

## 6.4 Band Edge Emissions at Antenna Terminal

§2.1051 §22.917(a) §24.238(a) §27.53(g) §27.53(h) §27.53(m)

### Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

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

**The minimum permissible attenuation level for Band 7 is as noted in the Test Notes on the following page.**

### Test Procedure Used

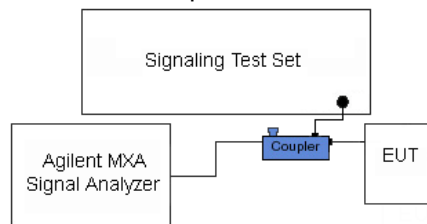
KDB 971168 v02r02 – Section 6.0

### Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW  $\geq$  1% of the emission bandwidth
4. VBW  $\geq$  3 x RBW
5. Detector = RMS
6. Number of sweep points  $\geq$  2 x Span/RBW
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize

### Test Setup



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



**Figure 6-3. Test Instrument & Measurement Setup**

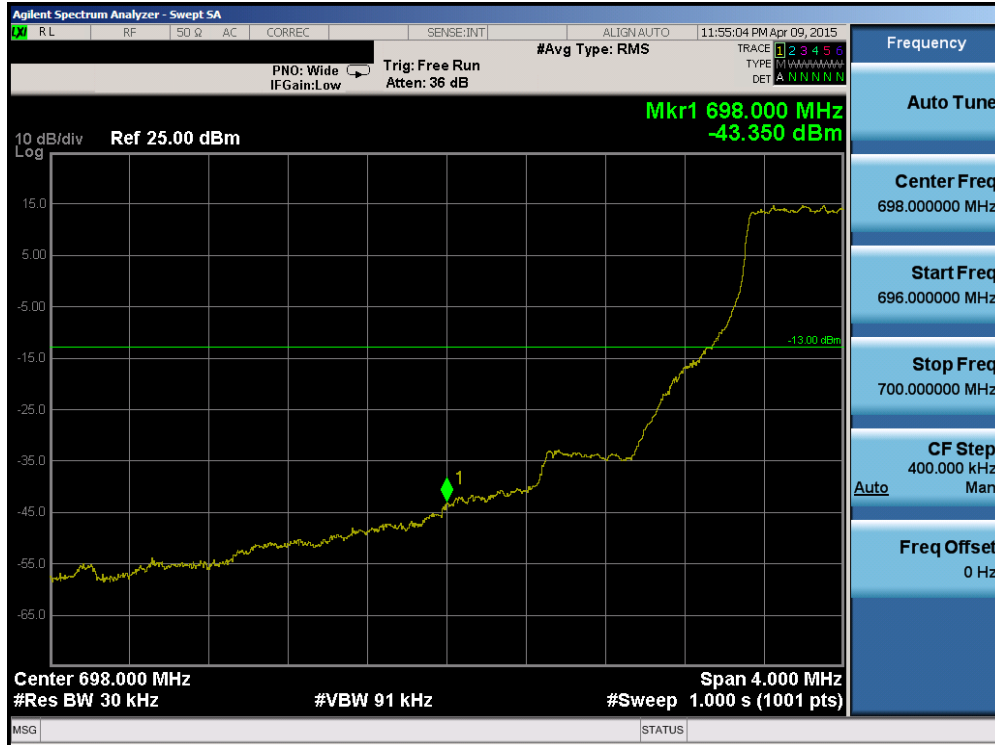
### Test Notes

Per 22.917(b) 24.238(a) 27.53(h) in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to demonstrate compliance with the out-of-band emissions limit. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 61 of 139

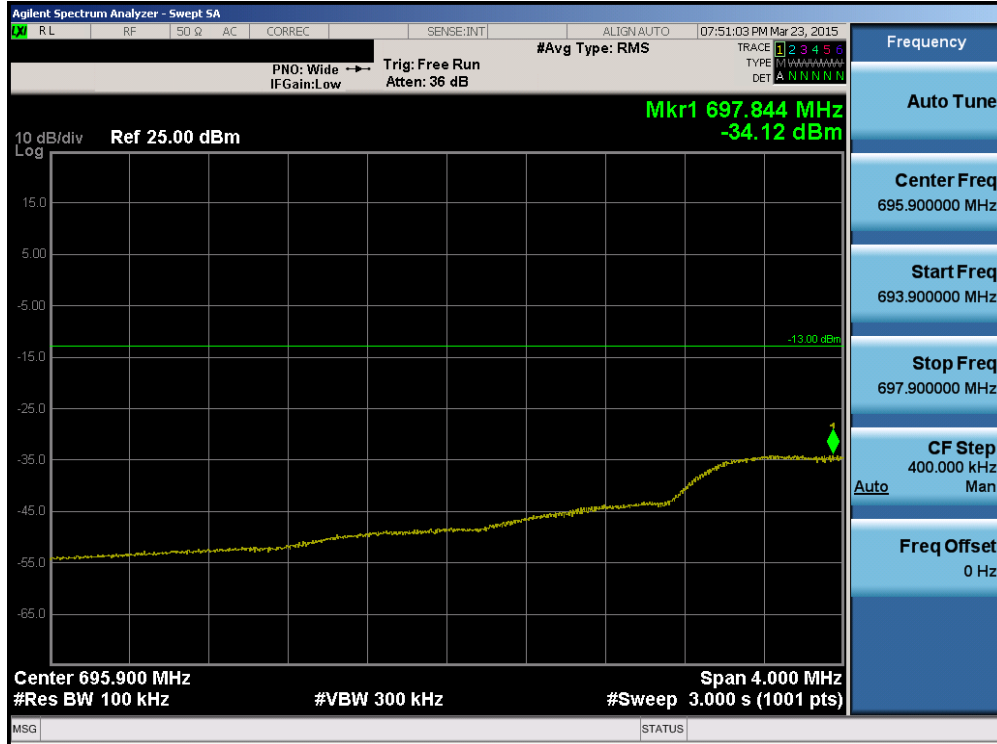
Per 27.53(g) for operations in the 698-746 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than  $40 + 10 \log(P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log(P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log(P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth. In addition, the attenuation factor shall not be less than  $43 + 10 \log(P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log(P)$  dB at or below 2490.5 MHz.

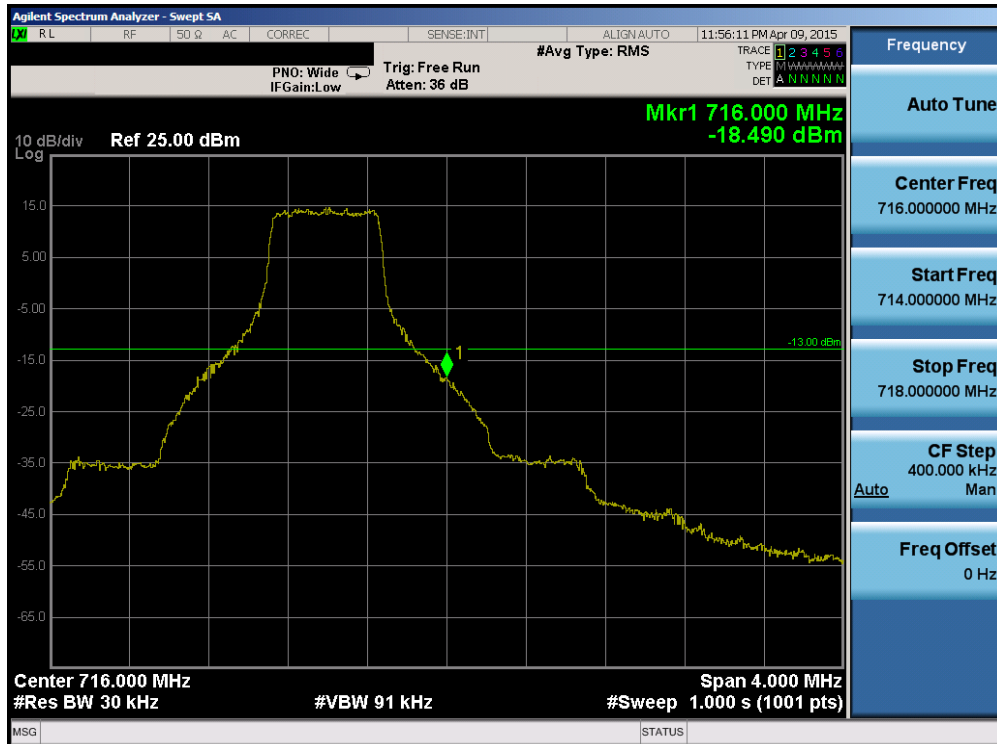


Plot 6-94. Lower Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)

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Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 62 of 139

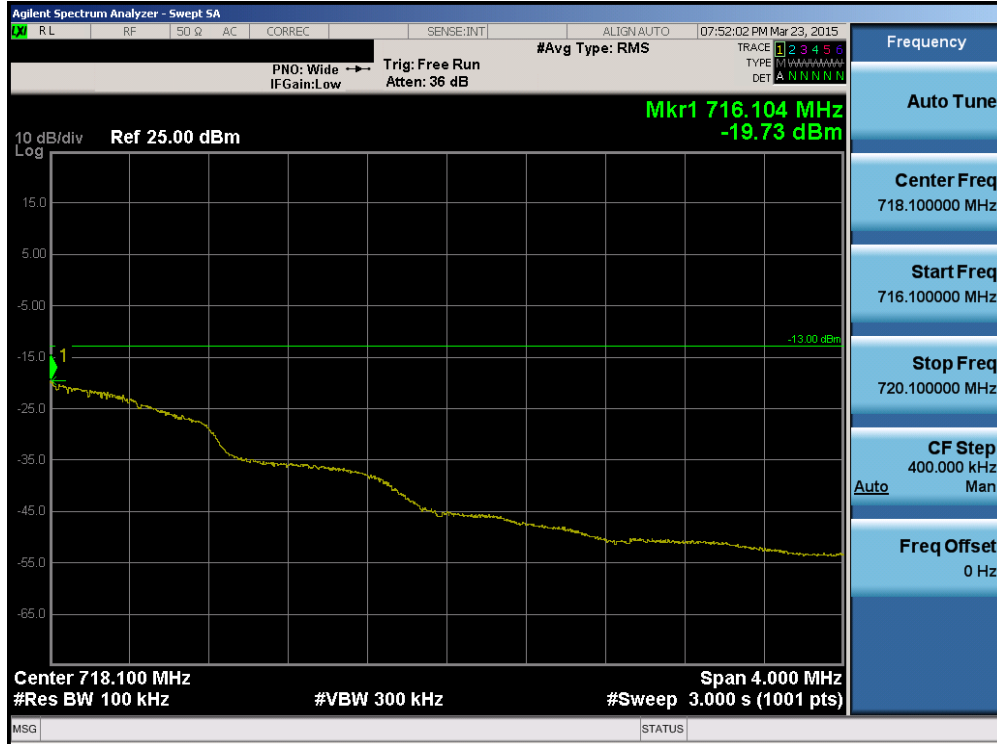


Plot 6-95. Lower Extended Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)

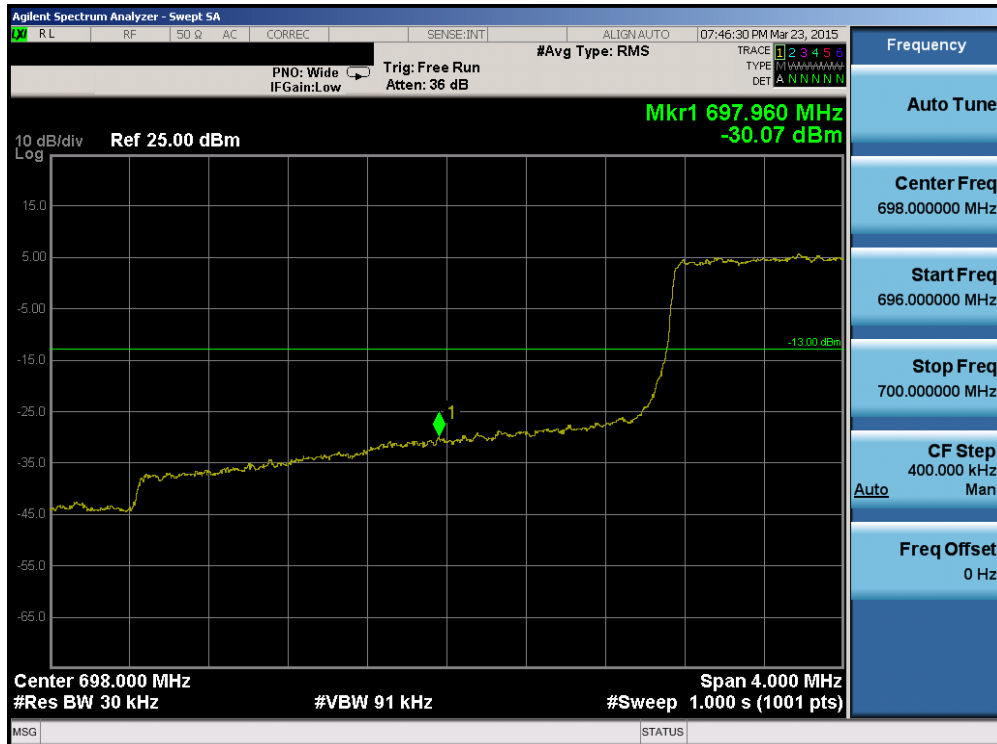


Plot 6-96. Upper Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 63 of 139

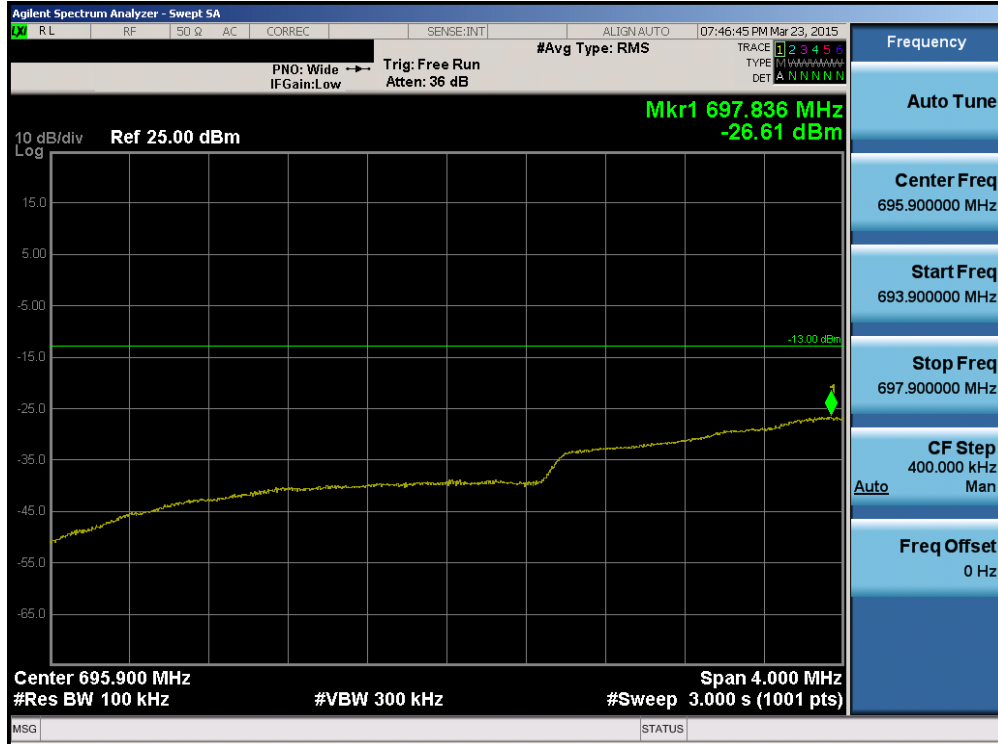


Plot 6-97. Upper Extended Band Edge Plot (Band 12 – 1.4MHz QPSK – RB Size 6)

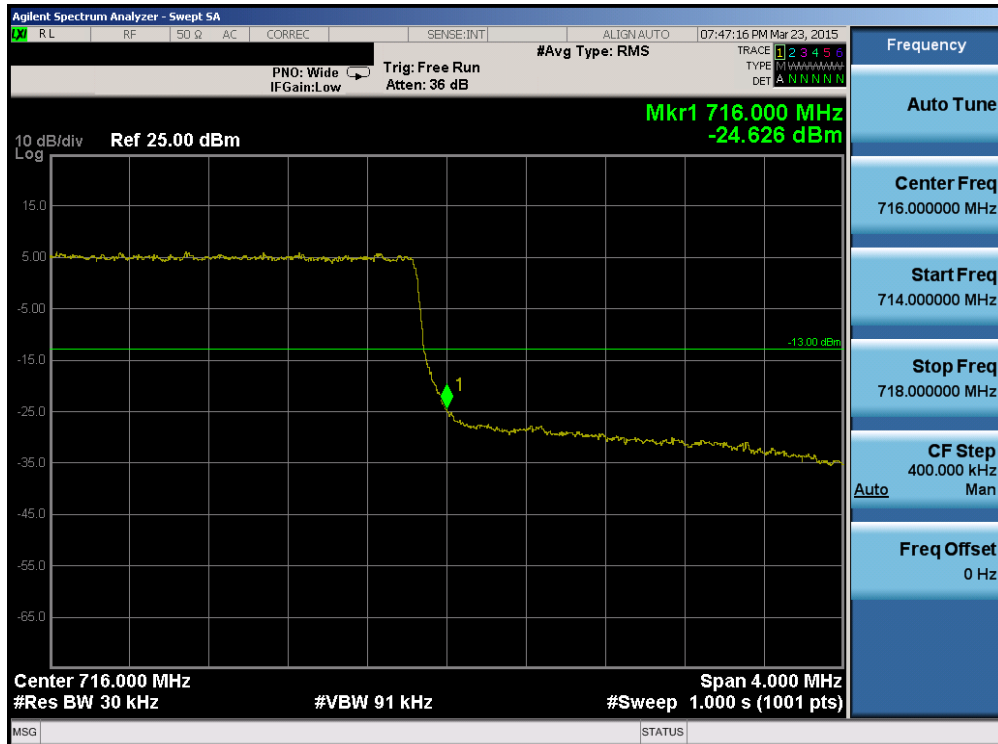


Plot 6-98. Lower Band Edge Plot (Band 12 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 64 of 139

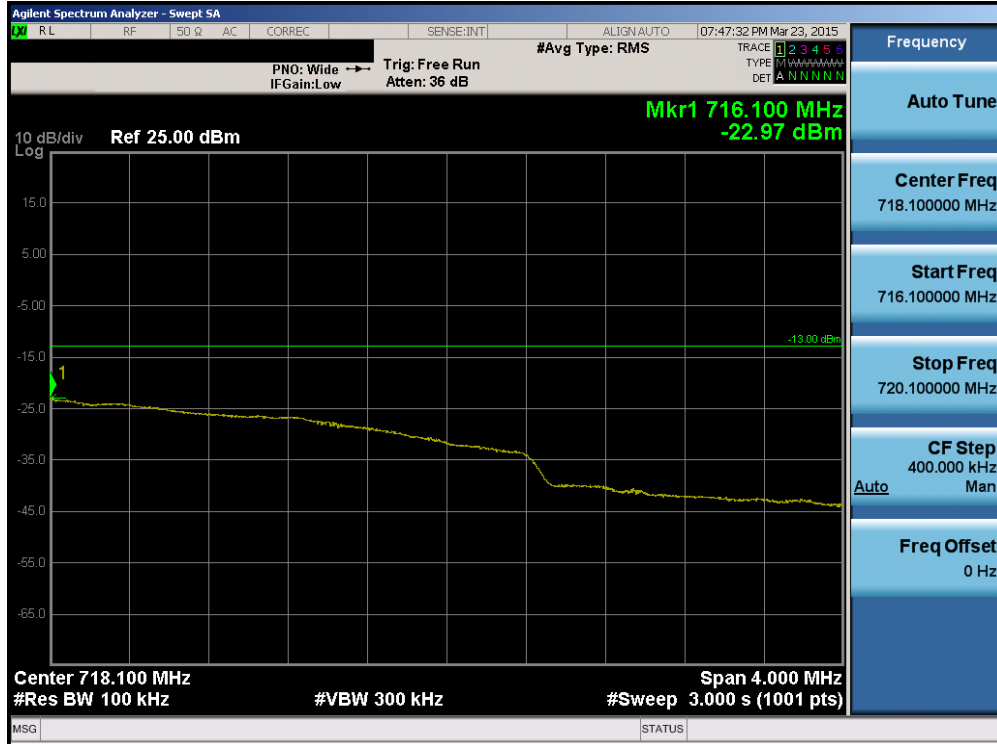


Plot 6-99. Lower Extended Band Edge Plot (Band 12 – 3.0MHz QPSK – RB Size 15)

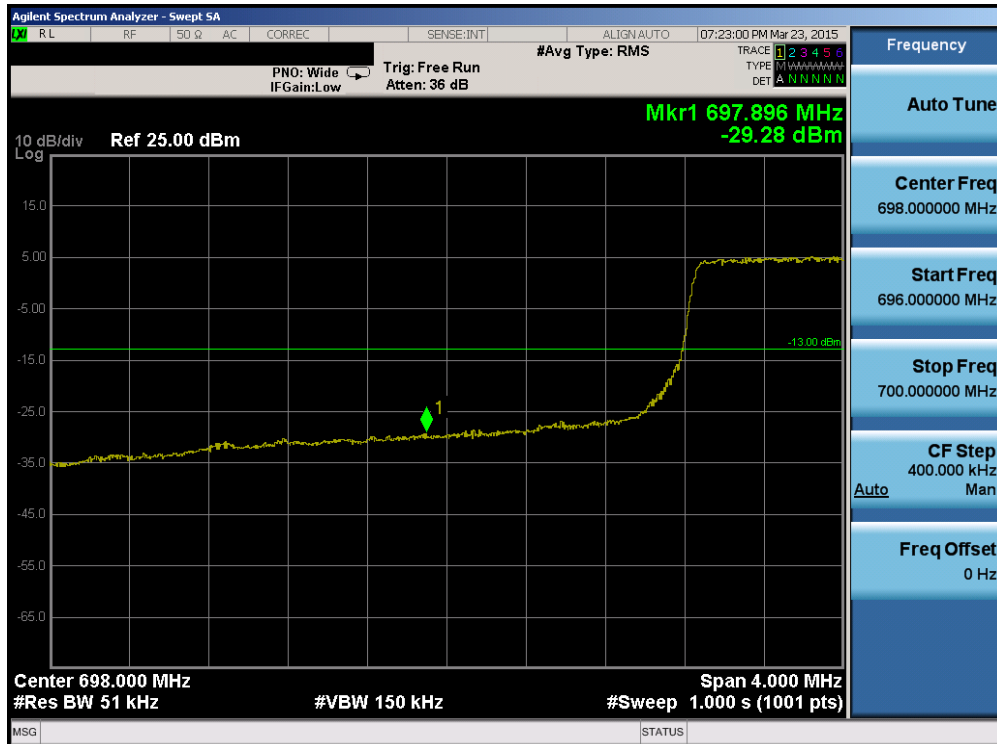


Plot 6-100. Upper Band Edge Plot (Band 12 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 65 of 139

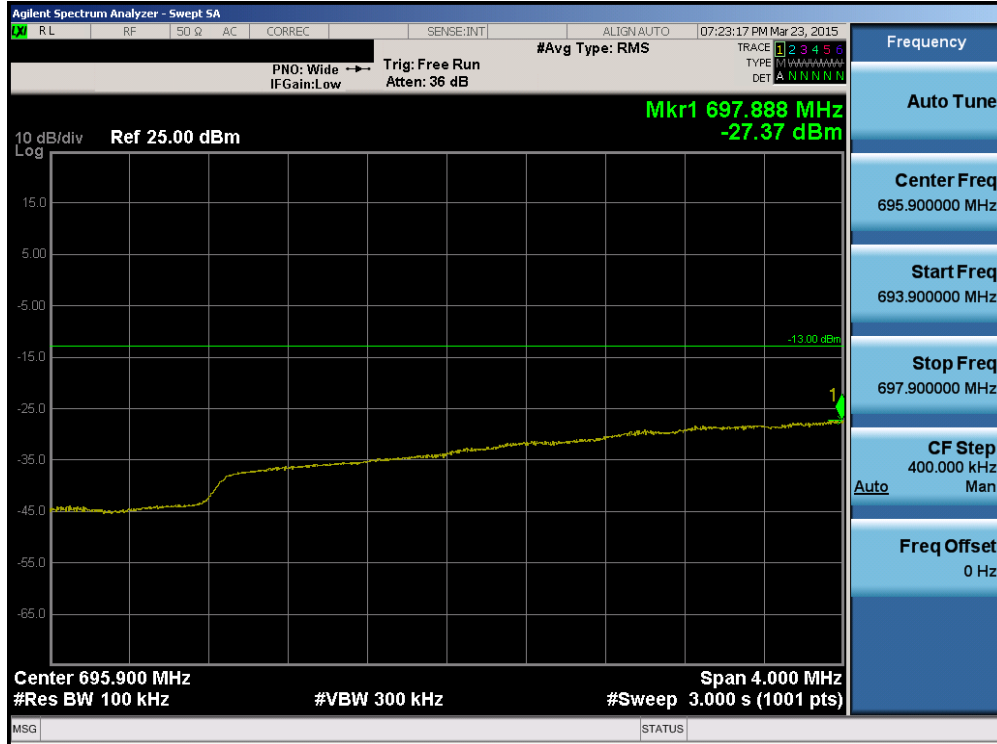


Plot 6-101. Upper Extended Band Edge Plot (Band 12 – 3.0MHz QPSK – RB Size 15)

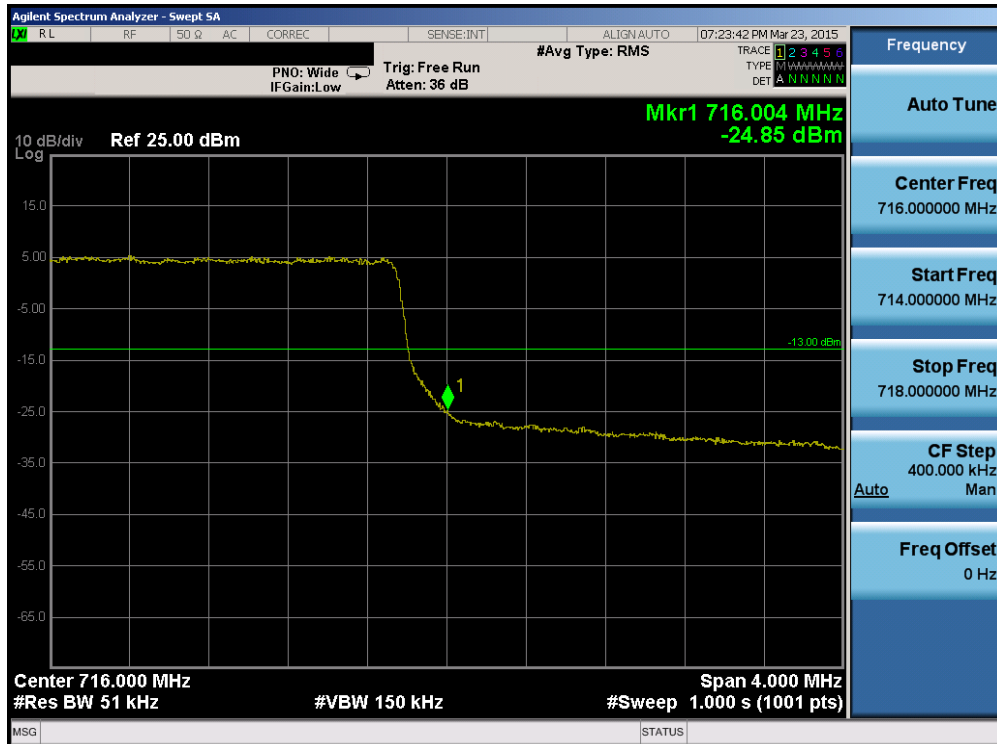


Plot 6-102. Lower Band Edge Plot (Band 12 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFV495	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 66 of 139

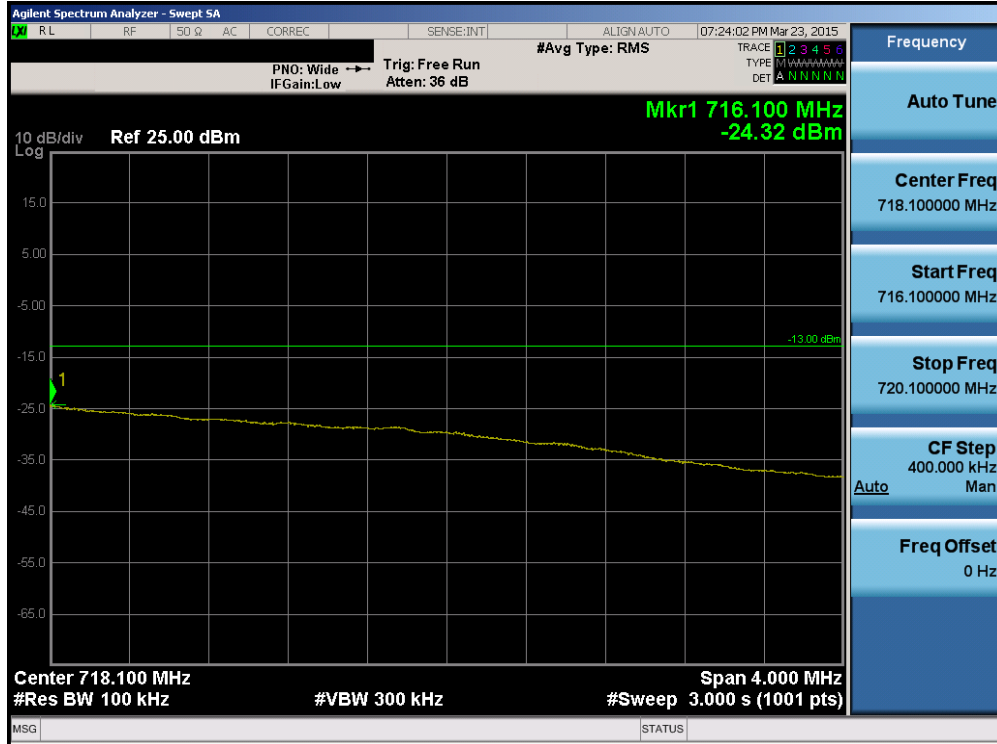


Plot 6-103. Lower Extended Band Edge Plot (Band 12 – 5.0MHz QPSK – RB Size 25)

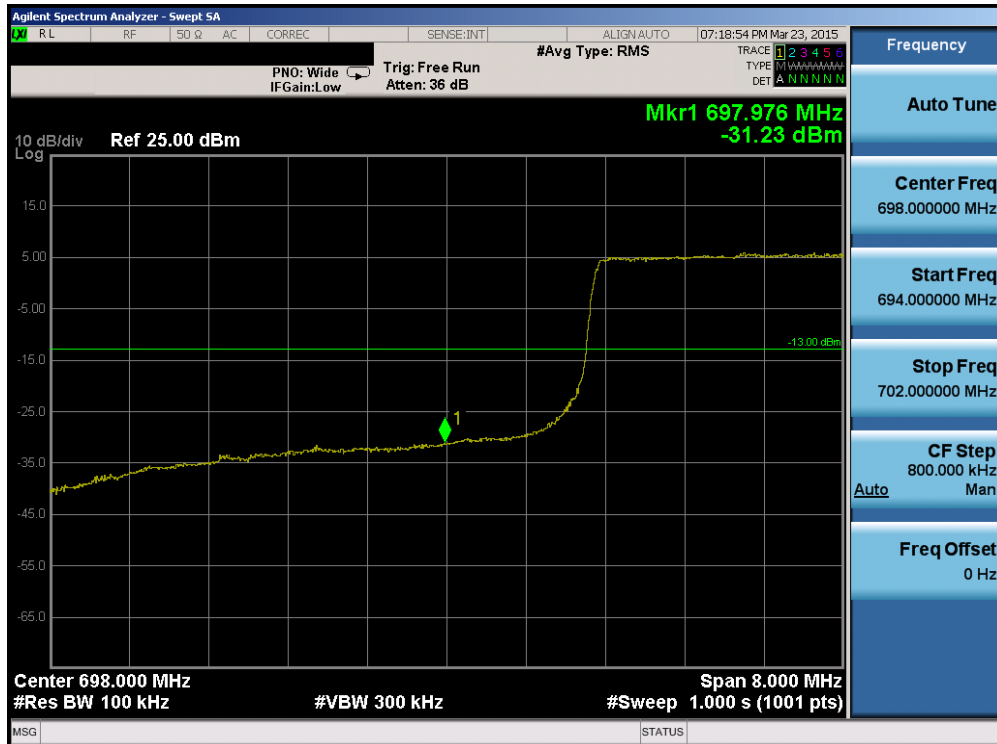


Plot 6-104. Upper Band Edge Plot (Band 12 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 67 of 139



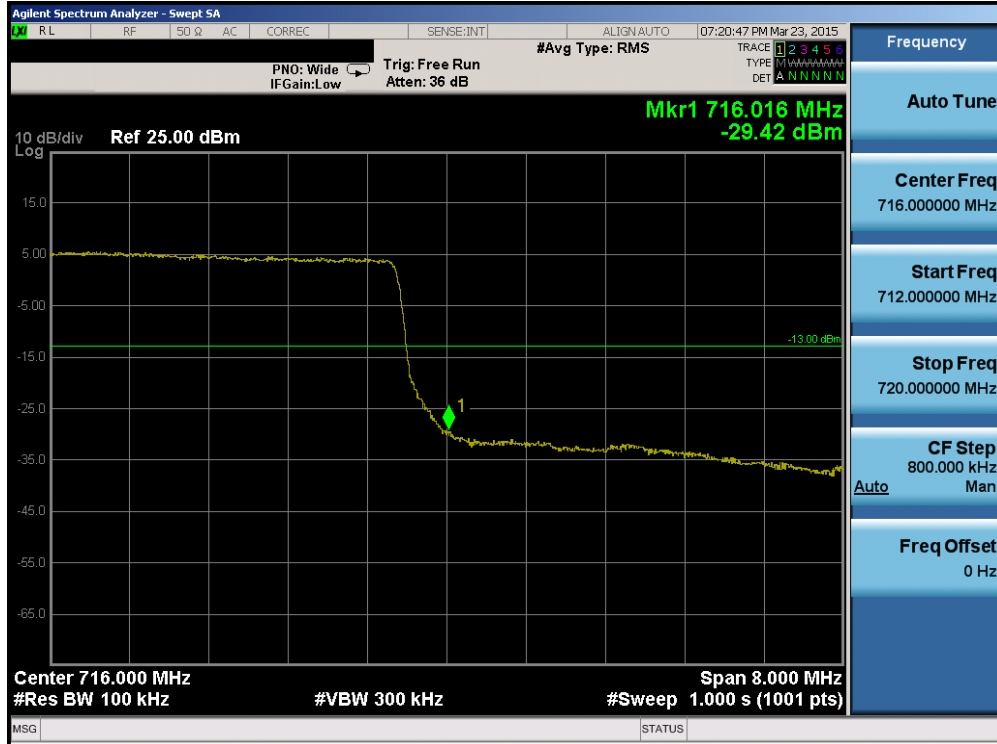
Plot 6-105. Upper Extended Band Edge Plot (Band 12 – 5.0MHz QPSK – RB Size 25)



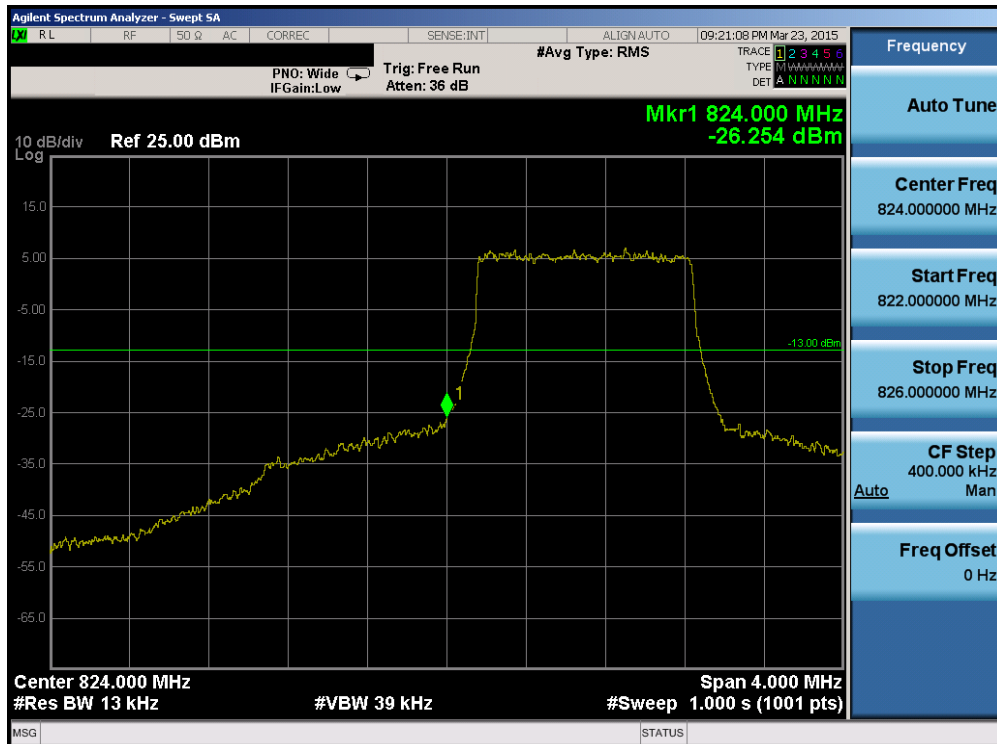
Plot 6-106. Lower Band Edge Plot (Band 12 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFV495	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 68 of 139





Plot 6-107. Upper Band Edge Plot (Band 12 – 10.0MHz QPSK – RB Size 50)

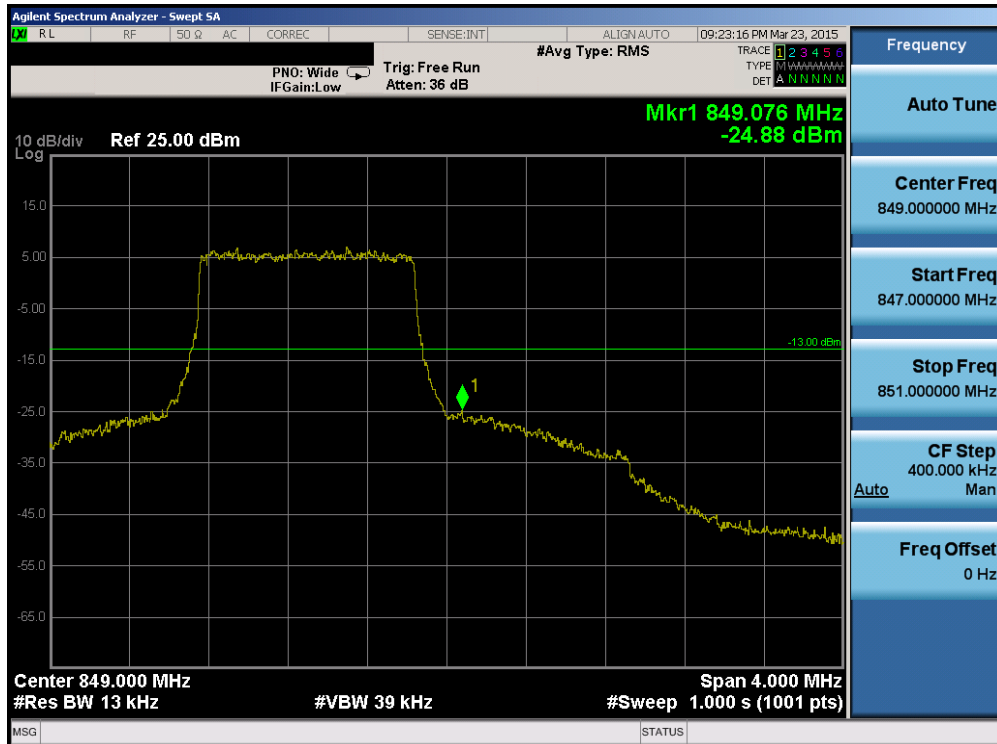


Plot 6-108. Lower Band Edge Plot (Band 5 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 69 of 139

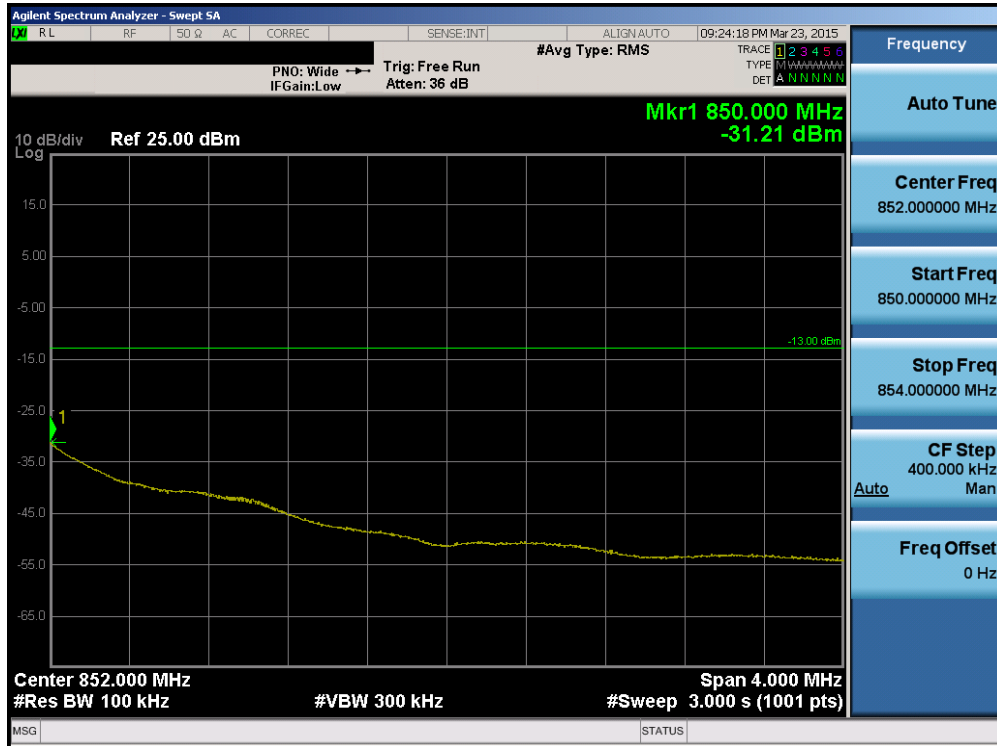


Plot 6-109. Lower Extended Band Edge Plot (Band 5 – 1.4MHz QPSK – RB Size 6)

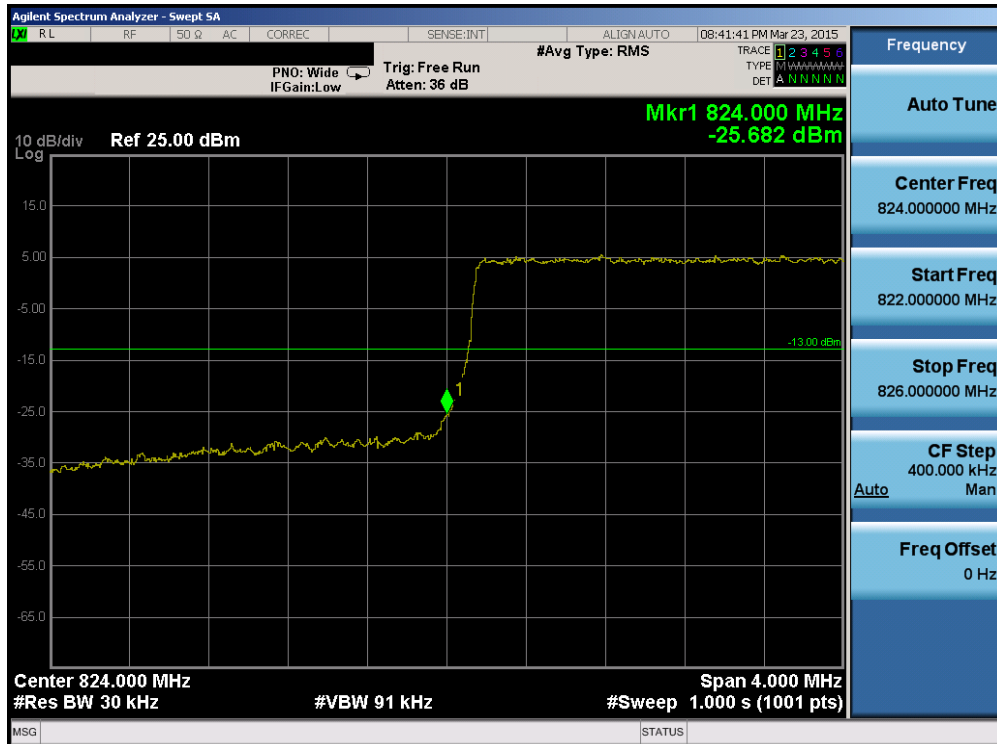


Plot 6-110. Upper Band Edge Plot (Band 5 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 70 of 139

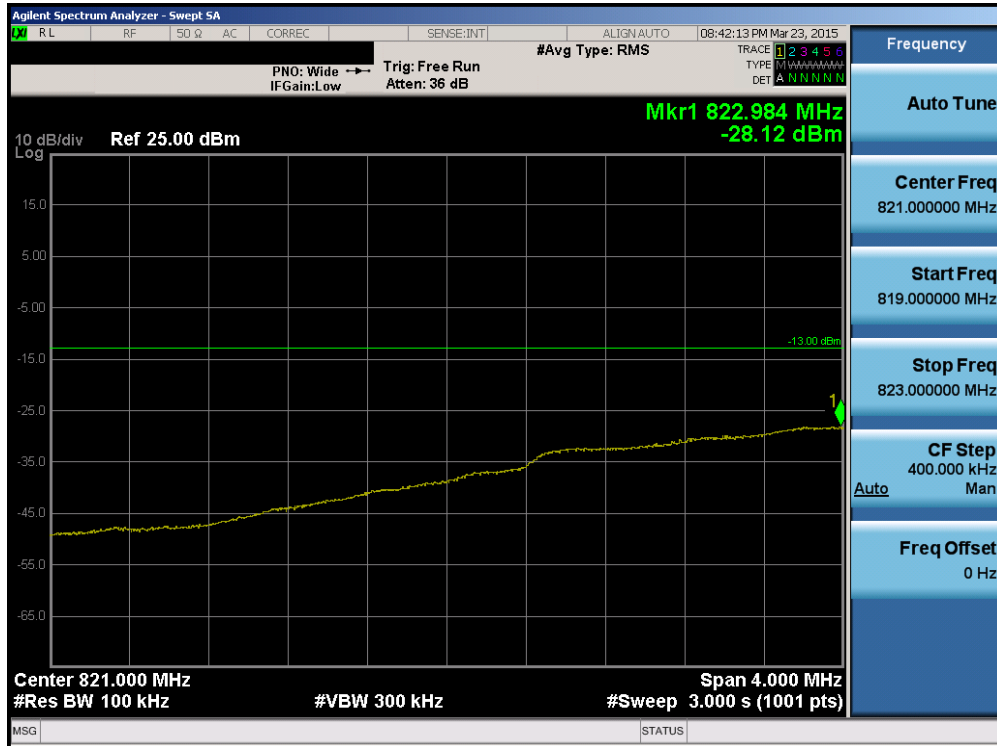


Plot 6-111. Upper Extended Band Edge Plot (Band 5 – 1.4MHz QPSK – RB Size 6)

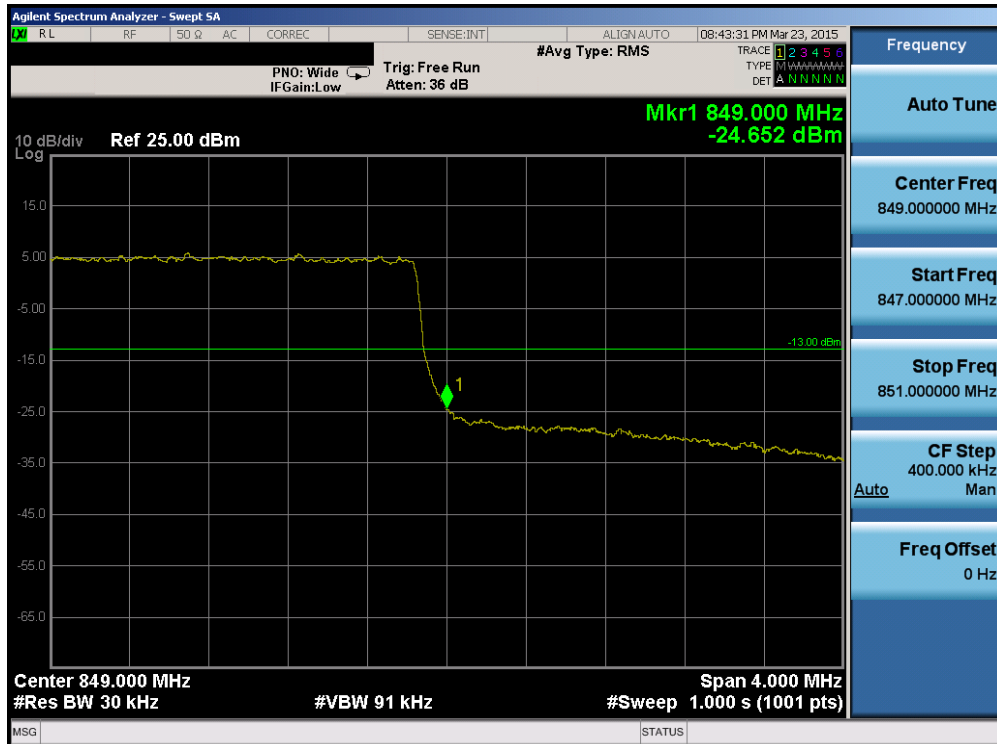


Plot 6-112. Lower Band Edge Plot (Band 5 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 71 of 139

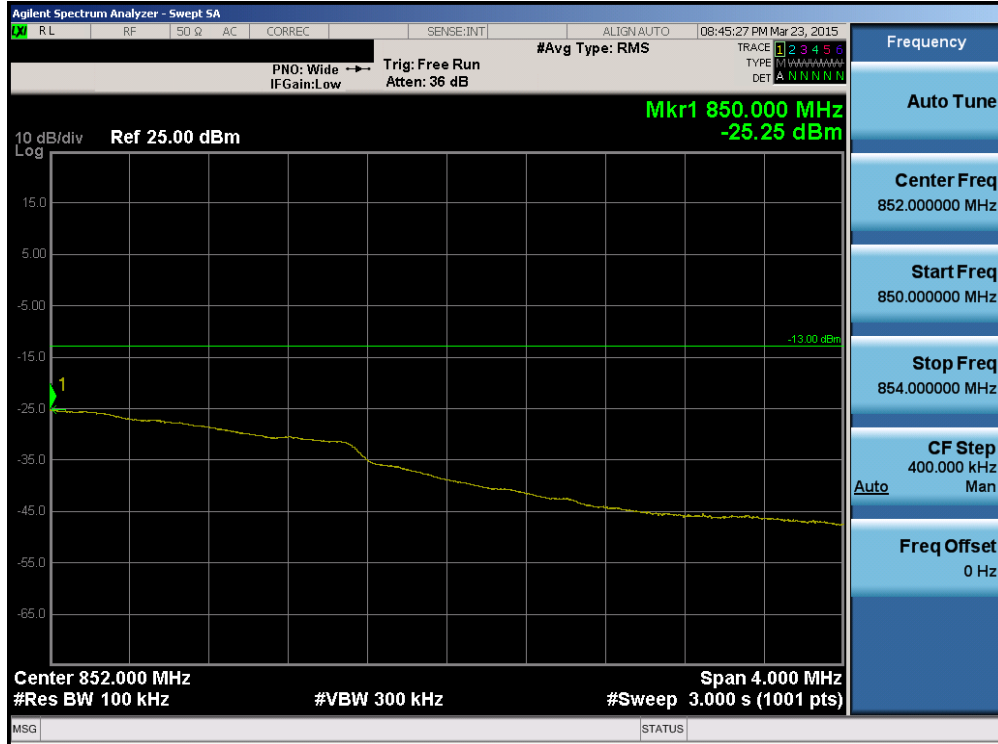


Plot 6-113. Lower Extended Band Edge Plot (Band 5 – 3.0MHz QPSK – RB Size 15)

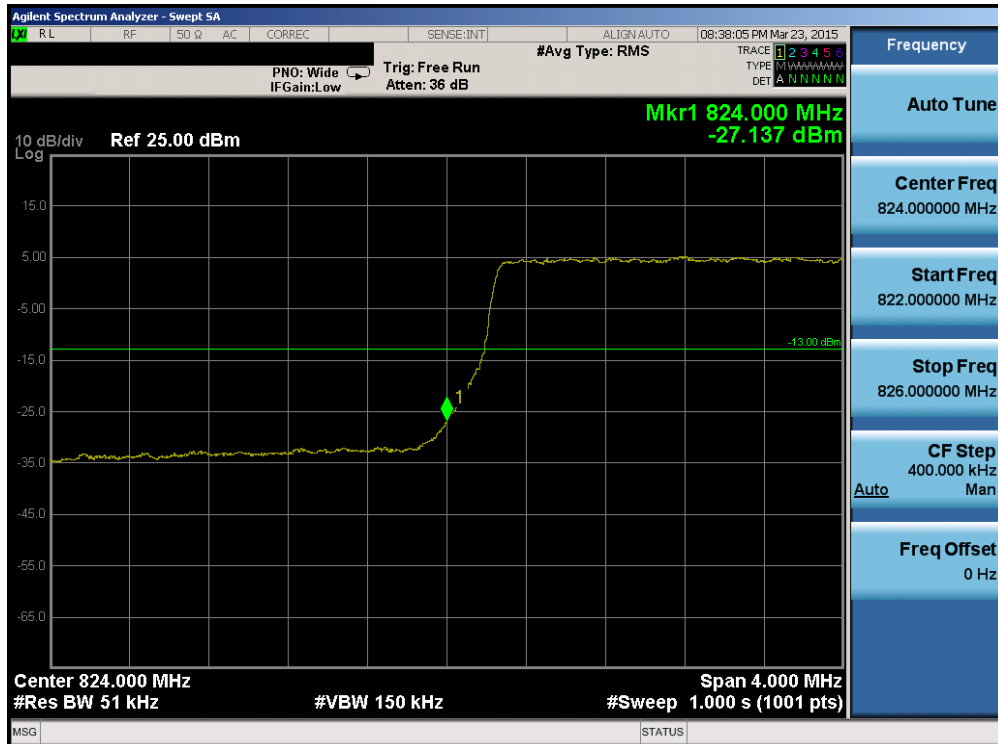


Plot 6-114. Upper Band Edge Plot (Band 5 – 3.0MHz QPSK – RB Size 15)



FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 72 of 139

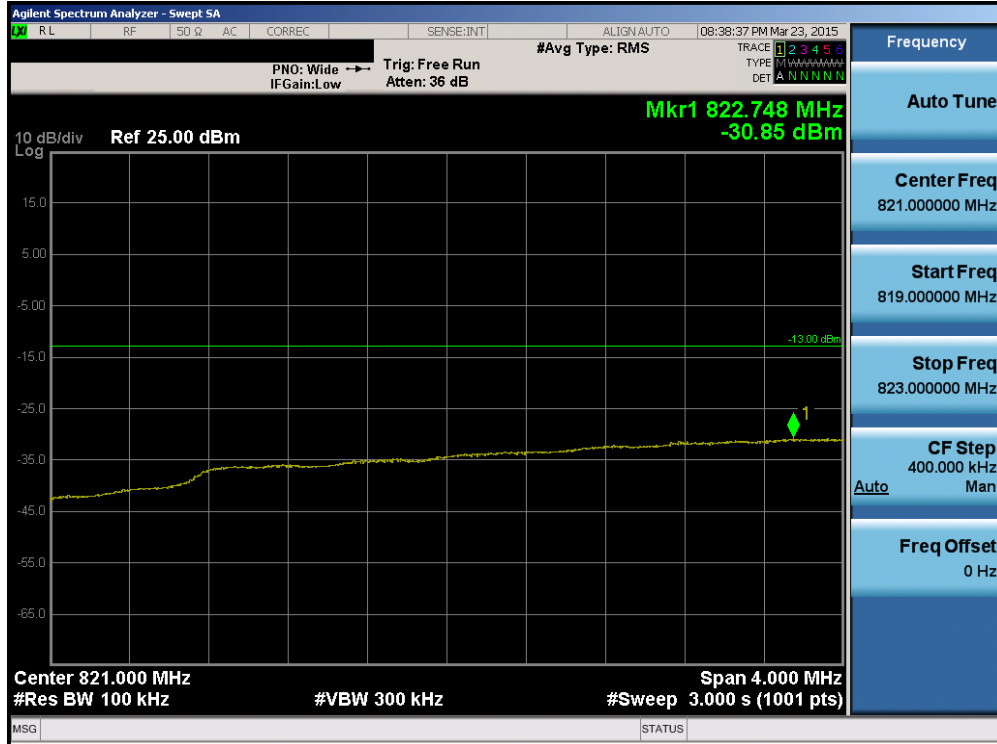


Plot 6-115. Upper Extended Band Edge Plot (Band 5 – Band 5 – 3.0MHz QPSK – RB Size 15)

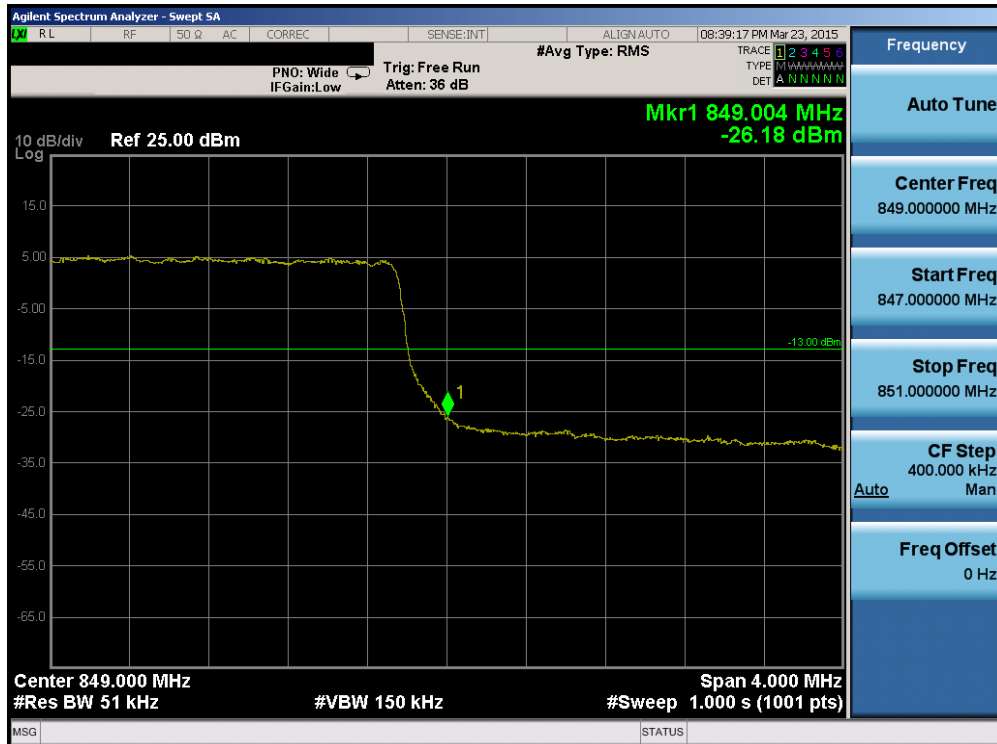


Plot 6-116. Lower Band Edge Plot (Band 5 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 73 of 139



Plot 6-117. Lower Extended Band Edge Plot (Band 5 – 5.0MHz QPSK – RB Size 25)

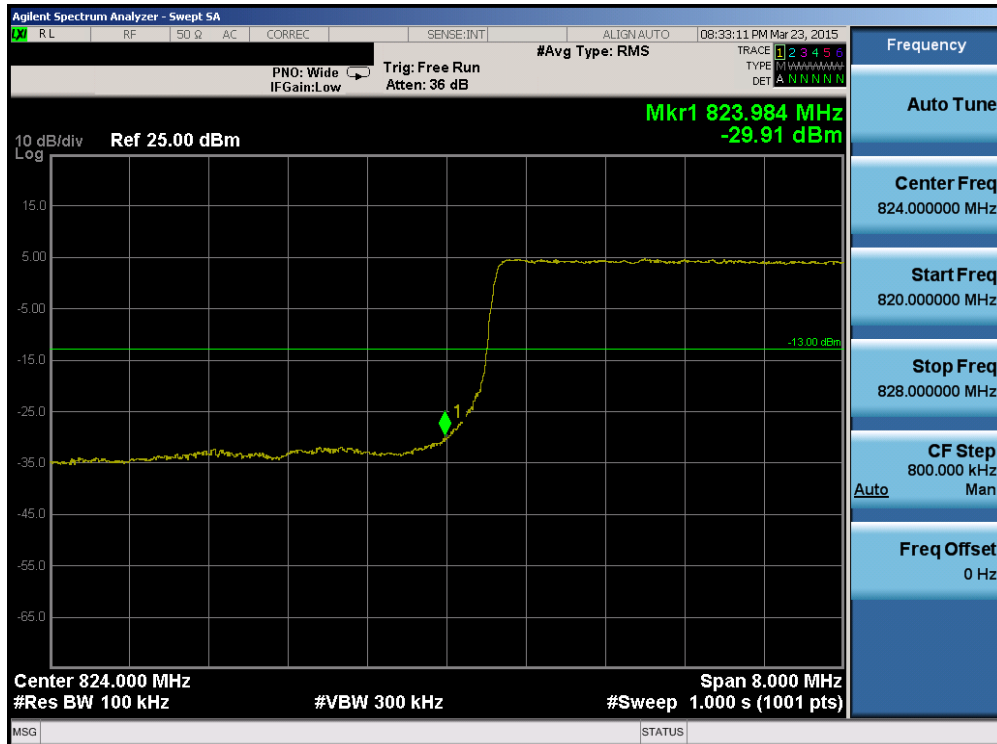


Plot 6-118. Upper Band Edge Plot (Band 5 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 74 of 139

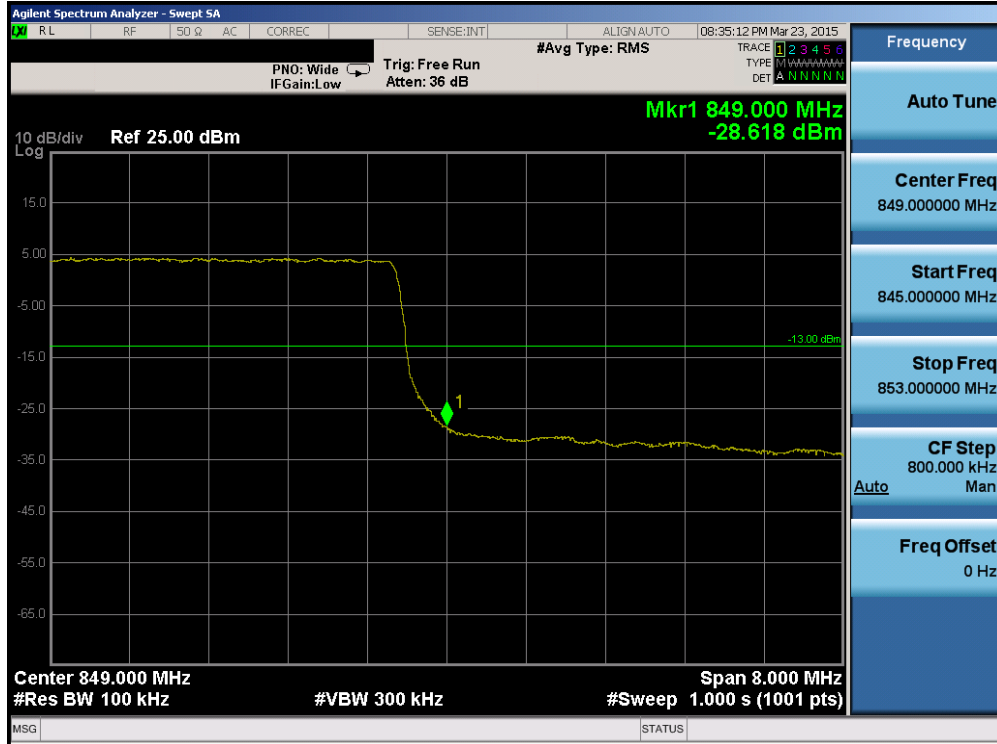


Plot 6-119. Upper Extended Band Edge Plot (Band 5 – 5.0MHz QPSK – RB Size 25)

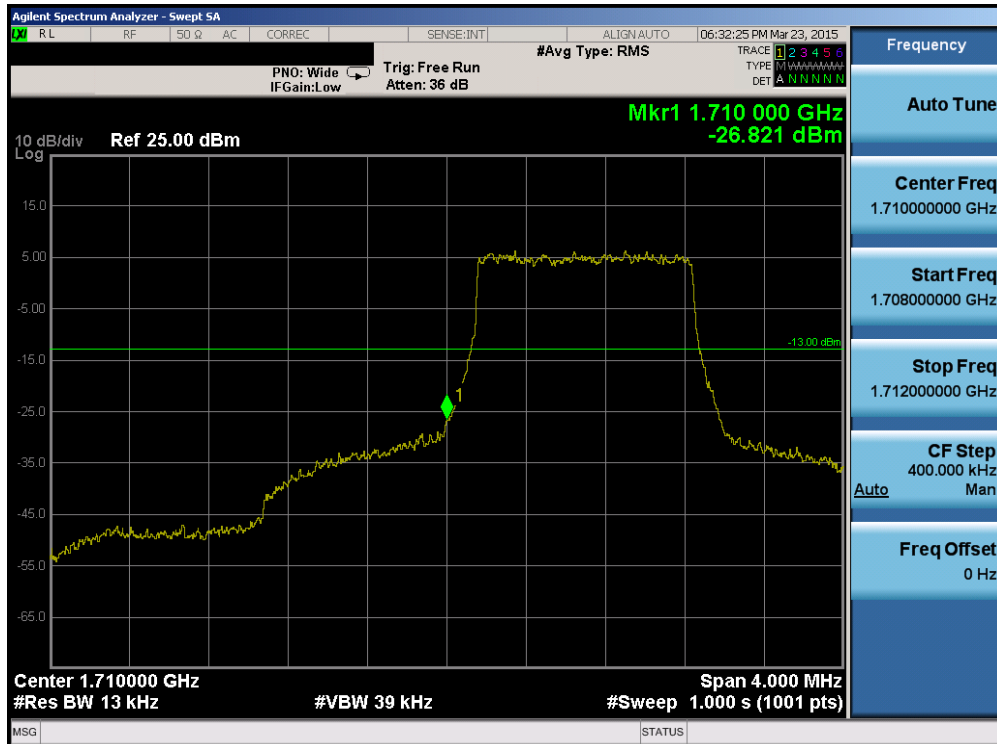


Plot 6-120. Lower Band Edge Plot (Band 5 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFV495	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 75 of 139



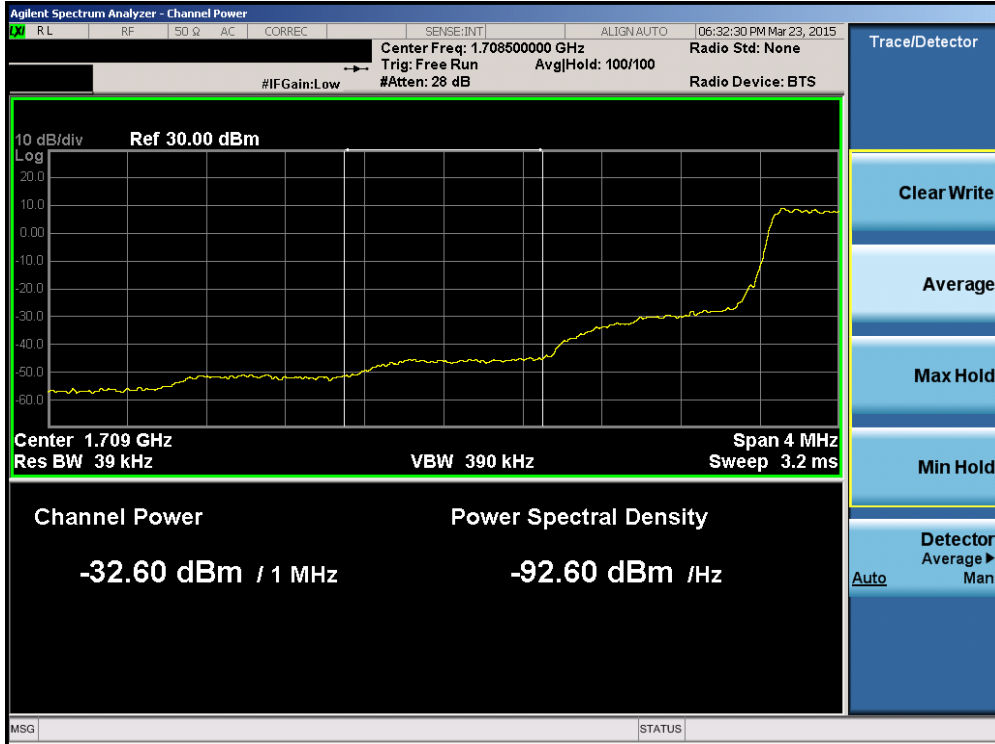
Plot 6-121. Upper Band Edge Plot (Band 5 – 10.0MHz QPSK – RB Size 50)



Plot 6-122. Lower Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFV495	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 76 of 139



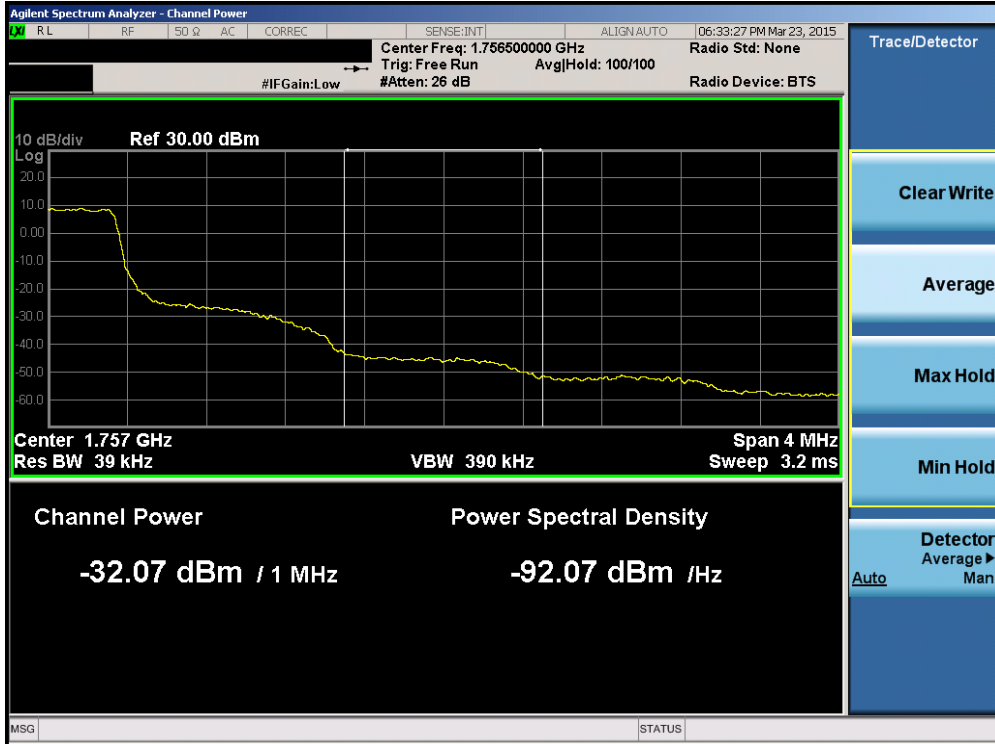


Plot 6-123. Lower Extended Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)

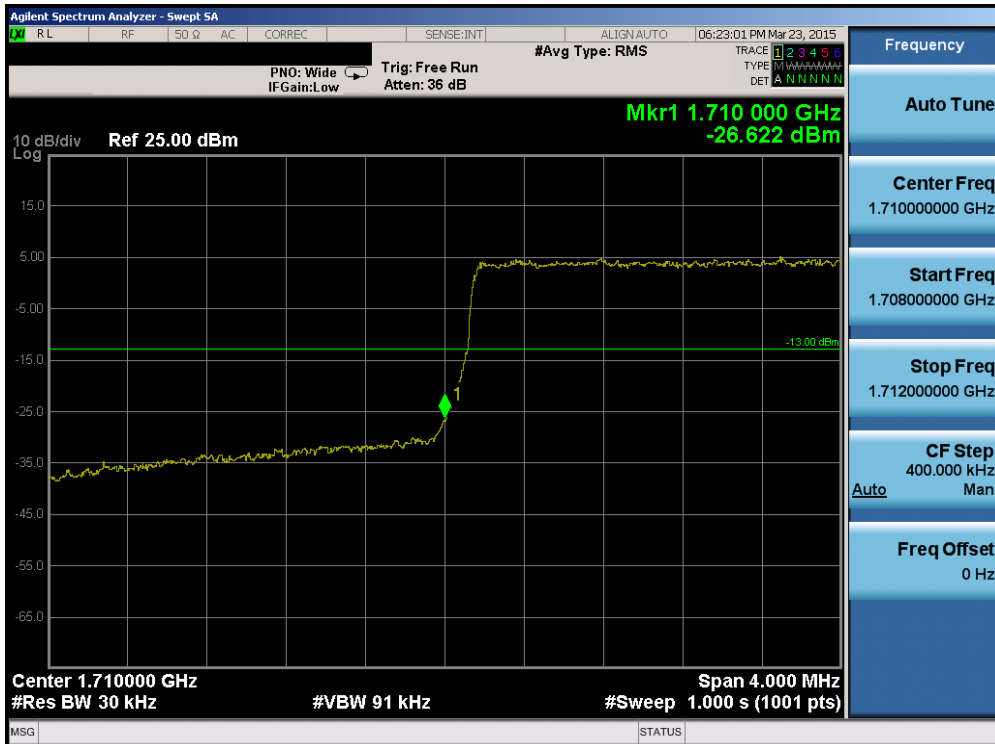


Plot 6-124. Upper Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 77 of 139

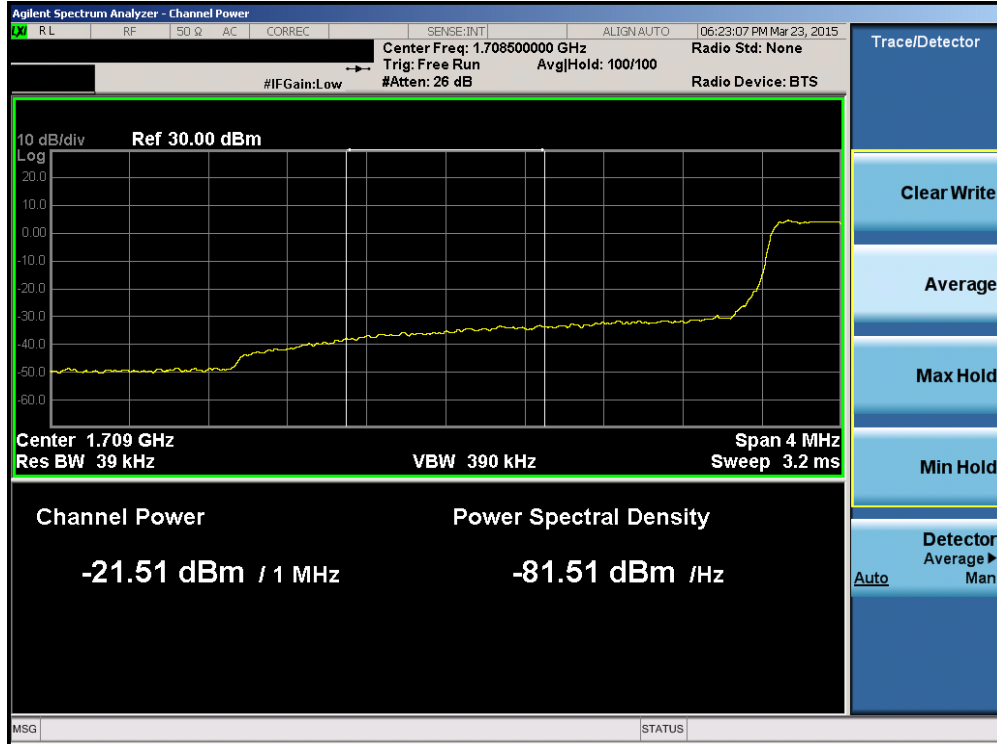


Plot 6-125. Upper Extended Band Edge Plot (Band 4 – 1.4MHz QPSK – RB Size 6)

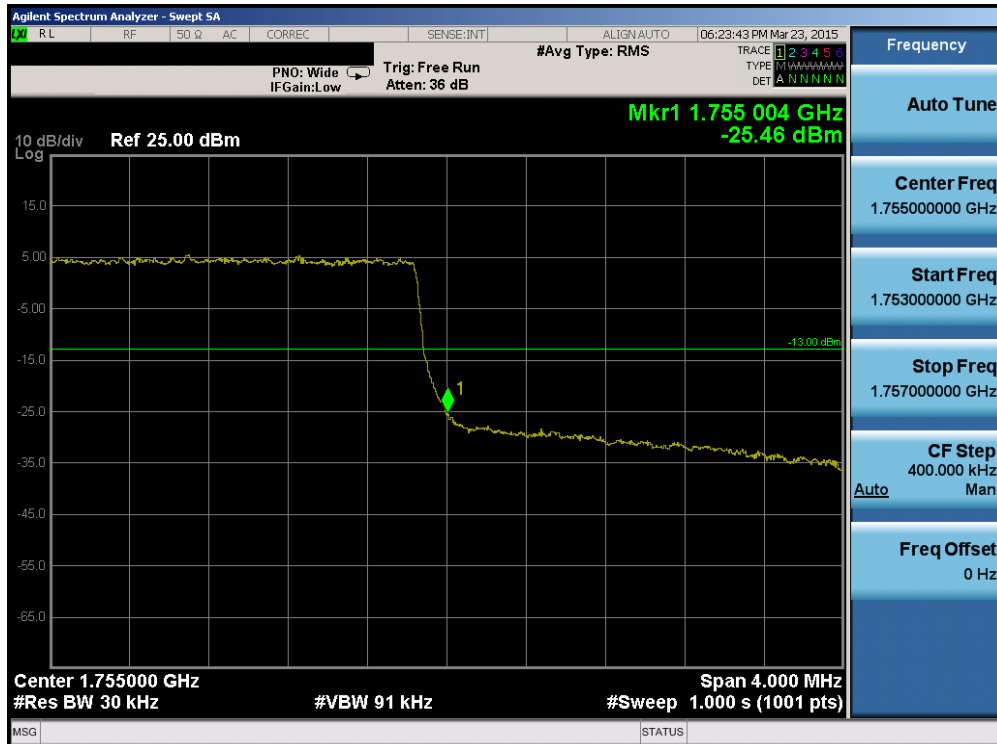


Plot 6-126. Lower Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 78 of 139

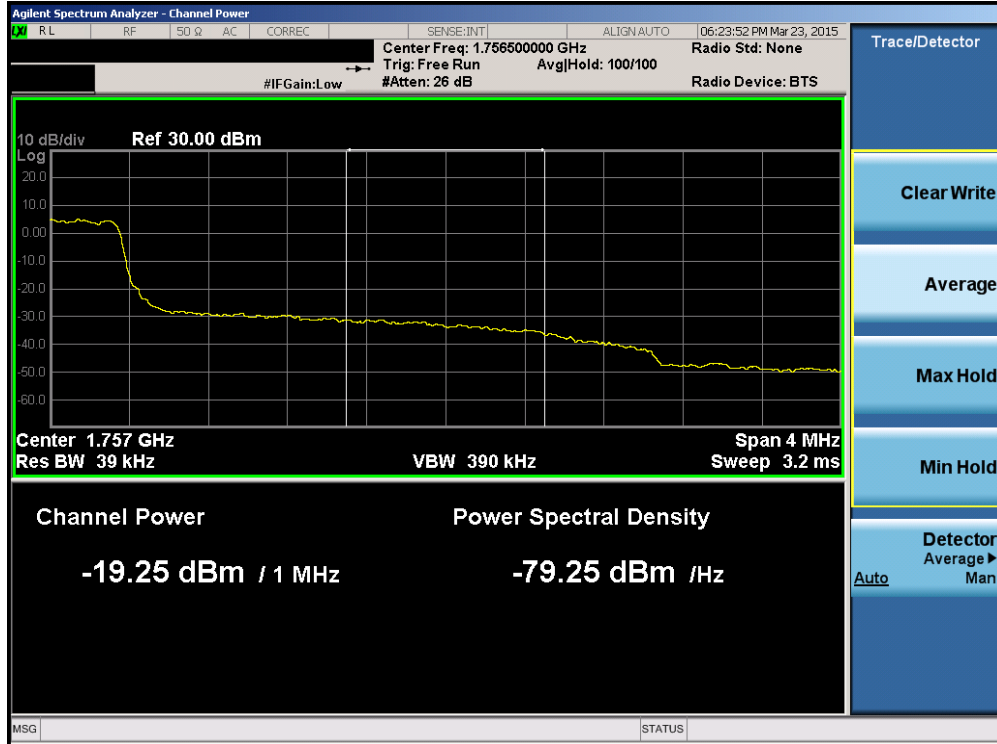


Plot 6-127. Lower Extended Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)

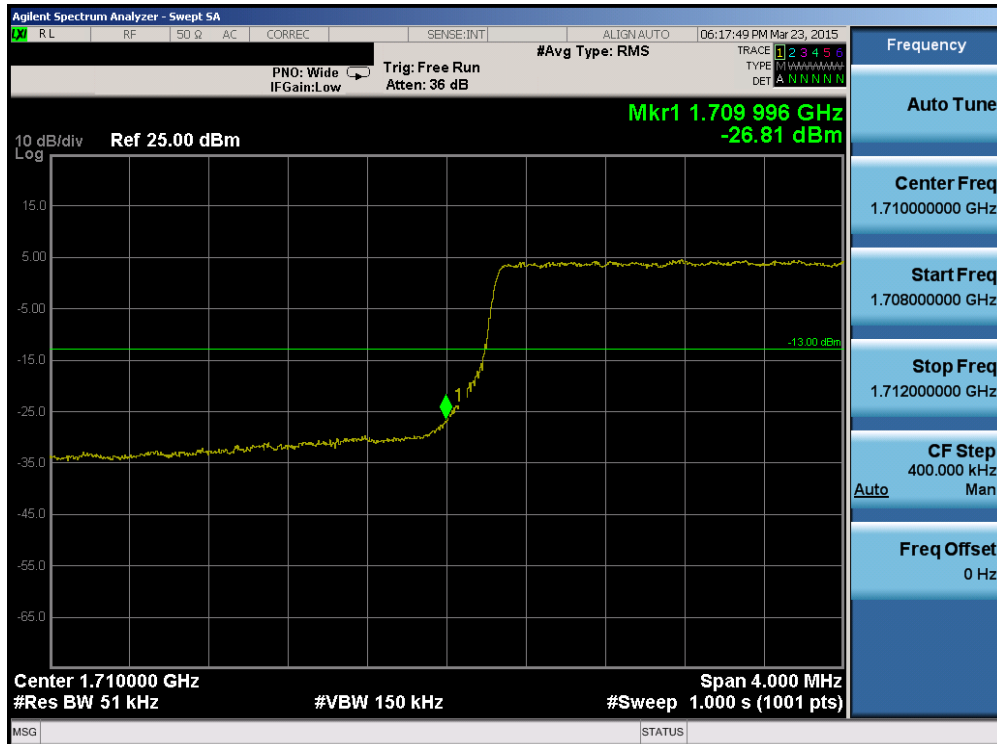


Plot 6-128. Upper Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 79 of 139

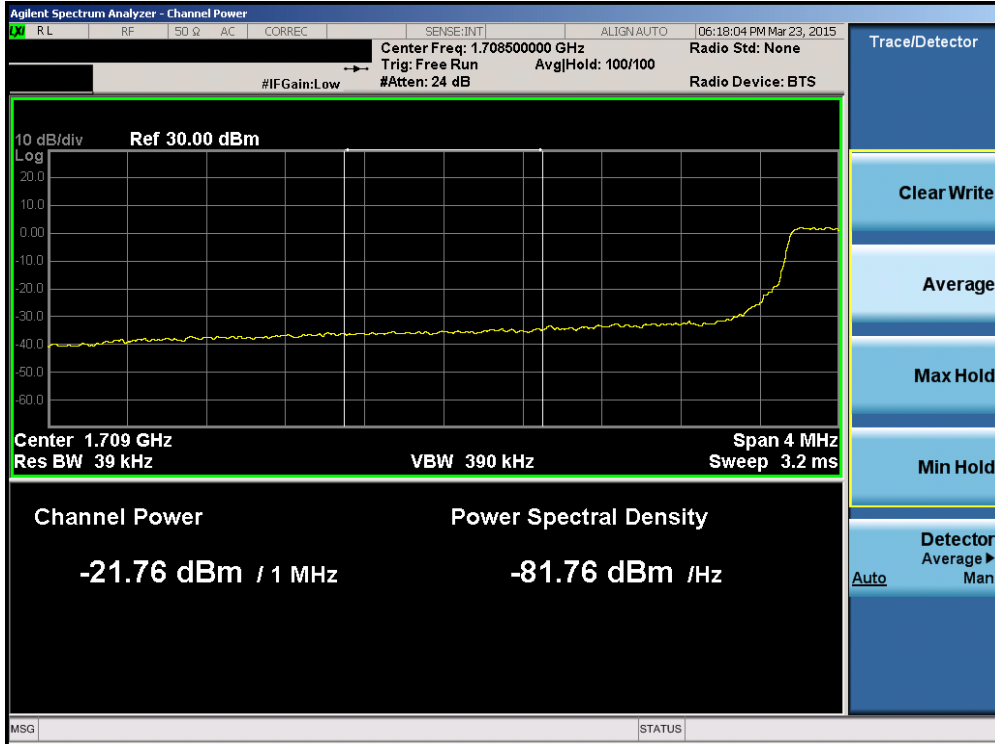


Plot 6-129. Upper Extended Band Edge Plot (Band 4 – 3.0MHz QPSK – RB Size 15)

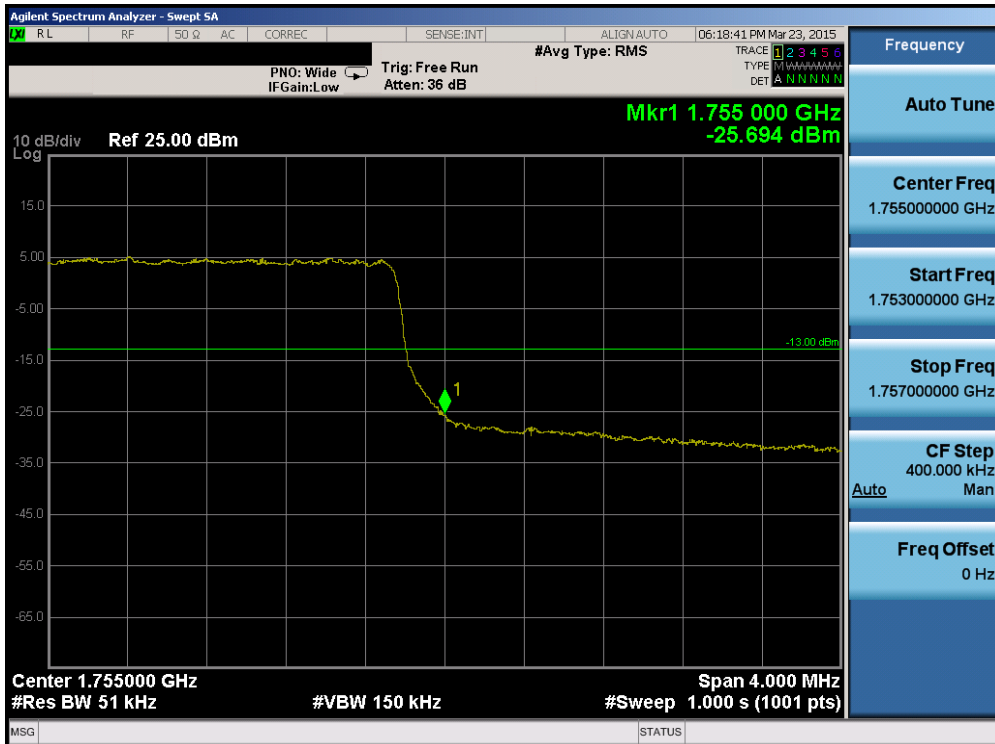


Plot 6-130. Lower Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 80 of 139

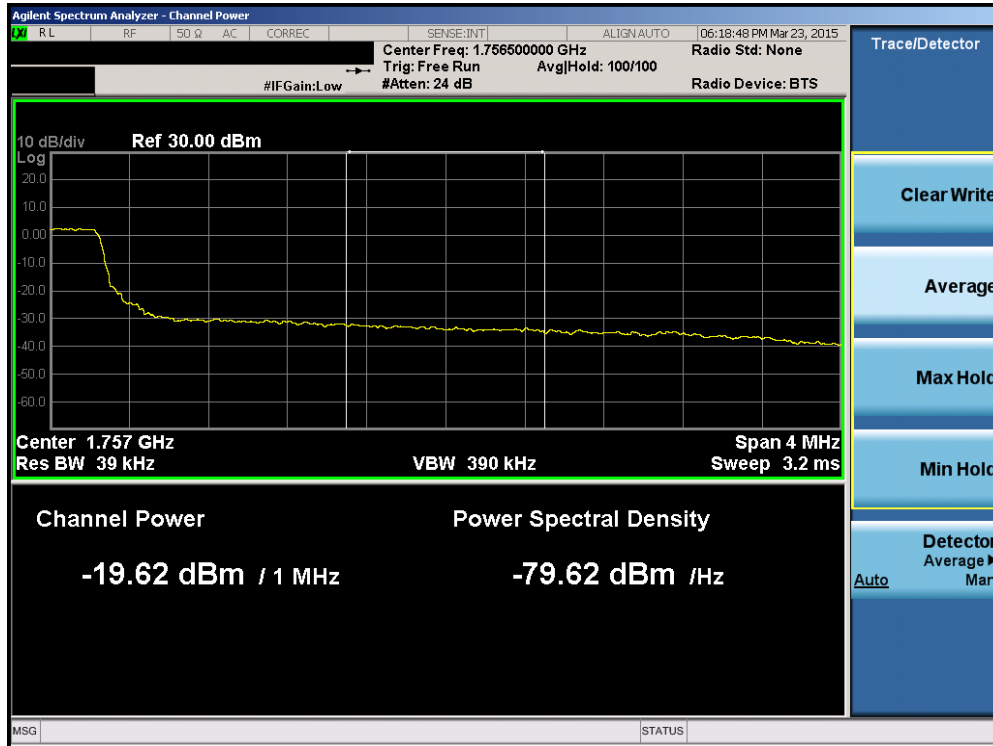


Plot 6-131. Lower Extended Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)

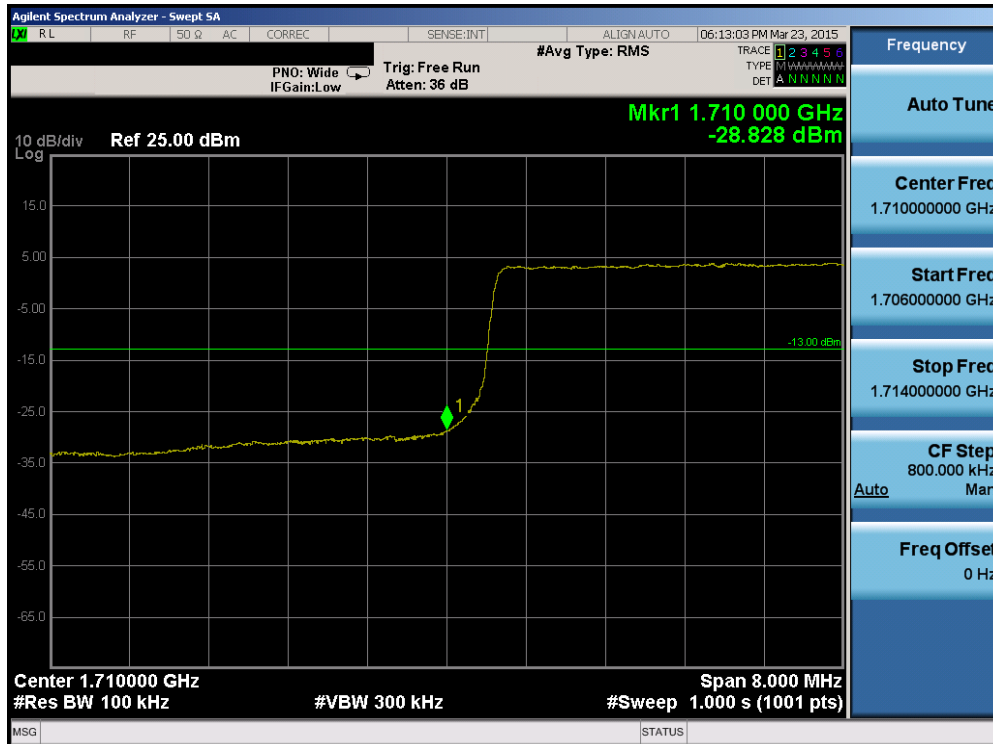


Plot 6-132. Upper Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 81 of 139

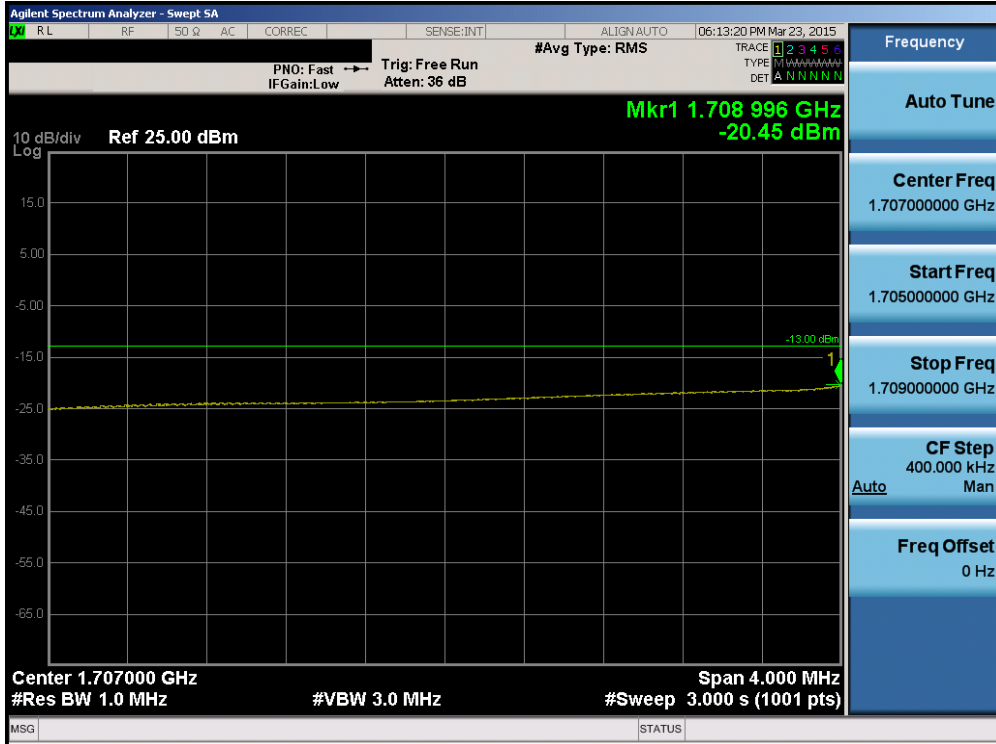


Plot 6-133. Upper Extended Band Edge Plot (Band 4 – 5.0MHz QPSK – RB Size 25)

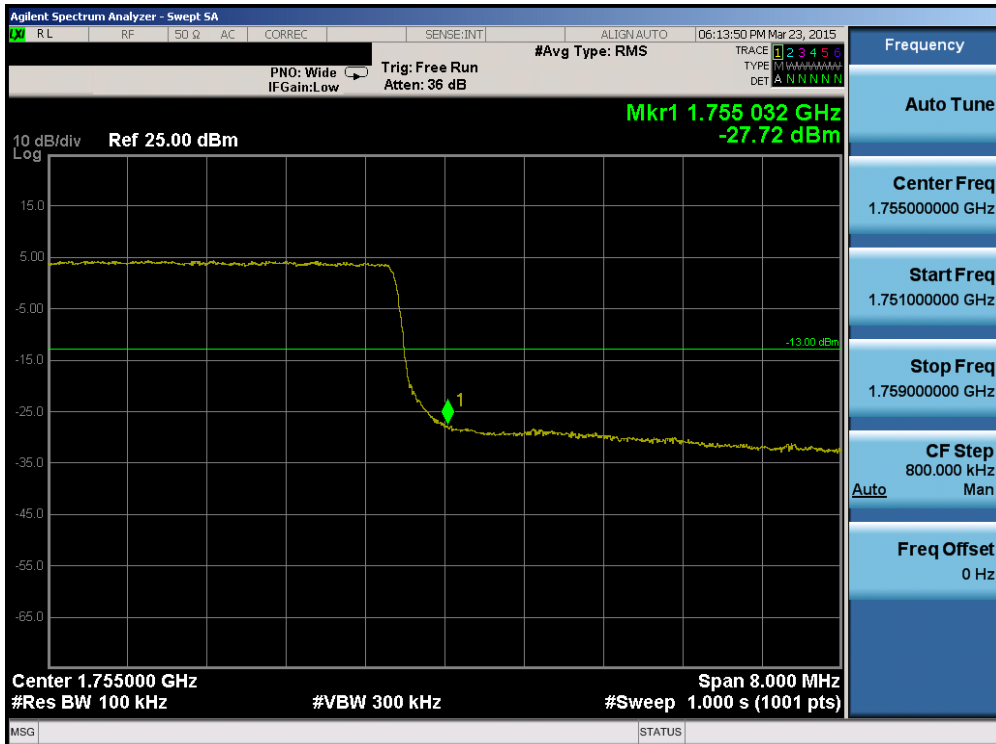


Plot 6-134. Lower Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 82 of 139

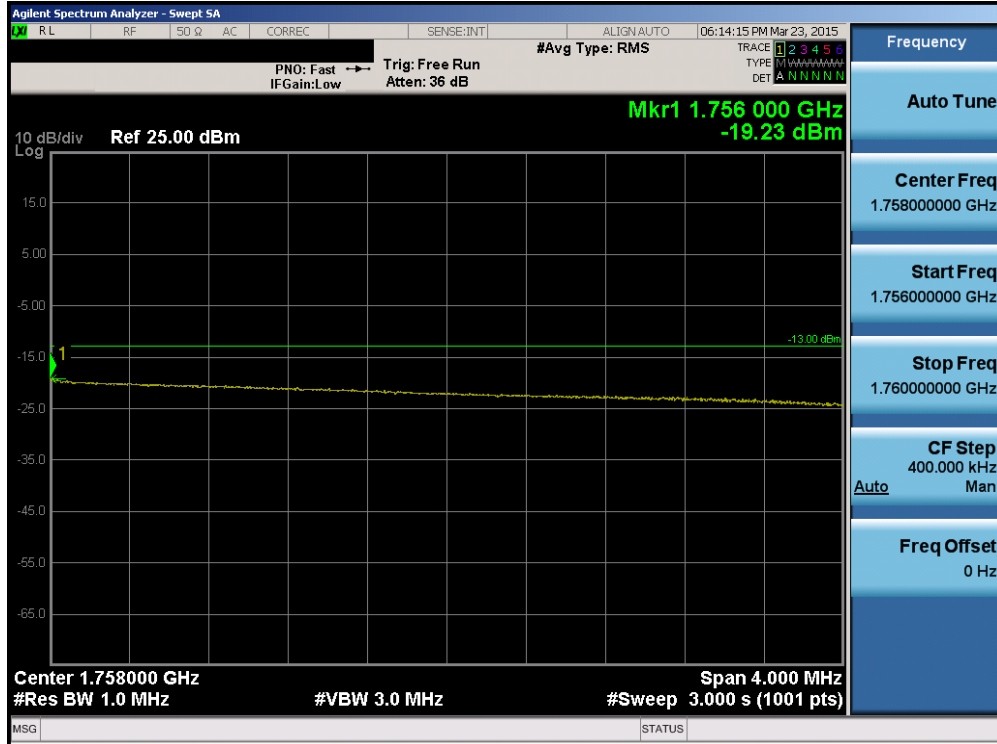


Plot 6-135. Lower Extended Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)

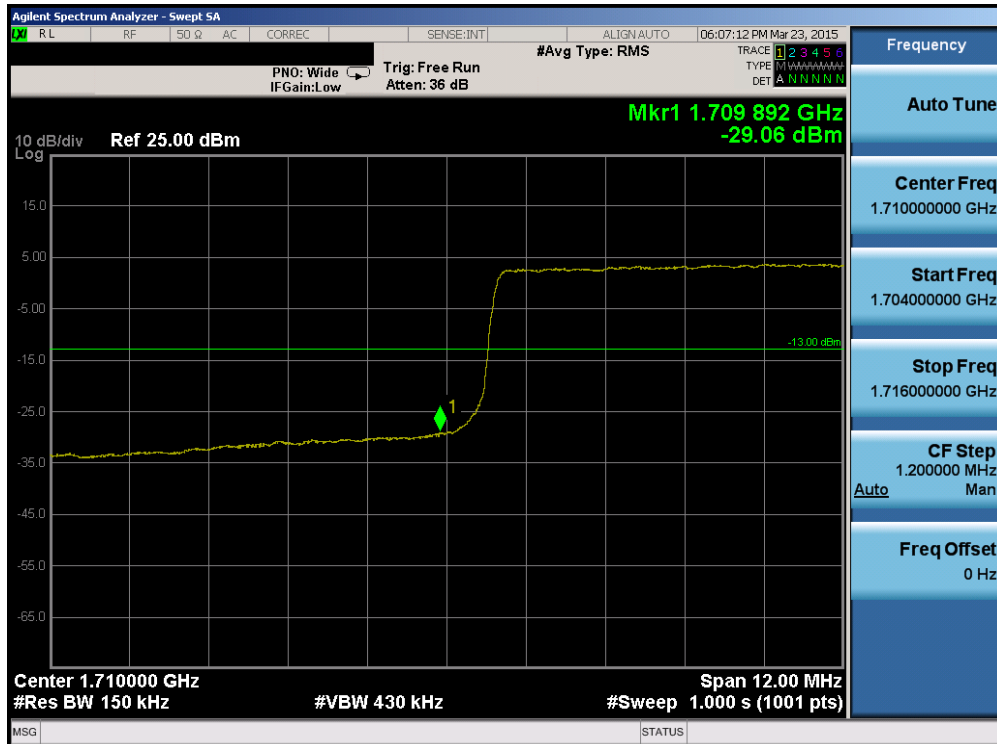


Plot 6-136. Upper Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 83 of 139



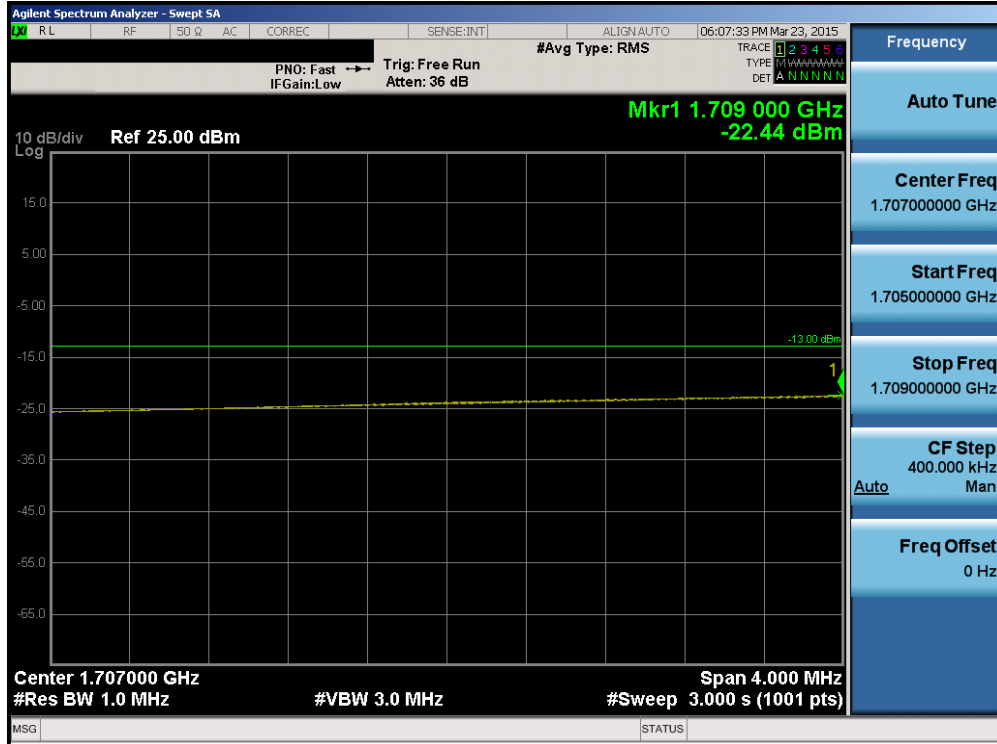
Plot 6-137. Upper Extended Band Edge Plot (Band 4 – 10.0MHz QPSK – RB Size 50)



Plot 6-138. Lower Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

FCC ID: ZNFV495	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 84 of 139



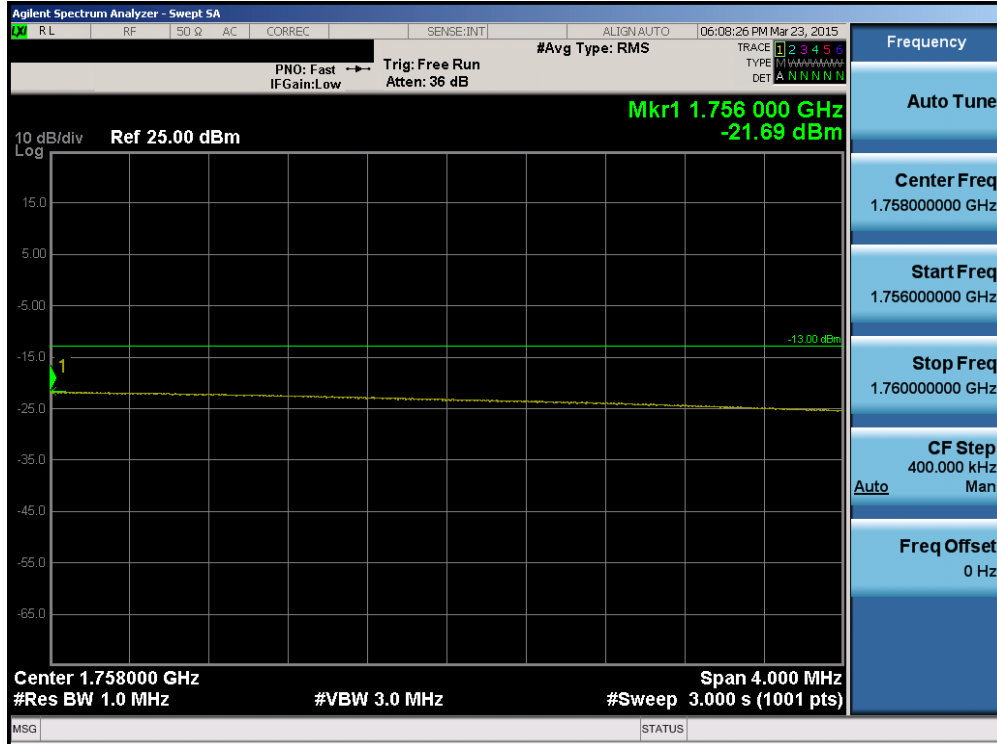


Plot 6-139. Lower Extended Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

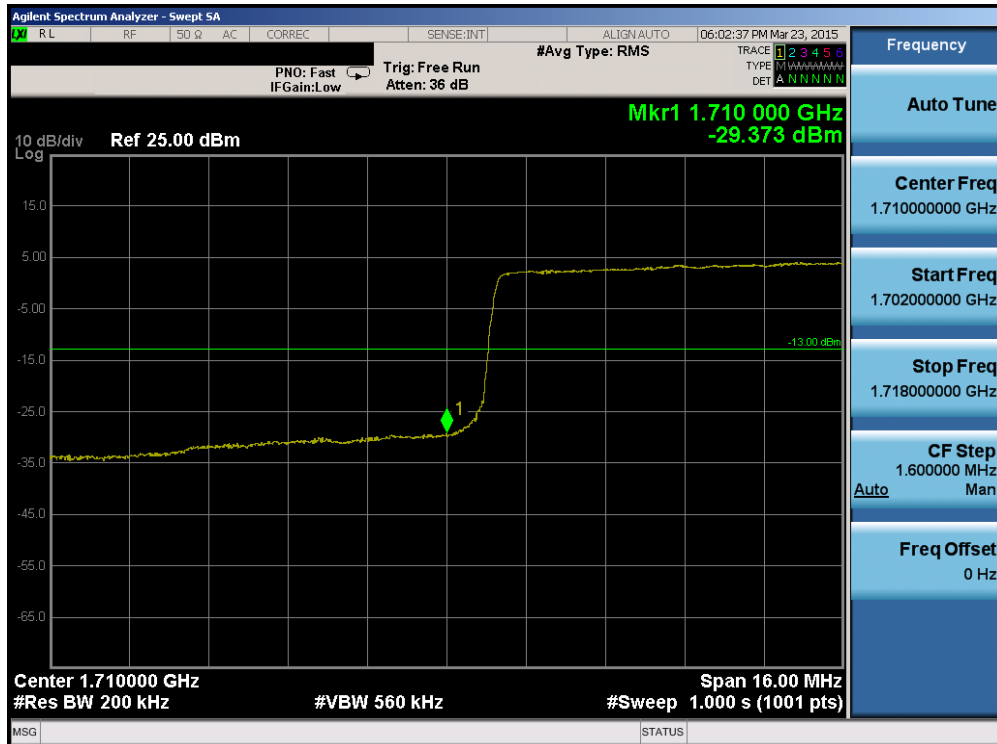


Plot 6-140. Upper Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 85 of 139

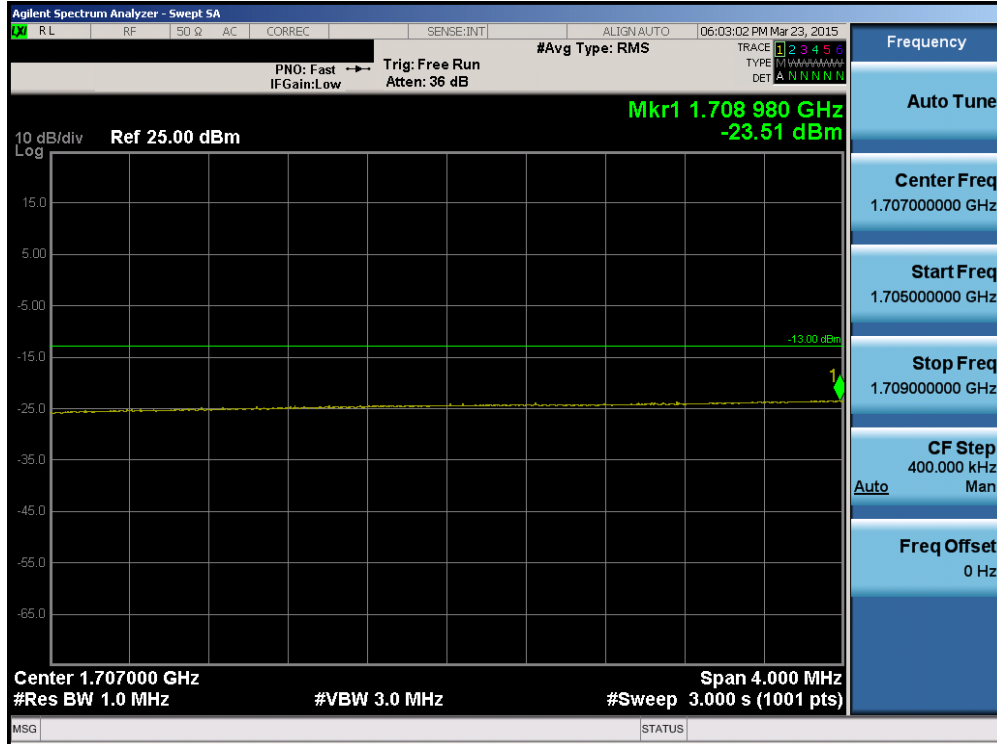


Plot 6-141. Upper Extended Band Edge Plot (Band 4 – 15.0MHz QPSK – RB Size 75)

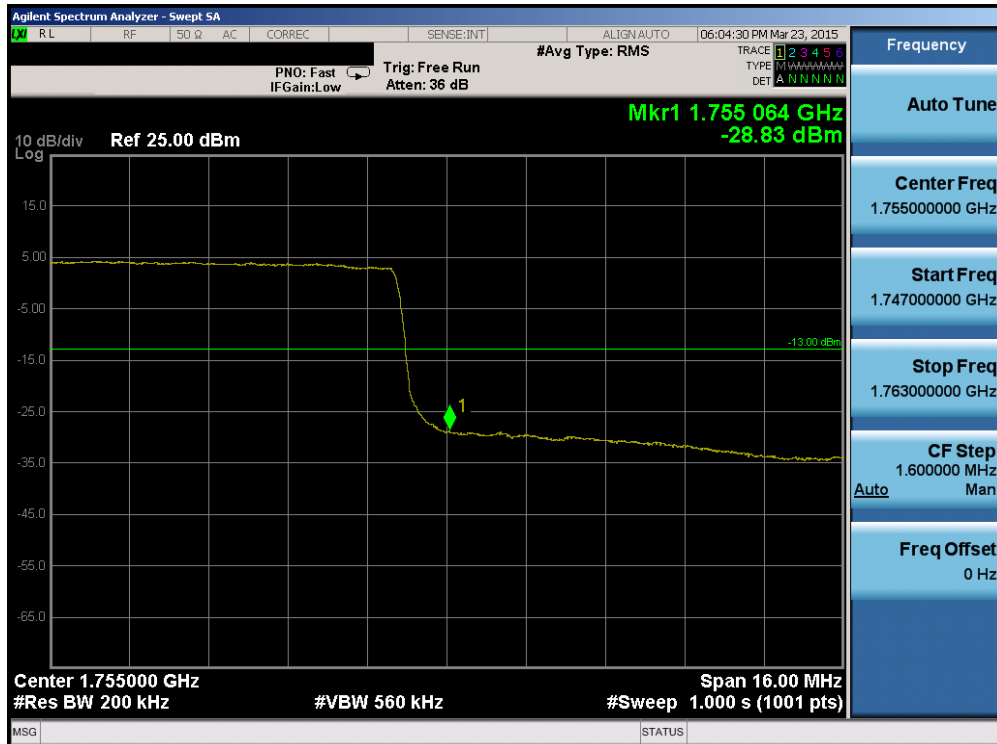


Plot 6-142. Lower Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFV495	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 86 of 139

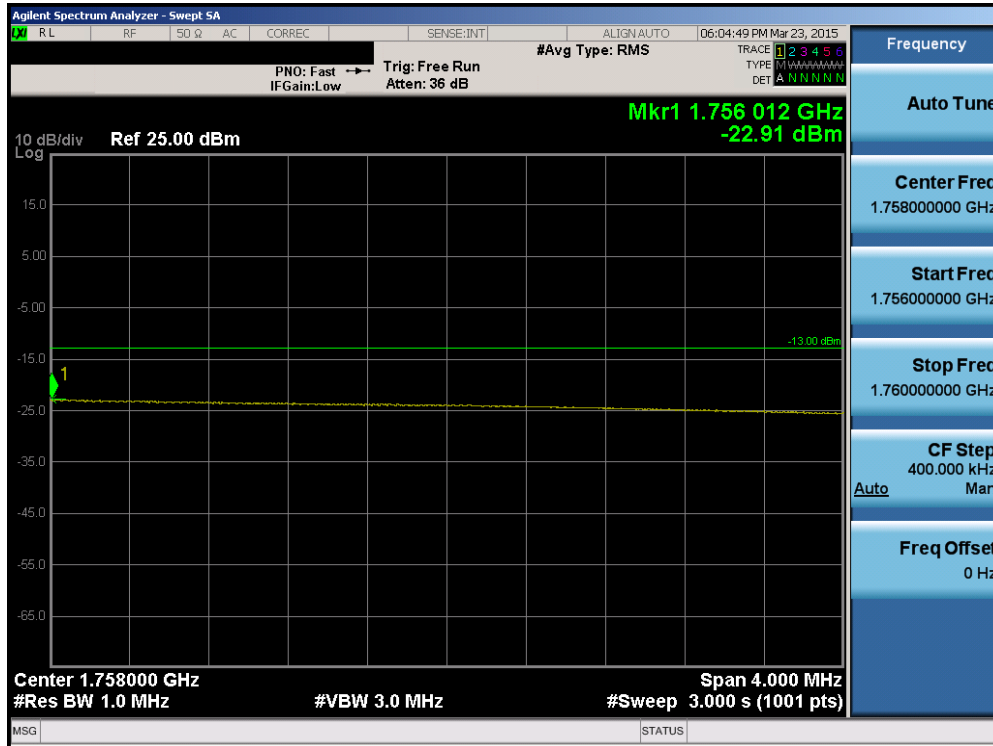


Plot 6-143. Lower Extended Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)

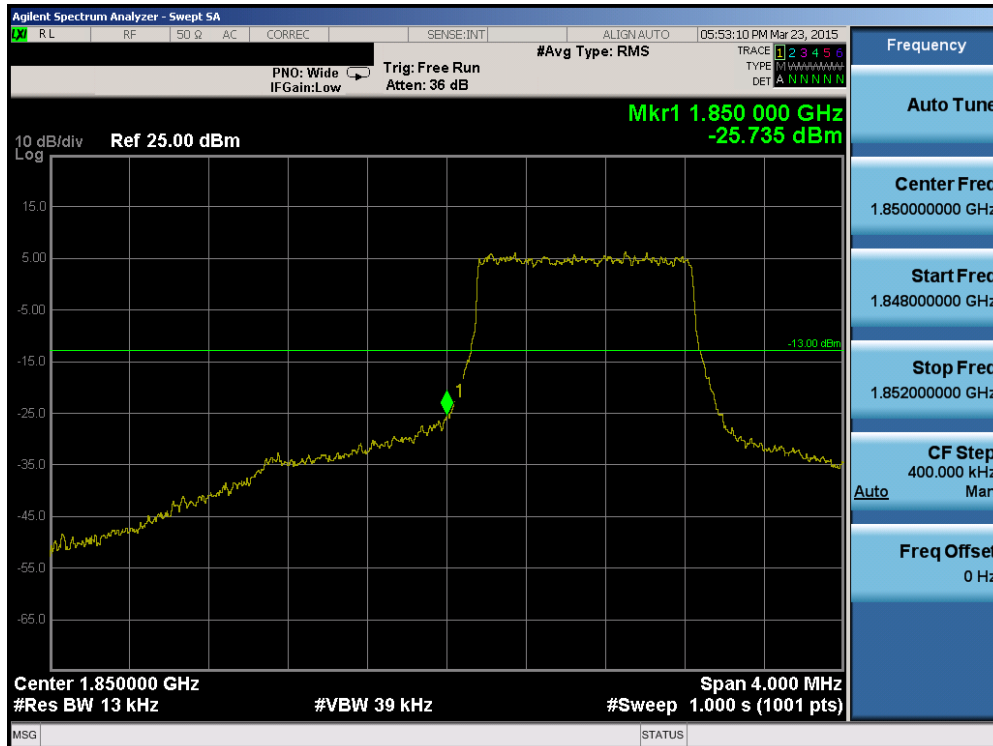


Plot 6-144. Upper Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 87 of 139

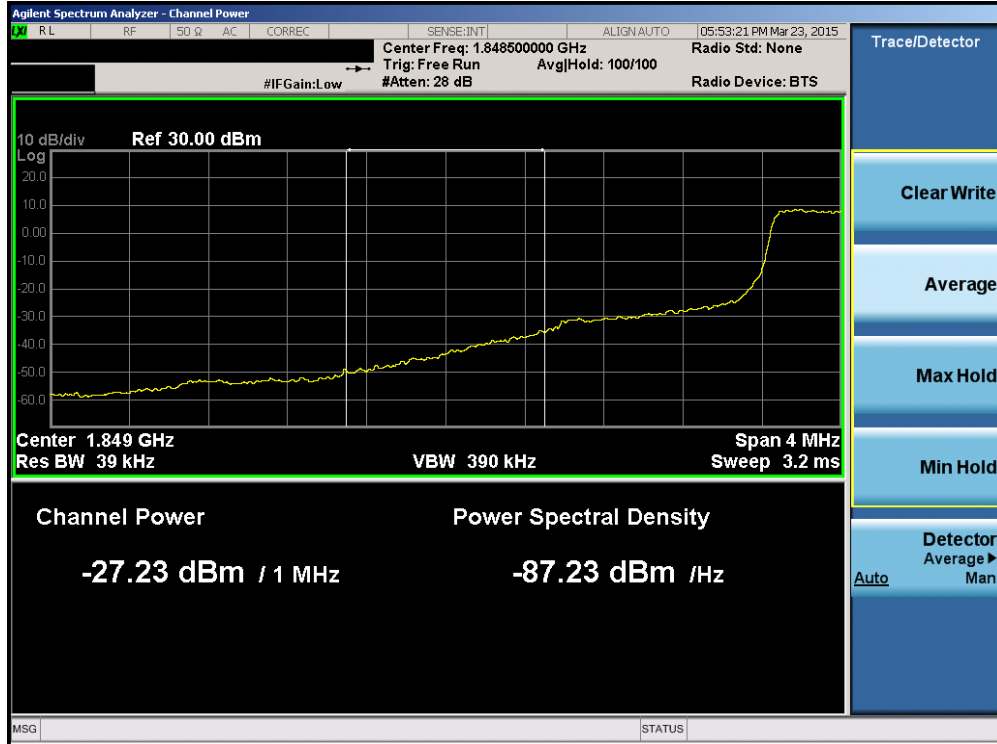


Plot 6-145. Upper Extended Band Edge Plot (Band 4 – 20.0MHz QPSK – RB Size 100)



Plot 6-146. Lower Band Edge Plot (Band 2 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 88 of 139

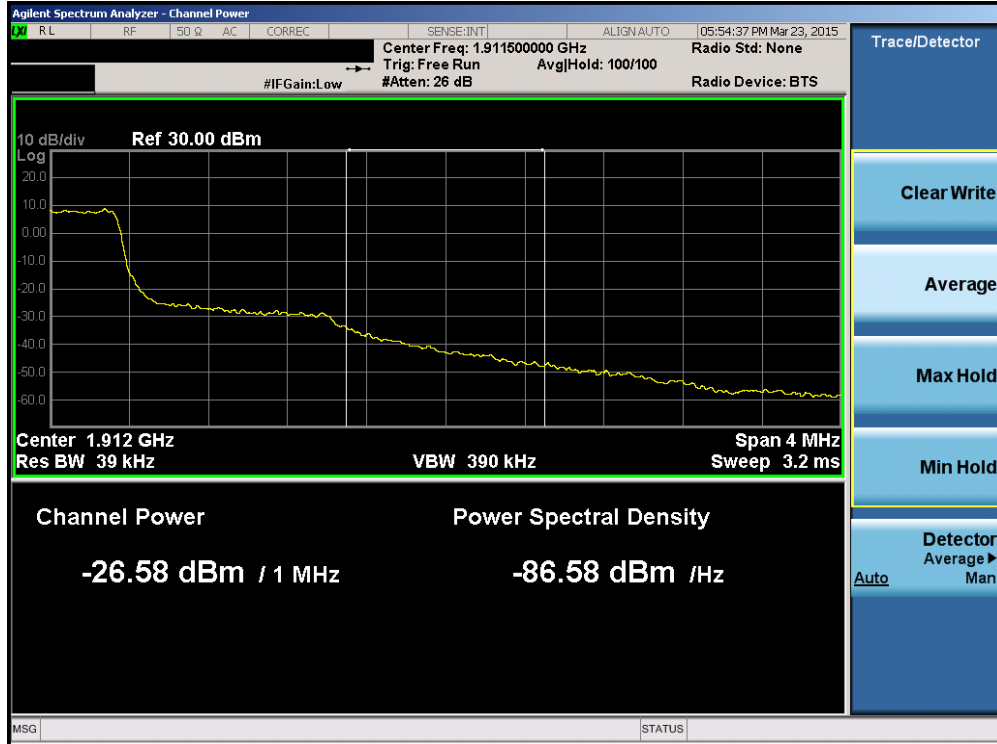


Plot 6-147. Lower Extended Band Edge Plot (Band 2 – 1.4MHz QPSK – RB Size 6)

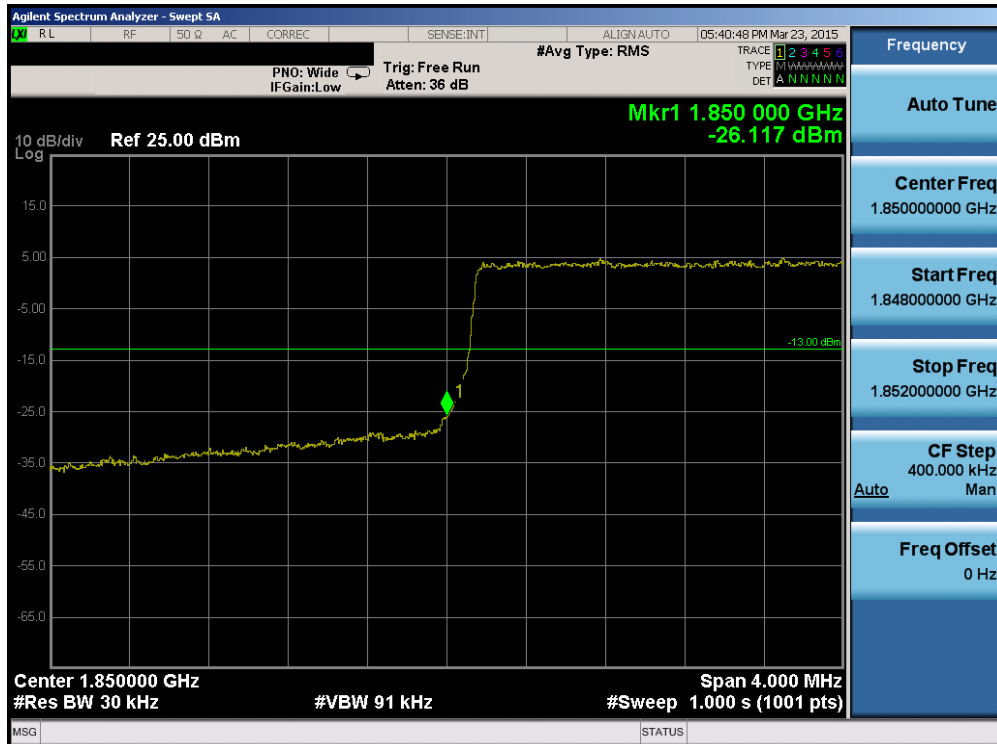


Plot 6-148. Upper Band Edge Plot (Band 2 – 1.4MHz QPSK – RB Size 6)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 89 of 139

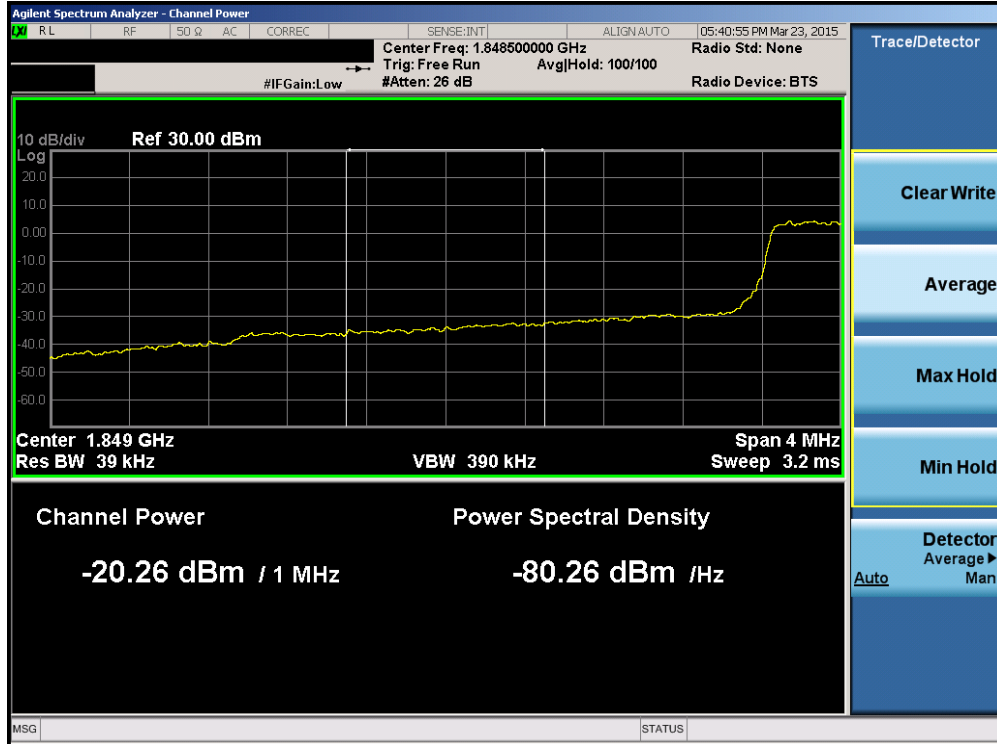


Plot 6-149. Upper Extended Band Edge Plot (Band 2 – 1.4MHz QPSK – RB Size 6)

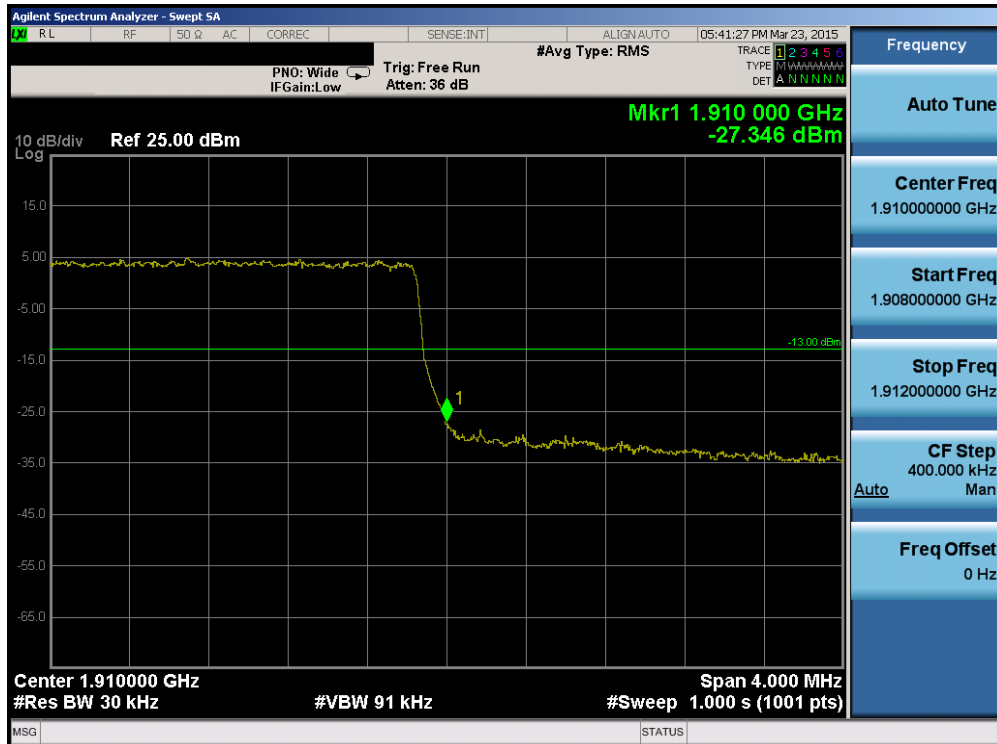


Plot 6-150. Lower Band Edge Plot (Band 2 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 90 of 139

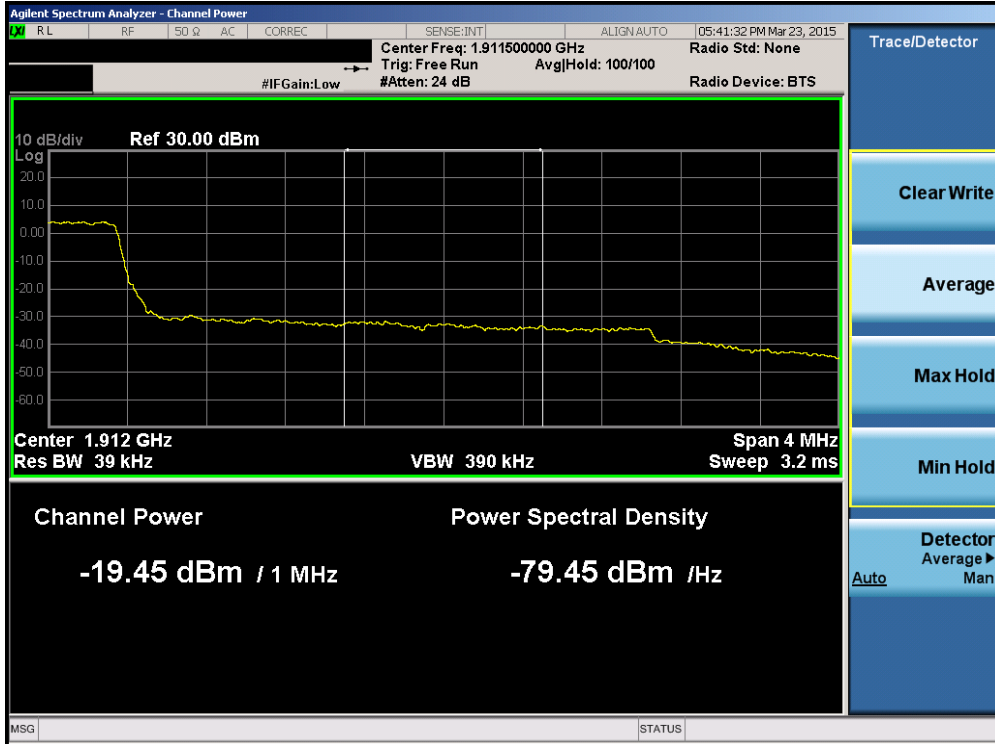


Plot 6-151. Lower Extended Band Edge Plot (Band 2 – 3.0MHz QPSK – RB Size 15)

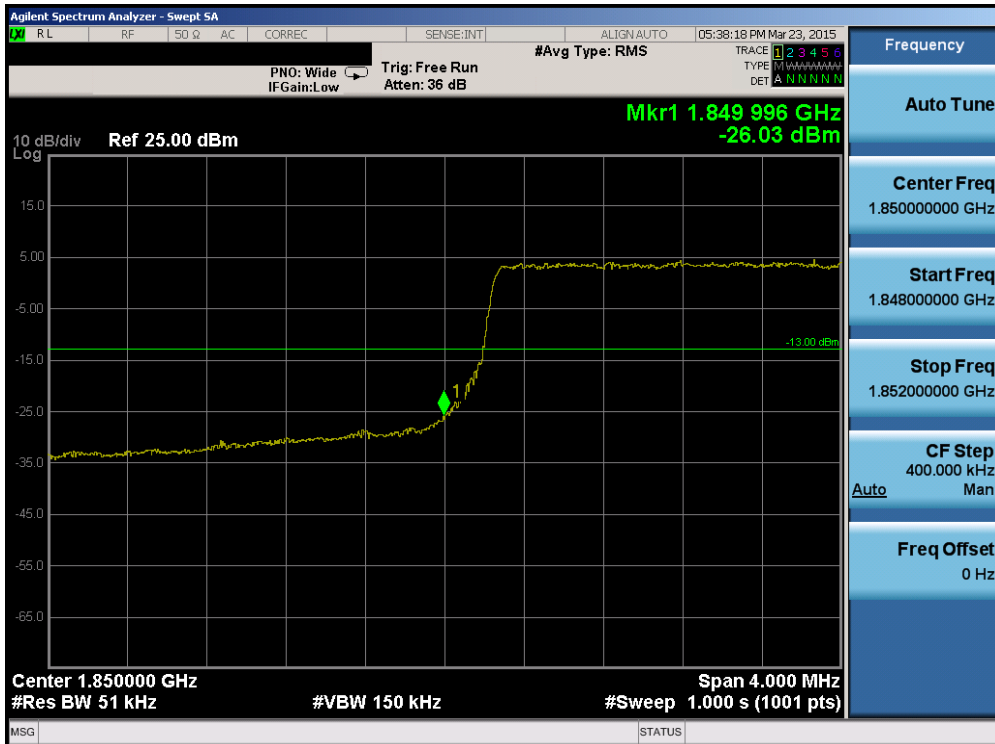


Plot 6-152. Upper Band Edge Plot (Band 2 – 3.0MHz QPSK – RB Size 15)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 91 of 139



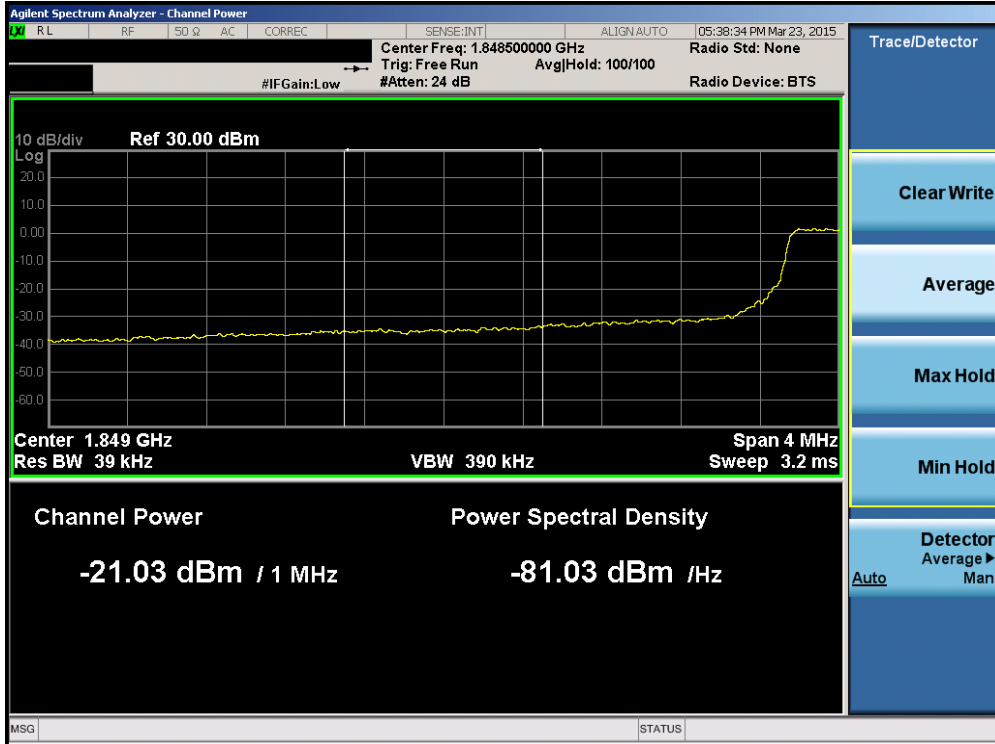
Plot 6-153. Upper Extended Band Edge Plot (Band 2 – 3.0MHz QPSK – RB Size 15)



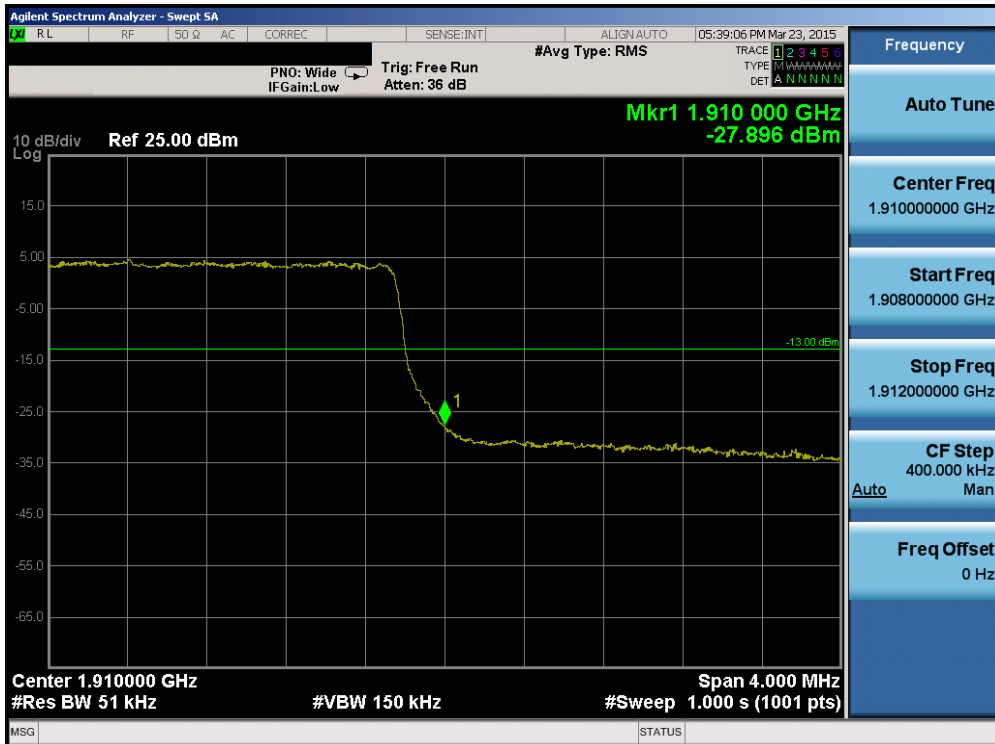
Plot 6-154. Lower Band Edge Plot (Band 2 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 92 of 139



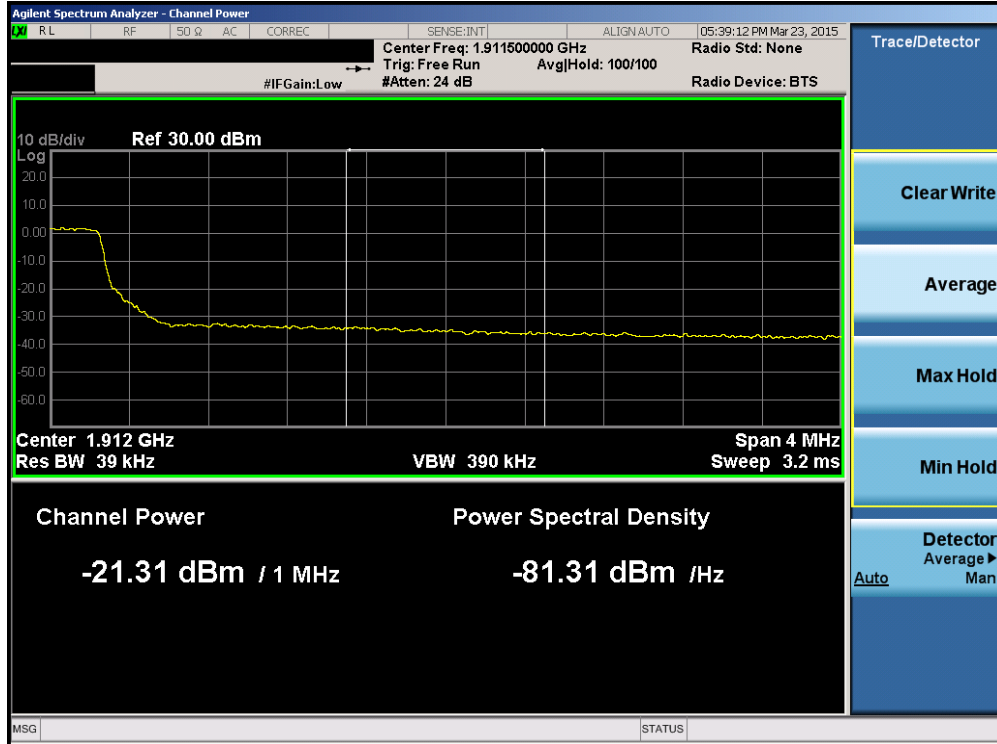


Plot 6-155. Lower Extended Band Edge Plot (Band 2 – 5.0MHz QPSK – RB Size 25)

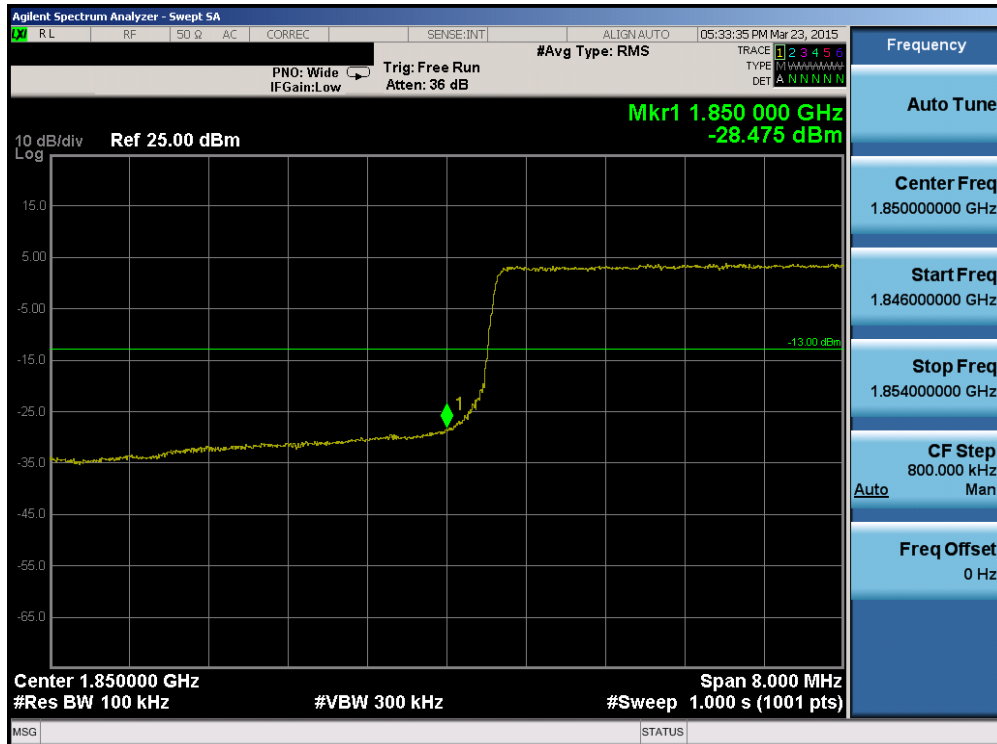


Plot 6-156. Upper Band Edge Plot (Band 2 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 93 of 139

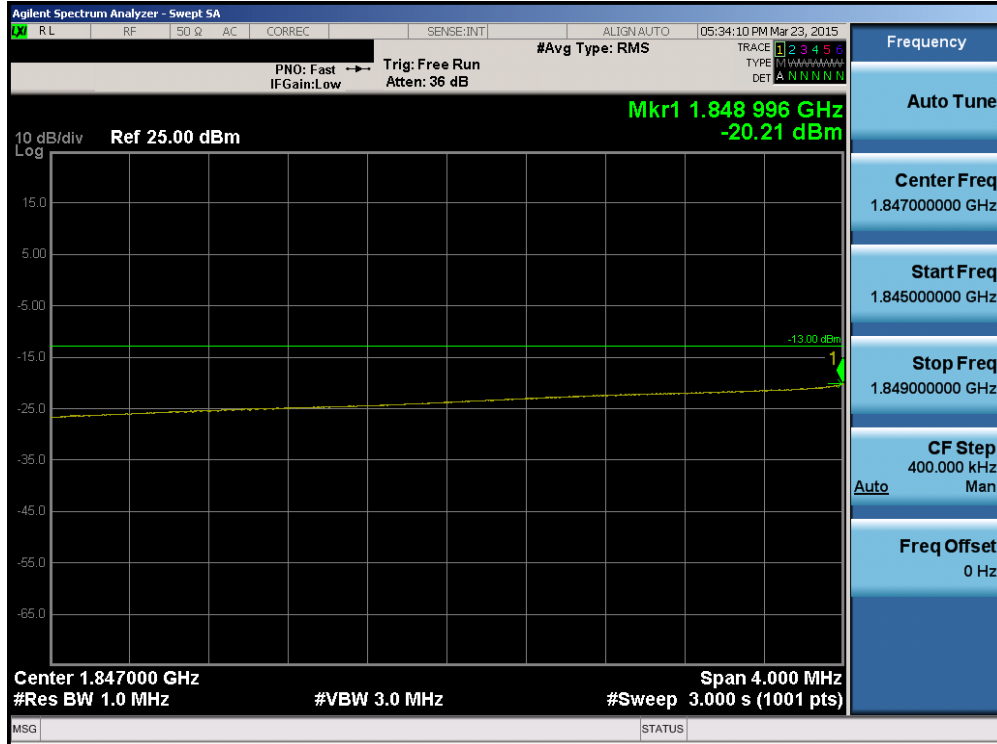


Plot 6-157. Upper Extended Band Edge Plot (Band 2 – 5.0MHz QPSK – RB Size 25)

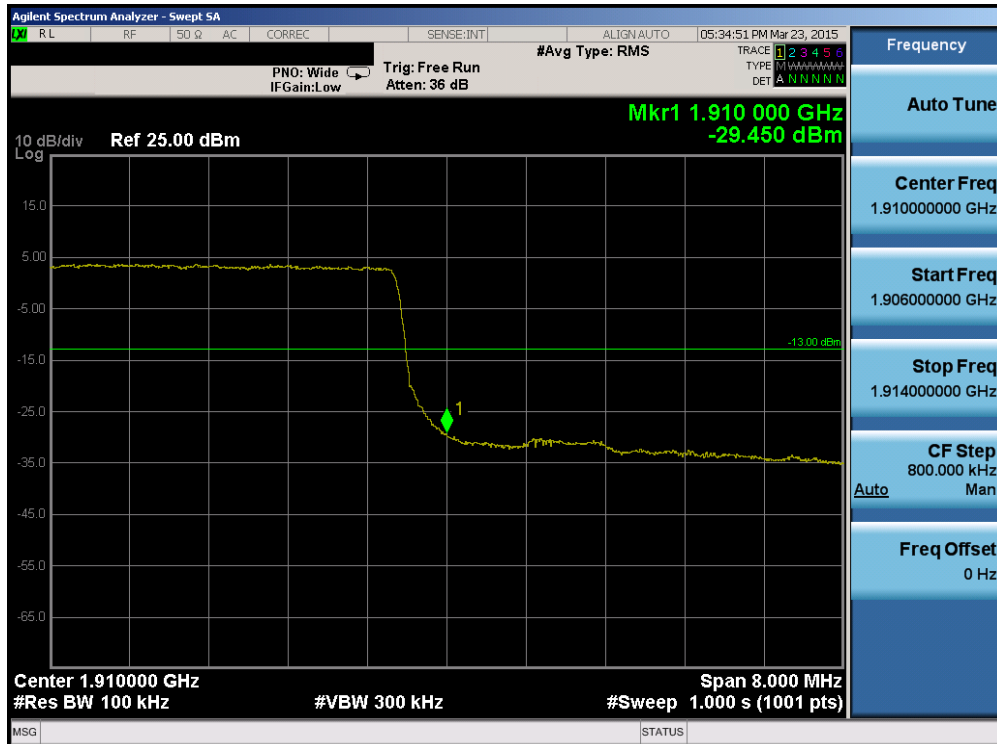


Plot 6-158. Lower Band Edge Plot (Band 2 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 94 of 139

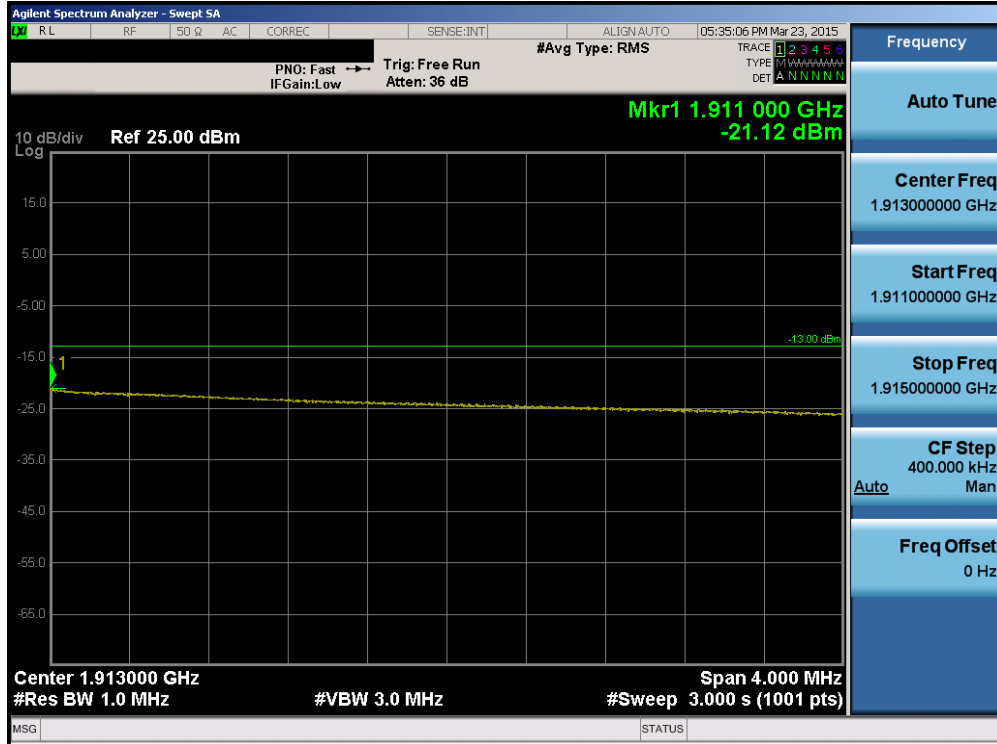


Plot 6-159. Lower Extended Band Edge Plot (Band 2 – 10.0MHz QPSK – RB Size 50)

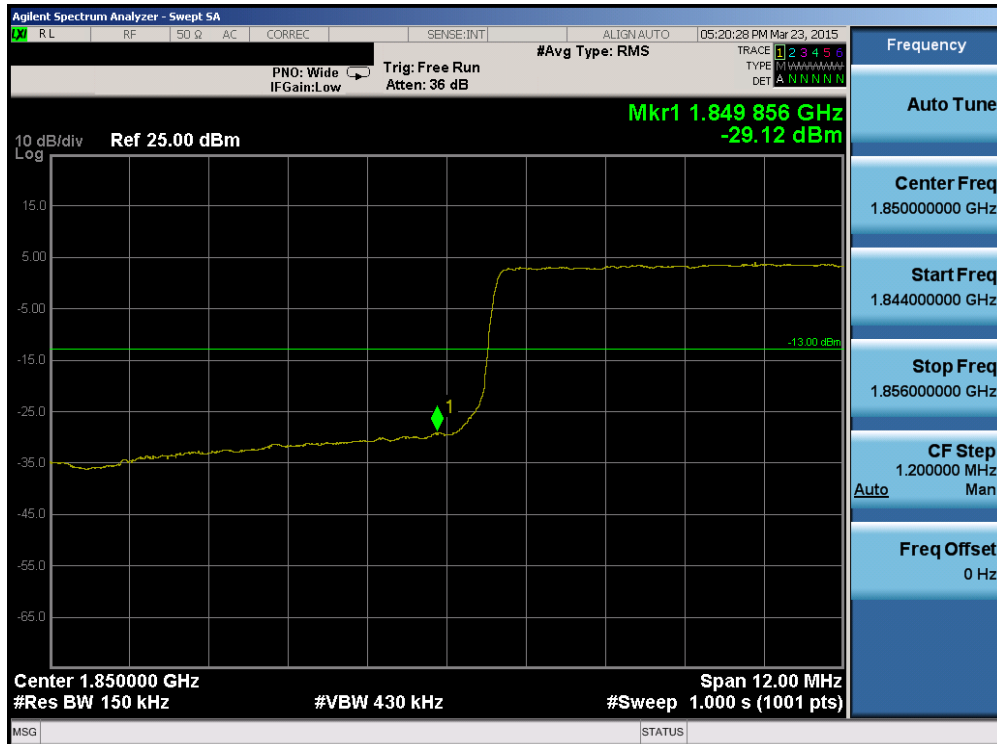


Plot 6-160. Upper Band Edge Plot (Band 2 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 95 of 139

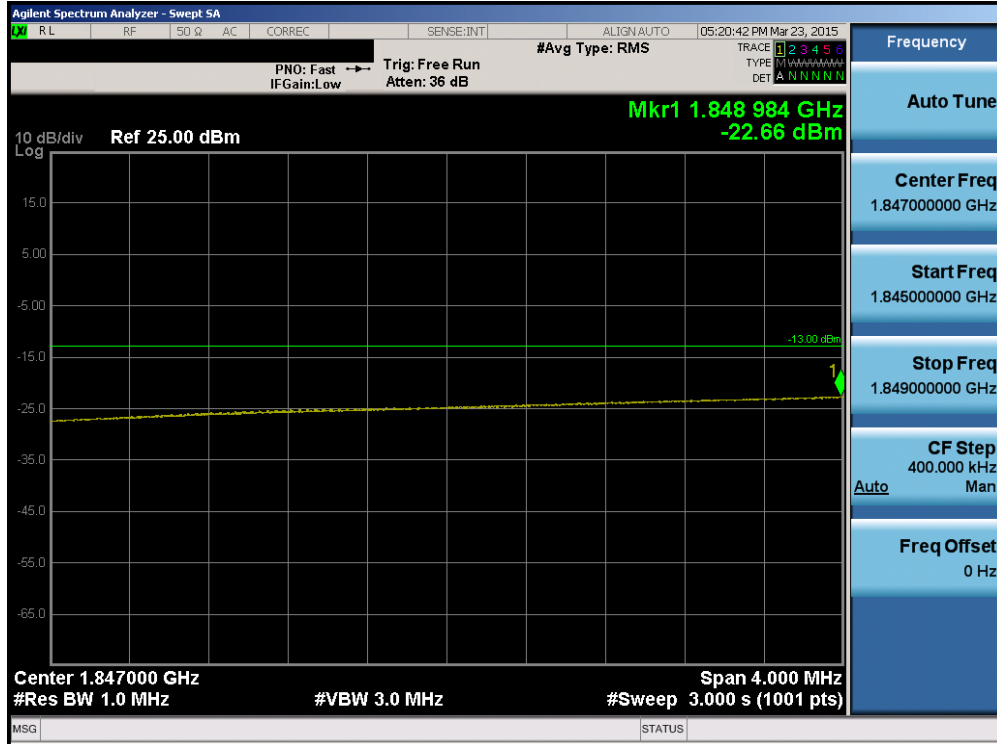


Plot 6-161. Upper Extended Band Edge Plot (Band 2 – 10.0MHz QPSK – RB Size 50)



Plot 6-162. Lower Band Edge Plot (Band 2 – 15.0MHz QPSK – RB Size 75)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 96 of 139

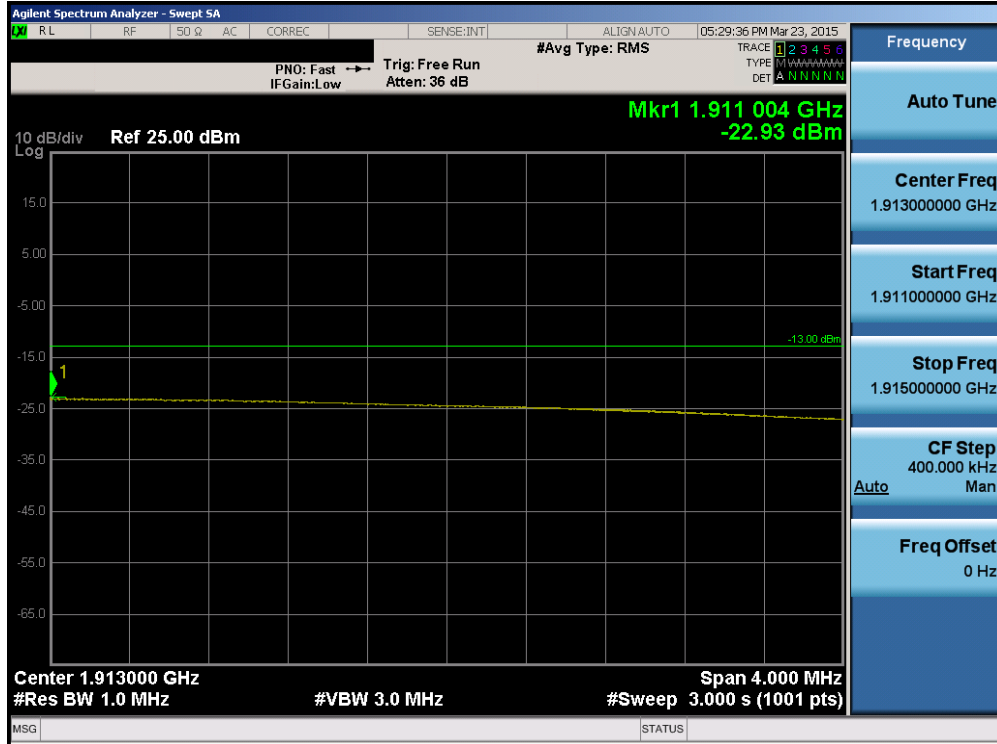


Plot 6-163. Lower Extended Band Edge Plot (Band 2 – 15.0MHz QPSK – RB Size 75)

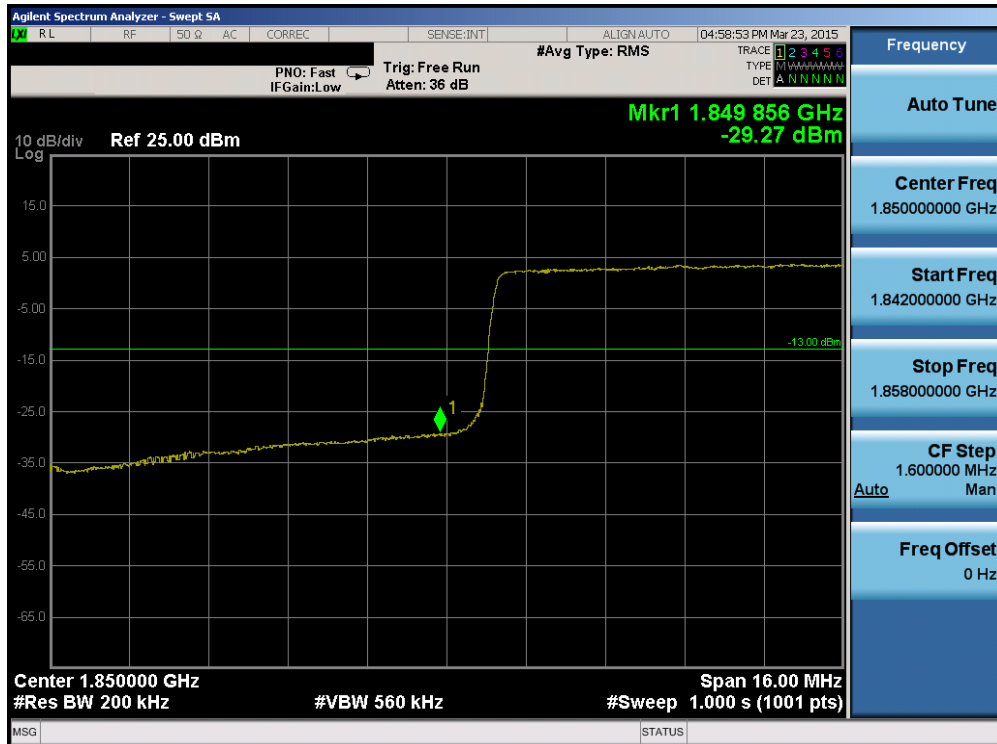


Plot 6-164. Upper Band Edge Plot (Band 2 – 15.0MHz QPSK – RB Size 75)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 97 of 139

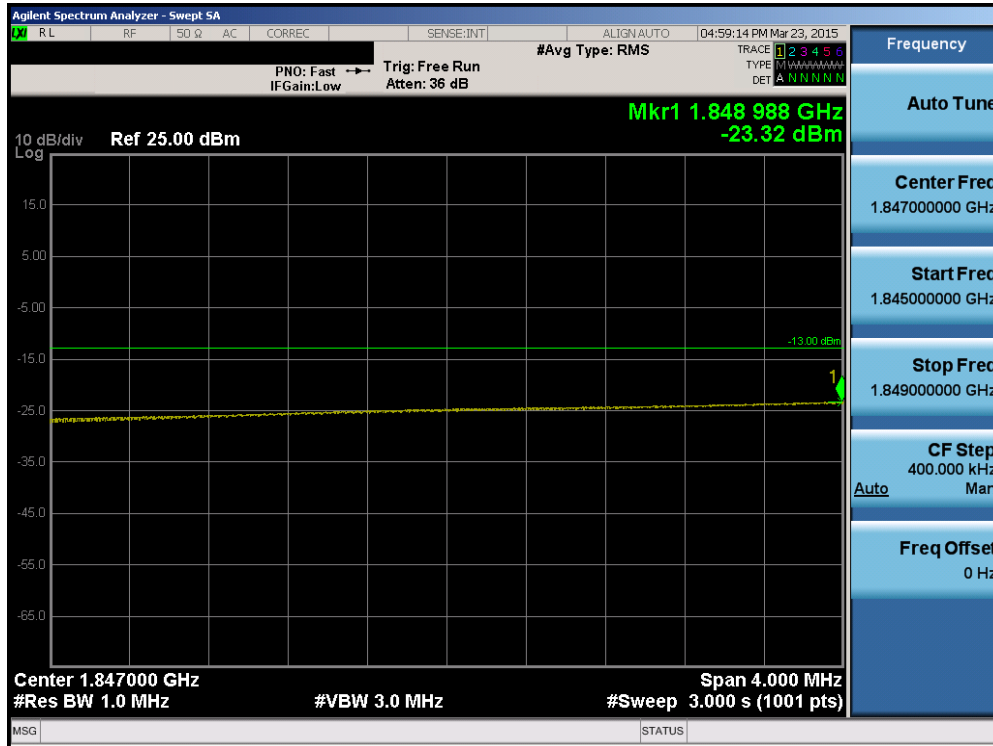


Plot 6-165. Upper Extended Band Edge Plot (Band 2 – 15.0MHz QPSK – RB Size 75)

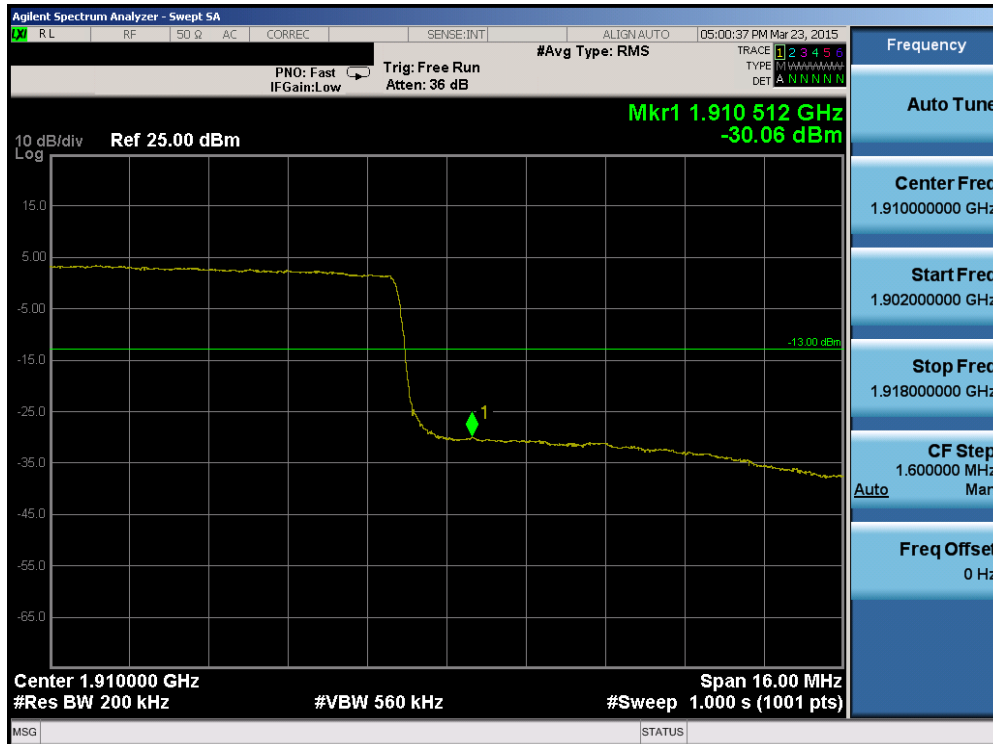


Plot 6-166. Lower Band Edge Plot (Band 2 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 98 of 139

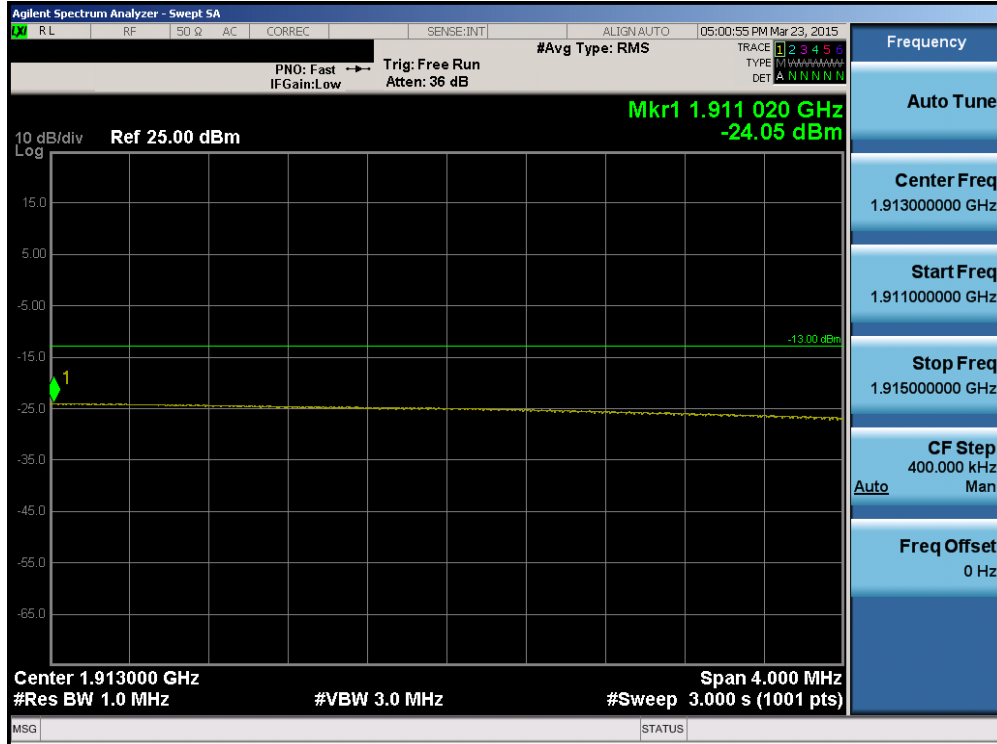


Plot 6-167. Lower Extended Band Edge Plot (Band 2 – 20.0MHz QPSK – RB Size 100)

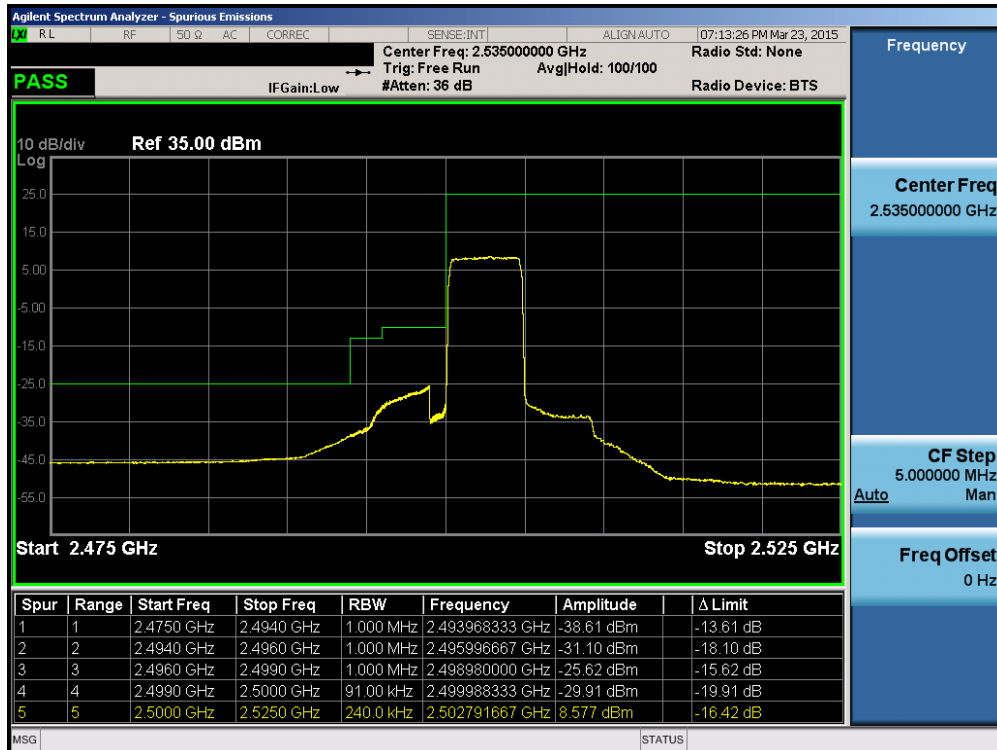


Plot 6-168. Upper Band Edge Plot (Band 2 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFV495	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	LG	Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 99 of 139



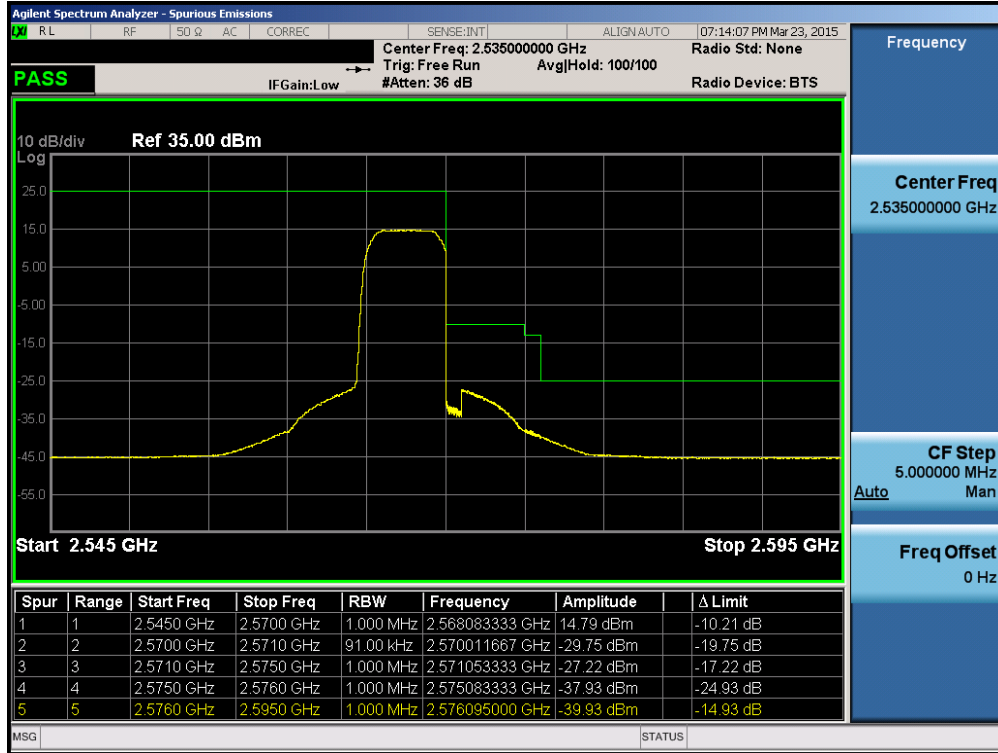
Plot 6-169. Upper Extended Band Edge Plot (Band 2 – 20.0MHz QPSK – RB Size 100)



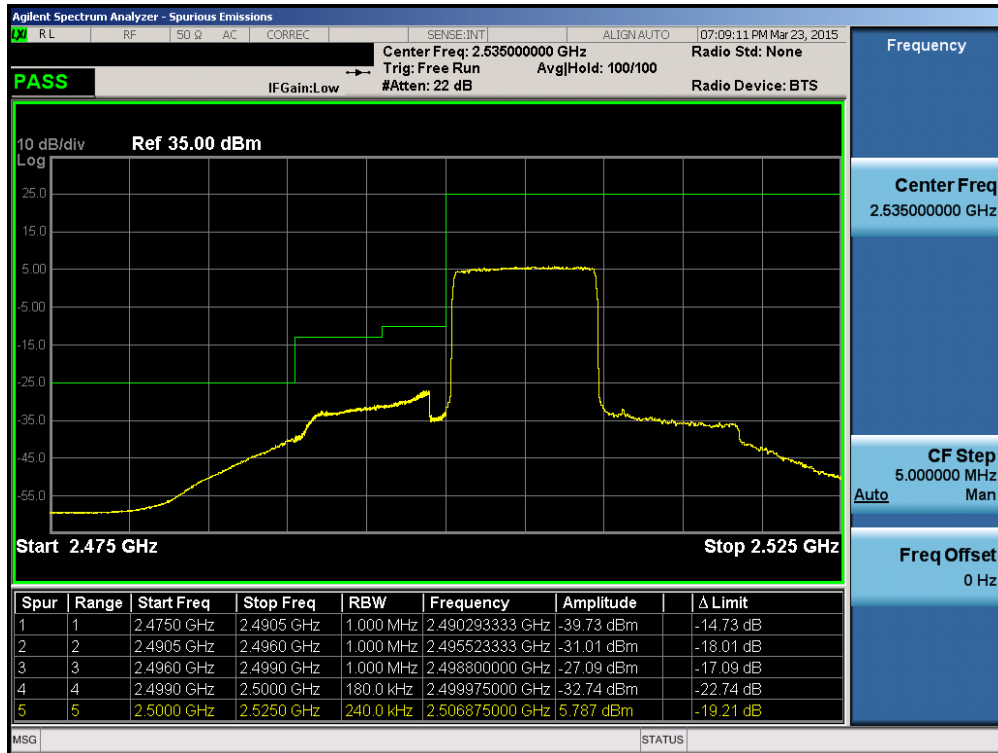
Plot 6-170. Lower ACP Plot (Band 7 – 5.0MHz QPSK – RB Size 25)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 100 of 139



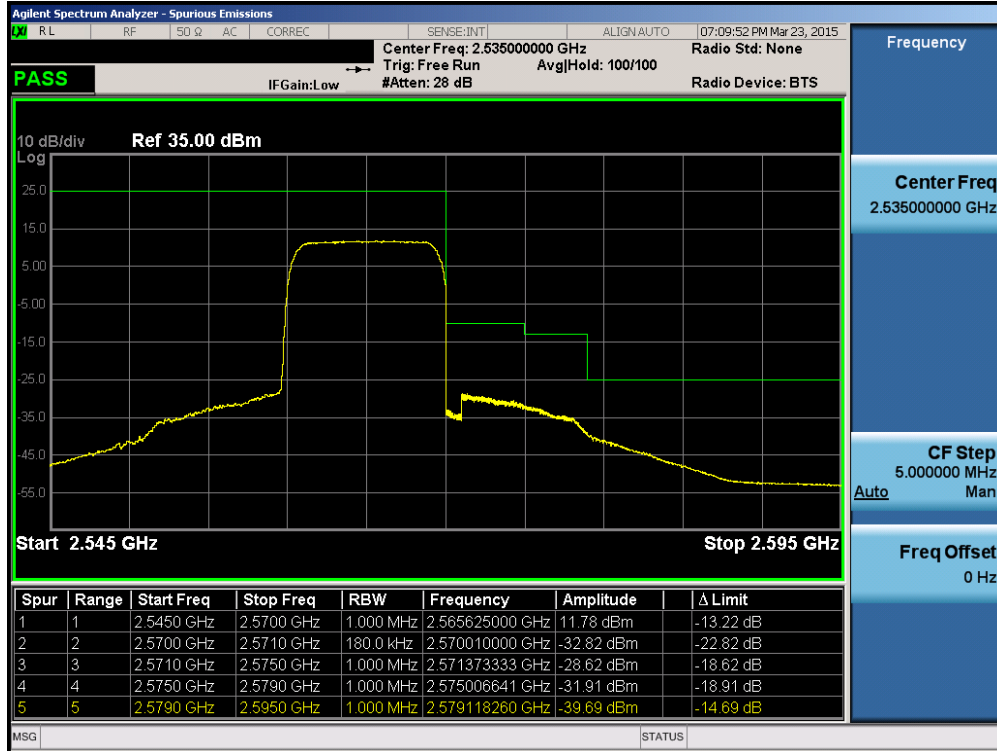


Plot 6-171. Upper ACP Plot (Band 7 – 5.0MHz QPSK – RB Size 25)



Plot 6-172. Lower ACP Plot (Band 7 – 10.0MHz QPSK – RB Size 50)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 101 of 139



Plot 6-173. Upper ACP Plot (Band 7 – 10.0MHz QPSK – RB Size 50)

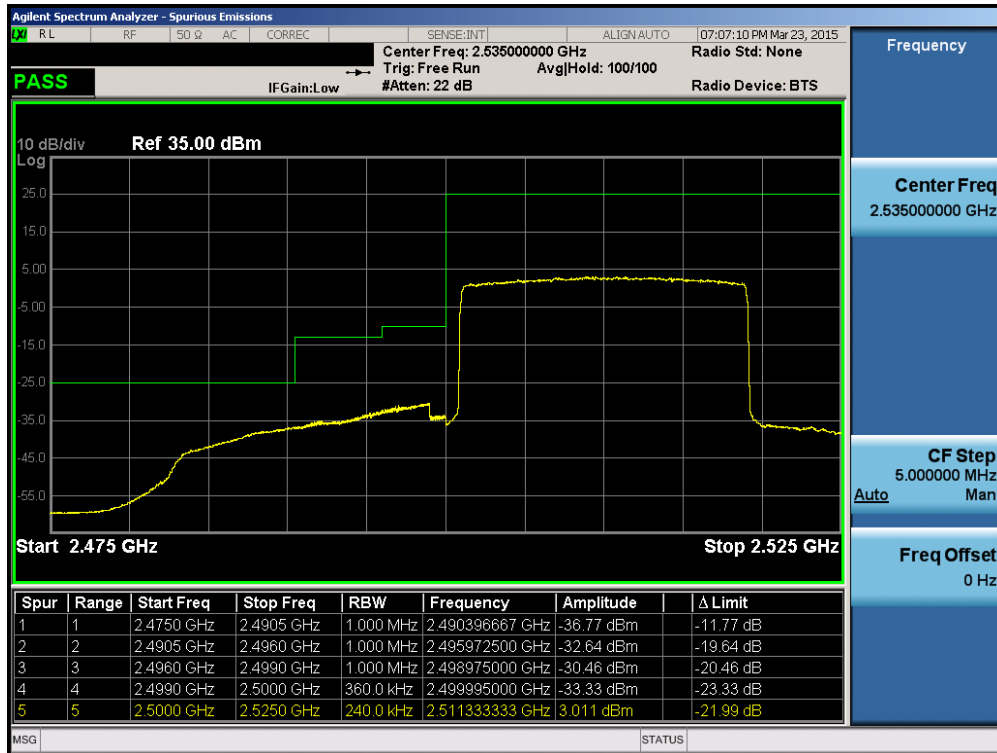


Plot 6-174. Lower ACP Plot (Band 7 – 15.0MHz QPSK – RB Size 75)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 102 of 139

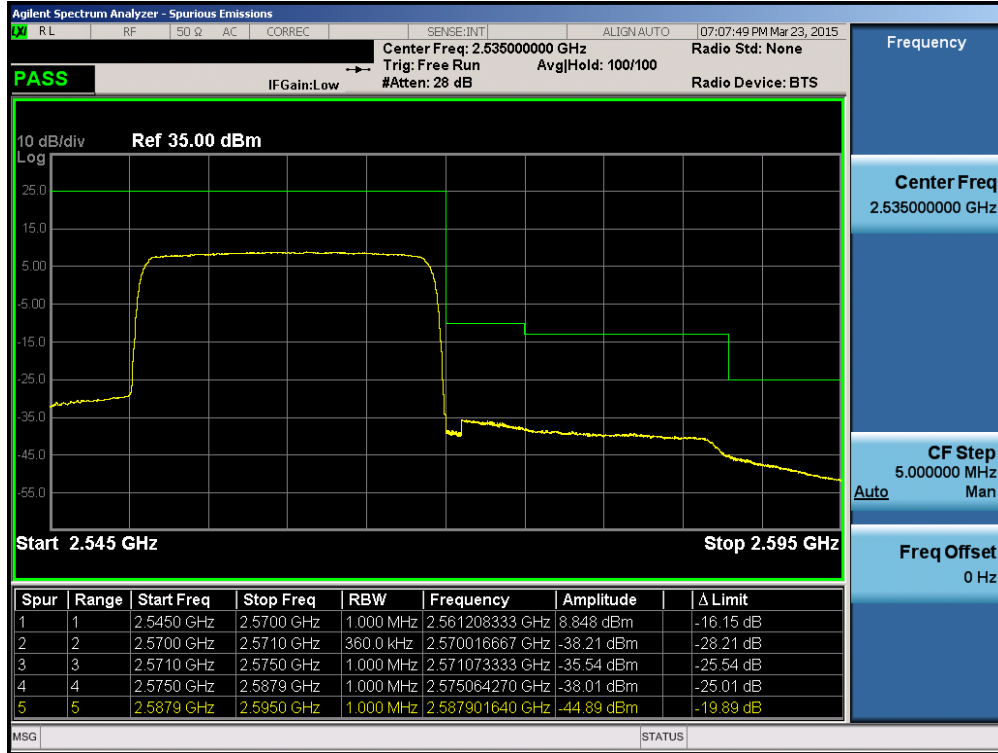


Plot 6-175. Upper ACP Plot (Band 7 – 15.0MHz QPSK – RB Size 75)



Plot 6-176. Lower ACP Plot (Band 7 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 103 of 139



Plot 6-177. Upper ACP Plot (Band 7 – 20.0MHz QPSK – RB Size 100)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 104 of 139

## 6.5 Peak-Average Ratio

### §24.232(d)

#### Test Overview

A peak to average ratio measurement is performed at the conducted port of the EUT. The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

#### Test Procedure Used

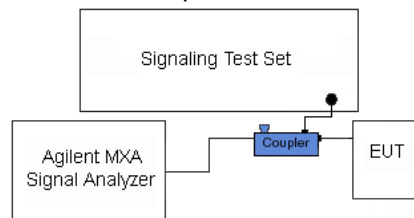
KDB 971168 v02r02 – Section 5.7.1

#### Test Settings

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW > Emission bandwidth of signal
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms.

#### Test Setup



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

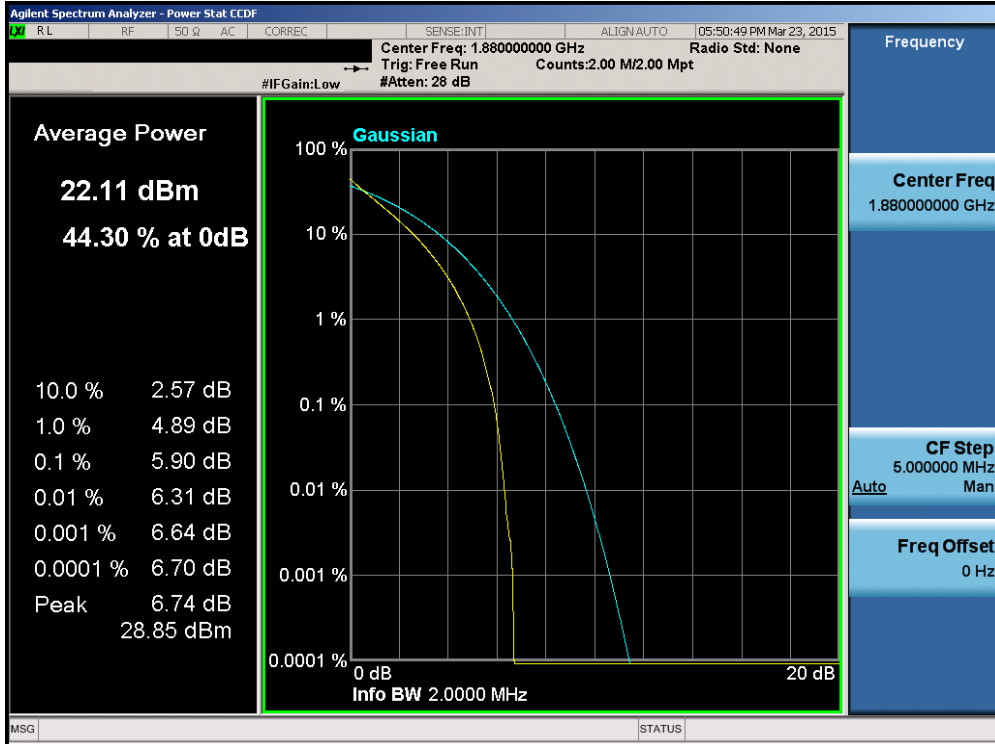


**Figure 6-4. Test Instrument & Measurement Setup**

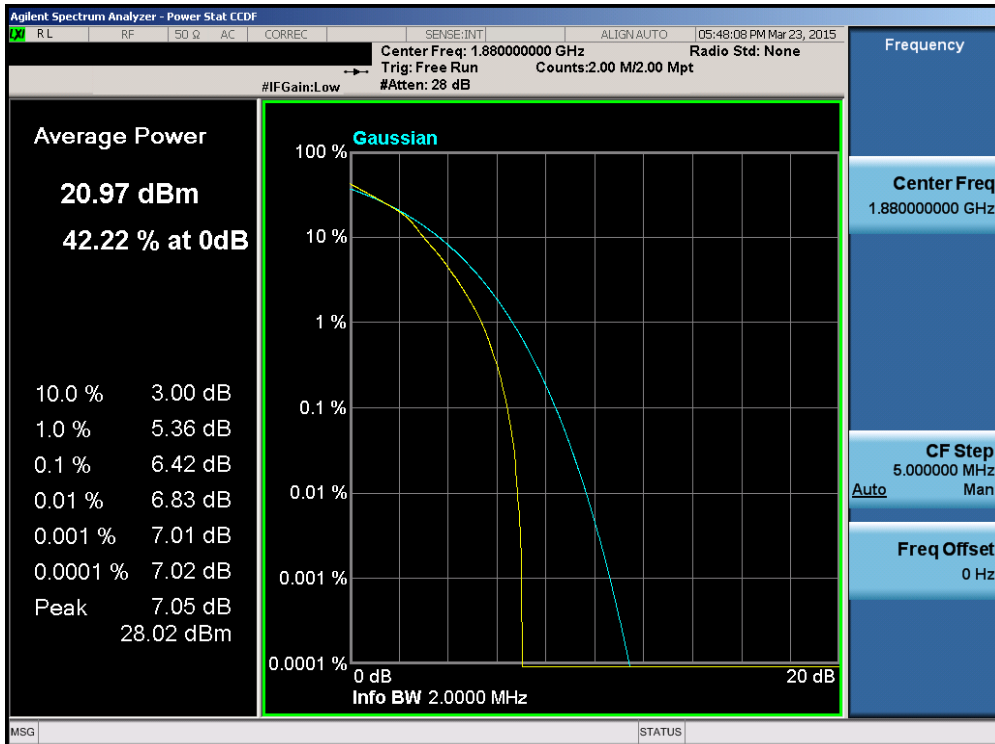
#### Test Notes

None.

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 105 of 139	

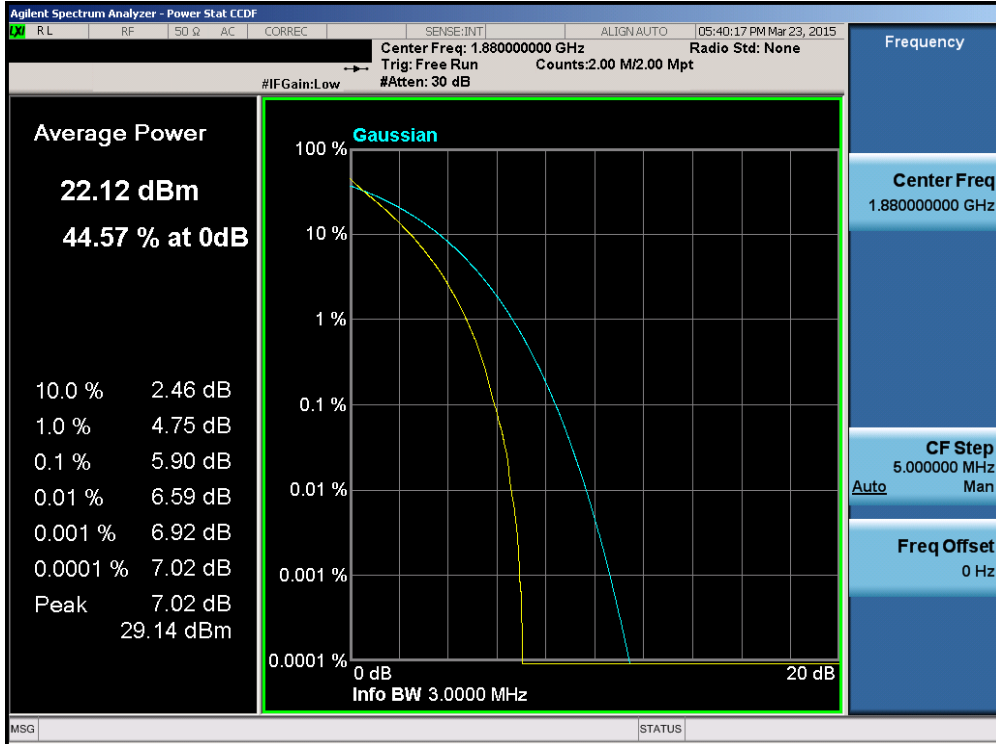


Plot 6-178. PAR Plot (Band 2 – 1.4MHz QPSK – RB Size 6)

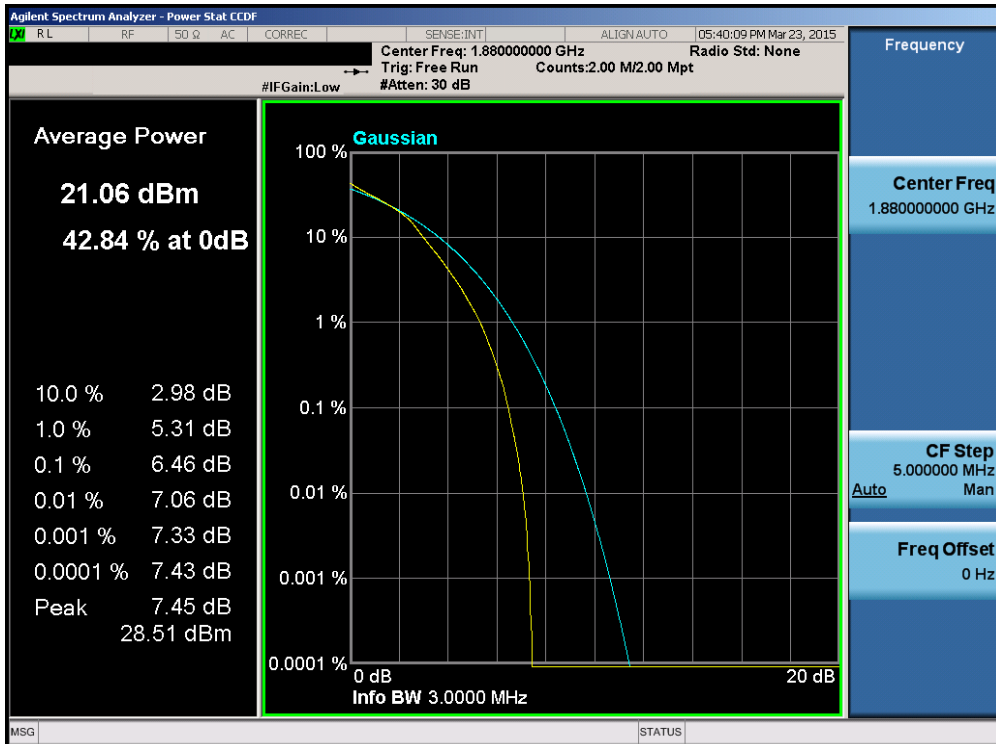


Plot 6-179. PAR Plot (Band 2 – 1.4MHz 16-QAM – RB Size 6)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 106 of 139

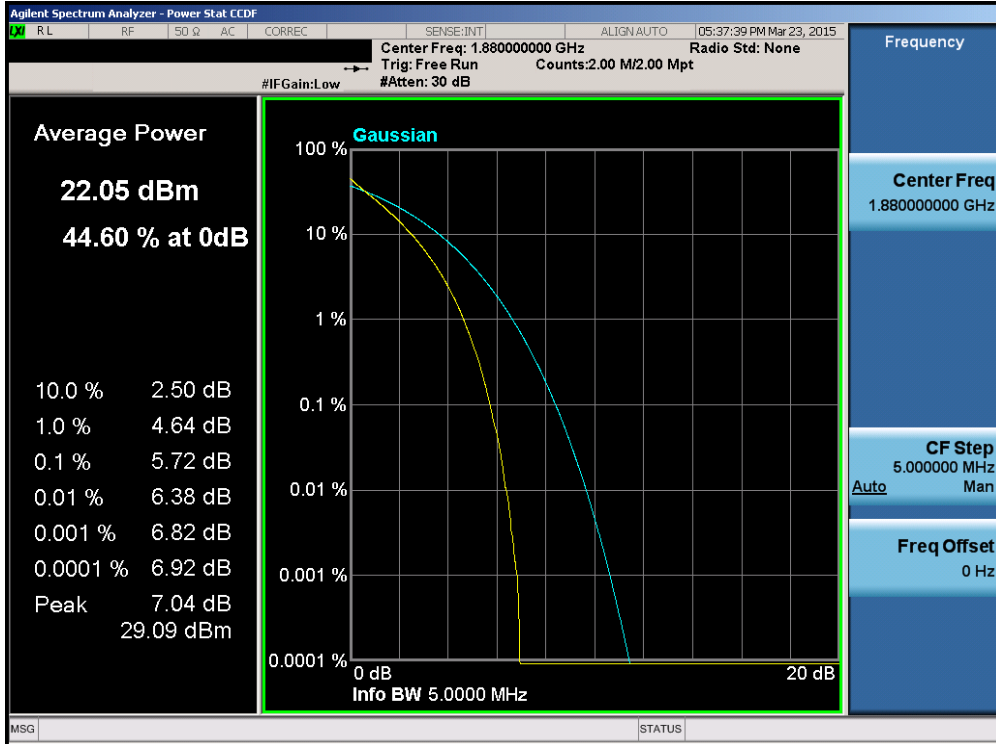


Plot 6-180. PAR Plot (Band 2 – 3.0MHz QPSK – RB Size 15)

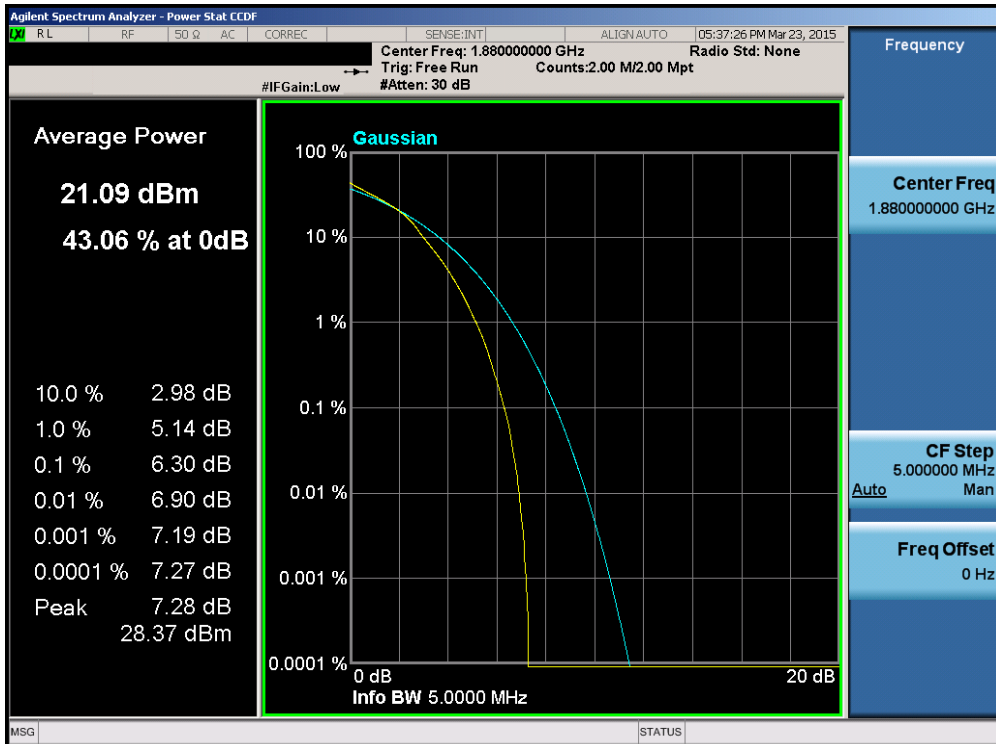


Plot 6-181. PAR Plot (Band 2 – 3.0MHz 16-QAM – RB Size 15)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 107 of 139



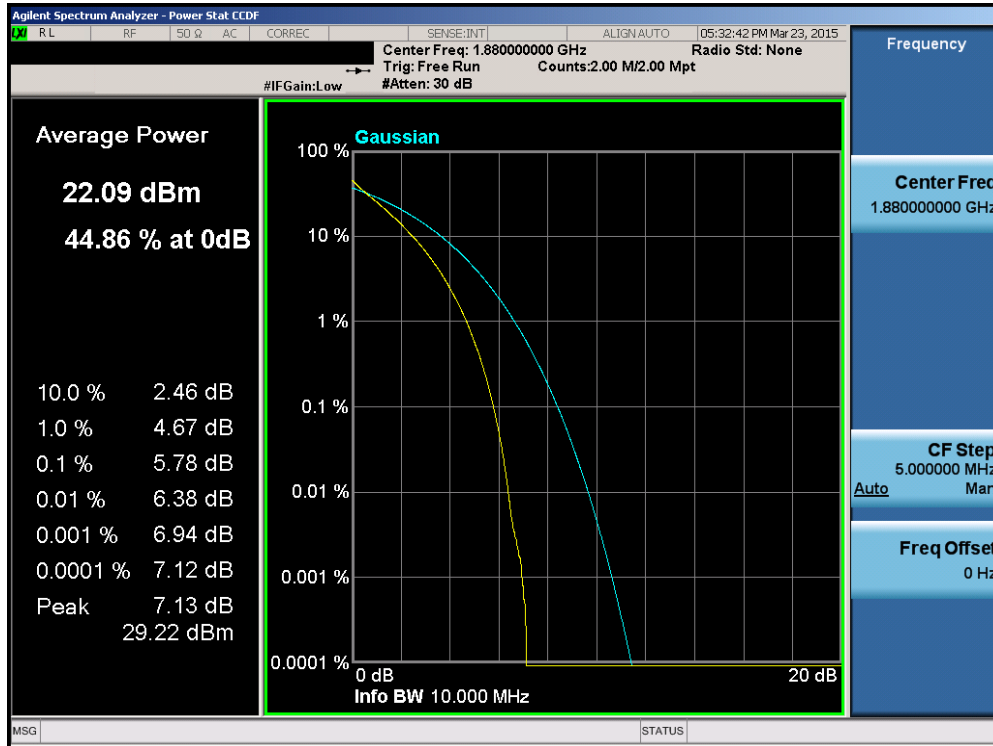
Plot 6-182. PAR Plot (Band 2 – 5.0MHz QPSK – RB Size 25)



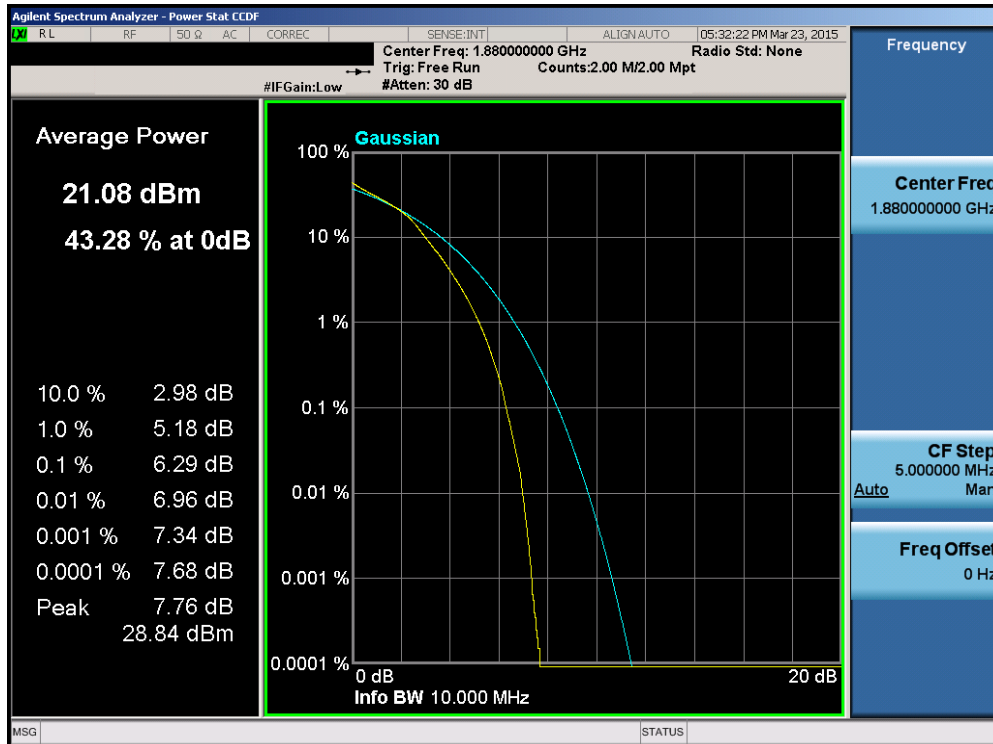
Plot 6-183. PAR Plot (Band 2 – 5.0MHz 16-QAM – RB Size 25)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 108 of 139



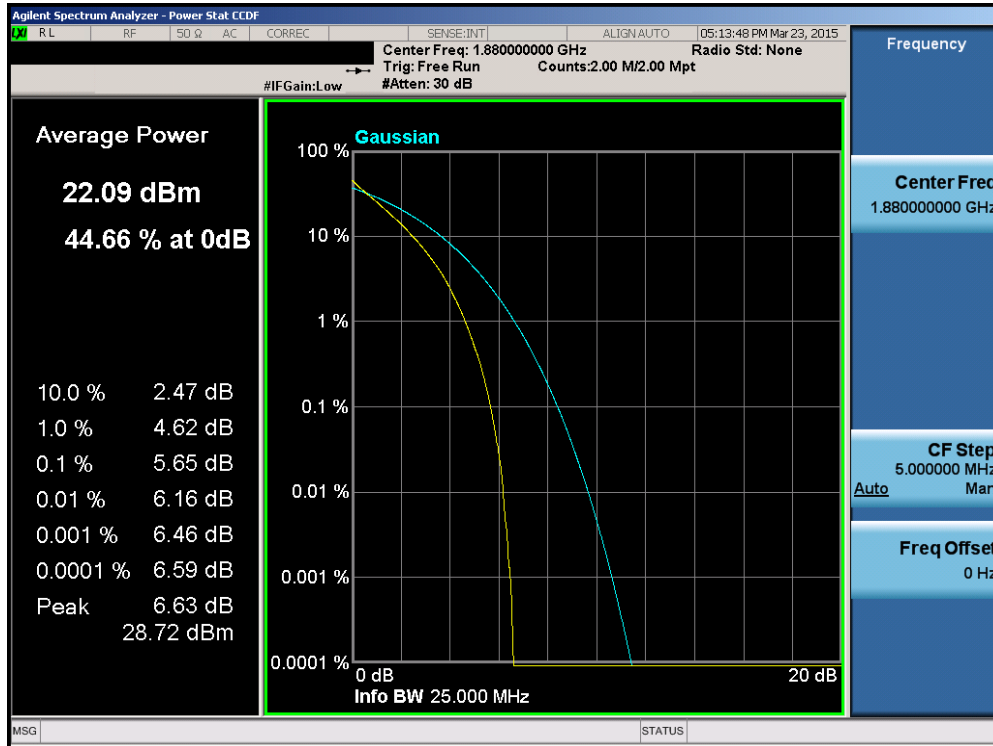


Plot 6-184. PAR Plot (Band 2 – 10.0MHz QPSK – RB Size 50)

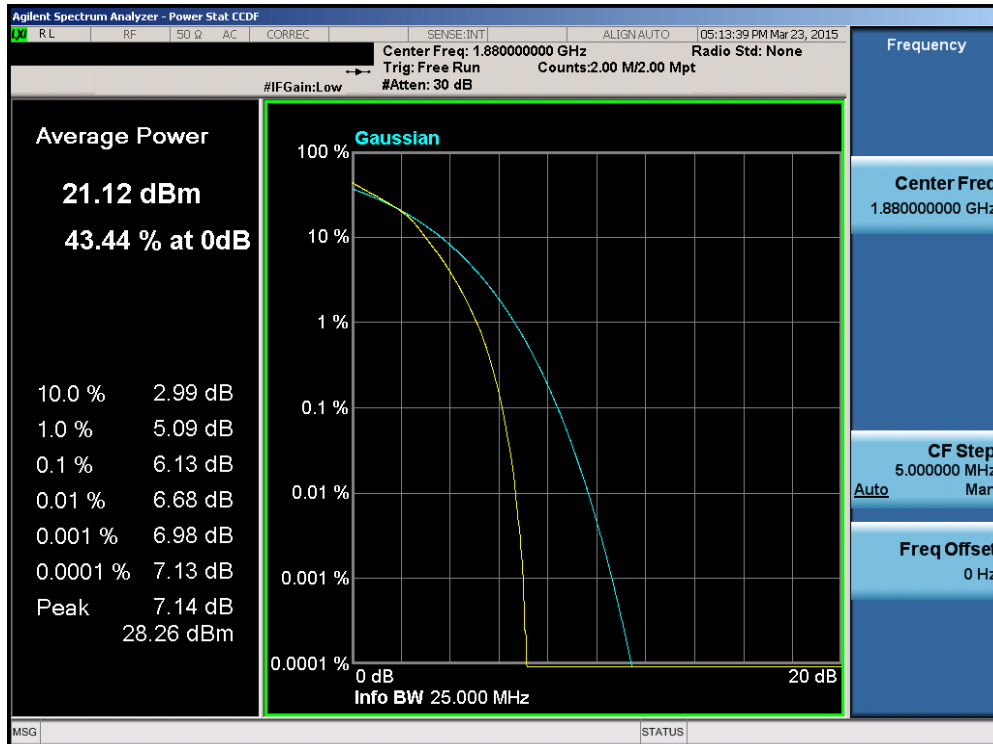


Plot 6-185. PAR Plot (Band 2 – 10.0MHz 16-QAM – RB Size 50)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 109 of 139

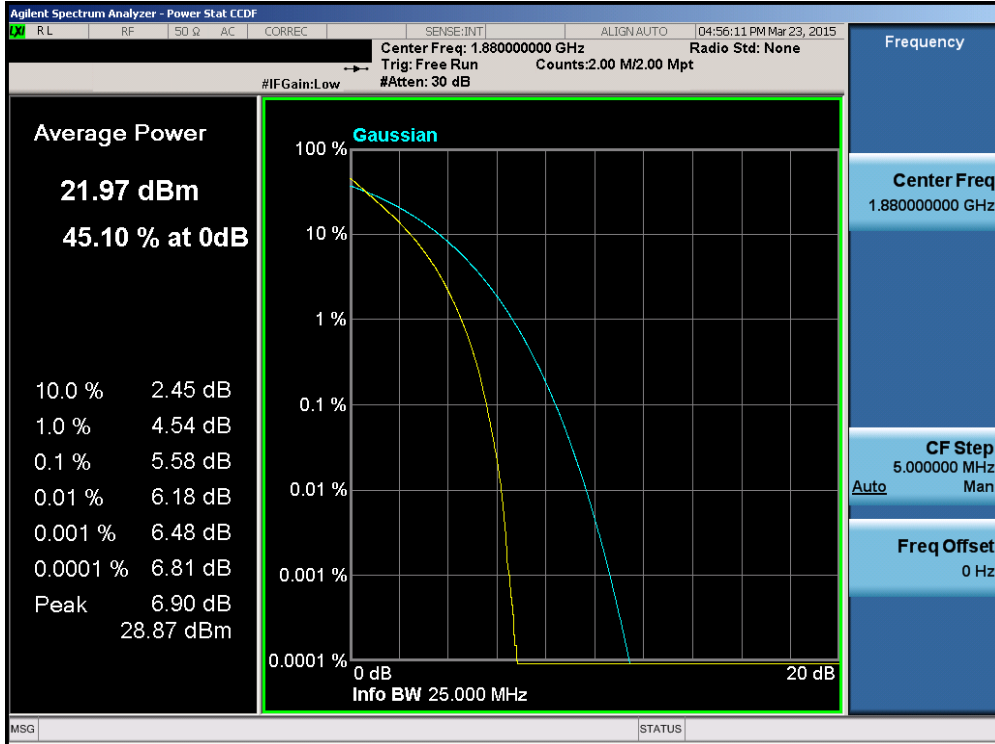


Plot 6-186. PAR Plot (Band 2 – 15.0MHz QPSK – RB Size 75)

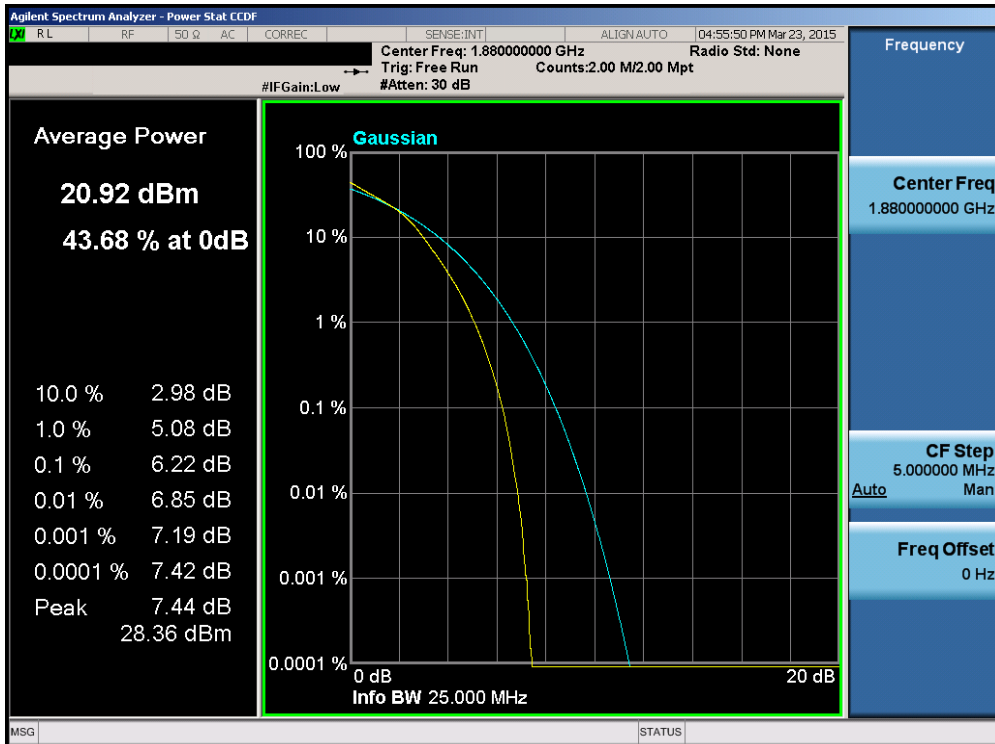


Plot 6-187. PAR Plot (Band 2 – 15.0MHz 16-QAM – RB Size 75)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 110 of 139



Plot 6-188. PAR Plot (Band 2 – 20.0MHz QPSK – RB Size 100)



Plot 6-189. PAR Plot (Band 2 – 20.0MHz 16-QAM – RB Size 100)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 111 of 139

## 6.6 Radiated Power (ERP/EIRP)

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

### Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-C-2004 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.



### Test Procedures Used

KDB 971168 v02r02 – Section 5.2.1

ANSI/TIA-603-C-2004 – Section 2.2.17

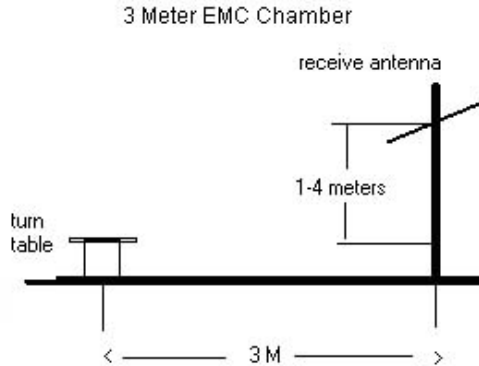
### Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW  $\geq$  3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points  $\geq$  2 x span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
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: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 112 of 139	

**Test Setup**



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



**Figure 6-5. 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 ERP's and EIRP's listed in the tables below were measured using the Class II Permissive Change sample, and were found to be within the measurement tolerances of the original certification samples for radiated power. It has been determined that the output power was not changed for these Class II Permissive Change samples.

<b>FCC ID:</b> ZNFV495	 <b>FCC Pt. 22, 24, &amp; 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)</b>			<b>Reviewed by:</b> Quality Manager
<b>Test Report S/N:</b> 0Y15503160552.ZNF	<b>Test Dates:</b> 3/16 - 4/1/2015	<b>EUT Type:</b> Portable Tablet	Page 113 of 139	



Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	Ant. Pol. [H/V]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	Standard	1 / 5	15.82	0.90	V	16.72	34.77	-18.05
707.50	1.4	QPSK	Standard	1 / 5	17.01	1.07	V	18.08	34.77	-16.69
715.30	1.4	QPSK	Standard	1 / 0	17.10	1.23	V	18.33	34.77	-16.45
699.70	1.4	16-QAM	Standard	1 / 5	14.72	0.90	V	15.62	34.77	-19.15
707.50	1.4	16-QAM	Standard	1 / 5	15.90	1.07	V	16.97	34.77	-17.80
715.30	1.4	16-QAM	Standard	1 / 0	15.85	1.23	V	17.08	34.77	-17.70
700.50	3	QPSK	Standard	1 / 14	16.79	0.92	V	17.71	34.77	-17.06
707.50	3	QPSK	Standard	1 / 14	17.51	1.07	V	18.58	34.77	-16.19
714.50	3	QPSK	Standard	1 / 0	17.54	1.21	V	18.75	34.77	-16.02
700.50	3	16-QAM	Standard	1 / 14	15.47	0.92	V	16.39	34.77	-18.38
707.50	3	16-QAM	Standard	1 / 14	16.28	1.07	V	17.35	34.77	-17.42
714.50	3	16-QAM	Standard	1 / 0	16.30	1.21	V	17.51	34.77	-17.26
701.50	5	QPSK	Standard	1 / 24	16.97	0.94	V	17.91	34.77	-16.86
707.50	5	QPSK	Standard	1 / 24	17.72	1.07	V	18.79	34.77	-15.98
713.50	5	QPSK	Standard	1 / 0	17.88	1.19	V	19.07	34.77	-15.70
701.50	5	16-QAM	Standard	1 / 24	15.83	0.94	V	16.77	34.77	-18.00
707.50	5	16-QAM	Standard	1 / 24	16.55	1.07	V	17.62	34.77	-17.15
713.50	5	16-QAM	Standard	1 / 0	16.63	1.19	V	17.82	34.77	-16.95
704.00	10	QPSK	Standard	1 / 49	17.52	1.00	V	18.52	34.77	-16.25
707.50	10	QPSK	Standard	1 / 49	17.72	1.07	V	18.79	34.77	-15.98
711.00	10	QPSK	Standard	1 / 49	17.34	1.14	V	18.48	34.77	-16.29
704.00	10	16-QAM	Standard	1 / 49	16.20	1.00	V	17.20	34.77	-17.57
707.50	10	16-QAM	Standard	1 / 49	16.53	1.07	V	17.60	34.77	-17.17
711.00	10	16-QAM	Standard	1 / 49	16.02	1.14	V	17.16	34.77	-17.61

**Table 6-2. ERP Data (Band 12)**

FCC ID: ZNFV495	 <b>FCC Pt. 22, 24, &amp; 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)</b>			Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 114 of 139	



Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	Ant. Pol. [H/V]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	Standard	1 / 5	16.29	2.98	V	19.27	38.45	-19.18
836.50	1.4	QPSK	Standard	1 / 5	15.52	3.04	V	18.56	38.45	-19.89
848.30	1.4	QPSK	Standard	1 / 0	15.69	3.10	V	18.79	38.45	-19.66
824.70	1.4	16-QAM	Standard	1 / 5	15.49	2.98	V	18.47	38.45	-19.98
836.50	1.4	16-QAM	Standard	1 / 5	14.39	3.04	V	17.43	38.45	-21.02
848.30	1.4	16-QAM	Standard	1 / 0	14.52	3.10	V	17.62	38.45	-20.83
825.50	3	QPSK	Standard	1 / 14	14.40	2.98	V	17.38	38.45	-21.07
836.50	3	QPSK	Standard	1 / 14	14.76	3.04	V	17.80	38.45	-20.65
847.50	3	QPSK	Standard	1 / 14	15.35	3.10	V	18.45	38.45	-20.00
825.50	3	16-QAM	Standard	1 / 14	13.14	2.98	V	16.12	38.45	-22.33
836.50	3	16-QAM	Standard	1 / 14	13.47	3.04	V	16.51	38.45	-21.94
847.50	3	16-QAM	Standard	1 / 14	14.31	3.10	V	17.41	38.45	-21.04
826.50	5	QPSK	Standard	1 / 24	16.39	2.99	V	19.38	38.45	-19.07
836.50	5	QPSK	Standard	1 / 24	15.94	3.04	V	18.98	38.45	-19.47
846.50	5	QPSK	Standard	1 / 24	15.70	3.09	V	18.79	38.45	-19.66
826.50	5	16-QAM	Standard	1 / 24	15.08	2.99	V	18.07	38.45	-20.38
836.50	5	16-QAM	Standard	1 / 24	14.70	3.04	V	17.74	38.45	-20.71
846.50	5	16-QAM	Standard	1 / 24	14.46	3.09	V	17.55	38.45	-20.90
829.00	10	QPSK	Standard	1 / 49	16.83	3.00	V	19.83	38.45	-18.62
836.50	10	QPSK	Standard	1 / 49	17.01	3.04	V	20.05	38.45	-18.40
844.00	10	QPSK	Standard	1 / 49	17.04	3.08	V	20.12	38.45	-18.33
829.00	10	16-QAM	Standard	1 / 49	15.54	3.00	V	18.54	38.45	-19.91
836.50	10	16-QAM	Standard	1 / 49	15.68	3.04	V	18.72	38.45	-19.73
844.00	10	16-QAM	Standard	1 / 49	16.44	3.08	V	19.52	38.45	-18.93

**Table 6-3. ERP Data (Band 5)**

FCC ID: ZNFV495	 <b>FCC Pt. 22, 24, &amp; 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)</b>			Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 115 of 139	

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	Ant. Pol. [H/V]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	Standard	1 / 0	12.83	9.28	V	22.11	30.00	-7.89
1732.50	1.4	QPSK	Standard	1 / 5	13.54	9.00	V	22.54	30.00	-7.46
1754.30	1.4	QPSK	Standard	1 / 5	13.06	8.72	V	21.78	30.00	-8.22
1710.70	1.4	16-QAM	Standard	1 / 0	11.97	9.28	V	21.25	30.00	-8.75
1732.50	1.4	16-QAM	Standard	1 / 5	12.75	9.00	V	21.75	30.00	-8.25
1754.30	1.4	16-QAM	Standard	1 / 5	12.08	8.72	V	20.80	30.00	-9.20
1711.50	3	QPSK	Standard	1 / 0	13.23	9.27	V	22.50	30.00	-7.50
1732.50	3	QPSK	Standard	1 / 14	13.92	9.00	V	22.92	30.00	-7.08
1753.50	3	QPSK	Standard	1 / 0	13.24	8.73	V	21.97	30.00	-8.03
1711.50	3	16-QAM	Standard	1 / 0	12.41	9.27	V	21.68	30.00	-8.32
1732.50	3	16-QAM	Standard	1 / 14	13.02	9.00	V	22.02	30.00	-7.98
1753.50	3	16-QAM	Standard	1 / 0	12.28	8.73	V	21.01	30.00	-8.99
1712.50	5	QPSK	Standard	1 / 0	9.45	9.26	V	18.71	30.00	-11.29
1732.50	5	QPSK	Standard	1 / 24	9.97	9.00	V	18.97	30.00	-11.03
1752.50	5	QPSK	Standard	1 / 0	9.56	8.74	V	18.30	30.00	-11.70
1712.50	5	16-QAM	Standard	1 / 0	8.39	9.26	V	17.65	30.00	-12.35
1732.50	5	16-QAM	Standard	1 / 24	9.06	9.00	V	18.06	30.00	-11.94
1752.50	5	16-QAM	Standard	1 / 0	8.38	8.74	V	17.12	30.00	-12.88
1715.00	10	QPSK	Standard	1 / 0	9.67	9.22	V	18.89	30.00	-11.11
1732.50	10	QPSK	Standard	1 / 49	9.81	9.00	V	18.81	30.00	-11.19
1750.00	10	QPSK	Standard	1 / 0	9.41	8.77	V	18.18	30.00	-11.82
1715.00	10	16-QAM	Standard	1 / 0	8.67	9.22	V	17.89	30.00	-12.11
1732.50	10	16-QAM	Standard	1 / 49	8.87	9.00	V	17.87	30.00	-12.13
1750.00	10	16-QAM	Standard	1 / 0	8.62	8.77	V	17.39	30.00	-12.61
1717.50	15	QPSK	Standard	1 / 0	10.04	9.19	V	19.23	30.00	-10.77
1732.50	15	QPSK	Standard	1 / 74	9.49	9.00	V	18.49	30.00	-11.51
1747.50	15	QPSK	Standard	1 / 0	9.99	8.80	V	18.79	30.00	-11.21
1717.50	15	16-QAM	Standard	1 / 0	8.82	9.19	V	18.01	30.00	-11.99
1732.50	15	16-QAM	Standard	1 / 74	8.90	9.00	V	17.90	30.00	-12.10
1747.50	15	16-QAM	Standard	1 / 0	8.86	8.80	V	17.66	30.00	-12.34
1720.00	20	QPSK	Standard	1 / 0	9.73	9.16	V	18.89	30.00	-11.11
1732.50	20	QPSK	Standard	1 / 99	9.45	9.00	V	18.45	30.00	-11.55
1745.00	20	QPSK	Standard	1 / 0	9.66	8.83	V	18.49	30.00	-11.51
1720.00	20	16-QAM	Standard	1 / 0	8.81	9.16	V	17.97	30.00	-12.03
1732.50	20	16-QAM	Standard	1 / 99	8.56	9.00	V	17.56	30.00	-12.44
1745.00	20	16-QAM	Standard	1 / 0	8.62	8.83	V	17.45	30.00	-12.55



**Table 6-4. EIRP Data (Band 4)**

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 116 of 139	





Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	Ant. Pol. [H/V]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	Standard	1 / 0	14.24	8.34	V	22.58	33.01	-10.43
1880.00	1.4	QPSK	Standard	1 / 0	15.28	8.46	V	23.74	33.01	-9.27
1909.30	1.4	QPSK	Standard	1 / 5	14.90	8.64	V	23.54	33.01	-9.47
1850.70	1.4	16-QAM	Standard	1 / 0	13.10	8.34	V	21.44	33.01	-11.57
1880.00	1.4	16-QAM	Standard	1 / 0	14.34	8.46	V	22.80	33.01	-10.21
1909.30	1.4	16-QAM	Standard	1 / 5	13.95	8.64	V	22.59	33.01	-10.42
1851.50	3	QPSK	Standard	1 / 14	14.72	8.35	V	23.07	33.01	-9.94
1880.00	3	QPSK	Standard	1 / 0	15.79	8.46	V	24.25	33.01	-8.76
1908.50	3	QPSK	Standard	1 / 0	15.63	8.63	V	24.26	33.01	-8.75
1851.50	3	16-QAM	Standard	1 / 14	13.66	8.35	V	22.01	33.01	-11.00
1880.00	3	16-QAM	Standard	1 / 0	14.84	8.46	V	23.30	33.01	-9.71
1908.50	3	16-QAM	Standard	1 / 0	14.67	8.63	V	23.30	33.01	-9.71
1852.50	5	QPSK	Standard	1 / 24	12.72	8.35	V	21.07	33.01	-11.94
1880.00	5	QPSK	Standard	1 / 0	13.75	8.46	V	22.21	33.01	-10.80
1907.50	5	QPSK	Standard	1 / 0	14.04	8.62	V	22.66	33.01	-10.35
1852.50	5	16-QAM	Standard	1 / 24	11.79	8.35	V	20.14	33.01	-12.87
1880.00	5	16-QAM	Standard	1 / 0	12.75	8.46	V	21.21	33.01	-11.80
1907.50	5	16-QAM	Standard	1 / 0	12.78	8.62	V	21.40	33.01	-11.61
1855.00	10	QPSK	Standard	1 / 49	13.35	8.36	V	21.71	33.01	-11.30
1880.00	10	QPSK	Standard	1 / 49	12.77	8.46	V	21.23	33.01	-11.78
1905.00	10	QPSK	Standard	1 / 0	12.16	8.59	V	20.75	33.01	-12.26
1855.00	10	16-QAM	Standard	1 / 49	12.40	8.36	V	20.76	33.01	-12.25
1880.00	10	16-QAM	Standard	1 / 49	11.82	8.46	V	20.28	33.01	-12.73
1905.00	10	16-QAM	Standard	1 / 0	11.18	8.59	V	19.77	33.01	-13.24
1857.50	15	QPSK	Standard	1 / 0	13.10	8.37	V	21.47	33.01	-11.54
1880.00	15	QPSK	Standard	1 / 74	13.04	8.46	V	21.50	33.01	-11.51
1902.50	15	QPSK	Standard	1 / 0	12.26	8.56	V	20.82	33.01	-12.19
1857.50	15	16-QAM	Standard	1 / 0	12.02	8.37	V	20.39	33.01	-12.62
1880.00	15	16-QAM	Standard	1 / 74	11.97	8.46	V	20.43	33.01	-12.58
1902.50	15	16-QAM	Standard	1 / 0	11.23	8.56	V	19.79	33.01	-13.22
1860.00	20	QPSK	Standard	1 / 0	13.19	8.38	V	21.57	33.01	-11.44
1880.00	20	QPSK	Standard	1 / 99	12.05	8.46	V	20.51	33.01	-12.50
1900.00	20	QPSK	Standard	1 / 0	11.99	8.53	V	20.52	33.01	-12.49
1860.00	20	16-QAM	Standard	1 / 0	11.91	8.38	V	20.29	33.01	-12.72
1880.00	20	16-QAM	Standard	1 / 99	11.16	8.46	V	19.62	33.01	-13.39
1900.00	20	16-QAM	Standard	1 / 0	10.94	8.53	V	19.47	33.01	-13.54

**Table 6-5. EIRP Data (Band 2)**

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 117 of 139	

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	Ant. Pol. [H/V]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
2502.50	5	QPSK	Standard	1 / 24	12.25	7.09	V	19.34	33.01	-13.67
2535.00	5	QPSK	Standard	1 / 0	12.24	7.26	V	19.50	33.01	-13.51
2567.50	5	QPSK	Standard	1 / 0	11.03	7.42	V	18.45	33.01	-14.56
2502.50	5	16-QAM	Standard	1 / 24	11.05	7.09	V	18.14	33.01	-14.87
2535.00	5	16-QAM	Standard	1 / 0	11.16	7.26	V	18.42	33.01	-14.59
2567.50	5	16-QAM	Standard	1 / 0	10.01	7.42	V	17.43	33.01	-15.58
2505.00	10	QPSK	Standard	1 / 49	12.42	7.10	V	19.53	33.01	-13.48
2535.00	10	QPSK	Standard	1 / 0	11.89	7.26	V	19.15	33.01	-13.86
2565.00	10	QPSK	Standard	1 / 0	10.70	7.41	V	18.11	33.01	-14.90
2505.00	10	16-QAM	Standard	1 / 49	11.45	7.10	V	18.56	33.01	-14.45
2535.00	10	16-QAM	Standard	1 / 0	11.00	7.26	V	18.26	33.01	-14.75
2565.00	10	16-QAM	Standard	1 / 0	9.78	7.41	V	17.19	33.01	-15.82
2507.50	15	QPSK	Standard	1 / 74	12.38	7.12	V	19.50	33.01	-13.51
2535.00	15	QPSK	Standard	1 / 74	11.29	7.26	V	18.55	33.01	-14.46
2562.50	15	QPSK	Standard	1 / 0	11.44	7.39	V	18.84	33.01	-14.17
2507.50	15	16-QAM	Standard	1 / 74	11.55	7.12	V	18.67	33.01	-14.34
2535.00	15	16-QAM	Standard	1 / 74	10.23	7.26	V	17.49	33.01	-15.52
2562.50	15	16-QAM	Standard	1 / 0	10.55	7.39	V	17.95	33.01	-15.06
2510.00	20	QPSK	Standard	1 / 99	11.16	7.13	V	18.29	33.01	-14.72
2535.00	20	QPSK	Standard	1 / 99	11.18	7.26	V	18.44	33.01	-14.57
2560.00	20	QPSK	Standard	1 / 0	11.29	7.38	V	18.68	33.01	-14.33
2510.00	20	16-QAM	Standard	1 / 99	10.43	7.13	V	17.56	33.01	-15.45
2535.00	20	16-QAM	Standard	1 / 99	10.14	7.26	V	17.40	33.01	-15.61
2560.00	20	16-QAM	Standard	1 / 0	10.38	7.38	V	17.77	33.01	-15.24

**Table 6-6. EIRP Data (Band 7)**

FCC ID: ZNFV495	 <b>FCC Pt. 22, 24, &amp; 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)</b>			Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 118 of 139	

## 6.7 Radiated Spurious Emissions Measurements

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

### Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-C-2004 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as peak measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

### Test Procedures Used

KDB 971168 v02r02 – Section 5.8

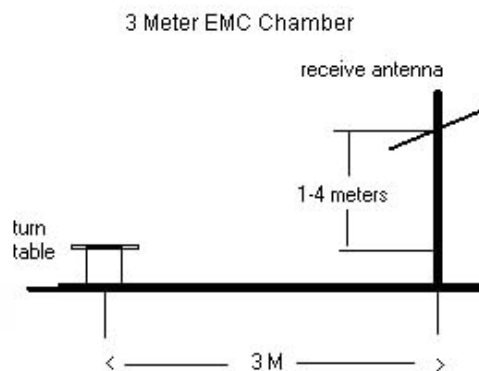
ANSI/TIA-603-C-2004 – Section 2.2.12

### Test Settings



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

### Test Setup

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



**Figure 6-6. Test Instrument & Measurement Setup**

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 119 of 139

### 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.



OPERATING FREQUENCY: 701.50 MHz  
 CHANNEL: 23035  
 MEASURED OUTPUT POWER: 17.91 dBm = 0.062 W  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 5.0 MHz  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  30.91 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1403.00	-60.41	5.66	-54.74	H	72.7
2104.50	-63.16	6.63	-56.53	H	74.4

Table 6-7. Radiated Spurious Data (Band 12 – Low Channel)

OPERATING FREQUENCY: 707.50 MHz  
 CHANNEL: 23095  
 MEASURED OUTPUT POWER: 18.79 dBm = 0.076 W  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 5.0 MHz  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  31.79 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1415.00	-61.57	5.73	-55.84	H	74.6
2122.50	-61.89	6.73	-55.16	H	74.0

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 120 of 139	

**Table 6-8. Radiated Spurious Data (Band 12 – Mid Channel)**

OPERATING FREQUENCY: 713.50 MHz  
 CHANNEL: 23155  
 MEASURED OUTPUT POWER: 19.07 dBm = 0.081 W  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 5.0 MHz  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  32.07 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1427.00	-60.97	5.80	-55.17	H	74.2
2140.50	-63.94	6.83	-57.11	H	76.2

**Table 6-9. Radiated Spurious Data (Band 12 – High Channel)**

OPERATING FREQUENCY: 829.00 MHz  
 CHANNEL: 20450  
 MEASURED OUTPUT POWER: 19.83 dBm = 0.096 W  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.0 MHz  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  32.83 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1658.00	-65.70	6.56	-59.14	H	79.0
2487.00	-64.49	7.32	-57.17	H	77.0

**Table 6-10. Radiated Spurious Data (Band 5 – Low Channel)**

OPERATING FREQUENCY: 836.50 MHz  
 CHANNEL: 20525  
 MEASURED OUTPUT POWER: 20.05 dBm = 0.101 W  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.0 MHz  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  33.05 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1673.00	-66.11	6.55	-59.55	H	79.6
2509.50	-65.07	7.34	-57.73	H	77.8

**Table 6-11. Radiated Spurious Data (Band 5 – Mid Channel)**

OPERATING FREQUENCY: 844.00 MHz  
 CHANNEL: 20600  
 MEASURED OUTPUT POWER: 20.12 dBm = 0.103 W  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.0 MHz  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  33.12 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1688.00	-64.39	6.55	-57.85	H	78.0
2532.00	-65.40	7.35	-58.05	H	78.2

**Table 6-12. Radiated Spurious Data (Band 5 – High Channel)**

OPERATING FREQUENCY: 1711.50 MHz  
 CHANNEL: 19965  
 MEASURED OUTPUT POWER: 22.50 dBm = 0.178 W  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 3.0 MHz  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  35.50 dBc



Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
3423.00	-48.12	9.68	-38.44	H	60.9
5134.50	-47.30	10.68	-36.62	H	59.1
6846.00	-56.43	11.74	-44.69	H	67.2
8557.50	-52.26	11.05	-41.21	H	63.7
10269.00	-52.71	12.26	-40.45	H	63.0

**Table 6-13. Radiated Spurious Data (Band 4 – Low Channel)**

OPERATING FREQUENCY: 1732.50 MHz  
 CHANNEL: 20175  
 MEASURED OUTPUT POWER: 22.92 dBm = 0.196 W  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 3.0 MHz  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  35.92 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
3465.00	-45.60	9.71	-35.90	H	58.8
5197.50	-46.52	10.59	-35.94	H	58.9
6930.00	-51.01	11.75	-39.25	H	62.2
8662.50	-44.00	11.06	-32.93	H	55.8
10395.00	-50.41	12.37	-38.04	H	61.0
12127.50	-51.86	12.83	-39.02	H	61.9

**Table 6-14. Radiated Spurious Data (Band 4 – Mid Channel)**

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 123 of 139	

OPERATING FREQUENCY: 1753.50 MHz  
 CHANNEL: 20385  
 MEASURED OUTPUT POWER: 21.97 dBm = 0.157 W  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 3.0 MHz  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  34.97 dBc



Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
3507.00	-54.76	9.73	-45.03	H	67.0
5260.50	-45.21	10.64	-34.56	H	56.5
7014.00	-56.86	11.75	-45.10	H	67.1
8767.50	-52.79	11.00	-41.80	H	63.8
10521.00	-53.27	12.48	-40.80	H	62.8

**Table 6-15. Radiated Spurious Data (Band 4 – High Channel)**

OPERATING FREQUENCY: 1851.50 MHz  
 CHANNEL: 18615  
 MEASURED OUTPUT POWER: 23.07 dBm = 0.203 W  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 3.0 MHz  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  36.07 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
3703.00	-44.02	8.40	-35.62	H	58.7
5554.50	-48.88	10.56	-38.32	H	61.4
7406.00	-52.10	12.05	-40.04	H	63.1
9257.50	-54.18	13.22	-40.97	H	64.0
11109.00	-48.20	13.25	-34.95	H	58.0

**Table 6-16. Radiated Spurious Data (Band 2 – Low Channel)**

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 124 of 139	



OPERATING FREQUENCY: 1880.00 MHz  
 CHANNEL: 18900  
 MEASURED OUTPUT POWER: 24.25 dBm = 0.266 W  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 3.0 MHz  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  37.25 dBc



Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
3760.00	-44.99	8.38	-36.61	H	60.9
5640.00	-53.84	10.70	-43.14	H	67.4
7520.00	-52.99	12.10	-40.89	H	65.1
9400.00	-53.80	13.19	-40.61	H	64.9
11280.00	-43.99	13.31	-30.67	H	54.9

Table 6-17. Radiated Spurious Data (Band 2 – Mid Channel)

OPERATING FREQUENCY: 1908.50 MHz  
 CHANNEL: 19185  
 MEASURED OUTPUT POWER: 24.26 dBm = 0.267 W  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 3.0 MHz  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  37.26 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
3817.00	-43.83	8.40	-35.42	H	59.7
5725.50	-50.52	10.76	-39.76	H	64.0
7634.00	-45.72	12.21	-33.51	H	57.8
9542.50	-52.08	13.18	-38.90	H	63.2
11451.00	-40.34	13.33	-27.01	H	51.3

Table 6-18. Radiated Spurious Data (Band 2 – High Channel)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 125 of 139	

OPERATING FREQUENCY: 2505.00 MHz  
 CHANNEL: 20800  
 MEASURED OUTPUT POWER: 19.53 dBm = 0.090 W  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.0 MHz  
 DISTANCE: 3 meters  
 LIMIT:  $55 + 10 \log_{10}(W) =$  44.53 dBc



Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
5010.00	-42.12	10.91	-31.21	H	50.7
7515.00	-43.92	10.96	-32.95	H	52.5
10020.00	-51.83	12.04	-39.78	H	59.3
12525.00	-51.43	13.45	-37.99	H	57.5
15030.00	-49.50	13.45	-36.06	H	55.6

**Table 6-19. Radiated Spurious Data (Band 7 – Low Channel)**

OPERATING FREQUENCY: 2535.00 MHz  
 CHANNEL: 21100  
 MEASURED OUTPUT POWER: 19.15 dBm = 0.082 W  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.0 MHz  
 DISTANCE: 3 meters  
 LIMIT:  $55 + 10 \log_{10}(W) =$  44.15 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
5070.00	-43.28	10.79	-32.49	H	51.6
7605.00	-46.27	11.15	-35.12	H	54.3
10140.00	-51.57	12.14	-39.44	H	58.6
12675.00	-53.15	13.65	-39.49	H	58.6
15210.00	-49.52	14.42	-35.10	H	54.3



**Table 6-20. Radiated Spurious Data (Band 7 – Mid Channel)**

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 126 of 139	

OPERATING FREQUENCY: 2565.00 MHz  
 CHANNEL: 21400  
 MEASURED OUTPUT POWER: 18.11 dBm = 0.065 W  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.0 MHz  
 DISTANCE: 3 meters  
 LIMIT:  $55 + 10 \log_{10}(W) =$  43.11 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
5130.00	-40.05	10.69	-29.36	H	47.5
7695.00	-43.33	11.22	-32.11	H	50.2
10260.00	-48.87	12.25	-36.62	H	54.7
12825.00	-49.03	13.47	-35.57	H	53.7
15390.00	-52.07	15.56	-36.50	H	54.6

Table 6-21. Radiated Spurious Data (Band 7 – High Channel)

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet		Page 127 of 139

## 6.8 Frequency Stability / Temperature Variation

§2.1055 §22.355 §24.235 §27.54

### Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-C-2004. The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

*For Part 22, the frequency stability of the transmitter shall be maintained within  $\pm 0.00025\%$  ( $\pm 2.5$  ppm) of the center frequency. For Part 24 and Part 27, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.*

### Test Procedure Used

ANSI/TIA-603-C-2004

### Test Settings



1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

### Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

### Test Notes

None

FCC ID: ZNFV495	 FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)			Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 128 of 139	

## Band 12 Frequency Stability Measurements

§2.1055 §27.54



OPERATING FREQUENCY: 707,500,000 Hz  
 CHANNEL: 23790  
 REFERENCE VOLTAGE: 3.70 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	707,499,925	-75	-0.0000106
100 %		- 30	707,499,978	-22	-0.0000031
100 %		- 20	707,500,190	190	0.0000269
100 %		- 10	707,500,001	1	0.0000001
100 %		0	707,500,049	49	0.0000069
100 %		+ 10	707,500,055	55	0.0000078
100 %		+ 20	707,500,048	48	0.0000068
100 %		+ 30	707,500,090	90	0.0000127
100 %		+ 40	707,499,788	-212	-0.0000300
100 %		+ 50	707,499,849	-151	-0.0000213
BATT. ENDPOINT	3.40	+ 20	707,500,223	223	0.0000315

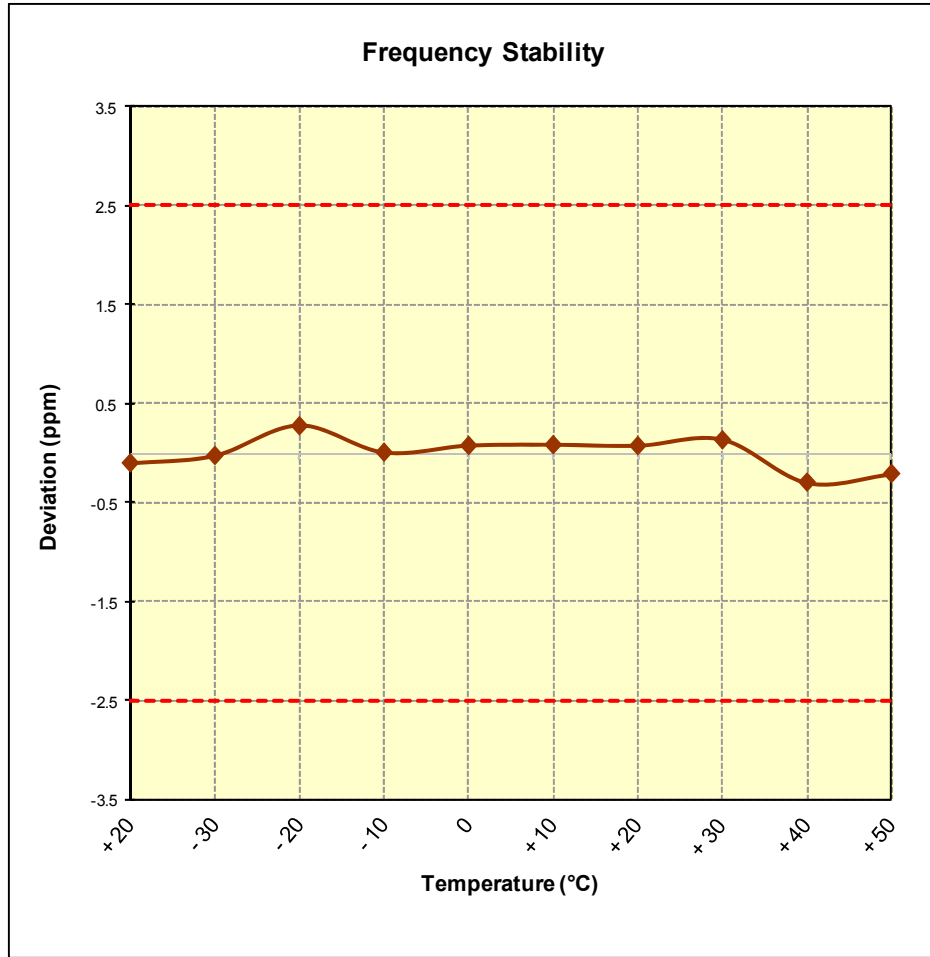
**Table 6-22. Frequency Stability Data (Band 12)**

**Note:**

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

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 129 of 139	

**Band 12 Frequency Stability Measurements**  
**§2.1055 §27.54**



**Figure 6-7. Frequency Stability Graph (Band 12)**

<b>FCC ID:</b> ZNFV495		<b>FCC Pt. 22, 24, &amp; 27 LTE MEASUREMENT REPORT</b> <b>(CLASS II PERMISSIVE CHANGE)</b>		<b>Reviewed by:</b> Quality Manager
<b>Test Report S/N:</b> 0Y15503160552.ZNF	<b>Test Dates:</b> 3/16 - 4/1/2015	<b>EUT Type:</b> Portable Tablet	Page 130 of 139	

## Band 5 Frequency Stability Measurements

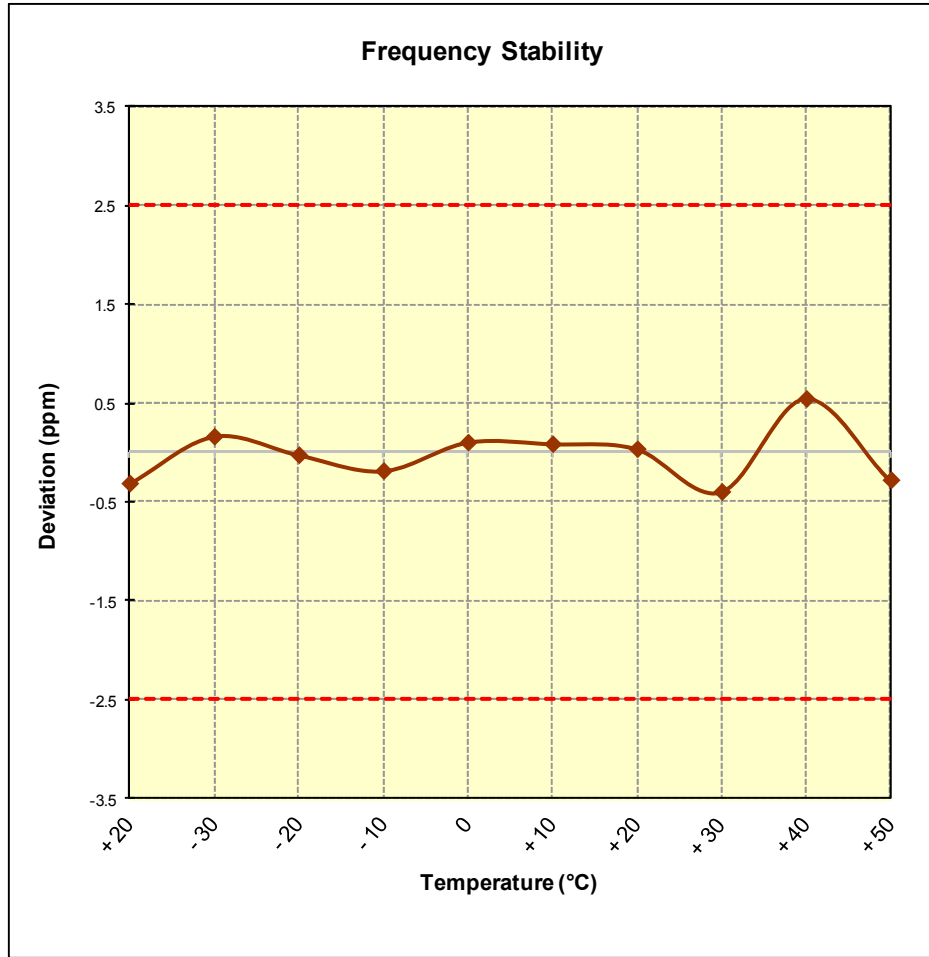
§2.1055 §22.355

OPERATING FREQUENCY: 836,500,000 Hz  
 CHANNEL: 20525  
 REFERENCE VOLTAGE: 3.70 VDC  
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	836,499,736	-264	-0.0000316
100 %		- 30	836,500,132	132	0.0000158
100 %		- 20	836,499,976	-24	-0.0000029
100 %		- 10	836,499,842	-158	-0.0000189
100 %		0	836,500,082	82	0.0000098
100 %		+ 10	836,500,069	69	0.0000082
100 %		+ 20	836,500,027	27	0.0000032
100 %		+ 30	836,499,665	-335	-0.0000400
100 %		+ 40	836,500,451	451	0.0000539
100 %		+ 50	836,499,765	-235	-0.0000281
BATT. ENDPOINT		3.40	+ 20	836,499,915	-85

Table 6-23. Frequency Stability Data (Band 5)

**Band 5 Frequency Stability Measurements**  
**§2.1055 §22.355**



**Figure 6-8. Frequency Stability Graph (Band 5)**

<p>FCC ID: ZNFV495</p>		<p>FCC Pt. 22, 24, &amp; 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)</p>		<p>Reviewed by: Quality Manager</p>
<p>Test Report S/N: 0Y15503160552.ZNF</p>	<p>Test Dates: 3/16 - 4/1/2015</p>	<p>EUT Type: Portable Tablet</p>	<p>Page 132 of 139</p>	



**Band 4 Frequency Stability Measurements**  
§2.1055 §§27.54



OPERATING FREQUENCY: 1,732,500,000 Hz  
 CHANNEL: 20175  
 REFERENCE VOLTAGE: 3.70 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	1,732,500,256	256	0.0000148
100 %		- 30	1,732,499,941	-59	-0.0000034
100 %		- 20	1,732,499,973	-27	-0.0000016
100 %		- 10	1,732,499,919	-81	-0.0000047
100 %		0	1,732,500,289	289	0.0000167
100 %		+ 10	1,732,500,346	346	0.0000200
100 %		+ 20	1,732,500,068	68	0.0000039
100 %		+ 30	1,732,500,146	146	0.0000084
100 %		+ 40	1,732,500,339	339	0.0000196
100 %		+ 50	1,732,500,238	238	0.0000137
BATT. ENDPOINT	3.40	+ 20	1,732,500,086	86	0.0000050

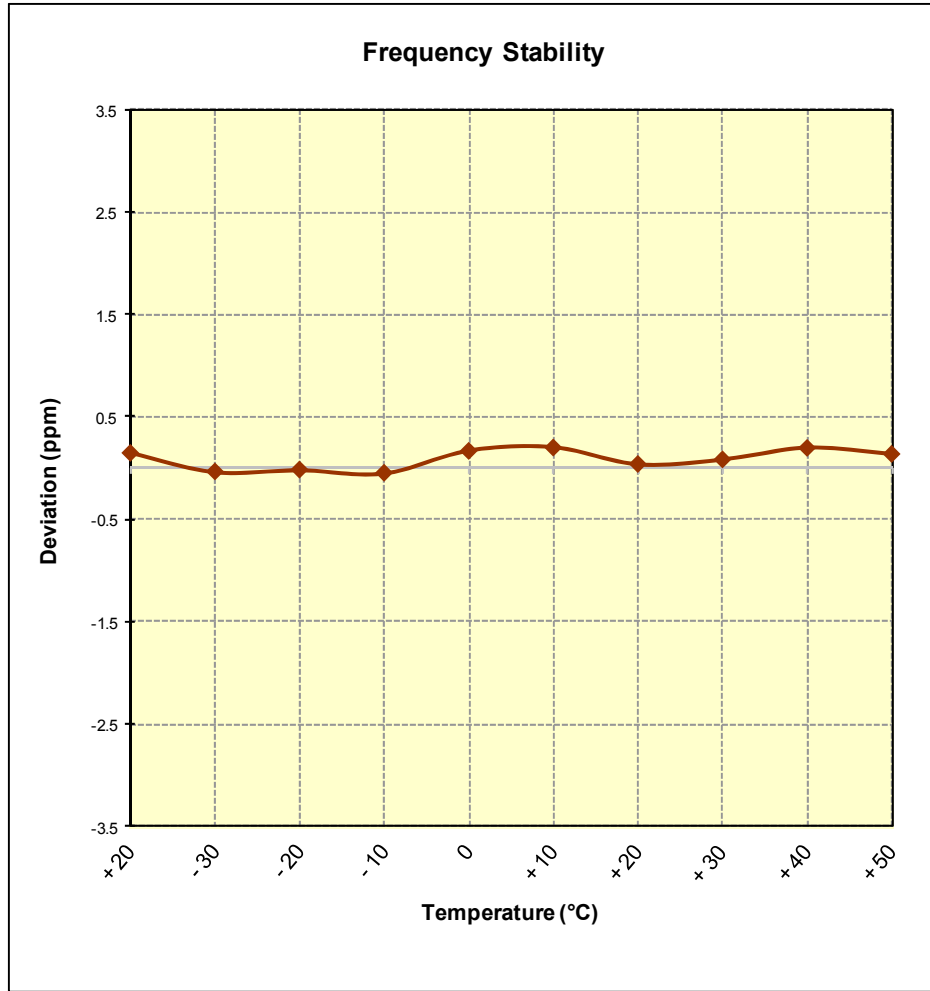
**Table 6-24. Frequency Stability Data (Band 4)**

**Note:**

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

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 133 of 139	

**Band 4 Frequency Stability Measurements**  
§2.1055 §§27.54



**Figure 6-9. Frequency Stability Graph (Band 4)**

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 134 of 139	

## Band 2 Frequency Stability Measurements

§2.1055 §24.235



OPERATING FREQUENCY: 1,880,000,000 Hz  
 CHANNEL: 18900  
 REFERENCE VOLTAGE: 3.70 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	1,879,999,774	-226	-0.0000120
100 %		- 30	1,879,999,950	-50	-0.0000027
100 %		- 20	1,880,000,076	76	0.0000040
100 %		- 10	1,879,999,990	-10	-0.0000005
100 %		0	1,879,999,964	-36	-0.0000019
100 %		+ 10	1,879,999,847	-153	-0.0000081
100 %		+ 20	1,879,999,631	-369	-0.0000196
100 %		+ 30	1,879,999,980	-20	-0.0000011
100 %		+ 40	1,880,000,215	215	0.0000114
100 %		+ 50	1,879,999,972	-28	-0.0000015
BATT. ENDPOINT	3.40	+ 20	1,879,999,889	-111	-0.0000059

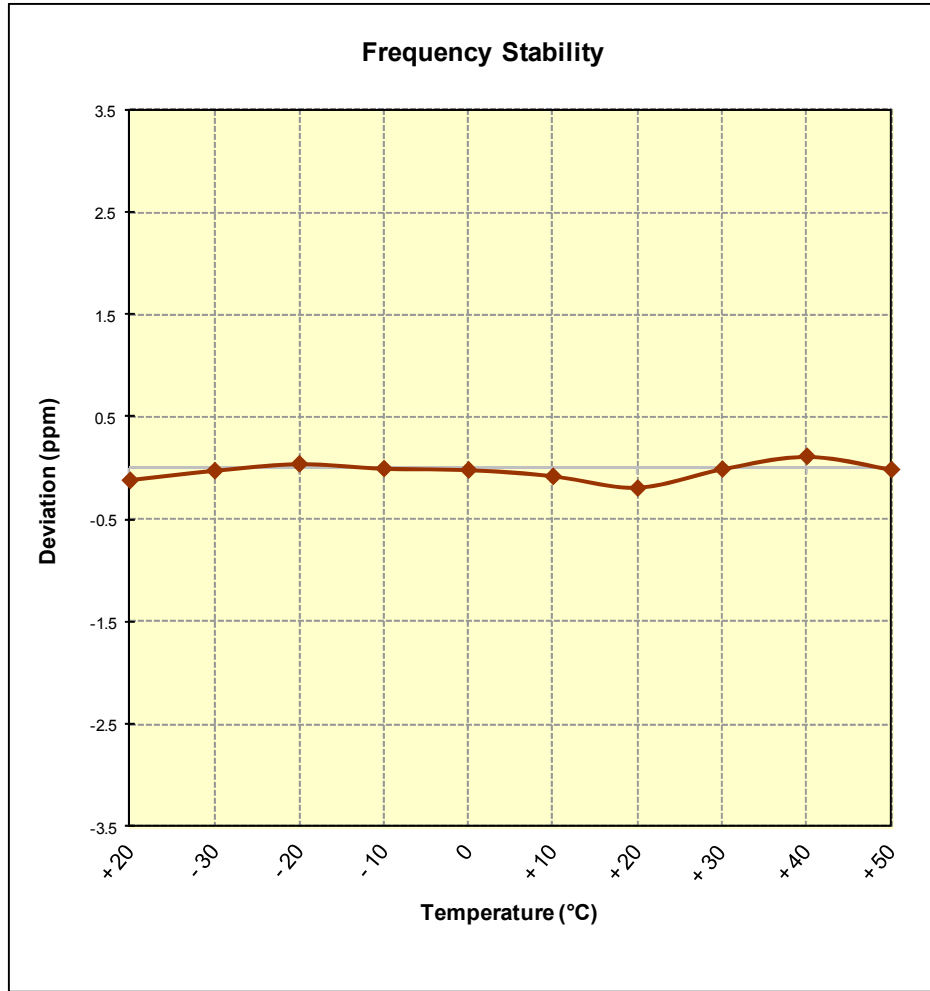
**Table 6-25. Frequency Stability Data (Band 2)**

**Note:**



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

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 135 of 139	

**Band 2 Frequency Stability Measurements**  
**§2.1055 §24.235**



**Figure 6-10. Frequency Stability Graph (Band 2)**

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 136 of 139	

## Band 7 Frequency Stability Measurements

**§2.1055 §27.54**



OPERATING FREQUENCY: 2,535,000,000 Hz  
 CHANNEL: 21100  
 REFERENCE VOLTAGE: 3.70 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	2,535,000,180	180	0.0000071
100 %		- 30	2,534,999,660	-340	-0.0000134
100 %		- 20	2,534,999,545	-455	-0.0000179
100 %		- 10	2,534,999,869	-131	-0.0000052
100 %		0	2,534,999,802	-198	-0.0000078
100 %		+ 10	2,534,999,883	-117	-0.0000046
100 %		+ 20	2,535,000,083	83	0.0000033
100 %		+ 30	2,535,000,131	131	0.0000052
100 %		+ 40	2,535,000,154	154	0.0000061
100 %		+ 50	2,534,999,584	-416	-0.0000164
BATT. ENDPOINT	3.40	+ 20	2,535,000,134	134	0.0000053

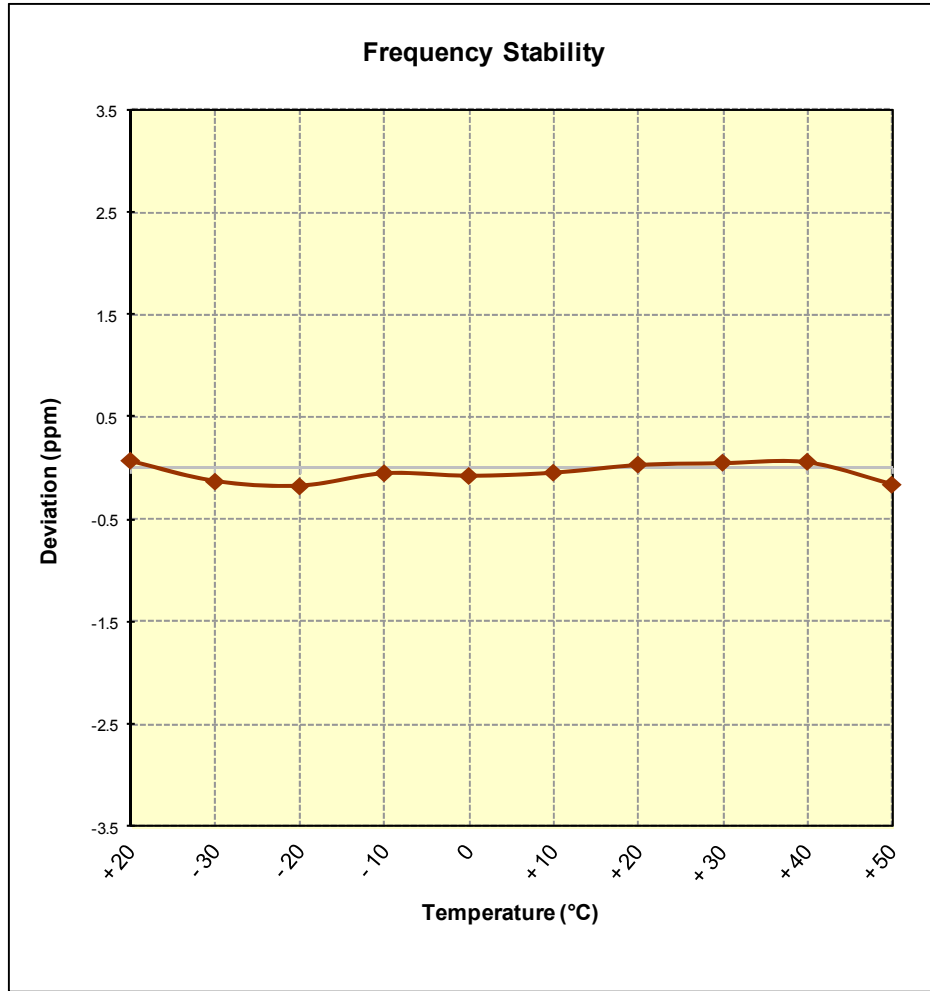
**Table 6-26. Frequency Stability Data (Band 7)**

**Note:**

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

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 137 of 139	

**Band 7 Frequency Stability Measurements**  
**§2.1055 §27.54**





**Figure 6-11. Frequency Stability Graph (Band 7)**

FCC ID: ZNFV495		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 138 of 139	

## 7.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Tablet FCC ID: ZNFV495** complies with all the requirements of Parts 22, 24, & 27 of the FCC rules for LTE operation only.

FCC ID: ZNFV495	 <b>FCC Pt. 22, 24, &amp; 27 LTE MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)</b>		Reviewed by: Quality Manager
Test Report S/N: 0Y15503160552.ZNF	Test Dates: 3/16 - 4/1/2015	EUT Type: Portable Tablet	Page 139 of 139