	3	QPSK	V	95	351	1 / 14	11.20	8.35	19.55	33.01	-13.46
1882.50	3	QPSK	V	118	326	1 / 0	11.74	8.47	20.21	33.01	-12.80
1913.50	3	QPSK	V	146	306	1 / 0	10.61	8.69	19.30	33.01	-13.71
1851.50	3	16-QAM	V	95	351	1 / 14	10.37	8.35	18.72	33.01	-14.29
1882.50	3	16-QAM	V	118	326	1 / 0	10.81	8.47	19.28	33.01	-13.73
1913.50	3	16-QAM	V	146	306	1 / 0	9.56	8.69	18.25	33.01	-14.76
1852.50	5	QPSK	V	98	352	1 / 24	11.46	8.35	19.81	33.01	-13.20
1882.50	5	QPSK	V	117	323	1 / 0	11.86	8.47	20.33	33.01	-12.68
1912.50	5	QPSK	V	144	307	1 / 24	10.38	8.68	19.06	33.01	-13.95
1852.50	5	16-QAM	V	98	352	1 / 24	10.52	8.35	18.87	33.01	-14.14
1882.50	5	16-QAM	V	117	323	1 / 0	10.85	8.47	19.32	33.01	-13.69
1912.50	5	16-QAM	V	144	307	1 / 24	9.44	8.68	18.12	33.01	-14.89
1855.00	10	QPSK	V	103	354	1 / 49	10.60	8.36	18.96	33.01	-14.05
1882.50	10	QPSK	V	114	322	1 / 0	11.52	8.47	19.99	33.01	-13.02
1910.00	10	QPSK	V	142	303	1 / 49	10.14	8.65	18.79	33.01	-14.22
1855.00	10	16-QAM	V	103	354	1 / 49	9.35	8.36	17.71	33.01	-15.30
1882.50	10	16-QAM	V	114	322	1 / 0	10.64	8.47	19.11	33.01	-13.90
1910.00	10	16-QAM	V	142	303	1 / 49	9.15	8.65	17.80	33.01	-15.21
1857.50	15	QPSK	V	98	359	1 / 0	11.53	8.37	19.90	33.01	-13.11
1882.50	15	QPSK	V	112	324	1 / 0	11.27	8.47	19.74	33.01	-13.27
1907.50	15	QPSK	V	138	301	1 / 74	9.96	8.62	18.58	33.01	-14.43
1857.50	15	16-QAM	V	98	359	1 / 0	10.33	8.37	18.70	33.01	-14.31
1882.50	15	16-QAM	V	112	324	1 / 0	10.37	8.47	18.84	33.01	-14.17
1907.50	15	16-QAM	V	138	301	1 / 74	8.96	8.62	17.58	33.01	-15.43
1860.00	20	QPSK	V	103	355	1 / 99	10.62	8.38	19.00	33.01	-14.01
1882.50	20	QPSK	V	112	323	1 / 0	11.47	8.47	19.94	33.01	-13.07
1905.00	20	QPSK	V	135	301	1 / 99	10.21	8.59	18.80	33.01	-14.21
1860.00	20	16-QAM	V	103	355	1 / 99	9.68	8.38	18.06	33.01	-14.95
1882.50	20	16-QAM	V	112	323	1 / 0	10.39	8.47	18.86	33.01	-14.15
1905.00	20	16-QAM	V	135	301	1 / 99	9.27	8.59	17.86	33.01	-15.15

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

FCC ID: A3LSMG935KOR		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]
2498.50	5	QPSK	V	247	71	1 / 0	10.06	7.09	17.15	33.01	-15.86
2593.00	5	QPSK	V	237	98	1 / 0	8.99	7.55	16.54	33.01	-16.47
2687.50	5	QPSK	V	255	170	1 / 0	7.42	7.82	15.24	33.01	-17.77
2498.50	5	16-QAM	V	247	71	1 / 0	8.52	7.09	15.61	33.01	-17.40
2593.00	5	16-QAM	V	237	98	1 / 0	7.71	7.55	15.26	33.01	-17.75
2687.50	5	16-QAM	V	255	170	1 / 0	6.26	7.82	14.08	33.01	-18.93
2501.00	10	QPSK	V	257	64	1 / 0	9.94	7.08	17.02	33.01	-15.99
2593.00	10	QPSK	V	238	100	1 / 0	8.73	7.55	16.28	33.01	-16.73
2685.00	10	QPSK	V	272	182	1 / 0	7.27	7.81	15.08	33.01	-17.93
2501.00	10	16-QAM	V	246	54	1 / 0	8.25	7.08	15.33	33.01	-17.68
2593.00	10	16-QAM	V	219	79	1 / 0	7.32	7.55	14.87	33.01	-18.14
2685.00	10	16-QAM	V	290	175	1 / 0	5.94	7.81	13.75	33.01	-19.26
2503.50	15	QPSK	V	240	63	1 / 0	9.75	7.10	16.85	33.01	-16.16
2593.00	15	QPSK	V	223	86	1 / 0	8.61	7.55	16.16	33.01	-16.85
2682.50	15	QPSK	V	256	181	1 / 0	6.98	7.81	14.79	33.01	-18.22
2503.50	15	16-QAM	V	240	63	1 / 0	8.17	7.10	15.27	33.01	-17.74
2593.00	15	16-QAM	V	223	86	1 / 0	7.11	7.55	14.66	33.01	-18.35
2682.50	15	16-QAM	V	256	181	1 / 0	5.74	7.81	13.55	33.01	-19.46
2506.00	20	QPSK	V	246	54	1 / 0	9.83	7.11	16.94	33.01	-16.07
2593.00	20	QPSK	V	219	79	1 / 0	8.80	7.55	16.35	33.01	-16.66
2680.00	20	QPSK	V	290	175	1 / 0	7.26	7.80	15.06	33.01	-17.95
2506.00	20	16-QAM	V	246	54	1 / 0	8.20	7.11	15.31	33.01	-17.70
2593.00	20	16-QAM	V	219	79	1 / 0	7.19	7.55	14.74	33.01	-18.27
2680.00	20	16-QAM	V	290	175	1 / 0	5.94	7.80	13.74	33.01	-19.27

Table 7-8. EIRP Data (Band 41)

FCC ID: A3LSMG935KOR	 FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION) 			Reviewed by: Quality Manager
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7.6.2 Antenna-1 Radiated Power (ERP)

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	135	293	1 / 5	10.92	2.98	13.90	38.45	-24.55
836.50	1.4	QPSK	V	129	300	1 / 0	11.72	3.04	14.76	38.45	-23.69
848.30	1.4	QPSK	V	138	310	1 / 0	10.89	3.10	13.99	38.45	-24.46
824.70	1.4	16-QAM	V	135	293	1 / 5	10.72	2.98	13.70	38.45	-24.75
836.50	1.4	16-QAM	V	129	300	1 / 0	11.66	3.04	14.70	38.45	-23.75
848.30	1.4	16-QAM	V	138	310	1 / 0	10.79	3.10	13.89	38.45	-24.56
825.50	3	QPSK	V	133	298	1 / 14	11.51	2.98	14.49	38.45	-23.96
836.50	3	QPSK	V	129	300	1 / 0	12.19	3.04	15.23	38.45	-23.22
847.50	3	QPSK	V	133	311	1 / 0	11.58	3.10	14.68	38.45	-23.77
825.50	3	16-QAM	V	133	298	1 / 14	11.26	2.98	14.24	38.45	-24.21
836.50	3	16-QAM	V	129	300	1 / 0	12.01	3.04	15.05	38.45	-23.40
847.50	3	16-QAM	V	133	311	1 / 0	11.50	3.10	14.60	38.45	-23.85
826.50	5	QPSK	V	137	301	1 / 24	11.84	2.99	14.83	38.45	-23.62
836.50	5	QPSK	V	130	301	1 / 0	12.40	3.04	15.44	38.45	-23.01
846.50	5	QPSK	V	134	309	1 / 0	11.97	3.09	15.06	38.45	-23.39
826.50	5	16-QAM	V	137	301	1 / 24	11.55	2.99	14.54	38.45	-23.91
836.50	5	16-QAM	V	130	301	1 / 0	12.04	3.04	15.08	38.45	-23.37
846.50	5	16-QAM	V	134	309	1 / 0	11.66	3.09	14.75	38.45	-23.70
829.00	10	QPSK	V	132	304	1 / 49	12.01	3.00	15.01	38.45	-23.44
836.50	10	QPSK	V	130	305	1 / 0	11.84	3.04	14.88	38.45	-23.57
844.00	10	QPSK	V	129	307	1 / 0	11.65	3.08	14.73	38.45	-23.72
829.00	10	16-QAM	V	132	304	1 / 49	11.55	3.00	14.55	38.45	-23.90
836.50	10	16-QAM	V	130	305	1 / 0	11.62	3.04	14.66	38.45	-23.79
844.00	10	16-QAM	V	129	307	1 / 0	11.39	3.08	14.47	38.45	-23.98

Table 7-9. ERP Data (Band 5)

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7.7 Radiated Spurious Emissions Measurements

§2.1053 §22.917(a) §24.238(a) §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

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Test Setup

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

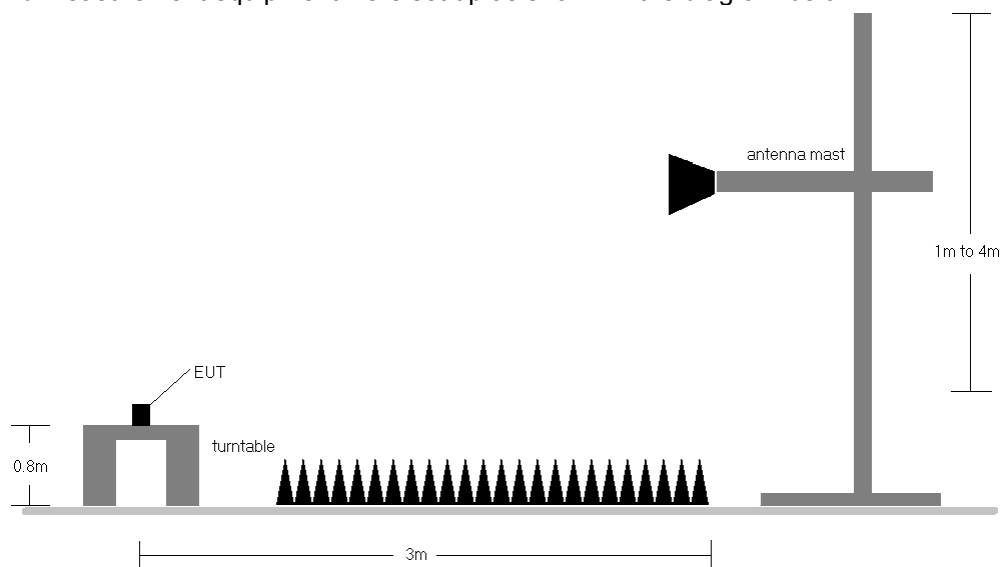


Figure 7-7. Test Instrument & Measurement Setup

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.

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7.7.1 Antenna-0 Radiated Spurious Emissions Measurements

OPERATING FREQUENCY: 701.50 MHz
 CHANNEL: 23035
 MEASURED OUTPUT POWER: 13.78 dBm = 0.024 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 26.78 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	H	105	354	-61.95	5.65	-56.30	70.1
2104.50	H	-	-	-64.17	6.61	-57.56	71.3
2806.00	H	188	49	-62.90	7.84	-55.06	68.8

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

OPERATING FREQUENCY: 707.50 MHz
 CHANNEL: 23095
 MEASURED OUTPUT POWER: 14.12 dBm = 0.026 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 27.12 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	156	234	-63.87	5.73	-58.14	72.3
2122.50	H	-	-	-64.09	6.73	-57.36	71.5
2830.00	H	-	-	-63.43	7.80	-55.63	69.7

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

FCC ID: A3LSMG935KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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OPERATING FREQUENCY: 713.50 MHz
 CHANNEL: 23155
 MEASURED OUTPUT POWER: 14.62 dBm = 0.029 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 27.62 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]
1427.00	H	161	19	-61.81	5.81	-56.01	70.6
2140.50	H	-	-	-63.38	6.85	-56.54	71.2
2854.00	H	201	218	-62.38	7.76	-54.62	69.2

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

OPERATING FREQUENCY: 713.50 MHz
 CHANNEL: 23155
 MEASURED OUTPUT POWER: 14.62 dBm = 0.029 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 27.62 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]
1427.00	H	215	204	-64.78	5.81	-58.98	73.6
2140.50	H	-	-	-67.03	6.85	-60.19	74.8
2854.00	H	103	205	-64.84	7.76	-57.08	71.7

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

OPERATING FREQUENCY: 826.50 MHz
 CHANNEL: 20425
 MEASURED OUTPUT POWER: 19.07 dBm = 0.081 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 32.07 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]
1653.00	H	137	192	-60.13	6.56	-53.57	72.6
2479.50	H	-	-	-64.29	7.31	-56.99	76.1
3306.00	H	228	200	-61.19	7.38	-53.82	72.9

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

OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 20525
 MEASURED OUTPUT POWER: 19.95 dBm = 0.099 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 32.95 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	110	215	-61.69	6.55	-55.14	75.1
2509.50	H	260	18	-61.98	7.34	-54.64	74.6
3346.00	H	267	296	-60.53	7.44	-53.09	73.0

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

FCC ID: A3LSMG935KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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OPERATING FREQUENCY: 846.50 MHz
 CHANNEL: 20625
 MEASURED OUTPUT POWER: 18.67 dBm = 0.074 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 31.67 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]
1693.00	H	125	9	-60.96	6.55	-54.41	73.1
2539.50	H	265	27	-62.50	7.36	-55.14	73.8
3386.00	H	184	299	-61.26	7.50	-53.76	72.4

Table 7-16. Radiated Spurious Data (Band 5 – High Channel)

OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 20525
 MEASURED OUTPUT POWER: 19.95 dBm = 0.099 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 32.95 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	329	204	-64.34	6.55	-57.79	77.7
2509.50	H	110	176	-62.87	7.34	-55.53	75.5
3346.00	H	115	220	-59.42	7.44	-51.98	71.9

Table 7-17. Radiated Spurious Data with WCP (Band 5 – Mid Channel)

FCC ID: A3LSMG935KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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OPERATING FREQUENCY: 825.50 MHz
 CHANNEL: 26805
 MEASURED OUTPUT POWER: 17.75 dBm = 0.060 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 30.75 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	105	4	-64.10	6.56	-57.54	75.3
2476.50	H	101	245	-62.12	7.30	-54.82	72.6
3302.00	H	-	-	-60.32	7.37	-52.95	70.7

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

OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 26915
 MEASURED OUTPUT POWER: 18.93 dBm = 0.078 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 31.93 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	115	321	-64.60	6.55	-58.05	77.0
2509.50	H	101	2	-61.03	7.34	-53.69	72.6
3346.00	H	142	98	-59.51	7.44	-52.07	71.0

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

FCC ID: A3LSMG935KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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OPERATING FREQUENCY: 847.50 MHz
 CHANNEL: 27025
 MEASURED OUTPUT POWER: 17.84 dBm = 0.061 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 30.84 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]
1695.00	H	110	50	-65.01	6.55	-58.46	76.3
2542.50	H	101	350	-60.45	7.36	-53.09	70.9
3390.00	H	107	207	-60.51	7.51	-53.00	70.8

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

OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 26915
 MEASURED OUTPUT POWER: 18.93 dBm = 0.078 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 31.93 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	116	158	-63.83	6.55	-57.28	76.2
2509.50	H	112	178	-62.01	7.34	-54.67	73.6
3346.00	H	111	280	-58.89	7.44	-51.45	70.4

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

FCC ID: A3LSMG935KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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OPERATING FREQUENCY: 1712.50 MHz
 CHANNEL: 19975
 MEASURED OUTPUT POWER: 20.04 dBm = 0.101 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 33.04 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]
3425.00	H	117	189	-49.94	9.68	-40.26	60.3
5137.50	H	115	298	-46.19	10.68	-35.51	55.6
6850.00	H	121	108	-54.65	11.74	-42.90	62.9
8562.50	H	116	139	-49.21	11.05	-38.16	58.2

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

OPERATING FREQUENCY: 1732.50 MHz
 CHANNEL: 20175
 MEASURED OUTPUT POWER: 20.77 dBm = 0.119 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 33.77 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	H	115	311	-38.72	9.71	-29.02	49.8
5197.50	H	290	135	-44.24	10.59	-33.66	54.4
6930.00	H	146	150	-55.72	11.75	-43.97	64.7
8662.50	H	121	139	-49.97	11.06	-38.91	59.7
10395.00	H	130	245	-46.44	12.37	-34.07	54.8

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

FCC ID: A3LSMG935KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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OPERATING FREQUENCY: 1752.50 MHz
 CHANNEL: 20375
 MEASURED OUTPUT POWER: 19.87 dBm = 0.097 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 32.87 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]
3505.00	H	134	293	-34.90	9.73	-25.17	45.0
5257.50	H	126	288	-43.24	10.64	-32.60	52.5
7010.00	H	135	126	-44.46	11.75	-32.71	52.6
8762.50	H	133	300	-51.48	11.00	-40.48	60.3
10515.00	H	1334	250	-45.87	12.48	-33.39	53.3

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

OPERATING FREQUENCY: 1752.50 MHz
 CHANNEL: 20375
 MEASURED OUTPUT POWER: 19.87 dBm = 0.097 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 32.87 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]
3505.00	H	137	106	-33.40	9.71	-23.70	43.6
5257.50	H	132	39	-43.33	10.59	-32.75	52.6
7010.00	H	132	100	-49.67	11.75	-37.92	57.8
8762.50	H	131	338	-51.77	11.06	-40.71	60.6
10515.00	H	140	354	-51.92	12.37	-39.55	59.4

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

FCC ID: A3LSMG935KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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OPERATING FREQUENCY: 1852.50 MHz
 CHANNEL: 26065
 MEASURED OUTPUT POWER: 19.81 dBm = 0.096 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 32.81 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	H	118	155	-52.58	9.43	-43.15	63.0
5557.50	H	116	344	-55.49	10.80	-44.69	64.5
7410.00	H	118	153	-51.51	10.71	-40.80	60.6
9262.50	H	121	126	-49.72	11.58	-38.14	57.9

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

OPERATING FREQUENCY: 1882.50 MHz
 CHANNEL: 26365
 MEASURED OUTPUT POWER: 20.33 dBm = 0.108 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 33.33 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	123	63	-43.38	9.27	-34.11	54.4
5647.50	H	-	-	-56.25	11.06	-45.19	65.5
7530.00	H	-	-	-53.18	10.99	-42.18	62.5
9412.50	H	120	124	-50.03	11.55	-38.47	58.8

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

FCC ID: A3LSMG935KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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OPERATING FREQUENCY: 1912.50 MHz
 CHANNEL: 26665
 MEASURED OUTPUT POWER: 19.06 dBm = 0.081 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 32.06 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	H	137	55	-33.41	9.20	-24.21	43.3
5737.50	H	132	364	-49.04	11.30	-37.74	56.8
7650.00	H	140	53	-49.94	11.18	-38.75	57.8

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

OPERATING FREQUENCY: 1912.50 MHz
 CHANNEL: 26665
 MEASURED OUTPUT POWER: 19.06 dBm = 0.081 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 32.06 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	H	128	65	-34.23	9.20	-25.03	44.1
5737.50	H	144	359	-49.29	11.30	-37.99	57.0
7650.00	H	143	55	-52.12	11.18	-40.93	60.0

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

OPERATING FREQUENCY: 2498.50 MHz
 CHANNEL: 39675
 MEASURED OUTPUT POWER: 17.15 dBm = 0.052 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 42.15 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]
4997.00	H	100	231	-54.46	10.14	-44.32	61.5
7495.50	H	122	235	-53.03	12.08	-40.94	58.1
9994.00	H	-	-	-54.12	13.25	-40.87	58.0
12492.50	H	-	-	-50.40	13.19	-37.21	54.4

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

OPERATING FREQUENCY: 2593.00 MHz
 CHANNEL: 40620
 MEASURED OUTPUT POWER: 16.54 dBm = 0.045 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 41.54 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	176	233	-49.82	10.33	-39.49	56.0
7779.00	H	124	193	-50.94	12.32	-38.61	55.1
10372.00	H	-	-	-54.06	13.18	-40.88	57.4
12965.00	H	-	-	-51.81	13.43	-38.39	54.9

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

FCC ID: A3LSMG935KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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OPERATING FREQUENCY: 2687.50 MHz
 CHANNEL: 41565
 MEASURED OUTPUT POWER: 15.24 dBm = 0.033 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 40.24 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	132	298	-49.98	10.37	-39.62	54.9
8062.50	H	105	134	-48.67	12.61	-36.06	51.3
10750.00	H	-	-	-53.36	12.95	-40.42	55.7
13437.50	H	-	-	-51.35	13.72	-37.63	52.9

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

OPERATING FREQUENCY: 2687.50 MHz
 CHANNEL: 41565
 MEASURED OUTPUT POWER: 15.24 dBm = 0.033 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 40.24 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	119	179	-50.64	10.37	-40.28	55.5
8062.50	H	132	277	-50.76	12.61	-38.15	53.4
10750.00	H	-	-	-53.70	12.95	-40.76	56.0
13437.50	H	-	-	-52.41	13.72	-38.69	53.9

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

FCC ID: A3LSMG935KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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7.7.2 Antenna-1 Radiated Spurious Emissions Measurements

OPERATING FREQUENCY: 826.50 MHz
 CHANNEL: 20425
 MEASURED OUTPUT POWER: 14.83 dBm = 0.030 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 27.83 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]
1653.00	H	260	37	-61.22	6.56	-54.66	73.7
2479.50	H	262	2	-64.13	7.31	-56.83	75.9
3306.00	H	253	19	-59.85	7.38	-52.48	71.5

Table 7-34. Radiated Spurious Data (Band 5 – Low Channel)

OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 20525
 MEASURED OUTPUT POWER: 15.44 dBm = 0.035 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 28.44 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	262	0	-60.85	6.55	-54.30	74.3
2509.50	H	260	1	-60.91	7.34	-53.57	73.5
3346.00	H	255	302	-59.80	7.44	-52.36	72.3

Table 7-35. Radiated Spurious Data (Band 5 – Mid Channel)

FCC ID: A3LSMG935KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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OPERATING FREQUENCY: 846.50 MHz
 CHANNEL: 20625
 MEASURED OUTPUT POWER: 15.06 dBm = 0.032 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 28.06 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]
1693.00	H	351	19	-63.31	6.55	-56.76	75.4
2539.50	H	309	366	-60.62	7.36	-53.26	71.9
3386.00	H	272	335	-59.89	7.50	-52.39	71.1

Table 7-36. Radiated Spurious Data (Band 5 – High Channel)

OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 20525
 MEASURED OUTPUT POWER: 15.44 dBm = 0.035 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 28.44 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	130	353	-63.09	6.55	-56.54	76.5
2509.50	H	129	185	-61.23	7.34	-53.89	73.8
3346.00	H	132	196	-59.88	7.44	-52.44	72.4

Table 7-37. Radiated Spurious Data with WCP (Band 5 – Mid Channel)

FCC ID: A3LSMG935KOR		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 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)	707,500,089	89	0.0000126
100 %		- 30	707,500,019	19	0.0000027
100 %		- 20	707,499,657	-343	-0.0000485
100 %		- 10	707,500,011	11	0.0000016
100 %		0	707,500,229	229	0.0000324
100 %		+ 10	707,500,043	43	0.0000061
100 %		+ 20	707,499,616	-384	-0.0000543
100 %		+ 30	707,500,248	248	0.0000351
100 %		+ 40	707,500,079	79	0.0000112
100 %		+ 50	707,500,035	35	0.0000049
BATT. ENDPOINT	3.45	+ 20	707,500,033	33	0.0000047

Table 7-38. Frequency Stability Data (Band 12)

Note:

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

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Band 12 Frequency Stability Measurements

§2.1055 §27.54

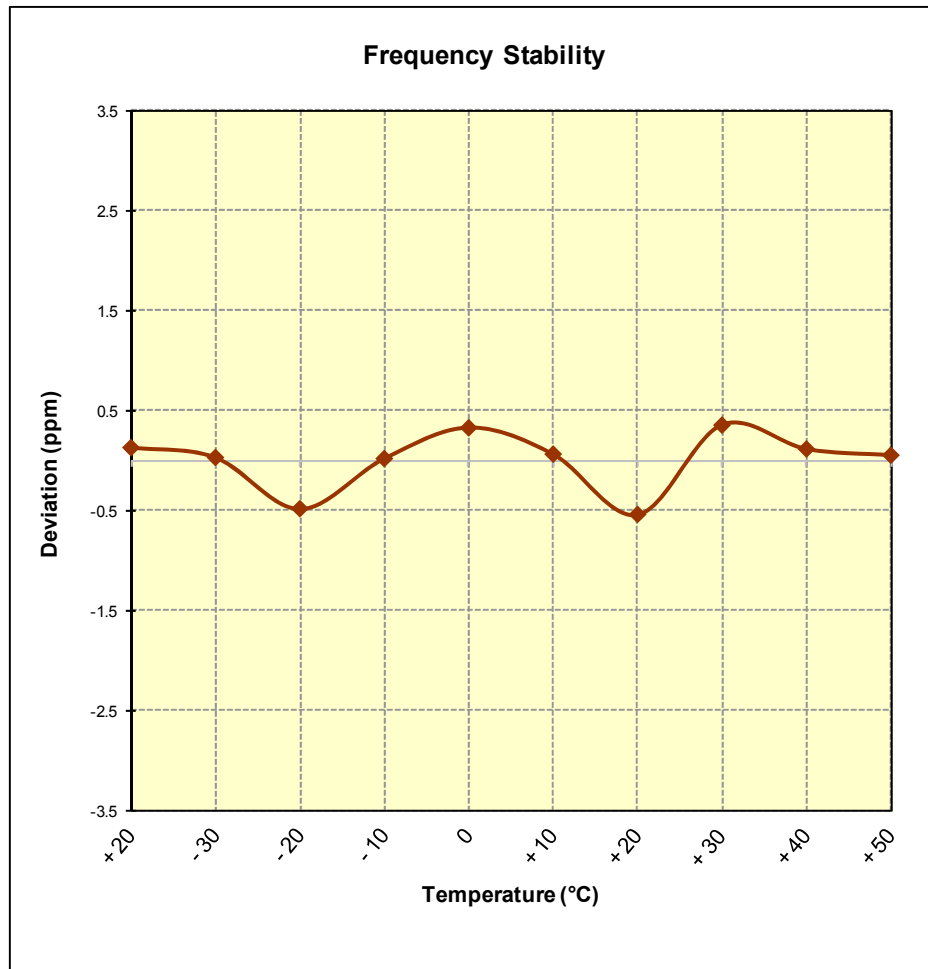


Figure 7-8. Frequency Stability Graph (Band 12)

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Band 17 Frequency Stability Measurements

§2.1055 §27.54

OPERATING FREQUENCY: 710,000,000 Hz

CHANNEL: 23090

REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	710,000,050	50	0.0000070
100 %		- 30	709,999,813	-187	-0.0000263
100 %		- 20	709,999,902	-98	-0.0000138
100 %		- 10	710,000,225	225	0.0000317
100 %		0	709,999,692	-308	-0.0000434
100 %		+ 10	710,000,174	174	0.0000245
100 %		+ 20	709,999,822	-178	-0.0000251
100 %		+ 30	709,999,944	-56	-0.0000079
100 %		+ 40	710,000,218	218	0.0000307
100 %		+ 50	709,999,773	-227	-0.0000320
BATT. ENDPOINT	3.45	+ 20	709,999,778	-222	-0.0000313

Table 7-39. Frequency Stability Data (Band 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 17 Frequency Stability Measurements

§2.1055 §27.54

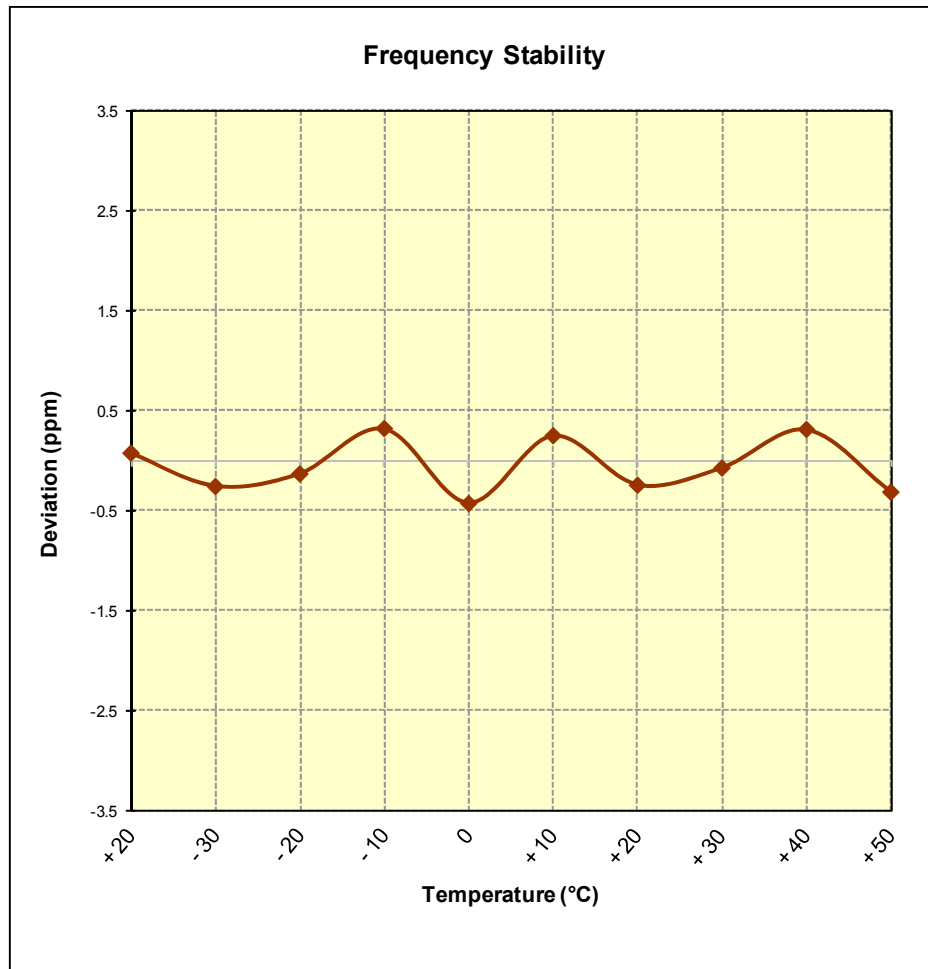


Figure 7-9. Frequency Stability Graph (Band 17)

FCC ID: A3LSMG935KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Band 5 Frequency Stability Measurements

§2.1055 §22.355

OPERATING FREQUENCY: 836,500,000 Hz

CHANNEL: 20525

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)	836,500,190	190	0.0000227
100 %		- 30	836,500,029	29	0.0000035
100 %		- 20	836,500,118	118	0.0000141
100 %		- 10	836,499,996	-4	-0.0000005
100 %		0	836,500,387	387	0.0000463
100 %		+ 10	836,500,195	195	0.0000233
100 %		+ 20	836,500,124	124	0.0000148
100 %		+ 30	836,499,991	-9	-0.0000011
100 %		+ 40	836,499,662	-338	-0.0000404
100 %		+ 50	836,499,792	-208	-0.0000249
BATT. ENDPOINT	3.45	+ 20	836,500,189	189	0.0000226

Table 7-40. Frequency Stability Data (Band 5)

FCC ID: A3LSMG935KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Band 5 Frequency Stability Measurements

§2.1055 §22.355

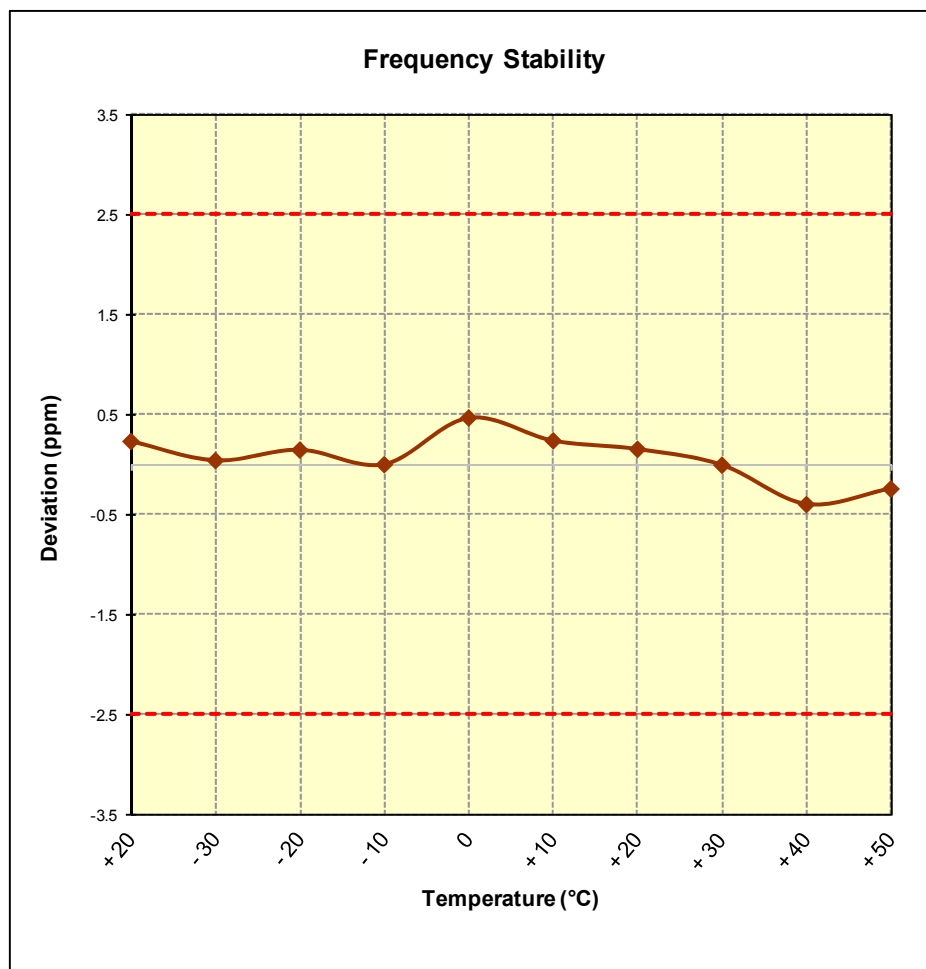


Figure 7-10. Frequency Stability Graph (Band 5)

FCC ID: A3LSMG935KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Band 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)	831,499,673	-327	-0.0000393
100 %		- 30	831,499,849	-151	-0.0000182
100 %		- 20	831,499,848	-152	-0.0000183
100 %		- 10	831,499,882	-118	-0.0000142
100 %		0	831,500,294	294	0.0000354
100 %		+ 10	831,500,055	55	0.0000066
100 %		+ 20	831,499,988	-12	-0.0000014
100 %		+ 30	831,499,931	-69	-0.0000083
100 %		+ 40	831,500,001	1	0.0000001
100 %		+ 50	831,500,349	349	0.0000420
BATT. ENDPOINT	3.45	+ 20	831,500,304	304	0.0000366

Table 7-41. Frequency Stability Data (Band 26)

Band 26 Frequency Stability Measurements

§2.1055 §22.355

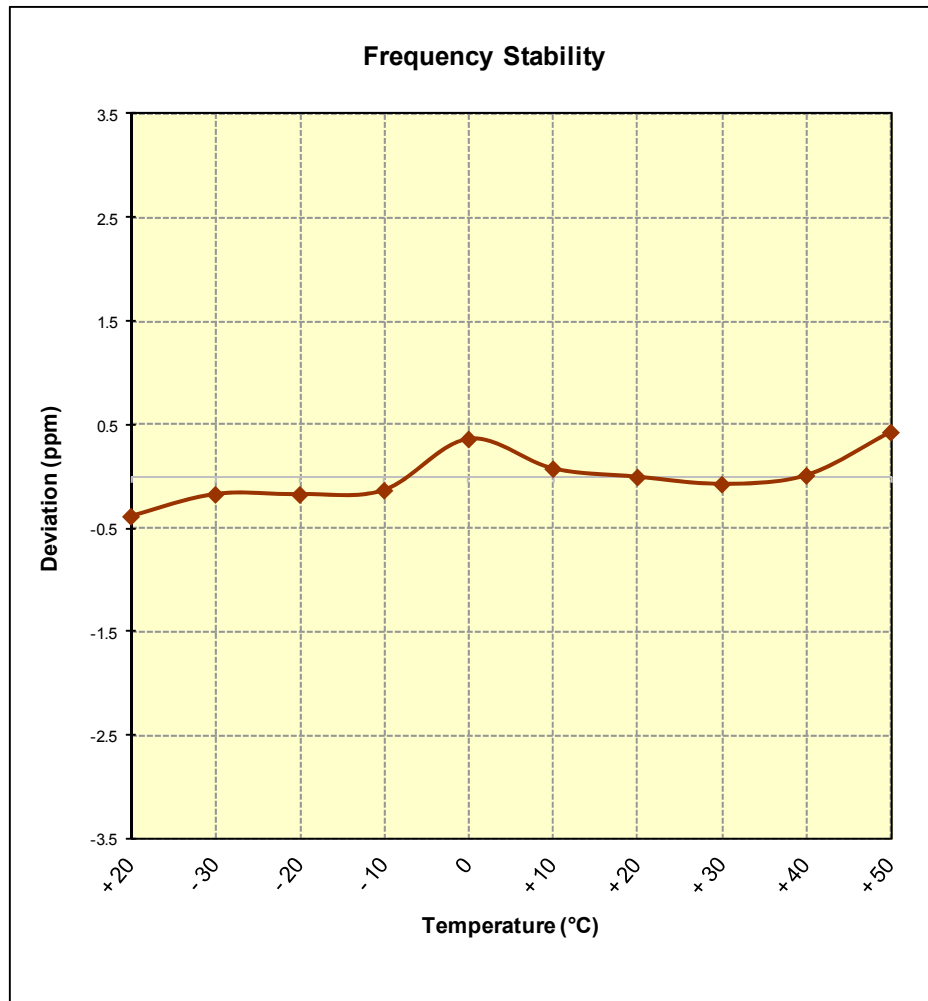


Figure 7-11. Frequency Stability Graph (Band 26)

FCC ID: A3LSMG935KOR		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)	1,732,499,691	-309	-0.0000178
100 %		- 30	1,732,499,779	-221	-0.0000128
100 %		- 20	1,732,500,129	129	0.0000074
100 %		- 10	1,732,500,285	285	0.0000165
100 %		0	1,732,499,665	-335	-0.0000193
100 %		+ 10	1,732,500,128	128	0.0000074
100 %		+ 20	1,732,499,862	-138	-0.0000080
100 %		+ 30	1,732,500,200	200	0.0000115
100 %		+ 40	1,732,500,057	57	0.0000033
100 %		+ 50	1,732,500,025	25	0.0000014
BATT. ENDPOINT	3.45	+ 20	1,732,500,217	217	0.0000125

Table 7-42. 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

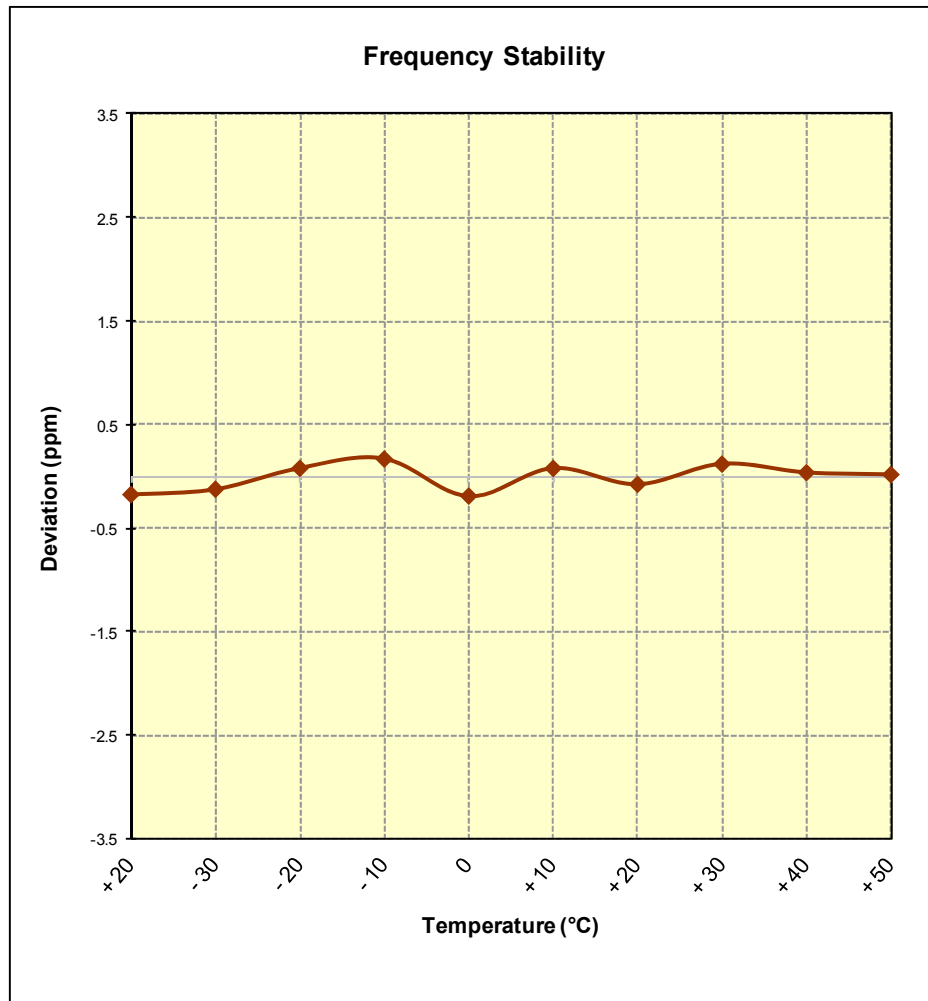


Figure 7-12. Frequency Stability Graph (Band 4)

FCC ID: A3LSMG935KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Band 2 Frequency Stability Measurements

§2.1055 §24.235

OPERATING FREQUENCY: 1,880,000,000 Hz

CHANNEL: 18900

REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,879,999,998	-2	-0.0000001
100 %		- 30	1,880,000,168	168	0.0000089
100 %		- 20	1,880,000,009	9	0.0000005
100 %		- 10	1,880,000,098	98	0.0000052
100 %		0	1,879,999,947	-53	-0.0000028
100 %		+ 10	1,880,000,027	27	0.0000014
100 %		+ 20	1,879,999,809	-191	-0.0000102
100 %		+ 30	1,880,000,131	131	0.0000070
100 %		+ 40	1,880,000,206	206	0.0000110
100 %		+ 50	1,879,999,883	-117	-0.0000062
BATT. ENDPOINT	3.45	+ 20	1,880,000,076	76	0.0000040

Table 7-43. Frequency Stability Data (Band 2)

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 Frequency Stability Measurements

§2.1055 §24.235

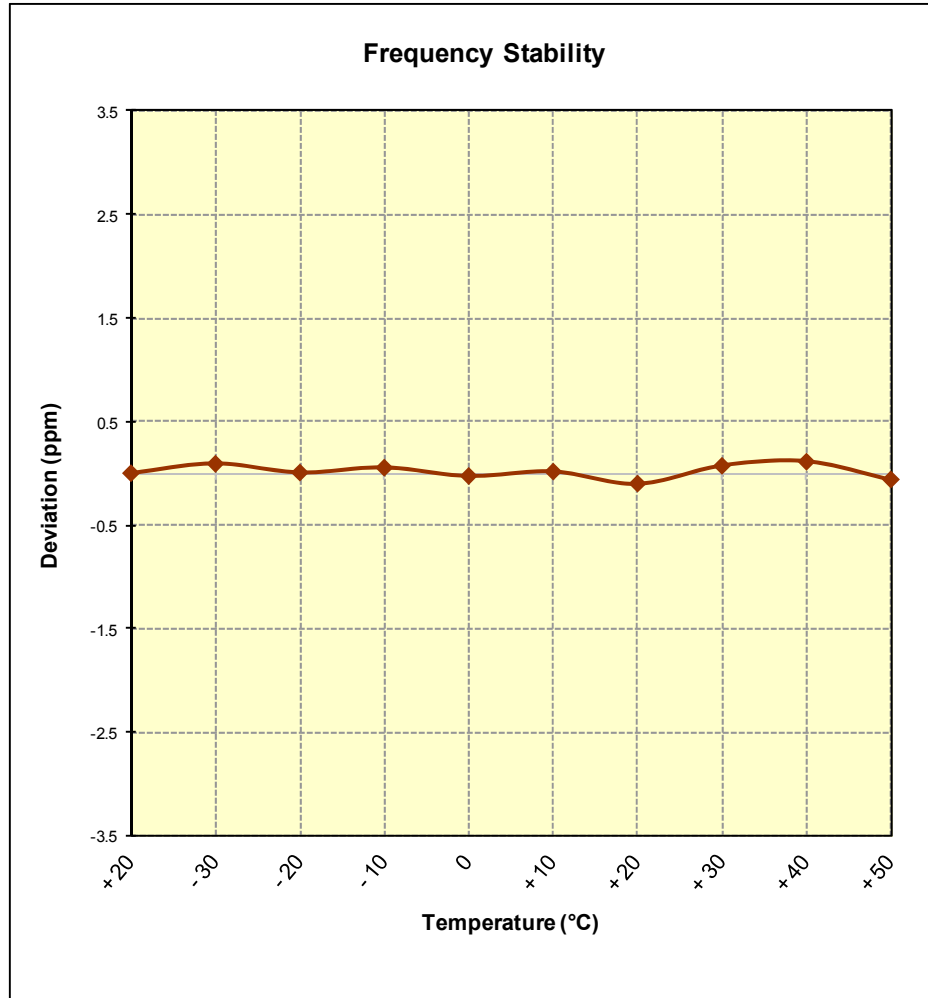


Figure 7-13. Frequency Stability Graph (Band 2)

FCC ID: A3LSMG935KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Band 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)	1,882,500,060	60	0.0000032
100 %		- 30	1,882,499,936	-64	-0.0000034
100 %		- 20	1,882,500,061	61	0.0000032
100 %		- 10	1,882,499,761	-239	-0.0000127
100 %		0	1,882,499,826	-174	-0.0000092
100 %		+ 10	1,882,500,007	7	0.0000004
100 %		+ 20	1,882,500,165	165	0.0000088
100 %		+ 30	1,882,499,945	-55	-0.0000029
100 %		+ 40	1,882,499,883	-117	-0.0000062
100 %		+ 50	1,882,500,090	90	0.0000048
BATT. ENDPOINT	3.45	+ 20	1,882,500,111	111	0.0000059

Table 7-44. Frequency Stability Data (Band 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: A3LSMG935KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Band 25 Frequency Stability Measurements

§2.1055 §24.235

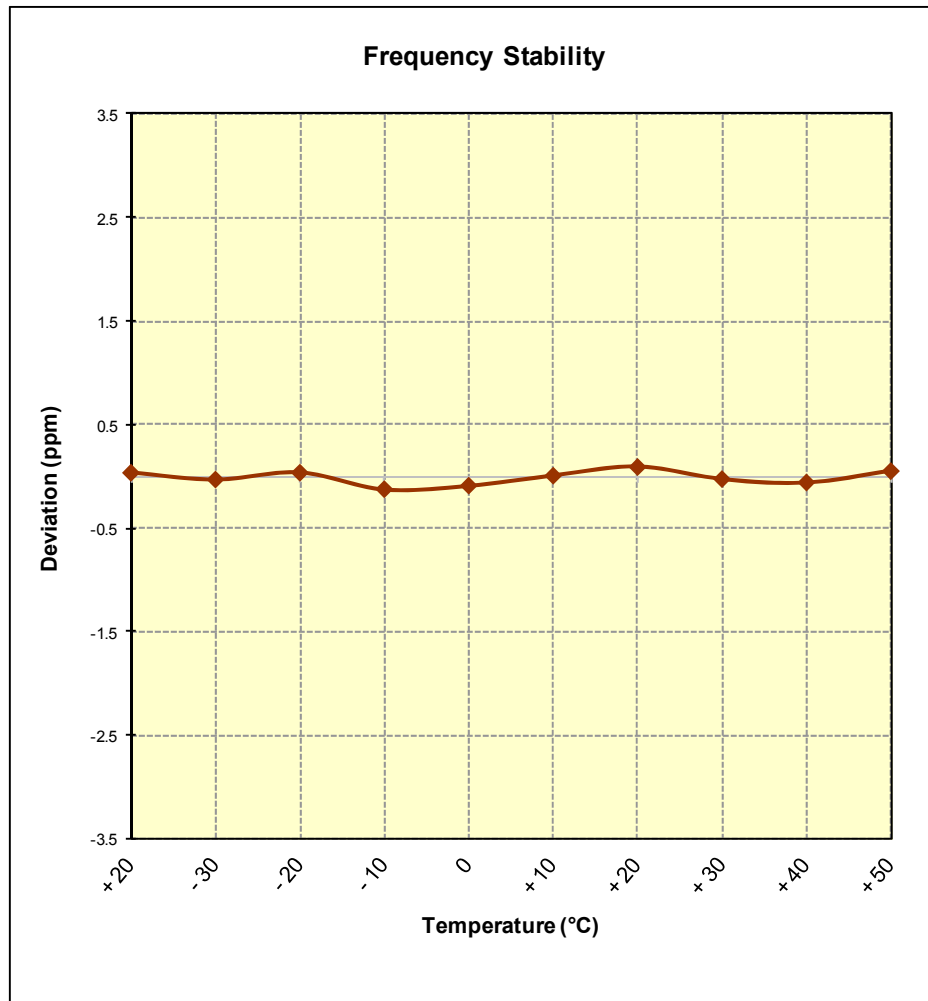


Figure 7-14. Frequency Stability Graph (Band 25)

FCC ID: A3LSMG935KOR		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

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)	2,592,999,895	-105	-0.0000040
100 %		- 30	2,592,999,828	-172	-0.0000066
100 %		- 20	2,592,999,931	-69	-0.0000027
100 %		- 10	2,593,000,130	130	0.0000050
100 %		0	2,593,000,422	422	0.0000163
100 %		+ 10	2,592,999,982	-18	-0.0000007
100 %		+ 20	2,592,999,784	-216	-0.0000083
100 %		+ 30	2,593,000,060	60	0.0000023
100 %		+ 40	2,592,999,676	-324	-0.0000125
100 %		+ 50	2,593,000,133	133	0.0000051
BATT. ENDPOINT	3.45	+ 20	2,592,999,913	-87	-0.0000034

Table 7-45. 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**

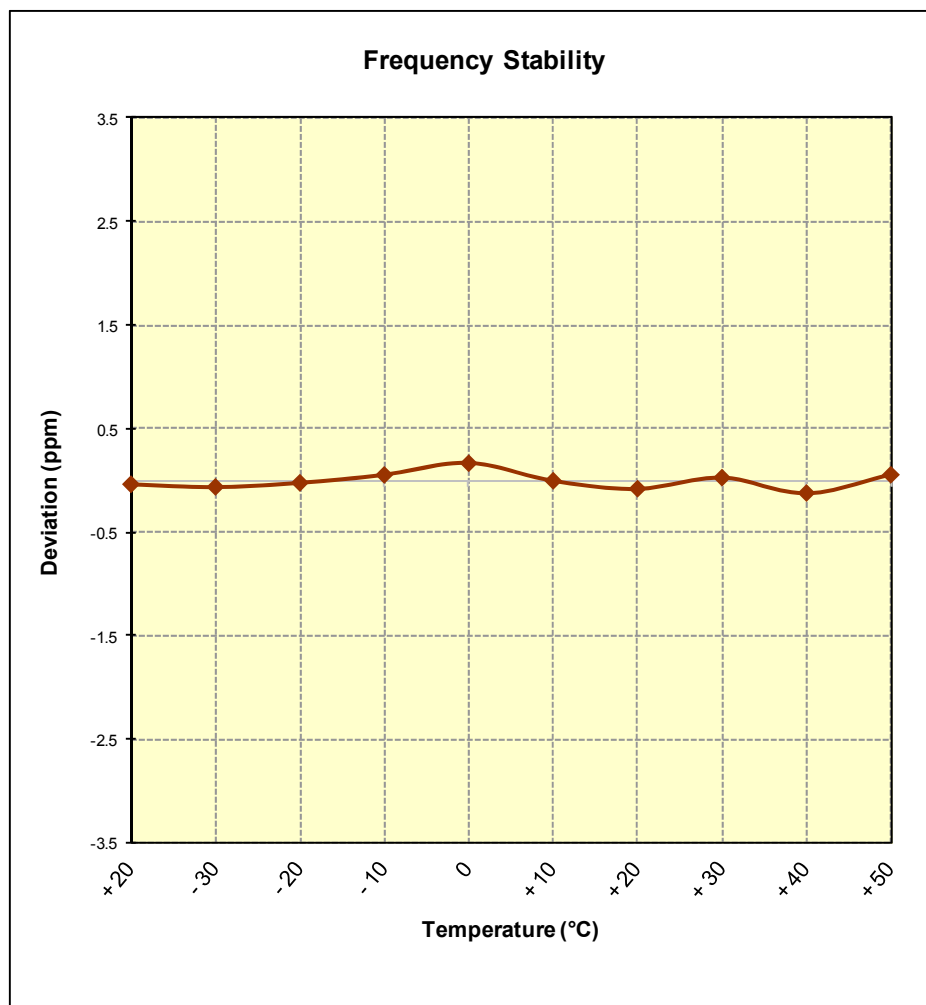


Figure 7-15. Frequency Stability Graph (Band 41)

FCC ID: A3LSMG935KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed 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: A3LSMG935KOR** complies with all the requirements of Parts 22, 24, & 27 of the FCC rules for LTE operation only.

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