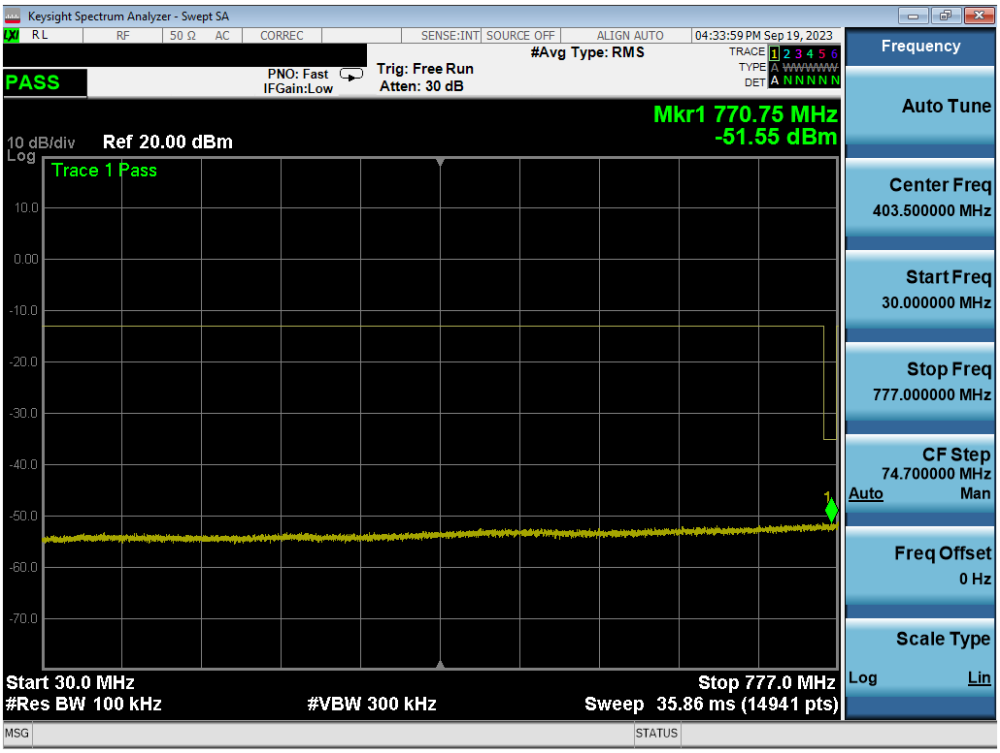
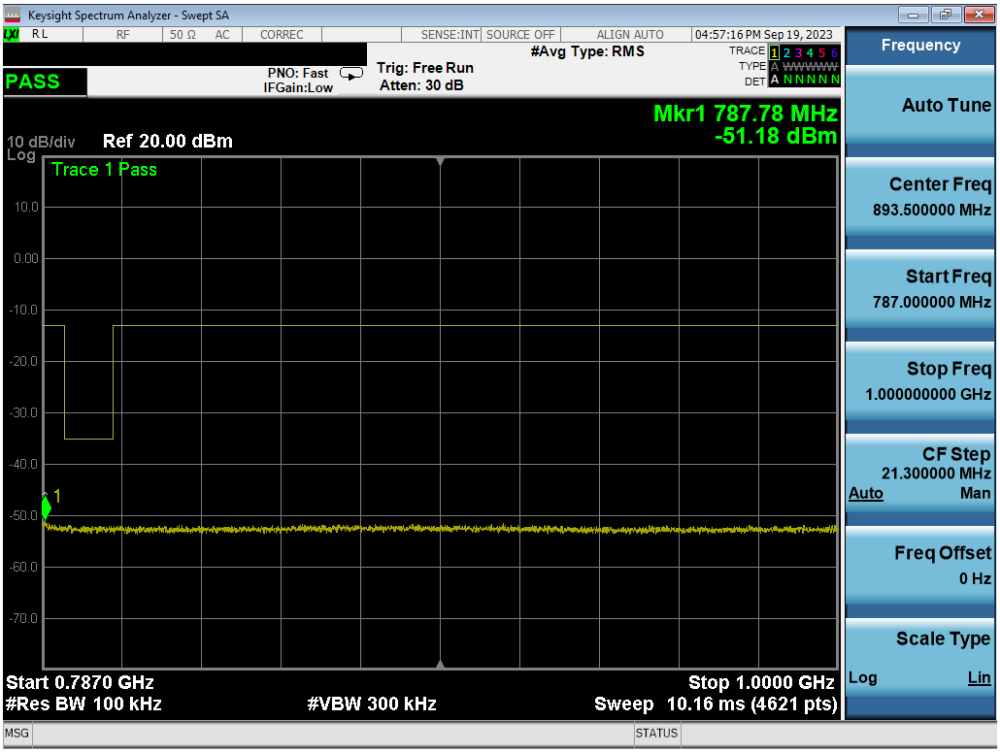
LTE Band 13 – ANT1



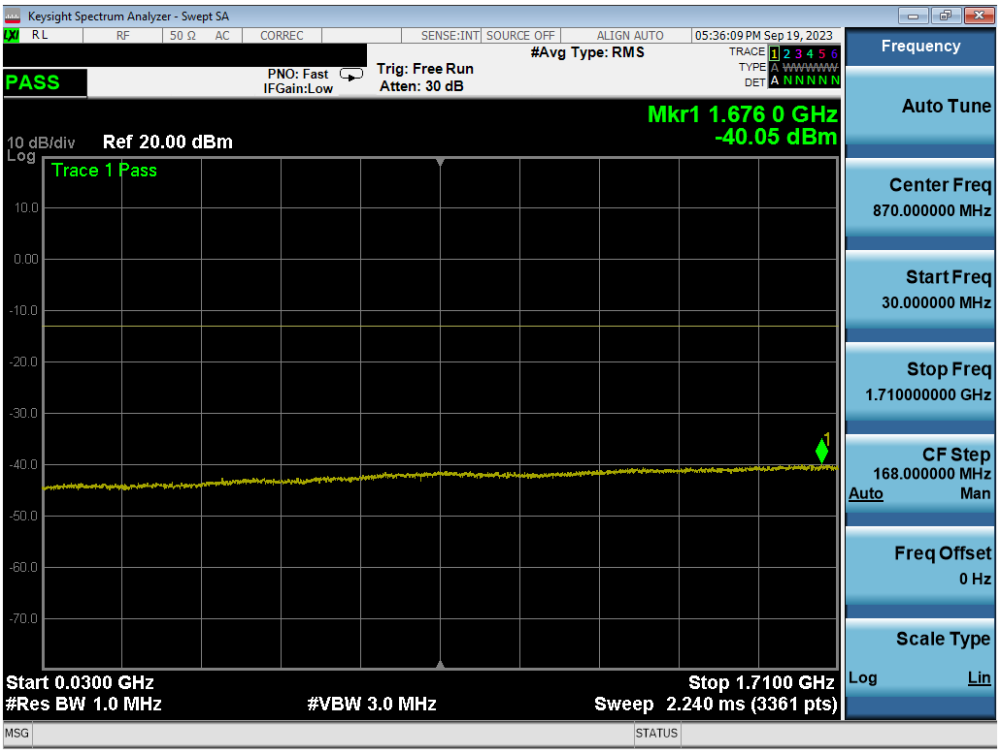
Plot 7-100. Conducted Spurious Plot (LTE Band 13 - 10MHz QPSK - 1 RB)



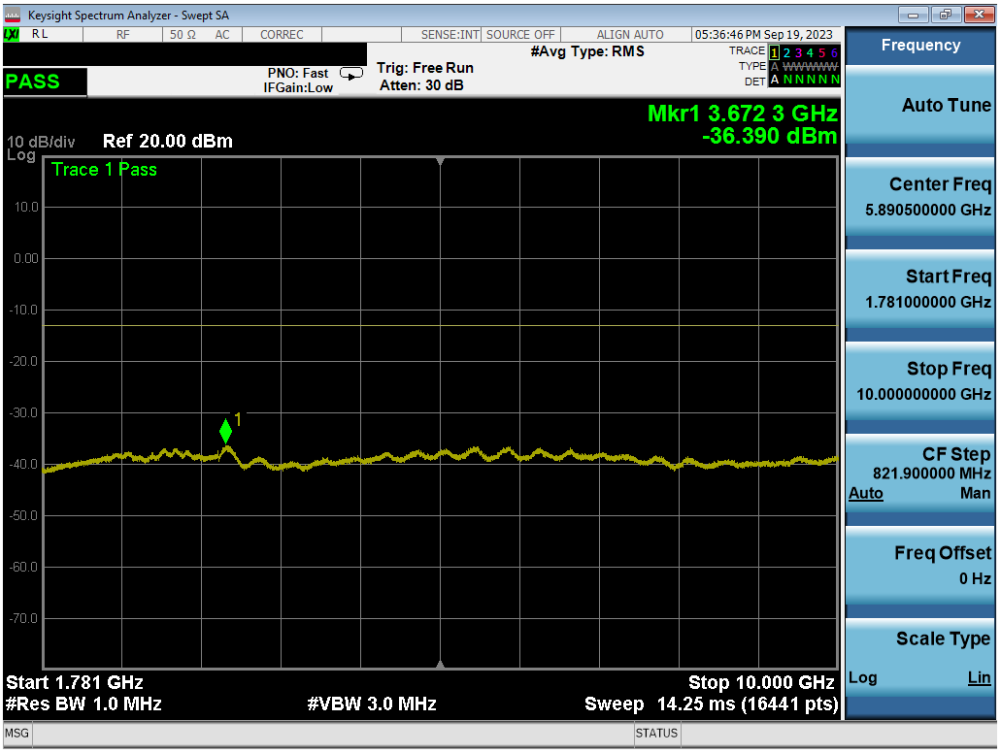
Plot 7-101. Conducted Spurious Plot (LTE Band 13 - 10MHz QPSK - 1 RB)

Plot 7-102. Conducted Spurious Plot (LTE Band 13 - 10MHz QPSK - 1 RB)

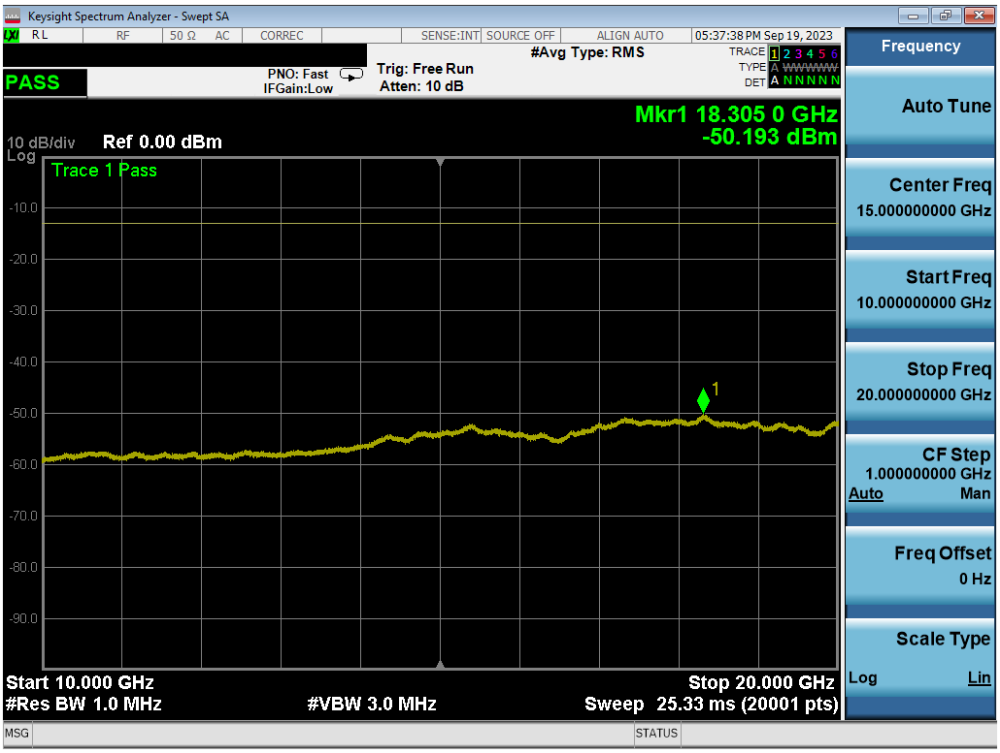
LTE Band 66/4 – ANT1



Plot 7-103. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB – High Channel)

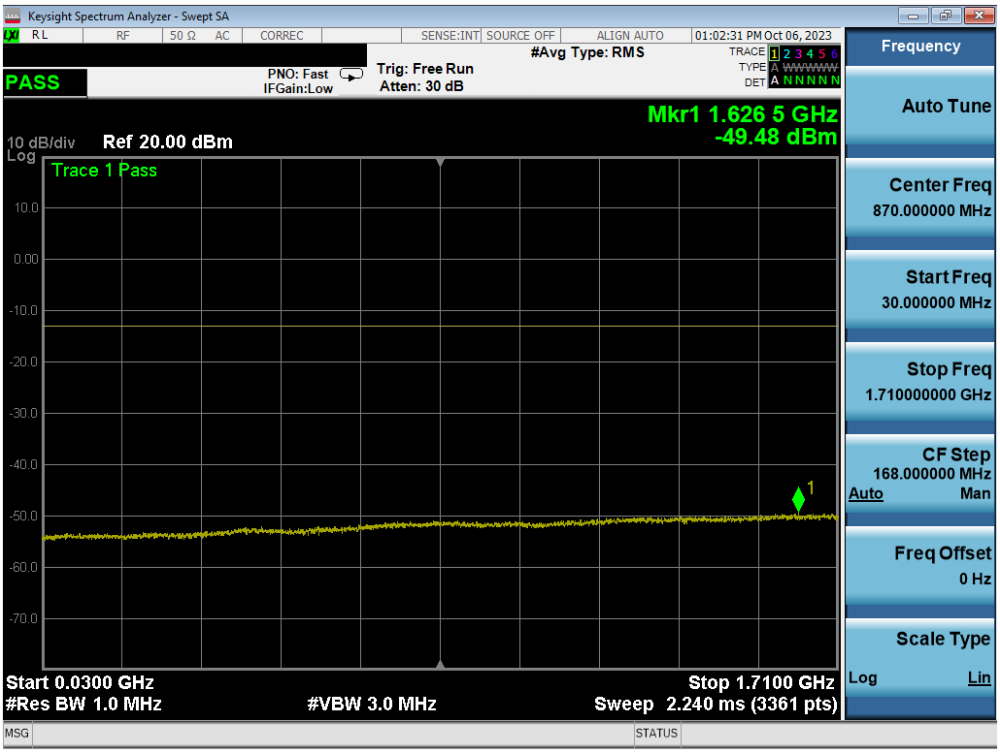


Plot 7-104. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB – High Channel)

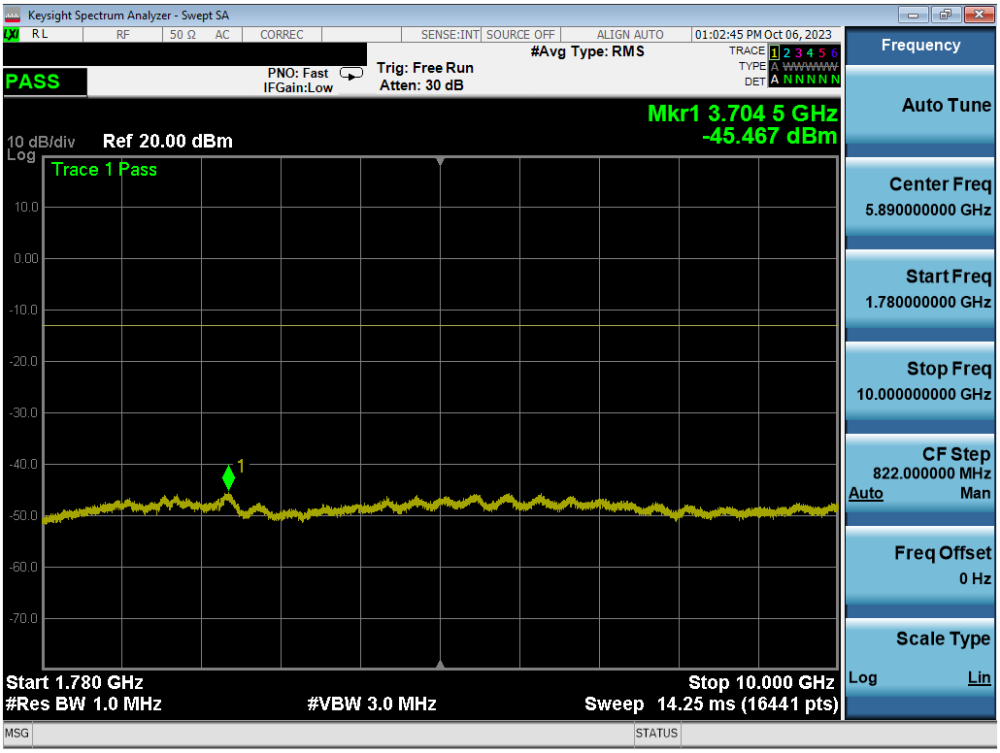


Plot 7-105. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB – High Channel)

NR Band n66 – ANT1



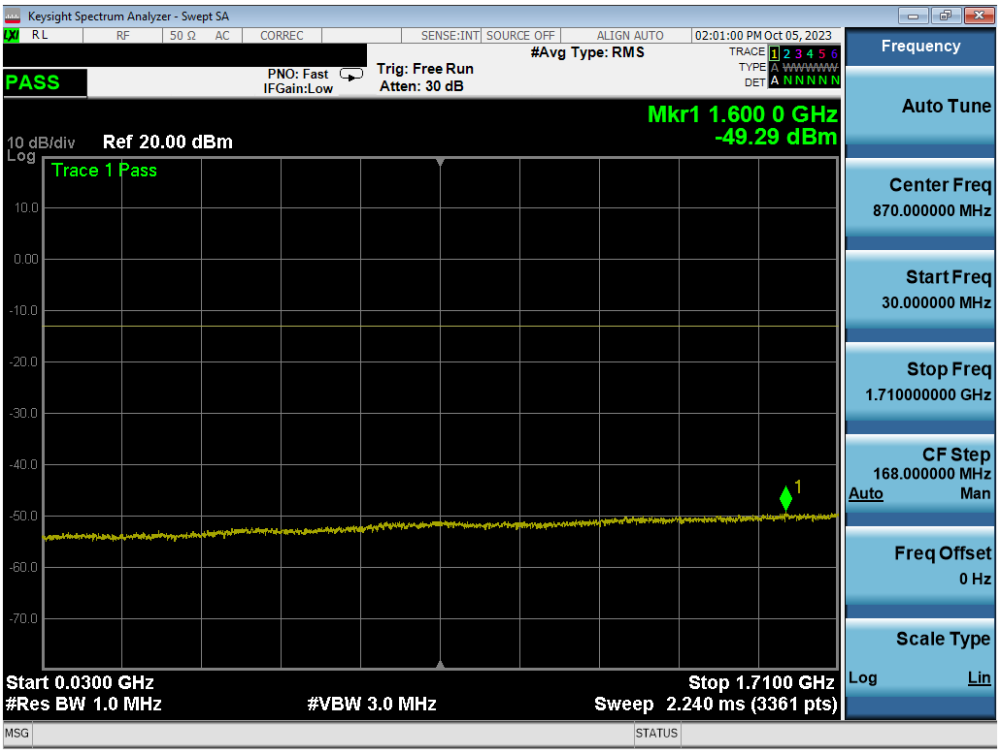
Plot 7-106. Conducted Spurious Plot (NR Band n66 - 40.0MHz - 1 RB - High Channel - ANT1)



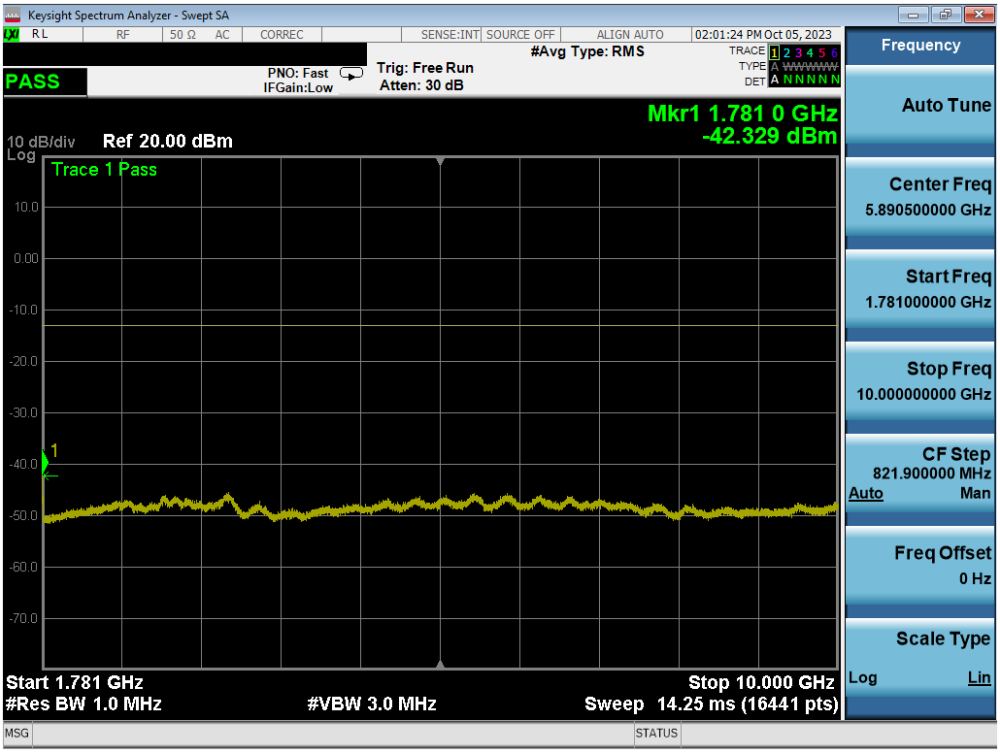
Plot 7-107. Conducted Spurious Plot (NR Band n66 - 40.0MHz - 1 RB - High Channel - ANT1)

Plot 7-108. Conducted Spurious Plot (NR Band n66 - 40.0MHz - 1 RB - High Channel - ANT1)

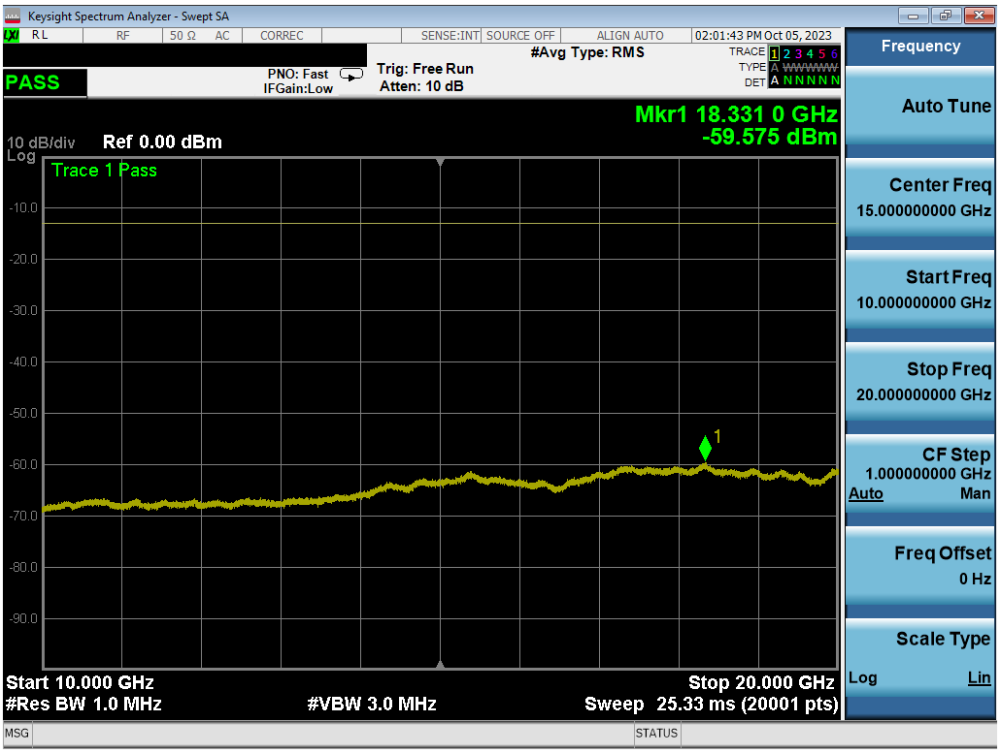
LTE Band 66 ULCA – ANT1



Plot 7-109. Conducted Spurious Plot (LTE Band 66 ULCA - 20+20MHz QPSK - 1 RB – High Channel)



Plot 7-110. Conducted Spurious Plot (LTE Band 66 ULCA - 20+20MHz QPSK - 1 RB – High Channel)



Plot 7-111. Conducted Spurious Plot (LTE Band 66 ULCA - 20+20MHz QPSK - 1 RB – High Channel)

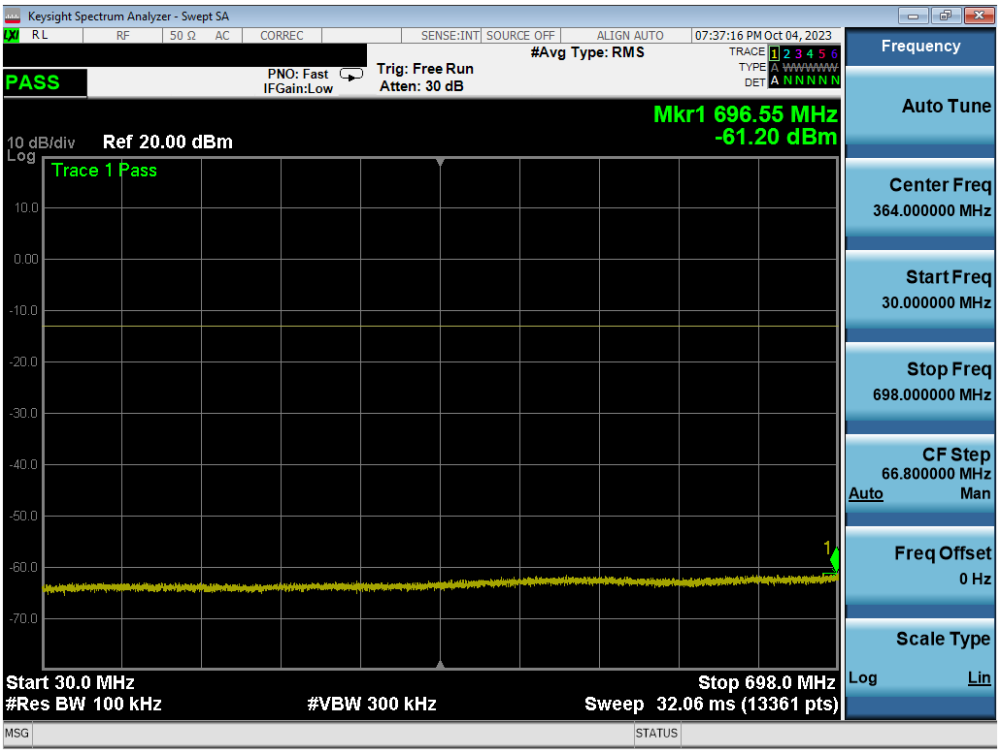
Mode	Bandwidth	Channel	Range [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]
LTE Band 12	10 MHz	Low	30.0 - 697.9	-58.58	-13	-45.58
		Low	716.0 - 1000.0	-59.47	-13	-46.47
		Low	1000.0 - 10000.0	-45.50	-13	-32.50
		Mid	30.0 - 698.0	-59.46	-13	-46.46
		Mid	716.0 - 1000.0	-59.19	-13	-46.19
		Mid	1000.0 - 10000.0	-45.74	-13	-32.74
		High	30.0 - 697.9	-61.20	-13	-48.20
		High	716.1 - 1000.0	-57.62	-13	-44.62
		High	1000.0 - 10000.0	-45.05	-13	-32.05
LTE Band 13	10 MHz	Mid	30.0 - 777.0	-60.61	-13	-47.61
		Mid	787.0 - 1000.0	-56.44	-13	-43.44
		Mid	1000.0 - 20000.0	-45.36	-13	-32.36

Table 7-11. Conducted Spurious Emissions Results – Ant2

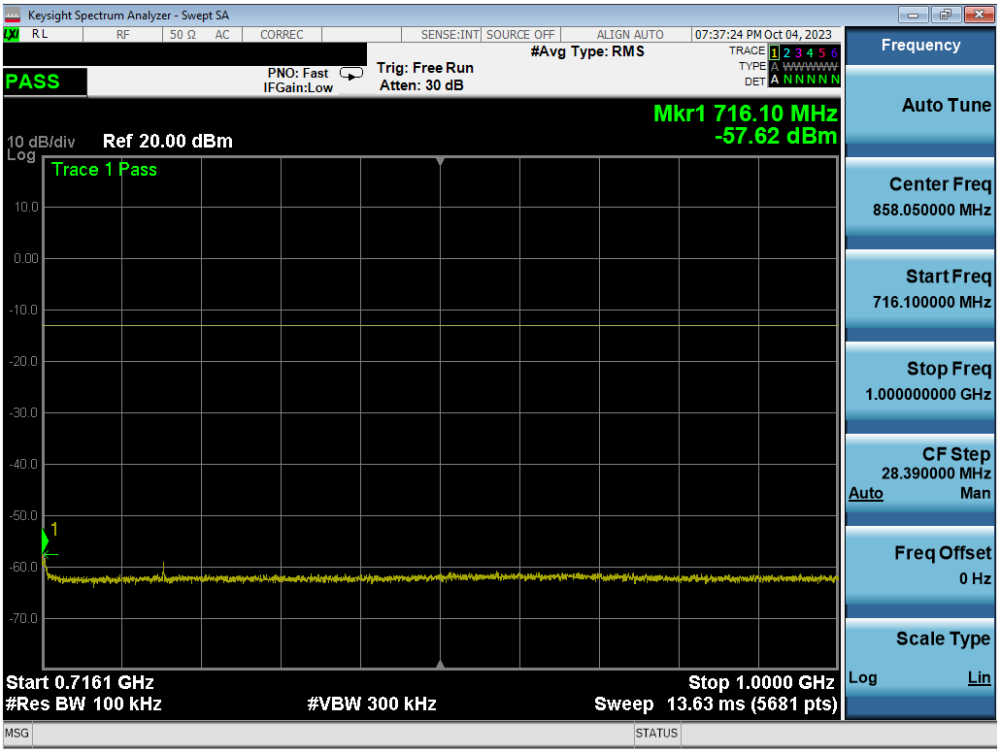
Mode	Bandwidth	Channel	Range [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]
LTE Band 66/4	20 MHz	Low	30.0 - 1709.0	-48.63	-13	-35.63
		Low	1780.0 - 10000.0	-45.75	-13	-32.75
		Low	10000.0 - 20000.0	-59.41	-13	-46.41
		Mid	30.0 - 1710.0	-49.49	-13	-36.49
		Mid	1780.0 - 10000.0	-45.63	-13	-32.63
		Mid	10000.0 - 20000.0	-59.46	-13	-46.46
		High	30.0 - 1710.0	-48.53	-13	-35.53
		High	1781.0 - 10000.0	-45.57	-13	-32.57
		High	10000.0 - 20000.0	-59.49	-13	-46.49
NR Band n66	40 MHz	Low	30.0 - 1710.0	-49.78	-13	-36.78
		Low	1780.0 - 10000.0	-44.14	-13	-31.14
		Low	10000.0 - 20000.0	-61.04	-13	-48.04
		Mid	30.0 - 1710.0	-50.46	-13	-37.46
		Mid	1780.0 - 10000.0	-44.29	-13	-31.29
		Mid	10000.0 - 20000.0	-60.69	-13	-47.69
		High	30.0 - 1710.0	-50.34	-13	-37.34
		High	1780.0 - 10000.0	-43.95	-13	-30.95
		High	10000.0 - 20000.0	-60.71	-13	-47.71
LTE Band 66B/C ULCA	40 MHz	Low	30.0 - 1709.0	-43.11	-13	-30.11
		Low	1710.0 - 1780.0	12.37	-	-
		Low	1780.0 - 10000.0	-45.21	-13	-32.21
		Low	10000.0 - 20000.0	-59.37	-13	-46.37
		Mid	30.0 - 1710.0	-49.37	-13	-36.37
		Mid	1710.0 - 1780.0	12.25	-	-
		Mid	1780.0 - 10000.0	-45.63	-13	-32.63
		Mid	10000.0 - 20000.0	-59.55	-13	-46.55
		High	30.0 - 1710.0	-49.55	-13	-36.55
		High	1710.0 - 1780.0	11.97	-	-
		High	1781.0 - 10000.0	-40.80	-13	-27.80
		High	10000.0 - 20000.0	-59.65	-13	-46.65

Table 7-12. Conducted Spurious Emissions Results – Ant2

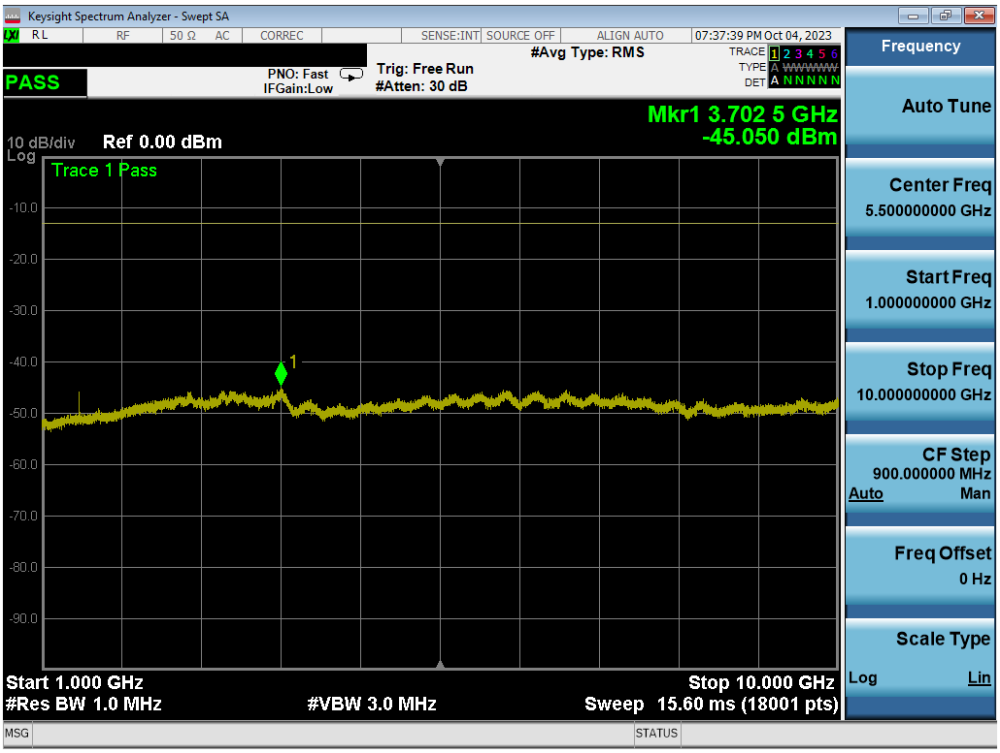
LTE Band 12 – ANT2



Plot 7-112. Conducted Spurious Plot (LTE Band 12 - 10MHz QPSK - 1 RB - High Channel - ANT2)

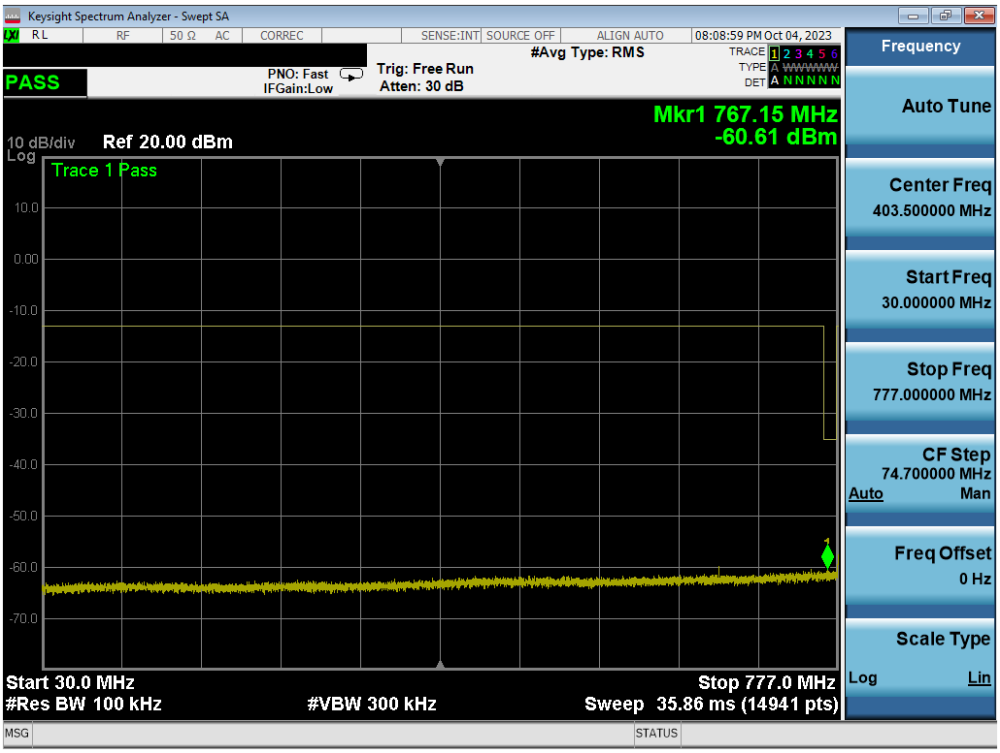


Plot 7-113. Conducted Spurious Plot (LTE Band 12 - 10MHz QPSK - 1 RB - High Channel - ANT2)

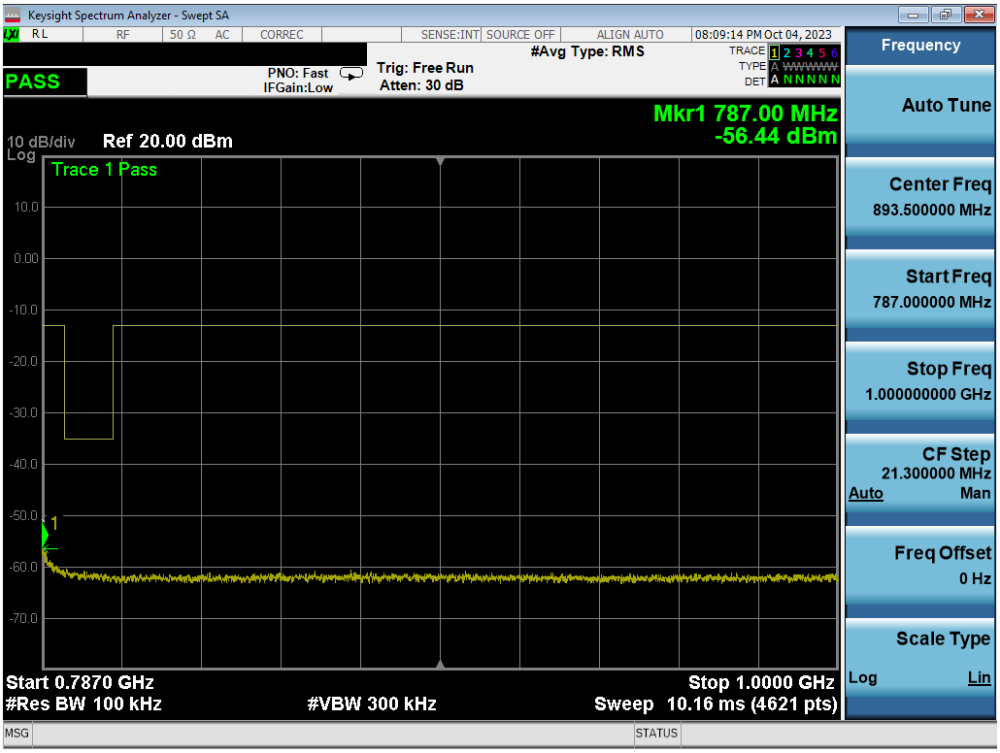


Plot 7-114. Conducted Spurious Plot (LTE Band 12 - 10MHz QPSK - 1 RB - High Channel - ANT2)

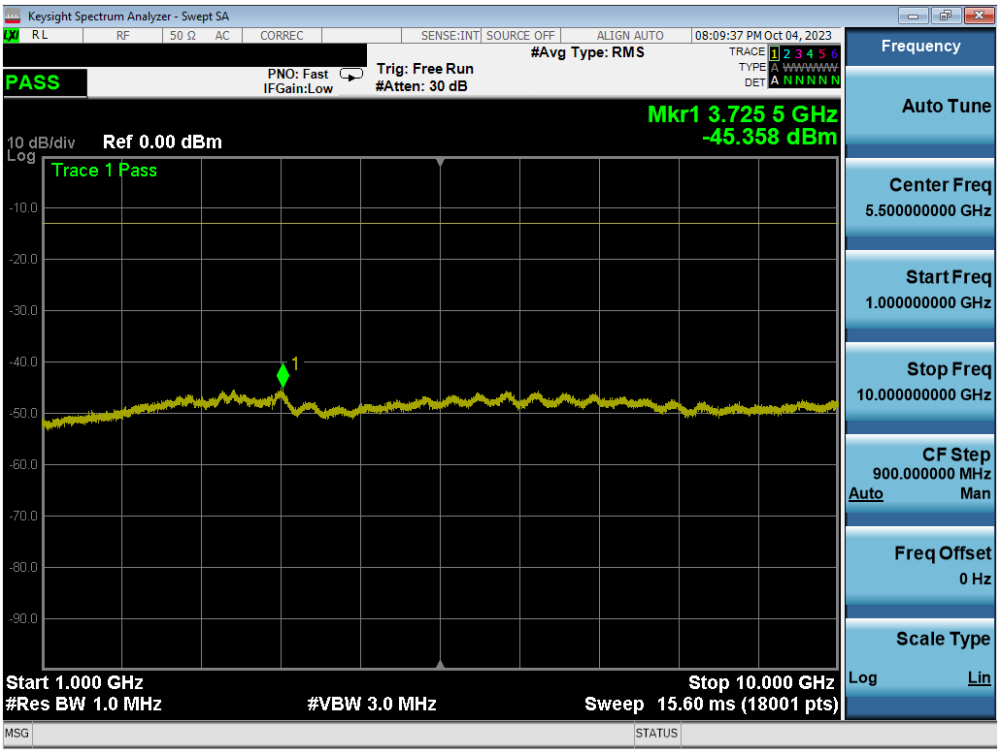
LTE Band 13 – ANT2



Plot 7-115. Conducted Spurious Plot (LTE Band 13 - 10MHz QPSK - 1 RB)

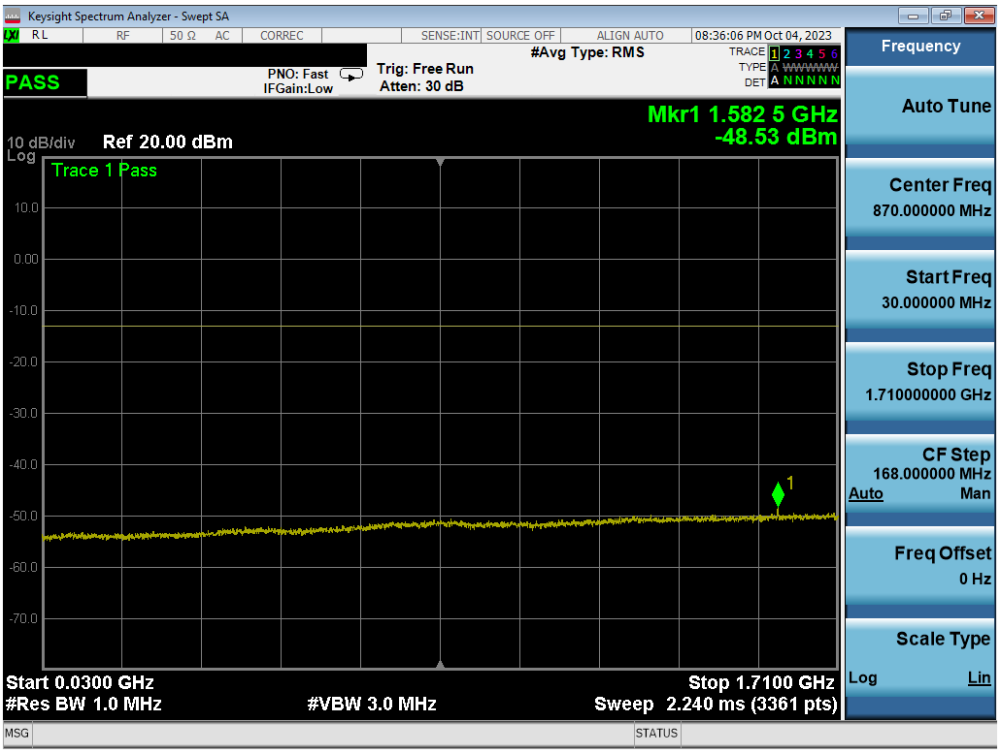


Plot 7-116. Conducted Spurious Plot (LTE Band 13 - 10MHz QPSK - 1 RB)

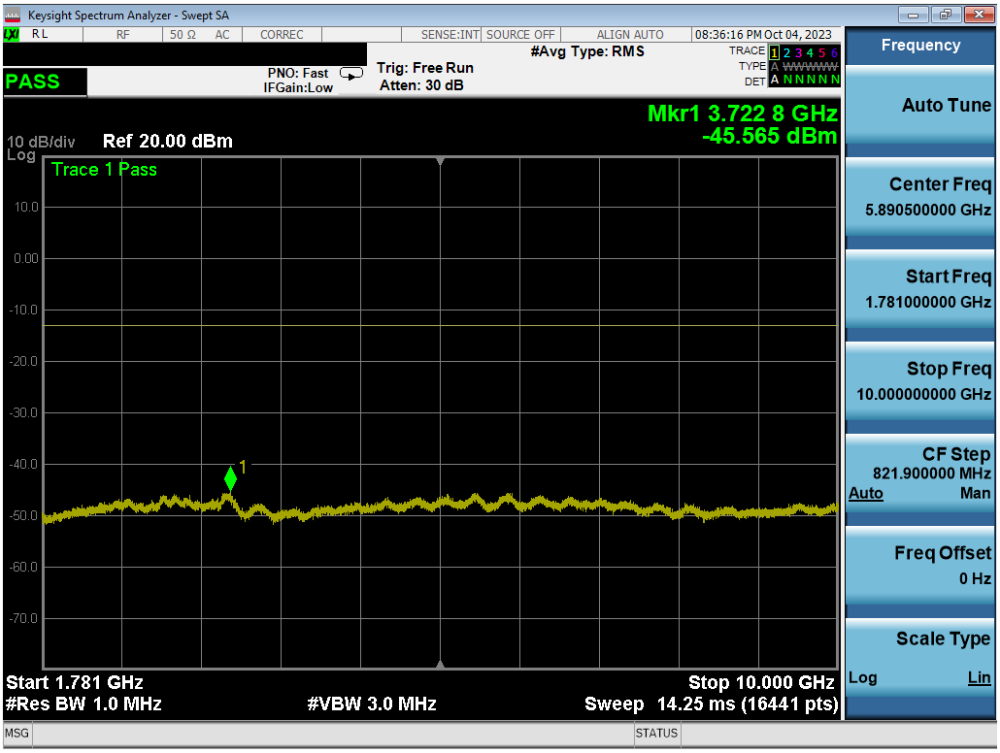


Plot 7-117. Conducted Spurious Plot (LTE Band 13 - 10MHz QPSK - 1 RB)

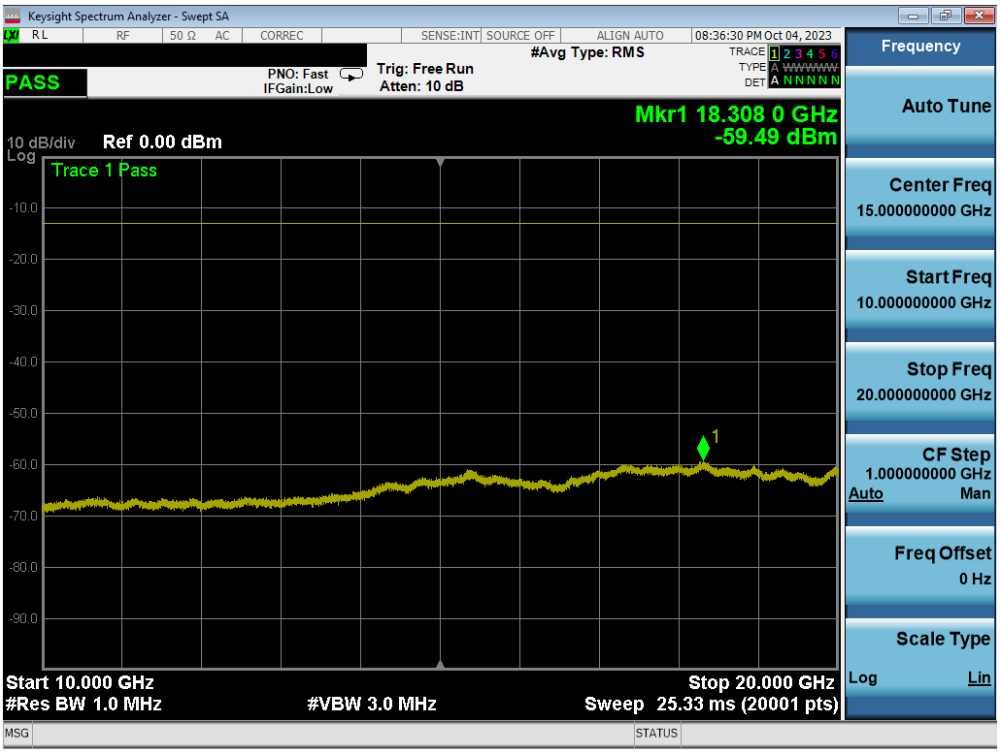
LTE Band 66/4 – ANT2



Plot 7-118. Conducted Spurious Plot (LTE Band 66/4 - 10MHz QPSK - 1 RB)

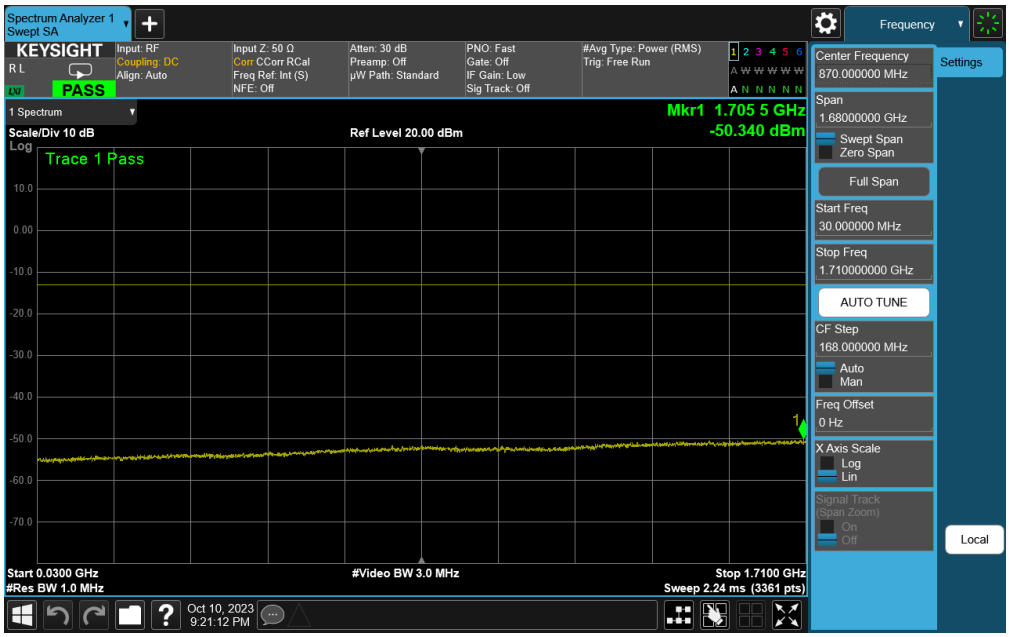


Plot 7-119. Conducted Spurious Plot (LTE Band 66/4 - 10MHz QPSK - 1 RB)

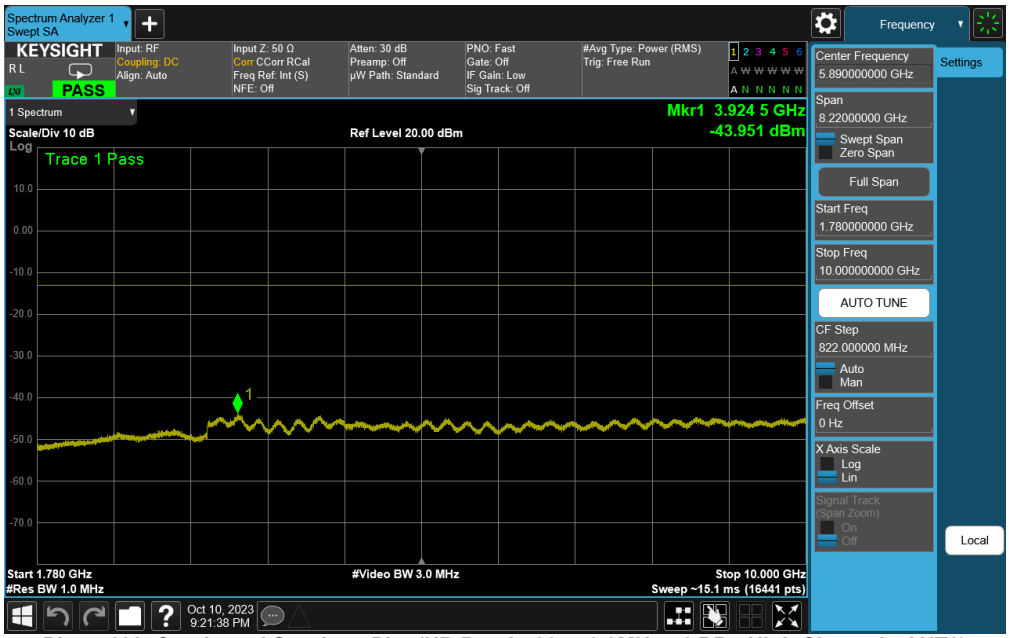


Plot 7-120. Conducted Spurious Plot (LTE Band 66/4 - 10MHz QPSK - 1 RB)

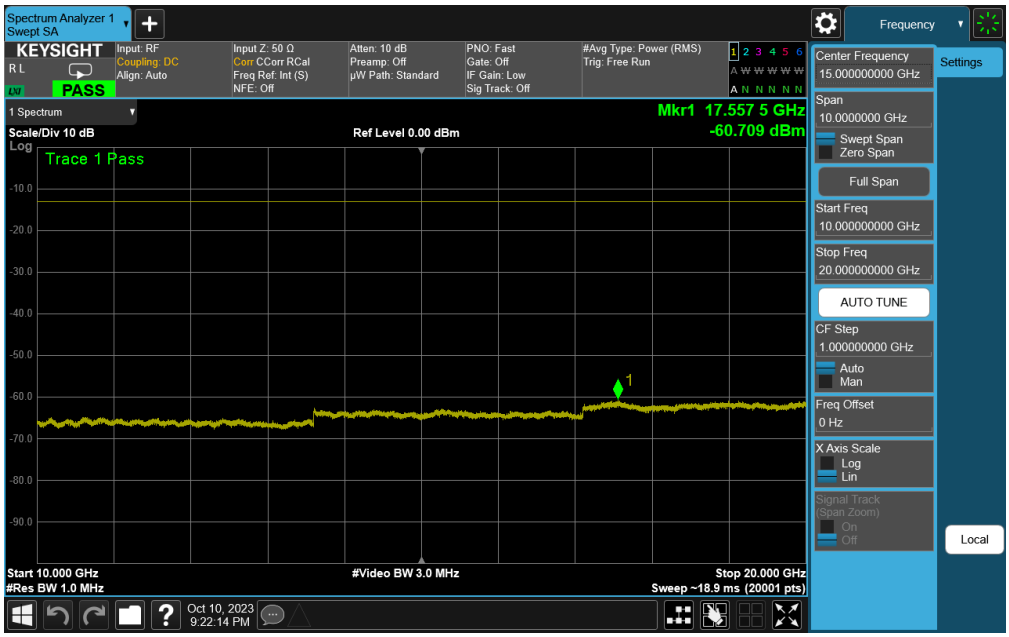
NR Band n66 – ANT2



Plot 7-121. Conducted Spurious Plot (NR Band n66 - 40.0MHz - 1 RB - High Channel - ANT2)

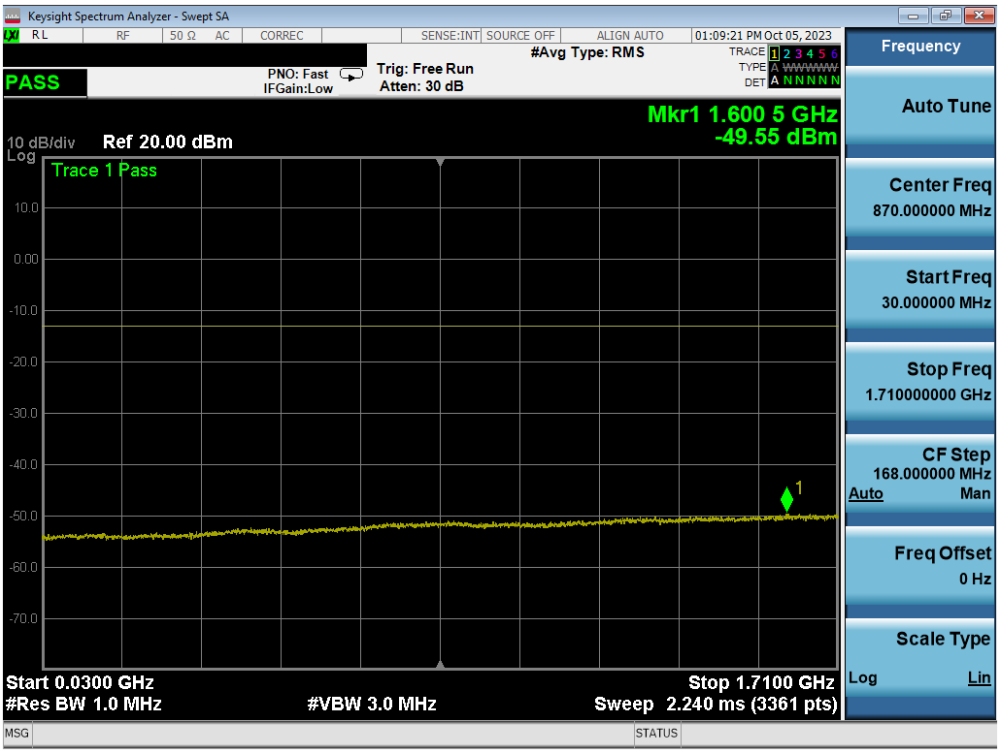


Plot 7-122. Conducted Spurious Plot (NR Band n66 - 40.0MHz - 1 RB - High Channel - ANT2)

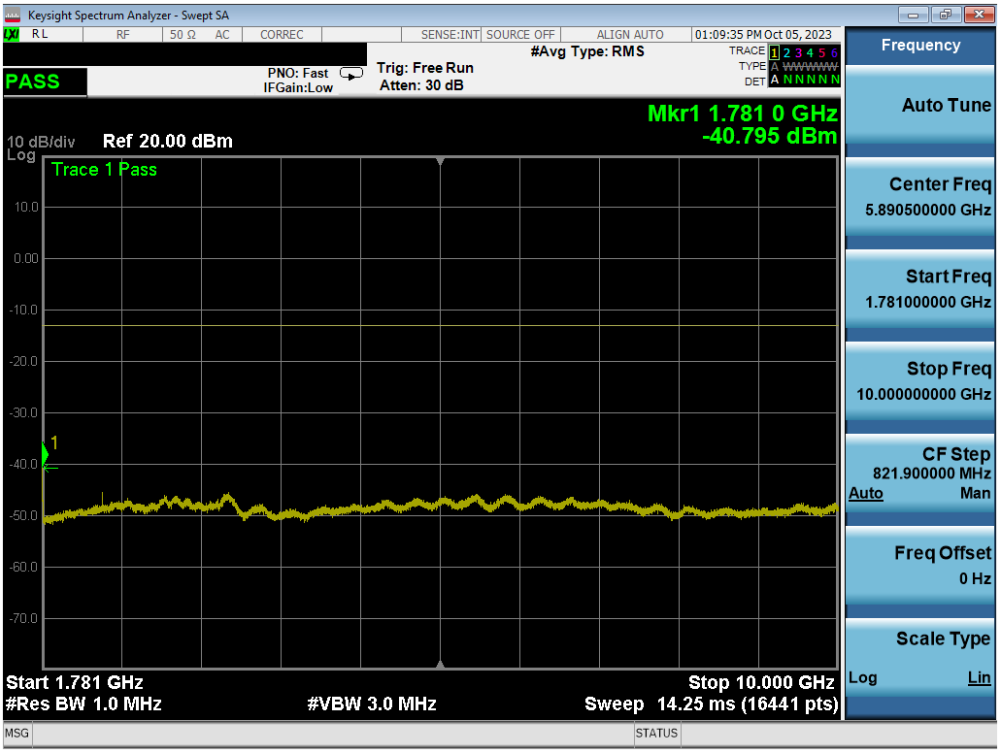


Plot 7-123. Conducted Spurious Plot (NR Band n66 - 40.0MHz - 1 RB - High Channel - ANT2)

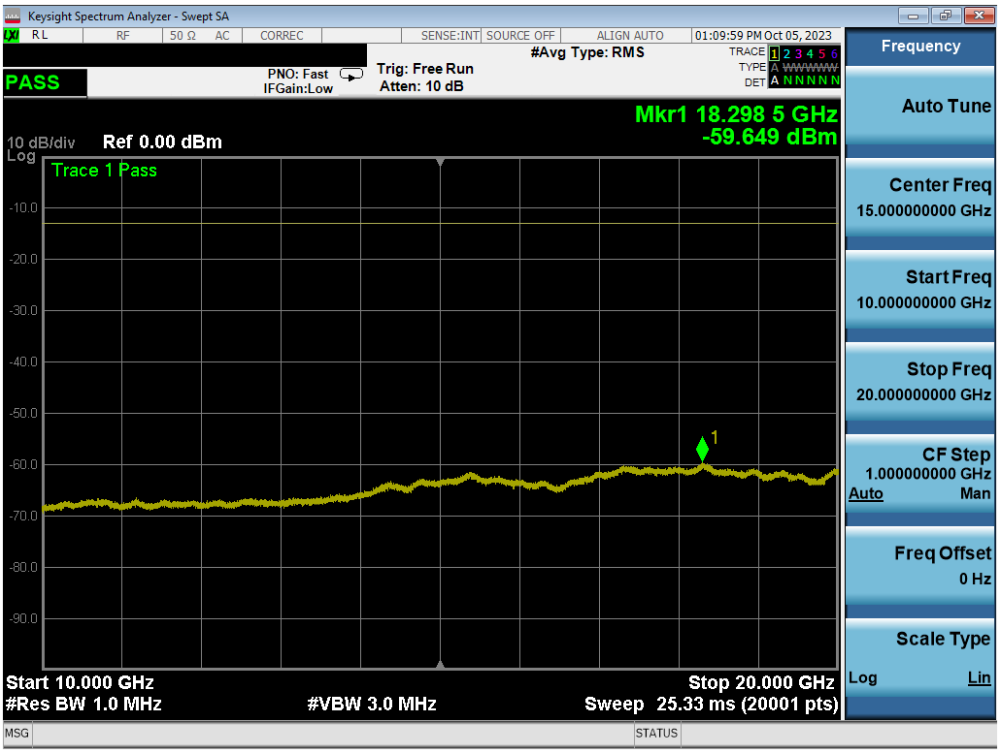
LTE Band 66 ULCA – ANT2



Plot 7-124. Conducted Spurious Plot (LTE Band 66 ULCA - 20+20MHz QPSK - 1 RB – High Channel)



Plot 7-125. Conducted Spurious Plot (LTE Band 66 ULCA - 20+20MHz QPSK - 1 RB – High Channel)



Plot 7-126. Conducted Spurious Plot (LTE Band 66 ULCA - 20+20MHz QPSK - 1 RB – High Channel)

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 $log_{10}(P_{[Watts]})$, 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 ≥ 1% of the emission bandwidth
4. VBW ≥ 3 x RBW
5. Detector = RMS
6. Number of sweep points ≥ 2 x Span/RBW
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Test Setup

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

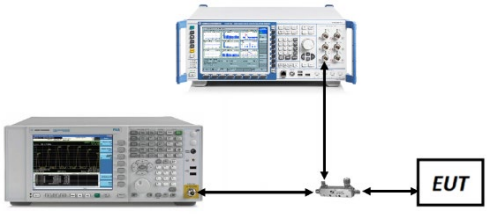


Figure 7-4. Test Instrument & Measurement Setup

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 $65 + 10 \log_{10}(P) = -35$dBm in a 6.25kHz bandwidth.

Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
LTE Band 66B/C ULCA	40 MHz	Low	Band Edge	-17.31	-13	-4.31
		Low	Extended	-28.05	-13	-15.05
		High	Band Edge	-17.56	-13	-4.56
		High	Extended	-28.12	-13	-15.12
LTE Band 12	10 MHz	Low	Band Edge	-29.44	-13	-16.44
		High	Band Edge	-29.53	-13	-16.53
	5 MHz	Low	Band Edge	-23.85	-13	-10.85
		High	Band Edge	-23.00	-13	-10.00
	3 MHz	Low	Band Edge	-19.03	-13	-6.03
		High	Band Edge	-18.41	-13	-5.41
	1.4 MHz	Low	Band Edge	-15.01	-13	-2.01
		High	Band Edge	-14.59	-13	-1.59
LTE Band 13	10 MHz	Low	Band Edge	-29.12	-13	-16.12
		Low	Emission Mask	-56.96	-13	-43.96
		High	Band Edge	-26.25	-13	-13.25
		High	Emission Mask	-45.97	-13	-32.97
	5 MHz	Low	Band Edge	-23.16	-13	-10.16
		Low	Emission Mask	-55.94	-13	-42.94
		High	Band Edge	-21.84	-13	-8.84
		High	EmMask	-49.67	-13	-36.67

Table 7-13. Band Edge Test Results - Ant1

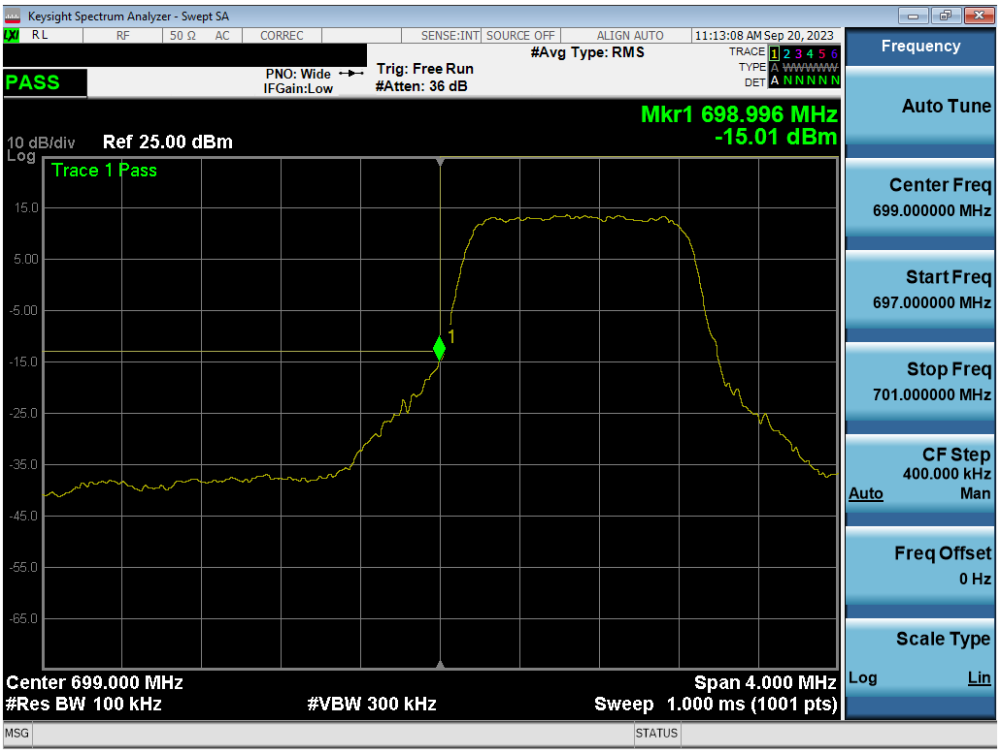
Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
LTE Band 66/4	20MHz	Low	Band Edge	-25.93	-13	-12.93
		Low	Extended	-24.59	-13	-11.59
		High (B4)	Band Edge	-28.32	-13	-15.32
		High (B4)	Extended	-24.90	-13	-11.90
		High (B66)	Band Edge	-27.19	-13	-14.19
		High (B66)	Extended	-24.04	-13	-11.04
	15MHz	Low	Band Edge	-25.74	-13	-12.74
		Low	Extended	-22.89	-13	-9.89
		High (B4)	Band Edge	-25.37	-13	-12.37
		High (B4)	Extended	-22.39	-13	-9.39
		High (B66)	Band Edge	-23.91	-13	-10.91
		High (B66)	Extended	-21.17	-13	-8.17
	10MHz	Low	Band Edge	-25.45	-13	-12.45
		Low	Extended	-22.31	-13	-9.31
		High (B4)	Band Edge	-26.73	-13	-13.73
		High (B4)	Extended	-21.52	-13	-8.52
		High (B66)	Band Edge	-23.89	-13	-10.89
		High (B66)	Extended	-20.54	-13	-7.54
	5MHz	Low	Band Edge	-22.02	-13	-9.02
		Low	Extended	-26.26	-13	-13.26
		High (B4)	Band Edge	-21.40	-13	-8.40
		High (B4)	Extended	-26.72	-13	-13.72
		High (B66)	Band Edge	-22.58	-13	-9.58
		High (B66)	Extended	-22.65	-13	-9.65
	3MHz	Low	Band Edge	-20.92	-13	-7.92
		Low	Extended	-27.26	-13	-14.26
		High (B4)	Band Edge	-20.98	-13	-7.98
		High (B4)	Extended	-27.95	-13	-14.95
		High (B66)	Band Edge	-20.04	-13	-7.04
		High (B66)	Extended	-22.41	-13	-9.41
	1.4MHz	Low	Band Edge	-21.37	-13	-8.37
		Low	Extended	-31.45	-13	-18.45
		High (B4)	Band Edge	-21.90	-13	-8.90
		High (B4)	Extended	-30.91	-13	-17.91
		High (B66)	Band Edge	-20.42	-13	-7.42
		High (B66)	Extended	-30.11	-13	-17.11

Table 7-14. Band Edge Test Results - Ant1

Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
NR Band n66	40 MHz	Low	Band Edge	-27.44	-13	-14.44
		Low	Extended	-28.21	-13	-15.21
		High	Band Edge	-24.62	-13	-11.62
		High	Extended	-28.19	-13	-15.19
	30 MHz	Low	Band Edge	-26.53	-13	-13.53
		Low	Extended	-26.11	-13	-13.11
		High	Band Edge	-27.11	-13	-14.11
		High	Extended	-25.86	-13	-12.86
	20 MHz	Low	Band Edge	-31.62	-13	-18.62
		Low	Extended	-26.21	-13	-13.21
		High	Band Edge	-30.02	-13	-17.02
		High	Extended	-25.80	-13	-12.80
	15 MHz	Low	Band Edge	-30.06	-13	-17.06
		Low	Extended	-22.72	-13	-9.72
		High	Band Edge	-29.81	-13	-16.81
		High	Extended	-23.56	-13	-10.56
	10 MHz	Low	Band Edge	-27.96	-13	-14.96
		Low	Extended	-17.83	-13	-4.83
		High	Band Edge	-27.41	-13	-14.41
		High	Extended	-19.42	-13	-6.42
	5 MHz	Low	Band Edge	-24.88	-13	-11.88
		Low	Extended	-31.94	-13	-18.94
		High	Band Edge	-23.21	-13	-10.21
		High	Extended	-27.00	-13	-14.00

Table 7-15. Band Edge Test Results - Ant1

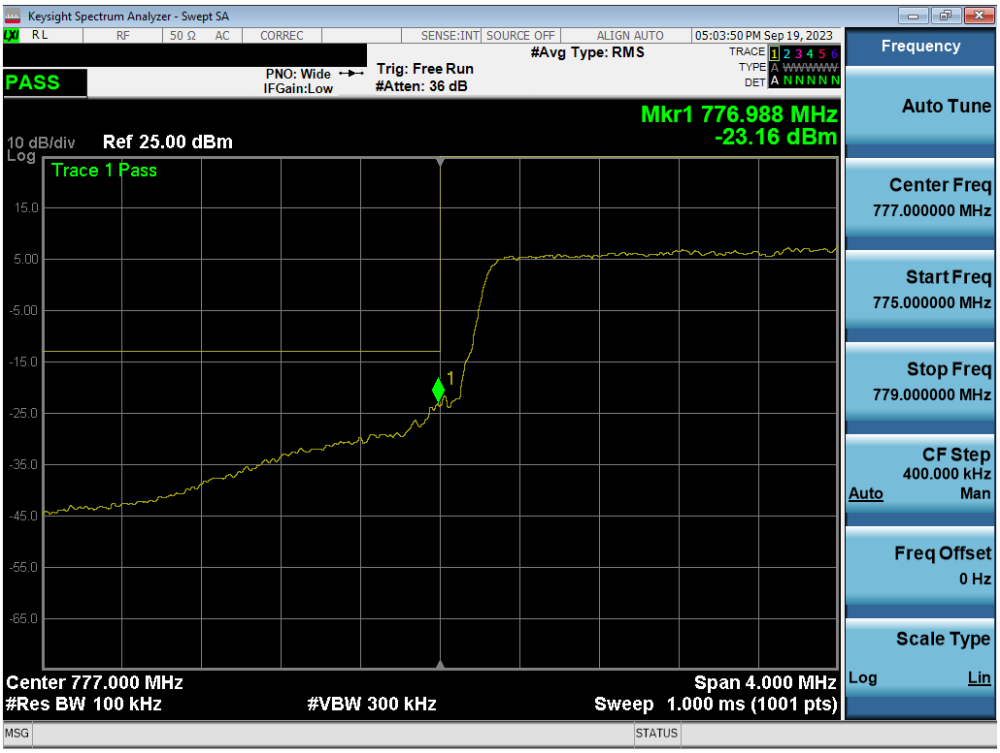
LTE Band 12 – ANT1



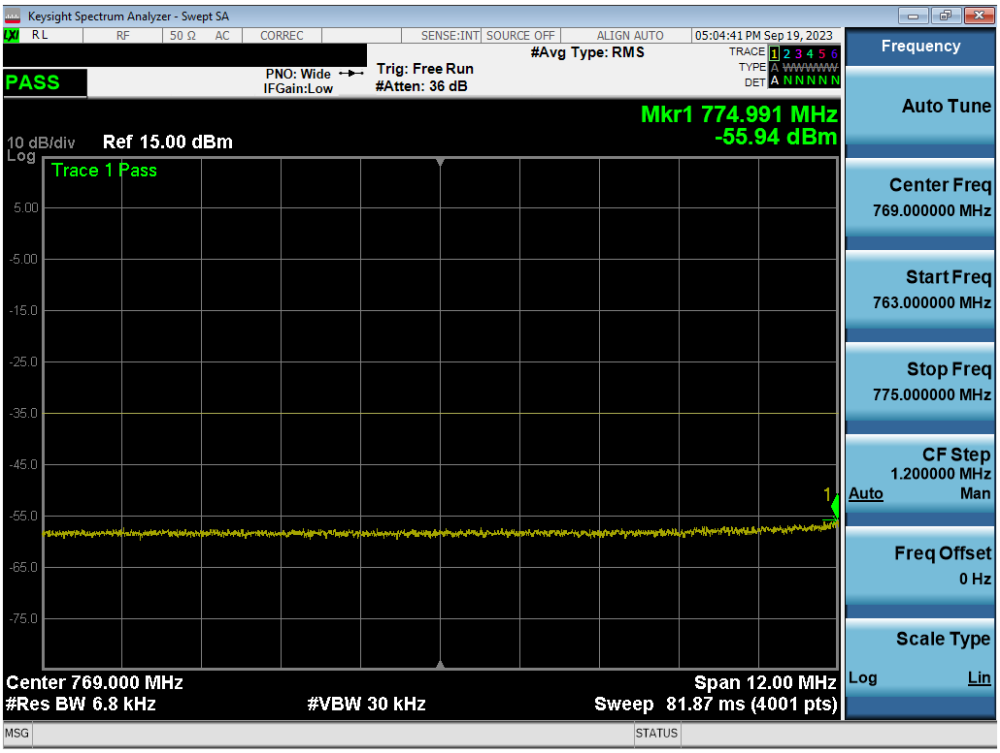
Plot 7-127. Lower Band Edge Plot (LTE Band 12 – 1.4MHz QPSK – Full RB - ANT1)

Plot 7-128. Upper Band Edge Plot (LTE Band 12 – 1.4MHz QPSK – Full RB - ANT1)

LTE Band 13 – ANT1

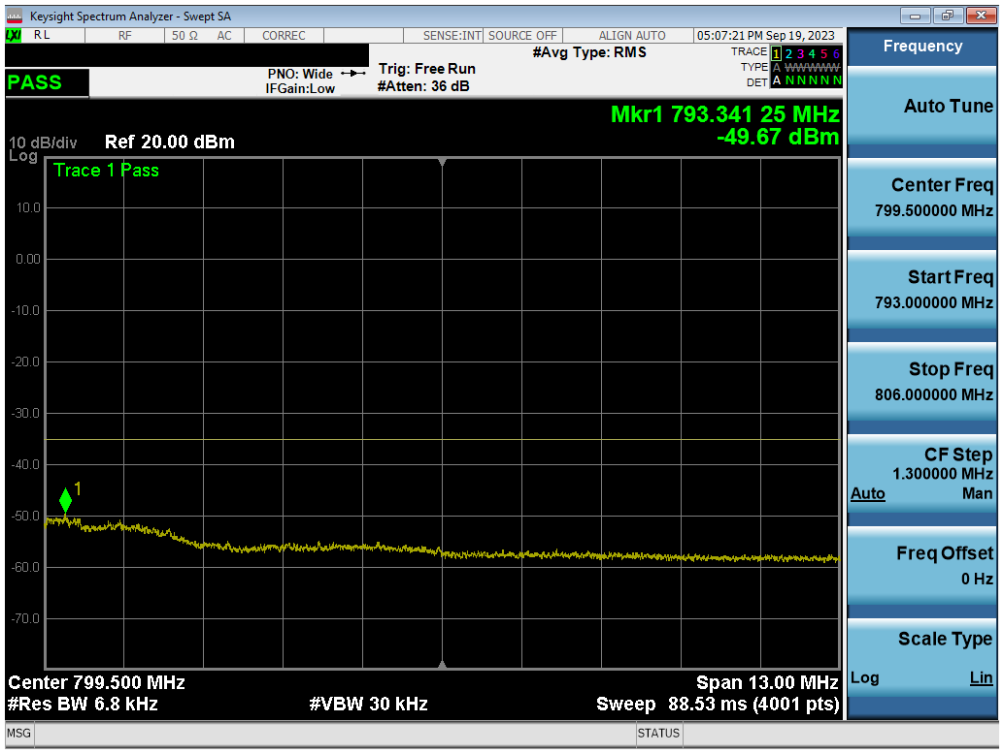


Plot 7-129. Lower Band Edge Plot (LTE Band 13 - 5MHz QPSK – Full RB - ANT1)



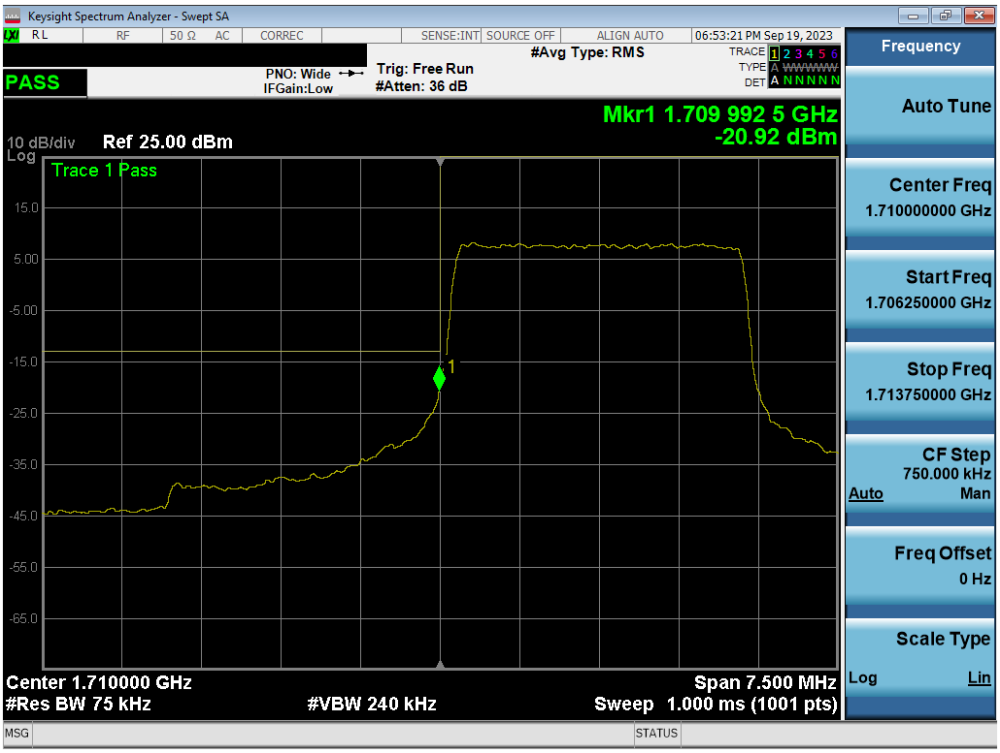
Plot 7-130. Lower Emission Mask Plot (LTE Band 13 - 5MHz QPSK – Full RB - ANT1)

Plot 7-131. Upper Band Edge Plot (LTE Band 13 - 5MHz QPSK – Full RB - ANT1)

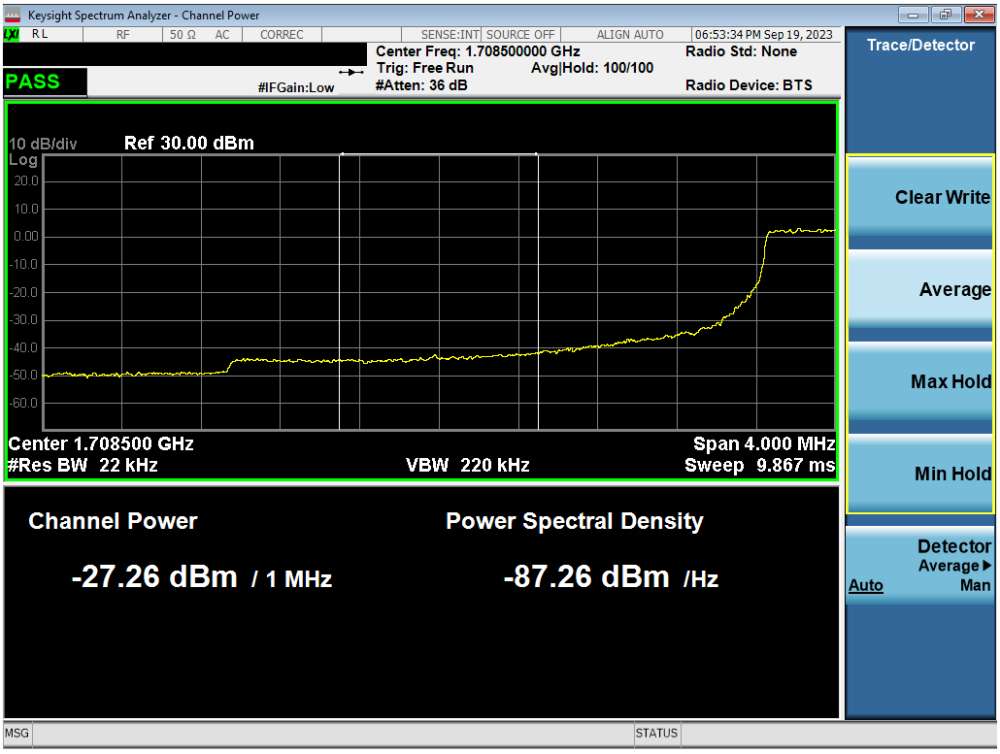


Plot 7-132. Upper Emission Mask Plot (LTE Band 13 - 5MHz QPSK – Full RB - ANT1)

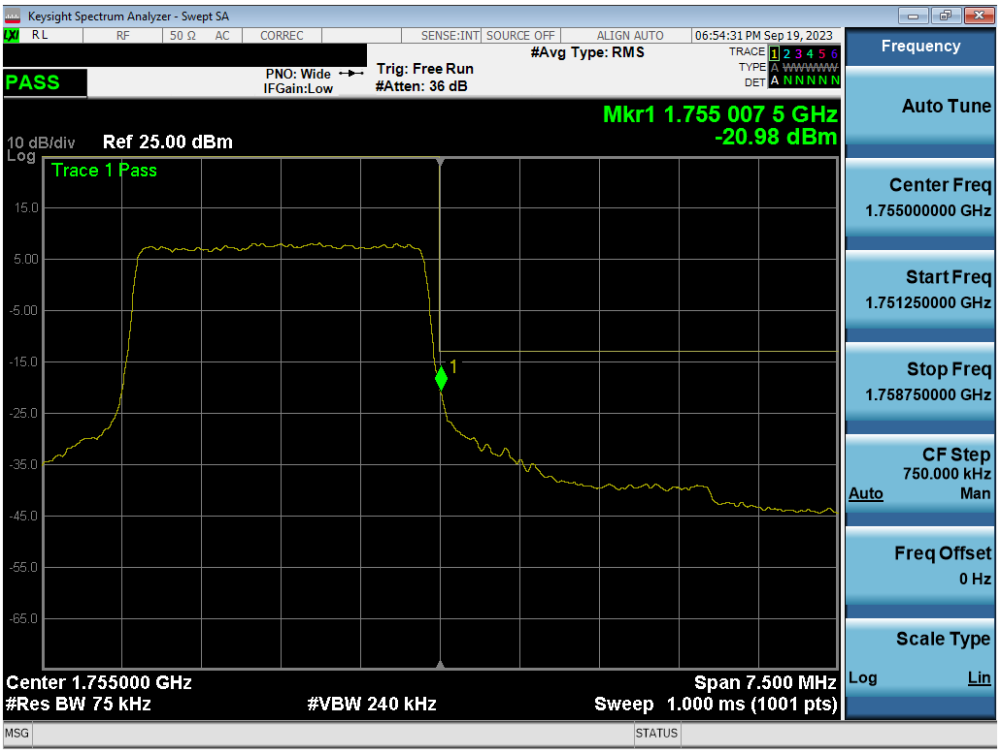
LTE Band 66/4 – ANT1



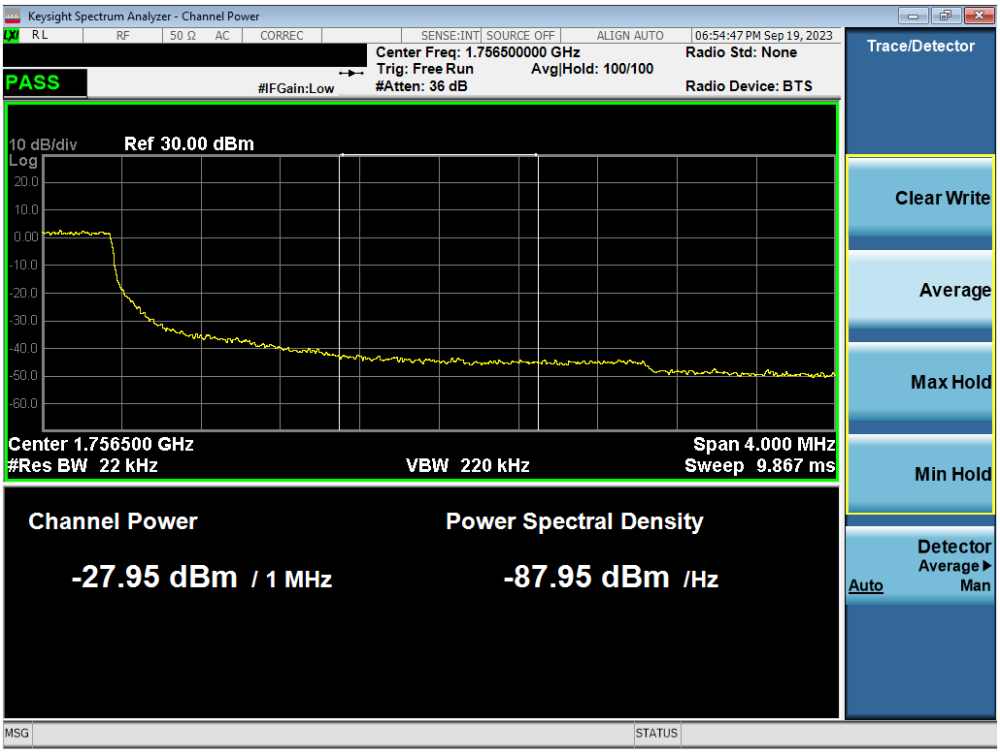
Plot 7-133. Lower Band Edge Plot (LTE Band 66/4 - 3MHz QPSK – Full RB - ANT1)



Plot 7-134. Lower Extended Band Edge Plot (LTE Band 66/4 - 3MHz QPSK – Full RB - ANT1)

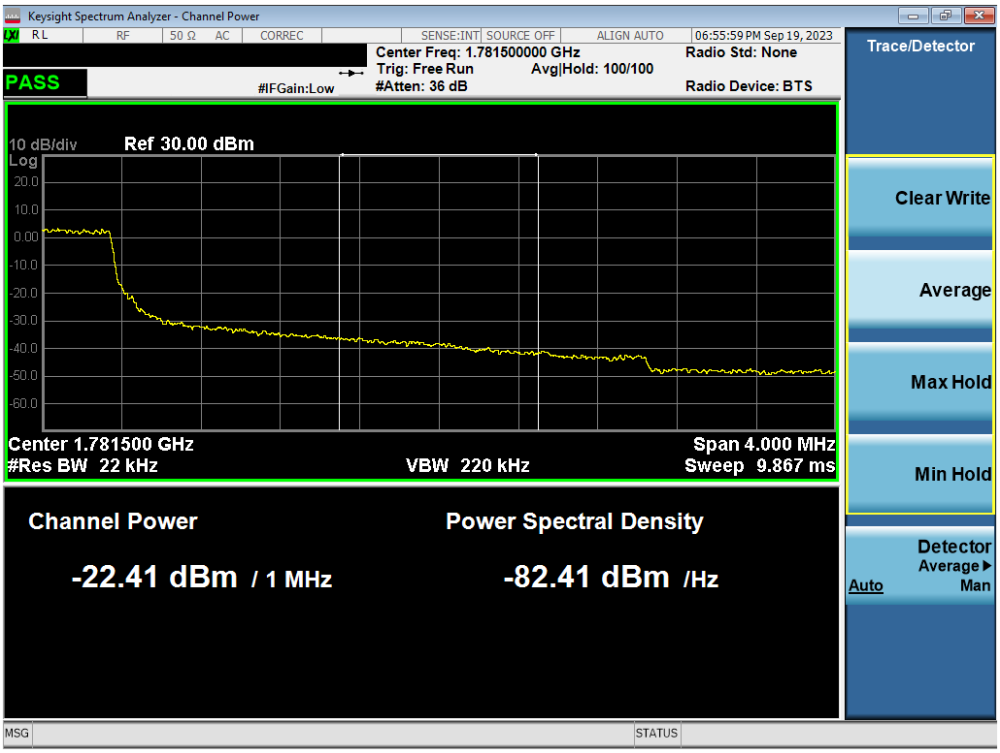


Plot 7-135. Upper Band Edge Plot (LTE Band 4 - 3MHz QPSK – Full RB - ANT1)



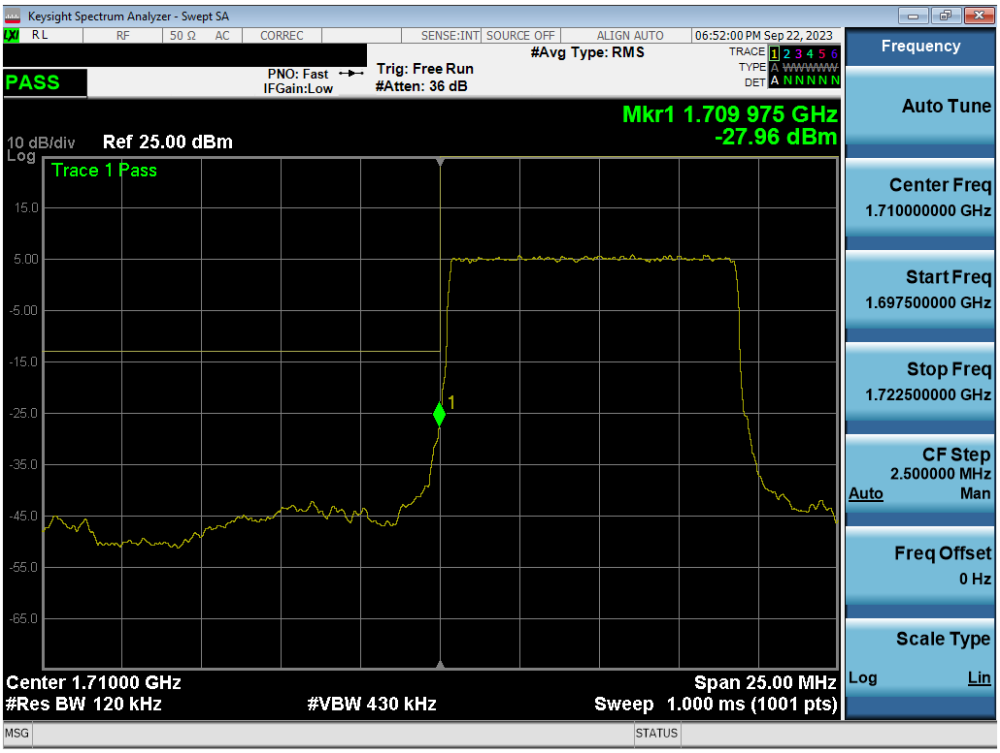
Plot 7-136. Upper Extended Band Edge Plot (LTE Band 4 - 3MHz QPSK – Full RB - ANT1)

Plot 7-137. Upper Band Edge Plot (LTE Band 66 - 3MHz QPSK – Full RB - ANT1)

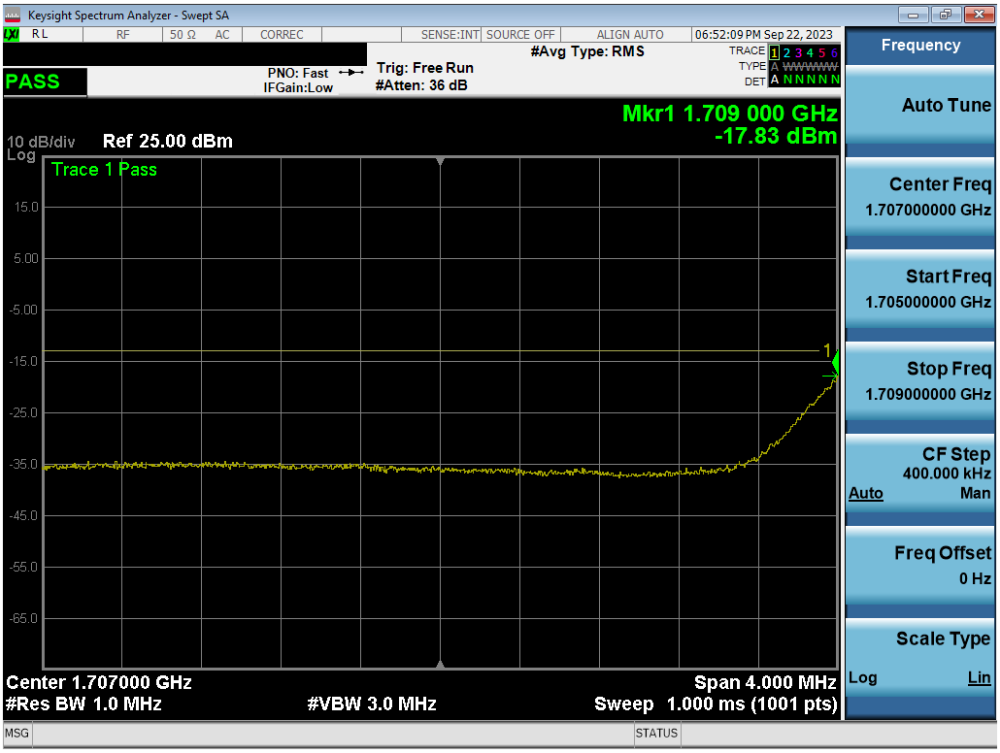


Plot 7-138. Upper Extended Band Edge Plot (LTE Band 66 - 3MHz QPSK – Full RB - ANT1)

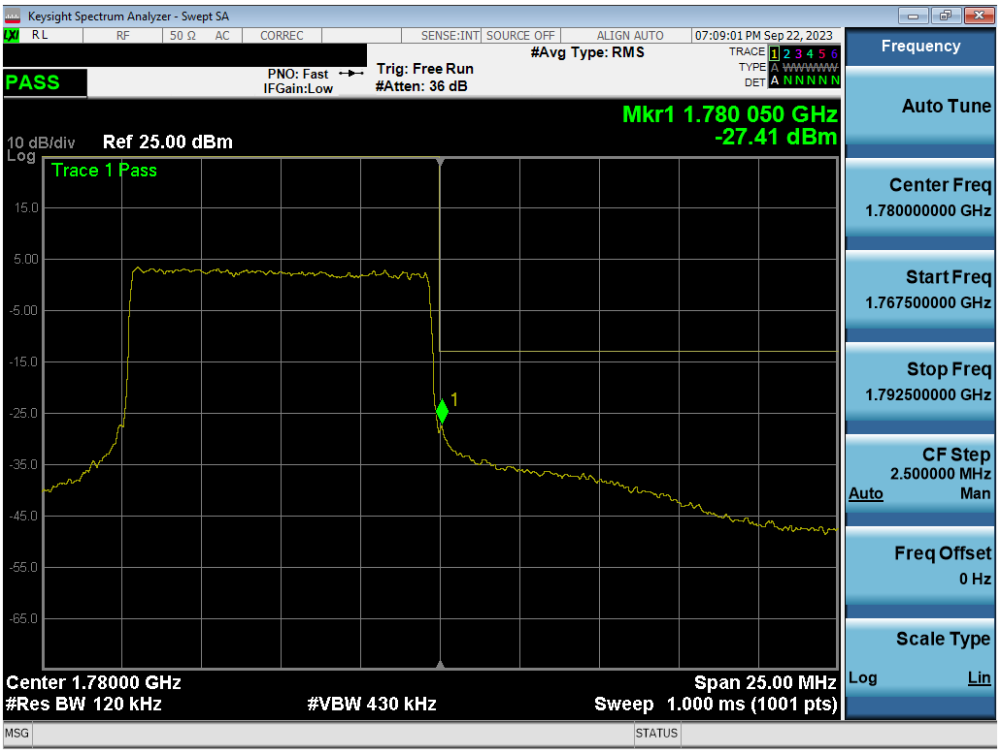
NR Band n66 – ANT1



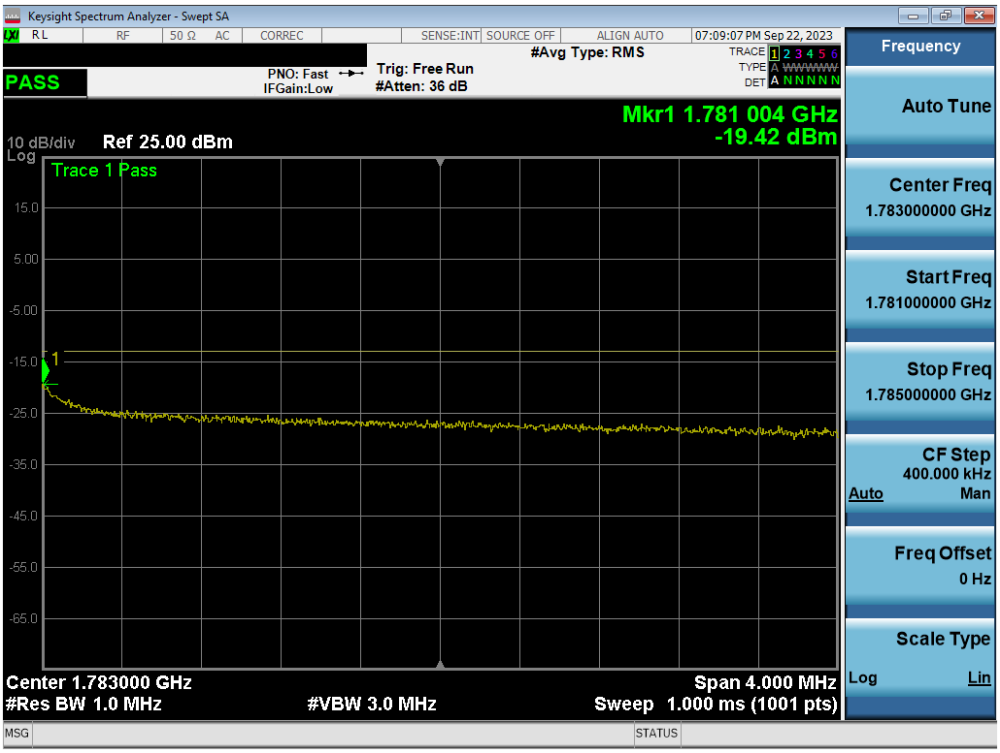
Plot 7-139. Lower Band Edge Plot (NR Band n66 – 10.0MHz - Full RB - ANT1)



Plot 7-140. Lower Extended Band Edge Plot (NR Band n66 – 10.0MHz - Full RB - ANT1)

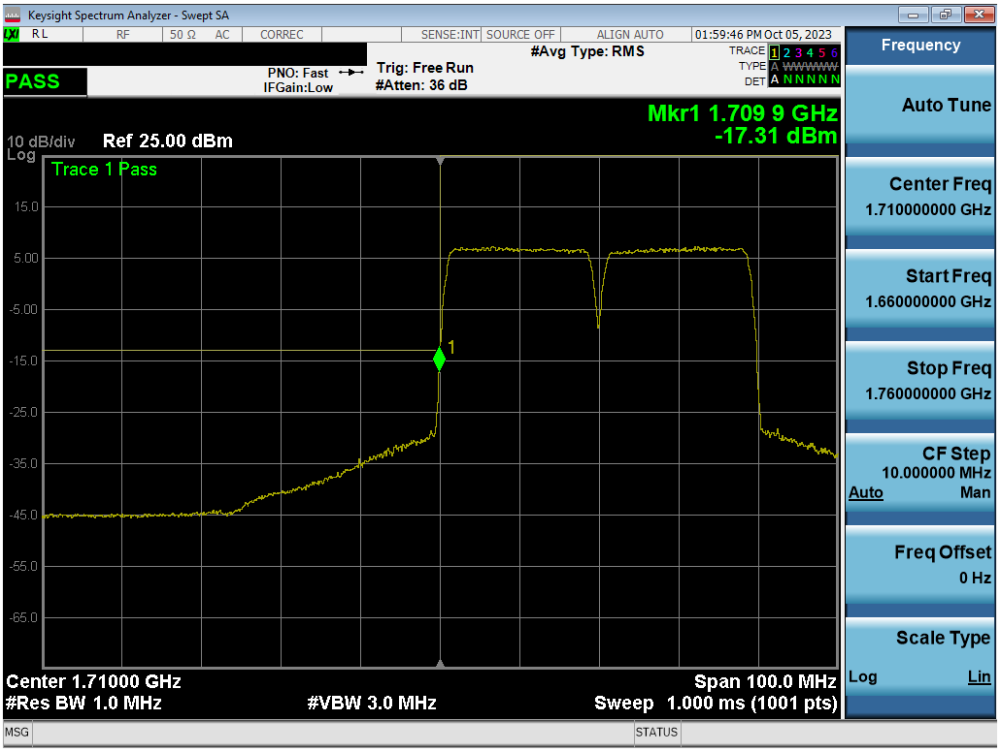


Plot 7-141. Upper Band Edge Plot (NR Band n66 – 10.0MHz - Full RB - ANT1)

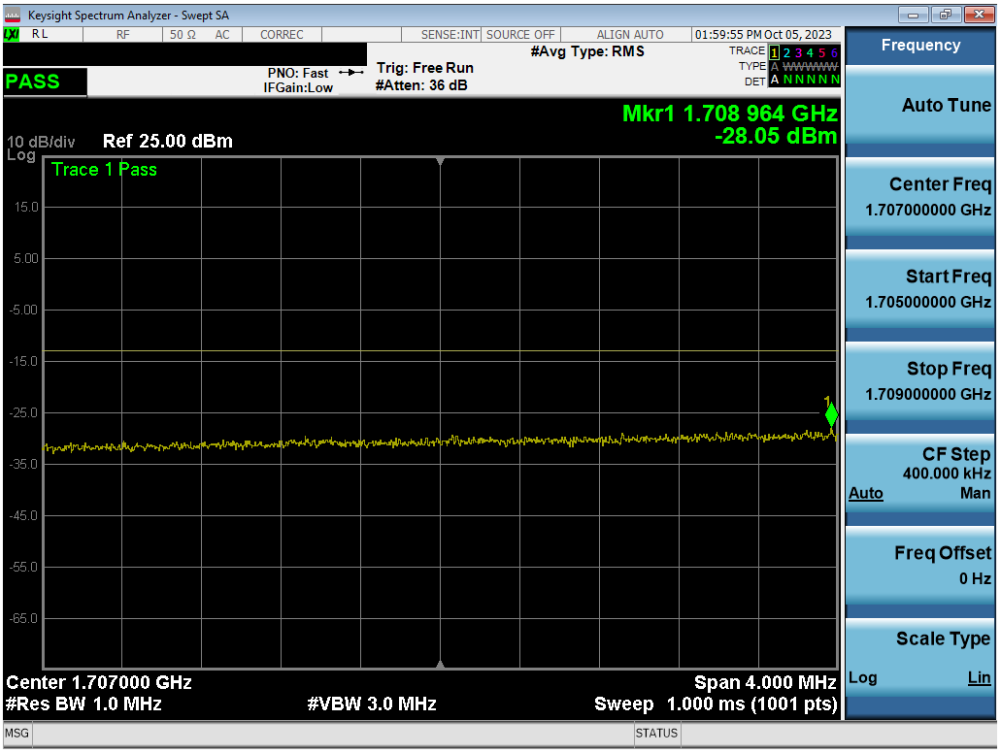


Plot 7-142. Upper Extended Band Edge Plot (NR Band n66 – 10.0MHz - Full RB - ANT1)

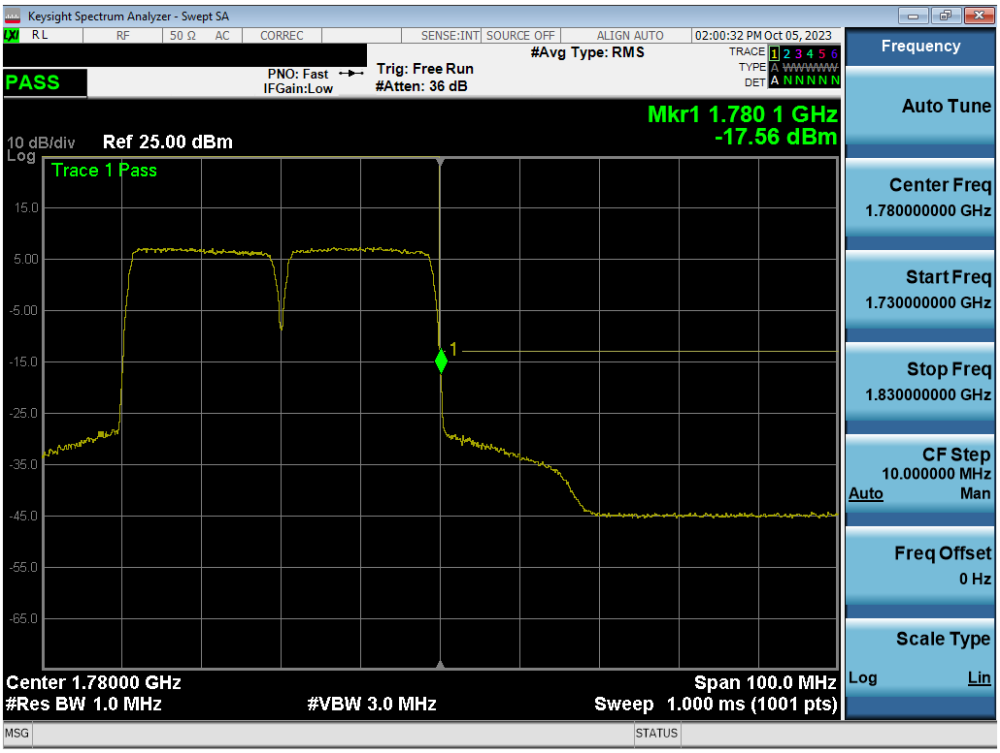
Uplink CA LTE Band 66B/C – ANT1



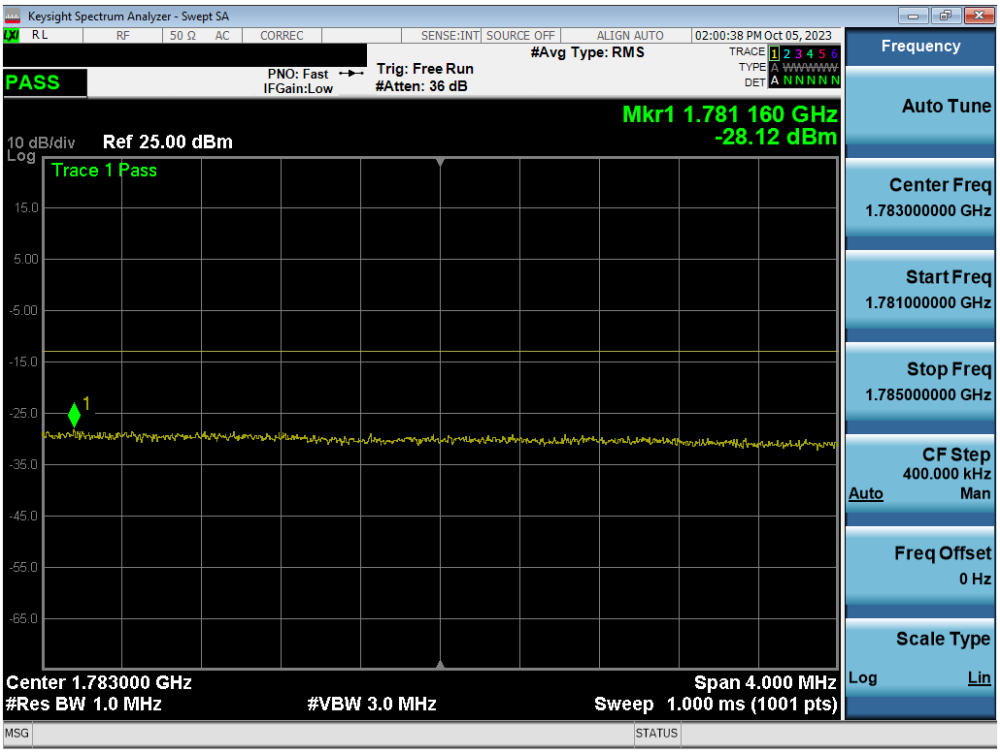
Plot 7-143. Lower Band Edge Plot (ULCA LTE Band 66 - ANT1)



Plot 7-144. Lower Extended Band Edge Plot (ULCA LTE Band 66 - ANT1)



Plot 7-145. Upper Band Edge Plot (ULCA LTE Band 66 - ANT1)



Plot 7-146. Upper Extended Band Edge Plot (ULCA LTE Band 66 - ANT1)

Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
LTE Band 66B/C ULCA	40 MHz	Low	Band Edge	-16.89	-13	-3.89
		Low	Extended	-27.69	-13	-14.69
		High	Band Edge	-17.97	-13	-4.97
		High	Extended	-28.22	-13	-15.22
LTE Band 12	10 MHz	Low	Band Edge	-30.38	-13	-17.38
		High	Band Edge	-30.26	-13	-17.26
	5 MHz	Low	Band Edge	-23.35	-13	-10.35
		High	Band Edge	-20.85	-13	-7.85
	3 MHz	Low	Band Edge	-17.46	-13	-4.46
		High	Band Edge	-18.27	-13	-5.27
	1.4 MHz	Low	Band Edge	-16.42	-13	-3.42
		High	Band Edge	-15.28	-13	-2.28
LTE Band 13	10 MHz	Low	Band Edge	-30.08	-13	-17.08
		Low	mission Mas	-62.65	-13	-49.65
		High	Band Edge	-28.05	-13	-15.05
		High	mission Mas	-53.35	-13	-40.35
	5 MHz	Low	Band Edge	-23.79	-13	-10.79
		Low	mission Mas	-59.07	-13	-46.07
		High	Band Edge	-22.70	-13	-9.70
		High	EmMask	-52.50	-13	-39.50

Table 7-16. Conducted Band Edge Test Results - Ant2

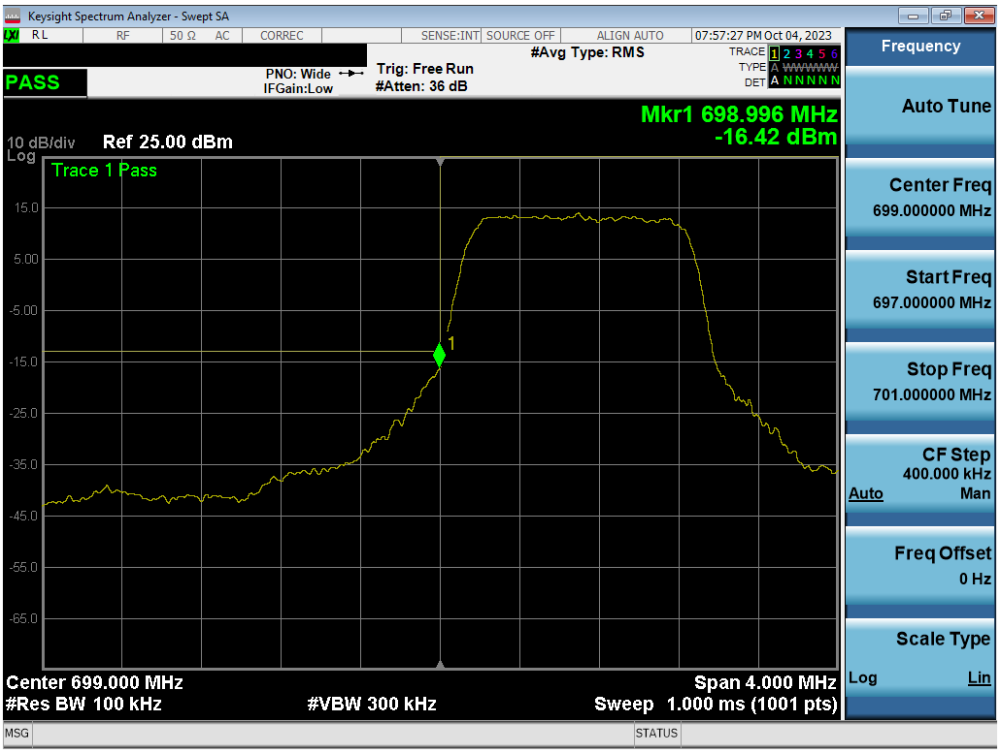
Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
LTE Band 66/4	20MHz	Low	Band Edge	-27.53	-13	-14.53
		Low	Extended	-24.56	-13	-11.56
		High (B4)	Band Edge	-26.95	-13	-13.95
		High (B4)	Extended	-23.70	-13	-10.70
		High (B66)	Band Edge	-27.28	-13	-14.28
		High (B66)	Extended	-25.23	-13	-12.23
	15MHz	Low	Band Edge	-24.36	-13	-11.36
		Low	Extended	-21.77	-13	-8.77
		High (B4)	Band Edge	-24.94	-13	-11.94
		High (B4)	Extended	-21.92	-13	-8.92
		High (B66)	Band Edge	-25.54	-13	-12.54
		High (B66)	Extended	-22.35	-13	-9.35
	10MHz	Low	Band Edge	-24.34	-13	-11.34
		Low	Extended	-21.96	-13	-8.96
		High (B4)	Band Edge	-26.20	-13	-13.20
		High (B4)	Extended	-21.19	-13	-8.19
		High (B66)	Band Edge	-25.53	-13	-12.53
		High (B66)	Extended	-21.88	-13	-8.88
	5MHz	Low	Band Edge	-21.55	-13	-8.55
		Low	Extended	-26.64	-13	-13.64
		High (B4)	Band Edge	-22.68	-13	-9.68
		High (B4)	Extended	-25.99	-13	-12.99
		High (B66)	Band Edge	-22.27	-13	-9.27
		High (B66)	Extended	-24.27	-13	-11.27
	3MHz	Low	Band Edge	-20.00	-13	-7.00
		Low	Extended	-25.15	-13	-12.15
		High (B4)	Band Edge	-20.36	-13	-7.36
		High (B4)	Extended	-26.06	-13	-13.06
		High (B66)	Band Edge	-19.68	-13	-6.68
		High (B66)	Extended	-24.12	-13	-11.12
	1.4MHz	Low	Band Edge	-21.23	-13	-8.23
		Low	Extended	-25.23	-13	-12.23
		High (B4)	Band Edge	-22.04	-13	-9.04
		High (B4)	Extended	-31.16	-13	-18.16
		High (B66)	Band Edge	-20.08	-13	-7.08
		High (B66)	Extended	-24.32	-13	-11.32

Table 7-17. Conducted Band Edge Test Results - Ant2

Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
NR Band n66	40 MHz	Low	Band Edge	-27.98	-13	-14.98
		Low	Extended	-27.53	-13	-14.53
		High	Band Edge	-24.95	-13	-11.95
		High	Extended	-27.11	-13	-14.11
	30 MHz	Low	Band Edge	-27.06	-13	-14.06
		Low	Extended	-25.37	-13	-12.37
		High	Band Edge	-23.01	-13	-10.01
		High	Extended	-22.38	-13	-9.38
	20 MHz	Low	Band Edge	-30.58	-13	-17.58
		Low	Extended	-24.96	-13	-11.96
		High	Band Edge	-31.53	-13	-18.53
		High	Extended	-26.00	-13	-13.00
	15 MHz	Low	Band Edge	-28.40	-13	-15.40
		Low	Extended	-22.24	-13	-9.24
		High	Band Edge	-28.16	-13	-15.16
		High	Extended	-23.74	-13	-10.74
	10 MHz	Low	Band Edge	-27.82	-13	-14.82
		Low	Extended	-17.94	-13	-4.94
		High	Band Edge	-26.62	-13	-13.62
		High	Extended	-18.93	-13	-5.93
	5 MHz	Low	Band Edge	-28.24	-13	-15.24
		Low	Extended	-15.86	-13	-2.86
		High	Band Edge	-26.56	-13	-13.56
		High	Extended	-16.58	-13	-3.58

Table 7-18. Conducted Band Edge Test Results - Ant2

LTE Band 12 – ANT2

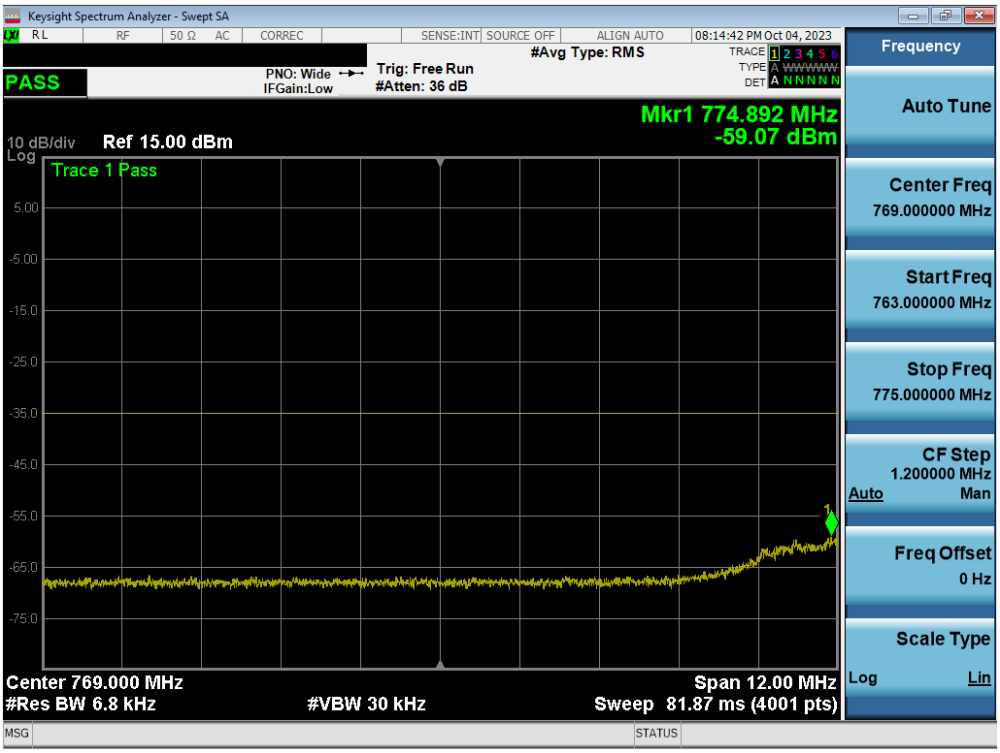


Plot 7-147. Lower Band Edge Plot (LTE Band 12 – 1.4MHz QPSK – Full RB - ANT2)

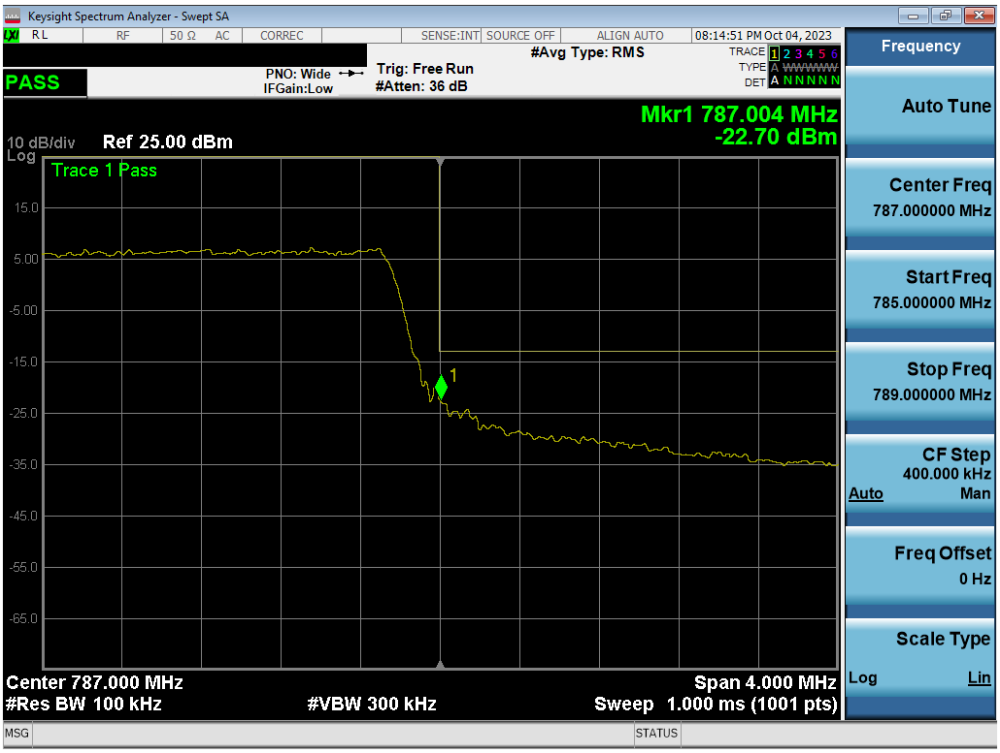
Plot 7-148. Upper Band Edge Plot (LTE Band 12 – 1.4MHz QPSK – Full RB - ANT2)

LTE Band 13 – ANT2

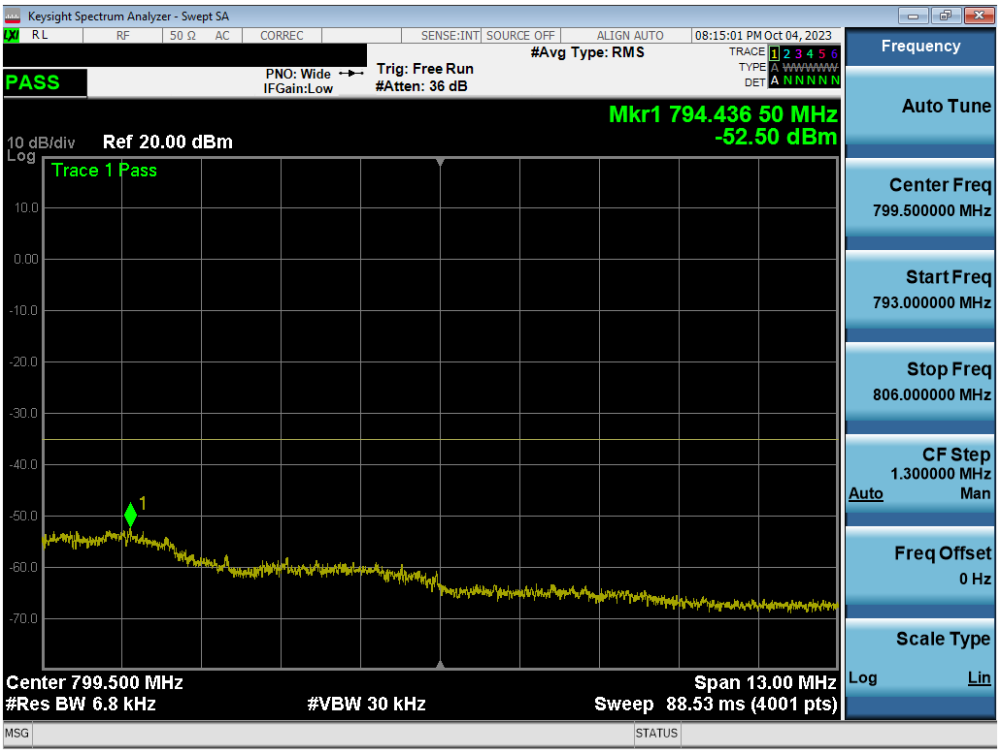
Plot 7-149. Lower Band Edge Plot (LTE Band 13 - 5MHz QPSK – Full RB - ANT2)



Plot 7-150. Lower Emission Mask Plot (LTE Band 13 - 5MHz QPSK – Full RB - ANT2)

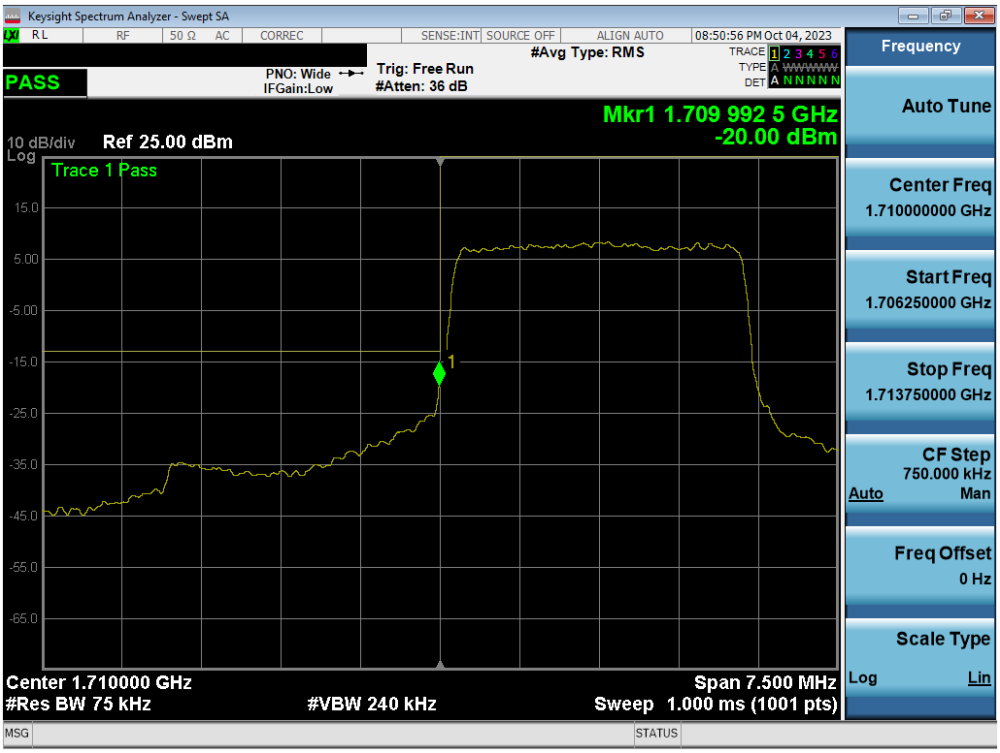


Plot 7-151. Upper Band Edge Plot (LTE Band 13 - 5MHz QPSK – Full RB - ANT2)

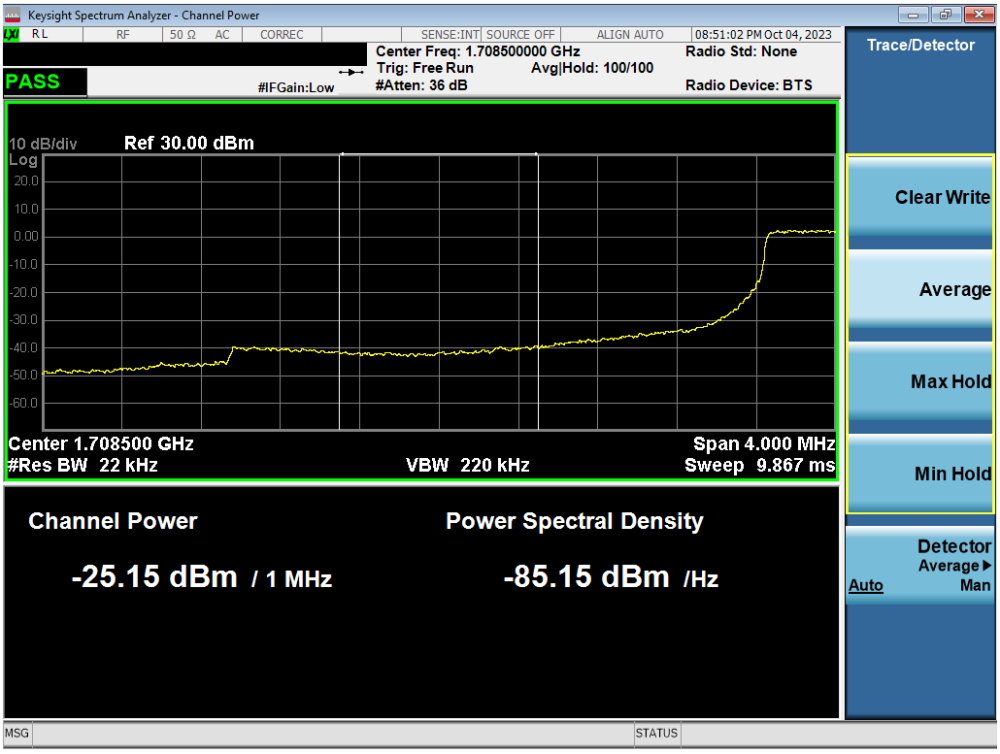


Plot 7-152. Upper Emission Mask Plot (LTE Band 13 - 5MHz QPSK – Full RB - ANT2)

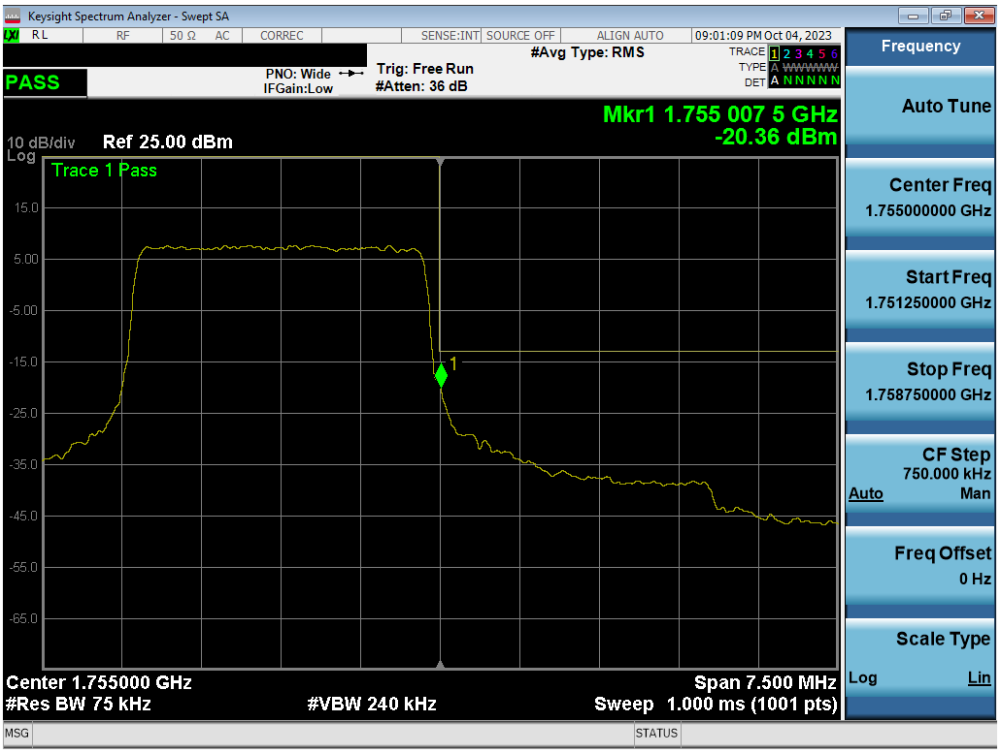
LTE Band 66/4 – ANT2



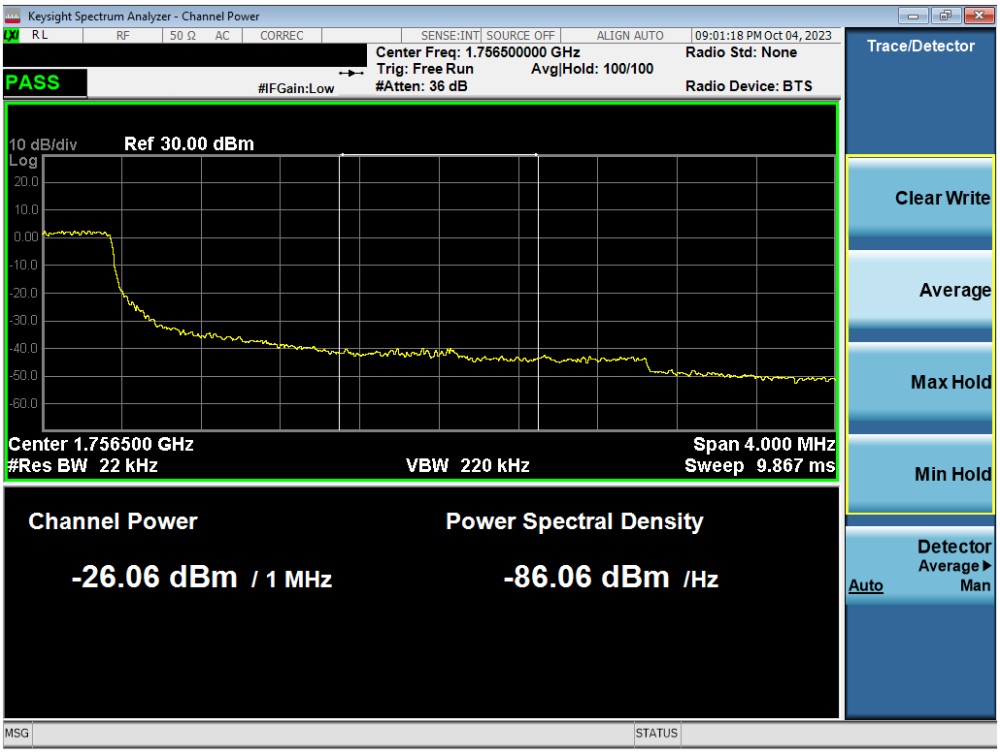
Plot 7-153. Lower Band Edge Plot (LTE Band 66/4 - 3MHz QPSK – Full RB - ANT2)



Plot 7-154. Lower Extended Band Edge Plot (LTE Band 66/4 - 3MHz QPSK – Full RB - ANT2)

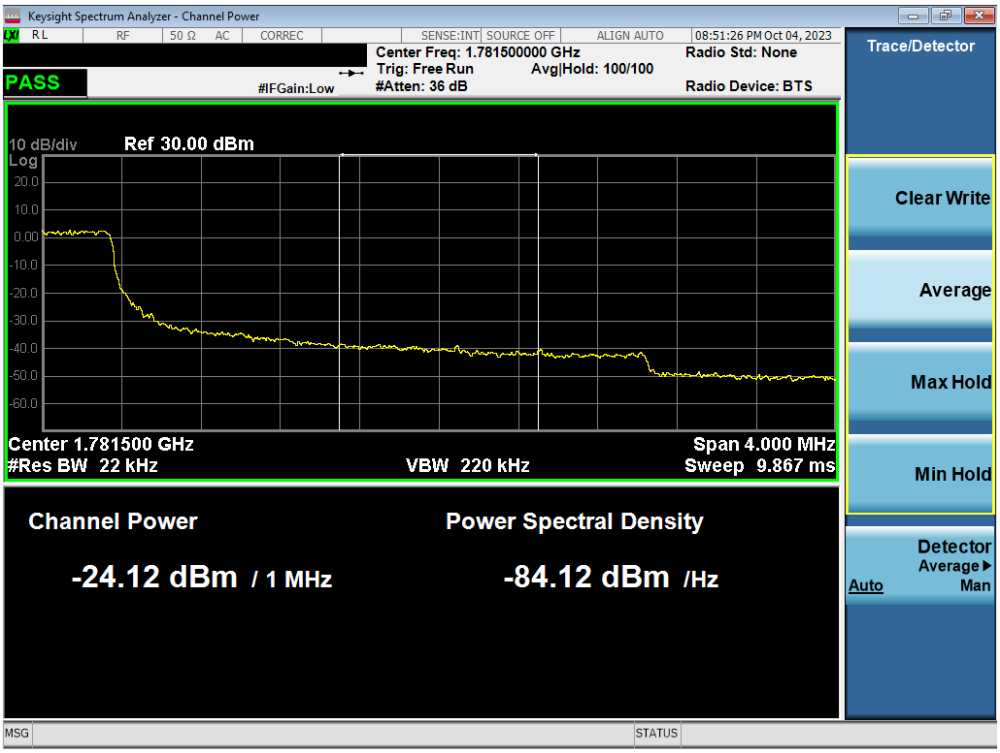


Plot 7-155. Upper Band Edge Plot (LTE Band 4 - 3MHz QPSK – Full RB - ANT2)



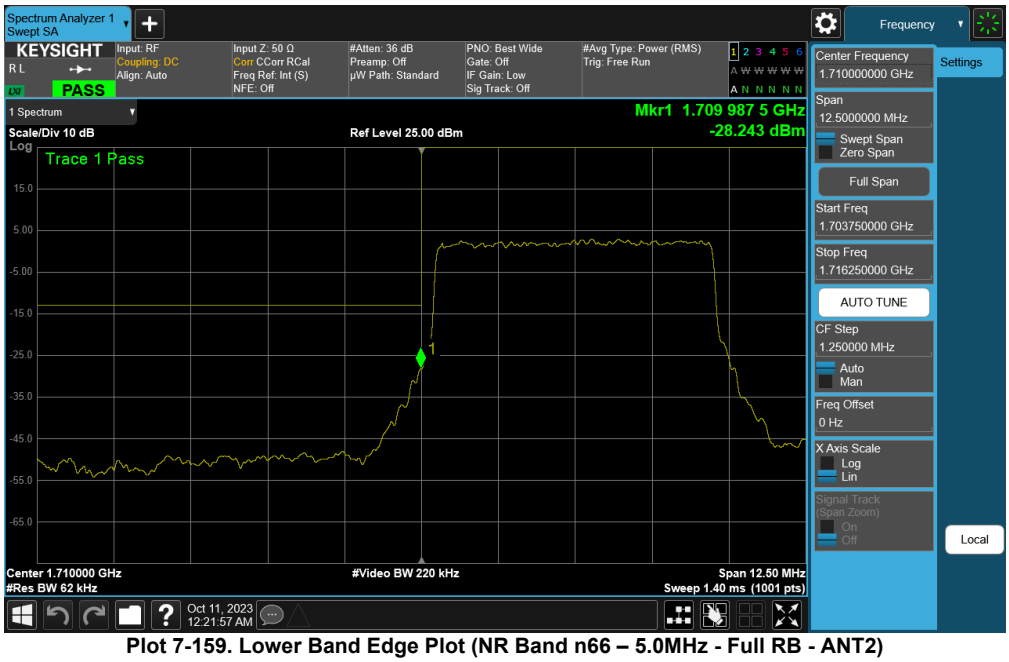
Plot 7-156. Upper Extended Band Edge Plot (LTE Band 4 - 3MHz QPSK – Full RB - ANT2)

Plot 7-157. Upper Band Edge Plot (LTE Band 66 - 3MHz QPSK – Full RB - ANT2)

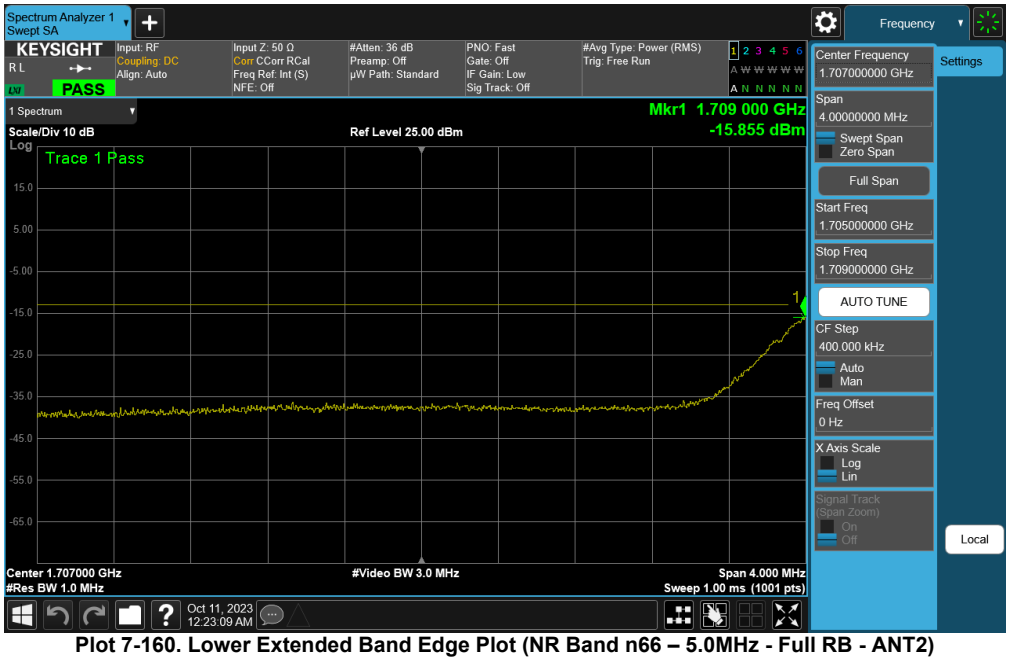


Plot 7-158. Upper Extended Band Edge Plot (LTE Band 66 - 3MHz QPSK – Full RB - ANT2)

NR Band n66 – ANT2

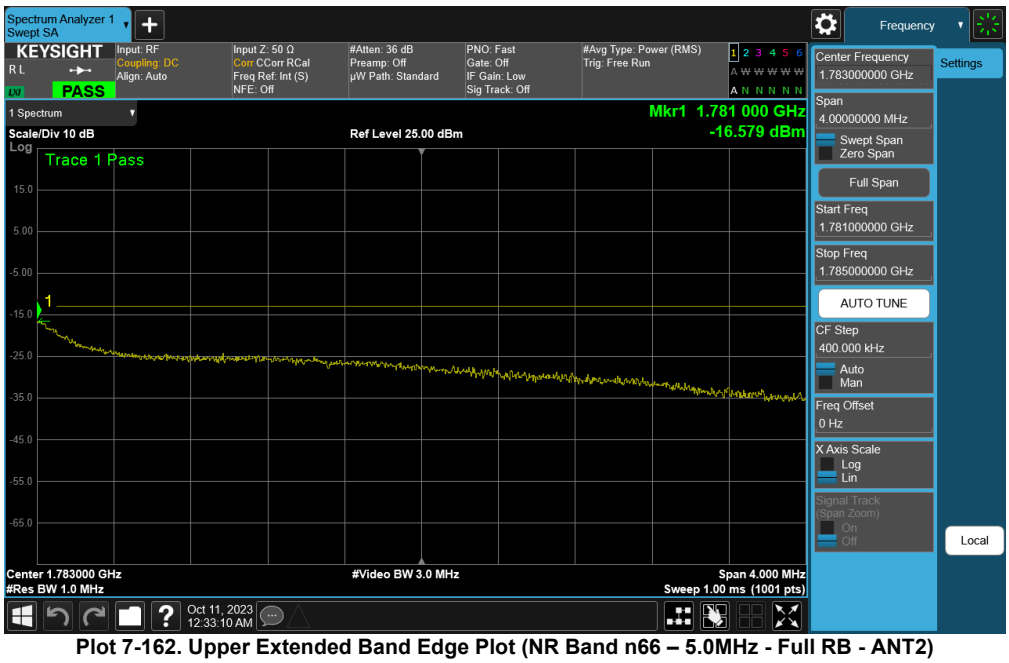


Plot 7-159. Lower Band Edge Plot (NR Band n66 – 5.0MHz - Full RB - ANT2)



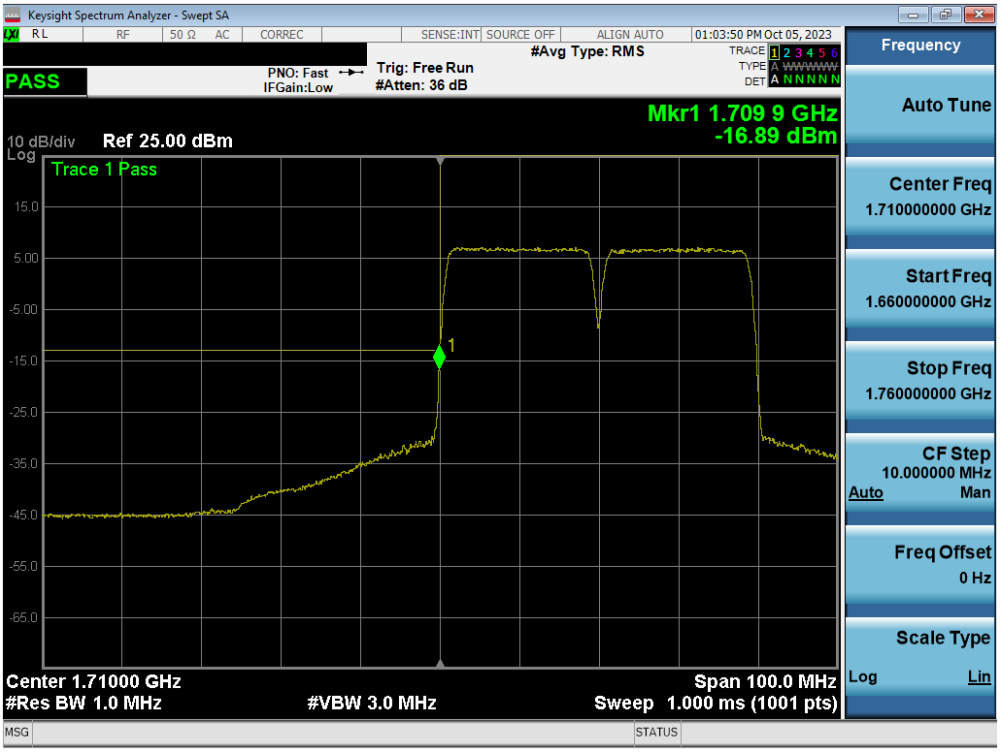
Plot 7-160. Lower Extended Band Edge Plot (NR Band n66 – 5.0MHz - Full RB - ANT2)

Plot 7-161. Upper Band Edge Plot (NR Band n66 – 5.0MHz - Full RB - ANT2)

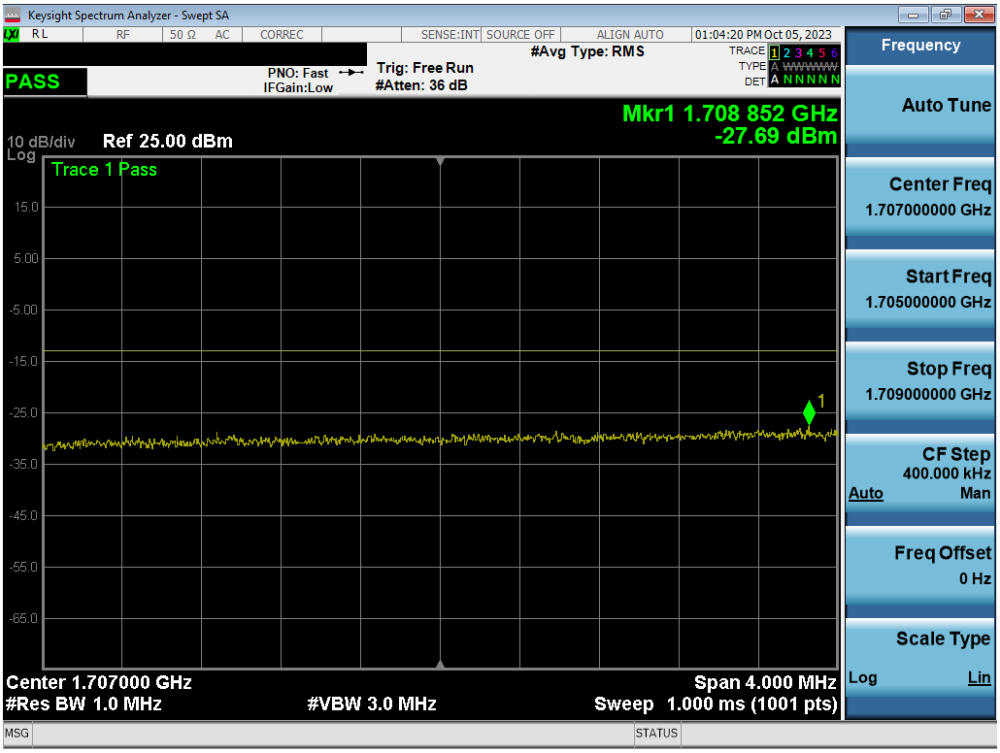


Plot 7-162. Upper Extended Band Edge Plot (NR Band n66 – 5.0MHz - Full RB - ANT2)

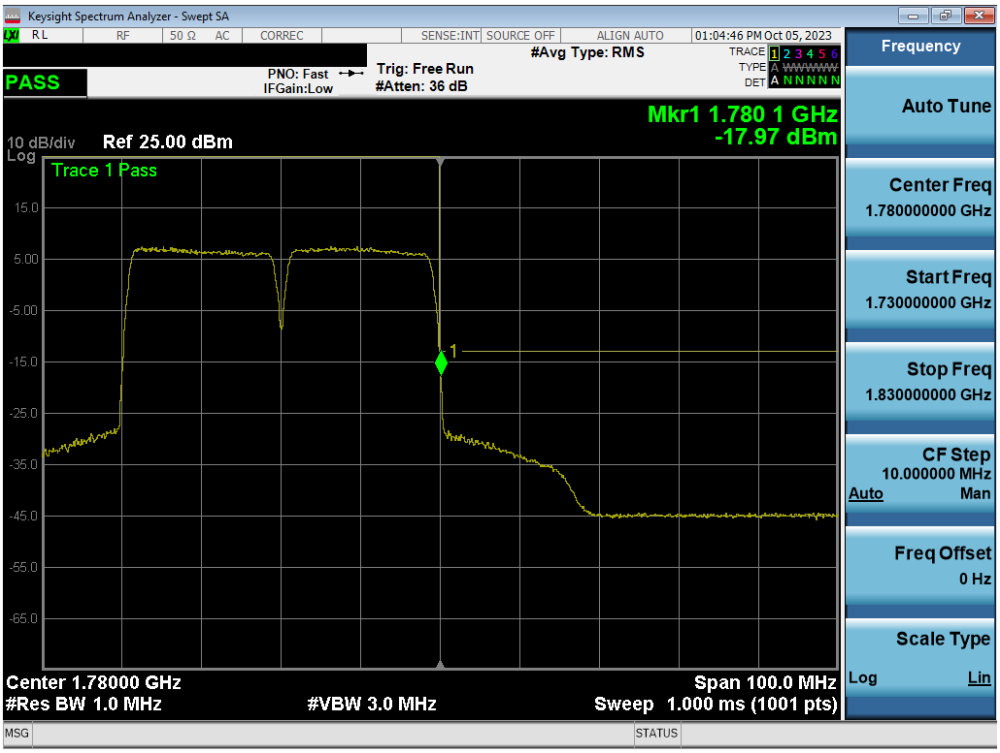
Uplink CA LTE Band 66B/C – ANT2



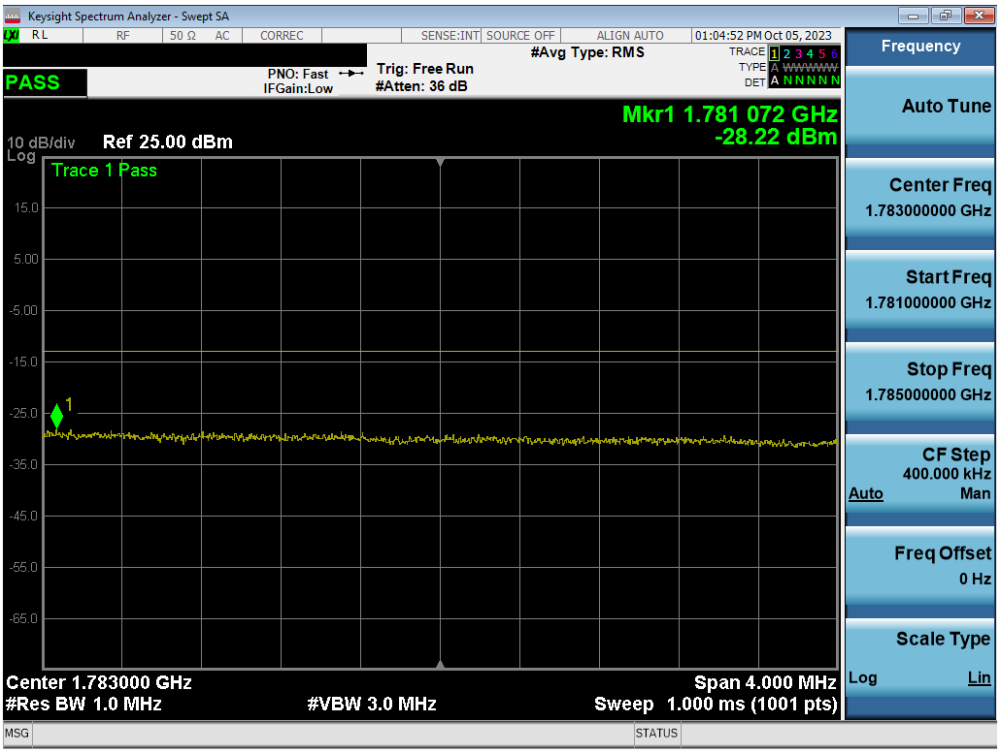
Plot 7-163. Lower Band Edge Plot (ULCA LTE Band 66 - ANT2)



Plot 7-164. Lower Extended Band Edge Plot (ULCA LTE Band 66 - ANT2)



Plot 7-165. Upper Band Edge Plot (ULCA LTE Band 66 - ANT2)



Plot 7-166. Upper Extended Band Edge Plot (ULCA LTE Band 66 - ANT2)

7.6 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

ANSI C63.26-2015 – Section 5.2.3.4

Test Settings

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW ≥ 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.

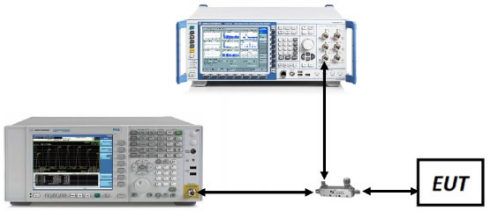


Figure 7-5. Test Instrument & Measurement Setup

Test Notes

For the QAM modulations, 256QAM was found to have the worst-case peak-to-average ratio so it is the only QAM measurement included in this section.

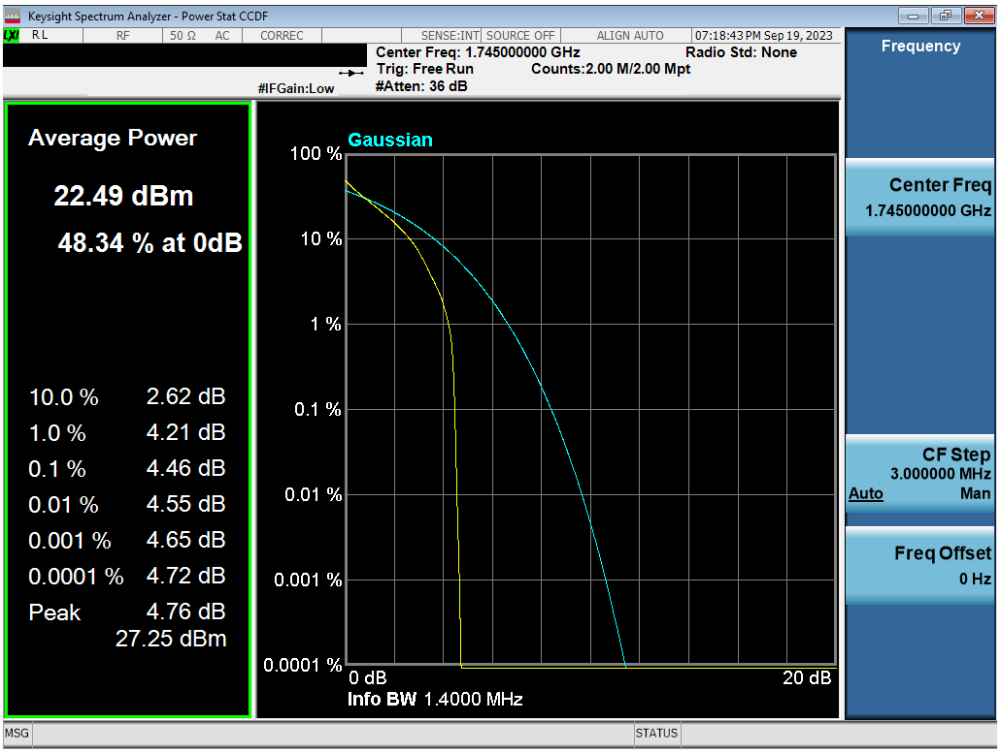
Mode	Bandwidth	Modulation	Average Power [dBm]	PAR at 0.1% [dB]	PAR Limit [dB]	Margin [dB]
LTE-B66-4	20MHz	QPSK	22.54	4.57	13	-8.43
		256QAM	18.53	6.77	13	-6.23
	15MHz	QPSK	22.49	4.54	13	-8.46
		256QAM	18.53	6.77	13	-6.23
	10MHz	QPSK	22.54	4.53	13	-8.47
		256QAM	18.55	6.73	13	-6.27
	5MHz	QPSK	22.51	4.50	13	-8.50
		256QAM	18.51	6.75	13	-6.25
	3MHz	QPSK	22.56	4.42	13	-8.58
		256QAM	18.56	6.79	13	-6.21
	1.4MHz	QPSK	22.49	4.46	13	-8.54
		256QAM	18.52	6.92	13	-6.08

Table 7-19. Peak-Average Ratio Test Results - Ant1

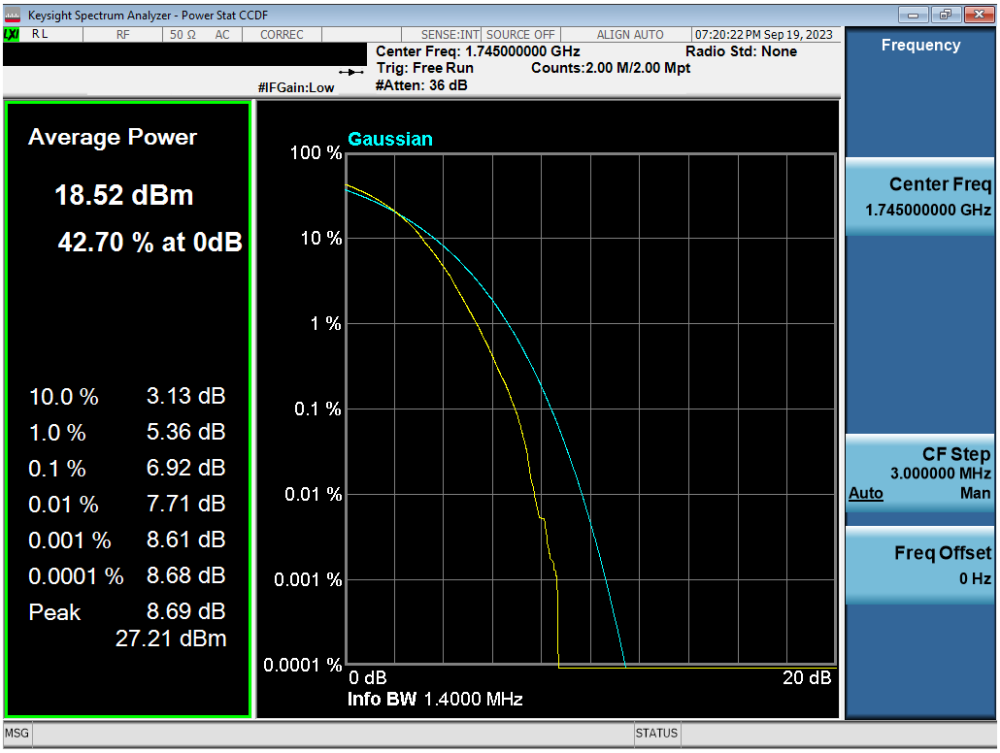
Mode	Bandwidth	Modulation	Average Power [dBm]	PAR at 0.1% [dB]	PAR Limit [dB]	Margin [dB]
NR-n66	40MHz	π/2 BPSK	23.25	3.90	13	-9.10
		QPSK	20.82	6.59	13	-6.41
		256QAM	17.23	8.46	13	-4.54
	30MHz	π/2 BPSK	23.38	3.61	13	-9.39
		QPSK	20.71	6.59	13	-6.41
		256QAM	17.26	8.43	13	-4.57
	20MHz	π/2 BPSK	23.20	3.81	13	-9.19
		QPSK	20.66	6.52	13	-6.48
		256QAM	17.12	8.42	13	-4.58
	15MHz	π/2 BPSK	23.16	3.99	13	-9.01
		QPSK	20.55	6.52	13	-6.48
		256QAM	17.05	8.42	13	-4.58
	10MHz	π/2 BPSK	23.21	3.90	13	-9.10
		QPSK	20.58	6.67	13	-6.33
		256QAM	17.04	8.43	13	-4.57
	5MHz	π/2 BPSK	23.11	4.06	13	-8.94
		QPSK	20.63	6.64	13	-6.36
		256QAM	16.93	8.58	13	-4.42

Table 7-20. Peak-Average Ratio Test Results - Ant1

LTE Band 66/4 – ANT1

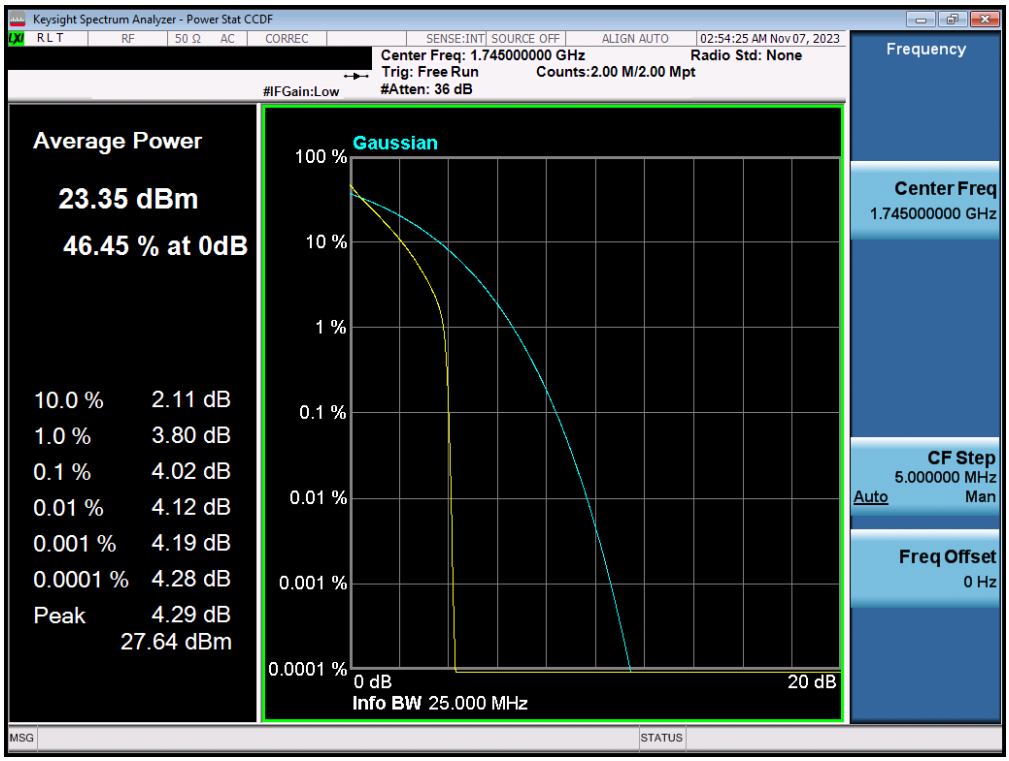


Plot 7-167. PAR Plot (LTE Band 66/4 - 1.4MHz QPSK - Full RB - ANT1)

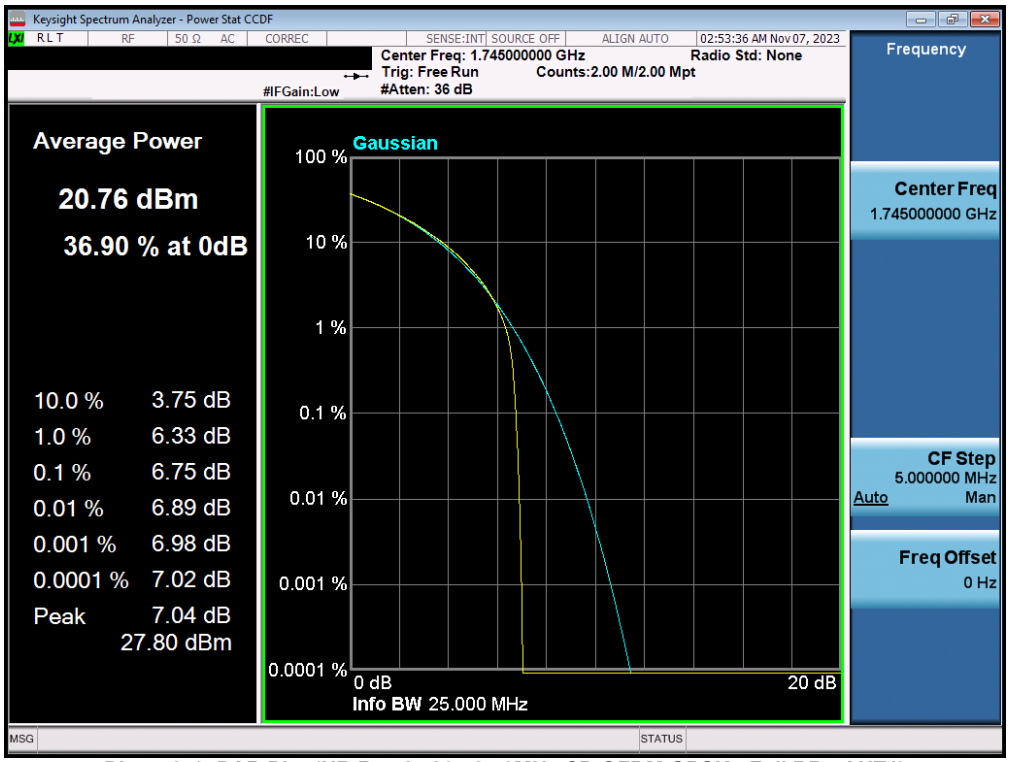


Plot 7-168. PAR Plot (LTE Band 66/4 - 1.4MHz 256-QAM - Full RB - ANT1)

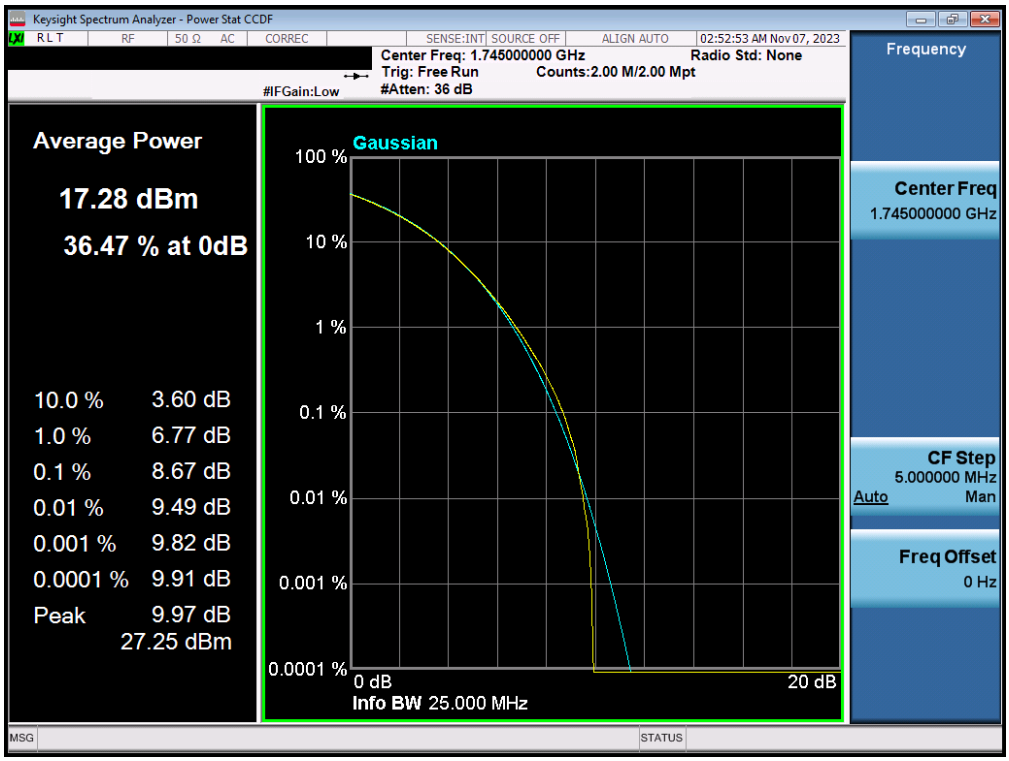
NR Band n66 – ANT1



Plot 7-169. PAR Plot (NR Band n66 - 25.0MHz DFT-s-OFDM π/2 BPSK- Full RB - ANT1)



Plot 7-170. PAR Plot (NR Band n66 - 25.0MHz CP-OFDM QPSK - Full RB - ANT1)



Plot 7-171. PAR Plot (NR Band n66 - 25.0MHz CP-OFDM 256-QAM - Full RB - ANT1)

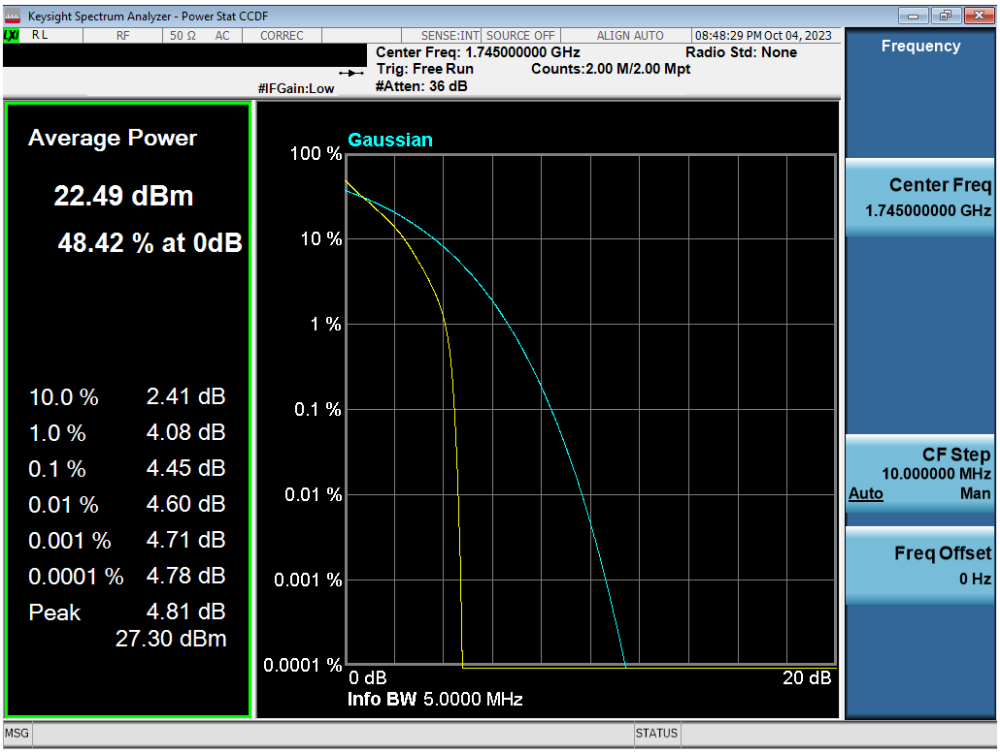
Mode	Bandwidth	Modulation	Average Power [dBm]	PAR at 0.1% [dB]	PAR Limit [dB]	Margin [dB]
LTE-B66-4	20MHz	QPSK	22.50	4.53	13	-8.47
		256QAM	18.47	6.82	13	-6.18
	15MHz	QPSK	22.45	4.52	13	-8.48
		256QAM	18.49	6.84	13	-6.16
	10MHz	QPSK	22.52	4.46	13	-8.54
		256QAM	18.51	6.81	13	-6.19
	5MHz	QPSK	22.49	4.45	13	-8.55
		256QAM	18.84	7.47	13	-5.53
	3MHz	QPSK	22.50	4.41	13	-8.59
		256QAM	18.50	6.86	13	-6.14
	1.4MHz	QPSK	22.41	4.47	13	-8.53
		256QAM	18.67	7.28	13	-5.72

Table 7-21. Peak-Average Ratio Test Results – Ant2

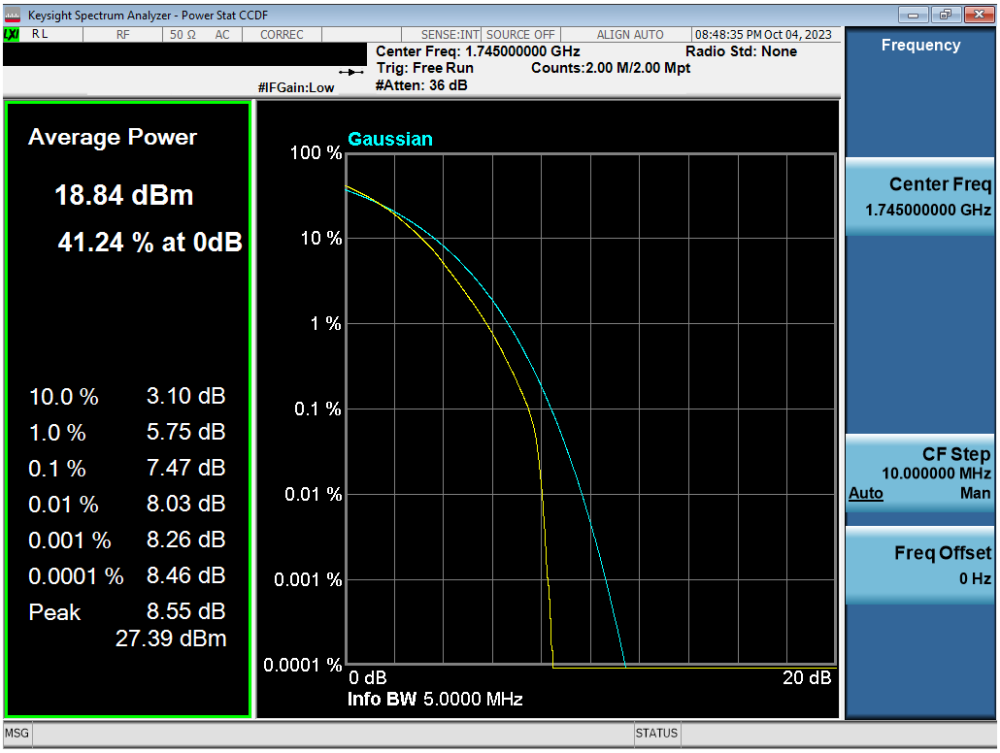
Mode	Bandwidth	Modulation	Average Power [dBm]	PAR at 0.1% [dB]	PAR Limit [dB]	Margin [dB]
NR-n66	40MHz	π/2 BPSK	22.04	3.87	13	-9.13
		QPSK	20.57	6.64	13	-6.36
		256QAM	17.03	8.43	13	-4.57
	30MHz	π/2 BPSK	22.05	3.81	13	-9.19
		QPSK	20.43	6.63	13	-6.37
		256QAM	16.94	8.45	13	-4.55
	20MHz	π/2 BPSK	22.01	3.81	13	-9.19
		QPSK	20.31	6.52	13	-6.48
		256QAM	16.77	8.47	13	-4.53
	15MHz	π/2 BPSK	21.88	3.88	13	-9.12
		QPSK	20.31	6.54	13	-6.46
		256QAM	16.90	8.43	13	-4.57
	10MHz	π/2 BPSK	22.81	3.90	13	-9.10
		QPSK	20.28	6.50	13	-6.50
		256QAM	16.77	8.45	13	-4.55
	5MHz	π/2 BPSK	22.87	4.04	13	-8.96
		QPSK	20.37	6.63	13	-6.37
		256QAM	16.82	8.44	13	-4.56

Table 7-22. Peak-Average Ratio Test Results – Ant2

LTE Band 66/4 – ANT2

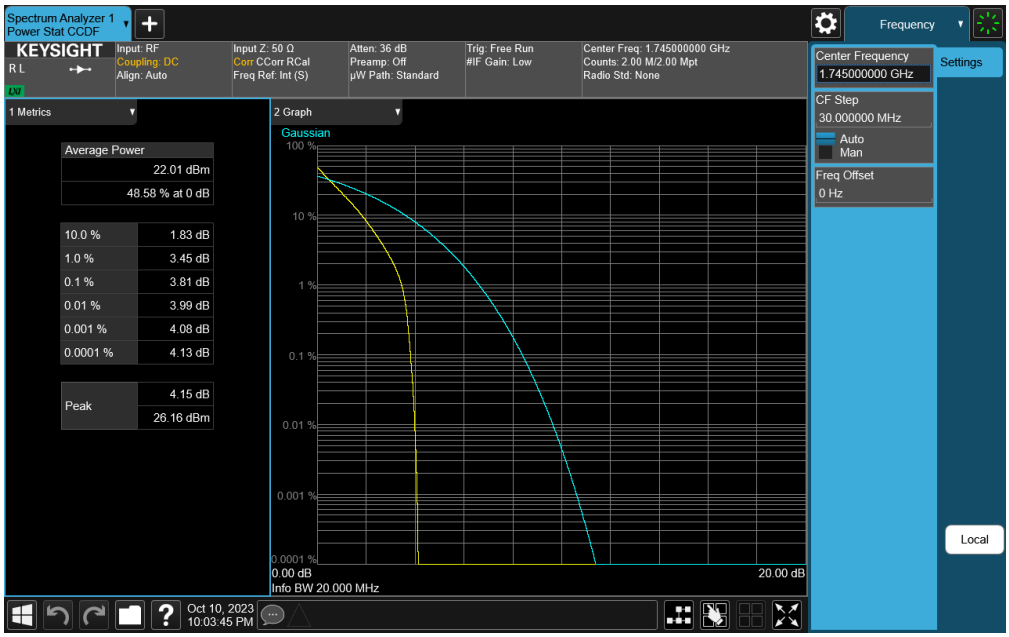


Plot 7-172. PAR Plot (LTE Band 66/4 - 5MHz QPSK - Full RB - ANT2)

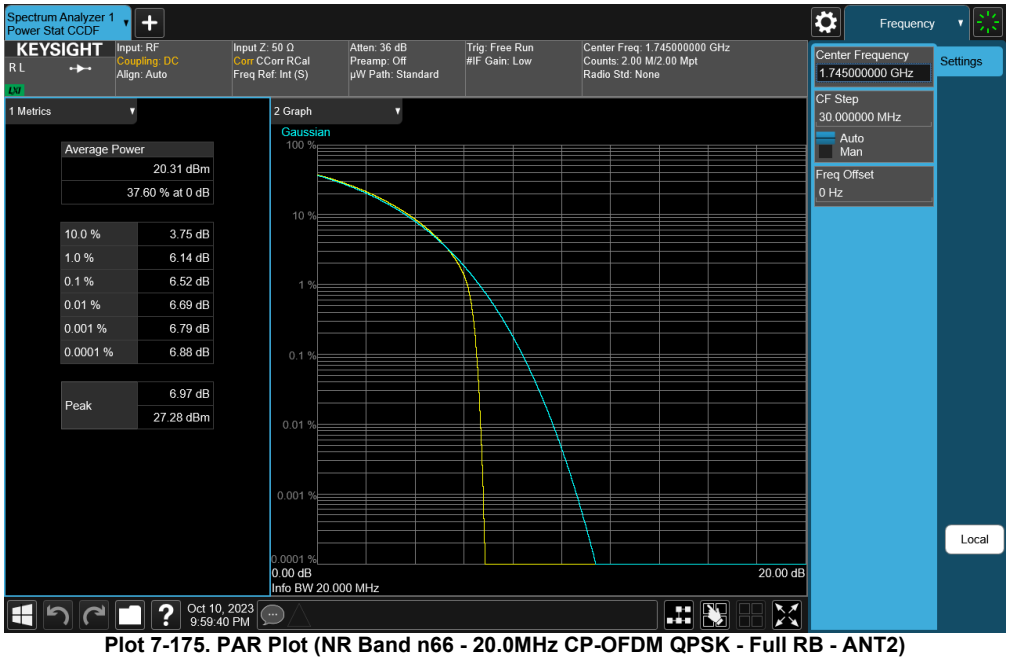


Plot 7-173. PAR Plot (LTE Band 66/4 - 5MHz 256-QAM - Full RB - ANT2)

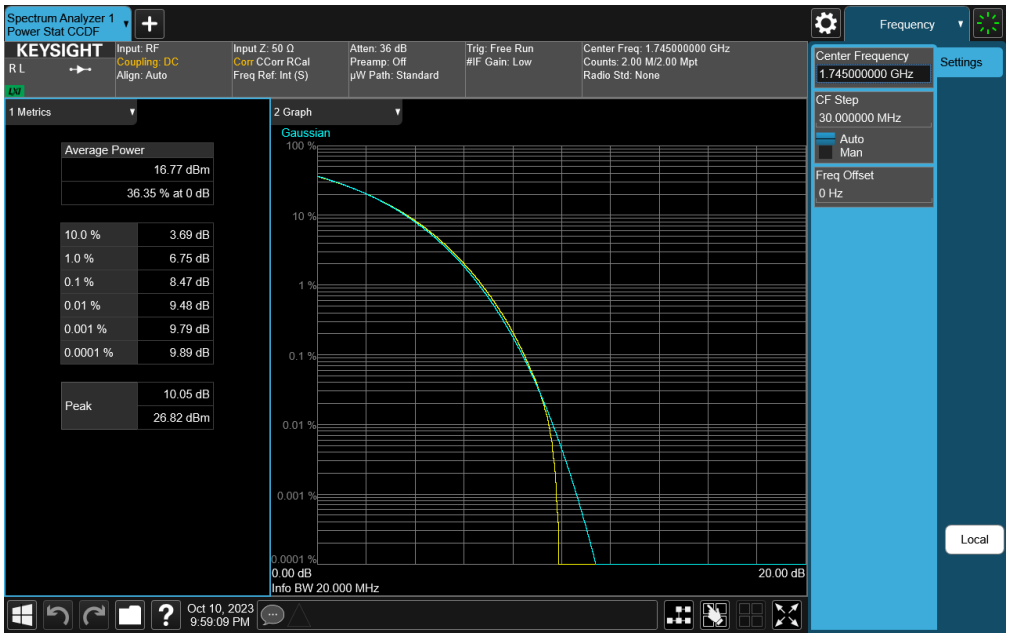
NR Band n66 – ANT2



Iot 7-174. PAR Plot (NR Band n66 - 20.0MHz DFT-s-OFDM π/2 BPSK- Full RB - ANT2)



Plot 7-175. PAR Plot (NR Band n66 - 20.0MHz CP-OFDM QPSK - Full RB - ANT2)



Plot 7-176. PAR Plot (NR Band n66 - 20.0MHz CP-OFDM 256-QAM - Full RB - ANT2)

7.7 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 C63.26-2015 with the EUT transmitting into an integral antenna. Measurements are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

ANSI C63.26-2015 – Section 5.2.4.4

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW ≥ 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points ≥ 2 x span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

Test Setup

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

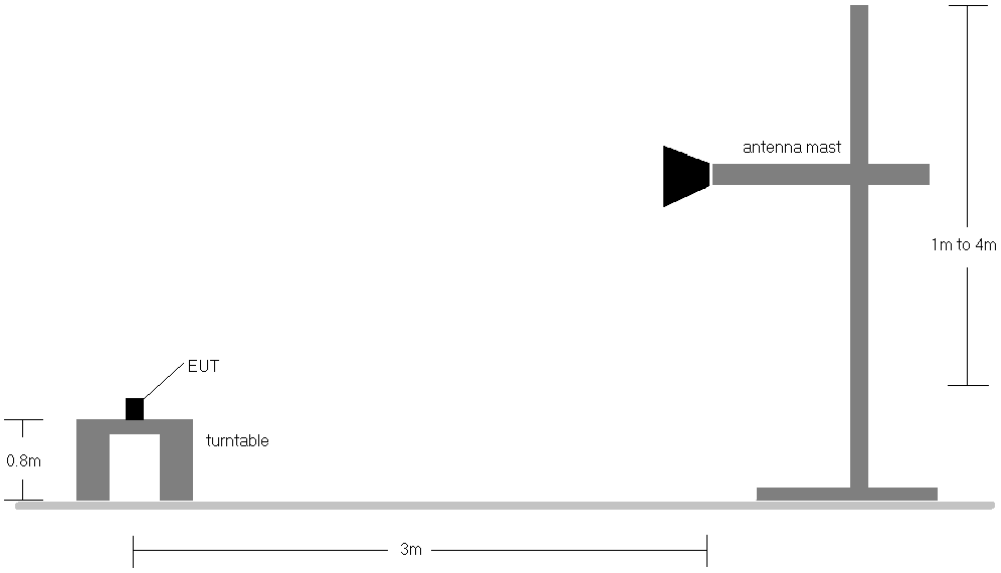


Figure 7-6. Radiated Test Setup <1GHz

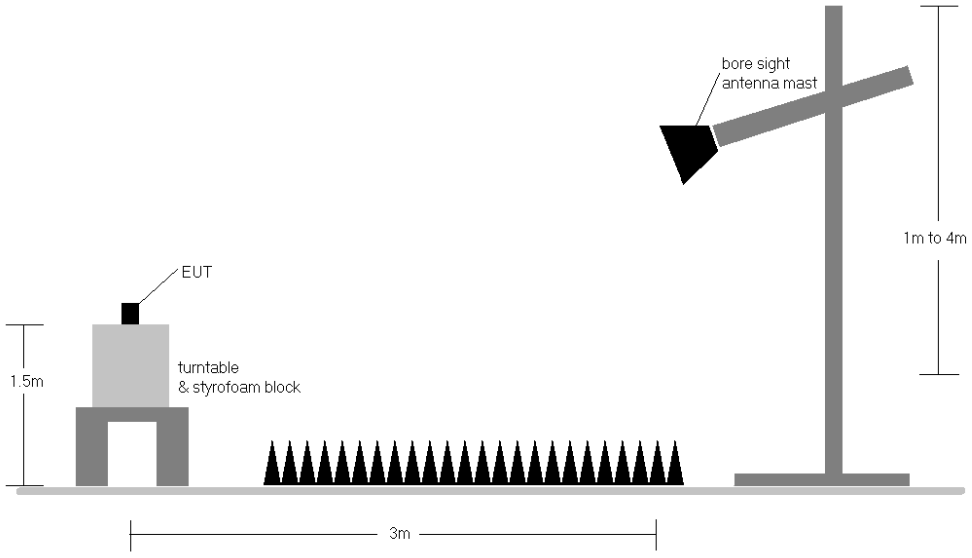


Figure 7-7. Radiated Test Setup >1GHz

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) 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.

3) This unit was tested with its standard battery.

4) 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.

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
10 MHz	QPSK	704.00	H	107	143	-19.00	1 / 25	36.85	15.70	0.037	34.77	-19.07
	QPSK	707.50	H	120	143	-19.00	1 / 25	37.06	**15.91**	0.039	34.77	-18.86
	QPSK	711.00	H	112	146	-19.00	1 / 49	36.88	15.73	0.037	34.77	-19.04
	16-QAM	711.00	H	112	146	-19.00	1 / 25	36.46	15.31	0.034	34.77	-19.46
5 MHz	QPSK	701.50	H	107	143	-19.00	1 / 0	36.86	15.71	0.037	34.77	-19.06
	QPSK	707.50	H	120	143	-19.00	1 / 12	37.25	**16.10**	0.041	34.77	-18.68
	QPSK	713.50	H	112	146	-19.00	1 / 0	36.96	15.81	0.038	34.77	-18.96
	16-QAM	713.50	H	112	146	-19.00	1 / 0	36.59	15.44	0.035	34.77	-19.33
3 MHz	QPSK	700.50	H	107	143	-19.00	1 / 0	36.76	15.61	0.036	34.77	-19.16
	QPSK	707.50	H	120	143	-19.00	1 / 7	37.26	**16.11**	0.041	34.77	-18.66
	QPSK	714.50	H	112	146	-19.00	1 / 7	36.82	15.67	0.037	34.77	-19.10
	16-QAM	714.50	H	112	146	-19.00	1 / 7	36.47	15.32	0.034	34.77	-19.45
1.4 MHz	QPSK	699.70	H	107	143	-19.00	1 / 3	36.81	15.66	0.037	34.77	-19.11
	QPSK	707.50	H	120	143	-19.00	1 / 3	37.09	**15.94**	0.039	34.77	-18.83
	QPSK	715.30	H	112	146	-19.00	1 / 3	36.66	15.51	0.036	34.77	-19.26
	16-QAM	715.30	H	112	146	-19.00	1 / 3	36.33	15.18	0.033	34.77	-19.59
10 MHz	Opposite Pol.	707.50	H	124	45	-19.00	1 / 25	36.93	15.78	0.038	34.77	-18.99
	WCP	707.50	H	126	287	-19.00	1 / 25	37.65	16.50	0.045	34.77	-18.27

Table 7-177. ERP Data (LTE Band 12) – Ant1

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
10 MHz	QPSK	782.00	H	103	46	-18.60	1 / 25	38.25	**17.50**	0.056	34.77	-17.27
	16-QAM	782.00	H	103	46	-18.60	1 / 25	37.29	16.54	0.045	34.77	-18.23
5 MHz	QPSK	779.50	H	103	46	-18.60	1 / 0	38.25	**17.50**	0.056	34.77	-17.27
	QPSK	782.00	H	103	46	-18.60	1 / 0	38.25	17.50	0.056	34.77	-17.27
	QPSK	784.50	H	103	46	-18.60	1 / 12	38.19	17.44	0.055	34.77	-17.33
	16-QAM	784.50	H	103	46	-18.60	1 / 0	37.44	16.69	0.047	34.77	-18.08
10 MHz	Opposite Pol.	782.00	V	136	98	-18.60	1 / 0	34.48	13.73	0.024	34.77	-21.04
	WCP	782.00	H	103	284	-18.60	1 / 0	39.61	18.86	0.077	34.77	-15.91

Table 7-178. ERP Data (LTE Band 13) – Ant1

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1712.40	WCDMA1700	H	142	324	17.58	3.51	21.09	0.129	30.00	-8.91
1732.60	WCDMA1700	H	143	338	17.74	3.51	21.25	0.133	30.00	-8.75
1752.60	WCDMA1700	H	176	330	19.48	3.51	**22.99**	0.199	30.00	-7.01
1752.60	WCDMA1700	V	290	197	18.69	3.51	22.20	0.166	30.00	-7.80
1752.60	WCDMA1700 (WCP)	H	131	201	19.68	3.51	23.19	**0.208**	30.00	-6.81

Table 7-179. EIRP Data (WCDMA) – Ant1

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
20 MHz	QPSK	1720.00	H	131	143	2.93	1 / 50	22.00	**24.93**	0.311	30.00	-5.07
	QPSK	1745.00	H	168	124	2.93	1 / 0	20.95	23.88	0.244	30.00	-6.12
	QPSK	1770.00	H	163	139	2.93	1 / 50	20.50	23.43	0.220	30.00	-6.57
	16-QAM	1720.00	H	131	143	2.93	1 / 50	21.27	24.20	0.263	30.00	-5.80
15 MHz	QPSK	1717.50	H	131	143	2.93	1 / 0	21.90	**24.83**	0.304	30.00	-5.17
	QPSK	1745.00	H	168	124	2.93	1 / 0	20.70	23.63	0.230	30.00	-6.37
	QPSK	1772.50	H	163	139	2.93	1 / 37	20.41	23.34	0.216	30.00	-6.66
	16-QAM	1717.50	H	131	143	2.93	1 / 0	21.43	24.36	0.273	30.00	-5.64
10 MHz	QPSK	1715.00	H	131	143	2.93	1 / 0	21.95	**24.88**	0.308	30.00	-5.12
	QPSK	1745.00	H	168	124	2.93	1 / 0	20.70	23.63	0.231	30.00	-6.37
	QPSK	1775.00	H	163	139	2.93	1 / 49	20.26	23.19	0.208	30.00	-6.81
	16-QAM	1715.00	H	131	143	2.93	1 / 25	21.29	24.22	0.264	30.00	-5.78
5 MHz	QPSK	1712.50	H	131	143	2.93	1 / 24	22.03	**24.96**	0.313	30.00	-5.04
	QPSK	1745.00	H	168	124	2.93	1 / 0	20.72	23.65	0.232	30.00	-6.35
	QPSK	1777.50	H	163	139	2.93	1 / 24	20.47	23.40	0.219	30.00	-6.60
	16-QAM	1712.50	H	131	143	2.93	1 / 12	21.56	24.49	0.281	30.00	-5.51
3 MHz	QPSK	1711.50	H	131	143	2.93	1 / 7	21.97	**24.90**	0.309	30.00	-5.10
	QPSK	1745.00	H	168	124	2.93	1 / 0	20.81	23.74	0.236	30.00	-6.26
	QPSK	1778.50	H	163	139	2.93	1 / 7	20.41	23.34	0.216	30.00	-6.66
	16-QAM	1711.50	H	131	143	2.93	1 / 7	21.53	24.46	0.280	30.00	-5.54
1.4 MHz	QPSK	1710.70	H	131	143	2.93	1 / 0	22.07	**25.00**	0.316	30.00	-5.00
	QPSK	1745.00	H	168	124	2.93	1 / 3	20.63	23.56	0.227	30.00	-6.44
	QPSK	1779.30	H	163	139	2.93	1 / 0	20.31	23.24	0.211	30.00	-6.76
	16-QAM	1710.70	H	131	143	2.93	1 / 3	21.33	24.26	0.267	30.00	-5.74
20 MHz	Opposite Pol.	1720.00	V	136	201	2.93	1 / 99	10.42	13.35	0.022	30.00	-16.65
	WCP	1720.00	H	221	150	2.93	1 / 50	16.41	19.34	0.086	30.00	-10.66

Table 7-180. EIRP Data (LTE Band 66/4) – Ant1

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
40 MHz	π/2 BPSK	1730.00	H	135	134	2.93	1 / 108	23.00	**25.93**	0.392	30.00	-4.07
	π/2 BPSK	1745.00	H	139	153	2.93	1 / 1	21.58	24.51	0.282	30.00	-5.49
	π/2 BPSK	1760.00	H	139	269	2.93	1 / 108	18.77	21.70	0.148	30.00	-8.30
	QPSK	1730.00	H	135	134	2.93	1 / 108	22.89	25.82	0.382	30.00	-4.18
	QPSK	1745.00	H	139	153	2.93	1 / 1	21.35	24.28	0.268	30.00	-5.72
	QPSK	1760.00	H	139	269	2.93	1 / 108	18.26	21.19	0.132	30.00	-8.81
	16-QAM	1730.00	H	135	134	2.93	1 / 108	22.29	25.22	0.333	30.00	-4.78
35 MHz	π/2 BPSK	1725.00	H	135	134	2.93	1 / 1	22.92	25.85	0.385	30.00	-4.15
	π/2 BPSK	1745.00	H	139	153	2.93	1 / 1	21.53	24.46	0.279	30.00	-5.54
	π/2 BPSK	1765.00	H	139	269	2.93	1 / 1	18.75	21.68	0.147	30.00	-8.32
	QPSK	1725.00	H	135	134	2.93	1 / 1	22.92	25.85	0.384	30.00	-4.15
	QPSK	1745.00	H	139	153	2.93	1 / 1	21.28	24.21	0.264	30.00	-5.79
	QPSK	1765.00	H	139	269	2.93	1 / 1	18.37	21.30	0.135	30.00	-8.70
	16-QAM	1725.00	H	135	134	2.93	1 / 1	22.35	25.28	0.337	30.00	-4.72
30 MHz	π/2 BPSK	1725.00	H	135	134	2.93	1 / 1	23.02	25.95	0.394	30.00	-4.05
	π/2 BPSK	1745.00	H	139	153	2.93	1 / 1	21.59	24.52	0.283	30.00	-5.48
	π/2 BPSK	1765.00	H	139	269	2.93	1 / 1	18.82	21.75	0.150	30.00	-8.25
	QPSK	1725.00	H	135	134	2.93	1 / 1	23.07	**26.00**	0.398	30.00	-4.00
	QPSK	1745.00	H	139	153	2.93	1 / 1	21.45	24.38	0.274	30.00	-5.62
	QPSK	1765.00	H	139	269	2.93	1 / 1	18.40	21.33	0.136	30.00	-8.67
	16-QAM	1725.00	H	135	134	2.93	1 / 1	22.56	25.49	0.354	30.00	-4.51
25 MHz	π/2 BPSK	1720.00	H	135	134	2.93	1 / 1	22.93	**25.86**	0.386	30.00	-4.14
	π/2 BPSK	1745.00	H	139	153	2.93	1 / 1	21.57	24.50	0.282	30.00	-5.50
	π/2 BPSK	1770.00	H	139	269	2.93	1 / 1	18.73	21.66	0.146	30.00	-8.34
	QPSK	1720.00	H	135	134	2.93	1 / 1	22.93	25.86	0.385	30.00	-4.14
	QPSK	1745.00	H	139	153	2.93	1 / 1	21.50	24.43	0.277	30.00	-5.57
	QPSK	1770.00	H	139	269	2.93	1 / 1	18.37	21.30	0.135	30.00	-8.70
	16-QAM	1720.00	H	135	134	2.93	1 / 1	22.52	25.45	0.351	30.00	-4.55
20 MHz	π/2 BPSK	1720.00	H	135	134	2.93	1 / 104	22.87	25.80	0.380	30.00	-4.20
	π/2 BPSK	1745.00	H	139	153	2.93	1 / 1	21.47	24.40	0.276	30.00	-5.60
	π/2 BPSK	1770.00	H	139	269	2.93	1 / 104	18.67	21.60	0.145	30.00	-8.40
	QPSK	1720.00	H	135	134	2.93	1 / 1	22.79	25.72	0.373	30.00	-4.28
	QPSK	1745.00	H	139	153	2.93	1 / 1	21.23	24.16	0.260	30.00	-5.84
	QPSK	1770.00	H	139	269	2.93	1 / 104	18.31	21.24	0.133	30.00	-8.76
	16-QAM	1720.00	H	135	134	2.93	1 / 1	22.21	25.14	0.326	30.00	-4.86
15 MHz	π/2 BPSK	1717.50	H	135	134	2.93	1 / 1	23.02	**25.95**	0.394	30.00	-4.05
	π/2 BPSK	1745.00	H	139	153	2.93	1 / 77	21.51	24.44	0.278	30.00	-5.56
	π/2 BPSK	1772.50	H	139	269	2.93	1 / 77	18.90	21.83	0.152	30.00	-8.17
	QPSK	1717.50	H	135	134	2.93	1 / 1	22.81	25.74	0.375	30.00	-4.26
	QPSK	1745.00	H	139	153	2.93	1 / 77	21.27	24.20	0.263	30.00	-5.80
	QPSK	1772.50	H	139	269	2.93	1 / 39	18.30	21.23	0.133	30.00	-8.77
	16-QAM	1717.50	H	135	134	2.93	1 / 1	22.43	25.36	0.344	30.00	-4.64
10 MHz	π/2 BPSK	1715.00	H	135	134	2.93	1 / 1	22.98	**25.91**	0.390	30.00	-4.09
	π/2 BPSK	1745.00	H	139	153	2.93	1 / 1	21.43	24.36	0.273	30.00	-5.64
	π/2 BPSK	1775.00	H	139	269	2.93	1 / 50	18.81	21.74	0.149	30.00	-8.26
	QPSK	1715.00	H	135	134	2.93	1 / 1	22.83	25.76	0.377	30.00	-4.24
	QPSK	1745.00	H	139	153	2.93	1 / 1	21.22	24.15	0.260	30.00	-5.85
	QPSK	1775.00	H	139	269	2.93	1 / 50	18.37	21.30	0.135	30.00	-8.70
	16-QAM	1715.00	H	135	134	2.93	1 / 1	22.19	25.12	0.325	30.00	-4.88
5 MHz	π/2 BPSK	1712.50	H	135	134	2.93	1 / 1	22.99	**25.92**	0.391	30.00	-4.08
	π/2 BPSK	1745.00	H	139	153	2.93	1 / 1	21.31	24.24	0.265	30.00	-5.76
	π/2 BPSK	1777.50	H	139	269	2.93	1 / 1	18.80	21.73	0.149	30.00	-8.27
	QPSK	1712.50	H	135	134	2.93	1 / 12	22.97	25.90	0.389	30.00	-4.10
	QPSK	1745.00	H	139	153	2.93	1 / 23	21.32	24.25	0.266	30.00	-5.75
	QPSK	1777.50	H	139	269	2.93	25 / 0	17.34	20.27	0.106	30.00	-9.73
	16-QAM	1712.50	H	135	134	2.93	1 / 23	22.23	25.16	0.328	30.00	-4.84
40 MHz	QPSK (CP-OFDM)	1730.00	H	135	128	2.93	1 / 108	22.01	24.94	0.312	30.00	-5.06
	QPSK (WCP)	1730.00	H	144	49	2.93	1 / 108	22.82	25.75	0.376	30.00	-4.25

Table 7-181. EIRP Data (NR Band n66) – Ant1

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
10 MHz	QPSK	704.00	H	123	214	-19.00	1 / 0	39.08	17.93	0.062	34.77	-16.84
	QPSK	707.50	H	116	240	-19.00	1 / 49	39.39	18.24	0.067	34.77	-16.53
	QPSK	711.00	H	120	229	-19.00	1 / 49	39.61	**18.46**	0.070	34.77	-16.31
	16-QAM	711.00	H	120	229	-19.00	1 / 49	38.86	17.71	0.059	34.77	-17.06
5 MHz	QPSK	701.50	H	123	214	-19.00	1 / 12	39.15	18.00	0.063	34.77	-16.77
	QPSK	707.50	H	116	240	-19.00	1 / 12	39.34	18.19	0.066	34.77	-16.58
	QPSK	713.50	H	120	229	-19.00	1 / 12	39.73	**18.58**	0.072	34.77	-16.19
	16-QAM	713.50	H	120	229	-19.00	1 / 12	38.87	17.72	0.059	34.77	-17.05
3 MHz	QPSK	700.50	H	123	214	-19.00	1 / 7	38.98	17.83	0.061	34.77	-16.94
	QPSK	707.50	H	116	240	-19.00	1 / 7	39.40	18.25	0.067	34.77	-16.52
	QPSK	714.50	H	120	229	-19.00	1 / 7	39.61	**18.46**	0.070	34.77	-16.31
	16-QAM	707.50	H	116	240	-19.00	1 / 0	38.70	17.55	0.057	34.77	-17.22
1.4 MHz	QPSK	699.70	H	123	214	-19.00	1 / 3	38.96	17.81	0.060	34.77	-16.96
	QPSK	707.50	H	116	240	-19.00	1 / 3	39.29	18.14	0.065	34.77	-16.63
	QPSK	715.30	H	120	229	-19.00	1 / 0	39.54	**18.39**	0.069	34.77	-16.38
	16-QAM	715.30	H	120	229	-19.00	1 / 0	38.70	17.55	0.057	34.77	-17.23
10 MHz	Opposite Pol.	711.00	V	205	76	-19.00	1 / 49	32.30	11.15	0.013	34.77	-23.62
	WCP	711.00	H	234	262	-19.00	1 / 49	37.28	16.13	0.041	34.77	-18.64

Table 7-182. ERP Data (LTE Band 12) – Ant2

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
10 MHz	QPSK	782.00	H	107	171	-18.60	1 / 0	38.57	**17.82**	0.061	34.77	-16.95
	16-QAM	782.00	H	107	171	-18.60	1 / 0	37.80	17.05	0.051	34.77	-17.72
5 MHz	QPSK	779.50	H	107	171	-18.60	1 / 0	38.59	**17.84**	0.061	34.77	-16.93
	QPSK	782.00	H	107	171	-18.60	1 / 0	38.37	17.62	0.058	34.77	-17.16
	QPSK	784.50	H	107	171	-18.60	1 / 0	38.33	17.58	0.057	34.77	-17.19
	16-QAM	779.50	H	107	171	-18.60	1 / 0	38.03	17.28	0.053	34.77	-17.49
10 MHz	WCP	782.00	H	108	21	-18.60	1 / 0	37.92	17.17	0.052	34.77	-17.60

Table 7-183. ERP Data (LTE Band 13) – Ant2

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
20 MHz	QPSK	1720.00	H	286	313	2.93	1 / 50	18.29	21.22	0.132	30.00	-8.78
	QPSK	1745.00	H	229	326	2.93	1 / 99	19.14	**22.07**	0.161	30.00	-7.93
	QPSK	1770.00	H	217	324	2.93	1 / 0	18.65	21.58	0.144	30.00	-8.42
	16-QAM	1745.00	H	229	326	2.93	1 / 99	18.08	21.01	0.126	30.00	-8.99
15 MHz	QPSK	1717.50	H	286	313	2.93	1 / 74	18.44	21.37	0.137	30.00	-8.63
	QPSK	1745.00	H	229	326	2.93	1 / 37	19.13	**22.06**	0.161	30.00	-7.94
	QPSK	1772.50	H	217	324	2.93	1 / 74	18.68	21.61	0.145	30.00	-8.39
	16-QAM	1745.00	H	229	326	2.93	1 / 37	17.97	20.90	0.123	30.00	-9.10
10 MHz	QPSK	1715.00	H	286	313	2.93	1 / 0	18.34	21.27	0.134	30.00	-8.73
	QPSK	1745.00	H	229	326	2.93	1 / 25	19.20	**22.13**	0.163	30.00	-7.87
	QPSK	1775.00	H	217	324	2.93	1 / 49	18.66	21.59	0.144	30.00	-8.41
	16-QAM	1745.00	H	229	326	2.93	1 / 25	18.08	21.01	0.126	30.00	-8.99
5 MHz	QPSK	1712.50	H	286	313	2.93	1 / 0	18.48	21.41	0.138	30.00	-8.59
	QPSK	1745.00	H	229	326	2.93	1 / 24	19.40	**22.33**	0.171	30.00	-7.67
	QPSK	1777.50	H	217	324	2.93	1 / 12	18.66	21.59	0.144	30.00	-8.41
	16-QAM	1745.00	H	229	326	2.93	1 / 0	17.97	20.90	0.123	30.00	-9.10
3 MHz	QPSK	1711.50	H	286	313	2.93	1 / 7	18.36	21.29	0.135	30.00	-8.71
	QPSK	1745.00	H	229	326	2.93	1 / 0	19.35	**22.28**	0.169	30.00	-7.72
	QPSK	1778.50	H	217	324	2.93	1 / 0	18.66	21.59	0.144	30.00	-8.41
	16-QAM	1745.00	H	229	326	2.93	1 / 14	18.11	21.04	0.127	30.00	-8.96
1.4 MHz	QPSK	1710.70	H	286	313	2.93	1 / 0	18.33	21.26	0.134	30.00	-8.74
	QPSK	1745.00	H	229	326	2.93	1 / 5	19.13	**22.06**	0.161	30.00	-7.94
	QPSK	1779.30	H	217	324	2.93	1 / 3	18.66	21.59	0.144	30.00	-8.41
	16-QAM	1745.00	H	229	326	2.93	1 / 5	18.01	20.94	0.124	30.00	-9.06
20 MHz	Opposite Pol.	1745.00	V	381	256	2.93	1 / 0	10.91	13.84	0.024	30.00	-16.16
	WCP	1745.00	H	262	354	2.93	1 / 50	14.23	17.16	0.052	30.00	-12.84

Table 7-184. EIRP Data (LTE Band 66/4) – Ant2

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
40 MHz	π/2 BPSK	1730.00	H	364	317	2.93	1 / 1	19.96	22.89	0.195	30.00	-7.11
	π/2 BPSK	1745.00	H	262	320	2.93	1 / 108	20.70	**23.63**	0.231	30.00	-6.37
	π/2 BPSK	1760.00	H	262	330	2.93	1 / 108	20.15	23.08	0.203	30.00	-6.92
	QPSK	1730.00	H	364	317	2.93	1 / 108	19.83	22.76	0.189	30.00	-7.24
	QPSK	1745.00	H	262	320	2.93	1 / 108	20.51	23.44	0.221	30.00	-6.56
	QPSK	1760.00	H	262	330	2.93	1 / 108	20.39	23.32	0.215	30.00	-6.68
	16-QAM	1745.00	H	262	320	2.93	1 / 108	19.50	22.43	0.175	30.00	-7.57
	16-QAM	1760.00	H	262	330	2.93	1 / 108	19.15	22.08	0.161	30.00	-7.92
35 MHz	π/2 BPSK	1727.50	H	364	317	2.93	1 / 1	19.89	22.82	0.191	30.00	-7.18
	π/2 BPSK	1745.00	H	262	320	2.93	1 / 1	20.91	23.84	0.242	30.00	-6.16
	π/2 BPSK	1760.00	H	262	330	2.93	1 / 1	20.32	23.25	0.212	30.00	-6.75
	QPSK	1727.50	H	364	317	2.93	1 / 1	19.78	22.71	0.186	30.00	-7.29
	QPSK	1745.00	H	262	320	2.93	1 / 1	20.76	23.69	0.234	30.00	-6.31
	QPSK	1760.00	H	262	330	2.93	1 / 1	20.62	23.55	0.226	30.00	-6.45
	16-QAM	1745.00	H	262	320	2.93	1 / 1	18.89	21.82	0.152	30.00	-8.18
30 MHz	π/2 BPSK	1725.00	H	364	317	2.93	1 / 1	20.25	23.18	0.208	30.00	-6.82
	π/2 BPSK	1745.00	H	262	320	2.93	1 / 1	21.00	**23.93**	0.247	30.00	-6.07
	π/2 BPSK	1765.00	H	262	330	2.93	1 / 1	20.41	23.34	0.216	30.00	-6.66
	QPSK	1725.00	H	364	317	2.93	1 / 1	19.99	22.92	0.196	30.00	-7.08
	QPSK	1745.00	H	262	320	2.93	1 / 1	20.85	23.78	0.239	30.00	-6.22
	QPSK	1765.00	H	262	330	2.93	1 / 1	20.73	23.66	0.232	30.00	-6.34
	16-QAM	1725.00	H	364	317	2.93	1 / 1	18.98	21.91	0.155	30.00	-8.09
25 MHz	π/2 BPSK	1722.50	H	364	317	2.93	1 / 1	20.21	23.14	0.206	30.00	-6.86
	π/2 BPSK	1745.00	H	262	320	2.93	1 / 1	20.89	**23.82**	0.241	30.00	-6.18
	π/2 BPSK	1767.50	H	262	330	2.93	1 / 1	20.21	23.14	0.206	30.00	-6.86
	QPSK	1722.50	H	364	317	2.93	1 / 1	19.97	22.90	0.195	30.00	-7.10
	QPSK	1745.00	H	262	320	2.93	1 / 1	20.76	23.69	0.234	30.00	-6.31
	QPSK	1767.50	H	262	330	2.93	1 / 1	20.50	23.43	0.220	30.00	-6.57
	16-QAM	1745.00	H	262	320	2.93	1 / 1	19.11	22.04	0.160	30.00	-7.96
20 MHz	π/2 BPSK	1720.00	H	364	317	2.93	1 / 1	19.95	22.88	0.194	30.00	-7.12
	π/2 BPSK	1745.00	H	262	320	2.93	1 / 53	20.58	23.51	0.224	30.00	-6.49
	π/2 BPSK	1770.00	H	262	330	2.93	1 / 104	20.36	23.29	0.213	30.00	-6.71
	QPSK	1720.00	H	364	317	2.93	1 / 1	19.79	22.72	0.187	30.00	-7.28
	QPSK	1745.00	H	262	320	2.93	1 / 53	20.45	23.38	0.218	30.00	-6.62
	QPSK	1770.00	H	262	330	2.93	1 / 104	20.43	23.36	0.217	30.00	-6.64
	16-QAM	1745.00	H	262	320	2.93	1 / 1	19.56	22.49	0.178	30.00	-7.51
15 MHz	π/2 BPSK	1717.50	H	364	317	2.93	1 / 1	19.86	22.79	0.190	30.00	-7.21
	π/2 BPSK	1745.00	H	262	320	2.93	1 / 1	20.56	**23.49**	0.223	30.00	-6.51
	π/2 BPSK	1772.50	H	262	330	2.93	1 / 39	20.23	23.16	0.207	30.00	-6.84
	QPSK	1717.50	H	364	317	2.93	1 / 1	19.84	22.77	0.189	30.00	-7.23
	QPSK	1745.00	H	262	320	2.93	1 / 1	20.37	23.30	0.214	30.00	-6.70
	QPSK	1772.50	H	262	330	2.93	1 / 77	20.38	23.31	0.214	30.00	-6.69
	16-QAM	1745.00	H	262	320	2.93	1 / 1	19.51	22.44	0.175	30.00	-7.56
10 MHz	π/2 BPSK	1715.00	H	364	317	2.93	1 / 26	21.06	23.99	0.251	30.00	-6.01
	π/2 BPSK	1745.00	H	262	320	2.93	1 / 50	21.55	**24.48**	0.281	30.00	-5.52
	π/2 BPSK	1775.00	H	262	330	2.93	1 / 50	21.21	24.14	0.259	30.00	-5.86
	QPSK	1715.00	H	364	317	2.93	1 / 1	20.77	23.70	0.234	30.00	-6.30
	QPSK	1745.00	H	262	320	2.93	1 / 1	21.37	24.30	0.269	30.00	-5.70
	QPSK	1775.00	H	262	330	2.93	1 / 26	21.43	24.36	0.273	30.00	-5.64
	16-QAM	1745.00	H	262	320	2.93	1 / 50	20.01	22.94	0.197	30.00	-7.06
5 MHz	π/2 BPSK	1712.50	H	364	317	2.93	1 / 1	18.29	21.22	0.132	30.00	-8.78
	π/2 BPSK	1745.00	H	262	320	2.93	1 / 1	21.64	**24.57**	0.287	30.00	-5.43
	π/2 BPSK	1777.50	H	262	330	2.93	1 / 23	17.99	20.92	0.124	30.00	-9.08
	QPSK	1712.50	H	364	317	2.93	1 / 12	18.14	21.07	0.128	30.00	-8.93
	QPSK	1745.00	H	262	320	2.93	1 / 12	21.60	24.53	0.284	30.00	-5.47
	QPSK	1777.50	H	262	330	2.93	1 / 23	18.69	21.62	0.145	30.00	-8.38
	16-QAM	1745.00	H	262	320	2.93	1 / 23	19.95	22.88	0.194	30.00	-7.12
40 MHz	QPSK (CP-OFDM)	1745.00	H	262	320	2.93	1 / 108	19.43	22.36	0.172	30.00	-7.64
	QPSK (WCP)	1745.00	H	158	299	2.93	1 / 108	20.03	22.96	0.198	30.00	-7.04

Table 7-185. EIRP Data (NR Band n66) – Ant2

7.8 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the field strength conversion method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using hybrid (biconical/log) antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

ANSI C63.26-2015 – Section 5.5.4

Test Settings

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

Test Setup

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

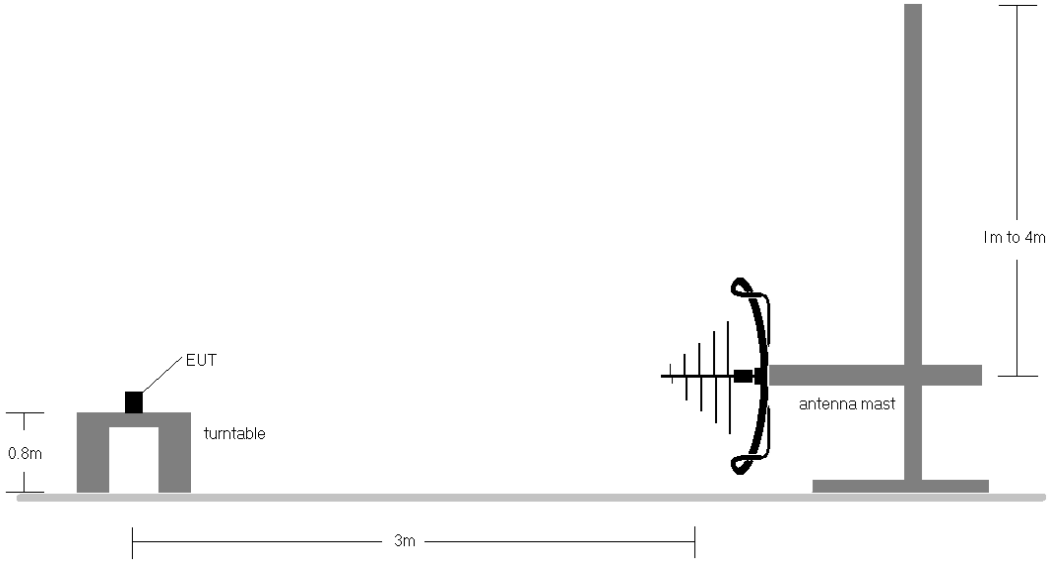


Figure 7-8. Test Instrument & Measurement Setup < 1GHz

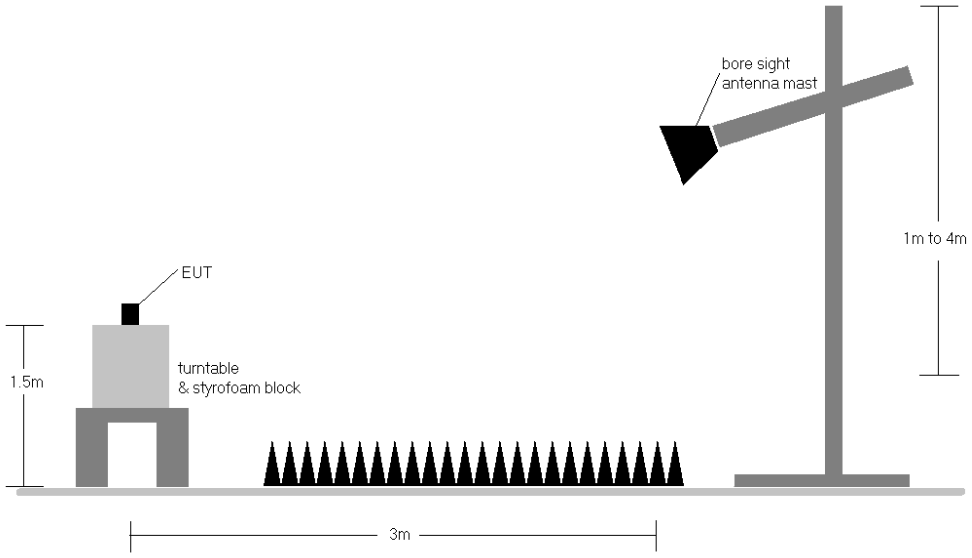


Figure 7-9. Test Instrument & Measurement Setup > 1GHz

Test Notes

1) Field strengths are calculated using the Measurement quantity conversions in ANSI C63.26-2015 Section 5.2.7:
   a) E(dBµV/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m)
   b) EIRP (dBm) = E(dBµV/m) + 20logD – 104.8; where D is the measurement distance in meters.

2) 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.

3) This unit was tested with its standard battery.

4) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.

5) 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.

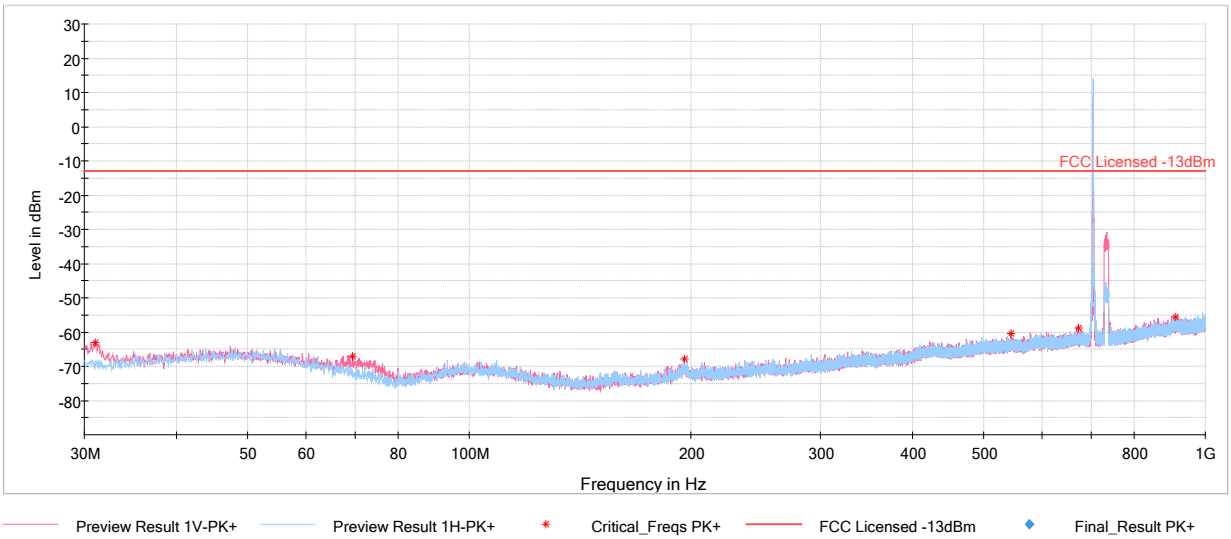
6) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

7) ULCA spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device.

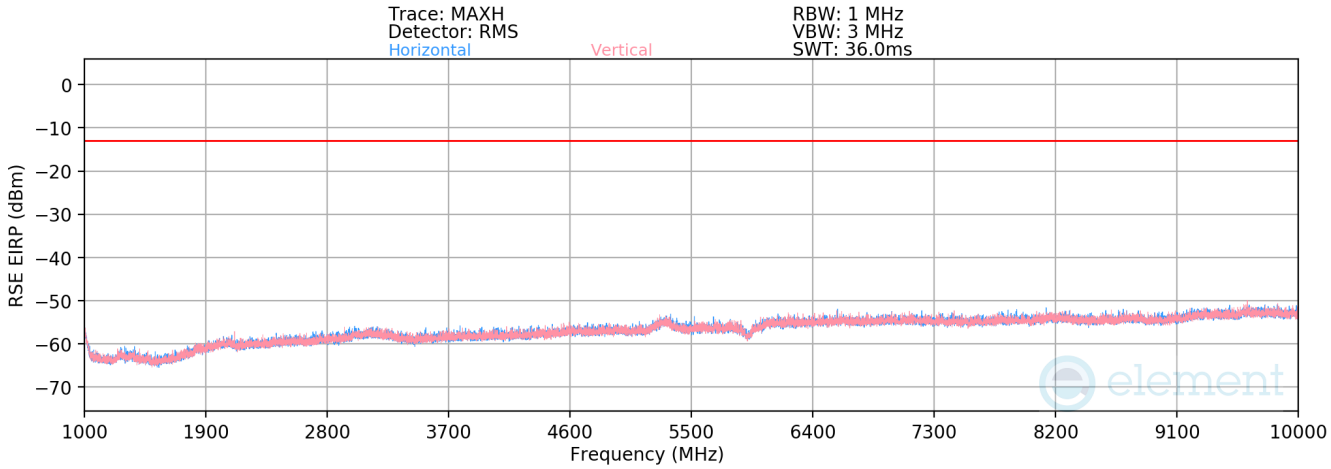
8) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

9) Spurious emission in EN-DC Operating mode with Sub 6GHz NR carrier as well as an LTE carrier (anchor) has been checked and was found to not to be the worst case. Spurious emissions from the NR carrier device are subject to the rules under which the NR carrier operates. Spurious emissions caused by the LTE carrier must meet the requirements of the rules under which the LTE carrier operates.

LTE Band 12 – Ant1



Plot 7-186. Radiated Spurious Plot (LTE Band 12) – Ant1



Plot 7-187. Radiated Spurious Plot (LTE Band 12) – Ant1

Bandwidth (MHz):	10
Frequency (MHz):	704
RB / Offset:	1 / 25

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m
1408.00	V	308	111	-73.88	-4.03
2112.00	V	137	237	-73.47	-0.54
2816.00	V	-	-	-77.07	1.14
3520.00	V	-	-	-77.92	2.00
4224.00	V	-	-	-78.58	3.40

Table 7-23. Radiated Spurious Data (LTE Band 12 – Low Channel) – Ant1

Bandwidth (MHz):	10
Frequency (MHz):	707.5
RB / Offset:	1 / 25

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1415.00	V	251	89	-74.81	-4.05	28.14	-67.12	-13.00	-54.12
2122.50	V	131	267	-74.14	-0.64	32.22	-63.04	-13.00	-50.04
2830.00	V	-	-	-77.11	1.06	30.95	-64.30	-13.00	-51.30
3537.50	V	-	-	-77.79	2.03	31.24	-64.02	-13.00	-51.02
4245.00	V	-	-	-78.74	3.44	31.70	-63.56	-13.00	-50.56

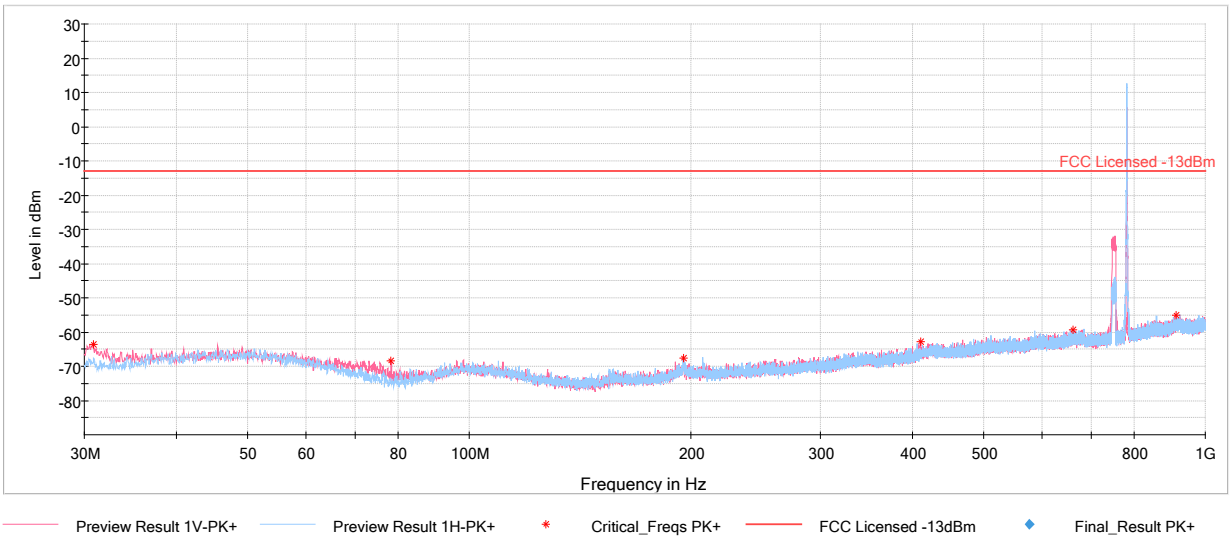
Table 7-24. Radiated Spurious Data (LTE Band 12 – Mid Channel) – Ant1

Bandwidth (MHz):	10
Frequency (MHz):	711
RB / Offset:	1 / 25

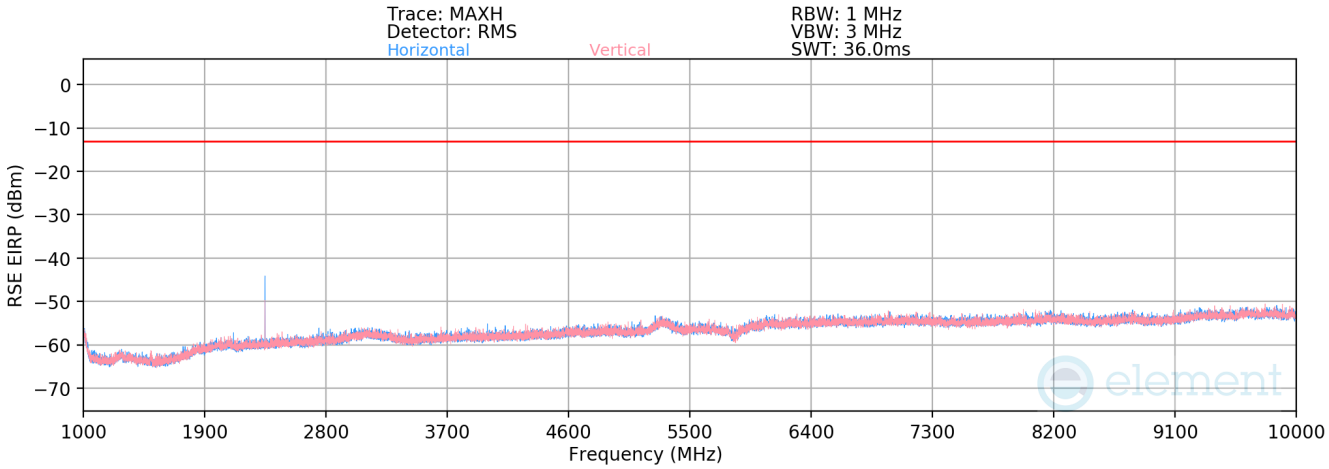
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1422.00	V	178	280	-75.58	-4.08	27.34	-67.91	-13.00	-54.91
2133.00	V	109	240	-74.47	-0.71	31.82	-63.43	-13.00	-50.43
2844.00	V	-	-	-77.28	1.02	30.74	-64.52	-13.00	-51.52
3555.00	V	-	-	-78.03	2.02	30.99	-64.27	-13.00	-51.27
4266.00	V	-	-	-78.85	3.41	31.56	-63.70	-13.00	-50.70

Table 7-25. Radiated Spurious Data (LTE Band 12 – High Channel) – Ant1

LTE Band 13 – Ant1



Plot 7-188. Radiated Spurious Plot (LTE Band 13) – Ant1



Plot 7-189. Radiated Spurious Plot (LTE Band 13) – Ant1

Bandwidth (MHz):	5
Frequency (MHz):	779.5
RB / Offset:	1 / 12

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1559.00	H	218	142	-75.57	-4.64	26.79	-68.46	-40.00	-28.46
2338.50	H	153	243	-63.89	-0.32	42.79	-52.47	-13.00	-39.47
3118.00	H	-	-	-77.34	2.55	32.21	-63.05	-13.00	-50.05
3897.50	H	-	-	-78.33	2.67	31.34	-63.92	-13.00	-50.92
4677.00	H	-	-	-78.99	4.54	32.55	-62.71	-13.00	-49.71

Table 7-26. Radiated Spurious Data (LTE Band 13 – Low Channel) – Ant1

Bandwidth (MHz):	5
Frequency (MHz):	782
RB / Offset:	1 / 12

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1564.00	H	321	196	-74.43	-4.61	27.96	-67.30	-40.00	-27.30
2346.00	H	109	252	-58.84	-0.36	47.80	-47.46	-13.00	-34.46
3128.00	H	-	-	-77.60	2.50	31.90	-63.36	-13.00	-50.36
3910.00	H	-	-	-78.11	2.67	31.56	-63.70	-13.00	-50.70
4692.00	H	-	-	-78.97	4.38	32.41	-62.85	-13.00	-49.85

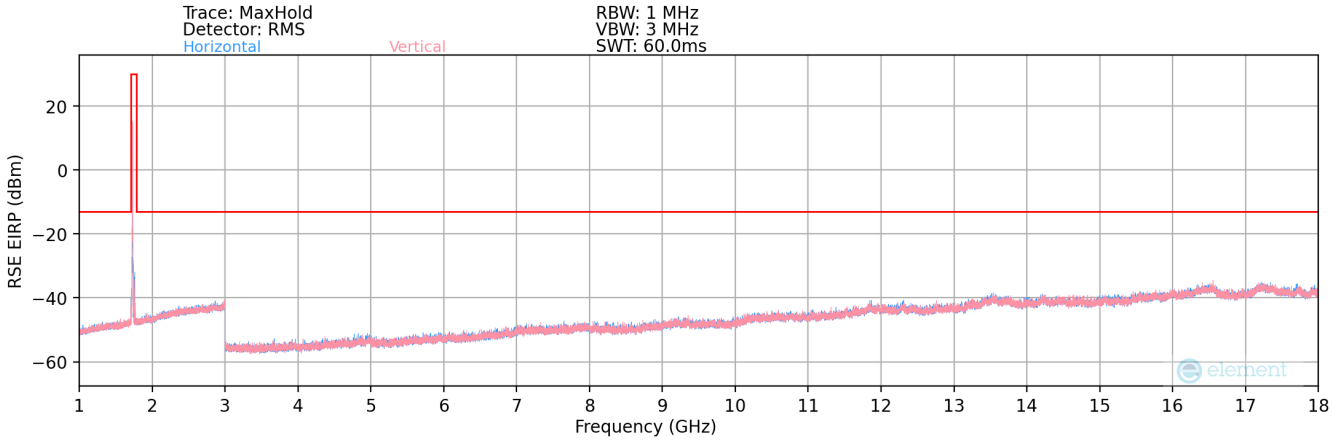
Table 7-27. Radiated Spurious Data (LTE Band 13 – Mid Channel) – Ant1

Bandwidth (MHz):	5
Frequency (MHz):	784.5
RB / Offset:	1 / 12

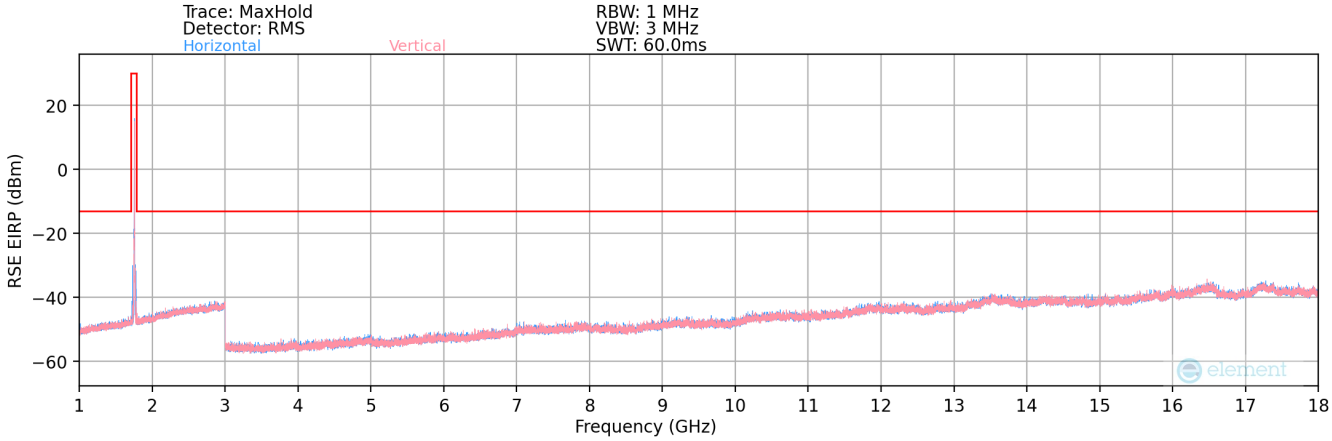
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1569.00	H	125	176	-75.58	-4.59	26.83	-68.43	-40.00	-28.43
2353.50	H	178	252	-63.94	-0.35	42.71	-52.55	-13.00	-39.55
3138.00	H	-	-	-77.54	2.46	31.92	-63.33	-13.00	-50.33
3922.50	H	-	-	-78.20	2.69	31.49	-63.77	-13.00	-50.77
4707.00	H	-	-	-79.01	4.45	32.44	-62.82	-13.00	-49.82

Table 7-28. Radiated Spurious Data (LTE Band 13 – High Channel) – Ant1

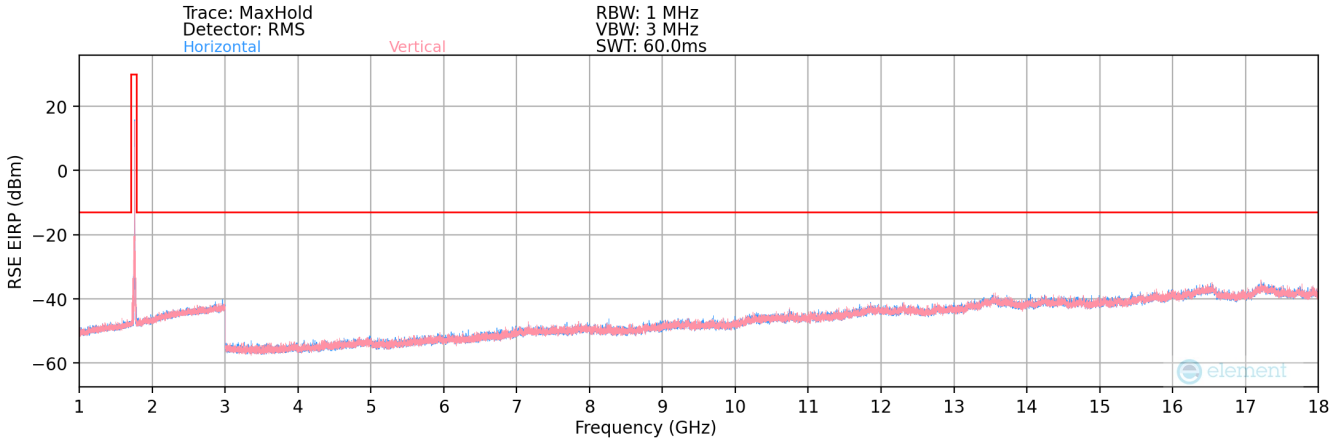
Uplink CA LTE Band 66B/C – Ant1



Plot 7-190. Radiated Spurious Plot (ULCA LTE Band 66 – Ant1 – Low Channel)



Plot 7-191. Radiated Spurious Plot (ULCA LTE Band 66 – Ant1 – Mid Channel)



Plot 7-192. Radiated Spurious Plot (ULCA LTE Band 66 – Ant1 – High Channel)

PCC Bandwidth (MHz):	20
PCC Frequency (MHz):	1720.0
PCC RB / Offset:	1 / 99
SCC Bandwidth (MHz):	20
SCC Frequency (MHz):	1739.8
SCC RB / Offset:	1 / 0

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3440.00	H	-	-	-79.42	3.25	30.83	-64.42	-13.00	-51.42
5160.00	H	-	-	-81.49	6.84	32.35	-62.90	-13.00	-49.90
6880.00	H	-	-	-82.07	9.12	34.05	-61.21	-13.00	-48.21

7-29. Radiated Spurious Data (ULCA LTE66 – Low Channel – Ant1)

PCC Bandwidth (MHz):	20
PCC Frequency (MHz):	1745.0
PCC RB / Offset:	1 / 99
SCC Bandwidth (MHz):	20
SCC Frequency (MHz):	1764.8
SCC RB / Offset:	1 / 0

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3490.00	H	-	-	-79.96	3.54	30.58	-64.67	-13.00	-51.67
5235.00	H	-	-	-82.10	6.77	31.67	-63.59	-13.00	-50.59
6980.00	H	-	-	-82.73	9.10	33.37	-61.89	-13.00	-48.89

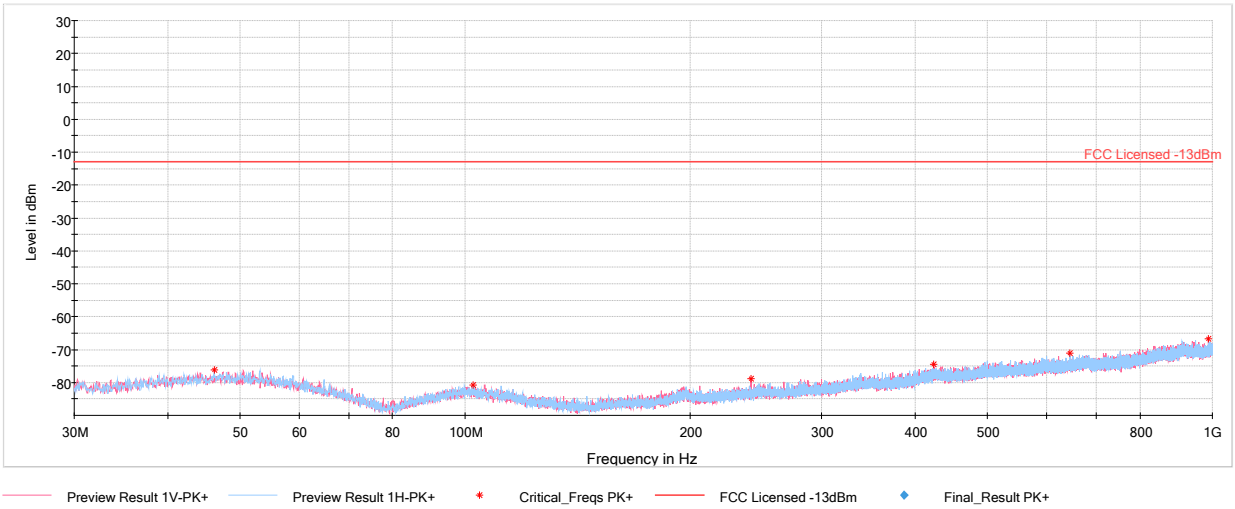
Table 7-30. Radiated Spurious Data (ULCA LTE66 – Mid Channel – Ant1)

PCC Bandwidth (MHz):	20
PCC Frequency (MHz):	1770.0
PCC RB / Offset:	1 / 0
SCC Bandwidth (MHz):	20
SCC Frequency (MHz):	1750.2
SCC RB / Offset:	1 / 99

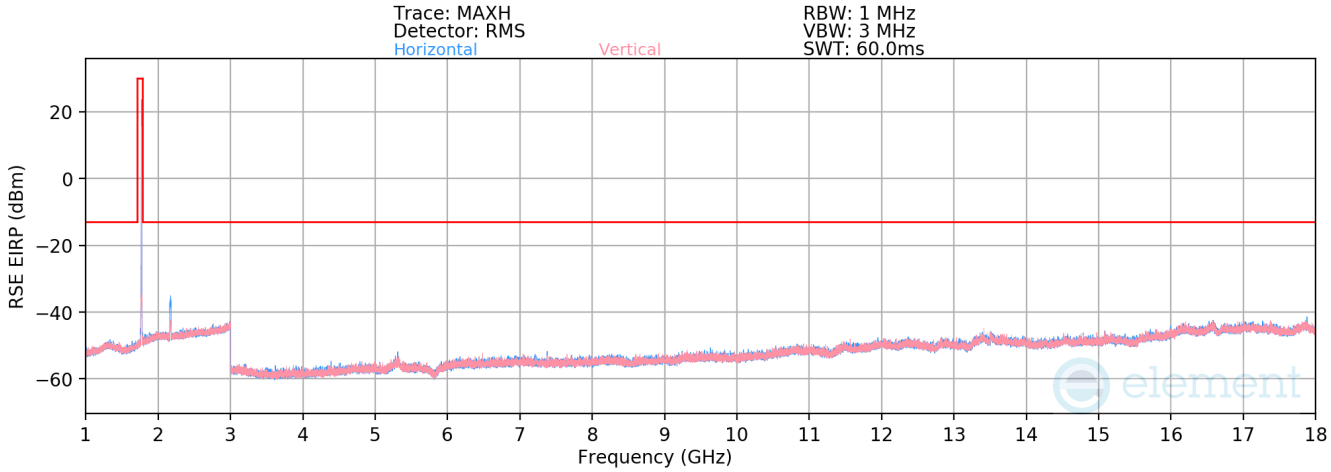
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3540.00	H	-	-	-79.95	3.59	30.64	-64.61	-13.00	-51.61
5310.00	H	-	-	-82.08	6.96	31.88	-63.38	-13.00	-50.38
7080.00	H	-	-	-82.83	9.30	33.47	-61.78	-13.00	-48.78

Table 7-31. Radiated Spurious Data (ULCA LTE66 – High Channel – Ant1)

LTE Band 66/4 – Ant1



Plot 7-193. Radiated Spurious Plot (LTE Band 66/4) – Ant1



Plot 7-194. Radiated Spurious Plot (LTE Band 66/4) – Ant1

Bandwidth (MHz):	20
Frequency (MHz):	1720
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3440.00	H	-	-	-78.36	2.75	31.39	-63.86	-13.00	-50.86
5160.00	H	106	139	-77.71	5.46	34.75	-60.51	-13.00	-47.51
6880.00	H	-	-	-80.70	8.21	34.51	-60.75	-13.00	-47.75
8600.00	H	-	-	-80.52	8.01	34.49	-60.77	-13.00	-47.77
10320.00	H	-	-	-81.12	10.63	36.51	-58.74	-13.00	-45.74

Table 7-32. Radiated Spurious Data (LTE Band 66/4 – Low Channel) – Ant1

Bandwidth (MHz):	20
Frequency (MHz):	1745
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3490.00	H	-	-	-78.13	2.44	31.31	-63.95	-13.00	-50.95
5235.00	H	129	148	-77.67	6.30	35.63	-59.63	-13.00	-46.63
6980.00	H	-	-	-80.33	7.78	34.45	-60.80	-13.00	-47.80
8725.00	H	-	-	-80.90	8.66	34.76	-60.50	-13.00	-47.50
10470.00	H	-	-	-81.59	11.03	36.44	-58.82	-13.00	-45.82

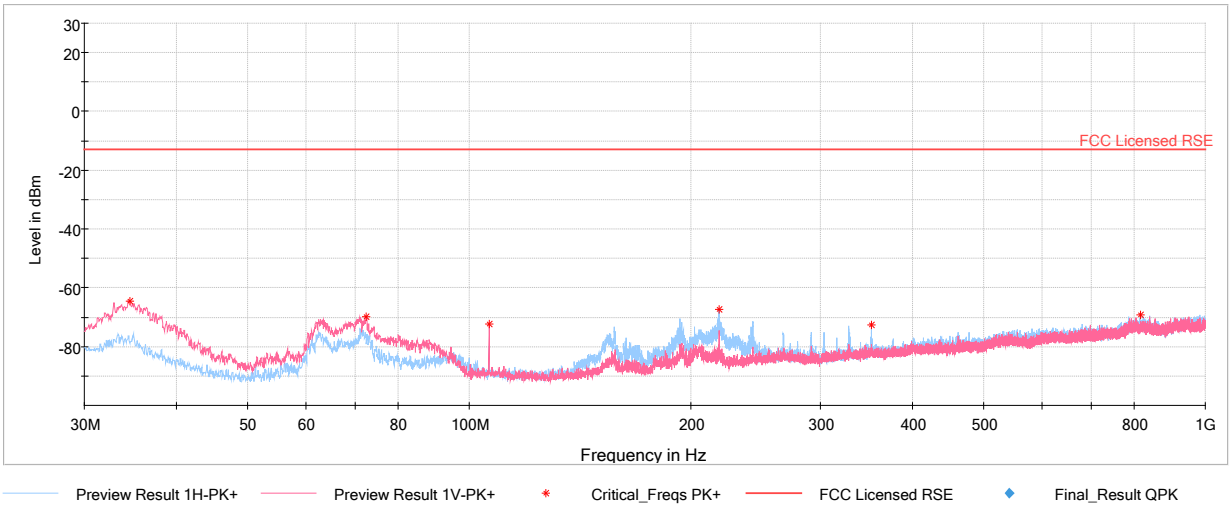
Table 7-33. Radiated Spurious Data (LTE Band 66/4 – Mid Channel) – Ant1

Bandwidth (MHz):	20
Frequency (MHz):	1770
RB / Offset:	1 / 50

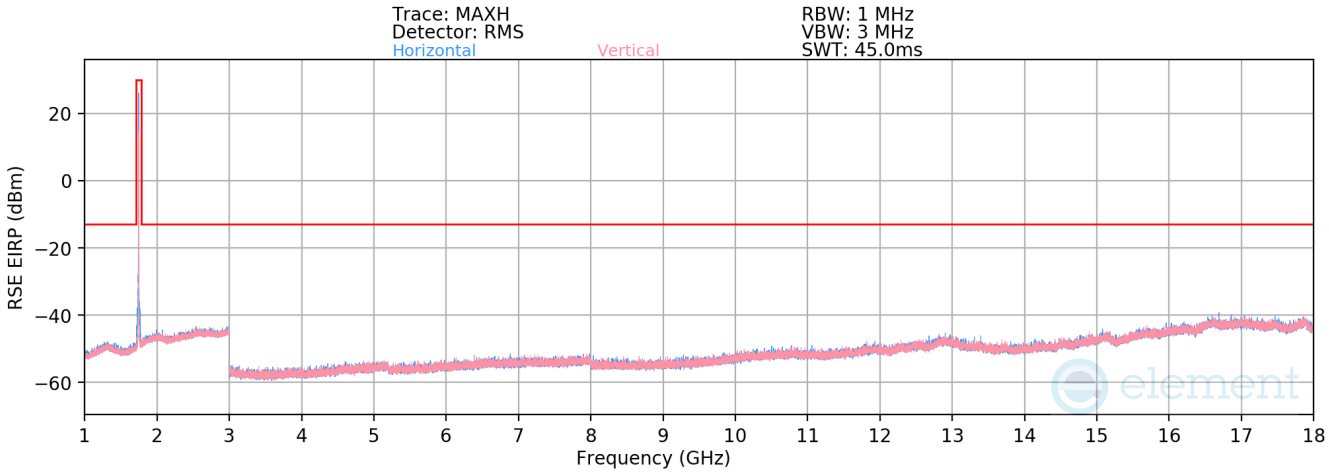
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3540.00	H	-	-	-77.83	2.01	31.18	-64.08	-13.00	-51.08
5310.00	H	106	154	-76.29	7.24	37.95	-57.31	-13.00	-44.31
7080.00	H	-	-	-80.43	7.98	34.55	-60.71	-13.00	-47.71
8850.00	H	-	-	-80.46	8.58	35.12	-60.14	-13.00	-47.14
10620.00	H	-	-	-81.57	11.57	37.00	-58.25	-13.00	-45.25

Table 7-34. Radiated Spurious Data (LTE Band 66/4 – High Channel) – Ant1

NR Band n66 – Ant1



Plot 7-195. Radiated Spurious Plot (NR Band n66) – Ant1



Plot 7-196. Radiated Spurious Plot (NR Band n66) – Ant1

Bandwidth (MHz):	40
Frequency (MHz):	1730
RB / Offset:	1 / 108
Detector / Trace Mode:	RMS / Average

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3460.00	H	-	-	-79.34	3.39	31.05	-64.21	-13.00	-51.21
5190.00	V	343	320	-79.53	6.92	34.39	-60.87	-13.00	-47.87
6920.00	H	-	-	-82.19	9.18	33.99	-61.27	-13.00	-48.27
8650.00	H	-	-	-82.87	9.96	34.09	-61.17	-13.00	-48.17
10380.00	H	-	-	-83.10	12.10	36.00	-59.26	-13.00	-46.26

Table 7-35. Radiated Spurious Data (NR Band n66 – Low Channel) – Ant1

Bandwidth (MHz):	40
Frequency (MHz):	1745
RB / Offset:	1 / 108
Detector / Trace Mode:	RMS / Average

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3490.00	H	-	-	-79.36	3.54	31.18	-64.07	-13.00	-51.07
5235.00	V	356	175	-80.60	6.77	33.17	-62.09	-13.00	-49.09
6980.00	H	-	-	-82.17	9.10	33.93	-61.33	-13.00	-48.33
8725.00	H	-	-	-82.92	9.48	33.56	-61.70	-13.00	-48.70
10470.00	H	-	-	-83.37	12.29	35.92	-59.34	-13.00	-46.34

Table 7-36. Radiated Spurious Data (NR Band n66 – Mid Channel) – Ant 1

Bandwidth (MHz):	40
Frequency (MHz):	1760
RB / Offset:	1 / 108
Detector / Trace Mode:	RMS / Average

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3520.00	H	-	-	-79.59	3.60	31.01	-64.25	-13.00	-51.25
5280.00	V	106	357	-78.82	6.90	35.08	-60.17	-13.00	-47.17
7040.00	H	-	-	-82.16	9.13	33.97	-61.29	-13.00	-48.29
8800.00	H	-	-	-82.86	9.48	33.62	-61.63	-13.00	-48.63
10560.00	H	-	-	-83.07	12.49	36.42	-58.83	-13.00	-45.83

Table 7-37. Radiated Spurious Data (NR Band n66 – High Channel) – Ant1