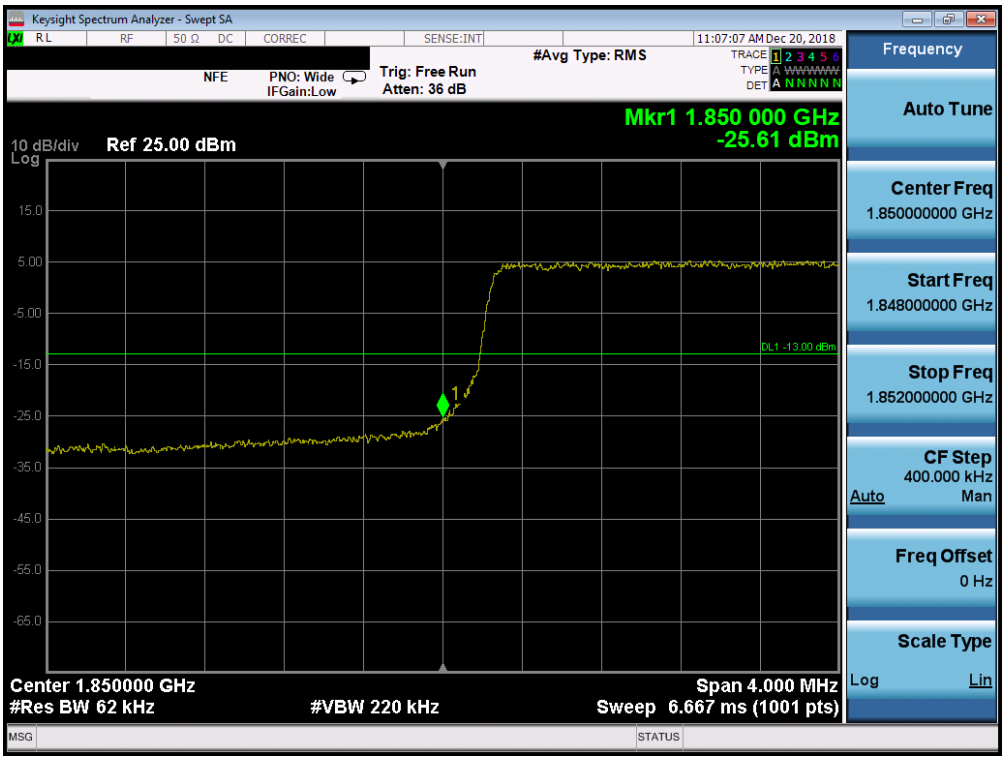
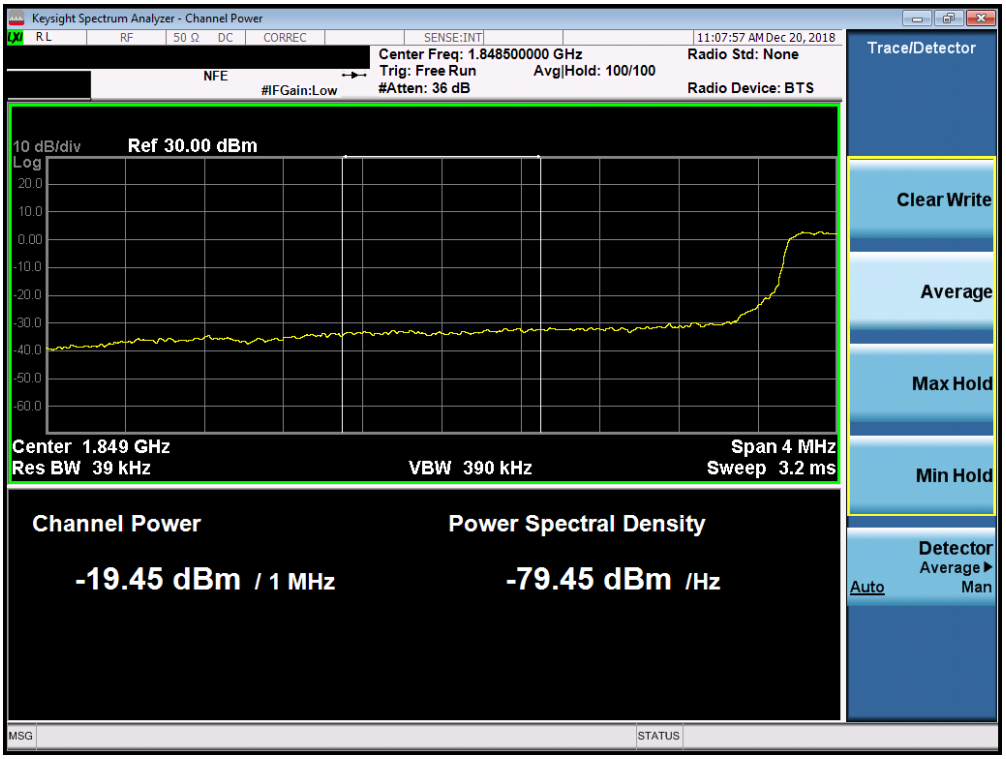


Plot 7-267. Lower Band Edge Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-268. Lower Extended Band Edge Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)

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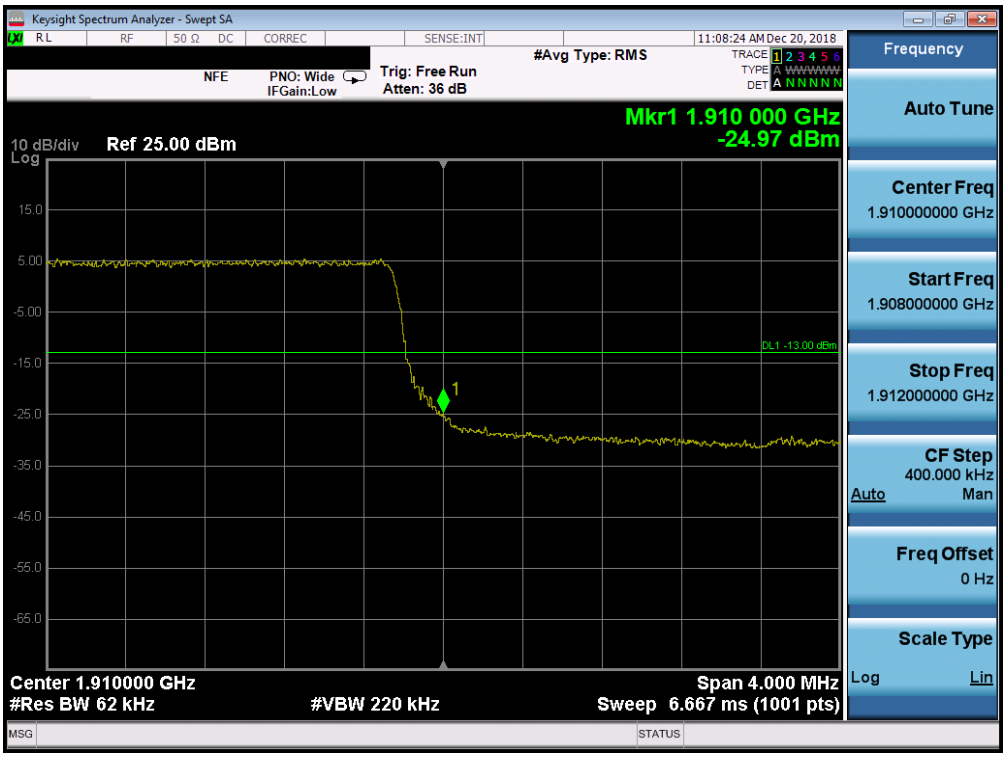
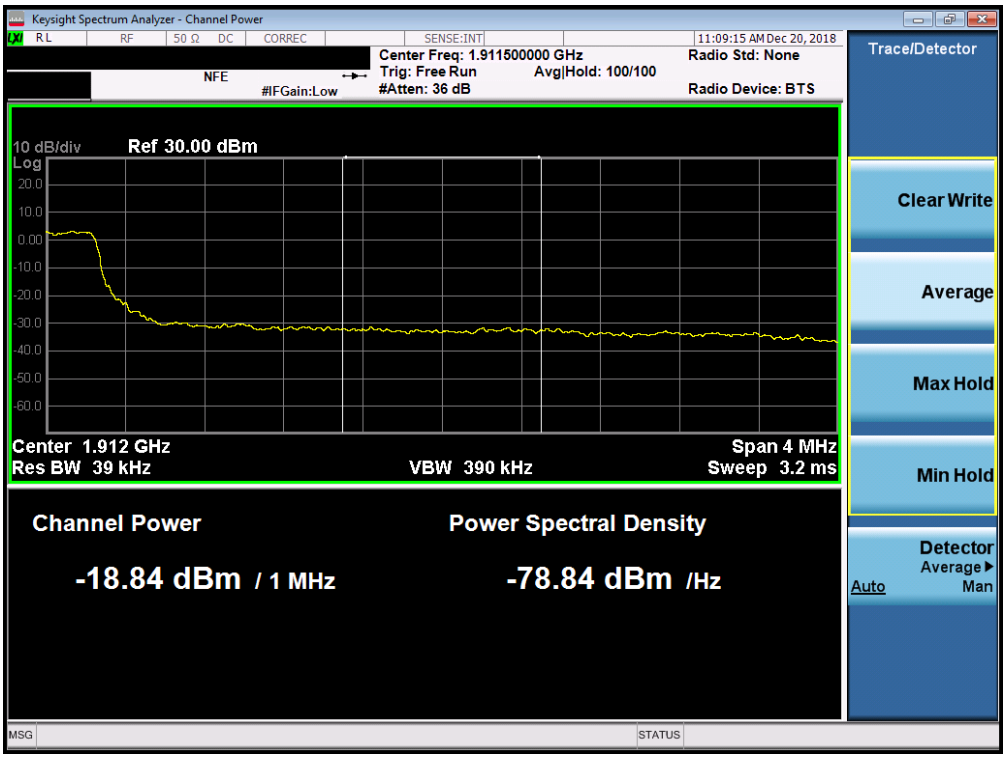


Plot 7-269. Upper Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-270. Upper Extended Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

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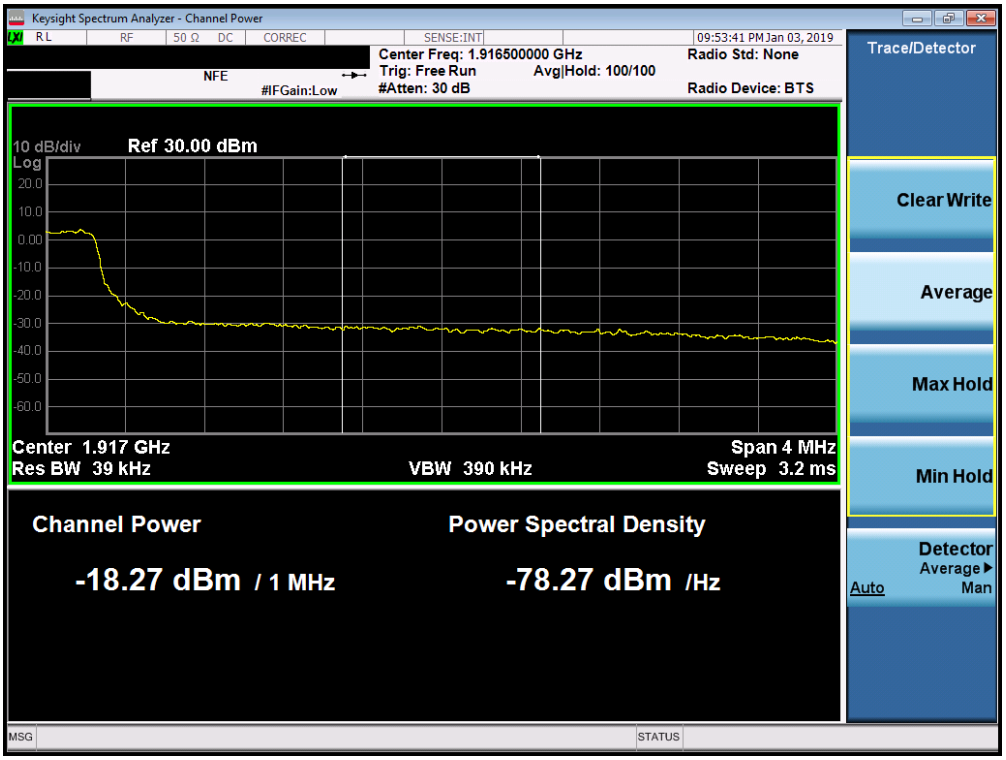
Plot 7-271. Upper Band Edge Plot (Band 25 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-272. Upper Extended Band Edge Plot (Band 25 - 5.0MHz QPSK - Full RB Configuration)

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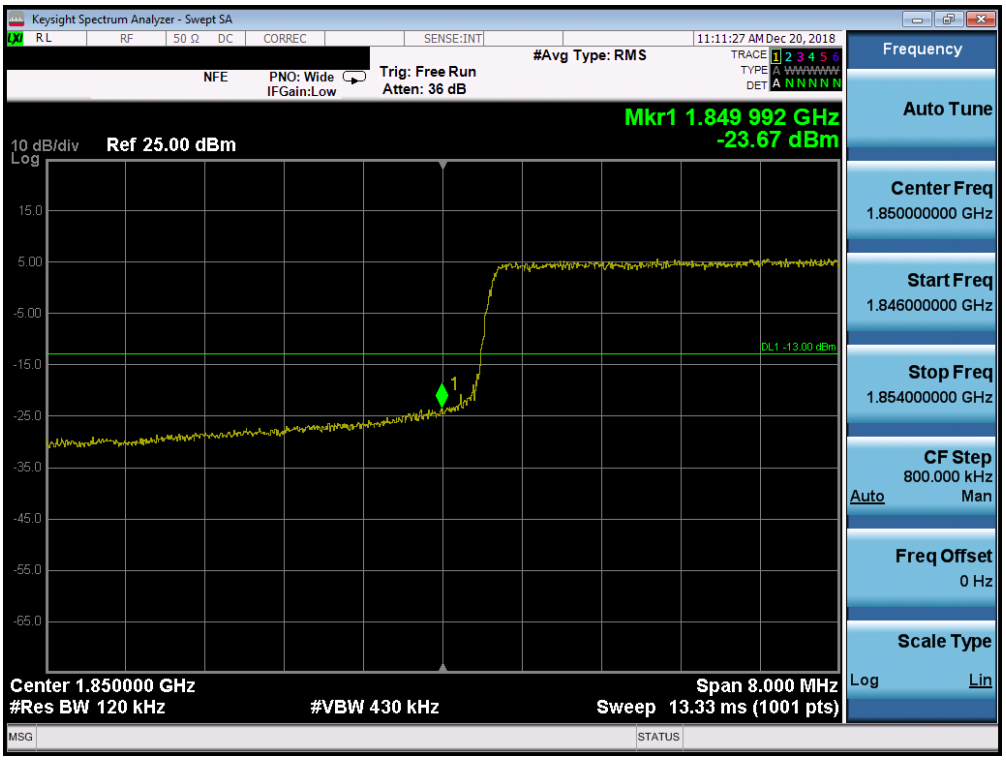
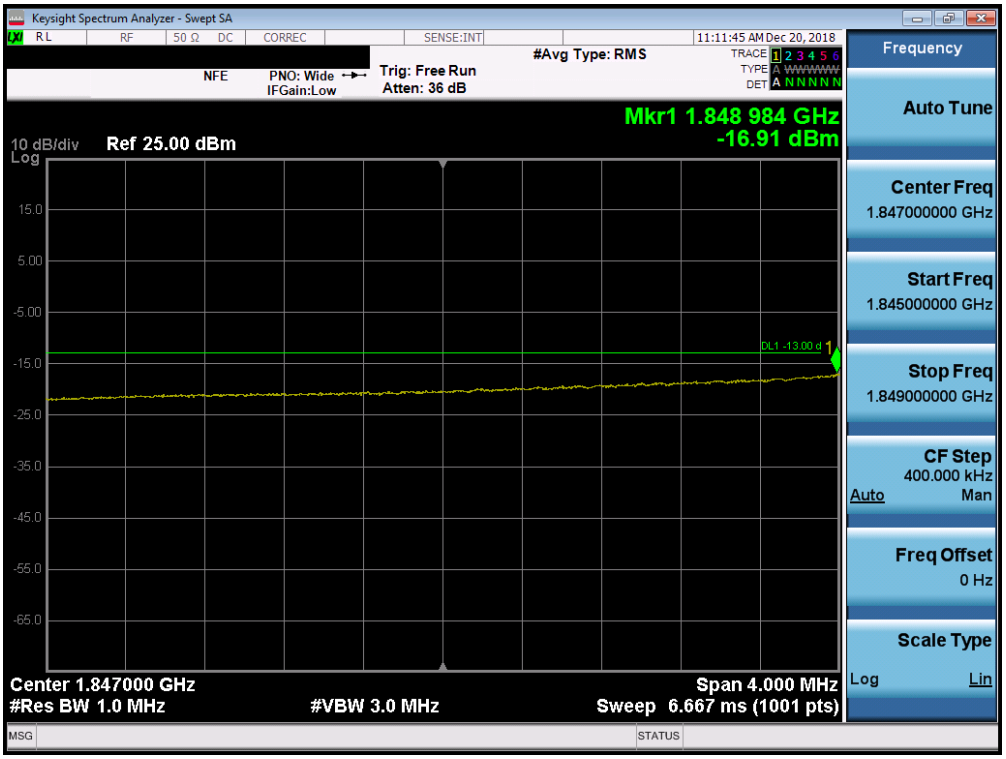


Plot 7-273. Lower Band Edge Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-274. Lower Extended Band Edge Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

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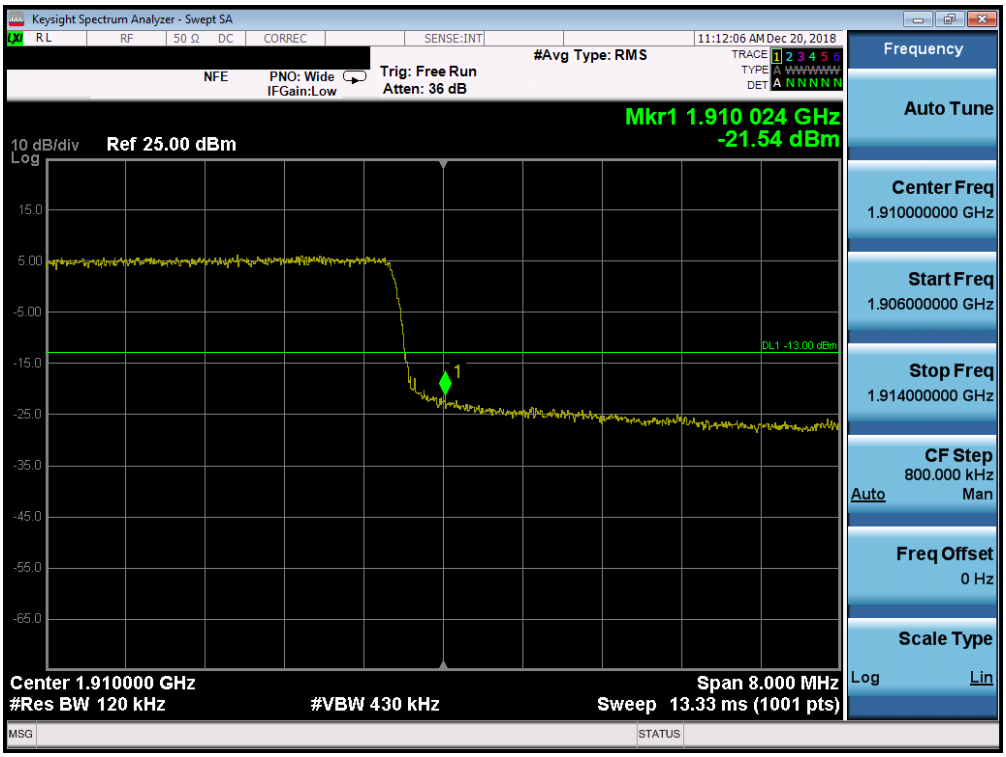
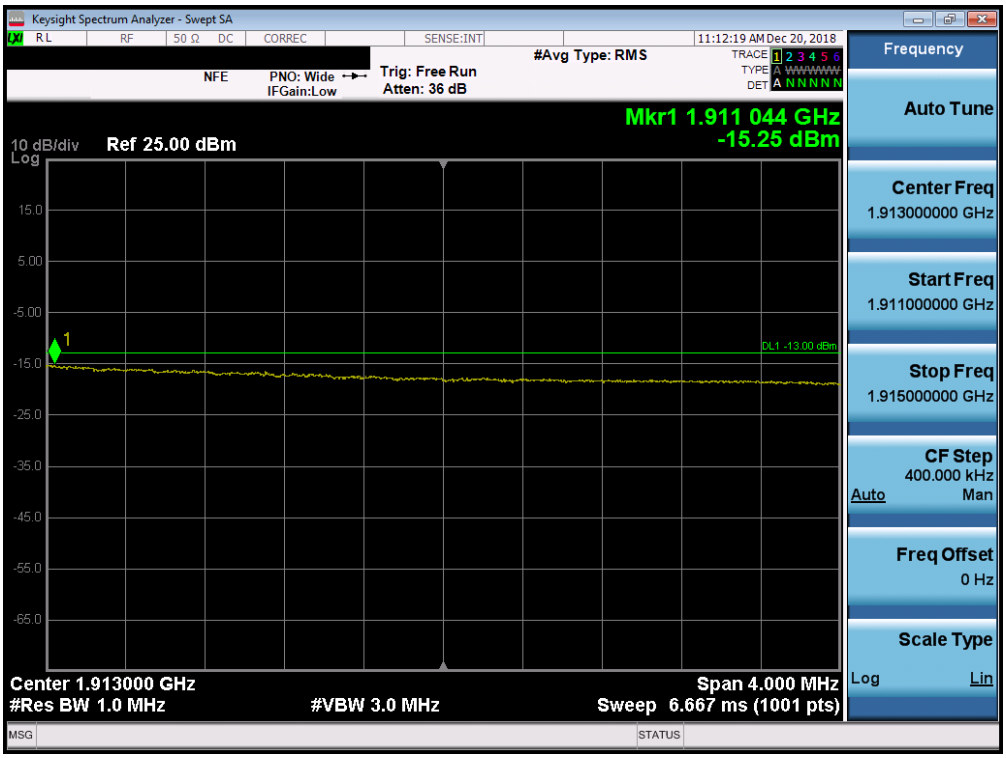


Plot 7-275. Upper Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-276. Upper Extended Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

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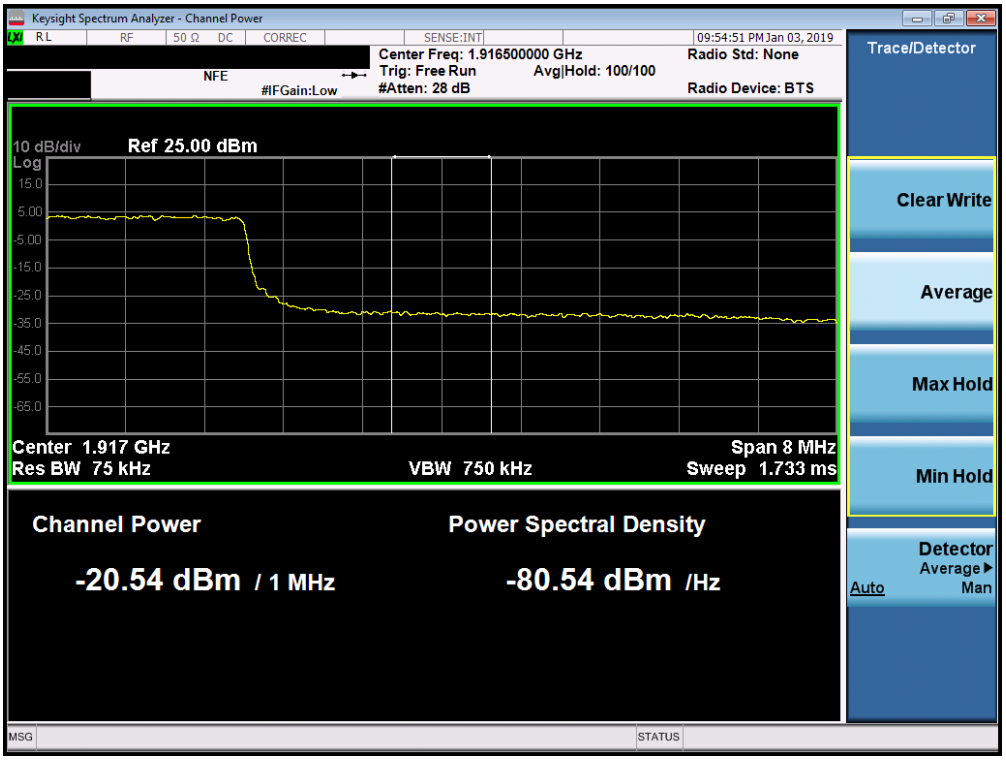
Plot 7-277. Upper Band Edge Plot (Band 25 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-278. Upper Extended Band Edge Plot (Band 25 - 10.0MHz QPSK - Full RB Configuration)

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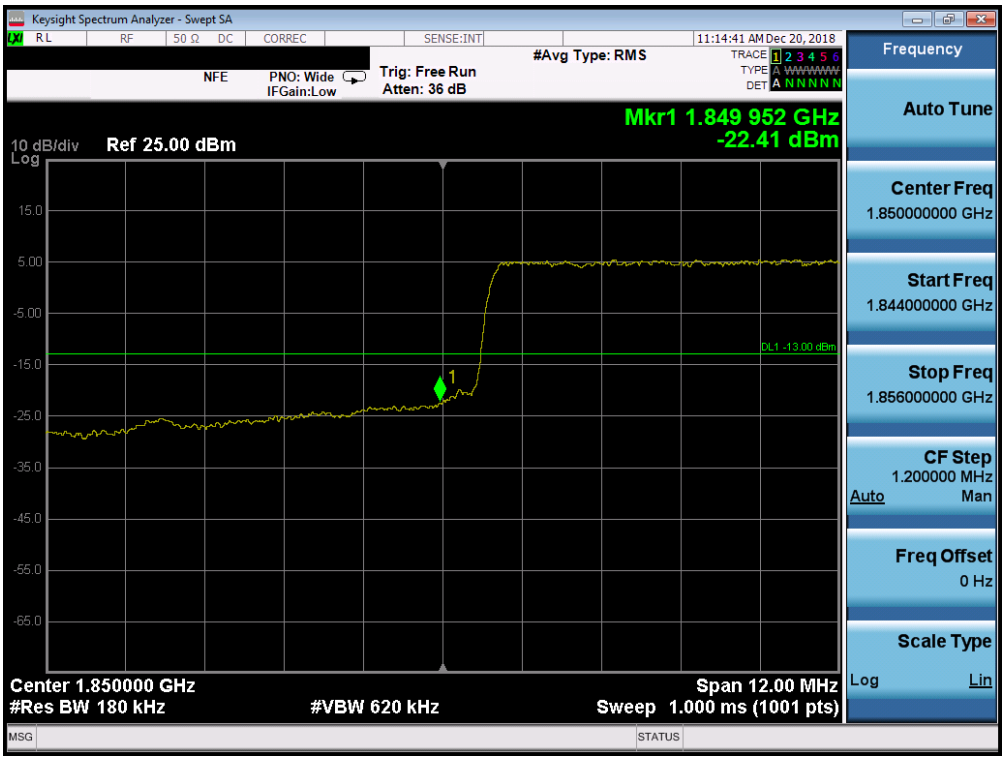
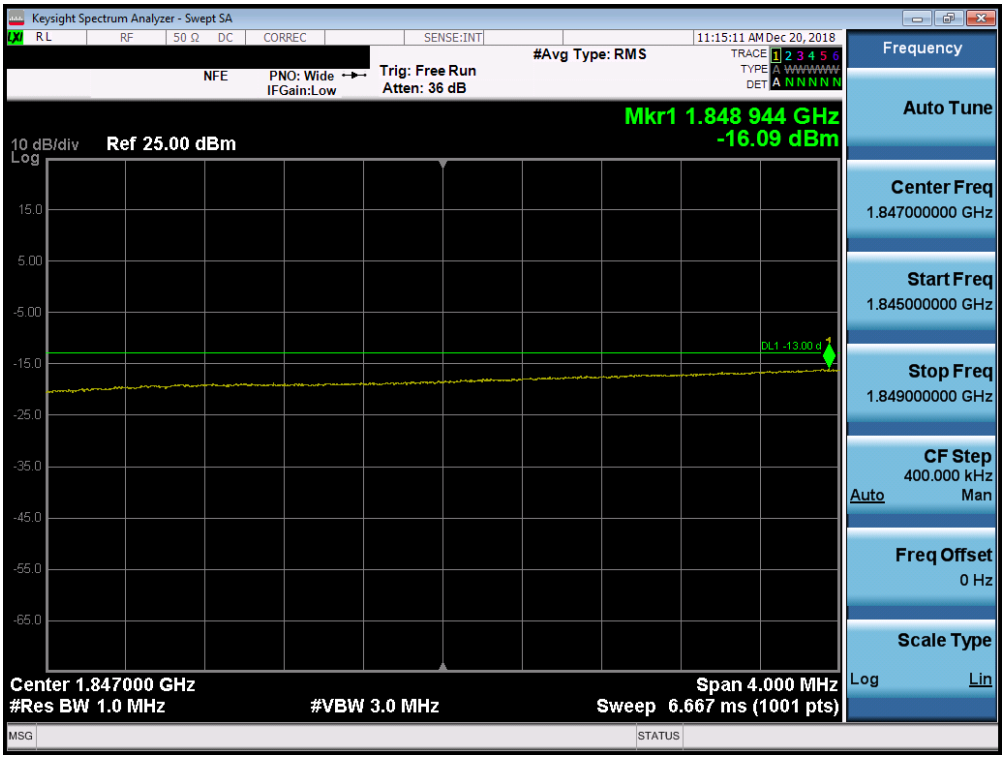


Plot 7-279. Lower Band Edge Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-280. Lower Extended Band Edge Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)

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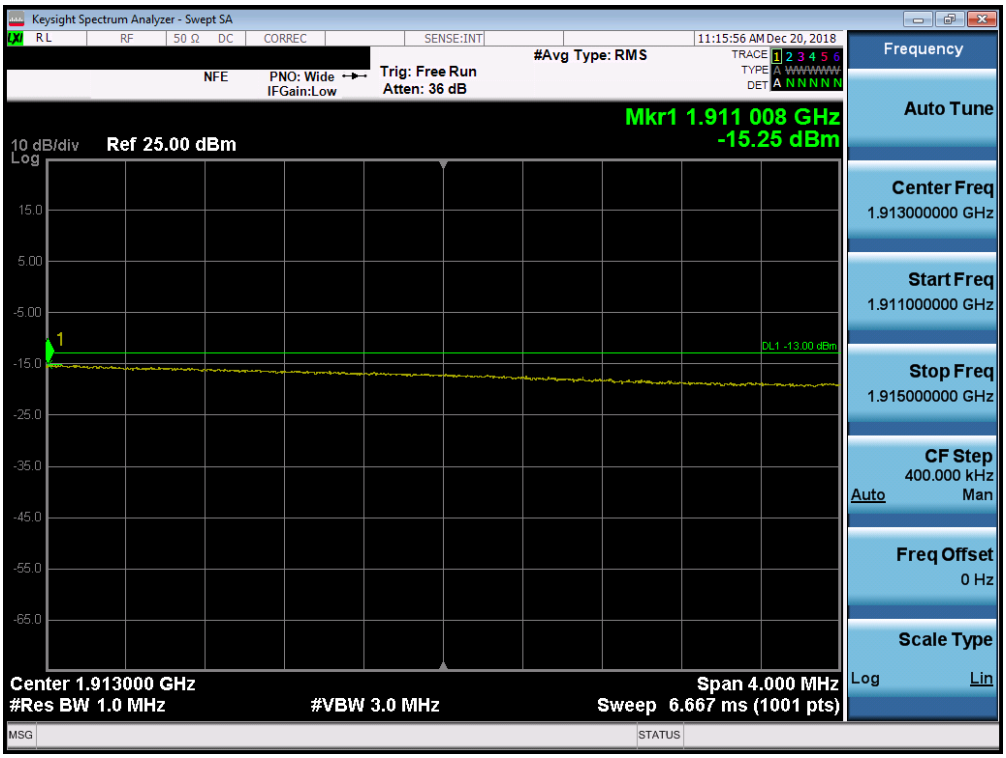
Plot 7-281. Upper Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-282. Upper Extended Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

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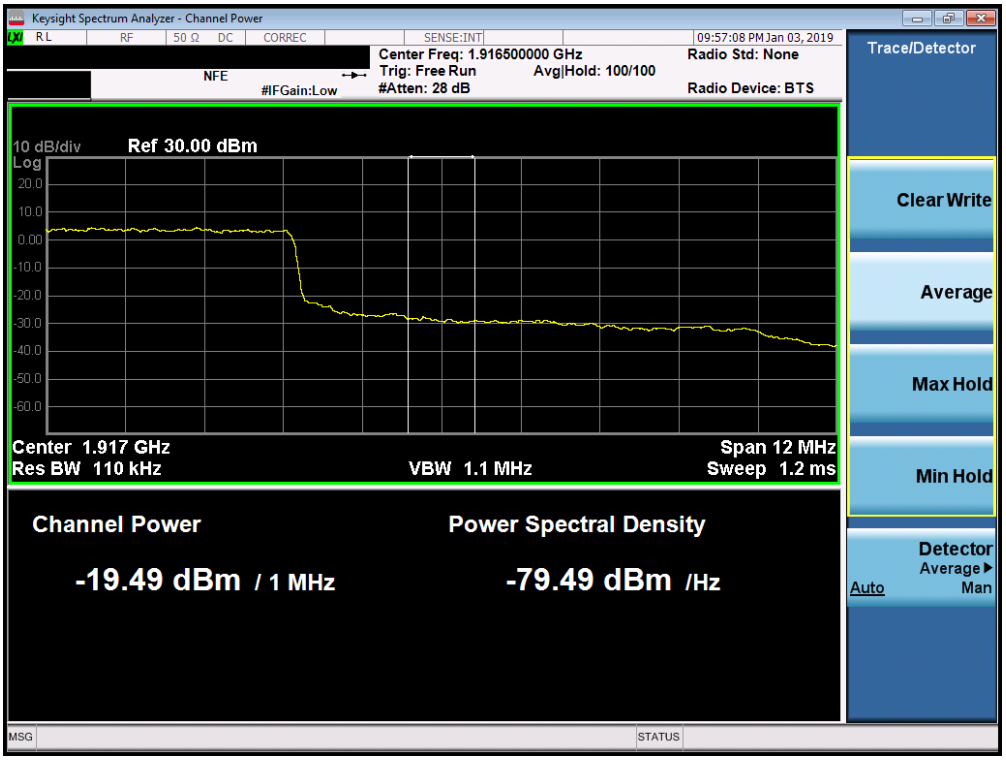
Plot 7-283. Upper Band Edge Plot (Band 25 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-284. Upper Extended Band Edge Plot (Band 25 - 15.0MHz QPSK - Full RB Configuration)

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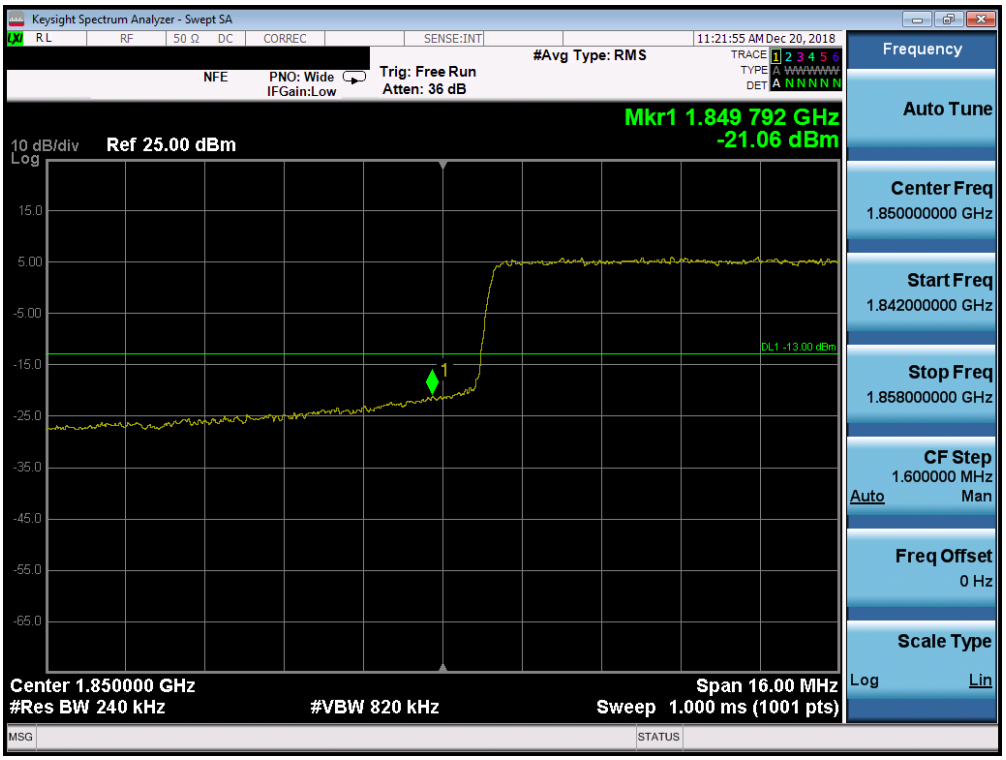
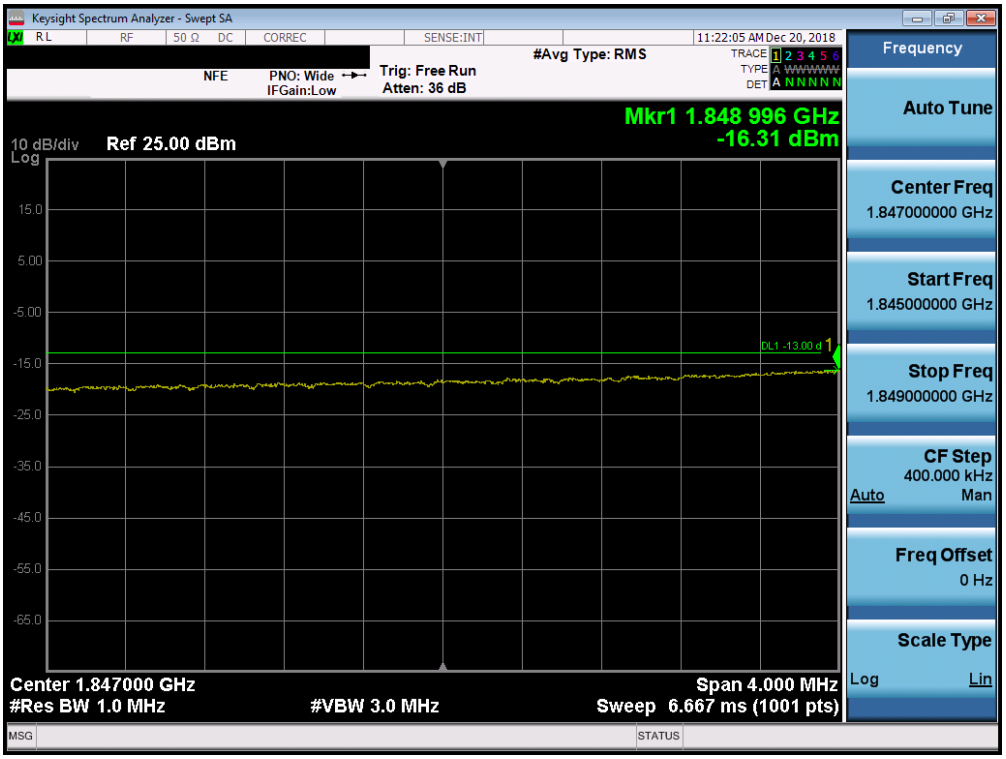


Plot 7-285. Lower Band Edge Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-286. Lower Extended Band Edge Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

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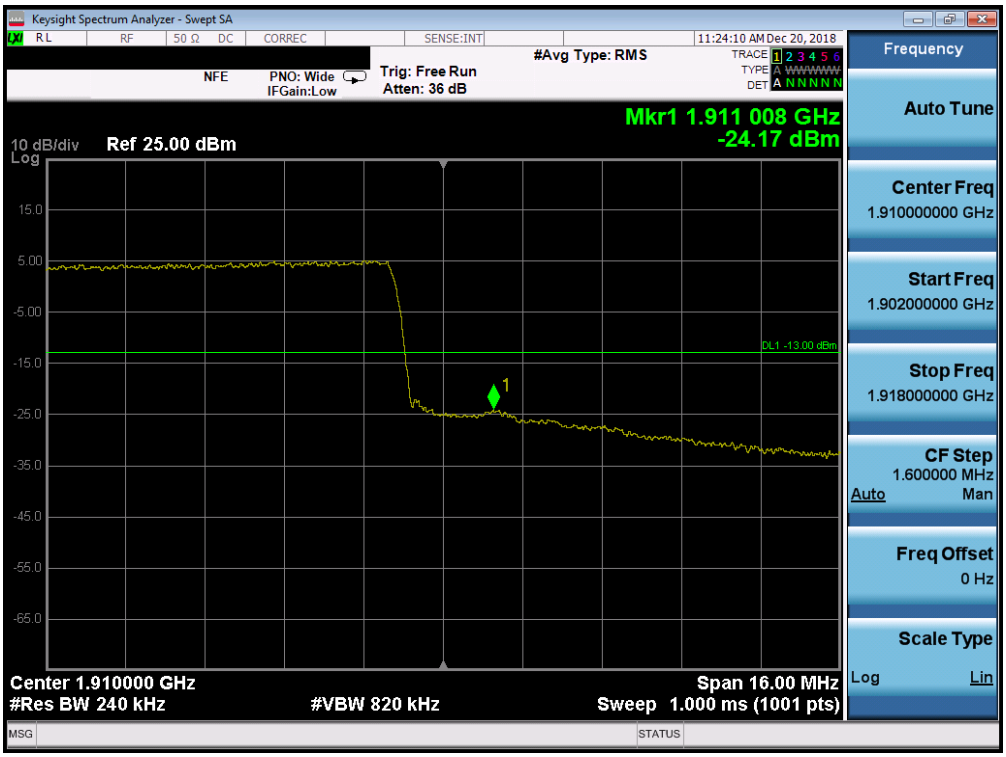
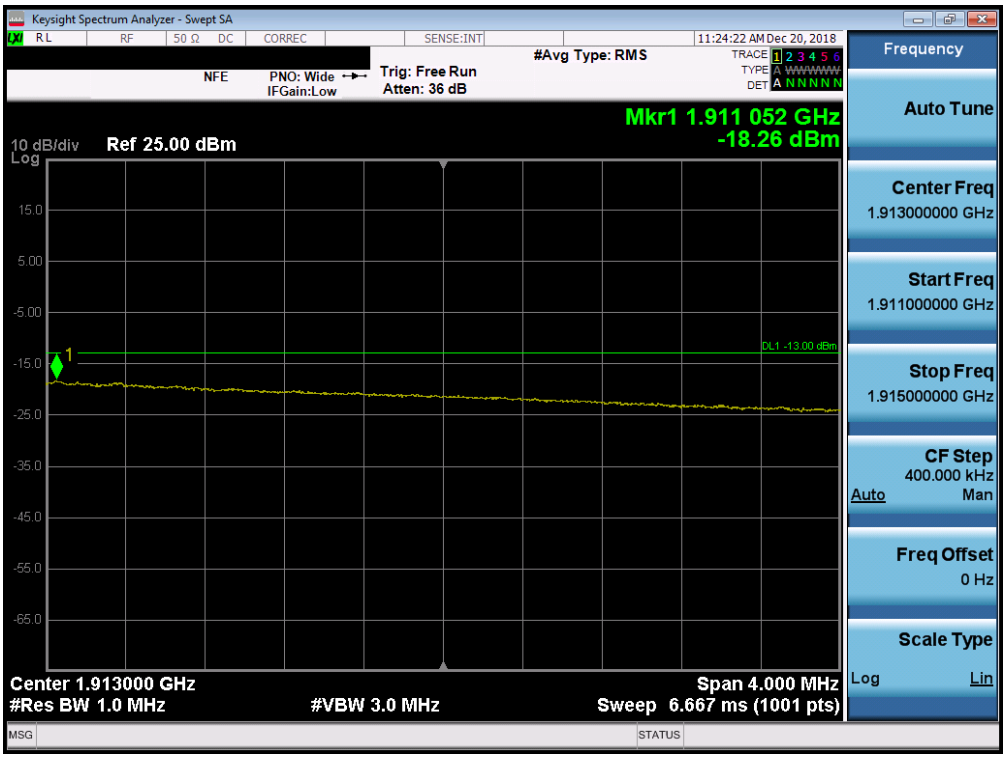


Plot 7-287. Upper Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-288. Upper Extended Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

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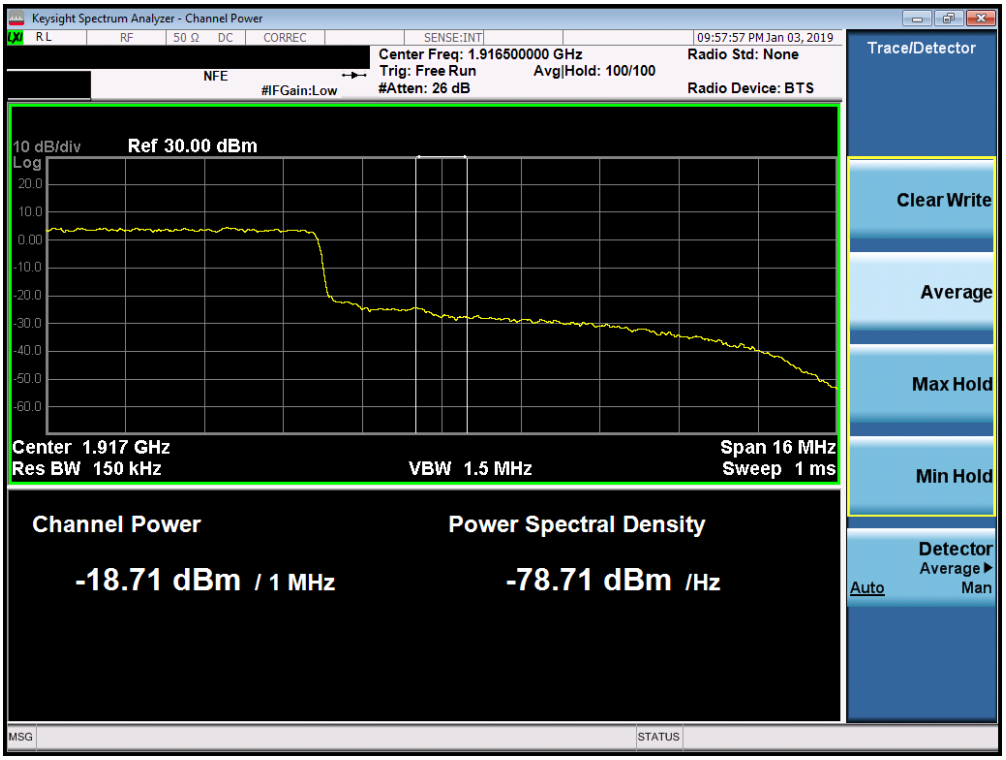
Plot 7-289. Upper Band Edge Plot (Band 25 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-290. Upper Extended Band Edge Plot (Band 25 - 20.0MHz QPSK - Full RB Configuration)

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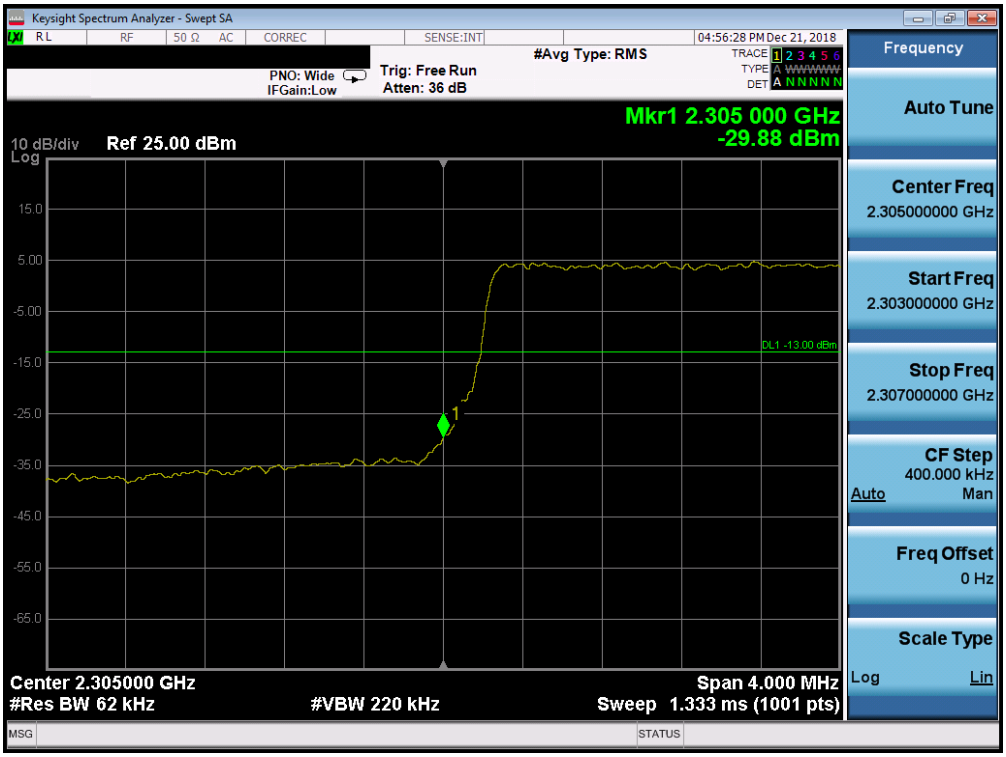
Band 30



Plot 7-291. Lower Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)

Plot 7-292. Lower Extended Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)

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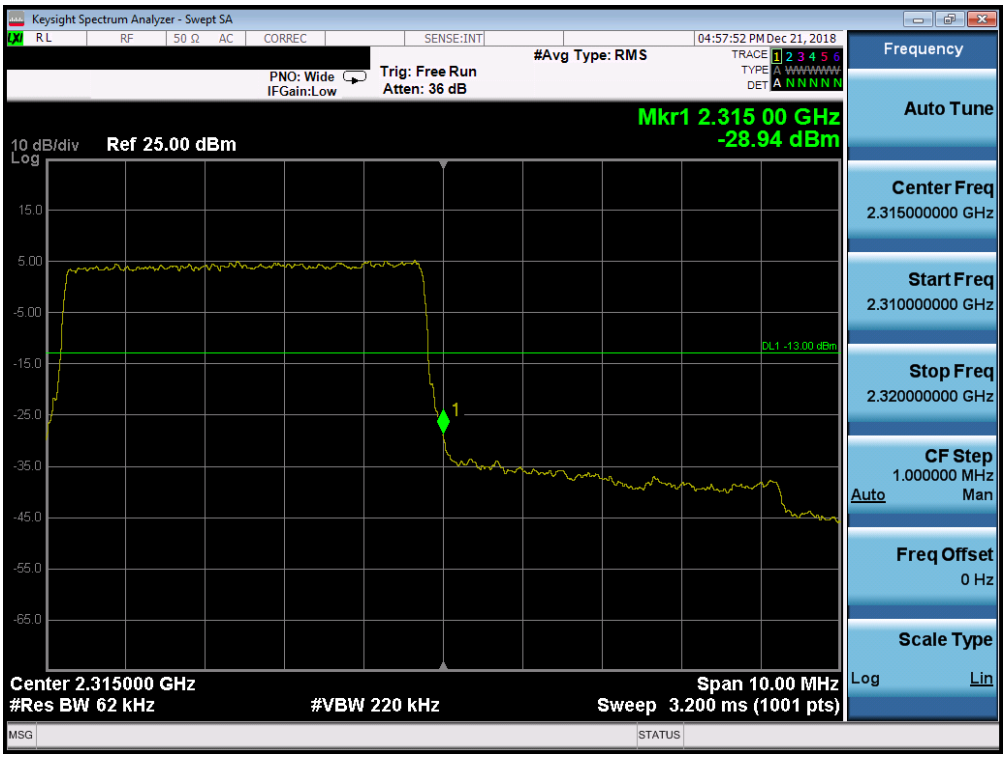

Plot 7-293. Upper Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)

Plot 7-294. Upper Extended Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)

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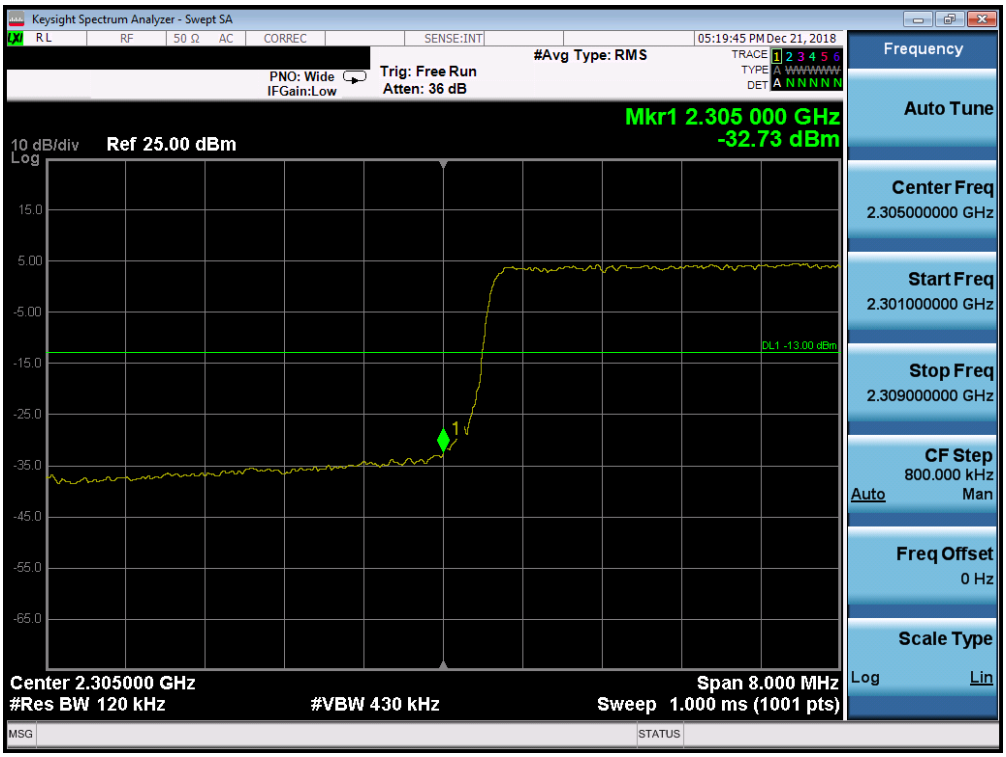

Plot 7-295. Lower Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)

Plot 7-296. Lower Extended Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)

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Plot 7-297. Upper Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)

Plot 7-298. Upper Extended Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)

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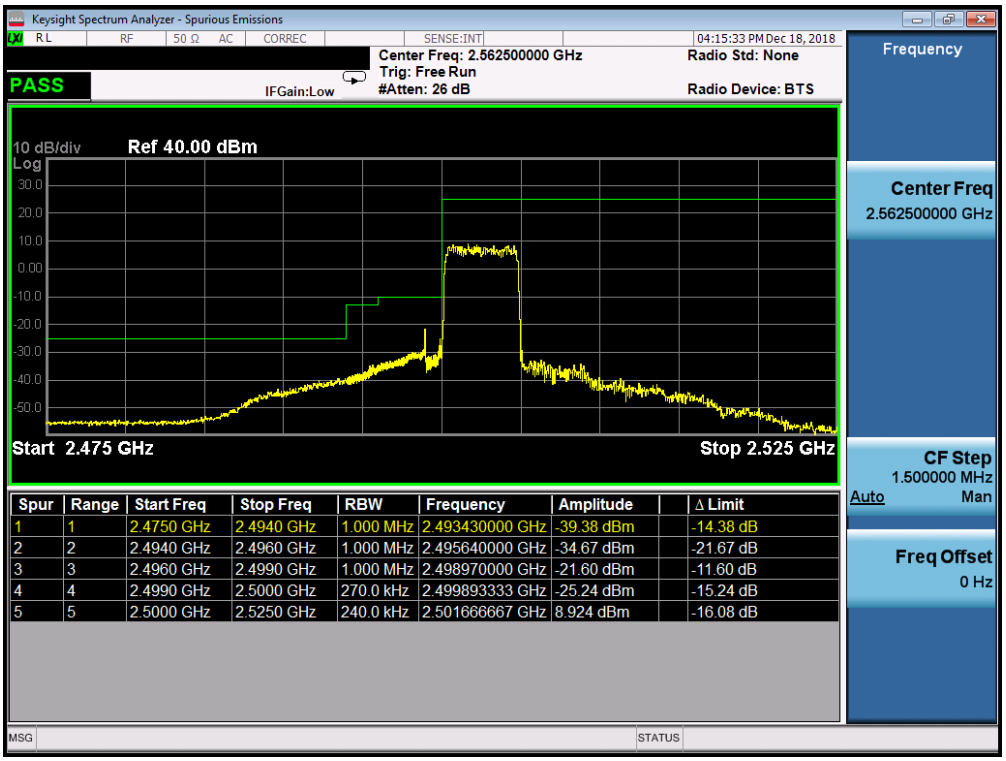
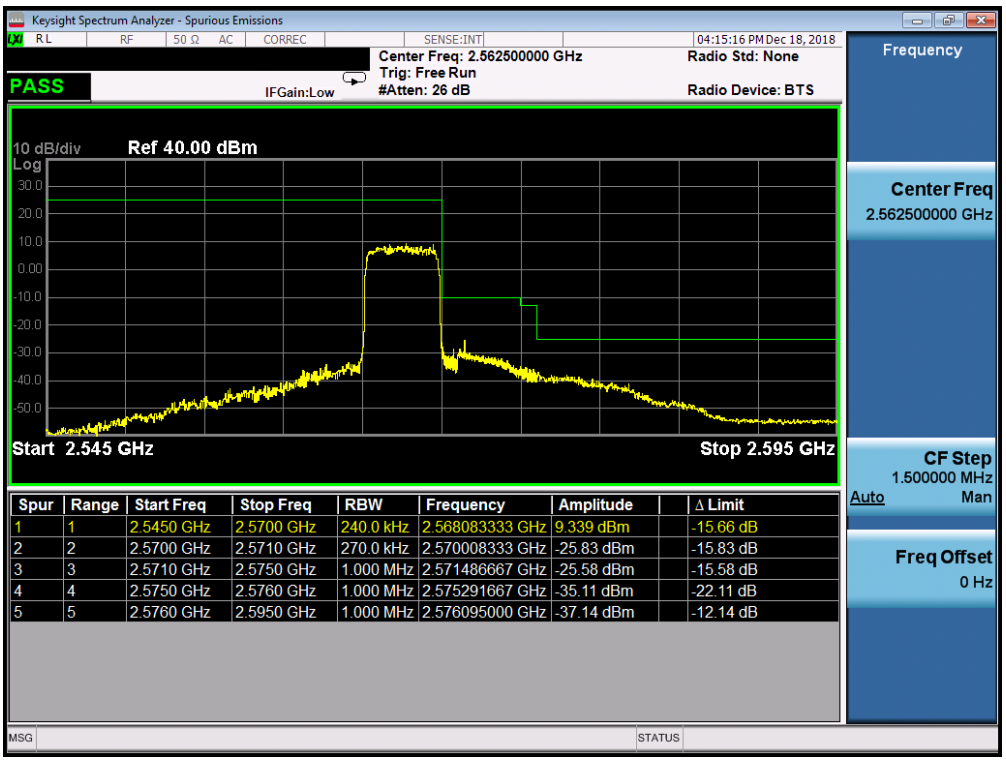
Band 7



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4940 GHz	1.000 MHz	2.493430000 GHz	-39.38 dBm	-14.38 dB
2	2	2.4940 GHz	2.4960 GHz	1.000 MHz	2.495640000 GHz	-34.67 dBm	-21.67 dB
3	3	2.4960 GHz	2.4990 GHz	1.000 MHz	2.498970000 GHz	-21.60 dBm	-11.60 dB
4	4	2.4990 GHz	2.5000 GHz	270.0 kHz	2.499893333 GHz	-25.24 dBm	-15.24 dB
5	5	2.5000 GHz	2.5250 GHz	240.0 kHz	2.501666667 GHz	8.924 dBm	-16.08 dB

Plot 7-299. Lower ACP Plot (Band 7 - 5.0MHz QPSK - Full RB Configuration)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5450 GHz	2.5700 GHz	240.0 kHz	2.568083333 GHz	9.339 dBm	-15.66 dB
2	2	2.5700 GHz	2.5710 GHz	270.0 kHz	2.570008333 GHz	-25.83 dBm	-15.83 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.571486667 GHz	-25.58 dBm	-15.58 dB
4	4	2.5750 GHz	2.5760 GHz	1.000 MHz	2.575291667 GHz	-35.11 dBm	-22.11 dB
5	5	2.5760 GHz	2.5950 GHz	1.000 MHz	2.576095000 GHz	-37.14 dBm	-12.14 dB

Plot 7-300. Upper ACP Plot (Band 7 - 5.0MHz QPSK - Full RB Configuration)

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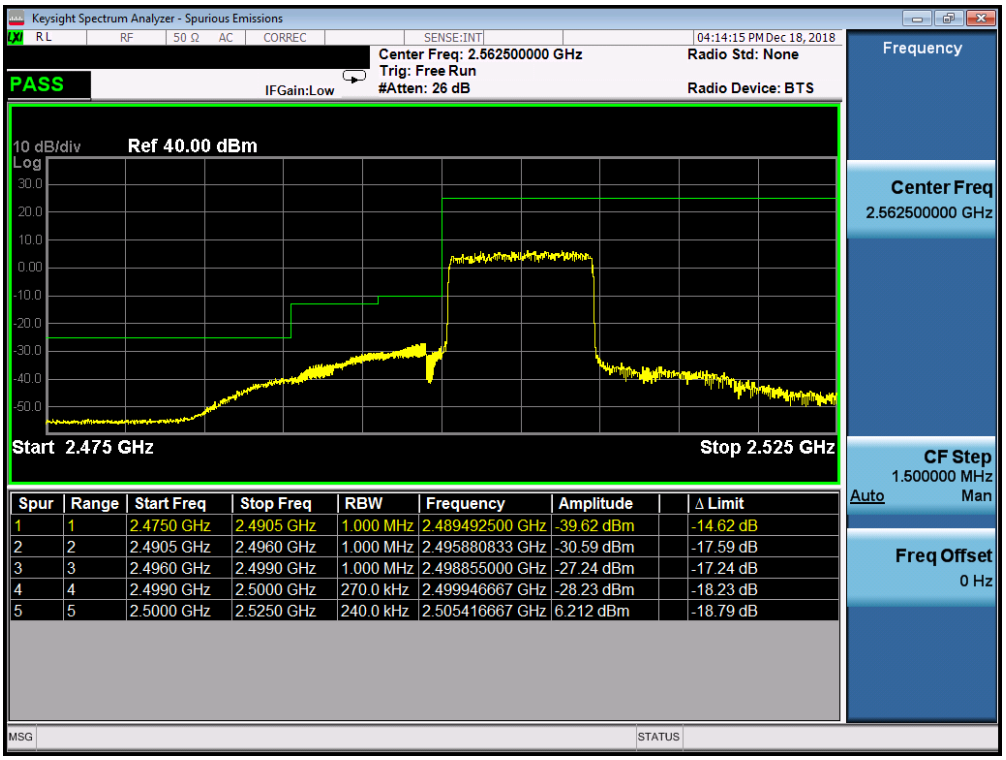
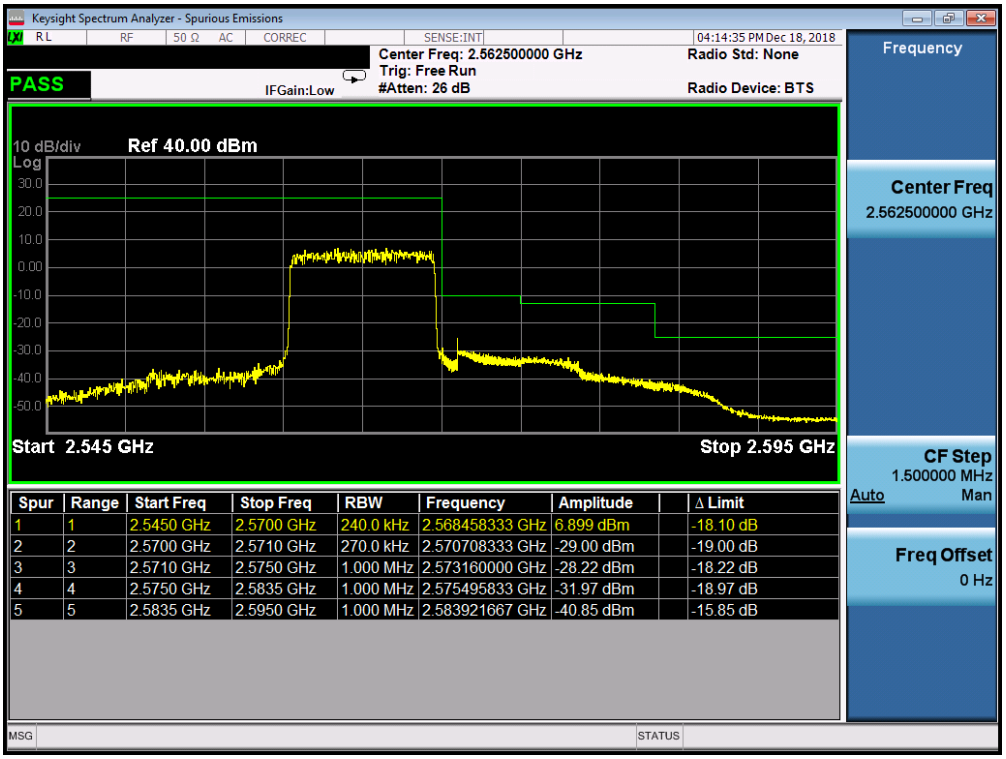


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.489492500 GHz	-39.62 dBm	-14.62 dB
2	2	2.4905 GHz	2.4960 GHz	1.000 MHz	2.495880833 GHz	-30.59 dBm	-17.59 dB
3	3	2.4960 GHz	2.4990 GHz	1.000 MHz	2.498855000 GHz	-27.24 dBm	-17.24 dB
4	4	2.4990 GHz	2.5000 GHz	270.0 kHz	2.499946667 GHz	-28.23 dBm	-18.23 dB
5	5	2.5000 GHz	2.5250 GHz	240.0 kHz	2.505416667 GHz	6.212 dBm	-18.79 dB

Plot 7-301. Lower ACP Plot (Band 7 - 10.0MHz QPSK - Full RB Configuration)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5450 GHz	2.5700 GHz	240.0 kHz	2.568458333 GHz	6.899 dBm	-18.10 dB
2	2	2.5700 GHz	2.5710 GHz	270.0 kHz	2.570708333 GHz	-29.00 dBm	-19.00 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.573160000 GHz	-28.22 dBm	-18.22 dB
4	4	2.5750 GHz	2.5835 GHz	1.000 MHz	2.575495833 GHz	-31.97 dBm	-18.97 dB
5	5	2.5835 GHz	2.5950 GHz	1.000 MHz	2.583921667 GHz	-40.85 dBm	-15.85 dB

Plot 7-302. Upper ACP Plot (Band 7 - 10.0MHz QPSK - Full RB Configuration)

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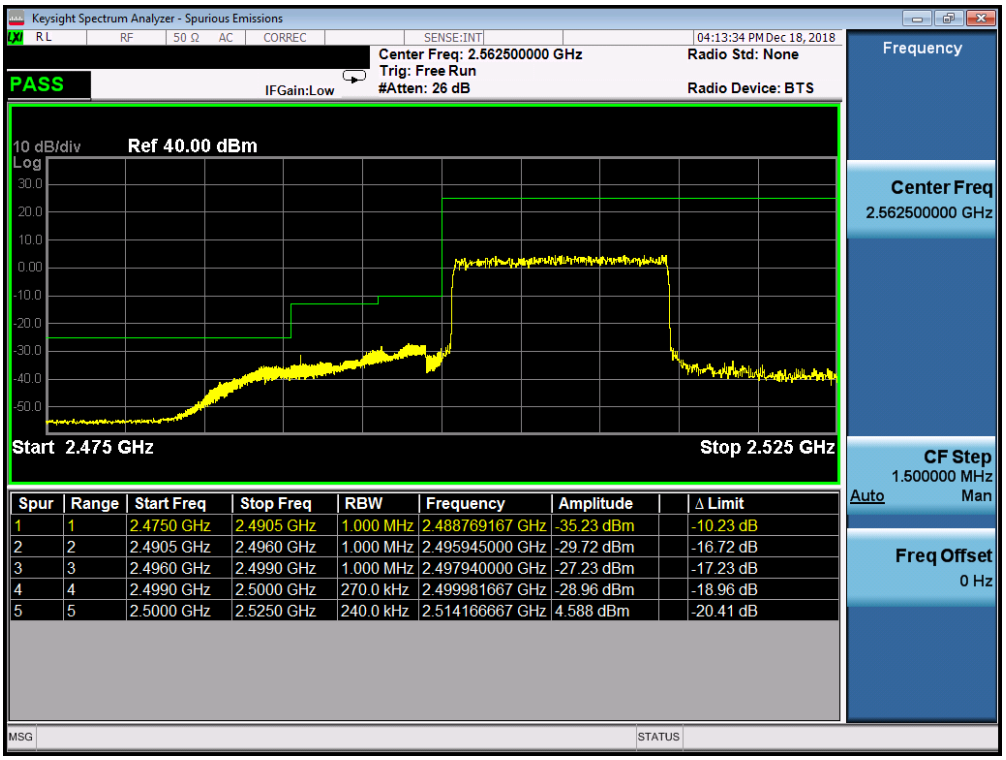

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.488769167 GHz	-35.23 dBm	-10.23 dB
2	2	2.4905 GHz	2.4960 GHz	1.000 MHz	2.495945000 GHz	-29.72 dBm	-16.72 dB
3	3	2.4960 GHz	2.4990 GHz	1.000 MHz	2.497940000 GHz	-27.23 dBm	-17.23 dB
4	4	2.4990 GHz	2.5000 GHz	270.0 kHz	2.499981667 GHz	-28.96 dBm	-18.96 dB
5	5	2.5000 GHz	2.5250 GHz	240.0 kHz	2.514166667 GHz	4.588 dBm	-20.41 dB

Plot 7-303. Lower ACP Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5450 GHz	2.5700 GHz	240.0 kHz	2.562250000 GHz	4.830 dBm	-20.17 dB
2	2	2.5700 GHz	2.5710 GHz	270.0 kHz	2.570065000 GHz	-31.56 dBm	-21.56 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.573193333 GHz	-26.31 dBm	-16.31 dB
4	4	2.5750 GHz	2.5835 GHz	1.000 MHz	2.578980833 GHz	-31.49 dBm	-18.49 dB
5	5	2.5835 GHz	2.5950 GHz	1.000 MHz	2.583672500 GHz	-36.33 dBm	-11.33 dB

Plot 7-304. Upper ACP Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)

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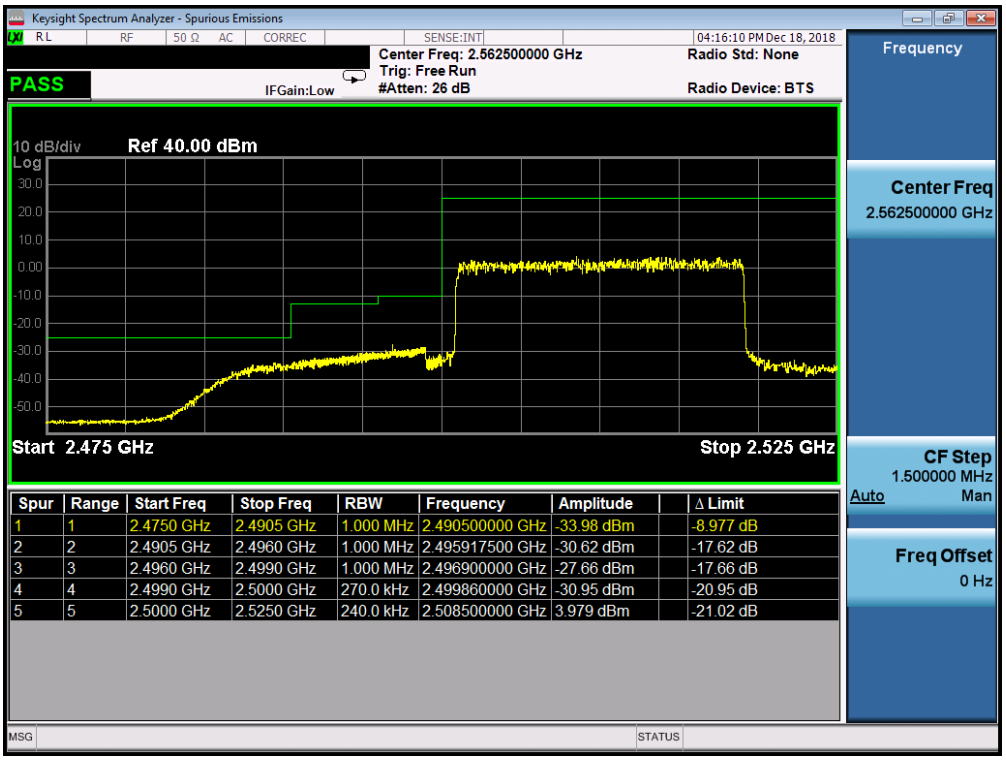
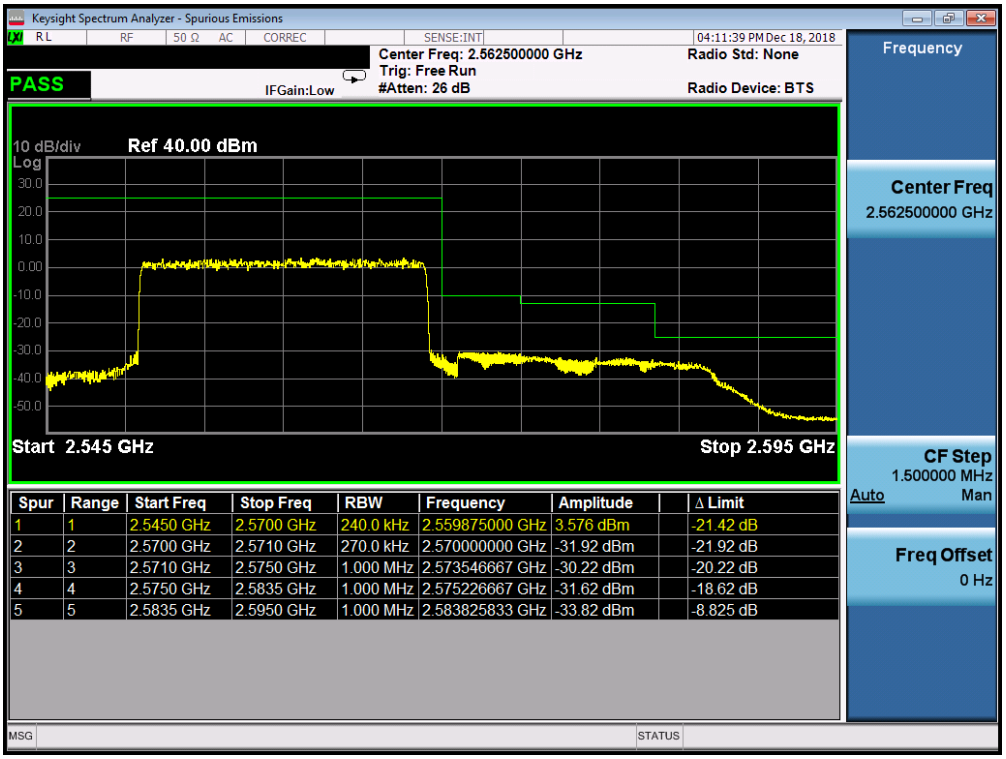


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490500000 GHz	-33.98 dBm	-8.977 dB
2	2	2.4905 GHz	2.4960 GHz	1.000 MHz	2.495917500 GHz	-30.62 dBm	-17.62 dB
3	3	2.4960 GHz	2.4990 GHz	1.000 MHz	2.496900000 GHz	-27.66 dBm	-17.66 dB
4	4	2.4990 GHz	2.5000 GHz	270.0 kHz	2.499860000 GHz	-30.95 dBm	-20.95 dB
5	5	2.5000 GHz	2.5250 GHz	240.0 kHz	2.508500000 GHz	3.979 dBm	-21.02 dB

Plot 7-305. Lower ACP Plot (Band 7 - 20.0MHz QPSK - Full RB Configuration)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5450 GHz	2.5700 GHz	240.0 kHz	2.559875000 GHz	3.576 dBm	-21.42 dB
2	2	2.5700 GHz	2.5710 GHz	270.0 kHz	2.570000000 GHz	-31.92 dBm	-21.92 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.573546667 GHz	-30.22 dBm	-20.22 dB
4	4	2.5750 GHz	2.5835 GHz	1.000 MHz	2.575226667 GHz	-31.62 dBm	-18.62 dB
5	5	2.5835 GHz	2.5950 GHz	1.000 MHz	2.583825833 GHz	-33.82 dBm	-8.825 dB

Plot 7-306. Upper ACP Plot (Band 7 - 20.0MHz QPSK - Full RB Configuration)

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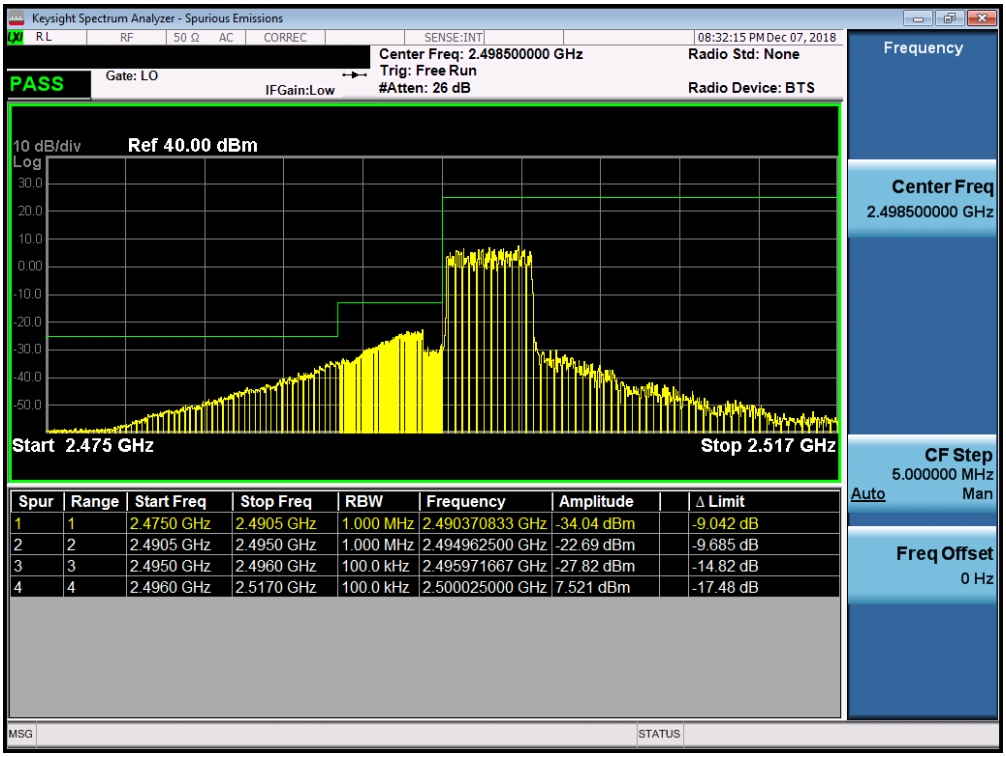
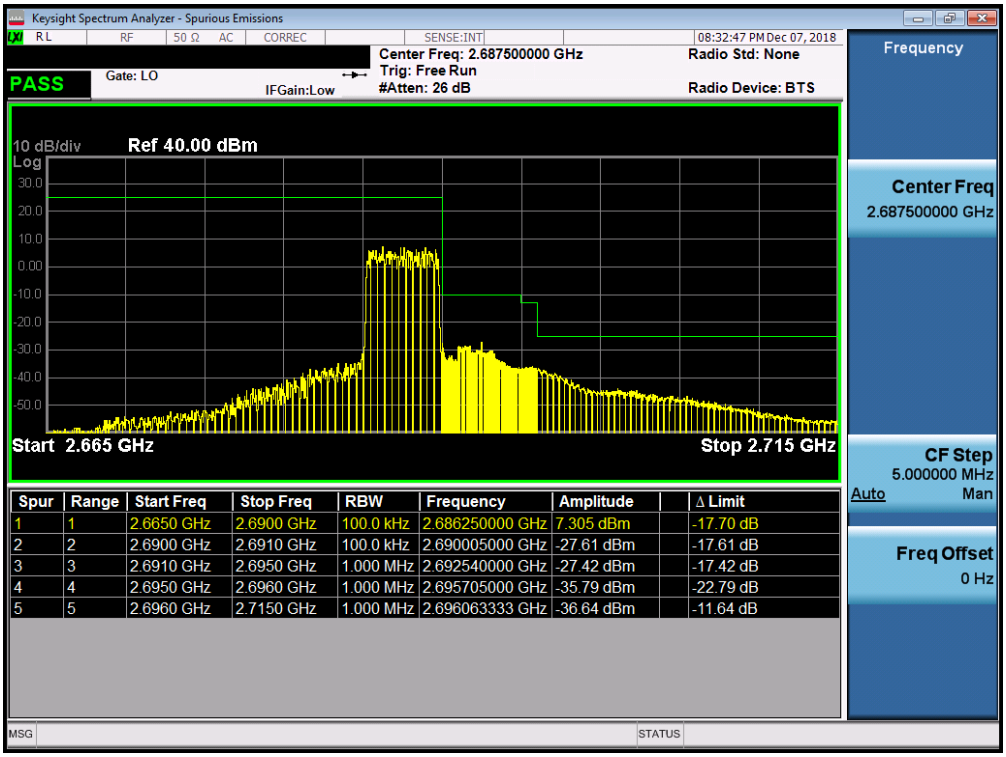
Band 41 PC2



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490370833 GHz	-34.04 dBm	-9.042 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494962500 GHz	-22.69 dBm	-9.685 dB
3	3	2.4950 GHz	2.4960 GHz	100.0 kHz	2.495971667 GHz	-27.82 dBm	-14.82 dB
4	4	2.4960 GHz	2.5170 GHz	100.0 kHz	2.500025000 GHz	7.521 dBm	-17.48 dB

Plot 7-307. Lower ACP Plot at 2496 MHz (Band 41 PC2 - 5.0MHz QPSK - Full RB Configuration)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	100.0 kHz	2.686250000 GHz	7.305 dBm	-17.70 dB
2	2	2.6900 GHz	2.6910 GHz	100.0 kHz	2.690005000 GHz	-27.61 dBm	-17.61 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.692540000 GHz	-27.42 dBm	-17.42 dB
4	4	2.6950 GHz	2.6960 GHz	1.000 MHz	2.695705000 GHz	-35.79 dBm	-22.79 dB
5	5	2.6960 GHz	2.7150 GHz	1.000 MHz	2.696063333 GHz	-36.64 dBm	-11.64 dB

Plot 7-308. Upper ACP Plot (Band 41 PC2 - 5.0MHz QPSK - Full RB Configuration)

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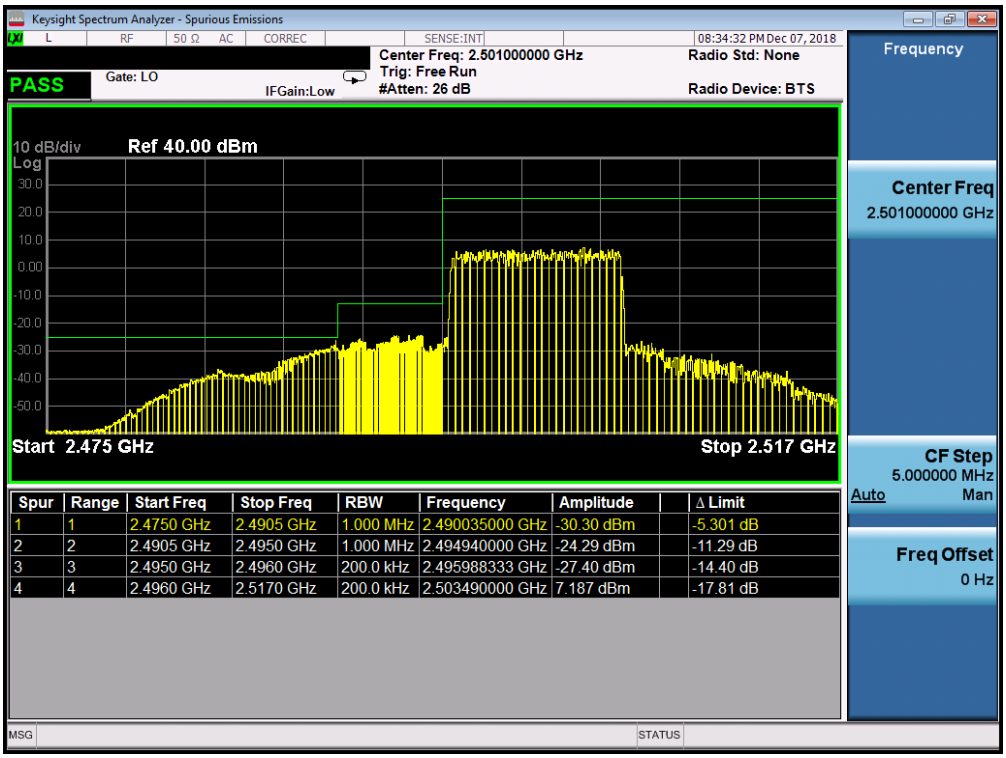
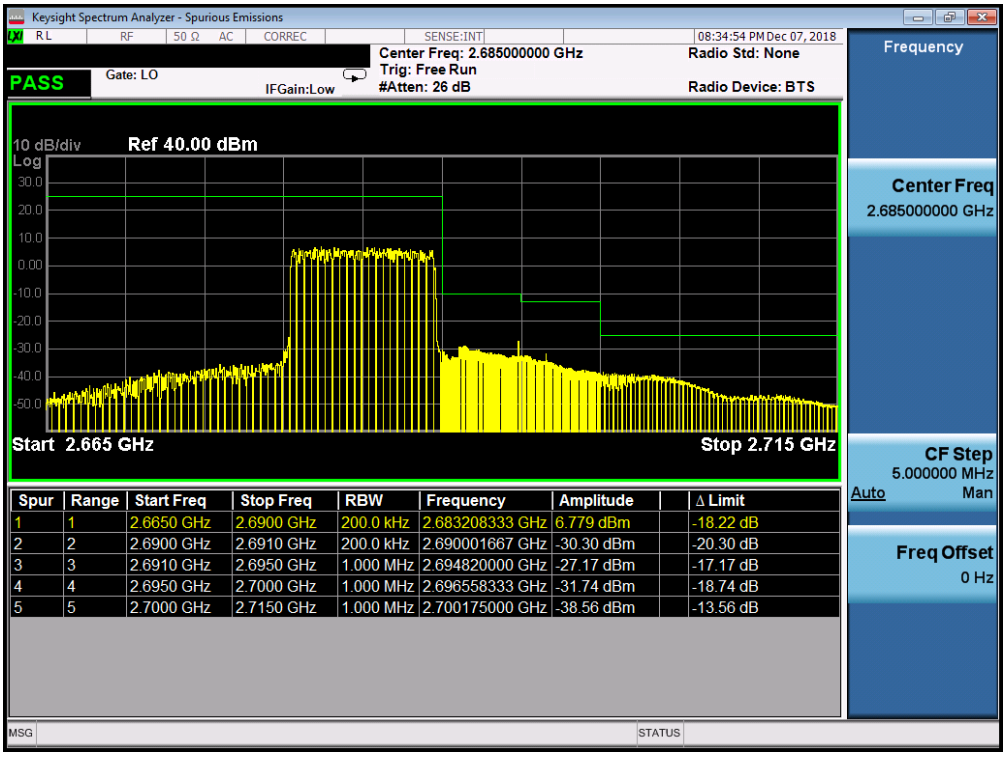


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490035000 GHz	-30.30 dBm	-5.301 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494940000 GHz	-24.29 dBm	-11.29 dB
3	3	2.4950 GHz	2.4960 GHz	200.0 kHz	2.495988333 GHz	-27.40 dBm	-14.40 dB
4	4	2.4960 GHz	2.5170 GHz	200.0 kHz	2.503490000 GHz	7.187 dBm	-17.81 dB

Plot 7-309. Lower ACP Plot at 2496 MHz (Band 41 PC2 - 10.0MHz QPSK - Full RB Configuration)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	200.0 kHz	2.683208333 GHz	6.779 dBm	-18.22 dB
2	2	2.6900 GHz	2.6910 GHz	200.0 kHz	2.690001667 GHz	-30.30 dBm	-20.30 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.694820000 GHz	-27.17 dBm	-17.17 dB
4	4	2.6950 GHz	2.7000 GHz	1.000 MHz	2.696558333 GHz	-31.74 dBm	-18.74 dB
5	5	2.7000 GHz	2.7150 GHz	1.000 MHz	2.700175000 GHz	-38.56 dBm	-13.56 dB

Plot 7-310. Upper ACP Plot (Band 41 PC2 - 10.0MHz QPSK - Full RB Configuration)

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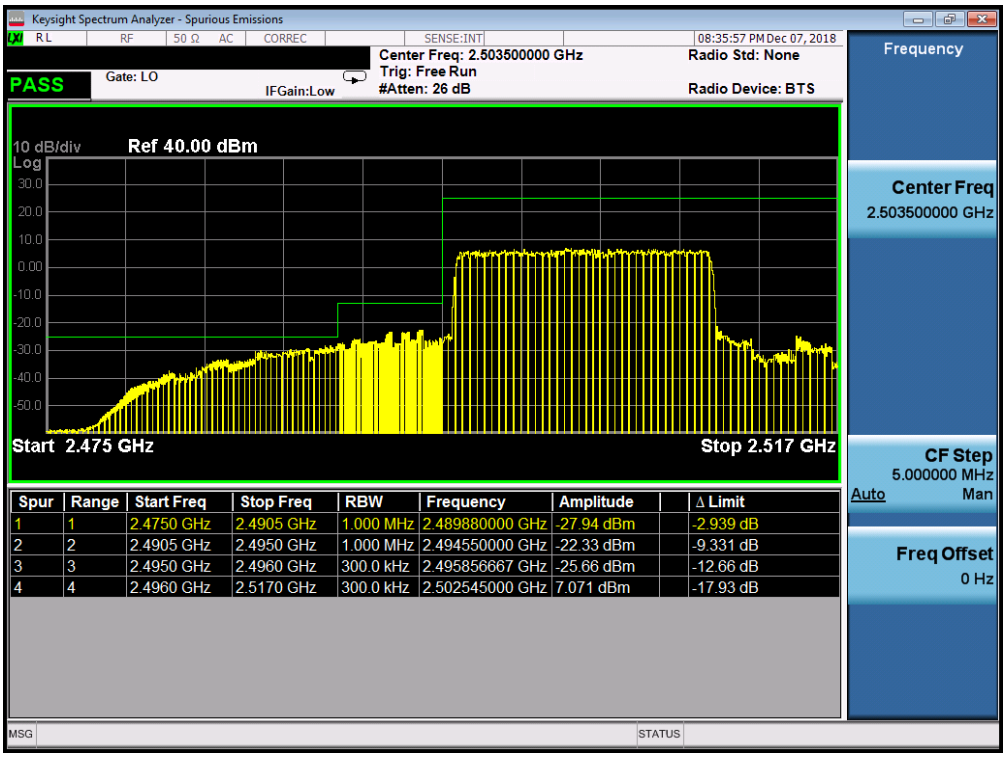
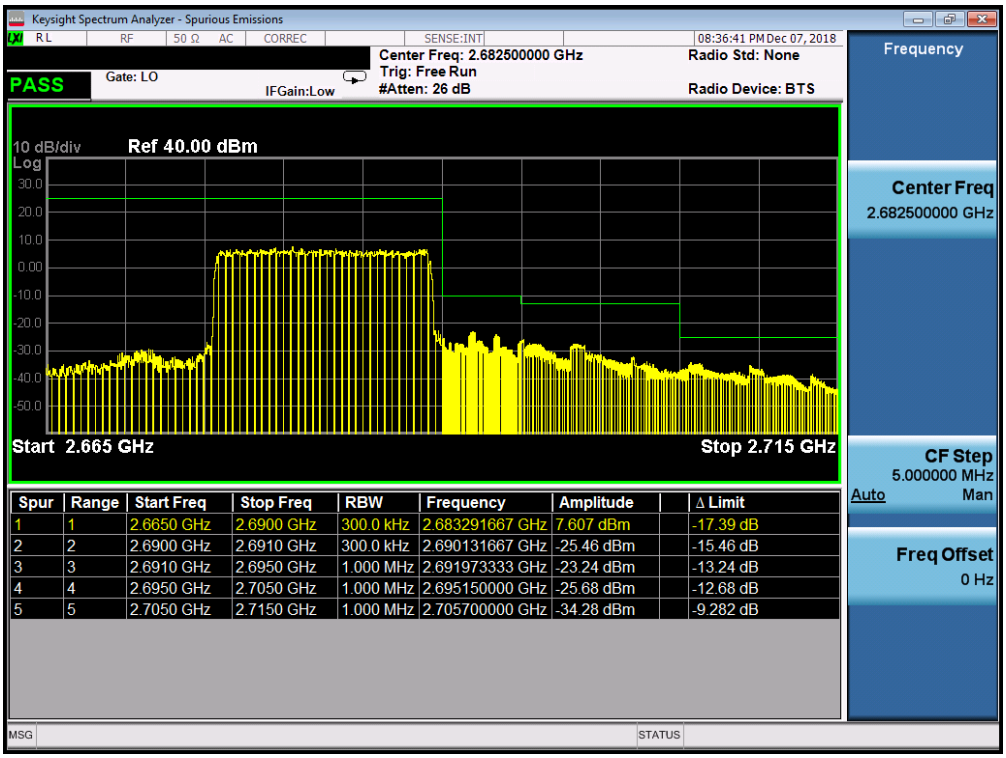


Plot 7-311. Lower ACP Plot at 2496 MHz (Band 41 PC2 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-312. Upper ACP Plot (Band 41 PC2 - 15.0MHz QPSK - Full RB Configuration)

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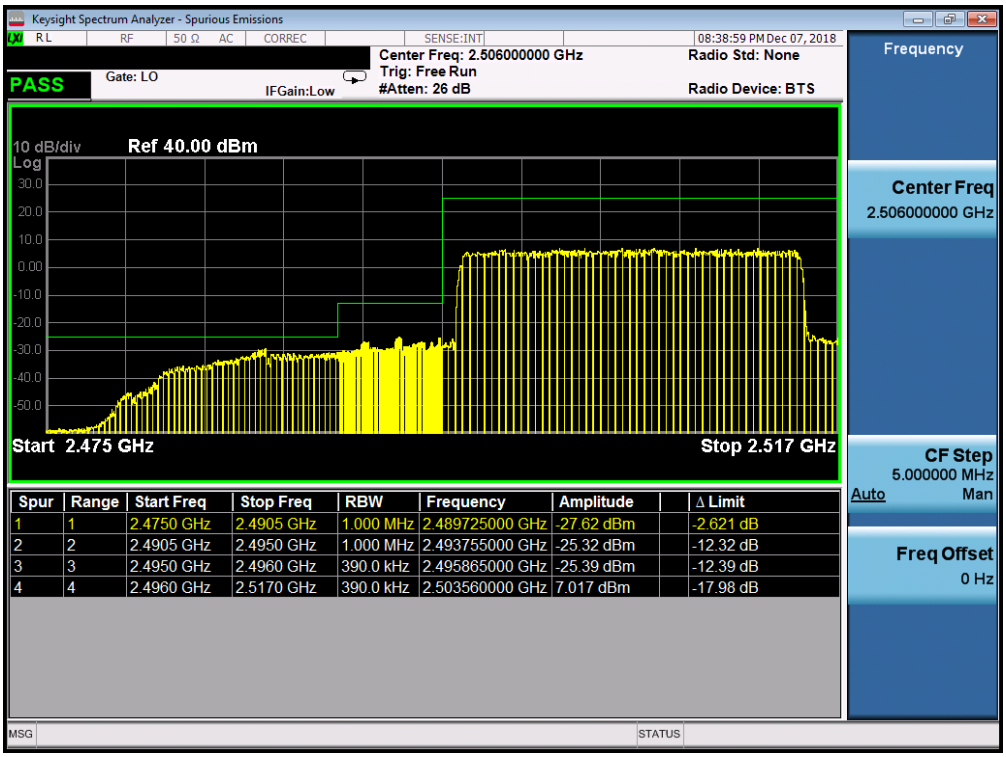
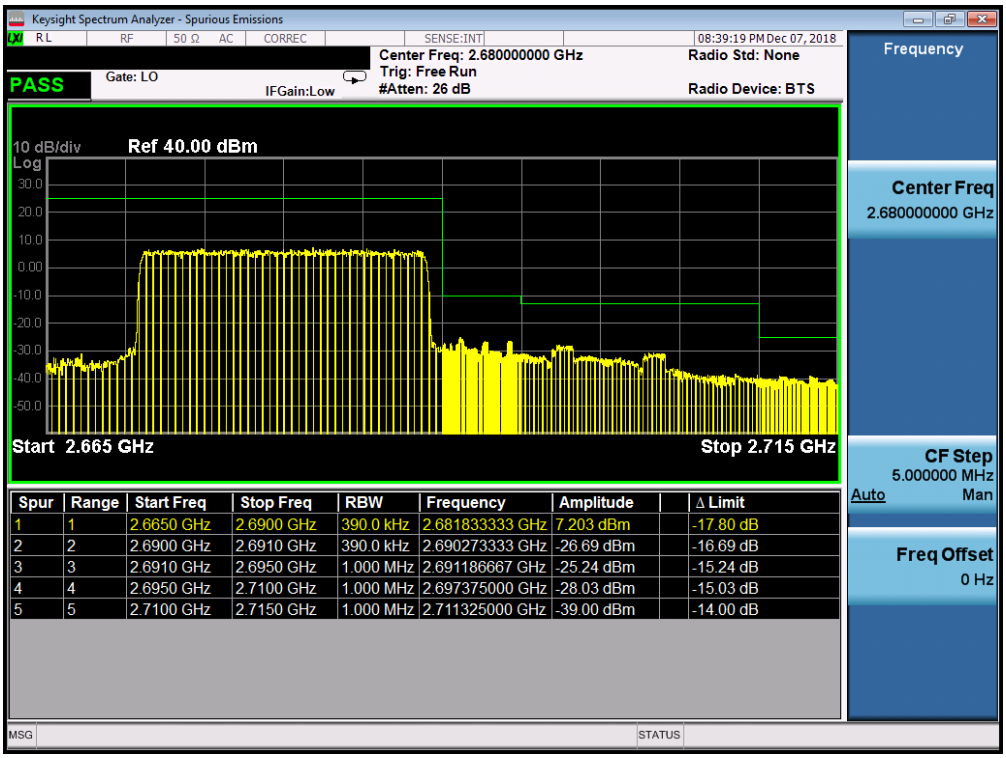


Plot 7-313. Lower ACP Plot at 2496 MHz (Band 41 PC2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-314. Upper ACP Plot (Band 41 PC2 - 20.0MHz QPSK - Full RB Configuration)

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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 ≥ OBW or specified reference bandwidth
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

Test Setup

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

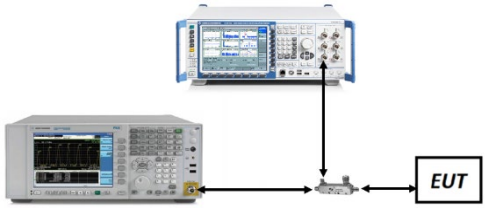

Figure 7-4. Test Instrument & Measurement Setup

Test Notes

None.

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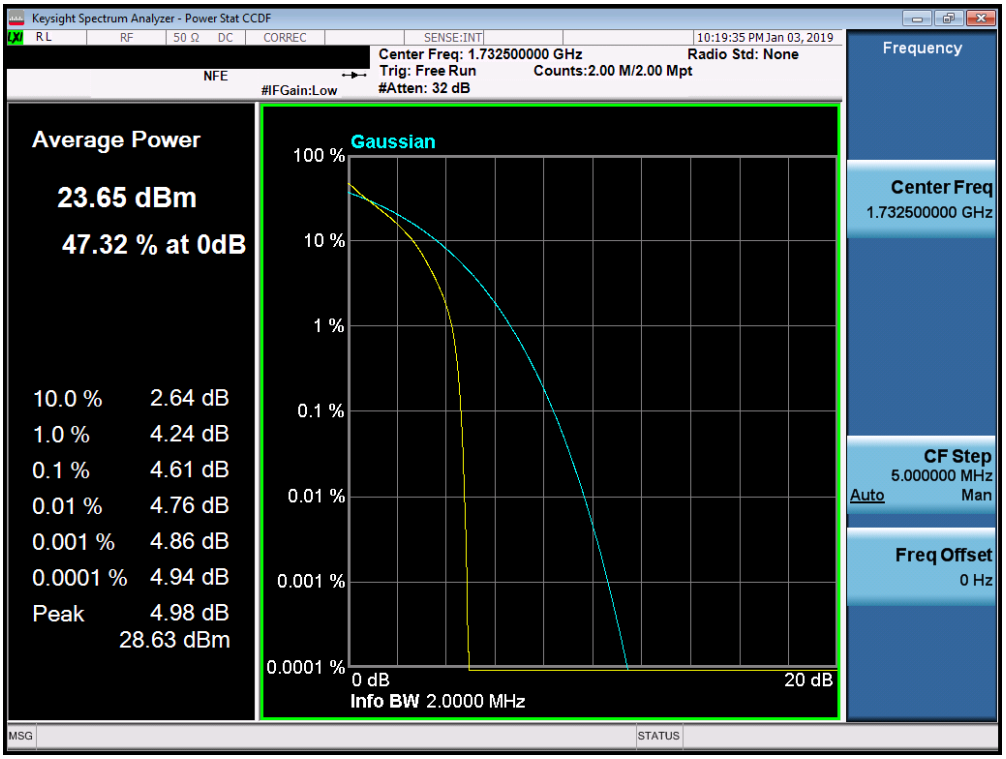
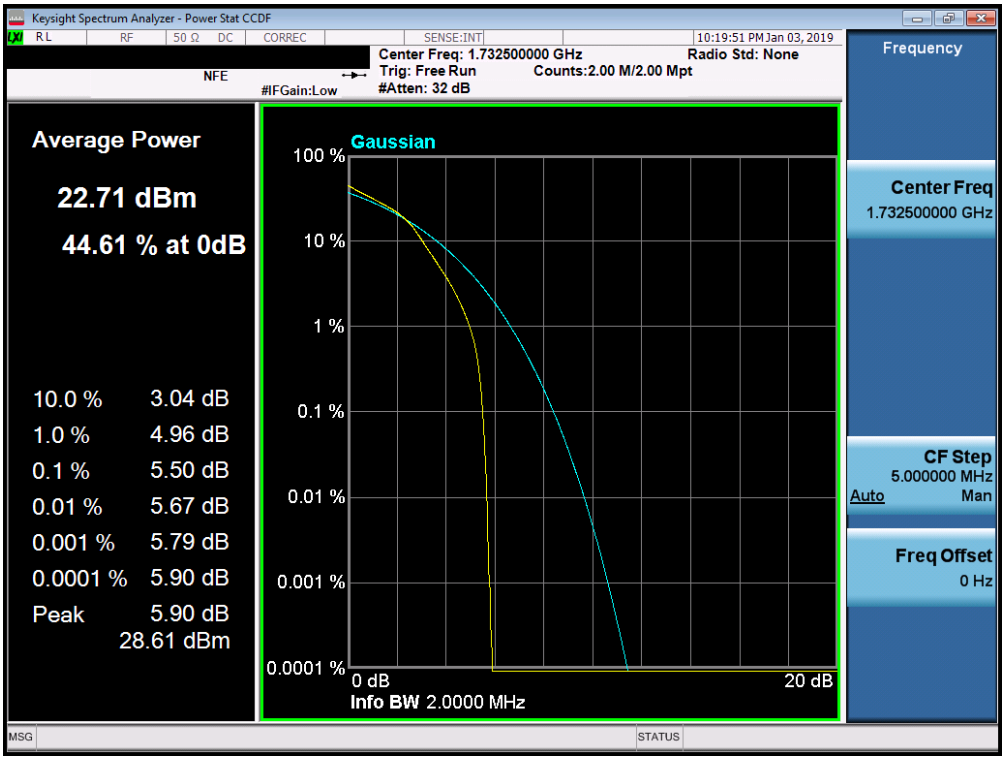
Band 66/4



Plot 7-315. PAR Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-316. PAR Plot (Band 66/4 - 1.4MHz 16-QAM - Full RB Configuration)

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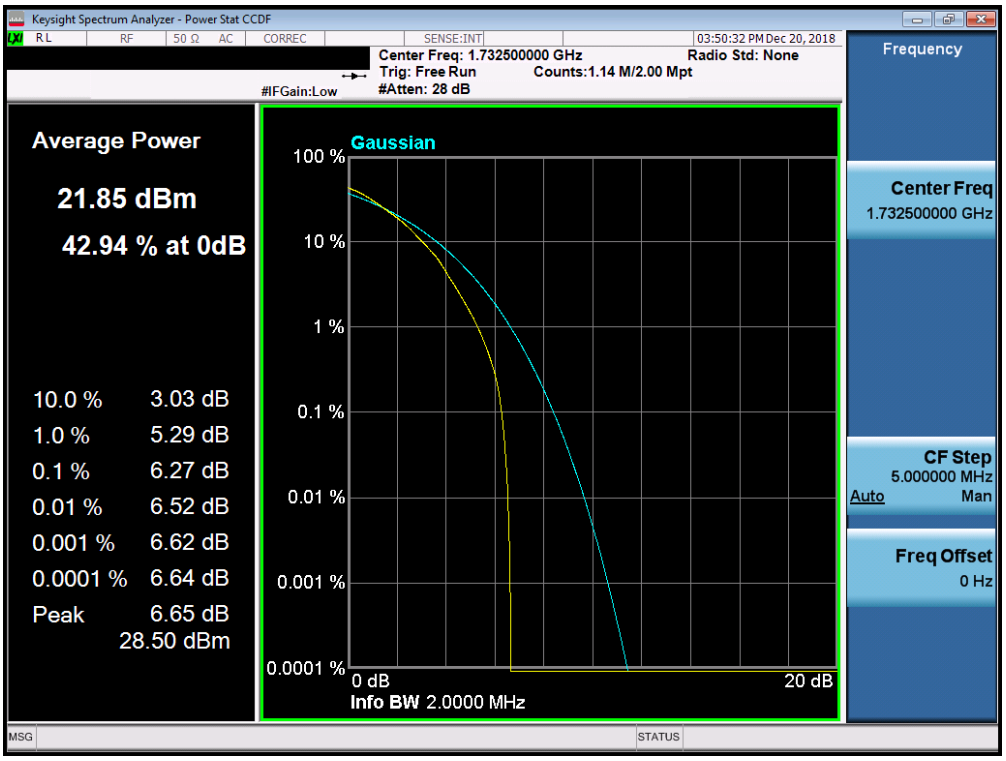
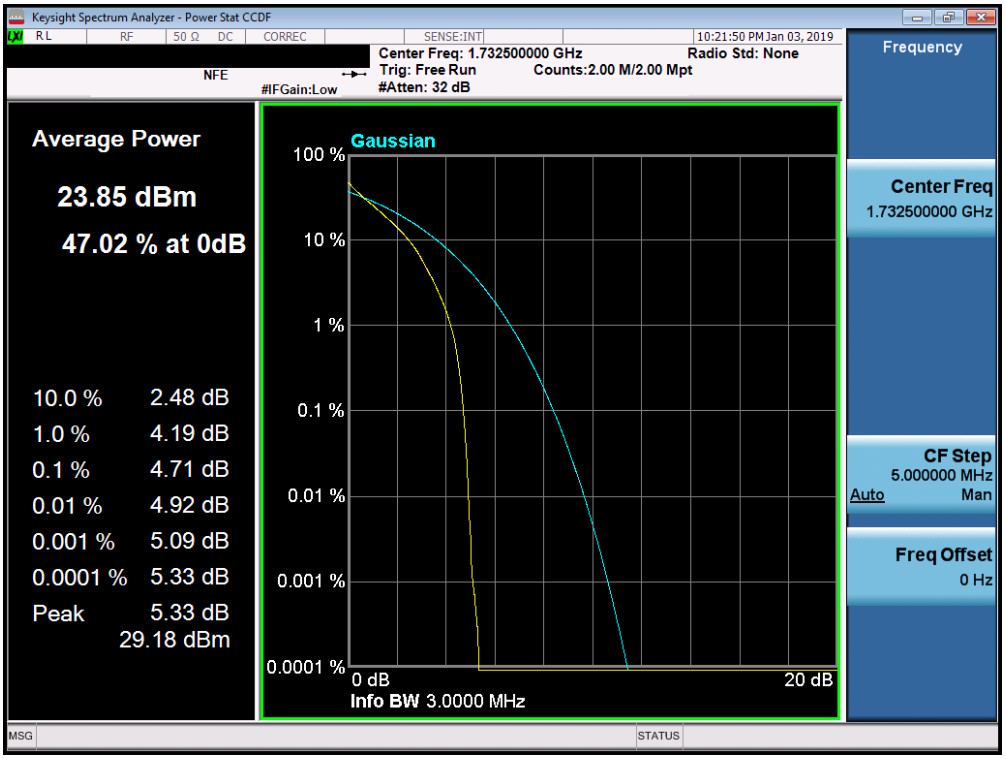


Plot 7-317. PAR Plot (Band 66/4 - 1.4MHz 64-QAM - Full RB Configuration)



Plot 7-318. PAR Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)

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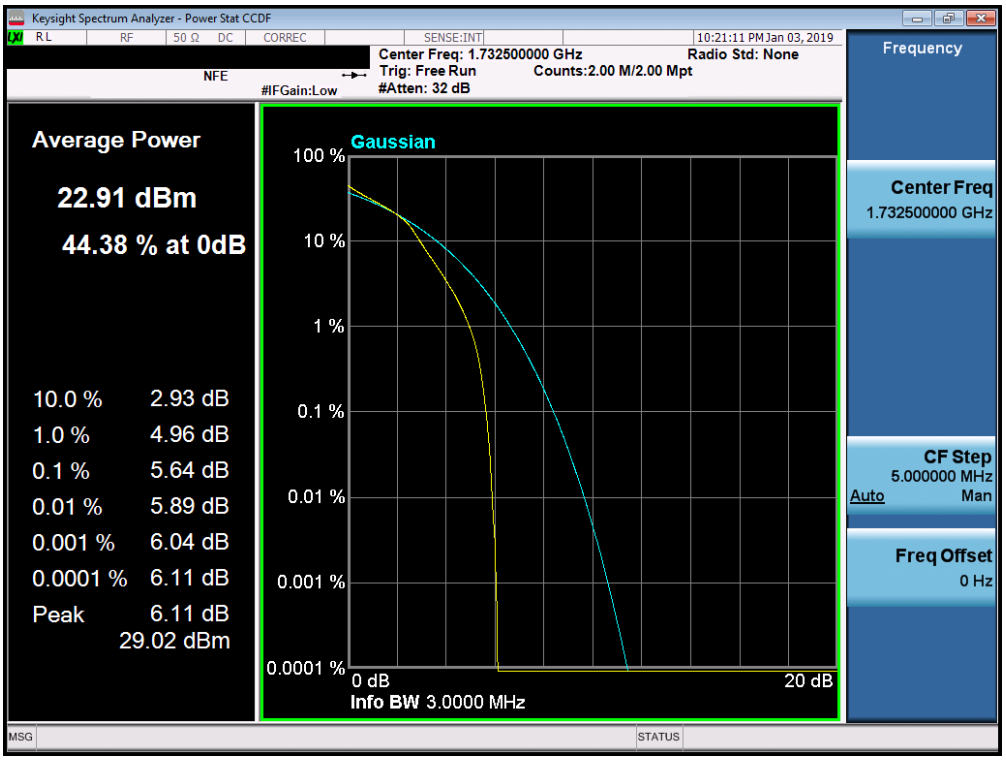
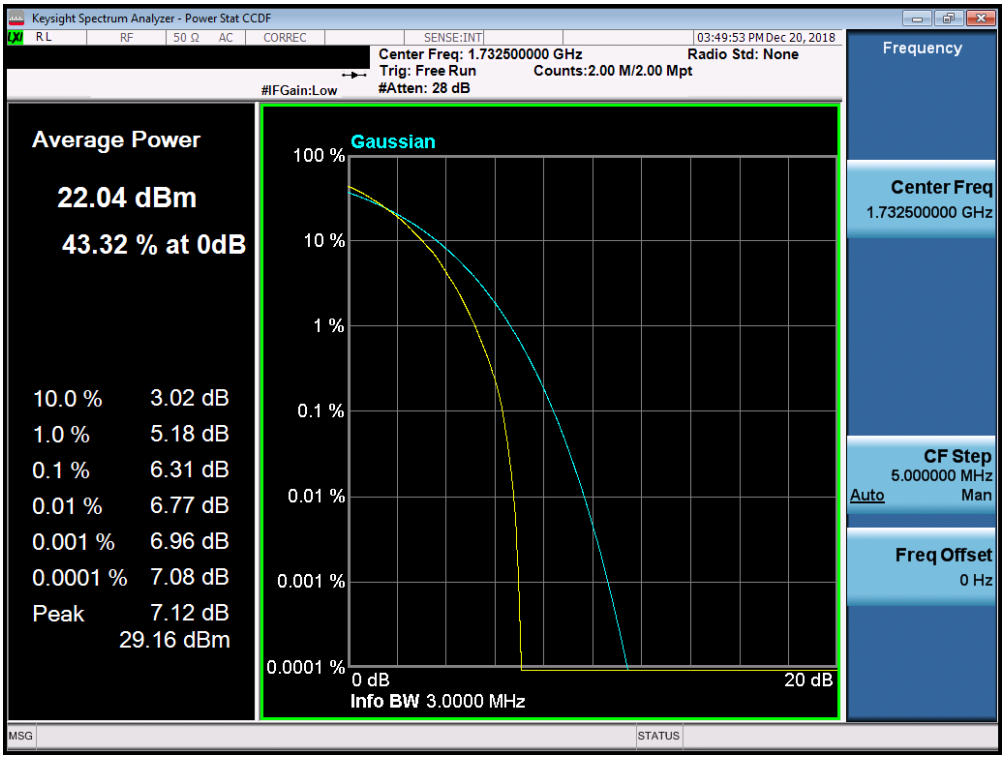


Plot 7-319. PAR Plot (Band 66/4 - 3.0MHz 16-QAM - Full RB Configuration)



Plot 7-320. PAR Plot (Band 66/4 - 3.0MHz 64-QAM - Full RB Configuration)

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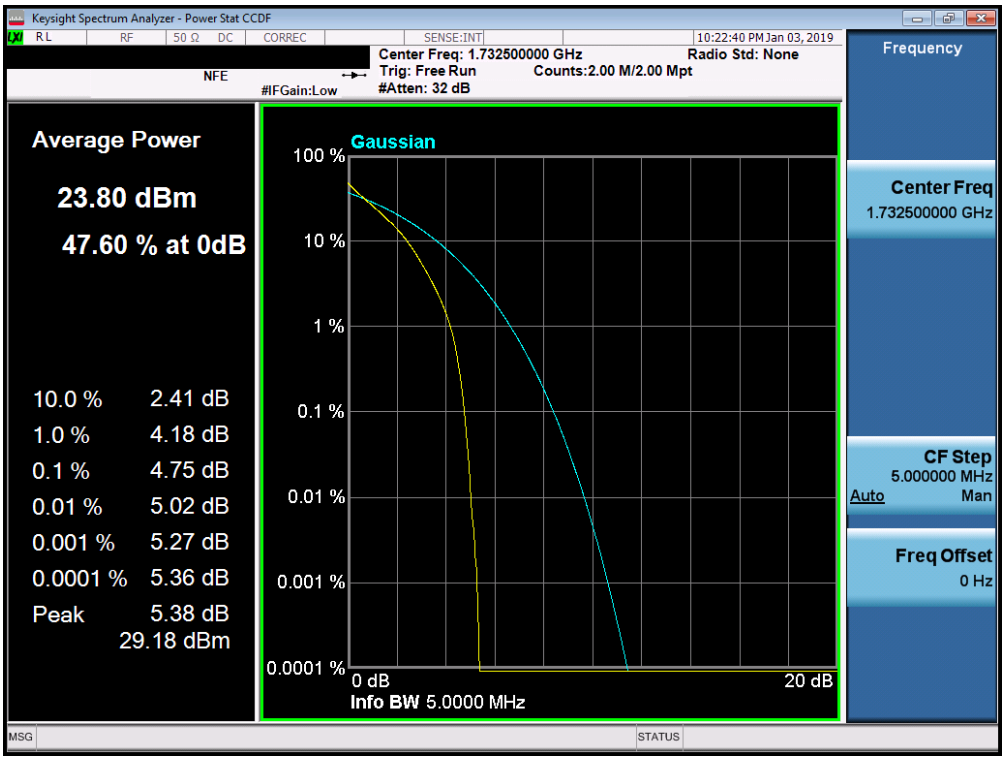
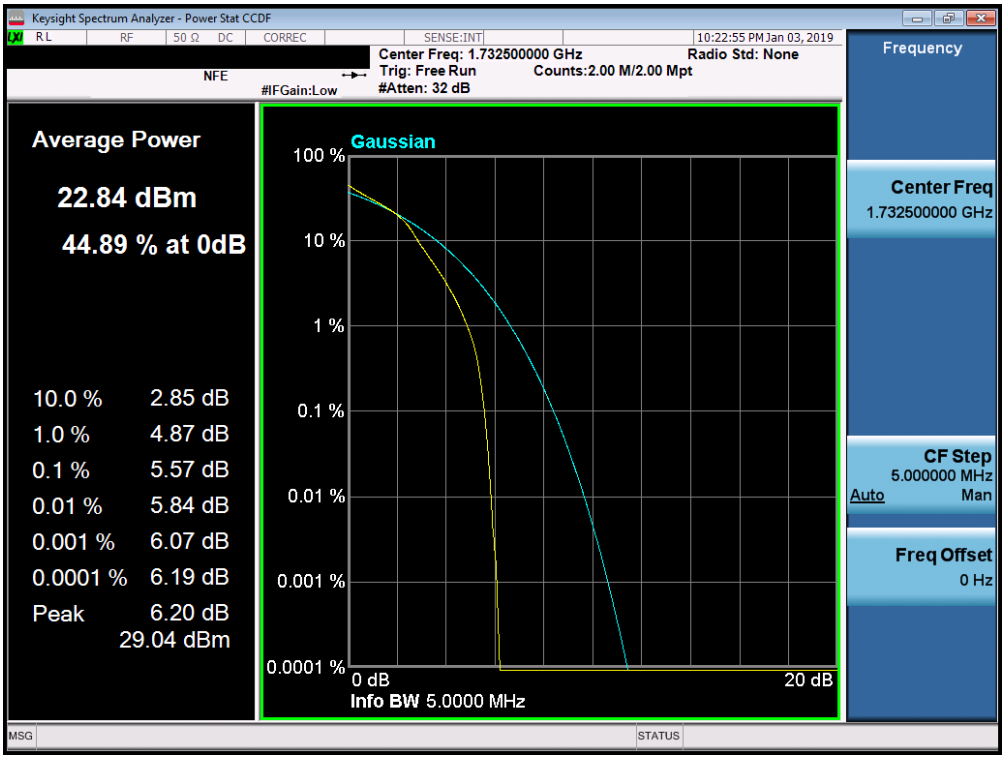


Plot 7-321. PAR Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-322. PAR Plot (Band 66/4 - 5.0MHz 16-QAM - Full RB Configuration)

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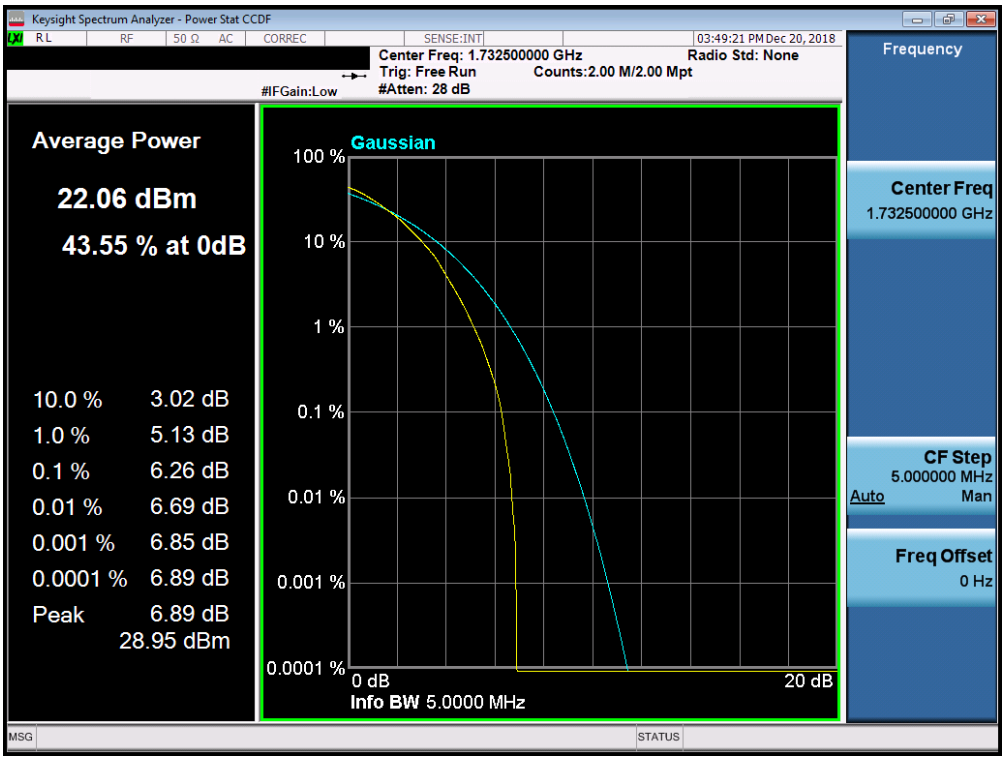
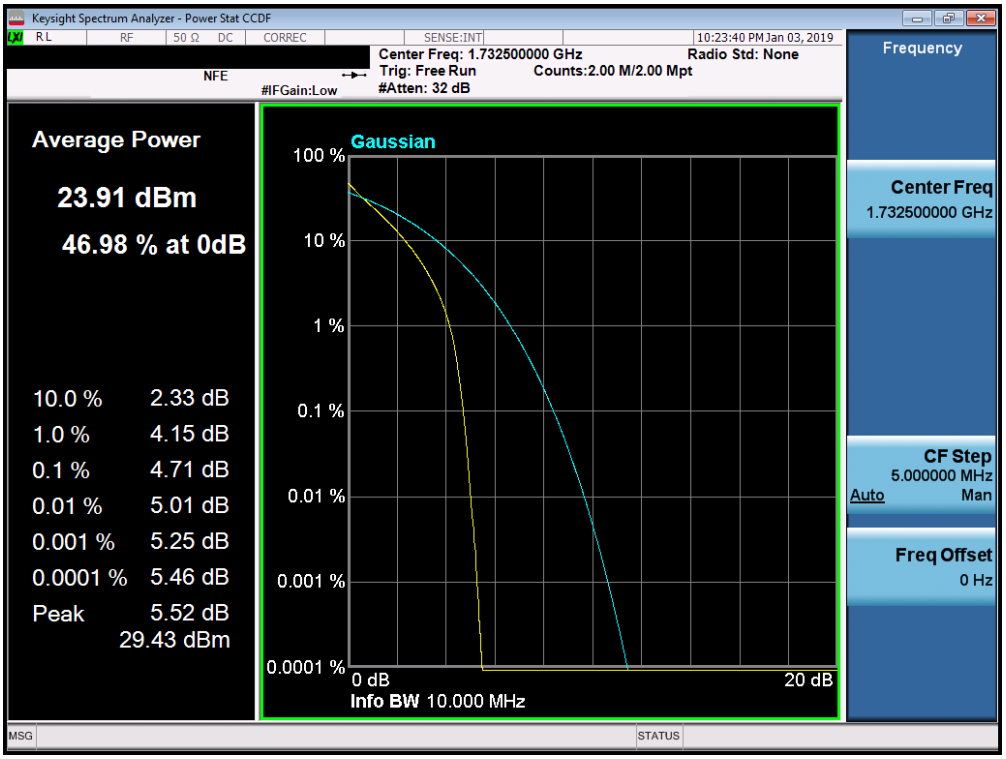


Plot 7-323. PAR Plot (Band 66/4 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-324. PAR Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)

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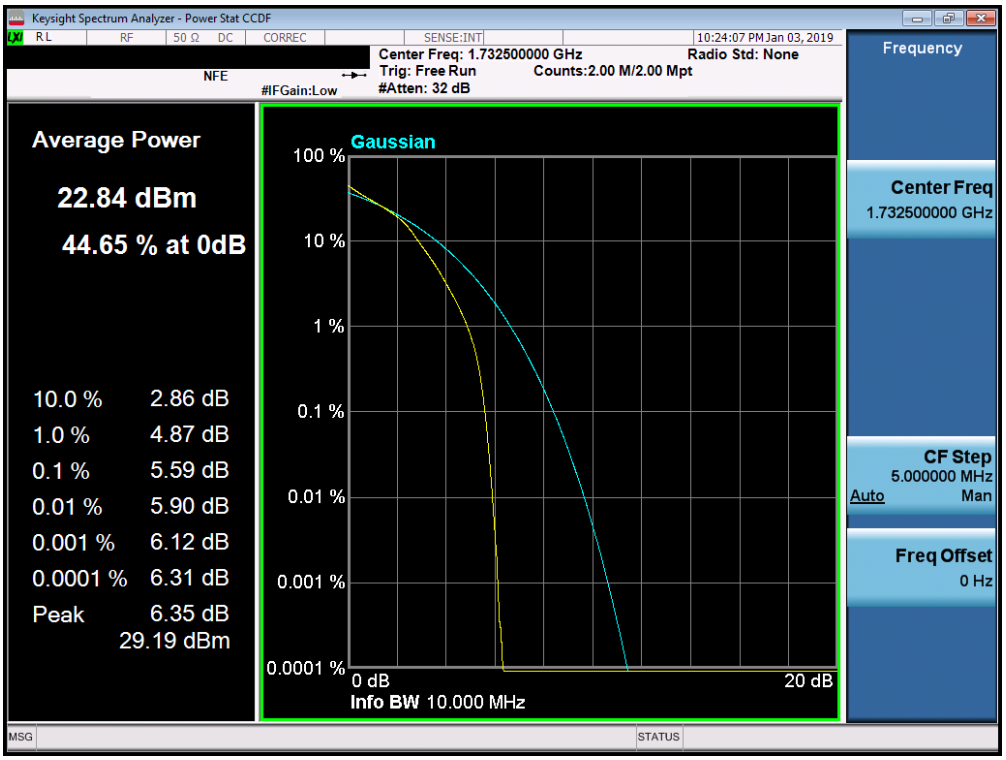
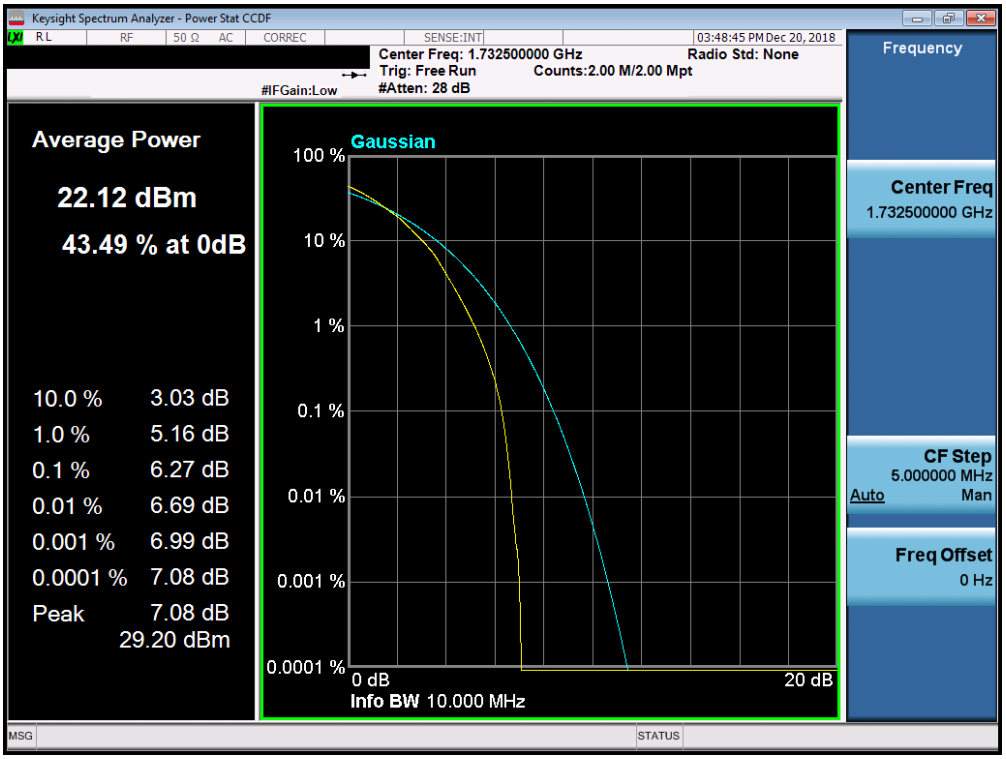


Plot 7-325. PAR Plot (Band 66/4 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-326. PAR Plot (Band 66/4 - 10.0MHz 64-QAM - Full RB Configuration)

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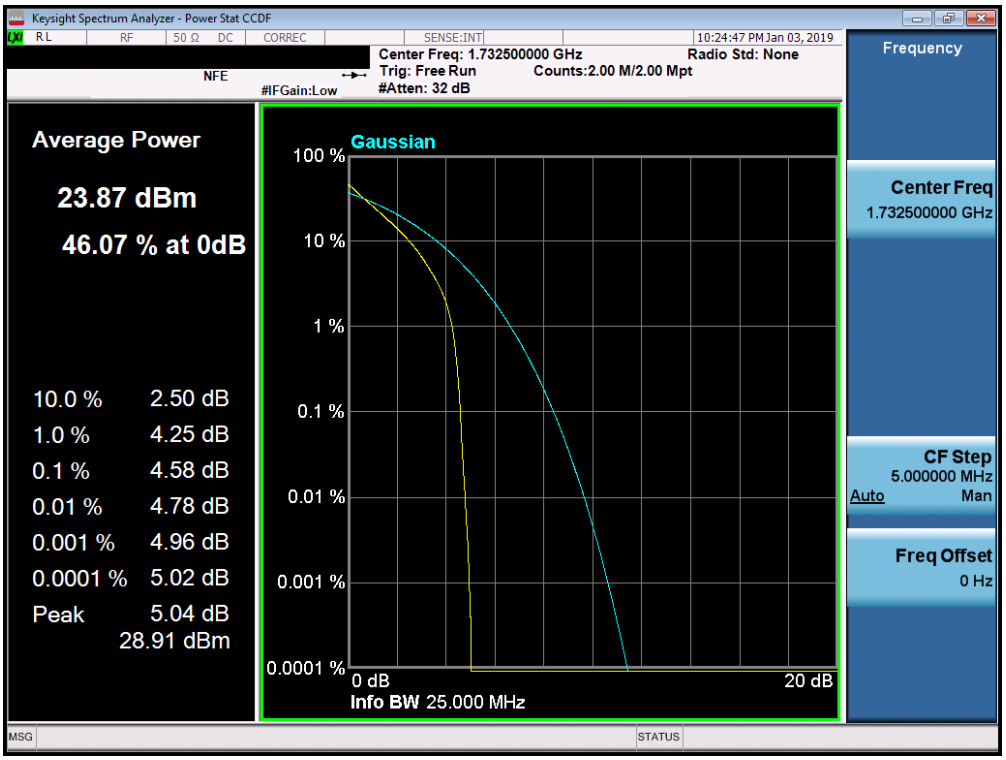
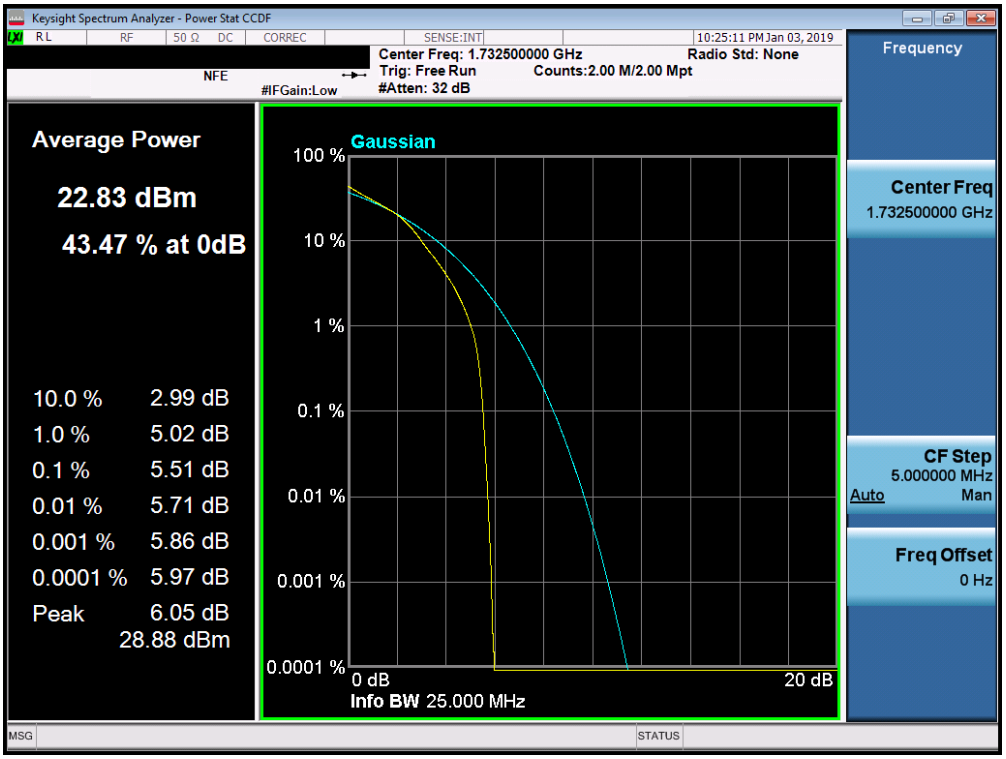


Plot 7-327. PAR Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-328. PAR Plot (Band 66/4 - 15.0MHz 16-QAM - Full RB Configuration)

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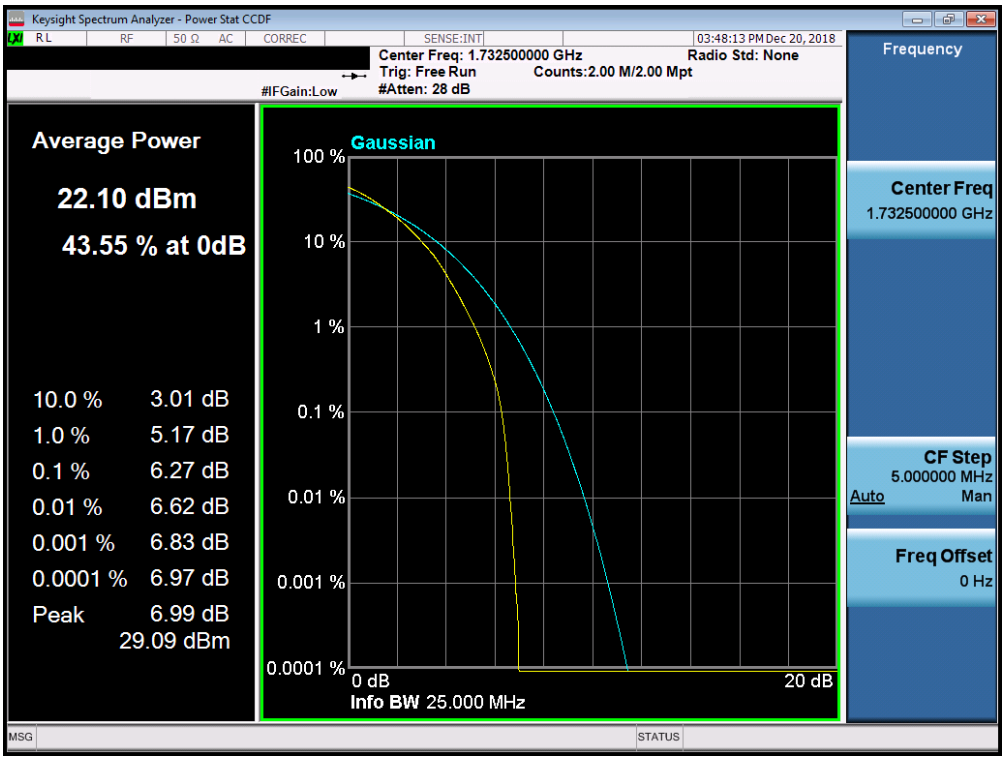
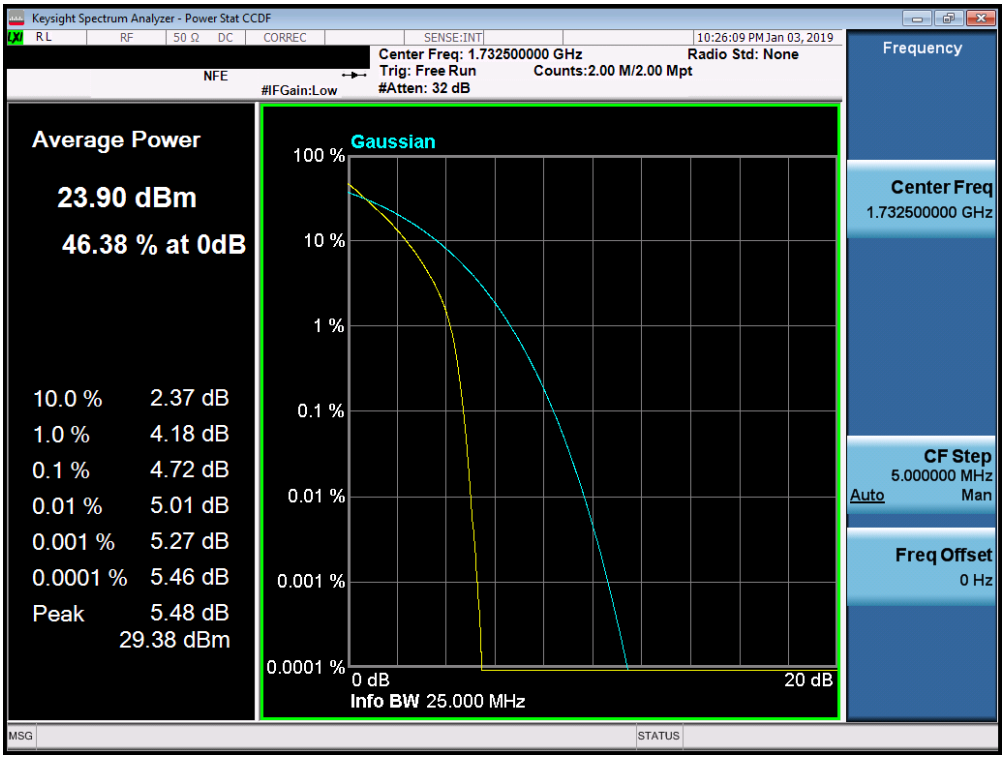


Plot 7-329. PAR Plot (Band 66/4 - 15.0MHz 64-QAM - Full RB Configuration)



Plot 7-330. PAR Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)

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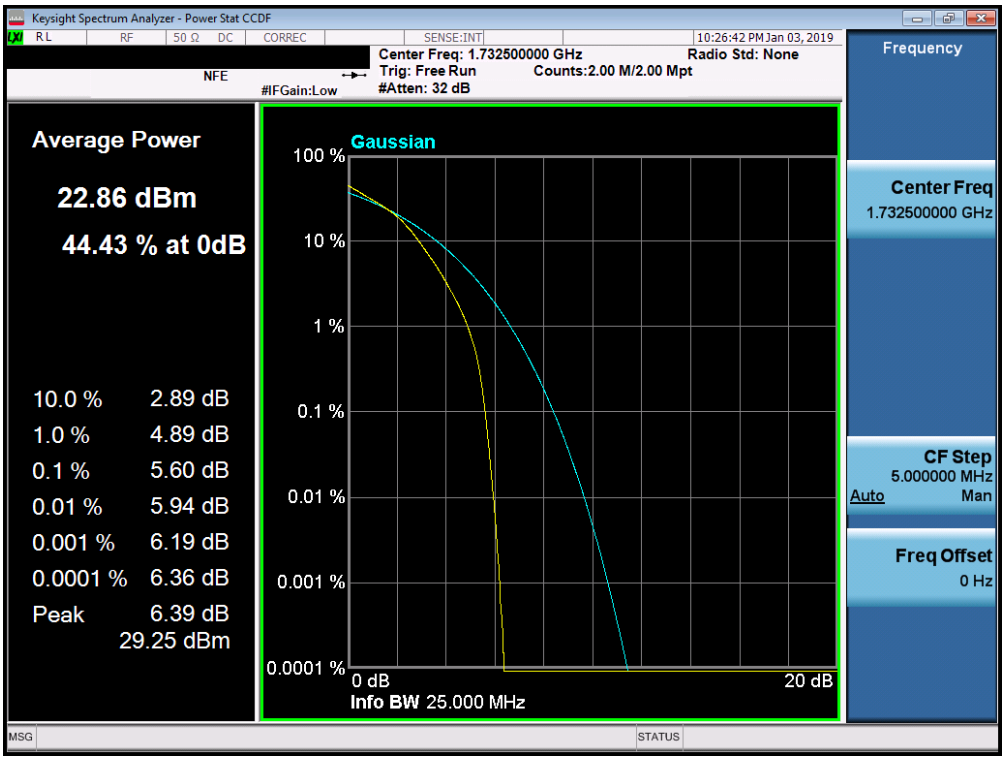
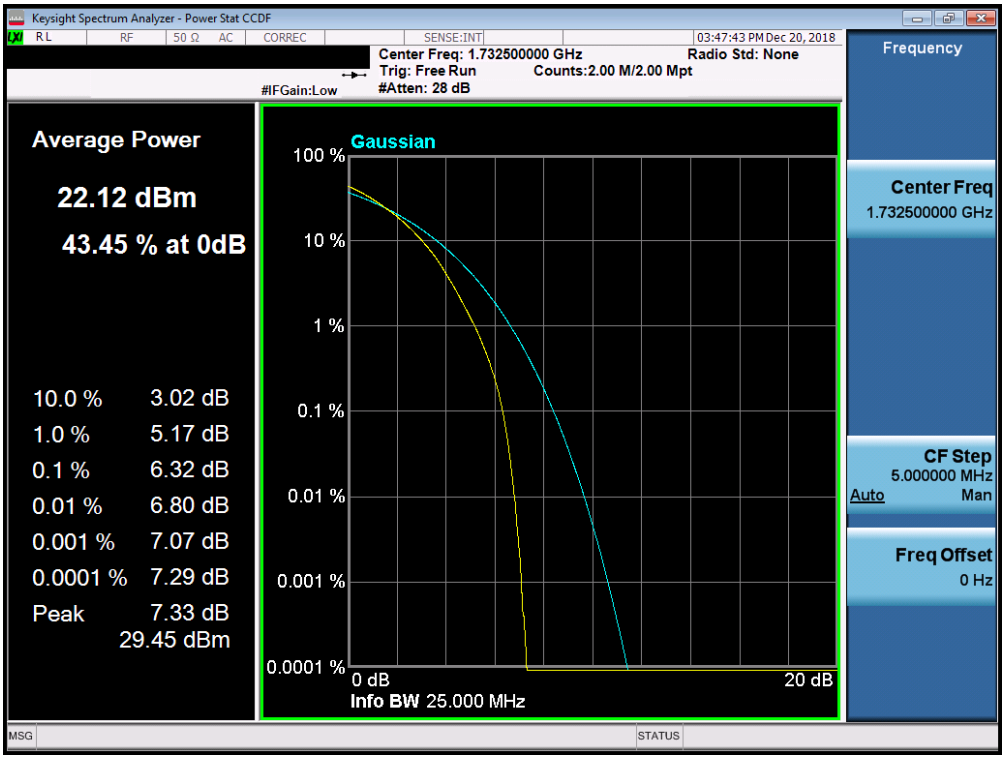


Plot 7-331. PAR Plot (Band 66/4 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-332. PAR Plot (Band 66/4 - 20.0MHz 64-QAM - Full RB Configuration)

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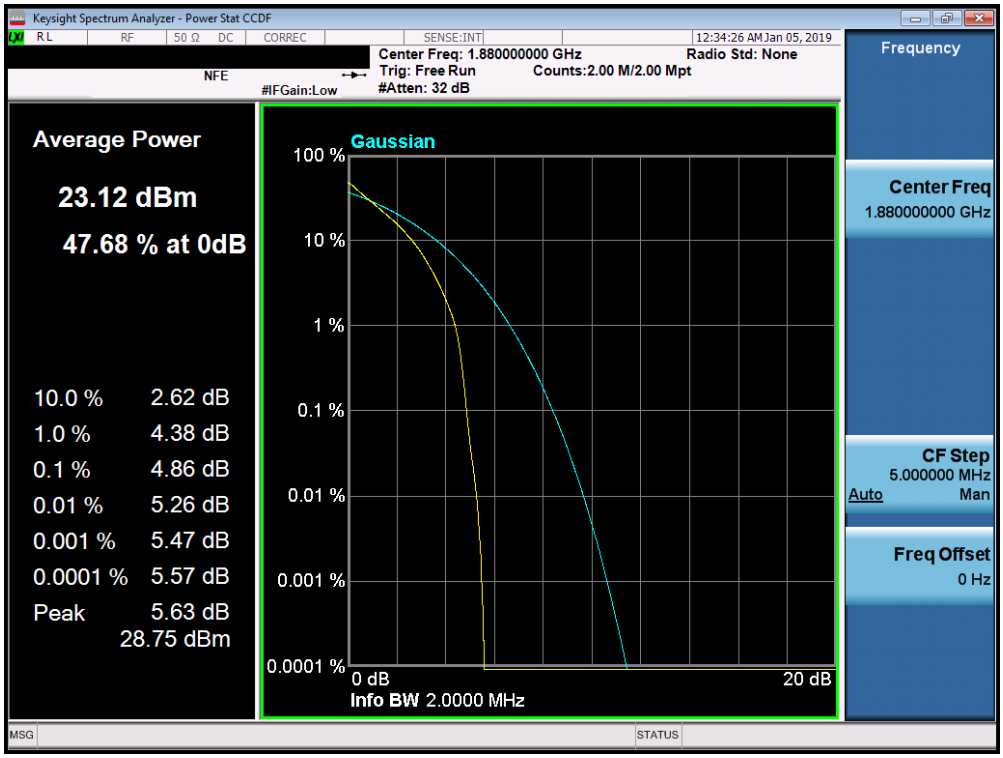
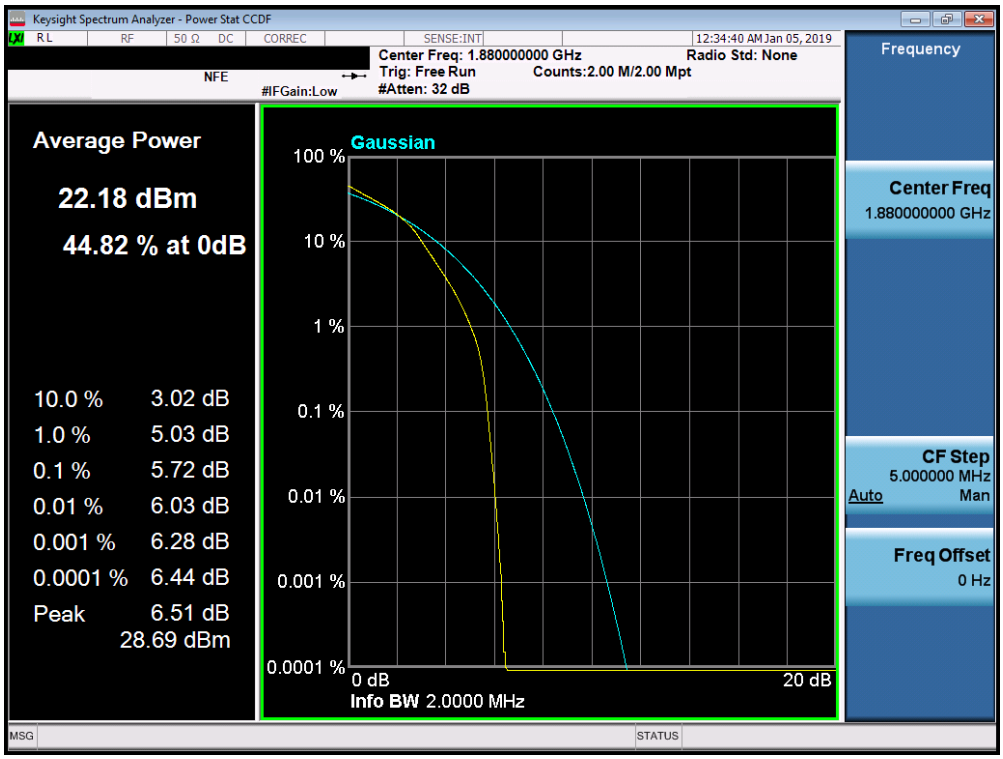
Band 25/2



Plot 7-333. PAR Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-334. PAR Plot (Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)

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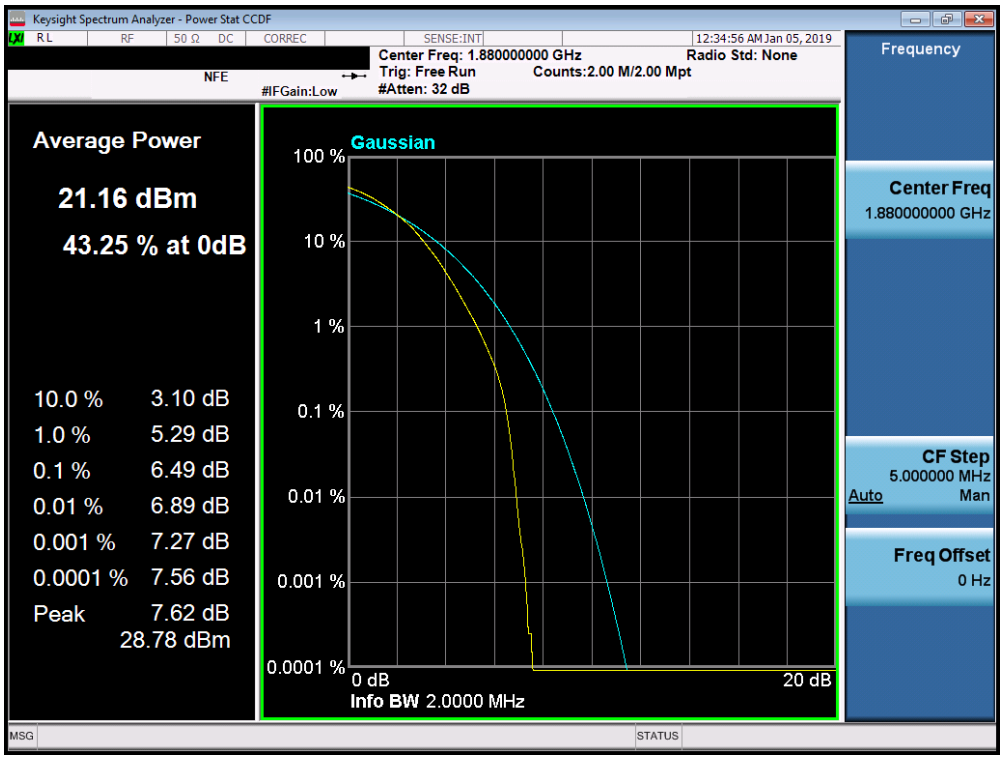
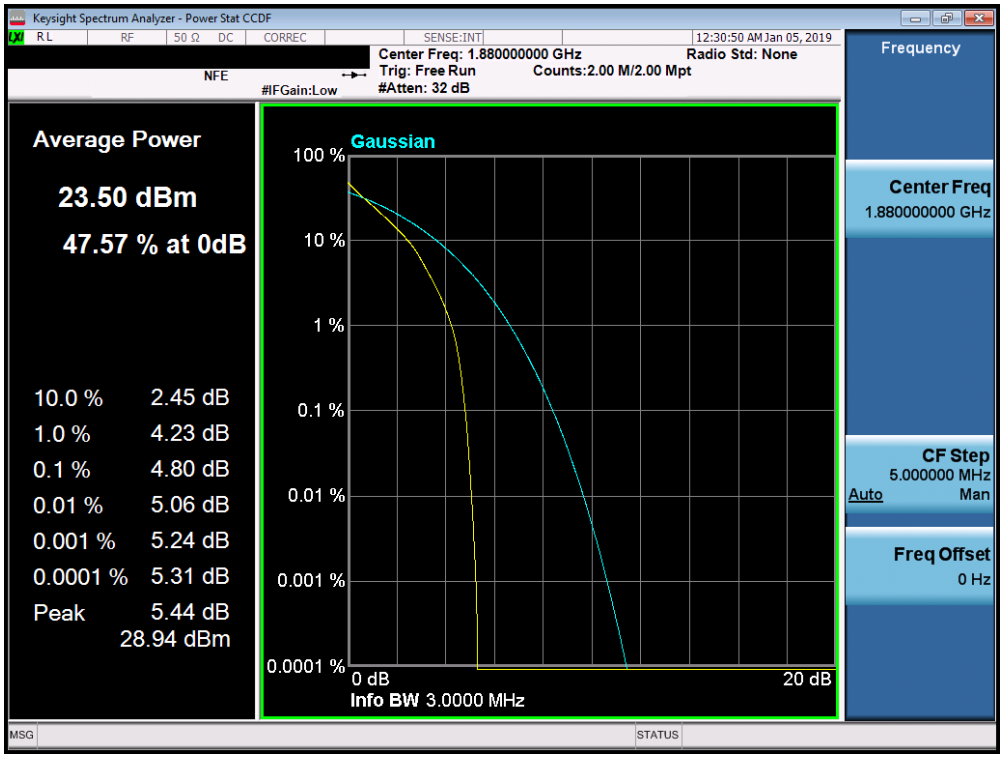


Plot 7-335. PAR Plot (Band 25/2 - 1.4MHz 64-QAM - Full RB Configuration)



Plot 7-336. PAR Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)

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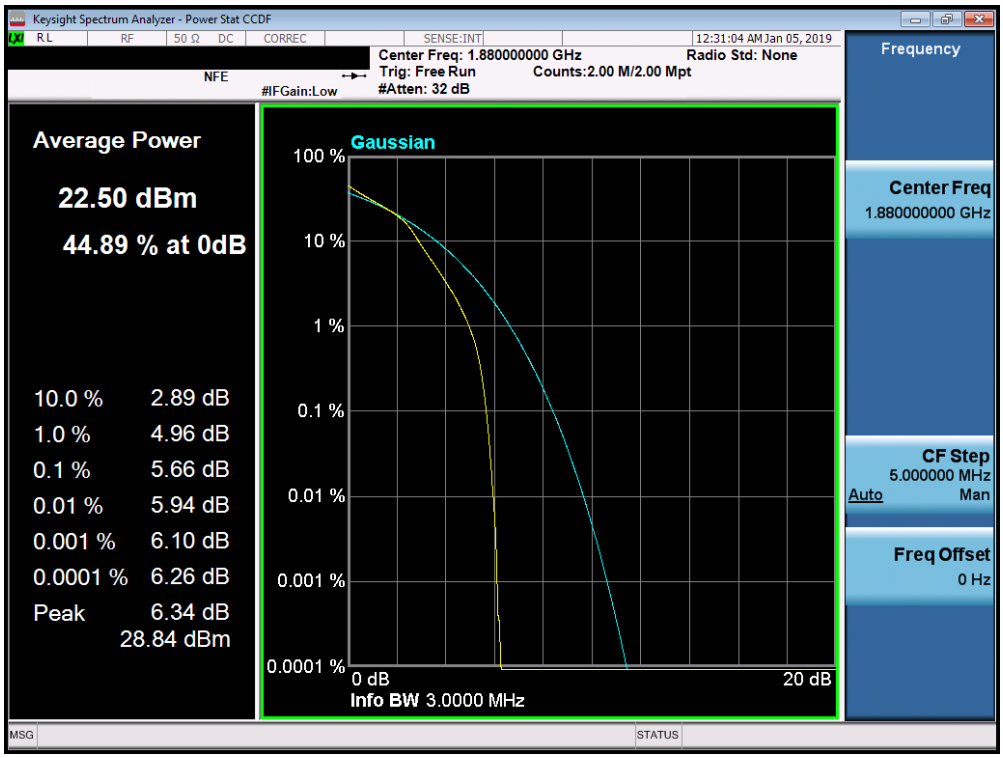
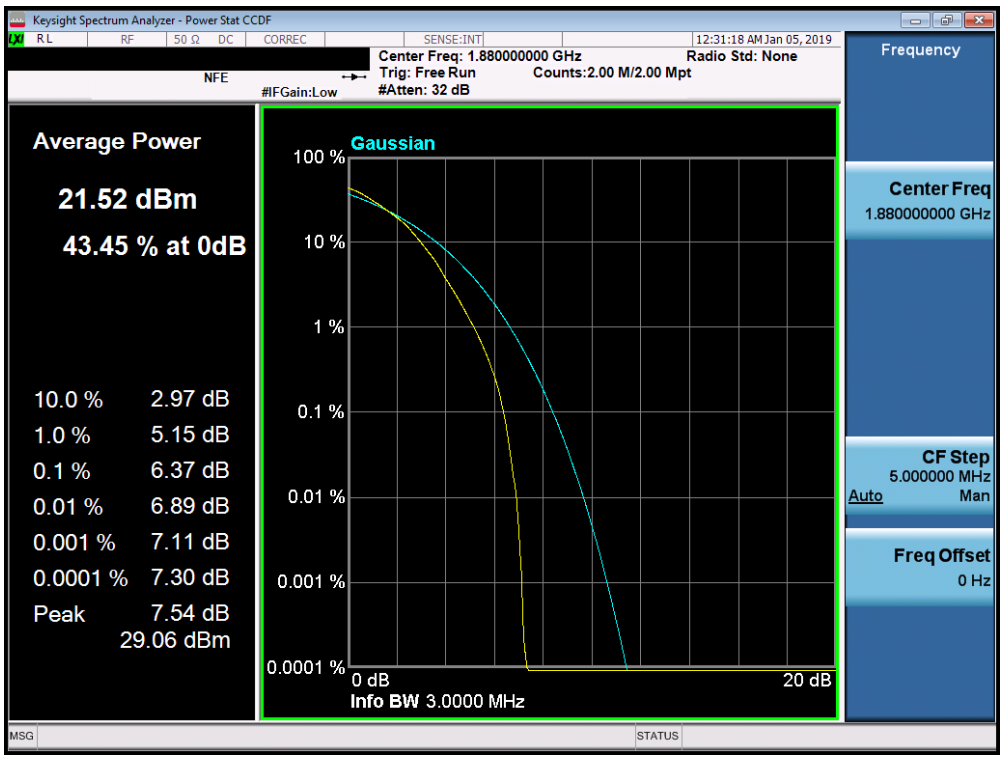


Plot 7-337. PAR Plot (Band 25/2 - 3.0MHz 16-QAM - Full RB Configuration)



Plot 7-338. PAR Plot (Band 25/2 - 3.0MHz 64-QAM - Full RB Configuration)

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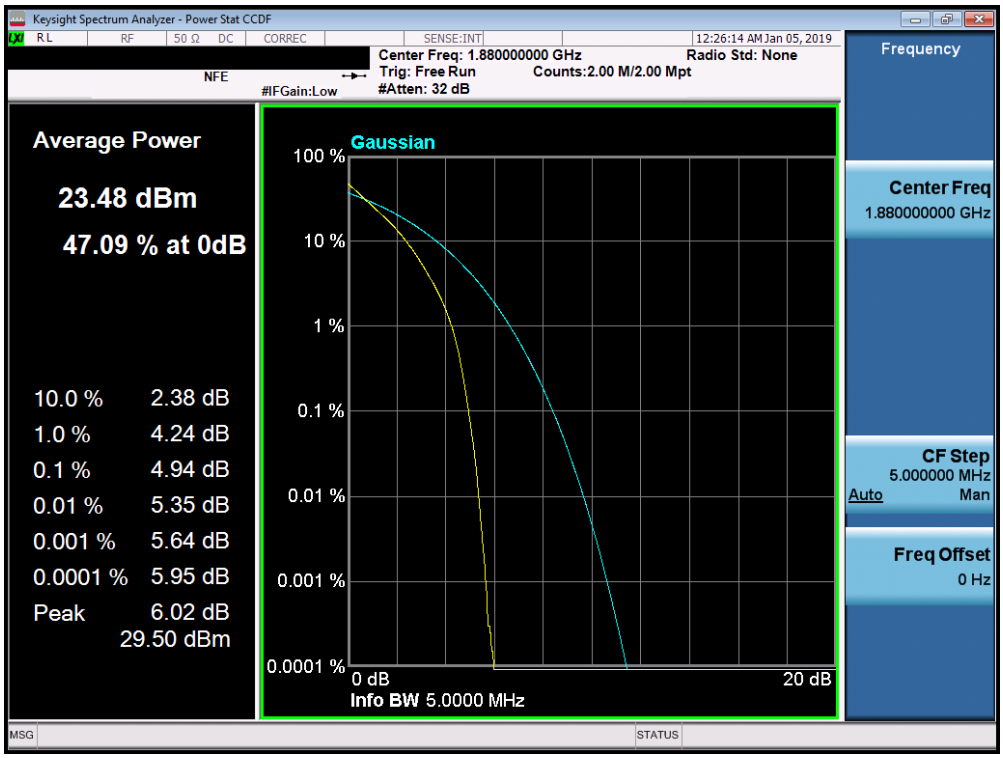
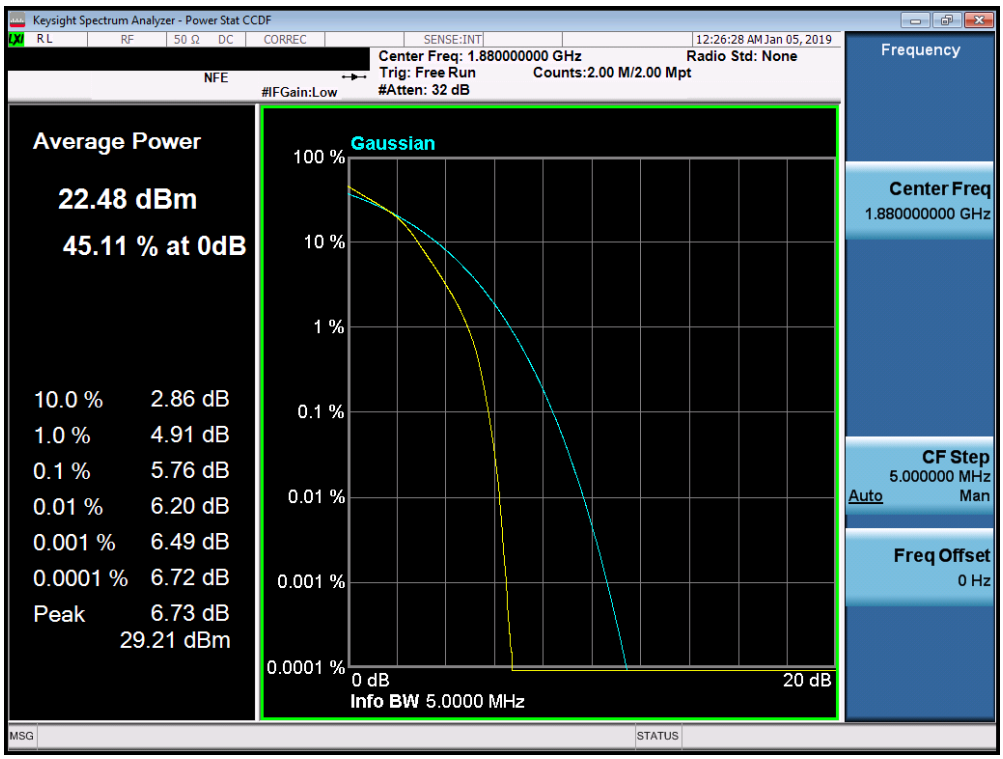


Plot 7-339. PAR Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-340. PAR Plot (Band 25/2 - 5.0MHz 16-QAM - Full RB Configuration)

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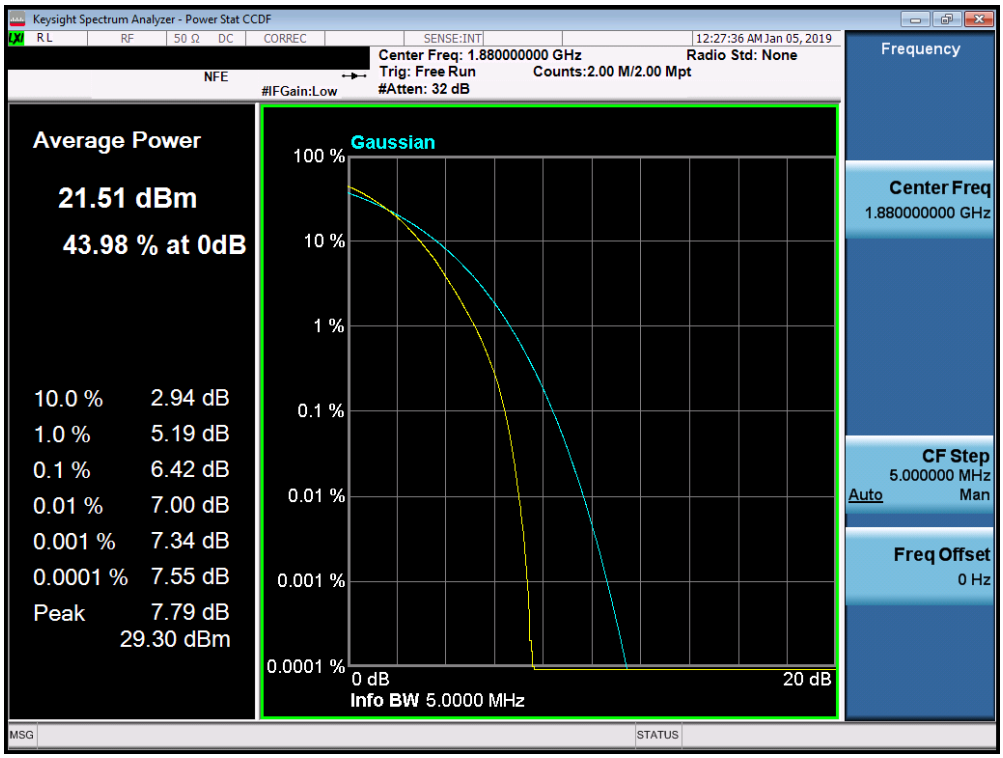
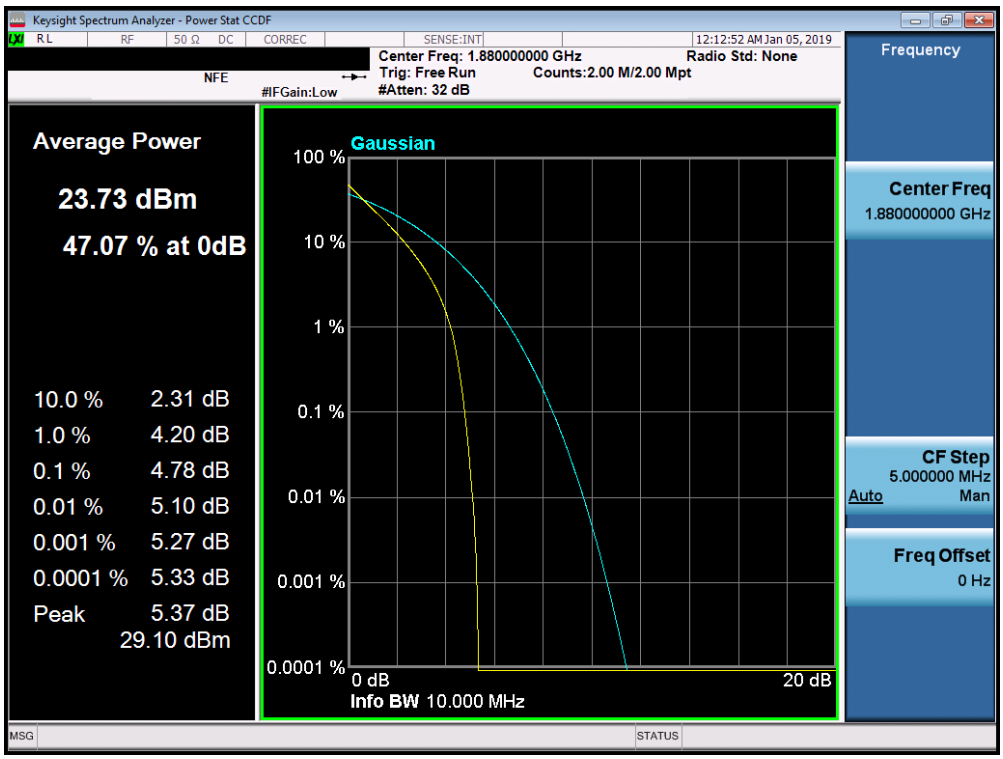


Plot 7-341. PAR Plot (Band 25/2 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-342. PAR Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

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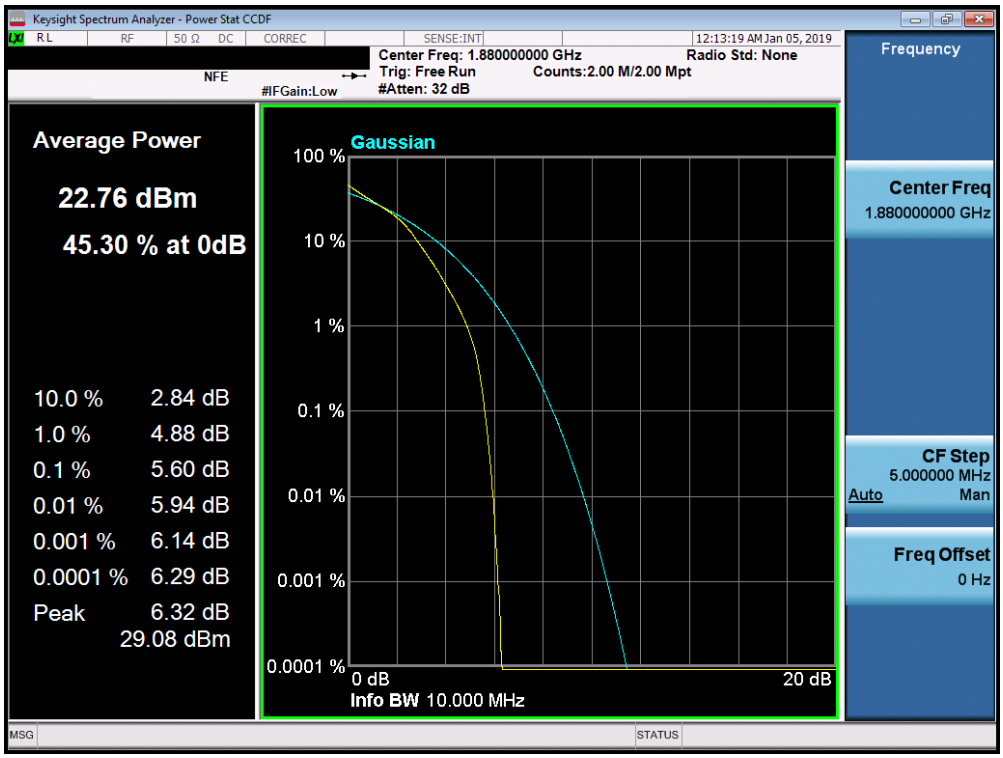
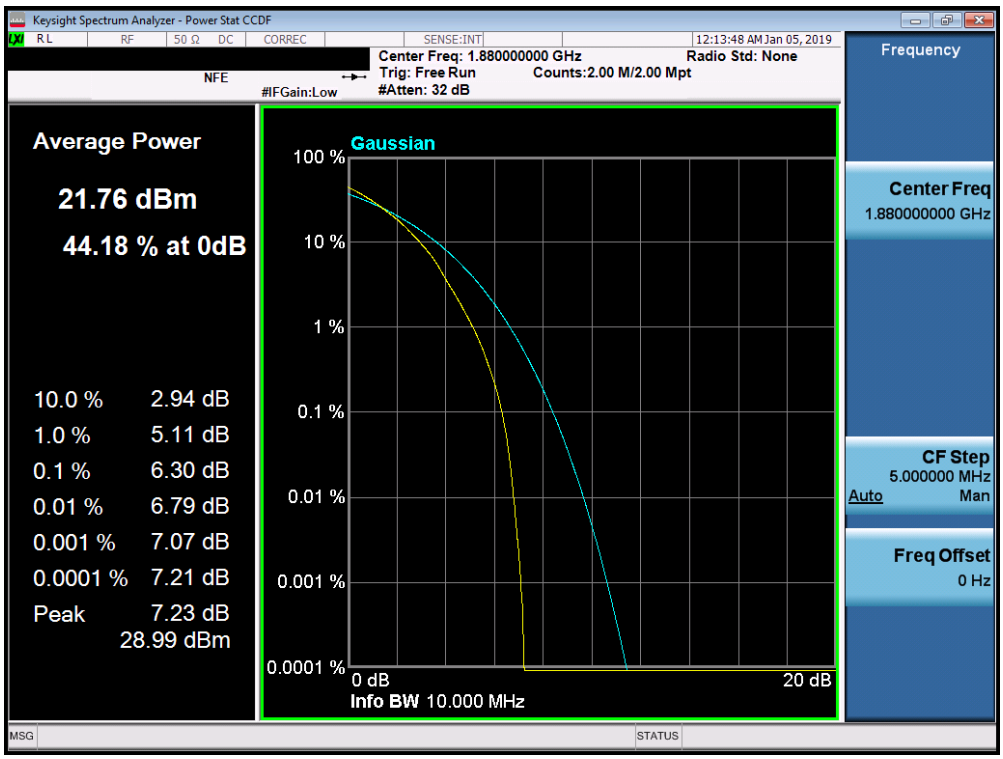


Plot 7-343. PAR Plot (Band 25/2 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-344. PAR Plot (Band 25/2 - 10.0MHz 64-QAM - Full RB Configuration)

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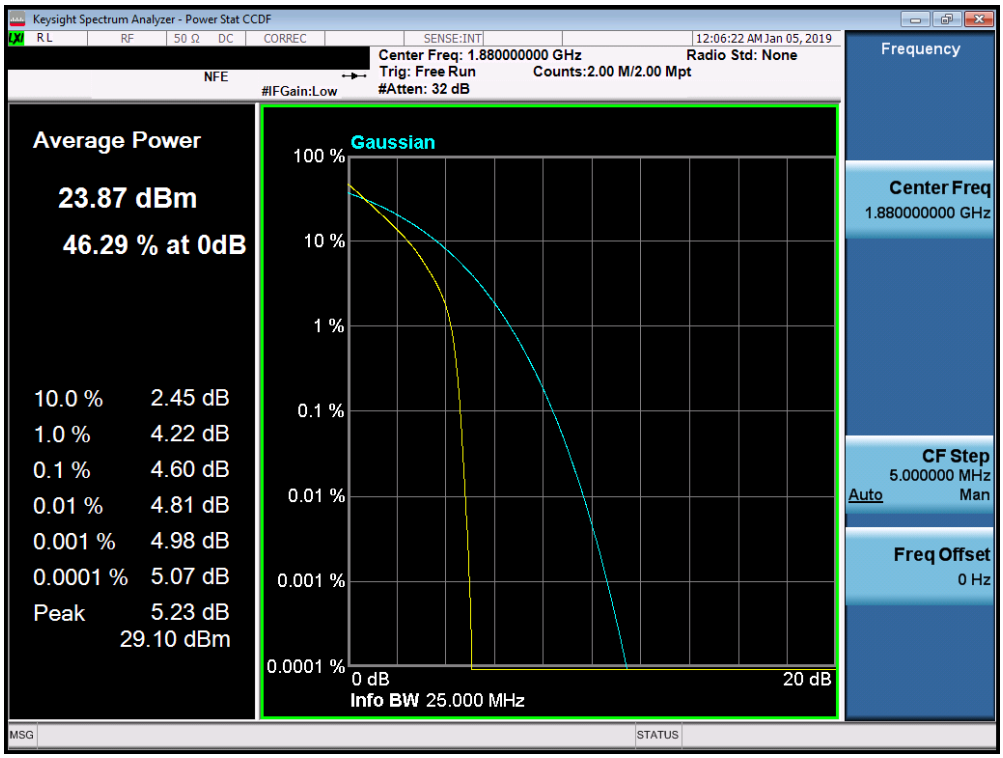
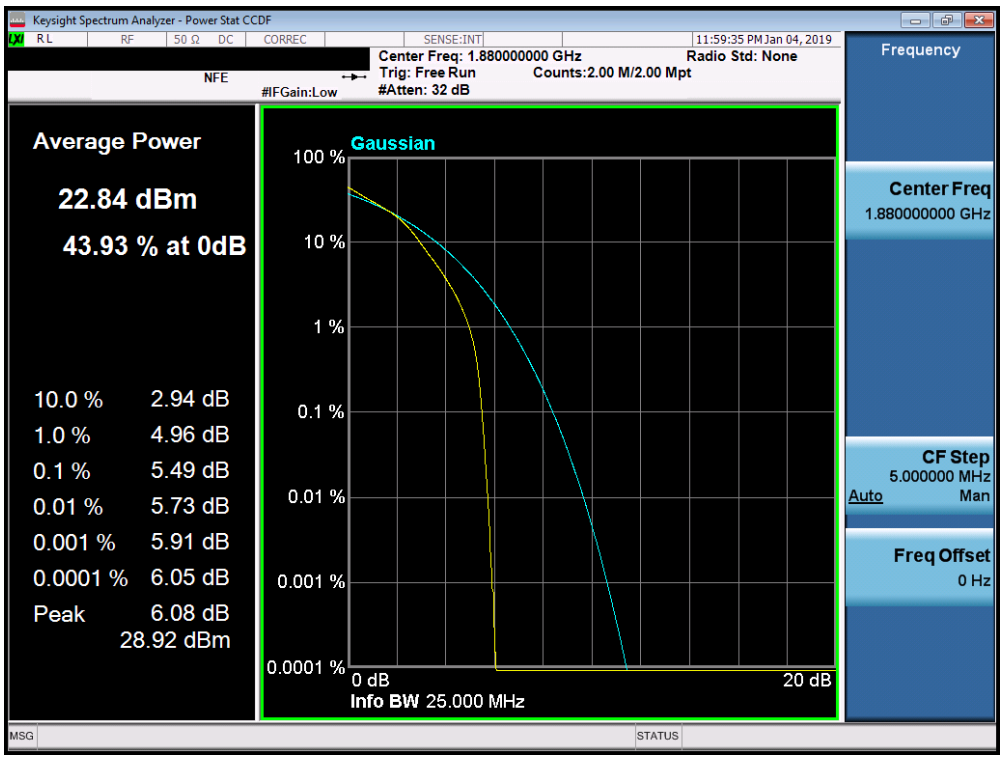


Plot 7-345. PAR Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-346. PAR Plot (Band 25/2 - 15.0MHz 16-QAM - Full RB Configuration)

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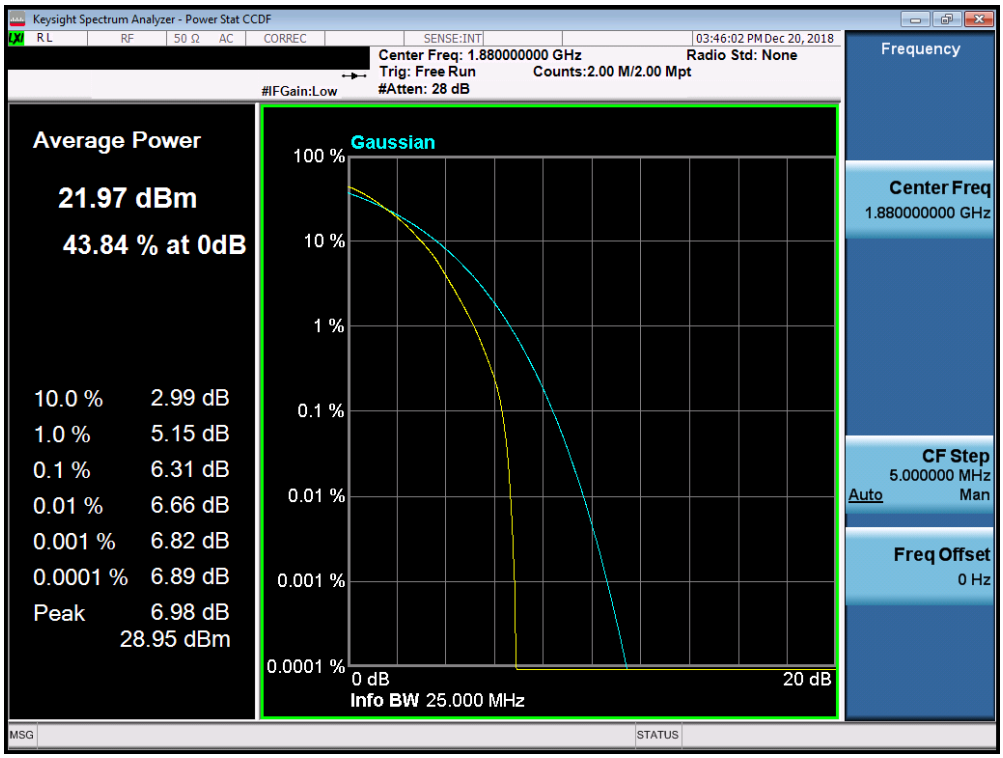
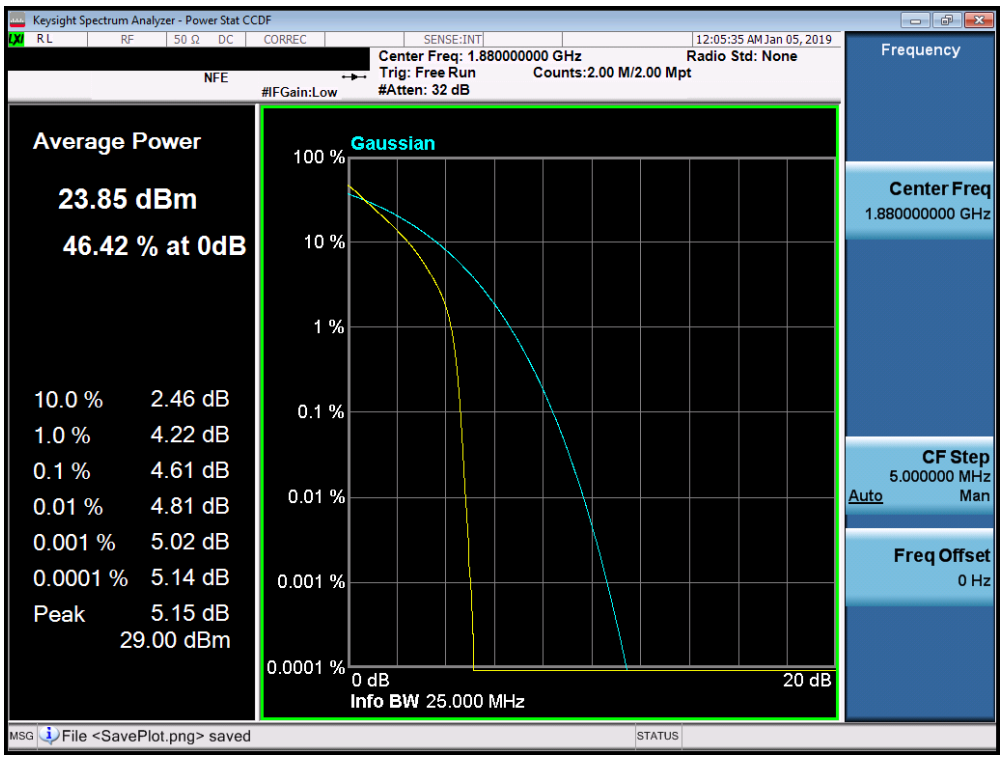


Plot 7-347. PAR Plot (Band 25/2 - 15.0MHz 64-QAM - Full RB Configuration)



Plot 7-348. PAR Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

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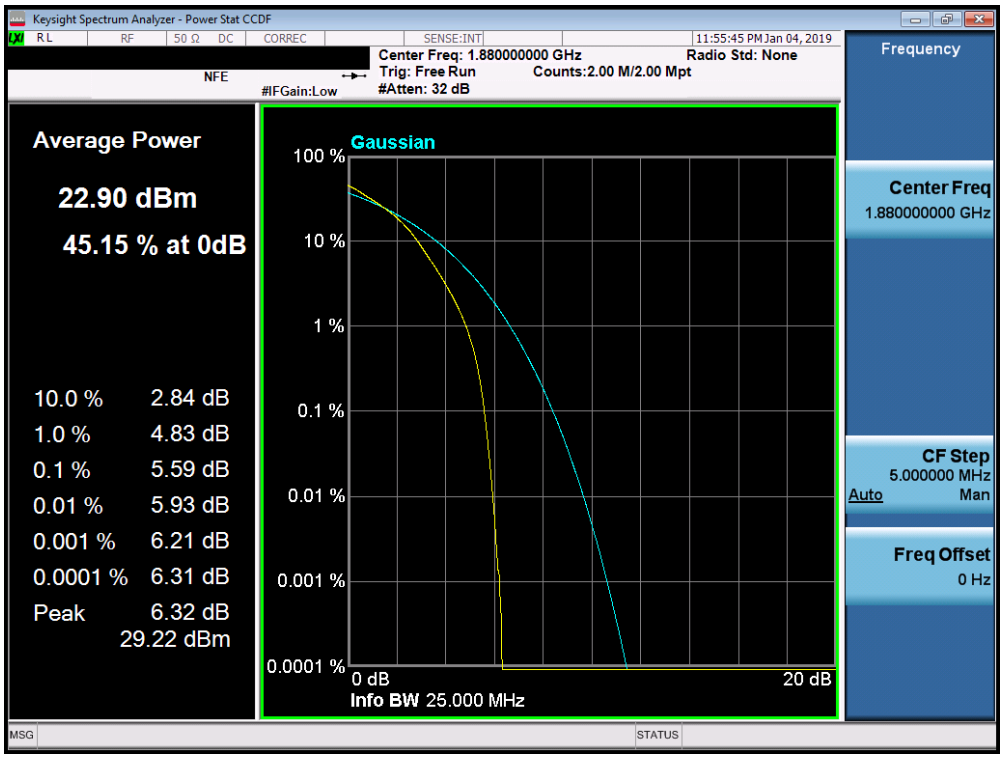
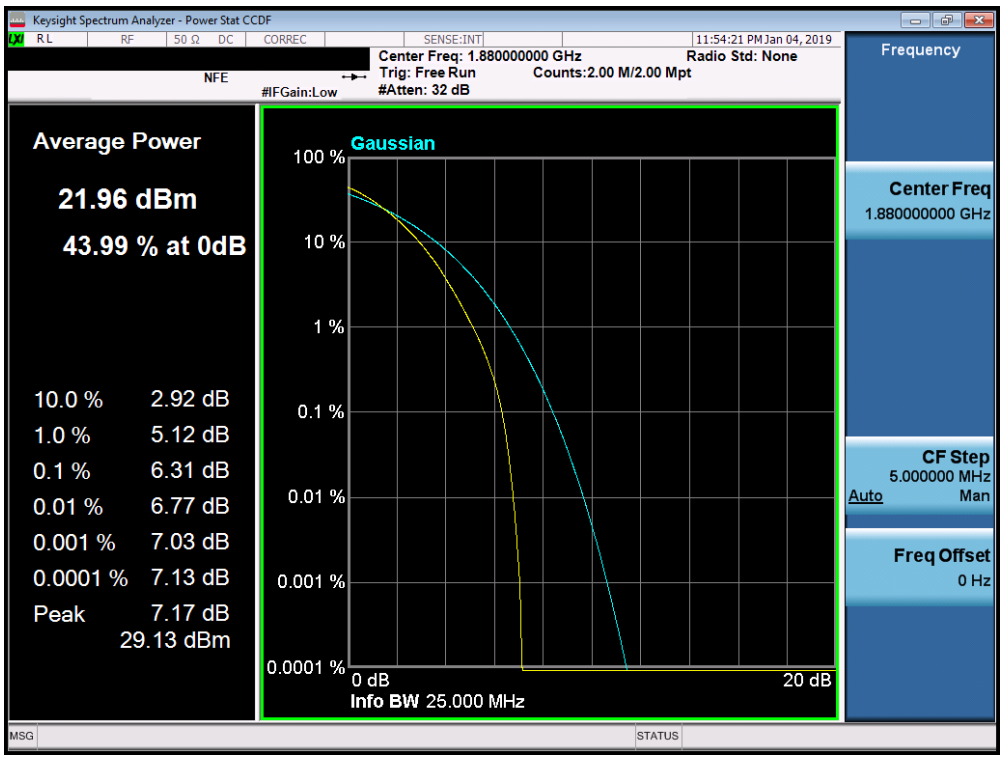


Plot 7-349. PAR Plot (Band 25/2 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-350. PAR Plot (Band 25/2 - 20.0MHz 64-QAM - Full RB Configuration)

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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.

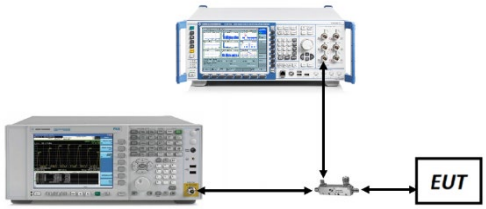

Figure 7-5. Test Instrument & Measurement Setup

Test Notes

None.

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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	312	530	5	39675	2498.5	QPSK	1	0	0	≤ 3	24.11	23.7	**0.41**
							16-QAM			≤ 1		23.24	22.7	**0.54**
							64-QAM			≤ 2		22.21	21.7	**0.51**
2				5	39675	2498.5	QPSK	1	9	0	0	26.66	26.7	**-0.04**
							16-QAM			≤ 1		26.12	25.7	**0.42**
							64-QAM			≤ 2		24.96	24.7	**0.26**
3				10	39700	2501	QPSK	1	0	0	≤ 5	22.19	21.7	**0.49**
							16-QAM	1	0	≤ 1		21.48	20.7	**0.78**
							64-QAM	1	0	≤ 2		20.33	19.7	**0.63**
4				10	39700	2501	QPSK	20	0	0	≤ 2	24.05	23.7	**0.35**
							16-QAM	20	0	≤ 1		23.01	22.7	**0.31**
							64-QAM	20	0	≤ 2		22.03	21.7	**0.33**
5				10	39700	2501	QPSK	50	0	0	≤ 3	22.90	22.7	**0.20**
							16-QAM	50	0	≤ 1		21.91	21.7	**0.21**
							64-QAM	50	0	≤ 2		20.91	20.7	**0.21**
6				10	39700	2501	QPSK	25	20	0	≤ 1	24.72	24.7	**0.02**
							16-QAM	25	20	≤ 1		23.78	23.7	**0.08**
							64-QAM	25	20	≤ 2		22.86	22.7	**0.16**
7				10	39700	2501	QPSK	1	36	0	0	26.37	26.7	**-0.33**
							16-QAM	1	36	≤ 1		25.85	25.7	**0.15**
							64-QAM	1	36	≤ 2		24.68	24.7	**-0.02**
8				15	39725	2503.5	QPSK	1	0	0	≤ 5	21.99	21.7	**0.29**
							16-QAM	1	0	≤ 1		21.25	20.7	**0.55**
							64-QAM	1	0	≤ 2		20.08	19.7	**0.38**
9				15	39725	2503.5	QPSK	20	0	0	≤ 2	23.98	23.7	**0.28**
							16-QAM	20	0	≤ 1		22.93	22.7	**0.23**
							64-QAM	20	0	≤ 2		22.01	21.7	**0.31**
10				15	39725	2503.5	QPSK	75	0	0	≤ 4	21.84	21.7	**0.14**
							16-QAM	75	0	≤ 1		20.85	20.7	**0.15**
							64-QAM	75	0	≤ 2		19.86	19.7	**0.16**
11				15	39725	2503.5	QPSK	50	15	0	≤ 3	22.80	22.7	**0.10**
							16-QAM	50	15	≤ 1		21.80	21.7	**0.10**
							64-QAM	50	15	≤ 2		20.86	20.7	**0.16**
12				15	39725	2503.5	QPSK	1	60	0	0	26.49	26.7	**-0.21**
							16-QAM	1	60	≤ 1		26.00	25.7	**0.30**
							64-QAM	1	60	≤ 2		24.83	24.7	**0.13**
13				20	39750	2506	QPSK	1	0	0	≤ 5	22.23	21.7	**0.53**
							16-QAM	1	0	≤ 1		21.55	20.7	**0.85**
							64-QAM	1	0	≤ 2		20.40	19.7	**0.70**
14				20	39750	2506	QPSK	20	0	0	≤ 2	24.24	23.7	**0.54**
							16-QAM	20	0	≤ 1		23.26	22.7	**0.56**
							64-QAM	20	0	≤ 2		22.26	21.7	**0.56**
15				20	39750	2506	QPSK	100	0	0	≤ 4	21.94	21.7	**0.24**
							16-QAM	100	0	≤ 1		20.96	20.7	**0.26**
							64-QAM	100	0	≤ 2		19.98	19.7	**0.28**
16				20	39750	2506	QPSK	75	24	0	≤ 3	22.84	22.7	**0.14**
							16-QAM	75	24	≤ 1		21.87	21.7	**0.17**
							64-QAM	75	24	≤ 2		20.92	20.7	**0.22**
17				20	39750	2506	QPSK	1	77	0	0	26.50	26.7	**-0.20**
							16-QAM	1	77	≤ 1		26.04	25.7	**0.34**
							64-QAM	1	77	≤ 2		24.92	24.7	**0.22**

Table 7-3. A-MPR Conducted Power Measurements

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7.7 Uplink Carrier Aggregation

§27.53(m)

Test Overview

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

For Band 38/41, the minimum permissible attenuation level of any spurious emission is 55 + 10log$_{10}$(P$_{[Watts]}$).

For Band 5 and 66, the minimum permissible attenuation level of any spurious emission is 43 + 10log$_{10}$(P$_{[Watts]}$).

Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

Test Settings

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

Test Setup

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

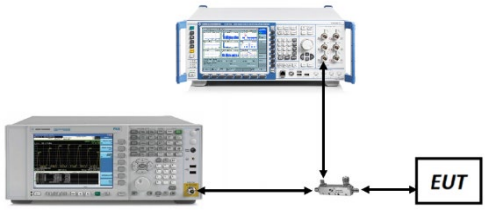

Figure 7-6. Test Instrument & Measurement Setup

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Test Notes

1. Uplink carrier aggregation is only supported in this EUT while operating in Power Class 3.

2. Conducted power and spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device. The worst case (highest) powers were found while operating with QPSK modulation, as shown in Table 7-4 and 7-5 below, with both carriers set to transmit using 1RB.

3. Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

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