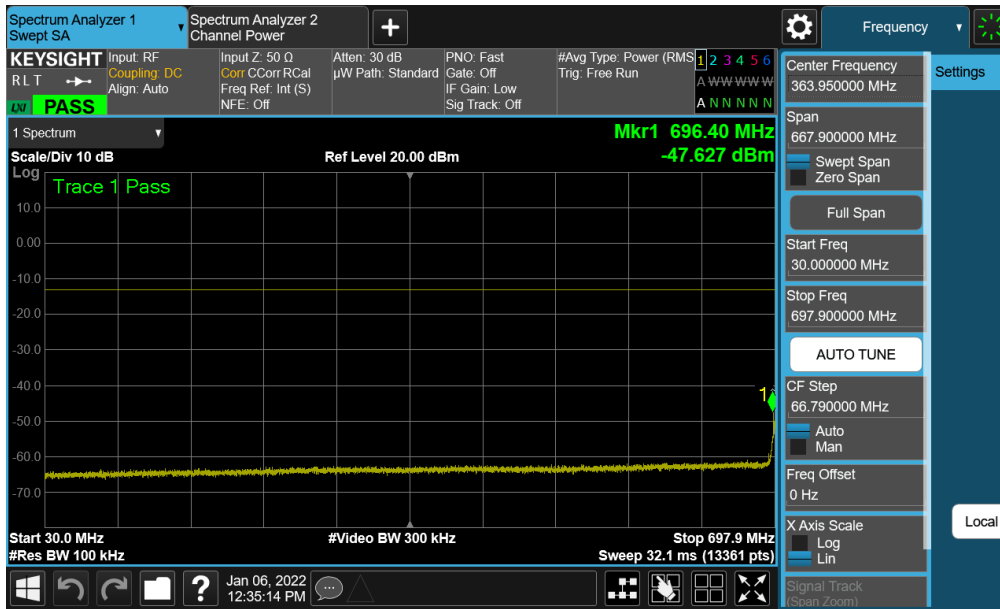


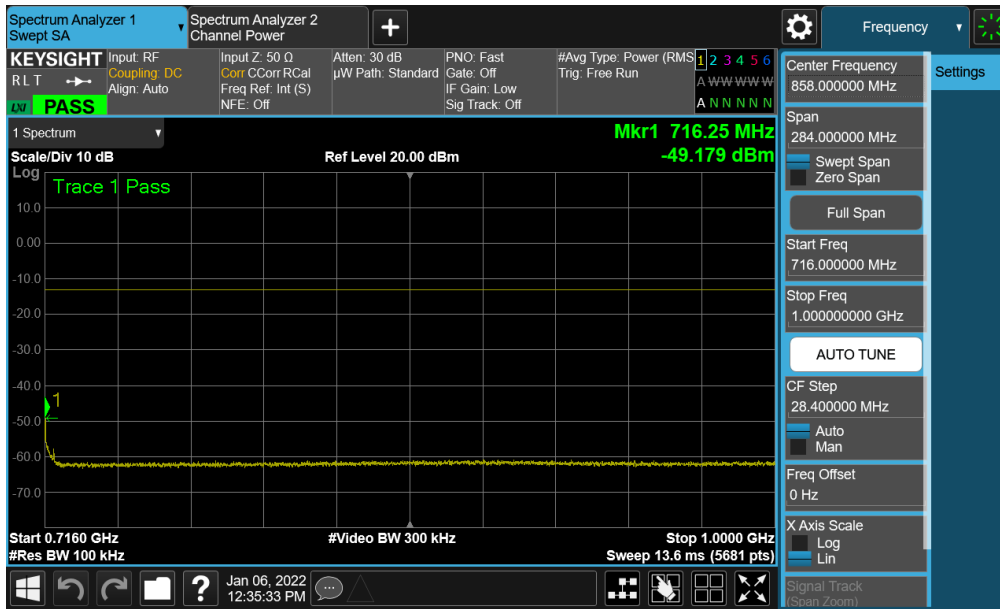
Plot 7-42. Conducted Spurious Plot (LTE Band 71 - 20MHz QPSK - 1 RB - High Channel)

FCC ID: A3LSMA135U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2112270166-04.A3L	Test Dates: 01/03/2022 - 01/26/2022	EUT Type: Portable Handset		Page 35 of 121

## LTE Band 12

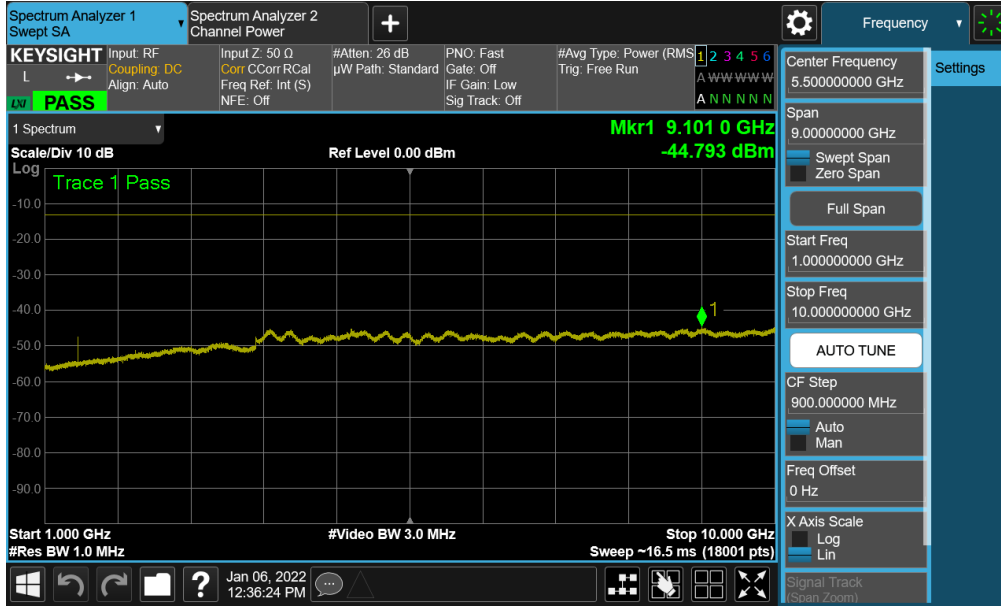


Plot 7-43. Conducted Spurious Plot (LTE Band 12 - 10MHz QPSK - 1 RB - Low Channel)

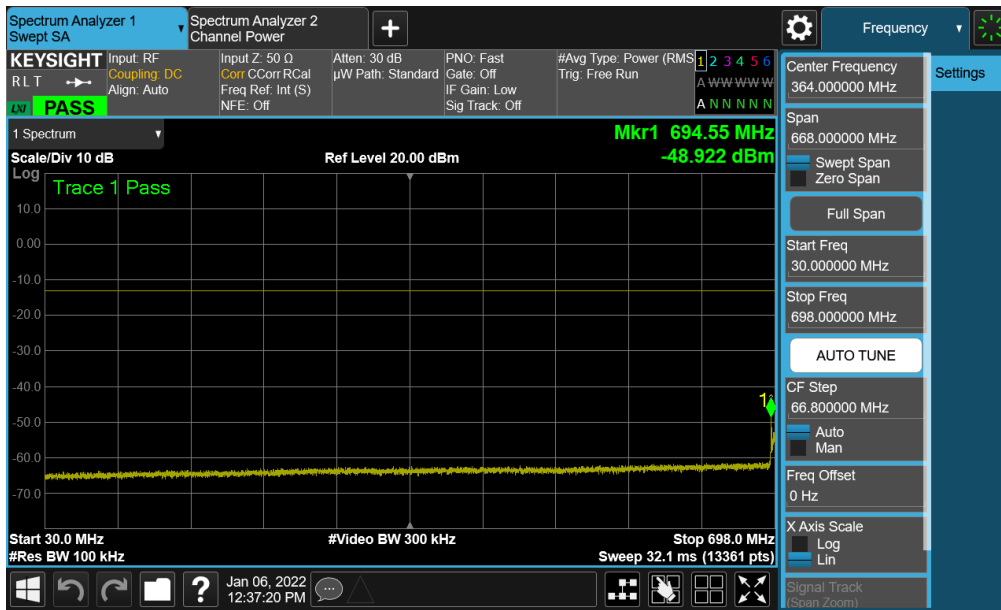


Plot 7-44. Conducted Spurious Plot (LTE Band 12 - 10MHz QPSK - 1 RB - Low Channel)

FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112270166-04.A3L	Test Dates: 01/03/2022 - 01/26/2022	EUT Type: Portable Handset		Page 36 of 121

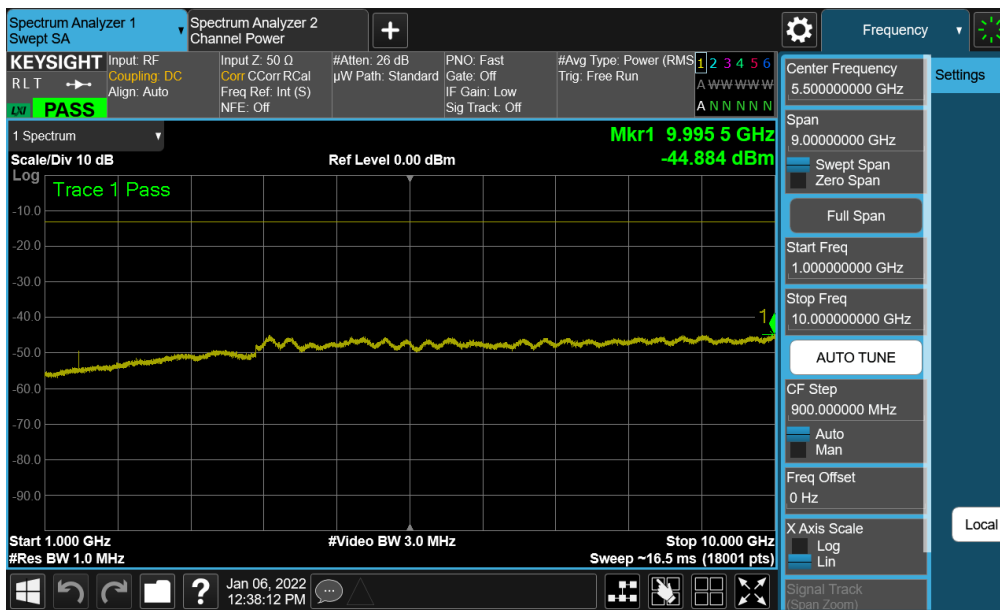
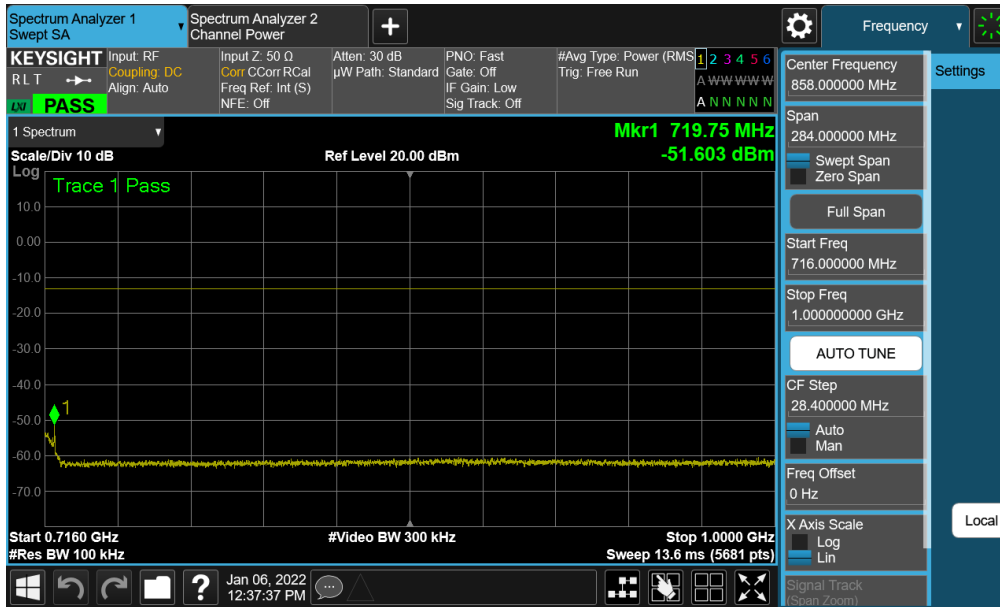


Plot 7-45. Conducted Spurious Plot (LTE Band 12 - 10MHz QPSK - 1 RB - Low Channel)

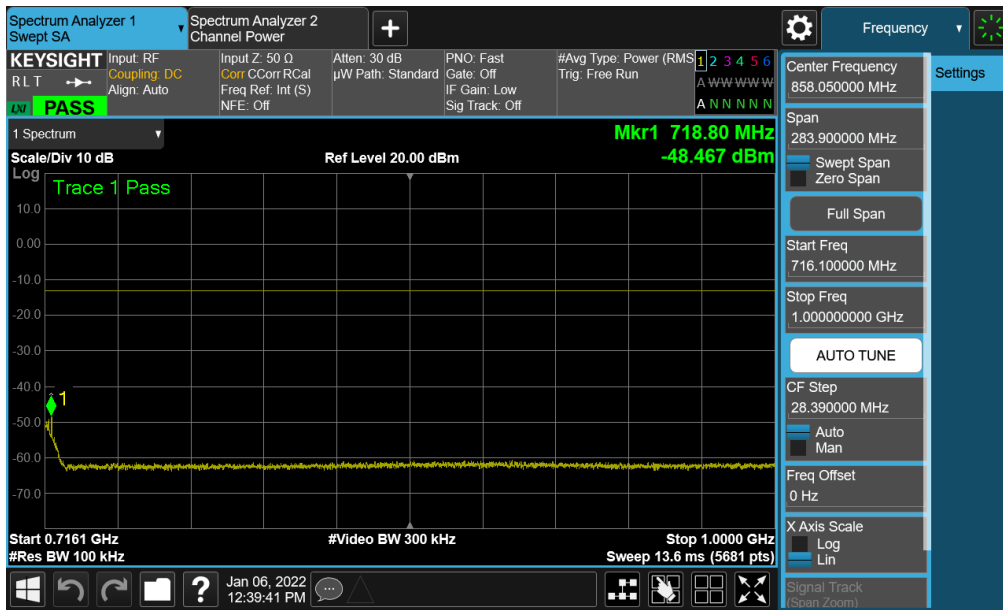
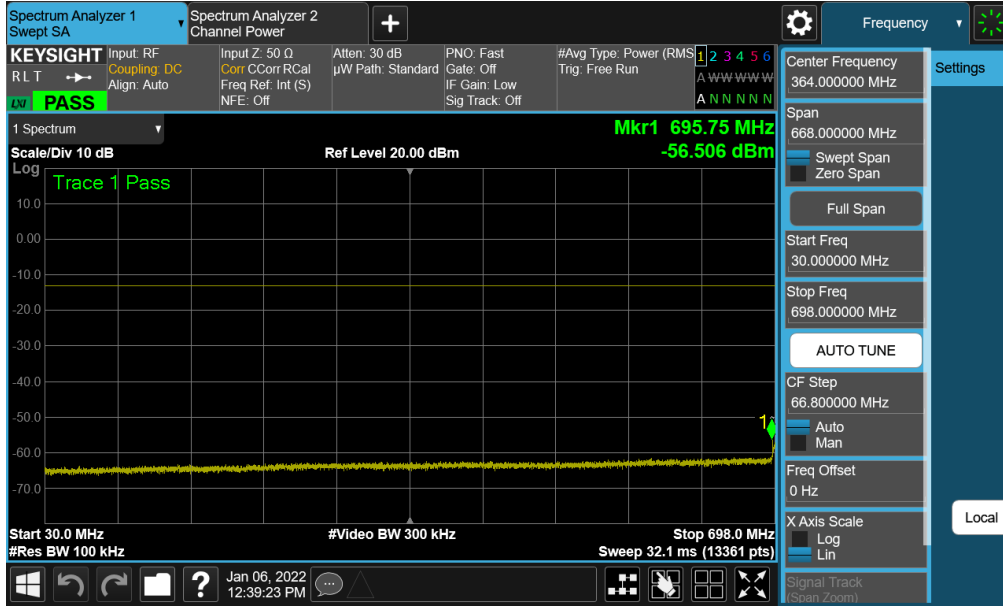


Plot 7-46. Conducted Spurious Plot (LTE Band 12 - 10MHz QPSK - 1 RB - Mid Channel)

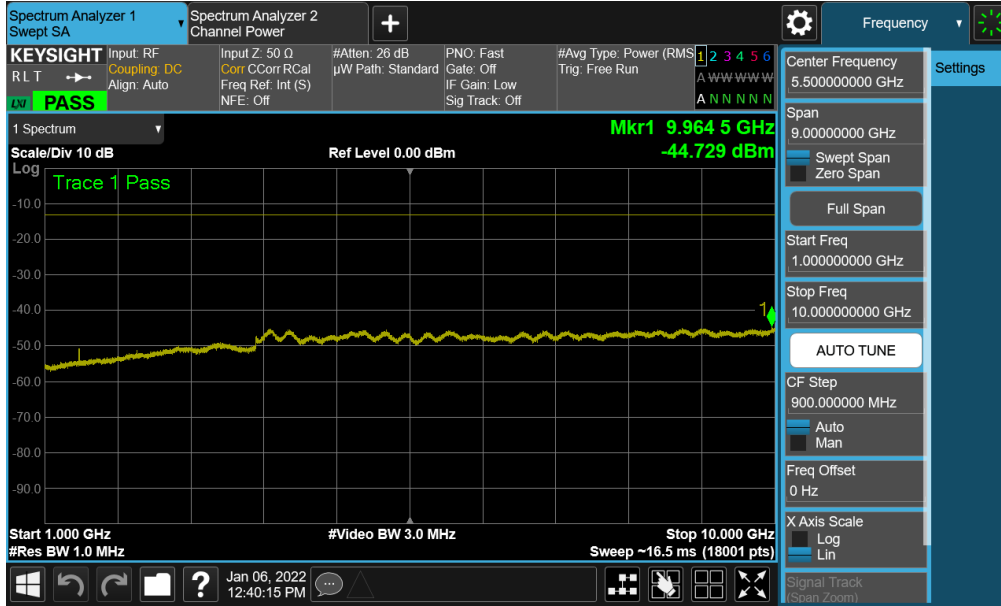
FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	PART 27 MEASUREMENT REPORT	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112270166-04.A3L	Test Dates: 01/03/2022 - 01/26/2022	EUT Type: Portable Handset		Page 37 of 121



FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112270166-04.A3L	Test Dates: 01/03/2022 - 01/26/2022	EUT Type: Portable Handset		Page 38 of 121



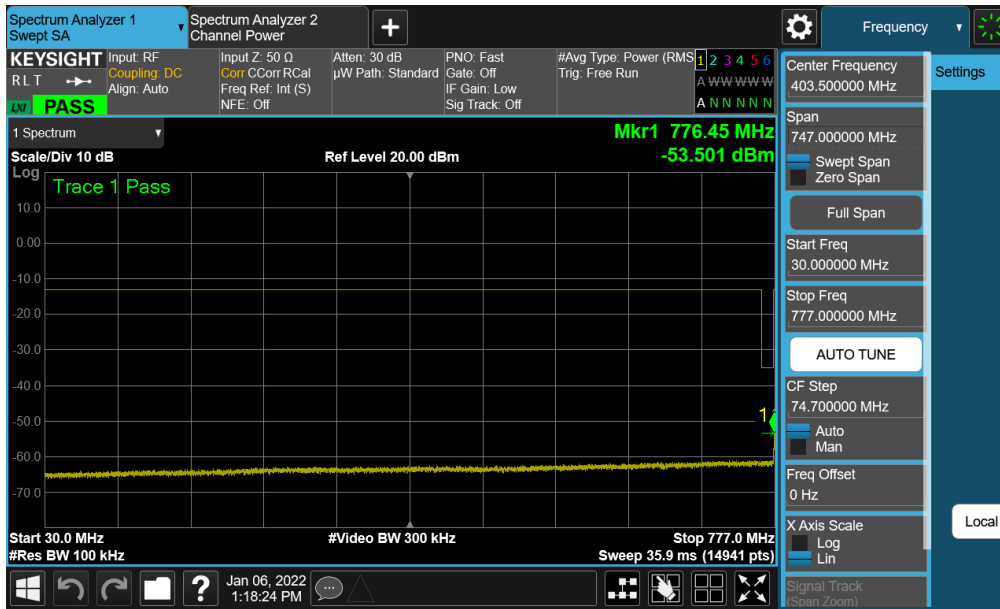
FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112270166-04.A3L	Test Dates: 01/03/2022 - 01/26/2022	EUT Type: Portable Handset		Page 39 of 121



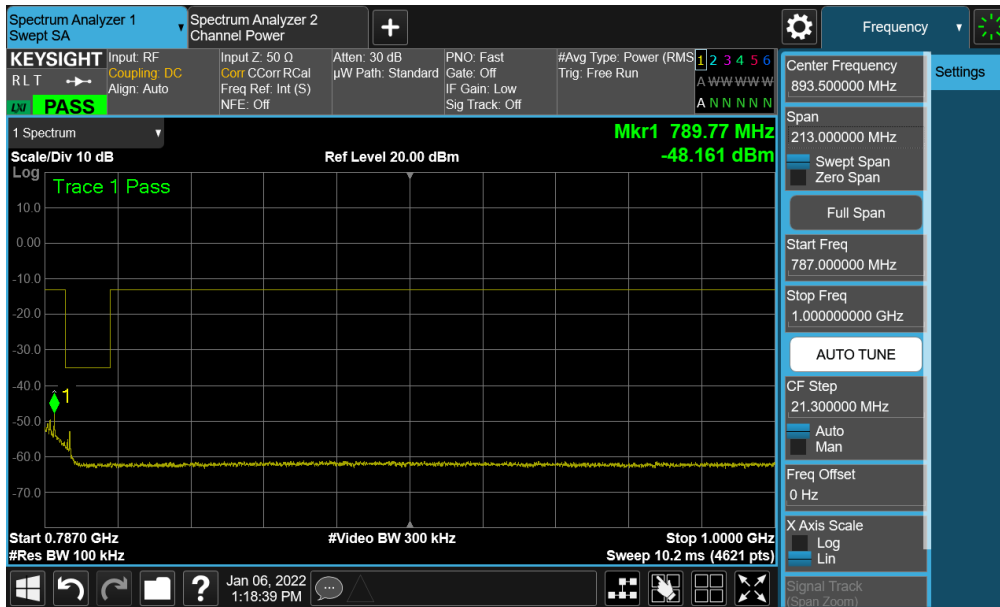
**Plot 7-51. Conducted Spurious Plot (LTE Band 12 - 10MHz QPSK - 1 RB - High Channel)**

<p>FCC ID: A3LSMA135U</p>		<p><b>PART 27 MEASUREMENT REPORT</b></p>	<p>Approved by: Technical Manager</p>
<p>Test Report S/N: 1M2112270166-04.A3L</p>	<p>Test Dates: 01/03/2022 - 01/26/2022</p>	<p>EUT Type: Portable Handset</p>	<p>Page 40 of 121</p>

## LTE Band 13



Plot 7-52. Conducted Spurious Plot (LTE Band 13 - 10MHz QPSK - 1 RB)





Plot 7-53. Conducted Spurious Plot (LTE Band 13 - 10MHz QPSK - 1 RB)

FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	PART 27 MEASUREMENT REPORT	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112270166-04.A3L	Test Dates: 01/03/2022 - 01/26/2022	EUT Type: Portable Handset		Page 41 of 121

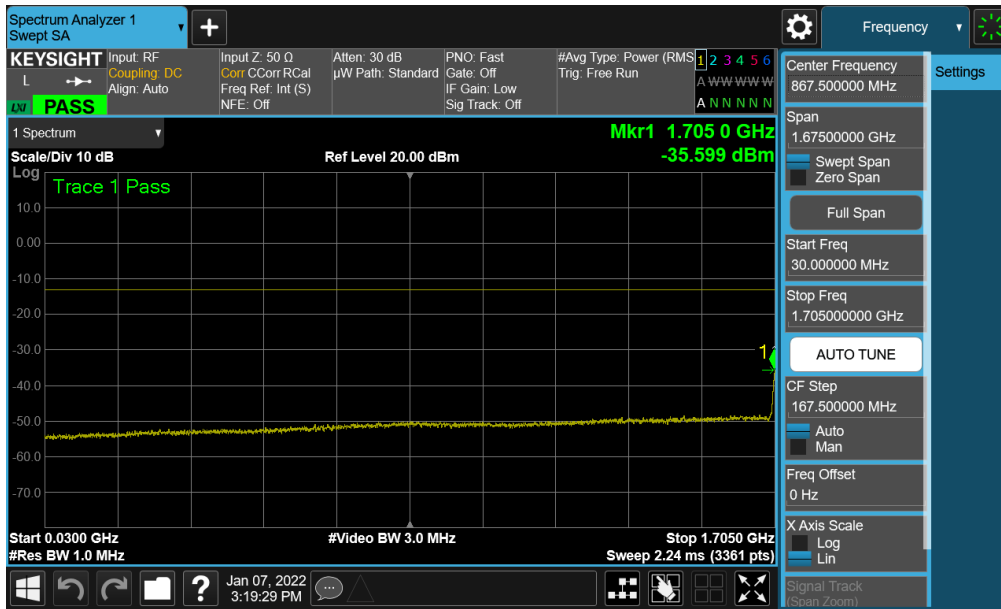


**Plot 7-54. Conducted Spurious Plot (LTE Band 13 - 10MHz QPSK - 1 RB)**

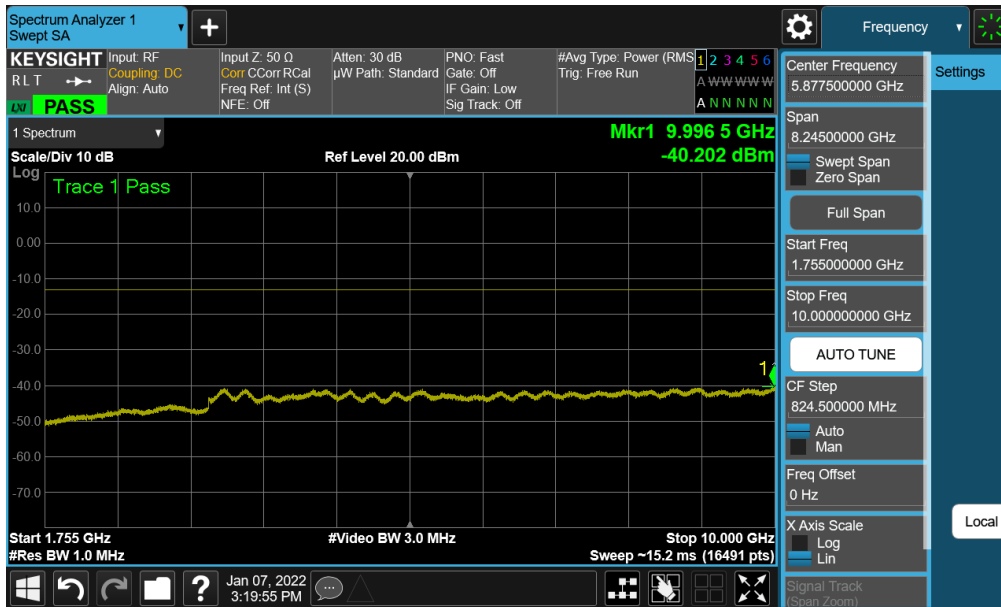
<b>FCC ID:</b> A3LSMA135U		<b>PART 27 MEASUREMENT REPORT</b>	 <b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2112270166-04.A3L	<b>Test Dates:</b> 01/03/2022 - 01/26/2022	<b>EUT Type:</b> Portable Handset	Page 42 of 121



# WCDMA AWS

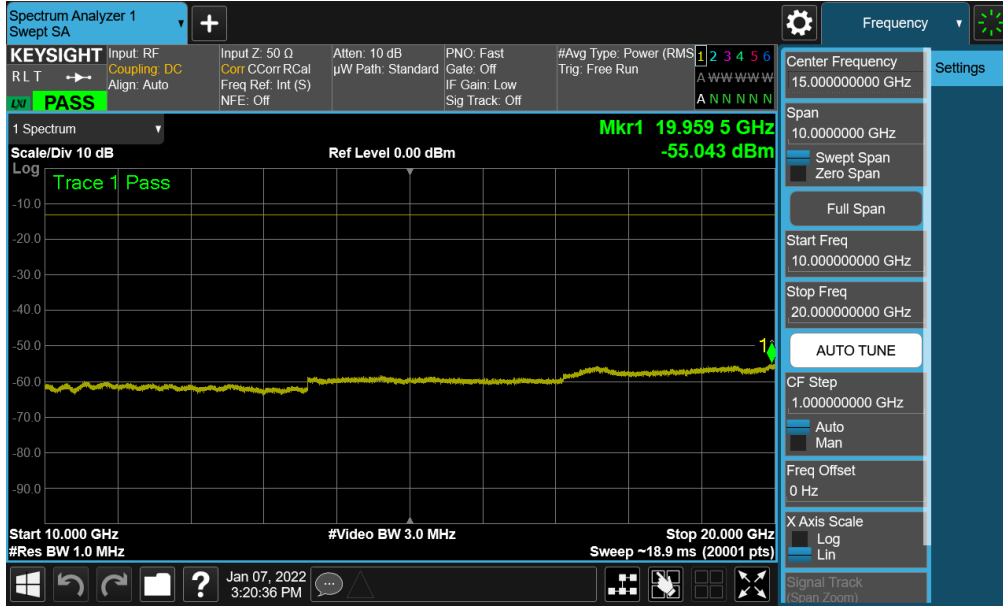


Plot 7-55. Conducted Spurious Plot (WCDMA Ch. 1312- Low Channel)

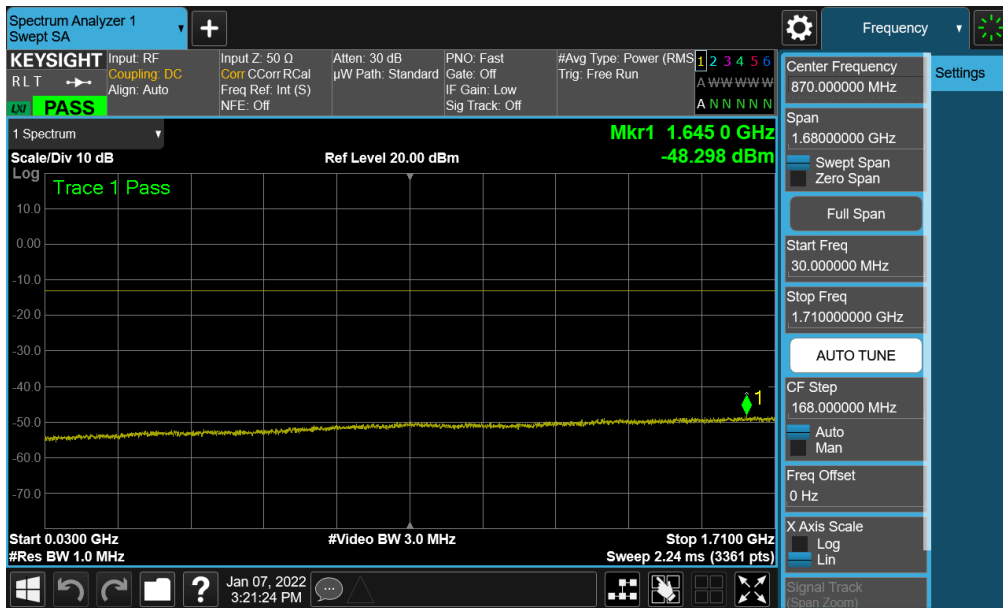


Plot 7-56. Conducted Spurious Plot (WCDMA Ch. 1312- Low Channel)

FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112270166-04.A3L	Test Dates: 01/03/2022 - 01/26/2022	EUT Type: Portable Handset		Page 43 of 121

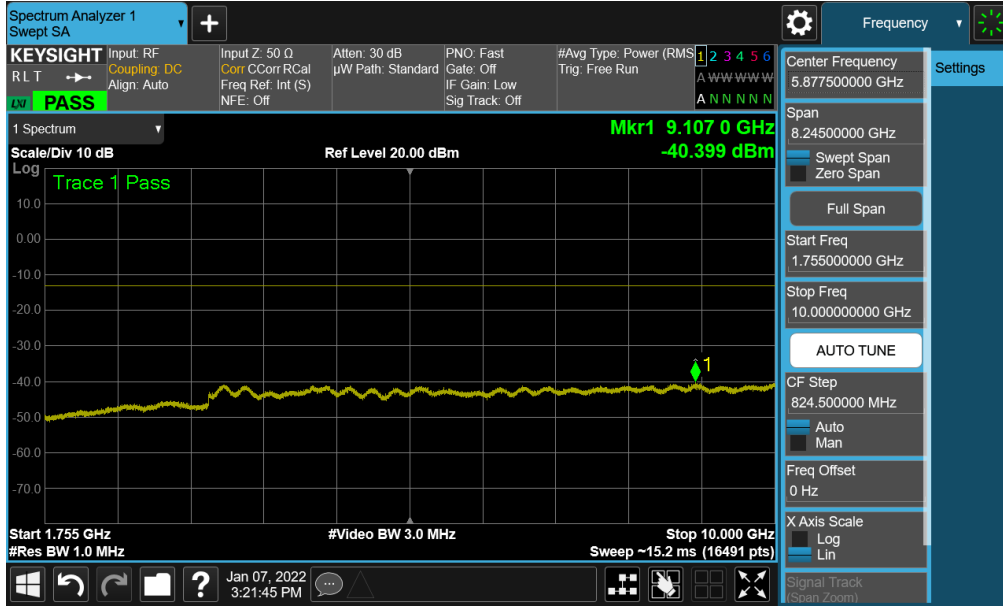


Plot 7-57. Conducted Spurious Plot (WCDMA Ch. 1312- Low Channel)

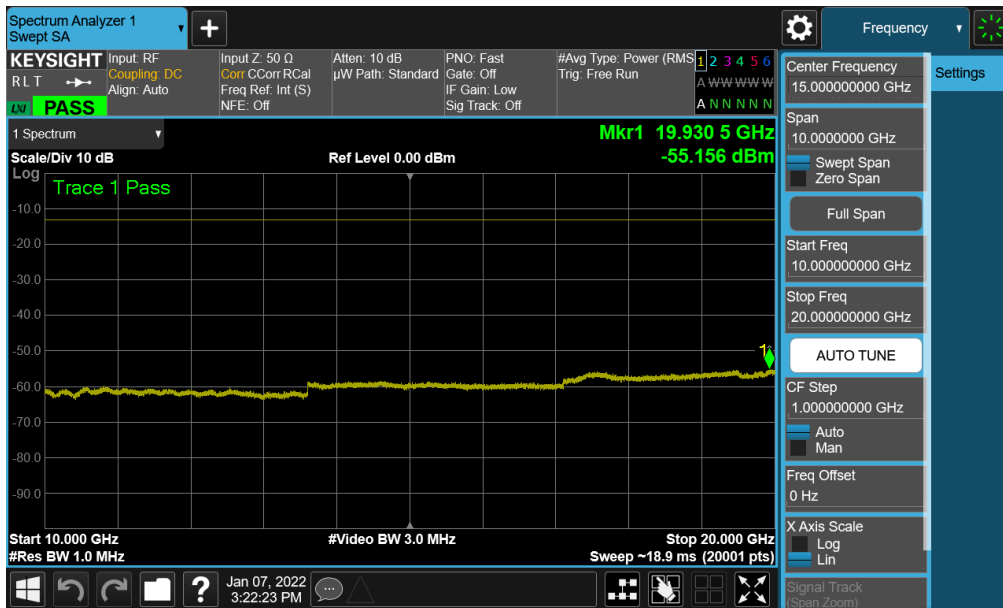


Plot 7-58. Conducted Spurious Plot (WCDMA Ch. 1413- Mid Channel)

FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112270166-04.A3L	Test Dates: 01/03/2022 - 01/26/2022	EUT Type: Portable Handset		Page 44 of 121



Plot 7-59. Conducted Spurious Plot (WCDMA Ch. 1413- Mid Channel)

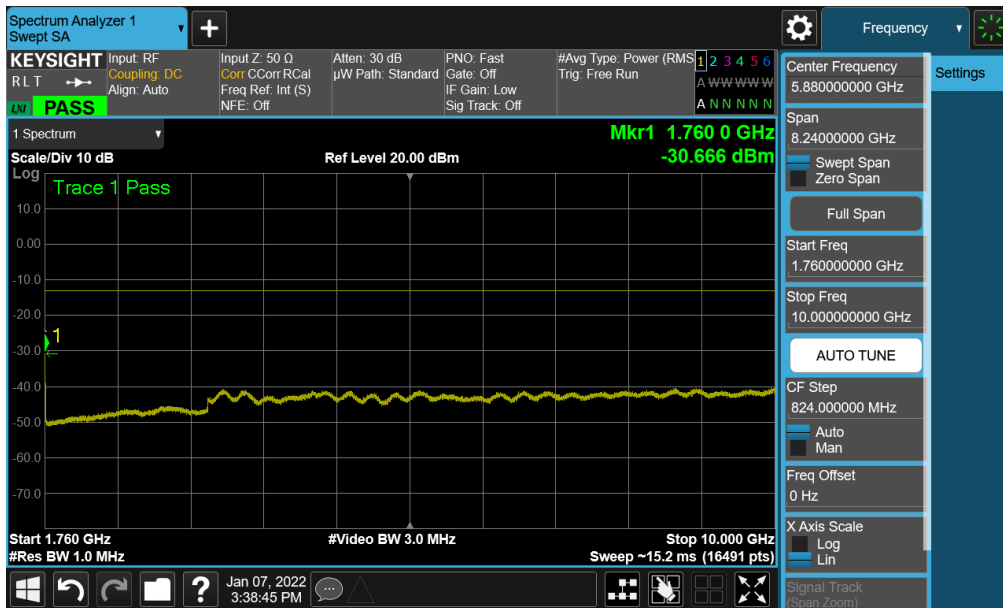


Plot 7-60. Conducted Spurious Plot (WCDMA Ch. 1413- Mid Channel)

FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112270166-04.A3L	Test Dates: 01/03/2022 - 01/26/2022	EUT Type: Portable Handset		Page 45 of 121

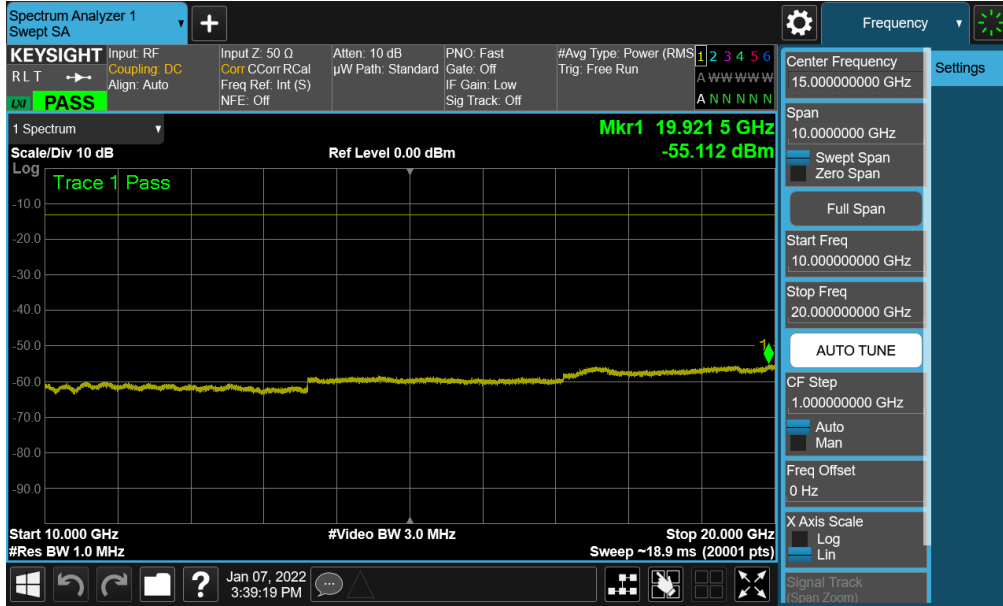


Plot 7-61. Conducted Spurious Plot (WCDMA Ch. 1513- High Channel)



Plot 7-62. Conducted Spurious Plot (WCDMA Ch. 1513- High Channel)

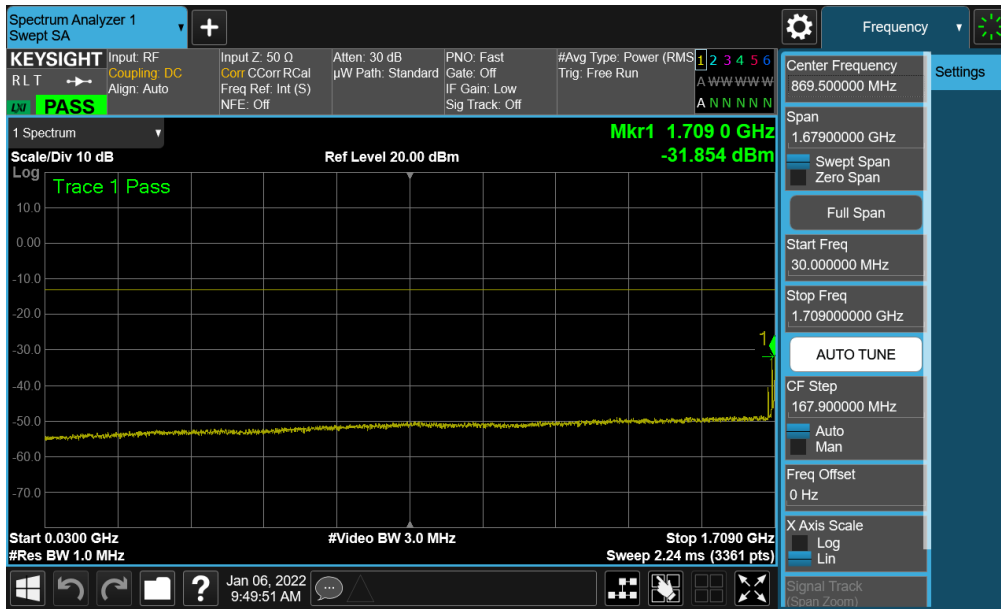
FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112270166-04.A3L	Test Dates: 01/03/2022 - 01/26/2022	EUT Type: Portable Handset		Page 46 of 121



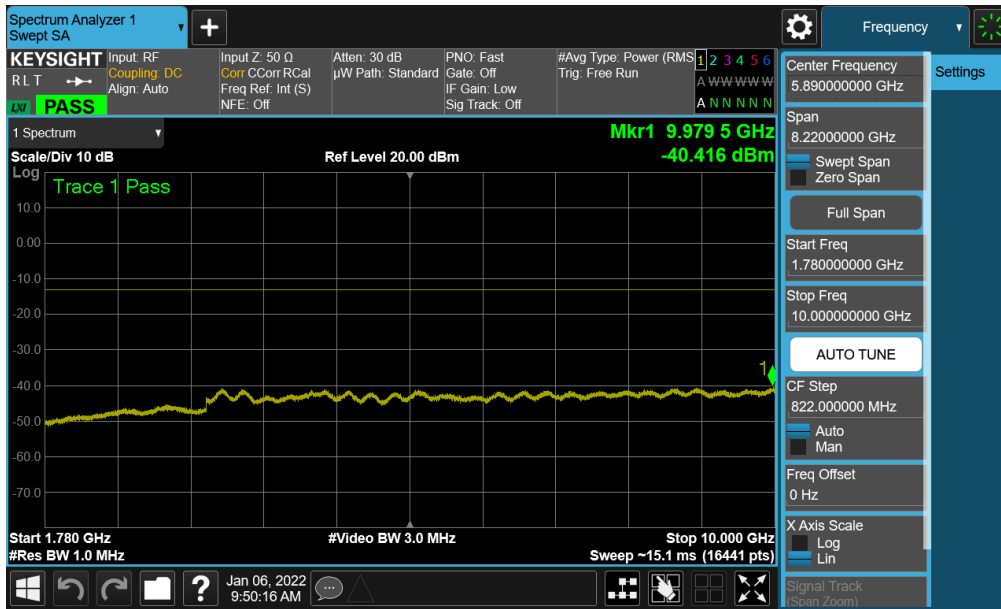
Plot 7-63. Conducted Spurious Plot (WCDMA Ch. 1513- High Channel)

FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112270166-04.A3L	Test Dates: 01/03/2022 - 01/26/2022	EUT Type: Portable Handset		Page 47 of 121

### LTE Band 66/4

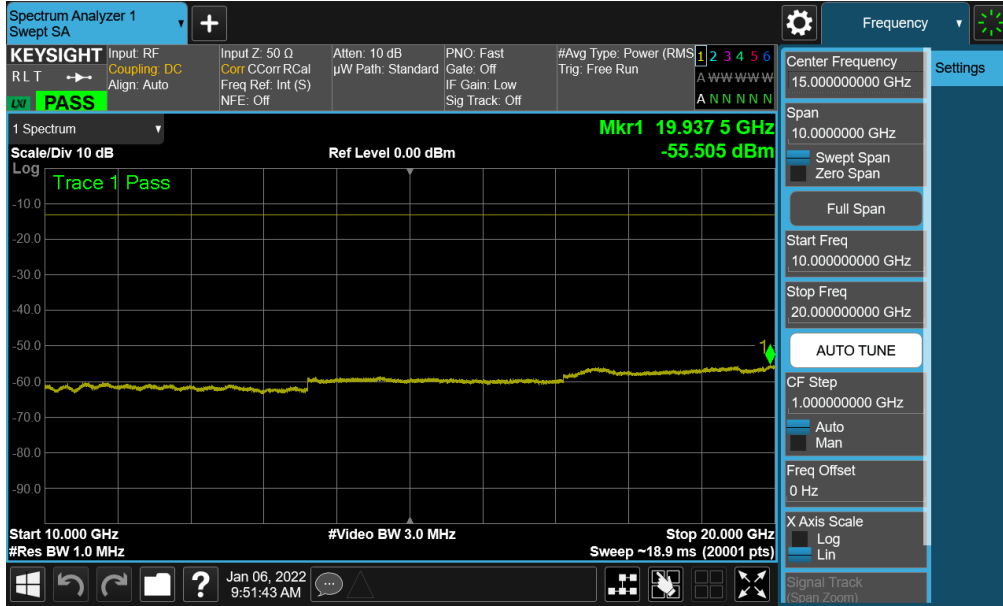


Plot 7-64. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - Low Channel)



Plot 7-65. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - Low Channel)

FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112270166-04.A3L	Test Dates: 01/03/2022 - 01/26/2022	EUT Type: Portable Handset		Page 48 of 121

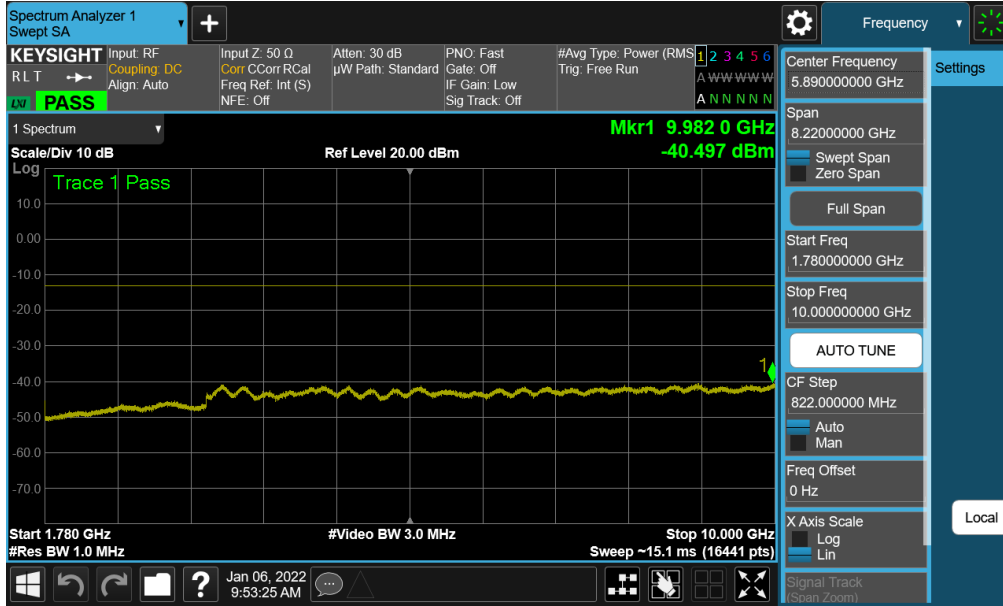


Plot 7-66. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - Low Channel)

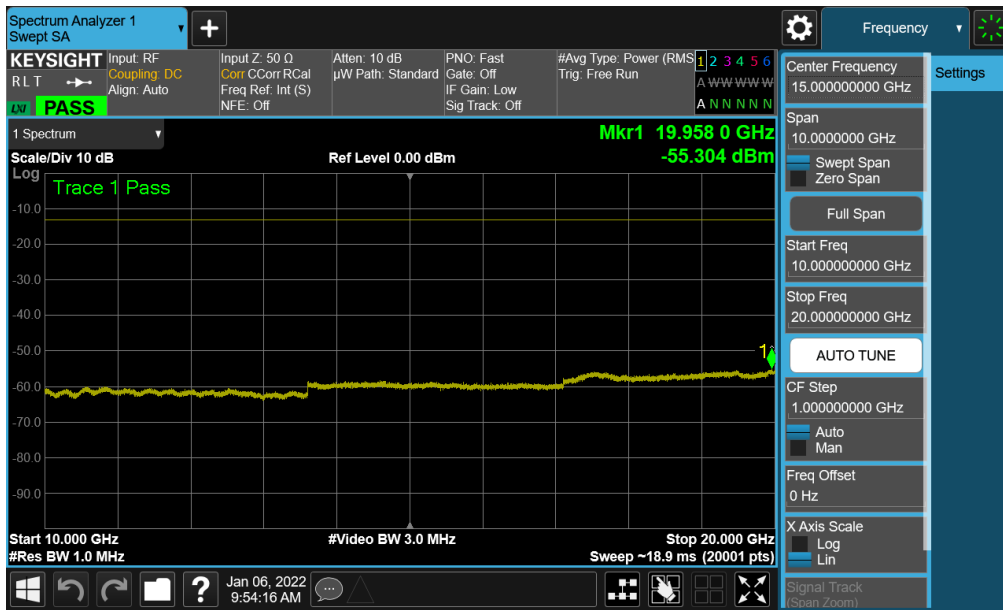


Plot 7-67. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - Mid Channel)

FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112270166-04.A3L	Test Dates: 01/03/2022 - 01/26/2022	EUT Type: Portable Handset		Page 49 of 121



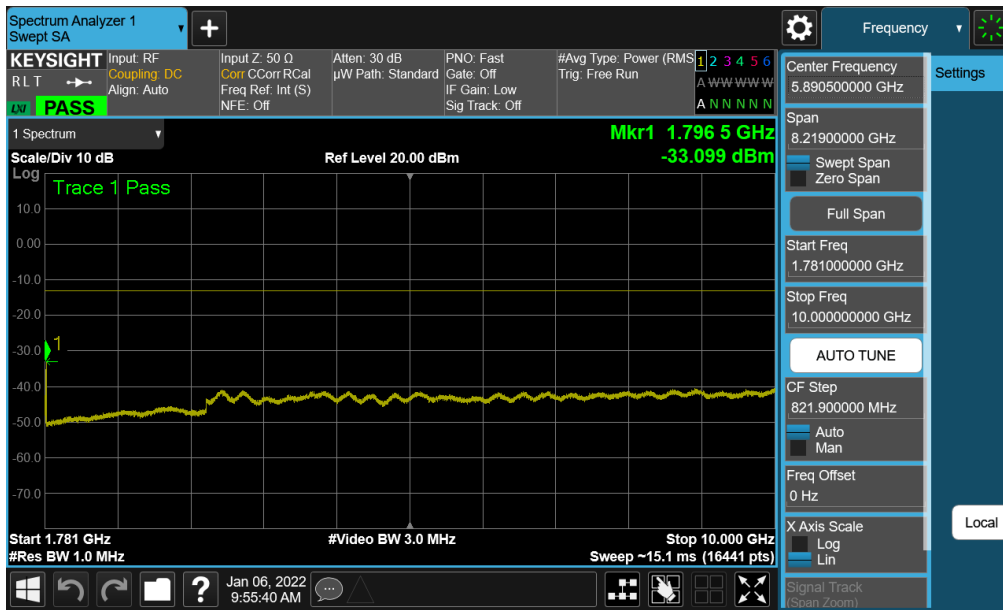
Plot 7-68. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - Mid Channel)



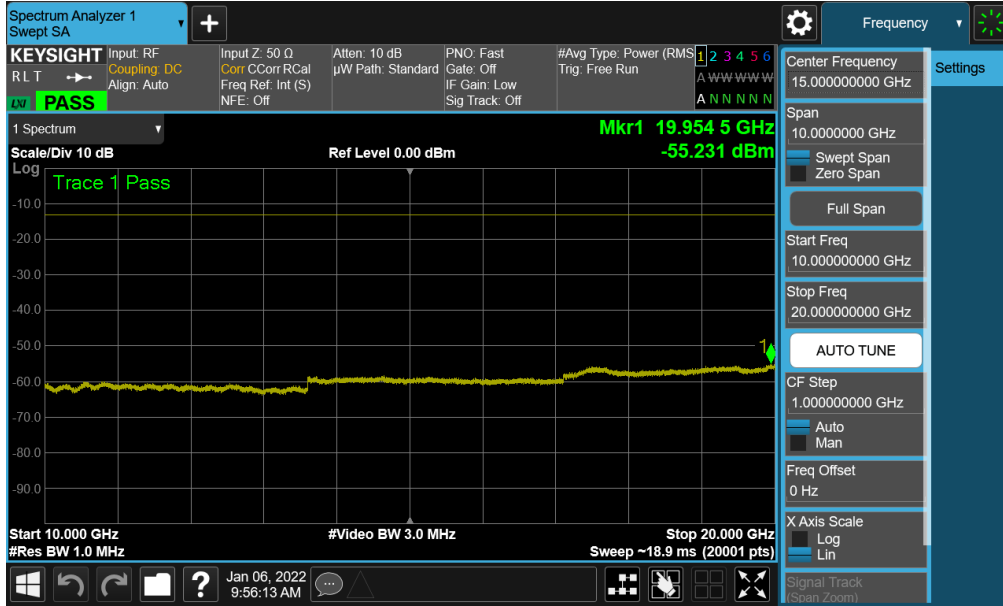
Plot 7-69. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - Mid Channel)

FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112270166-04.A3L	Test Dates: 01/03/2022 - 01/26/2022	EUT Type: Portable Handset		Page 50 of 121





FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112270166-04.A3L	Test Dates: 01/03/2022 - 01/26/2022	EUT Type: Portable Handset		Page 51 of 121



**Plot 7-72. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - High Channel)**

FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112270166-04.A3L	Test Dates: 01/03/2022 - 01/26/2022	EUT Type: Portable Handset		Page 52 of 121

## 7.4 Band Edge Emissions at Antenna Terminal

### Test Overview

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

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

### Test Procedure Used

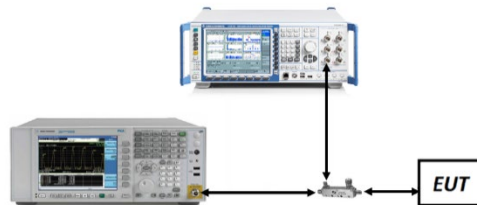
KDB 971168 D01 v03r01 – Section 6.0

### 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: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
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### Test Notes

Per 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.

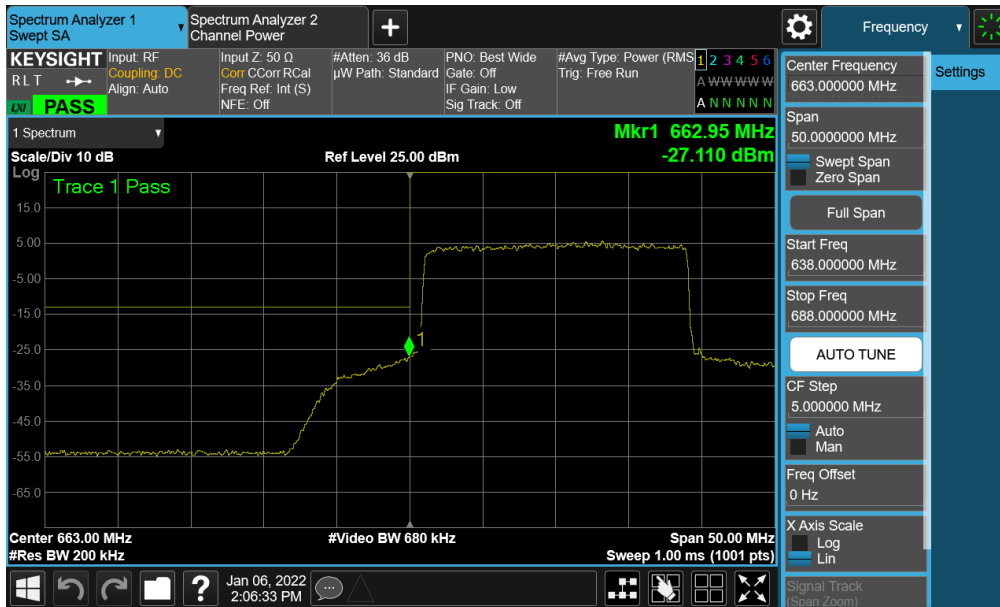
Per 27.53(g) for operations in the 663 - 698 MHz and 698 – 746MHz bands, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

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.

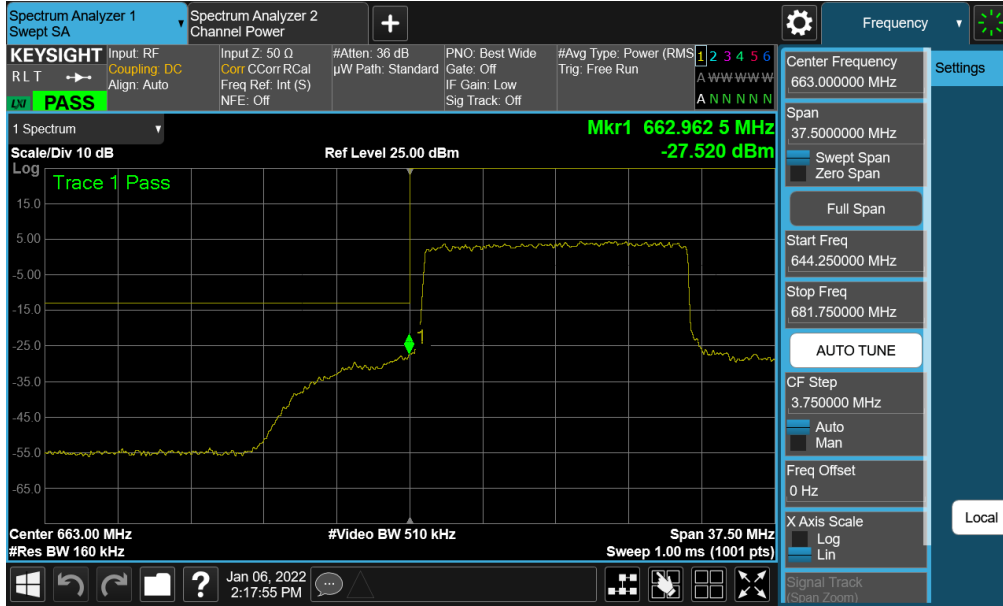
For all plots showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC limit per 27.53(c)(4) is  $65 + 10 \log_{10}(P) = -35\text{dBm}$  in a 6.25kHz bandwidth.

FCC ID: A3LSMA135U		<b>PART 27 MEASUREMENT REPORT</b> 	<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2112270166-04.A3L	<b>Test Dates:</b> 01/03/2022 - 01/26/2022	<b>EUT Type:</b> Portable Handset	Page 54 of 121

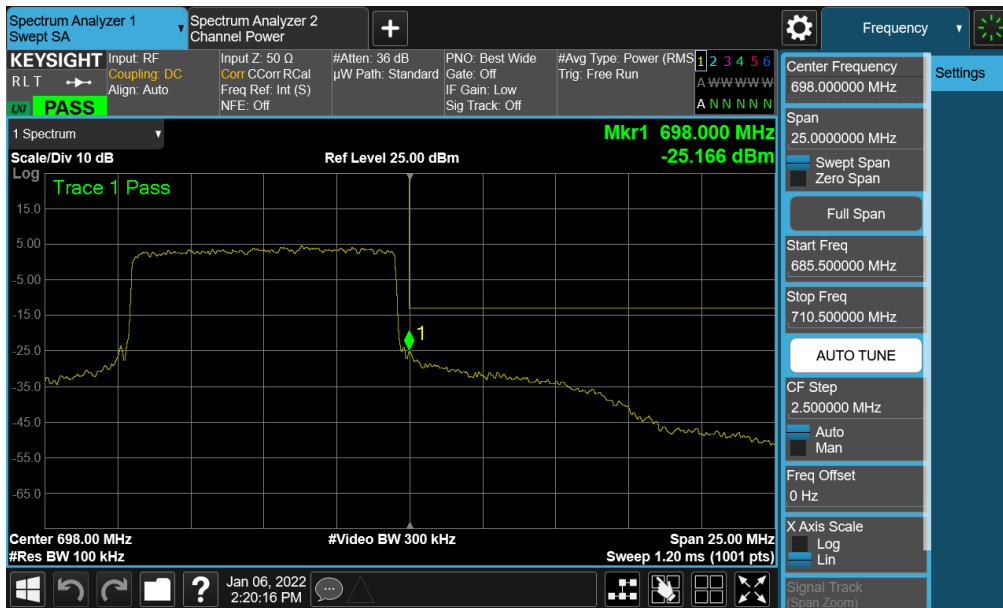
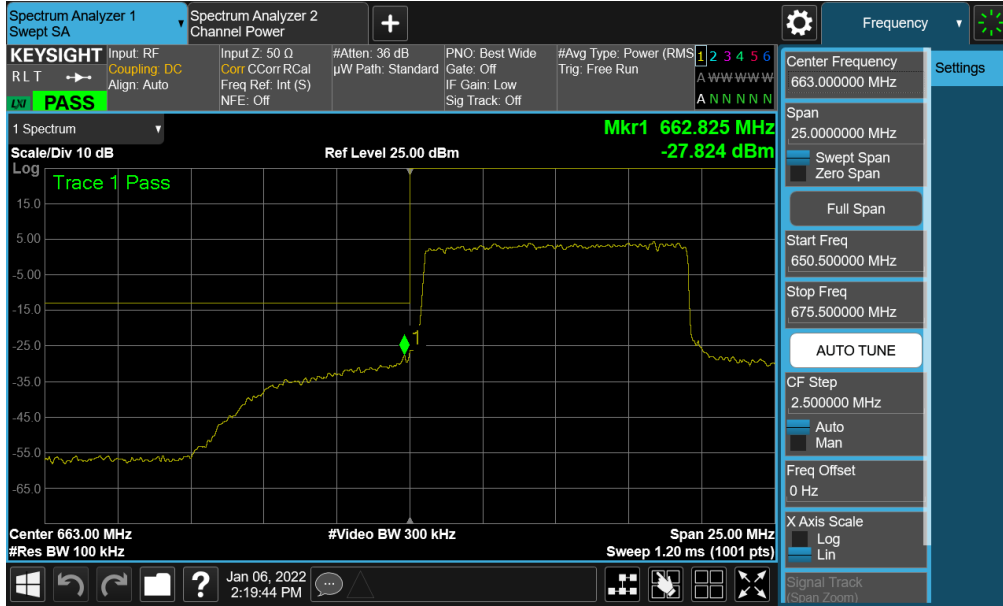
# LTE Band 71



FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>	<b>SAMSUNG</b>	Approved by: Technical Manager
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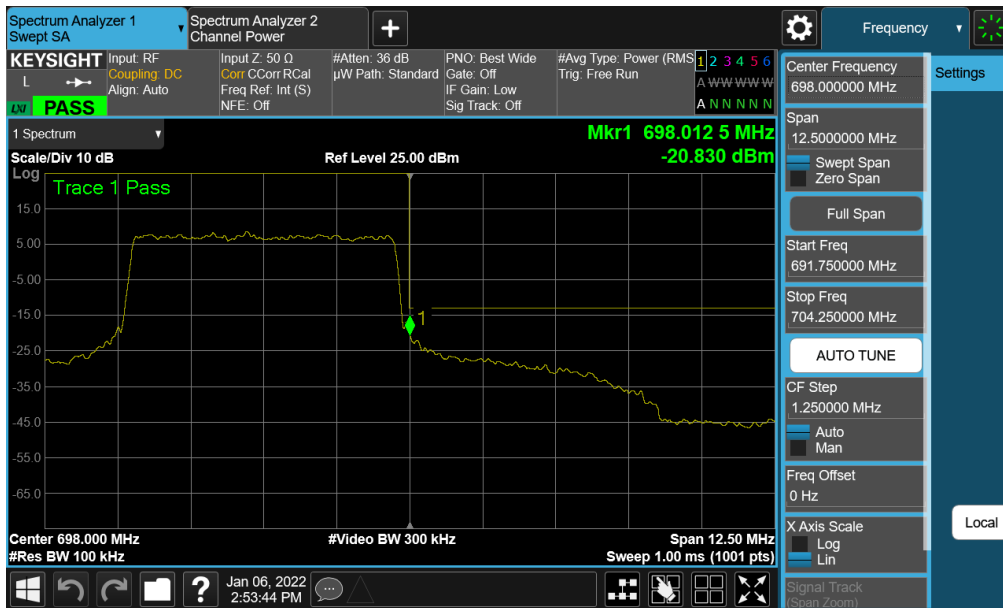
FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112270166-04.A3L	Test Dates: 01/03/2022 - 01/26/2022	EUT Type: Portable Handset		Page 56 of 121



FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
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Plot 7-79. Lower Band Edge Plot (LTE Band 71 - 5MHz QPSK - Full RB)

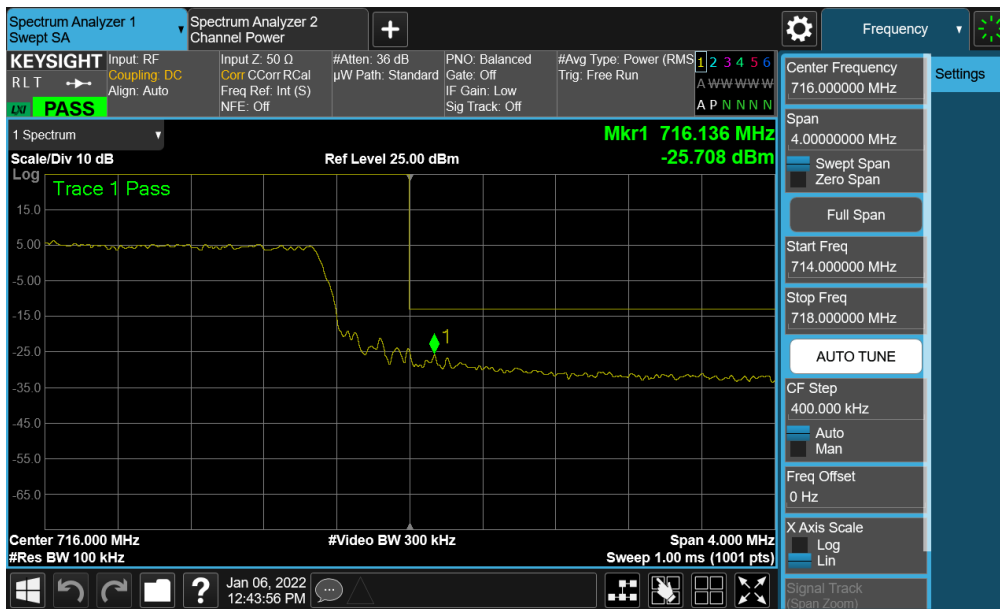
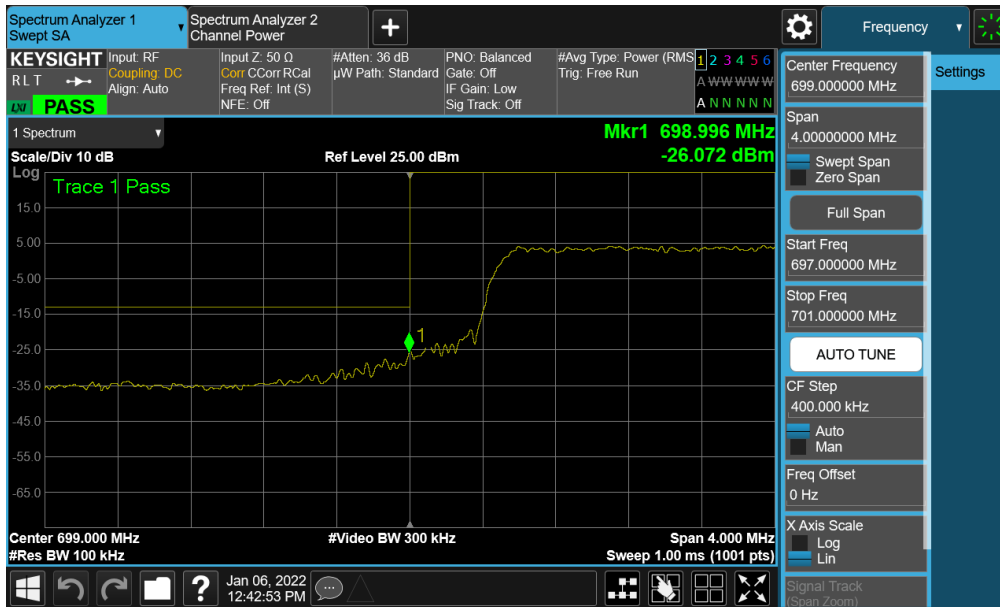


Plot 7-80. Upper Band Edge Plot (LTE Band 71 - 5MHz QPSK - Full RB)

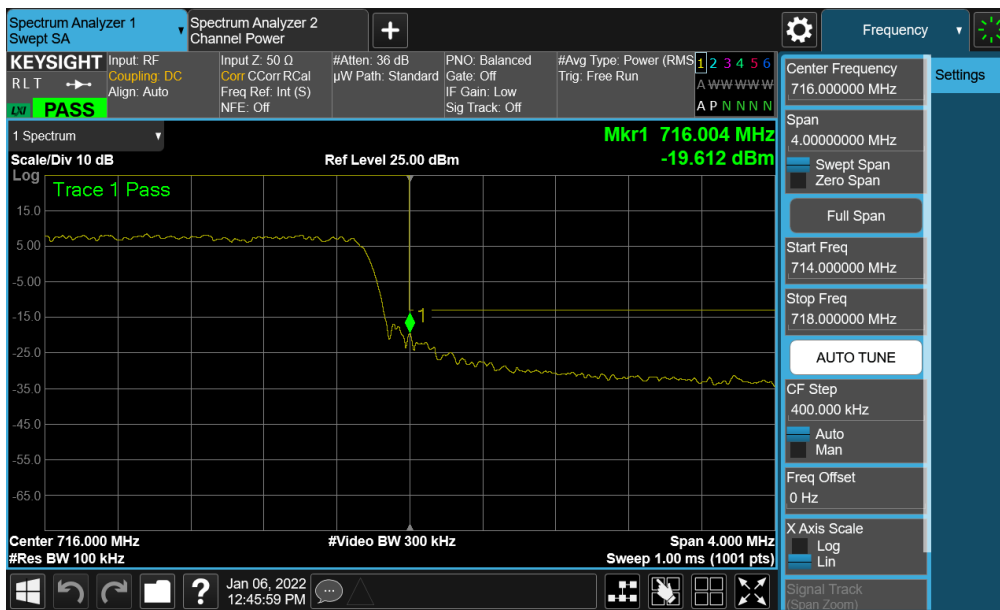
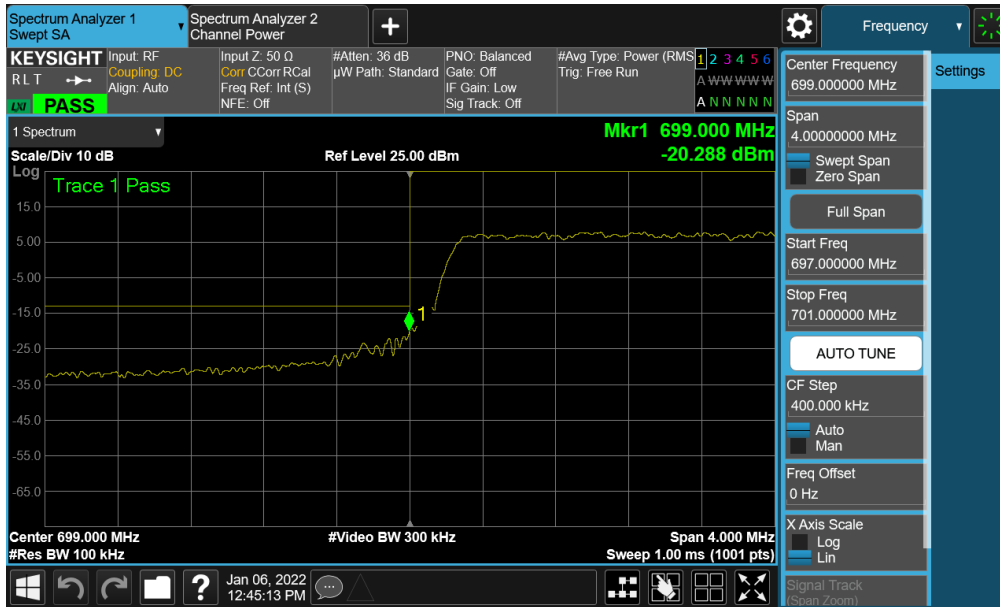
FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112270166-04.A3L	Test Dates: 01/03/2022 - 01/26/2022	EUT Type: Portable Handset		Page 58 of 121



## LTE Band 12



FCC ID: A3LSMA135U	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>	<b>SAMSUNG</b>	Approved by: Technical Manager
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Test Report S/N: 1M2112270166-04.A3L	Test Dates: 01/03/2022 - 01/26/2022	EUT Type: Portable Handset		Page 60 of 121