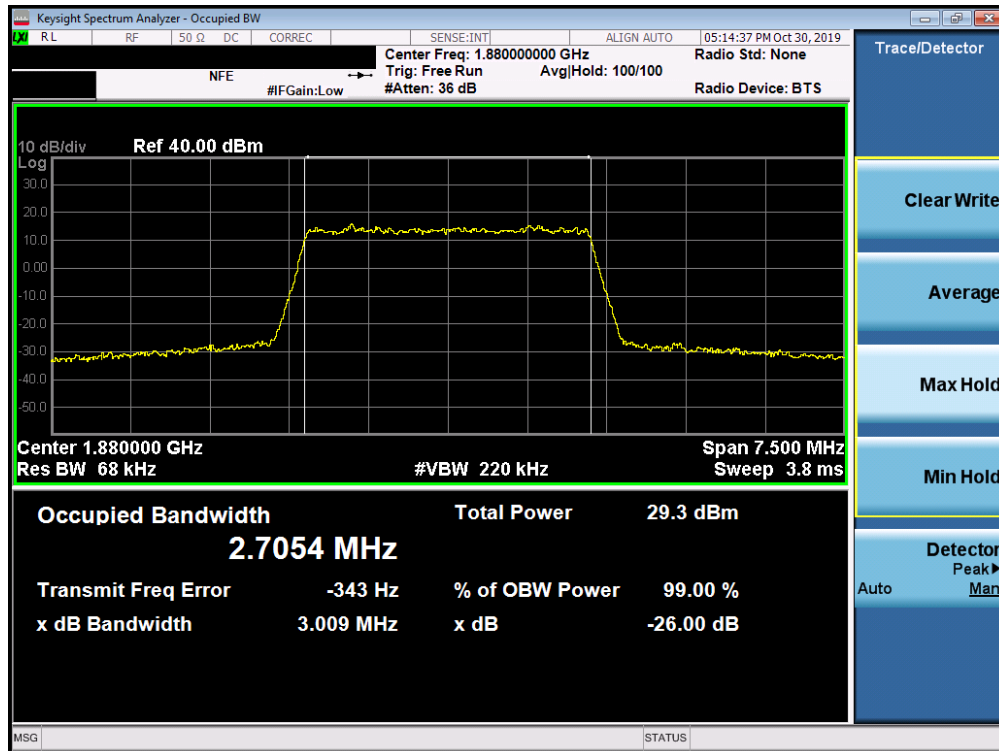
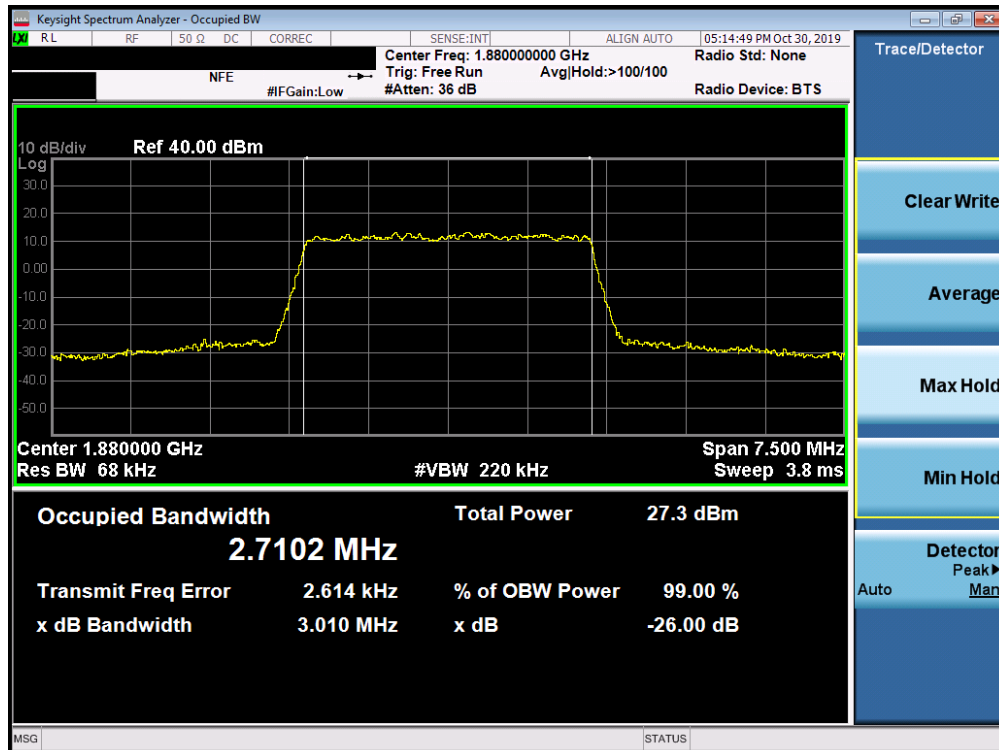


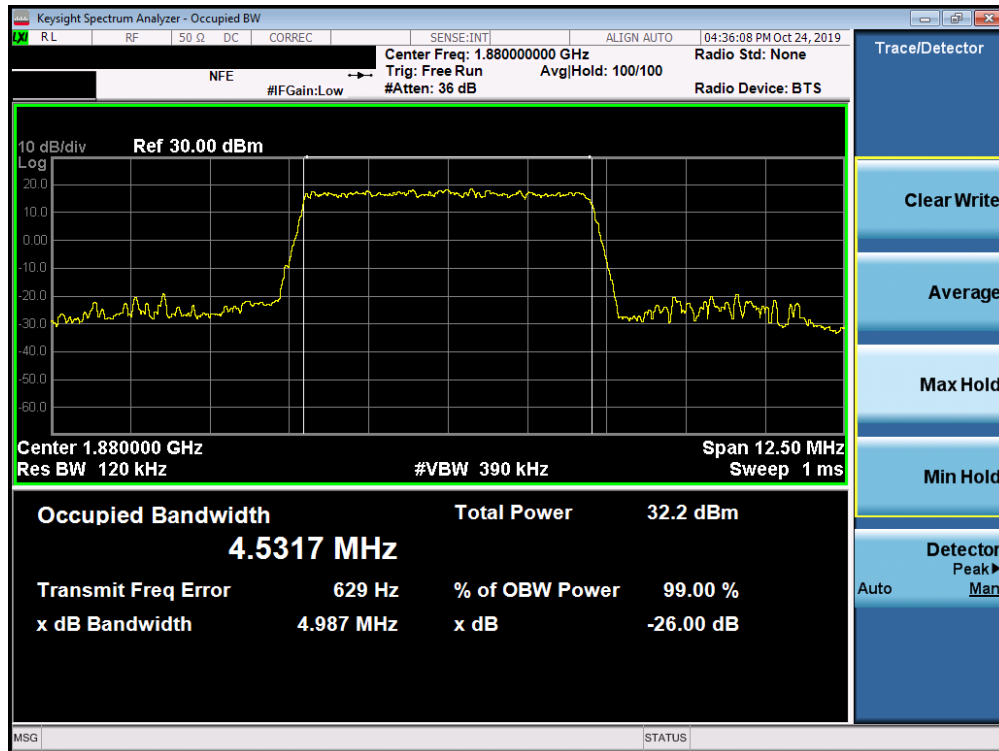


Plot 7-91. Occupied Bandwidth Plot (Band 25/2 - 3.0MHz 64-QAM - Full RB Configuration)

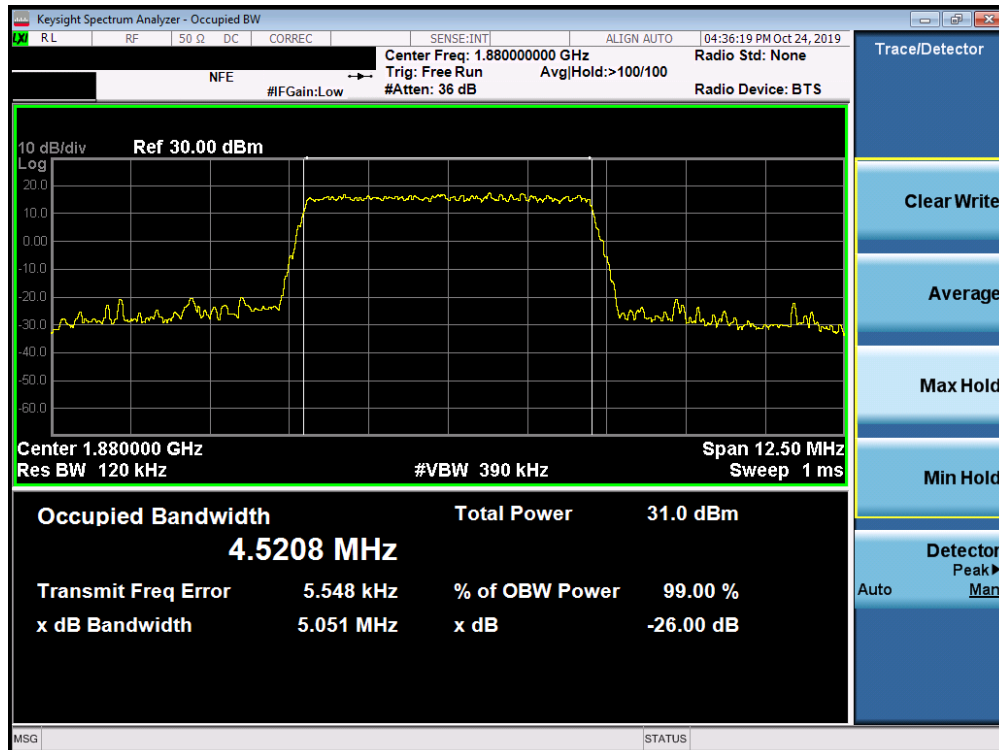


Plot 7-92. Occupied Bandwidth Plot (Band 25/2 - 3.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 65 of 487

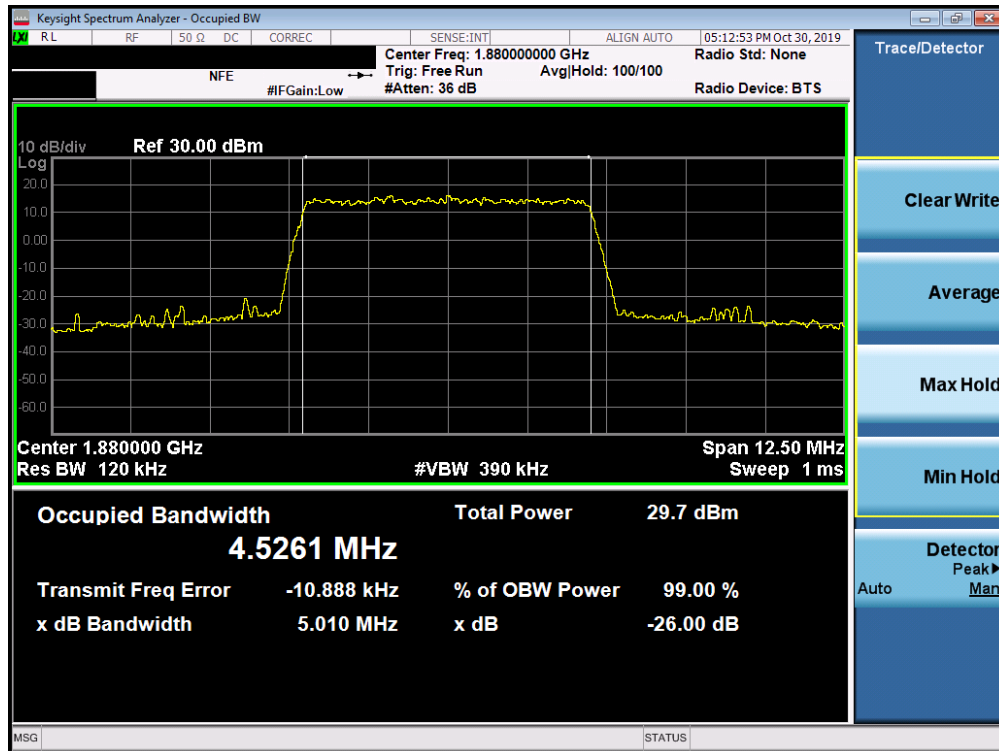


Plot 7-93. Occupied Bandwidth Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)

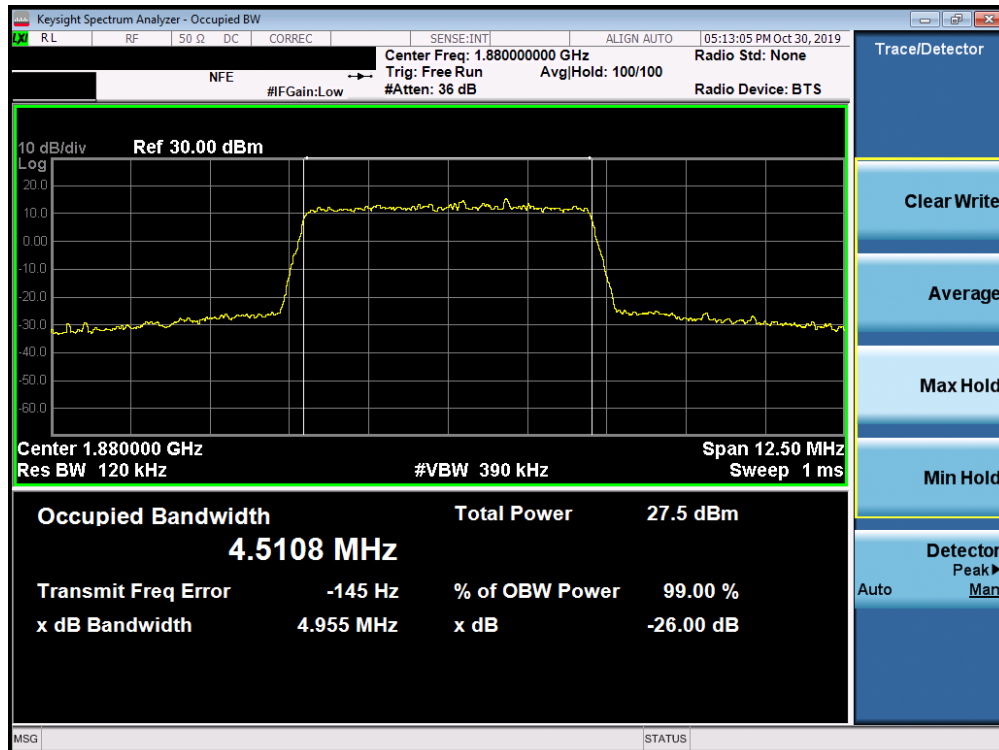


Plot 7-94. Occupied Bandwidth Plot (Band 25/2 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 66 of 487

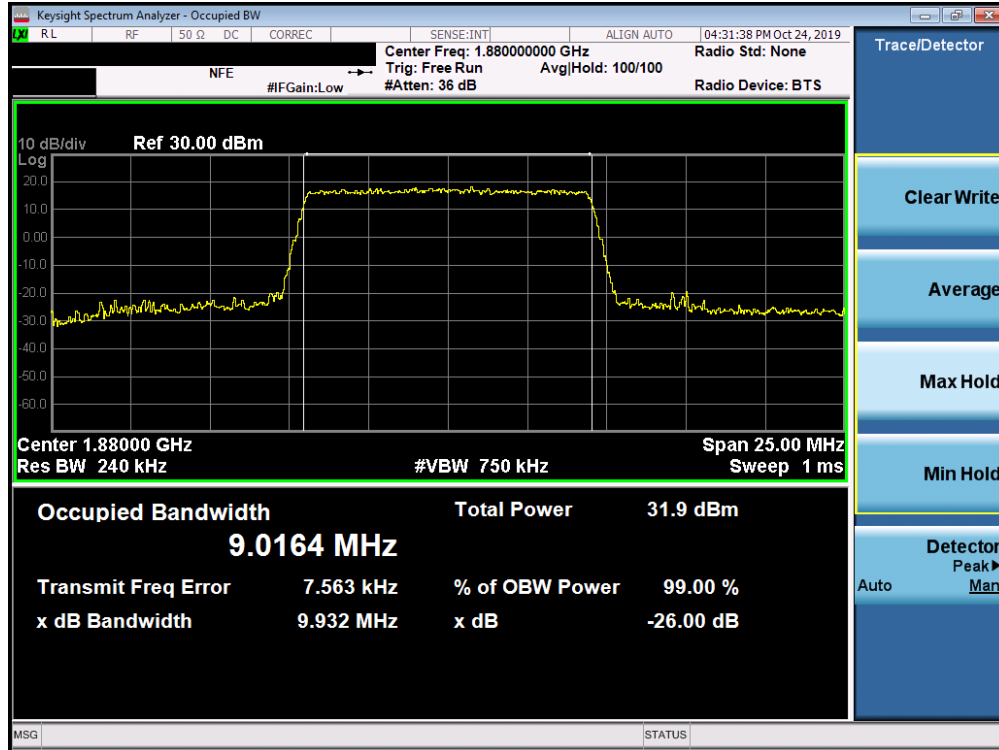


Plot 7-95. Occupied Bandwidth Plot (Band 25/2 - 5.0MHz 64-QAM - Full RB Configuration)

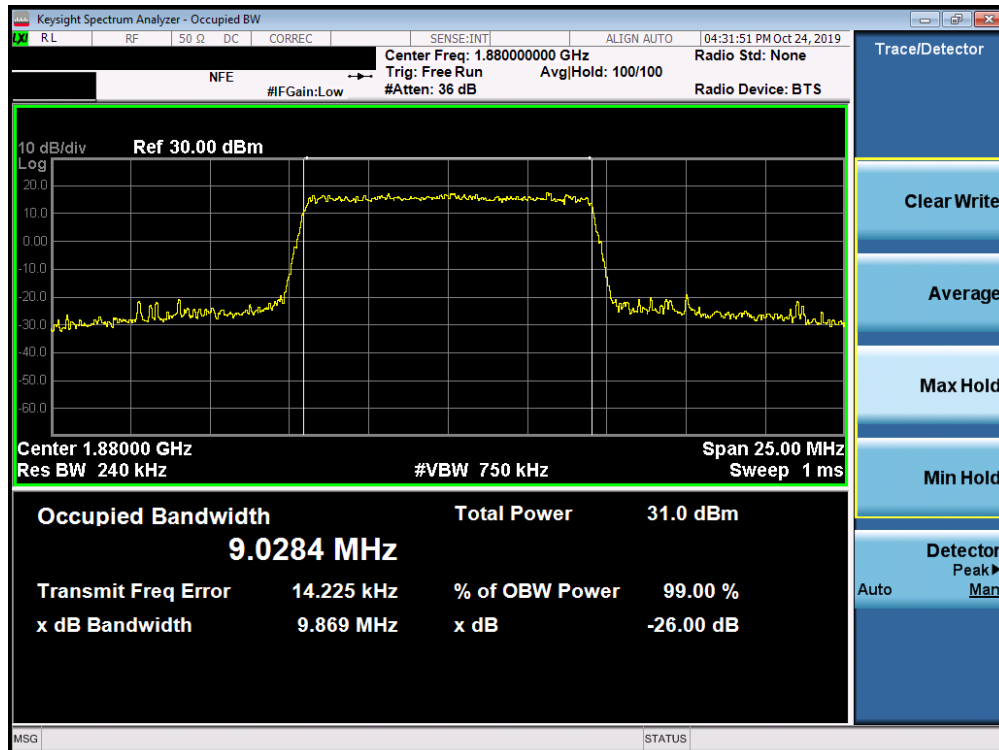


Plot 7-96. Occupied Bandwidth Plot (Band 25/2 - 5.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 67 of 487

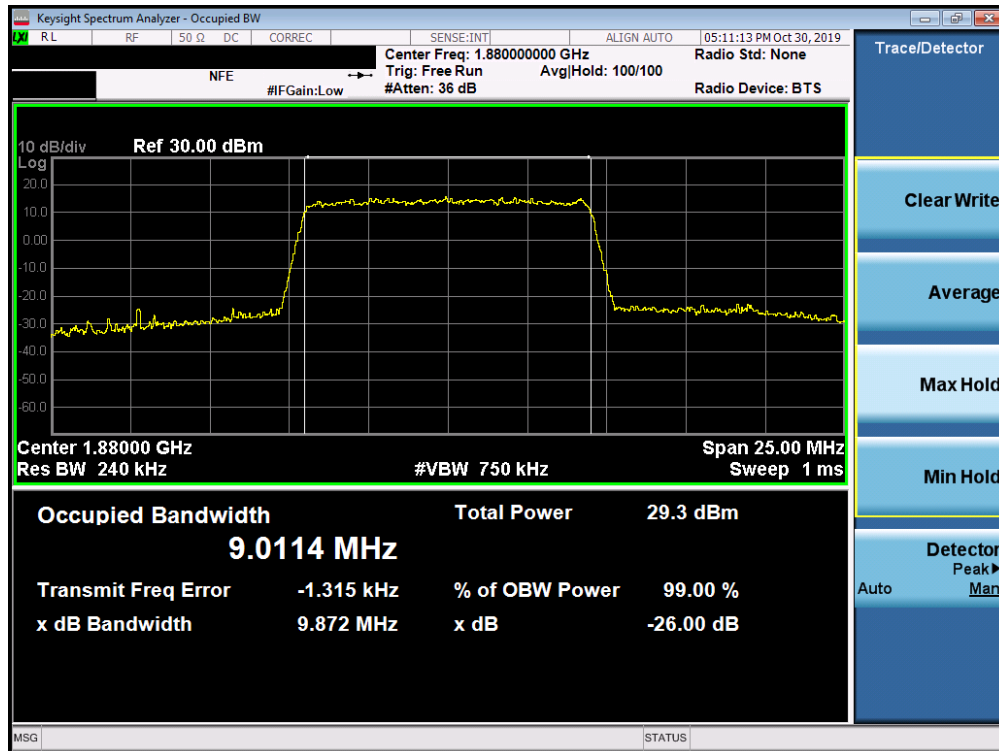


Plot 7-97. Occupied Bandwidth Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

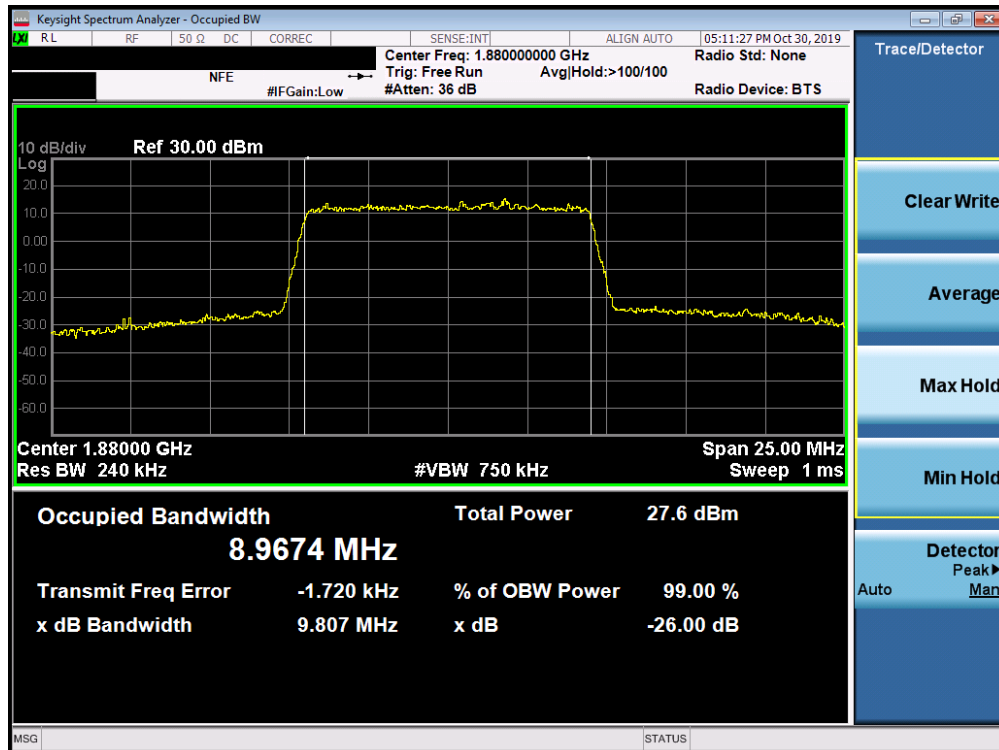


Plot 7-98. Occupied Bandwidth Plot (Band 25/2 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset	Page 68 of 487

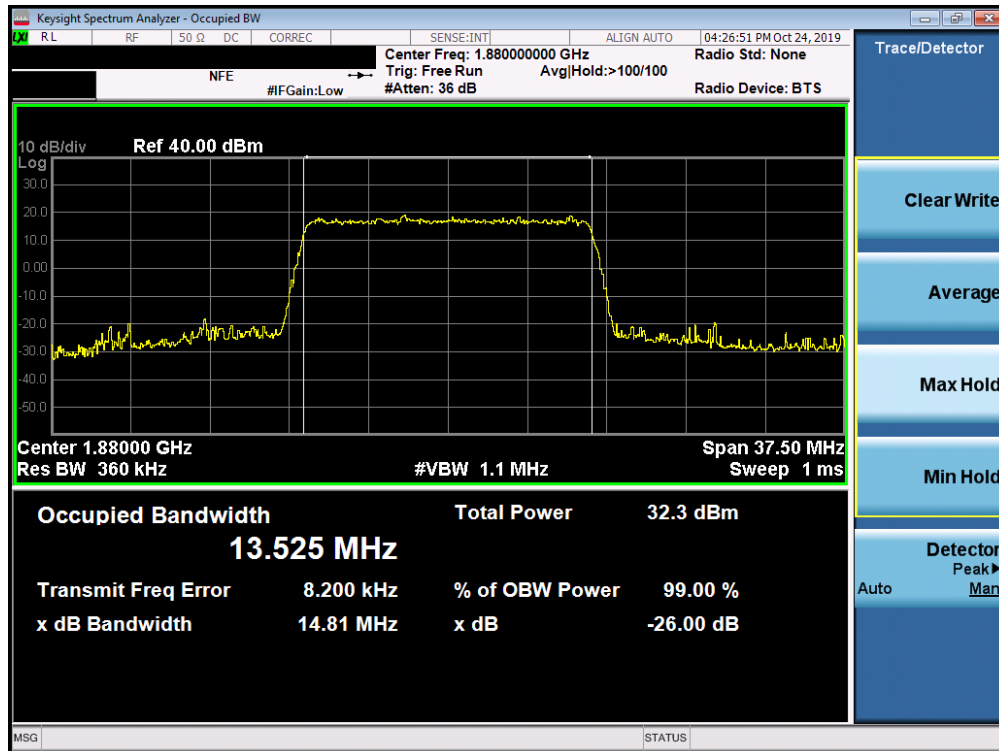


Plot 7-99. Occupied Bandwidth Plot (Band 25/2 - 10.0MHz 64-QAM - Full RB Configuration)

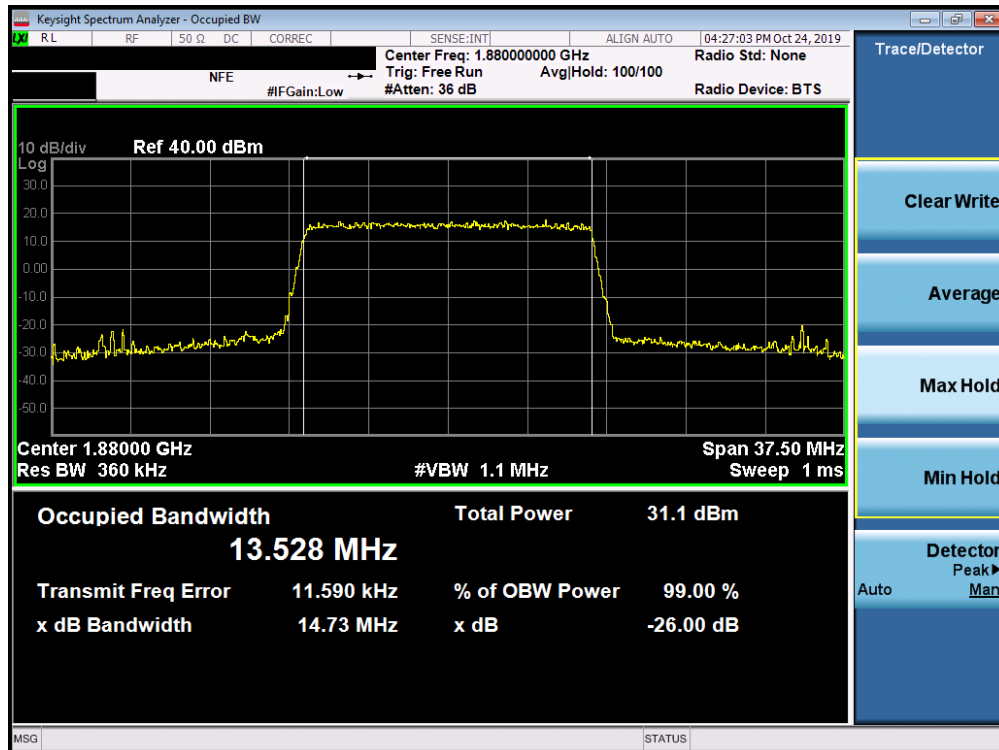


Plot 7-100. Occupied Bandwidth Plot (Band 25/2 - 10.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 69 of 487

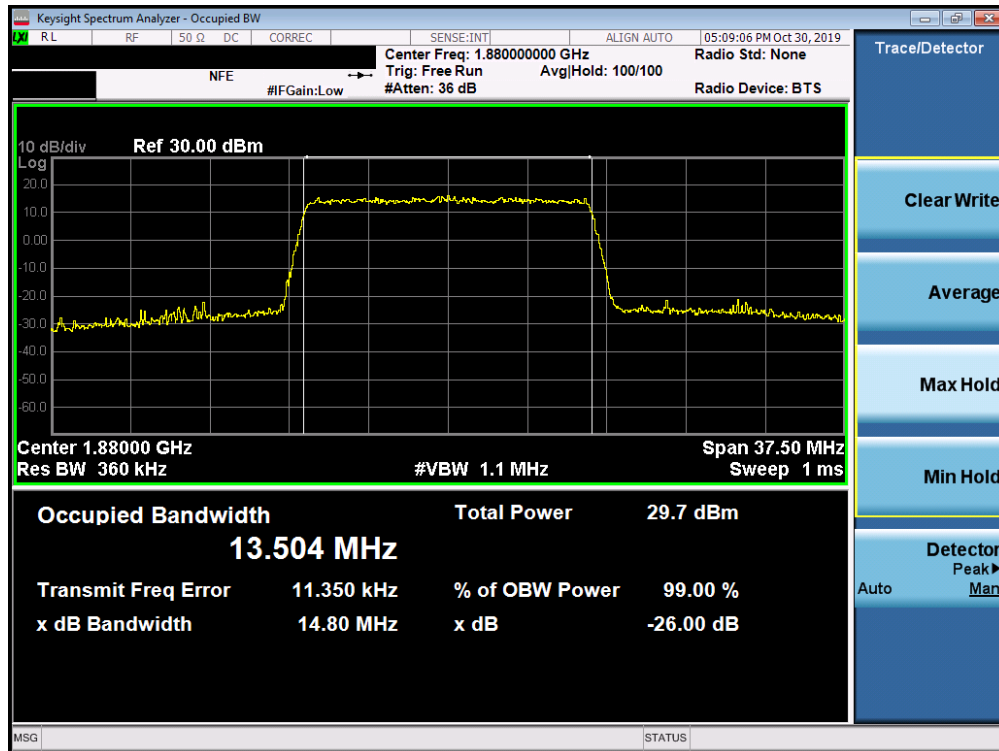


Plot 7-101. Occupied Bandwidth Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)

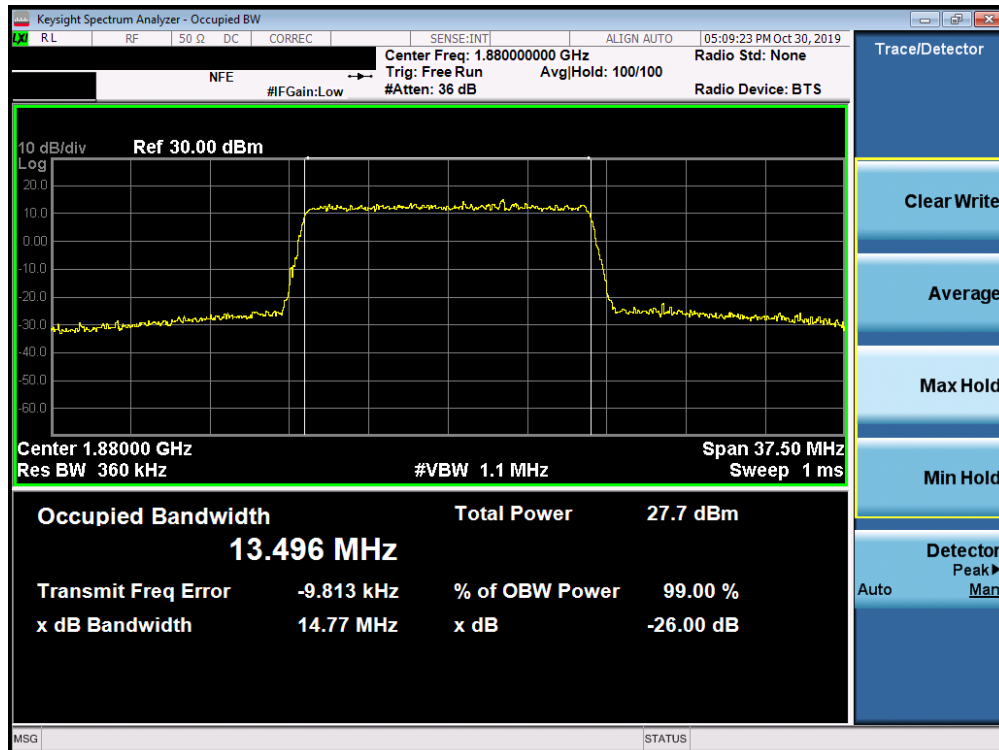


Plot 7-102. Occupied Bandwidth Plot (Band 25/2 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 70 of 487

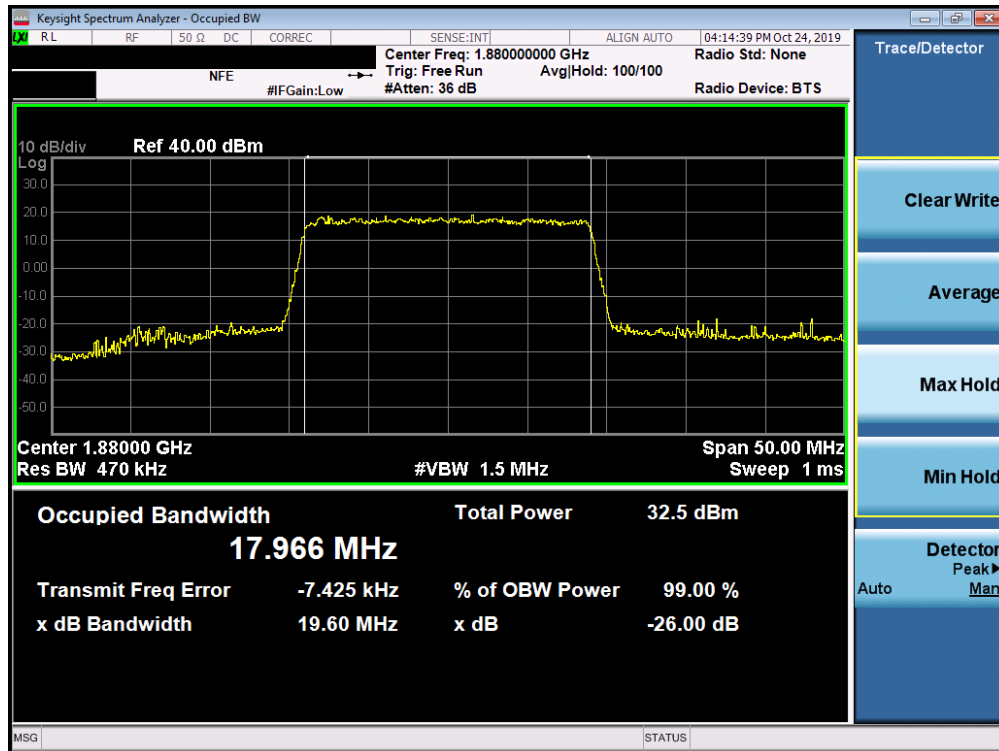


Plot 7-103. Occupied Bandwidth Plot (Band 25/2 - 15.0MHz 64-QAM - Full RB Configuration)

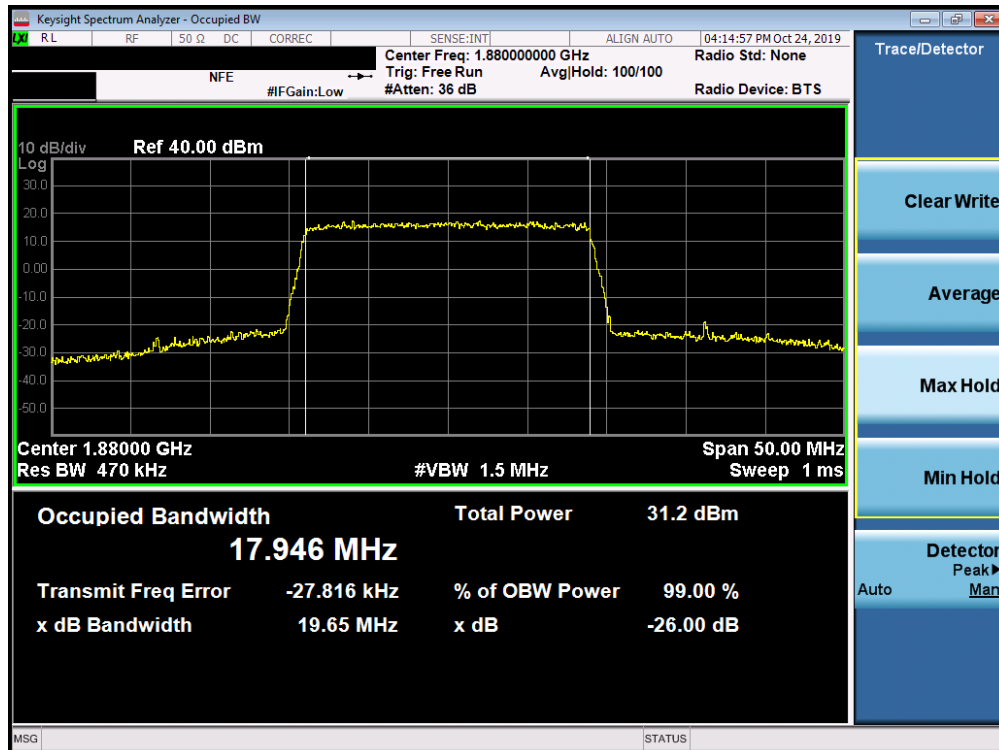


Plot 7-104. Occupied Bandwidth Plot (Band 25/2 - 15.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 71 of 487

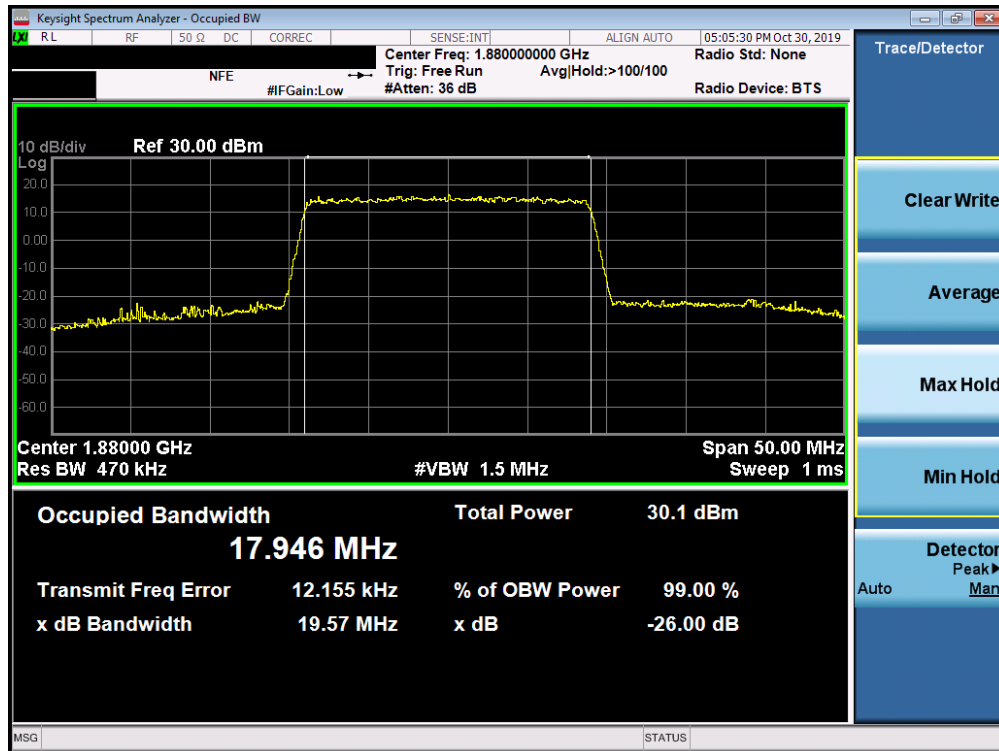


Plot 7-105. Occupied Bandwidth Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

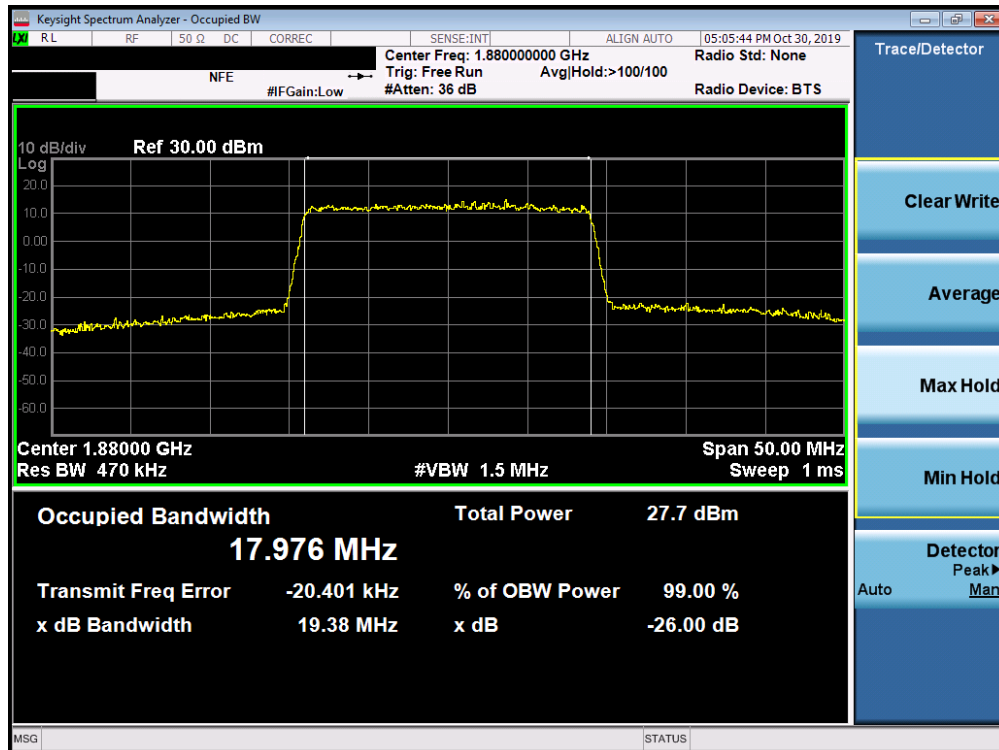


Plot 7-106. Occupied Bandwidth Plot (Band 25/2 - 20.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 72 of 487



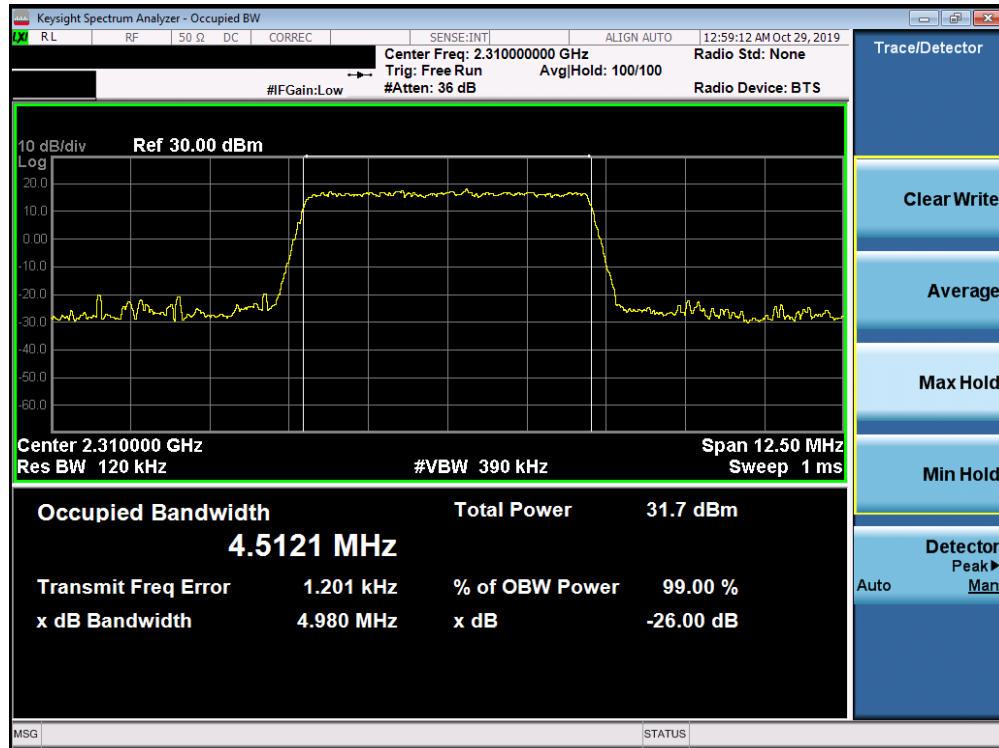
Plot 7-107. Occupied Bandwidth Plot (Band 25/2 - 20.0MHz 64-QAM - Full RB Configuration)



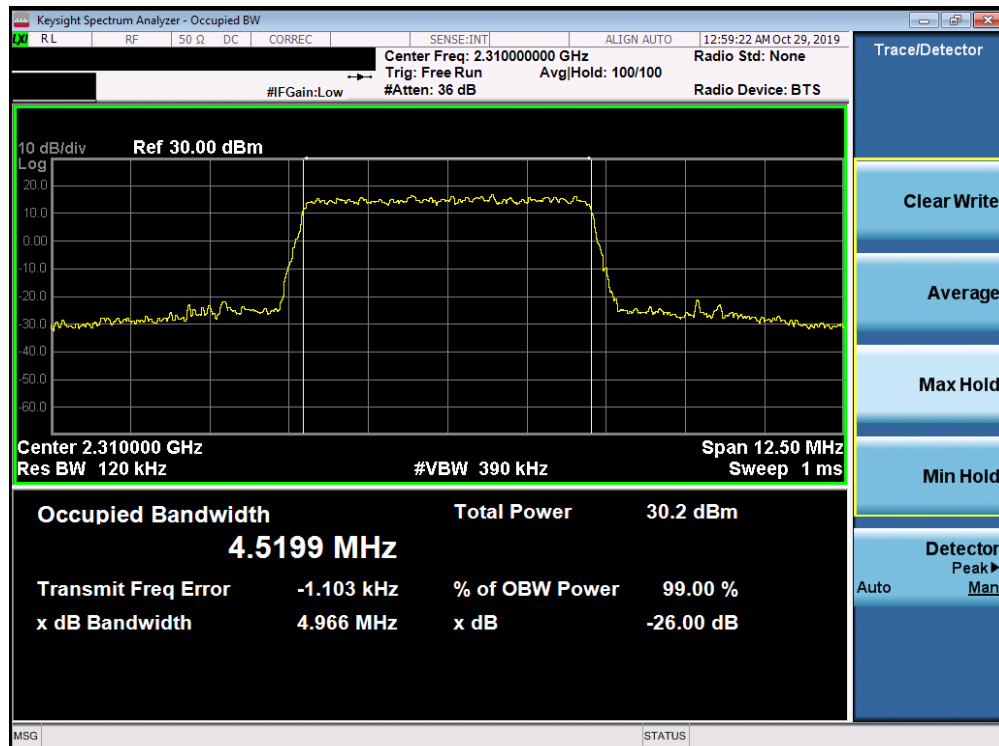
Plot 7-108. Occupied Bandwidth Plot (Band 25/2 - 20.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 73 of 487

Band 30

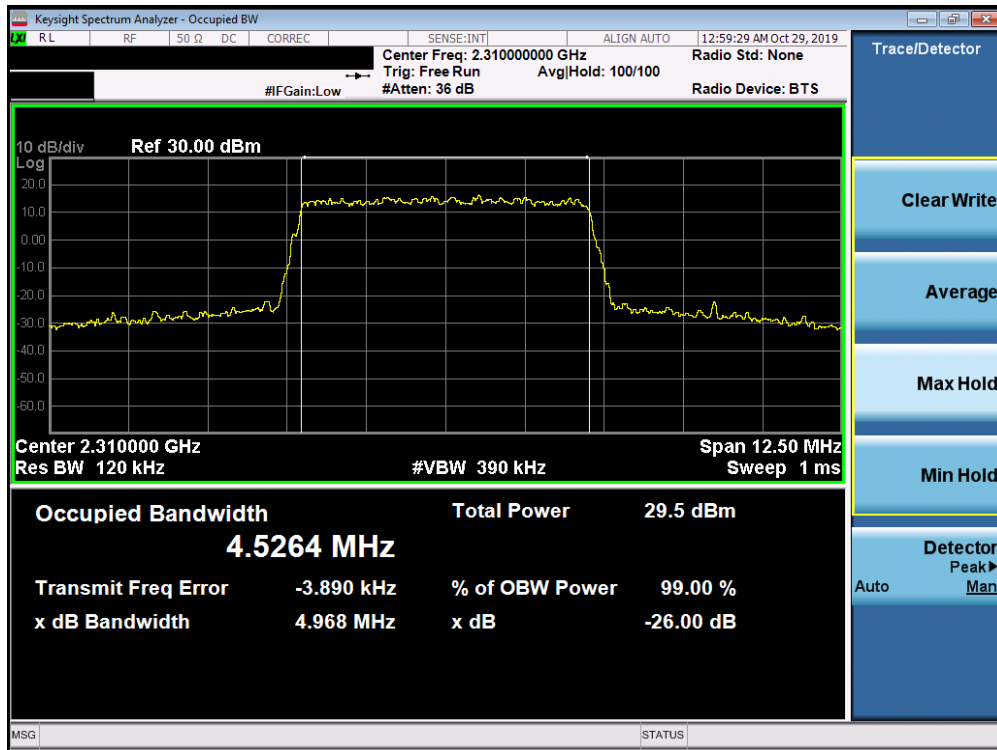


Plot 7-109. Occupied Bandwidth Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)

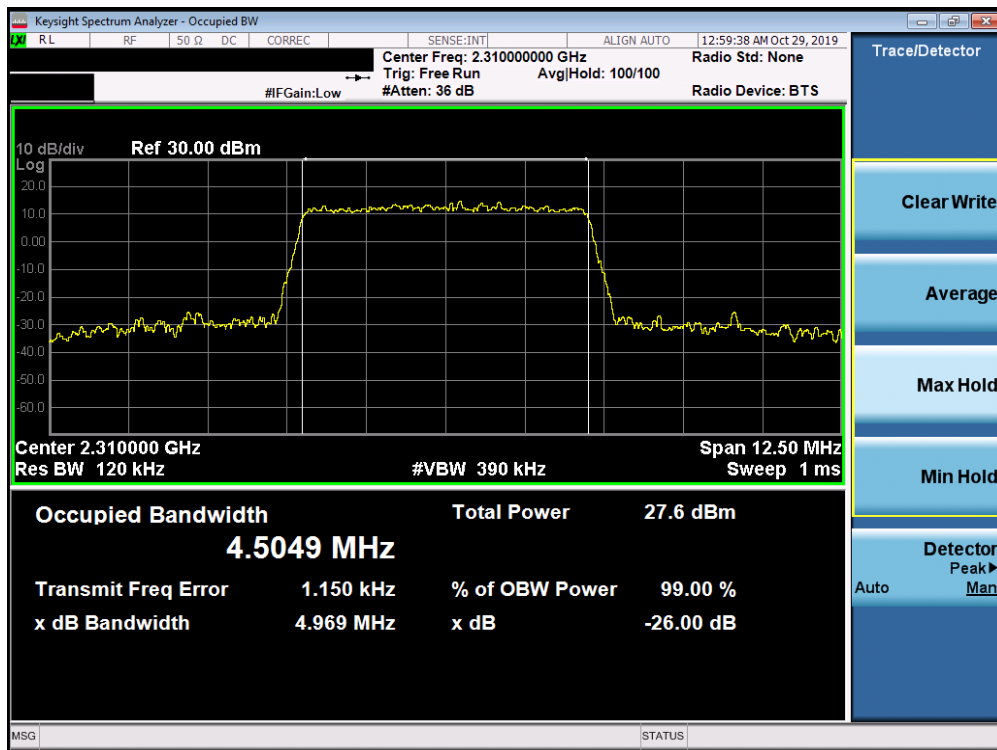


Plot 7-110. Occupied Bandwidth Plot (Band 30 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 74 of 487

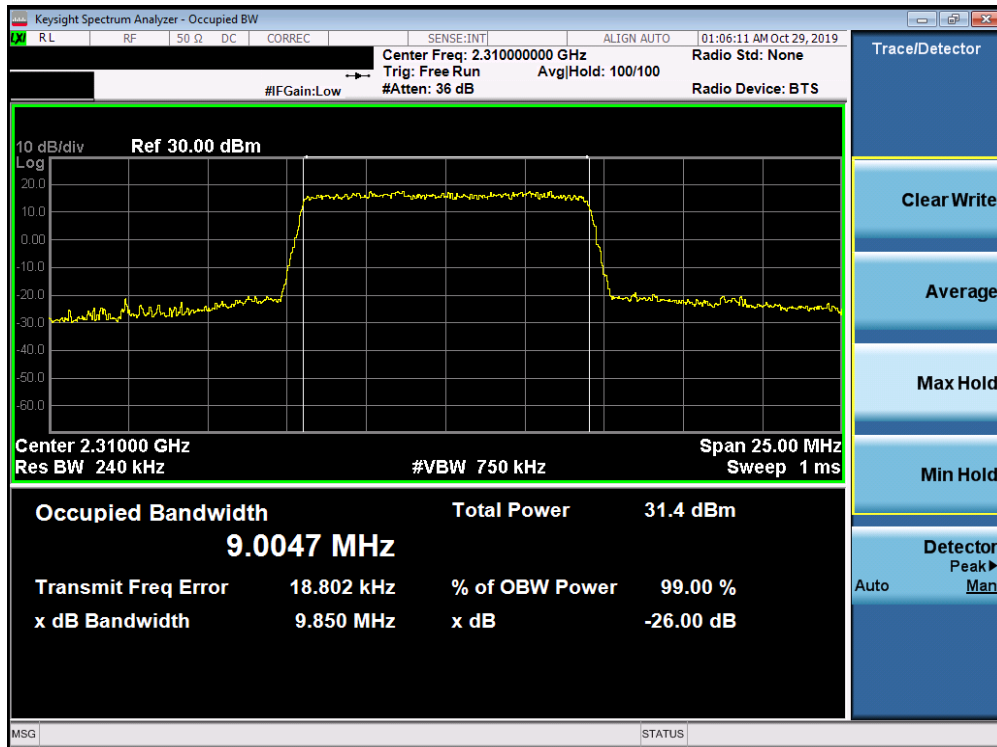


Plot 7-111. Occupied Bandwidth Plot (Band 30 - 5.0MHz 64-QAM - Full RB Configuration)

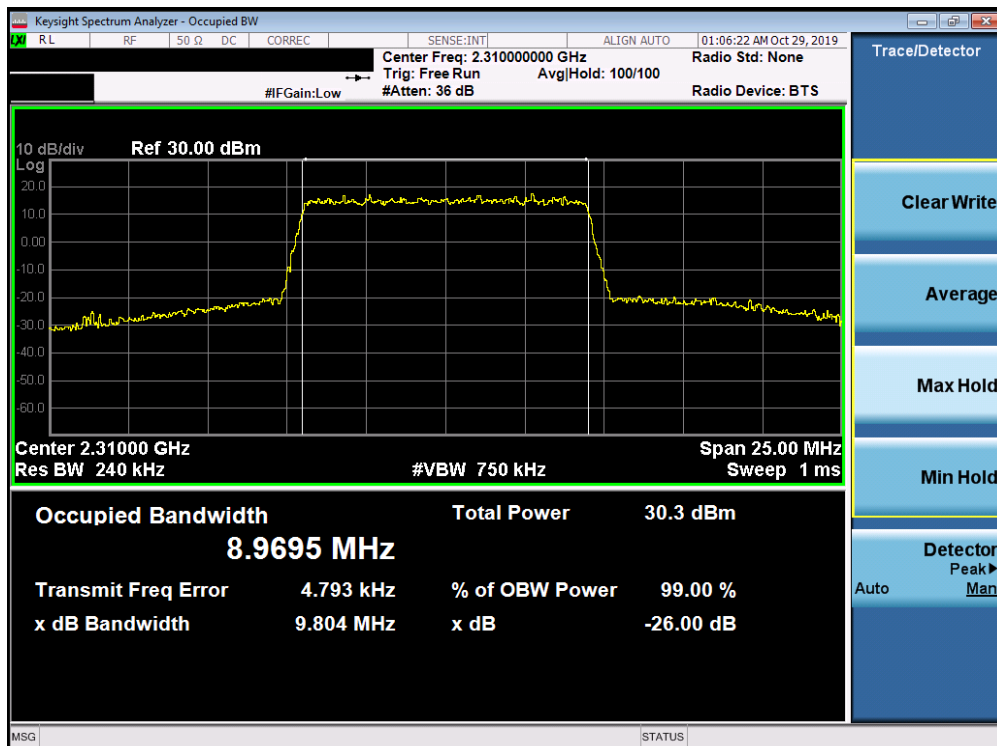


Plot 7-112. Occupied Bandwidth Plot (Band 30 - 5.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 75 of 487

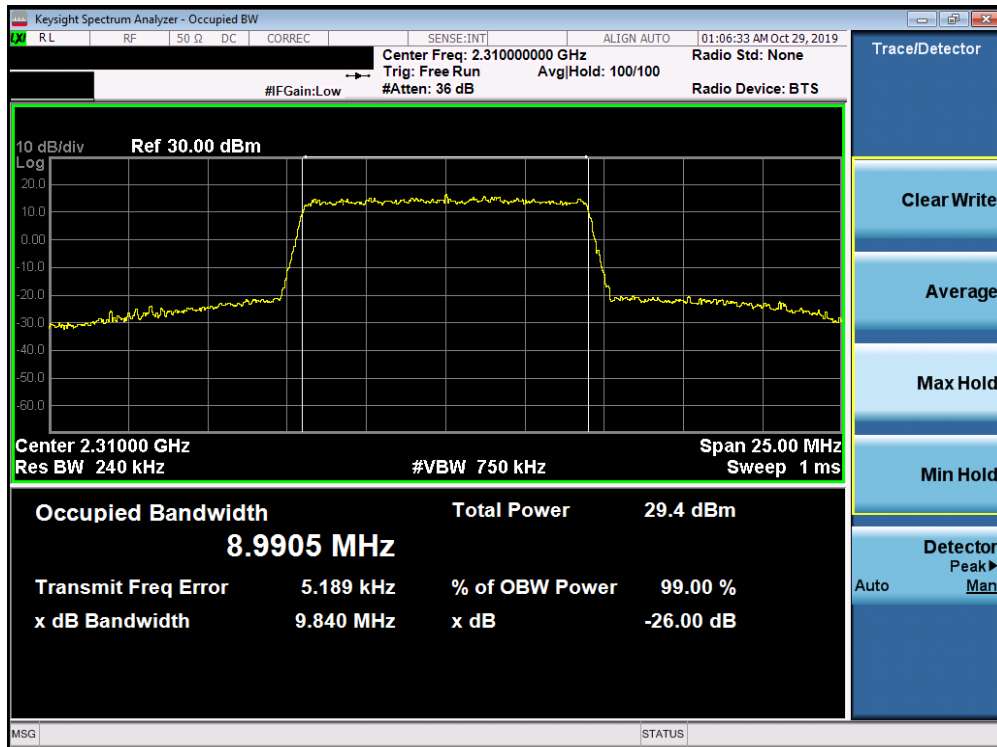


Plot 7-113. Occupied Bandwidth Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)

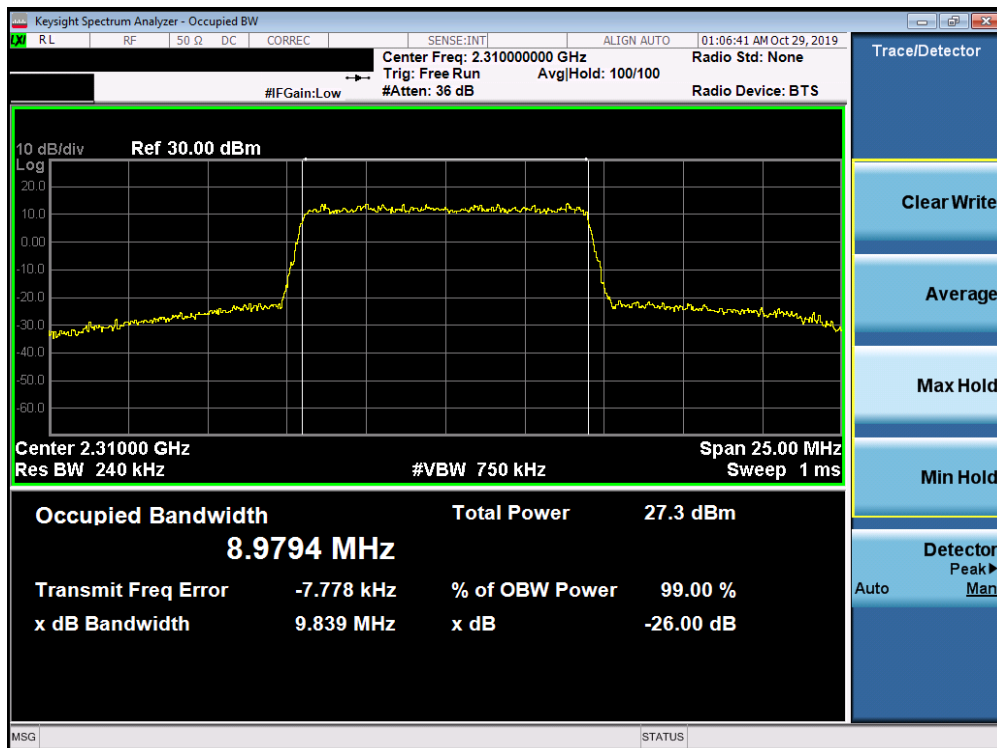


Plot 7-114. Occupied Bandwidth Plot (Band 30 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 76 of 487



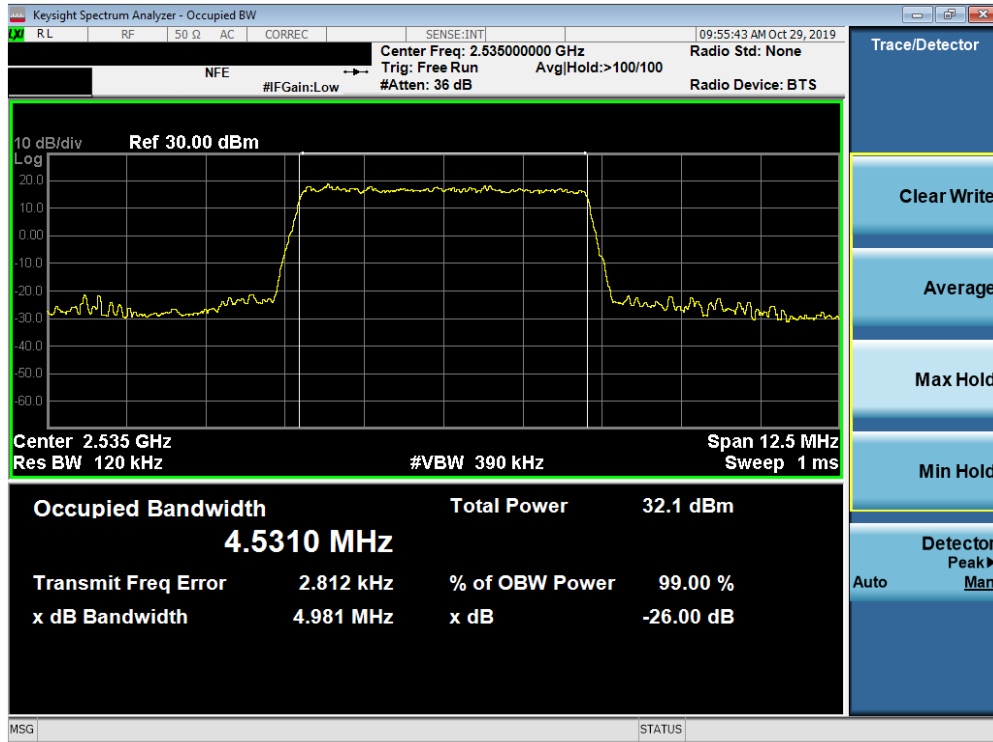
Plot 7-115. Occupied Bandwidth Plot (Band 30 - 10.0MHz 64-QAM - Full RB Configuration)



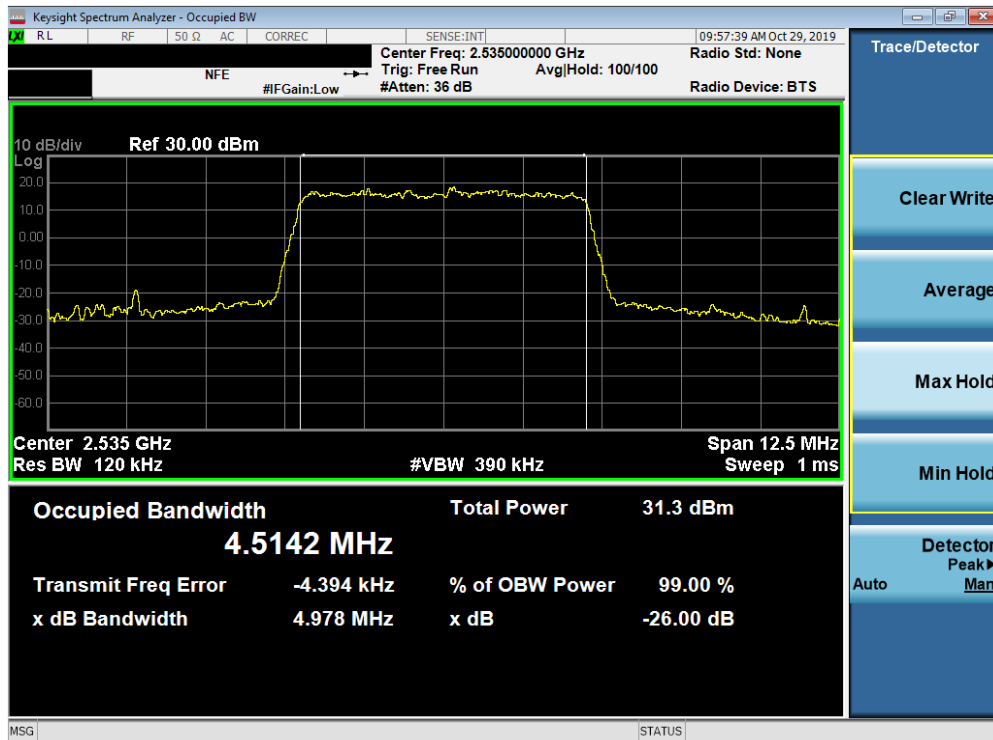
Plot 7-116. Occupied Bandwidth Plot (Band 30 - 10.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 77 of 487

Band 7

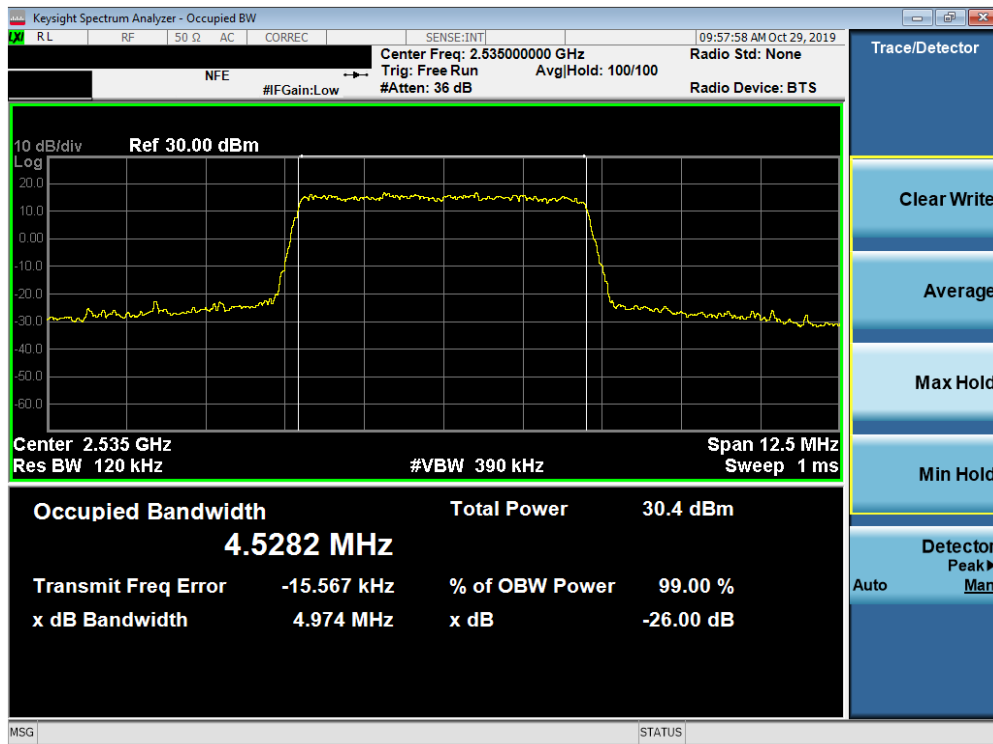


Plot 7-117. Occupied Bandwidth Plot (Band 7 - 5.0MHz QPSK - Full RB Configuration)

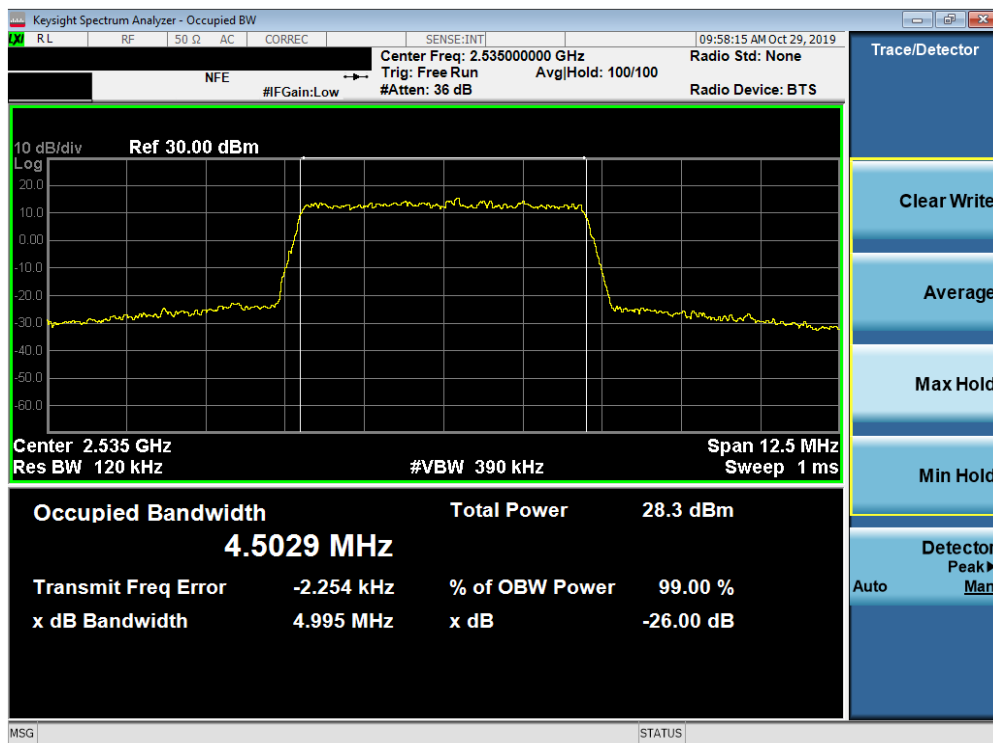


Plot 7-118. Occupied Bandwidth Plot (Band 7 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 78 of 487

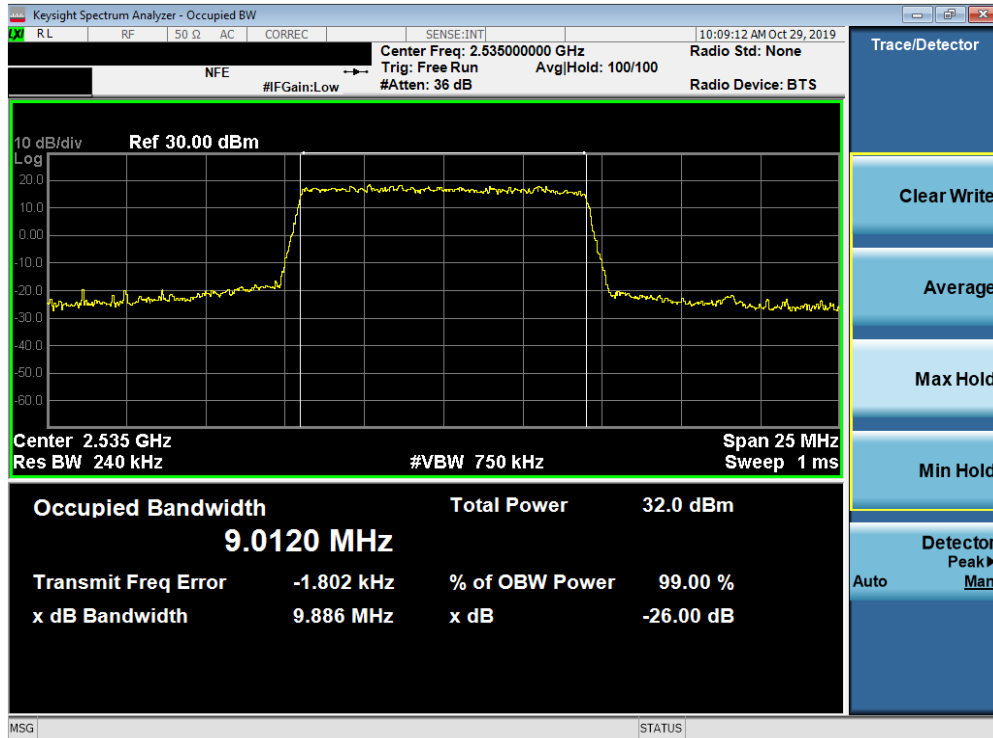


Plot 7-119. Occupied Bandwidth Plot (Band 7 - 5.0MHz 64-QAM - Full RB Configuration)

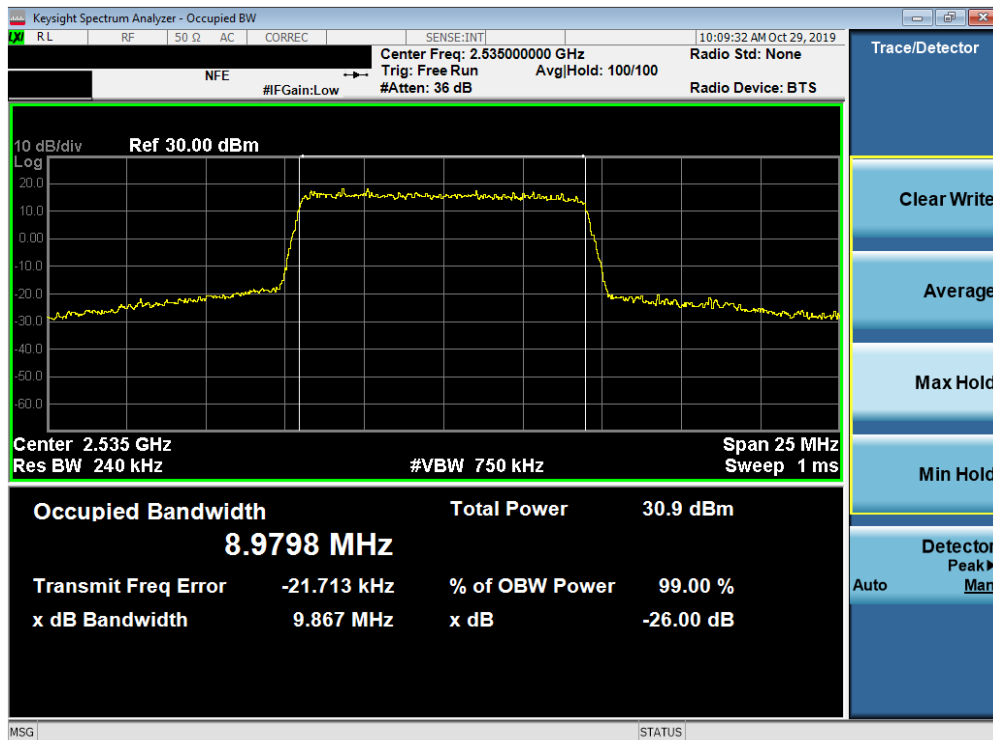


Plot 7-120. Occupied Bandwidth Plot (Band 7 - 5.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 79 of 487



Plot 7-121. Occupied Bandwidth Plot (Band 7 - 10.0MHz QPSK - Full RB Configuration)

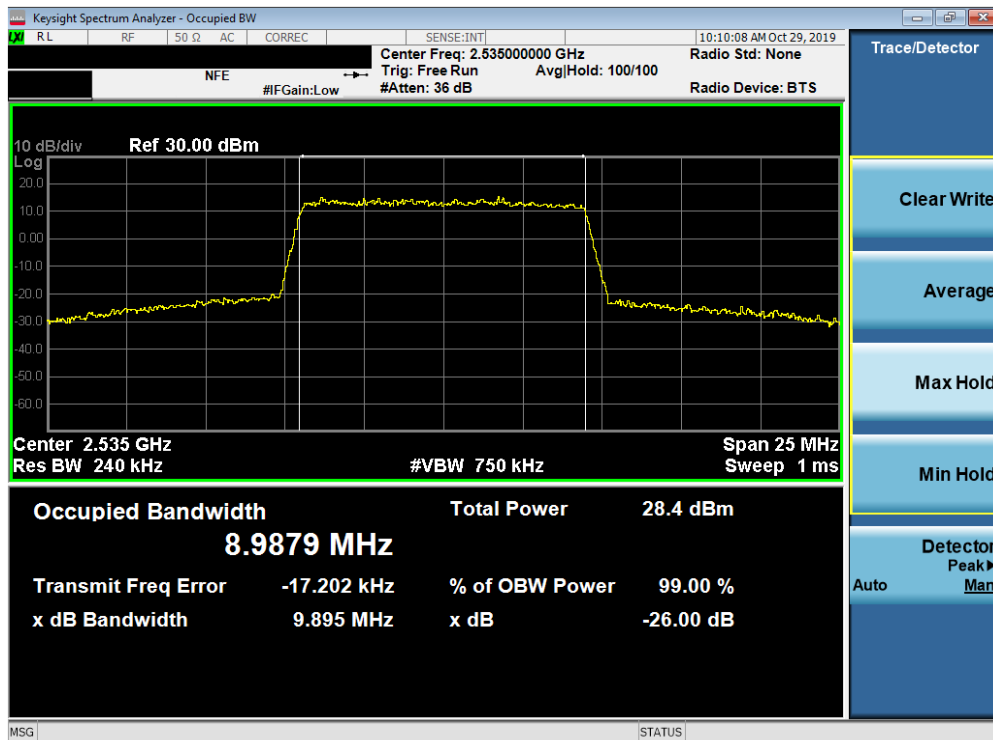


Plot 7-122. Occupied Bandwidth Plot (Band 7 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 80 of 487

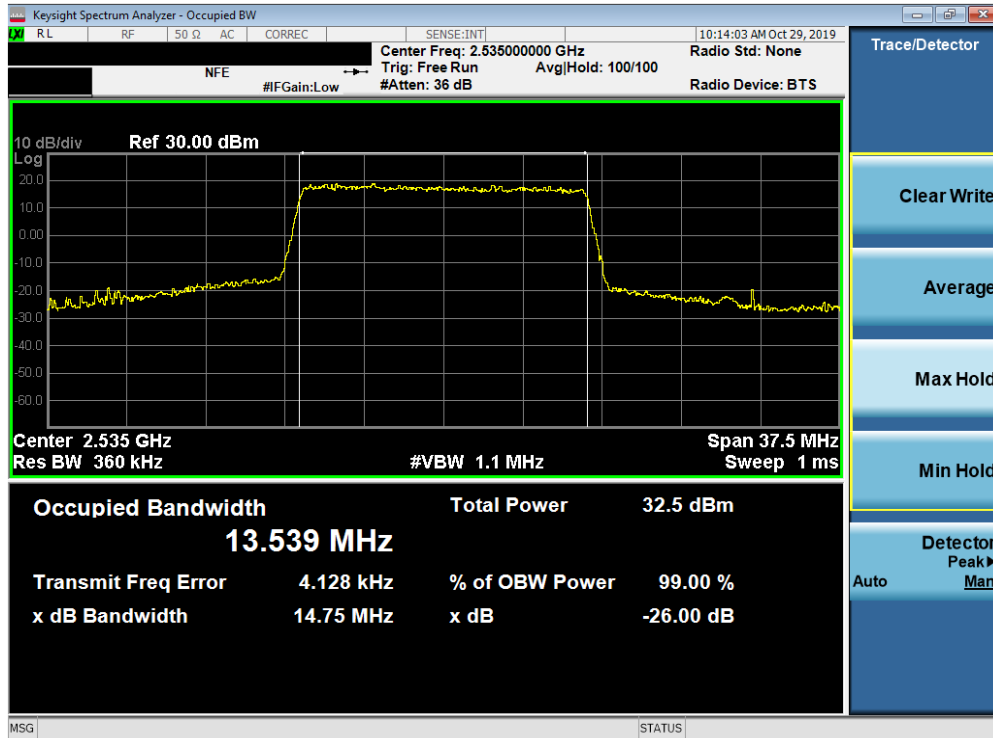


Plot 7-123. Occupied Bandwidth Plot (Band 7 - 10.0MHz 64-QAM - Full RB Configuration)

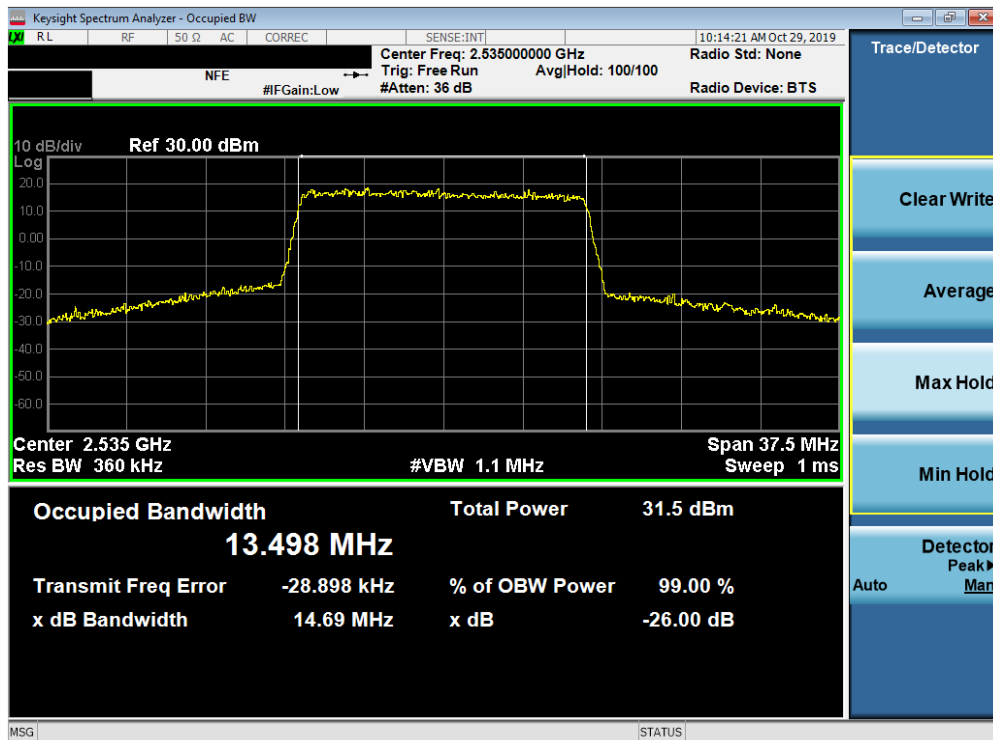


Plot 7-124. Occupied Bandwidth Plot (Band 7 - 10.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 81 of 487

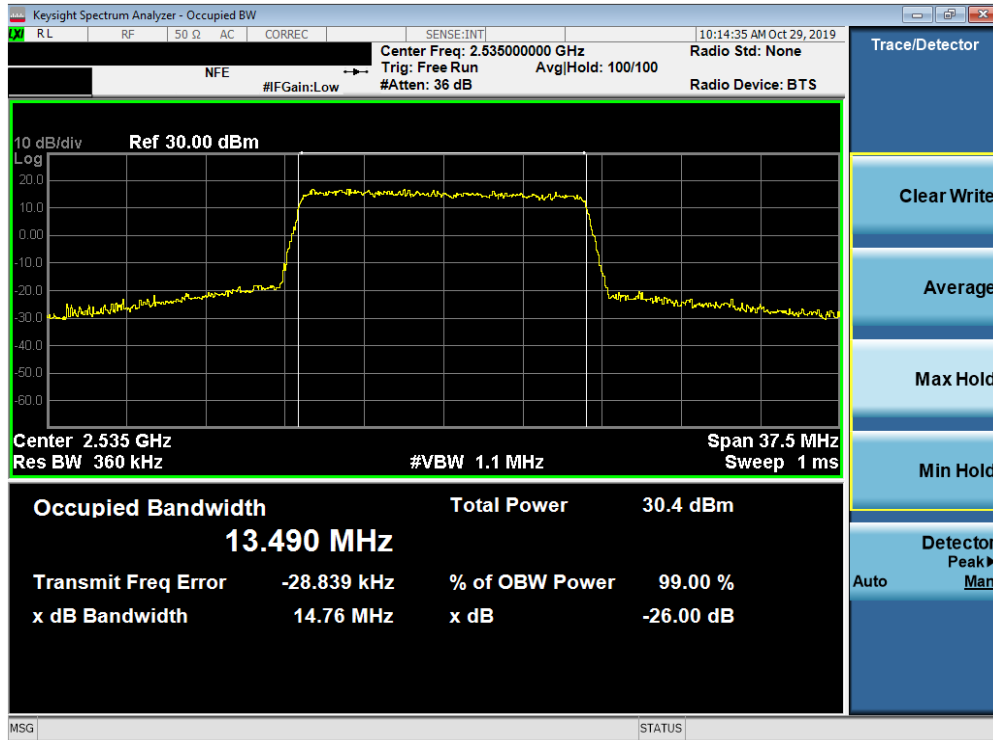


Plot 7-125. Occupied Bandwidth Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)

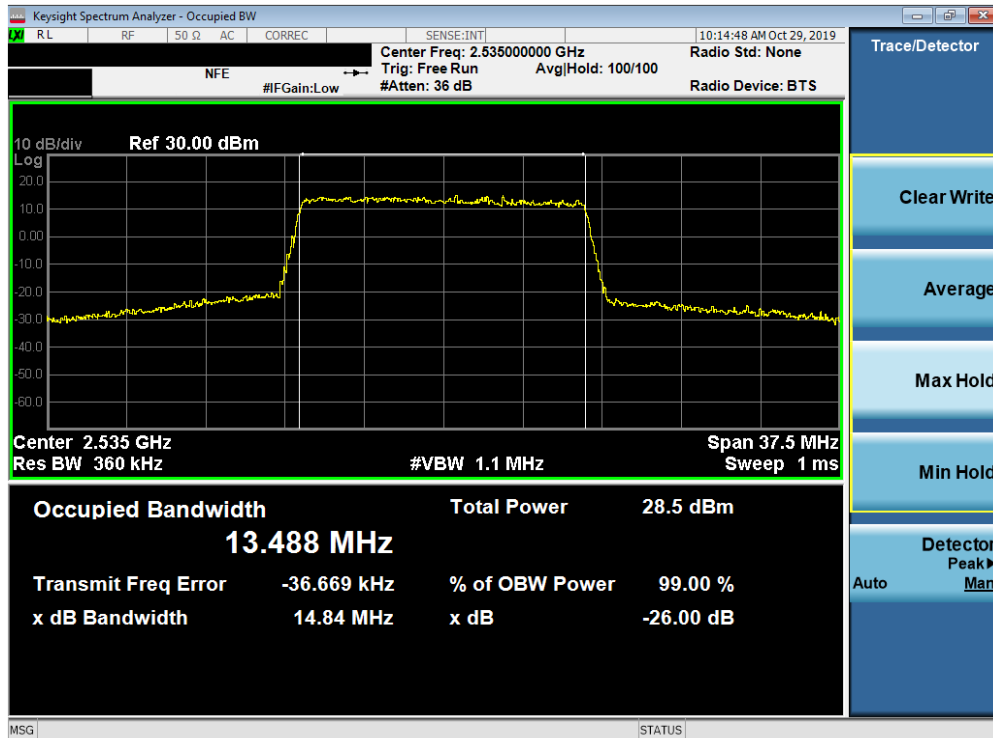


Plot 7-126. Occupied Bandwidth Plot (Band 7 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 82 of 487



Plot 7-127. Occupied Bandwidth Plot (Band 7 - 15.0MHz 64-QAM - Full RB Configuration)

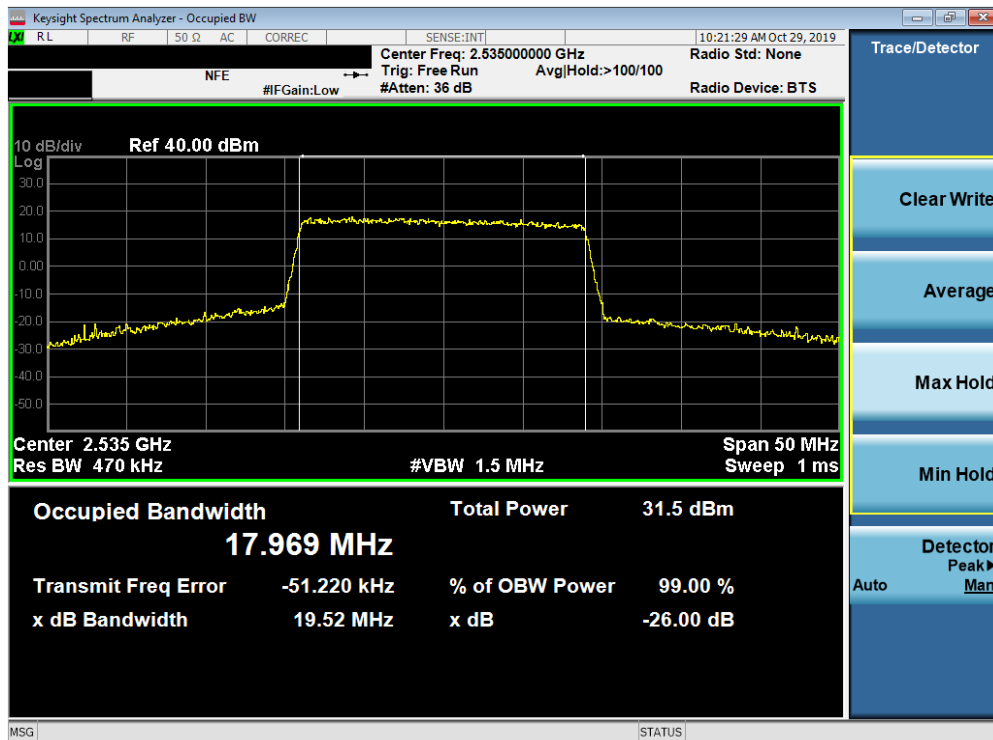


Plot 7-128. Occupied Bandwidth Plot (Band 7 - 15.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 83 of 487

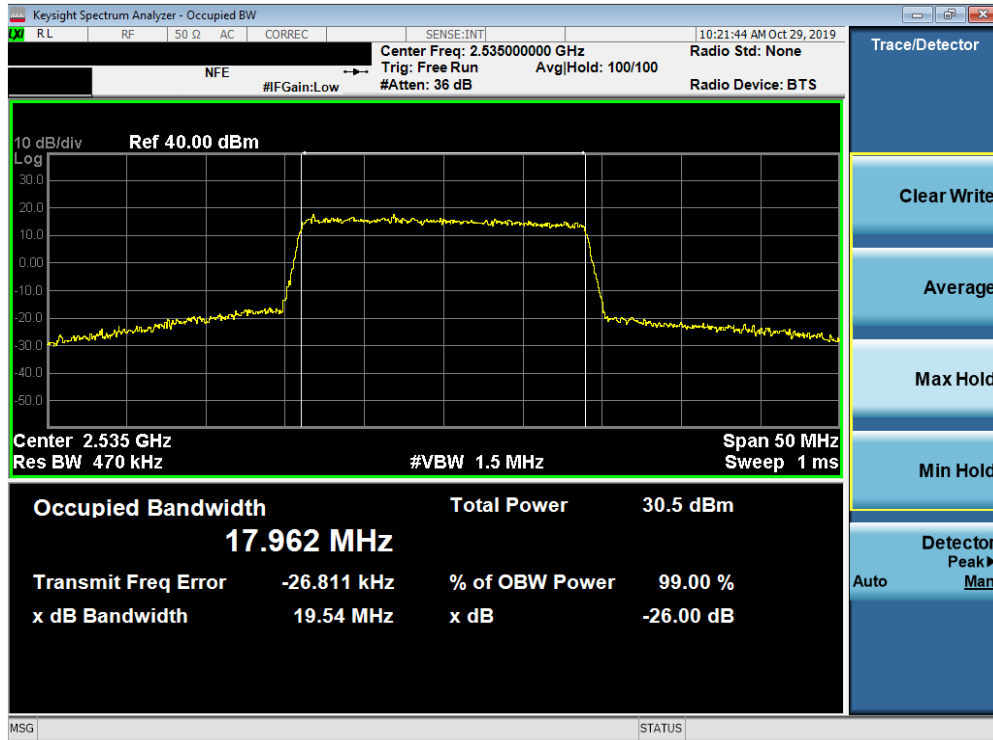


Plot 7-129. Occupied Bandwidth Plot (Band 7 - 20.0MHz QPSK - Full RB Configuration)

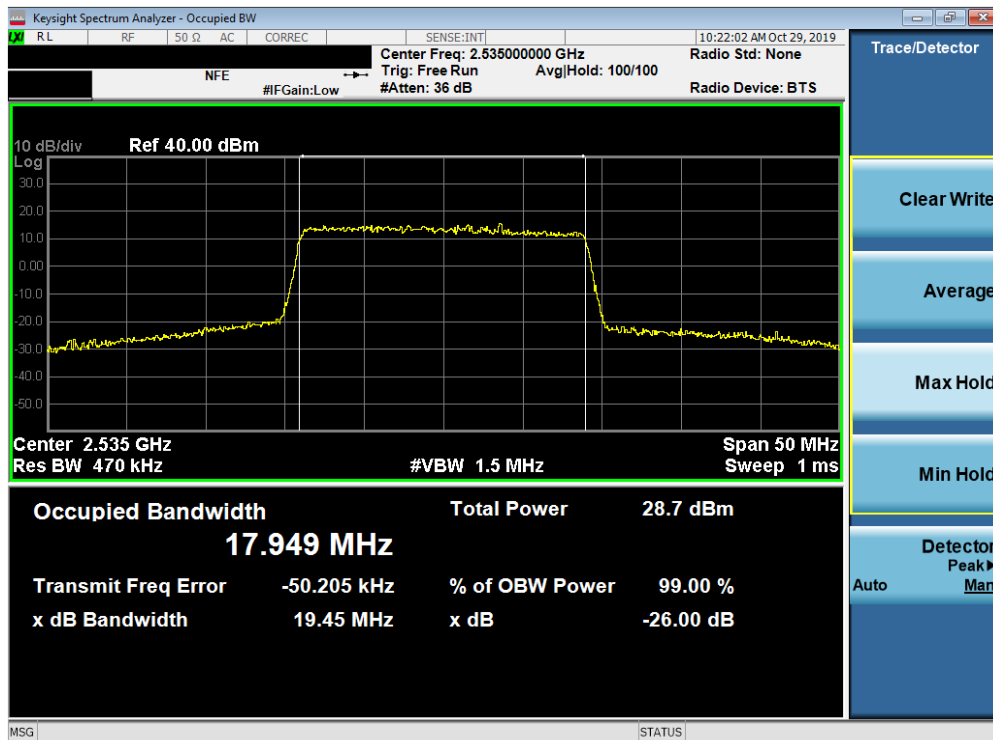


Plot 7-130. Occupied Bandwidth Plot (Band 7 - 20.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 84 of 487



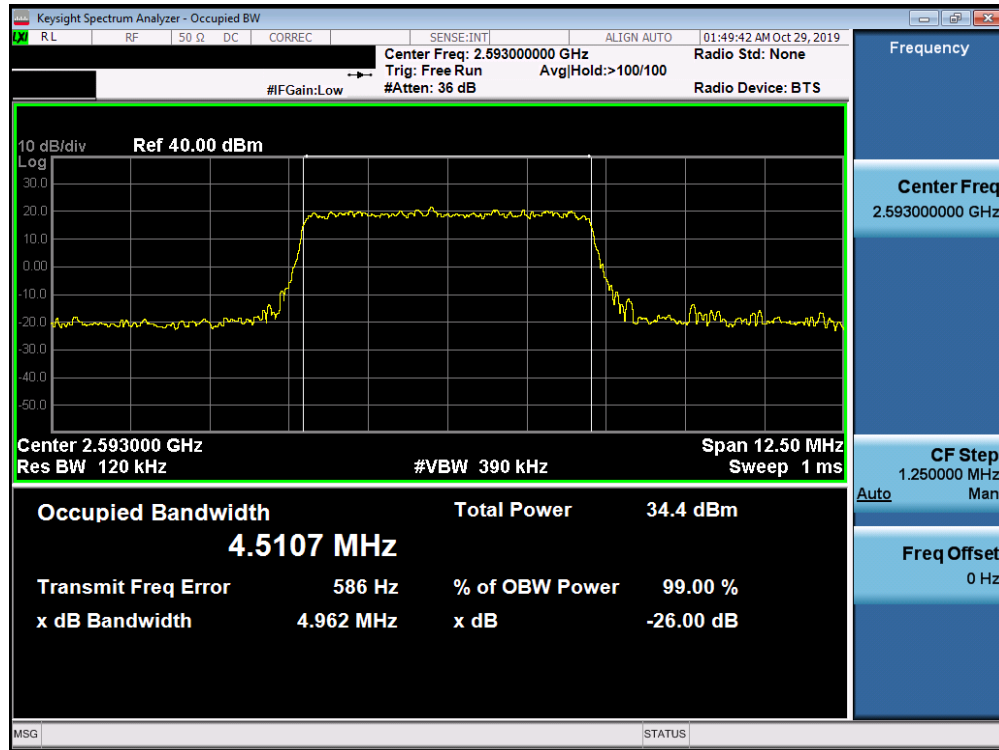
Plot 7-131. Occupied Bandwidth Plot (Band 7 - 20.0MHz 64-QAM - Full RB Configuration)



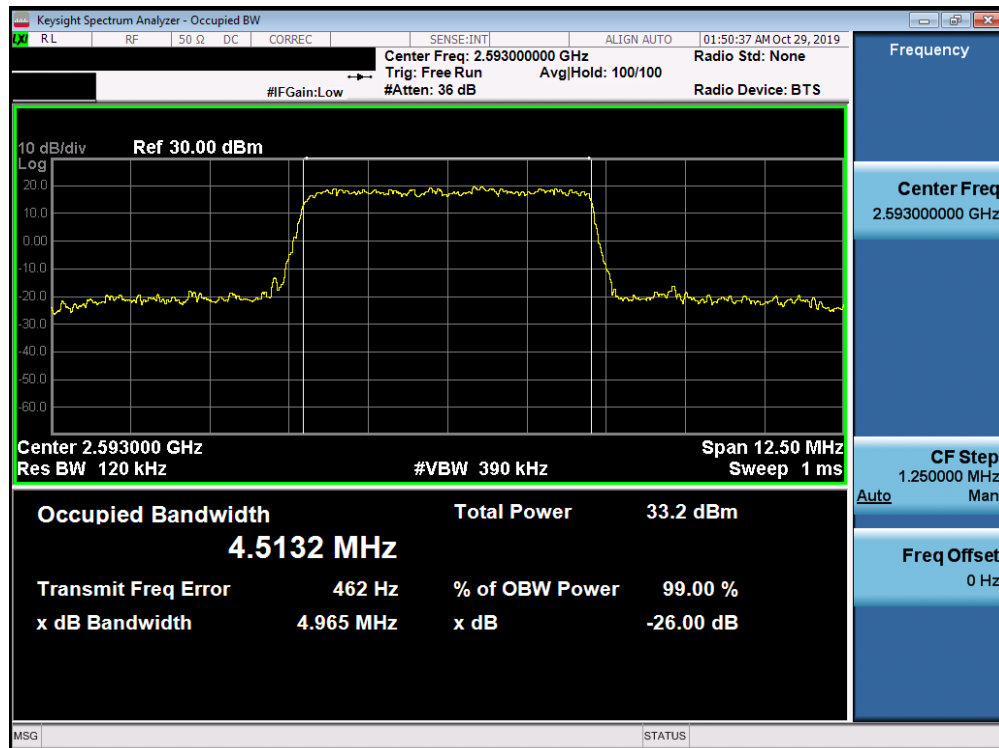
Plot 7-132. Occupied Bandwidth Plot (Band 7 - 20.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 85 of 487

Band 41 (PC2)

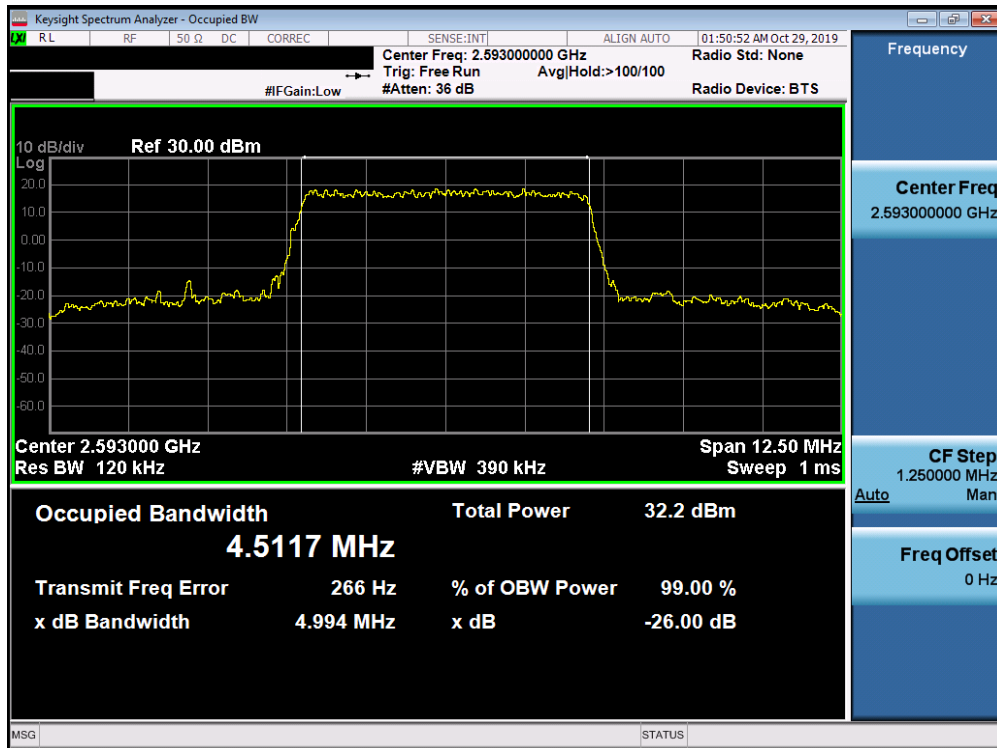


Plot 7-133. Occupied Bandwidth Plot (Band 41 (PC2) - 5.0MHz QPSK - Full RB Configuration)

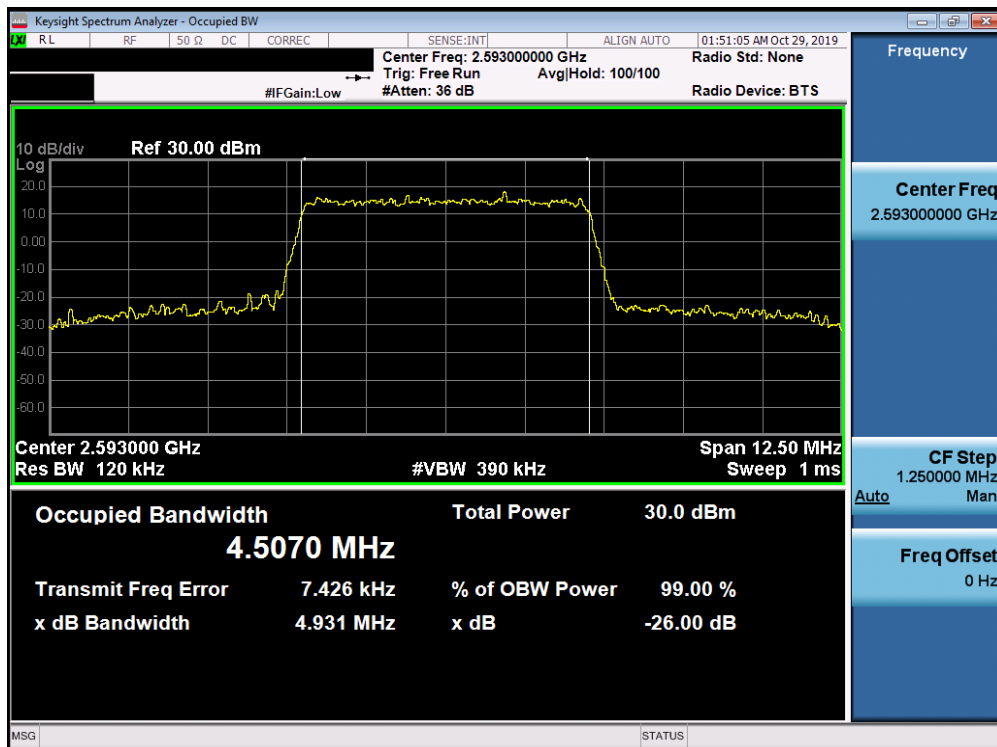


Plot 7-134. Occupied Bandwidth Plot (Band 41 (PC2) - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 86 of 487

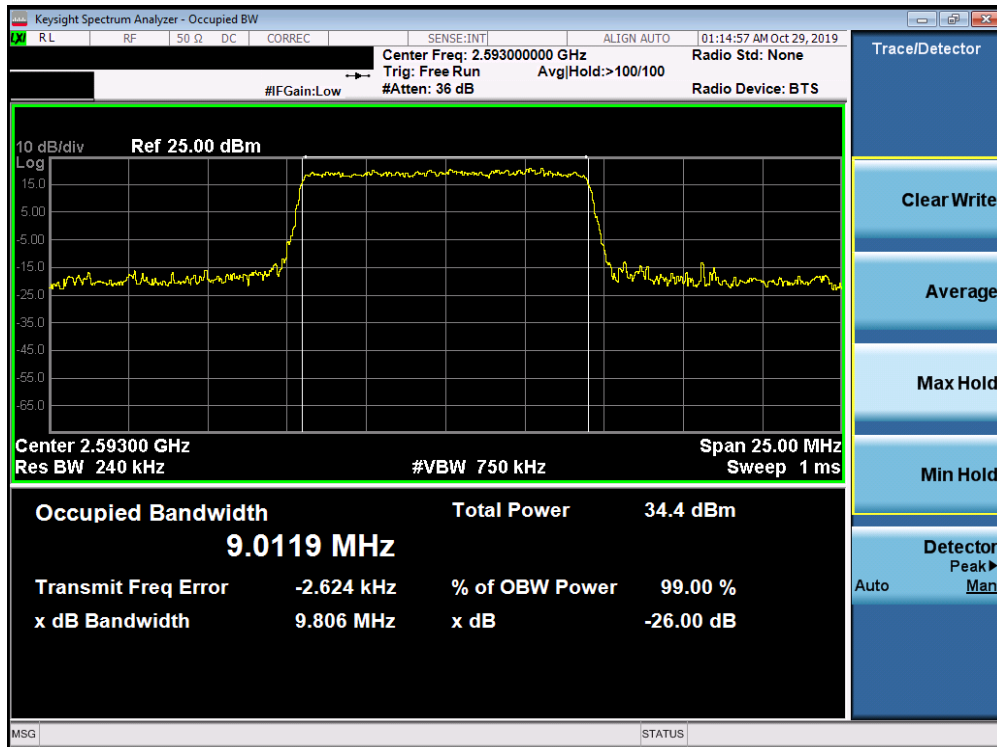


Plot 7-135. Occupied Bandwidth Plot (Band 41 (PC2) - 5.0MHz 64-QAM - Full RB Configuration)

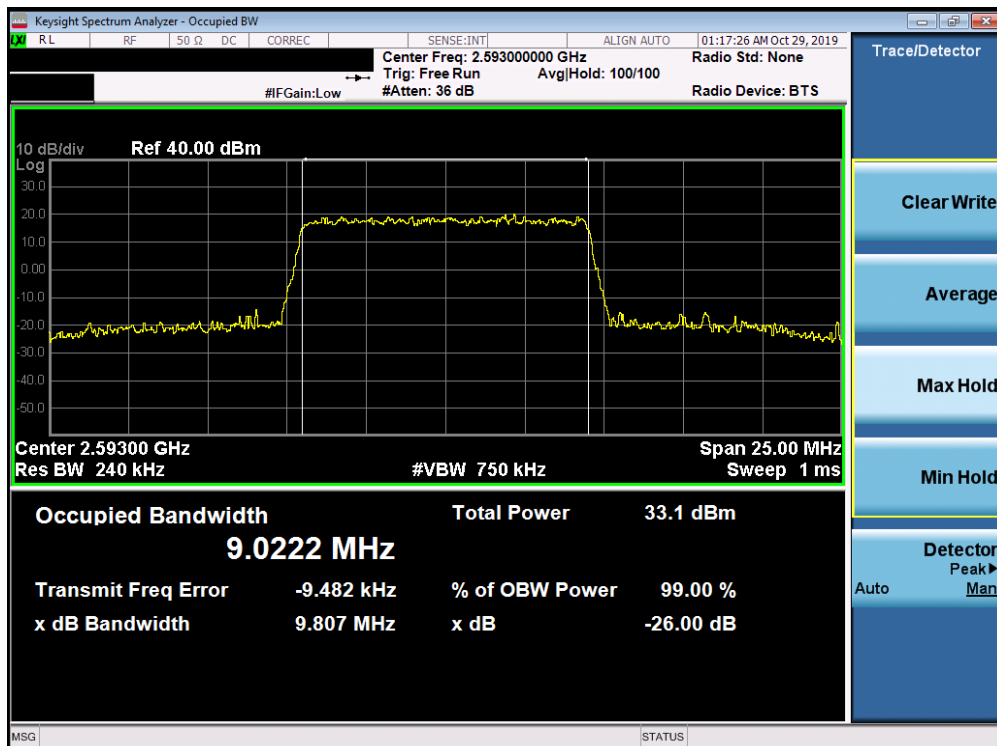


Plot 7-136. Occupied Bandwidth Plot (Band 41 (PC2) - 5.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 87 of 487

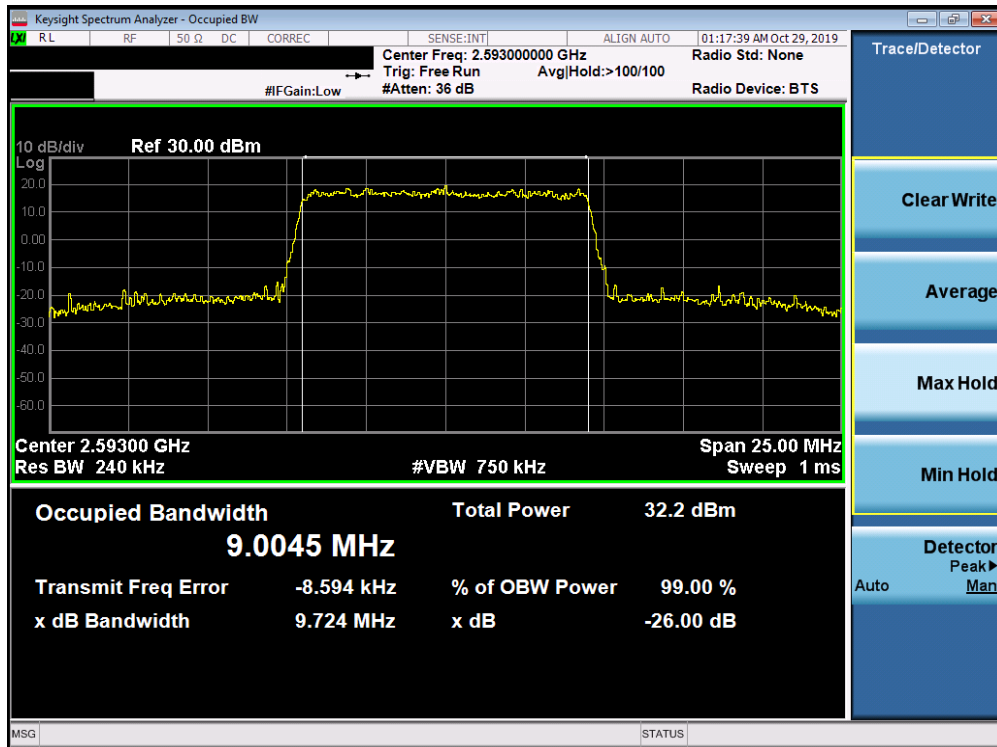


Plot 7-137. Occupied Bandwidth Plot (Band 41 (PC2) - 10.0MHz QPSK - Full RB Configuration)

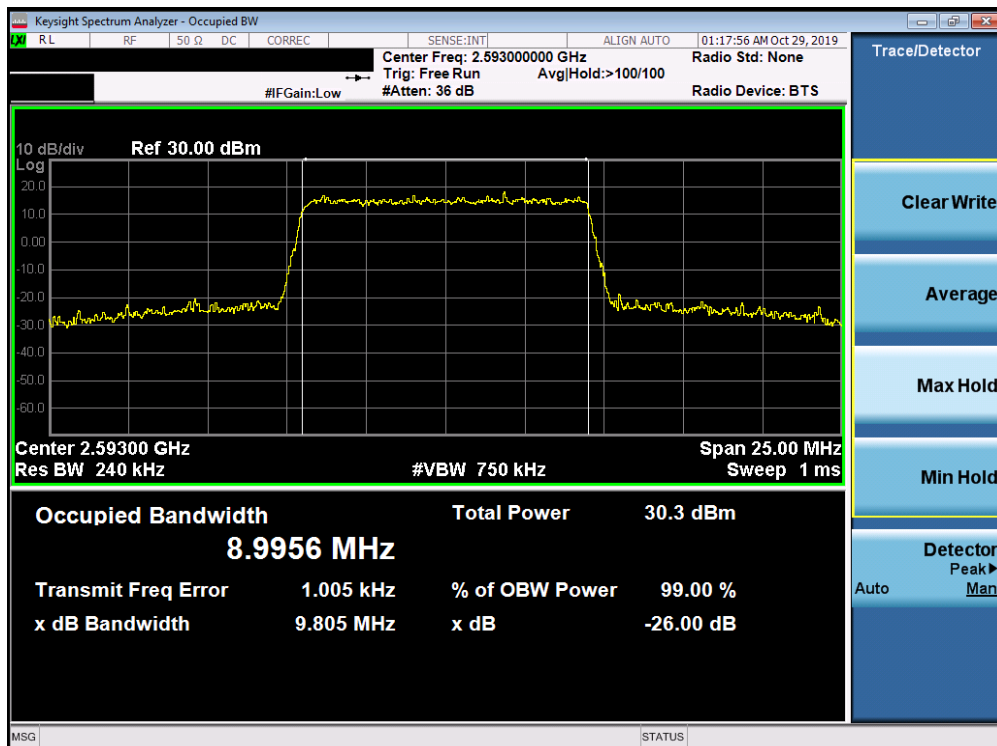


Plot 7-138. Occupied Bandwidth Plot (Band 41 (PC2) - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 88 of 487

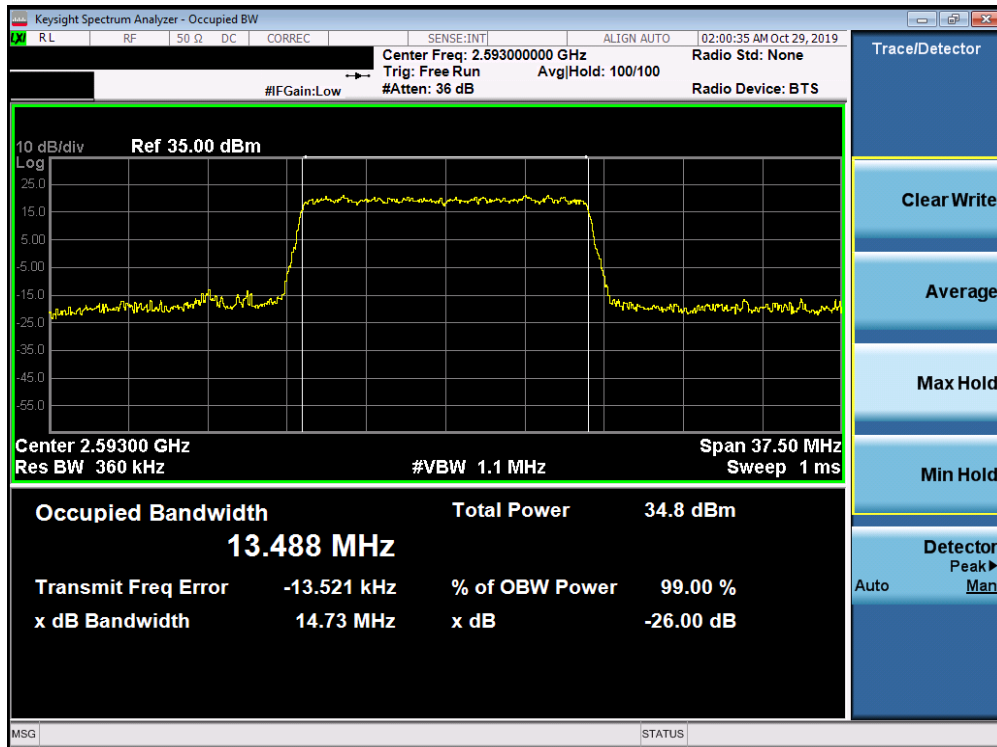


Plot 7-139. Occupied Bandwidth Plot (Band 41 (PC2) - 10.0MHz 64-QAM - Full RB Configuration)

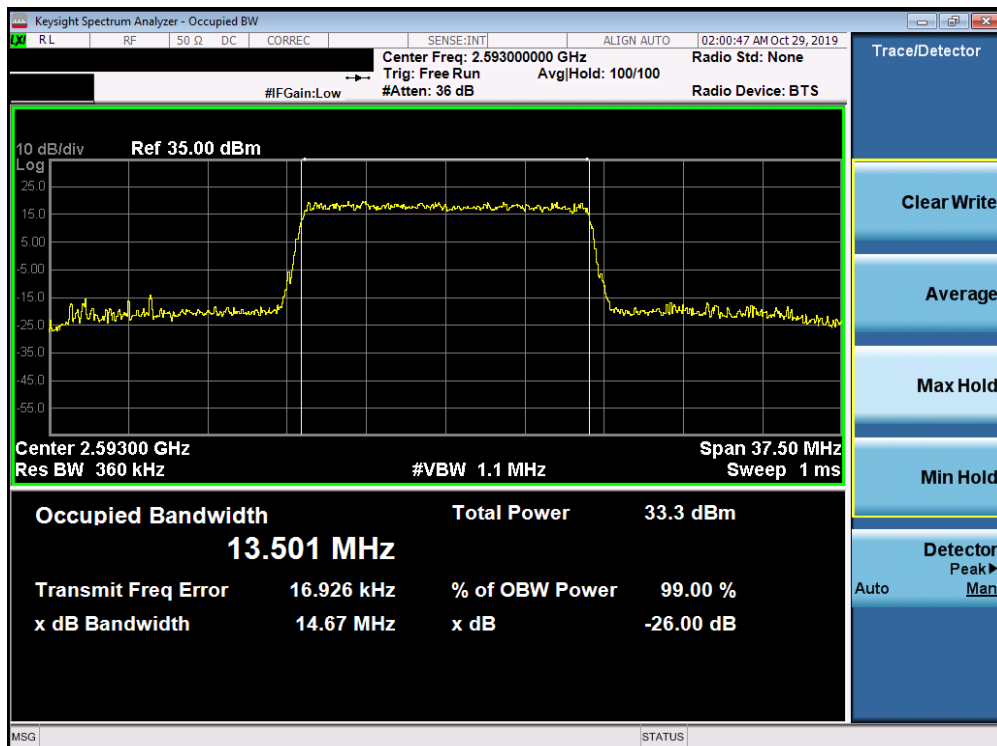


Plot 7-140. Occupied Bandwidth Plot (Band 41 (PC2) - 10.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 89 of 487

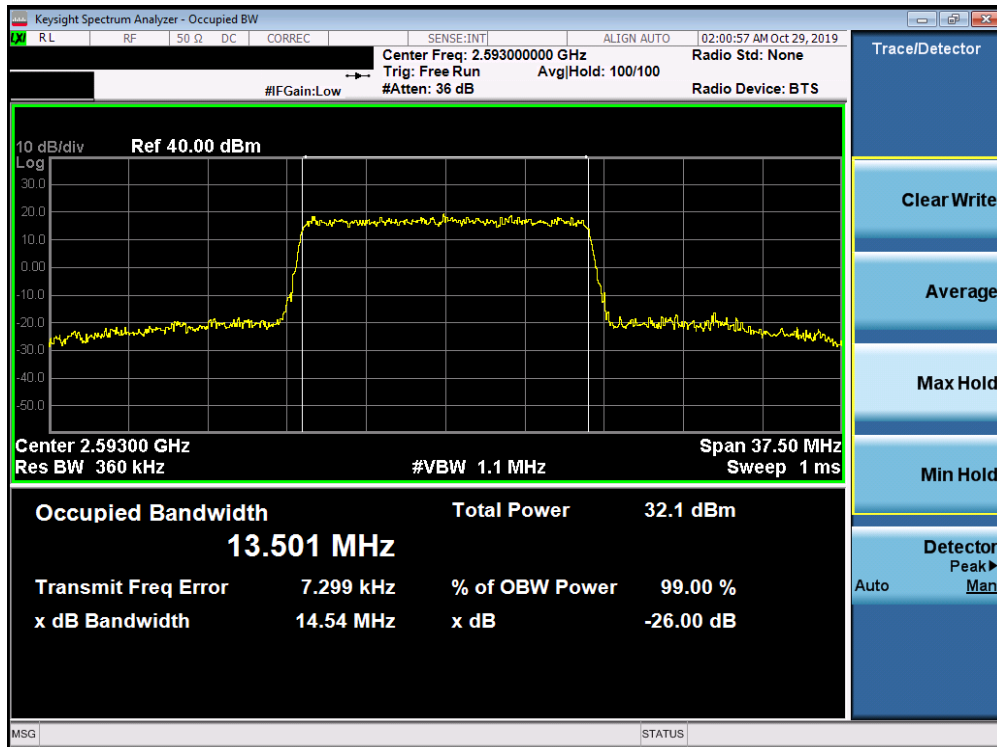


Plot 7-141. Occupied Bandwidth Plot (Band 41 (PC2) - 15.0MHz QPSK - Full RB Configuration)

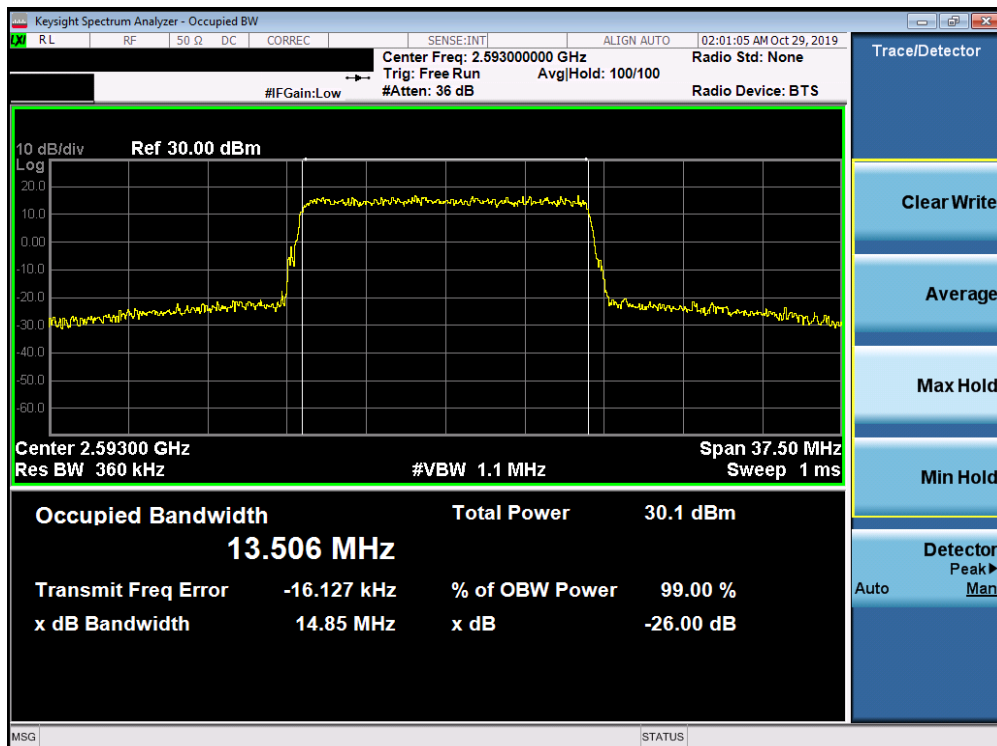


Plot 7-142. Occupied Bandwidth Plot (Band 41 (PC2) - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 90 of 487

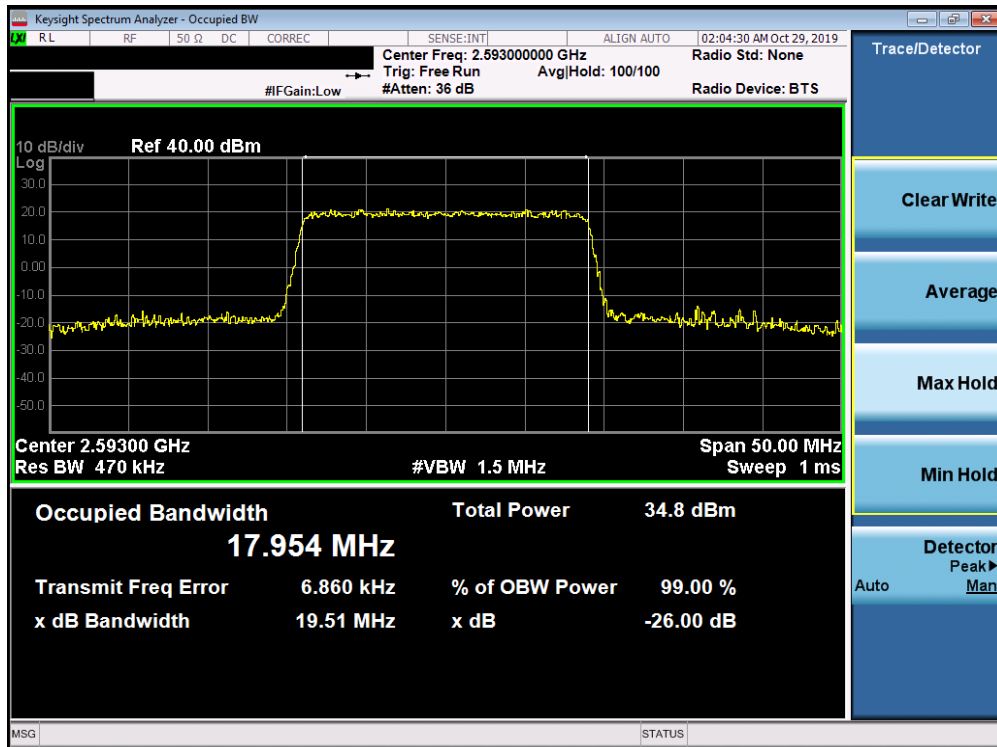


Plot 7-143. Occupied Bandwidth Plot (Band 41 (PC2) - 15.0MHz 64-QAM - Full RB Configuration)

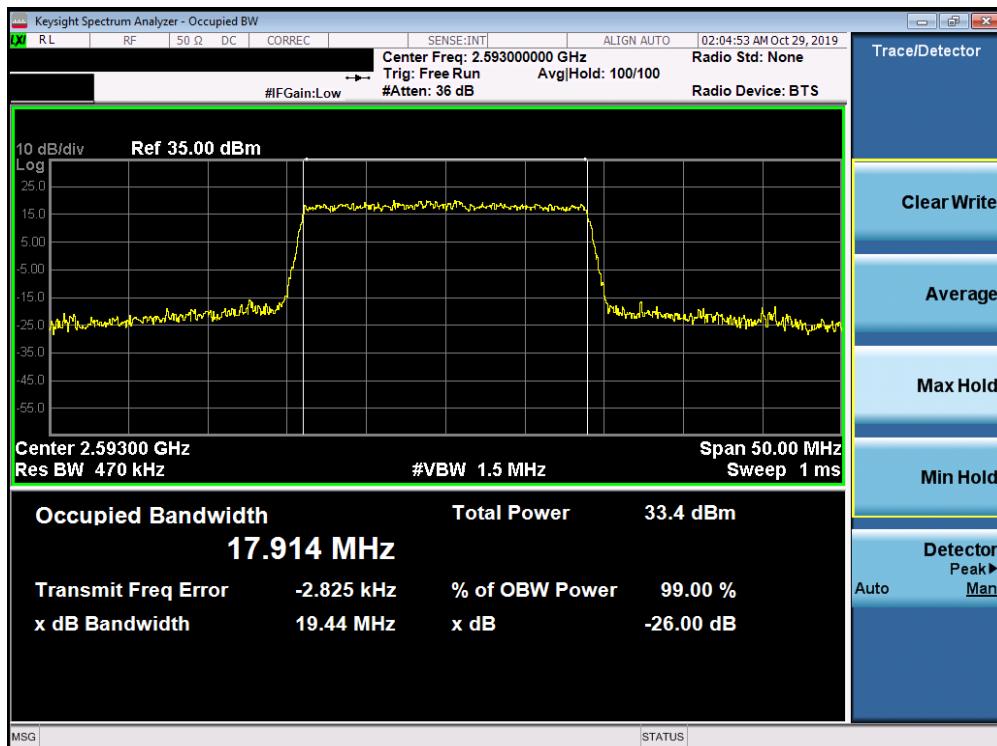


Plot 7-144. Occupied Bandwidth Plot (Band 41 (PC2) - 15.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 91 of 487

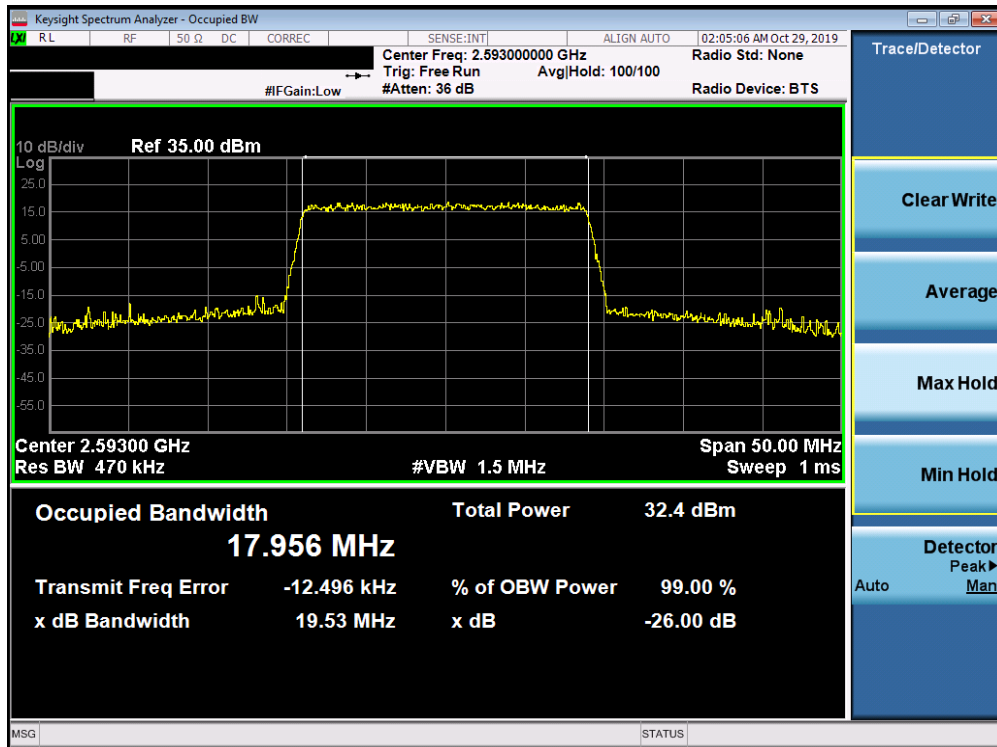


Plot 7-145. Occupied Bandwidth Plot (Band 41 (PC2) - 20.0MHz QPSK - Full RB Configuration)

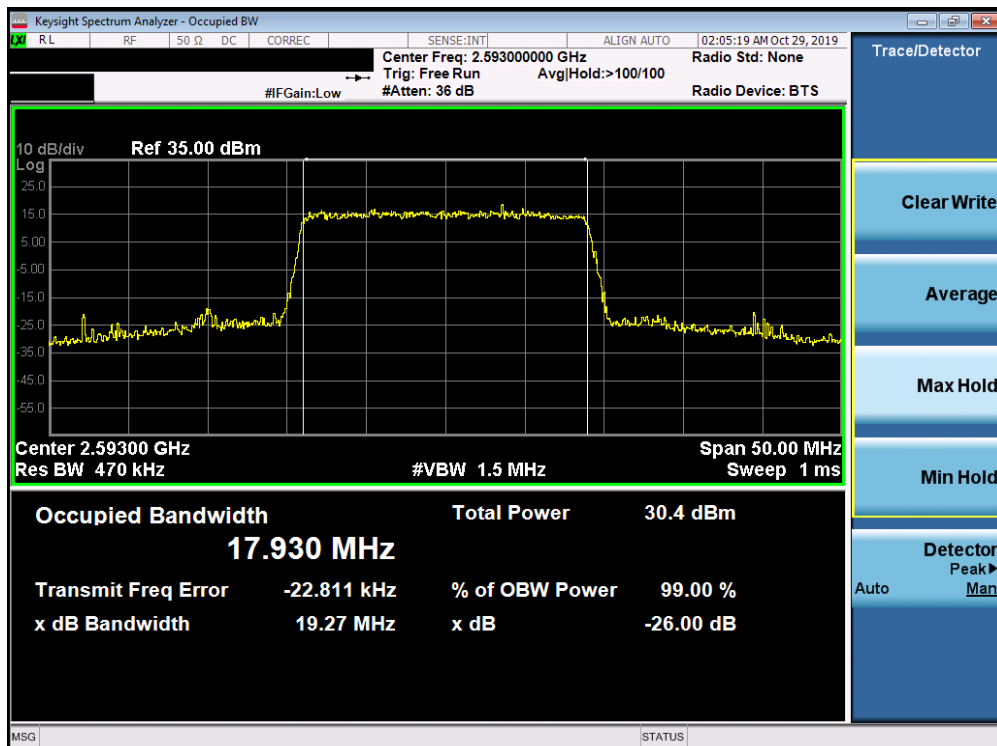


Plot 7-146. Occupied Bandwidth Plot (Band 41 (PC2) - 20.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 92 of 487



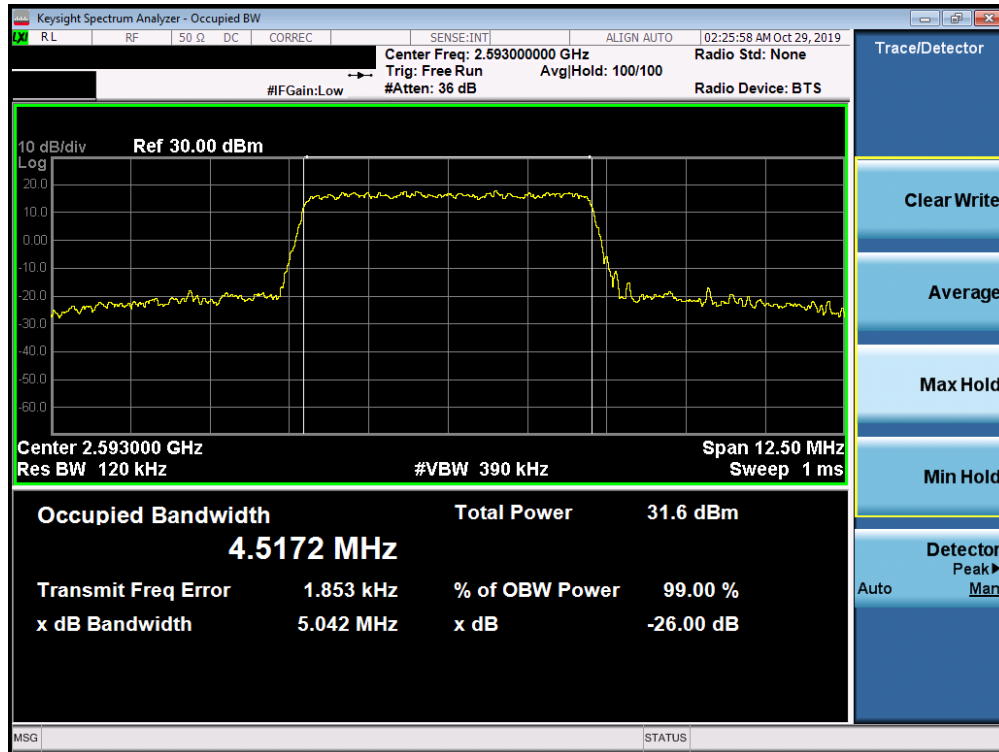
Plot 7-147. Occupied Bandwidth Plot (Band 41 (PC2) - 20.0MHz 64-QAM - Full RB Configuration)



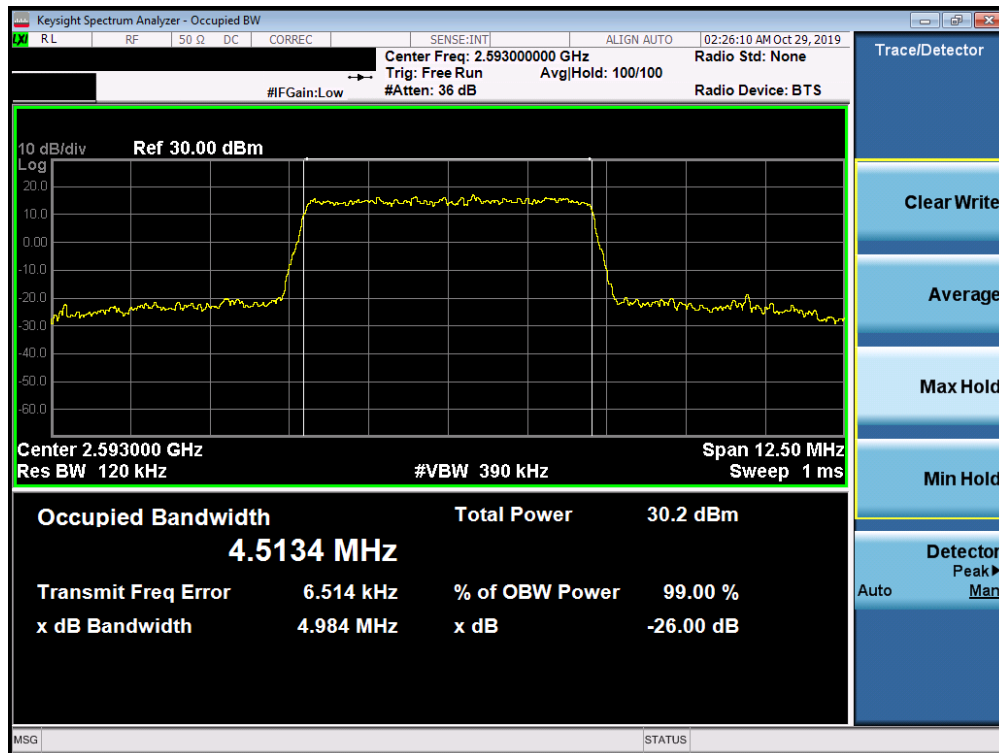
Plot 7-148. Occupied Bandwidth Plot (Band 41 (PC2) - 20.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 93 of 487

Band 41 (PC3)

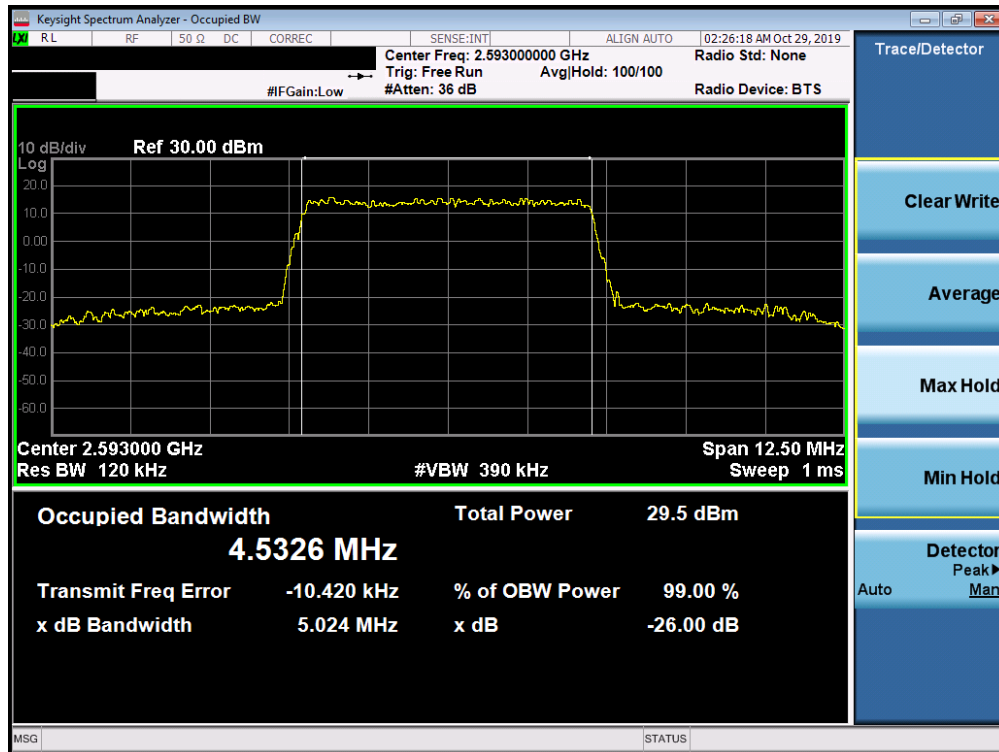


Plot 7-149. Occupied Bandwidth Plot (Band 41 (PC3) - 5.0MHz QPSK - Full RB Configuration)

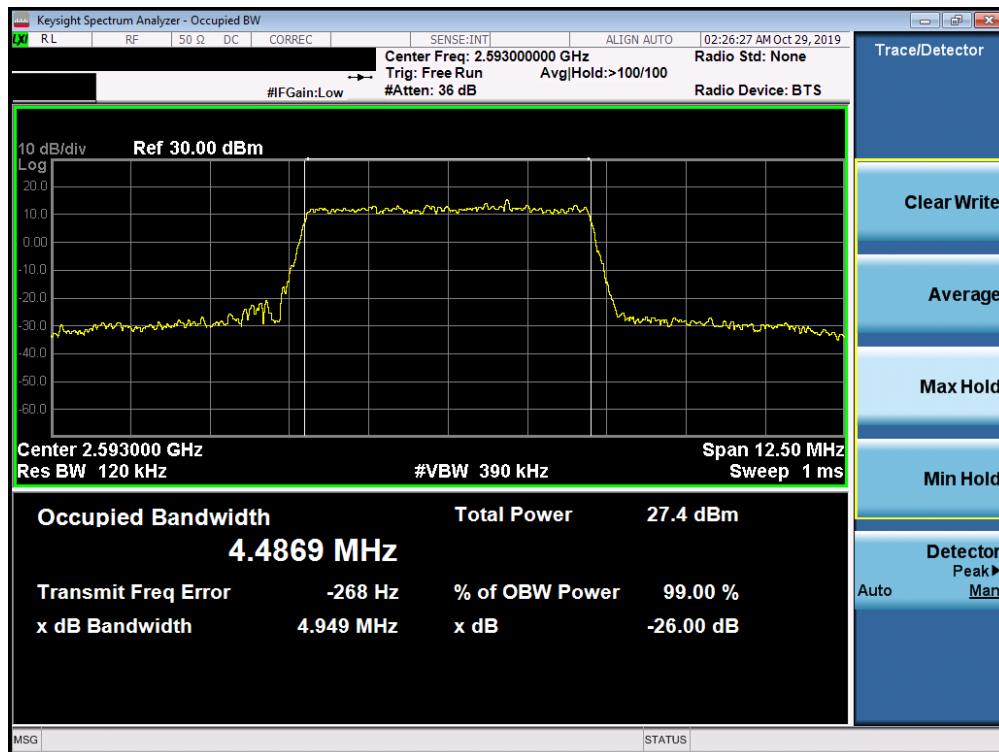


Plot 7-150. Occupied Bandwidth Plot (Band 41 (PC3) - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 94 of 487

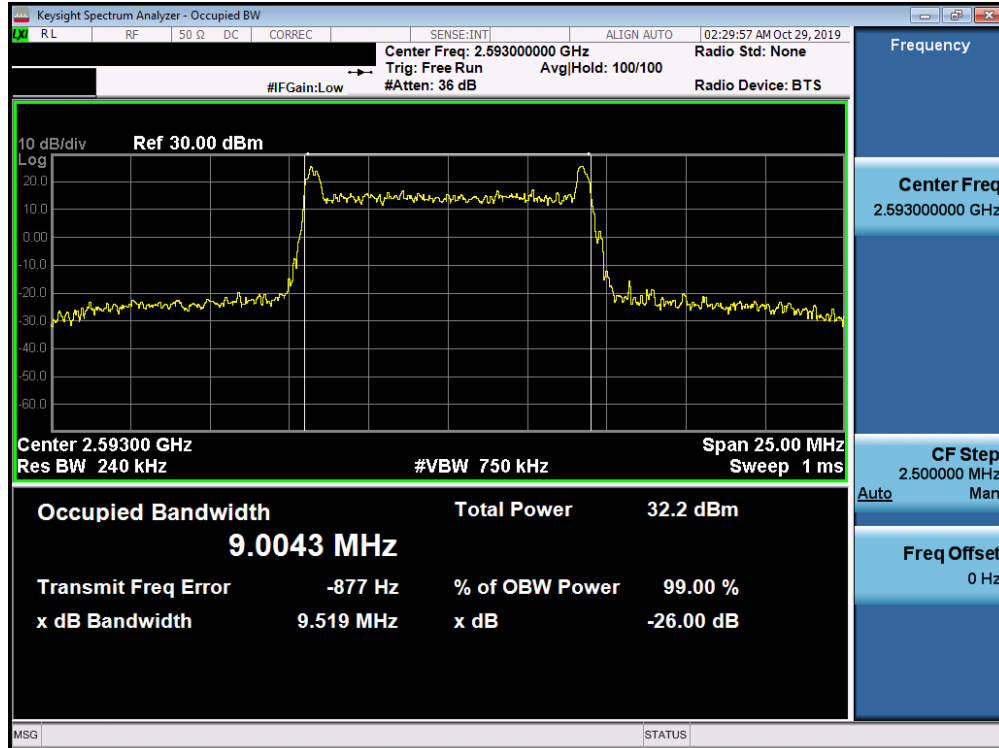


Plot 7-151. Occupied Bandwidth Plot (Band 41 (PC3) - 5.0MHz 64-QAM - Full RB Configuration)

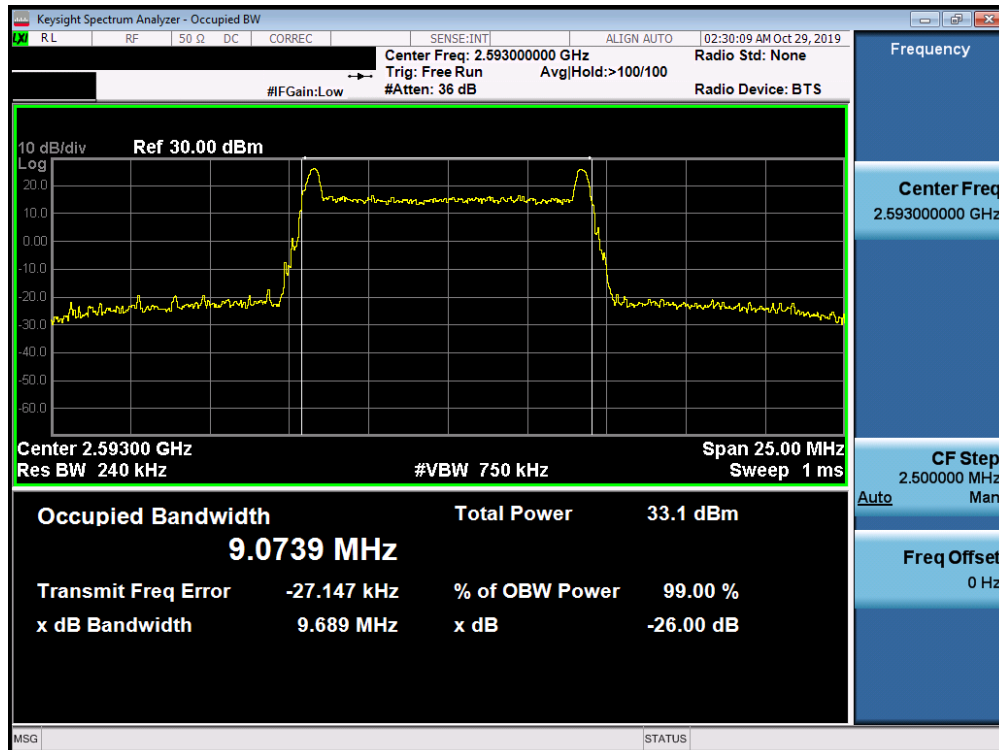


Plot 7-152. Occupied Bandwidth Plot (Band 41 (PC3) - 5.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 95 of 487

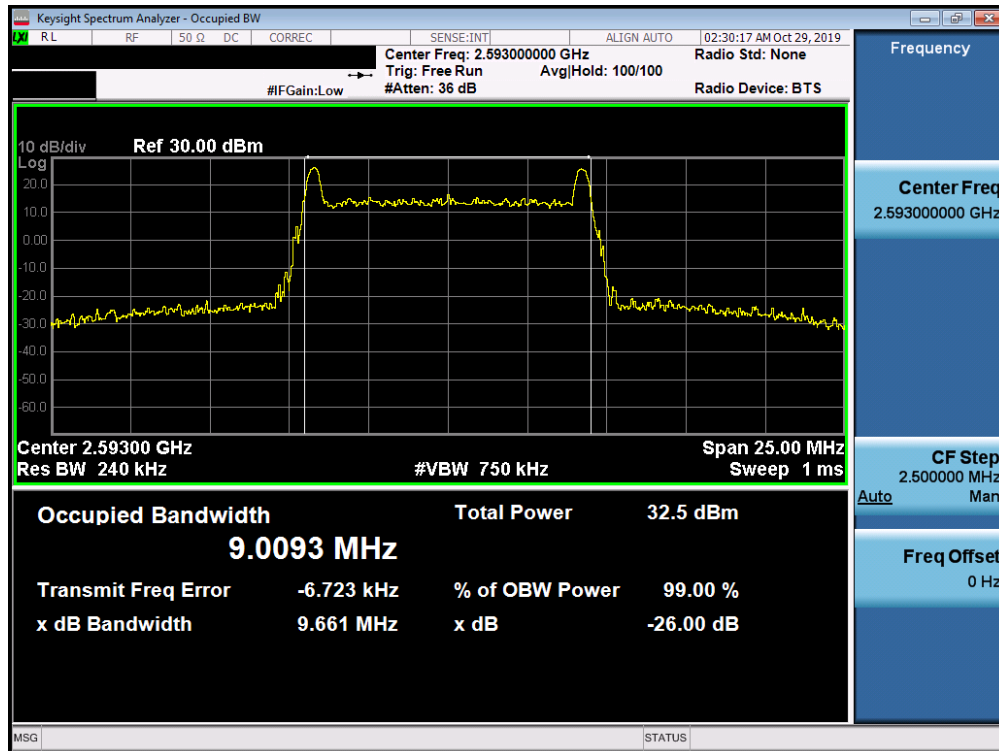


Plot 7-153. Occupied Bandwidth Plot (Band 41 (PC3) - 10.0MHz QPSK - Full RB Configuration)

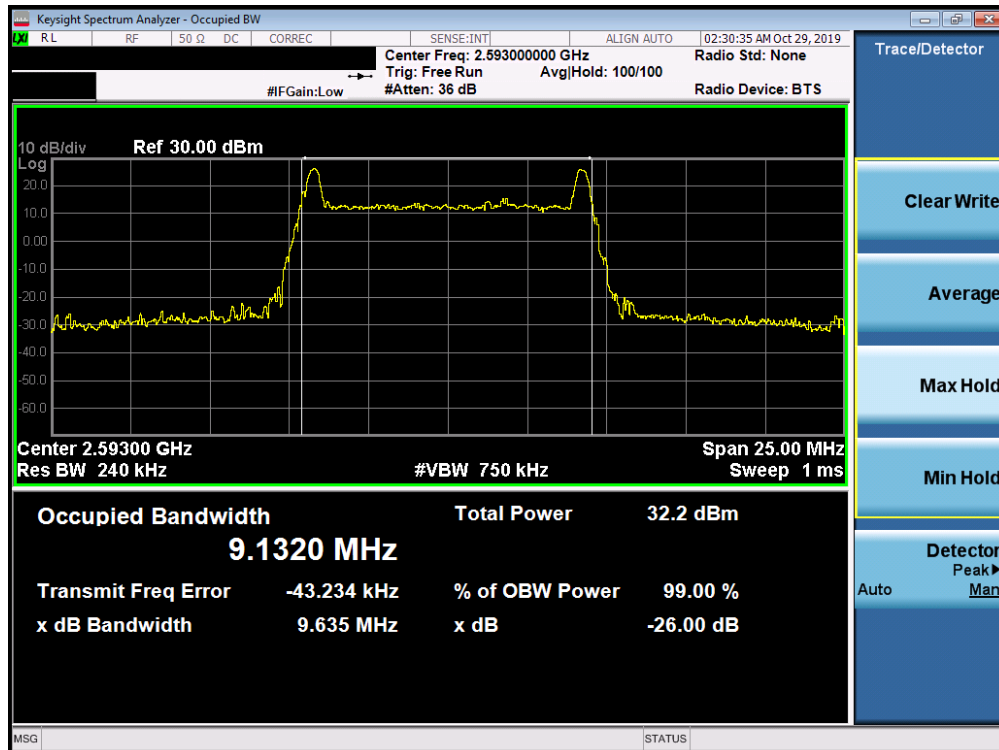


Plot 7-154. Occupied Bandwidth Plot (Band 41 (PC3) - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 96 of 487

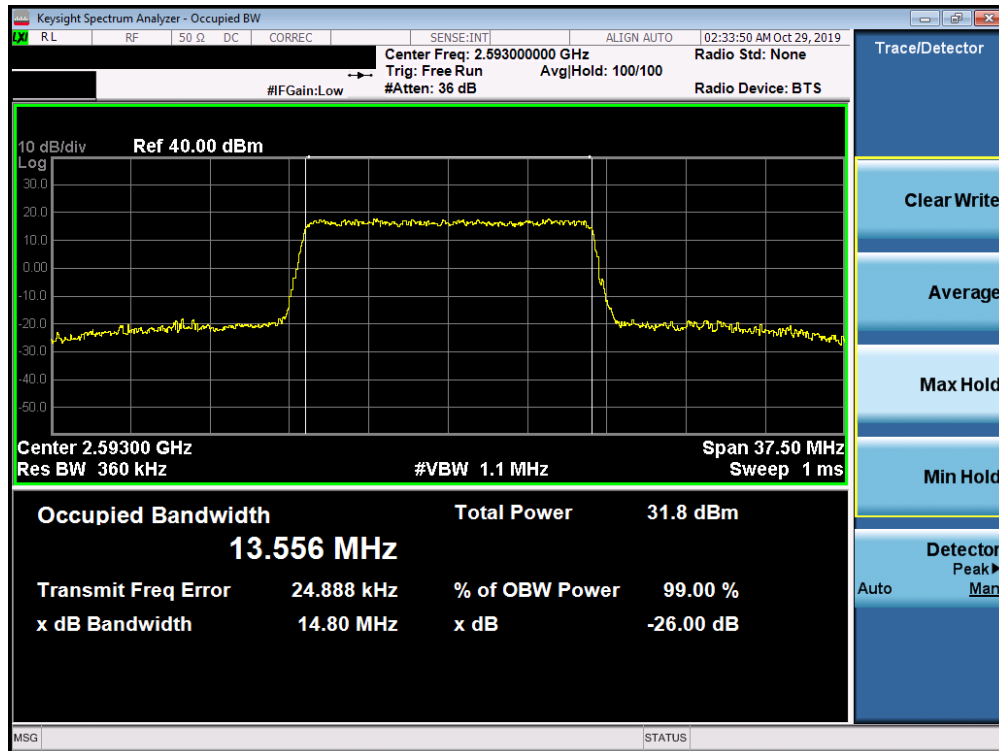


Plot 7-155. Occupied Bandwidth Plot (Band 41 (PC3) - 10.0MHz 64-QAM - Full RB Configuration)

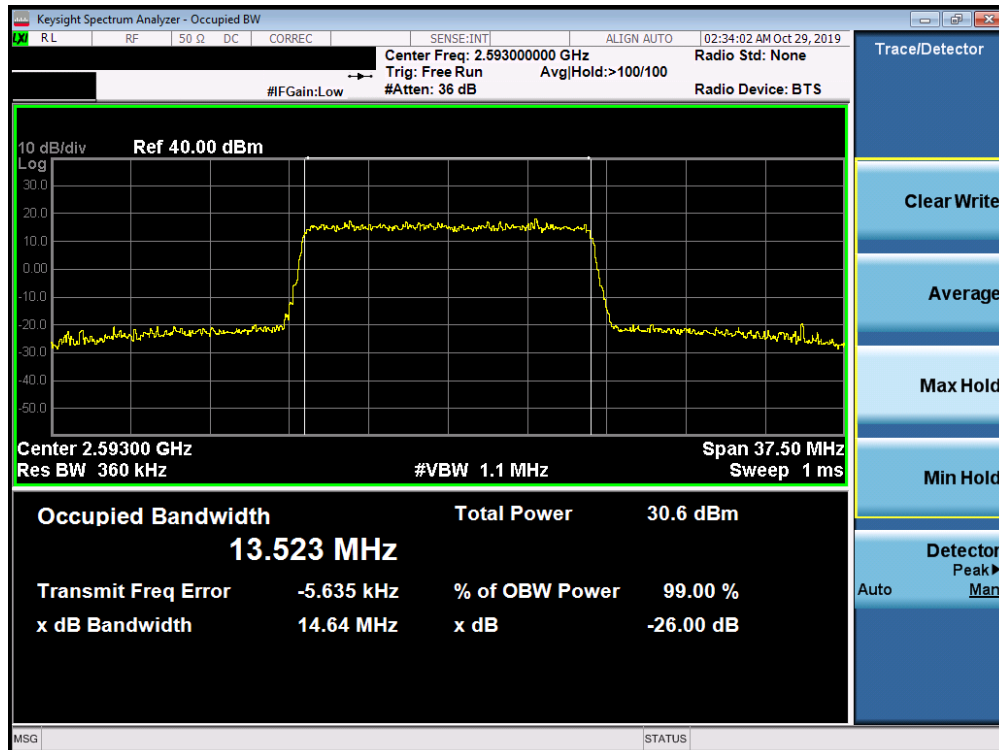


Plot 7-156. Occupied Bandwidth Plot (Band 41 (PC3) - 10.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 97 of 487

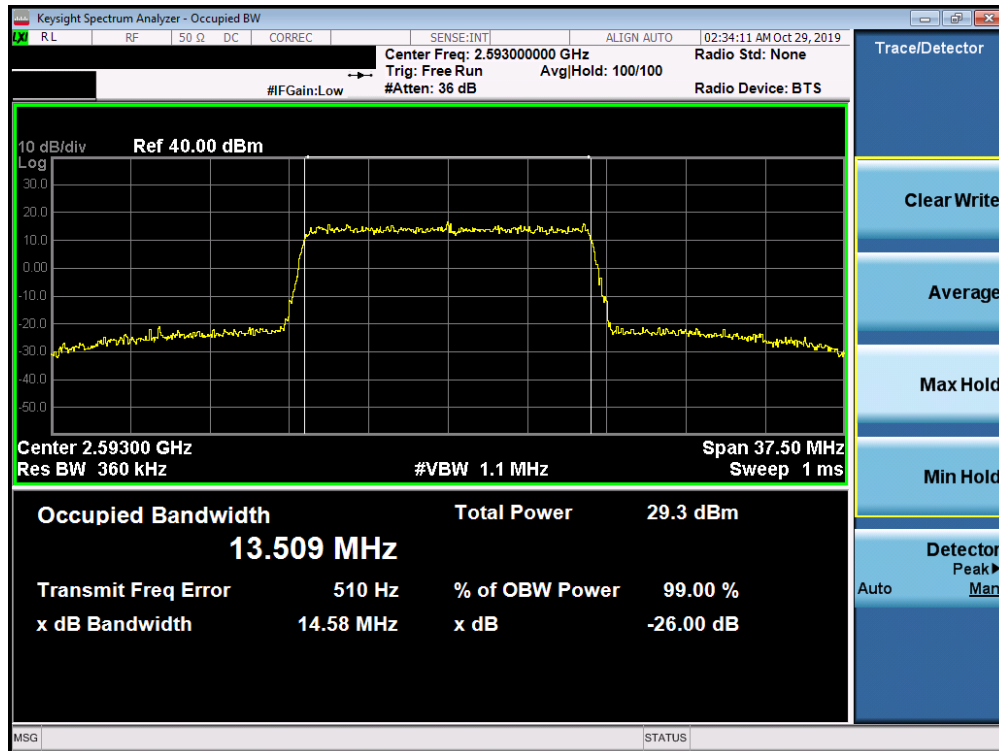


Plot 7-157. Occupied Bandwidth Plot (Band 41 (PC3) - 15.0MHz QPSK - Full RB Configuration)

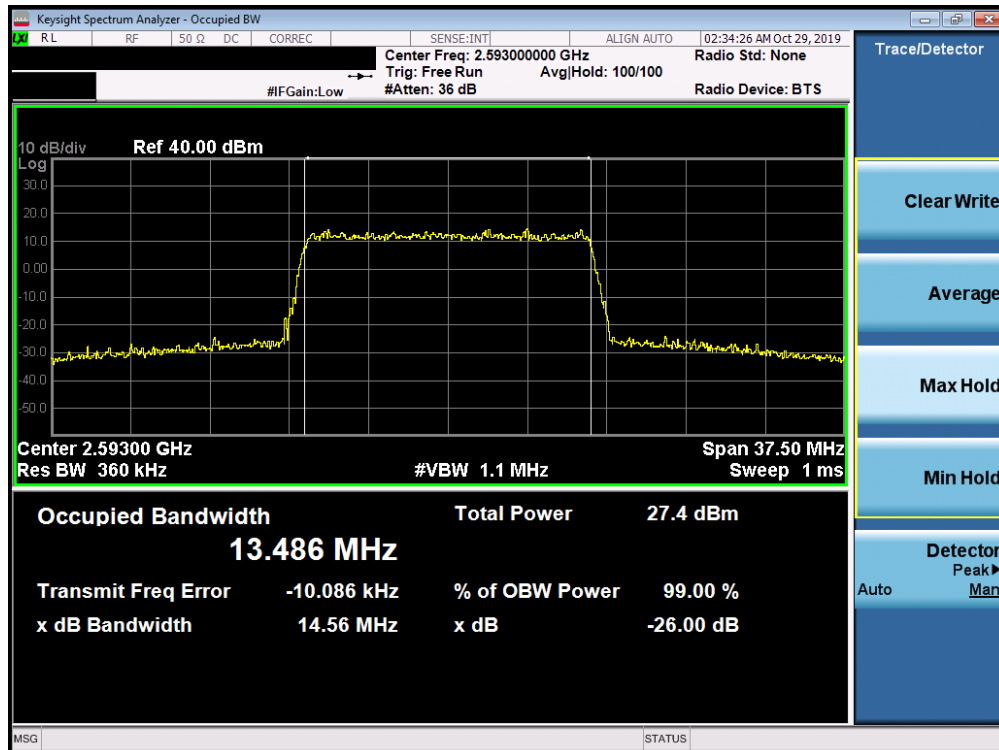


Plot 7-158. Occupied Bandwidth Plot (Band 41 (PC3) - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 98 of 487

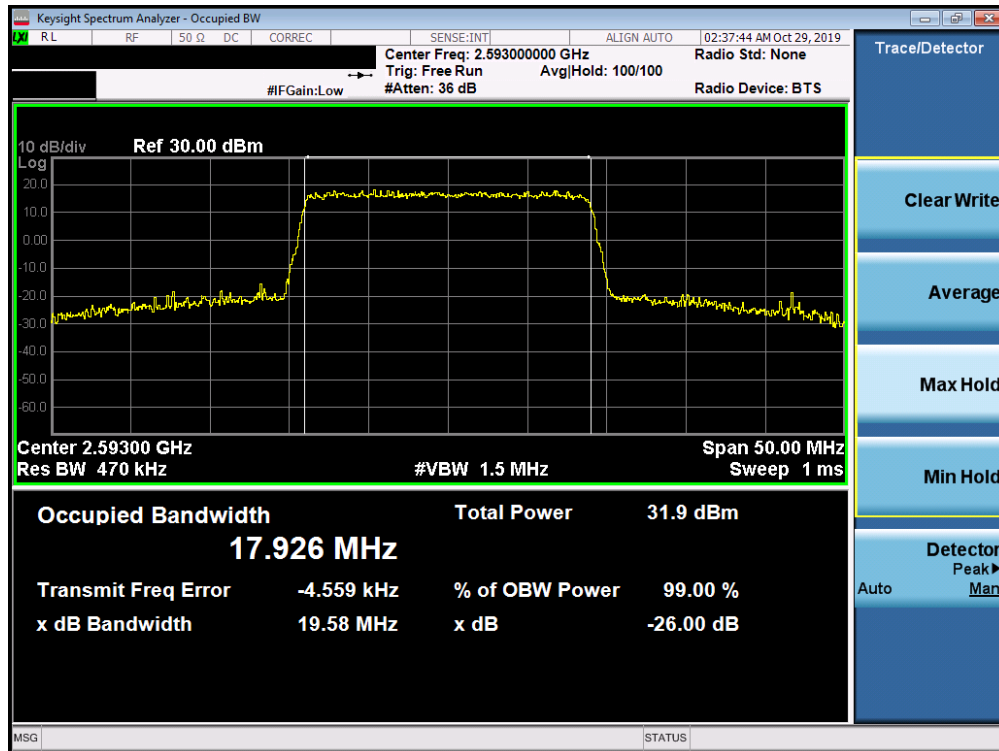


Plot 7-159. Occupied Bandwidth Plot (Band 41 (PC3) - 15.0MHz 64-QAM - Full RB Configuration)

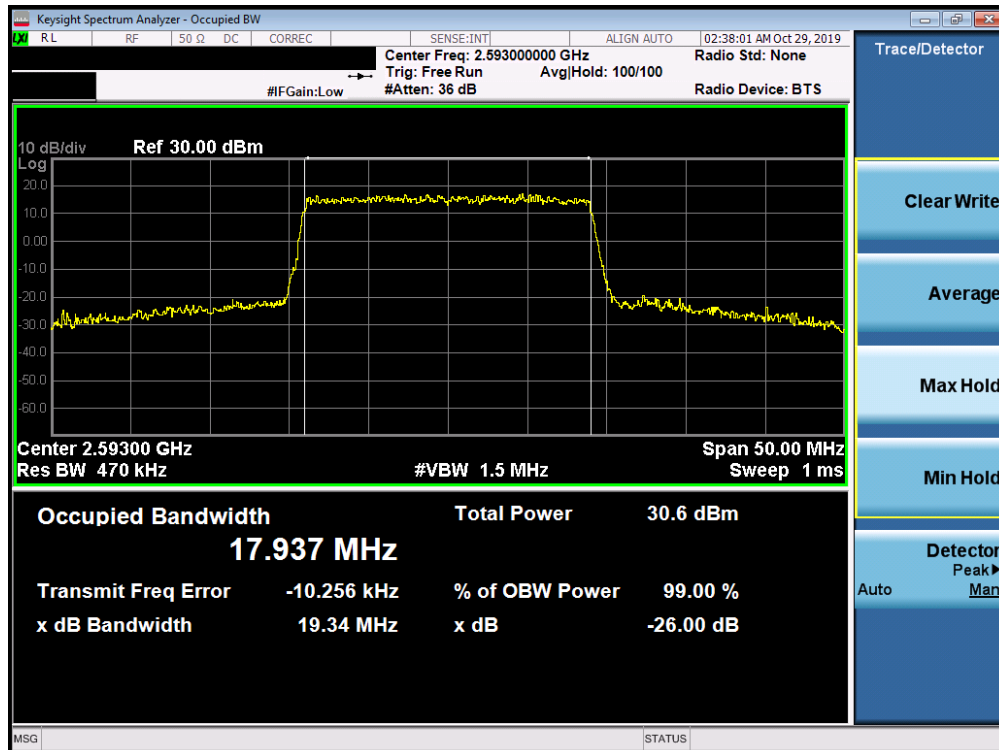


Plot 7-160. Occupied Bandwidth Plot (Band 41 (PC3) - 15.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 99 of 487

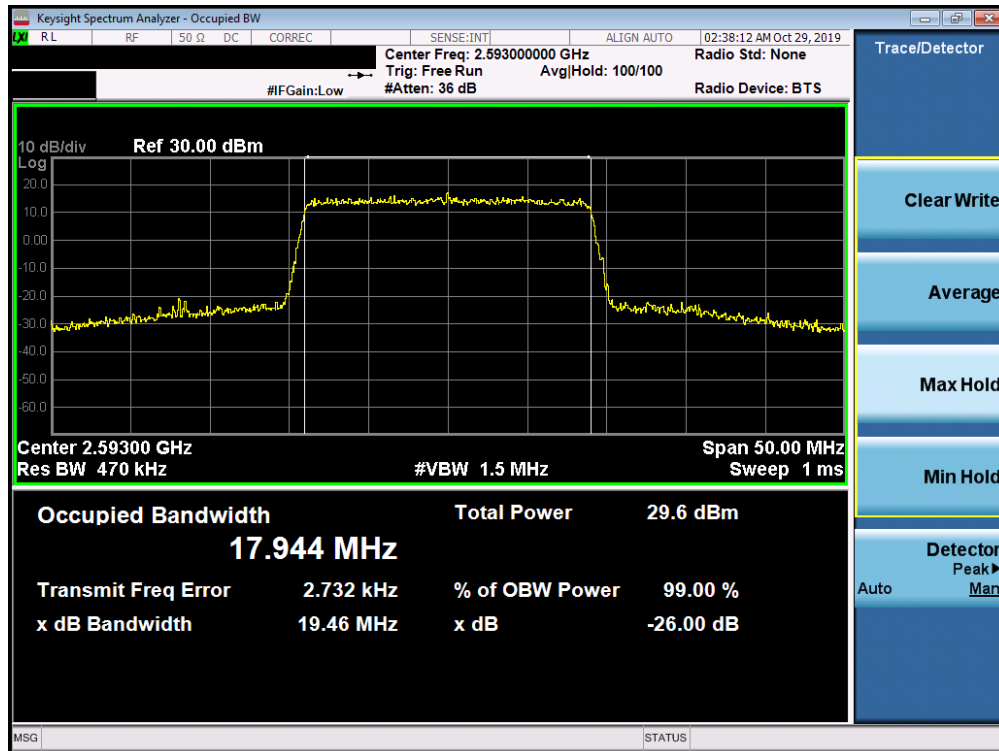


Plot 7-161. Occupied Bandwidth Plot (Band 41 (PC3) - 20.0MHz QPSK - Full RB Configuration)

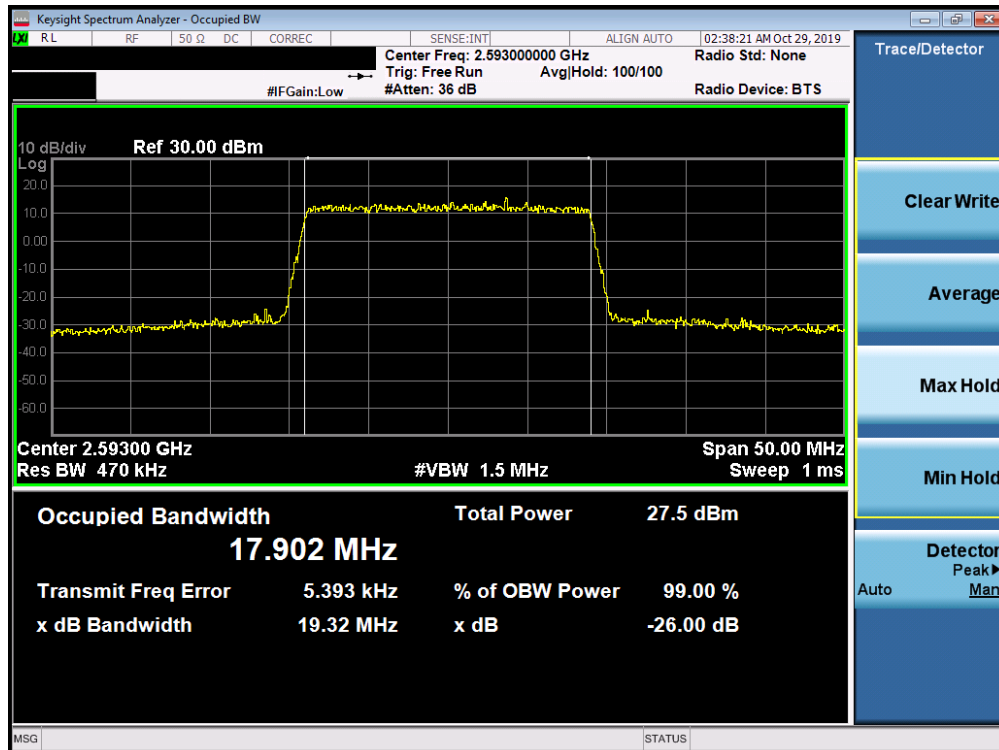


Plot 7-162. Occupied Bandwidth Plot (Band 41 (PC3) - 20.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 100 of 487



Plot 7-163. Occupied Bandwidth Plot (Band 41 (PC3) - 20.0MHz 64-QAM - Full RB Configuration)



Plot 7-164. Occupied Bandwidth Plot (Band 41 (PC3) - 20.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 101 of 487

7.3 Spurious and Harmonic Emissions at Antenna Terminal

Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

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

For Band 30, the minimum permissible attenuation level of any spurious emission <2288MHz and >2365MHz is $70 + 10 \log_{10}(P_{[Watts]})$.

For Band 7 and 41, the minimum permissible attenuation level of any spurious emission is $55 + 10 \log_{10}(P_{[Watts]})$.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

Test Settings

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

Test Setup

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

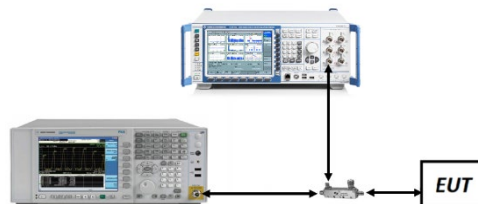


Figure 7-2. Test Instrument & Measurement Setup

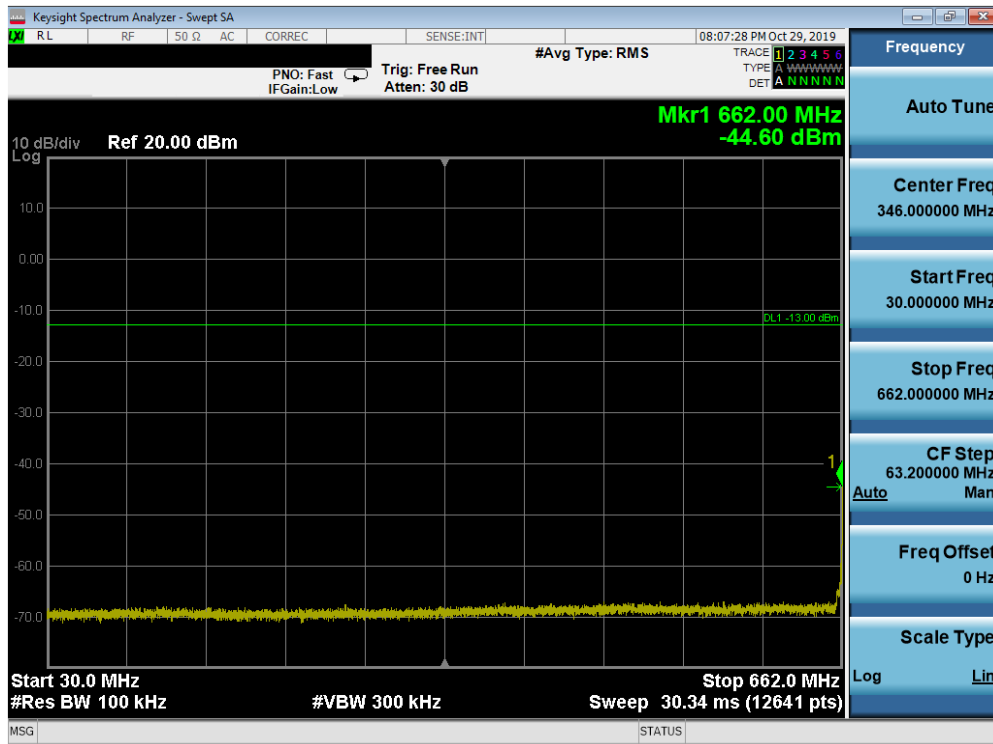
FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 102 of 487

Test Notes

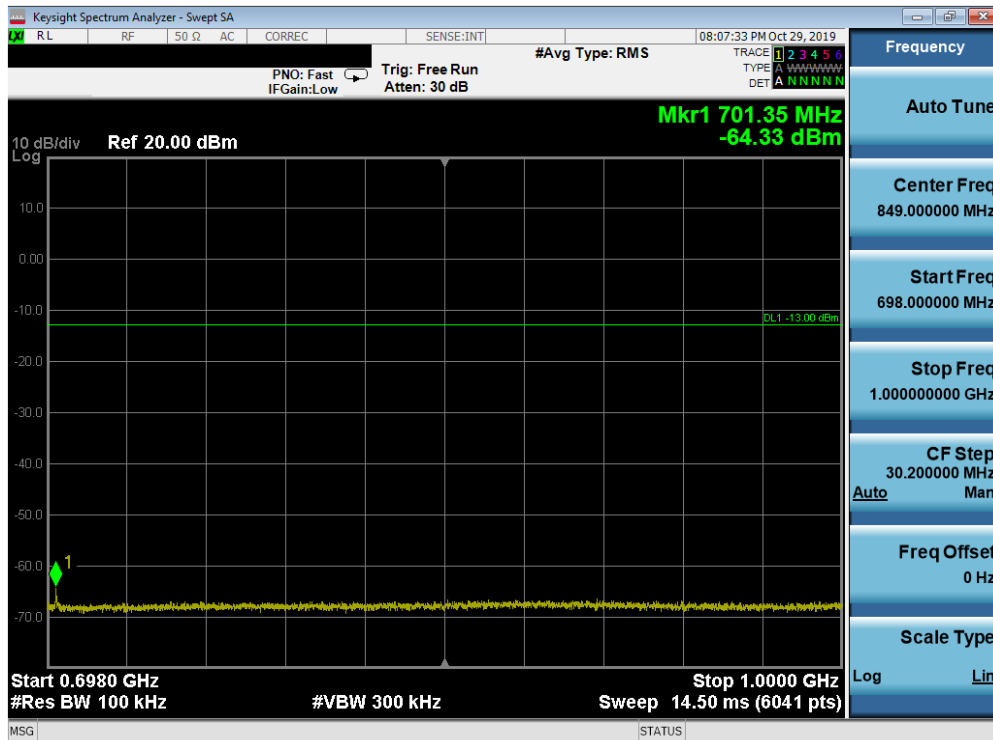
Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. 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: A3LSMG981U	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 71

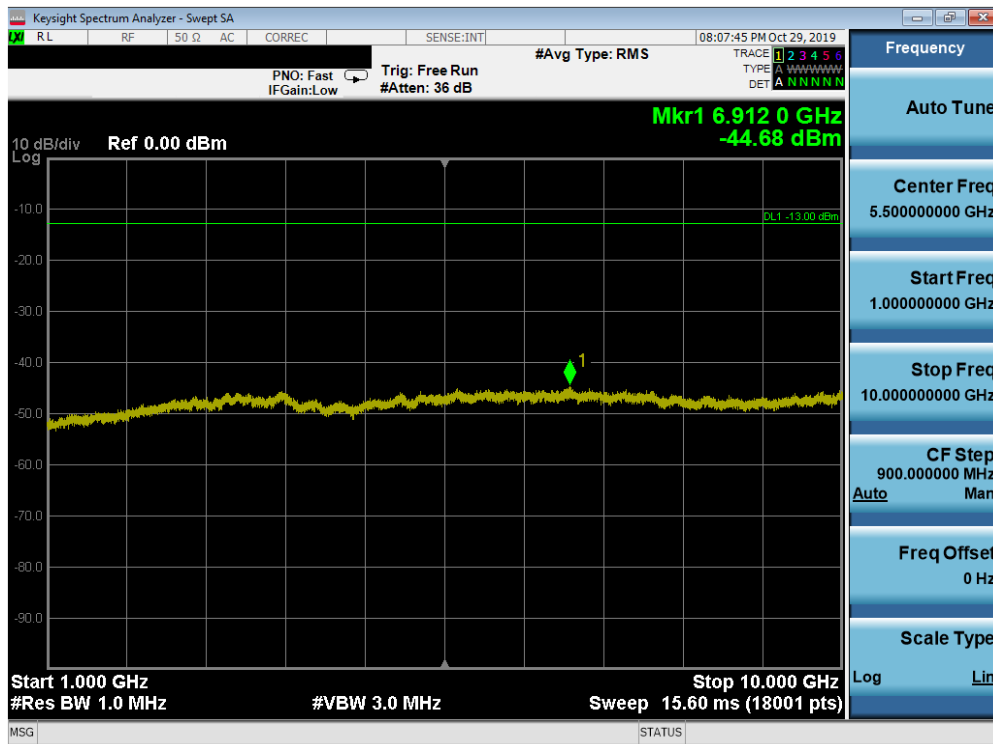


Plot 7-165. Conducted Spurious Plot (Band 71 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

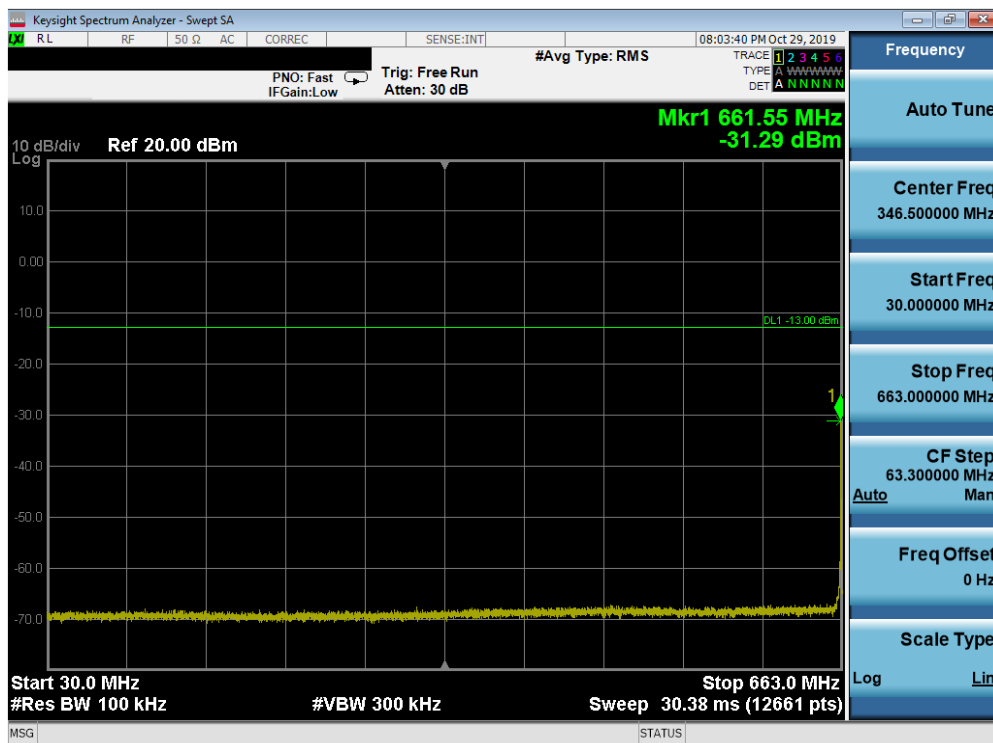


Plot 7-166. Conducted Spurious Plot (Band 71 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 104 of 487

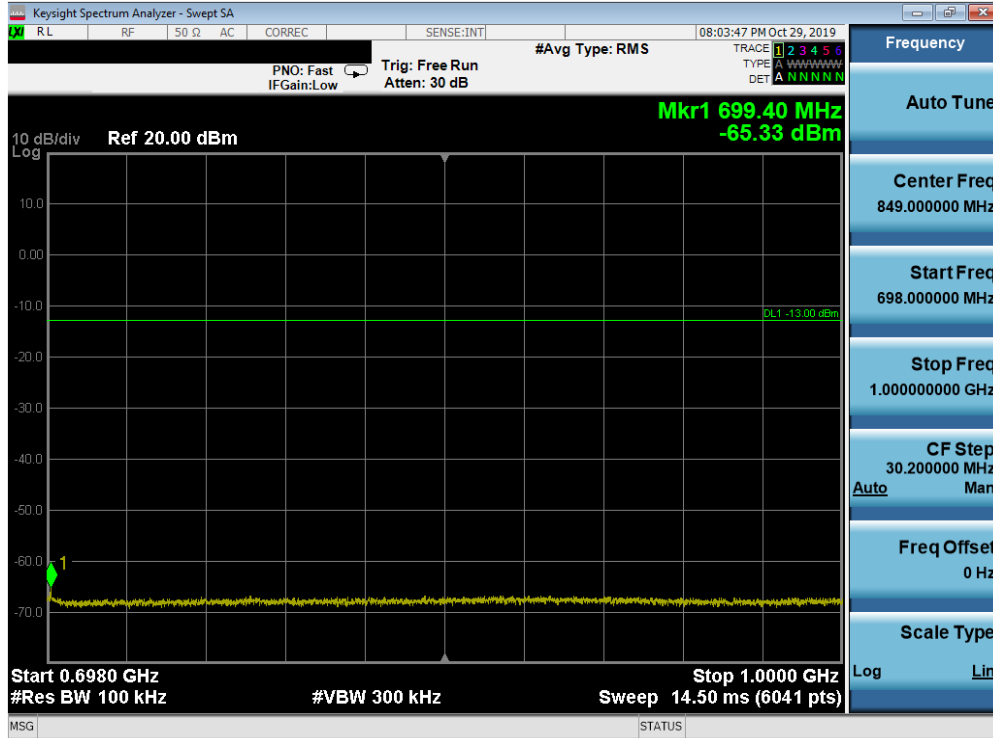


Plot 7-167. Conducted Spurious Plot (Band 71 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

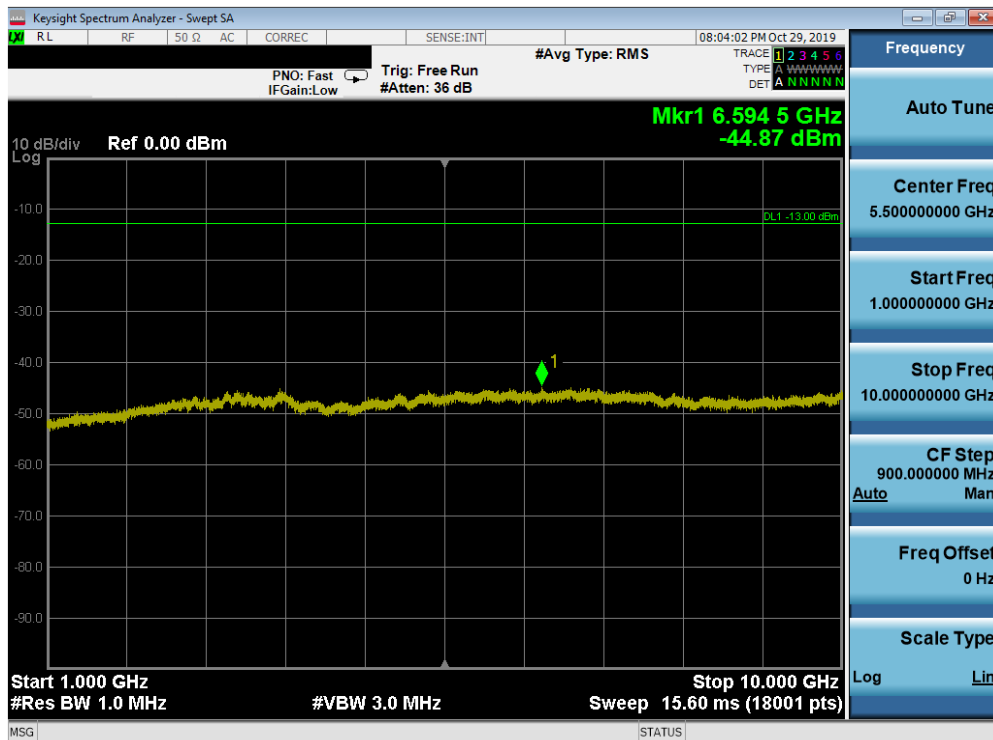


Plot 7-168. Conducted Spurious Plot (Band 71 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 105 of 487

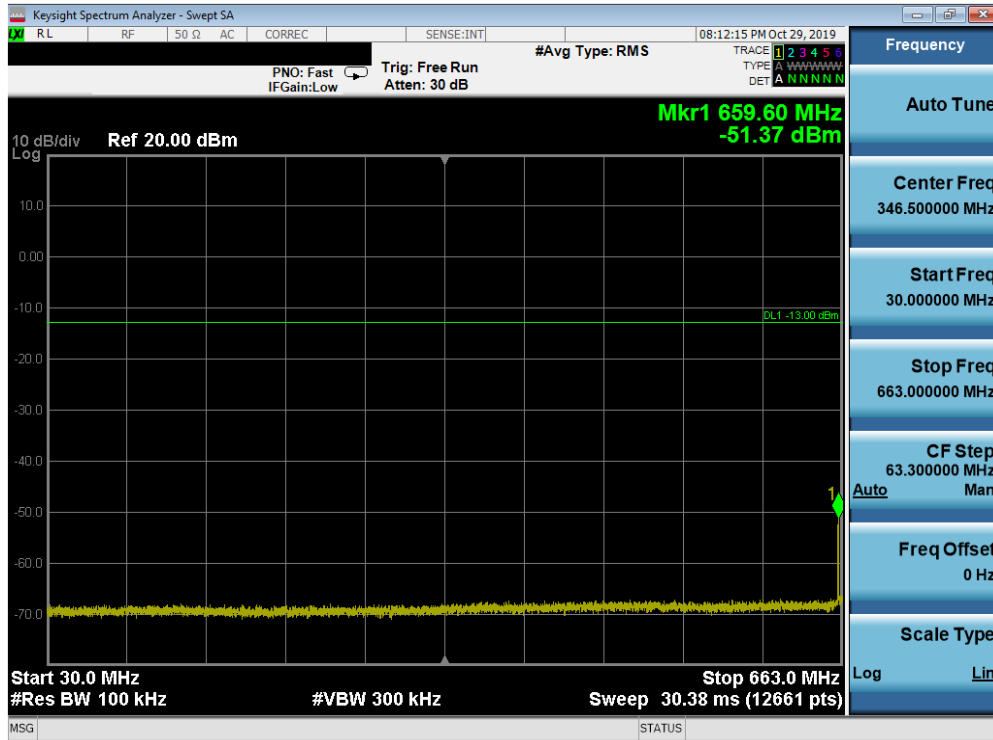


Plot 7-169. Conducted Spurious Plot (Band 71 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

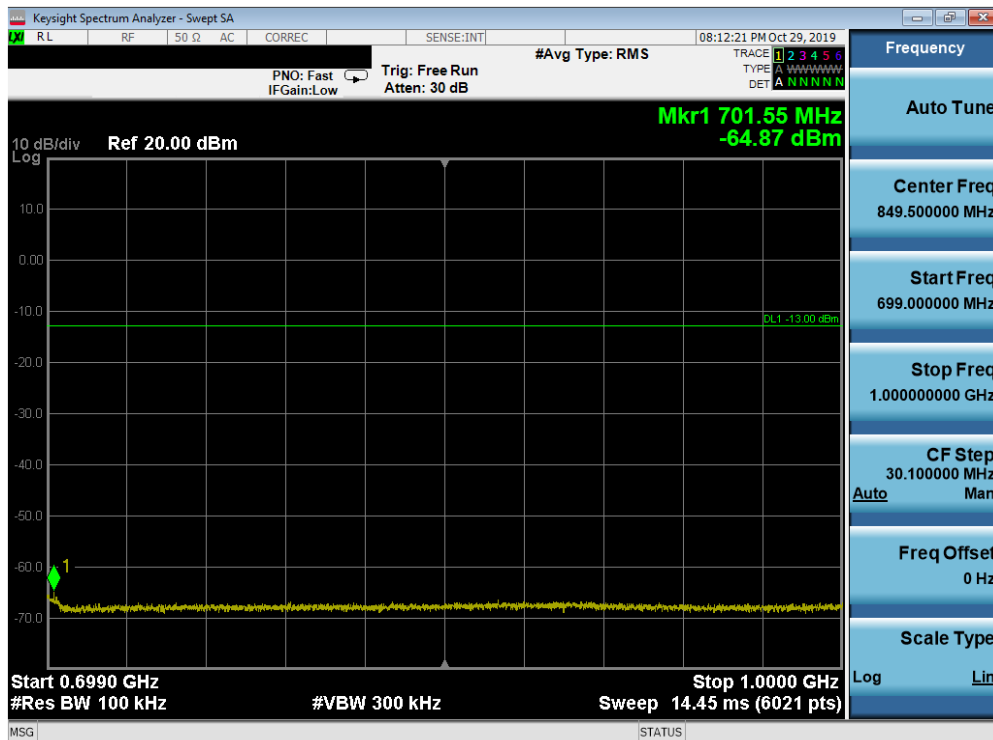


Plot 7-170. Conducted Spurious Plot (Band 71 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 106 of 487

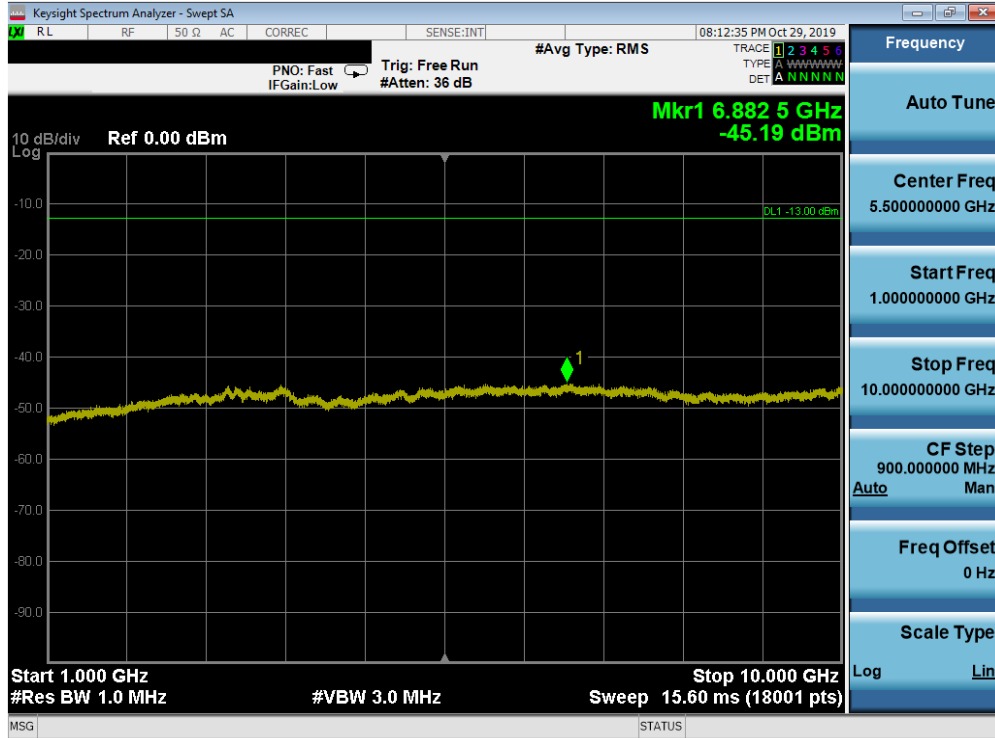


Plot 7-171. Conducted Spurious Plot (Band 71 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-172. Conducted Spurious Plot (Band 71 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

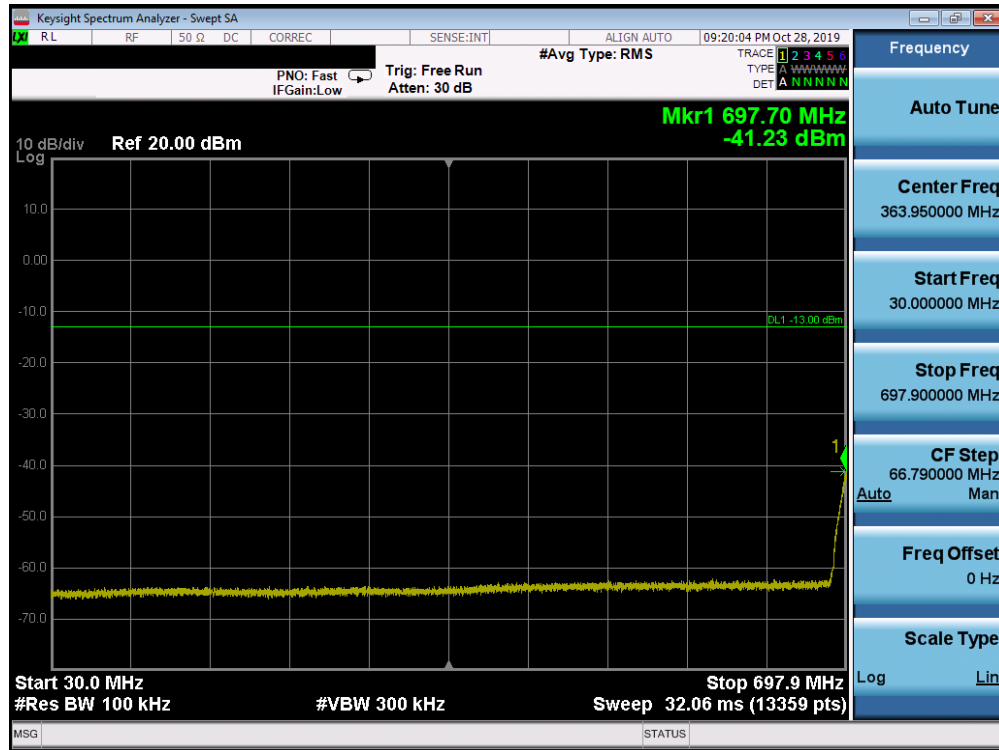
FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 107 of 487



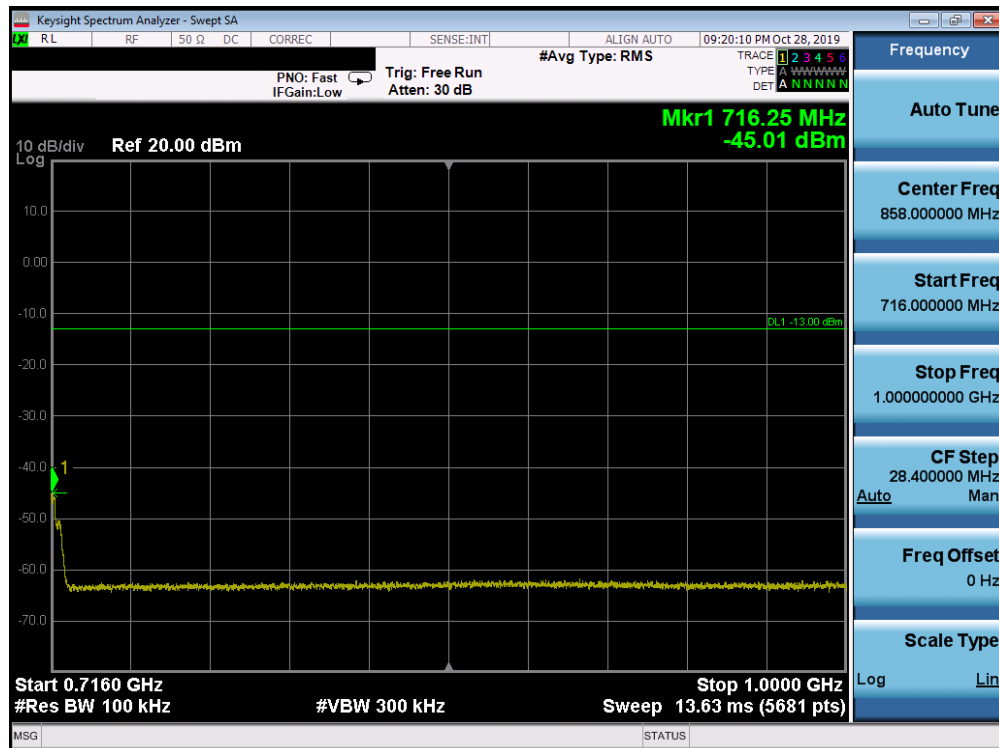
Plot 7-173. Conducted Spurious Plot (Band 71 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 108 of 487

Band 12

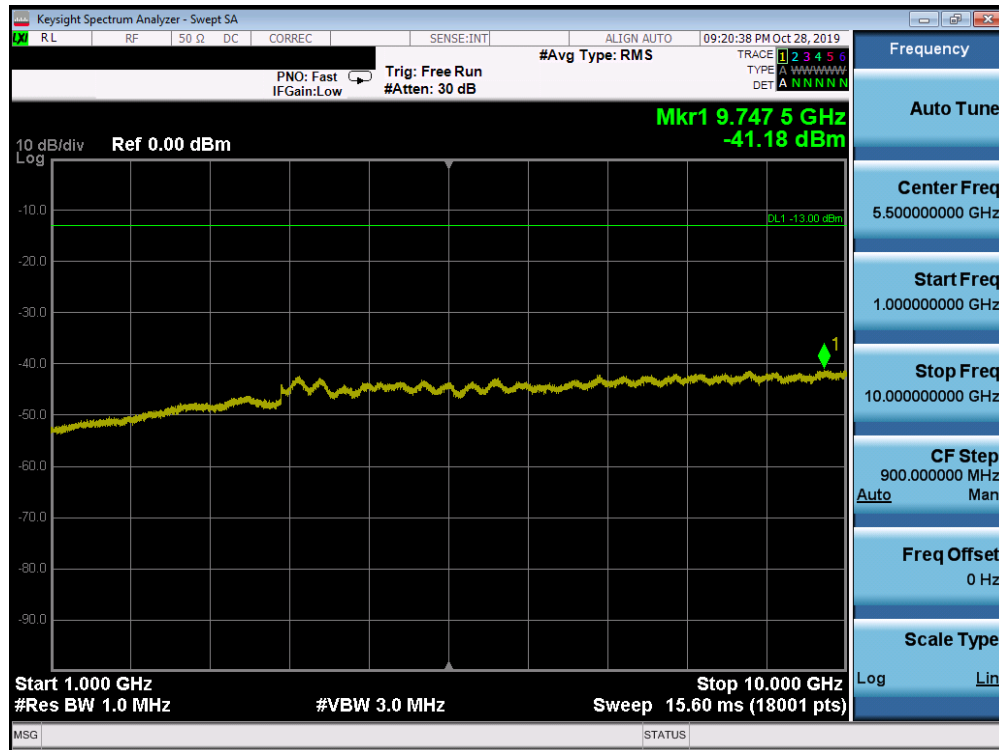


Plot 7-174. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

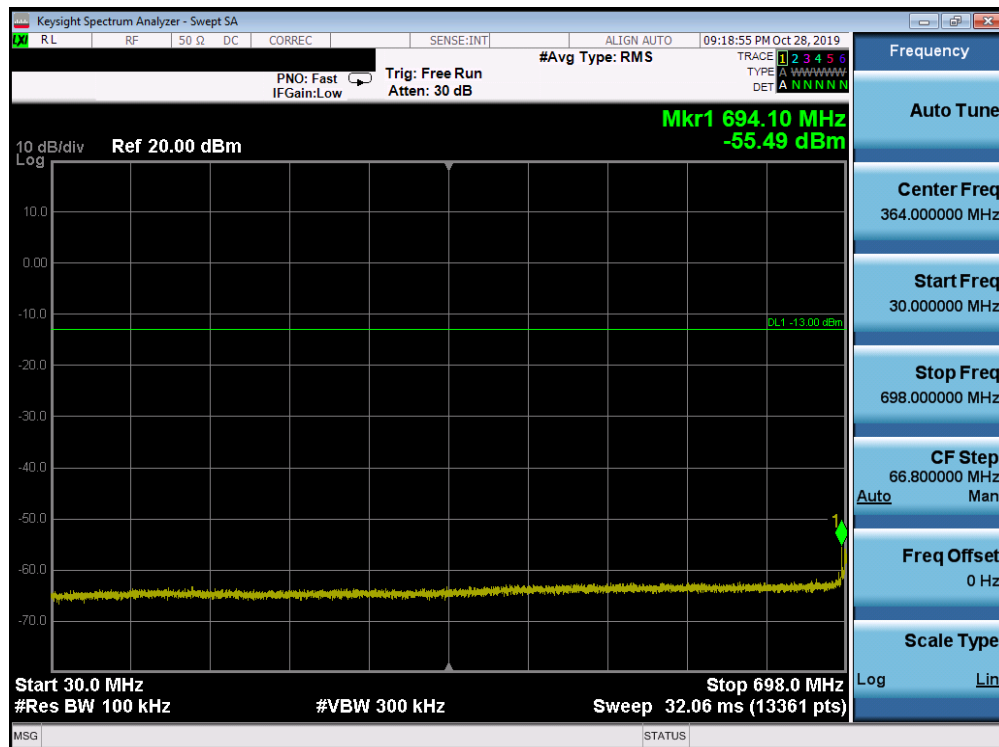


Plot 7-175. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 109 of 487

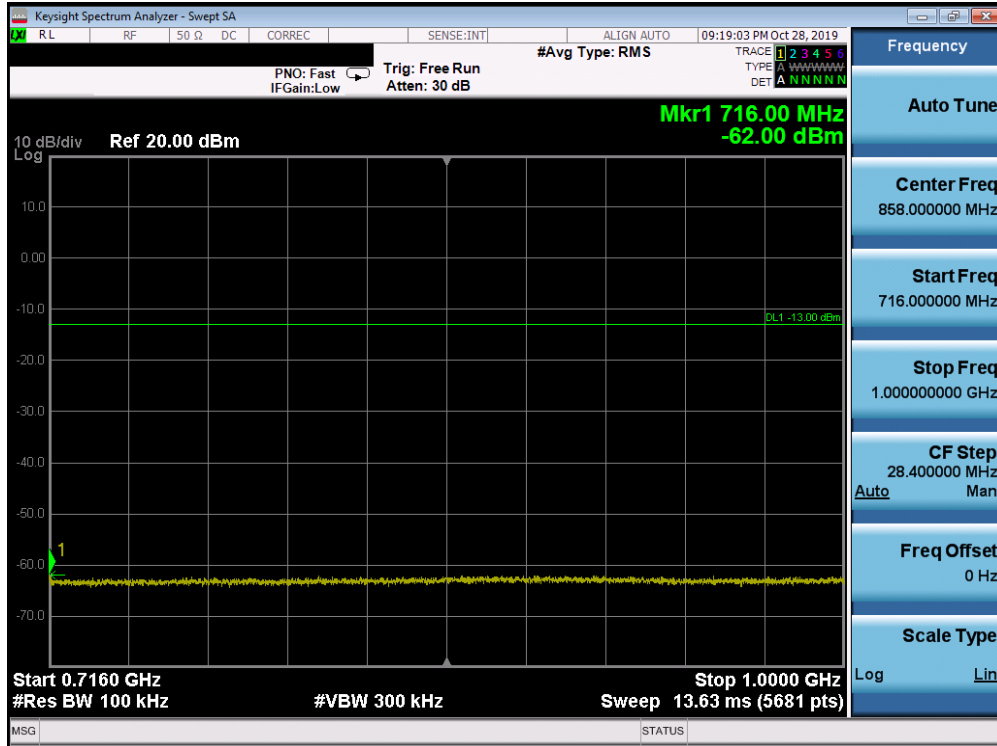


Plot 7-176. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

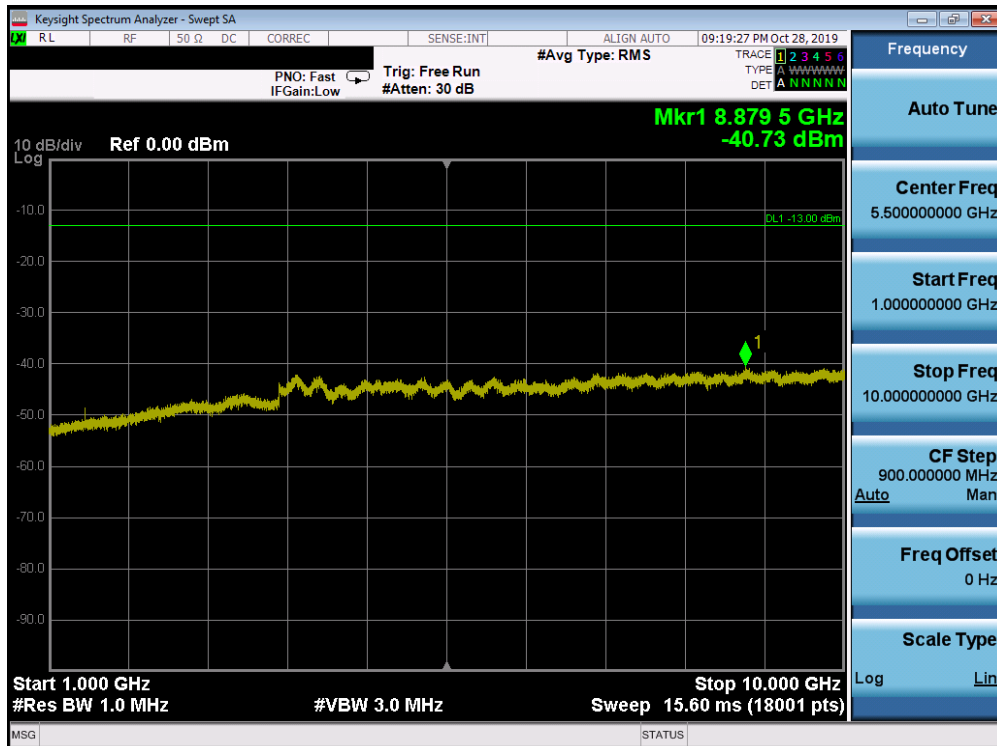


Plot 7-177. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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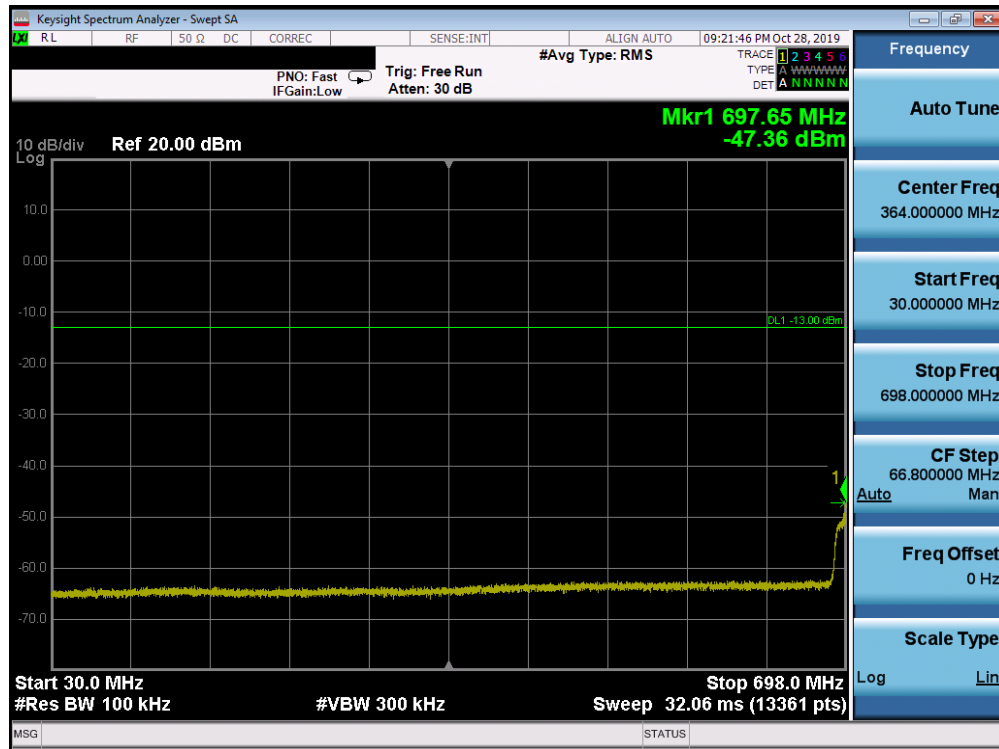


Plot 7-178. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

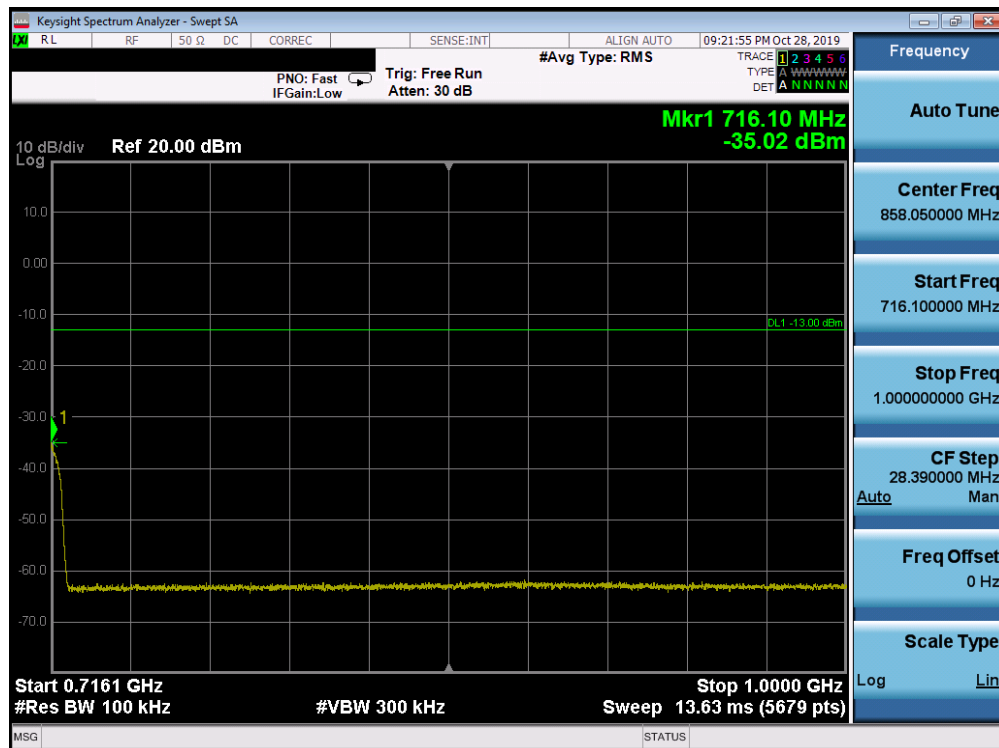


Plot 7-179. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 111 of 487

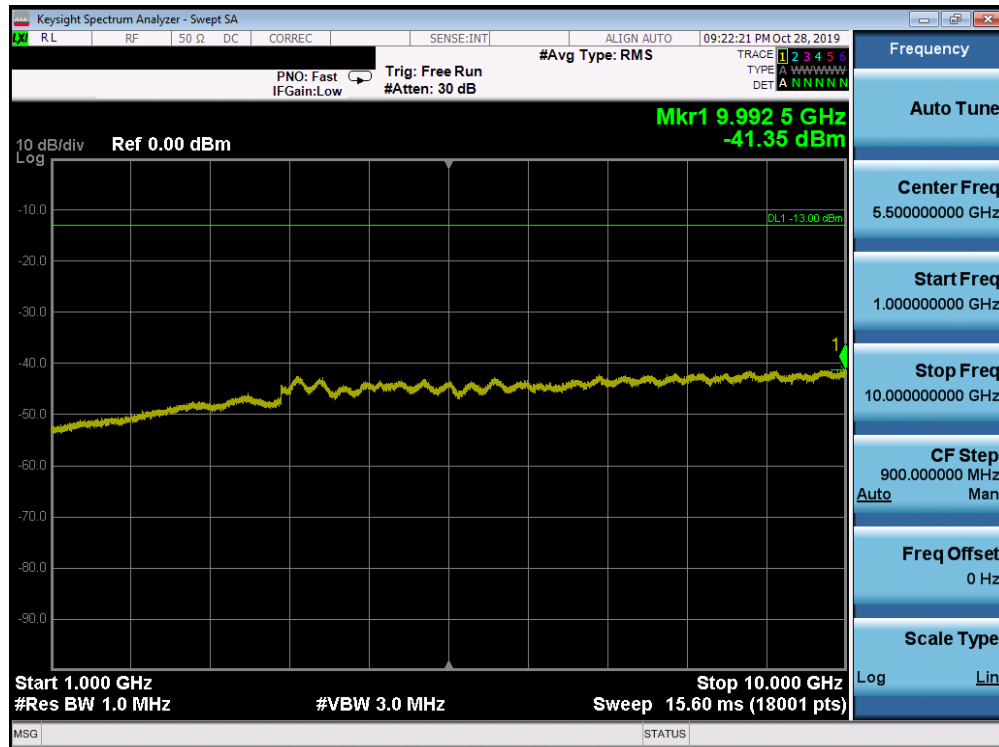


Plot 7-180. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-181. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

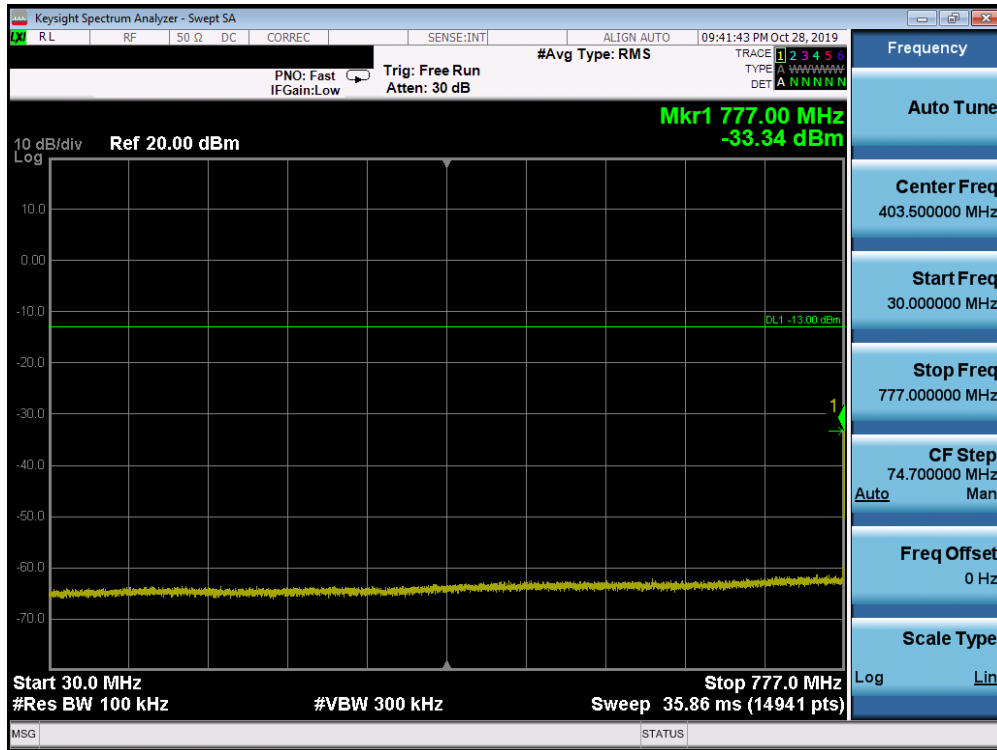
FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 112 of 487



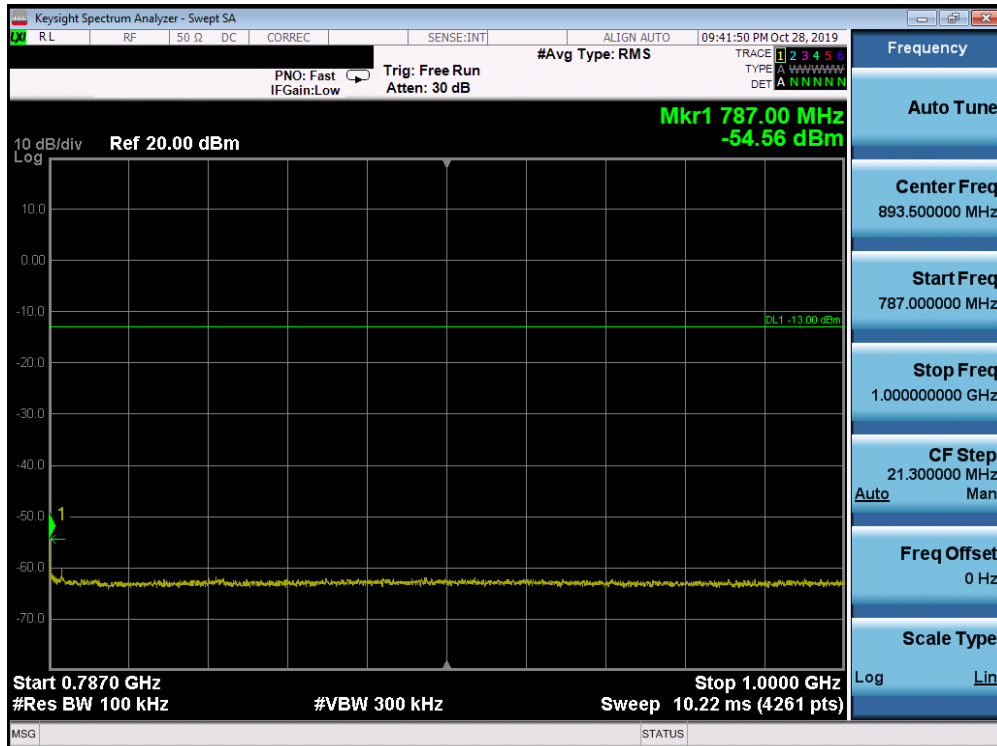
Plot 7-182. Conducted Spurious Plot (Band 12 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 113 of 487

Band 13

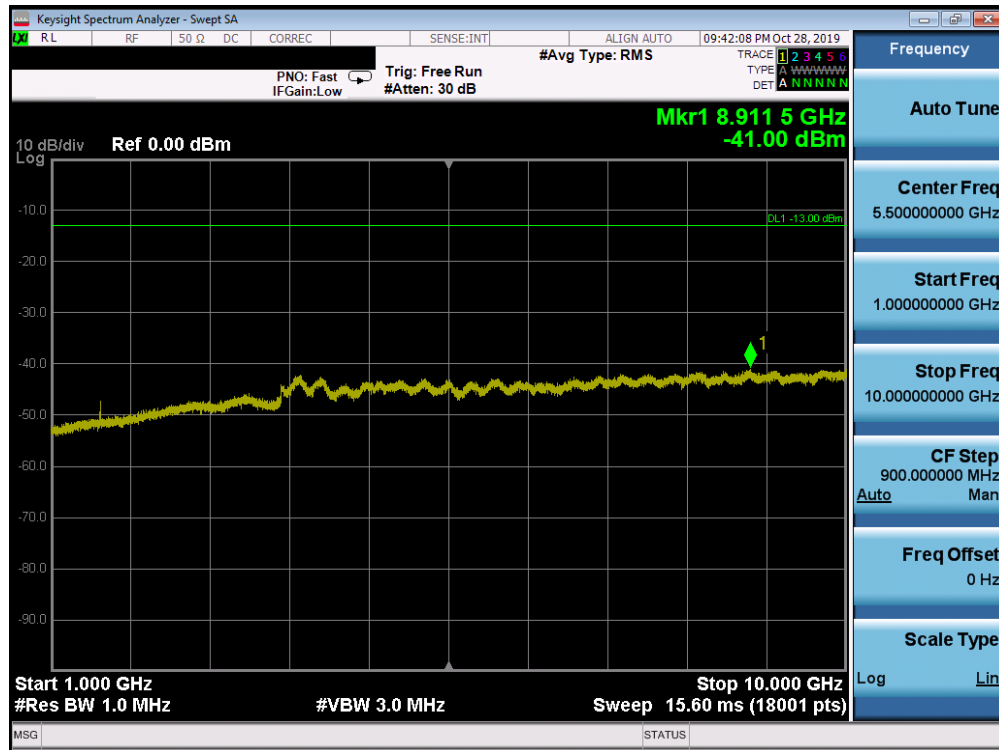


Plot 7-183. Conducted Spurious Plot (Band 13 - 10.0MHz QPSK - RB Size 1, RB Offset 0)



Plot 7-184. Conducted Spurious Plot (Band 13 - 10.0MHz QPSK - RB Size 1, RB Offset 0)

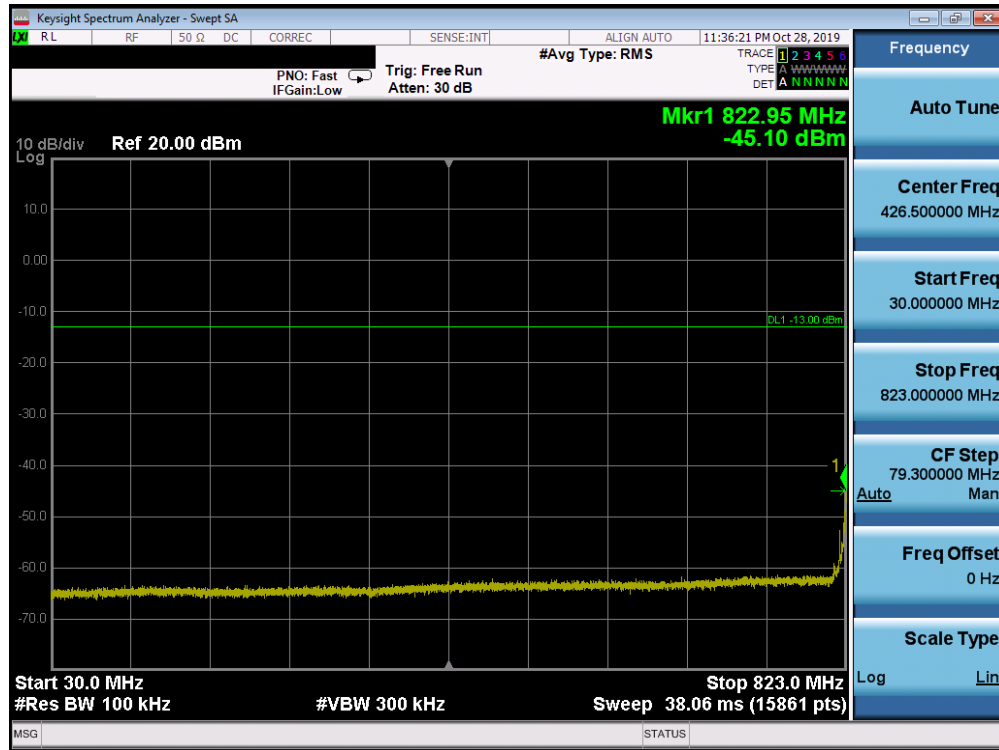
FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 114 of 487



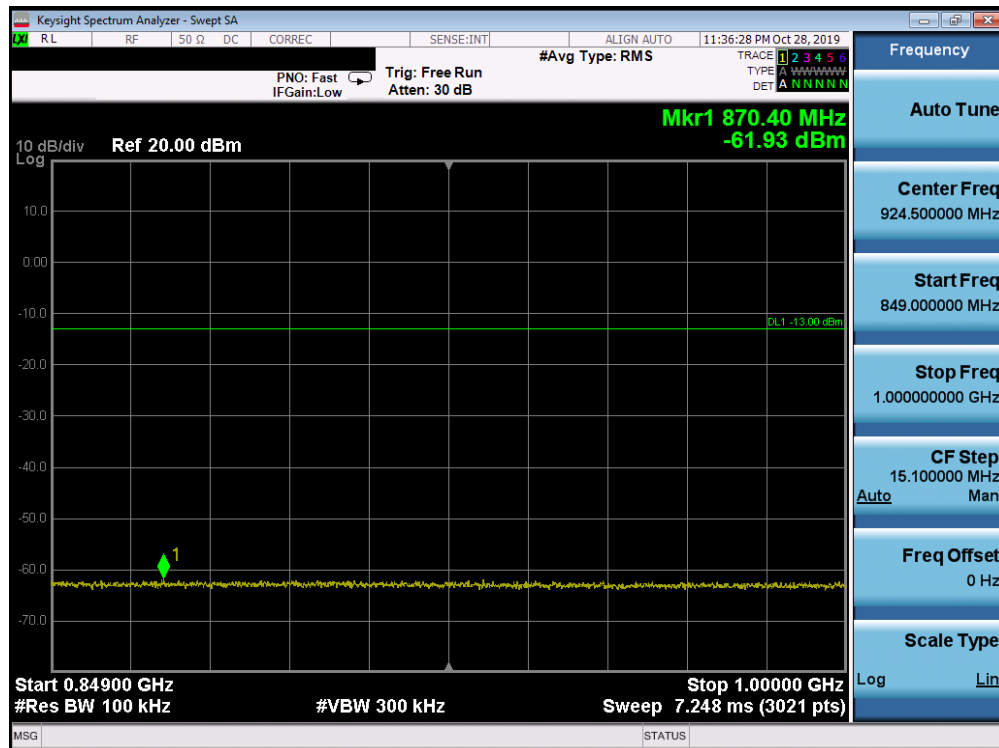
Plot 7-185. Conducted Spurious Plot (Band 13 - 10.0MHz QPSK - RB Size 1, RB Offset 0)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 115 of 487

Band 26



Plot 7-186. Conducted Spurious Plot (Band 26 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-187. Conducted Spurious Plot (Band 26 - 15.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 116 of 487