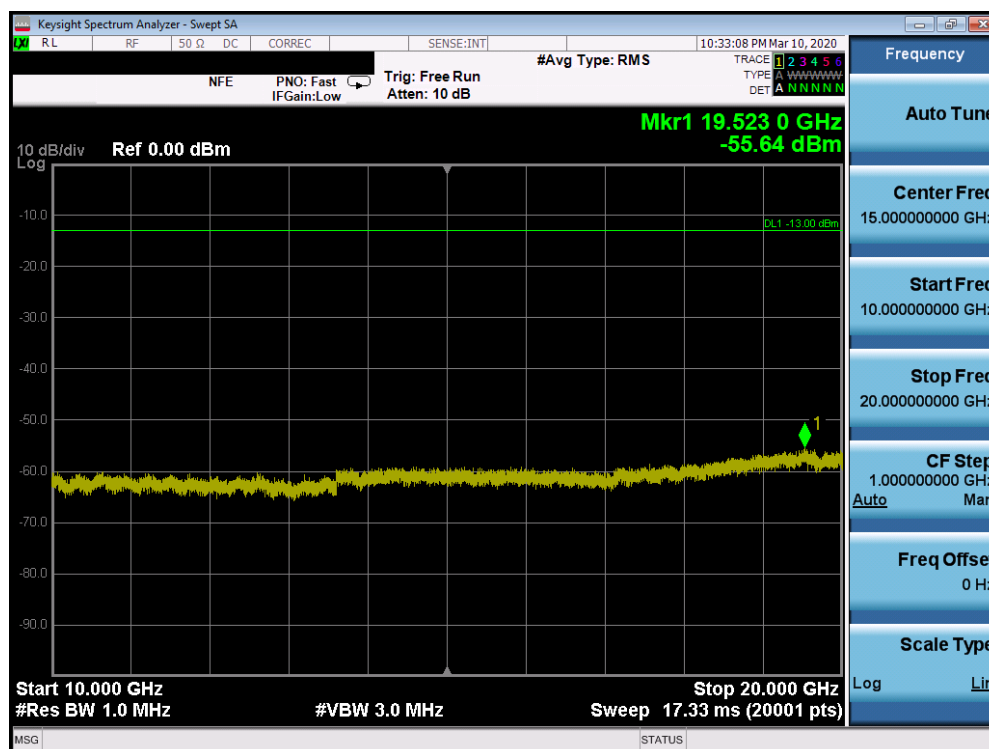
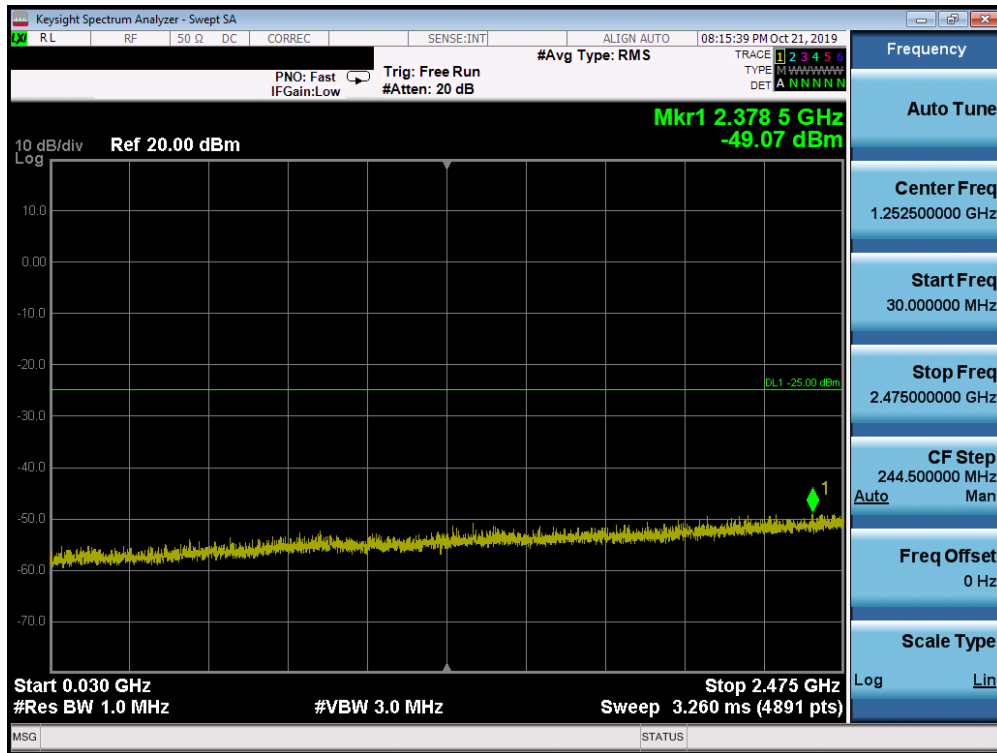




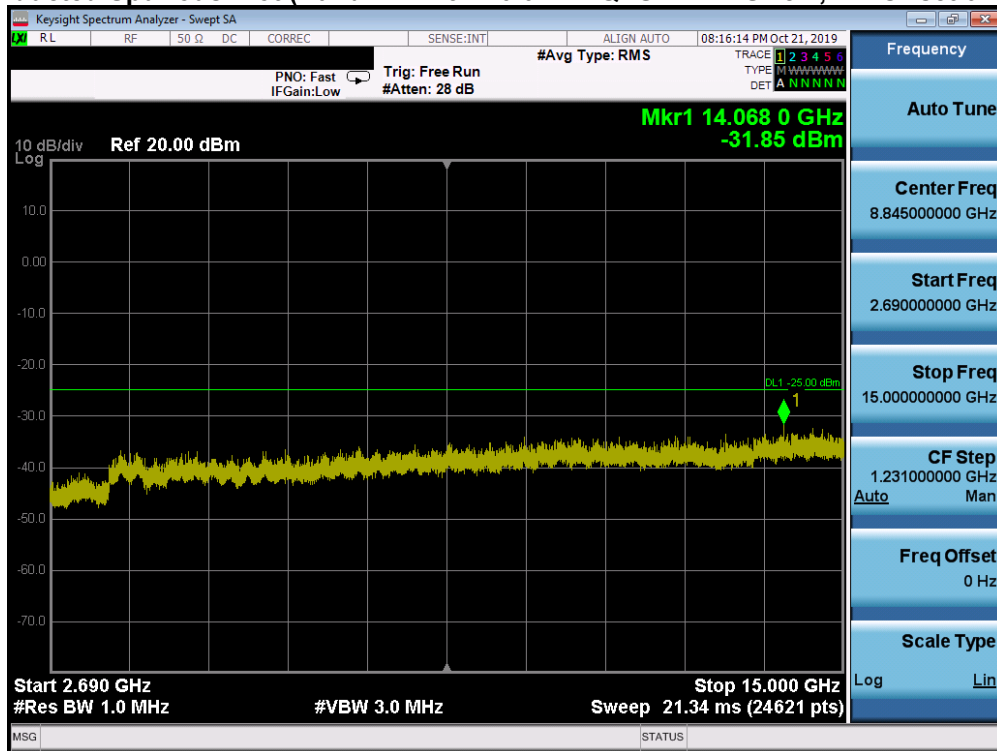
Plot 7-90. Conducted Spurious Plot (Band 4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 61 of 138

Band 41

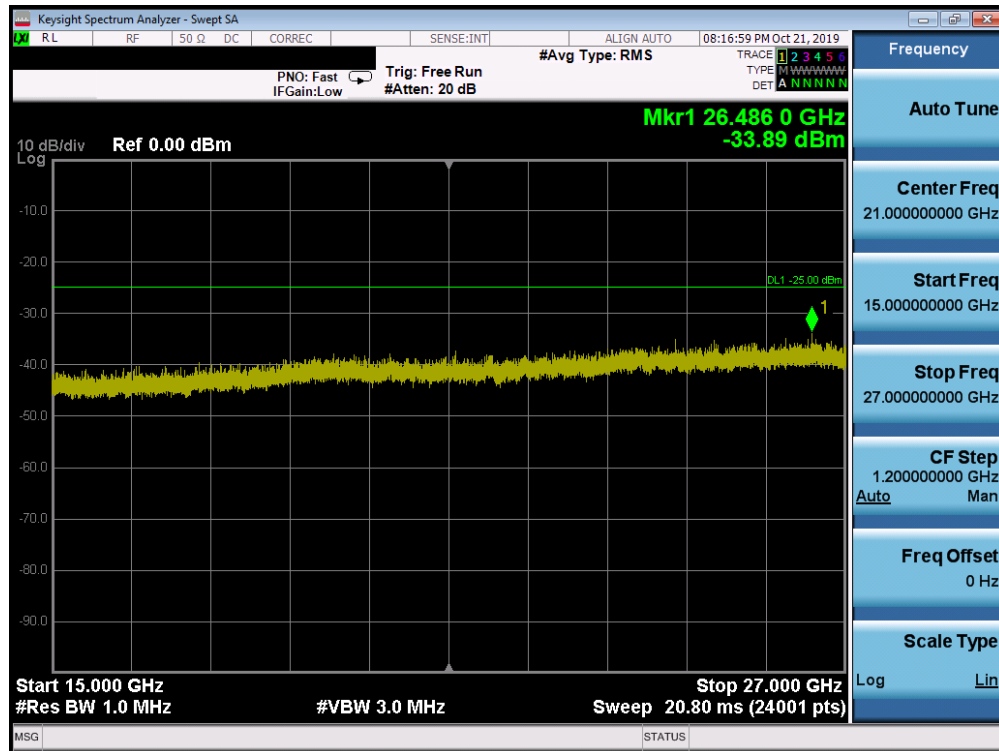


Plot 7-91. Conducted Spurious Plot (Band 41 PC3 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

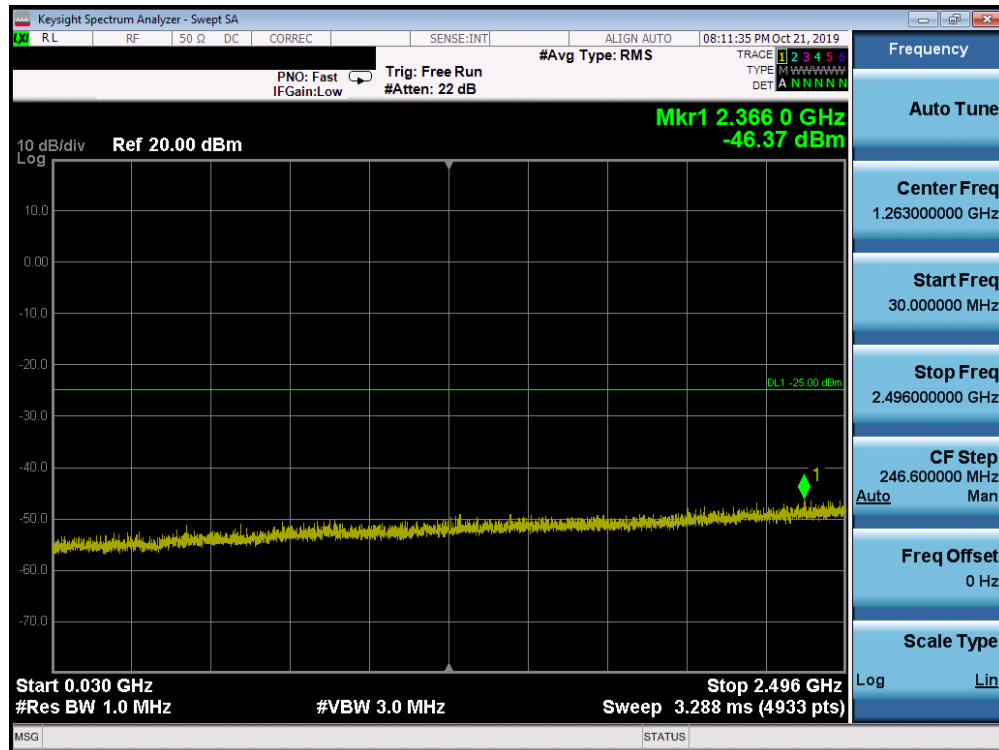


Plot 7-92. Conducted Spurious Plot (Band 41 PC3 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 62 of 138

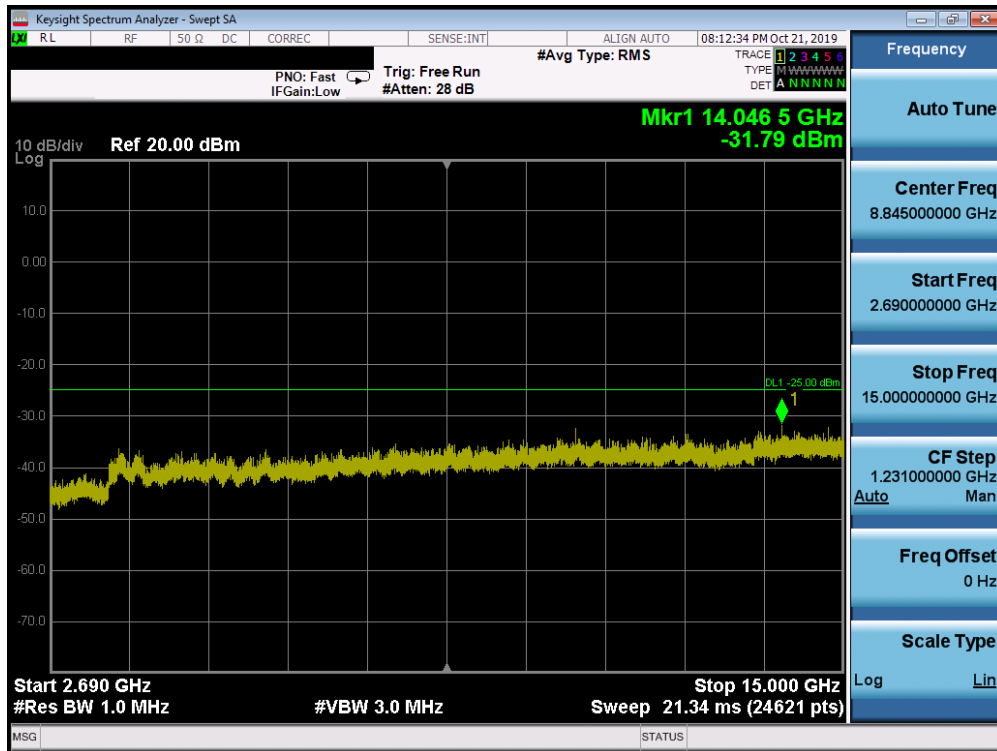


Plot 7-93. Conducted Spurious Plot (Band 41 PC3 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

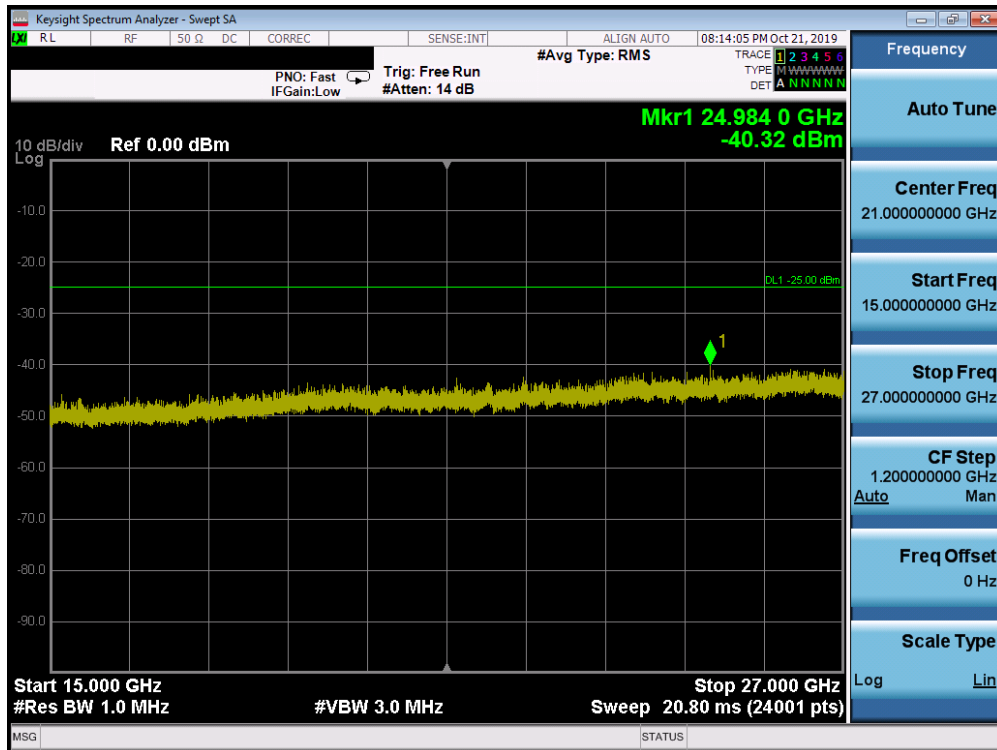


Plot 7-94. Conducted Spurious Plot (Band 41 PC3 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 63 of 138

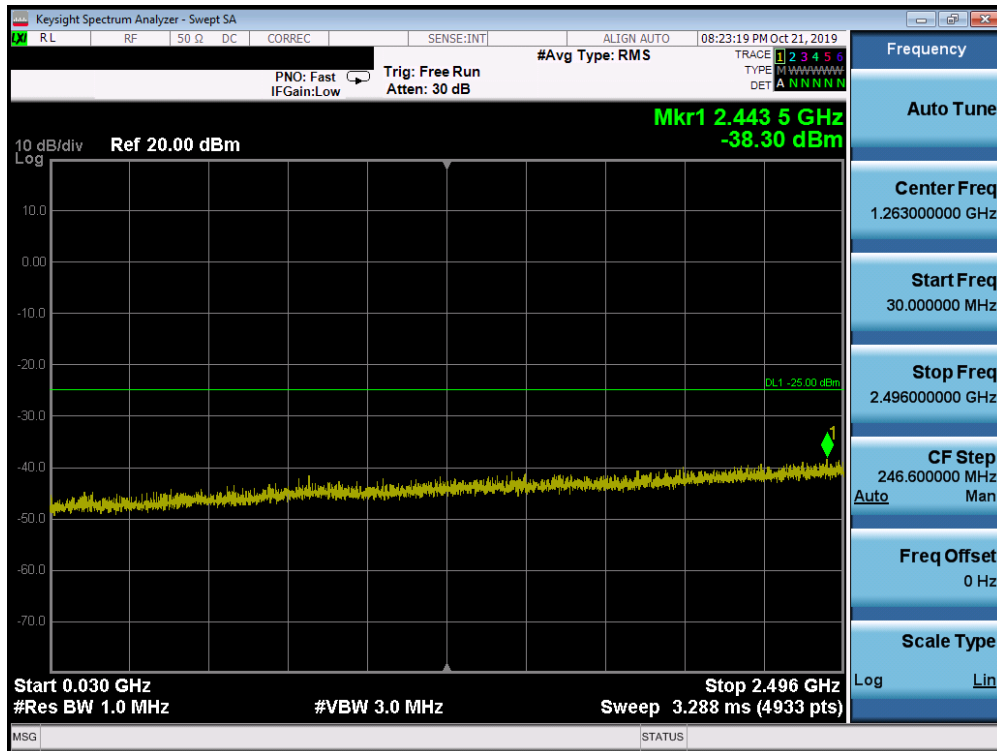


Plot 7-95. Conducted Spurious Plot (Band 41 PC3 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

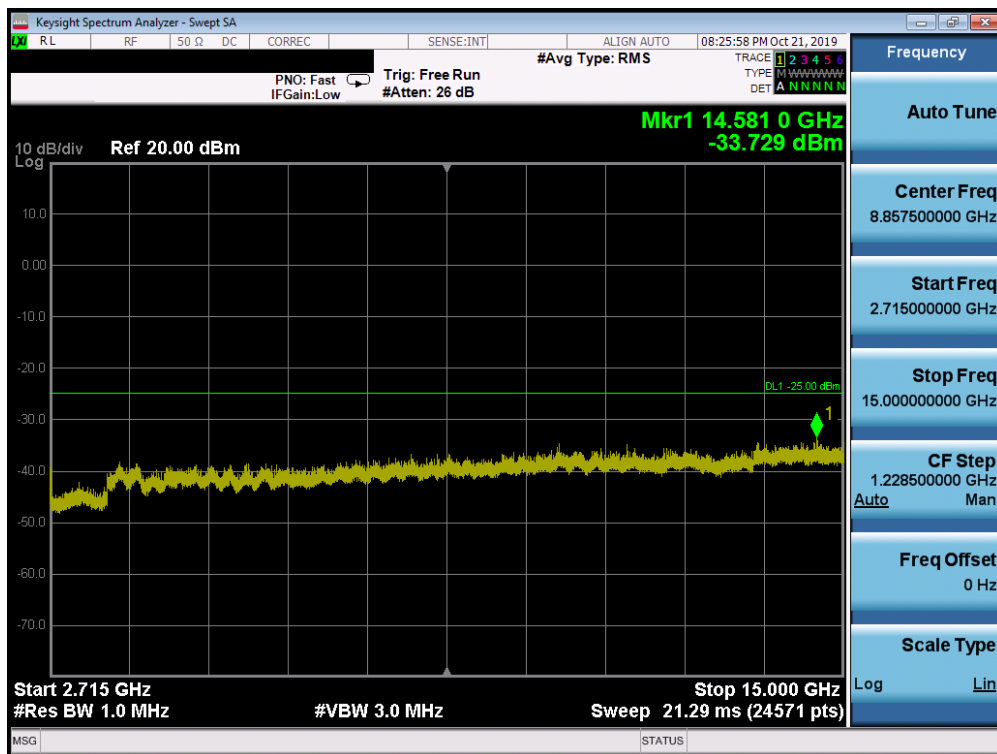


Plot 7-96. Conducted Spurious Plot (Band 41 PC3 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 64 of 138

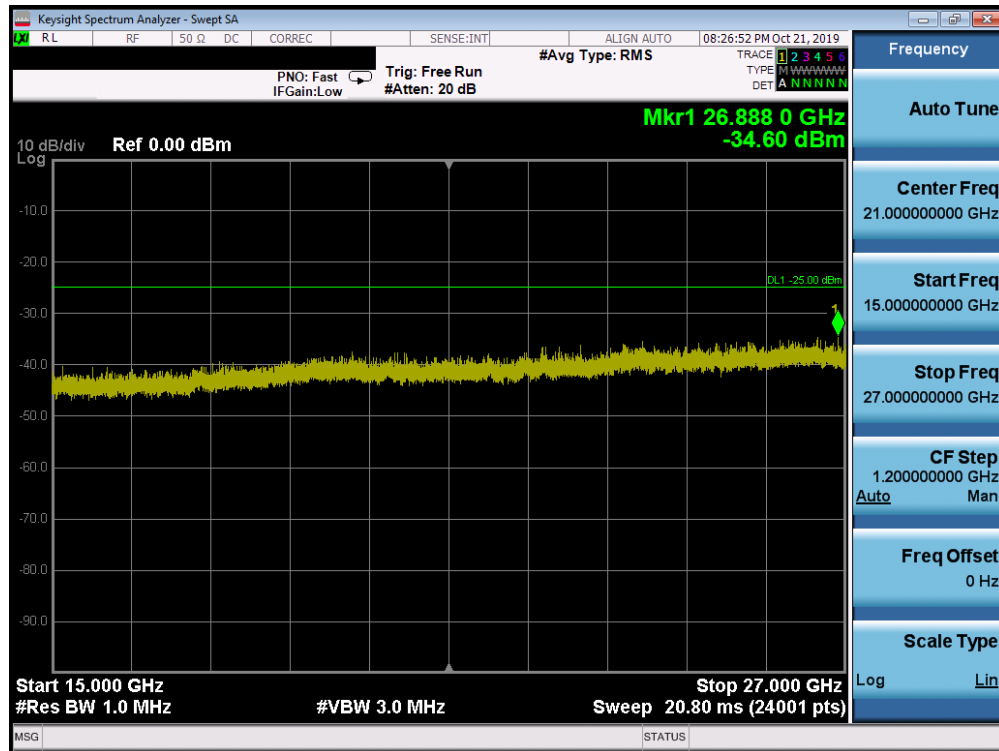


Plot 7-97. Conducted Spurious Plot (Band 41 PC3 - 20.0MHz QPSK - RB Size 1, RB Offset 99 - High Channel)



Plot 7-98. Conducted Spurious Plot (Band 41 PC3 - 20.0MHz QPSK - RB Size 1, RB Offset 99 – High Channel)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 65 of 138



Plot 7-99. Conducted Spurious Plot (Band 41 PC3 - 20.0MHz QPSK - RB Size 1, RB Offset 99 - High Channel)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 66 of 138

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 $43 + 10 \log_{10}(P_{\text{Watts}})$, where P is the transmitter power in Watts.

The minimum permissible attenuation level for Band 41 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 $\geq$ 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.

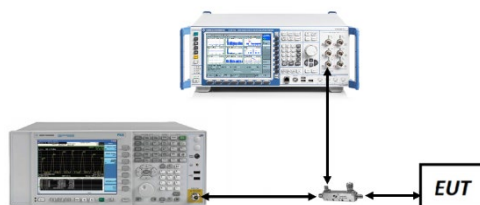


Figure 7-3. Test Instrument & Measurement Setup

FCC ID: A3LSMG986JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Test Notes

Per 22.917(b) 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.

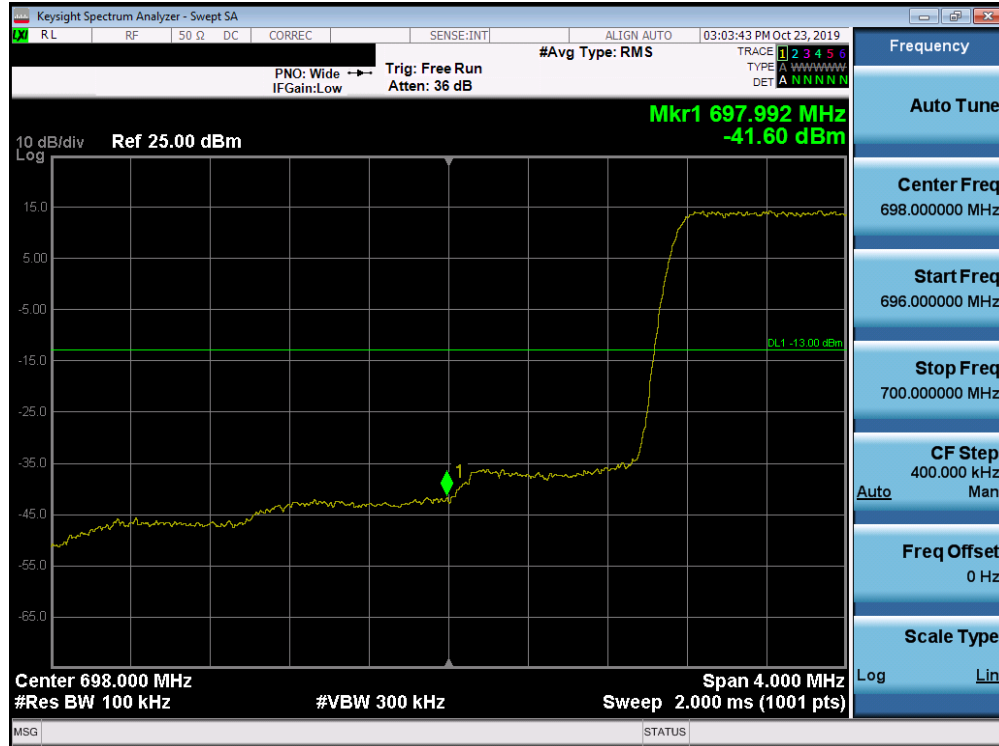
Per 27.53(c)(5) for operations in the 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

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

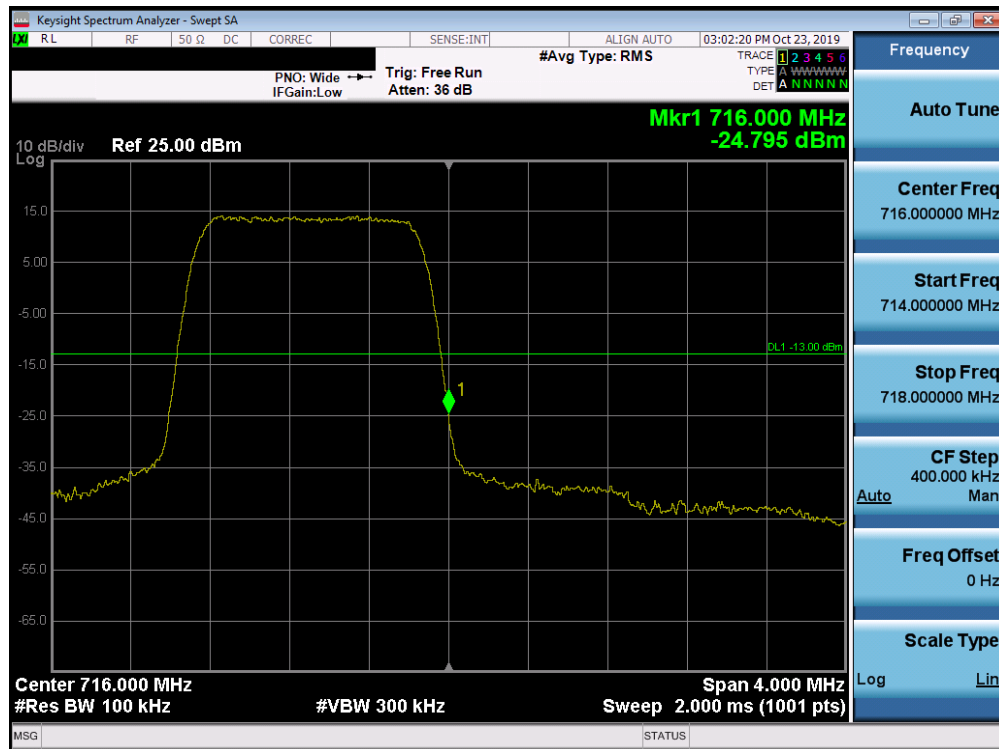
Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, 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: A3LSMG986JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 12

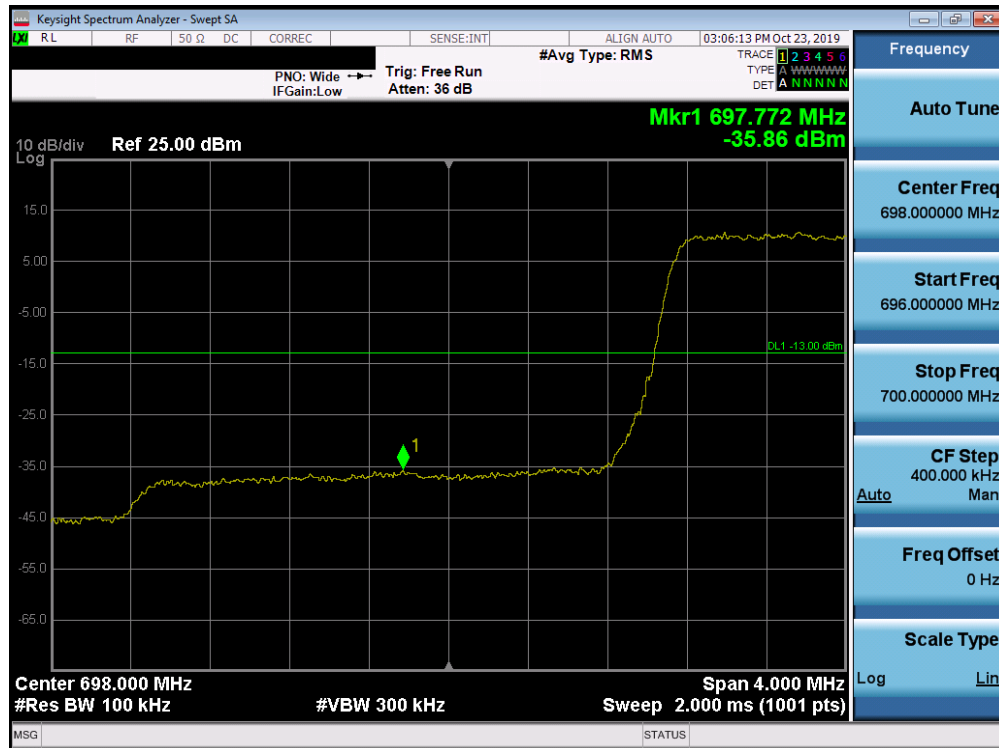


Plot 7-100. Lower Band Edge Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-101. Upper Band Edge Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 69 of 138

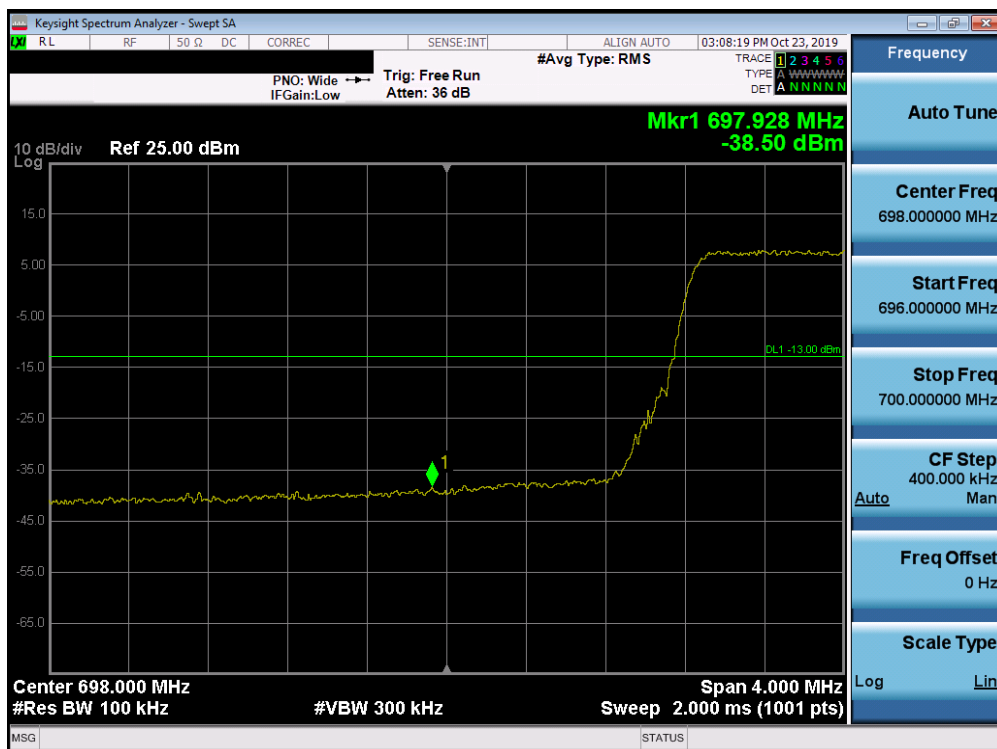


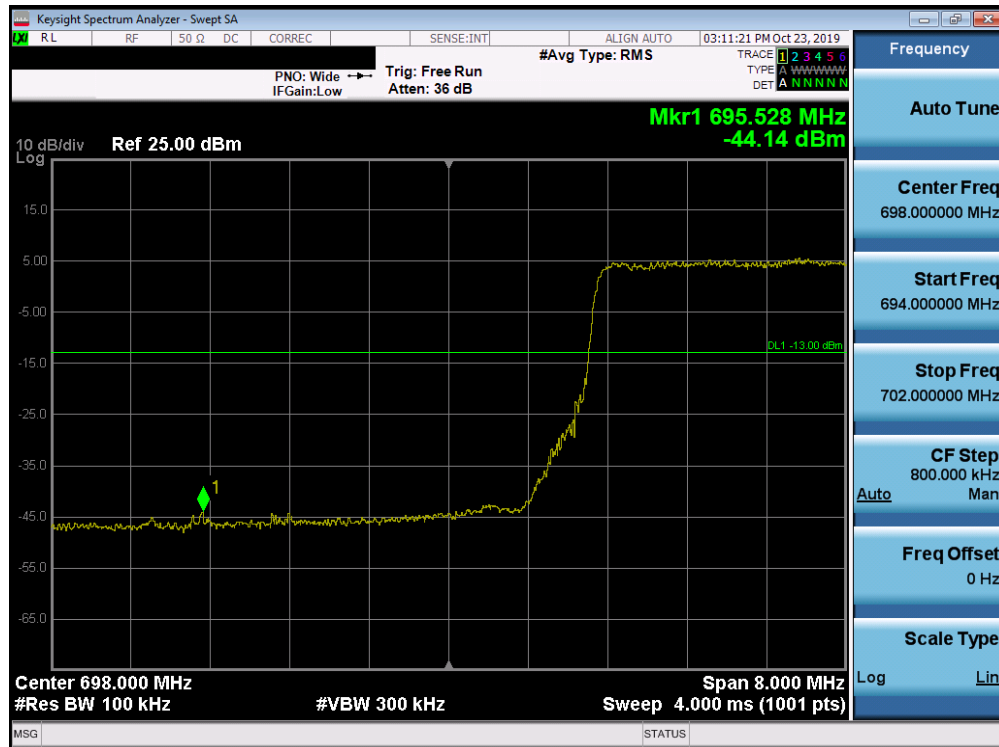
Plot 7-102. Lower Band Edge Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-103. Upper Band Edge Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 70 of 138





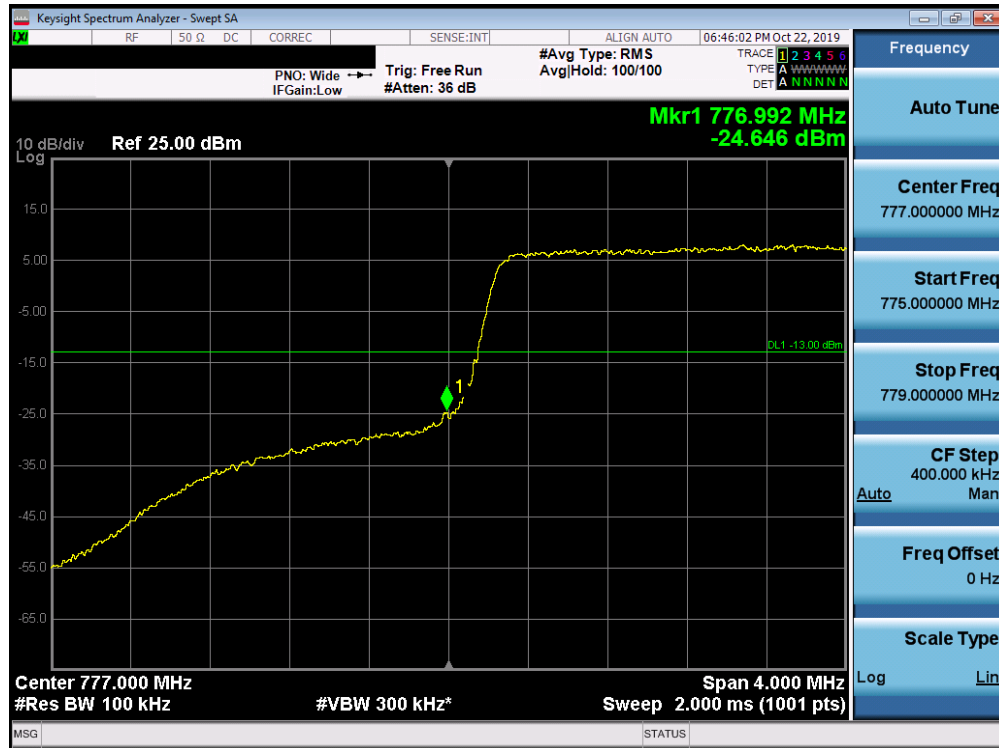
Plot 7-106. Lower Band Edge Plot (Band 12 - 10.0MHz QPSK - Full RB Configuration)



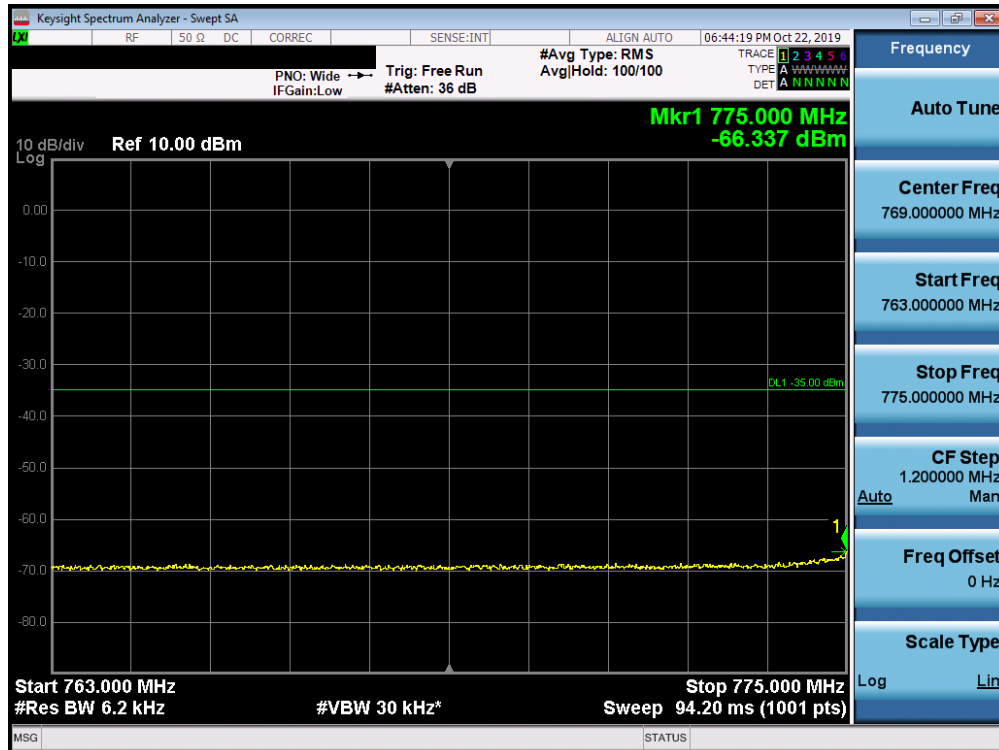
Plot 7-107. Upper Band Edge Plot (Band 12 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 72 of 138

Band 13

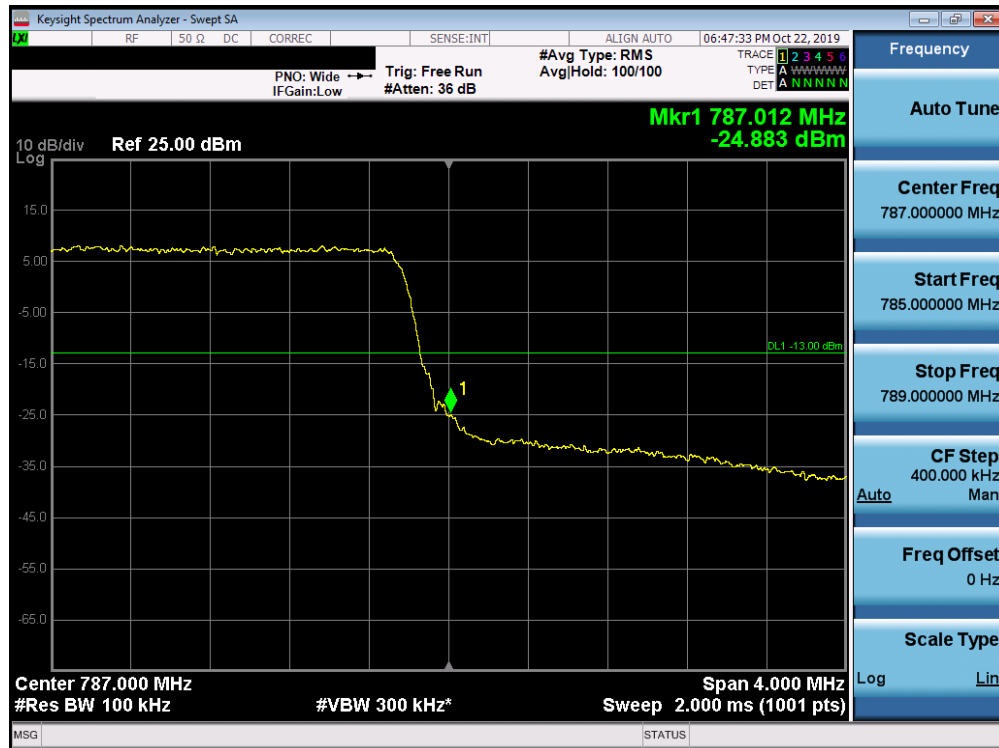


Plot 7-108. Lower Band Edge Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

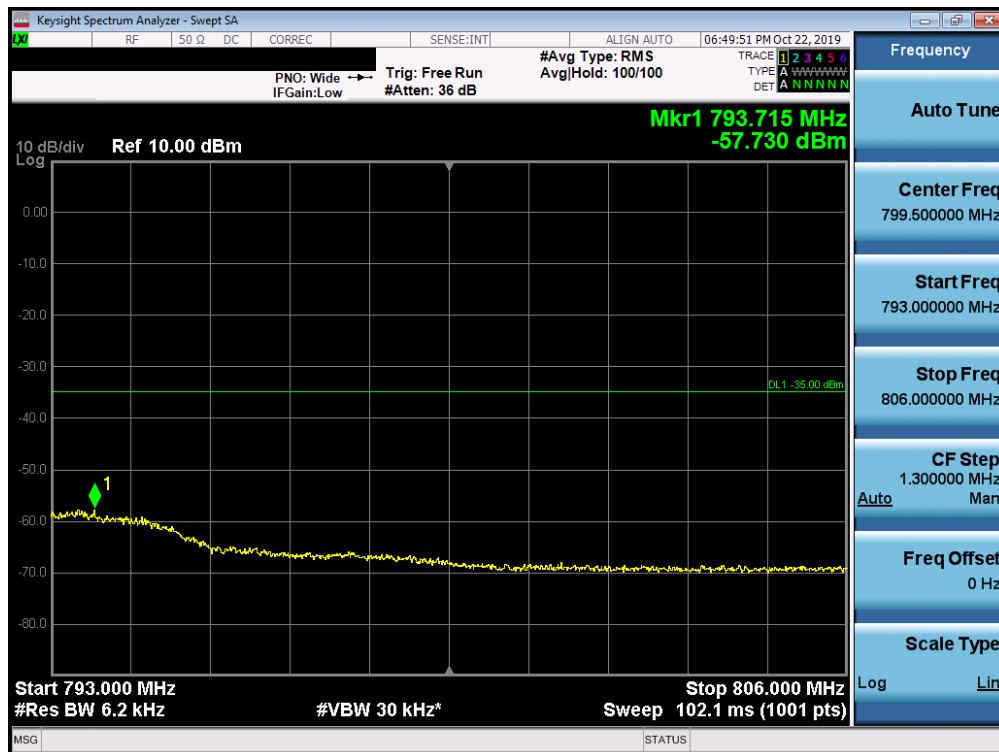


Plot 7-109. Lower Emission Mask Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 73 of 138

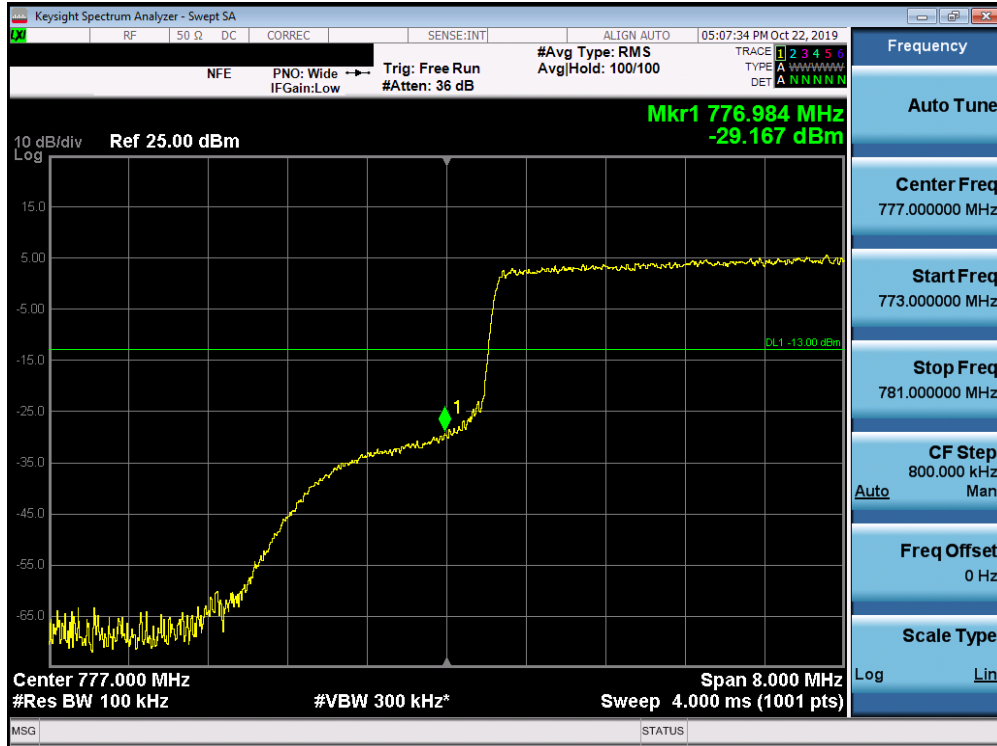


Plot 7-110. Upper Band Edge Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

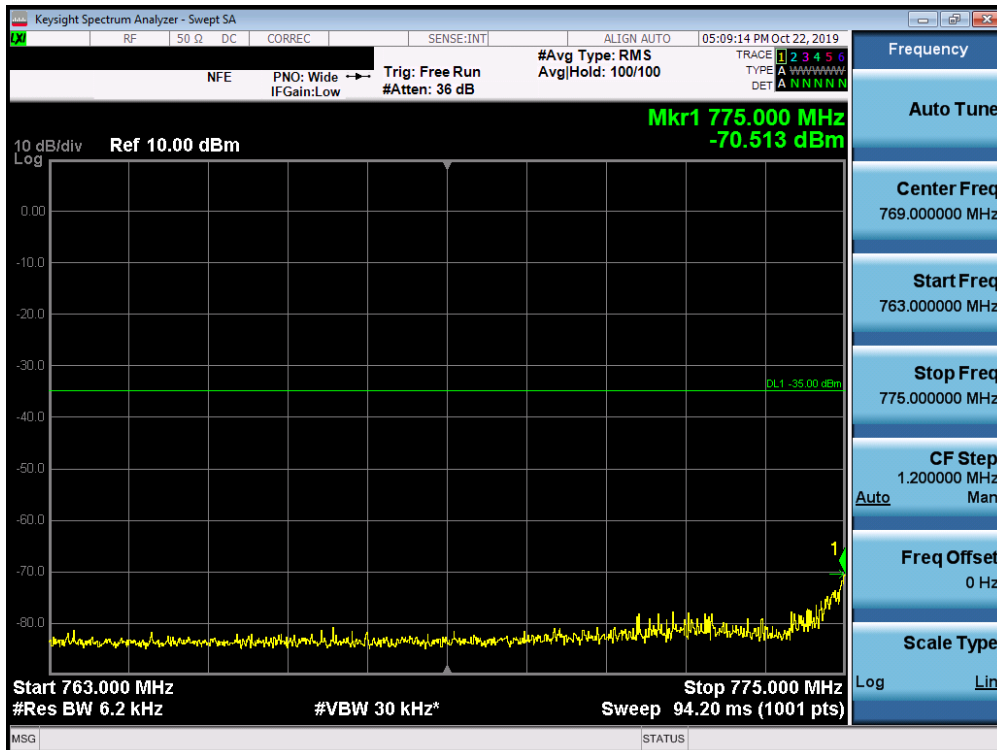


Plot 7-111. Upper Emission Mask Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 74 of 138



Plot 7-112. Lower Band Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-113. Lower Emission Mask Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 75 of 138



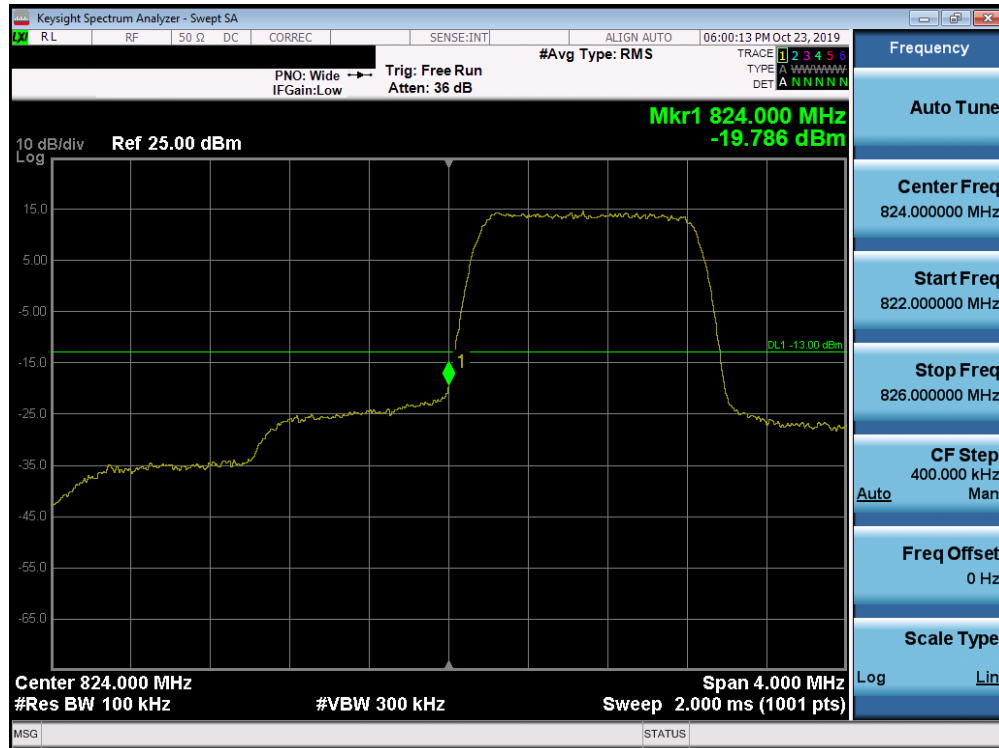
Plot 7-114. Upper Band Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-115. Upper Emission Mask Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 76 of 138

Band 5

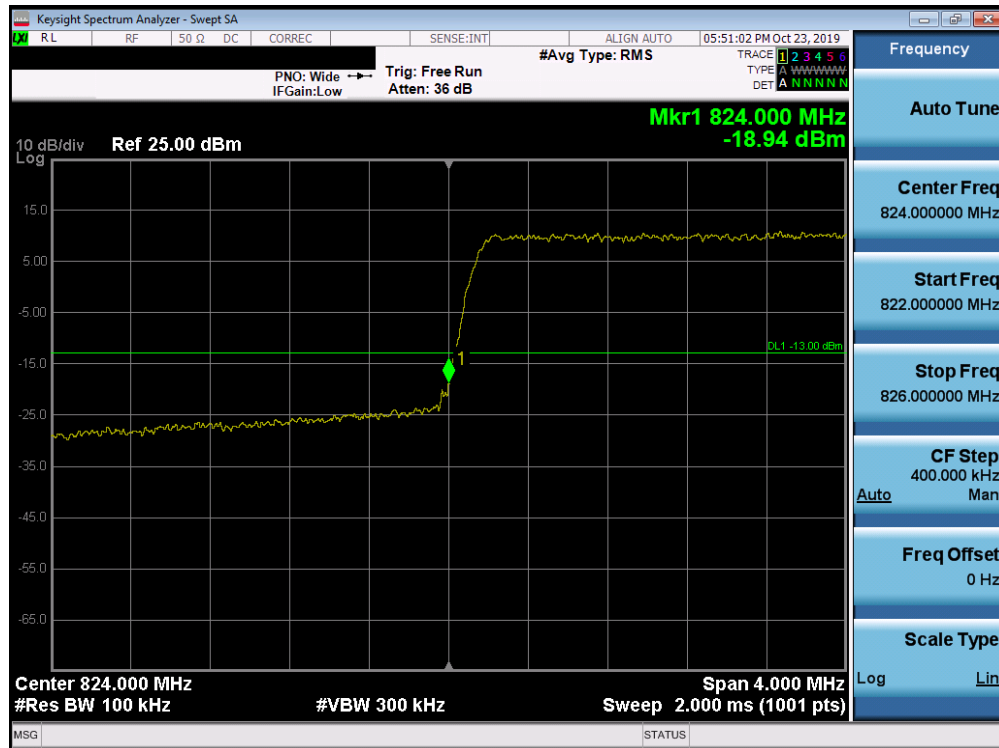


Plot 7-116. Lower Band Edge Plot (Band 5 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-117. Upper Band Edge Plot (Band 5 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 77 of 138

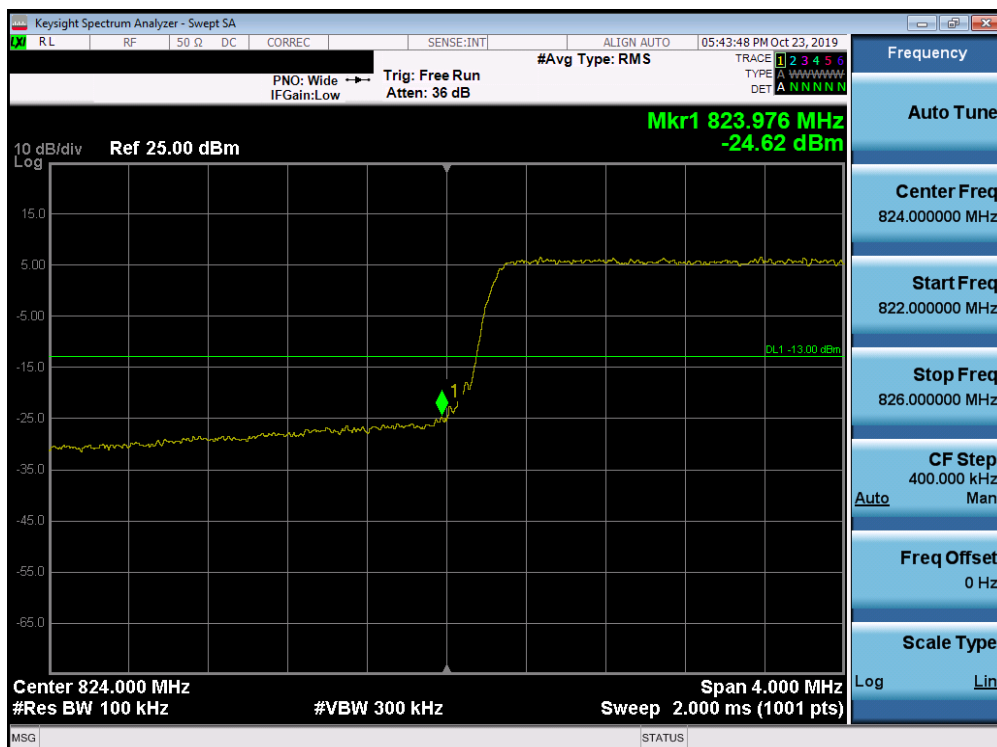


Plot 7-118. Lower Band Edge Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)

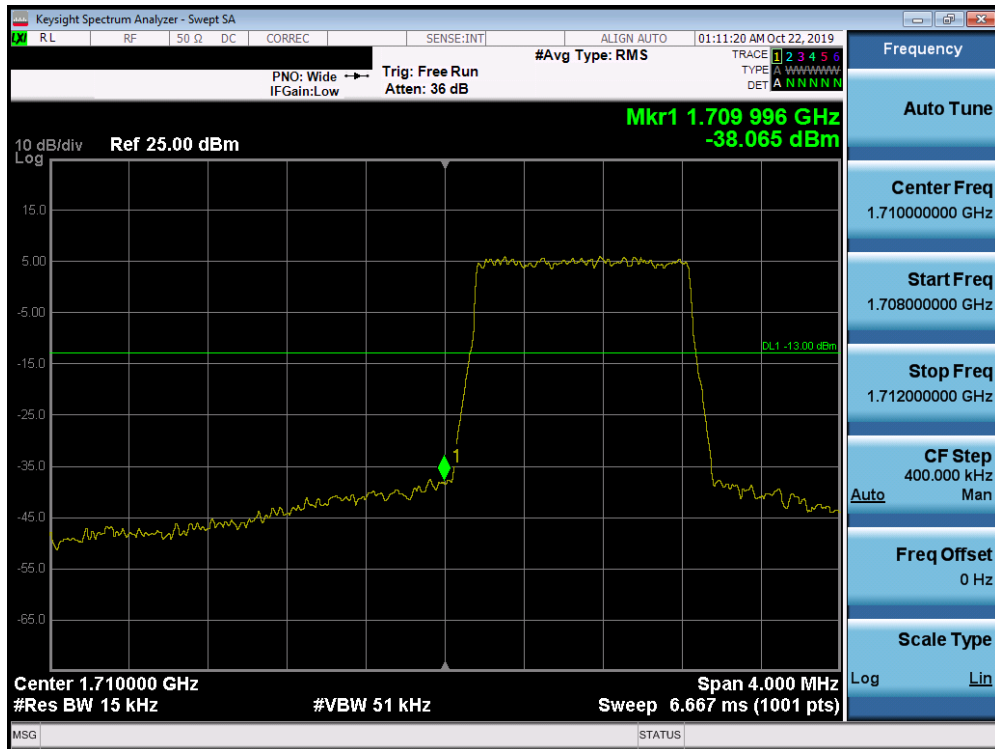


Plot 7-119. Upper Band Edge Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)

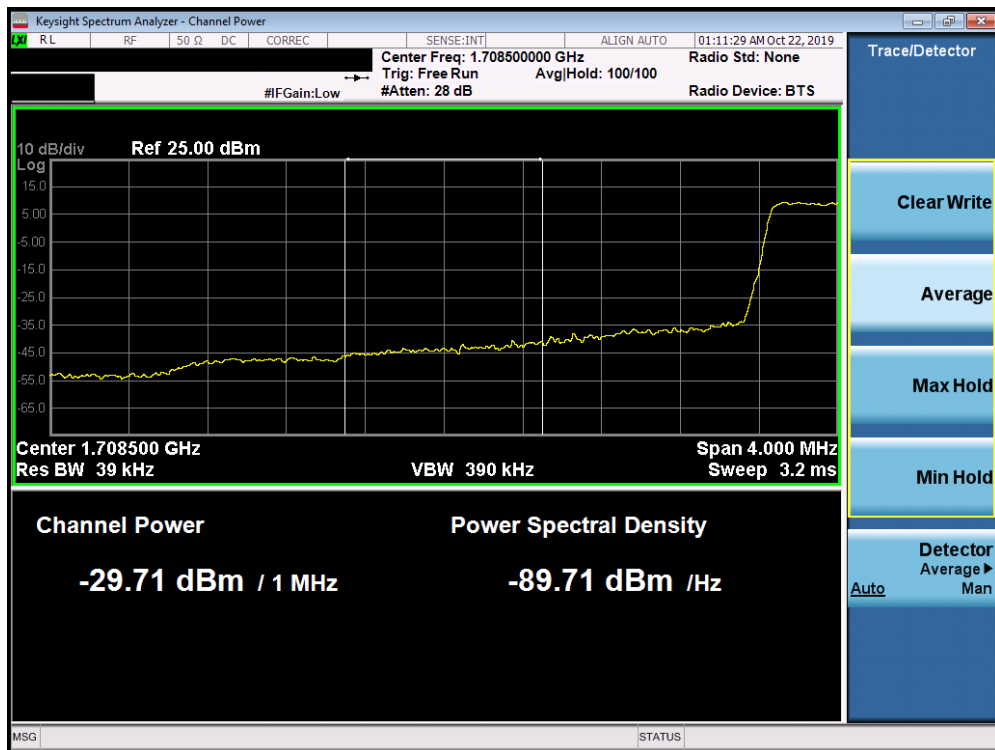
FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 78 of 138



Band 4

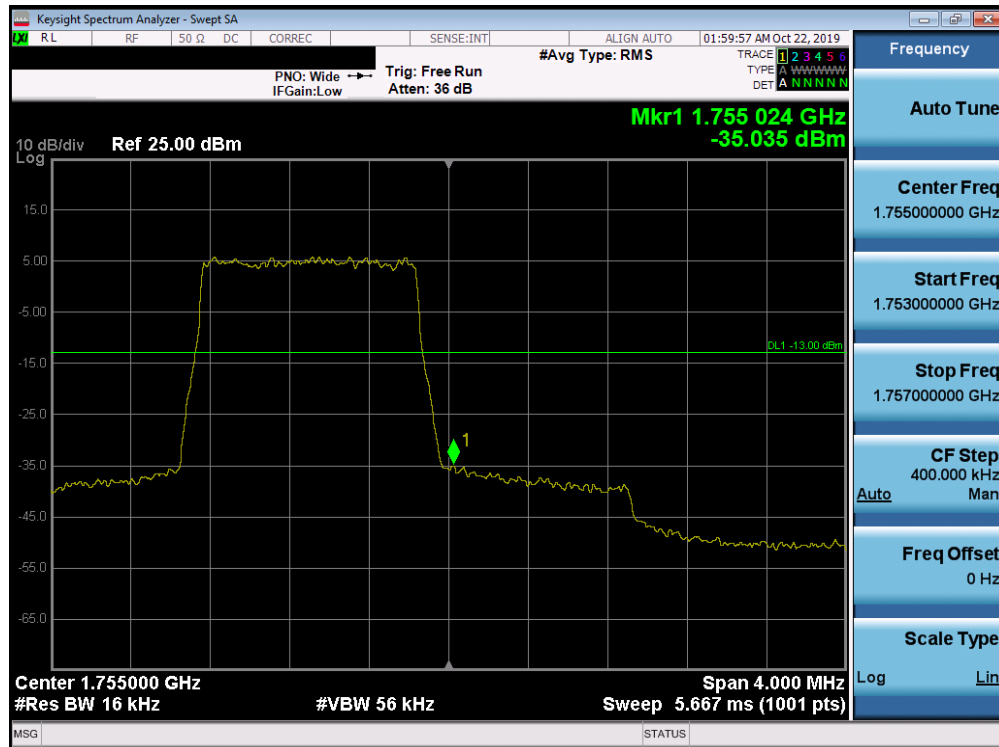


Plot 7-124. Lower Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

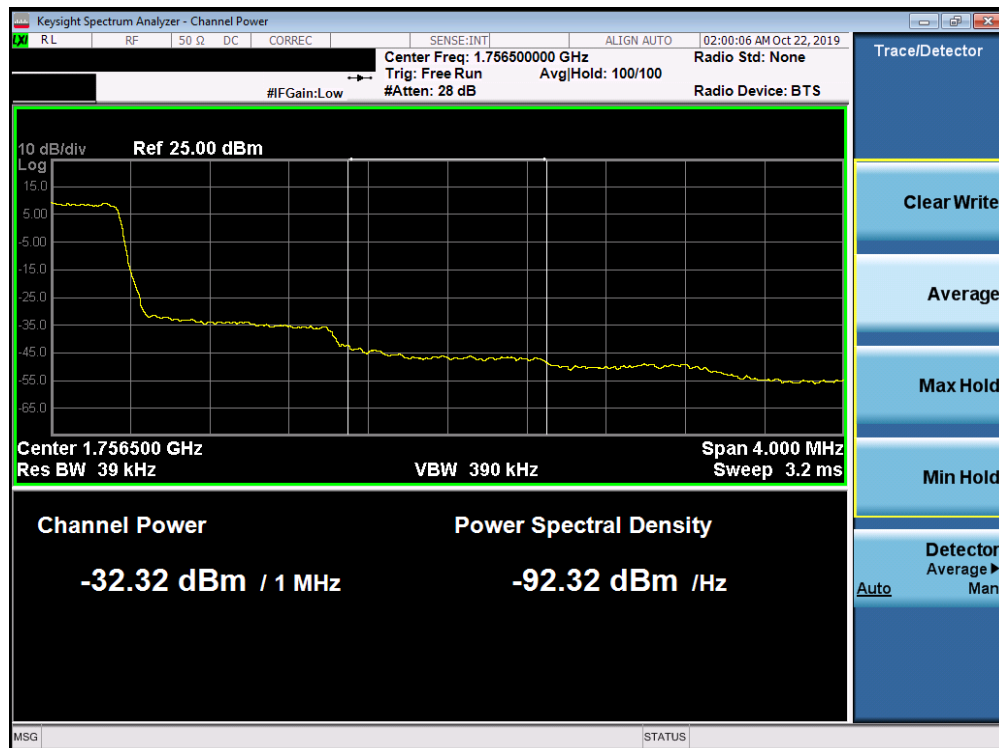


Plot 7-125. Lower Extended Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 81 of 138

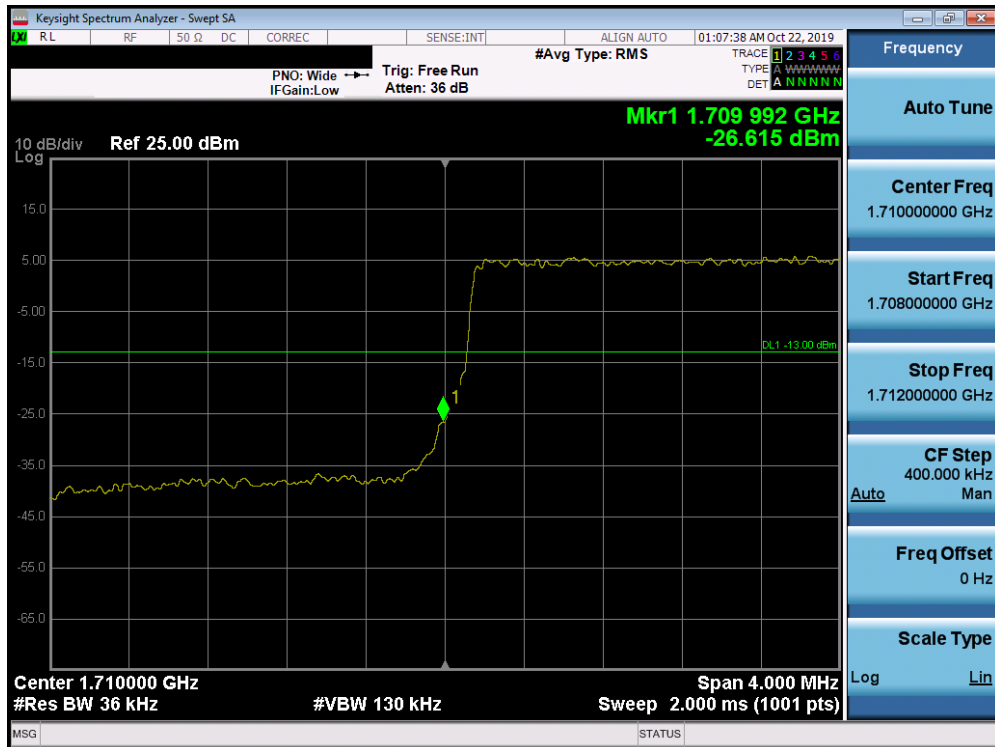


Plot 7-126. Upper Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

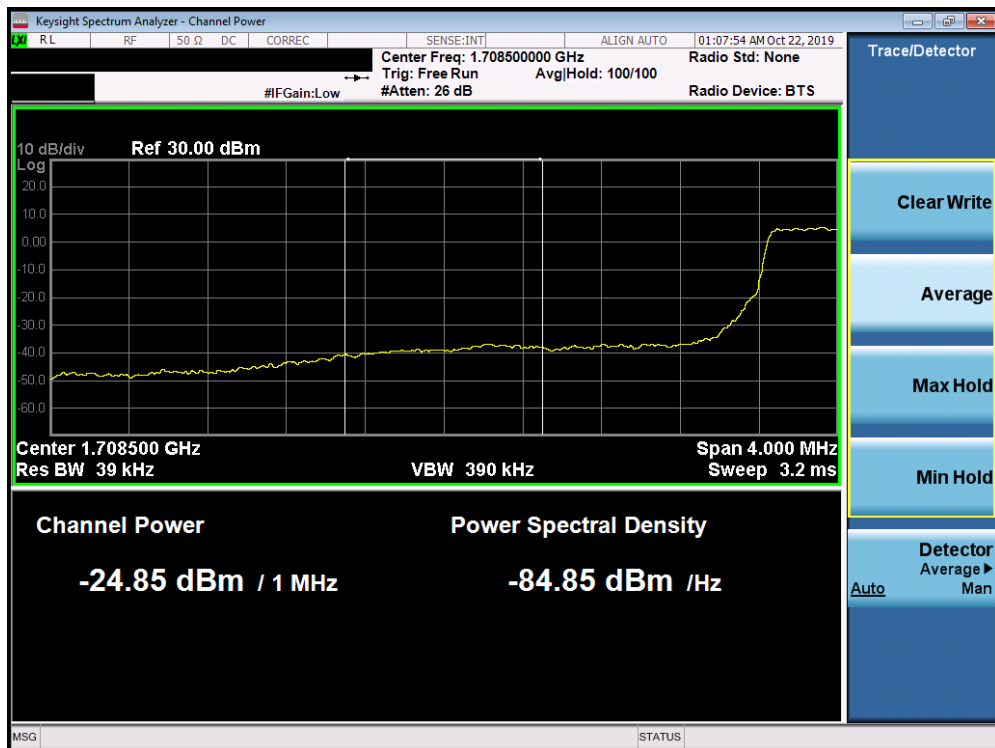


Plot 7-127. Upper Extended Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 82 of 138

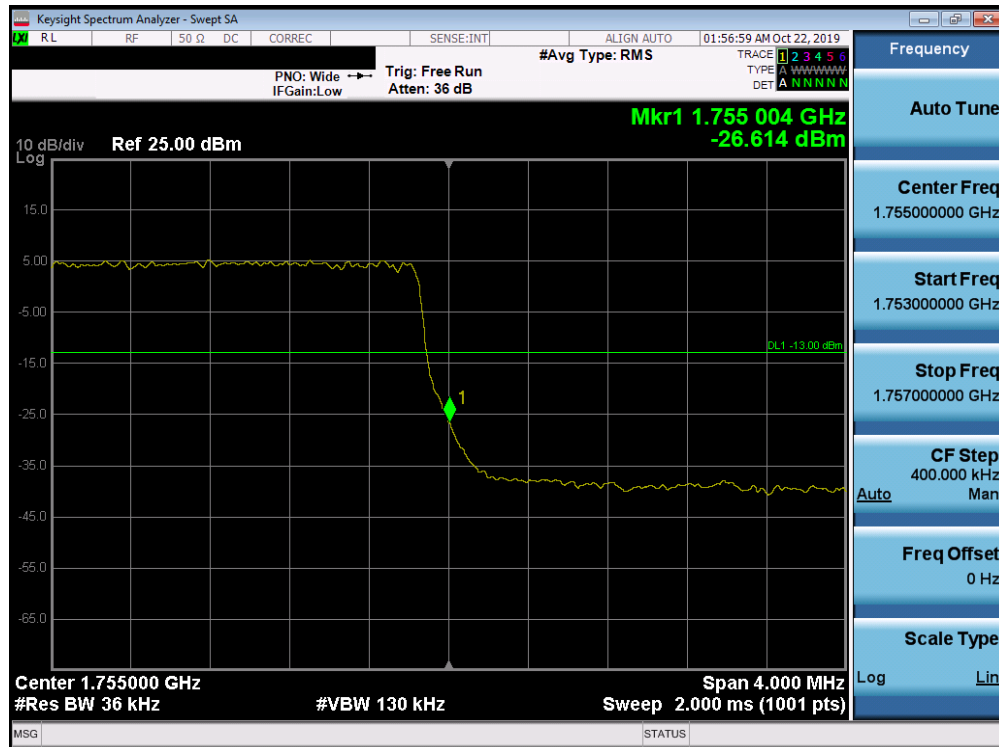


Plot 7-128. Lower Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

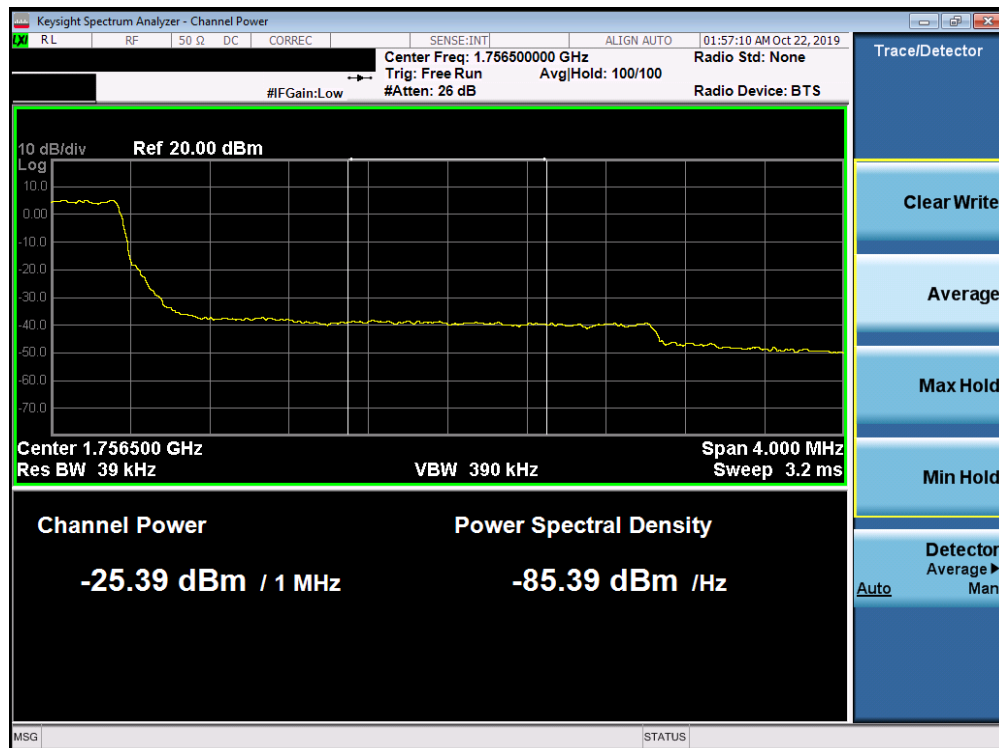


Plot 7-129. Lower Extended Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 83 of 138

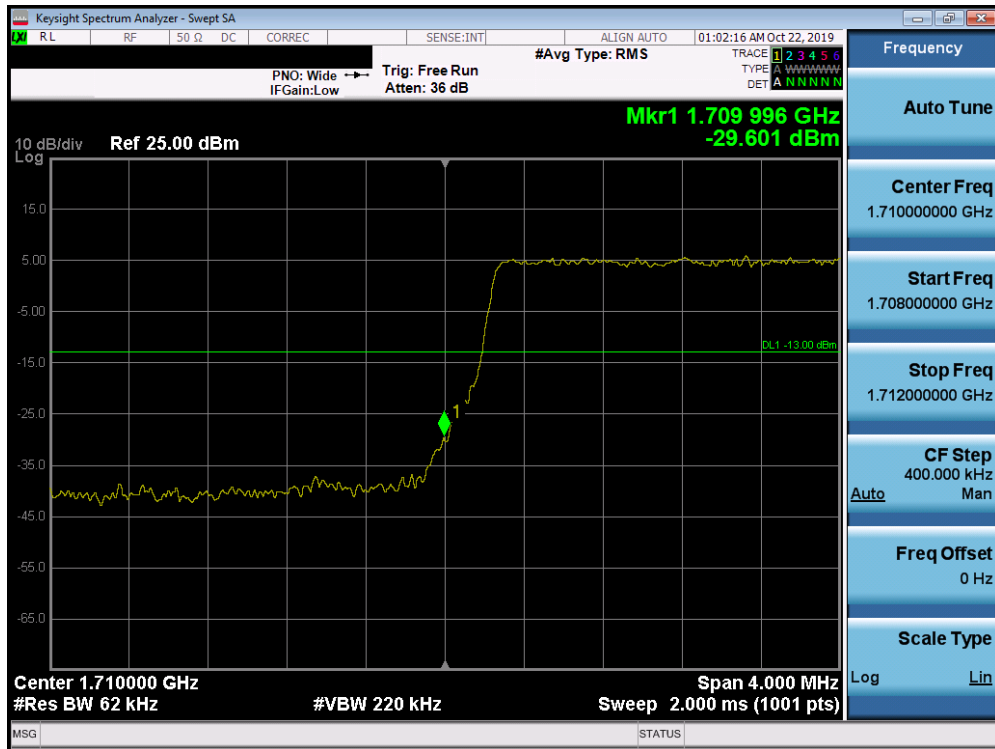


Plot 7-130. Upper Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

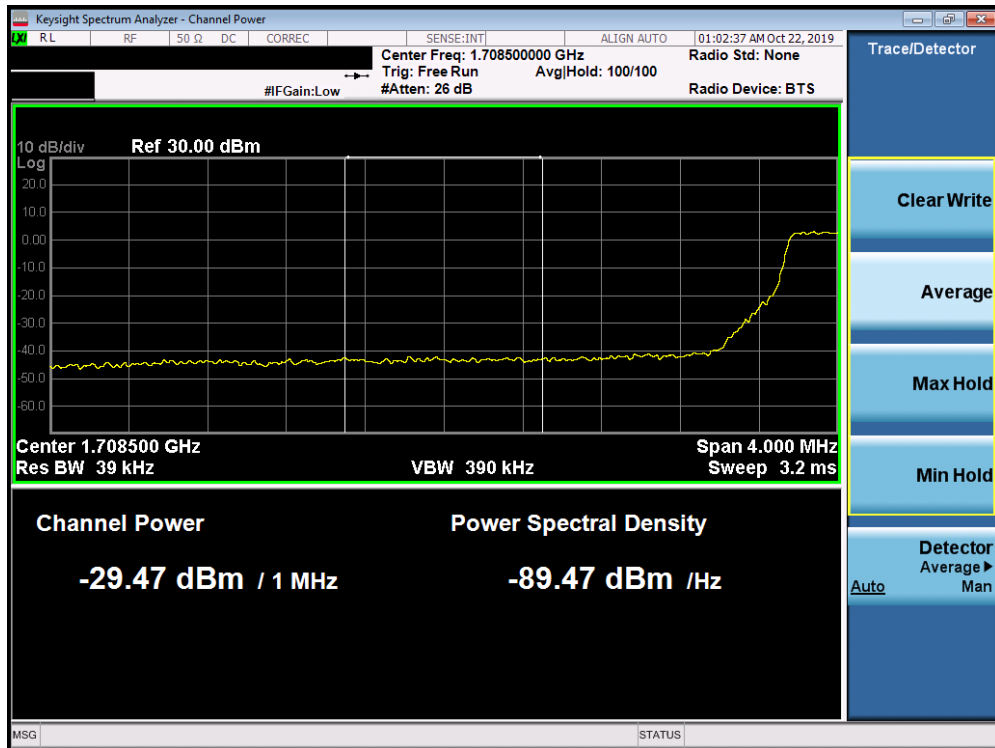


Plot 7-131. Upper Extended Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 84 of 138

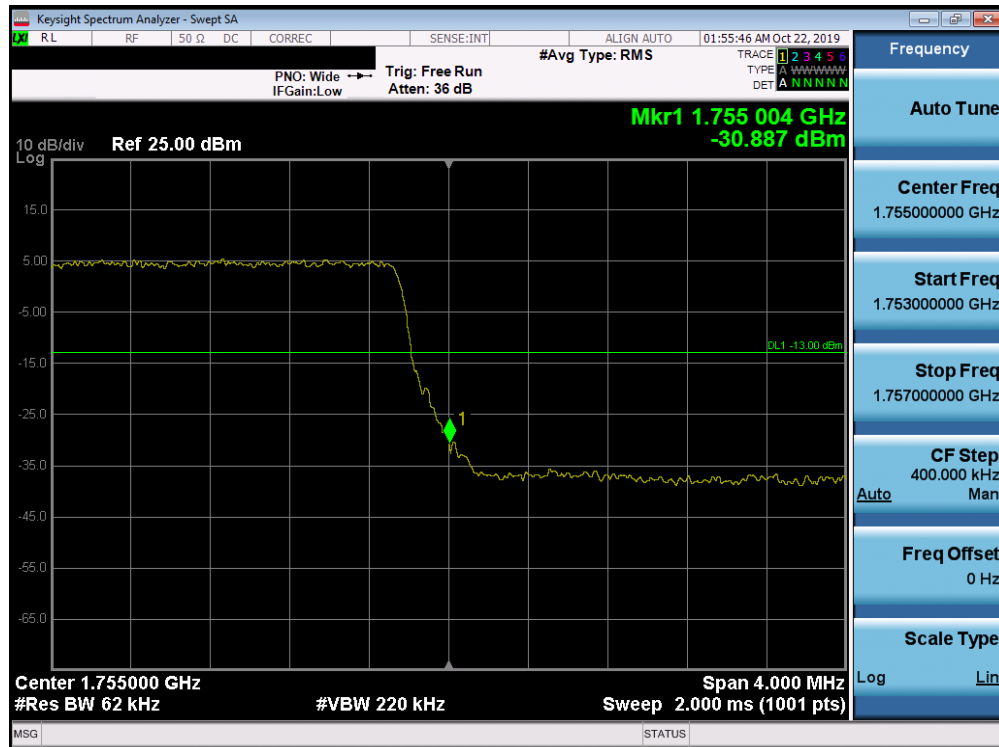


Plot 7-132. Lower Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

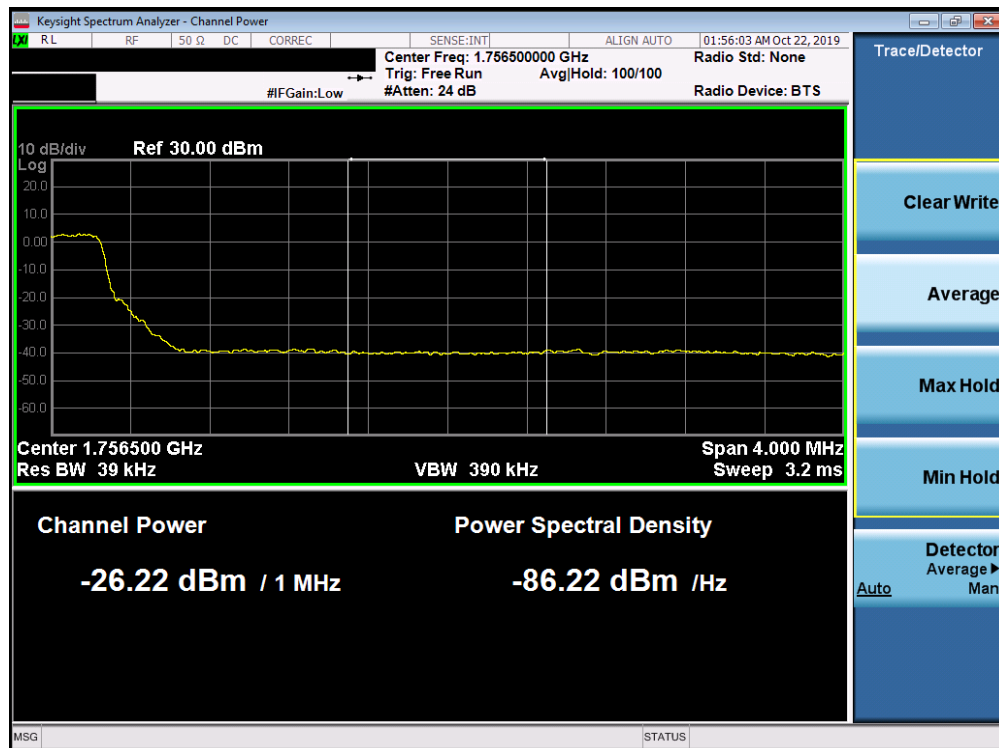


Plot 7-133. Lower Extended Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 85 of 138

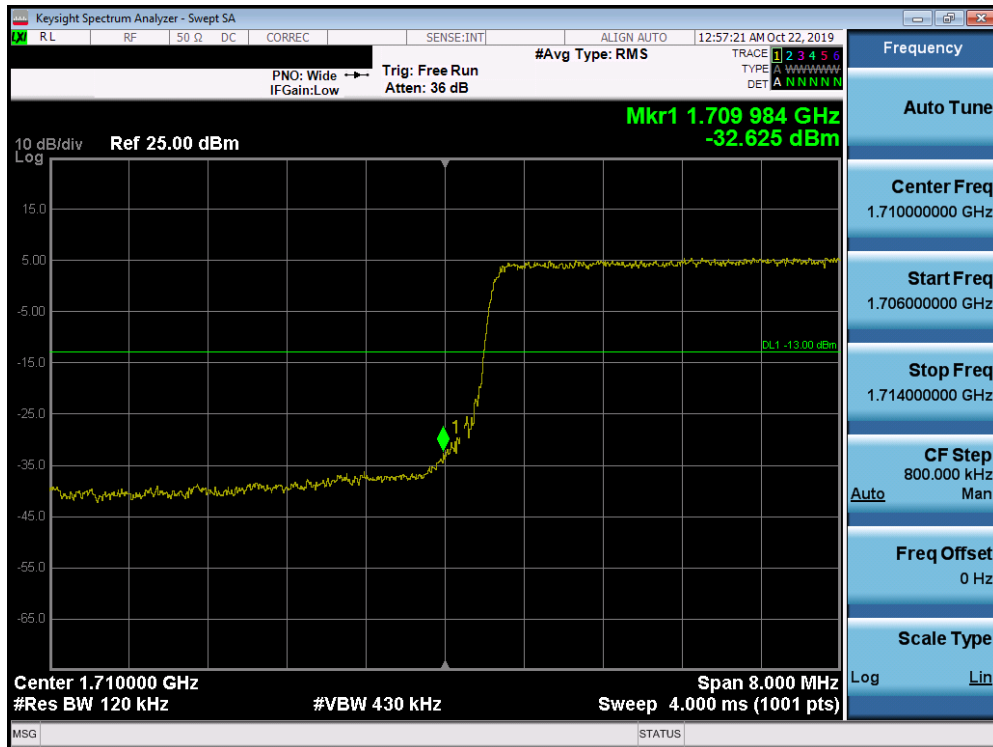


Plot 7-134. Upper Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

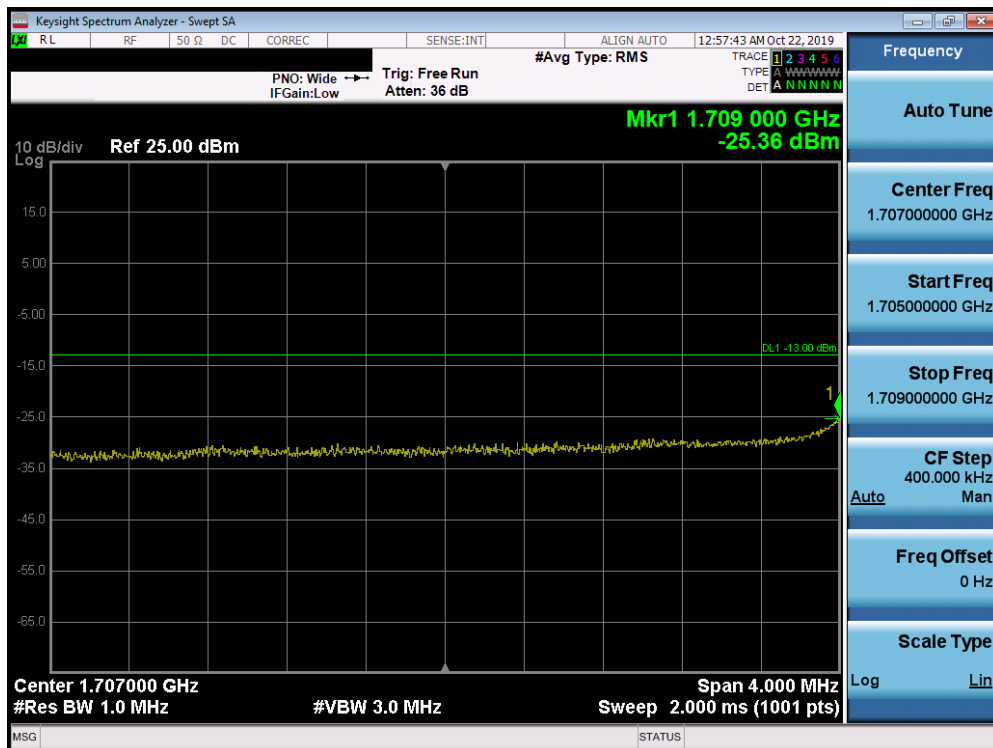


Plot 7-135. Upper Extended Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 86 of 138

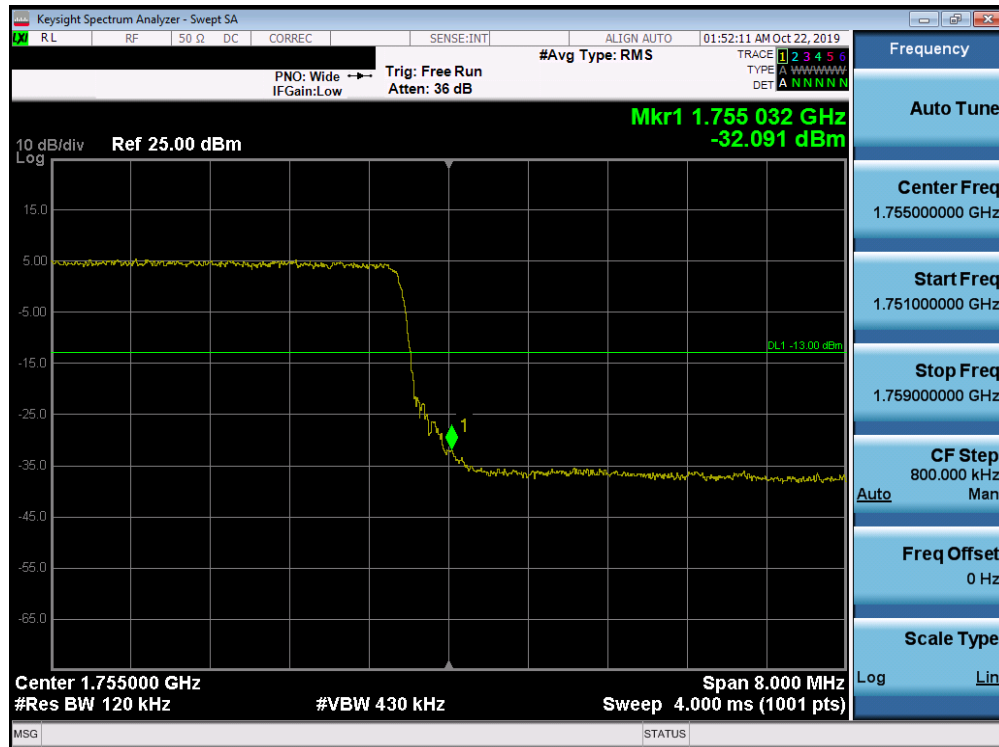


Plot 7-136. Lower Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

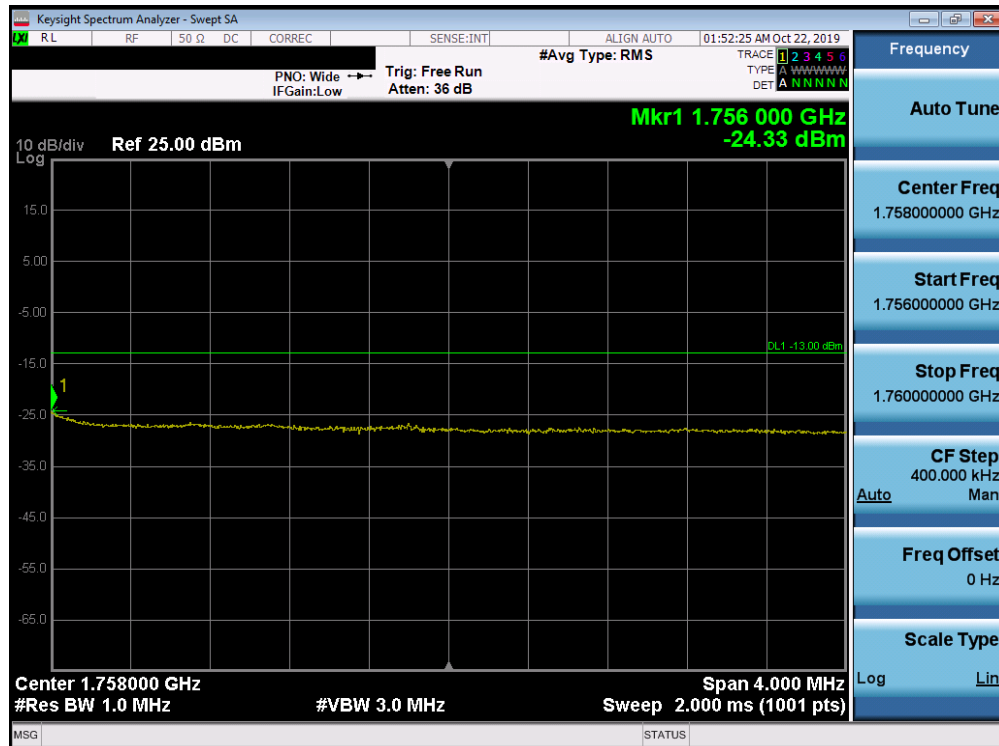


Plot 7-137. Lower Extended Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 87 of 138

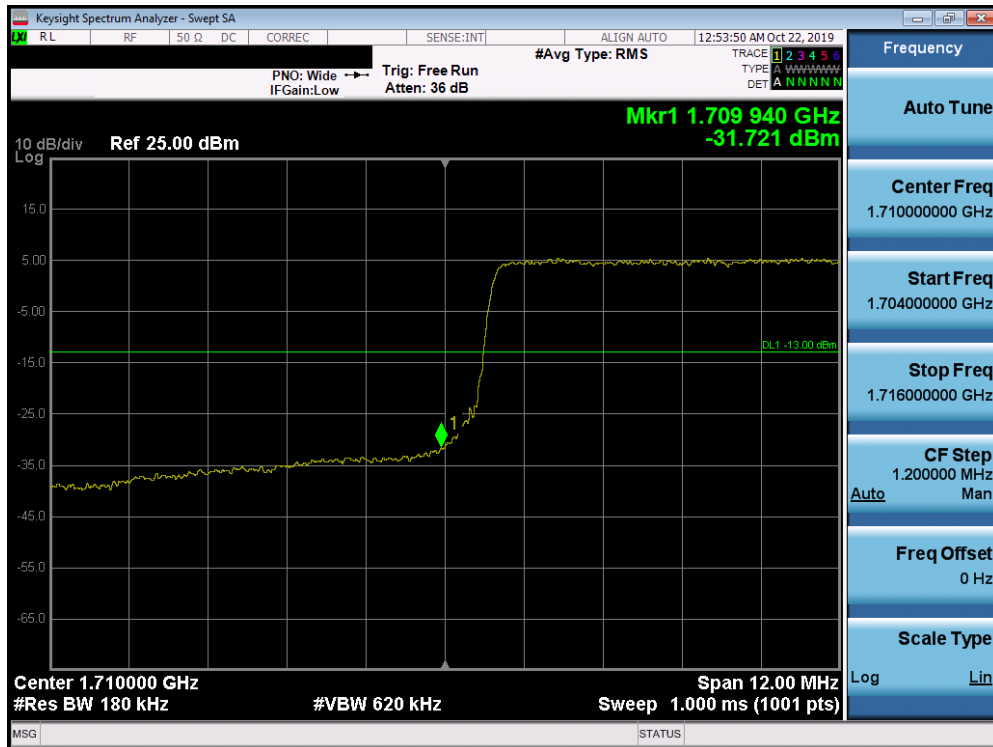


Plot 7-138. Upper Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

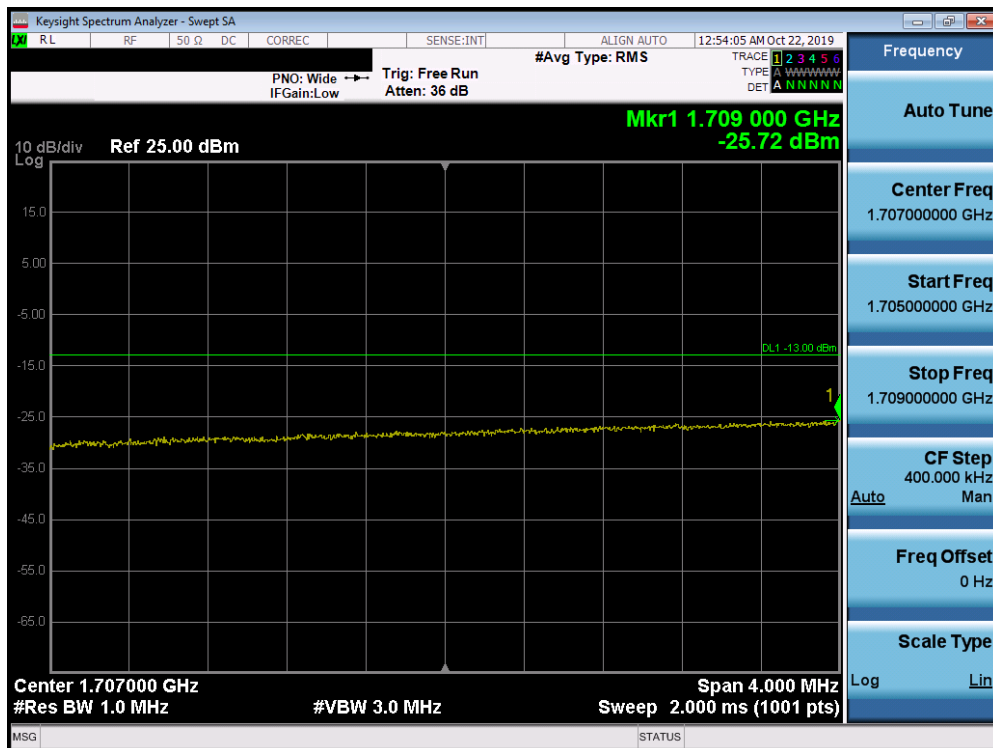


Plot 7-139. Upper Extended Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 88 of 138

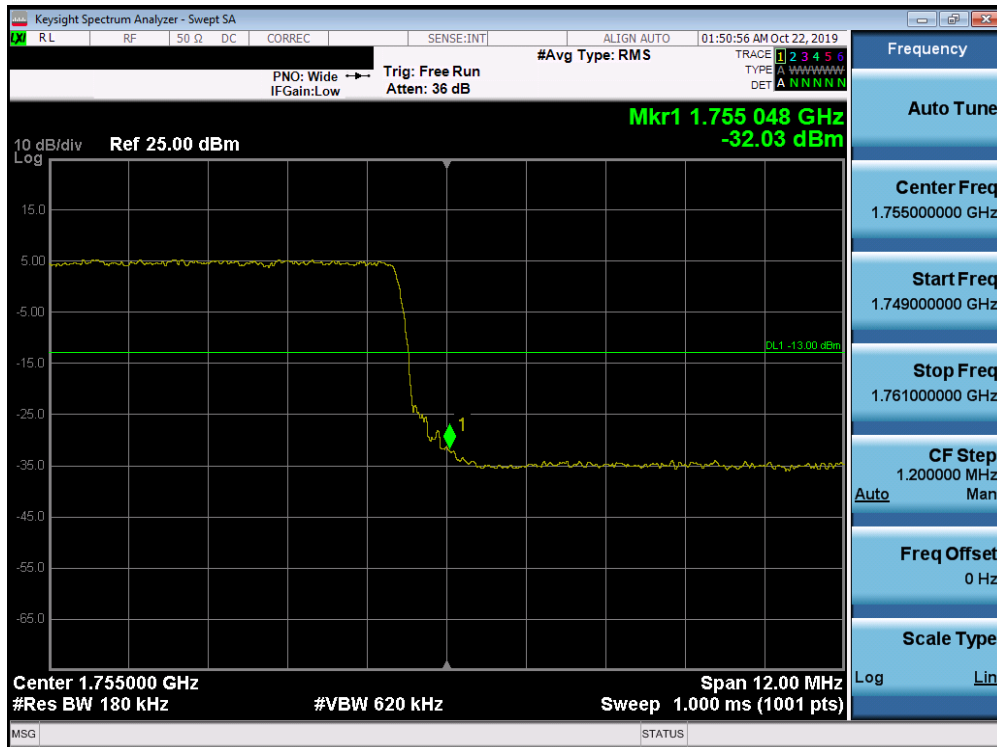


Plot 7-140. Lower Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

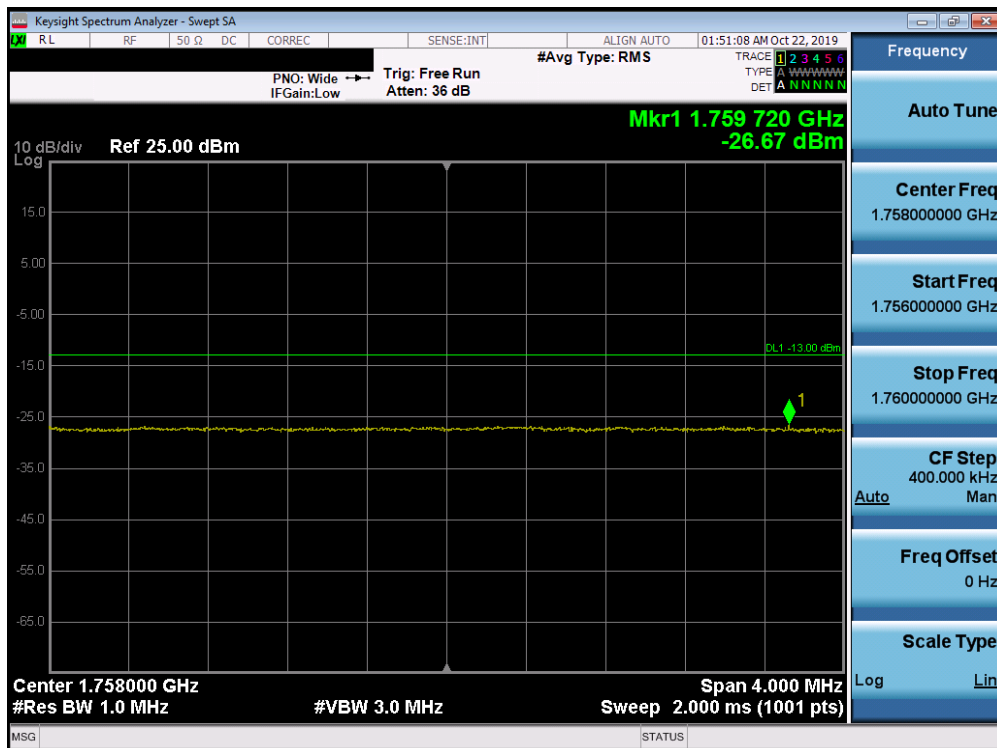


Plot 7-141. Lower Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 89 of 138

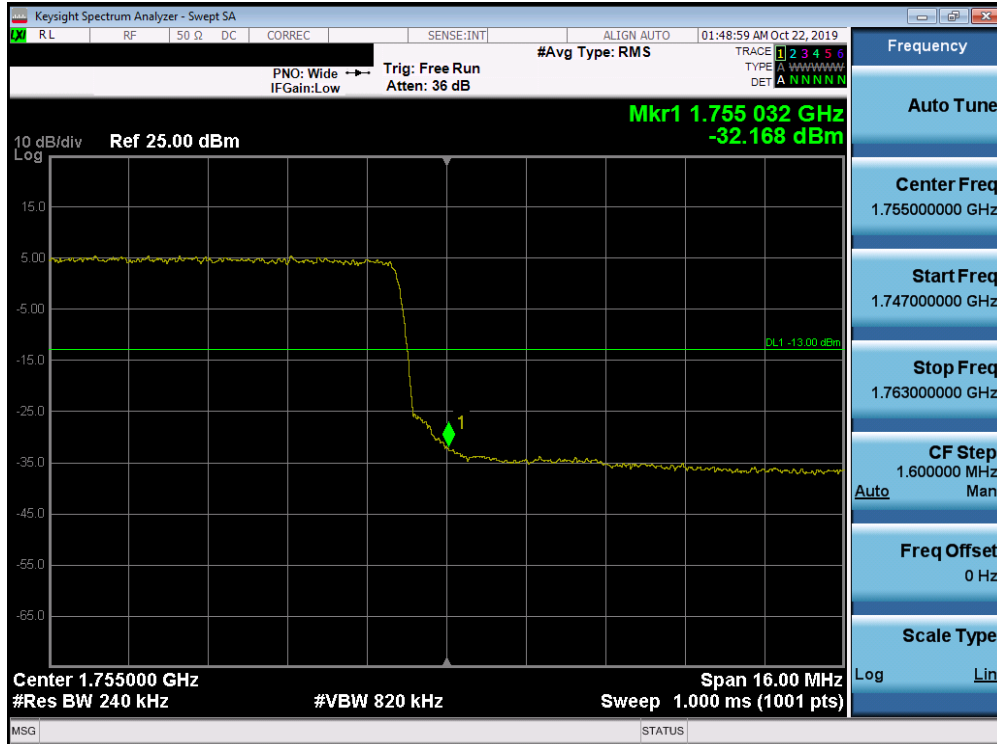


Plot 7-142. Upper Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

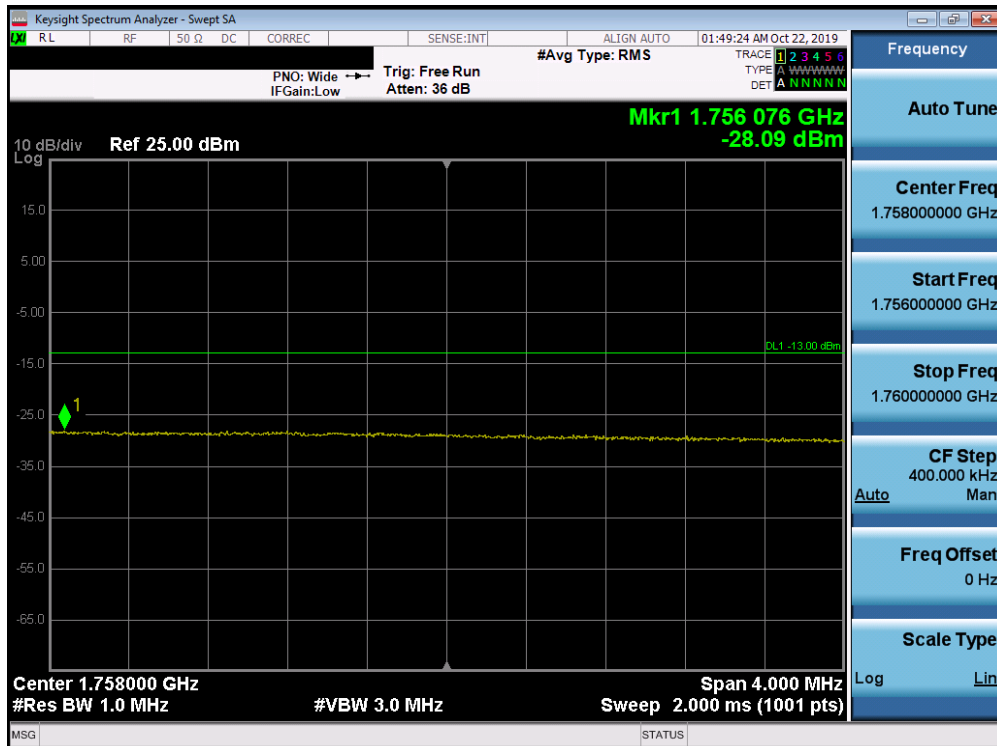


Plot 7-143. Upper Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 90 of 138



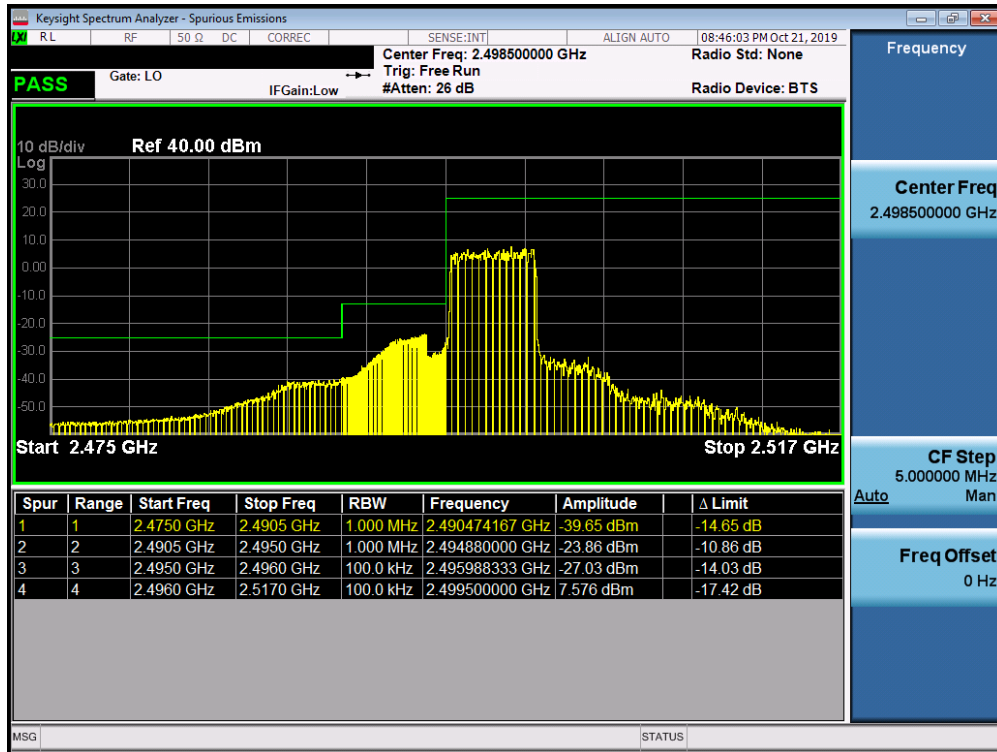
Plot 7-146. Upper Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)



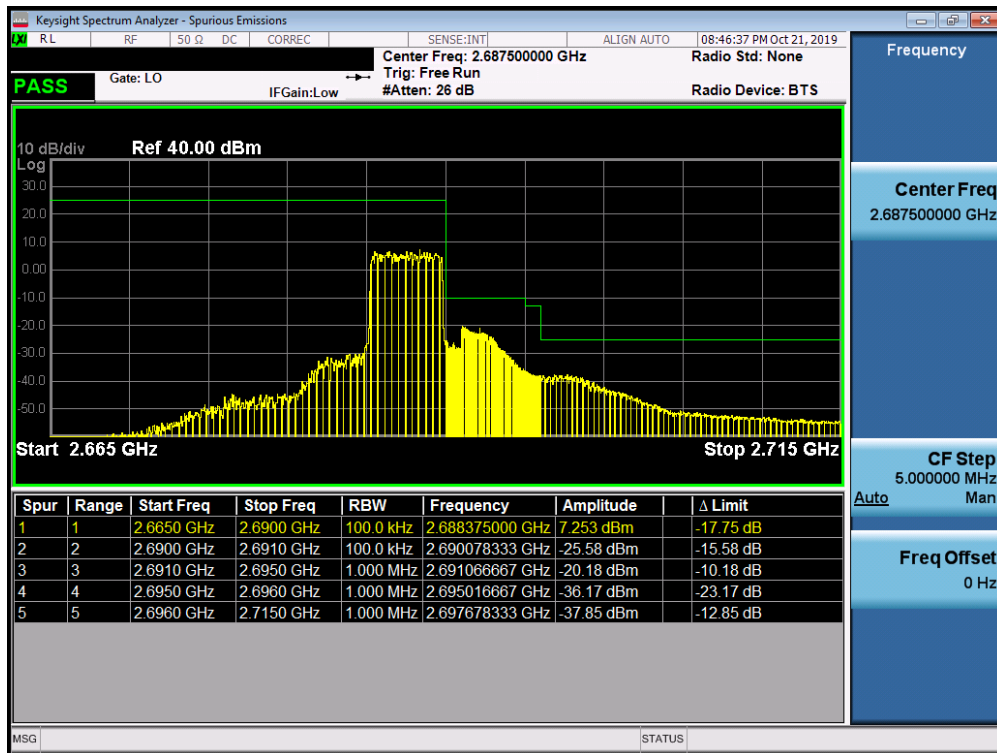
Plot 7-147. Upper Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 92 of 138

Band 41

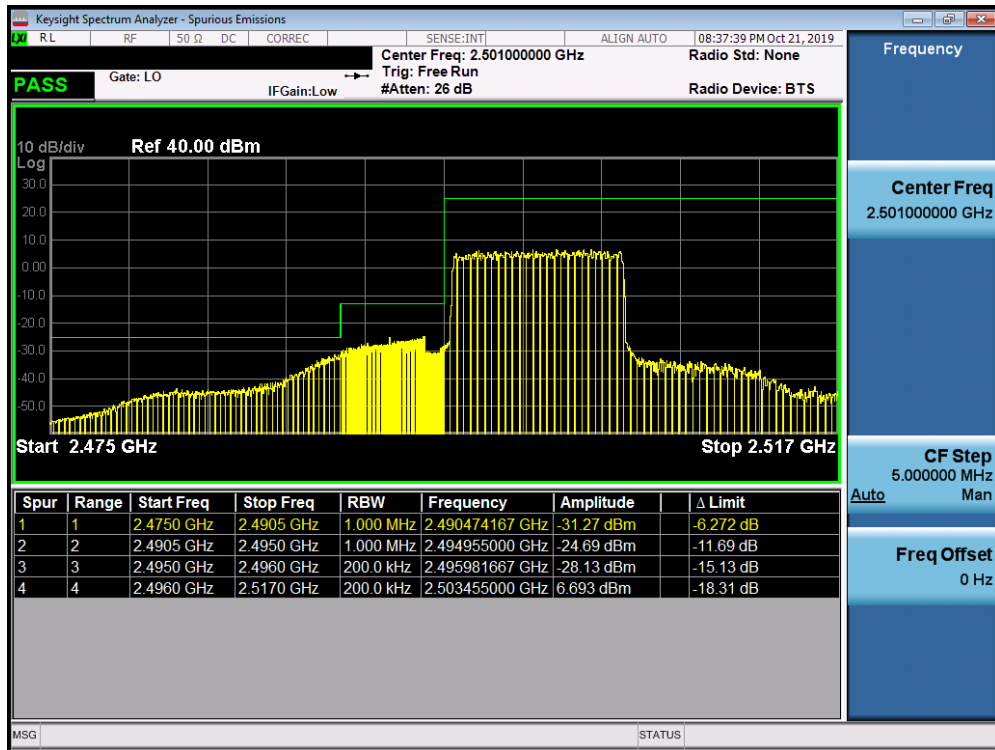


Plot 7-148. Lower ACP Plot at 2496 MHz (Band 41 - 5.0MHz QPSK - Full RB Configuration)

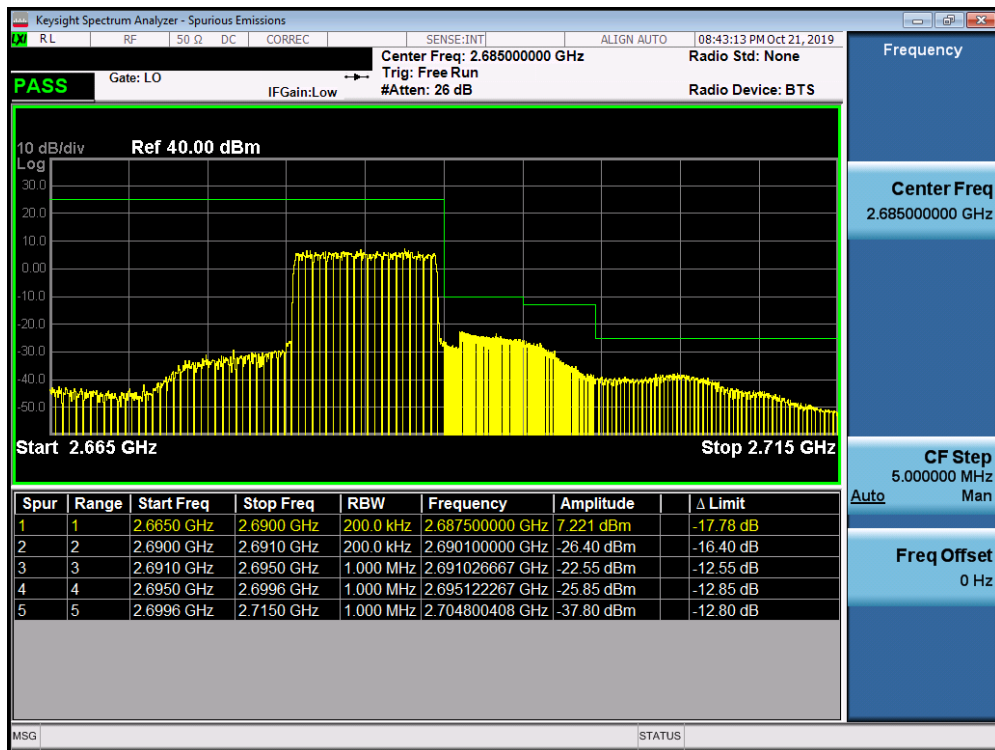


Plot 7-149. Upper ACP Plot (Band 41 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 93 of 138

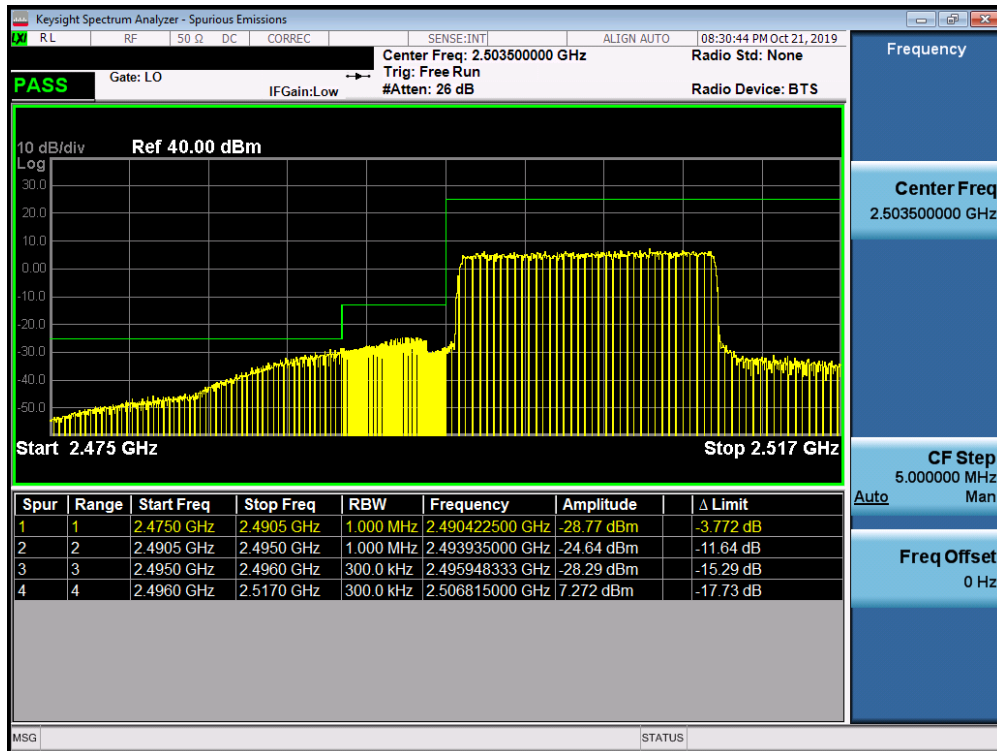


Plot 7-150. Lower ACP Plot at 2496 MHz (Band 41 - 10.0MHz QPSK - Full RB Configuration)

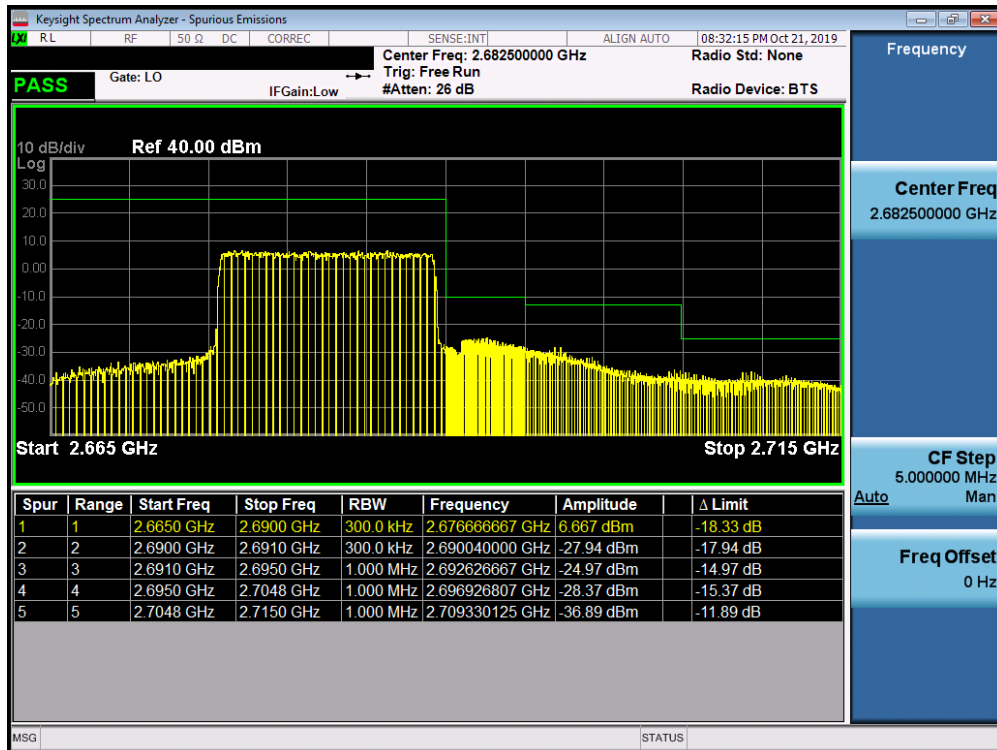


Plot 7-151. Upper ACP Plot (Band 41 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 94 of 138

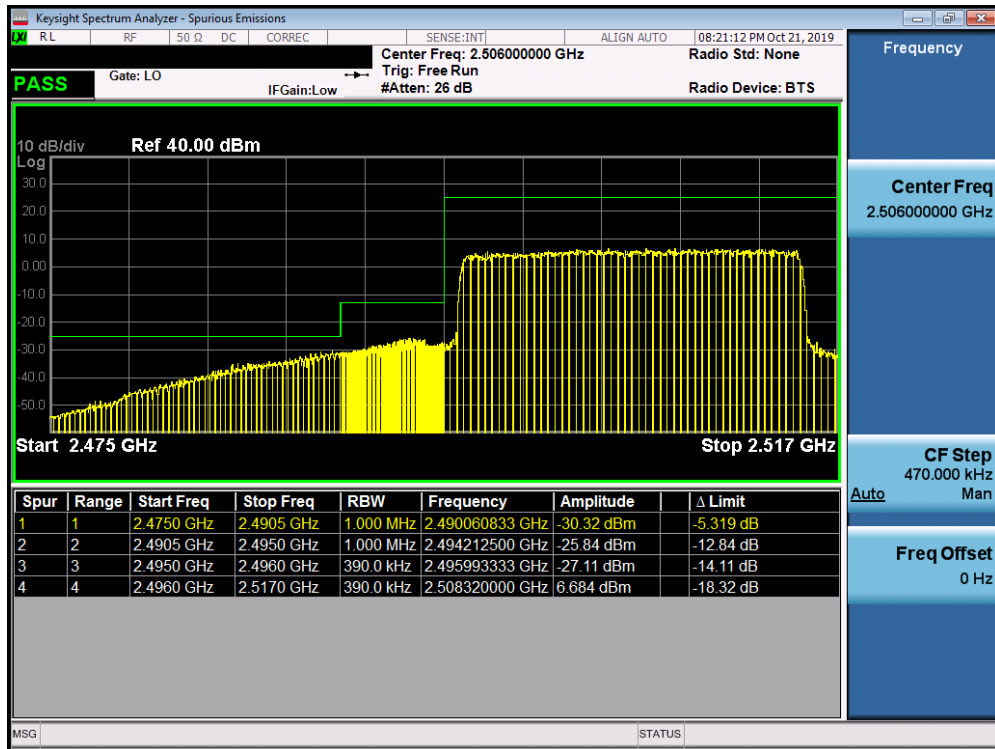


Plot 7-152. Lower ACP Plot at 2496 MHz (Band 41 - 15.0MHz QPSK - Full RB Configuration)

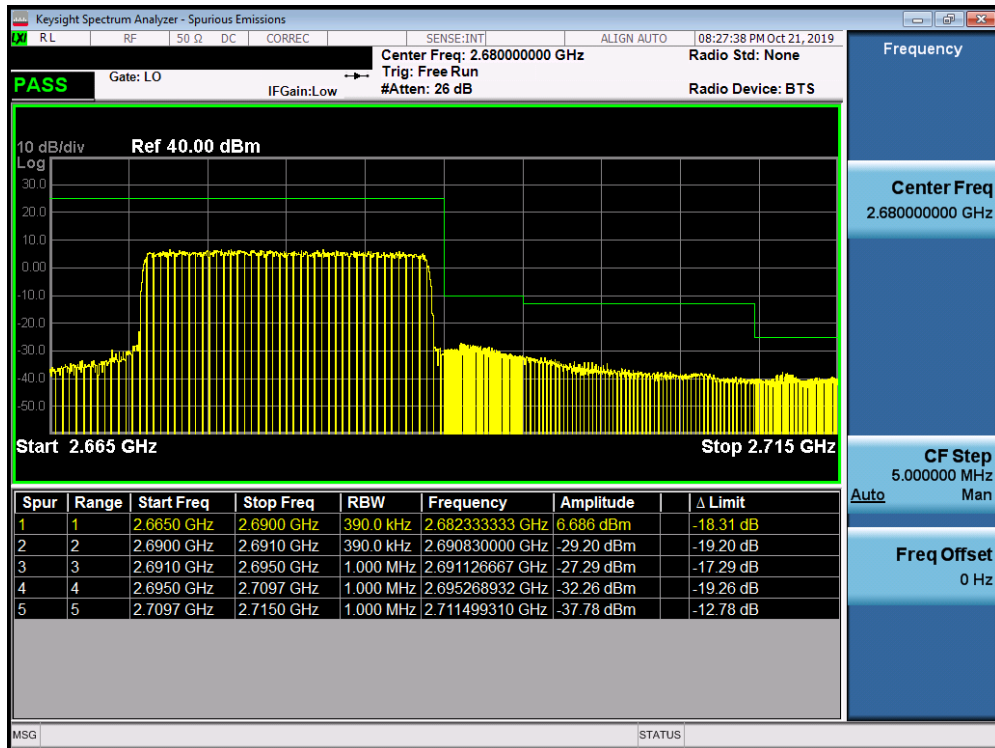


Plot 7-153. Upper ACP Plot (Band 41 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 95 of 138



Plot 7-154. Lower ACP Plot at 2496 MHz (Band 41 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-155. Upper ACP Plot (Band 41 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 96 of 138

7.5 Peak-Average Ratio

Test Overview

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

Test Procedure Used

KDB 971168 D01 v03r01 – Section 5.7.1

Test Settings

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW $\geq$ OBW or specified reference bandwidth
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

Test Setup

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

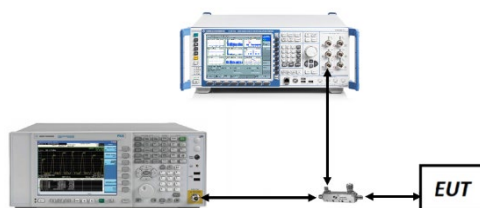


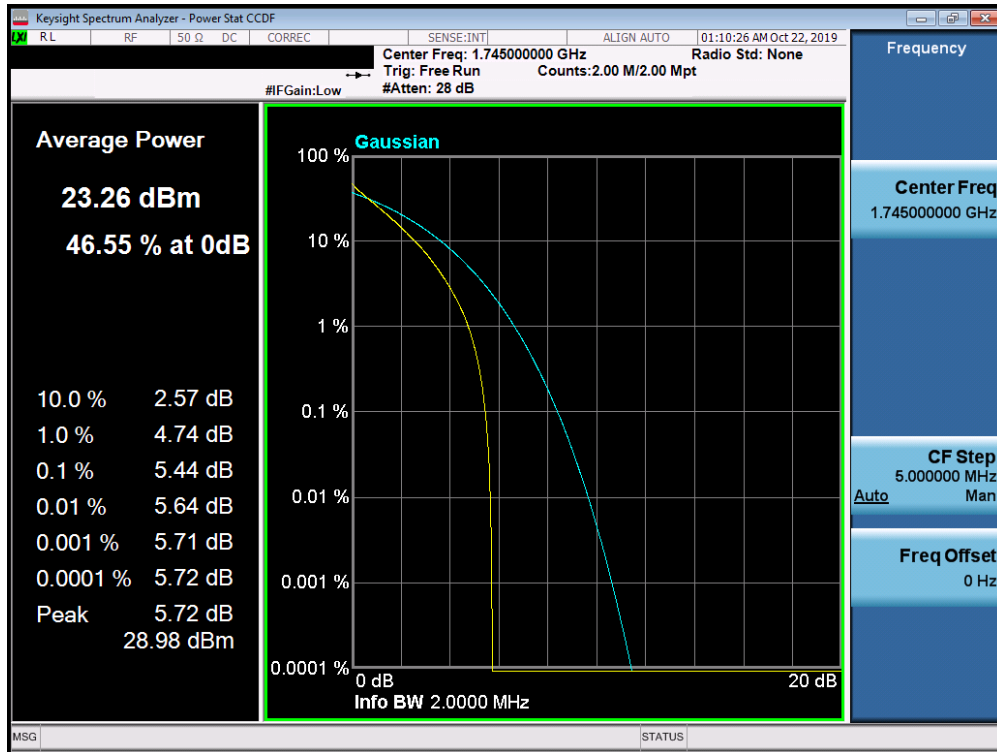
Figure 7-4. Test Instrument & Measurement Setup

Test Notes

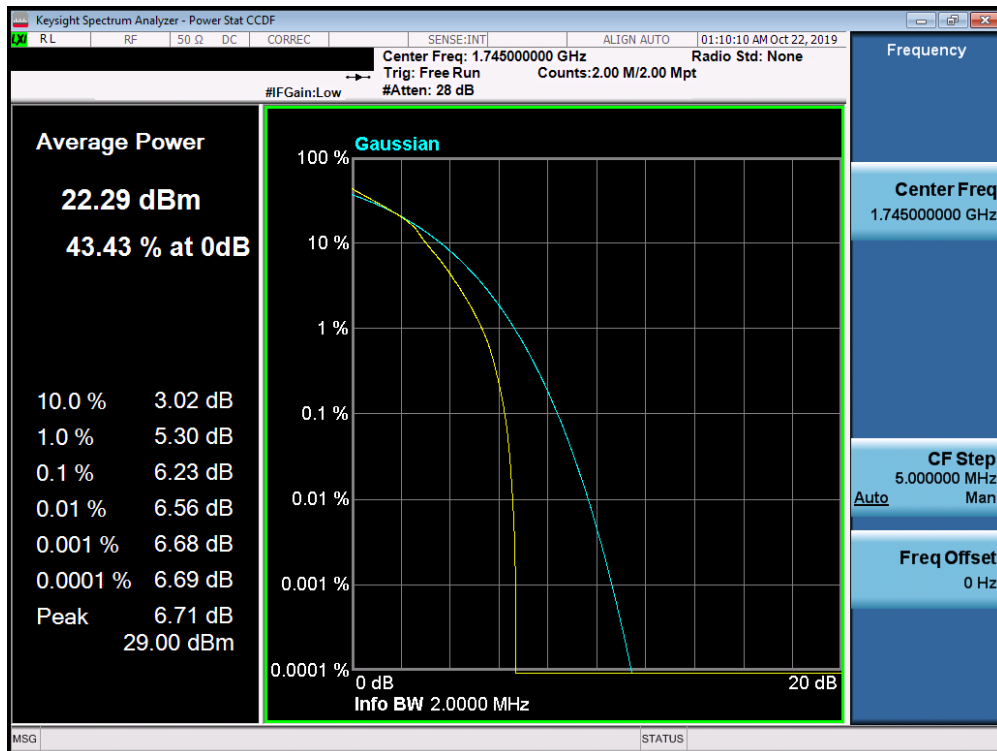
None.

FCC ID: A3LSMG986JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 97 of 138

Band 4

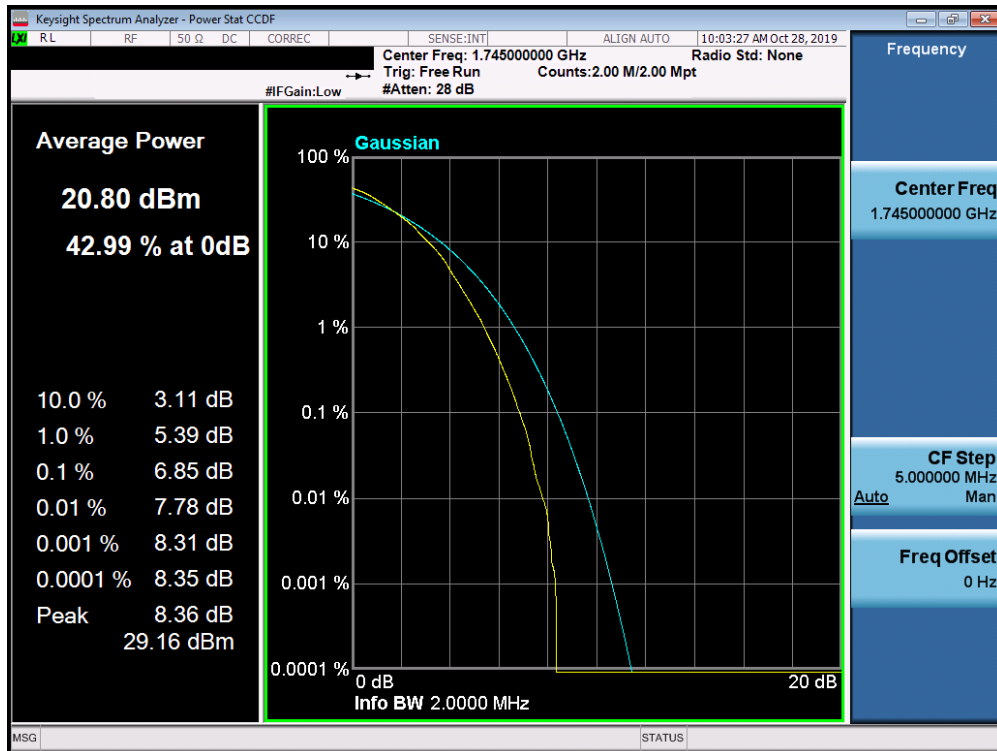


Plot 7-156. PAR Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

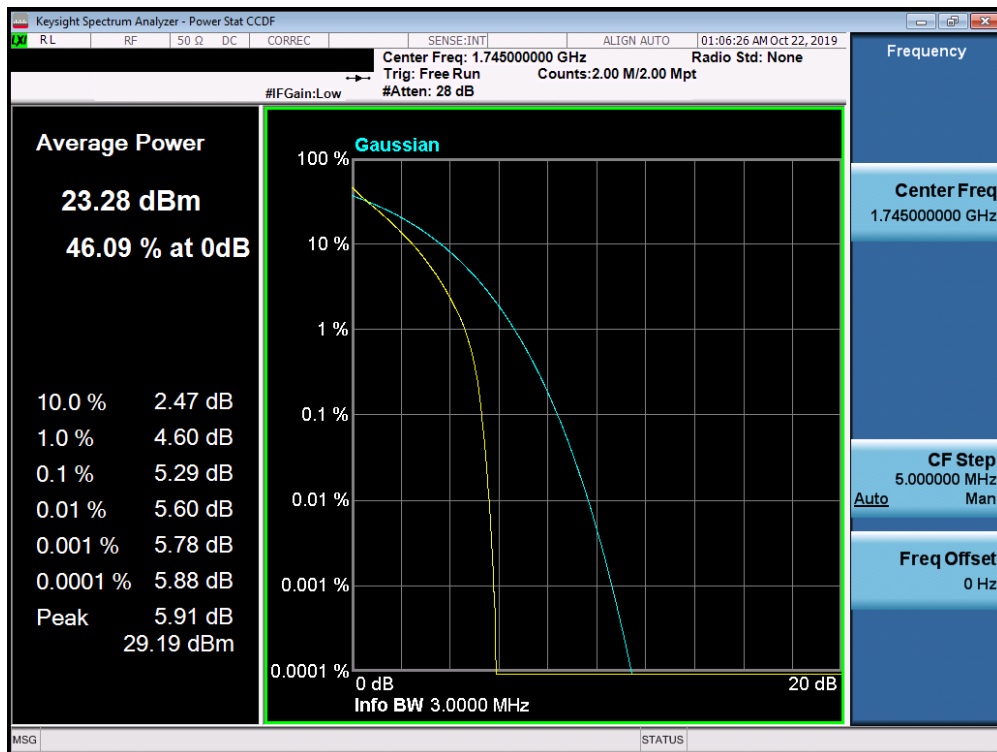


Plot 7-157. PAR Plot (Band 4 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 98 of 138

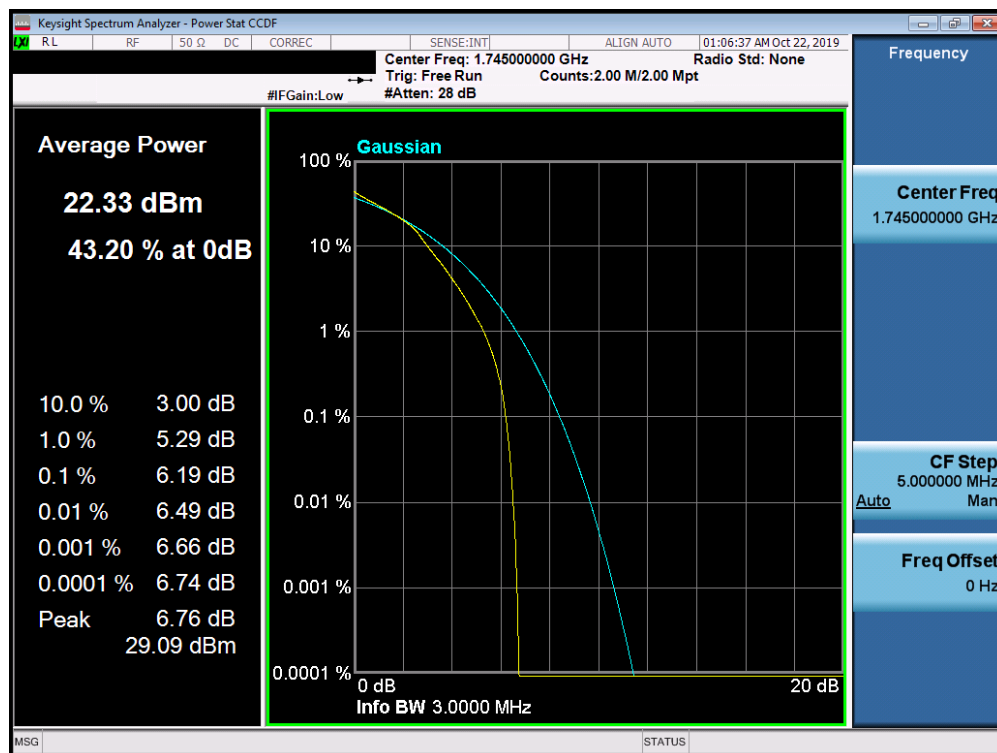


Plot 7-158. PAR Plot (Band 4 - 1.4MHz 64-QAM - Full RB Configuration)

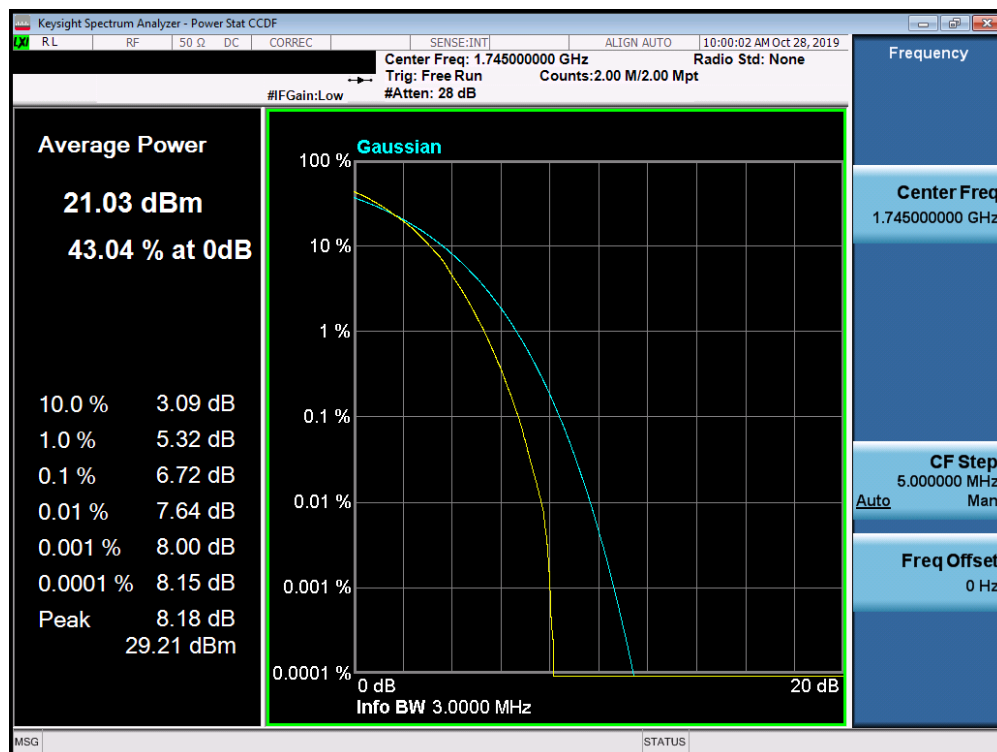


Plot 7-159. PAR Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 99 of 138

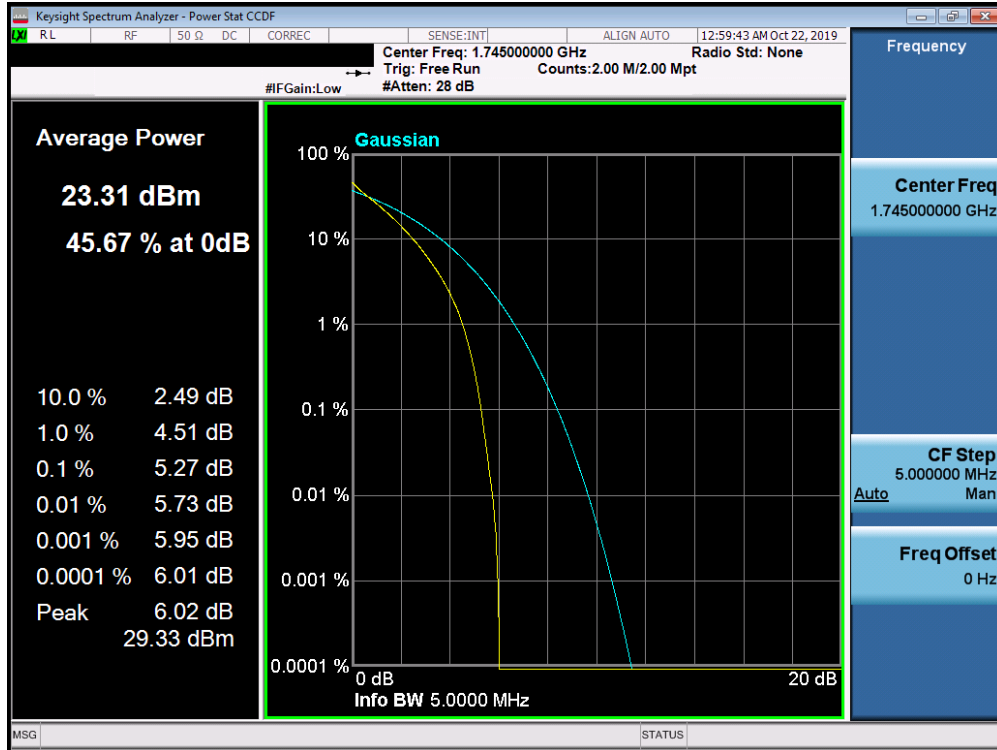


Plot 7-160. PAR Plot (Band 4 - 3.0MHz 16-QAM - Full RB Configuration)

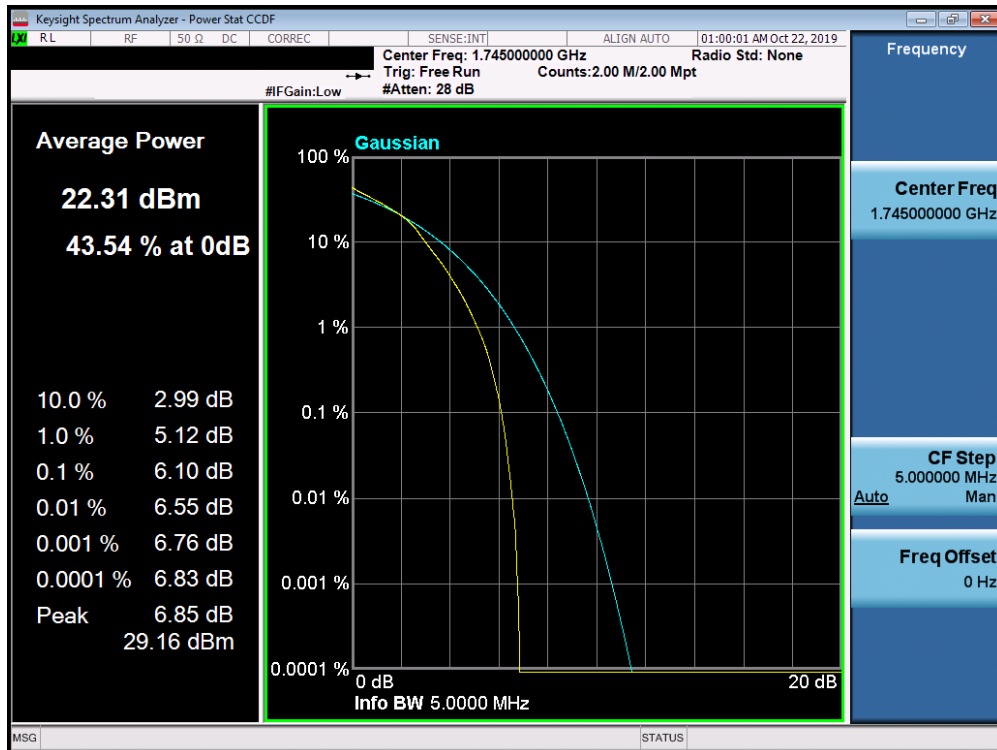


Plot 7-161. PAR Plot (Band 4 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 100 of 138

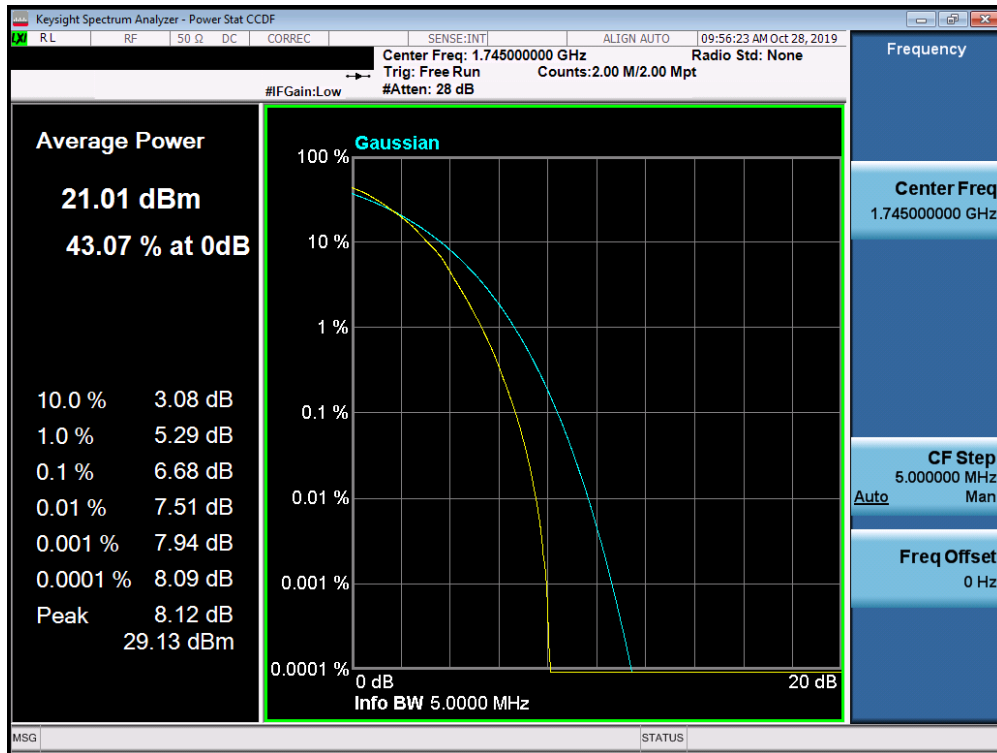


Plot 7-162. PAR Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

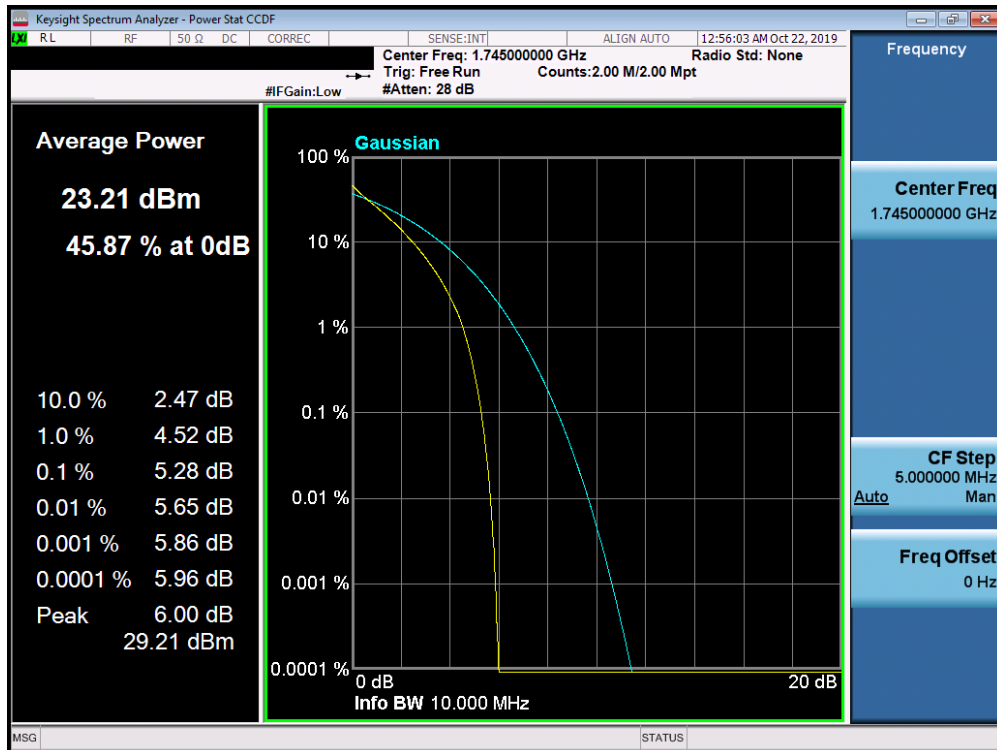


Plot 7-163. PAR Plot (Band 4 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 101 of 138

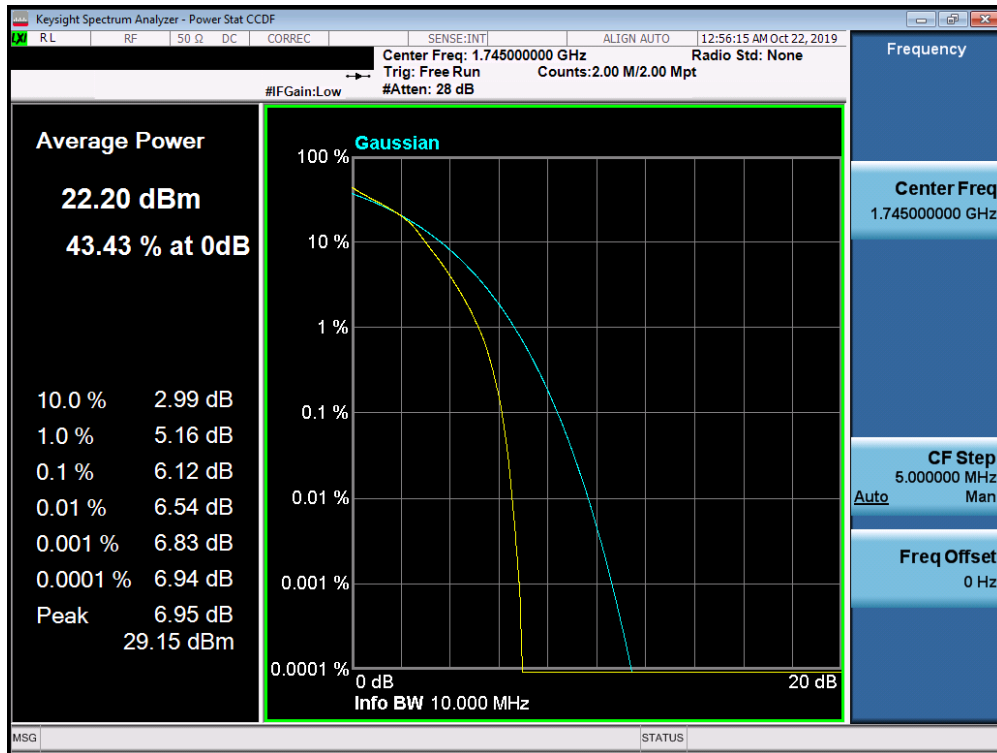


Plot 7-164. PAR Plot (Band 4 - 5.0MHz 64-QAM - Full RB Configuration)

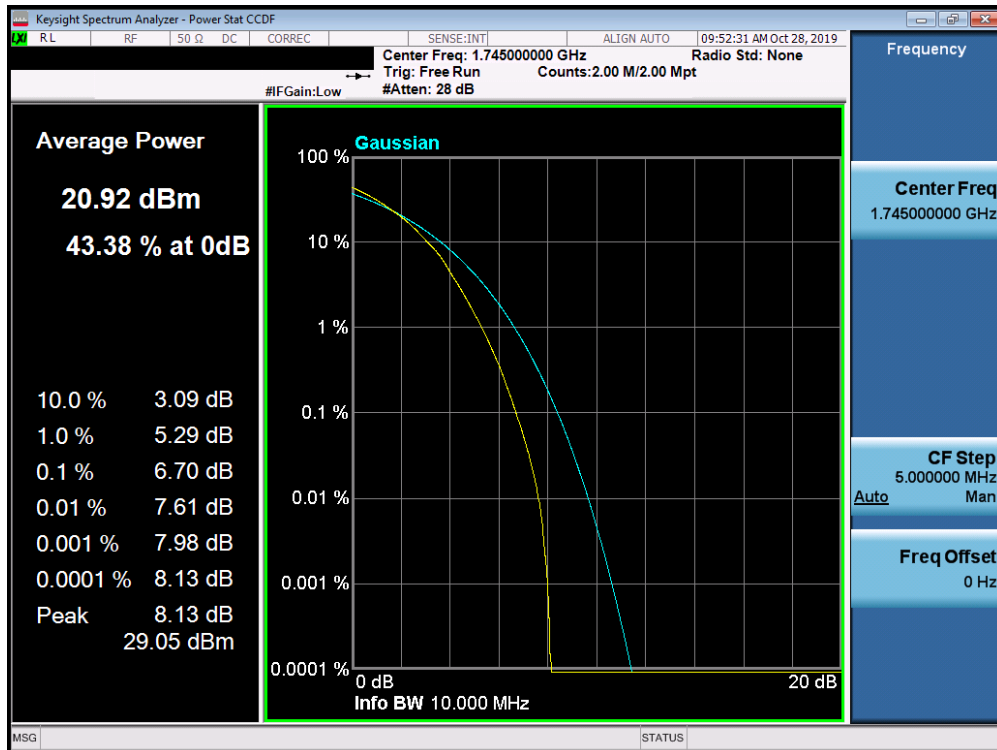


Plot 7-165. PAR Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 102 of 138

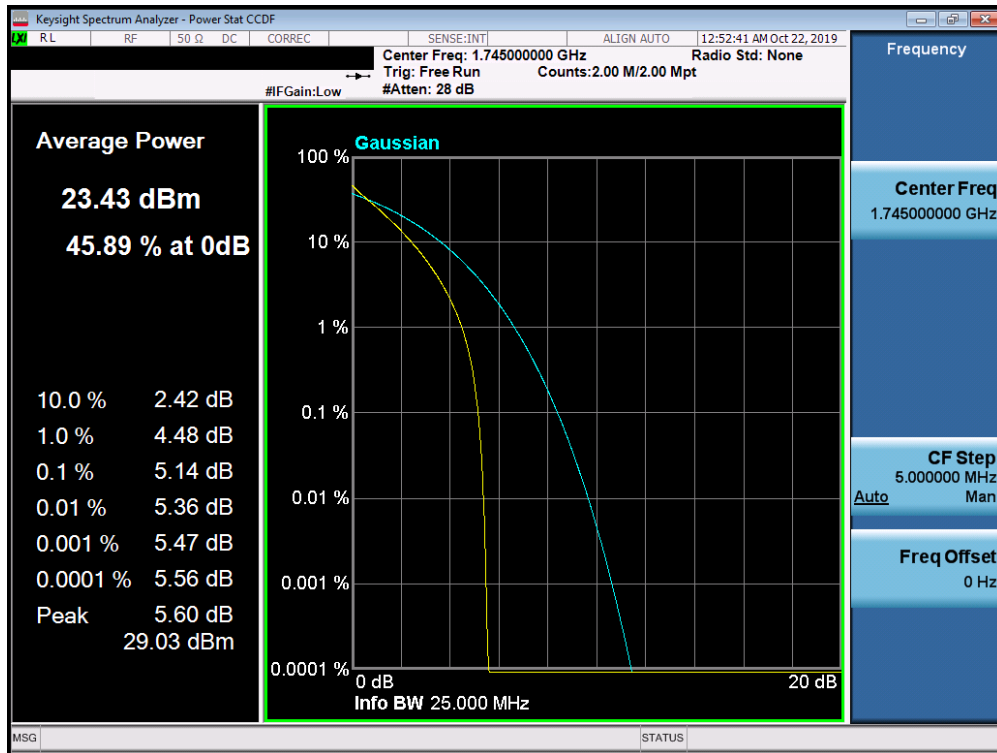


Plot 7-166. PAR Plot (Band 4 - 10.0MHz 16-QAM - Full RB Configuration)

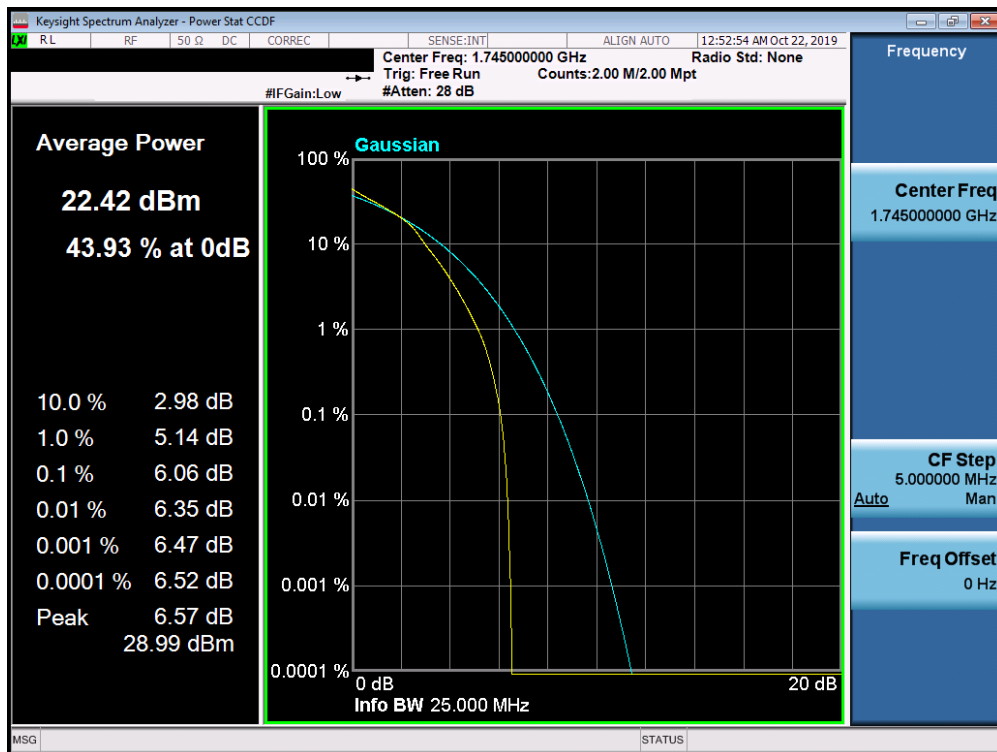


Plot 7-167. PAR Plot (Band 4 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 103 of 138

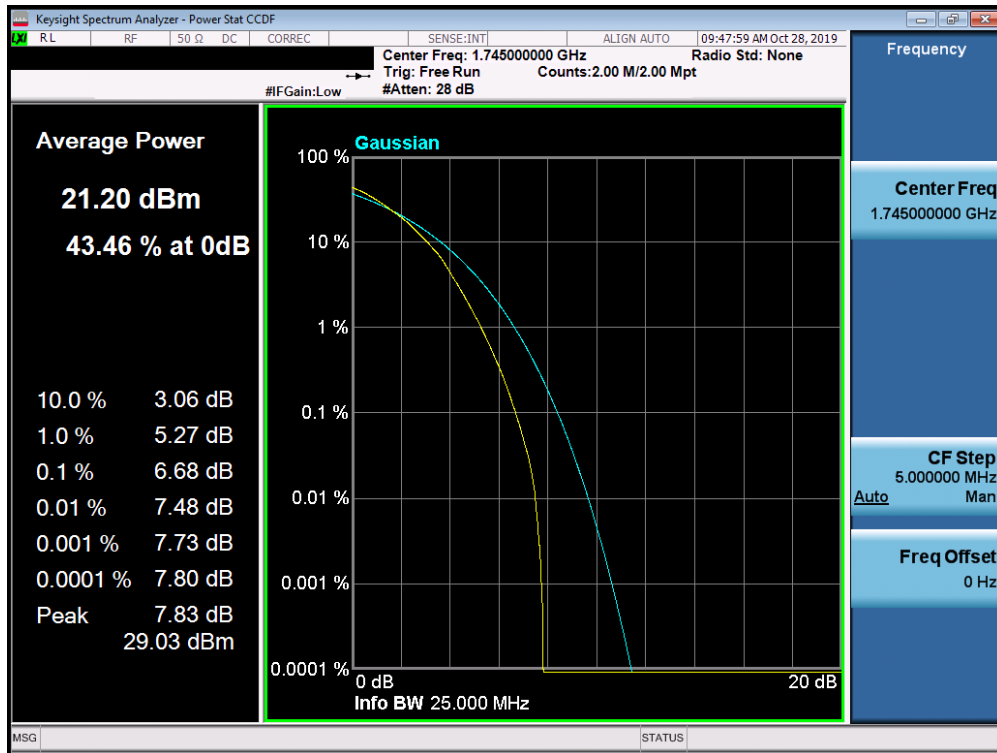


Plot 7-168. PAR Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

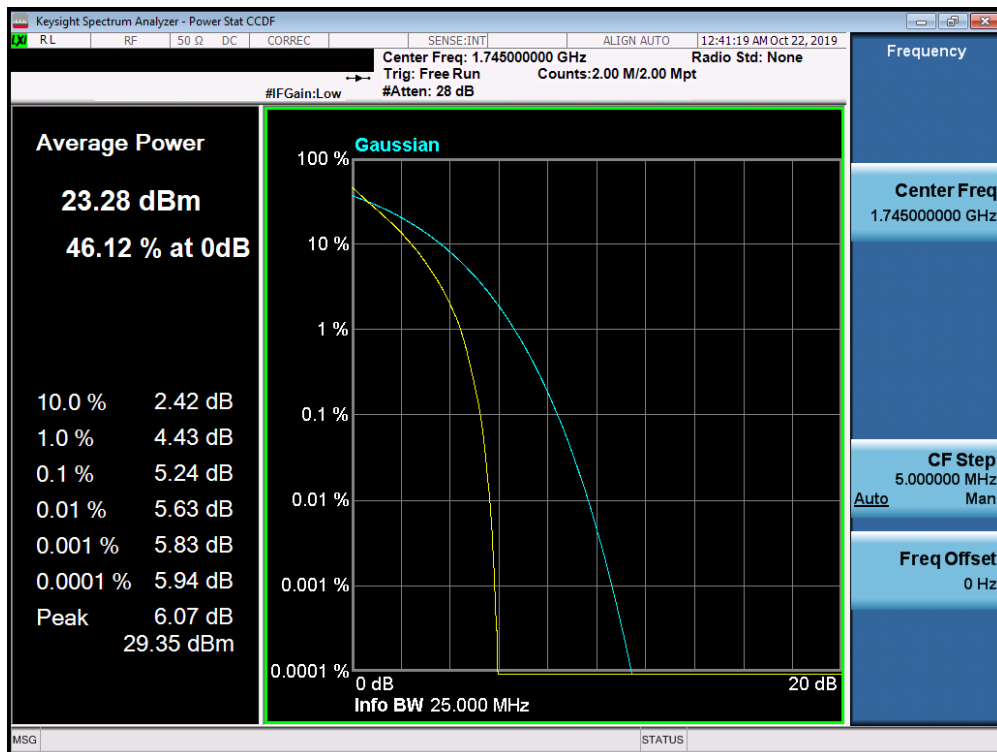


Plot 7-169. PAR Plot (Band 4 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 104 of 138

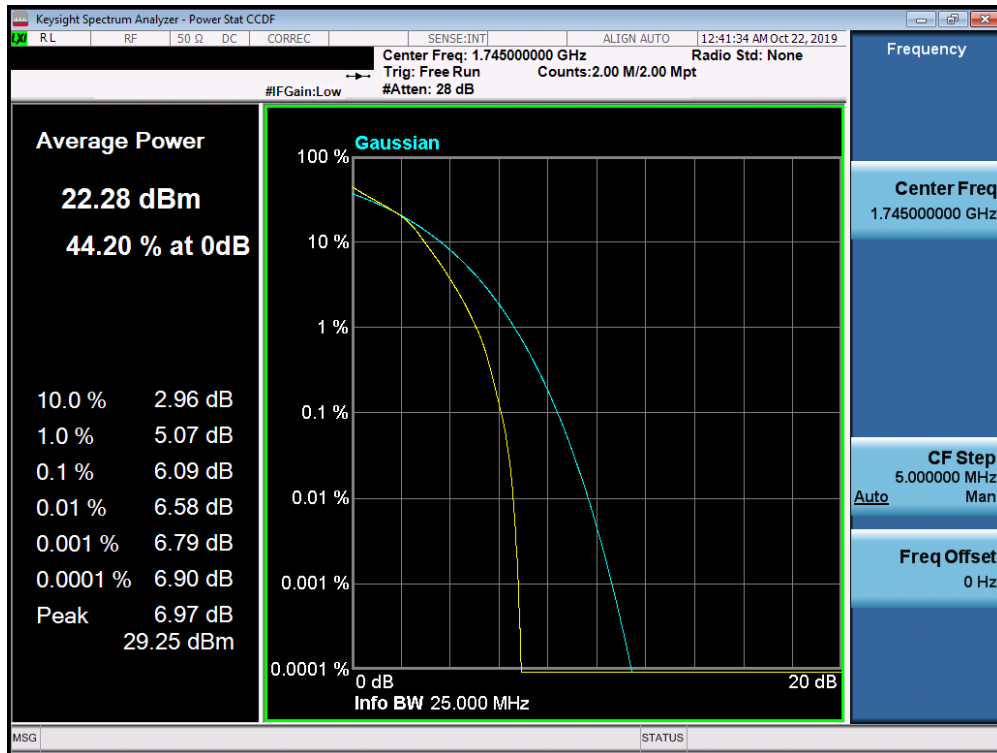


Plot 7-170. PAR Plot (Band 4 - 15.0MHz 64-QAM - Full RB Configuration)

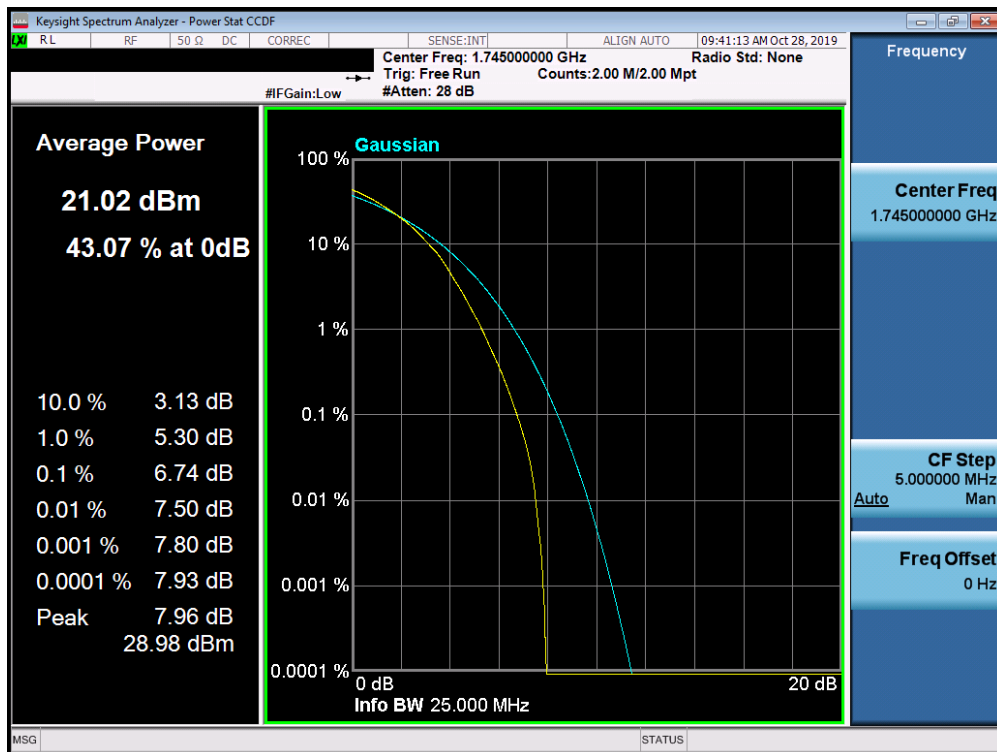


Plot 7-171. PAR Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 105 of 138



Plot 7-172. PAR Plot (Band 4 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-173. PAR Plot (Band 4 - 20.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 106 of 138

7.6 Radiated Power (ERP/EIRP)

Test Overview

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

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.2.1

ANSI/TIA-603-E-2016 – Section 2.2.17

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation. For signals with burst transmission, the signal analyzer's "time domain power" measurement capability is used
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW $\geq 3 \times$ RBW
4. Span = 1.5 times the OBW
5. No. of sweep points $\geq 2 \times$ span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto". Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the "gating" function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

FCC ID: A3LSMG986JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Test Setup

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

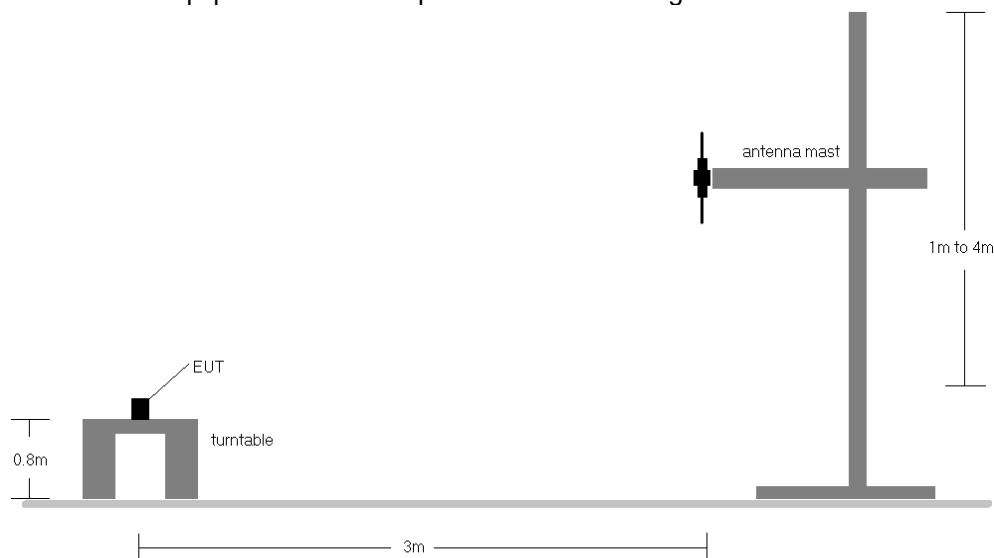


Figure 7-5. Radiated Test Setup <1GHz

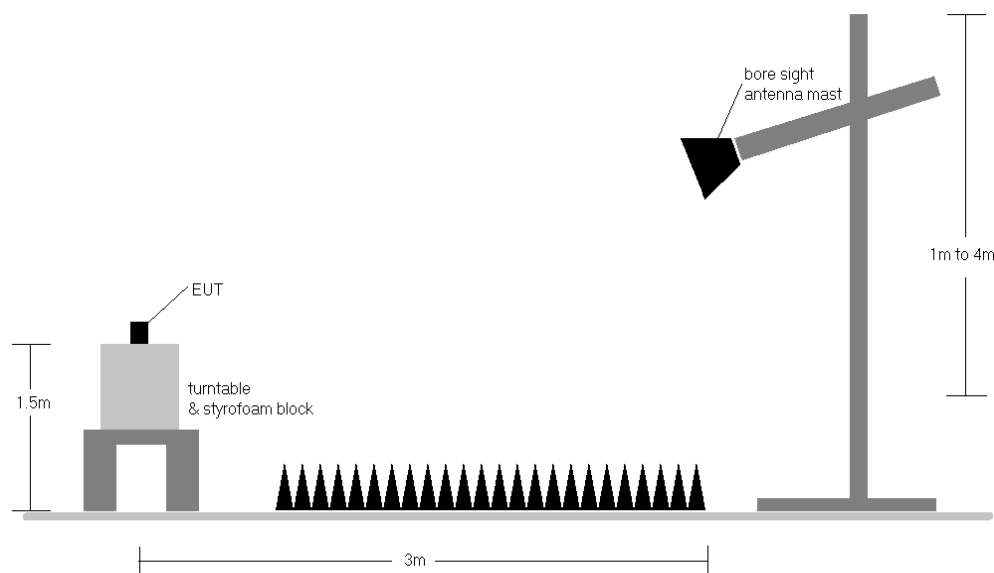


Figure 7-6. Radiated Test Setup >1GHz

Test Notes

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

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	H	141	301	1 / 2	14.50	3.40	15.75	0.038	34.77	-19.02	17.90	0.062	36.99	-19.09
707.50	1.4	QPSK	H	152	311	1 / 5	14.24	3.65	15.74	0.037	34.77	-19.03	17.89	0.062	36.99	-19.10
715.30	1.4	QPSK	H	148	300	1 / 2	14.17	3.70	15.72	0.037	34.77	-19.05	17.87	0.061	36.99	-19.12
699.70	1.4	16-QAM	H	141	301	1 / 2	13.93	3.40	15.18	0.033	34.77	-19.59	17.33	0.054	36.99	-19.66
707.50	1.4	64-QAM	H	152	311	1 / 5	12.54	3.65	14.04	0.025	34.77	-20.73	16.19	0.042	36.99	-20.80
700.50	3	QPSK	H	155	279	1 / 0	14.51	3.40	15.76	0.038	34.77	-19.01	17.91	0.062	36.99	-19.08
707.50	3	QPSK	H	146	310	1 / 14	14.32	3.65	15.82	0.038	34.77	-18.95	17.97	0.063	36.99	-19.02
714.50	3	QPSK	H	159	312	1 / 7	14.34	3.70	15.89	0.039	34.77	-18.88	18.04	0.064	36.99	-18.95
714.50	3	16-QAM	H	159	312	1 / 7	13.38	3.70	14.93	0.031	34.77	-19.84	17.08	0.051	36.99	-19.91
714.50	3	64-QAM	H	159	312	1 / 7	12.51	3.70	14.06	0.025	34.77	-20.71	16.21	0.042	36.99	-20.78
701.50	5	QPSK	H	144	289	1 / 12	14.48	3.40	15.73	0.037	34.77	-19.04	17.88	0.061	36.99	-19.11
707.50	5	QPSK	H	150	322	1 / 12	14.21	3.65	15.71	0.037	34.77	-19.06	17.86	0.061	36.99	-19.13
713.50	5	QPSK	H	148	289	1 / 12	14.41	3.70	15.96	0.039	34.77	-18.81	18.11	0.065	36.99	-18.88
701.50	5	16-QAM	H	144	289	1 / 12	13.96	3.40	15.21	0.033	34.77	-19.56	17.36	0.054	36.99	-19.63
713.50	5	64-QAM	H	148	289	1 / 12	12.71	3.70	14.26	0.027	34.77	-20.51	16.41	0.044	36.99	-20.58
704.00	10	QPSK	H	139	289	1 / 25	14.92	3.50	16.27	0.042	34.77	-18.50	18.42	0.070	36.99	-18.57
707.50	10	QPSK	H	142	300	1 / 0	15.03	3.65	16.53	0.045	34.77	-18.24	18.68	0.074	36.99	-18.31
711.00	10	QPSK	H	152	299	1 / 0	14.67	3.70	16.22	0.042	34.77	-18.55	18.37	0.069	36.99	-18.62
707.50	10	16-QAM	H	142	300	1 / 0	14.27	3.65	15.77	0.038	34.77	-19.00	17.92	0.062	36.99	-19.07
707.50	10	64-QAM	H	142	300	1 / 0	13.17	3.65	14.67	0.029	34.77	-20.10	16.82	0.048	36.99	-20.17
707.50	10	QPSK	V	169	298	1 / 0	13.63	4.60	16.08	0.041	34.77	-18.69	18.23	0.067	36.99	-18.76
707.50	10 (WCP)	QPSK	V	163	109	1 / 0	10.58	4.60	13.03	0.020	34.77	-21.74	15.18	0.033	36.99	-21.81

Table 7-3. ERP Data (Band 12)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
779.50	5	QPSK	V	173	299	1 / 24	12.62	5.70	16.17	0.041	34.77	-18.60	18.32	0.068	36.99	-18.67
782.00	5	QPSK	V	155	280	1 / 24	12.59	5.80	16.24	0.042	34.77	-18.53	18.39	0.069	36.99	-18.60
784.50	5	QPSK	V	171	289	1 / 0	12.63	5.80	16.28	0.042	34.77	-18.49	18.43	0.070	36.99	-18.56
779.50	5	16-QAM	V	173	299	1 / 24	12.05	5.70	15.60	0.036	34.77	-19.17	17.75	0.060	36.99	-19.24
784.50	5	64-QAM	V	171	289	1 / 0	11.55	5.80	15.20	0.033	34.77	-19.57	17.35	0.054	36.99	-19.64
782.00	10	QPSK	V	169	289	1 / 0	13.09	5.80	16.74	0.047	34.77	-18.03	18.89	0.077	36.99	-18.10
782.00	10	16-QAM	V	169	289	1 / 0	12.36	5.80	16.01	0.040	34.77	-18.76	18.16	0.065	36.99	-18.83
782.00	10	64-QAM	V	169	289	1 / 0	11.26	5.80	14.91	0.031	34.77	-19.86	17.06	0.051	36.99	-19.93
782.00	10	QPSK	H	101	290	1 / 0	12.64	5.80	16.29	0.043	34.77	-18.48	18.44	0.070	36.99	-18.55
782.00	10 (WCP)	QPSK	H	144	164	1 / 0	8.76	5.80	12.41	0.017	34.77	-22.36	14.56	0.029	36.99	-22.43

Table 7-4. ERP Data (Band 13)

FCC ID: A3LSMG986JPN	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset	Page 109 of 138

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	V	116	261	1 / 5	12.30	6.30	16.45	0.044	38.45	-22.00	18.60	0.072	40.61	-22.01
836.50	1.4	QPSK	V	156	211	1 / 2	12.30	6.40	16.47	0.044	38.45	-21.98	18.62	0.073	40.61	-21.99
848.30	1.4	QPSK	V	155	247	1 / 5	12.30	6.50	16.39	0.044	38.45	-22.06	18.54	0.071	40.61	-22.07
836.50	1.4	16-QAM	V	156	211	1 / 2	12.30	6.40	15.77	0.038	38.45	-22.68	17.92	0.062	40.61	-22.69
824.70	1.4	64-QAM	V	116	261	1 / 5	12.30	6.30	14.77	0.030	38.45	-23.68	16.92	0.049	40.61	-23.69
825.50	3	QPSK	V	146	253	1 / 7	12.30	6.30	16.49	0.045	38.45	-21.96	18.64	0.073	40.61	-21.97
836.50	3	QPSK	V	146	255	1 / 14	12.30	6.40	16.53	0.045	38.45	-21.92	18.68	0.074	40.61	-21.93
847.50	3	QPSK	V	156	253	1 / 7	12.30	6.50	16.41	0.044	38.45	-22.04	18.56	0.072	40.61	-22.05
836.50	3	16-QAM	V	146	255	1 / 14	12.30	6.40	15.78	0.038	38.45	-22.67	17.93	0.062	40.61	-22.68
825.50	3	64-QAM	V	146	253	1 / 7	12.30	6.30	14.76	0.030	38.45	-23.69	16.91	0.049	40.61	-23.70
826.50	5	QPSK	V	141	250	1 / 24	12.30	6.30	16.60	0.046	38.45	-21.85	18.75	0.075	40.61	-21.86
836.50	5	QPSK	V	136	236	1 / 24	12.30	6.40	16.39	0.044	38.45	-22.06	18.54	0.071	40.61	-22.07
846.50	5	QPSK	V	155	251	1 / 0	12.30	6.50	16.39	0.044	38.45	-22.06	18.54	0.071	40.61	-22.07
826.50	5	16-QAM	V	141	250	1 / 24	12.30	6.30	15.97	0.040	38.45	-22.48	18.12	0.065	40.61	-22.49
826.50	5	64-QAM	V	141	250	1 / 24	12.30	6.30	14.87	0.031	38.45	-23.58	17.02	0.050	40.61	-23.59
829.00	10	QPSK	V	136	247	1 / 49	12.85	6.30	17.00	0.050	38.45	-21.45	19.15	0.082	40.61	-21.46
836.50	10	QPSK	V	142	248	1 / 25	12.97	6.40	17.22	0.053	38.45	-21.23	19.37	0.086	40.61	-21.24
844.00	10	QPSK	V	147	248	1 / 0	12.85	6.40	17.10	0.051	38.45	-21.35	19.25	0.084	40.61	-21.36
836.50	10	16-QAM	V	142	248	1 / 25	12.15	6.40	16.40	0.044	38.45	-22.05	18.55	0.072	40.61	-22.06
836.50	10	64-QAM	V	142	248	1 / 25	11.21	6.40	15.46	0.035	38.45	-22.99	17.61	0.058	40.61	-23.00
836.50	10	QPSK	H	224	287	1 / 25	11.11	6.40	15.36	0.034	38.45	-23.09	17.51	0.056	40.61	-23.10
836.50	10 (WCP)	QPSK	V	136	156	1 / 25	7.85	6.40	12.10	0.016	38.45	-26.35	14.25	0.027	40.61	-26.36

Table 7-5. ERP Data (Band 5)

FCC ID: A3LSMG986JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset	Page 110 of 138	

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	V	151	14	1 / 5	12.30	9.35	21.65	0.146	30.00	-8.35
1732.50	1.4	QPSK	V	136	15	1 / 0	12.55	9.20	21.75	0.150	30.00	-8.25
1754.30	1.4	QPSK	V	137	29	1 / 2	12.81	9.09	21.90	0.155	30.00	-8.10
1754.30	1.4	16-QAM	V	137	29	1 / 2	11.50	9.09	20.59	0.115	30.00	-9.41
1754.30	1.4	64-QAM	V	137	29	1 / 2	10.62	9.09	19.71	0.094	30.00	-10.29
1711.50	3	QPSK	V	151	14	1 / 14	12.52	9.34	21.86	0.153	30.00	-8.14
1732.50	3	QPSK	V	136	15	1 / 0	12.71	9.20	21.91	0.155	30.00	-8.09
1753.50	3	QPSK	V	137	29	1 / 7	12.56	9.09	21.65	0.146	30.00	-8.35
1732.50	3	16-QAM	V	136	15	1 / 0	11.92	9.20	21.12	0.129	30.00	-8.88
1732.50	3	64-QAM	V	136	15	1 / 0	10.70	9.20	19.90	0.098	30.00	-10.10
1712.50	5	QPSK	V	151	14	1 / 12	12.56	9.34	21.90	0.155	30.00	-8.10
1732.50	5	QPSK	V	136	15	1 / 0	12.82	9.20	22.02	0.159	30.00	-7.98
1752.50	5	QPSK	V	137	29	1 / 12	12.92	9.08	22.00	0.158	30.00	-8.00
1732.50	5	16-QAM	V	136	15	1 / 0	12.19	9.20	21.39	0.138	30.00	-8.61
1712.50	5	64-QAM	V	151	14	1 / 12	10.78	9.34	20.12	0.103	30.00	-9.88
1715.00	10	QPSK	V	151	14	1 / 0	12.40	9.32	21.72	0.149	30.00	-8.28
1732.50	10	QPSK	V	136	15	1 / 50	12.81	9.20	22.01	0.159	30.00	-7.99
1750.00	10	QPSK	V	137	29	1 / 50	12.84	9.07	21.91	0.155	30.00	-8.09
1732.50	10	16-QAM	V	136	15	1 / 50	12.17	9.20	21.37	0.137	30.00	-8.63
1732.50	10	64-QAM	V	136	15	1 / 50	11.23	9.20	20.43	0.110	30.00	-9.57
1717.50	15	QPSK	V	151	14	1 / 74	12.97	9.30	22.27	0.169	30.00	-7.73
1732.50	15	QPSK	V	136	15	1 / 36	13.20	9.20	22.40	0.174	30.00	-7.60
1747.50	15	QPSK	V	137	29	1 / 36	13.17	9.09	22.26	0.168	30.00	-7.74
1717.50	15	16-QAM	V	151	14	1 / 74	12.07	9.30	21.37	0.137	30.00	-8.63
1732.50	15	64-QAM	V	136	15	1 / 36	11.18	9.20	20.38	0.109	30.00	-9.62
1720.00	20	QPSK	V	151	14	1 / 25	13.21	9.28	22.49	0.178	30.00	-7.51
1732.50	20	QPSK	V	136	15	1 / 25	13.19	9.20	22.39	0.173	30.00	-7.61
1745.00	20	QPSK	V	137	29	1 / 0	12.89	9.11	22.00	0.158	30.00	-8.00
1720.00	20	16-QAM	V	151	14	1 / 25	12.50	9.28	21.78	0.151	30.00	-8.22
1720.00	20	64-QAM	V	151	14	1 / 25	11.50	9.28	20.78	0.120	30.00	-9.22
1720.00	20	QPSK	H	360	301	1 / 25	12.69	9.20	21.89	0.154	30.00	-8.11
1720.00	20 (WCP)	QPSK	V	161	229	1 / 25	11.99	9.20	21.19	0.131	30.00	-8.81

Table 7-6. EIRP Data (Band 4)

FCC ID: A3LSMG986JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset	Page 111 of 138	

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	H	159	231	1 / 12	14.61	9.43	24.04	0.254	33.01	-8.97
2593.00	5	QPSK	H	143	249	1 / 24	14.45	9.55	24.00	0.251	33.01	-9.01
2687.50	5	QPSK	H	123	210	1 / 24	14.02	9.82	23.84	0.242	33.01	-9.17
2498.50	5	16-QAM	H	159	231	1 / 12	13.75	9.43	23.18	0.208	33.01	-9.83
2498.50	5	64-QAM	H	159	231	1 / 12	12.69	9.43	22.12	0.163	33.01	-10.89
2501.00	10	QPSK	H	160	243	1 / 49	14.64	9.43	24.07	0.255	33.01	-8.94
2593.00	10	QPSK	H	121	241	1 / 25	14.42	9.55	23.97	0.249	33.01	-9.04
2685.00	10	QPSK	H	119	229	1 / 25	14.22	9.82	24.04	0.254	33.01	-8.97
2501.00	10	16-QAM	H	160	243	1 / 49	13.16	9.43	22.59	0.182	33.01	-10.42
2501.00	10	64-QAM	H	160	243	1 / 49	12.13	9.43	21.56	0.143	33.01	-11.45
2503.50	15	QPSK	H	151	240	1 / 0	14.57	9.43	24.00	0.251	33.01	-9.01
2593.00	15	QPSK	H	116	231	1 / 36	14.41	9.55	23.96	0.249	33.01	-9.05
2682.50	15	QPSK	H	116	218	1 / 36	14.12	9.83	23.95	0.248	33.01	-9.06
2503.50	15	16-QAM	H	151	240	1 / 0	13.84	9.43	23.27	0.212	33.01	-9.74
2503.50	15	64-QAM	H	151	240	1 / 0	12.60	9.43	22.03	0.160	33.01	-10.98
2506.00	20	QPSK	H	147	223	1 / 50	14.65	9.42	24.07	0.256	33.01	-8.94
2593.00	20	QPSK	H	112	226	1 / 0	14.05	9.55	23.60	0.229	33.01	-9.41
2680.00	20	QPSK	H	114	229	1 / 50	13.79	9.83	23.62	0.230	33.01	-9.39
2680.00	20	16-QAM	H	114	229	1 / 50	13.00	9.83	22.83	0.192	33.01	-10.18
2593.00	20	64-QAM	H	112	226	1 / 0	12.45	9.55	22.00	0.159	33.01	-11.01
20.00	QPSK	H	V	153	320	1 / 50	13.78	9.42	23.20	0.209	33.01	-9.81
20.00	QPSK (WCP)	H	V	162	222	1 / 50	14.12	9.42	23.54	0.226	33.01	-9.47

Table 7-7. EIRP Data (Band 41 – PC3)

FCC ID: A3LSMG986JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 112 of 138

7.7 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas.

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.8

ANSI/TIA-603-E-2016 – Section 2.2.12

Test Settings

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

FCC ID: A3LSMG986JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 113 of 138

Test Setup

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

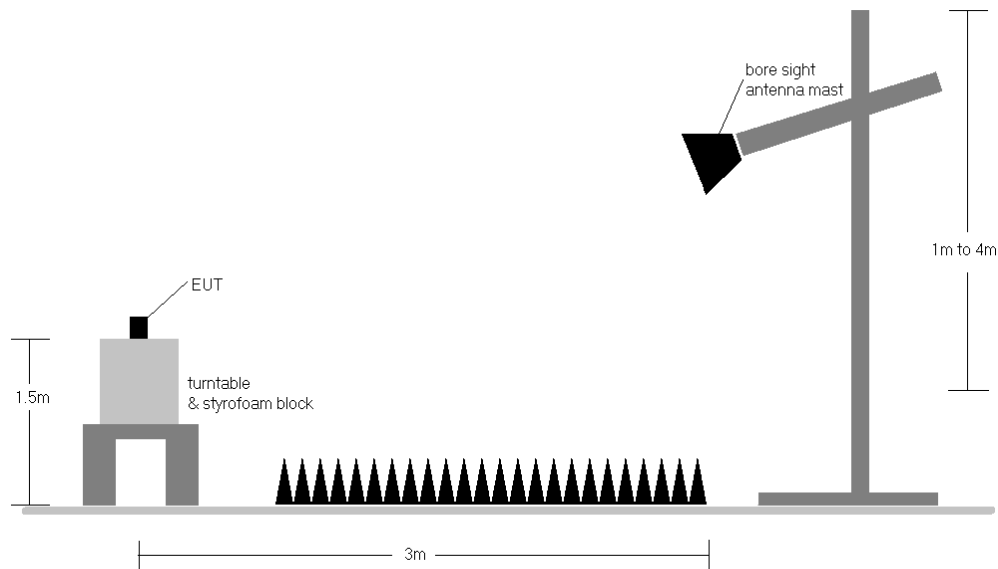


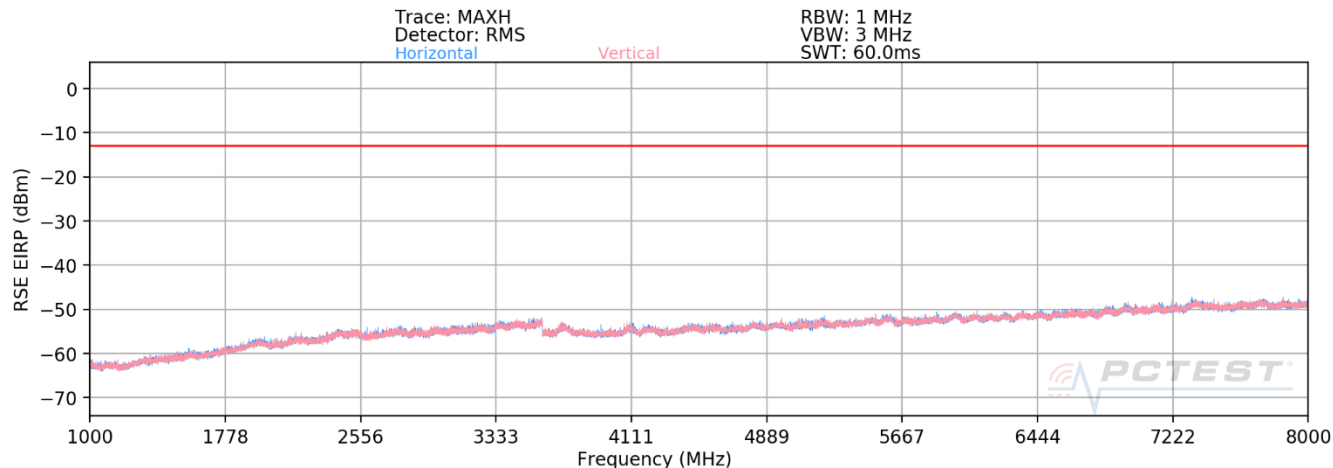
Figure 7-7. Test Instrument & Measurement Setup

Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 4) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 5) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

FCC ID: A3LSMG986JPN	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 114 of 138

Band 12



Plot 7-174. Radiated Spurious Plot above 1GHz (Band 12)

OPERATING FREQUENCY: 704.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1408.00	H	-	-	-61.98	2.71	-59.27	-46.3
2112.00	H	-	-	-59.27	3.57	-55.70	-42.7
2816.00	H	-	-	-58.81	4.98	-53.83	-40.8

Table 7-8. Radiated Spurious Data (Band 12 – Low Channel)

FCC ID: A3LSMG986JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 115 of 138

OPERATING FREQUENCY: 707.50 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1415.00	H	-	-	-62.83	2.80	-60.03	-47.0
2122.50	H	-	-	-60.04	3.57	-56.47	-43.5
2830.00	H	-	-	-58.85	5.02	-53.83	-40.8

Table 7-9. Radiated Spurious Data (Band 12 – Mid Channel)

OPERATING FREQUENCY: 711.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1422.00	H	-	-	-62.51	2.88	-59.62	-46.6
2133.00	H	-	-	-60.13	3.58	-56.55	-43.6
2844.00	H	-	-	-59.37	5.07	-54.30	-41.3

Table 7-10. Radiated Spurious Data (Band 12 – High Channel)

FCC ID: A3LSMG986JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 116 of 138

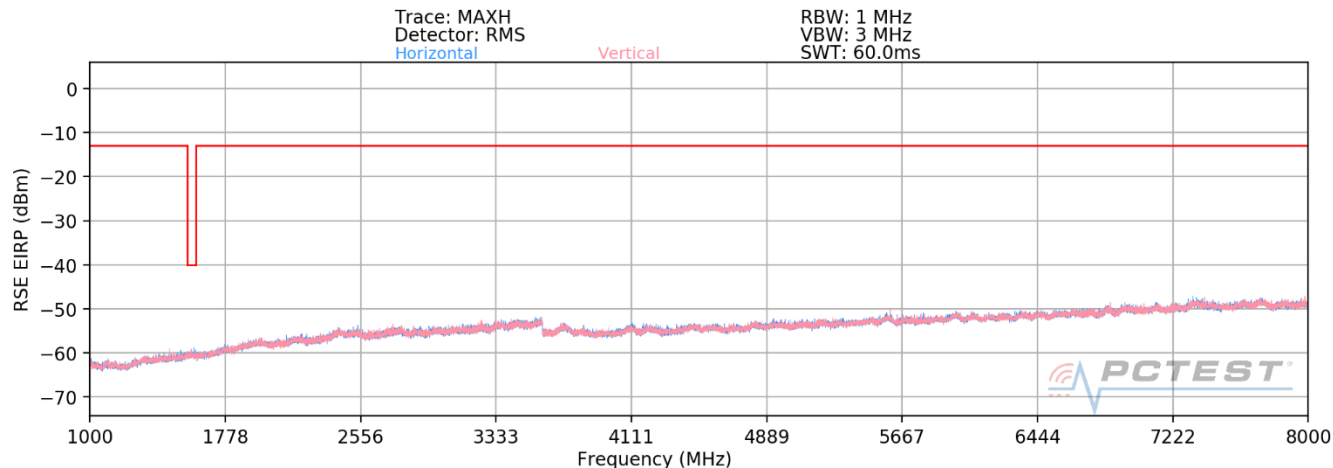
OPERATING FREQUENCY: 707.50 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1415.00	H	-	-	-63.99	2.80	-61.19	-48.2
2122.50	H	-	-	-60.16	3.57	-56.59	-43.6
2830.00	H	-	-	-59.12	5.02	-54.10	-41.1

Table 7-11. Radiated Spurious Data with WCP (Band 12 – Mid Channel)

FCC ID: A3LSMG986JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 117 of 138

Band 13



Plot 7-175. Radiated Spurious Plot above 1GHz (Band 13)

OPERATING FREQUENCY: 782.00 MHz

MODULATION SIGNAL: QPSK

BANDWIDTH: 10.0 MHz

DISTANCE: 3 meters

LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2346.00	V	161	262	-57.31	4.00	-53.30	-40.3
3128.00	V	-	-	-58.42	5.38	-53.03	-40.0
3910.00	V	-	-	-58.98	7.09	-51.89	-38.9

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

FCC ID: A3LSMG986JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 118 of 138

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	V	-	-	-62.46	3.53	-58.93	-18.9

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

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2346.00	V	149	244	-57.37	4.00	-53.36	-40.4
3128.00	V	-	-	-59.36	5.38	-53.97	-41.0
3910.00	V	-	-	-59.08	7.09	-51.99	-39.0

Table 7-14. Radiated Spurious Data with WCP (Band 13 – Mid Channel)

FCC ID: A3LSMG986JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2001240012-03.A3L	Test Dates: 10/11/2019 - 3/10/2020	EUT Type: Portable Handset		Page 119 of 138