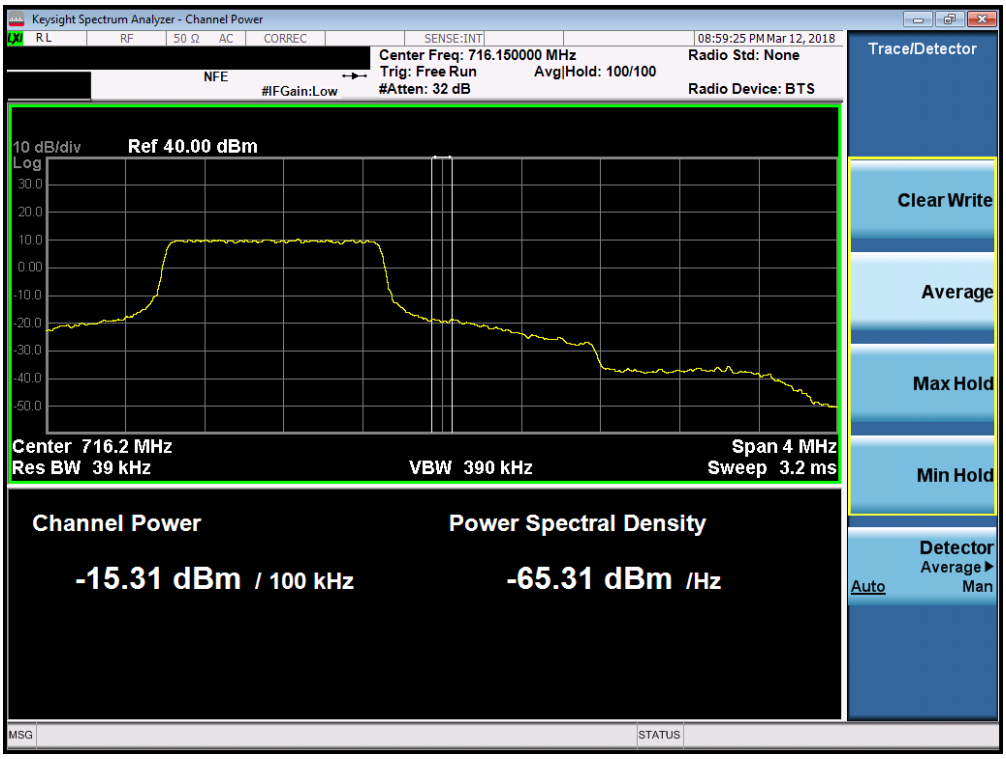
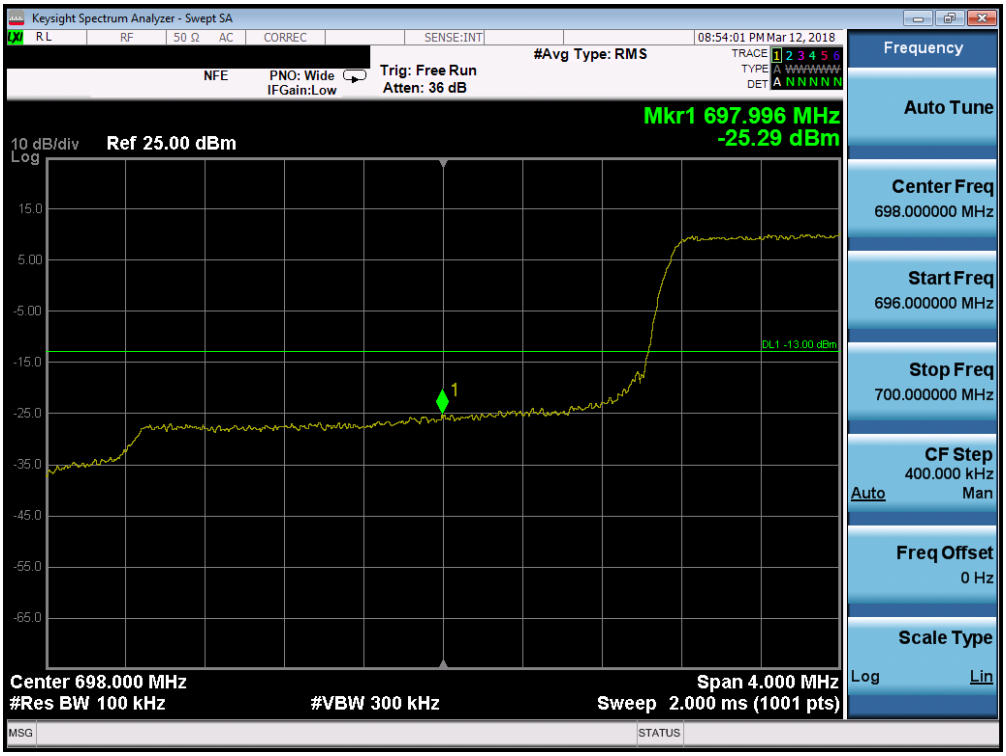
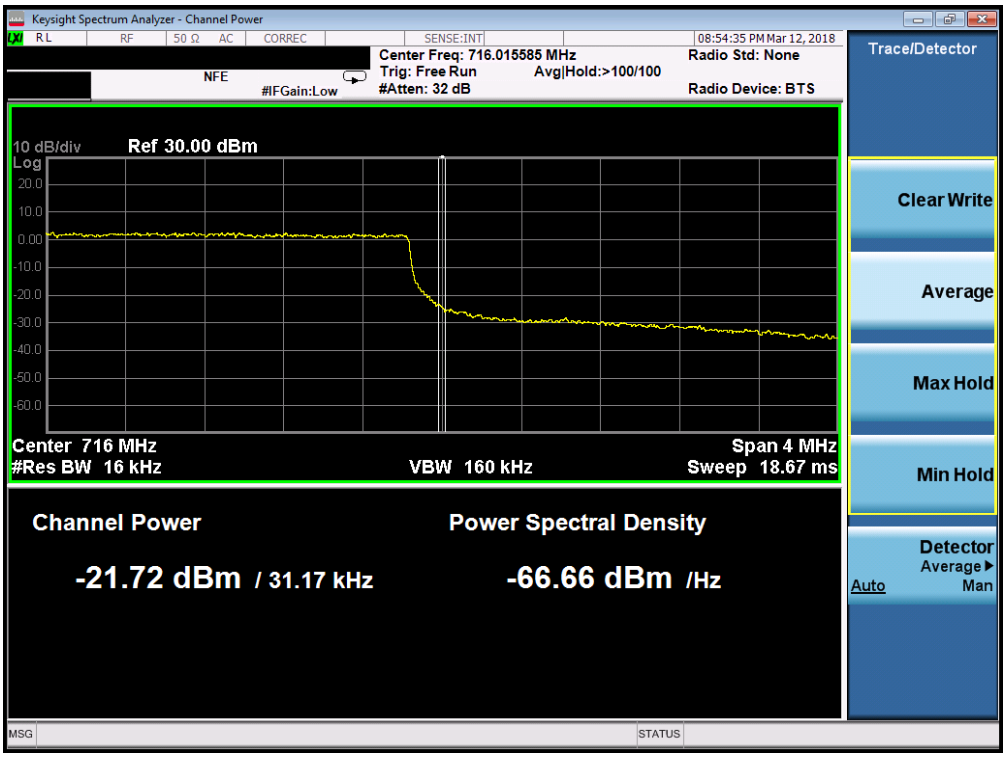


Plot 7-115. Upper Extended Band Edge Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)

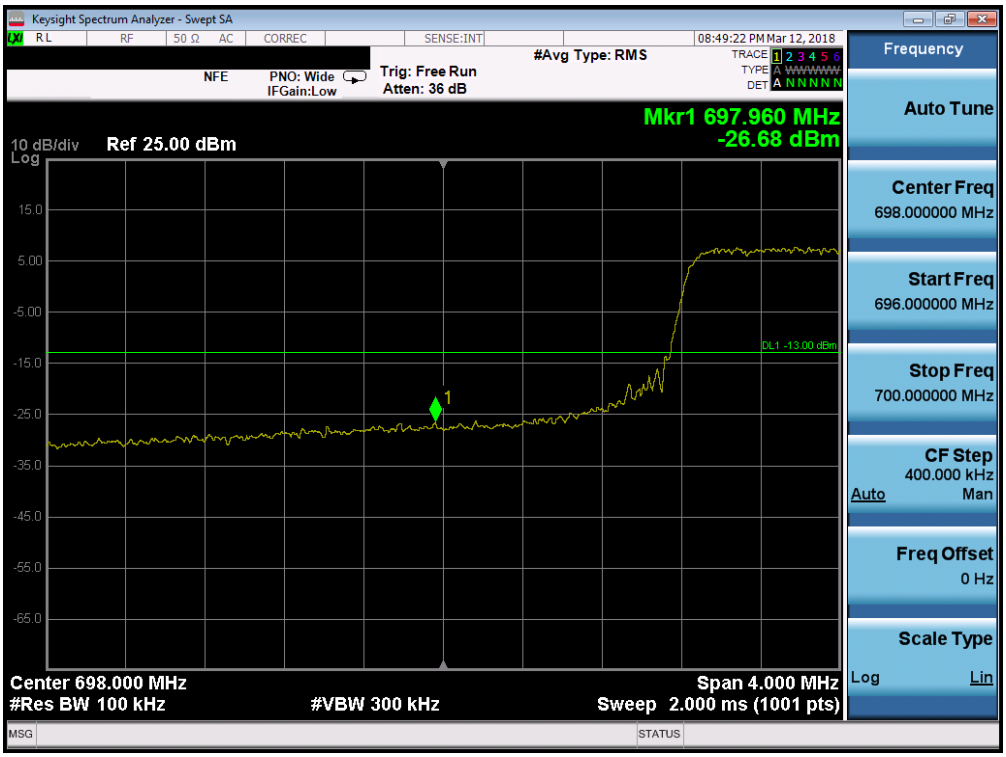


Plot 7-116. Lower Band Edge Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)



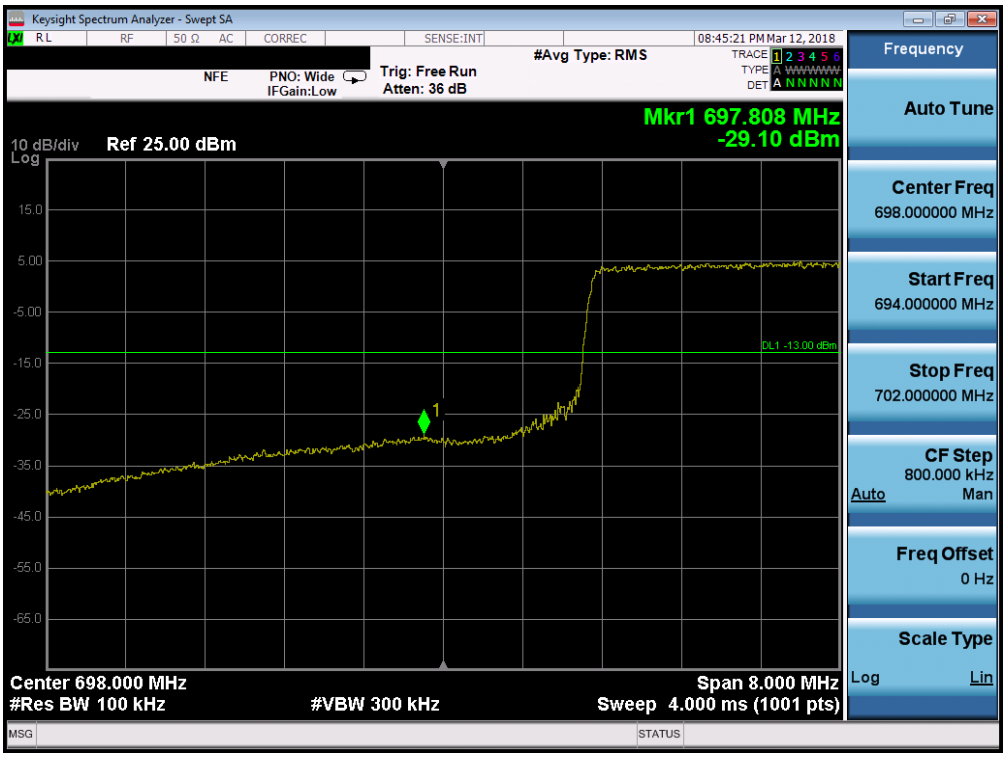
Plot 7-117. Upper Band Edge Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)

Plot 7-118. Upper Extended Band Edge Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-119. Lower Band Edge Plot (Band 12 - 5.0MHz QPSK - Full RB Configuration)

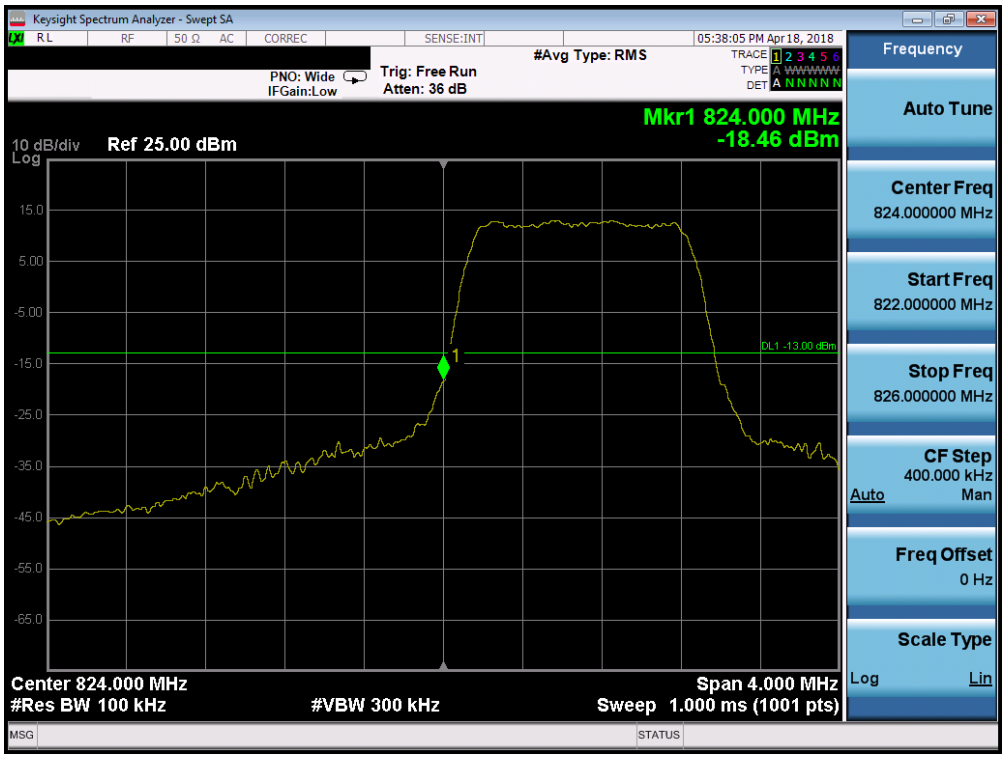
Plot 7-120. Upper Band Edge Plot (Band 12 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-121. Lower Band Edge Plot (Band 12 - 10.0MHz QPSK - Full RB Configuration)

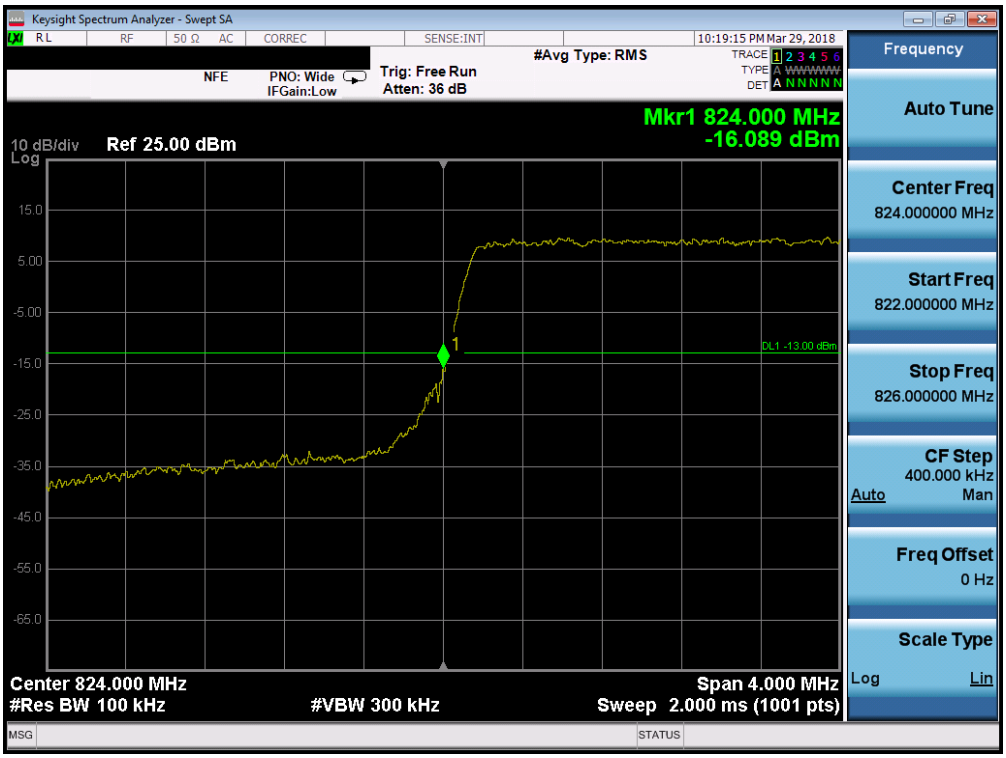
Plot 7-122. Upper Band Edge Plot (Band 12 - 10.0MHz QPSK - Full RB Configuration)

Band 26/5



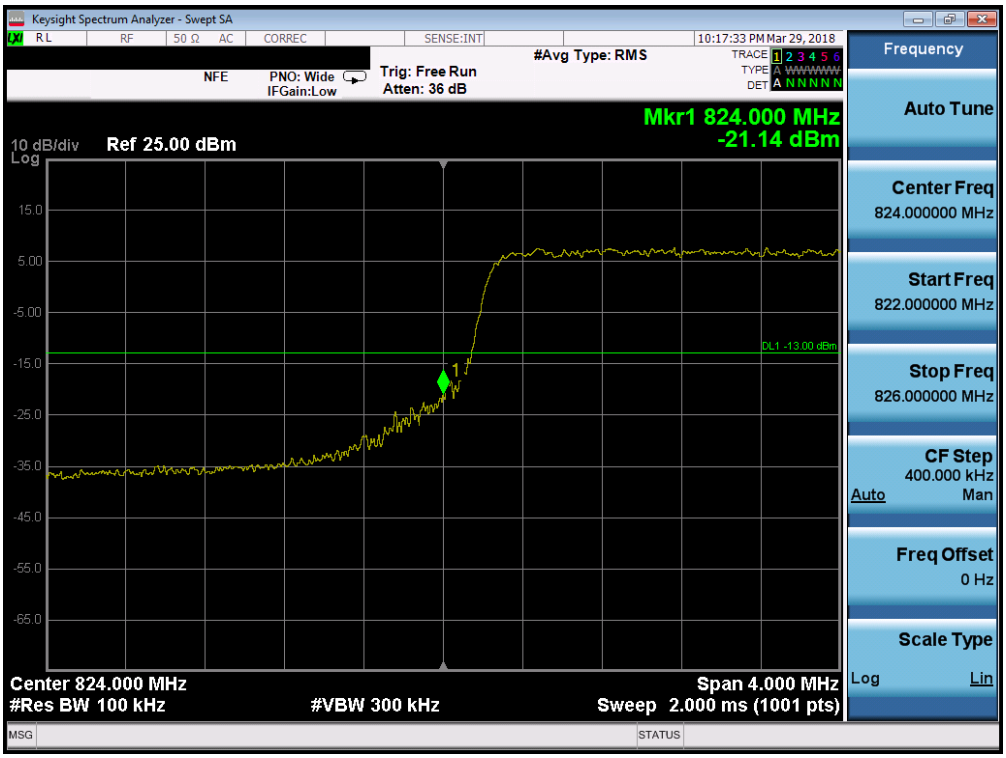
Plot 7-123. Lower Band Edge Plot (Band 26 - 1.4MHz QPSK - Full RB Configuration)

Plot 7-124. Upper Band Edge Plot (Band 26 – 1.4MHz QPSK - Full RB Configuration)

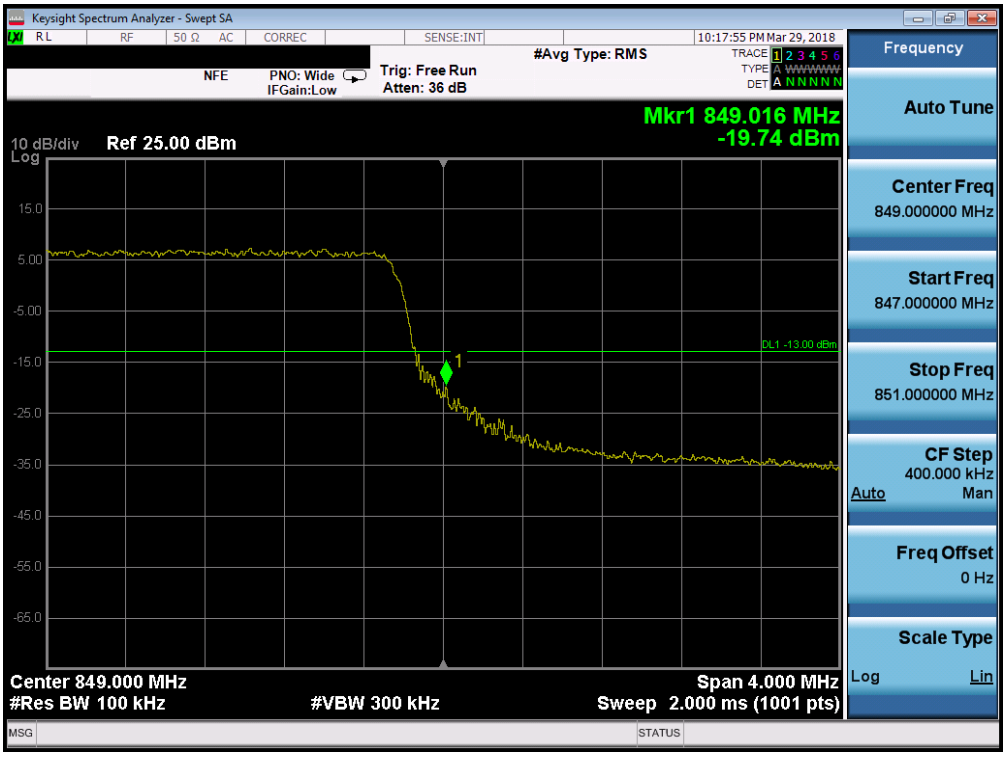


Plot 7-125. Lower Band Edge Plot (Band 26/5 - 3.0MHz QPSK - Full RB Configuration)

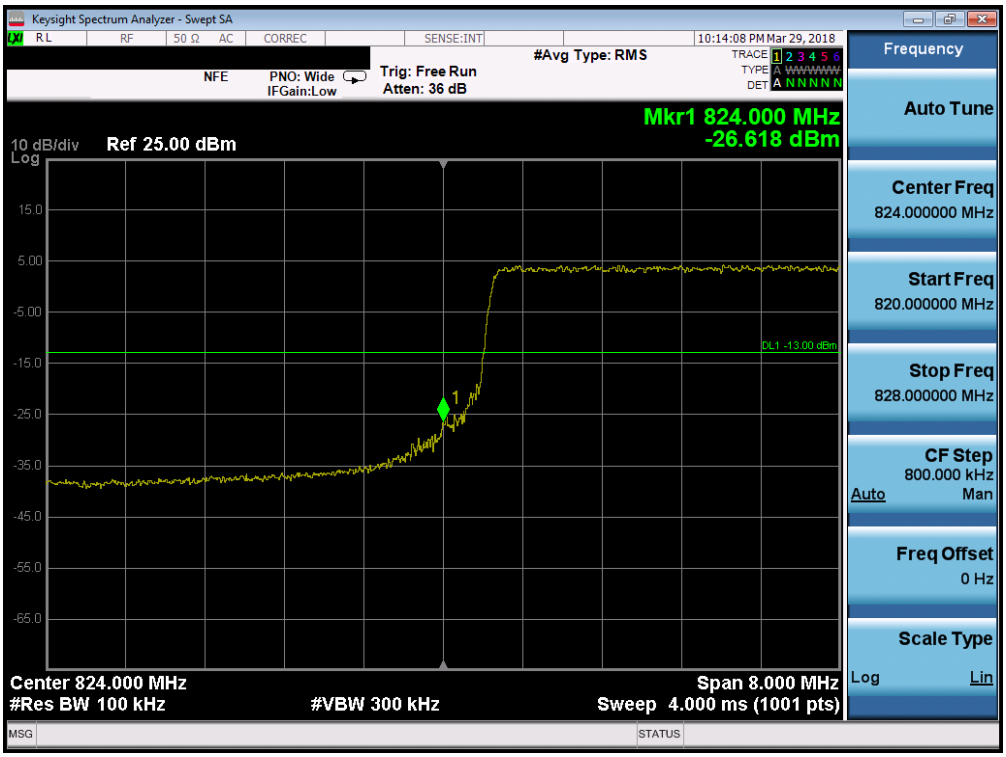
Plot 7-126. Upper Band Edge Plot (Band 26/5 - 3.0MHz QPSK - Full RB Configuration)



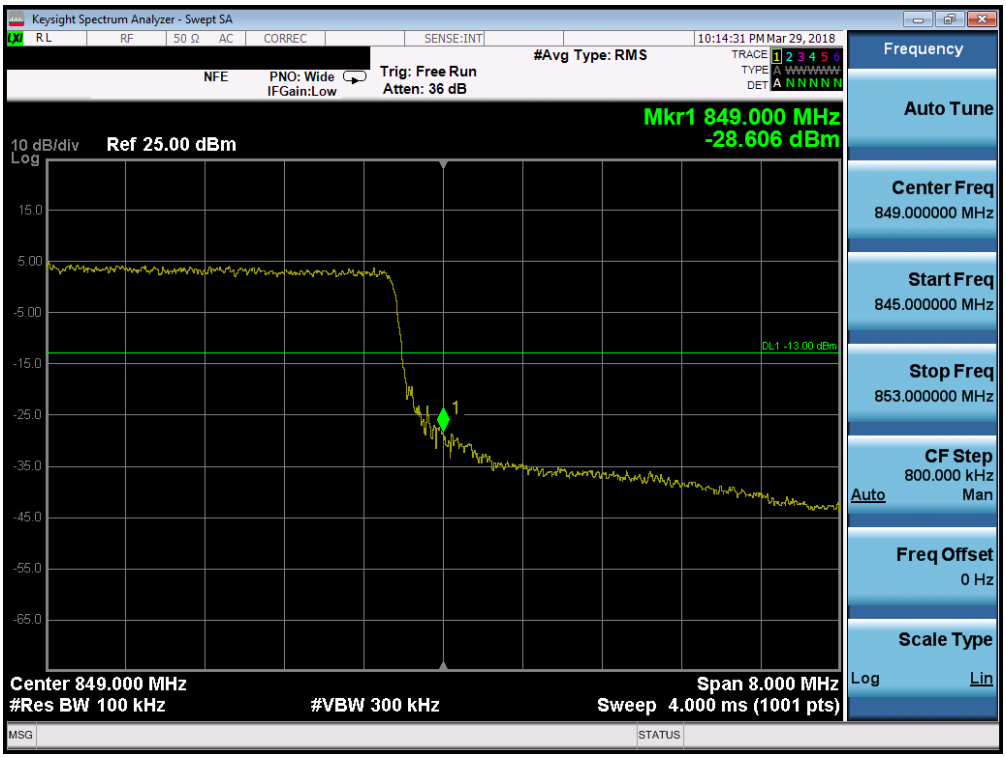
Plot 7-127. Lower Band Edge Plot (Band 26/5 - 5.0MHz QPSK - Full RB Configuration)



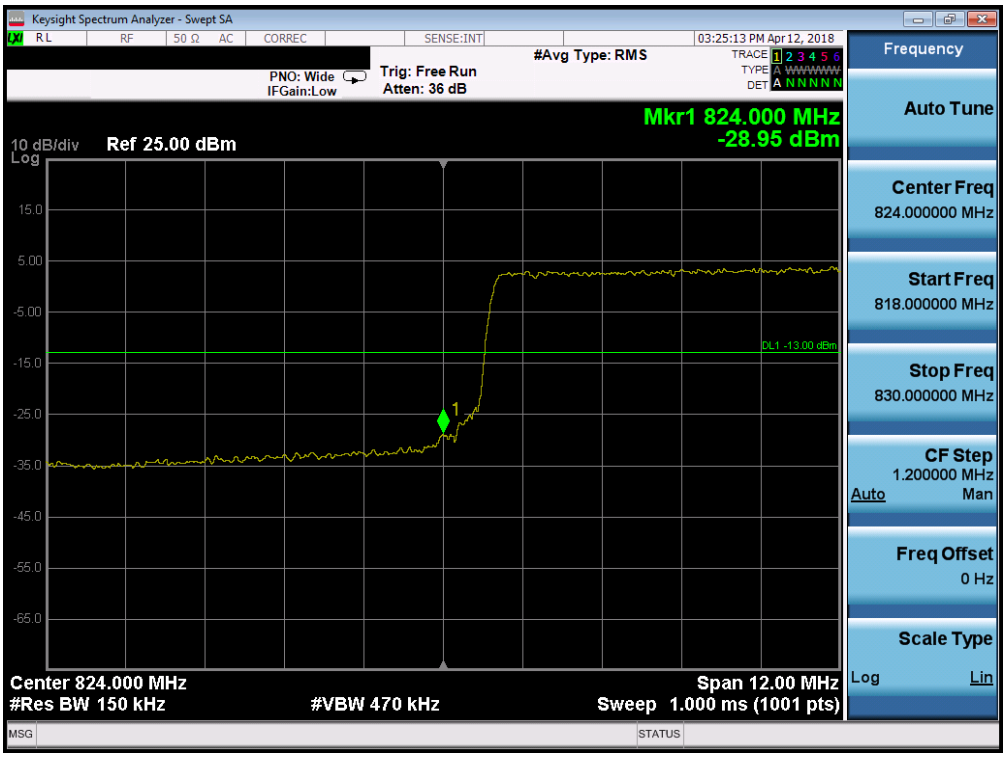
Plot 7-128. Upper Band Edge Plot (Band 26/5 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-129. Lower Band Edge Plot (Band 26/5 - 10.0MHz QPSK - Full RB Configuration)



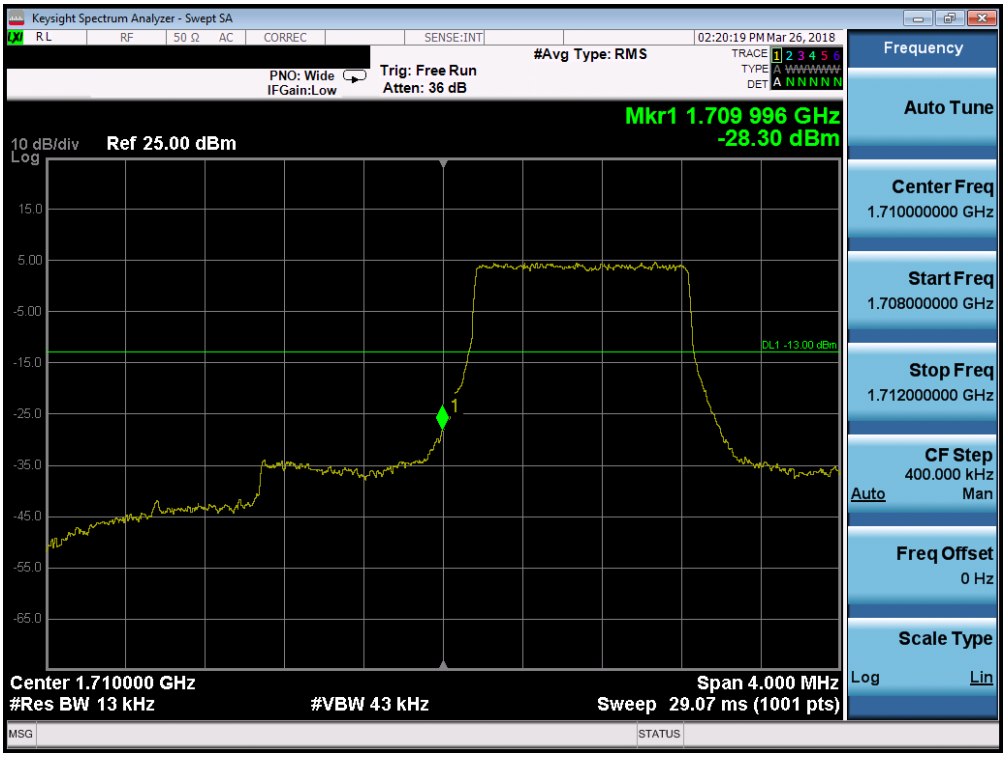
Plot 7-130. Upper Band Edge Plot (Band 26/5 - 10.0MHz QPSK - Full RB Configuration)



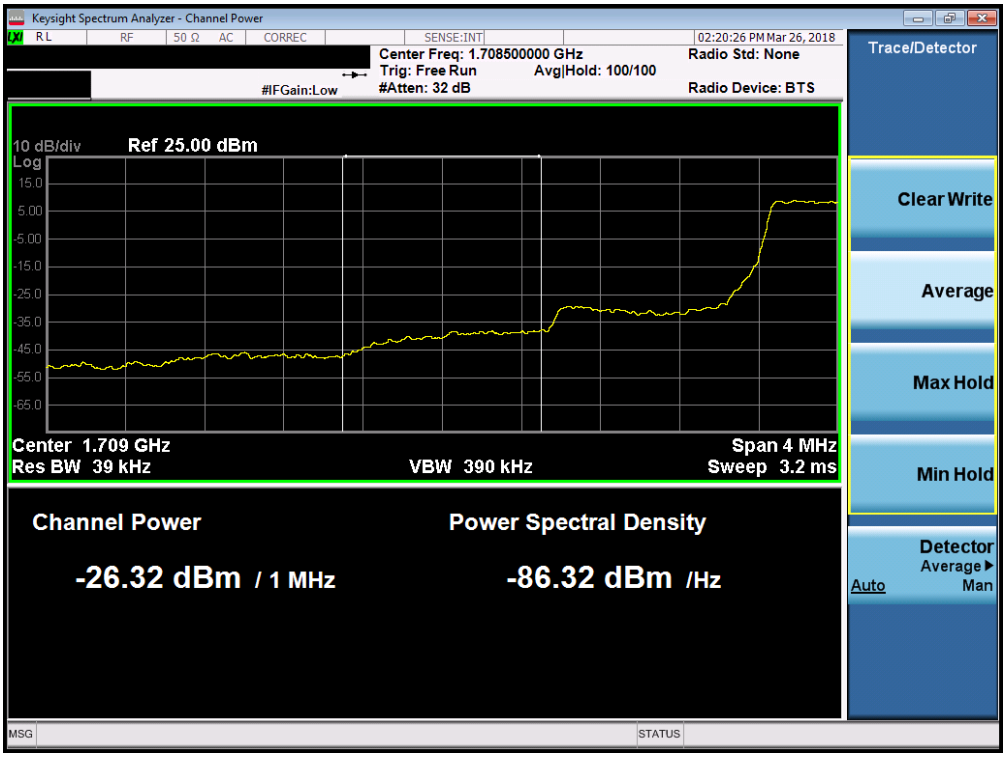
Plot 7-131. Lower Band Edge Plot (Band 26 - 15.0MHz QPSK - Full RB Configuration)

Plot 7-132. Upper Band Edge Plot (Band 26 - 15.0MHz QPSK - Full RB Configuration)

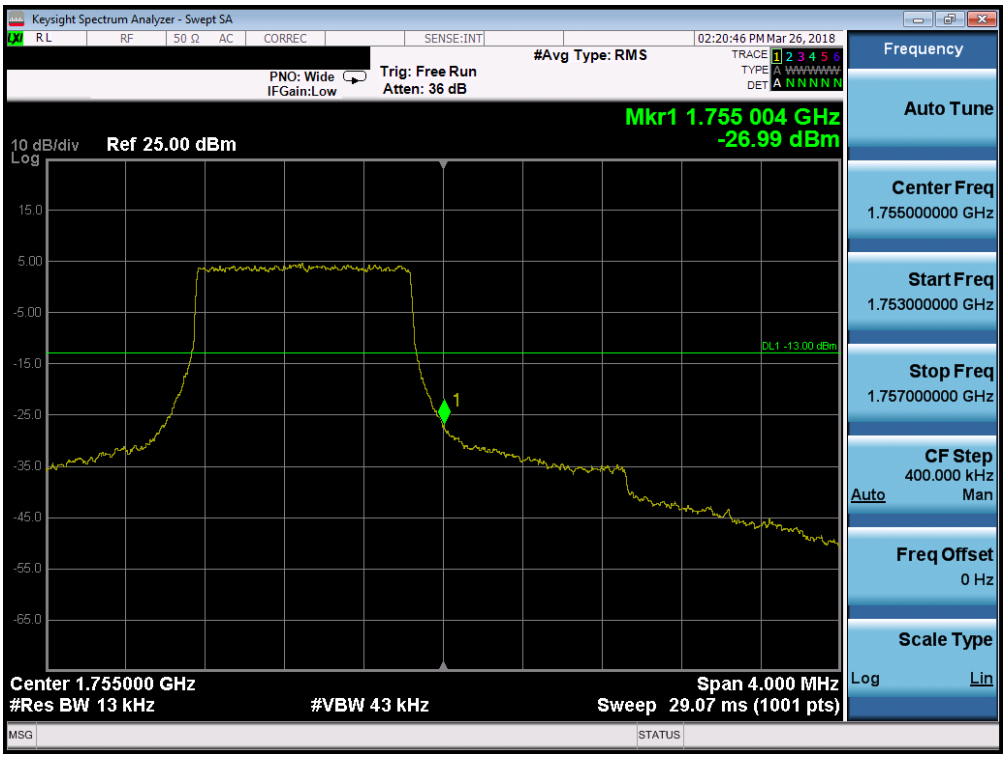
Band 4



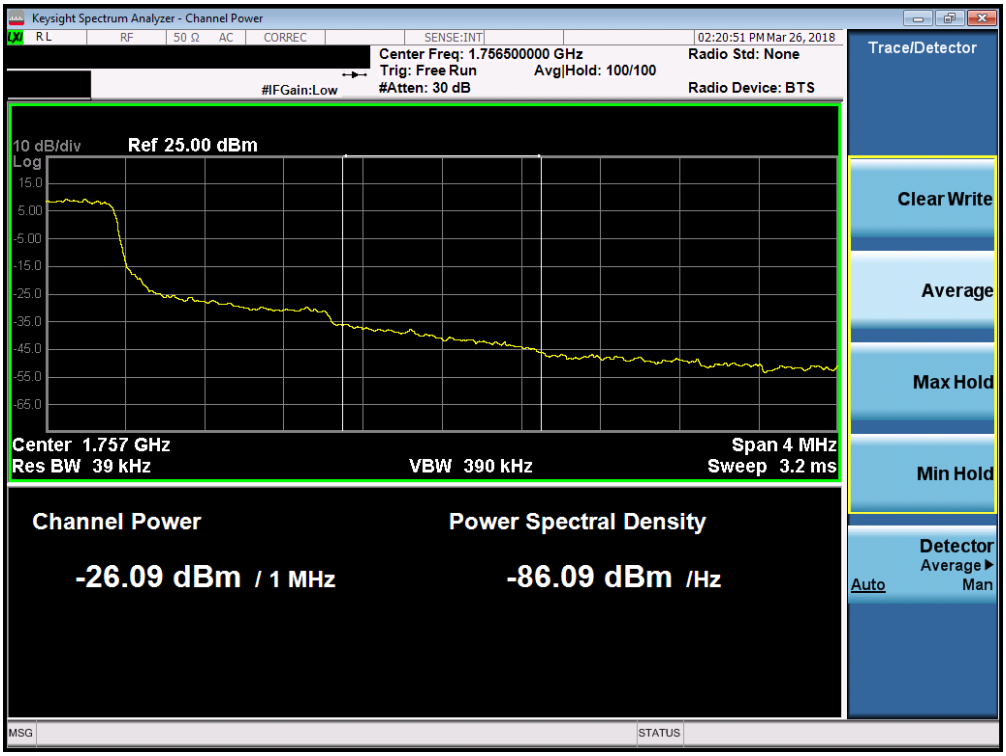
Plot 7-133. Lower Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)



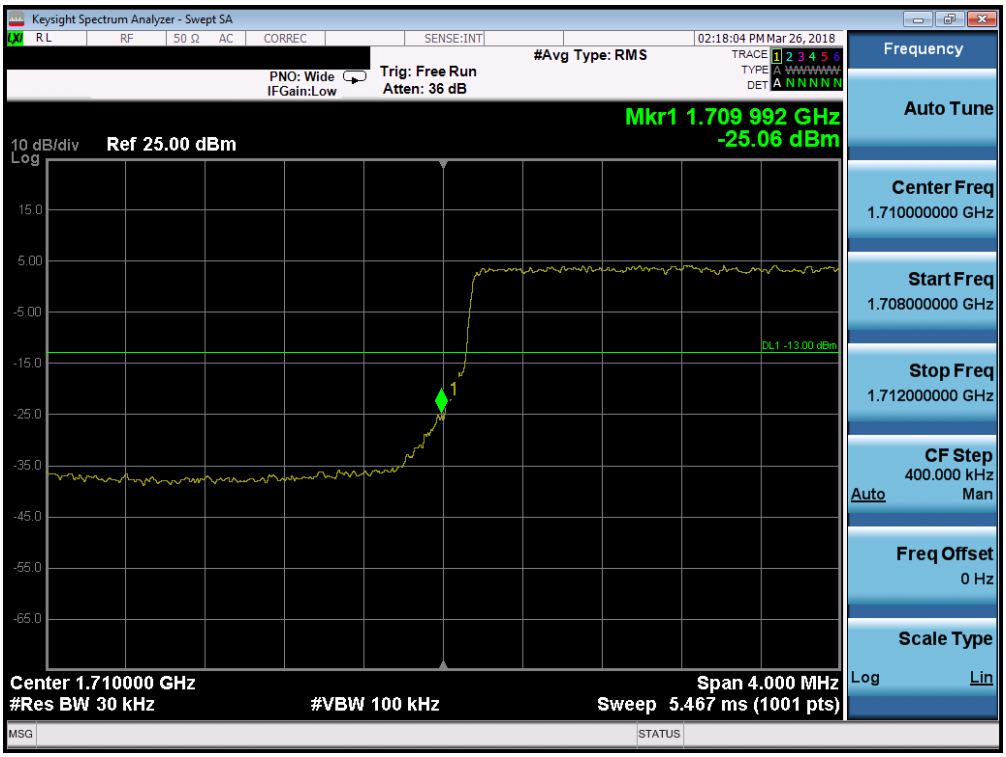
Plot 7-134. Lower Extended Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)



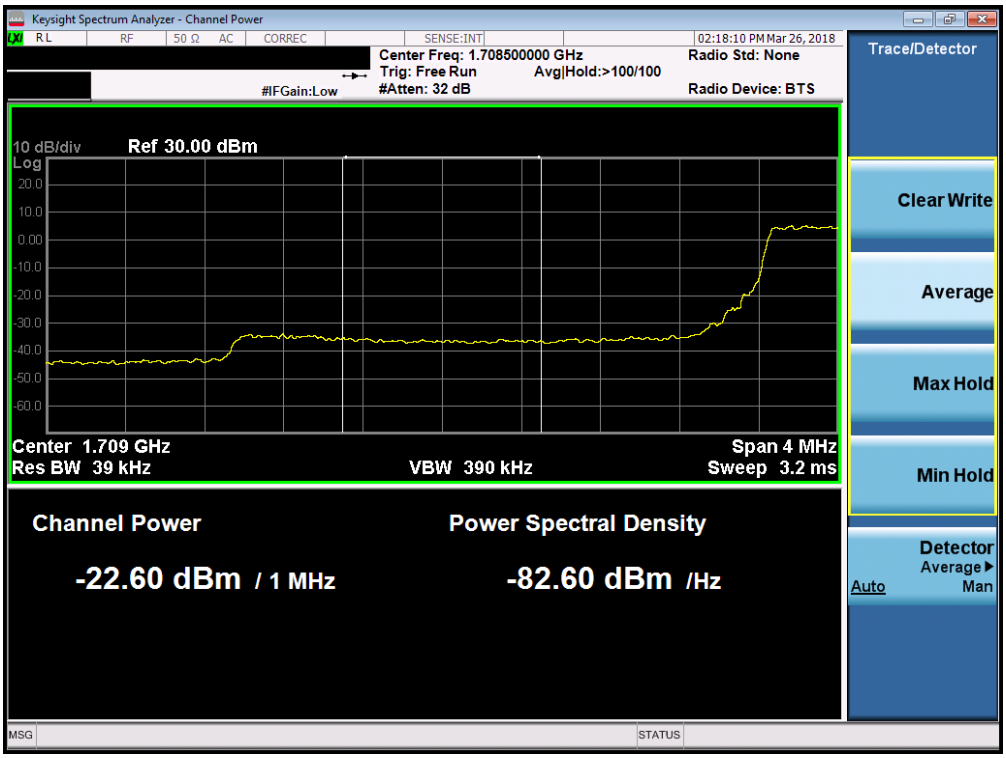
Plot 7-135. Upper Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)



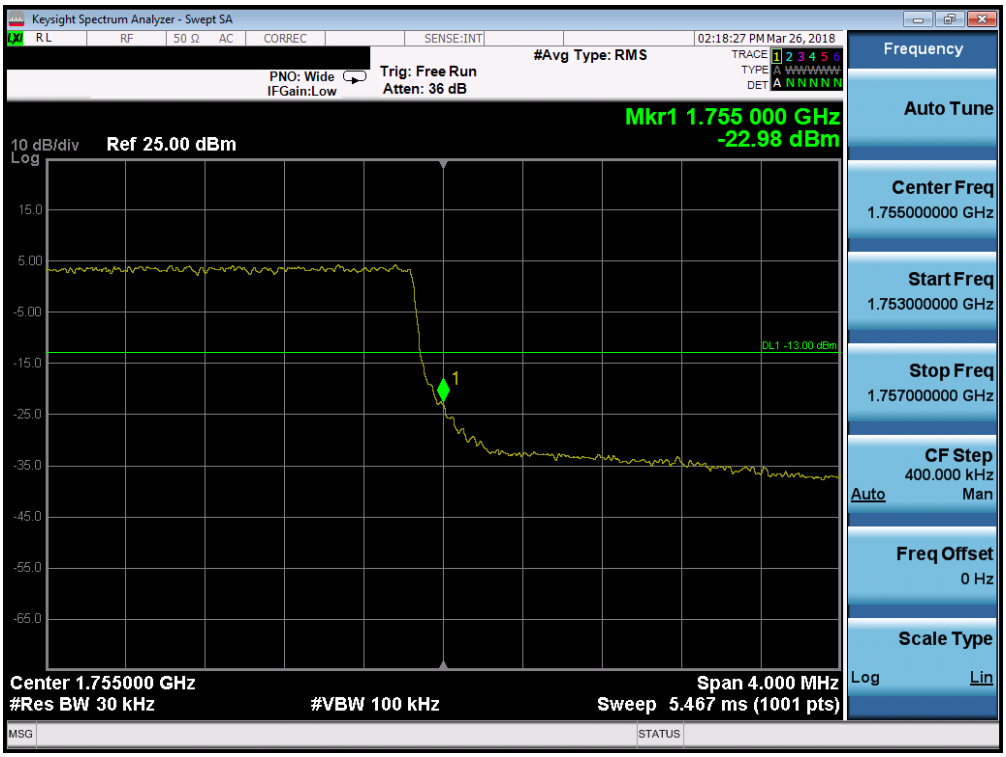
Plot 7-136. Upper Extended Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)



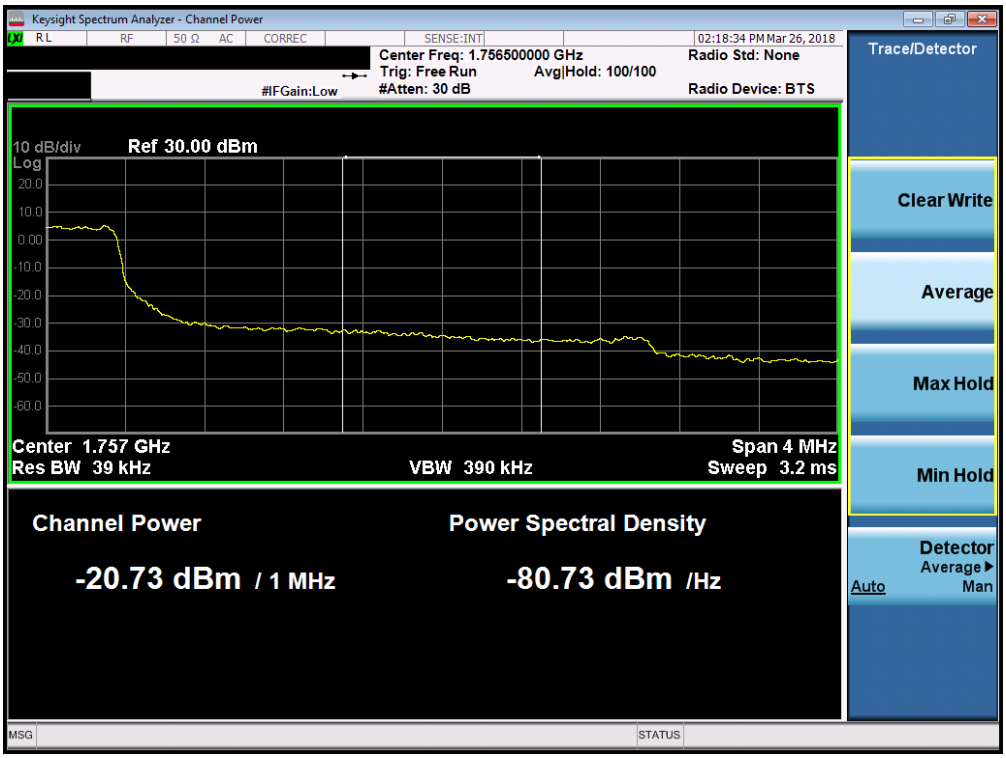
Plot 7-137. Lower Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)



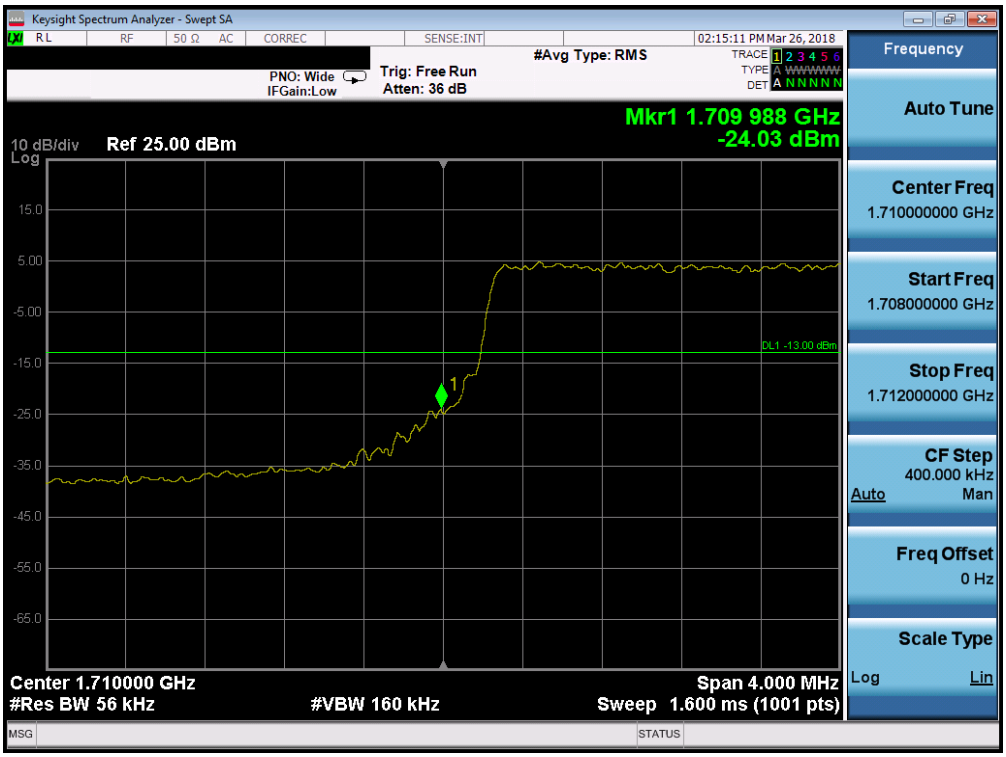
Plot 7-138. Lower Extended Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)



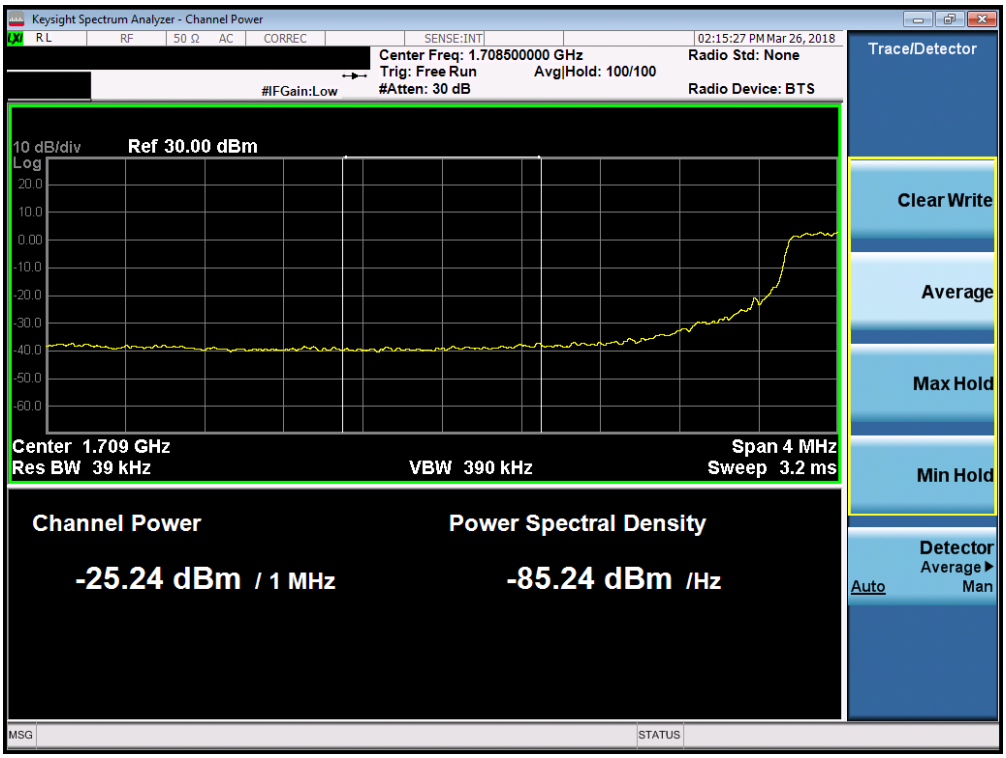
Plot 7-139. Upper Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)



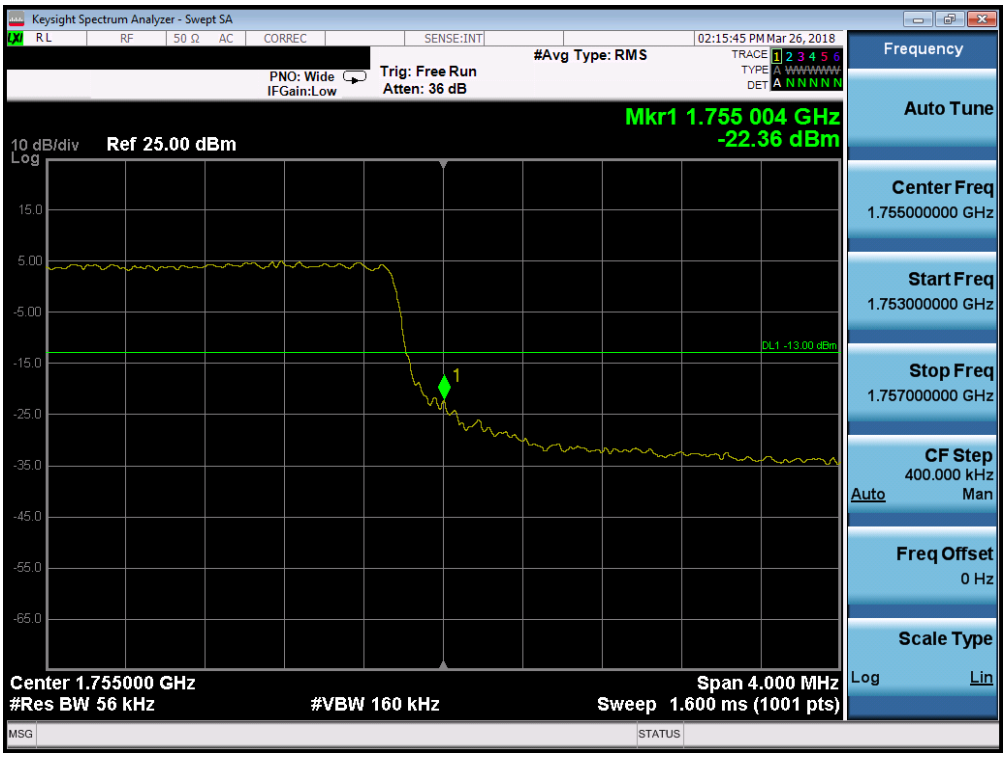
Plot 7-140. Upper Extended Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)



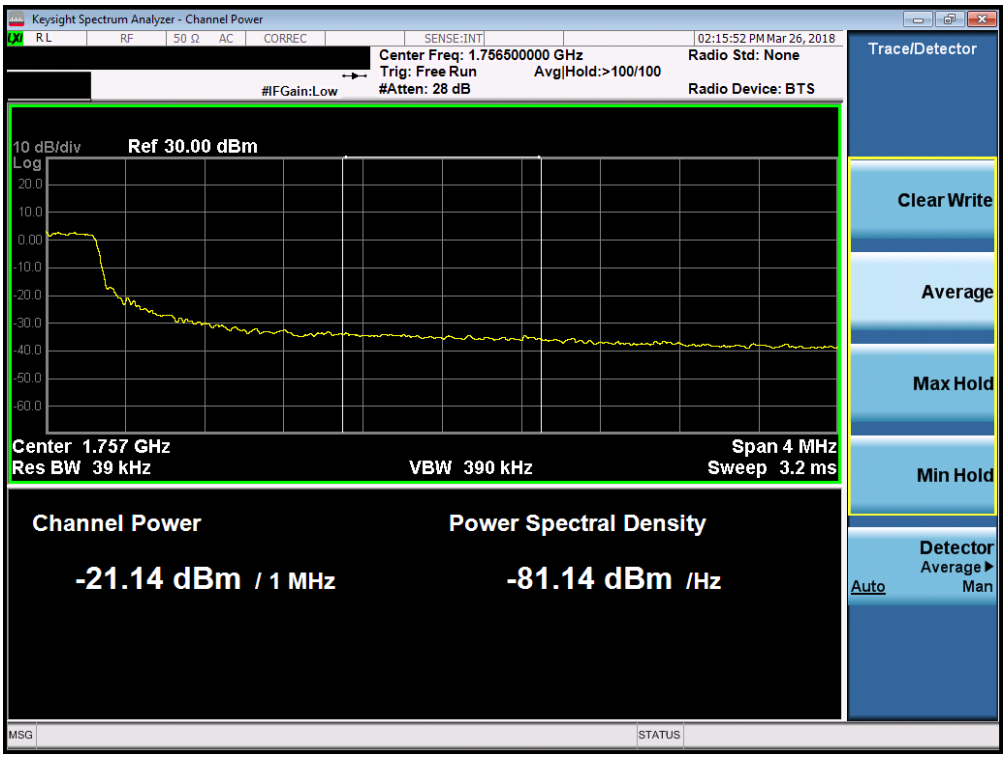
Plot 7-141. Lower Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)



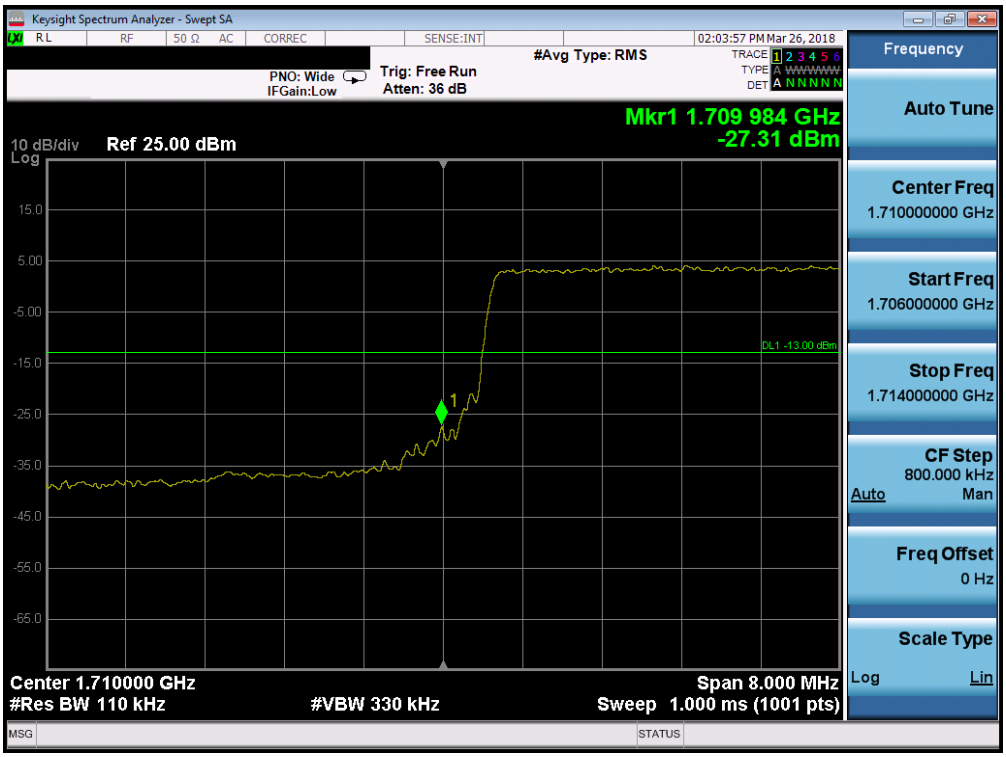
Plot 7-142. Lower Extended Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)



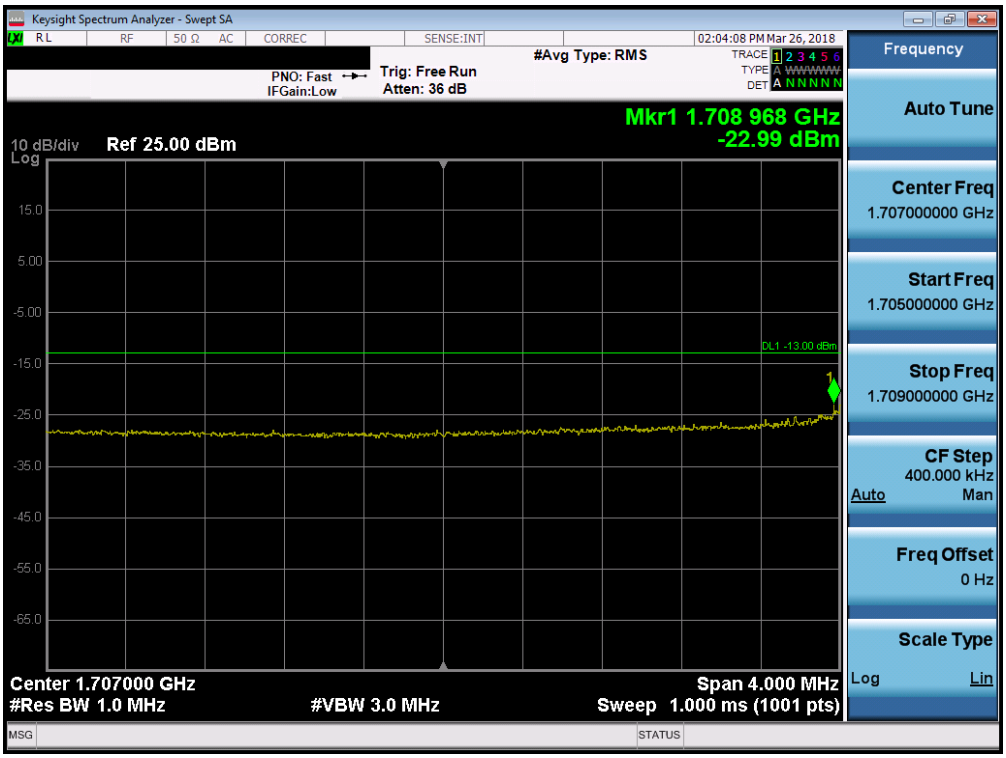
Plot 7-143. Upper Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-144. Upper Extended Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

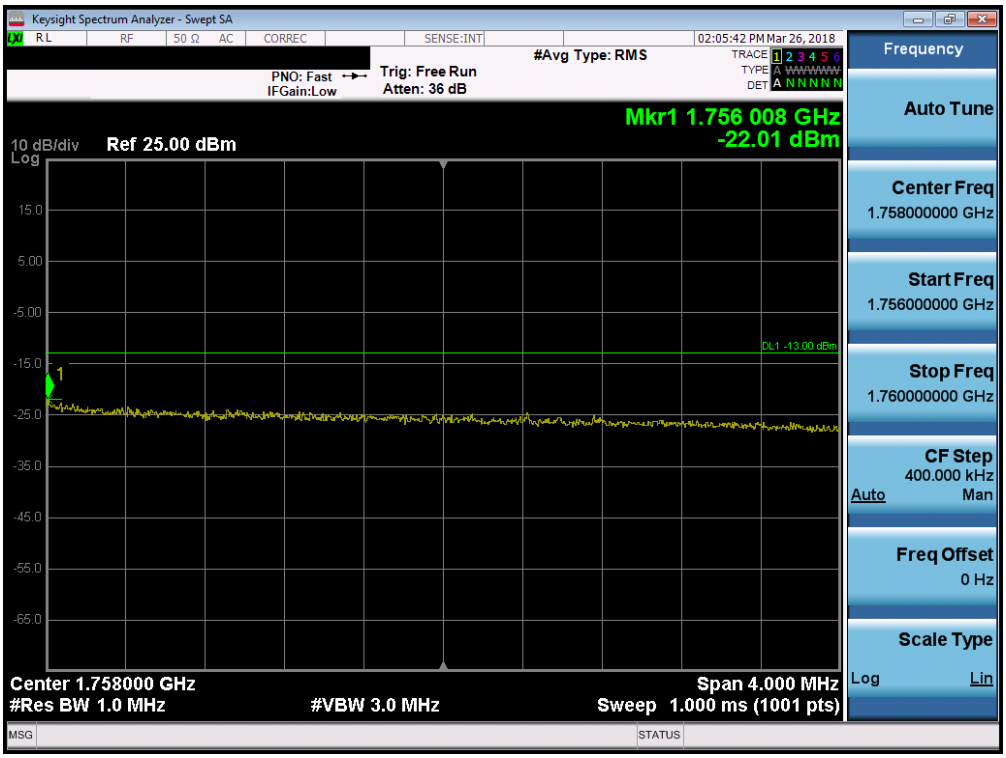


Plot 7-145. Lower Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

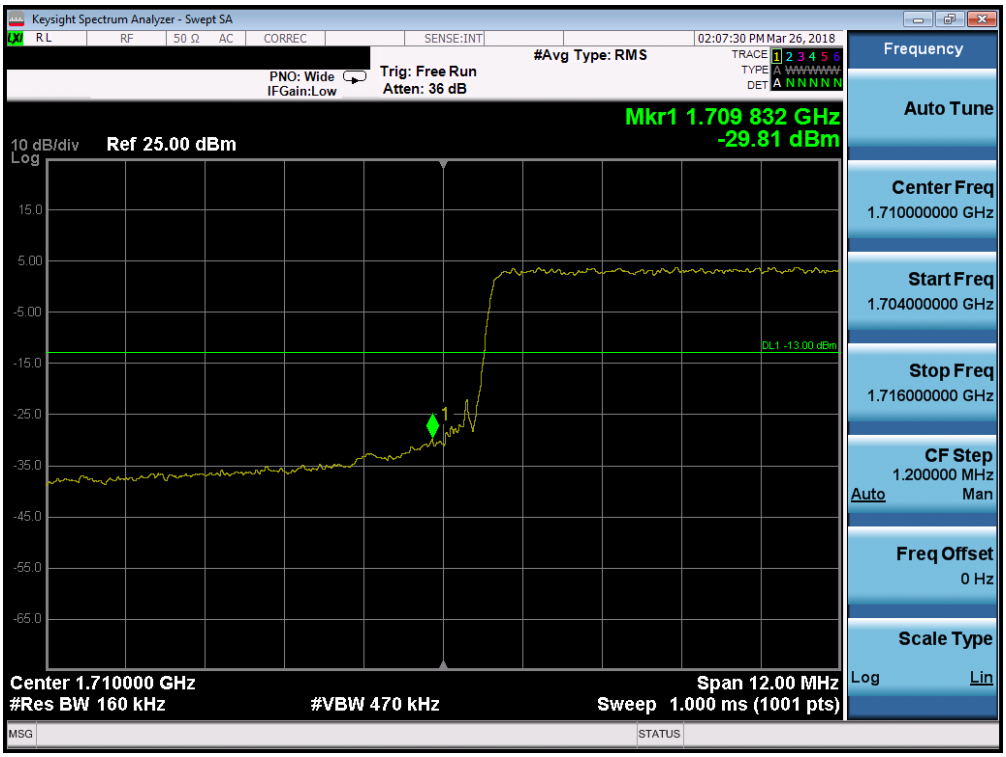


Plot 7-146. Lower Extended Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

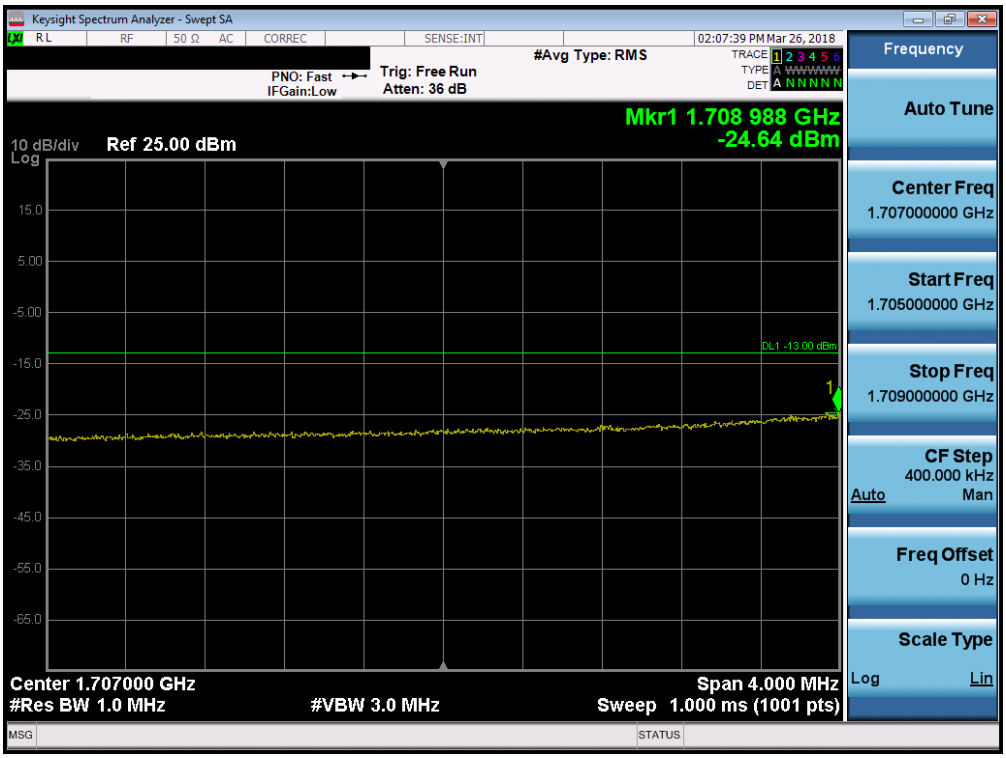
Plot 7-147. Upper Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-148. Upper Extended Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

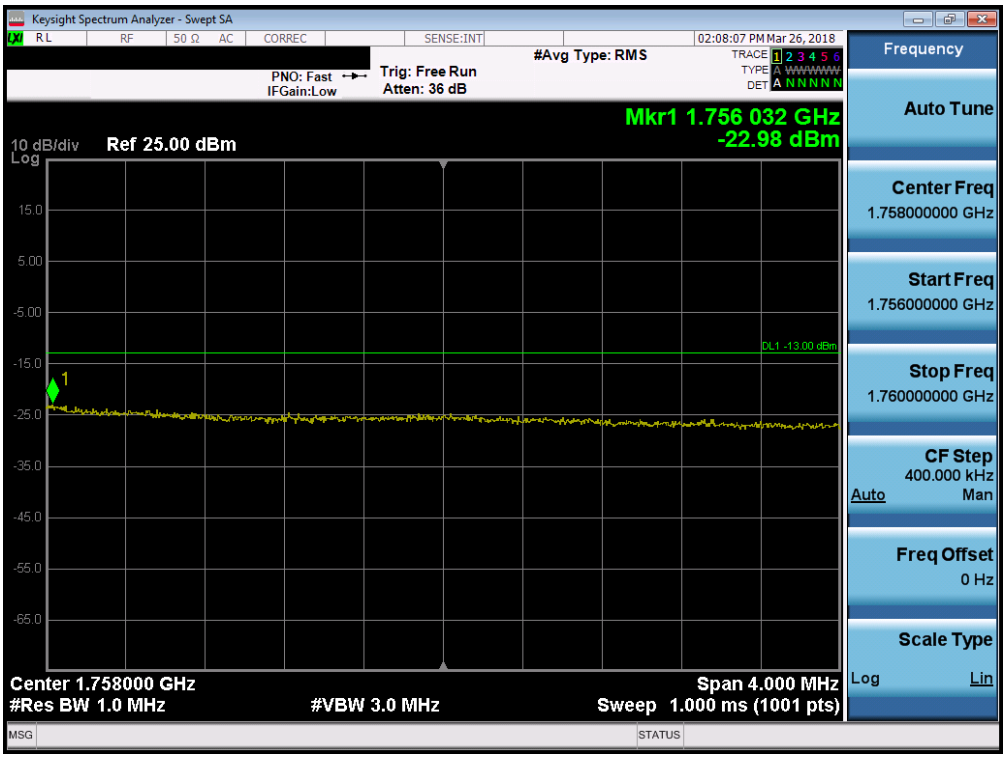


Plot 7-149. Lower Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

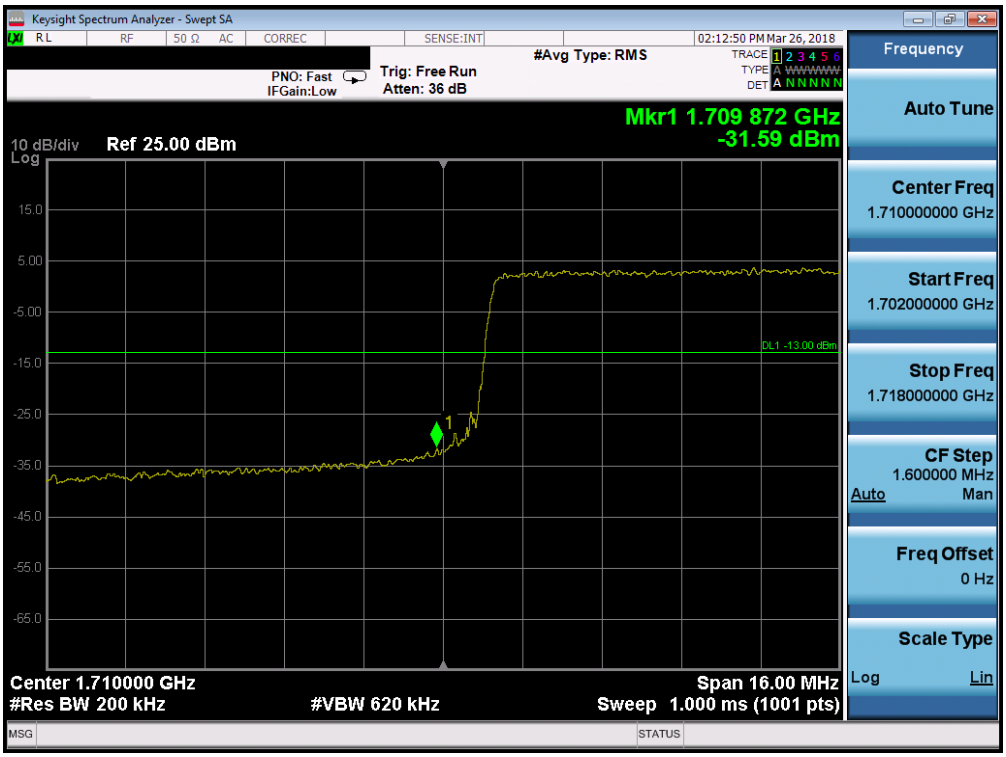


Plot 7-150. Lower Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

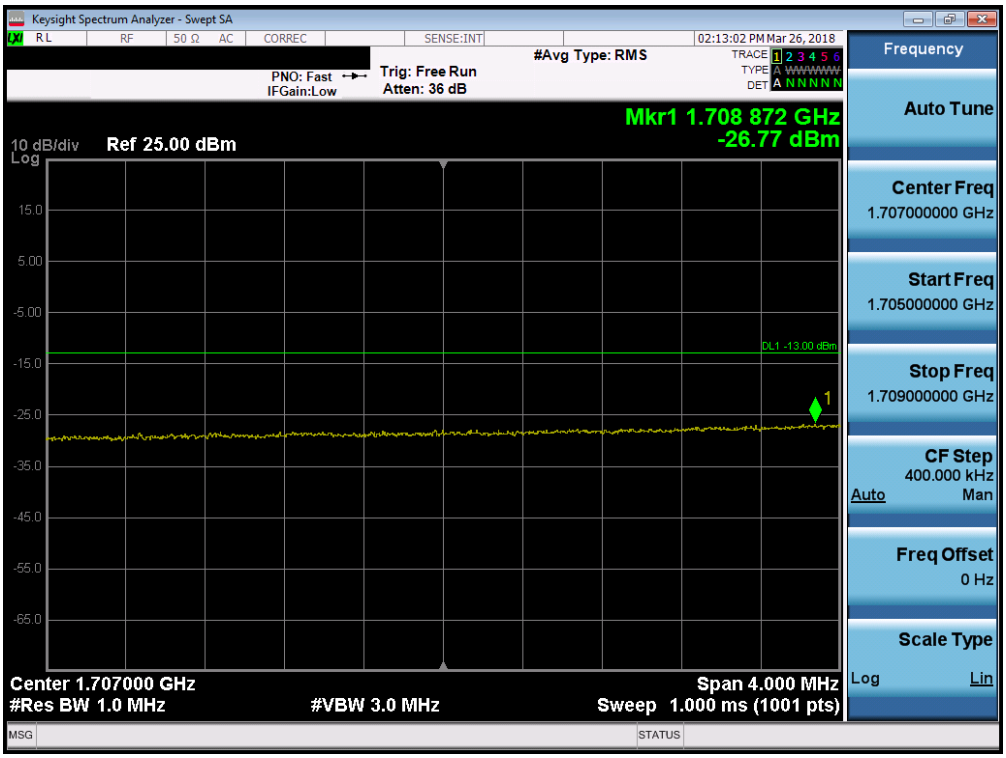
Plot 7-151. Upper Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)



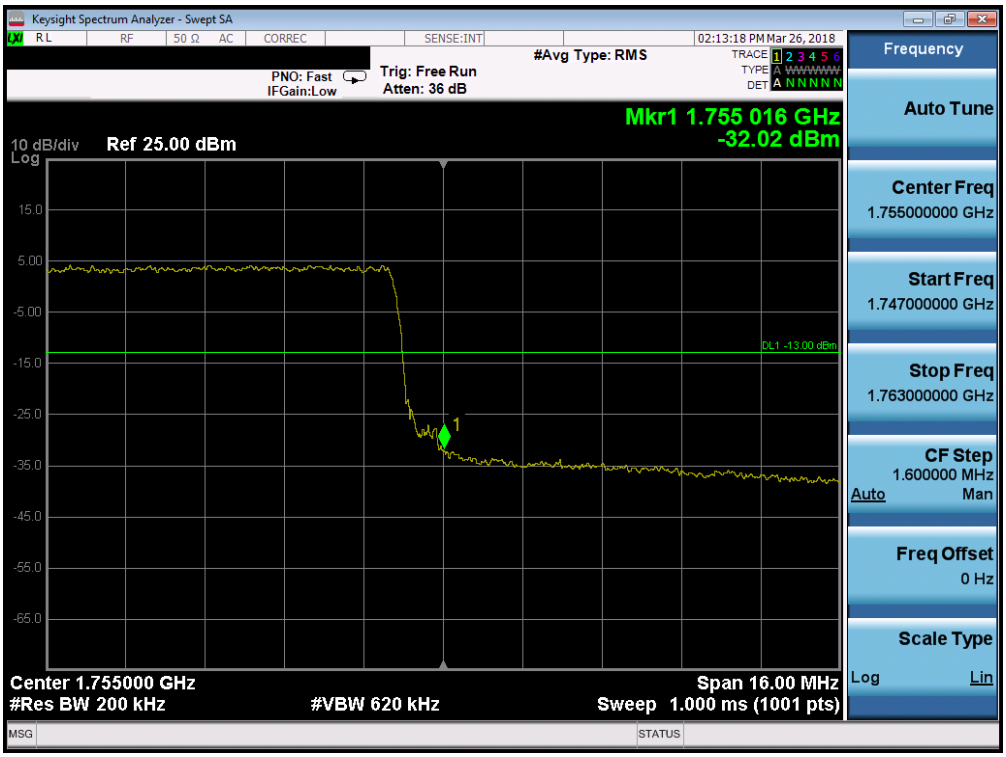
Plot 7-152. Upper Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)



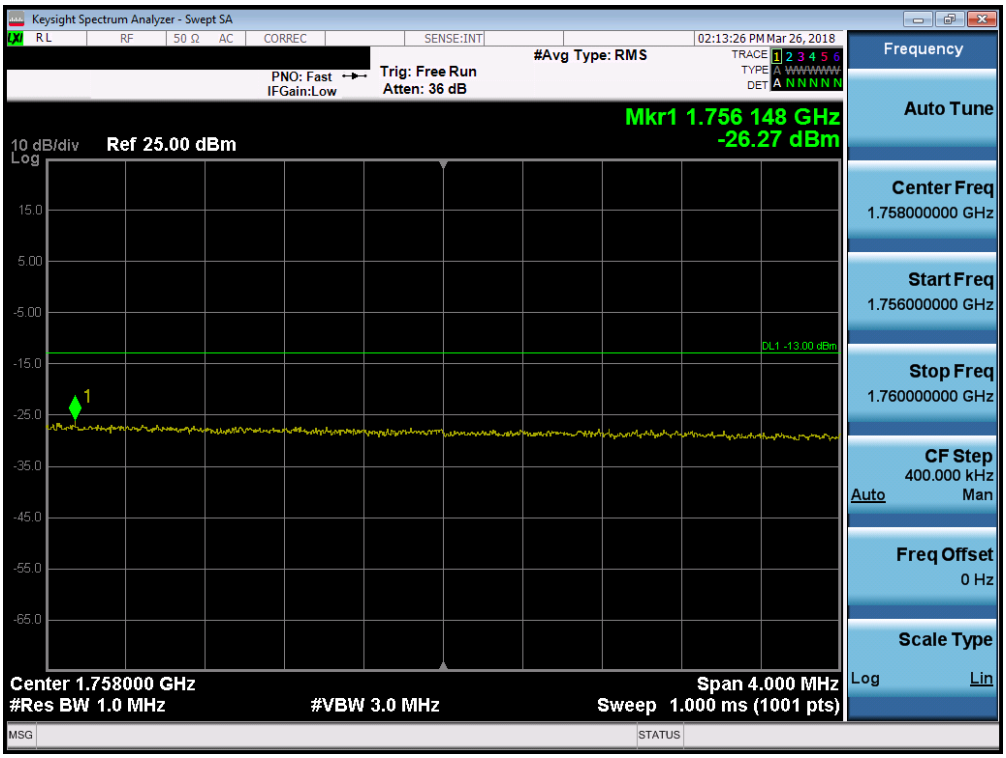
Plot 7-153. Lower Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-154. Lower Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

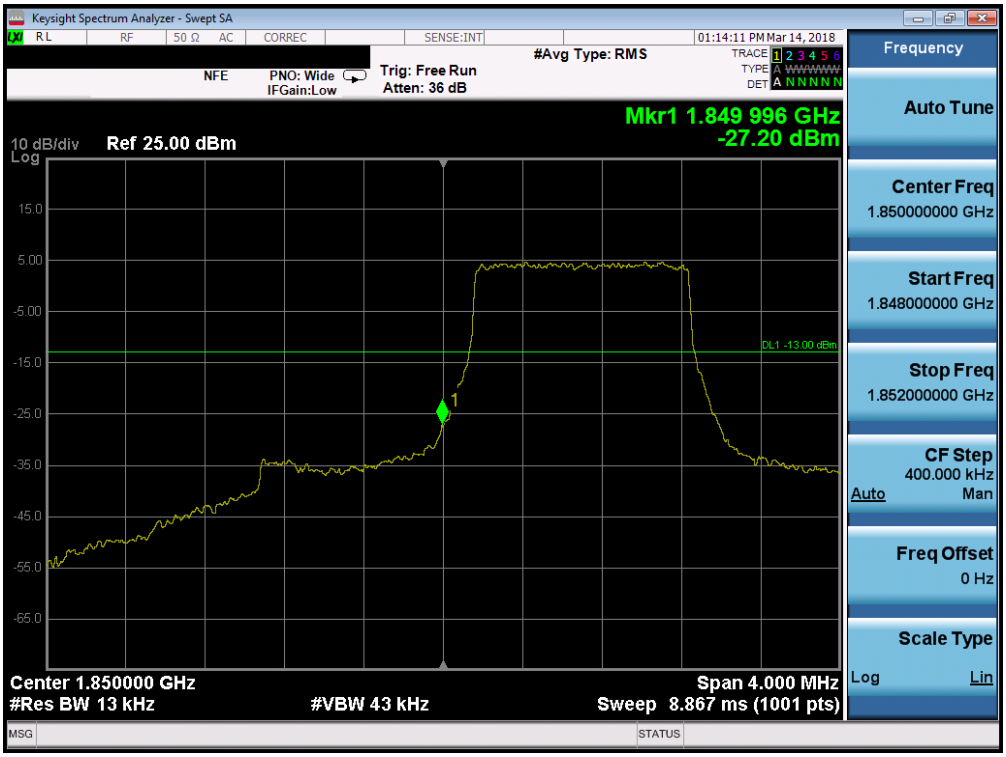


Plot 7-155. Upper Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

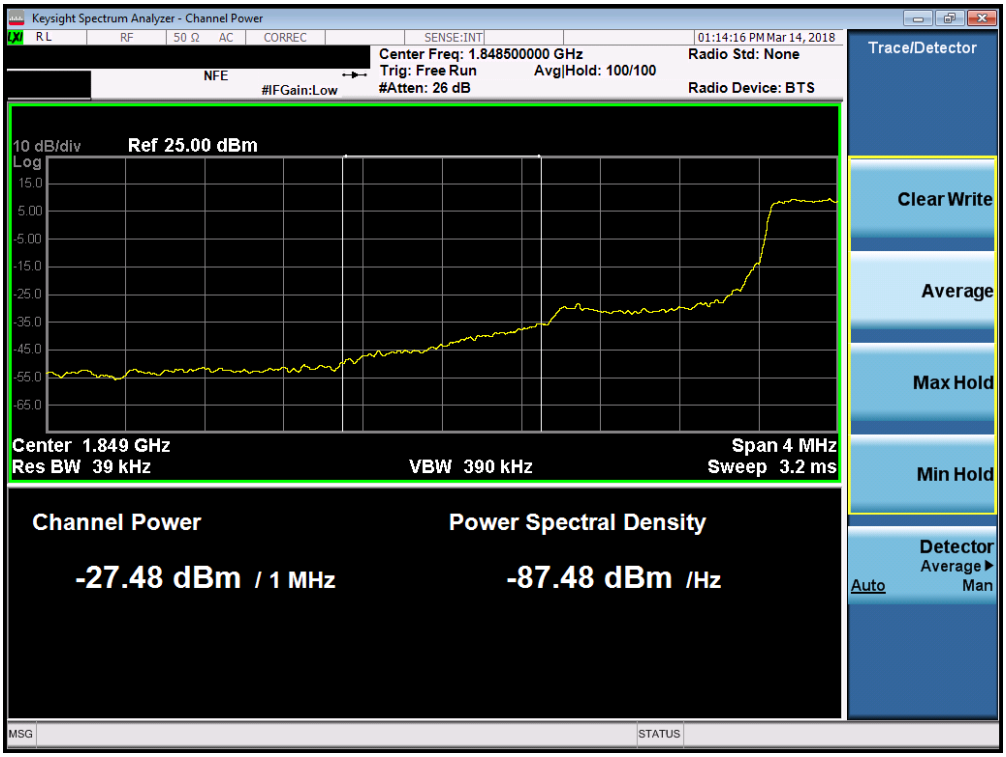


Plot 7-156. Upper Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

Band 25/2

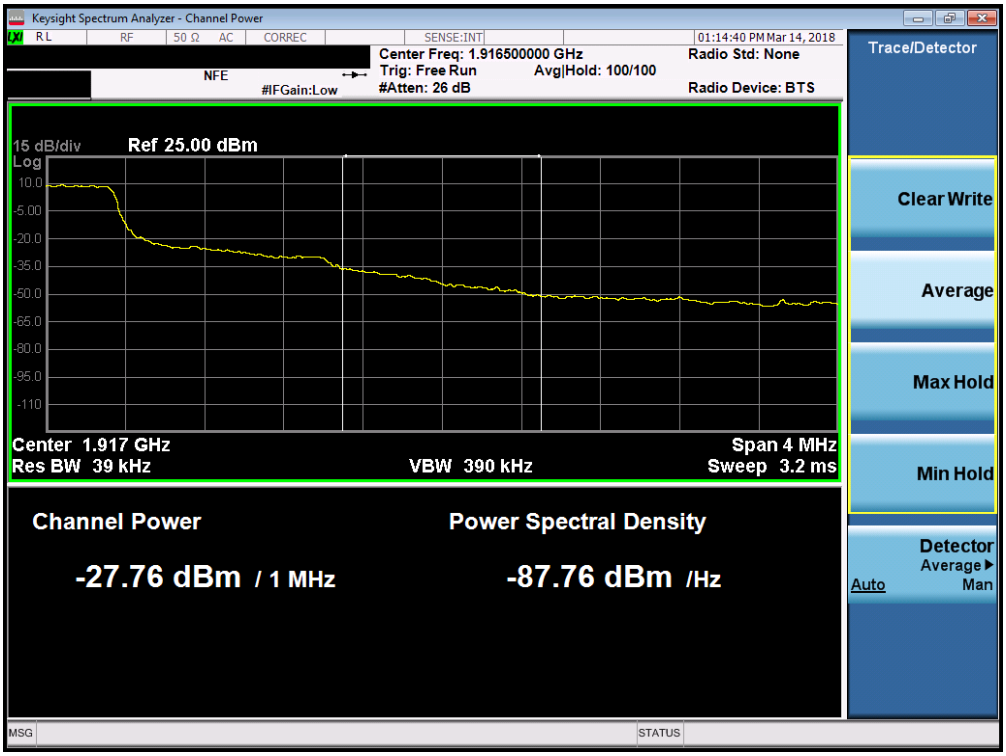


Plot 7-157. Lower Band Edge Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)

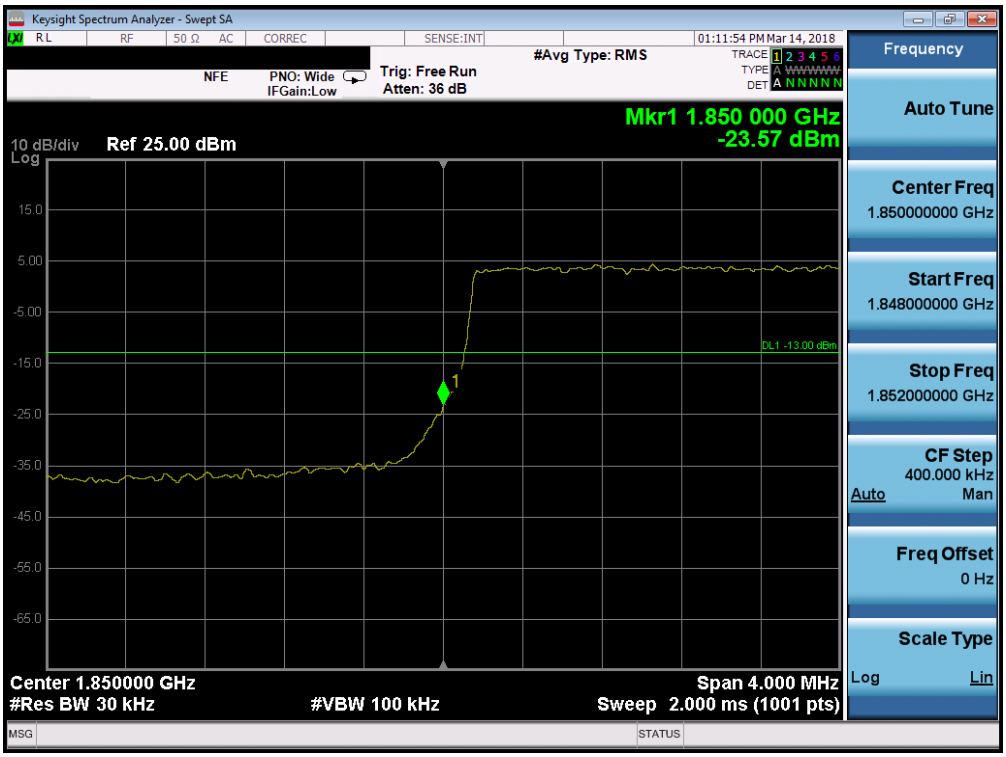


Plot 7-158. Lower Extended Band Edge Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)

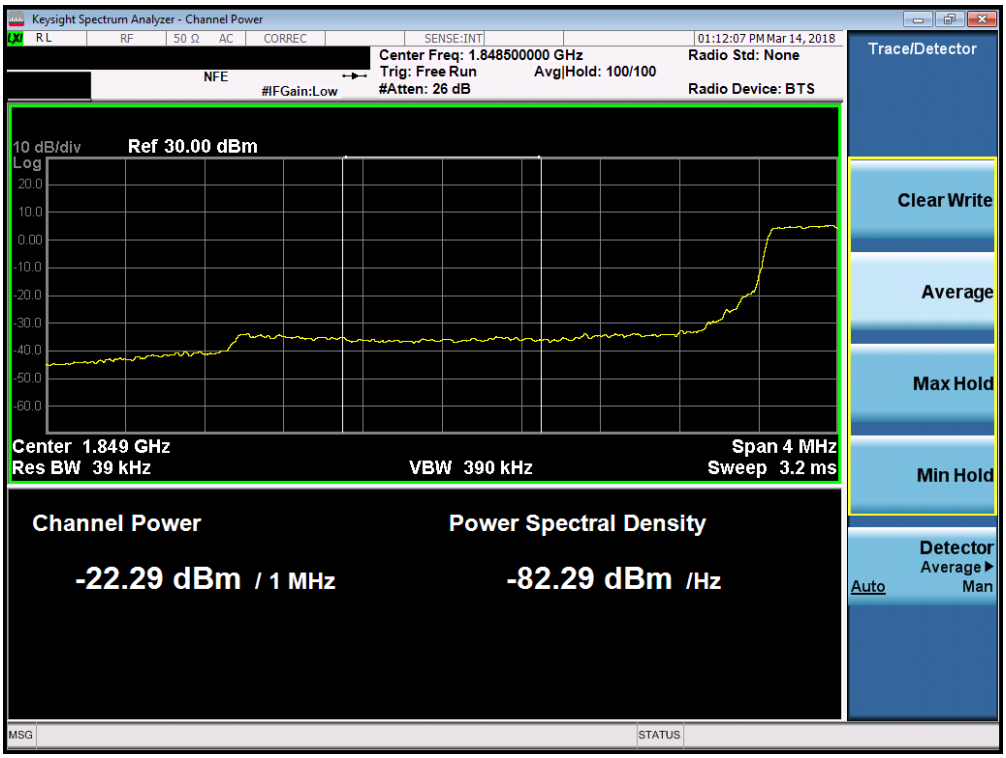
Plot 7-159. Upper Band Edge Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-160. Upper Extended Band Edge Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)

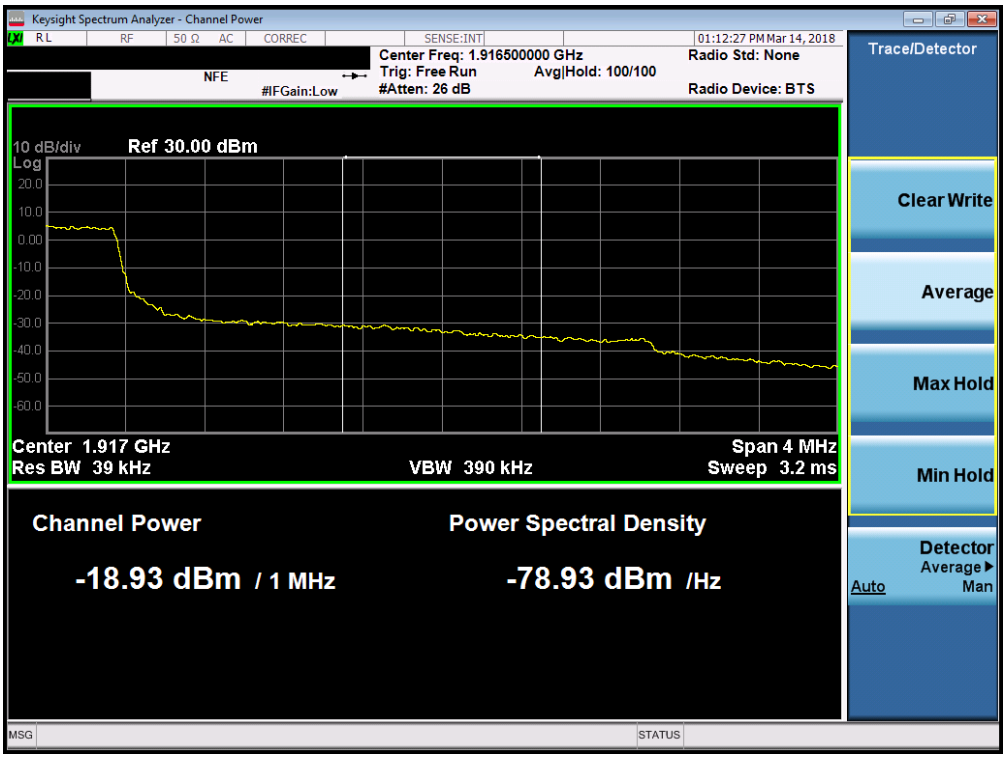


Plot 7-161. Lower Band Edge Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)

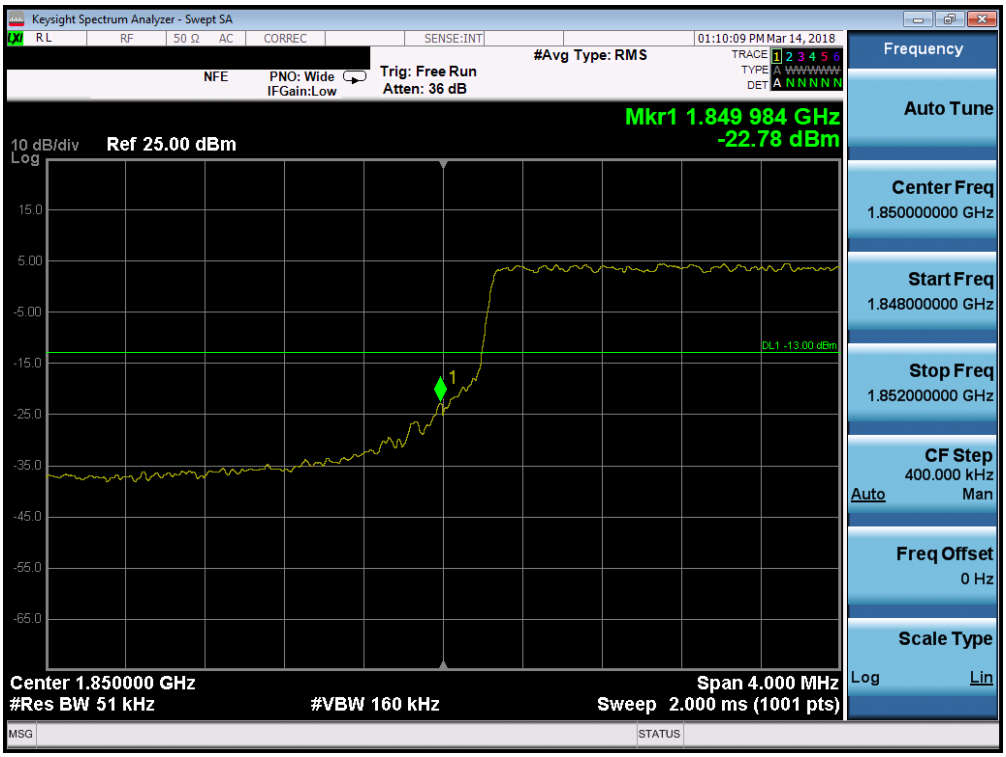


Plot 7-162. Lower Extended Band Edge Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)

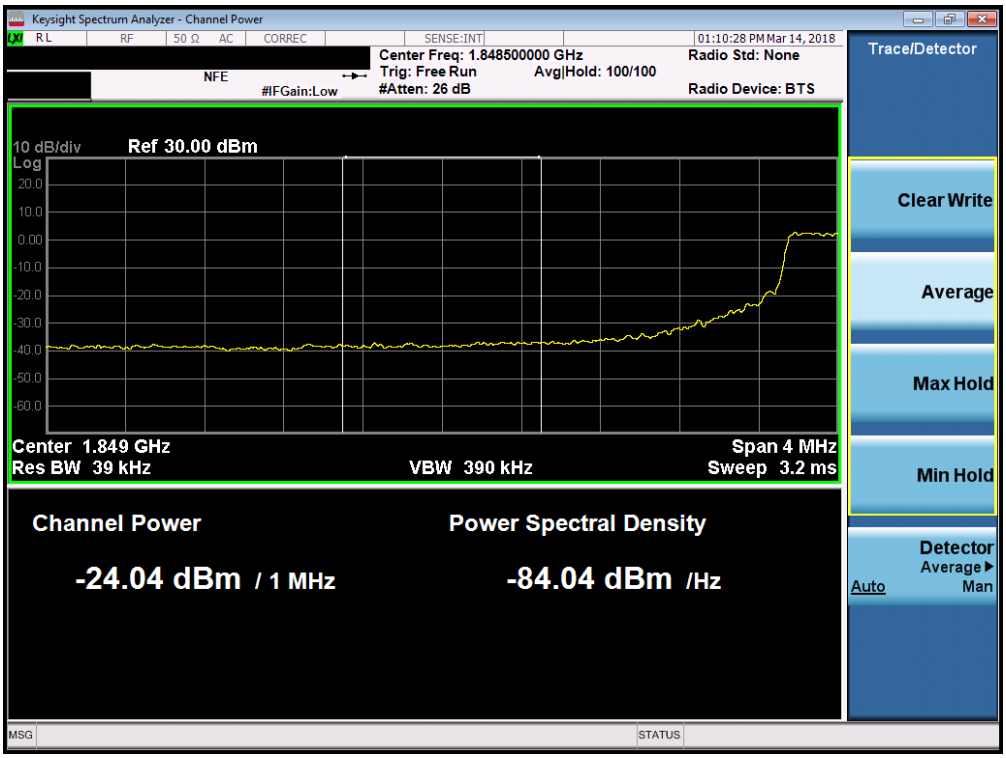
Plot 7-163. Upper Band Edge Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-164. Upper Extended Band Edge Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)

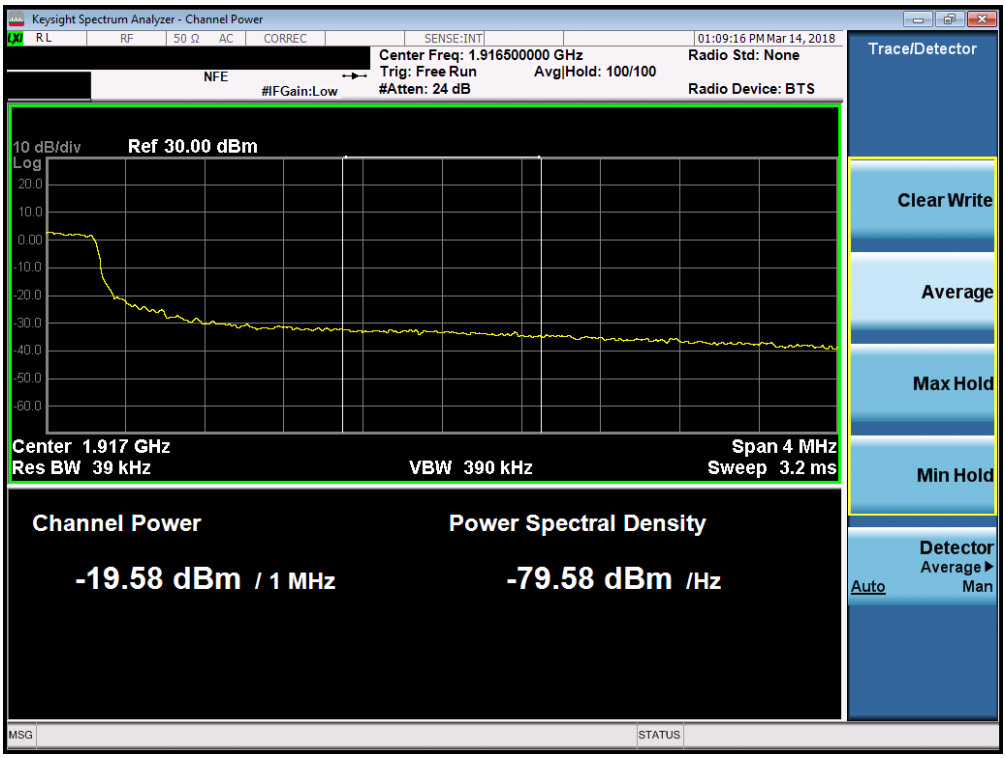


Plot 7-165. Lower Band Edge Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)

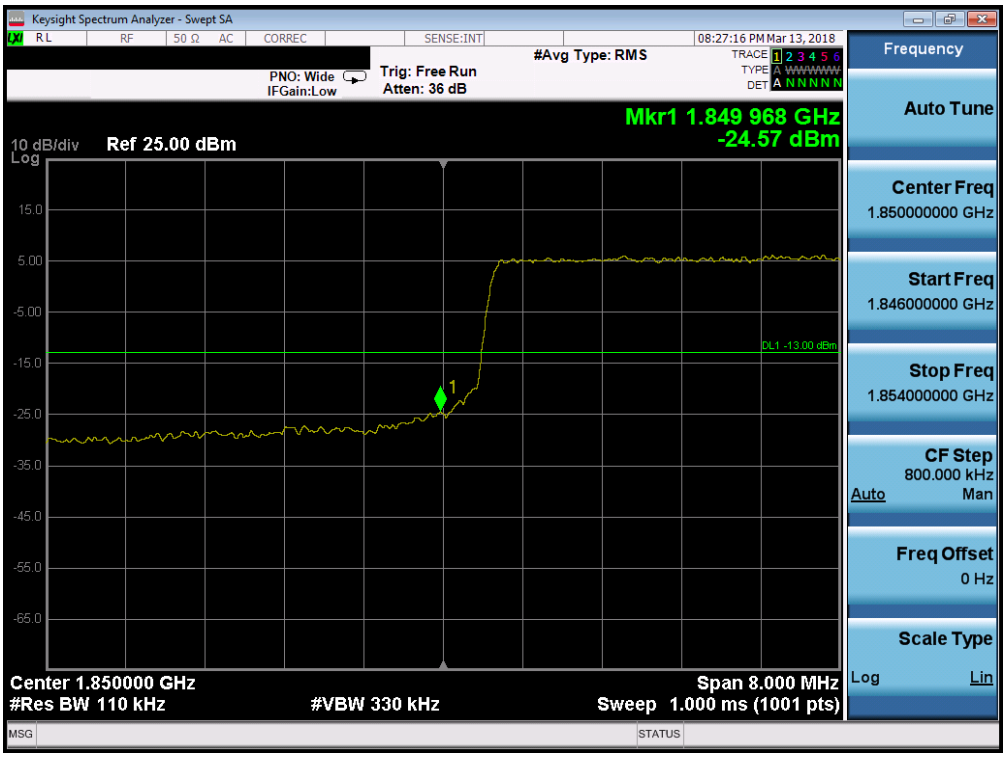


Plot 7-166. Lower Extended Band Edge Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)

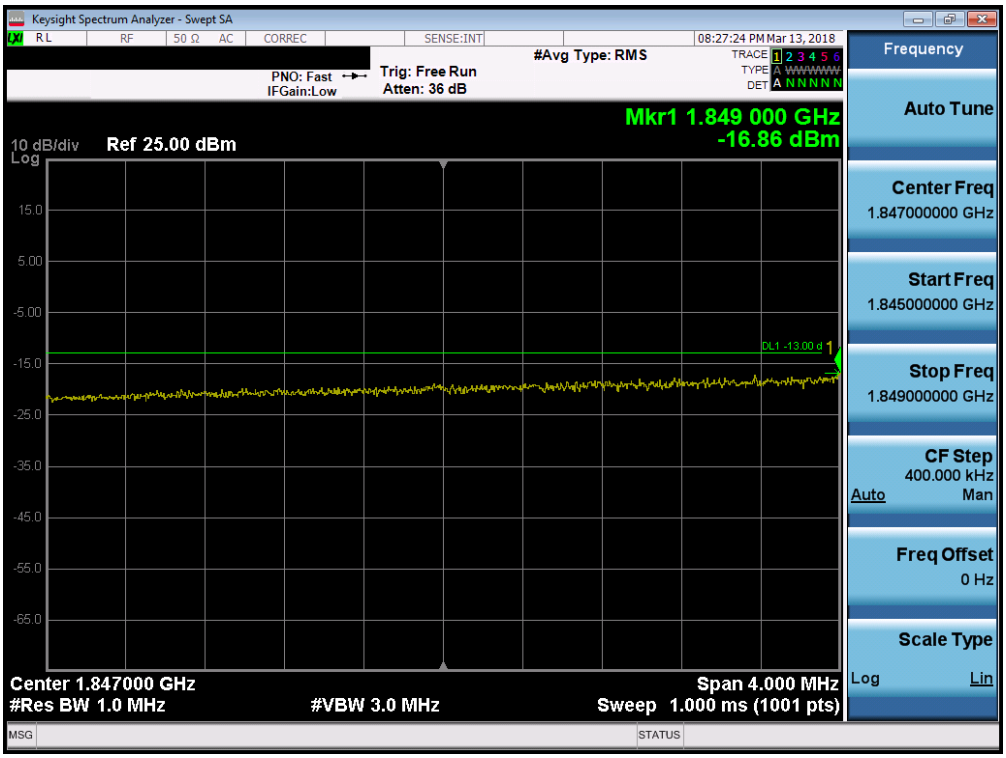
Plot 7-167. Upper Band Edge Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)



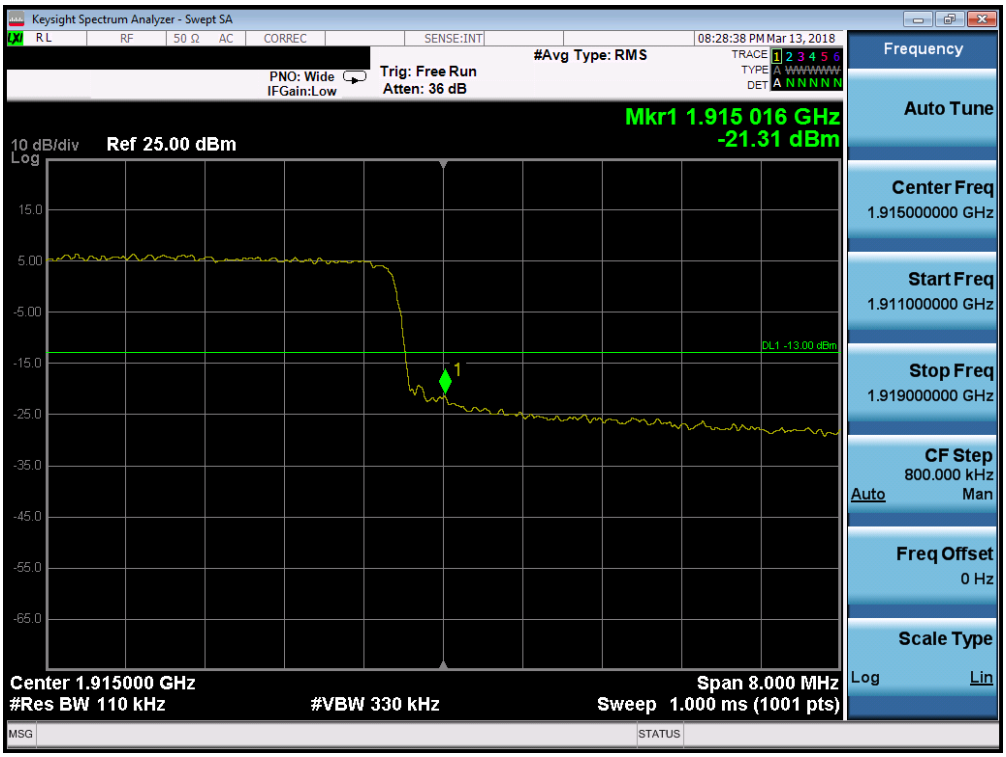
Plot 7-168. Upper Extended Band Edge Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)



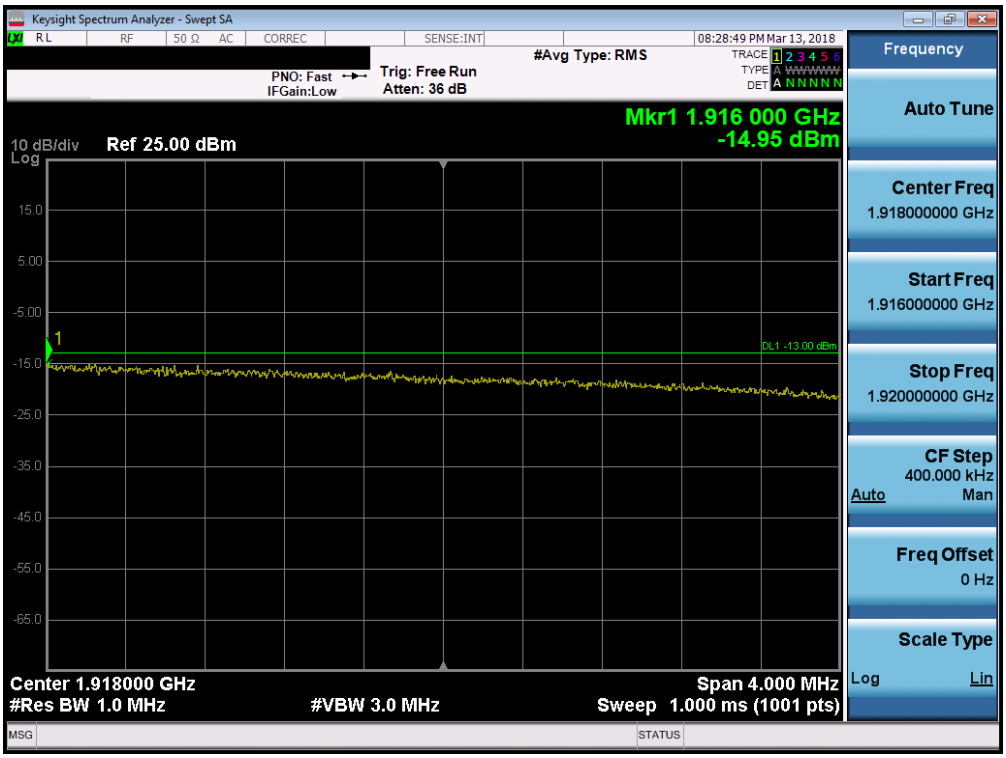
Plot 7-169. Lower Band Edge Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)



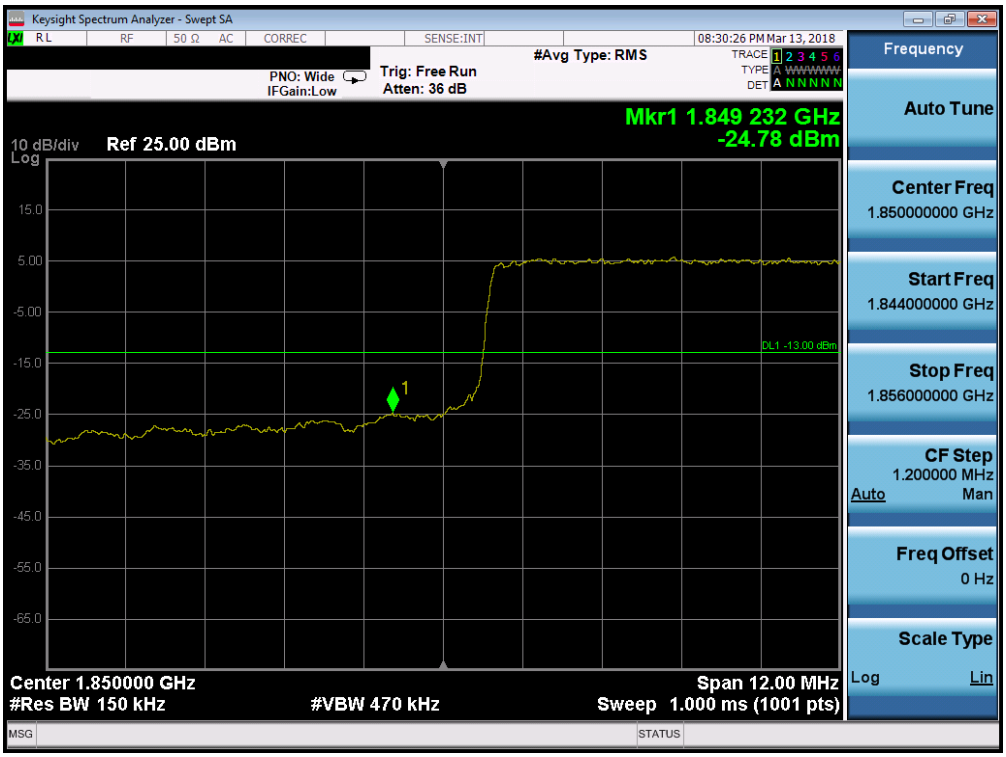
Plot 7-170. Lower Extended Band Edge Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)



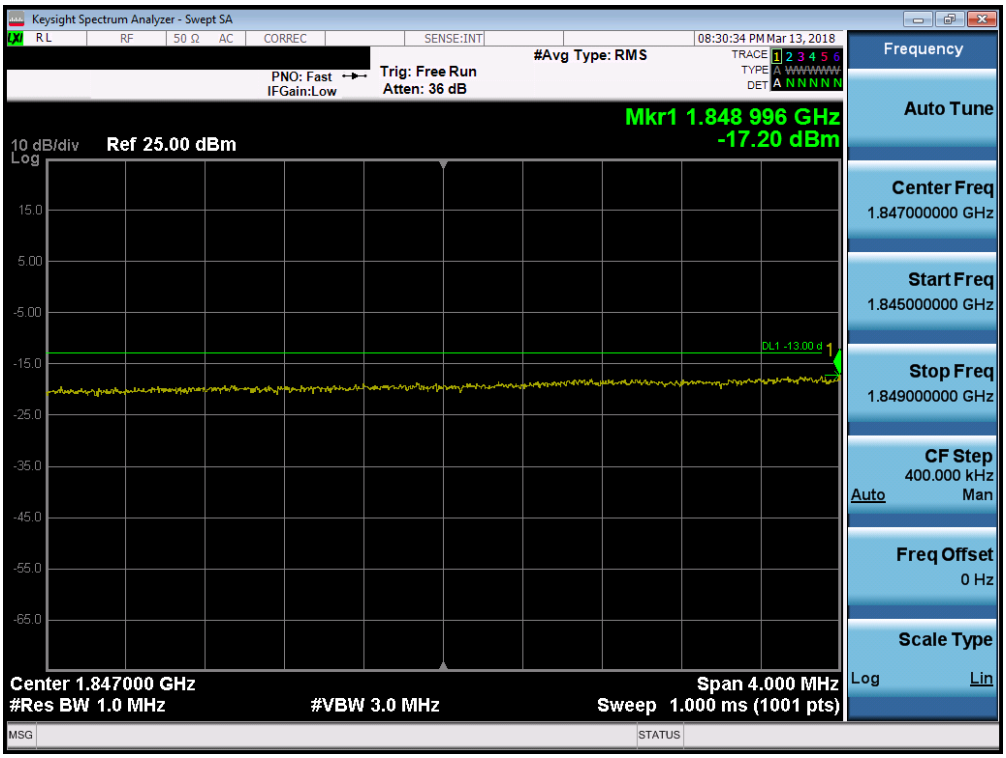
Plot 7-171. Upper Band Edge Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-172. Upper Extended Band Edge Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

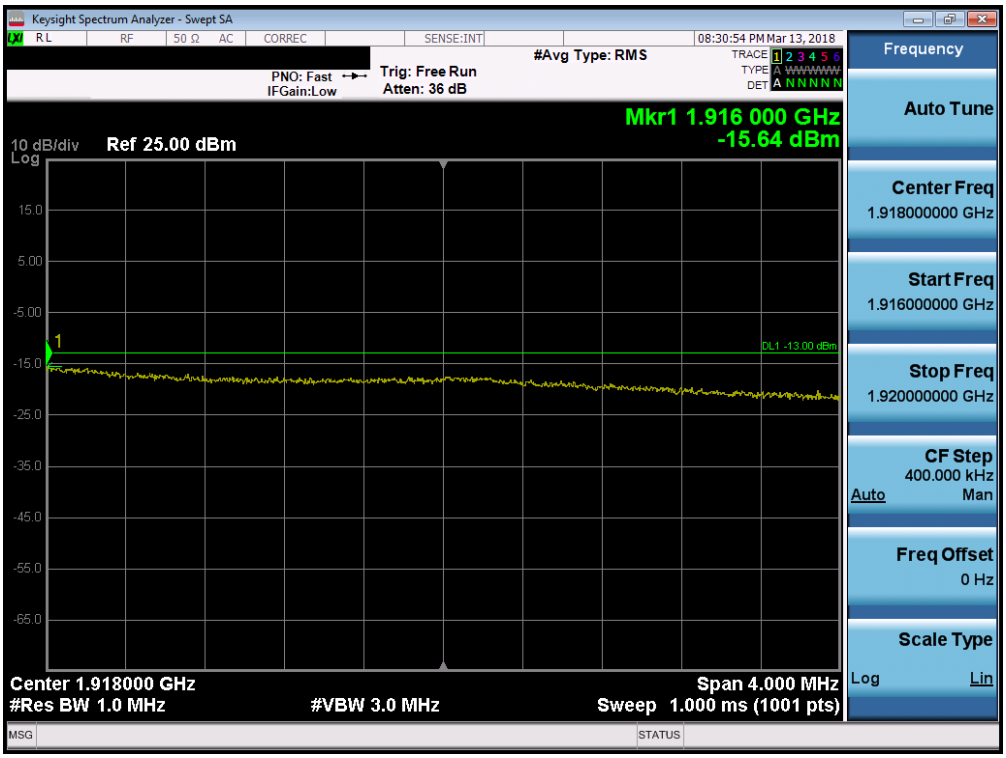


Plot 7-173. Lower Band Edge Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)

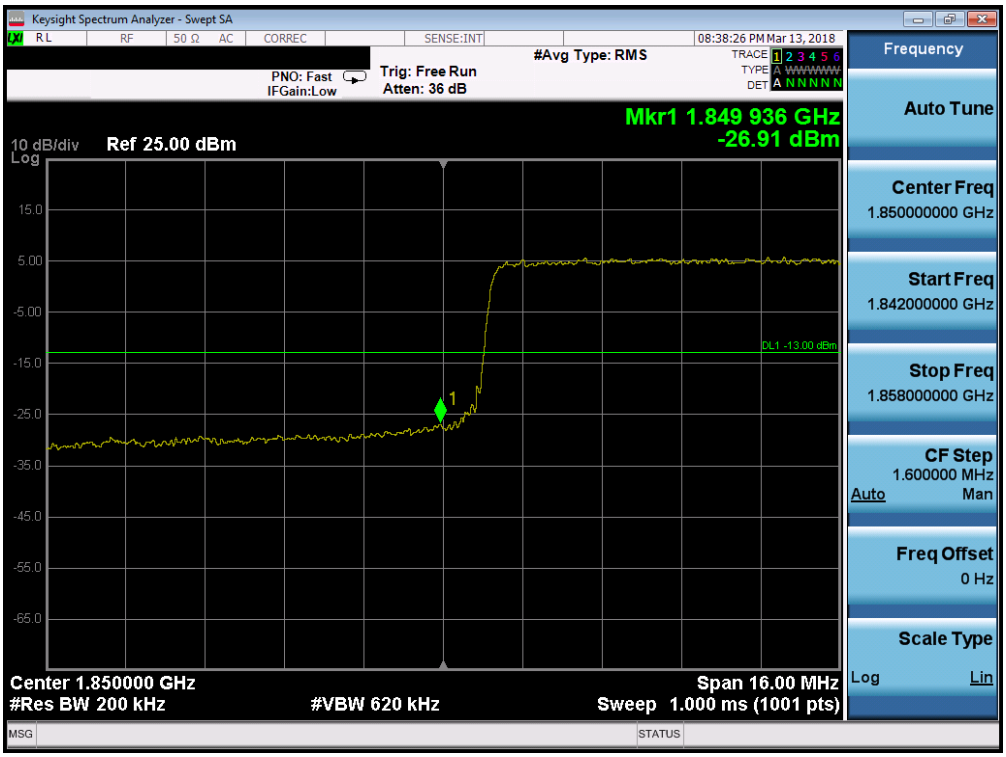


Plot 7-174. Lower Extended Band Edge Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)

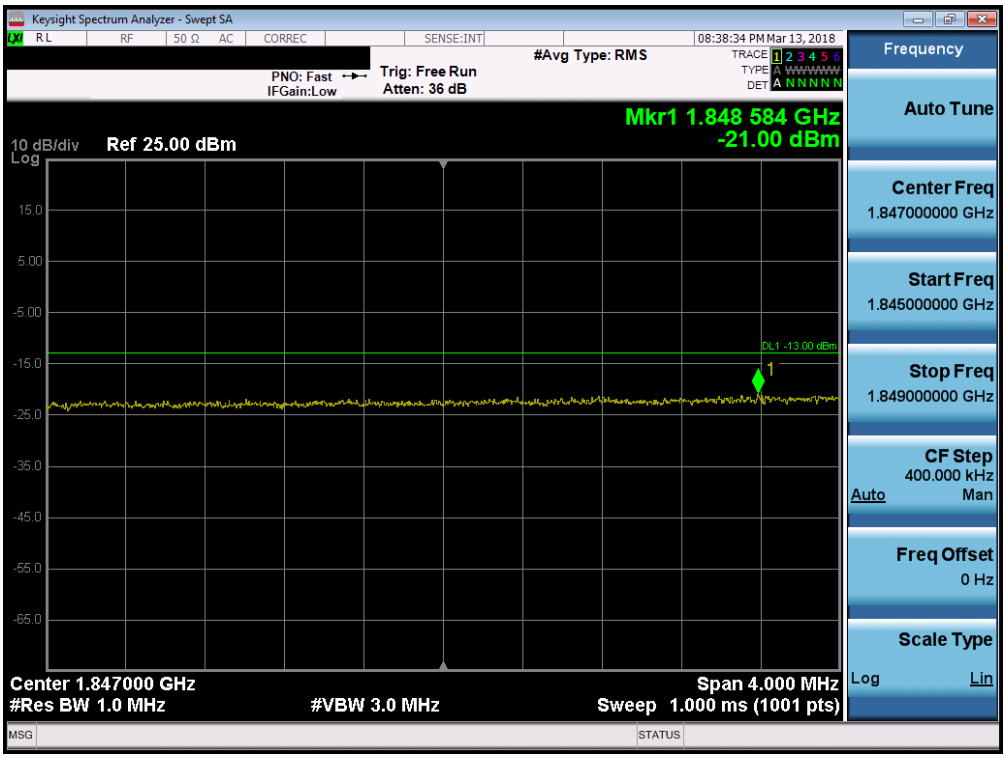
Plot 7-175. Upper Band Edge Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)



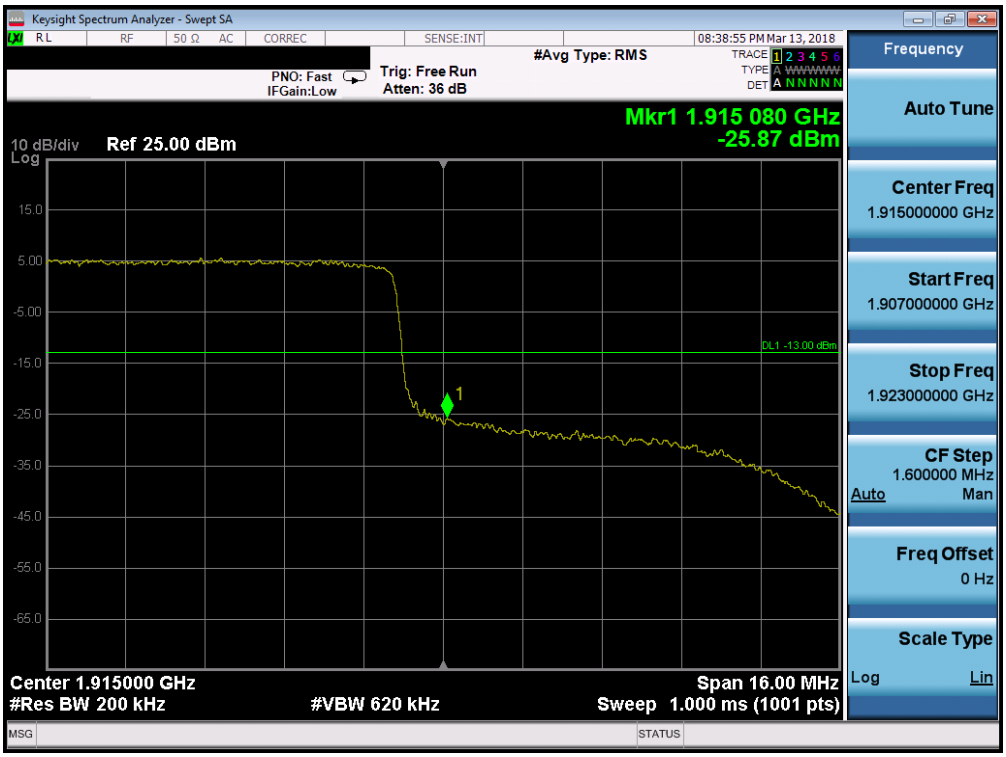
Plot 7-176. Upper Extended Band Edge Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)



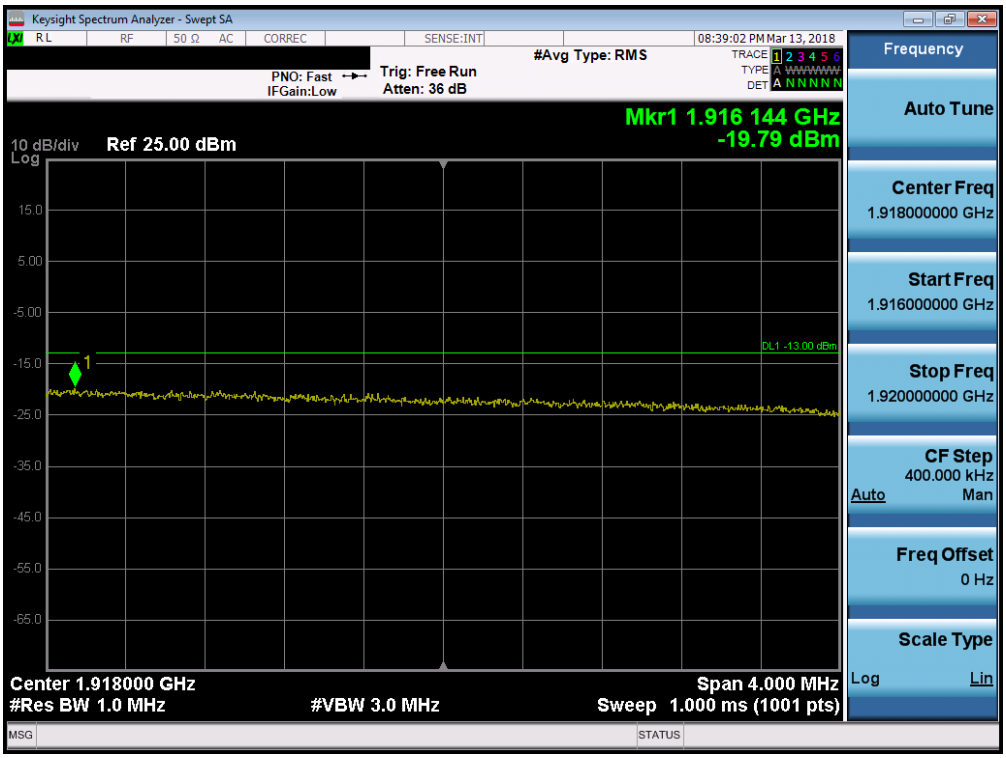
Plot 7-177. Lower Band Edge Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-178. Lower Extended Band Edge Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

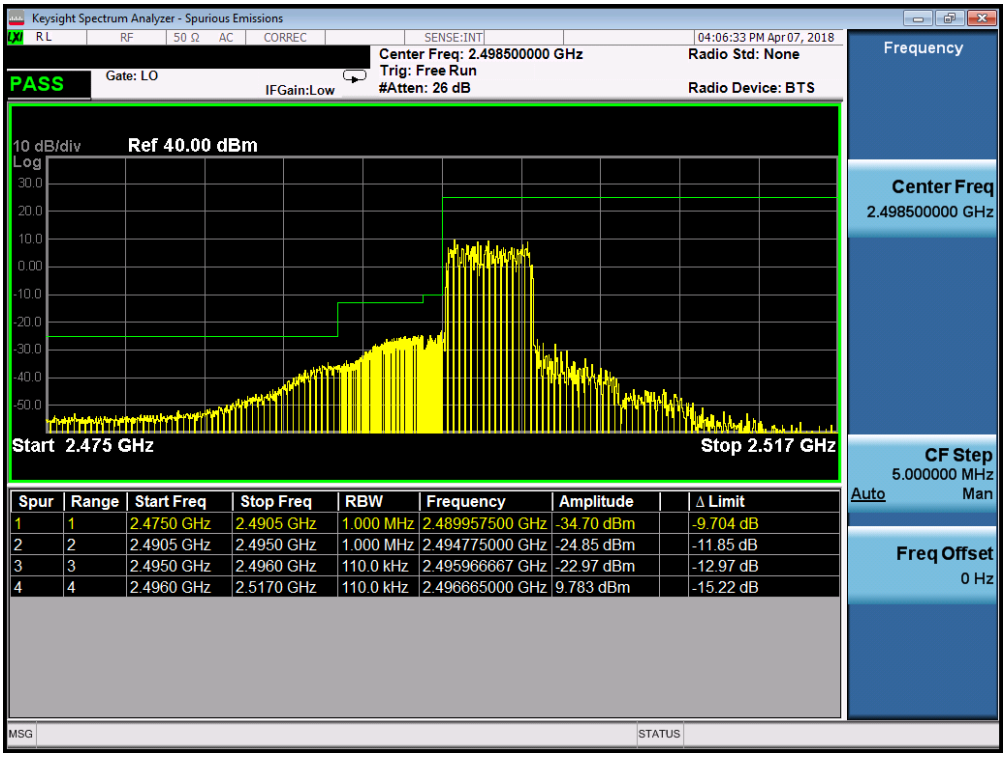


Plot 7-179. Upper Band Edge Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)



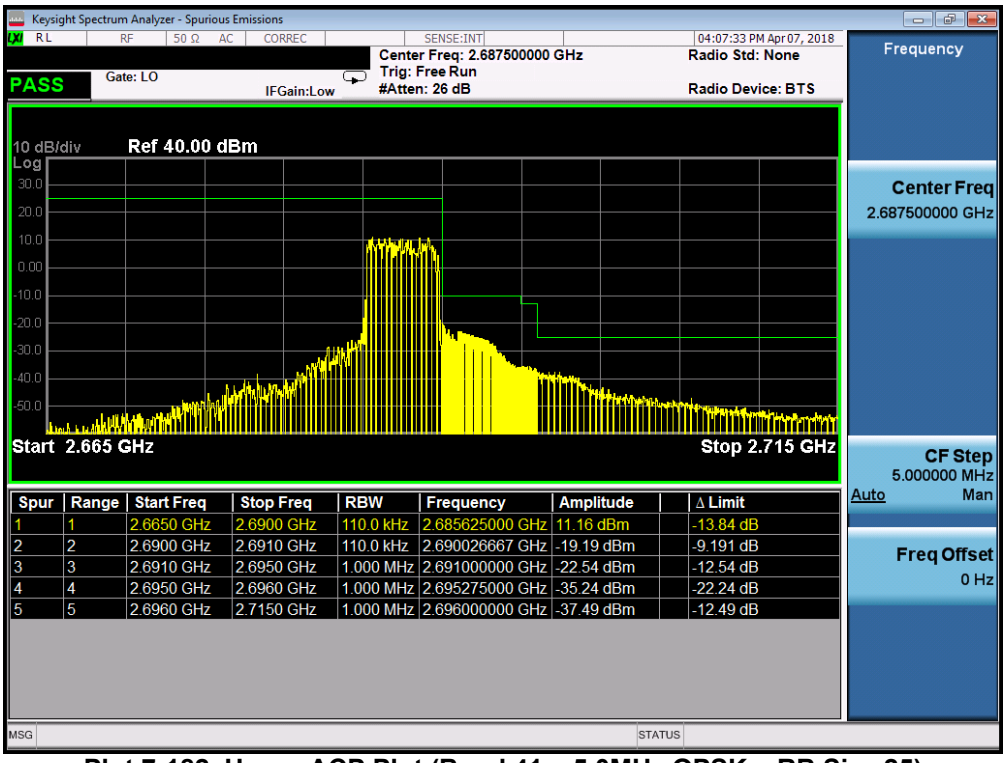
Plot 7-180. Upper Extended Band Edge Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

Band 41 (PC2)



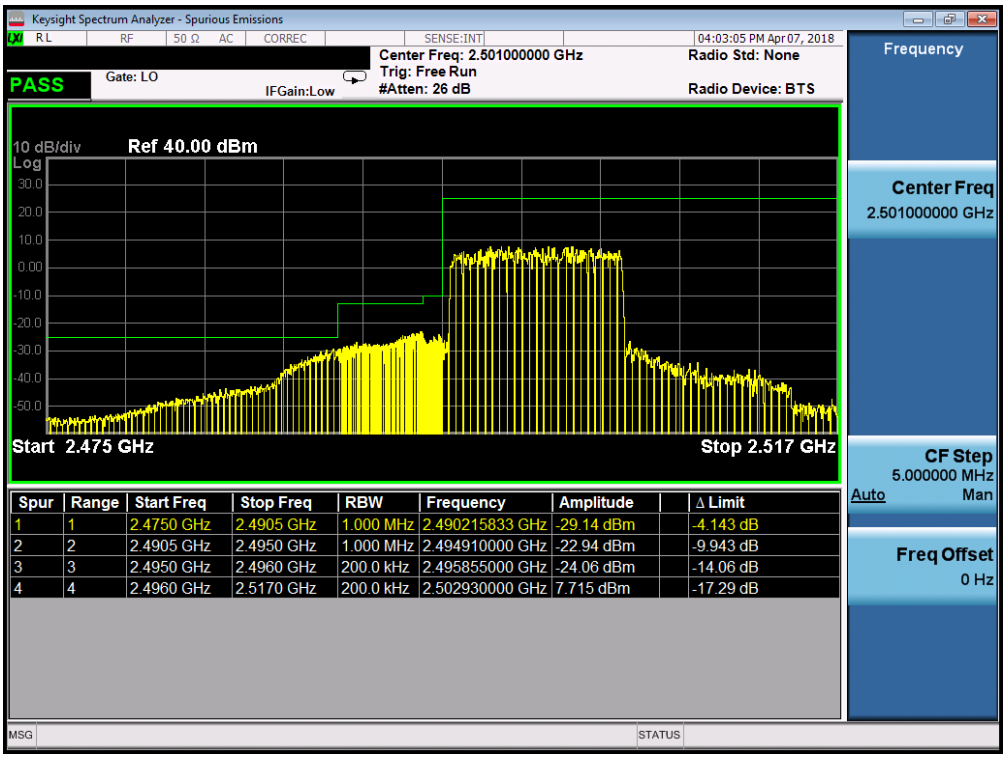
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.489957500 GHz	-34.70 dBm	-9.704 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494775000 GHz	-24.85 dBm	-11.85 dB
3	3	2.4950 GHz	2.4960 GHz	110.0 kHz	2.495966667 GHz	-22.97 dBm	-12.97 dB
4	4	2.4960 GHz	2.5170 GHz	110.0 kHz	2.496665000 GHz	9.783 dBm	-15.22 dB

Plot 7-181. Lower ACP Plot (Band 41 – 5.0MHz QPSK – RB Size 25)

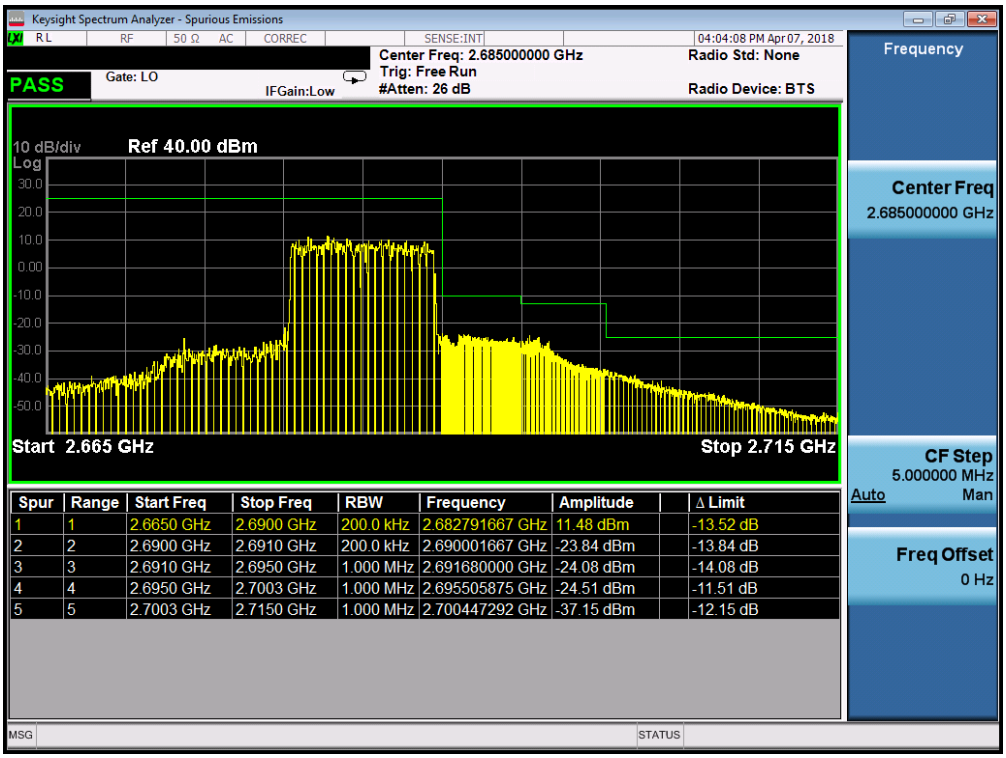


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	110.0 kHz	2.685625000 GHz	11.16 dBm	-13.84 dB
2	2	2.6900 GHz	2.6910 GHz	110.0 kHz	2.690026667 GHz	-19.19 dBm	-9.191 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691000000 GHz	-22.54 dBm	-12.54 dB
4	4	2.6950 GHz	2.6960 GHz	1.000 MHz	2.695275000 GHz	-35.24 dBm	-22.24 dB
5	5	2.6960 GHz	2.7150 GHz	1.000 MHz	2.696000000 GHz	-37.49 dBm	-12.49 dB

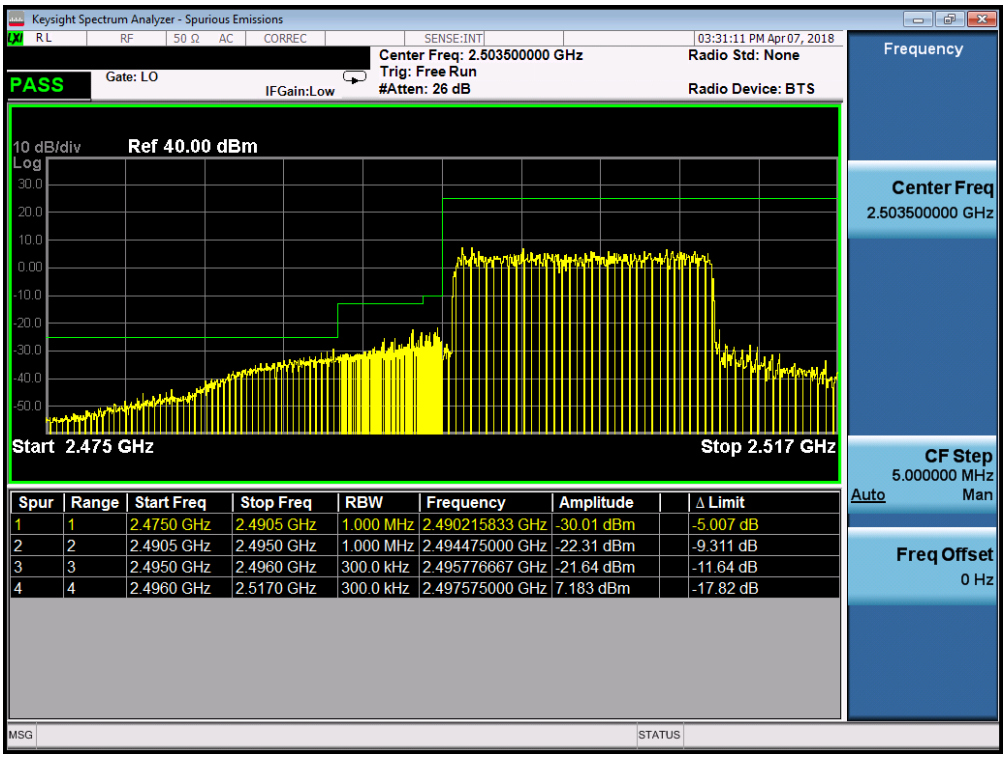
Plot 7-182. Upper ACP Plot (Band 41 – 5.0MHz QPSK – RB Size 25)



Plot 7-183. Lower ACP Plot (Band 41 – 10.0MHz QPSK – RB Size 50)

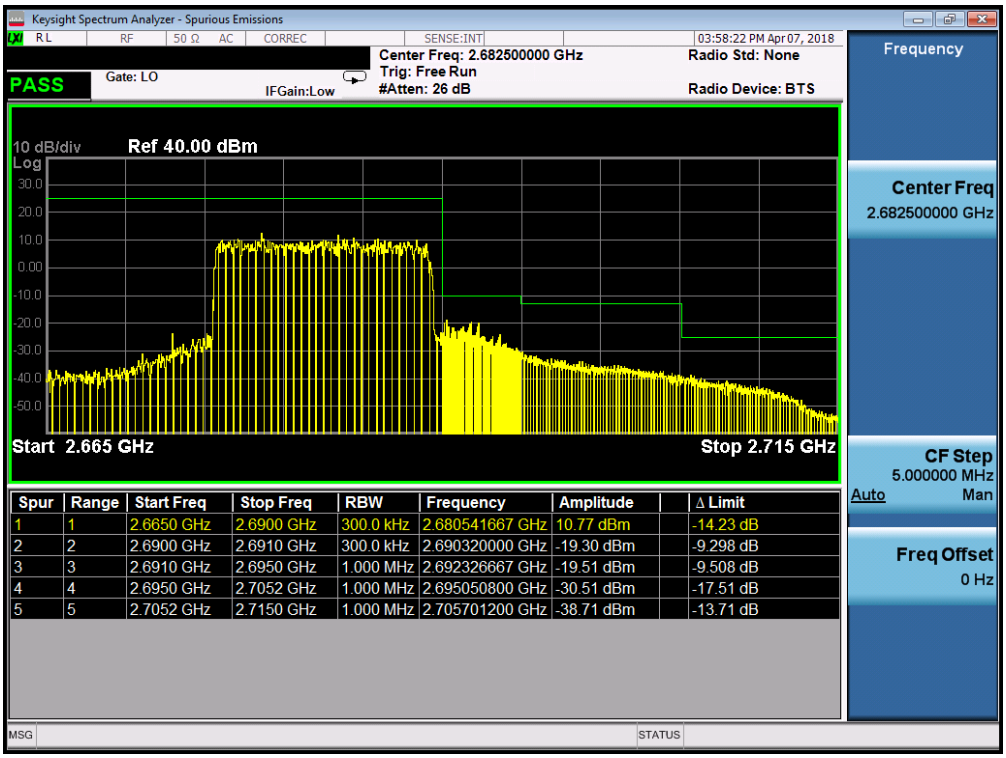


Plot 7-184. Upper ACP Plot (Band 41 – 10.0MHz QPSK – RB Size 50)



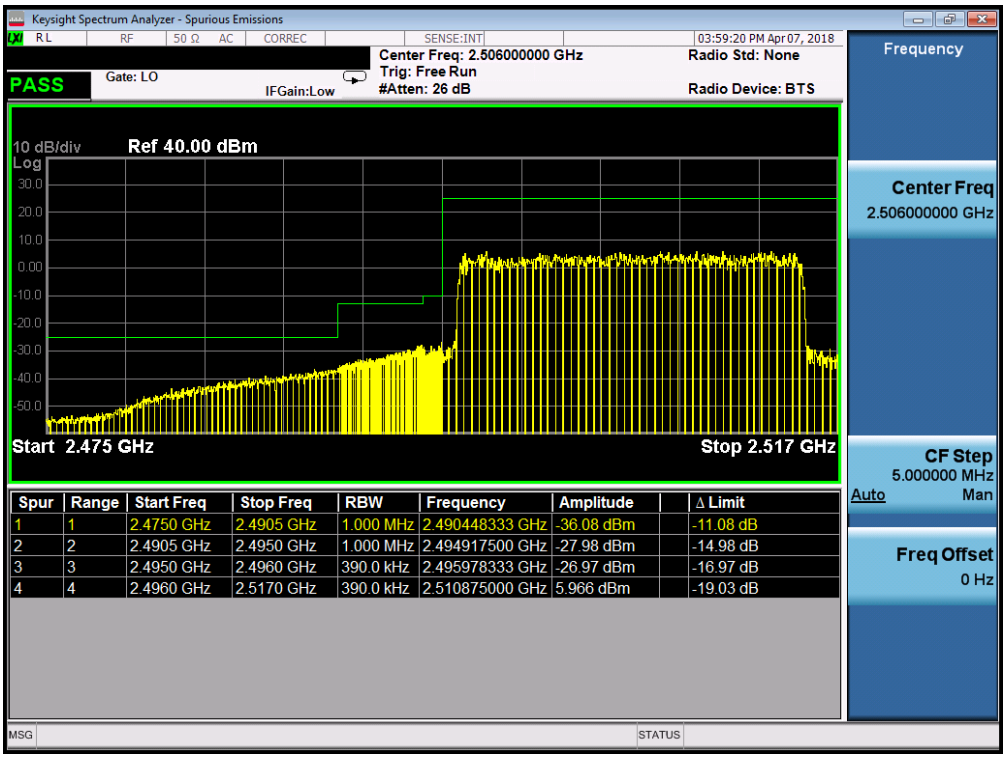
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490215833 GHz	-30.01 dBm	-5.007 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494475000 GHz	-22.31 dBm	-9.311 dB
3	3	2.4950 GHz	2.4960 GHz	300.0 kHz	2.495776667 GHz	-21.64 dBm	-11.64 dB
4	4	2.4960 GHz	2.5170 GHz	300.0 kHz	2.497575000 GHz	7.183 dBm	-17.82 dB

Plot 7-185. Lower ACP Plot (Band 41 – 15.0MHz QPSK – RB Size 75)



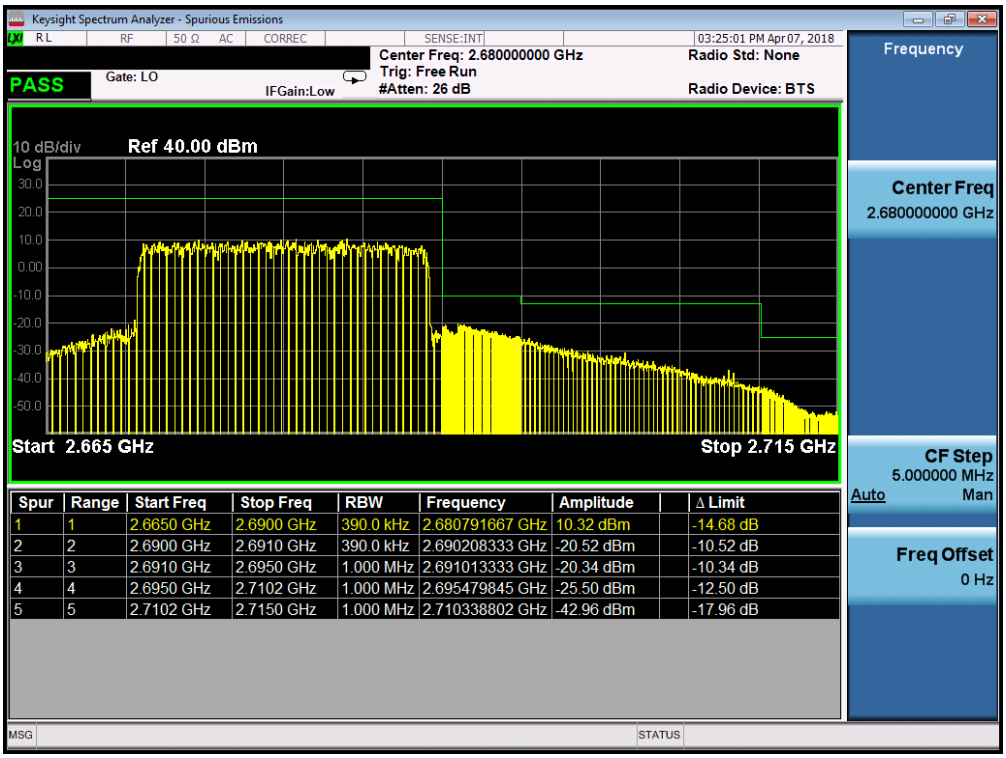
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	300.0 kHz	2.680541667 GHz	10.77 dBm	-14.23 dB
2	2	2.6900 GHz	2.6910 GHz	300.0 kHz	2.690320000 GHz	-19.30 dBm	-9.298 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.692326667 GHz	-19.51 dBm	-9.508 dB
4	4	2.6950 GHz	2.7052 GHz	1.000 MHz	2.695050800 GHz	-30.51 dBm	-17.51 dB
5	5	2.7052 GHz	2.7150 GHz	1.000 MHz	2.705701200 GHz	-38.71 dBm	-13.71 dB

Plot 7-186. Upper ACP Plot (Band 41 – 15.0MHz QPSK – RB Size 75)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490448333 GHz	-36.08 dBm	-11.08 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494917500 GHz	-27.98 dBm	-14.98 dB
3	3	2.4950 GHz	2.4960 GHz	390.0 kHz	2.495978333 GHz	-26.97 dBm	-16.97 dB
4	4	2.4960 GHz	2.5170 GHz	390.0 kHz	2.510875000 GHz	5.966 dBm	-19.03 dB

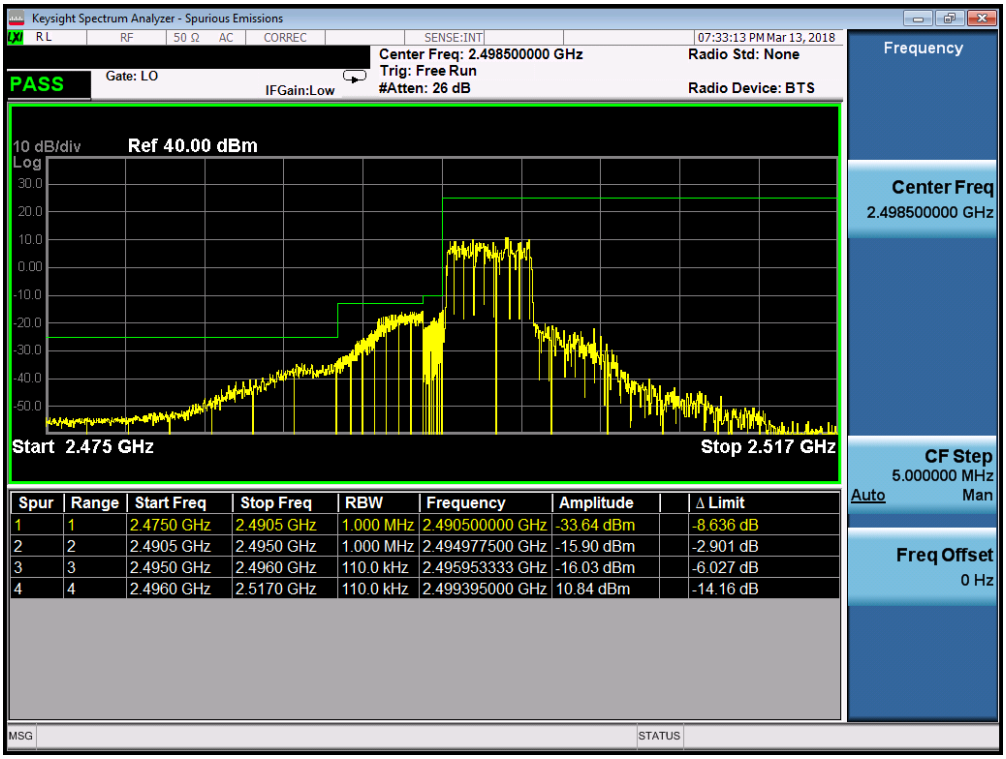
Plot 7-187. Lower ACP Plot (Band 41 – 20.0MHz QPSK – RB Size 100)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	390.0 kHz	2.680791667 GHz	10.32 dBm	-14.68 dB
2	2	2.6900 GHz	2.6910 GHz	390.0 kHz	2.690208333 GHz	-20.52 dBm	-10.52 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691013333 GHz	-20.34 dBm	-10.34 dB
4	4	2.6950 GHz	2.7102 GHz	1.000 MHz	2.695479845 GHz	-25.50 dBm	-12.50 dB
5	5	2.7102 GHz	2.7150 GHz	1.000 MHz	2.710338802 GHz	-42.96 dBm	-17.96 dB

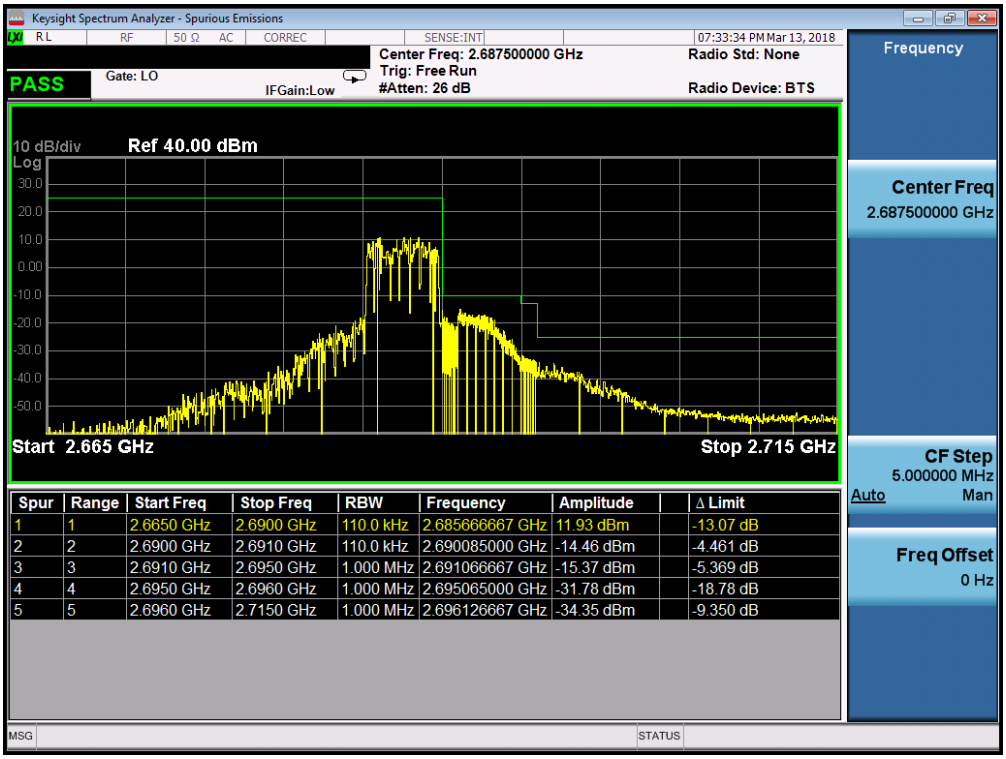
Plot 7-188. Upper ACP Plot (Band 41 – 20.0MHz QPSK – RB Size 100)

Band 41 (PC3)



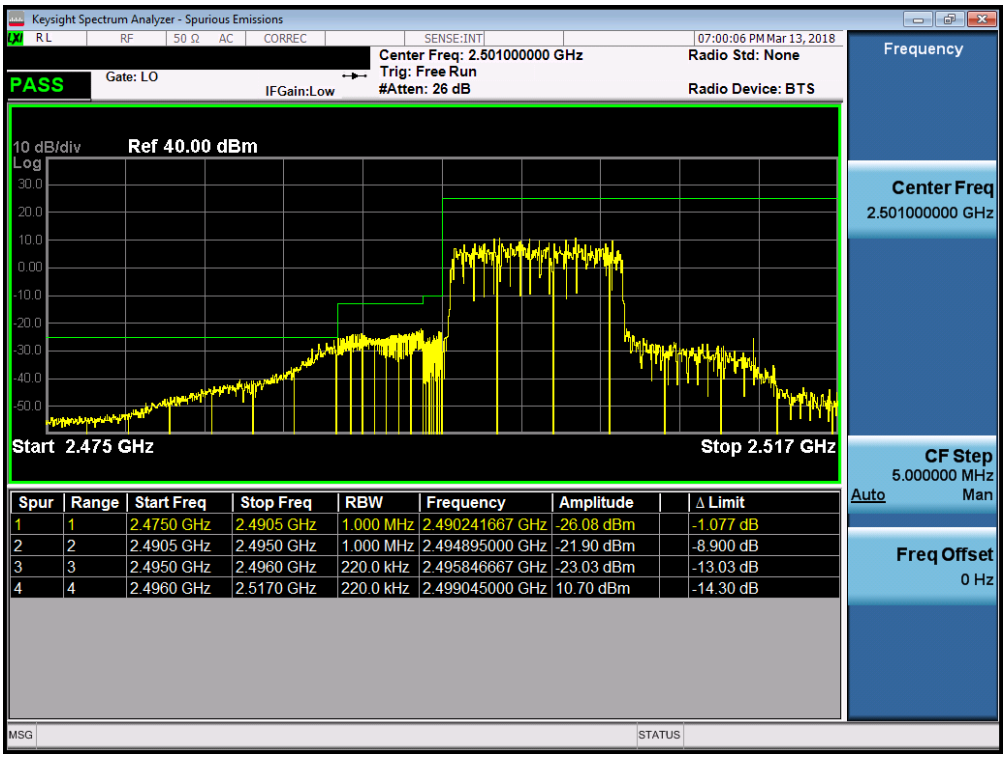
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490500000 GHz	-33.64 dBm	-8.636 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494977500 GHz	-15.90 dBm	-2.901 dB
3	3	2.4950 GHz	2.4960 GHz	110.0 kHz	2.495953333 GHz	-16.03 dBm	-6.027 dB
4	4	2.4960 GHz	2.5170 GHz	110.0 kHz	2.499395000 GHz	10.84 dBm	-14.16 dB

Plot 7-189. Lower ACP Plot (Band 41 – 5.0MHz QPSK – RB Size 25)



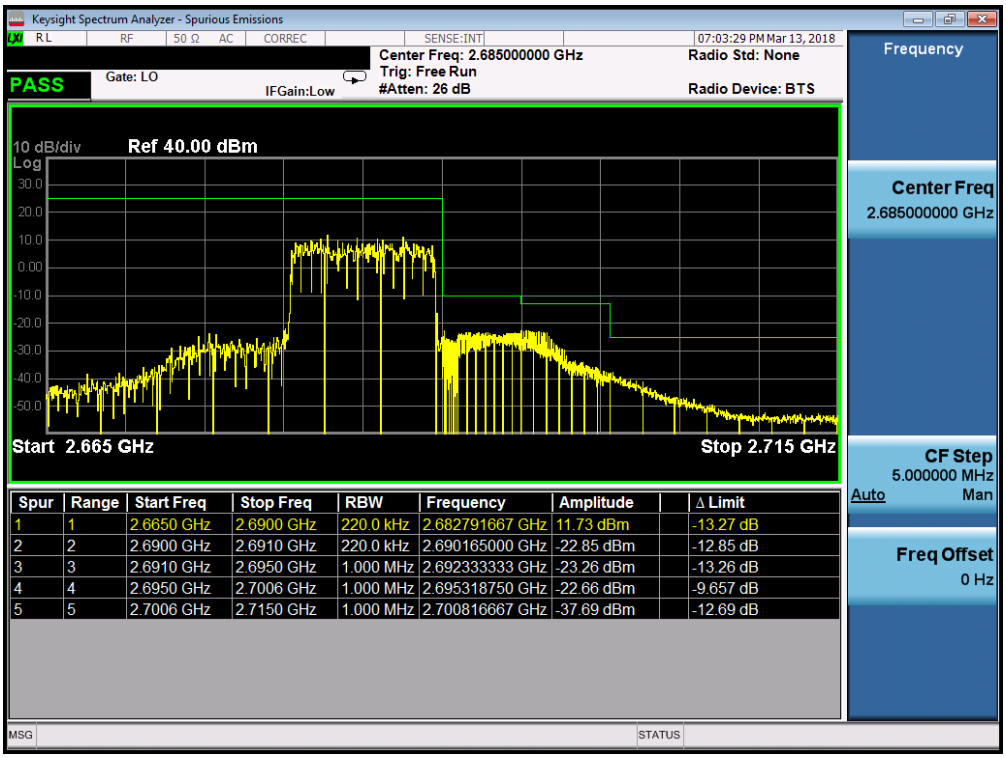
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	110.0 kHz	2.685666667 GHz	11.93 dBm	-13.07 dB
2	2	2.6900 GHz	2.6910 GHz	110.0 kHz	2.690085000 GHz	-14.46 dBm	-4.461 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691066667 GHz	-15.37 dBm	-5.369 dB
4	4	2.6950 GHz	2.6960 GHz	1.000 MHz	2.695065000 GHz	-31.78 dBm	-18.78 dB
5	5	2.6960 GHz	2.7150 GHz	1.000 MHz	2.696126667 GHz	-34.35 dBm	-9.350 dB

Plot 7-190. Upper ACP Plot (Band 41 – 5.0MHz QPSK – RB Size 25)



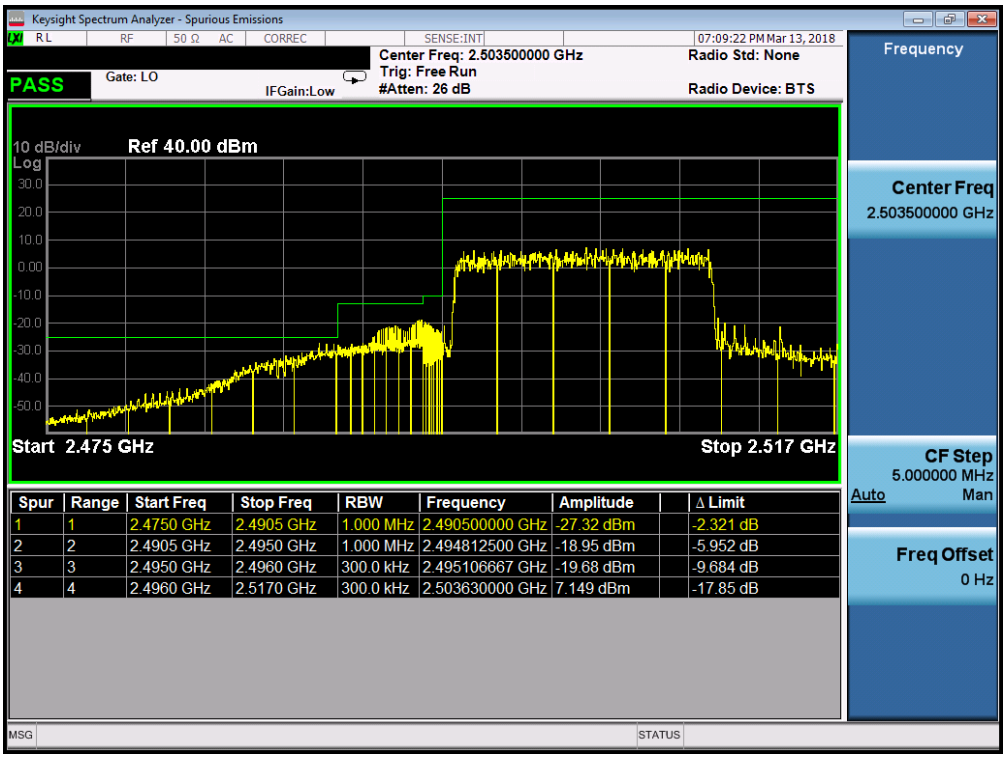
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490241667 GHz	-26.08 dBm	-1.077 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494895000 GHz	-21.90 dBm	-8.900 dB
3	3	2.4950 GHz	2.4960 GHz	220.0 kHz	2.495846667 GHz	-23.03 dBm	-13.03 dB
4	4	2.4960 GHz	2.5170 GHz	220.0 kHz	2.499045000 GHz	10.70 dBm	-14.30 dB

Plot 7-191. Lower ACP Plot (Band 41 – 10.0MHz QPSK – RB Size 50)



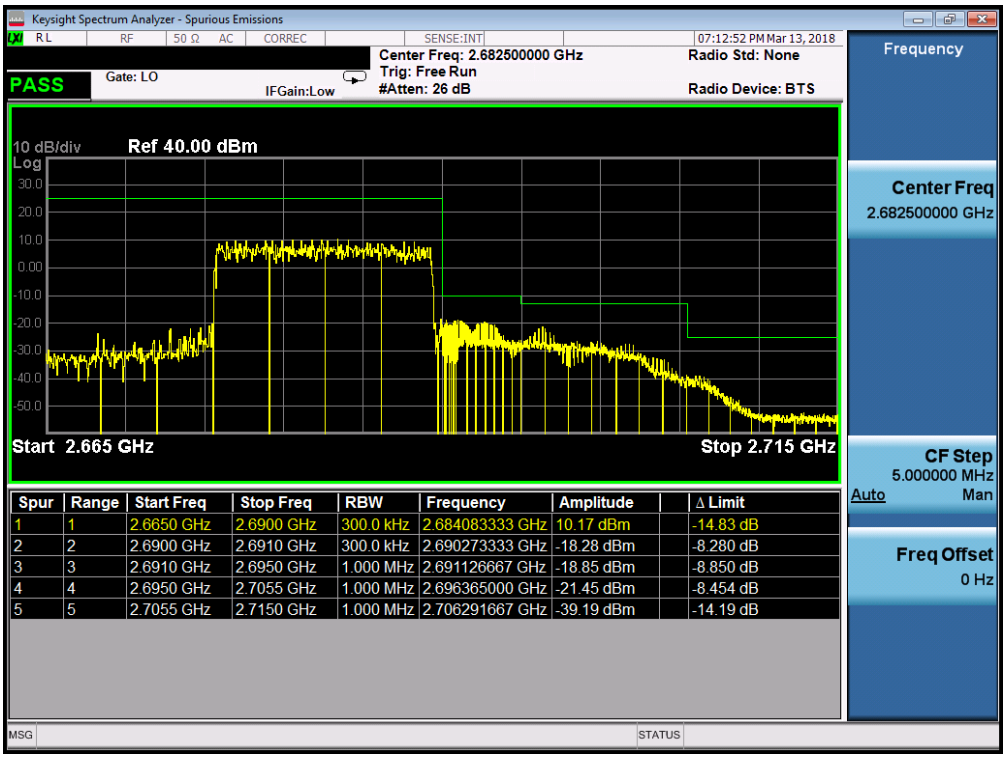
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	220.0 kHz	2.682791667 GHz	11.73 dBm	-13.27 dB
2	2	2.6900 GHz	2.6910 GHz	220.0 kHz	2.690165000 GHz	-22.85 dBm	-12.85 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.692333333 GHz	-23.26 dBm	-13.26 dB
4	4	2.6950 GHz	2.7006 GHz	1.000 MHz	2.695318750 GHz	-22.66 dBm	-9.657 dB
5	5	2.7006 GHz	2.7150 GHz	1.000 MHz	2.700816667 GHz	-37.69 dBm	-12.69 dB

Plot 7-192. Upper ACP Plot (Band 41 – 10.0MHz QPSK – RB Size 50)



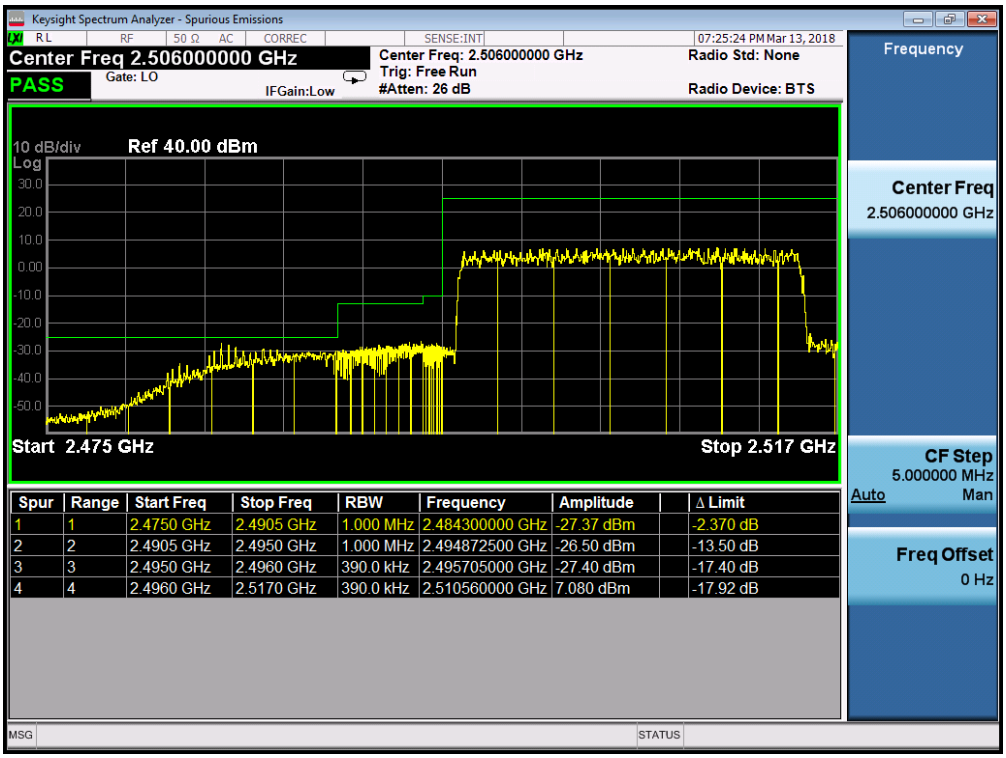
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490500000 GHz	-27.32 dBm	-2.321 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494812500 GHz	-18.95 dBm	-5.952 dB
3	3	2.4950 GHz	2.4960 GHz	300.0 kHz	2.495106667 GHz	-19.68 dBm	-9.684 dB
4	4	2.4960 GHz	2.5170 GHz	300.0 kHz	2.503630000 GHz	7.149 dBm	-17.85 dB

Plot 7-193. Lower ACP Plot (Band 41 – 15.0MHz QPSK – RB Size 75)

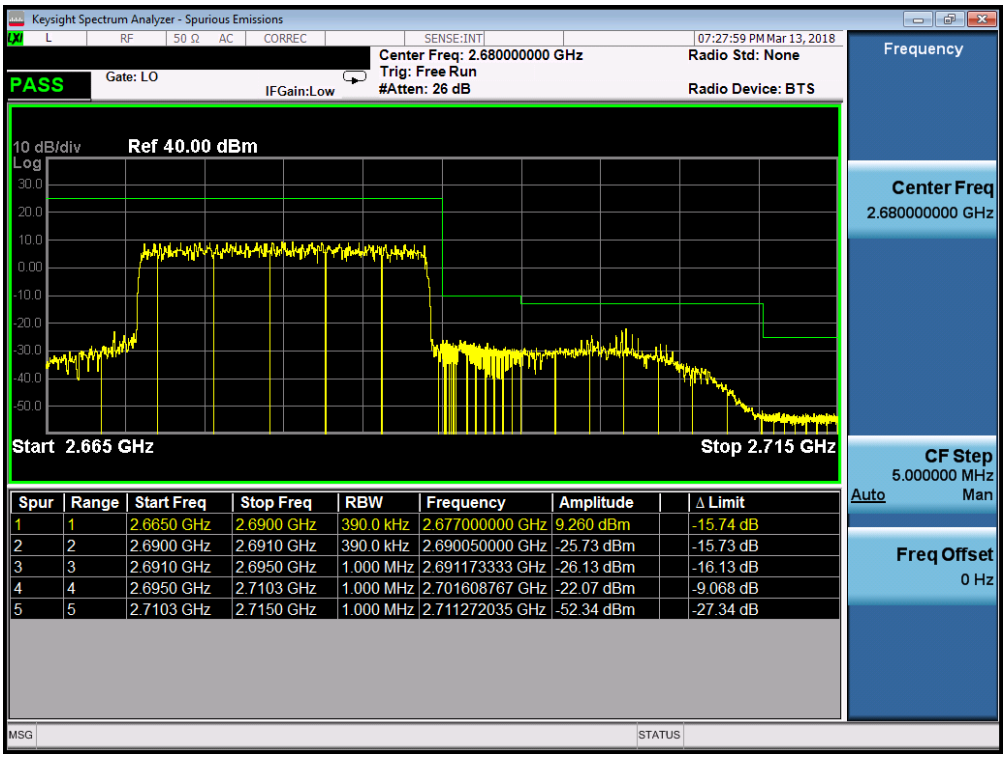


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	300.0 kHz	2.684083333 GHz	10.17 dBm	-14.83 dB
2	2	2.6900 GHz	2.6910 GHz	300.0 kHz	2.690273333 GHz	-18.28 dBm	-8.280 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691126667 GHz	-18.85 dBm	-8.850 dB
4	4	2.6950 GHz	2.7055 GHz	1.000 MHz	2.696365000 GHz	-21.45 dBm	-8.454 dB
5	5	2.7055 GHz	2.7150 GHz	1.000 MHz	2.706291667 GHz	-39.19 dBm	-14.19 dB

Plot 7-194. Upper ACP Plot (Band 41 – 15.0MHz QPSK – RB Size 75)



Plot 7-195. Lower ACP Plot (Band 41 – 20.0MHz QPSK – RB Size 100)



Plot 7-196. Upper ACP Plot (Band 41 – 20.0MHz QPSK – RB Size 100)

7.5 Peak-Average Ratio

Test Overview

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

Test Procedure Used

KDB 971168 D01 v03 – Section 5.7.1

Test Settings

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

Test Setup

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

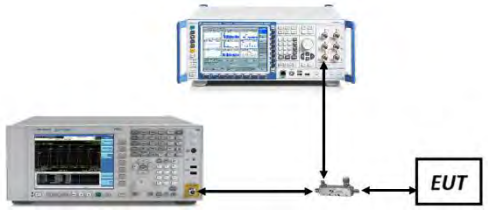
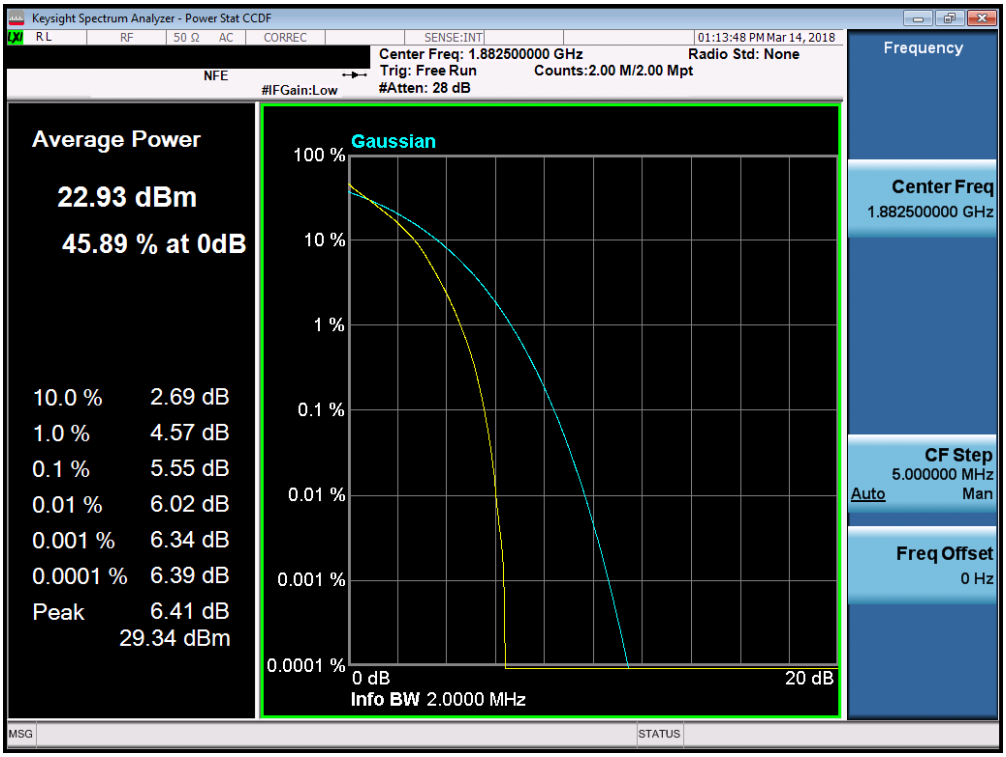


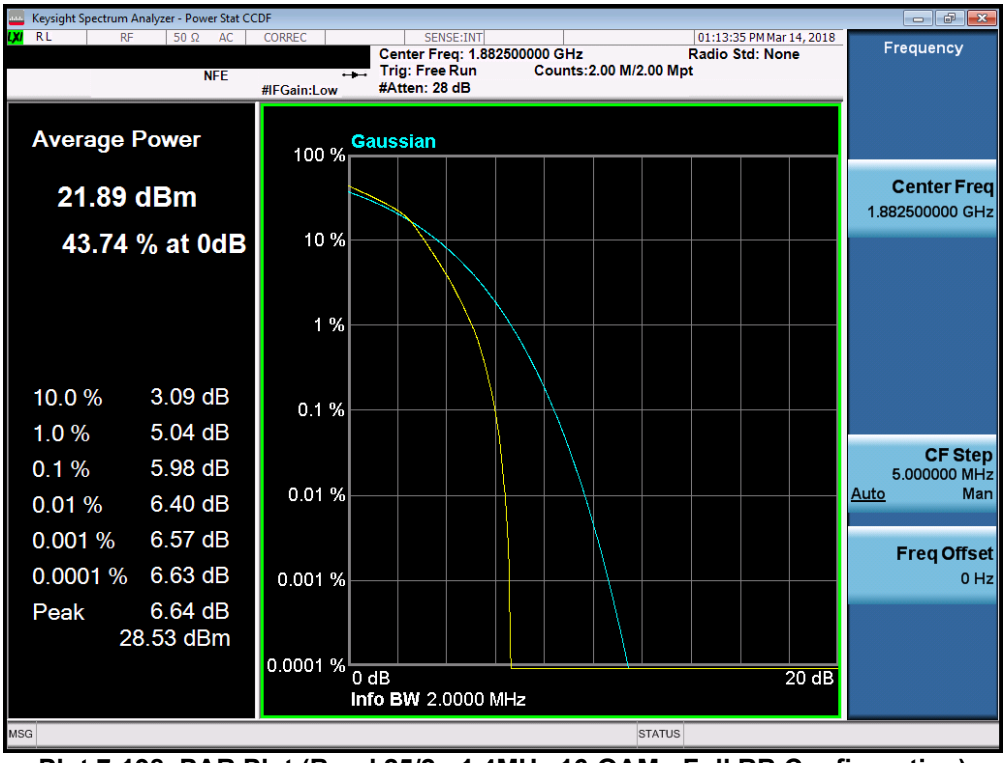
Figure 7-4. Test Instrument & Measurement Setup

Test Notes

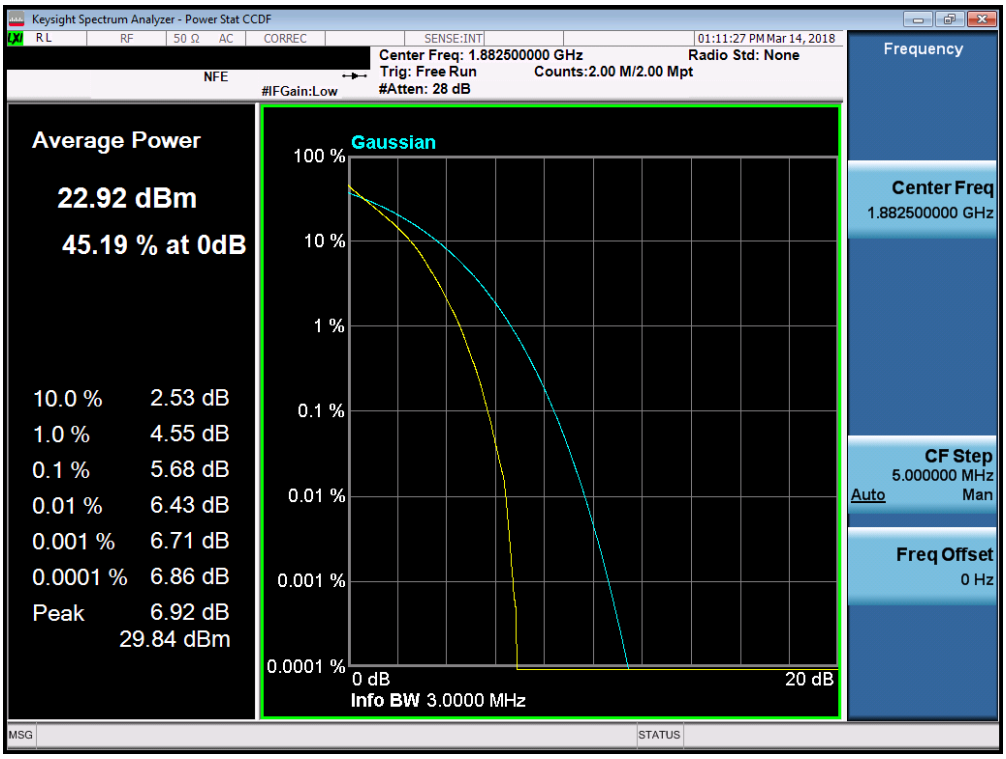
None.



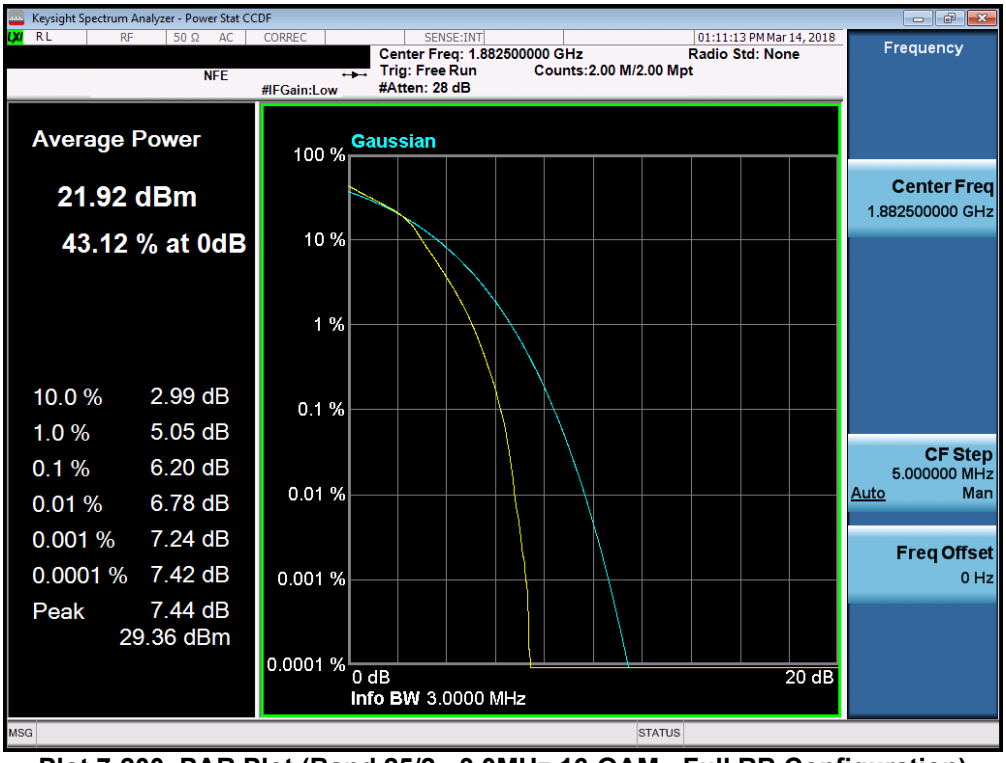
Plot 7-197. PAR Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)



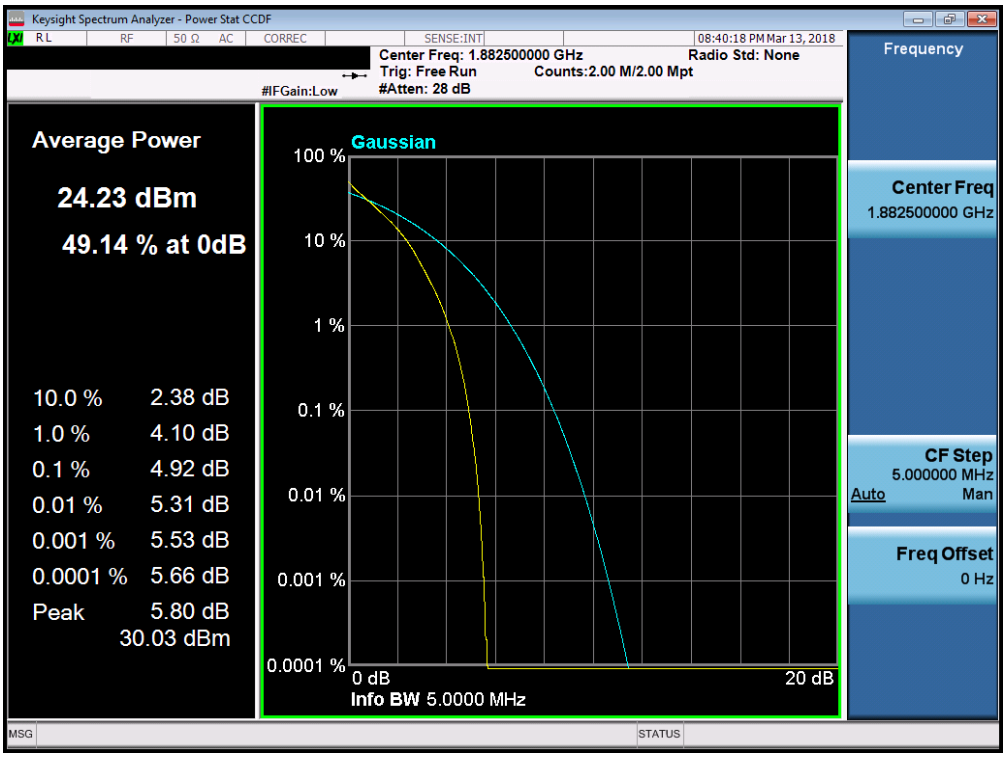
Plot 7-198. PAR Plot (Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)



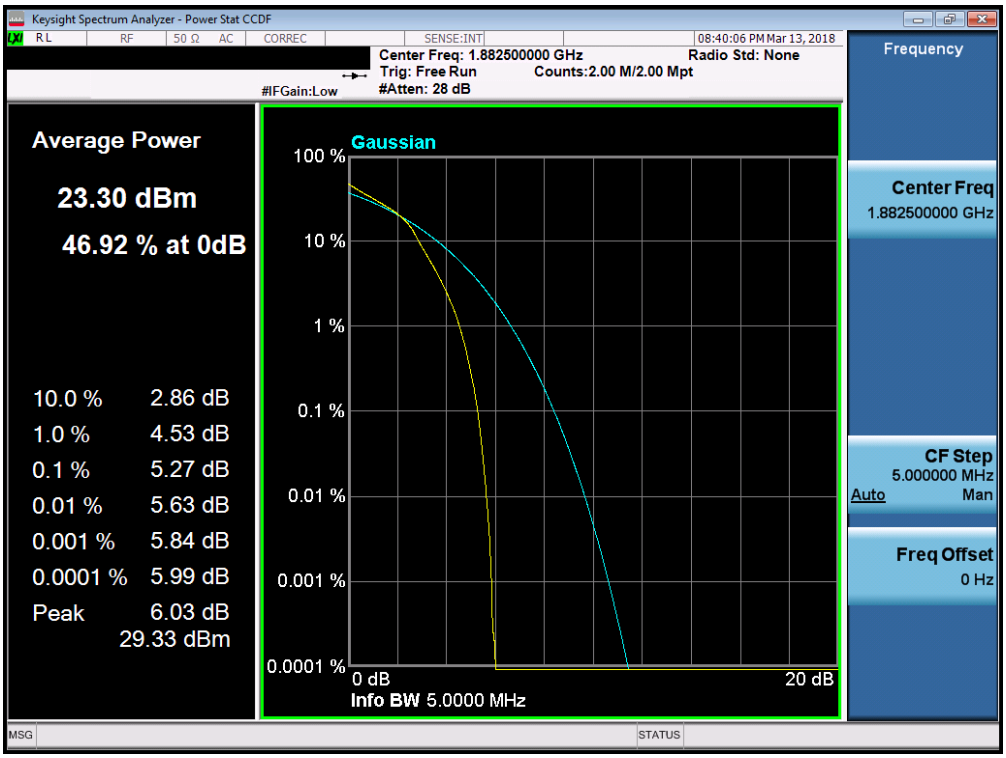
Plot 7-199. PAR Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)



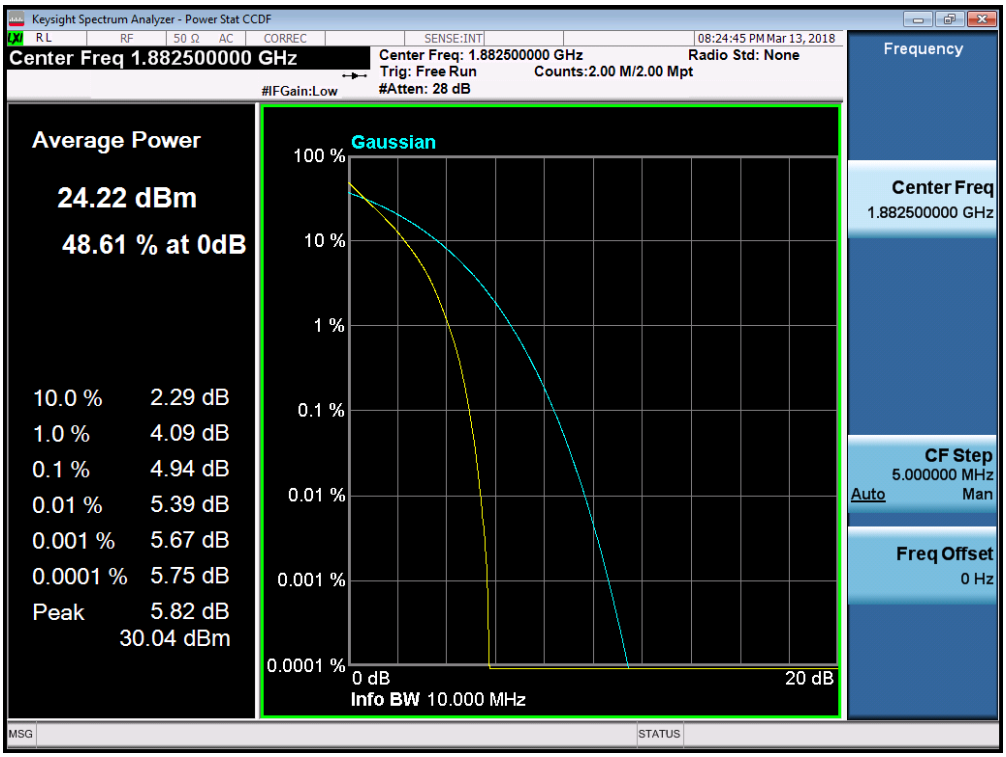
Plot 7-200. PAR Plot (Band 25/2 - 3.0MHz 16-QAM - Full RB Configuration)



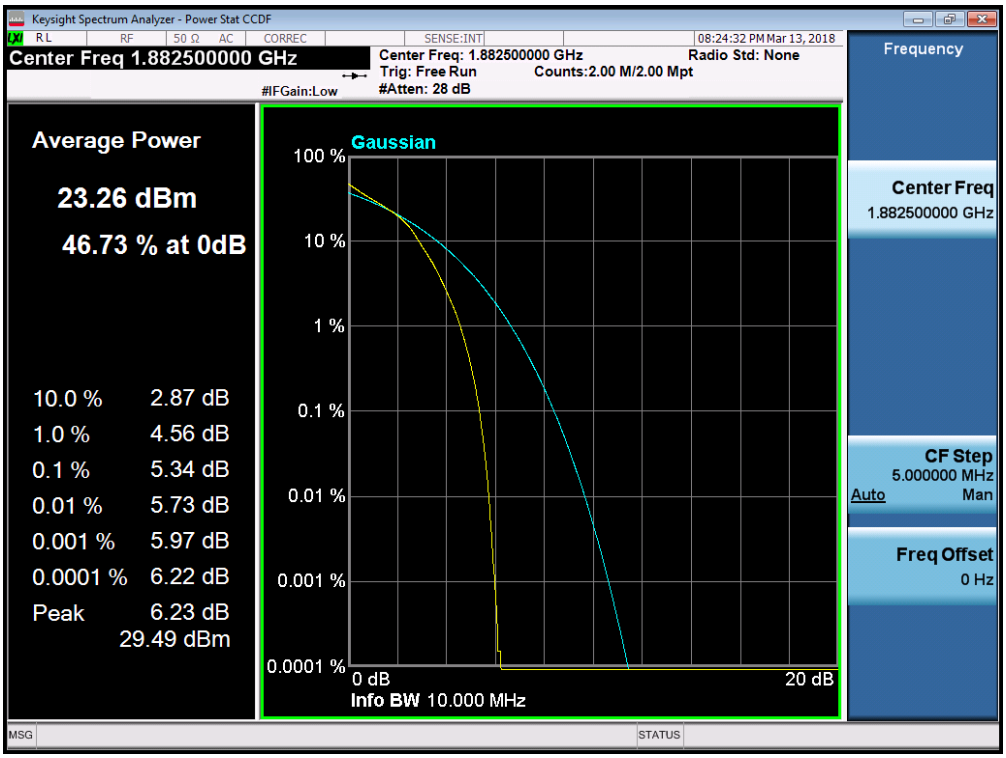
Plot 7-201. PAR Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)



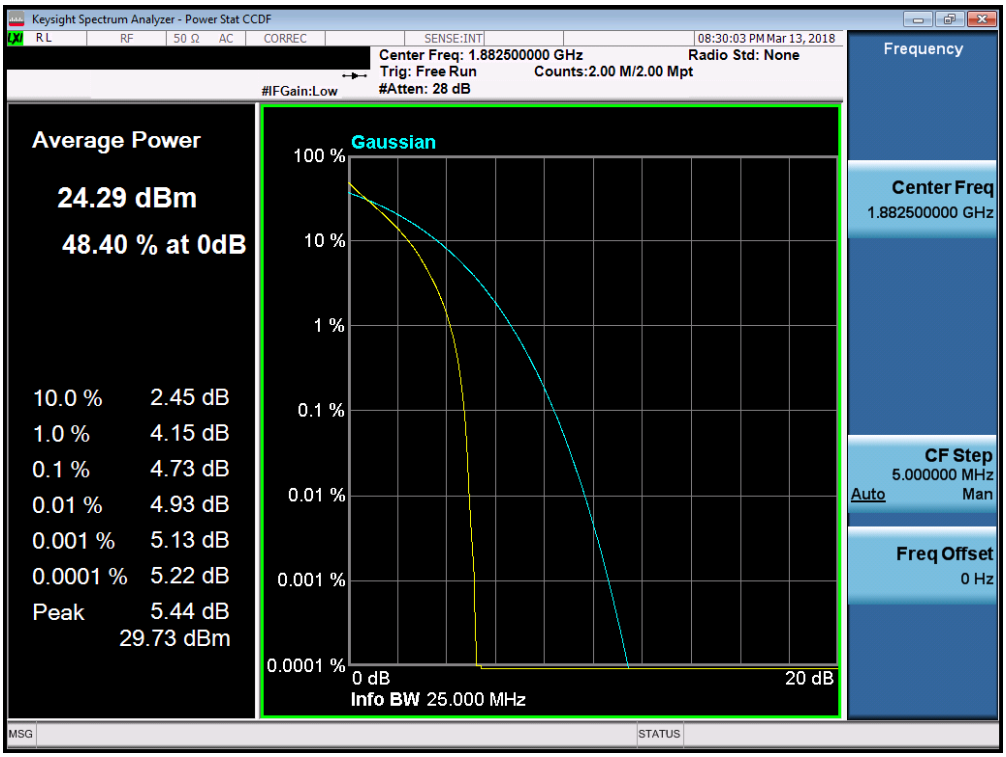
Plot 7-202. PAR Plot (Band 25/2 - 5.0MHz 16-QAM - Full RB Configuration)



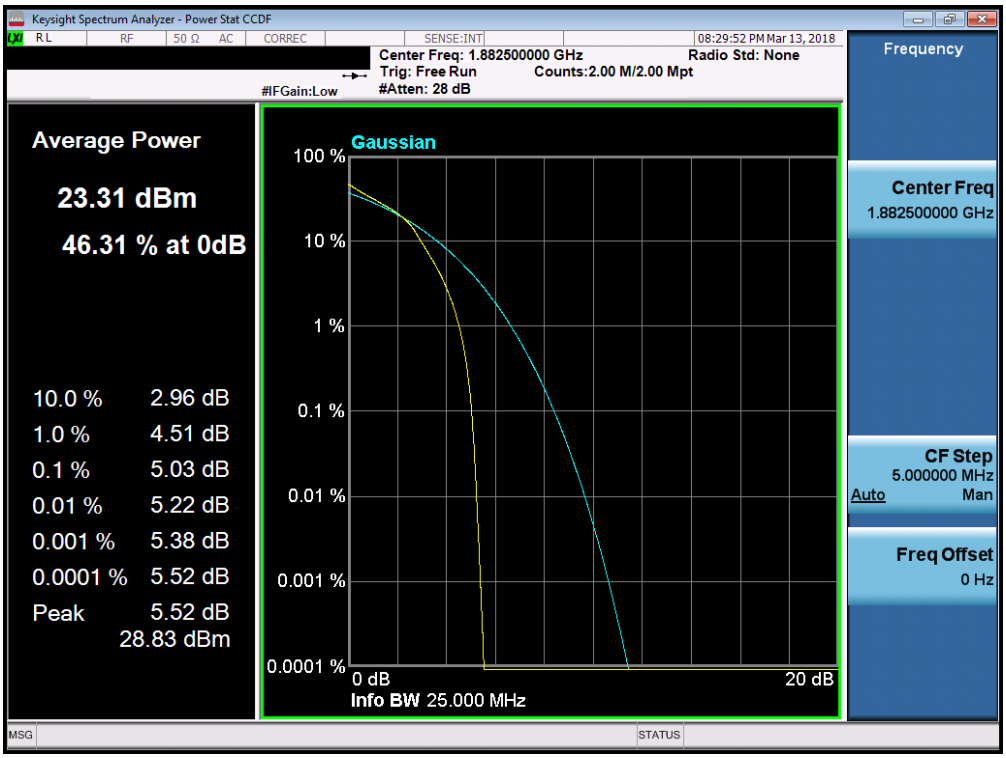
Plot 7-203. PAR Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)



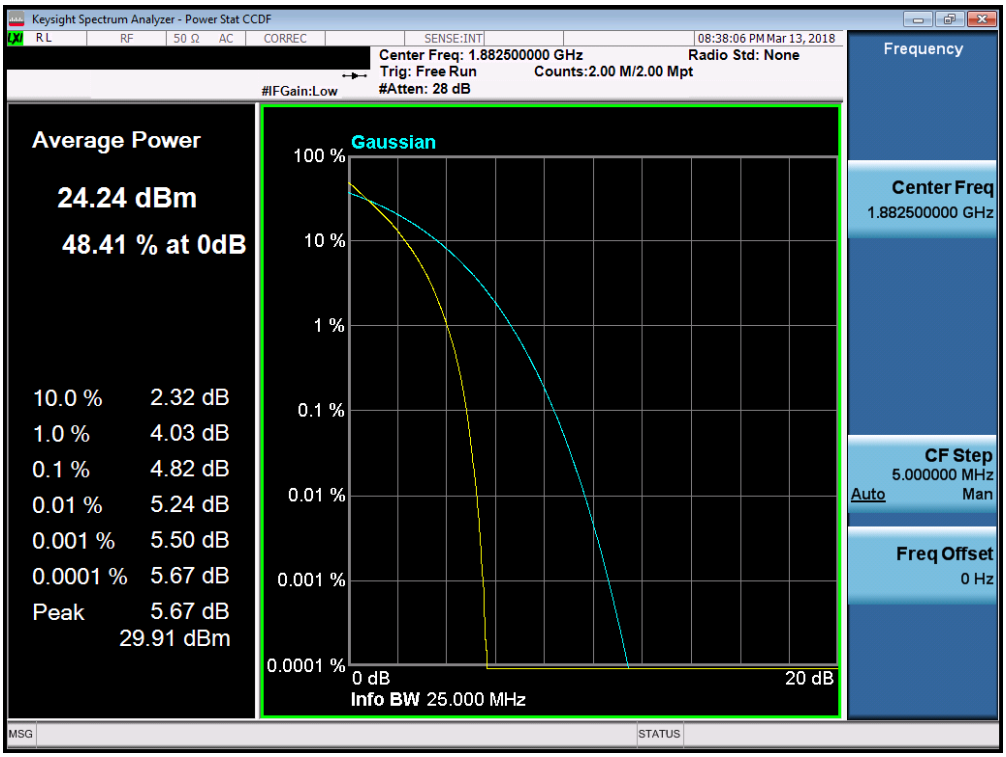
Plot 7-204. PAR Plot (Band 25/2 - 10.0MHz 16-QAM - Full RB Configuration)



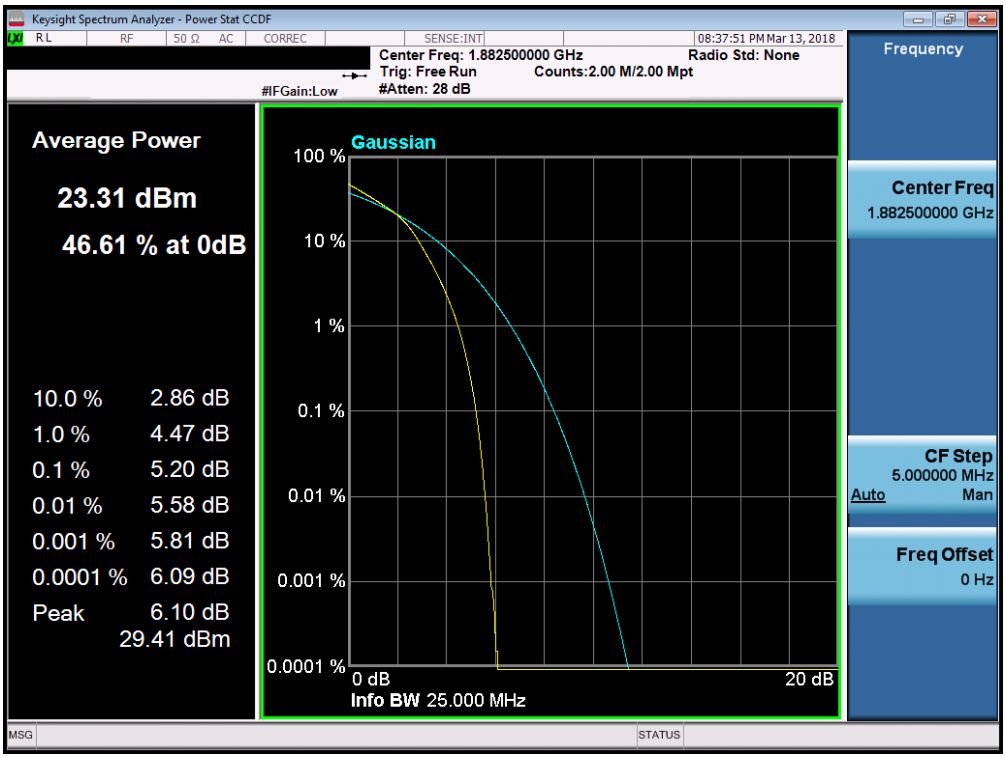
Plot 7-205. PAR Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-206. PAR Plot (Band 25/2 - 15.0MHz 16-QAM - Full RB Configuration)



Plot 7-207. PAR Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-208. PAR Plot (Band 25/2 - 20.0MHz 16-QAM - Full RB Configuration)

7.6 Additional Maximum Power Reduction (A-MPR)

§2.1046

Test Overview

A-MPR is implemented in this device when operating at Power Class 2 in LTE Band 41 per the A-MPR specification in 3GPP TS 36.101. The conducted powers are shown herein to cover the different A-MPR levels specified in the standard. Measurement equipment was set up with triggering/gating on the spectrum analyzer such that powers were measured only during the on-time of the signal.

Test Procedure Used

KDB 971168 D01 v03 – Section 5.2.2

Test Settings

1. Span = 2 x OBW to 3 x OBW
2. RBW = 1% to 5% of the OBW
3. Number of measurement points in sweep ≥ 2 x span / RBW
4. Sweep = auto-couple (less than transmission burst duration)
5. Detector = RMS (power)
6. Trigger was set to enable power measurements only on full power bursts
7. Trace was allowed to stabilize
8. Spectrum analyzer's "Channel Power" function was used to compute the power by integrating the spectrum across the OBW of the signal

Test Setup

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

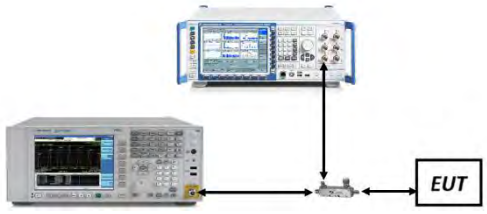


Figure 7-5. Test Instrument & Measurement Setup

Test Notes

None.

Test Case	NS	MCC	MNC	Channel BW [MHz]	Channel Number	Channel Frequency [MHz]	Modulation	RB Size	RB Offset	MPR [dB]	A-MPR [dB]	Measured Power [dBm]	Lowest Typical Power [dBm]	Delta [dB]
1				5	39675	2498.5	QPSK	1	0	0	≤ 3	24.13	23.5	**0.63**
							16-QAM			≤ 1		23.39	22.5	**0.89**
2				5	39675	2498.5	QPSK	1	9	0	0	27.23	26.5	**0.73**
							16-QAM			≤ 1		26.19	25.5	**0.69**
3				10	39700	2501	QPSK	1	0	0	≤ 5	22.15	21.5	**0.65**
							16-QAM			≤ 1		21.11	20.5	**0.61**
4				10	39700	2501	QPSK	20	0	0	≤ 2	24.31	23.5	**0.81**
							16-QAM			≤ 1		23.28	22.5	**0.78**
5				10	39700	2501	QPSK	50	0	0	≤ 3	23.20	22.5	**0.70**
							16-QAM			≤ 1		22.26	21.5	**0.76**
6				10	39700	2501	QPSK	25	20	0	≤ 1	25.28	24.5	**0.78**
							16-QAM			≤ 1		24.21	23.5	**0.71**
7				10	39700	2501	QPSK	1	36	0	0	27.16	26.5	**0.66**
							16-QAM			≤ 1		26.42	25.5	**0.92**
8				15	39725	2503.5	QPSK	1	0	0	≤ 5	22.15	21.5	**0.65**
							16-QAM			≤ 1		21.04	20.5	**0.54**
9	01	310	120	15	39725	2503.5	QPSK	20	0	0	≤ 2	24.22	23.5	**0.72**
							16-QAM			≤ 1		23.28	22.5	**0.78**
10				15	39725	2503.5	QPSK	75	0	0	≤ 4	22.31	21.5	**0.81**
							16-QAM			≤ 1		21.28	20.5	**0.78**
11				15	39725	2503.5	QPSK	50	15	0	≤ 3	23.24	22.5	**0.74**
							16-QAM			≤ 1		22.19	21.5	**0.69**
12				15	39725	2503.5	QPSK	1	60	0	0	27.17	26.5	**0.67**
							16-QAM			≤ 1		26.07	25.5	**0.57**
13				20	39750	2506	QPSK	1	0	0	≤ 5	22.07	21.5	**0.57**
							16-QAM			≤ 1		21.02	20.5	**0.52**
14				20	39750	2506	QPSK	20	0	0	≤ 2	24.20	23.5	**0.70**
							16-QAM			≤ 1		23.26	22.5	**0.76**
15				20	39750	2506	QPSK	100	0	0	≤ 4	22.16	21.5	**0.66**
							16-QAM			≤ 1		21.11	20.5	**0.61**
16				20	39750	2506	QPSK	75	24	0	≤ 3	23.28	22.5	**0.78**
							16-QAM			≤ 1		22.23	21.5	**0.73**
17				20	39750	2506	QPSK	1	77	0	0	26.99	26.5	**0.49**
							16-QAM			≤ 1		26.09	25.5	**0.59**
18	01	312	530	5	39675	2498.5	QPSK	1	0	0	≤ 3	24.15	23.5	**0.65**
							16-QAM			≤ 1		23.23	22.5	**0.73**
19	01	001	01	5	39675	2498.5	QPSK	1	0	0	0	27.22	26.5	**0.72**
							16-QAM			≤ 1		26.35	25.5	**0.85**

Table 7-3. A-MPR Conducted Power Measurements

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/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03 – 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 ≥ 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". 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

Test Setup

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

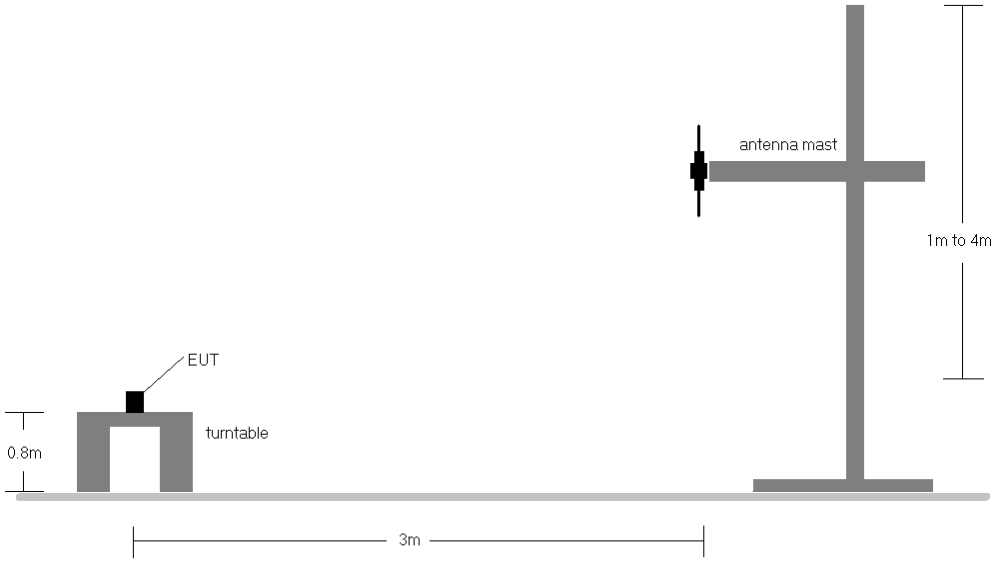


Figure 7-6. Radiated Test Setup <1GHz

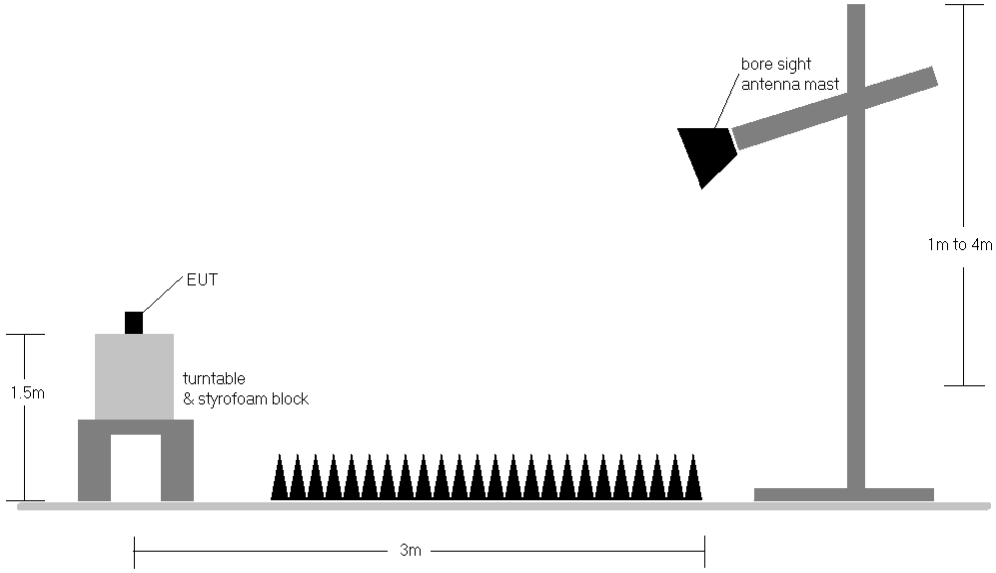


Figure 7-7. Radiated Test Setup >1GHz

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) This unit was tested with its standard battery.

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	H	150	3	1 / 5	18.99	1.10	17.94	0.062	34.77	-16.83	20.09	0.102	36.99	-16.90
707.50	1.4	QPSK	H	150	12	1 / 5	19.45	1.13	18.43	0.070	34.77	-16.34	20.58	0.114	36.99	-16.41
715.30	1.4	QPSK	H	150	18	1 / 5	19.64	1.16	**18.65**	0.073	34.77	-16.12	**20.80**	0.120	36.99	-16.19
715.30	1.4	16-QAM	H	150	18	1 / 5	18.46	1.16	**17.47**	0.056	34.77	-17.30	**19.62**	0.092	36.99	-17.37
700.50	3	QPSK	H	150	19	1 / 14	18.83	1.10	17.78	0.060	34.77	-16.99	19.93	0.098	36.99	-17.06
707.50	3	QPSK	H	150	4	1 / 14	18.89	1.13	17.87	0.061	34.77	-16.90	20.02	0.100	36.99	-16.97
714.50	3	QPSK	H	150	10	1 / 14	20.11	1.16	**19.12**	0.082	34.77	-15.65	**21.27**	0.134	36.99	-15.72
714.50	3	16-QAM	H	150	10	1 / 14	18.70	1.16	**17.71**	0.059	34.77	-17.06	**19.86**	0.097	36.99	-17.13
701.50	5	QPSK	H	150	15	1 / 24	19.34	1.11	18.30	0.068	34.77	-16.47	20.45	0.111	36.99	-16.54
707.50	5	QPSK	H	150	10	1 / 24	18.97	1.13	17.95	0.062	34.77	-16.82	20.10	0.102	36.99	-16.88
713.50	5	QPSK	H	150	9	1 / 24	19.68	1.15	**18.69**	0.074	34.77	-16.08	**20.84**	0.121	36.99	-16.15
713.50	5	16-QAM	H	150	9	1 / 24	18.54	1.15	**17.54**	0.057	34.77	-17.23	**19.69**	0.093	36.99	-17.29
704.00	10	QPSK	H	150	7	1 / 49	19.06	1.12	18.02	0.063	34.77	-16.75	20.17	0.104	36.99	-16.82
707.50	10	QPSK	H	150	13	1 / 49	19.38	1.13	18.36	0.069	34.77	-16.41	20.51	0.112	36.99	-16.48
711.00	10	QPSK	H	150	12	1 / 49	19.61	1.14	**18.60**	0.072	34.77	-16.17	**20.75**	0.119	36.99	-16.24
711.00	10	16-QAM	H	150	12	1 / 49	18.04	1.14	**17.04**	0.051	34.77	-17.73	**19.19**	0.083	36.99	-17.80
715.30	1.4	QPSK	V	150	356	1 / 74	19.66	1.16	18.67	0.074	34.77	-16.10	20.82	0.121	36.99	-16.17

Table 7-4. ERP Data (Band 12)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	H	150	3	1 / 5	23.03	1.50	22.38	0.173	38.45	-16.07	24.53	0.284	40.61	-16.08
836.50	1.4	QPSK	H	150	3	1 / 0	23.28	1.50	22.63	0.183	38.45	-15.82	24.78	0.301	40.61	-15.83
848.30	1.4	QPSK	H	150	3	1 / 5	23.32	1.50	**22.67**	**0.185**	38.45	-15.78	**24.82**	**0.303**	40.61	-15.79
848.30	1.4	16-QAM	H	150	3	1 / 5	22.30	1.50	**21.65**	0.146	38.45	-16.80	**23.80**	0.240	40.61	-16.81
825.50	3	QPSK	H	150	359	1 / 0	23.11	1.50	22.46	0.176	38.45	-15.99	24.61	0.289	40.61	-16.00
836.50	3	QPSK	H	150	359	1 / 0	23.20	1.50	22.55	0.180	38.45	-15.90	24.70	0.295	40.61	-15.91
847.50	3	QPSK	H	150	359	1 / 0	23.25	1.50	**22.60**	0.182	38.45	-15.85	**24.75**	0.299	40.61	-15.86
847.50	3	16-QAM	H	150	359	1 / 0	22.12	1.50	**21.47**	0.140	38.45	-16.98	**23.62**	0.230	40.61	-16.99
826.50	5	QPSK	H	150	358	1 / 0	23.08	1.50	22.43	0.175	38.45	-16.02	24.58	0.287	40.61	-16.03
836.50	5	QPSK	H	150	358	1 / 0	23.18	1.50	22.53	0.179	38.45	-15.92	24.68	0.294	40.61	-15.93
846.50	5	QPSK	H	150	358	1 / 0	23.26	1.50	**22.61**	0.182	38.45	-15.84	**24.76**	0.299	40.61	-15.85
846.50	5	16-QAM	H	150	358	1 / 0	22.08	1.50	**21.43**	0.139	38.45	-17.02	**23.58**	0.228	40.61	-17.03
829.00	10	QPSK	H	150	358	1 / 0	23.12	1.50	22.47	0.177	38.45	-15.98	24.62	0.290	40.61	-15.99
836.50	10	QPSK	H	150	358	1 / 0	23.25	1.50	22.60	0.182	38.45	-15.85	24.75	0.299	40.61	-15.86
844.00	10	QPSK	H	150	358	1 / 0	23.27	1.50	**22.62**	0.183	38.45	-15.83	**24.77**	0.300	40.61	-15.84
836.50	10	16-QAM	H	150	358	1 / 0	22.21	1.50	**21.56**	0.143	38.45	-16.89	**23.71**	0.235	40.61	-16.90
848.30	1.4	QPSK	V	150	122	1 / 0	20.25	1.50	19.60	0.091	38.45	-18.85	21.75	0.150	40.61	-18.86

Table 7-5. ERP Data (Band 26/5)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
831.50	15	QPSK	H	150	358	1 / 0	22.91	1.50	22.26	0.168	38.45	-16.19	24.41	0.276	40.61	-16.20
836.50	15	QPSK	H	150	358	1 / 0	22.94	1.50	**22.29**	0.169	38.45	-16.16	**24.44**	0.278	40.61	-16.17
841.50	15	QPSK	H	150	358	1 / 0	22.32	1.50	21.67	0.147	38.45	-16.78	23.82	0.241	40.61	-16.79
841.50	15	16-QAM	H	150	358	1 / 0	21.79	1.50	**21.14**	0.130	38.45	-17.31	**23.29**	0.213	40.61	-17.32

Table 7-6. ERP Data (Band 26)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	H	150	110	1 / 5	17.12	5.56	22.68	0.185	30.00	-7.32
1732.50	1.4	QPSK	H	150	111	1 / 5	16.58	5.41	21.99	0.158	30.00	-8.01
1754.30	1.4	QPSK	H	150	115	1 / 5	17.59	5.26	**22.85**	0.193	30.00	-7.15
1710.70	1.4	16-QAM	H	150	110	1 / 5	15.75	5.56	**21.31**	0.135	30.00	-8.69
1711.50	3	QPSK	H	150	115	1 / 14	17.19	5.55	**22.74**	0.188	30.00	-7.26
1732.50	3	QPSK	H	150	107	1 / 14	16.46	5.41	21.87	0.154	30.00	-8.13
1753.50	3	QPSK	H	150	117	1 / 14	17.43	5.26	22.69	0.186	30.00	-7.31
1711.50	3	16-QAM	H	150	115	1 / 14	15.98	5.55	**21.53**	0.142	30.00	-8.47
1712.50	5	QPSK	H	150	111	1 / 24	17.01	5.55	22.56	0.180	30.00	-7.44
1732.50	5	QPSK	H	150	113	1 / 24	16.43	5.41	21.84	0.153	30.00	-8.16
1752.50	5	QPSK	H	150	109	1 / 24	17.61	5.27	**22.88**	**0.194**	30.00	-7.12
1752.50	5	16-QAM	H	150	109	1 / 24	16.17	5.27	**21.44**	0.139	30.00	-8.56
1715.00	10	QPSK	H	150	108	1 / 49	16.71	5.53	22.24	0.167	30.00	-7.76
1732.50	10	QPSK	H	150	114	1 / 49	16.57	5.41	21.98	0.158	30.00	-8.02
1750.00	10	QPSK	H	150	106	1 / 49	17.20	5.29	**22.49**	0.177	30.00	-7.51
1750.00	10	16-QAM	H	150	106	1 / 49	16.18	5.29	**21.47**	0.140	30.00	-8.53
1717.50	15	QPSK	H	150	113	1 / 74	17.15	5.51	22.66	0.185	30.00	-7.34
1732.50	15	QPSK	H	150	111	1 / 74	16.77	5.41	22.18	0.165	30.00	-7.82
1747.50	15	QPSK	H	150	108	1 / 74	17.37	5.31	**22.68**	0.185	30.00	-7.32
1747.50	15	16-QAM	H	150	108	1 / 74	16.18	5.31	**21.49**	0.141	30.00	-8.51
1720.00	20	QPSK	H	150	111	1 / 99	16.62	5.49	22.11	0.163	30.00	-7.89
1732.50	20	QPSK	H	150	106	1 / 99	16.76	5.41	22.17	0.165	30.00	-7.83
1745.00	20	QPSK	H	150	106	1 / 99	17.35	5.32	**22.67**	0.185	30.00	-7.33
1745.00	20	16-QAM	H	150	106	1 / 99	16.06	5.32	**21.38**	0.137	30.00	-8.62
1752.50	5	QPSK	V	150	92	1 / 99	17.31	5.27	22.58	0.181	30.00	-7.42

Table 7-7. EIRP Data (Band 4)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	H	150	17	1 / 0	19.91	4.82	**24.73**	0.297	33.01	-8.28
1882.50	1.4	QPSK	H	150	16	1 / 0	18.64	4.73	23.37	0.217	33.01	-9.64
1914.30	1.4	QPSK	H	150	15	1 / 0	17.92	4.68	22.60	0.182	33.01	-10.41
1850.70	1.4	16-QAM	H	150	17	1 / 0	18.30	4.82	**23.12**	0.205	33.01	-9.89
1851.50	3	QPSK	H	150	16	1 / 0	20.01	4.82	**24.83**	**0.304**	33.01	-8.18
1882.50	3	QPSK	H	150	15	1 / 0	19.06	4.73	23.79	0.240	33.01	-9.22
1913.50	3	QPSK	H	150	14	1 / 0	17.89	4.68	22.57	0.181	33.01	-10.44
1851.50	3	16-QAM	H	150	16	1 / 0	18.35	4.82	**23.17**	0.207	33.01	-9.84
1852.50	5	QPSK	H	150	15	1 / 0	19.88	4.81	**24.69**	0.295	33.01	-8.32
1882.50	5	QPSK	H	150	14	1 / 0	18.64	4.73	23.37	0.217	33.01	-9.64
1912.50	5	QPSK	H	150	17	1 / 0	18.00	4.68	22.68	0.185	33.01	-10.33
1852.50	5	16-QAM	H	150	15	1 / 0	18.57	4.81	**23.38**	0.218	33.01	-9.63
1855.00	10	QPSK	H	150	15	1 / 0	19.80	4.81	**24.61**	0.289	33.01	-8.40
1882.50	10	QPSK	H	150	17	1 / 0	19.06	4.73	23.79	0.240	33.01	-9.22
1910.00	10	QPSK	H	150	16	1 / 0	18.41	4.68	23.09	0.204	33.01	-9.92
1855.00	10	16-QAM	H	150	15	1 / 0	18.76	4.81	**23.57**	0.227	33.01	-9.44
1857.50	15	QPSK	H	150	16	1 / 0	19.68	4.80	**24.48**	0.281	33.01	-8.53
1882.50	15	QPSK	H	150	14	1 / 0	18.96	4.73	23.69	0.234	33.01	-9.32
1907.50	15	QPSK	H	150	14	1 / 0	18.22	4.68	22.90	0.195	33.01	-10.11
1857.50	15	16-QAM	H	150	16	1 / 0	18.31	4.80	**23.11**	0.205	33.01	-9.90
1860.00	20	QPSK	H	150	14	1 / 0	19.72	4.79	**24.51**	0.283	33.01	-8.50
1882.50	20	QPSK	H	150	15	1 / 0	19.14	4.73	23.87	0.244	33.01	-9.14
1905.00	20	QPSK	H	150	16	1 / 0	18.35	4.68	23.03	0.201	33.01	-9.98
1860.00	20	16-QAM	H	150	14	1 / 0	18.28	4.79	**23.07**	0.203	33.01	-9.94
1851.50	3	QPSK	V	150	262	1 / 99	19.85	4.82	24.67	0.293	33.01	-8.34

Table 7-8. EIRP Data (Band 25/2)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	H	150	0	1 / 0	16.05	5.73	21.78	0.151	33.01	-11.23
2593.00	5	QPSK	H	150	126	1 / 24	19.11	6.07	**25.18**	0.330	33.01	-7.83
2687.50	5	QPSK	H	150	120	1 / 0	18.00	6.48	24.48	0.281	33.01	-8.53
2593.00	5	16-QAM	H	150	126	1 / 24	17.34	6.07	**23.41**	0.219	33.01	-9.60
2501.00	10	QPSK	H	150	133	1 / 49	15.16	5.73	20.89	0.123	33.01	-12.12
2593.00	10	QPSK	H	150	126	1 / 49	18.77	6.07	24.84	0.305	33.01	-8.17
2685.00	10	QPSK	H	150	124	1 / 49	19.23	6.47	**25.70**	**0.372**	33.01	-7.31
2593.00	10	16-QAM	H	150	126	1 / 49	17.14	6.07	**23.21**	0.210	33.01	-9.80
2503.50	15	QPSK	H	150	126	36 / 18	14.91	5.74	20.65	0.116	33.01	-12.36
2593.00	15	QPSK	H	150	126	75 / 0	17.82	6.07	23.89	0.245	33.01	-9.12
2682.50	15	QPSK	H	150	120	75 / 0	18.04	6.46	**24.50**	0.282	33.01	-8.51
2682.50	15	16-QAM	H	150	120	36 / 18	17.66	6.46	**24.12**	0.258	33.01	-8.89
2506.00	20	QPSK	H	150	57	50 / 25	16.27	5.75	22.02	0.159	33.01	-10.99
2593.00	20	QPSK	H	150	122	100 / 0	17.73	6.07	23.80	0.240	33.01	-9.21
2680.00	20	QPSK	H	150	130	50 / 25	18.17	6.45	**24.62**	0.290	33.01	-8.39
2680.00	20	16-QAM	H	150	130	50 / 25	17.80	6.45	**24.25**	0.266	33.01	-8.76
2685.00	10	QPSK	V	150	58	1 / 99	17.07	5.75	22.82	0.191	33.01	-10.19

Table 7-9. EIRP Data (Band 41, PC3)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	H	150	61	12 / 6	17.20	5.73	22.93	0.196	33.01	-10.08
2593.00	5	QPSK	H	150	58	1 / 24	20.39	6.07	26.46	0.443	33.01	-6.55
2687.50	5	QPSK	H	150	129	1 / 0	20.31	6.48	**26.79**	0.478	33.01	-6.22
2687.50	5	16-QAM	H	150	129	1 / 0	20.25	6.48	**26.73**	0.471	33.01	-6.28
2501.00	10	QPSK	H	150	125	1 / 0	21.91	5.73	**27.64**	0.581	33.01	-5.37
2593.00	10	QPSK	H	150	127	1 / 49	18.99	6.07	25.06	0.321	33.01	-7.95
2685.00	10	QPSK	H	150	131	1 / 0	20.22	6.47	26.69	0.467	33.01	-6.32
2505.00	10	16-QAM	H	150	61	1 / 0	21.40	5.75	**27.15**	0.519	33.01	-5.86
2503.50	15	QPSK	H	150	61	1 / 0	19.37	5.74	25.11	0.325	33.01	-7.90
2593.00	15	QPSK	H	150	58	1 / 0	21.42	6.07	27.49	0.561	33.01	-5.52
2682.50	15	QPSK	H	150	131	1 / 0	21.60	6.46	**28.06**	0.640	33.01	-4.95
2682.50	15	16-QAM	H	150	131	1 / 0	19.99	6.46	**26.45**	0.442	33.01	-6.56
2506.00	20	QPSK	H	150	61	1 / 0	19.82	5.75	25.57	0.361	33.01	-7.44
2593.00	20	QPSK	H	150	57	1 / 99	22.45	6.07	**28.52**	**0.712**	33.01	-4.49
2680.00	20	QPSK	H	150	130	1 / 0	22.06	6.45	28.51	0.710	33.01	-4.50
2680.00	20	16-QAM	H	150	130	1 / 99	20.82	6.45	**27.27**	0.534	33.01	-5.74
2593.00	20	QPSK	V	150	71	1 / 0	20.59	6.07	26.66	0.464	33.01	-6.35

Table 7-10. EIRP Data (Band 41, PC2)

7.8 Radiated Spurious Emissions Measurements

Test Overview

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

Test Procedures Used

KDB 971168 D01 v03 – Section 5.8

ANSI/TIA-603-E-2016 – Section 2.2.12

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW ≥ 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.

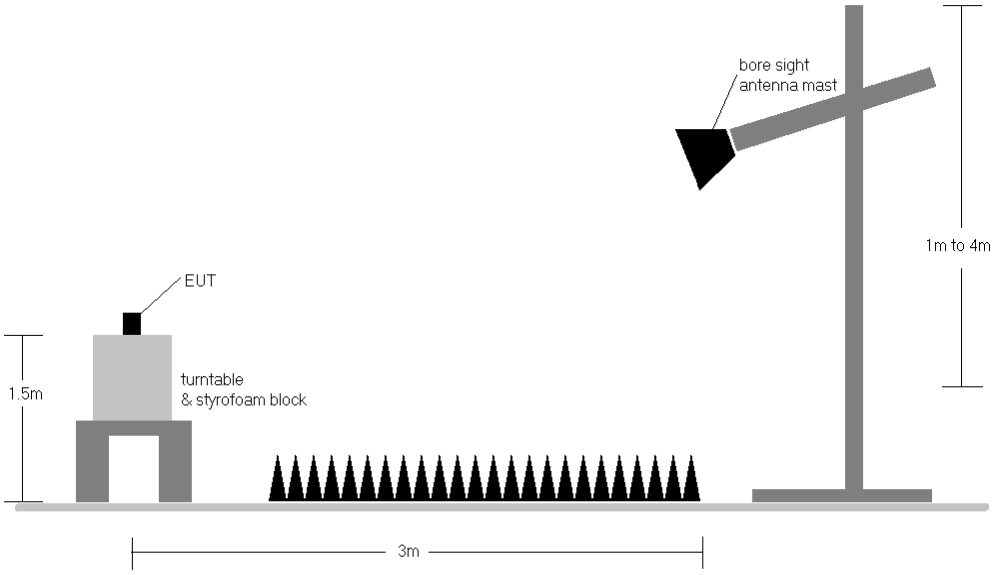


Figure 7-8. Test Instrument & Measurement Setup

Test Notes

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

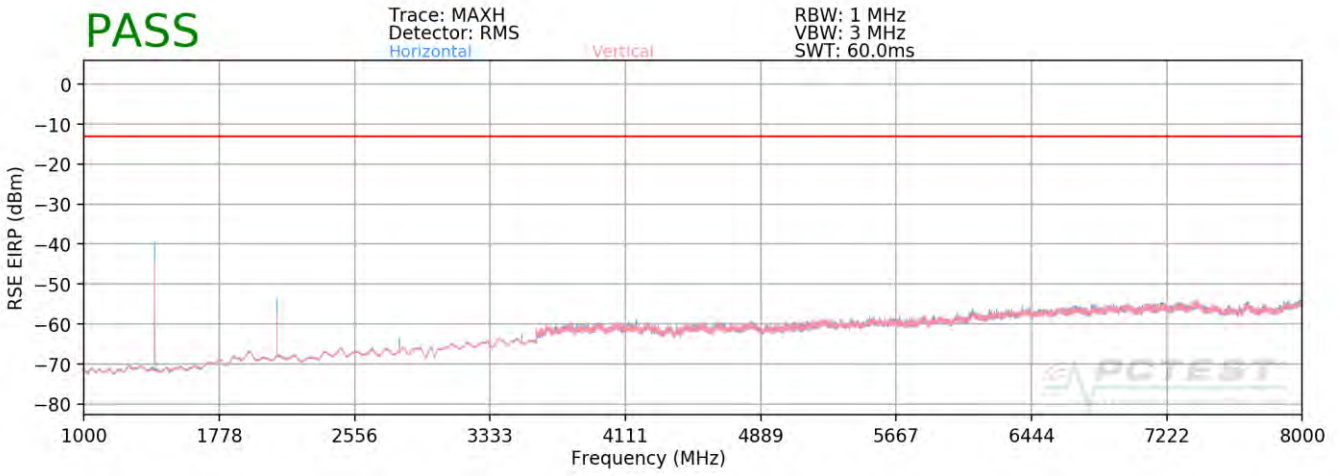
2) This unit was tested with its standard battery.

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

4) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.

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

Band 12



Plot 7-209. Radiated Spurious Plot above 1GHz (Band 12)

OPERATING FREQUENCY:	700.50	MHz
CHANNEL:	23025	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1401.00	H	252	110	-50.45	4.37	-46.08	-33.1
2101.50	H	150	200	-68.24	5.26	-62.98	-50.0
2802.00	H	-	-	-71.05	6.98	-64.07	-51.1

Table 7-11. Radiated Spurious Data (Band 12 – Low Channel)

OPERATING FREQUENCY:	707.50	MHz
CHANNEL:	23095	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1415.00	H	120	125	-42.55	4.56	-37.99	-25.0
2122.50	H	-	-	-70.21	5.31	-64.91	-51.9

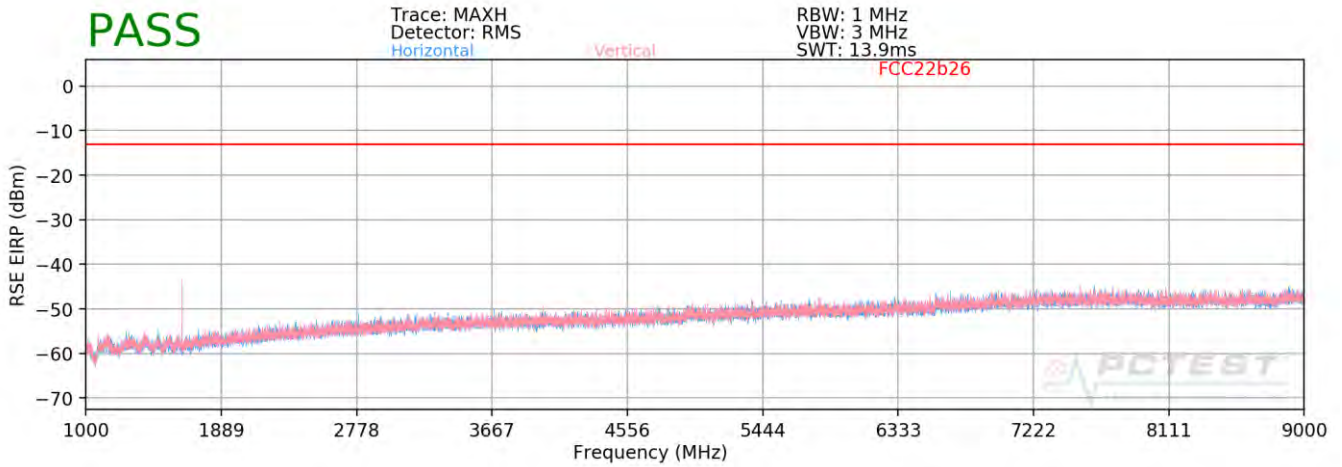
Table 7-12. Radiated Spurious Data (Band 12 – Mid Channel)

OPERATING FREQUENCY:	714.50	MHz
CHANNEL:	23165	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1429.00	H	247	114	-45.43	4.75	-40.69	-27.7
2143.50	H	250	167	-69.29	5.35	-63.94	-50.9
2858.00	H	-	-	-70.71	7.06	-63.65	-50.7

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

Band 26/5



Plot 7-210. Radiated Spurious Plot above 1GHz (Band 26/5)

OPERATING FREQUENCY:	824.70	MHz
CHANNEL:	26797	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	1.4	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1649.40	V	150	81	-49.59	4.81	-44.78	-31.8
2474.10	V	150	81	-65.35	4.99	-60.36	-47.4
3298.80	V	-	-	-66.11	6.25	-59.86	-46.9

Table 7-14. Radiated Spurious Data (Band 26/5 – Low Channel)

OPERATING FREQUENCY:	836.50	MHz
CHANNEL:	26915	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	1.4	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.00	V	150	91	-52.73	4.86	-47.86	-34.9
2509.50	V	150	50	-64.97	5.10	-59.87	-46.9
3346.00	V	-	-	-66.01	6.25	-59.75	-46.8

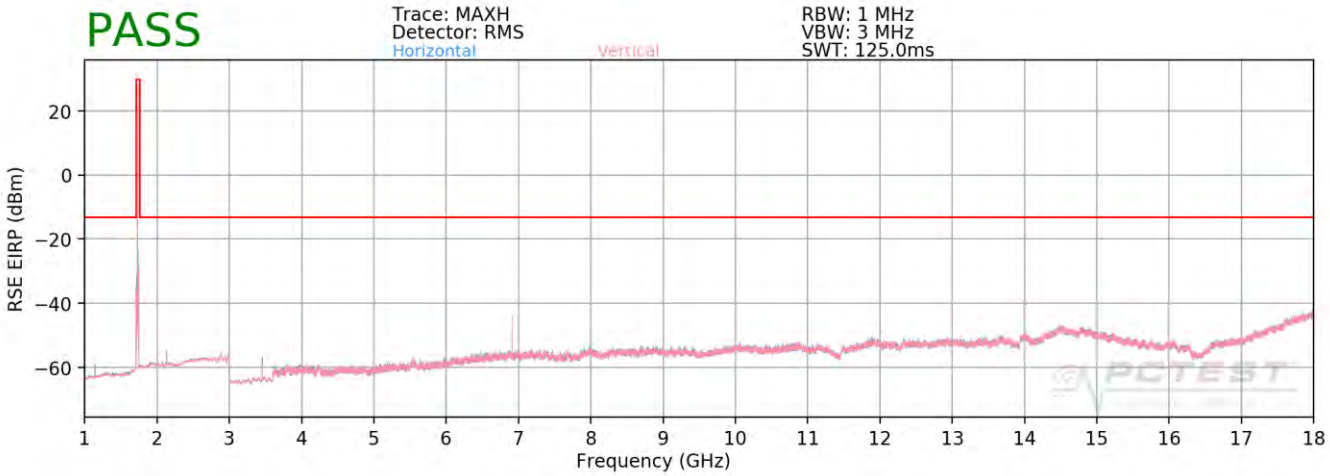
Table 7-15. Radiated Spurious Data (Band 26/5 – Mid Channel)

OPERATING FREQUENCY:	848.30	MHz
CHANNEL:	27033	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	1.4	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1696.60	V	150	88	-56.67	4.91	-51.76	-38.8
2544.90	V	150	88	-64.18	5.27	-58.91	-45.9
3393.20	V	-	-	-66.09	6.39	-59.71	-46.7

Table 7-16. Radiated Spurious Data (Band 26/5 – High Channel)

Band 4



Plot 7-211. Radiated Spurious Plot above 1GHz (Band 4)

OPERATING FREQUENCY:	1712.50	MHz
CHANNEL:	19975	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3425.00	H	264	107	-66.21	8.11	-58.10	-45.1
5137.50	H	260	257	-63.35	10.24	-53.11	-40.1
6850.00	H	264	251	-62.04	11.36	-50.67	-37.7
8562.50	H	-	-	-72.03	13.06	-58.98	-46.0

Table 7-17. Radiated Spurious Data (Band 4 – Low Channel)

OPERATING FREQUENCY:	1732.50	MHz
CHANNEL:	20175	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3465.00	H	126	111	-61.27	8.33	-52.94	-39.9
5197.50	H	120	16	-61.08	10.27	-50.81	-37.8
6930.00	H	127	307	-55.89	11.42	-44.47	-31.5
8662.50	H	125	50	-69.91	13.09	-56.81	-43.8
10395.00	H	-	-	-68.61	13.12	-55.48	-42.5

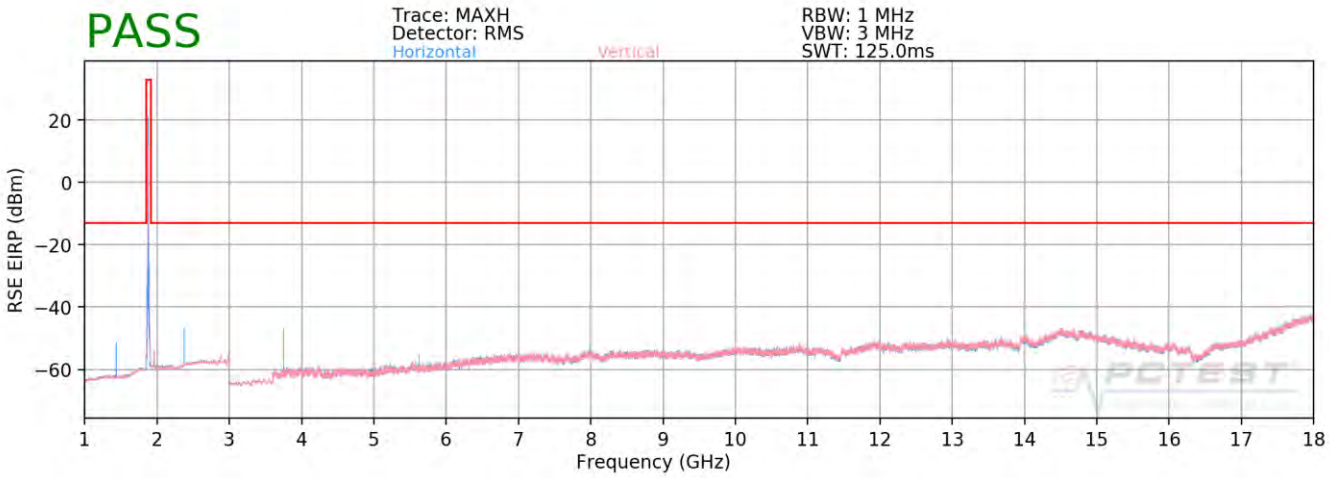
Table 7-18. Radiated Spurious Data (Band 4 – Mid Channel)

OPERATING FREQUENCY:	1752.50	MHz
CHANNEL:	20375	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3505.00	H	160	99	-57.46	8.52	-48.95	-35.9
5257.50	H	155	305	-60.39	10.29	-50.10	-37.1
7010.00	H	170	305	-60.85	11.50	-49.35	-36.3
8762.50	H	-	-	-71.99	13.12	-58.88	-45.9

Table 7-19. Radiated Spurious Data (Band 4 – High Channel)

Band 25/2



Plot 7-212. Radiated Spurious Plot above 1GHz (Band 25/2)

OPERATING FREQUENCY:	1851.50	MHz
CHANNEL:	26055	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3703.00	H	150	249	-52.49	8.31	-44.18	-31.2
5554.50	H	150	353	-55.63	10.53	-45.10	-32.1
7406.00	H	150	253	-58.77	11.92	-46.85	-33.8
9257.50	H	150	199	-56.83	13.41	-43.43	-30.4
11109.00	H	150	156	-60.80	13.37	-47.42	-34.4
12960.50	H	150	162	-66.26	13.38	-52.88	-39.9

Table 7-20. Radiated Spurious Data (Band 25/2 – Low Channel)

OPERATING FREQUENCY:	1882.50	MHz
CHANNEL:	26365	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3765.00	H	150	256	-55.58	8.47	-47.11	-34.1
5647.50	H	150	355	-54.46	10.60	-43.86	-30.9
7530.00	H	150	46	-65.66	12.11	-53.55	-40.5
9412.50	H	150	198	-64.40	13.34	-51.06	-38.1
11295.00	H	150	175	-65.42	13.43	-51.99	-39.0
13177.50	H	-	-	-68.22	13.77	-54.45	-41.5

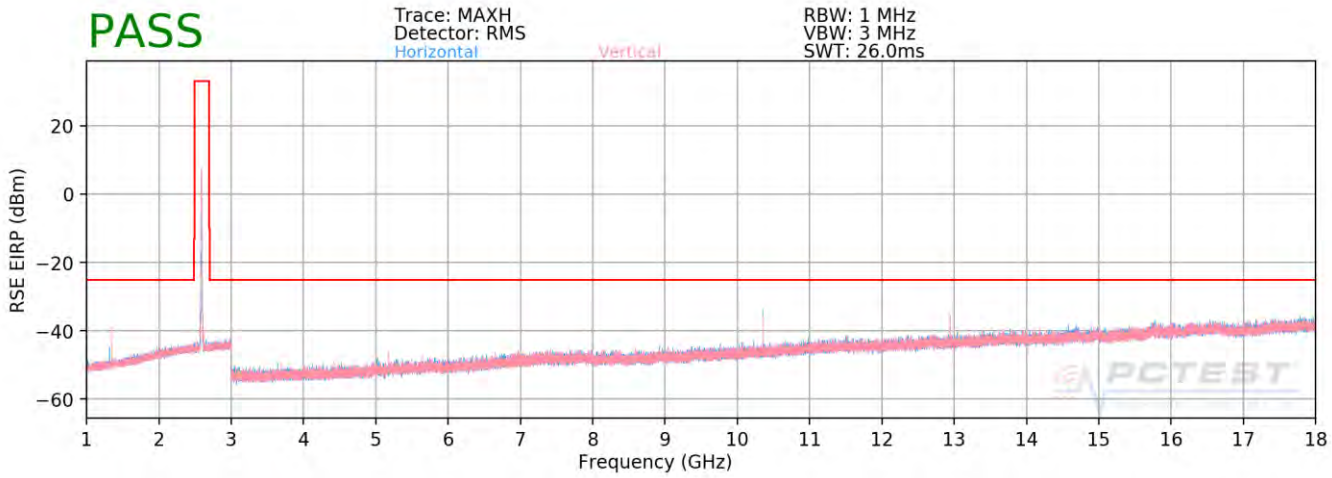
Table 7-21. Radiated Spurious Data (Band 25/2 – Mid Channel)

OPERATING FREQUENCY:	1913.50	MHz
CHANNEL:	26675	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3827.00	H	150	255	-63.61	8.56	-55.05	-42.1
5740.50	H	150	355	-51.92	10.67	-41.25	-28.2
7654.00	H	150	222	-61.80	12.22	-49.58	-36.6
9567.50	H	150	181	-65.93	13.30	-52.63	-39.6
11481.00	H	150	167	-60.49	13.45	-47.05	-34.0
13394.50	H	-	-	-65.60	13.82	-51.77	-38.8

Table 7-22. Radiated Spurious Data (Band 25/2 – High Channel)

Band 41 (PC2)



Plot 7-213. Radiated Spurious Plot 1GHz - 18GHz (Band 41)

OPERATING FREQUENCY:	2510.00	MHz
CHANNEL:	39790	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5020.00	V	150	279	-56.44	8.34	-48.11	-23.1
7525.00	V	-	-	-53.04	8.44	-44.60	-19.6

Table 7-23. Radiated Spurious Data (Band 41 – Low Channel)

OPERATING FREQUENCY:	2593.00	MHz
CHANNEL:	40620	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	V	-	-	-56.91	8.45	-48.46	-23.5
7779.00	V	-	-	-54.25	8.75	-45.50	-20.5

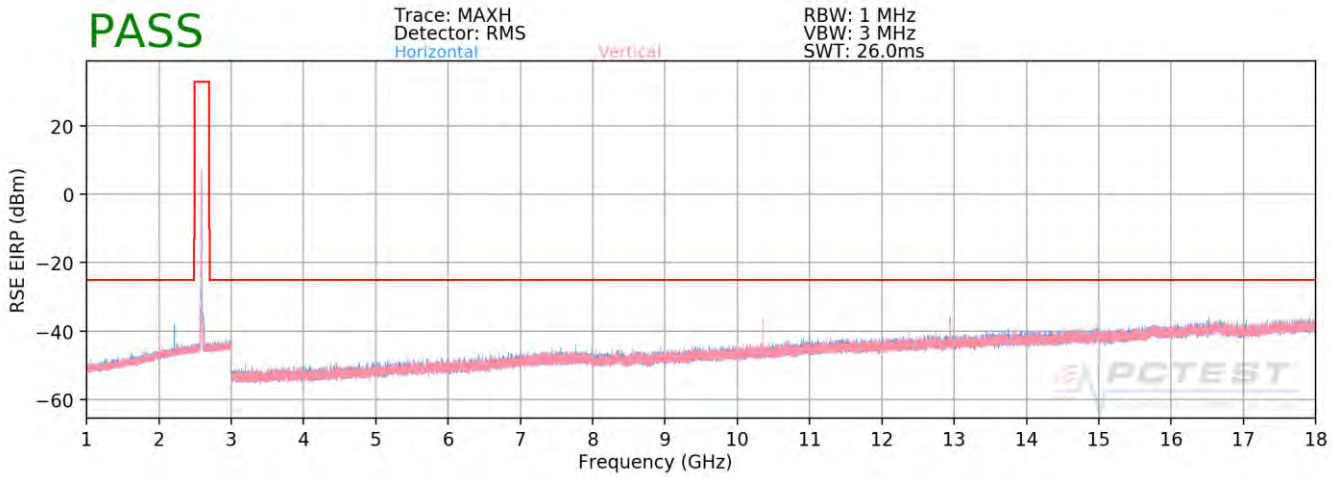
Table 7-24. Radiated Spurious Data (Band 41 – Mid Channel)

OPERATING FREQUENCY:	2680.00	MHz
CHANNEL:	41490	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5360.00	V	150	270	-56.07	8.40	-47.66	-22.7
8045.00	V	150	326	-55.16	9.21	-45.95	-21.0
10730.00	V	150	56	-49.24	9.51	-39.72	-14.7
13415.00	V	-	-	-48.40	9.06	-39.34	-14.3

Table 7-25. Radiated Spurious Data (Band 41 – High Channel)

Band 41 (PC3)



Plot 7-214. Radiated Spurious Plot 1GHz - 18GHz (Band 41)

OPERATING FREQUENCY:	2505.00	MHz
CHANNEL:	39740	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5010.00	V	-	-	-56.10	8.34	-47.76	-22.8
7515.00	V	-	-	-54.35	8.44	-45.92	-20.9

Table 7-26. Radiated Spurious Data (Band 41 – Low Channel)

OPERATING FREQUENCY:	2593.00	MHz
CHANNEL:	40620	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	V	-	-	-56.68	8.45	-48.23	-23.2
7779.00	V	-	-	-54.24	8.75	-45.49	-20.5

Table 7-27. Radiated Spurious Data (Band 41 – Mid Channel)

OPERATING FREQUENCY:	2685.00	MHz
CHANNEL:	41540	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5370.00	V	-	-	-56.79	8.40	-48.39	-23.4
8055.00	V	150	319	-51.14	9.21	-41.93	-16.9
10740.00	V	150	38	-39.75	9.51	-30.24	-5.2
13425.00	V	150	31	-44.80	9.06	-35.74	-10.7
16110.00	V	-	-	-43.43	8.86	-34.57	-9.6

Table 7-28. Radiated Spurious Data (Band 41 – High Channel)

7.9 Frequency Stability / Temperature Variation

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. The frequency stability of the transmitter is measured by:

a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

For Part 22, the frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency. For Part 24, Part 27, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Procedure Used

ANSI/TIA-603-E-2016

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

Test Notes

None

Band 12 Frequency Stability Measurements

OPERATING FREQUENCY:	707,500,000	Hz
CHANNEL:	23790	
REFERENCE VOLTAGE:	3.80	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	707,499,855	-145	-0.0000206
100 %		- 30	707,499,801	-199	-0.0000282
100 %		- 20	707,499,938	-62	-0.0000087
100 %		- 10	707,499,913	-87	-0.0000123
100 %		0	707,499,830	-170	-0.0000240
100 %		+ 10	707,499,814	-186	-0.0000263
100 %		+ 20	707,499,927	-73	-0.0000103
100 %		+ 30	707,499,902	-98	-0.0000139
100 %		+ 40	707,499,911	-89	-0.0000125
100 %		+ 50	707,499,819	-181	-0.0000255
BATT. ENDPOINT	3.40	+ 20	707,499,897	-103	-0.0000145

Table 7-29. Frequency Stability Data (Band 12)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

Band 12 Frequency Stability Measurements

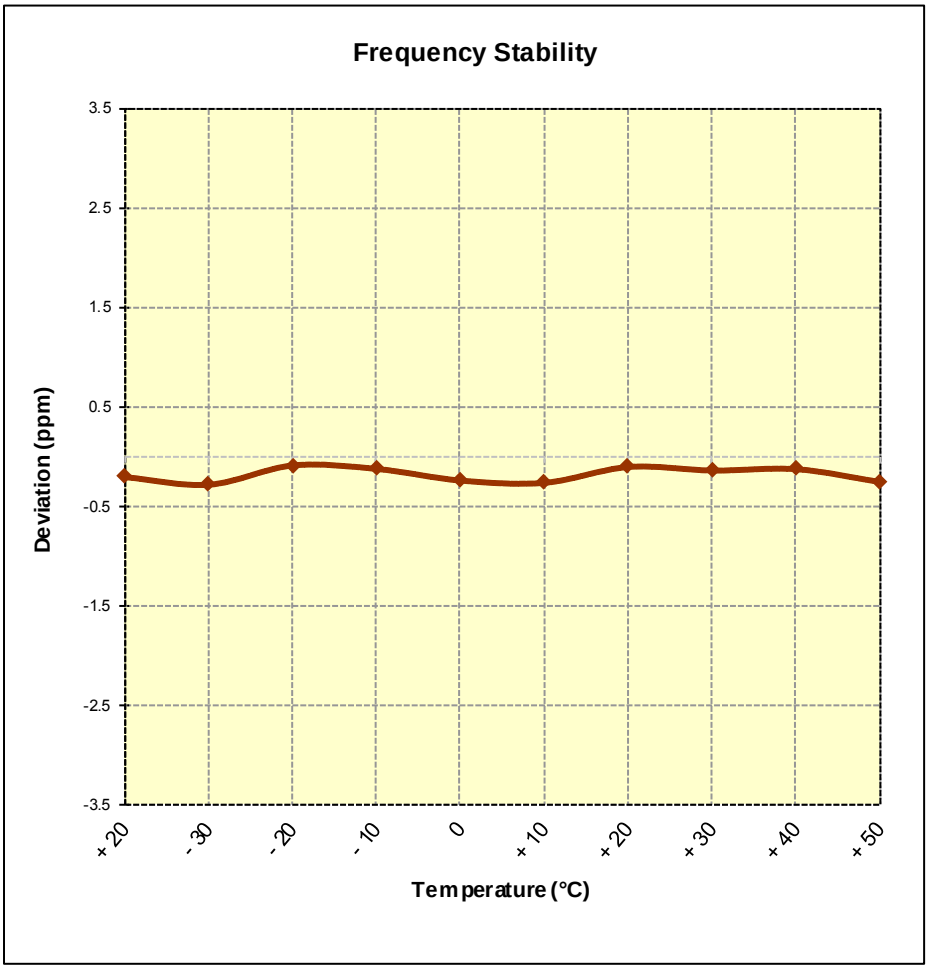


Figure 7-9. Frequency Stability Graph (Band 12)

Band 26/5 Frequency Stability Measurements

OPERATING FREQUENCY:	831,500,000	Hz
CHANNEL:	26865	
REFERENCE VOLTAGE:	3.80	VDC
DEVIATION LIMIT:	± 0.00025 % or 2.5 ppm	

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	831,499,915	-85	-0.0000102
100 %		- 30	831,499,813	-187	-0.0000225
100 %		- 20	831,499,995	-5	-0.0000006
100 %		- 10	831,499,828	-172	-0.0000206
100 %		0	831,499,822	-178	-0.0000214
100 %		+ 10	831,499,860	-140	-0.0000169
100 %		+ 20	831,499,836	-164	-0.0000197
100 %		+ 30	831,499,875	-125	-0.0000150
100 %		+ 40	831,499,813	-187	-0.0000225
100 %		+ 50	831,499,891	-109	-0.0000131
BATT. ENDPOINT	3.40	+ 20	831,499,977	-23	-0.0000028

Table 7-30. Frequency Stability Data (Band 26/5)

Band 26/5 Frequency Stability Measurements

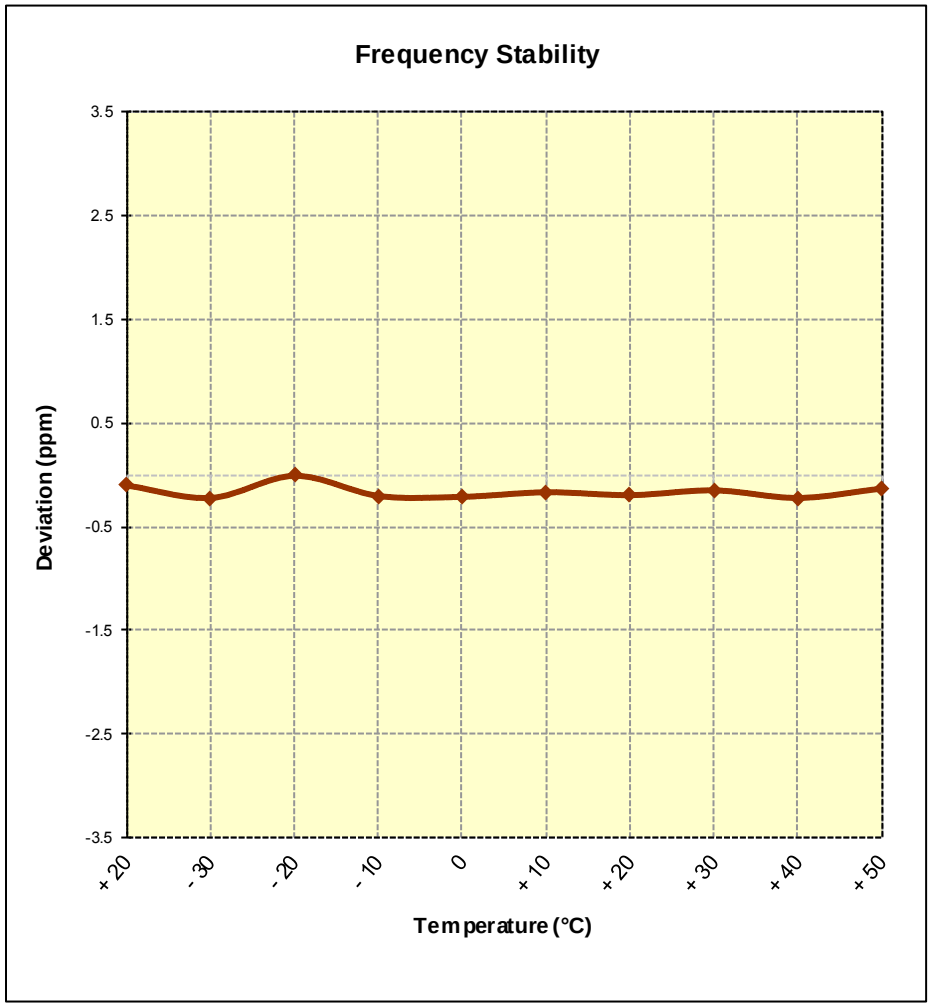


Figure 7-10. Frequency Stability Graph (Band 26/5)

Band 4 Frequency Stability Measurements

OPERATING FREQUENCY:	1,732,500,000	Hz
CHANNEL:	20175	
REFERENCE VOLTAGE:	3.80	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	1,732,499,854	-146	-0.0000084
100 %		- 30	1,732,499,861	-139	-0.0000080
100 %		- 20	1,732,499,874	-126	-0.0000073
100 %		- 10	1,732,499,875	-125	-0.0000072
100 %		0	1,732,499,832	-168	-0.0000097
100 %		+ 10	1,732,499,848	-152	-0.0000088
100 %		+ 20	1,732,499,959	-41	-0.0000024
100 %		+ 30	1,732,499,823	-177	-0.0000102
100 %		+ 40	1,732,499,930	-70	-0.0000040
100 %		+ 50	1,732,499,946	-54	-0.0000031
BATT. ENDPOINT	3.40	+ 20	1,732,499,979	-21	-0.0000012

Table 7-31. Frequency Stability Data (Band 4)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

Band 4 Frequency Stability Measurements

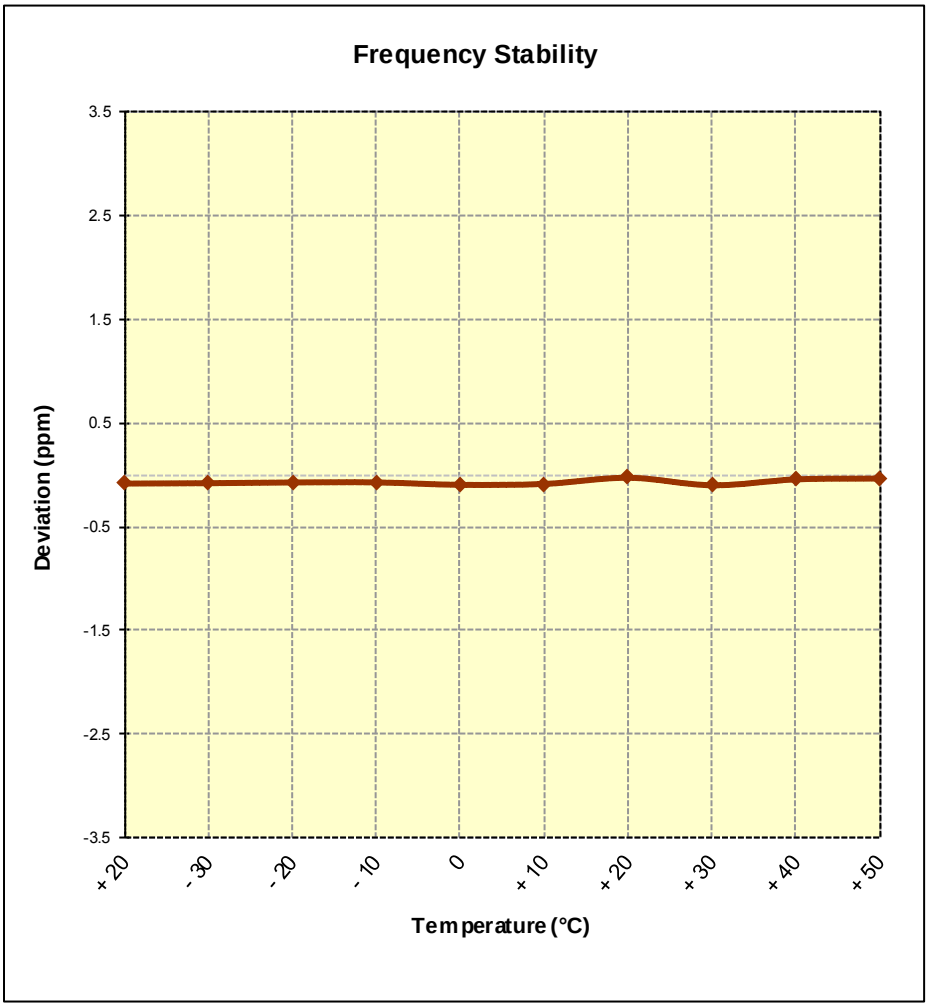


Figure 7-11. Frequency Stability Graph (Band 4)

Band 25/2 Frequency Stability Measurements

OPERATING FREQUENCY:	1,882,500,000	Hz
CHANNEL:	26365	
REFERENCE VOLTAGE:	3.80	VDC
DEVIATION LIMIT:	± 0.00025 % or 2.5 ppm	

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	1,882,499,855	-145	-0.0000077
100 %		- 30	1,882,499,962	-38	-0.0000020
100 %		- 20	1,882,499,957	-43	-0.0000023
100 %		- 10	1,882,499,907	-93	-0.0000050
100 %		0	1,882,499,983	-17	-0.0000009
100 %		+ 10	1,882,499,817	-183	-0.0000097
100 %		+ 20	1,882,499,998	-2	-0.0000001
100 %		+ 30	1,882,499,893	-107	-0.0000057
100 %		+ 40	1,882,499,995	-5	-0.0000002
100 %		+ 50	1,882,499,805	-195	-0.0000104
BATT. ENDPOINT	3.40	+ 20	1,882,499,886	-114	-0.0000061

Table 7-32. Frequency Stability Data (Band 25/2)

Band 25/2 Frequency Stability Measurements

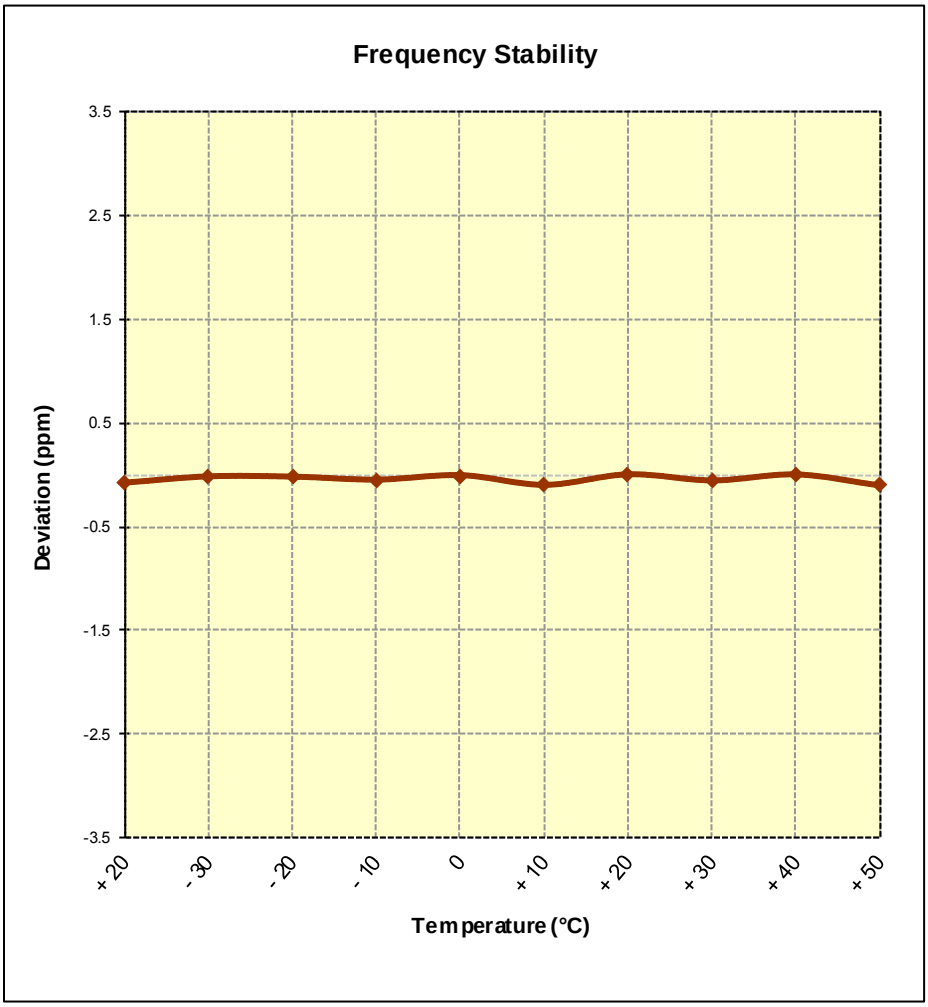


Figure 7-12. Frequency Stability Graph (Band 25/2)

Band 41 Frequency Stability Measurements

OPERATING FREQUENCY:	2,593,000,000	Hz
CHANNEL:	40620	
REFERENCE VOLTAGE:	3.80	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	2,592,999,838	-162	-0.0000063
100 %		- 30	2,592,999,808	-192	-0.0000074
100 %		- 20	2,592,999,985	-15	-0.0000006
100 %		- 10	2,592,999,806	-194	-0.0000075
100 %		0	2,592,999,856	-144	-0.0000056
100 %		+ 10	2,592,999,816	-184	-0.0000071
100 %		+ 20	2,592,999,860	-140	-0.0000054
100 %		+ 30	2,592,999,846	-154	-0.0000059
100 %		+ 40	2,592,999,917	-83	-0.0000032
100 %		+ 50	2,592,999,805	-195	-0.0000075
BATT. ENDPOINT	3.40	+ 20	2,592,999,858	-142	-0.0000055

Table 7-33. Frequency Stability Data (Band 41)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

Band 41 Frequency Stability Measurements

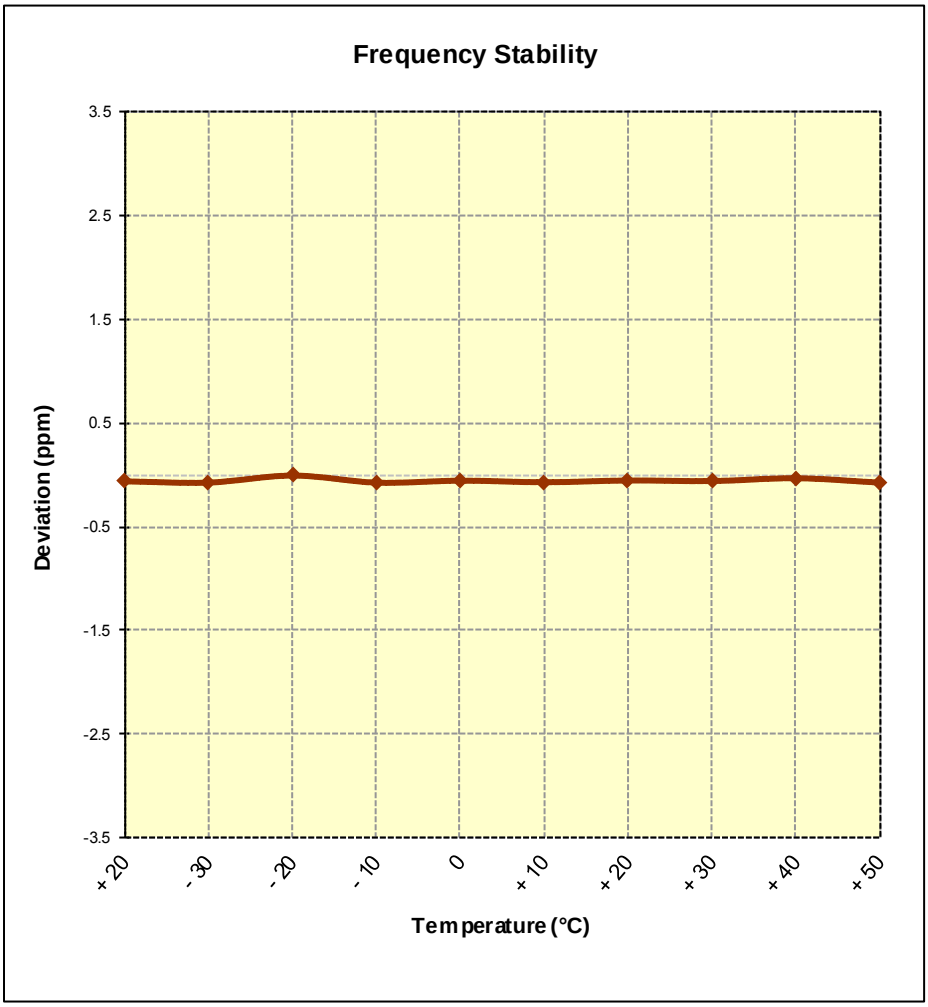


Figure 7-13. Frequency Stability Graph (Band 41)

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMJ337P** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.