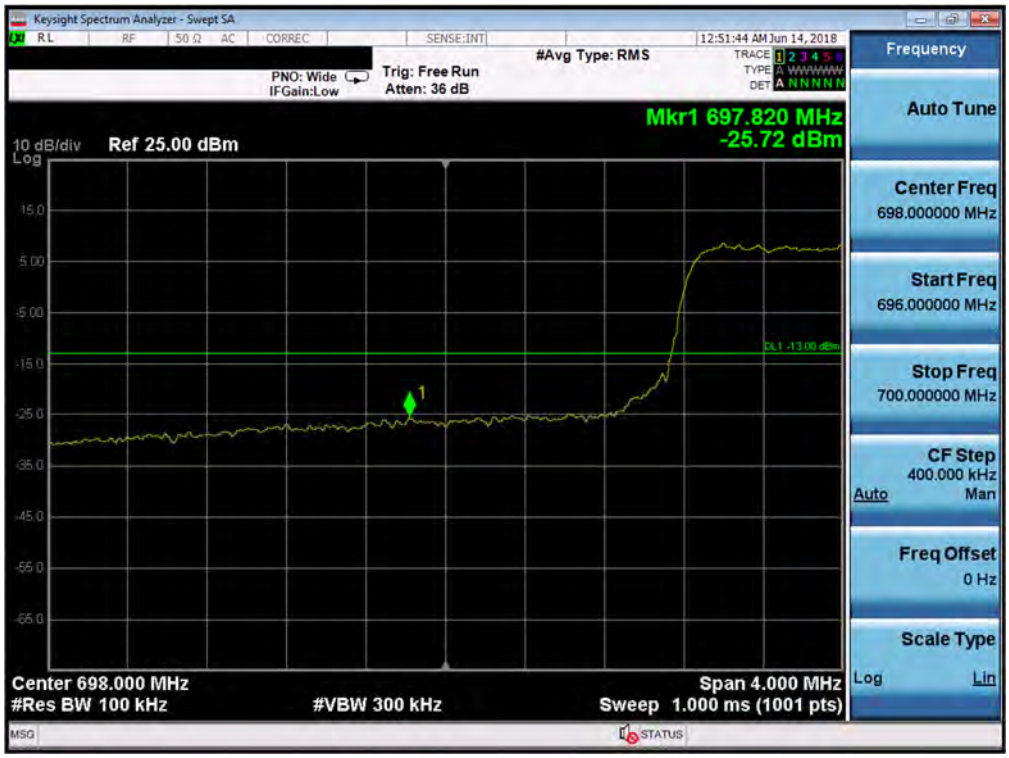
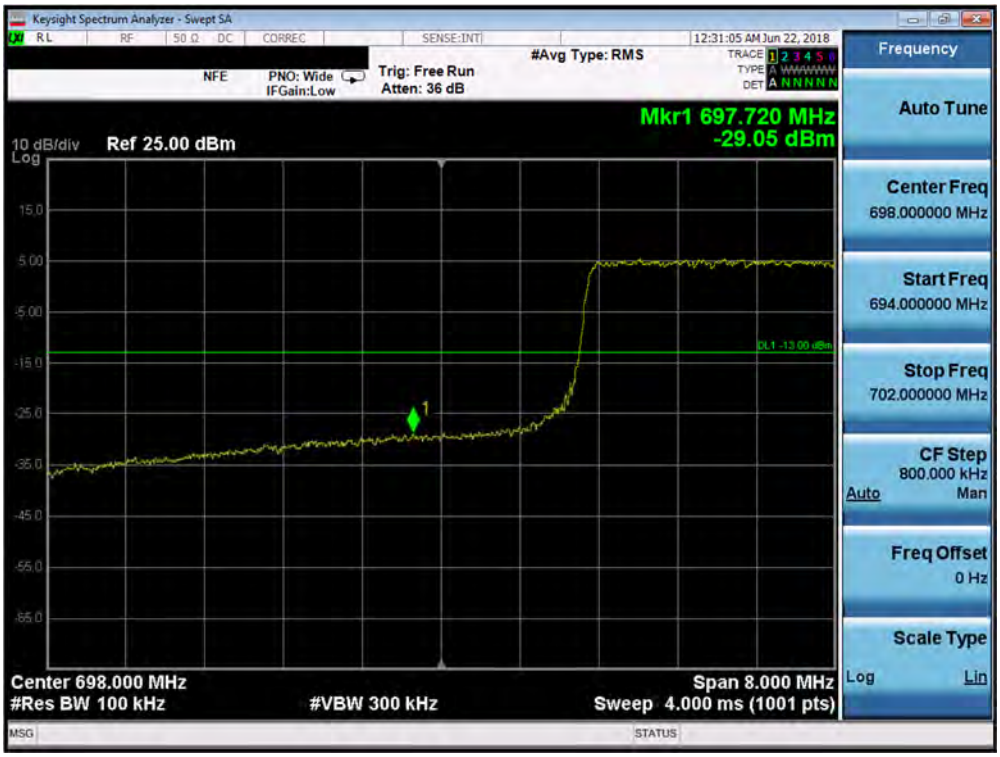


Plot 7-130. Lower Band Edge Plot (Band 12 - 5.0MHz QPSK - Full RB Configuration)

Plot 7-131. Upper Band Edge Plot (Band 12 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-132. Lower Band Edge Plot (Band 12 - 10.0MHz QPSK - Full RB Configuration)

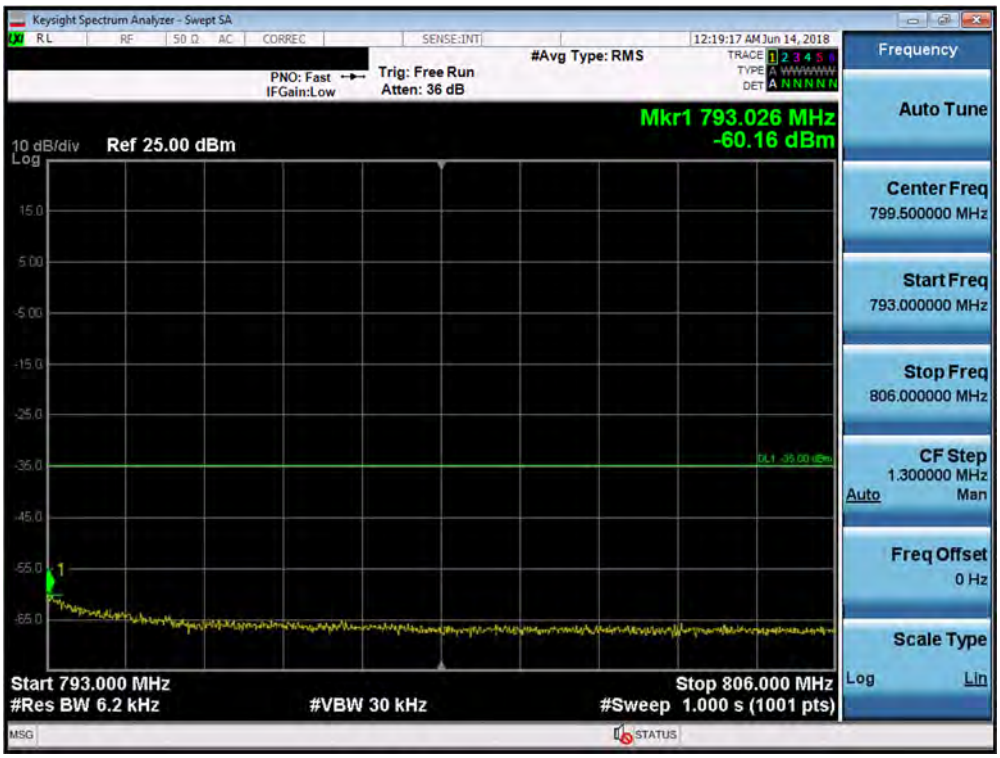
Plot 7-133. Upper Band Edge Plot (Band 12 - 10.0MHz QPSK - Full RB Configuration)

Band 13

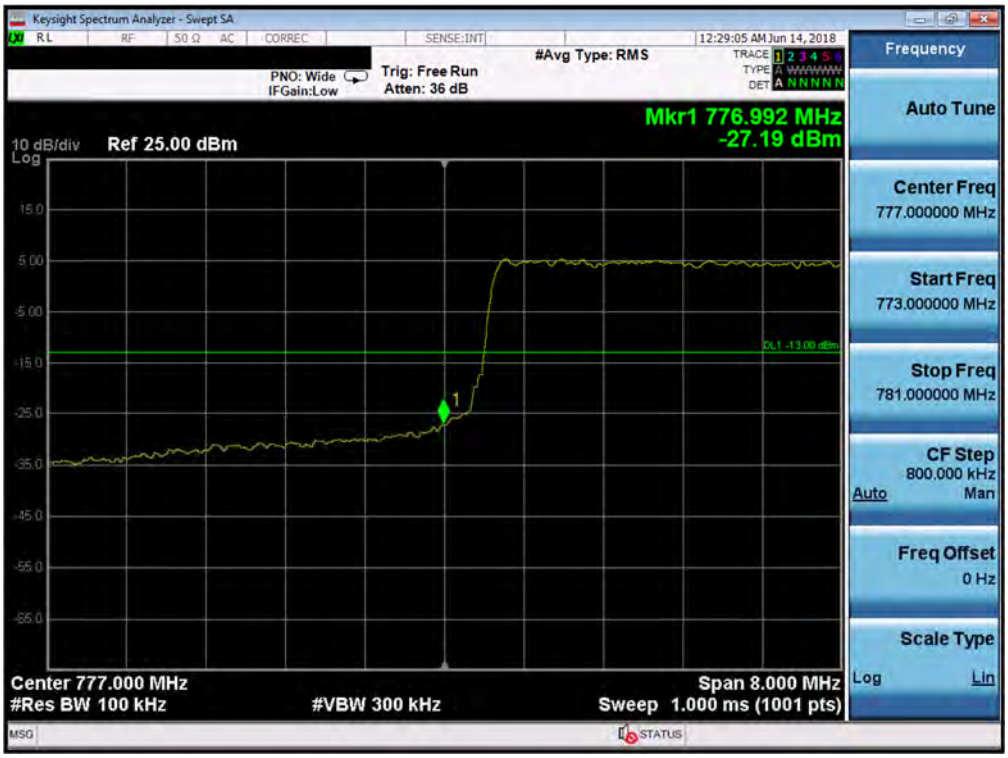
Plot 7-134. Lower Band Edge Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

Plot 7-135. Lower Emission Mask Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)

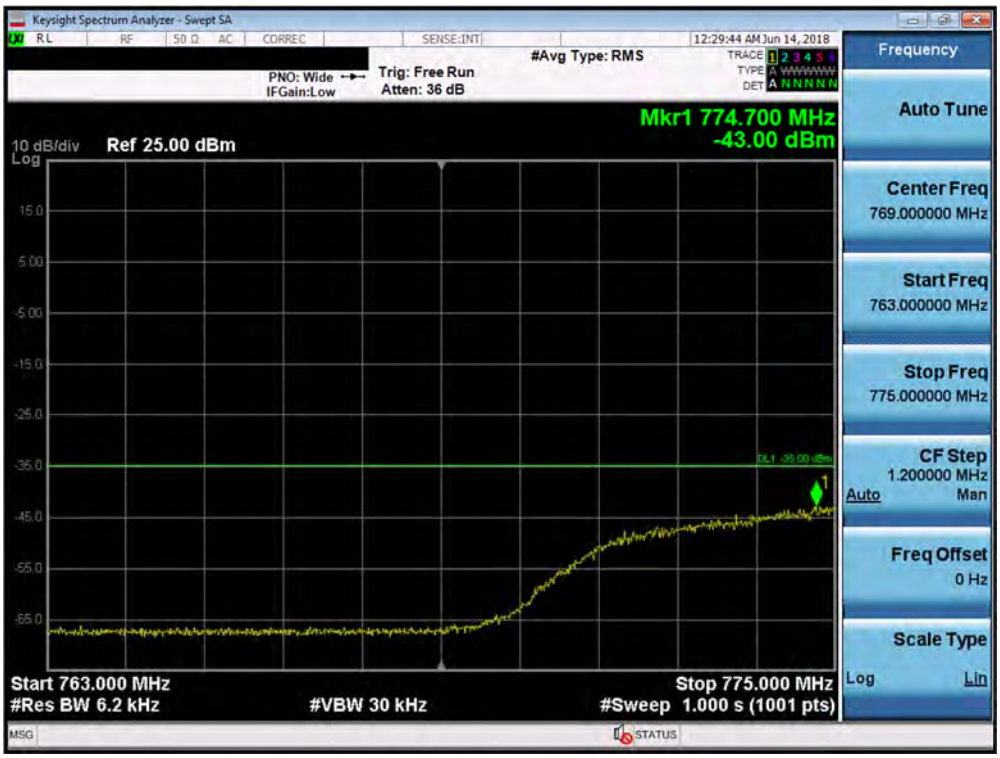
Plot 7-136. Upper Band Edge Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-137. Upper Emission Mask Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-138. Lower Band Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)



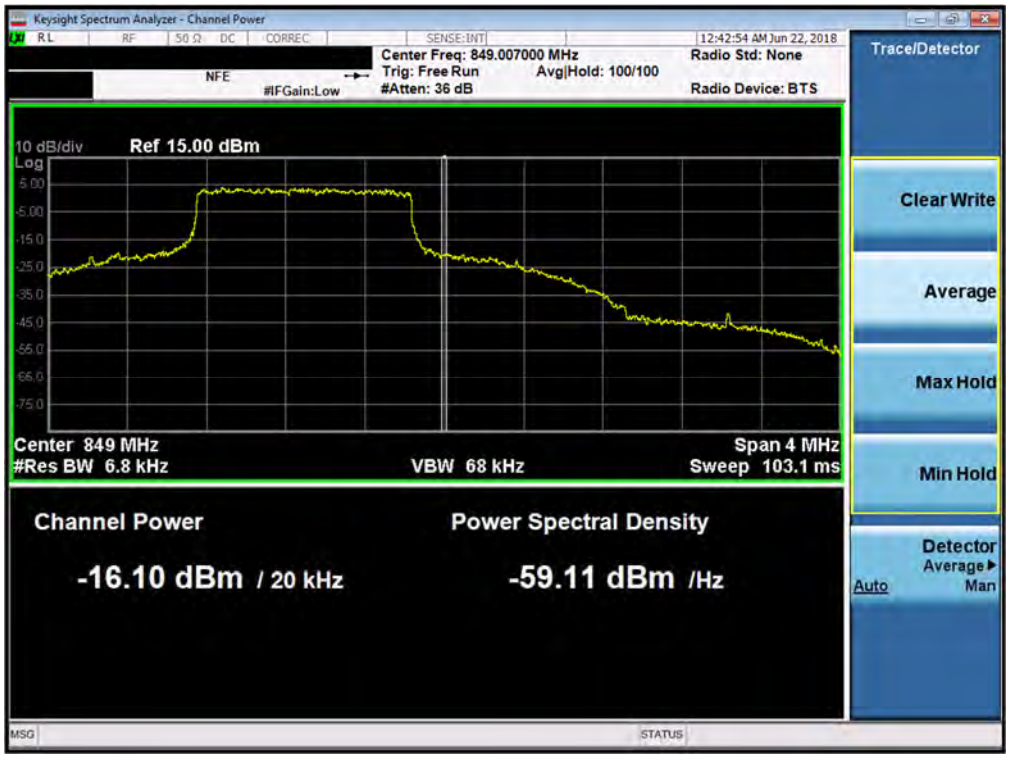
Plot 7-139. Lower Emission Mask Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

Plot 7-140. Upper Band Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

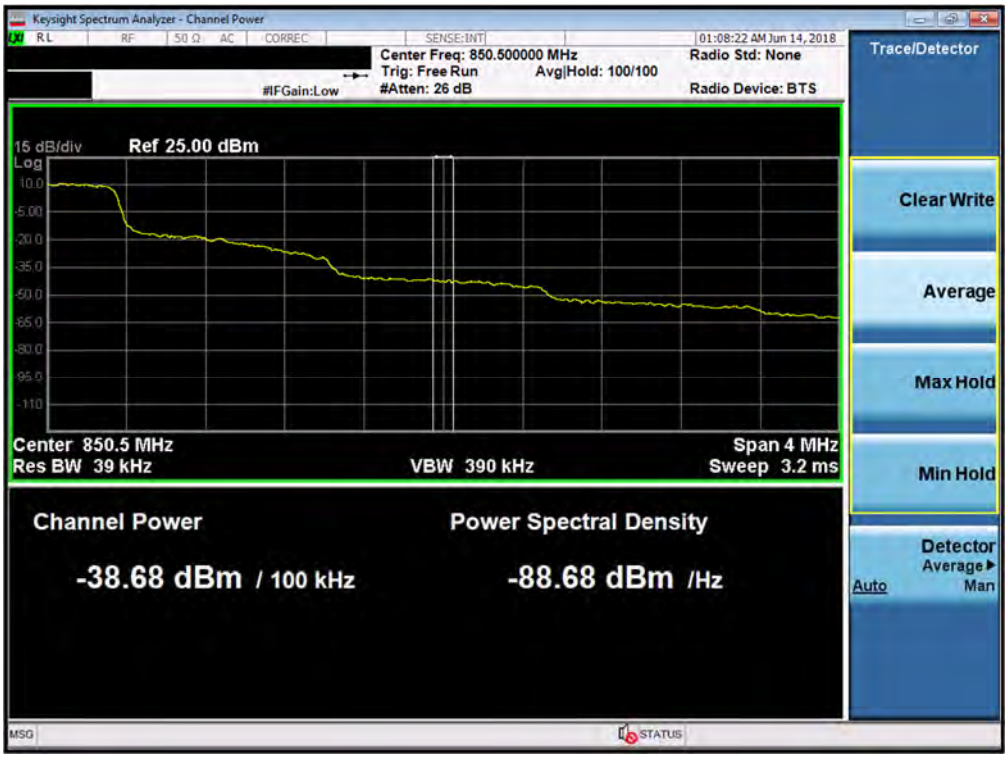
Plot 7-141. Upper Band Edge Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

Band 26/5

Plot 7-142. Lower Band Edge Plot (Band 26/5 - 1.4MHz QPSK - Full RB Configuration)



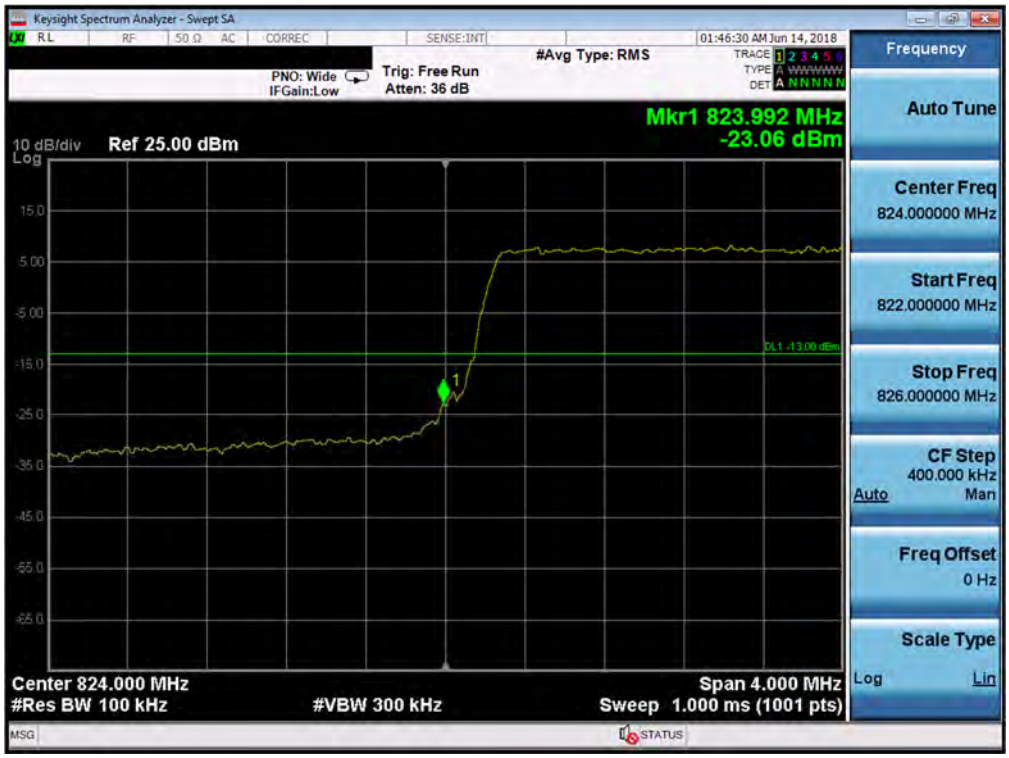
Plot 7-143. Upper Band Edge Plot (Band 26/5 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-144. Upper Extended Band Edge Plot (Band 26/5 - 1.4MHz QPSK - Full RB Configuration)

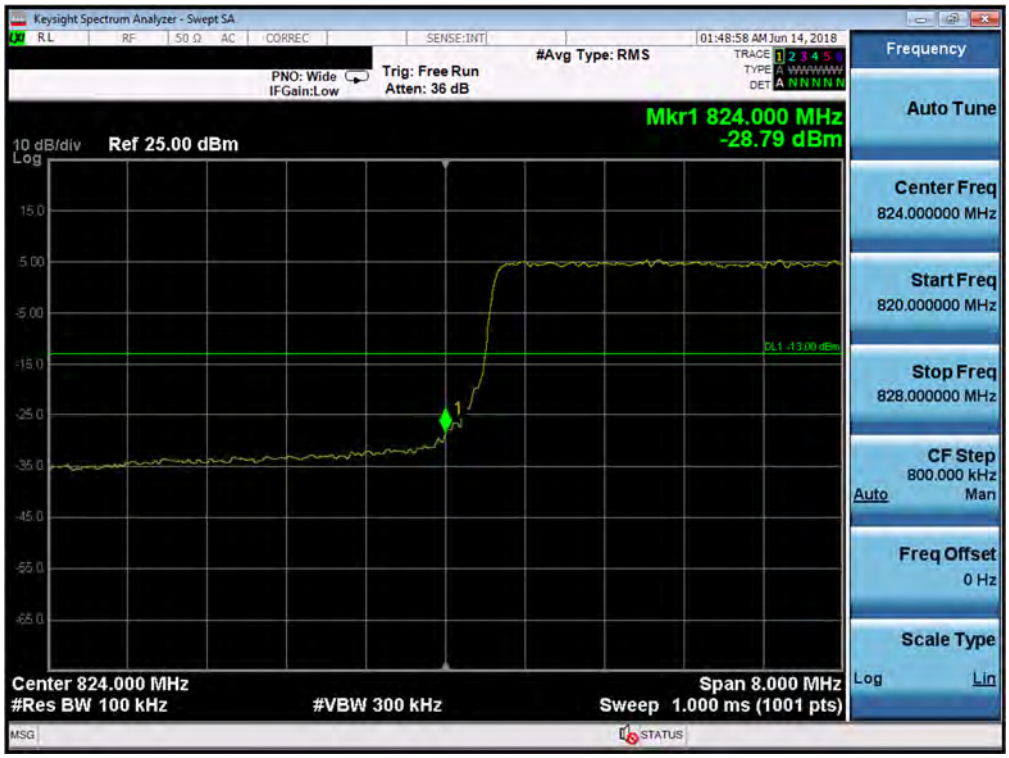
Plot 7-145. Lower Band Edge Plot (Band 26/5 - 3.0MHz QPSK - Full RB Configuration)

Plot 7-146. Upper Band Edge Plot (Band 26/5 - 3.0MHz QPSK - Full RB Configuration)



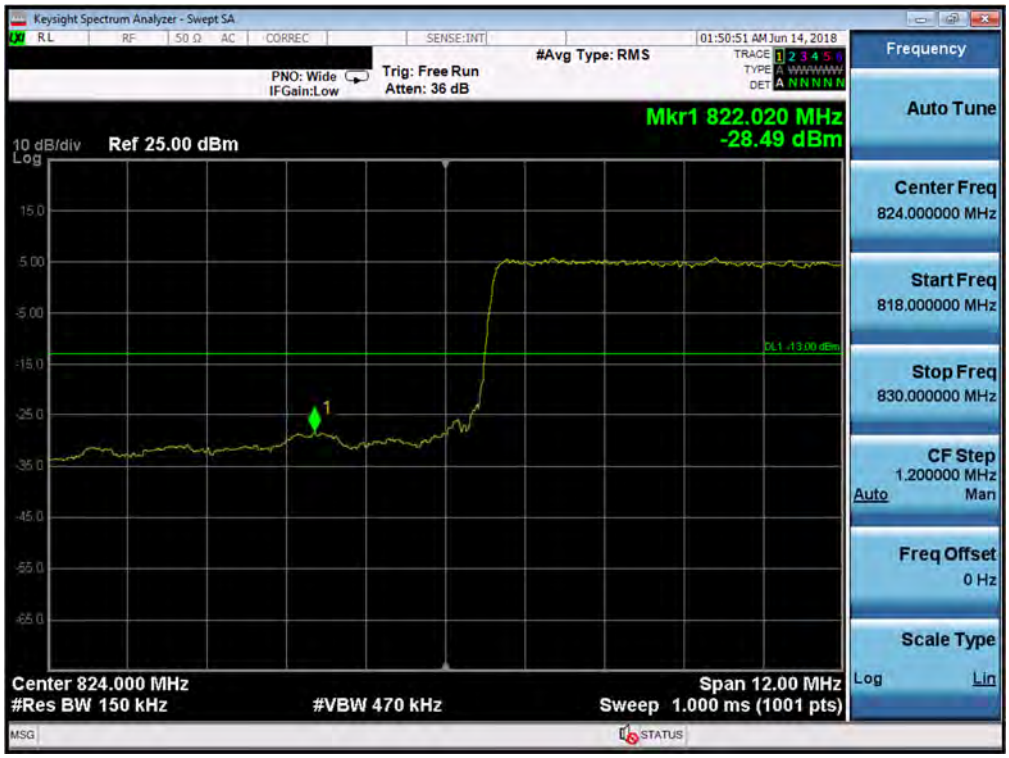
Plot 7-147. Lower Band Edge Plot (Band 26/5 - 5.0MHz QPSK - Full RB Configuration)

Plot 7-148. Upper Band Edge Plot (Band 26/5 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-149. Lower Band Edge Plot (Band 26/5 - 10.0MHz QPSK - Full RB Configuration)

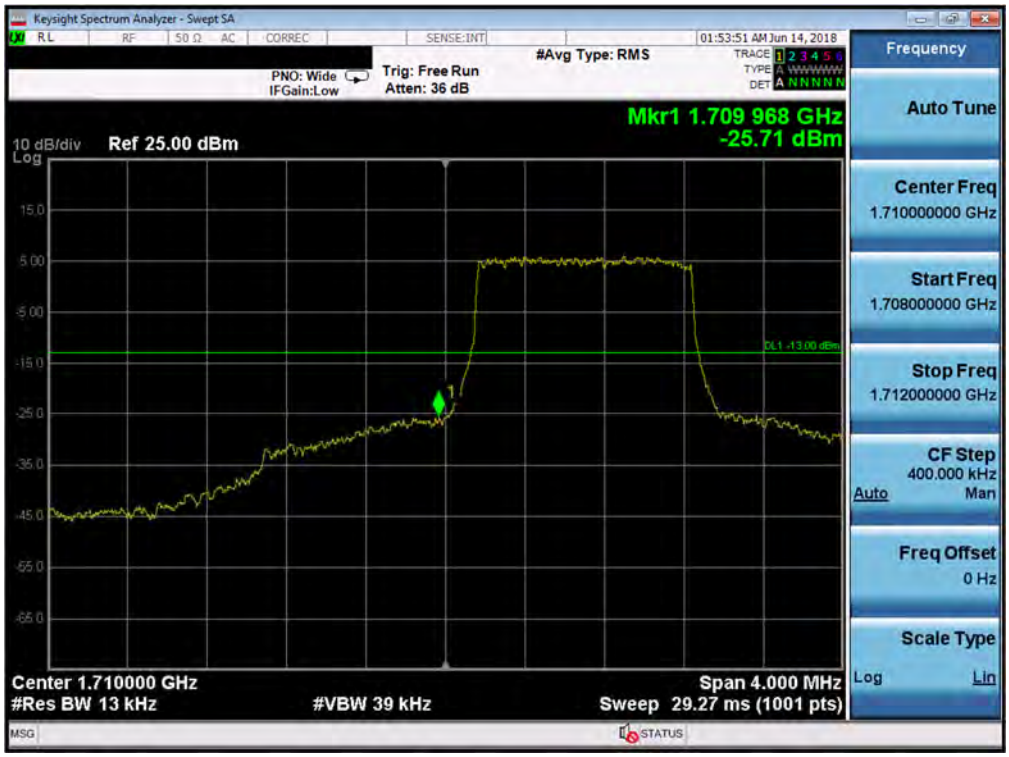
Plot 7-150. Upper Band Edge Plot (Band 26/5 - 10.0MHz QPSK - Full RB Configuration)



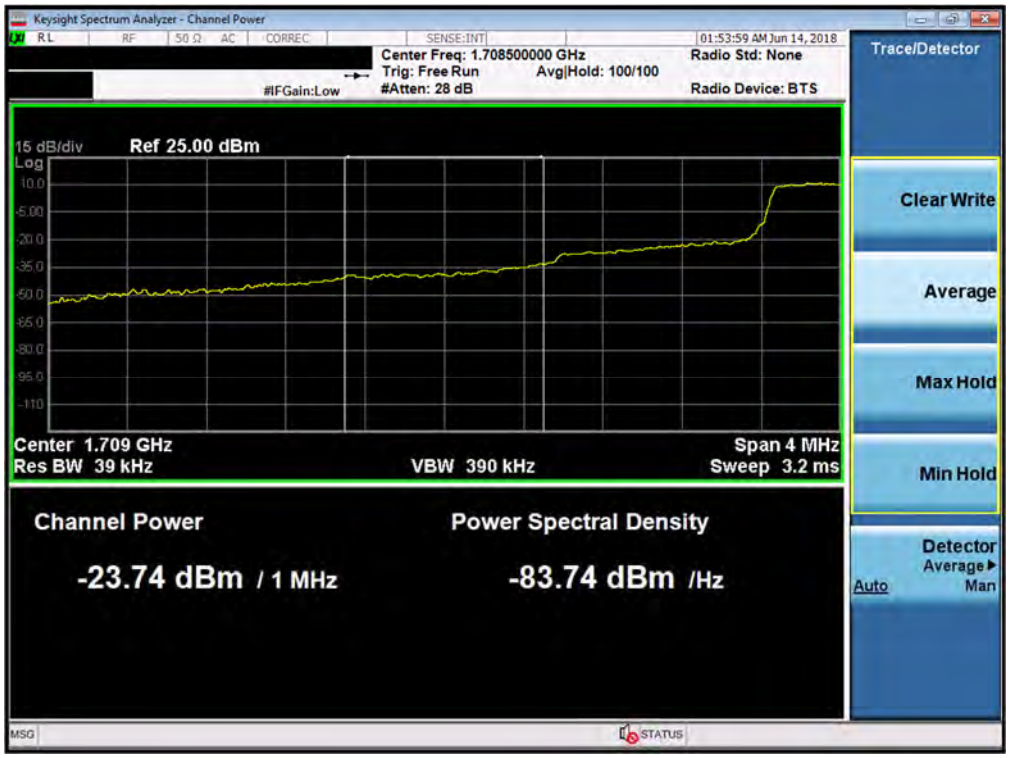
Plot 7-151. Lower Band Edge Plot (Band 26 - 15.0MHz QPSK - Full RB Configuration)

Plot 7-152. Upper Band Edge Plot (Band 26 - 15.0MHz QPSK - Full RB Configuration)

Band 4

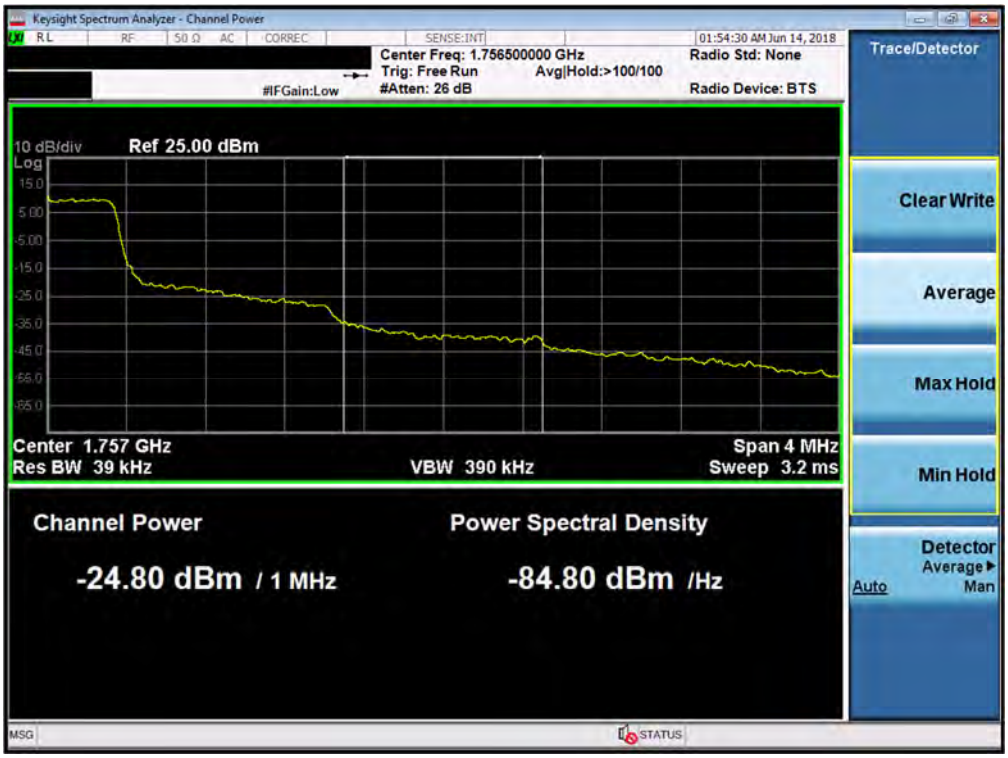


Plot 7-153. Lower Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)



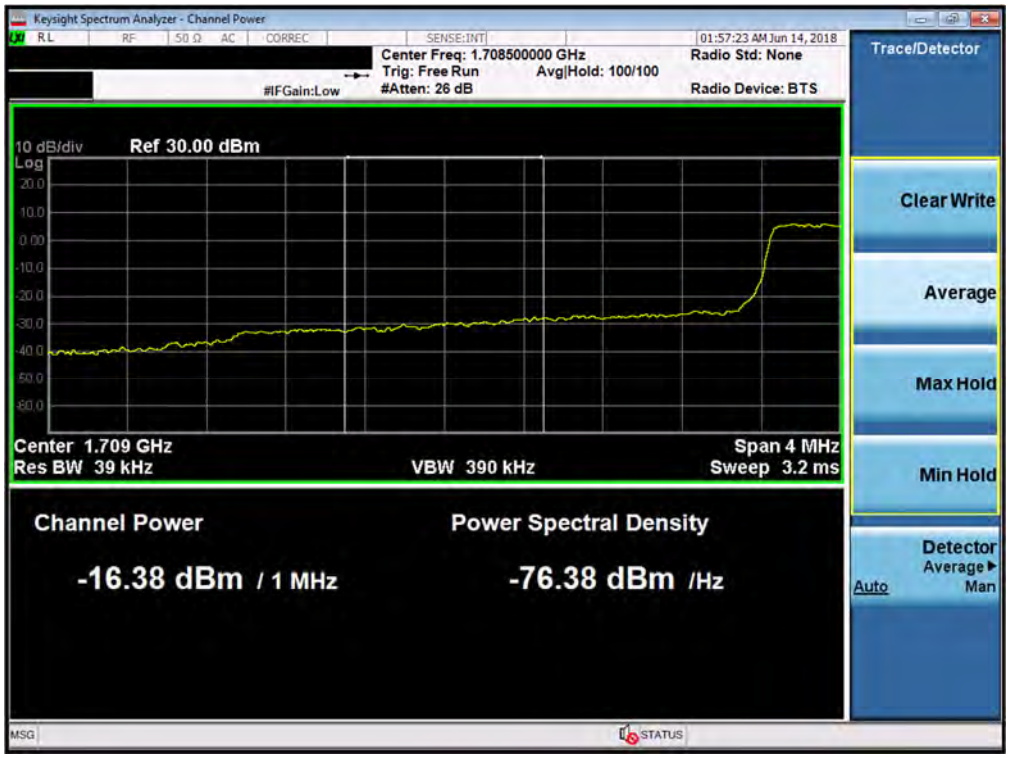
Plot 7-154. Lower Extended Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

Plot 7-155. Upper Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

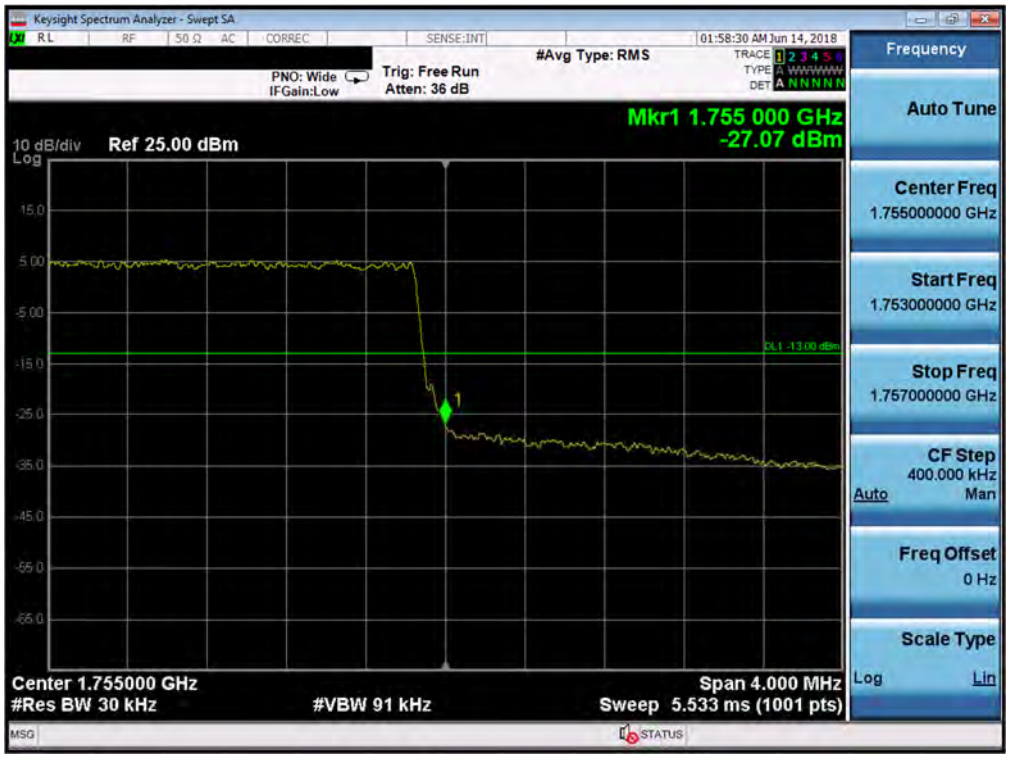


Plot 7-156. Upper Extended Band Edge Plot (Band 4 - 1.4MHz QPSK - Full RB Configuration)

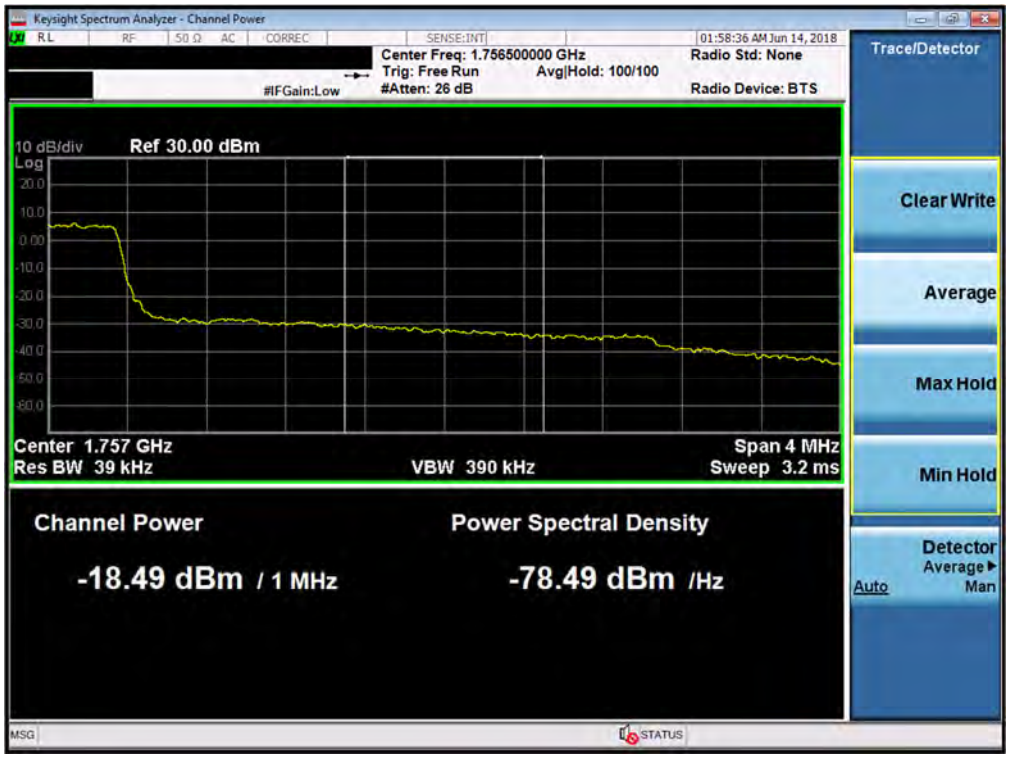
Plot 7-157. Lower Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)



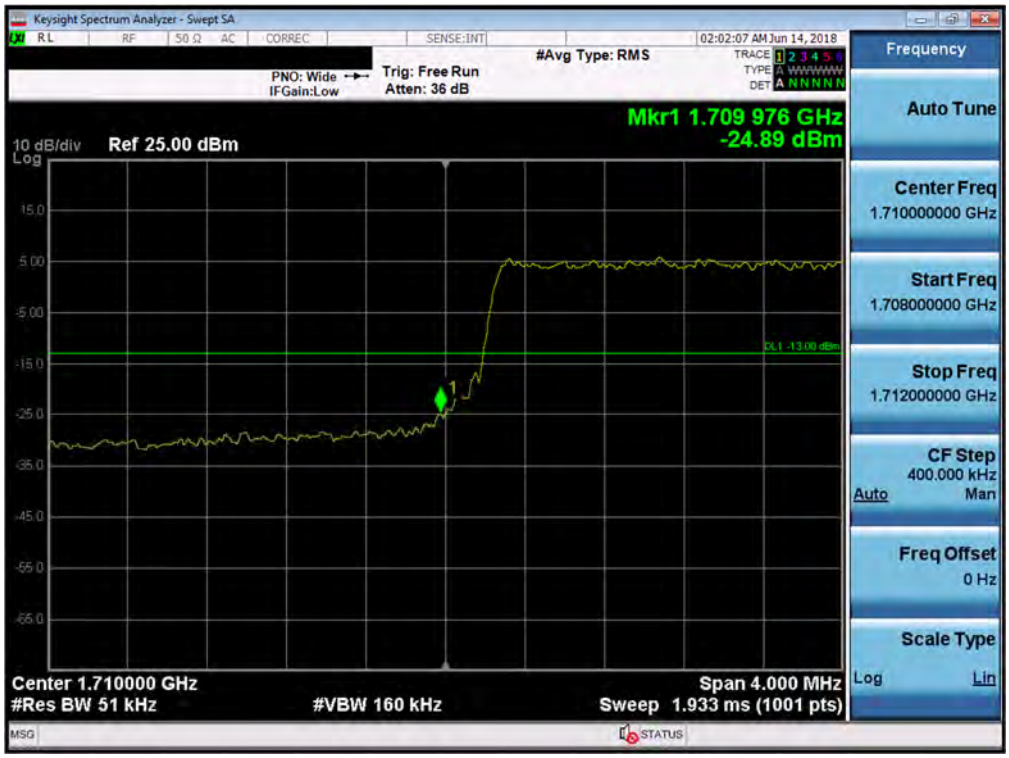
Plot 7-158. Lower Extended Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)



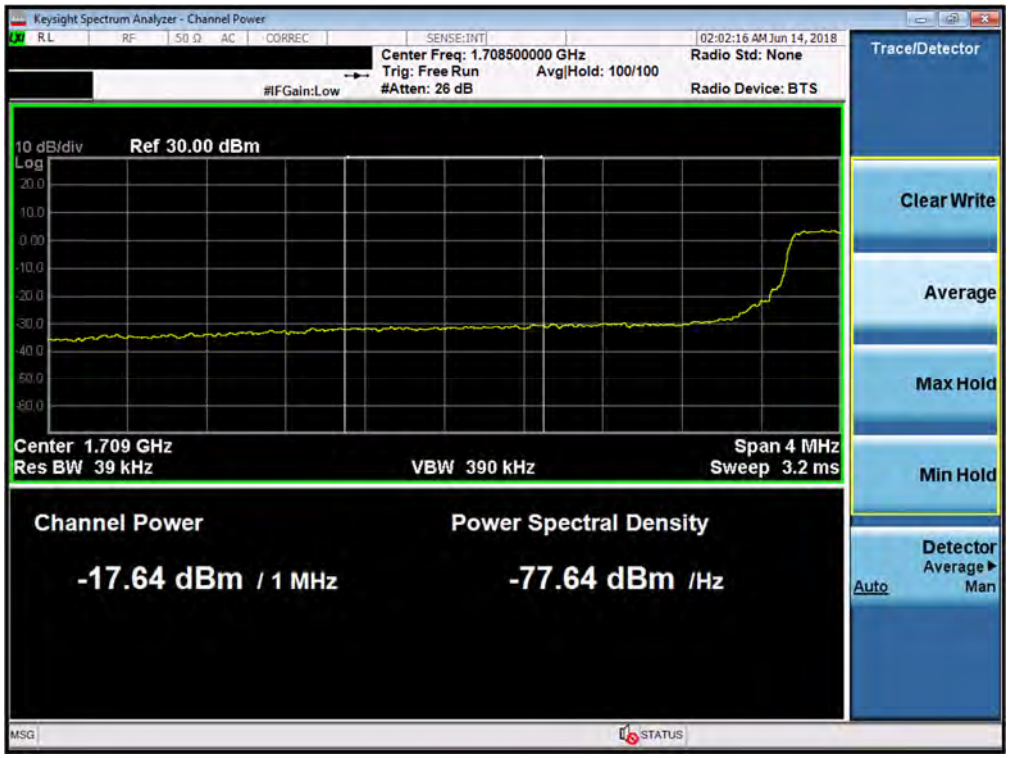
Plot 7-159. Upper Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-160. Upper Extended Band Edge Plot (Band 4 - 3.0MHz QPSK - Full RB Configuration)

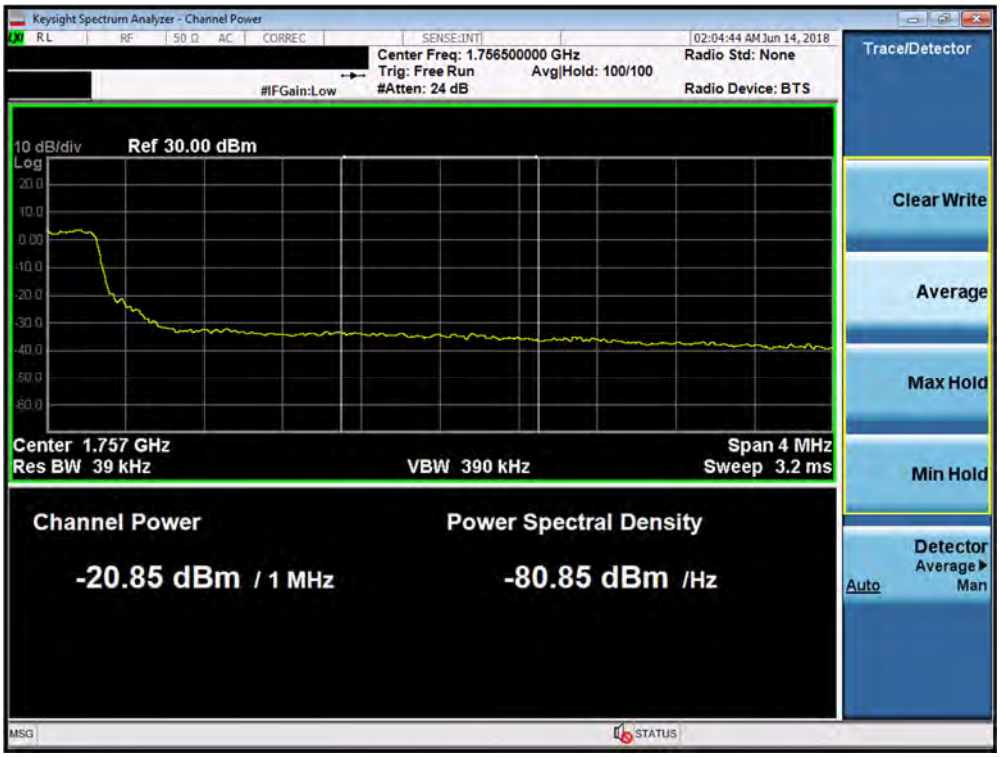


Plot 7-161. Lower Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

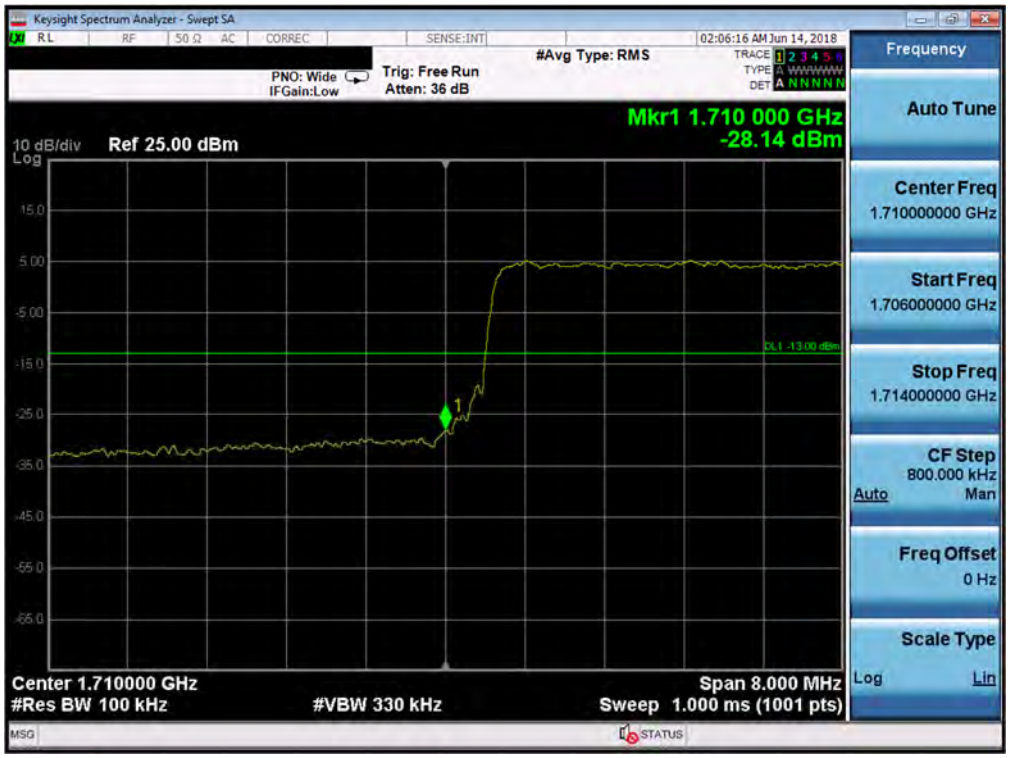


Plot 7-162. Lower Extended Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)

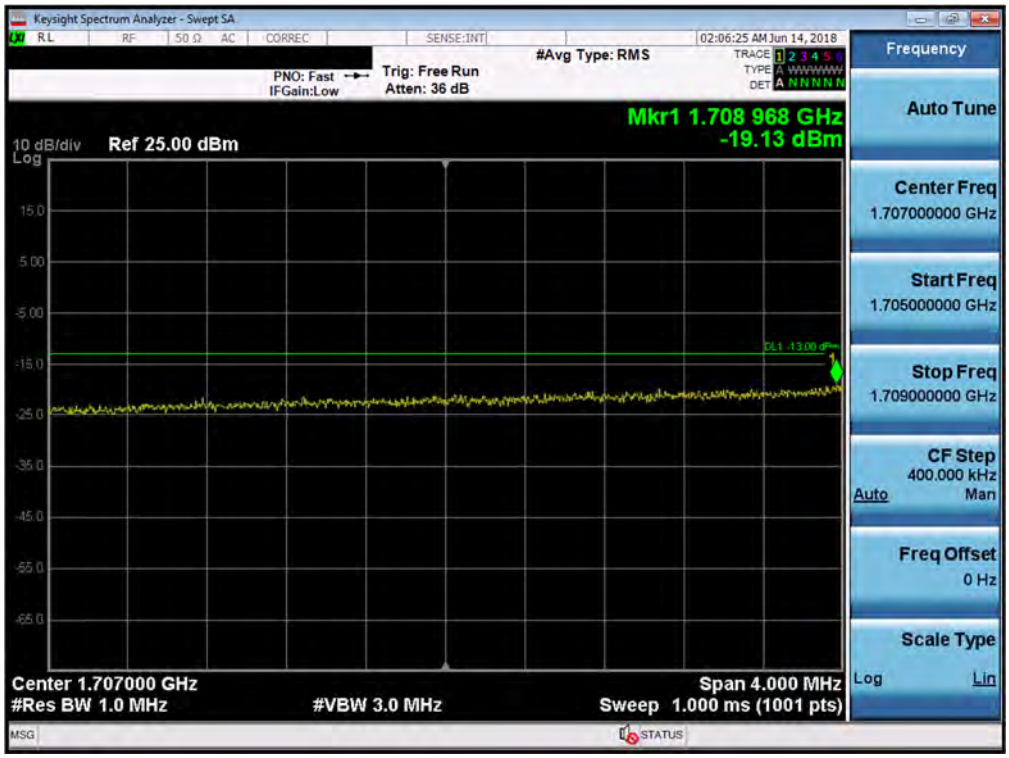
Plot 7-163. Upper Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)



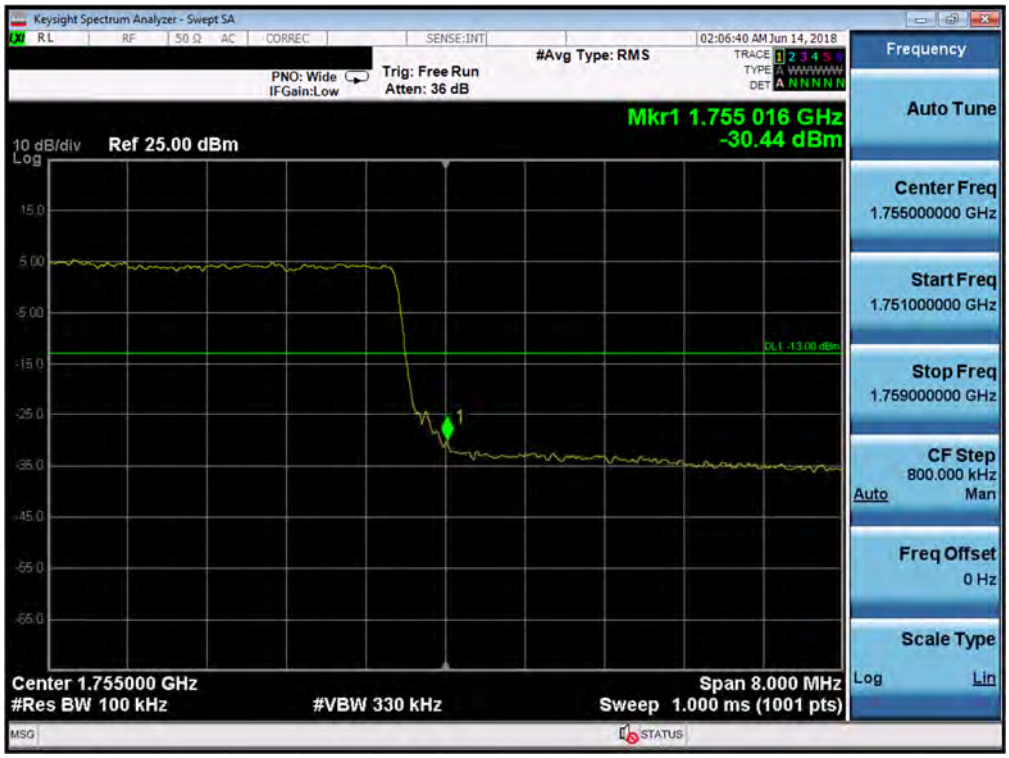
Plot 7-164. Upper Extended Band Edge Plot (Band 4 - 5.0MHz QPSK - Full RB Configuration)



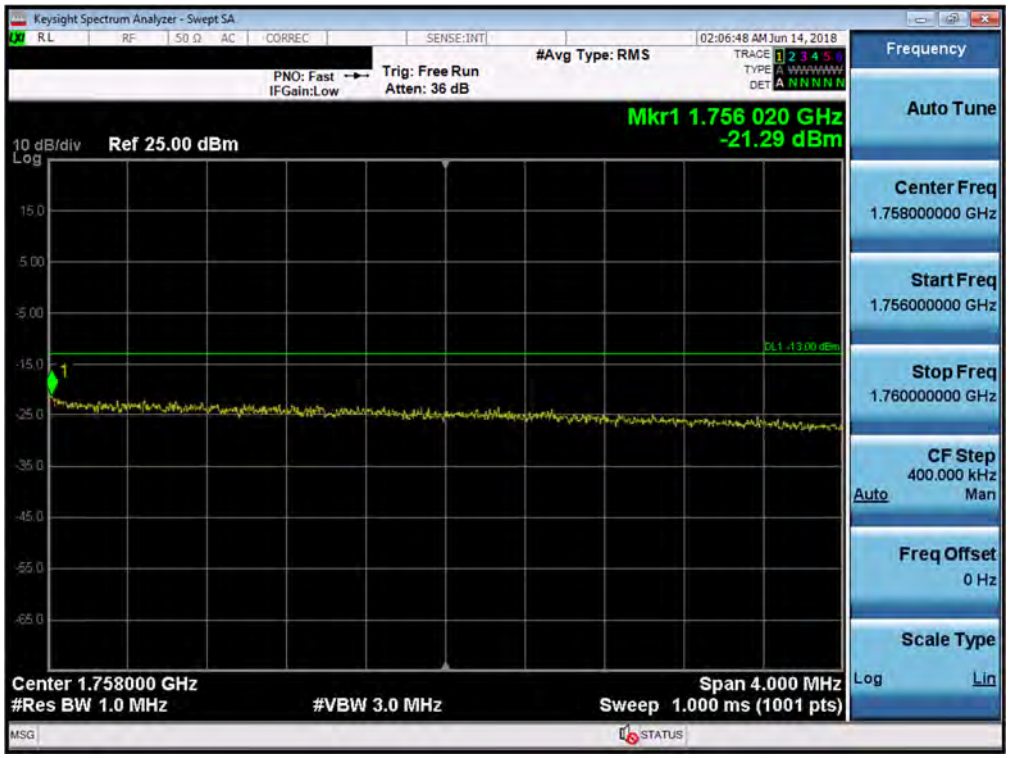
Plot 7-165. Lower Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)



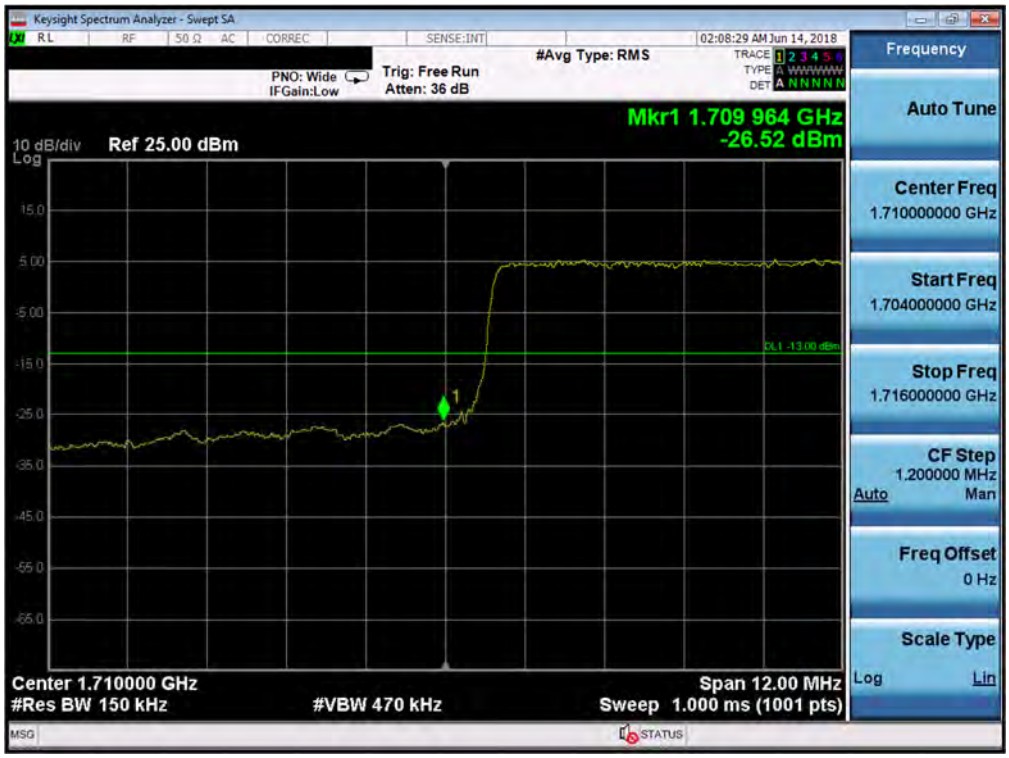
Plot 7-166. Lower Extended Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)



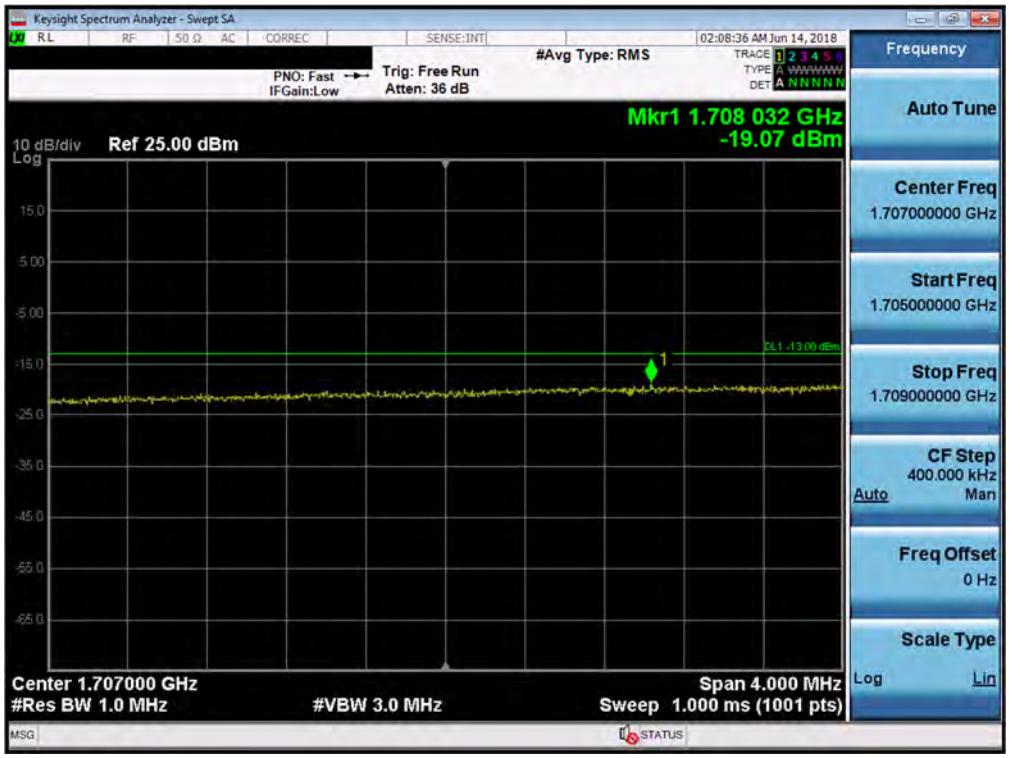
Plot 7-167. Upper Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-168. Upper Extended Band Edge Plot (Band 4 - 10.0MHz QPSK - Full RB Configuration)

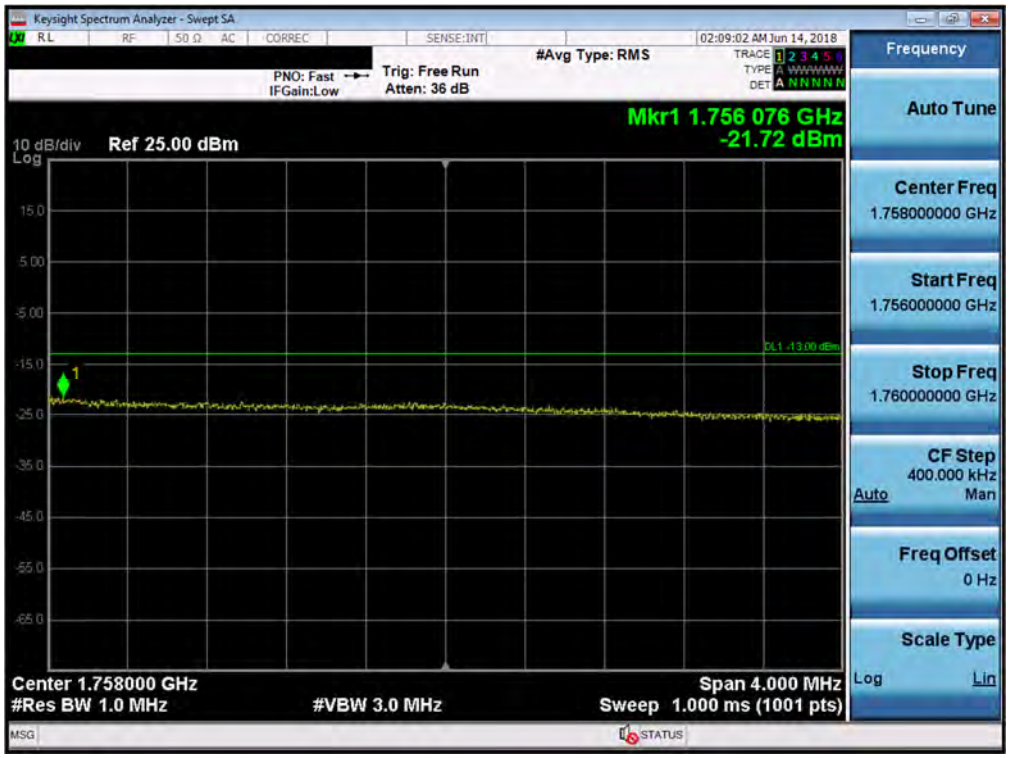


Plot 7-169. Lower Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

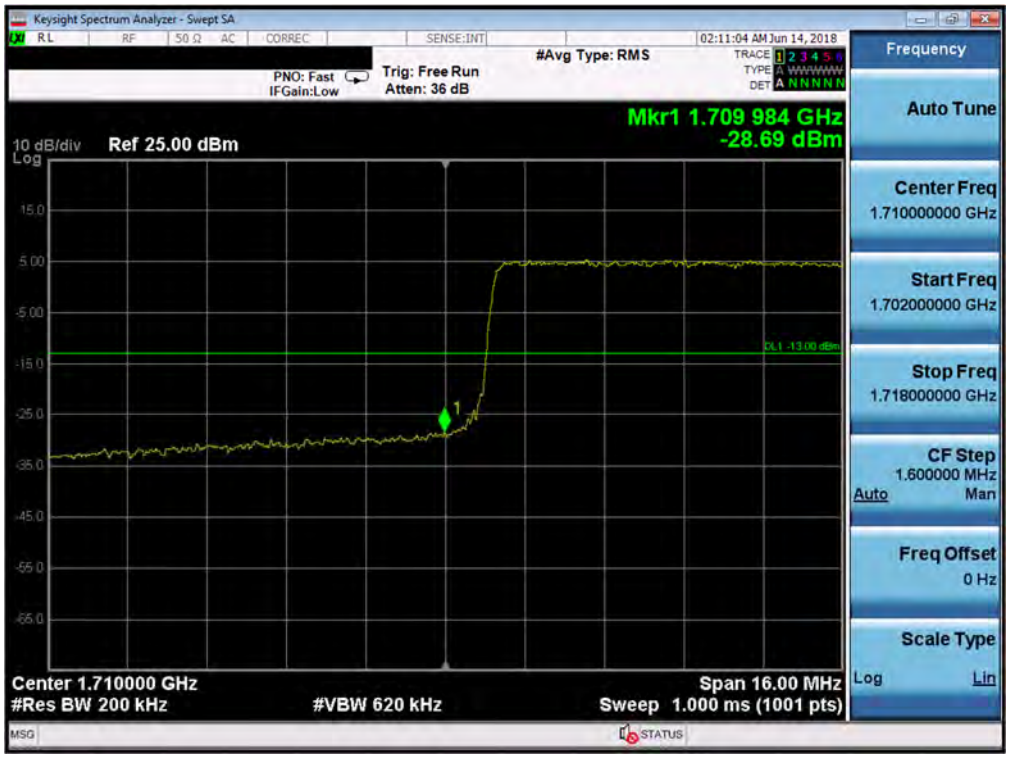


Plot 7-170. Lower Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

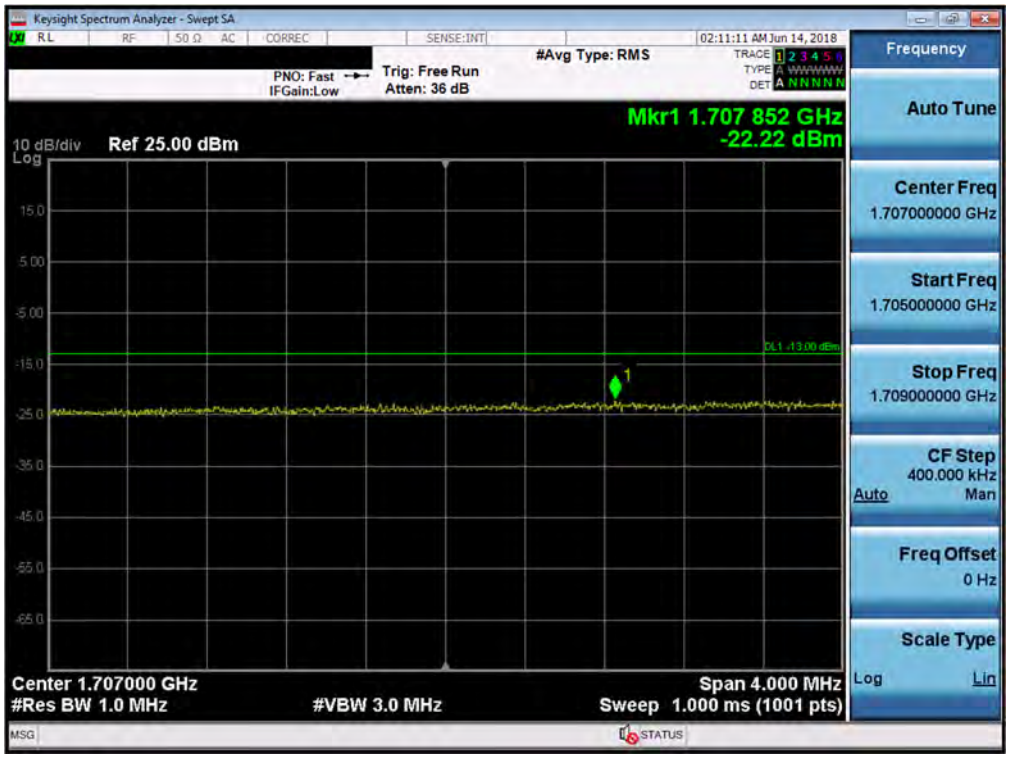
Plot 7-171. Upper Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)



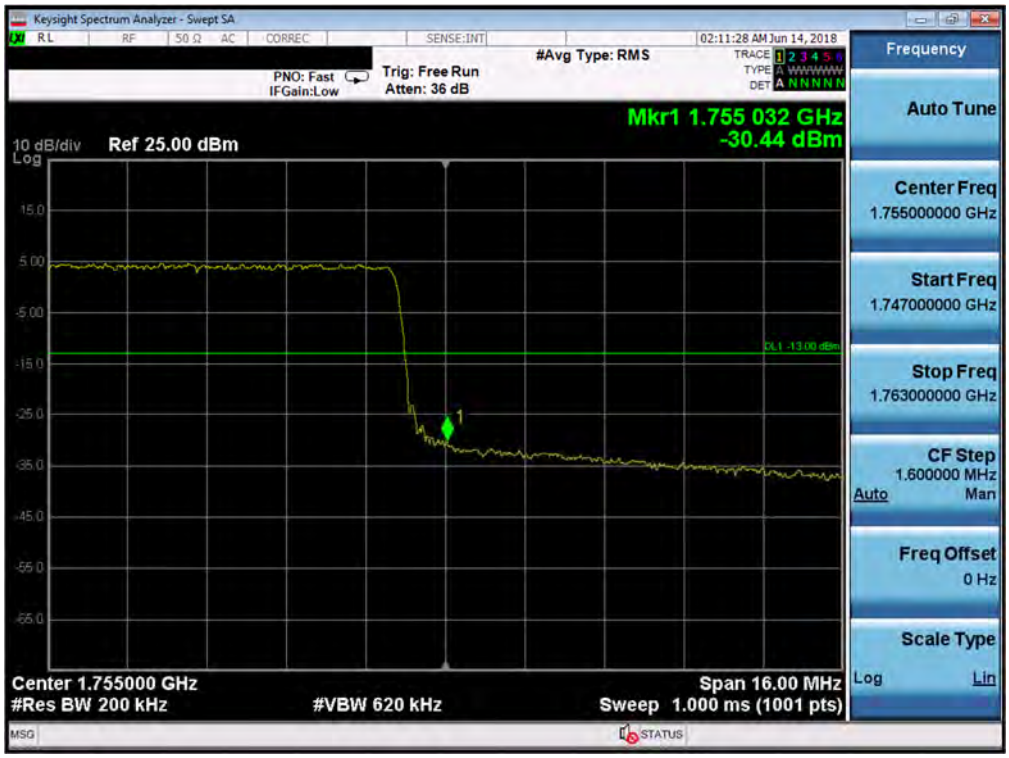
Plot 7-172. Upper Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)



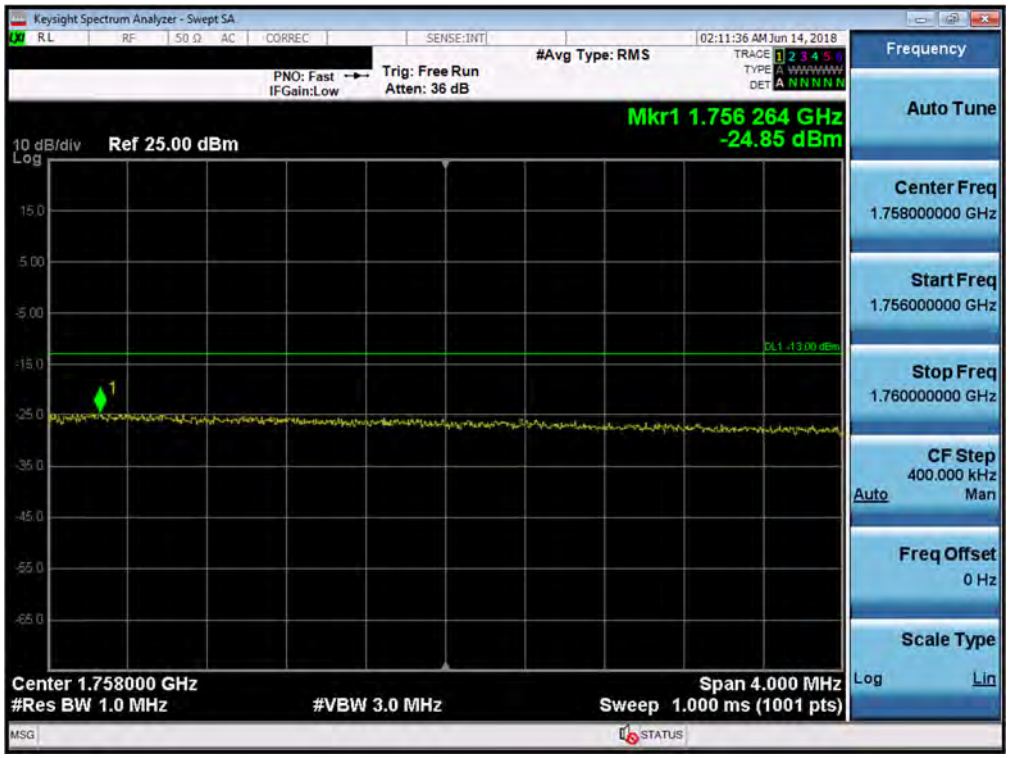
Plot 7-173. Lower Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)



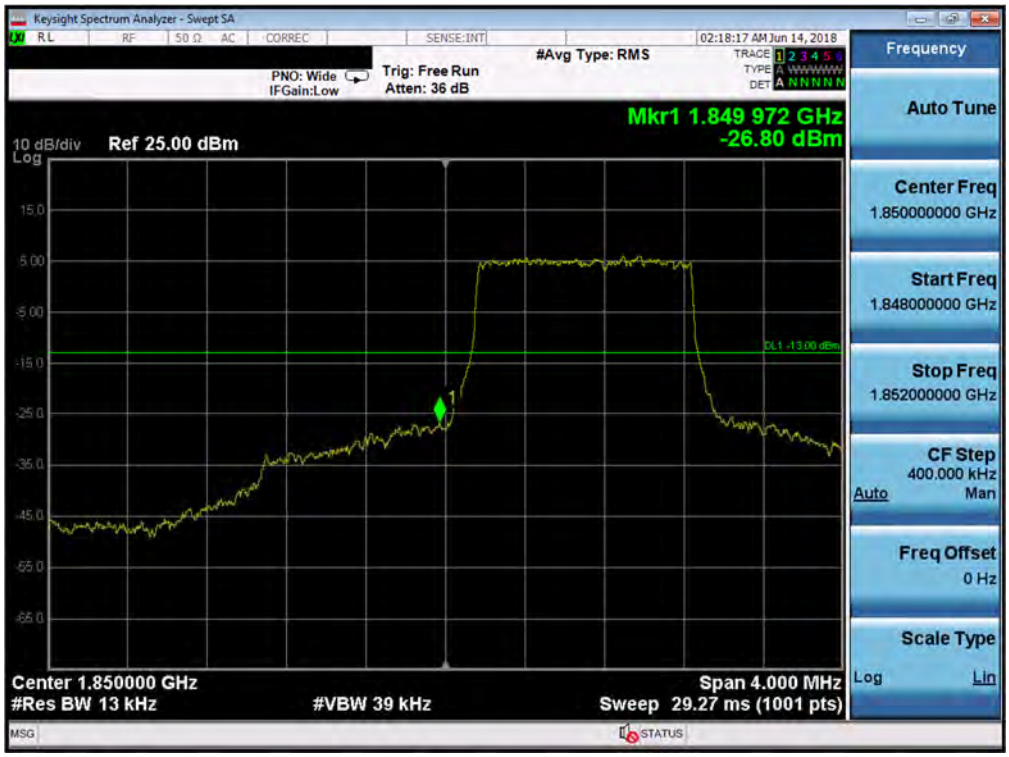
Plot 7-174. Lower Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)



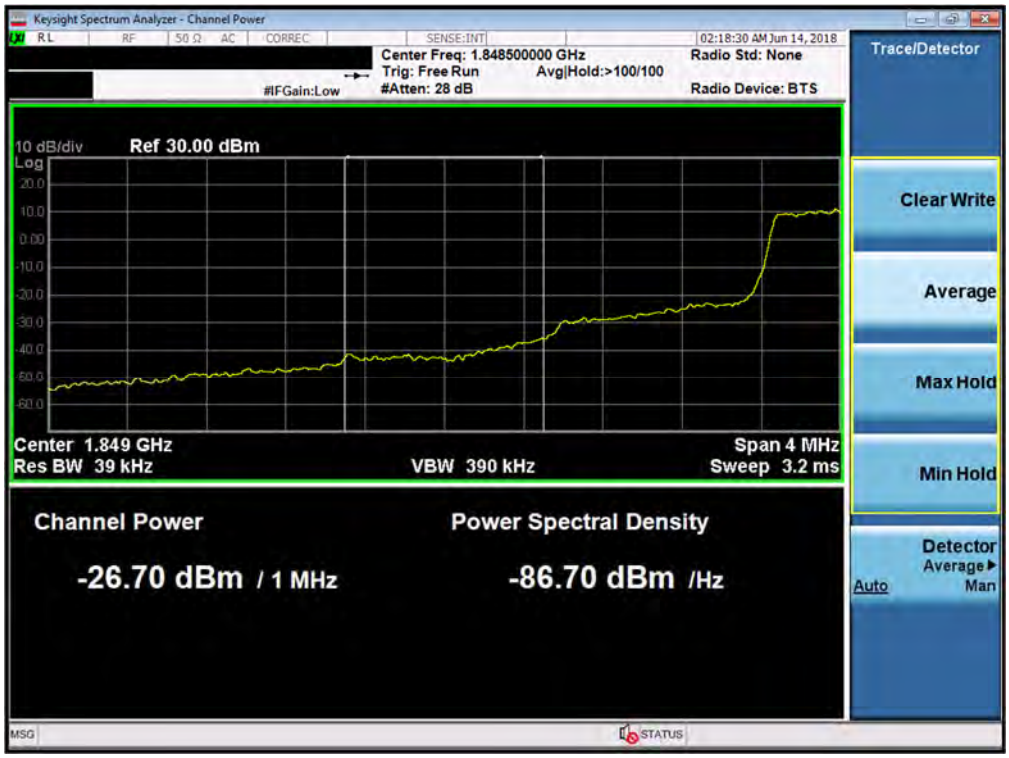
Plot 7-175. Upper Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-176. Upper Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

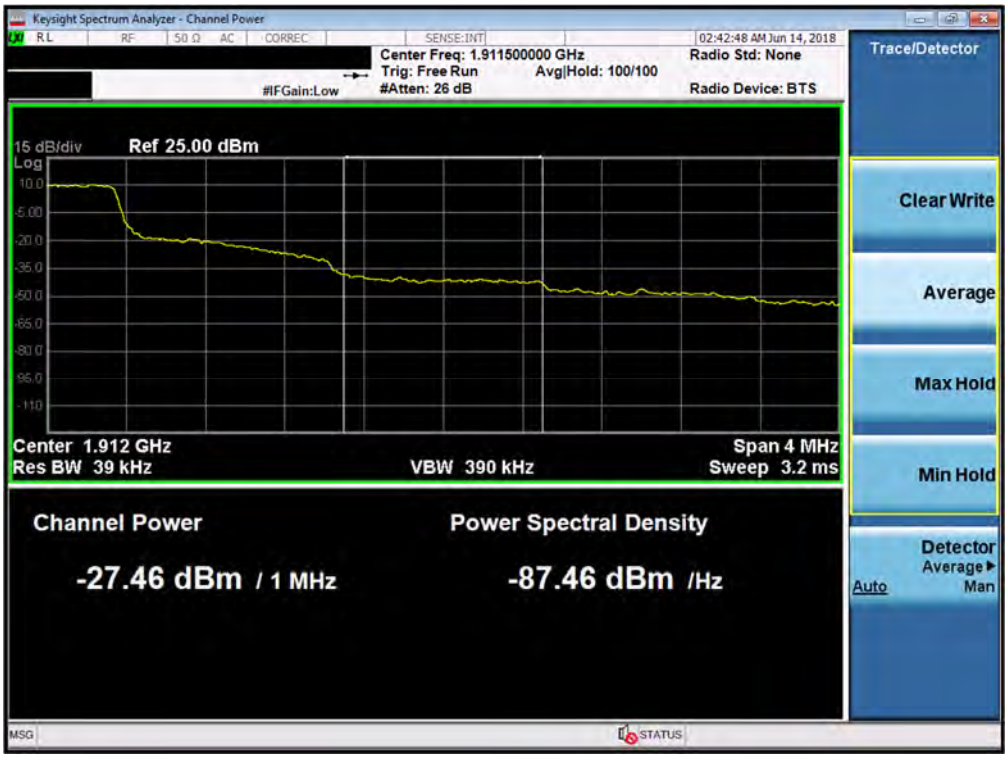


Plot 7-177. Lower Band Edge Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)



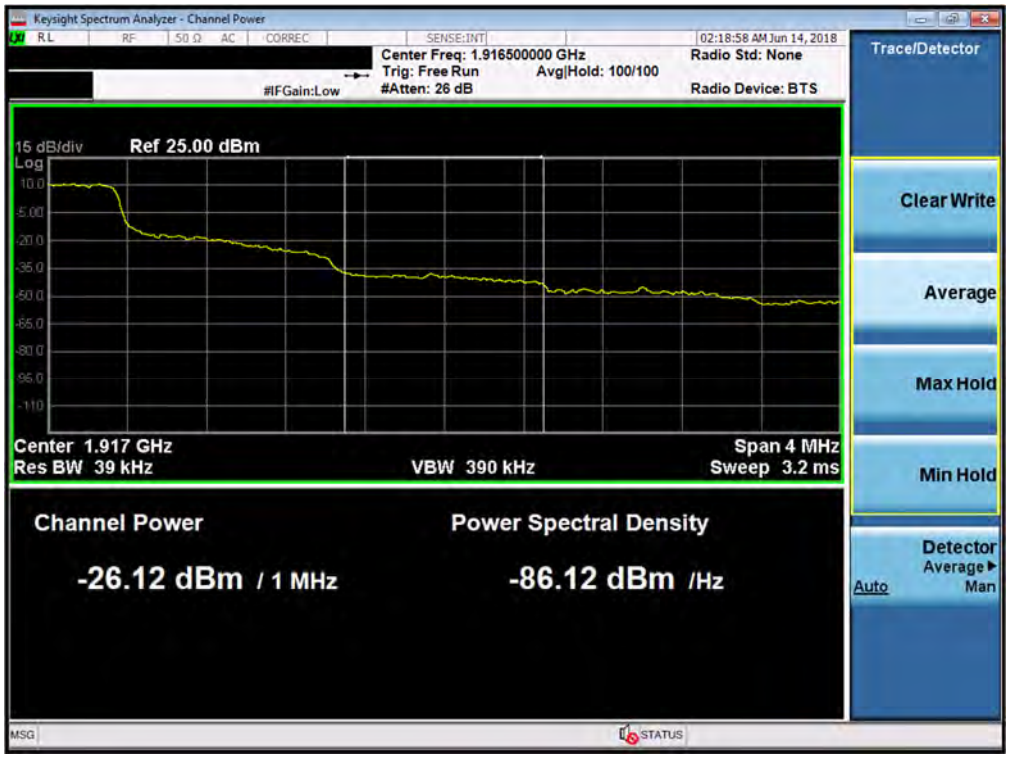
Plot 7-178. Lower Extended Band Edge Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)

Plot 7-179. Upper Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)

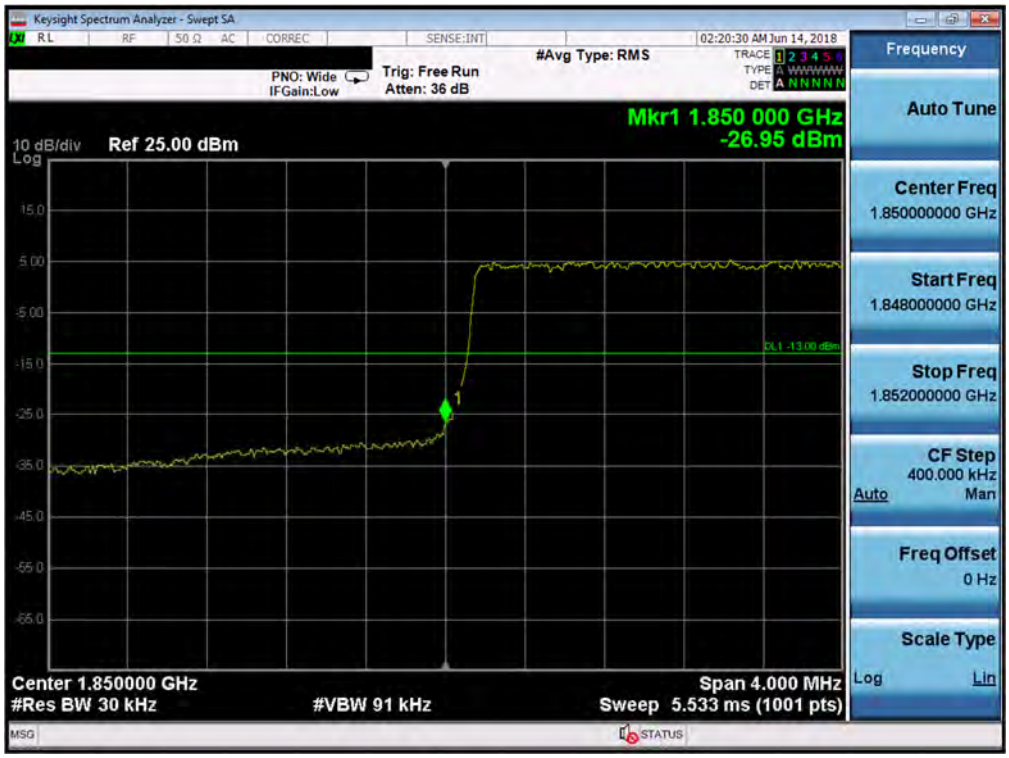


Plot 7-180. Upper Extended Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)

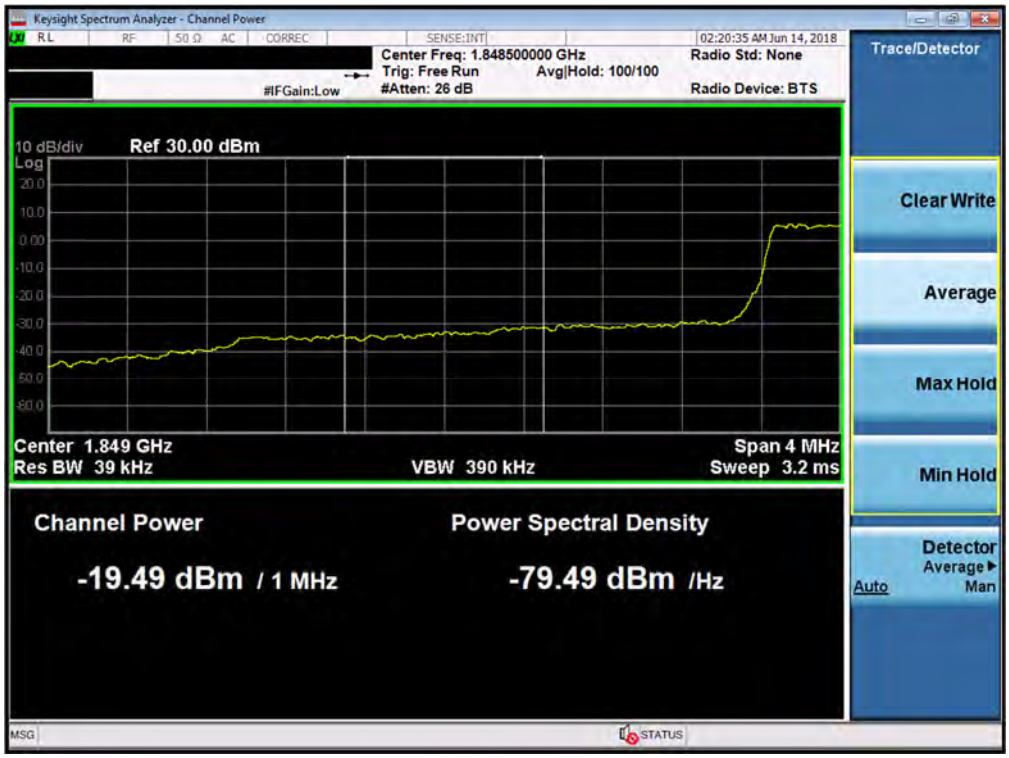
Plot 7-181. Upper Band Edge Plot (Band 25 - 1.4MHz QPSK - Full RB Configuration)



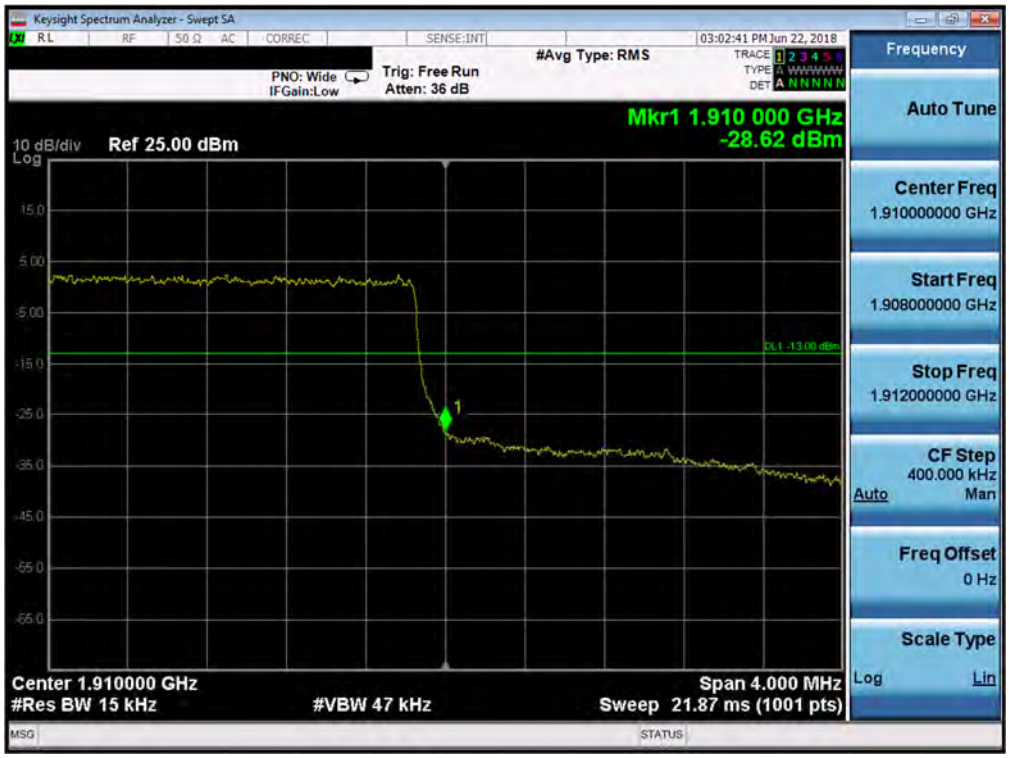
Plot 7-182. Upper Extended Band Edge Plot (Band 25 - 1.4MHz QPSK - Full RB Configuration)



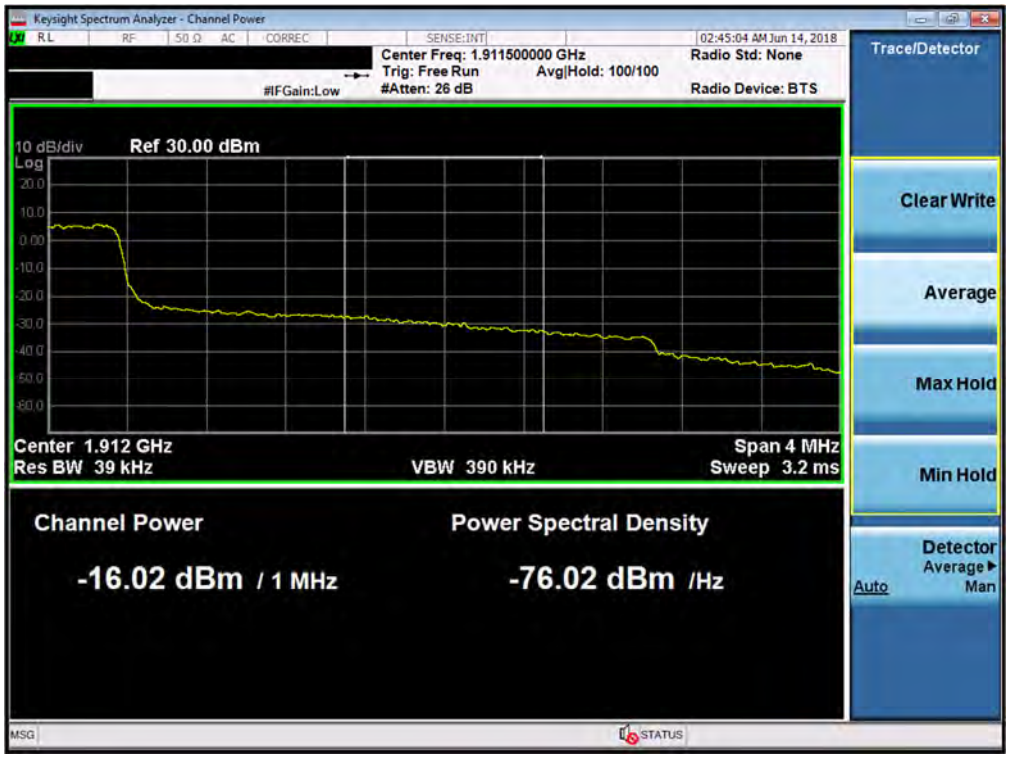
Plot 7-183. Lower Band Edge Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-184. Lower Extended Band Edge Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)

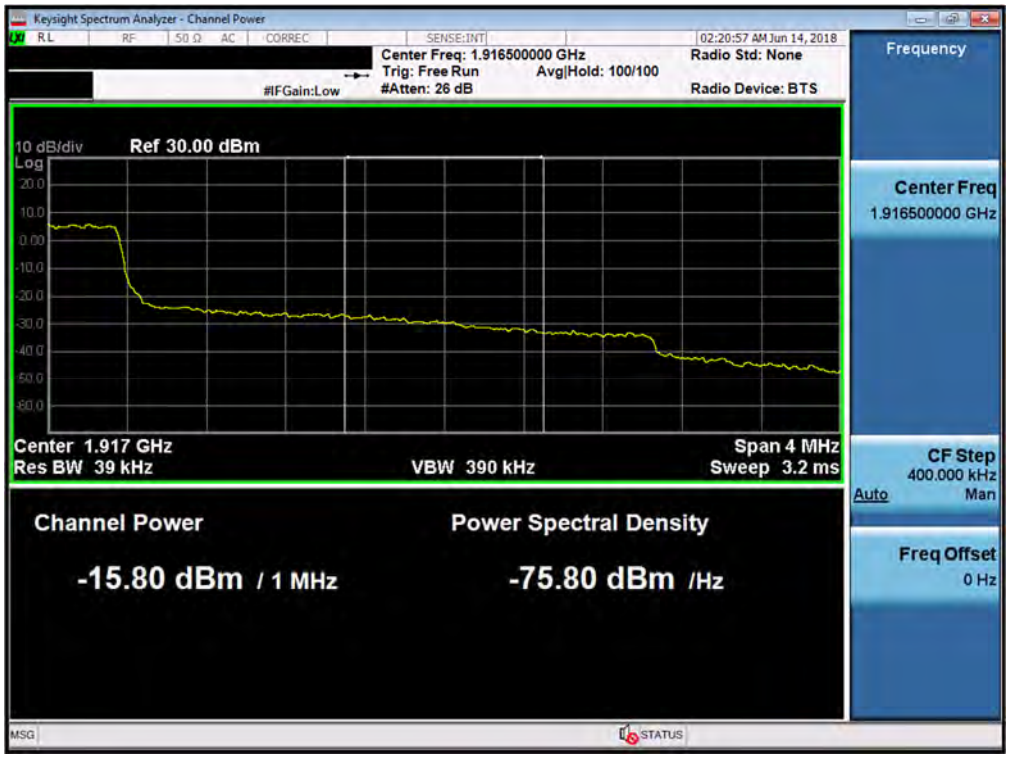


Plot 7-185. Upper Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

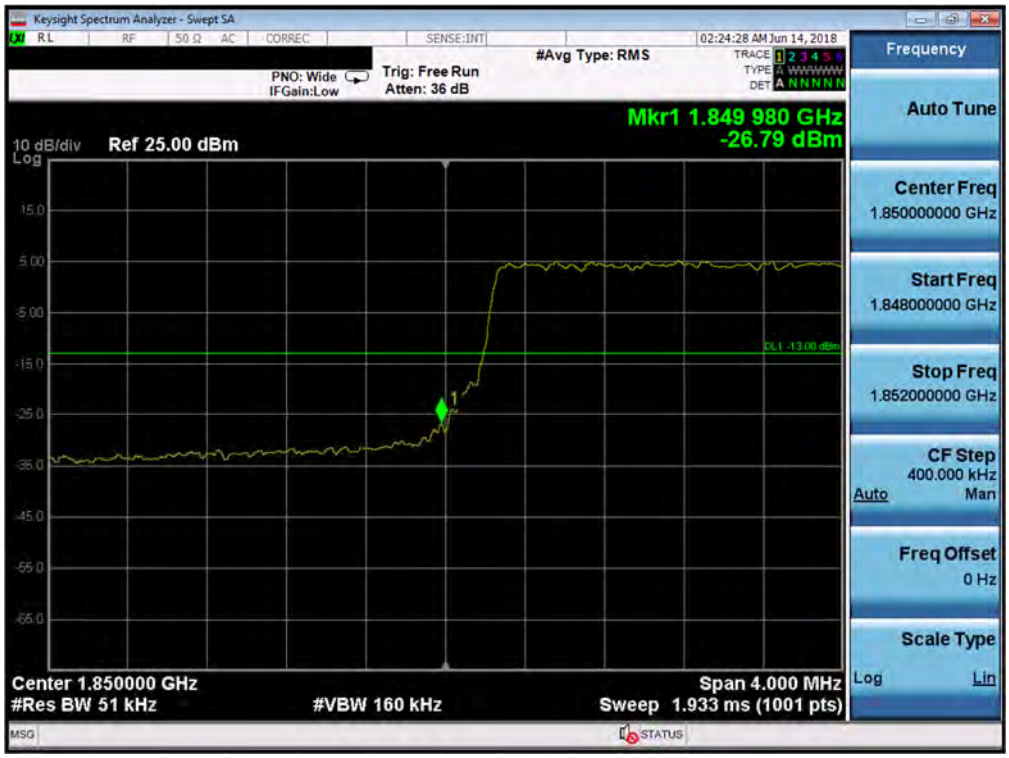


Plot 7-186. Upper Extended Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

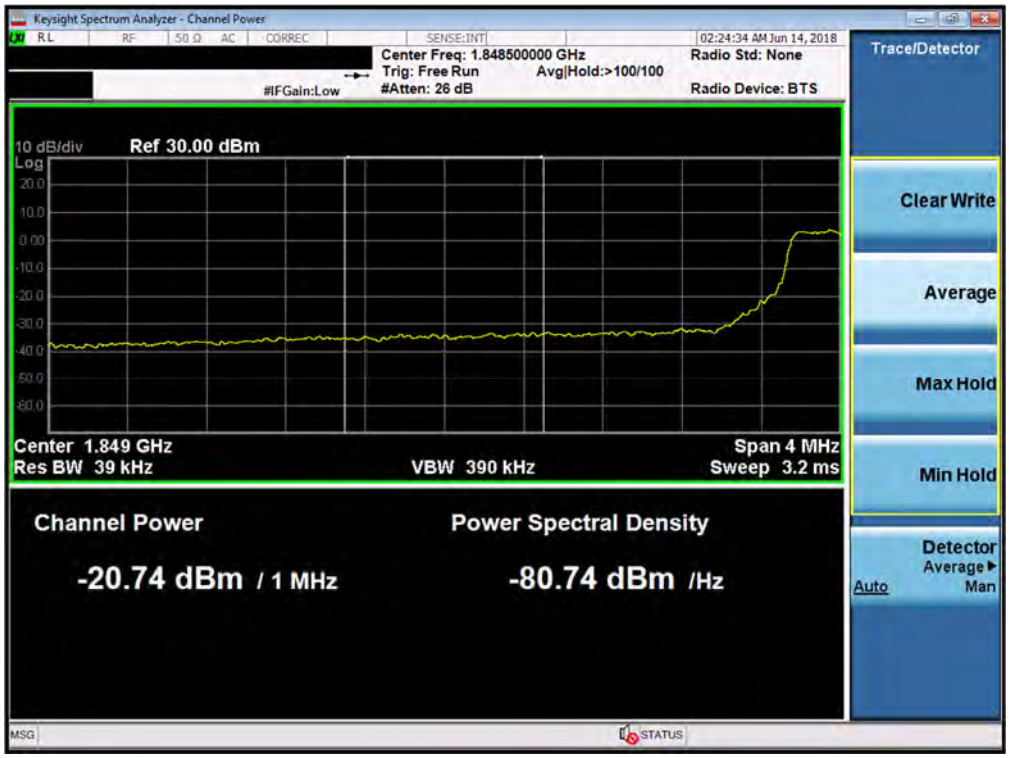
Plot 7-187. Upper Band Edge Plot (Band 25 - 3.0MHz QPSK - Full RB Configuration)



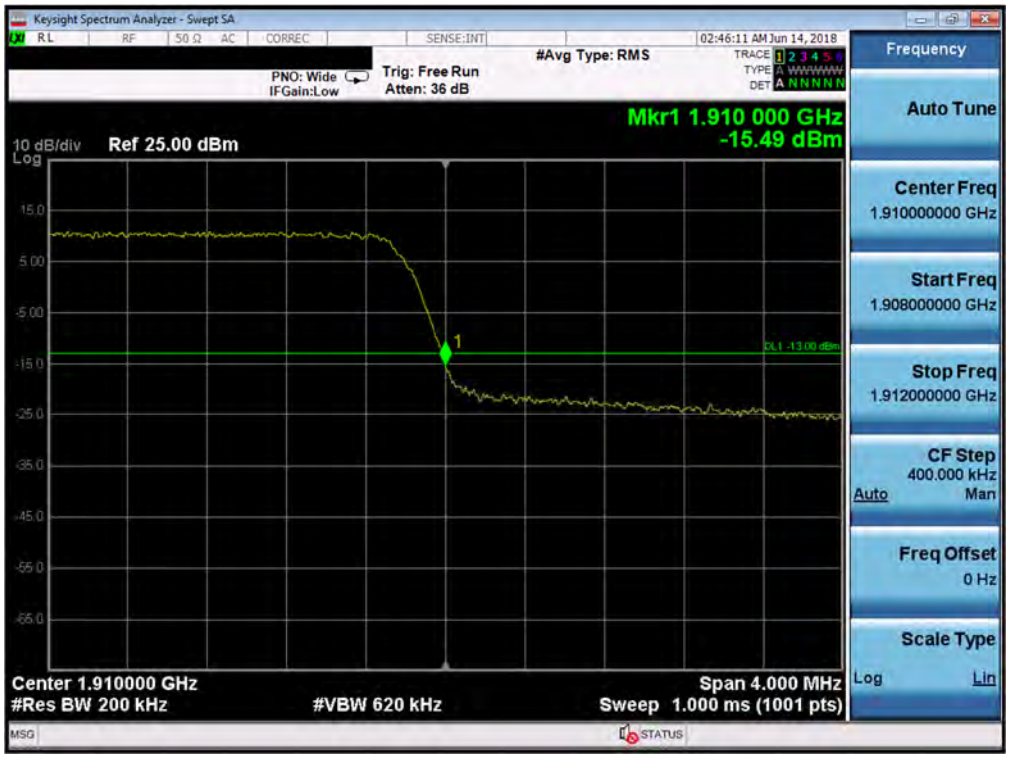
Plot 7-188. Upper Extended Band Edge Plot (Band 25 - 3.0MHz QPSK - Full RB Configuration)



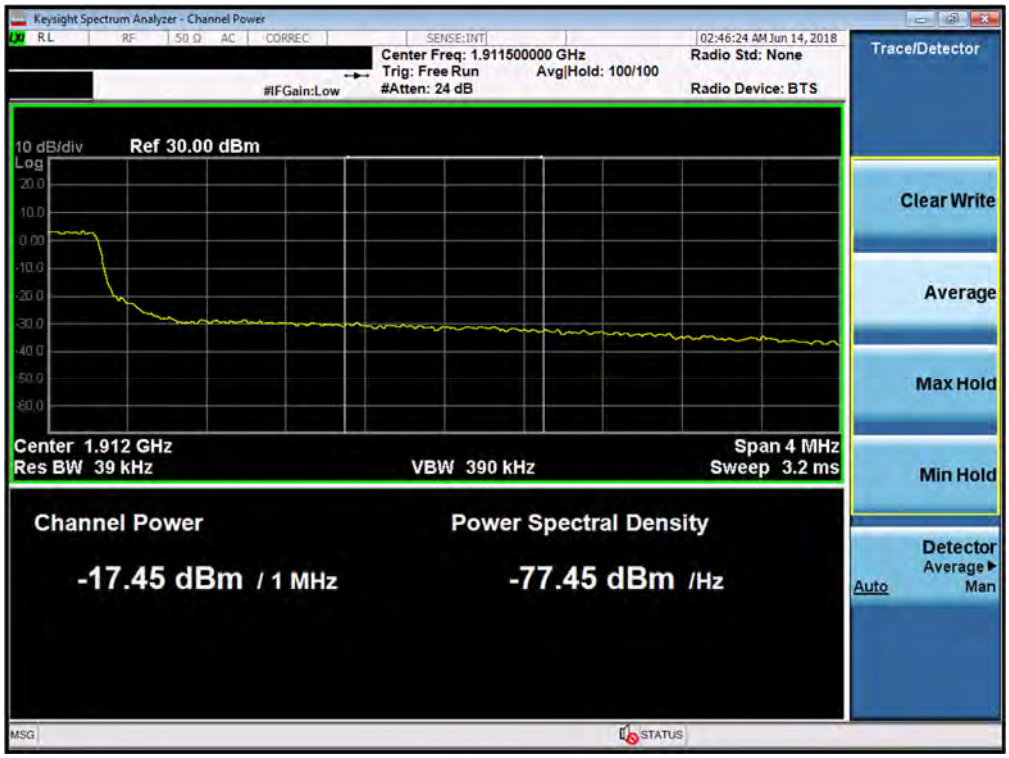
Plot 7-189. Lower Band Edge Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-190. Lower Extended Band Edge Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)

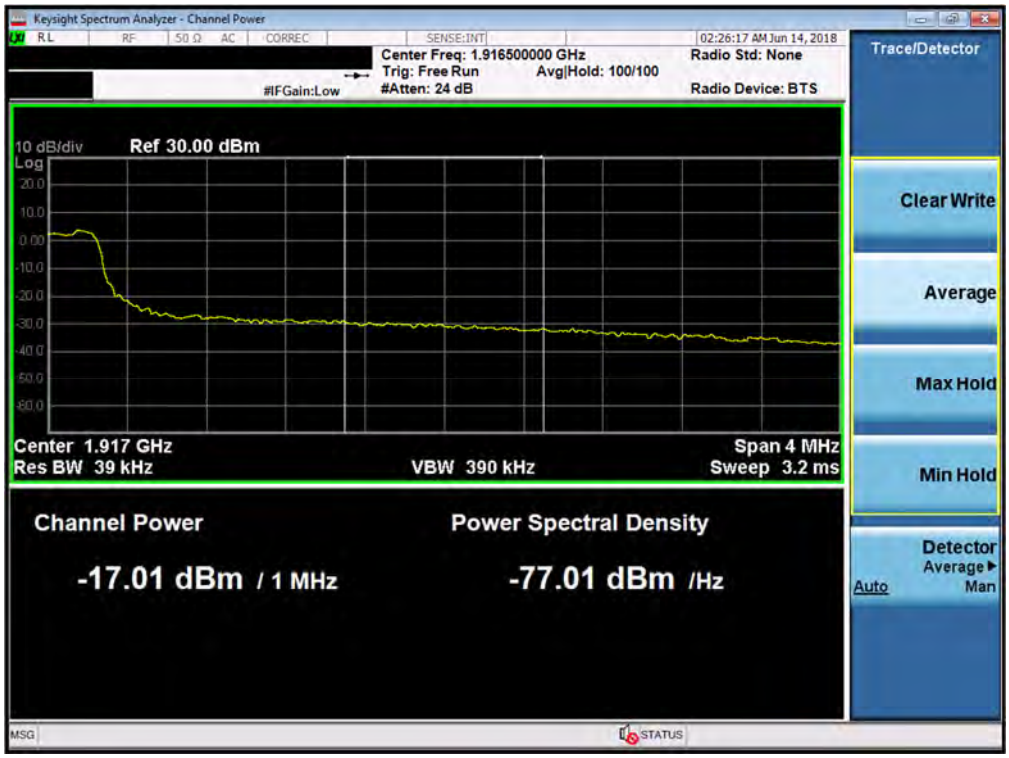


Plot 7-191. Upper Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

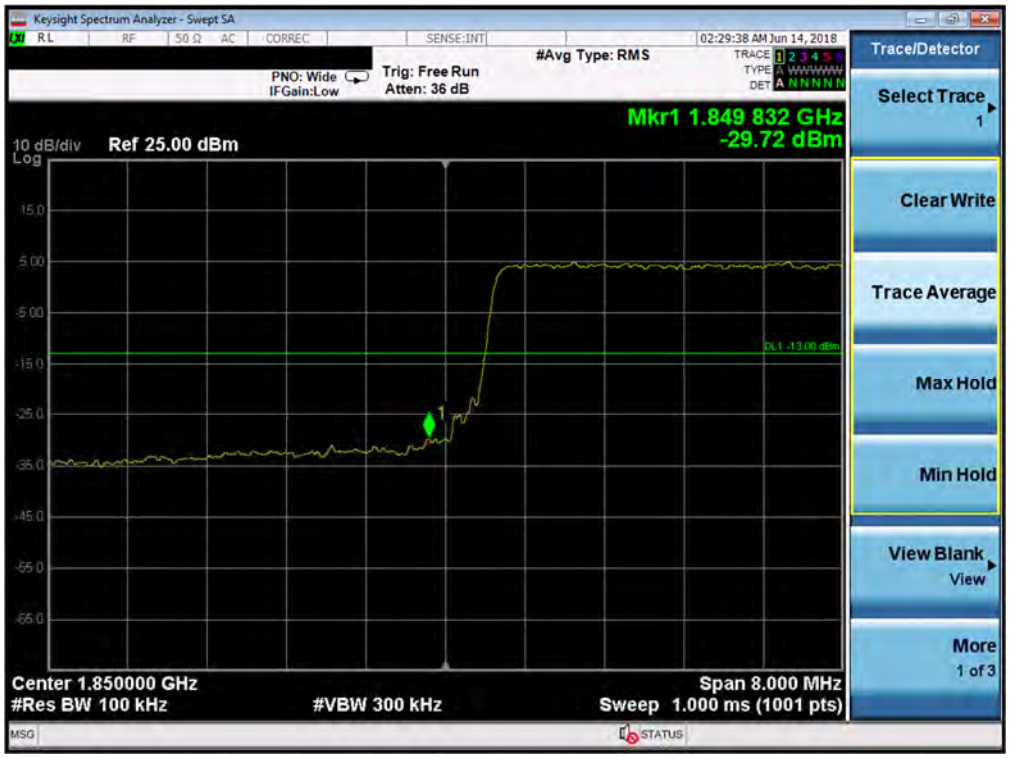


Plot 7-192. Upper Extended Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

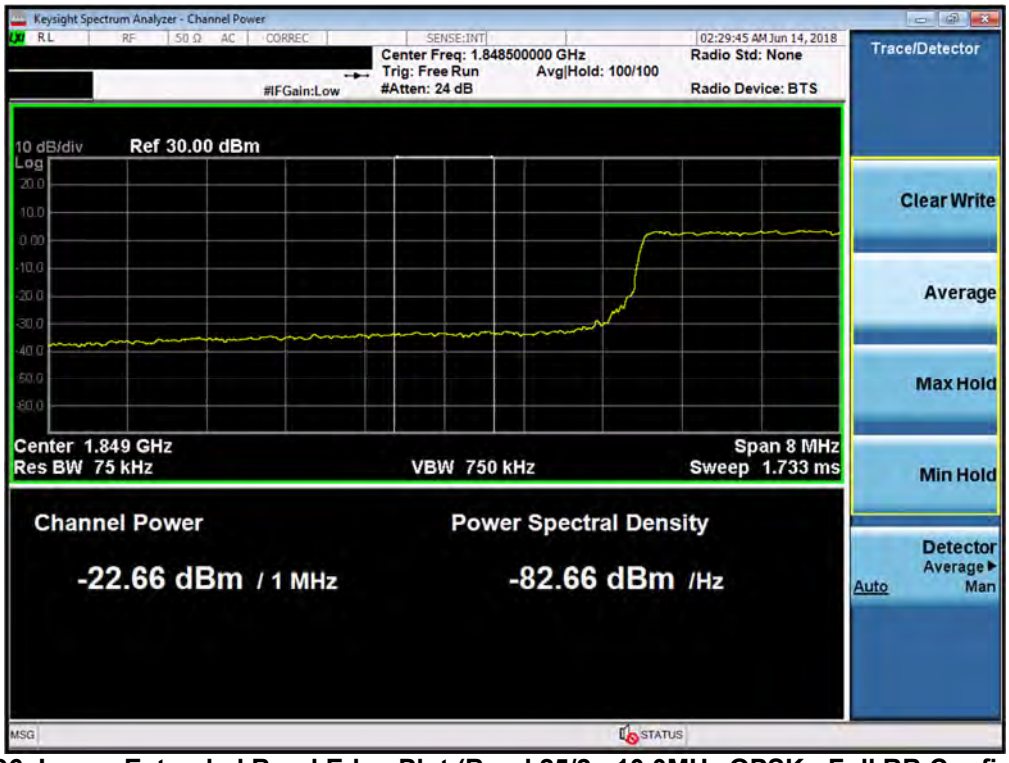
Plot 7-193. Upper Band Edge Plot (Band 25 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-194. Upper Extended Band Edge Plot (Band 25 - 5.0MHz QPSK - Full RB Configuration)

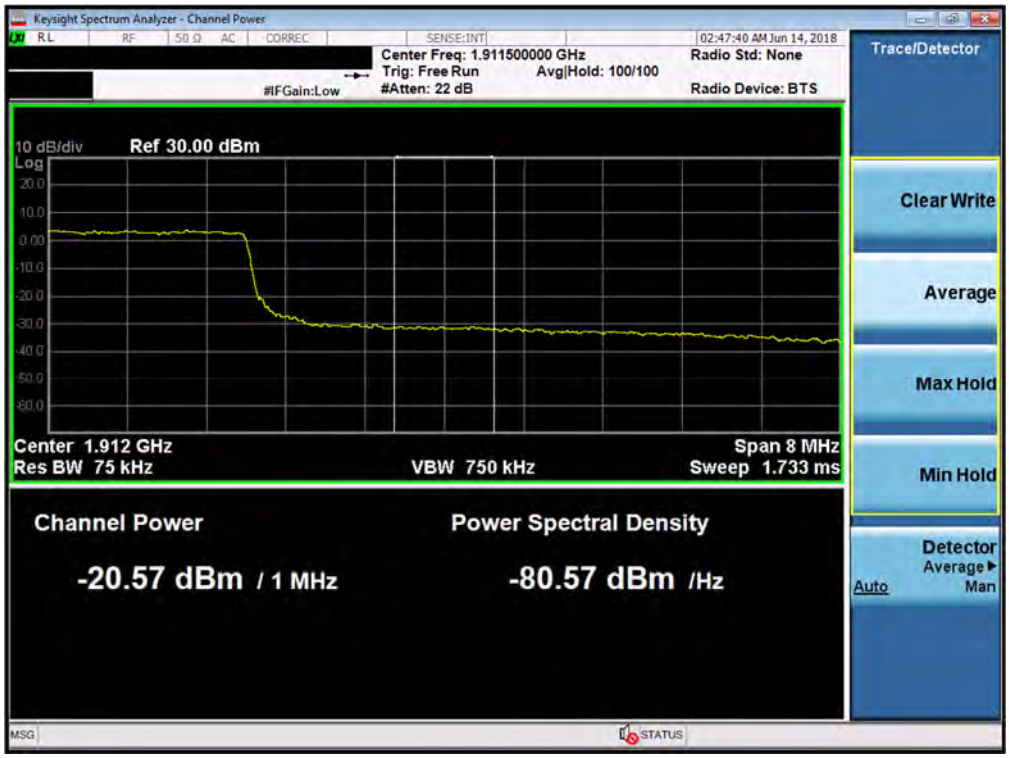


Plot 7-195. Lower Band Edge Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)



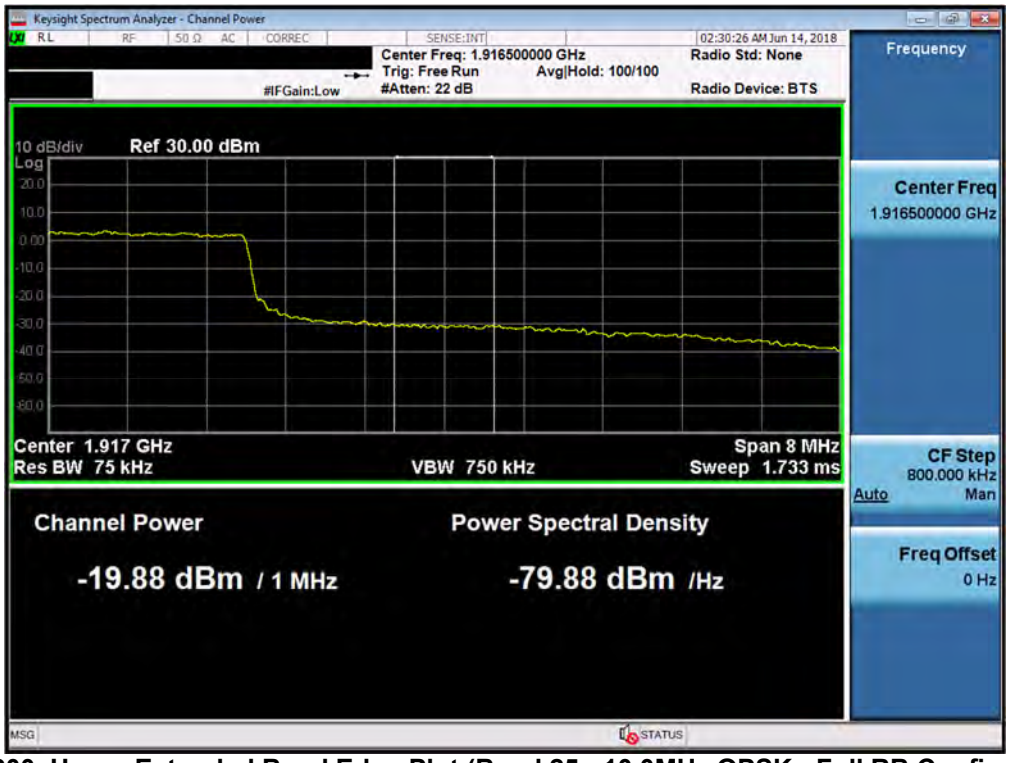
Plot 7-196. Lower Extended Band Edge Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

Plot 7-197. Upper Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)



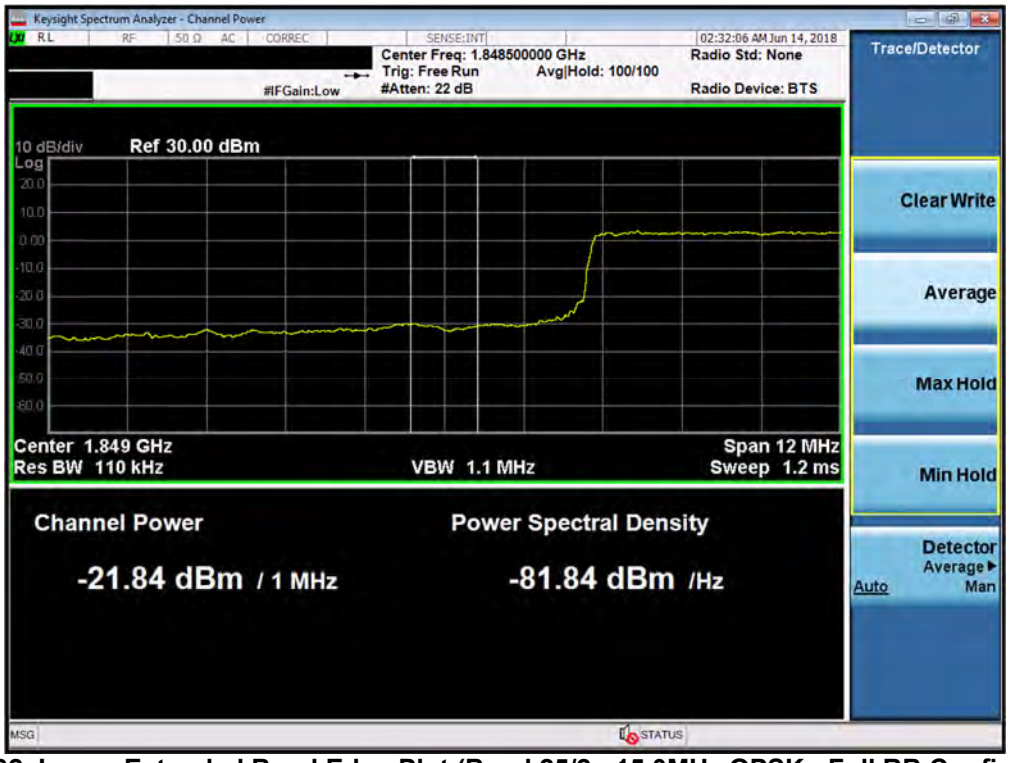
Plot 7-198. Upper Extended Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

Plot 7-199. Upper Band Edge Plot (Band 25 - 10.0MHz QPSK - Full RB Configuration)



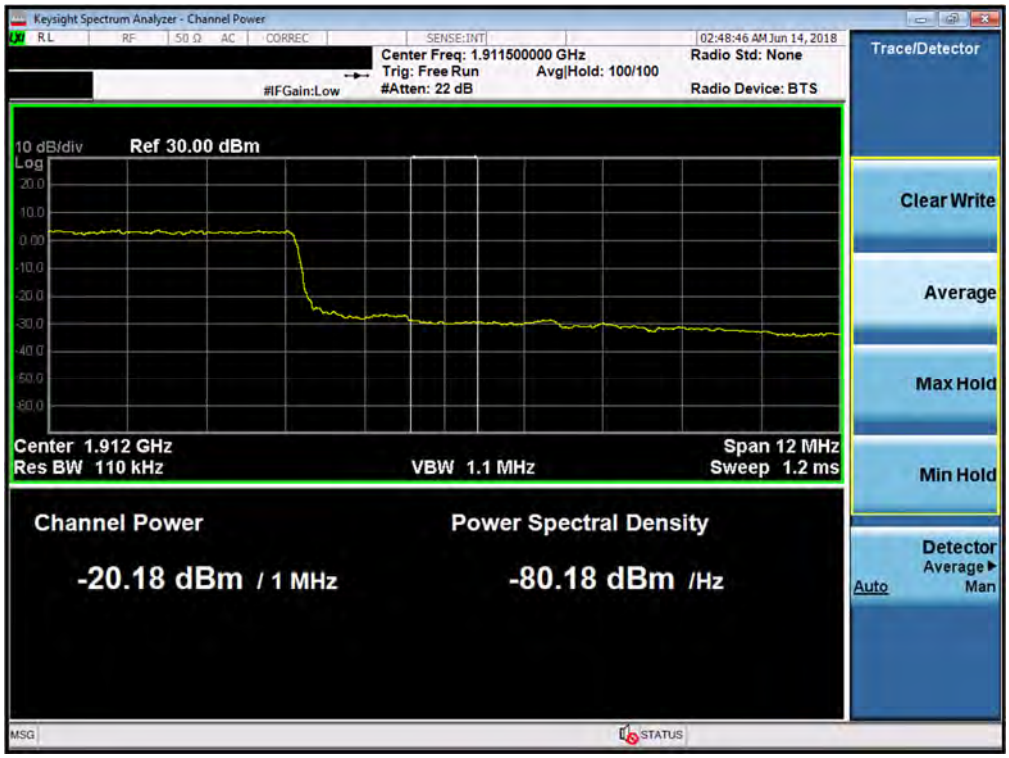
Plot 7-200. Upper Extended Band Edge Plot (Band 25 - 10.0MHz QPSK - Full RB Configuration)

Plot 7-201. Lower Band Edge Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)



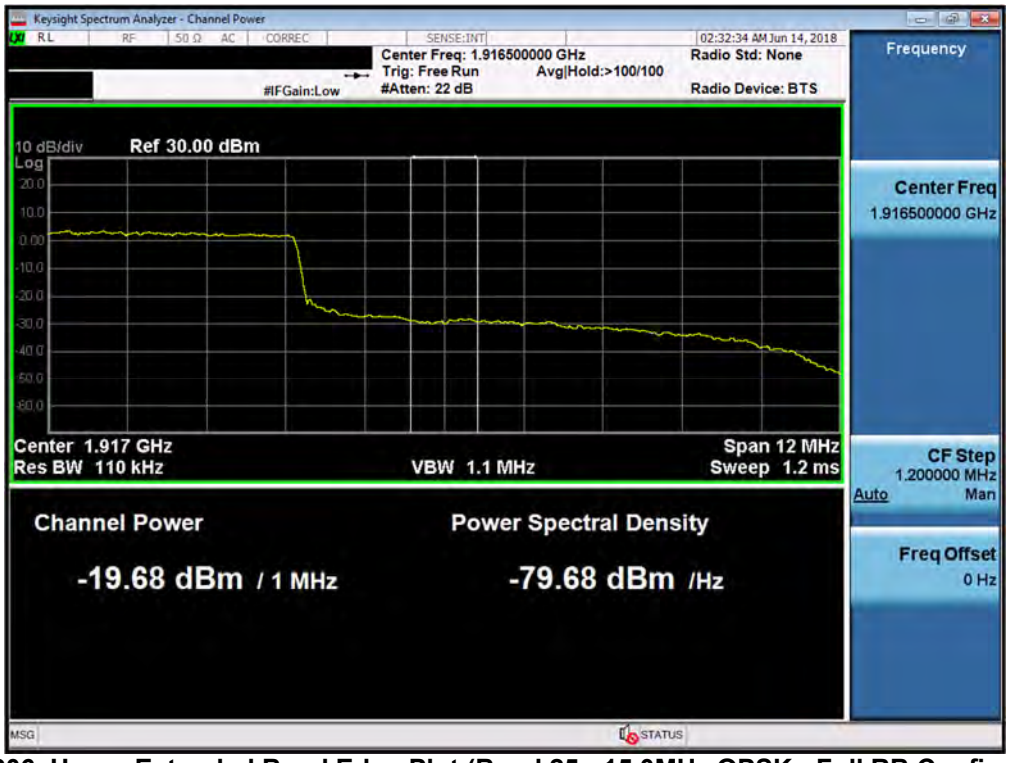
Plot 7-202. Lower Extended Band Edge Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)

Plot 7-203. Upper Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

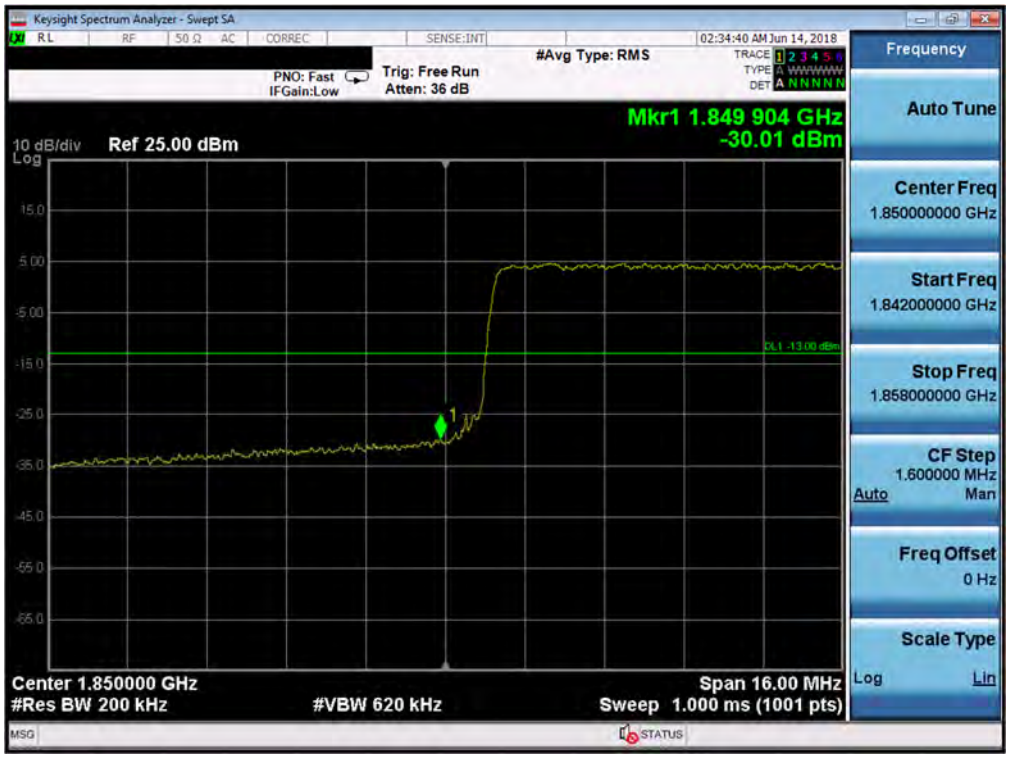


Plot 7-204. Upper Extended Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

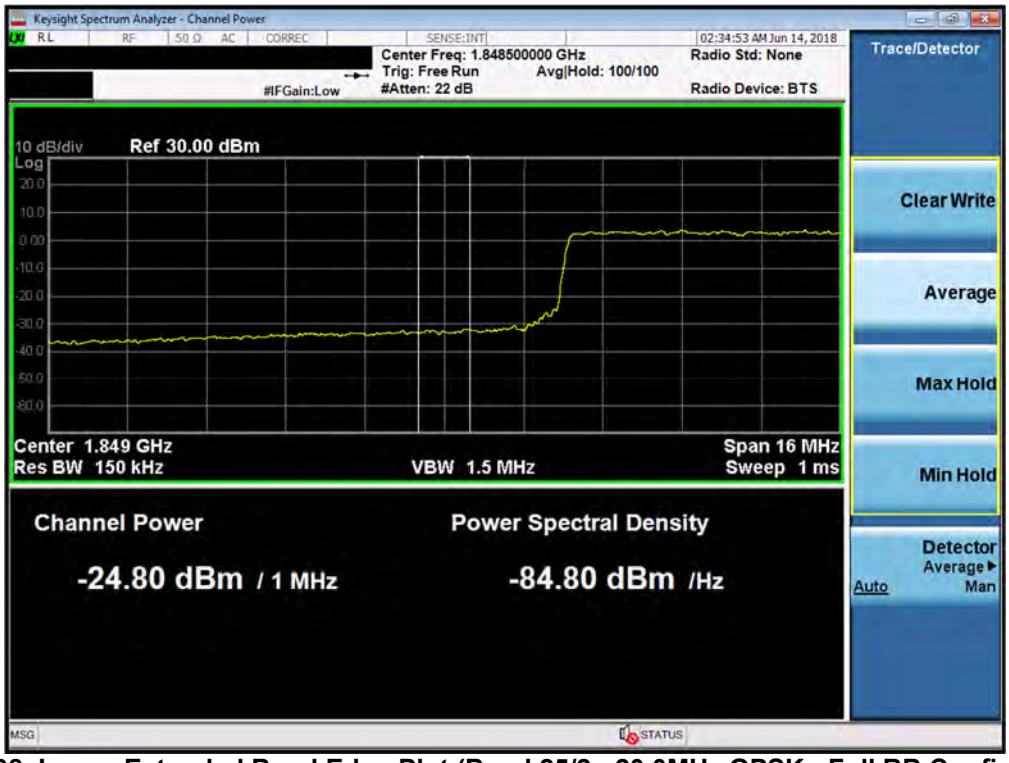
Plot 7-205. Upper Band Edge Plot (Band 25 - 15.0MHz QPSK - Full RB Configuration)



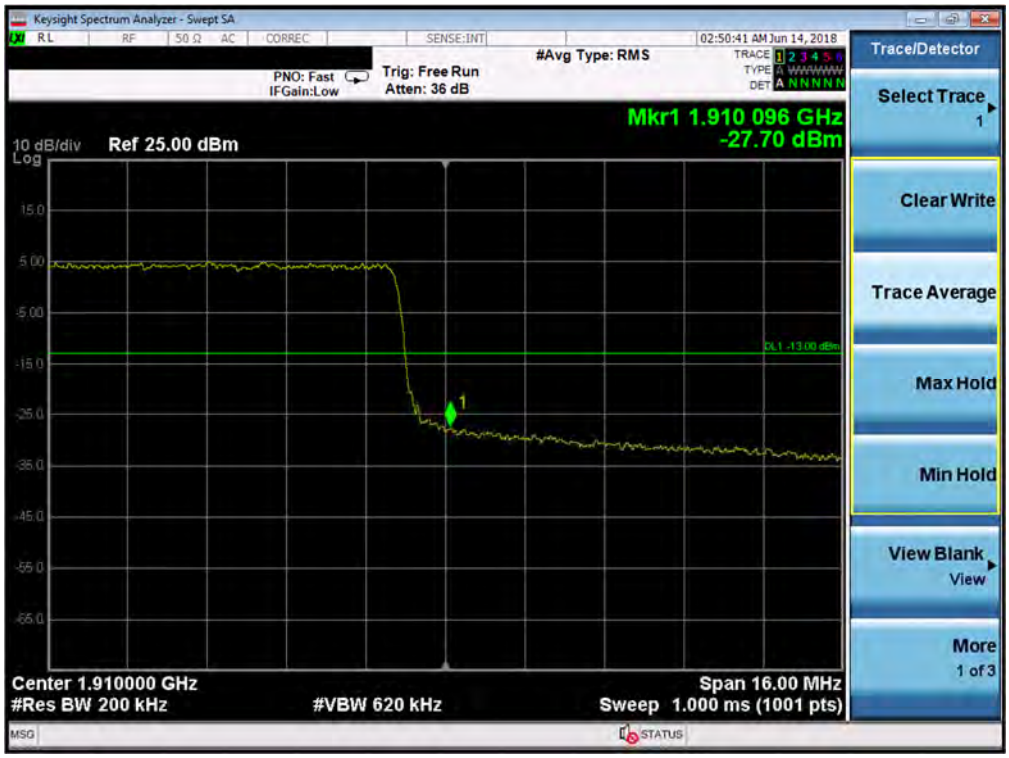
Plot 7-206. Upper Extended Band Edge Plot (Band 25 - 15.0MHz QPSK - Full RB Configuration)



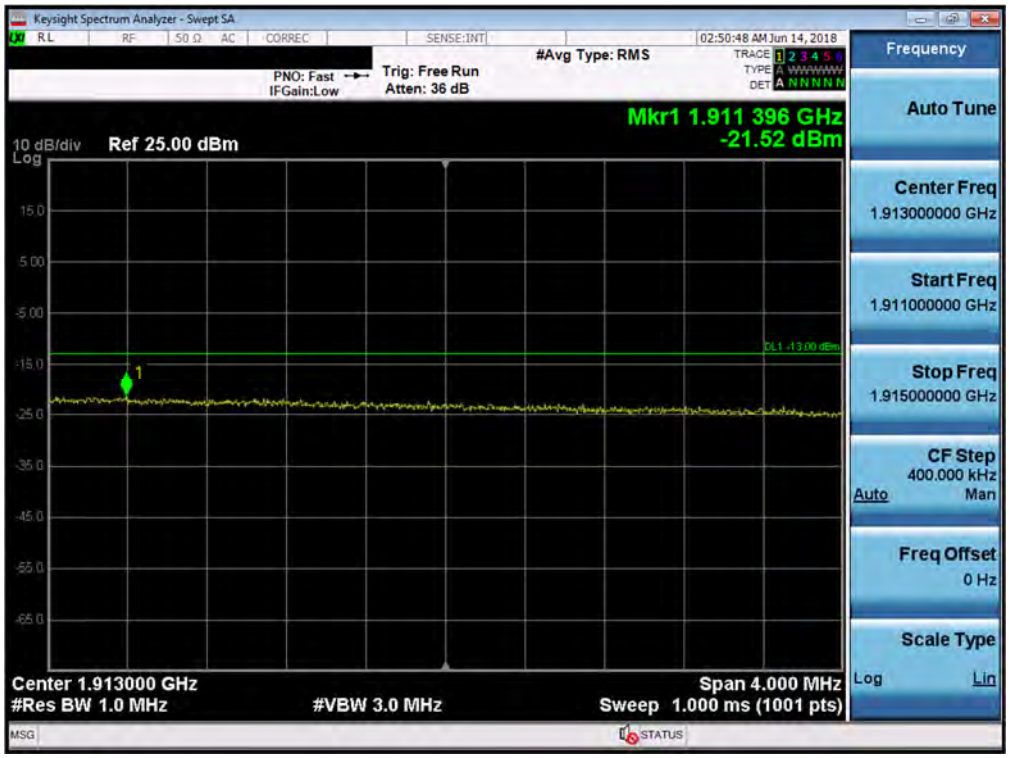
Plot 7-207. Lower Band Edge Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-208. Lower Extended Band Edge Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

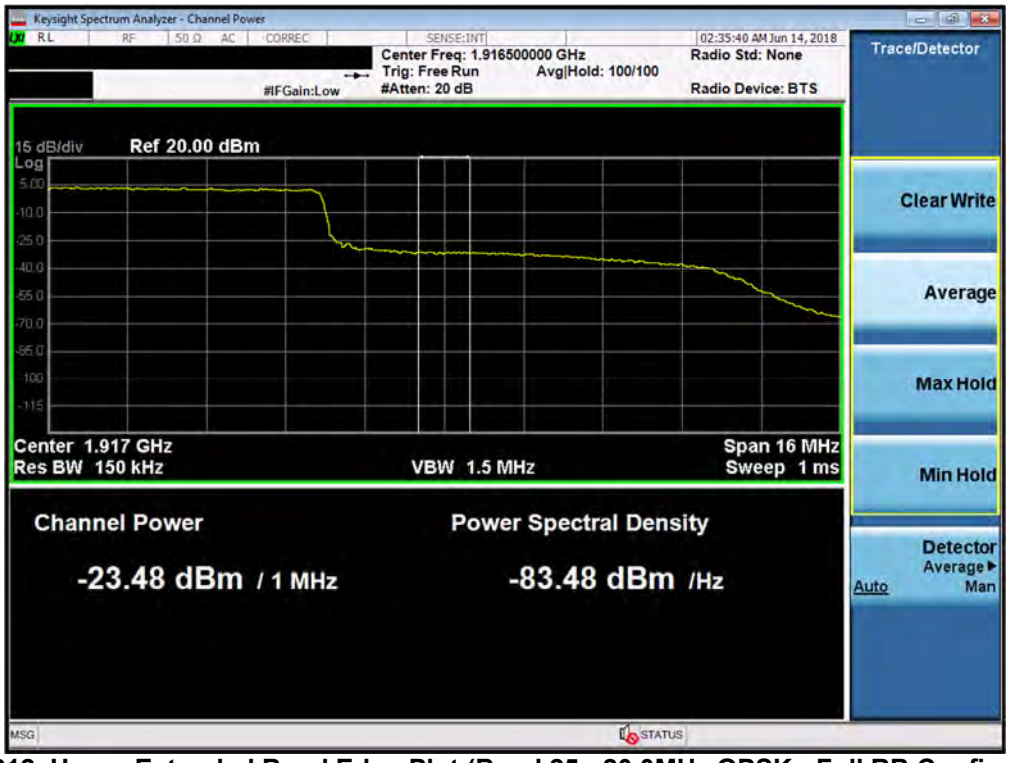


Plot 7-209. Upper Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)



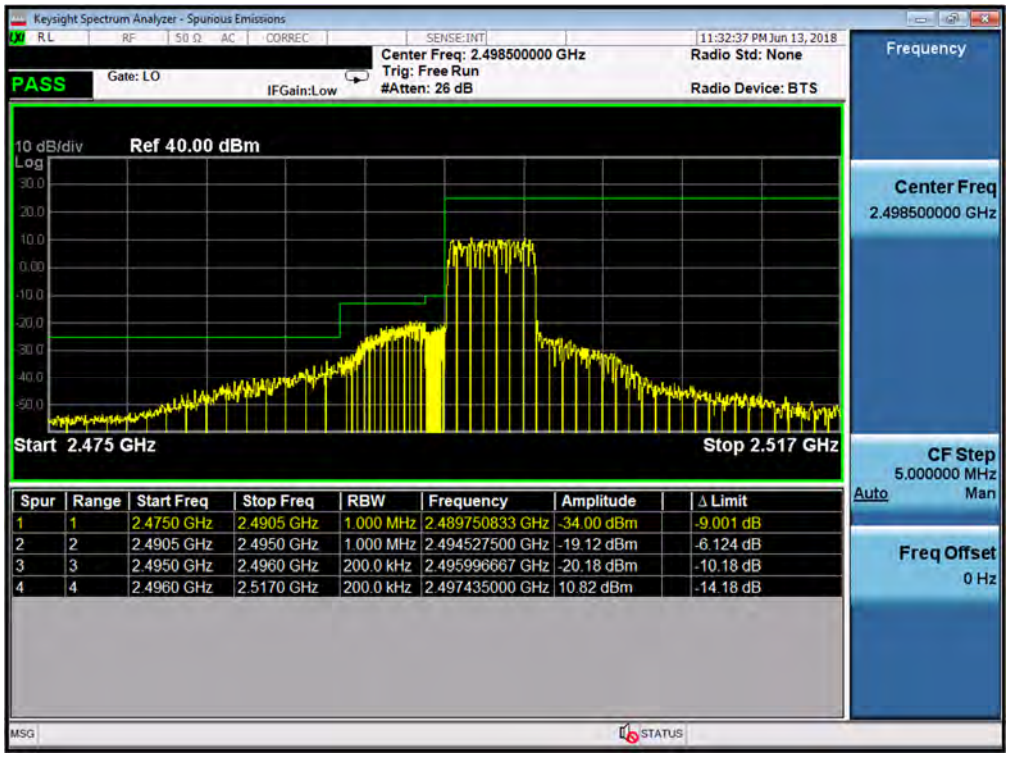
Plot 7-210. Upper Extended Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

Plot 7-211. Upper Band Edge Plot (Band 25 - 20.0MHz QPSK - Full RB Configuration)



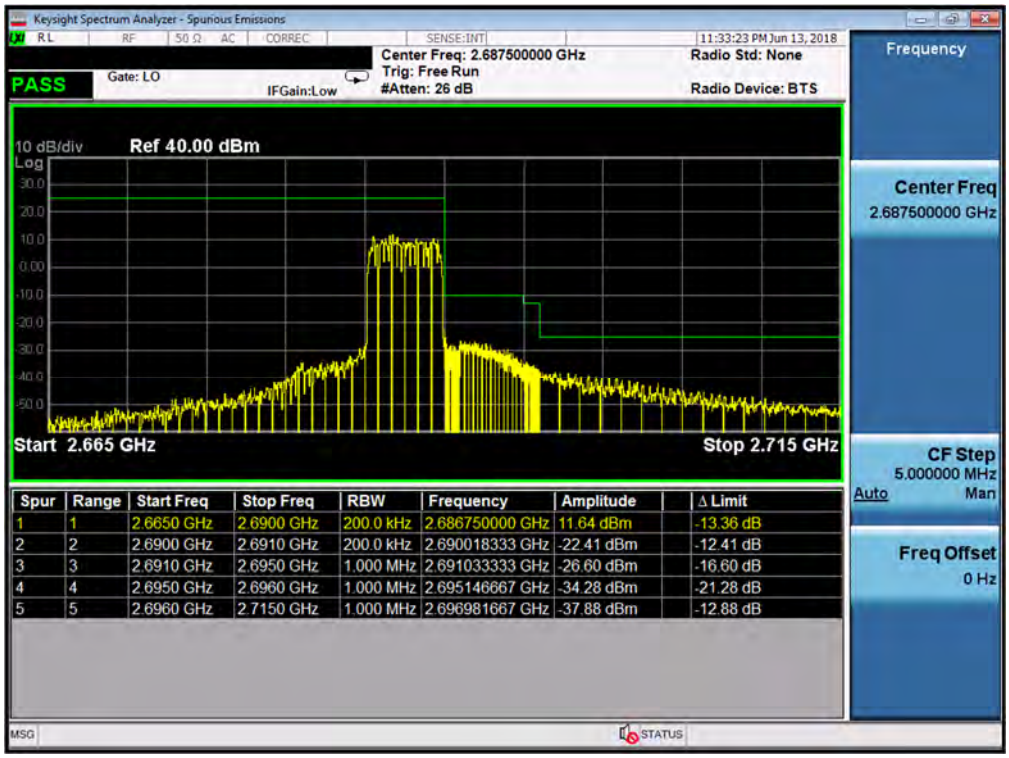
Plot 7-212. Upper Extended Band Edge Plot (Band 25 - 20.0MHz QPSK - Full RB Configuration)

Band 41 PC3



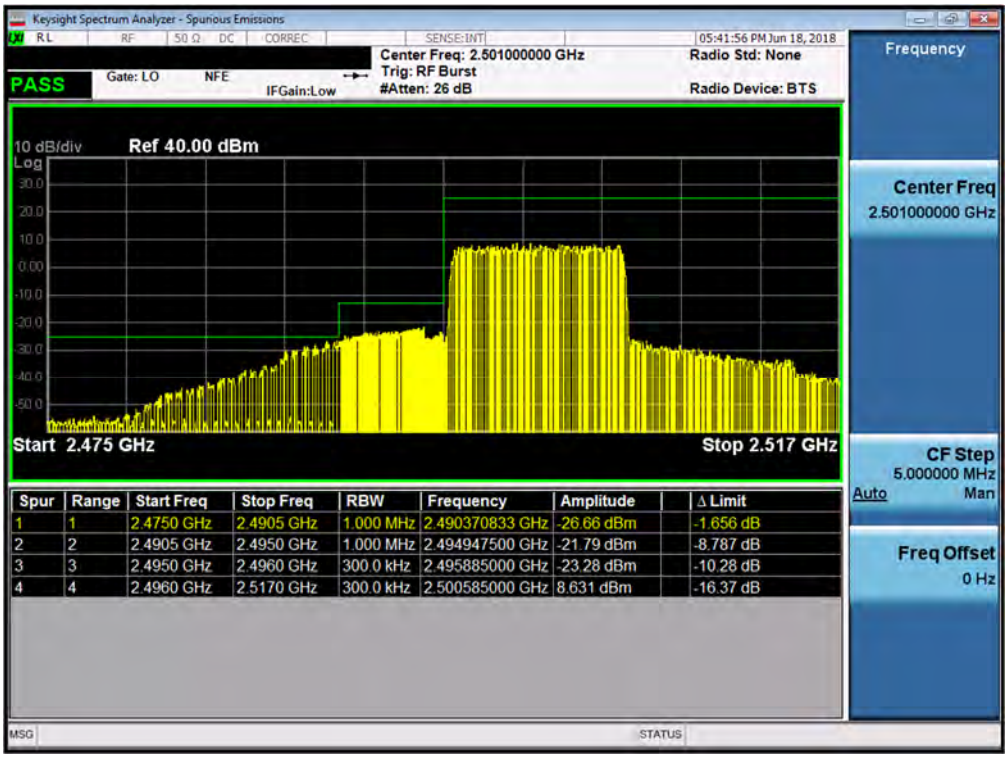
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.489750833 GHz	-34.00 dBm	-9.001 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494527500 GHz	-19.12 dBm	-6.124 dB
3	3	2.4950 GHz	2.4960 GHz	200.0 kHz	2.495996667 GHz	-20.18 dBm	-10.18 dB
4	4	2.4960 GHz	2.5170 GHz	200.0 kHz	2.497435000 GHz	10.82 dBm	-14.18 dB

Plot 7-213. Lower ACP Plot at 2496 MHz (Band 41 PC3 - 5.0MHz QPSK - RB Size 25)

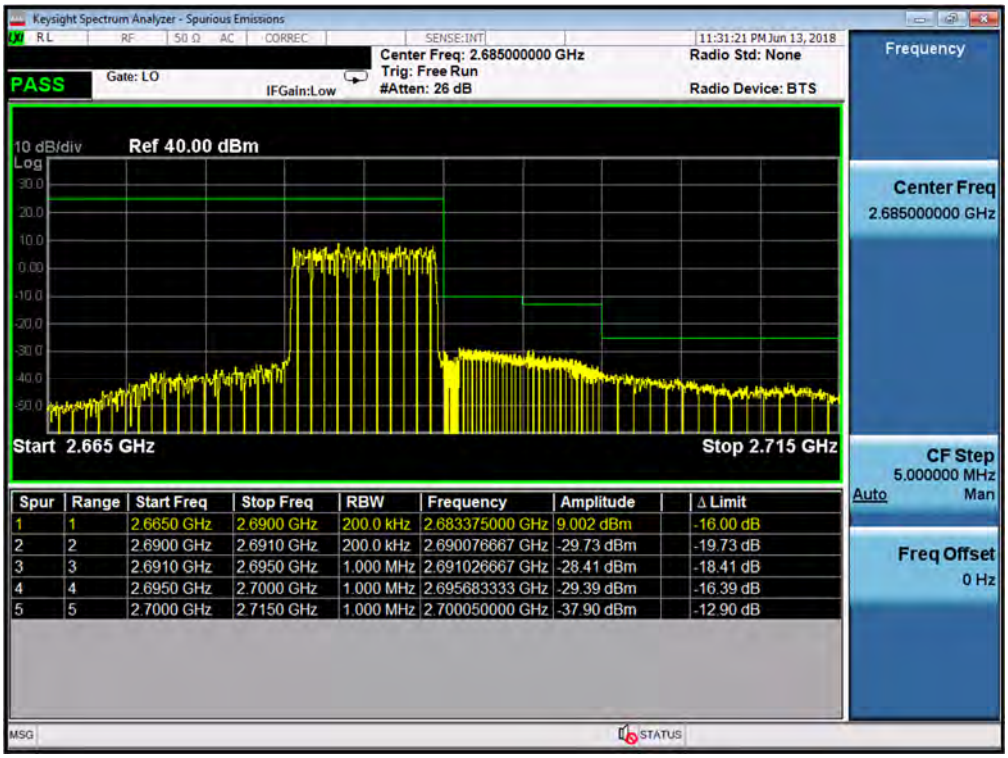


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	200.0 kHz	2.686750000 GHz	11.64 dBm	-13.36 dB
2	2	2.6900 GHz	2.6910 GHz	200.0 kHz	2.690018333 GHz	-22.41 dBm	-12.41 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691033333 GHz	-26.60 dBm	-16.60 dB
4	4	2.6950 GHz	2.6960 GHz	1.000 MHz	2.695146667 GHz	-34.28 dBm	-21.28 dB
5	5	2.6960 GHz	2.7150 GHz	1.000 MHz	2.696981667 GHz	-37.88 dBm	-12.88 dB

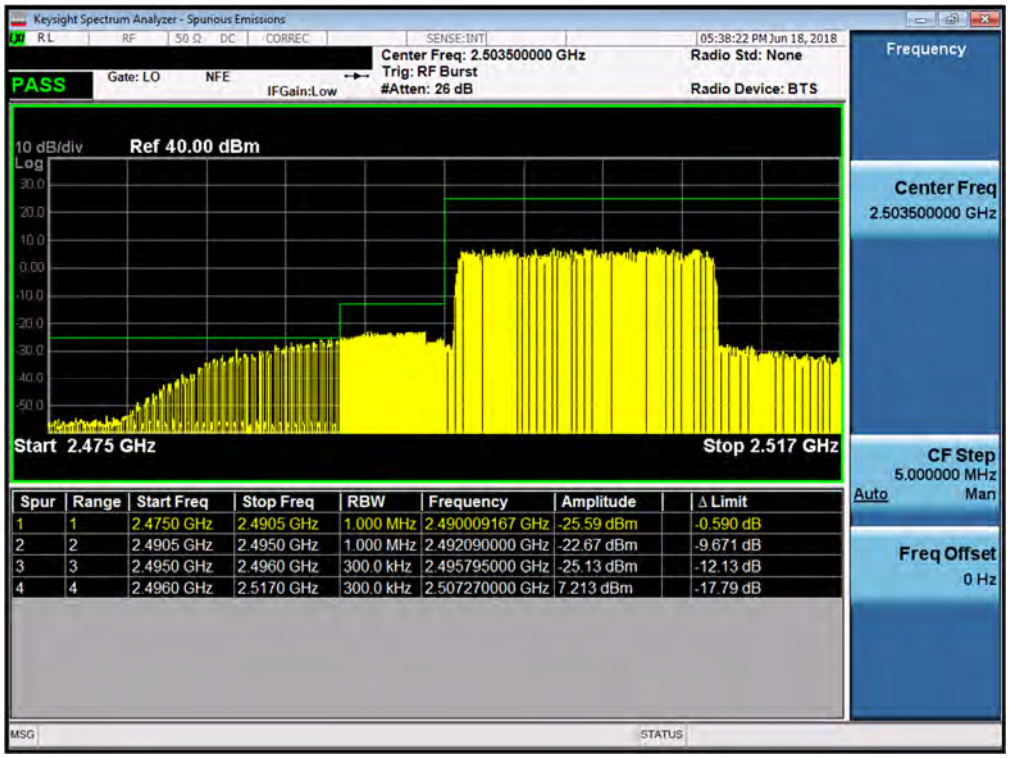
Plot 7-214. Upper ACP Plot (Band 41 PC3 - 5.0MHz QPSK - RB Size 25)



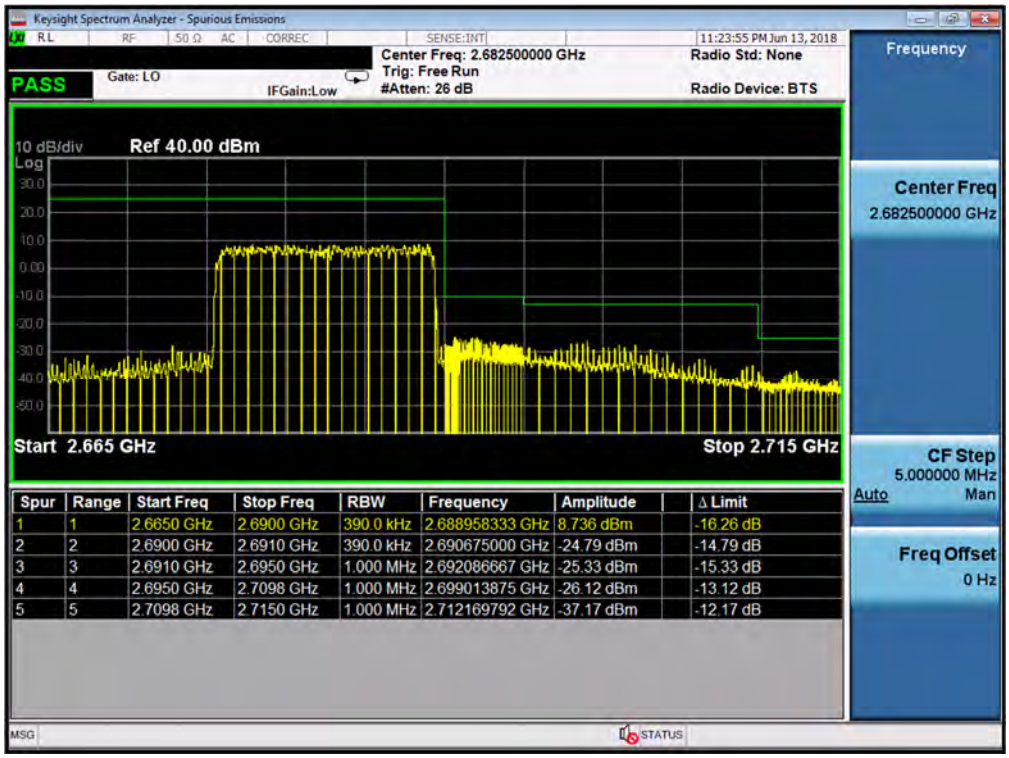
Plot 7-215. Lower ACP Plot at 2496 MHz (Band 41 PC3 - 10.0MHz QPSK - RB Size 25)



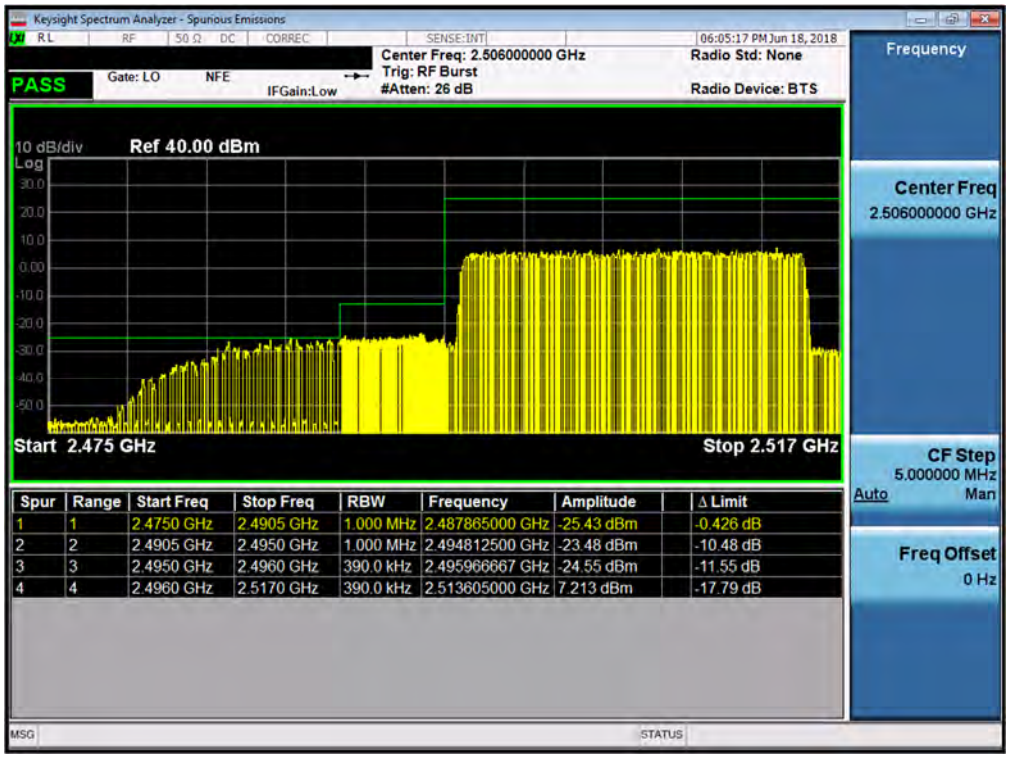
Plot 7-216. Upper ACP Plot (Band 41 PC3 - 10.0MHz QPSK - RB Size 25)



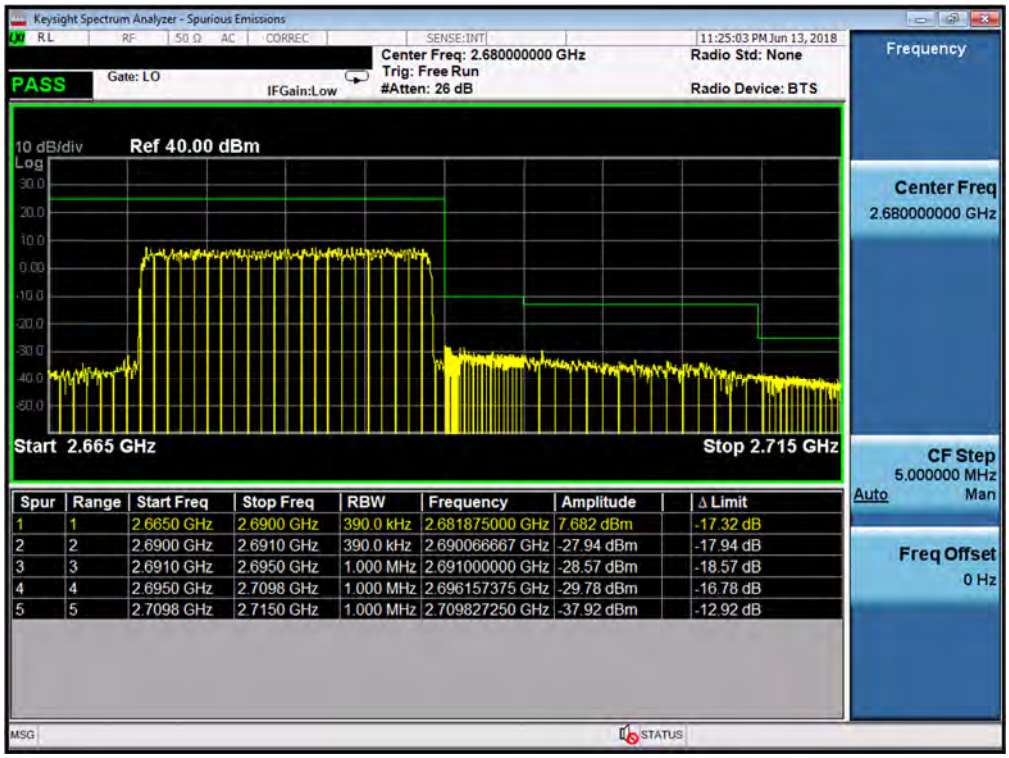
Plot 7-217. Lower ACP Plot at 2496 MHz (Band 41 PC3 - 15.0MHz QPSK - RB Size 25)



Plot 7-218. Upper ACP Plot (Band 41 PC3 - 15.0MHz QPSK - RB Size 25)

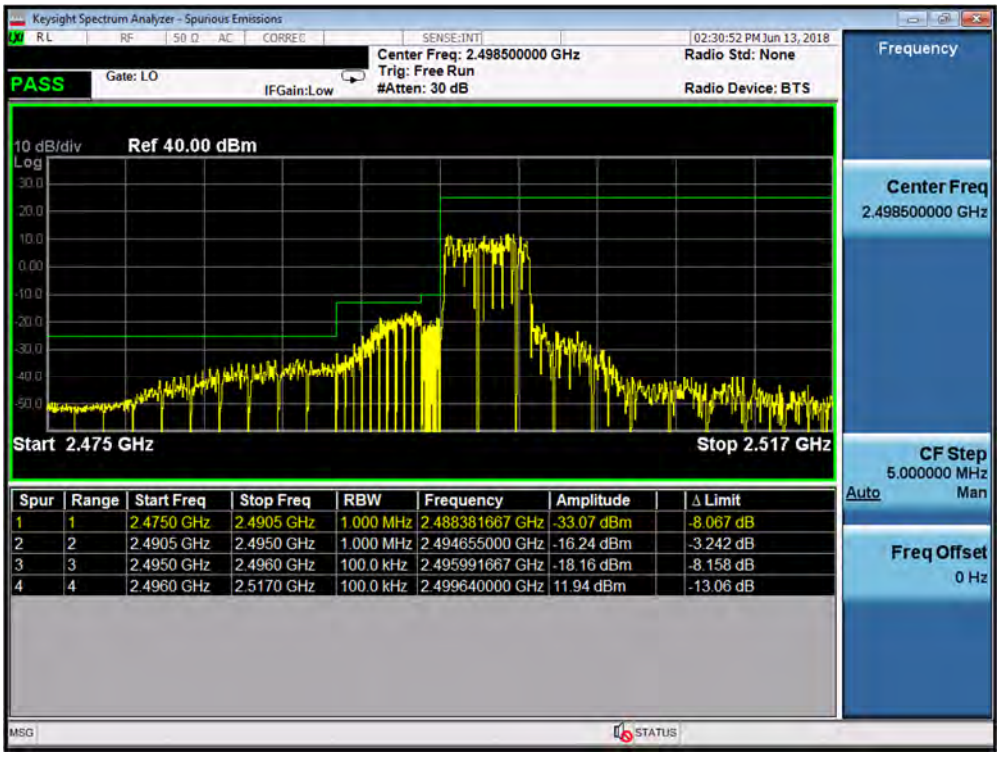


Plot 7-219. Lower ACP Plot at 2496 MHz (Band 41 PC3 - 20.0MHz QPSK - RB Size 25)



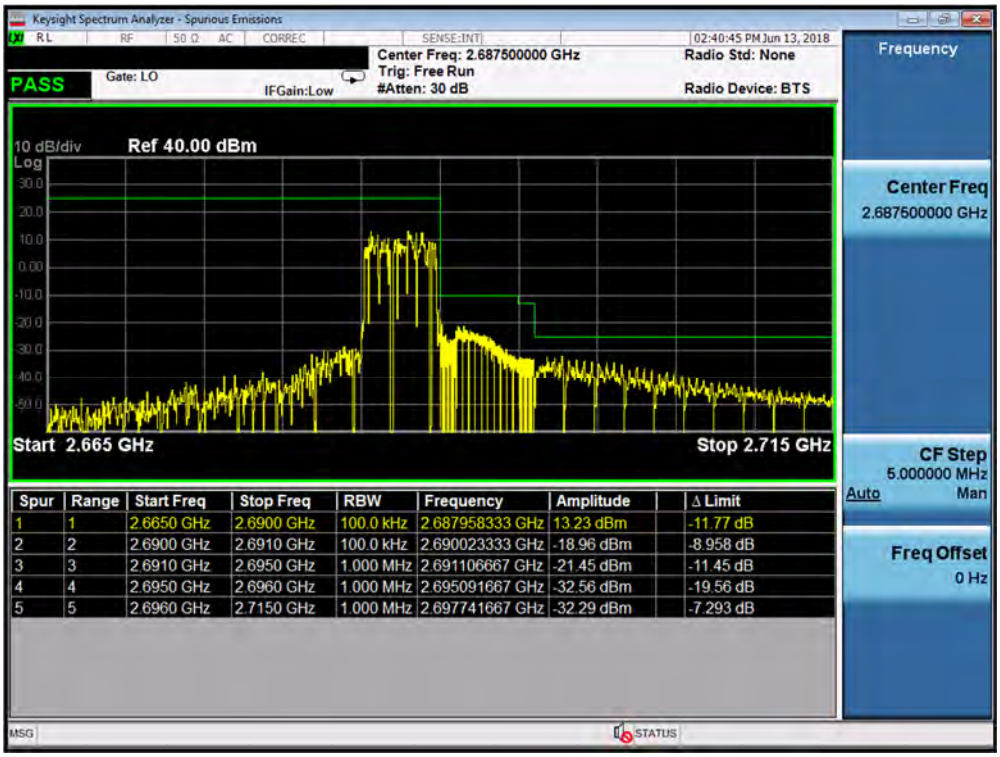
Plot 7-220. Upper ACP Plot (Band 41 PC3 - 20.0MHz QPSK - RB Size 25)

Band 41 PC2



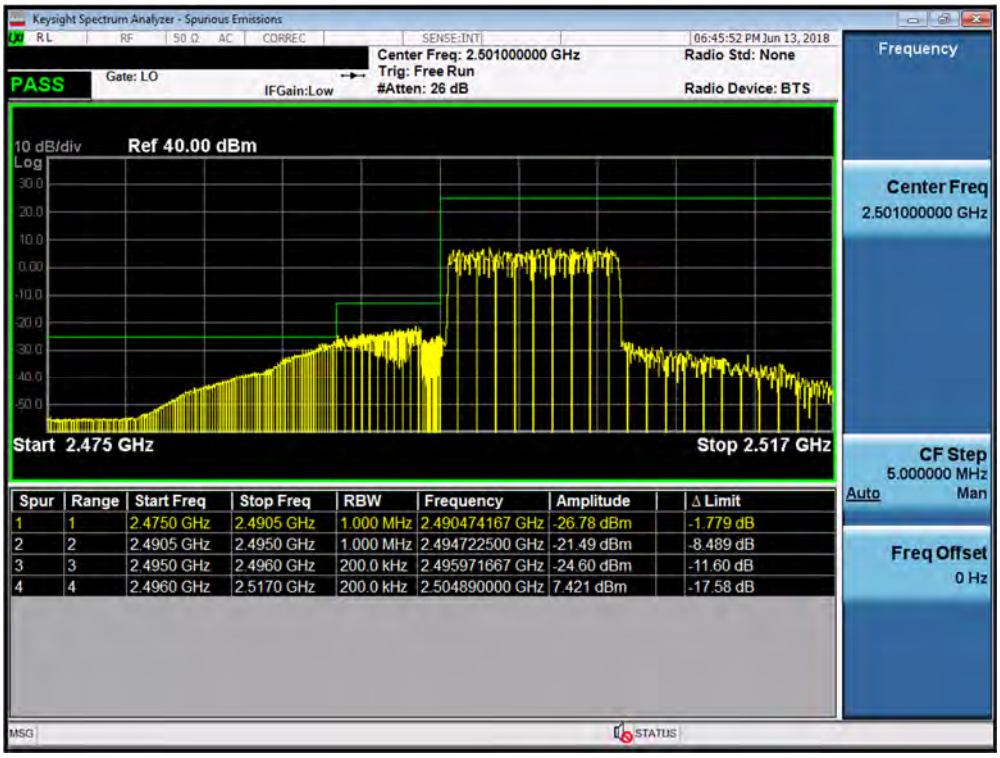
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.488381667 GHz	-33.07 dBm	-8.067 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494655000 GHz	-16.24 dBm	-3.242 dB
3	3	2.4950 GHz	2.4960 GHz	100.0 kHz	2.495991667 GHz	-18.16 dBm	-8.158 dB
4	4	2.4960 GHz	2.5170 GHz	100.0 kHz	2.499640000 GHz	11.94 dBm	-13.06 dB

Plot 7-221. Lower ACP Plot at 2496 MHz (Band 41 PC2 - 5.0MHz QPSK - RB Size 25)



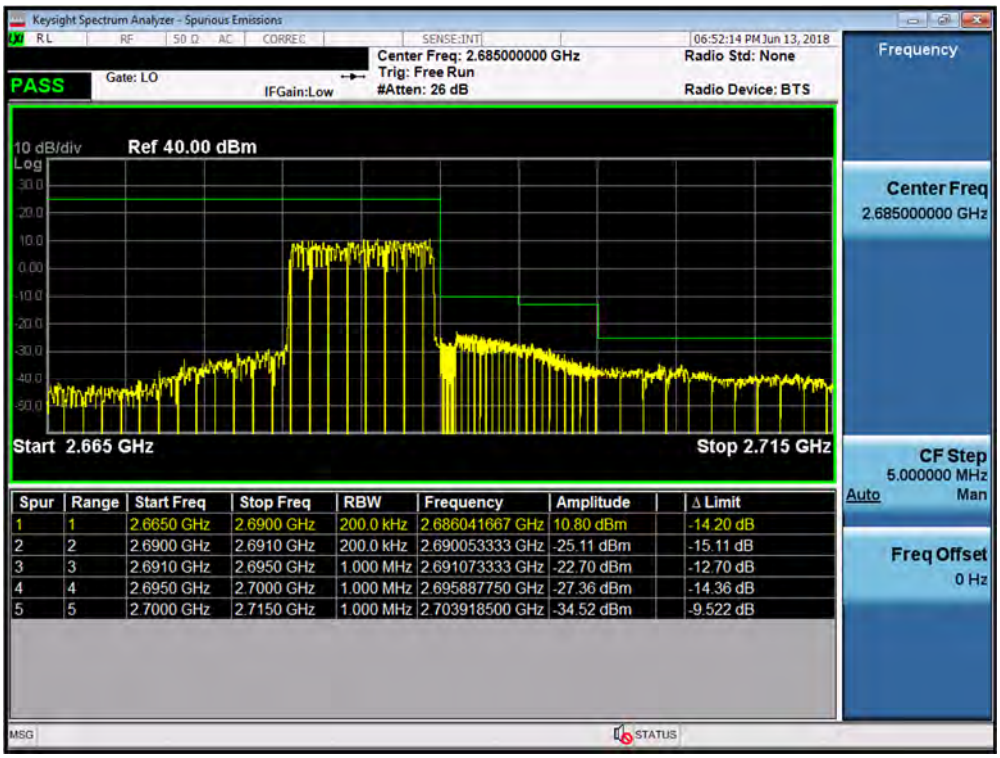
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	100.0 kHz	2.687958333 GHz	13.23 dBm	-11.77 dB
2	2	2.6900 GHz	2.6910 GHz	100.0 kHz	2.690023333 GHz	-18.96 dBm	-8.958 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691106667 GHz	-21.45 dBm	-11.45 dB
4	4	2.6950 GHz	2.6960 GHz	1.000 MHz	2.695091667 GHz	-32.56 dBm	-19.56 dB
5	5	2.6960 GHz	2.7150 GHz	1.000 MHz	2.697741667 GHz	-32.29 dBm	-7.293 dB

Plot 7-222. Upper ACP Plot (Band 41 PC2 - 5.0MHz QPSK - RB Size 25)



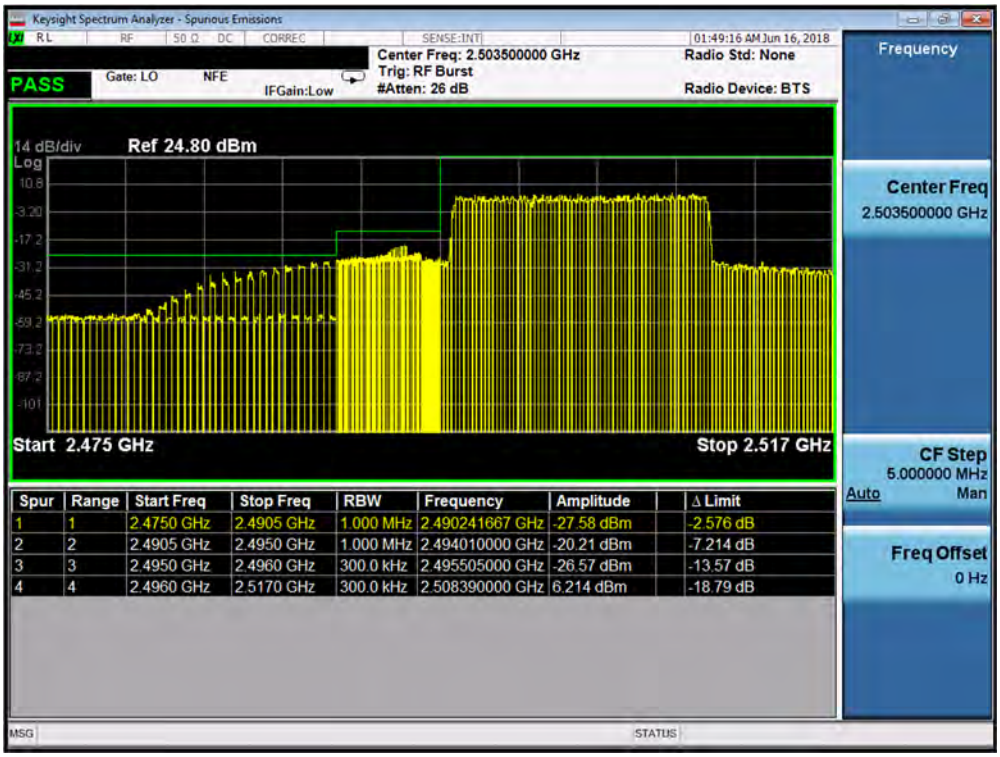
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490474167 GHz	-26.78 dBm	-1.779 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494722500 GHz	-21.49 dBm	-8.489 dB
3	3	2.4950 GHz	2.4960 GHz	200.0 kHz	2.495971667 GHz	-24.60 dBm	-11.60 dB
4	4	2.4960 GHz	2.5170 GHz	200.0 kHz	2.504890000 GHz	7.421 dBm	-17.58 dB

Plot 7-223. Lower ACP Plot at 2496 MHz (Band 41 PC2 - 10.0MHz QPSK - RB Size 25)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	200.0 kHz	2.686041667 GHz	10.80 dBm	-14.20 dB
2	2	2.6900 GHz	2.6910 GHz	200.0 kHz	2.690053333 GHz	-25.11 dBm	-15.11 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691073333 GHz	-22.70 dBm	-12.70 dB
4	4	2.6950 GHz	2.7000 GHz	1.000 MHz	2.695887750 GHz	-27.36 dBm	-14.36 dB
5	5	2.7000 GHz	2.7150 GHz	1.000 MHz	2.703918500 GHz	-34.52 dBm	-9.522 dB

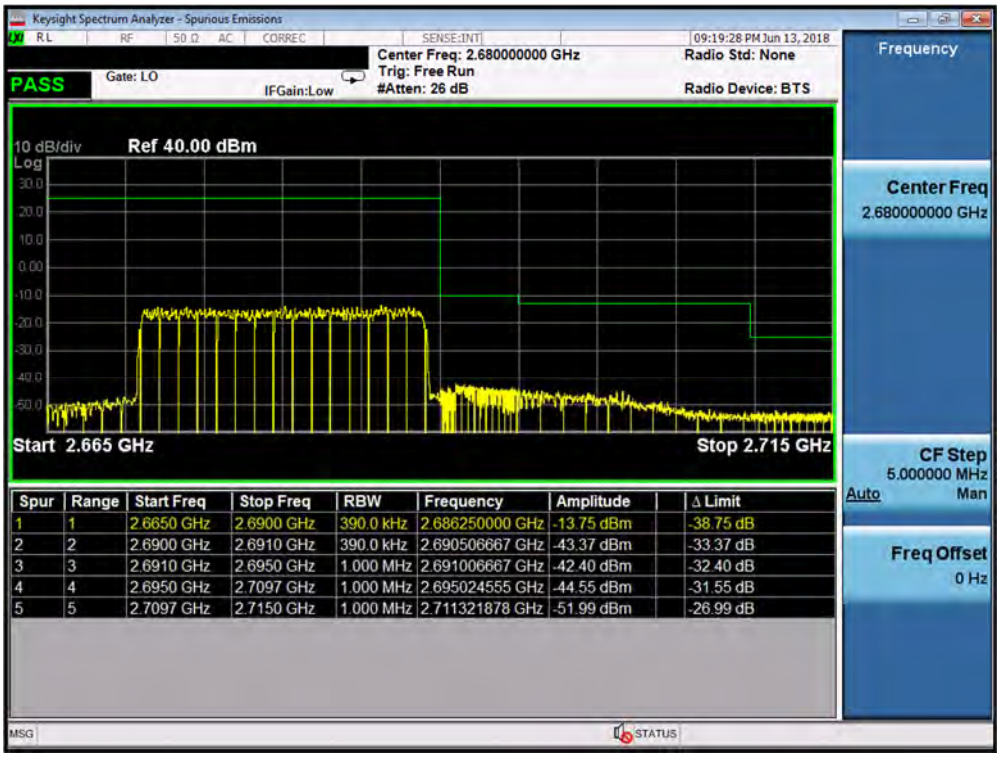
Plot 7-224. Upper ACP Plot (Band 41 PC2 - 10.0MHz QPSK - RB Size 25)



Plot 7-225. Lower ACP Plot at 2496 MHz (Band 41 PC2 - 15.0MHz QPSK - RB Size 25)

Plot 7-226. Upper ACP Plot (Band 41 PC2 - 15.0MHz QPSK - RB Size 25)

Plot 7-227. Lower ACP Plot at 2496 MHz (Band 41 PC2 - 20.0MHz QPSK - RB Size 25)



Plot 7-228. Upper ACP Plot (Band 41 PC2 - 20.0MHz QPSK - RB Size 25)

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 v03r01 – 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

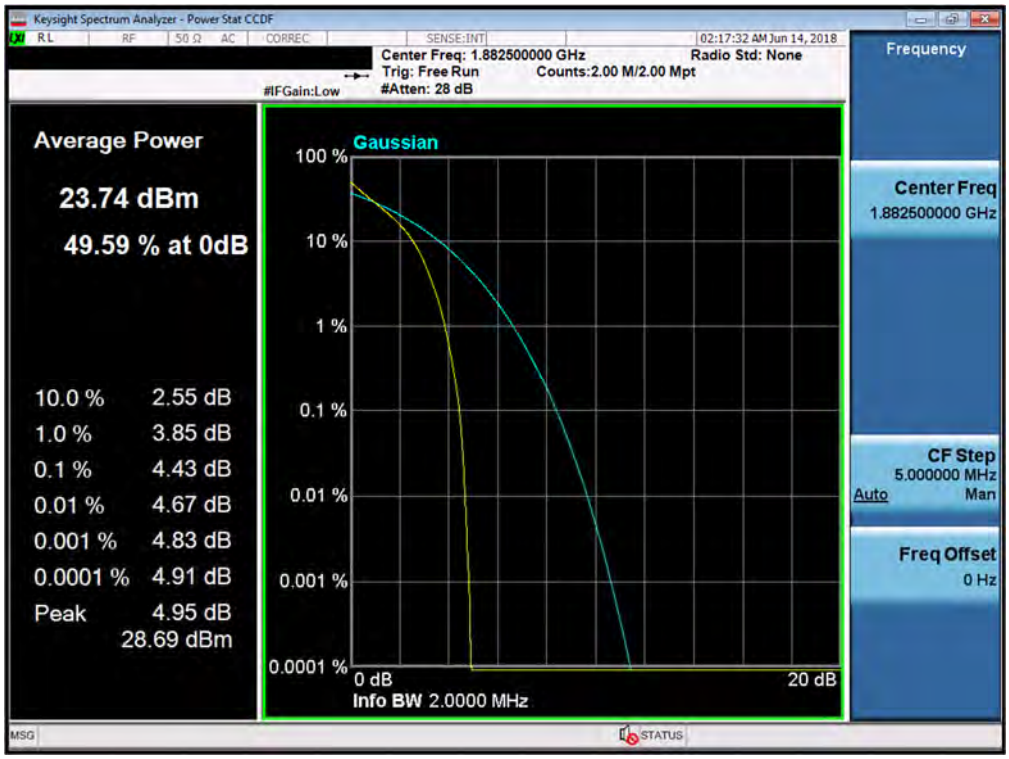
The EUT and measurement equipment were set up as shown in the diagram below.

Figure 7-4. Test Instrument & Measurement Setup

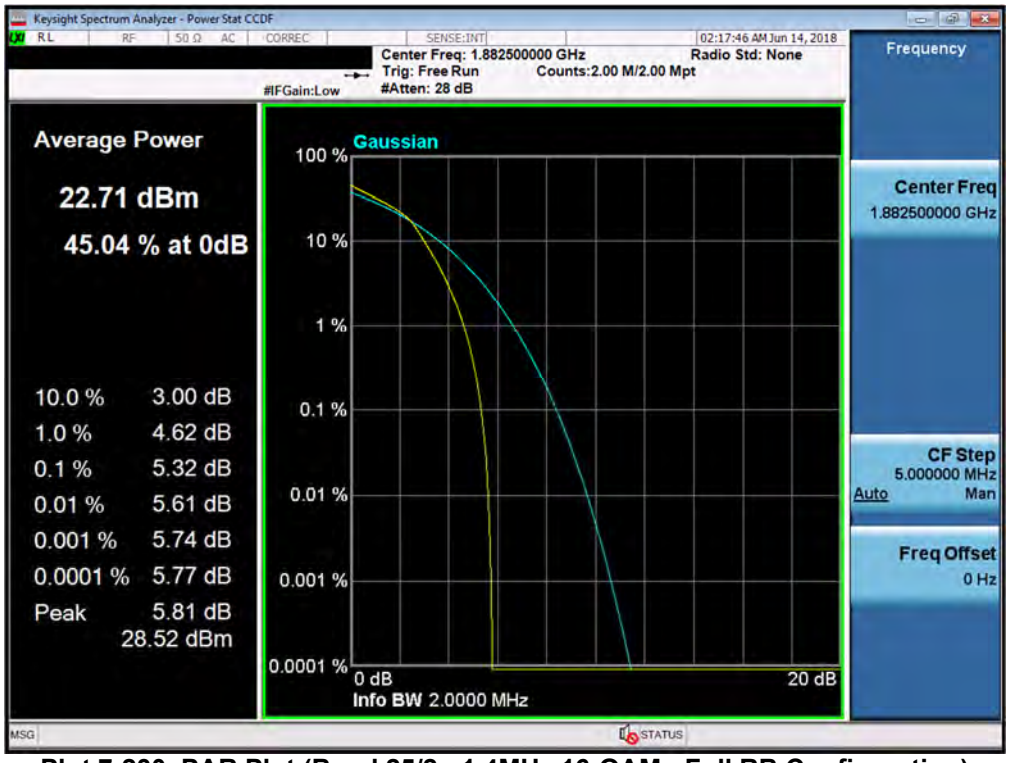
Test Notes

None.

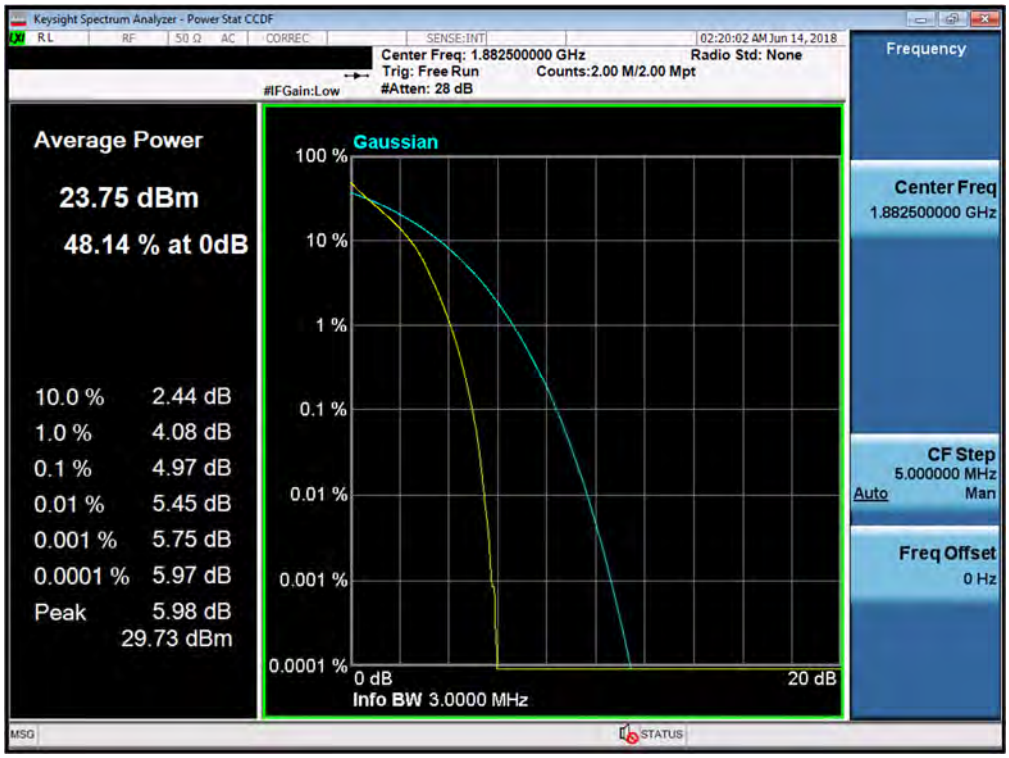
Band 25/2



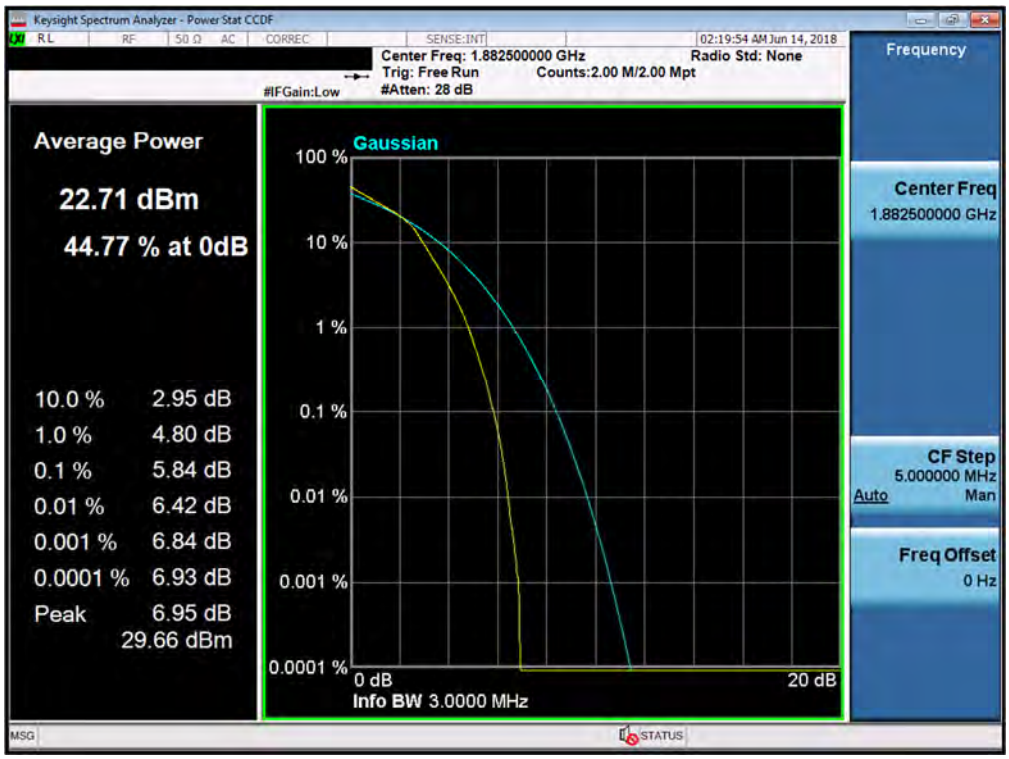
Plot 7-229. PAR Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)



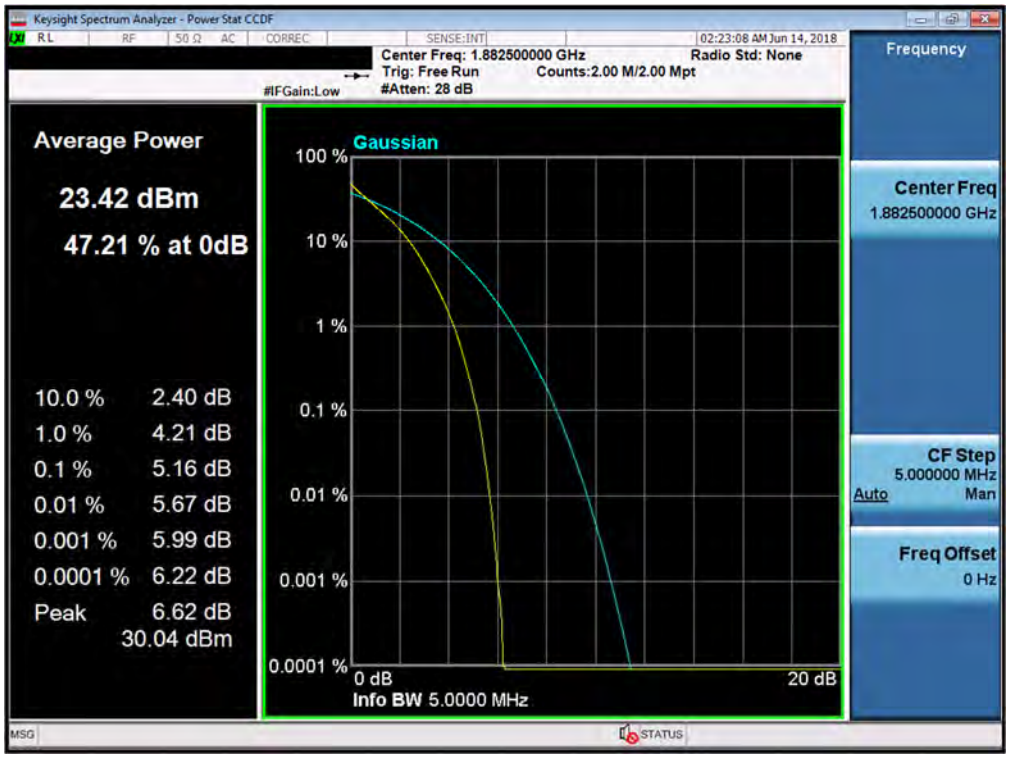
Plot 7-230. PAR Plot (Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)



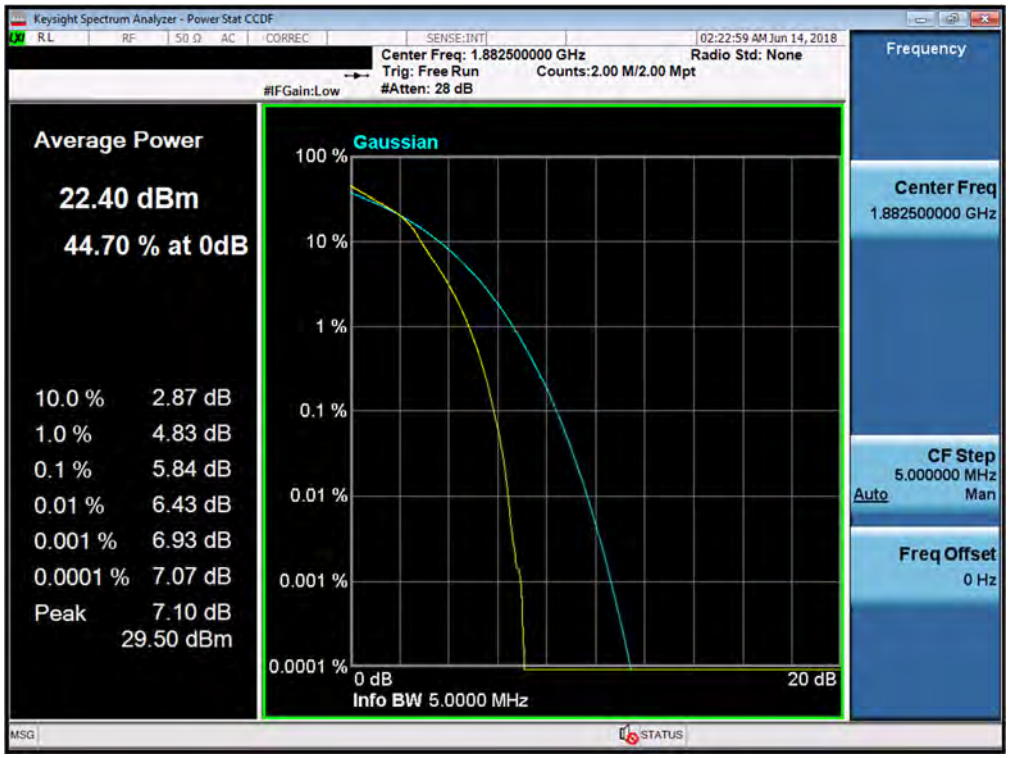
Plot 7-231. PAR Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)



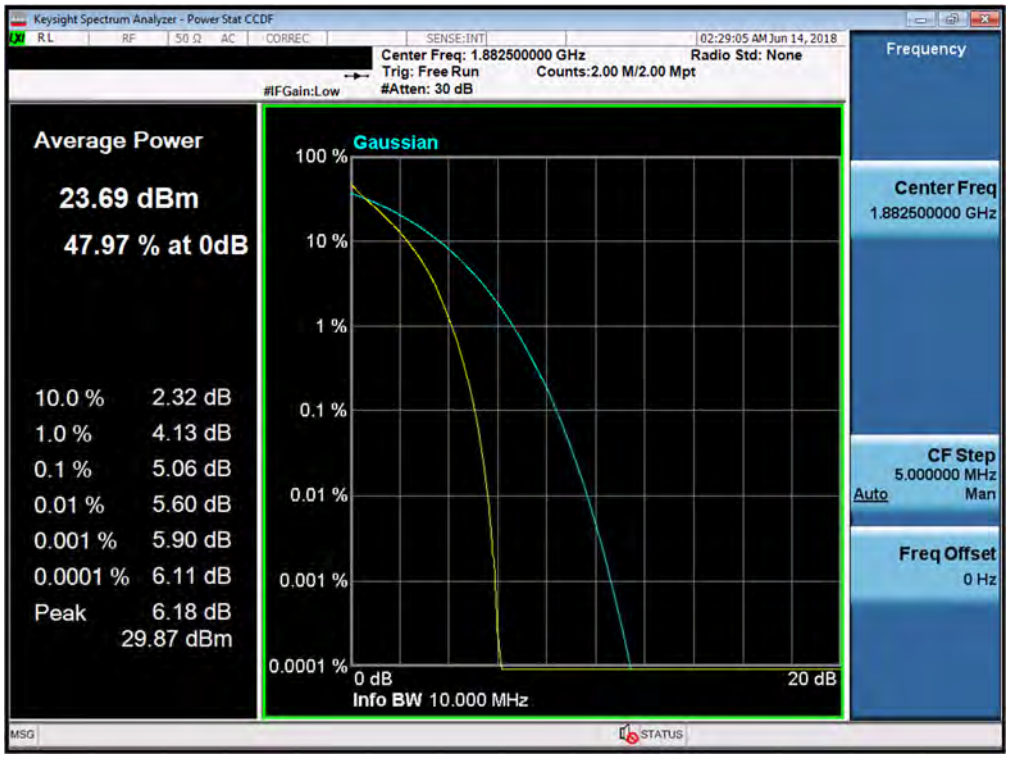
Plot 7-232. PAR Plot (Band 25/2 - 3.0MHz 16-QAM - Full RB Configuration)



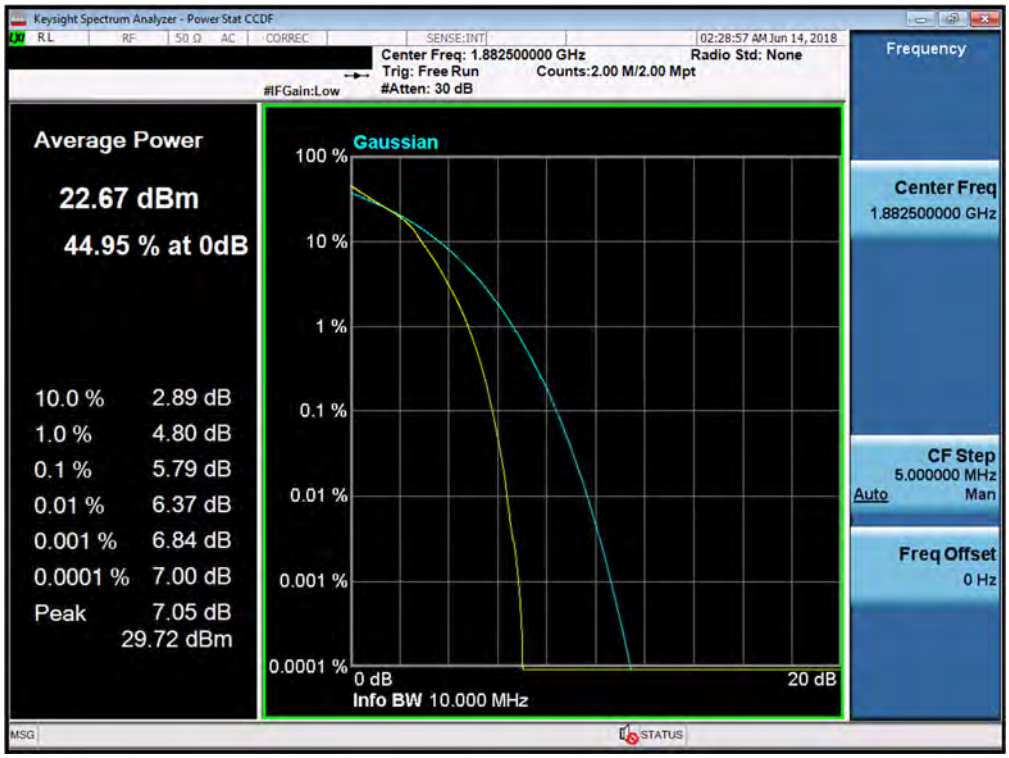
Plot 7-233. PAR Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)



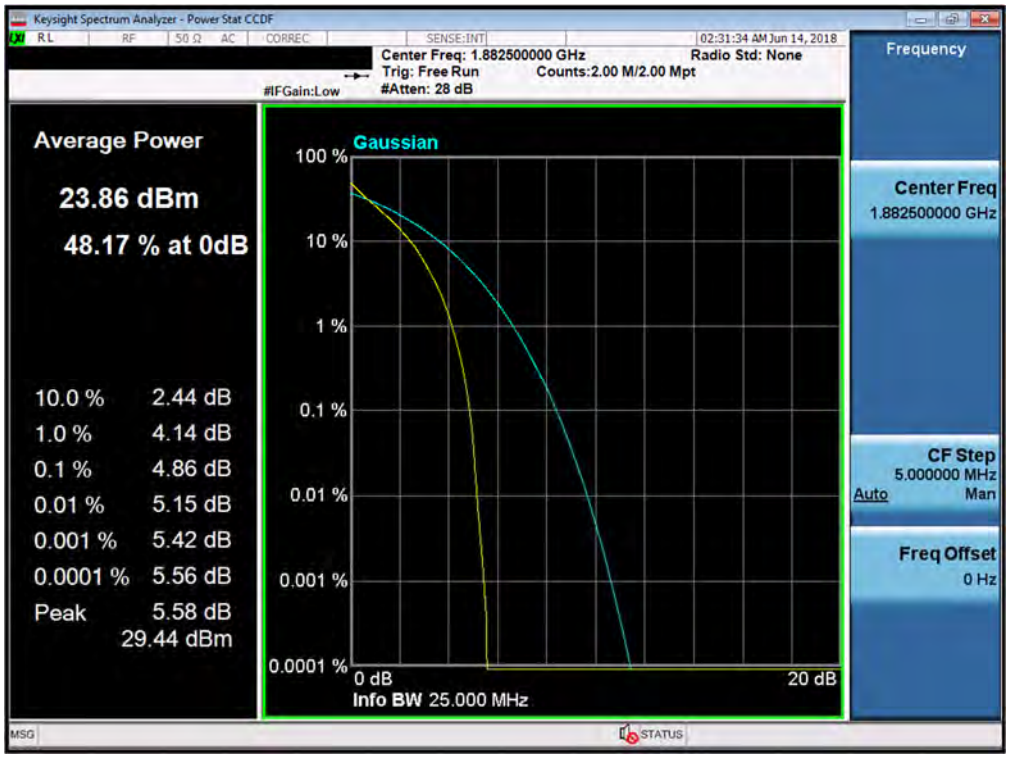
Plot 7-234. PAR Plot (Band 25/2 - 5.0MHz 16-QAM - Full RB Configuration)



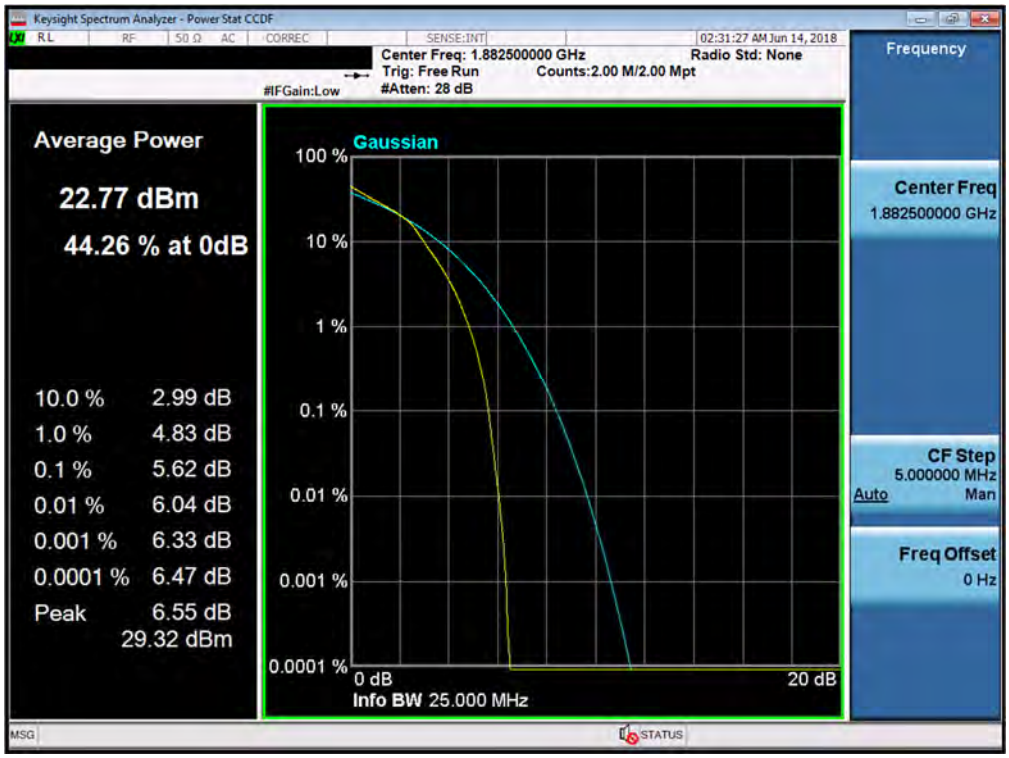
Plot 7-235. PAR Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)



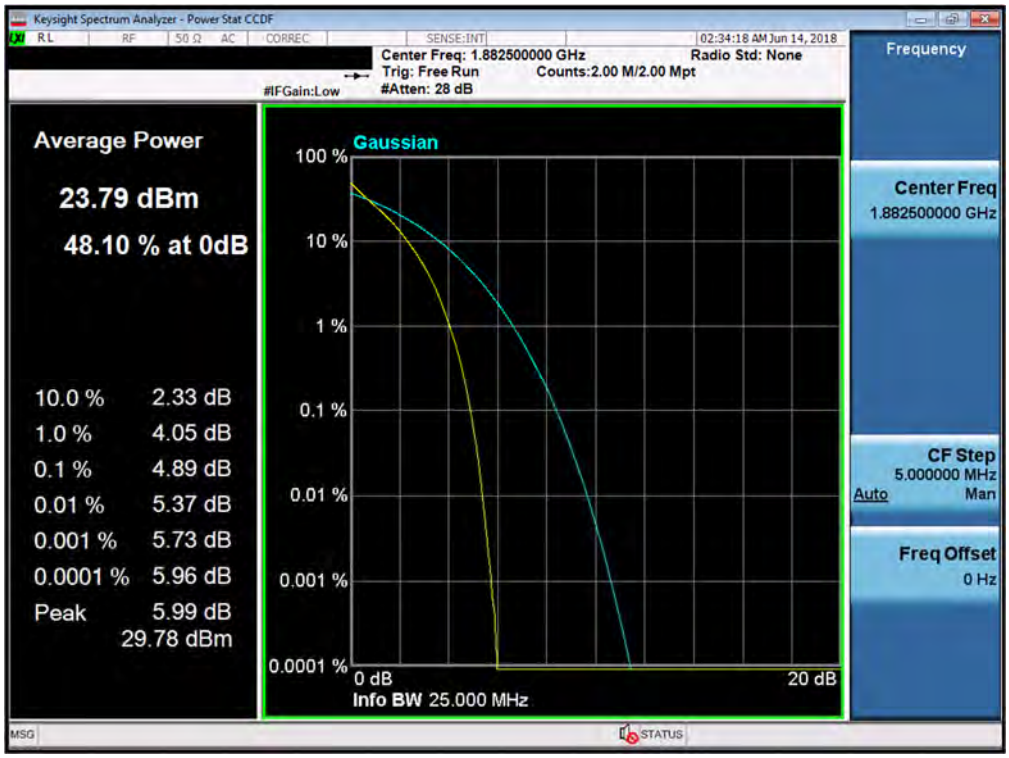
Plot 7-236. PAR Plot (Band 25/2 - 10.0MHz 16-QAM - Full RB Configuration)



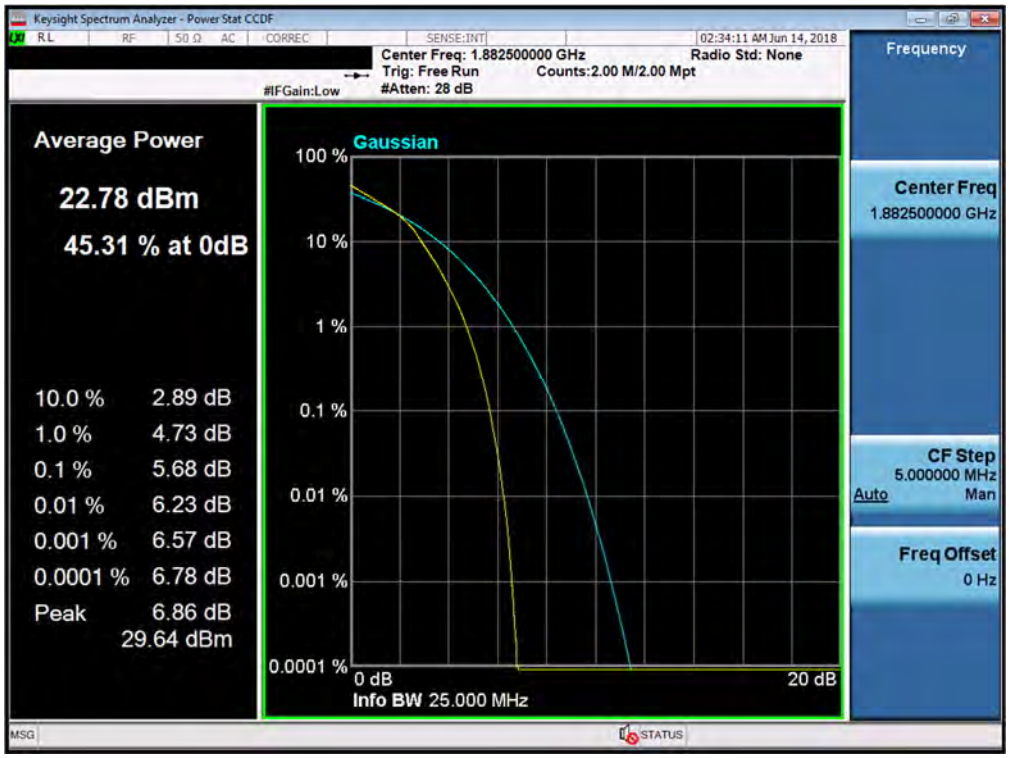
Plot 7-237. PAR Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-238. PAR Plot (Band 25/2 - 15.0MHz 16-QAM - Full RB Configuration)



Plot 7-239. PAR Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-240. 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 v03r01 – 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	01	310	120	5	39675	2498.5	QPSK	1	0	0	≤ 3	24.46	23.7	**0.76**
							16-QAM			≤ 1		23.93	22.7	**1.23**
2				5	39675	2498.5	QPSK	1	9	0	0	27.58	26.7	**0.88**
							16-QAM			≤ 1		27.05	25.7	**1.35**
3				10	39700	2501	QPSK	1	0	0	≤ 5	22.45	21.7	**0.75**
							16-QAM	1	0	≤ 1		21.89	20.7	**1.19**
4				10	39700	2501	QPSK	20	0	0	≤ 2	24.26	23.7	**0.56**
							16-QAM	20	0	≤ 1		23.24	22.7	**0.54**
5				10	39700	2501	QPSK	50	0	0	≤ 3	23.38	22.7	**0.68**
							16-QAM	50	0	≤ 1		22.34	21.7	**0.64**
6				10	39700	2501	QPSK	25	20	0	≤ 1	25.55	24.7	**0.85**
							16-QAM	25	20	≤ 1		24.47	23.7	**0.77**
7				10	39700	2501	QPSK	1	36	0	0	27.52	26.7	**0.82**
							16-QAM	1	36	≤ 1		26.94	25.7	**1.24**
8				15	39725	2503.5	QPSK	1	0	0	≤ 5	22.54	21.7	**0.84**
							16-QAM	1	0	≤ 1		21.77	20.7	**1.07**
9				15	39725	2503.5	QPSK	20	0	0	≤ 2	24.35	23.7	**0.65**
							16-QAM	20	0	≤ 1		23.38	22.7	**0.68**
10				15	39725	2503.5	QPSK	75	0	0	≤ 4	22.40	21.7	**0.70**
							16-QAM	75	0	≤ 1		21.45	20.7	**0.75**
11				15	39725	2503.5	QPSK	50	15	0	≤ 3	23.39	22.7	**0.69**
							16-QAM	50	15	≤ 1		22.45	21.7	**0.75**
12				15	39725	2503.5	QPSK	1	60	0	0	27.59	26.7	**0.89**
							16-QAM	1	60	≤ 1		26.72	25.7	**1.02**
13				20	39750	2506	QPSK	1	0	0	≤ 5	22.52	21.7	**0.82**
							16-QAM	1	0	≤ 1		21.85	20.7	**1.15**
14				20	39750	2506	QPSK	20	0	0	≤ 2	24.39	23.7	**0.69**
							16-QAM	20	0	≤ 1		23.47	22.7	**0.77**
15				20	39750	2506	QPSK	100	0	0	≤ 4	22.46	21.7	**0.76**
							16-QAM	100	0	≤ 1		21.48	20.7	**0.78**
16				20	39750	2506	QPSK	75	24	0	≤ 3	23.47	22.7	**0.77**
							16-QAM	75	24	≤ 1		22.51	21.7	**0.81**
17				20	39750	2506	QPSK	1	77	0	0	27.66	26.7	**0.96**
							16-QAM	1	77	≤ 1		26.96	25.7	**1.26**
18	01	312	530	5	39675	2498.5	QPSK	1	0	0	≤ 3	24.39	23.7	**0.69**
							16-QAM			≤ 1		23.82	22.7	**1.12**
19	01	001	01	5	39675	2498.5	QPSK	1	0	0	0	27.67	26.7	**0.97**
							16-QAM			≤ 1		26.88	25.7	**1.18**

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 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 ≥ 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.

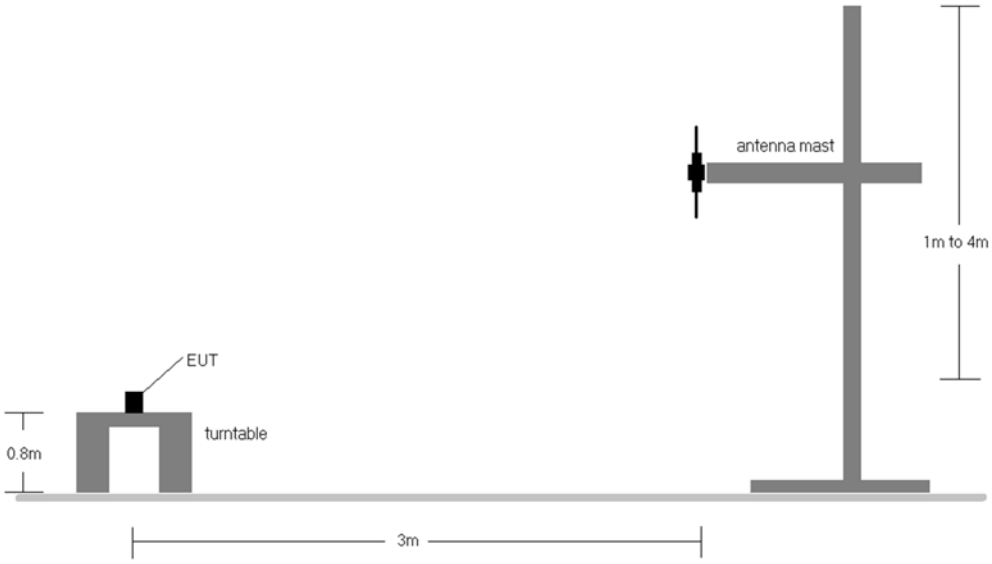


Figure 7-6. Radiated Test Setup <1GHz

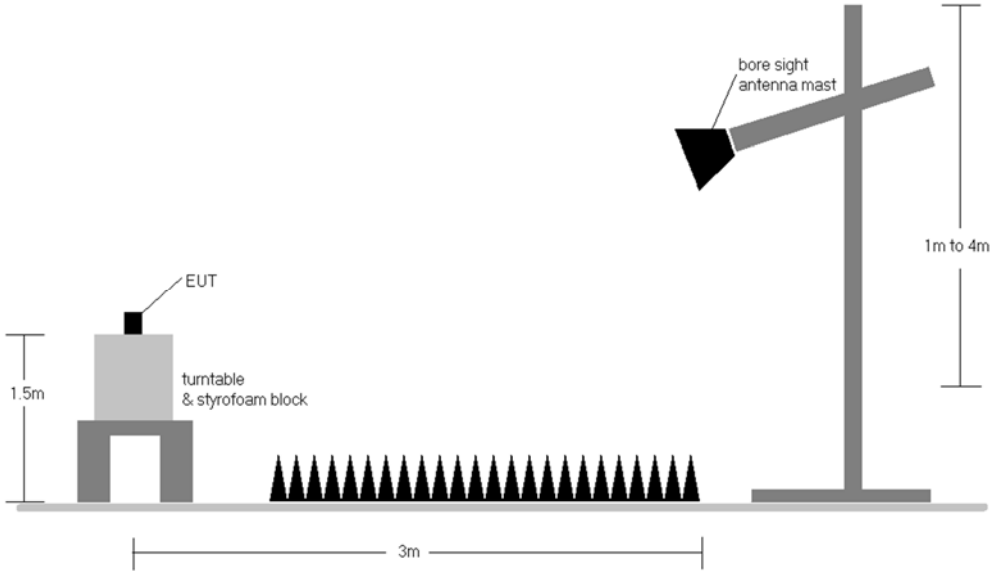


Figure 7-7. Radiated Test Setup >1GHz

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	19.11	1.10	18.06	0.064	34.77	-16.71	20.21	0.105	36.99	-16.78
707.50	1.4	QPSK	H	150	6	1 / 5	19.23	1.13	18.21	0.066	34.77	-16.56	20.36	0.109	36.99	-16.63
715.30	1.4	QPSK	H	150	7	1 / 5	19.38	1.16	**18.39**	0.069	34.77	-16.38	**20.54**	0.113	36.99	-16.45
715.30	1.4	16-QAM	H	150	7	1 / 5	18.65	1.16	**17.66**	0.058	34.77	-17.11	**19.81**	0.096	36.99	-17.18
700.50	3	QPSK	H	150	12	1 / 14	18.98	1.10	17.93	0.062	34.77	-16.84	20.08	0.102	36.99	-16.91
707.50	3	QPSK	H	150	13	1 / 14	19.25	1.13	18.23	0.067	34.77	-16.54	20.38	0.109	36.99	-16.61
714.50	3	QPSK	H	150	11	1 / 14	19.37	1.16	**18.38**	0.069	34.77	-16.39	**20.53**	0.113	36.99	-16.46
714.50	3	16-QAM	H	150	11	1 / 14	18.75	1.16	**17.76**	0.060	34.77	-17.01	**19.91**	0.098	36.99	-17.08
701.50	5	QPSK	H	150	6	1 / 24	18.97	1.11	17.93	0.062	34.77	-16.85	20.08	0.102	36.99	-16.91
707.50	5	QPSK	H	150	6	1 / 24	19.32	1.13	18.30	0.068	34.77	-16.47	20.45	0.111	36.99	-16.54
713.50	5	QPSK	H	150	5	1 / 24	19.42	1.15	**18.42**	0.070	34.77	-16.35	**20.57**	0.114	36.99	-16.42
713.50	5	16-QAM	H	150	5	1 / 24	18.65	1.15	**17.65**	0.058	34.77	-17.12	**19.80**	0.096	36.99	-17.19
704.00	10	QPSK	H	150	11	1 / 49	19.13	1.12	18.10	0.065	34.77	-16.67	20.25	0.106	36.99	-16.74
707.50	10	QPSK	H	150	10	1 / 49	19.63	1.13	18.61	0.073	34.77	-16.16	20.76	0.119	36.99	-16.23
711.00	10	QPSK	H	150	12	1 / 49	19.75	1.14	**18.74**	**0.075**	34.77	-16.03	**20.89**	**0.123**	36.99	-16.10
711.00	10	16-QAM	H	150	12	1 / 49	18.79	1.14	**17.78**	0.060	34.77	-16.99	**19.93**	0.099	36.99	-17.06
711.00	10	QPSK	V	150	353	1 / 49	19.26	1.14	18.25	0.067	34.77	-16.52	20.40	0.110	36.99	-16.59

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]
779.50	5	QPSK	H	150	291	1 / 24	21.39	1.32	20.56	0.114	34.77	-14.21	22.71	0.187	36.99	-14.28
782.00	5	QPSK	H	150	291	1 / 24	21.34	1.33	20.52	0.113	34.77	-14.25	22.67	0.185	36.99	-14.32
784.50	5	QPSK	H	150	291	1 / 24	21.69	1.34	**20.88**	0.122	34.77	-13.89	**23.03**	0.201	36.99	-13.96
784.50	5	16-QAM	H	150	291	1 / 24	21.09	1.34	**20.28**	0.107	34.77	-14.49	**22.43**	0.175	36.99	-14.56
782.00	10	QPSK	H	150	305	1 / 49	22.06	1.33	**21.24**	**0.133**	34.77	-13.53	**23.39**	**0.218**	36.99	-13.60
782.00	10	16-QAM	H	150	305	1 / 49	21.24	1.33	**20.42**	0.110	34.77	-14.35	**22.57**	0.181	36.99	-14.42
782.00	10	QPSK	V	150	351	1 / 49	21.77	1.33	20.95	0.124	34.77	-13.82	23.10	0.204	36.99	-13.89

Table 7-5. ERP Data (Band 13)

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	V	150	7	1 / 0	23.11	1.50	22.46	0.176	38.45	-15.99	24.61	0.289	40.61	-16.00
836.50	1.4	QPSK	V	150	7	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	V	150	7	1 / 0	23.16	1.50	22.51	0.178	38.45	-15.94	24.66	0.292	40.61	-15.95
824.70	1.4	16-QAM	V	150	7	1 / 0	22.30	1.50	**21.65**	0.146	38.45	-16.80	**23.80**	0.240	40.61	-16.81
825.50	3	QPSK	V	150	357	1 / 0	23.24	1.50	22.59	0.182	38.45	-15.86	24.74	0.298	40.61	-15.87
836.50	3	QPSK	V	150	357	1 / 0	23.48	1.50	**22.83**	0.192	38.45	-15.62	**24.98**	0.315	40.61	-15.63
847.50	3	QPSK	V	150	357	1 / 0	23.33	1.50	22.68	0.185	38.45	-15.77	24.83	0.304	40.61	-15.78
825.50	3	16-QAM	V	150	357	1 / 0	22.63	1.50	**21.98**	0.158	38.45	-16.47	**24.13**	0.259	40.61	-16.48
826.50	5	QPSK	V	150	7	1 / 0	22.87	1.50	22.22	0.167	38.45	-16.23	24.37	0.274	40.61	-16.24
836.50	5	QPSK	V	150	7	1 / 0	23.15	1.50	**22.50**	0.178	38.45	-15.95	**24.65**	0.292	40.61	-15.96
846.50	5	QPSK	V	150	7	1 / 0	22.96	1.50	22.31	0.170	38.45	-16.14	24.46	0.279	40.61	-16.15
826.50	5	16-QAM	V	150	7	1 / 0	22.38	1.50	**21.73**	0.149	38.45	-16.72	**23.88**	0.244	40.61	-16.73
829.00	10	QPSK	V	150	360	1 / 0	23.04	1.50	22.39	0.173	38.45	-16.06	24.54	0.284	40.61	-16.07
836.50	10	QPSK	V	150	360	1 / 0	23.30	1.50	**22.65**	0.184	38.45	-15.80	**24.80**	0.302	40.61	-15.81
844.00	10	QPSK	V	150	360	1 / 0	23.22	1.50	22.57	0.181	38.45	-15.88	24.72	0.296	40.61	-15.89
829.00	10	16-QAM	V	150	360	1 / 0	22.42	1.50	**21.77**	0.150	38.45	-16.68	**23.92**	0.247	40.61	-16.69
836.50	3	QPSK	H	150	353	1 / 0	22.76	1.50	22.11	0.163	38.45	-16.34	24.26	0.267	40.61	-16.35

Table 7-6. 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	V	150	345	1 / 0	23.29	1.50	**22.64**	0.184	38.45	-15.81	**24.79**	0.301	40.61	-15.82
836.50	15	QPSK	V	150	345	1 / 0	23.06	1.50	22.41	0.174	38.45	-16.04	24.56	0.286	40.61	-16.05
841.50	15	QPSK	V	150	345	1 / 0	23.17	1.50	22.52	0.179	38.45	-15.93	24.67	0.293	40.61	-15.94
831.50	15	16-QAM	V	150	345	1 / 0	22.53	1.50	**21.88**	0.154	38.45	-16.57	**24.03**	0.253	40.61	-16.58

Table 7-7. 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	2	1 / 0	19.24	5.56	**24.80**	0.302	30.00	-5.20
1732.50	1.4	QPSK	H	150	2	1 / 0	19.31	5.41	24.72	0.296	30.00	-5.28
1754.30	1.4	QPSK	H	150	2	1 / 0	19.08	5.26	24.34	0.272	30.00	-5.66
1732.50	1.4	16-QAM	H	150	2	1 / 0	18.24	5.41	**23.65**	0.232	30.00	-6.35
1711.50	3	QPSK	H	150	2	1 / 0	19.29	5.55	**24.84**	0.305	30.00	-5.16
1732.50	3	QPSK	H	150	2	1 / 0	19.42	5.41	24.83	0.304	30.00	-5.17
1753.50	3	QPSK	H	150	2	1 / 0	19.11	5.26	24.37	0.274	30.00	-5.63
1732.50	3	16-QAM	H	150	2	1 / 0	18.31	5.41	**23.72**	0.235	30.00	-6.28
1712.50	5	QPSK	H	150	359	1 / 0	19.24	5.55	**24.79**	0.301	30.00	-5.21
1732.50	5	QPSK	H	150	359	1 / 0	19.35	5.41	24.76	0.299	30.00	-5.24
1752.50	5	QPSK	H	150	359	1 / 0	18.98	5.27	24.25	0.266	30.00	-5.75
1732.50	5	16-QAM	H	150	359	1 / 0	18.36	5.41	**23.77**	0.238	30.00	-6.23
1715.00	10	QPSK	H	150	3	1 / 0	19.04	5.53	24.57	0.286	30.00	-5.43
1732.50	10	QPSK	H	150	3	1 / 49	19.34	5.41	**24.75**	0.298	30.00	-5.25
1750.00	10	QPSK	H	150	3	1 / 0	18.87	5.29	24.16	0.261	30.00	-5.84
1732.50	10	16-QAM	H	150	3	1 / 0	18.27	5.41	**23.68**	0.233	30.00	-6.32
1717.50	15	QPSK	H	150	3	1 / 0	19.30	5.51	24.81	0.303	30.00	-5.19
1732.50	15	QPSK	H	150	3	1 / 0	19.43	5.41	**24.84**	0.305	30.00	-5.16
1747.50	15	QPSK	H	150	3	1 / 0	19.12	5.31	24.43	0.277	30.00	-5.57
1732.50	15	16-QAM	H	150	3	1 / 0	18.53	5.41	**23.94**	0.248	30.00	-6.06
1720.00	20	QPSK	H	150	3	1 / 0	19.81	5.49	25.30	0.339	30.00	-4.70
1732.50	20	QPSK	H	150	3	1 / 0	19.90	5.41	**25.31**	**0.339**	30.00	-4.69
1745.00	20	QPSK	H	150	3	1 / 0	19.55	5.32	24.87	0.307	30.00	-5.13
1732.50	20	16-QAM	H	150	3	1 / 0	18.79	5.41	**24.20**	0.263	30.00	-5.80
1732.50	20	QPSK	V	150	277	1 / 0	18.73	5.41	24.14	0.259	30.00	-5.86

Table 7-8. 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	351	1 / 5	19.71	4.82	24.53	0.284	33.01	-8.48
1882.50	1.4	QPSK	H	150	351	1 / 0	20.67	4.73	25.40	0.347	33.01	-7.61
1914.30	1.4	QPSK	H	150	351	1 / 5	20.96	4.68	**25.64**	0.366	33.01	-7.37
1914.30	1.4	16-QAM	H	150	351	1 / 5	19.89	4.68	**24.57**	0.286	33.01	-8.44
1851.50	3	QPSK	H	150	351	1 / 14	19.77	4.82	24.59	0.287	33.01	-8.42
1882.50	3	QPSK	H	150	351	1 / 14	20.52	4.73	25.25	0.335	33.01	-7.76
1913.50	3	QPSK	H	150	351	1 / 14	20.93	4.68	**25.61**	0.364	33.01	-7.40
1913.50	3	16-QAM	H	150	351	1 / 14	19.81	4.68	**24.49**	0.281	33.01	-8.52
1852.50	5	QPSK	H	150	1	1 / 24	19.76	4.81	24.57	0.287	33.01	-8.44
1882.50	5	QPSK	H	150	1	1 / 24	20.36	4.73	25.09	0.323	33.01	-7.92
1912.50	5	QPSK	H	150	1	1 / 24	20.68	4.68	**25.36**	0.343	33.01	-7.65
1912.50	5	16-QAM	H	150	1	1 / 24	20.19	4.68	**24.87**	0.307	33.01	-8.14
1855.00	10	QPSK	H	150	358	1 / 49	19.91	4.81	24.72	0.296	33.01	-8.29
1882.50	10	QPSK	H	150	358	1 / 49	20.83	4.73	25.56	0.360	33.01	-7.45
1910.00	10	QPSK	H	150	358	1 / 49	21.49	4.68	**26.17**	0.414	33.01	-6.84
1910.00	10	16-QAM	H	150	358	1 / 49	19.73	4.68	**24.41**	0.276	33.01	-8.60
1857.50	15	QPSK	H	150	351	1 / 74	19.89	4.80	24.69	0.294	33.01	-8.32
1882.50	15	QPSK	H	150	351	1 / 74	20.80	4.73	25.53	0.358	33.01	-7.48
1907.50	15	QPSK	H	150	351	1 / 74	21.27	4.68	**25.95**	0.394	33.01	-7.06
1907.50	15	16-QAM	H	150	351	1 / 74	20.00	4.68	**24.68**	0.294	33.01	-8.33
1860.00	20	QPSK	H	150	355	1 / 99	20.21	4.79	25.00	0.316	33.01	-8.01
1882.50	20	QPSK	H	150	355	1 / 99	21.10	4.73	25.83	0.383	33.01	-7.18
1905.00	20	QPSK	H	150	355	1 / 99	21.54	4.68	**26.22**	**0.419**	33.01	-6.79
1905.00	20	16-QAM	H	150	355	1 / 99	20.00	4.68	**24.68**	0.294	33.01	-8.33
1905.00	20	QPSK	V	150	36	1 / 99	20.43	4.68	25.11	0.325	33.01	-7.90

Table 7-9. 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	V	150	327	1 / 24	19.48	5.73	25.21	0.332	33.01	-7.80
2502.50	5	QPSK	V	150	324	1 / 24	19.06	5.74	24.80	0.302	33.01	-8.21
2593.00	5	QPSK	V	150	1	1 / 24	19.70	6.07	25.77	0.378	33.01	-7.24
2687.50	5	QPSK	V	150	352	1 / 24	19.79	6.48	**26.27**	0.424	33.01	-6.74
2687.50	5	16-QAM	V	150	352	1 / 24	18.16	6.48	**24.64**	0.291	33.01	-8.37
2501.00	10	QPSK	V	150	326	1 / 0	20.25	5.73	25.98	0.397	33.01	-7.03
2505.00	10	QPSK	V	150	328	1 / 0	19.47	5.75	25.22	0.333	33.01	-7.79
2593.00	10	QPSK	V	150	359	1 / 0	20.61	6.07	26.68	0.466	33.01	-6.33
2685.00	10	QPSK	V	150	355	1 / 0	20.70	6.47	**27.17**	0.522	33.01	-5.84
2685.00	10	16-QAM	V	150	355	1 / 0	19.36	6.47	**25.83**	0.383	33.01	-7.18
2503.50	15	QPSK	V	150	320	1 / 0	20.55	5.74	26.29	0.426	33.01	-6.72
2507.50	15	QPSK	V	150	322	1 / 0	19.05	5.76	24.81	0.303	33.01	-8.20
2593.00	15	QPSK	V	150	3	1 / 0	20.98	6.07	27.05	0.507	33.01	-5.96
2682.50	15	QPSK	V	150	0	1 / 0	21.19	6.46	**27.65**	**0.583**	33.01	-5.36
2682.50	15	16-QAM	V	150	0	1 / 0	19.93	6.46	**26.39**	0.436	33.01	-6.62
2506.00	20	QPSK	V	150	325	1 / 0	19.22	5.75	24.97	0.314	33.01	-8.04
2510.00	20	QPSK	V	150	325	1 / 99	19.06	5.77	24.83	0.304	33.01	-8.18
2593.00	20	QPSK	V	150	360	1 / 0	20.01	6.07	26.08	0.406	33.01	-6.93
2680.00	20	QPSK	V	150	357	1 / 0	21.03	6.45	**27.48**	0.560	33.01	-5.53
2680.00	20	16-QAM	V	150	357	1 / 0	19.55	6.45	**26.00**	0.398	33.01	-7.01
2682.50	15	QPSK	H	150	355	1 / 0	21.09	6.46	27.55	0.569	33.01	-5.46

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

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]
2682.50	15 (PC3)	QPSK	V	150	355	1 / 0	16.93	6.46	23.39	0.218	33.01	-9.62
2682.50	15 (PC3)	16-QAM	V	150	355	1 / 0	16.25	6.46	22.71	0.187	33.01	-10.30

Table 7-11. EIRP Data (Band 41 PC3)

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 v03r01 – 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.

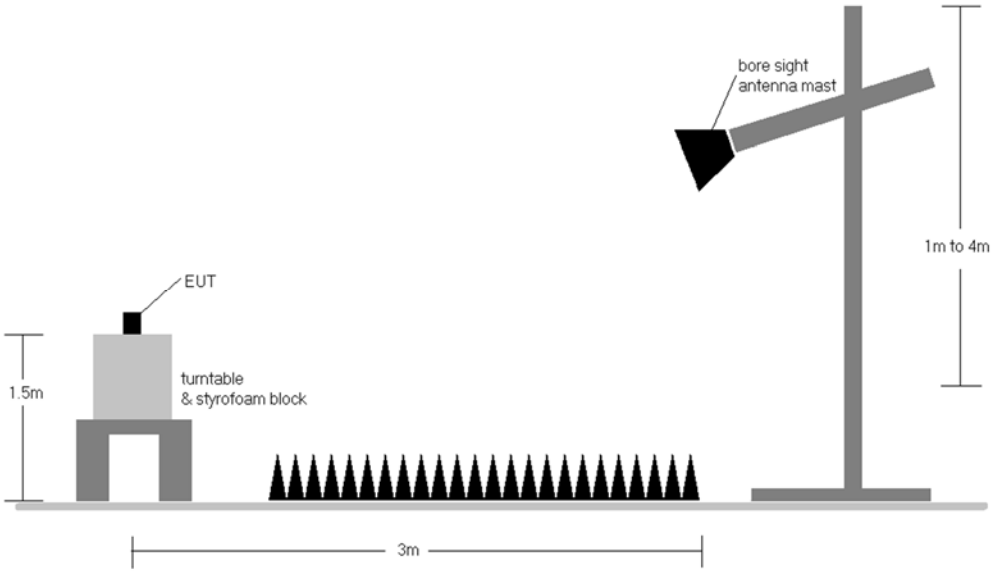


Figure 7-8. Test Instrument & Measurement Setup

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.

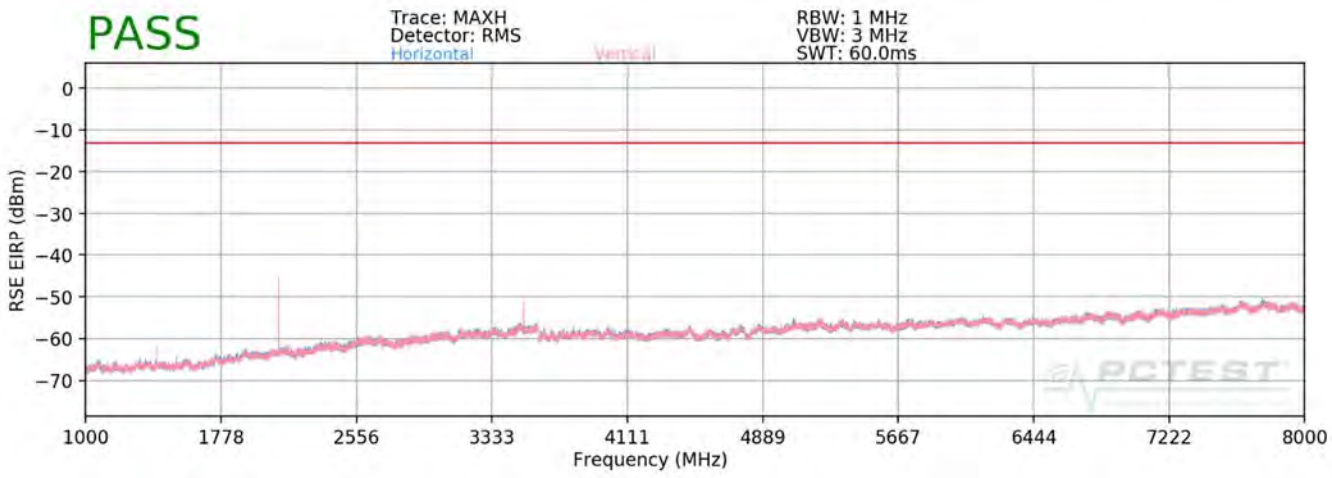
2) This unit was tested with its standard battery.

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 7-241. Radiated Spurious Plot above 1GHz (Band 12)

OPERATING FREQUENCY:	704.00	MHz
CHANNEL:	23060	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	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]
1408.00	V	308	85	-67.37	7.54	-59.83	-46.8
2112.00	V	342	13	-59.43	8.85	-50.58	-37.6
2816.00	V	-	-	-76.49	10.12	-66.37	-53.4
3520.00	V	115	332	-67.34	9.91	-57.43	-44.4
4224.00	V	-	-	-73.44	10.50	-62.94	-49.9

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

OPERATING FREQUENCY:	707.50	MHz
CHANNEL:	23095	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	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	V	312	84	-64.57	7.63	-56.94	-43.9
2122.50	V	346	10	-56.24	8.86	-47.38	-34.4
2830.00	V	-	-	-76.31	10.10	-66.22	-53.2
3537.50	V	115	335	-64.39	9.90	-54.49	-41.5
4245.00	V	-	-	-73.91	10.58	-63.33	-50.3

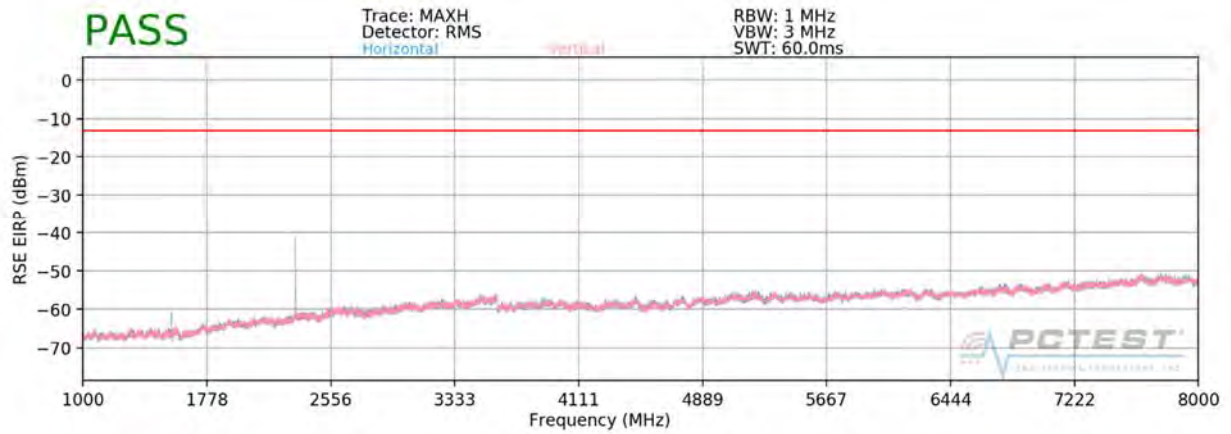
Table 7-13. Radiated Spurious Data (Band 12 – Mid Channel)

OPERATING FREQUENCY:	711.00	MHz
CHANNEL:	23130	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	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]
1422.00	V	314	80	-64.45	7.72	-56.72	-43.7
2133.00	V	340	15	-56.85	8.87	-47.98	-35.0
2844.00	V	-	-	-75.91	10.07	-65.84	-52.8
3555.00	V	110	351	-71.44	9.89	-61.54	-48.5
4266.00	V	-	-	-73.39	10.65	-62.74	-49.7

Table 7-14. Radiated Spurious Data (Band 12 – High Channel)

Band 13



Plot 7-242. Radiated Spurious Plot above 1GHz (Band 13)

OPERATING FREQUENCY:	782.00	MHz
CHANNEL:	23230	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	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]
2346.00	H	190	45	-63.23	9.43	-53.80	-40.8
3128.00	H	-	-	-74.19	9.34	-64.85	-51.8
3910.00	H	-	-	-71.94	9.37	-62.56	-49.6

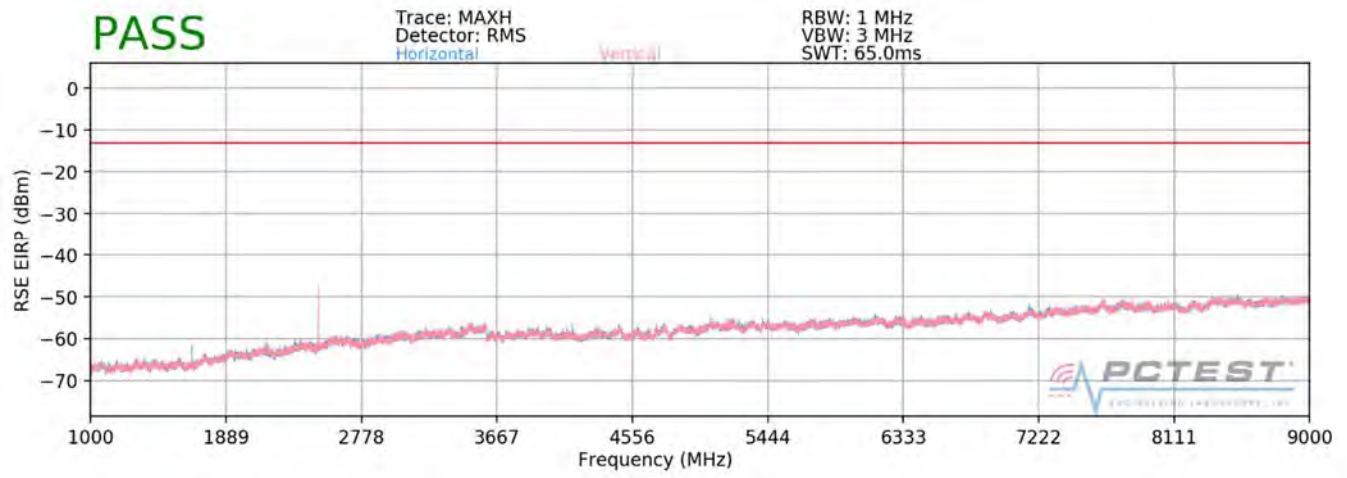
Table 7-15. Radiated Spurious Data (Band 13 – Mid Channel)

MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.00	MHz
DISTANCE:	3	meters
NARROWBAND EMISSION LIMIT:	-50	dBm
WIDEBAND EMISSION LIMIT:	-40	dBm/MHz

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]
1564.00	H	289	206	-77.13	8.53	-68.60	-28.6

Table 7-16. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

Band 26/5



Plot 7-243. Radiated Spurious Plot above 1GHz (Band 26/5)

OPERATING FREQUENCY:	825.50	MHz
CHANNEL:	26805	
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]
1651.00	V	238	183	-76.32	8.95	-67.38	-54.4
2476.50	V	119	36	-66.72	9.66	-57.06	-44.1
3302.00	V	-	-	-74.01	9.58	-64.43	-51.4

Table 7-17. Radiated Spurious Data (Band 26/5 – Low Channel)

OPERATING FREQUENCY:	836.50	MHz
CHANNEL:	26915	
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]
1673.00	V	240	182	-76.88	8.95	-67.93	-54.9
2509.50	V	127	40	-63.86	9.75	-54.11	-41.1
3346.00	V	-	-	-72.80	9.60	-63.19	-50.2

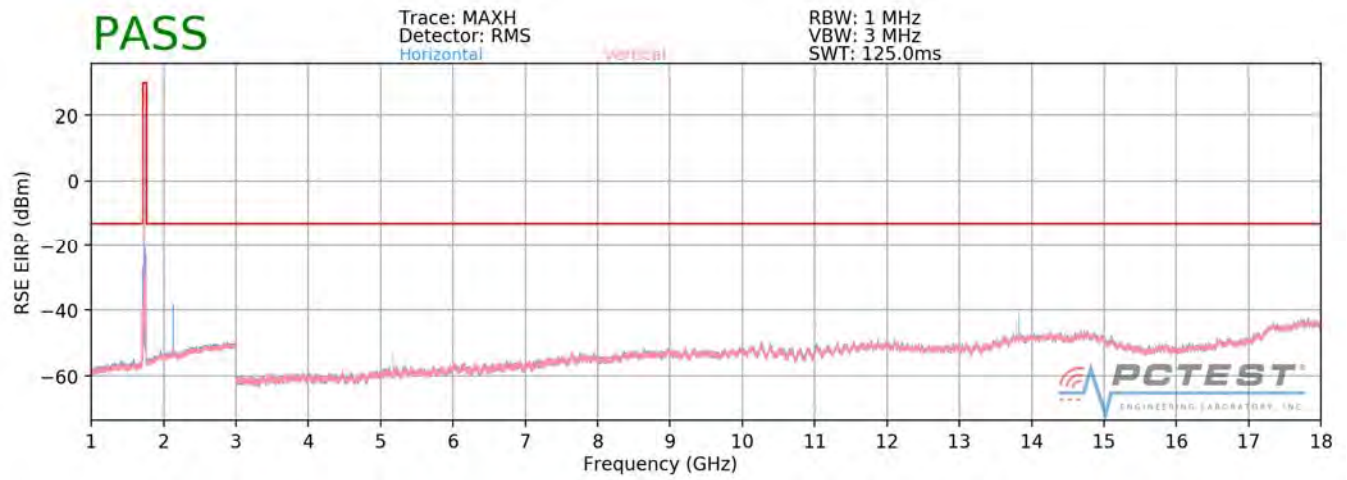
Table 7-18. Radiated Spurious Data (Band 26/5 – Mid Channel)

OPERATING FREQUENCY:	847.50	MHz
CHANNEL:	27025	
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]
1695.00	V	243	179	-75.07	8.95	-66.12	-53.1
2542.50	V	118	29	-67.35	9.74	-57.60	-44.6
3390.00	V	-	-	-73.83	9.76	-64.07	-51.1

Table 7-19. Radiated Spurious Data (Band 26/5 – High Channel)

Band 4



Plot 7-244. Radiated Spurious Plot above 1GHz (Band 4)

OPERATING FREQUENCY:	1720.00	MHz
CHANNEL:	20050	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	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]
3440.00	V	-	-	-72.49	9.84	-62.64	-49.6
5160.00	V	378	129	-71.63	10.71	-60.92	-47.9
6880.00	V	-	-	-69.86	11.68	-58.18	-45.2

Table 7-20. Radiated Spurious Data (Band 4 – Low Channel)

OPERATING FREQUENCY:	1732.50	MHz
CHANNEL:	20175	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	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	V	373	127	-72.05	9.88	-62.17	-49.2
5197.50	V	382	134	-68.71	10.76	-57.96	-45.0
6930.00	V	-	-	-70.27	11.74	-58.53	-45.5

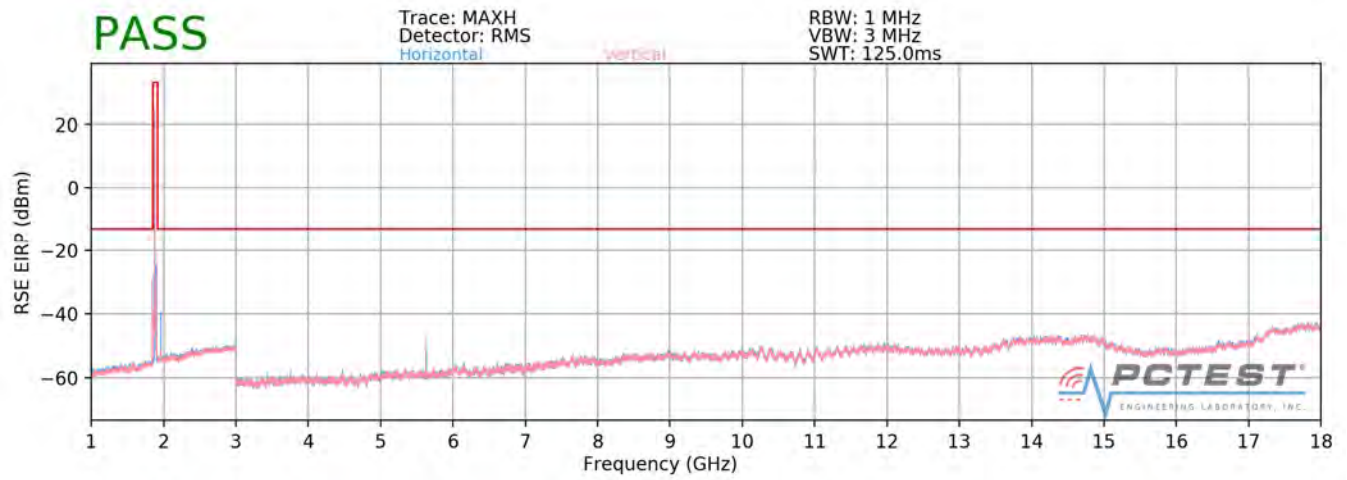
Table 7-21. Radiated Spurious Data (Band 4 – Mid Channel)

OPERATING FREQUENCY:	1745.00	MHz
CHANNEL:	20300	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	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]
3490.00	V	-	-	-71.87	9.91	-61.96	-49.0
5235.00	V	-	-	-69.81	10.73	-59.08	-46.1

Table 7-22. Radiated Spurious Data (Band 4 – High Channel)

Band 25/2



Plot 7-245. Radiated Spurious Plot above 1GHz (Band 25)

OPERATING FREQUENCY:	1860.00	MHz
CHANNEL:	26140	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	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]
3720.00	V	151	5	-71.40	9.51	-61.90	-48.9
5580.00	V	115	221	-67.39	10.99	-56.40	-43.4
7440.00	V	-	-	-67.79	10.99	-56.80	-43.8

Table 7-23. Radiated Spurious Data (Band 25/2 – Low Channel)

OPERATING FREQUENCY:	1882.50	MHz
CHANNEL:	26365	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	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	V	149	1	-69.73	9.36	-60.37	-47.4
5647.50	V	111	220	-64.26	11.19	-53.07	-40.1
7530.00	V	-	-	-67.52	11.13	-56.39	-43.4

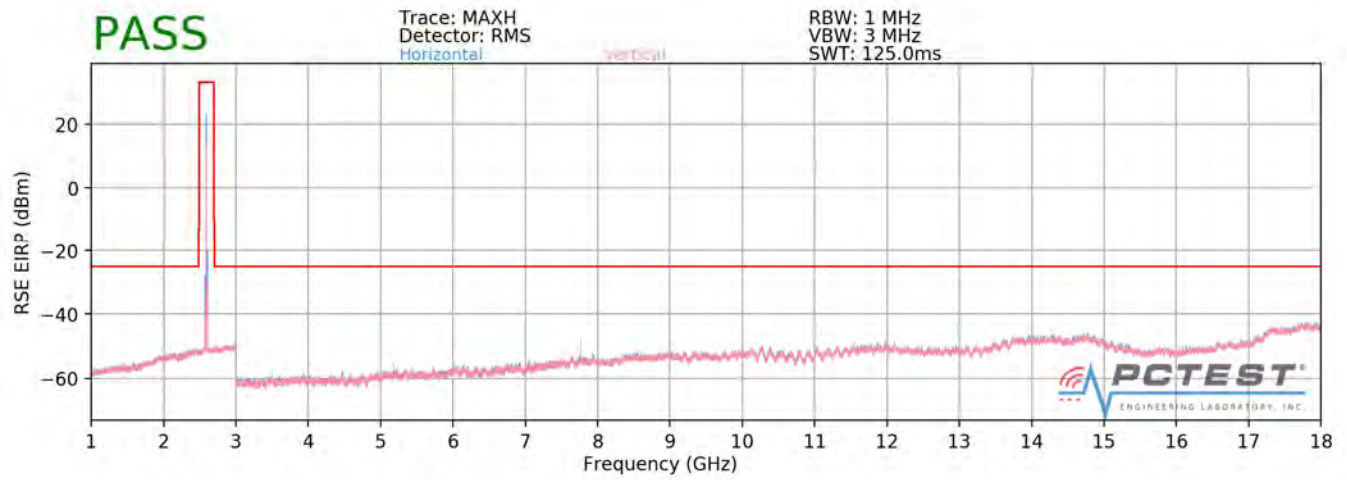
Table 7-24. Radiated Spurious Data (Band 25/2 – Mid Channel)

OPERATING FREQUENCY:	1905.00	MHz
CHANNEL:	26590	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	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]
3810.00	V	145	3	-69.77	9.29	-60.48	-47.5
5715.00	V	111	227	-66.26	11.35	-54.92	-41.9
7620.00	V	-	-	-67.83	11.29	-56.54	-43.5

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

Band 41 PC2



Plot 7-246. Radiated Spurious Plot 1GHz - 18GHz (Band 41 PC2)

OPERATING FREQUENCY:	2501.00	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]
5002.00	V	113	325	-63.17	10.93	-52.24	-27.2
7503.00	V	386	113	-55.27	11.08	-44.19	-19.2
10004.00	V	-	-	-62.35	12.00	-50.35	-25.4

Table 7-26. Radiated Spurious Data (Band 41 PC2 – 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	115	358	-61.91	10.74	-51.17	-26.2
7779.00	V	113	327	-55.43	11.44	-43.99	-19.0
10372.00	V	-	-	-62.12	12.42	-49.70	-24.7
12965.00	V	-	-	-62.70	13.29	-49.41	-24.4

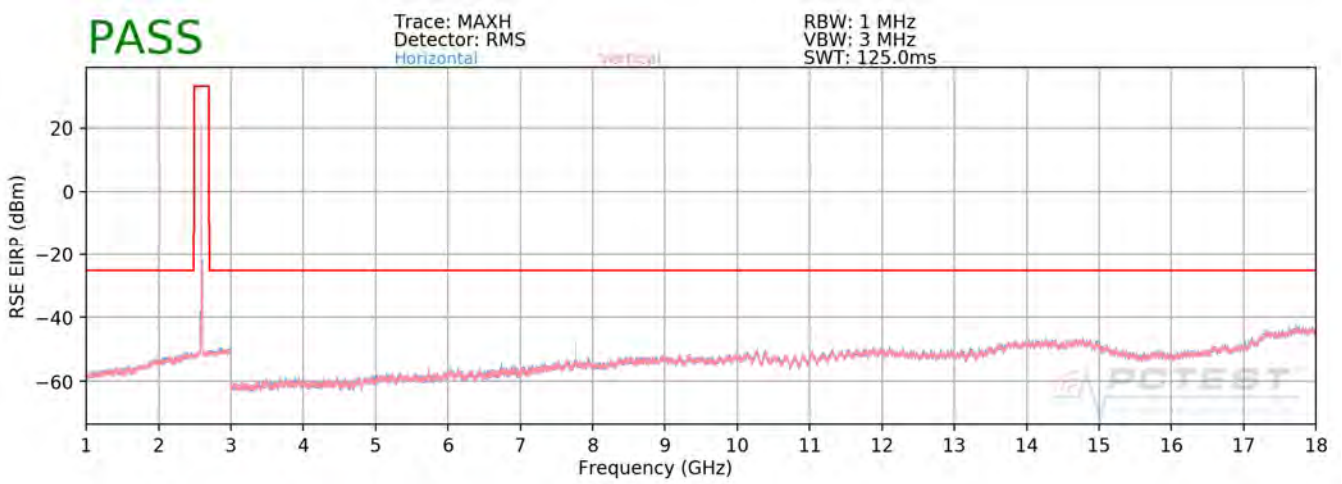
Table 7-27. Radiated Spurious Data (Band 41 PC2 – Mid Channel)

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	115	220	-56.81	10.69	-46.12	-21.1
8055.00	V	113	330	-52.42	11.17	-41.25	-16.3
10740.00	V	-	-	-66.32	12.61	-53.71	-28.7
13425.00	V	-	-	-62.77	12.59	-50.19	-25.2

Table 7-28. Radiated Spurious Data (Band 41 PC2 – High Channel)

Band 41 PC3



Plot 7-247. Radiated Spurious Plot 1GHz - 18GHz (Band 41 PC3)

OPERATING FREQUENCY:	2501.00	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]
5002.00	V	110	319	-64.29	10.93	-53.36	-28.4
7503.00	V	375	115	-56.78	11.08	-45.70	-20.7
10004.00	V	-	-	-62.35	12.00	-50.35	-25.4

Table 7-29. Radiated Spurious Data (Band 41 PC3 – 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	111	239	-64.91	10.74	-54.17	-29.2
7779.00	V	118	321	-58.43	11.44	-46.99	-22.0
10372.00	V	-	-	-62.35	12.42	-49.93	-24.9
12965.00	V	-	-	-62.44	13.29	-49.15	-24.1

Table 7-30. Radiated Spurious Data (Band 41 PC3 – 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	119	227	-60.54	10.69	-49.85	-24.8
8055.00	V	116	315	-56.16	11.17	-44.99	-20.0
10740.00	V	-	-	-66.42	12.61	-53.81	-28.8
13425.00	V	-	-	-62.88	12.59	-50.30	-25.3

Table 7-31. Radiated Spurious Data (Band 41 PC3 – 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:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	707,500,055	55	0.0000078
100 %		- 30	707,499,998	-2	-0.0000003
100 %		- 20	707,499,933	-67	-0.0000095
100 %		- 10	707,499,743	-257	-0.0000363
100 %		0	707,499,987	-13	-0.0000018
100 %		+ 10	707,500,287	287	0.0000406
100 %		+ 20	707,500,200	200	0.0000283
100 %		+ 30	707,499,702	-298	-0.0000421
100 %		+ 40	707,500,010	10	0.0000014
100 %		+ 50	707,499,904	-96	-0.0000136
BATT. ENDPOINT	3.40	+ 20	707,500,251	251	0.0000355

Table 7-32. 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

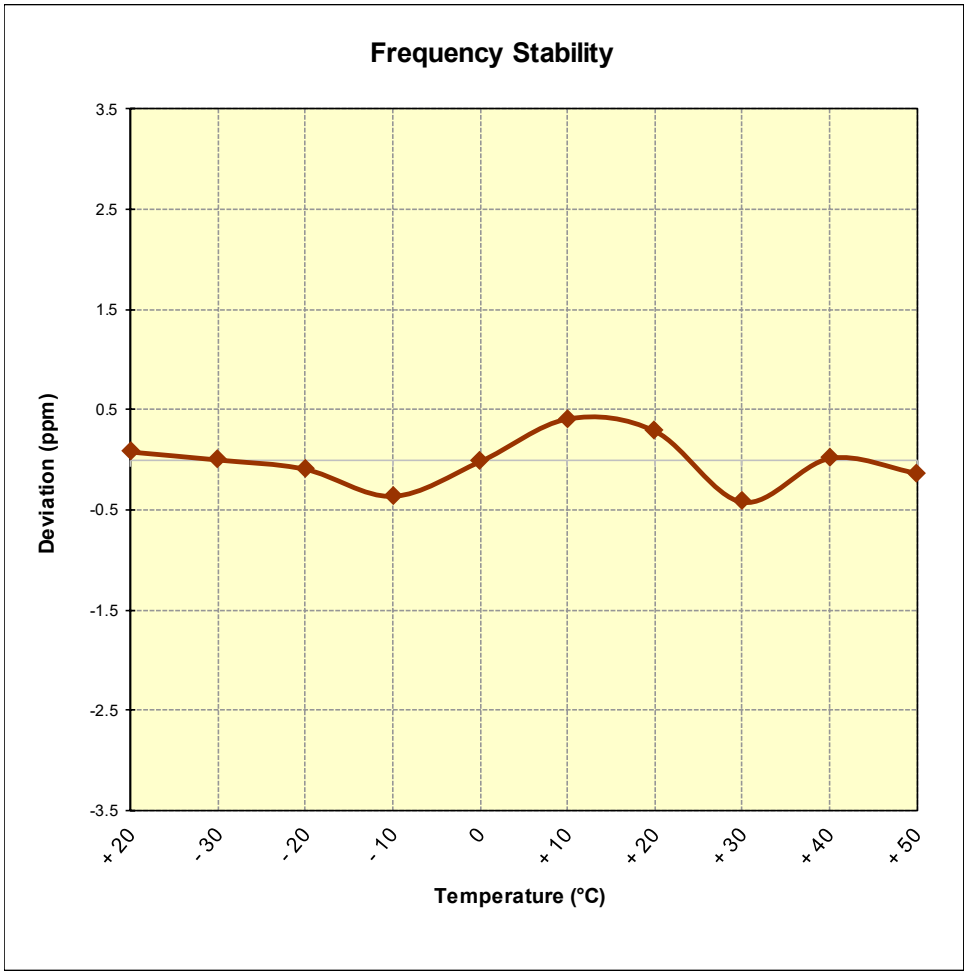


Figure 7-9. Frequency Stability Graph (Band 12)

Band 13 Frequency Stability Measurements

OPERATING FREQUENCY:	782,000,000	Hz
CHANNEL:	23230	
REFERENCE VOLTAGE:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	781,999,970	-30	-0.0000038
100 %		- 30	782,000,064	64	0.0000082
100 %		- 20	782,000,198	198	0.0000253
100 %		- 10	782,000,131	131	0.0000168
100 %		0	781,999,693	-307	-0.0000393
100 %		+ 10	782,000,364	364	0.0000465
100 %		+ 20	781,999,890	-110	-0.0000141
100 %		+ 30	782,000,064	64	0.0000082
100 %		+ 40	781,999,938	-62	-0.0000079
100 %		+ 50	781,999,956	-44	-0.0000056
BATT. ENDPOINT	3.40	+ 20	781,999,916	-84	-0.0000107

Table 7-33. Frequency Stability Data (Band 13)

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 13 Frequency Stability Measurements

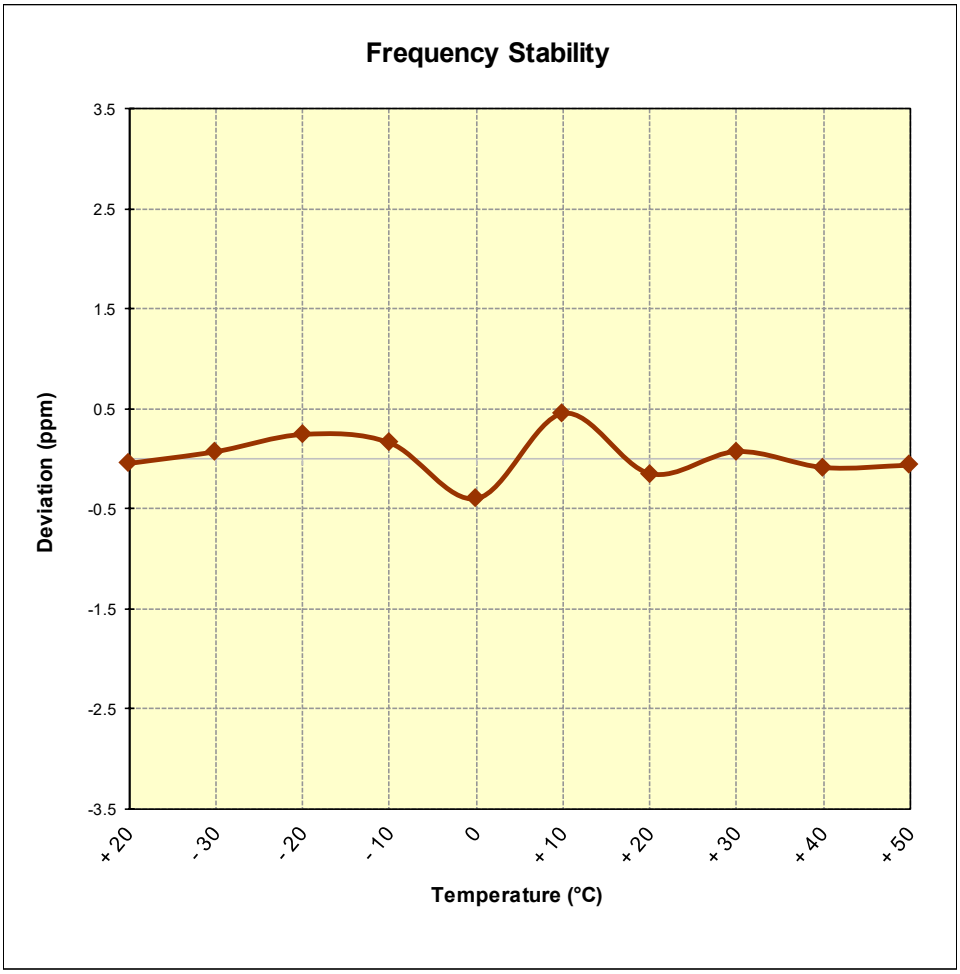


Figure 7-10. Frequency Stability Graph (Band 13)

Band 26 Frequency Stability Measurements

OPERATING FREQUENCY:	831,500,000	Hz
CHANNEL:	26865	
REFERENCE VOLTAGE:	3.85	VDC
DEVIATION LIMIT:	± 0.00025 % or 2.5 ppm	

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	831,499,989	-11	-0.0000013
100 %		- 30	831,500,379	379	0.0000456
100 %		- 20	831,500,126	126	0.0000152
100 %		- 10	831,499,911	-89	-0.0000107
100 %		0	831,499,820	-180	-0.0000216
100 %		+ 10	831,500,098	98	0.0000118
100 %		+ 20	831,500,232	232	0.0000279
100 %		+ 30	831,499,863	-137	-0.0000165
100 %		+ 40	831,499,943	-57	-0.0000069
100 %		+ 50	831,500,362	362	0.0000435
BATT. ENDPOINT	3.40	+ 20	831,500,149	149	0.0000179

Table 7-34. Frequency Stability Data (Band 26)

Band 26 Frequency Stability Measurements

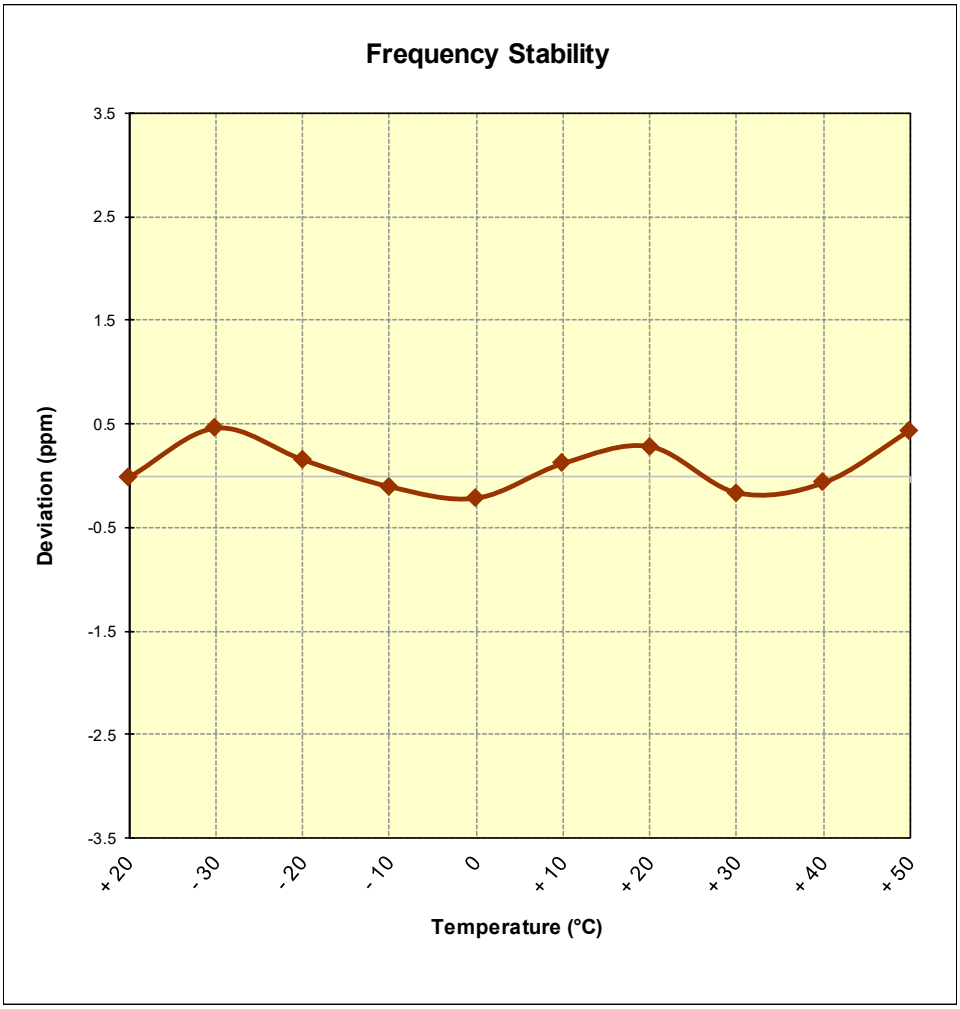


Figure 7-11. Frequency Stability Graph (Band 26)

Band 4 Frequency Stability Measurements

OPERATING FREQUENCY:	1,732,500,000	Hz
CHANNEL:	20175	
REFERENCE VOLTAGE:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,732,499,862	-138	-0.0000080
100 %		- 30	1,732,499,779	-221	-0.0000128
100 %		- 20	1,732,499,836	-164	-0.0000095
100 %		- 10	1,732,500,126	126	0.0000073
100 %		0	1,732,499,853	-147	-0.0000085
100 %		+ 10	1,732,500,245	245	0.0000141
100 %		+ 20	1,732,499,981	-19	-0.0000011
100 %		+ 30	1,732,499,903	-97	-0.0000056
100 %		+ 40	1,732,499,620	-380	-0.0000219
100 %		+ 50	1,732,500,371	371	0.0000214
BATT. ENDPOINT	3.40	+ 20	1,732,500,076	76	0.0000044

Table 7-35. 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

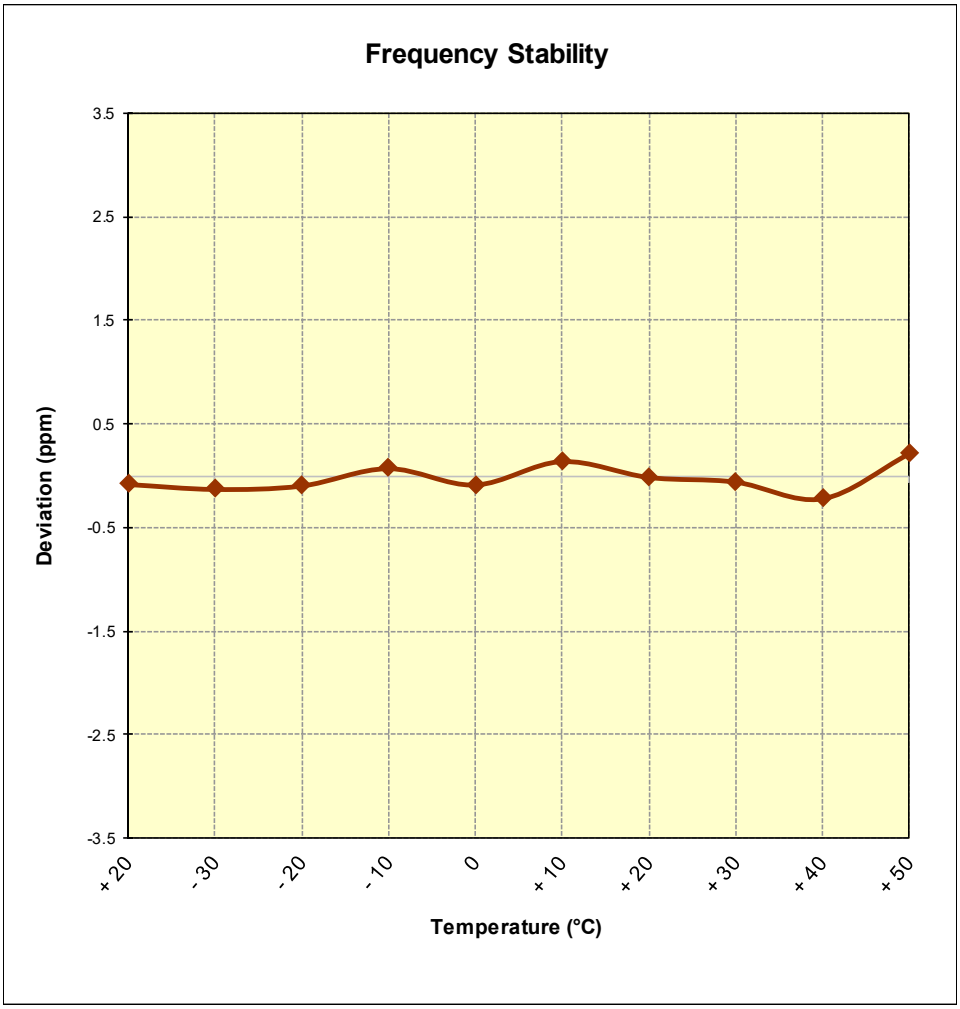


Figure 7-12. Frequency Stability Graph (Band 4)

Band 25 Frequency Stability Measurements

OPERATING FREQUENCY:	1,882,500,000	Hz
CHANNEL:	26365	
REFERENCE VOLTAGE:	3.85	VDC
DEVIATION LIMIT:	± 0.00025 % or 2.5 ppm	

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,882,500,171	171	0.0000091
100 %		- 30	1,882,499,842	-158	-0.0000084
100 %		- 20	1,882,499,723	-277	-0.0000147
100 %		- 10	1,882,499,936	-64	-0.0000034
100 %		0	1,882,499,895	-105	-0.0000056
100 %		+ 10	1,882,500,164	164	0.0000087
100 %		+ 20	1,882,499,905	-95	-0.0000050
100 %		+ 30	1,882,499,783	-217	-0.0000115
100 %		+ 40	1,882,500,102	102	0.0000054
100 %		+ 50	1,882,499,748	-252	-0.0000134
BATT. ENDPOINT	3.40	+ 20	1,882,500,140	140	0.0000074

Table 7-36. Frequency Stability Data (Band 25)

Band 25 Frequency Stability Measurements

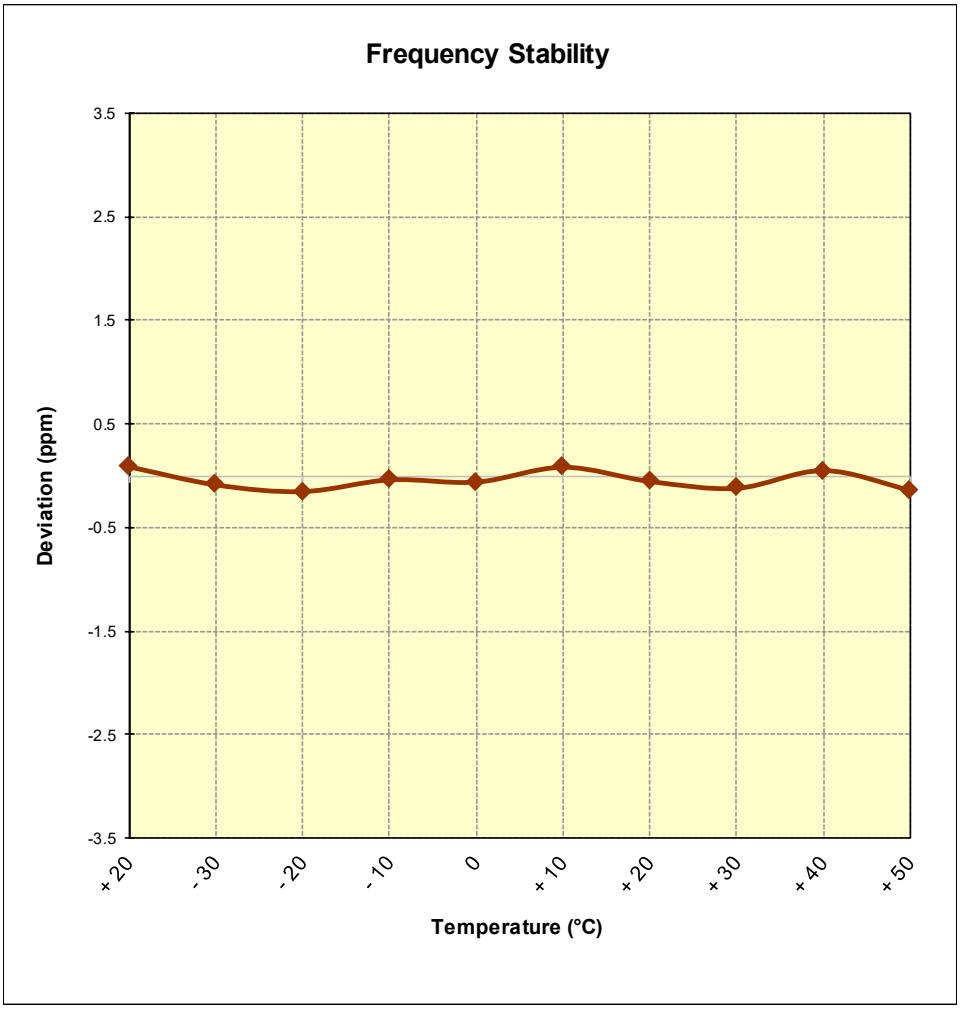


Figure 7-13. Frequency Stability Graph (Band 25)

Band 41 Frequency Stability Measurements

OPERATING FREQUENCY:	2,593,000,000	Hz
CHANNEL:	40620	
REFERENCE VOLTAGE:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	2,592,999,781	-219	-0.0000084
100 %		- 30	2,593,000,059	59	0.0000023
100 %		- 20	2,593,000,013	13	0.0000005
100 %		- 10	2,593,000,389	389	0.0000150
100 %		0	2,593,000,184	184	0.0000071
100 %		+ 10	2,593,000,390	390	0.0000150
100 %		+ 20	2,593,000,029	29	0.0000011
100 %		+ 30	2,593,000,009	9	0.0000003
100 %		+ 40	2,593,000,015	15	0.0000006
100 %		+ 50	2,593,000,218	218	0.0000084
BATT. ENDPOINT	3.40	+ 20	2,593,000,016	16	0.0000006

Table 7-37. 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

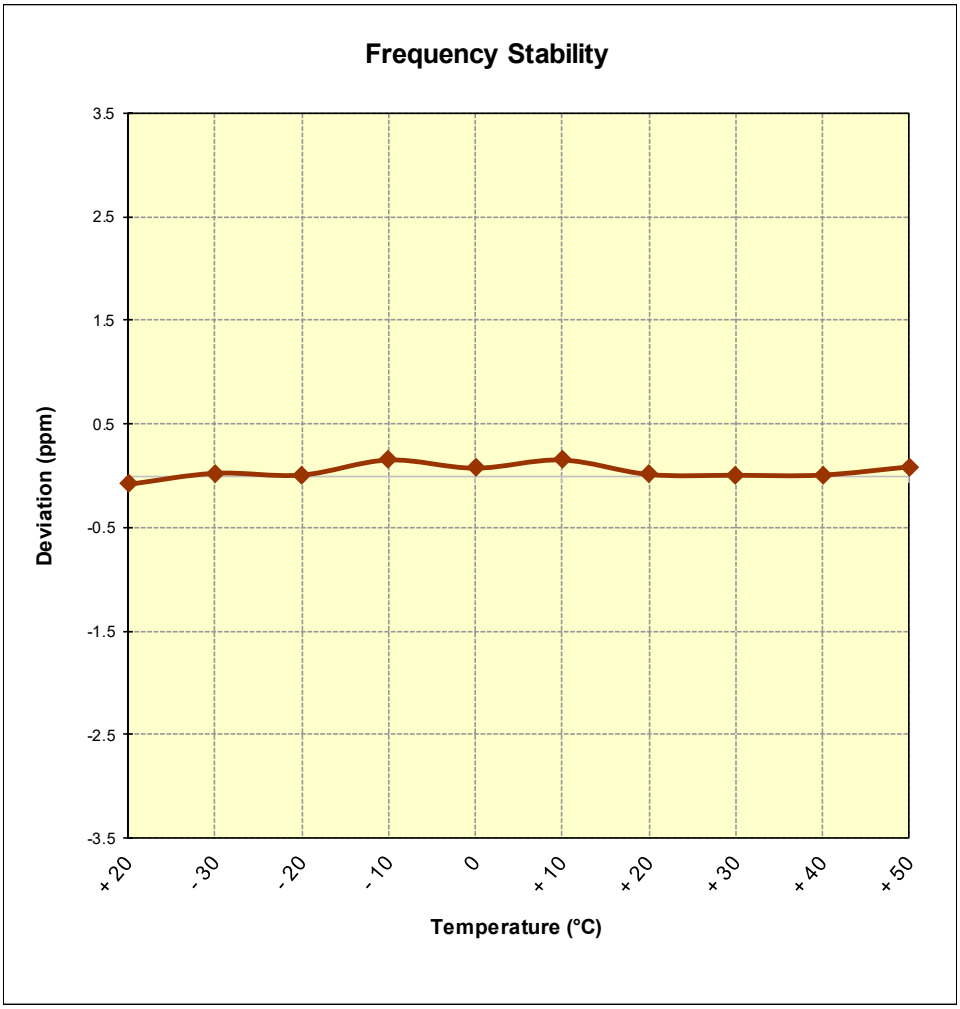


Figure 7-14. Frequency Stability Graph (Band 41)

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFX410PM** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.