

Plot 7-82. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



Plot 7-83. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 60 of 192
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset	Page 60 of 182





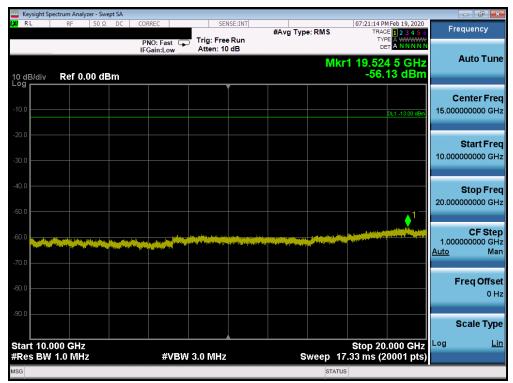
Plot 7-84. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-85. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 61 of 192
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset	Page 61 of 182





Plot 7-86. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 62 of 182
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset	Page 62 of 182



Band 25/2



Plot 7-87. Conducted Spurious Plot (Band 25/2 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-88. Conducted Spurious Plot (Band 25/2 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dags 62 of 402
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 63 of 182
© 2020 PCTEST				V 9.0 02/01/2019





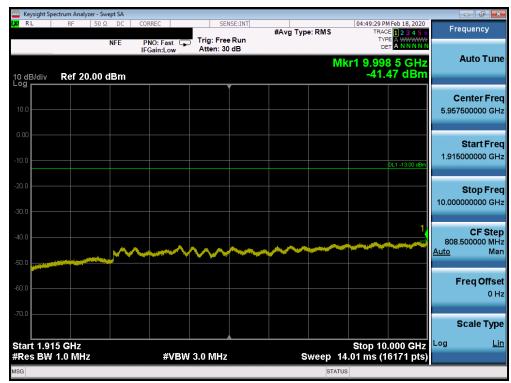
Plot 7-89. Conducted Spurious Plot (Band 25/2 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



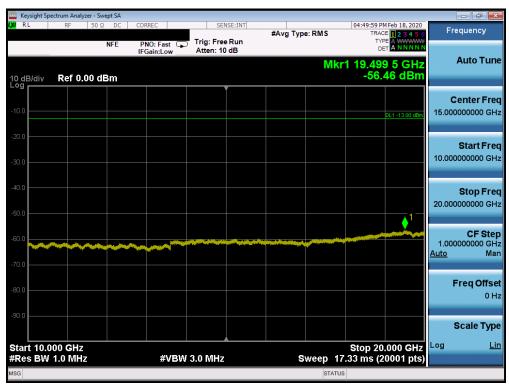
Plot 7-90. Conducted Spurious Plot (Band 25/2 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 64 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 64 of 182
© 2020 PCTEST				V 9.0 02/01/2019





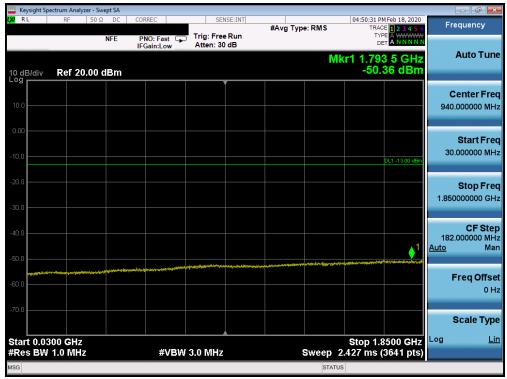
Plot 7-91. Conducted Spurious Plot (Band 25/2 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



Plot 7-92. Conducted Spurious Plot (Band 25/2 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 65 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 65 of 182
© 2020 PCTEST				V 9.0 02/01/2019





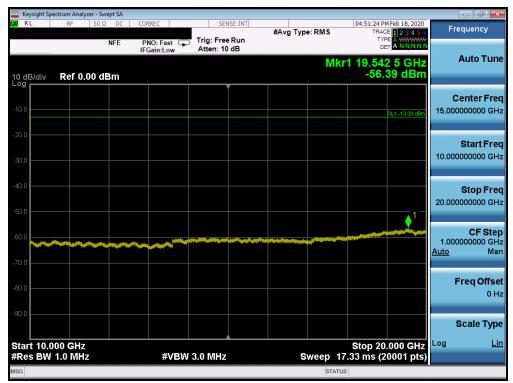
Plot 7-93. Conducted Spurious Plot (Band 25/2 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-94. Conducted Spurious Plot (Band 25/2 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 66 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 66 of 182
© 2020 PCTEST				V 9.0 02/01/2019





Plot 7-95. Conducted Spurious Plot (Band 25/2 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 67 of 192
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset	Page 67 of 182



Band 30



Plot 7-96. Conducted Spurious Plot (Band 30 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



Plot 7-97. Conducted Spurious Plot (Band 20 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 60 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 68 of 182
© 2020 PCTEST				V 9.0 02/01/2019





Plot 7-98. Conducted Spurious Plot (Band 20 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dags 60 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset	Page 69 of 182
© 2020 PCTEST			V 9.0 02/01/2019



Band 7



Plot 7-99. Conducted Spurious Plot (Band 7 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-100. Conducted Spurious Plot (Band 7 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Domo 70 of 192
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset	Page 70 of 182
© 2020 PCTEST			V 9.0 02/01/2019





Plot 7-101. Conducted Spurious Plot (Band 7 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-102. Conducted Spurious Plot (Band 7 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 71 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 71 of 182
© 2020 PCTEST				V 9.0 02/01/2019





Plot 7-103. Conducted Spurious Plot (Band 7 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



Plot 7-104. Conducted Spurious Plot (Band 7 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 70 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 72 of 182
© 2020 PCTEST				V 9.0 02/01/2019





Plot 7-105. Conducted Spurious Plot (Band 7 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-106. Conducted Spurious Plot (Band 7 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 72 of 102
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 73 of 182
© 2020 PCTEST				V 9.0 02/01/2019





Plot 7-107. Conducted Spurious Plot (Band 7 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 74 of 192
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset	Page 74 of 182



7.4 Band Edge Emissions at Antenna Terminal

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 + 10 $log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

The minimum permissible attenuation level for Band 30 is $> 43 + 10 \log 10$ (P[Watts] at 2300-2305MHz & 2345-2360MHz, $> 55 + 10 \log 10$ (P[Watts]) at 2320-2324MHz & 2341-2345MHz, $> 61 + 10 \log 10$ (P[Watts]) at 2324-2328MHz & 2337-2341MHz, $> 67 + 10 \log 10$ (P[Watts]) at 2288-2292MHz & 2328-2337MHz, and $> 70 + 10 \log 10$ (P[Watts]) at frequencies < 2288MHz & >2365MHz.

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

Test Procedure Used

KDB 971168 D01 v03r01 - 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 > 1% of the emission bandwidth
- 4. $VBW > 3 \times RBW$
- Detector = RMS
- Number of sweep points ≥ 2 x Span/RBW
- 7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
- 8. Sweep time = auto couple
- 9. The trace was allowed to stabilize

Test Setup

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



Figure 7-3. Test Instrument & Measurement Setup

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 75 of 192
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset	Page 75 of 182



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.

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

Per 27.53(c)(5) for operations in the 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

For all plots showing emissions in the 763 - 775MHz and 793 - 805MHz band, the FCC limit per 27.53(c)(4) is $65 + 10 \log_{10}(P) = -35$ dBm in a 6.25kHz bandwidth.

Per 27.53(a)(5) in the 1 MHz bands immediately outside and adjacent to the channel blocks at 2305, 2310, 2315, 2320, 2345, 2350, 2355, and 2360 MHz, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e., 1 MHz). 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 emissions are attenuated at least 26 dB below the transmitter power.

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 that 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.

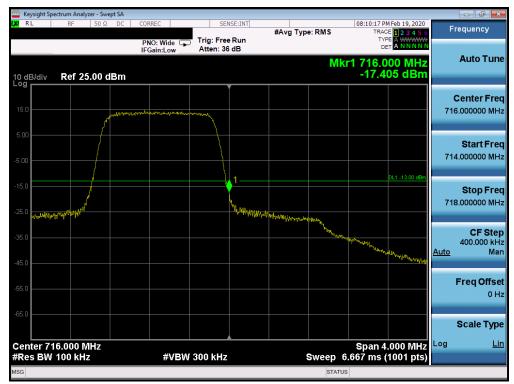
FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dago 76 of 192
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset	Page 76 of 182



Band 12/17



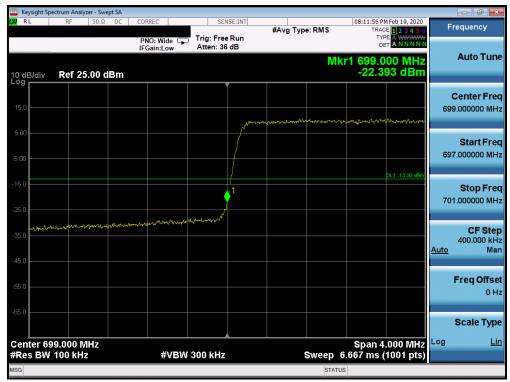
Plot 7-108. Lower Band Edge Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-109. Upper Band Edge Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	1	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogg 77 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 77 of 182
© 2020 PCTEST				V 9.0 02/01/2019





Plot 7-110. Lower Band Edge Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-111. Upper Band Edge Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogg 70 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 78 of 182
© 2020 PCTEST				V 9.0 02/01/2019





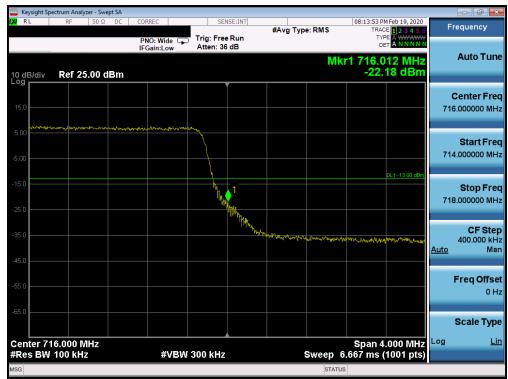
Plot 7-112. Lower Band Edge Plot (Band 12 - 5.0MHz QPSK - Full RB Configuration)



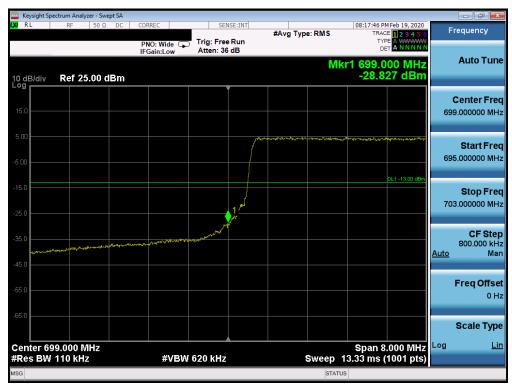
Plot 7-113. Lower Band Edge Plot (Band 17 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogg 70 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 79 of 182
© 2020 PCTEST				V 9.0 02/01/2019





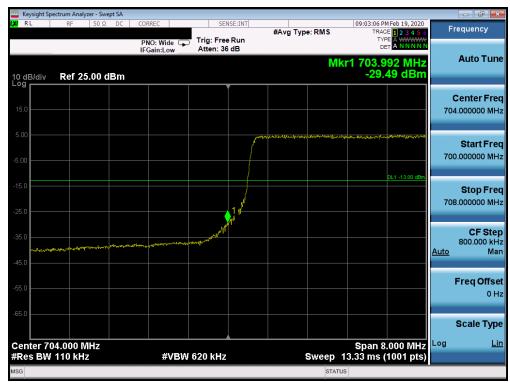
Plot 7-114. Upper Band Edge Plot (Band 12/17 - 5.0MHz QPSK - Full RB Configuration)



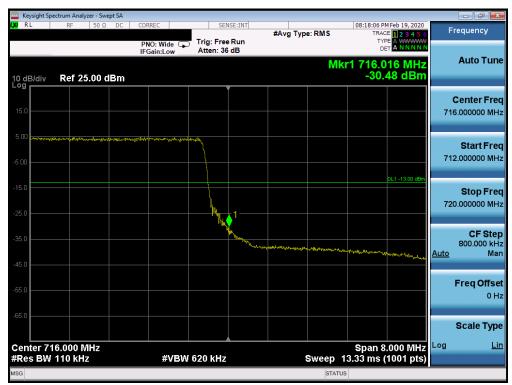
Plot 7-115. Lower Band Edge Plot (Band 12 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogg 00 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 80 of 182
© 2020 PCTEST				V 9.0 02/01/2019





Plot 7-116. Lower Band Edge Plot (Band 17 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-117. Upper Band Edge Plot (Band 12/17 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 04 of 400
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 81 of 182
© 2020 PCTEST				V 9.0 02/01/2019



Band 13



Plot 7-118. Lower Band Edge Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-119. Lower Emission Mask Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dags 92 of 492
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 82 of 182
© 2020 PCTEST				V 9.0 02/01/2019





Plot 7-120. Upper Band Edge Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-121. Upper Emission Mask Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 92 of 192
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 83 of 182
© 2020 PCTEST				V 9.0 02/01/2019





Plot 7-122. Lower Band Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-123. Lower Emission Mask Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 04 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 84 of 182
© 2020 PCTEST				V 9.0 02/01/2019





Plot 7-124. Upper Band Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-125. Upper Emission Mask Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approve Quality M	-
Test Report S/N:	Test Dates:	EUT Type:	Dogo 95	of 192
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset	Page 85	01 102



Band 5



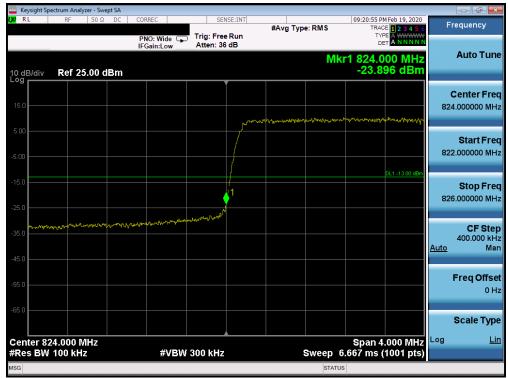
Plot 7-126. Lower Band Edge Plot (Band 5 - 1.4MHz QPSK - Full RB Configuration)



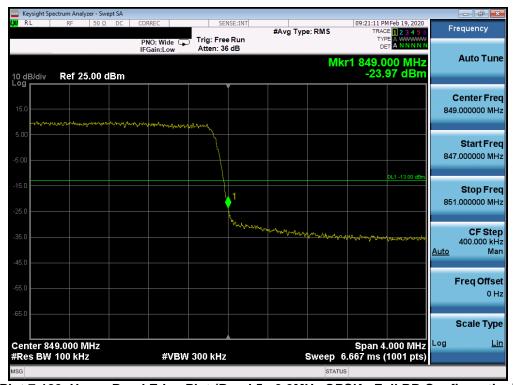
Plot 7-127. Upper Band Edge Plot (Band 5 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 06 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 86 of 182
© 2020 PCTEST				V 9.0 02/01/2019





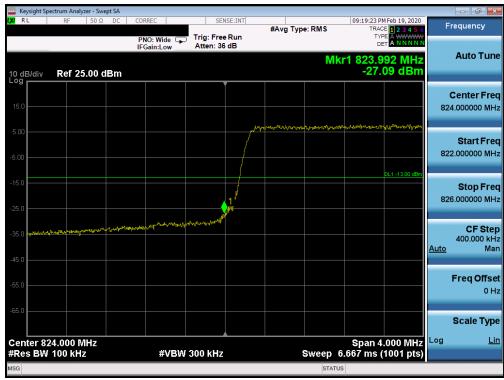
Plot 7-128. Lower Band Edge Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-129. Upper Band Edge Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 07 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 87 of 182
© 2020 PCTEST				V 9.0 02/01/2019





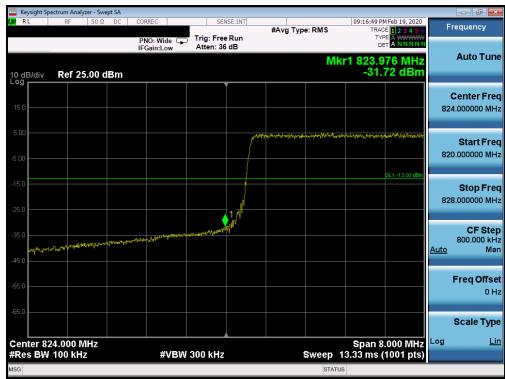
Plot 7-130. Lower Band Edge Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)



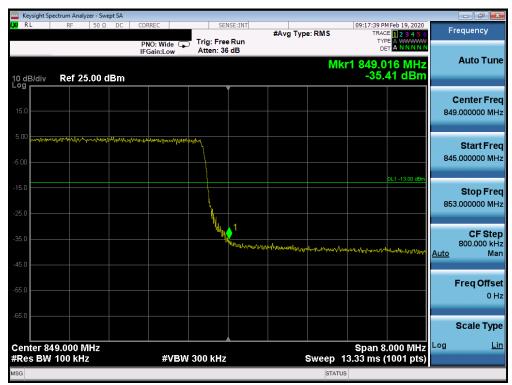
Plot 7-131. Upper Band Edge Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogg 90 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 88 of 182
© 2020 PCTEST				V 9.0 02/01/2019





Plot 7-132. Lower Band Edge Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-133. Upper Band Edge Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)

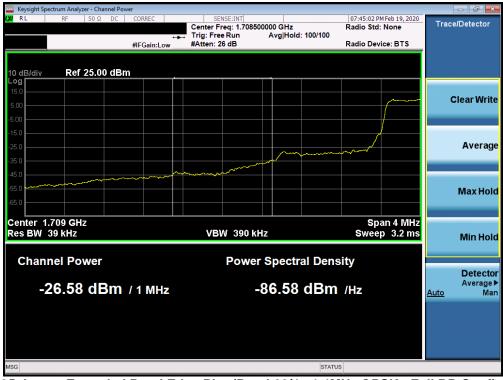
FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogg 00 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 89 of 182
© 2020 PCTEST				V 9.0 02/01/2019



Band 66/4



Plot 7-134. Lower Band Edge Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)



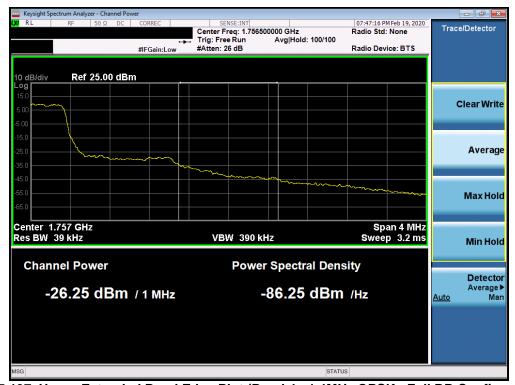
Plot 7-135. Lower Extended Band Edge Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 00 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset	Page 90 of 182
© 2020 PCTEST			V 9.0 02/01/2019





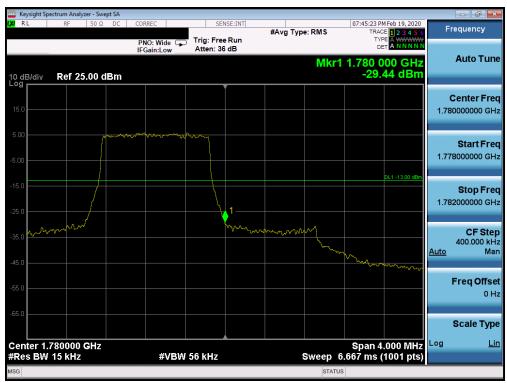
Plot 7-136. Upper Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)



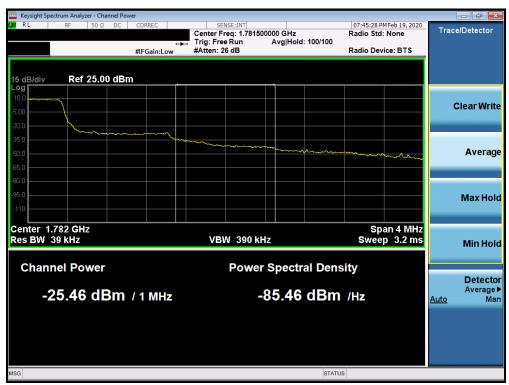
Plot 7-137. Upper Extended Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 04 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 91 of 182
© 2020 PCTEST				V 9.0 02/01/2019





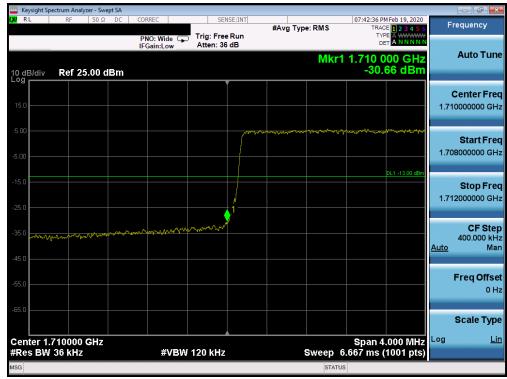
Plot 7-138. Upper Band Edge Plot (Band 66 - 1.4MHz QPSK - Full RB Configuration)



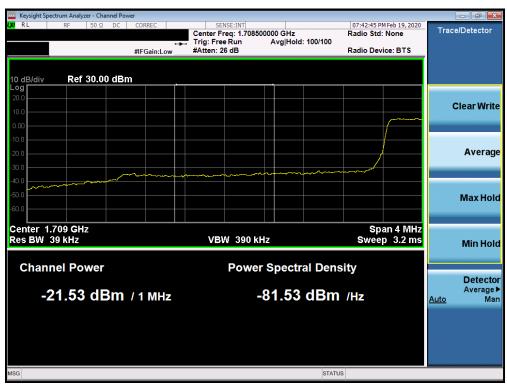
Plot 7-139. Upper Extended Band Edge Plot (Band 66 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 02 of 102
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 92 of 182
© 2020 PCTEST				V 9.0 02/01/2019





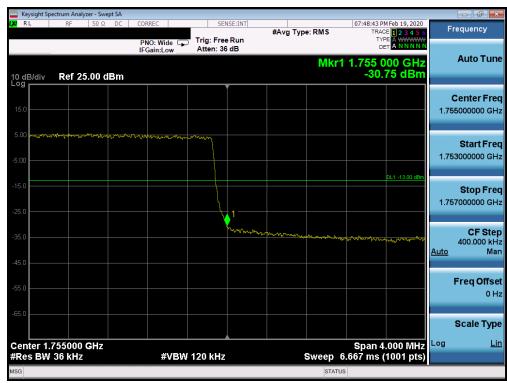
Plot 7-140. Lower Band Edge Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)



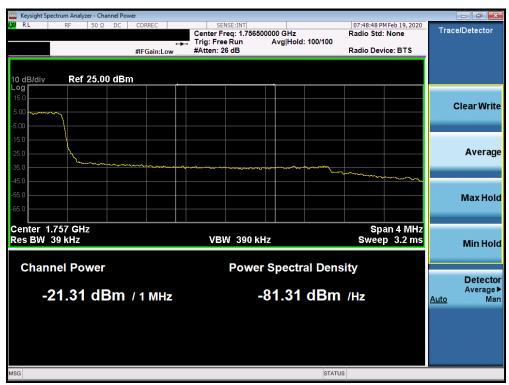
Plot 7-141. Lower Extended Band Edge Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 02 of 102
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 93 of 182
© 2020 PCTEST	•			V 9.0 02/01/2019





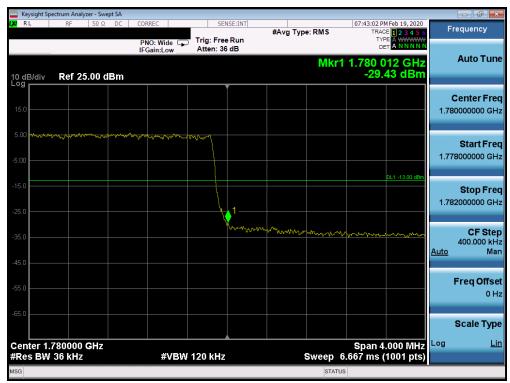
Plot 7-142. Upper Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)



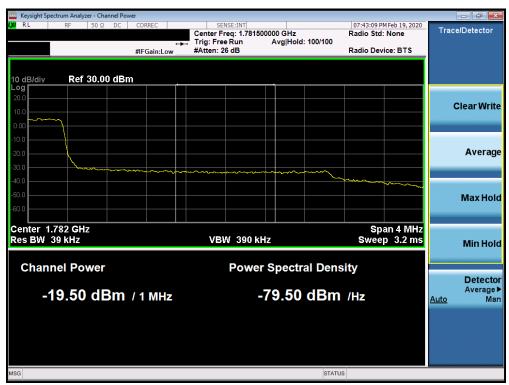
Plot 7-143. Upper Extended Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dags 04 of 192
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset	Page 94 of 182





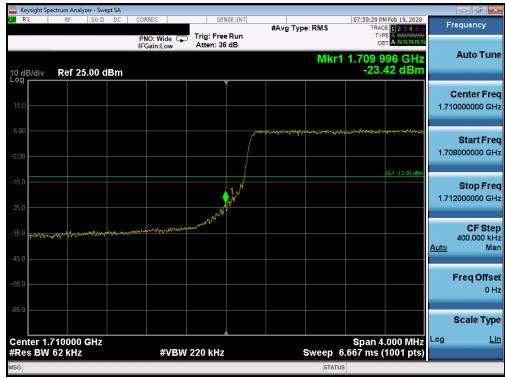
Plot 7-144. Upper Band Edge Plot (Band 66 - 3.0MHz QPSK - Full RB Configuration)



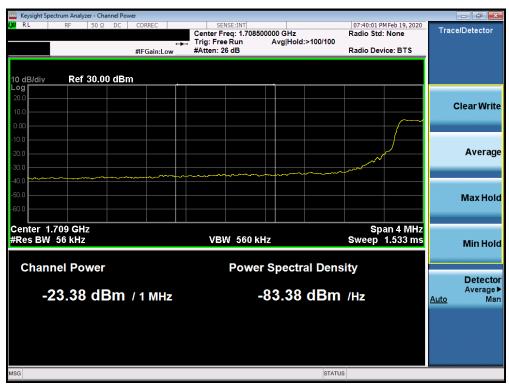
Plot 7-145. Upper Extended Band Edge Plot (Band 66 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo OF of 192
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset	Page 95 of 182





Plot 7-146. Lower Band Edge Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-147. Lower Extended Band Edge Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 06 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 96 of 182
© 2020 PCTEST				V 9.0 02/01/2019





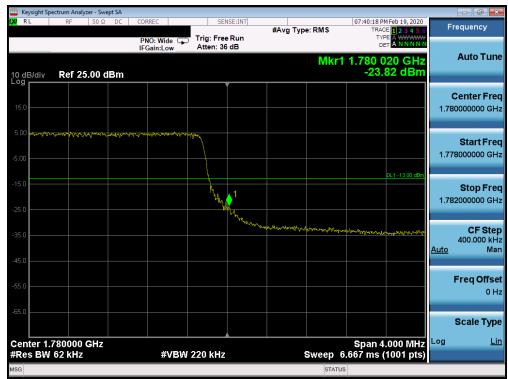
Plot 7-148. Upper Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)



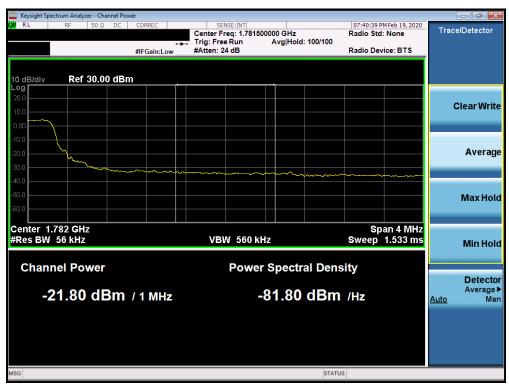
Plot 7-149. Upper Extended Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 07 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 97 of 182
© 2020 PCTEST				V 9.0 02/01/2019





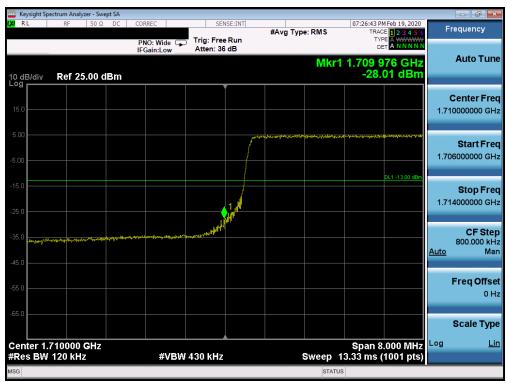
Plot 7-150. Upper Band Edge Plot (Band 66 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-151. Upper Extended Band Edge Plot (Band 66 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 09 of 192
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset	Page 98 of 182





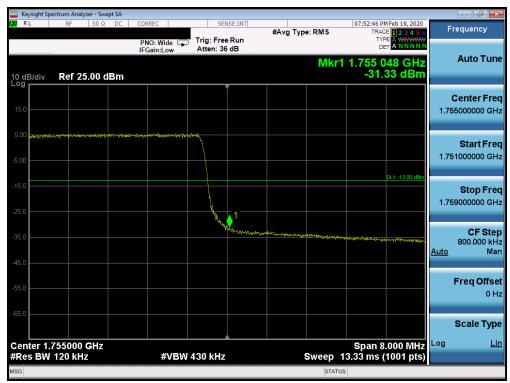
Plot 7-152. Lower Band Edge Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-153. Lower Extended Band Edge Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 00 of 192
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset	Page 99 of 182





Plot 7-154. Upper Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-155. Upper Extended Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogg 100 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 100 of 182
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Plot 7-156. Upper Band Edge Plot (Band 66 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-157. Upper Extended Band Edge Plot (Band 66 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogg 404 of 400
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 101 of 182
© 2020 PCTEST				V 9.0 02/01/2019





Plot 7-158. Lower Band Edge Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-159. Lower Extended Band Edge Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogg 400 of 400
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 102 of 182
© 2020 PCTEST				V 9.0 02/01/2019





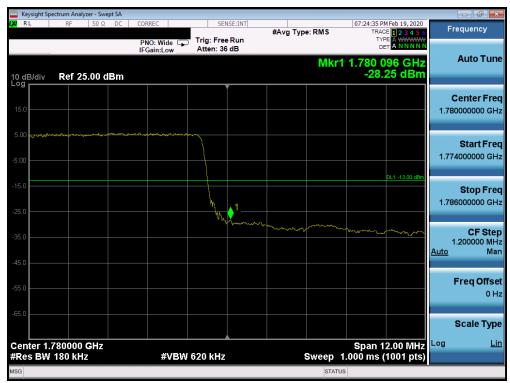
Plot 7-160. Upper Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-161. Upper Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogg 102 of 102
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 103 of 182
© 2020 PCTEST				V 9.0 02/01/2019





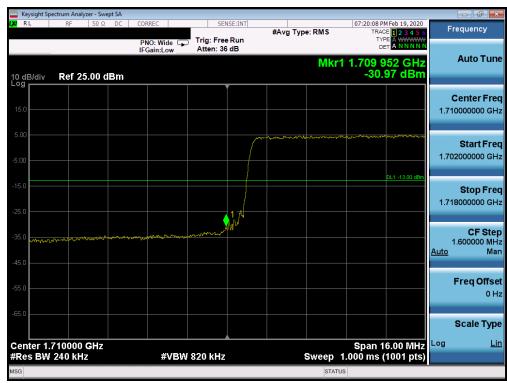
Plot 7-162. Upper Band Edge Plot (Band 66 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-163. Upper Extended Band Edge Plot (Band 66 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogg 104 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 104 of 182
© 2020 PCTEST				V 9.0 02/01/2019





Plot 7-164. Lower Band Edge Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-165. Lower Extended Band Edge Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 105 of 182
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset	Page 105 01 162





Plot 7-166. Upper Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-167. Upper Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogg 100 of 100
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 106 of 182
© 2020 PCTEST				V 9.0 02/01/2019





Plot 7-168. Upper Band Edge Plot (Band 66 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-169. Upper Extended Band Edge Plot (Band 66 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFQ630UM	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	① LG	Approved by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogg 407 of 400
1M2002110017-04.ZNF	02/12 - 03/13/2020	Portable Handset		Page 107 of 182
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