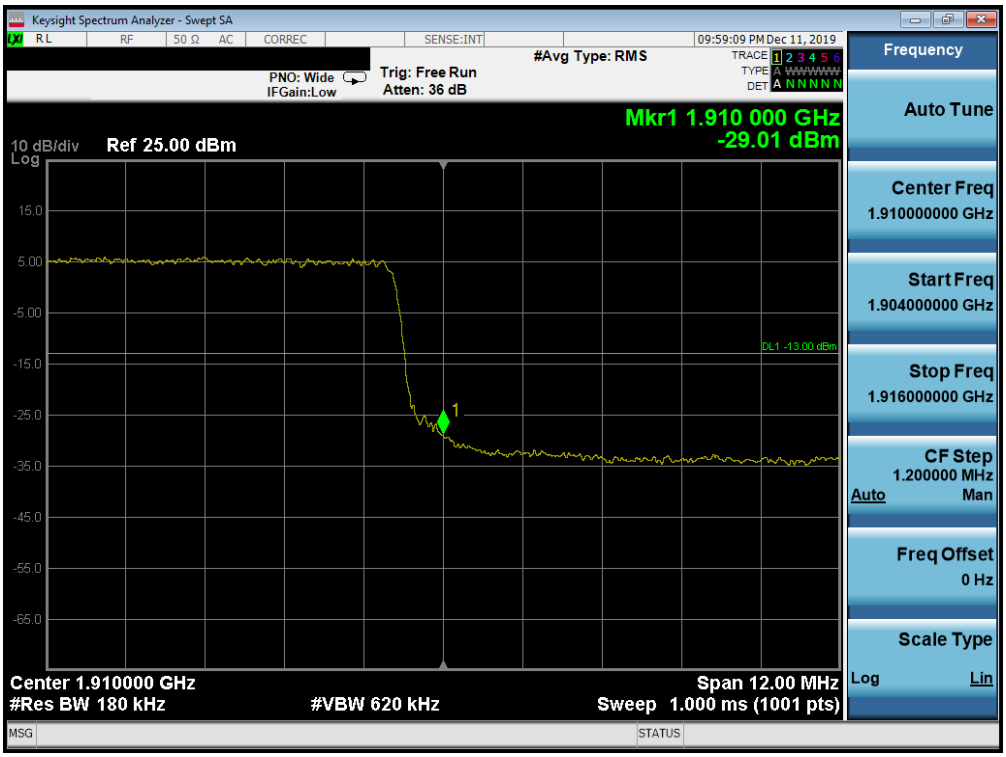
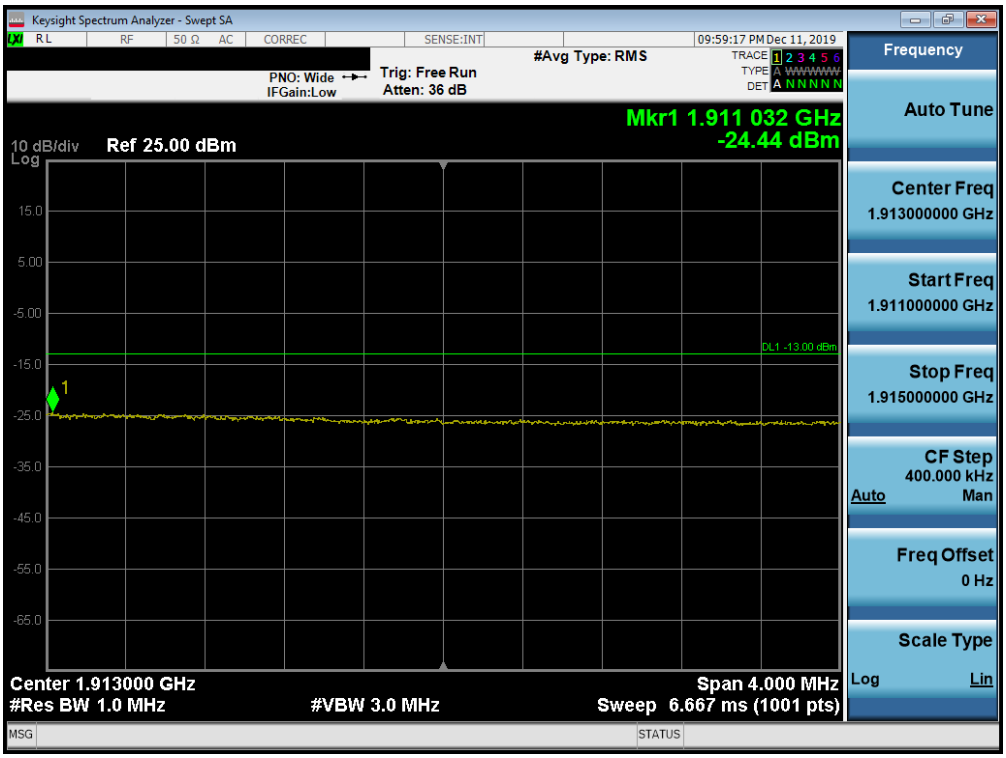


Plot 7-213. Upper Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-214. Upper Extended Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

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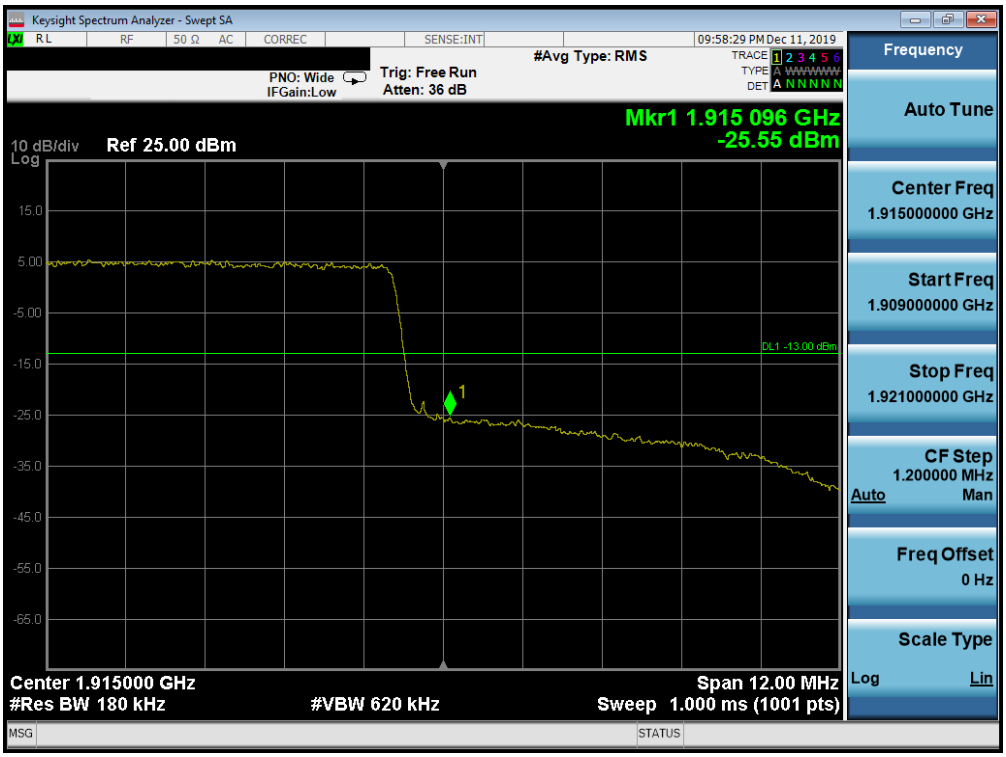
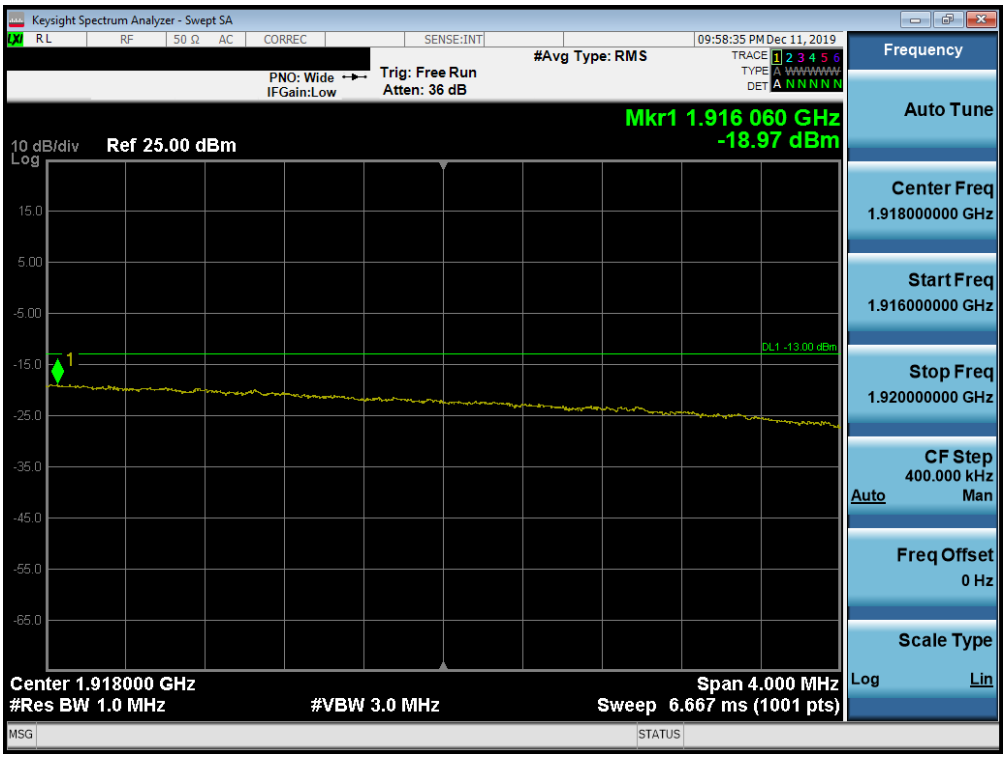


Plot 7-215. Upper Band Edge Plot (Band 25 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-216. Upper Extended Band Edge Plot (Band 25 - 15.0MHz QPSK - Full RB Configuration)

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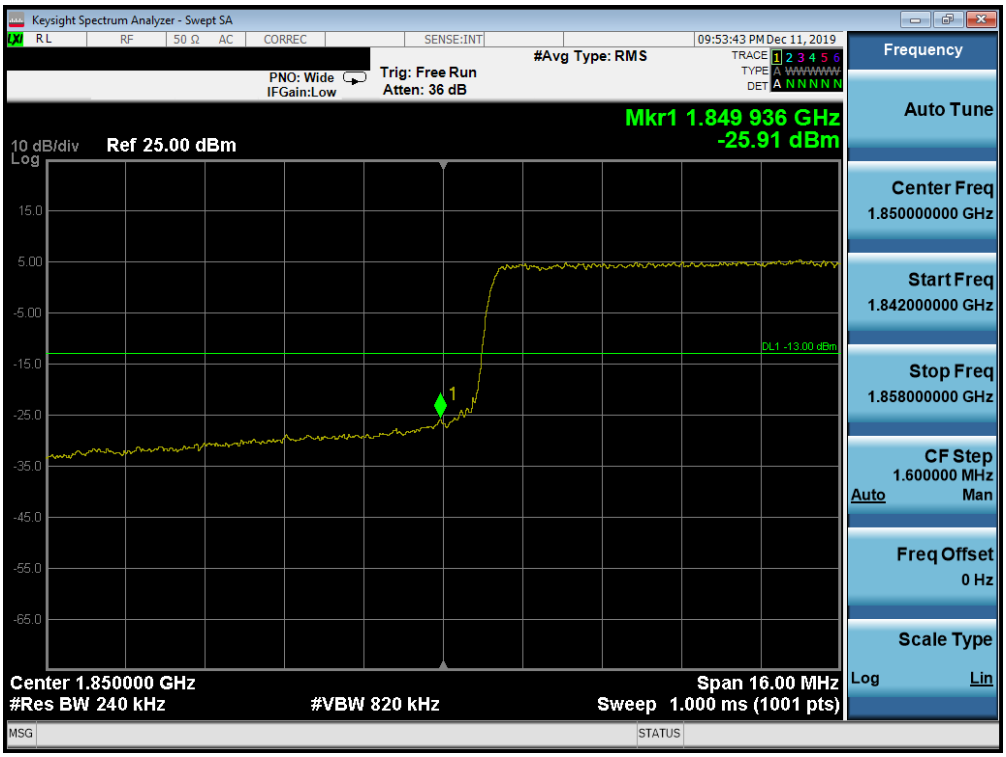
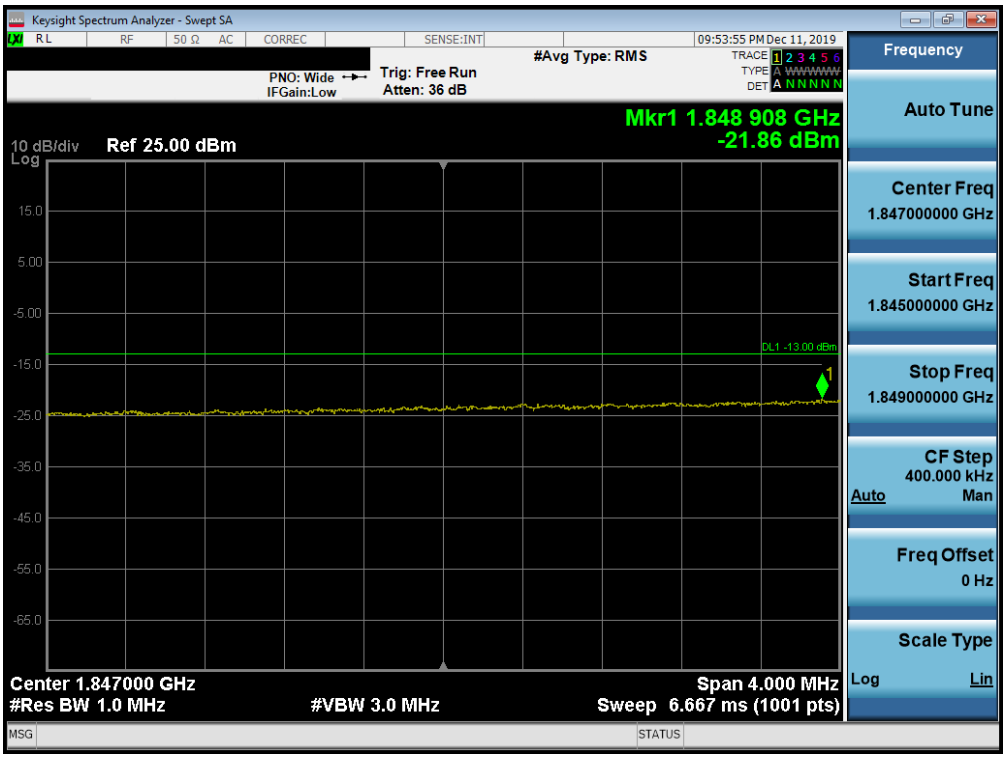


Plot 7-217. Lower Band Edge Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-218. Lower Extended Band Edge Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

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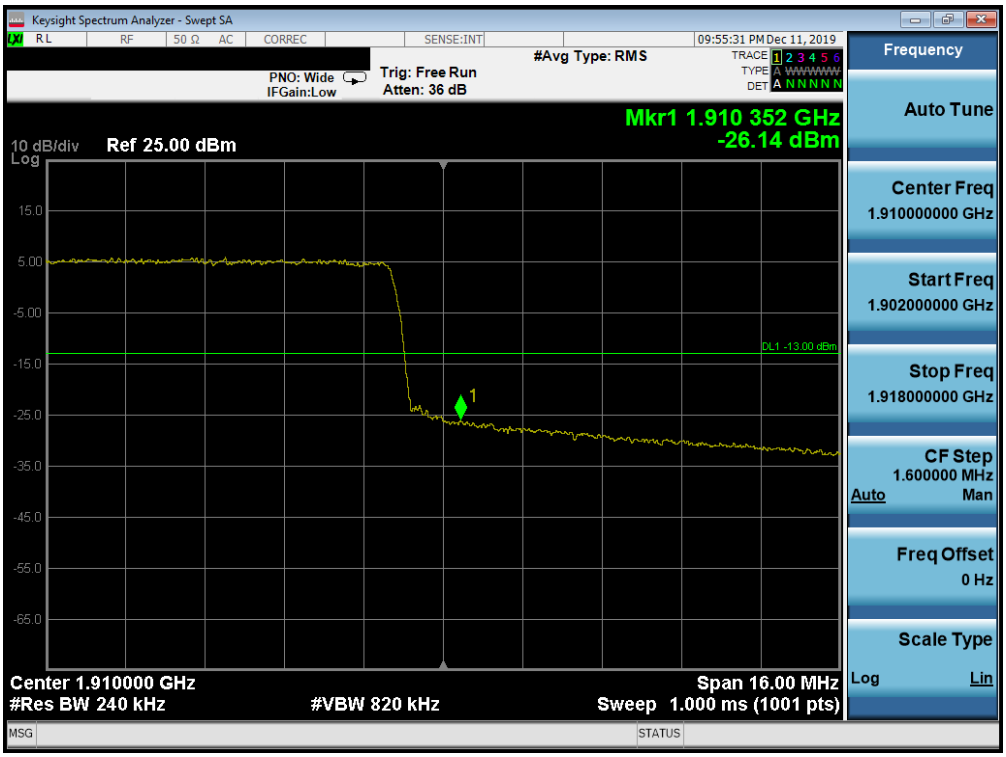
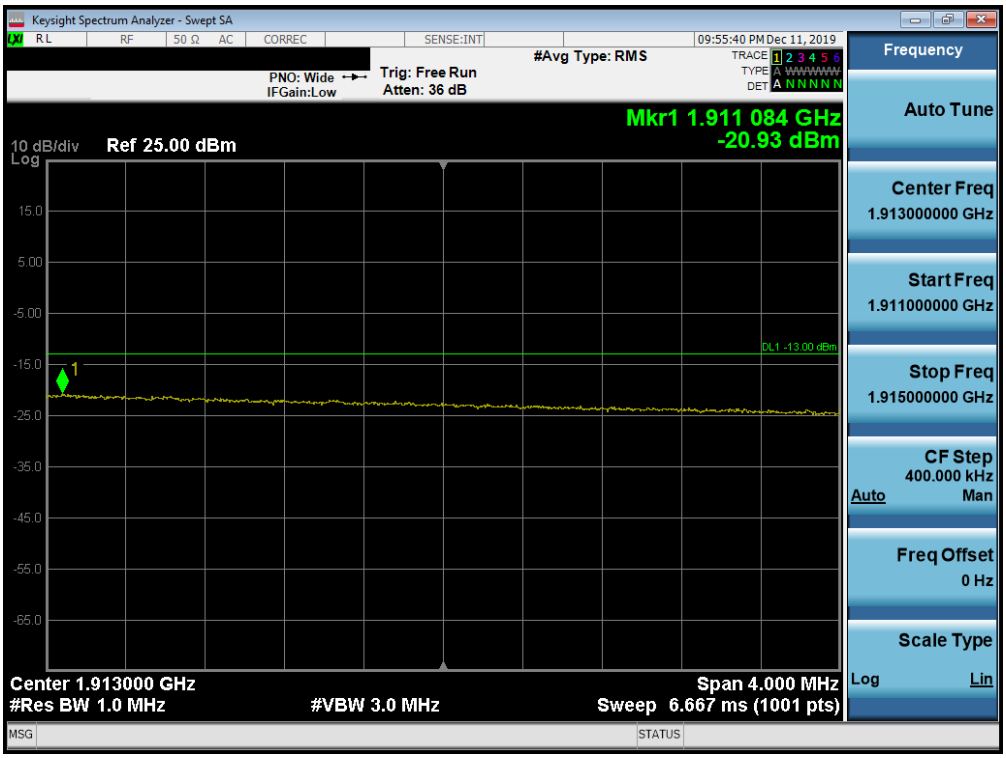


Plot 7-300. Upper Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-301. Upper Extended Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

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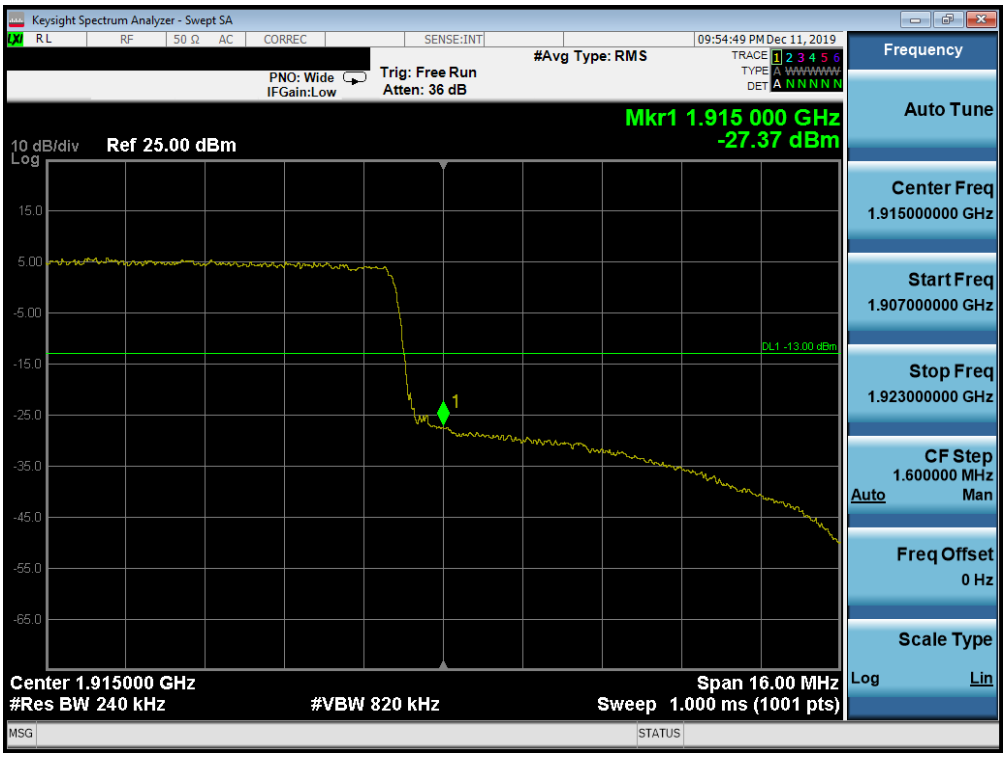
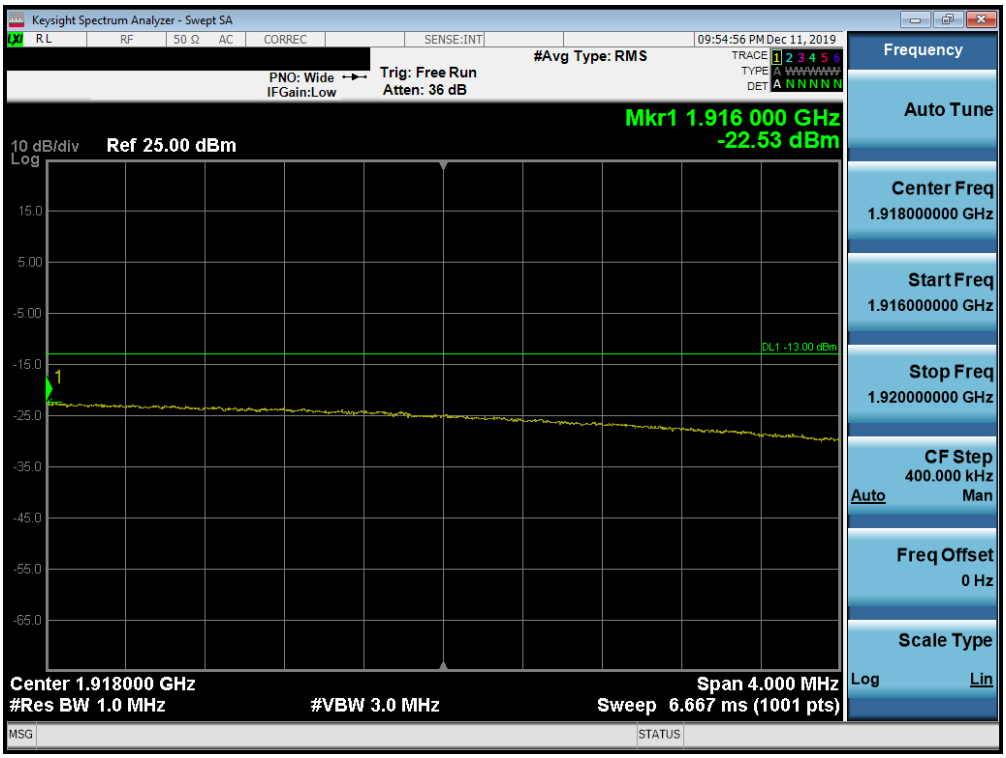


Plot 7-302. Upper Band Edge Plot (Band 25 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-303. Upper Extended Band Edge Plot (Band 25 - 20.0MHz QPSK - Full RB Configuration)

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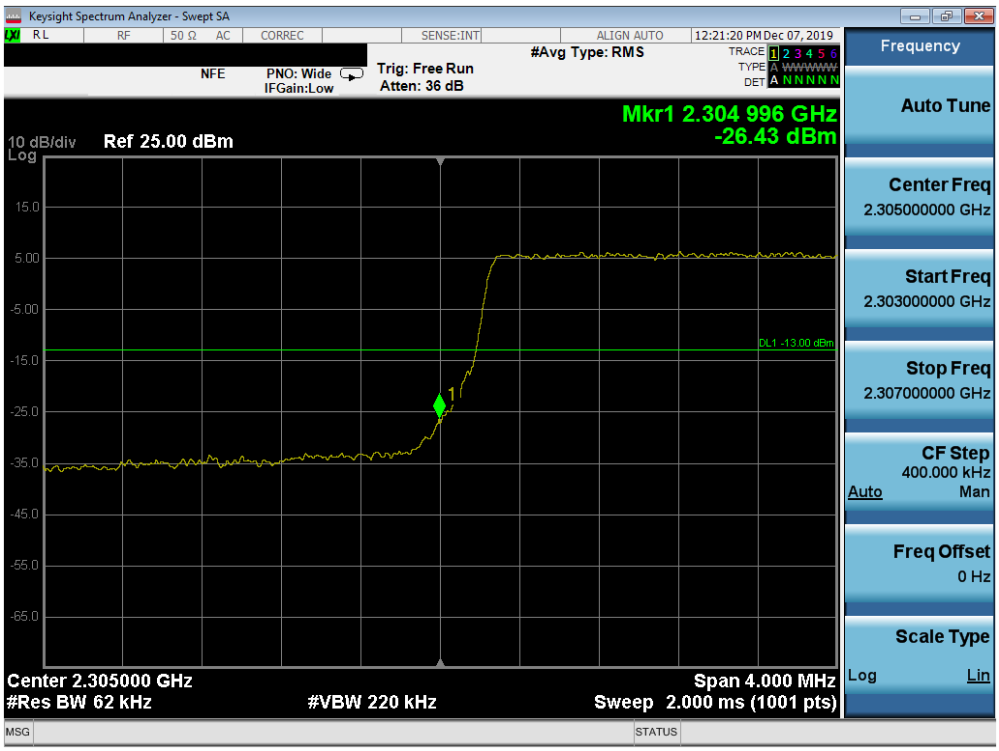
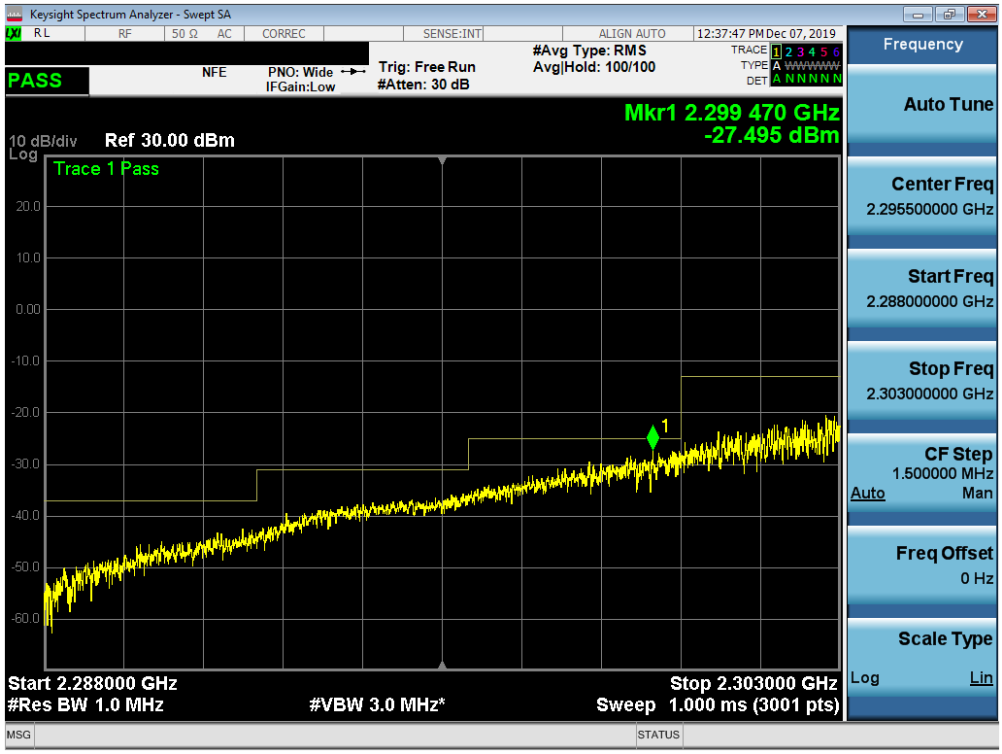
Band 30



Plot 7-304. Lower Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-305. Lower Extended Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)

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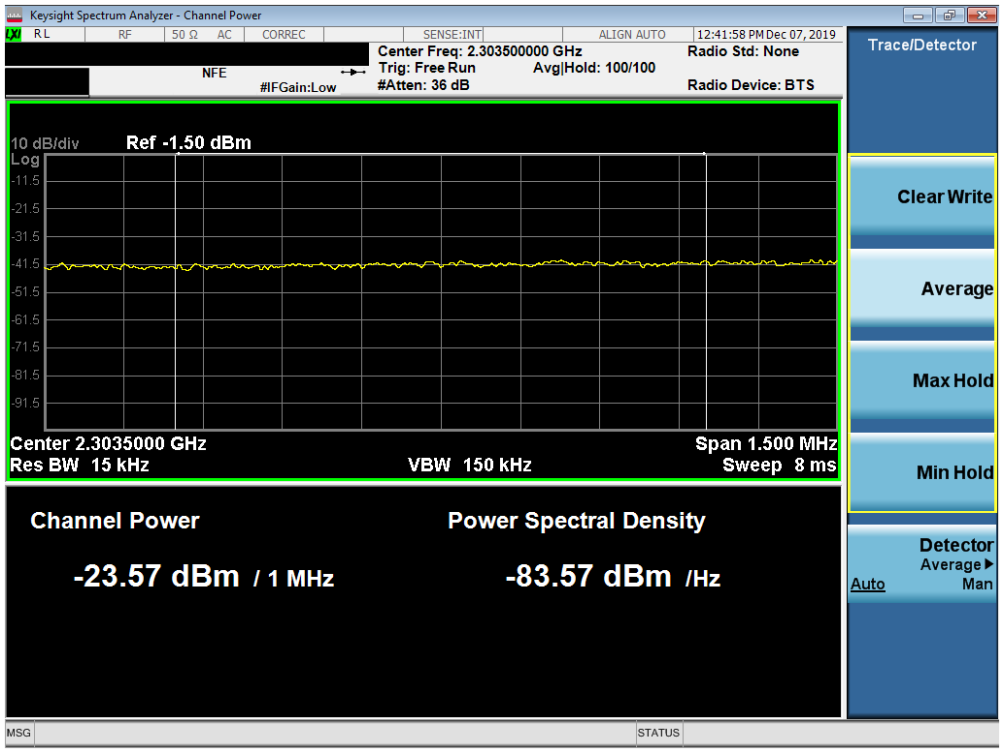
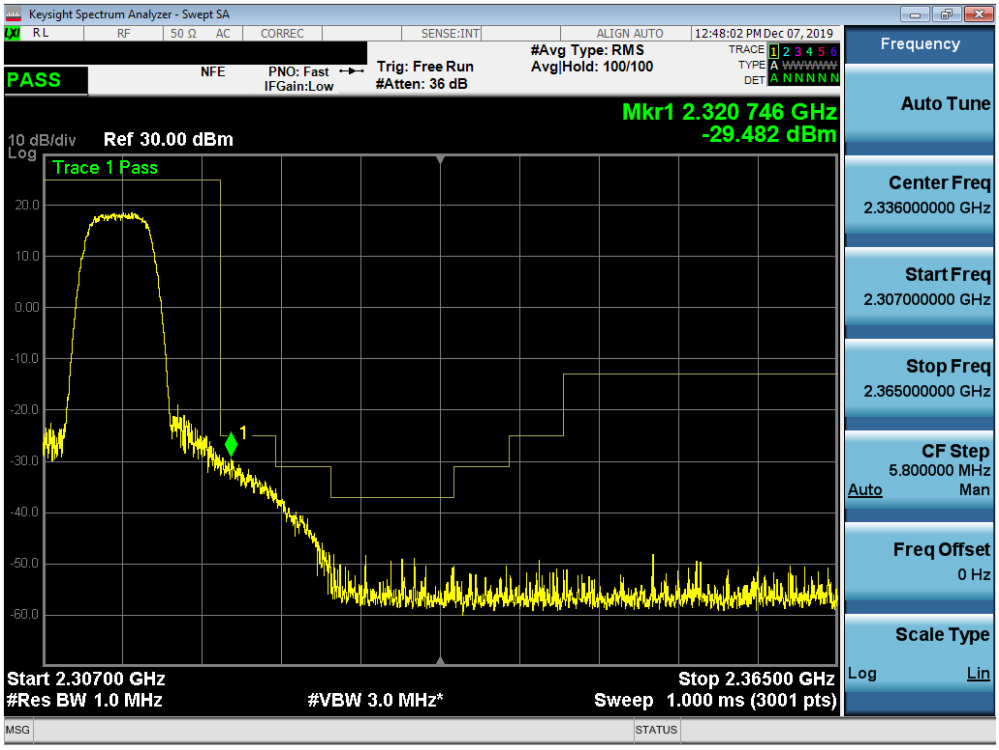


Plot 7-306. Lower Extended Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-307. Upper Extended Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)

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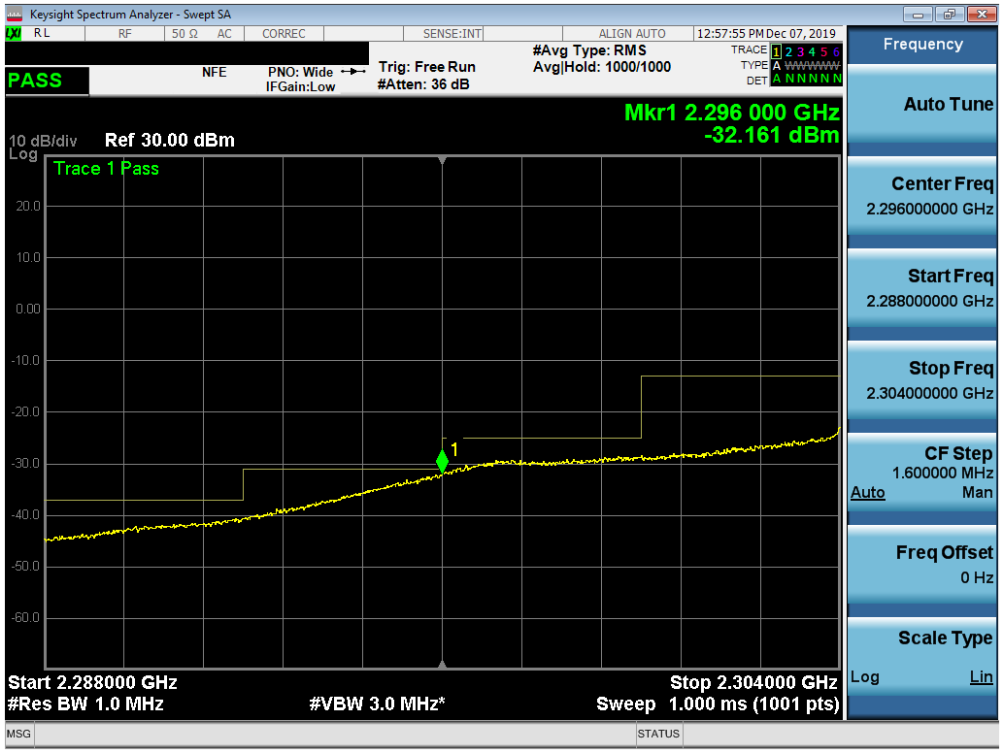
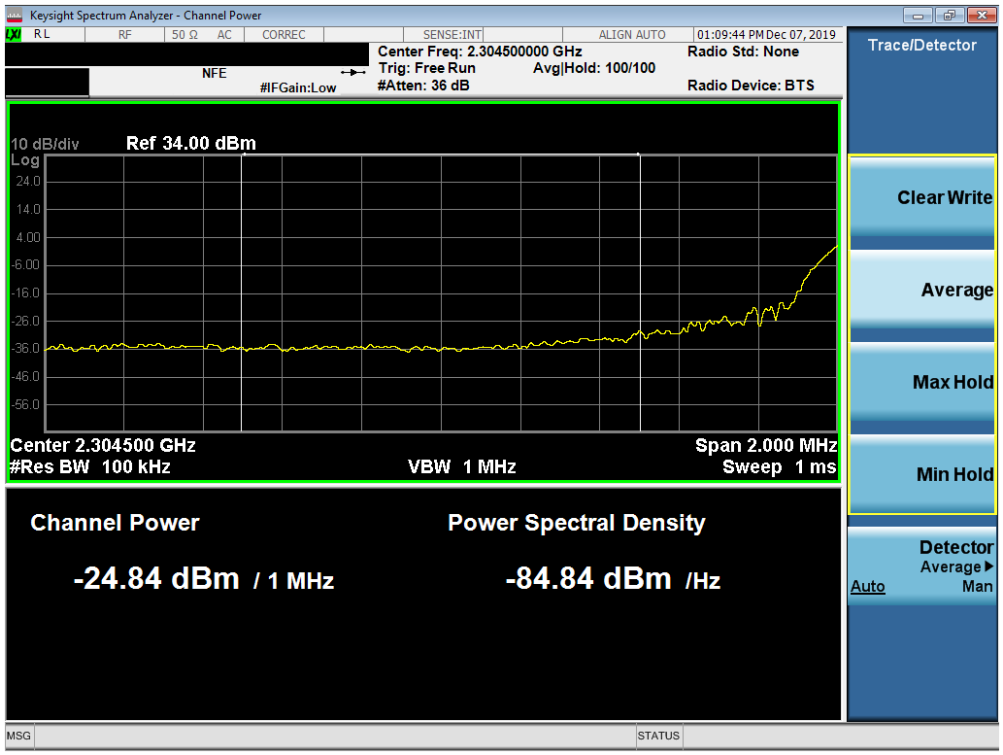


Plot 7-308. Lower Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-309. Lower Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)

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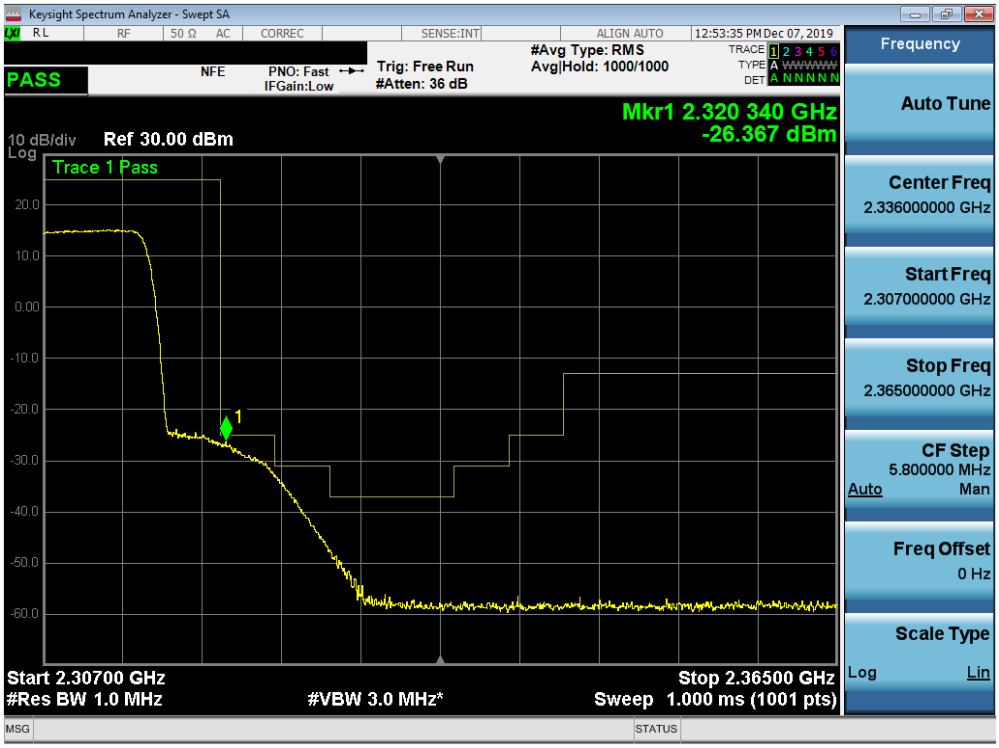

Plot 7-310. Upper Extended Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)

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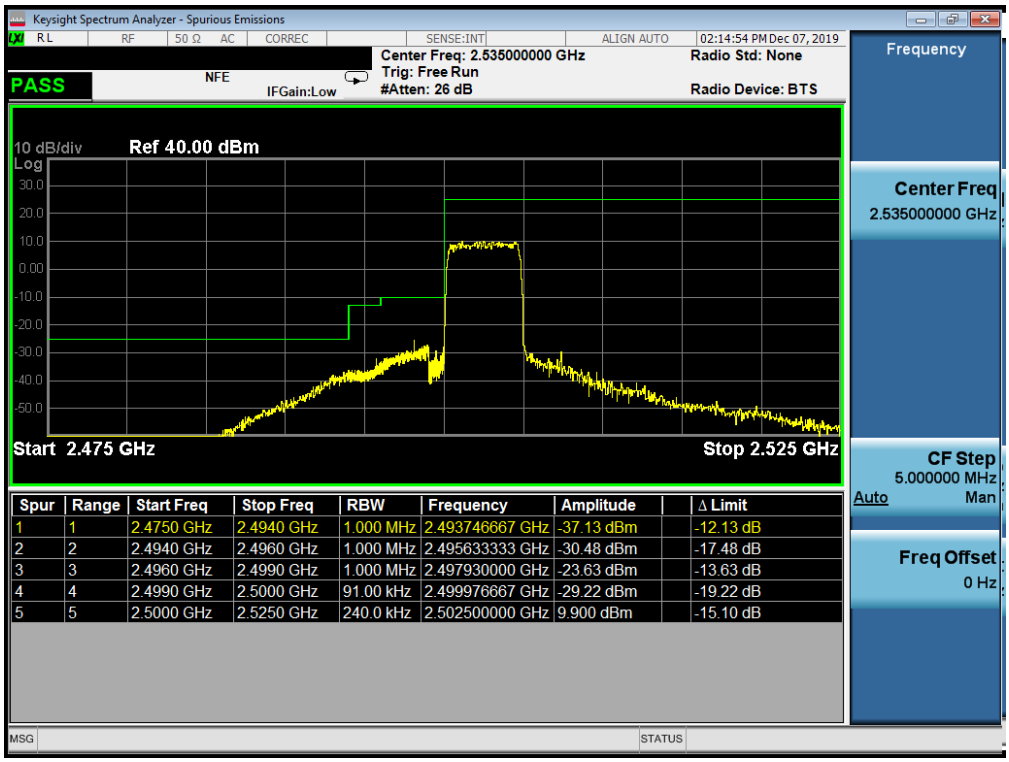
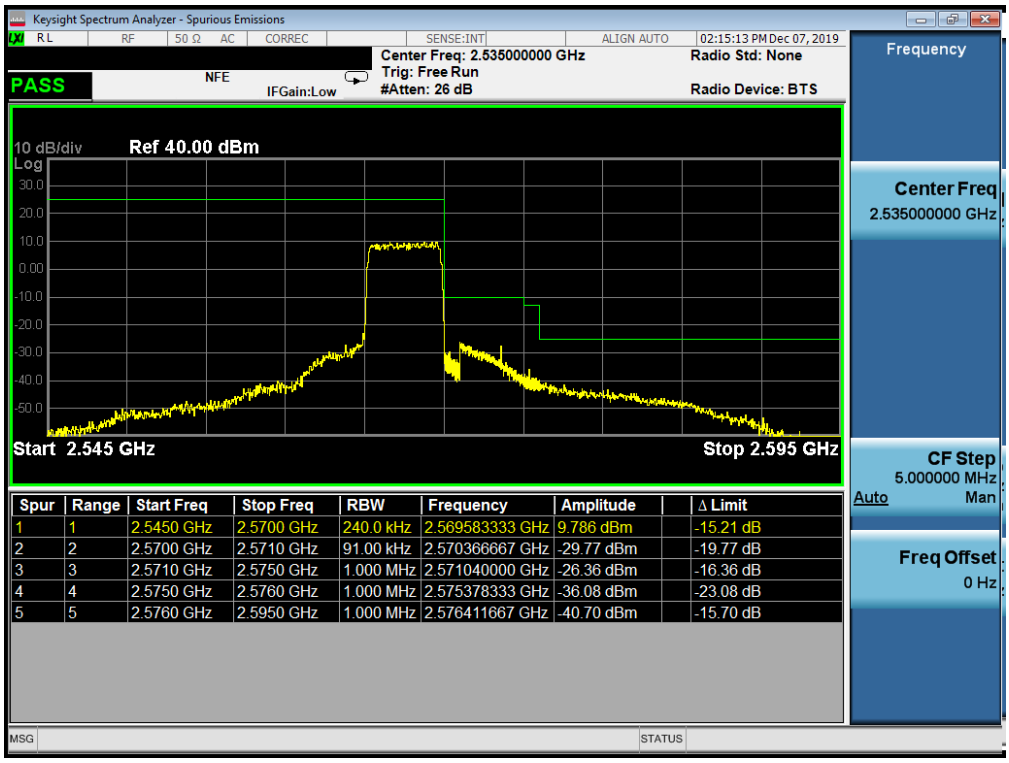
Band 7



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4940 GHz	1.000 MHz	2.493746667 GHz	-37.13 dBm	-12.13 dB
2	2	2.4940 GHz	2.4960 GHz	1.000 MHz	2.495633333 GHz	-30.48 dBm	-17.48 dB
3	3	2.4960 GHz	2.4990 GHz	1.000 MHz	2.497930000 GHz	-23.63 dBm	-13.63 dB
4	4	2.4990 GHz	2.5000 GHz	91.00 kHz	2.499976667 GHz	-29.22 dBm	-19.22 dB
5	5	2.5000 GHz	2.5250 GHz	240.0 kHz	2.502500000 GHz	9.900 dBm	-15.10 dB

Plot 7-311. 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	2.569583333 GHz	9.786 dBm	-15.21 dB
2	2	2.5700 GHz	2.5710 GHz	91.00 kHz	2.570366667 GHz	-29.77 dBm	-19.77 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.571040000 GHz	-26.36 dBm	-16.36 dB
4	4	2.5750 GHz	2.5760 GHz	1.000 MHz	2.575378333 GHz	-36.08 dBm	-23.08 dB
5	5	2.5760 GHz	2.5950 GHz	1.000 MHz	2.576411667 GHz	-40.70 dBm	-15.70 dB

Plot 7-312. Higher ACP Plot (Band 7 - 5.0MHz QPSK - Full RB Configuration)

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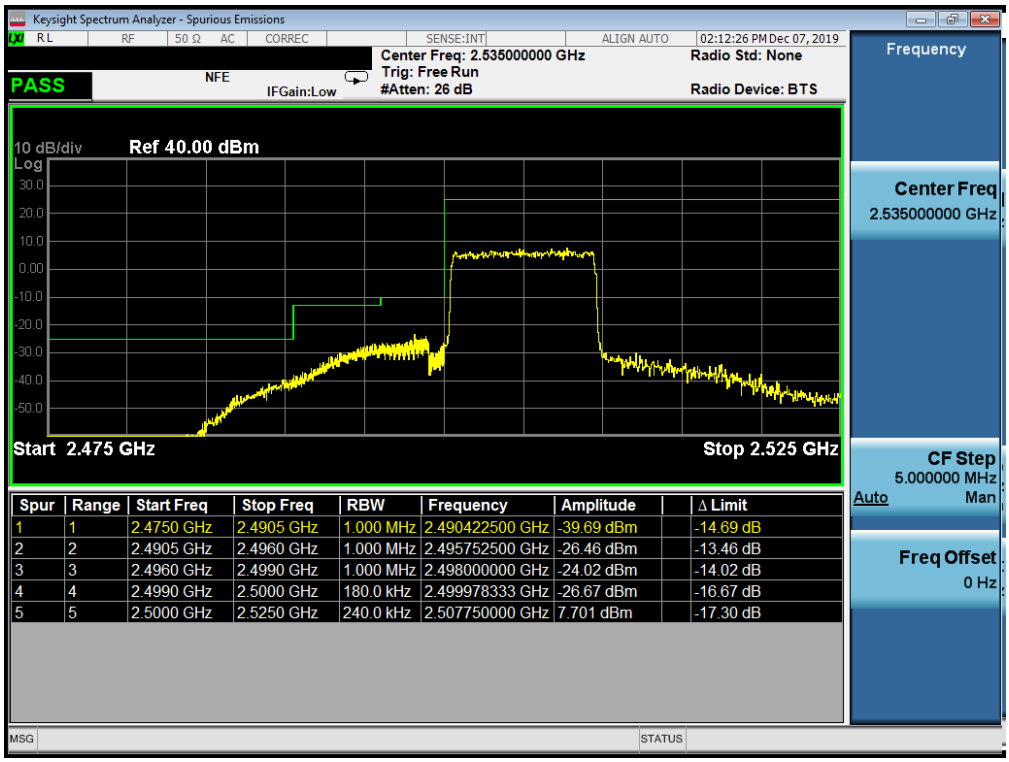
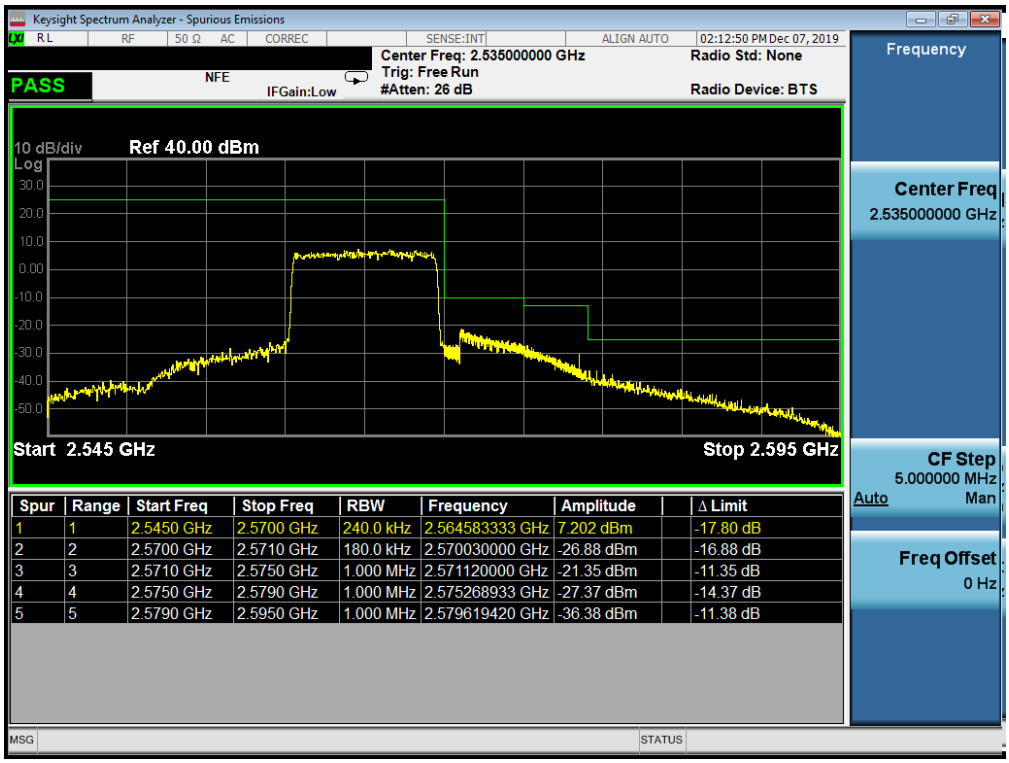


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490422500 GHz	-39.69 dBm	-14.69 dB
2	2	2.4905 GHz	2.4960 GHz	1.000 MHz	2.495752500 GHz	-26.46 dBm	-13.46 dB
3	3	2.4960 GHz	2.4990 GHz	1.000 MHz	2.498000000 GHz	-24.02 dBm	-14.02 dB
4	4	2.4990 GHz	2.5000 GHz	180.0 kHz	2.499978333 GHz	-26.67 dBm	-16.67 dB
5	5	2.5000 GHz	2.5250 GHz	240.0 kHz	2.507750000 GHz	7.701 dBm	-17.30 dB

Plot 7-313. 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	2.564583333 GHz	7.202 dBm	-17.80 dB
2	2	2.5700 GHz	2.5710 GHz	180.0 kHz	2.570030000 GHz	-26.88 dBm	-16.88 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.571120000 GHz	-21.35 dBm	-11.35 dB
4	4	2.5750 GHz	2.5790 GHz	1.000 MHz	2.575268933 GHz	-27.37 dBm	-14.37 dB
5	5	2.5790 GHz	2.5950 GHz	1.000 MHz	2.579619420 GHz	-36.38 dBm	-11.38 dB

Plot 7-314. Higher ACP Plot (Band 7 - 10.0MHz QPSK - Full RB Configuration)

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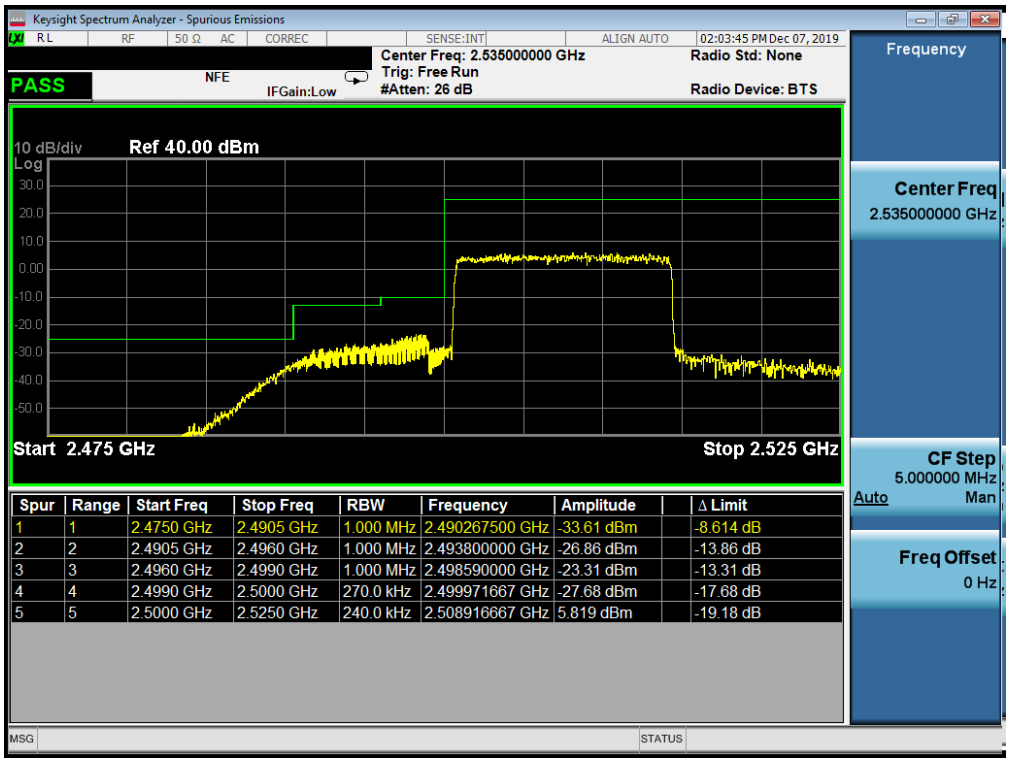
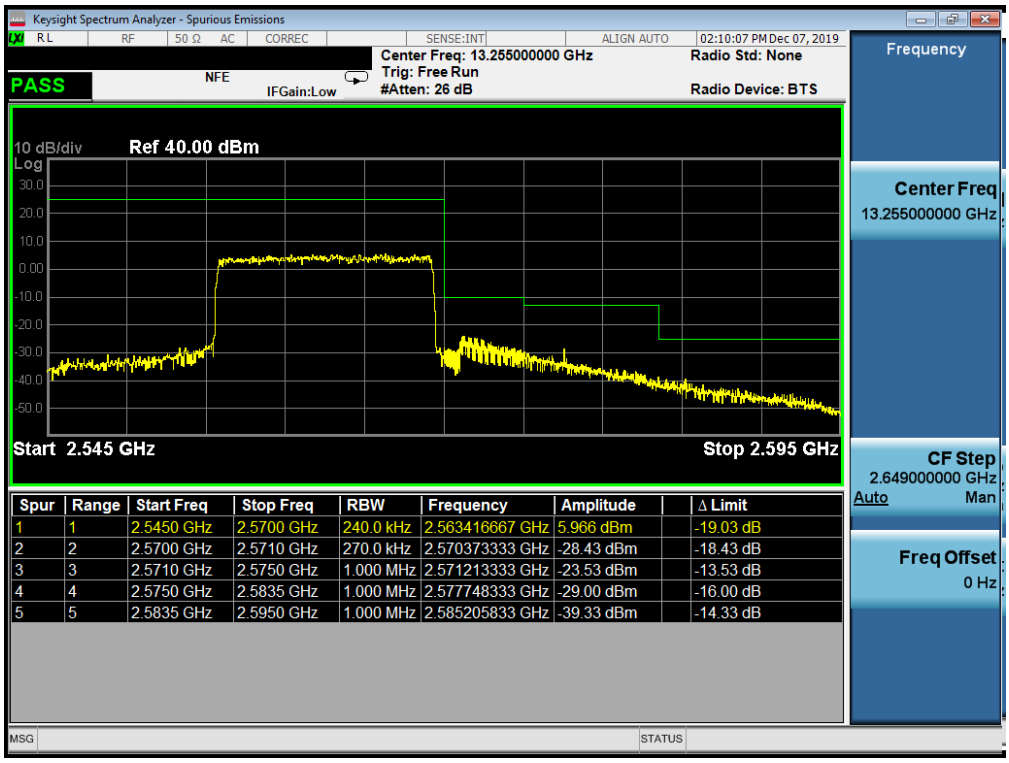


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490267500 GHz	-33.61 dBm	-8.614 dB
2	2	2.4905 GHz	2.4960 GHz	1.000 MHz	2.493800000 GHz	-26.86 dBm	-13.86 dB
3	3	2.4960 GHz	2.4990 GHz	1.000 MHz	2.498590000 GHz	-23.31 dBm	-13.31 dB
4	4	2.4990 GHz	2.5000 GHz	270.0 kHz	2.499971667 GHz	-27.68 dBm	-17.68 dB
5	5	2.5000 GHz	2.5250 GHz	240.0 kHz	2.508916667 GHz	5.819 dBm	-19.18 dB

Plot 7-315. 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	2.563416667 GHz	5.966 dBm	-19.03 dB
2	2	2.5700 GHz	2.5710 GHz	270.0 kHz	2.570373333 GHz	-28.43 dBm	-18.43 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.571213333 GHz	-23.53 dBm	-13.53 dB
4	4	2.5750 GHz	2.5835 GHz	1.000 MHz	2.577748333 GHz	-29.00 dBm	-16.00 dB
5	5	2.5835 GHz	2.5950 GHz	1.000 MHz	2.585205833 GHz	-39.33 dBm	-14.33 dB

Plot 7-316. Higher ACP Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)

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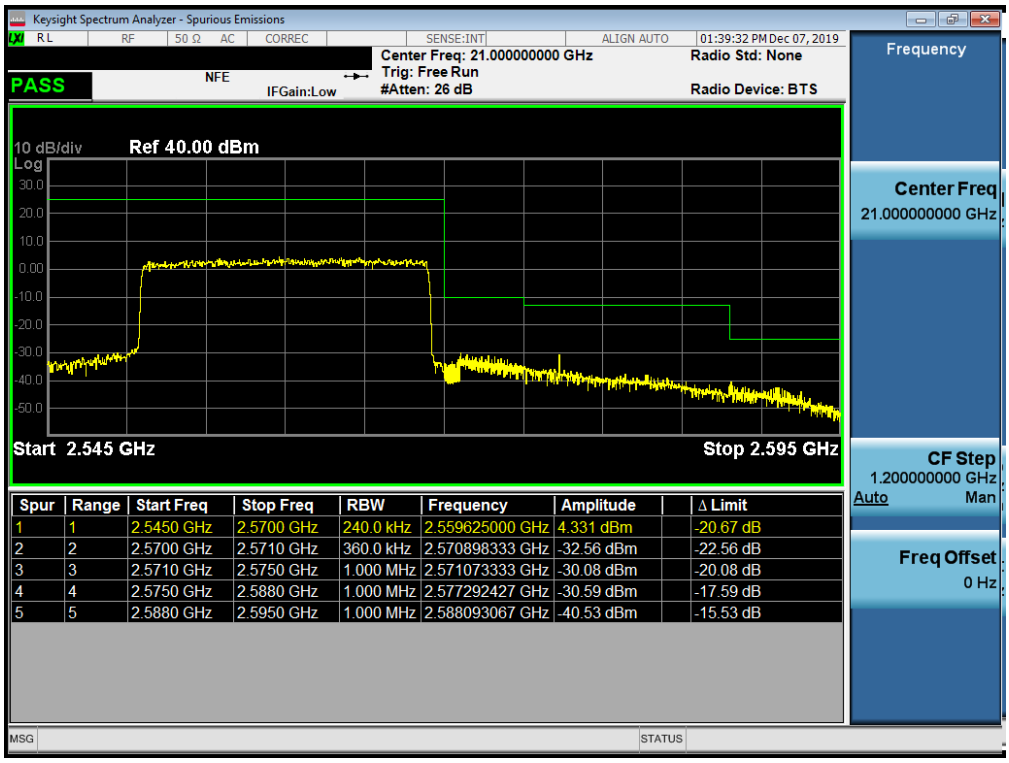
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490500000 GHz	-37.35 dBm	-12.35 dB
2	2	2.4905 GHz	2.4960 GHz	1.000 MHz	2.495935833 GHz	-31.60 dBm	-18.60 dB
3	3	2.4960 GHz	2.4990 GHz	1.000 MHz	2.499000000 GHz	-26.67 dBm	-16.67 dB
4	4	2.4990 GHz	2.5000 GHz	360.0 kHz	2.499988333 GHz	-30.80 dBm	-20.80 dB
5	5	2.5000 GHz	2.5250 GHz	240.0 kHz	2.507000000 GHz	2.899 dBm	-22.10 dB

Plot 7-317. 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	2.559625000 GHz	4.331 dBm	-20.67 dB
2	2	2.5700 GHz	2.5710 GHz	360.0 kHz	2.570898333 GHz	-32.56 dBm	-22.56 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.571073333 GHz	-30.08 dBm	-20.08 dB
4	4	2.5750 GHz	2.5880 GHz	1.000 MHz	2.577292427 GHz	-30.59 dBm	-17.59 dB
5	5	2.5880 GHz	2.5950 GHz	1.000 MHz	2.588093067 GHz	-40.53 dBm	-15.53 dB

Plot 7-318. Higher ACP Plot (Band 7 - 20.0MHz QPSK - Full RB Configuration)

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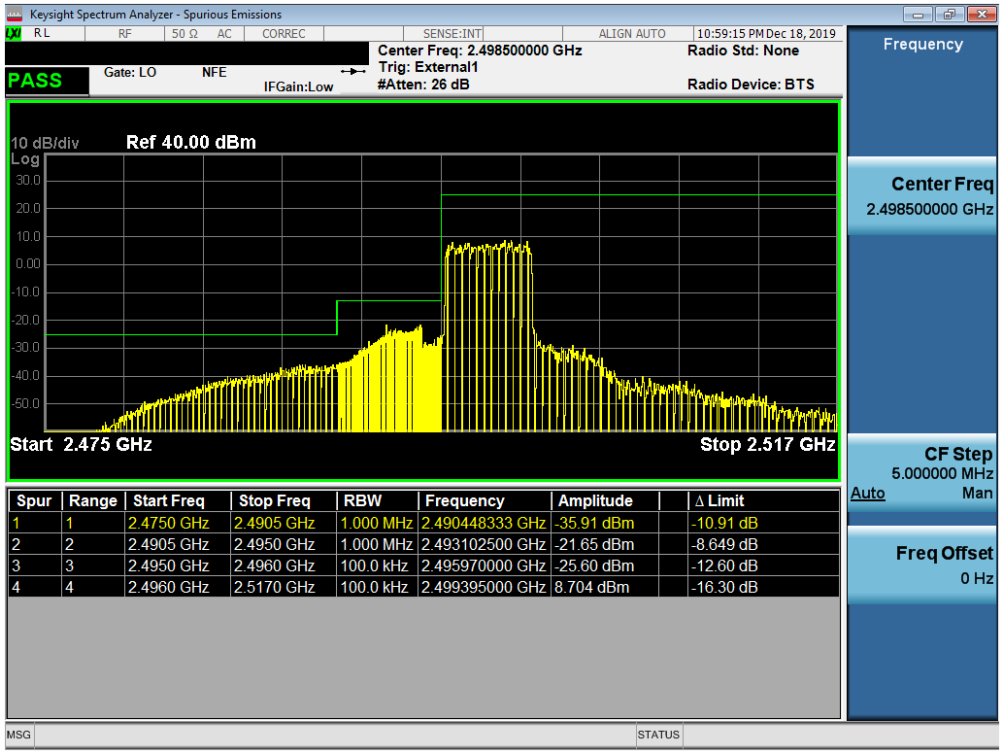
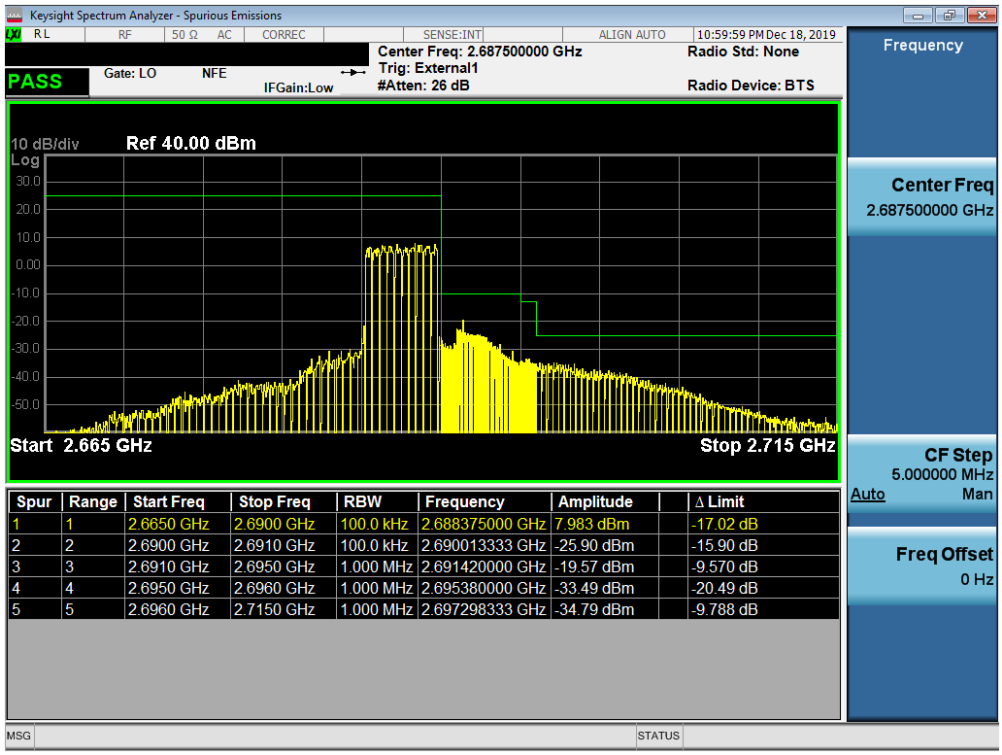
Band 41 PC2



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490448333 GHz	-35.91 dBm	-10.91 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.493102500 GHz	-21.65 dBm	-8.649 dB
3	3	2.4950 GHz	2.4960 GHz	100.0 kHz	2.495970000 GHz	-25.60 dBm	-12.60 dB
4	4	2.4960 GHz	2.5170 GHz	100.0 kHz	2.499395000 GHz	8.704 dBm	-16.30 dB

Plot 7-319. 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	2.688375000 GHz	7.983 dBm	-17.02 dB
2	2	2.6900 GHz	2.6910 GHz	100.0 kHz	2.690013333 GHz	-25.90 dBm	-15.90 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691420000 GHz	-19.57 dBm	-9.570 dB
4	4	2.6950 GHz	2.6960 GHz	1.000 MHz	2.695380000 GHz	-33.49 dBm	-20.49 dB
5	5	2.6960 GHz	2.7150 GHz	1.000 MHz	2.697298333 GHz	-34.79 dBm	-9.788 dB

Plot 7-320. Upper ACP Plot (Band 41 PC2- 5.0MHz QPSK - Full RB Configuration)

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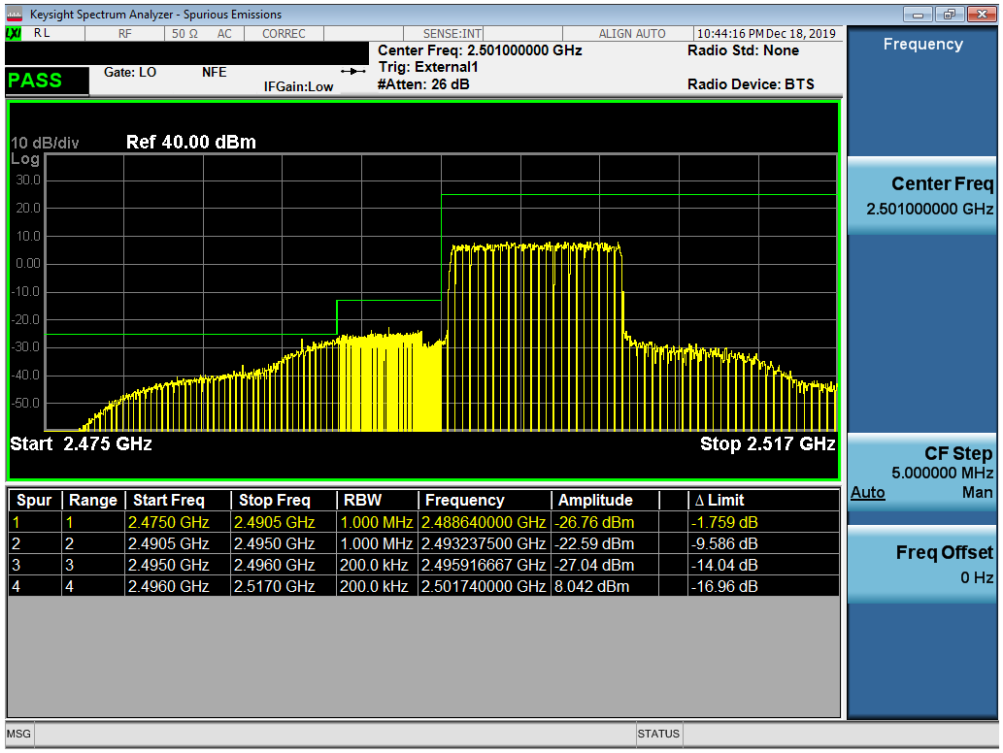
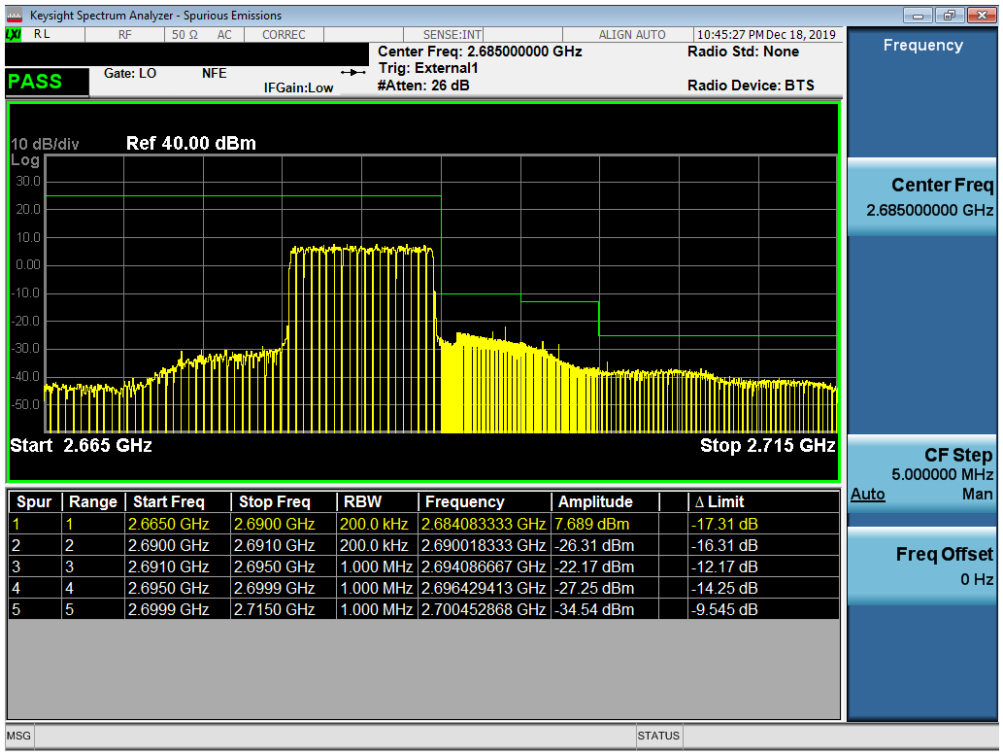


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.488640000 GHz	-26.76 dBm	-1.759 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.493237500 GHz	-22.59 dBm	-9.586 dB
3	3	2.4950 GHz	2.4960 GHz	200.0 kHz	2.495916667 GHz	-27.04 dBm	-14.04 dB
4	4	2.4960 GHz	2.5170 GHz	200.0 kHz	2.501740000 GHz	8.042 dBm	-16.96 dB

Plot 7-321. 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	2.684083333 GHz	7.689 dBm	-17.31 dB
2	2	2.6900 GHz	2.6910 GHz	200.0 kHz	2.690018333 GHz	-26.31 dBm	-16.31 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.694086667 GHz	-22.17 dBm	-12.17 dB
4	4	2.6950 GHz	2.6999 GHz	1.000 MHz	2.696429413 GHz	-27.25 dBm	-14.25 dB
5	5	2.6999 GHz	2.7150 GHz	1.000 MHz	2.700452868 GHz	-34.54 dBm	-9.545 dB

Plot 7-322. Upper ACP Plot (Band 41 PC2- 10.0MHz QPSK - Full RB Configuration)

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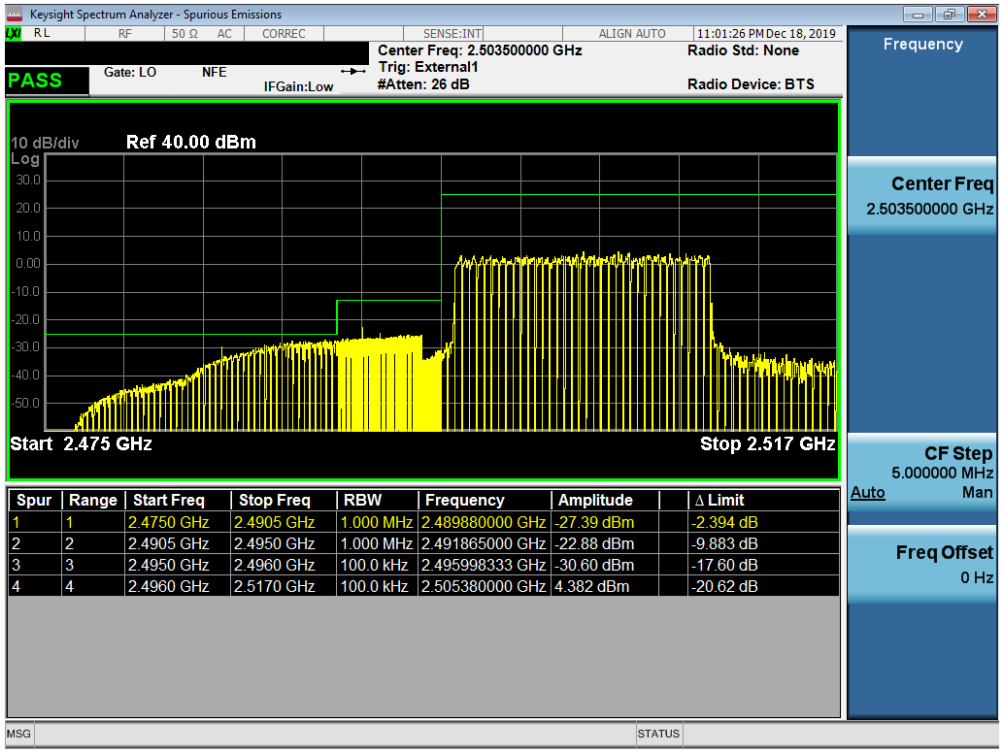
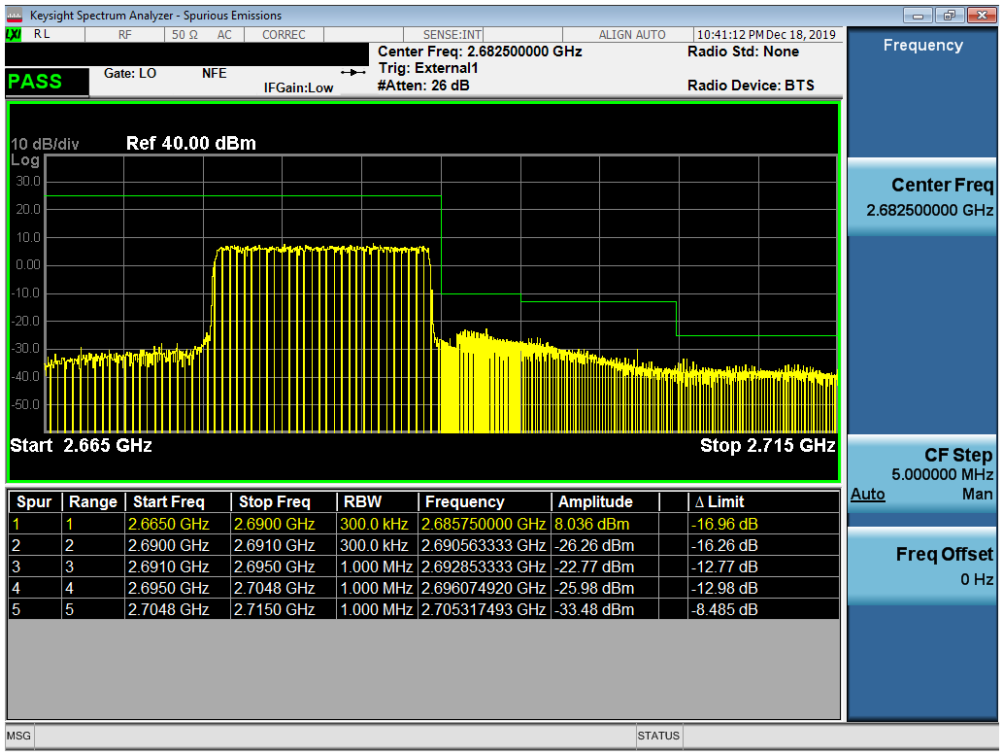


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.489880000 GHz	-27.39 dBm	-2.394 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.491865000 GHz	-22.88 dBm	-9.883 dB
3	3	2.4950 GHz	2.4960 GHz	100.0 kHz	2.495998333 GHz	-30.60 dBm	-17.60 dB
4	4	2.4960 GHz	2.5170 GHz	100.0 kHz	2.505380000 GHz	4.382 dBm	-20.62 dB

Plot 7-323. Lower ACP Plot at 2496 MHz (Band 41 PC2- 15.0MHz QPSK - Full RB Configuration)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	300.0 kHz	2.685750000 GHz	8.036 dBm	-16.96 dB
2	2	2.6900 GHz	2.6910 GHz	300.0 kHz	2.690563333 GHz	-26.26 dBm	-16.26 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.692853333 GHz	-22.77 dBm	-12.77 dB
4	4	2.6950 GHz	2.7048 GHz	1.000 MHz	2.696074920 GHz	-25.98 dBm	-12.98 dB
5	5	2.7048 GHz	2.7150 GHz	1.000 MHz	2.705317493 GHz	-33.48 dBm	-8.485 dB

Plot 7-324. Upper ACP Plot (Band 41 PC2- 15.0MHz QPSK - Full RB Configuration)

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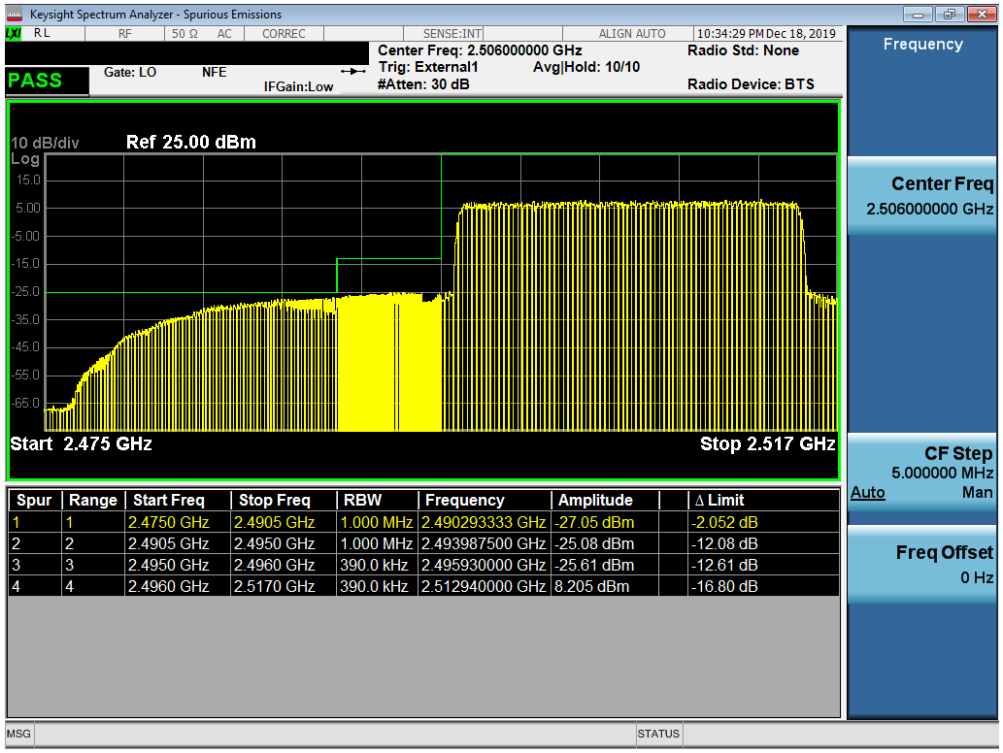
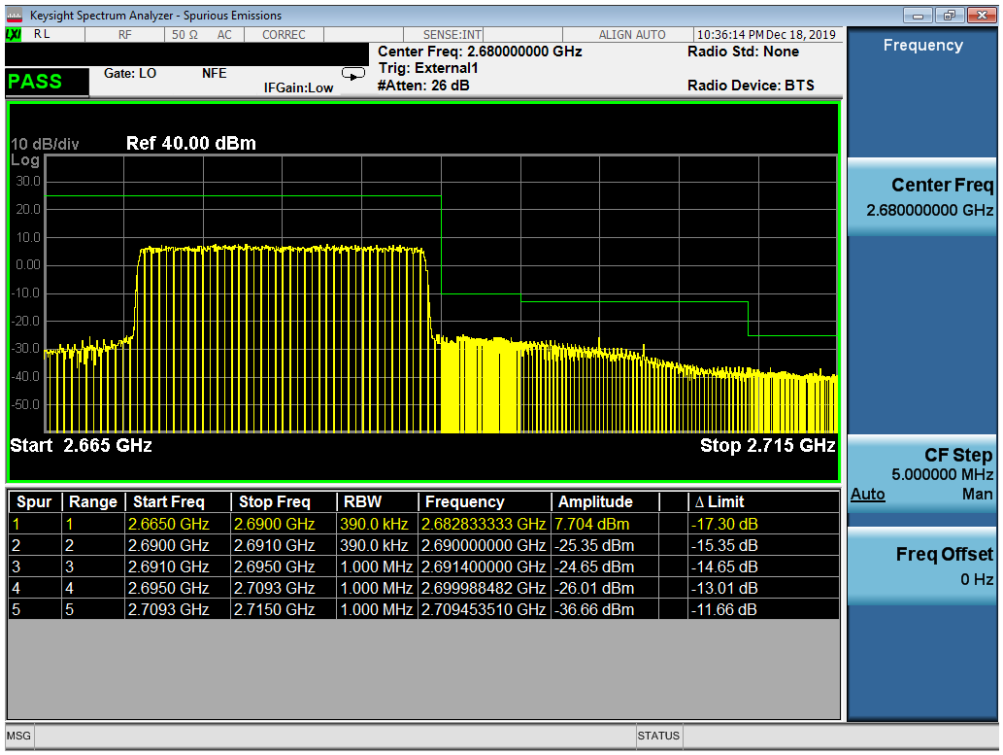


Plot 7-325. Lower ACP Plot at 2496 MHz (Band 41 PC2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-326. Upper ACP Plot (Band 41 PC2 - 20.0MHz QPSK - Full RB Configuration)

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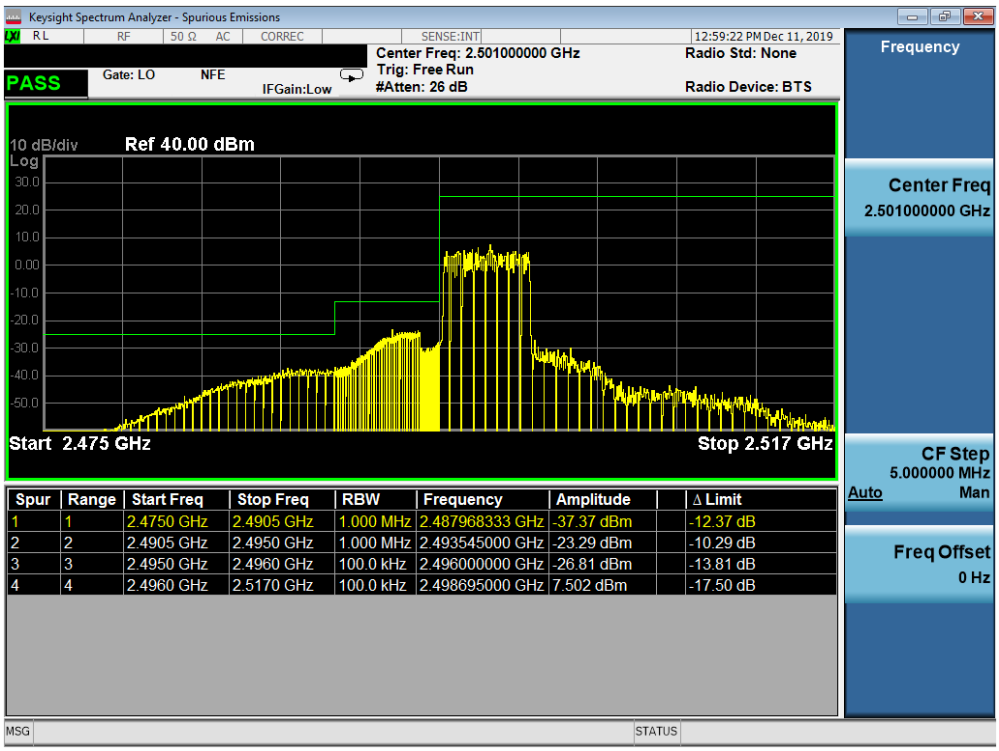
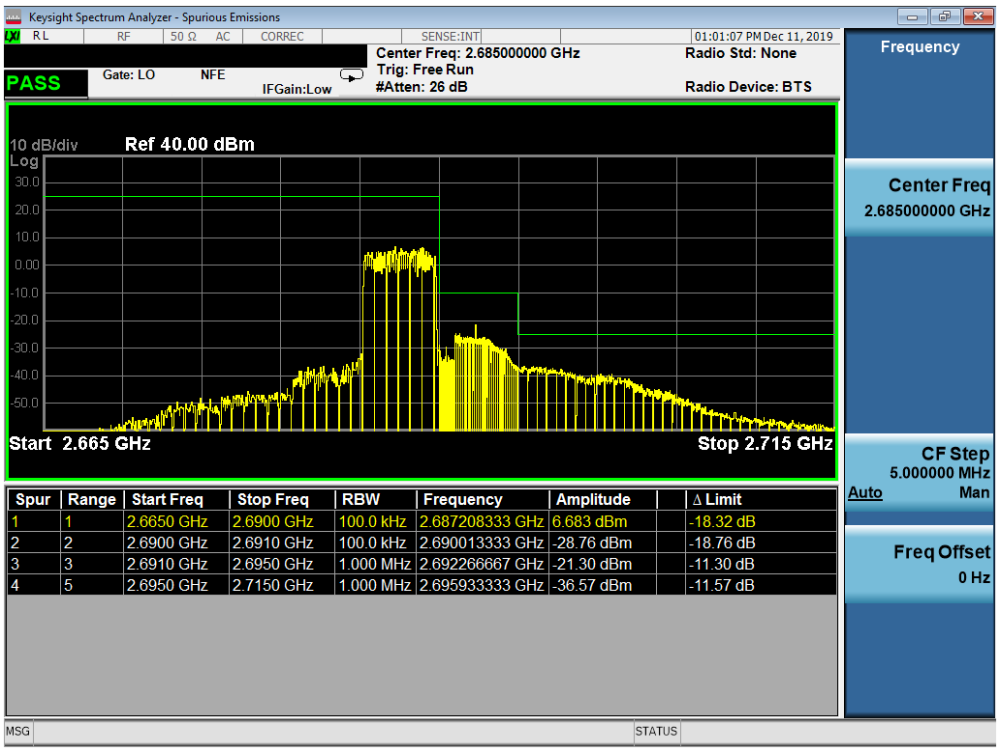
Band 41 PC3



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.487968333 GHz	-37.37 dBm	-12.37 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.493545000 GHz	-23.29 dBm	-10.29 dB
3	3	2.4950 GHz	2.4960 GHz	100.0 kHz	2.496000000 GHz	-26.81 dBm	-13.81 dB
4	4	2.4960 GHz	2.5170 GHz	100.0 kHz	2.498695000 GHz	7.502 dBm	-17.50 dB

Plot 7-327. Lower ACP Plot at 2496 MHz (Band 41 - 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	2.687208333 GHz	6.683 dBm	-18.32 dB
2	2	2.6900 GHz	2.6910 GHz	100.0 kHz	2.690013333 GHz	-28.76 dBm	-18.76 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.692266667 GHz	-21.30 dBm	-11.30 dB
4	5	2.6950 GHz	2.7150 GHz	1.000 MHz	2.695933333 GHz	-36.57 dBm	-11.57 dB

Plot 7-328. Upper ACP Plot (Band 41 - 5.0MHz QPSK - Full RB Configuration)

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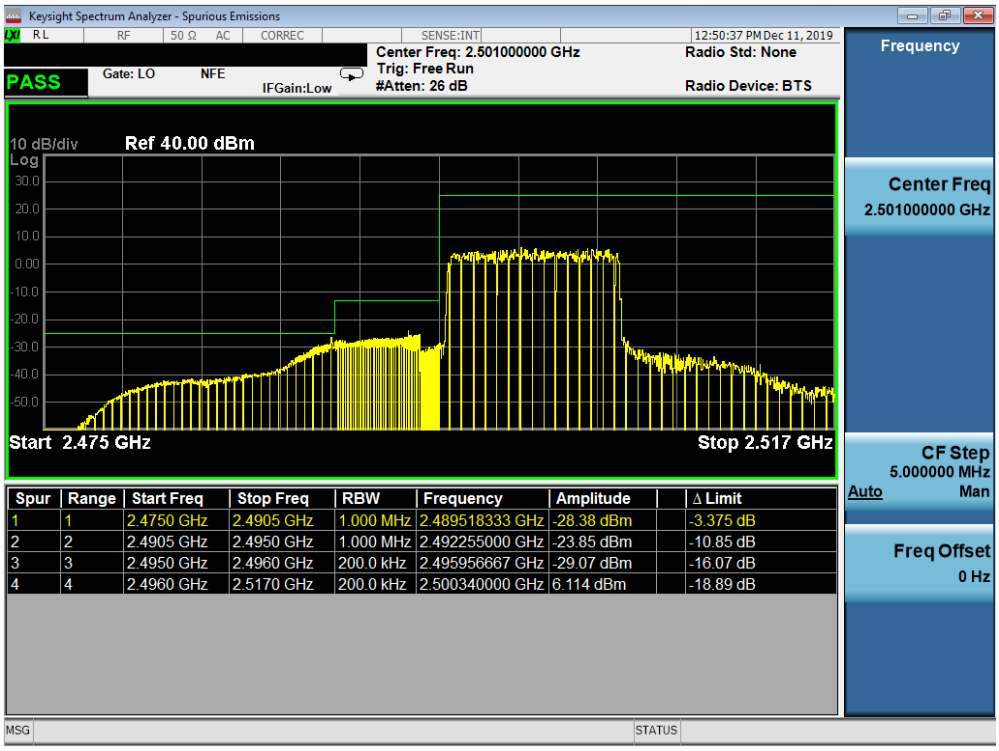
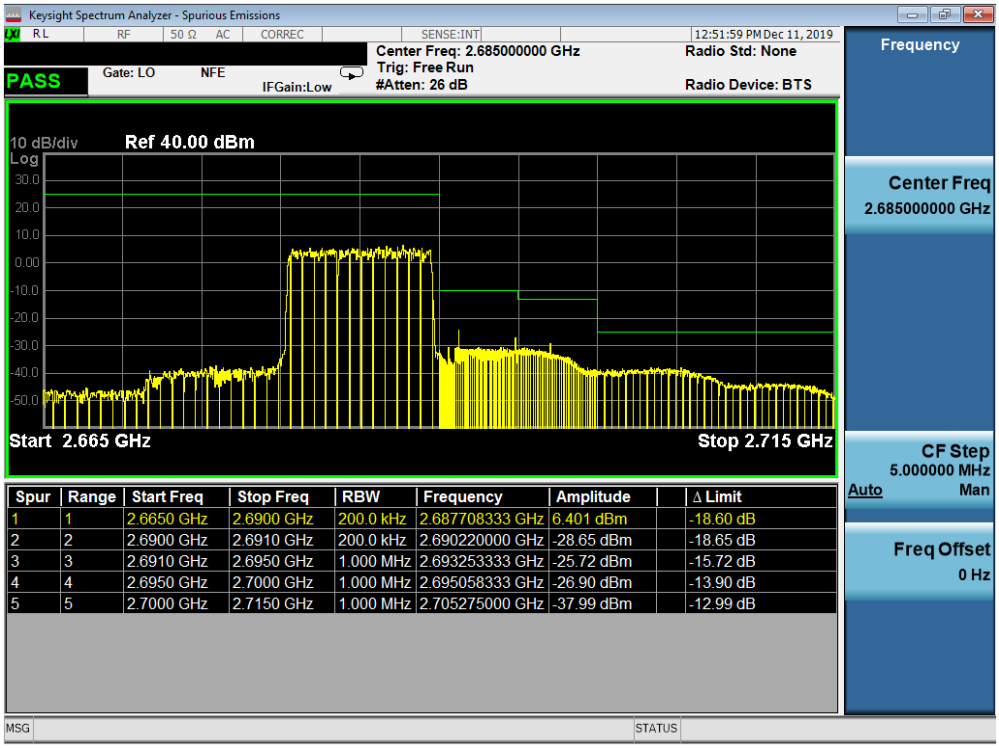


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.489518333 GHz	-28.38 dBm	-3.375 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.492255000 GHz	-23.85 dBm	-10.85 dB
3	3	2.4950 GHz	2.4960 GHz	200.0 kHz	2.495956667 GHz	-29.07 dBm	-16.07 dB
4	4	2.4960 GHz	2.5170 GHz	200.0 kHz	2.500340000 GHz	6.114 dBm	-18.89 dB

Plot 7-329. Lower ACP Plot at 2496 MHz (Band 41 - 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	2.687708333 GHz	6.401 dBm	-18.60 dB
2	2	2.6900 GHz	2.6910 GHz	200.0 kHz	2.690220000 GHz	-28.65 dBm	-18.65 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.693253333 GHz	-25.72 dBm	-15.72 dB
4	4	2.6950 GHz	2.7000 GHz	1.000 MHz	2.695058333 GHz	-26.90 dBm	-13.90 dB
5	5	2.7000 GHz	2.7150 GHz	1.000 MHz	2.705275000 GHz	-37.99 dBm	-12.99 dB

Plot 7-330. Upper ACP Plot (Band 41 - 10.0MHz QPSK - Full RB Configuration)

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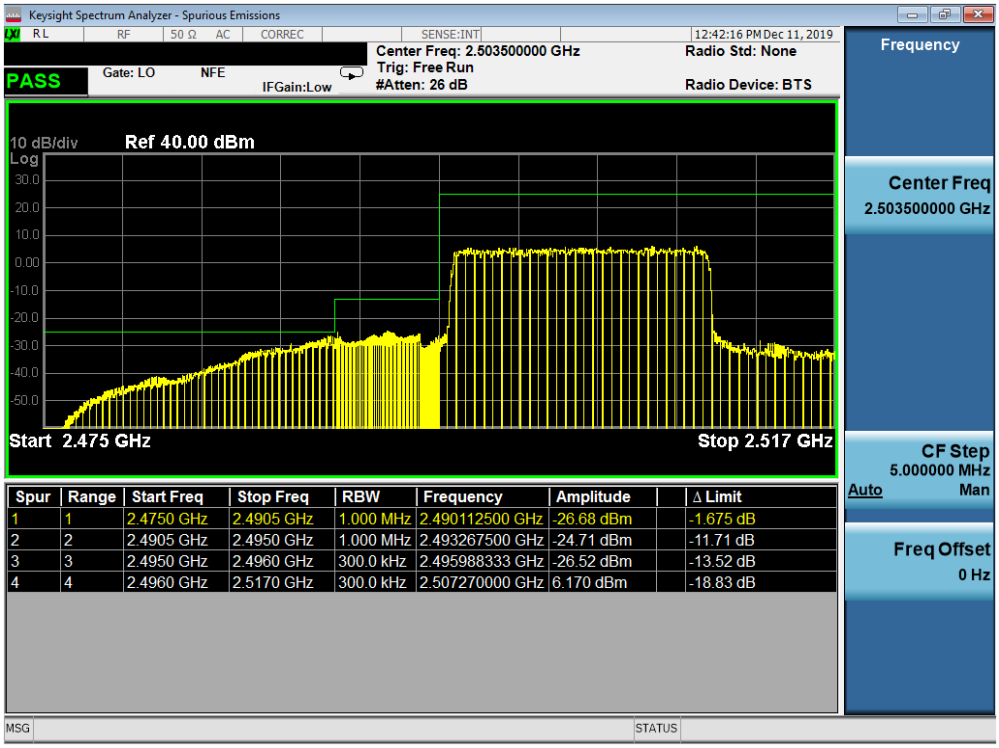
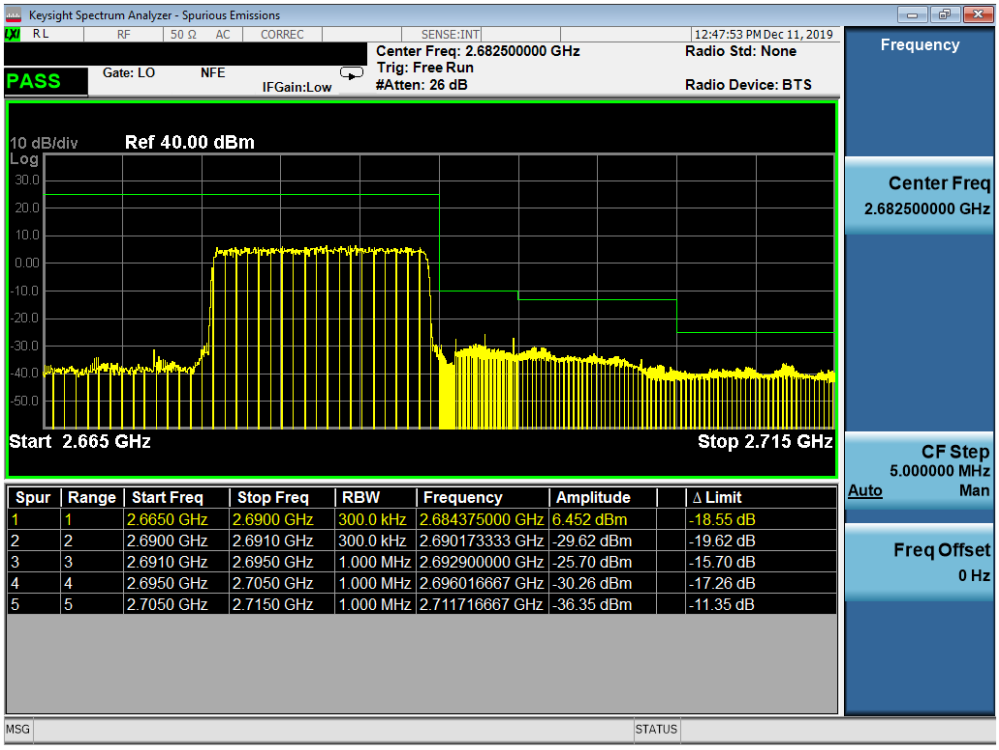


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude		Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490112500 GHz	-26.68 dBm		-1.675 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.493267500 GHz	-24.71 dBm		-11.71 dB
3	3	2.4950 GHz	2.4960 GHz	300.0 kHz	2.495988333 GHz	-26.52 dBm		-13.52 dB
4	4	2.4960 GHz	2.5170 GHz	300.0 kHz	2.507270000 GHz	6.170 dBm		-18.83 dB

Plot 7-331. Lower ACP Plot at 2496 MHz (Band 41 - 15.0MHz QPSK - Full RB Configuration)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude		Δ Limit
1	1	2.6650 GHz	2.6900 GHz	300.0 kHz	2.684375000 GHz	6.452 dBm		-18.55 dB
2	2	2.6900 GHz	2.6910 GHz	300.0 kHz	2.690173333 GHz	-29.62 dBm		-19.62 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.692900000 GHz	-25.70 dBm		-15.70 dB
4	4	2.6950 GHz	2.7050 GHz	1.000 MHz	2.696016667 GHz	-30.26 dBm		-17.26 dB
5	5	2.7050 GHz	2.7150 GHz	1.000 MHz	2.711716667 GHz	-36.35 dBm		-11.35 dB

Plot 7-332. Upper ACP Plot (Band 41 - 15.0MHz QPSK - Full RB Configuration)

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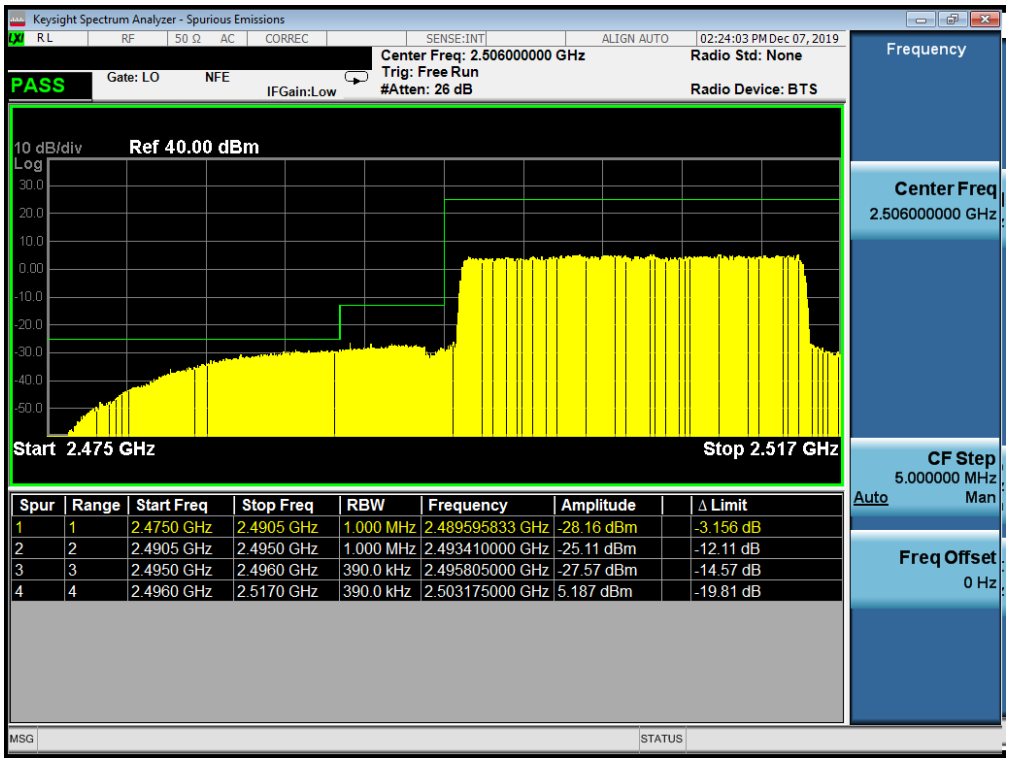
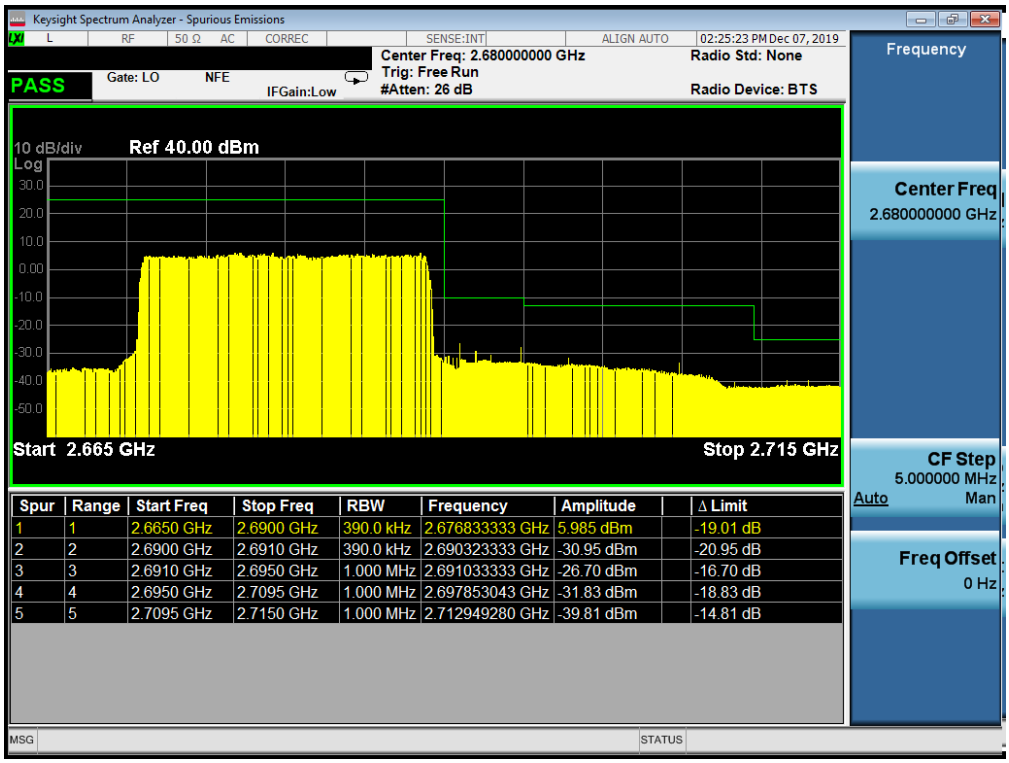


Plot 7-333. Lower ACP Plot at 2496 MHz (Band 41 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-334. Upper ACP Plot (Band 41 - 20.0MHz QPSK - Full RB Configuration)

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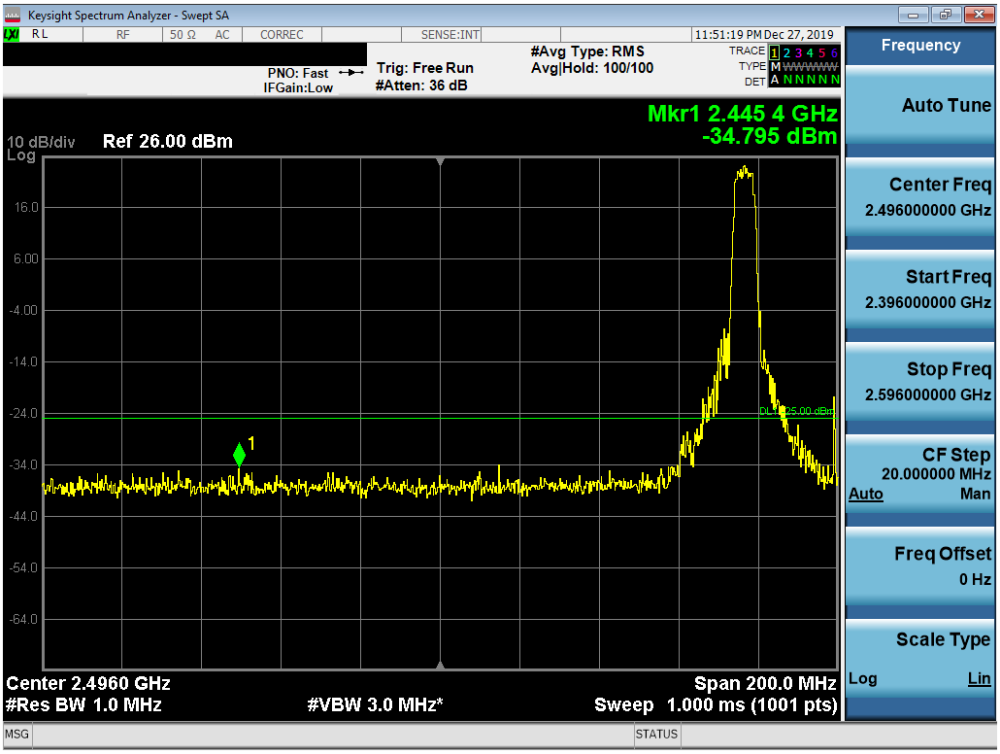
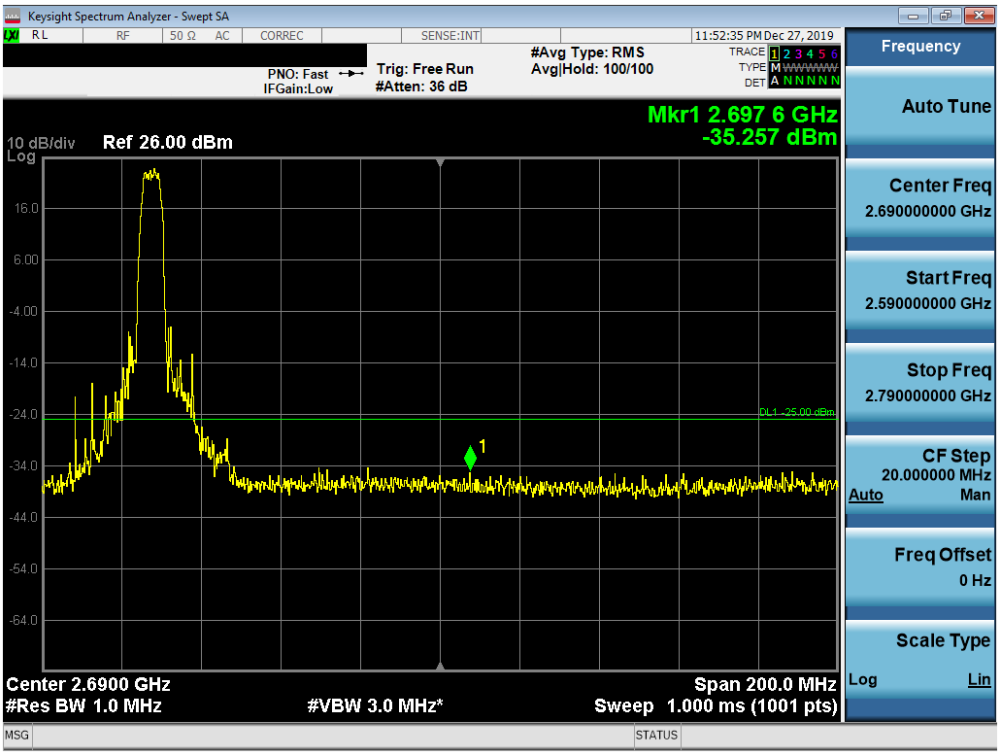
Band 38



Plot 7-335. Lower Band Edge Plot (Band 38 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-336.Upper Band Edge Plot (Band 38 - 5.0MHz QPSK - Full RB Configuration)

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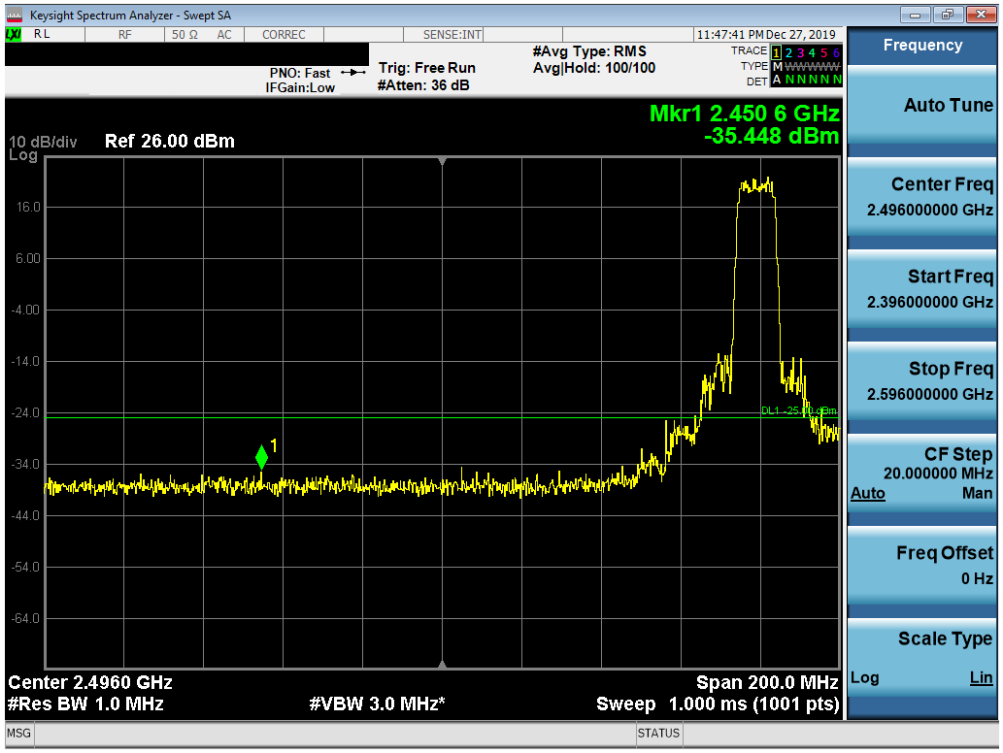
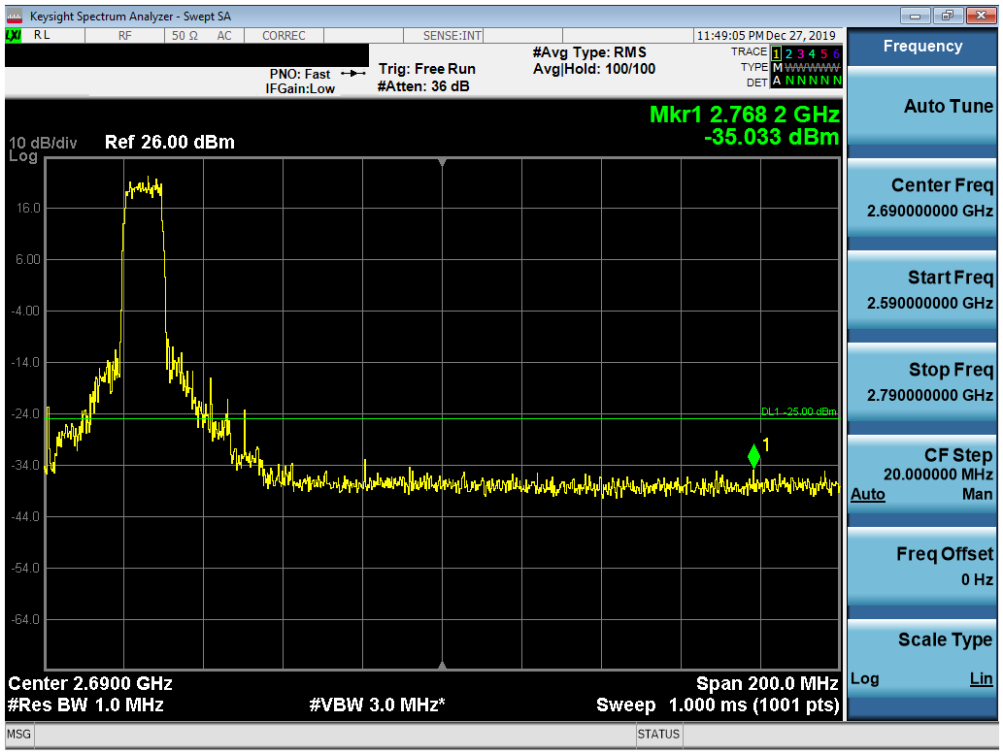


Plot 7-337. Lower Band Edge Plot (Band 38 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-338.Upper Band Edge Plot (Band 38 - 10.0MHz QPSK - Full RB Configuration)

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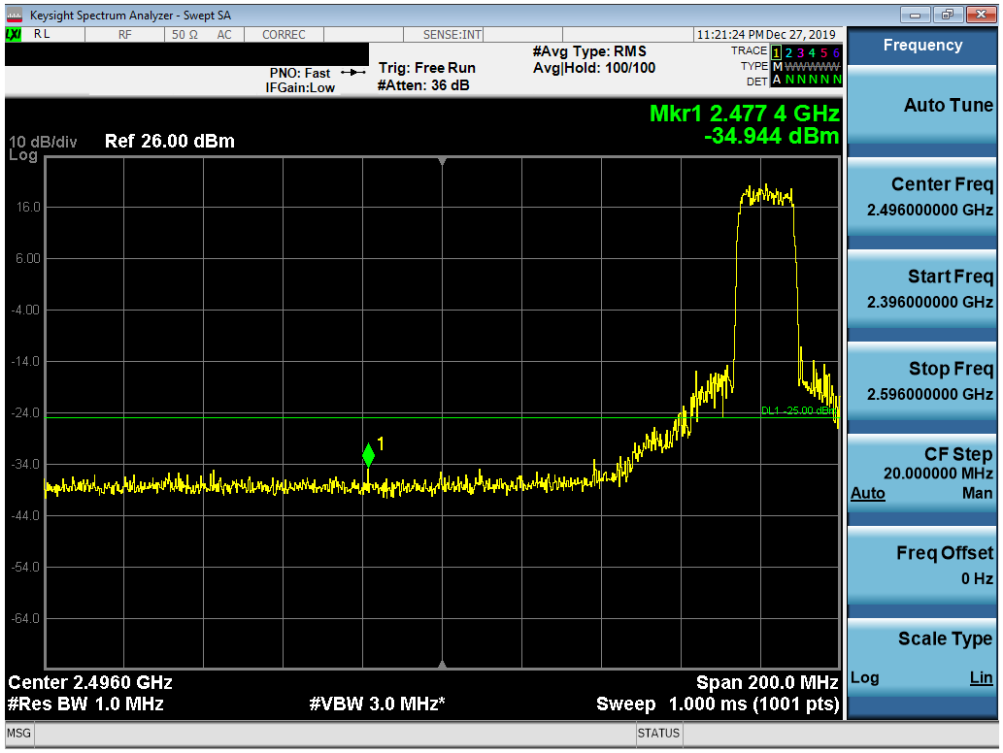
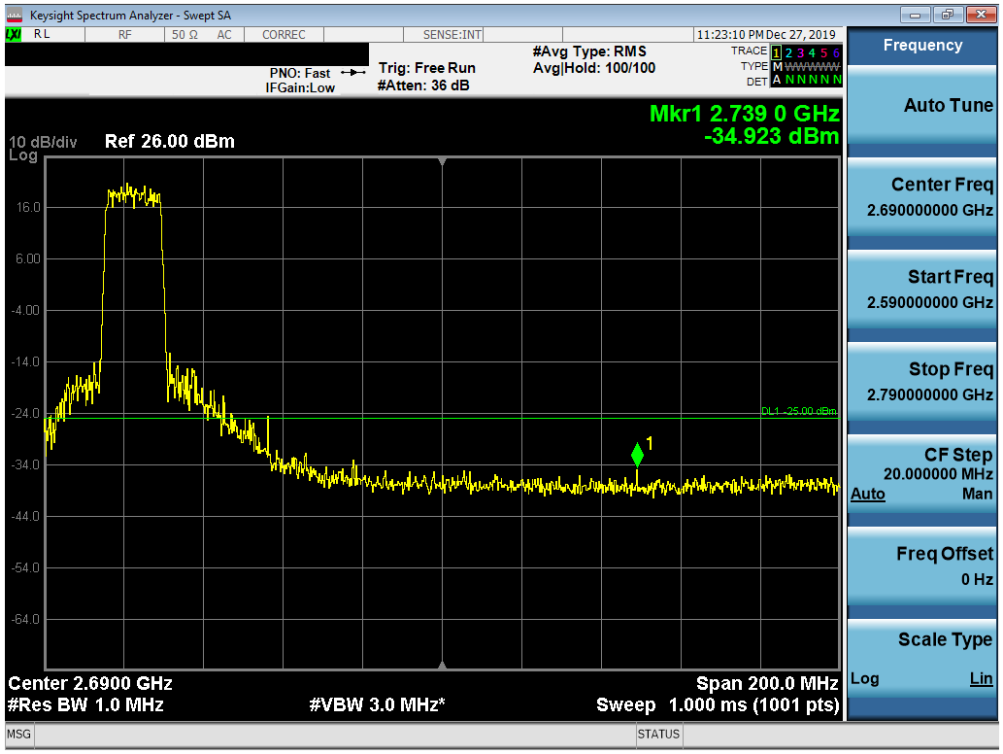


Plot 7-339. Lower Band Edge Plot (Band 38 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-340. Upper Band Edge Plot (Band 38 - 15.0MHz QPSK - Full RB Configuration)

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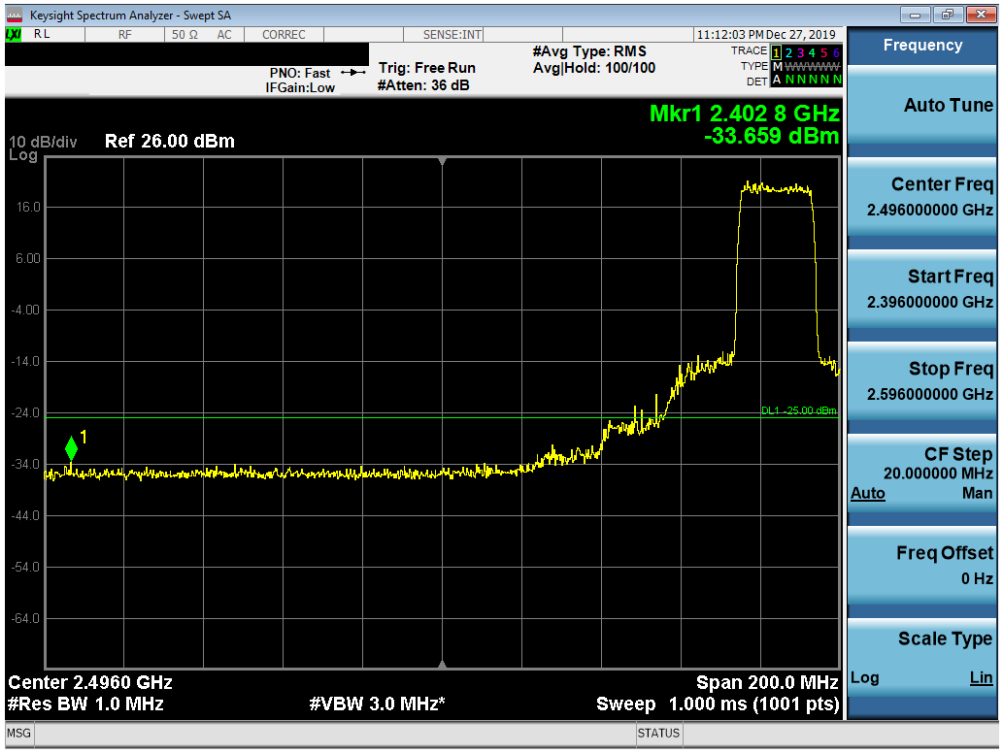
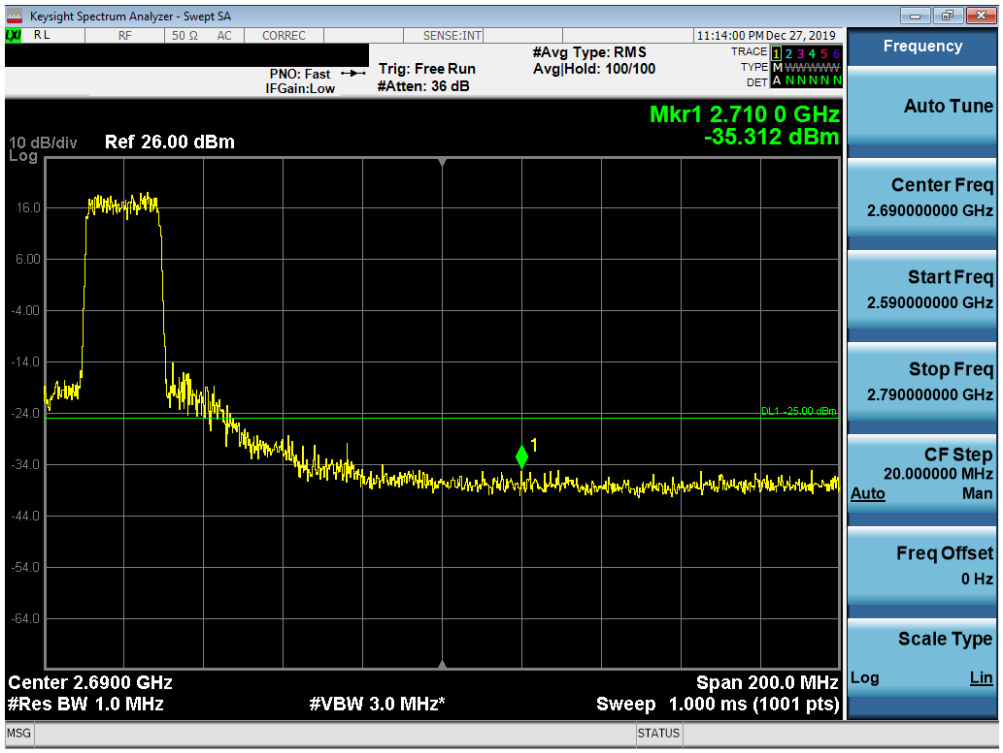


Plot 7-341. Lower Band Edge Plot (Band 38 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-342. Upper Band Edge Plot (Band 38 - 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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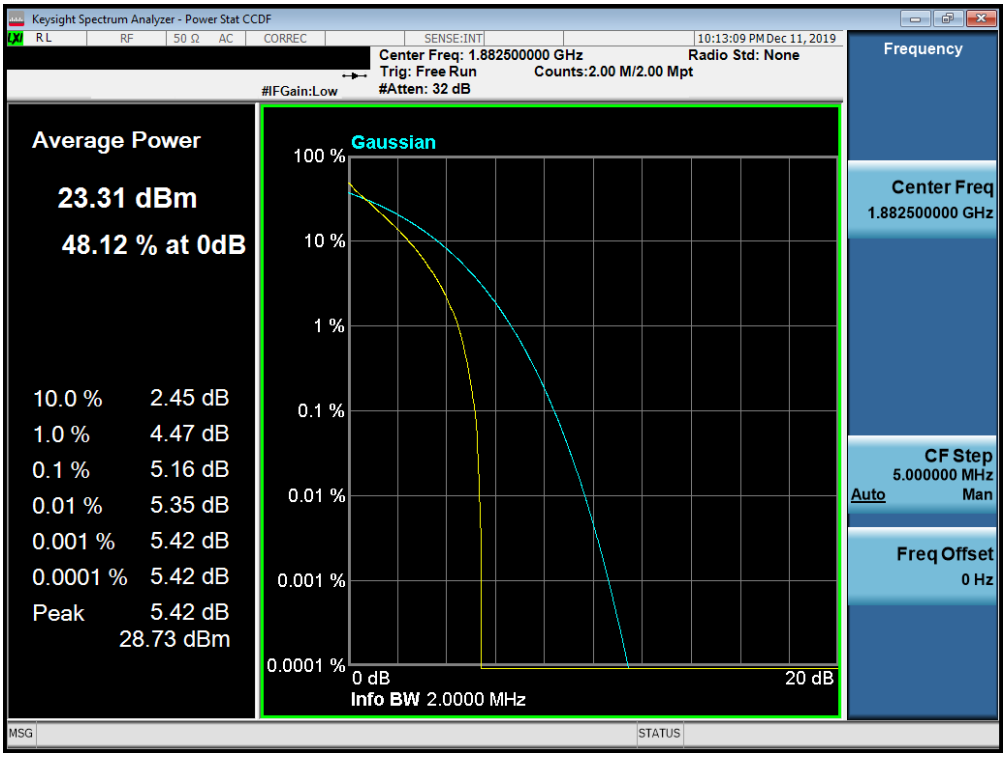
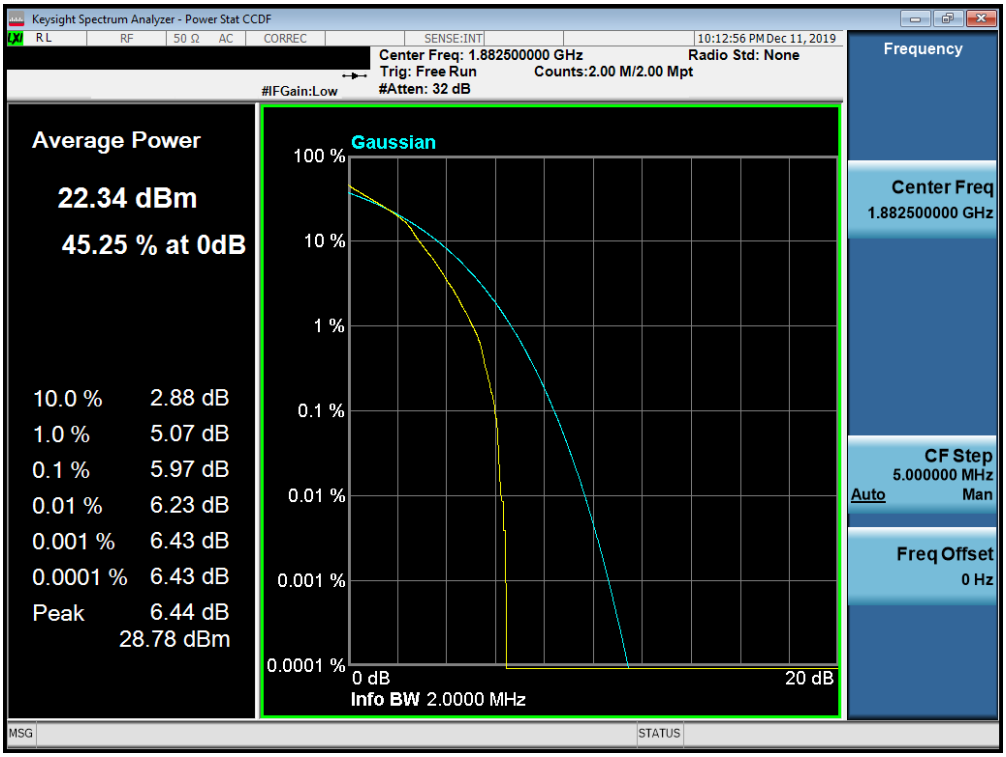
Band 25/2



Plot 7-343. PAR Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-344. PAR Plot (Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)

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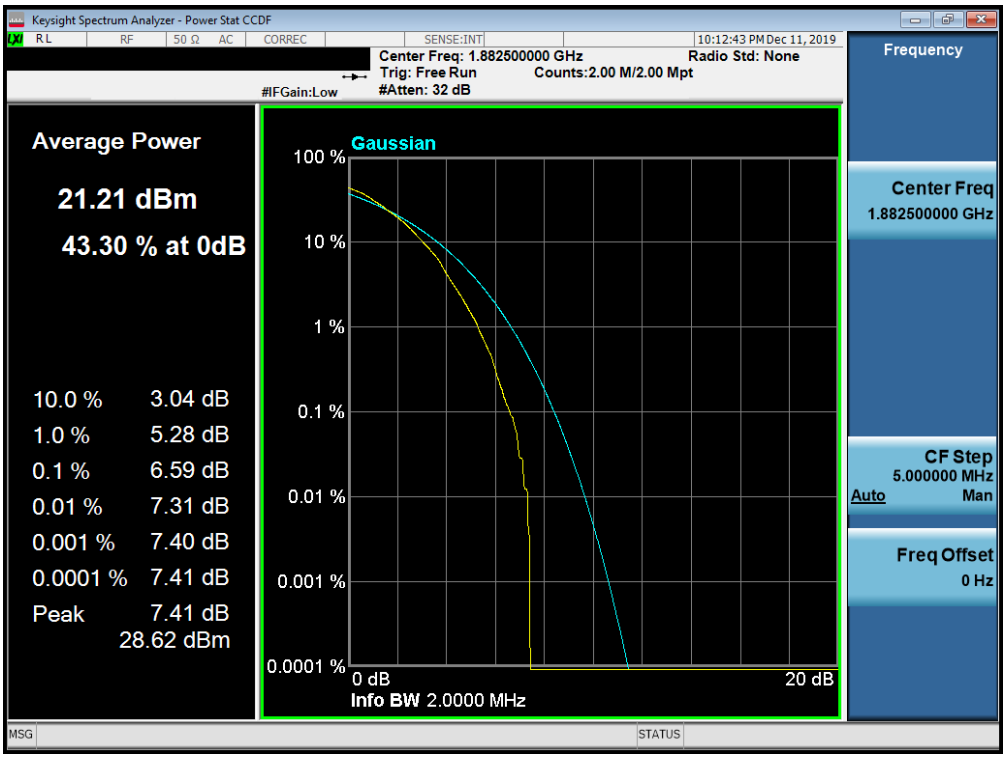
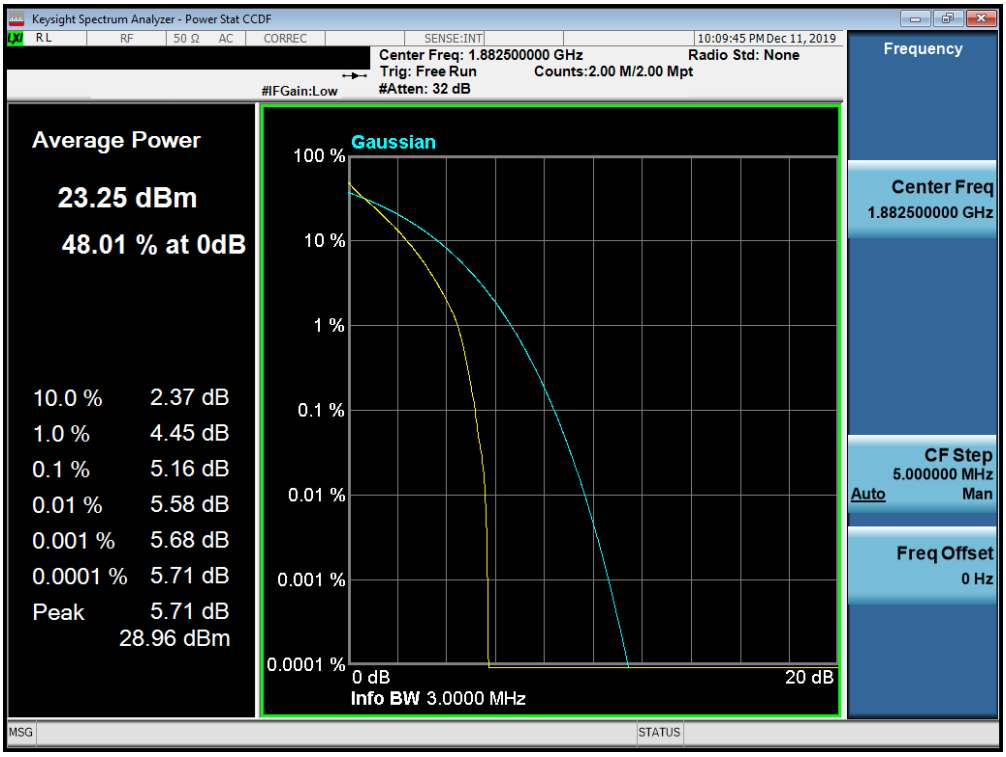


Plot 7-345. PAR Plot (Band 25/2 - 1.4MHz 64-QAM - Full RB Configuration)



Plot 7-346. PAR Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)

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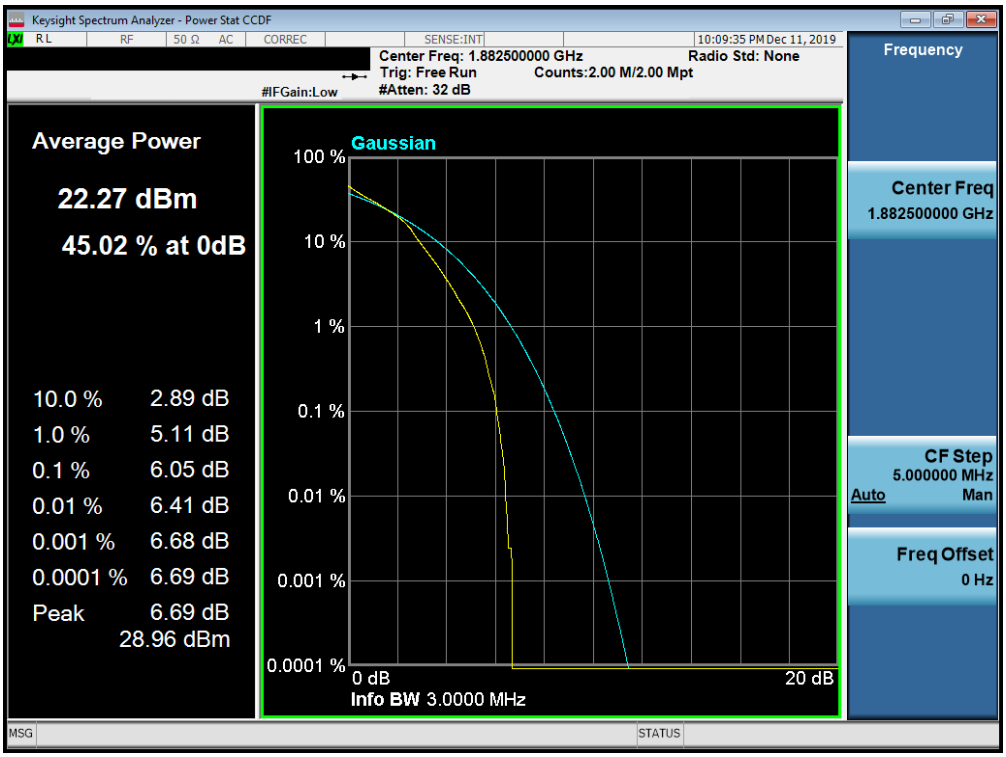
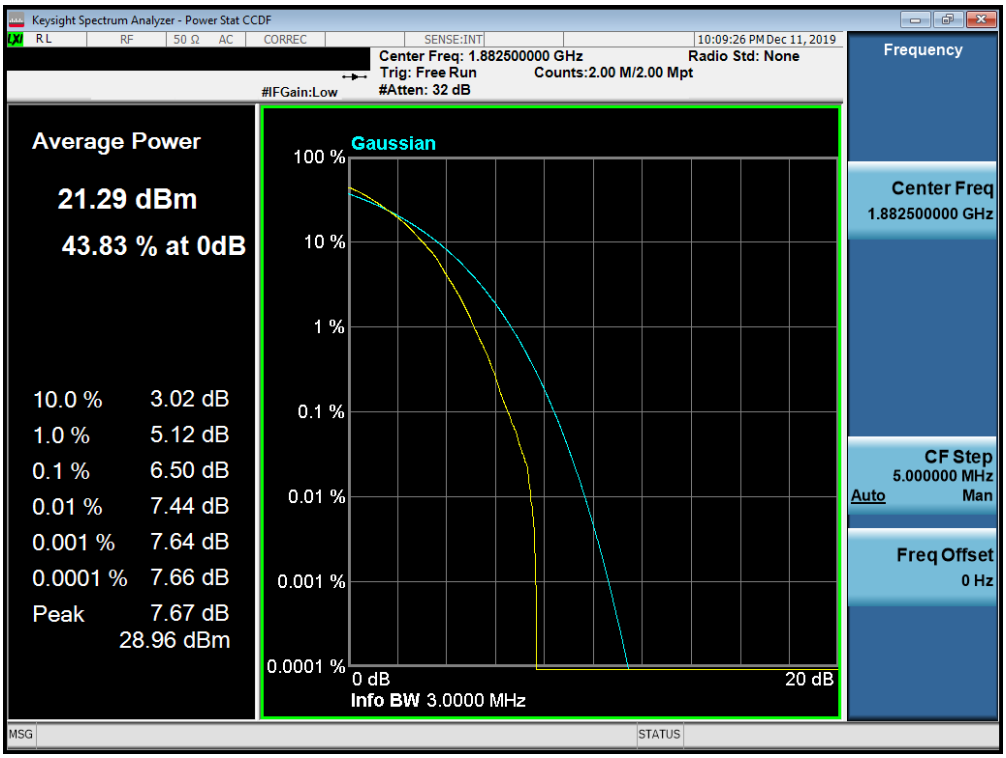


Plot 7-347. PAR Plot (Band 25/2 - 3.0MHz 16-QAM - Full RB Configuration)



Plot 7-348. PAR Plot (Band 25/2 - 3.0MHz 64-QAM - Full RB Configuration)

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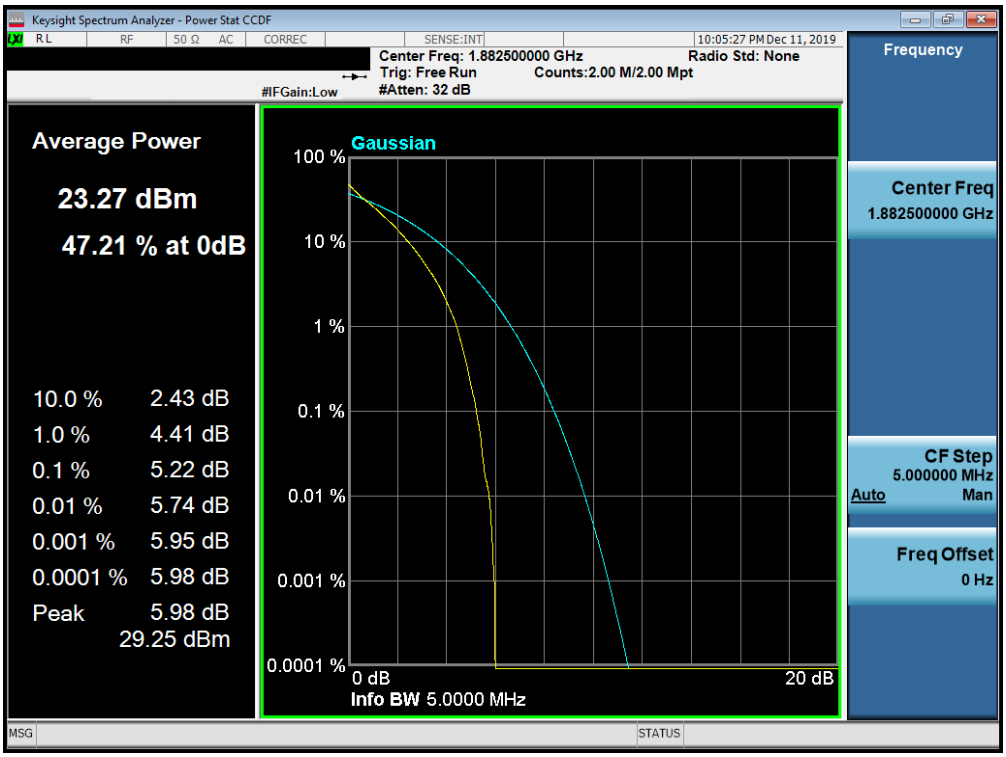
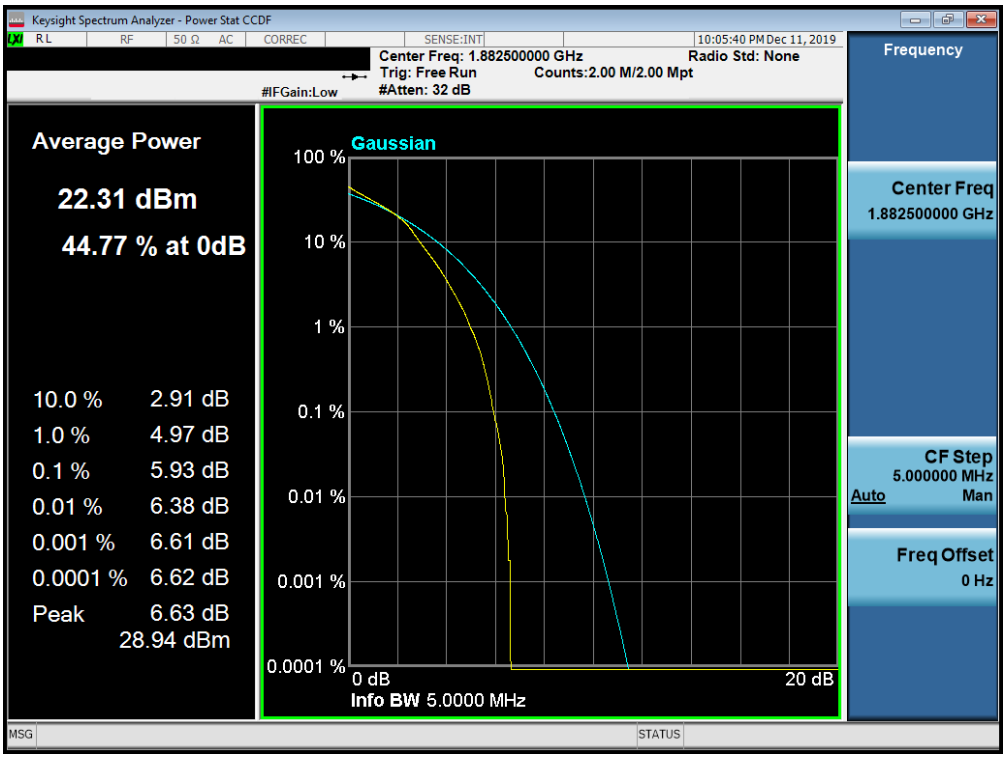


Plot 7-349. PAR Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-350. PAR Plot (Band 25/2 - 5.0MHz 16-QAM - Full RB Configuration)

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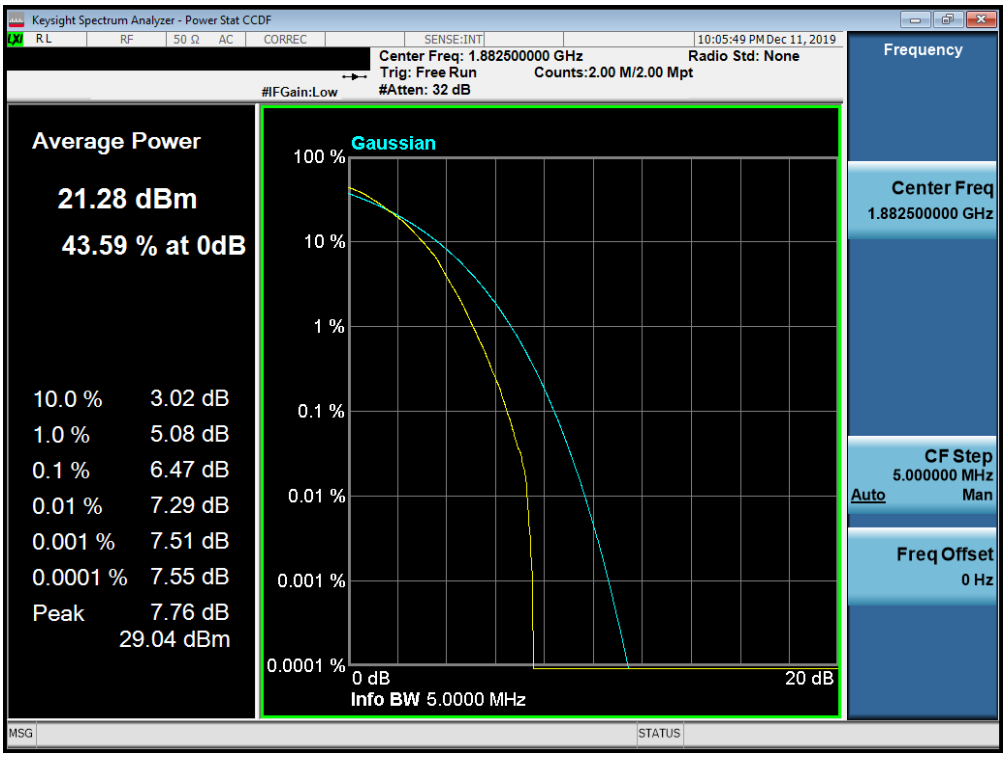
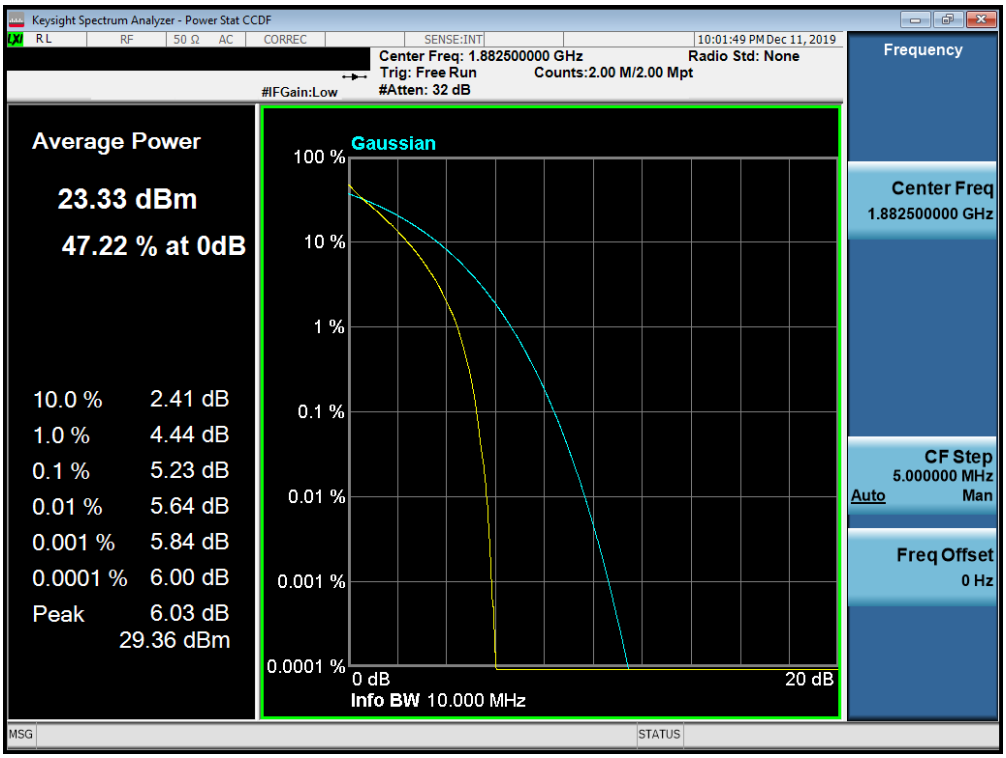


Plot 7-351. PAR Plot (Band 25/2 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-219. PAR Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

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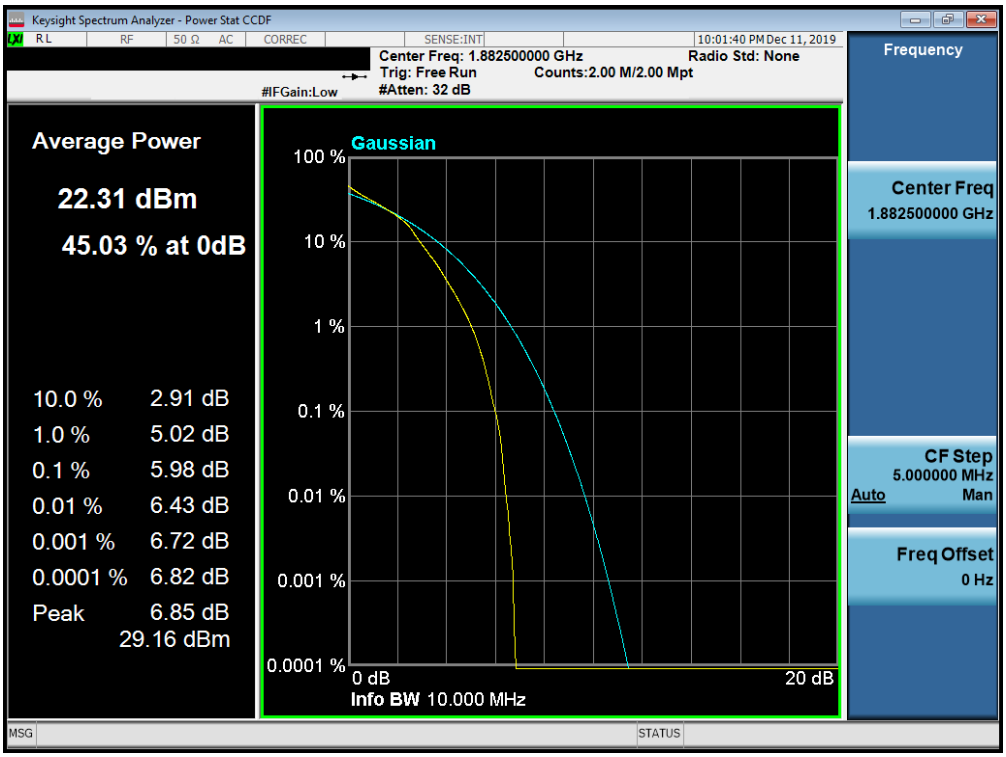
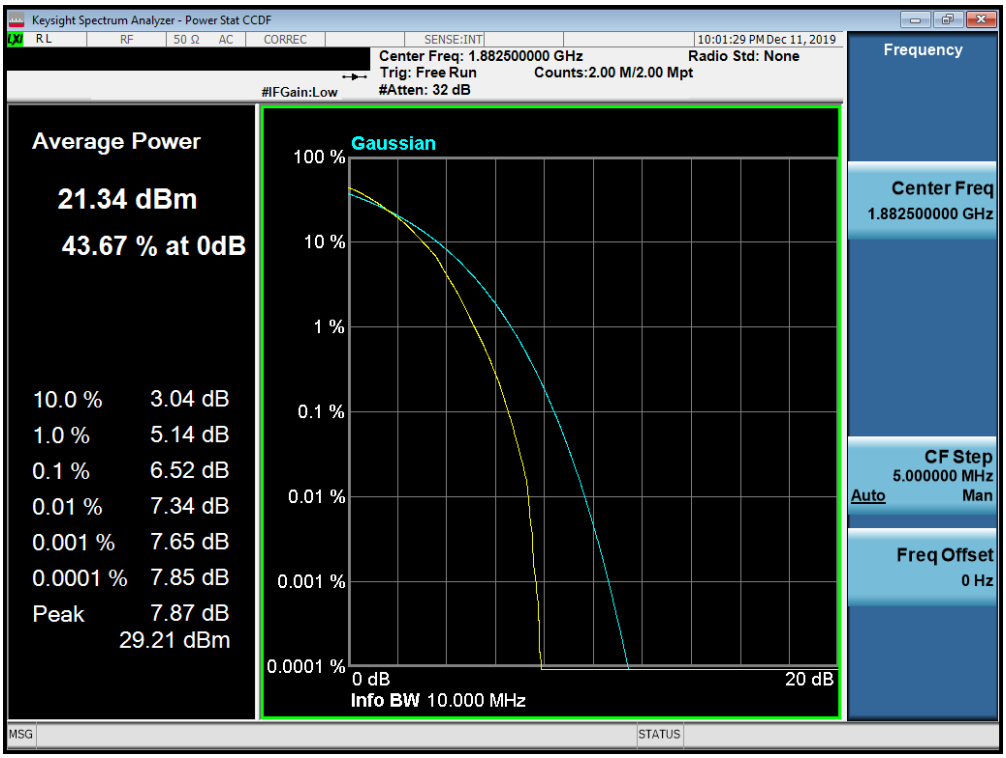


Plot 7-353. PAR Plot (Band 25/2 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-354. PAR Plot (Band 25/2 - 10.0MHz 64-QAM - Full RB Configuration)

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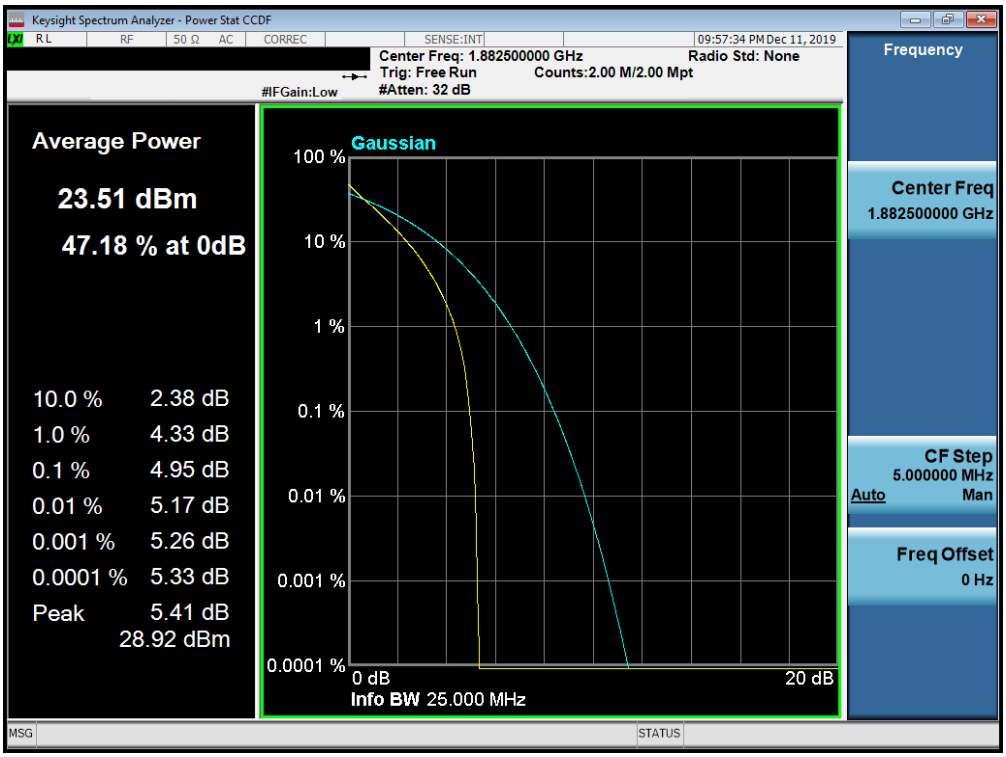
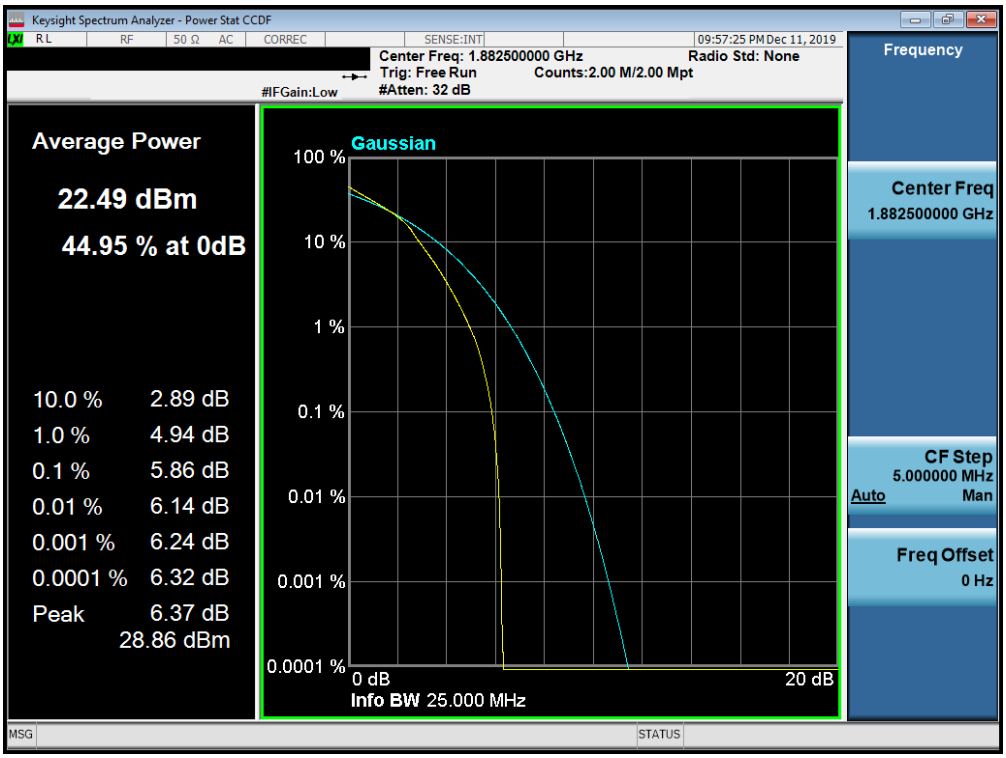


Plot 7-355. PAR Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-356. PAR Plot (Band 25/2 - 15.0MHz 16-QAM - Full RB Configuration)

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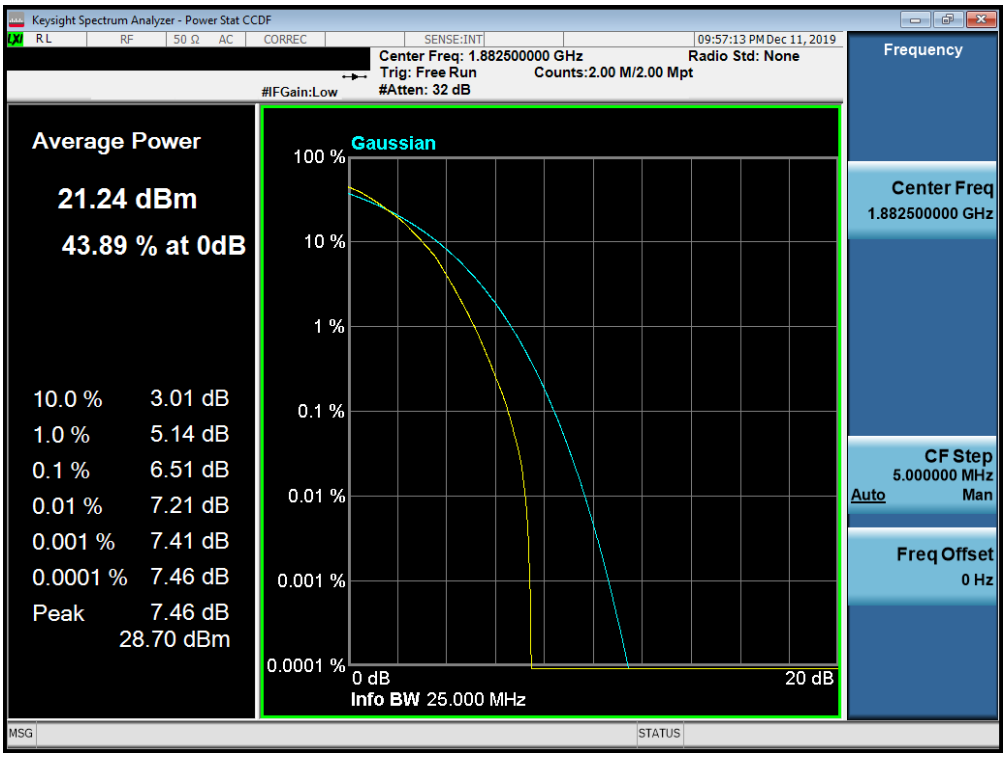
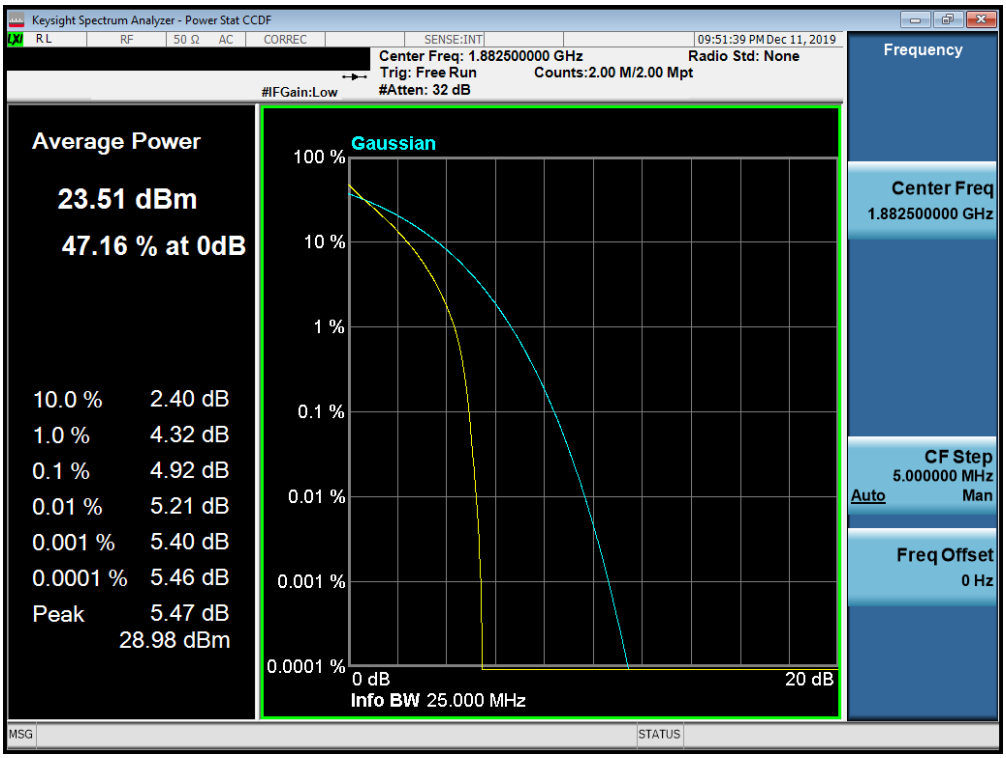


Plot 7-357. PAR Plot (Band 25/2 - 15.0MHz 64-QAM - Full RB Configuration)



Plot 7-358. PAR Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

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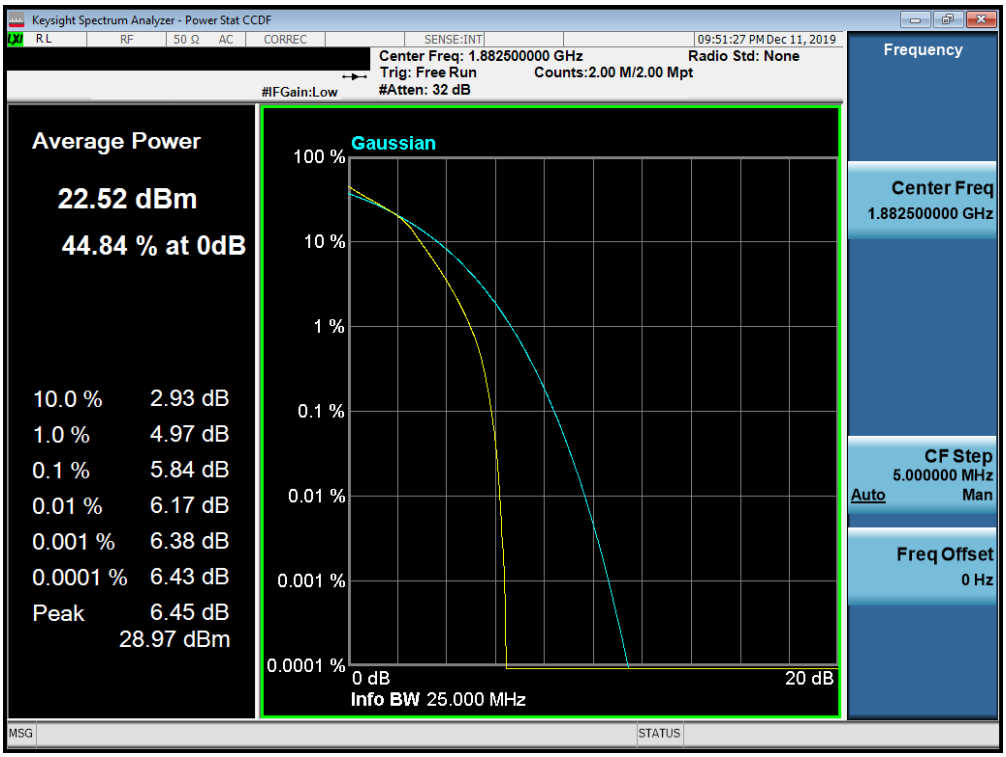
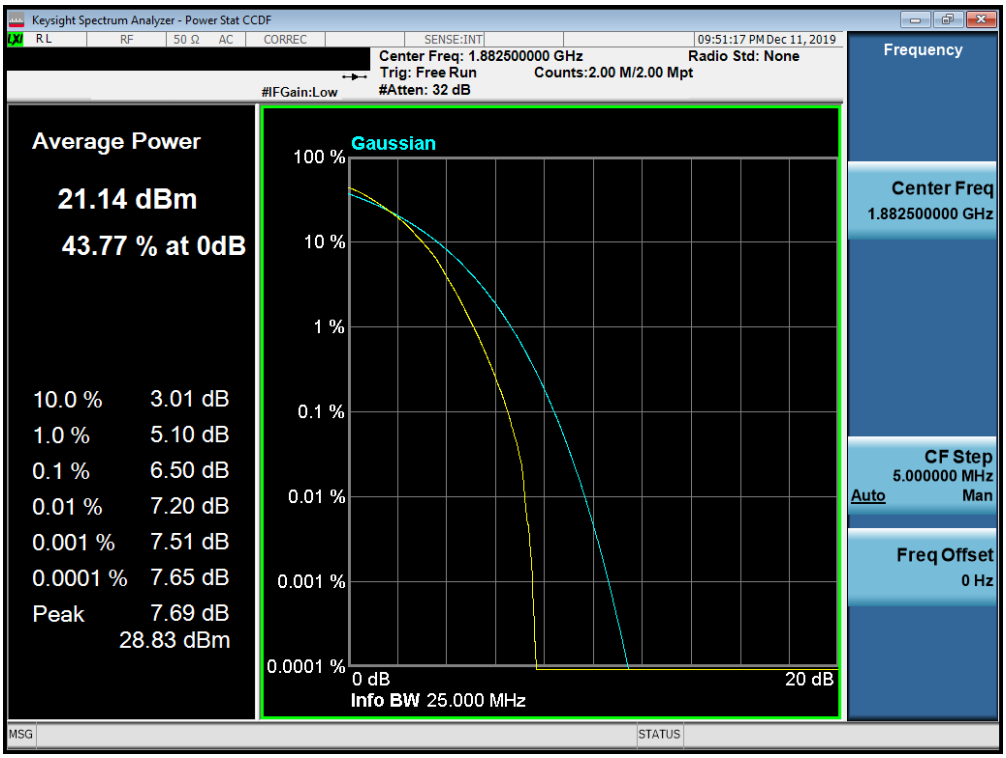


Plot 7-359. PAR Plot (Band 25/2 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-360. PAR Plot (Band 25/2 - 20.0MHz 64-QAM - Full RB Configuration)

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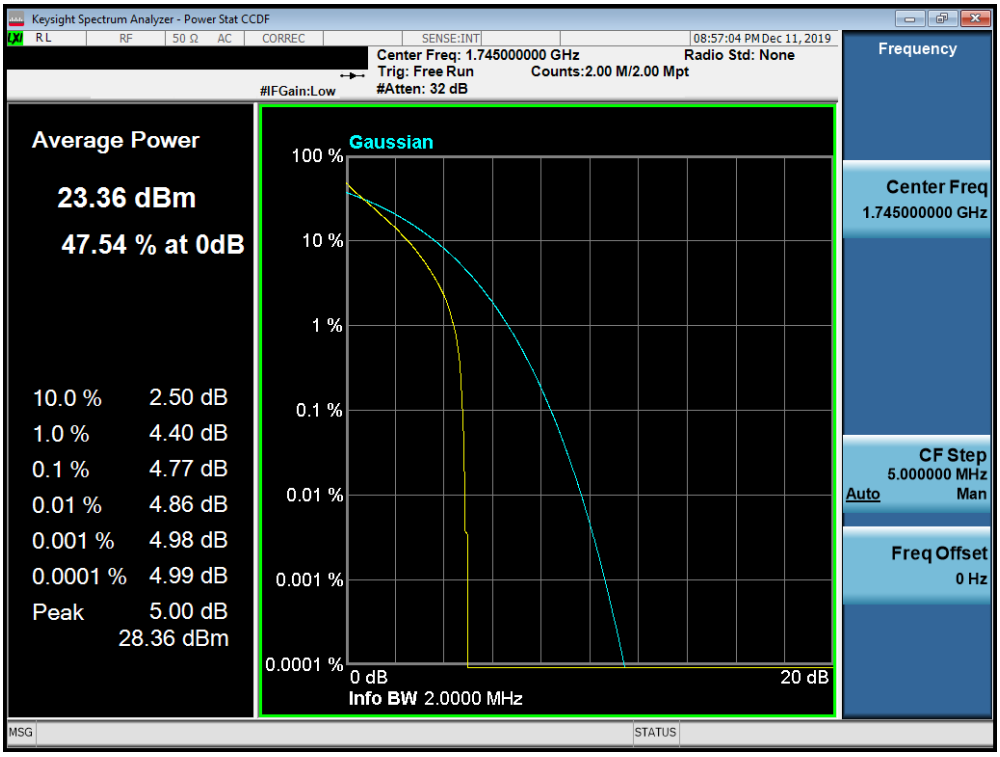
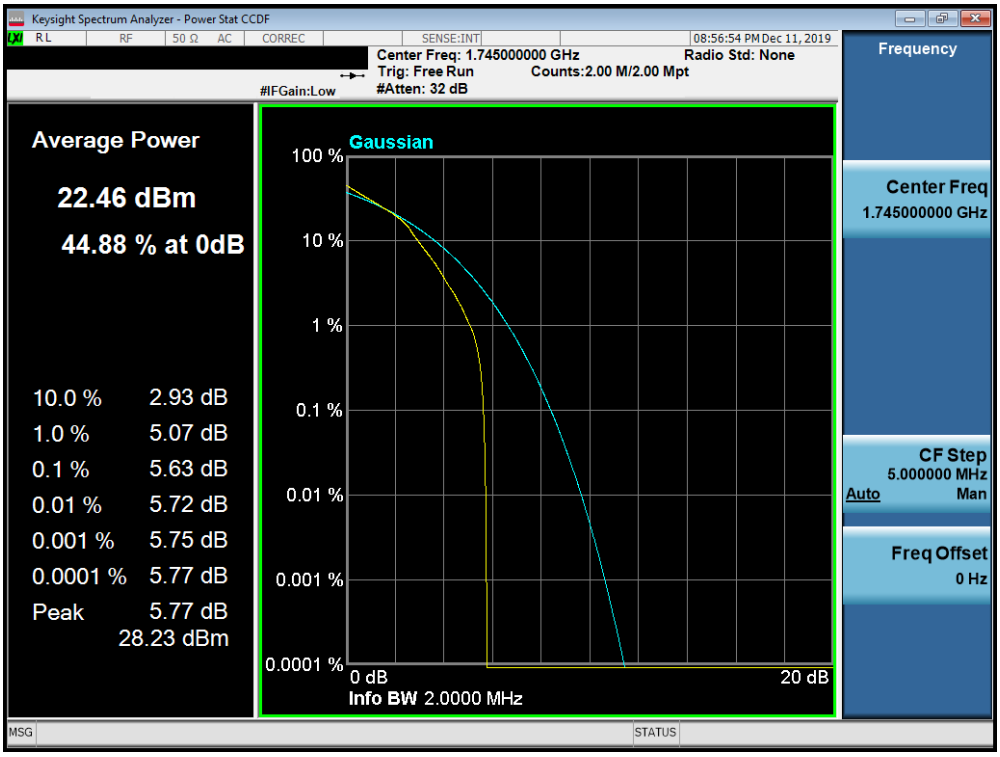
Band 66/4



Plot 7-361. PAR Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-362. PAR Plot (Band 66/4 - 1.4MHz 16-QAM - Full RB Configuration)

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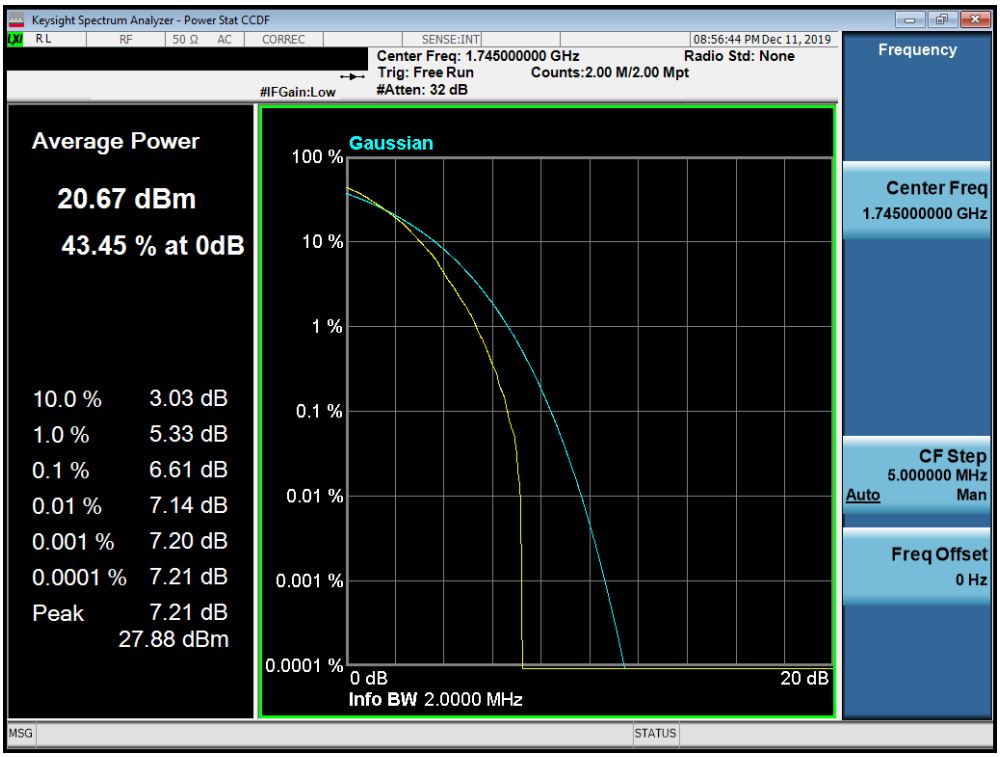
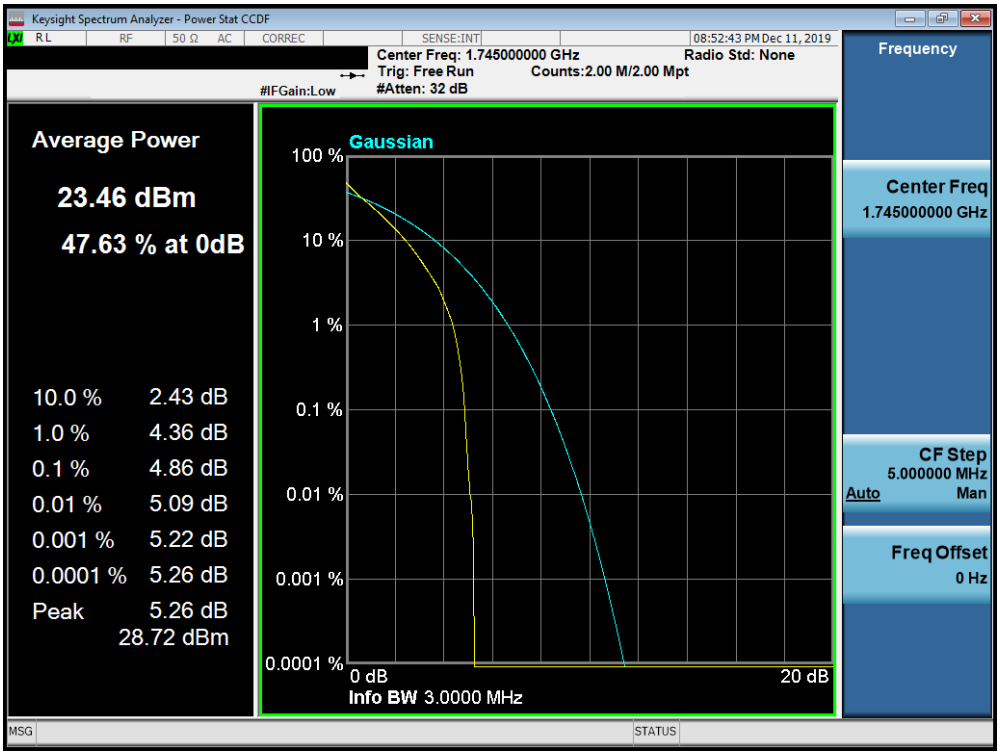


Plot 7-363. PAR Plot (Band 66/4 - 1.4MHz 64-QAM - Full RB Configuration)



Plot 7-364. PAR Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)

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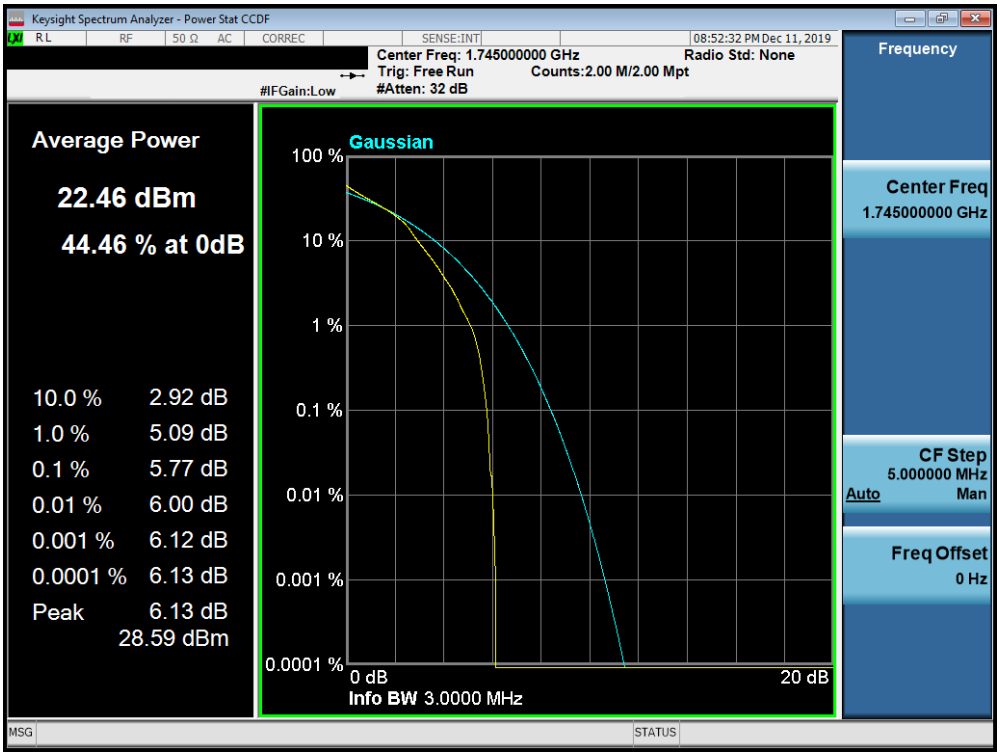
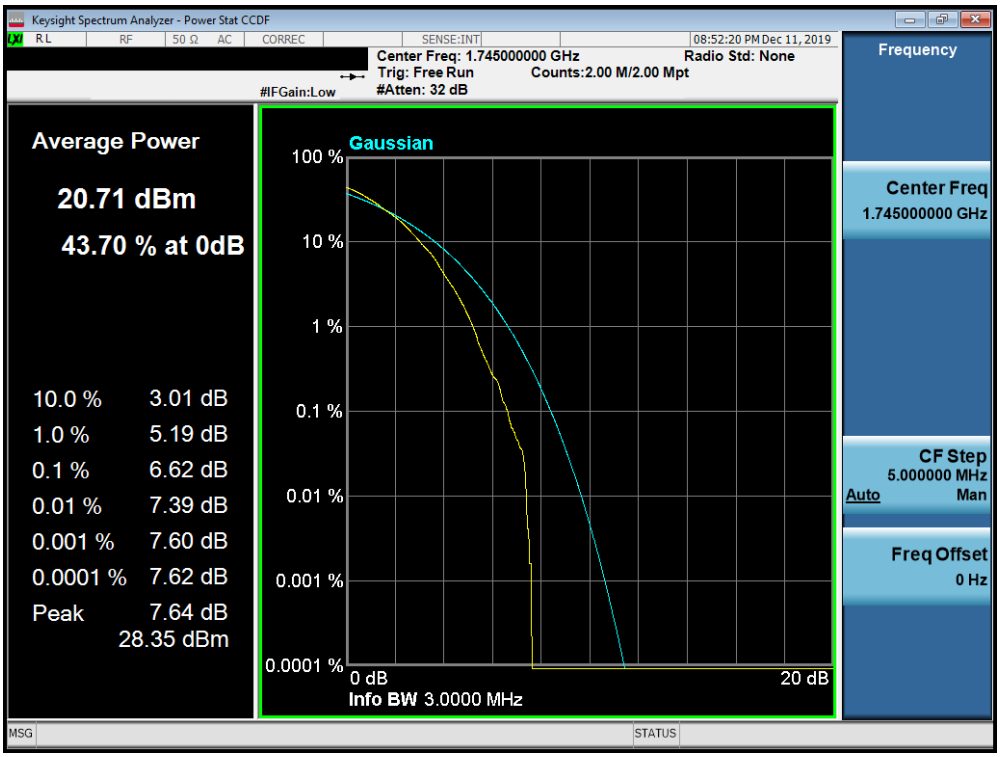


Plot 7-365. PAR Plot (Band 66/4 - 3.0MHz 16-QAM - Full RB Configuration)



Plot 7-366. PAR Plot (Band 66/4 - 3.0MHz 64-QAM - Full RB Configuration)

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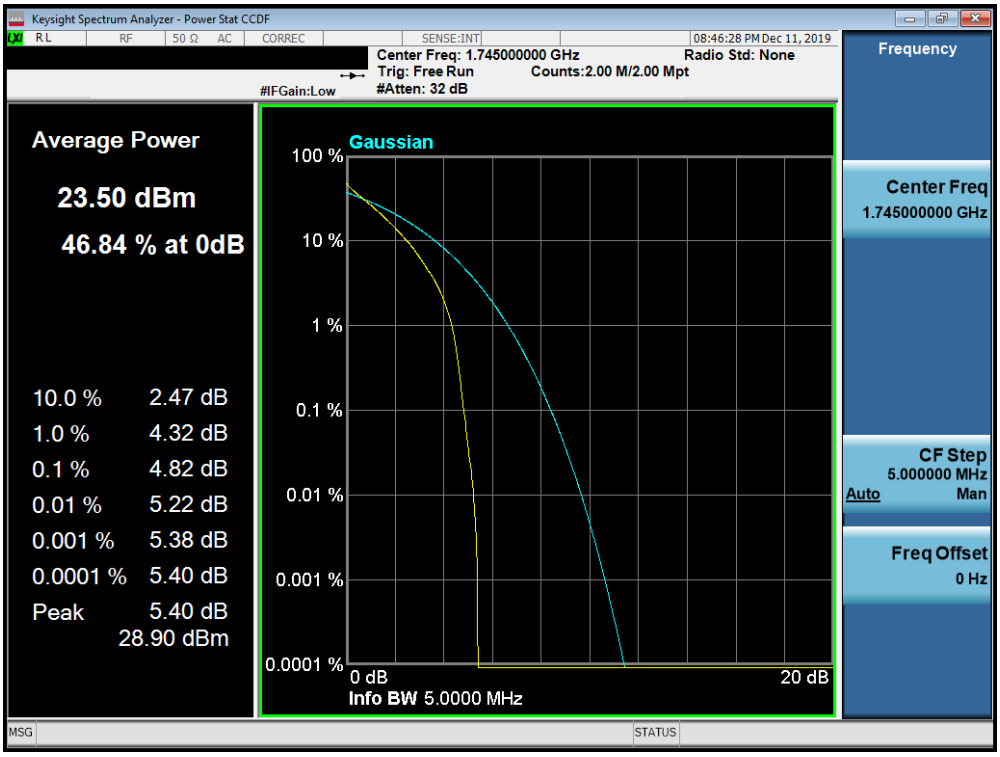
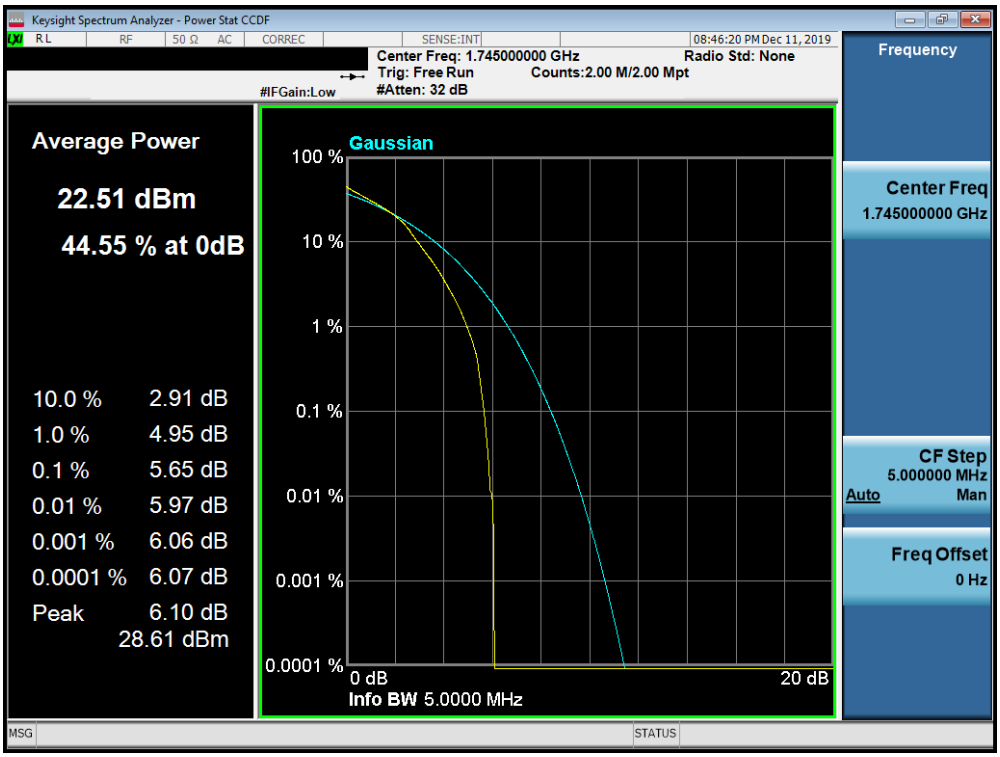


Plot 7-367. PAR Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-368. PAR Plot (Band 66/4 - 5.0MHz 16-QAM - Full RB Configuration)

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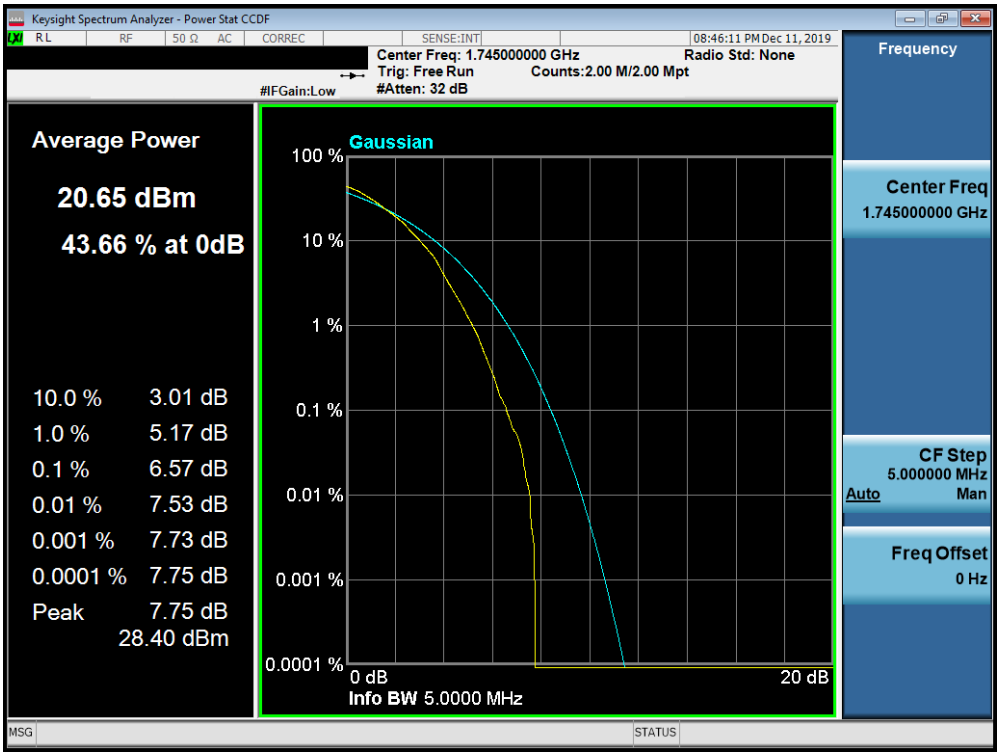
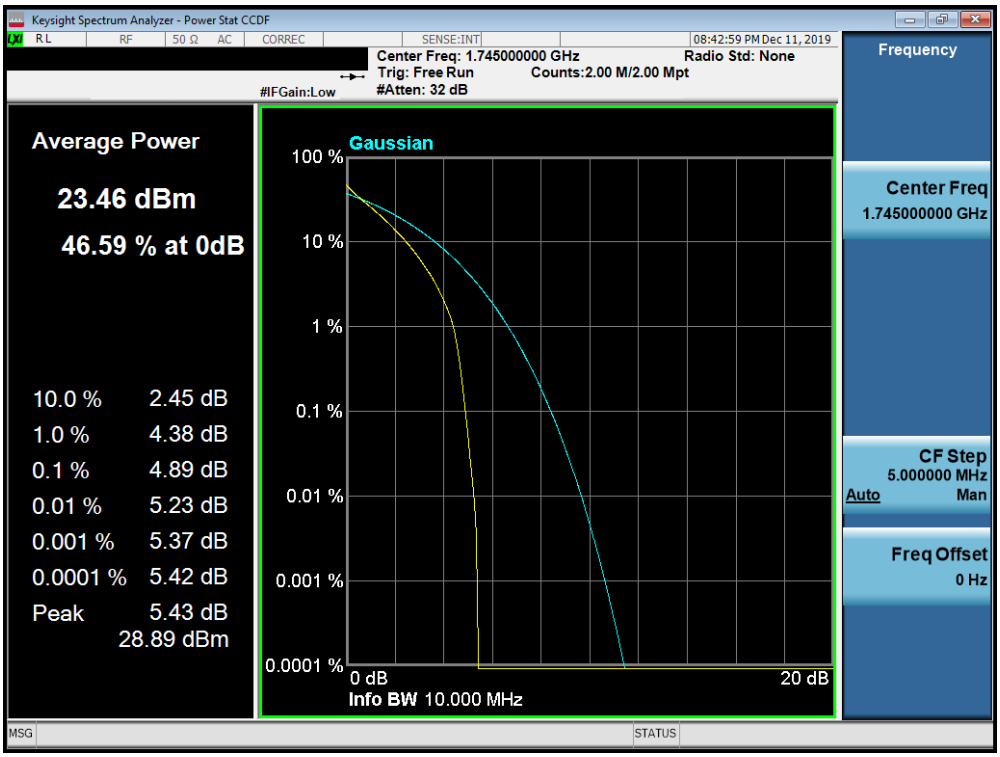


Plot 7-369. PAR Plot (Band 66/4 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-370. PAR Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)

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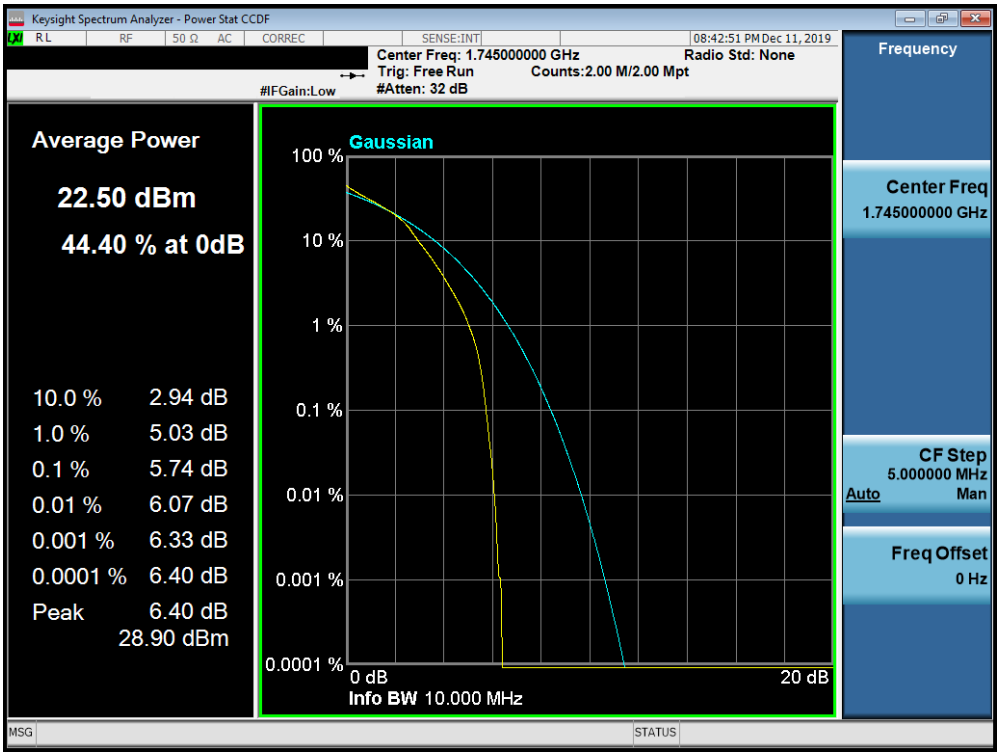
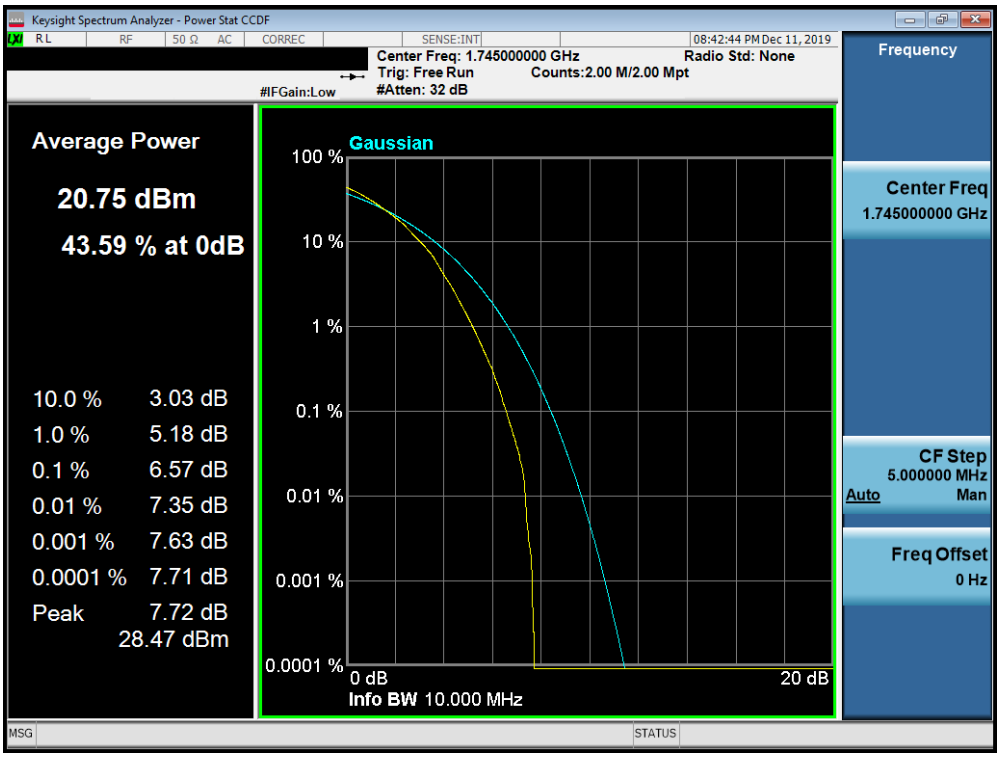


Plot 7-371. PAR Plot (Band 66/4 - 10.0MHz 16-QAM - Full RB Configuration)



Plot 7-372. PAR Plot (Band 66/4 - 10.0MHz 64-QAM - Full RB Configuration)

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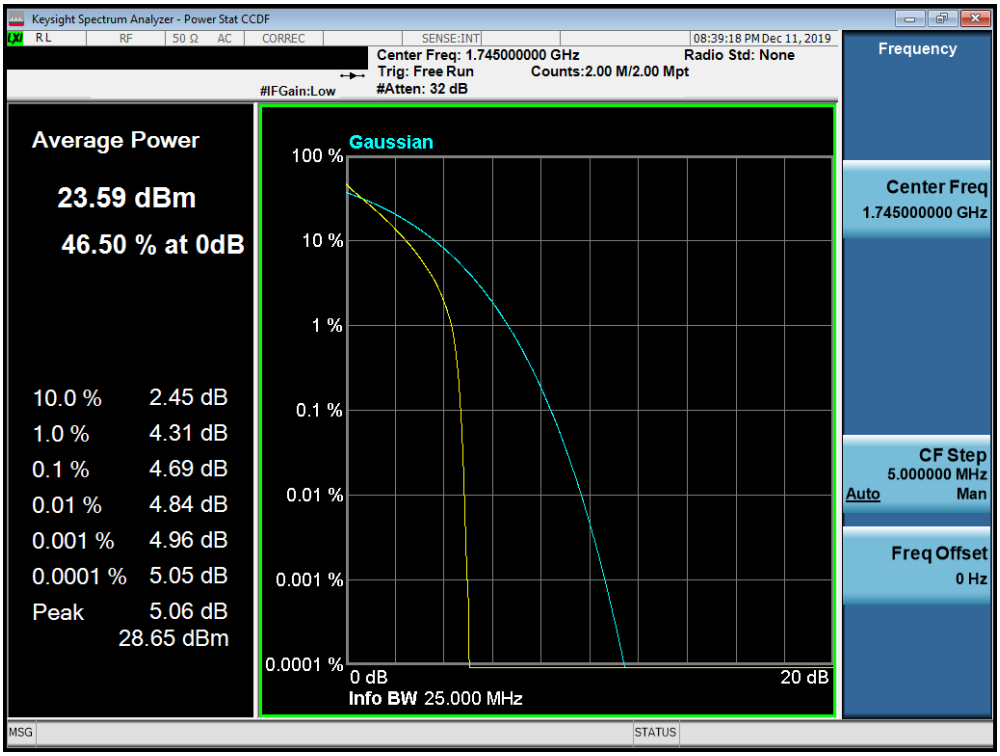
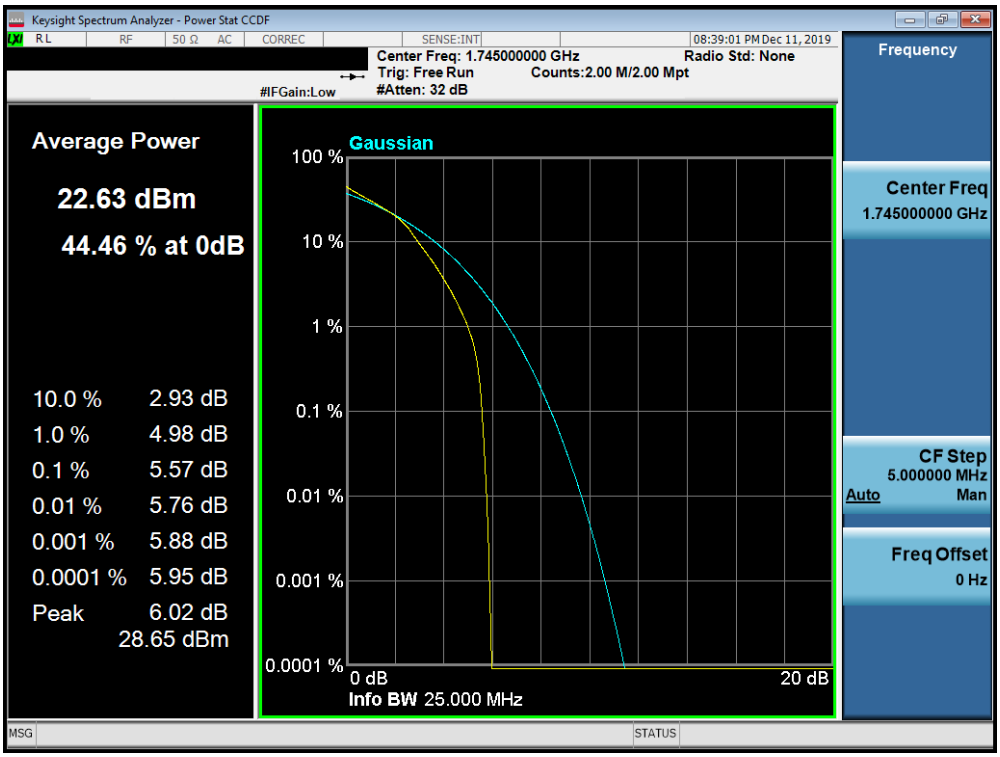


Plot 7-373. PAR Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-374. PAR Plot (Band 66/4 - 15.0MHz 16-QAM - Full RB Configuration)

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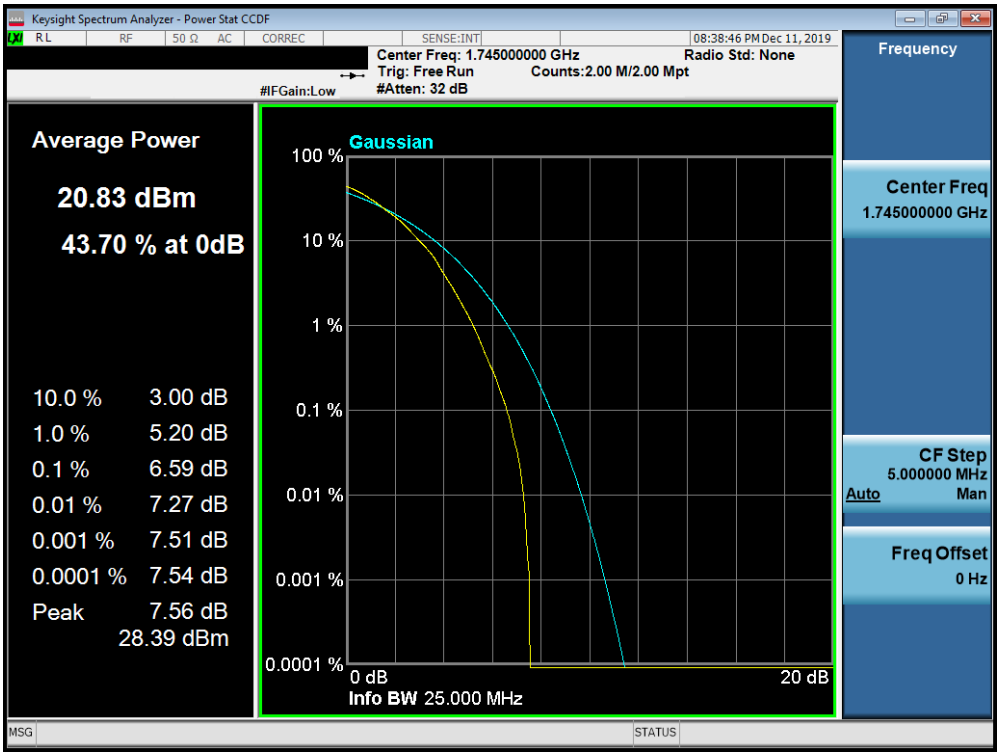
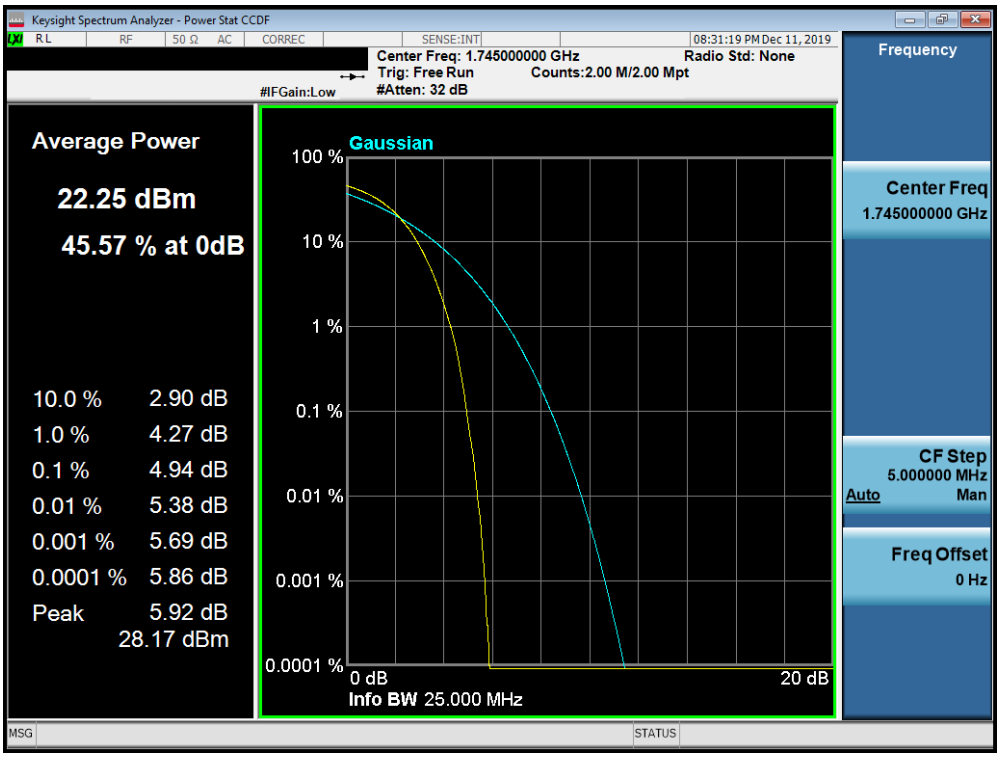


Plot 7-375. PAR Plot (Band 66/4 - 15.0MHz 64-QAM - Full RB Configuration)



Plot 7-376. PAR Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)

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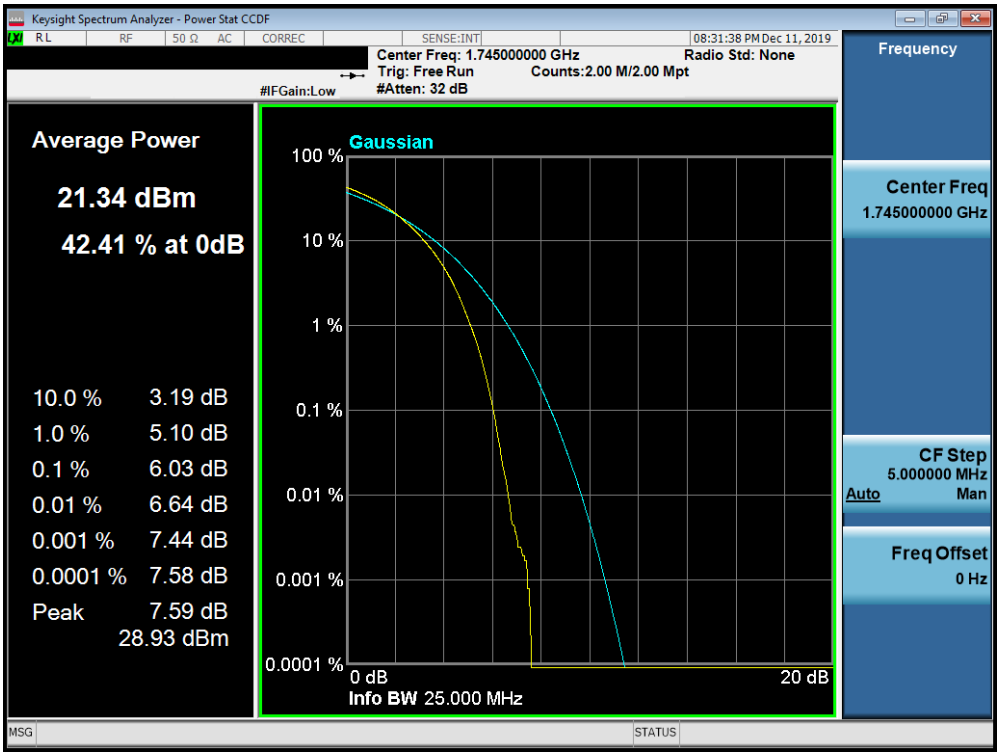
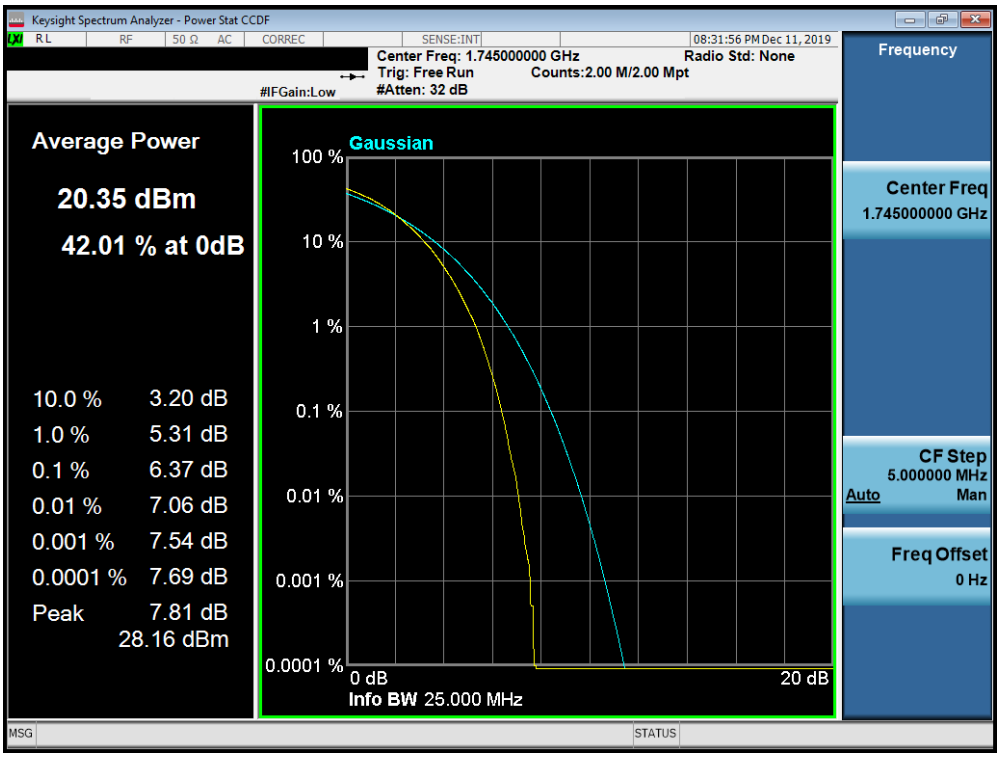


Plot 7-377. PAR Plot (Band 66/4 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-378. PAR Plot (Band 66/4 - 20.0MHz 64-QAM - Full RB Configuration)

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7.6 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

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Test Setup

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

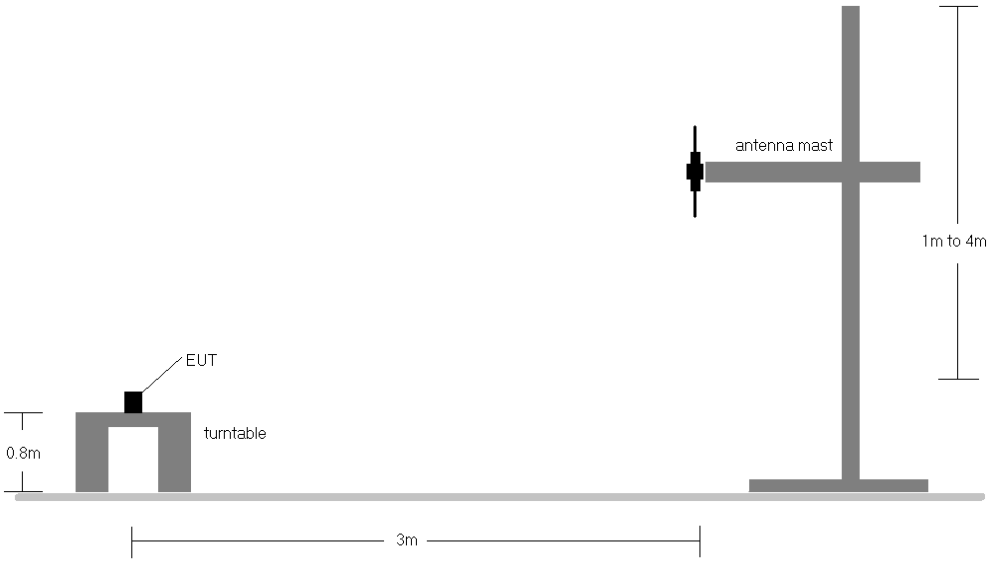

Figure 7-5. Radiated Test Setup <1GHz

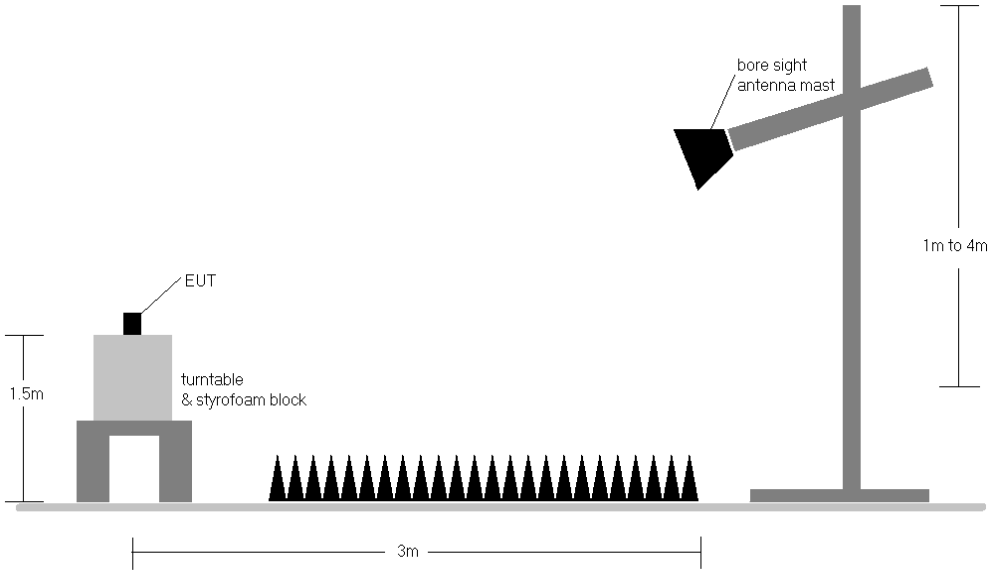

Figure 7-6. Radiated Test Setup >1GHz

Test Notes

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

2) This unit was tested with its standard battery.

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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]
665.50	5	QPSK	V	176	334	1 / 24	13.75	3.75	15.35	0.034	34.77	-19.42
680.50	5	QPSK	V	180	326	1 / 24	13.57	4.20	15.62	0.036	34.77	-19.15
695.50	5	QPSK	V	162	332	1 / 24	13.34	4.50	**15.69**	0.037	34.77	-19.08
695.50	5	16-QAM	V	162	332	1 / 24	12.12	4.50	**14.47**	0.028	34.77	-20.30
695.50	5	64-QAM	V	162	332	1 / 24	11.25	4.50	**13.60**	0.023	34.77	-21.17
668.00	10	QPSK	V	176	334	1 / 0	13.67	3.80	15.32	0.034	34.77	-19.45
680.50	10	QPSK	V	180	326	1 / 0	13.52	4.20	15.57	0.036	34.77	-19.20
693.00	10	QPSK	V	162	332	1 / 0	13.47	4.40	**15.72**	0.037	34.77	-19.05
693.00	10	16-QAM	V	162	332	1 / 0	12.39	4.40	**14.64**	0.029	34.77	-20.13
693.00	10	64-QAM	V	162	332	1 / 0	11.50	4.40	**13.75**	0.024	34.77	-21.02
670.50	15	QPSK	V	176	334	1 / 36	13.96	3.90	15.71	0.037	34.77	-19.06
680.50	15	QPSK	V	180	326	1 / 36	13.65	4.20	15.70	0.037	34.77	-19.07
690.50	15	QPSK	V	162	332	1 / 36	13.54	4.40	**15.79**	0.038	34.77	-18.98
690.50	15	16-QAM	V	162	332	1 / 36	12.32	4.40	**14.57**	0.029	34.77	-20.20
690.50	15	64-QAM	V	162	332	1 / 36	11.53	4.40	**13.78**	0.024	34.77	-20.99
673.00	20	QPSK	V	176	334	1 / 99	13.95	4.00	15.80	0.038	34.77	-18.97
680.50	20	QPSK	V	180	326	1 / 99	13.71	4.20	15.76	0.038	34.77	-19.01
688.00	20	QPSK	V	162	332	1 / 99	13.63	4.40	**15.88**	**0.039**	34.77	-18.89
688.00	20	16-QAM	V	162	332	1 / 99	12.45	4.40	**14.70**	0.030	34.77	-20.07
688.00	20	64-QAM	V	162	332	1 / 99	11.61	4.40	**13.86**	0.024	34.77	-20.91
688.00	20	QPSK	H	141	291	1 / 99	12.96	4.20	15.01	0.032	34.77	-19.76
688.00	20 (WCP)	QPSK	V	166	348	1 / 99	11.99	4.20	14.04	0.025	34.77	-20.73
688.00	20 (Closed)	QPSK	V	160	330	1 / 99	5.91	4.40	8.16	0.007	34.77	-26.61

Table 7-3. ERP Data (Band 71)

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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	V	175	296	1 / 2	14.89	4.50	17.24	0.053	34.77	-17.53	19.39	0.087	36.99	-17.60
707.50	1.4	QPSK	V	170	327	1 / 2	15.07	4.60	**17.52**	0.056	34.77	-17.25	**19.67**	0.093	36.99	-17.32
715.30	1.4	QPSK	V	168	323	1 / 2	14.91	4.63	17.39	0.055	34.77	-17.38	19.54	0.090	36.99	-17.45
707.50	1.4	16-QAM	V	170	327	1 / 2	14.27	4.60	**16.72**	0.047	34.77	-18.05	**18.87**	0.077	36.99	-18.12
707.50	1.4	64-QAM	V	170	327	1 / 2	13.46	4.60	**15.91**	0.039	34.77	-18.86	**18.06**	0.064	36.99	-18.93
700.50	3	QPSK	V	175	296	1 / 7	14.83	4.55	17.23	0.053	34.77	-17.54	19.38	0.087	36.99	-17.61
707.50	3	QPSK	V	170	327	1 / 14	15.11	4.60	17.56	0.057	34.77	-17.21	19.71	0.094	36.99	-17.28
714.50	3	QPSK	V	168	323	1 / 0	15.28	4.60	**17.73**	0.059	34.77	-17.04	**19.88**	0.097	36.99	-17.11
714.50	3	16-QAM	V	168	323	1 / 0	14.23	4.60	**16.68**	0.047	34.77	-18.09	**18.83**	0.076	36.99	-18.16
714.50	3	64-QAM	V	168	323	1 / 0	12.60	4.60	**15.05**	0.032	34.77	-19.72	**17.20**	0.052	36.99	-19.79
701.50	5	QPSK	V	175	296	1 / 0	14.72	4.60	17.17	0.052	34.77	-17.60	19.32	0.086	36.99	-17.67
707.50	5	QPSK	V	170	327	1 /12	15.16	4.60	17.61	0.058	34.77	-17.16	19.76	0.095	36.99	-17.23
713.50	5	QPSK	V	168	323	1 /12	15.41	4.60	**17.86**	0.061	34.77	-16.91	**20.01**	0.100	36.99	-16.98
713.50	5	16-QAM	V	168	323	1 /12	14.25	4.60	**16.70**	0.047	34.77	-18.07	**18.85**	0.077	36.99	-18.14
713.50	5	64-QAM	V	168	323	1 /12	13.10	4.60	**15.55**	0.036	34.77	-19.22	**17.70**	0.059	36.99	-19.29
704.00	10	QPSK	V	175	296	1 / 0	15.03	4.50	17.38	0.055	34.77	-17.39	19.53	0.090	36.99	-17.46
707.50	10	QPSK	V	170	327	1 / 0	15.25	4.60	17.70	0.059	34.77	-17.07	19.85	0.097	36.99	-17.14
711.00	10	QPSK	V	168	323	1 / 25	15.47	4.60	**17.92**	**0.062**	34.77	-16.85	**20.07**	**0.102**	36.99	-16.92
711.00	10	16-QAM	V	168	323	1 / 25	14.33	4.60	**16.78**	0.048	34.77	-17.99	**18.93**	0.078	36.99	-18.06
711.00	10	64-QAM	V	168	323	1 / 25	13.25	4.60	**15.70**	0.037	34.77	-19.07	**17.85**	0.061	36.99	-19.14
711.00	10	QPSK	H	128	294	1 / 25	13.11	3.65	14.61	0.029	34.77	-20.16	16.76	0.047	36.99	-20.23
711.00	10 (WCP)	QPSK	V	172	300	1 / 25	10.34	4.60	12.79	0.019	34.77	-21.98	14.94	0.031	36.99	-22.05
711.00	10 (Closed)	QPSK	V	165	320	1 / 25	10.83	4.60	13.28	0.021	34.77	-21.49	15.43	0.035	36.99	-21.56

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	101	290	1 / 12	14.20	5.80	17.85	0.061	34.77	-16.92	20.00	0.100	36.99	-16.99
782.00	5	QPSK	H	101	290	1 / 12	14.23	5.80	**17.88**	**0.061**	34.77	-16.89	**20.03**	**0.101**	36.99	-16.96
784.50	5	QPSK	H	101	290	1 / 12	14.06	5.90	17.81	0.060	34.77	-16.96	19.96	0.099	36.99	-17.03
782.00	5	16-QAM	H	101	290	1 / 12	12.83	5.80	**16.48**	0.044	34.77	-18.29	**18.63**	0.073	36.99	-18.36
782.00	5	64-QAM	H	101	290	1 / 12	12.24	5.80	**15.89**	0.039	34.77	-18.88	**18.04**	0.064	36.99	-18.95
782.00	10	QPSK	H	101	290	1 / 0	14.03	5.80	**17.68**	0.059	34.77	-17.09	**19.83**	0.096	36.99	-17.16
782.00	10	16-QAM	H	101	290	1 / 0	12.88	5.80	**16.53**	0.045	34.77	-18.24	**18.68**	0.074	36.99	-18.31
782.00	10	64-QAM	H	101	290	1 / 0	11.76	5.80	**15.41**	0.035	34.77	-19.36	**17.56**	0.057	36.99	-19.43
782.00	5	QPSK	V	151	245	1 / 12	11.69	5.80	15.34	0.034	34.77	-19.43	17.49	0.056	36.99	-19.50
782.00	5 (WCP)	QPSK	H	125	285	1 / 12	8.78	5.80	12.43	0.017	34.77	-22.34	14.58	0.029	36.99	-22.41
782.00	5 (Closed)	QPSK	H	141	1	1 / 12	6.07	5.80	9.72	0.009	34.77	-25.05	11.87	0.015	36.99	-25.12

Table 7-5. ERP Data (Band 13)

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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	138	249	1 / 2	14.57	6.30	18.72	0.074	38.45	-19.73	20.87	0.122	40.61	-19.74
836.50	1.4	QPSK	V	128	264	1 / 2	14.57	6.40	**18.82**	0.076	38.45	-19.63	**20.97**	0.125	40.61	-19.64
848.30	1.4	QPSK	V	126	262	1 / 2	14.02	6.50	18.37	0.069	38.45	-20.08	20.52	0.113	40.61	-20.09
836.50	1.4	16-QAM	V	128	264	1 / 2	13.90	6.40	**18.15**	0.065	38.45	-20.30	**20.30**	0.107	40.61	-20.31
836.50	1.4	64-QAM	V	128	264	1 / 2	12.71	6.40	**16.96**	0.050	38.45	-21.49	**19.11**	0.081	40.61	-21.50
825.50	3	QPSK	V	138	249	1 / 14	14.53	6.30	18.68	0.074	38.45	-19.77	20.83	0.121	40.61	-19.78
836.50	3	QPSK	V	128	264	1 / 7	14.57	6.40	**18.82**	0.076	38.45	-19.63	**20.97**	0.125	40.61	-19.64
847.50	3	QPSK	V	126	262	1 / 14	13.96	6.50	18.31	0.068	38.45	-20.14	20.46	0.111	40.61	-20.15
836.50	3	16-QAM	V	128	264	1 / 7	13.68	6.40	**17.93**	0.062	38.45	-20.52	**20.08**	0.102	40.61	-20.53
836.50	3	64-QAM	V	128	264	1 / 7	12.66	6.40	**16.91**	0.049	38.45	-21.54	**19.06**	0.081	40.61	-21.55
826.50	5	QPSK	V	138	249	1 / 24	14.62	6.30	18.77	0.075	38.45	-19.68	20.92	0.124	40.61	-19.69
836.50	5	QPSK	V	128	264	1 / 12	14.58	6.40	**18.83**	0.076	38.45	-19.62	**20.98**	0.125	40.61	-19.63
846.50	5	QPSK	V	126	262	1 / 12	14.05	6.50	18.40	0.069	38.45	-20.05	20.55	0.114	40.61	-20.06
836.50	5	16-QAM	V	128	264	1 / 12	13.72	6.40	**17.97**	0.063	38.45	-20.48	**20.12**	0.103	40.61	-20.49
836.50	5	64-QAM	V	128	264	1 / 12	12.54	6.40	**16.79**	0.048	38.45	-21.66	**18.94**	0.078	40.61	-21.67
829.00	10	QPSK	V	138	249	1 / 25	14.65	6.30	**18.80**	0.076	38.45	-19.65	**20.95**	0.124	40.61	-19.66
836.50	10	QPSK	V	128	264	1 / 0	14.50	6.40	18.75	0.075	38.45	-19.70	20.90	0.123	40.61	-19.71
844.00	10	QPSK	V	126	262	1 / 0	14.16	6.40	18.41	0.069	38.45	-20.04	20.56	0.114	40.61	-20.05
829.00	10	16-QAM	V	138	249	1 / 25	13.83	6.30	**17.98**	0.063	38.45	-20.47	**20.13**	0.103	40.61	-20.48
829.00	10	64-QAM	V	138	249	1 / 25	12.78	6.30	**16.93**	0.049	38.45	-21.52	**19.08**	0.081	40.61	-21.53

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	138	249	1 / 74	14.66	6.35	**18.86**	**0.077**	38.45	-19.59	**21.01**	**0.126**	40.61	-19.60
836.50	15	QPSK	V	128	264	1 / 74	14.50	6.40	18.75	0.075	38.45	-19.70	20.90	0.123	40.61	-19.71
841.50	15	QPSK	V	126	262	1 / 74	13.99	6.40	18.24	0.067	38.45	-20.21	20.39	0.109	40.61	-20.22
831.50	15	16-QAM	V	138	249	1 / 74	14.16	6.35	**18.36**	0.069	38.45	-20.09	**20.51**	0.112	40.61	-20.10
831.50	15	64-QAM	V	138	249	1 / 74	13.02	6.35	**17.22**	0.053	38.45	-21.23	**19.37**	0.086	40.61	-21.24
831.50	15	QPSK	H	138	249	1 / 74	12.87	6.70	17.42	0.055	38.45	-21.03	19.57	0.091	40.61	-21.04
831.50	15 (WCP)	QPSK	V	103	296	1 / 74	8.26	6.30	12.41	0.017	38.45	-26.04	14.56	0.029	40.61	-26.05
831.50	15 (Closed)	QPSK	H	133	335	1 / 0	10.51	6.30	14.66	0.029	38.45	-23.79	16.81	0.048	40.61	-23.80

Table 7-7. ERP Data (Band 26)

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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	211	212	1 / 2	12.38	9.44	21.82	0.152	30.00	-8.18
1745.00	1.4	QPSK	H	211	222	1 / 2	12.63	9.23	**21.86**	0.153	30.00	-8.14
1779.30	1.4	QPSK	H	211	211	1 / 5	12.31	9.26	21.57	0.144	30.00	-8.43
1745.00	1.4	16-QAM	H	211	222	1 / 2	11.33	9.23	**20.56**	0.114	30.00	-9.44
1745.00	1.4	64-QAM	H	211	222	1 / 2	10.48	9.23	**19.71**	0.094	30.00	-10.29
1711.50	3	QPSK	H	211	212	1 / 14	12.53	9.44	**21.96**	0.157	30.00	-8.04
1745.00	3	QPSK	H	211	222	1 / 14	12.68	9.23	21.91	0.155	30.00	-8.09
1778.50	3	QPSK	H	211	211	1 / 14	12.36	9.26	21.62	0.145	30.00	-8.38
1711.50	3	16-QAM	H	211	212	1 / 14	11.31	9.44	**20.74**	0.119	30.00	-9.26
1711.50	3	64-QAM	H	211	212	1 / 14	9.96	9.44	**19.39**	0.087	30.00	-10.61
1712.50	5	QPSK	H	211	212	1 / 24	12.76	9.43	**22.19**	0.166	30.00	-7.81
1745.00	5	QPSK	H	211	222	1 / 24	12.68	9.23	21.91	0.155	30.00	-8.09
1777.50	5	QPSK	H	211	211	1 / 24	12.39	9.26	21.65	0.146	30.00	-8.35
1712.50	5	16-QAM	H	211	212	1 / 24	11.47	9.43	**20.90**	0.123	30.00	-9.10
1712.50	5	64-QAM	H	211	212	1 / 24	9.97	9.43	**19.40**	0.087	30.00	-10.60
1715.00	10	QPSK	H	211	212	1 / 49	12.72	9.42	**22.13**	0.163	30.00	-7.87
1745.00	10	QPSK	H	211	222	1 / 49	12.62	9.23	21.85	0.153	30.00	-8.15
1775.00	10	QPSK	H	211	211	1 / 0	12.33	9.25	21.58	0.144	30.00	-8.42
1715.00	10	16-QAM	H	211	212	1 / 49	11.59	9.42	**21.00**	0.126	30.00	-9.00
1715.00	10	64-QAM	H	211	212	1 / 49	10.15	9.42	**19.56**	0.090	30.00	-10.44
1717.50	15	QPSK	H	211	212	1 / 74	12.89	9.40	**22.29**	0.170	30.00	-7.71
1745.00	15	QPSK	H	211	222	1 / 0	12.83	9.23	22.06	0.161	30.00	-7.94
1772.50	15	QPSK	H	211	211	1 / 0	12.54	9.25	21.79	0.151	30.00	-8.21
1717.50	15	16-QAM	H	211	212	1 / 74	11.59	9.40	**20.99**	0.126	30.00	-9.01
1717.50	15	64-QAM	H	211	212	1 / 74	10.57	9.40	**19.97**	0.099	30.00	-10.03
1720.00	20	QPSK	H	211	212	1 / 50	13.13	9.38	**22.51**	**0.178**	30.00	-7.49
1745.00	20	QPSK	H	211	222	1 / 50	12.83	9.23	22.06	0.161	30.00	-7.94
1770.00	20	QPSK	H	211	211	1 / 50	12.63	9.24	21.87	0.154	30.00	-8.13
1720.00	20	16-QAM	H	211	212	1 / 50	11.78	9.38	**21.16**	0.131	30.00	-8.84
1720.00	20	64-QAM	H	211	212	1 / 50	11.09	9.38	**20.47**	0.112	30.00	-9.53
1720.00	20	QPSK	V	135	224	1 / 50	12.94	9.14	22.08	0.161	30.00	-7.92
1720.00	20 (WCP)	QPSK	H	128	213	1 / 50	11.22	9.38	20.60	0.115	30.00	-9.40
1720.00	20 (Closed)	QPSK	H	128	213	1 / 50	8.45	9.38	17.83	0.061	30.00	-12.17

Table 7-8. EIRP Data (Band 66/4)

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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	187	1 / 2	13.17	9.48	22.66	0.184	33.01	-10.35
1882.50	1.4	QPSK	H	156	222	1 / 2	13.32	9.94	**23.26**	0.212	33.01	-9.76
1914.30	1.4	QPSK	H	180	187	1 / 2	12.93	10.29	23.22	0.210	33.01	-9.79
1882.50	1.4	16-QAM	H	156	222	1 / 2	12.15	9.94	**22.09**	0.162	33.01	-10.93
1882.50	1.4	64-QAM	H	156	222	1 / 2	11.21	9.94	**21.15**	0.130	33.01	-11.87
1851.50	3	QPSK	H	150	187	1 / 14	13.07	9.50	22.57	0.181	33.01	-10.44
1882.50	3	QPSK	H	156	222	1 / 14	13.35	9.94	**23.29**	0.213	33.01	-9.73
1913.50	3	QPSK	H	180	187	1 / 14	12.99	10.29	23.28	0.213	33.01	-9.73
1882.50	3	16-QAM	H	156	222	1 / 14	12.09	9.94	**22.03**	0.159	33.01	-10.99
1882.50	3	64-QAM	H	156	222	1 / 14	11.22	9.94	**21.16**	0.130	33.01	-11.86
1852.50	5	QPSK	H	150	187	1 / 24	13.15	9.51	22.66	0.184	33.01	-10.35
1882.50	5	QPSK	H	156	222	1 / 24	13.37	9.94	**23.31**	0.214	33.01	-9.71
1912.50	5	QPSK	H	180	187	1 / 24	12.95	10.28	23.23	0.210	33.01	-9.78
1882.50	5	16-QAM	H	156	222	1 / 24	12.14	9.94	**22.08**	0.161	33.01	-10.94
1882.50	5	64-QAM	H	156	222	1 / 24	11.27	9.94	**21.21**	0.132	33.01	-11.81
1855.00	10	QPSK	H	150	187	1 / 0	13.08	9.55	22.63	0.183	33.01	-10.38
1882.50	10	QPSK	H	156	222	1 / 0	13.29	9.94	**23.23**	0.210	33.01	-9.79
1910.00	10	QPSK	H	180	187	1 / 49	12.96	10.26	23.22	0.210	33.01	-9.79
1882.50	10	16-QAM	H	156	222	1 / 0	12.06	9.94	**22.00**	0.158	33.01	-11.02
1882.50	10	64-QAM	H	156	222	1 / 0	11.20	9.94	**21.14**	0.130	33.01	-11.88
1857.50	15	QPSK	H	150	187	1 / 74	13.21	9.58	22.79	0.190	33.01	-10.22
1882.50	15	QPSK	H	156	222	1 / 74	13.46	9.94	23.40	0.219	33.01	-9.62
1907.50	15	QPSK	H	180	187	1 / 0	13.21	10.24	**23.45**	0.221	33.01	-9.56
1907.50	15	16-QAM	H	180	187	1 / 0	12.08	10.24	**22.32**	0.171	33.01	-10.69
1907.50	15	64-QAM	H	191	187	1 / 0	11.01	10.24	**21.25**	0.133	33.01	-11.76
1860.00	20	QPSK	H	150	187	1 / 99	13.63	9.62	23.25	0.211	33.01	-9.76
1882.50	20	QPSK	H	156	222	1 / 0	13.57	9.94	23.51	0.224	33.01	-9.51
1905.00	20	QPSK	H	180	187	1 / 0	13.50	10.22	**23.72**	**0.235**	33.01	-9.29
1905.00	20	16-QAM	H	180	187	1 / 0	12.39	10.22	**22.61**	0.182	33.01	-10.40
1905.00	20	64-QAM	H	191	187	1 / 0	11.37	10.22	**21.59**	0.144	33.01	-11.42
1905.00	20	QPSK	V	243	279	1 / 0	12.46	10.28	22.74	0.188	33.01	-10.27
1905.00	20 (WCP)	QPSK	H	136	219	1 / 0	10.88	10.22	21.10	0.129	33.01	-11.91
1905.00	20 (Closed)	QPSK	H	136	219	1 / 0	12.54	10.22	22.76	0.189	33.01	-10.25

Table 7-9. EIRP Data (Band 25/2)

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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]
2307.50	5	QPSK	V	104	270	1 / 0	11.20	10.23	**21.43**	0.139	23.98	-2.55
2312.50	5	QPSK	V	106	271	1 / 0	10.71	10.21	20.92	0.124	23.98	-3.06
2307.50	5	16-QAM	V	104	270	1 / 0	10.36	10.23	20.59	0.114	23.98	-3.39
2307.50	5	64-QAM	V	104	270	1 / 0	9.10	10.23	**19.33**	0.086	23.98	-4.65
2310.00	10	QPSK	V	103	273	1 / 49	11.49	10.22	**21.71**	**0.148**	23.98	-2.27
2310.00	10	16-QAM	V	103	273	1 / 0	10.52	10.22	20.74	0.119	23.98	-3.24
2310.00	10	64-QAM	V	103	273	1 / 0	9.24	10.22	19.46	0.088	23.98	-4.52
2310.00	10	QPSK	H	109	86	1 / 49	10.87	10.31	21.18	0.131	23.98	-2.80
2310.00	10 (WCP)	QPSK	V	109	353	1 / 49	7.53	10.22	17.75	0.060	23.98	-6.23
2310.00	10 (Closed)	QPSK	H	110	90	1 / 49	8.07	10.31	18.38	0.069	23.98	-5.60

Table 7-10. EIRP Data (Band 30)

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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]
2502.50	5	QPSK	H	149	227	1 / 24	12.22	9.43	21.65	0.146	33.01	-11.36
2535.00	5	QPSK	H	132	224	1 / 12	12.44	9.39	**21.83**	0.153	33.01	-11.18
2567.50	5	QPSK	H	135	221	1 / 0	11.41	9.45	20.86	0.122	33.01	-12.15
2535.00	5	16-QAM	H	132	224	1 / 12	11.40	9.39	**20.79**	0.120	33.01	-12.22
2535.00	5	64-QAM	H	132	224	1 / 12	10.71	9.39	**20.10**	0.102	33.01	-12.91
2505.00	10	QPSK	H	149	227	1 / 49	12.36	9.43	**21.79**	0.151	33.01	-11.22
2535.00	10	QPSK	H	132	224	1 / 0	12.38	9.39	21.77	0.150	33.01	-11.24
2565.00	10	QPSK	H	135	221	1 / 25	11.47	9.44	20.91	0.123	33.01	-12.10
2505.00	10	16-QAM	H	149	227	1 / 49	11.18	9.43	**20.61**	0.115	33.01	-12.40
2505.00	10	64-QAM	H	149	227	1 / 49	9.09	9.43	**18.52**	0.071	33.01	-14.49
2507.50	15	QPSK	H	149	227	1 / 0	12.22	9.42	21.64	0.146	33.01	-11.37
2535.00	15	QPSK	H	132	224	1 / 0	12.55	9.39	**21.94**	0.156	33.01	-11.07
2562.50	15	QPSK	H	135	221	1 / 74	11.60	9.43	21.03	0.127	33.01	-11.98
2535.00	15	16-QAM	H	132	224	1 / 0	11.55	9.39	**20.94**	0.124	33.01	-12.07
2535.00	15	64-QAM	H	132	224	1 / 0	10.69	9.39	**20.08**	0.102	33.01	-12.93
2510.00	20	QPSK	H	149	227	1 / 0	12.22	9.42	21.64	0.146	33.01	-11.37
2535.00	20	QPSK	H	132	224	1 / 50	12.68	9.39	**22.07**	**0.161**	33.01	-10.94
2560.00	20	QPSK	H	135	221	1 / 99	11.67	9.42	21.09	0.129	33.01	-11.92
2535.00	20	16-QAM	H	132	224	1 / 50	11.54	9.39	**20.93**	0.124	33.01	-12.08
2535.00	20	64-QAM	H	132	224	1 / 50	10.56	9.39	**19.95**	0.099	33.01	-13.06
2535.00	20	QPSK	V	100	264	1 / 50	11.87	9.38	21.25	0.133	33.01	-11.76
2535.00	20 (WCP)	QPSK	H	123	223	1 / 50	10.70	9.39	20.09	0.102	33.01	-12.92
2535.00	20 (Closed)	QPSK	H	100	329	50 / 25	10.08	9.39	19.47	0.089	33.01	-13.54

Table 7-11. EIRP Data (Band 7)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	H	109	223	1 / 12	15.92	9.43	25.35	0.343	33.01	-7.66
2593.00	5	QPSK	H	115	224	1 / 12	14.76	9.55	24.31	0.270	33.01	-8.70
2687.50	5	QPSK	H	115	223	1 / 0	15.60	9.82	**25.41**	0.348	33.01	-7.60
2687.50	5	16-QAM	H	115	223	1 / 0	14.59	9.82	**24.40**	0.276	33.01	-8.61
2687.50	5	64-QAM	H	115	223	1 / 0	13.47	9.82	**23.28**	0.213	33.01	-9.73
2501.00	10	QPSK	H	109	223	1 / 0	15.75	9.43	25.18	0.330	33.01	-7.83
2593.00	10	QPSK	H	115	224	1 / 25	14.74	9.55	24.29	0.269	33.01	-8.72
2685.00	10	QPSK	H	115	223	1 / 0	15.53	9.82	**25.35**	0.343	33.01	-7.66
2685.00	10	16-QAM	H	115	223	1 / 0	14.38	9.82	**24.20**	0.263	33.01	-8.81
2685.00	10	64-QAM	H	115	223	1 / 0	13.30	9.82	**23.12**	0.205	33.01	-9.89
2503.50	15	QPSK	H	109	223	1 / 74	15.79	9.43	25.21	0.332	33.01	-7.80
2593.00	15	QPSK	H	115	224	1 / 36	14.75	9.55	24.30	0.269	33.01	-8.71
2682.50	15	QPSK	H	115	223	1 / 36	15.55	9.83	**25.37**	0.345	33.01	-7.64
2682.50	15	16-QAM	H	115	223	1 / 36	14.47	9.83	**24.29**	0.269	33.01	-8.72
2682.50	15	64-QAM	H	115	223	1 / 36	13.20	9.83	**23.02**	0.201	33.01	-9.99
2506.00	20	QPSK	H	109	223	1 / 50	15.87	9.42	25.29	0.338	33.01	-7.72
2510.00	20	QPSK	H	109	222	1 / 99	15.39	9.42	24.81	0.303	33.01	-8.20
2593.00	20	QPSK	H	115	224	1 / 50	14.46	9.55	24.01	0.252	33.01	-9.00
2680.00	20	QPSK	H	115	223	1 / 50	15.63	9.83	**25.46**	**0.352**	33.01	-7.55
2680.00	20	16-QAM	H	115	223	1 / 50	14.80	9.83	**24.63**	0.291	33.01	-8.38
2680.00	20	64-QAM	H	115	223	1 / 50	13.58	9.83	**23.41**	0.220	33.01	-9.60
2680.00	20	QPSK	V	101	289	1 / 50	14.64	9.68	24.32	0.270	33.01	-8.69
2680.00	20 (WCP)	QPSK	H	109	221	1 / 50	13.90	9.83	23.73	0.236	33.01	-9.28
2680.00	20 (Closed)	QPSK	H	130	153	1 / 50	13.49	9.83	23.32	0.215	33.01	-9.69

Table 7-12. EIRP Data (Band 41 – PC2)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	H	123	217	1 / 24	12.18	9.43	21.61	0.145	33.01	-11.40
2593.00	5	QPSK	H	129	224	1 / 12	13.72	9.55	**23.27**	0.213	33.01	-9.74
2687.50	5	QPSK	H	116	223	1 / 24	12.98	9.82	22.79	0.190	33.01	-10.22
2593.00	5	16-QAM	H	129	224	1 / 12	12.94	9.55	**22.49**	0.178	33.01	-10.52
2593.00	5	64-QAM	H	129	224	1 / 12	11.63	9.55	**21.18**	0.131	33.01	-11.83
2501.00	10	QPSK	H	123	217	1 / 25	11.99	9.43	21.42	0.139	33.01	-11.59
2593.00	10	QPSK	H	129	224	1 / 49	13.59	9.55	**23.14**	0.206	33.01	-9.87
2685.00	10	QPSK	H	116	223	1 / 25	12.94	9.82	22.76	0.189	33.01	-10.25
2593.00	10	16-QAM	H	129	224	1 / 49	12.82	9.55	**22.37**	0.173	33.01	-10.64
2593.00	10	64-QAM	H	129	224	1 / 49	11.56	9.55	**21.11**	0.129	33.01	-11.90
2503.50	15	QPSK	H	123	217	1 / 0	12.30	9.43	21.72	0.149	33.01	-11.29
2593.00	15	QPSK	H	129	224	1 / 0	13.78	9.55	**23.33**	0.215	33.01	-9.68
2682.50	15	QPSK	H	116	223	1 / 36	13.34	9.83	23.16	0.207	33.01	-9.85
2593.00	15	16-QAM	H	129	224	1 / 0	12.96	9.55	**22.51**	0.178	33.01	-10.50
2593.00	15	64-QAM	H	129	224	1 / 0	11.73	9.55	**21.28**	0.134	33.01	-11.73
2506.00	20	QPSK	H	123	217	1 / 99	12.54	9.42	21.96	0.157	33.01	-11.05
2593.00	20	QPSK	H	129	224	1 / 0	13.91	9.55	23.46	0.222	33.01	-9.55
2680.00	20	QPSK	H	116	223	1 / 99	13.67	9.83	**23.50**	**0.224**	33.01	-9.51
2680.00	20	16-QAM	H	116	223	1 / 99	12.90	9.83	**22.73**	0.188	33.01	-10.28
2680.00	20	64-QAM	H	116	223	1 / 99	11.77	9.83	**21.60**	0.145	33.01	-11.41
2680.00	20 (Closed)	QPSK	H	106	322	1 / 99	11.92	9.83	21.75	**0.150**	33.01	-11.26

Table 7-13. EIRP Data (Band 41 – PC3)

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7.7 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

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Test Setup

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

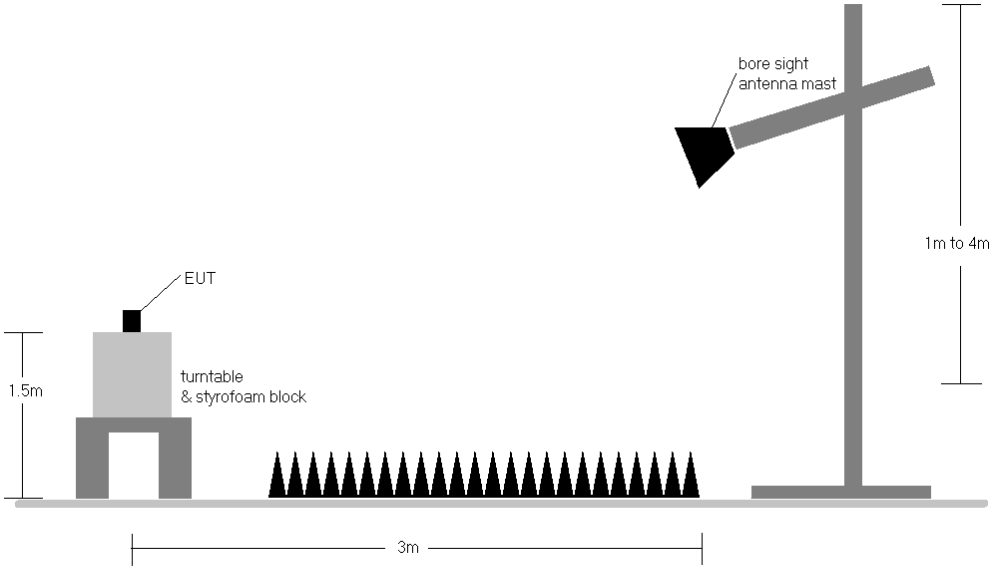

Figure 7-7. Test Instrument & Measurement Setup

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.

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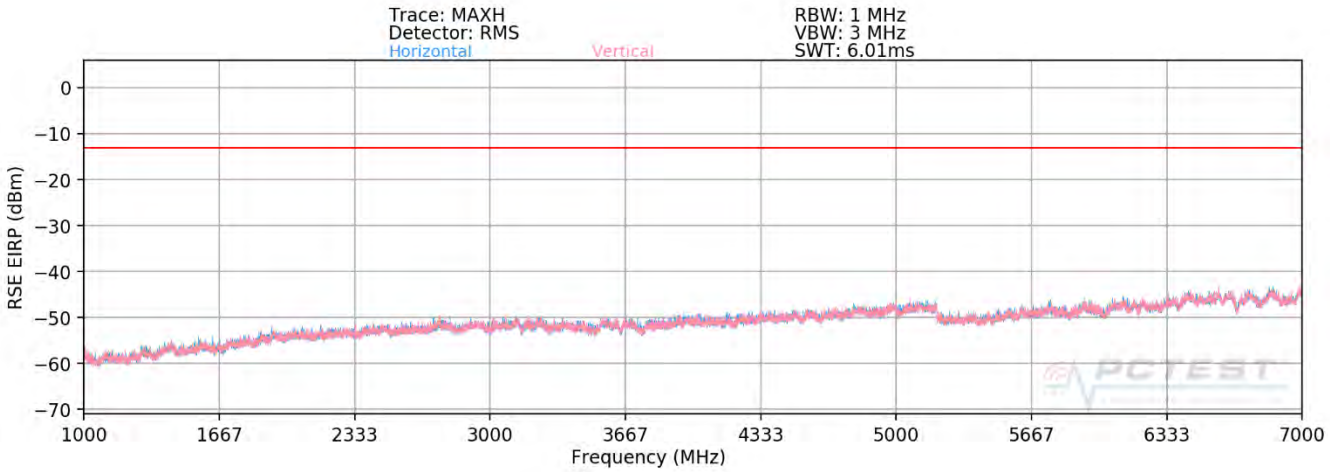
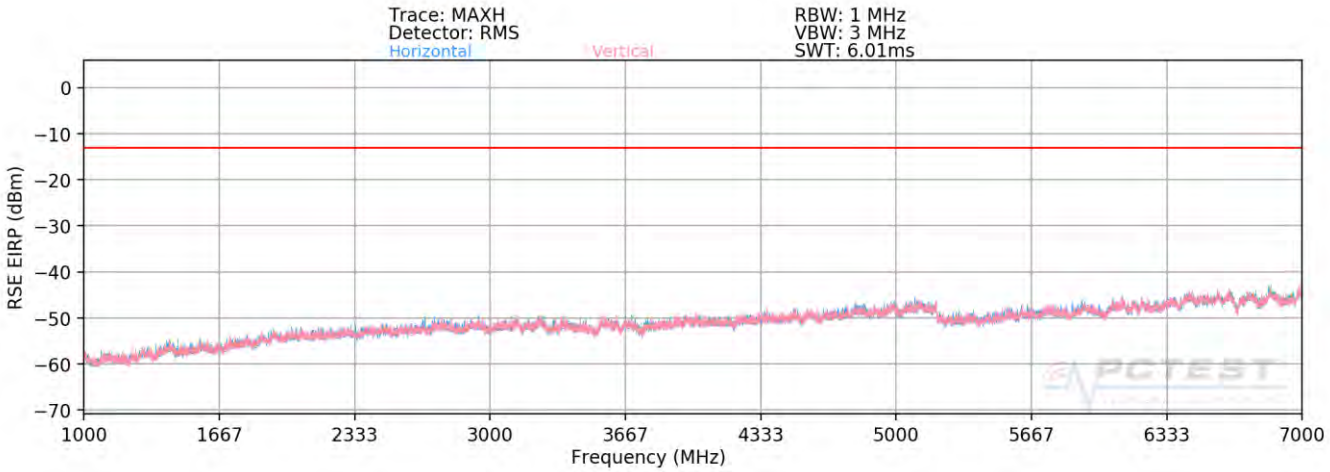
Band 71



Plot 7-220. Radiated Spurious Plot below 1GHz (Band 71) - OPEN



Plot 7-380. Radiated Spurious Plot above 1GHz (Band 71) - CLOSED

OPERATING FREQUENCY:	673.00	MHz
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]
1346.00	H	-	-	-70.69	2.91	-67.78	-54.8
2019.00	H	-	-	-66.77	2.82	-63.95	-50.9

Table 7-7. Radiated Spurious Data (Band 71 – Low Channel)

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OPERATING FREQUENCY:	680.50	MHz
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]
1361.00	H	121	100	-70.36	2.88	-67.49	-54.5
2041.50	H	-	-	-65.59	2.73	-62.87	-49.9
2722.00	H	-	-	-66.67	4.60	-62.07	-49.1

Table 7-8. Radiated Spurious Data (Band 71 – Mid Channel)

OPERATING FREQUENCY:	688.00	MHz
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]
1376.00	H	210	206	-68.39	2.64	-65.75	-52.7
2064.00	H	-	-	-66.45	2.82	-63.63	-50.6
2752.00	H	-	-	-66.76	4.60	-62.16	-49.2

Table 7-9. Radiated Spurious Data (Band 71 – High Channel)

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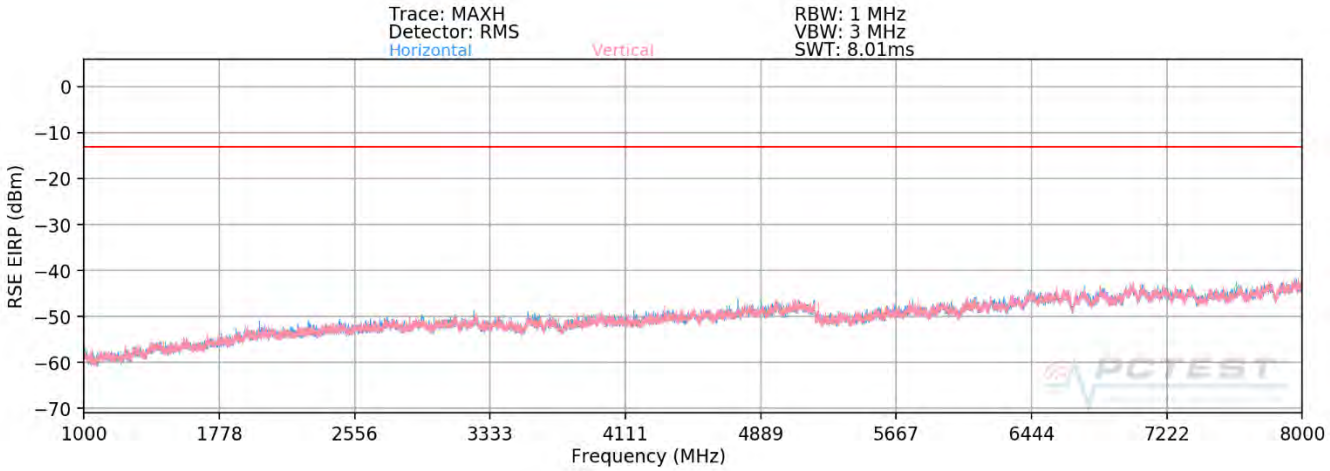
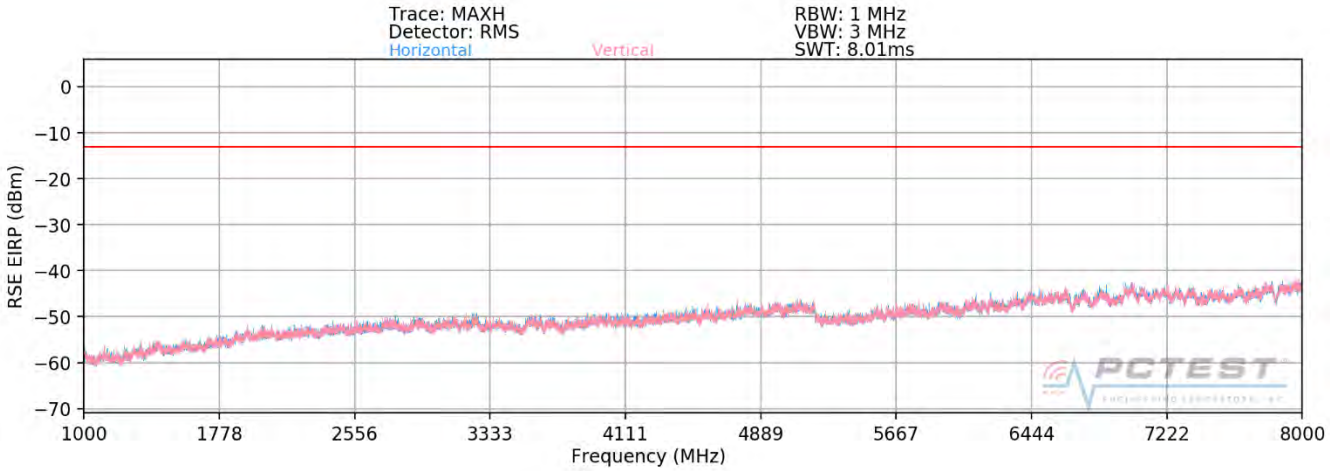
Band 12



Plot 7-221. Radiated Spurious Plot above 1GHz (Band 12) – OPEN



Plot 7-222. Radiated Spurious Plot above 1GHz (Band 12) - CLOSED

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OPERATING FREQUENCY:	704.00	MHz
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	H	100	202	-57.62	2.30	-55.31	-42.3
1408.00	V (Closed)	123	281	-65.59	2.30	-63.28	-50.3
2112.00	H	145	341	-65.55	3.12	-62.42	-49.4
2816.00	H	110	152	-65.73	4.82	-60.91	-47.9
3520.00	H	101	156	-68.99	6.48	-62.51	-49.5
4224.00	H	-	-	-69.44	7.89	-61.55	-48.5
4928.00	H	-	-	-69.76	8.73	-61.04	-48.0

Table 7-10. Radiated Spurious Data (Band 12 – Low Channel)

OPERATING FREQUENCY:	707.50	MHz
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	H	100	210	-58.88	2.39	-56.49	-43.5
2122.50	H	123	331	-65.18	3.14	-62.04	-49.0
2830.00	H	120	145	-66.50	4.87	-61.63	-48.6
3537.50	H	-	-	-68.88	6.45	-62.43	-49.4
4245.00	H	-	-	-69.51	7.98	-61.54	-48.5

Table 7-18. Radiated Spurious Data (Band 12 – Mid Channel)

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OPERATING FREQUENCY:	711.00	MHz
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	H	101	221	-66.38	2.53	-63.86	-50.9
2133.00	H	176	293	-65.64	3.11	-62.53	-49.5
2844.00	H	-	-	-67.41	4.91	-62.50	-49.5
3555.00	H	-	-	-67.64	6.46	-61.19	-48.2

Table 7-19. Radiated Spurious Data (Band 12 – High Channel)

OPERATING FREQUENCY:	704.00	MHz
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	H	114	67	-60.70	2.30	-58.39	-45.4
2112.00	H	-	-	-68.03	3.12	-64.90	-51.9
2816.00	H	-	-	-68.31	4.82	-63.49	-50.5

Table 7-20. Radiated Spurious Data with WCP (Band 12 – Low Channel)

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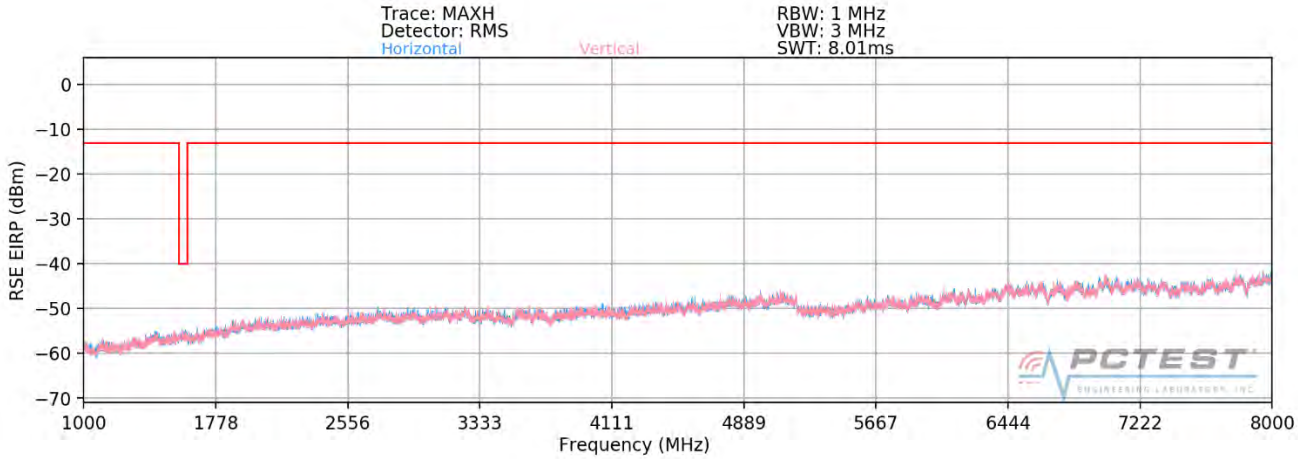
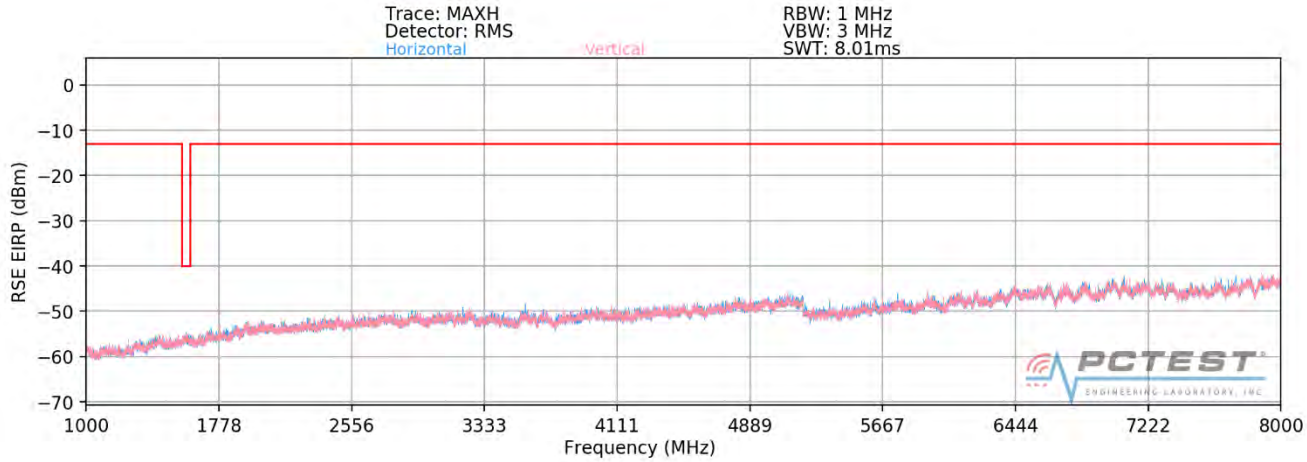
Band 13



Plot 7-223. Radiated Spurious Plot above 1GHz (Band 13) – OPEN



Plot 7-224. Radiated Spurious Plot above 1GHz (Band 13) – CLOSED

OPERATING FREQUENCY:	782.00	MHz
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	135	152	-61.73	3.64	-58.10	-45.1
3128.00	H	-	-	-67.13	5.73	-61.39	-48.4
3910.00	H	-	-	-68.97	7.25	-61.72	-48.7

Table 7-21. Radiated Spurious Data (Band 13 – Mid Channel)

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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	102	167	-68.38	2.93	-65.45	-25.4
1564.00	V (Closed)	190	10	-68.69	2.93	-65.76	-25.8

Table 7-22. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

OPERATING FREQUENCY:	782.00	MHz
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	135	152	-64.02	3.64	-60.39	-47.4
3128.00	H	-	-	-67.67	5.73	-61.93	-48.9
3910.00	H	-	-	-68.80	7.25	-61.55	-48.5

Table 7-23. Radiated Spurious Data with WCP (Band 13)

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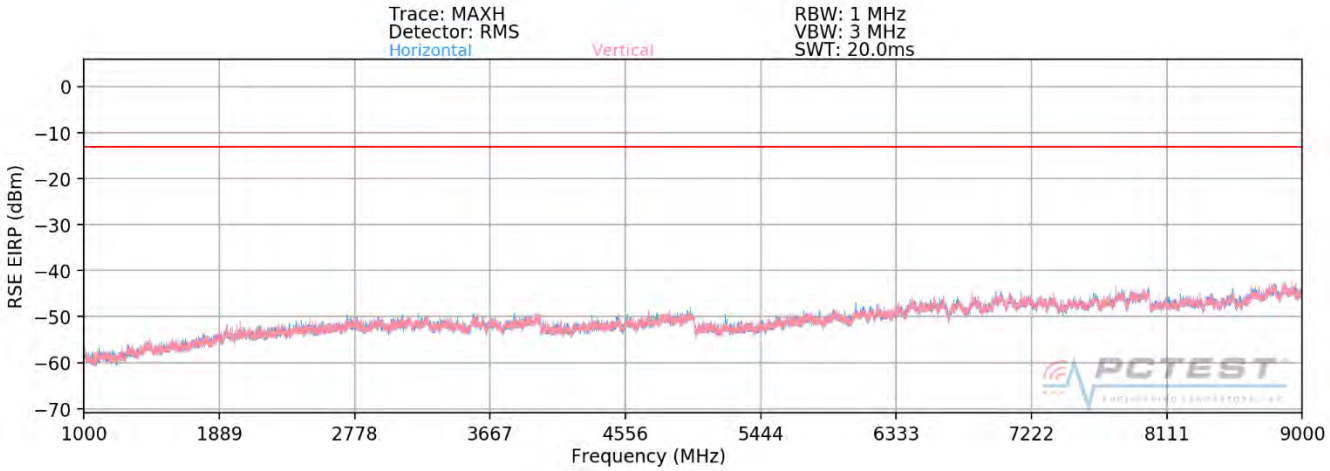
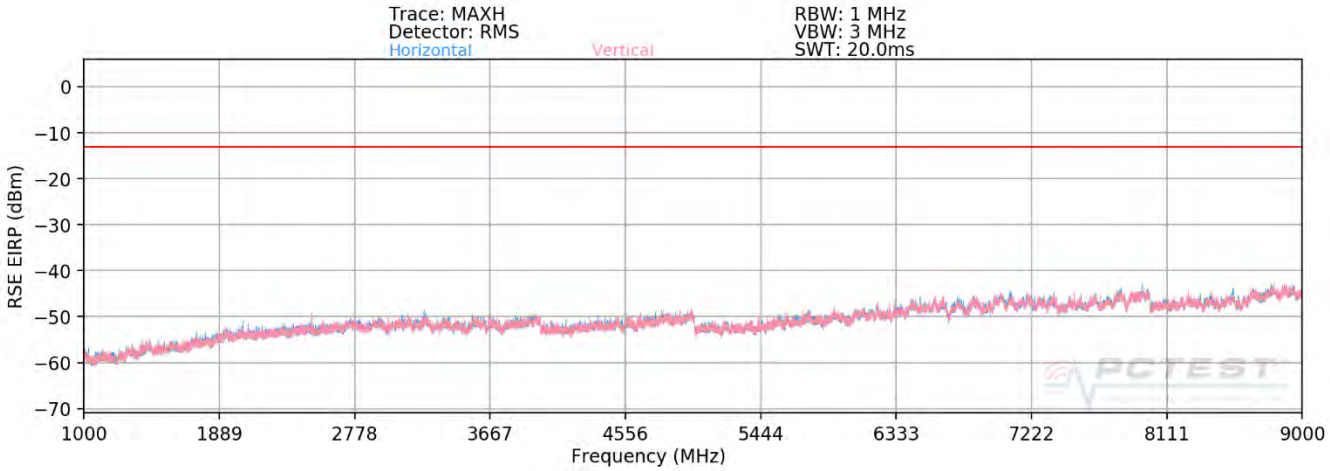
Band 26/5



Plot 7-225. Radiated Spurious Plot above 1GHz (Band 26/5) - OPEN



Plot 7-226. Radiated Spurious Plot above 1GHz (Band 26/5) - CLOSED

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OPERATING FREQUENCY:	829.00	MHz
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]
1658.00	H	141	122	-67.71	3.12	-64.59	-51.6
2487.00	H	109	154	-60.75	3.87	-56.88	-43.9
3316.00	H	-	-	-67.94	6.01	-61.93	-48.9
4145.00	H	-	-	-69.93	7.77	-62.16	-49.2

Table 7-24. Radiated Spurious Data (Band 26/5 – Low Channel)

OPERATING FREQUENCY:	836.50	MHz
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]
1673.00	H	101	163	-66.15	3.10	-63.05	-50.1
2509.50	H	106	353	-62.29	4.02	-58.27	-45.3
3346.00	H	121	143	-66.99	6.03	-60.97	-48.0
4182.50	H	133	147	-67.27	7.79	-59.48	-46.5
5019.00	H	-	-	-69.57	8.78	-60.79	-47.8
5855.50	H	-	-	-69.49	9.18	-60.31	-47.3

Table 7-25. Radiated Spurious Data (Band 26/5 – Mid Channel)

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OPERATING FREQUENCY:	844.00	MHz
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]
1688.00	H	149	130	-68.36	3.18	-65.18	-52.2
2532.00	H	104	309	-60.70	4.10	-56.60	-43.6
2532.00	H (Closed)	109	131	-65.47	4.10	-61.37	-48.4
3376.00	H	-	-	-68.02	6.15	-61.87	-48.9
4220.00	H	-	-	-69.64	7.88	-61.76	-48.8

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

OPERATING FREQUENCY:	844.00	MHz
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]
1688.00	H	140	156	-69.36	3.18	-66.18	-53.2
2532.00	H	156	211	-63.14	4.10	-59.04	-46.0
3376.00	H	-	-	-67.64	6.15	-61.49	-48.5
4220.00	H	-	-	-69.57	7.88	-61.69	-48.7

Table 7-27. Radiated Spurious Data with WCP (Band 26/5 – High Channel)

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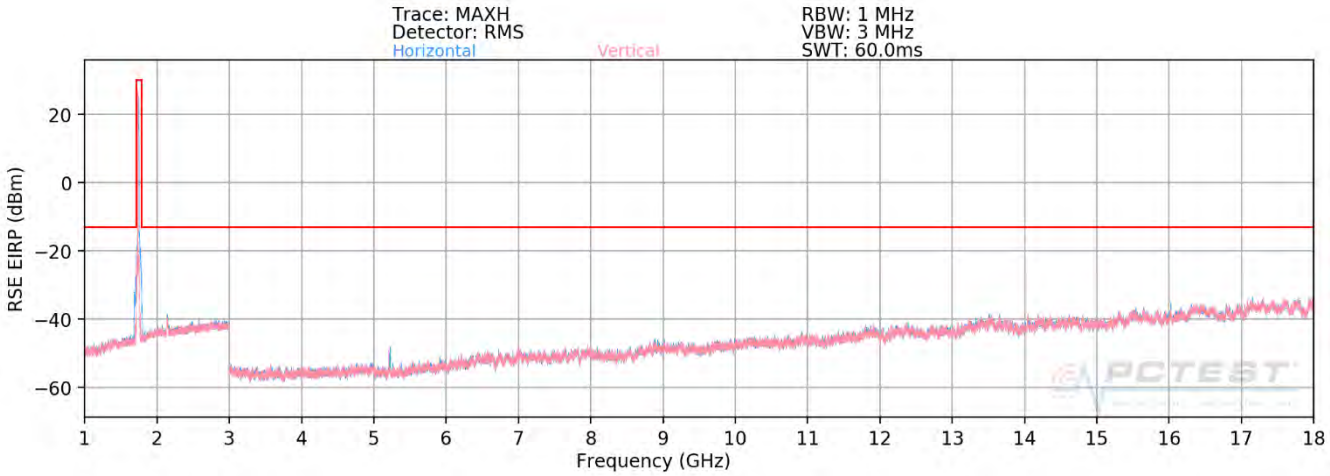
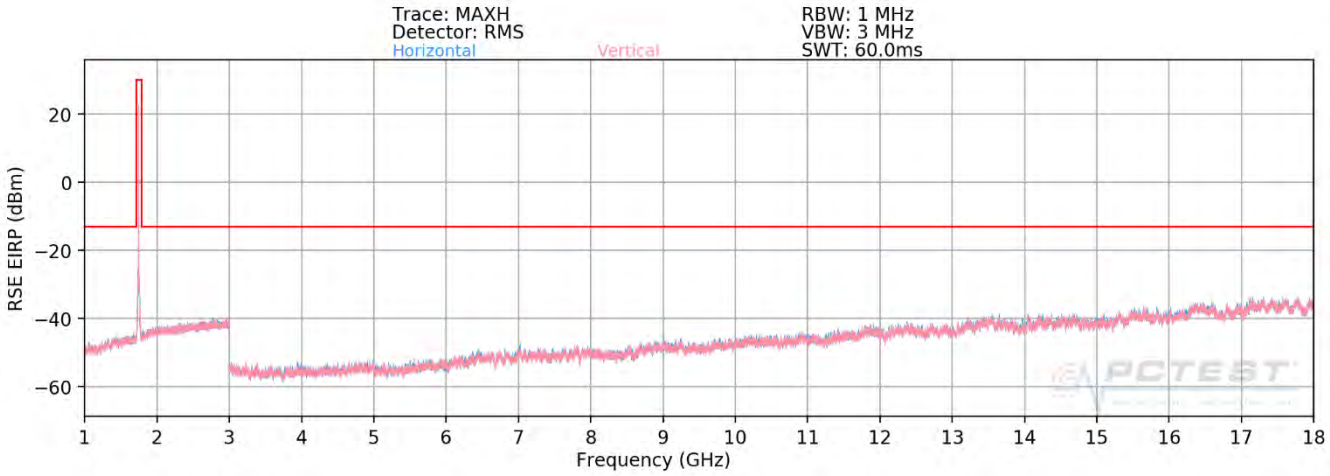
Band 66/4



Plot 7-227. Radiated Spurious Plot 1GHz - 18GHz (Band 66/4) - OPEN



Plot 7-228. Radiated Spurious Plot 1GHz - 18GHz (Band 66/4) - CLOSED

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OPERATING FREQUENCY: 1720.00 MHz
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	H	220	175	-67.71	6.28	-61.43	-48.4
5160.00	H	213	6	-68.65	8.98	-59.67	-46.7
6880.00	H	224	1	-65.01	9.42	-55.59	-42.6
8600.00	H	213	359	-63.80	9.62	-54.18	-41.2
10320.00	H	217	20	-56.62	9.56	-47.05	-34.1
10320.00	H (Closed)	127	31	-58.44	9.56	-48.87	-35.9
12040.00	H	-	-	-57.61	8.72	-48.88	-35.9
13760.00	H	-	-	-61.02	9.24	-51.77	-38.8

Table 7-28. Radiated Spurious Data (Band 66/4 – Low Channel)

OPERATING FREQUENCY: 1745.00 MHz
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	H	168	326	-66.83	6.47	-60.36	-47.4
5235.00	H	266	7	-65.41	8.97	-56.44	-43.4
6980.00	H	260	22	-64.59	9.23	-55.37	-42.4
8725.00	H	191	18	-60.54	9.59	-50.95	-37.9
10470.00	H	200	22	-59.58	9.43	-50.16	-37.2
12215.00	H	-	-	-59.21	9.17	-50.05	-37.0
13960.00	H	-	-	-57.85	8.59	-49.27	-36.3

Table 7-29. Radiated Spurious Data (Band 66/4 – Mid Channel)

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OPERATING FREQUENCY: 1770.00 MHz
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]
3540.00	H	126	340	-67.01	6.45	-60.56	-47.6
5310.00	H	115	236	-64.29	9.09	-55.20	-42.2
7080.00	H	296	288	-65.62	9.17	-56.45	-43.5
8850.00	H	189	321	-58.09	9.57	-48.53	-35.5

Table 7-30. Radiated Spurious Data (Band 66/4 – High Channel)

OPERATING FREQUENCY: 1720.00 MHz
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	H	365	207	-67.29	6.47	-60.82	-47.8
5160.00	H	230	227	-68.53	8.97	-59.56	-46.6
6880.00	H	-	-	-65.98	9.23	-56.76	-43.8
8600.00	H	-	-	-66.12	9.59	-56.53	-43.5

Table 7-31. Radiated Spurious Data with WCP (Band 66/4 – Low Channel)

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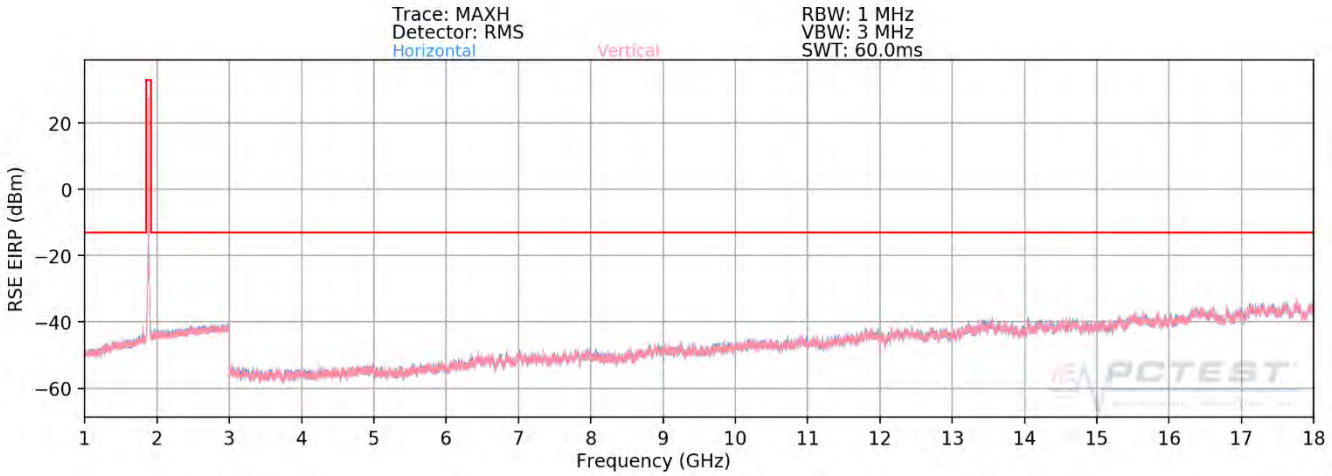
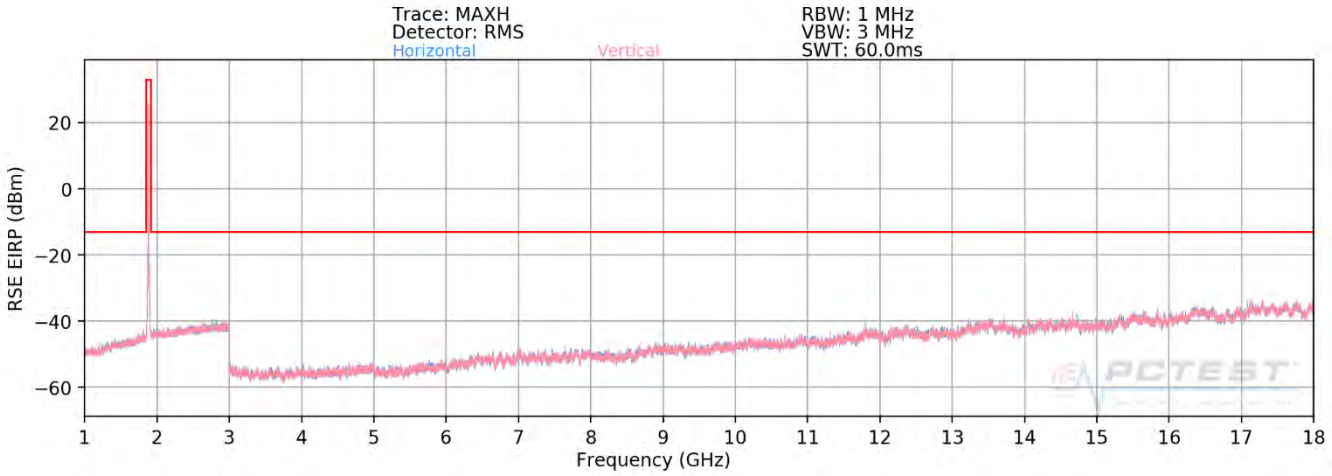
Band 25/2



Plot 7-229. Radiated Spurious Plot 1GHz - 18GHz (Band 25/2) – OPEN



Plot 7-390. Radiated Spurious Plot 1GHz - 18GHz (Band 25/2) - CLOSED

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OPERATING FREQUENCY: 1860.00 MHz
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	H	150	206	-72.00	9.51	-62.50	-49.5
5580.00	H	-	-	-74.38	10.99	-63.40	-50.4
7440.00	H	-	-	-71.24	10.99	-60.25	-47.2

Table 7-32. Radiated Spurious Data (Band 25/2 – Low Channel)

OPERATING FREQUENCY: 1882.50 MHz
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	H	150	148	-70.01	9.36	-60.65	-47.6
3765.00	H (Closed)	132	139	-72.21	9.36	-62.85	-49.8
5647.50	H	-	-	-72.85	11.19	-61.65	-48.7
7530.00	H	-	-	-70.42	11.13	-59.29	-46.3

Table 7-33. Radiated Spurious Data (Band 25/2 – Mid Channel)

OPERATING FREQUENCY: 1905.00 MHz
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	H	153	199	-72.42	9.29	-63.12	-50.1
5715.00	H	-	-	-74.33	11.35	-62.98	-50.0
7620.00	H	-	-	-71.38	11.29	-60.09	-47.1

Table 7-34. Radiated Spurious Data (Band 25/2 – High Channel)

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OPERATING FREQUENCY:	1882.50	MHz
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	H	150	148	-70.01	9.36	-60.65	-47.6
5647.50	H	-	-	-72.85	11.19	-61.65	-48.7
7530.00	H	-	-	-70.42	11.13	-59.29	-46.3

Table 7-35. Radiated Spurious Data with WCP (Band 25/2 – Mid Channel)

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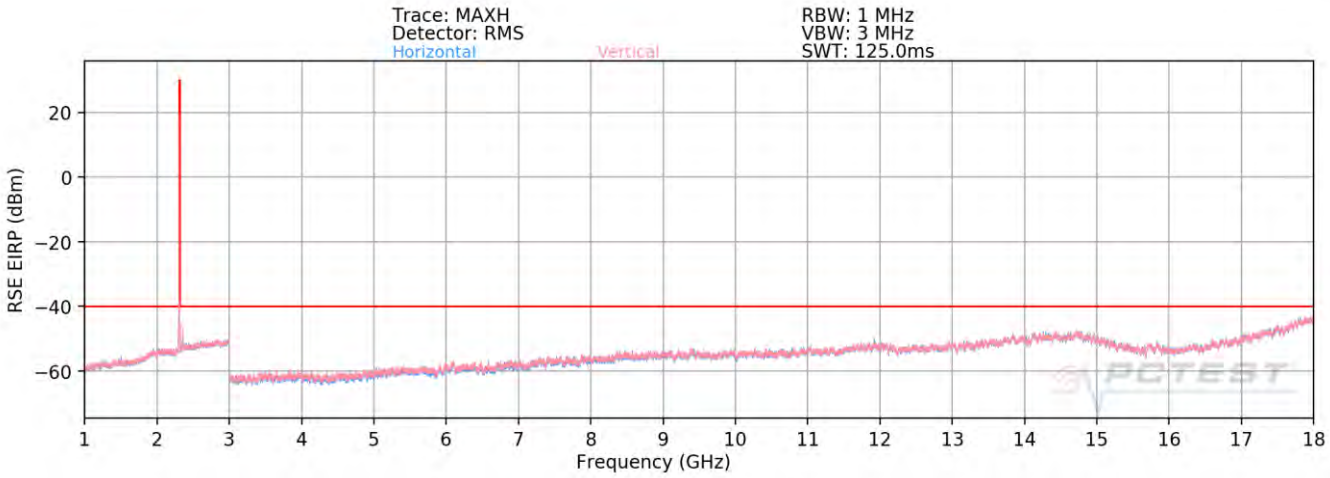
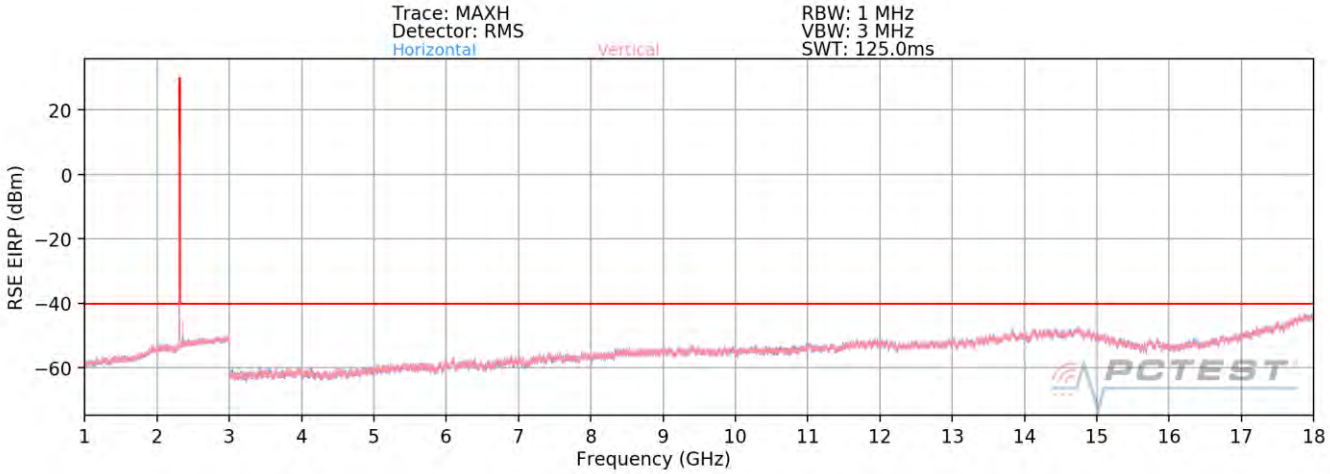
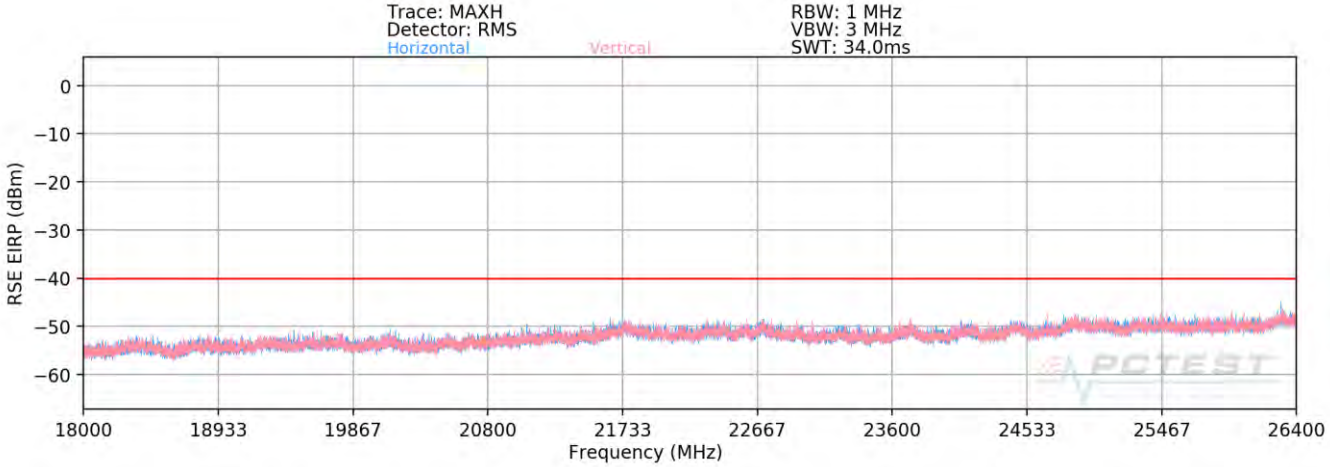
Band 30



Plot 7-230. Radiated Spurious Plot 1GHz - 18GHz (Band 30) - OPEN



Plot 7-231. Radiated Spurious Plot 1GHz - 18GHz (Band 30) - CLOSED



Plot 7-232. Radiated Spurious Plot 18GHz – 26.5GHz (Band 30) – OPEN

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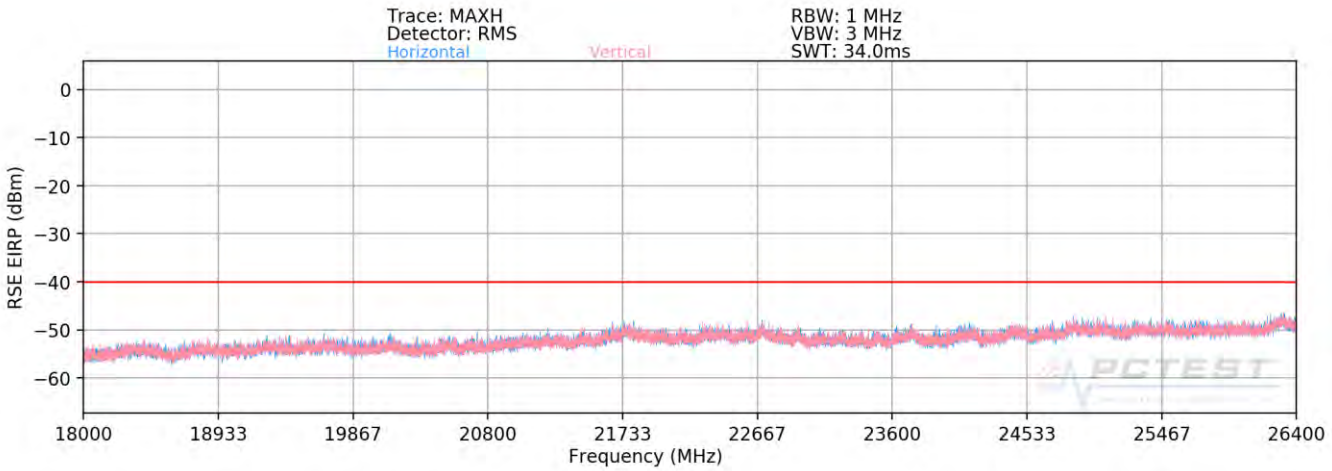

Plot 7-233. Radiated Spurious Plot 18GHz – 26.5GHz (Band 30) – CLOSED

OPERATING FREQUENCY:	2310.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-40	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]
4620.00	H	283	316	-58.51	8.42	-50.09	-10.1
6930.00	H	-	-	-67.83	9.38	-58.44	-18.4
9240.00	H	218	328	-56.38	9.46	-46.92	-6.9
11550.00	H	-	-	-59.53	9.48	-50.04	-10.0
13860.00	H	-	-	-57.80	8.74	-49.05	-9.1

Table 7-36. Radiated Spurious Data (Band 30 – Mid Channel)

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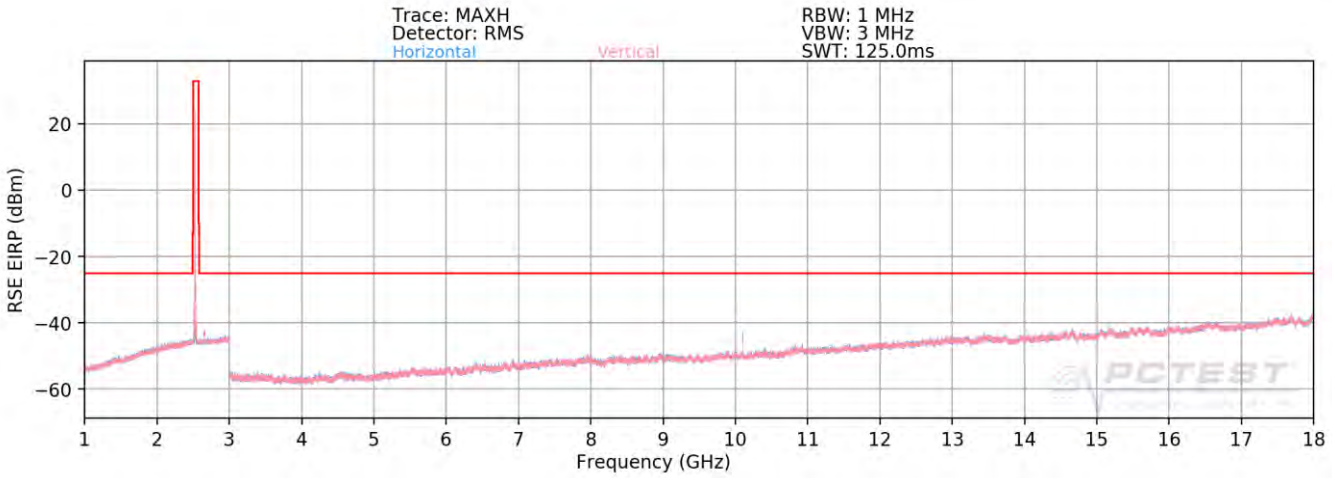
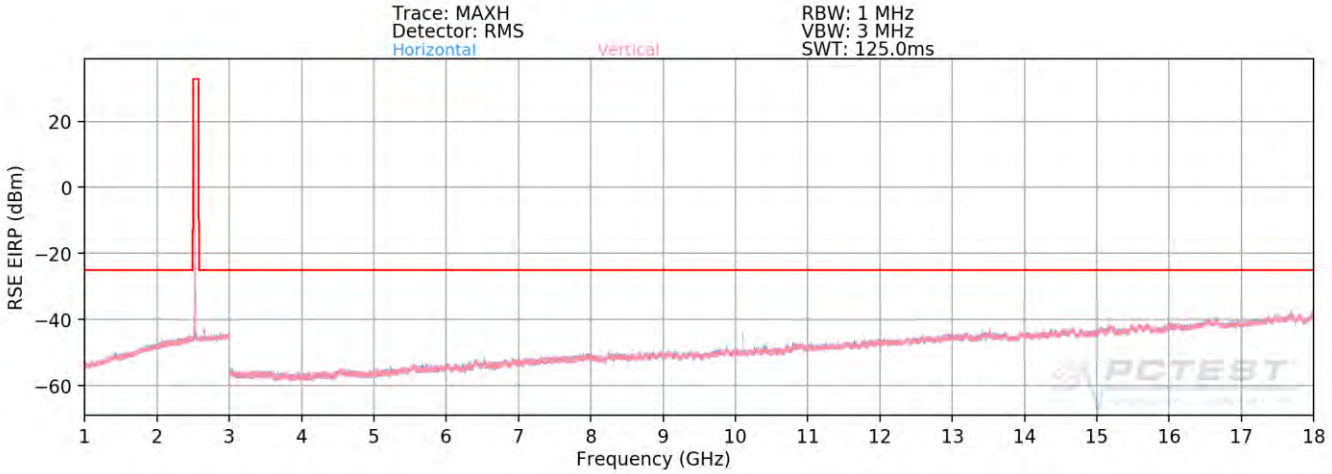
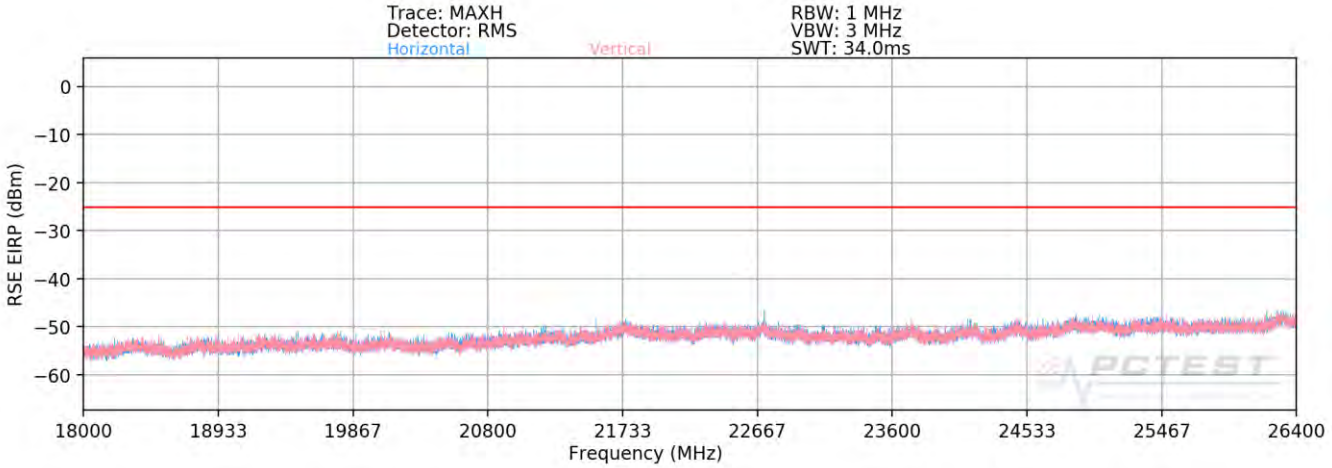
Band 7



Plot 7-234. Radiated Spurious Plot 1GHz - 18GHz (Band 7) - OPEN



Plot 7-396. Radiated Spurious Plot 1GHz - 18GHz (Band 7) - CLOSED



Plot 7-397. Radiated Spurious Plot 18GHz – 26.5GHz (Band 7) – OPEN

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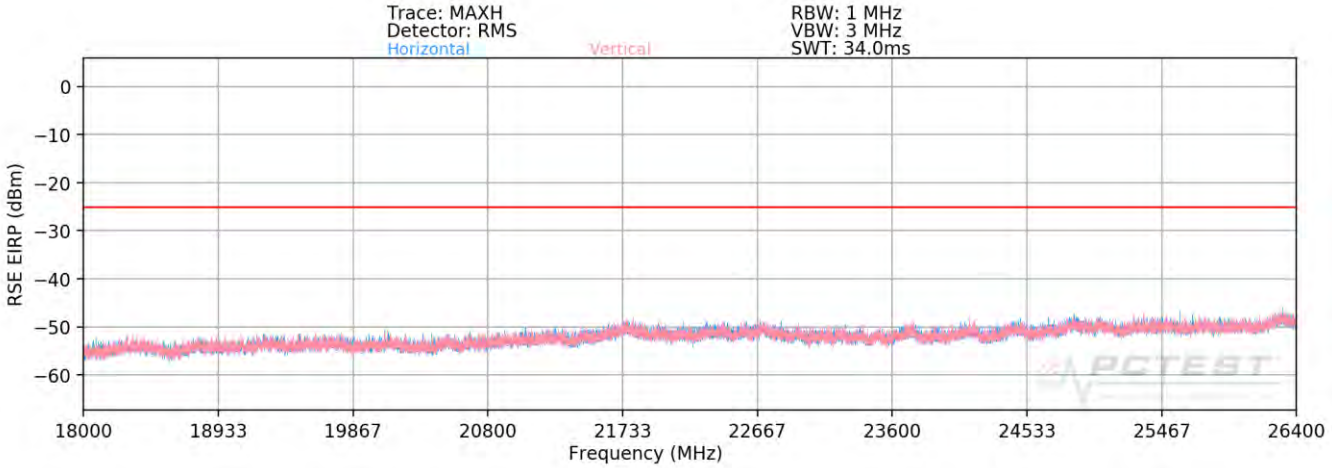

Plot 7-398. Radiated Spurious Plot 18GHz – 26.5GHz (Band 7) - CLOSED

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5020.00	V	137	111	-66.59	8.56	-58.02	-33.0
7530.00	V	-	-	-64.19	8.46	-55.74	-30.7
10040.00	V	101	37	-51.51	9.85	-41.65	-16.7
12550.00	V	-	-	-59.26	9.06	-50.20	-25.2
15060.00	V	101	47	-45.41	8.74	-36.67	-11.7
17570.00	V	-	-	-51.35	7.63	-43.72	-18.7

Table 7-37. Radiated Spurious Data (Band 7 – Low Channel)

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OPERATING FREQUENCY: 2535.00 MHz
MODULATION SIGNAL: QPSK
BANDWIDTH: 20.0 MHz
DISTANCE: 3 meters
LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5070.00	V	150	107	-64.49	8.60	-55.89	-30.9
7605.00	V	-	-	-64.08	8.48	-55.60	-30.6
10140.00	V	104	33	-51.53	9.78	-41.75	-16.7
12675.00	V	-	-	-57.89	9.08	-48.82	-23.8
15210.00	V	101	183	-50.07	8.47	-41.61	-16.6
17745.00	V	-	-	-52.00	7.68	-44.32	-19.3

Table 7-38. Radiated Spurious Data (Band 7 – Mid Channel)

OPERATING FREQUENCY: 2560.00 MHz
MODULATION SIGNAL: QPSK
BANDWIDTH: 20.0 MHz
DISTANCE: 3 meters
LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5120.00	V	161	101	-62.05	8.66	-53.40	-28.4
7680.00	V	-	-	-64.97	8.58	-56.40	-31.4
10240.00	V	104	35	-51.05	9.65	-41.39	-16.4
12800.00	V	-	-	-58.77	9.07	-49.70	-24.7
15360.00	V	101	47	-45.38	8.46	-36.92	-11.9
17920.00	V	-	-	-51.25	7.46	-43.78	-18.8

Table 7-39. Radiated Spurious Data (Band 7 – High Channel)

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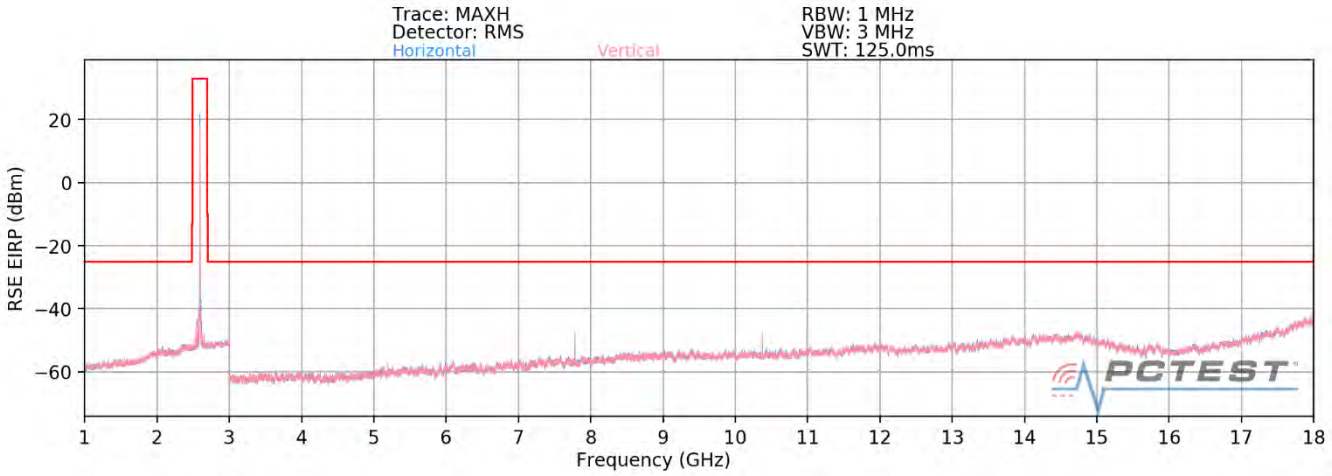
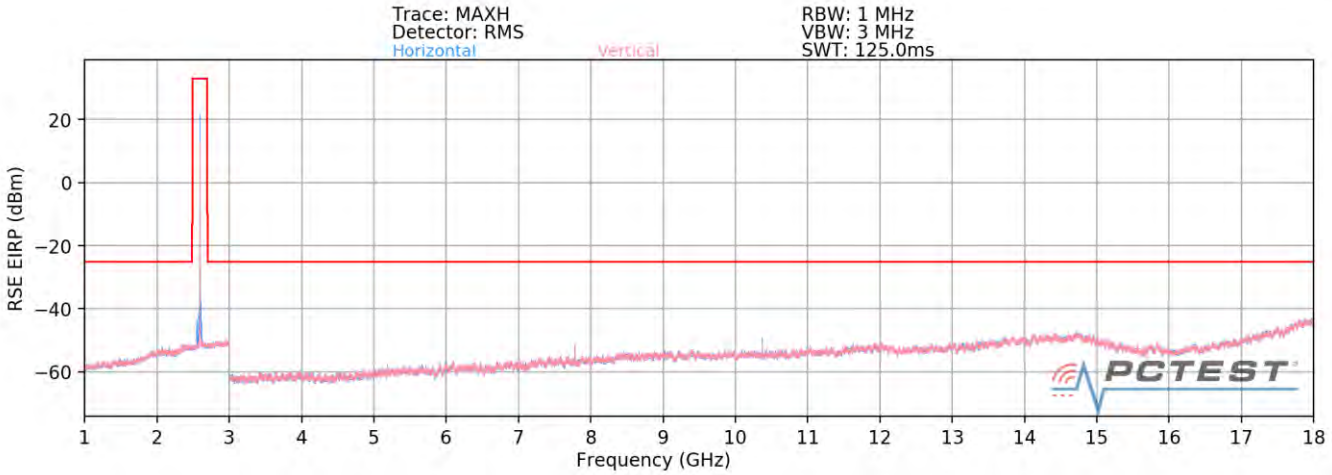
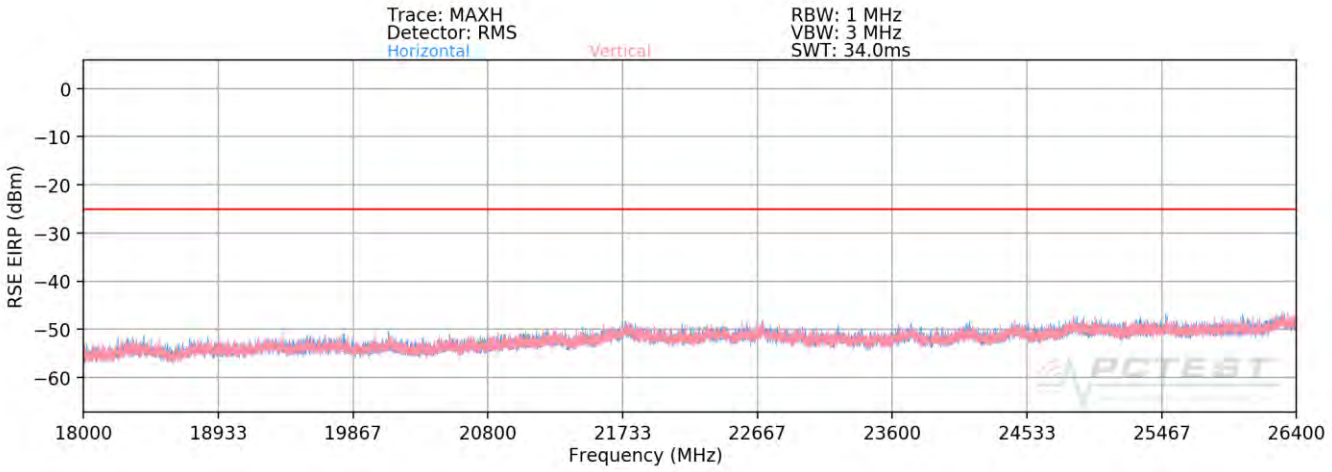
Band 41 PC2



Plot 7-399. Radiated Spurious Plot 1GHz - 18GHz (Band 41 PC2) - OPEN



Plot 7-400. Radiated Spurious Plot 1GHz - 18GHz (Band 41 PC2) – CLOSED



Plot 7-401. Radiated Spurious Plot 18GHz – 26.5GHz (Band 41 PC2) – OPEN

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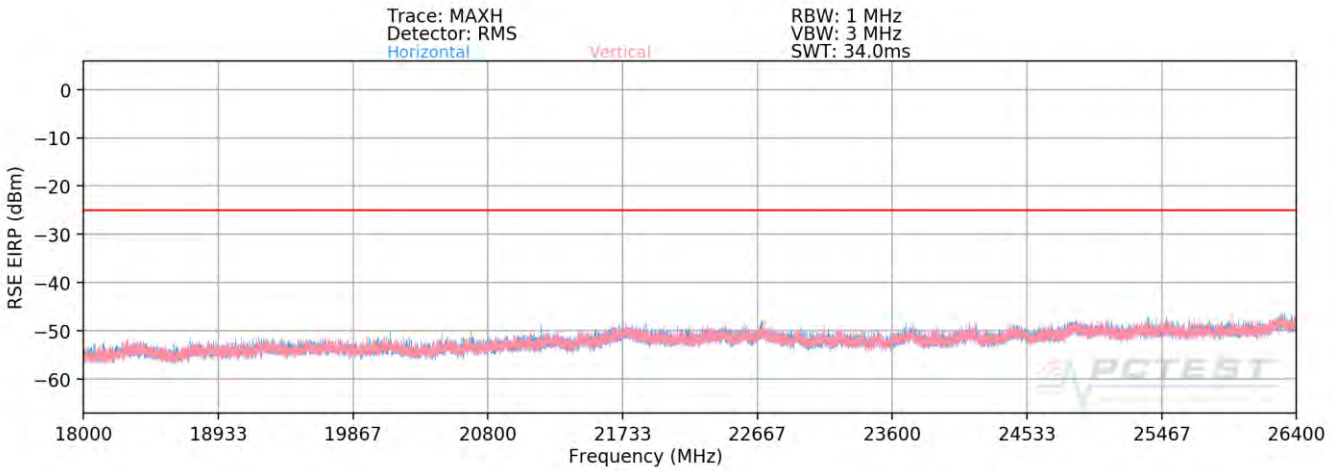

Plot 7-402. Radiated Spurious Plot 18GHz – 26.5GHz (Band 41 PC2) – CLOSED

OPERATING FREQUENCY:	2506.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5012.00	V	-	-	-69.26	8.75	-60.51	-35.5
7518.00	V	-	-	-65.61	9.32	-56.29	-31.3

Table 7-40. Radiated Spurious Data (Band 41 PC2 – Low Channel)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	V	100	213	-63.99	9.03	-54.96	-30.0
7779.00	V	112	278	-58.92	9.29	-49.63	-24.6
10372.00	V	117	159	-55.64	9.50	-46.14	-21.1
12965.00	V	-	-	-59.49	8.75	-50.73	-25.7
15558.00	V	-	-	-54.25	8.47	-45.79	-20.8

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

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5360.00	V	109	62	-62.23	8.99	-53.24	-28.2
8040.00	V	109	298	-55.64	9.35	-46.28	-21.3
10720.00	V	116	321	-59.13	9.39	-49.74	-24.7
13400.00	V	-	-	-56.83	8.67	-48.16	-23.2
16080.00	V	-	-	-54.72	8.46	-46.27	-21.3

Table 7-42. Radiated Spurious Data (Band 41 PC2 – High Channel)

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7.8 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

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Band 71 Frequency Stability Measurements

OPERATING FREQUENCY: 680,500,000 Hz

REFERENCE VOLTAGE: 4.27 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.27	- 30	680,499,915	-85	-0.0000125
100 %		- 20	680,499,788	-212	-0.0000312
100 %		- 10	680,500,204	204	0.0000300
100 %		0	680,500,057	57	0.0000084
100 %		+ 10	680,500,038	38	0.0000056
100 %		+ 20	680,499,957	-43	-0.0000063
100 %		+ 30	680,499,985	-15	-0.0000022
100 %		+ 40	680,499,940	-60	-0.0000088
100 %		+ 50	680,499,906	-94	-0.0000138
BATT. ENDPOINT	3.41	+ 20	680,499,879	-121	-0.0000178

Table 7-43. Frequency Stability Data (Band 71)

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.

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Band 71 Frequency Stability Measurements

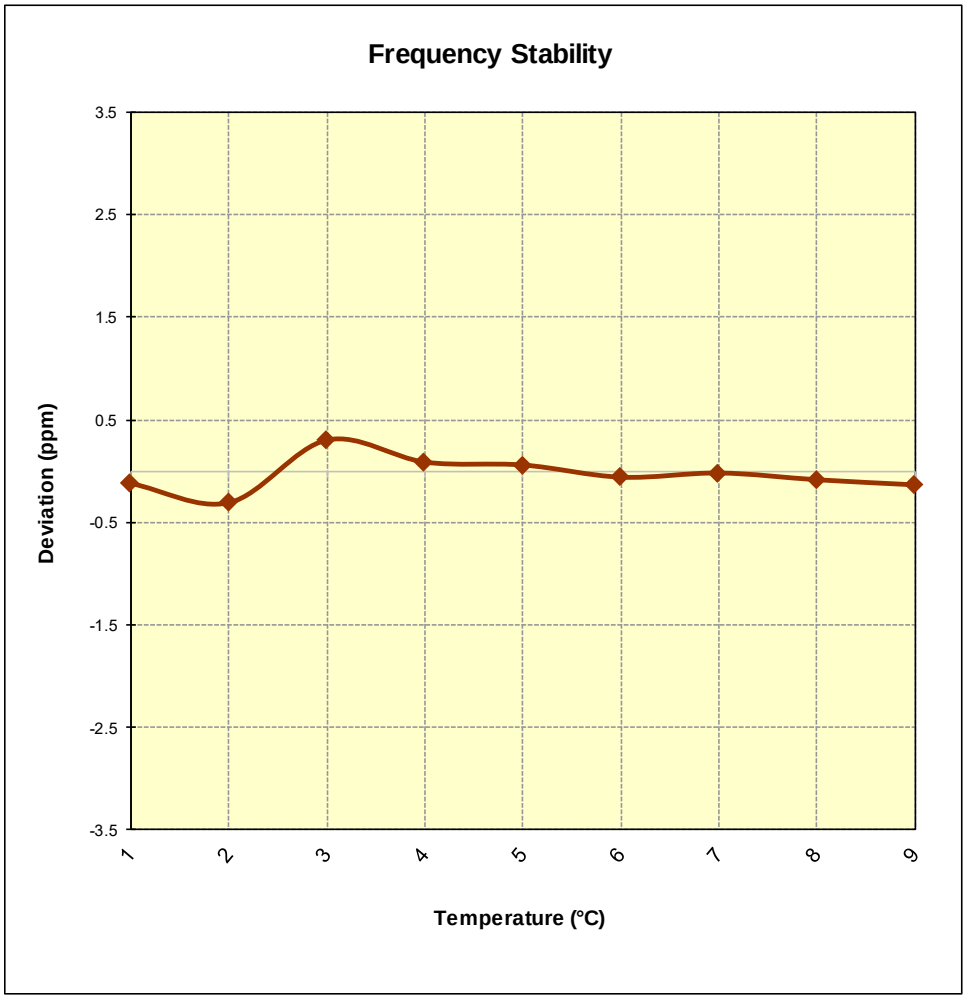

Figure 7-8. Frequency Stability Graph (Band 71)

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Band 12 Frequency Stability Measurements

OPERATING FREQUENCY: 707,500,000 Hz

CHANNEL: 23790

REFERENCE VOLTAGE: 4.27 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.27	- 30	707,500,105	105	0.0000148
100 %		- 20	707,500,227	227	0.0000321
100 %		- 10	707,500,187	187	0.0000264
100 %		0	707,499,932	-68	-0.0000096
100 %		+ 10	707,500,078	78	0.0000110
100 %		+ 20	707,499,967	-33	-0.0000047
100 %		+ 30	707,499,927	-73	-0.0000103
100 %		+ 40	707,500,120	120	0.0000170
100 %		+ 50	707,500,007	7	0.0000010
BATT. ENDPOINT	3.41	+ 20	707,500,328	328	0.0000464

Table 7-44. 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.

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Band 12 Frequency Stability Measurements

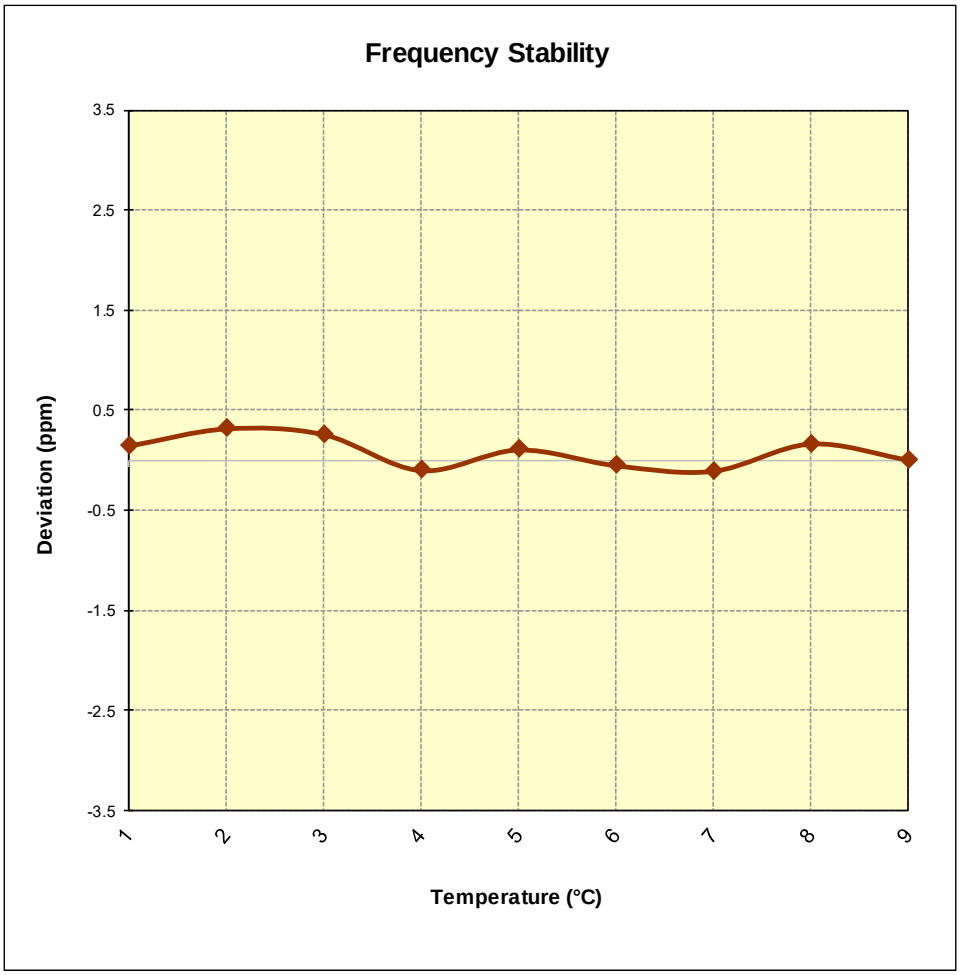

Figure 7-9. Frequency Stability Graph (Band 12)

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Band 13 Frequency Stability Measurements

OPERATING FREQUENCY: 782,000,000 Hz

CHANNEL: 23230

REFERENCE VOLTAGE: 4.27 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.27	- 30	781,999,975	-25	-0.0000032
100 %		- 20	781,999,931	-69	-0.0000088
100 %		- 10	782,000,393	393	0.0000503
100 %		0	781,999,721	-279	-0.0000357
100 %		+ 10	782,000,149	149	0.0000191
100 %		+ 20	781,999,998	-2	-0.0000003
100 %		+ 30	781,999,895	-105	-0.0000134
100 %		+ 40	782,000,094	94	0.0000120
100 %		+ 50	781,999,975	-25	-0.0000032
BATT. ENDPOINT	3.41	+ 20	782,000,179	179	0.0000229

Table 7-45. 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.

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Band 13 Frequency Stability Measurements

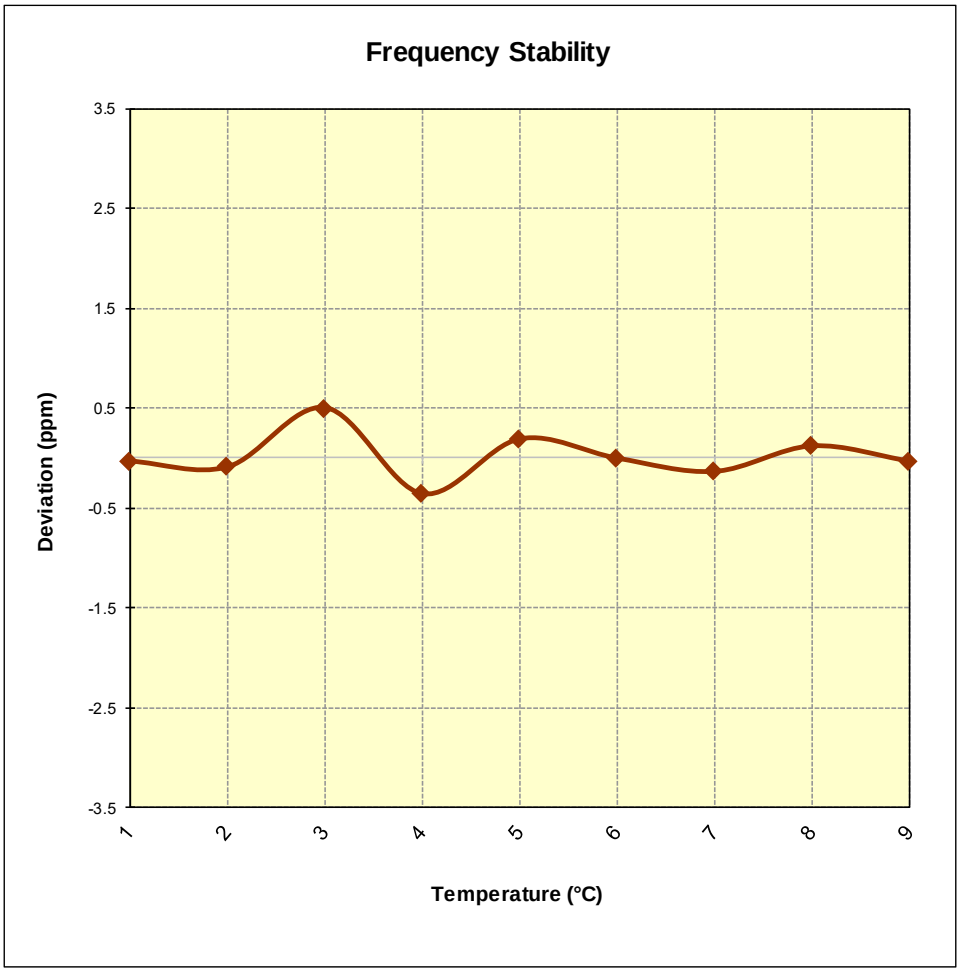

Figure 7-10. Frequency Stability Graph (Band 13)

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Band 26/5 Frequency Stability Measurements

OPERATING FREQUENCY: 831,500,000 Hz

CHANNEL: 26865

REFERENCE VOLTAGE: 4.27 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.27	- 30	831,500,000	0	0.0000000
100 %		- 20	831,499,847	-153	-0.0000184
100 %		- 10	831,499,953	-47	-0.0000057
100 %		0	831,499,748	-252	-0.0000303
100 %		+ 10	831,500,029	29	0.0000035
100 %		+ 20	831,500,272	272	0.0000327
100 %		+ 30	831,500,027	27	0.0000032
100 %		+ 40	831,500,389	389	0.0000468
100 %		+ 50	831,499,884	-116	-0.0000140
BATT. ENDPOINT	3.41	+ 20	831,500,037	37	0.0000044

Table 7-46. Frequency Stability Data (Band 26/5)

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Band 26/5 Frequency Stability Measurements

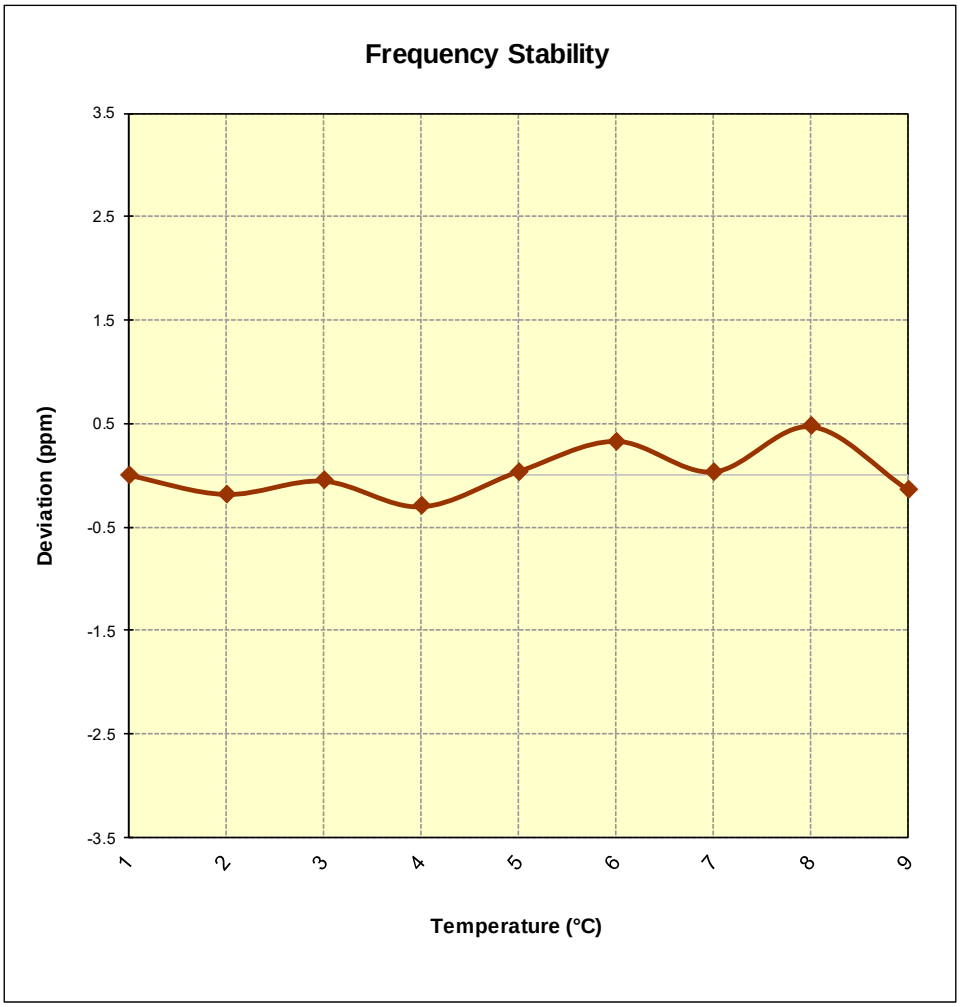

Figure 7-8. Frequency Stability Graph (Band 26/5)

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Band 66/4 Frequency Stability Measurements

OPERATING FREQUENCY: 1,745,000,000 Hz

CHANNEL: 132322

REFERENCE VOLTAGE: 4.27 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.27	- 30	1,745,000,346	346	0.0000198
100 %		- 20	1,744,999,890	-110	-0.0000063
100 %		- 10	1,744,999,994	-6	-0.0000003
100 %		0	1,745,000,004	4	0.0000002
100 %		+ 10	1,744,999,978	-22	-0.0000013
100 %		+ 20	1,744,999,908	-92	-0.0000053
100 %		+ 30	1,744,999,821	-179	-0.0000103
100 %		+ 40	1,744,999,951	-49	-0.0000028
100 %		+ 50	1,744,999,553	-447	-0.0000256
BATT. ENDPOINT	3.41	+ 20	1,745,000,147	147	0.0000084

Table 7-47. Frequency Stability Data (Band 66/4)

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.

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Band 66/4 Frequency Stability Measurements

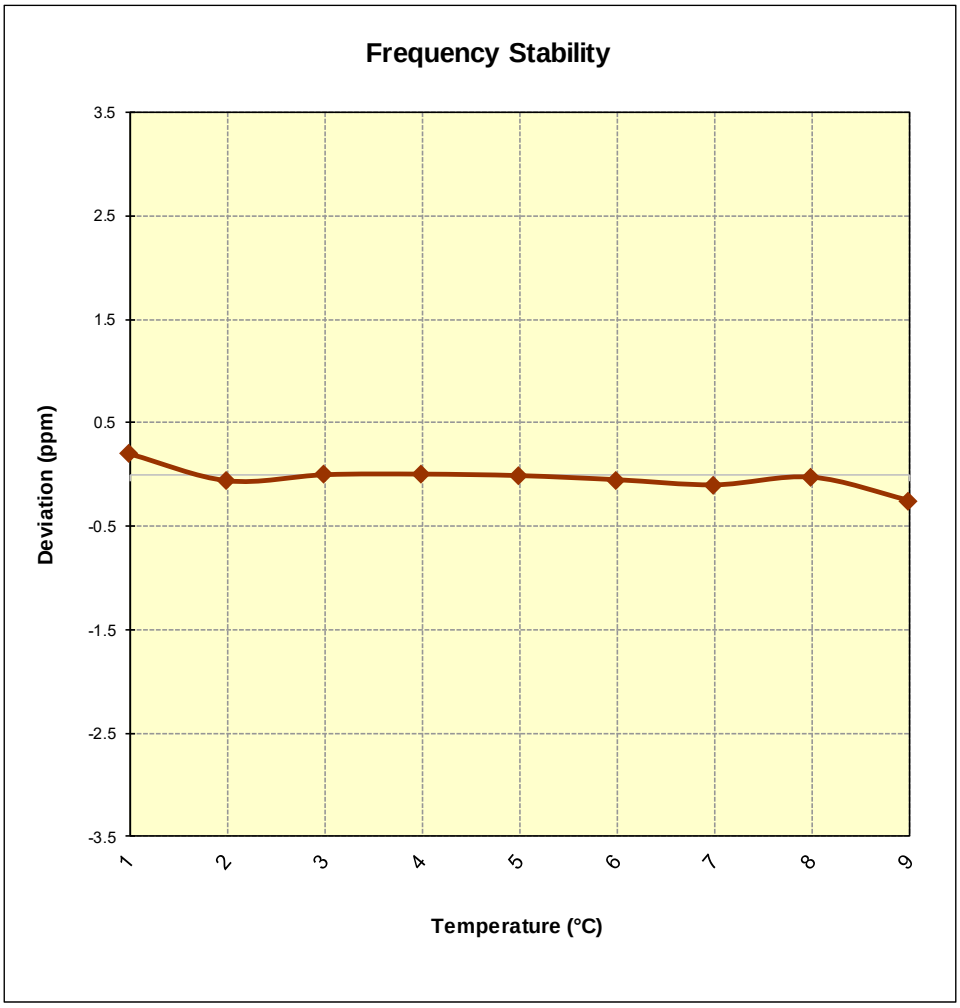

Figure 7-9. Frequency Stability Graph (Band 66/4)

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Band 25/2 Frequency Stability Measurements

OPERATING FREQUENCY: 1,882,500,000 Hz

CHANNEL: 26365

REFERENCE VOLTAGE: 4.27 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.27	- 30	1,882,499,738	-262	-0.0000139
100 %		- 20	1,882,499,973	-27	-0.0000014
100 %		- 10	1,882,500,059	59	0.0000031
100 %		0	1,882,499,922	-78	-0.0000041
100 %		+ 10	1,882,499,834	-166	-0.0000088
100 %		+ 20	1,882,499,728	-272	-0.0000144
100 %		+ 30	1,882,500,154	154	0.0000082
100 %		+ 40	1,882,500,132	132	0.0000070
100 %		+ 50	1,882,499,743	-257	-0.0000137
BATT. ENDPOINT	3.41	+ 20	1,882,499,689	-311	-0.0000165

Table 7-48. Frequency Stability Data (Band 25/2)

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Band 25/2 Frequency Stability Measurements

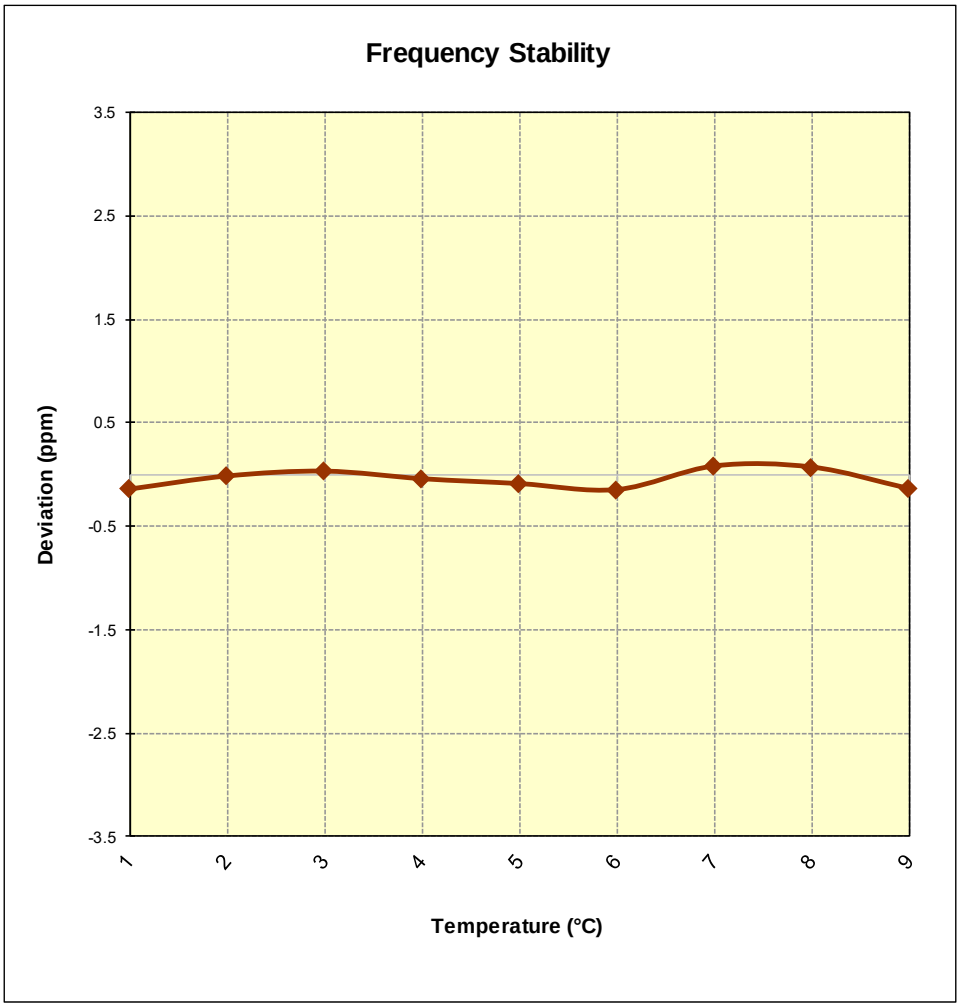

Figure 7-13. Frequency Stability Graph (Band 25/2)

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Band 7 Frequency Stability Measurements

OPERATING FREQUENCY: 2,535,000,000 Hz

CHANNEL: 21100

REFERENCE VOLTAGE: 4.27 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.27	- 30	2,535,000,018	18	0.0000007
100 %		- 20	2,535,000,065	65	0.0000026
100 %		- 10	2,535,000,180	180	0.0000071
100 %		0	2,534,999,617	-383	-0.0000151
100 %		+ 10	2,534,999,683	-317	-0.0000125
100 %		+ 20	2,534,999,868	-132	-0.0000052
100 %		+ 30	2,535,000,068	68	0.0000027
100 %		+ 40	2,535,000,037	37	0.0000015
100 %		+ 50	2,535,000,251	251	0.0000099
BATT. ENDPOINT	3.41	+ 20	2,535,000,079	79	0.0000031

Table 7-49. Frequency Stability Data (Band 7)

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Band 7 Frequency Stability Measurements

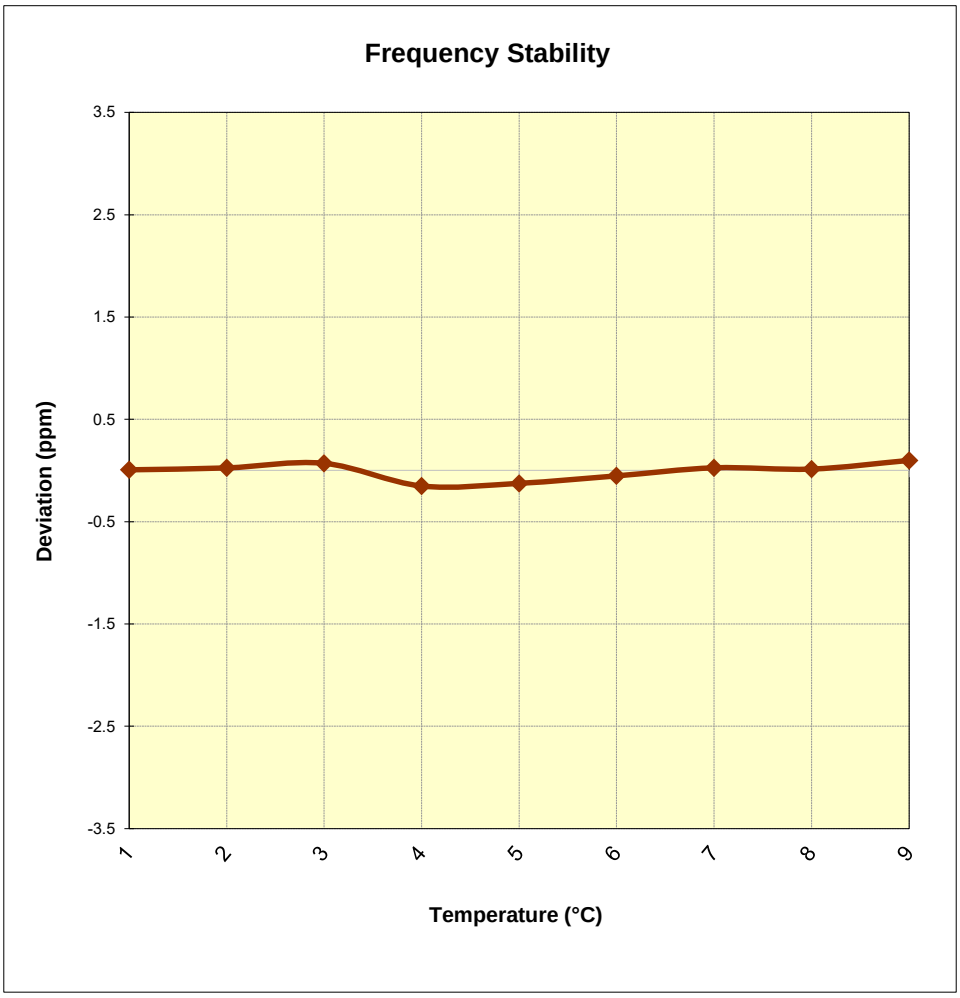

Figure 7-14. Frequency Stability Graph (Band 7)

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Band 30 Frequency Stability Measurements

OPERATING FREQUENCY: 2,310,000,000 Hz

CHANNEL: 27710

REFERENCE VOLTAGE: 4.27 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.27	- 30	2,309,999,859	-141	-0.0000061
100 %		- 20	2,310,000,124	124	0.0000054
100 %		- 10	2,309,999,911	-89	-0.0000039
100 %		0	2,309,999,927	-73	-0.0000032
100 %		+ 10	2,309,999,942	-58	-0.0000025
100 %		+ 20	2,310,000,141	141	0.0000061
100 %		+ 30	2,310,000,021	21	0.0000009
100 %		+ 40	2,310,000,151	151	0.0000065
100 %		+ 50	2,310,000,050	50	0.0000022
BATT. ENDPOINT	3.41	+ 20	2,309,999,967	-33	-0.0000014

Table 7-50. Frequency Stability Data (Band 30)

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.

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Band 30 Frequency Stability Measurements

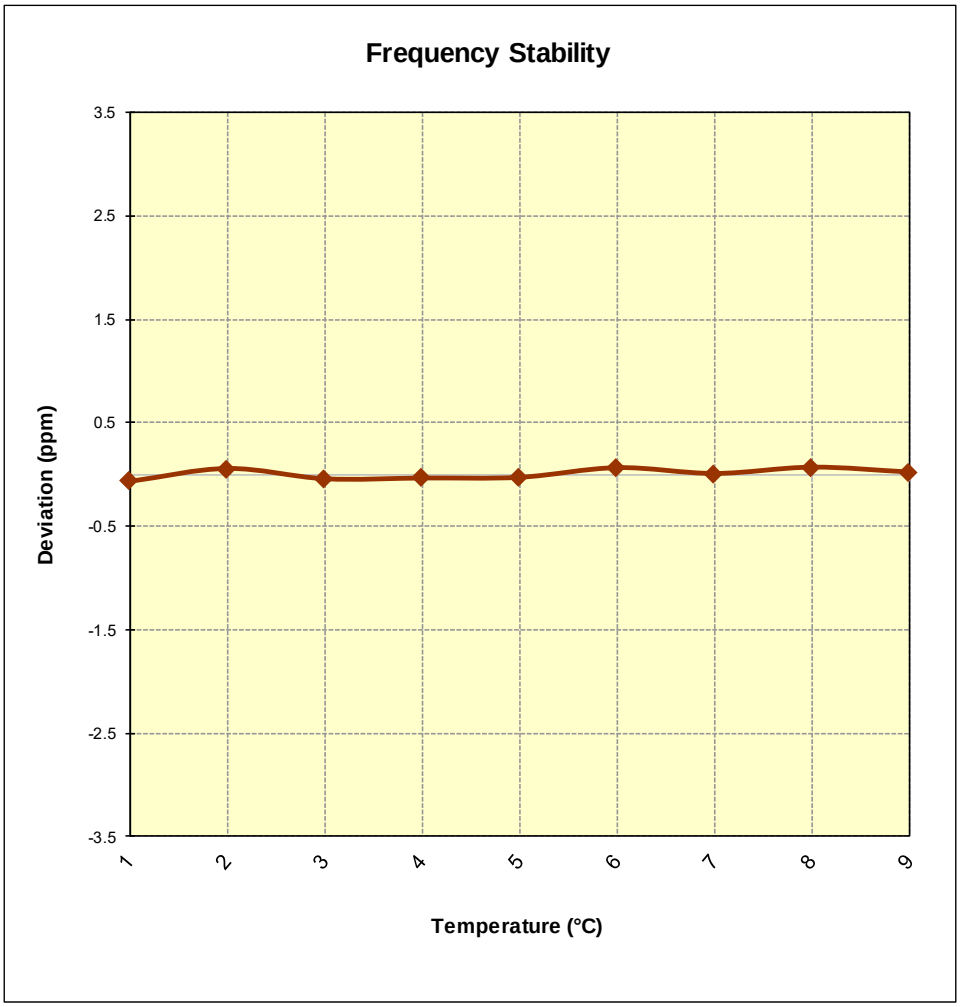

Figure 7-15. Frequency Stability Graph (Band 30)

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Band 41 Frequency Stability Measurements

OPERATING FREQUENCY: 2,593,000,000 Hz

CHANNEL: 40620

REFERENCE VOLTAGE: 4.27 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.27	- 30	2,593,000,166	166	0.0000064
100 %		- 20	2,592,999,728	-272	-0.0000105
100 %		- 10	2,593,000,003	3	0.0000001
100 %		0	2,592,999,948	-52	-0.0000020
100 %		+ 10	2,593,000,001	1	0.0000000
100 %		+ 20	2,593,000,065	65	0.0000025
100 %		+ 30	2,593,000,112	112	0.0000043
100 %		+ 40	2,593,000,032	32	0.0000012
100 %		+ 50	2,592,999,672	-328	-0.0000126
BATT. ENDPOINT	3.41	+ 20	2,592,999,958	-42	-0.0000016

Table 7-51. 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.

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Band 41 Frequency Stability Measurements

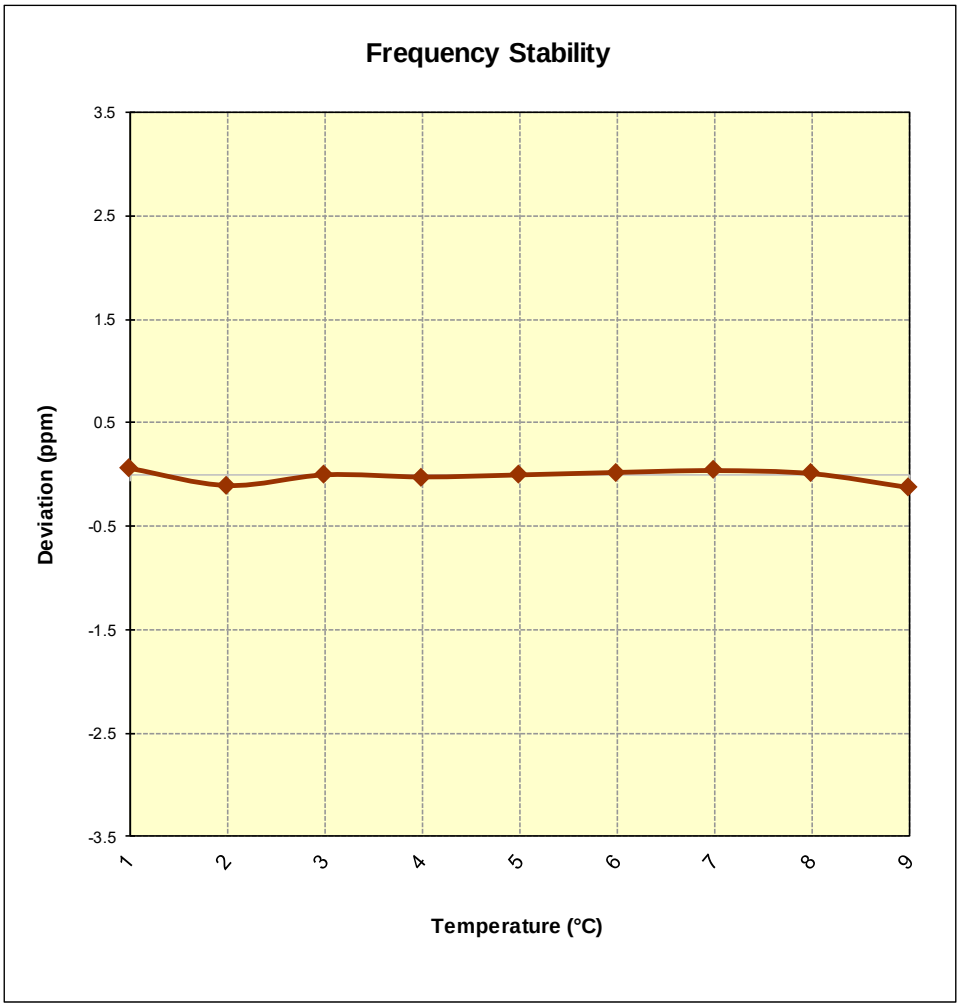

Figure 7-16. Frequency Stability Graph (Band 41)

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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMF700U** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.

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