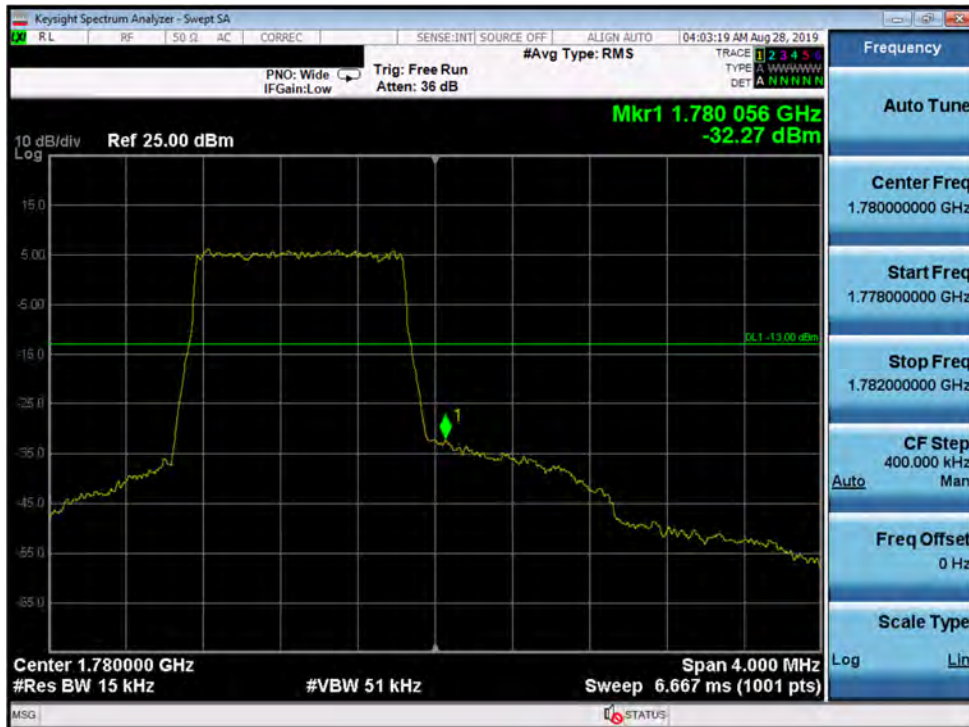


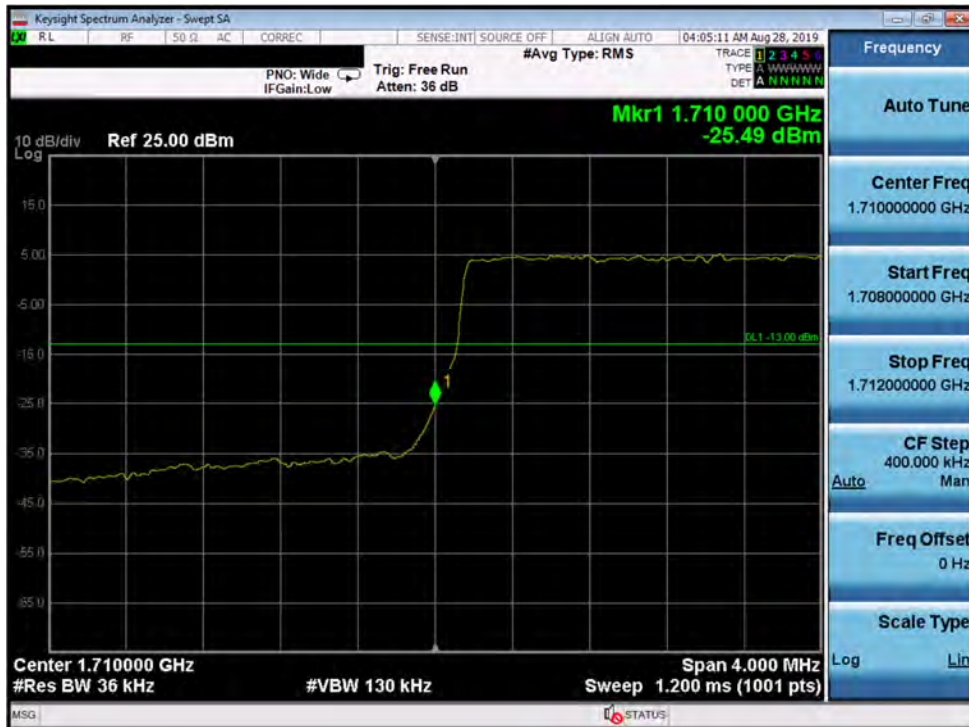


Plot 7-126. Upper Band Edge Plot (Band 66 - 1.4MHz QPSK - Full RB Configuration)

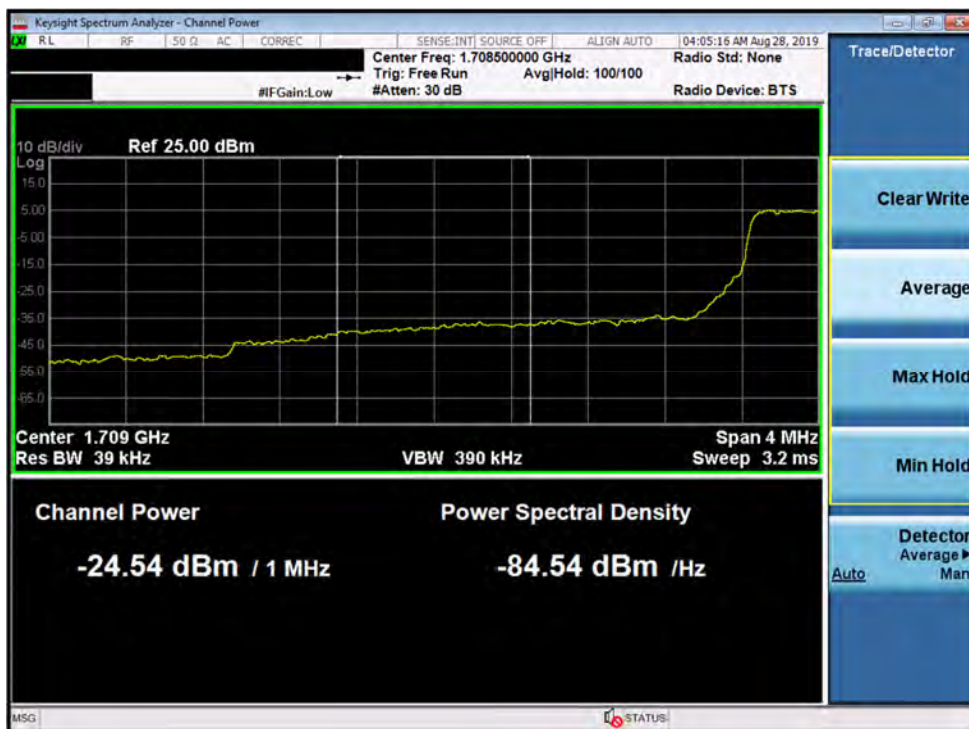


Plot 7-127. Upper Extended Band Edge Plot (Band 66 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 86 of 166



Plot 7-128. Lower Band Edge Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)

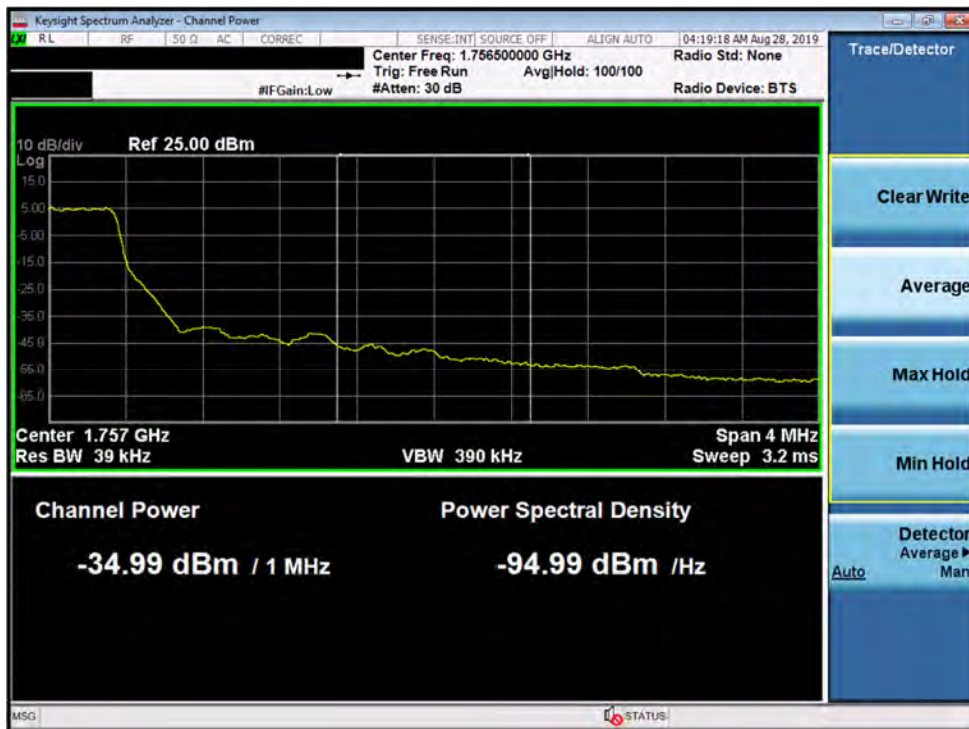


Plot 7-129. Lower Extended Band Edge Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 87 of 166



Plot 7-130. Upper Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-131. Upper Extended Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 88 of 166

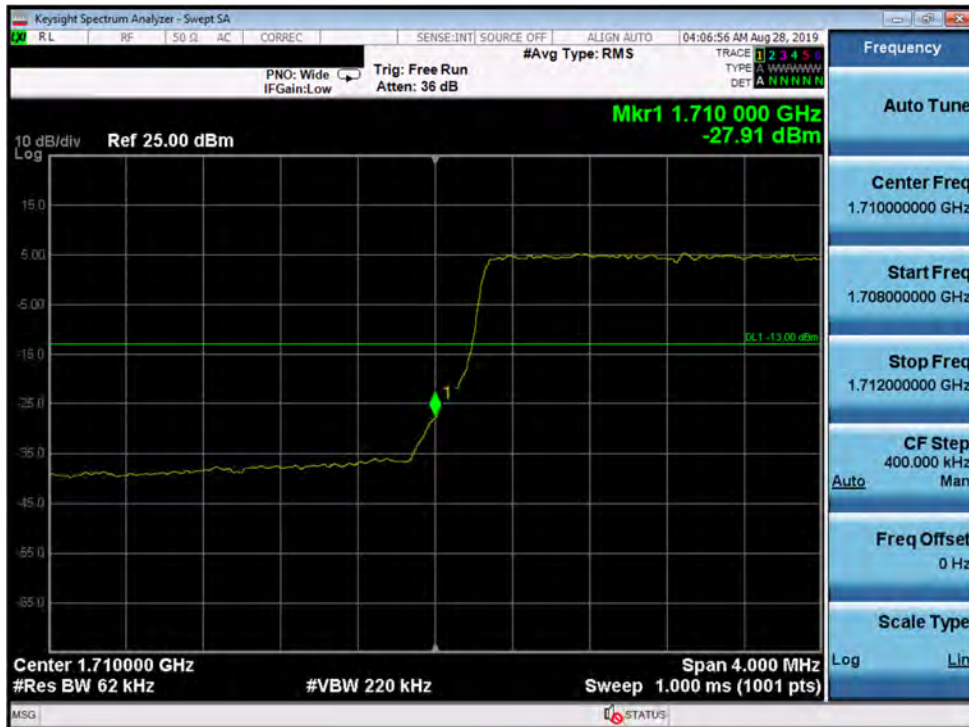


Plot 7-132. Upper Band Edge Plot (Band 66 - 3.0MHz QPSK - Full RB Configuration)

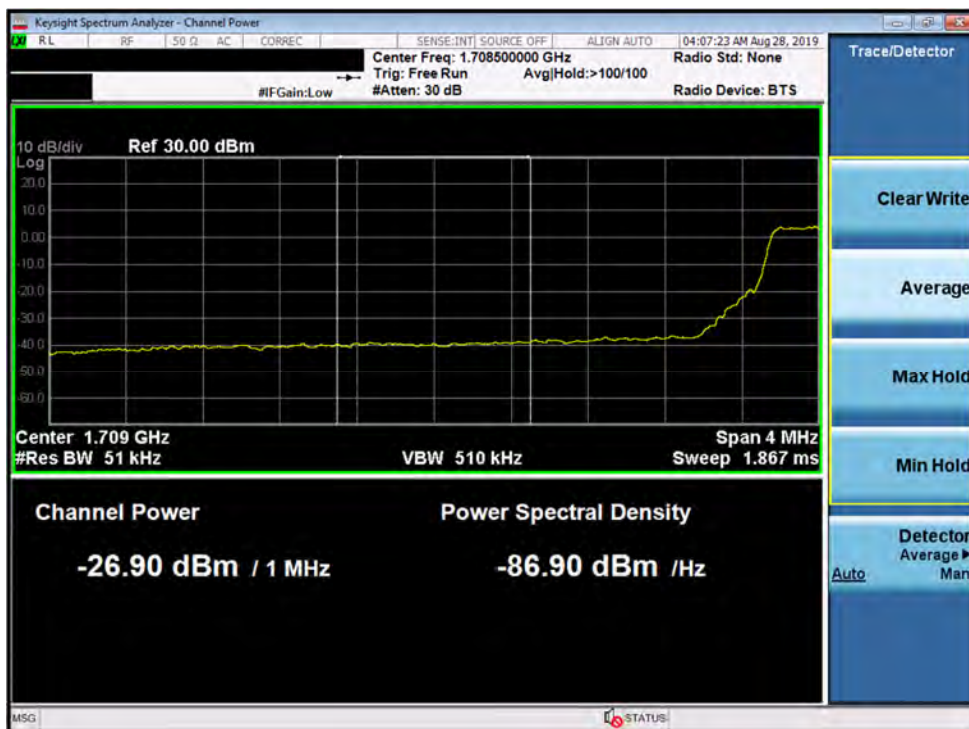


Plot 7-133. Upper Extended Band Edge Plot (Band 66 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 89 of 166



Plot 7-134. Lower Band Edge Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-135. Lower Extended Band Edge Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 90 of 166

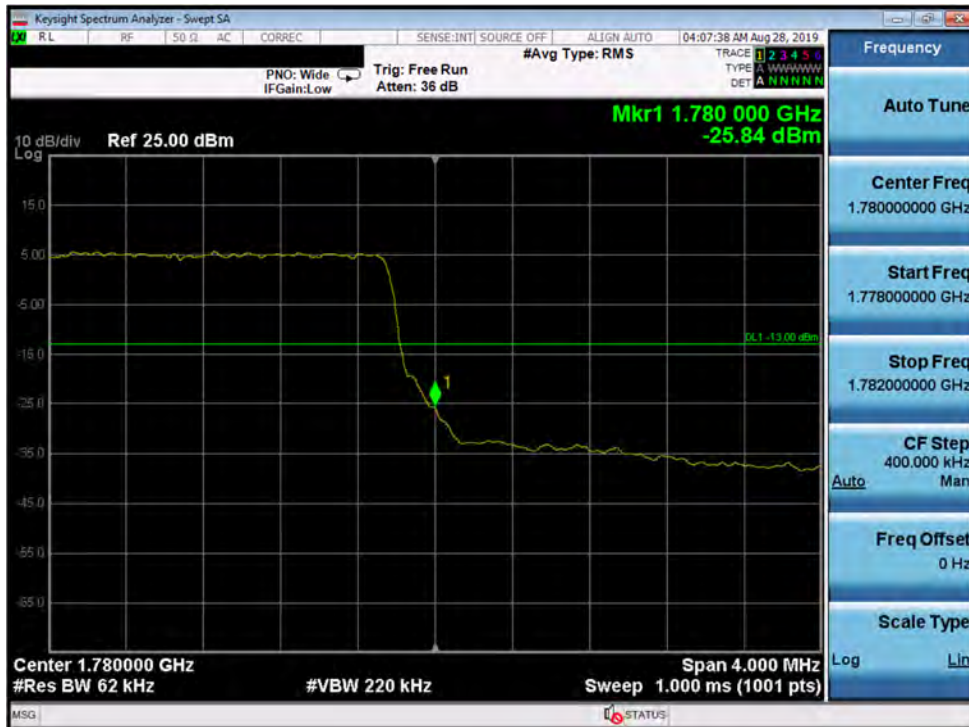


Plot 7-136. Upper Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

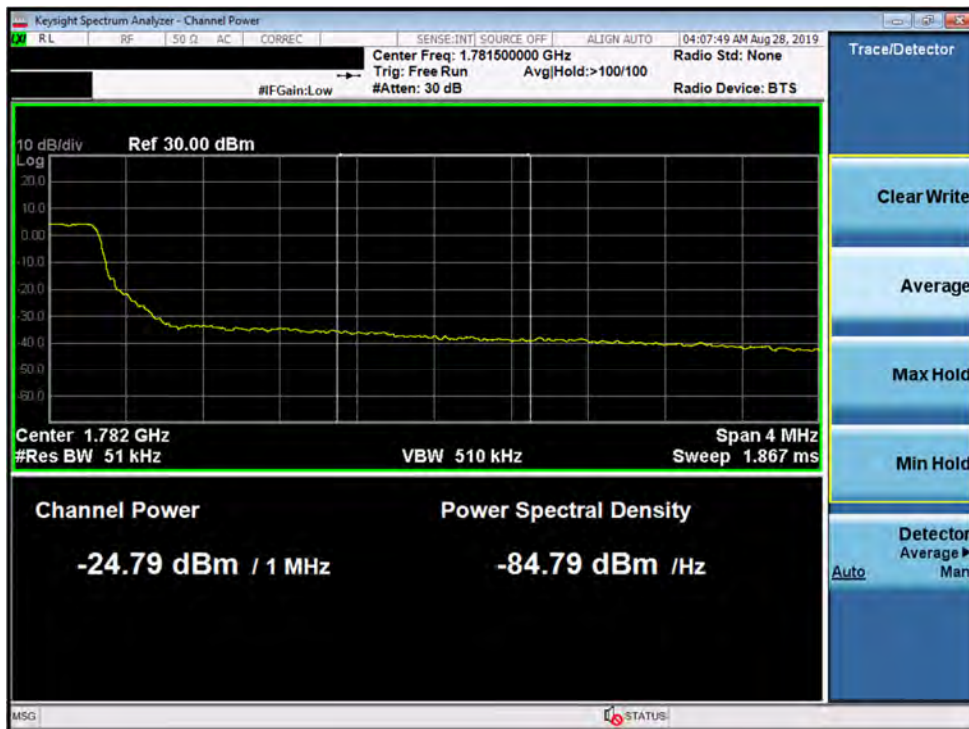


Plot 7-137. Upper Extended Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 91 of 166

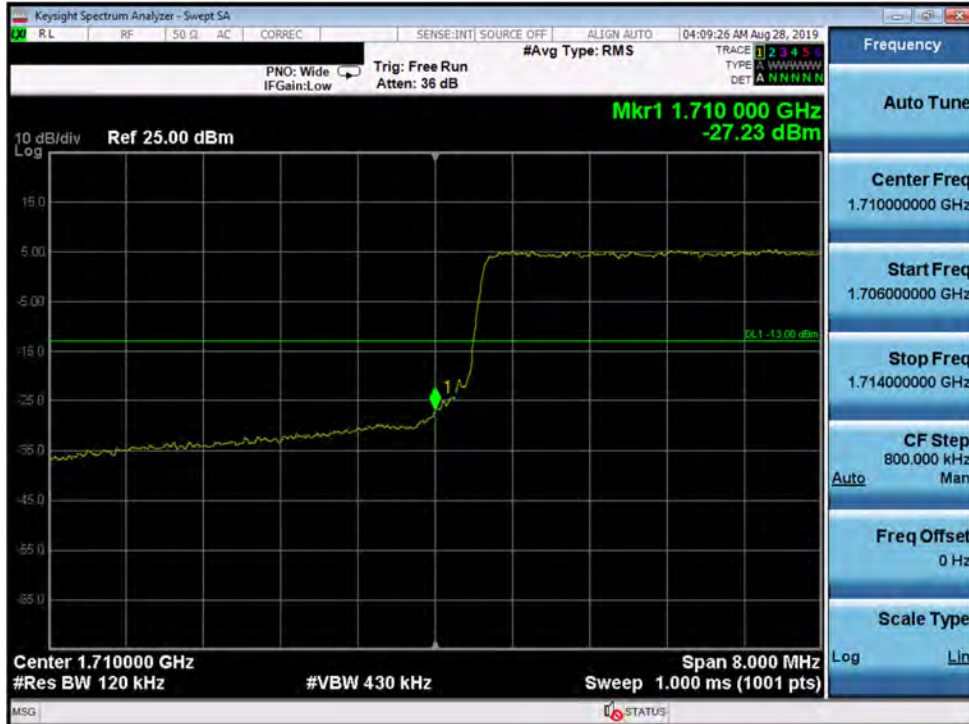


Plot 7-138. Upper Band Edge Plot (Band 66 - 5.0MHz QPSK - Full RB Configuration)

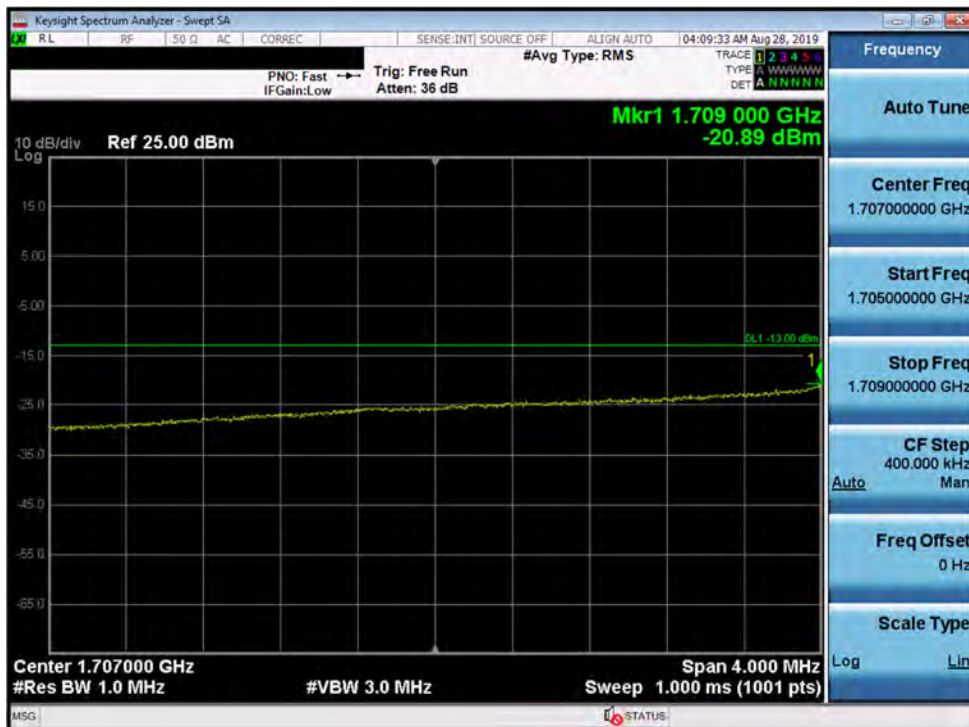


Plot 7-139. Upper Extended Band Edge Plot (Band 66 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 92 of 166



Plot 7-140. Lower Band Edge Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-141. Lower Extended Band Edge Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 93 of 166

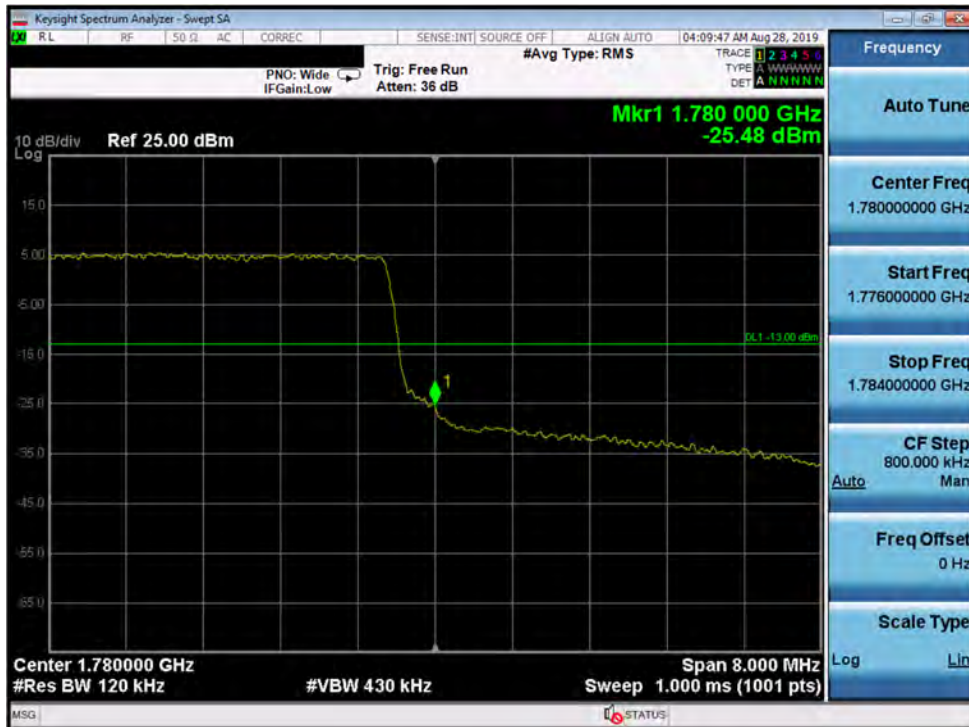


Plot 7-142. Upper Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

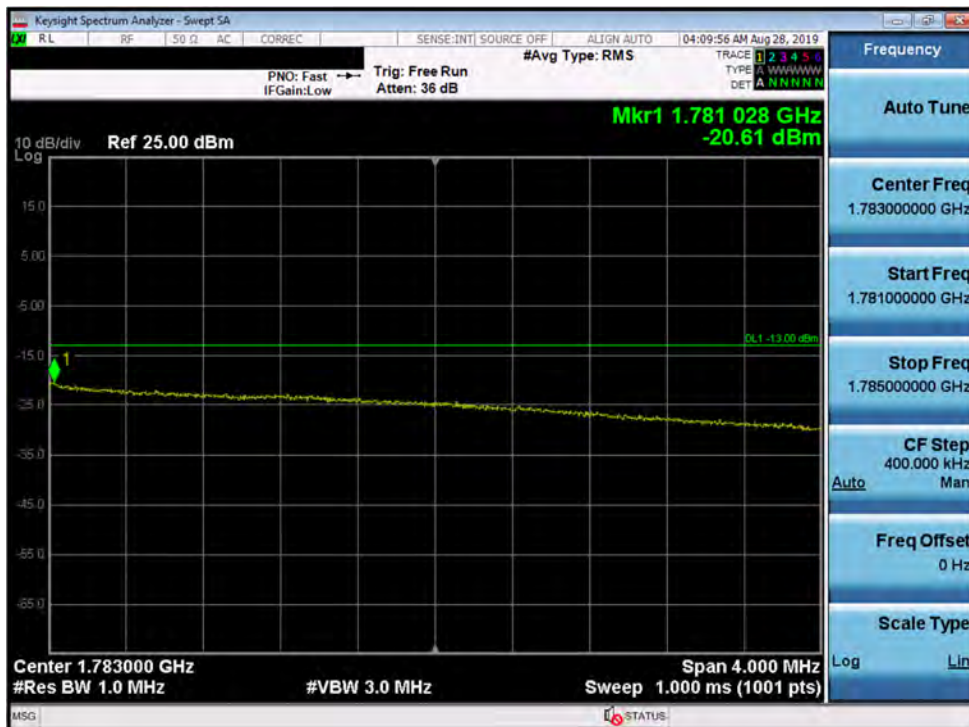


Plot 7-143. Upper Extended Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 94 of 166

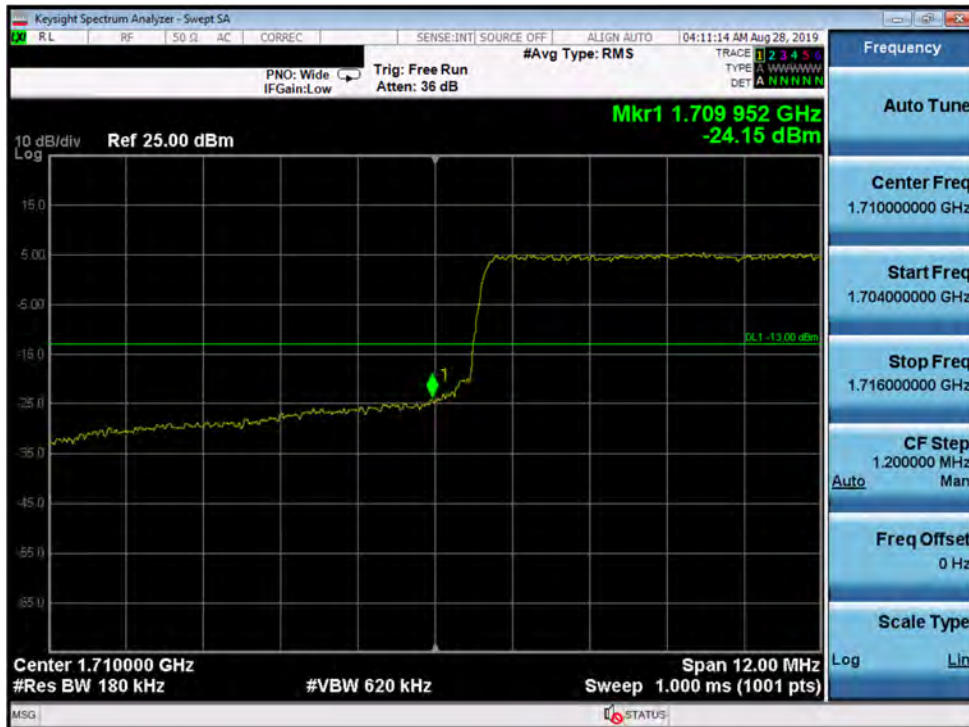


Plot 7-144. Upper Band Edge Plot (Band 66 - 10.0MHz QPSK - Full RB Configuration)

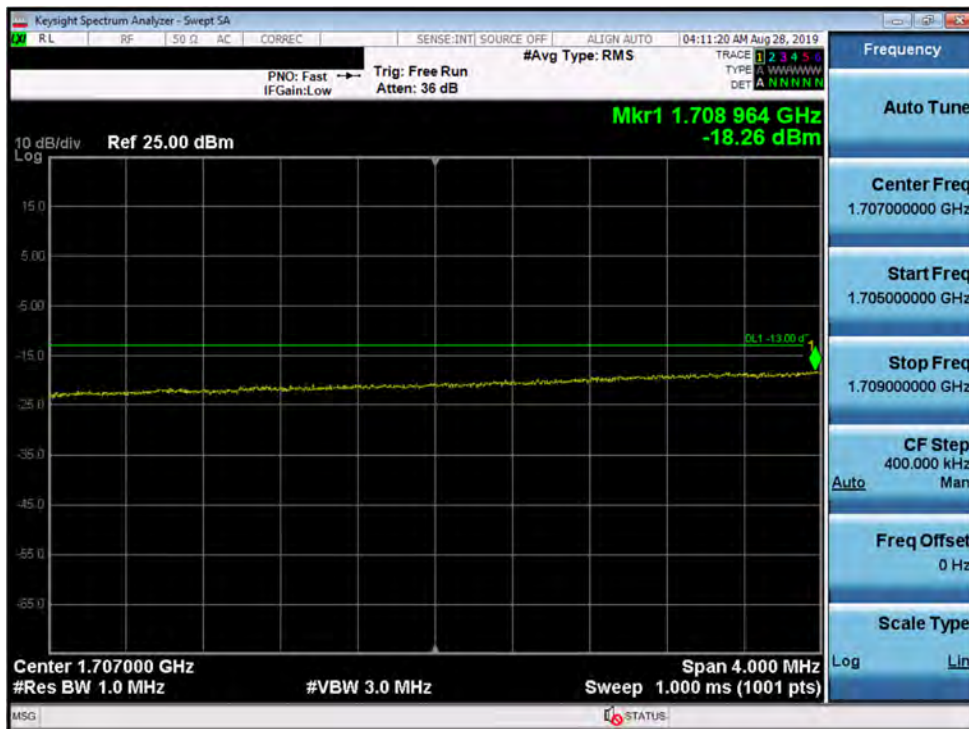


Plot 7-145. Upper Extended Band Edge Plot (Band 66 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 95 of 166

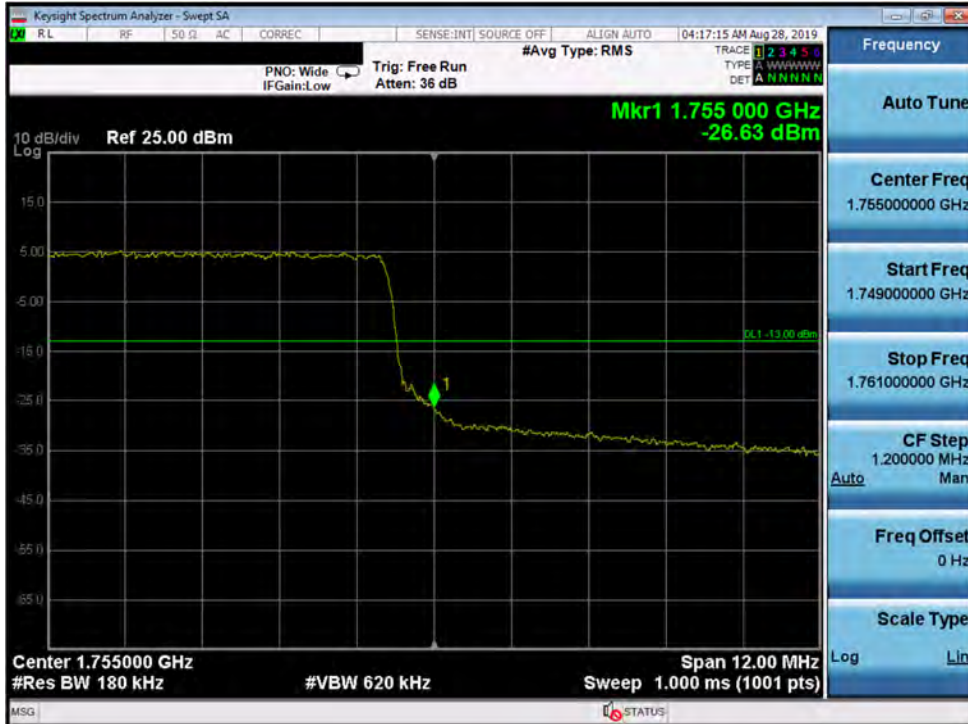


Plot 7-146. Lower Band Edge Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)

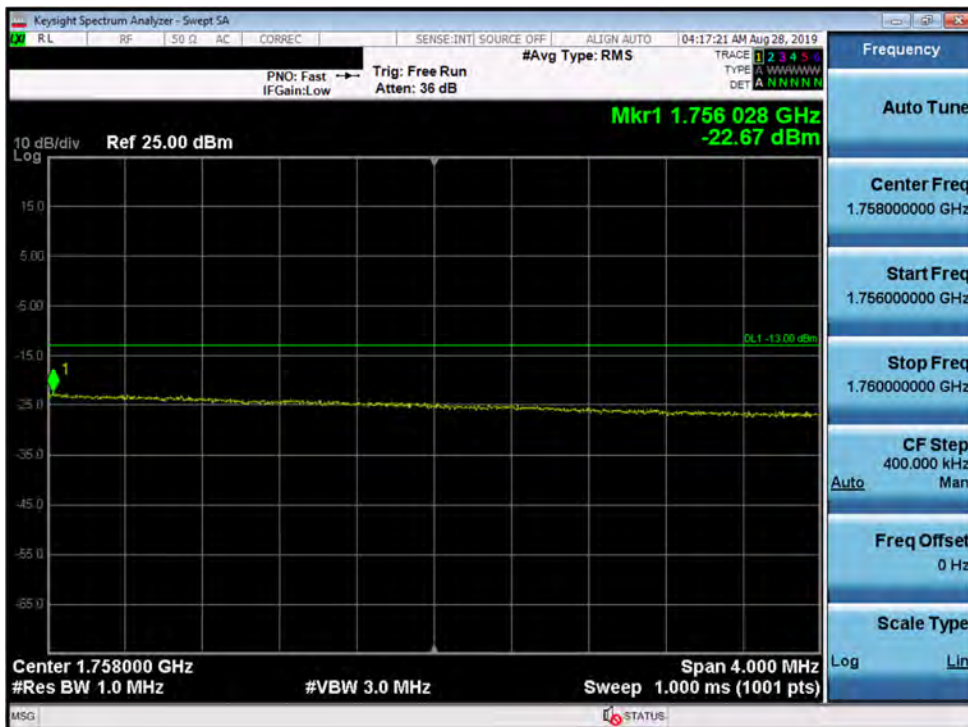


Plot 7-147. Lower Extended Band Edge Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 96 of 166



Plot 7-148. Upper Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

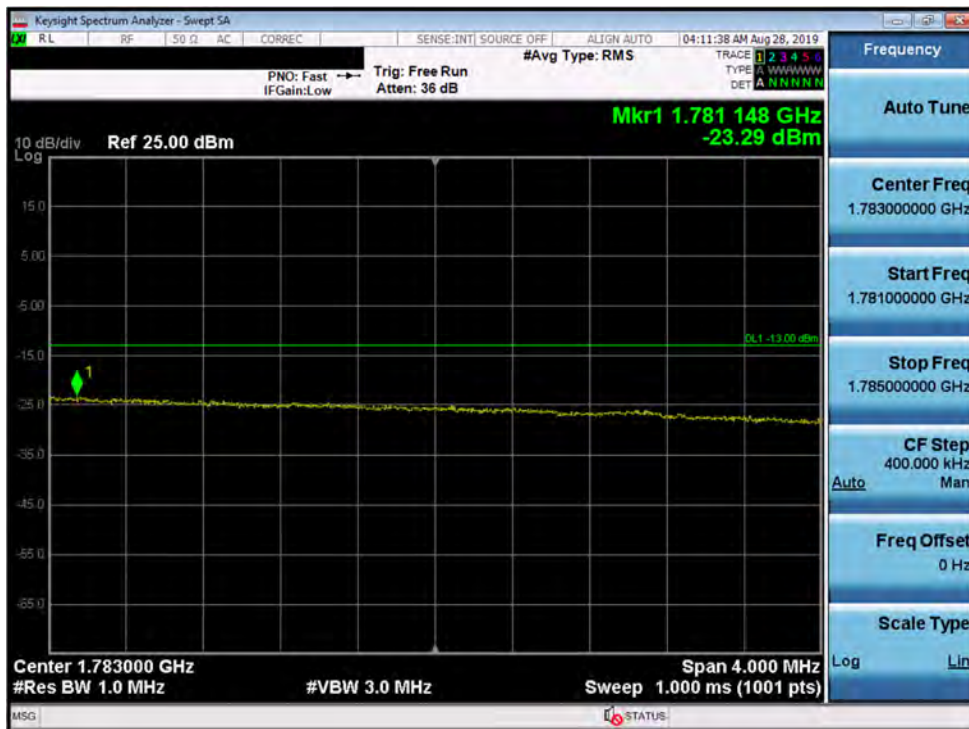


Plot 7-149. Upper Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 97 of 166

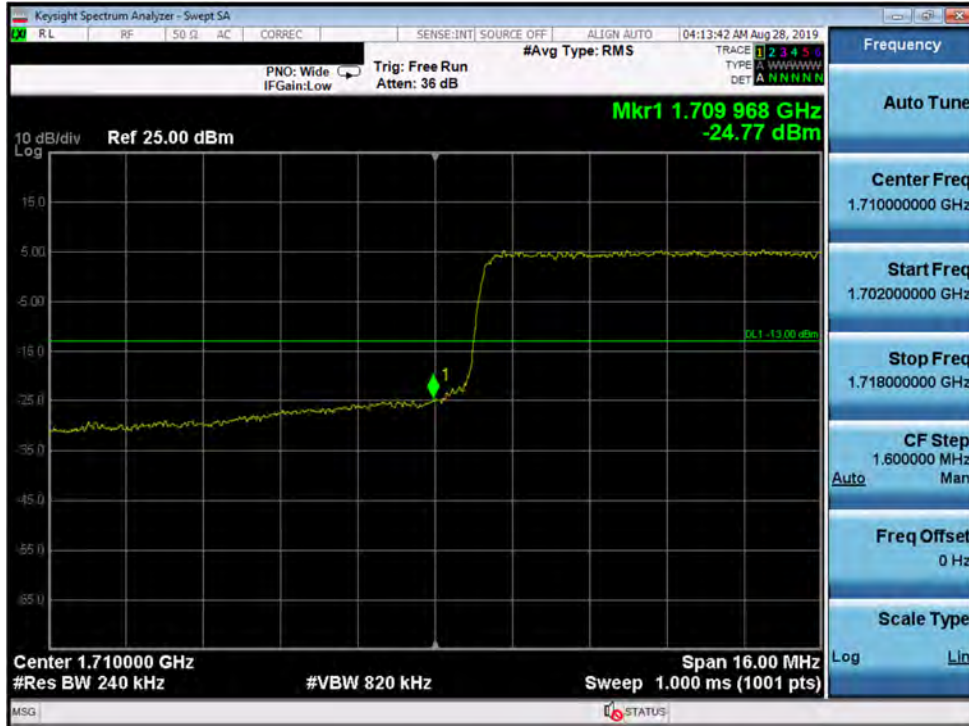


Plot 7-150. Upper Band Edge Plot (Band 66 - 15.0MHz QPSK - Full RB Configuration)

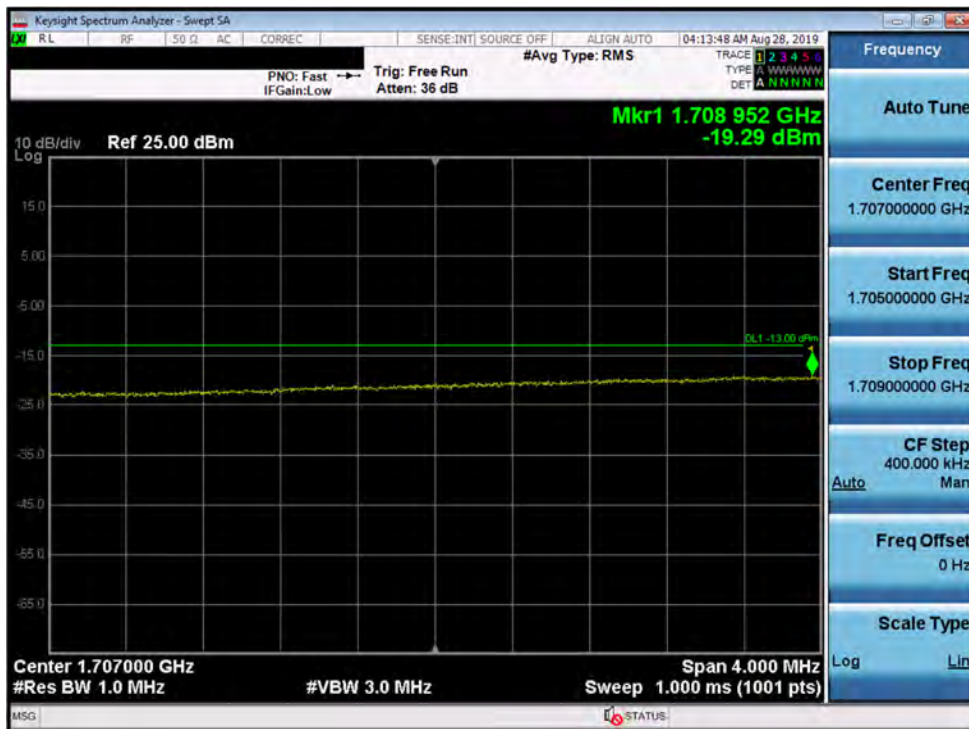


Plot 7-151. Upper Extended Band Edge Plot (Band 66 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 98 of 166



Plot 7-152. Lower Band Edge Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)

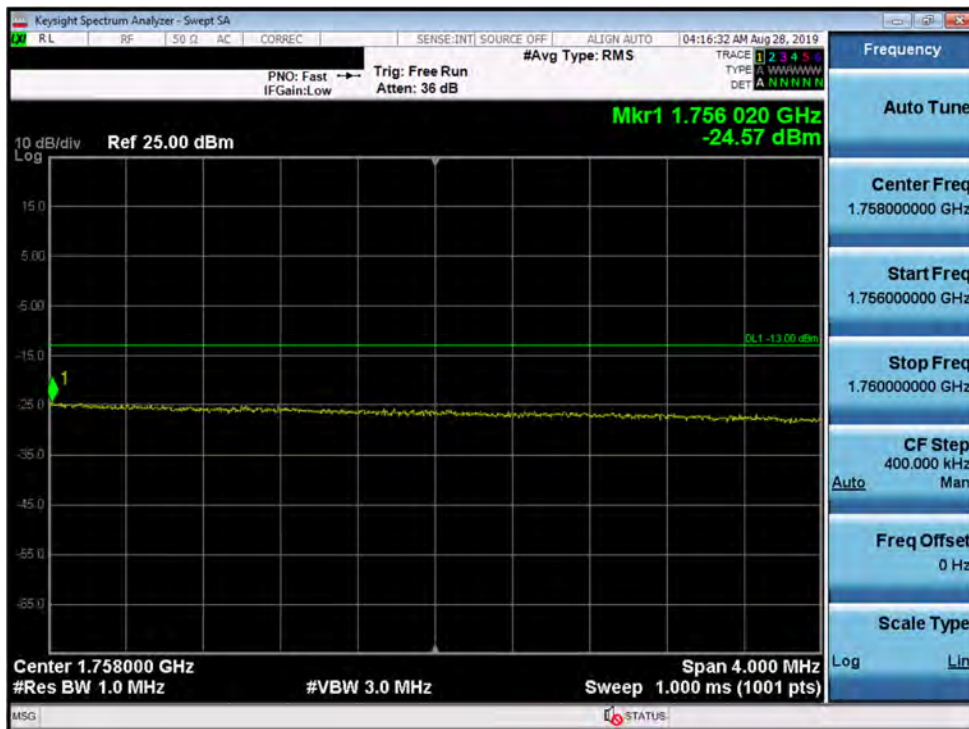


Plot 7-153. Lower Extended Band Edge Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 99 of 166

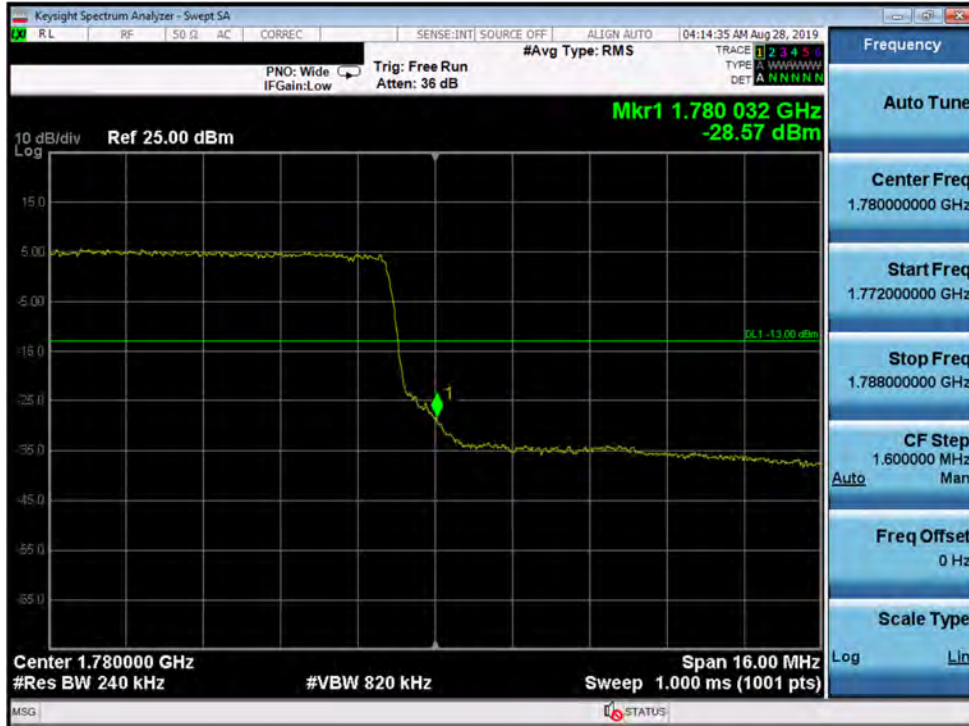


Plot 7-154. Upper Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

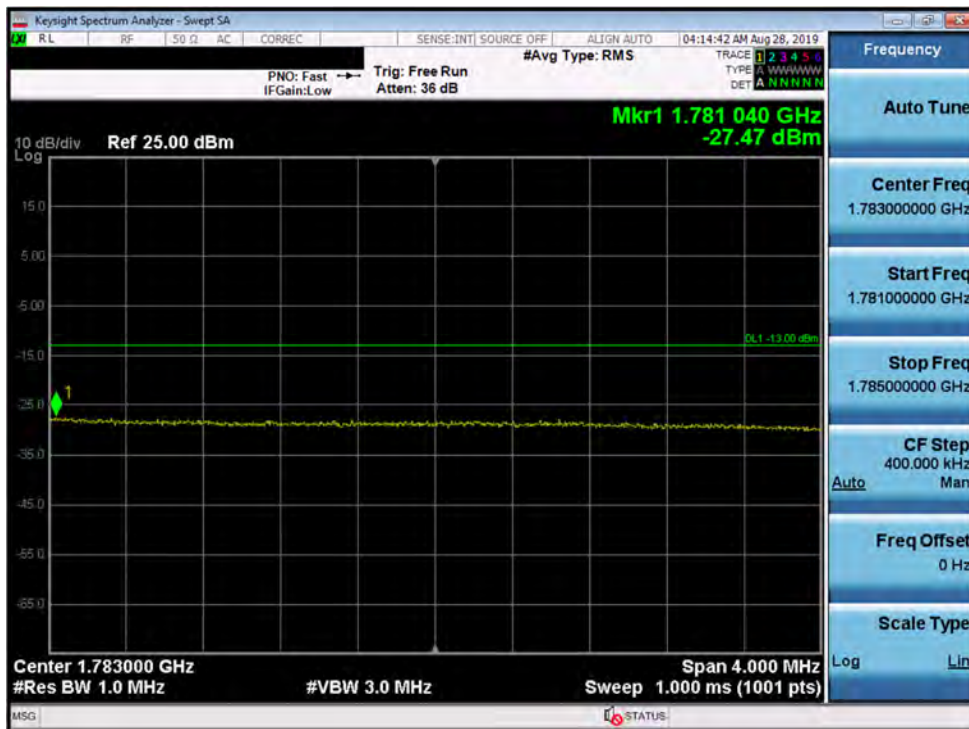


Plot 7-155. Upper Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 100 of 166



Plot 7-156. Upper Band Edge Plot (Band 66 - 20.0MHz QPSK - Full RB Configuration)

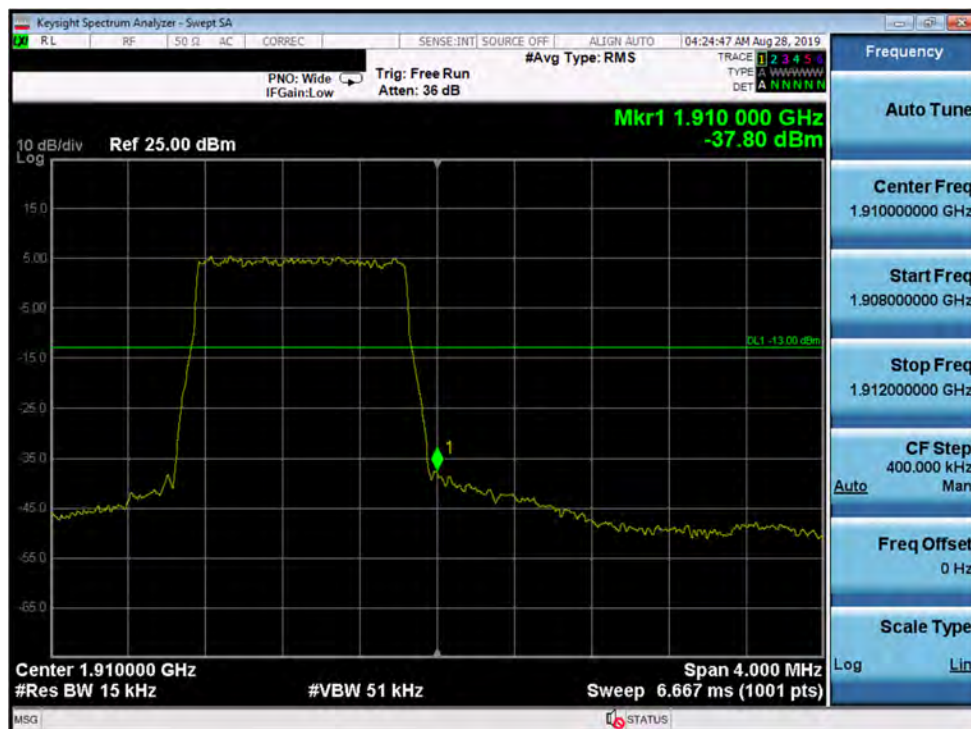


Plot 7-157. Upper Extended Band Edge Plot (Band 66 - 20.0MHz QPSK - Full RB Configuration)

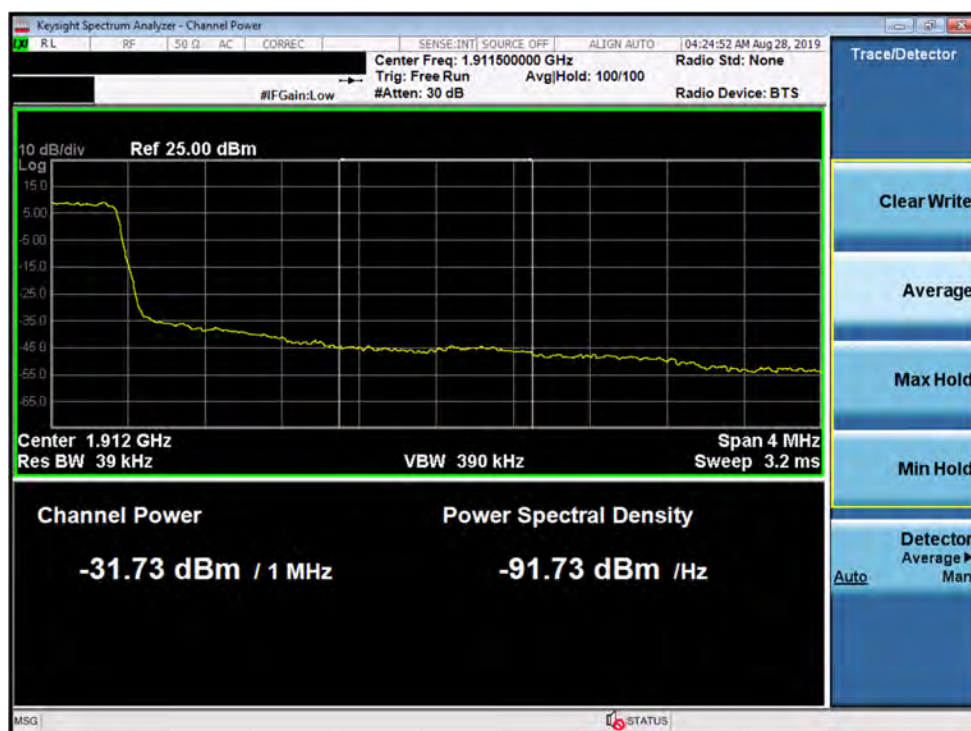
FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 101 of 166



FCC ID: A3LSMA705U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset	Page 102 of 166

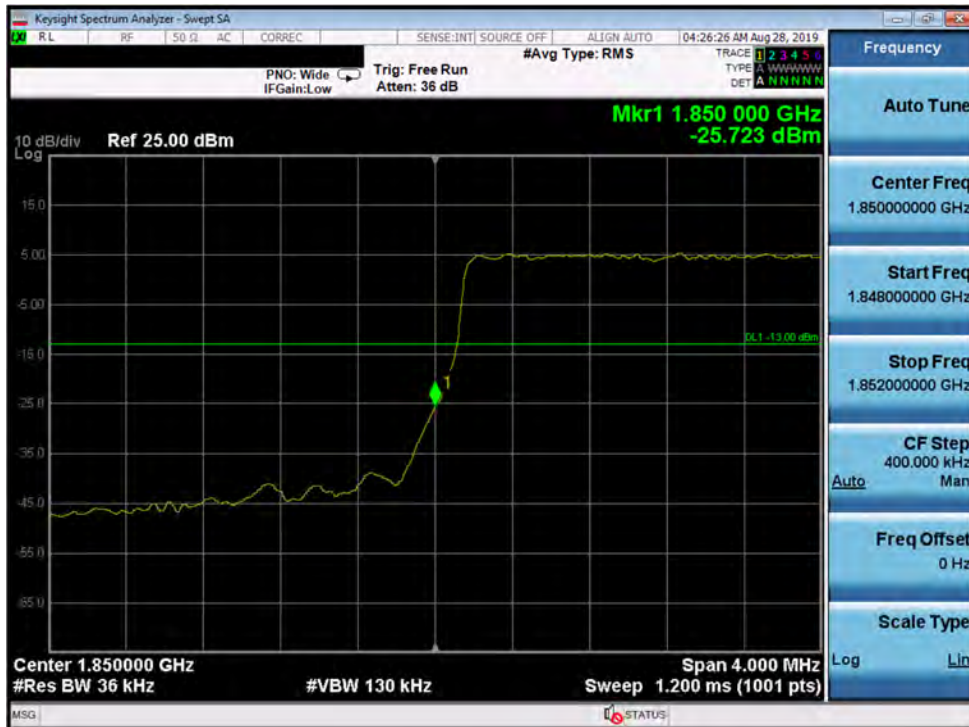


Plot 7-160. Upper Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)

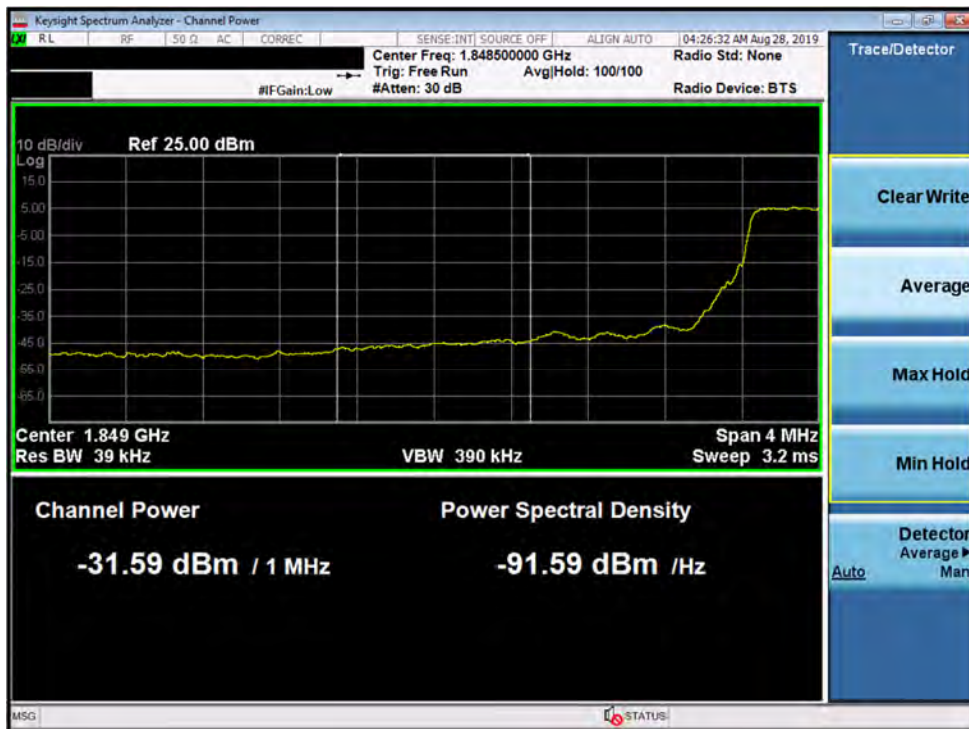


Plot 7-161. Upper Extended Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 103 of 166

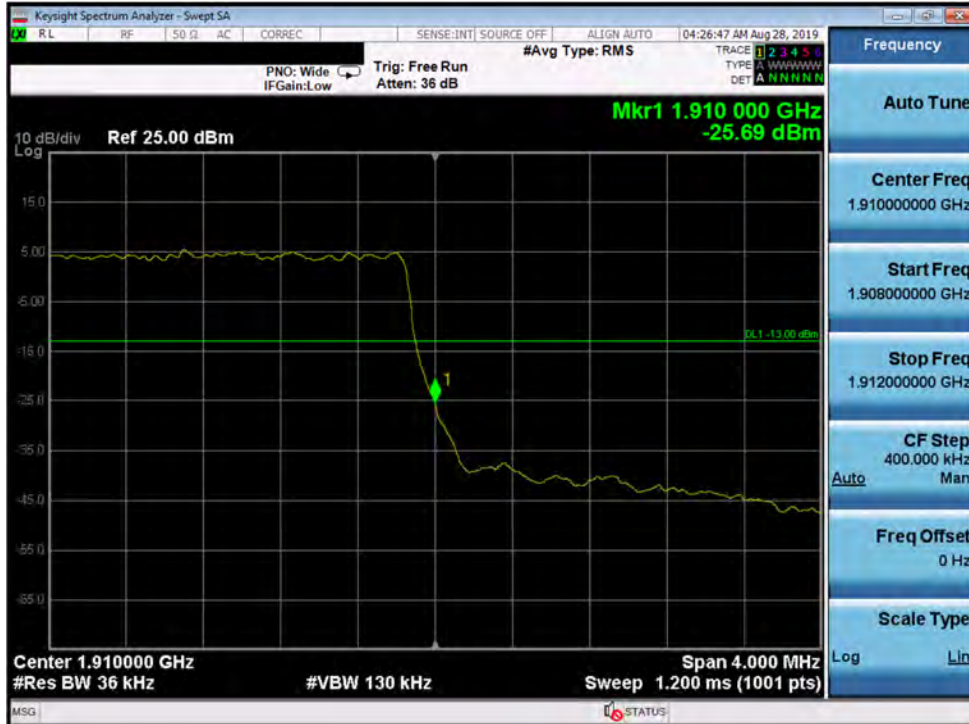


Plot 7-162. Lower Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

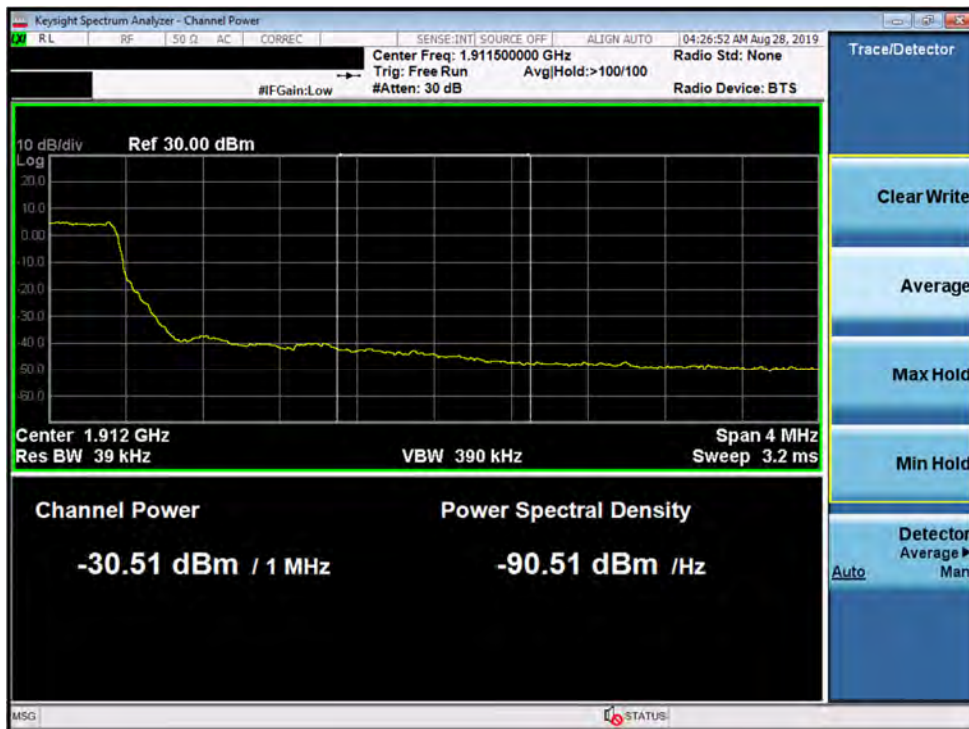


Plot 7-163. Lower Extended Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 104 of 166

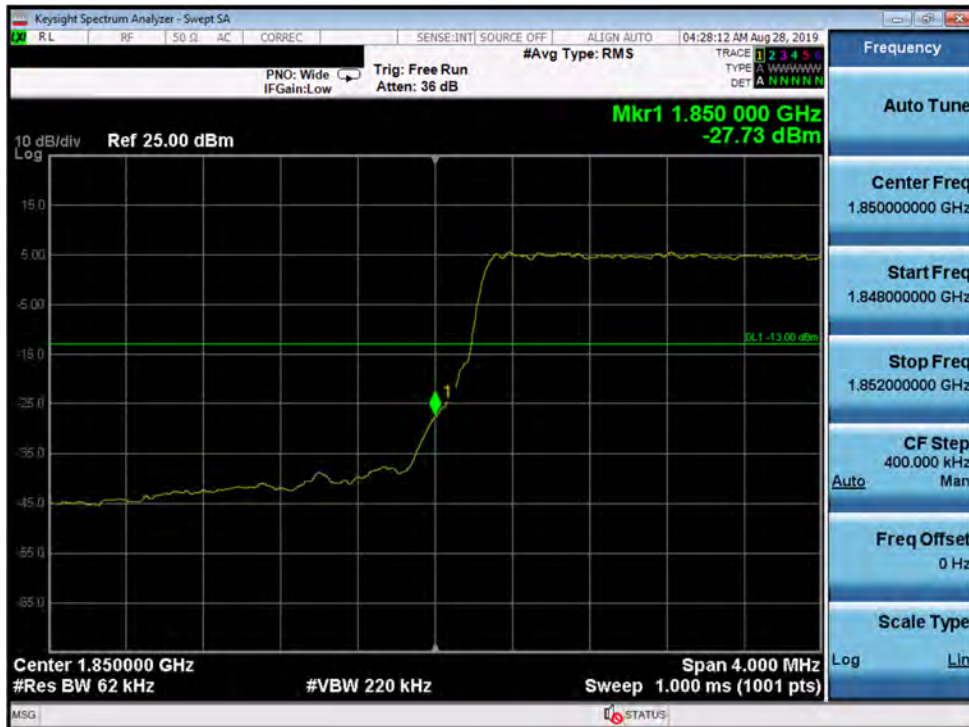


Plot 7-164. Upper Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

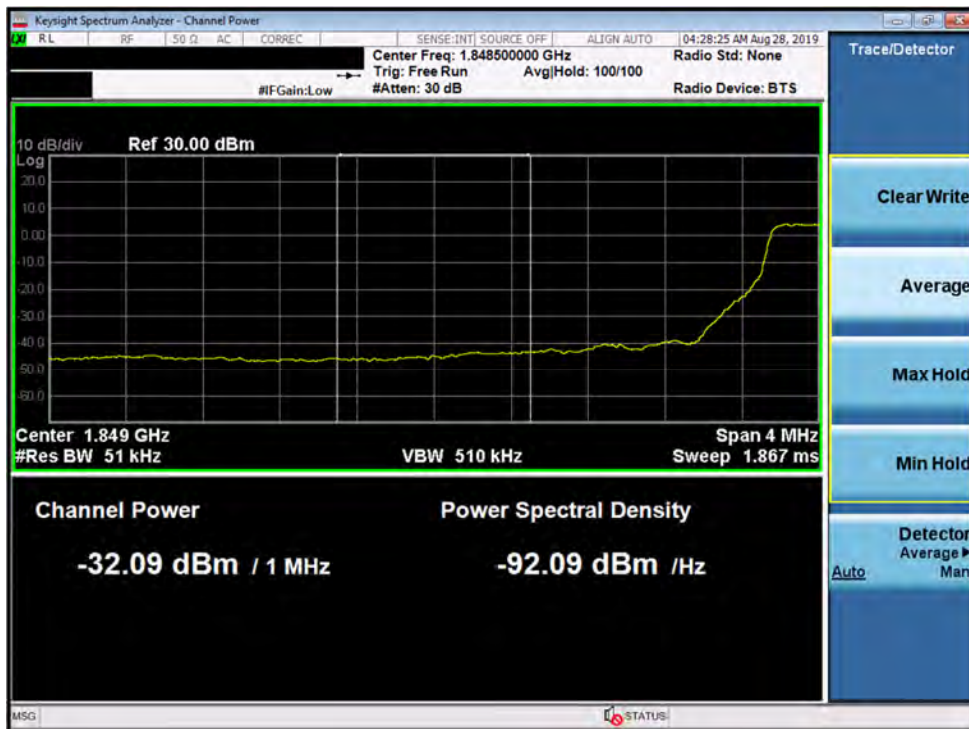


Plot 7-165. Upper Extended Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 105 of 166

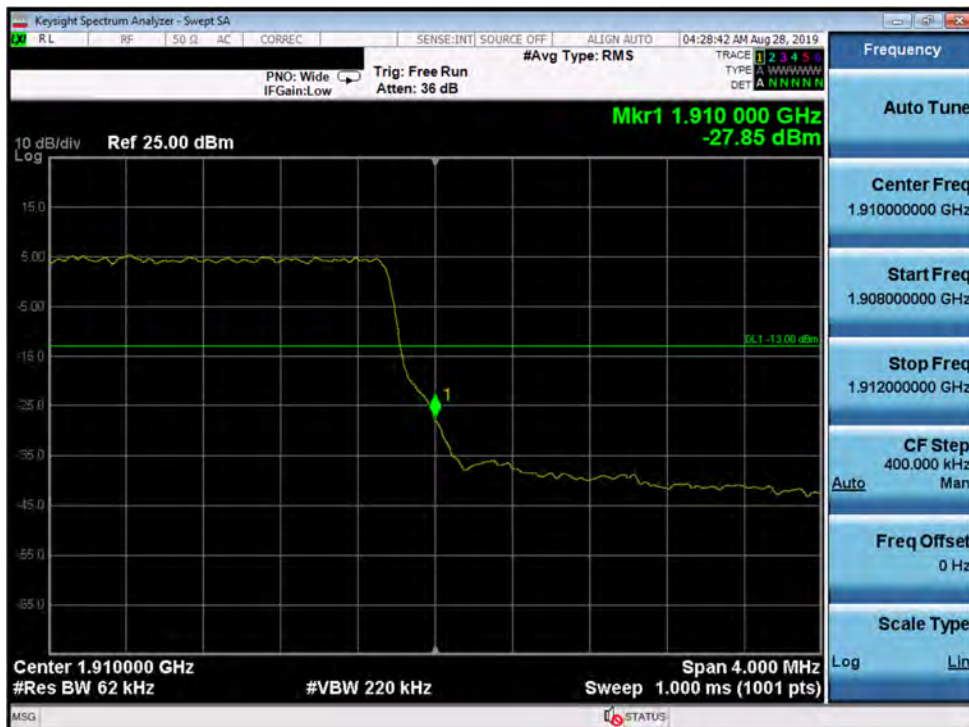


Plot 7-166. Lower Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

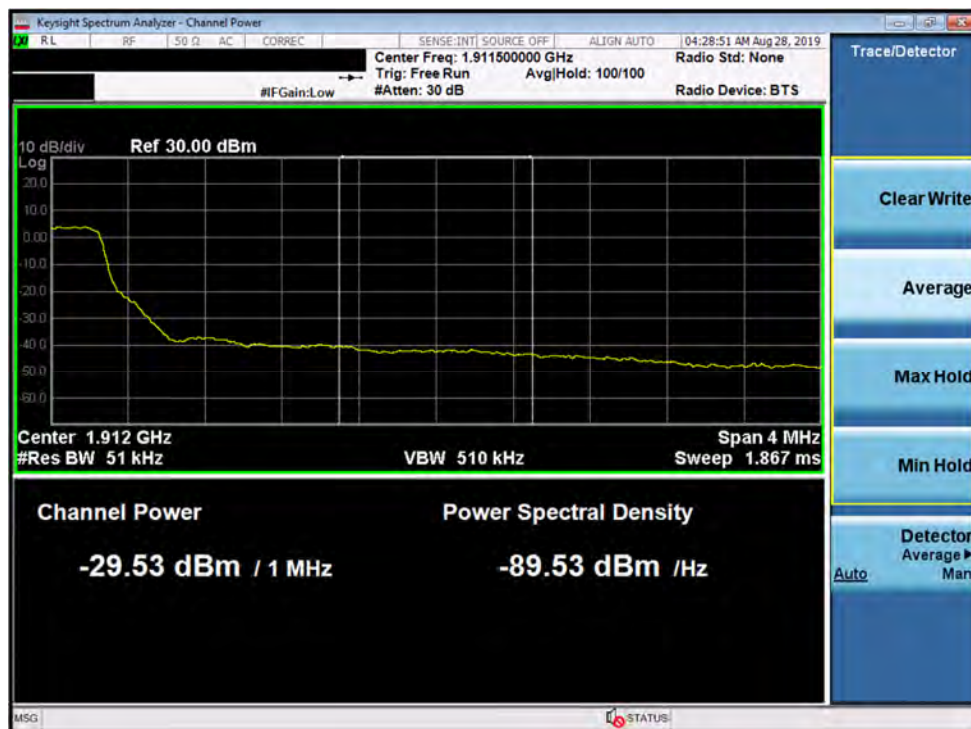


Plot 7-167. Lower Extended Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 106 of 166

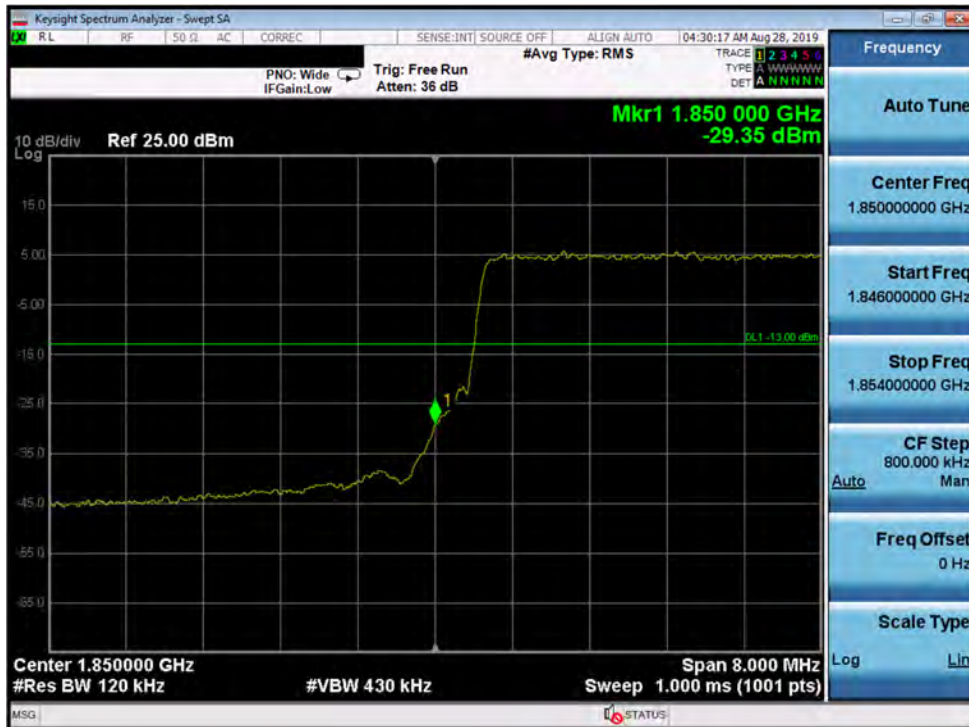


Plot 7-168. Upper Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

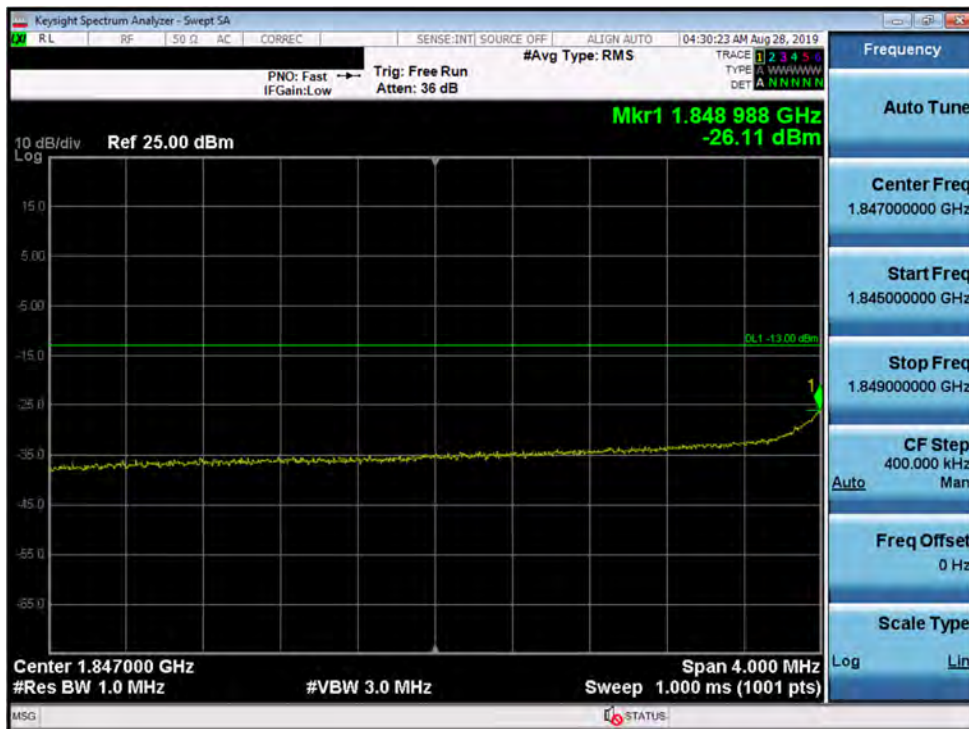


Plot 7-169. Upper Extended Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 107 of 166

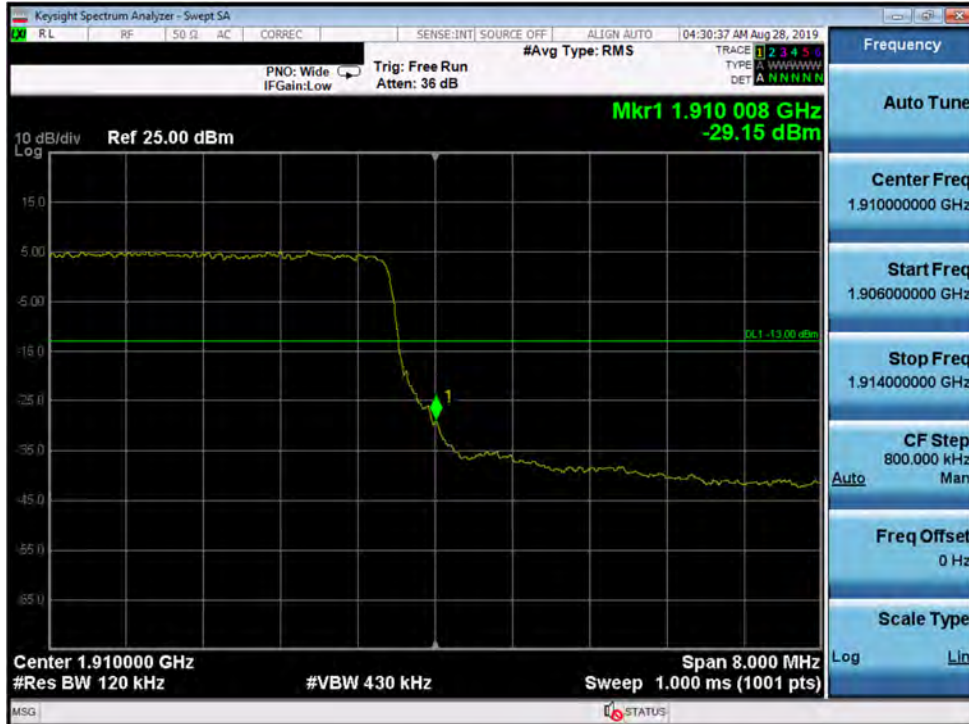


Plot 7-170. Lower Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-171. Lower Extended Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 108 of 166

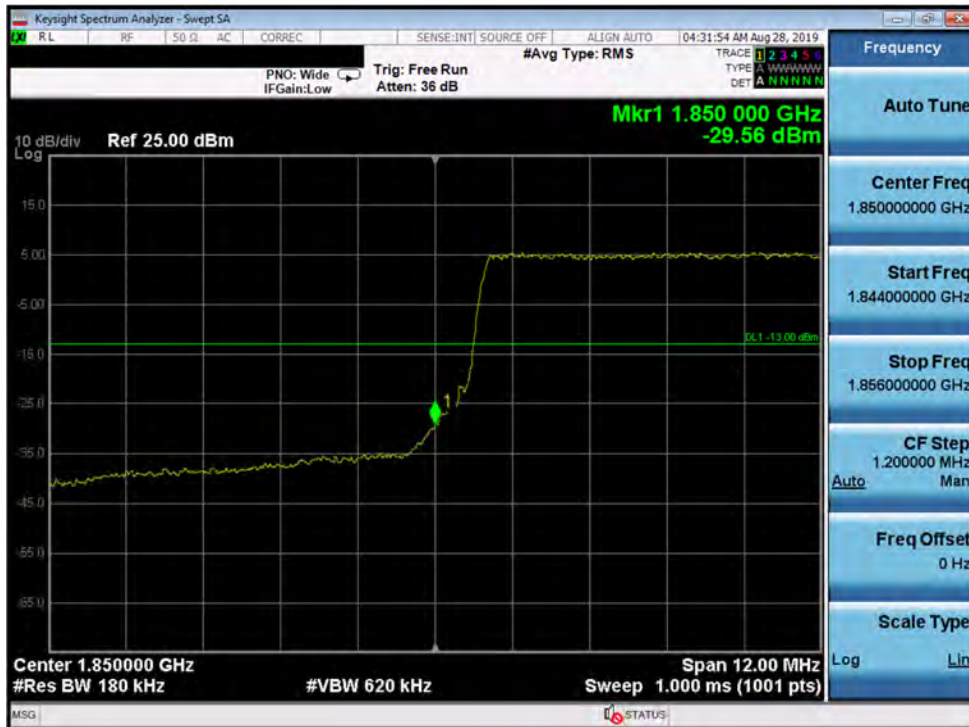


Plot 7-172. Upper Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

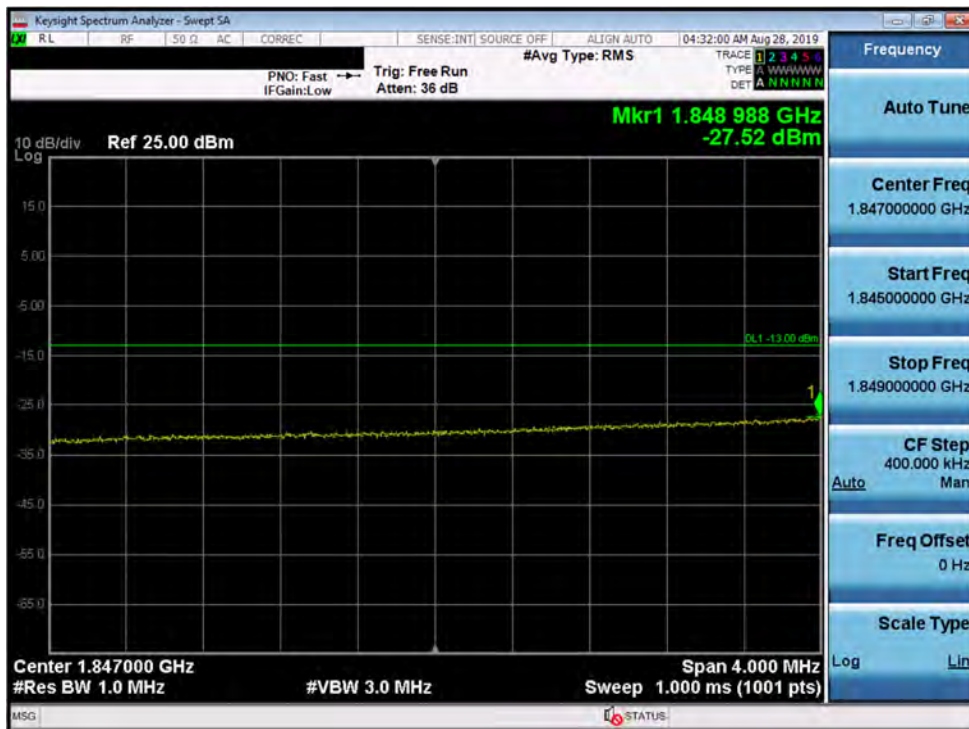


Plot 7-173. Upper Extended Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 109 of 166

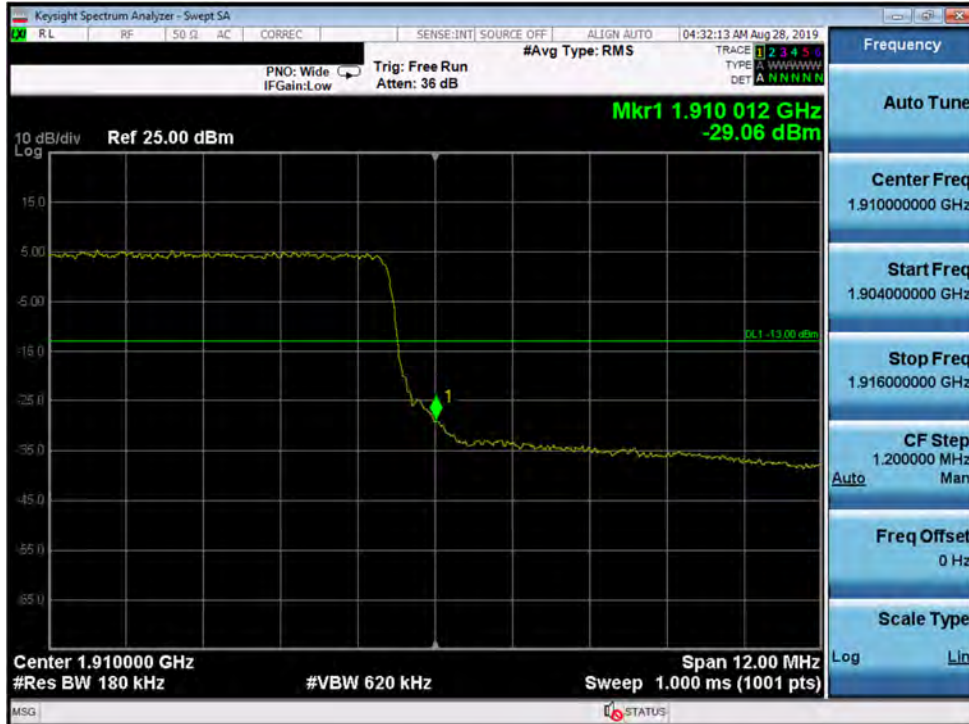


Plot 7-174. Lower Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

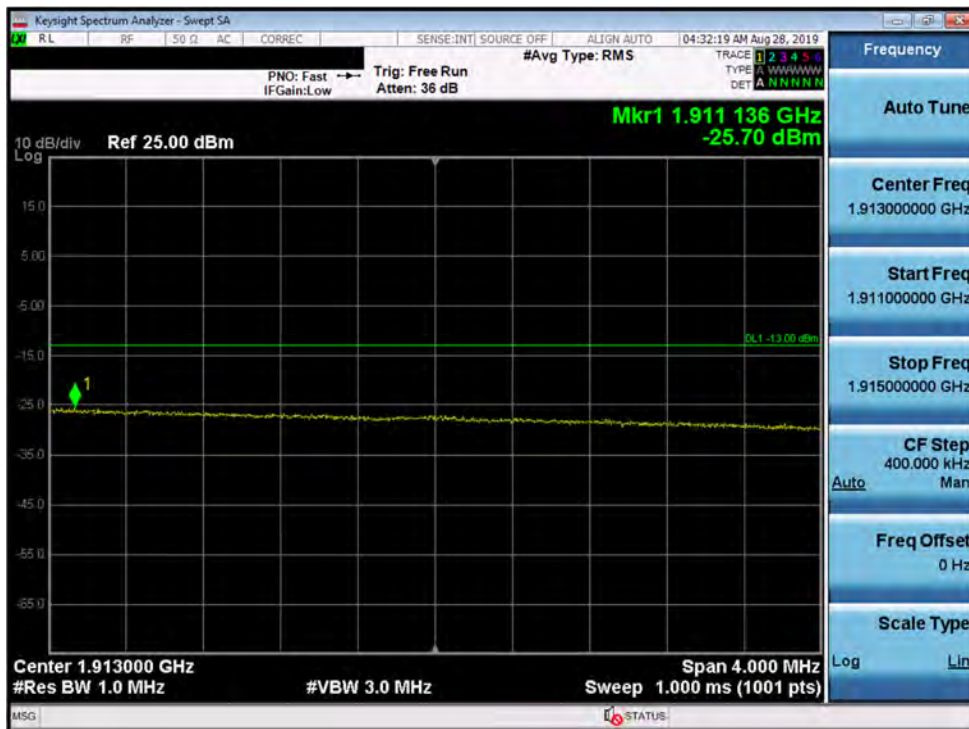


Plot 7-175. Lower Extended Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 110 of 166

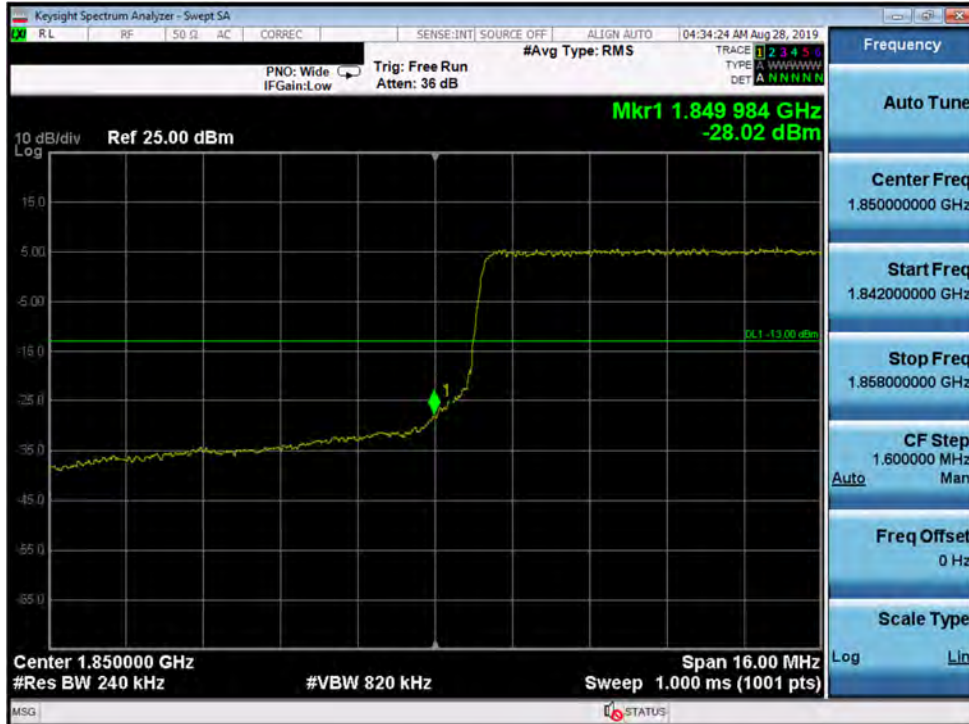


Plot 7-176. Upper Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

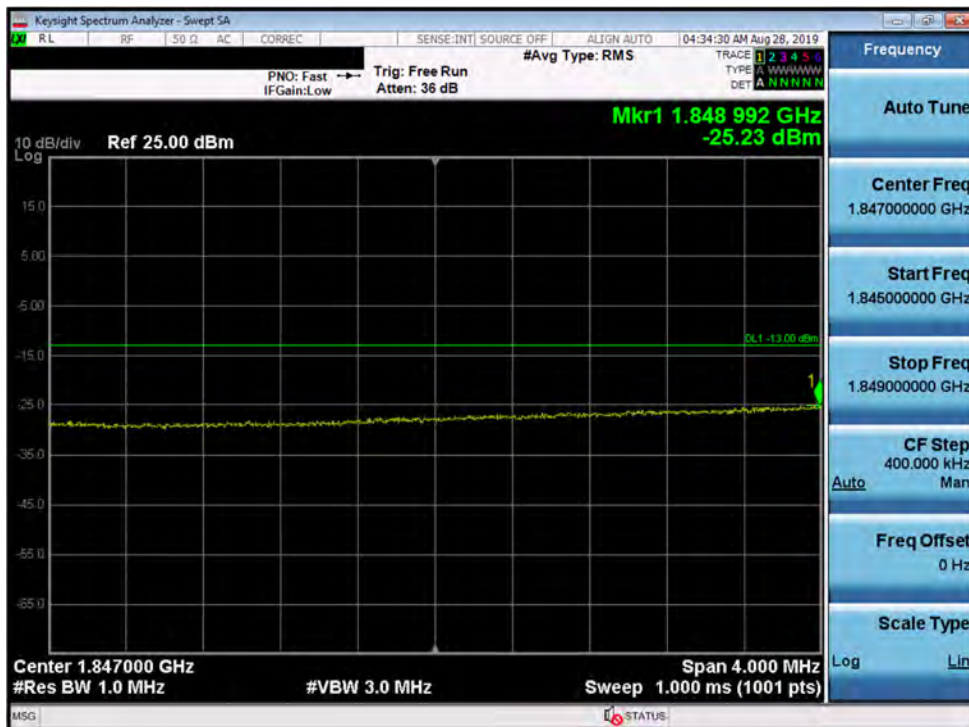


Plot 7-177. Upper Extended Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 111 of 166



Plot 7-178. Lower Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

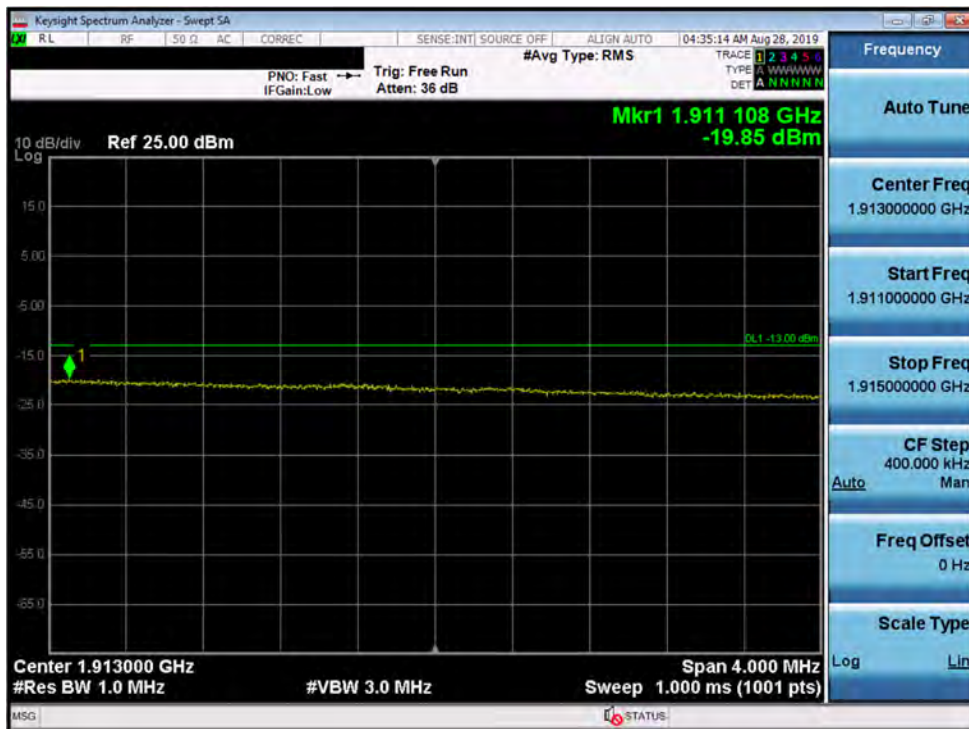


Plot 7-179. Lower Extended Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 112 of 166



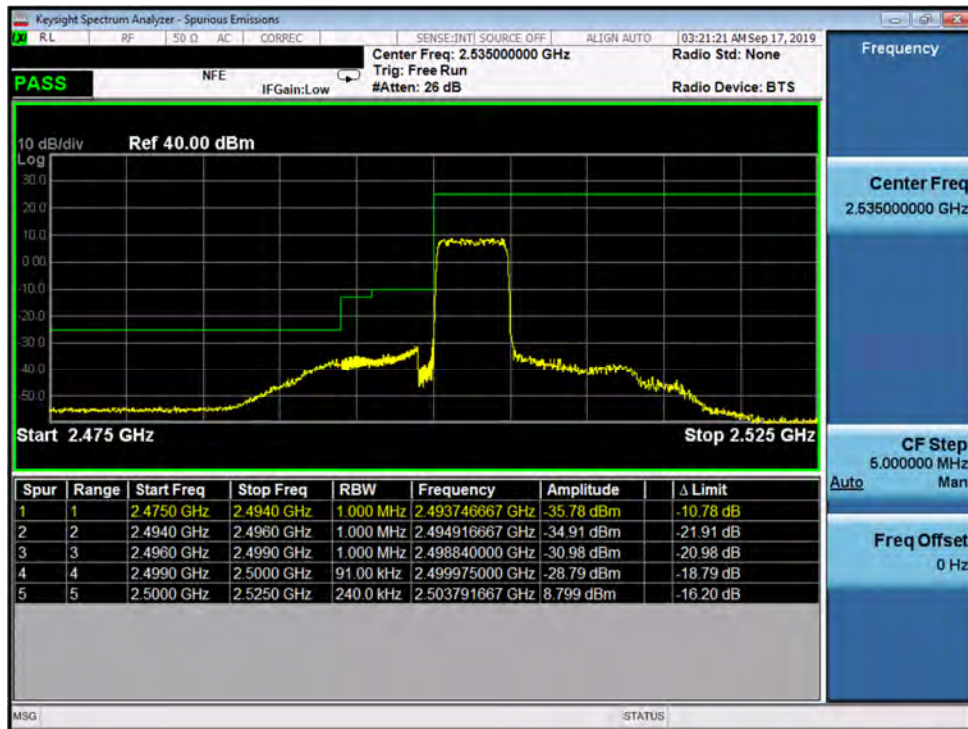
Plot 7-180. Upper Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-181. Upper Extended Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 113 of 166

Band 7

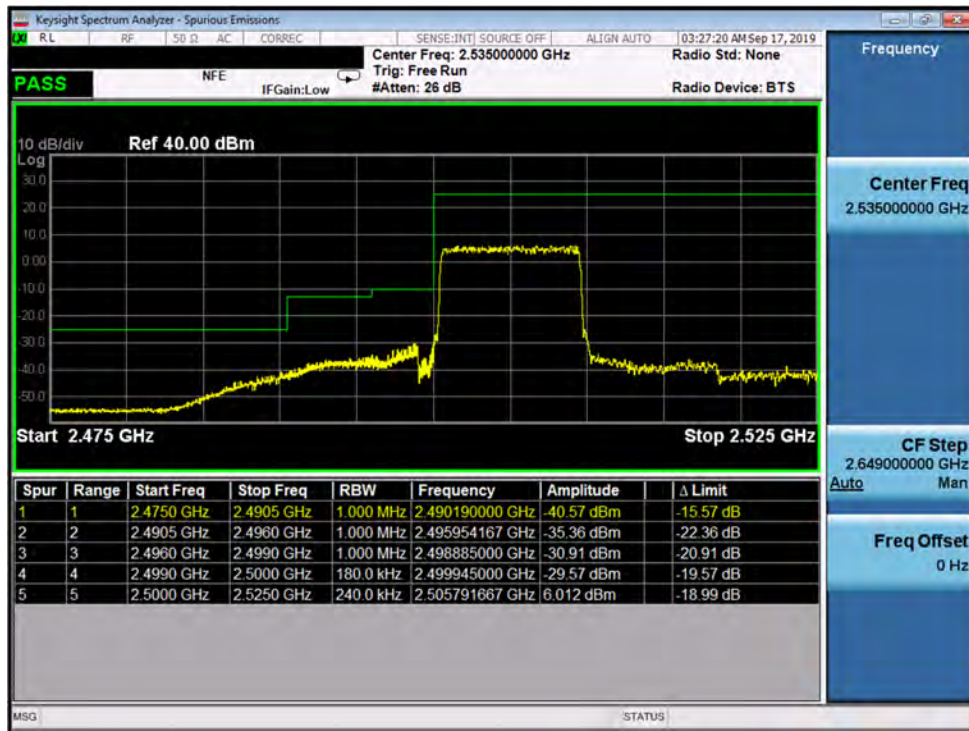


Plot 7-182. Lower ACP Plot (Band 7 - 5.0MHz QPSK - Full RB Configuration)

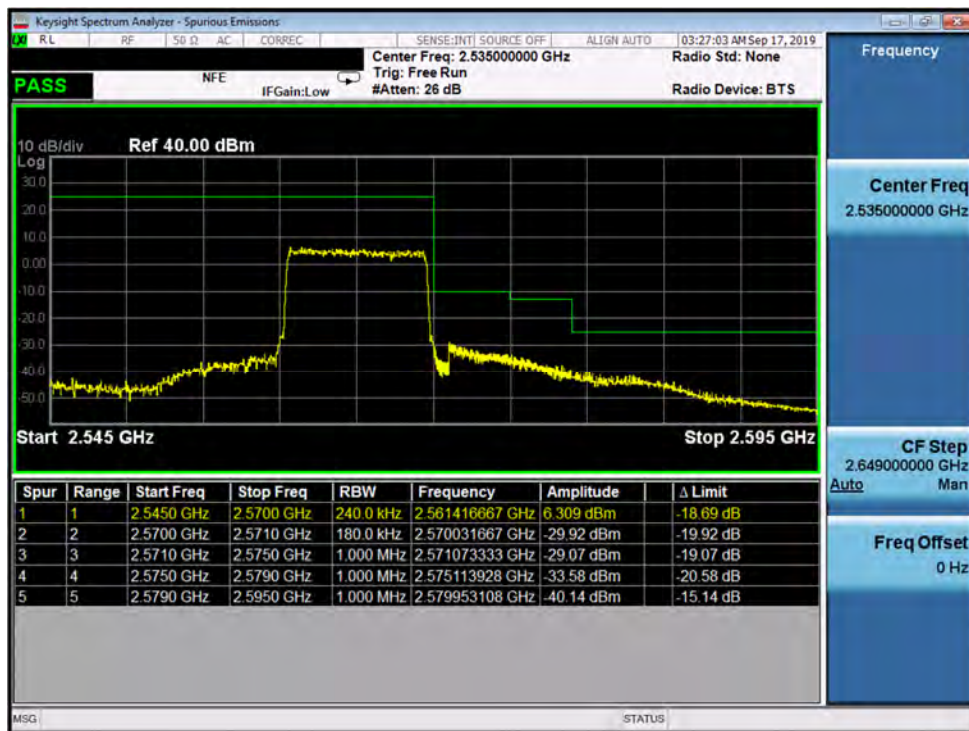


Plot 7-183. Upper ACP Plot (Band 7 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 114 of 166

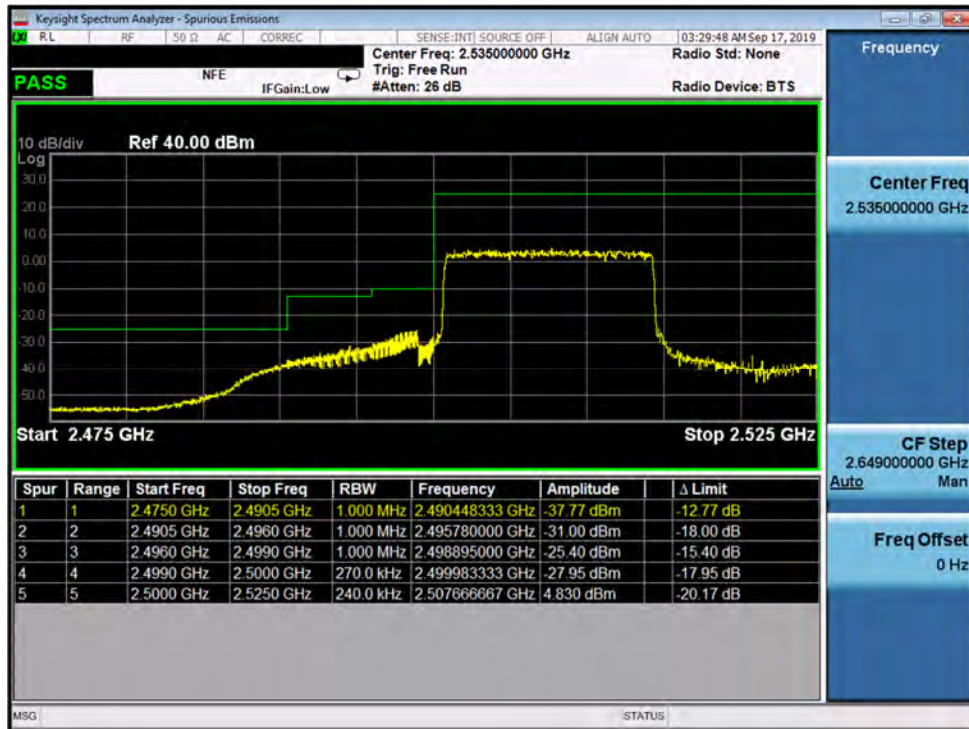


Plot 7-184. Lower ACP Plot (Band 7 - 10.0MHz QPSK - Full RB Configuration)

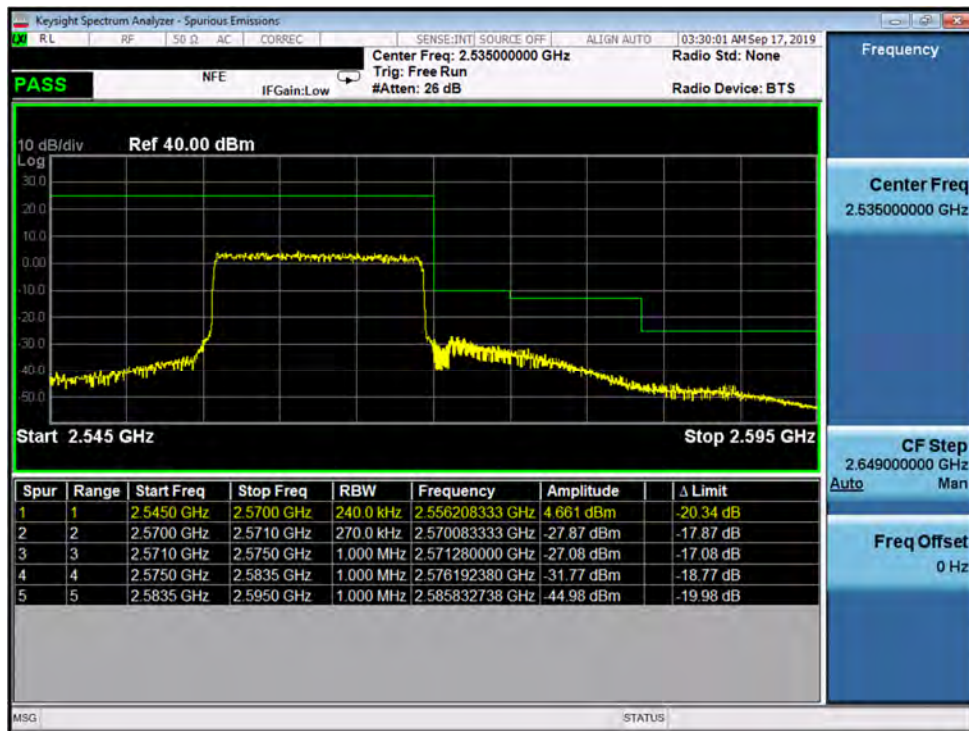


Plot 7-185. Upper ACP Plot (Band 7 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 115 of 166

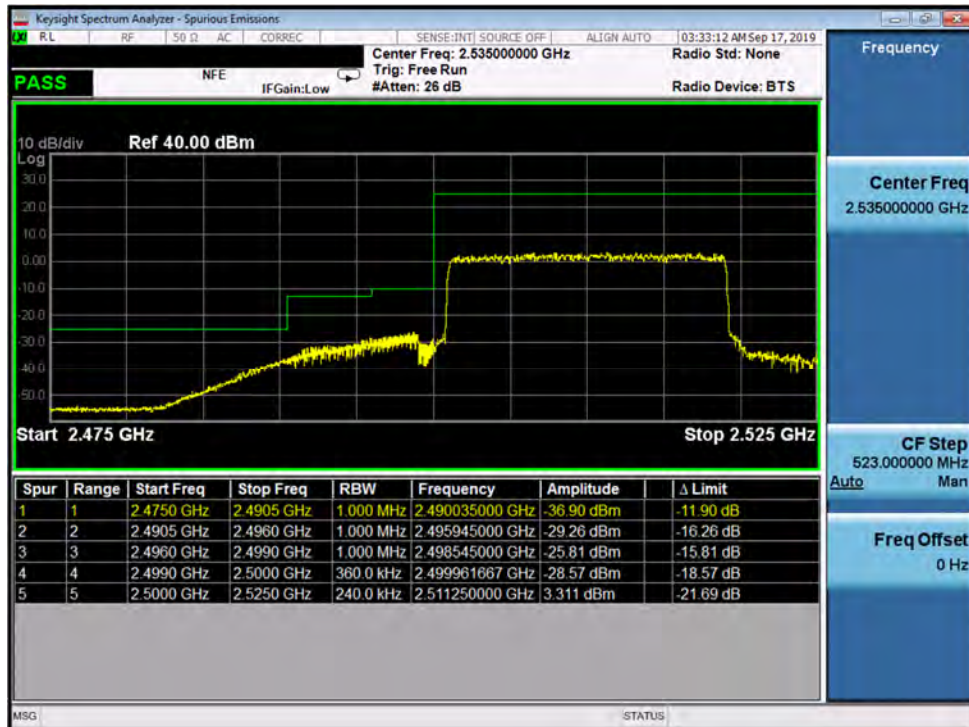


Plot 7-186. Lower ACP Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-187. Upper ACP Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 116 of 166



Plot 7-188. Lower ACP Plot (Band 7 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-189. Upper ACP Plot (Band 7 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03-A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 117 of 166

7.5 Peak-Average Ratio

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 v03r01 – Section 5.7.1

Test Settings

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW $\geq$ OBW or specified reference bandwidth
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.

Test Setup

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



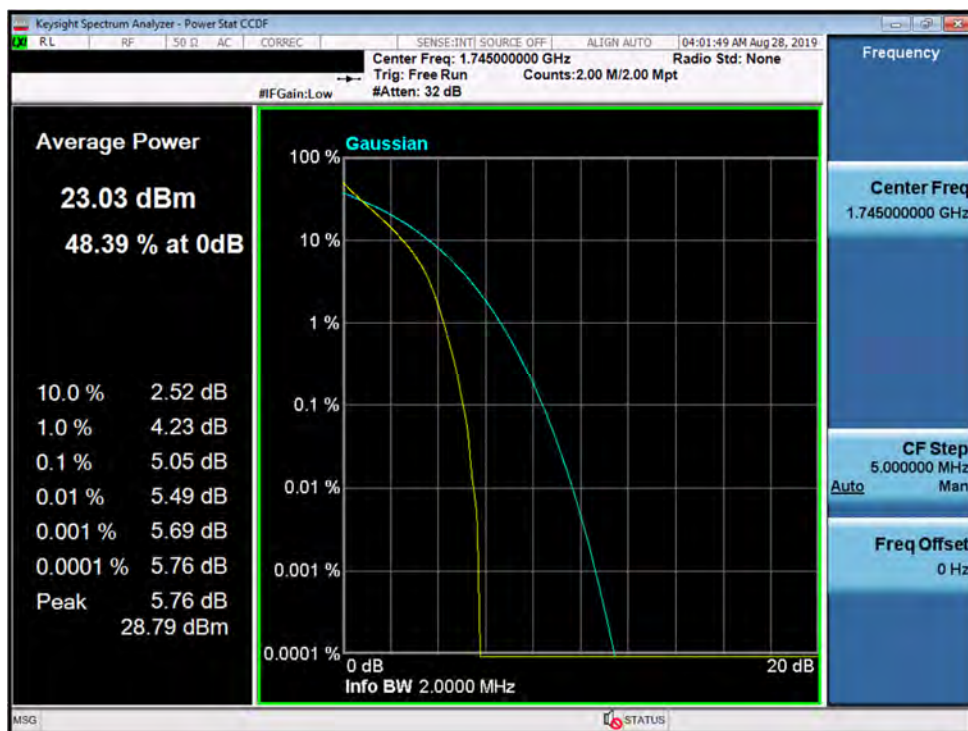
Figure 7-4. Test Instrument & Measurement Setup

Test Notes

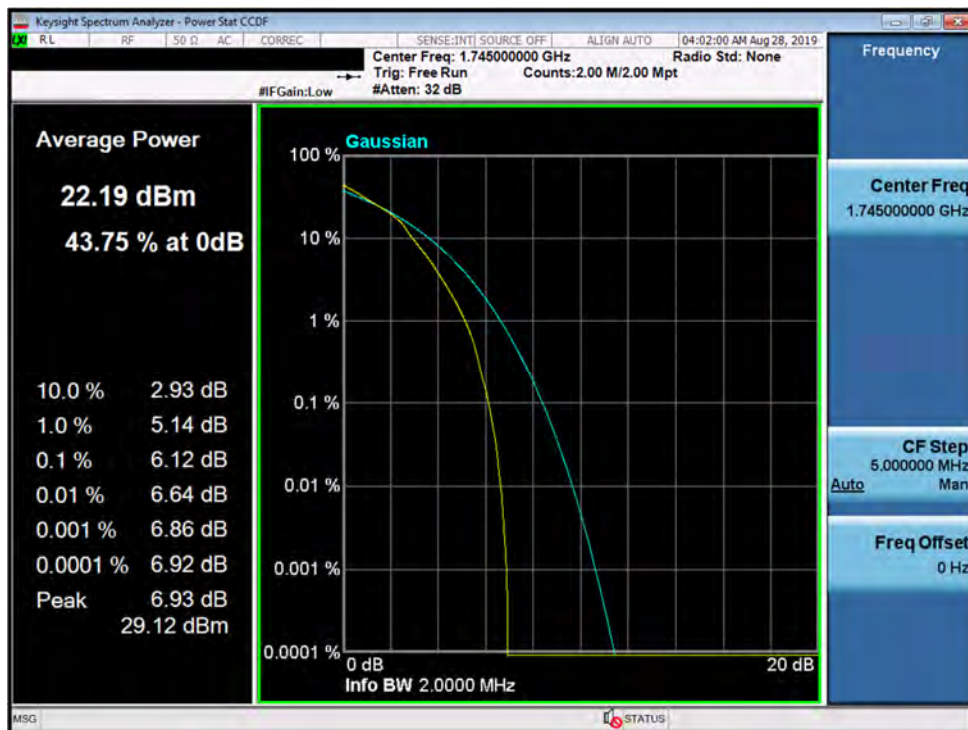
None.

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 118 of 166

Band 66/4

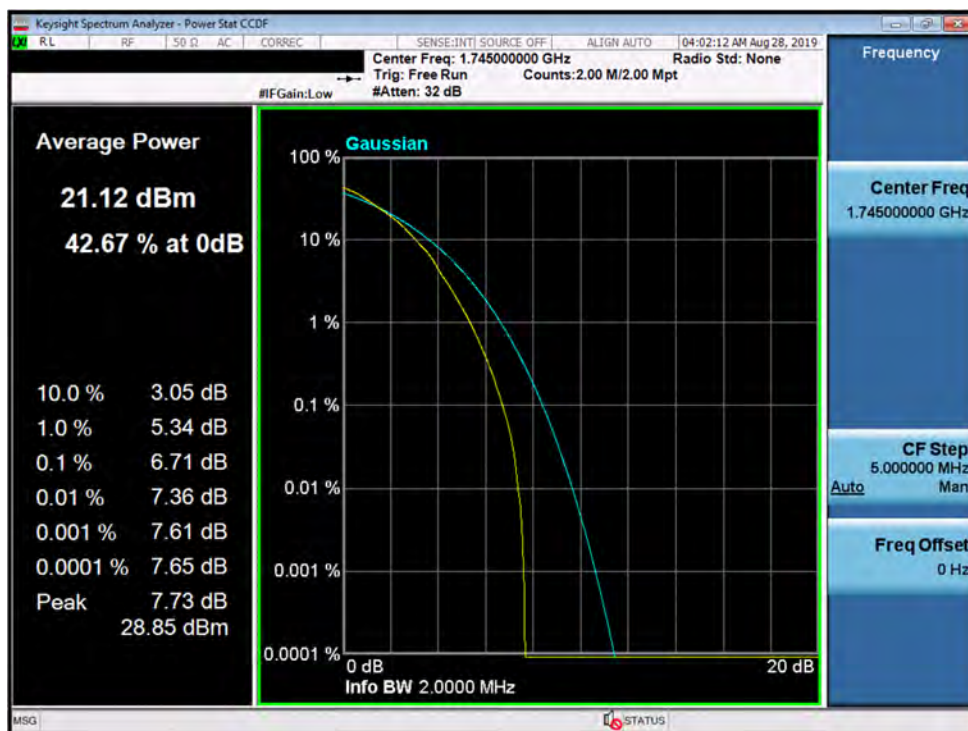


Plot 7-190. PAR Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)

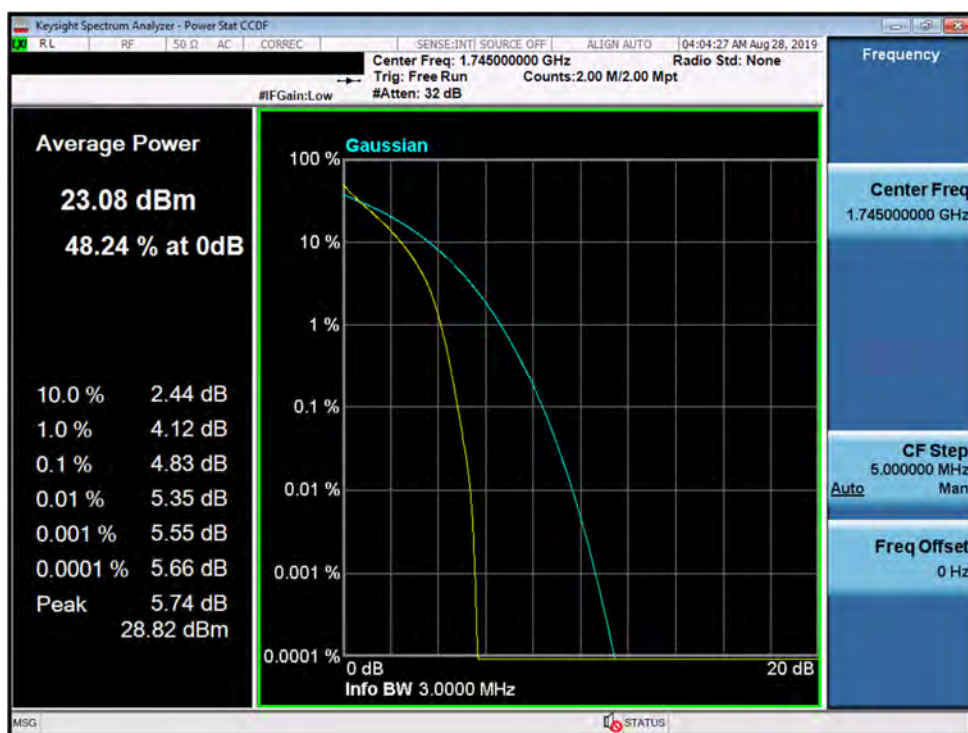


Plot 7-191. PAR Plot (Band 66/4 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 119 of 166

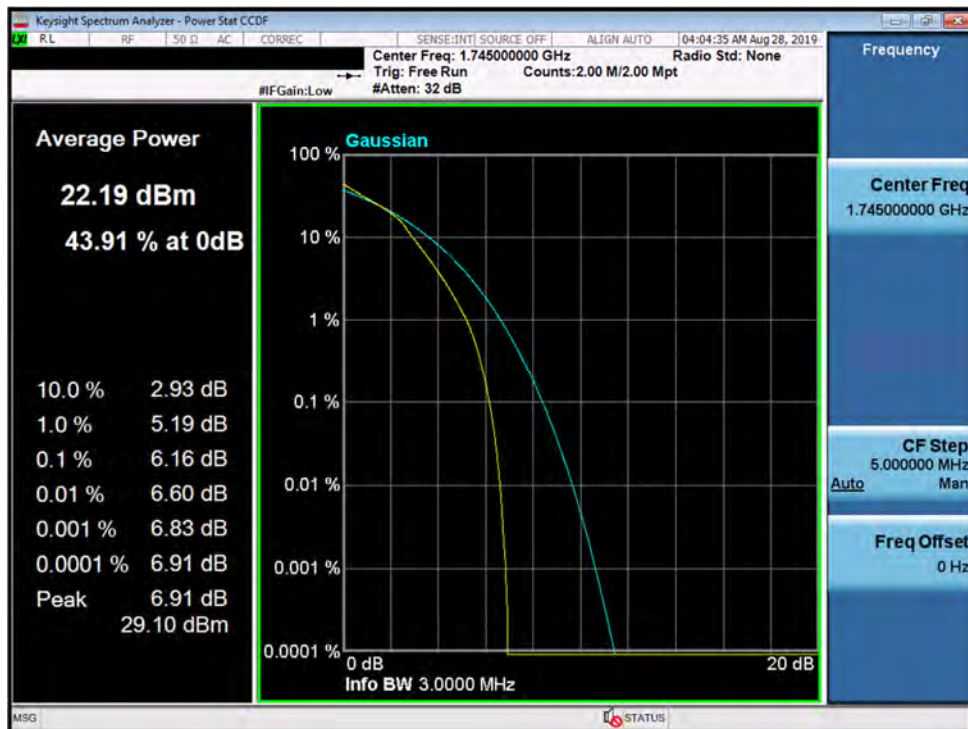


Plot 7-192. PAR Plot (Band 66/4 - 1.4MHz 64-QAM - Full RB Configuration)

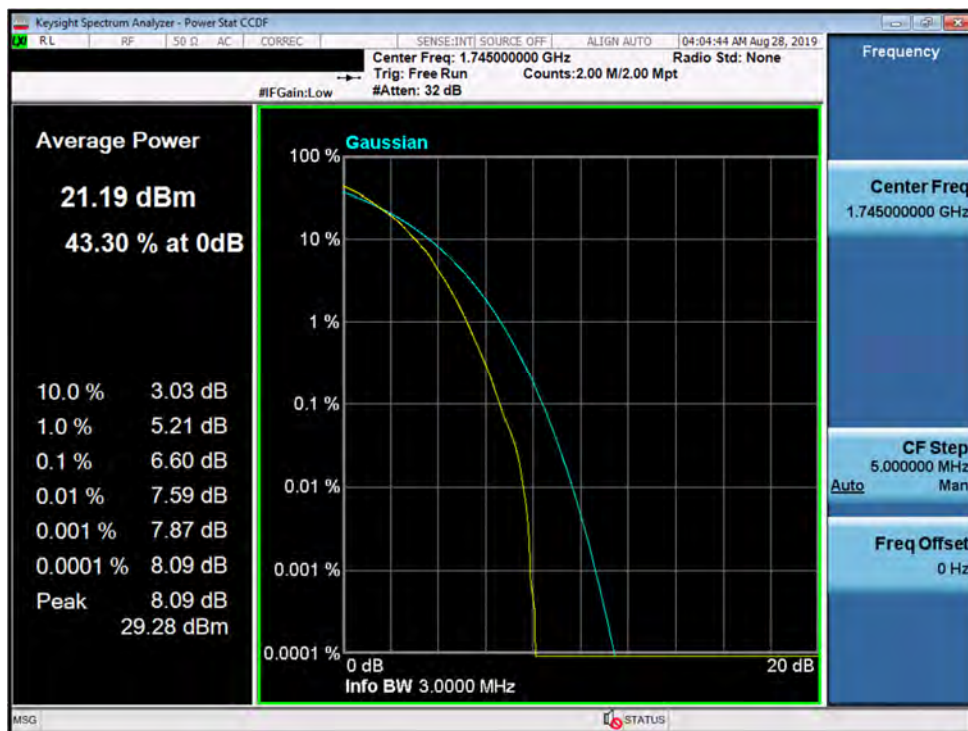


Plot 7-193. PAR Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 120 of 166

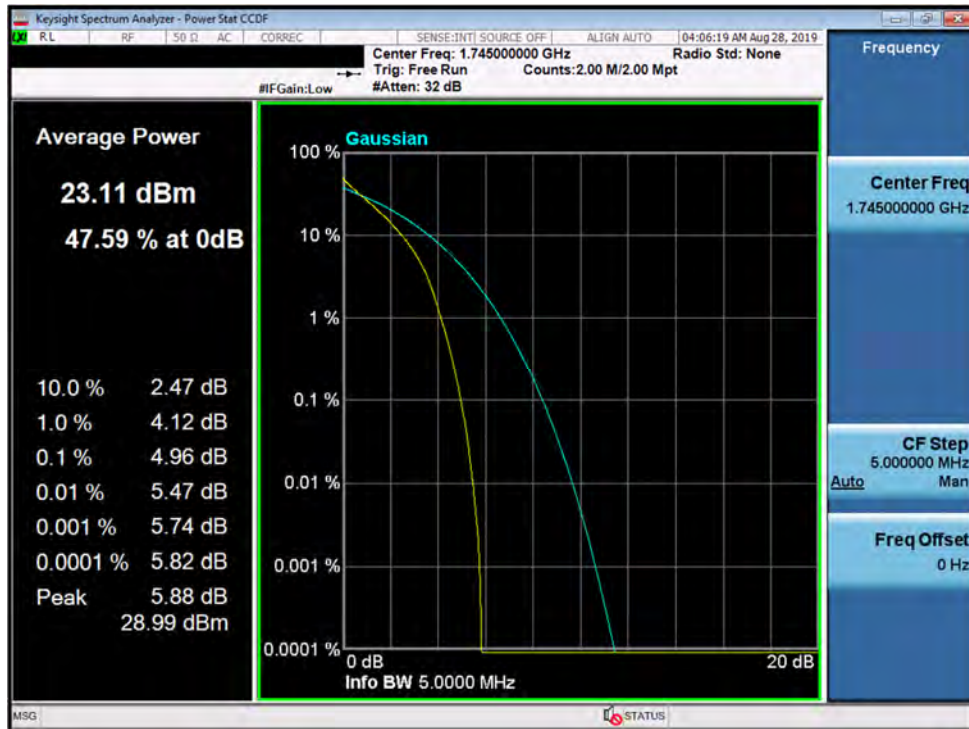


Plot 7-194. PAR Plot (Band 66/4 - 3.0MHz 16-QAM - Full RB Configuration)

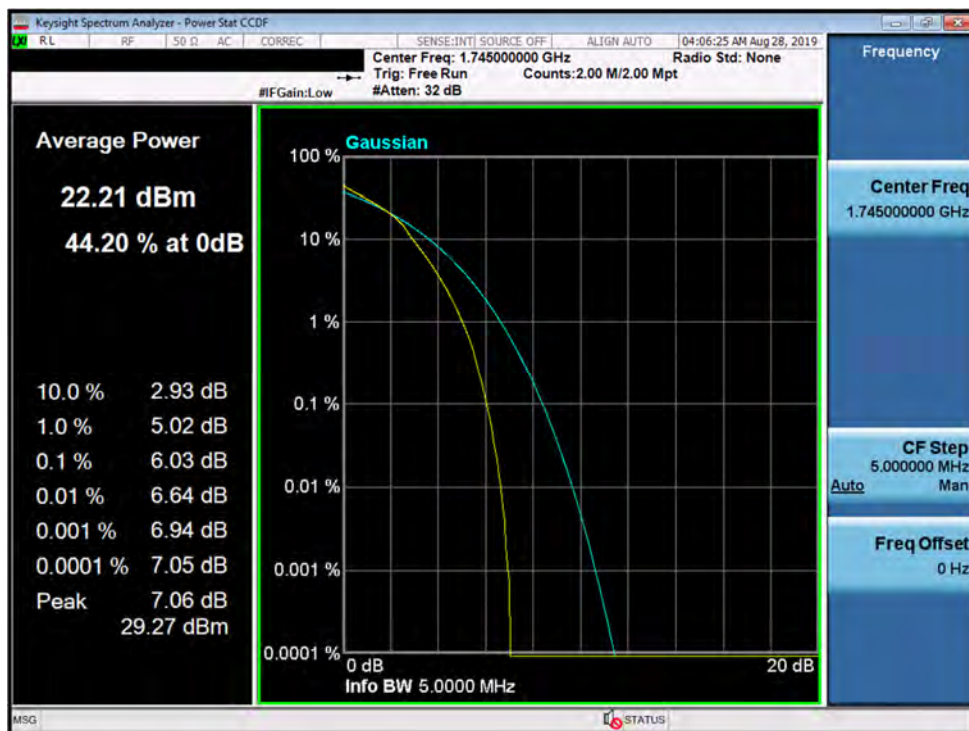


Plot 7-195. PAR Plot (Band 66/4 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 121 of 166

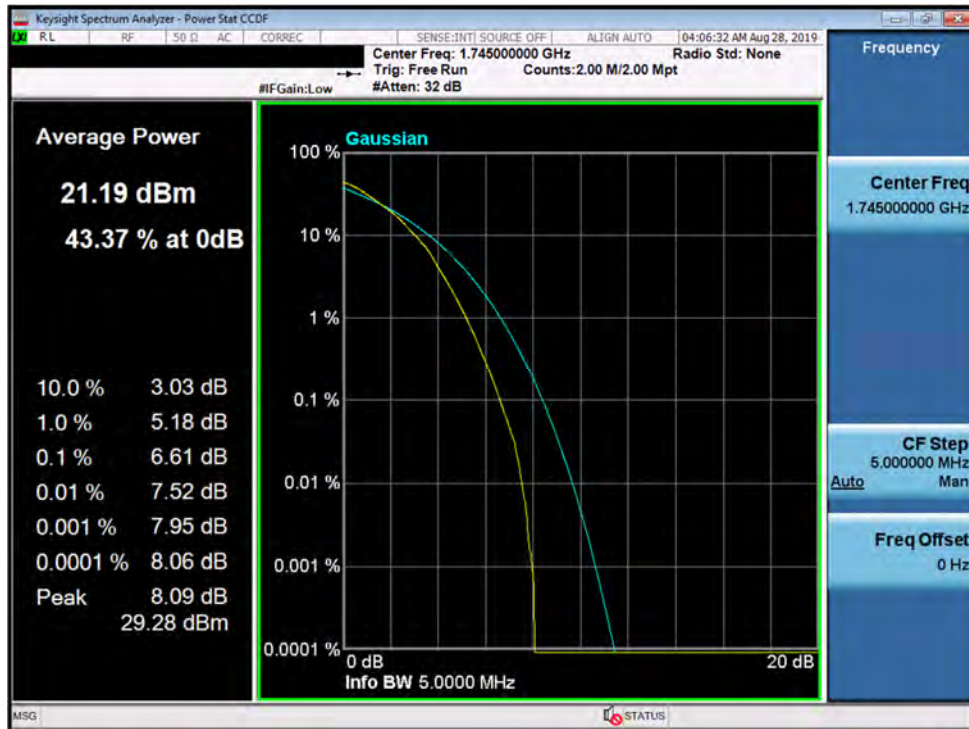


Plot 7-196. PAR Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)

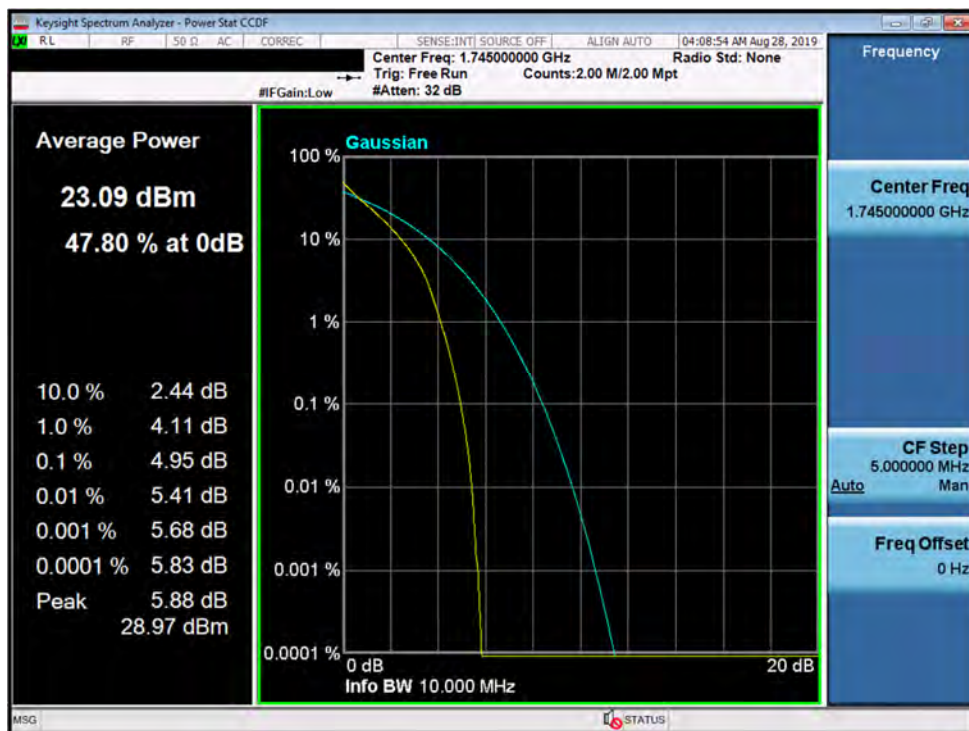


Plot 7-197. PAR Plot (Band 66/4 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03-A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 122 of 166

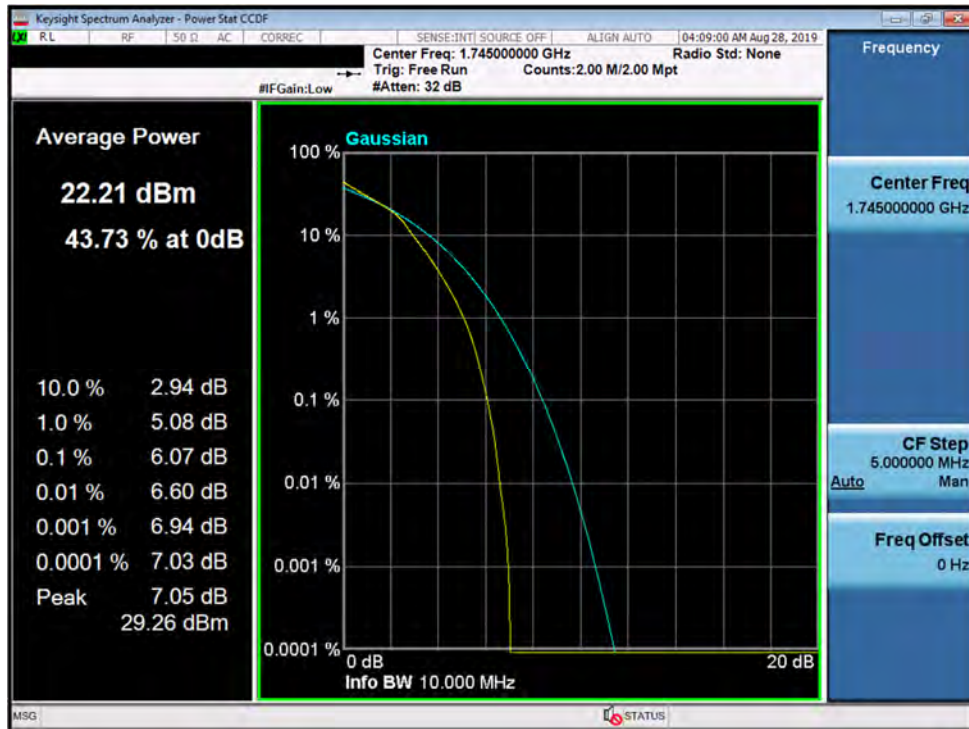


Plot 7-198. PAR Plot (Band 66/4 - 5.0MHz 64-QAM - Full RB Configuration)

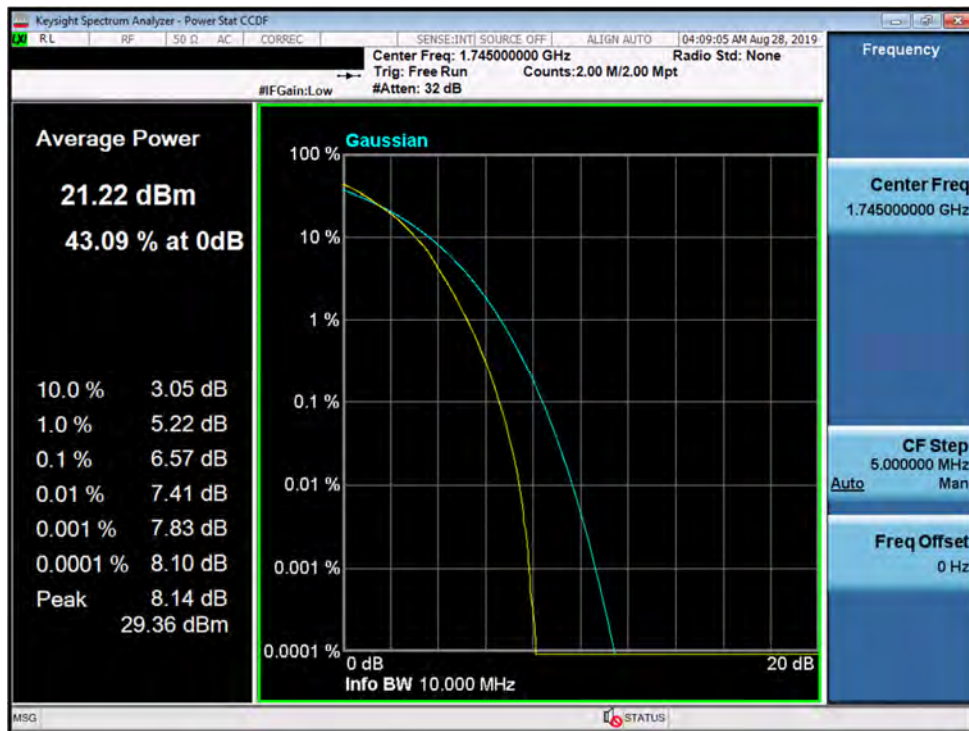


Plot 7-199. PAR Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 123 of 166

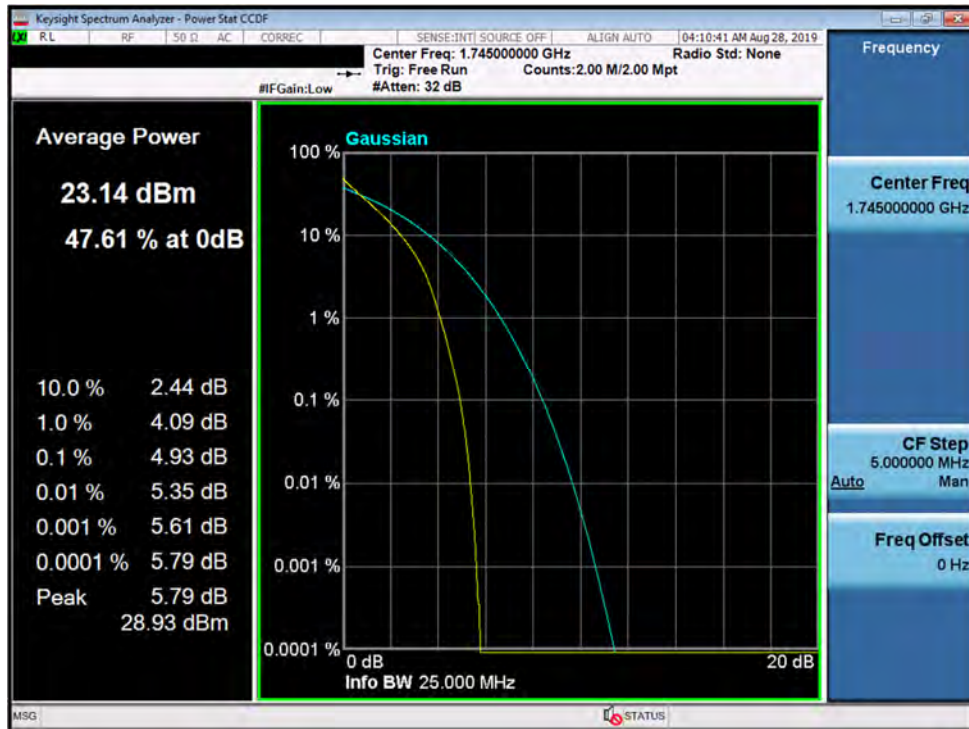


Plot 7-200. PAR Plot (Band 66/4 - 10.0MHz 16-QAM - Full RB Configuration)

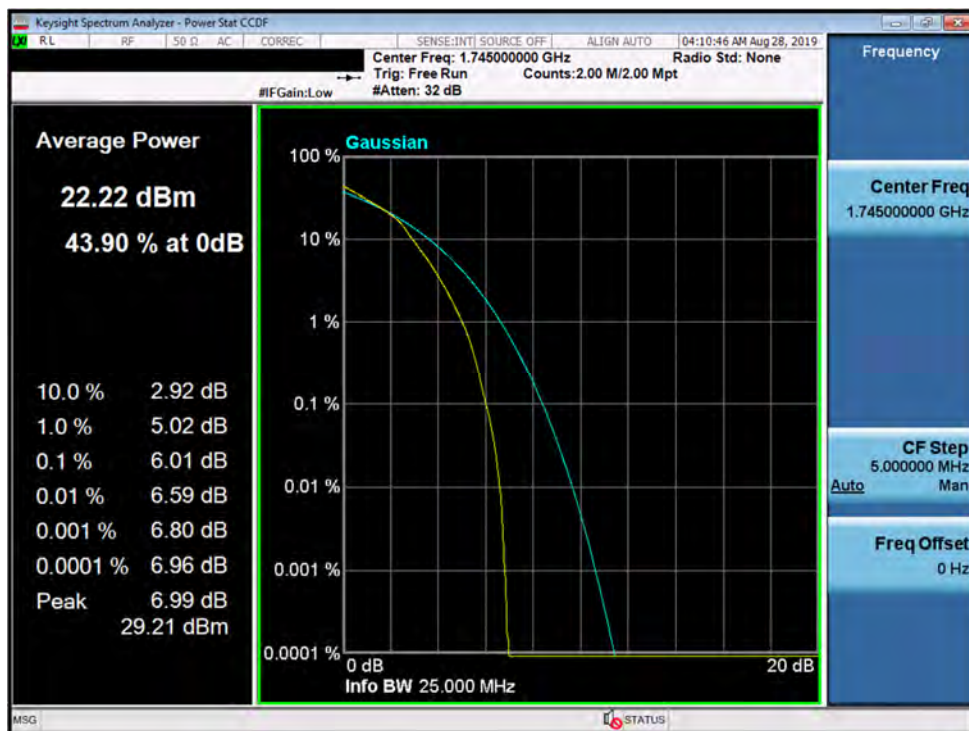


Plot 7-201. PAR Plot (Band 66/4 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 124 of 166

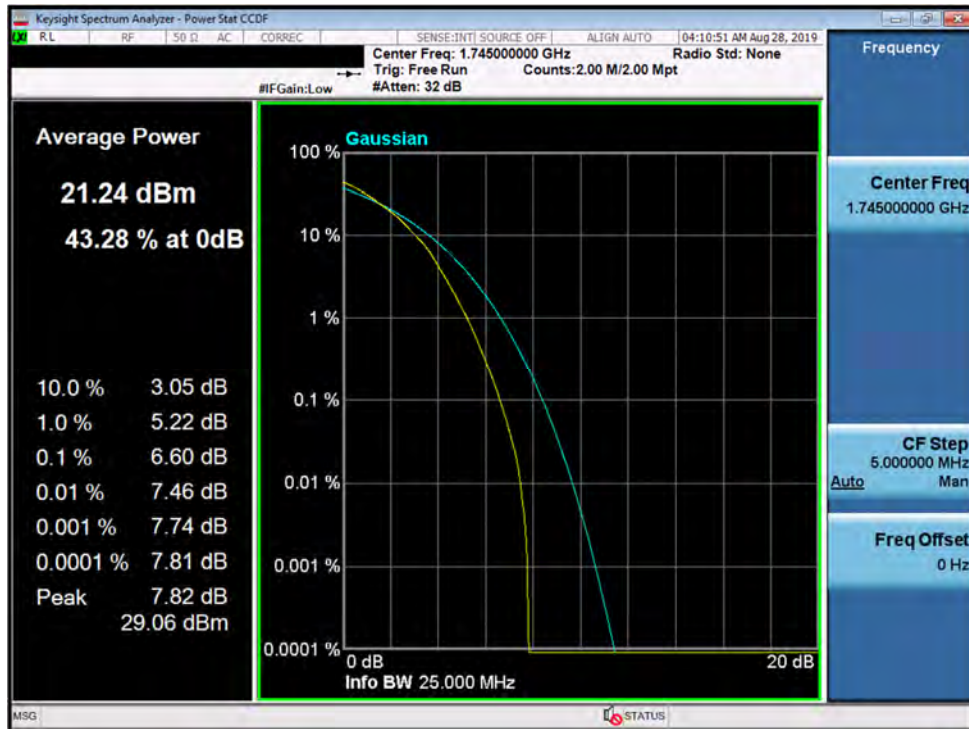


Plot 7-202. PAR Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)

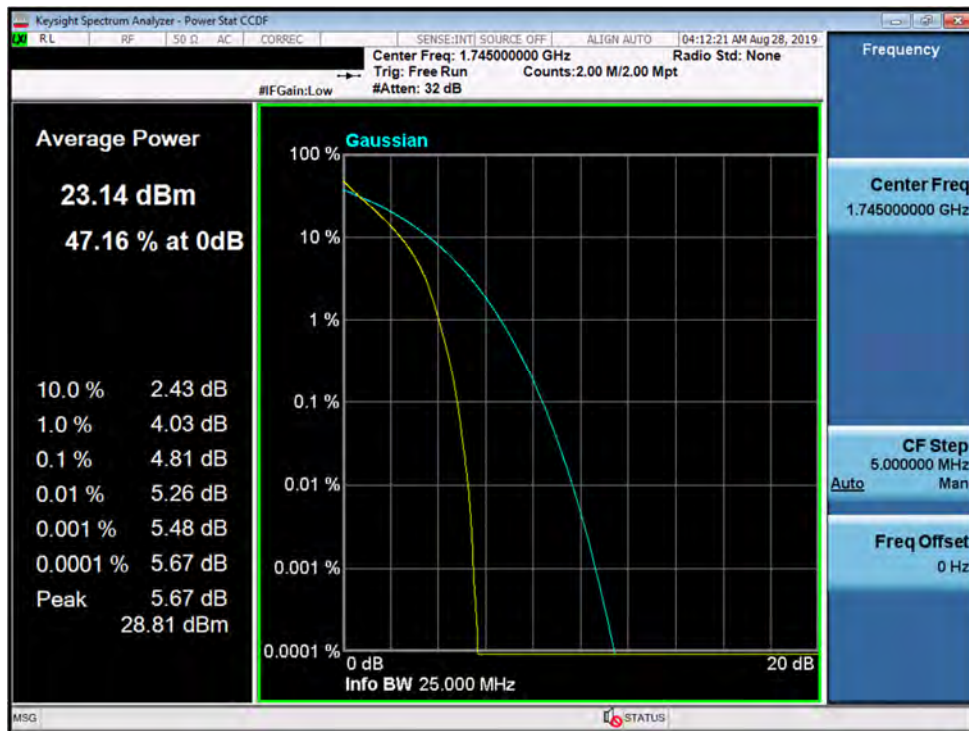


Plot 7-203. PAR Plot (Band 66/4 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 125 of 166

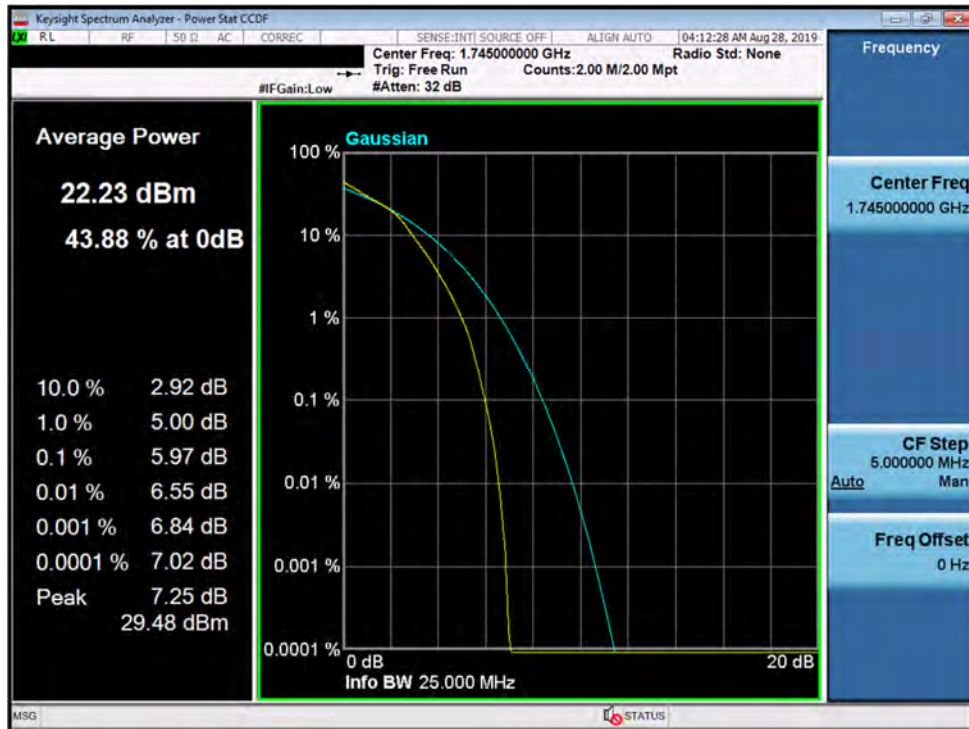


Plot 7-204. PAR Plot (Band 66/4 - 15.0MHz 64-QAM - Full RB Configuration)

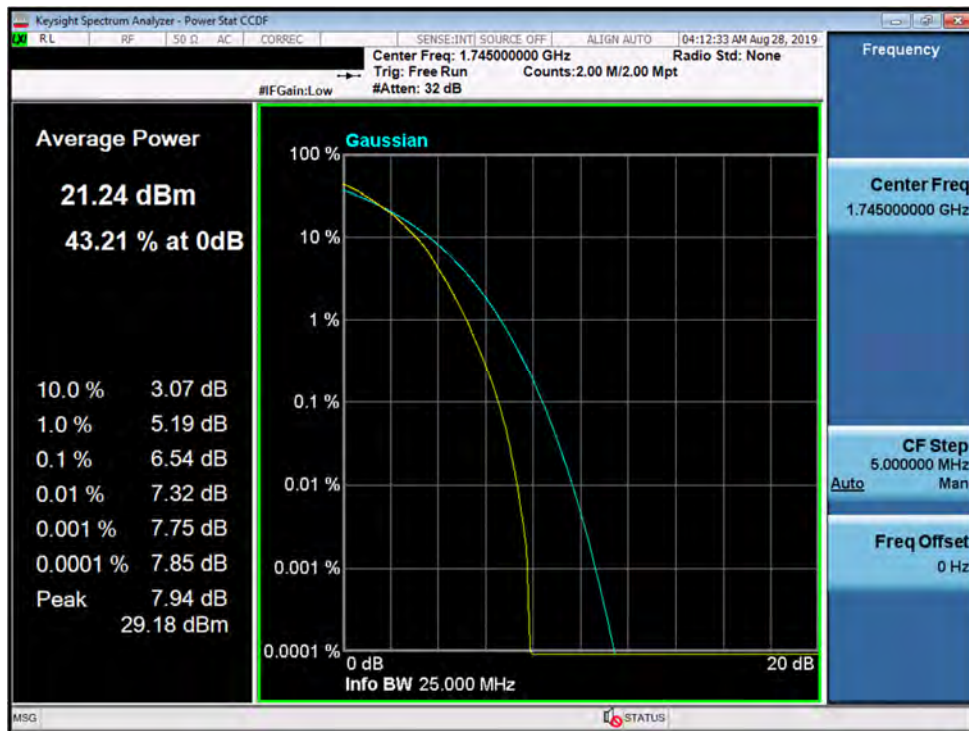


Plot 7-205. PAR Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 126 of 166



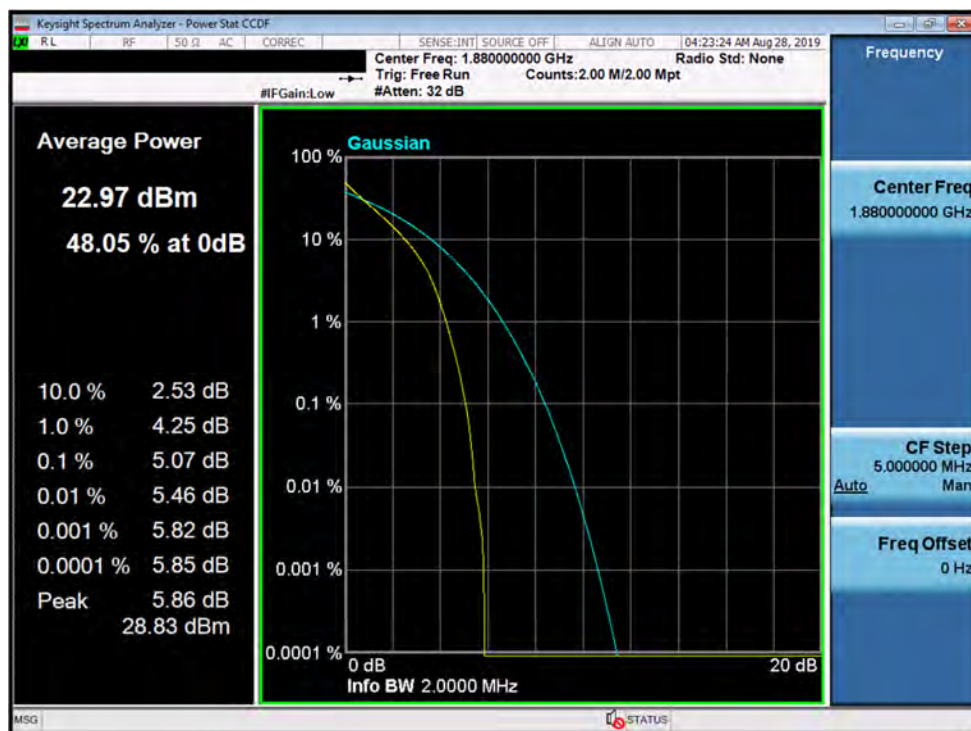
Plot 7-206. PAR Plot (Band 66/4 - 20.0MHz 16-QAM - Full RB Configuration)



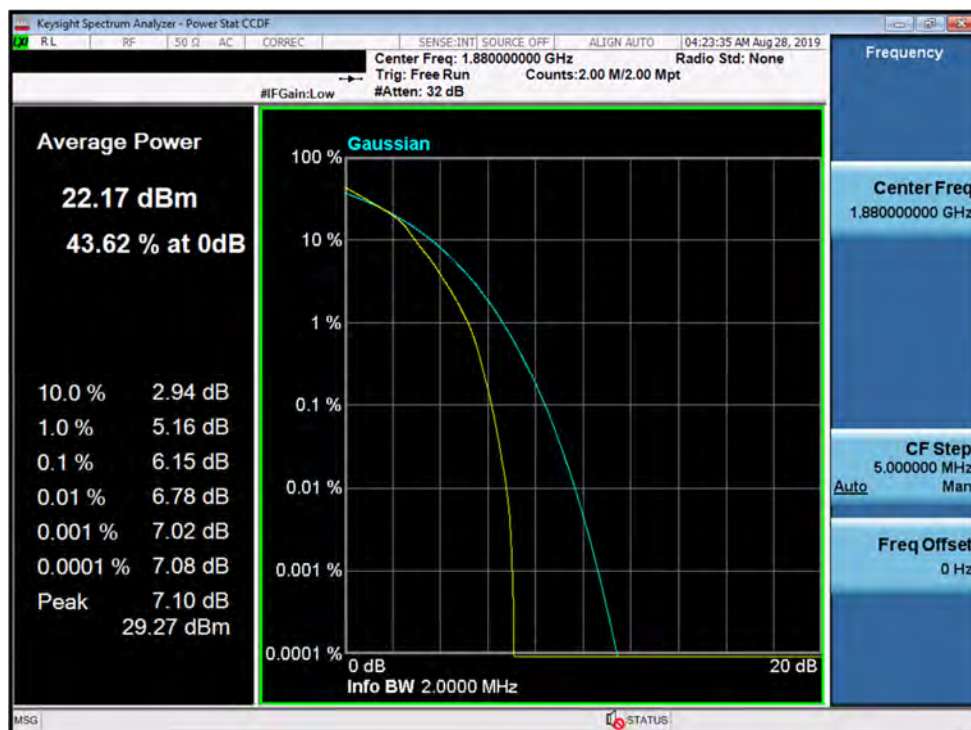
Plot 7-207. PAR Plot (Band 66/4 - 20.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 127 of 166

Band 2

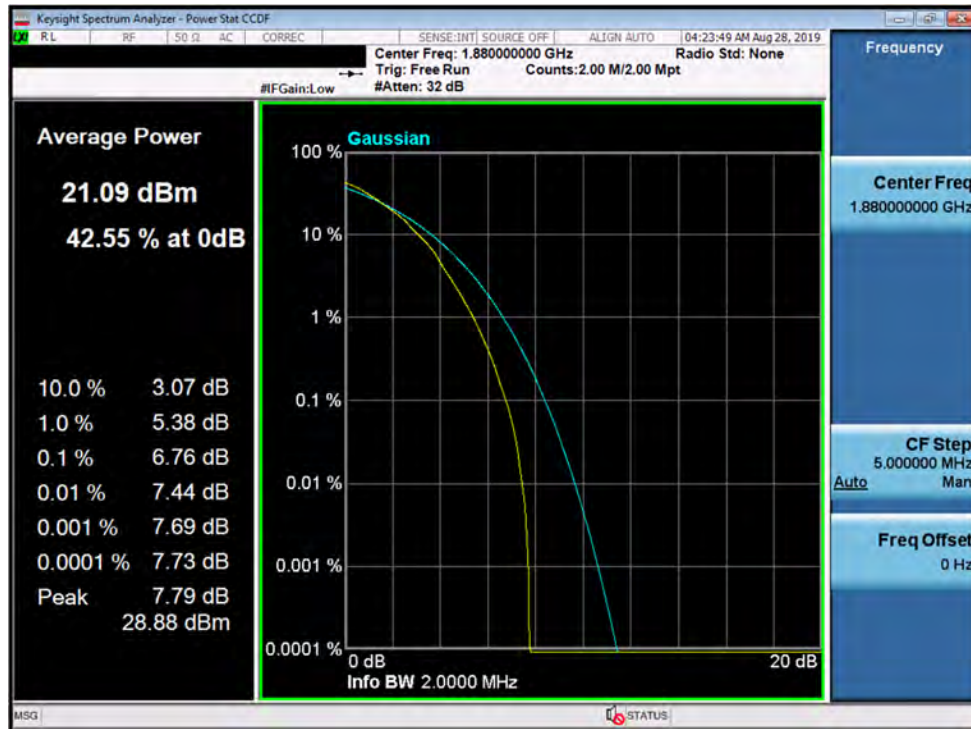


Plot 7-208. PAR Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)

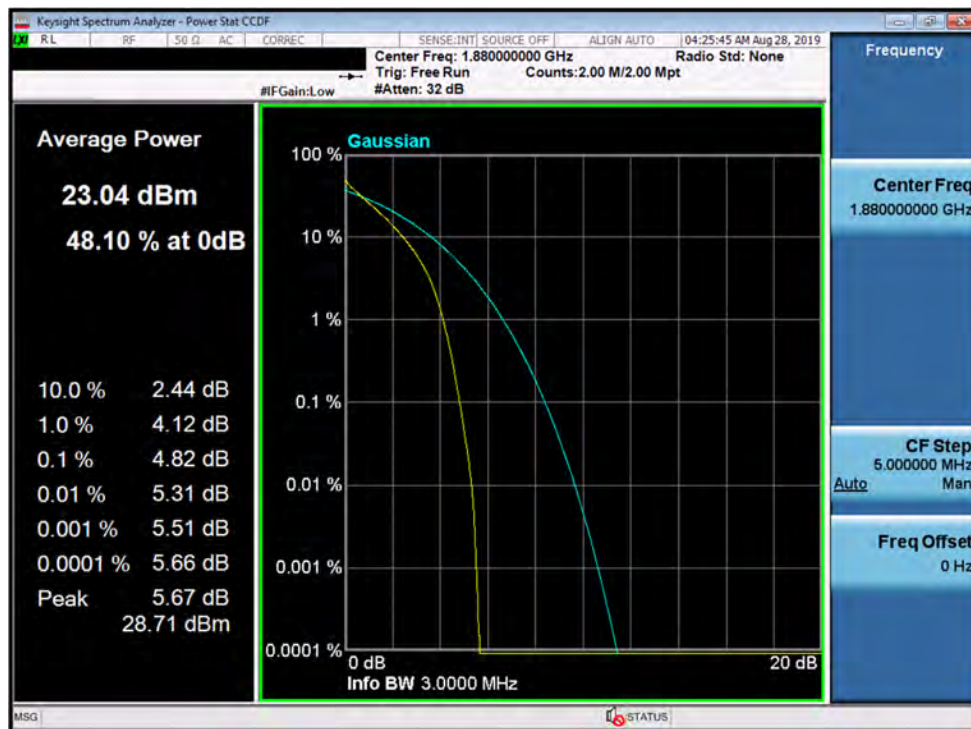


Plot 7-209. PAR Plot (Band 2 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 128 of 166

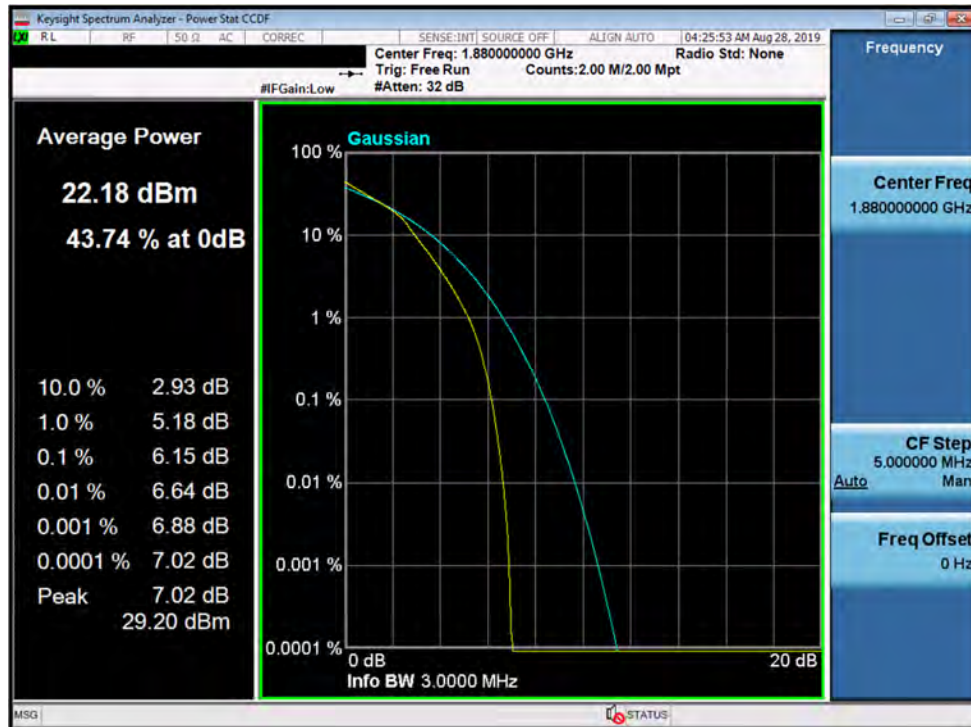


Plot 7-210. PAR Plot (Band 2 - 1.4MHz 64-QAM - Full RB Configuration)

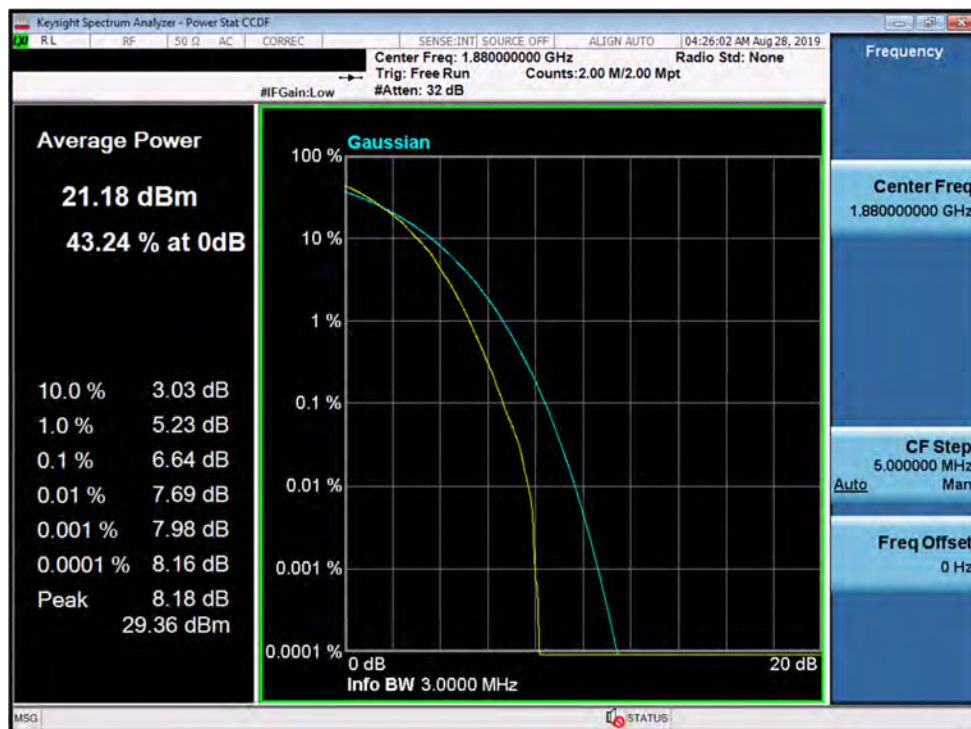


Plot 7-211. PAR Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 129 of 166

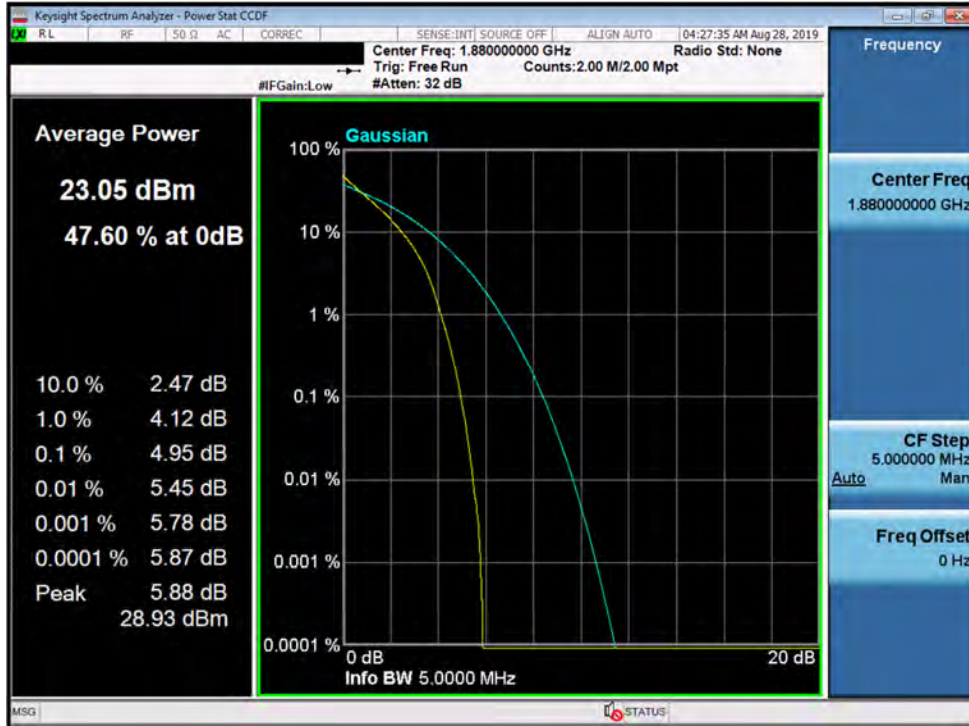


Plot 7-212. PAR Plot (Band 2 - 3.0MHz 16-QAM - Full RB Configuration)

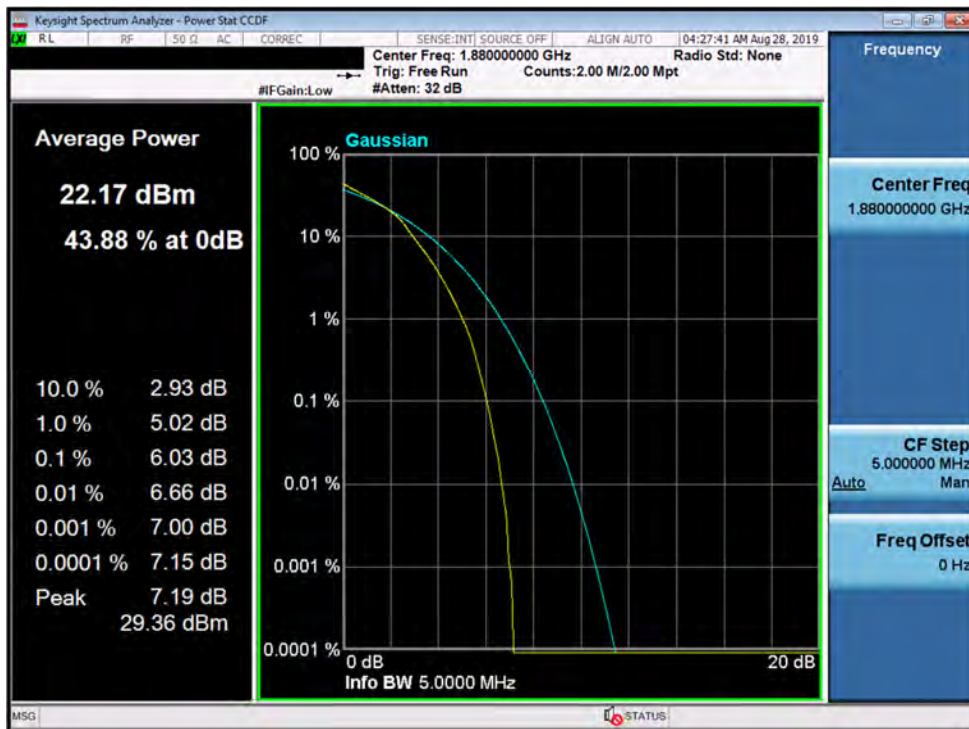


Plot 7-213. PAR Plot (Band 2 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 130 of 166

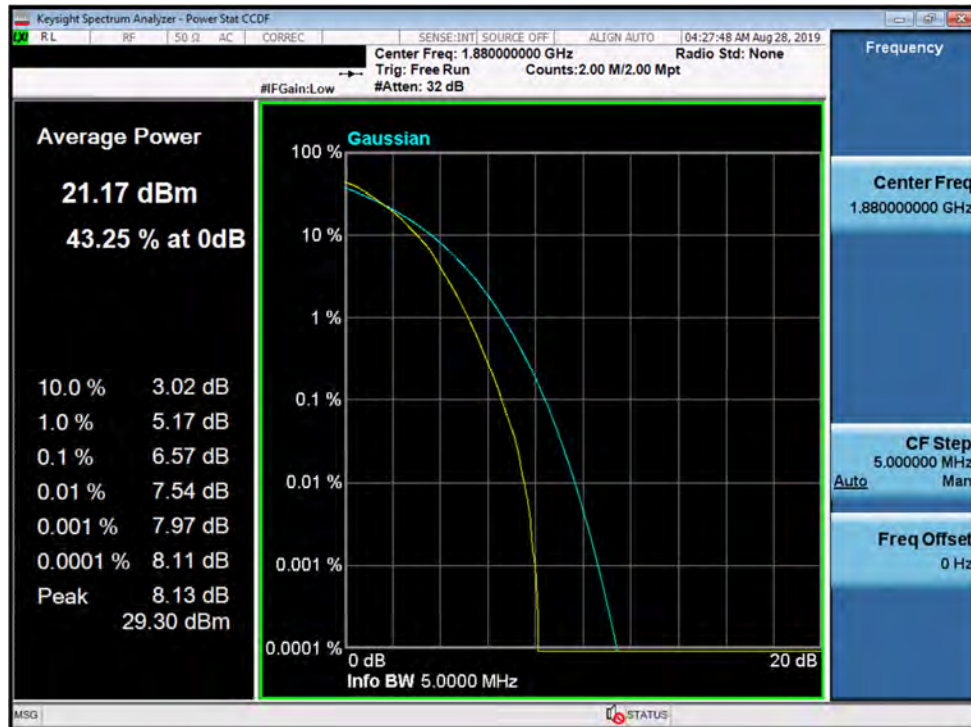


Plot 7-214. PAR Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

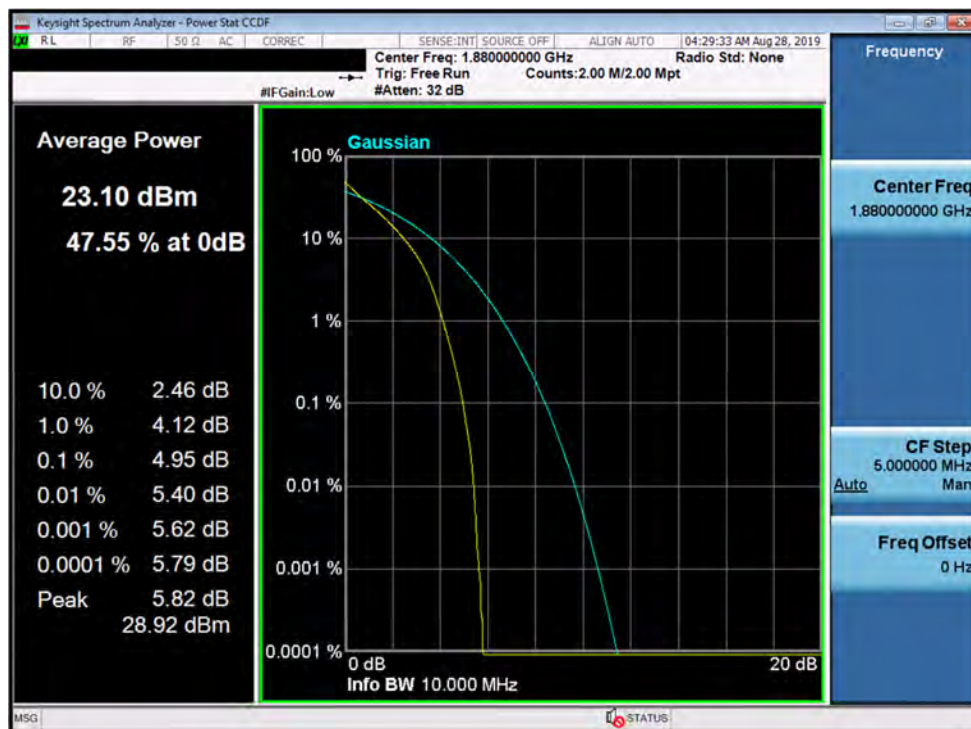


Plot 7-215. PAR Plot (Band 2 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 131 of 166

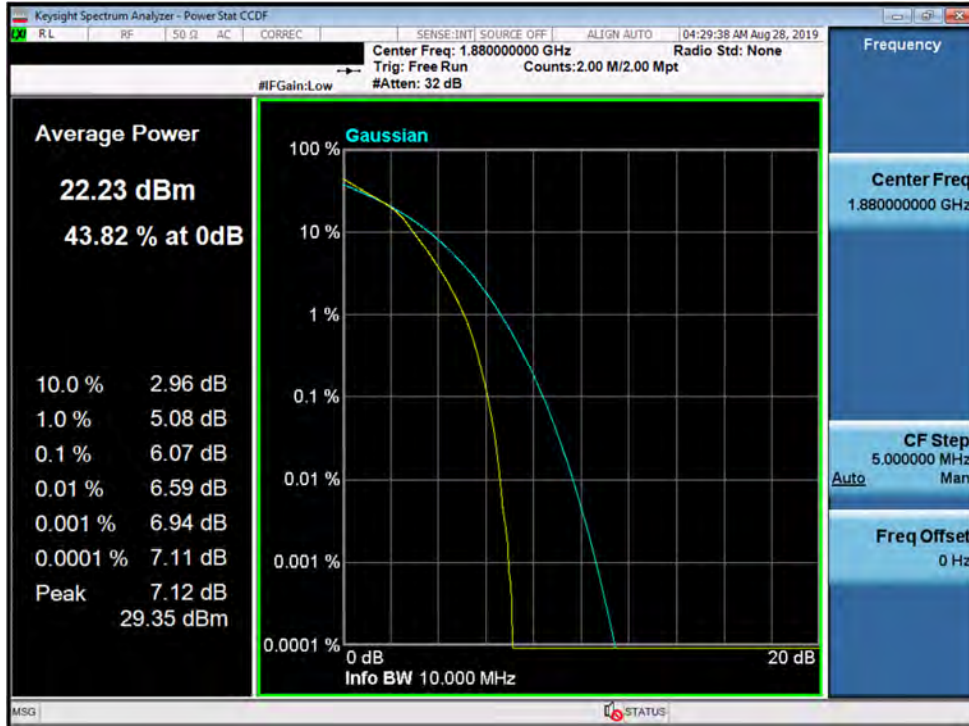


Plot 7-216. PAR Plot (Band 2 - 5.0MHz 64-QAM - Full RB Configuration)

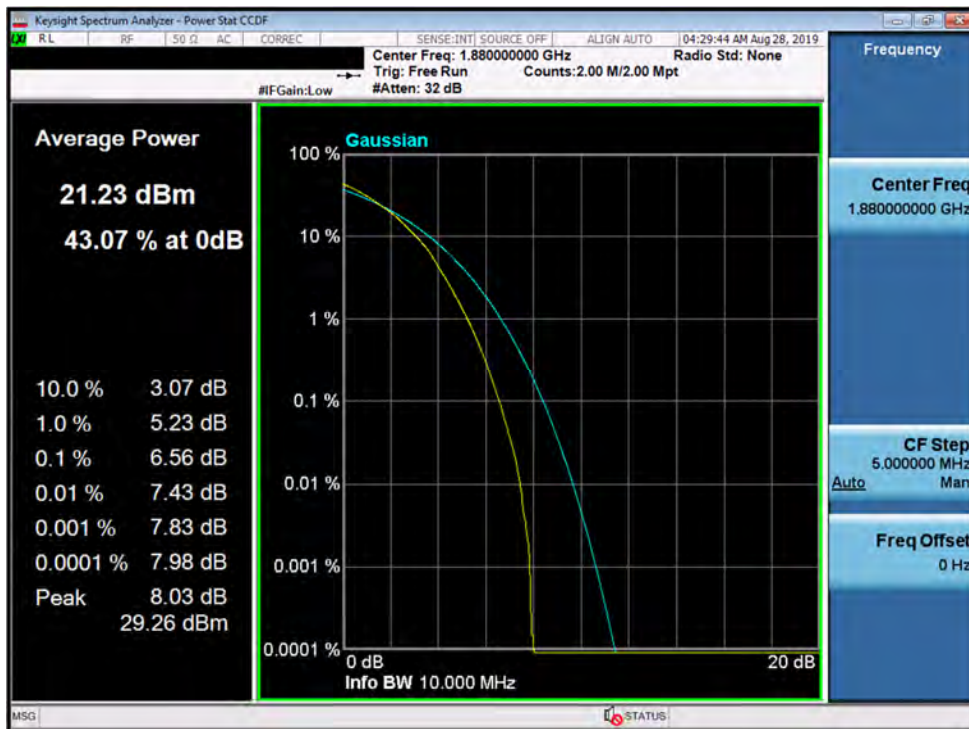


Plot 7-217. PAR Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 132 of 166

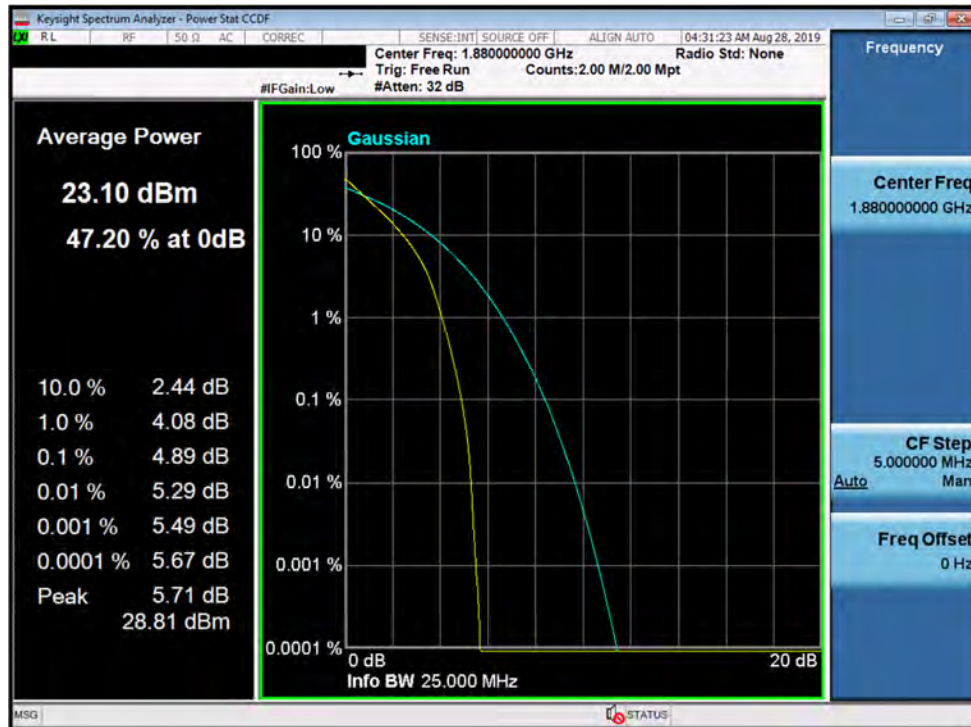


Plot 7-218. PAR Plot (Band 2 - 10.0MHz 16-QAM - Full RB Configuration)

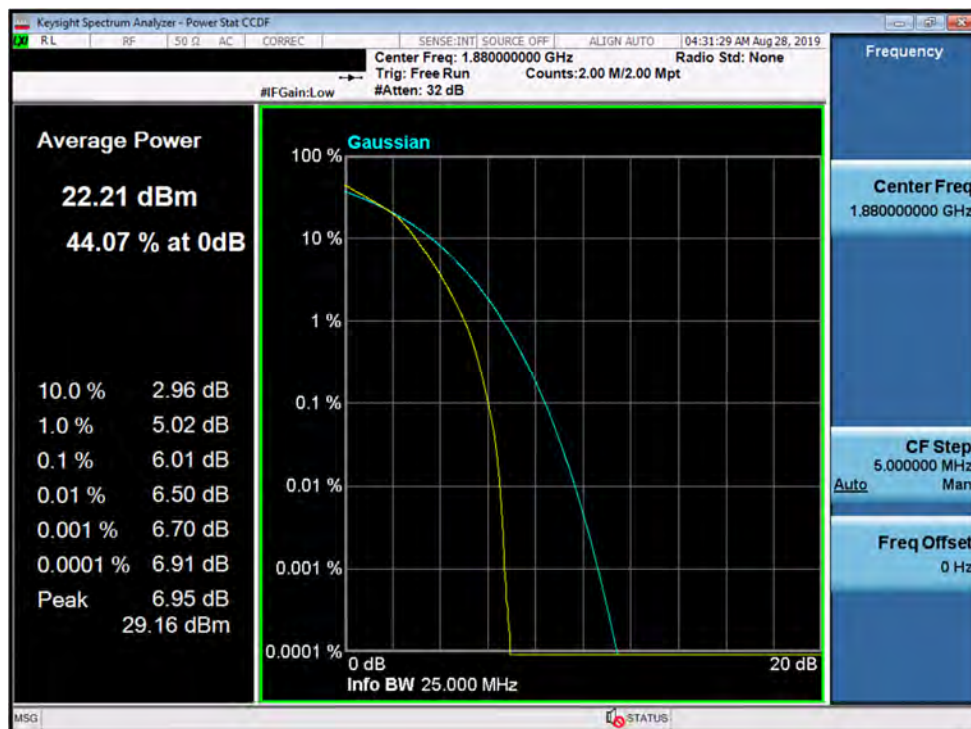


Plot 7-219. PAR Plot (Band 2 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 133 of 166

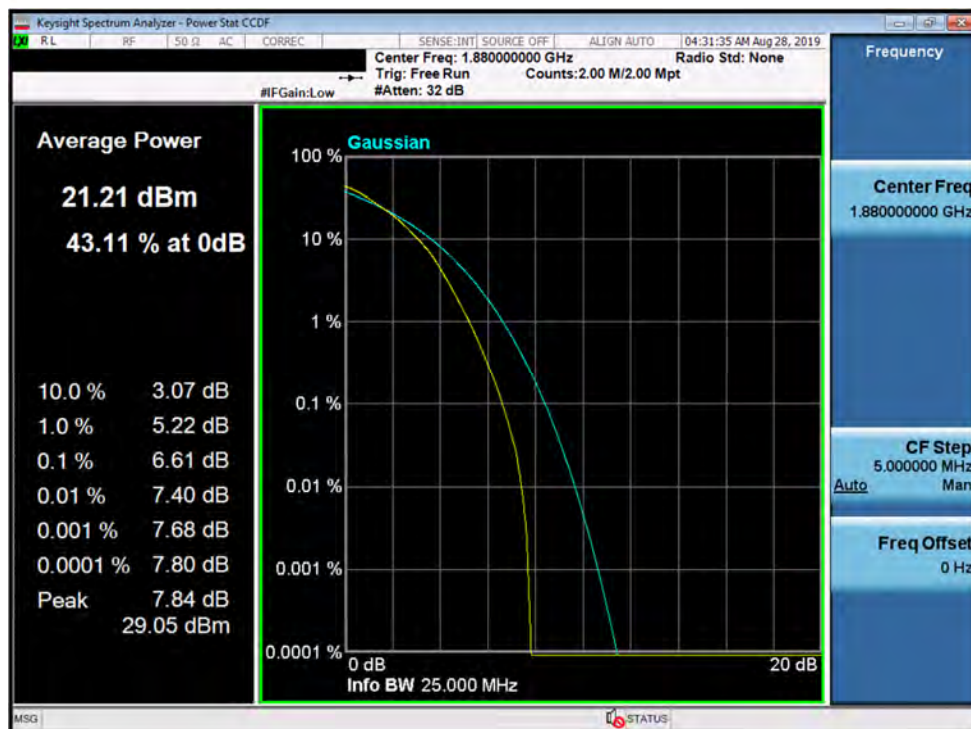


Plot 7-220. PAR Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

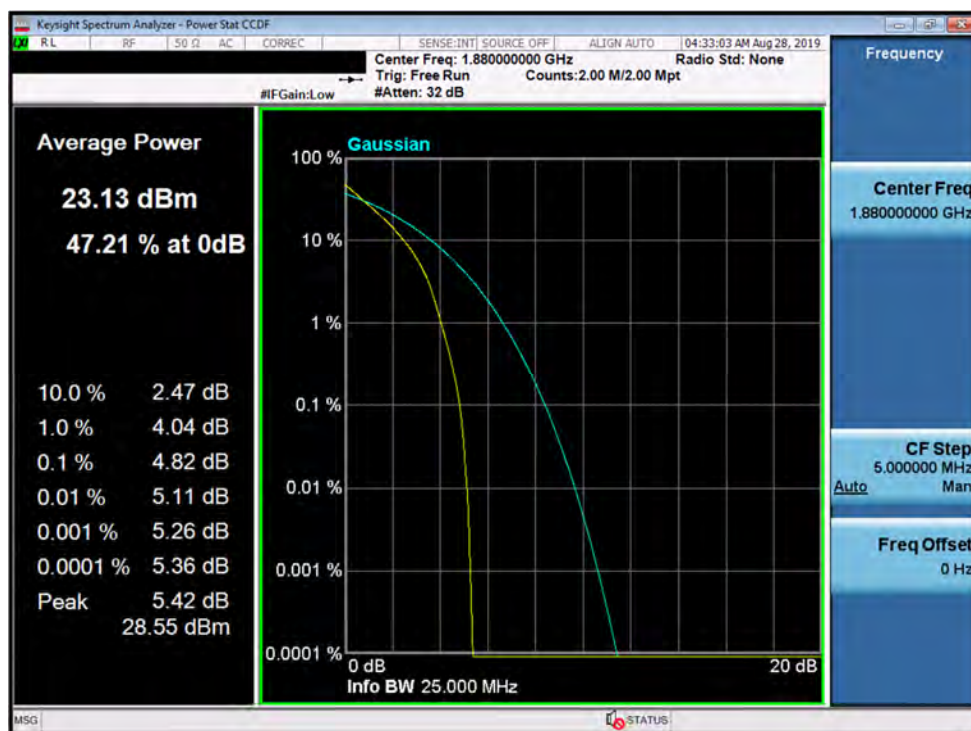


Plot 7-221. PAR Plot (Band 2 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 134 of 166

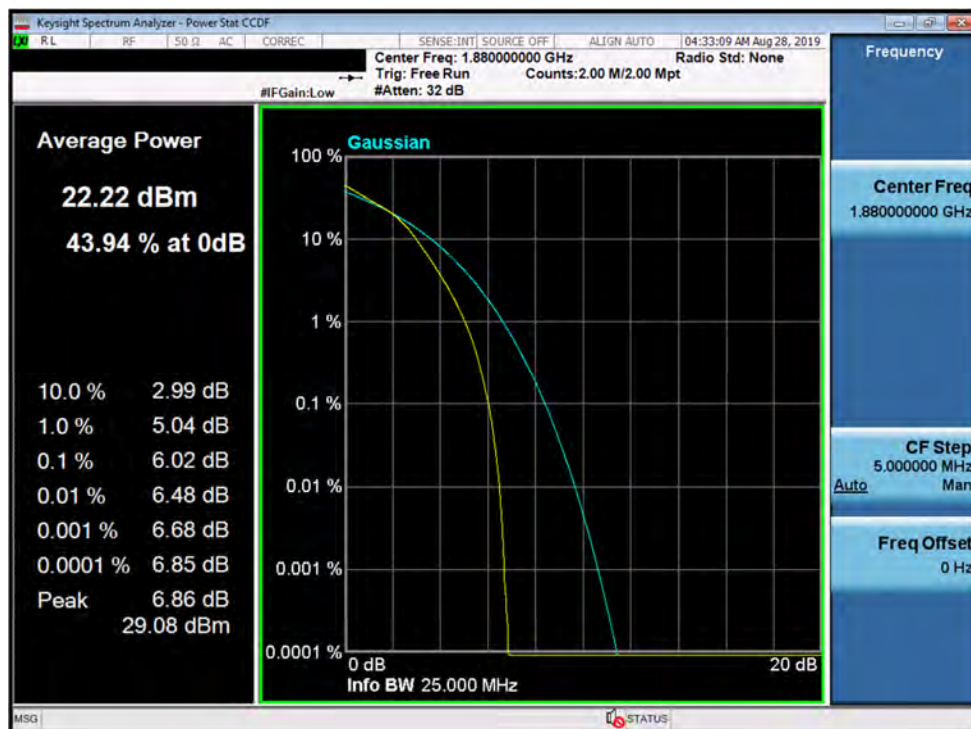


Plot 7-222. PAR Plot (Band 2 - 15.0MHz 64-QAM - Full RB Configuration)

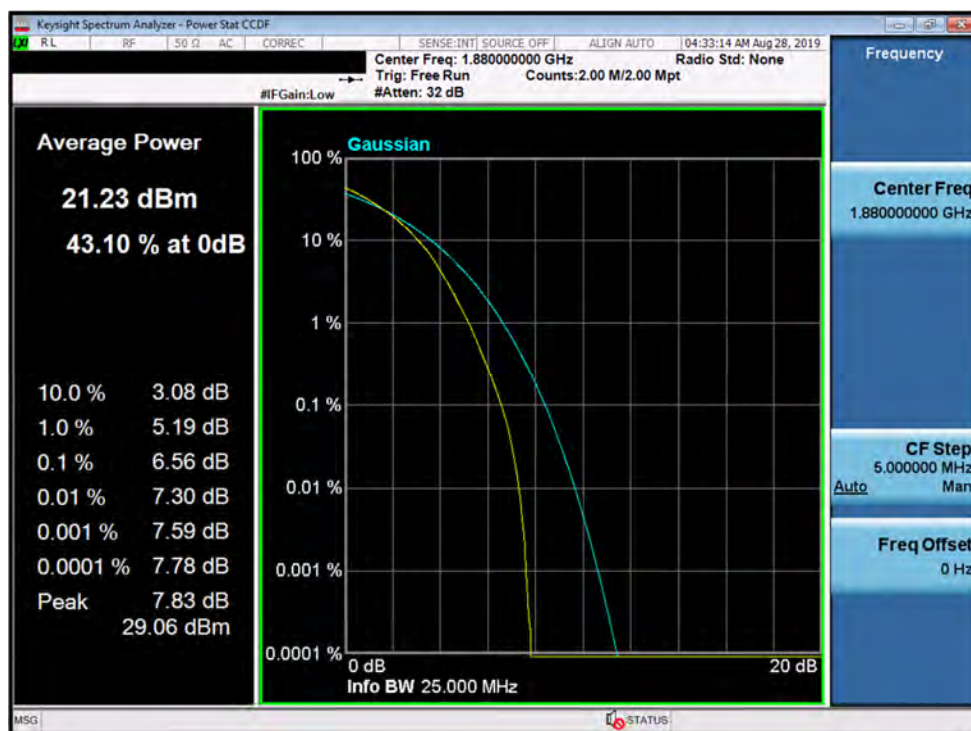


Plot 7-223. PAR Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 135 of 166



Plot 7-224. PAR Plot (Band 2 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-225. PAR Plot (Band 2 - 20.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 136 of 166

7.6 Radiated Power (ERP/EIRP)

Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.2.1

ANSI/TIA-603-E-2016 – 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.
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".
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 137 of 166

Test Setup

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

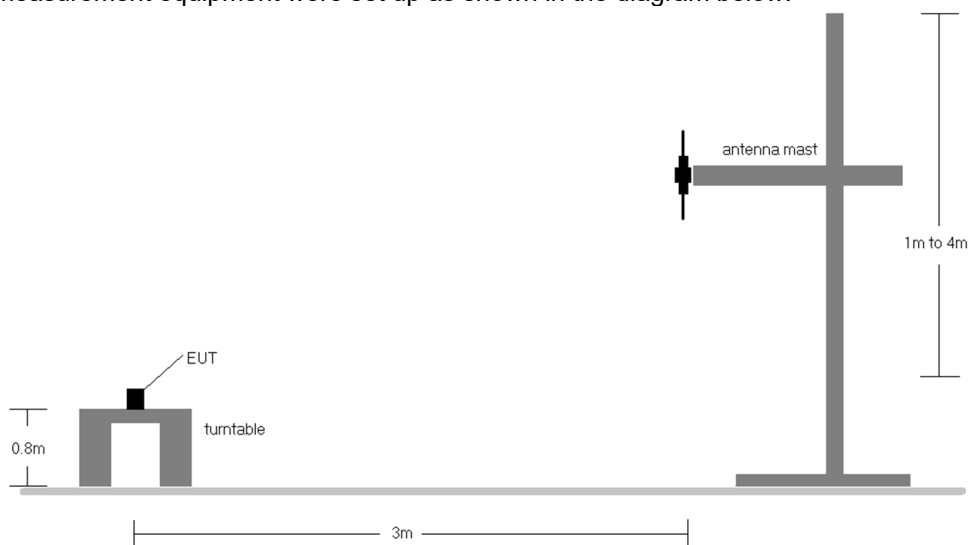


Figure 7-5. Radiated Test Setup <1GHz

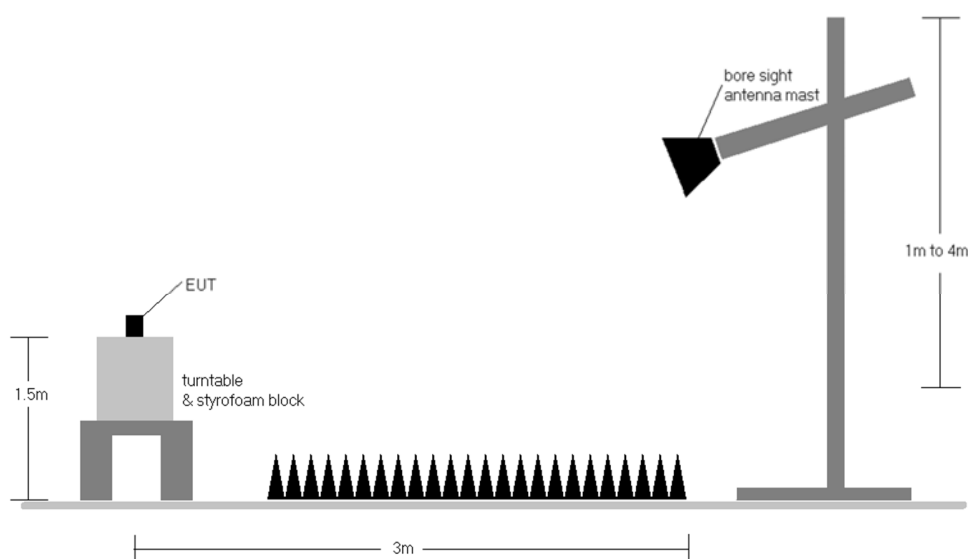


Figure 7-6. Radiated Test Setup >1GHz

Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.

FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 138 of 166

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]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
779.50	5	QPSK	V	179	277	1 / 24	13.77	5.70	17.32	0.054	34.77	-17.45	19.47	0.089	36.99	-17.52
782.00	5	QPSK	V	165	268	1 / 0	14.27	5.80	17.92	0.062	34.77	-16.85	20.07	0.102	36.99	-16.92
784.50	5	QPSK	V	169	264	1 / 0	14.17	5.80	17.82	0.061	34.77	-16.95	19.97	0.099	36.99	-17.02
782.00	5	16-QAM	V	165	268	1 / 0	13.46	5.80	17.11	0.051	34.77	-17.66	19.26	0.084	36.99	-17.73
782.00	5	64-QAM	V	165	268	1 / 0	12.36	5.80	16.01	0.040	34.77	-18.76	18.16	0.065	36.99	-18.83
782.00	10	QPSK	V	162	264	1 / 49	13.82	5.80	17.47	0.056	34.77	-17.30	19.62	0.092	36.99	-17.37
782.00	10	16-QAM	V	162	264	1 / 49	12.89	5.80	16.54	0.045	34.77	-18.23	18.69	0.074	36.99	-18.30
782.00	10	64-QAM	V	162	264	1 / 49	12.07	5.80	15.72	0.037	34.77	-19.05	17.87	0.061	36.99	-19.12
782.00	5	QPSK	H	149	302	1 / 0	12.63	5.80	16.28	0.042	34.77	-18.49	18.43	0.070	36.99	-18.56

Table 7-3. ERP/EIRP Data (Band 13)

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]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	H	207	275	1 / 5	13.68	6.70	18.23	0.067	38.45	-20.22	20.38	0.109	40.61	-20.23
836.50	1.4	QPSK	H	205	270	1 / 0	13.81	6.70	18.36	0.069	38.45	-20.09	20.51	0.112	40.61	-20.10
848.30	1.4	QPSK	H	218	288	1 / 0	11.99	6.70	16.54	0.045	38.45	-21.91	18.69	0.074	40.61	-21.92
836.50	1.4	16-QAM	H	205	270	1 / 0	13.14	6.70	17.69	0.059	38.45	-20.76	19.84	0.096	40.61	-20.77
836.50	1.4	64-QAM	H	205	270	1 / 0	12.08	6.70	16.63	0.046	38.45	-21.82	18.78	0.076	40.61	-21.83
825.50	3	QPSK	H	202	275	1 / 0	13.81	6.70	18.36	0.069	38.45	-20.09	20.51	0.112	40.61	-20.10
836.50	3	QPSK	H	204	271	1 / 0	13.87	6.70	18.42	0.070	38.45	-20.03	20.57	0.114	40.61	-20.04
847.50	3	QPSK	H	218	288	1 / 0	12.27	6.65	16.77	0.048	38.45	-21.68	18.92	0.078	40.61	-21.69
836.50	3	16-QAM	H	204	271	1 / 0	13.21	6.70	17.76	0.060	38.45	-20.69	19.91	0.098	40.61	-20.70
836.50	3	64-QAM	H	204	271	1 / 14	12.15	6.70	16.70	0.047	38.45	-21.75	18.85	0.077	40.61	-21.76
826.50	5	QPSK	H	209	270	1 / 0	13.73	6.70	18.28	0.067	38.45	-20.17	20.43	0.110	40.61	-20.18
836.50	5	QPSK	H	205	277	1 / 0	13.82	6.70	18.37	0.069	38.45	-20.08	20.52	0.113	40.61	-20.09
846.50	5	QPSK	H	215	282	1 / 0	12.04	6.60	16.49	0.045	38.45	-21.96	18.64	0.073	40.61	-21.97
836.50	5	16-QAM	H	205	277	1 / 0	13.11	6.70	17.66	0.058	38.45	-20.79	19.81	0.096	40.61	-20.80
836.50	5	64-QAM	H	205	277	1 / 0	12.13	6.70	16.68	0.047	38.45	-21.77	18.83	0.076	40.61	-21.78
829.00	10	QPSK	H	209	276	1 / 49	13.67	6.70	18.22	0.066	38.45	-20.23	20.37	0.109	40.61	-20.24
836.50	10	QPSK	H	203	272	1 / 0	13.88	6.70	18.43	0.070	38.45	-20.02	20.58	0.114	40.61	-20.03
844.00	10	QPSK	H	218	291	1 / 0	12.10	6.60	16.55	0.045	38.45	-21.90	18.70	0.074	40.61	-21.91
836.50	10	16-QAM	H	203	272	1 / 0	12.97	6.70	17.52	0.056	38.45	-20.93	19.67	0.093	40.61	-20.94
836.50	10	64-QAM	H	203	272	1 / 0	12.15	6.70	16.70	0.047	38.45	-21.75	18.85	0.077	40.61	-21.76
836.50	10	QPSK	V	152	261	1 / 0	14.00	6.40	18.25	0.067	38.45	-20.20	20.40	0.110	40.61	-20.21

Table 7-4. ERP/EIRP Data (Band 5)

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 139 of 166

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 [Watts]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	V	115	177	1 / 0	10.79	9.35	20.14	0.103	30.00	-9.86
1745.00	1.4	QPSK	V	154	132	1 / 0	12.85	9.11	21.96	0.157	30.00	-8.04
1779.30	1.4	QPSK	V	100	51	1 / 5	13.23	9.17	22.40	0.174	30.00	-7.60
1779.30	1.4	16-QAM	V	100	51	1 / 0	12.59	9.17	21.76	0.150	30.00	-8.24
1779.30	1.4	64-QAM	V	100	51	1 / 0	11.48	9.17	20.65	0.116	30.00	-9.35
1711.50	3	QPSK	V	110	180	1 / 0	10.87	9.34	20.21	0.105	30.00	-9.79
1745.00	3	QPSK	V	155	133	1 / 0	12.91	9.11	22.02	0.159	30.00	-7.98
1778.50	3	QPSK	V	106	49	1 / 0	13.32	9.17	22.49	0.177	30.00	-7.51
1778.50	3	16-QAM	V	106	49	1 / 0	12.68	9.17	21.85	0.153	30.00	-8.15
1778.50	3	64-QAM	V	106	49	1 / 14	11.59	9.17	20.76	0.119	30.00	-9.24
1712.50	5	QPSK	V	118	180	1 / 24	10.90	9.34	20.24	0.106	30.00	-9.76
1745.00	5	QPSK	V	165	133	1 / 0	12.96	9.11	22.07	0.161	30.00	-7.93
1777.50	5	QPSK	V	102	55	1 / 24	13.32	9.16	22.48	0.177	30.00	-7.52
1777.50	5	16-QAM	V	102	55	1 / 24	12.70	9.16	21.86	0.154	30.00	-8.14
1777.50	5	64-QAM	V	102	55	1 / 24	11.61	9.16	20.77	0.120	30.00	-9.23
1715.00	10	QPSK	V	115	180	1 / 0	10.95	9.32	20.27	0.106	30.00	-9.73
1745.00	10	QPSK	V	160	132	1 / 49	12.99	9.11	22.10	0.162	30.00	-7.90
1775.00	10	QPSK	V	104	49	1 / 0	13.34	9.16	22.50	0.178	30.00	-7.50
1775.00	10	16-QAM	V	104	49	1 / 0	12.64	9.16	21.80	0.151	30.00	-8.20
1775.00	10	64-QAM	V	104	49	1 / 0	11.64	9.16	20.80	0.120	30.00	-9.20
1717.50	15	QPSK	V	118	180	1 / 74	10.98	9.30	20.28	0.107	30.00	-9.72
1745.00	15	QPSK	V	162	130	1 / 74	13.05	9.11	22.16	0.164	30.00	-7.84
1772.50	15	QPSK	V	104	45	1 / 74	13.35	9.15	22.50	0.178	30.00	-7.50
1772.50	15	16-QAM	V	104	45	1 / 74	12.74	9.15	21.89	0.154	30.00	-8.11
1772.50	15	64-QAM	V	104	45	1 / 74	11.61	9.15	20.76	0.119	30.00	-9.24
1720.00	20	QPSK	V	119	184	1 / 99	10.99	9.28	20.27	0.106	30.00	-9.73
1745.00	20	QPSK	V	163	136	1 / 0	13.01	9.11	22.12	0.163	30.00	-7.88
1770.00	20	QPSK	V	105	50	1 / 0	13.29	9.14	22.43	0.175	30.00	-7.57
1770.00	20	16-QAM	V	105	50	1 / 0	12.39	9.14	21.53	0.142	30.00	-8.47
1770.00	20	64-QAM	V	105	50	1 / 0	11.51	9.14	20.65	0.116	30.00	-9.35
1772.50	15	QPSK	H	138	359	1 / 74	12.84	9.24	22.08	0.161	30.00	-7.92

Table 7-5. EIRP Data (Band 66/4)

FCC ID: A3LSMA705U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset	Page 140 of 166

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 [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	V	137	55	1 / 0	13.63	9.88	23.51	0.224	33.01	-9.50
1880.00	1.4	QPSK	V	142	40	1 / 0	13.49	10.10	23.59	0.229	33.01	-9.42
1909.30	1.4	QPSK	V	125	57	1 / 0	12.38	10.31	22.69	0.186	33.01	-10.32
1880.00	1.4	16-QAM	V	142	40	1 / 5	12.85	10.10	22.95	0.197	33.01	-10.06
1880.00	1.4	64-QAM	V	142	40	1 / 5	11.75	10.10	21.85	0.153	33.01	-11.16
1851.50	3	QPSK	V	136	54	1 / 0	13.68	9.88	23.56	0.227	33.01	-9.45
1880.00	3	QPSK	V	140	42	1 / 0	13.58	10.10	23.68	0.234	33.01	-9.33
1908.50	3	QPSK	V	118	50	1 / 0	12.44	10.30	22.74	0.188	33.01	-10.27
1880.00	3	16-QAM	V	140	42	1 / 14	12.92	10.10	23.02	0.201	33.01	-9.99
1880.00	3	64-QAM	V	140	42	1 / 0	11.85	10.10	21.95	0.157	33.01	-11.06
1852.50	5	QPSK	V	135	50	1 / 0	13.71	9.89	23.60	0.229	33.01	-9.41
1880.00	5	QPSK	V	141	52	1 / 0	13.62	10.10	23.72	0.236	33.01	-9.29
1907.50	5	QPSK	V	122	58	1 / 0	12.52	10.30	22.82	0.191	33.01	-10.19
1880.00	5	16-QAM	V	141	52	1 / 0	12.95	10.10	23.05	0.202	33.01	-9.96
1880.00	5	64-QAM	V	141	52	1 / 0	11.92	10.10	22.02	0.159	33.01	-10.99
1855.00	10	QPSK	V	133	50	1 / 0	13.93	9.91	23.84	0.242	33.01	-9.17
1880.00	10	QPSK	V	134	56	1 / 0	13.83	10.10	23.93	0.247	33.01	-9.08
1905.00	10	QPSK	V	126	42	1 / 0	12.55	10.28	22.83	0.192	33.01	-10.18
1880.00	10	16-QAM	V	134	56	1 / 0	13.17	10.10	23.27	0.213	33.01	-9.74
1880.00	10	64-QAM	V	134	56	1 / 0	12.13	10.10	22.23	0.167	33.01	-10.78
1857.50	15	QPSK	V	135	52	1 / 0	13.77	9.93	23.70	0.234	33.01	-9.31
1880.00	15	QPSK	V	137	44	1 / 0	13.74	10.10	23.84	0.242	33.01	-9.17
1902.50	15	QPSK	V	122	54	1 / 0	12.68	10.27	22.95	0.197	33.01	-10.06
1880.00	15	16-QAM	V	137	44	1 / 0	13.12	10.10	23.22	0.210	33.01	-9.79
1880.00	15	64-QAM	V	137	44	1 / 0	12.00	10.10	22.10	0.162	33.01	-10.91
1860.00	20	QPSK	V	137	53	1 / 99	13.92	9.95	23.87	0.244	33.01	-9.14
1880.00	20	QPSK	V	136	48	1 / 0	13.86	10.10	23.96	0.249	33.01	-9.05
1900.00	20	QPSK	V	122	55	1 / 0	12.61	10.26	22.87	0.194	33.01	-10.14
1880.00	20	16-QAM	V	136	48	1 / 0	12.93	10.10	23.03	0.201	33.01	-9.98
1880.00	20	64-QAM	V	136	48	1 / 0	12.09	10.10	22.19	0.166	33.01	-10.82
1880.00	20	QPSK	H	146	302	1 / 0	13.57	9.90	23.47	0.222	33.01	-9.54

Table 7-6. EIRP Data (Band 2)

FCC ID: A3LSMA705U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset	Page 141 of 166

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 [Watts]	EIRP Limit [dBm]	Margin [dB]
2502.50	5	QPSK	H	102	307	1 / 24	10.74	9.43	20.17	0.104	33.01	-12.84
2535.00	5	QPSK	H	101	302	1 / 24	9.62	9.39	19.01	0.080	33.01	-14.00
2567.50	5	QPSK	H	104	304	1 / 24	10.33	9.45	19.78	0.095	33.01	-13.23
2502.50	5	16-QAM	H	102	307	1 / 24	10.07	9.43	19.50	0.089	33.01	-13.51
2502.50	5	64-QAM	H	102	307	1 / 24	8.97	9.43	18.40	0.069	33.01	-14.61
2505.00	10	QPSK	H	100	304	1 / 49	10.84	9.43	20.27	0.106	33.01	-12.74
2535.00	10	QPSK	H	103	307	1 / 49	9.59	9.39	18.98	0.079	33.01	-14.03
2565.00	10	QPSK	H	104	300	1 / 49	10.30	9.44	19.74	0.094	33.01	-13.27
2505.00	10	16-QAM	H	100	304	1 / 49	10.10	9.43	19.53	0.090	33.01	-13.48
2505.00	10	64-QAM	H	100	304	1 / 49	9.15	9.43	18.58	0.072	33.01	-14.43
2507.50	15	QPSK	H	101	305	1 / 74	10.89	9.42	20.31	0.107	33.01	-12.70
2535.00	15	QPSK	H	100	308	1 / 74	9.62	9.39	19.01	0.080	33.01	-14.00
2562.50	15	QPSK	H	102	305	1 / 74	10.31	9.43	19.74	0.094	33.01	-13.27
2507.50	15	16-QAM	H	101	305	1 / 74	10.18	9.42	19.60	0.091	33.01	-13.41
2507.50	15	64-QAM	H	101	305	1 / 74	9.16	9.42	18.58	0.072	33.01	-14.43
2510.00	20	QPSK	H	102	307	1 / 99	10.96	9.42	20.38	0.109	33.01	-12.63
2535.00	20	QPSK	H	100	309	1 / 99	9.90	9.39	19.29	0.085	33.01	-13.72
2560.00	20	QPSK	H	102	306	1 / 99	10.31	9.42	19.73	0.094	33.01	-13.28
2510.00	20	16-QAM	H	102	307	1 / 99	10.27	9.42	19.69	0.093	33.01	-13.32
2510.00	20	64-QAM	H	102	307	1 / 99	9.28	9.42	18.70	0.074	33.01	-14.31
2510.00	20	QPSK	V	144	276	1 / 99	9.94	9.39	19.33	0.086	33.01	-13.68

Table 7-7. EIRP Data (Band 7)

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 142 of 166

7.7 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 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.

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.8

ANSI/TIA-603-E-2016 – 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 = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 143 of 166

Test Setup

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

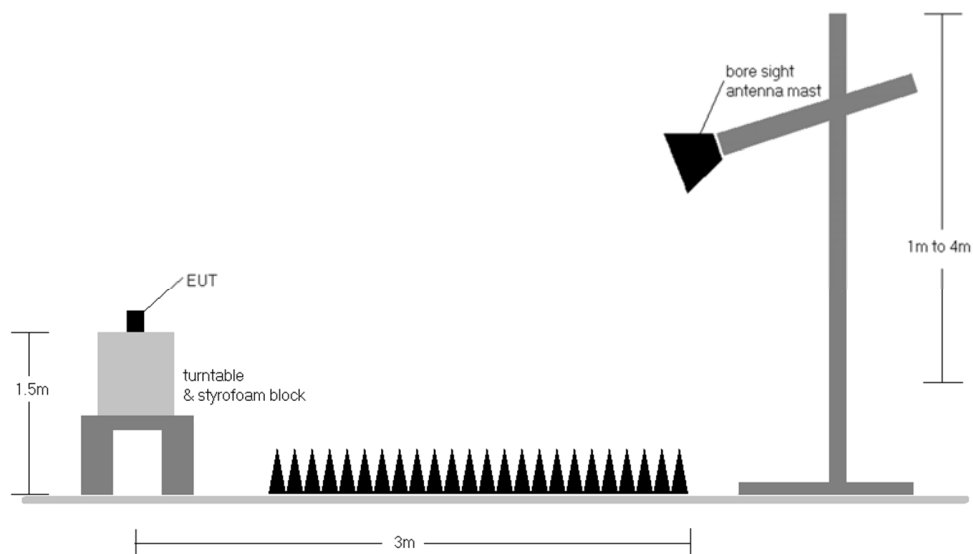


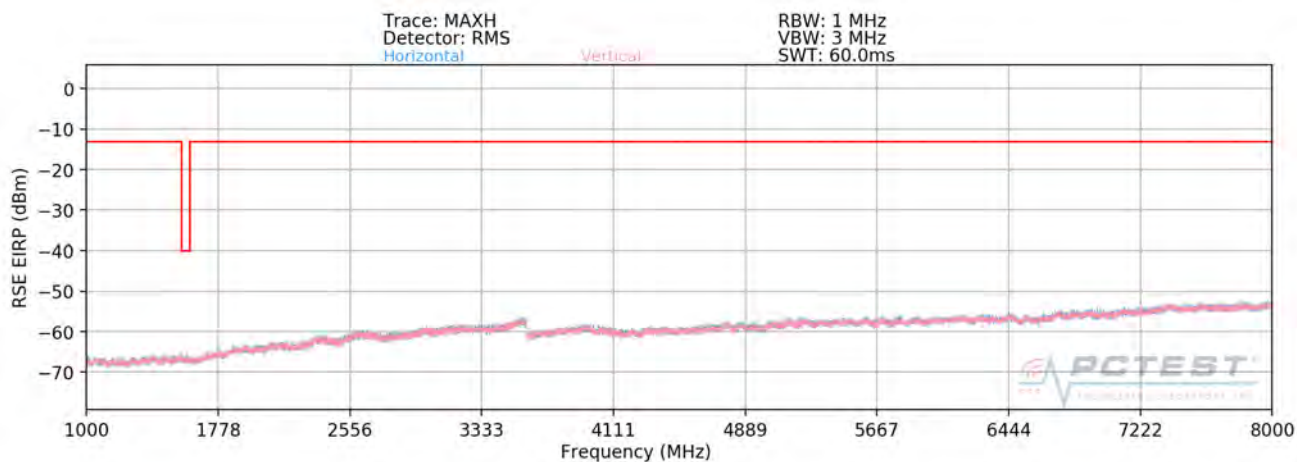
Figure 7-7. Test Instrument & Measurement Setup

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: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 144 of 166

Band 13



Plot 7-226. Radiated Spurious Plot above 1GHz (Band 13)

OPERATING FREQUENCY: 782.00 MHz
MODULATION SIGNAL: QPSK
BANDWIDTH: 10.0 MHz
DISTANCE: 3 meters
LIMIT: -13 dBm

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]	Margin [dB]
2346.00	H	-	-	-76.40	9.43	-66.97	-54.0
3128.00	H	-	-	-73.84	9.34	-64.49	-51.5

Table 7-8. Radiated Spurious Data (Band 13)

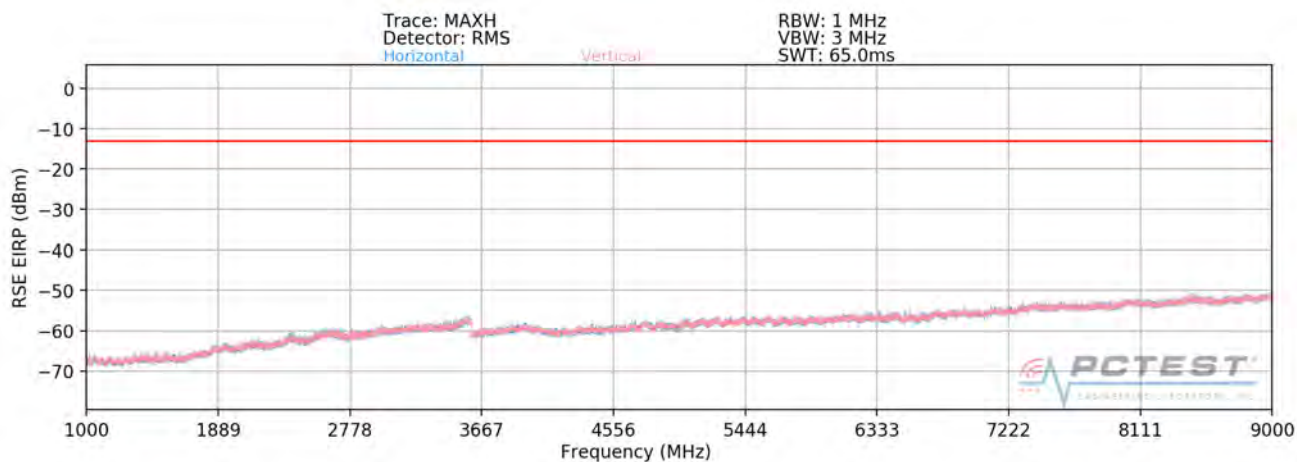
MODULATION SIGNAL: QPSK
BANDWIDTH: 10.00 MHz
DISTANCE: 3 meters
NARROWBAND EMISSION LIMIT: -50 dBm
WIDEBAND EMISSION LIMIT: -40 dBm/MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	H	122	355	-73.26	8.53	-64.73	-24.7

Table 7-9. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 145 of 166

Band 5



Plot 7-227. Radiated Spurious Plot above 1GHz (Band 5)

OPERATING FREQUENCY: 829.00 MHz

MODULATION SIGNAL: QPSK

BANDWIDTH: 10.0 MHz

DISTANCE: 3 meters

LIMIT: -13 dBm

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]	Margin [dB]
1658.00	H	288	174	-75.50	8.95	-66.55	-53.5
2487.00	H	119	177	-76.35	9.70	-66.65	-53.6
3316.00	H	-	-	-74.15	9.59	-64.56	-51.6

Table 7-10. Radiated Spurious Data (Band 5 – Low Channel)

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 146 of 166

OPERATING FREQUENCY: 836.50 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]	Margin [dB]
1673.00	H	162	354	-78.25	8.95	-69.30	-56.3
2509.50	H	115	240	-75.78	9.75	-66.02	-53.0
3346.00	H	-	-	-73.74	9.60	-64.13	-51.1

Table 7-11. Radiated Spurious Data (Band 5 – Mid Channel)

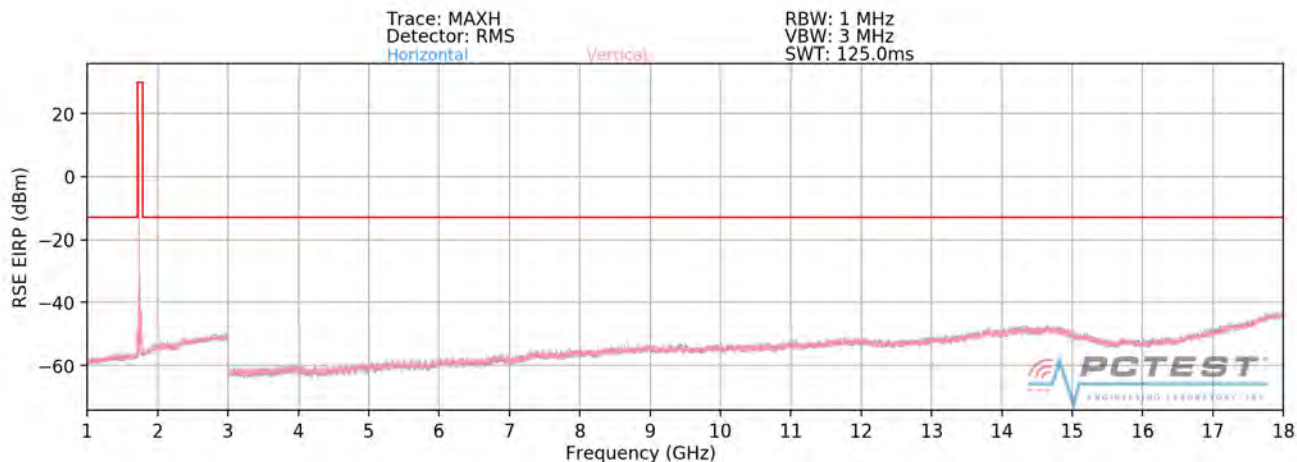
OPERATING FREQUENCY: 844.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]	Margin [dB]
1688.00	H	175	4	-78.59	8.95	-69.64	-56.6
2532.00	H	-	-	-76.81	9.75	-67.07	-54.1
3376.00	H	-	-	-74.18	9.71	-64.47	-51.5

Table 7-12. Radiated Spurious Data (Band 5 – High Channel)

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 147 of 166

Band 66/4



Plot 7-228. Radiated Spurious Plot above 1GHz (Band 66/4)

OPERATING FREQUENCY: 1717.50 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 15.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]	Margin [dB]
3435.00	V	-	-	-74.11	9.84	-64.27	-51.3
5152.50	V	113	3	-64.25	10.71	-53.54	-40.5
6870.00	V	-	-	-71.52	11.68	-59.84	-46.8
8587.50	V	351	211	-68.13	11.08	-57.05	-44.1
10305.00	V	-	-	-68.74	12.38	-56.36	-43.4
12022.50	V	-	-	-66.88	12.71	-54.17	-41.2

Table 7-13. Radiated Spurious Data (Band 66/4 – Low Channel)

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 148 of 166

OPERATING FREQUENCY: 1745.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 15.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]	Margin [dB]
3490.00	V	144	149	-72.88	9.91	-62.96	-50.0
5235.00	V	108	337	-61.17	10.73	-50.43	-37.4
6980.00	V	-	-	-71.73	11.82	-59.91	-46.9
8725.00	V	201	17	-65.86	11.00	-54.86	-41.9
10470.00	V	-	-	-69.15	12.58	-56.57	-43.6
12215.00	V	-	-	-67.65	13.11	-54.54	-41.5

Table 7-14. Radiated Spurious Data (Band 66/4 – Mid Channel)

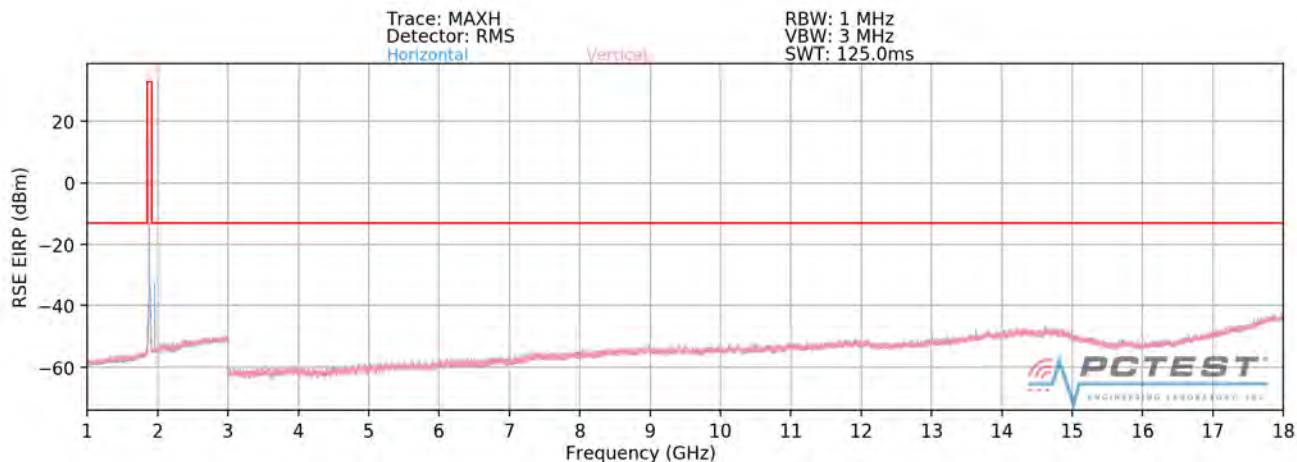
OPERATING FREQUENCY: 1772.50 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 15.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]	Margin [dB]
3545.00	V	100	143	-71.90	9.89	-62.00	-49.0
5317.50	V	100	18	-61.70	10.69	-51.01	-38.0
7090.00	V	-	-	-71.36	11.79	-59.57	-46.6
8862.50	V	125	9	-58.87	11.00	-47.88	-34.9
10635.00	V	-	-	-69.11	12.58	-56.53	-43.5
12407.50	V	-	-	-68.05	13.33	-54.71	-41.7

Table 7-15. Radiated Spurious Data (Band 66/4 – High Channel)

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 149 of 166

Band 2



Plot 7-229. Radiated Spurious Plot above 1GHz (Band 2)

OPERATING FREQUENCY: 1860.00 MHz

MODULATION SIGNAL: QPSK

BANDWIDTH: 20.0 MHz

DISTANCE: 3 meters

LIMIT: -13 dBm

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]	Margin [dB]
3720.00	H	125	41	-68.17	9.51	-58.66	-45.7
5580.00	H	100	18	-65.45	10.99	-54.47	-41.5
7440.00	H	-	-	-64.69	10.99	-53.71	-40.7

Table 7-16. Radiated Spurious Data (Band 2 – Low Channel)

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 150 of 166

OPERATING FREQUENCY: 1880.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]	Margin [dB]
3760.00	H	223	11	-68.15	9.37	-58.78	-45.8
5640.00	H	102	346	-64.82	11.17	-53.66	-40.7
7520.00	H	-	-	-64.74	11.11	-53.63	-40.6

Table 7-17. Radiated Spurious Data (Band 2 – Mid Channel)

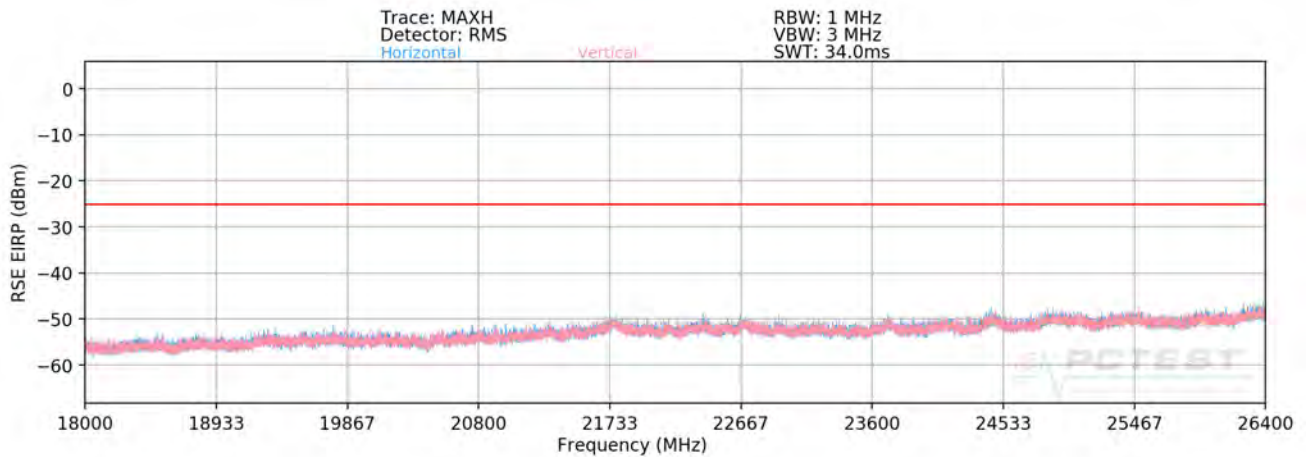
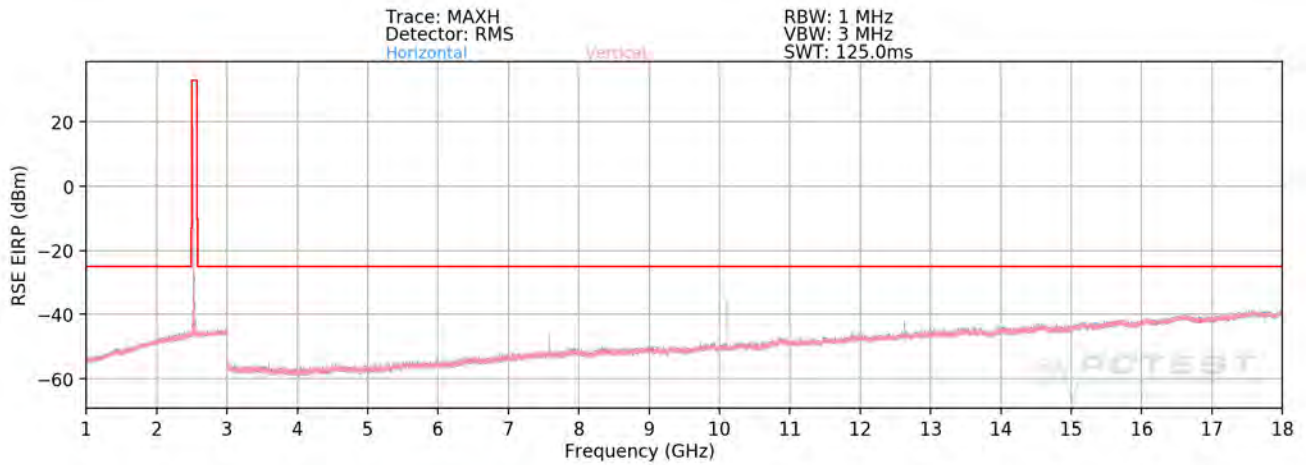
OPERATING FREQUENCY: 1900.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]	Margin [dB]
3800.00	H	144	6	-67.66	9.28	-58.38	-45.4
5700.00	H	113	155	-67.34	11.31	-56.03	-43.0
7600.00	H	-	-	-64.77	11.24	-53.54	-40.5

Table 7-18. Radiated Spurious Data (Band 2 – High Channel)

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 151 of 166

Band 7



FCC ID: A3LSMA705U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 152 of 166

OPERATING FREQUENCY: 2510.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

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]	Margin [dB]
5020.00	H	141	61	-72.82	10.88	-61.93	-36.9
7530.00	H	270	335	-65.47	11.13	-54.34	-29.3
10040.00	H	100	41	-53.61	11.99	-41.63	-16.6
12550.00	H	195	2	-62.91	13.56	-49.35	-24.4
15060.00	H	-	-	-66.28	13.58	-52.70	-27.7
17570.00	H	-	-	-59.29	11.59	-47.70	-22.7

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

OPERATING FREQUENCY: 2535.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

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]	Margin [dB]
5070.00	H	182	313	-72.30	10.75	-61.55	-36.6
7605.00	H	278	273	-66.15	11.25	-54.90	-29.9
10140.00	H	152	331	-48.38	12.07	-36.30	-11.3
12675.00	H	143	108	-62.56	13.66	-48.90	-23.9
15210.00	H	-	-	-68.62	14.71	-53.91	-28.9
17745.00	H	-	-	-57.05	10.38	-46.67	-21.7

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

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 153 of 166

OPERATING FREQUENCY: 2560.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

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]	Margin [dB]
5120.00	H	152	6	-71.99	10.68	-61.31	-36.3
7680.00	H	169	330	-65.32	11.39	-53.93	-28.9
10240.00	H	151	330	-43.15	12.18	-30.97	-6.0
12800.00	H	203	343	-50.67	13.50	-37.17	-12.2
15360.00	H	-	-	-69.71	15.29	-54.43	-29.4
17920.00	H	-	-	-55.47	9.40	-46.08	-21.1

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

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 154 of 166

7.8 Frequency Stability / Temperature Variation

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. 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, 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-E-2016

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

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 155 of 166

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V 9.0 02/01/2019

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Band 13 Frequency Stability Measurements

OPERATING FREQUENCY: 782,000,000 Hz
 CHANNEL: 23230
 REFERENCE VOLTAGE: 4.30 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.30	- 30	782,000,036	36	0.0000046
100 %		- 20	782,000,331	331	0.0000423
100 %		- 10	781,999,666	-334	-0.0000427
100 %		0	782,000,007	7	0.0000009
100 %		+ 10	782,000,219	219	0.0000280
100 %		+ 20	782,000,297	297	0.0000380
100 %		+ 30	781,999,689	-311	-0.0000398
100 %		+ 40	782,000,005	5	0.0000006
100 %		+ 50	781,999,873	-127	-0.0000162
BATT. ENDPOINT	3.45	+ 20	781,999,997	-3	-0.0000004

Table 7-22. 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: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 156 of 166

Band 13 Frequency Stability Measurements

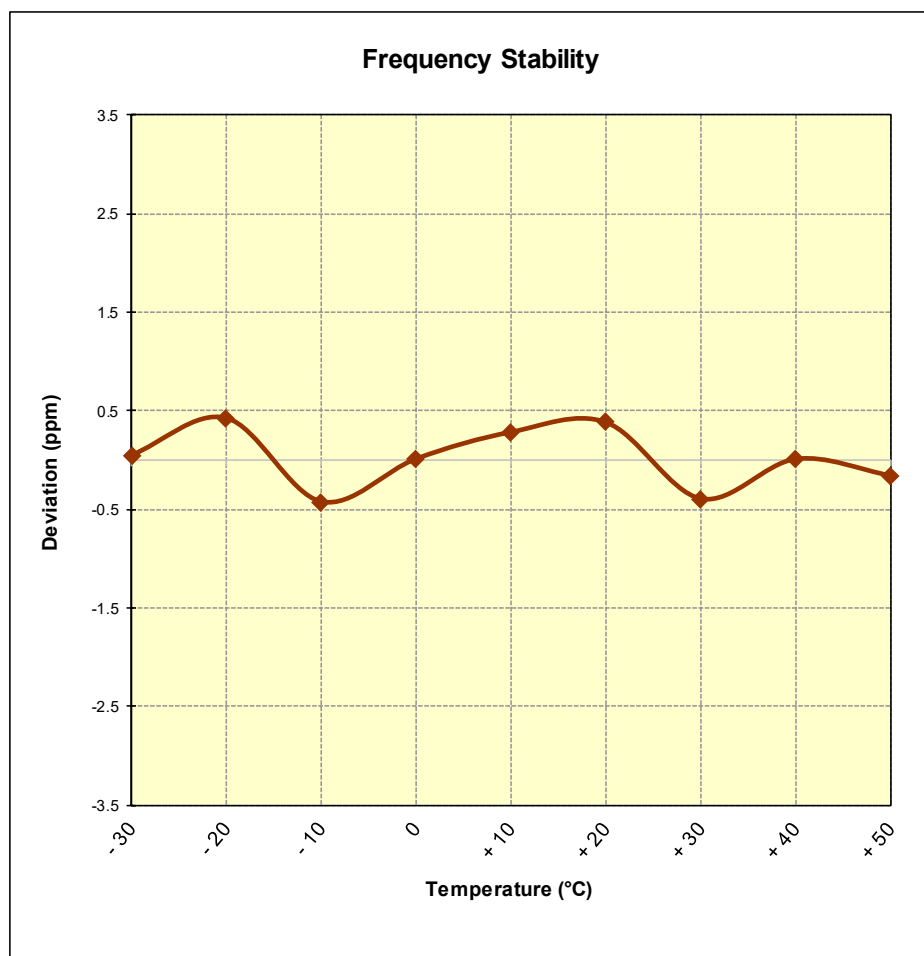


Figure 7-8. Frequency Stability Graph (Band 13)

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset	Page 157 of 166	

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Band 5 Frequency Stability Measurements

OPERATING FREQUENCY: 836,500,000 Hz
 CHANNEL: 20525
 REFERENCE VOLTAGE: 4.30 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.30	- 30	836,499,818	-182	-0.0000218
100 %		- 20	836,500,045	45	0.0000054
100 %		- 10	836,500,066	66	0.0000079
100 %		0	836,499,984	-16	-0.0000019
100 %		+ 10	836,500,223	223	0.0000267
100 %		+ 20	836,500,192	192	0.0000230
100 %		+ 30	836,500,036	36	0.0000043
100 %		+ 40	836,499,936	-64	-0.0000077
100 %		+ 50	836,500,095	95	0.0000114
BATT. ENDPOINT	3.45	+ 20	836,499,756	-244	-0.0000292

Table 7-23. Frequency Stability Data (Band 5)

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 158 of 166

Band 5 Frequency Stability Measurements

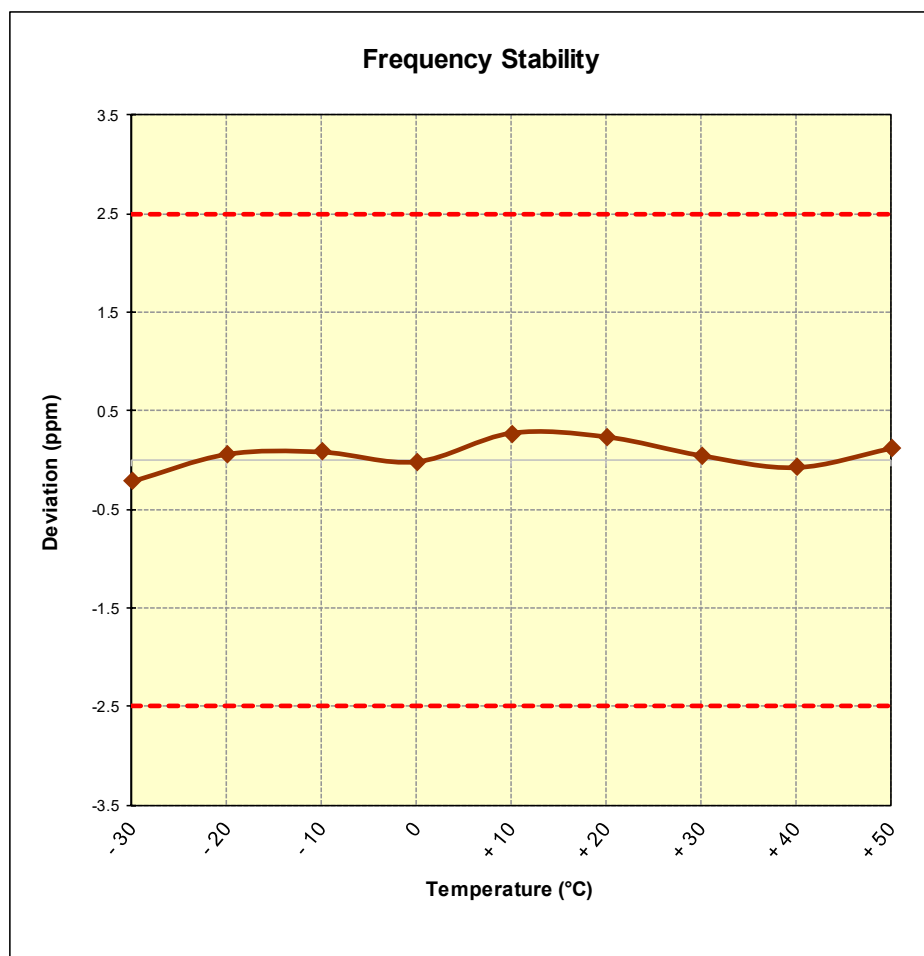


Figure 7-9. Frequency Stability Graph (Band 5)

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset	Page 159 of 166	

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V 9.0 02/01/2019

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Band 66/4 Frequency Stability Measurements

OPERATING FREQUENCY: 1,745,000,000 Hz
 CHANNEL: 132322
 REFERENCE VOLTAGE: 4.30 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.30	- 30	1,745,000,313	313	0.0000179
100 %		- 20	1,744,999,572	-428	-0.0000245
100 %		- 10	1,745,000,137	137	0.0000079
100 %		0	1,744,999,946	-54	-0.0000031
100 %		+ 10	1,744,999,936	-64	-0.0000037
100 %		+ 20	1,744,999,758	-242	-0.0000139
100 %		+ 30	1,744,999,833	-167	-0.0000096
100 %		+ 40	1,744,999,709	-291	-0.0000167
100 %		+ 50	1,744,999,840	-160	-0.0000092
BATT. ENDPOINT	3.45	+ 20	1,744,999,854	-146	-0.0000084

Table 7-24. Frequency Stability Data (Band 66/4)

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.

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset	Page 160 of 166	

Band 66/4 Frequency Stability Measurements

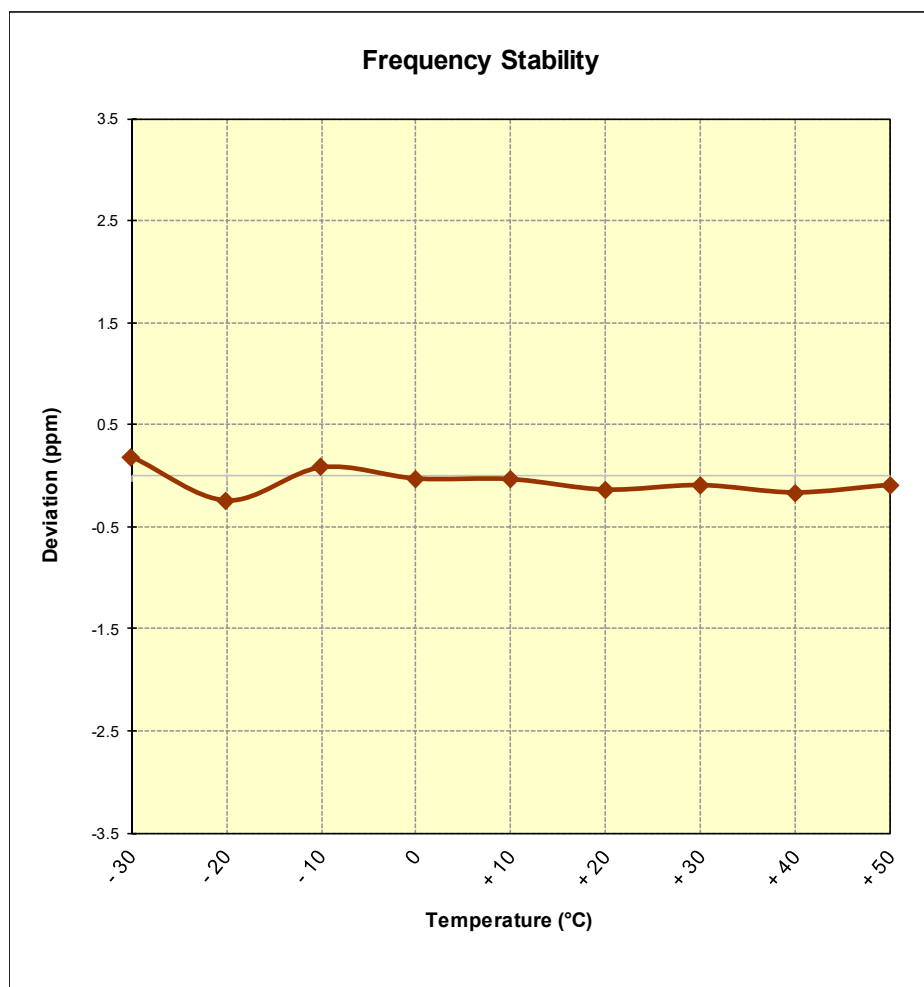


Figure 7-10. Frequency Stability Graph (Band 66/4)

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 161 of 166

Band 2 Frequency Stability Measurements

OPERATING FREQUENCY: 1,880,000,000 Hz
 CHANNEL: 18900
 REFERENCE VOLTAGE: 4.30 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.30	- 30	1,880,000,238	238	0.0000127
100 %		- 20	1,879,999,816	-184	-0.0000098
100 %		- 10	1,880,000,384	384	0.0000204
100 %		0	1,880,000,010	10	0.0000005
100 %		+ 10	1,880,000,234	234	0.0000124
100 %		+ 20	1,880,000,056	56	0.0000030
100 %		+ 30	1,880,000,065	65	0.0000035
100 %		+ 40	1,880,000,327	327	0.0000174
100 %		+ 50	1,879,999,960	-40	-0.0000021
BATT. ENDPOINT	3.45	+ 20	1,879,999,886	-114	-0.0000061

Table 7-25. 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.

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 162 of 166

Band 2 Frequency Stability Measurements

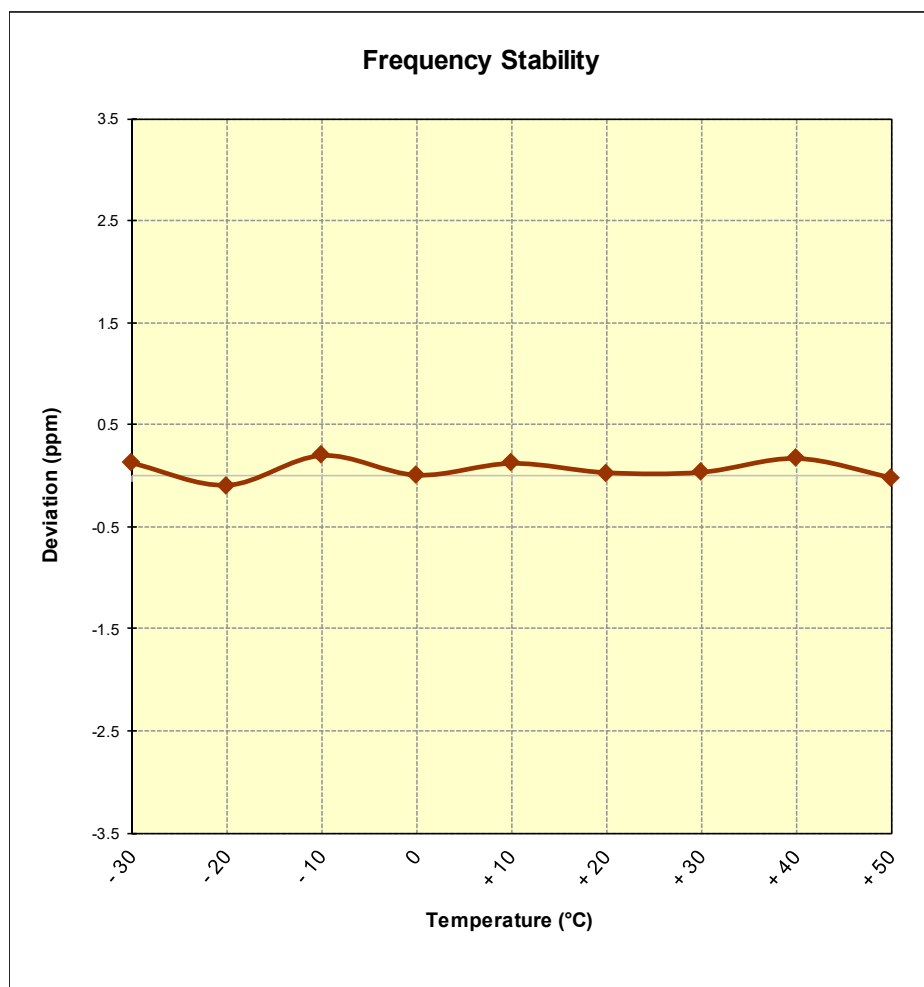


Figure 7-11. Frequency Stability Graph (Band 2)

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 163 of 166

Band 7 Frequency Stability Measurements

OPERATING FREQUENCY: 2,535,000,000 Hz
 CHANNEL: 21100
 REFERENCE VOLTAGE: 4.30 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.30	- 30	2,535,000,045	45	0.0000018
100 %		- 20	2,534,999,908	-92	-0.0000036
100 %		- 10	2,535,000,260	260	0.0000103
100 %		0	2,535,000,002	2	0.0000001
100 %		+ 10	2,534,999,546	-454	-0.0000179
100 %		+ 20	2,534,999,739	-261	-0.0000103
100 %		+ 30	2,534,999,651	-349	-0.0000138
100 %		+ 40	2,534,999,758	-242	-0.0000095
100 %		+ 50	2,535,000,162	162	0.0000064
BATT. ENDPOINT	3.45	+ 20	2,534,999,740	-260	-0.0000103

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

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: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 164 of 166

Band 7 Frequency Stability Measurements

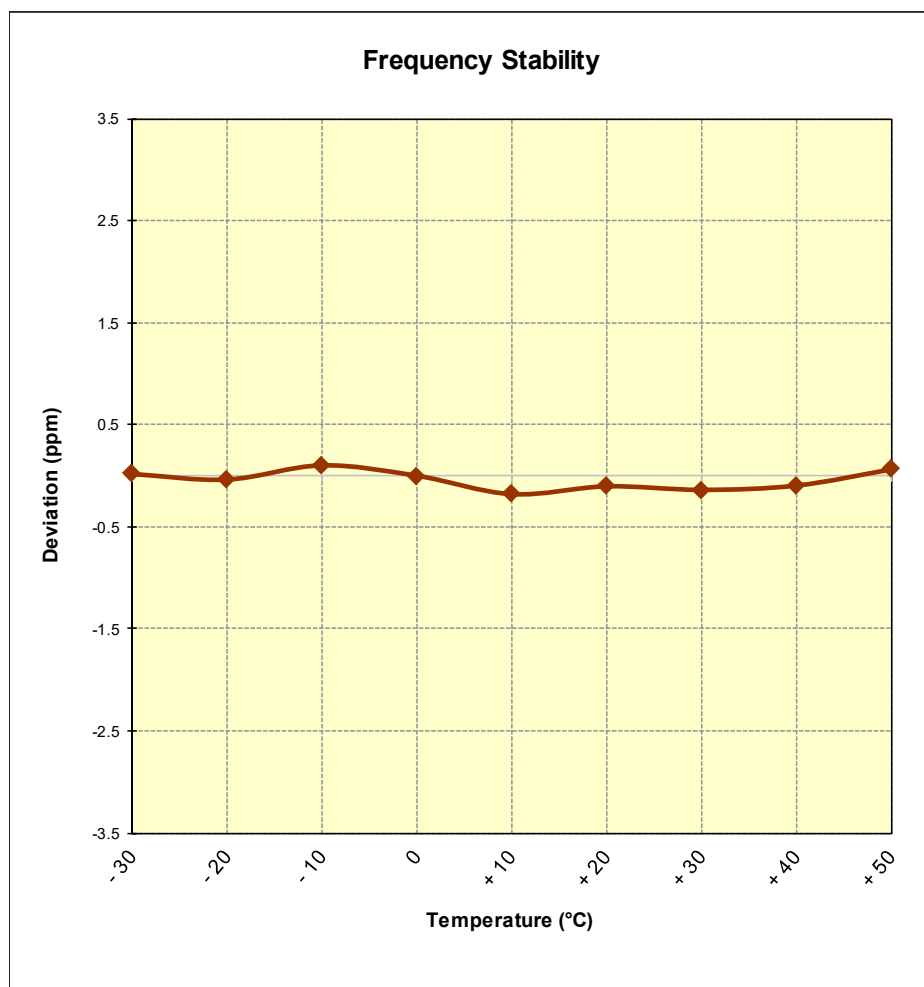


Figure 7-12. Frequency Stability Graph (Band 7)

FCC ID: A3LSMA705U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 165 of 166

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMA705U** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.

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Test Report S/N: 1M1908220144-03.A3L	Test Dates: 08/26/2019 - 09/19/2019	EUT Type: Portable Handset		Page 166 of 166