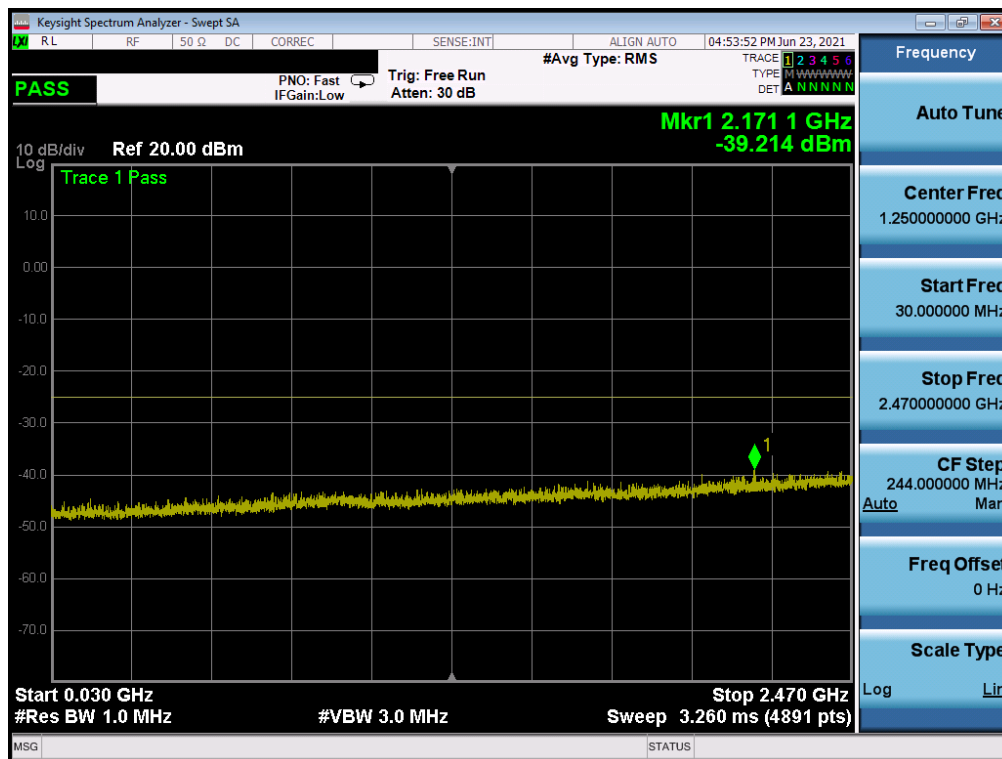
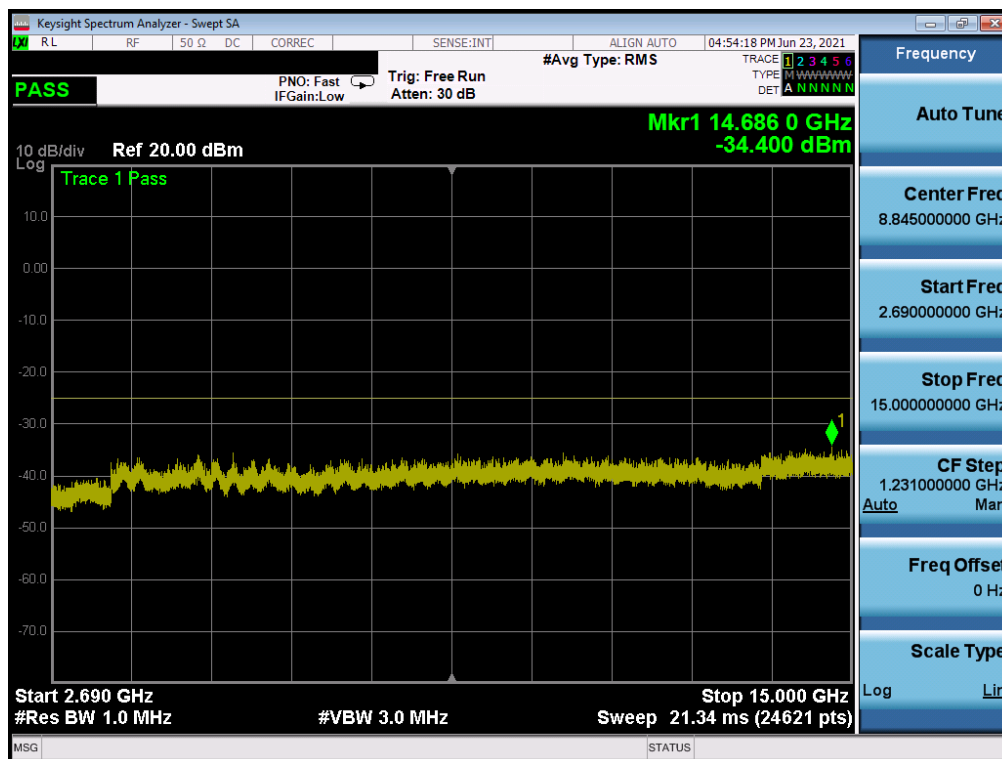





NR Band n41

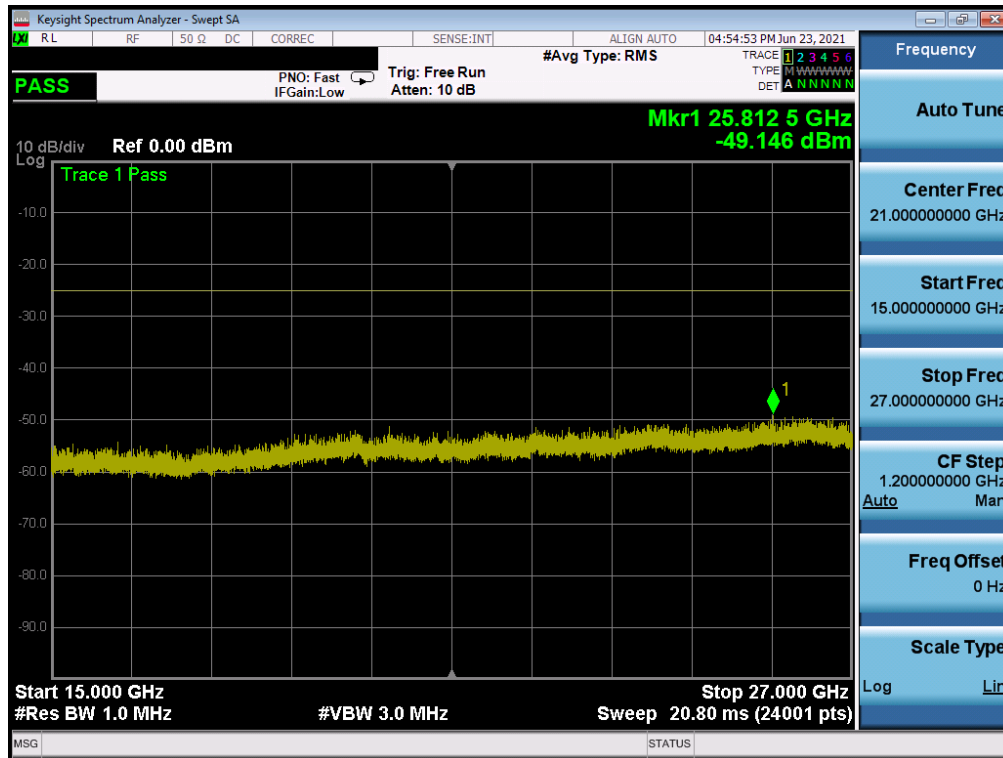


Plot 7-83. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

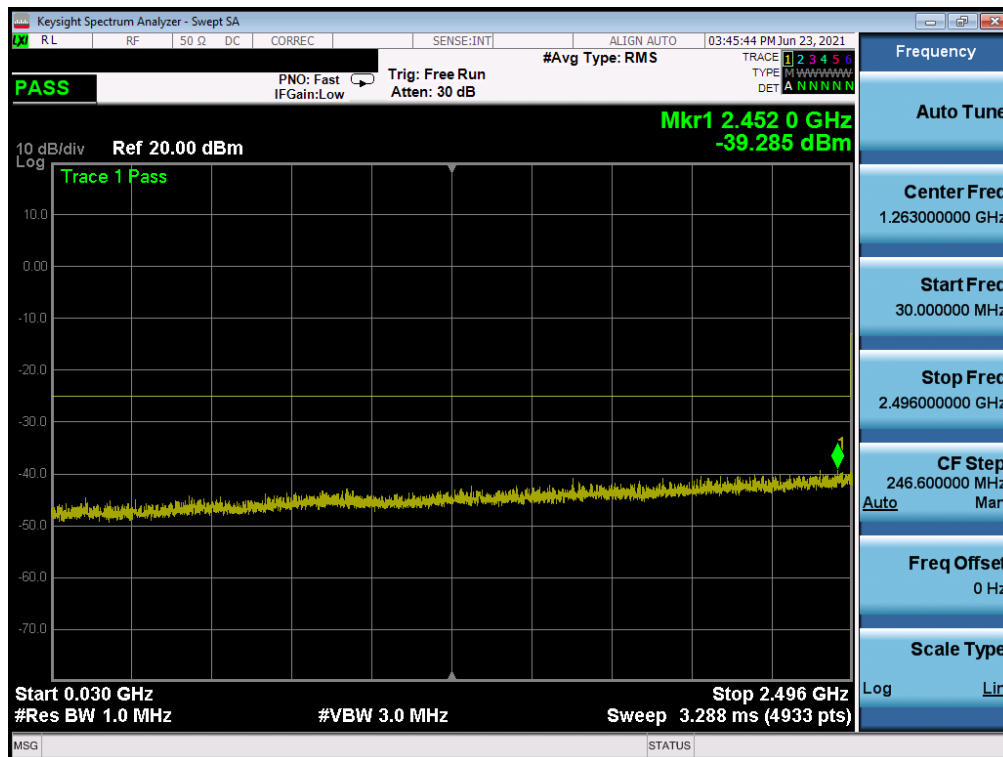


Plot 7-84. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)




FCC ID: C3K1995	 PCTEST Proud to be part of 	PART 27 MEASUREMENT REPORT	 Microsoft	Approved by: Technical Manager
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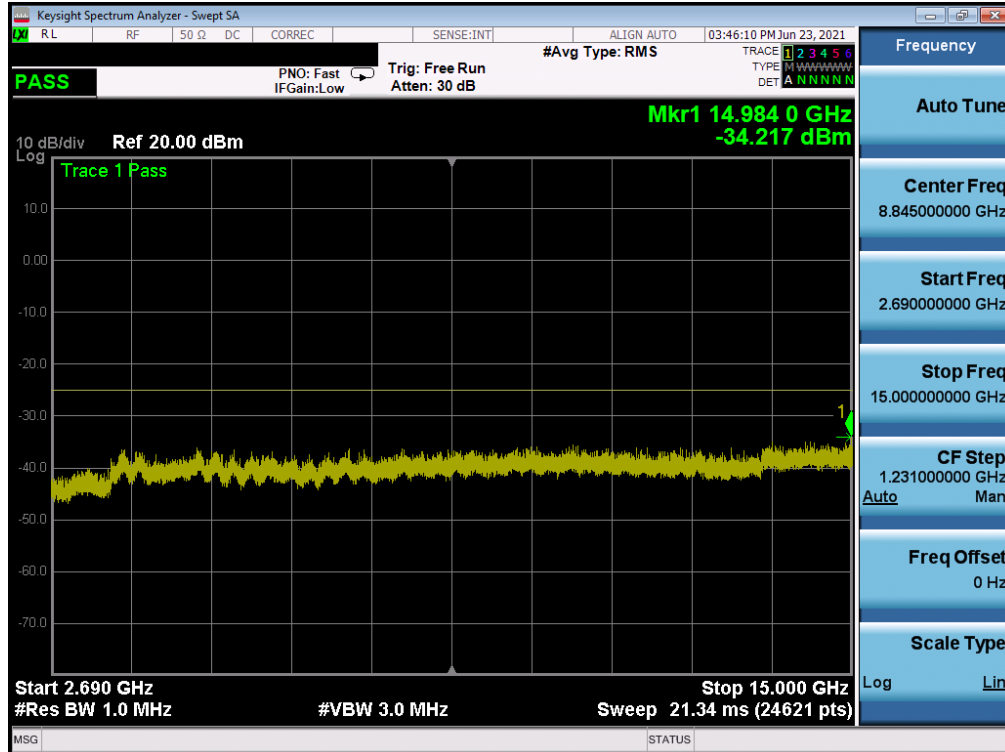


Plot 7-85. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

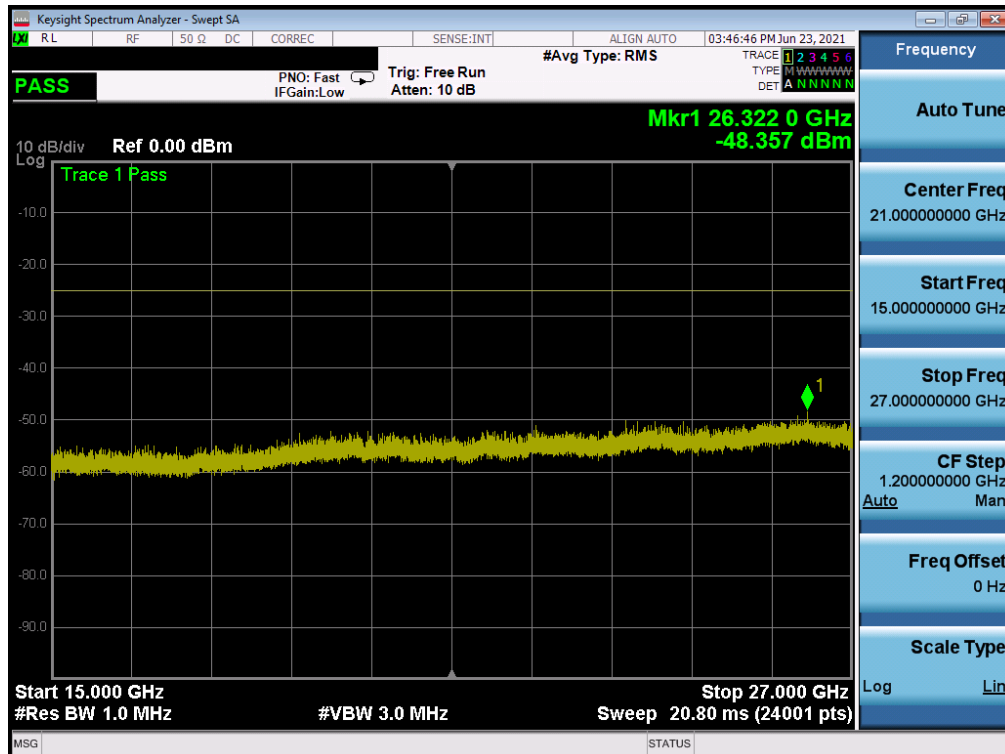


Plot 7-86. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



FCC ID: C3K1995	 PCTEST Proud to be part of 	PART 27 MEASUREMENT REPORT	 Microsoft	Approved by: Technical Manager
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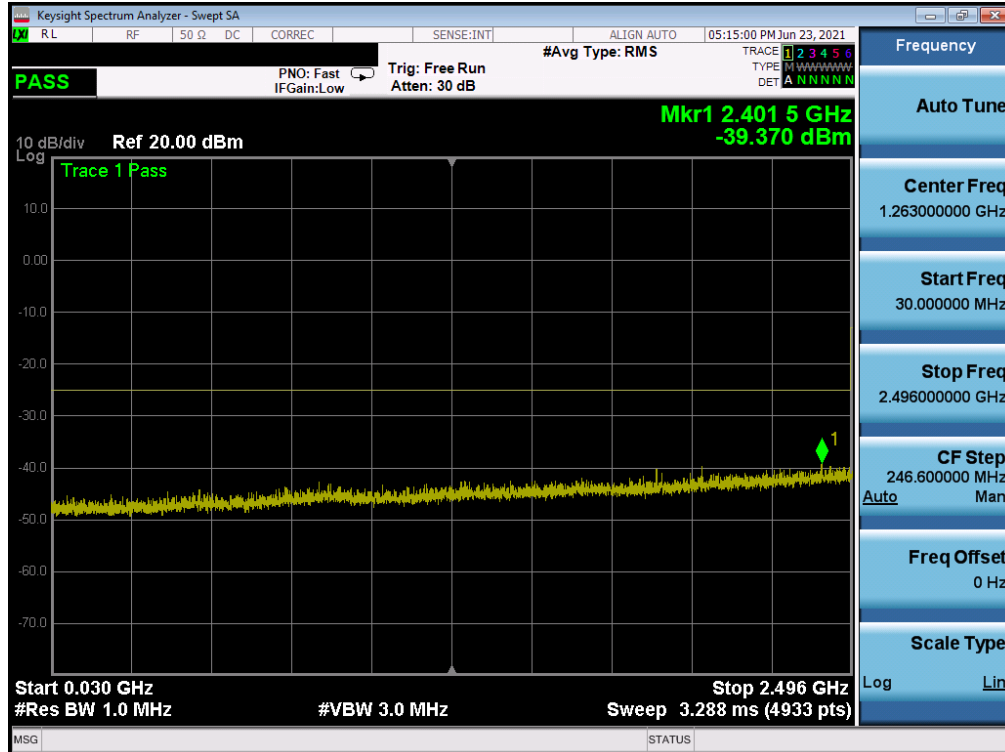


Plot 7-87. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

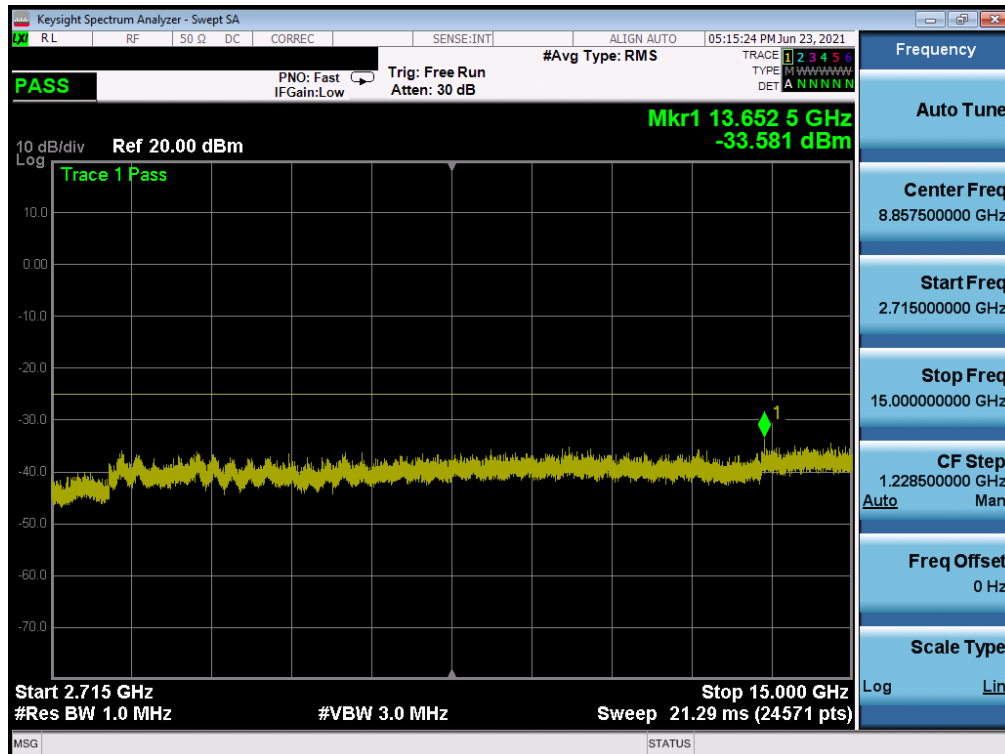


Plot 7-88. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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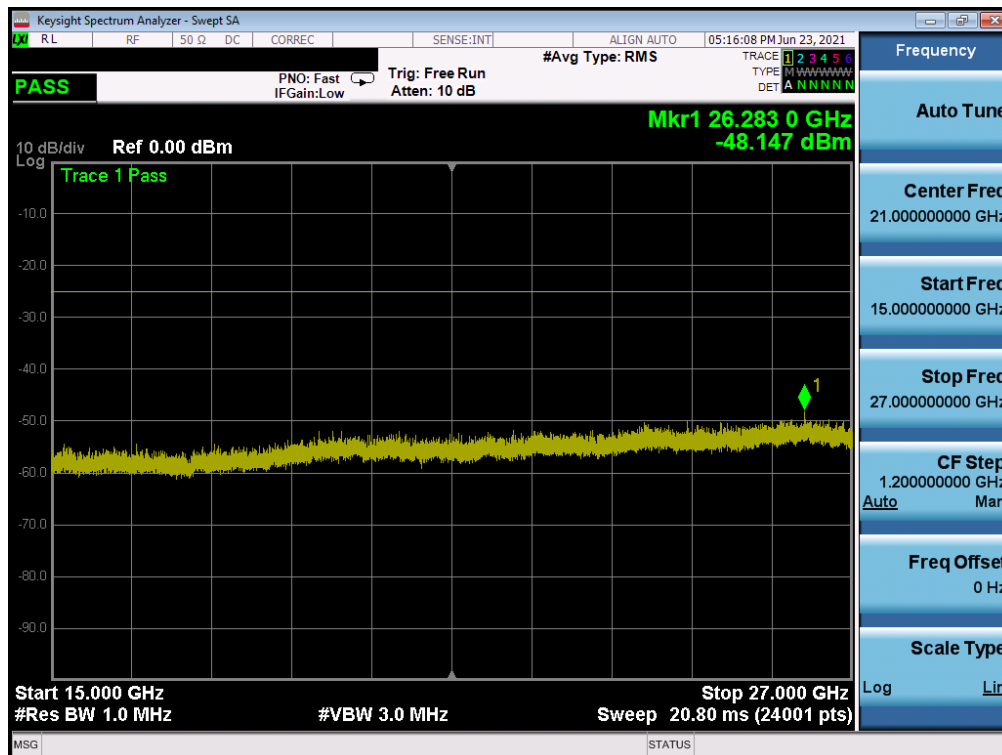


Plot 7-89. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel)






Plot 7-90. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-91. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

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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 maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

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

The minimum permissible attenuation level for Band 30 is $> 43 + 10 \log_{10}(P_{\text{Watts}})$ at 2300-2305MHz & 2345-2360MHz, $> 55 + 10 \log_{10}(P_{\text{Watts}})$ at 2320-2324MHz & 2341-2345MHz, $> 61 + 10 \log_{10}(P_{\text{Watts}})$ at 2324-2328MHz & 2337-2341MHz, $> 67 + 10 \log_{10}(P_{\text{Watts}})$ at 2288-2292MHz & 2328-2337MHz, and $> 70 + 10 \log_{10}(P_{\text{Watts}})$ at frequencies $< 2288\text{MHz}$ & $> 2365\text{MHz}$.

The minimum permissible attenuation level for Band 7 and 41 is as noted in the Test Notes on the following page.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW $\geq 1\%$ of the emission bandwidth
4. VBW $\geq 3 \times \text{RBW}$
5. Detector = RMS
6. Number of sweep points $\geq 2 \times \text{Span/RBW}$
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.

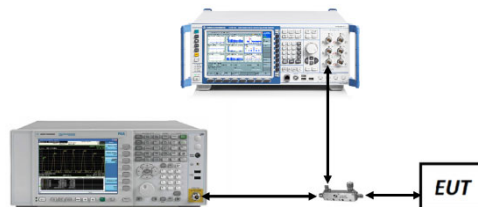




Figure 7-4. Test Instrument & Measurement Setup

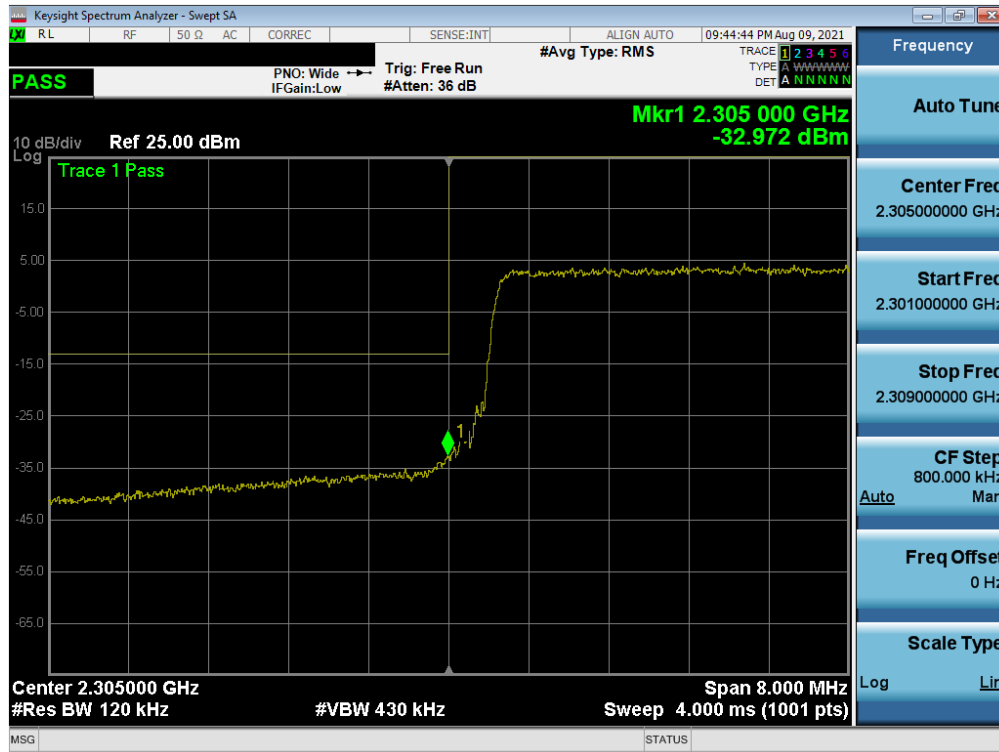
FCC ID: C3K1995	PCTEST Proven to be part of @element	PART 27 MEASUREMENT REPORT	Microsoft	Approved by: Technical Manager
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Test Notes

1. Per 27.53(h), in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to demonstrate compliance with the out-of-band emissions limit. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.
2. Per 27.53(a)(5) in the 1 MHz bands immediately outside and adjacent to the channel blocks at 2305, 2310, 2315, 2320, 2345, 2350, 2355, and 2360 MHz, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e., 1 MHz). 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 emissions are attenuated at least 26 dB below the transmitter power.
3. Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than $40 + 10 \log(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth. In addition, the attenuation factor shall not be less than $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5 MHz.
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.

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LTE Band 30

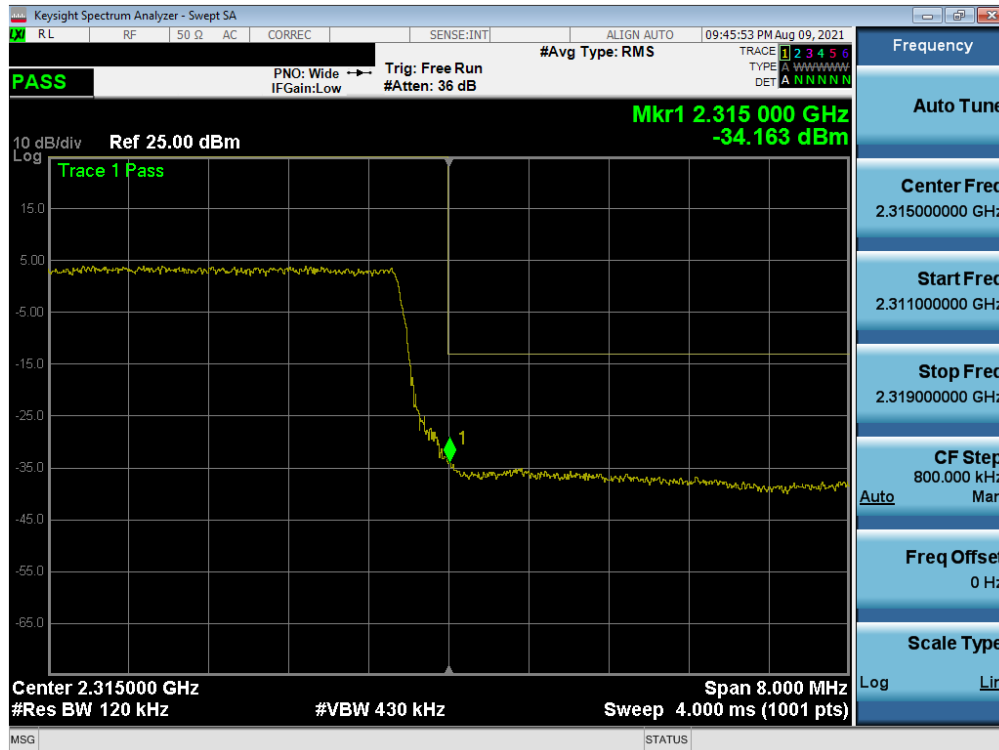


Plot 7-92. Lower Band Edge Plot (LTE Band 30 - 10MHz QPSK - Full RB)

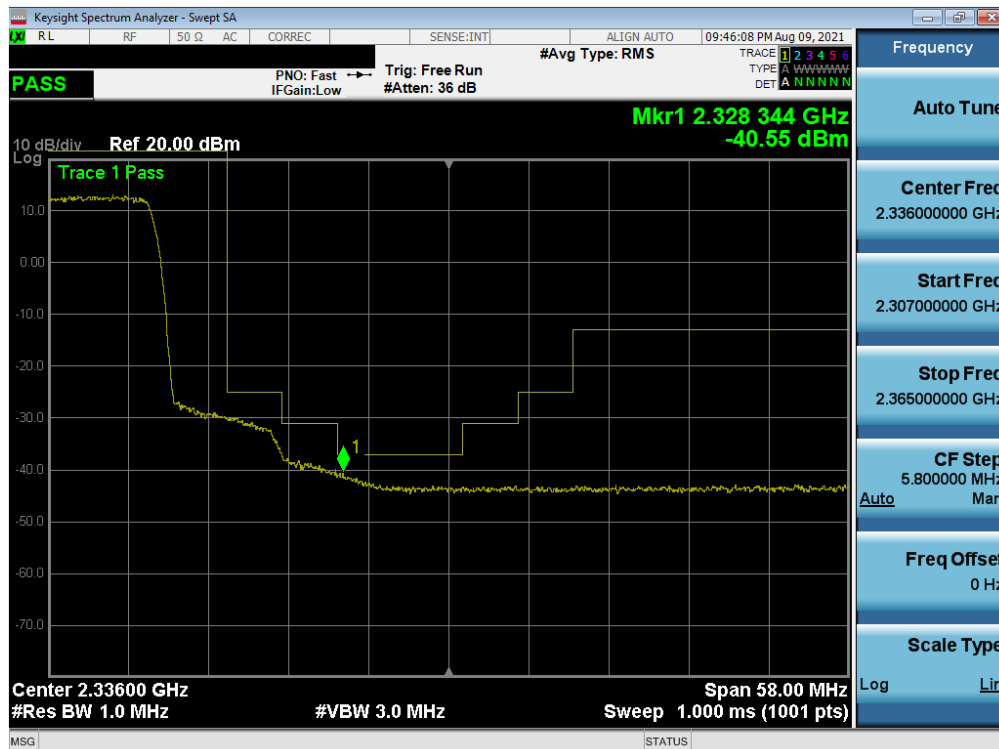


Plot 7-93. Extended Lower Band Edge Plot (LTE Band 30 - 10MHz QPSK - Full RB)




FCC ID: C3K1995	 PCTEST Proud to be part of 	PART 27 MEASUREMENT REPORT	 Microsoft	Approved by: Technical Manager
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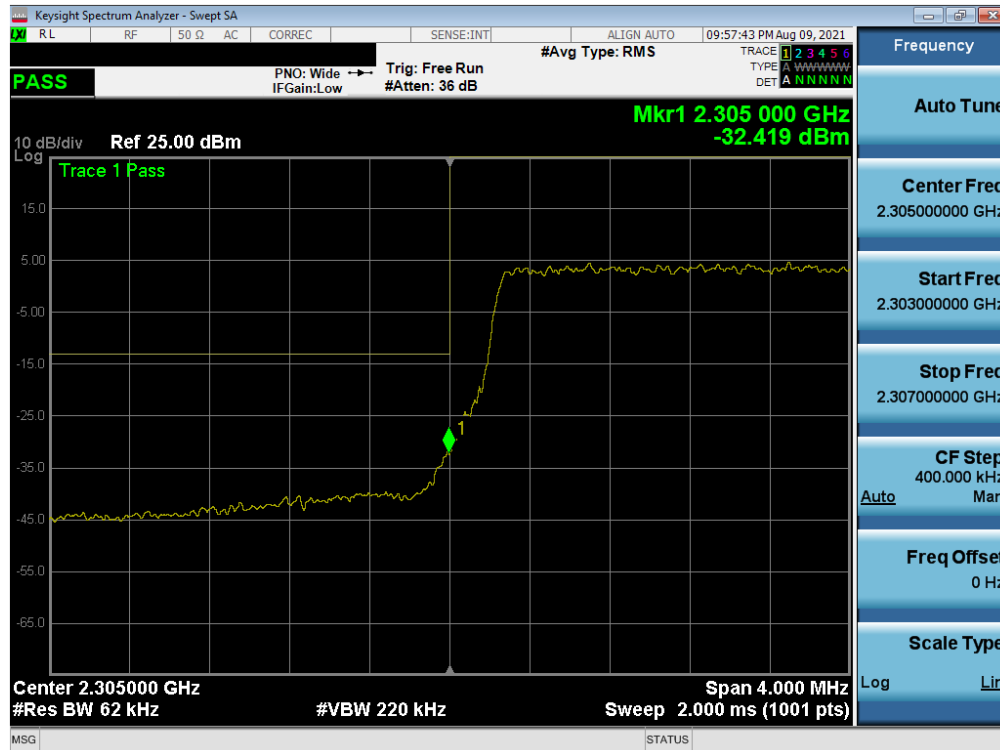


Plot 7-94. Upper Band Edge Plot (LTE Band 30 - 10MHz QPSK – Full RB)

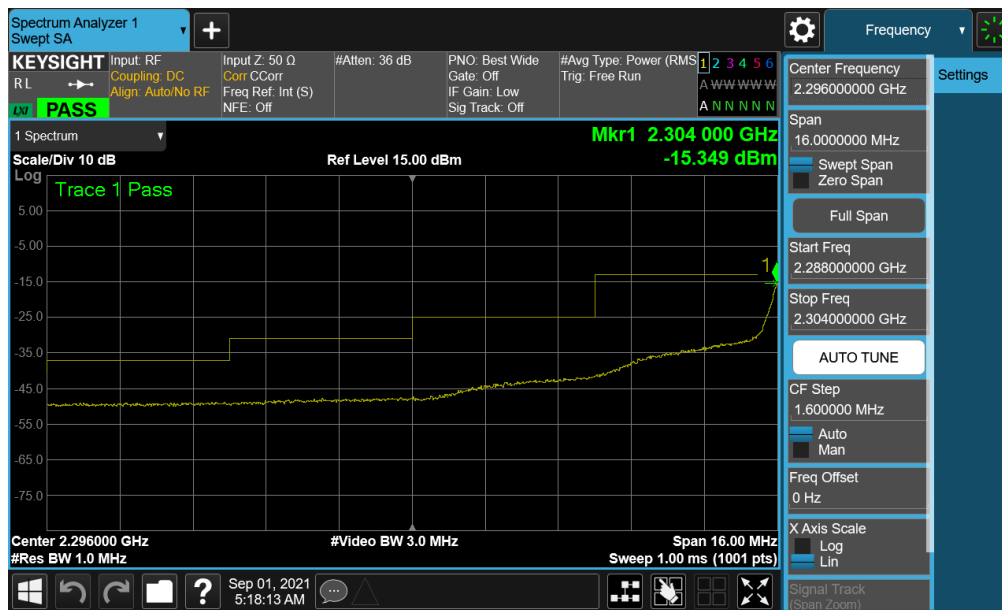


Plot 7-95. Extended Upper Band Edge Plot (LTE Band 30 - 10MHz QPSK – Full RB)



FCC ID: C3K1995	 PCTEST Proud to be part of 	PART 27 MEASUREMENT REPORT	 Microsoft	Approved by: Technical Manager
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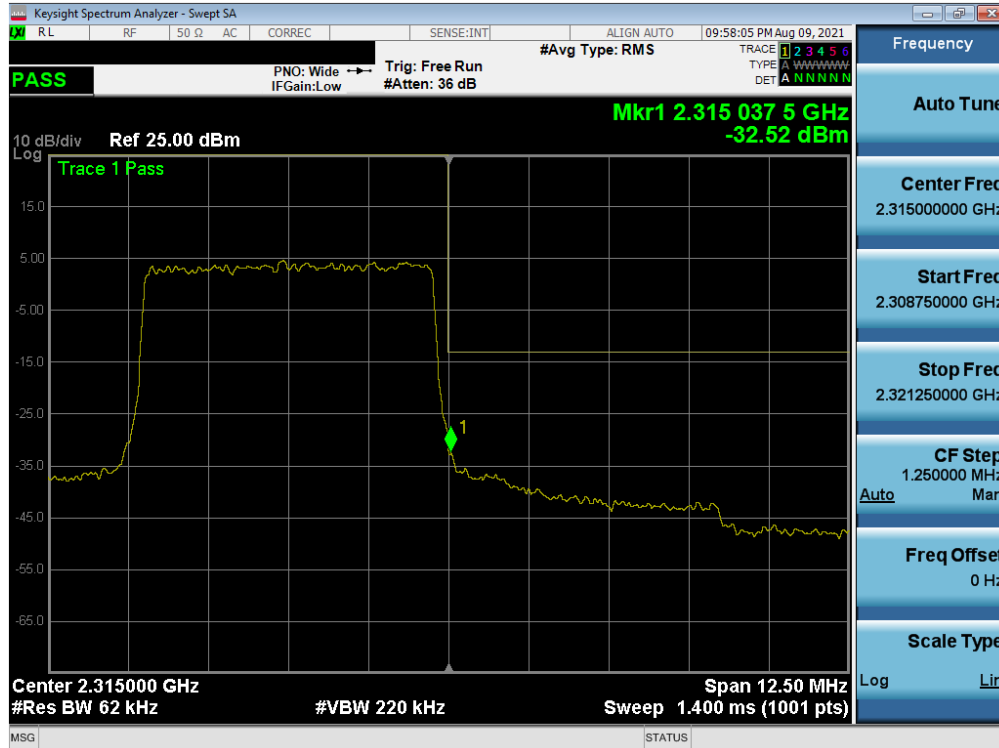


Plot 7-96. Lower Band Edge Plot (LTE Band 30 - 5MHz QPSK – Full RB)

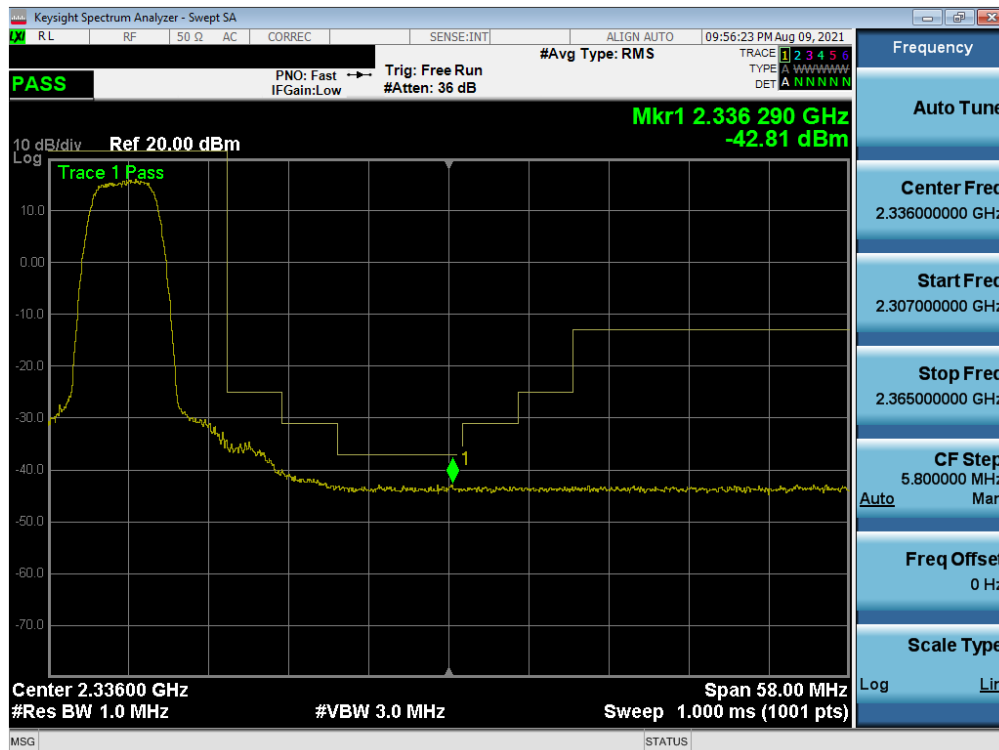


Plot 7-97. Extended Lower Band Edge Plot (LTE Band 30 - 5MHz QPSK – Full RB)




FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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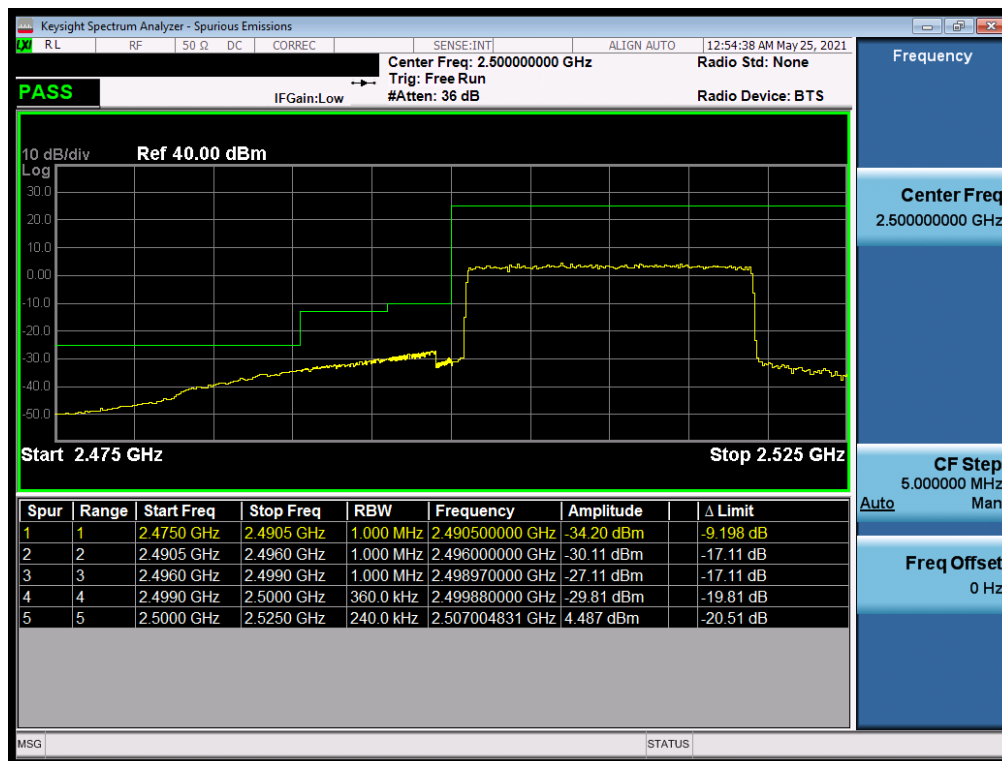
Plot 7-98. Upper Band Edge Plot (LTE Band 30 - 5MHz QPSK – Full RB)



Plot 7-99. Extended Upper Band Edge Plot (LTE Band 30 - 5MHz QPSK – Full RB)

FCC ID: C3K1995	 PCTEST Proud to be part of 	PART 27 MEASUREMENT REPORT	 Microsoft	Approved by: Technical Manager
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LTE Band 7

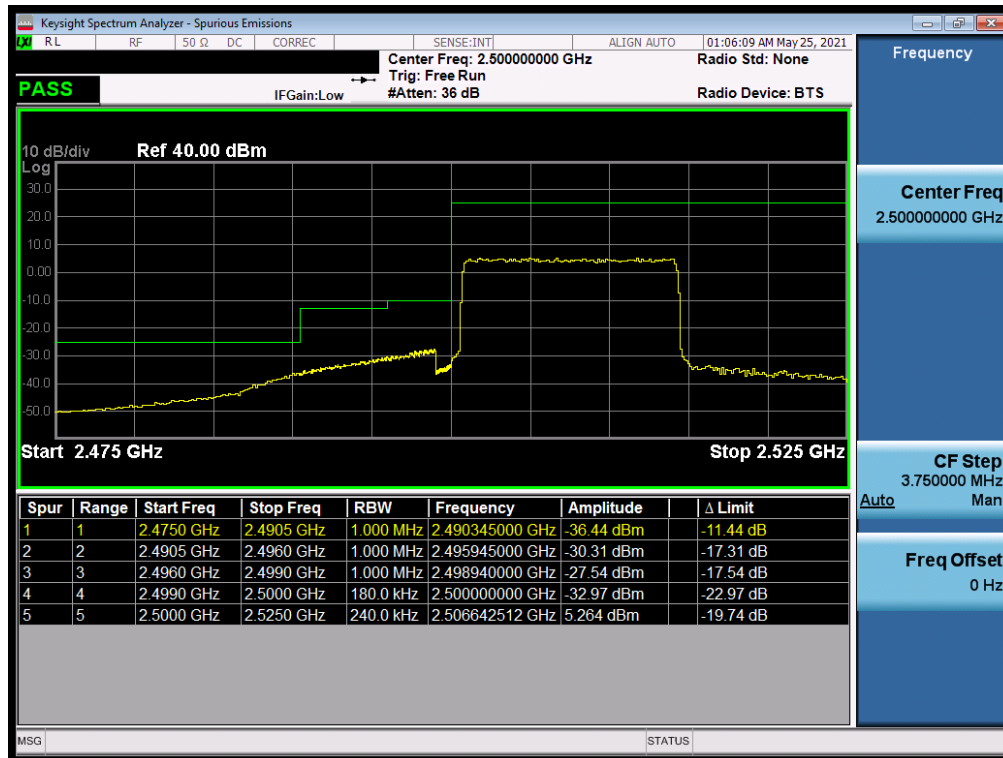


Plot 7-100. Lower ACP Plot (LTE Band 7 - 20MHz QPSK - Full RB)

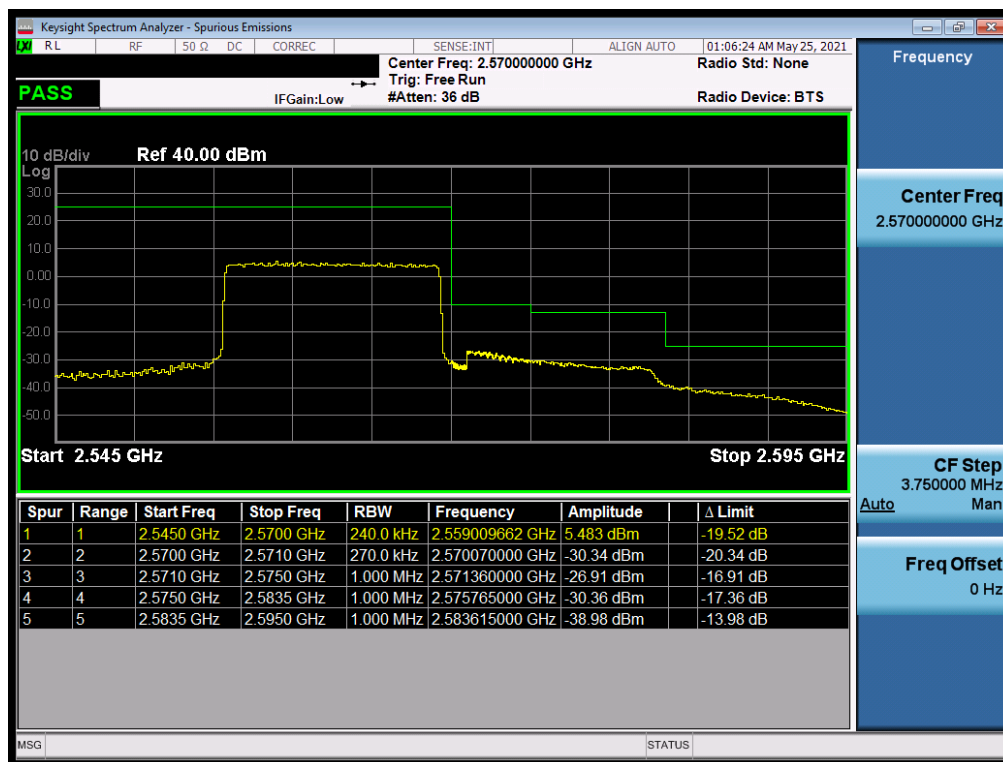


Plot 7-101. Upper ACP Plot (LTE Band 7 - 20MHz QPSK - Full RB)



FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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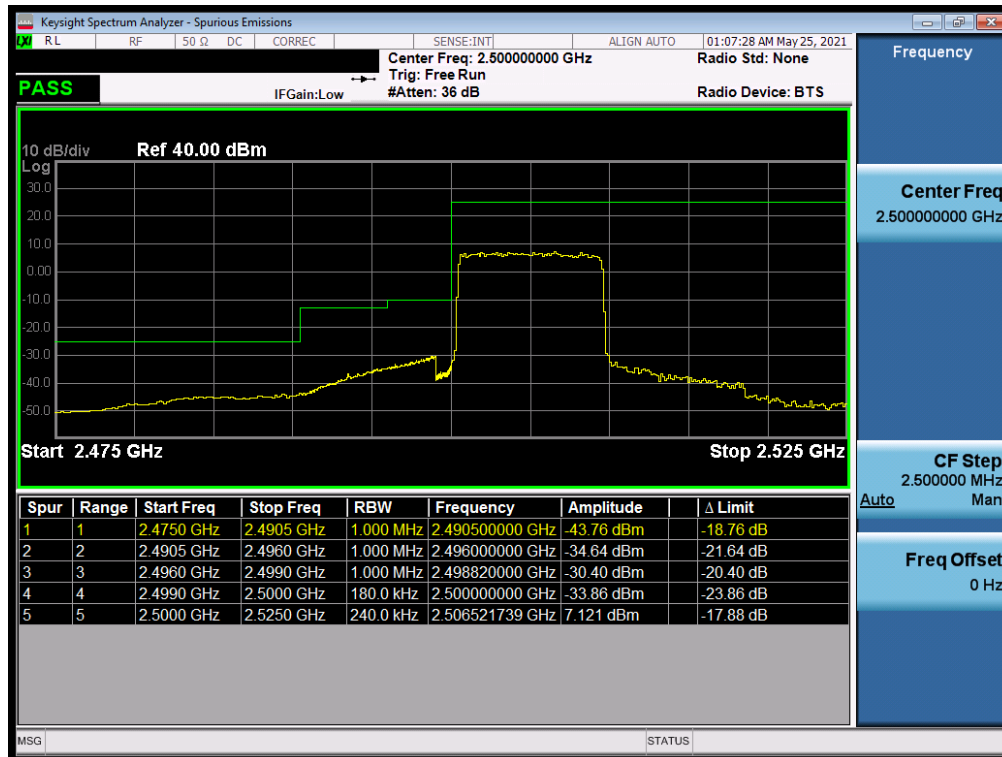


Plot 7-102. Lower ACP Plot (LTE Band 7 - 15MHz QPSK - Full RB)

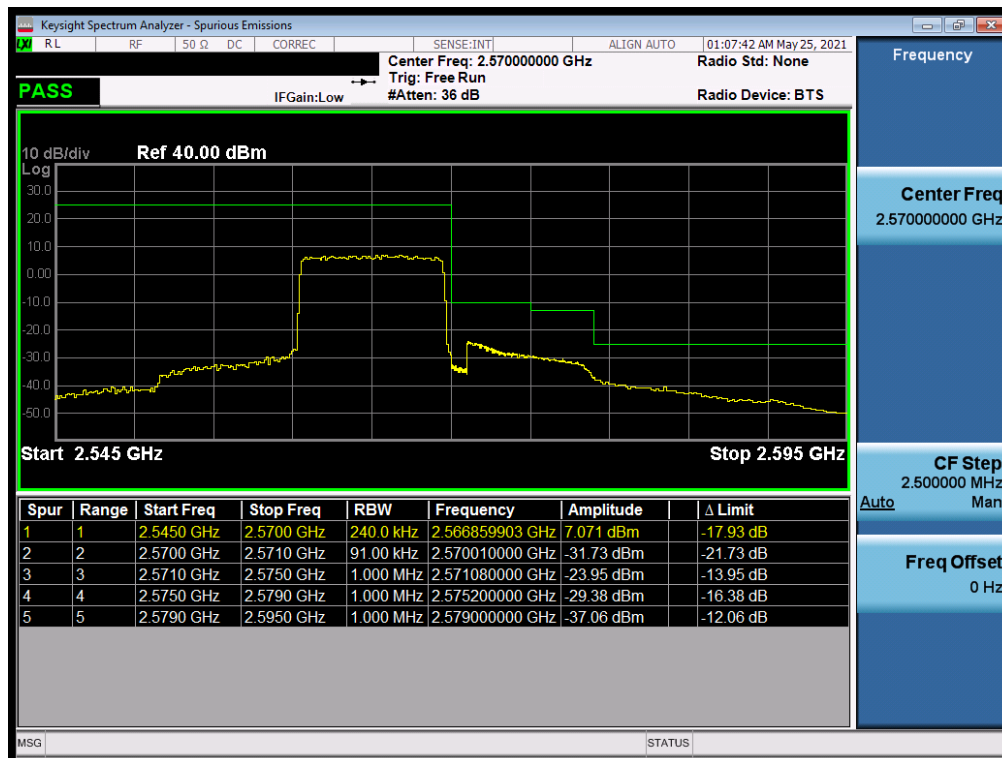


Plot 7-103. Upper ACP Plot (LTE Band 7 - 15MHz QPSK - Full RB)



FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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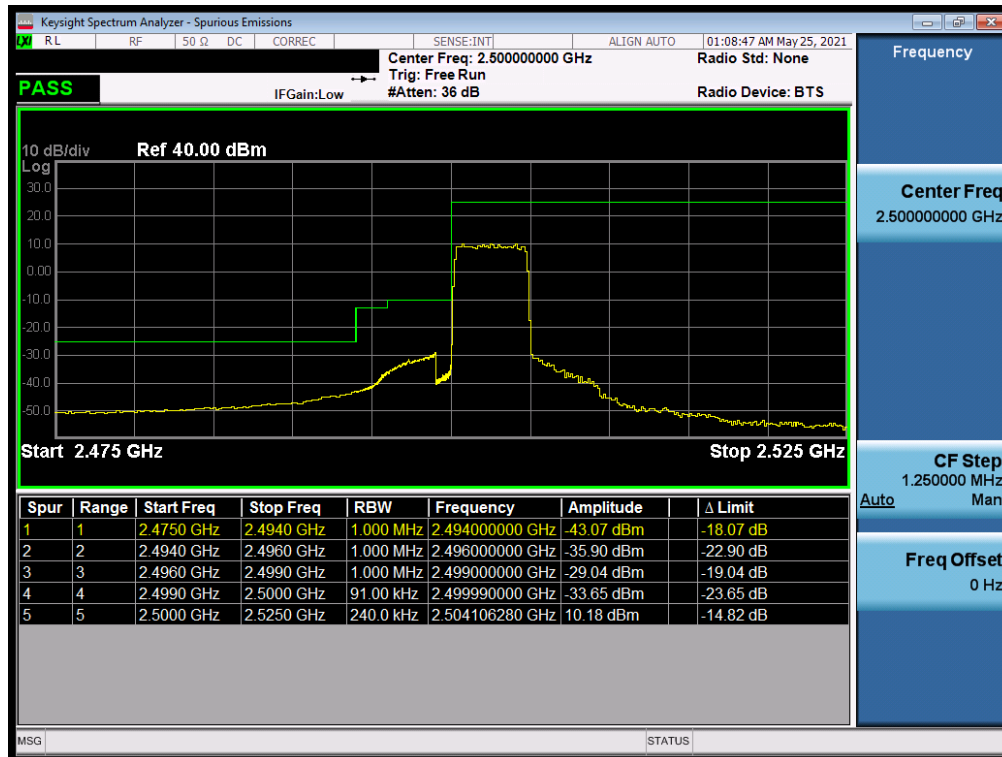


Plot 7-104. Lower ACP Plot (LTE Band 7 - 10MHz QPSK – Full RB)

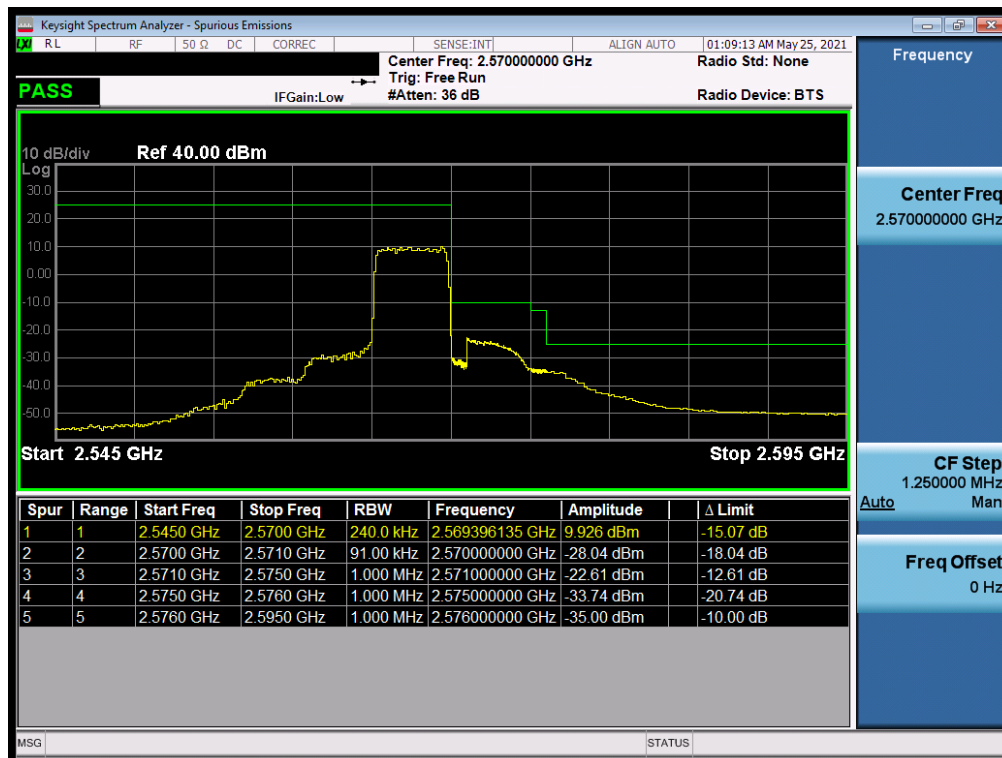


Plot 7-105. Upper ACP Plot (LTE Band 7 - 10MHz QPSK – Full RB)



FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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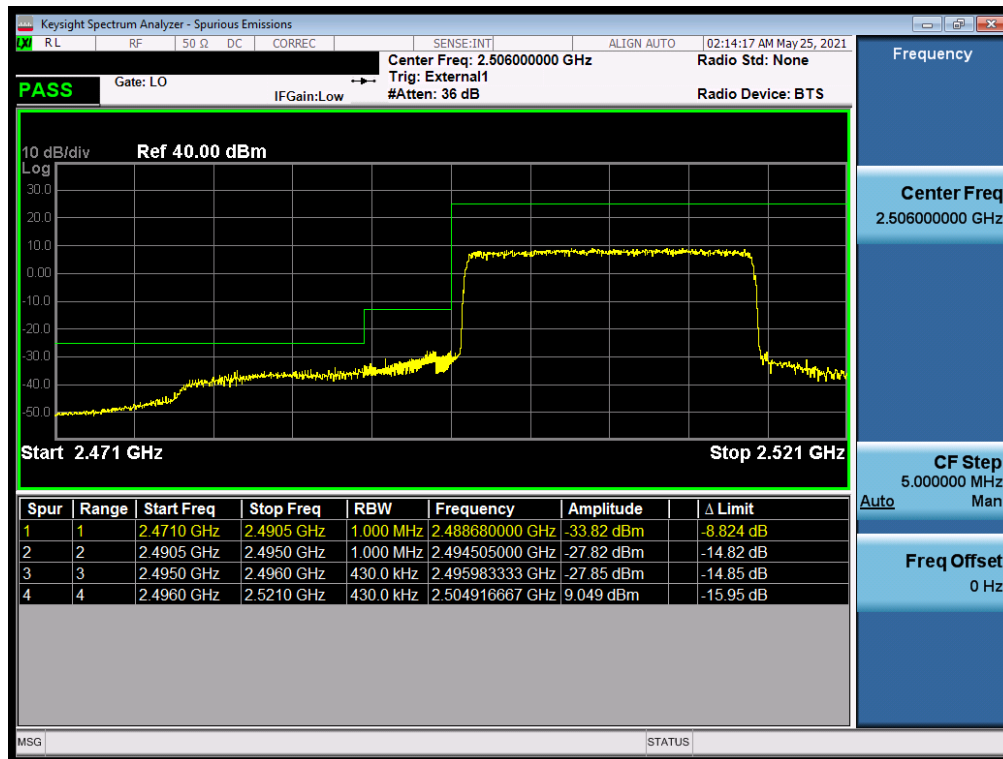
Plot 7-106. Lower ACP Plot (LTE Band 7 - 5MHz QPSK – Full RB)



Plot 7-107. Upper ACP Plot (LTE Band 7 - 5MHz QPSK – Full RB)

FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 41(PC2)- North Antenna

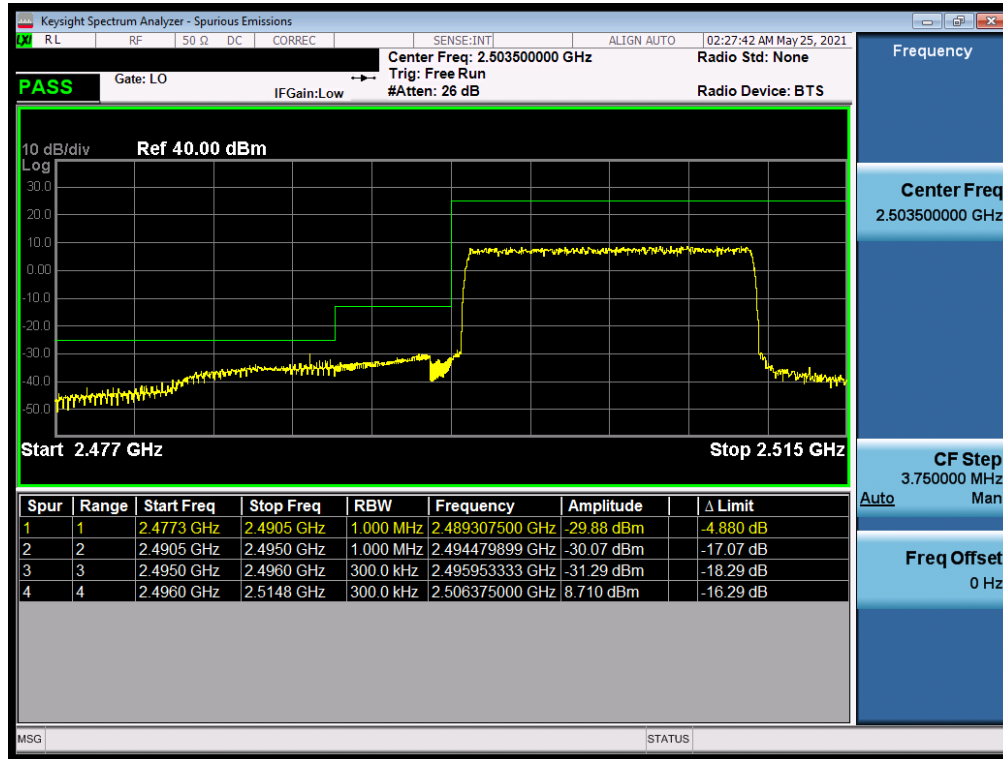


Plot 7-108. Lower ACP Plot (LTE Band 41(PC2) - 20MHz QPSK - Full RB)

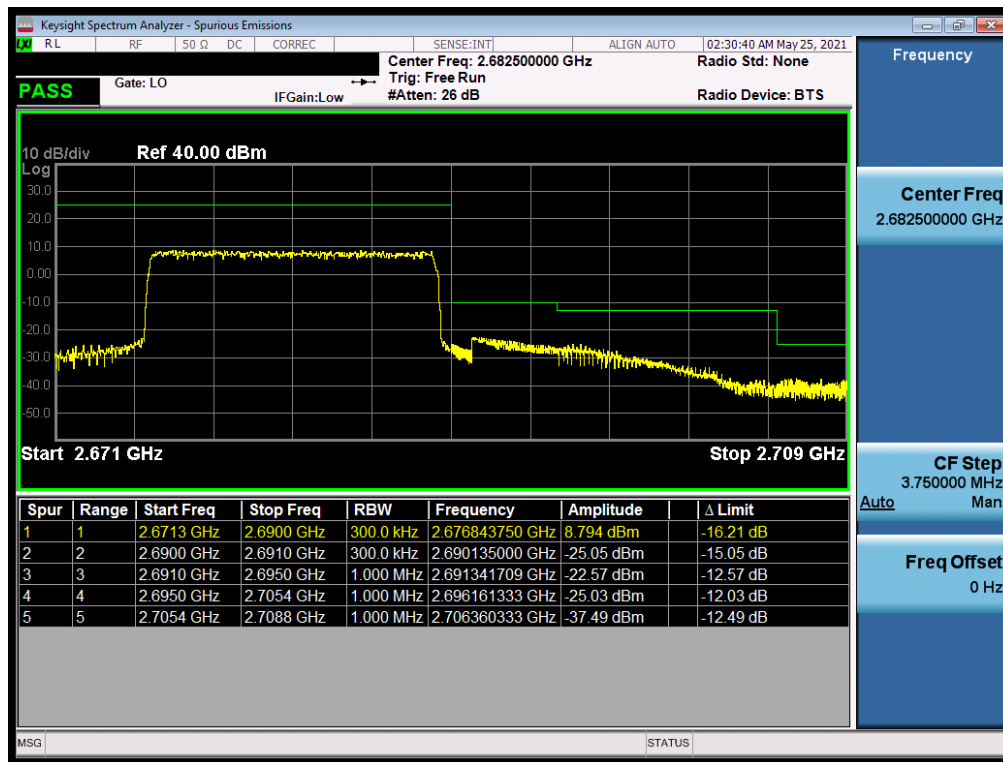


Plot 7-109. Upper ACP Plot (LTE Band 41(PC2) - 20MHz QPSK - Full RB)



FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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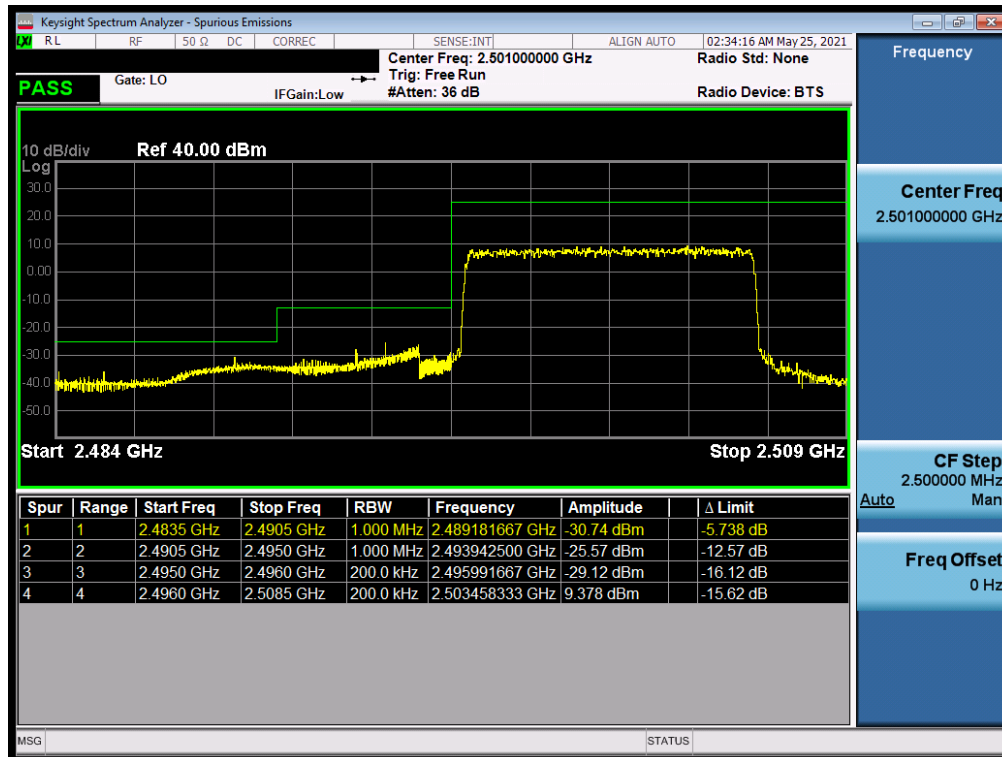


Plot 7-110. Lower ACP Plot (LTE Band 41(PC2) - 15MHz QPSK – Full RB)

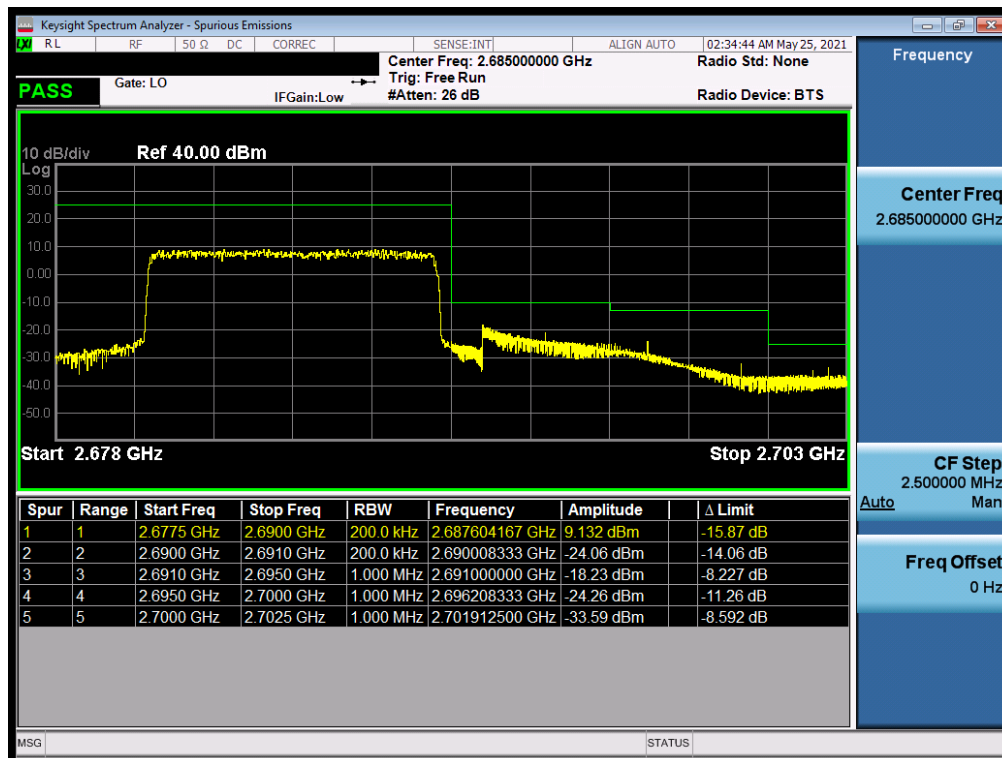


Plot 7-111. Upper ACP Plot (LTE Band 41(PC2) - 15MHz QPSK – Full RB)



FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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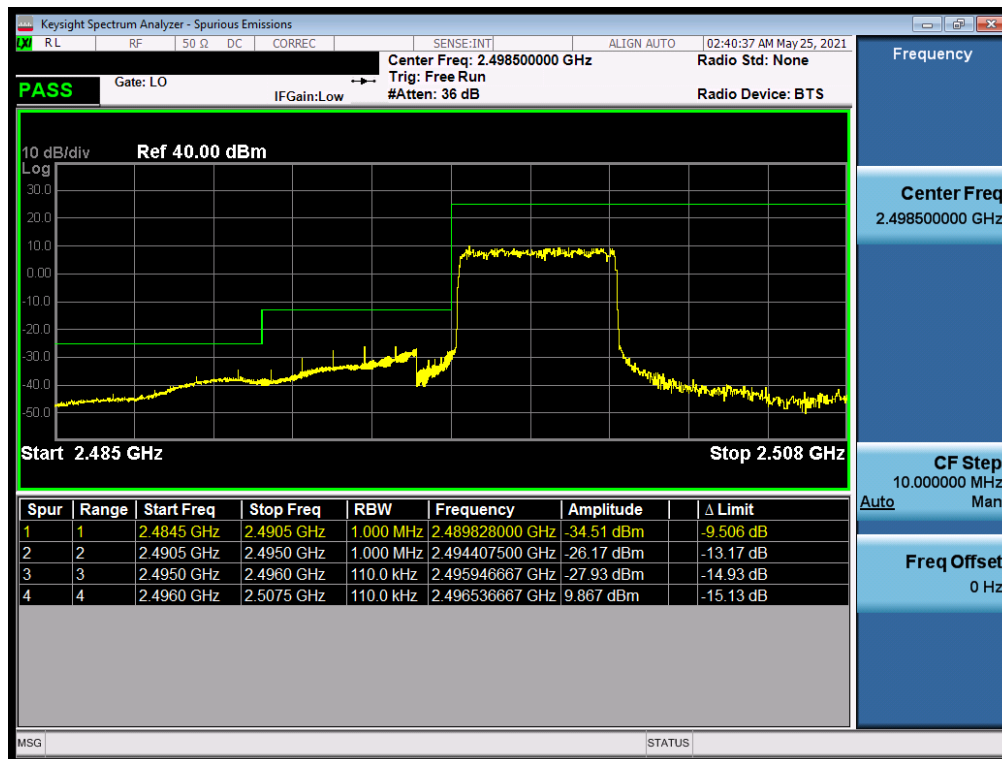


Plot 7-112. Lower ACP Plot (LTE Band 41(PC2) - 10MHz QPSK – Full RB)



Plot 7-113. Upper ACP Plot (LTE Band 41(PC2) - 10MHz QPSK – Full RB)



FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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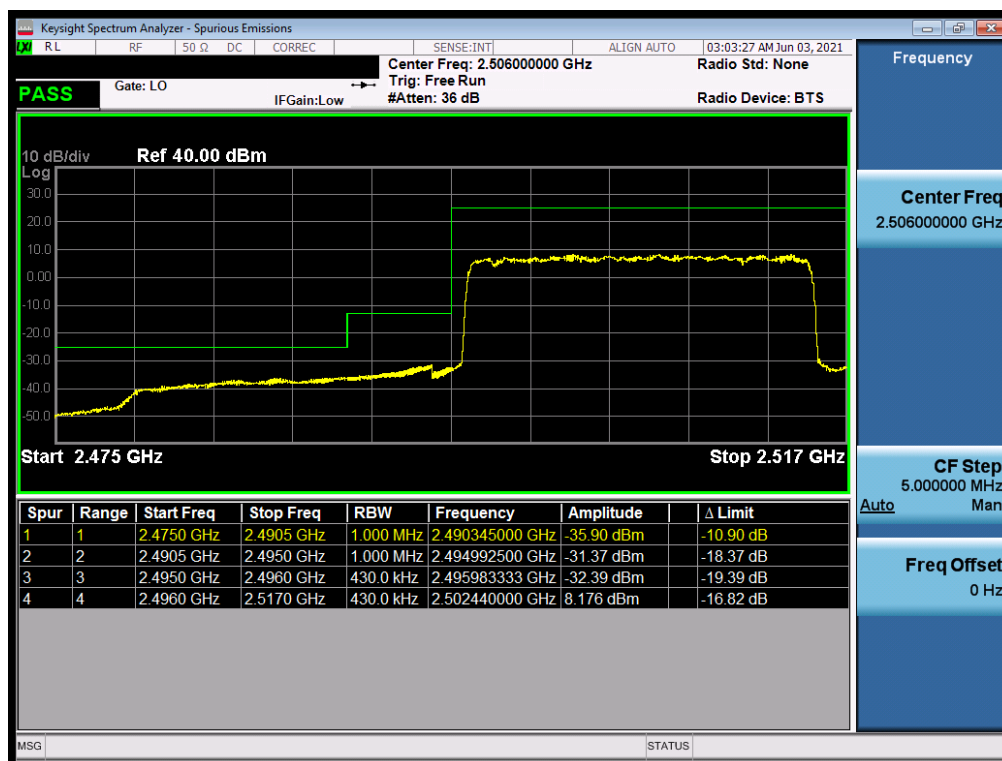
Plot 7-114. Lower ACP Plot (LTE Band 41(PC2) - 5MHz QPSK – Full RB)



Plot 7-115. Upper ACP Plot (LTE Band 41(PC2) - 5MHz QPSK – Full RB)

FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 41(PC3)

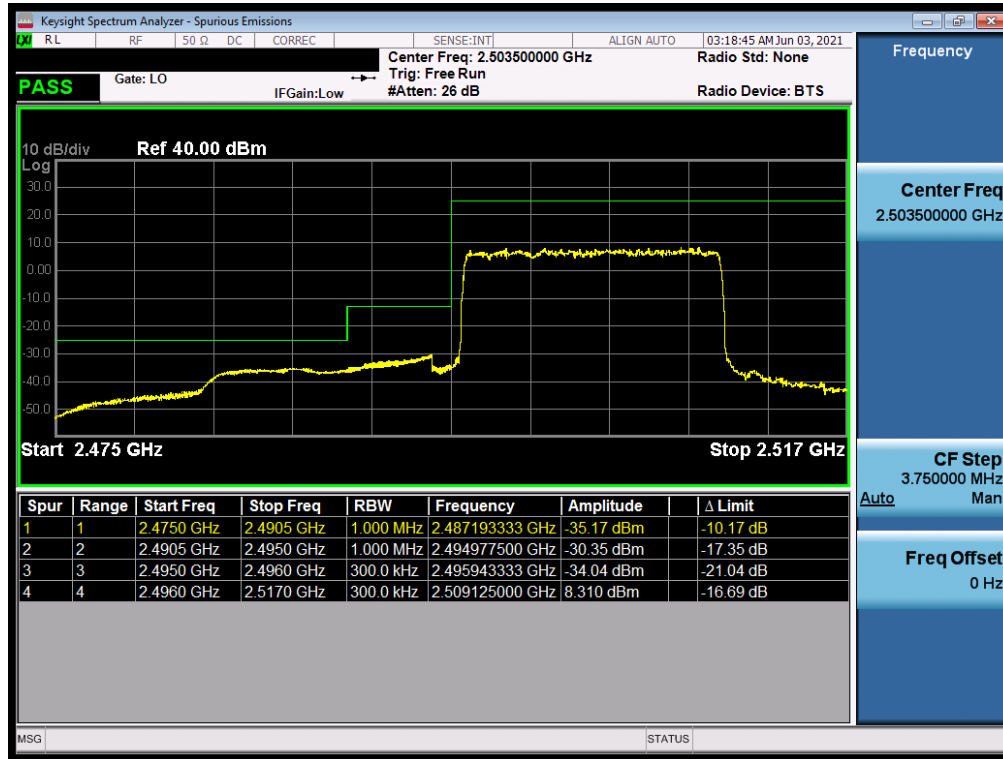


Plot 7-116. Lower ACP Plot (LTE Band 41(PC3) - 20MHz QPSK - Full RB)

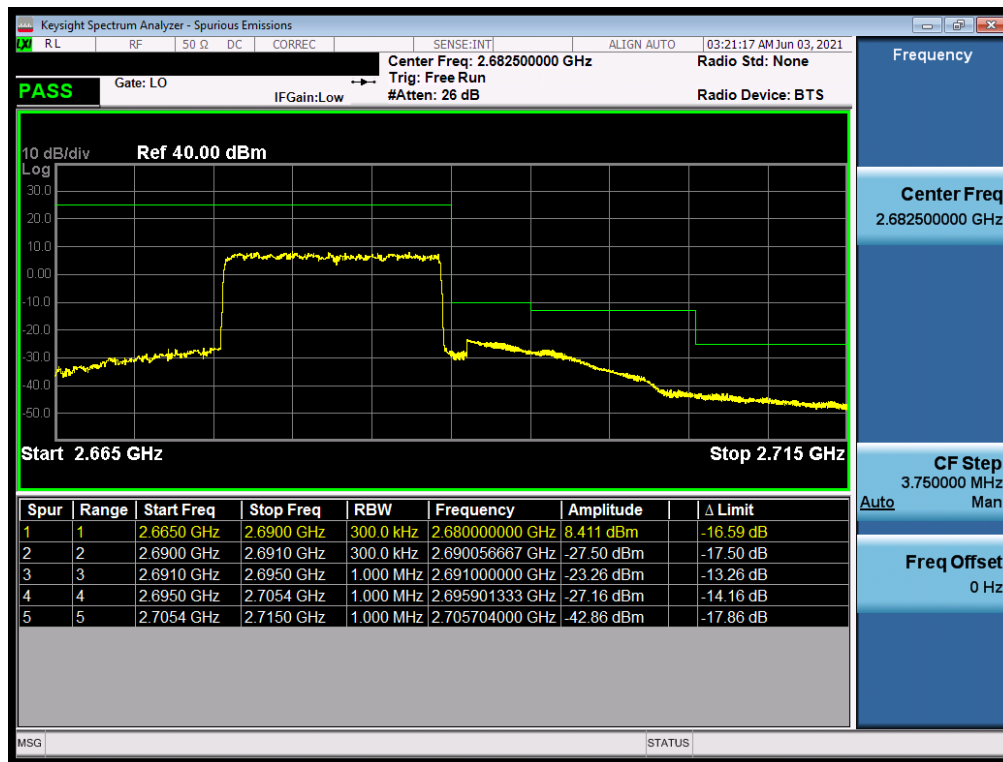


Plot 7-117. Upper ACP Plot (LTE Band 41(PC3) - 20MHz QPSK - Full RB)



FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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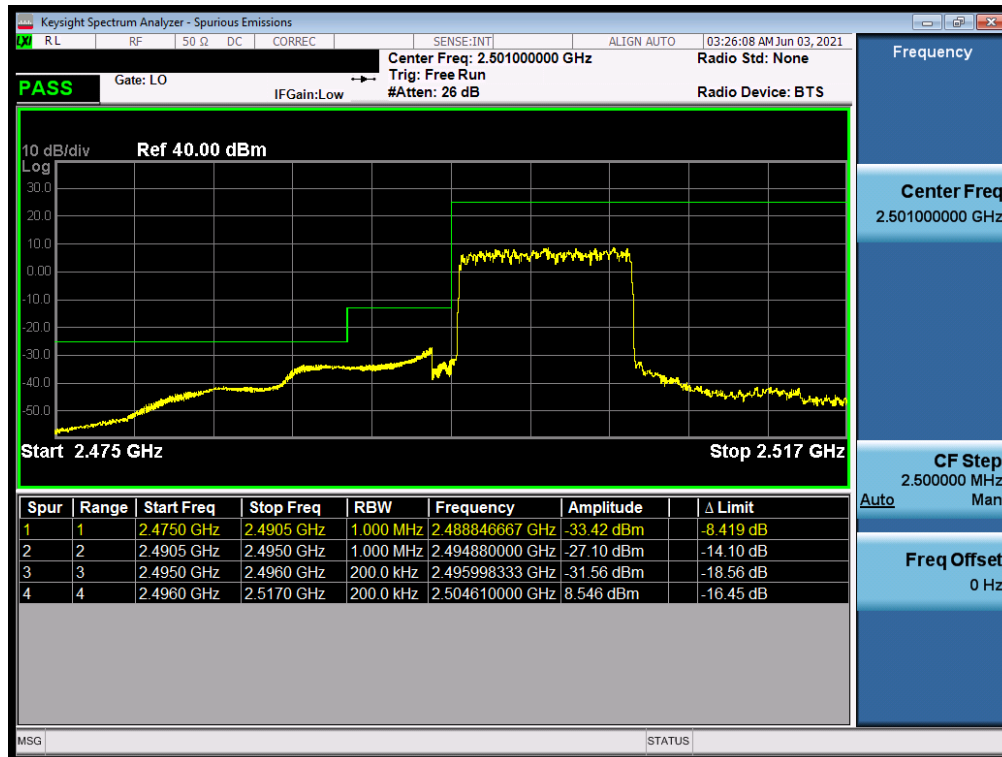


Plot 7-118. Lower ACP Plot (LTE Band 41(PC3) - 15MHz QPSK – Full RB)



Plot 7-119. Upper ACP Plot (LTE Band 41(PC3) - 15MHz QPSK – Full RB)



FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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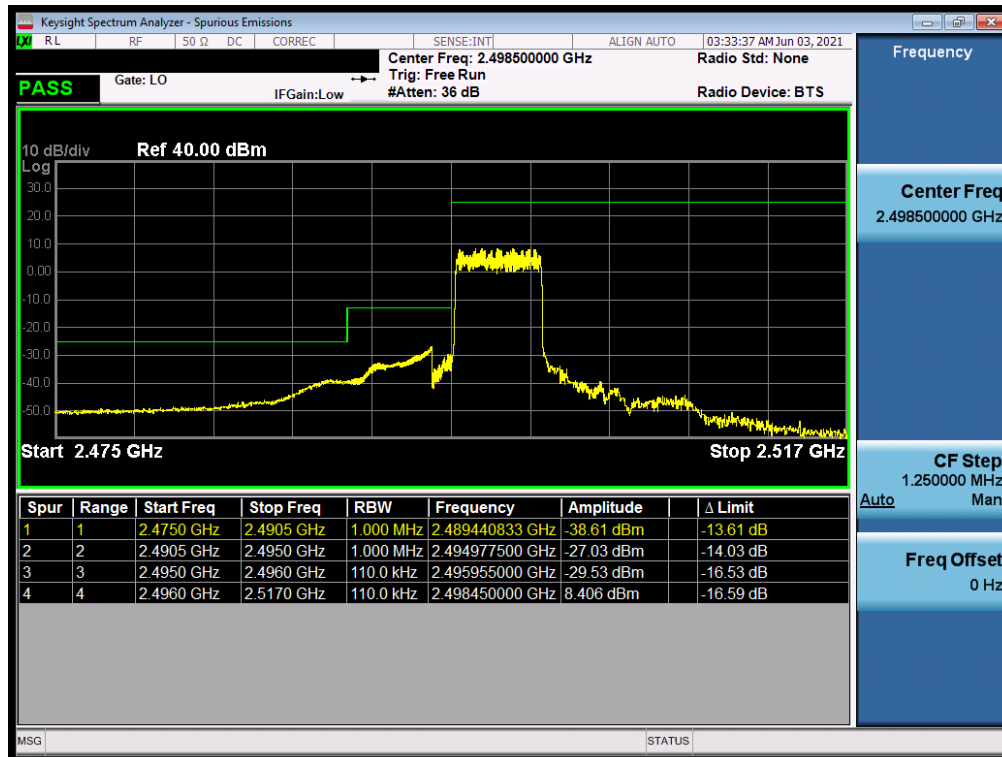


Plot 7-120. Lower ACP Plot (LTE Band 41(PC3) - 10MHz QPSK – Full RB)



Plot 7-121. Upper ACP Plot (LTE Band 41(PC3) - 10MHz QPSK – Full RB)



FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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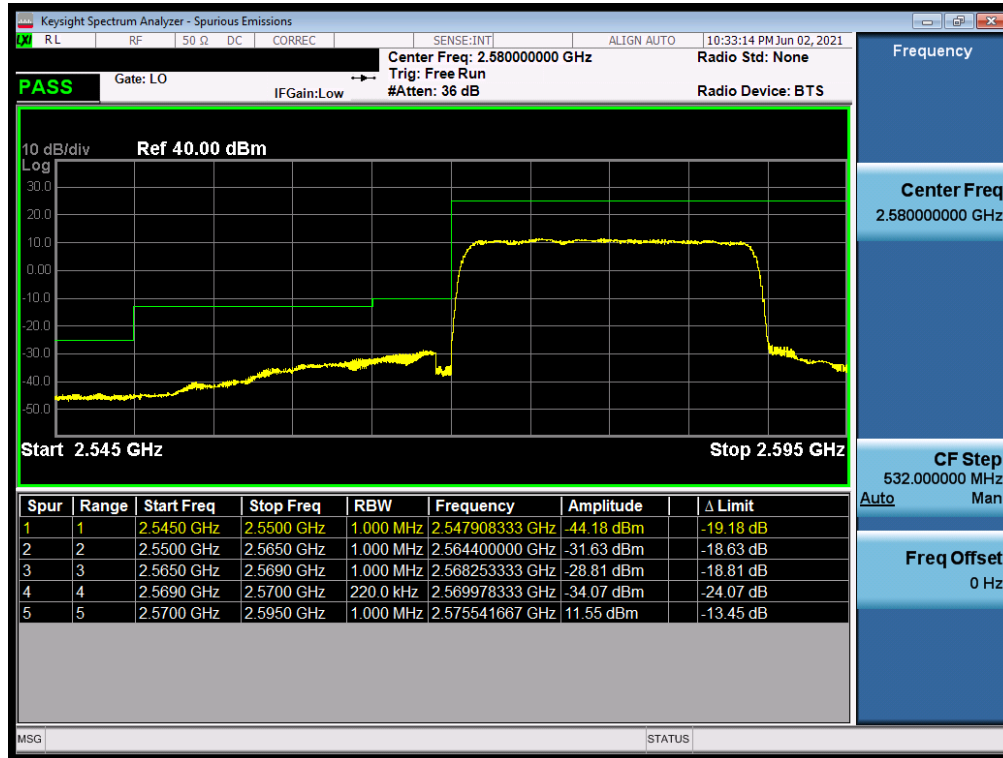
Plot 7-122. Lower ACP Plot (LTE Band 41(PC3) - 5MHz QPSK – Full RB)



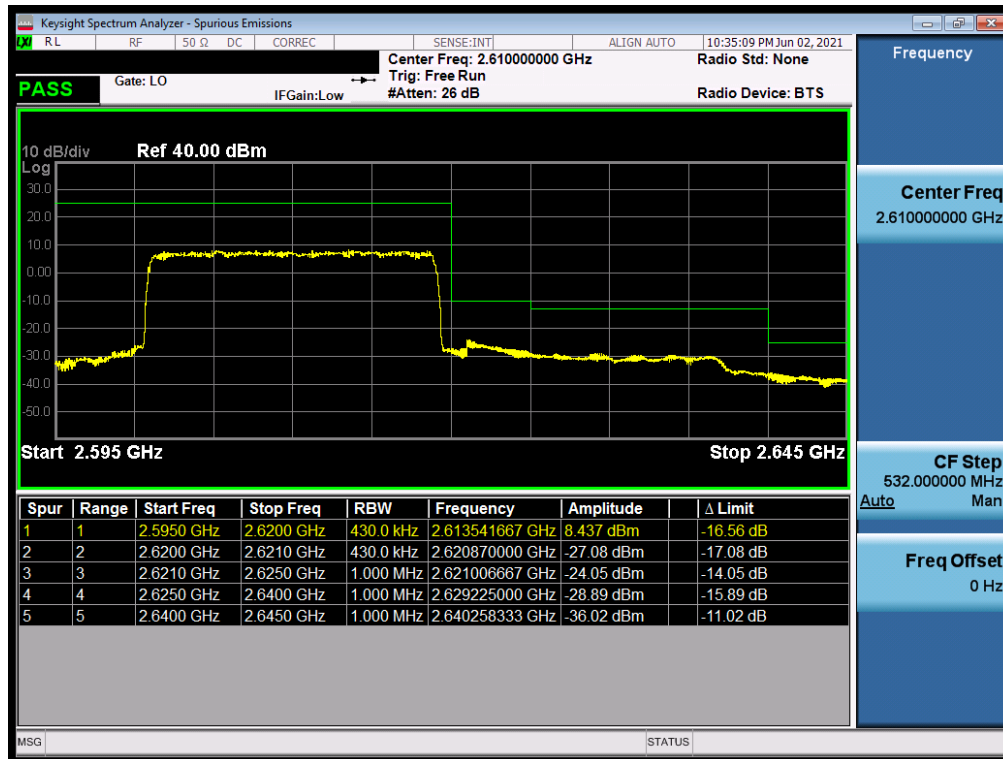
Plot 7-123. Upper ACP Plot (LTE Band 41(PC3) - 5MHz QPSK – Full RB)

FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 38

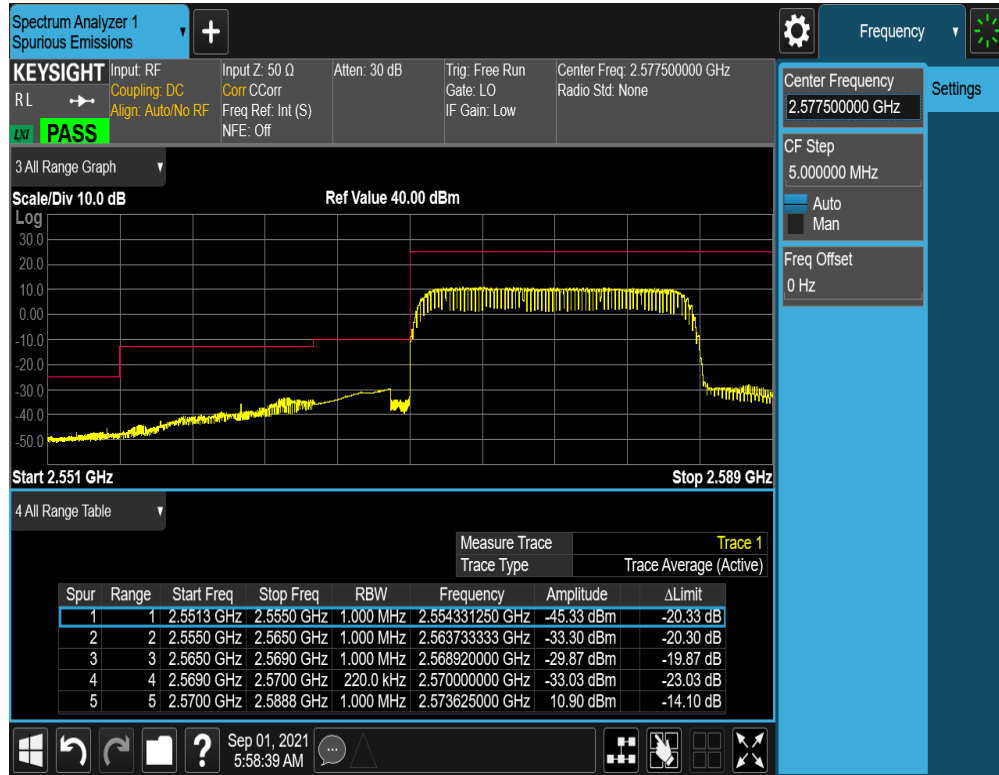


Plot 7-124. Lower Band Edge Plot (LTE Band 38 - 20MHz QPSK – Full RB)

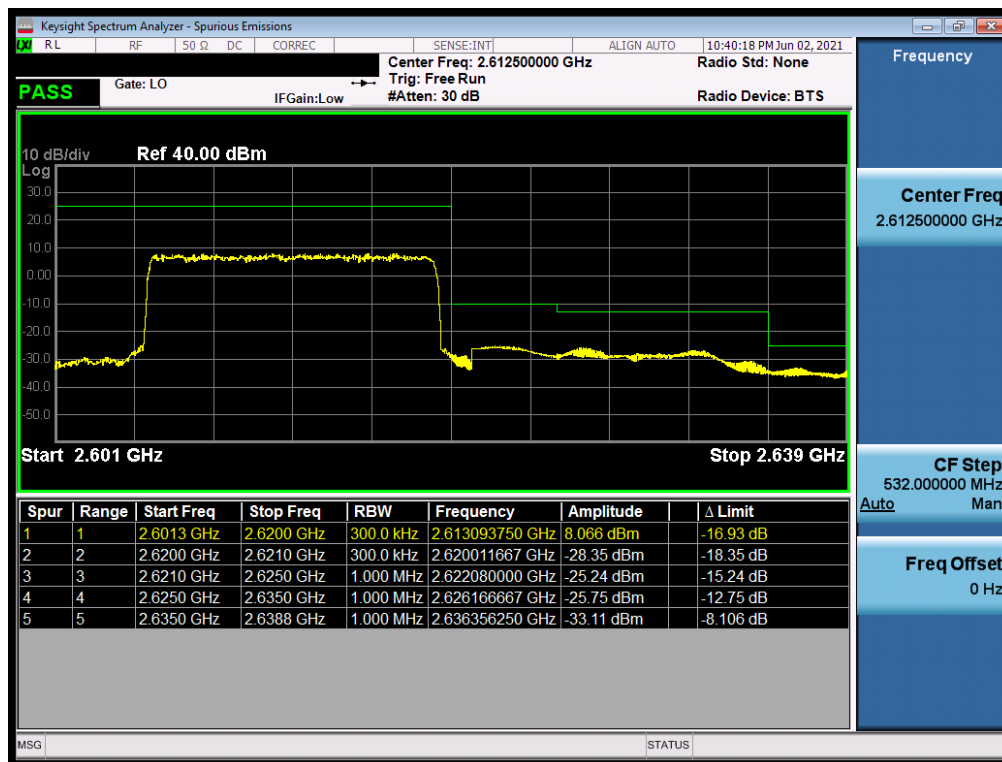


Plot 7-125. Upper Band Edge Plot (LTE Band 38 - 20MHz QPSK – Full RB)

FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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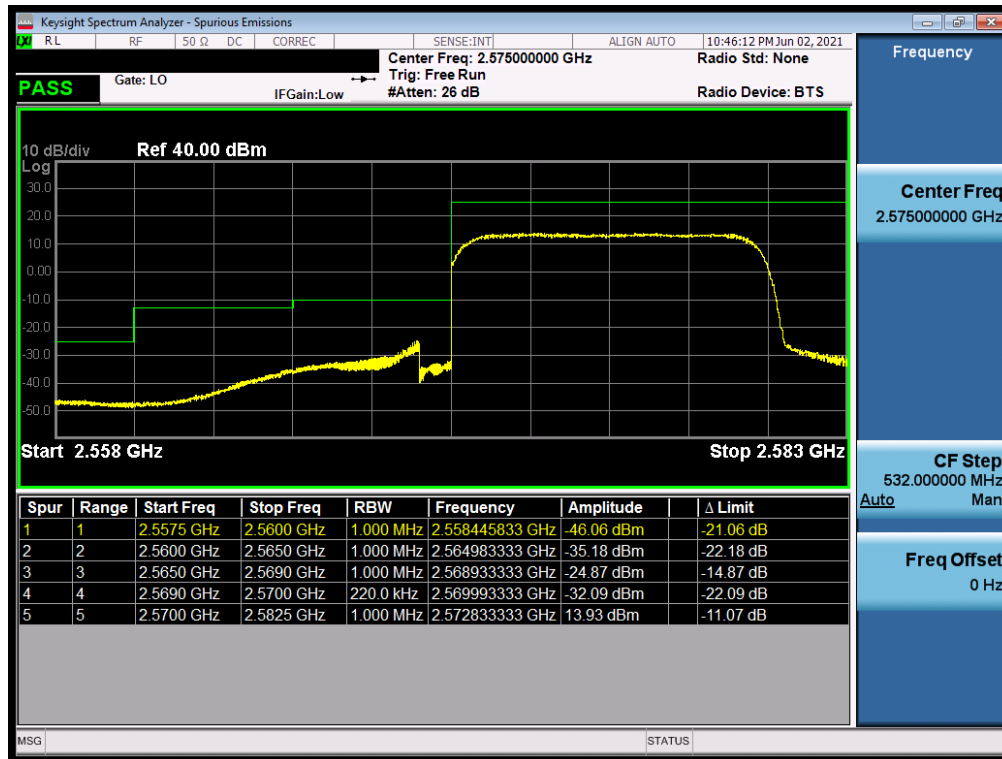


Plot 7-126. Lower Band Edge Plot (LTE Band 38 - 15MHz QPSK – Full RB)

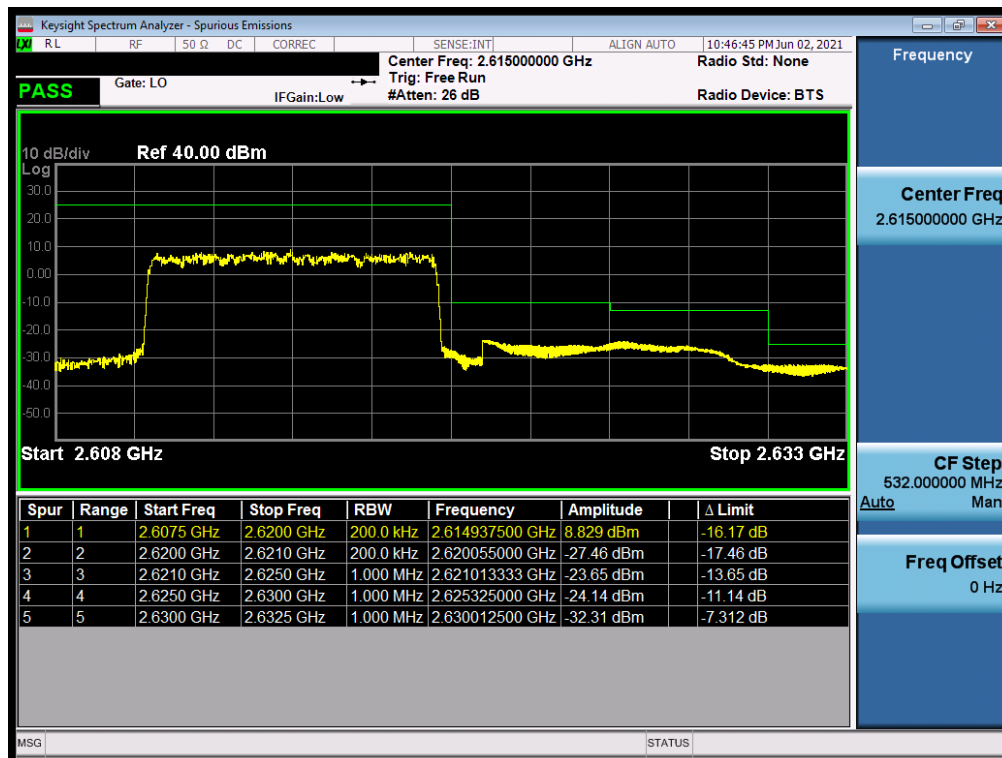


Plot 7-127. Upper Band Edge Plot (LTE Band 38 - 15MHz QPSK – Full RB)



FCC ID: C3K1995	PCTEST Proud to be part of @elecom	PART 27 MEASUREMENT REPORT	Microsoft	Approved by: Technical Manager
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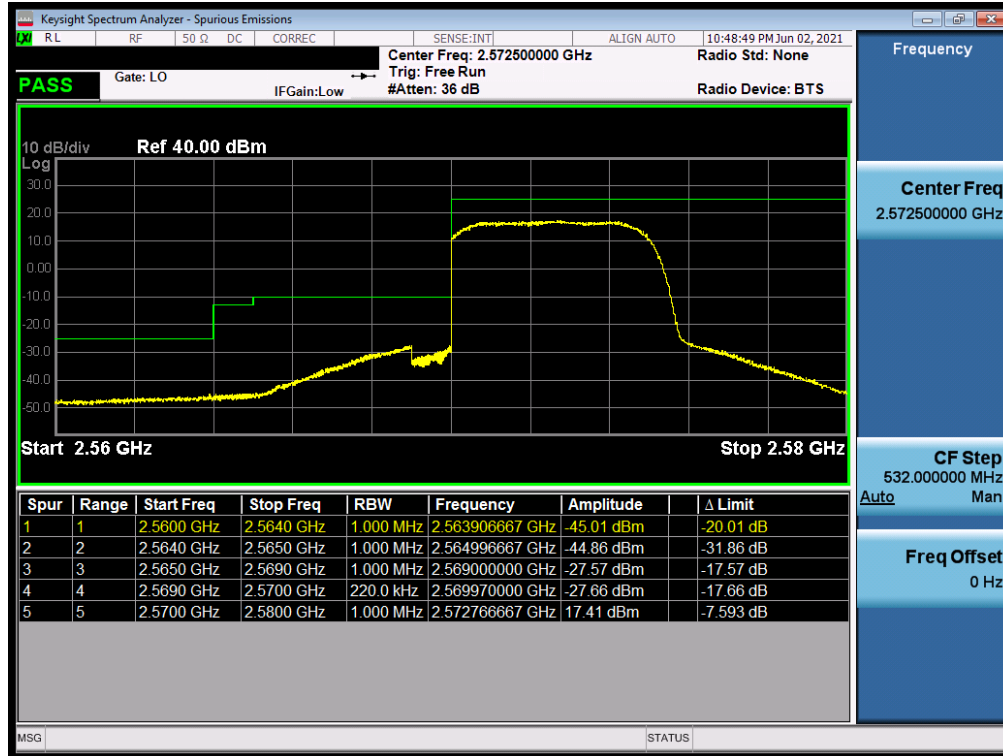


Plot 7-128. Lower Band Edge Plot (LTE Band 38 - 10MHz QPSK – Full RB)

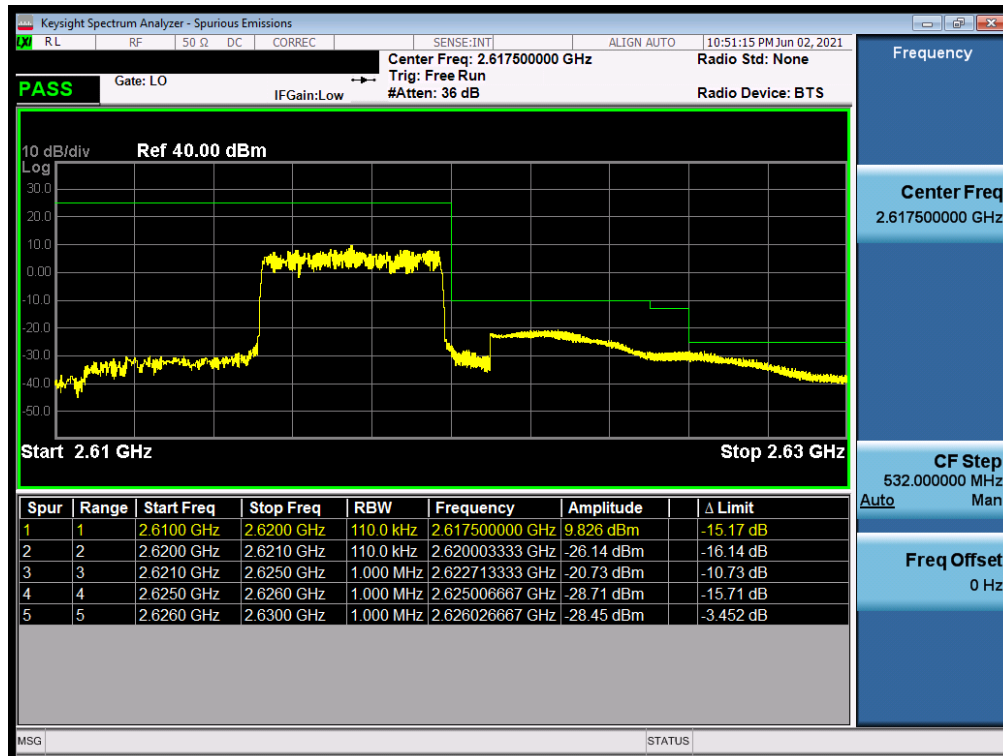


Plot 7-129. Upper Band Edge Plot (LTE Band 38 - 10MHz QPSK – Full RB)



FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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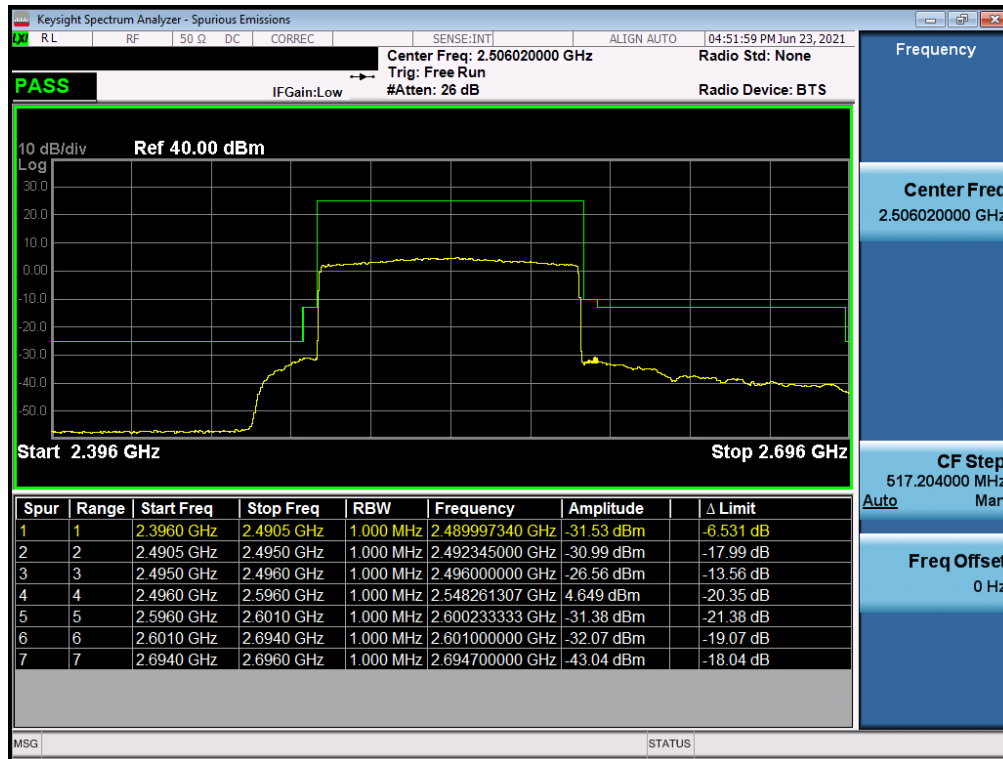
Plot 7-130. Lower Band Edge Plot (LTE Band 38 - 5MHz QPSK – Full RB)



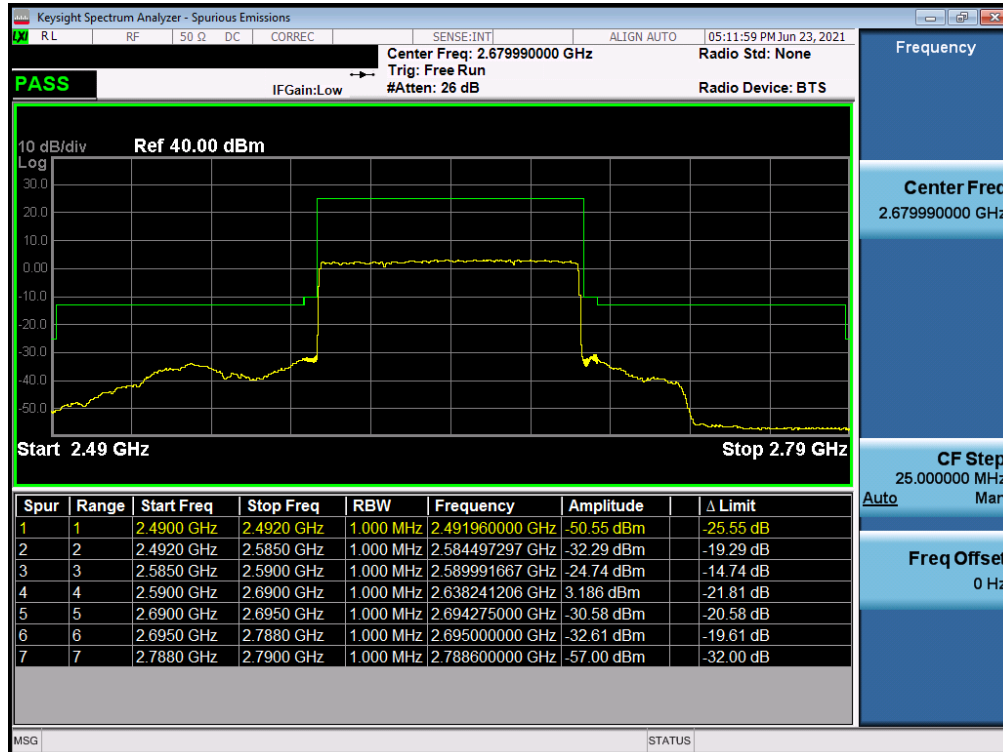
Plot 7-131. Upper Band Edge Plot (LTE Band 38 - 5MHz QPSK – Full RB)

FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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NR Band n41

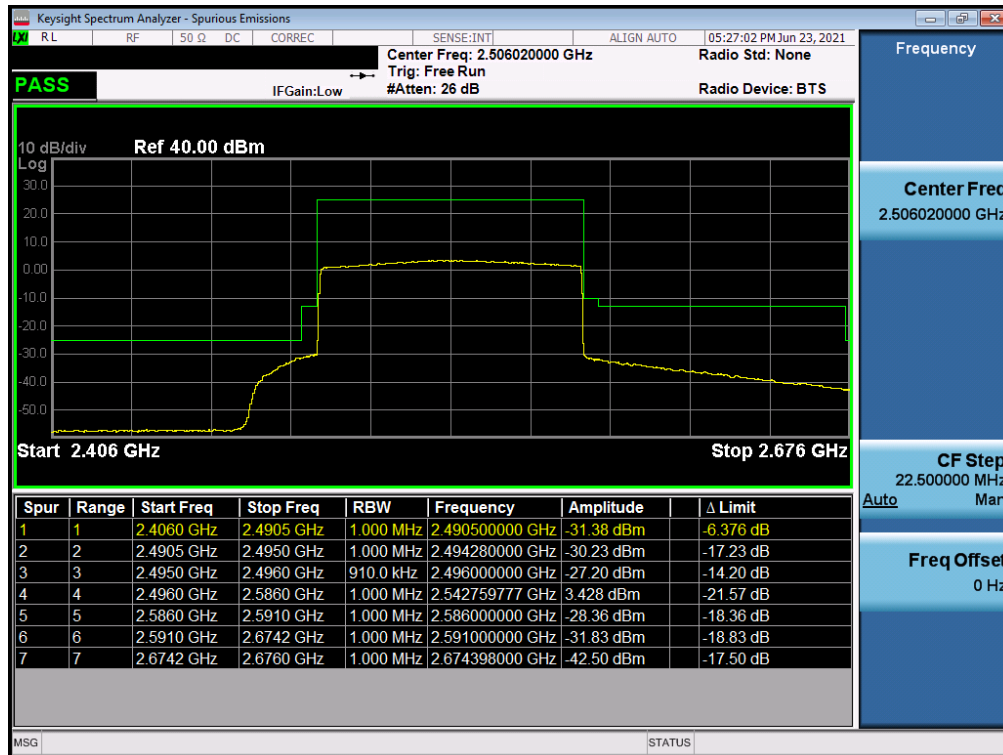


Plot 7-132. Lower ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK – Full RB)

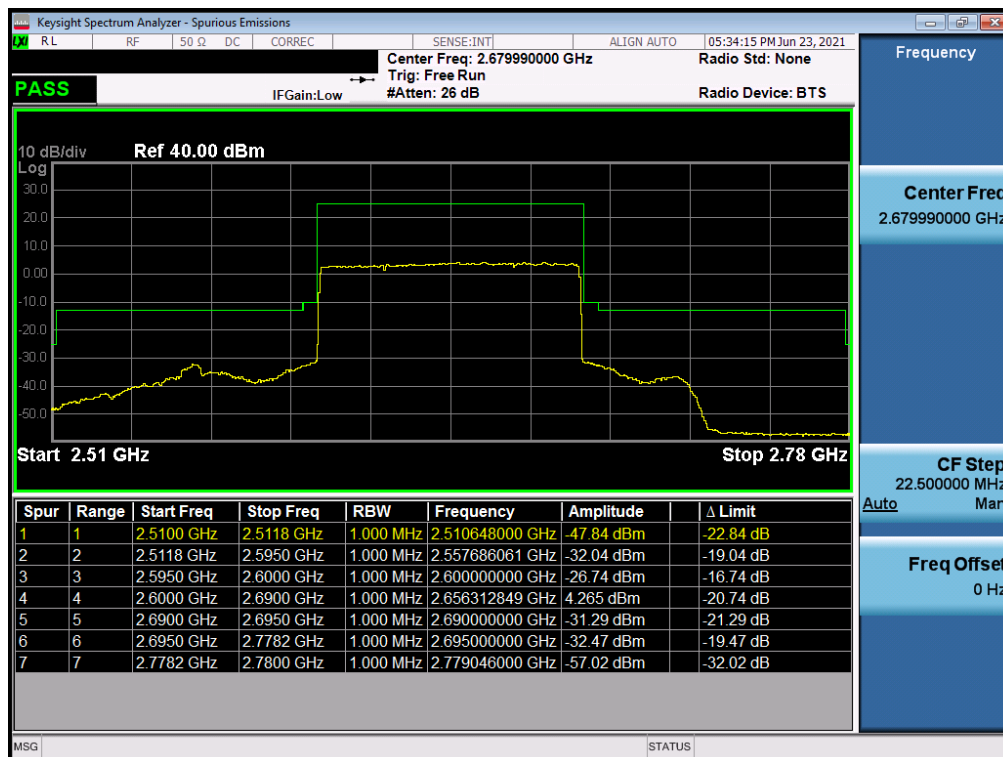


Plot 7-133. Upper ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK – Full RB)



FCC ID: C3K1995	 PCTEST Proud to be part of 	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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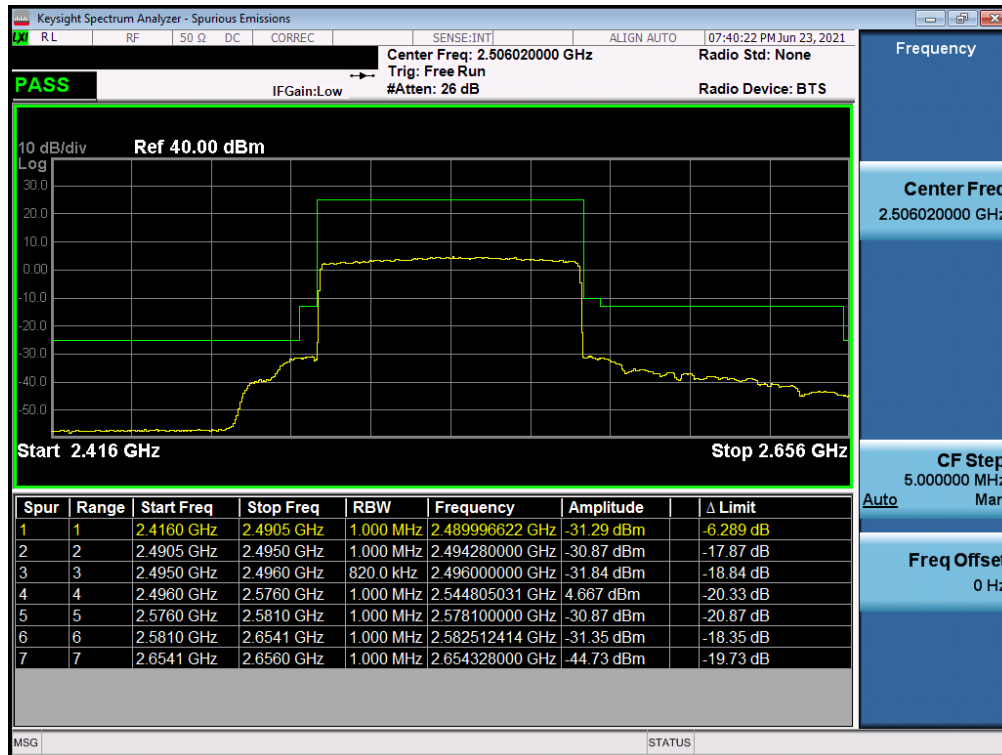


Plot 7-134. Lower ACP Plot (NR Band n41 - 90MHz CP-OFDM-QPSK - Full RB)

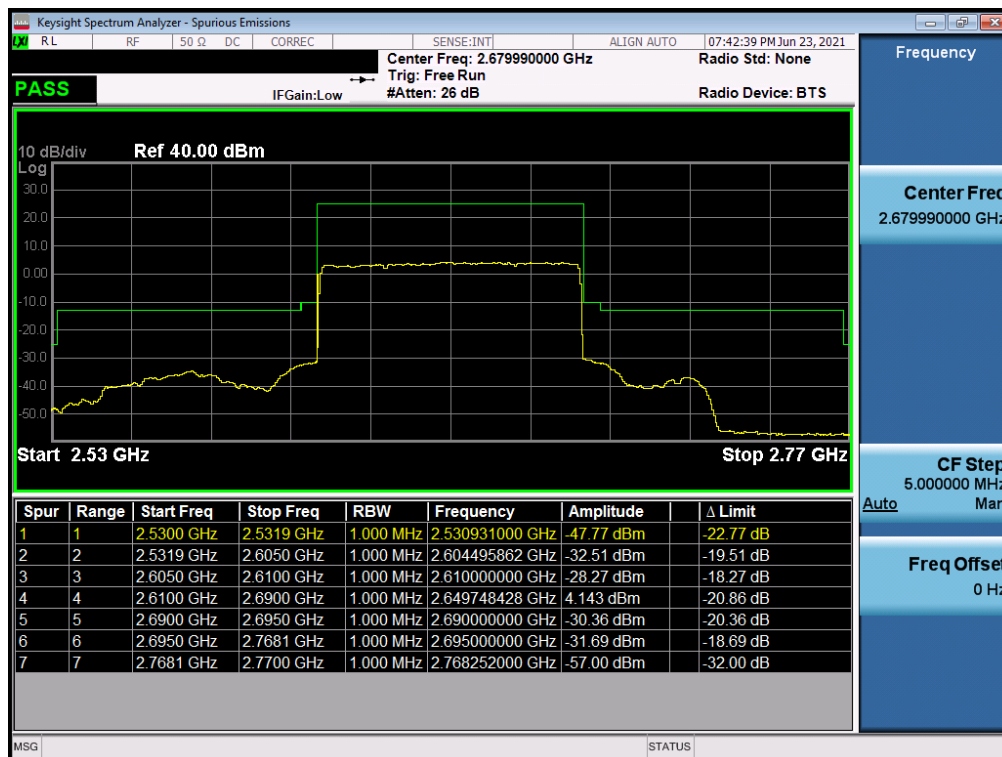


Plot 7-135. Upper ACP Plot (NR Band n41 - 90MHz CP-OFDM-QPSK - Full RB)




FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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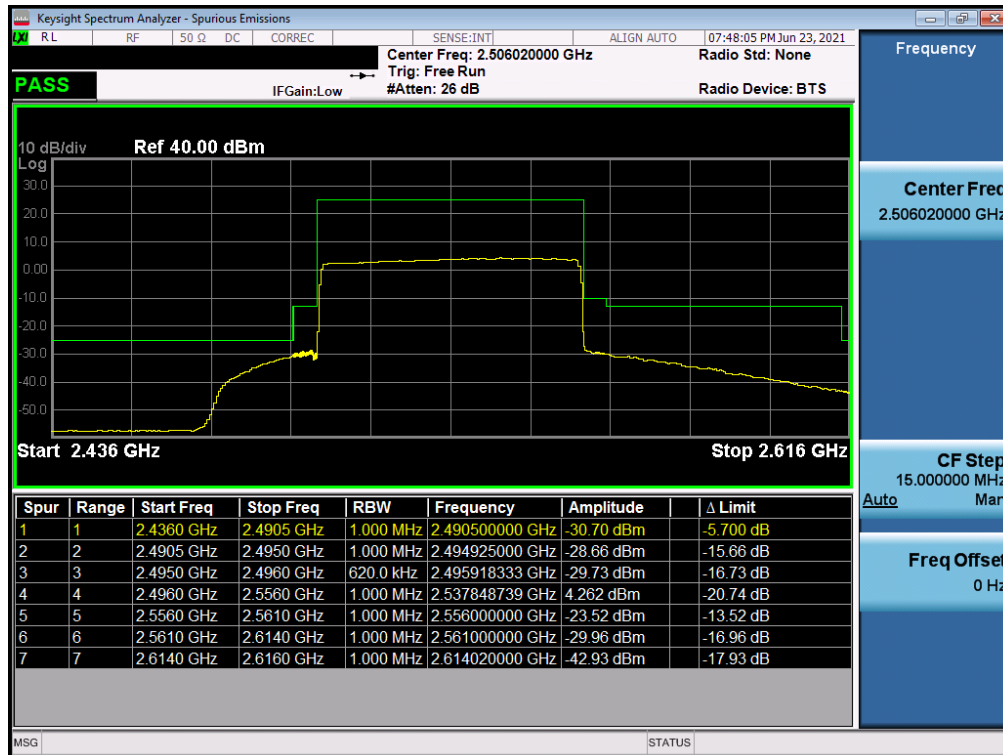


Plot 7-136. Lower ACP Plot (NR Band n41 - 80MHz CP-OFDM-QPSK - Full RB)

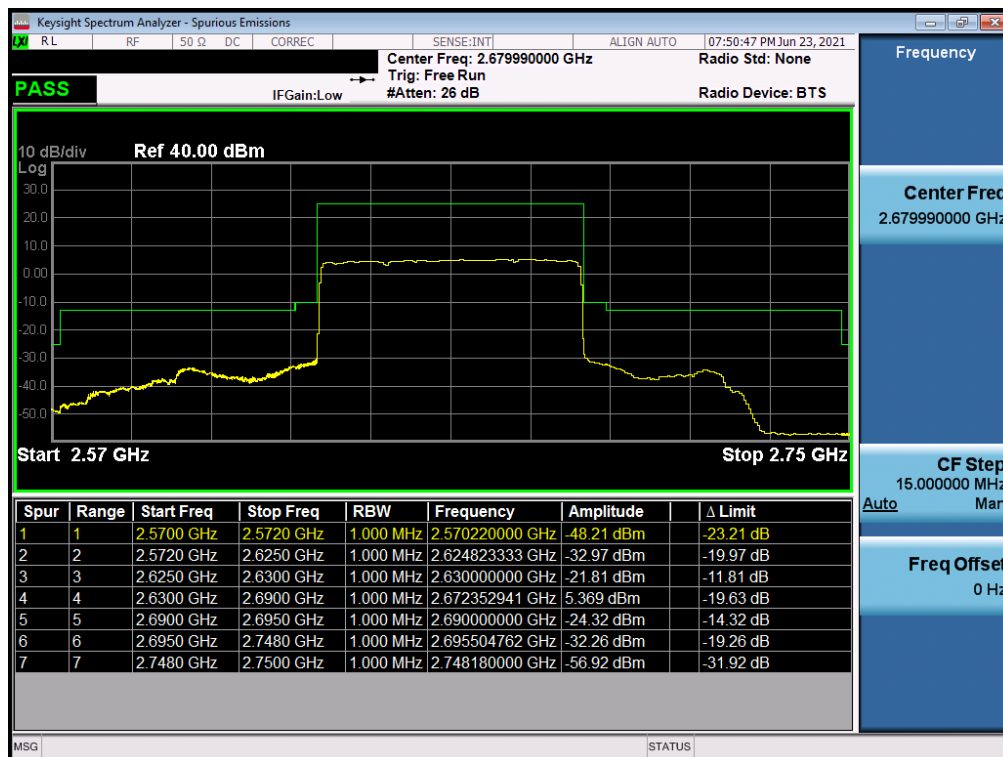


Plot 7-137. Upper ACP Plot (NR Band n41 - 80MHz CP-OFDM-QPSK - Full RB)




FCC ID: C3K1995	 Proud to be part of 	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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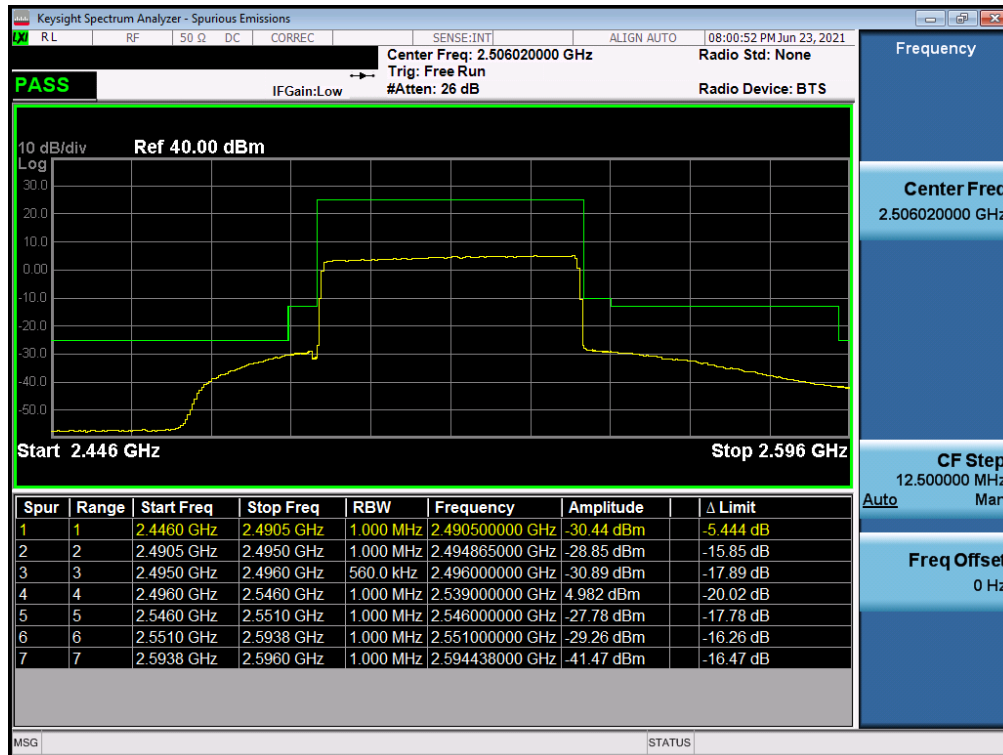


Plot 7-138. Lower ACP Plot (NR Band n41 - 60MHz CP-OFDM-QPSK - Full RB)

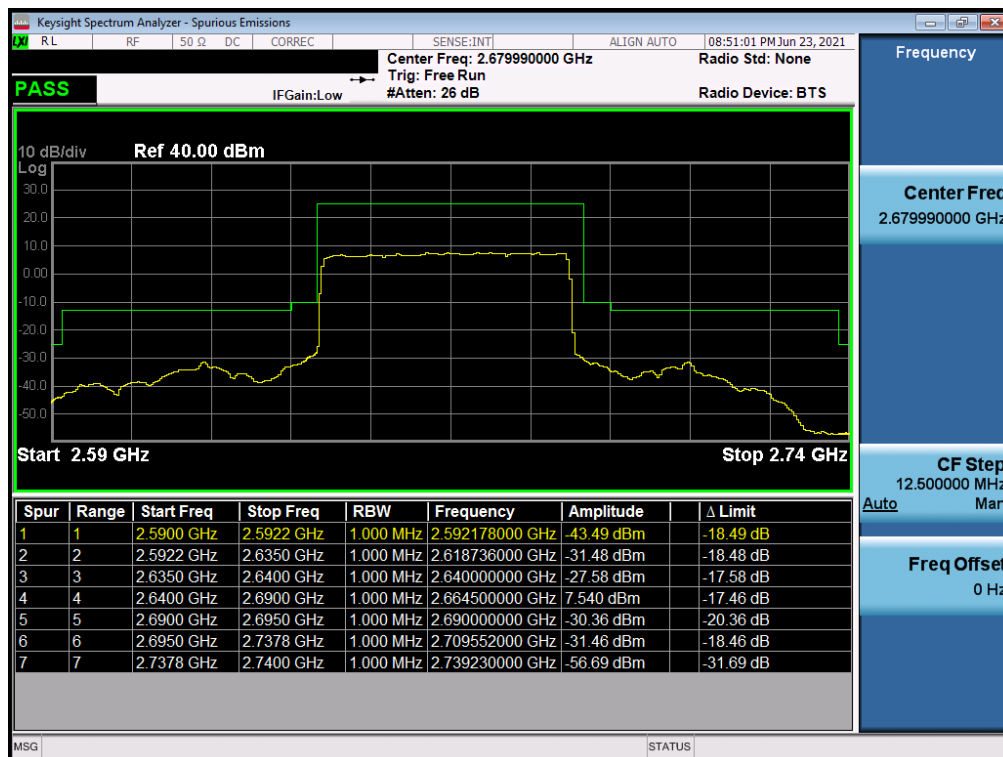


Plot 7-139. Upper ACP Plot (NR Band n41 - 60MHz CP-OFDM-QPSK - Full RB)




FCC ID: C3K1995	 PCTEST Proud to be part of 	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2105200048-05-R1.C3K	Test Dates: 5/25/2021 - 9/2/2021	EUT Type: Portable Handset		Page 91 of 163

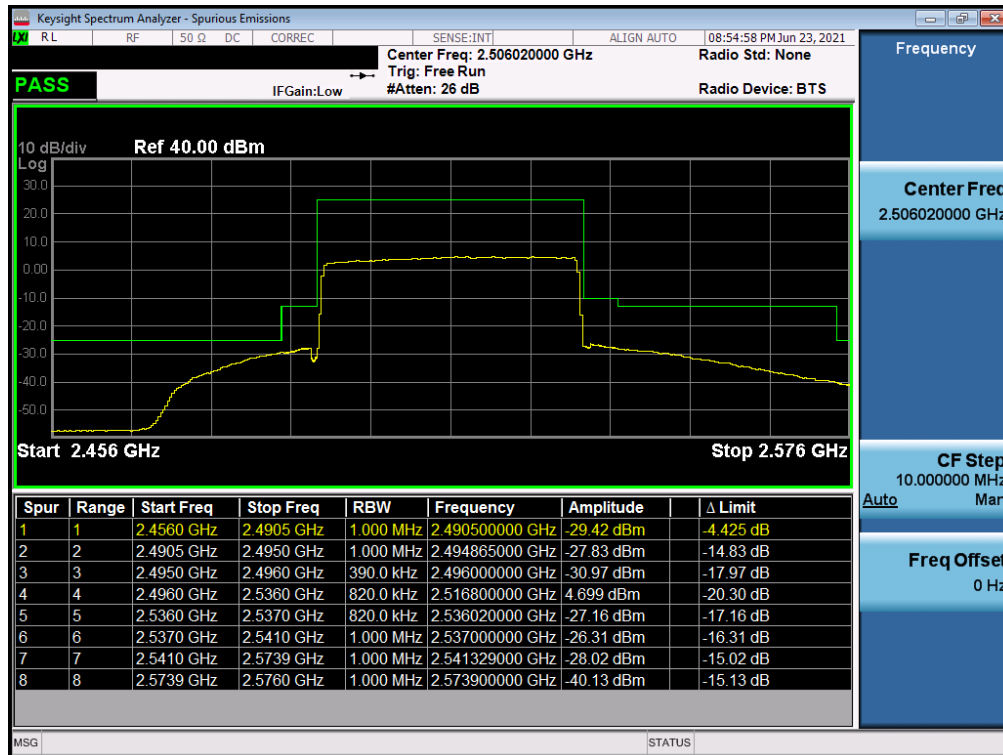


Plot 7-140. Lower ACP Plot (NR Band n41 - 50MHz CP-OFDM-QPSK - Full RB)

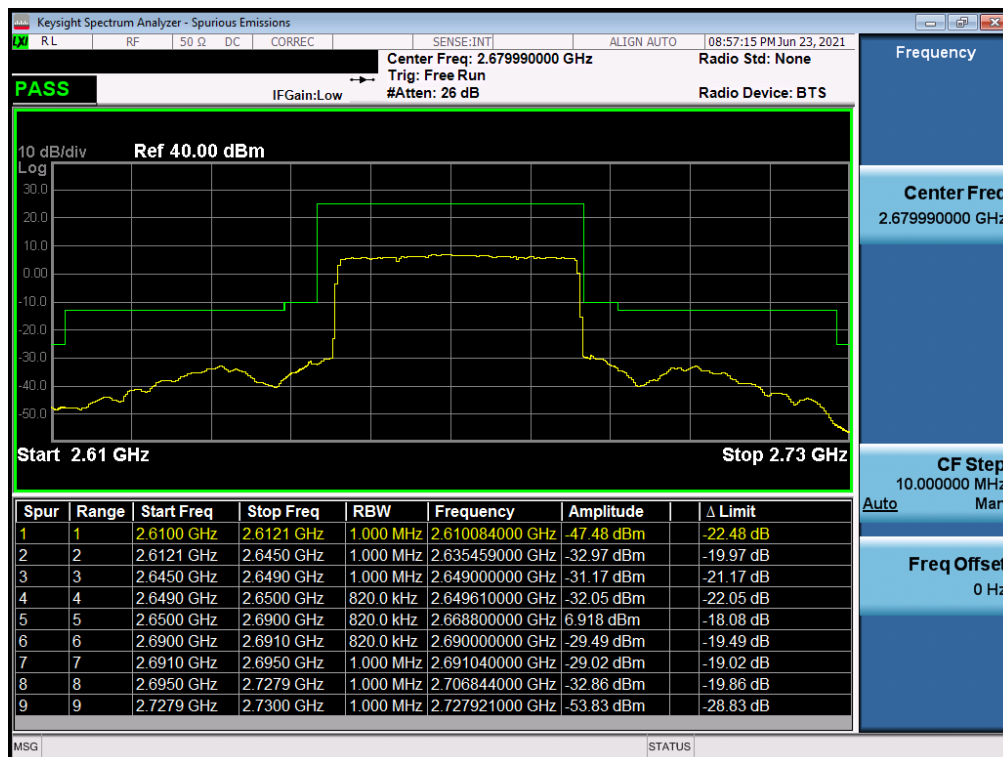


Plot 7-141. Upper ACP Plot (NR Band n41 - 50MHz CP-OFDM-QPSK - Full RB)




FCC ID: C3K1995	 PCTEST Proud to be part of 	PART 27 MEASUREMENT REPORT	 Microsoft	Approved by: Technical Manager
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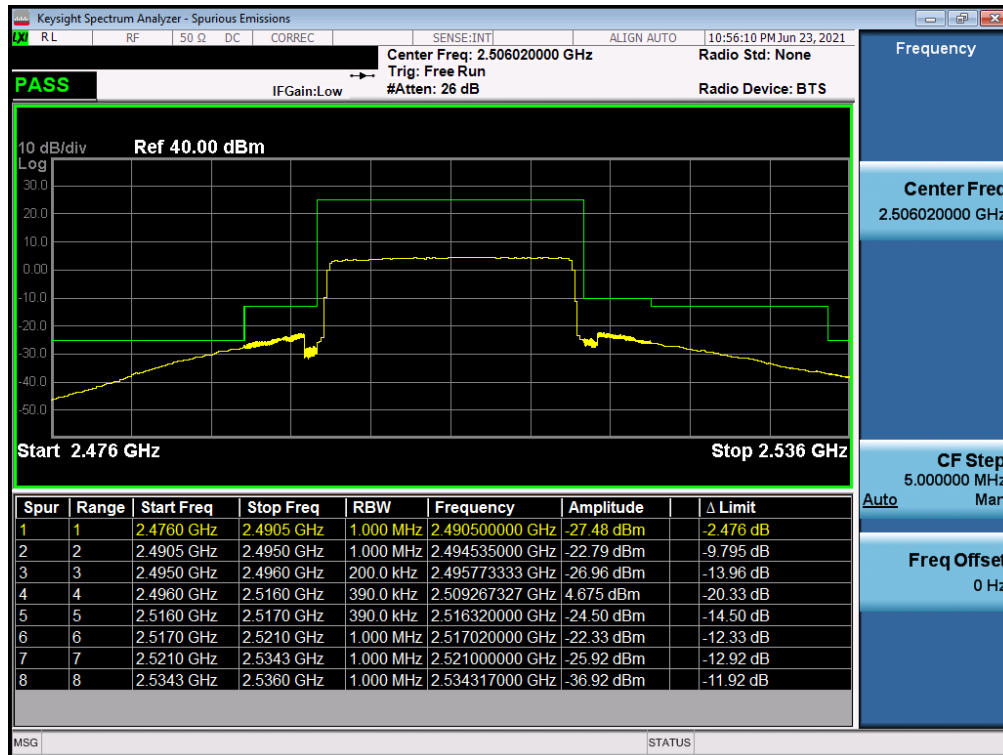


Plot 7-142. Lower ACP Plot (NR Band n41 - 40MHz CP-OFDM-QPSK - Full RB)

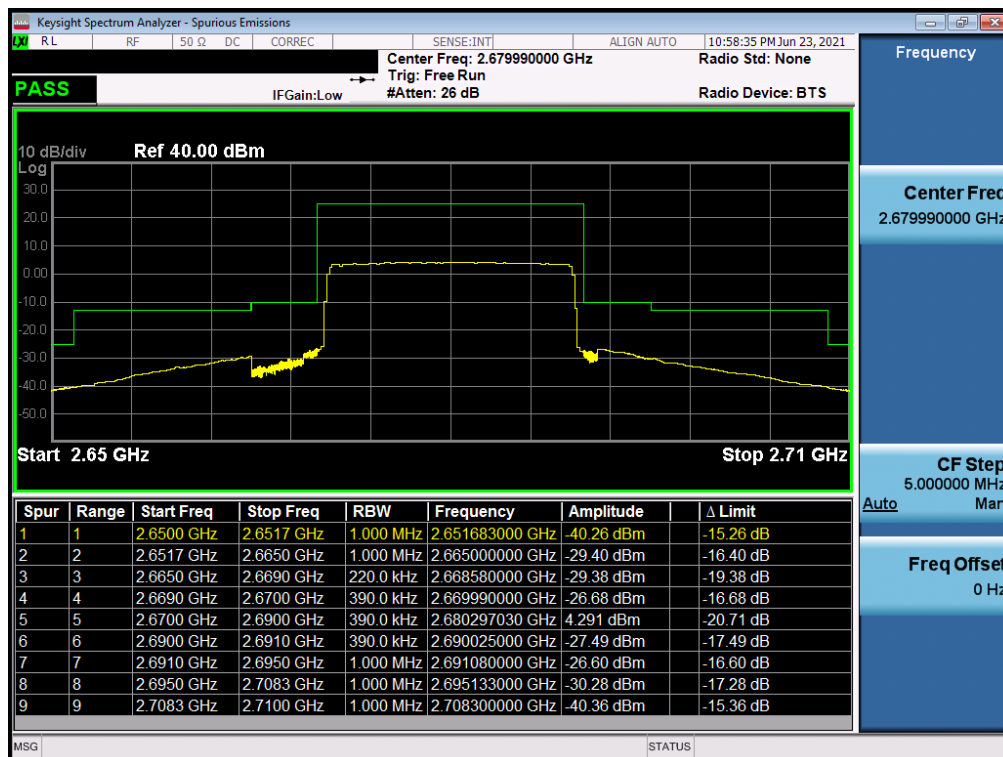


Plot 7-143. Upper ACP Plot (NR Band n41 - 40MHz CP-OFDM-QPSK - Full RB)



FCC ID: C3K1995	 PCTEST Proud to be part of 	PART 27 MEASUREMENT REPORT	 Microsoft	Approved by: Technical Manager
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Plot 7-144. Lower ACP Plot (NR Band n41 - 20MHz CP-OFDM-QPSK - Full RB)



Plot 7-145. Upper ACP Plot (NR Band n41 - 20MHz CP-OFDM-QPSK - Full RB)

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7.6 Uplink Carrier Aggregation

\$27.53(m)

Test Overview

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

For Band 41/38 the minimum permissible attenuation level of any spurious emission is $55 + 10 \log_{10}(P_{[Watts]})$.

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

Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

Test Settings

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

Test Setup

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

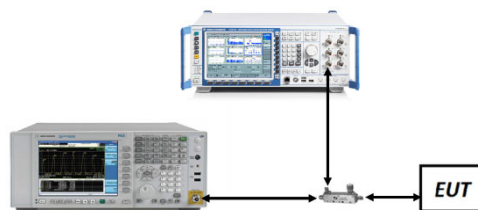


Figure 7-5. Test Instrument & Measurement Setup

Test Notes

1. Conducted power and 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. The worst case (highest) powers were found while operating with QPSK modulation with both carriers set to transmit using 1RB.
2. Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

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Uplink CA Configuration 7C

Power State	Band	Bandwidth (PCC + SCC)	PCC					SCC					ULCA Tx. Power [dBm]
			Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	
Max	LTE B7	20MHz + 20MHz	QPSK	20850	2510.0	1	99	QPSK	21048	2529.8	1	0	24.70
				21000	2535.0	1	99		21198	2554.8	1	0	24.93
				21350	2560.0	1	0		21152	2540.2	1	99	24.45
			QPSK	21000	2525	100	0	QPSK	21198	2544.8	100	0	23.02
			16-QAM	21000	2525	100	0	16-QAM	21198	2544.8	100	0	22.08
			64-QAM	21000	2525	100	0	64-QAM	21198	2544.8	100	0	20.24

Table 7-5. Conducted Power Data (ULCA LTE B7 - North)

Power State	Band	Bandwidth (PCC + SCC)	PCC					SCC					ULCA Tx. Power [dBm]
			Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	
Max	LTE B7	20MHz + 20MHz	QPSK	20850	2510.0	1	99	QPSK	21048	2529.8	1	0	24.02
				21000	2535.0	1	99		21198	2554.8	1	0	24.78
				21350	2560.0	1	0		21152	2540.2	1	99	24.04
			QPSK	21000	2525	100	0	QPSK	21198	2544.8	100	0	22.55
			16-QAM	21000	2525	100	0	16-QAM	21198	2544.8	100	0	21.66
			64-QAM	21000	2525	100	0	64-QAM	21198	2544.8	100	0	19.83

Table 7-6. Conducted Power Data (ULCA LTE B7 - South)



Uplink CA Configuration 41C

Power State	Band	Bandwidth (PCC + SCC)	PCC				SCC					ULCA Tx. Power [dBm]	
			Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	Modulation	UL Channel	UL Frequency	UL # RB		UL RB Offset
Max	LTE B41 (PC2)	20MHz + 20MHz	QPSK	39750	2506.0	1	99	QPSK	39948	2525.8	1	0	24.16
				40620	2593.0	1	99		40818	2612.8	1	0	24.75
				41490	2680.0	1	0		41292	2660.2	1	99	24.57
			QPSK	40620	2593	100	0	QPSK	40818	2612.8	100	0	24.15
			16-QAM	40620	2593	100	0	16-QAM	40818	2612.8	100	0	23.65
			64-QAM	40620	2593	100	0	64-QAM	40818	2612.8	100	0	23.87

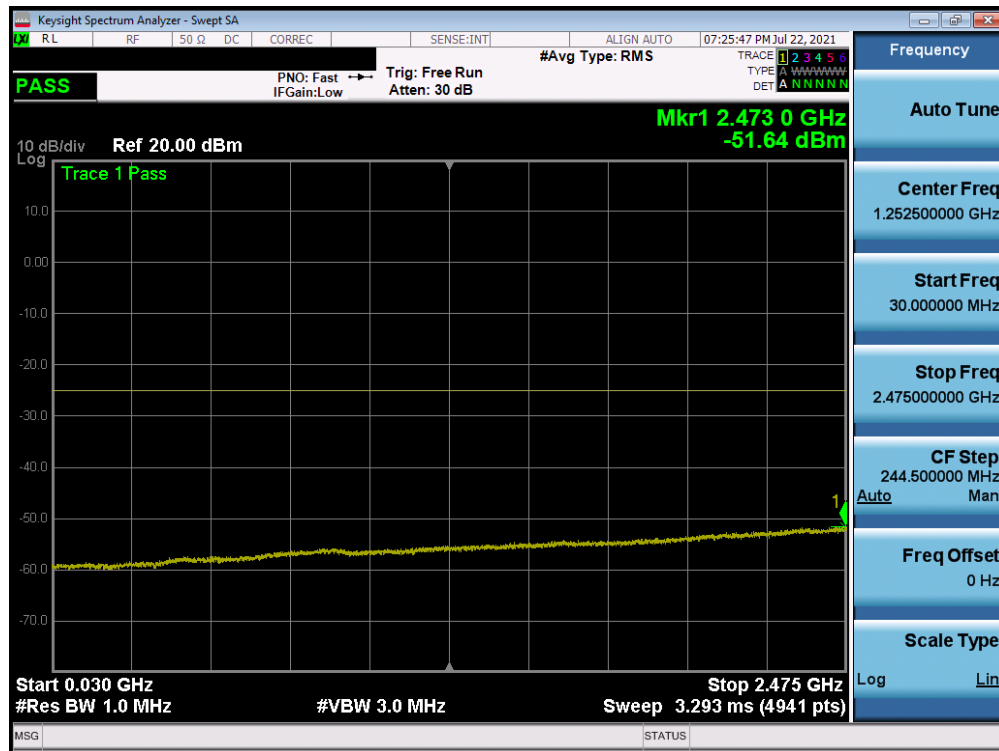
Table 7-7. Conducted Power Data (ULCA LTE B41(PC2) - North)

Power State	Band	Bandwidth (PCC + SCC)	PCC					SCC					ULCA Tx. Power [dBm]
			Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	
Max	LTE B41 (PC2)	20MHz + 20MHz	QPSK	39750	2506.0	1	99	QPSK	39948	2525.8	1	0	25.18
				40620	2593.0	1	99		40818	2612.8	1	0	25.15
				41490	2680.0	1	0		41292	2660.2	1	99	24.92
			QPSK	39750	2506	100	0	QPSK	39948	2525.8	100	0	24.32
			16-QAM	39750	2506	100	0	16-QAM	39948	2525.8	100	0	23.18
			64-QAM	39750	2506	100	0	64-QAM	39948	2525.8	100	0	23.55

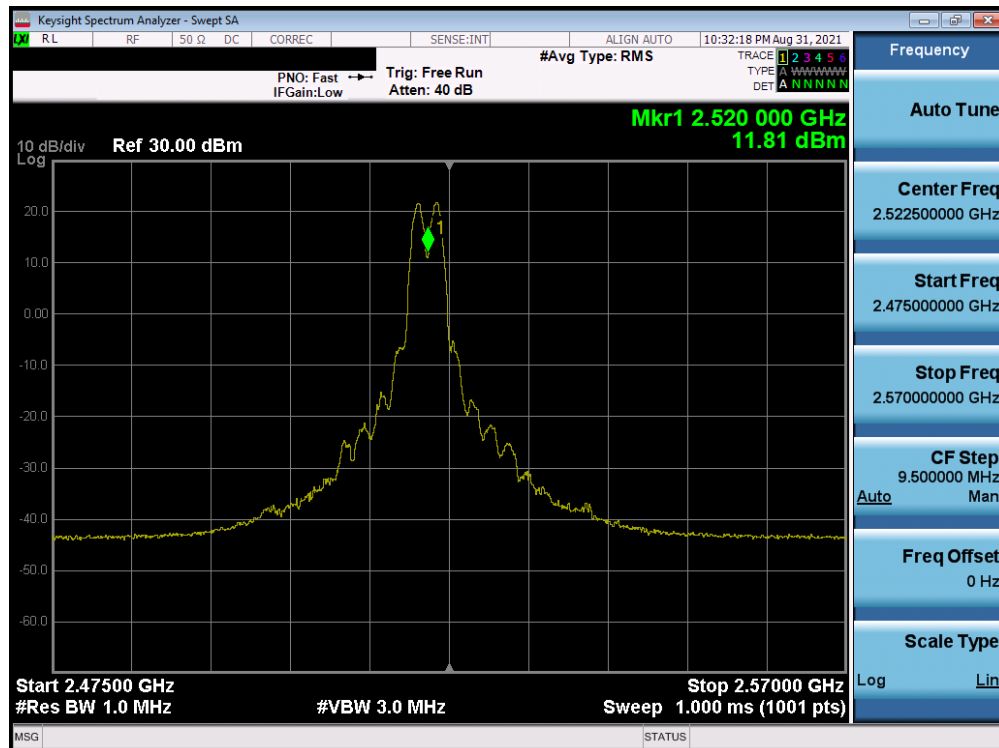
Table 7-8. Conducted Power Data (ULCA LTE B41(PC2) - South)

FCC ID: C3K1995	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	 Microsoft	Approved by: Technical Manager
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ULCA - LTE B7

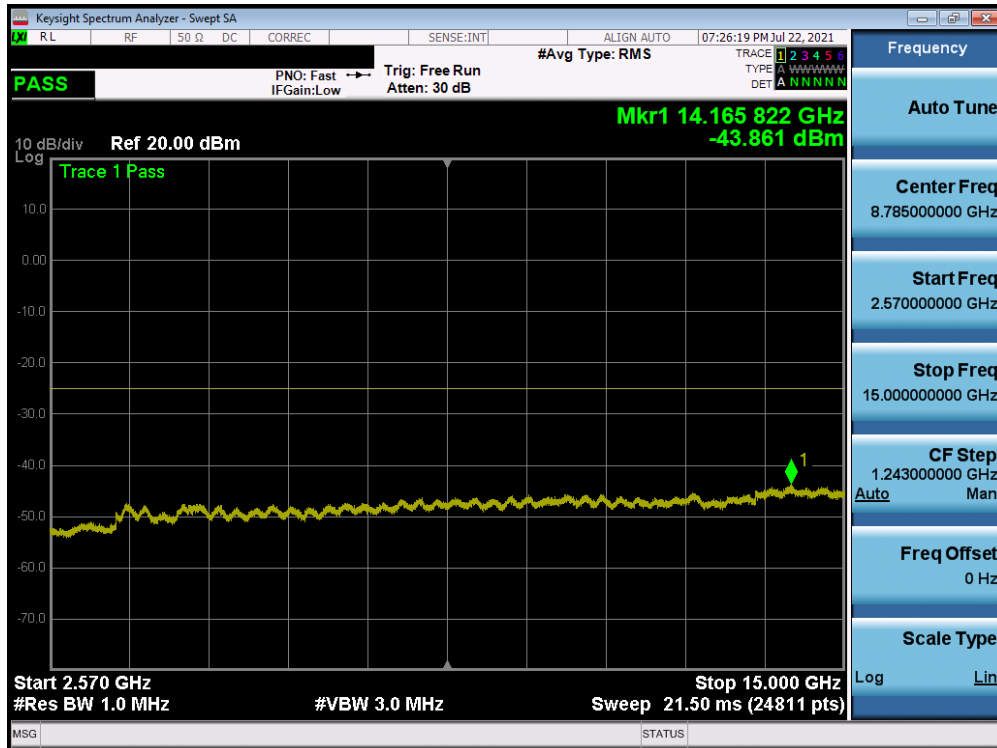


Plot 7-146. Conducted Spurious Plot (ULCA LTE B7- 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

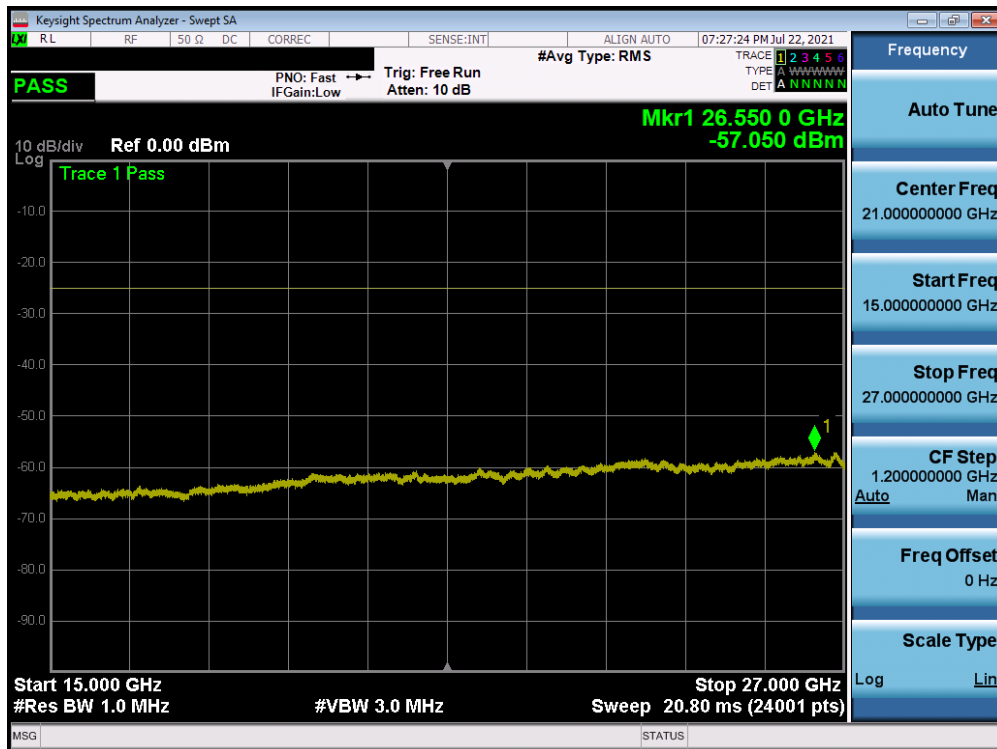


Plot 7-147. Conducted Spurious Plot (ULCA LTE B7- 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)




FCC ID: C3K1995	 PCTEST Proud to be part of 	PART 27 MEASUREMENT REPORT	 Microsoft	Approved by: Technical Manager
Test Report S/N: 1M2105200048-05-R1.C3K	Test Dates: 5/25/2021 - 9/2/2021	EUT Type: Portable Handset		Page 97 of 163

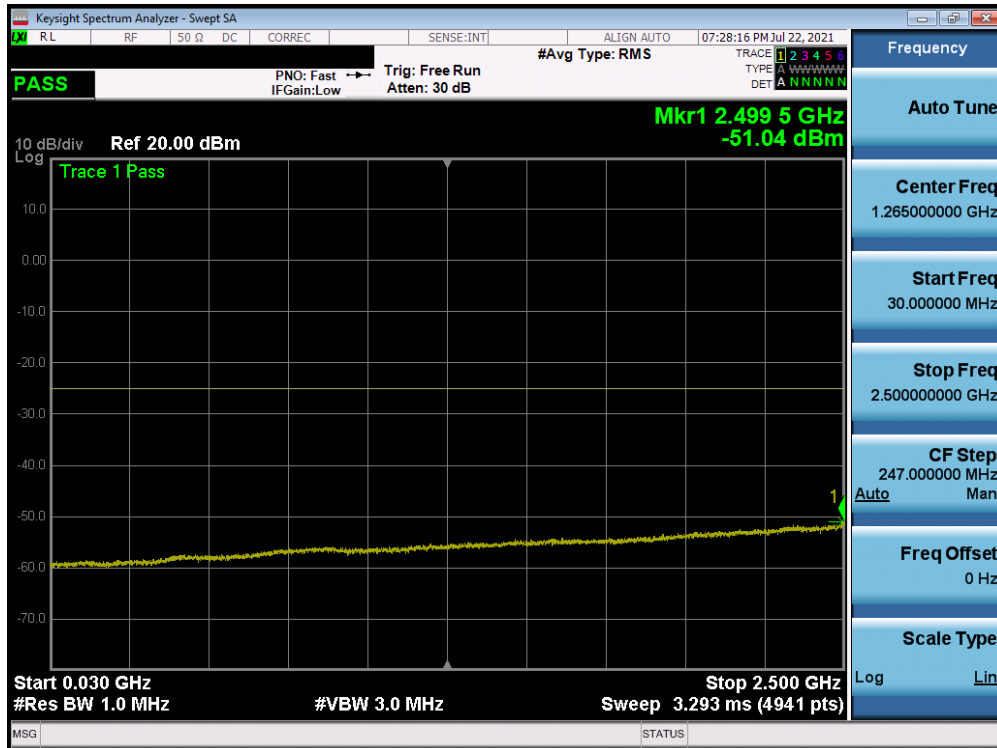


Plot 7-148. Conducted Spurious Plot (ULCA LTE B7- 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

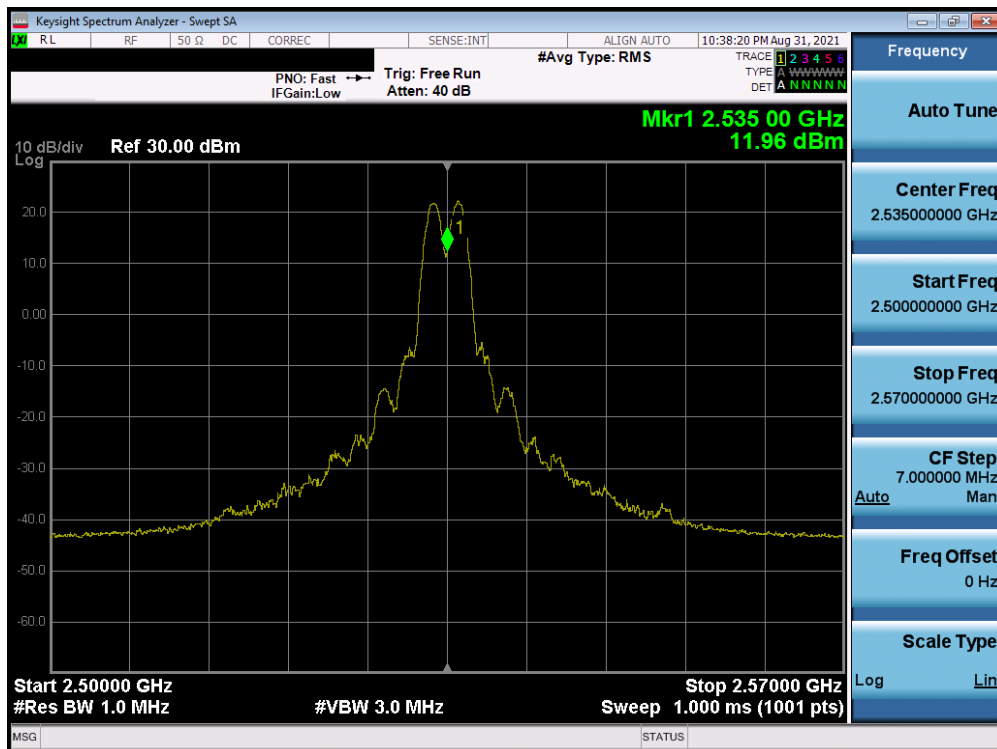


Plot 7-149. Conducted Spurious Plot (ULCA LTE B7- 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)




FCC ID: C3K1995	 PCTEST Proud to be part of 	PART 27 MEASUREMENT REPORT	 Microsoft	Approved by: Technical Manager
Test Report S/N: 1M2105200048-05-R1.C3K	Test Dates: 5/25/2021 - 9/2/2021	EUT Type: Portable Handset		Page 98 of 163

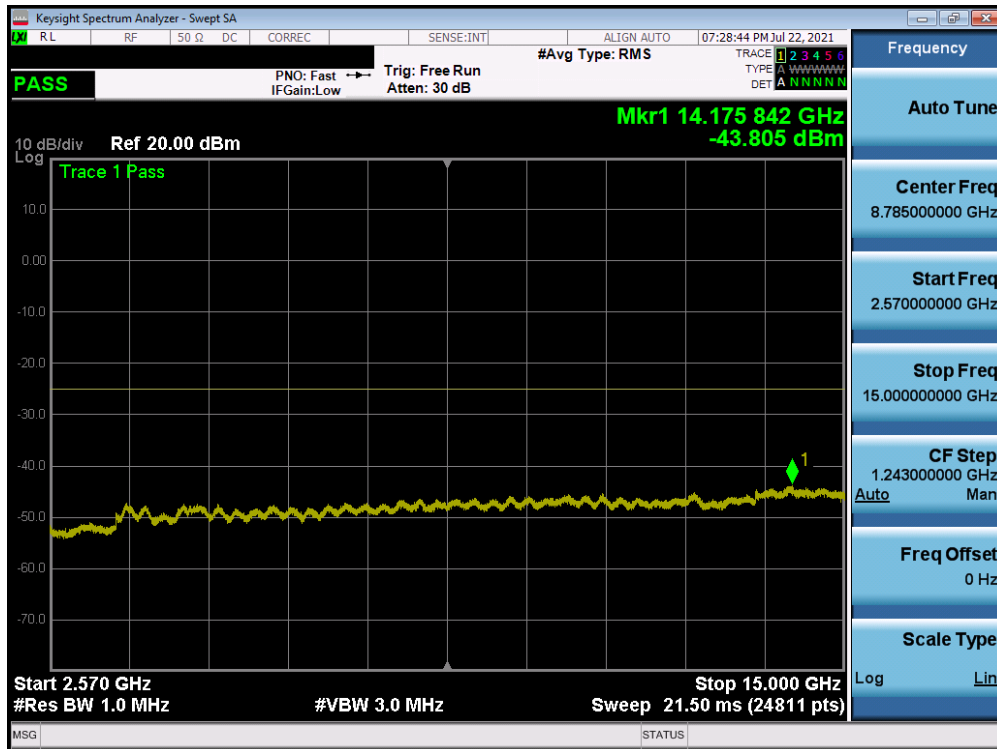


Plot 7-150. Conducted Spurious Plot (ULCA LTE B7 - 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

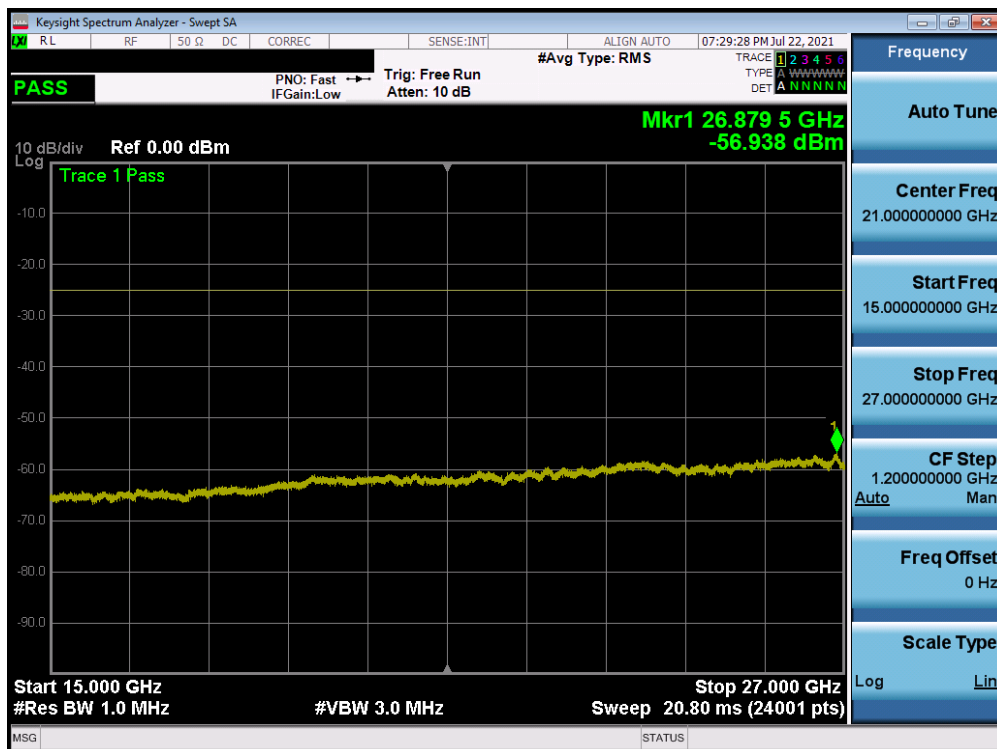


Plot 7-151. Conducted Spurious Plot (ULCA LTE B7- 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)




FCC ID: C3K1995	 PCTEST Proud to be part of 	PART 27 MEASUREMENT REPORT	 Microsoft	Approved by: Technical Manager
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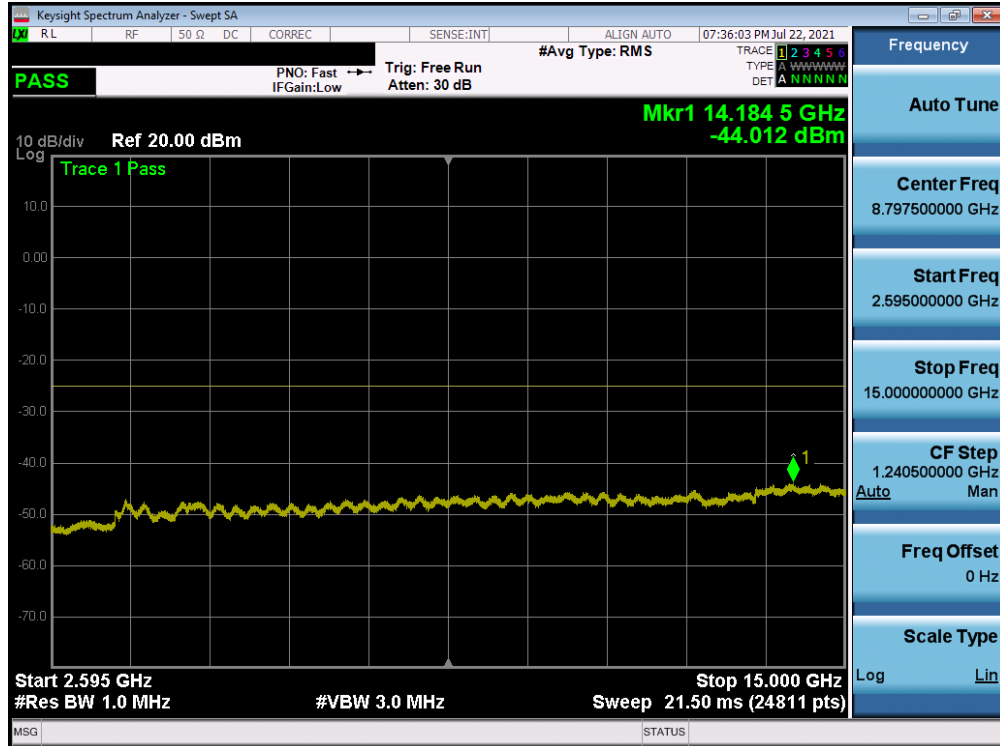


Plot 7-152. Conducted Spurious Plot (ULCA LTE B7- 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

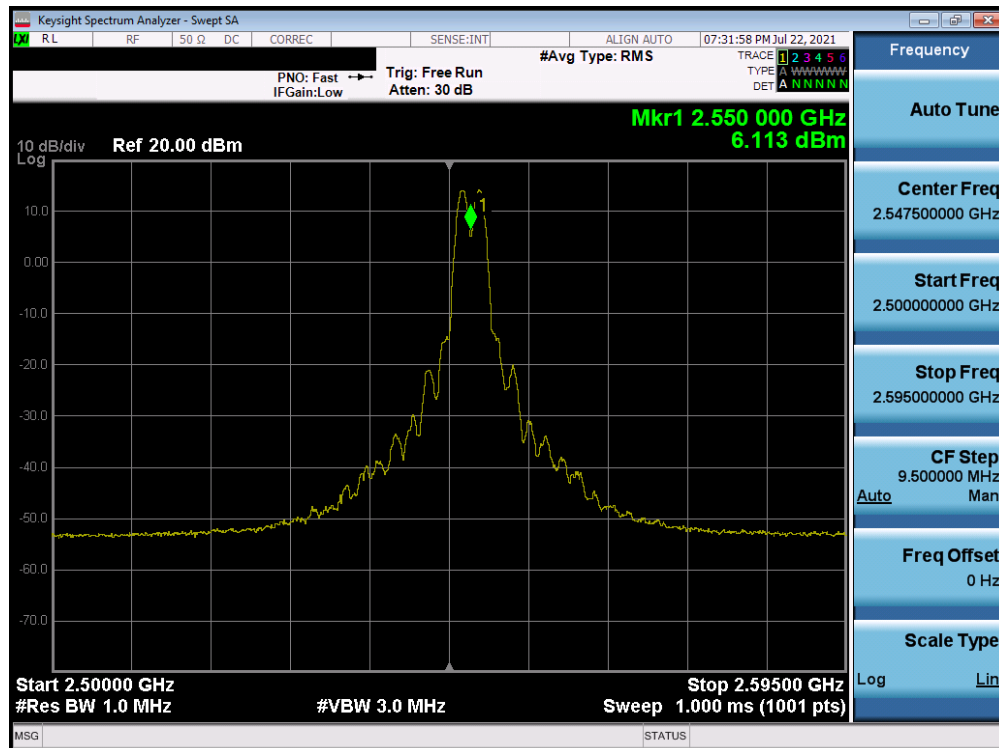


Plot 7-153. Conducted Spurious Plot (ULCA LTE B7- 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)




FCC ID: C3K1995	 PCTEST Proud to be part of 	PART 27 MEASUREMENT REPORT	 Microsoft	Approved by: Technical Manager
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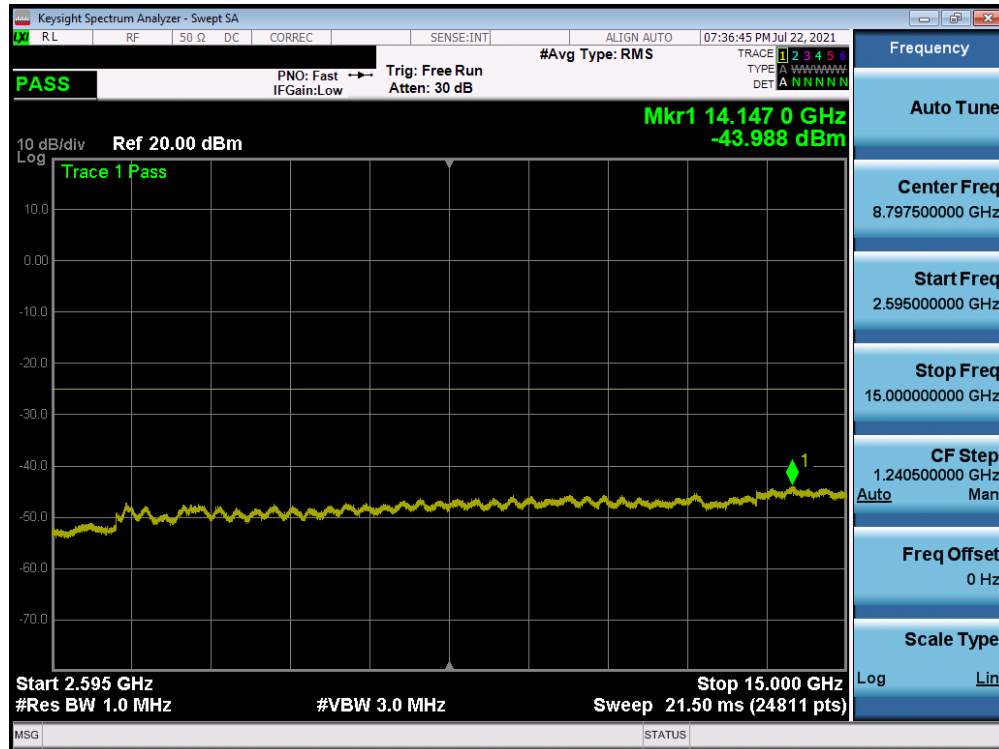


Plot 7-154. Conducted Spurious Plot (ULCA LTE B7- 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

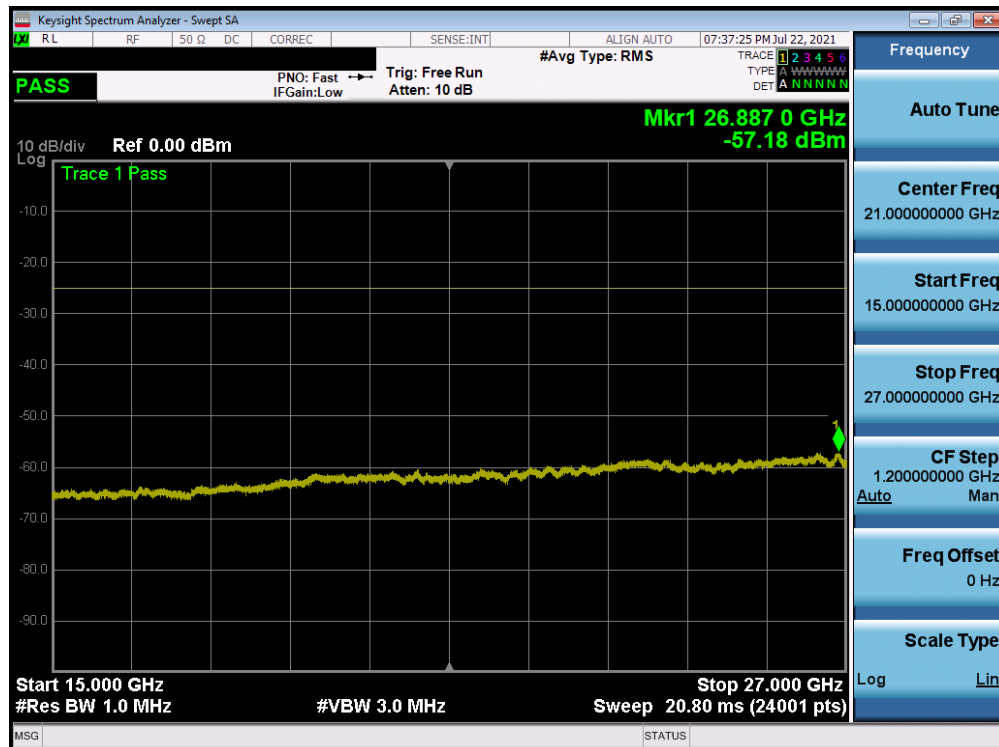


Plot 7-155. Conducted Spurious Plot (ULCA LTE B7- 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



FCC ID: C3K1995	 PCTEST Proud to be part of 	PART 27 MEASUREMENT REPORT	 Microsoft	Approved by: Technical Manager
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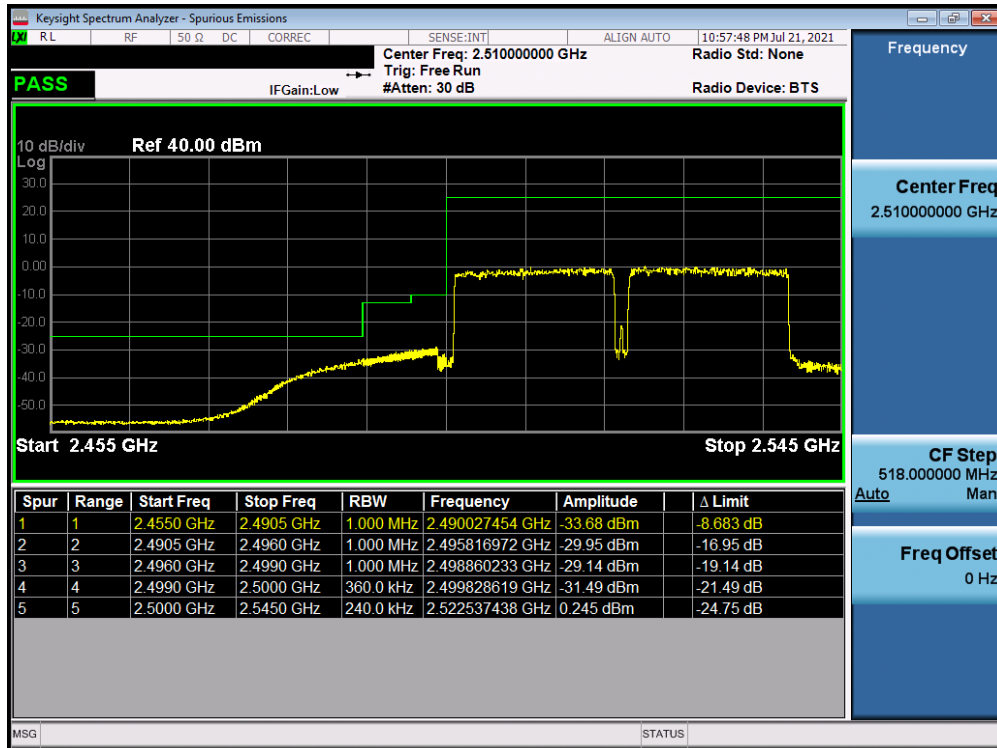


Plot 7-156. Conducted Spurious Plot (ULCA LTE B7- 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

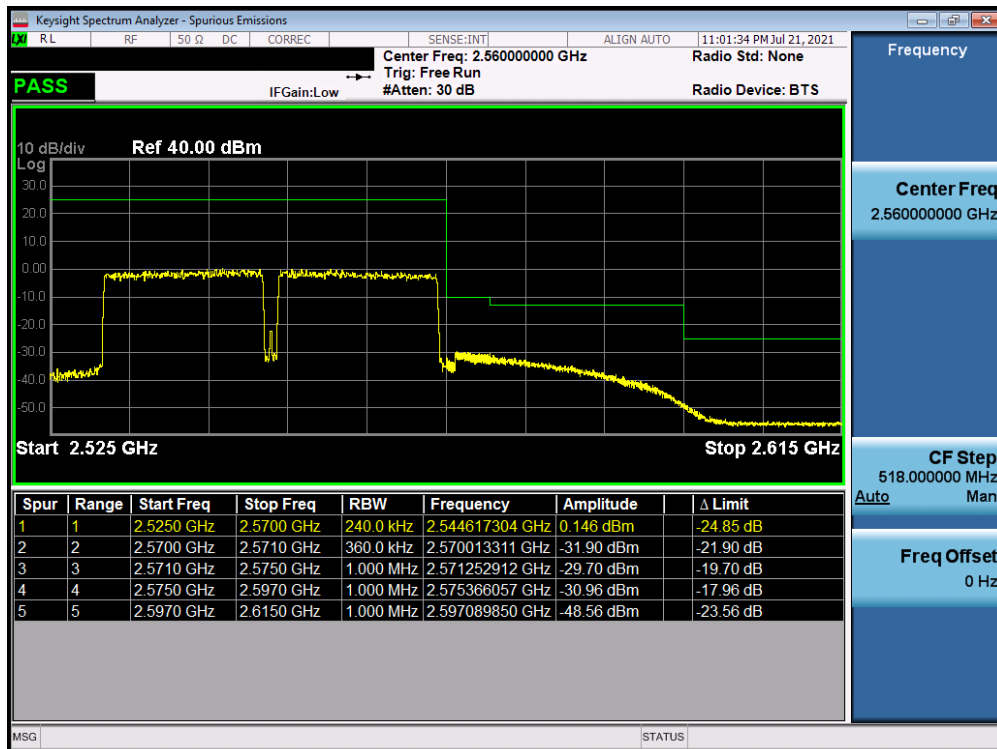


Plot 7-157. Conducted Spurious Plot (ULCA LTE B7- 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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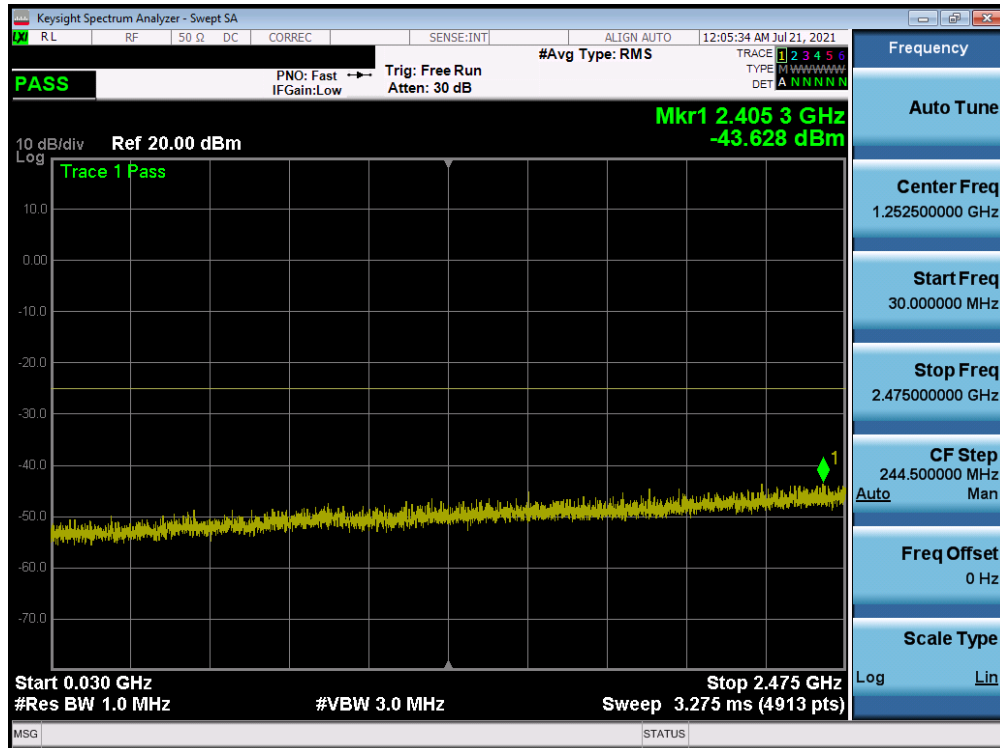
Plot 7-158. Lower ACP Plot (ULCA LTE B7- 20MHz QPSK – Full RB)



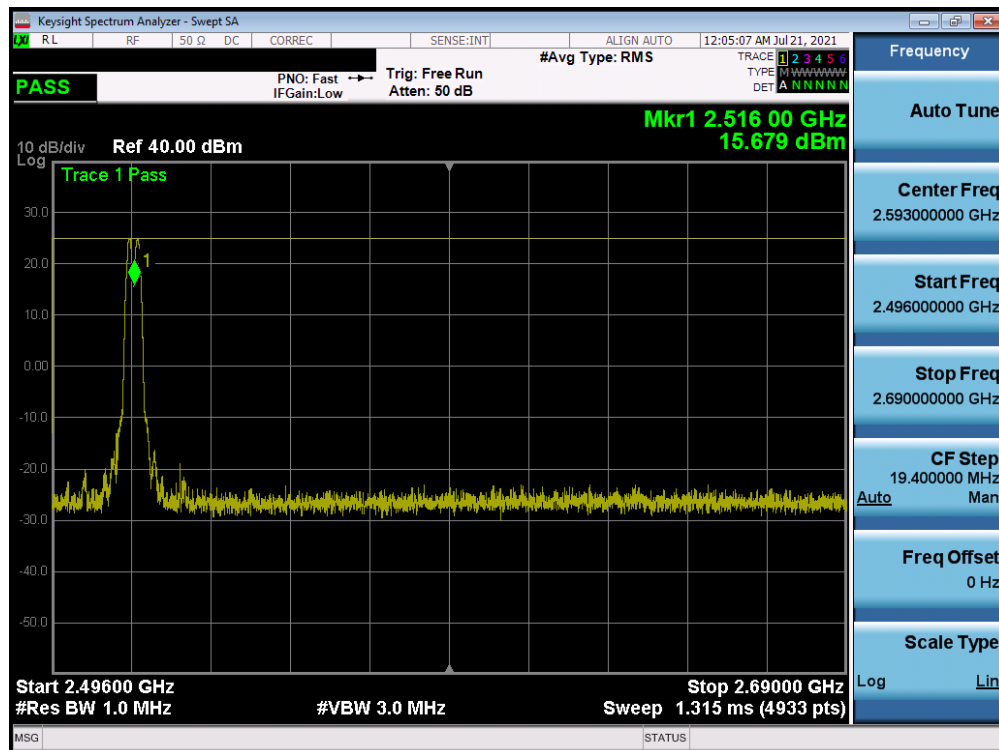
Plot 7-159. Upper ACP Plot (ULCA LTE B7- 20MHz QPSK – Full RB)

FCC ID: C3K1995		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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ULCA - LTE Band 41(PC2)

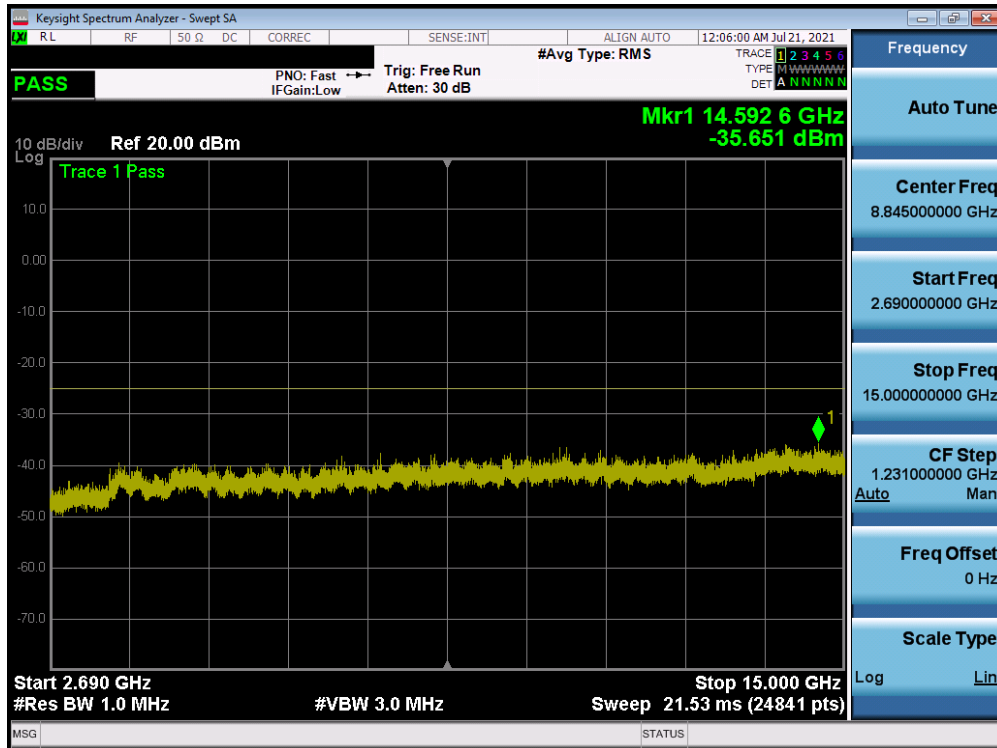


Plot 7-160. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

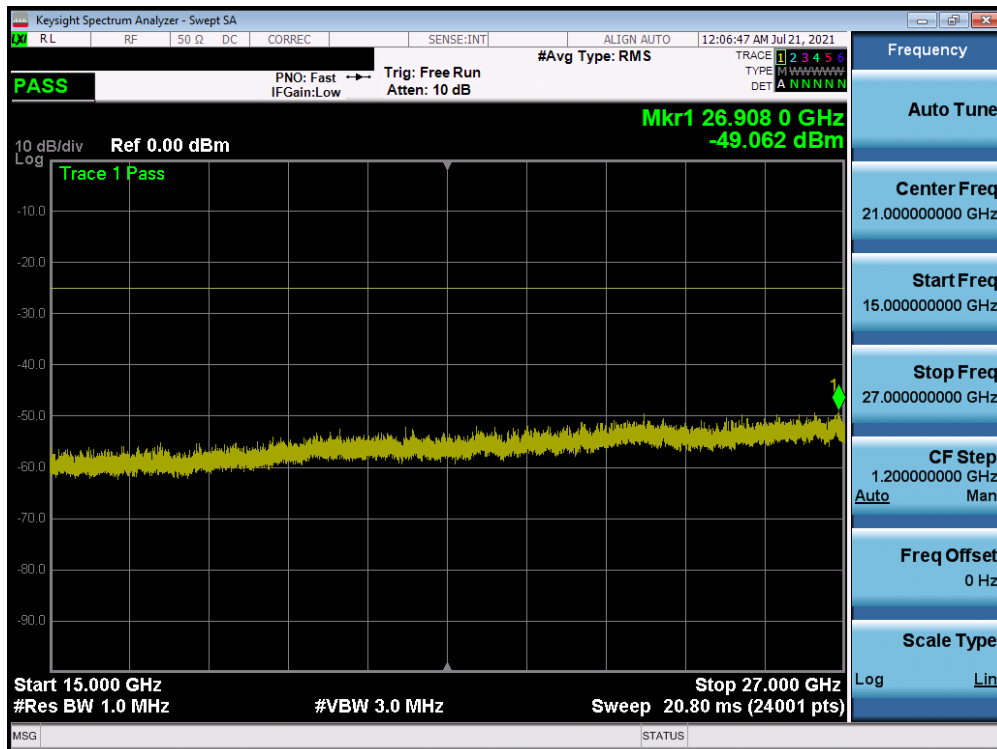


Plot 7-161. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)




FCC ID: C3K1995	 PCTEST Proud to be part of 	PART 27 MEASUREMENT REPORT	 Microsoft	Approved by: Technical Manager
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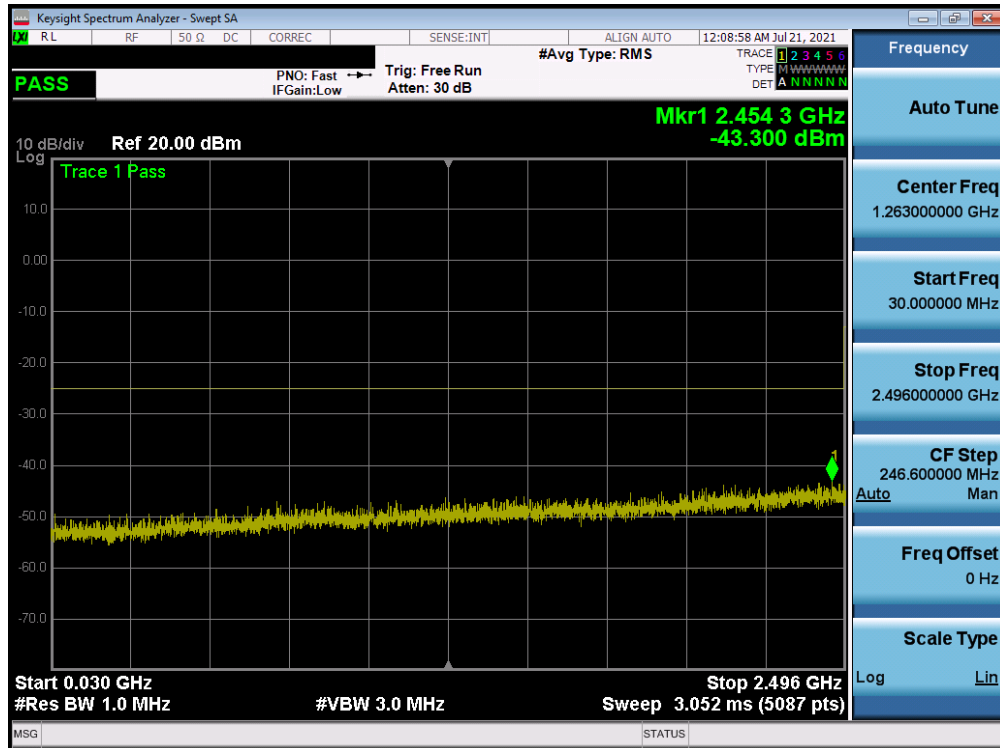


Plot 7-162. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

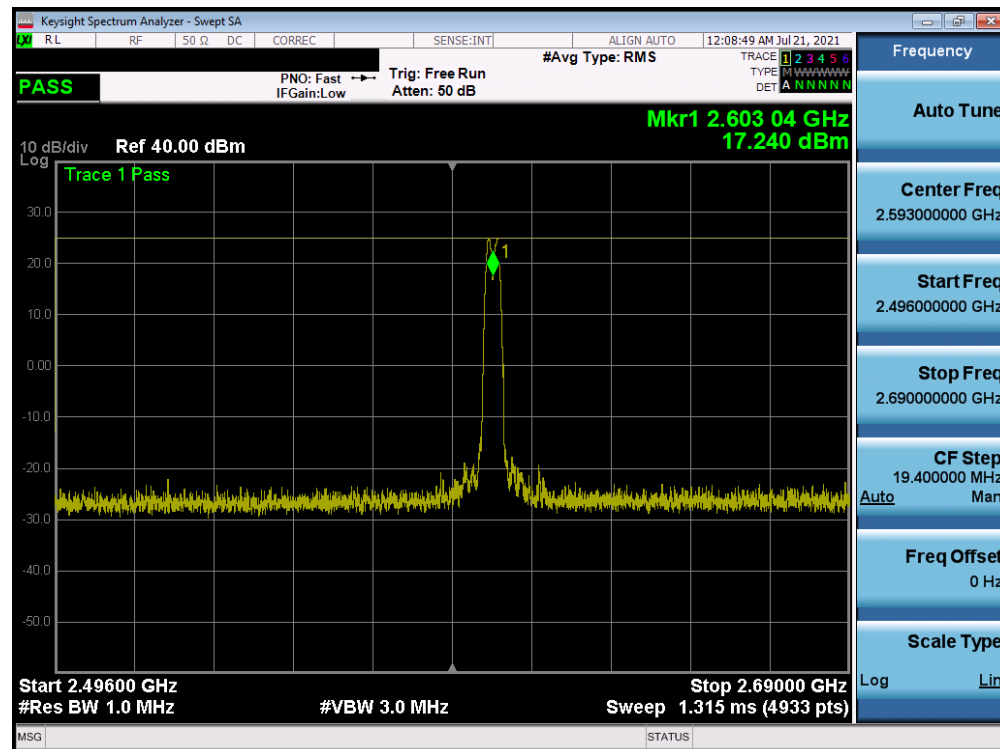


Plot 7-163. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)




FCC ID: C3K1995	 PCTEST Proud to be part of 	PART 27 MEASUREMENT REPORT	 Microsoft	Approved by: Technical Manager
Test Report S/N: 1M2105200048-05-R1.C3K	Test Dates: 5/25/2021 - 9/2/2021	EUT Type: Portable Handset		Page 105 of 163

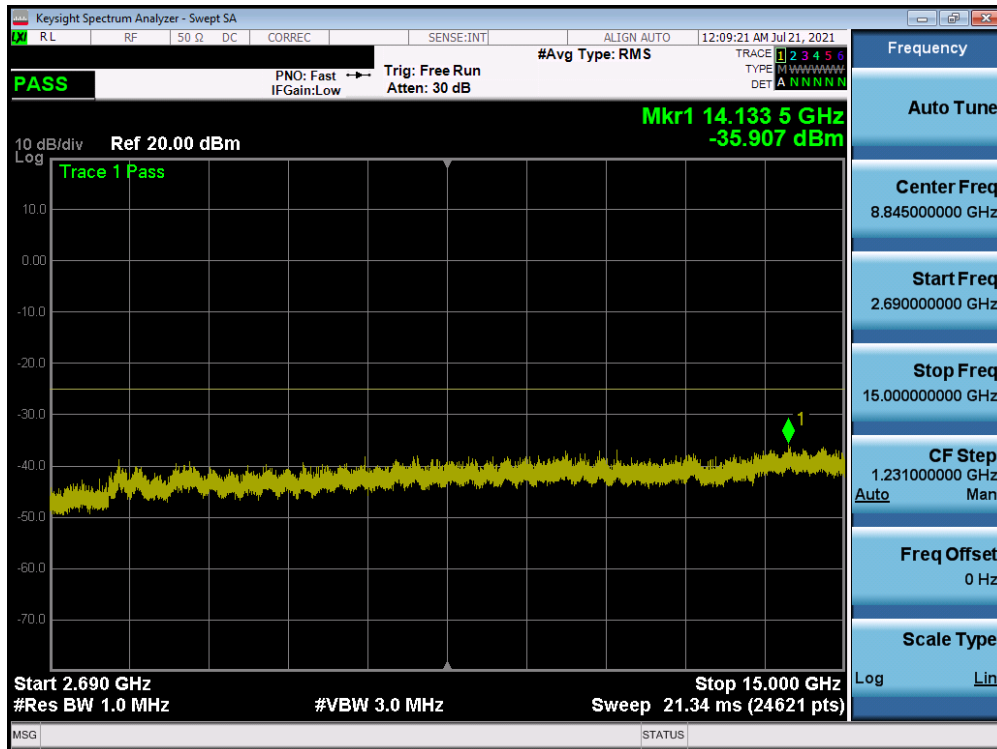


Plot 7-164. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

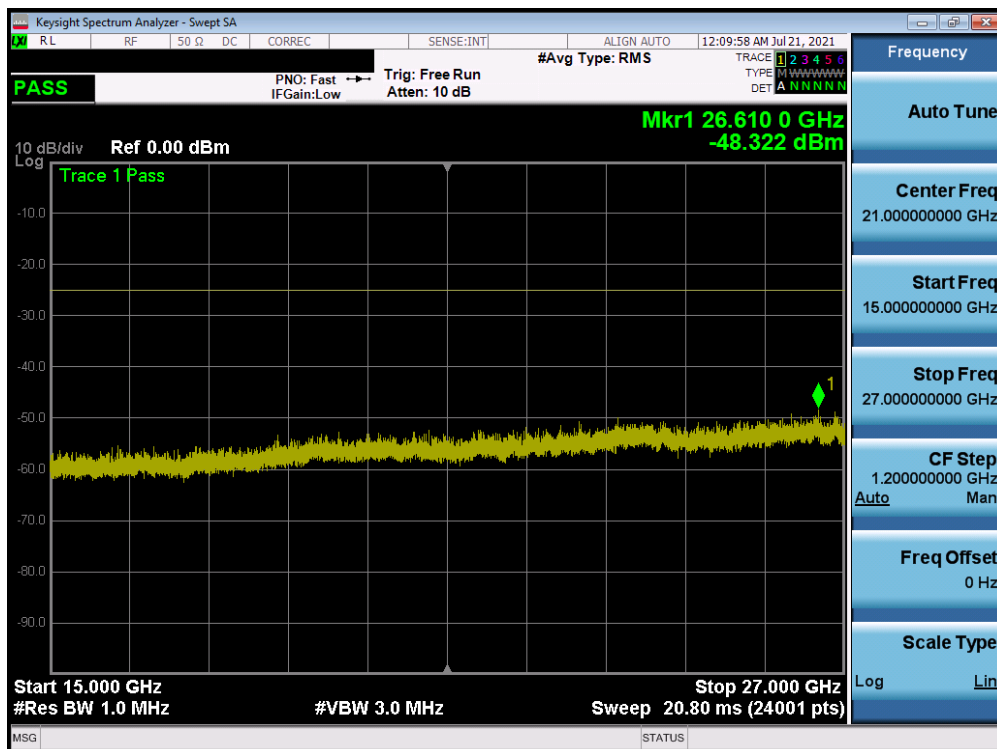


Plot 7-165. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)




FCC ID: C3K1995	 PCTEST Proud to be part of 	PART 27 MEASUREMENT REPORT	 Microsoft	Approved by: Technical Manager
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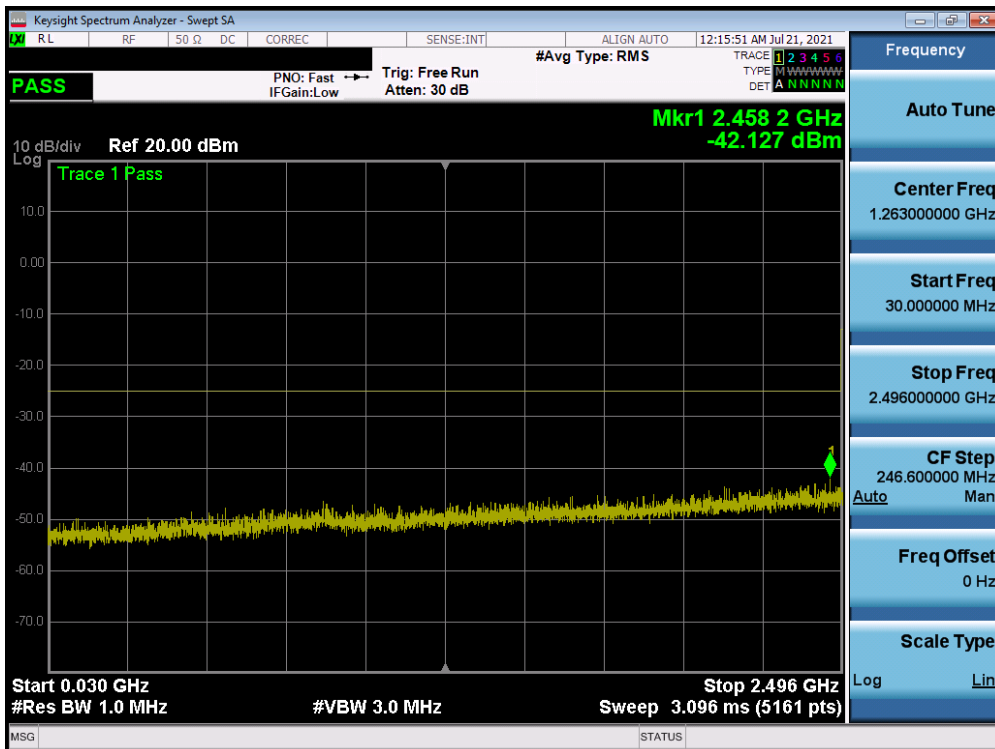


Plot 7-166. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

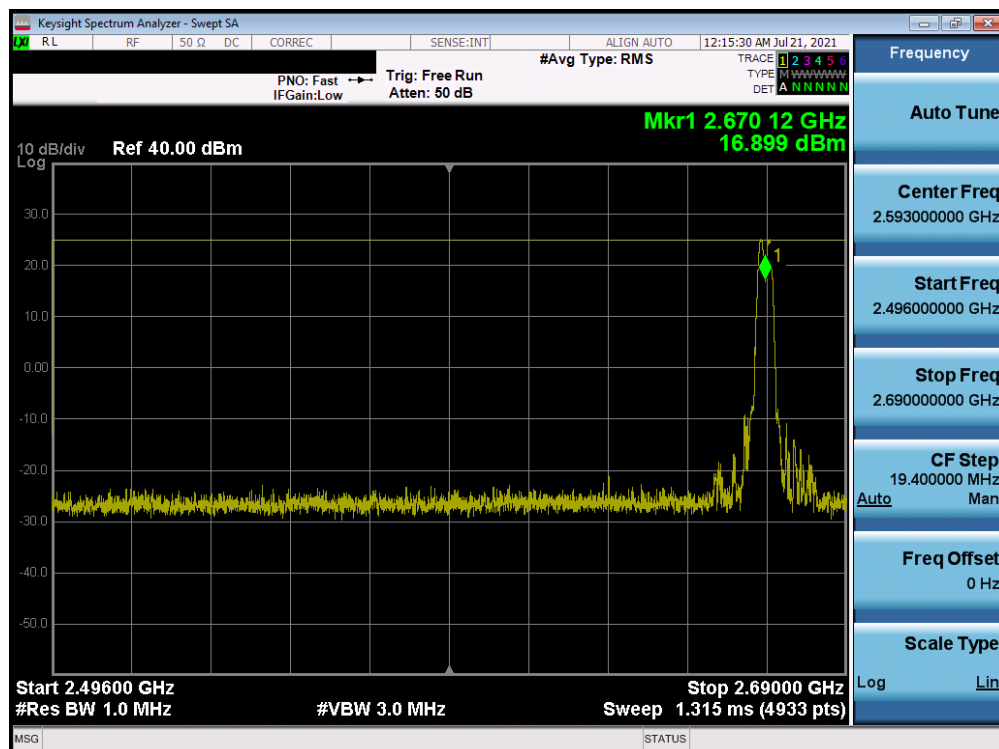


Plot 7-167. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



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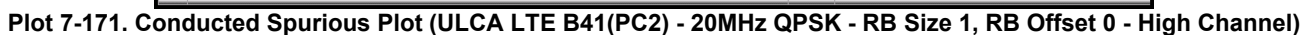
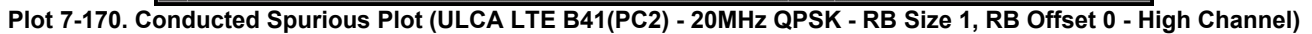


Plot 7-168. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

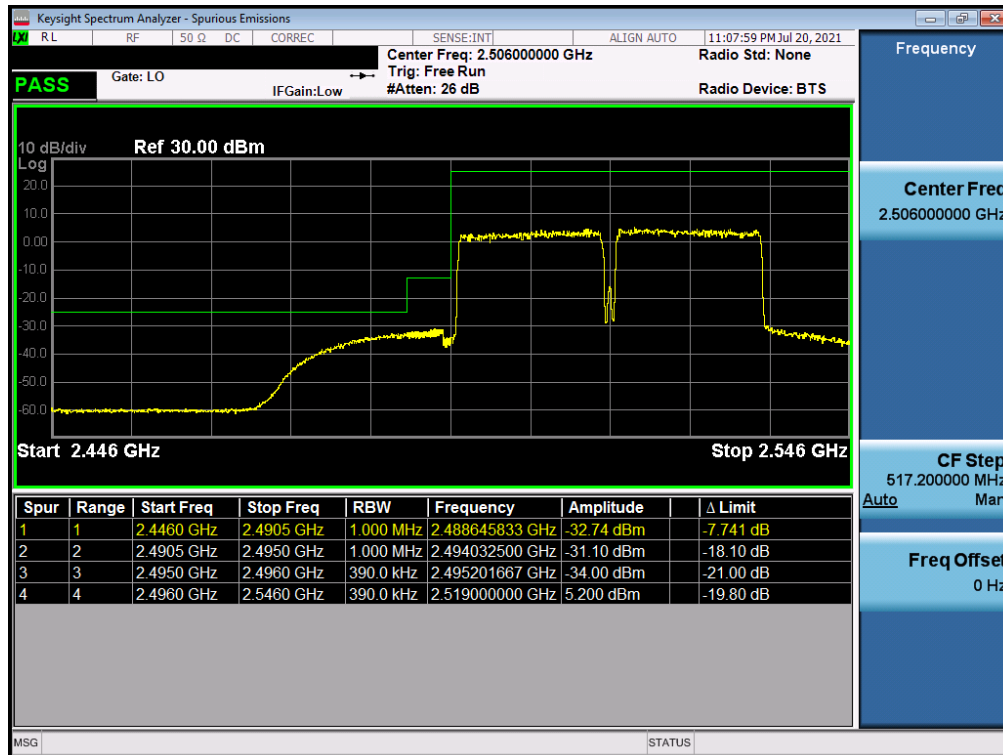


Plot 7-169. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

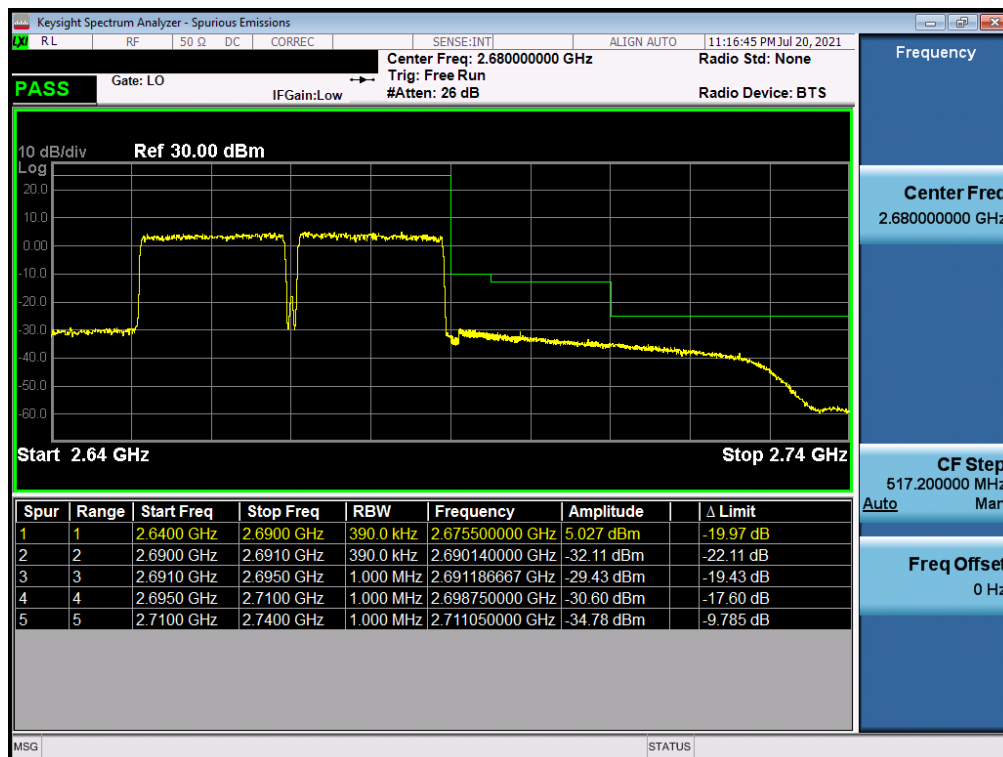
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Plot 7-172. Lower ACP Plot (ULCA LTE B41(PC2) - 20MHz QPSK – Full RB)



Plot 7-173. Upper ACP Plot (ULCA LTE B41(PC2) - 20MHz QPSK – Full RB)

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7.7 Radiated Power (EIRP)

Test Overview

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



Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.2.1

ANSI/TIA-603-E-2016 – Section 2.2.17

Test Settings

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

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Test Setup

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

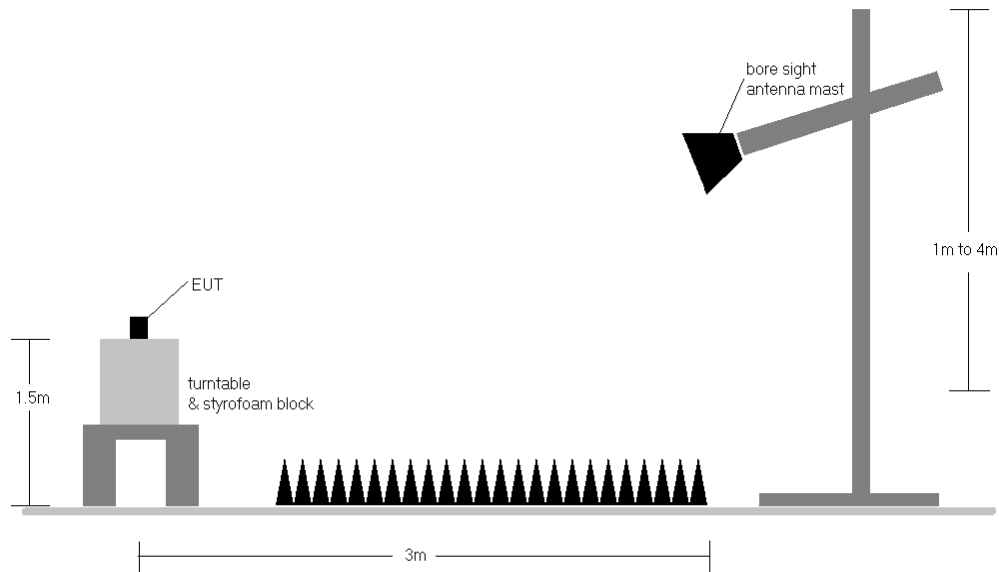


Figure 7-6. Radiated Test Setup >1GHz

Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) 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.




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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]
10 MHz	QPSK	2310.0	H	334	216	10.55	1 / 25	12.38	22.93	0.196	23.98	-1.05
	16-QAM	2310.0	H	334	216	10.55	1 / 25	11.55	22.10	0.162	23.98	-1.88
5 MHz	QPSK	2307.5	H	334	216	10.52	1 / 0	12.46	22.98	0.199	23.98	-1.00
		2310.0	H	334	216	10.55	1 / 12	12.46	23.01	0.200	23.98	-0.97
		2312.5	H	334	216	10.56	1 / 12	12.44	23.00	0.200	23.98	-0.98
	16-QAM	2307.5	H	334	216	10.52	1 / 0	11.65	22.17	0.165	23.98	-1.81
10 MHz	QPSK(Opposite Pol.)	2310.0	V	262	89	10.37	1 / 25	12.04	22.41	0.174	23.98	-1.57
	QPSK(OPEN)	2310.0	H	153	117	10.55	1 / 25	11.06	21.61	0.145	23.98	-2.37

Table 7-9. EIRP Data (LTE Band 30 – North)

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]
10 MHz	QPSK	2310.0	H	117	117	10.55	1 / 25	13.26	23.81	0.240	23.98	-0.17
	16-QAM	2310.0	H	117	117	10.55	1 / 25	12.55	23.10	0.204	23.98	-0.88
5 MHz	QPSK	2307.5	H	117	117	10.52	1 / 24	13.36	23.88	0.244	23.98	-0.10
		2310.0	H	117	117	10.55	1 / 0	13.24	23.79	0.239	23.98	-0.19
		2312.5	H	117	117	10.56	1 / 24	13.30	23.86	0.243	23.98	-0.12
	16-QAM	2307.5	H	117	117	10.52	1 / 24	12.65	23.16	0.207	23.98	-0.81
10 MHz	QPSK(Opposite Pol.)	2310.0	V	352	83	10.37	1 / 49	11.37	21.74	0.149	23.98	-2.24
	QPSK(CLSOED)	2310.0	H	161	154	10.55	1 / 49	10.75	21.30	0.135	23.98	-2.68

Table 7-10. EIRP Data (LTE Band 30 – South)

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