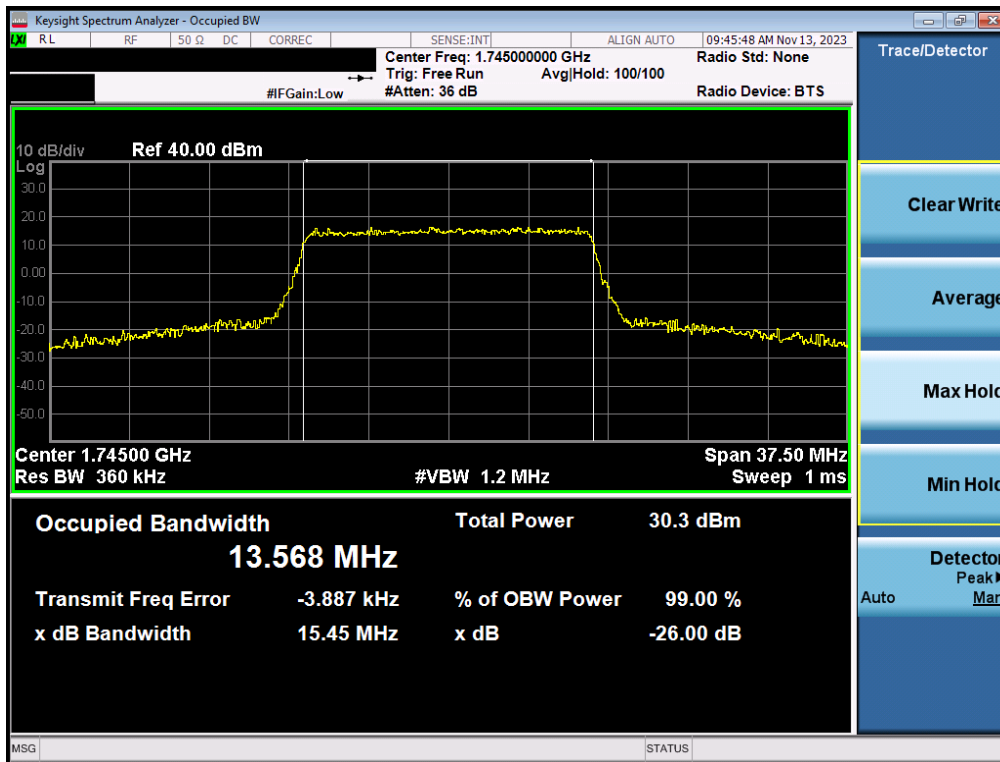
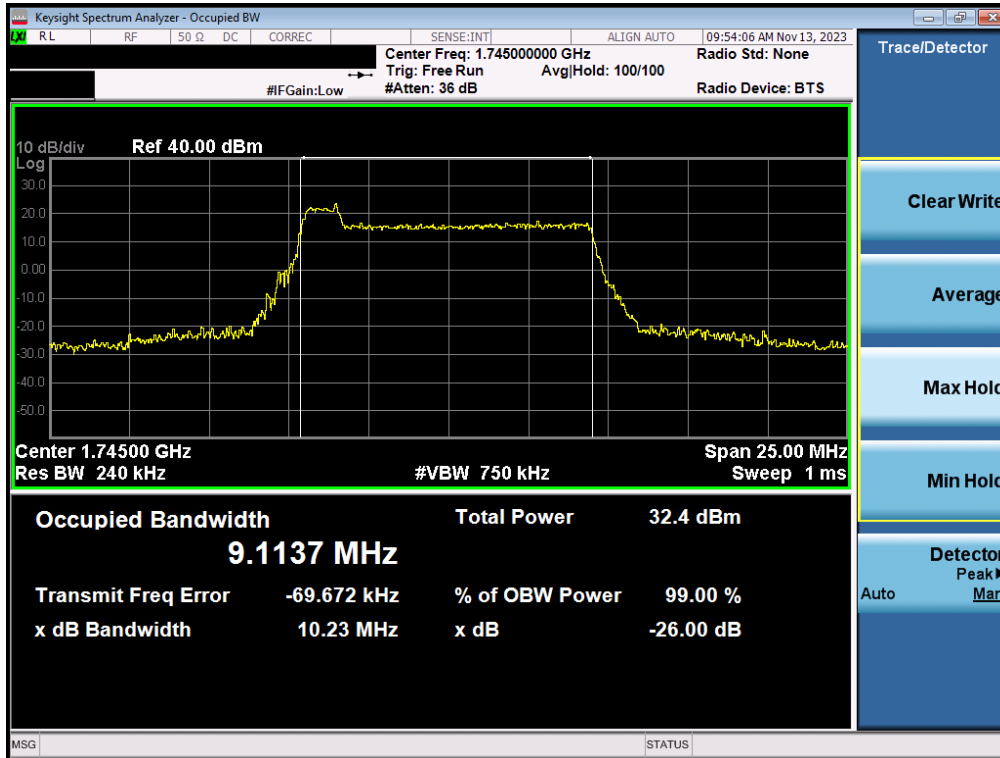


Plot 7-81. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz QPSK - Full RB - ANT2)

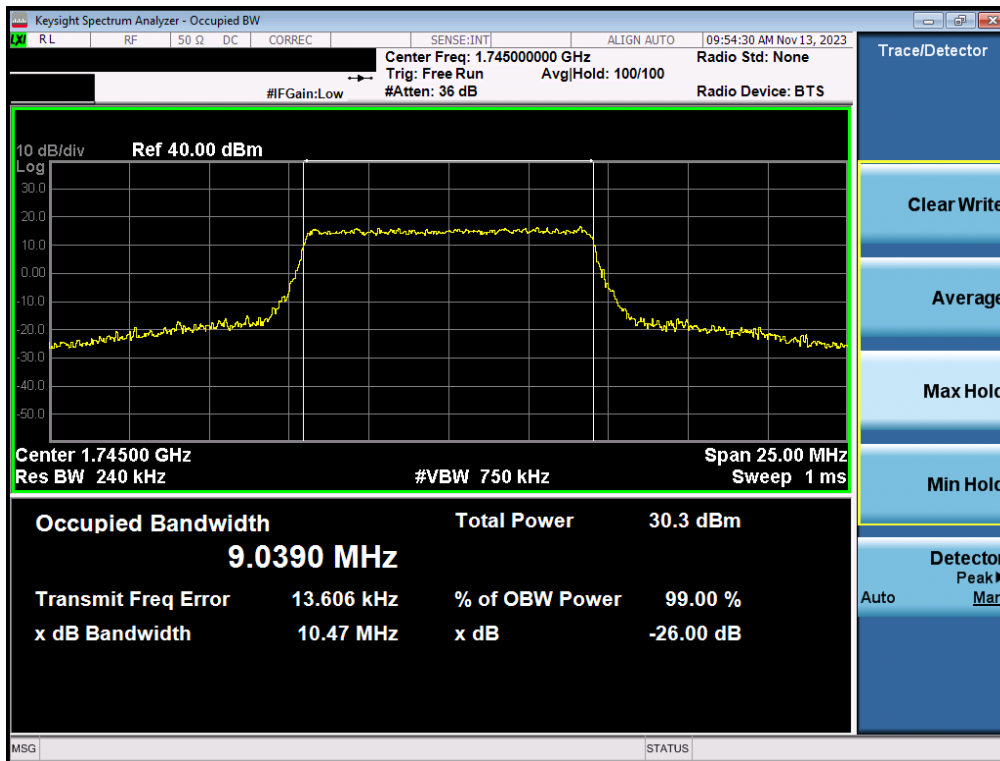


Plot 7-82. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz 16-QAM - Full RB - ANT2)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 63 of 181

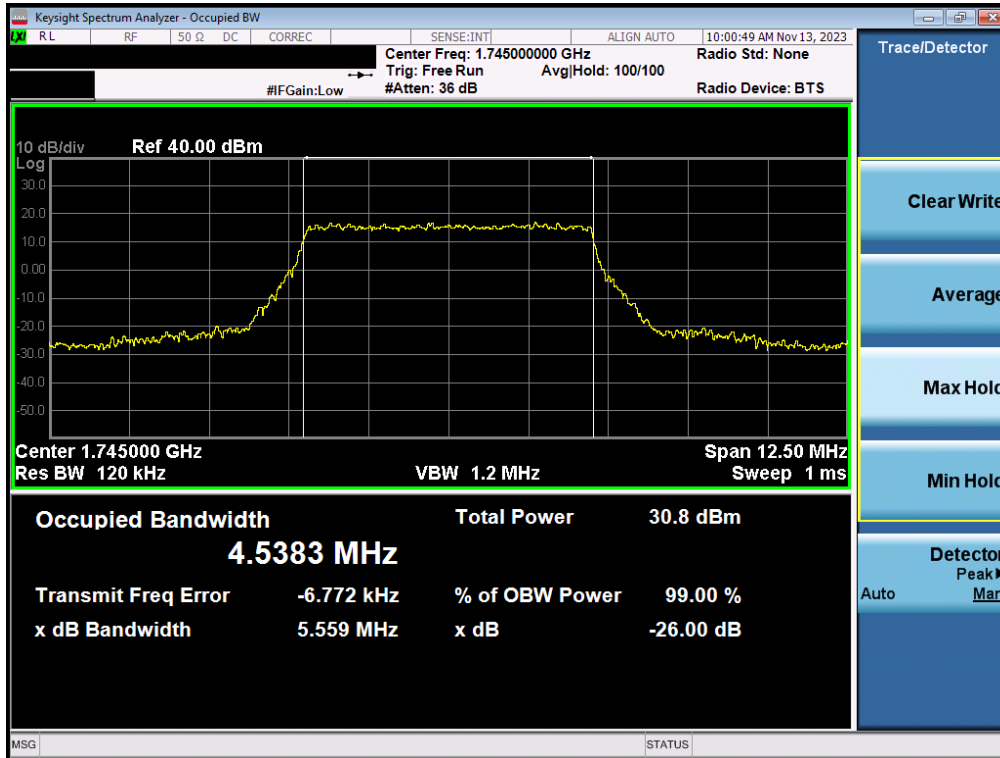


Plot 7-83. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz QPSK - Full RB - ANT2)



Plot 7-84. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz 16-QAM - Full RB - ANT2)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 64 of 181

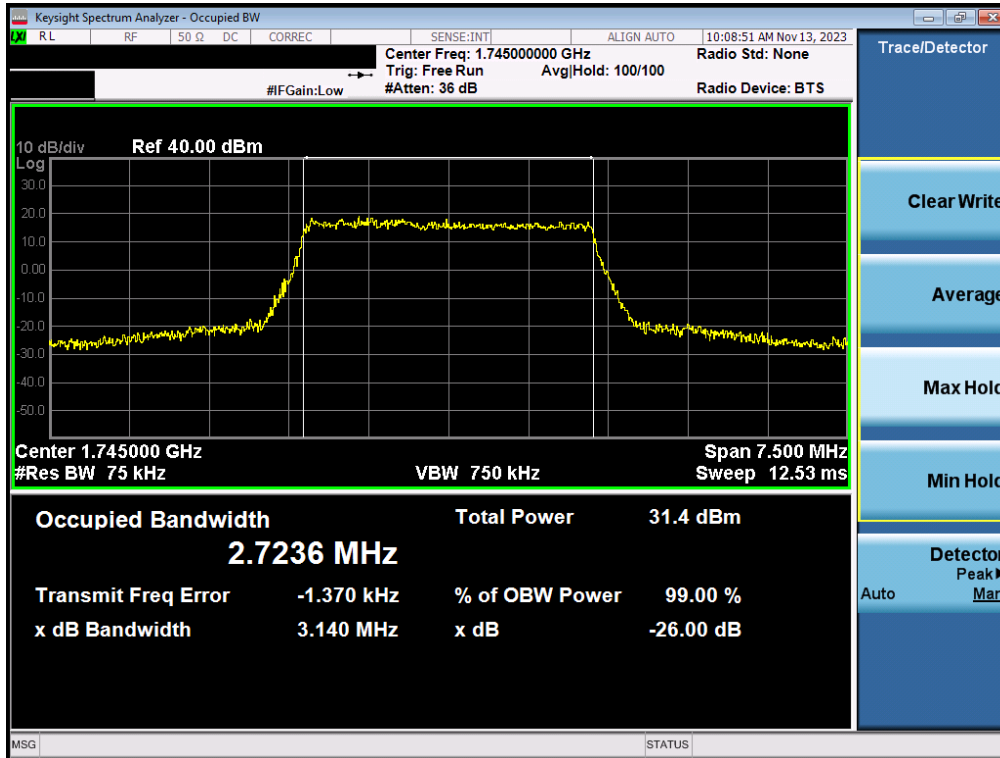


Plot 7-85. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz QPSK - Full RB - ANT2)

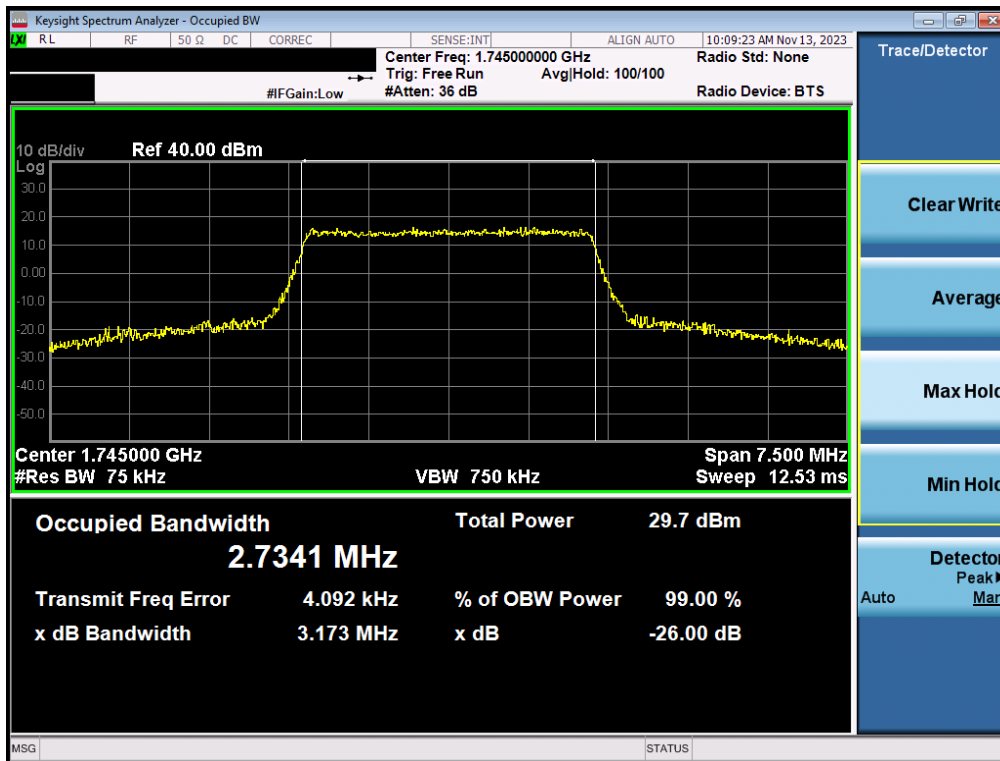


Plot 7-86. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz 16-QAM - Full RB - ANT2)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 65 of 181

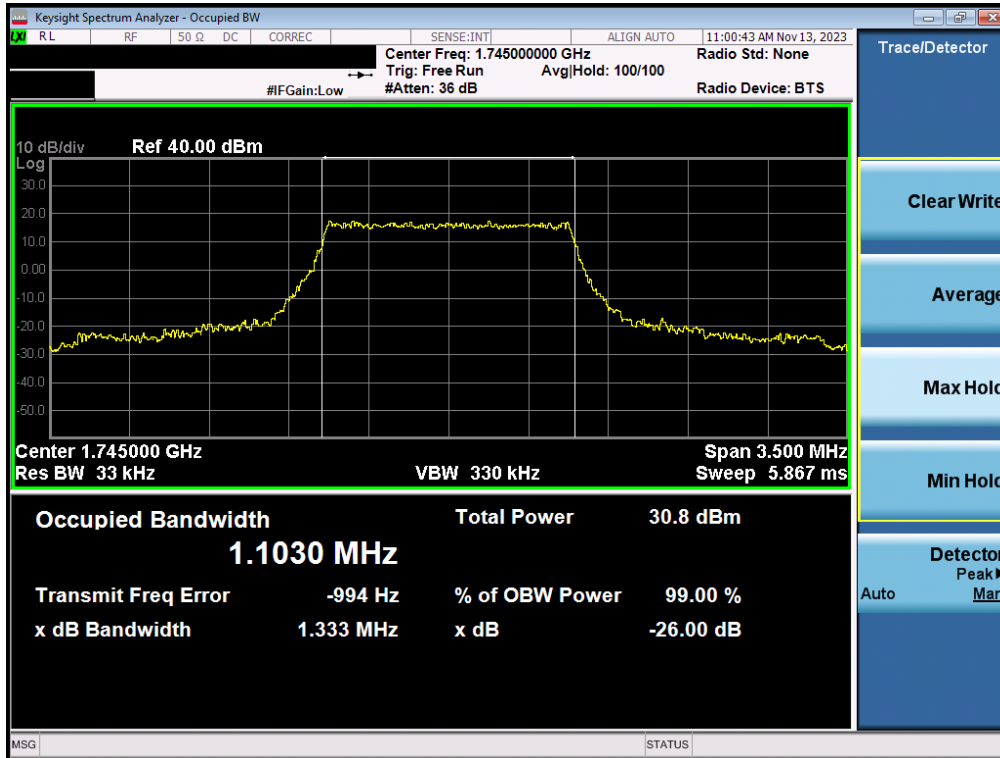


Plot 7-87. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz QPSK - Full RB - ANT2)

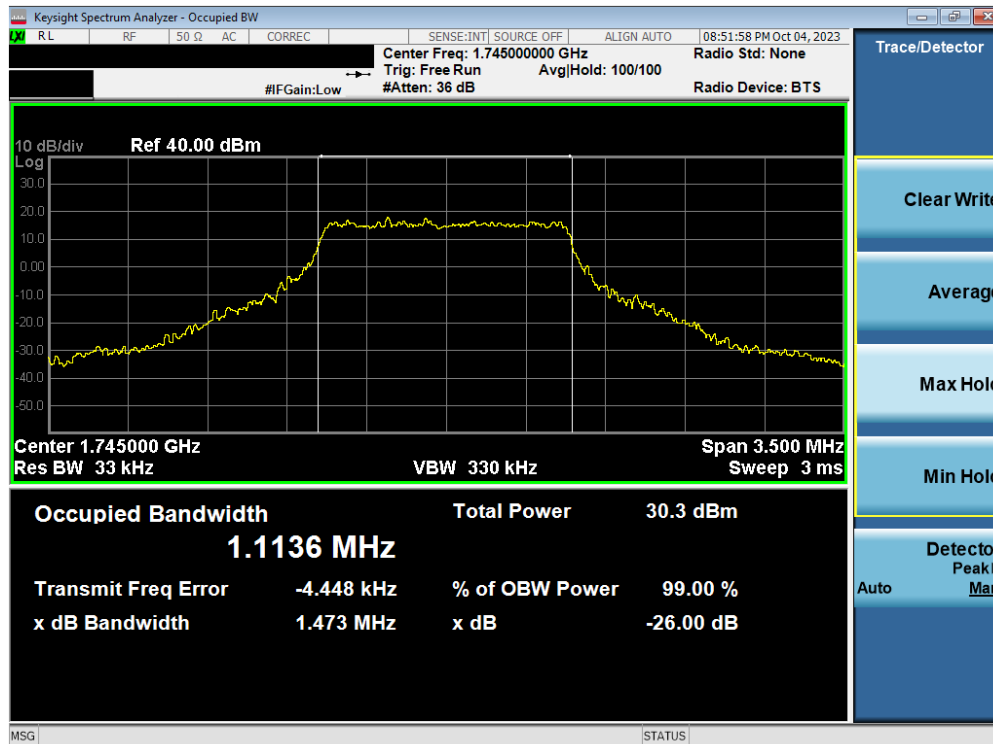


Plot 7-88. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz 16-QAM - Full RB - ANT2)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 66 of 181



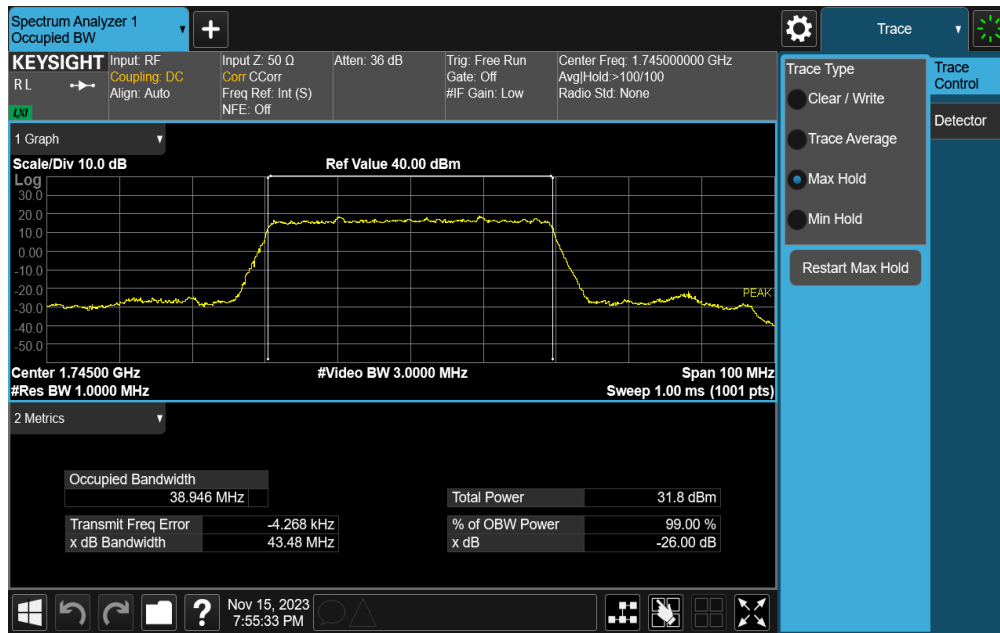
Plot 7-89. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz QPSK - Full RB - ANT2)



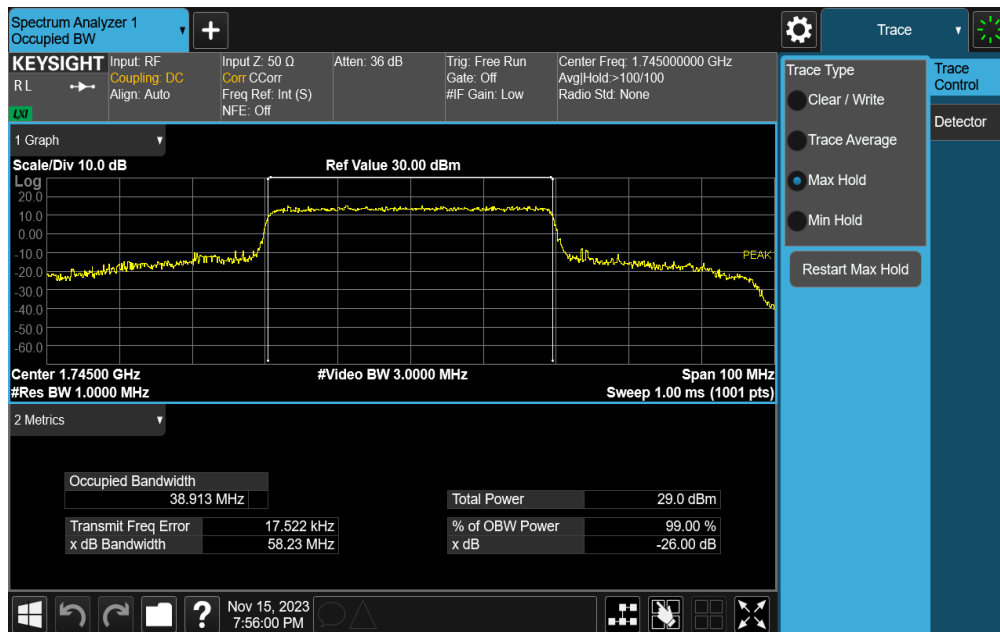
Plot 7-90. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz 16-QAM - Full RB - ANT2)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 67 of 181

# NR Band n66 – ANT2



Plot 7-91. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz DFT-s-OFDM BPSK - Full RB – ANT2)

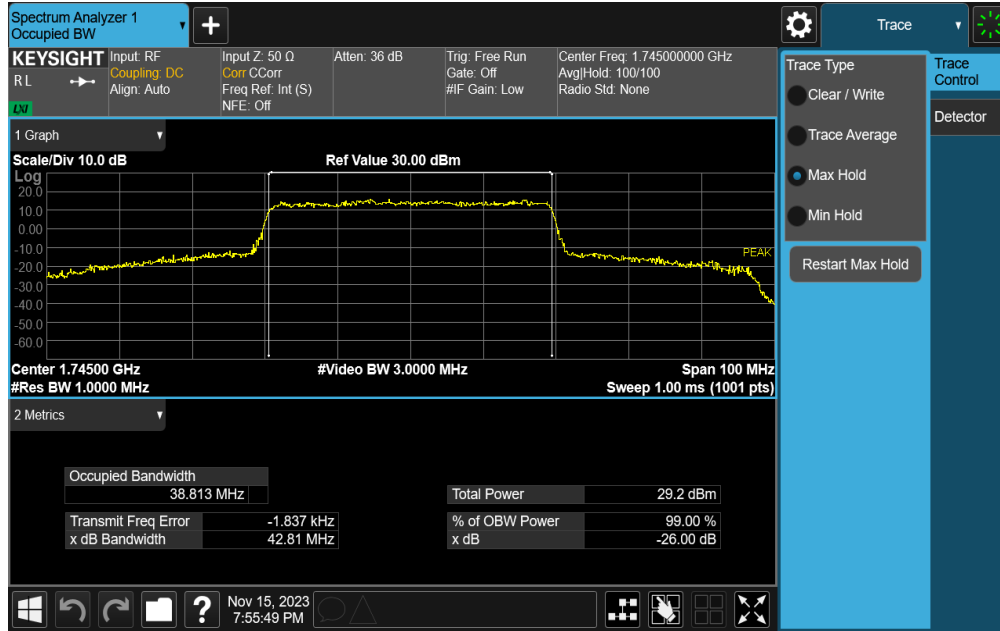


Plot 7-92. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz CP-OFDM QPSK - Full RB – ANT2)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 68 of 181



FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 69 of 181

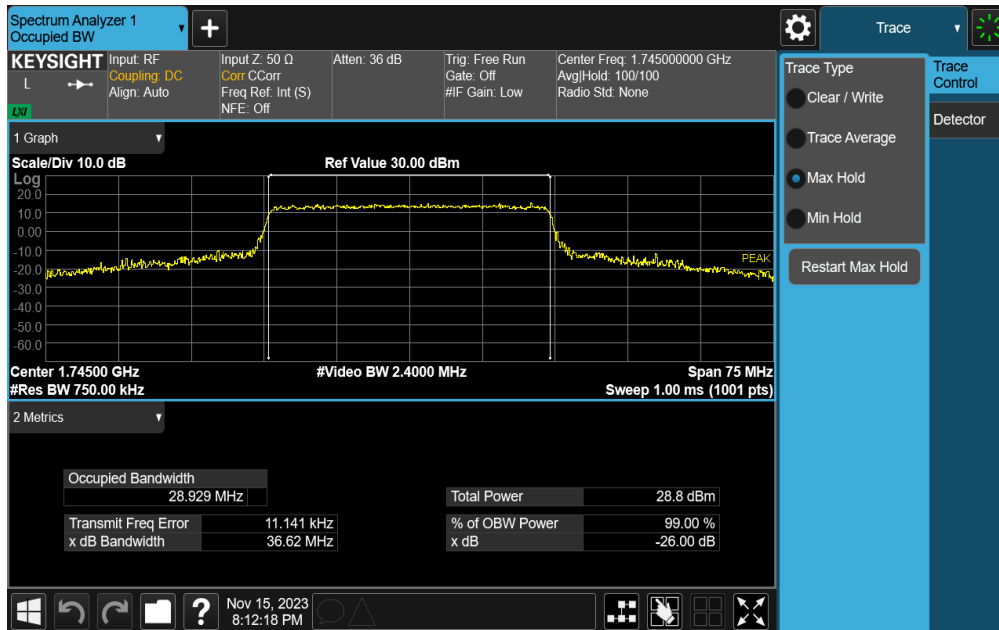


FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 70 of 181



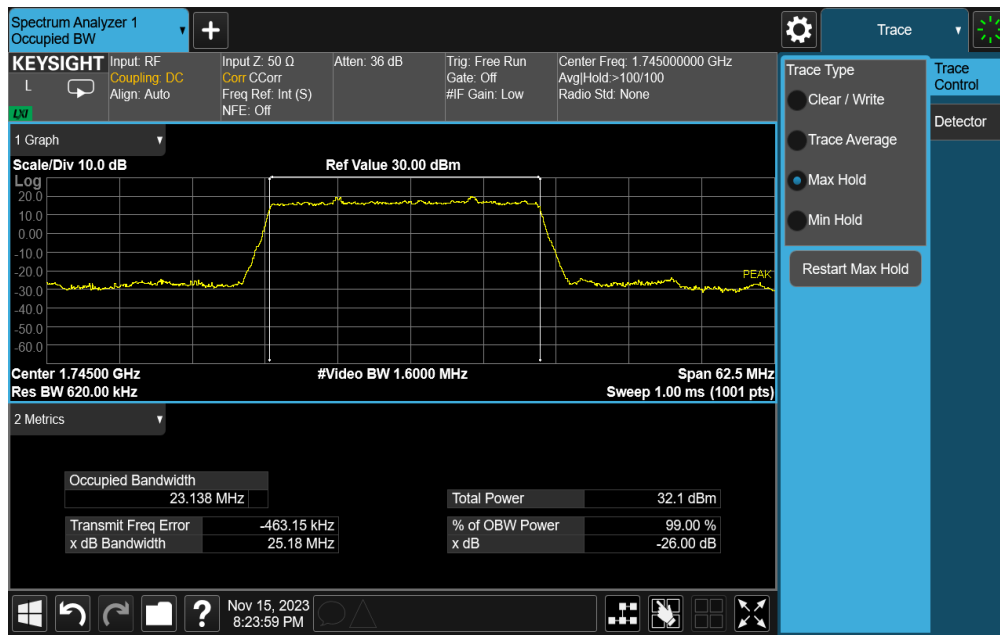


Plot 7-97. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz DFT-s-OFDM BPSK - Full RB – ANT2)

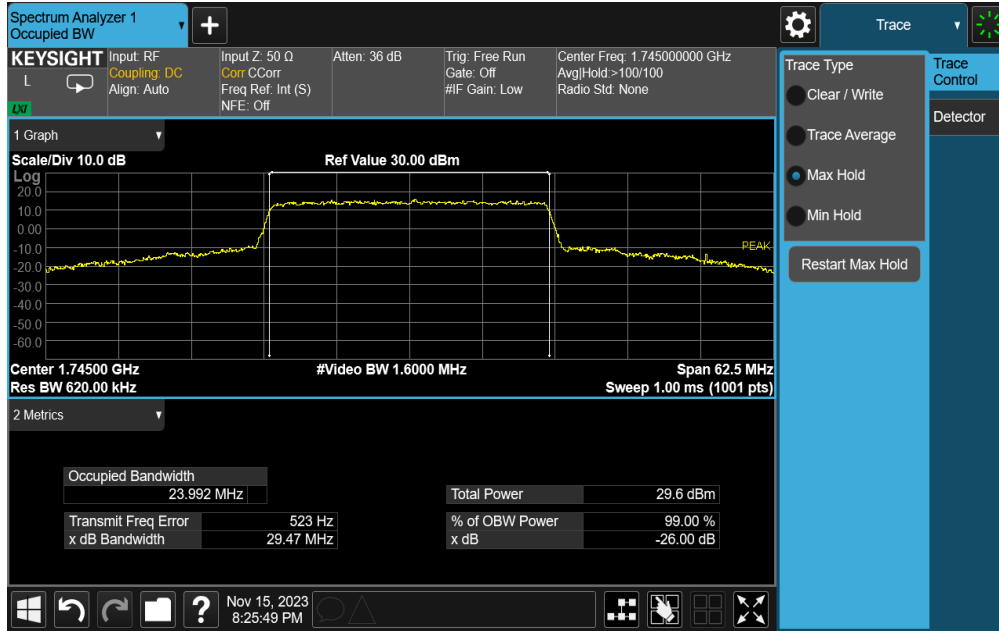


Plot 7-98. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz CP-OFDM QPSK - Full RB – ANT2)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 71 of 181

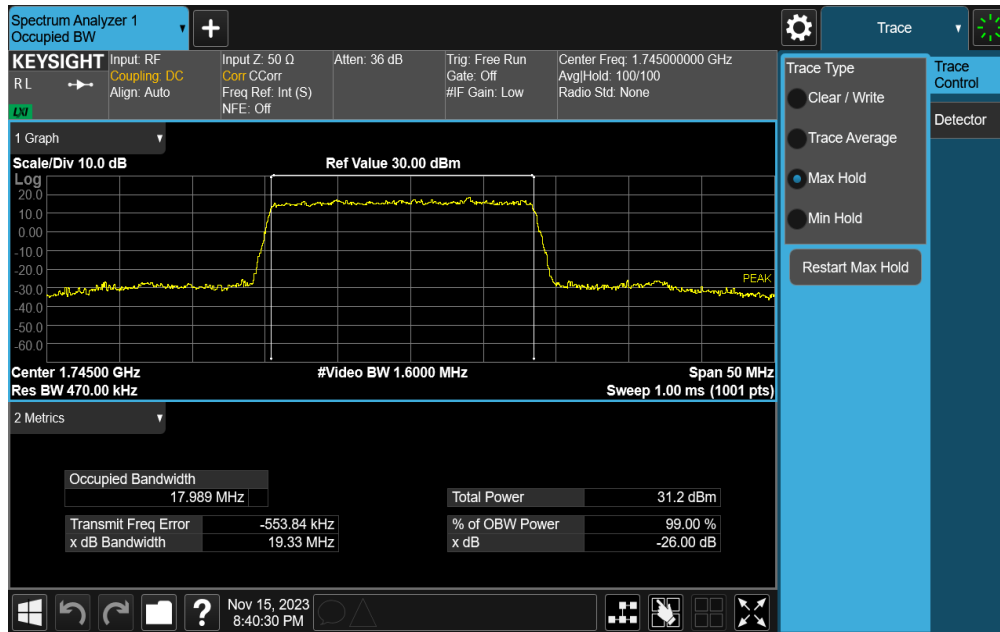


FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 72 of 181

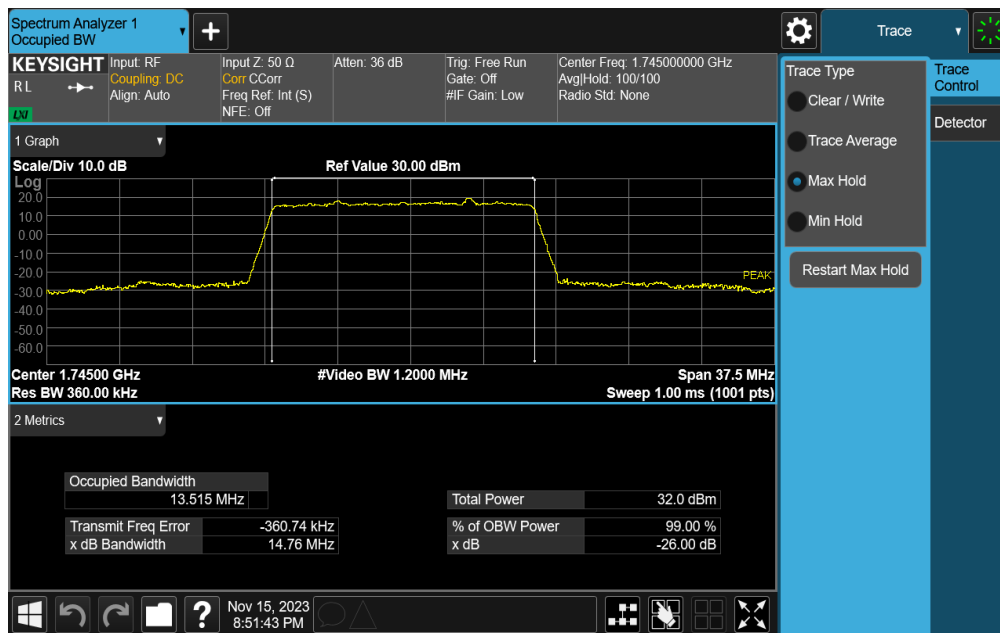


**Plot 7-102. Occupied Bandwidth Plot (NR Band n66 - 25.0MHz CP-OFDM 16QAM - Full RB – ANT2)**

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 73 of 181

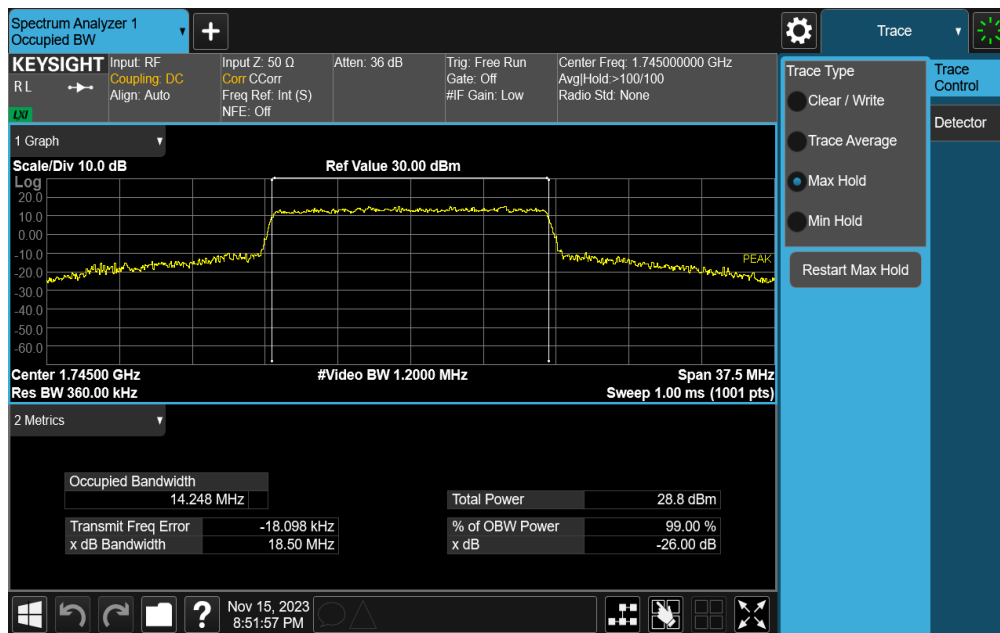


FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 74 of 181



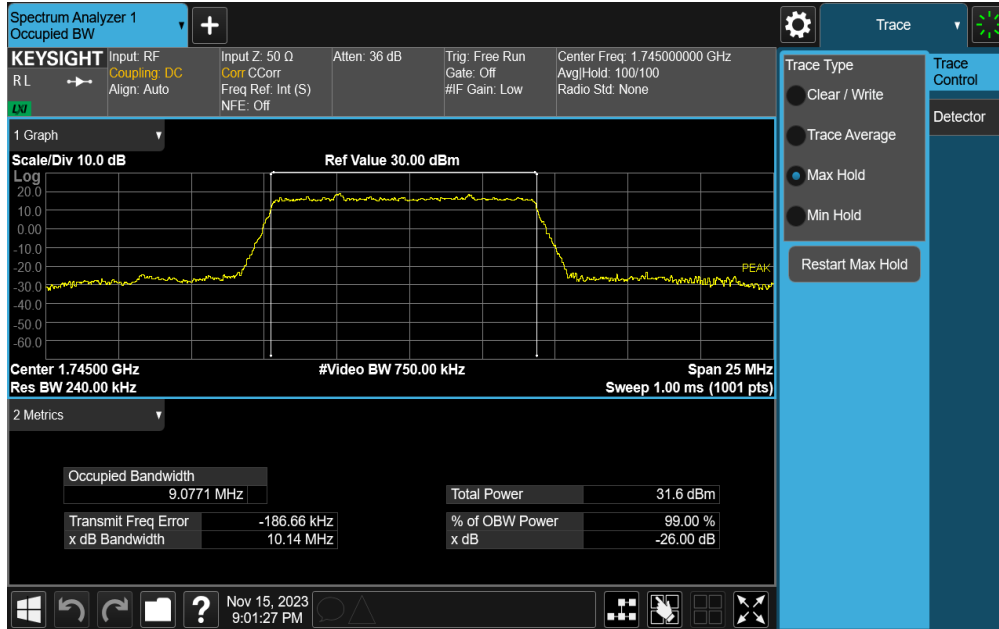
**Plot 7-106. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz DFT-s-OFDM BPSK - Full RB – ANT2)**

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 75 of 181

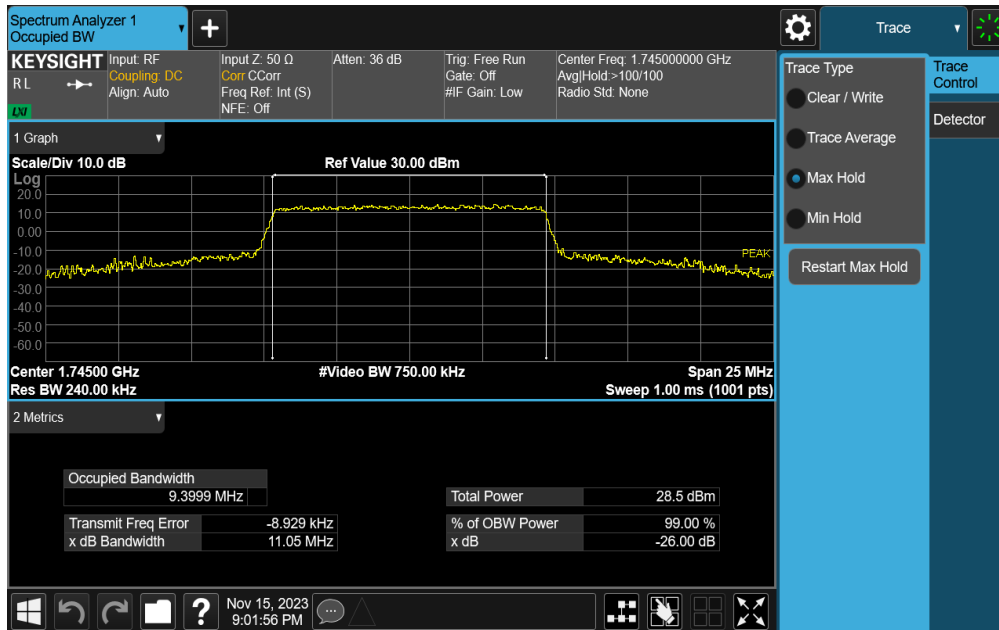


**Plot 7-108. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz CP-OFDM 16QAM - Full RB – ANT2)**

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 76 of 181

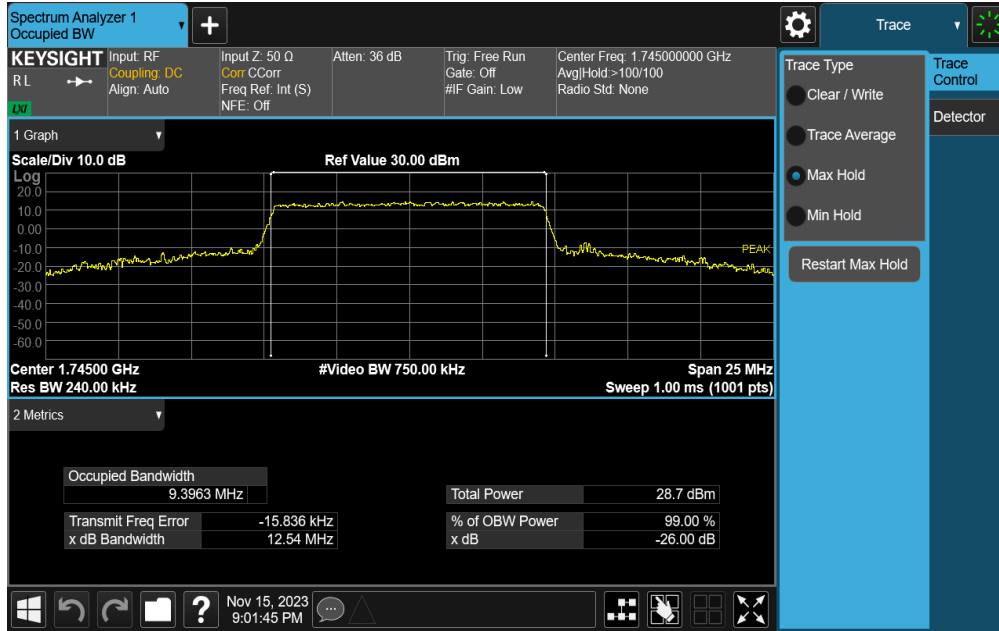


**Plot 7-109. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz DFT-s-OFDM BPSK - Full RB – ANT2)**

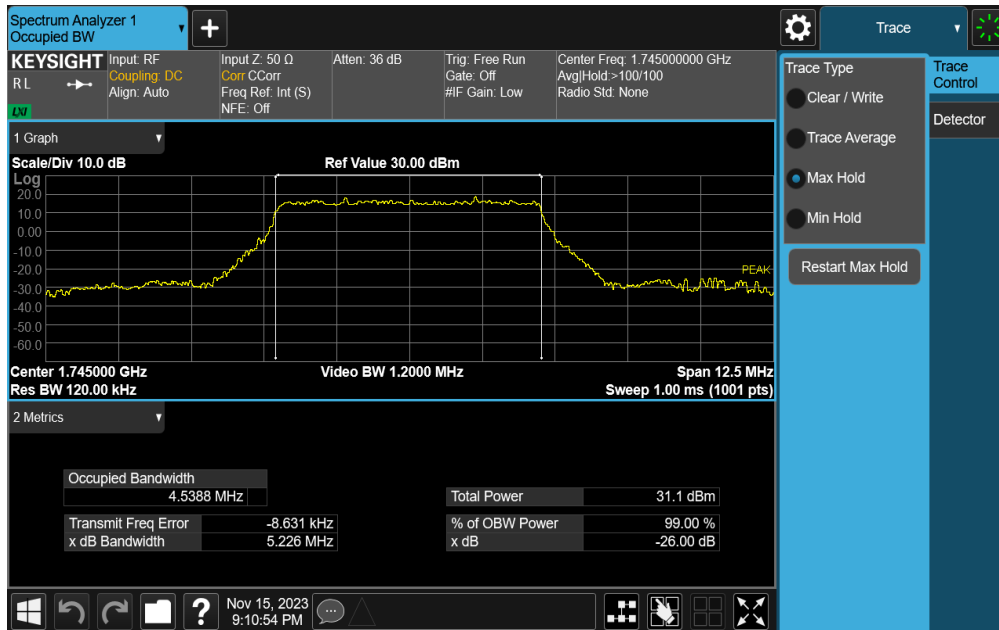


**Plot 7-110. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz CP-OFDM QPSK - Full RB – ANT2)**

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 77 of 181



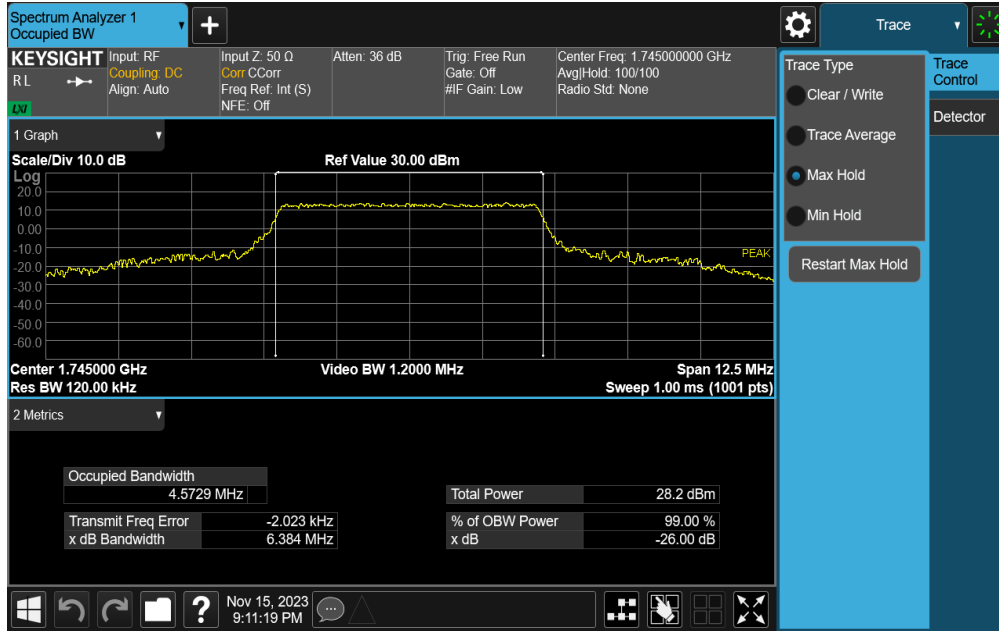
**Plot 7-111. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz CP-OFDM 16QAM - Full RB – ANT2)**



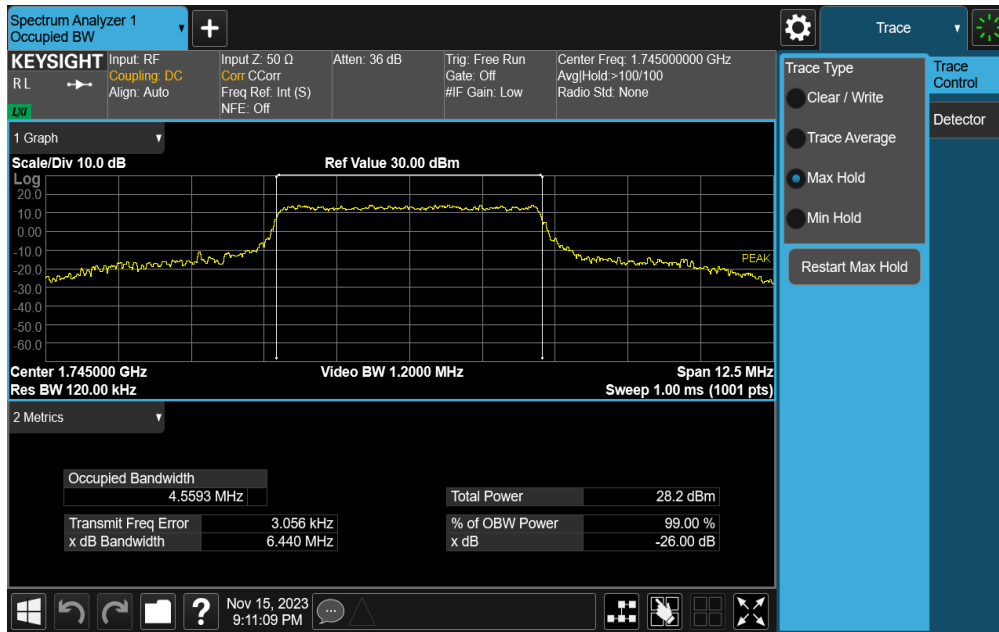
**Plot 7-112. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz DFT-s-OFDM BPSK - Full RB – ANT2)**

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 78 of 181





Plot 7-113. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz CP-OFDM QPSK - Full RB - ANT2)



Plot 7-114. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz CP-OFDM 16QAM - Full RB - ANT2)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 79 of 181

## 7.4 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 10<sup>th</sup> 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 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.***

### Test Procedure Used

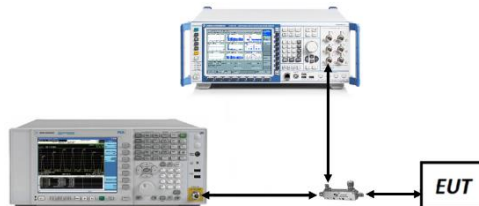
ANSI C63.26-2015 – Section 5.7.4

### Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to 18GHz (separated into at least two plots per channel)
2. RBW  $\geq$  100kHz
3. VBW  $\geq$  3 x RBW
4. Detector = RMS
5. Trace mode = max hold
6. Sweep time = auto couple
7. 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**

### Test Notes

1. Per Part 27 and RSS-139, compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth 100 kHz or greater for measurements below 1GHz.
2. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) 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.

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 80 of 181

Mode	Bandwidth	Channel	Range [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]
WCDMA-AWS	5MHz	Low	30.0 - 1705.0	-53.50	-13	-40.50
		Low	1755.0 - 10000.0	-46.83	-13	-33.83
		Low	10000.0 - 20000.0	-62.84	-13	-49.84
		Mid	30.0 - 1710.0	-53.86	-13	-40.86
		Mid	1755.0 - 10000.0	-47.00	-13	-34.00
		Mid	10000.0 - 20000.0	-62.84	-13	-49.84
		High	30.0 - 1710.0	-53.98	-13	-40.98
		High	1760.0 - 10000.0	-47.30	-13	-34.30
		High	10000.0 - 20000.0	-62.87	-13	-49.87
LTE-B71	20MHz	Low	30.0 - 662.0	-46.92	-13	-33.92
		Low	698.0 - 1000.0	-61.17	-13	-48.17
		Low	1000.0 - 10000.0	-45.39	-13	-32.39
		Mid	30.0 - 663.0	-50.97	-13	-37.97
		Mid	698.0 - 1000.0	-58.83	-13	-45.83
		Mid	1000.0 - 10000.0	-44.67	-13	-31.67
		High	30.0 - 663.0	-61.22	-13	-48.22
		High	699.0 - 1000.0	-49.92	-13	-36.92
		High	1000.0 - 10000.0	-45.23	-13	-32.23
LTE-B12	10MHz	Low	30.0 - 697.9	-45.28	-13	-32.28
		Low	716.0 - 1000.0	-47.41	-13	-34.41
		Low	1000.0 - 10000.0	-45.21	-13	-32.21
		Mid	30.0 - 698.0	-47.77	-13	-34.77
		Mid	716.0 - 1000.0	-47.84	-13	-34.84
		Mid	1000.0 - 10000.0	-45.29	-13	-32.29
		High	30.0 - 697.9	-54.98	-13	-41.98
		High	716.1 - 1000.0	-47.05	-13	-34.05
		High	1000.0 - 10000.0	-45.17	-13	-32.17
LTE-B13	10MHz	Mid	30.0 - 777.0	-65.55	-35	-30.55
		Mid	787.0 - 1000.0	-45.44	-35	-10.44
		Mid	1000.0 - 20000.0	-45.19	-13	-32.19

Table 7-11. Conducted Spurious Emissions Results – Ant1

Mode	Bandwidth	Channel	Range [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]
LTE-B66-4	20 MHz	Low	30.0 - 663.0	-39.00	-13	-26.00
		Low	698.0 - 1000.0	-47.36	-13	-34.36
		Low	1000.0 - 10000.0	-62.98	-13	-49.98
		Mid	30.0 - 663.0	-52.71	-13	-39.71
		Mid	698.0 - 1000.0	-47.50	-13	-34.50
		Mid	1000.0 - 10000.0	-62.76	-13	-49.76
		High	30.0 - 663.0	-53.85	-13	-40.85
		High	698.0 - 1000.0	-38.02	-13	-25.02
		High	1000.0 - 10000.0	-63.15	-13	-50.15

Table 7-12. Conducted Spurious Emissions Results – Ant1

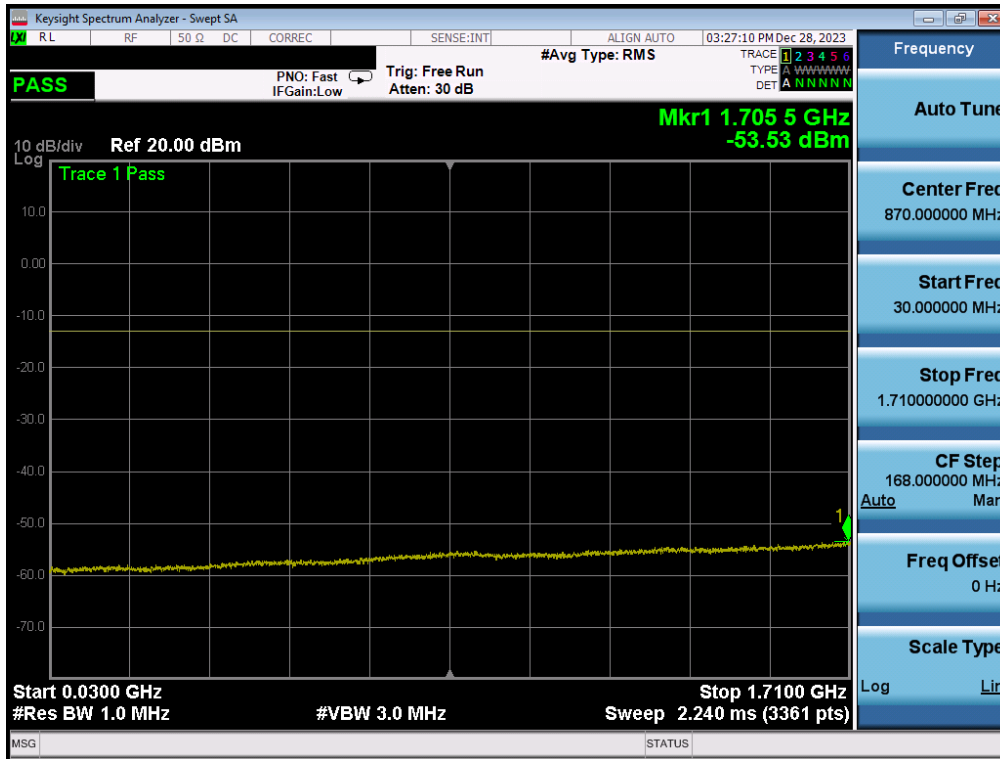
FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 81 of 181

Mode	Bandwidth	Channel	Range [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]
NR Band n71	20 MHz	Low	30.0 - 663.0	-39.00	-13	-26.00
		Low	698.0 - 1000.0	-47.36	-13	-34.36
		Low	1000.0 - 10000.0	-62.98	-13	-49.98
		Mid	30.0 - 663.0	-52.71	-13	-39.71
		Mid	698.0 - 1000.0	-47.50	-13	-34.50
		Mid	1000.0 - 10000.0	-62.76	-13	-49.76
		High	30.0 - 663.0	-53.85	-13	-40.85
		High	698.0 - 1000.0	-38.02	-13	-25.02
		High	1000.0 - 10000.0	-63.15	-13	-50.15
NR Band n70	15 MHz	Mid	30.0 - 1695.0	-39.71	-13	-26.71
		Mid	1710.0 - 10000.0	-37.50	-13	-24.50
		Mid	10000.0 - 20000.0	-63.67	-13	-50.67
NR Band n66	40 MHz	Low	30.0 - 1710.0	-41.47	-13	-28.47
		Low	1780.0 - 10000.0	-47.31	-13	-34.31
		Low	10000.0 - 20000.0	-63.66	-13	-50.66
		Mid	30.0 - 1710.0	-43.46	-13	-30.46
		Mid	1780.0 - 10000.0	-43.15	-13	-30.15
		Mid	10000.0 - 20000.0	-63.50	-13	-50.50
		High	30.0 - 1710.0	-48.09	-13	-35.09
		High	1780.0 - 10000.0	-40.50	-13	-27.50
		High	10000.0 - 20000.0	-63.57	-13	-50.57

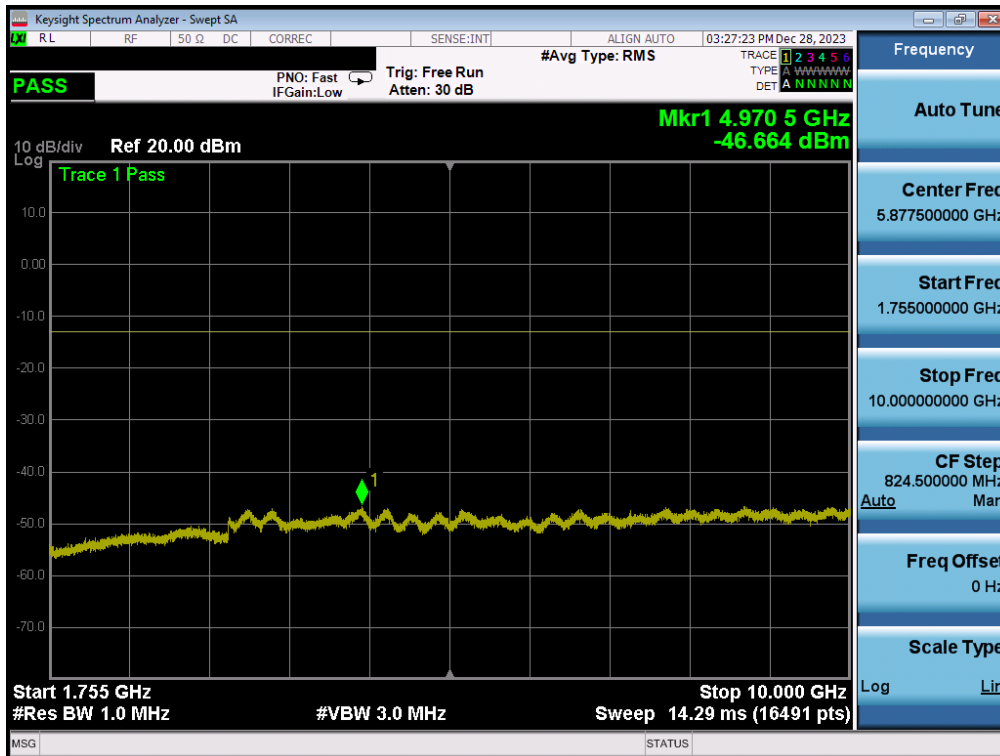
**Table 7-13. Conducted Spurious Emissions Results – Ant1**

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 82 of 181

# WCDMA-AWS – ANT1

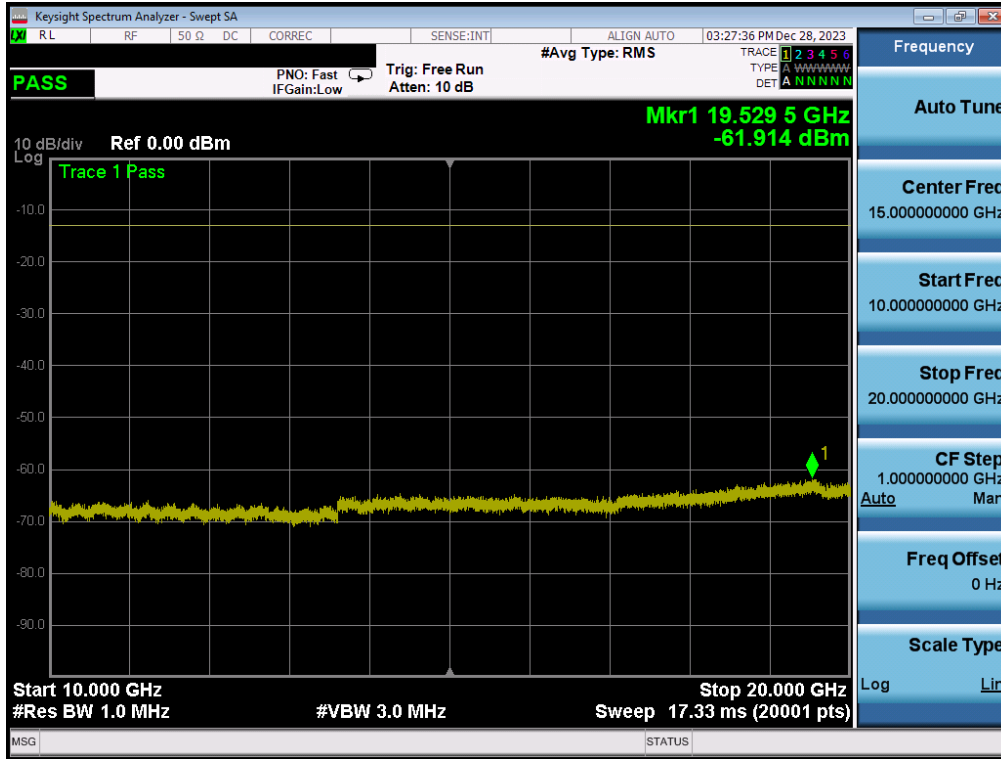


Plot 7-115. Conducted Spurious Plot (WCDMA-AWS - 5MHz QPSK - 1 RB – Mid Channel)



Plot 7-116. Conducted Spurious Plot (WCDMA-AWS - 5MHz QPSK - 1 RB – Mid Channel)

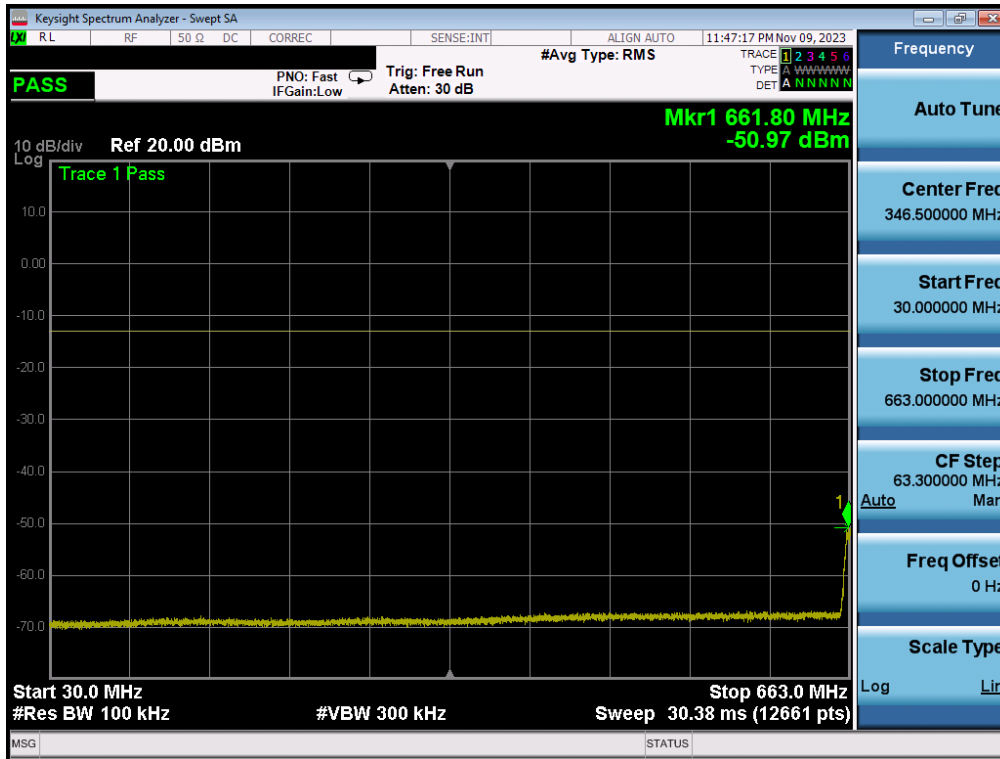
FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 83 of 181



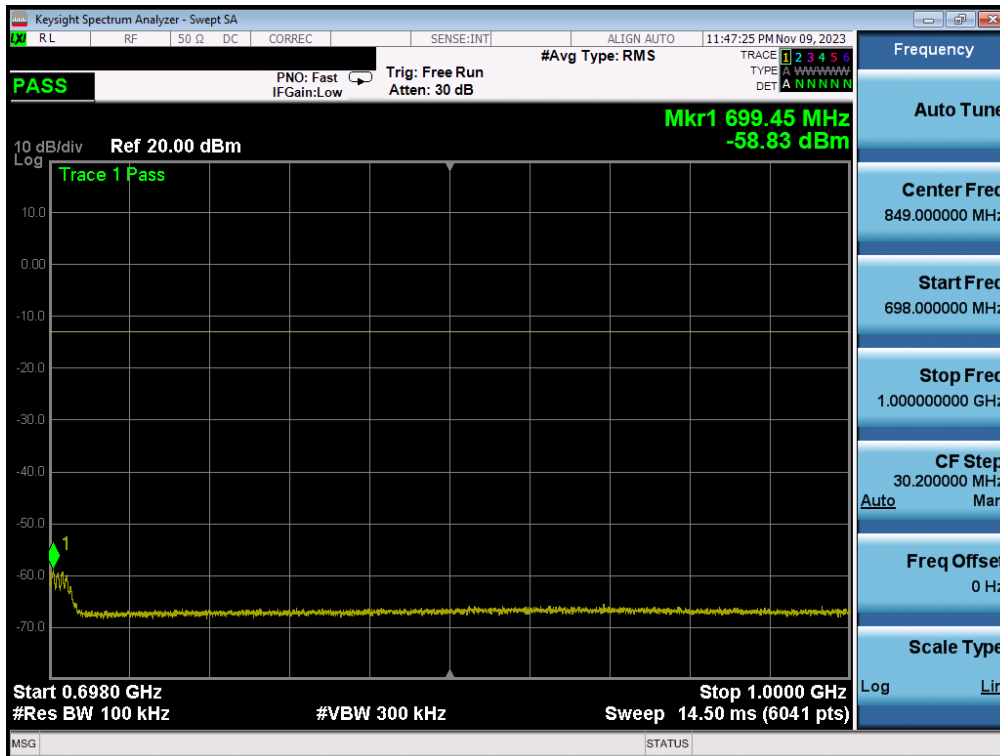
Plot 7-117. Conducted Spurious Plot (WCDMA-AWS - 5MHz QPSK - 1 RB – Mid Channel)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 84 of 181

# LTE Band 71 – ANT1

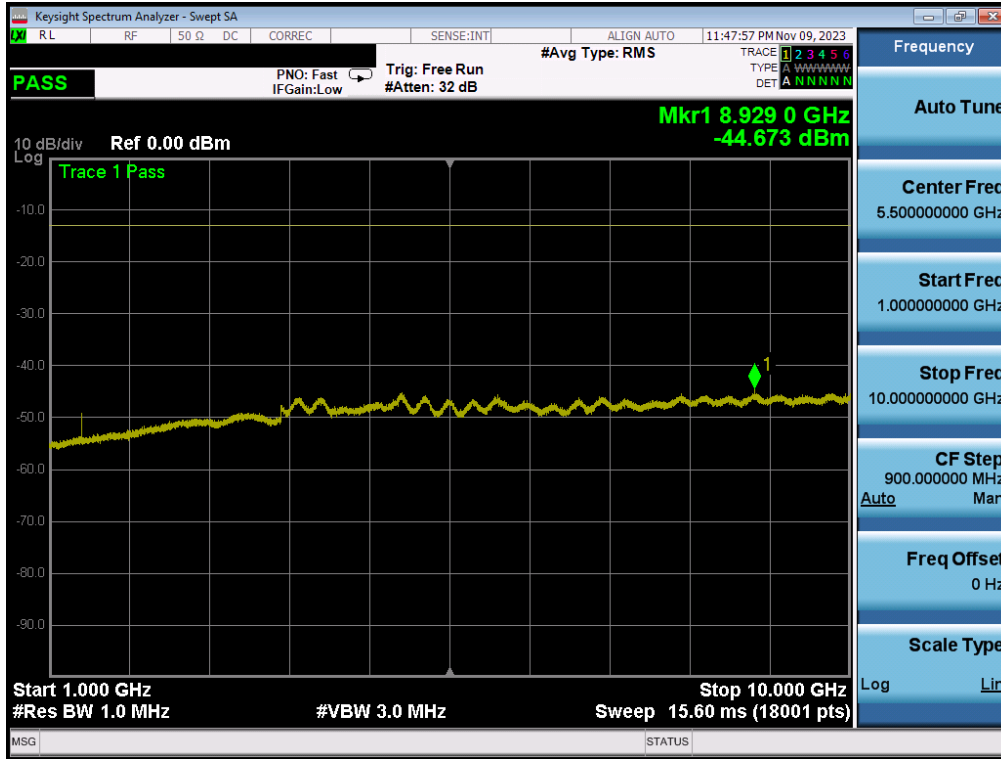


Plot 7-118. Conducted Spurious Plot (LTE Band 71 - 20MHz QPSK - 1 RB - Mid Channel - ANT1)



Plot 7-119. Conducted Spurious Plot (LTE Band 71 - 20MHz QPSK - 1 RB - Mid Channel - ANT1)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 85 of 181

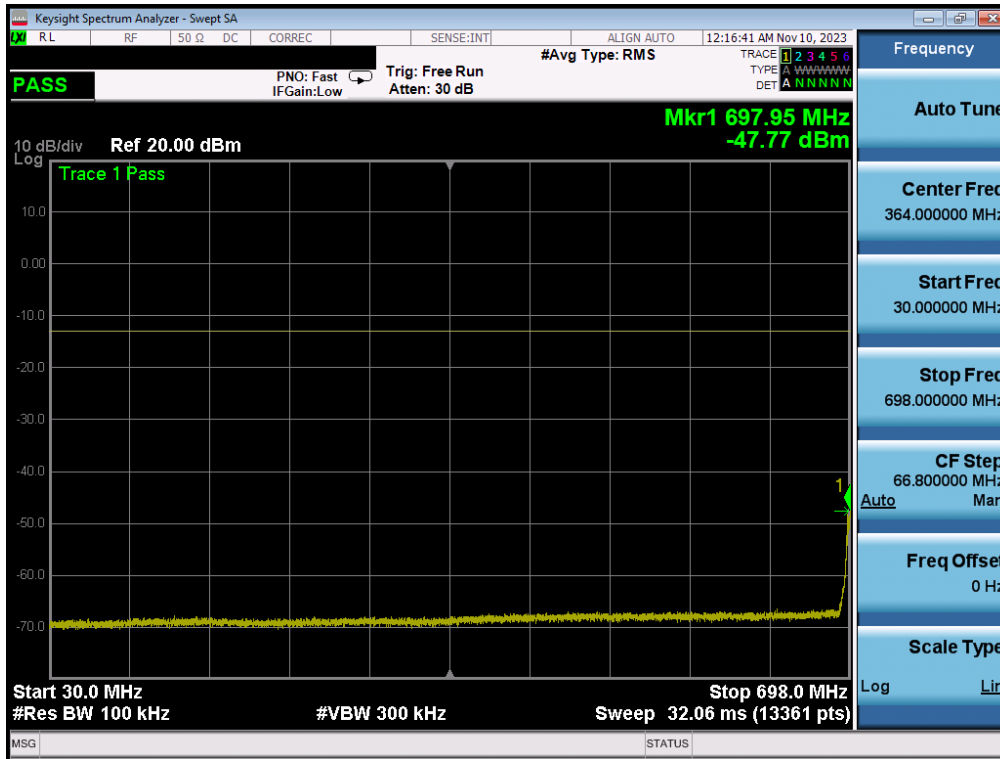


Plot 7-120. Conducted Spurious Plot (LTE Band 71 - 20MHz QPSK - 1 RB - Mid Channel - ANT1)

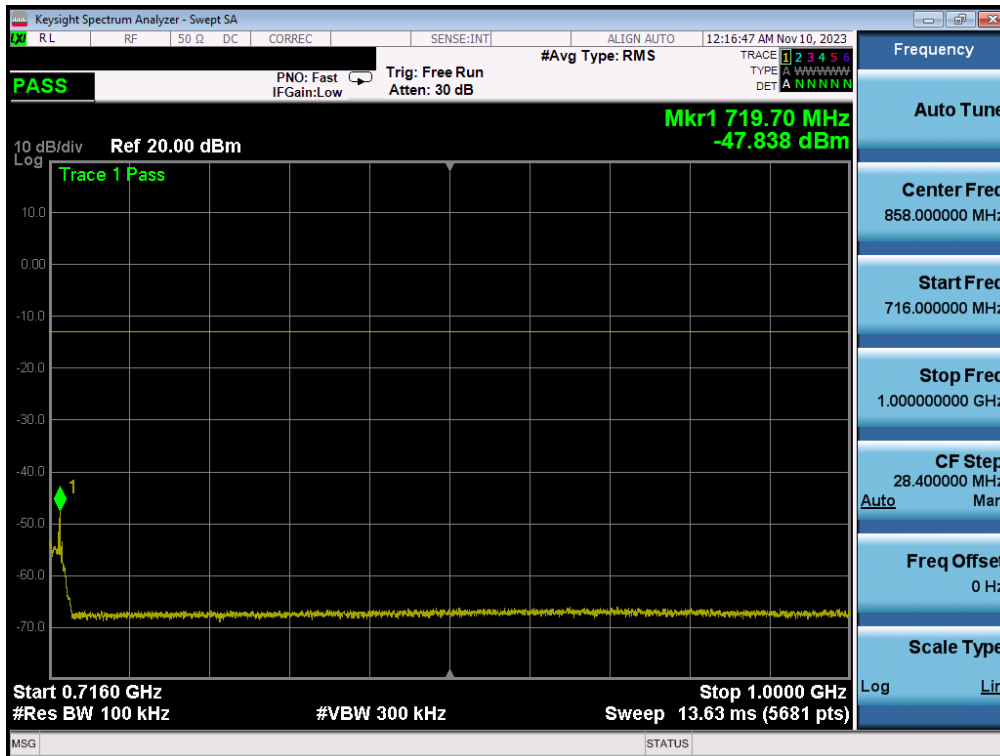
FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 86 of 181



# LTE Band 12 – ANT1

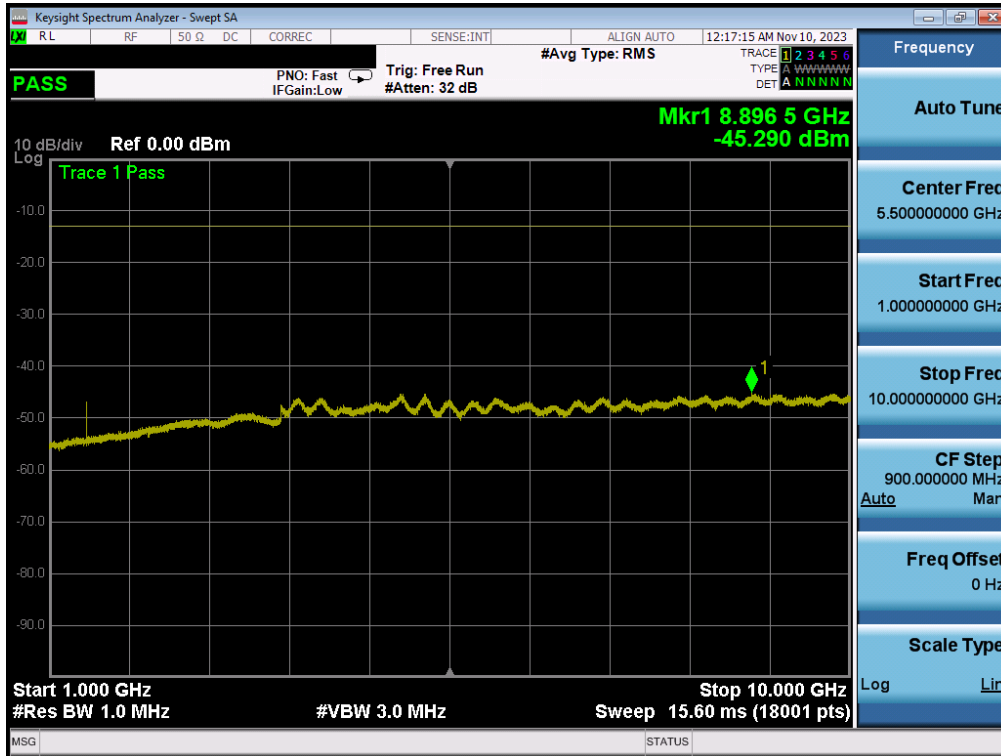


Plot 7-121. Conducted Spurious Plot (LTE Band 12 - 10MHz QPSK - 1 RB - Mid Channel - ANT1)



Plot 7-122. Conducted Spurious Plot (LTE Band 12 - 10MHz QPSK - 1 RB - Mid Channel - ANT1)

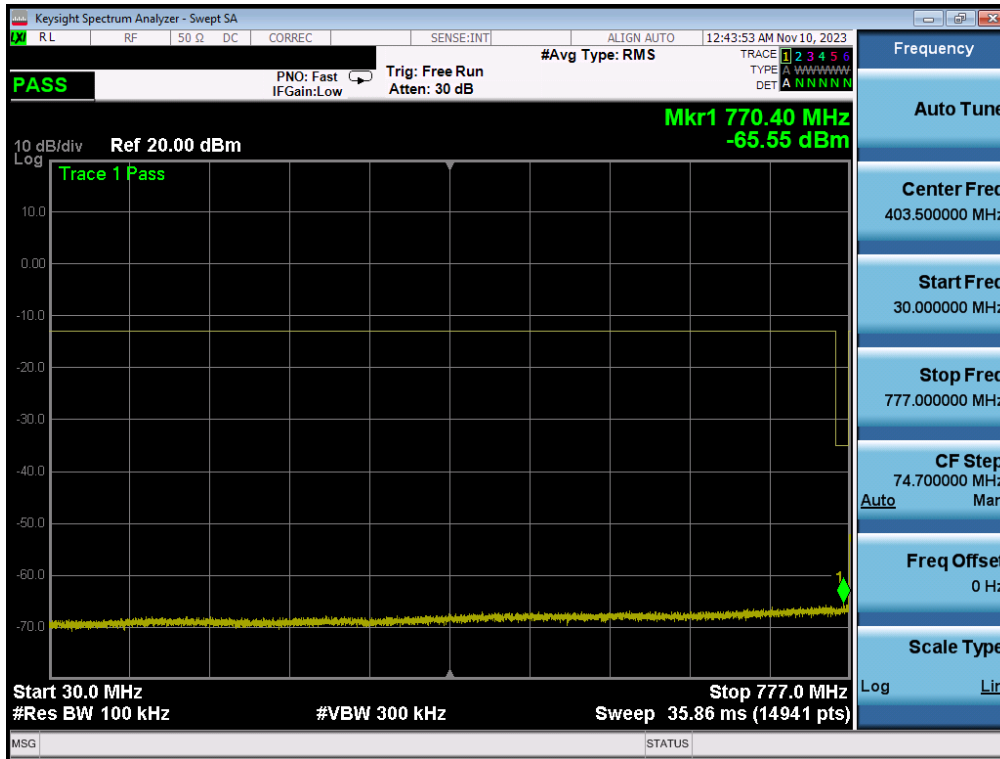
FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 87 of 181



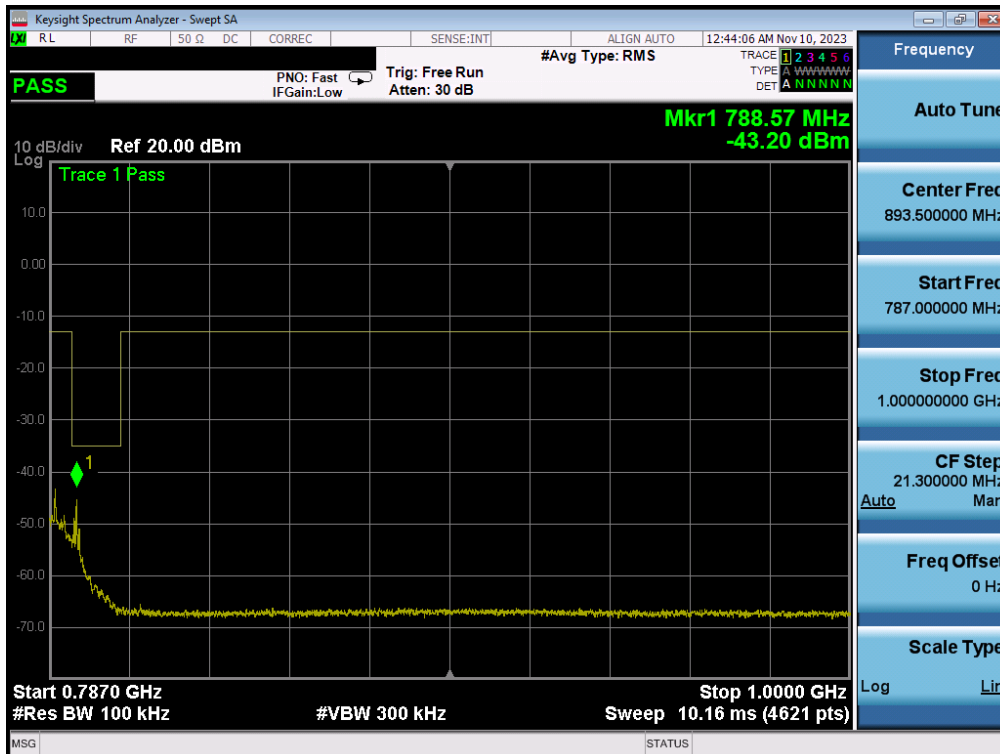
Plot 7-123. Conducted Spurious Plot (LTE Band 12 - 10MHz QPSK - 1 RB - Mid Channel - ANT1)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 88 of 181

# LTE Band 13 – ANT1

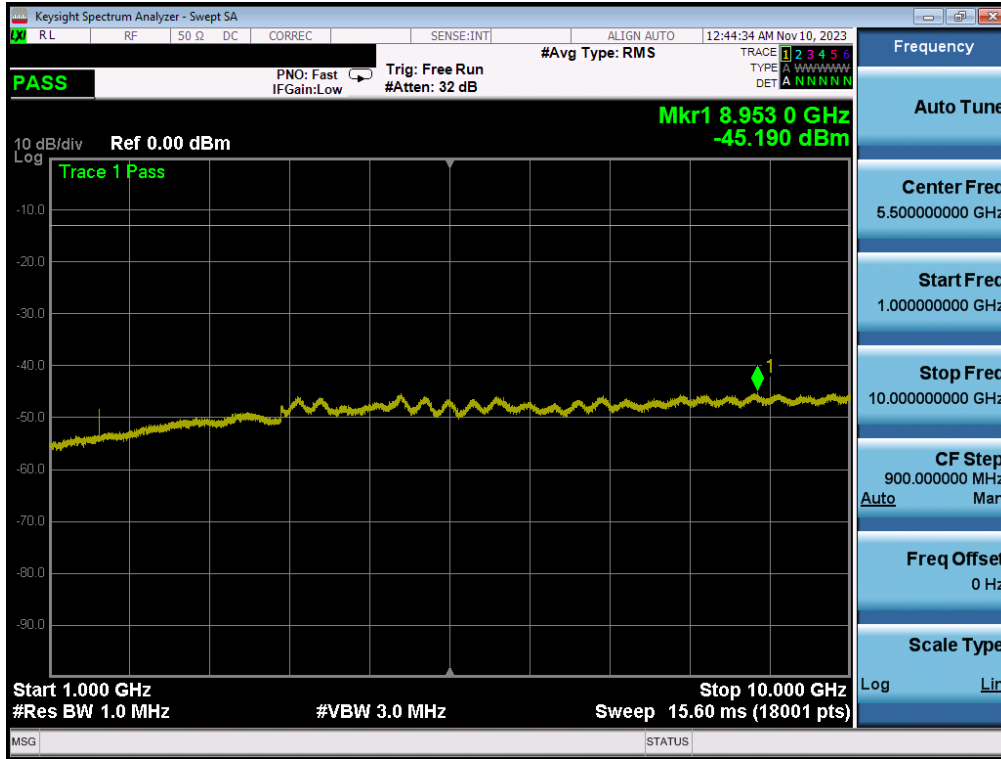


Plot 7-124. Conducted Spurious Plot (LTE Band 13 - 10MHz QPSK - 1 RB)



Plot 7-125. Conducted Spurious Plot (LTE Band 13 - 10MHz QPSK - 1 RB)

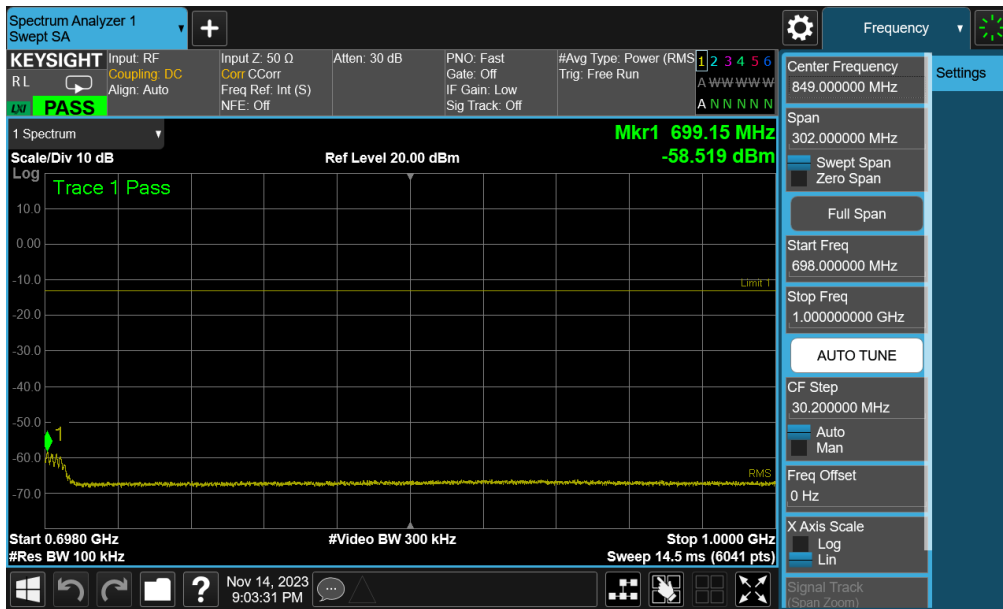
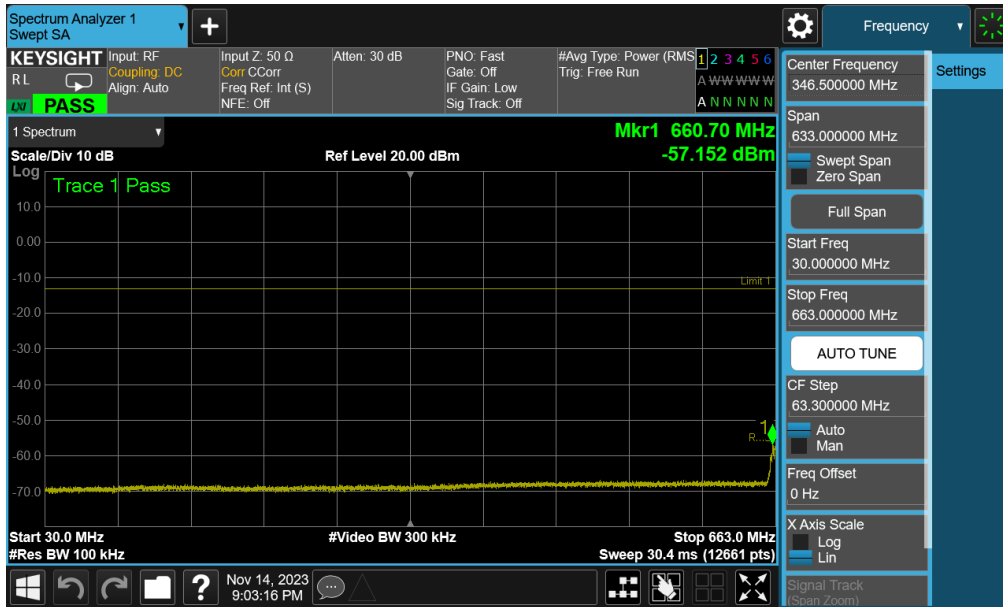
FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 89 of 181



Plot 7-126. Conducted Spurious Plot (LTE Band 13 - 10MHz QPSK - 1 RB)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 90 of 181

# NR Band n71 – ANT1



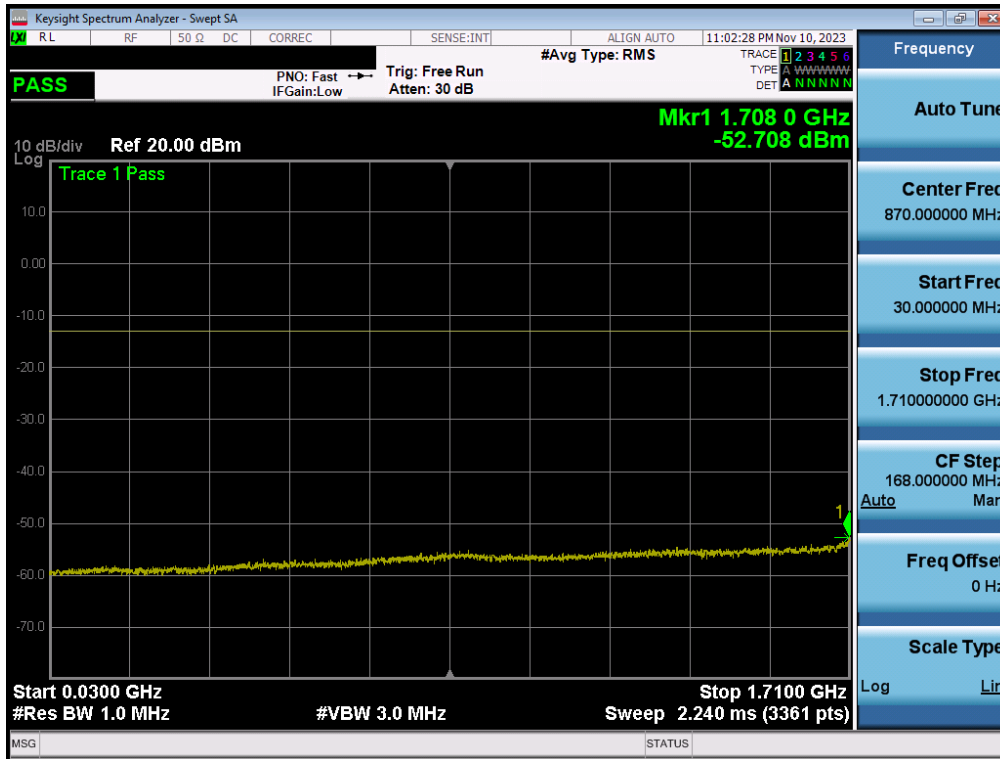
FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 91 of 181



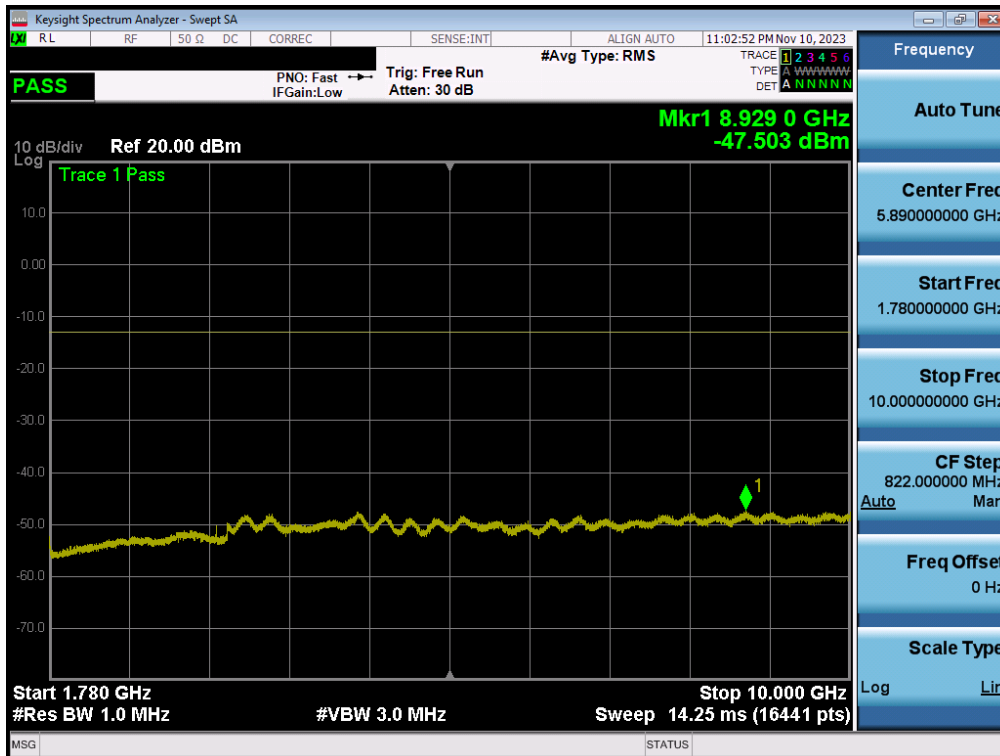
**Plot 7-129. Conducted Spurious Plot (NR Band n71 - 20.0MHz - 1 RB - Mid Channel - ANT1)**

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 92 of 181

### LTE Band 66/4 – ANT1

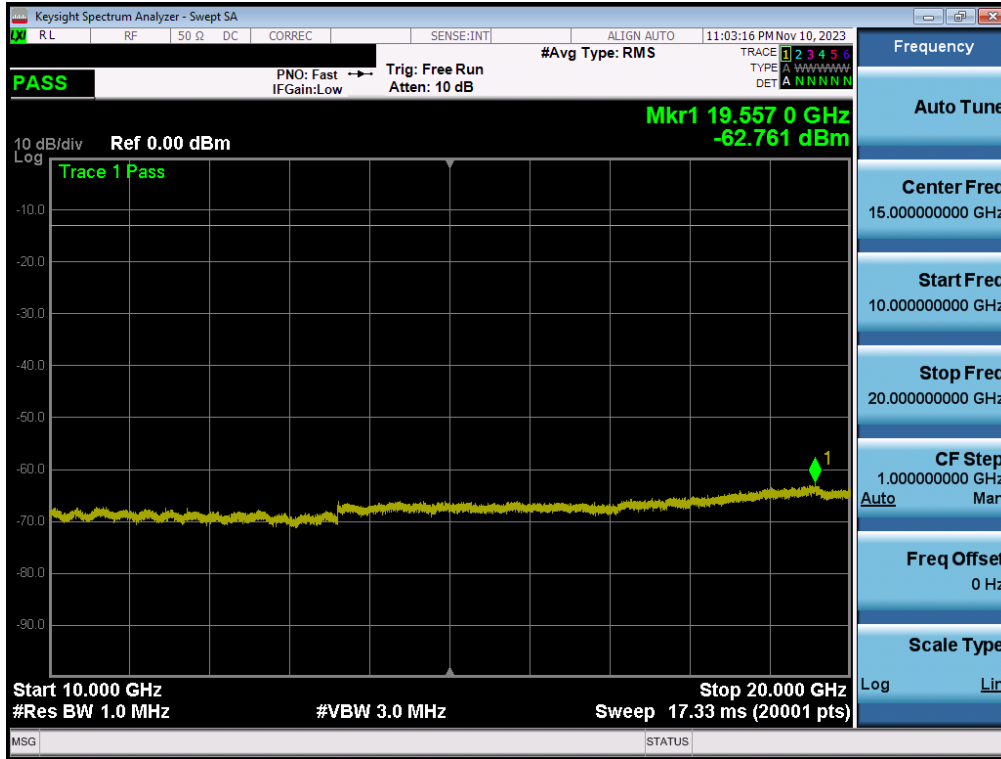


Plot 7-130. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB – Mid Channel)



Plot 7-131. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB – Mid Channel)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 93 of 181

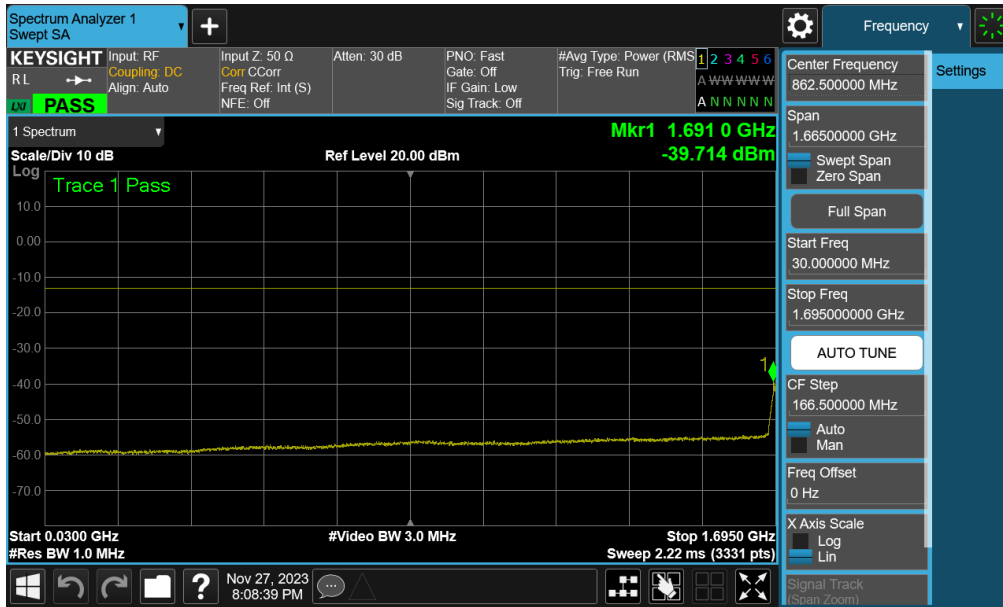


Plot 7-132. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB – High Channel)

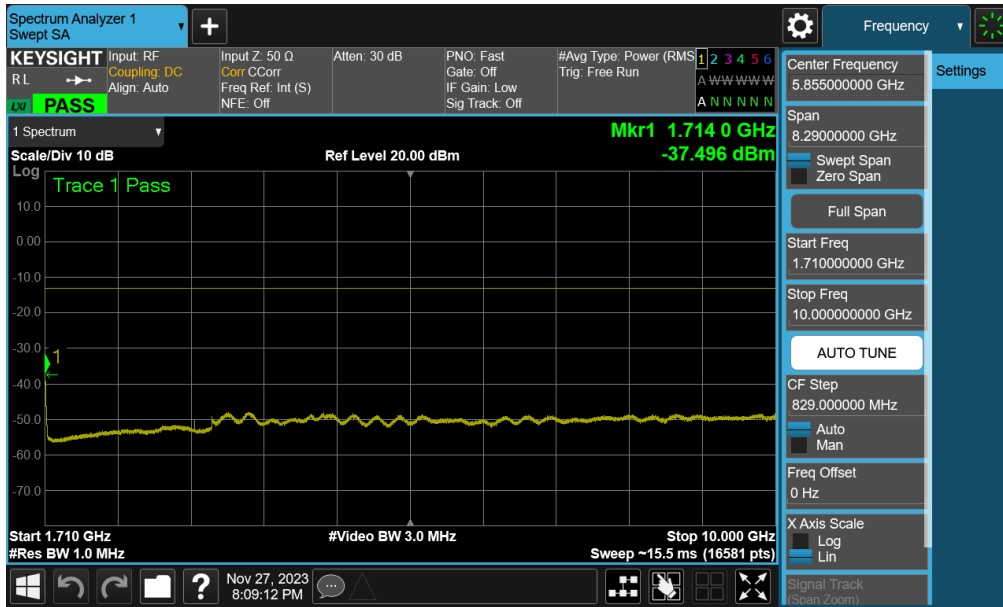
FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 94 of 181



# NR Band n70 – ANT1

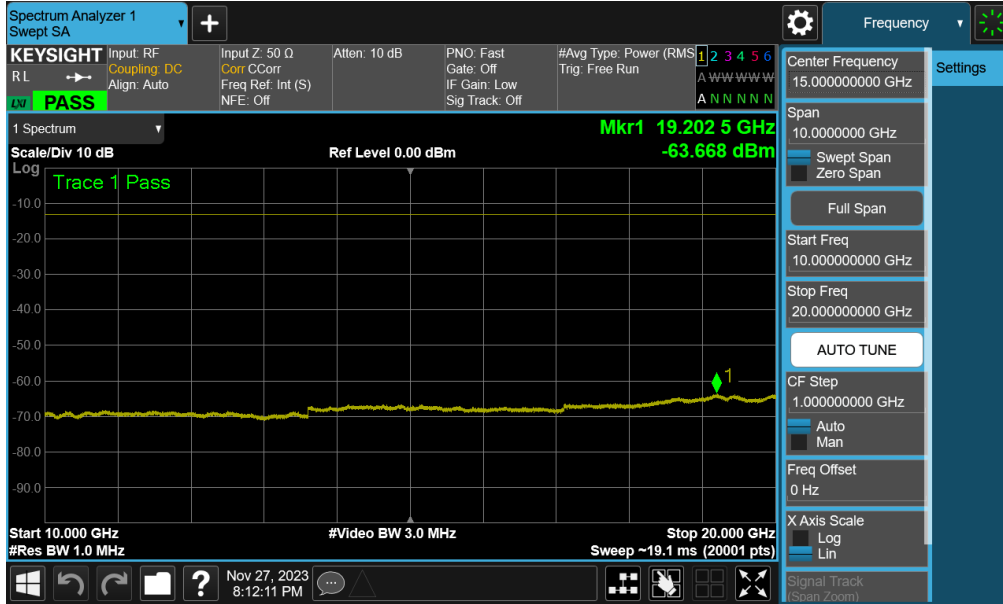


Plot 7-133. Conducted Spurious Plot (NR Band n70 - 15.0MHz - 1 RB - Mid Channel - ANT1)



Plot 7-134. Conducted Spurious Plot (NR Band n70 - 15.0MHz - 1 RB - Mid Channel - ANT1)

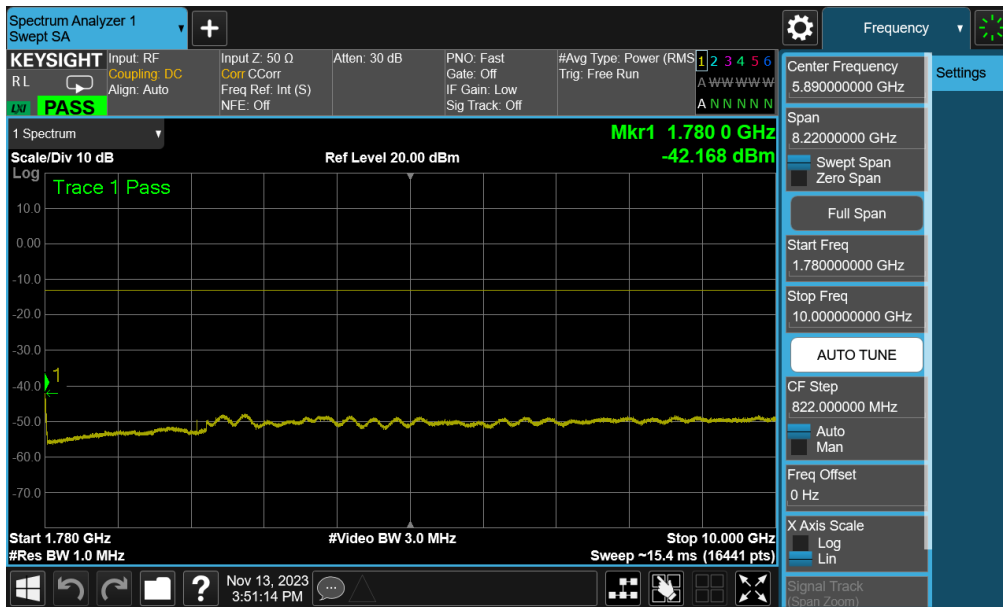
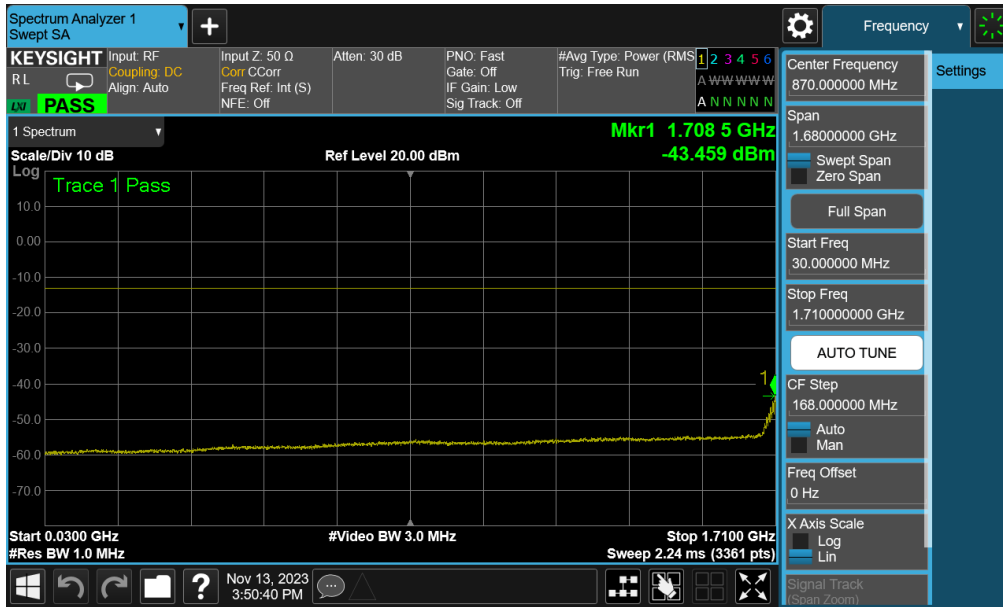
FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 95 of 181



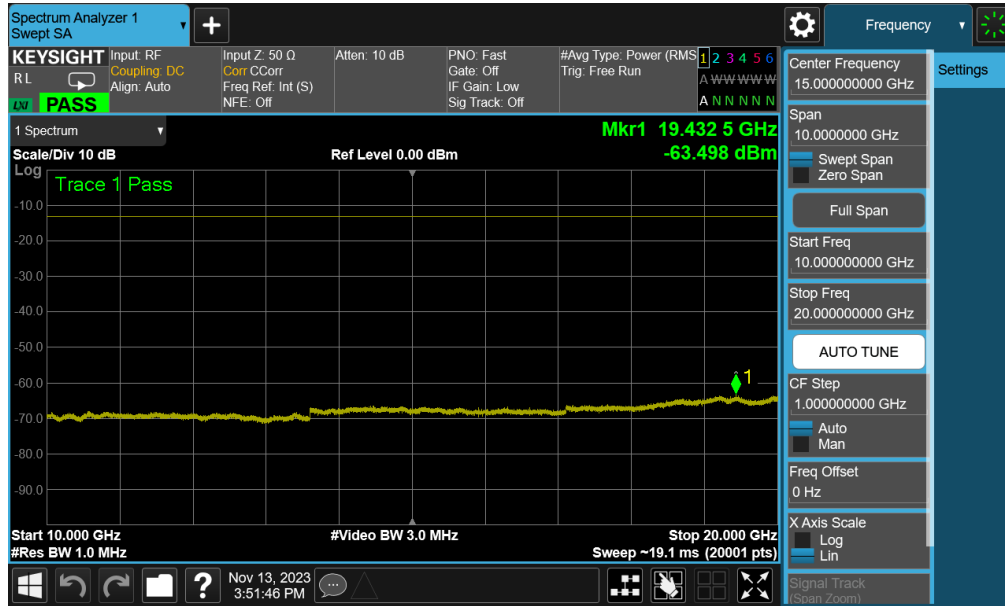
Plot 7-135. Conducted Spurious Plot (NR Band n70 - 15.0MHz - 1 RB - Mid Channel - ANT1)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 96 of 181

# NR Band n66 – ANT1



FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 97 of 181



Plot 7-138. Conducted Spurious Plot (NR Band n66 - 40.0MHz - 1 RB - Mid Channel - ANT1)

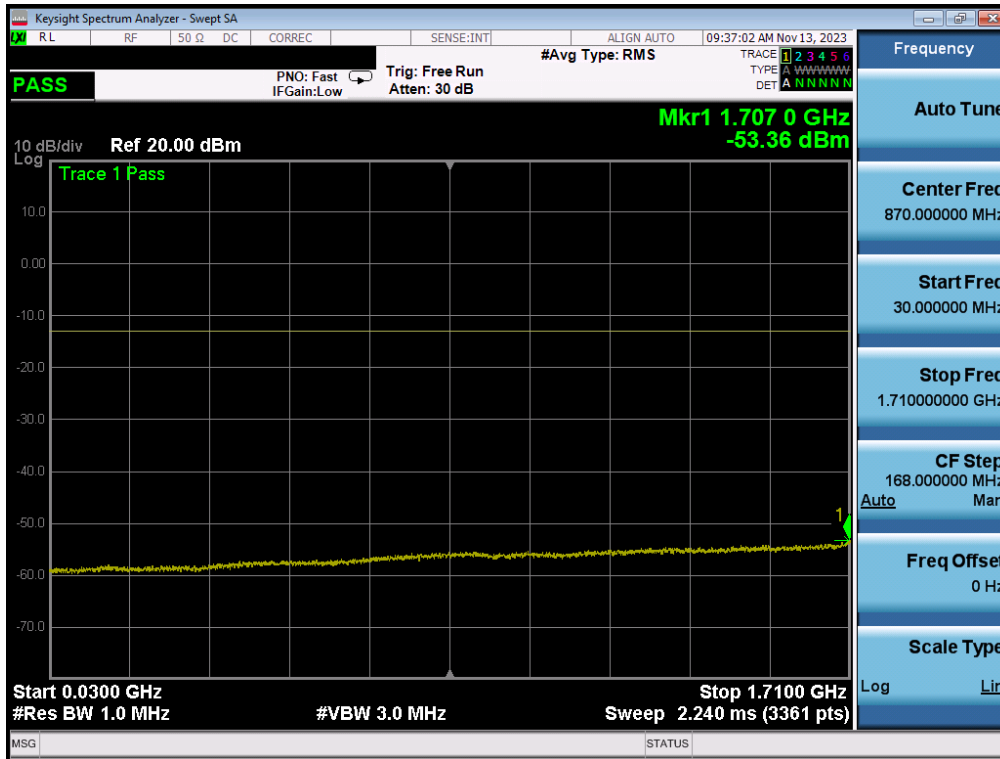
FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 98 of 181

Mode	Bandwidth	Channel	Range [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]
LTE Band 66/4	20 MHz	Low	30.0 - 1709.0	-29.91	-13	-16.91
		Low	1780.0 - 10000.0	-46.84	-13	-33.84
		Low	10000.0 - 20000.0	-62.60	-13	-49.60
		Mid	30.0 - 1710.0	-53.36	-13	-40.36
		Mid	1780.0 - 10000.0	-46.79	-13	-33.79
		Mid	10000.0 - 20000.0	-62.56	-13	-49.56
		High	30.0 - 1710.0	-53.70	-13	-40.70
		High	1781.0 - 10000.0	-39.35	-13	-26.35
NR Band n66	40 MHz	Low	30.0 - 1710.0	-41.50	-13	-28.50
		Low	1780.0 - 10000.0	-47.29	-13	-34.29
		Low	10000.0 - 20000.0	-63.18	-13	-50.18
		Mid	30.0 - 1710.0	-45.07	-13	-32.07
		Mid	1780.0 - 10000.0	-45.00	-13	-32.00
		Mid	10000.0 - 20000.0	-63.32	-13	-50.32
		High	30.0 - 1710.0	-48.76	-13	-35.76
		High	1780.0 - 10000.0	-40.74	-13	-27.74
		High	10000.0 - 20000.0	-63.15	-13	-50.15

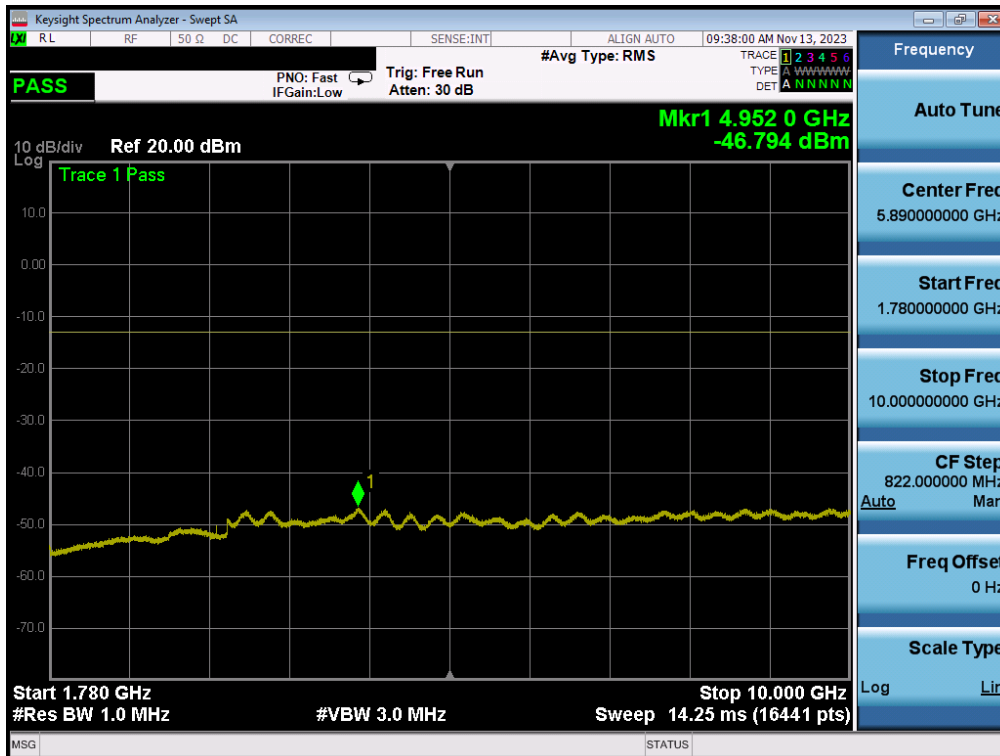
**Table 7-14. Conducted Spurious Emissions Results – Ant2**

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 99 of 181

# LTE Band 66/4 – ANT2

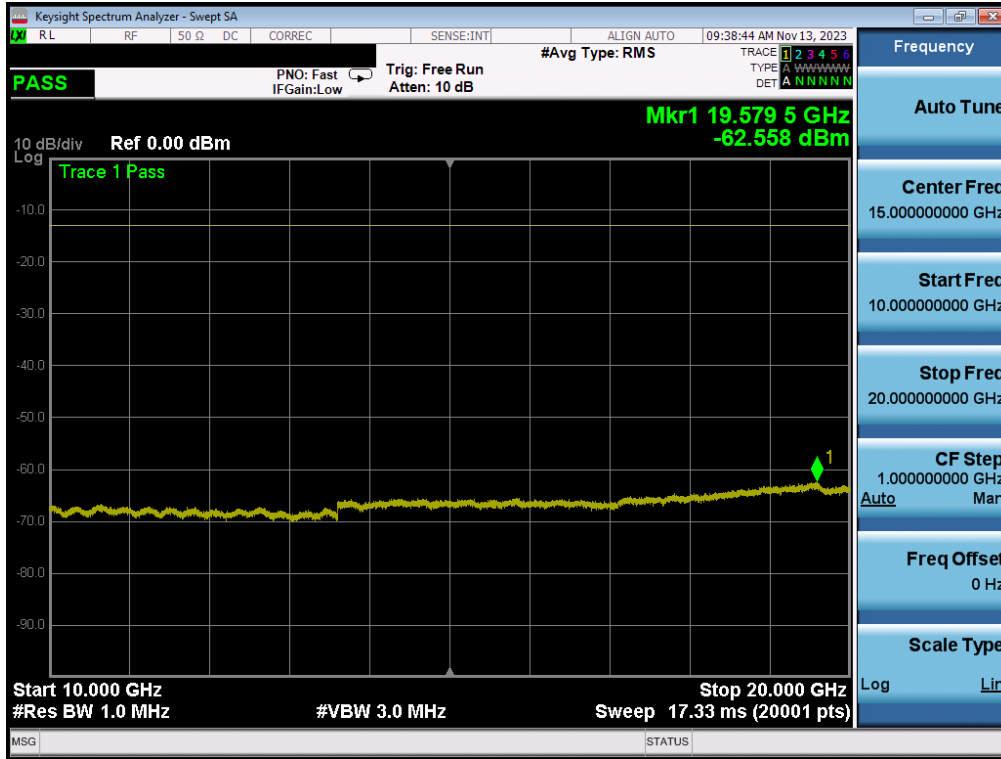


Plot 7-139. Conducted Spurious Plot (LTE Band 66/4 - 10MHz QPSK - 1 RB)



Plot 7-140. Conducted Spurious Plot (LTE Band 66/4 - 10MHz QPSK - 1 RB)

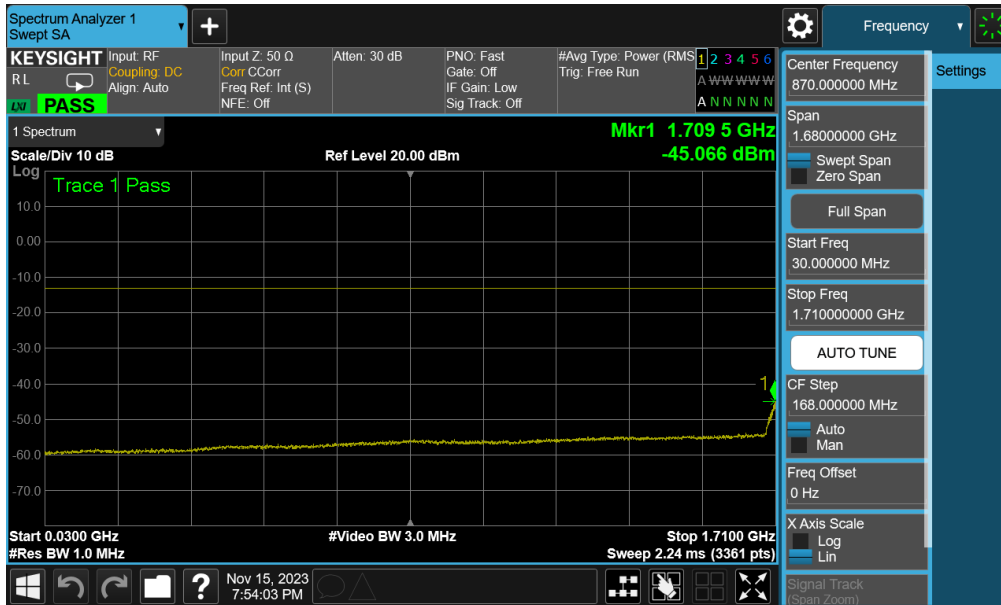
FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 100 of 181



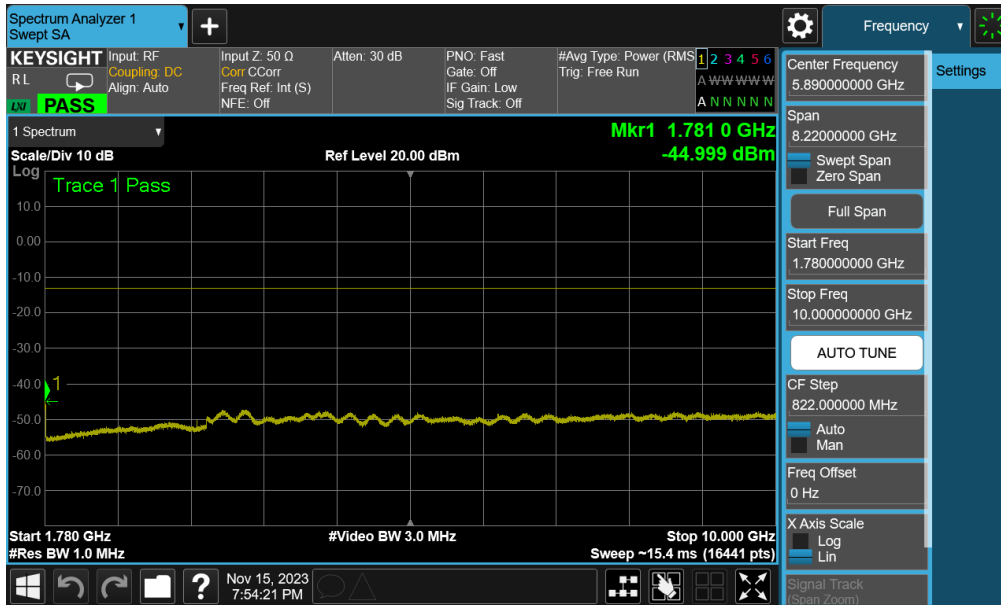
Plot 7-141. Conducted Spurious Plot (LTE Band 66/4 - 10MHz QPSK - 1 RB)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 101 of 181

# NR Band n66 – ANT2



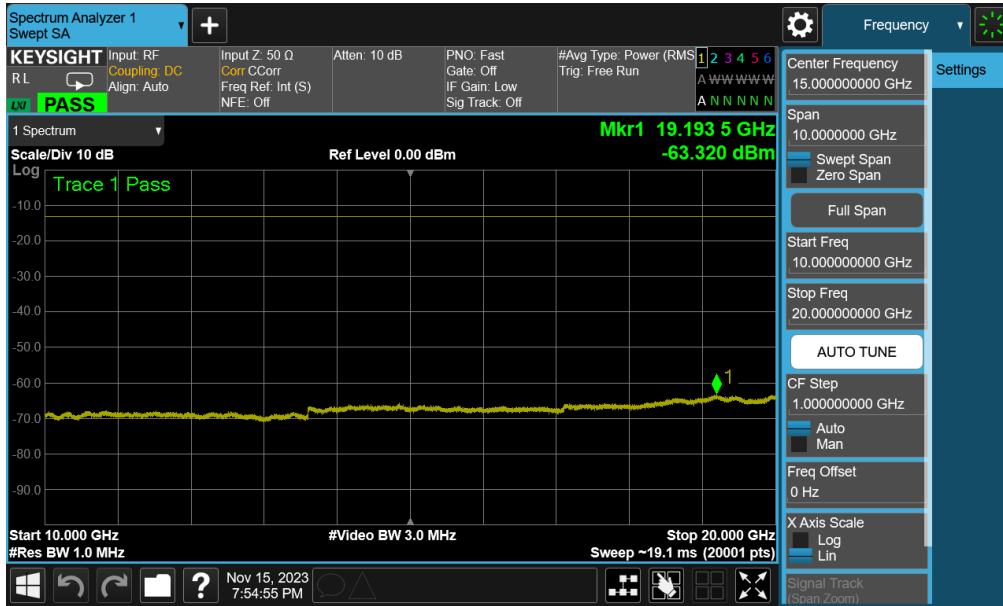
Plot 7-142. Conducted Spurious Plot (NR Band n66 - 40.0MHz - 1 RB - Mid Channel - ANT2)



Plot 7-143. Conducted Spurious Plot (NR Band n66 - 40.0MHz - 1 RB - Mid Channel - ANT2)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 102 of 181





Plot 7-144. Conducted Spurious Plot (NR Band n66 - 40.0MHz - 1 RB - Mid Channel - ANT2)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 103 of 181

## 7.5 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.***

### Test Procedure Used

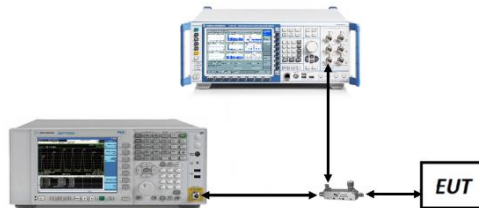
ANSI C63.26-2015 – Section 5.7.3

### 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 7-4. Test Instrument & Measurement Setup**

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 104 of 181

**Test Notes**

1. Per 27.53(h) for AWS band operation, 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.
2. 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.
3. 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.
4. 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: A3LSMA356U	<b>PART 27 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 105 of 181

Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
WCDMA1700	N/A	Low	Band Edge	-24.61	-13	-11.61
		Low	Extended	-16.73	-13	-3.73
		High	Band Edge	-22.14	-13	-9.14
		High	Extended	-20.21	-13	-7.21
LTE Band 71	20 MHz	Low	Band Edge	-29.30	-13	-16.30
		High	Band Edge	-30.10	-13	-17.10
	15 MHz	Low	Band Edge	-27.87	-13	-14.87
		High	Band Edge	-29.00	-13	-16.00
	10 MHz	Low	Band Edge	-24.59	-13	-11.59
		High	Band Edge	-25.80	-13	-12.80
5 MHz	Low	Band Edge	-18.45	-13	-5.45	
	High	Band Edge	-17.90	-13	-4.90	
LTE Band 12	10 MHz	Low	Band Edge	-27.48	-13	-14.48
		High	Band Edge	-28.34	-13	-15.34
	5 MHz	Low	Band Edge	-20.82	-13	-7.82
		High	Band Edge	-21.55	-13	-8.55
	3 MHz	Low	Band Edge	-15.29	-13	-2.29
		High	Band Edge	-19.16	-13	-6.16
1.4 MHz	Low	Band Edge	-17.28	-13	-4.28	
	High	Band Edge	-18.00	-13	-5.00	
LTE Band 13	10 MHz	Low	Band Edge	-22.53	-13	-9.53
		Low	Emission Mask	-58.87	-13	-45.87
		High	Band Edge	-19.00	-13	-6.00
		High	Emission Mask	-40.98	-13	-27.98
	5 MHz	Low	Band Edge	-18.07	-13	-5.07
		Low	Emission Mask	-62.55	-13	-49.55
High		Band Edge	-15.47	-13	-2.47	
High		EmMask	-53.13	-13	-40.13	

**Table 7-15. Conducted Band Edge Results – Ant1**

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 106 of 181

Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
LTE Band 66/4	20MHz	Low	Band Edge	-27.72	-13	-14.72
		Low	Extended	-28.87	-13	-15.87
		High (B4)	Band Edge	-29.17	-13	-16.17
		High (B4)	Extended	-31.32	-13	-18.32
		High (B66)	Band Edge	-28.13	-13	-15.13
		High (B66)	Extended	-31.74	-13	-18.74
	15MHz	Low	Band Edge	-27.96	-13	-14.96
		Low	Extended	-27.66	-13	-14.66
		High (B4)	Band Edge	-25.86	-13	-12.86
		High (B4)	Extended	-28.52	-13	-15.52
		High (B66)	Band Edge	-27.80	-13	-14.80
		High (B66)	Extended	-28.79	-13	-15.79
	10MHz	Low	Band Edge	-25.30	-13	-12.30
		Low	Extended	-23.60	-13	-10.60
		High (B4)	Band Edge	-22.29	-13	-9.29
		High (B4)	Extended	-24.14	-13	-11.14
		High (B66)	Band Edge	-25.89	-13	-12.89
		High (B66)	Extended	-24.24	-13	-11.24
	5MHz	Low	Band Edge	-19.66	-13	-6.66
		Low	Extended	-26.56	-13	-13.56
		High (B4)	Band Edge	-21.31	-13	-8.31
		High (B4)	Extended	-28.85	-13	-15.85
		High (B66)	Band Edge	-20.62	-13	-7.62
		High (B66)	Extended	-30.87	-13	-17.87
	3MHz	Low	Band Edge	-21.95	-13	-8.95
		Low	Extended	-26.66	-13	-13.66
		High (B4)	Band Edge	-20.28	-13	-7.28
		High (B4)	Extended	-28.44	-13	-15.44
		High (B66)	Band Edge	-19.39	-13	-6.39
		High (B66)	Extended	-30.57	-13	-17.57
1.4MHz	Low	Band Edge	-24.54	-13	-11.54	
	Low	Extended	-32.36	-13	-19.36	
	High (B4)	Band Edge	-26.93	-13	-13.93	
	High (B4)	Extended	-32.92	-13	-19.92	
	High (B66)	Band Edge	-25.48	-13	-12.48	
	High (B66)	Extended	-33.68	-13	-20.68	

**Table 7-16. Conducted Band Edge Results – Ant1**

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 107 of 181

Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]	
NR Band n71	20 MHz	Low	Band Edge	-27.52	-13	-14.52	
		High	Band Edge	-27.55	-13	-14.55	
	15 MHz	Low	Band Edge	-27.09	-13	-14.09	
		High	Band Edge	-26.77	-13	-13.77	
	10 MHz	Low	Band Edge	-24.42	-13	-11.42	
		High	Band Edge	-26.18	-13	-13.18	
	5 MHz	Low	Band Edge	-20.72	-13	-7.72	
		High	Band Edge	-18.38	-13	-5.38	
	NR Band n70	15 MHz	Low	Band Edge	-23.56	-13	-10.56
			Low	Extended	-22.14	-13	-9.14
High			Band Edge	-23.62	-13	-10.62	
High			Extended	-22.35	-13	-9.35	
10 MHz		Low	Band Edge	-25.20	-13	-12.20	
		Low	Extended	-18.07	-13	-5.07	
		High	Band Edge	-25.50	-13	-12.50	
		High	Extended	-18.19	-13	-5.19	
5 MHz		Low	Band Edge	-24.02	-13	-11.02	
		Low	Extended	-26.98	-13	-13.98	
		High	Band Edge	-23.06	-13	-10.06	
		High	Extended	-25.90	-13	-12.90	
NR Band n66		40 MHz	Low	Band Edge	-24.44	-13	-11.44
			Low	Extended	-25.58	-13	-12.58
	High		Band Edge	-20.40	-13	-7.40	
	High		Extended	-26.47	-13	-13.47	
	30 MHz	Low	Band Edge	-24.08	-13	-11.08	
		Low	Extended	-26.77	-13	-13.77	
		High	Band Edge	-23.99	-13	-10.99	
		High	Extended	-27.12	-13	-14.12	
	20 MHz	Low	Band Edge	-30.46	-13	-17.46	
		Low	Extended	-26.55	-13	-13.55	
		High	Band Edge	-30.01	-13	-17.01	
		High	Extended	-27.71	-13	-14.71	
	15 MHz	Low	Band Edge	-29.10	-13	-16.10	
		Low	Extended	-22.51	-13	-9.51	
		High	Band Edge	-28.42	-13	-15.42	
		High	Extended	-24.16	-13	-11.16	
	10 MHz	Low	Band Edge	-27.96	-13	-14.96	
		Low	Extended	-18.17	-13	-5.17	
		High	Band Edge	-26.40	-13	-13.40	
		High	Extended	-19.23	-13	-6.23	
	5 MHz	Low	Band Edge	-24.05	-13	-11.05	
		Low	Extended	-27.41	-13	-14.41	
		High	Band Edge	-23.32	-13	-10.32	
		High	Extended	-30.89	-13	-17.89	

**Table 7-17. Conducted Band Edge Results – Ant1**

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 108 of 181

# WCDMA AWS – ANT1



Plot 7-145. Lower Band Edge Plot (WCDMA AWS – Ch. 1312 – ANT1)

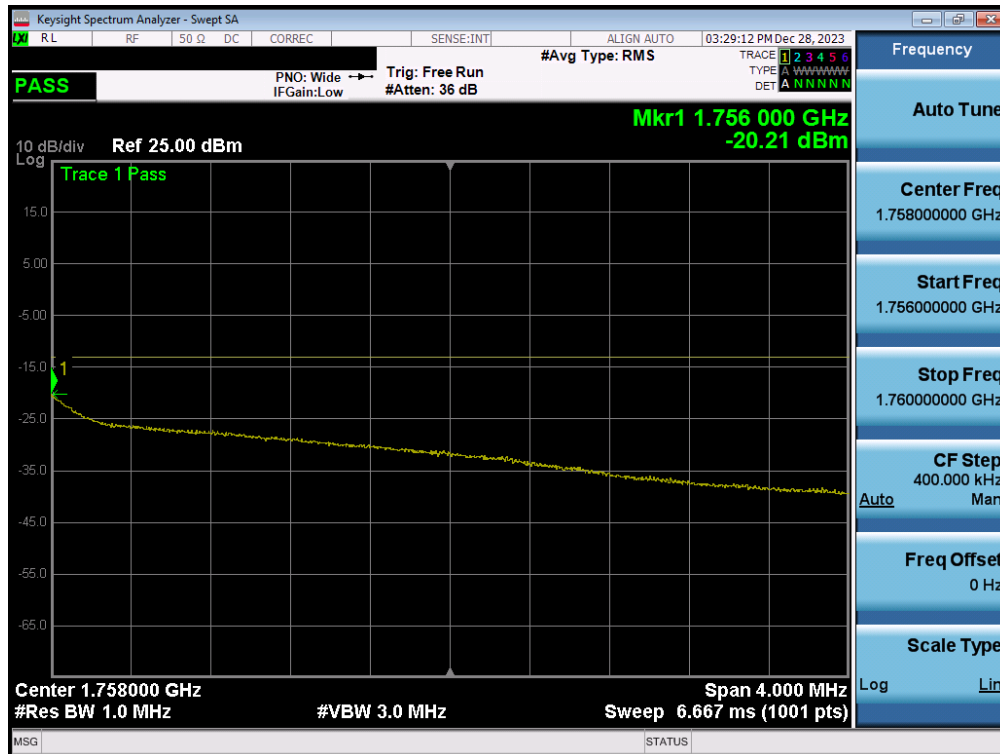


Plot 7-146. Lower Extended Band Edge Plot (WCDMA AWS – Ch. 1312 – ANT1)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 109 of 181



Plot 7-147. Upper Band Edge Plot (WCDMA AWS – Ch. 1513 – ANT1)

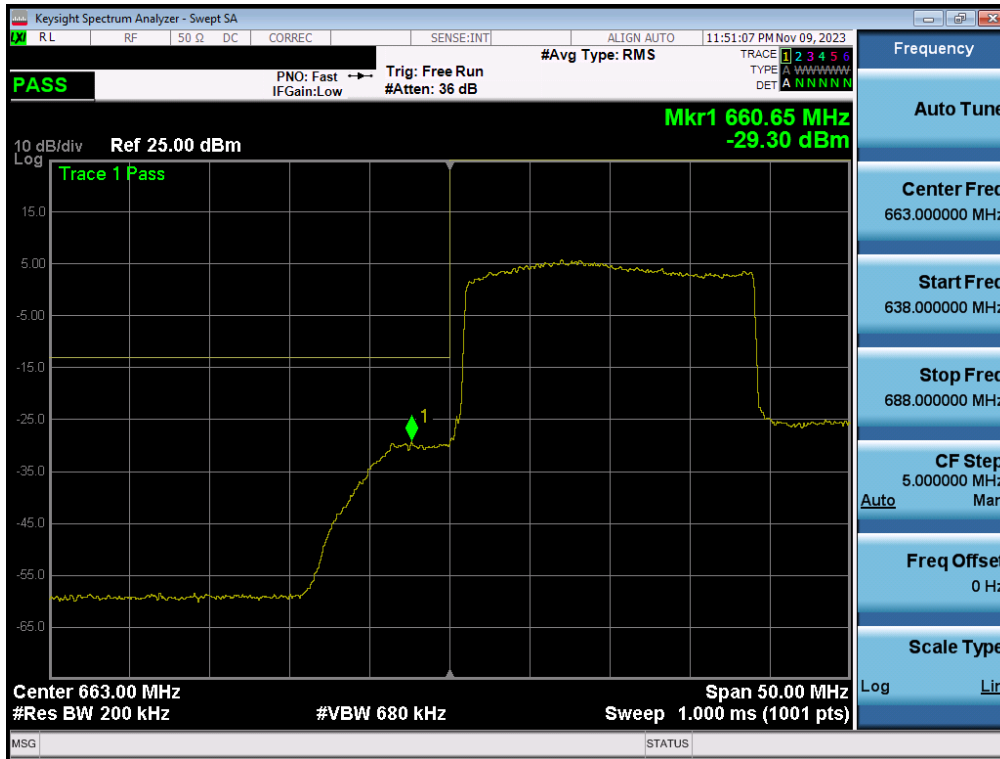


Plot 7-148. Upper Extended Band Edge Plot (WCDMA AWS – Ch. 1513– ANT1)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 110 of 181



# LTE Band 71 – ANT1



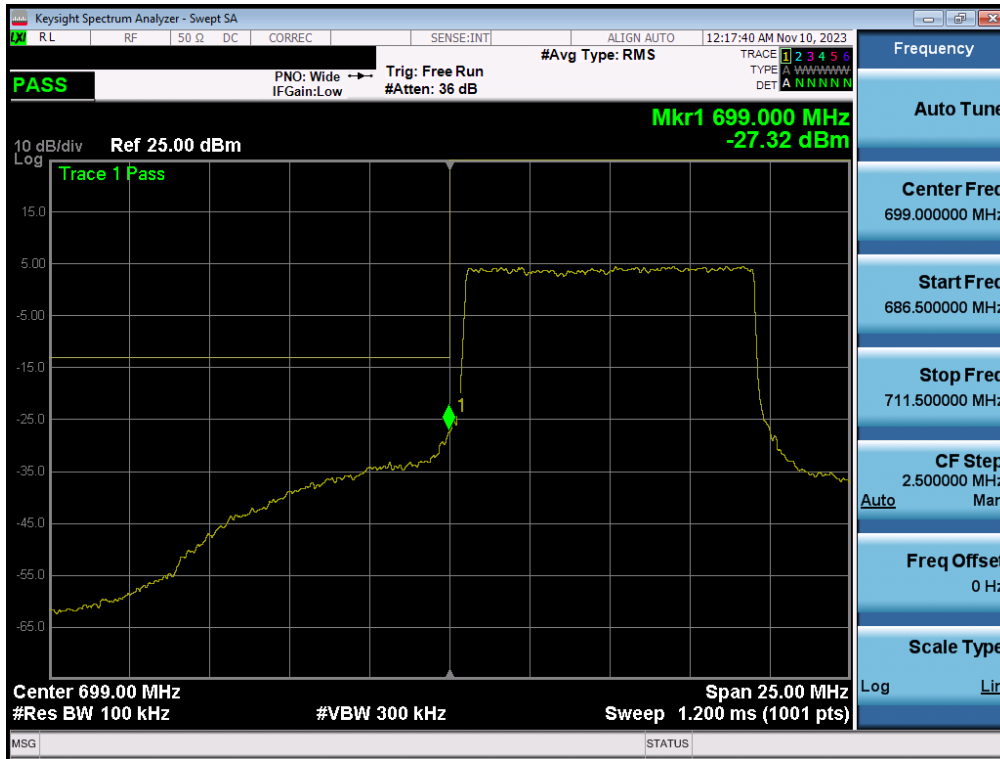
Plot 7-149. Lower Band Edge Plot (LTE Band 71 – 20MHz QPSK – Full RB - ANT1)



Plot 7-150. Upper Band Edge Plot (LTE Band 71 – 20MHz QPSK – Full RB - ANT1)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 111 of 181

# LTE Band 12 – ANT1



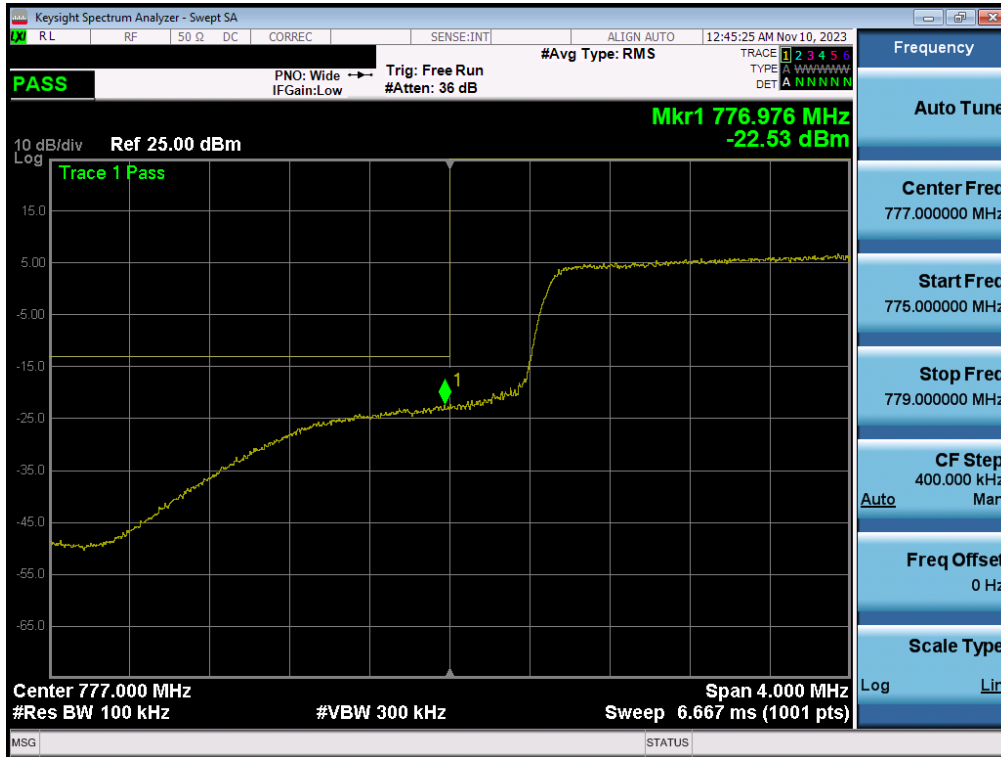
Plot 7-151. Lower Band Edge Plot (LTE Band 12 – 10MHz QPSK – Full RB - ANT1)



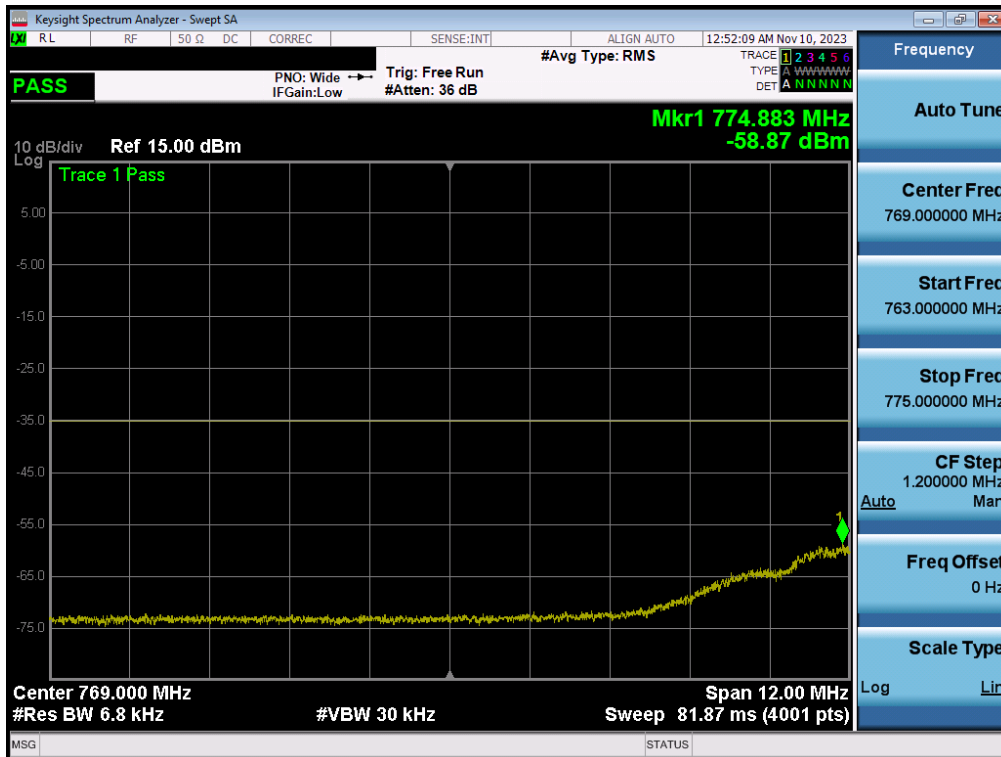
Plot 7-152. Upper Band Edge Plot (LTE Band 12 – 10MHz QPSK – Full RB - ANT1)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 112 of 181

# LTE Band 13 – ANT1

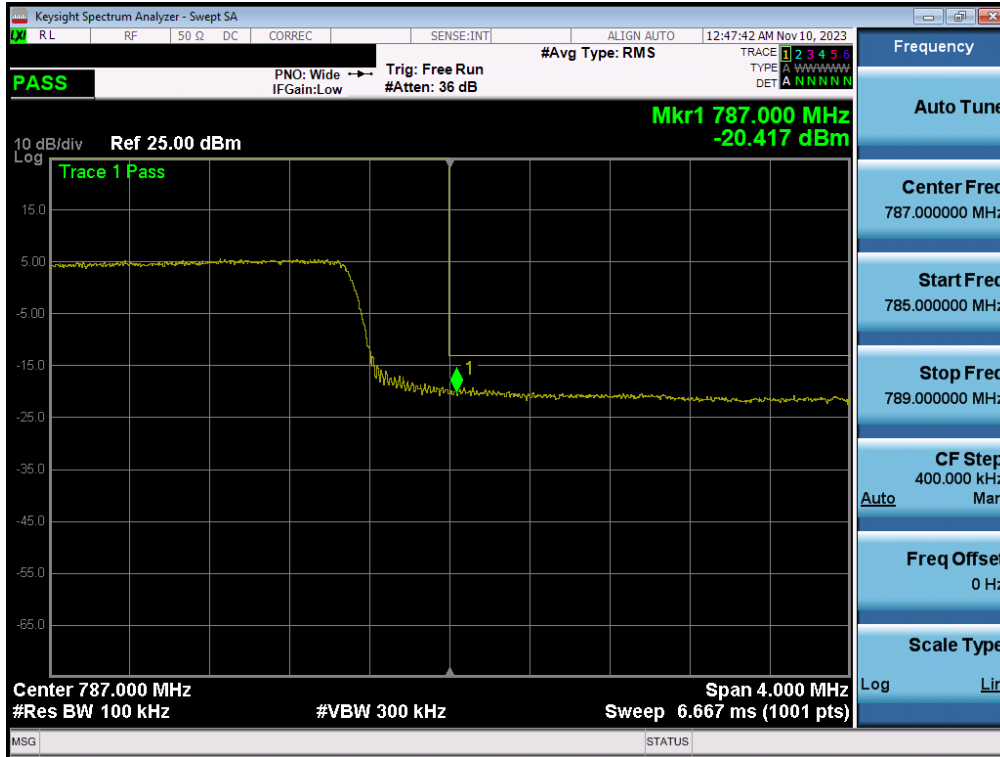


Plot 7-153. Lower Band Edge Plot (LTE Band 13 - 10MHz QPSK – Full RB - ANT1)



Plot 7-154. Lower Emission Mask Plot (LTE Band 13 - 10MHz QPSK – Full RB - ANT1)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 113 of 181



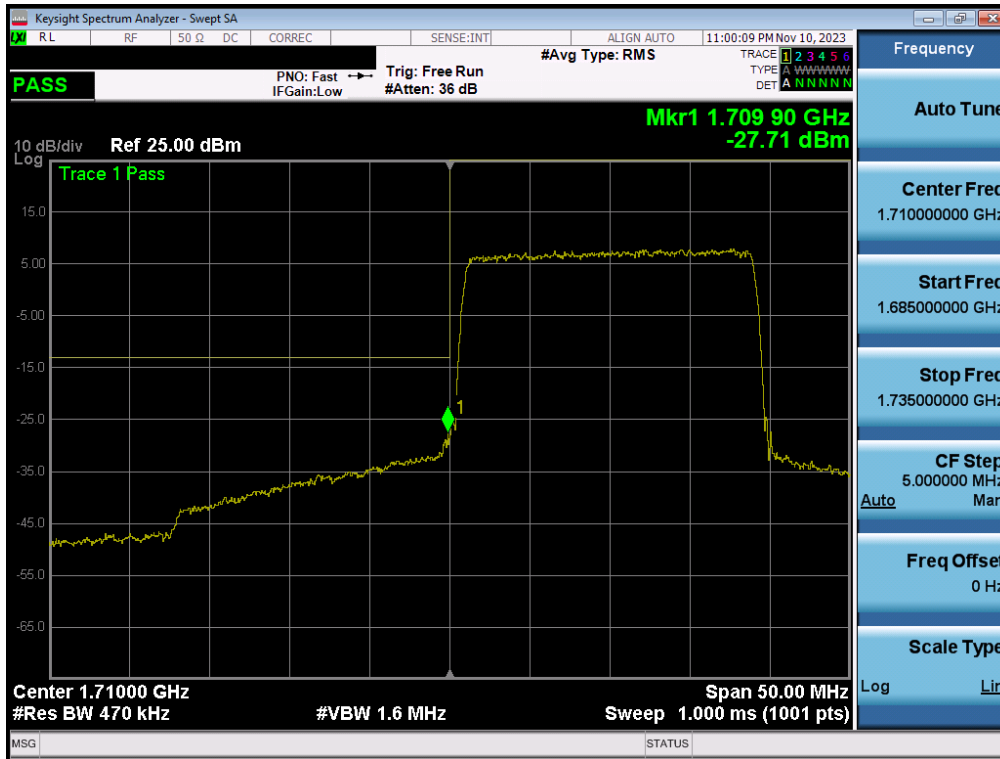
Plot 7-155. Upper Band Edge Plot (LTE Band 13 - 10MHz QPSK – Full RB - ANT1)



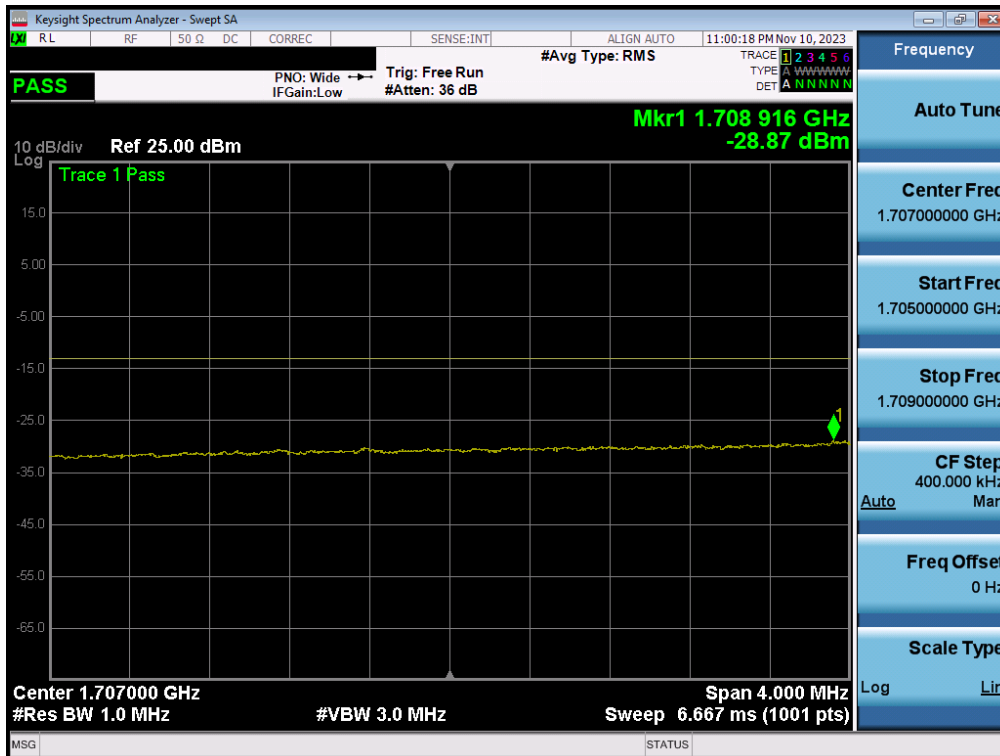
Plot 7-156. Upper Emission Mask Plot (LTE Band 13 - 10MHz QPSK – Full RB - ANT1)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 114 of 181

# LTE Band 66/4 – ANT1



Plot 7-157. Lower Band Edge Plot (LTE Band 66/4 - 20MHz QPSK – Full RB - ANT1)

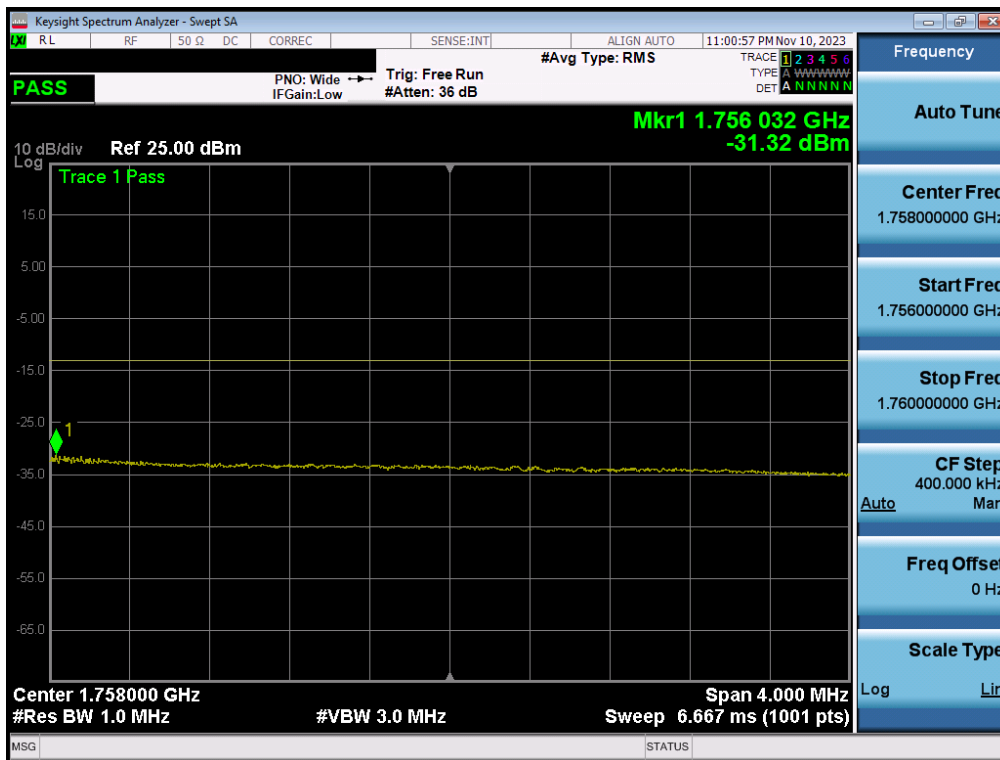


Plot 7-158. Lower Extended Band Edge Plot (LTE Band 66/4 - 20MHz QPSK – Full RB - ANT1)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 115 of 181

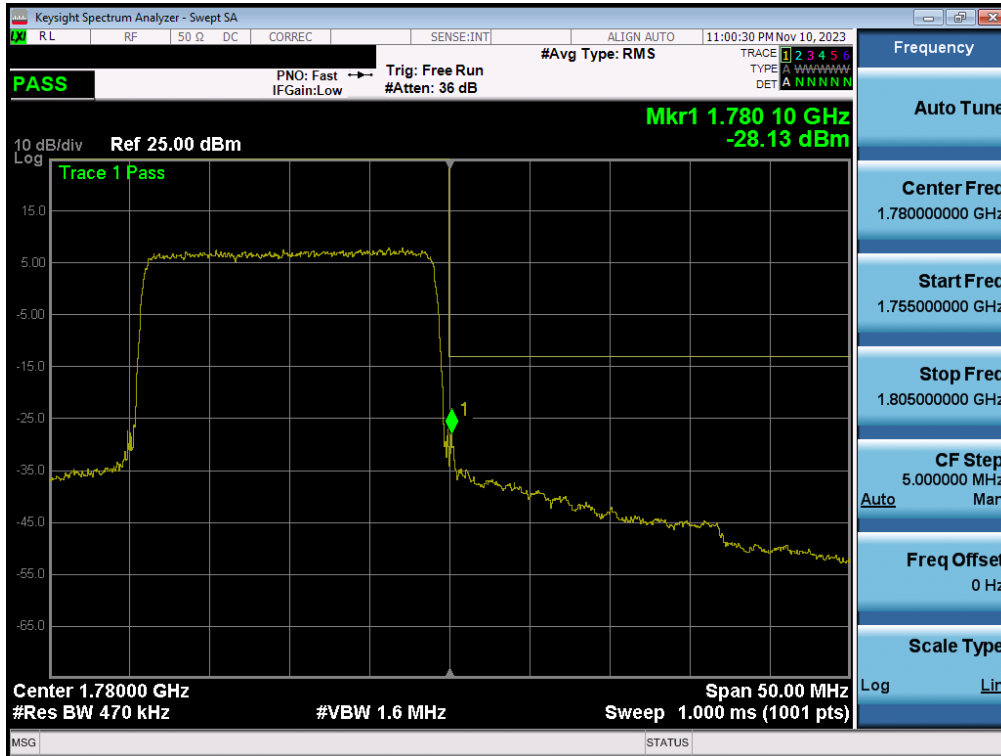


Plot 7-159. Upper Band Edge Plot (LTE Band 4 - 20MHz QPSK – Full RB - ANT1)

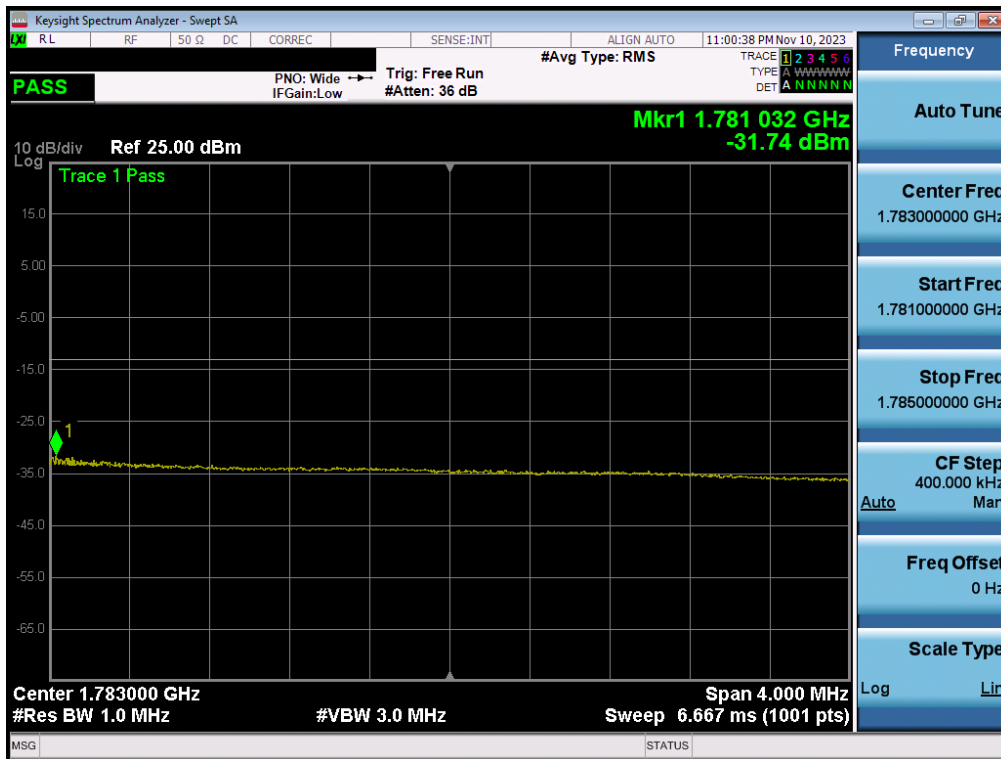


Plot 7-160. Upper Extended Band Edge Plot (LTE Band 4 - 20MHz QPSK – Full RB - ANT1)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 116 of 181



Plot 7-161. Upper Band Edge Plot (LTE Band 66 - 20MHz QPSK - Full RB - ANT1)

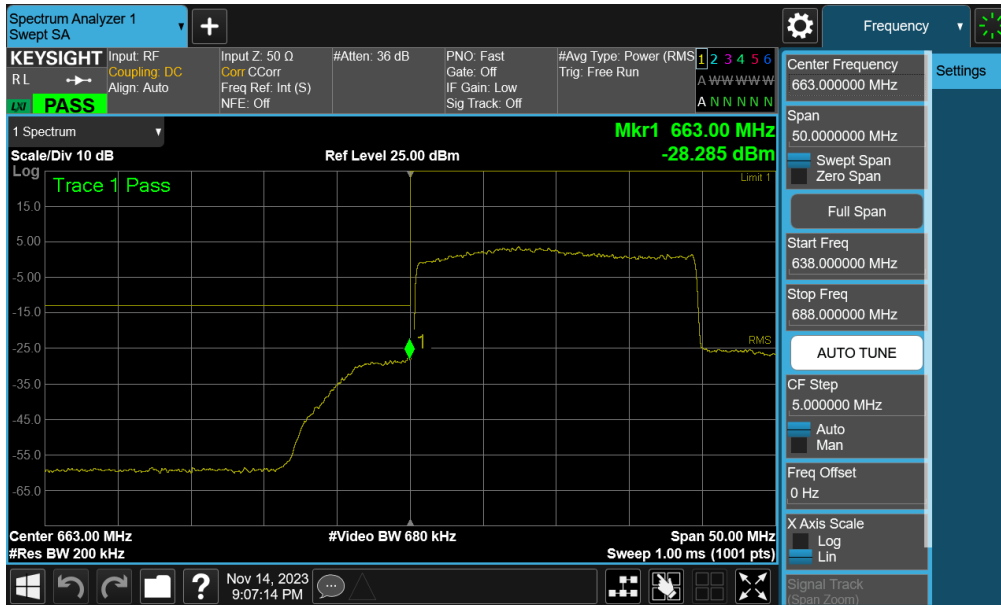


Plot 7-162. Upper Extended Band Edge Plot (LTE Band 66 - 20MHz QPSK - Full RB - ANT1)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 117 of 181



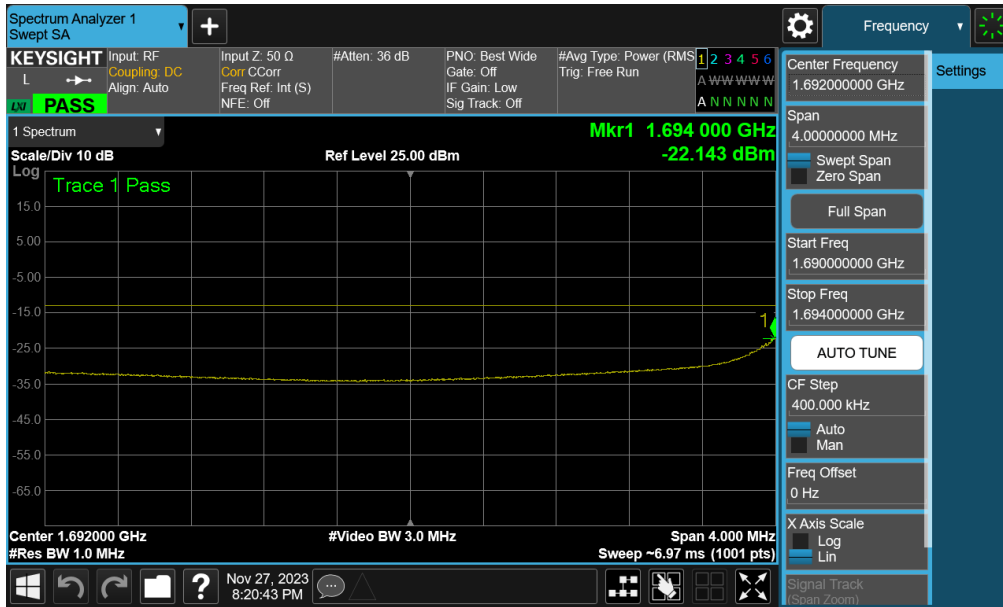
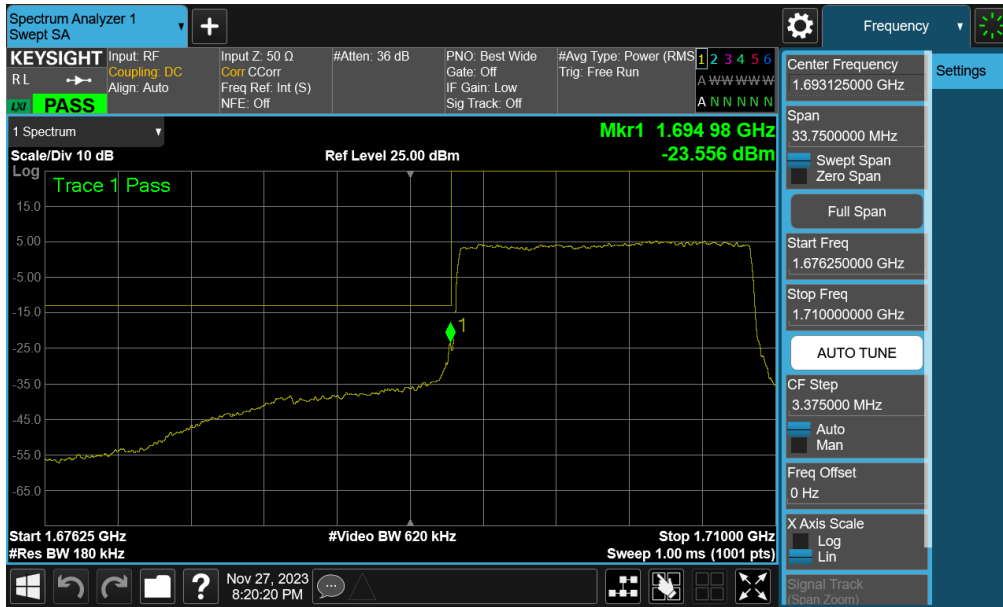
# NR Band n71 – ANT1



FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 118 of 181



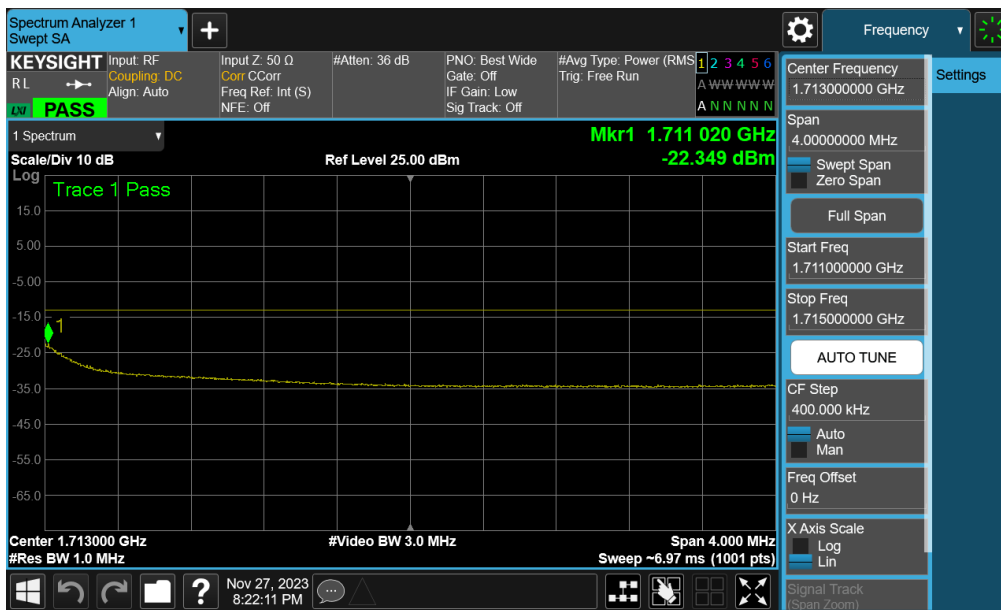
# NR Band n70 – ANT1



FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 119 of 181



Plot 7-167. Upper Band Edge Plot (NR Band n70 – 10.0MHz - Full RB - ANT1)



Plot 7-168. Upper Extended Band Edge Plot (NR Band n70 – 10.0MHz - Full RB - ANT1)

FCC ID: A3LSMA356U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2311010111-05.A3L	Test Dates: 11/6/2023 - 12/28/2023	EUT Type: Portable Handset	Page 120 of 181