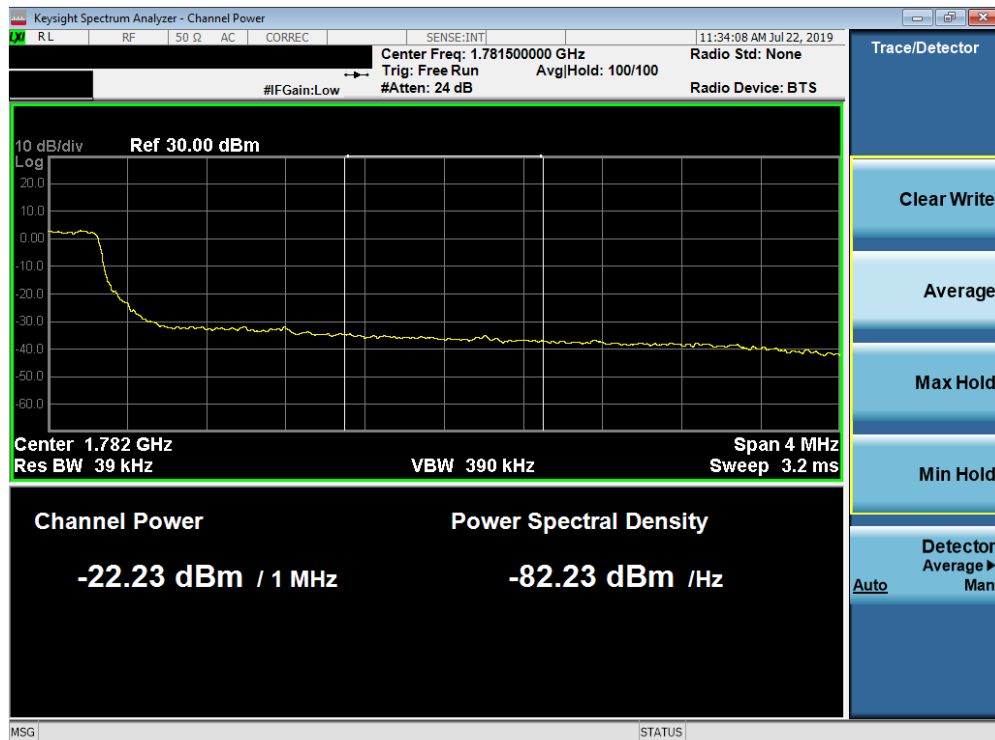


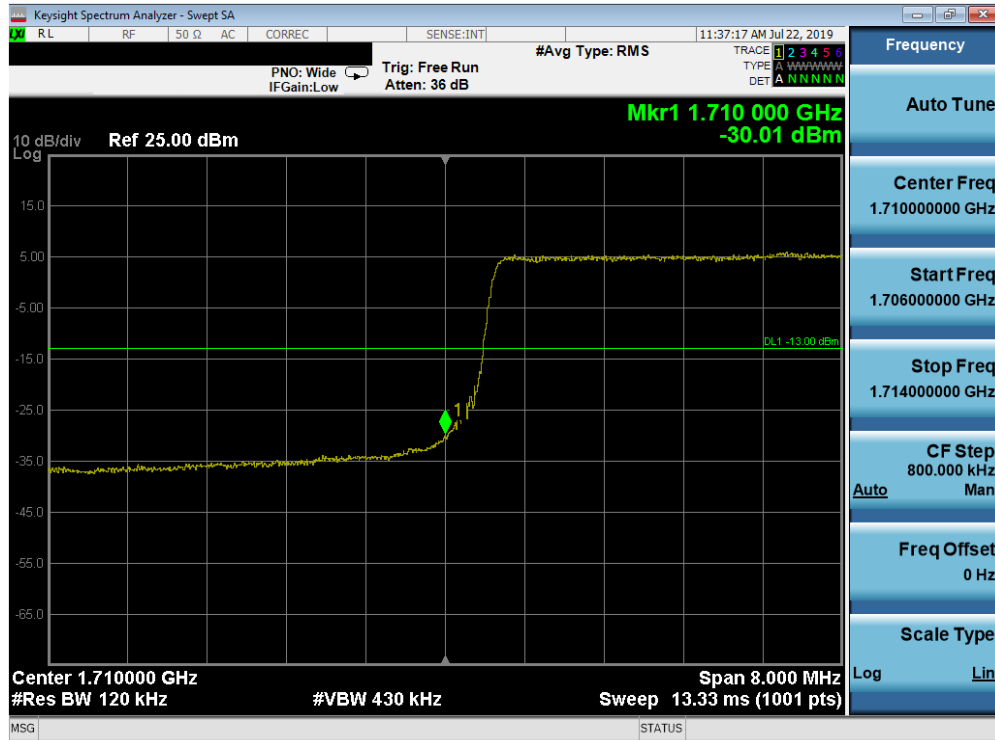


Plot 7-138. Upper Band Edge Plot (Band 66 - 5.0MHz QPSK - Full RB Configuration)

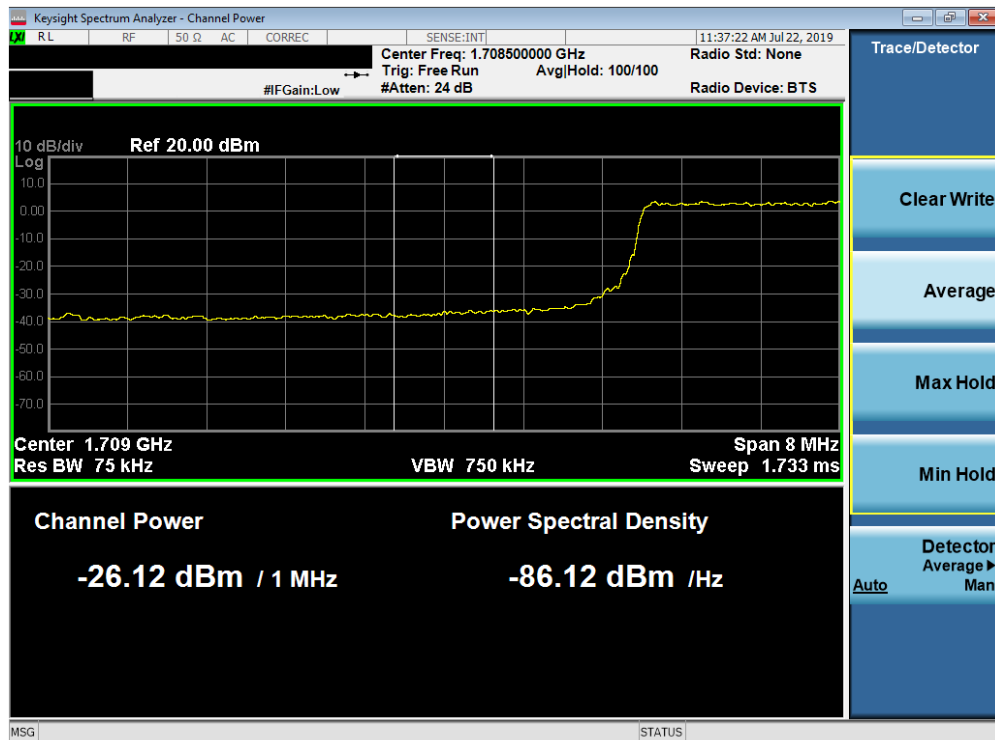


Plot 7-139. Upper Extended Band Edge Plot (Band 66 - 5.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 92 of 191                  |



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

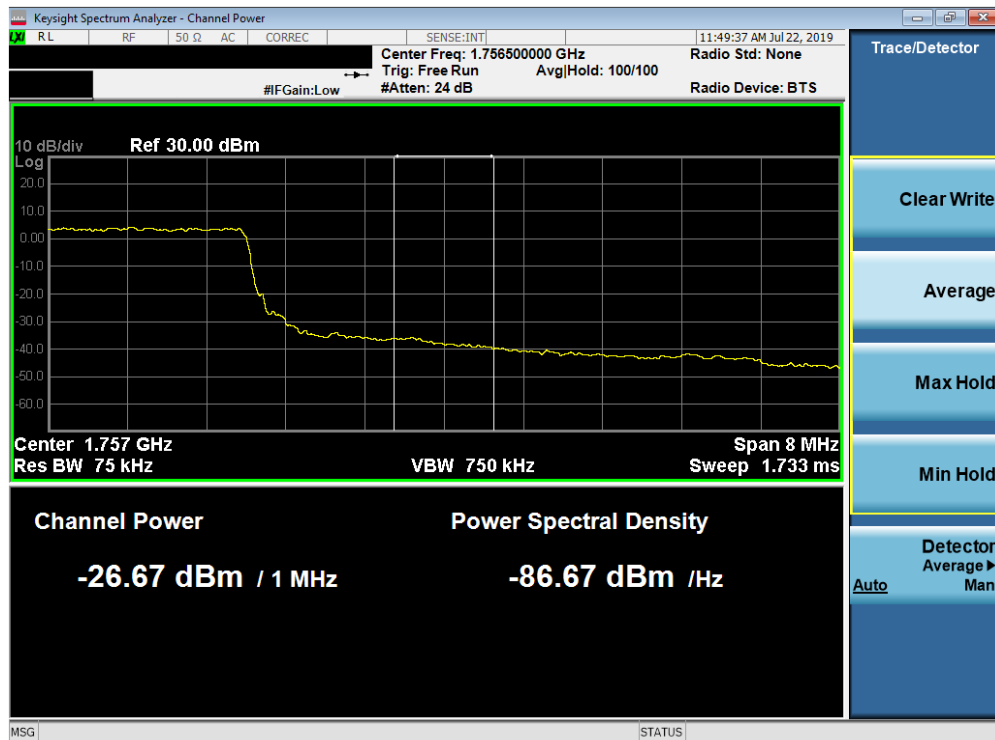


Plot 7-141. Lower Extended Band Edge Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 93 of 191                  |



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

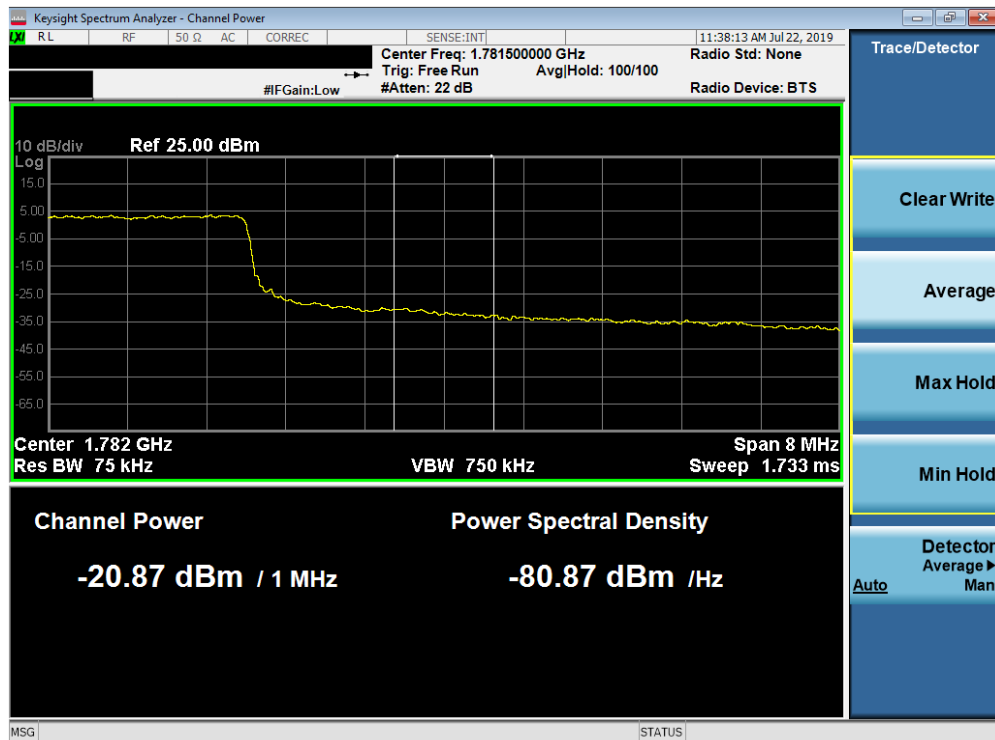


Plot 7-143. Upper Extended Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 94 of 191                  |

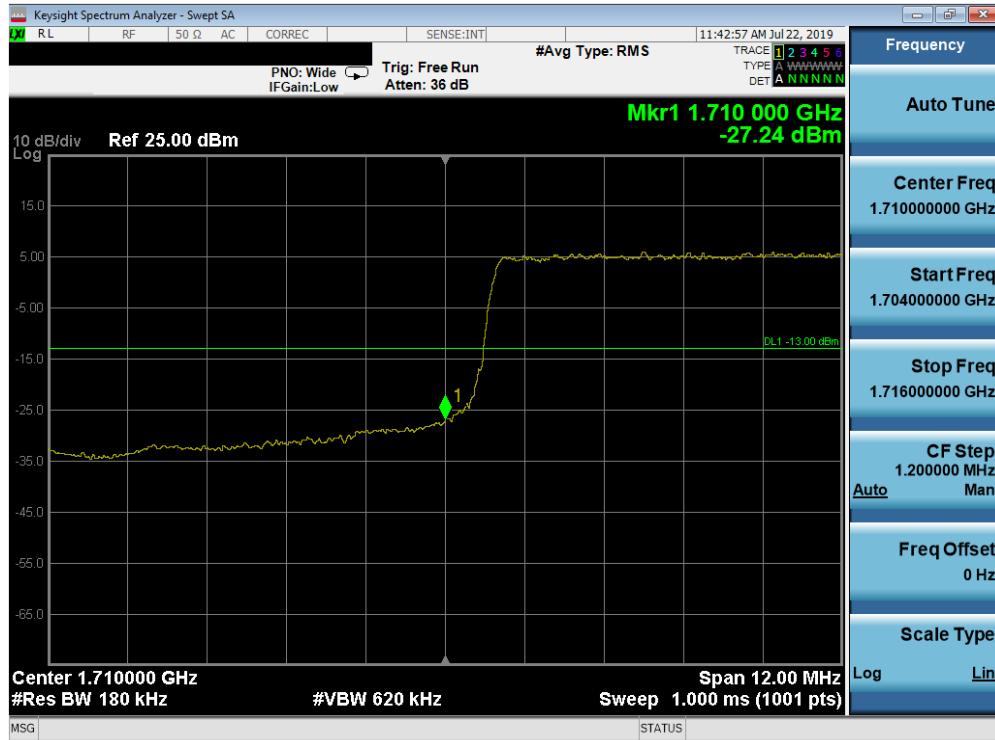


Plot 7-144. Upper Band Edge Plot (Band 66 - 10.0MHz QPSK - Full RB Configuration)

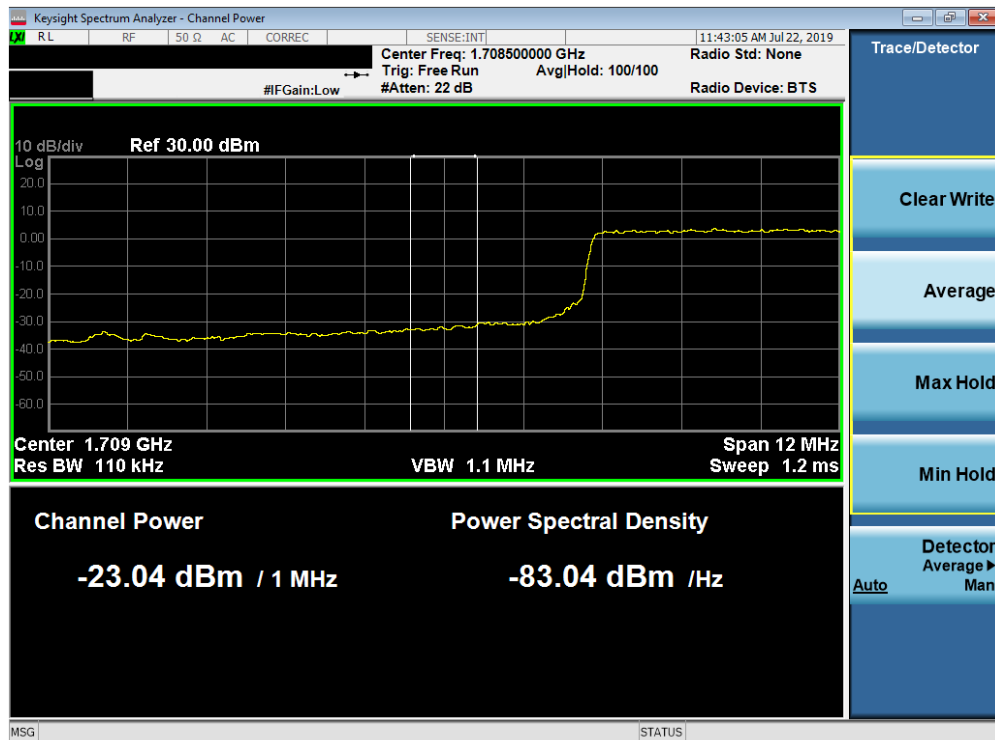


Plot 7-145. Upper Extended Band Edge Plot (Band 66 - 10.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 95 of 191                  |



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

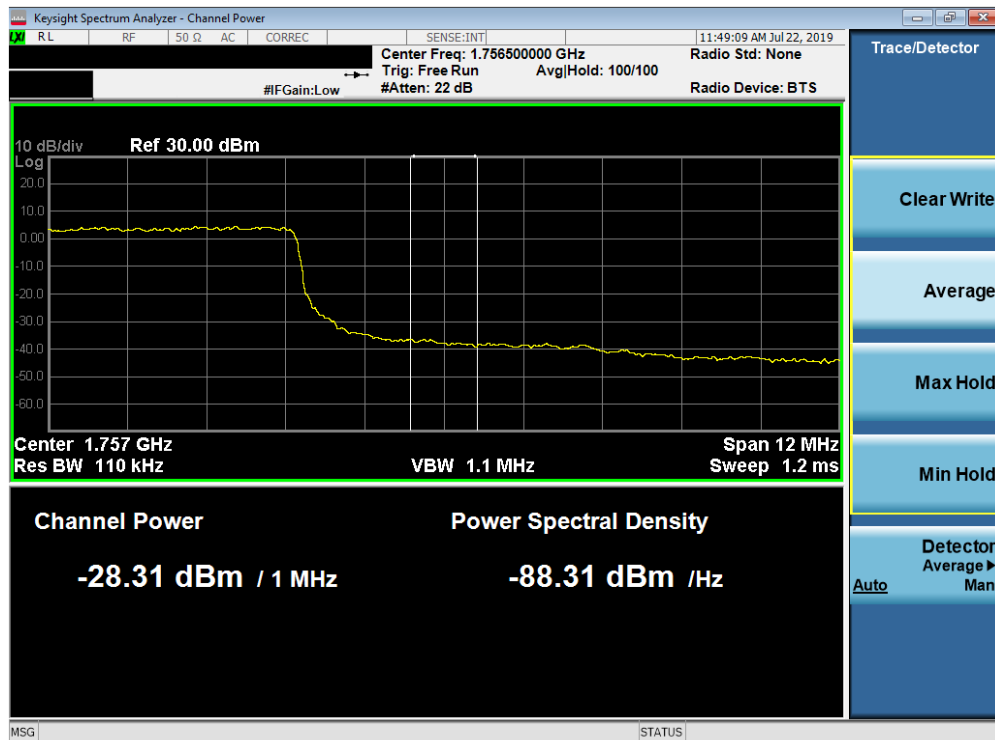


Plot 7-147. Lower Extended Band Edge Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 96 of 191                  |

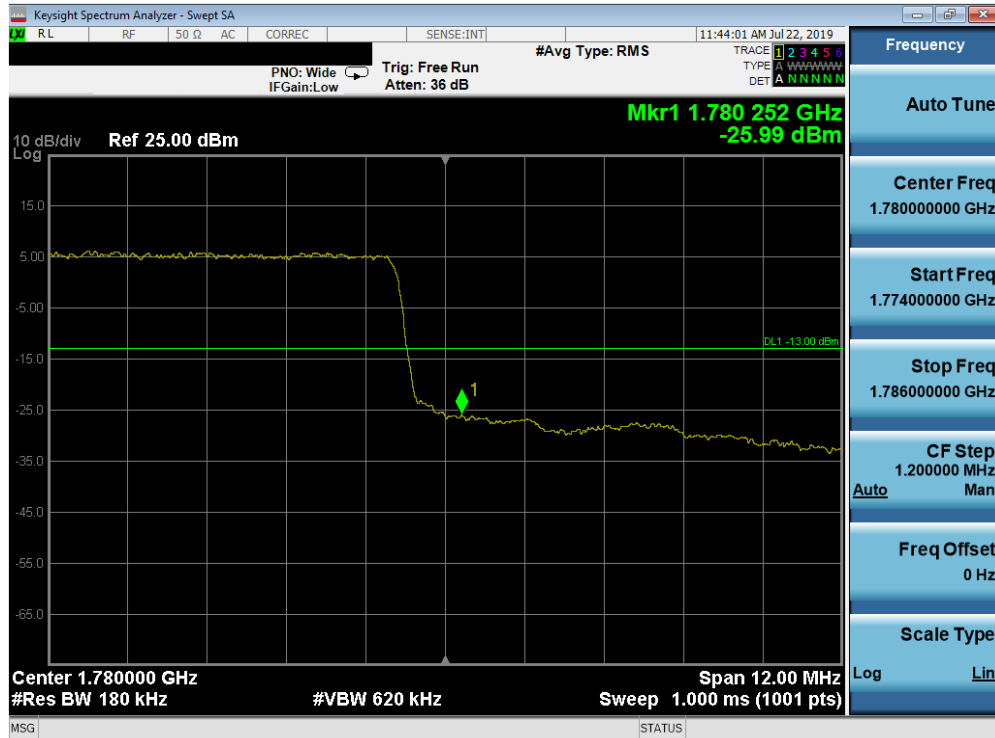


Plot 7-148. Upper Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

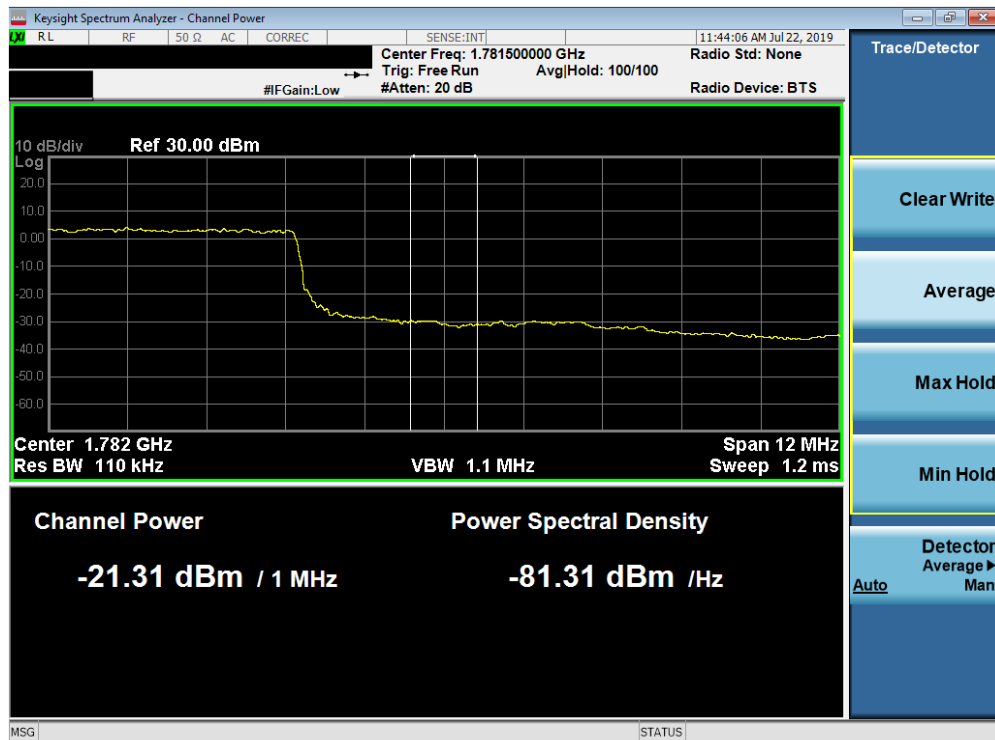


Plot 7-149. Upper Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 97 of 191                  |

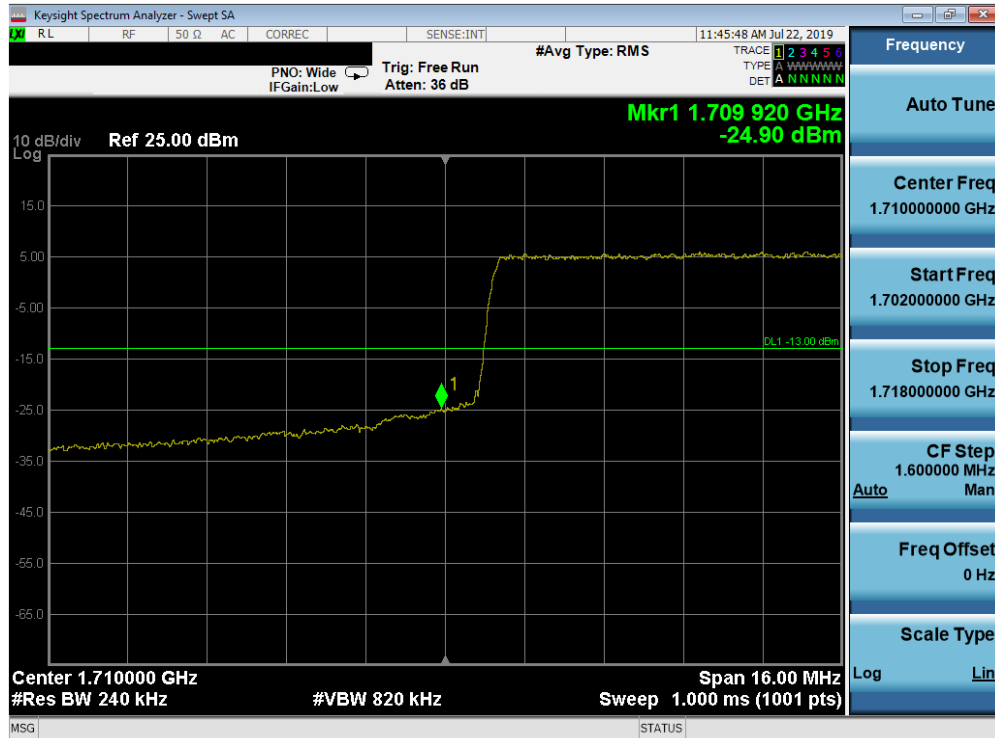


Plot 7-150. Upper Band Edge Plot (Band 66 - 15.0MHz QPSK - Full RB Configuration)

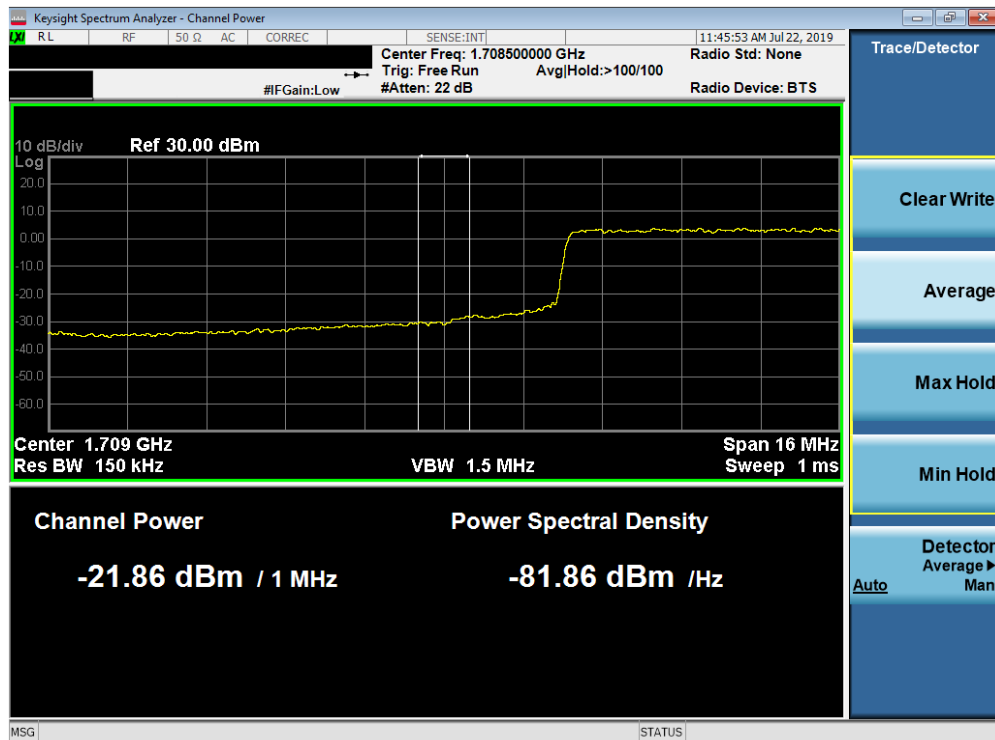


Plot 7-151. Upper Extended Band Edge Plot (Band 66 - 15.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 98 of 191                  |

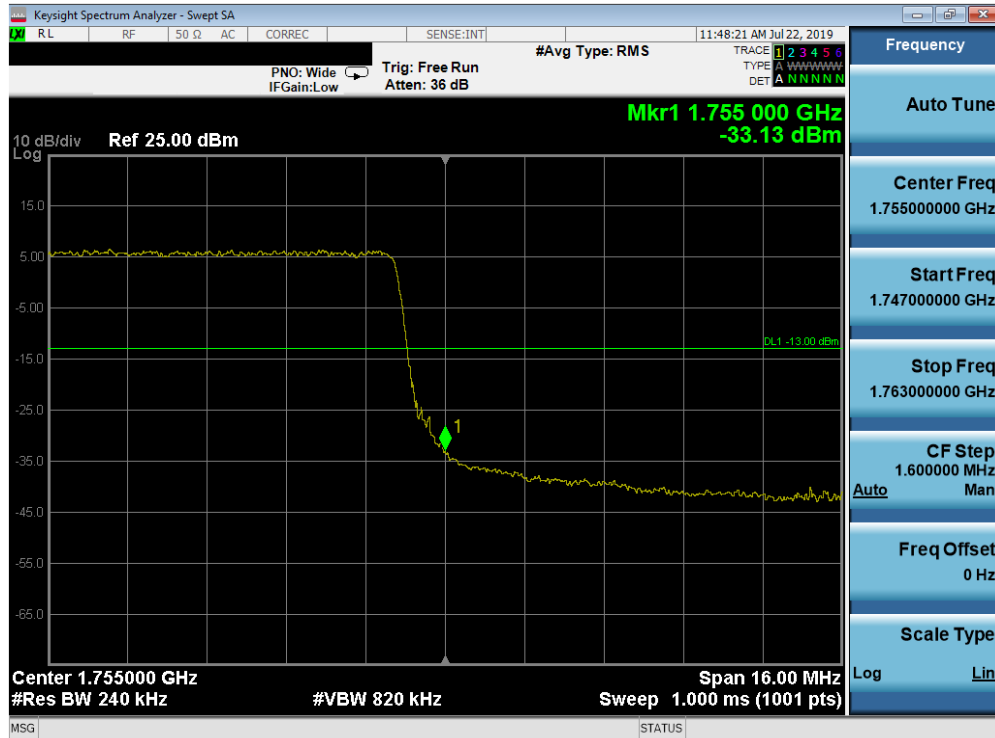


Plot 7-152. Lower Band Edge Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)

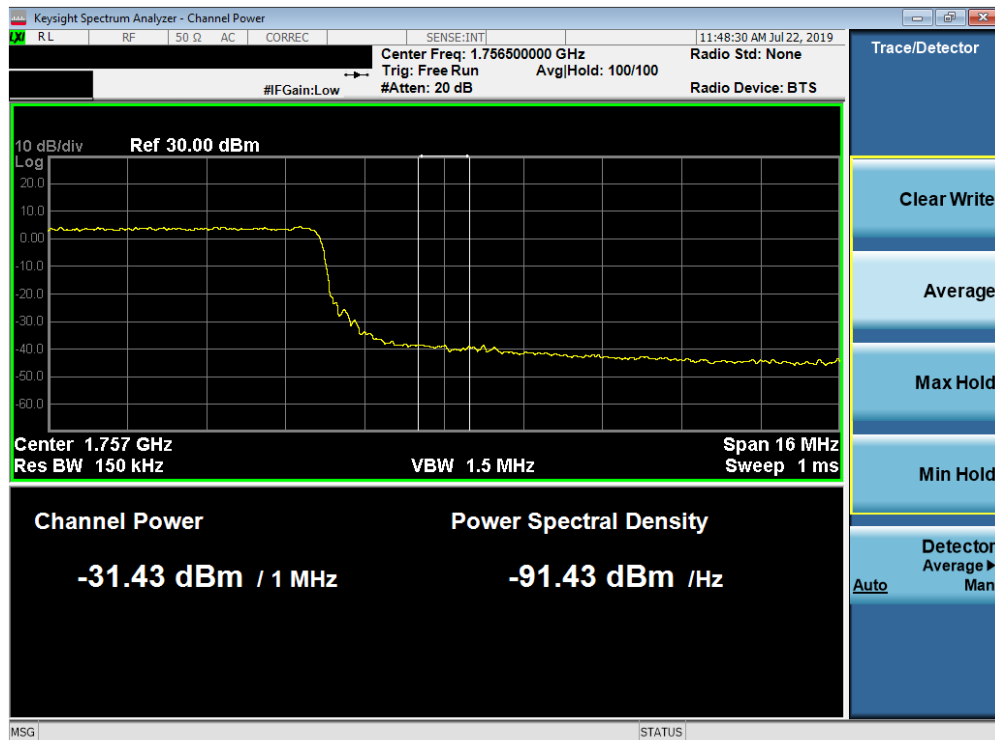


Plot 7-153. Lower Extended Band Edge Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 99 of 191                  |



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

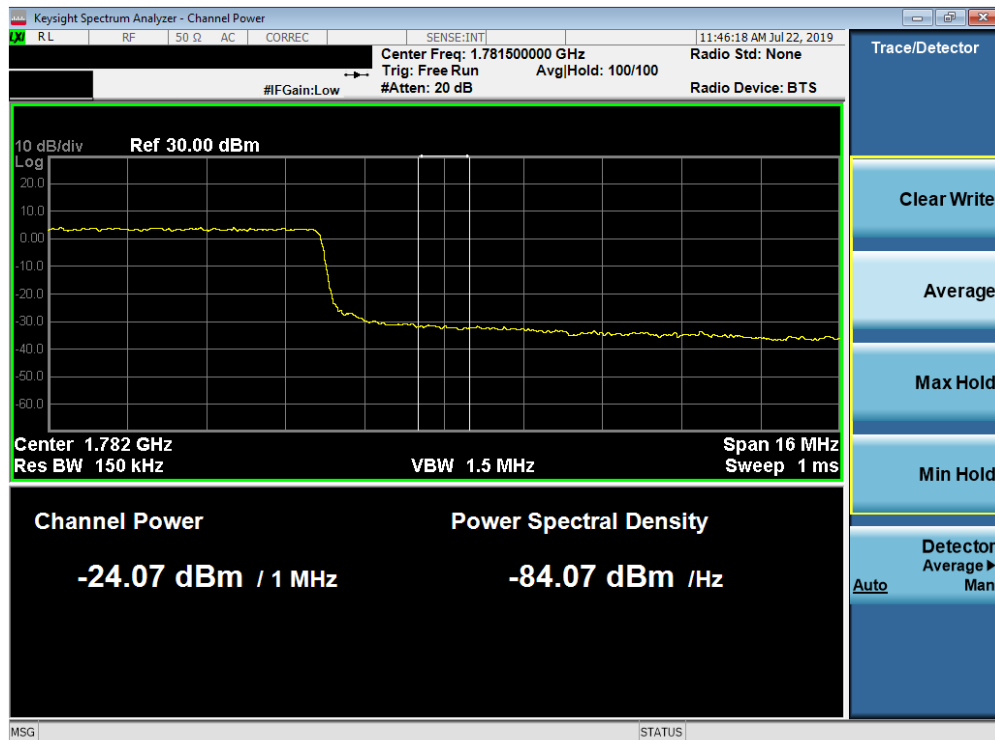


Plot 7-155. Upper Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 100 of 191                 |



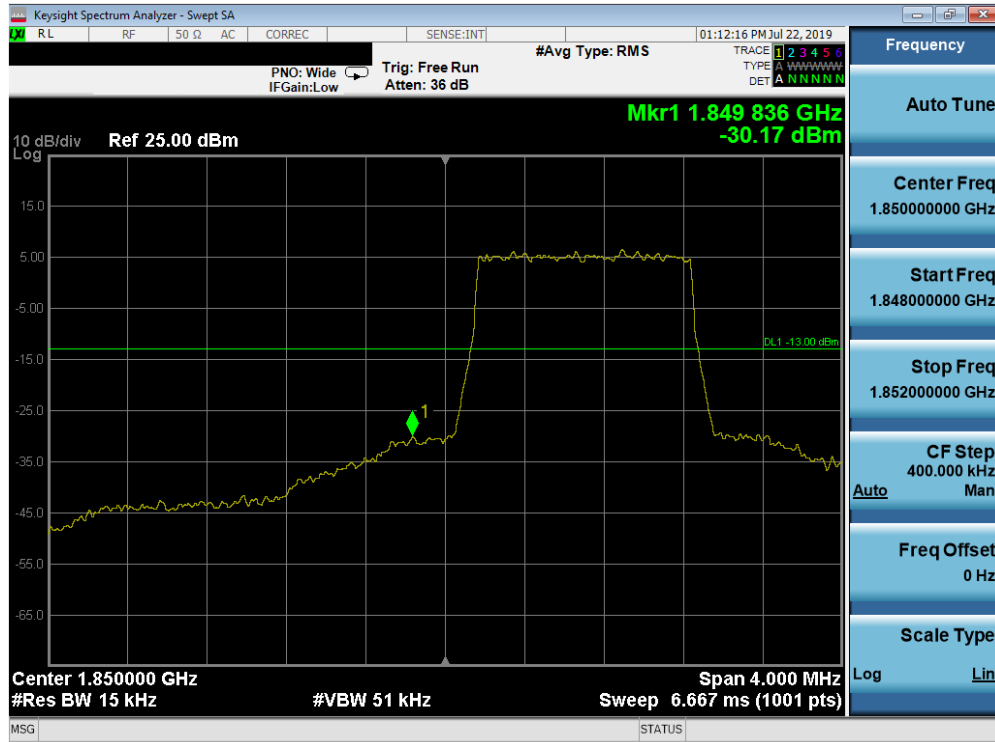
Plot 7-156. Upper Band Edge Plot (Band 66 - 20.0MHz QPSK - Full RB Configuration)



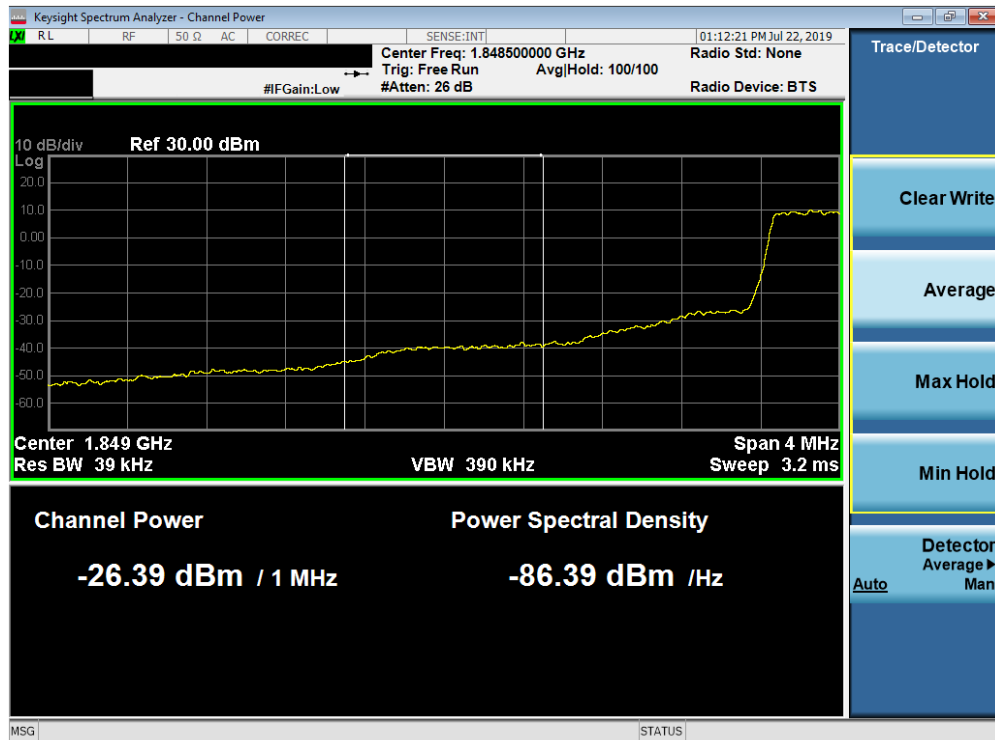
Plot 7-157. Upper Extended Band Edge Plot (Band 66 - 20.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 101 of 191                 |

## Band 2



Plot 7-158. Lower Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)

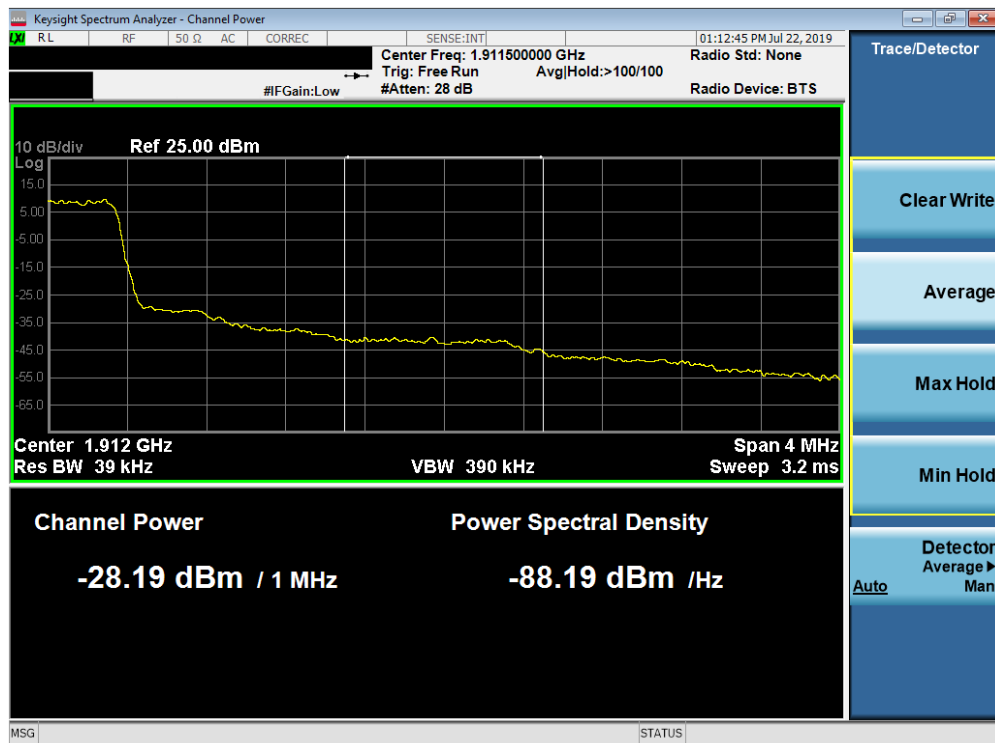


Plot 7-159. Lower Extended Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 102 of 191                 |

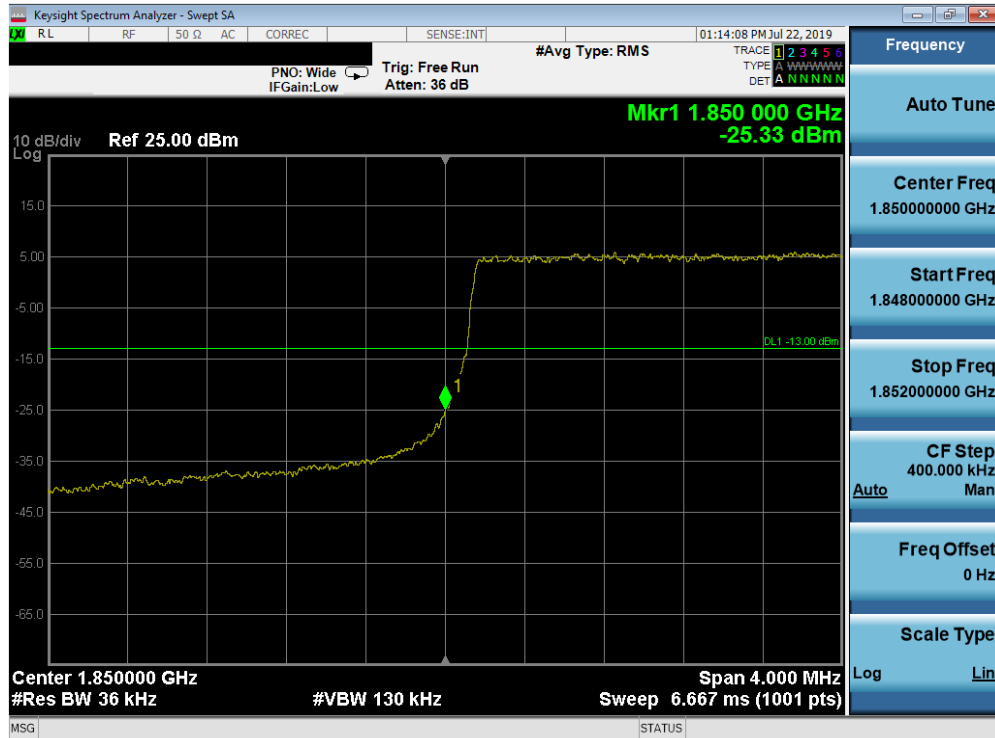


Plot 7-160. Upper Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)

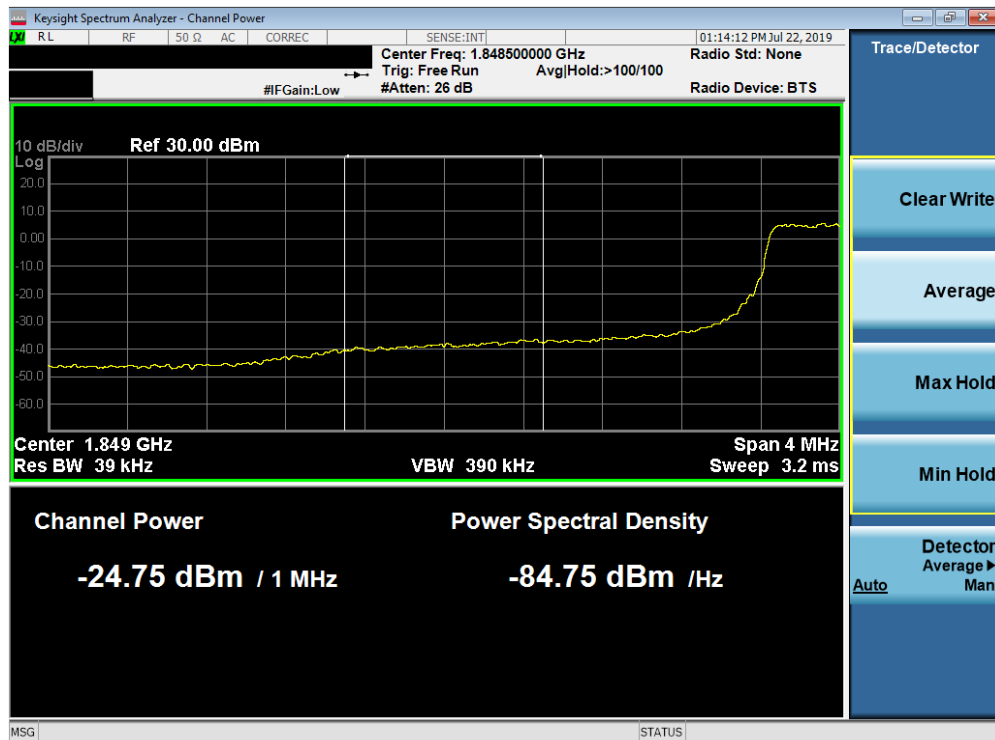


Plot 7-161. Upper Extended Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 103 of 191                 |



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

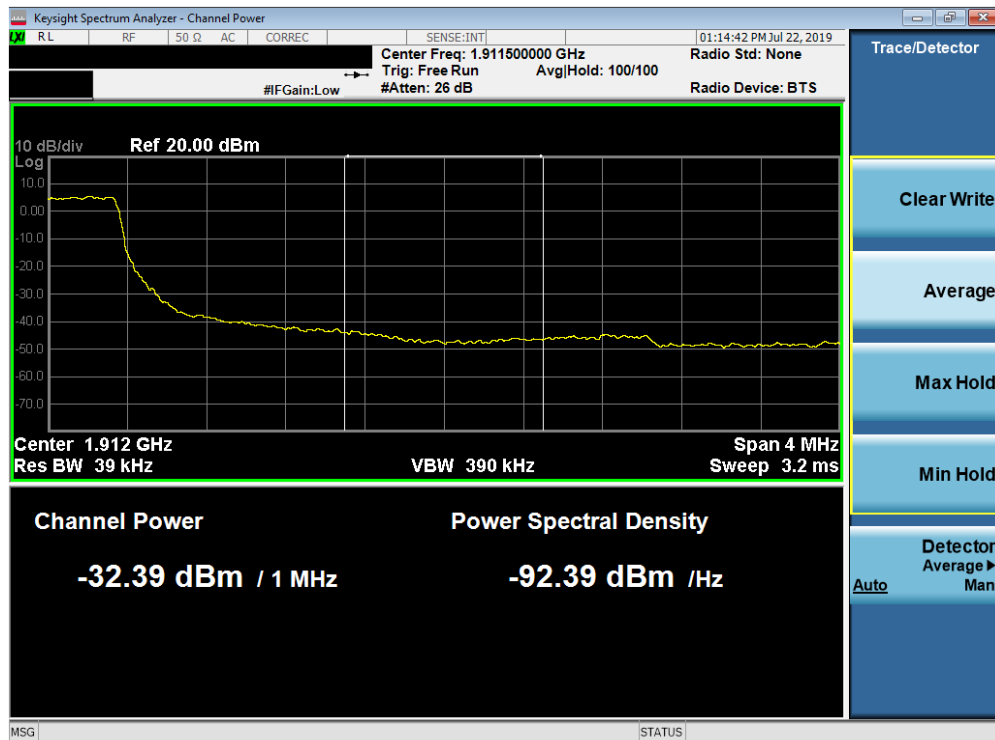


Plot 7-163. Lower Extended Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 104 of 191                 |

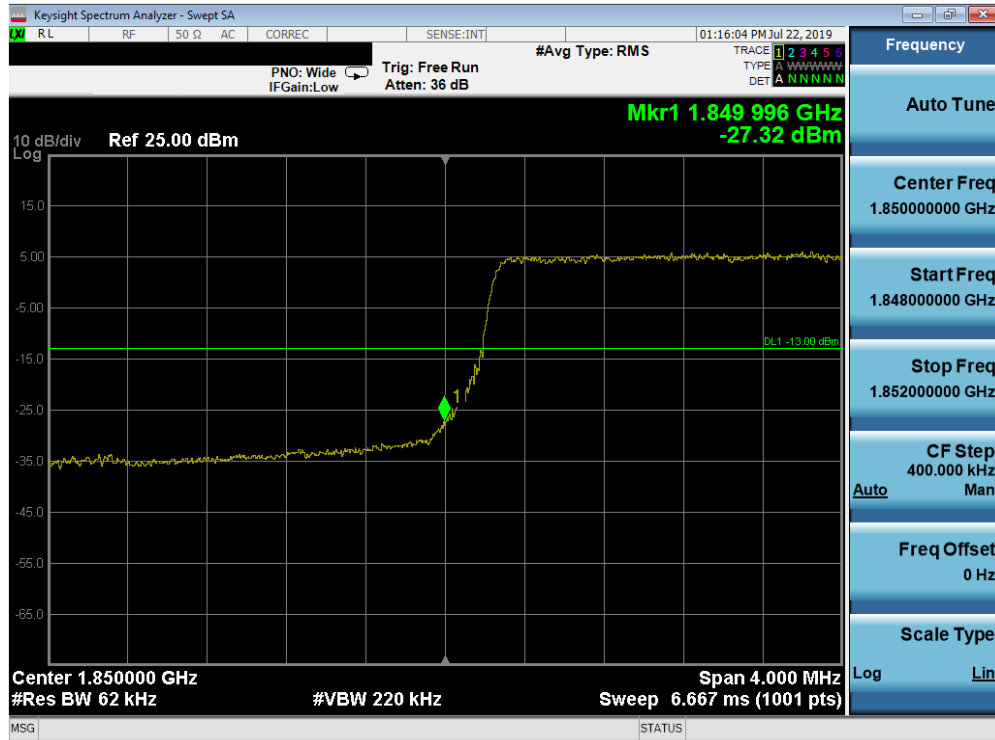


Plot 7-164. Upper Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

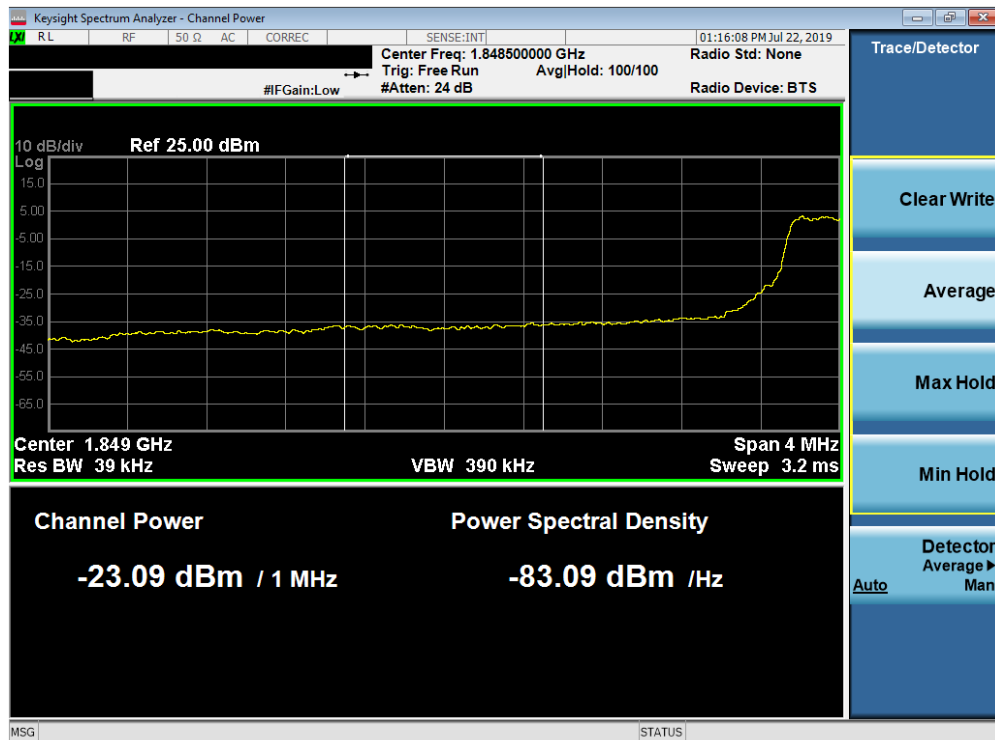


Plot 7-165. Upper Extended Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

|                                         |                                                                                                                                                                                                                        |                              |                                 |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT</b><br>(CERTIFICATION)  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                         | EUT Type:<br>Portable Tablet | Page 105 of 191                 |

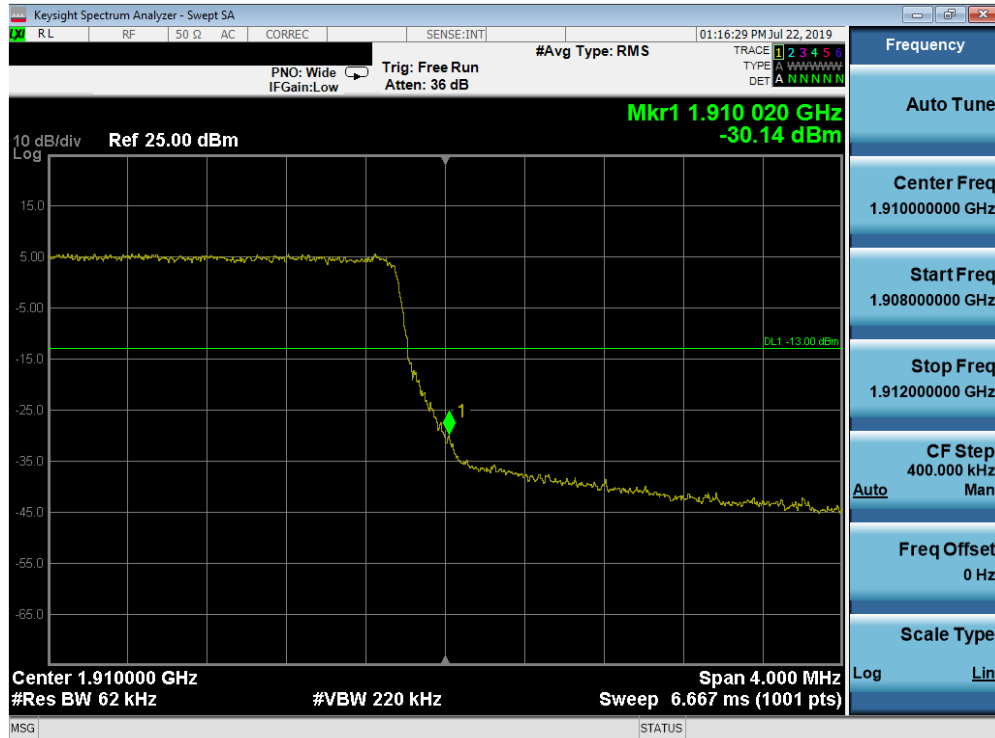


Plot 7-166. Lower Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

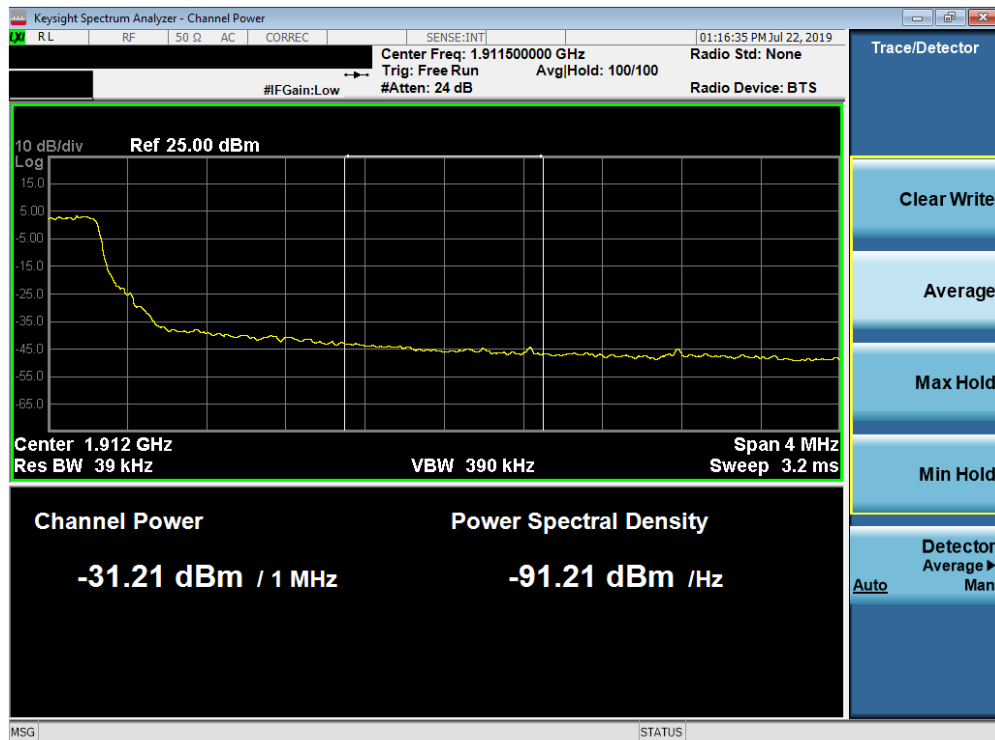


Plot 7-167. Lower Extended Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 106 of 191                 |

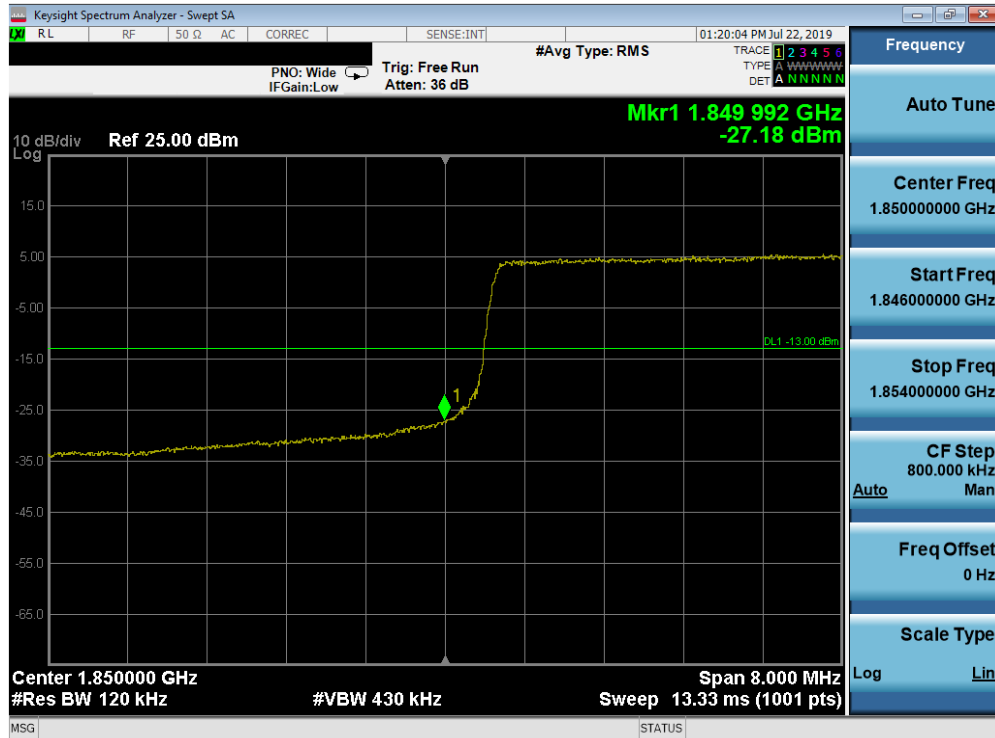


Plot 7-168. Upper Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

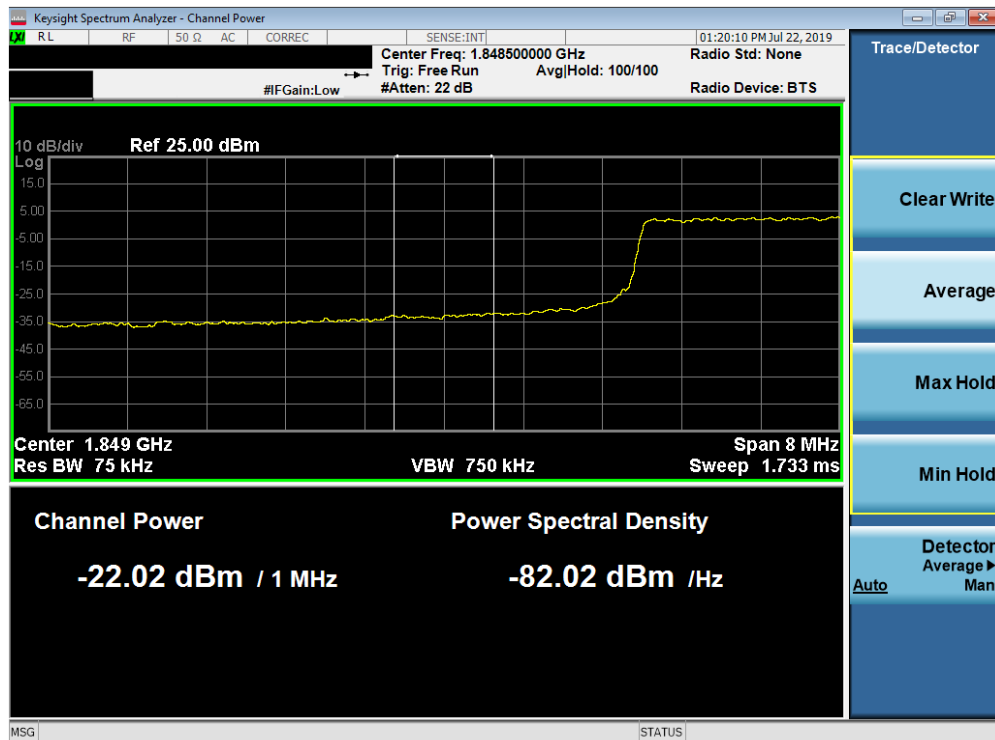


Plot 7-169. Upper Extended Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 107 of 191                 |

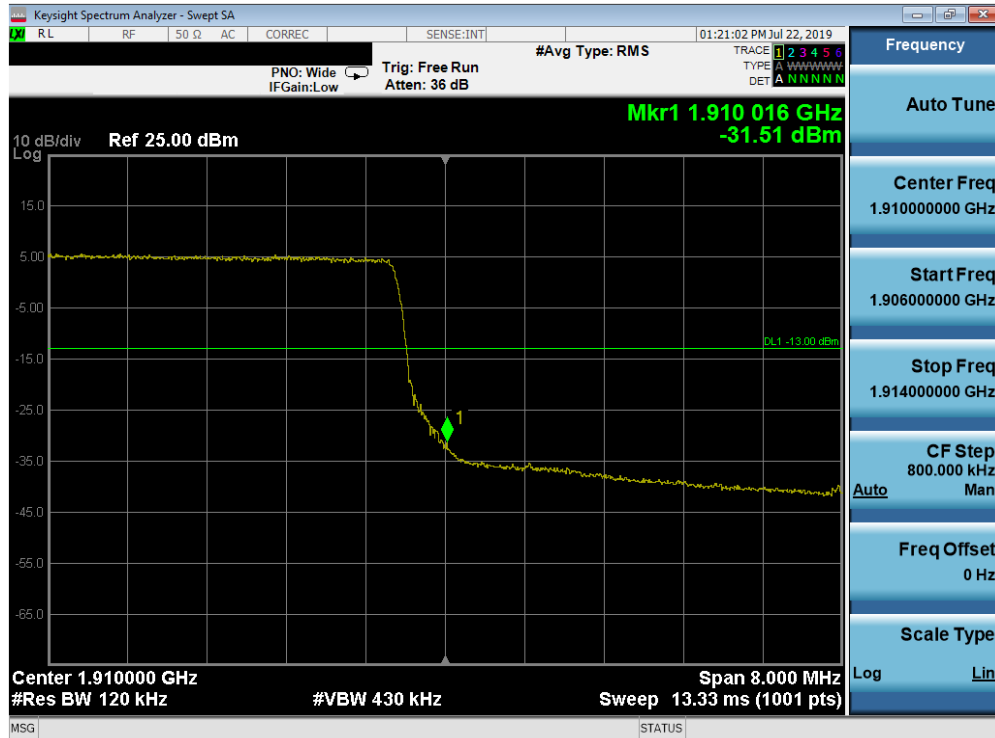


Plot 7-170. Lower Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

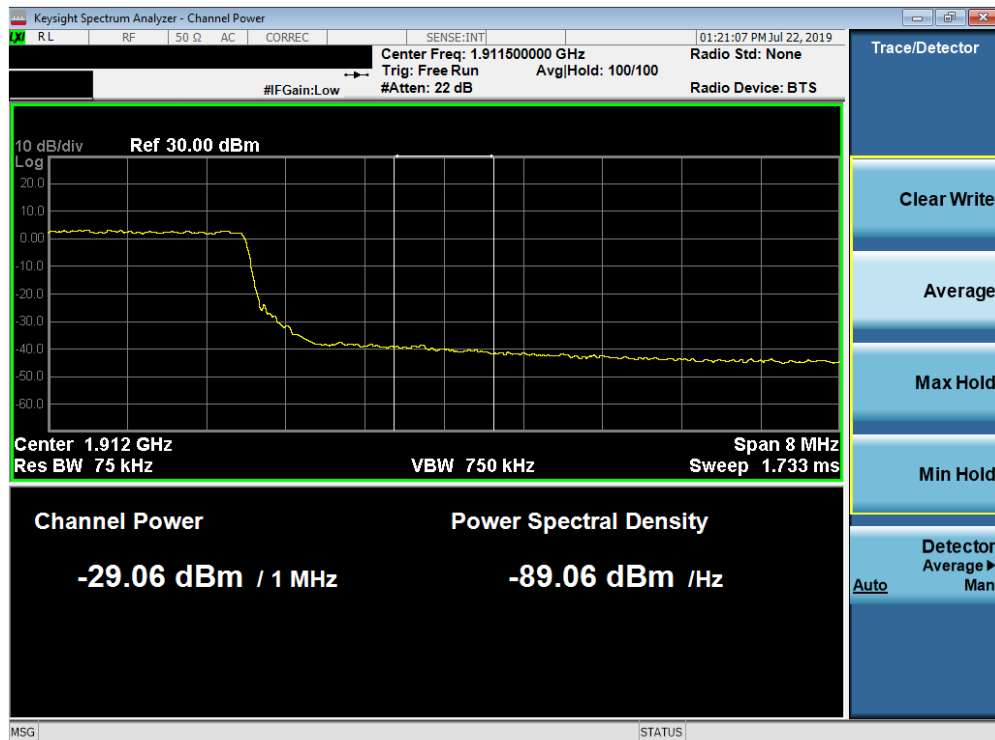


Plot 7-171. Lower Extended Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 108 of 191                 |

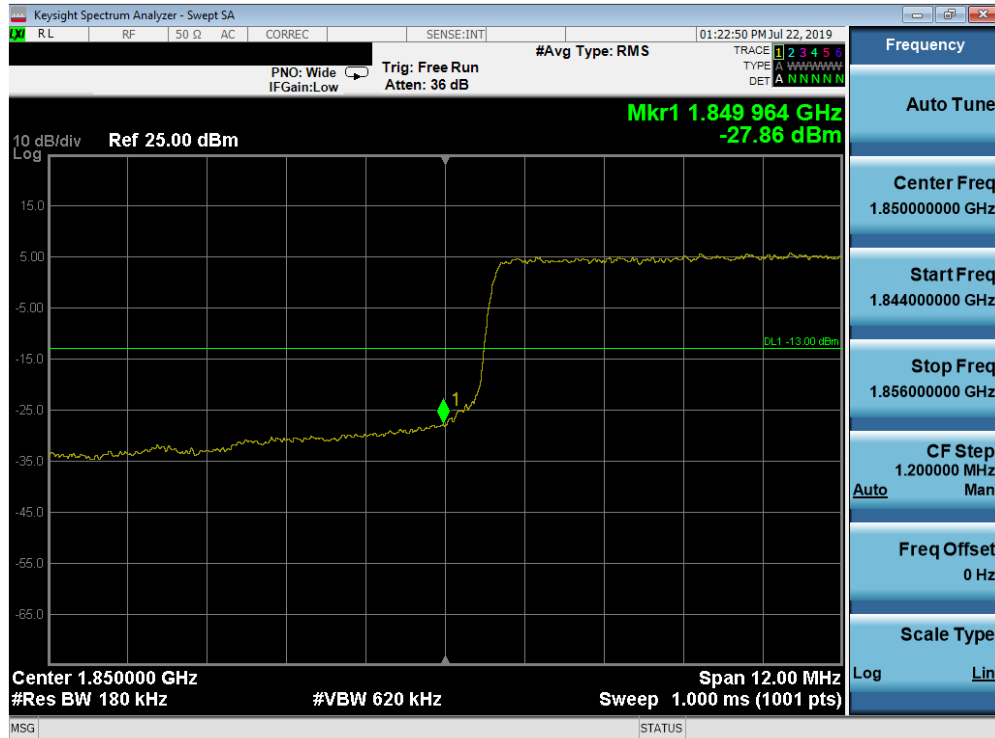


Plot 7-172. Upper Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

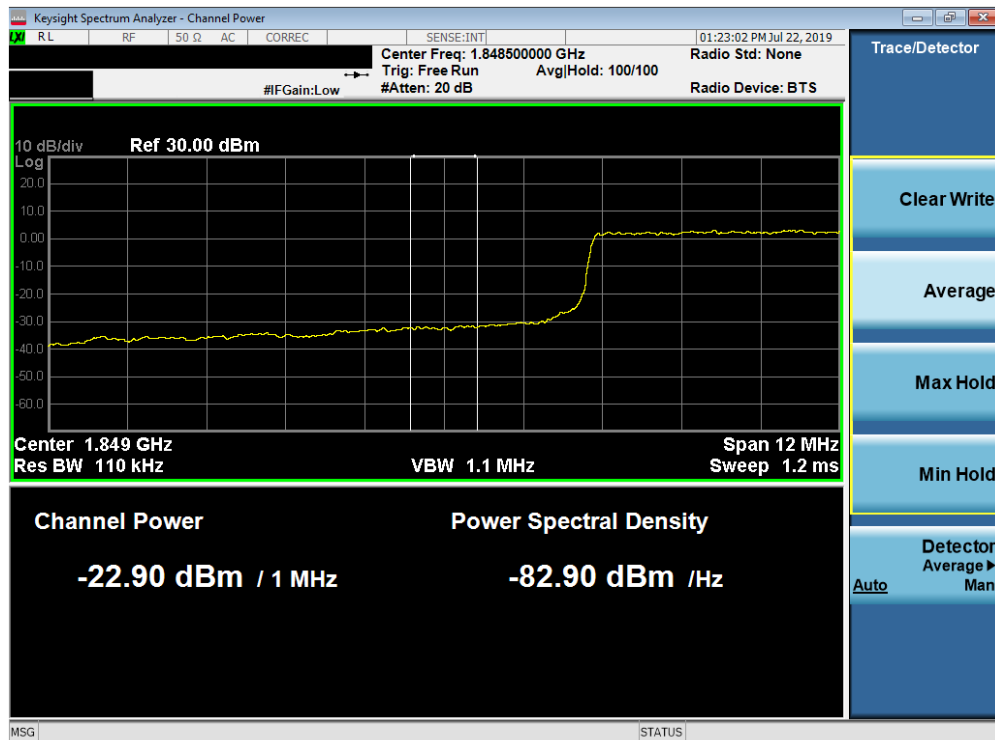


Plot 7-173. Upper Extended Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 109 of 191                 |

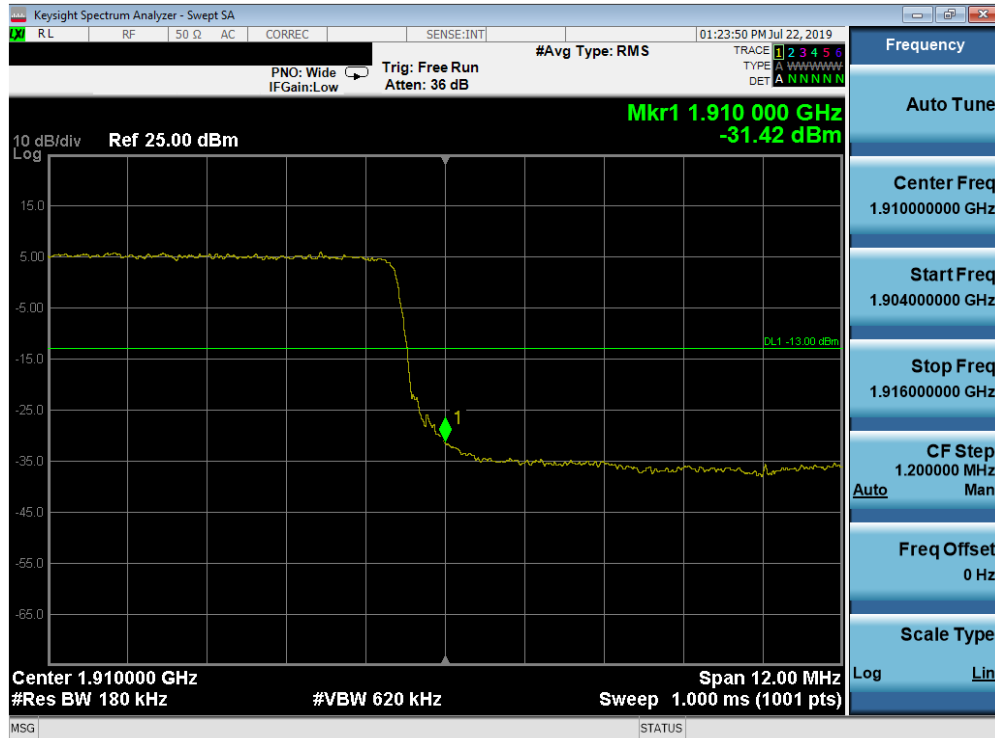


Plot 7-174. Lower Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

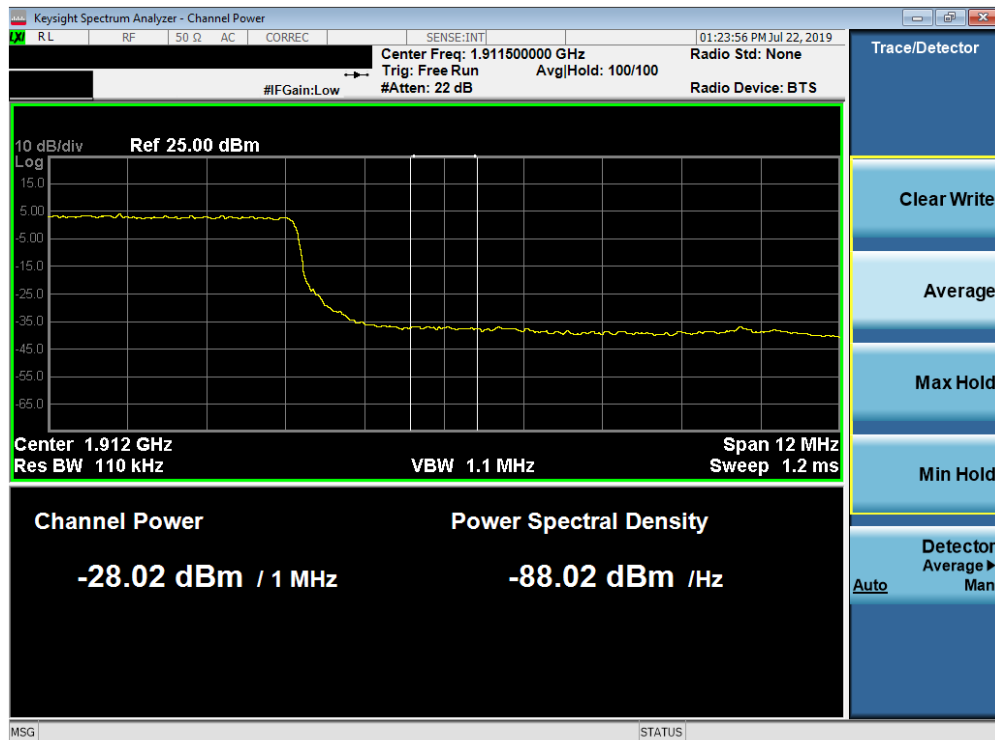


Plot 7-175. Lower Extended Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 110 of 191                 |

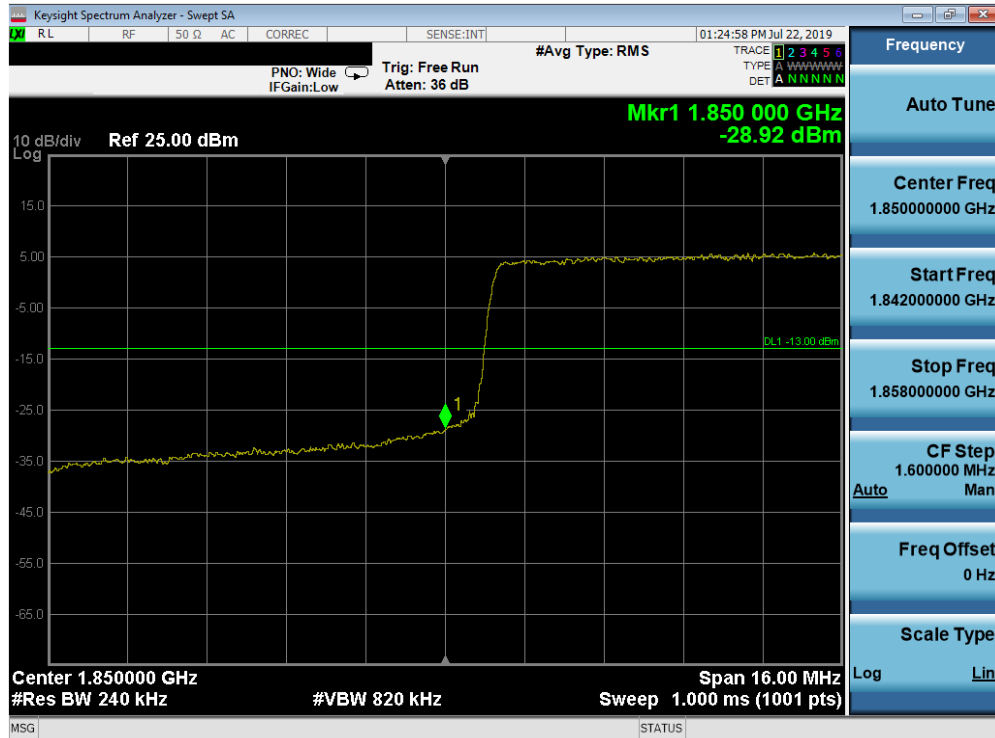


Plot 7-176. Upper Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

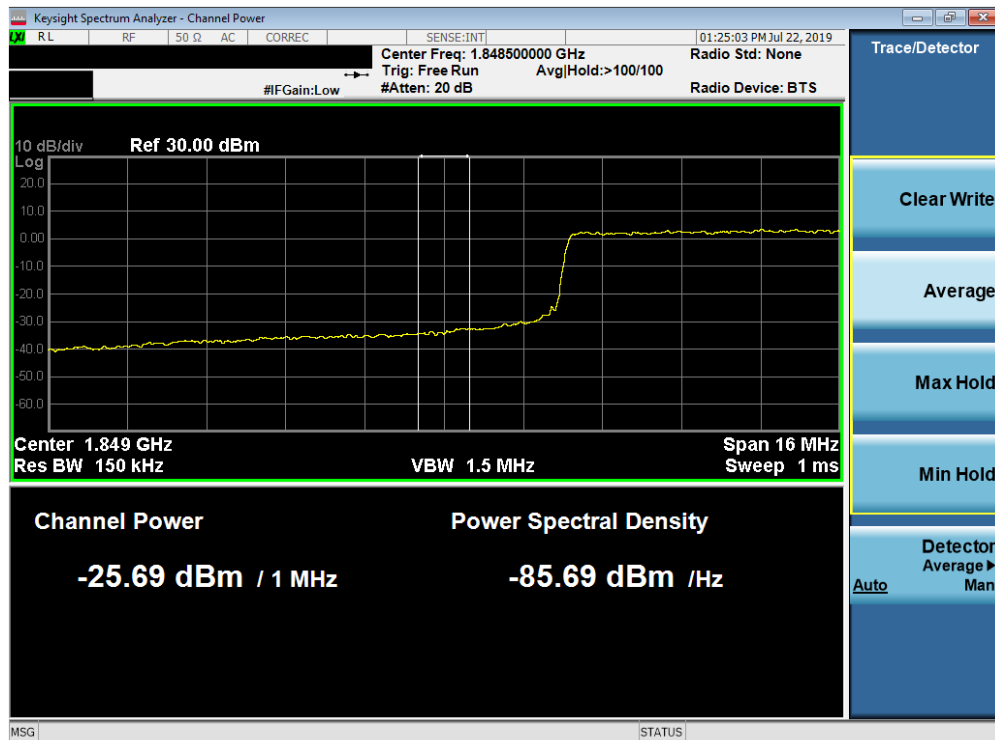


Plot 7-177. Upper Extended Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 111 of 191                 |



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

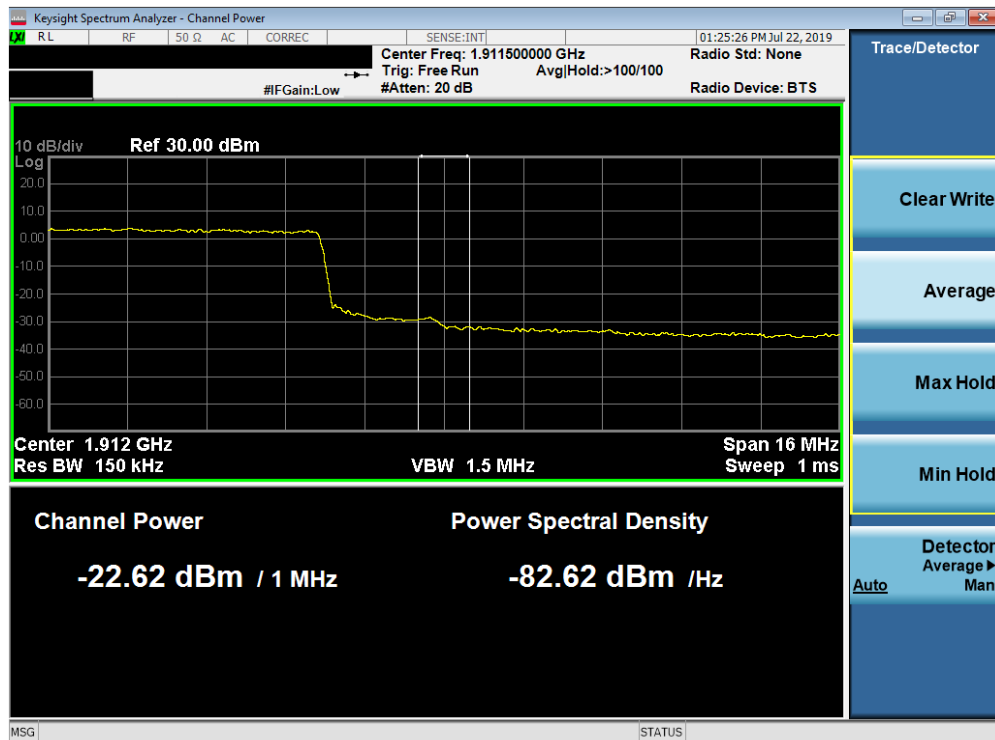


Plot 7-179. Lower Extended Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 112 of 191                 |



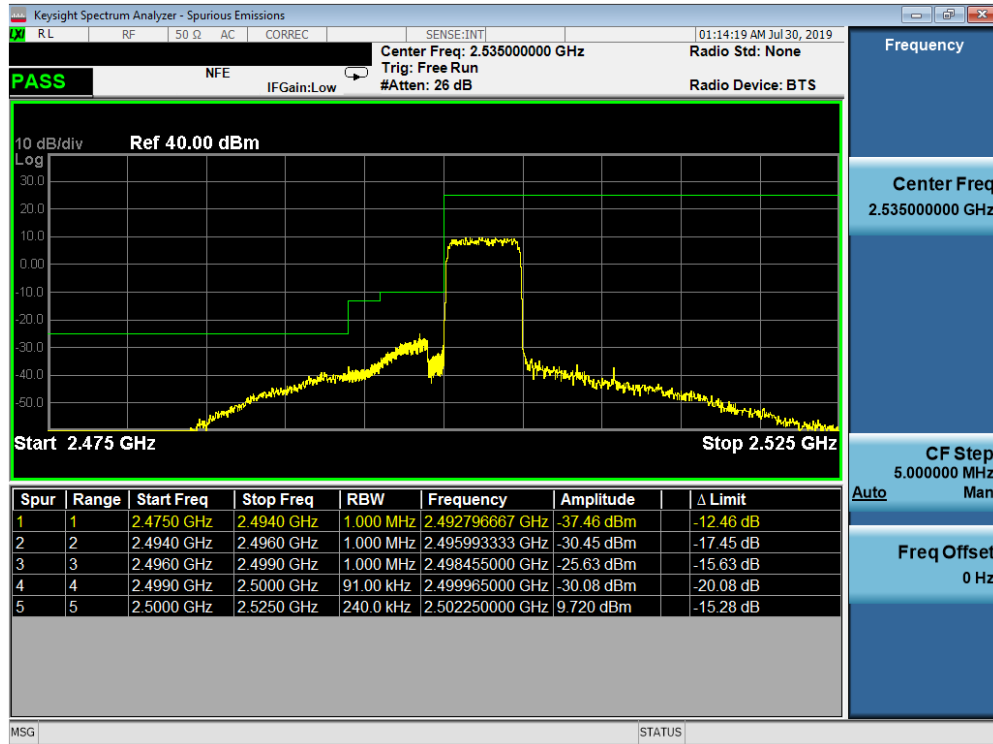
Plot 7-180. Upper Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)



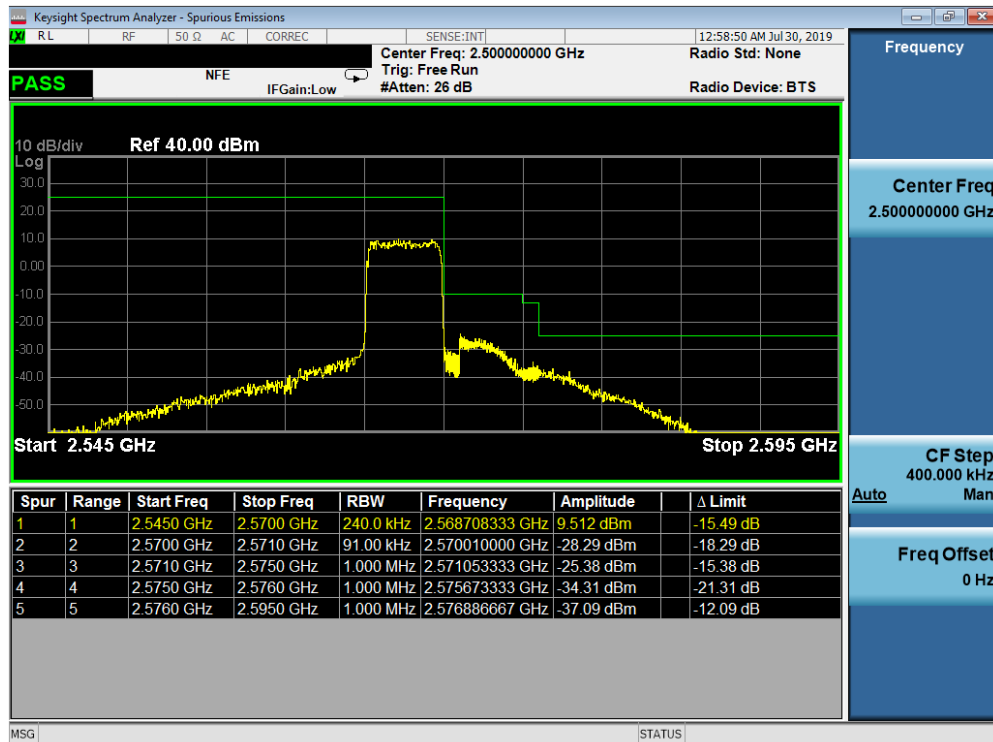
Plot 7-181. Upper Extended Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 113 of 191                 |

## Band 7

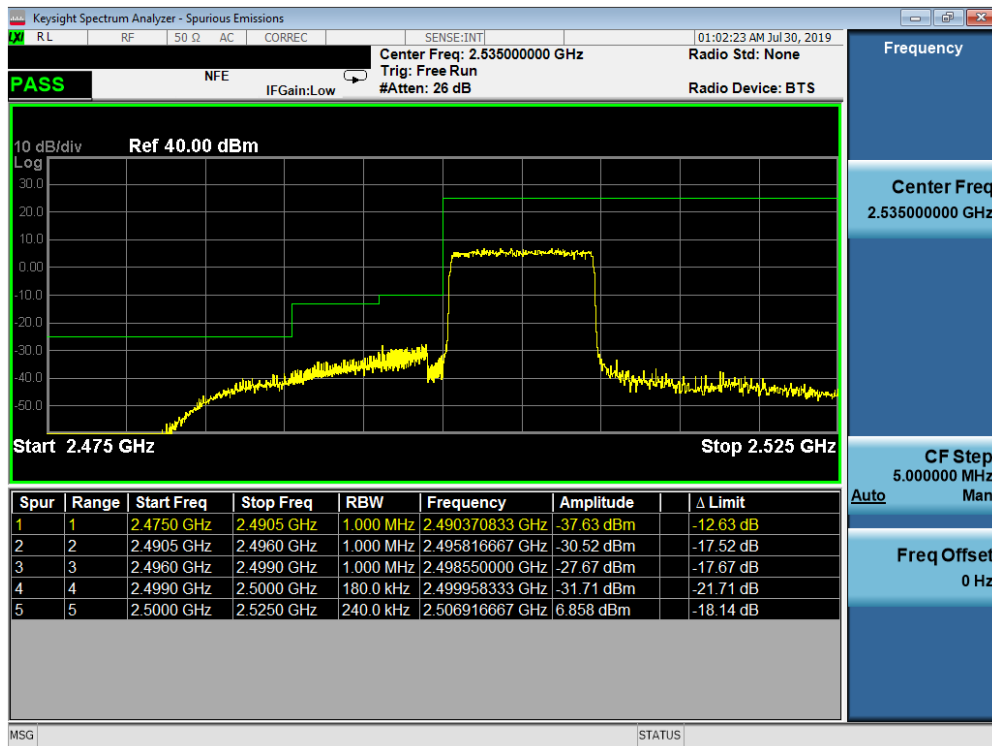


Plot 7-182. Lower ACP Plot (Band 7 - 5.0MHz QPSK - Full RB Configuration)

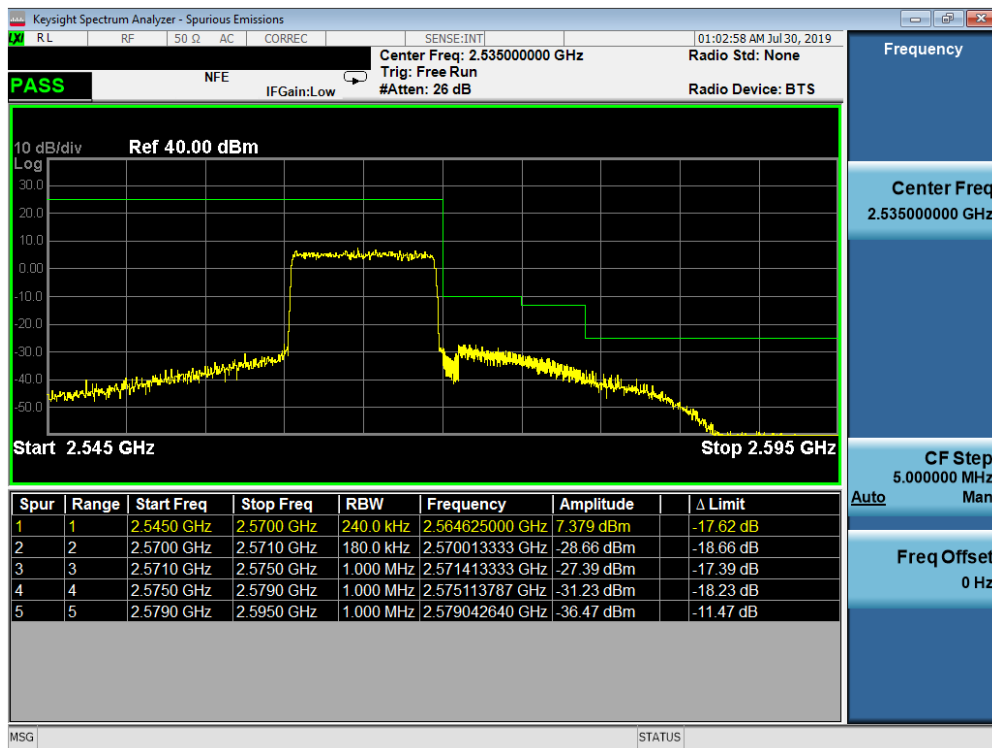


Plot 7-183. Upper ACP Plot (Band 7 - 5.0MHz QPSK - Full RB Configuration)

|                                         |                                                                                                                                                                                                                         |                              |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                          | EUT Type:<br>Portable Tablet | Page 114 of 191                 |

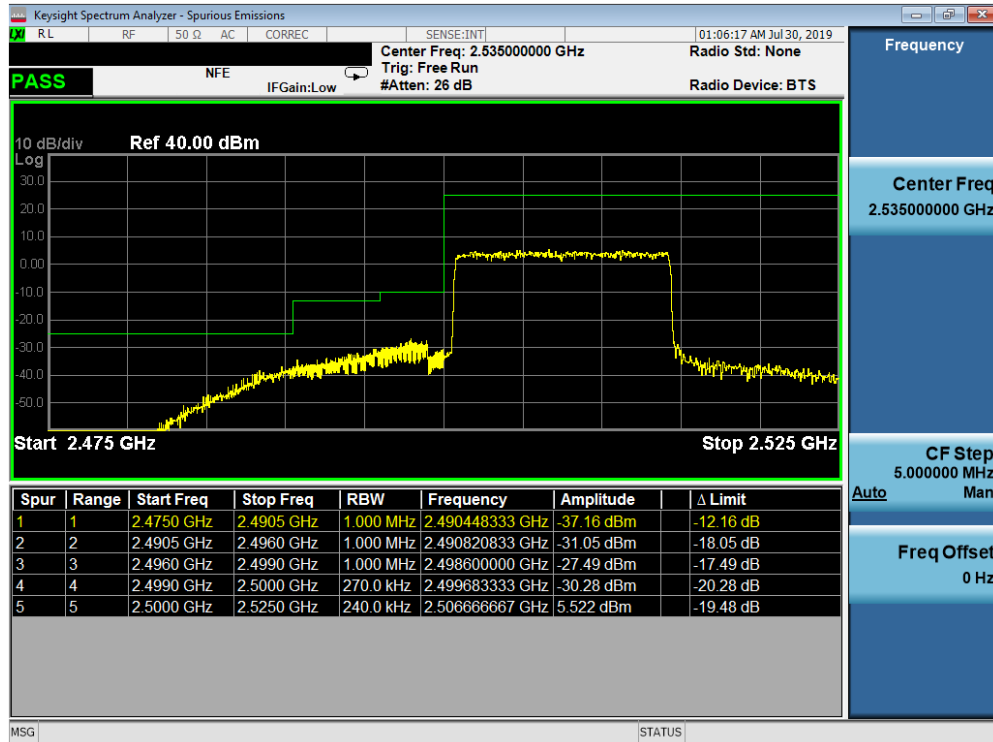


Plot 7-184. Lower ACP Plot (Band 7 - 10.0MHz QPSK - Full RB Configuration)

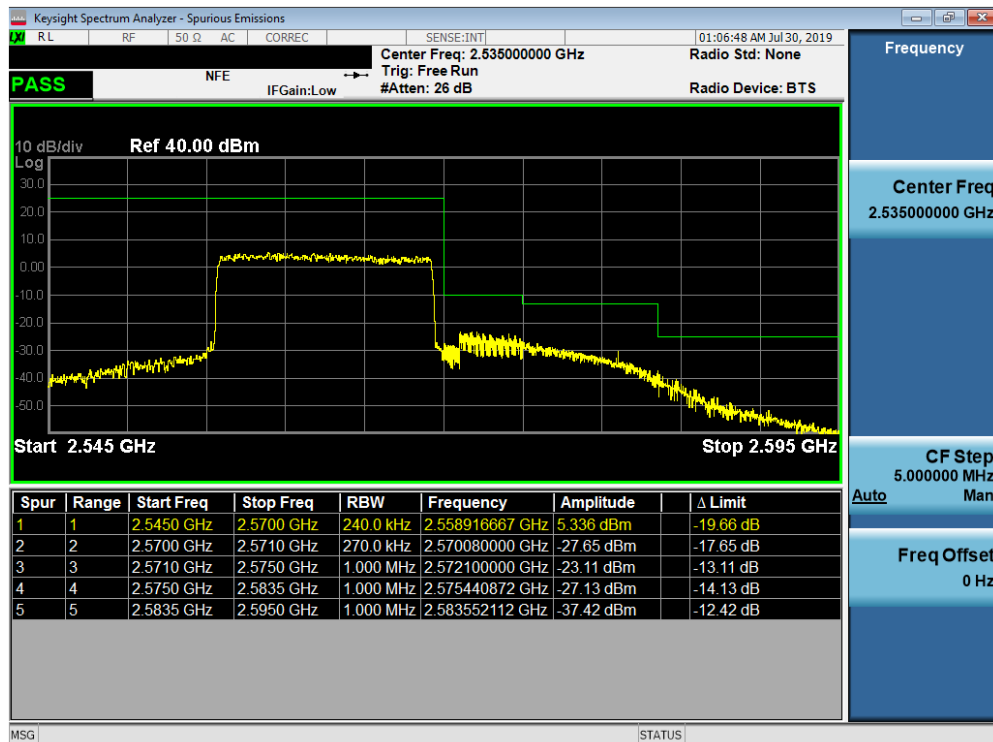


Plot 7-185. Upper ACP Plot (Band 7 - 10.0MHz QPSK - Full RB Configuration)

|                                         |                                                                                     |                                       |                                                                                       |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  | MEASUREMENT REPORT<br>(CERTIFICATION) |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                      | EUT Type:<br>Portable Tablet          |                                                                                       | Page 115 of 191                 |

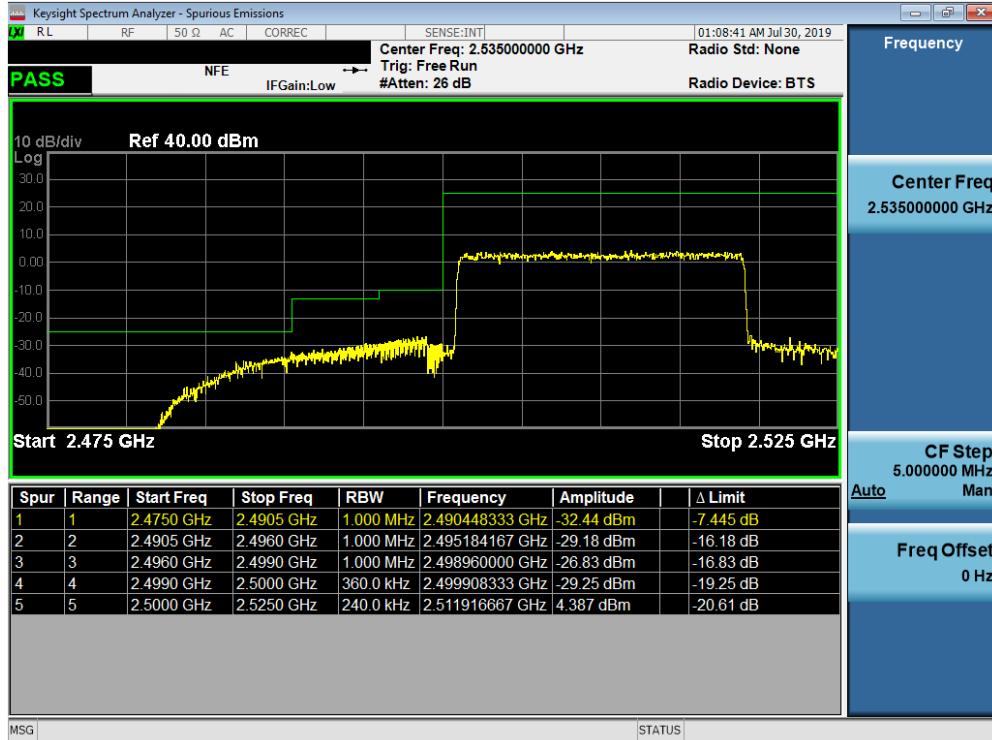


Plot 7-186. Lower ACP Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)

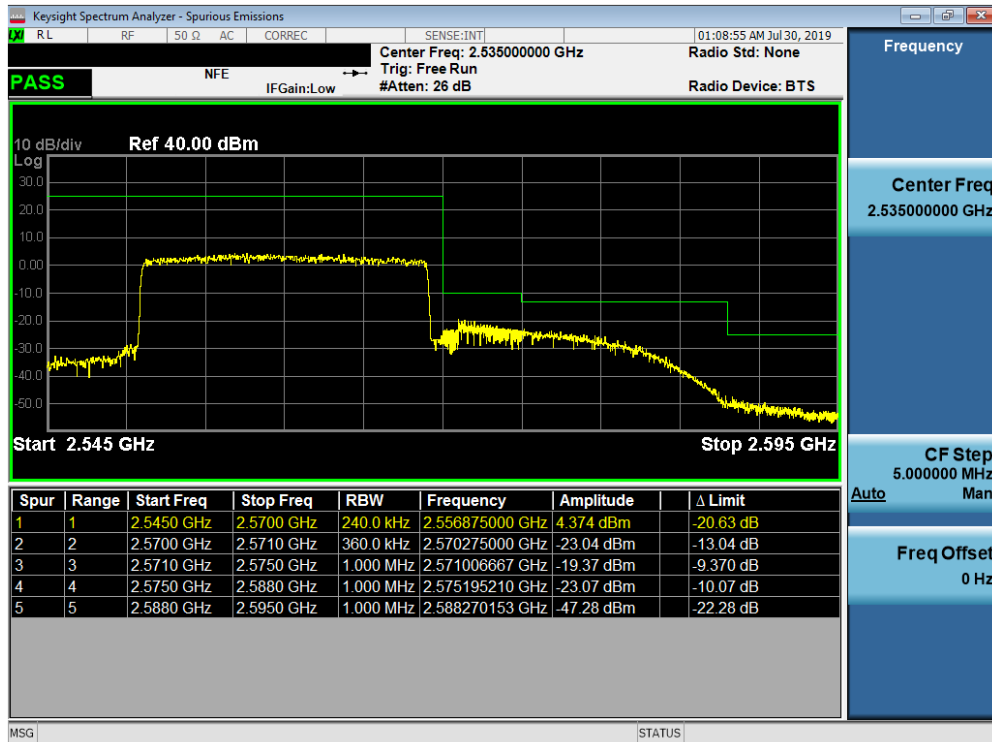


Plot 7-187. Upper ACP Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 116 of 191                 |



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: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 117 of 191                 |

## 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.



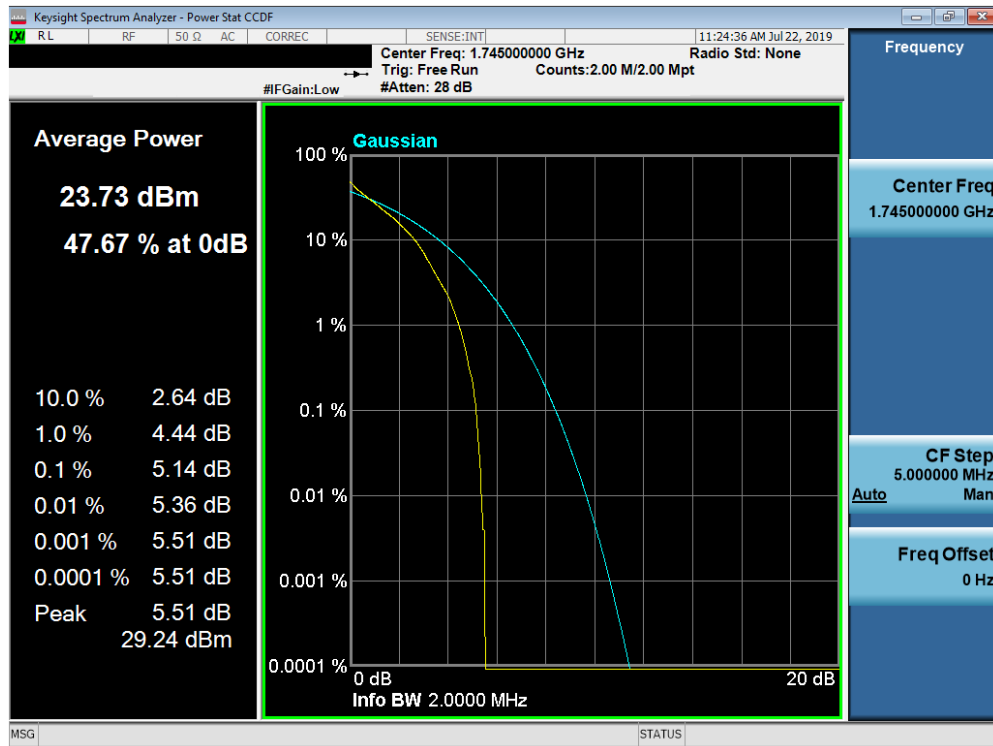
**Figure 7-4. Test Instrument & Measurement Setup**

### Test Notes

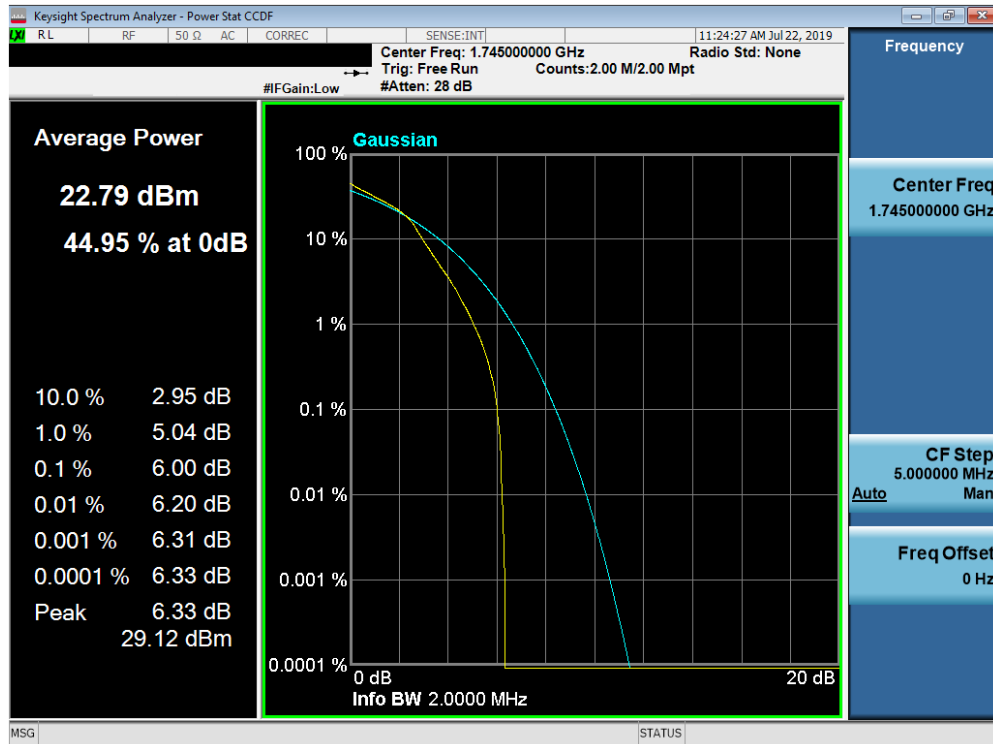
None.

|                                                |                                               |                                               |  |                                        |
|------------------------------------------------|-----------------------------------------------|-----------------------------------------------|--|----------------------------------------|
| FCC ID: A3LSMT867V                             | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b> |  | <b>Approved by:</b><br>Quality Manager |
| <b>Test Report S/N:</b><br>1M1907090121-03.A3L | <b>Test Dates:</b><br>7/22 - 8/2/2019         | <b>EUT Type:</b><br>Portable Tablet           |  | Page 118 of 191                        |

## Band 66/4

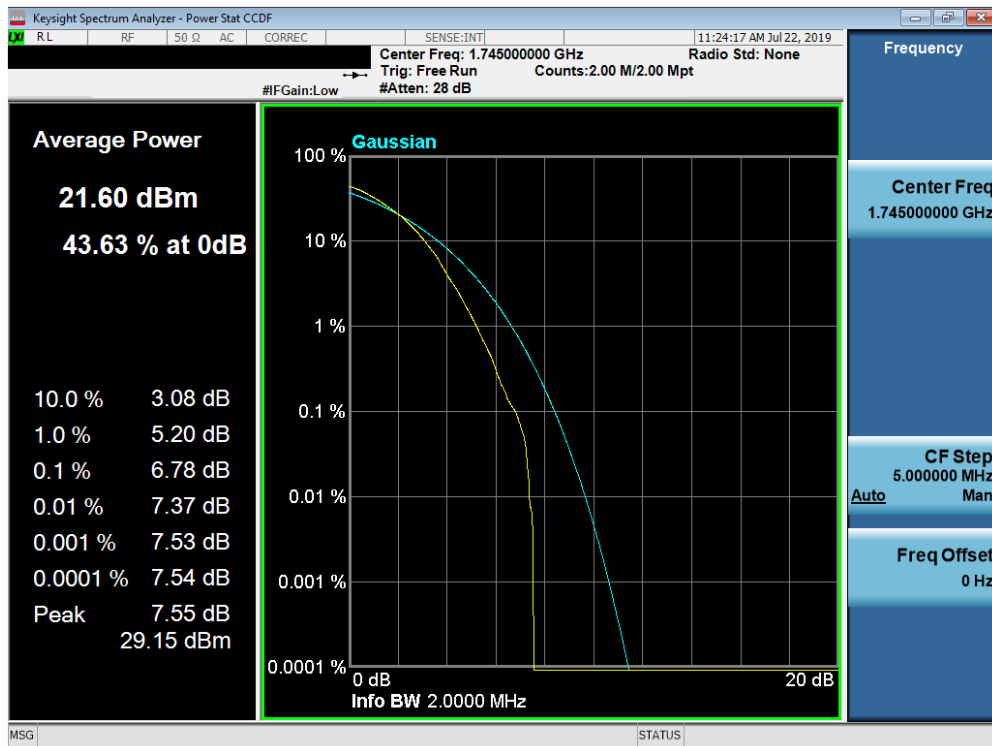


Plot 7-190. PAR Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)

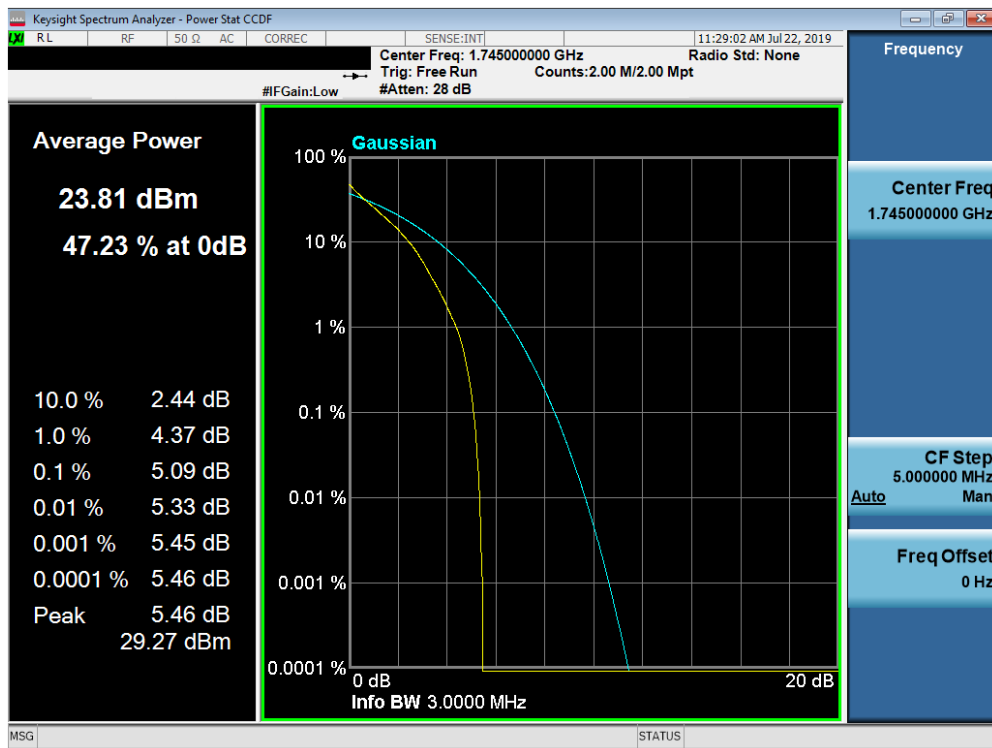


Plot 7-191. PAR Plot (Band 66/4 - 1.4MHz 16-QAM - Full RB Configuration)

|                                         |                                           |                              |                                 |
|-----------------------------------------|-------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>MEASUREMENT REPORT (CERTIFICATION)</b> |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019            | EUT Type:<br>Portable Tablet | Page 119 of 191                 |

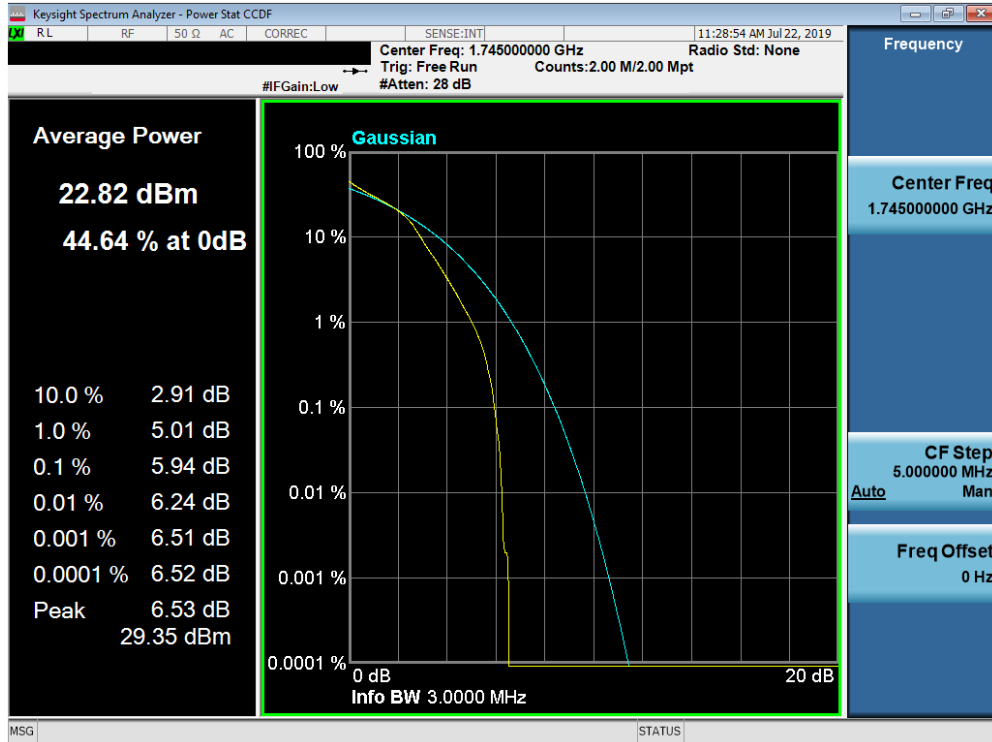


Plot 7-192. PAR Plot (Band 66/4 - 1.4MHz 64-QAM - Full RB Configuration)

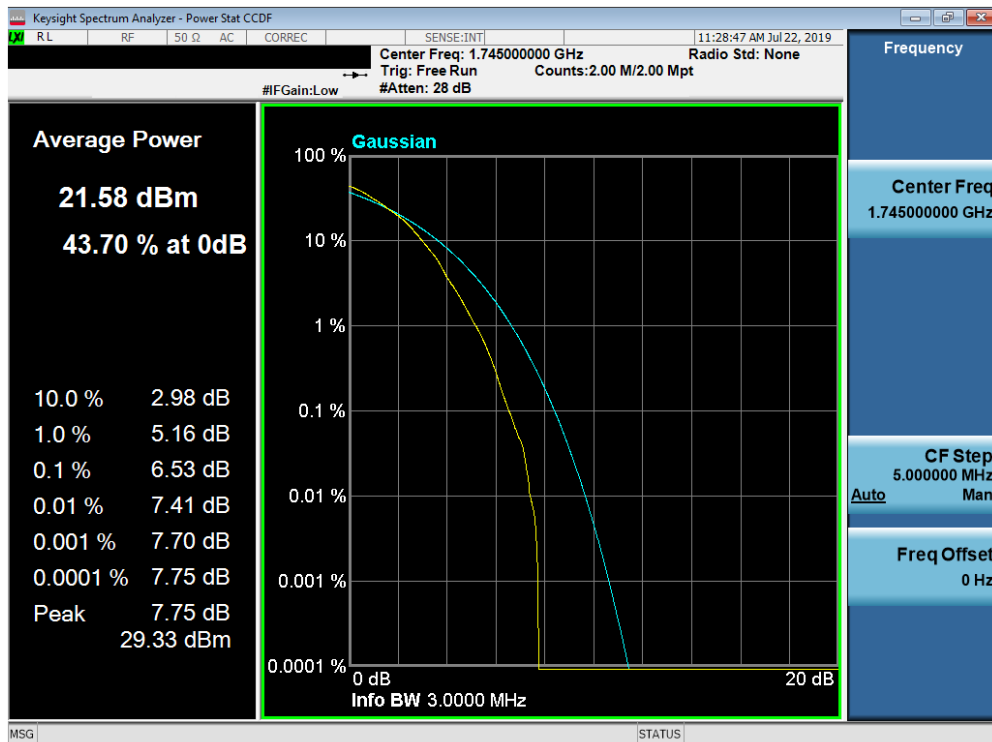


Plot 7-193. PAR Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 120 of 191                 |

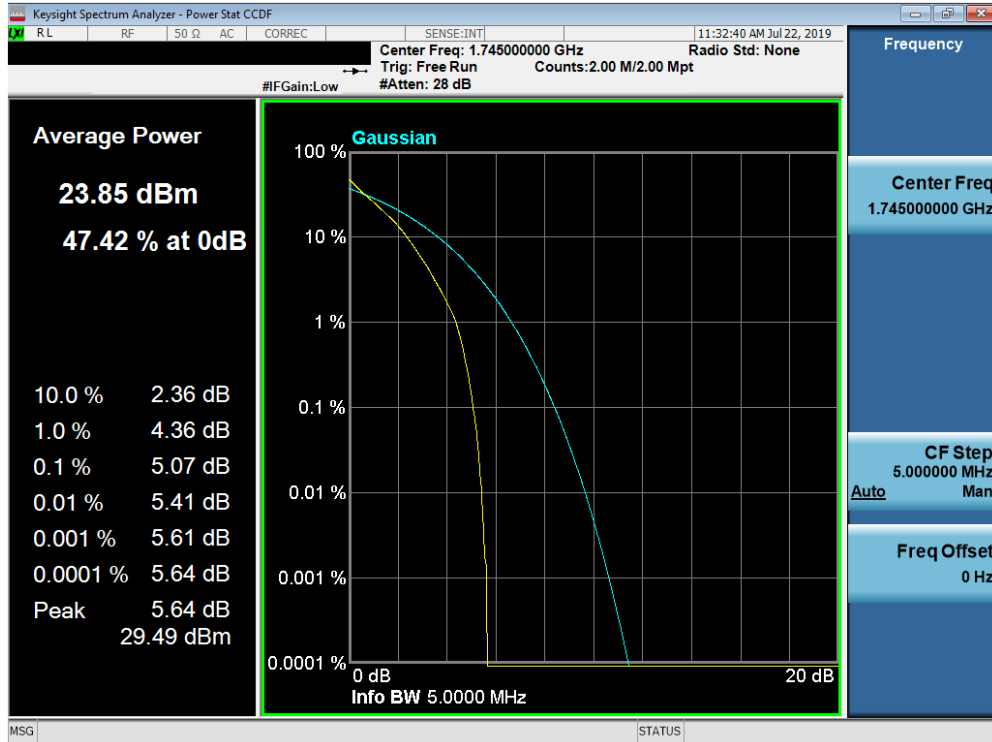


Plot 7-194. PAR Plot (Band 66/4 - 3.0MHz 16-QAM - Full RB Configuration)

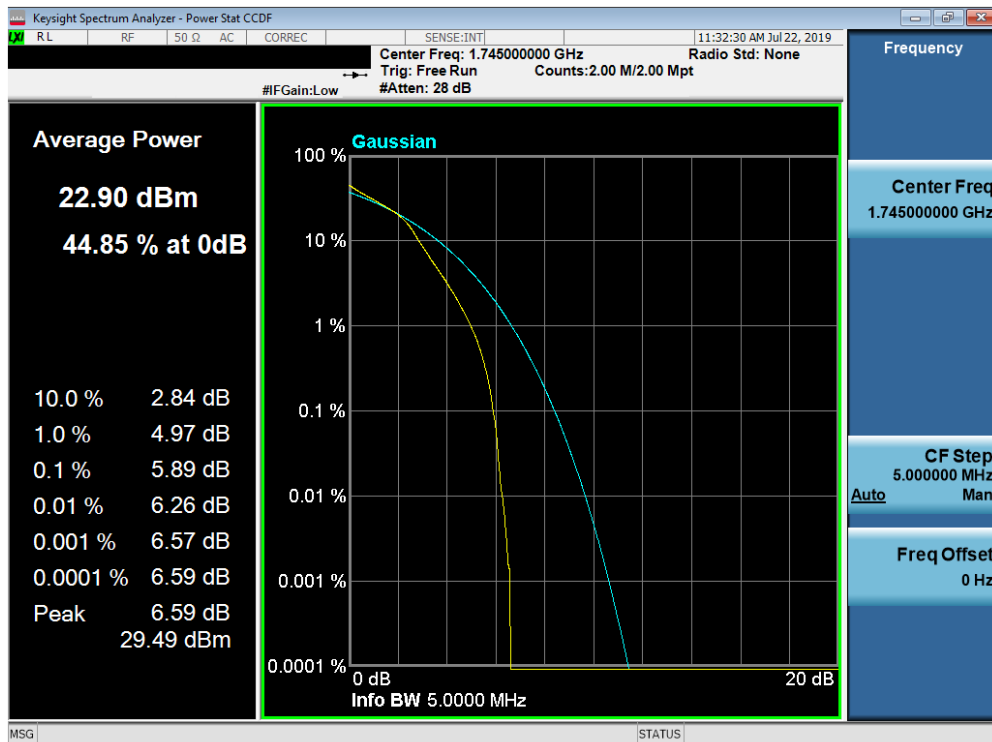


Plot 7-195. PAR Plot (Band 66/4 - 3.0MHz 64-QAM - Full RB Configuration)

|                                         |                                           |                              |  |                                 |
|-----------------------------------------|-------------------------------------------|------------------------------|--|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>MEASUREMENT REPORT (CERTIFICATION)</b> |                              |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019            | EUT Type:<br>Portable Tablet |  | Page 121 of 191                 |

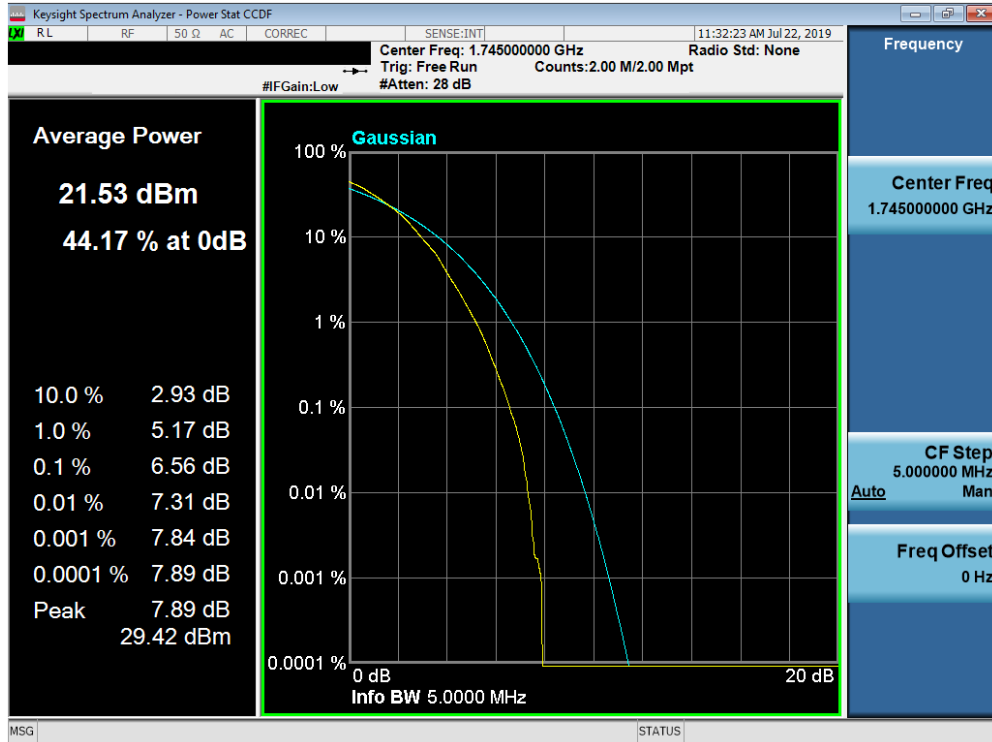


Plot 7-196. PAR Plot (Band 66/4 – 5.0MHz QPSK - Full RB Configuration)

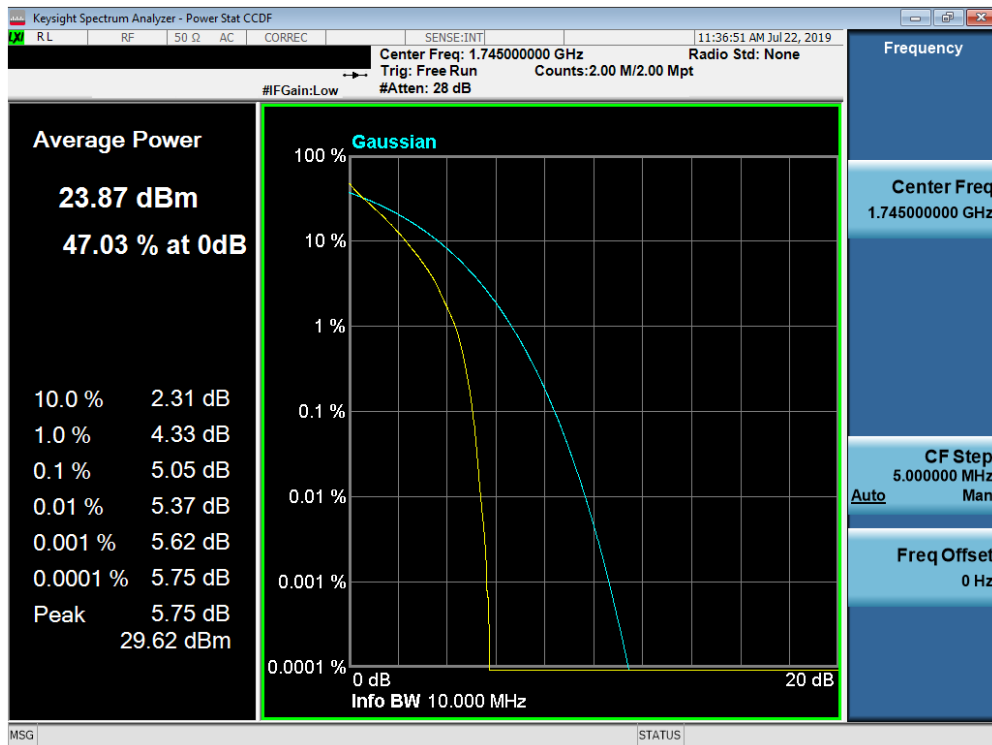


Plot 7-197. PAR Plot (Band 66/4 – 5.0MHz 16-QAM - Full RB Configuration)

|                                         |                                               |                              |                                 |
|-----------------------------------------|-----------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b> |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet | Page 122 of 191                 |

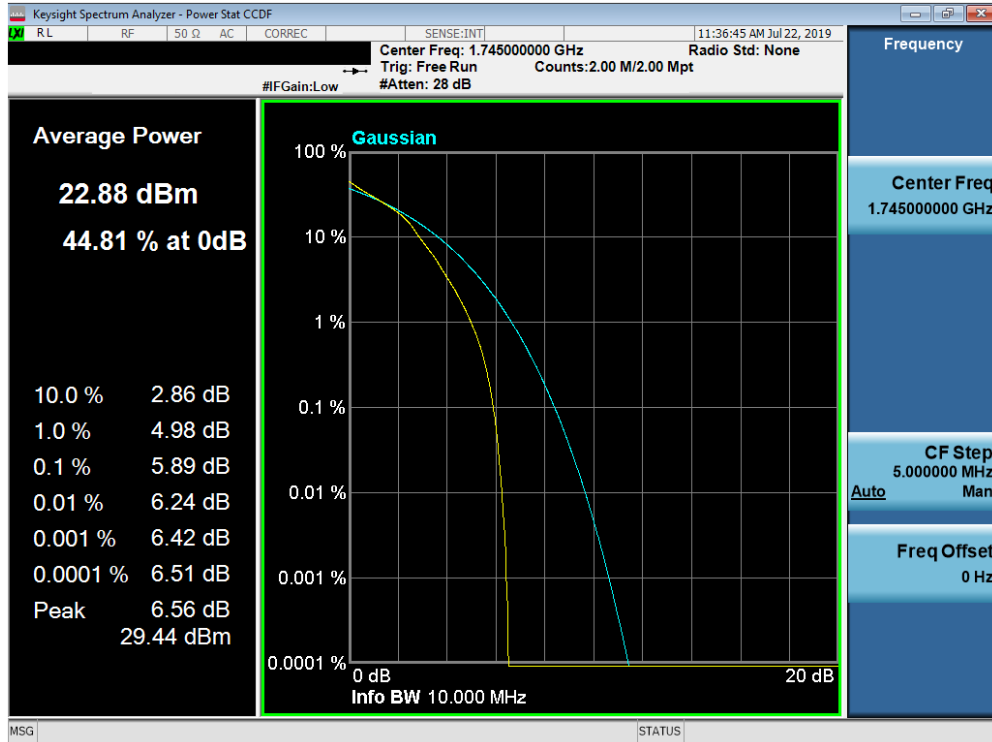


Plot 7-198. PAR Plot (Band 66/4 – 5.0MHz 64-QAM - Full RB Configuration)

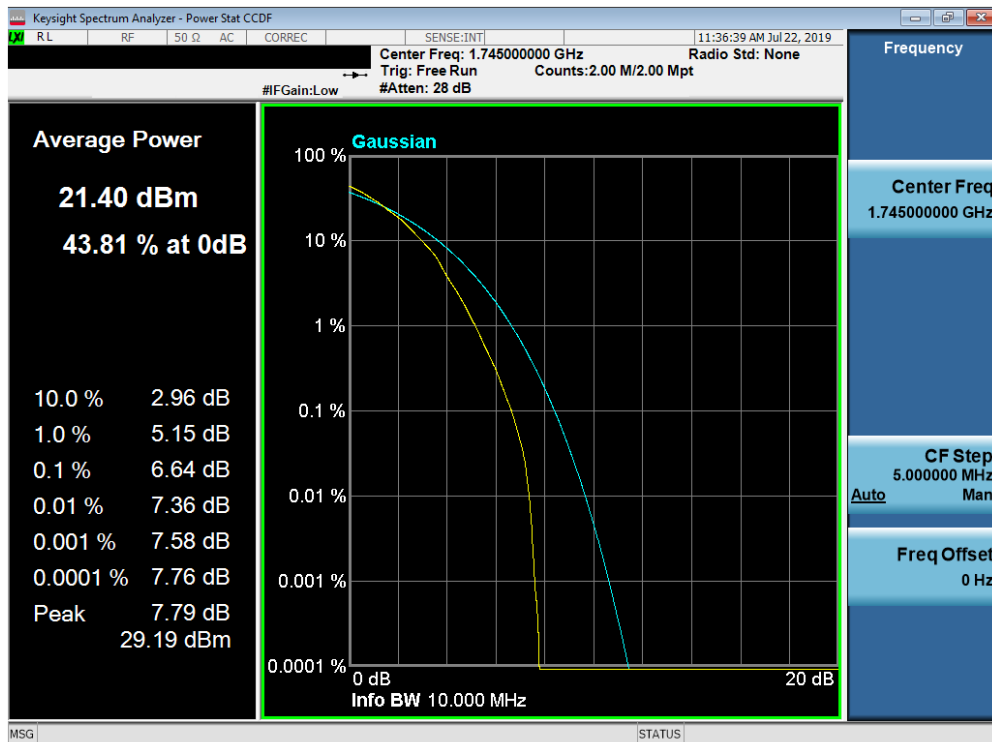


Plot 7-199. PAR Plot (Band 66/4 – 10.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 123 of 191                 |

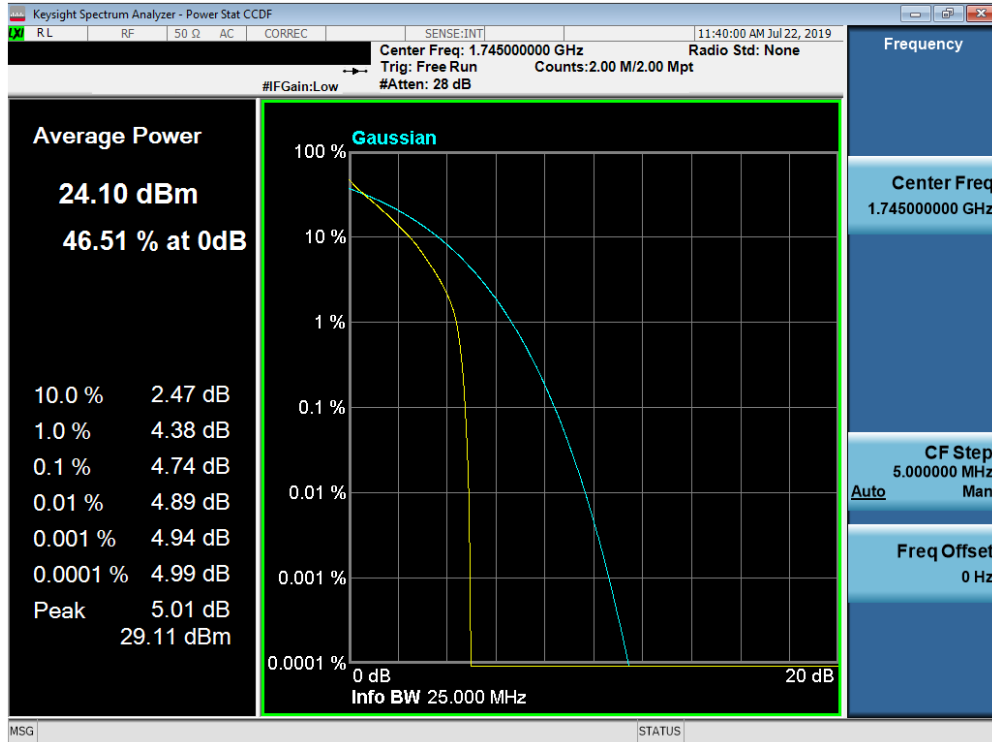


Plot 7-200. PAR Plot (Band 66/4 – 10.0MHz 16-QAM - Full RB Configuration)

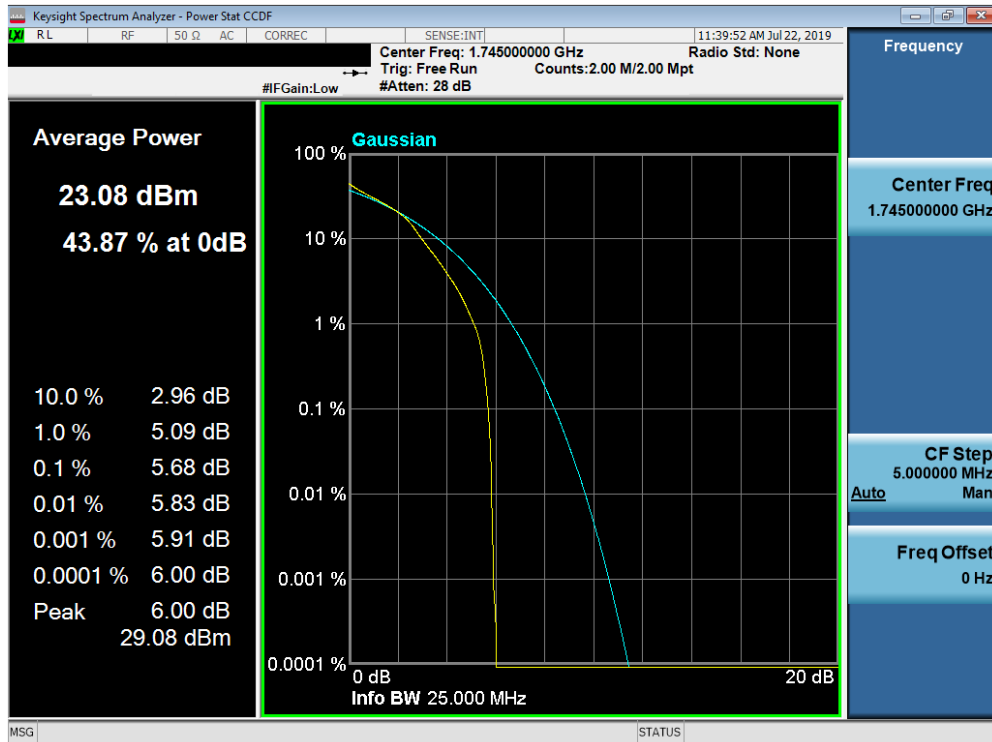


Plot 7-201. PAR Plot (Band 66/4 - 10.0MHz 64-QAM - Full RB Configuration)

|                                         |                                               |                              |                                 |
|-----------------------------------------|-----------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b> |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet | Page 124 of 191                 |

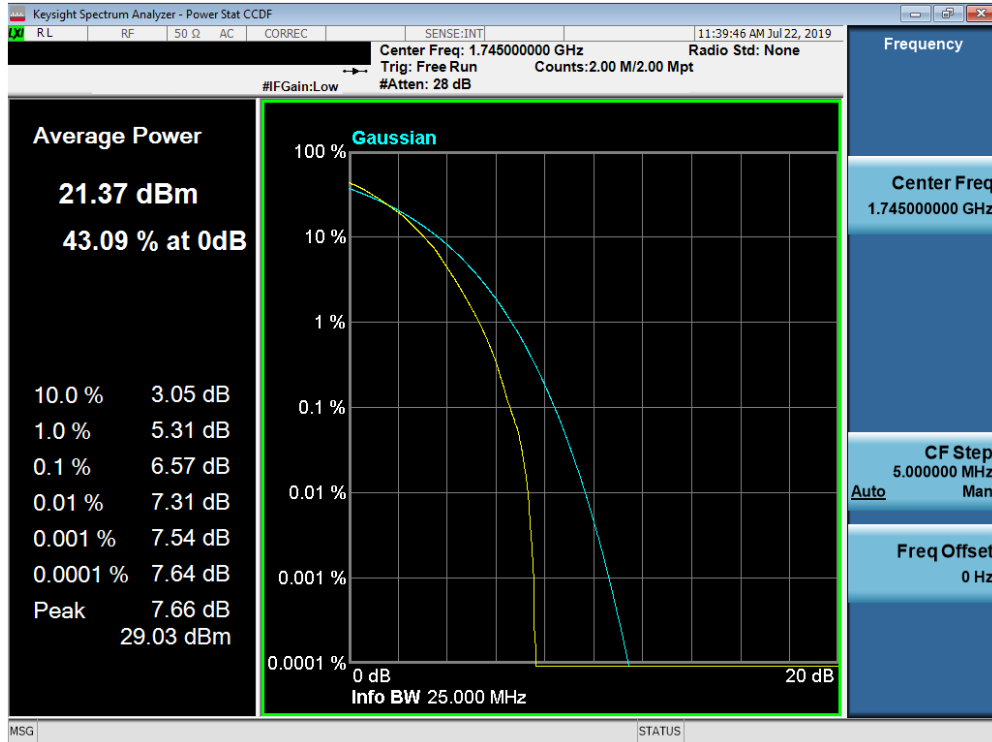


Plot 7-202. PAR Plot (Band 66/4 – 15.0MHz QPSK - Full RB Configuration)

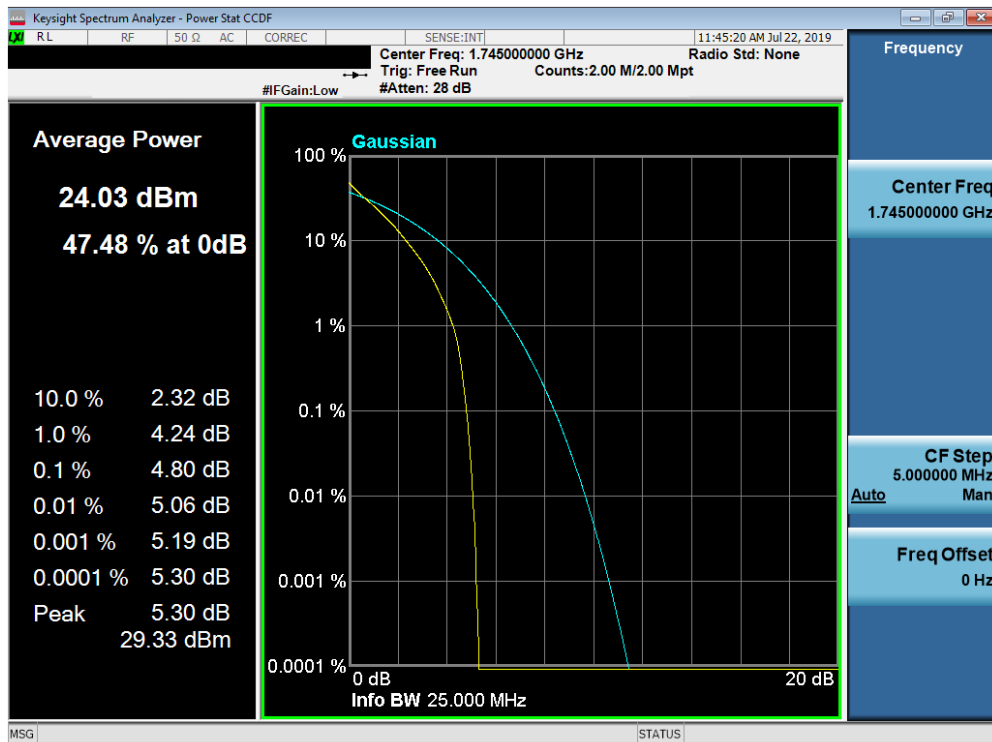


Plot 7-203. PAR Plot (Band 66/4 – 15.0MHz 16-QAM - Full RB Configuration)

|                                         |                                               |                              |                                 |
|-----------------------------------------|-----------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b> |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet | Page 125 of 191                 |

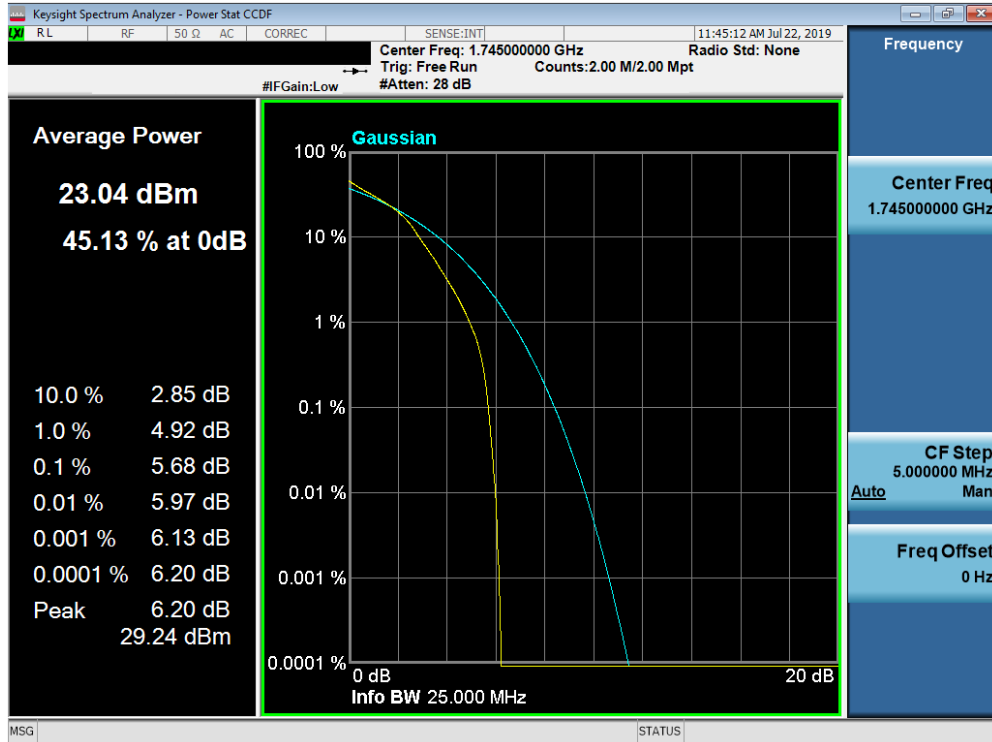


Plot 7-204. PAR Plot (Band 66/4 – 15.0MHz 64-QAM - Full RB Configuration)

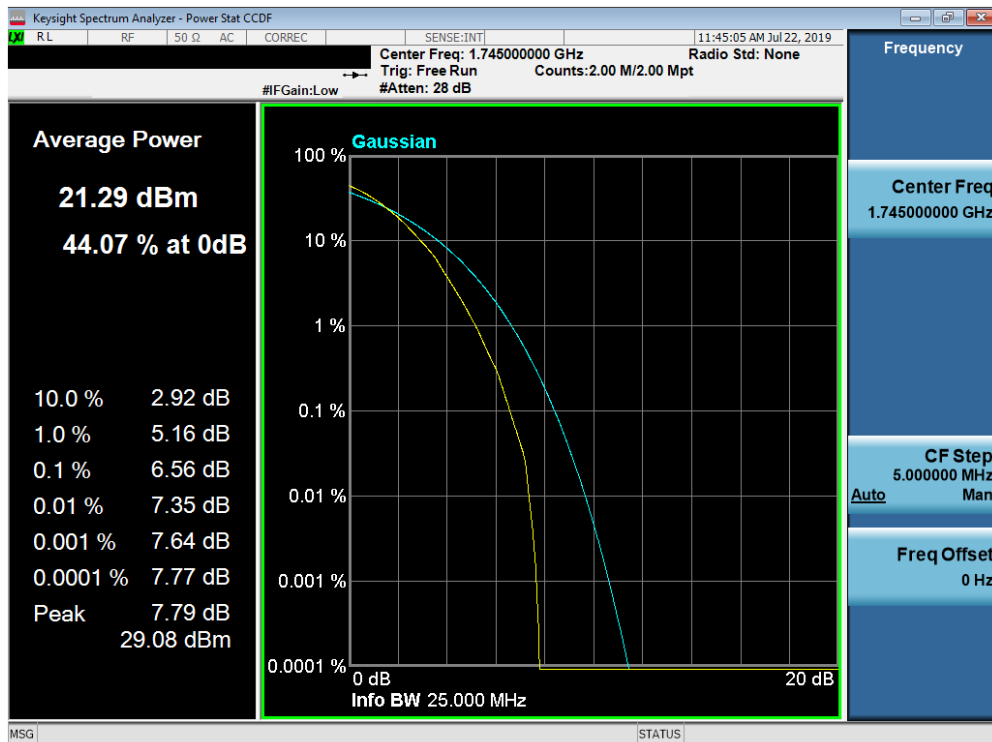


Plot 7-205. PAR Plot (Band 66/4 – 20.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                              |                                 |
|-----------------------------------------|-----------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b> |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet | Page 126 of 191                 |



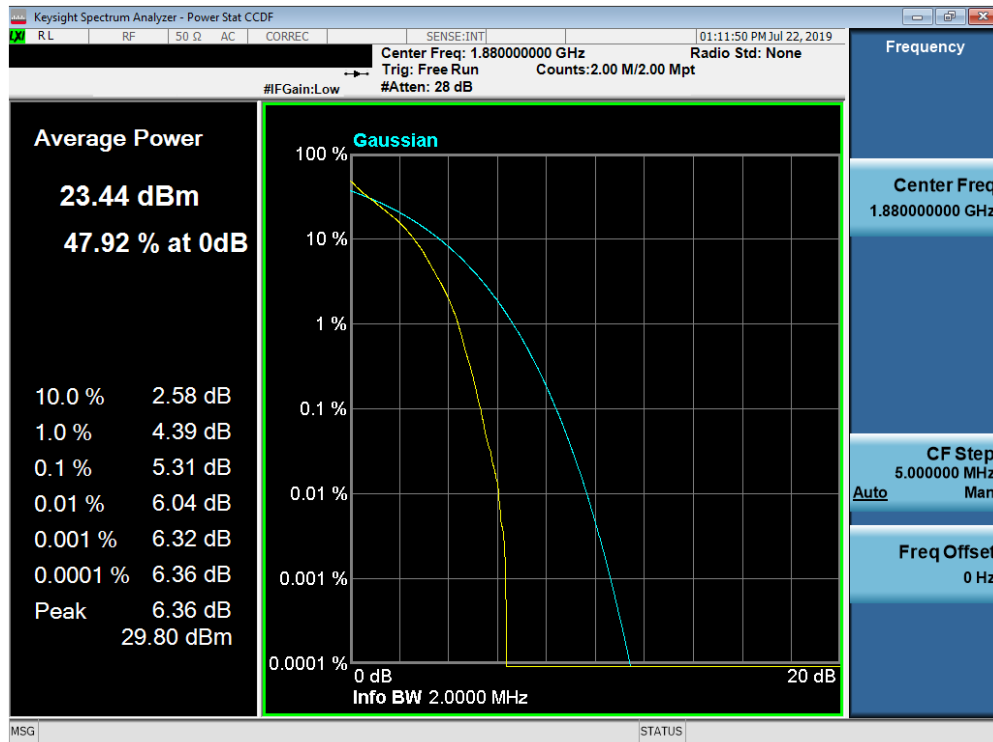
Plot 7-206. PAR Plot (Band 66/4 - 20.0MHz 16-QAM - Full RB Configuration)



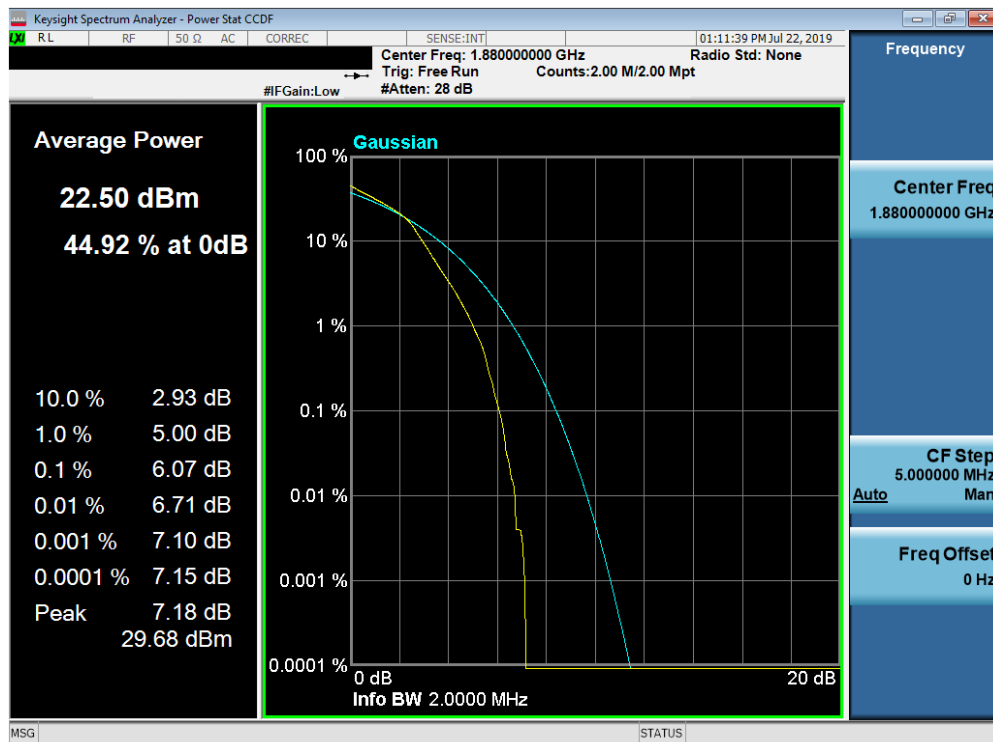
Plot 7-207. PAR Plot (Band 66/4 - 20.0MHz 64-QAM - Full RB Configuration)

|                                         |                                               |                              |                                 |
|-----------------------------------------|-----------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b> |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet | Page 127 of 191                 |

## Band 2

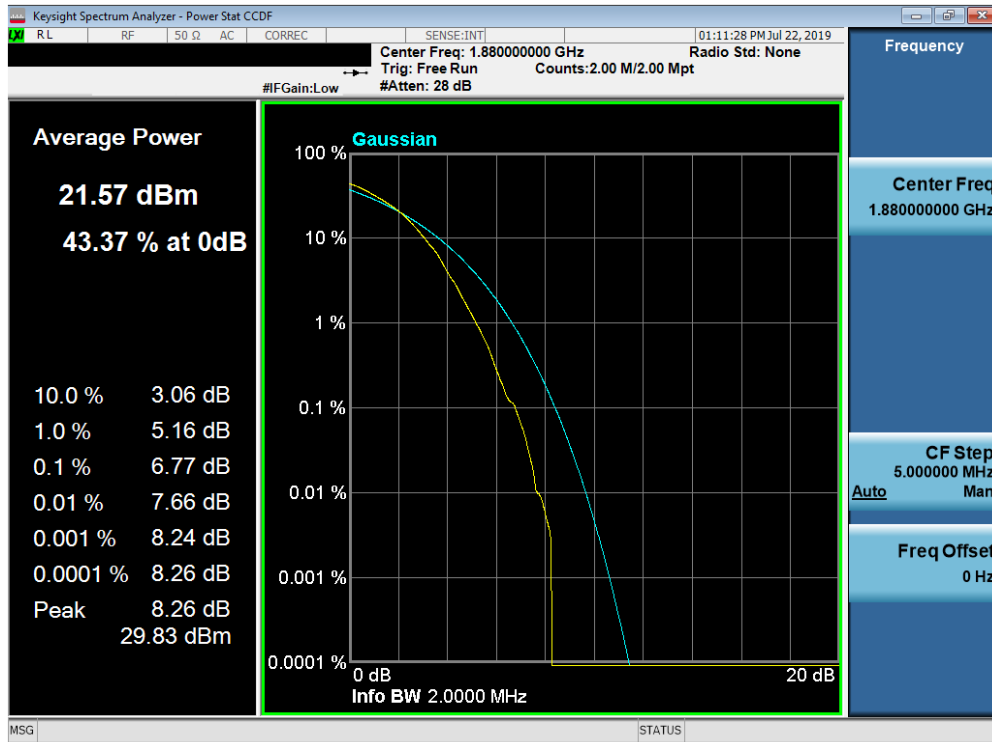


Plot 7-208. PAR Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)

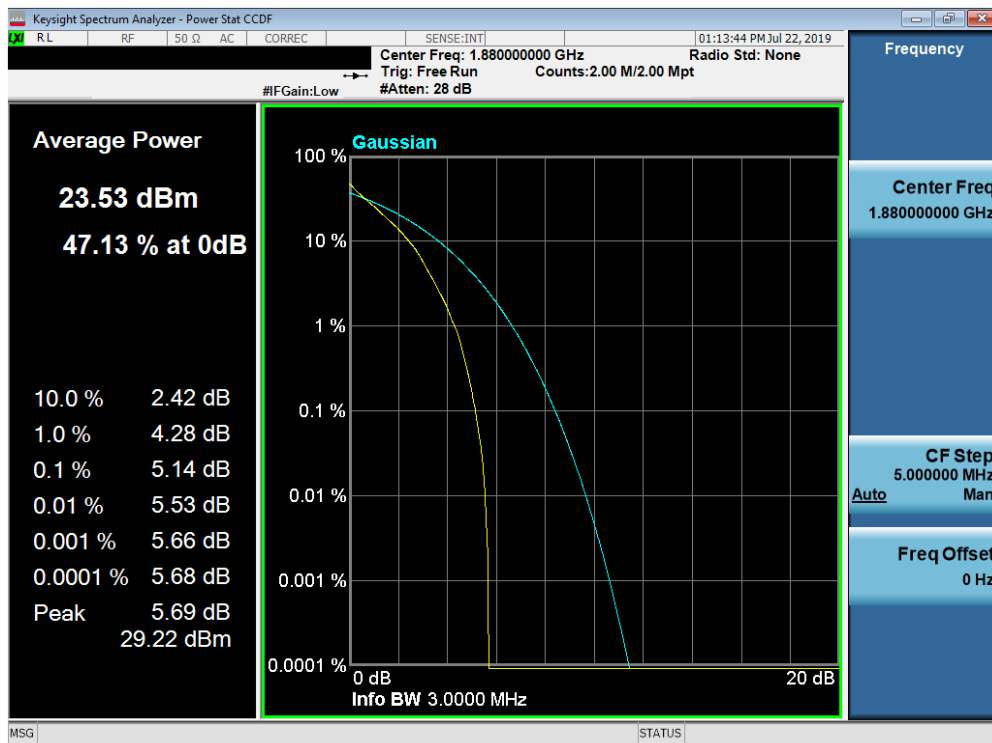


Plot 7-209. PAR Plot (Band 2 - 1.4MHz 16-QAM - Full RB Configuration)

|                                         |                                              |                              |  |                                 |
|-----------------------------------------|----------------------------------------------|------------------------------|--|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                              |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019               | EUT Type:<br>Portable Tablet |  | Page 128 of 191                 |

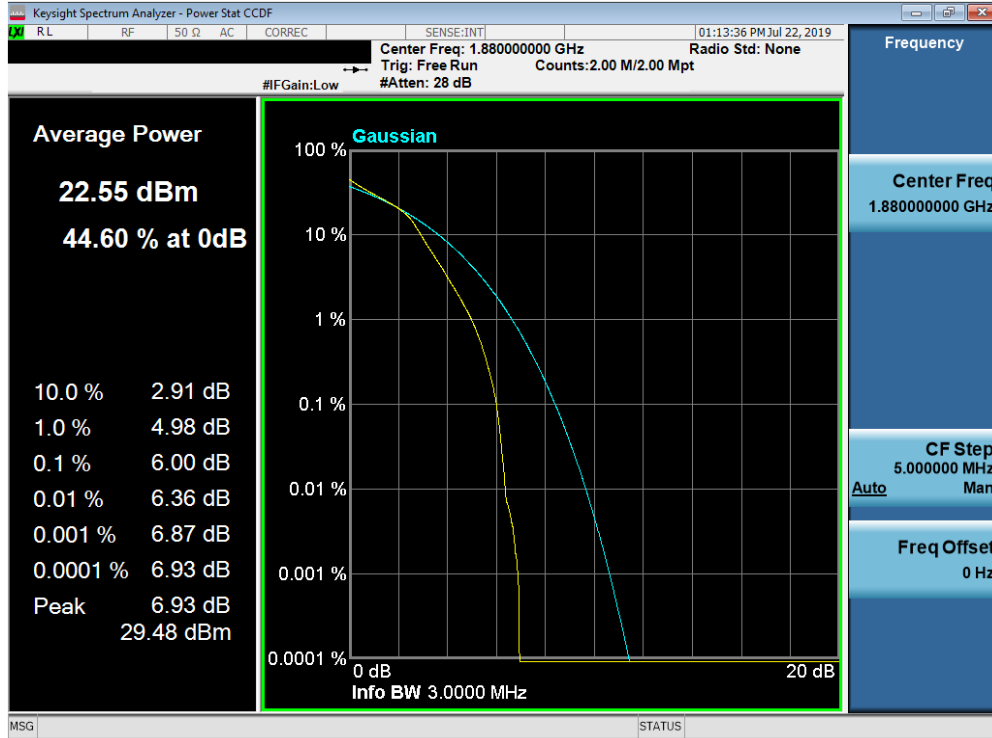


Plot 7-210. PAR Plot (Band 2 - 1.4MHz 64-QAM - Full RB Configuration)

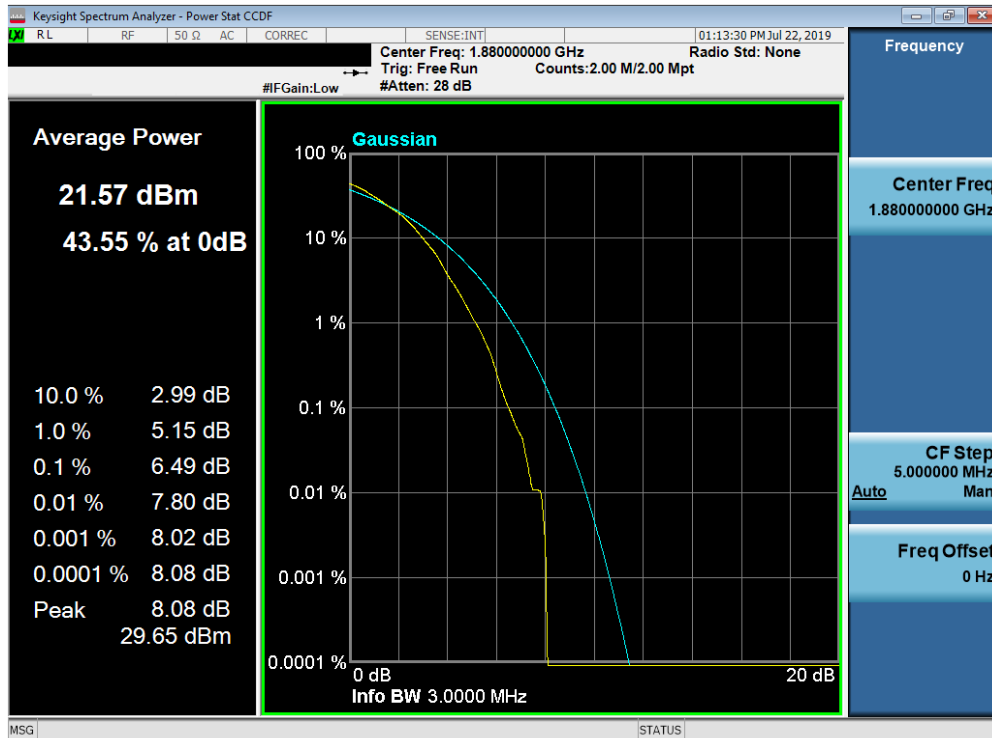


Plot 7-211. PAR Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 129 of 191                 |

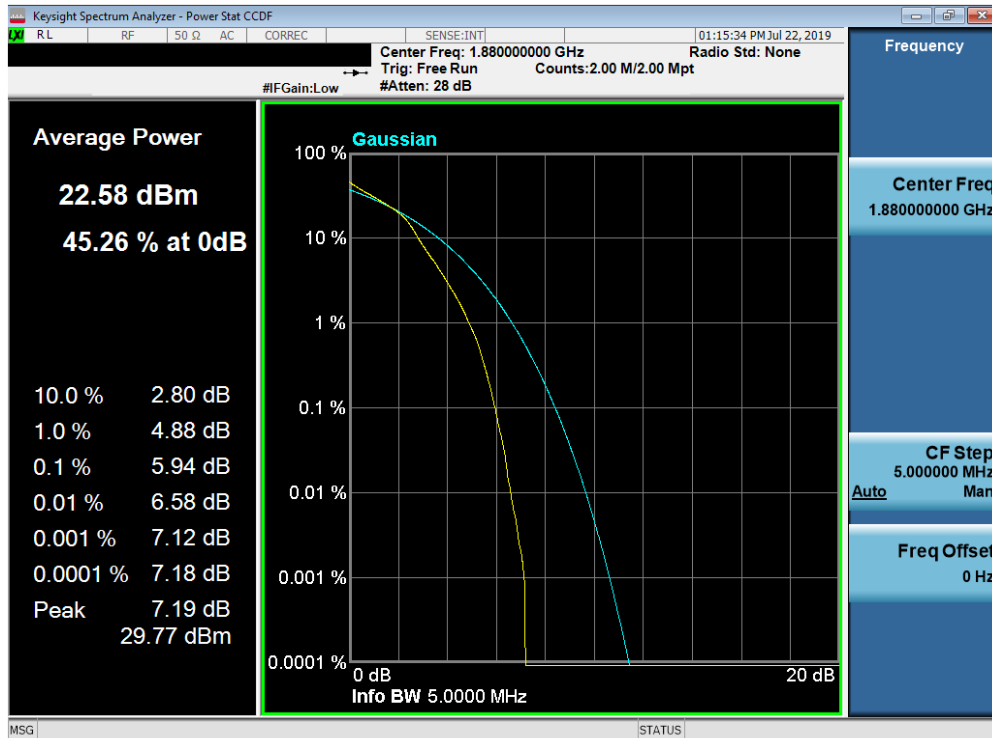
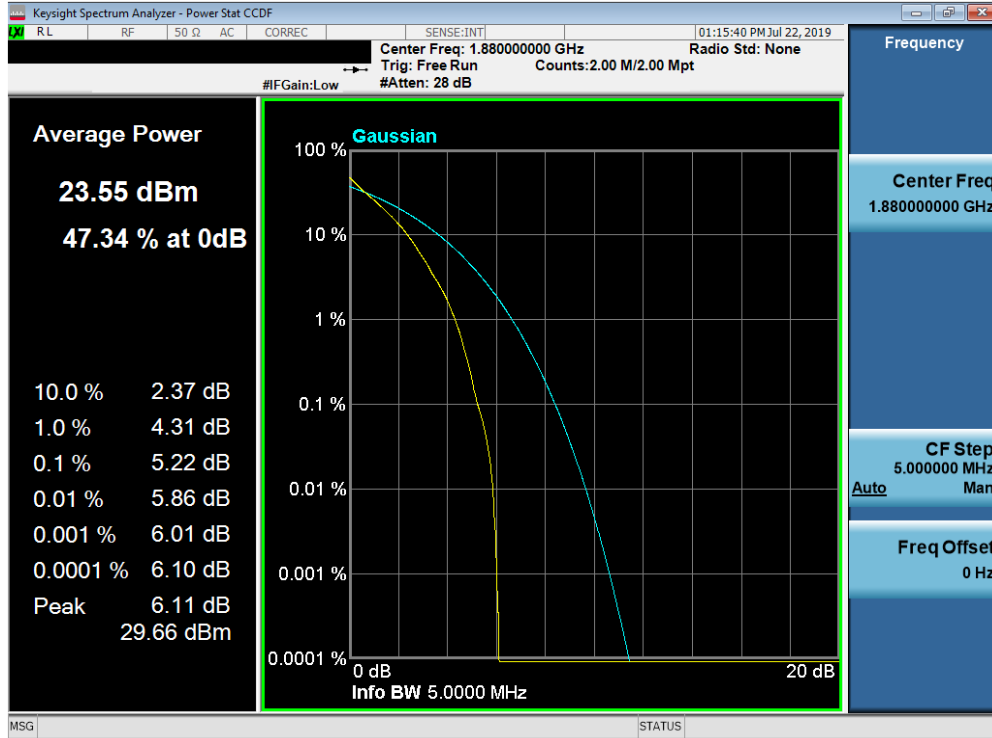


Plot 7-212. PAR Plot (Band 2 - 3.0MHz 16-QAM - Full RB Configuration)

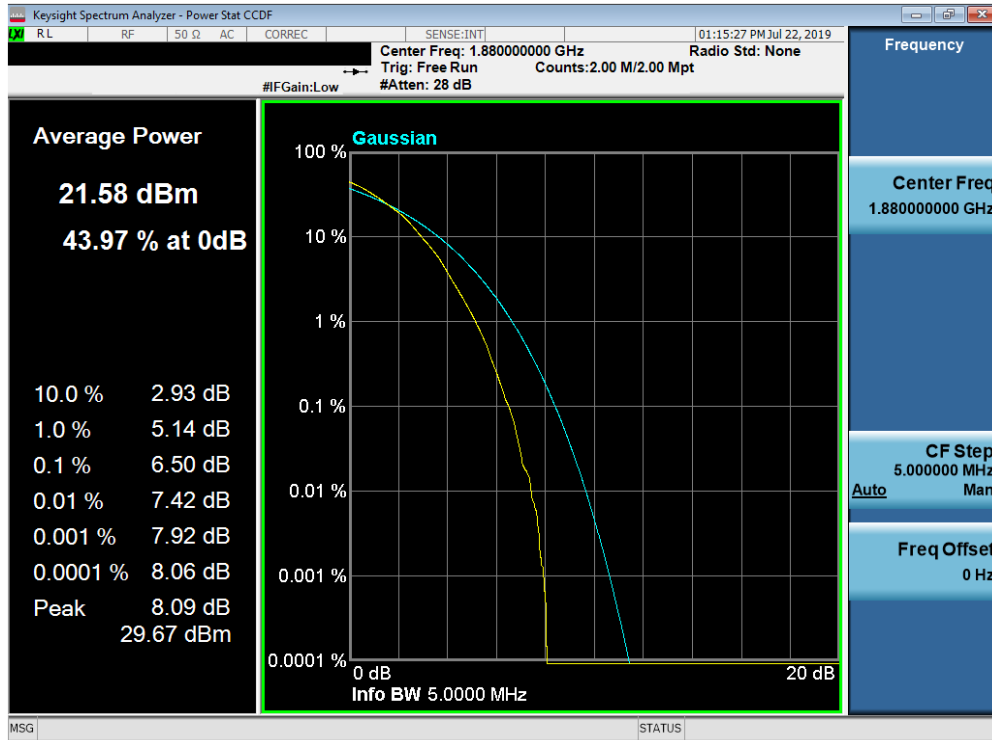


Plot 7-213. PAR Plot (Band 2 - 3.0MHz 64-QAM - Full RB Configuration)

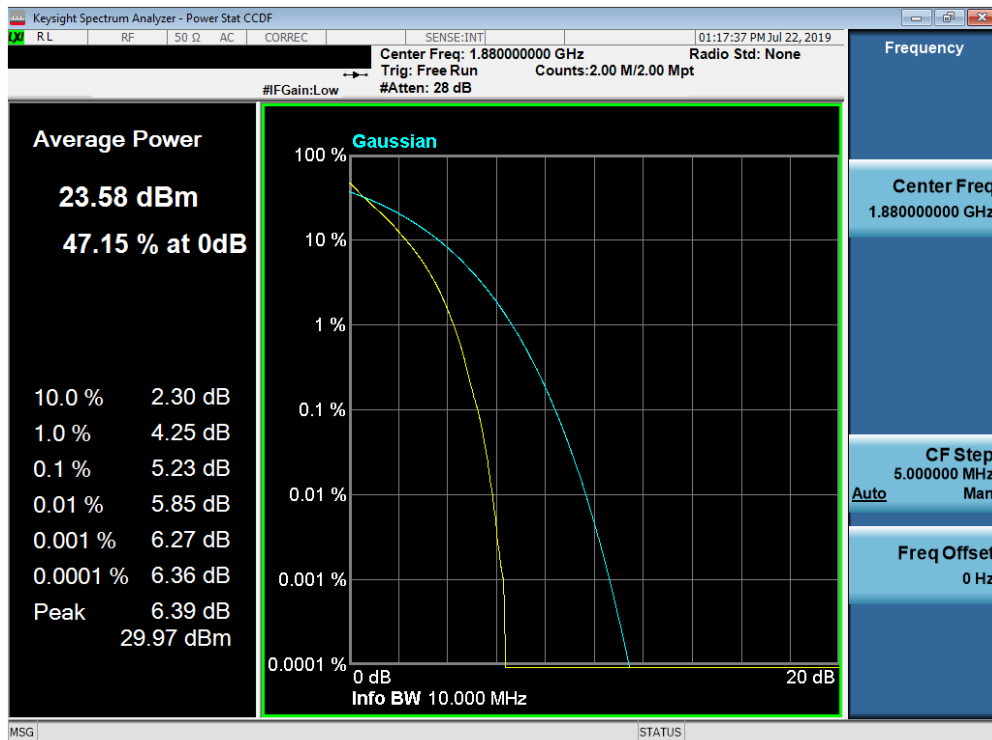
|                                         |                                               |                              |                                 |
|-----------------------------------------|-----------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b> |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet | Page 130 of 191                 |



|                                         |                                               |                              |                                 |
|-----------------------------------------|-----------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b> |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet | Page 131 of 191                 |

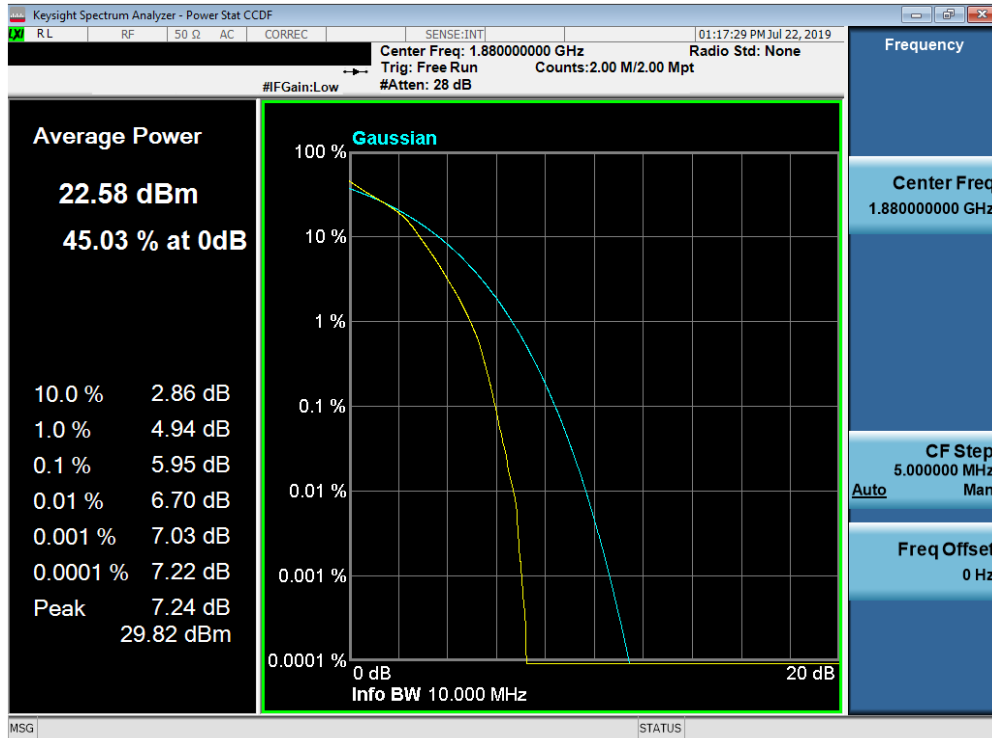


Plot 7-216. PAR Plot (Band 2 - 5.0MHz 64-QAM - Full RB Configuration)

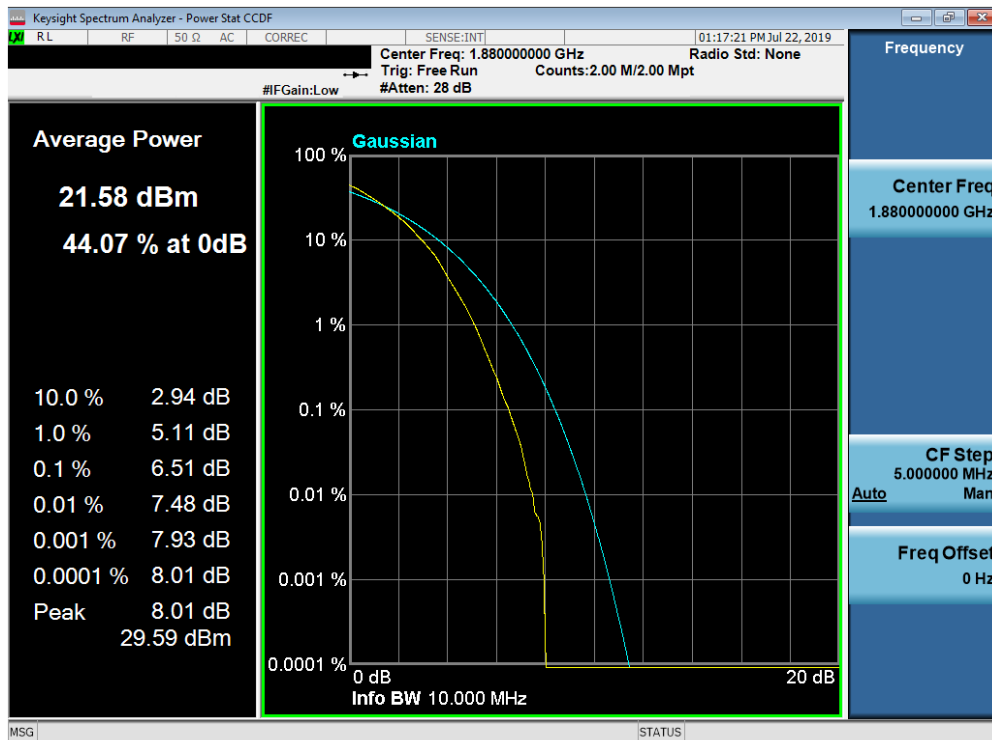


Plot 7-217. PAR Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                              |                                 |
|-----------------------------------------|-----------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b> |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet | Page 132 of 191                 |

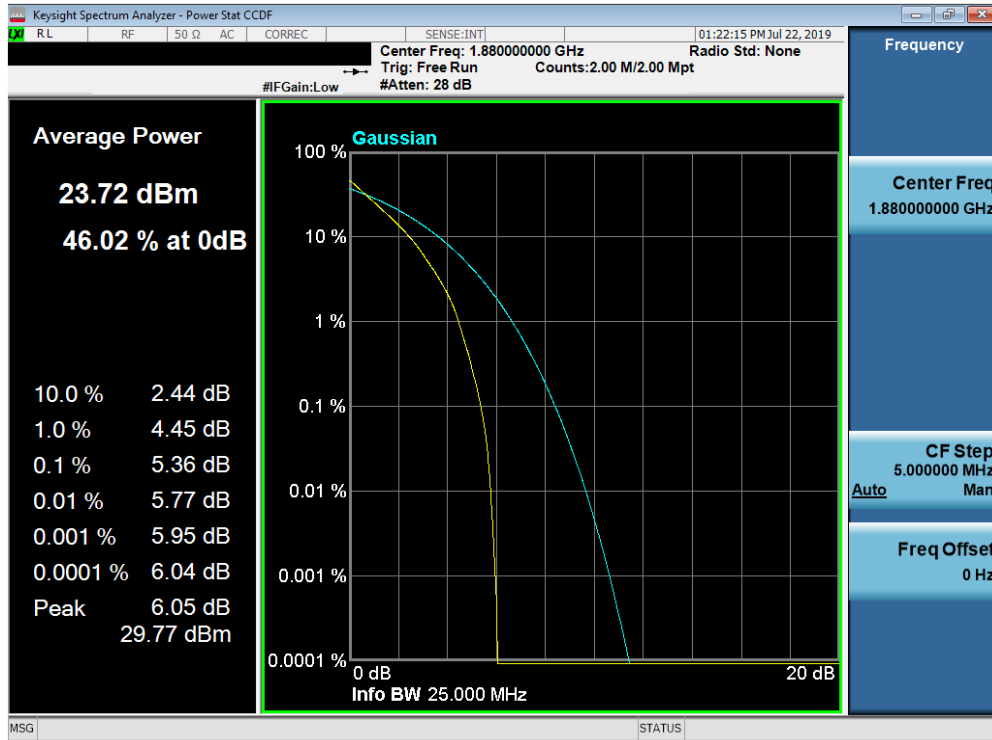


Plot 7-218. PAR Plot (Band 2 - 10.0MHz 16-QAM - Full RB Configuration)

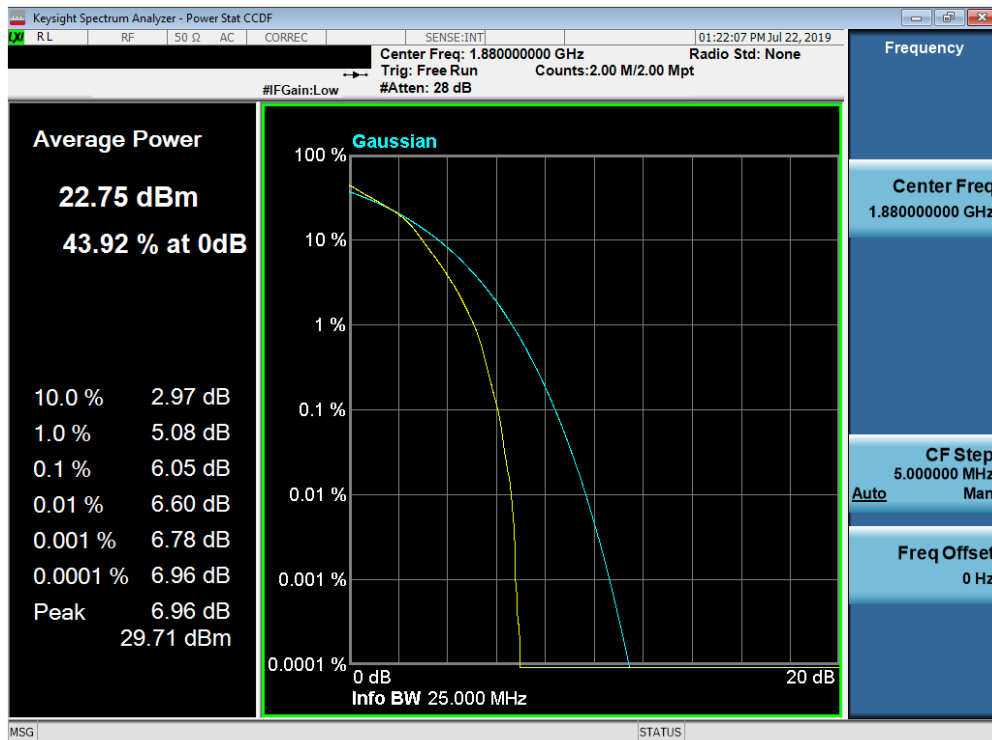


Plot 7-219. PAR Plot (Band 2 - 10.0MHz 64-QAM - Full RB Configuration)

|                                         |                                           |                              |                                 |
|-----------------------------------------|-------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>MEASUREMENT REPORT (CERTIFICATION)</b> |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019            | EUT Type:<br>Portable Tablet | Page 133 of 191                 |

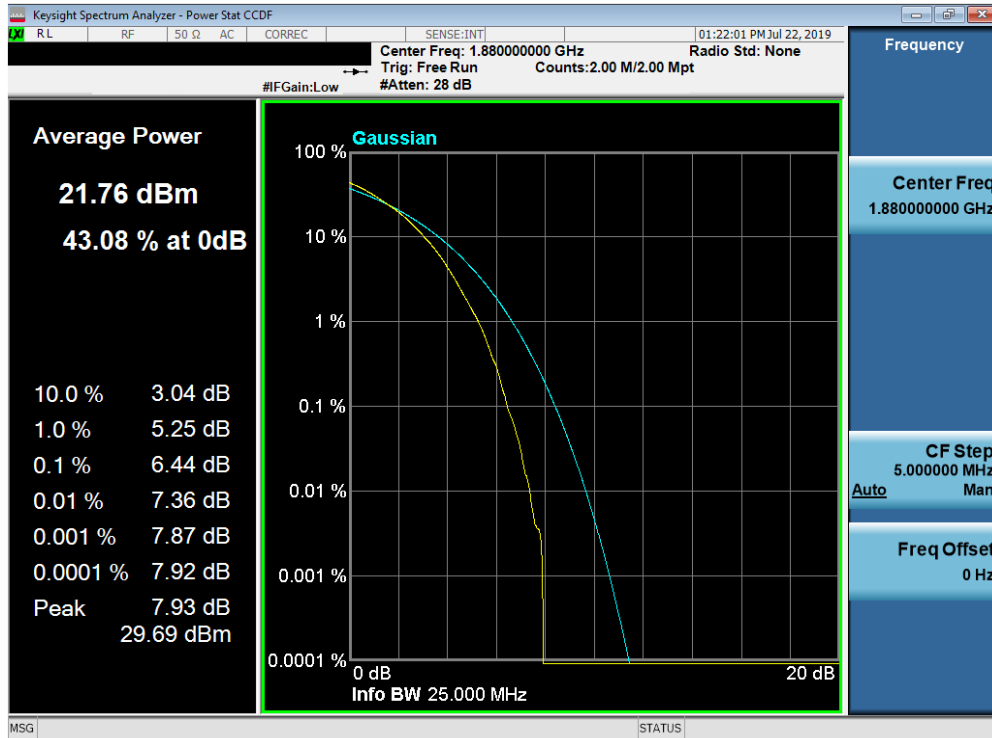


Plot 7-220. PAR Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

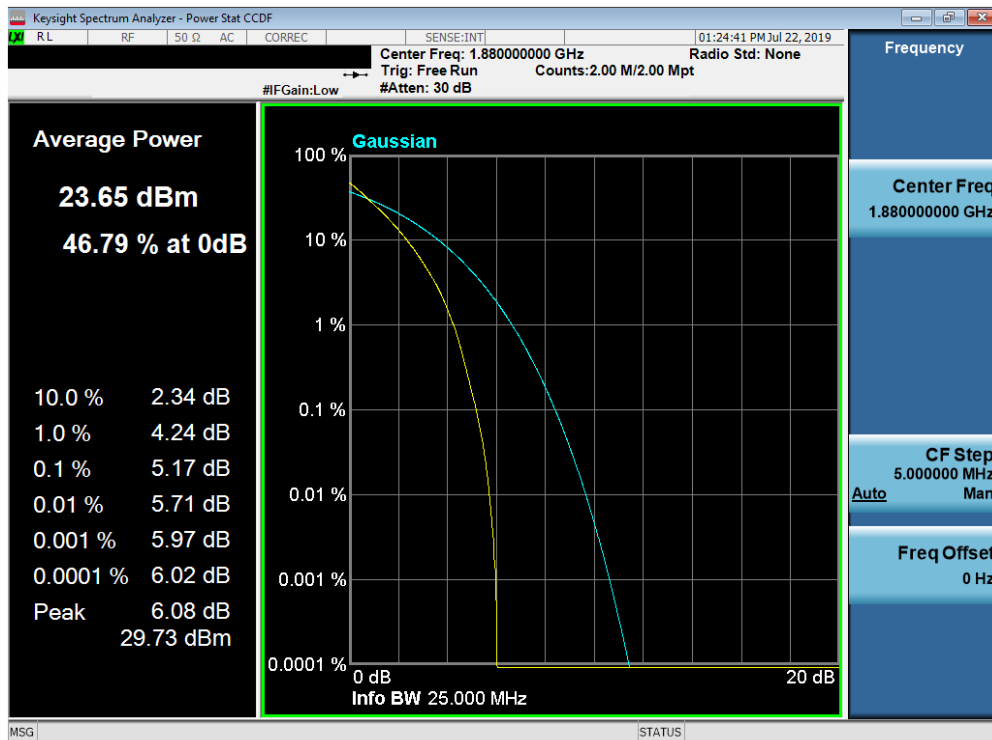


Plot 7-221. PAR Plot (Band 2 - 15.0MHz 16-QAM - Full RB Configuration)

|                                         |                                                                                                                                                                                                                         |                              |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                          | EUT Type:<br>Portable Tablet | Page 134 of 191                 |

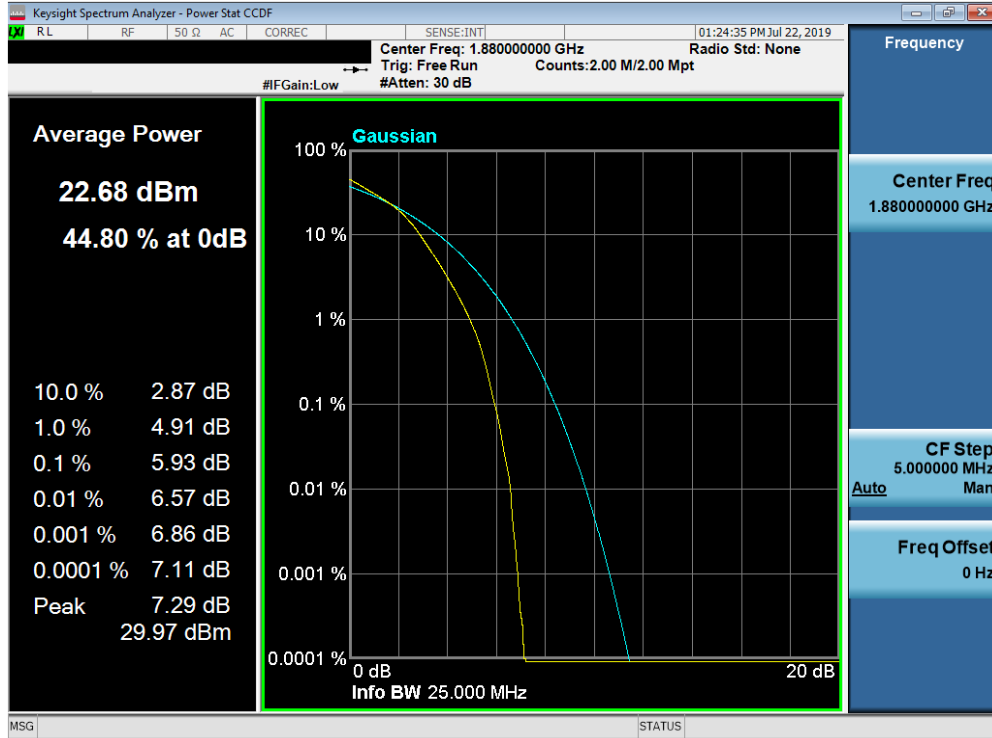


Plot 7-222. PAR Plot (Band 2 - 15.0MHz 64-QAM - Full RB Configuration)

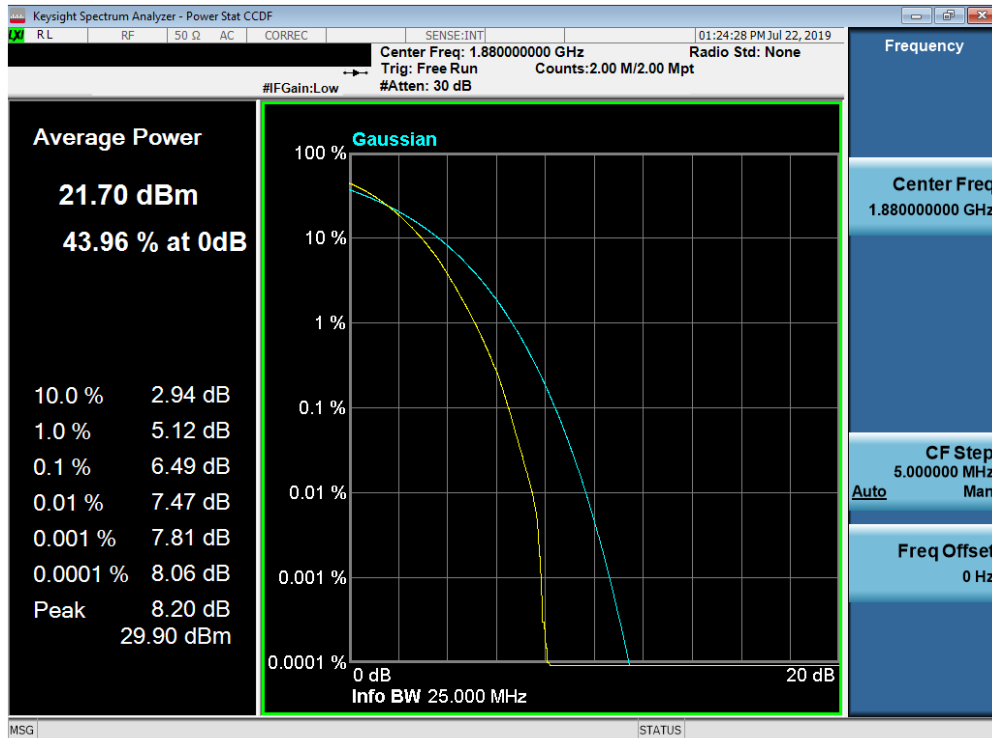


Plot 7-223. PAR Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                              |                                 |
|-----------------------------------------|-----------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b> |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet | Page 135 of 191                 |



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: A3LSMT867V                      | <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b> |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet | Page 136 of 191                 |

## 7.6 Uplink Carrier Aggregation

### §27.53(m)

#### Test Overview

The EUT is set up to transmit two contiguous LTE channels. The power level of both carriers and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10<sup>th</sup> harmonic. 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.

***For Band 38/41, the minimum permissible attenuation level of any spurious emission is  $55 + 10 \log_{10}(P_{[Watts]})$ .***

#### Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

#### Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to at least 10 \* the fundamental frequency (separated into at least two plots per channel)
2. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. Please see test notes below for RBW and VBW settings

#### Test Setup

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

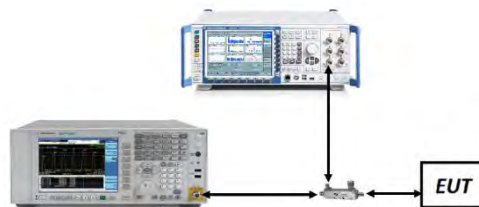


**Figure 7-5. Test Instrument & Measurement Setup**

|                                         |                                               |                                               |                |                                 |
|-----------------------------------------|-----------------------------------------------|-----------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b> | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet                  |                | Page 137 of 191                 |

## Test Notes

1. Uplink carrier aggregation is only supported in this EUT while operating in Power Class 3.
2. Conducted power and spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device. The worst case (highest) powers were found while operating with QPSK modulation, as shown in Table 7-503 and 7-504 below, with both carriers set to transmit using 1RB.
3. Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. However, 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.

|                                         |                                                                                     |                                       |                                                                                       |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  | MEASUREMENT REPORT<br>(CERTIFICATION) |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                      | EUT Type:<br>Portable Tablet          |                                                                                       | Page 138 of 191                 |

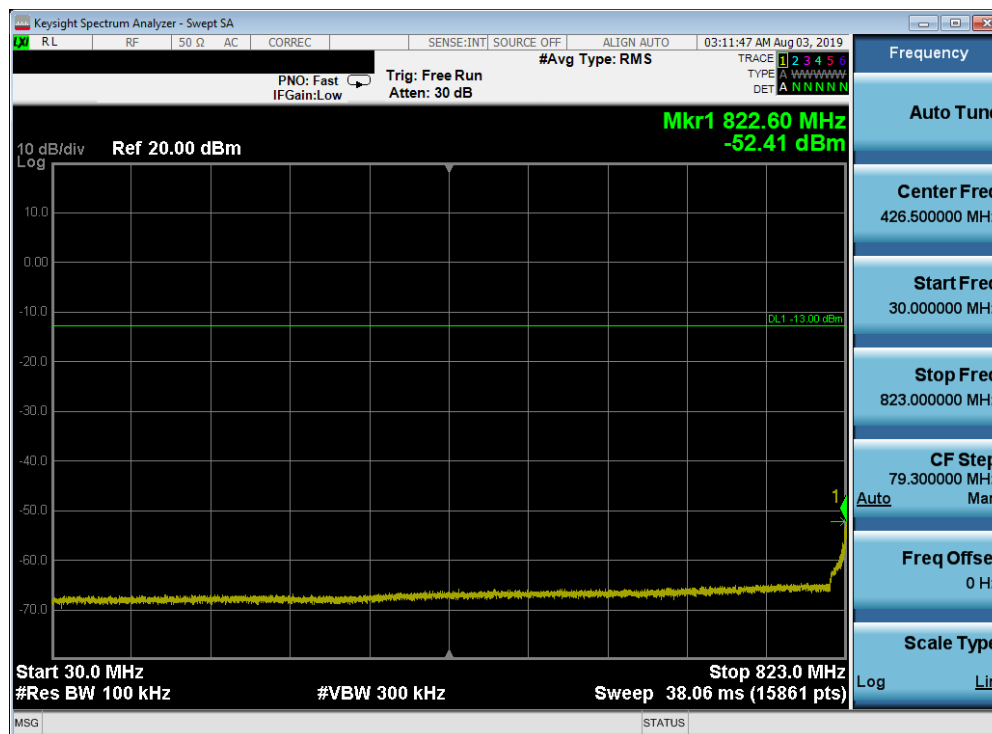
## Uplink CA Configuration 5B

| Power State | PCC      |                        |                     |                                |            |               |                     | SCC      |                        |                     |                                |            |               |                     | Power<br>ULCA<br>Tx.Power<br>(dBm) |
|-------------|----------|------------------------|---------------------|--------------------------------|------------|---------------|---------------------|----------|------------------------|---------------------|--------------------------------|------------|---------------|---------------------|------------------------------------|
|             | PCC Band | PCC Bandwidth<br>[MHz] | PCC (UL)<br>Channel | PCC (UL)<br>Frequency<br>[MHz] | Modulation | PCC UL#<br>RB | PCC UL<br>RB Offset | SCC Band | SCC Bandwidth<br>[MHz] | SCC (UL)<br>Channel | SCC (UL)<br>Frequency<br>[MHz] | Modulation | PCC UL#<br>RB | PCC UL<br>RB Offset |                                    |
| Max         | LTE B5   | 10                     | 20450               | 829                            | QPSK       | 1             | 49                  | LTE B5   | 10                     | 20549               | 838.9                          | QPSK       | 1             | 0                   | 24.96                              |
| Max         | LTE B5   | 10                     | 20525               | 836.5                          | QPSK       | 1             | 49                  | LTE B5   | 5                      | 20597               | 843.7                          | QPSK       | 1             | 0                   | 24.65                              |
| Max         | LTE B5   | 10                     | 20600               | 844                            | QPSK       | 1             | 0                   | LTE B5   | 10                     | 20501               | 834.1                          | QPSK       | 1             | 49                  | 24.71                              |

**Table 7-3. Conducted Powers (B5 –PCC RB Size 1 Offset Max SCC: RB Size1 Offset 0)**

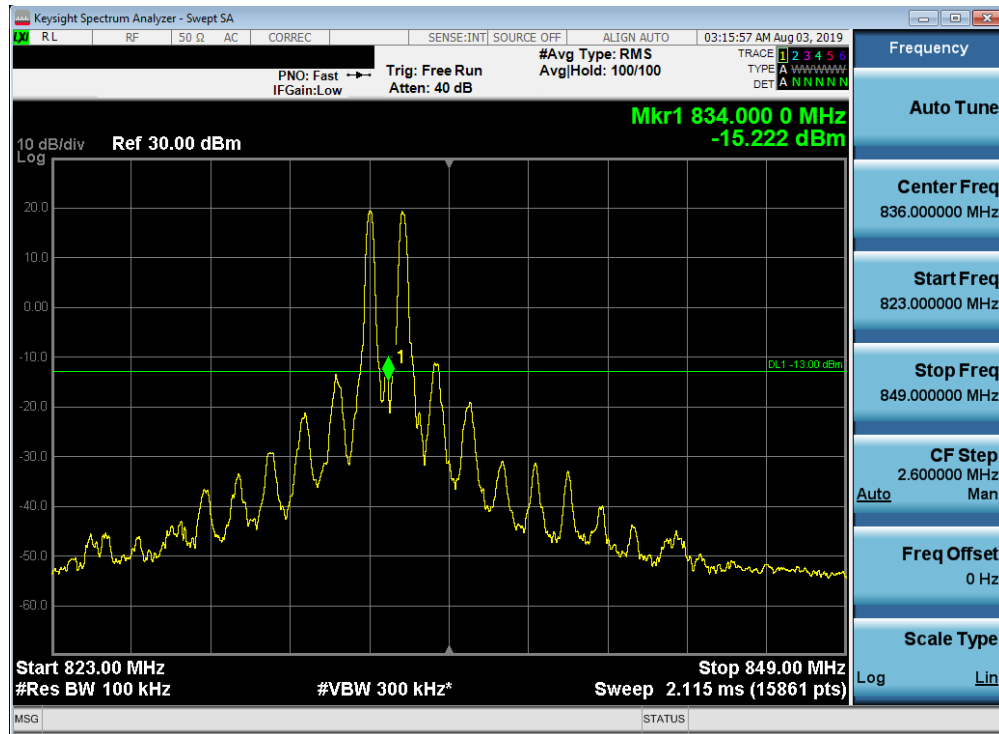
| Power State | PCC      |                        |                     |                                |            |               |                     | SCC      |                        |                     |                                |            |               |                     | Power<br>ULCA<br>Tx.Power<br>(dBm) |
|-------------|----------|------------------------|---------------------|--------------------------------|------------|---------------|---------------------|----------|------------------------|---------------------|--------------------------------|------------|---------------|---------------------|------------------------------------|
|             | PCC Band | PCC Bandwidth<br>[MHz] | PCC (UL)<br>Channel | PCC (UL)<br>Frequency<br>[MHz] | Modulation | PCC UL#<br>RB | PCC UL<br>RB Offset | SCC Band | SCC Bandwidth<br>[MHz] | SCC (UL)<br>Channel | SCC (UL)<br>Frequency<br>[MHz] | Modulation | PCC UL#<br>RB | PCC UL<br>RB Offset |                                    |
| Max         | LTE B5   | 10                     | 20450               | 829                            | QPSK       | 50            | 0                   | LTE B5   | 10                     | 20549               | 838.9                          | QPSK       | 50            | 0                   | 22.58                              |
| Max         | LTE B5   | 10                     | 20450               | 829                            | 16-QAM     | 50            | 0                   | LTE B5   | 10                     | 20549               | 838.9                          | 16-QAM     | 50            | 0                   | 21.47                              |
| Max         | LTE B5   | 10                     | 20450               | 829                            | 64-QAM     | 50            | 0                   | LTE B5   | 10                     | 20549               | 838.9                          | 64-QAM     | 50            | 0                   | 21.43                              |

**Table 7-4. Conducted Powers (B5 with Various Combinations for 10MHz Channel Bandwidth)**

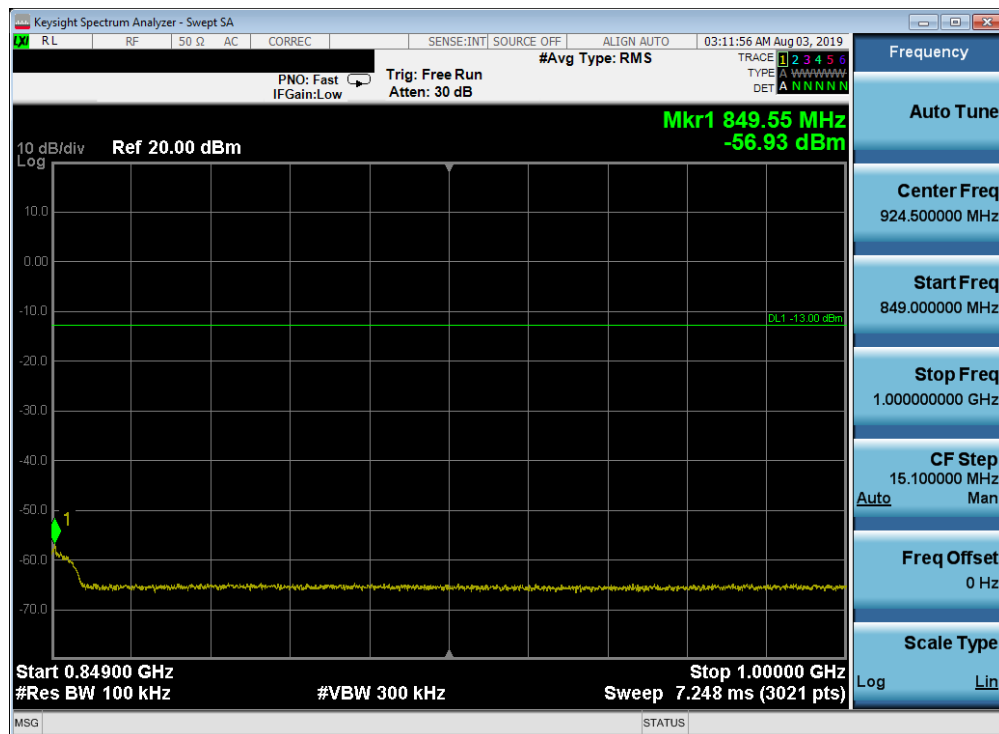


**Plot 7-226. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)**

|                                         |                                |                              |                                       |  |                                 |
|-----------------------------------------|--------------------------------|------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMT867V                      |                                |                              | MEASUREMENT REPORT<br>(CERTIFICATION) |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019 | EUT Type:<br>Portable Tablet | Page 139 of 191                       |  |                                 |

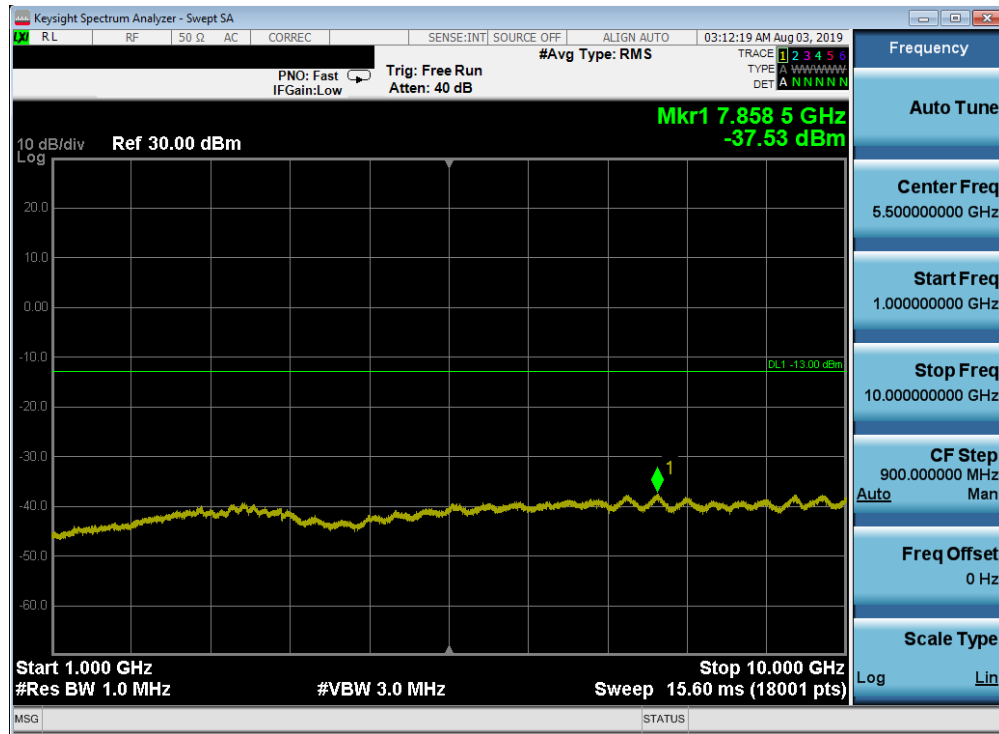


Plot 7-227. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)

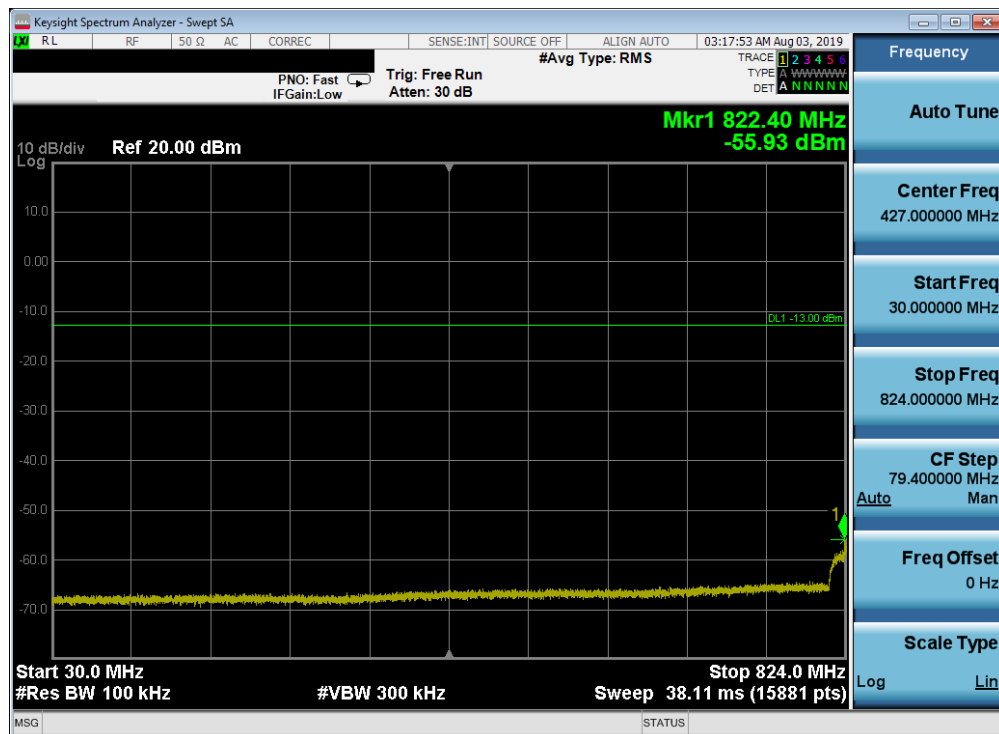


Plot 7-228. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 140 of 191                 |

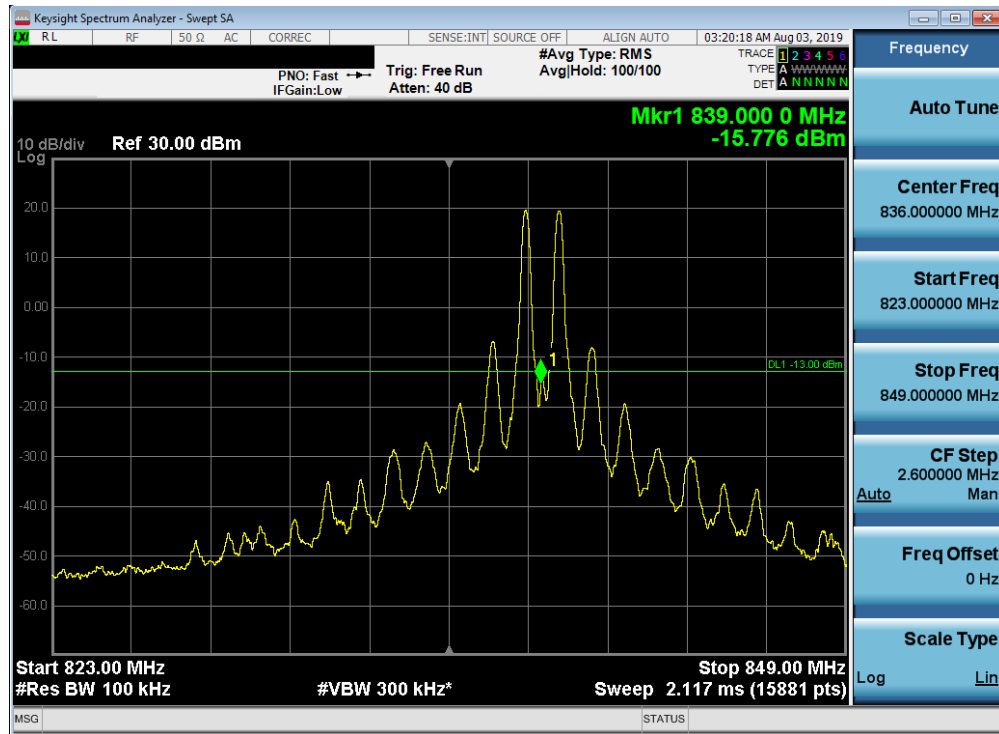


Plot 7-229. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)

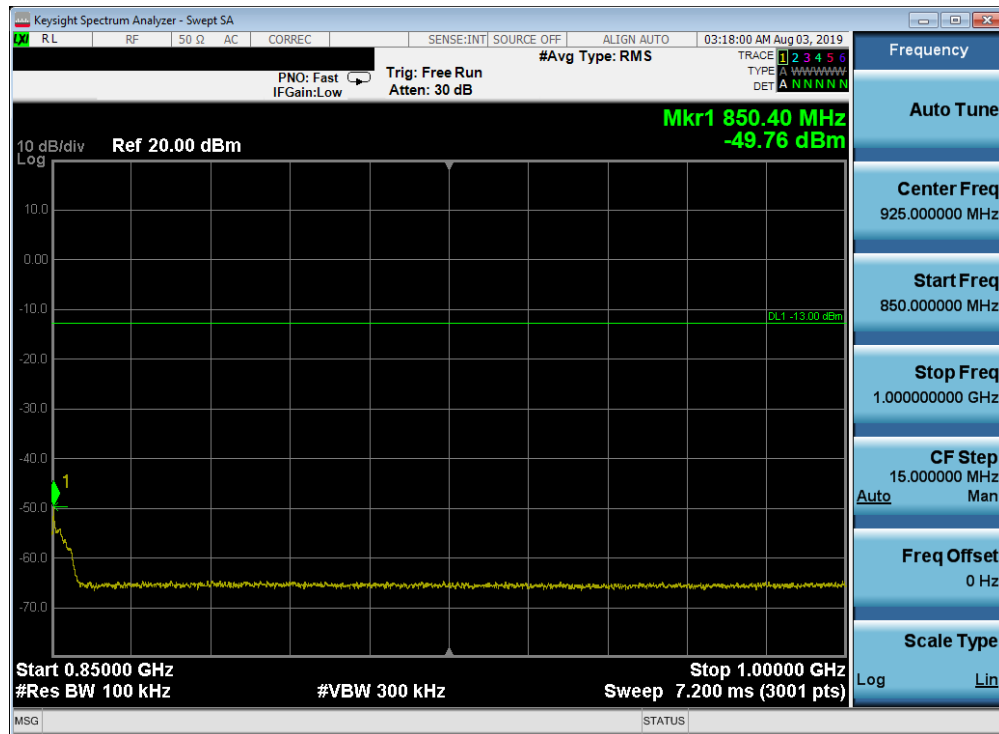


Plot 7-230. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – High Channel)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 141 of 191                 |

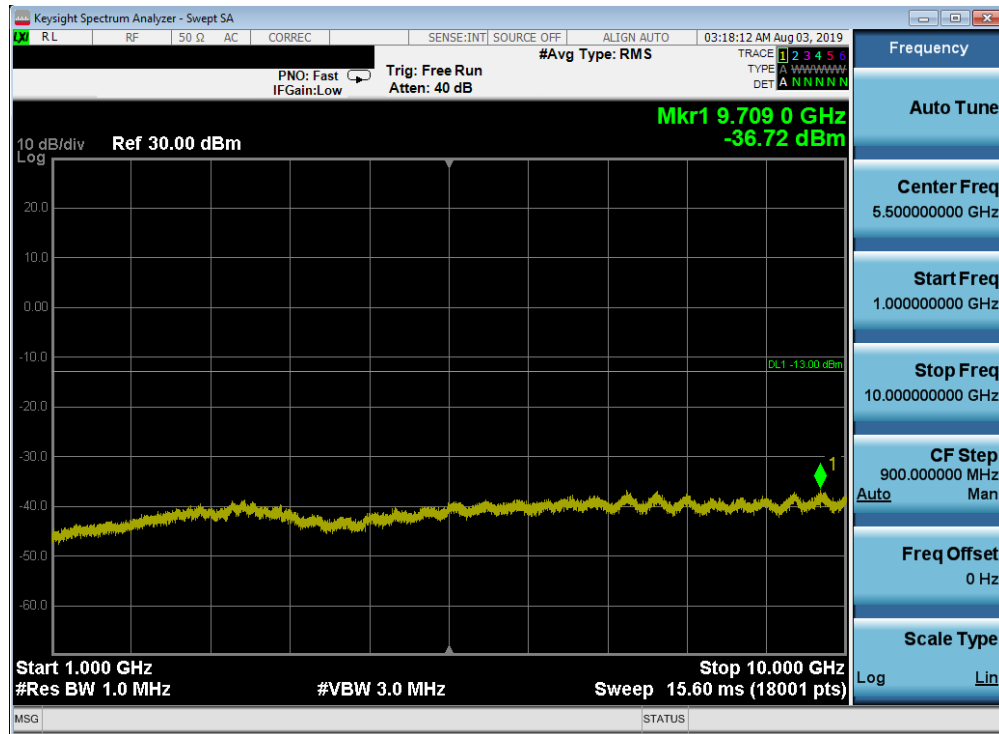


Plot 7-231. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – High Channel)

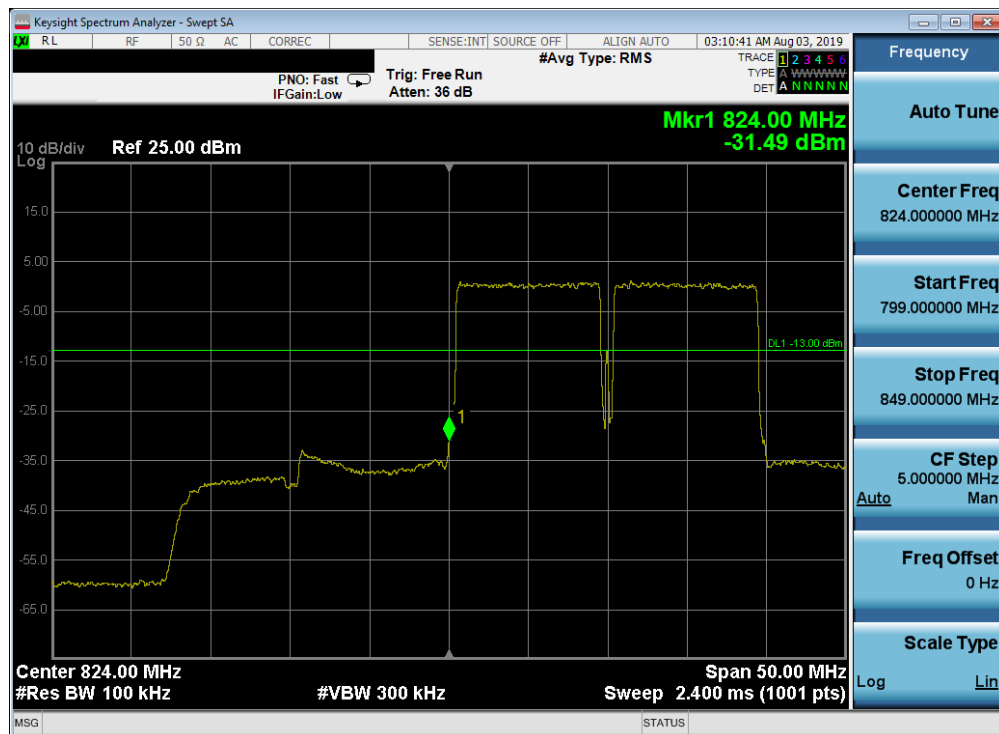


Plot 7-232. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – High Channel)

|                                         |                                                                                                                                                                                                                        |                              |                                 |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT</b><br>(CERTIFICATION)  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                         | EUT Type:<br>Portable Tablet | Page 142 of 191                 |

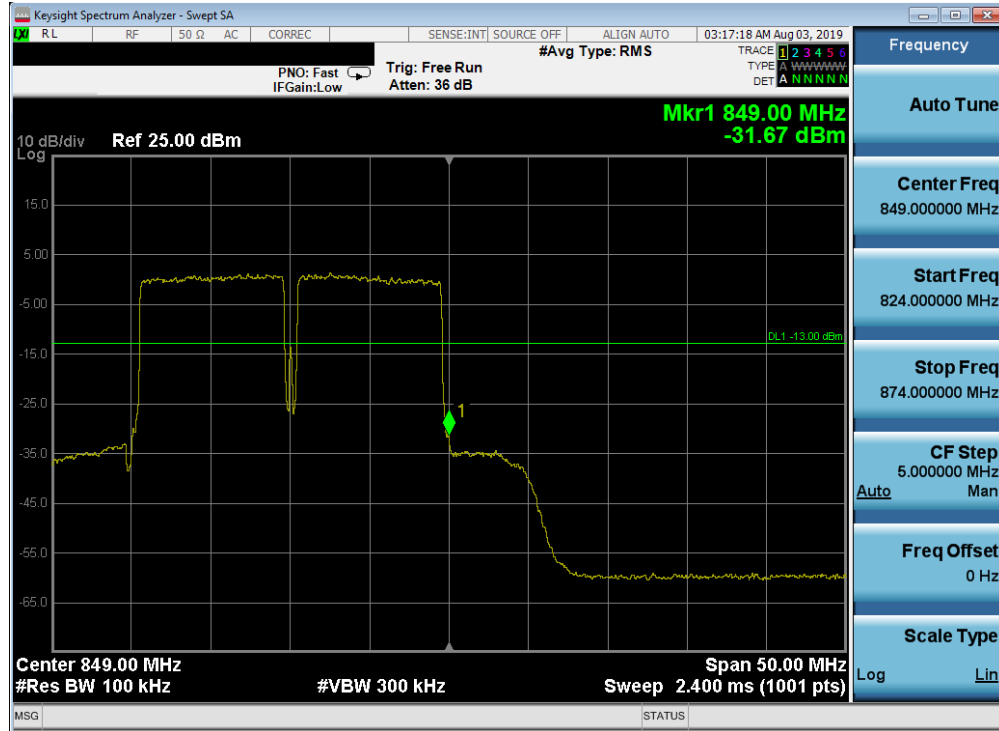


Plot 7-233. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – High Channel)



Plot 7-234. Lower Band Edge Plot (Band 5- QPSK – PCC: 10 MHz SCC:10 MHz – Full RB)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 143 of 191                 |



Plot 7-235.Upper Band Edge Plot (Band 5- QPSK – PCC: 10 MHz SCC:10 MHz – Full RB)

|                                         |                                               |                                               |                |                                 |
|-----------------------------------------|-----------------------------------------------|-----------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b> | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet                  |                | Page 144 of 191                 |

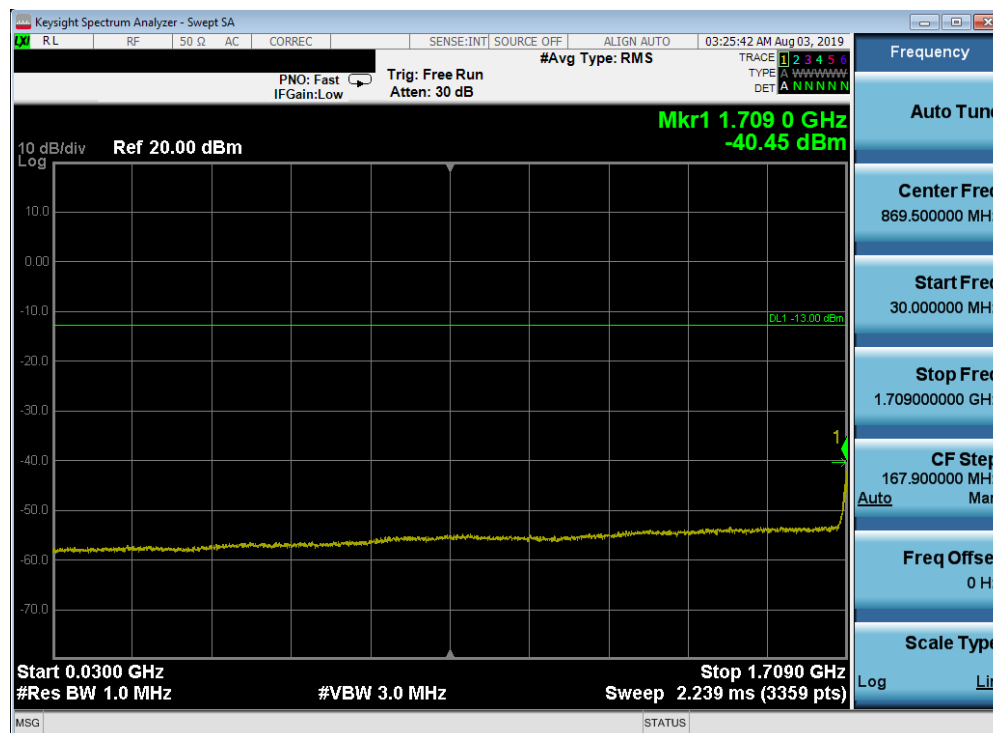
## Uplink CA Configuration 66B/C

| Power State | PCC      |                     |                  |                          |            |            |                  | SCC      |                     |                  |                          |            |            |                  | Power<br>ULCA<br>Tx.Power<br>(dBm) |
|-------------|----------|---------------------|------------------|--------------------------|------------|------------|------------------|----------|---------------------|------------------|--------------------------|------------|------------|------------------|------------------------------------|
|             | PCC Band | PCC Bandwidth [MHz] | PCC (UL) Channel | PCC (UL) Frequency [MHz] | Modulation | PCC UL# RB | PCC UL RB Offset | SCC Band | SCC Bandwidth [MHz] | SCC (UL) Channel | SCC (UL) Frequency [MHz] | Modulation | PCC UL# RB | PCC UL RB Offset |                                    |
| Max         | LTE B66  | 20                  | 132072           | 1720                     | QPSK       | 1          | 99               | LTE B66  | 20                  | 132270           | 1739.8                   | QPSK       | 1          | 0                | 25.43                              |
| Max         | LTE B66  | 20                  | 132322           | 1745                     | QPSK       | 1          | 99               | LTE B66  | 20                  | 132520           | 1764.8                   | QPSK       | 1          | 0                | 25.62                              |
| Max         | LTE B66  | 20                  | 132572           | 1770                     | QPSK       | 1          | 0                | LTE B66  | 20                  | 132374           | 1750.2                   | QPSK       | 1          | 99               | 25.51                              |

**Table 7-5. Conducted Powers (B66 –20MHz + 20MHz Channel Bandwidth- PCC/SCC: 1RB)**

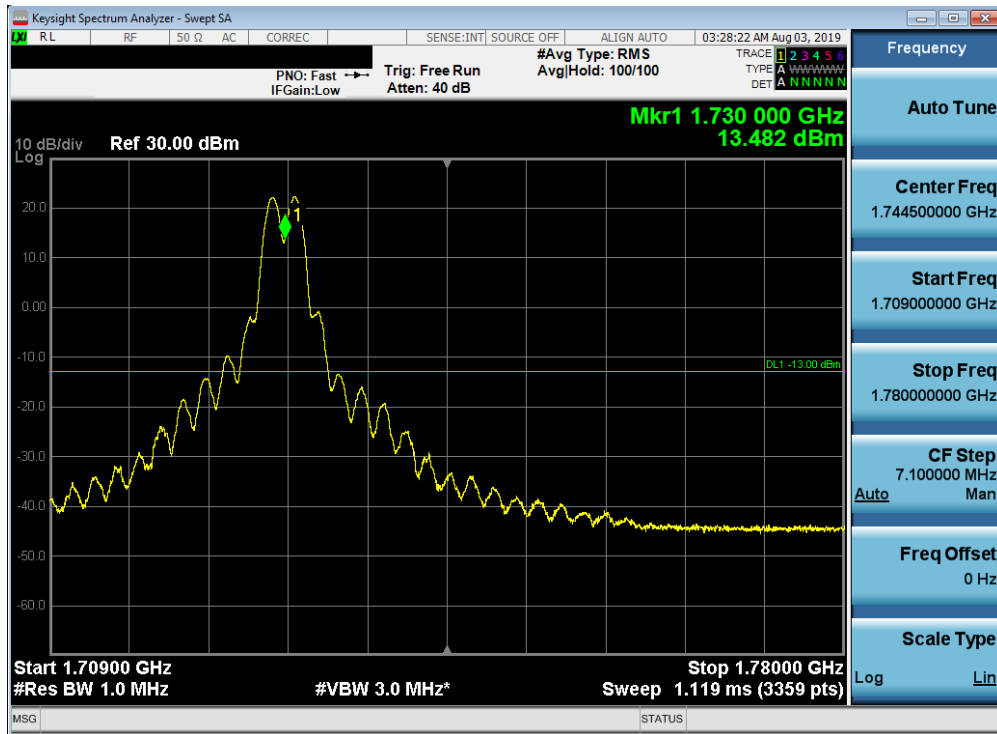
| Power State | PCC      |                     |                  |                          |            |            |                  | SCC      |                     |                  |                          |            |            |                  | Power<br>ULCA<br>Tx.Power<br>(dBm) |
|-------------|----------|---------------------|------------------|--------------------------|------------|------------|------------------|----------|---------------------|------------------|--------------------------|------------|------------|------------------|------------------------------------|
|             | PCC Band | PCC Bandwidth [MHz] | PCC (UL) Channel | PCC (UL) Frequency [MHz] | Modulation | PCC UL# RB | PCC UL RB Offset | SCC Band | SCC Bandwidth [MHz] | SCC (UL) Channel | SCC (UL) Frequency [MHz] | Modulation | PCC UL# RB | PCC UL RB Offset |                                    |
| Max         | LTE B66  | 20                  | 132322           | 1745                     | QPSK       | 100        | 0                | LTE B66  | 20                  | 132520           | 1764.8                   | QPSK       | 100        | 0                | 23.75                              |
| Max         | LTE B66  | 20                  | 132322           | 1745                     | 16-QAM     | 100        | 0                | LTE B66  | 20                  | 132520           | 1764.8                   | 16-QAM     | 100        | 0                | 22.74                              |
| Max         | LTE B66  | 20                  | 132322           | 1745                     | 64-QAM     | 100        | 0                | LTE B66  | 20                  | 132520           | 1764.8                   | 64-QAM     | 100        | 0                | 22.48                              |

**Table 7-6. Conducted Powers (B66 with Various Combinations for 20MHz + 20MHz Channel Bandwidth)**

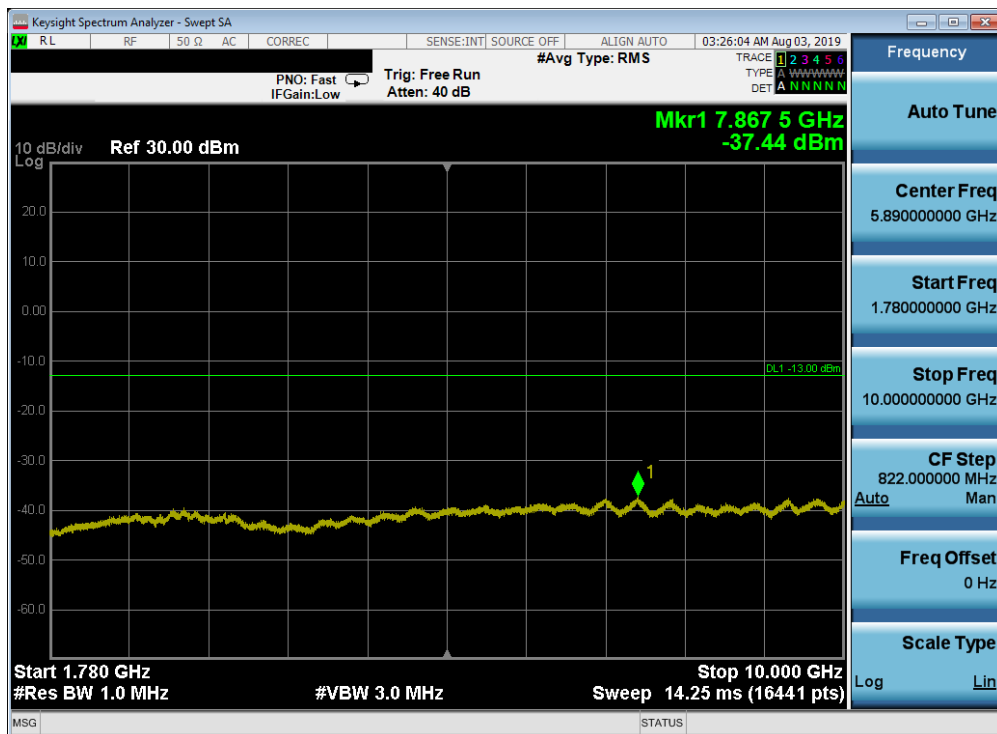


**Plot 7-236. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)**

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 145 of 191                 |

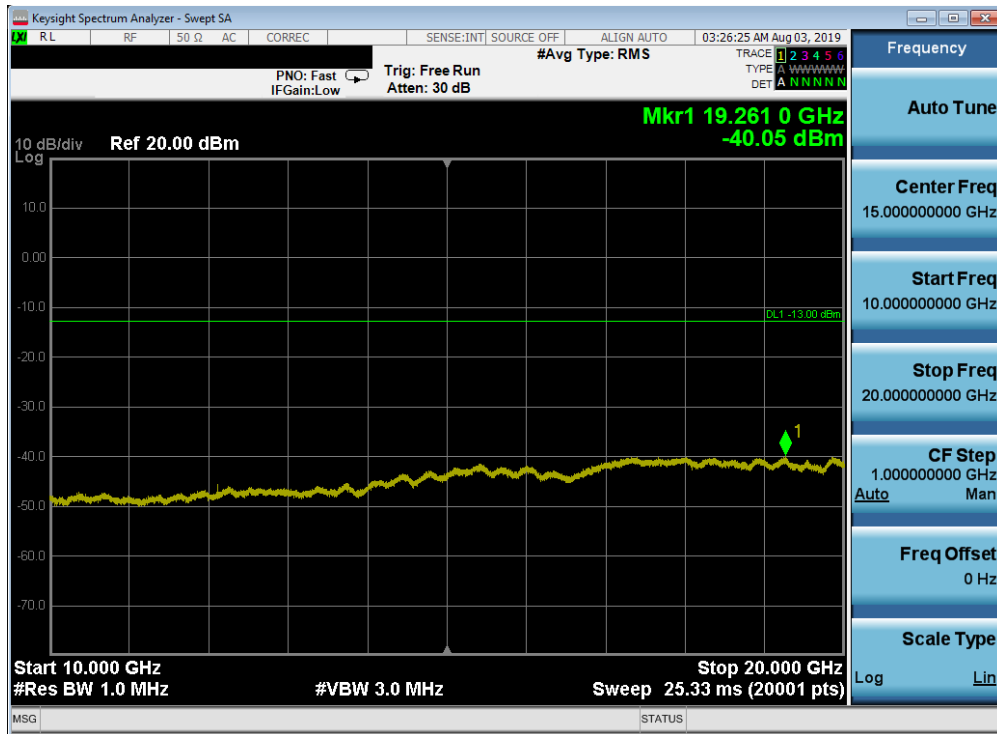


Plot 7-237. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

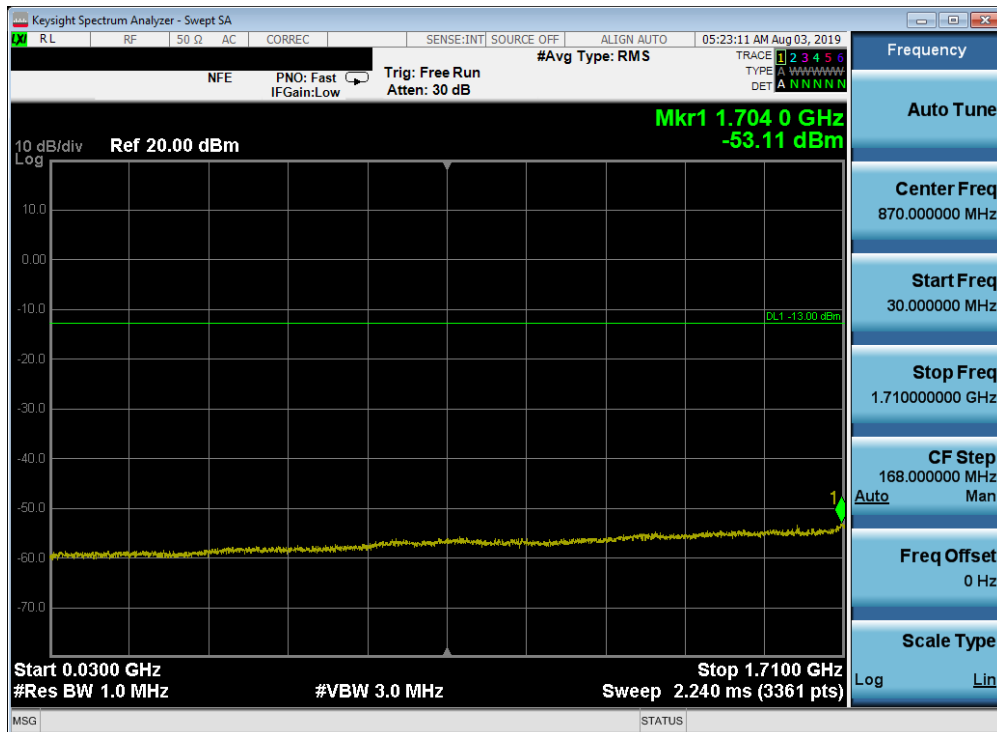


Plot 7-238. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

|                                         |                                           |                              |                                 |
|-----------------------------------------|-------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>MEASUREMENT REPORT (CERTIFICATION)</b> |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019            | EUT Type:<br>Portable Tablet | Page 146 of 191                 |

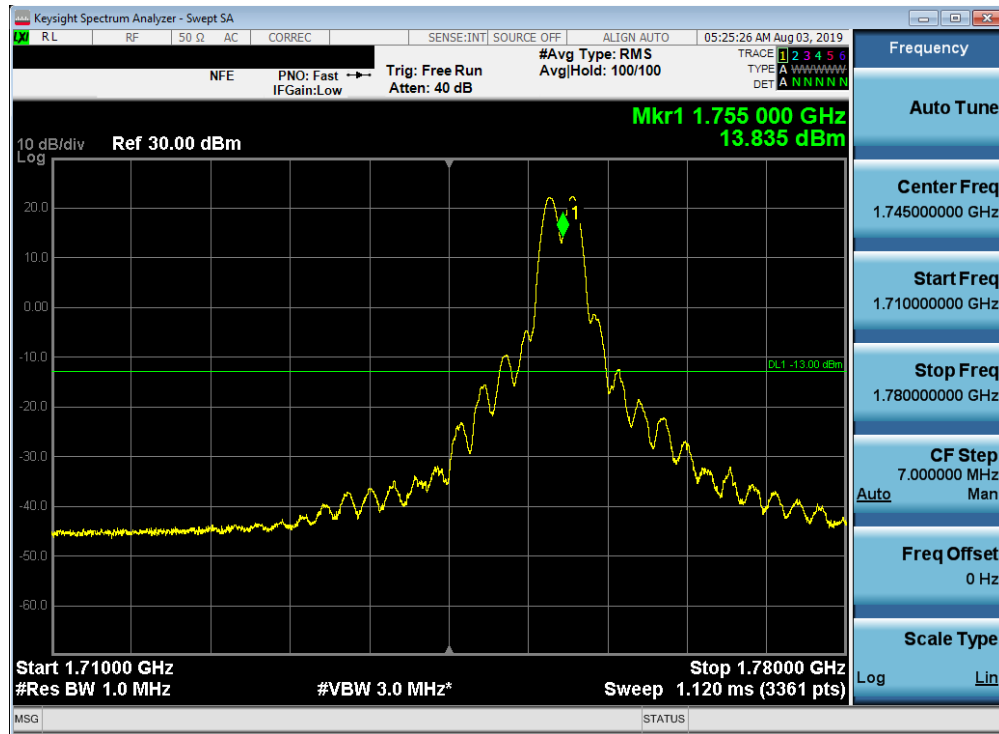


Plot 7-239. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

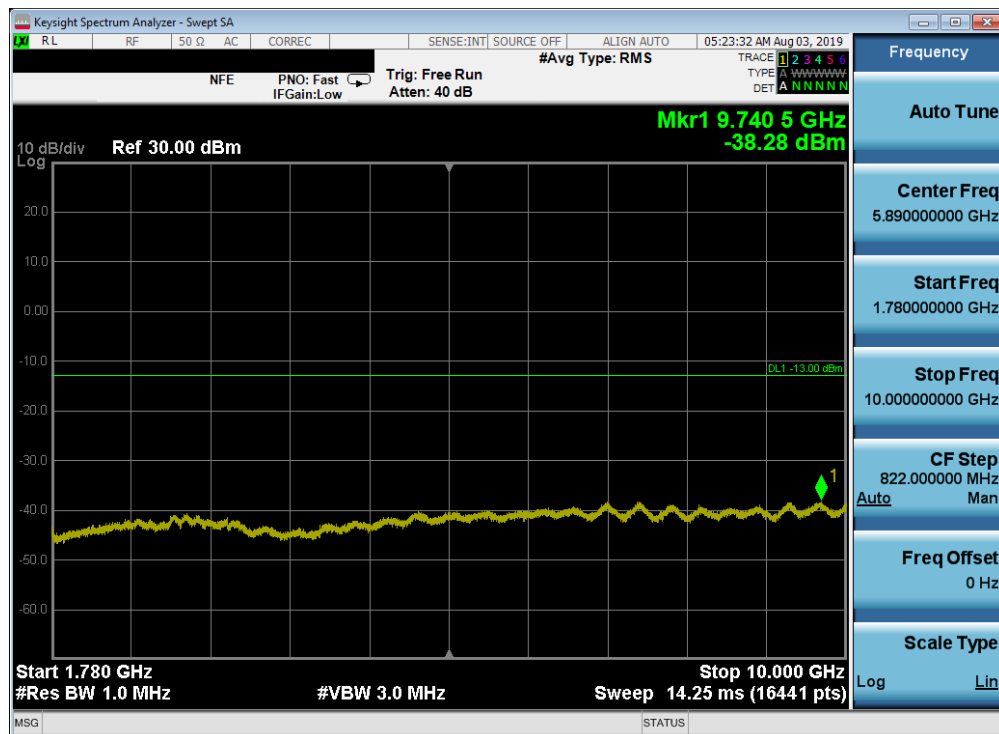


Plot 7-240. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

|                                         |                                                                                                                                                                                                                         |                              |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                          | EUT Type:<br>Portable Tablet | Page 147 of 191                 |

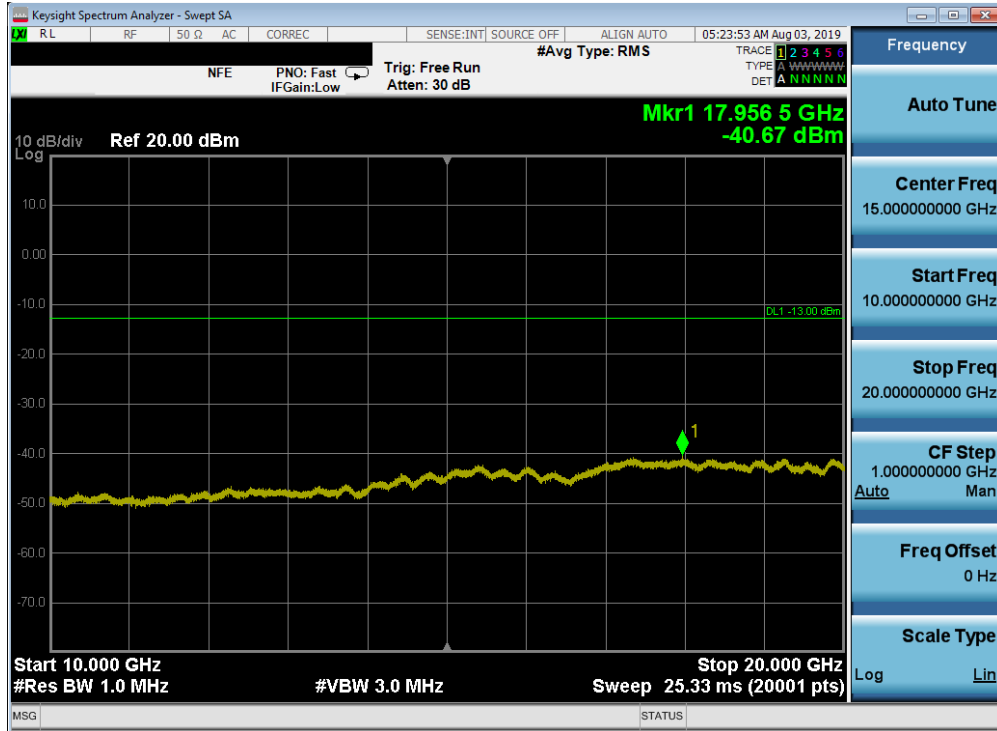


Plot 7-241. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

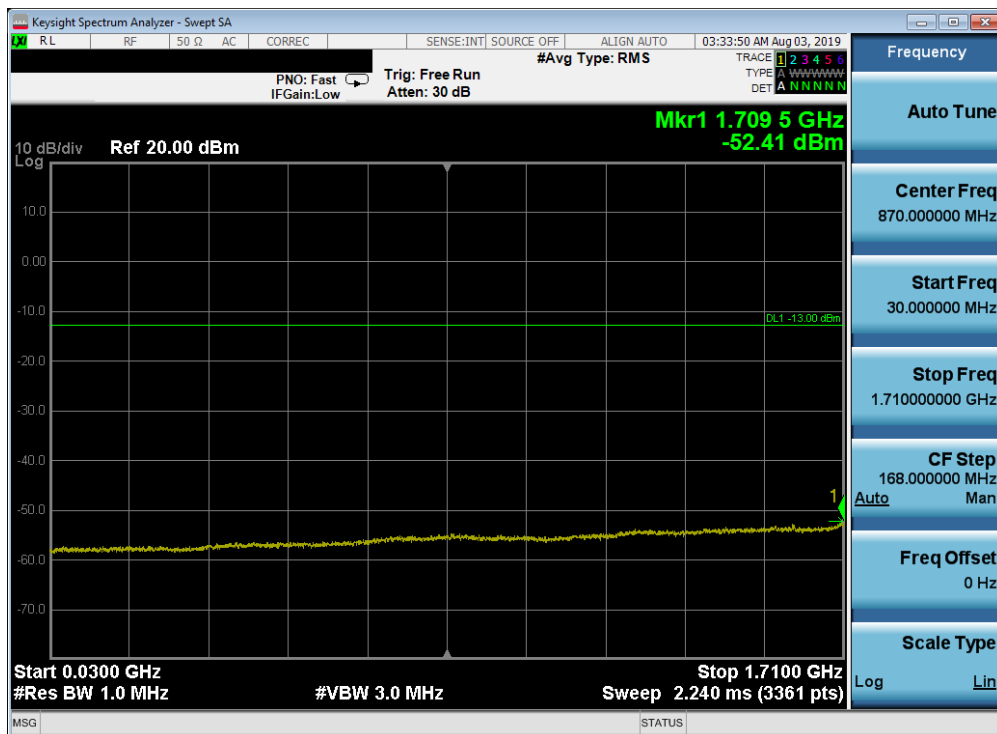


Plot 7-242. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 148 of 191                 |

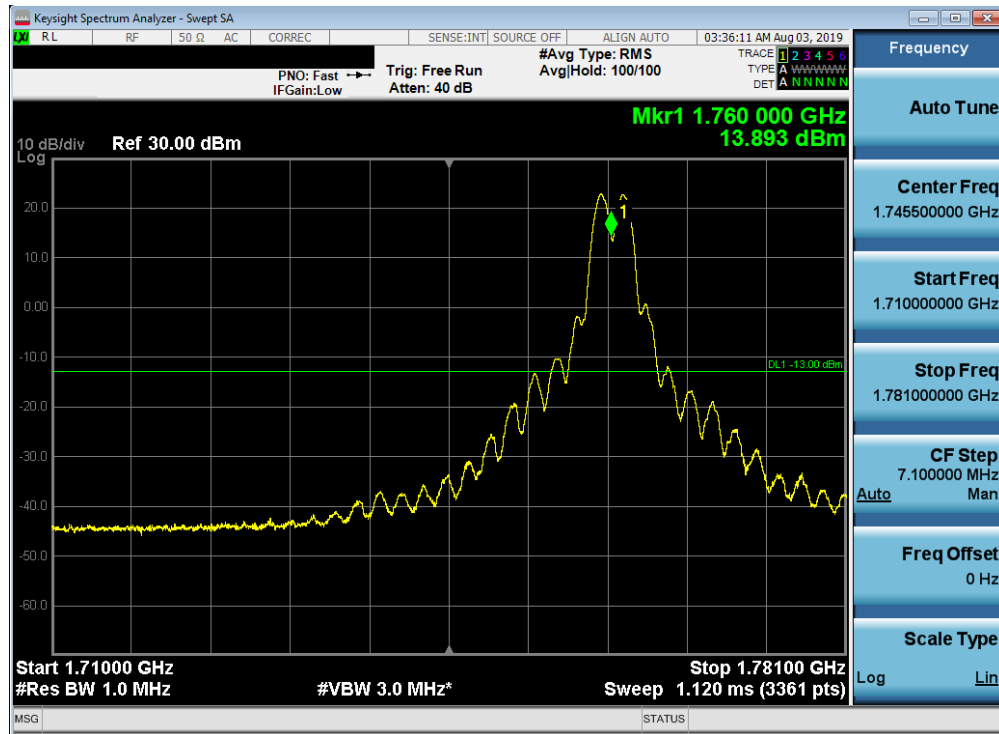


**Plot 7-243. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)**

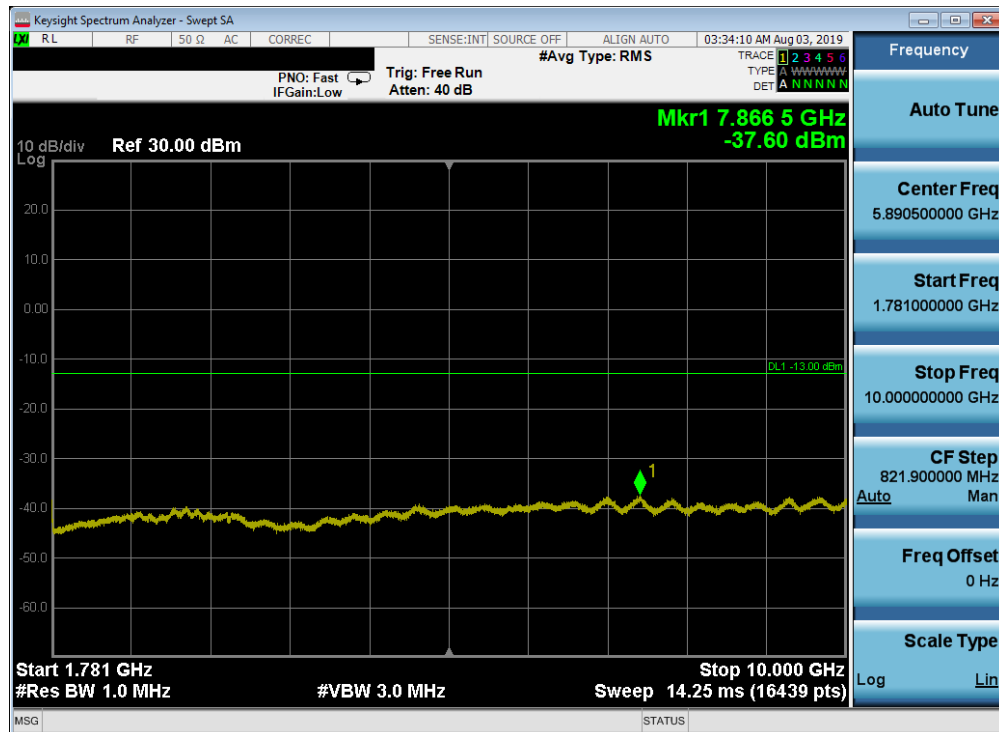


**Plot 7-244. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)**

|                                                |                                                                                                                                                                                                                         |                                     |                                        |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|----------------------------------------|
| FCC ID: A3LSMT867V                             |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                                     | <b>Approved by:</b><br>Quality Manager |
| <b>Test Report S/N:</b><br>1M1907090121-03.A3L | <b>Test Dates:</b><br>7/22 - 8/2/2019                                                                                                                                                                                   | <b>EUT Type:</b><br>Portable Tablet | Page 149 of 191                        |

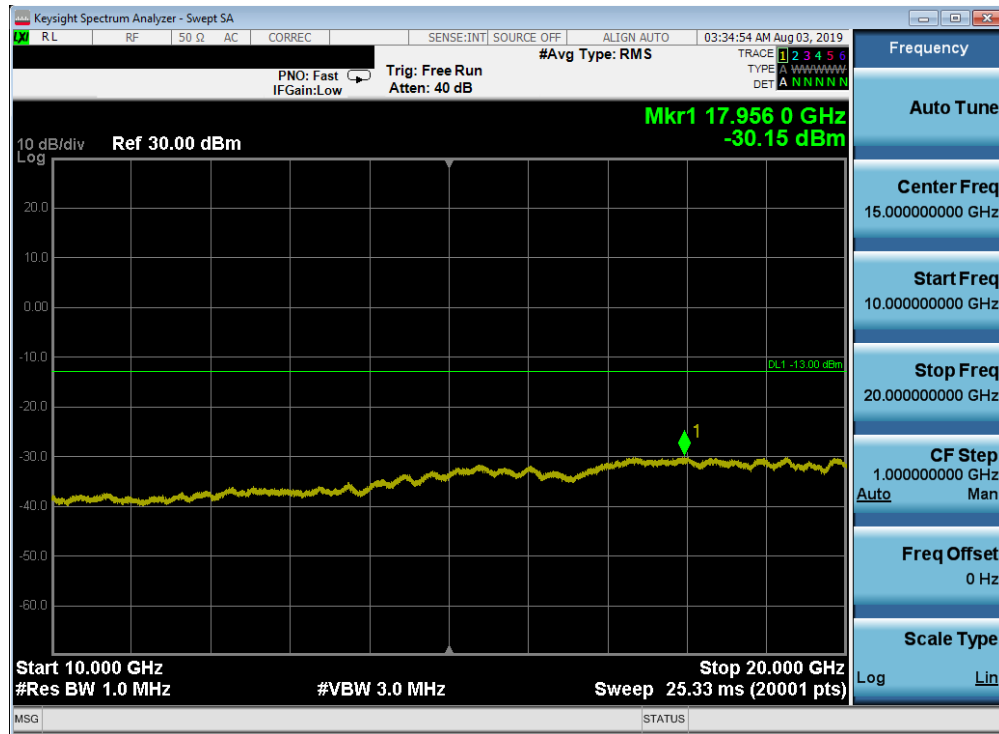


Plot 7-245. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)

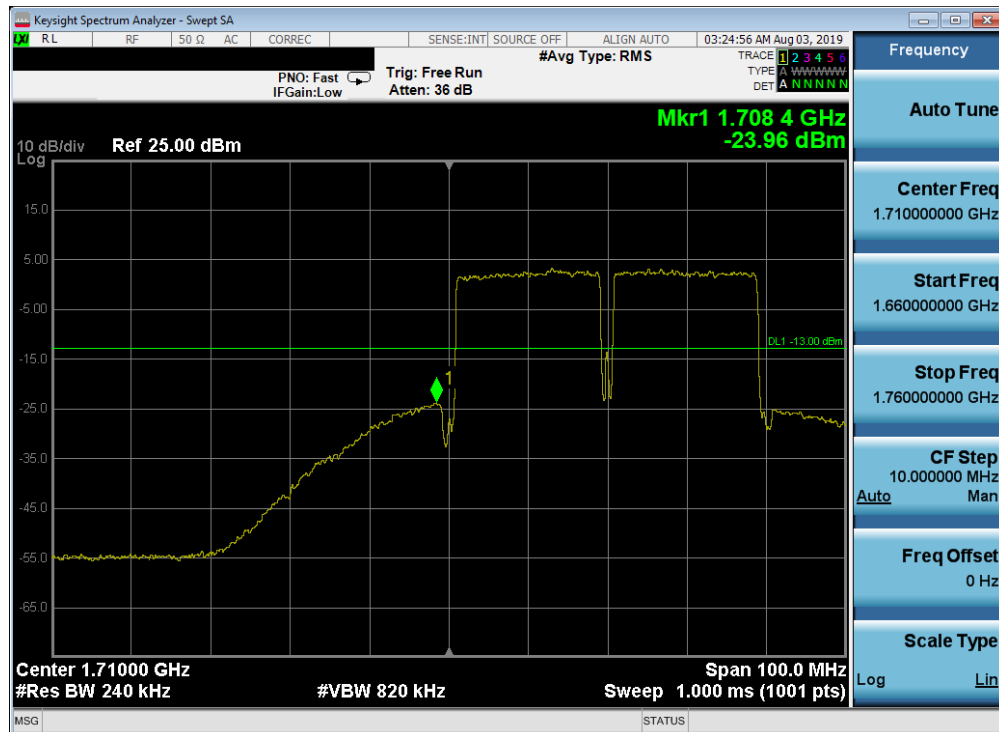


Plot 7-246. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 150 of 191                 |

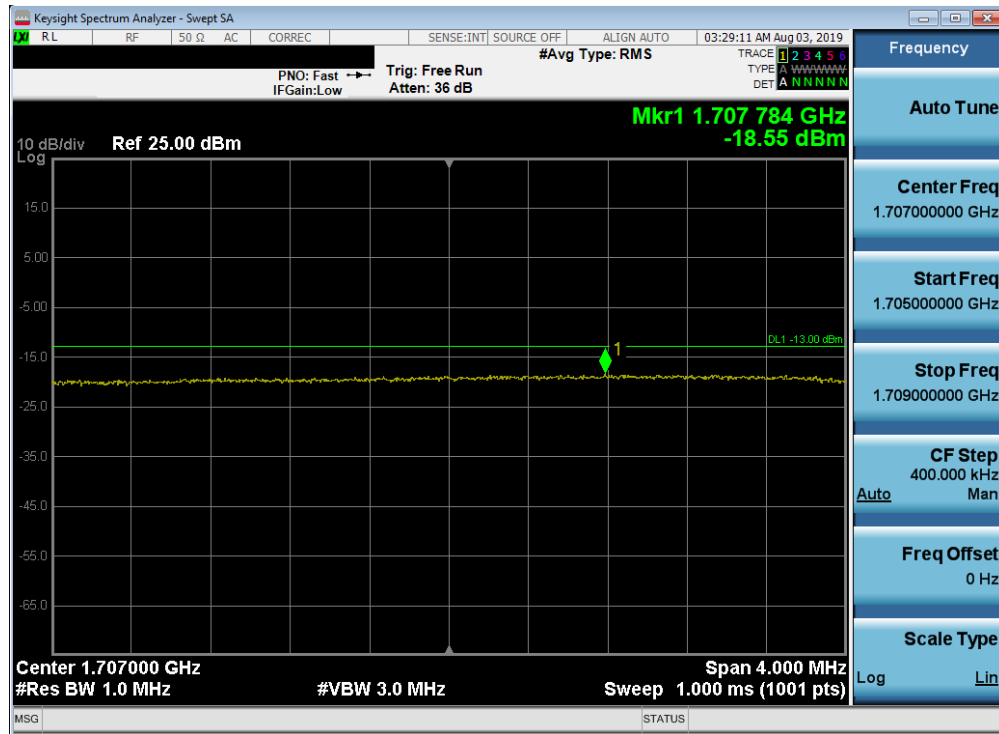


Plot 7-247. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)

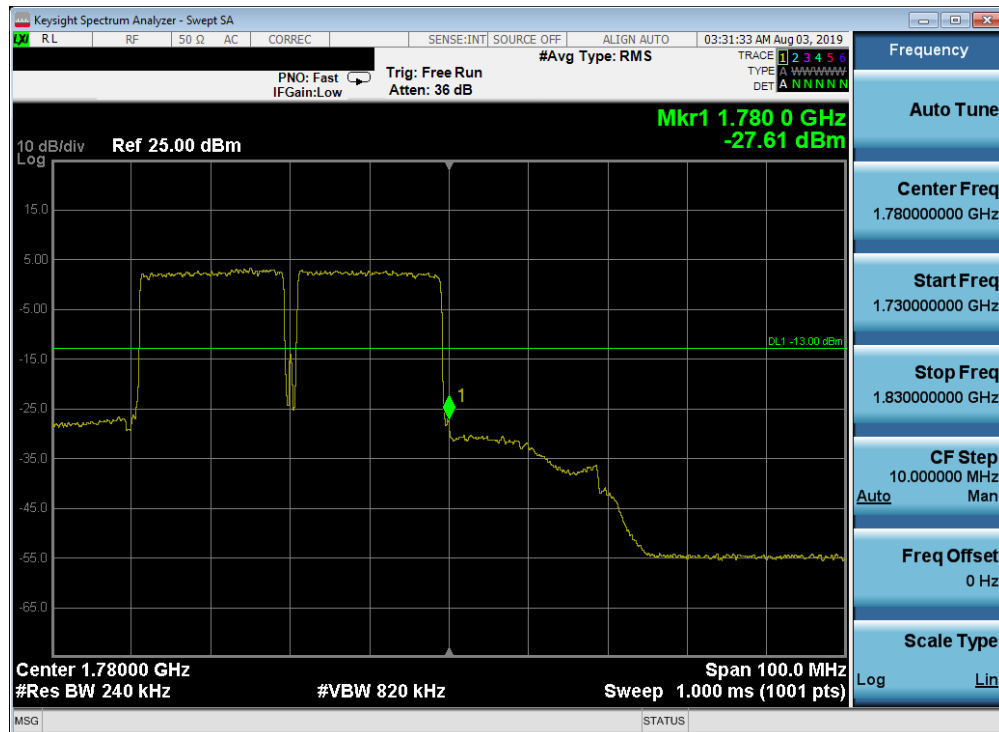


Plot 7-248. Lower Band Edge Plot (Band 66 - QPSK – PCC: 20 MHz SCC:20 MHz – Full RB)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 151 of 191                 |

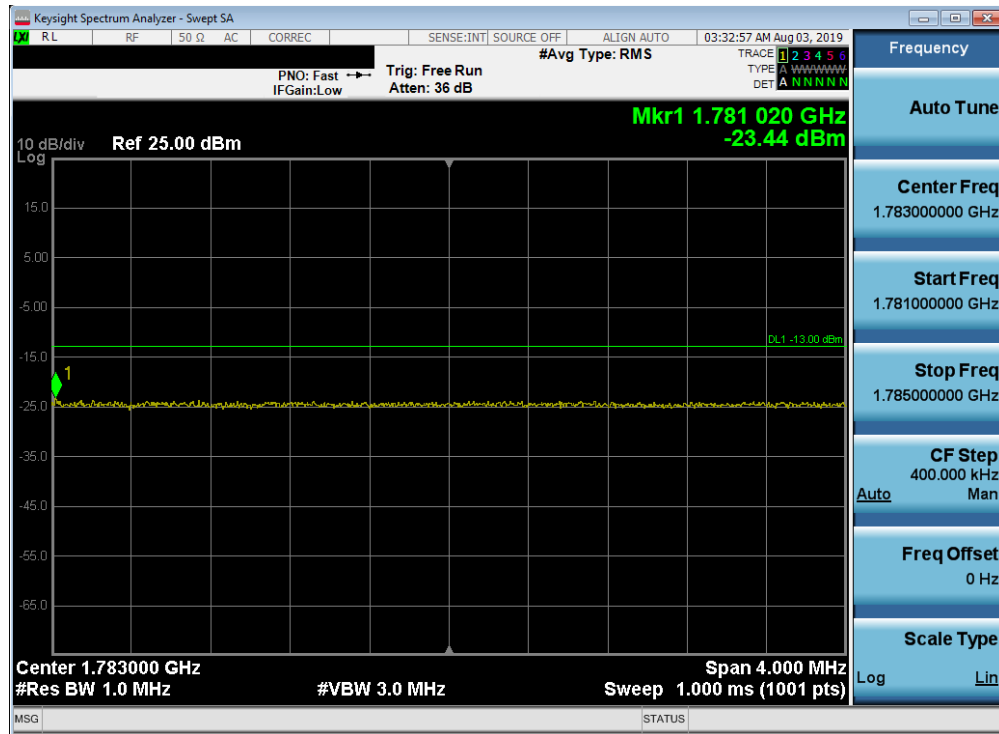


Plot 7-249. Lower Extended Band Edge Plot (Band 66 - QPSK – PCC: 20 MHz SCC:20 MHz – Full RB)



Plot 7-250. Upper Band Edge Plot (Band 66- QPSK – PCC: 20 MHz SCC:20 MHz – Full RB)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 152 of 191                 |



Plot 7-251. Upper Extended Band Edge Plot (Band 66- QPSK – PCC: 20 MHz SCC:20 MHz – Full RB)

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 153 of 191                 |

## 7.7 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: A3LSMT867V                      |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                          | EUT Type:<br>Portable Tablet | Page 154 of 191                 |

## Test Setup

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

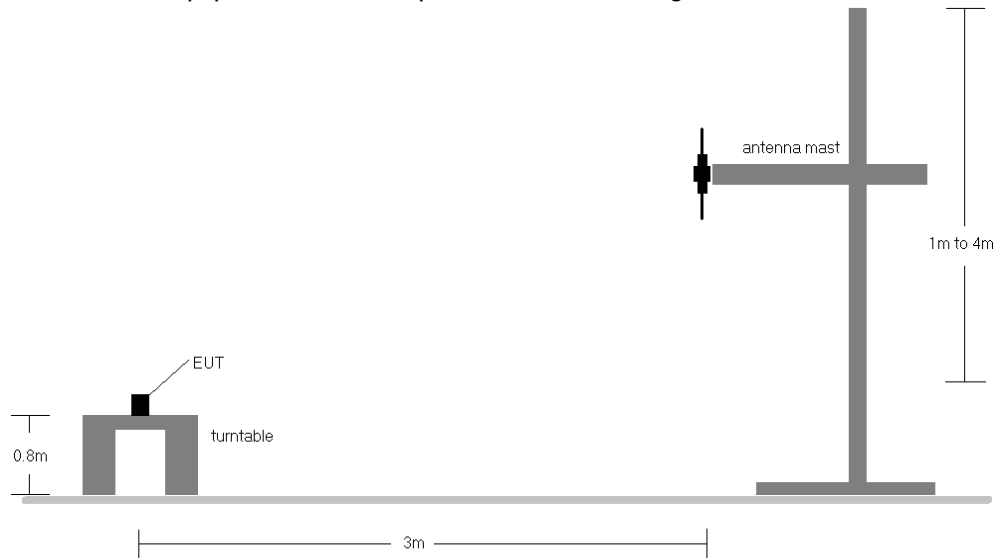


**Figure 7-6. Radiated Test Setup <1GHz**

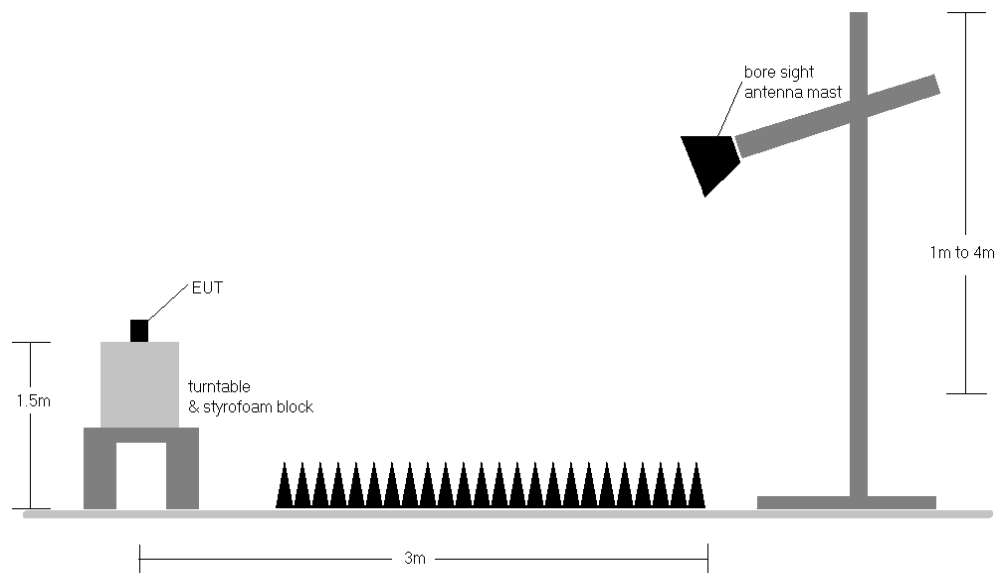


**Figure 7-7. Radiated Test Setup >1GHz**

## 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: A3LSMT867V                      |  | MEASUREMENT REPORT<br>(CERTIFICATION) |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                      | EUT Type:<br>Portable Tablet          |                                                                                       | Page 155 of 191                 |

| 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               | 234                 | 85                         | 25 / 0         | 17.47                  | 5.80            | 21.12        | 0.129        | 34.77           | -13.65      | 23.27        | 0.212        | 36.99            | -13.72      |
| 782.00          | 5                       | QPSK   | V               | 238                 | 86                         | 1 / 0          | 17.37                  | 5.80            | 21.02        | 0.126        | 34.77           | -13.75      | 23.17        | 0.207        | 36.99            | -13.82      |
| 784.50          | 5                       | QPSK   | V               | 232                 | 72                         | 1 / 0          | 17.57                  | 5.90            | <b>21.32</b> | <b>0.136</b> | 34.77           | -13.45      | <b>23.47</b> | <b>0.222</b> | 36.99            | -13.52      |
| 779.50          | 5                       | 16-QAM | V               | 234                 | 85                         | 25 / 0         | 17.34                  | 5.80            | <b>20.99</b> | 0.126        | 34.77           | -13.78      | <b>23.14</b> | 0.206        | 36.99            | -13.85      |
| 784.50          | 5                       | 64-QAM | V               | 232                 | 72                         | 1 / 0          | 15.85                  | 5.90            | <b>19.60</b> | 0.091        | 34.77           | -15.17      | <b>21.75</b> | 0.150        | 36.99            | -15.24      |
| 782.00          | 10                      | QPSK   | V               | 233                 | 79                         | 1 / 49         | 17.40                  | 5.80            | <b>21.05</b> | 0.127        | 34.77           | -13.72      | <b>23.20</b> | 0.209        | 36.99            | -13.79      |
| 782.00          | 10                      | 16-QAM | V               | 233                 | 79                         | 1 / 49         | 16.41                  | 5.80            | <b>20.06</b> | 0.101        | 34.77           | -14.71      | <b>22.21</b> | 0.166        | 36.99            | -14.78      |
| 782.00          | 10                      | 64-QAM | V               | 233                 | 79                         | 1 / 49         | 15.49                  | 5.80            | <b>19.14</b> | 0.082        | 34.77           | -15.63      | <b>21.29</b> | 0.135        | 36.99            | -15.70      |
| 782.00          | 10                      | QPSK   | H               | 136                 | 355                        | 1 / 0          | 15.73                  | 5.80            | 19.38        | 0.087        | 34.77           | -15.39      | 21.53        | 0.142        | 36.99            | -15.46      |

**Table 7-7. ERP Data (Band 13)**

|                                         |                                                                                                                                                                                                                     |                              |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                      | EUT Type:<br>Portable Tablet | Page 156 of 191                 |

| 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] |
|-----------------|-------------------------|--------|-----------------|---------------------|----------------------------|----------------|------------------------|-----------------|--------------|--------------|-----------------|-------------|
| 824.70          | 1.4                     | QPSK   | V               | 190                 | 108                        | 1 / 0          | 16.62                  | 6.30            | 20.77        | 0.119        | 38.45           | -17.68      |
| 836.50          | 1.4                     | QPSK   | V               | 210                 | 117                        | 1 / 0          | 16.58                  | 6.40            | <b>20.83</b> | 0.121        | 38.45           | -17.62      |
| 848.30          | 1.4                     | QPSK   | V               | 139                 | 112                        | 1 / 0          | 15.73                  | 6.50            | 20.08        | 0.102        | 38.45           | -18.37      |
| 836.50          | 1.4                     | 16-QAM | V               | 210                 | 117                        | 1 / 0          | 15.93                  | 6.40            | <b>20.18</b> | 0.104        | 38.45           | -18.27      |
| 836.50          | 1.4                     | 64-QAM | V               | 210                 | 117                        | 1 / 0          | 14.95                  | 6.40            | <b>19.20</b> | 0.083        | 38.45           | -19.25      |
| 825.50          | 3                       | QPSK   | V               | 202                 | 111                        | 1 / 14         | 16.60                  | 6.30            | 20.75        | 0.119        | 38.45           | -17.70      |
| 836.50          | 3                       | QPSK   | V               | 213                 | 117                        | 1 / 14         | 16.58                  | 6.40            | <b>20.83</b> | 0.121        | 38.45           | -17.62      |
| 847.50          | 3                       | QPSK   | V               | 152                 | 122                        | 1 / 14         | 15.79                  | 6.50            | 20.14        | 0.103        | 38.45           | -18.31      |
| 836.50          | 3                       | 16-QAM | V               | 213                 | 117                        | 1 / 14         | 15.85                  | 6.40            | <b>20.10</b> | 0.102        | 38.45           | -18.35      |
| 836.50          | 3                       | 64-QAM | V               | 213                 | 117                        | 1 / 0          | 15.00                  | 6.40            | <b>19.25</b> | 0.084        | 38.45           | -19.20      |
| 826.50          | 5                       | QPSK   | V               | 194                 | 104                        | 1 / 0          | 16.73                  | 6.30            | 20.88        | 0.122        | 38.45           | -17.57      |
| 836.50          | 5                       | QPSK   | V               | 204                 | 124                        | 1 / 0          | 16.78                  | 6.40            | <b>21.03</b> | <b>0.127</b> | 38.45           | -17.42      |
| 846.50          | 5                       | QPSK   | V               | 150                 | 108                        | 1 / 24         | 15.87                  | 6.50            | 20.22        | 0.105        | 38.45           | -18.23      |
| 836.50          | 5                       | 16-QAM | V               | 204                 | 124                        | 1 / 0          | 15.95                  | 6.40            | 20.20        | 0.105        | 38.45           | -18.25      |
| 836.50          | 5                       | 64-QAM | V               | 204                 | 124                        | 1 / 24         | 15.17                  | 6.40            | <b>19.42</b> | 0.087        | 38.45           | -19.03      |
| 829.00          | 10                      | QPSK   | V               | 196                 | 108                        | 1 / 0          | 16.68                  | 6.30            | 20.83        | 0.121        | 38.45           | -17.62      |
| 836.50          | 10                      | QPSK   | V               | 207                 | 124                        | 1 / 0          | 16.78                  | 6.40            | <b>21.03</b> | <b>0.127</b> | 38.45           | -17.42      |
| 844.00          | 10                      | QPSK   | V               | 146                 | 115                        | 1 / 0          | 15.90                  | 6.40            | 20.15        | 0.104        | 38.45           | -18.30      |
| 836.50          | 10                      | 16-QAM | V               | 207                 | 124                        | 1 / 0          | 15.95                  | 6.40            | <b>20.20</b> | 0.105        | 38.45           | -18.25      |
| 836.50          | 10                      | 64-QAM | V               | 207                 | 124                        | 1 / 0          | 15.17                  | 6.40            | <b>19.42</b> | 0.087        | 38.45           | -19.03      |
| 836.50          | 10                      | QPSK   | H               | 321                 | 353                        | 1 / 0          | 15.41                  | 6.40            | 19.66        | 0.092        | 38.45           | -18.79      |

Table 7-8. ERP Data (Band 5)

|                                         |                                                                                                                                                                                                                     |                              |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                      | EUT Type:<br>Portable Tablet | Page 157 of 191                 |

| 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   | H               | 132                 | 9                          | 3 / 2          | 15.99                  | 9.44            | 25.43        | 0.349        | 30.00            | -4.57       |
| 1745.00         | 1.4                     | QPSK   | H               | 119                 | 2                          | 3 / 2          | 16.24                  | 9.23            | <b>25.47</b> | 0.352        | 30.00            | -4.53       |
| 1779.30         | 1.4                     | QPSK   | H               | 118                 | 8                          | 3 / 2          | 14.97                  | 9.26            | 24.23        | 0.265        | 30.00            | -5.77       |
| 1710.70         | 1.4                     | 16-QAM | H               | 132                 | 9                          | 1 / 5          | 15.31                  | 9.44            | <b>24.75</b> | 0.299        | 30.00            | -5.25       |
| 1710.70         | 1.4                     | 64-QAM | H               | 132                 | 9                          | 3 / 2          | 14.19                  | 9.44            | <b>23.63</b> | 0.231        | 30.00            | -6.37       |
| 1711.50         | 3                       | QPSK   | H               | 134                 | 358                        | 1 / 14         | 16.08                  | 9.44            | <b>25.52</b> | 0.356        | 30.00            | -4.48       |
| 1745.00         | 3                       | QPSK   | H               | 131                 | 7                          | 1 / 14         | 16.25                  | 9.23            | 25.48        | 0.353        | 30.00            | -4.52       |
| 1778.50         | 3                       | QPSK   | H               | 130                 | 4                          | 1 / 0          | 15.37                  | 9.26            | 24.63        | 0.290        | 30.00            | -5.37       |
| 1711.50         | 3                       | 16-QAM | H               | 134                 | 358                        | 1 / 14         | 15.41                  | 9.44            | <b>24.85</b> | 0.305        | 30.00            | -5.15       |
| 1711.50         | 3                       | 64-QAM | H               | 134                 | 358                        | 1 / 0          | 14.32                  | 9.44            | <b>23.76</b> | 0.238        | 30.00            | -6.24       |
| 1712.50         | 5                       | QPSK   | H               | 146                 | 7                          | 1 / 24         | 16.12                  | 9.43            | <b>25.55</b> | 0.359        | 30.00            | -4.45       |
| 1745.00         | 5                       | QPSK   | H               | 133                 | 10                         | 1 / 24         | 16.29                  | 9.23            | 25.52        | 0.357        | 30.00            | -4.48       |
| 1777.50         | 5                       | QPSK   | H               | 122                 | 12                         | 1 / 0          | 15.66                  | 9.26            | 24.92        | 0.310        | 30.00            | -5.08       |
| 1712.50         | 5                       | 16-QAM | H               | 146                 | 7                          | 1 / 24         | 15.48                  | 9.43            | <b>24.91</b> | 0.310        | 30.00            | -5.09       |
| 1712.50         | 5                       | 64-QAM | H               | 146                 | 7                          | 1 / 0          | 14.42                  | 9.43            | <b>23.85</b> | 0.243        | 30.00            | -6.15       |
| 1715.00         | 10                      | QPSK   | H               | 144                 | 11                         | 1 / 49         | 16.06                  | 9.42            | <b>25.48</b> | 0.353        | 30.00            | -4.52       |
| 1745.00         | 10                      | QPSK   | H               | 120                 | 8                          | 1 / 49         | 16.17                  | 9.23            | 25.40        | 0.347        | 30.00            | -4.60       |
| 1775.00         | 10                      | QPSK   | H               | 118                 | 10                         | 1 / 0          | 15.71                  | 9.25            | 24.96        | 0.313        | 30.00            | -5.04       |
| 1715.00         | 10                      | 16-QAM | H               | 144                 | 11                         | 1 / 49         | 15.41                  | 9.42            | <b>24.83</b> | 0.304        | 30.00            | -5.17       |
| 1715.00         | 10                      | 64-QAM | H               | 144                 | 11                         | 1 / 0          | 14.30                  | 9.42            | <b>23.72</b> | 0.235        | 30.00            | -6.28       |
| 1717.50         | 15                      | QPSK   | H               | 133                 | 7                          | 1 / 74         | 16.27                  | 9.40            | <b>25.67</b> | 0.369        | 30.00            | -4.33       |
| 1745.00         | 15                      | QPSK   | H               | 120                 | 358                        | 1 / 0          | 16.33                  | 9.23            | 25.56        | 0.360        | 30.00            | -4.44       |
| 1772.50         | 15                      | QPSK   | H               | 122                 | 14                         | 1 / 0          | 15.94                  | 9.25            | 25.19        | 0.330        | 30.00            | -4.81       |
| 1717.50         | 15                      | 16-QAM | H               | 133                 | 7                          | 1 / 74         | 15.63                  | 9.40            | <b>25.03</b> | 0.318        | 30.00            | -4.97       |
| 1717.50         | 15                      | 64-QAM | H               | 133                 | 7                          | 1 / 74         | 14.59                  | 9.40            | <b>23.99</b> | 0.251        | 30.00            | -6.01       |
| 1720.00         | 20                      | QPSK   | H               | 139                 | 5                          | 1 / 0          | 16.38                  | 9.38            | <b>25.76</b> | <b>0.377</b> | 30.00            | -4.24       |
| 1745.00         | 20                      | QPSK   | H               | 126                 | 4                          | 1 / 0          | 16.20                  | 9.23            | 25.43        | 0.349        | 30.00            | -4.57       |
| 1770.00         | 20                      | QPSK   | H               | 124                 | 10                         | 1 / 99         | 16.03                  | 9.24            | 25.27        | 0.337        | 30.00            | -4.73       |
| 1720.00         | 20                      | 16-QAM | H               | 139                 | 5                          | 1 / 0          | 15.53                  | 9.38            | <b>24.91</b> | 0.310        | 30.00            | -5.09       |
| 1720.00         | 20                      | 64-QAM | H               | 139                 | 5                          | 1 / 0          | 14.45                  | 9.38            | <b>23.83</b> | 0.242        | 30.00            | -6.17       |
| 1720.00         | 20                      | QPSK   | V               | 149                 | 92                         | 1 / 0          | 15.79                  | 9.38            | 25.17        | 0.329        | 30.00            | -4.83       |

Table 7-9. EIRP Data (Band 66/4)

|                                         |                                                                                                                                                                                                                     |                              |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                      | EUT Type:<br>Portable Tablet | Page 158 of 191                 |

| 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               | 131                 | 106                        | 3 / 2          | 15.45                  | 9.88            | 25.33        | 0.341        | 33.01            | -7.68       |
| 1880.00         | 1.4                     | QPSK   | V               | 131                 | 92                         | 3 / 2          | 15.29                  | 10.10           | <b>25.39</b> | 0.346        | 33.01            | -7.62       |
| 1909.30         | 1.4                     | QPSK   | V               | 132                 | 111                        | 3 / 2          | 14.72                  | 10.31           | 25.03        | 0.318        | 33.01            | -7.98       |
| 1850.70         | 1.4                     | 16-QAM | V               | 131                 | 106                        | 1 / 5          | 14.71                  | 9.88            | <b>24.59</b> | 0.288        | 33.01            | -8.42       |
| 1850.70         | 1.4                     | 64-QAM | V               | 131                 | 106                        | 1 / 0          | 13.76                  | 9.88            | <b>23.64</b> | 0.231        | 33.01            | -9.37       |
| 1851.50         | 3                       | QPSK   | V               | 129                 | 111                        | 1 / 14         | 15.44                  | 9.88            | 25.32        | 0.341        | 33.01            | -7.69       |
| 1880.00         | 3                       | QPSK   | V               | 124                 | 92                         | 1 / 14         | 15.32                  | 10.10           | <b>25.42</b> | 0.349        | 33.01            | -7.59       |
| 1908.50         | 3                       | QPSK   | V               | 129                 | 112                        | 1 / 14         | 14.74                  | 10.30           | 25.04        | 0.319        | 33.01            | -7.97       |
| 1851.50         | 3                       | 16-QAM | V               | 129                 | 111                        | 1 / 14         | 14.73                  | 9.88            | <b>24.61</b> | 0.289        | 33.01            | -8.40       |
| 1851.50         | 3                       | 64-QAM | V               | 129                 | 111                        | 1 / 0          | 13.72                  | 9.88            | <b>23.60</b> | 0.229        | 33.01            | -9.41       |
| 1852.50         | 5                       | QPSK   | V               | 133                 | 115                        | 1 / 24         | 15.48                  | 9.89            | 25.37        | 0.344        | 33.01            | -7.64       |
| 1880.00         | 5                       | QPSK   | V               | 132                 | 101                        | 1 / 24         | 15.43                  | 10.10           | <b>25.53</b> | <b>0.358</b> | 33.01            | -7.48       |
| 1907.50         | 5                       | QPSK   | V               | 125                 | 101                        | 1 / 24         | 14.69                  | 10.30           | 24.99        | 0.315        | 33.01            | -8.02       |
| 1852.50         | 5                       | 16-QAM | V               | 133                 | 115                        | 1 / 24         | 14.68                  | 9.89            | <b>24.57</b> | 0.287        | 33.01            | -8.44       |
| 1852.50         | 5                       | 64-QAM | V               | 133                 | 115                        | 1 / 0          | 13.72                  | 9.89            | <b>23.61</b> | 0.230        | 33.01            | -9.40       |
| 1855.00         | 10                      | QPSK   | V               | 133                 | 112                        | 1 / 0          | 15.34                  | 9.91            | 25.25        | 0.335        | 33.01            | -7.76       |
| 1880.00         | 10                      | QPSK   | V               | 135                 | 89                         | 1 / 49         | 15.24                  | 10.10           | <b>25.34</b> | 0.342        | 33.01            | -7.67       |
| 1905.00         | 10                      | QPSK   | V               | 131                 | 111                        | 1 / 0          | 14.86                  | 10.28           | 25.14        | 0.327        | 33.01            | -7.87       |
| 1855.00         | 10                      | 16-QAM | V               | 133                 | 112                        | 1 / 0          | 14.61                  | 9.91            | <b>24.52</b> | 0.283        | 33.01            | -8.49       |
| 1880.00         | 10                      | 64-QAM | V               | 135                 | 89                         | 1 / 49         | 13.39                  | 10.10           | <b>23.49</b> | 0.224        | 33.01            | -9.52       |
| 1857.50         | 15                      | QPSK   | V               | 130                 | 104                        | 1 / 74         | 15.49                  | 9.93            | <b>25.42</b> | 0.348        | 33.01            | -7.59       |
| 1880.00         | 15                      | QPSK   | V               | 134                 | 101                        | 1 / 0          | 15.16                  | 10.10           | 25.26        | 0.336        | 33.01            | -7.75       |
| 1902.50         | 15                      | QPSK   | V               | 139                 | 110                        | 1 / 74         | 14.86                  | 10.27           | 25.13        | 0.326        | 33.01            | -7.88       |
| 1857.50         | 15                      | 16-QAM | V               | 130                 | 104                        | 1 / 0          | 14.83                  | 9.93            | <b>24.76</b> | 0.299        | 33.01            | -8.25       |
| 1857.50         | 15                      | 64-QAM | V               | 130                 | 104                        | 1 / 0          | 13.81                  | 9.93            | <b>23.74</b> | 0.237        | 33.01            | -9.27       |
| 1860.00         | 20                      | QPSK   | V               | 132                 | 109                        | 1 / 0          | 15.48                  | 9.95            | 25.43        | 0.349        | 33.01            | -7.58       |
| 1880.00         | 20                      | QPSK   | V               | 127                 | 95                         | 1 / 99         | 15.38                  | 10.10           | <b>25.48</b> | 0.354        | 33.01            | -7.53       |
| 1900.00         | 20                      | QPSK   | V               | 132                 | 108                        | 1 / 99         | 14.96                  | 10.26           | 25.22        | 0.332        | 33.01            | -7.79       |
| 1860.00         | 20                      | 16-QAM | V               | 132                 | 109                        | 1 / 0          | 14.73                  | 9.95            | <b>24.68</b> | 0.294        | 33.01            | -8.33       |
| 1860.00         | 20                      | 64-QAM | V               | 132                 | 109                        | 1 / 0          | 13.75                  | 9.95            | <b>23.70</b> | 0.234        | 33.01            | -9.31       |
| 1880.00         | 5                       | QPSK   | H               | 111                 | 15                         | 1 / 24         | 15.55                  | 9.90            | 25.45        | 0.351        | 33.01            | -7.56       |

**Table 7-10. EIRP Data (Band 2)**

|                                         |                                                                                                                                                                                                                     |                              |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                      | EUT Type:<br>Portable Tablet | Page 159 of 191                 |

| 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               | 152                 | 42                         | 1 / 24         | 13.24                  | 9.43            | <b>22.67</b> | 0.185        | 33.01            | -10.34      |
| 2535.00         | 5                       | QPSK   | H               | 167                 | 29                         | 1 / 24         | 12.92                  | 9.39            | 22.31        | 0.170        | 33.01            | -10.70      |
| 2567.50         | 5                       | QPSK   | H               | 146                 | 44                         | 1 / 24         | 12.99                  | 9.45            | 22.44        | 0.175        | 33.01            | -10.57      |
| 2502.50         | 5                       | 16-QAM | H               | 152                 | 42                         | 1 / 24         | 12.33                  | 9.43            | <b>21.76</b> | 0.150        | 33.01            | -11.25      |
| 2502.50         | 5                       | 64-QAM | H               | 152                 | 42                         | 1 / 24         | 10.48                  | 9.43            | <b>19.91</b> | 0.098        | 33.01            | -13.10      |
| 2505.00         | 10                      | QPSK   | H               | 115                 | 37                         | 1 / 49         | 13.16                  | 9.43            | <b>22.59</b> | 0.181        | 33.01            | -10.42      |
| 2535.00         | 10                      | QPSK   | H               | 115                 | 28                         | 1 / 49         | 12.51                  | 9.39            | 21.90        | 0.155        | 33.01            | -11.11      |
| 2565.00         | 10                      | QPSK   | H               | 111                 | 41                         | 1 / 49         | 13.04                  | 9.44            | 22.48        | 0.177        | 33.01            | -10.53      |
| 2505.00         | 10                      | 16-QAM | H               | 115                 | 37                         | 1 / 49         | 12.23                  | 9.43            | <b>21.66</b> | 0.146        | 33.01            | -11.35      |
| 2505.00         | 10                      | 64-QAM | H               | 115                 | 37                         | 1 / 49         | 11.14                  | 9.43            | <b>20.57</b> | 0.114        | 33.01            | -12.44      |
| 2507.50         | 15                      | QPSK   | H               | 112                 | 40                         | 1 / 74         | 13.28                  | 9.42            | 22.70        | 0.186        | 33.01            | -10.31      |
| 2535.00         | 15                      | QPSK   | H               | 100                 | 25                         | 1 / 74         | 13.47                  | 9.39            | <b>22.86</b> | <b>0.193</b> | 33.01            | -10.15      |
| 2562.50         | 15                      | QPSK   | H               | 115                 | 39                         | 1 / 74         | 13.33                  | 9.43            | 22.76        | 0.189        | 33.01            | -10.25      |
| 2535.00         | 15                      | 16-QAM | H               | 100                 | 25                         | 1 / 74         | 12.66                  | 9.39            | <b>22.05</b> | 0.160        | 33.01            | -10.96      |
| 2507.50         | 15                      | 64-QAM | H               | 112                 | 40                         | 1 / 74         | 11.38                  | 9.42            | <b>20.80</b> | 0.120        | 33.01            | -12.21      |
| 2510.00         | 20                      | QPSK   | H               | 104                 | 45                         | 1 / 0          | 13.38                  | 9.42            | <b>22.80</b> | 0.191        | 33.01            | -10.21      |
| 2535.00         | 20                      | QPSK   | H               | 119                 | 38                         | 1 / 99         | 13.02                  | 9.39            | 22.41        | 0.174        | 33.01            | -10.60      |
| 2560.00         | 20                      | QPSK   | H               | 112                 | 46                         | 1 / 0          | 12.49                  | 9.42            | 21.91        | 0.155        | 33.01            | -11.10      |
| 2510.00         | 20                      | 16-QAM | H               | 104                 | 45                         | 1 / 0          | 12.60                  | 9.42            | <b>22.02</b> | 0.159        | 33.01            | -10.99      |
| 2510.00         | 20                      | 64-QAM | H               | 104                 | 45                         | 1 / 99         | 11.02                  | 9.42            | <b>20.44</b> | 0.111        | 33.01            | -12.57      |
| 2535.00         | 15                      | QPSK   | V               | 382                 | 142                        | 1 / 74         | 10.06                  | 9.38            | 19.44        | 0.088        | 33.01            | -13.57      |

Table 7-11. EIRP Data (Band 7)

|                                         |                                                                                                                                                                                                                     |                              |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                      | EUT Type:<br>Portable Tablet | Page 160 of 191                 |

## 7.8 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: A3LSMT867V                      |  | MEASUREMENT REPORT<br>(CERTIFICATION) |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                      | EUT Type:<br>Portable Tablet          |                                                                                       | Page 161 of 191                 |

## Test Setup

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

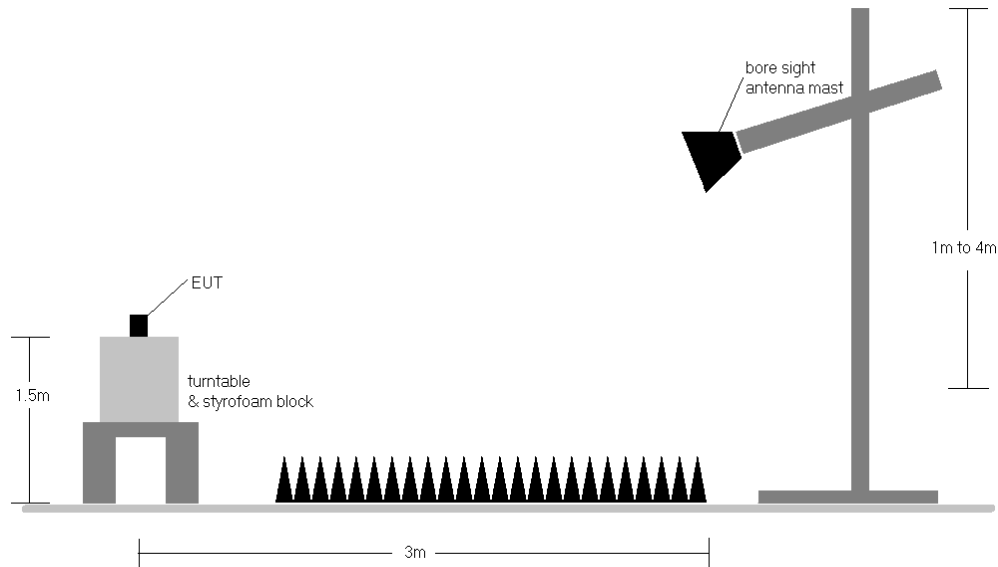


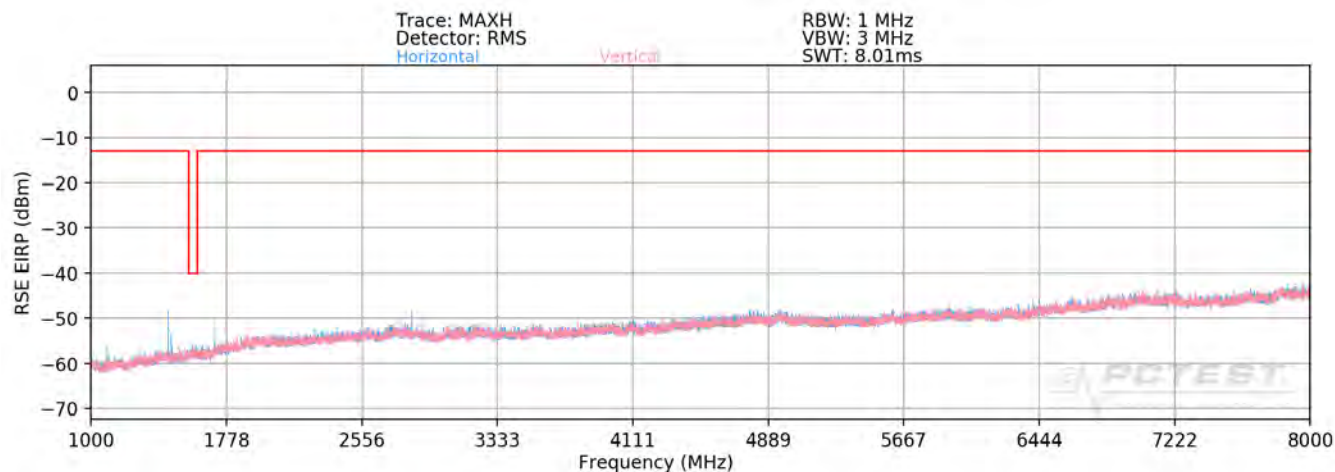
**Figure 7-8. Test Instrument & Measurement Setup**

## 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: A3LSMT867V                      |  | MEASUREMENT REPORT<br>(CERTIFICATION) |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                      | EUT Type:<br>Portable Tablet          |                                                                                       | Page 162 of 191                 |

## Band 13



**Plot 7-252. 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               | -                   | -                          | -68.25                           | 3.64                          | -64.62                        | -51.6       |
| 3128.00         | H               | -                   | -                          | -58.89                           | 5.73                          | -53.15                        | -40.2       |

**Table 7-12. Radiated Spurious Data (Band 13 – Mid Channel)**

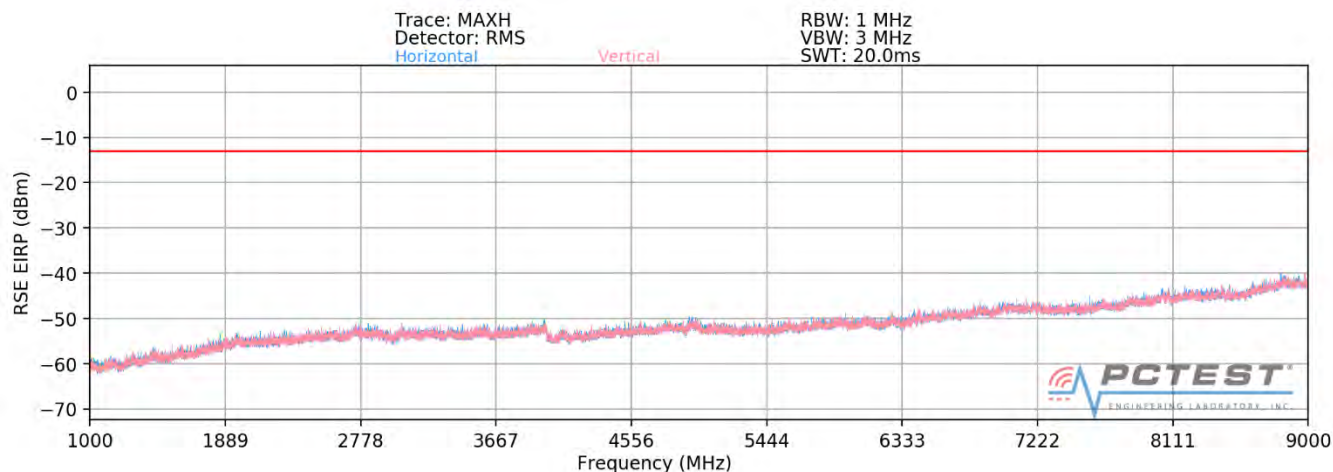
MODULATION SIGNAL: QPSK  
BANDWIDTH: 10.00 MHz  
DISTANCE: 3 meters  
NARROWBAND EMISSION LIMIT: -50 dBm  
WIDEBAND EMISSION LIMIT: -40 dBm/MHz

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Level at Antenna Terminals [dBm] | Substitute Antenna Gain [dBi] | Spurious Emission Level [dBm] | Margin [dB] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 1564.00         | H               | -                   | -                          | -70.27                           | 2.93                          | -67.33                        | -27.3       |

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

|                                         |                                               |                              |                                       |  |                |                 |                                 |
|-----------------------------------------|-----------------------------------------------|------------------------------|---------------------------------------|--|----------------|-----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. |                              | MEASUREMENT REPORT<br>(CERTIFICATION) |  | <b>SAMSUNG</b> |                 | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet |                                       |  |                | Page 163 of 191 |                                 |

## Band 5



**Plot 7-253. Radiated Spurious Plot above 1GHz (Band 5)**

OPERATING FREQUENCY: 826.50 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 5.0 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] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 1653.00         | H               | 226                 | 13                         | -68.99                           | 3.12                          | -65.87                        | -52.9       |
| 2479.50         | H               | -                   | -                          | -66.94                           | 3.87                          | -63.07                        | -50.1       |
| 3306.00         | H               | -                   | -                          | -68.49                           | 6.01                          | -62.48                        | -49.5       |
| 4132.50         | H               | -                   | -                          | -69.78                           | 7.77                          | -62.01                        | -49.0       |

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

|                                         |                                                                                     |                                       |                                                                                       |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  | MEASUREMENT REPORT<br>(CERTIFICATION) |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                      | EUT Type:<br>Portable Tablet          |                                                                                       | Page 164 of 191                 |

OPERATING FREQUENCY: 836.50 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 5.0 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               | 100                 | 325                        | -67.70                           | 3.10                          | -64.60                        | -51.6       |
| 2509.50         | H               | -                   | -                          | -66.94                           | 4.02                          | -62.92                        | -49.9       |
| 3346.00         | H               | -                   | -                          | -68.12                           | 6.03                          | -62.10                        | -49.1       |
| 4182.50         | H               | -                   | -                          | -68.98                           | 7.79                          | -61.19                        | -48.2       |

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

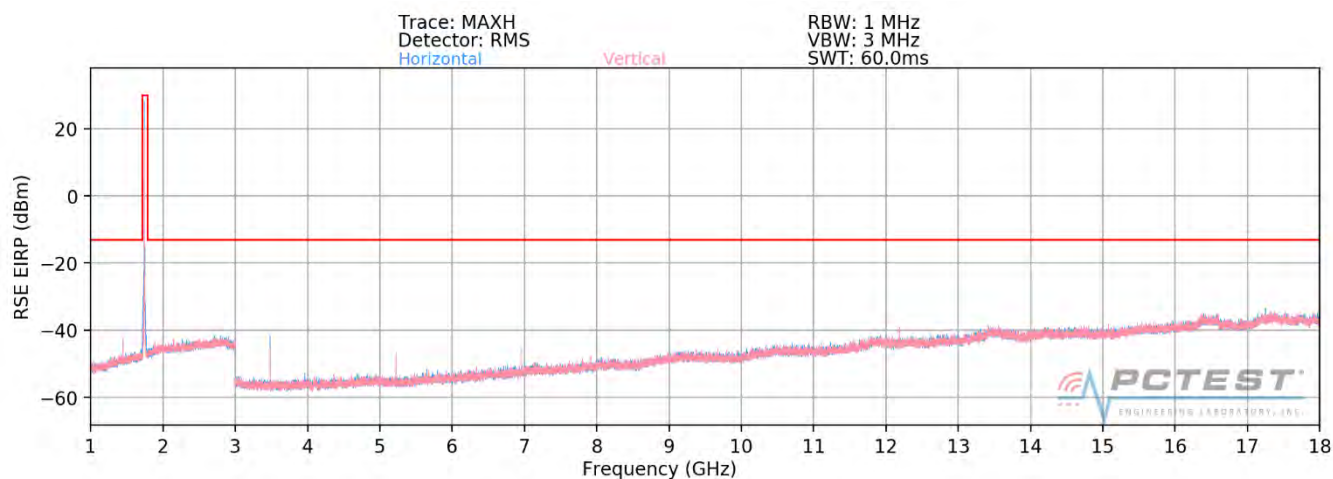
OPERATING FREQUENCY: 846.50 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 5.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

| 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] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 1693.00         | H               | 209                 | 28                         | -68.47                           | 3.18                          | -65.29                        | -52.3       |
| 2539.50         | H               | -                   | -                          | -66.97                           | 4.10                          | -62.87                        | -49.9       |
| 3386.00         | H               | -                   | -                          | -67.60                           | 6.15                          | -61.45                        | -48.5       |
| 4232.50         | H               | -                   | -                          | -69.58                           | 7.88                          | -61.71                        | -48.7       |

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

|                                         |                                                                                                                                                                                                                     |                              |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                      | EUT Type:<br>Portable Tablet | Page 165 of 191                 |

## Band 66/4



**Plot 7-254. Radiated Spurious Plot above 1GHz (Band 66/4)**

OPERATING FREQUENCY: 1720.00 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] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 3440.00         | H               | 116                 | 51                         | -54.96                           | 6.28                          | -48.68                        | -35.7       |
| 5160.00         | H               | 111                 | 202                        | -63.75                           | 8.98                          | -54.77                        | -41.8       |
| 6880.00         | H               | 394                 | 316                        | -64.67                           | 9.42                          | -55.25                        | -42.3       |
| 8600.00         | H               | -                   | -                          | -64.81                           | 9.62                          | -55.20                        | -42.2       |
| 10320.00        | H               | -                   | -                          | -62.44                           | 9.56                          | -52.88                        | -39.9       |
| 12040.00        | H               | -                   | -                          | -58.31                           | 9.24                          | -49.07                        | -36.1       |

**Table 7-17. Radiated Spurious Data (Band 66/4 – Low Channel)**

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 166 of 191                 |

OPERATING FREQUENCY: 1745.00 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] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 3490.00         | H               | 100                 | 52                         | -50.66                           | 6.47                          | -44.19                        | -31.2       |
| 5235.00         | H               | 131                 | 205                        | -61.63                           | 8.97                          | -52.67                        | -39.7       |
| 6980.00         | H               | 260                 | 315                        | -63.61                           | 9.23                          | -54.38                        | -41.4       |
| 8725.00         | H               | -                   | -                          | -64.00                           | 9.59                          | -54.40                        | -41.4       |
| 10470.00        | H               | -                   | -                          | -61.47                           | 9.43                          | -52.05                        | -39.0       |
| 12215.00        | H               | -                   | -                          | -59.52                           | 9.17                          | -50.36                        | -37.4       |

Table 7-18. Radiated Spurious Data (Band 66/4 – Mid Channel)

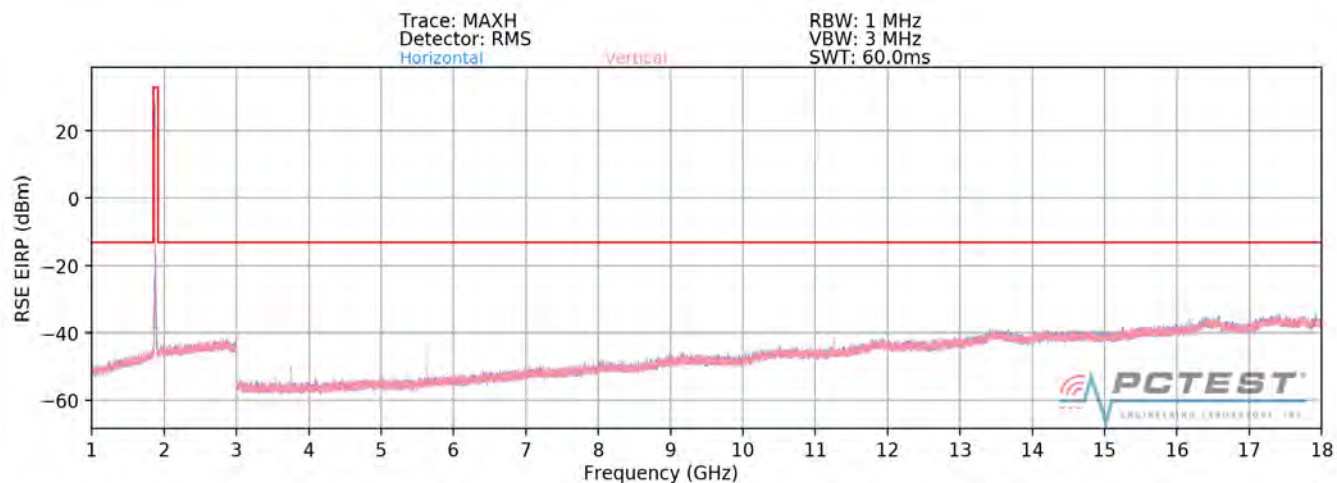
OPERATING FREQUENCY: 1770.00 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 20.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

| 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] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 3540.00         | H               | 121                 | 51                         | -54.94                           | 6.45                          | -48.49                        | -35.5       |
| 5310.00         | H               | 387                 | 323                        | -60.43                           | 9.09                          | -51.33                        | -38.3       |
| 7080.00         | H               | 100                 | 58                         | -57.87                           | 9.17                          | -48.70                        | -35.7       |
| 8850.00         | H               | -                   | -                          | -63.79                           | 9.57                          | -54.22                        | -41.2       |
| 10620.00        | H               | -                   | -                          | -61.34                           | 9.55                          | -51.79                        | -38.8       |
| 12390.00        | H               | -                   | -                          | -58.49                           | 9.11                          | -49.38                        | -36.4       |

Table 7-19. Radiated Spurious Data (Band 66/4 – High Channel)

|                                         |                                                                                                                                                                                                                     |                              |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                      | EUT Type:<br>Portable Tablet | Page 167 of 191                 |

## Band 2



**Plot 7-255. Radiated Spurious Plot above 1GHz (Band 2)**

OPERATING FREQUENCY: 1852.50 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 5.0 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] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 3705.00         | H               | 100                 | 60                         | -59.30                           | 6.90                          | -52.40                        | -39.4       |
| 5557.50         | H               | 104                 | 203                        | -55.89                           | 9.06                          | -46.83                        | -33.8       |
| 7410.00         | H               | -                   | -                          | -66.16                           | 9.26                          | -56.89                        | -43.9       |
| 9262.50         | H               | -                   | -                          | -62.62                           | 9.40                          | -53.22                        | -40.2       |
| 11115.00        | H               | -                   | -                          | -61.65                           | 9.46                          | -52.19                        | -39.2       |

**Table 7-20. Radiated Spurious Data (Band 2 – Low Channel)**

|                                         |                                               |                                       |                |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMT867V                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                | EUT Type:<br>Portable Tablet          |                | Page 168 of 191                 |

OPERATING FREQUENCY: 1880.00 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 5.0 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               | 111                 | 314                        | -59.87                           | 6.93                          | -52.93                        | -39.9       |
| 5640.00         | H               | 102                 | 203                        | -53.90                           | 9.15                          | -44.74                        | -31.7       |
| 7520.00         | H               | -                   | -                          | -66.16                           | 9.31                          | -56.84                        | -43.8       |
| 9400.00         | H               | -                   | -                          | -62.62                           | 9.49                          | -53.13                        | -40.1       |
| 11280.00        | H               | -                   | -                          | -61.44                           | 9.48                          | -51.96                        | -39.0       |

Table 7-21. Radiated Spurious Data (Band 2 – Mid Channel)

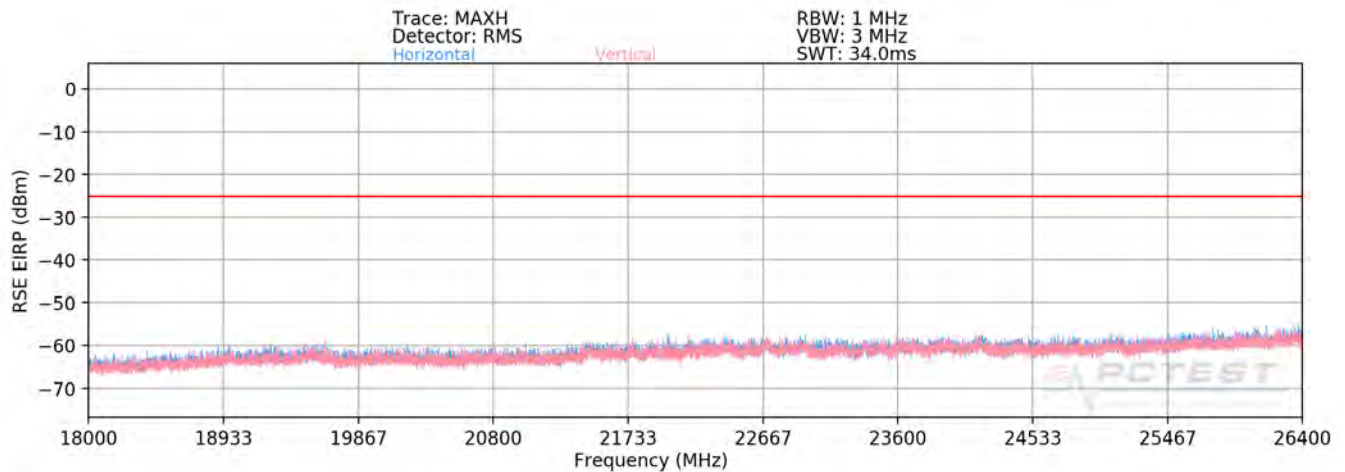
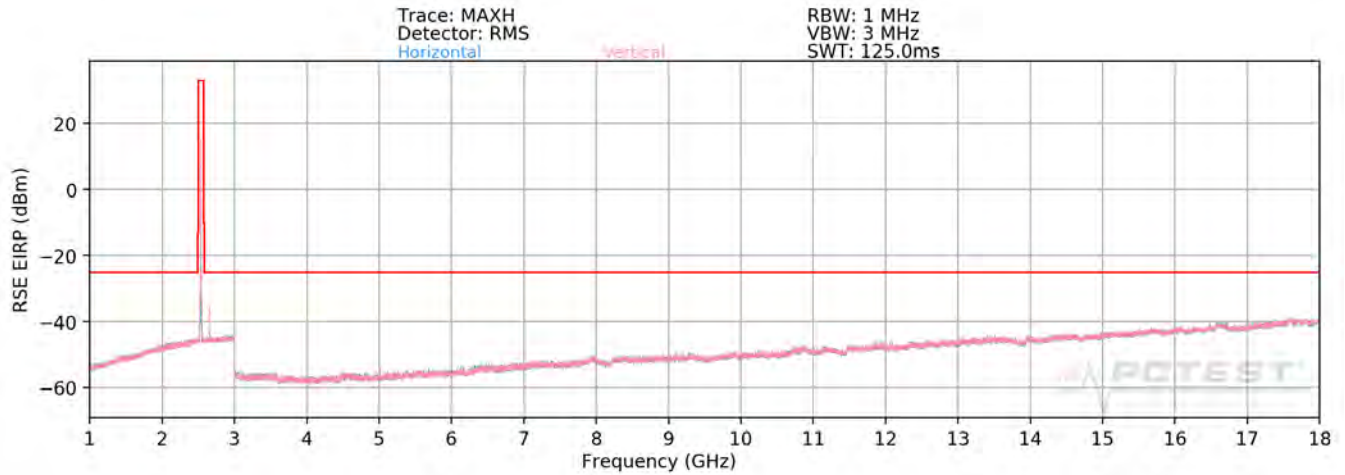
OPERATING FREQUENCY: 1907.50 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 5.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

| 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] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 3815.00         | H               | 103                 | 315                        | -58.13                           | 7.02                          | -51.10                        | -38.1       |
| 5722.50         | H               | 100                 | 209                        | -55.01                           | 9.05                          | -45.96                        | -33.0       |
| 7630.00         | H               | -                   | -                          | -65.78                           | 9.25                          | -56.54                        | -43.5       |
| 9537.50         | H               | -                   | -                          | -63.23                           | 9.48                          | -53.74                        | -40.7       |
| 11445.00        | H               | -                   | -                          | -60.65                           | 9.47                          | -51.18                        | -38.2       |

Table 7-22. Radiated Spurious Data (Band 2 – High Channel)

|                                         |                                                                                     |                                       |                                                                                       |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  | MEASUREMENT REPORT<br>(CERTIFICATION) |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                      | EUT Type:<br>Portable Tablet          |                                                                                       | Page 169 of 191                 |

## Band 7



|                                         |                                                                                                                                                                                                                         |                              |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                          | EUT Type:<br>Portable Tablet | Page 170 of 191                 |

OPERATING FREQUENCY: 2507.50 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 15.0 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] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 5015.00         | V               | 111                 | 226                        | -66.43                           | 8.78                          | -57.65                        | -32.6       |
| 7522.50         | V               | -                   | -                          | -66.17                           | 9.31                          | -56.87                        | -31.9       |
| 10030.00        | V               | -                   | -                          | -62.83                           | 9.78                          | -53.05                        | -28.0       |
| 12537.50        | V               | -                   | -                          | -58.60                           | 8.80                          | -49.80                        | -24.8       |

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

OPERATING FREQUENCY: 2535.00 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 15.0 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         | V               | 102                 | 224                        | -58.41                           | 8.89                          | -49.52                        | -24.5       |
| 7605.00         | V               | -                   | -                          | -65.83                           | 9.25                          | -56.58                        | -31.6       |
| 10140.00        | V               | -                   | -                          | -62.65                           | 9.75                          | -52.90                        | -27.9       |
| 12675.00        | V               | -                   | -                          | -57.84                           | 8.89                          | -48.96                        | -24.0       |

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

|                                         |                                                                                     |                                       |                                                                                       |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  | MEASUREMENT REPORT<br>(CERTIFICATION) |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                      | EUT Type:<br>Portable Tablet          |                                                                                       | Page 171 of 191                 |

OPERATING FREQUENCY: 2562.50 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 15.0 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] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 5125.00         | V               | 115                 | 226                        | -66.08                           | 8.91                          | -57.16                        | -32.2       |
| 7687.50         | V               | -                   | -                          | -65.48                           | 9.28                          | -56.21                        | -31.2       |
| 10250.00        | V               | -                   | -                          | -61.66                           | 9.66                          | -52.01                        | -27.0       |
| 12812.50        | V               | -                   | -                          | -58.04                           | 8.87                          | -49.17                        | -24.2       |

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

|                                         |                                                                                     |                                    |                                                                                       |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------|------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                      | EUT Type:<br>Portable Tablet       |                                                                                       | Page 172 of 191                 |

## 7.9 Uplink Carrier Aggregation Radiated Measurements

§2.1053, §27.53(m)

### Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as peak measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

### Test Procedures Used

KDB 971168 D01 v02r02 – Section 5.8

ANSI/TIA-603-D-2010 – Section 2.2.12

### Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW  $\geq 3 \times$  RBW
3. No. of sweep points  $\geq 2 \times$  span / RBW
4. Detector = RMS
5. Trace mode = trace average for continuous emissions, max hold for pulse emissions
6. The trace was allowed to stabilize

|                                         |                                                                                     |                                       |                                                                                       |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  | MEASUREMENT REPORT<br>(CERTIFICATION) |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                      | EUT Type:<br>Portable Tablet          |                                                                                       | Page 173 of 191                 |

## Test Setup

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

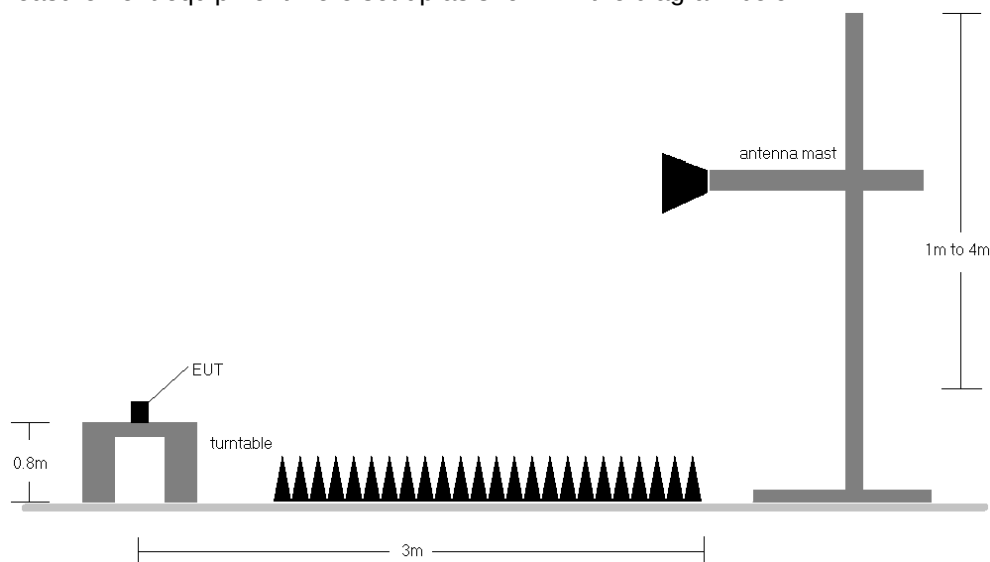


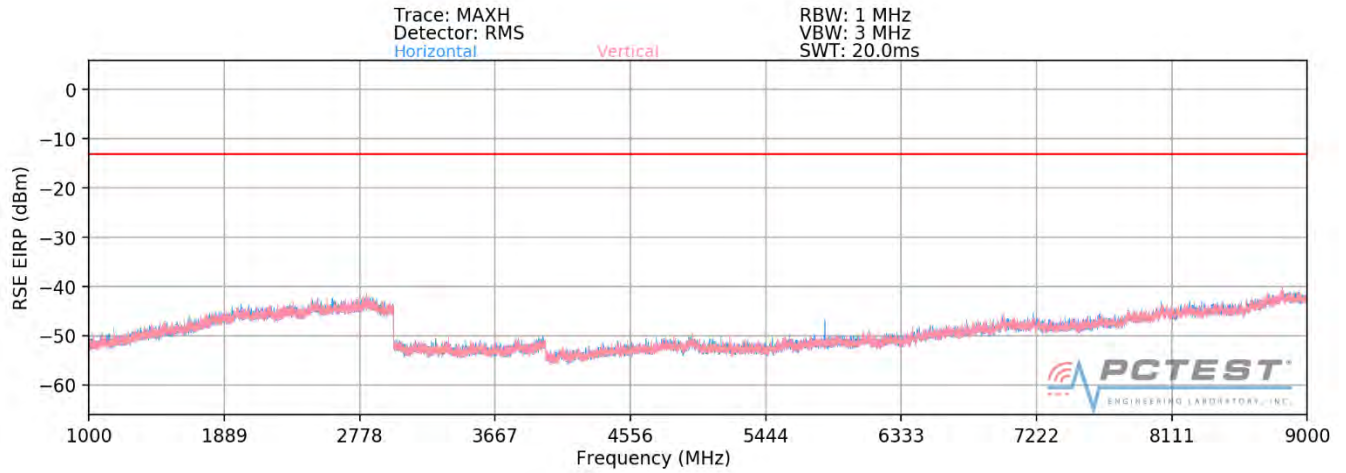
**Figure 7-9. Test Instrument & Measurement Setup**

## Test Notes

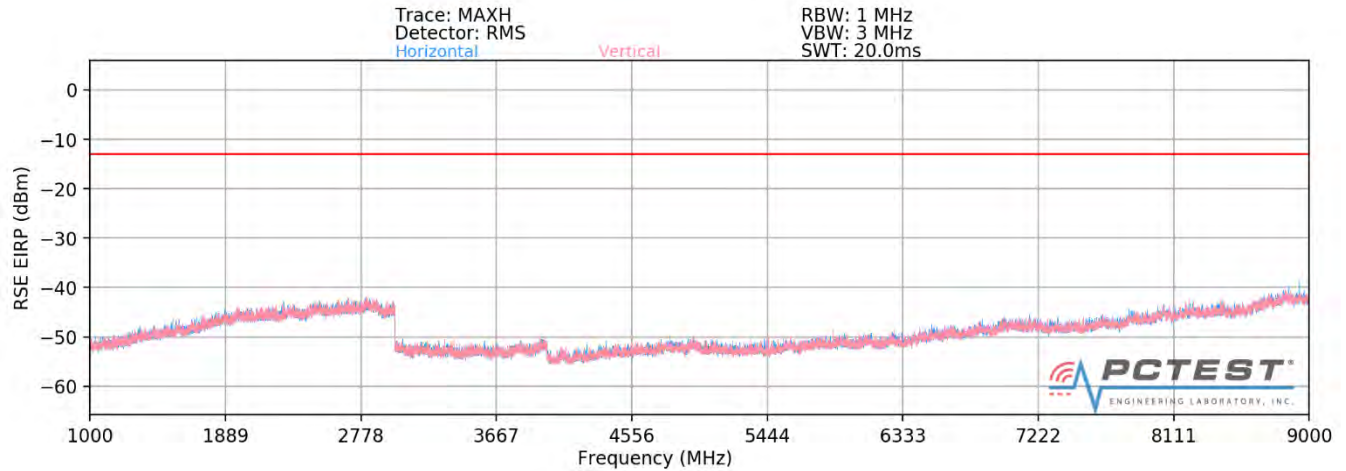
- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) Radiated spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. The worst case (highest) emissions were found while operating with QPSK modulation with both carriers set to transmit using 1RB.
- 4) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 5) 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.
- 6) No significant emissions were found as a result of two uplink carriers operating contiguously.

|                                         |                                                                                     |                                       |                                                                                       |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  | MEASUREMENT REPORT<br>(CERTIFICATION) |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                      | EUT Type:<br>Portable Tablet          |                                                                                       | Page 174 of 191                 |

## ULCA Band 5



**Plot 7-258. Radiated Spurious Plot above 1GHz (ULCA Band 5 Low Channel – PCC/SCC: 1RB)**



**Plot 7-259. Radiated Spurious Plot above 1GHz (ULCA Band 5 High Channel – PCC/SCC: 1RB)**

|                                         |                                                                                                                                                                                                                         |                              |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                          | EUT Type:<br>Portable Tablet | Page 175 of 191                 |

OPERATING FREQUENCY (PCC): 829.00 MHz  
 OPERATING FREQUENCY (SCC): 838.90 MHz  
 CHANNEL (PCC): 20450  
 CHANNEL (SCC): 20549  
 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         | V               | 147                 | 53                         | -65.50                           | 3.61                          | -61.89                        | -61.9       |
| 2487.00         | V               | 245                 | 34                         | -63.95                           | 4.25                          | -59.70                        | -59.7       |
| 3316.00         | V               | -                   | -                          | -67.89                           | 5.83                          | -62.06                        | -62.1       |
| 4145.00         | V               | -                   | -                          | -69.49                           | 7.66                          | -61.83                        | -61.8       |
| 4974.00         | V               | 294                 | 103                        | -67.42                           | 8.56                          | -58.86                        | -58.9       |
| 5803.00         | V               | -                   | -                          | -66.93                           | 8.87                          | -58.06                        | -58.1       |
| 6632.00         | V               | -                   | -                          | -61.42                           | 8.94                          | -52.49                        | -52.5       |

Table 7-26. Radiated Spurious Plot (ULCA B5 PCC: RB 1 Offset 49, SCC: RB 1 Offset 0- Low Channel)

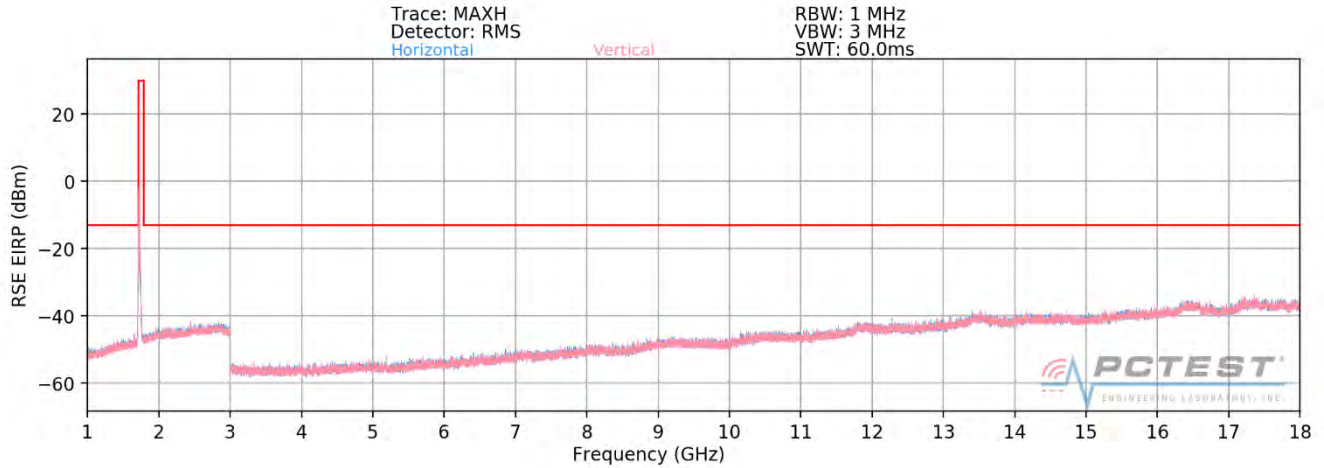
OPERATING FREQUENCY (PCC): 844.00 MHz  
 OPERATING FREQUENCY (SCC): 834.10 MHz  
 CHANNEL (PCC): 20600  
 CHANNEL (SCC): 20501  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

| 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         | V               | 379                 | 46                         | -68.90                           | 3.63                          | -65.28                        | -65.3       |
| 2532.00         | V               | 373                 | 295                        | -66.27                           | 4.47                          | -61.80                        | -61.8       |
| 3376.00         | V               | -                   | -                          | -66.96                           | 6.05                          | -60.91                        | -60.9       |
| 4220.00         | V               | -                   | -                          | -68.50                           | 7.75                          | -60.76                        | -60.8       |
| 5064.00         | V               | -                   | -                          | -69.15                           | 8.59                          | -60.56                        | -60.6       |

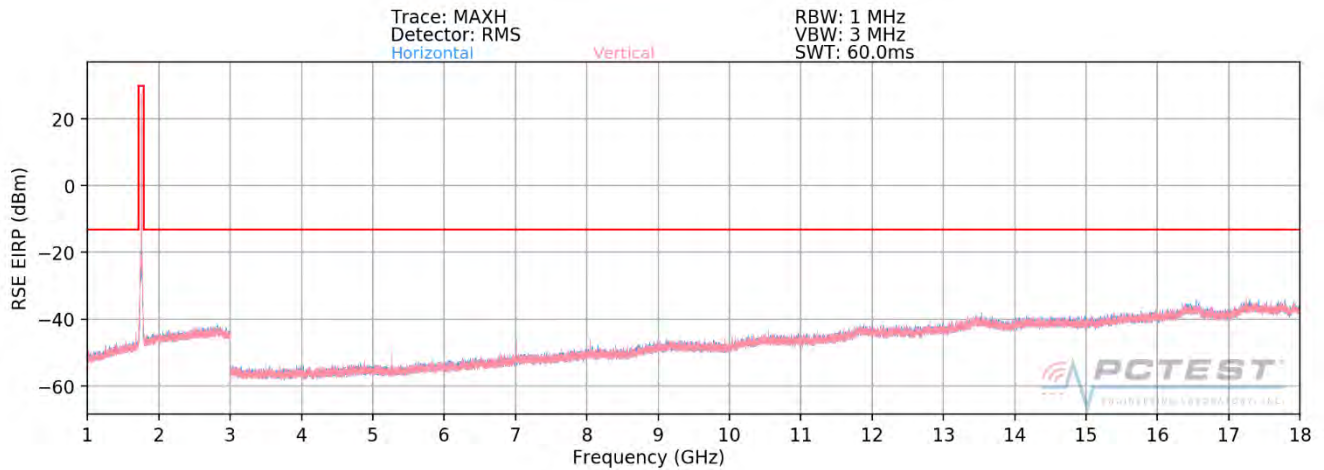
Table 7-27. Radiated Spurious Plot (ULCA B5 PCC: RB 1 Offset 0, SCC: RB 1 Offset 49- High Channel)

|                                         |                                                                                                                                                                                                                     |                              |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                      | EUT Type:<br>Portable Tablet | Page 176 of 191                 |

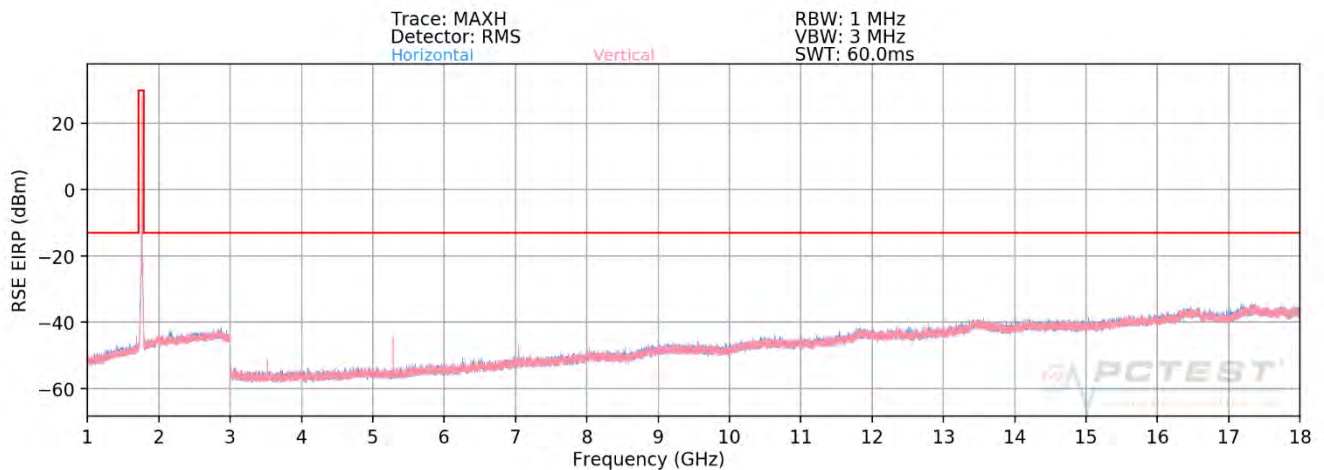
## Uplink CA Configuration 66B/C



Plot 7-260. Radiated Spurious Plot (ULCA 66C PCC: RB 1 Offset 99, SCC: RB 1 Offset 0 – Low Channel)



Plot 7-261. Radiated Spurious Plot (ULCA 66C PCC: RB 1 Offset 99, SCC: RB 1 Offset 0 – Mid Channel)



Plot 7-262. Radiated Spurious Plot (ULCA 66C PCC: RB 1 Offset 0, SCC: RB 1 Offset 99 – High Channel)

|                                         |                                                                                                                                  |                              |                                                                                       |                                 |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                              |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                   | EUT Type:<br>Portable Tablet |                                                                                       | Page 177 of 191                 |

OPERATING FREQUENCY (PCC): 1720.00 MHz  
 OPERATING FREQUENCY (SCC): 1739.80 MHz  
 CHANNEL (PCC): 132072  
 CHANNEL (SCC): 132270  
 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] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 3440.00         | H               | 117                 | 57                         | -60.95                           | 6.22                          | -54.73                        | -54.7       |
| 5160.00         | H               | 103                 | 202                        | -62.00                           | 8.68                          | -53.32                        | -53.3       |
| 6880.00         | H               | 398                 | 322                        | -63.57                           | 8.76                          | -54.82                        | -54.8       |
| 8600.00         | H               | -                   | -                          | -64.07                           | 9.17                          | -54.90                        | -54.9       |
| 10320.00        | H               | -                   | -                          | -62.54                           | 9.64                          | -52.90                        | -52.9       |

Table 7-28. Radiated Spurious Data (ULCA 66C PCC: RB 1 Offset 99, SCC: RB 1 Offset 0 – Low Channel)

OPERATING FREQUENCY (PCC): 1745.00 MHz  
 OPERATING FREQUENCY (SCC): 1764.80 MHz  
 CHANNEL (PCC): 132322  
 CHANNEL (SCC): 132520  
 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] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 3490.00         | H               | 116                 | 64                         | -60.10                           | 6.32                          | -53.78                        | -53.8       |
| 5235.00         | H               | 108                 | 201                        | -67.37                           | 8.71                          | -58.65                        | -58.7       |
| 6980.00         | H               | 101                 | 320                        | -61.82                           | 8.74                          | -53.08                        | -53.1       |
| 8725.00         | H               | -                   | -                          | -63.86                           | 9.42                          | -54.45                        | -54.4       |
| 10470.00        | H               | -                   | -                          | -61.91                           | 9.62                          | -52.29                        | -52.3       |

Table 7-29. Radiated Spurious Data (ULCA 66C PCC: RB 1 Offset 99, SCC: RB 1 Offset 0 – Mid Channel)

|                                         |                                                                                                                                                                                                                     |                              |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                      | EUT Type:<br>Portable Tablet | Page 178 of 191                 |

OPERATING FREQUENCY (PCC): 1770.00 MHz  
 OPERATING FREQUENCY (SCC): 1750.20 MHz  
 CHANNEL (PCC): 132572  
 CHANNEL (SCC): 132374  
 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] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 3540.00         | H               | 104                 | 56                         | -63.02                           | 6.31                          | -56.71                        | -56.7       |
| 5310.00         | H               | 300                 | 202                        | -63.25                           | 8.74                          | -54.51                        | -54.5       |
| 7080.00         | H               | 100                 | 62                         | -59.34                           | 8.66                          | -50.68                        | -50.7       |
| 8850.00         | H               | -                   | -                          | -63.96                           | 9.53                          | -54.43                        | -54.4       |
| 10620.00        | H               | -                   | -                          | -61.49                           | 9.50                          | -51.99                        | -52.0       |

Table 7-30. Radiated Spurious Data (ULCA 66C PCC: RB 1 Offset 0, SCC: RB 1 Offset 99 – High Channel)

|                                         |                                                                                                                                                                                                                     |                              |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                      | EUT Type:<br>Portable Tablet | Page 179 of 191                 |

## 7.10 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  $\pm 0.00025\%$  ( $\pm 2.5$  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: A3LSMT867V                      |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                          | EUT Type:<br>Portable Tablet | Page 180 of 191                 |

## Band 13 Frequency Stability Measurements

OPERATING FREQUENCY: 782,000,000 Hz  
 CHANNEL: 23230  
 REFERENCE VOLTAGE: 3.85 VDC

| VOLTAGE (%)    | POWER (VDC) | TEMP (°C) | FREQUENCY (Hz) | Freq. Dev. (Hz) | Deviation (%) |
|----------------|-------------|-----------|----------------|-----------------|---------------|
| 100 %          | 3.85        | - 30      | 781,999,833    | -167            | -0.0000214    |
| 100 %          |             | - 20      | 782,000,032    | 32              | 0.0000041     |
| 100 %          |             | - 10      | 781,999,920    | -80             | -0.0000102    |
| 100 %          |             | 0         | 781,999,863    | -137            | -0.0000175    |
| 100 %          |             | + 10      | 781,999,830    | -170            | -0.0000217    |
| 100 %          |             | + 20      | 781,999,724    | -276            | -0.0000353    |
| 100 %          |             | + 30      | 782,000,099    | 99              | 0.0000127     |
| 100 %          |             | + 40      | 781,999,970    | -30             | -0.0000038    |
| 100 %          |             | + 50      | 781,999,732    | -268            | -0.0000343    |
| BATT. ENDPOINT | 3.16        | + 20      | 782,000,308    | 308             | 0.0000394     |

**Table 7-31. 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: A3LSMT867V                      |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                      | EUT Type:<br>Portable Tablet | Page 181 of 191                 |

## Band 13 Frequency Stability Measurements

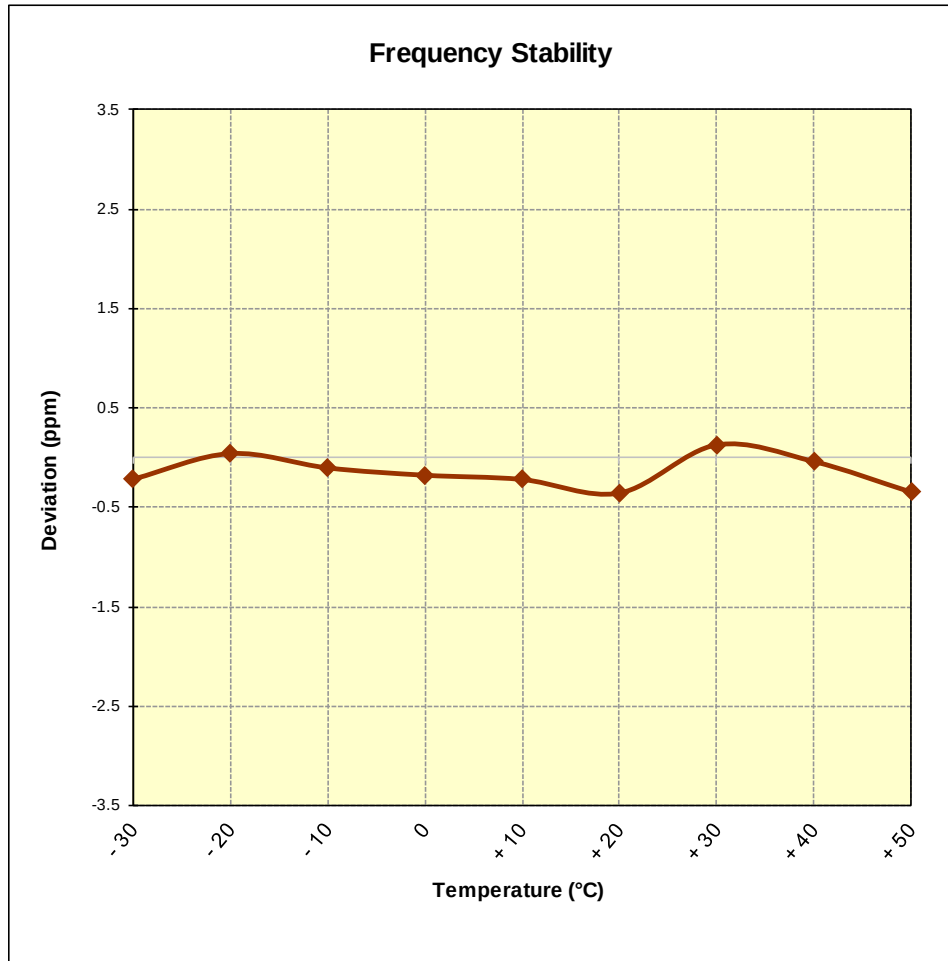


**Figure 7-10. Frequency Stability Graph (Band 13)**

|                                         |                                                                                                                                                                                                                         |                              |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                          | EUT Type:<br>Portable Tablet | Page 182 of 191                 |

## Band 5 Frequency Stability Measurements

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        | - 30      | 836,500,073    | 73              | 0.0000087     |
| 100 %          |             | - 20      | 836,500,006    | 6               | 0.0000007     |
| 100 %          |             | - 10      | 836,499,994    | -6              | -0.0000007    |
| 100 %          |             | 0         | 836,499,728    | -272            | -0.0000325    |
| 100 %          |             | + 10      | 836,499,689    | -311            | -0.0000372    |
| 100 %          |             | + 20      | 836,500,156    | 156             | 0.0000186     |
| 100 %          |             | + 30      | 836,500,007    | 7               | 0.0000008     |
| 100 %          |             | + 40      | 836,500,142    | 142             | 0.0000170     |
| 100 %          |             | + 50      | 836,500,027    | 27              | 0.0000032     |
| BATT. ENDPOINT | 3.16        | + 20      | 836,500,067    | 67              | 0.0000080     |

Table 7-32. Frequency Stability Data (Band 5)

|                                         |                                                                                                                                                                                                                     |                              |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                      | EUT Type:<br>Portable Tablet | Page 183 of 191                 |

## Band 5 Frequency Stability Measurements

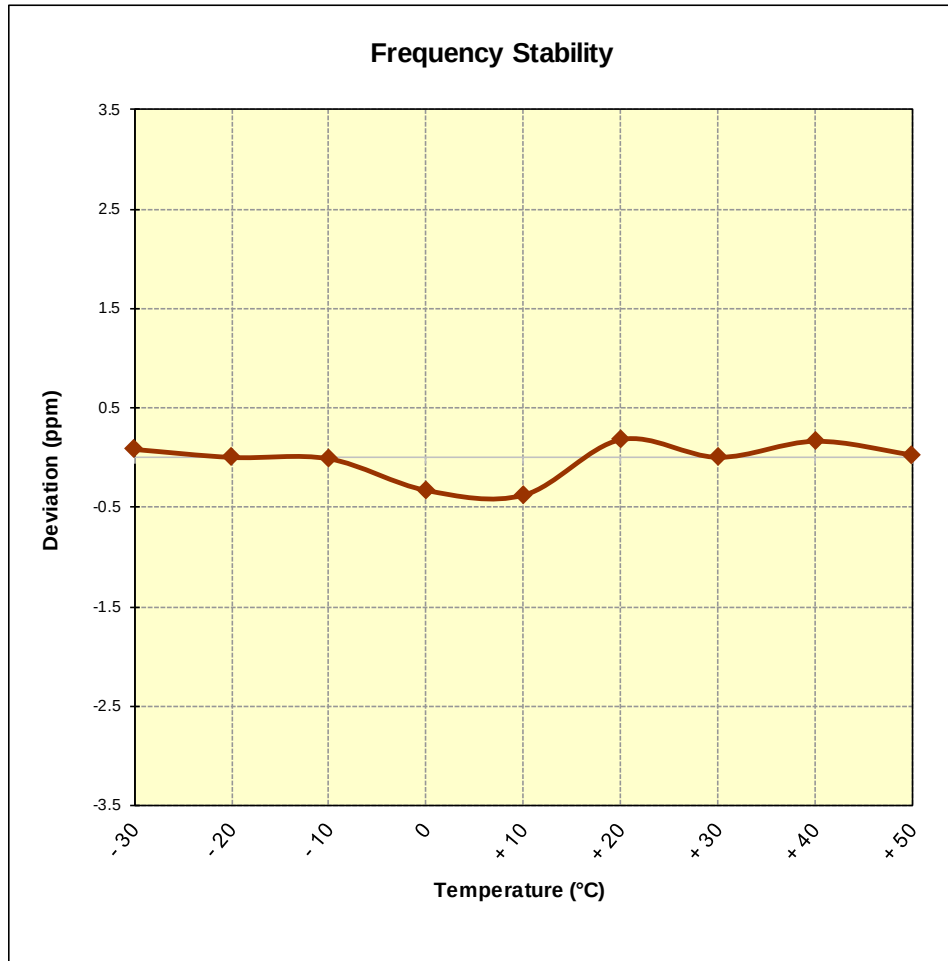


**Figure 7-11. Frequency Stability Graph (Band 5)**

|                                                |                                                                                     |                                               |                                                                                       |                                        |
|------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| <b>FCC ID:</b> A3LSMT867V                      |  | <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b> |  | <b>Approved by:</b><br>Quality Manager |
| <b>Test Report S/N:</b><br>1M1907090121-03.A3L | <b>Test Dates:</b><br>7/22 - 8/2/2019                                               | <b>EUT Type:</b><br>Portable Tablet           |                                                                                       | Page 184 of 191                        |

## Band 66/4 Frequency Stability Measurements

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

| VOLTAGE (%)    | POWER (VDC) | TEMP (°C) | FREQUENCY (Hz) | Freq. Dev. (Hz) | Deviation (%) |
|----------------|-------------|-----------|----------------|-----------------|---------------|
| 100 %          | 3.85        | - 30      | 1,744,999,648  | -352            | -0.0000202    |
| 100 %          |             | - 20      | 1,744,999,712  | -288            | -0.0000165    |
| 100 %          |             | - 10      | 1,745,000,179  | 179             | 0.0000103     |
| 100 %          |             | 0         | 1,745,000,039  | 39              | 0.0000022     |
| 100 %          |             | + 10      | 1,744,999,760  | -240            | -0.0000138    |
| 100 %          |             | + 20      | 1,745,000,372  | 372             | 0.0000213     |
| 100 %          |             | + 30      | 1,745,000,058  | 58              | 0.0000033     |
| 100 %          |             | + 40      | 1,744,999,909  | -91             | -0.0000052    |
| 100 %          |             | + 50      | 1,744,999,932  | -68             | -0.0000039    |
| BATT. ENDPOINT | 3.16        | + 20      | 1,744,999,825  | -175            | -0.0000100    |

**Table 7-33. 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: A3LSMT867V                      |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                      | EUT Type:<br>Portable Tablet | Page 185 of 191                 |

## Band 66/4 Frequency Stability Measurements

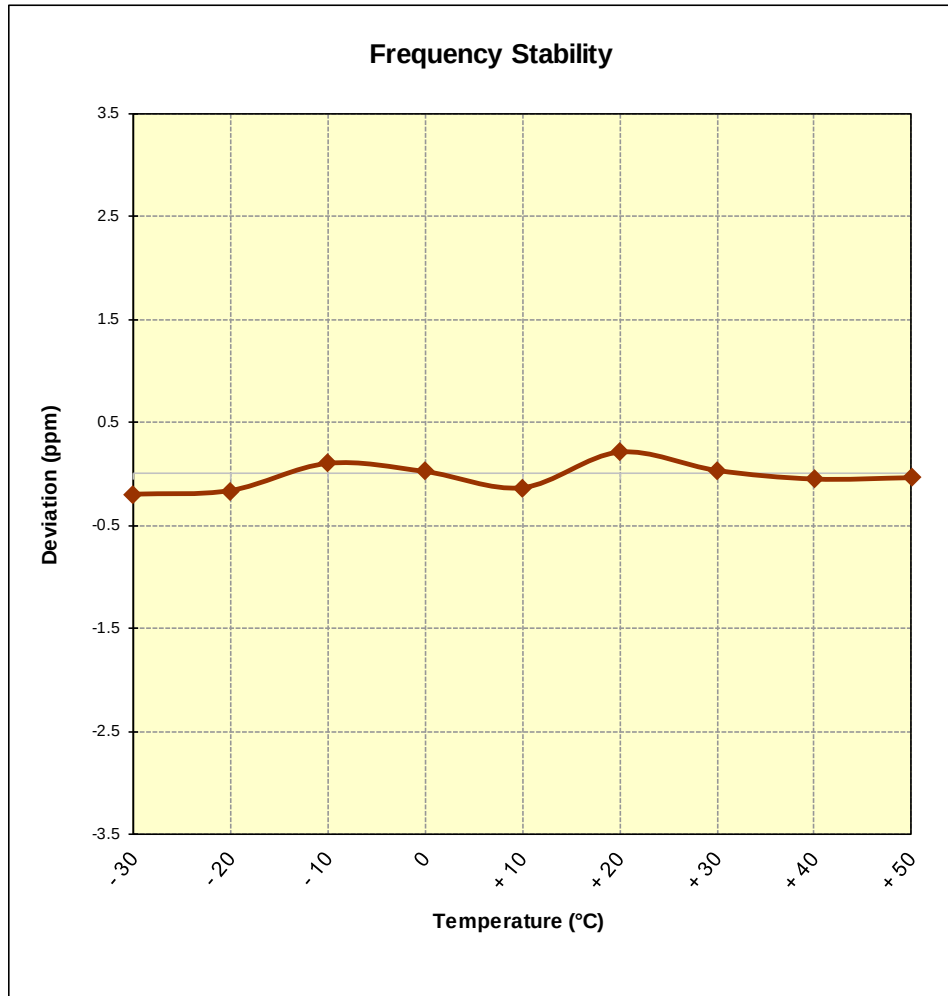


**Figure 7-12. Frequency Stability Graph (Band 66/4)**

|                                         |                                                                                                                                                                                                                         |                              |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                          | EUT Type:<br>Portable Tablet | Page 186 of 191                 |

## Band 2 Frequency Stability Measurements

OPERATING FREQUENCY: 1,880,000,000 Hz  
 CHANNEL: 18900  
 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        | - 30      | 1,880,000,056  | 56              | 0.0000030     |
| 100 %          |             | - 20      | 1,879,999,925  | -75             | -0.0000040    |
| 100 %          |             | - 10      | 1,879,999,971  | -29             | -0.0000015    |
| 100 %          |             | 0         | 1,880,000,193  | 193             | 0.0000103     |
| 100 %          |             | + 10      | 1,879,999,871  | -129            | -0.0000069    |
| 100 %          |             | + 20      | 1,880,000,081  | 81              | 0.0000043     |
| 100 %          |             | + 30      | 1,880,000,027  | 27              | 0.0000014     |
| 100 %          |             | + 40      | 1,879,999,969  | -31             | -0.0000016    |
| 100 %          |             | + 50      | 1,880,000,361  | 361             | 0.0000192     |
| BATT. ENDPOINT | 3.16        | + 20      | 1,879,999,679  | -321            | -0.0000171    |

Table 7-34. Frequency Stability Data (Band 2)

|                                         |                                                                                                                                                                                                                     |                              |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                      | EUT Type:<br>Portable Tablet | Page 187 of 191                 |

## Band 2 Frequency Stability Measurements

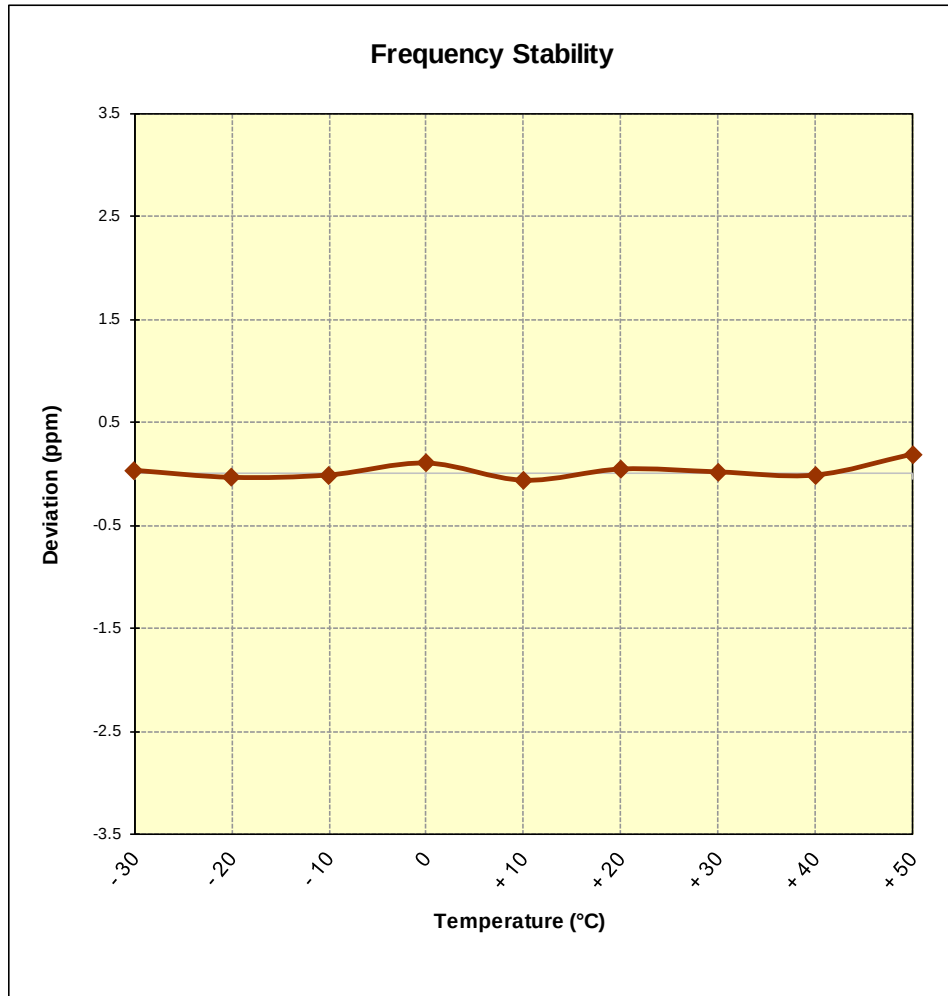


**Figure 7-13. Frequency Stability Graph (Band 2)**

|                                                |                                                                                     |                                               |                                                                                       |                                        |
|------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| <b>FCC ID:</b> A3LSMT867V                      |  | <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b> |  | <b>Approved by:</b><br>Quality Manager |
| <b>Test Report S/N:</b><br>1M1907090121-03.A3L | <b>Test Dates:</b><br>7/22 - 8/2/2019                                               | <b>EUT Type:</b><br>Portable Tablet           |                                                                                       | Page 188 of 191                        |

## Band 7 Frequency Stability Measurements

OPERATING FREQUENCY: 2,535,000,000 Hz  
 CHANNEL: 21100  
 REFERENCE VOLTAGE: 3.85 VDC

| VOLTAGE (%)    | POWER (VDC) | TEMP (°C) | FREQUENCY (Hz) | Freq. Dev. (Hz) | Deviation (%) |
|----------------|-------------|-----------|----------------|-----------------|---------------|
| 100 %          | 3.85        | - 30      | 2,534,999,788  | -212            | -0.0000084    |
| 100 %          |             | - 20      | 2,535,000,047  | 47              | 0.0000019     |
| 100 %          |             | - 10      | 2,534,999,611  | -389            | -0.0000153    |
| 100 %          |             | 0         | 2,535,000,010  | 10              | 0.0000004     |
| 100 %          |             | + 10      | 2,534,999,839  | -161            | -0.0000064    |
| 100 %          |             | + 20      | 2,534,999,946  | -54             | -0.0000021    |
| 100 %          |             | + 30      | 2,534,999,746  | -254            | -0.0000100    |
| 100 %          |             | + 40      | 2,535,000,031  | 31              | 0.0000012     |
| 100 %          |             | + 50      | 2,535,000,017  | 17              | 0.0000007     |
| BATT. ENDPOINT |             | + 20      | 2,534,999,966  | -34             | -0.0000013    |

**Table 7-35. 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: A3LSMT867V                      |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                      | EUT Type:<br>Portable Tablet | Page 189 of 191                 |

## Band 7 Frequency Stability Measurements

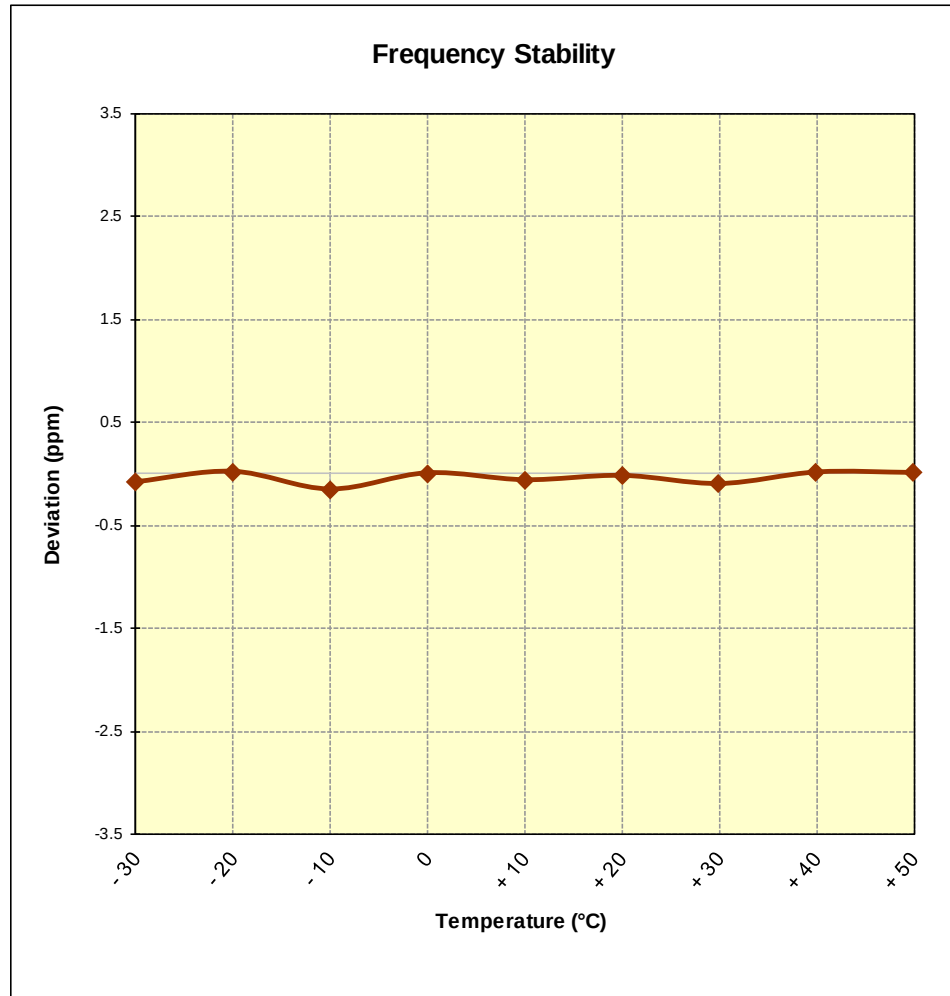


**Figure 7-14. Frequency Stability Graph (Band 7)**

|                                         |                                                                                                                                                                                                                         |                              |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                              | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                                                                                                                                                          | EUT Type:<br>Portable Tablet | Page 190 of 191                 |

## 8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Tablet FCC ID: A3LSMT867V** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.

|                                         |                                                                                     |                                       |                                                                                       |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMT867V                      |  | MEASUREMENT REPORT<br>(CERTIFICATION) |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1907090121-03.A3L | Test Dates:<br>7/22 - 8/2/2019                                                      | EUT Type:<br>Portable Tablet          |                                                                                       | Page 191 of 191                 |