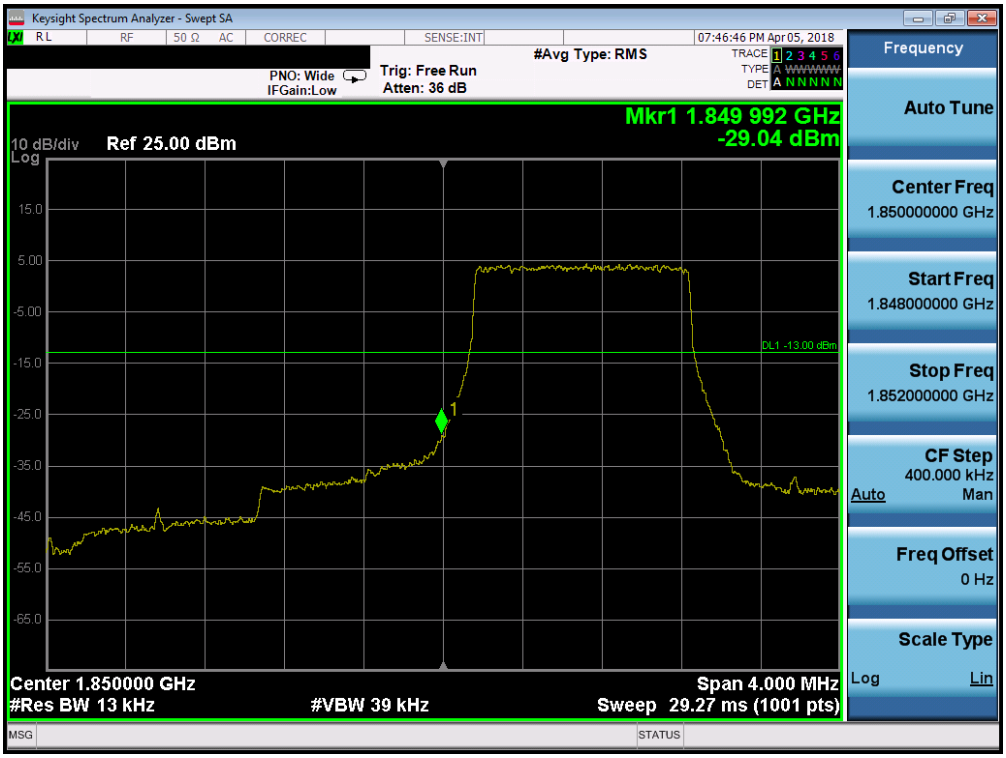
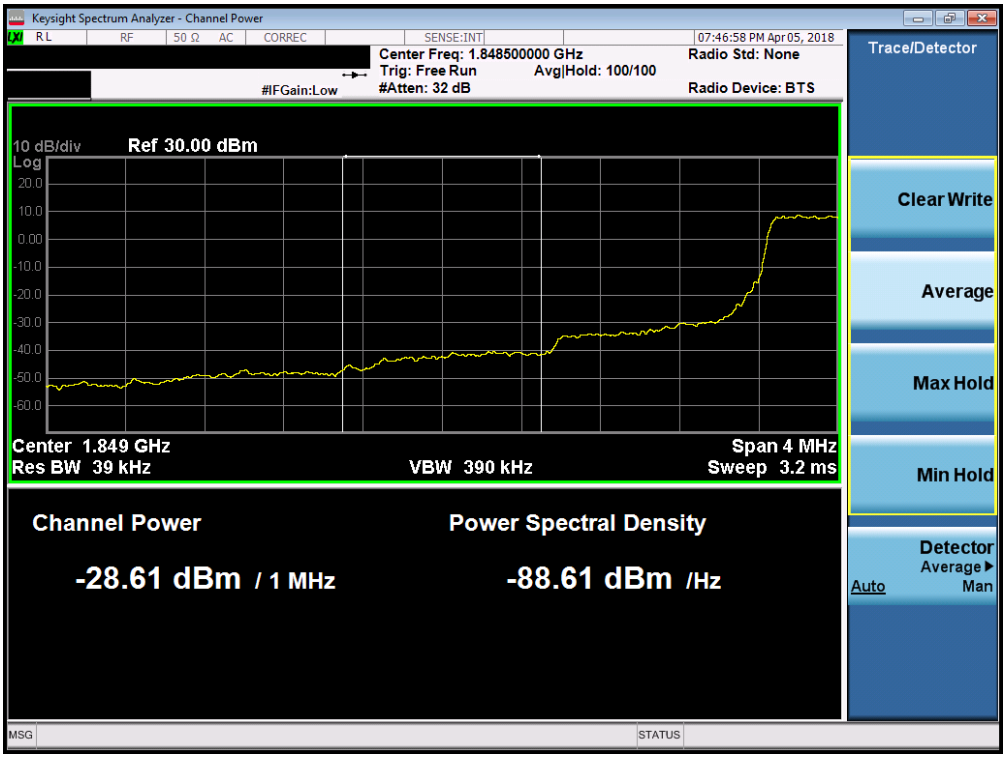
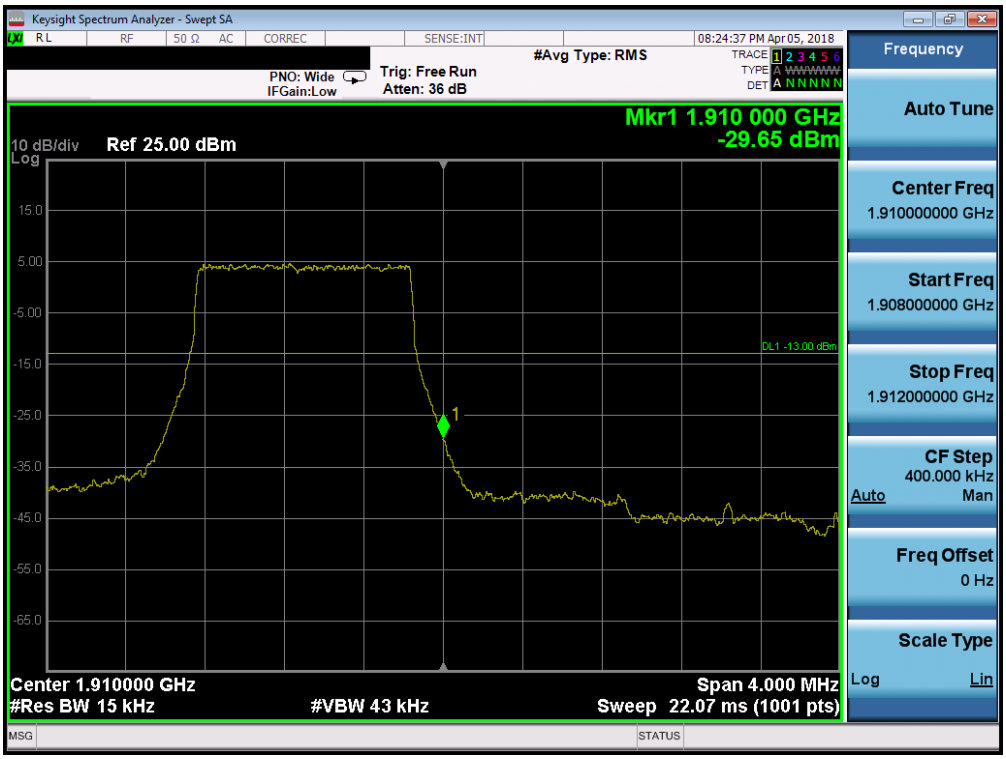


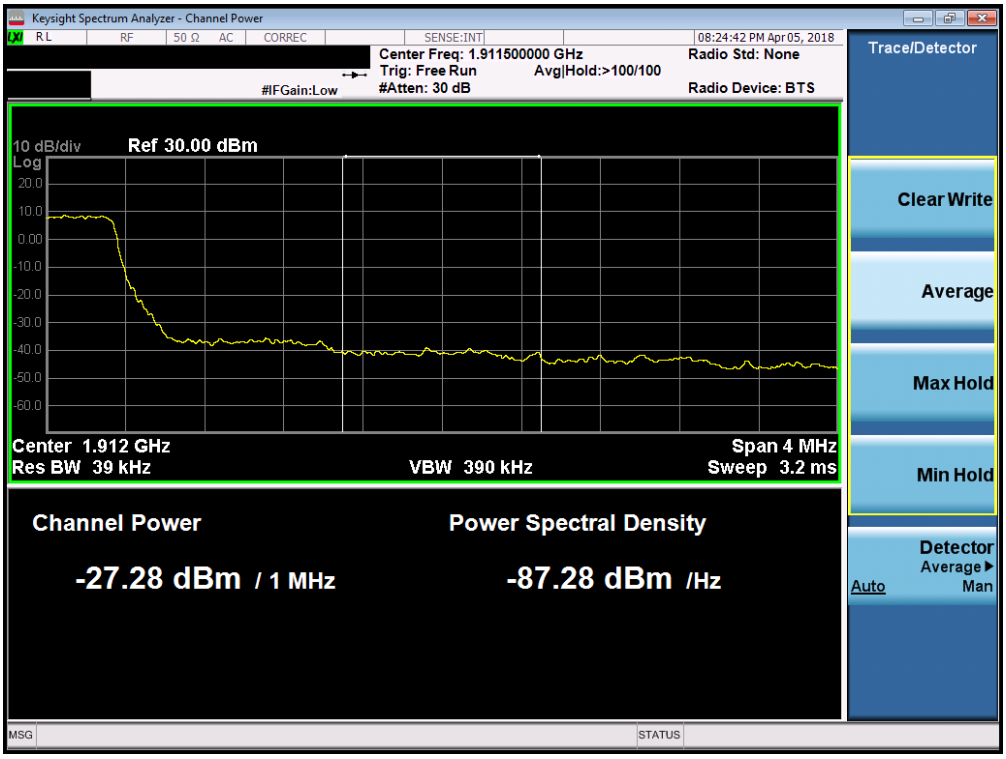
Plot 7-217. Lower Band Edge Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)



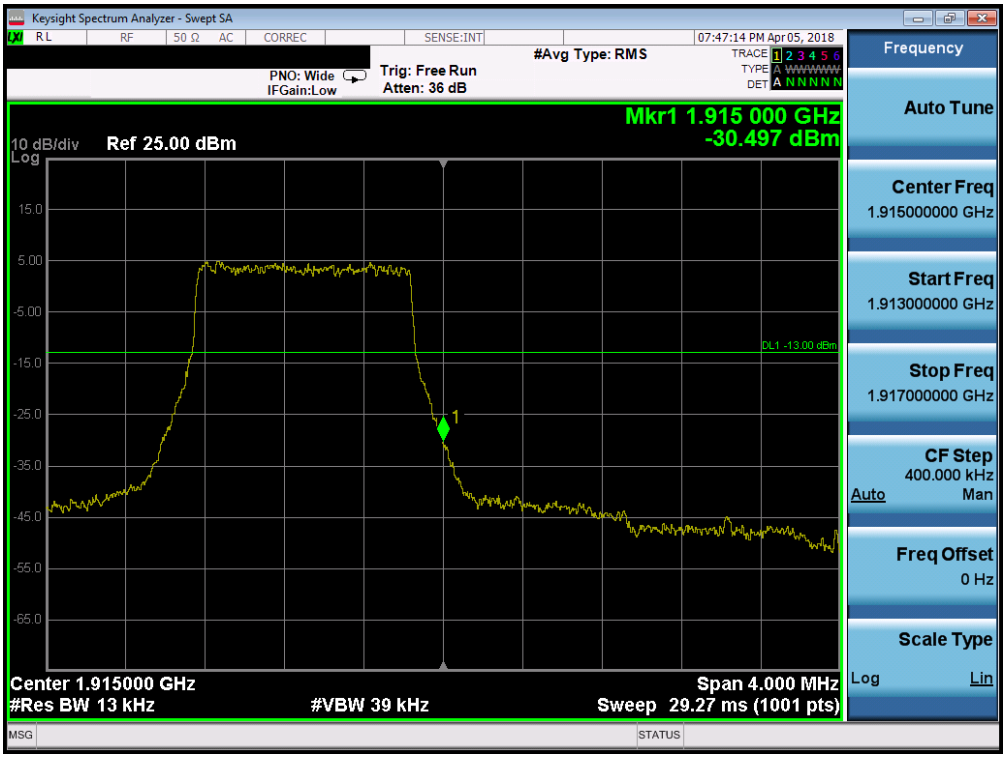
Plot 7-218. Lower Extended Band Edge Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)



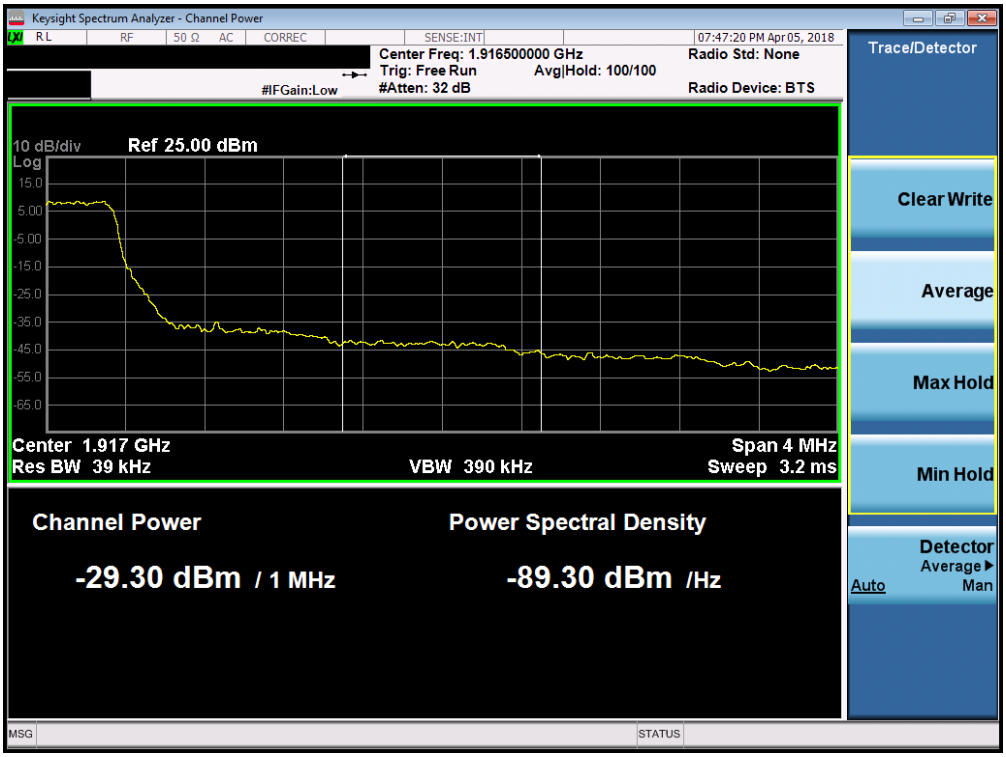
Plot 7-219. Upper Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)



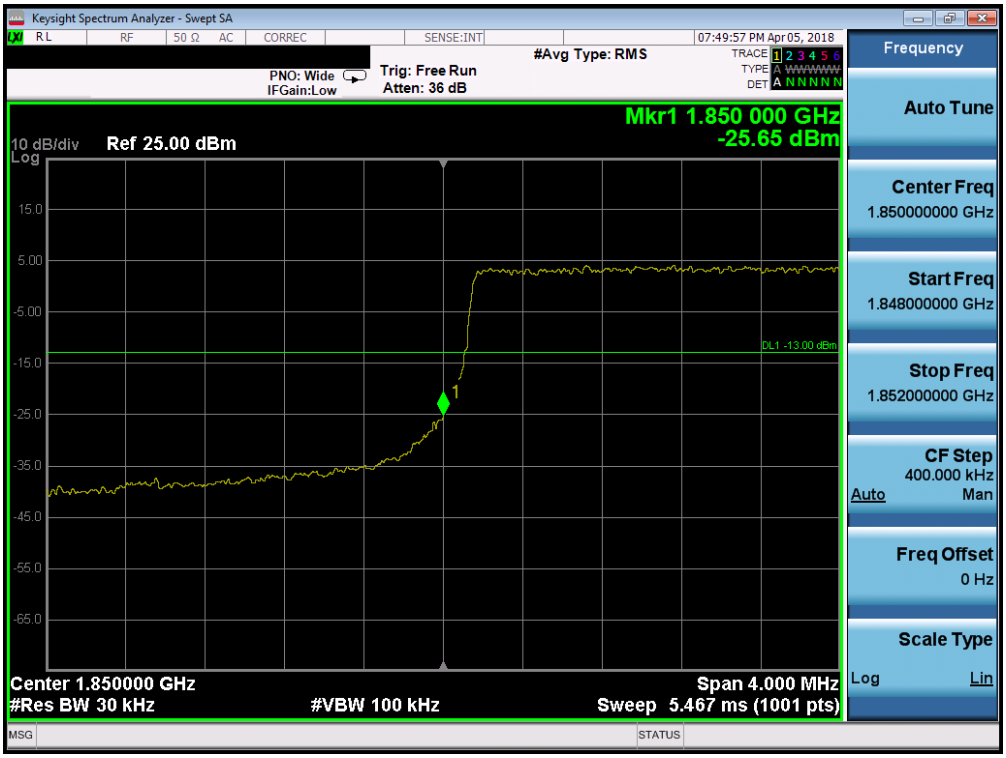
Plot 7-220. Upper Extended Band Edge Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)



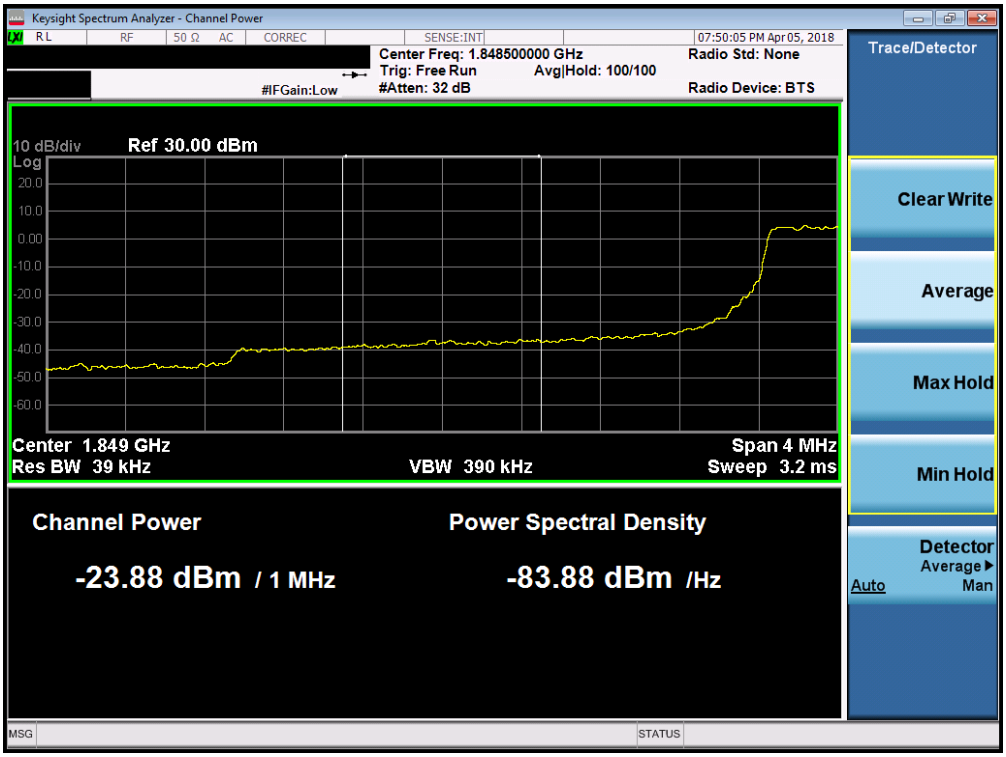
Plot 7-221. Upper Band Edge Plot (Band 25 - 1.4MHz QPSK - Full RB Configuration)



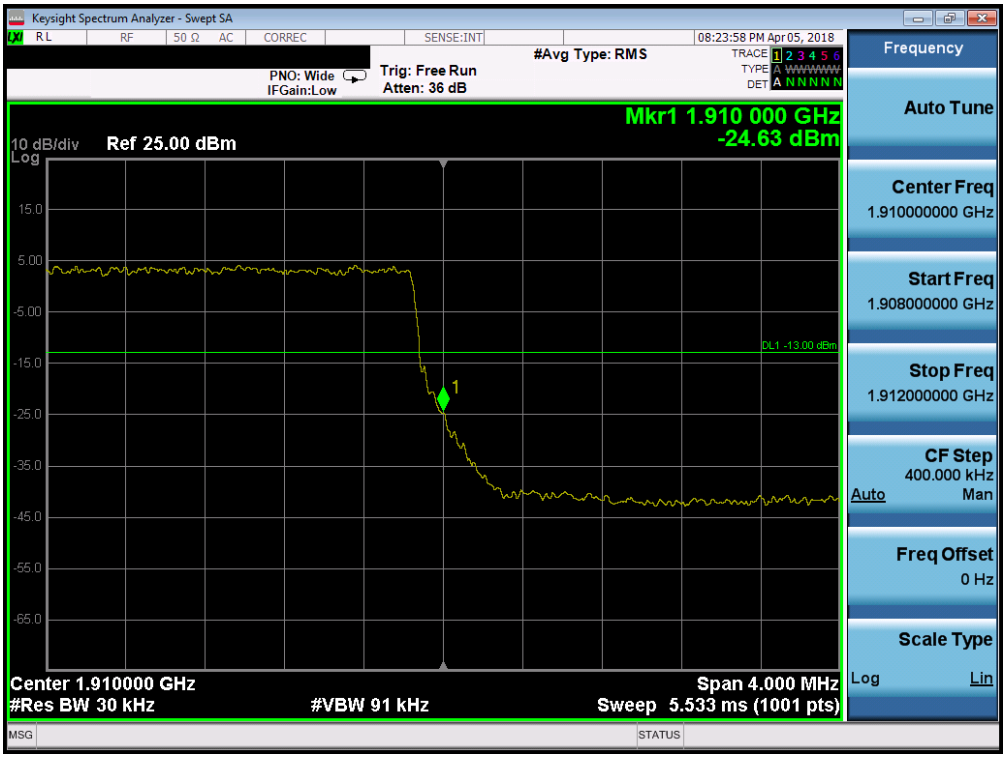
Plot 7-222. Upper Extended Band Edge Plot (Band 25 - 1.4MHz QPSK - Full RB Configuration)



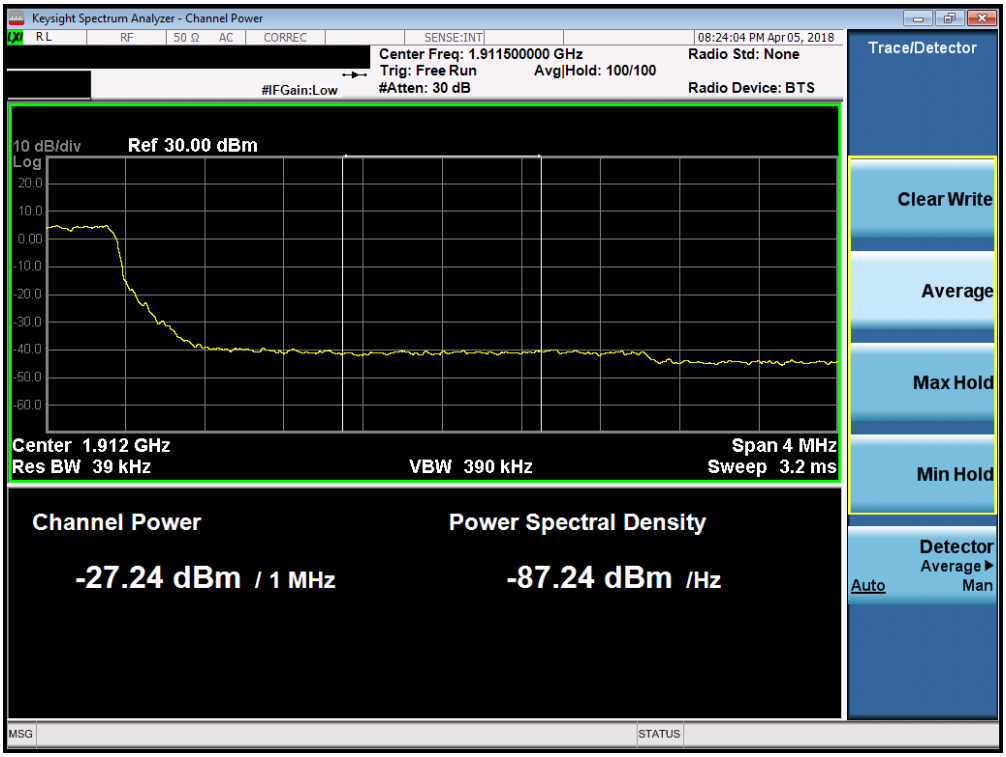
Plot 7-223. Lower Band Edge Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)



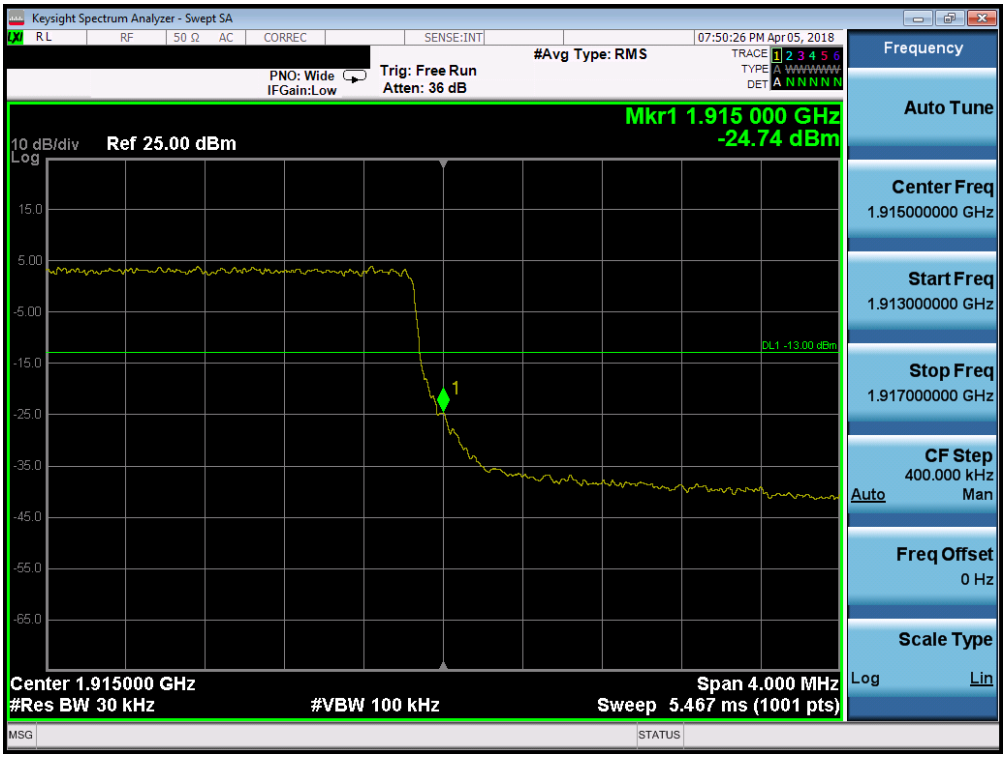
Plot 7-224. Lower Extended Band Edge Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)



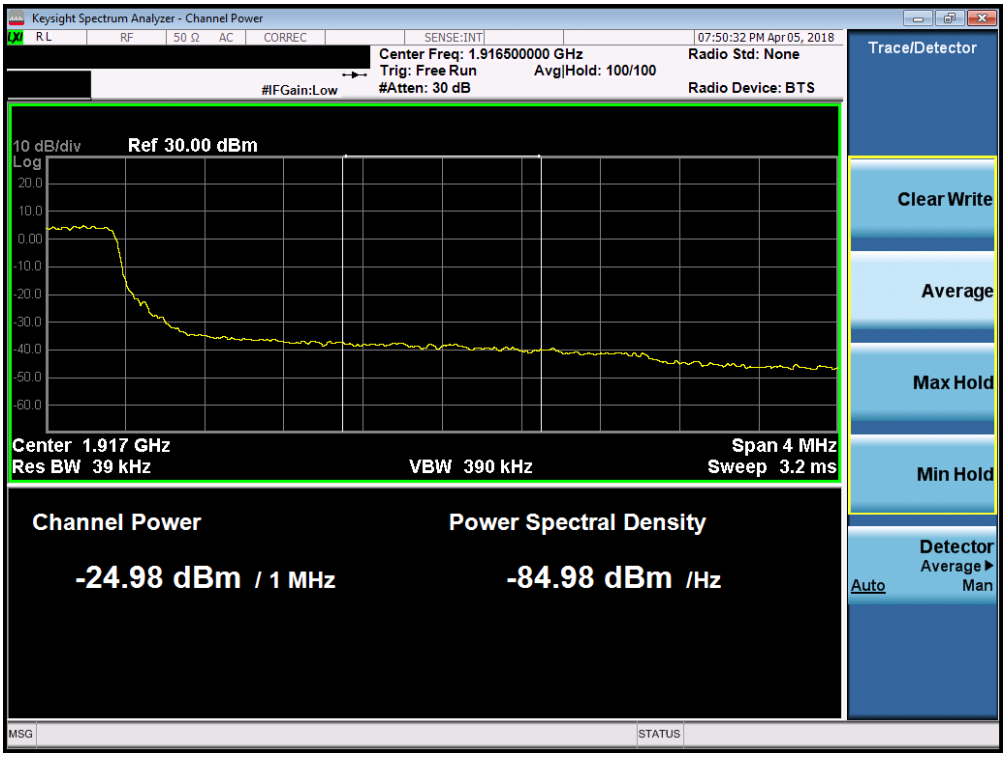
Plot 7-225. Upper Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)



Plot 7-226. Upper Extended Band Edge Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

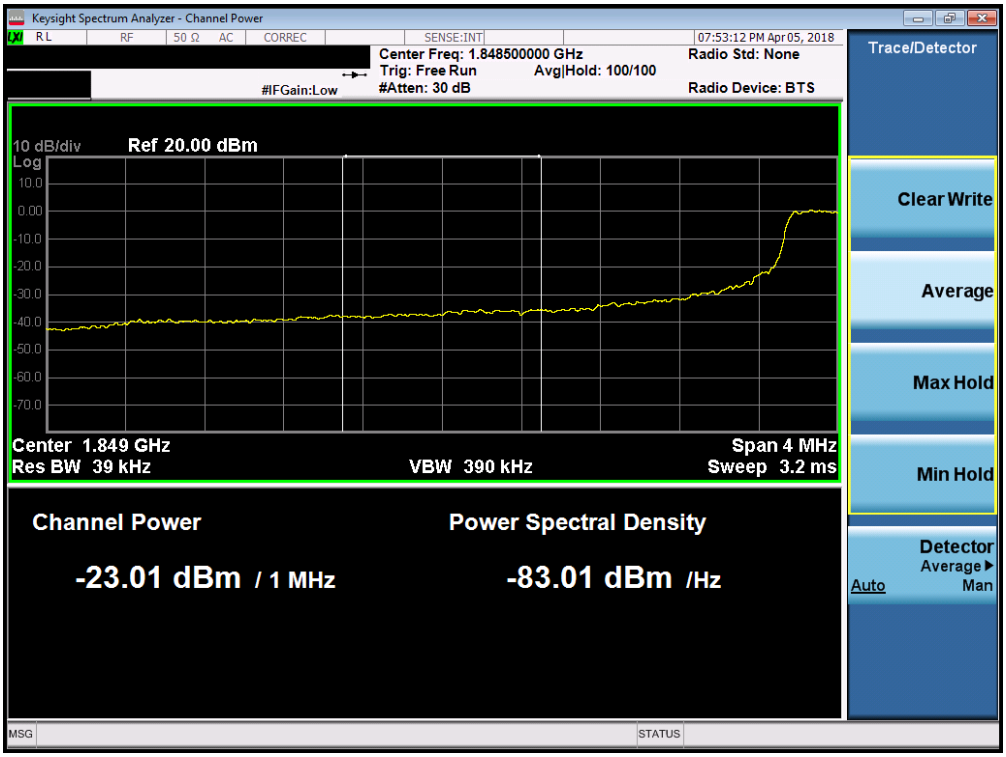


Plot 7-227. Upper Band Edge Plot (Band 25 - 3.0MHz QPSK - Full RB Configuration)



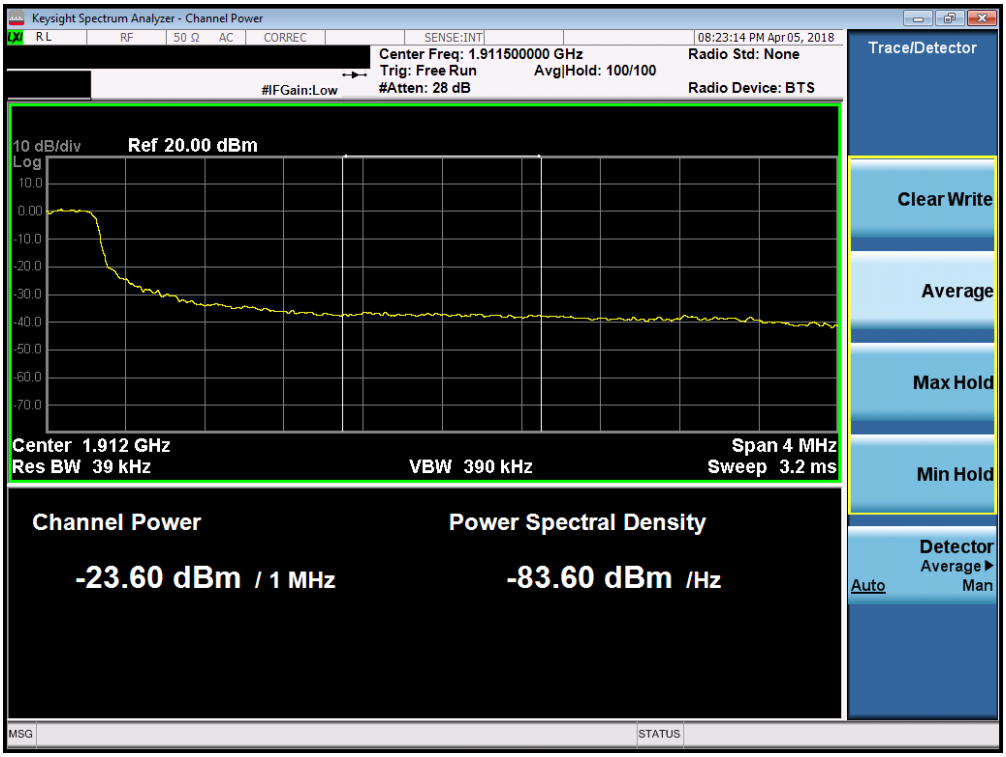
Plot 7-228. Upper Extended Band Edge Plot (Band 25 - 3.0MHz QPSK - Full RB Configuration)

Plot 7-229. Lower Band Edge Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)



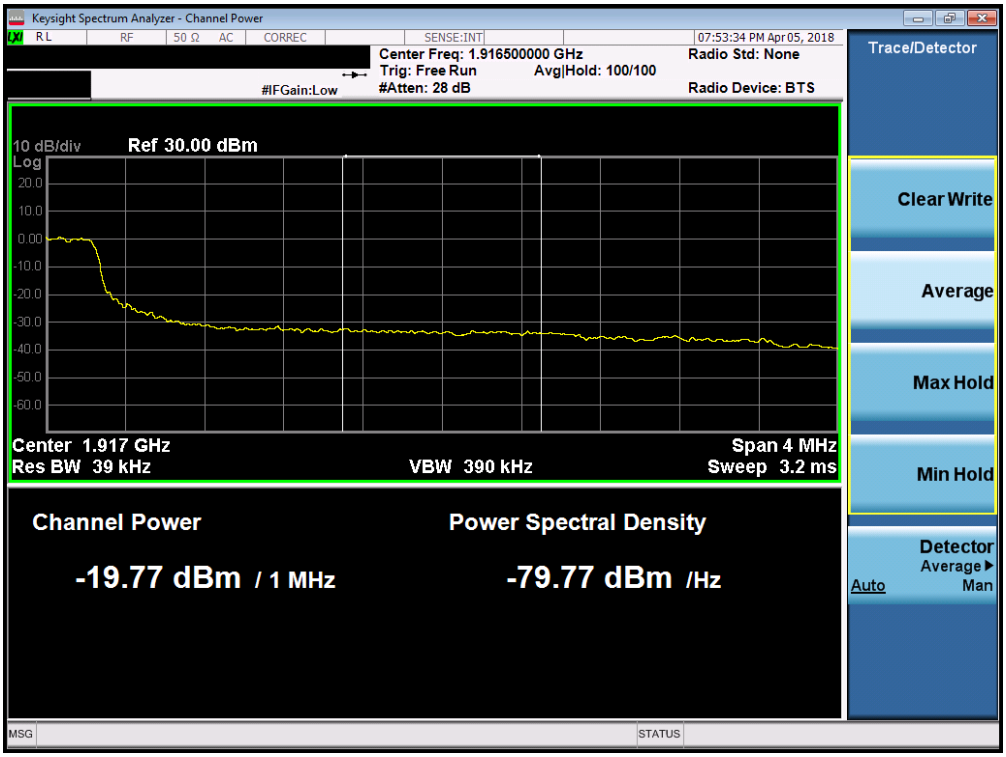
Plot 7-230. Lower Extended Band Edge Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)

Plot 7-231. Upper Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

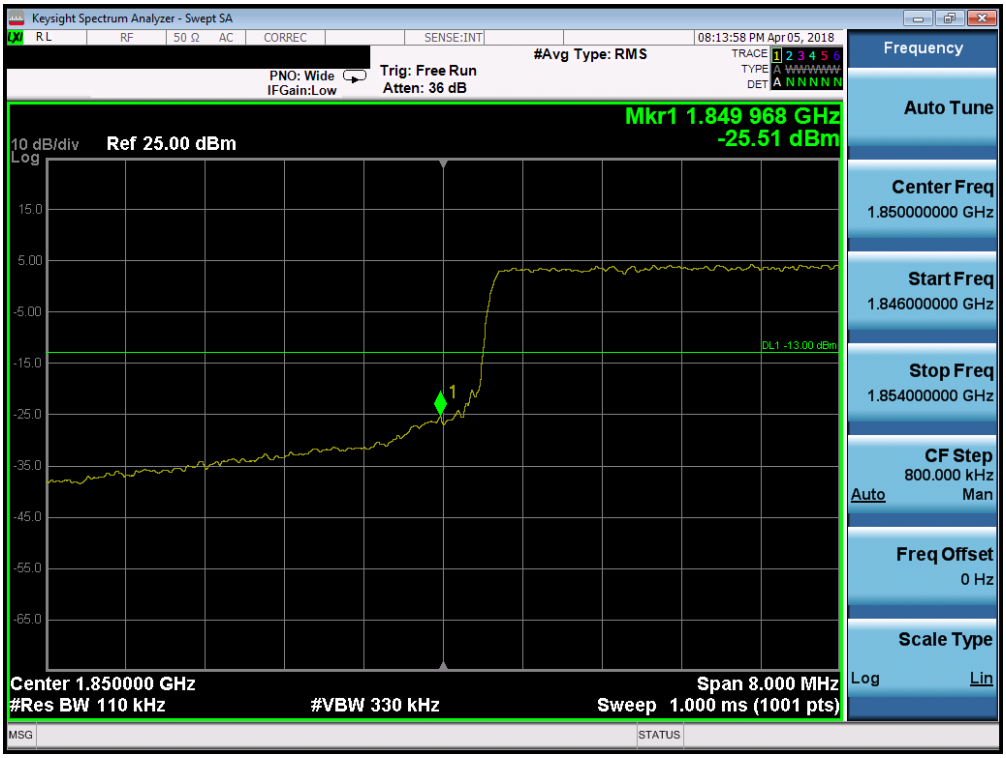


Plot 7-232. Upper Extended Band Edge Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

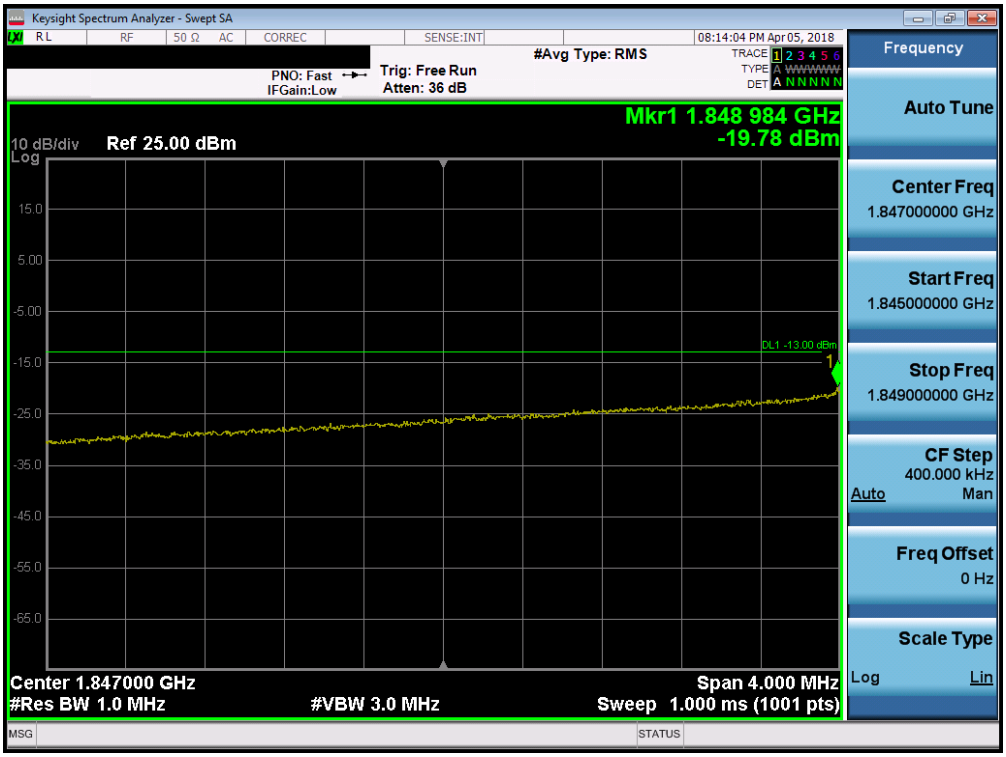
Plot 7-233. Upper Band Edge Plot (Band 25 - 5.0MHz QPSK - Full RB Configuration)



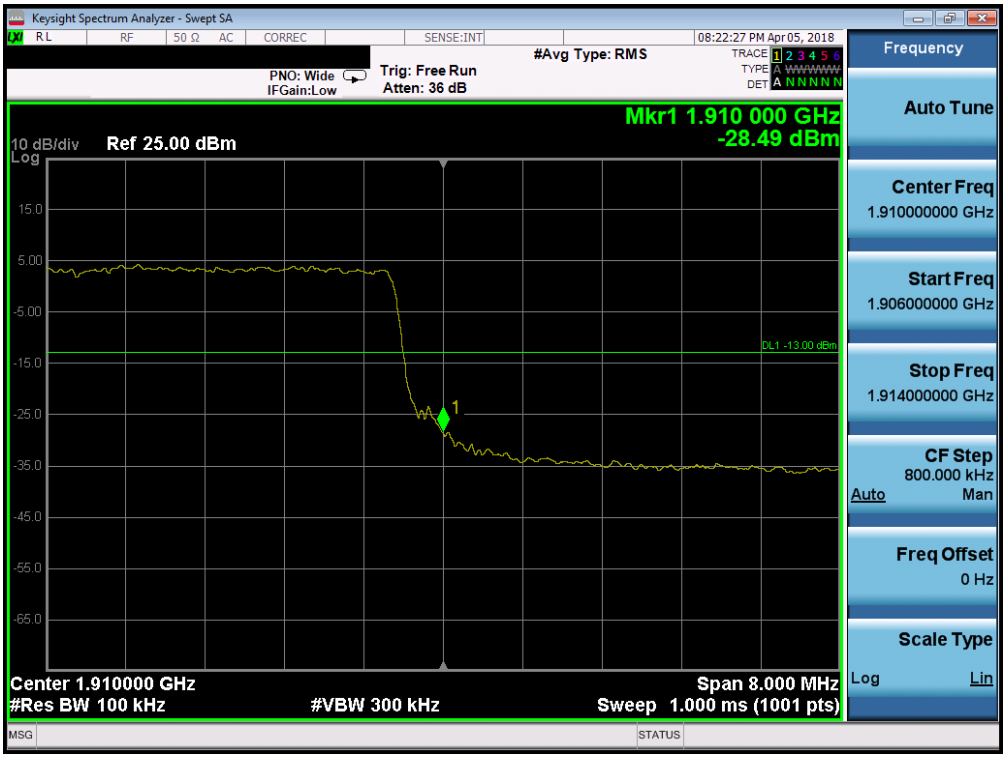
Plot 7-234. Upper Extended Band Edge Plot (Band 25 - 5.0MHz QPSK - Full RB Configuration)



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

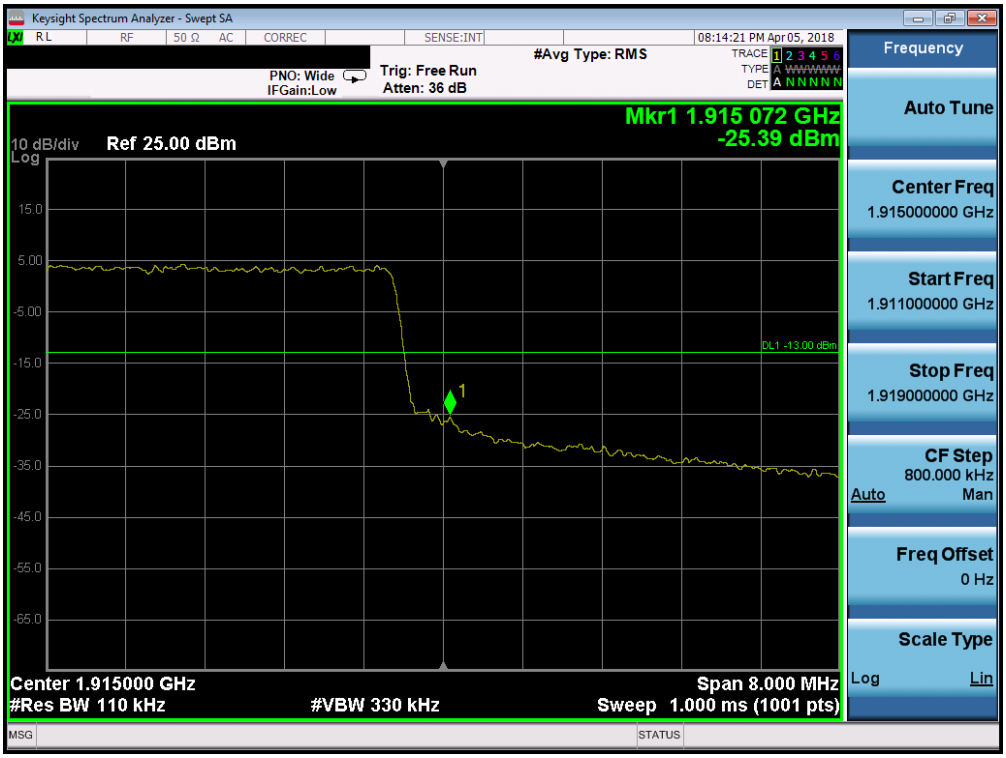


Plot 7-236. Lower Extended Band Edge Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

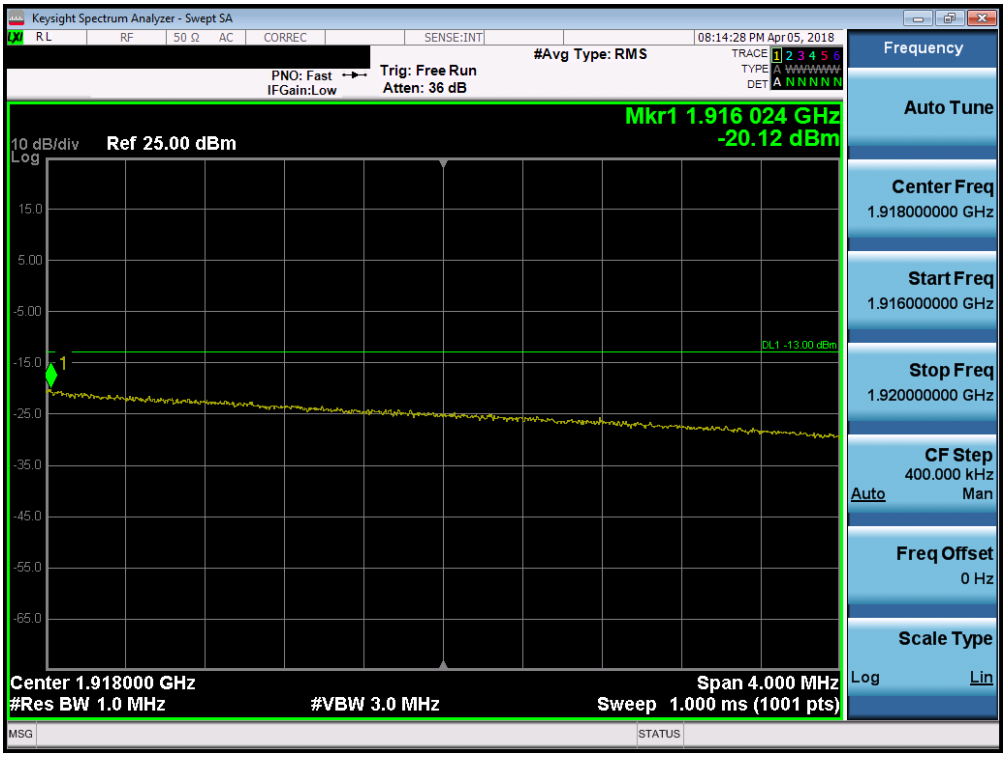


Plot 7-237. Upper Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

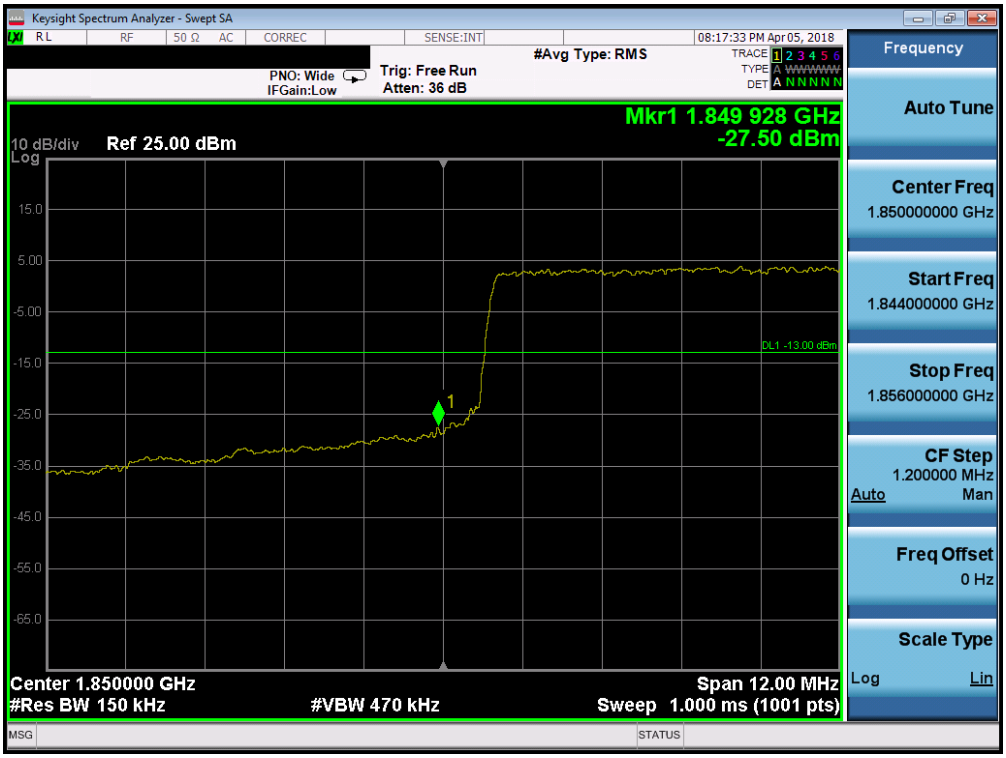
Plot 7-238. Upper Extended Band Edge Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)



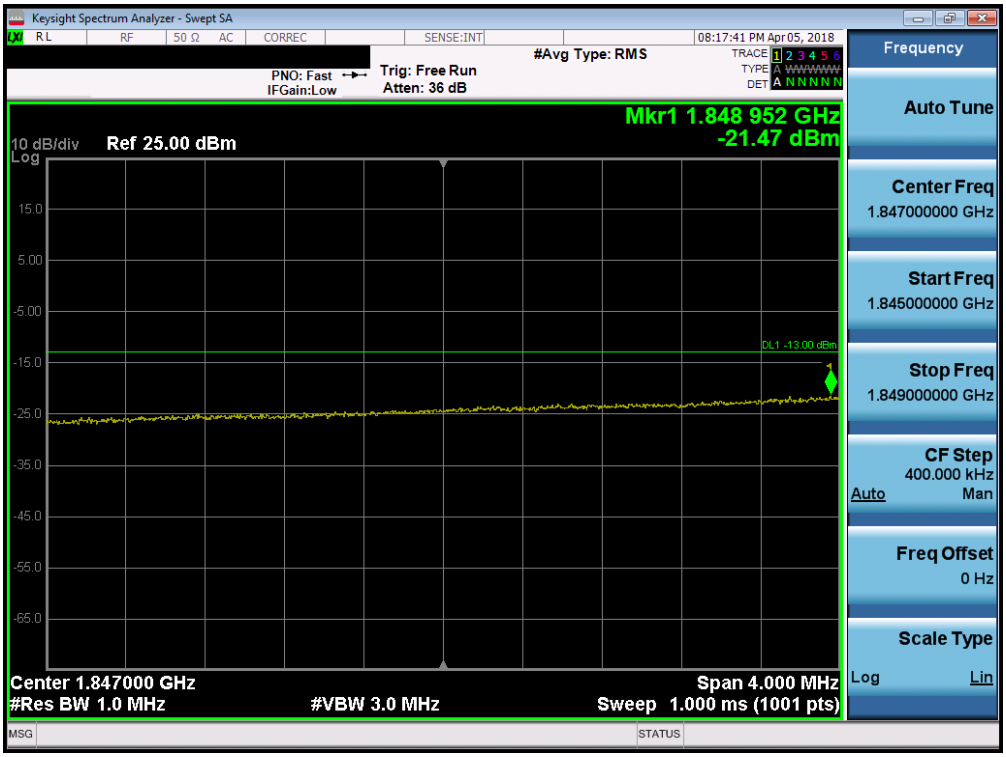
Plot 7-239. Upper Band Edge Plot (Band 25 - 10.0MHz QPSK - Full RB Configuration)



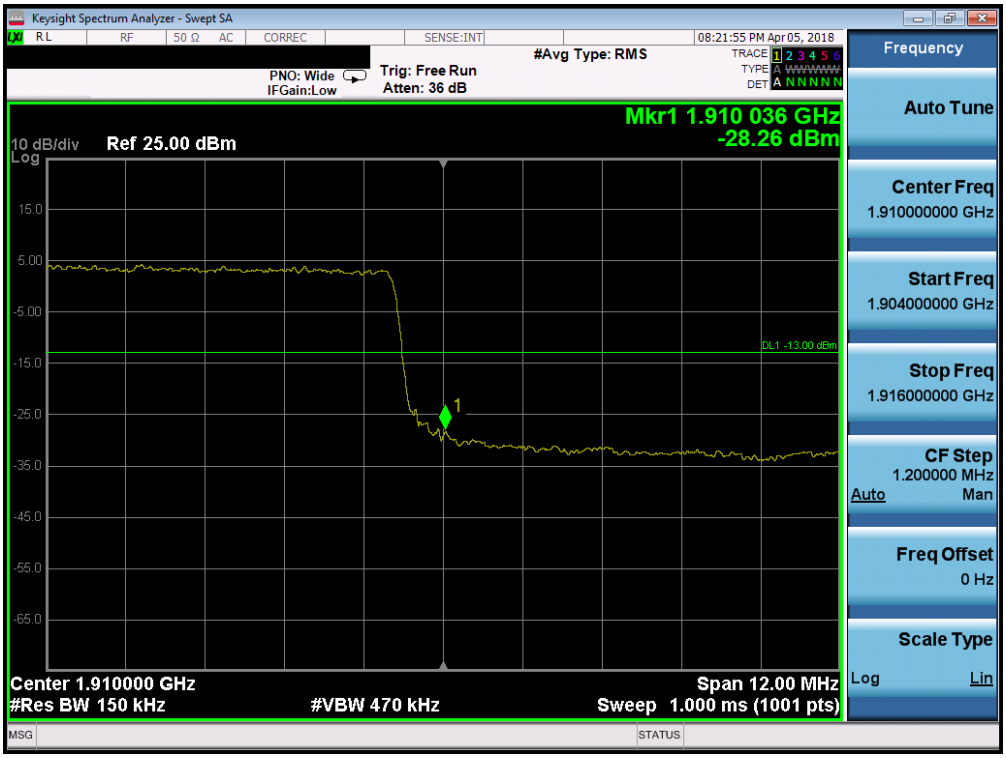
Plot 7-240. Upper Extended Band Edge Plot (Band 25 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-241. Lower Band Edge Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)



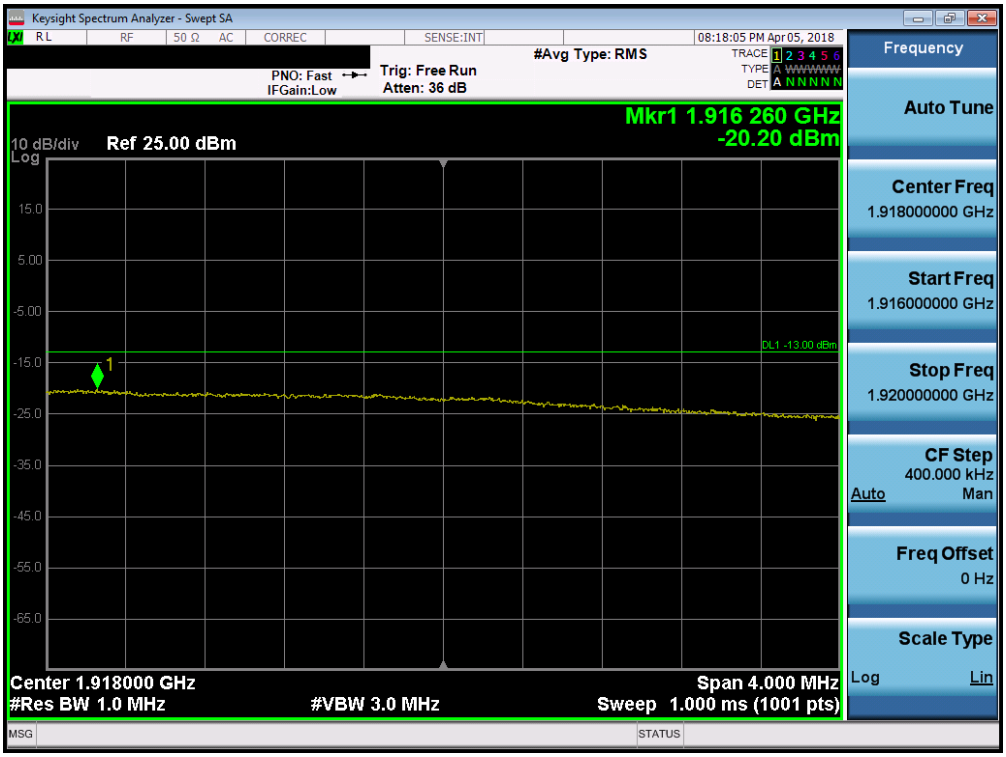
Plot 7-242. Lower Extended Band Edge Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)



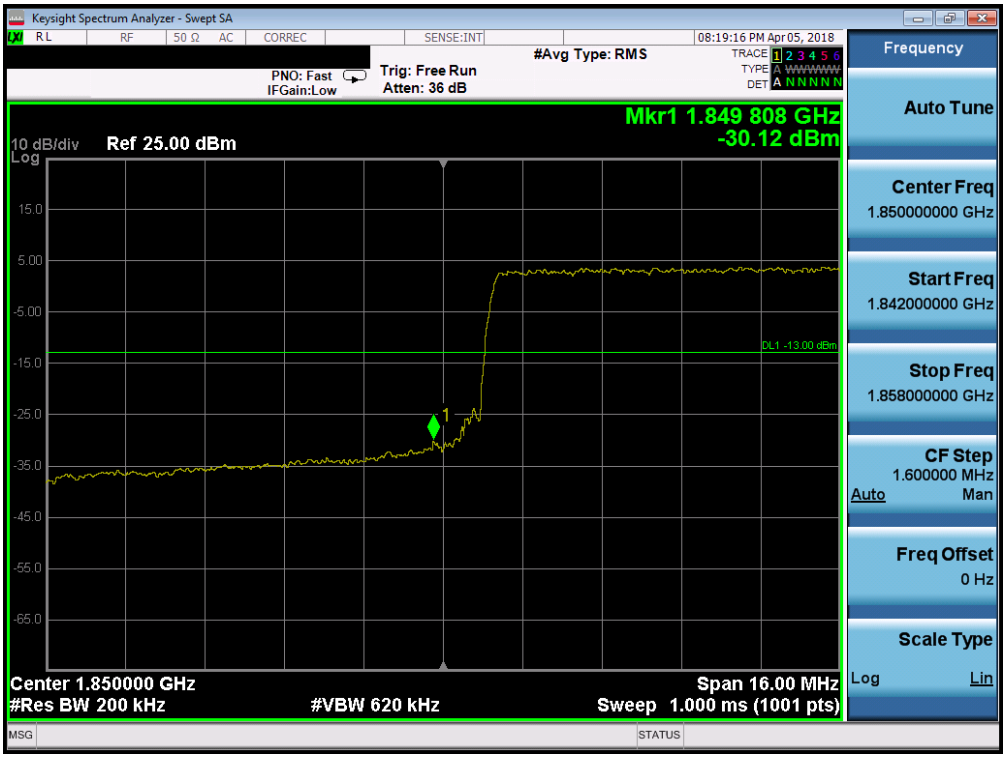
Plot 7-243. Upper Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

Plot 7-244. Upper Extended Band Edge Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

Plot 7-245. Upper Band Edge Plot (Band 25 - 15.0MHz QPSK - Full RB Configuration)



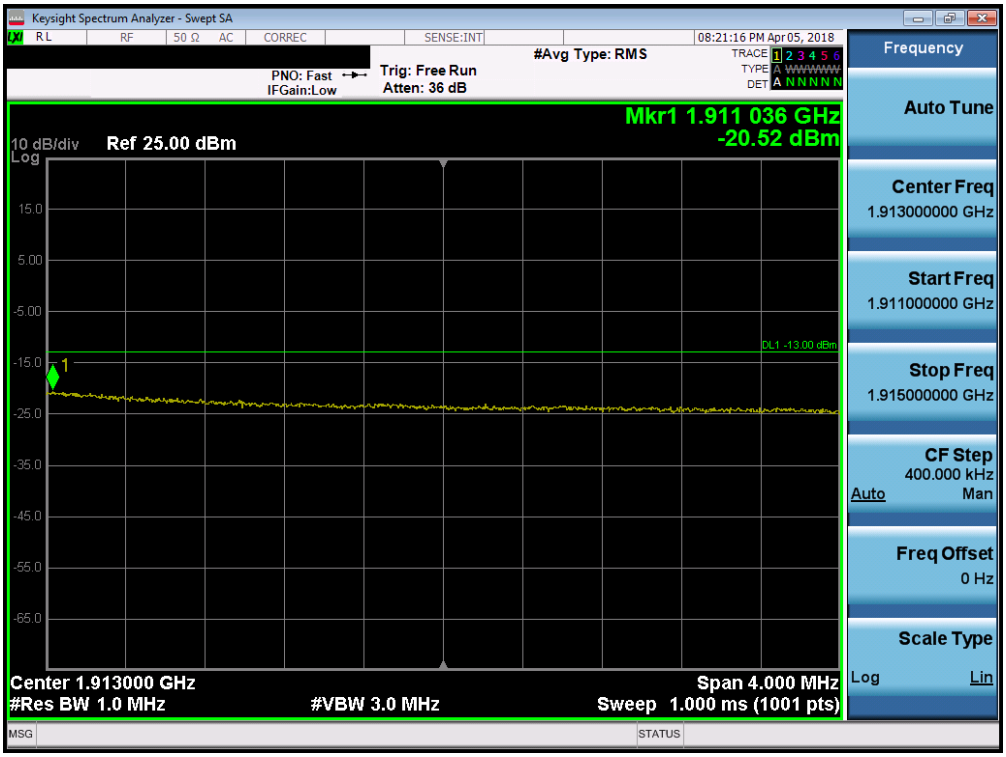
Plot 7-246. Upper Extended Band Edge Plot (Band 25 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-247. Lower Band Edge Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

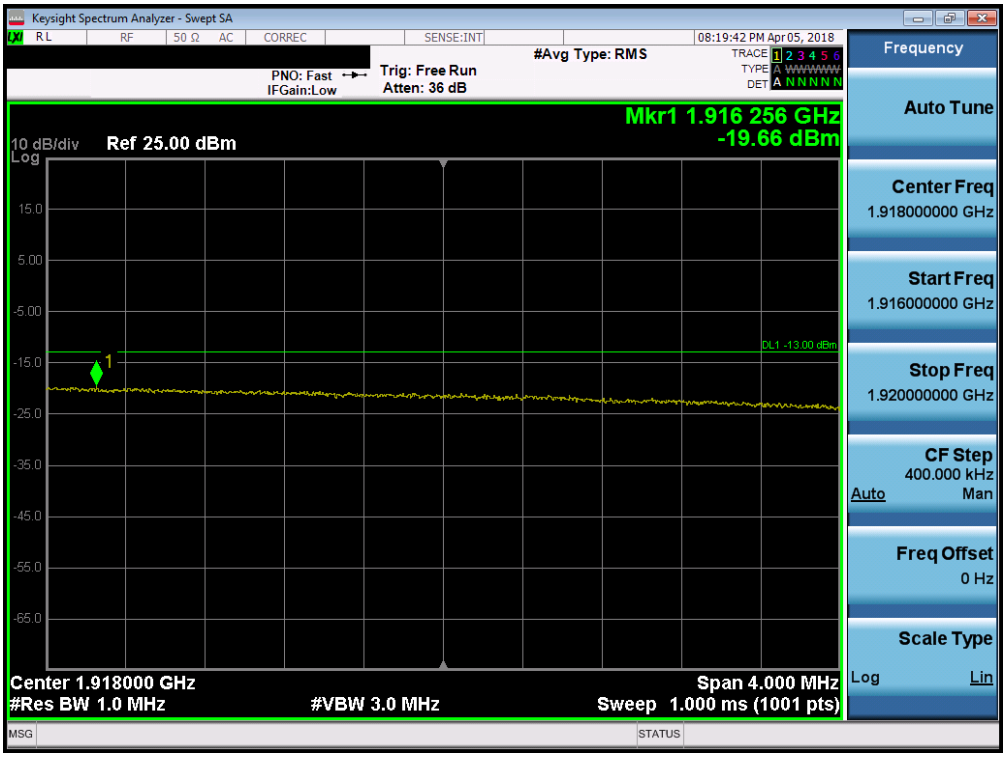
Plot 7-248. Lower Extended Band Edge Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

Plot 7-249. Upper Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)



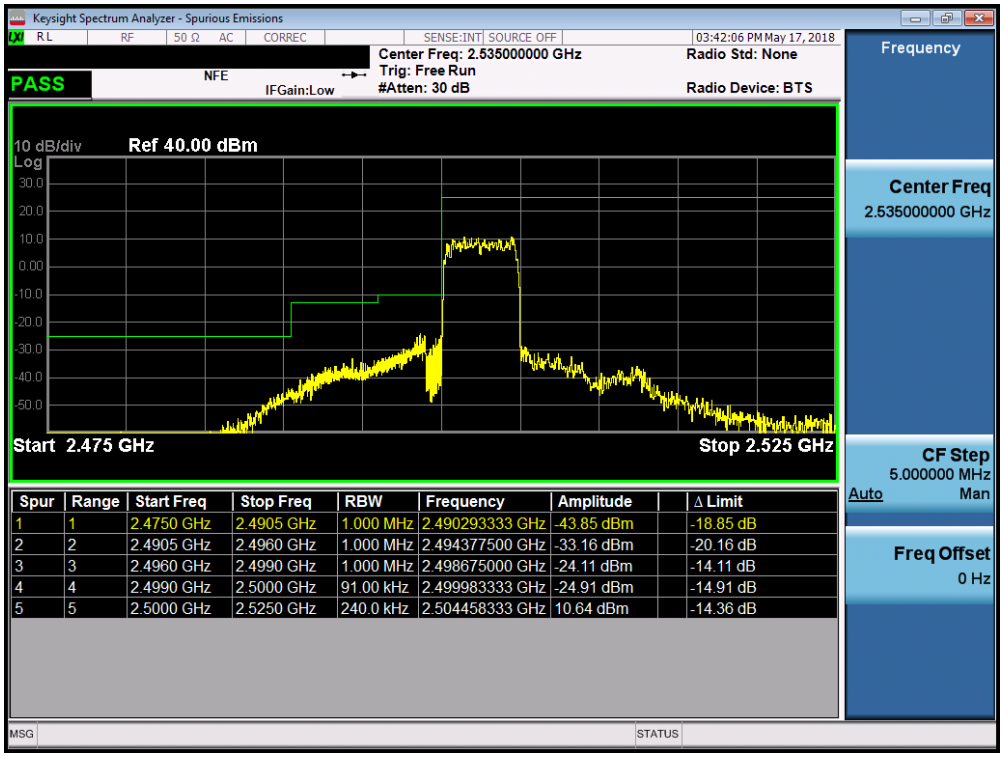
Plot 7-250. Upper Extended Band Edge Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

Plot 7-251. Upper Band Edge Plot (Band 25 - 20.0MHz QPSK - Full RB Configuration)



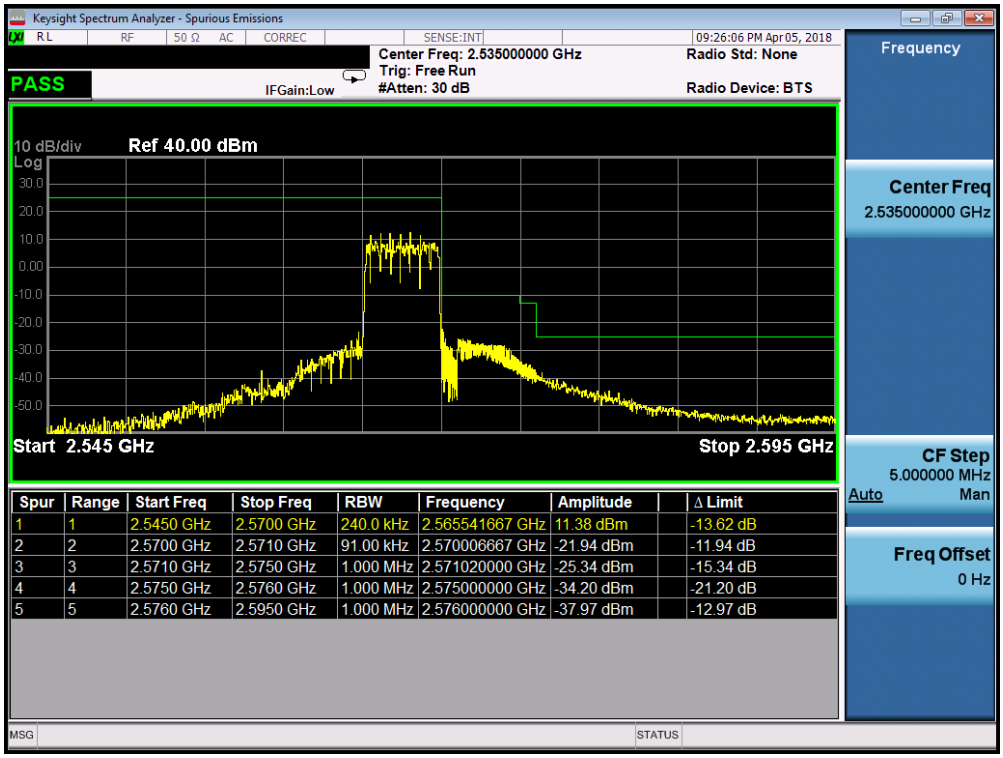
Plot 7-252. Upper Extended Band Edge Plot (Band 25 - 20.0MHz QPSK - Full RB Configuration)

Band 7



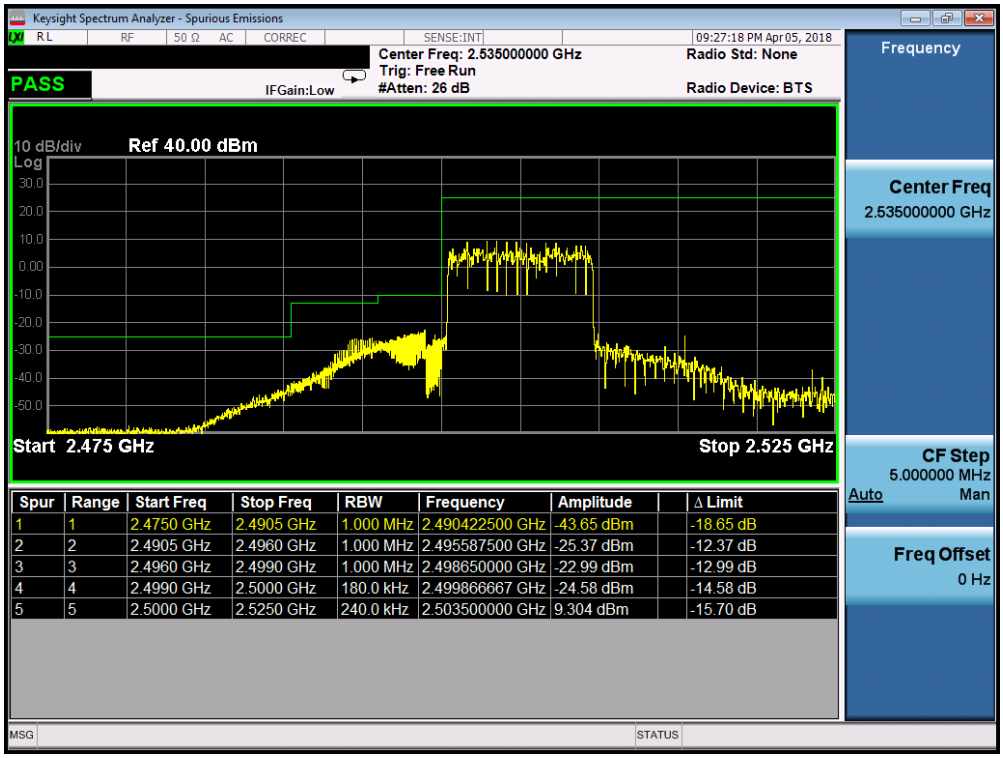
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490293333 GHz	-43.85 dBm	-18.85 dB
2	2	2.4905 GHz	2.4960 GHz	1.000 MHz	2.494377500 GHz	-33.16 dBm	-20.16 dB
3	3	2.4960 GHz	2.4990 GHz	1.000 MHz	2.498675000 GHz	-24.11 dBm	-14.11 dB
4	4	2.4990 GHz	2.5000 GHz	91.00 kHz	2.499983333 GHz	-24.91 dBm	-14.91 dB
5	5	2.5000 GHz	2.5250 GHz	240.0 kHz	2.504458333 GHz	10.64 dBm	-14.36 dB

Plot 7-253. Lower ACP Plot (Band 7 - 5.0MHz QPSK - RB Size 25)



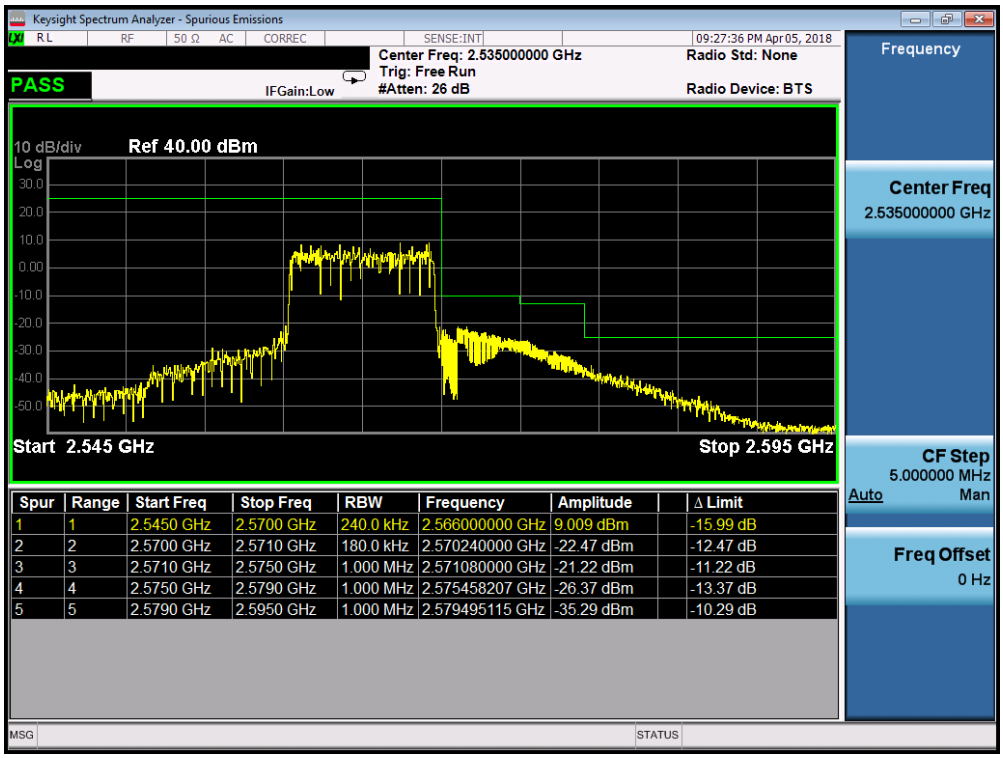
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5450 GHz	2.5700 GHz	240.0 kHz	2.565541667 GHz	11.38 dBm	-13.62 dB
2	2	2.5700 GHz	2.5710 GHz	91.00 kHz	2.570006667 GHz	-21.94 dBm	-11.94 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.571020000 GHz	-25.34 dBm	-15.34 dB
4	4	2.5750 GHz	2.5760 GHz	1.000 MHz	2.575000000 GHz	-34.20 dBm	-21.20 dB
5	5	2.5760 GHz	2.5950 GHz	1.000 MHz	2.576000000 GHz	-37.97 dBm	-12.97 dB

Plot 7-254. Upper ACP Plot (Band 7 - 5.0MHz QPSK - RB Size 25)



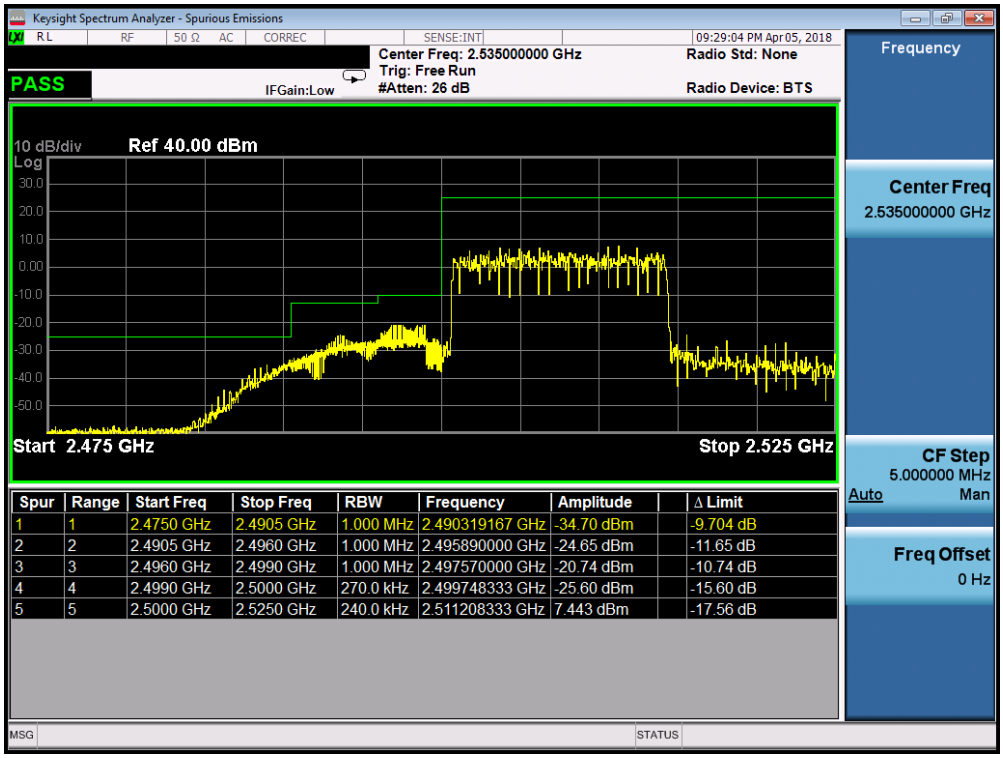
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490422500 GHz	-43.65 dBm	-18.65 dB
2	2	2.4905 GHz	2.4960 GHz	1.000 MHz	2.495587500 GHz	-25.37 dBm	-12.37 dB
3	3	2.4960 GHz	2.4990 GHz	1.000 MHz	2.498650000 GHz	-22.99 dBm	-12.99 dB
4	4	2.4990 GHz	2.5000 GHz	180.0 kHz	2.499866667 GHz	-24.58 dBm	-14.58 dB
5	5	2.5000 GHz	2.5250 GHz	240.0 kHz	2.503500000 GHz	9.304 dBm	-15.70 dB

Plot 7-255. Lower ACP Plot (Band 7 - 10.0MHz QPSK - RB Size 25)



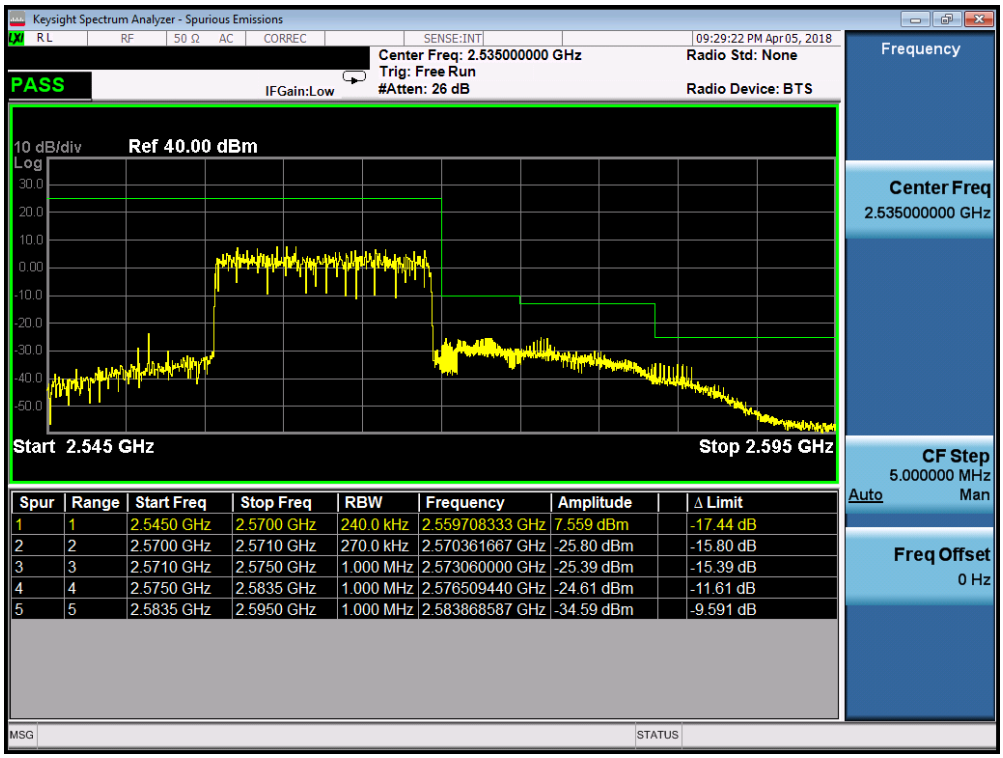
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5450 GHz	2.5700 GHz	240.0 kHz	2.566000000 GHz	9.009 dBm	-15.99 dB
2	2	2.5700 GHz	2.5710 GHz	180.0 kHz	2.570240000 GHz	-22.47 dBm	-12.47 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.571080000 GHz	-21.22 dBm	-11.22 dB
4	4	2.5750 GHz	2.5790 GHz	1.000 MHz	2.575458207 GHz	-26.37 dBm	-13.37 dB
5	5	2.5790 GHz	2.5950 GHz	1.000 MHz	2.579495115 GHz	-35.29 dBm	-10.29 dB

Plot 7-256. Upper ACP Plot (Band 7 - 10.0MHz QPSK - RB Size 25)



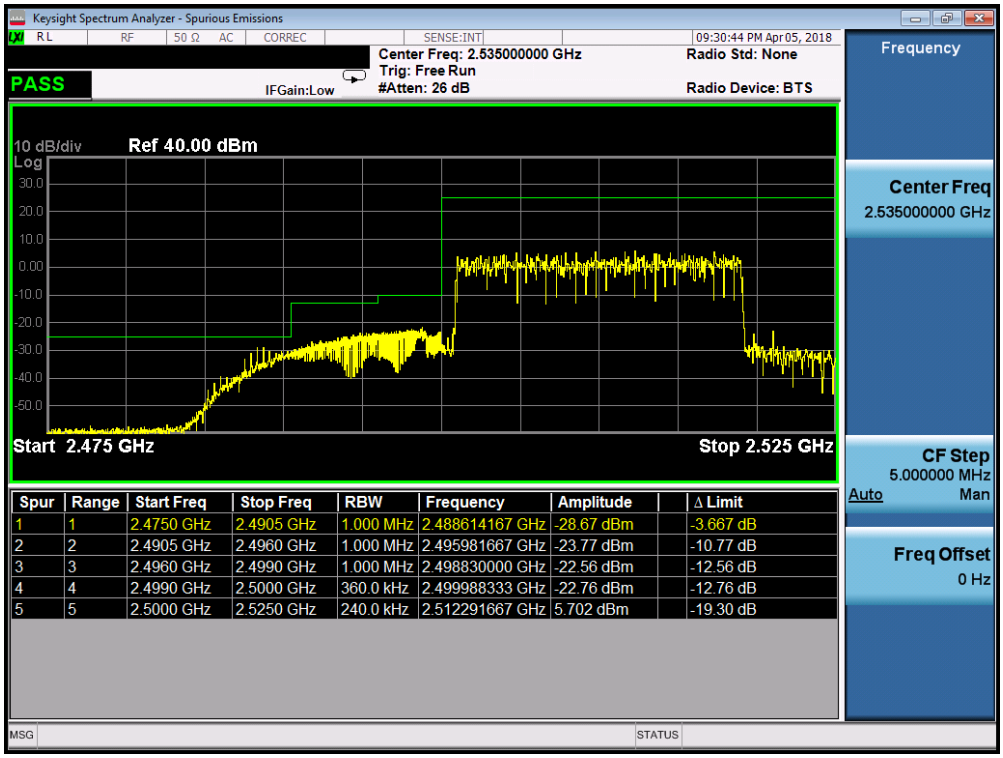
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490319167 GHz	-34.70 dBm	-9.704 dB
2	2	2.4905 GHz	2.4960 GHz	1.000 MHz	2.495890000 GHz	-24.65 dBm	-11.65 dB
3	3	2.4960 GHz	2.4990 GHz	1.000 MHz	2.497570000 GHz	-20.74 dBm	-10.74 dB
4	4	2.4990 GHz	2.5000 GHz	270.0 kHz	2.499748333 GHz	-25.60 dBm	-15.60 dB
5	5	2.5000 GHz	2.5250 GHz	240.0 kHz	2.511208333 GHz	7.443 dBm	-17.56 dB

Plot 7-257. Lower ACP Plot (Band 7 - 15.0MHz QPSK - RB Size 25)



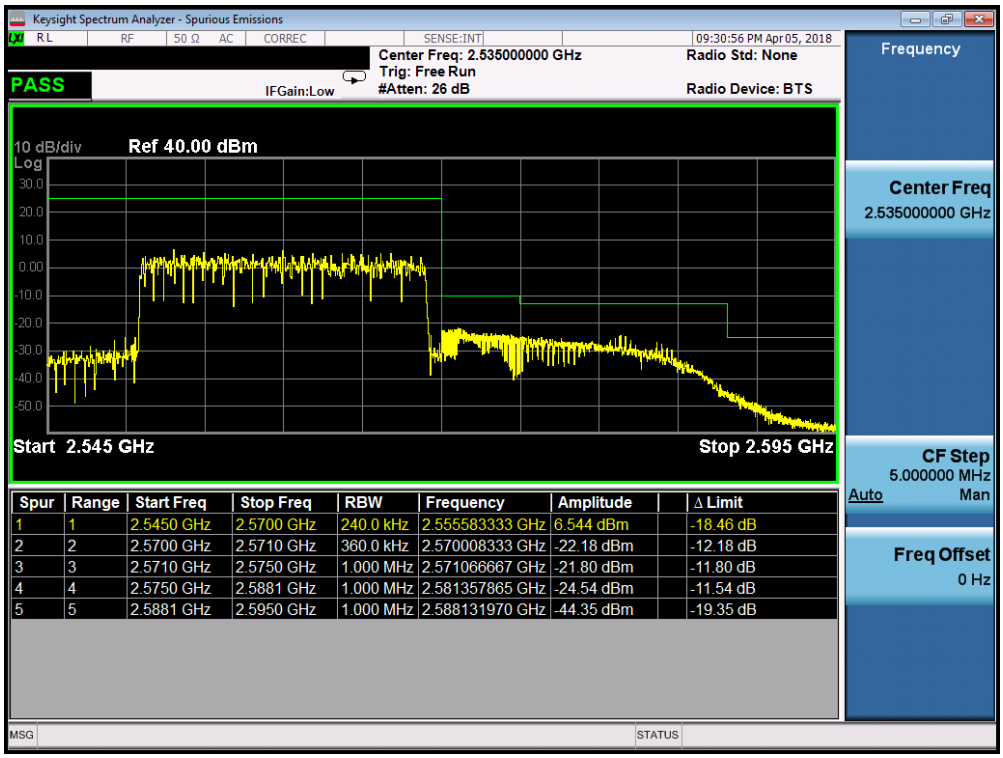
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5450 GHz	2.5700 GHz	240.0 kHz	2.559708333 GHz	7.559 dBm	-17.44 dB
2	2	2.5700 GHz	2.5710 GHz	270.0 kHz	2.570361667 GHz	-25.80 dBm	-15.80 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.573060000 GHz	-25.39 dBm	-15.39 dB
4	4	2.5750 GHz	2.5835 GHz	1.000 MHz	2.576509440 GHz	-24.61 dBm	-11.61 dB
5	5	2.5835 GHz	2.5950 GHz	1.000 MHz	2.583868587 GHz	-34.59 dBm	-9.591 dB

Plot 7-258. Upper ACP Plot (Band 7 - 15.0MHz QPSK - RB Size 25)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.488614167 GHz	-28.67 dBm	-3.667 dB
2	2	2.4905 GHz	2.4960 GHz	1.000 MHz	2.495981667 GHz	-23.77 dBm	-10.77 dB
3	3	2.4960 GHz	2.4990 GHz	1.000 MHz	2.498830000 GHz	-22.56 dBm	-12.56 dB
4	4	2.4990 GHz	2.5000 GHz	360.0 kHz	2.499988333 GHz	-22.76 dBm	-12.76 dB
5	5	2.5000 GHz	2.5250 GHz	240.0 kHz	2.512291667 GHz	5.702 dBm	-19.30 dB

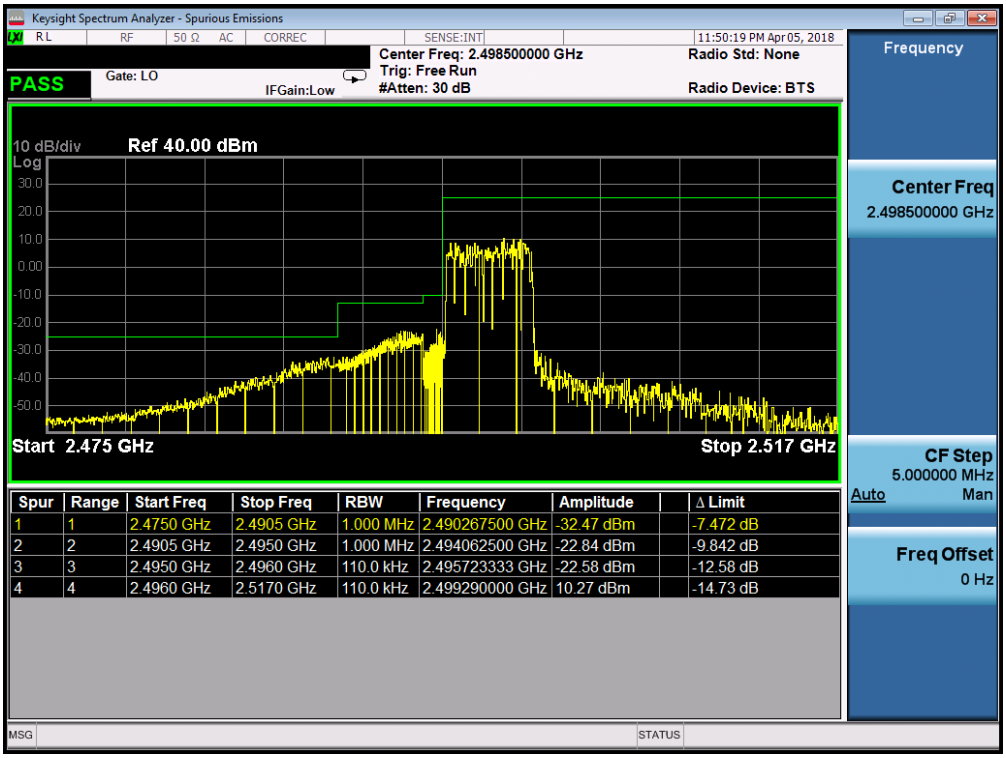
Plot 7-259. Lower ACP Plot (Band 7 - 20.0MHz QPSK - RB Size 25)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5450 GHz	2.5700 GHz	240.0 kHz	2.555583333 GHz	6.544 dBm	-18.46 dB
2	2	2.5700 GHz	2.5710 GHz	360.0 kHz	2.570008333 GHz	-22.18 dBm	-12.18 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.571066667 GHz	-21.80 dBm	-11.80 dB
4	4	2.5750 GHz	2.5881 GHz	1.000 MHz	2.581357865 GHz	-24.54 dBm	-11.54 dB
5	5	2.5881 GHz	2.5950 GHz	1.000 MHz	2.588131970 GHz	-44.35 dBm	-19.35 dB

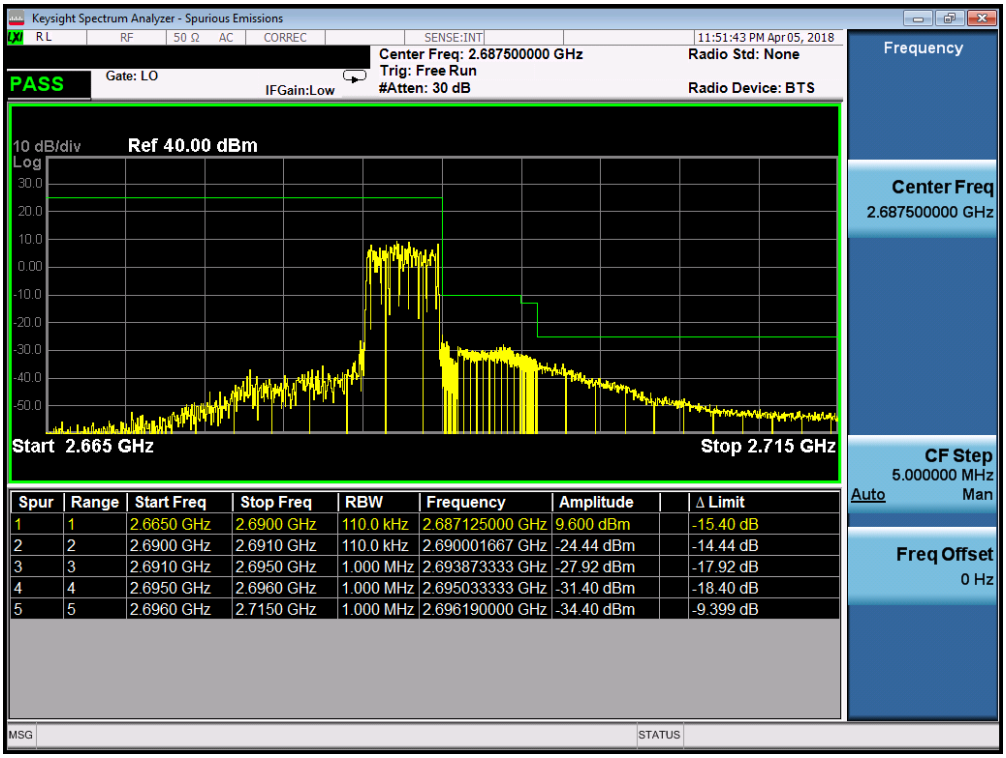
Plot 7-260. Upper ACP Plot (Band 7 - 20.0MHz QPSK - RB Size 25)

Band 41



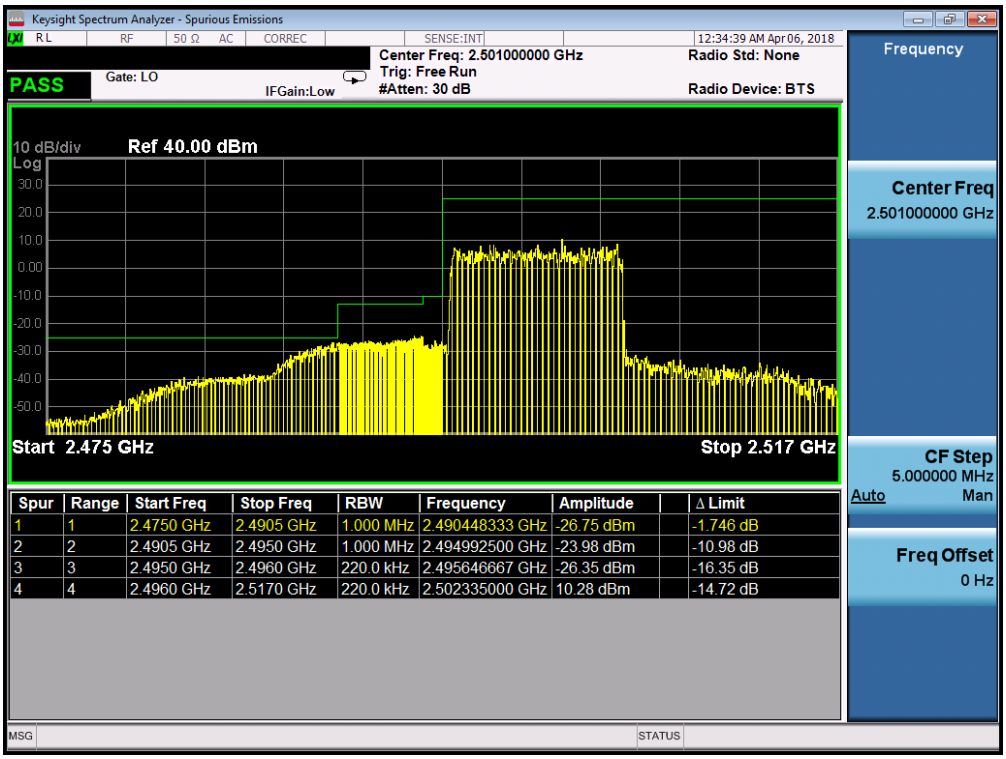
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490267500 GHz	-32.47 dBm	-7.472 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494062500 GHz	-22.84 dBm	-9.842 dB
3	3	2.4950 GHz	2.4960 GHz	110.0 kHz	2.495723333 GHz	-22.58 dBm	-12.58 dB
4	4	2.4960 GHz	2.5170 GHz	110.0 kHz	2.499290000 GHz	10.27 dBm	-14.73 dB

Plot 7-261. Lower ACP Plot at 2496 MHz (Band 41 - 5.0MHz QPSK - RB Size 25)



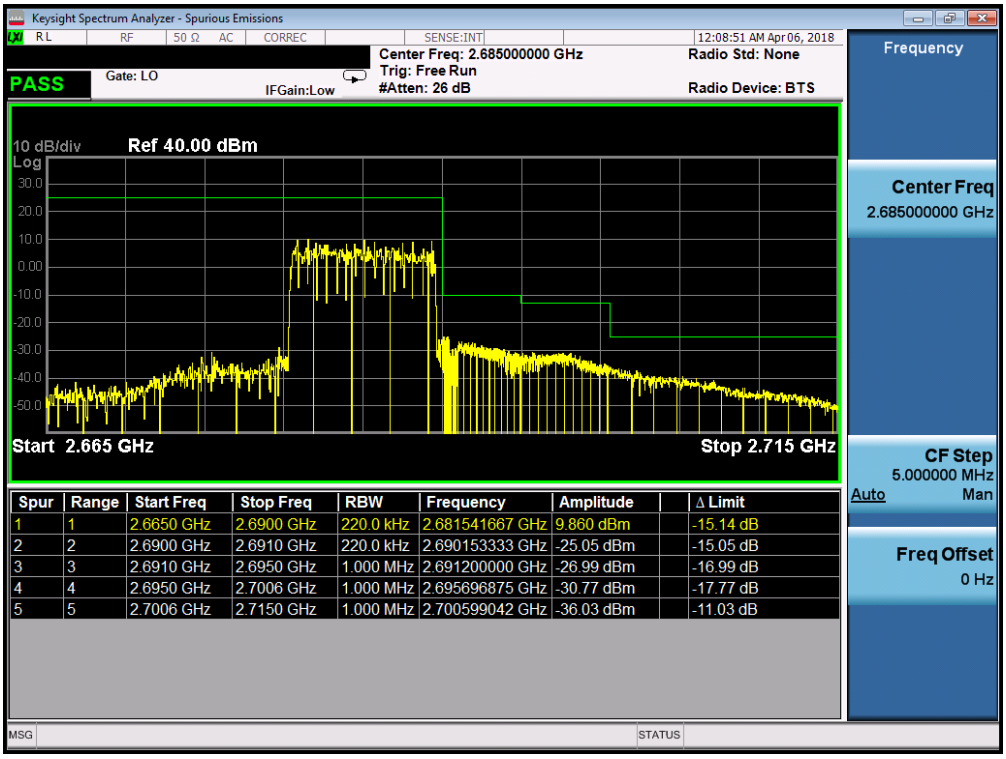
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	110.0 kHz	2.687125000 GHz	9.600 dBm	-15.40 dB
2	2	2.6900 GHz	2.6910 GHz	110.0 kHz	2.690001667 GHz	-24.44 dBm	-14.44 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.693873333 GHz	-27.92 dBm	-17.92 dB
4	4	2.6950 GHz	2.6960 GHz	1.000 MHz	2.695033333 GHz	-31.40 dBm	-18.40 dB
5	5	2.6960 GHz	2.7150 GHz	1.000 MHz	2.696190000 GHz	-34.40 dBm	-9.399 dB

Plot 7-262. Upper ACP Plot (Band 41 - 5.0MHz QPSK - RB Size 25)



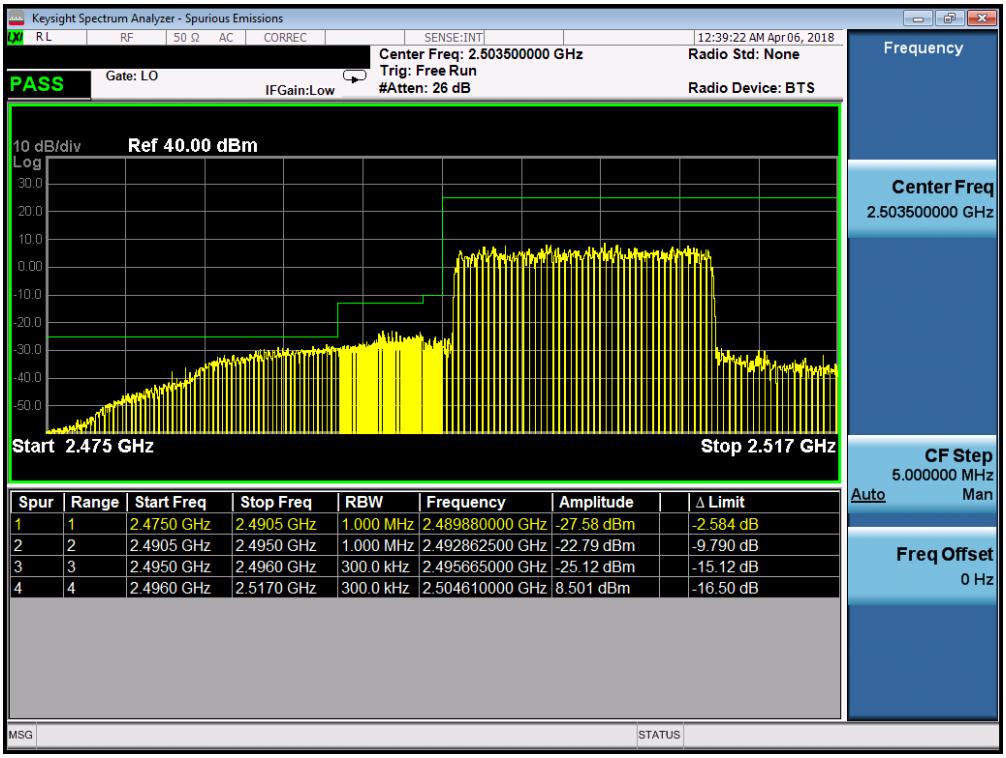
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490448333 GHz	-26.75 dBm	-1.746 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494992500 GHz	-23.98 dBm	-10.98 dB
3	3	2.4950 GHz	2.4960 GHz	220.0 kHz	2.495646667 GHz	-26.35 dBm	-16.35 dB
4	4	2.4960 GHz	2.5170 GHz	220.0 kHz	2.502335000 GHz	10.28 dBm	-14.72 dB

Plot 7-263. Lower ACP Plot at 2496 MHz (Band 41 - 10.0MHz QPSK - RB Size 25)

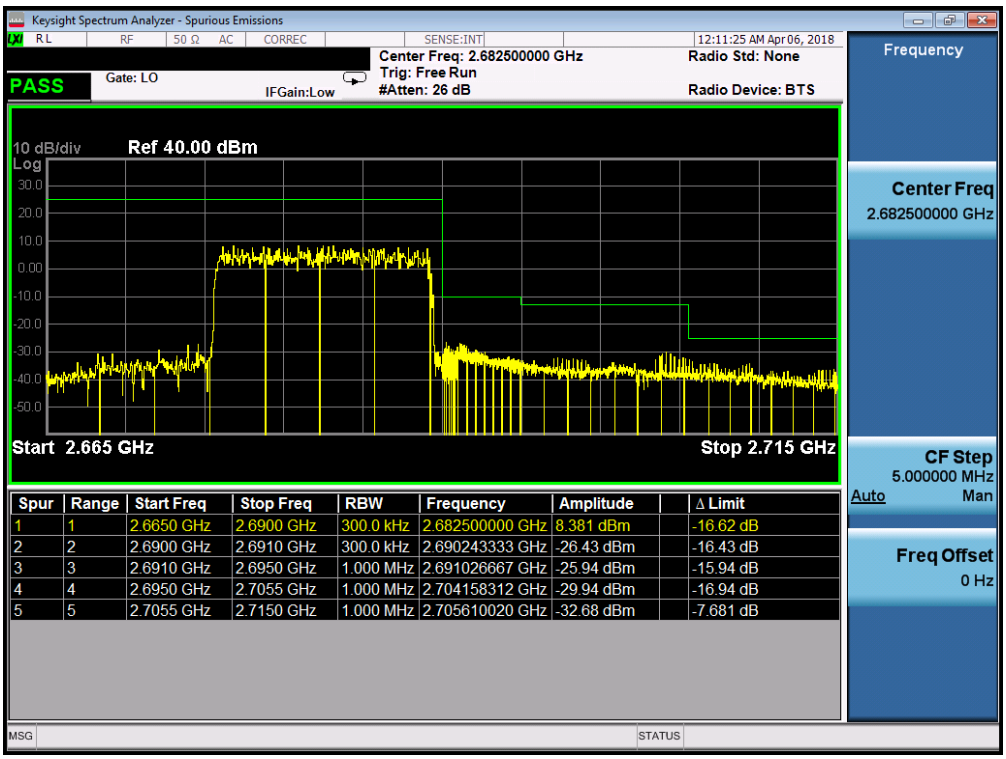


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	220.0 kHz	2.681541667 GHz	9.860 dBm	-15.14 dB
2	2	2.6900 GHz	2.6910 GHz	220.0 kHz	2.690153333 GHz	-25.05 dBm	-15.05 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691200000 GHz	-26.99 dBm	-16.99 dB
4	4	2.6950 GHz	2.7006 GHz	1.000 MHz	2.695696875 GHz	-30.77 dBm	-17.77 dB
5	5	2.7006 GHz	2.7150 GHz	1.000 MHz	2.700599042 GHz	-36.03 dBm	-11.03 dB

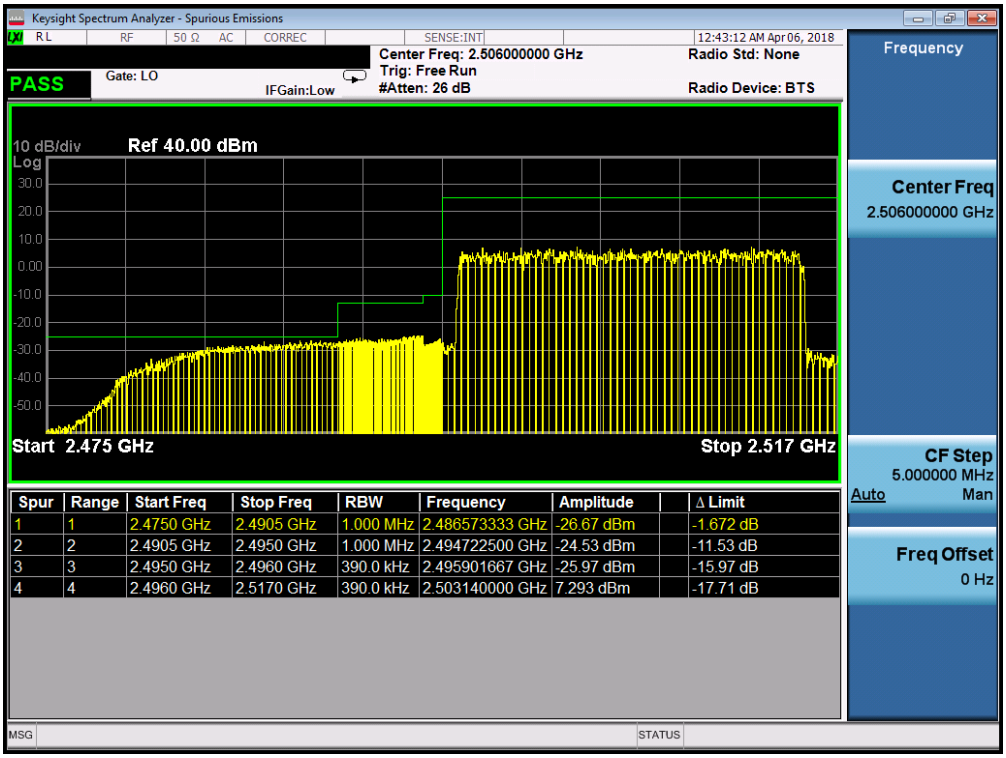
Plot 7-264. Upper ACP Plot (Band 41 - 10.0MHz QPSK - RB Size 25)



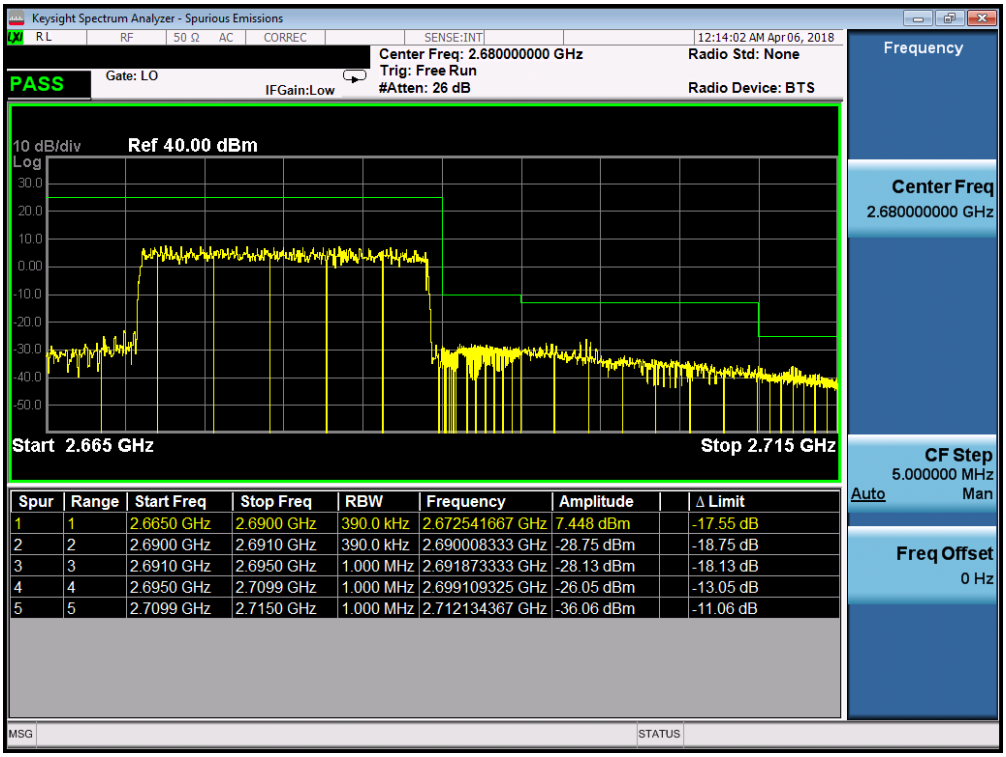
Plot 7-265. Lower ACP Plot at 2496 MHz (Band 41 - 15.0MHz QPSK - RB Size 25)



Plot 7-266. Upper ACP Plot (Band 41 - 15.0MHz QPSK - RB Size 25)

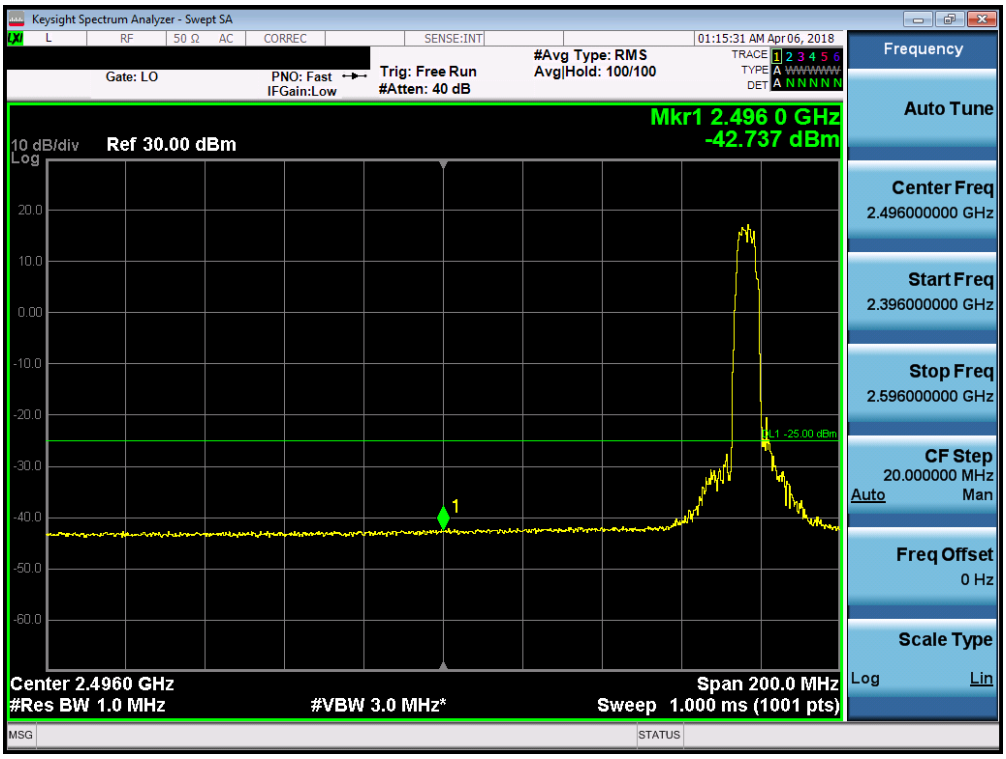


Plot 7-267. Lower ACP Plot at 2496 MHz (Band 41 - 20.0MHz QPSK - RB Size 25)

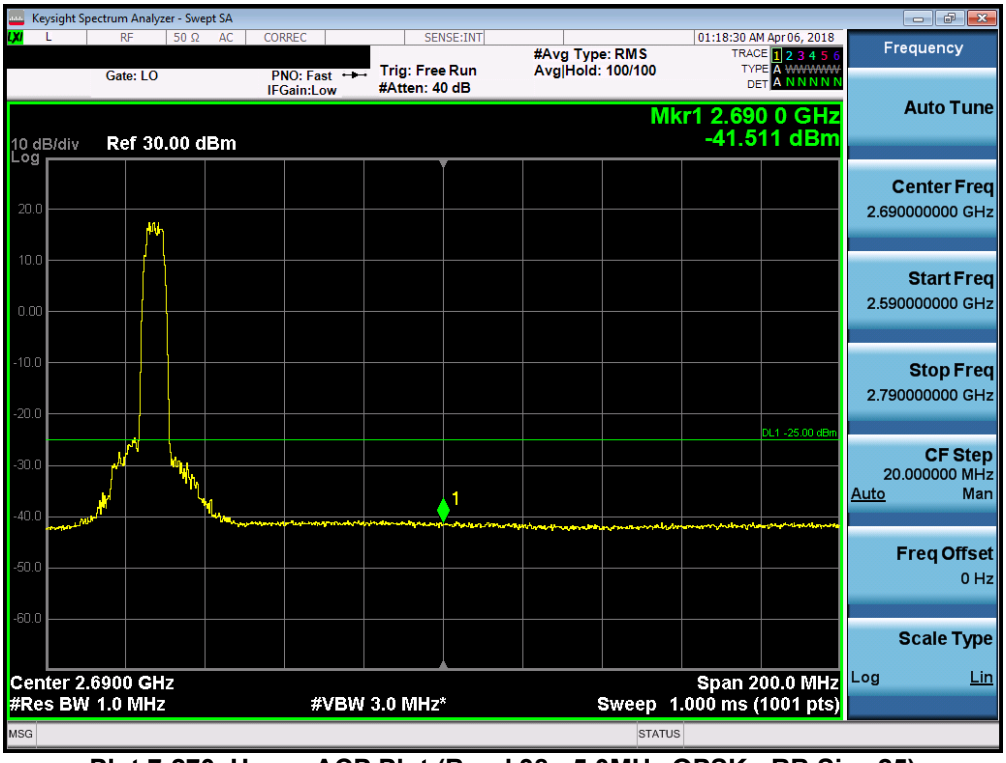


Plot 7-268. Upper ACP Plot (Band 41 - 20.0MHz QPSK - RB Size 25)

Band 38



Plot 7-269. Lower ACP Plot (Band 38 - 5.0MHz QPSK - RB Size 25)



Plot 7-270. Upper ACP Plot (Band 38 - 5.0MHz QPSK - RB Size 25)

Plot 7-271. Lower ACP Plot (Band 38 - 10.0MHz QPSK - RB Size 25)

Plot 7-272. Upper ACP Plot (Band 38 - 10.0MHz QPSK - RB Size 25)

Plot 7-273. Lower ACP Plot (Band 38 - 15.0MHz QPSK - RB Size 25)

Plot 7-274. Upper ACP Plot (Band 38 - 15.0MHz QPSK - RB Size 25)

Plot 7-275. Lower ACP Plot (Band 38 - 20.0MHz QPSK - RB Size 25)

Plot 7-276. Upper ACP Plot (Band 38 - 20.0MHz QPSK - RB Size 25)

7.5 Peak-Average Ratio

Test Overview

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

Test Procedure Used

KDB 971168 D01 v03 – Section 5.7.1

Test Settings

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

Test Setup

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

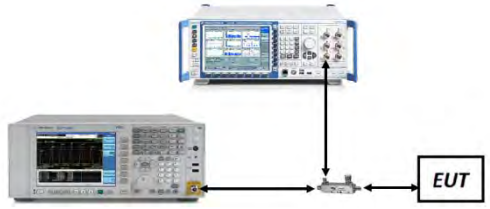
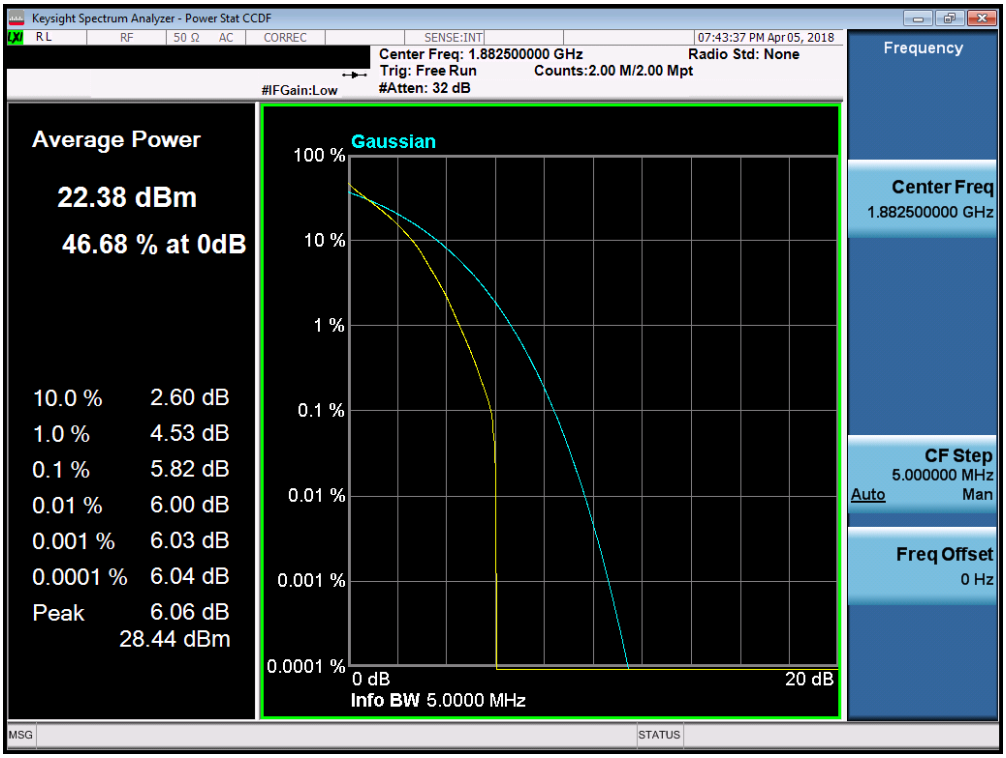


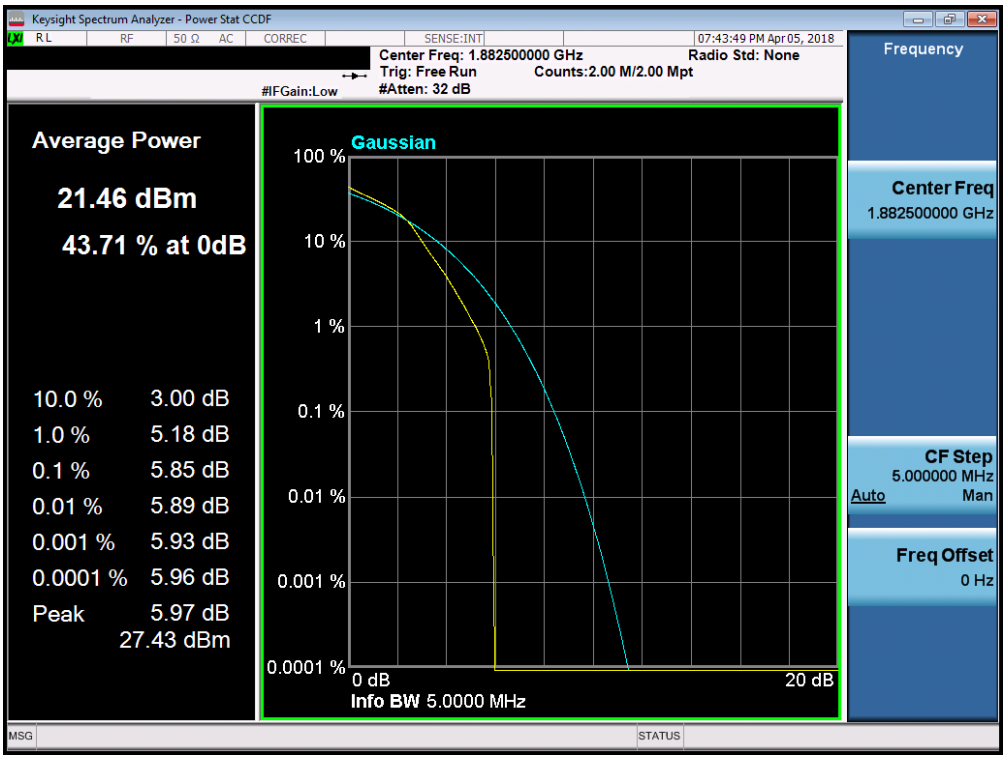
Figure 7-4. Test Instrument & Measurement Setup

Test Notes

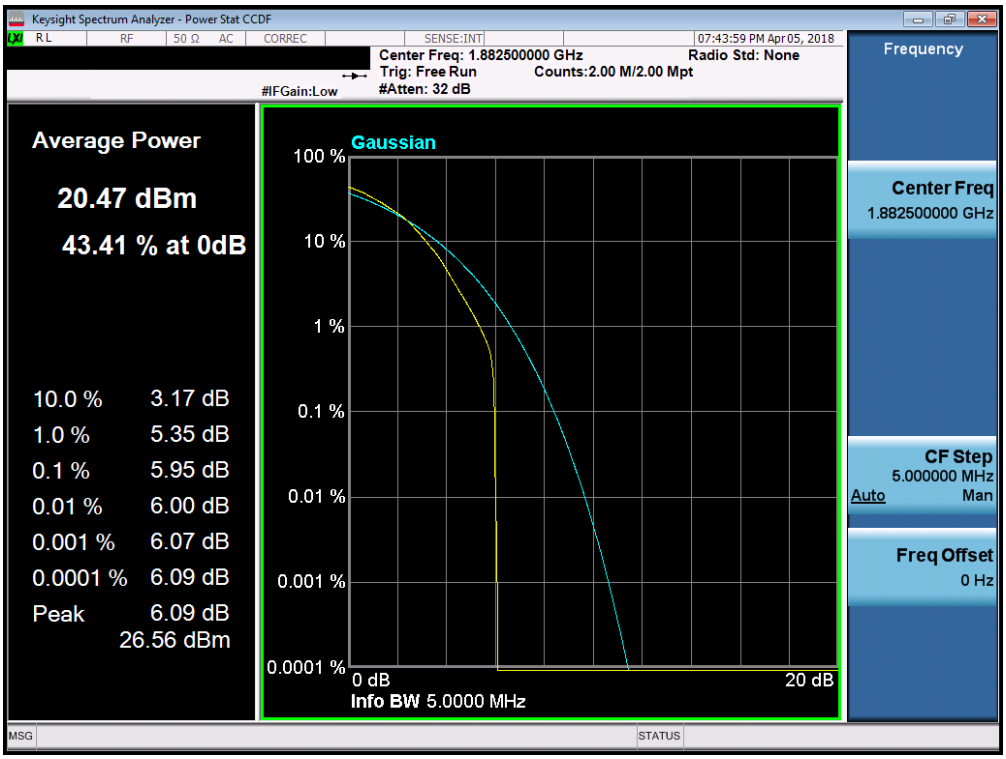
None.



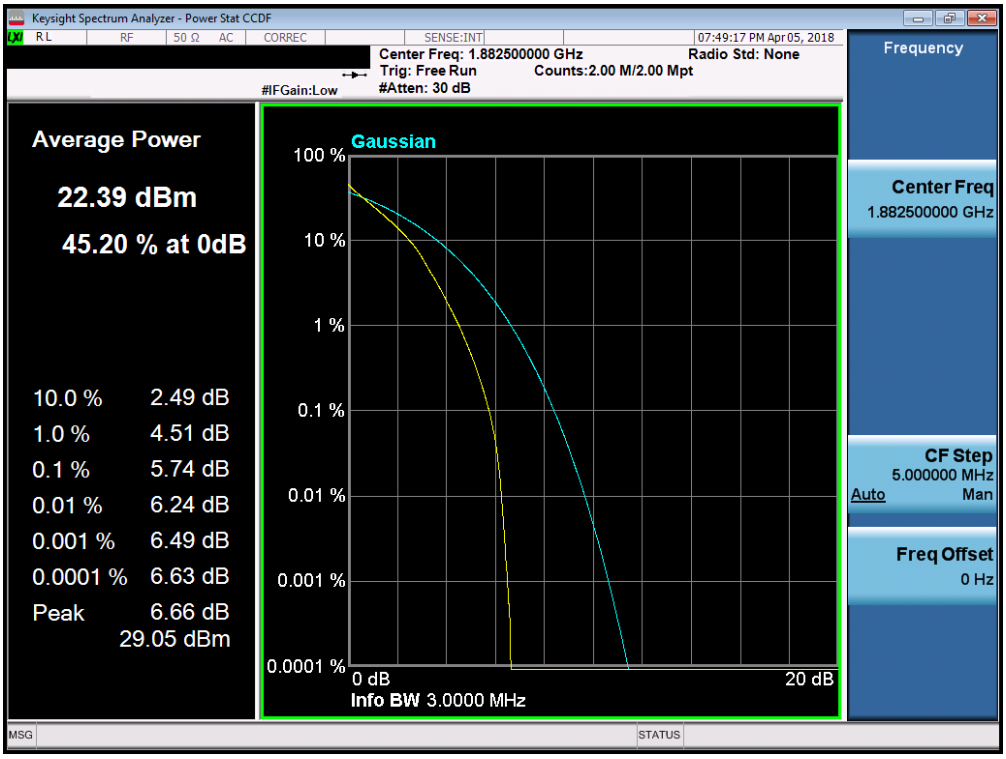
Plot 7-277. PAR Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)



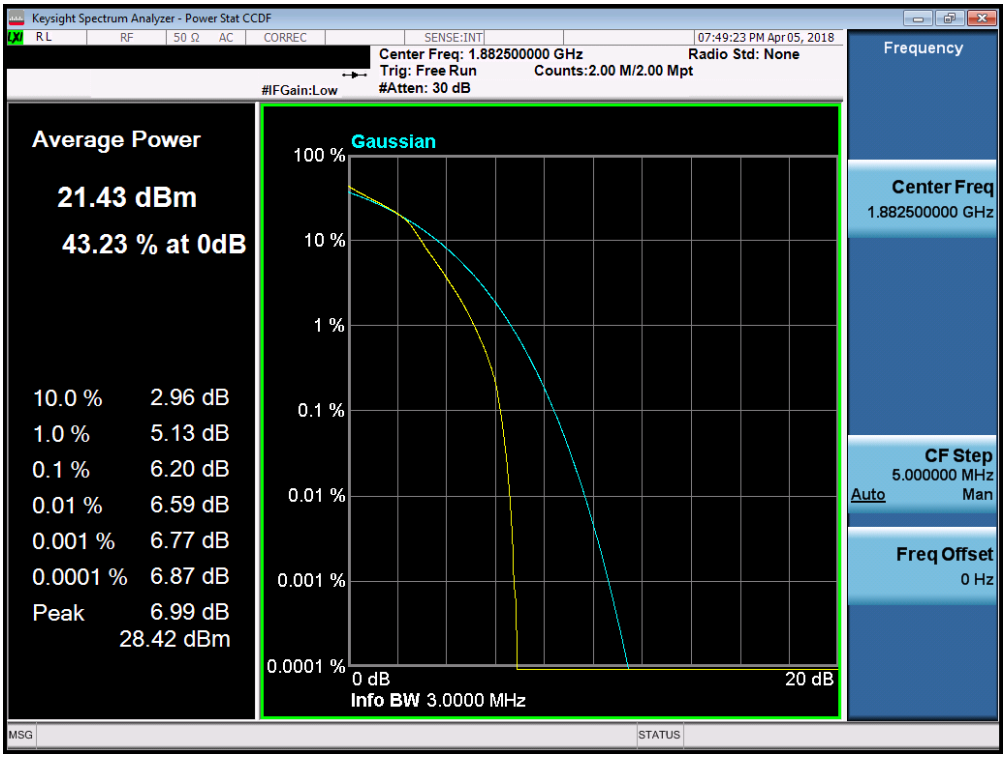
Plot 7-278. PAR Plot (Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)



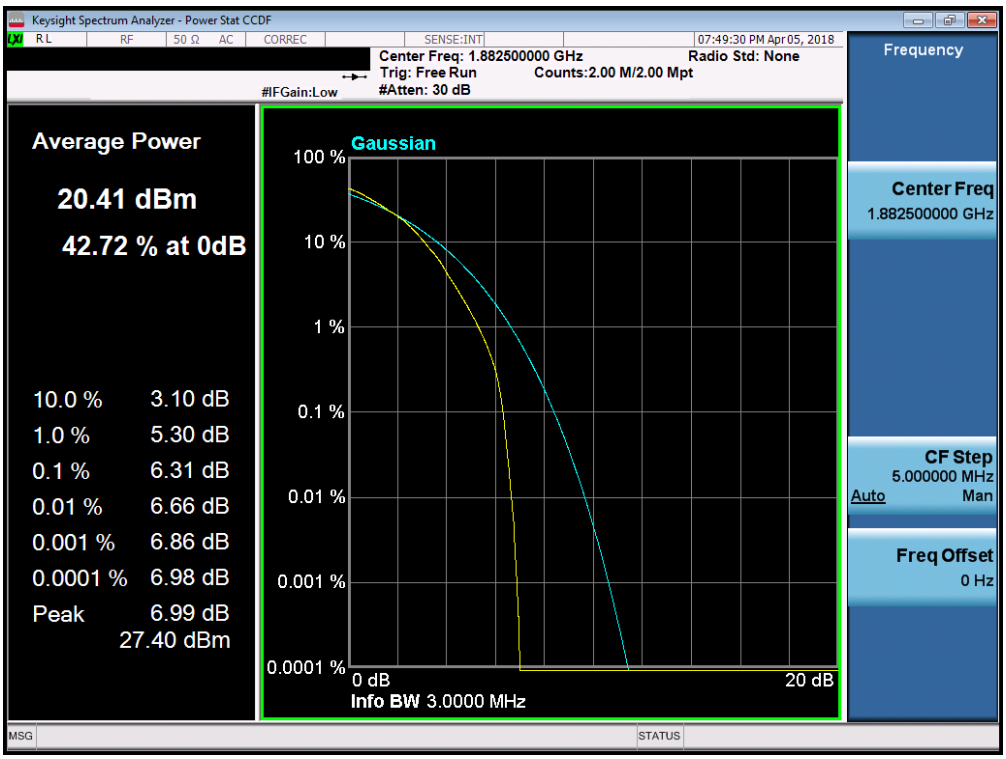
Plot 7-279. PAR Plot (Band 25/2 - 1.4MHz 64-QAM - Full RB Configuration)



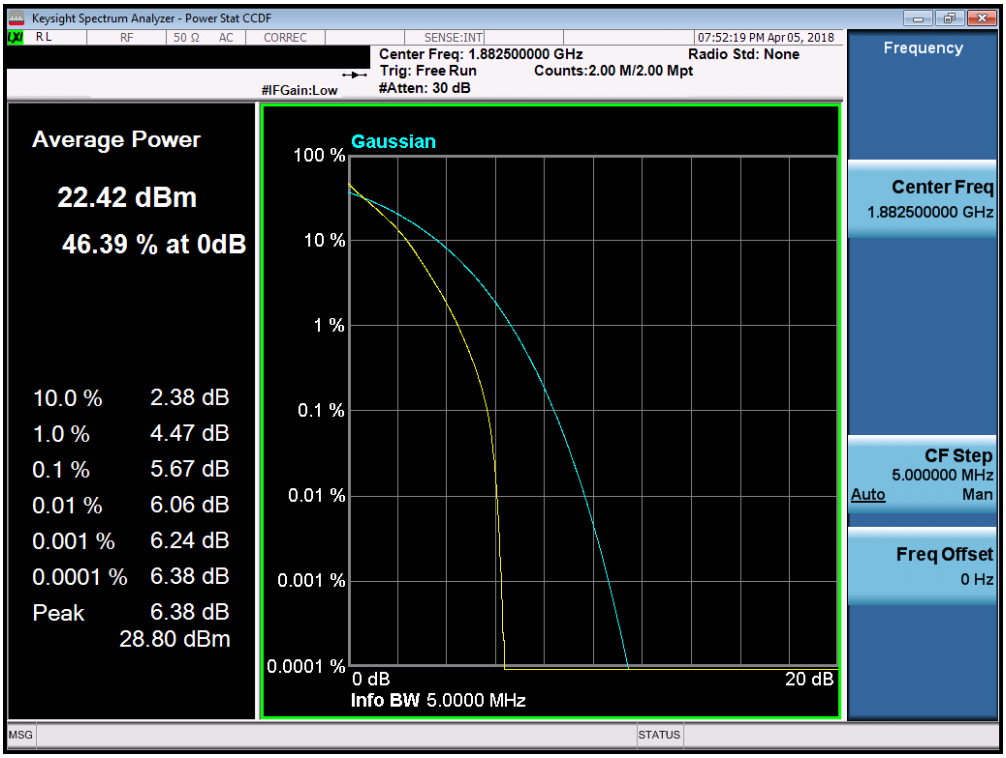
Plot 7-280. PAR Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)



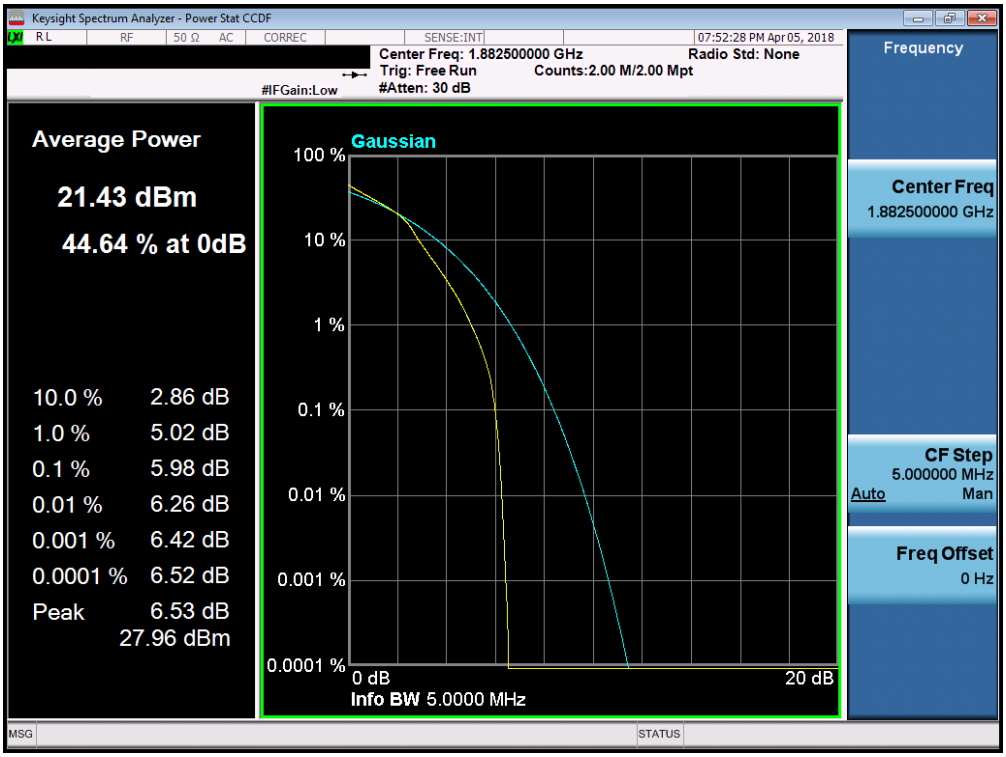
Plot 7-281. PAR Plot (Band 25/2 - 3.0MHz 16-QAM - Full RB Configuration)



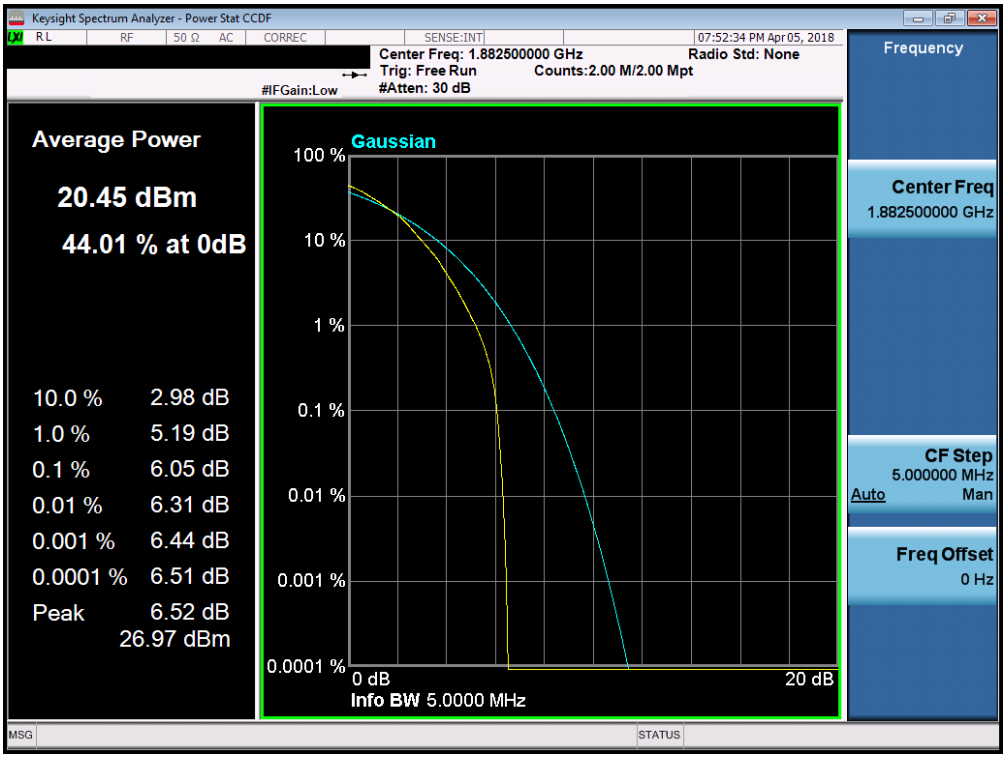
Plot 7-282. PAR Plot (Band 25/2 - 3.0MHz 64-QAM - Full RB Configuration)



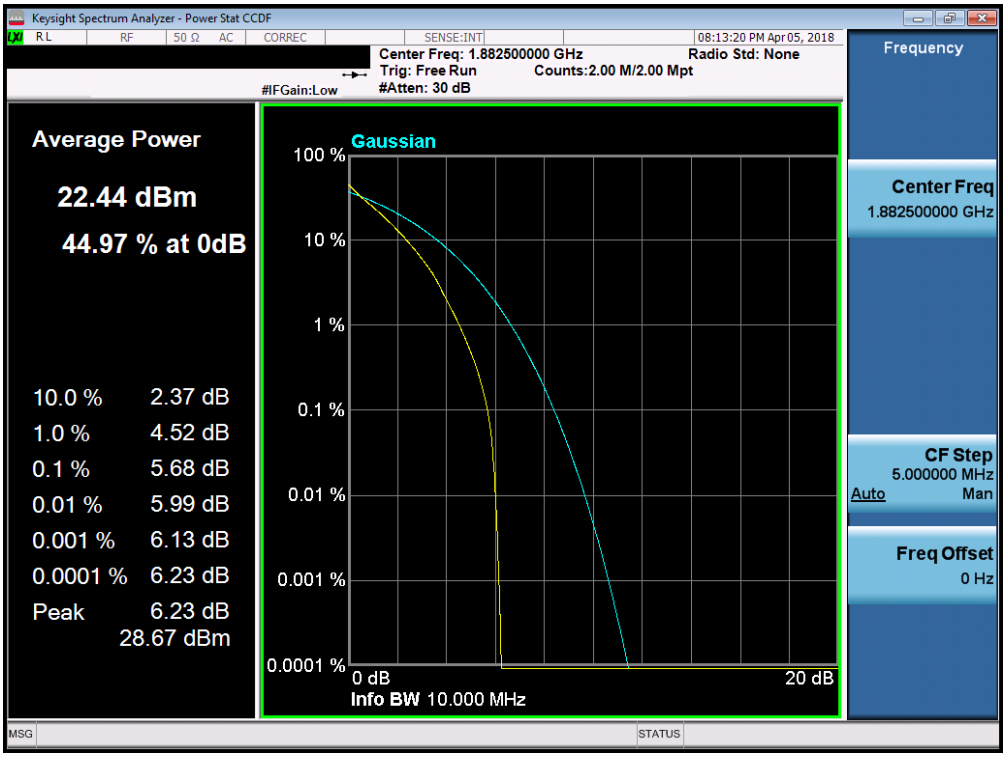
Plot 7-283. PAR Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)



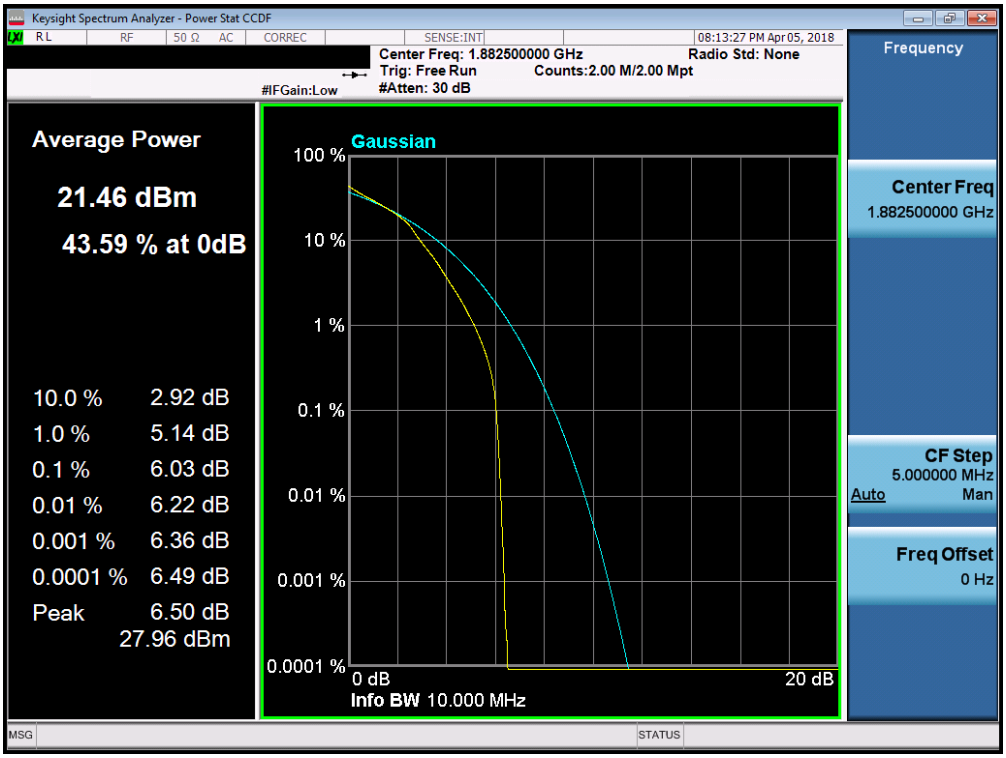
Plot 7-284. PAR Plot (Band 25/2 - 5.0MHz 16-QAM - Full RB Configuration)



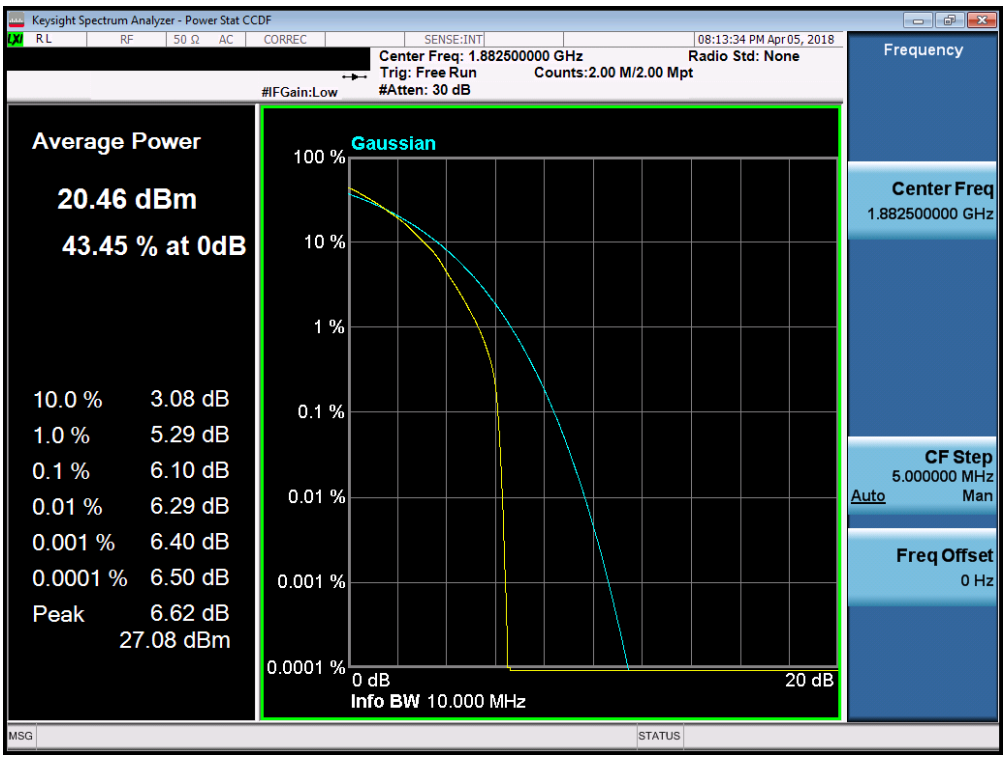
Plot 7-285. PAR Plot (Band 25/2 - 5.0MHz 64-QAM - Full RB Configuration)



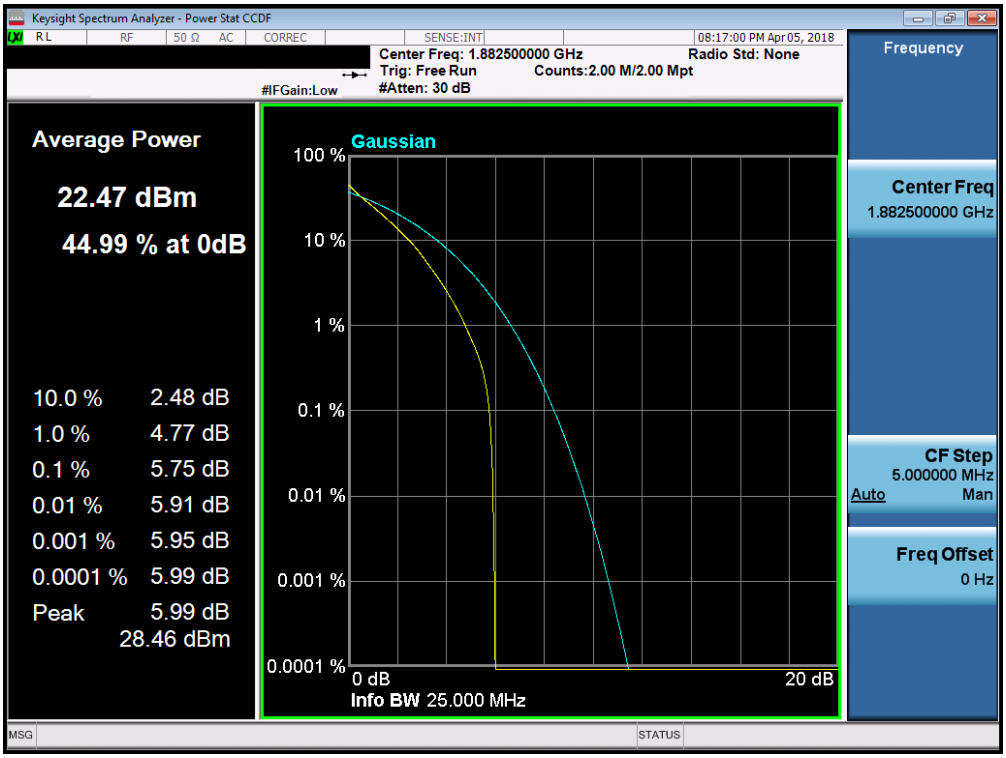
Plot 7-286. PAR Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)



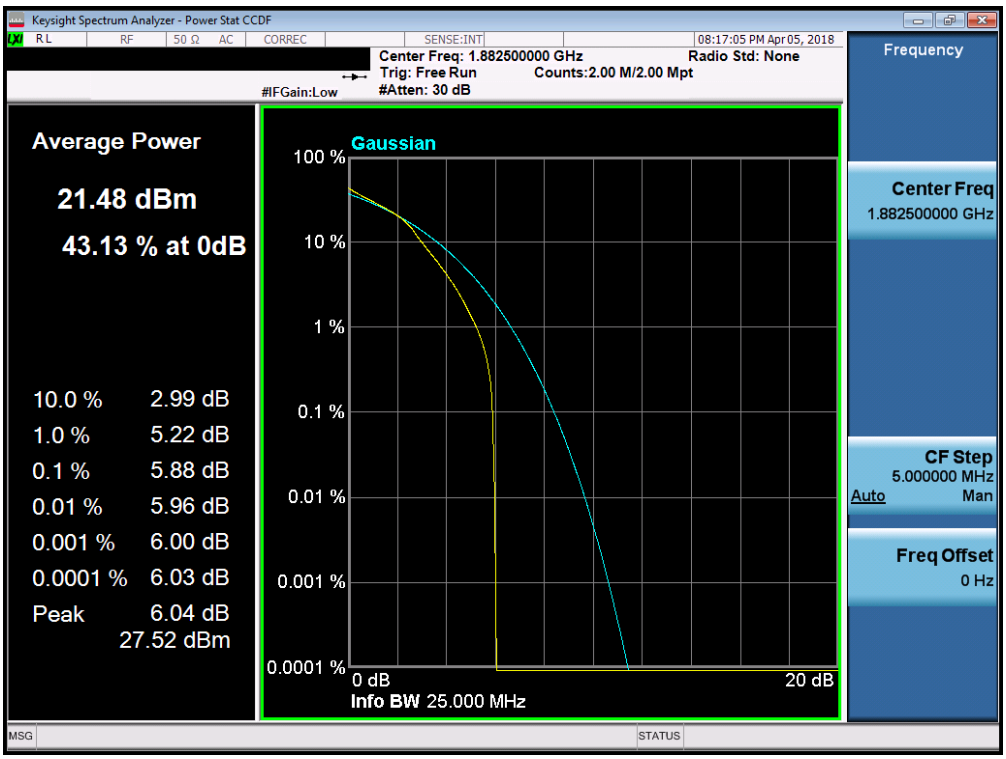
Plot 7-287. PAR Plot (Band 25/2 - 10.0MHz 16-QAM - Full RB Configuration)



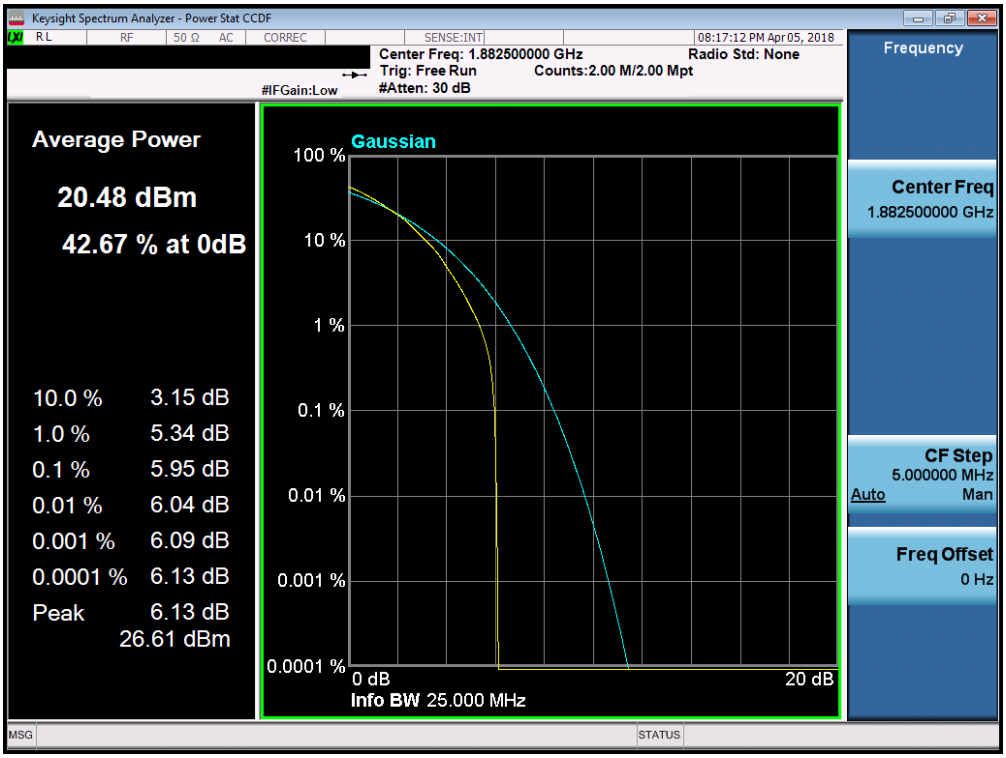
Plot 7-288. PAR Plot (Band 25/2 - 10.0MHz 64-QAM - Full RB Configuration)



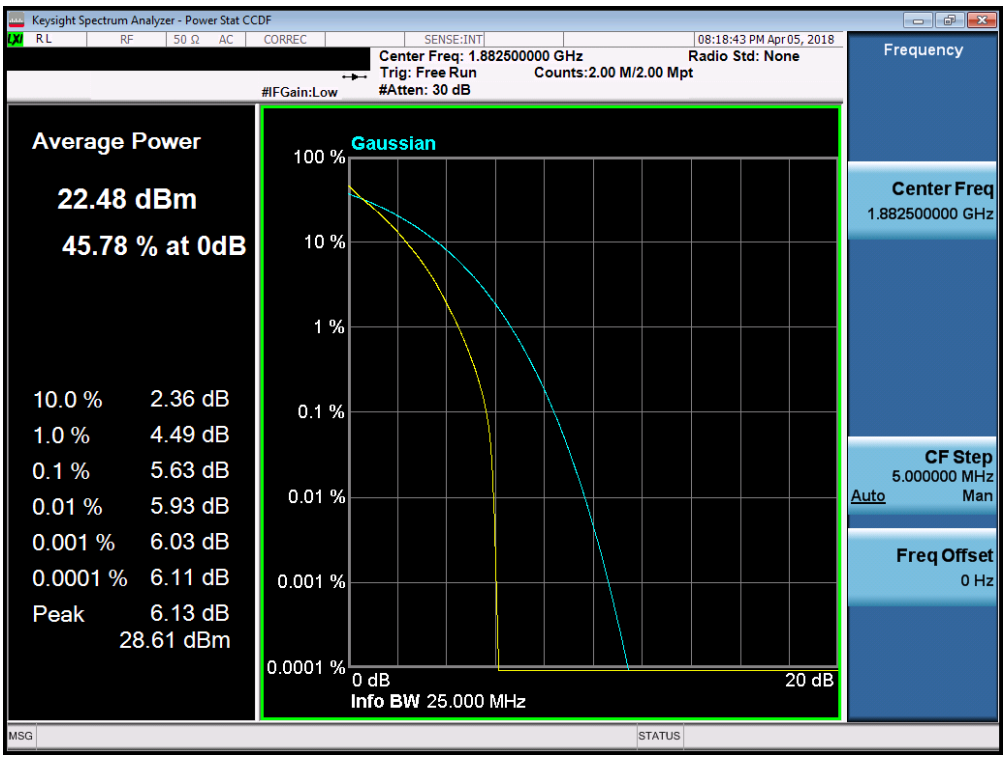
Plot 7-289. PAR Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)



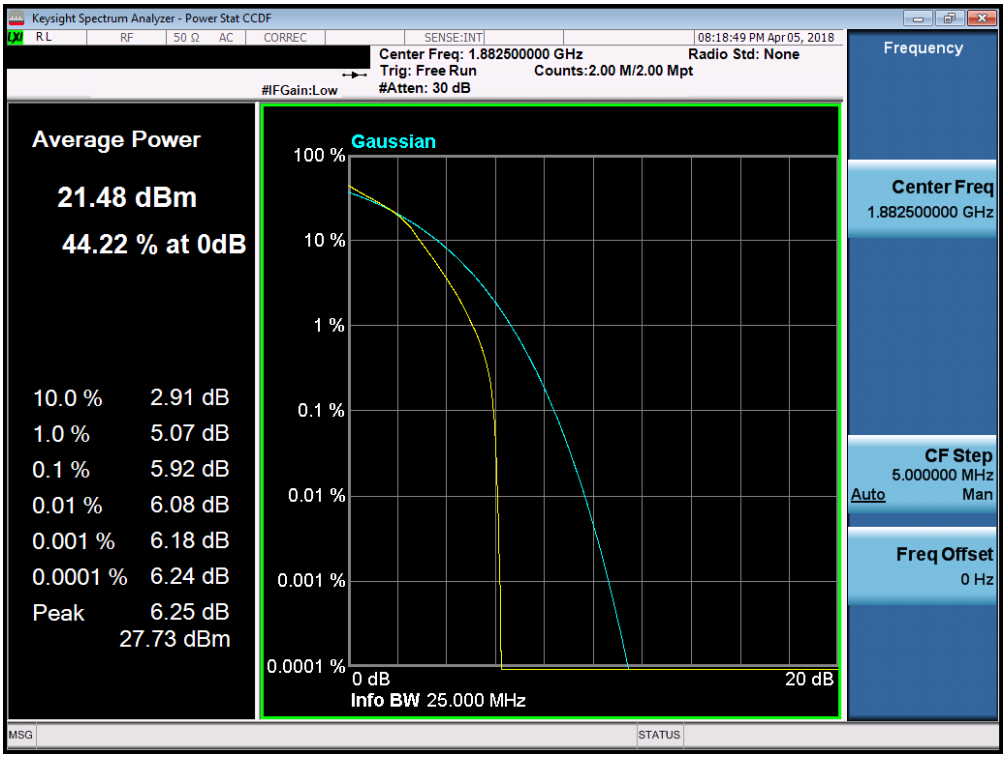
Plot 7-290. PAR Plot (Band 25/2 - 15.0MHz 16-QAM - Full RB Configuration)



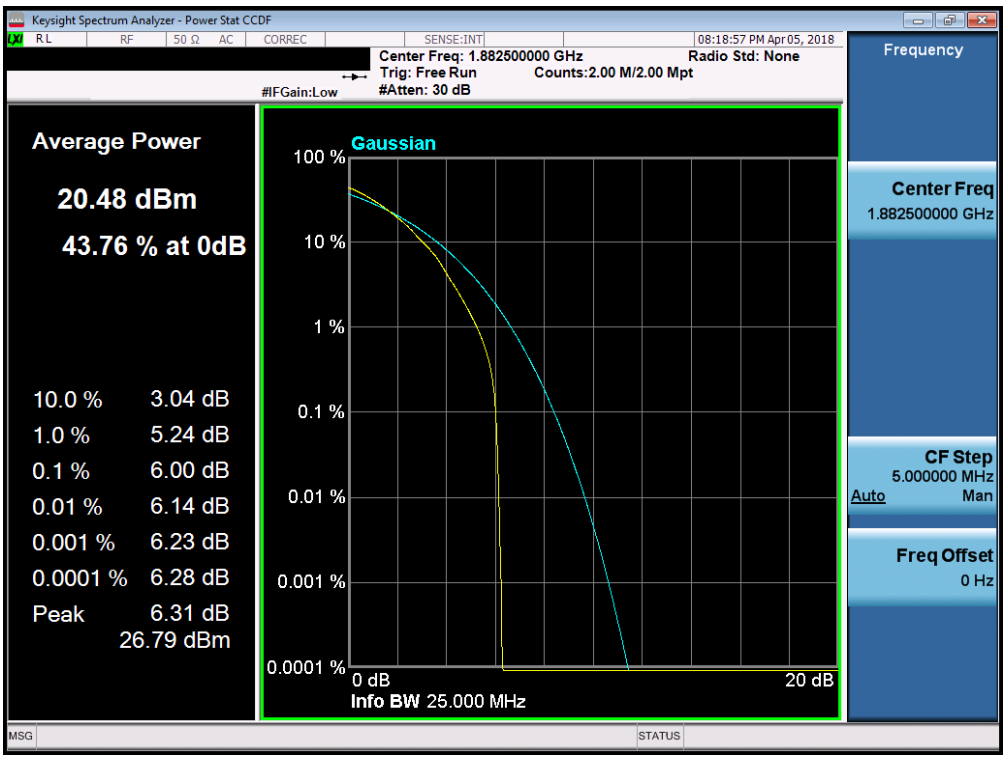
Plot 7-291. PAR Plot (Band 25/2 - 15.0MHz 64-QAM - Full RB Configuration)



Plot 7-292. PAR Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-293. PAR Plot (Band 25/2 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-294. PAR Plot (Band 25/2 - 20.0MHz 64-QAM - Full RB Configuration)

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 v03 – Section 5.2.1

ANSI/TIA-603-E-2016 – Section 2.2.17

Test Settings

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

Test Setup

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

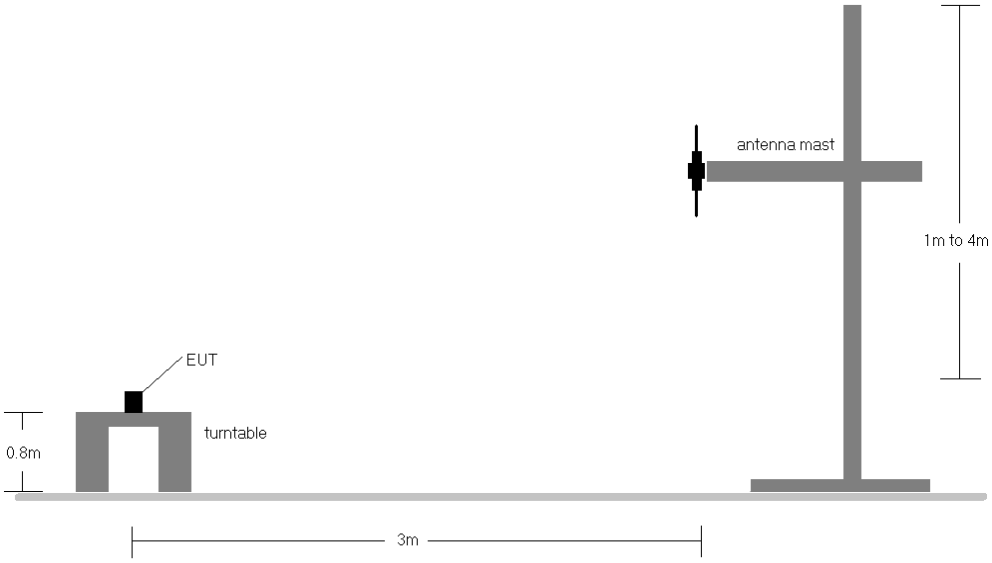


Figure 7-5. Radiated Test Setup <1GHz

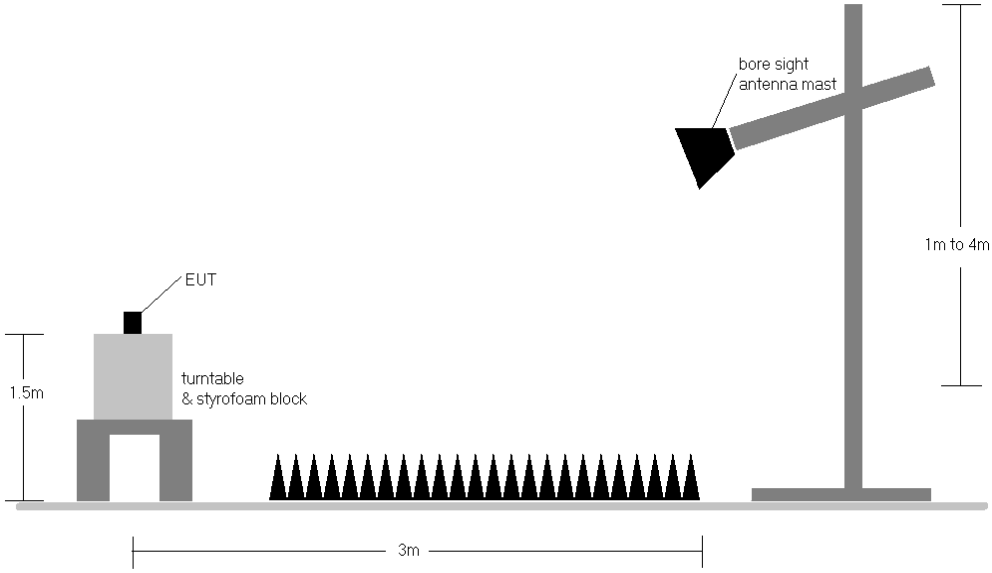


Figure 7-6. Radiated Test Setup >1GHz

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.

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]
699.70	1.4	QPSK	V	150	232	1 / 5	14.95	1.10	13.90	0.025	34.77	-20.87
707.50	1.4	QPSK	V	150	234	1 / 5	15.35	1.13	14.33	0.027	34.77	-20.44
715.30	1.4	QPSK	V	150	243	1 / 5	15.73	1.16	**14.74**	0.030	34.77	-20.03
715.30	1.4	16-QAM	V	150	243	1 / 5	14.29	1.16	**13.30**	0.021	34.77	-21.47
715.30	1.4	64-QAM	V	150	243	1 / 5	13.18	1.16	**12.19**	0.017	34.77	-22.58
700.50	3	QPSK	V	150	238	1 / 14	14.99	1.10	13.94	0.025	34.77	-20.83
707.50	3	QPSK	V	150	245	1 / 14	15.30	1.13	14.28	0.027	34.77	-20.49
714.50	3	QPSK	V	150	236	1 / 14	15.74	1.16	**14.75**	**0.030**	34.77	-20.02
714.50	3	16-QAM	V	150	236	1 / 14	14.33	1.16	**13.34**	0.022	34.77	-21.43
714.50	3	64-QAM	V	150	236	1 / 14	13.25	1.16	**12.26**	0.017	34.77	-22.51
714.50	3	QPSK	H	150	10	1 / 14	15.21	1.16	14.22	0.026	34.77	-20.55
714.50	3 (WCP)	QPSK	V	150	340	1 / 14	11.49	1.16	10.50	0.011	34.77	-24.27

Table 7-3. 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]
701.50	5	QPSK	V	150	235	1 / 24	15.27	1.11	14.23	0.026	34.77	-20.55
707.50	5	QPSK	V	150	230	1 / 24	15.31	1.13	14.29	0.027	34.77	-20.48
713.50	5	QPSK	V	150	240	1 / 24	15.63	1.15	**14.63**	0.029	34.77	-20.14
713.50	5	16-QAM	V	150	240	1 / 24	14.39	1.15	**13.39**	0.022	34.77	-21.38
713.50	5	64-QAM	V	150	240	1 / 24	13.33	1.15	**12.33**	0.017	34.77	-22.44
704.00	10	QPSK	V	150	241	1 / 49	15.44	1.12	14.41	0.028	34.77	-20.36
707.50	10	QPSK	V	150	239	1 / 49	15.66	1.13	**14.64**	0.029	34.77	-20.13
711.00	10	QPSK	V	150	226	1 / 49	15.52	1.14	14.51	0.028	34.77	-20.26
707.50	10	16-QAM	V	150	239	1 / 49	14.54	1.13	**13.52**	0.022	34.77	-21.25
707.50	10	64-QAM	V	150	239	1 / 49	13.30	1.13	**12.28**	0.017	34.77	-22.49

Table 7-4. ERP Data (Band 12/17)

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]
779.50	5	QPSK	V	150	245	1 / 24	17.64	1.32	**16.81**	**0.048**	34.77	-17.96
782.00	5	QPSK	V	150	247	1 / 24	17.44	1.33	16.62	0.046	34.77	-18.15
784.50	5	QPSK	V	150	239	1 / 24	17.28	1.34	16.47	0.044	34.77	-18.30
779.50	5	16-QAM	V	150	245	1 / 24	16.16	1.32	**15.33**	0.034	34.77	-19.44
779.50	5	64-QAM	V	150	245	1 / 24	15.26	1.32	**14.43**	0.028	34.77	-20.34
782.00	10	QPSK	V	150	244	1 / 0	17.56	1.33	**16.74**	0.047	34.77	-18.03
782.00	10	16-QAM	V	150	244	1 / 0	16.34	1.33	**15.52**	0.036	34.77	-19.25
782.00	10	64-QAM	V	150	244	1 / 0	15.27	1.33	**14.45**	0.028	34.77	-20.32
779.50	5	QPSK	H	150	271	1 / 24	15.49	1.32	14.66	0.029	34.77	-20.11
779.50	5 (WCP)	QPSK	V	150	339	1 / 24	14.57	1.32	13.74	0.024	34.77	-21.03

Table 7-5. ERP Data (Band 13)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	H	150	288	1 / 0	21.28	1.50	20.63	0.116	38.45	-17.82
836.50	1.4	QPSK	H	150	290	1 / 0	21.36	1.50	**20.71**	0.118	38.45	-17.74
848.30	1.4	QPSK	H	150	288	1 / 0	20.59	1.50	19.94	0.099	38.45	-18.51
836.50	1.4	16-QAM	H	150	290	1 / 0	20.63	1.50	**19.98**	0.100	38.45	-18.47
824.70	1.4	64-QAM	H	150	288	1 / 0	19.53	1.50	**18.88**	0.077	38.45	-19.57
825.50	3	QPSK	H	150	293	1 / 14	21.46	1.50	**20.81**	**0.121**	38.45	-17.64
836.50	3	QPSK	H	150	291	1 / 14	20.93	1.50	20.28	0.107	38.45	-18.17
847.50	3	QPSK	H	150	292	1 / 14	20.64	1.50	19.99	0.100	38.45	-18.46
825.50	3	16-QAM	H	150	293	1 / 14	20.63	1.50	**19.98**	0.100	38.45	-18.47
825.50	3	64-QAM	H	150	293	1 / 14	19.41	1.50	**18.76**	0.075	38.45	-19.69
826.50	5	QPSK	H	150	292	1 / 24	20.99	1.50	**20.34**	0.108	38.45	-18.11
836.50	5	QPSK	H	150	287	1 / 24	20.82	1.50	20.17	0.104	38.45	-18.28
846.50	5	QPSK	H	150	290	1 / 24	20.42	1.50	19.77	0.095	38.45	-18.68
826.50	5	16-QAM	H	150	292	1 / 24	20.21	1.50	**19.56**	0.090	38.45	-18.89
826.50	5	64-QAM	H	150	292	1 / 24	19.20	1.50	**18.55**	0.072	38.45	-19.90
829.00	10	QPSK	H	150	287	1 / 49	20.72	1.50	20.07	0.102	38.45	-18.38
836.50	10	QPSK	H	150	292	1 / 49	20.87	1.50	**20.22**	0.105	38.45	-18.23
844.00	10	QPSK	H	150	290	1 / 49	20.47	1.50	19.82	0.096	38.45	-18.63
836.50	10	16-QAM	H	150	292	1 / 49	20.33	1.50	**19.68**	0.093	38.45	-18.77
836.50	10	64-QAM	H	150	292	1 / 49	19.09	1.50	**18.44**	0.070	38.45	-20.01
825.50	3	QPSK	V	150	264	1 / 14	17.16	1.50	16.51	0.045	38.45	-21.94
825.50	3 (WCP)	QPSK	H	150	277	1 / 14	18.54	1.50	17.89	0.062	38.45	-20.56

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]
831.50	15	QPSK	H	150	281	1 / 74	20.49	1.50	19.84	0.096	38.45	-18.61
836.50	15	QPSK	H	150	286	1 / 74	20.65	1.50	**20.00**	0.100	38.45	-18.45
841.50	15	QPSK	H	150	287	1 / 74	20.36	1.50	19.71	0.094	38.45	-18.74
836.50	15	16-QAM	H	150	286	1 / 74	19.85	1.50	**19.20**	0.083	38.45	-19.25
836.50	15	64-QAM	H	150	286	1 / 74	18.85	1.50	**18.20**	0.066	38.45	-20.25

Table 7-7. ERP Data (Band 26)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	H	150	337	1 / 0	17.98	5.56	23.54	0.226	30.00	-6.46
1745.00	1.4	QPSK	H	150	342	1 / 0	18.43	5.32	**23.75**	0.237	30.00	-6.25
1779.30	1.4	QPSK	H	150	344	1 / 0	18.08	5.09	23.17	0.208	30.00	-6.83
1745.00	1.4	16-QAM	H	150	342	1 / 0	17.66	5.32	**22.98**	0.199	30.00	-7.02
1745.00	1.4	64-QAM	H	150	342	1 / 0	16.37	5.32	**21.69**	0.148	30.00	-8.31
1745.00	3	QPSK	H	150	351	1 / 14	17.99	5.32	23.31	0.214	30.00	-6.69
1778.50	3	QPSK	H	150	337	1 / 14	18.45	5.10	**23.55**	0.226	30.00	-6.45
1711.50	3	16-QAM	H	150	339	1 / 14	17.38	5.55	**22.93**	0.196	30.00	-7.07
1711.50	3	64-QAM	H	150	339	1 / 14	16.23	5.55	**21.78**	0.151	30.00	-8.22
1712.50	5	QPSK	H	150	340	1 / 24	17.85	5.55	23.40	0.219	30.00	-6.60
1745.00	5	QPSK	H	150	355	1 / 24	17.56	5.32	22.88	0.194	30.00	-7.12
1777.50	5	QPSK	H	150	342	1 / 24	18.59	5.10	**23.69**	0.234	30.00	-6.31
1777.50	5	16-QAM	H	150	342	1 / 24	17.88	5.10	**22.98**	0.199	30.00	-7.02
1777.50	5	64-QAM	H	150	342	1 / 24	16.77	5.10	**21.87**	0.154	30.00	-8.13
1715.00	10	QPSK	H	150	340	1 / 49	17.82	5.53	23.35	0.216	30.00	-6.65
1745.00	10	QPSK	H	150	345	1 / 49	18.40	5.32	23.72	0.236	30.00	-6.28
1775.00	10	QPSK	H	150	352	1 / 49	18.89	5.12	**24.01**	0.252	30.00	-5.99
1775.00	10	16-QAM	H	150	352	1 / 49	17.92	5.12	**23.04**	0.201	30.00	-6.96
1775.00	10	64-QAM	H	150	352	1 / 49	17.07	5.12	**22.19**	0.166	30.00	-7.81
1717.50	15	QPSK	H	150	342	1 / 74	17.98	5.51	23.49	0.223	30.00	-6.51
1745.00	15	QPSK	H	150	354	1 / 74	17.94	5.32	23.26	0.212	30.00	-6.74
1772.50	15	QPSK	H	150	344	1 / 74	18.52	5.14	**23.66**	0.232	30.00	-6.34
1772.50	15	16-QAM	H	150	344	1 / 74	17.77	5.14	**22.91**	0.195	30.00	-7.09
1772.50	15	64-QAM	H	150	344	1 / 74	16.79	5.14	**21.93**	0.156	30.00	-8.07
1720.00	20	QPSK	H	150	341	1 / 99	17.98	5.49	23.47	0.223	30.00	-6.53
1745.00	20	QPSK	H	150	343	1 / 0	17.73	5.32	23.05	0.202	30.00	-6.95
1770.00	20	QPSK	H	150	349	1 / 99	18.88	5.15	**24.03**	**0.253**	30.00	-5.97
1770.00	20	16-QAM	H	150	349	1 / 99	17.04	5.15	**22.19**	0.166	30.00	-7.81
1770.00	20	64-QAM	H	150	349	1 / 99	15.85	5.15	**21.00**	0.126	30.00	-9.00
1770.00	20	QPSK	V	150	132	1 / 99	15.06	5.15	20.21	0.105	30.00	-9.79
1770.00	20 (WCP)	QPSK	H	150	111	1 / 99	18.70	5.15	23.85	0.243	30.00	-6.15

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

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	H	150	356	1 / 0	18.90	4.82	**23.72**	0.235	33.01	-9.29
1882.50	1.4	QPSK	H	150	354	1 / 0	18.72	4.73	23.45	0.221	33.01	-9.56
1914.30	1.4	QPSK	H	150	349	1 / 0	18.50	4.68	23.18	0.208	33.01	-9.83
1850.70	1.4	16-QAM	H	150	356	1 / 0	18.00	4.82	**22.82**	0.191	33.01	-10.19
1850.70	1.4	64-QAM	H	150	356	1 / 0	17.08	4.82	**21.90**	0.155	33.01	-11.11
1851.50	3	QPSK	H	150	354	1 / 0	19.29	4.82	**24.11**	0.257	33.01	-8.90
1882.50	3	QPSK	H	150	349	1 / 0	19.16	4.73	23.89	0.245	33.01	-9.12
1913.50	3	QPSK	H	150	344	1 / 0	18.96	4.68	23.64	0.231	33.01	-9.37
1851.50	3	16-QAM	H	150	354	1 / 0	18.59	4.82	**23.41**	0.219	33.01	-9.60
1851.50	3	64-QAM	H	150	354	1 / 0	17.17	4.82	**21.99**	0.158	33.01	-11.02
1852.50	5	QPSK	H	150	360	1 / 24	18.72	4.81	**23.53**	0.226	33.01	-9.48
1882.50	5	QPSK	H	150	359	1 / 24	18.25	4.73	22.98	0.199	33.01	-10.03
1912.50	5	QPSK	H	150	358	1 / 24	17.83	4.68	22.51	0.178	33.01	-10.50
1852.50	5	16-QAM	H	150	360	1 / 24	17.94	4.81	**22.75**	0.188	33.01	-10.26
1852.50	5	64-QAM	H	150	360	1 / 24	16.57	4.81	**21.38**	0.137	33.01	-11.63
1855.00	10	QPSK	H	150	342	1 / 49	19.69	4.81	**24.50**	**0.282**	33.01	-8.51
1882.50	10	QPSK	H	150	343	1 / 49	19.42	4.73	24.15	0.260	33.01	-8.86
1910.00	10	QPSK	H	150	341	1 / 49	19.17	4.68	23.85	0.243	33.01	-9.16
1855.00	10	16-QAM	H	150	342	1 / 49	18.86	4.81	**23.67**	0.233	33.01	-9.34
1855.00	10	64-QAM	H	150	342	1 / 49	17.86	4.81	**22.67**	0.185	33.01	-10.34
1857.50	15	QPSK	H	150	346	1 / 74	19.62	4.80	**24.42**	0.277	33.01	-8.59
1882.50	15	QPSK	H	150	341	1 / 74	19.57	4.73	24.30	0.269	33.01	-8.71
1907.50	15	QPSK	H	150	336	1 / 74	19.14	4.68	23.82	0.241	33.01	-9.19
1857.50	15	16-QAM	H	150	346	1 / 74	18.80	4.80	**23.60**	0.229	33.01	-9.41
1857.50	15	64-QAM	H	150	346	1 / 74	17.75	4.80	**22.55**	0.180	33.01	-10.46
1860.00	20	QPSK	H	150	334	1 / 99	19.16	4.79	23.95	0.248	33.01	-9.06
1882.50	20	QPSK	H	150	339	1 / 99	19.42	4.73	**24.15**	0.260	33.01	-8.86
1905.00	20	QPSK	H	150	340	1 / 99	19.10	4.68	23.78	0.239	33.01	-9.23
1882.50	20	16-QAM	H	150	339	1 / 99	18.75	4.73	**23.48**	0.223	33.01	-9.53
1882.50	20	64-QAM	H	150	339	1 / 99	17.55	4.73	**22.28**	0.169	33.01	-10.73
1855.00	10	QPSK	V	150	285	1 / 49	16.73	4.81	21.54	0.142	33.01	-11.47
1855.00	10 (WCP)	QPSK	H	150	351	1 / 49	19.28	4.81	24.09	0.256	33.01	-8.92

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

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2502.50	5	QPSK	V	150	284	1 / 0	17.12	5.74	22.86	0.193	33.01	-10.15
2535.00	5	QPSK	V	150	284	1 / 0	17.84	5.86	**23.70**	0.234	33.01	-9.31
2567.50	5	QPSK	V	150	284	1 / 0	17.27	5.98	23.25	0.211	33.01	-9.76
2535.00	5	16-QAM	V	150	284	1 / 0	16.59	5.86	**22.45**	0.176	33.01	-10.56
2535.00	5	64-QAM	V	150	284	1 / 0	15.64	5.86	**21.50**	0.141	33.01	-11.51
2505.00	10	QPSK	V	150	273	1 / 0	17.45	5.75	23.20	0.209	33.01	-9.81
2535.00	10	QPSK	V	150	273	1 / 0	17.98	5.86	**23.84**	0.242	33.01	-9.17
2565.00	10	QPSK	V	150	273	1 / 0	17.70	5.97	23.67	0.233	33.01	-9.34
2535.00	10	16-QAM	V	150	273	1 / 0	16.63	5.86	**22.49**	0.177	33.01	-10.52
2535.00	10	64-QAM	V	150	273	1 / 0	15.72	5.86	**21.58**	0.144	33.01	-11.43
2507.50	15	QPSK	V	150	278	1 / 0	17.65	5.76	23.41	0.219	33.01	-9.60
2535.00	15	QPSK	V	150	278	1 / 0	17.95	5.86	**23.81**	0.240	33.01	-9.20
2562.50	15	QPSK	V	150	274	1 / 0	17.68	5.96	23.64	0.231	33.01	-9.37
2535.00	15	16-QAM	V	150	278	1 / 0	16.59	5.86	**22.45**	0.176	33.01	-10.56
2535.00	15	64-QAM	V	150	278	1 / 0	15.90	5.86	**21.76**	0.150	33.01	-11.25
2510.00	20	QPSK	V	150	275	1 / 0	17.57	5.77	23.34	0.216	33.01	-9.67
2535.00	20	QPSK	V	150	275	1 / 0	18.21	5.86	**24.07**	**0.255**	33.01	-8.94
2560.00	20	QPSK	V	150	275	1 / 0	17.74	5.95	23.69	0.234	33.01	-9.32
2535.00	20	16-QAM	V	150	276	1 / 0	16.78	5.86	**22.64**	0.184	33.01	-10.37
2535.00	20	64-QAM	V	150	276	1 / 0	15.82	5.86	**21.68**	0.147	33.01	-11.33
2535.00	20	QPSK	H	150	325	1 / 0	16.57	5.86	22.43	0.175	33.01	-10.58
2535.00	20 (WCP)	QPSK	V	150	276	1 / 0	13.53	5.86	19.39	0.087	33.01	-13.62

Table 7-10. EIRP Data (Band 7)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	V	150	284	1 / 24	16.96	5.73	22.69	0.186	33.01	-10.32
2593.00	5	QPSK	V	150	276	1 / 0	18.23	6.07	**24.30**	0.269	33.01	-8.71
2687.50	5	QPSK	V	150	286	1 / 0	16.85	6.48	23.33	0.216	33.01	-9.68
2593.00	5	16-QAM	V	150	276	1 / 0	17.24	6.07	**23.31**	0.214	33.01	-9.70
2593.00	5	64-QAM	V	150	276	1 / 0	16.78	6.07	**22.85**	0.193	33.01	-10.16
2501.00	10	QPSK	V	150	287	1 / 0	18.39	5.73	24.12	0.258	33.01	-8.89
2593.00	10	QPSK	V	150	282	1 / 0	18.55	6.07	**24.62**	**0.290**	33.01	-8.39
2685.00	10	QPSK	V	150	285	1 / 0	17.92	6.47	24.39	0.275	33.01	-8.62
2593.00	10	16-QAM	V	150	282	1 / 0	17.52	6.07	**23.59**	0.229	33.01	-9.42
2593.00	10	64-QAM	V	150	282	1 / 0	16.58	6.07	**22.65**	0.184	33.01	-10.36
2503.50	15	QPSK	V	150	282	1 / 74	17.29	5.74	23.03	0.201	33.01	-9.98
2593.00	15	QPSK	V	150	277	1 / 74	18.50	6.07	**24.57**	0.287	33.01	-8.44
2682.50	15	QPSK	V	150	287	1 / 74	16.44	6.46	22.90	0.195	33.01	-10.11
2593.00	15	16-QAM	V	150	277	1 / 74	17.39	6.07	**23.46**	0.222	33.01	-9.55
2593.00	15	64-QAM	V	150	277	1 / 74	16.28	6.07	**22.35**	0.172	33.01	-10.66
2506.00	20	QPSK	V	150	290	1 / 0	17.17	5.75	22.92	0.196	33.01	-10.09
2593.00	20	QPSK	V	150	278	1 / 99	17.91	6.07	**23.98**	0.250	33.01	-9.03
2680.00	20	QPSK	V	150	288	1 / 0	16.77	6.45	23.22	0.210	33.01	-9.79
2593.00	20	16-QAM	V	150	278	1 / 99	16.84	6.07	**22.91**	0.196	33.01	-10.10
2506.00	20	64-QAM	V	150	290	1 / 0	15.58	5.75	**21.33**	0.136	33.01	-11.68
2593.00	10	QPSK	H	150	222	1 / 0	17.54	6.07	23.61	0.230	33.01	-9.40
2593.00	10 (WCP)	QPSK	V	150	280	1 / 0	15.25	6.07	21.32	0.136	33.01	-11.69

Table 7-11. EIRP Data (Band 41/38)

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 v03 – Section 5.8

ANSI/TIA-603-E-2016 – Section 2.2.12

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW ≥ 3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points ≥ 2 x span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

Test Setup

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

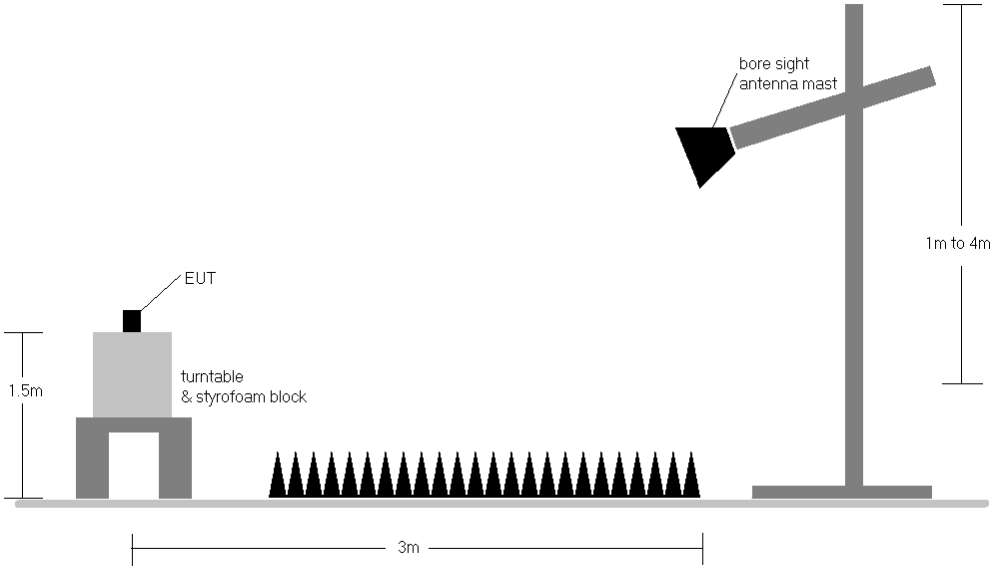


Figure 7-7. Test Instrument & Measurement Setup

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.

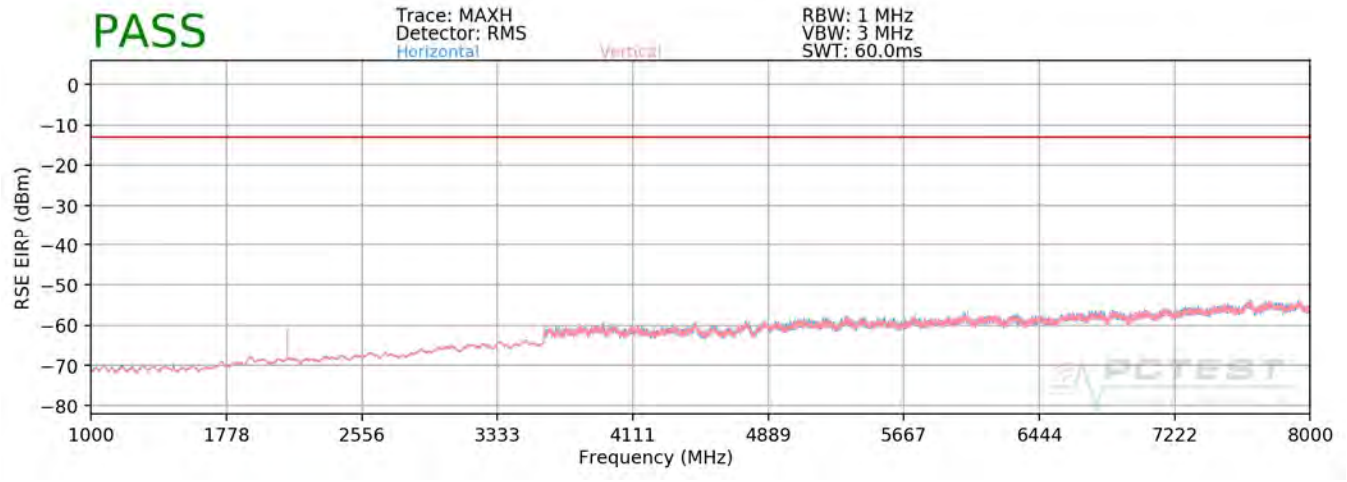
2) This unit was tested with its standard battery.

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.

Band 12/17



Plot 7-295. Radiated Spurious Plot above 1GHz (Band 12/17)

OPERATING FREQUENCY:	701.50	MHz
CHANNEL:	23035	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1403.00	H	224	149	-71.95	4.39	-67.55	-54.6
2104.50	H	109	169	-66.95	5.27	-61.69	-48.7
2806.00	H	-	-	-74.99	6.98	-68.01	-55.0

Table 7-12. Radiated Spurious Data (Band 12/17 – Low Channel)

OPERATING FREQUENCY:	707.50	MHz
CHANNEL:	23095	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1415.00	H	112	208	-72.64	4.56	-68.08	-55.1
2122.50	H	110	128	-64.74	5.31	-59.43	-46.4
2830.00	H	392	169	-74.25	7.02	-67.24	-54.2
3537.50	H	-	-	-73.31	8.52	-64.79	-51.8

Table 7-13. Radiated Spurious Data (Band 12/17 – Mid Channel)

OPERATING FREQUENCY:	713.50	MHz
CHANNEL:	23155	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1427.00	H	394	132	-73.89	4.72	-69.17	-56.2
2140.50	H	248	120	-63.83	5.35	-58.48	-45.5
2854.00	H	-	-	-74.21	7.05	-67.16	-54.2

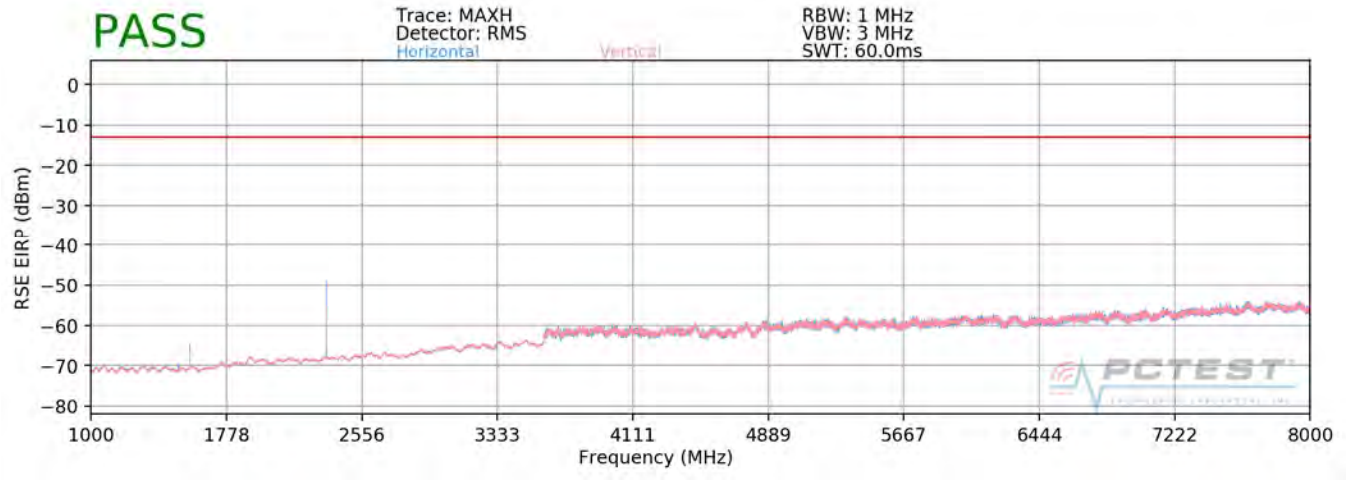
Table 7-14. Radiated Spurious Data (Band 12/17 – High Channel)

OPERATING FREQUENCY:	713.50	MHz
CHANNEL:	23155	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1427.00	H	400	133	-73.95	4.72	-69.23	-56.2
2140.50	H	166	187	-71.29	5.35	-65.94	-52.9
2854.00	H	-	-	-74.41	7.05	-67.36	-54.4

Table 7-15. Radiated Spurious Data with WCP (Band 12/17 – High Channel)

Band 13



Plot 7-296. Radiated Spurious Plot above 1GHz (Band 13)

OPERATING FREQUENCY:	779.50	MHz
CHANNEL:	23205	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2338.50	H	158	121	-54.15	5.73	-48.42	-35.4
3118.00	H	-	-	-74.26	7.00	-67.26	-54.3
3897.50	H	-	-	-72.21	8.55	-63.66	-50.7

Table 7-16. Radiated Spurious Data (Band 13 – Low Channel)

OPERATING FREQUENCY:	782.00	MHz
CHANNEL:	23230	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2346.00	H	109	115	-54.24	5.72	-48.52	-35.5
3128.00	H	-	-	-72.50	6.93	-65.58	-52.6
3910.00	H	-	-	-72.44	8.60	-63.83	-50.8

Table 7-17. Radiated Spurious Data (Band 13 – Mid Channel)

OPERATING FREQUENCY:	784.50	MHz
CHANNEL:	23255	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2353.50	H	236	135	-55.26	5.72	-49.54	-36.5
3138.00	H	-	-	-73.03	6.85	-66.18	-53.2
3922.50	H	-	-	-72.41	8.67	-63.74	-50.7

Table 7-18. Radiated Spurious Data (Band 13 – High Channel)

MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.00	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]
1559.00	H	186	172	-71.42	5.86	-65.55	-25.6
1564.00	H	183	36	-69.72	5.88	-63.84	-23.8
1569.00	H	183	33	-68.60	5.90	-62.70	-22.7

Table 7-19. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

OPERATING FREQUENCY:	784.50	MHz
CHANNEL:	23255	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2353.50	H	325	111	-70.62	5.72	-64.90	-51.9
3138.00	H	-	-	-72.77	6.85	-65.92	-52.9
3922.50	H	-	-	-72.16	8.67	-63.49	-50.5

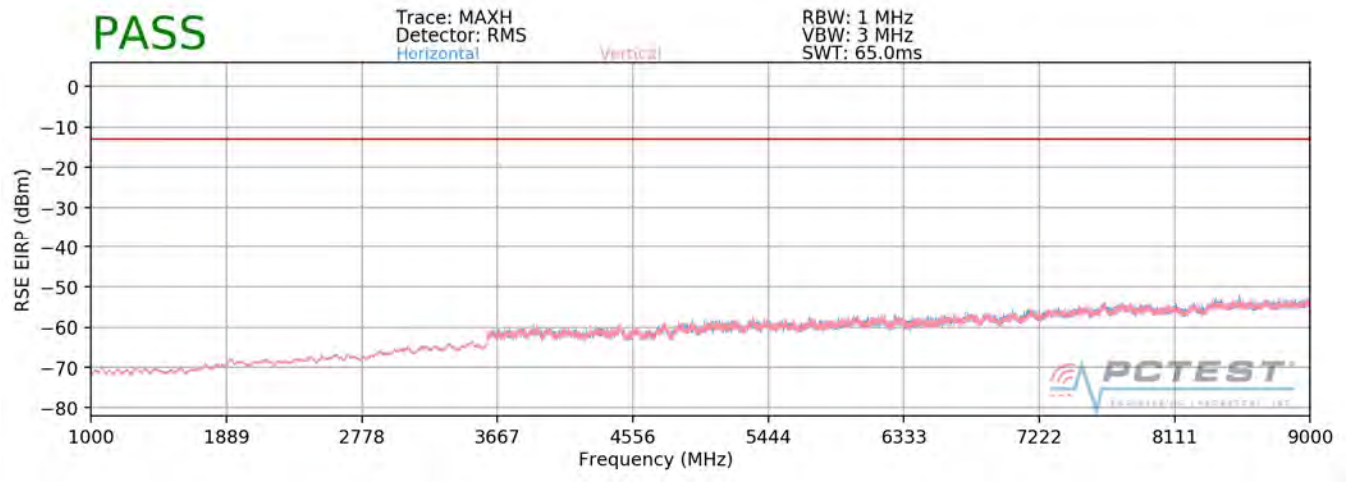
Table 7-20. Radiated Spurious Data with WCP (Band 13 – High Channel)

MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.00	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]
1569.00	H	109	1	-72.41	5.90	-66.51	-26.5

Table 7-21. Radiated Spurious Data with WCP (Band 13 – 1559-1610MHz Band)

Band 26/5



Plot 7-297. Radiated Spurious Plot above 1GHz (Band 26/5)

OPERATING FREQUENCY:	825.50	MHz
CHANNEL:	26805	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1651.00	H	360	14	-74.41	5.81	-68.61	-55.6
2476.50	H	-	-	-70.60	5.72	-64.88	-51.9
3302.00	H	-	-	-73.62	7.85	-65.77	-52.8

Table 7-22. Radiated Spurious Data with WCP (Band 26/5 – Low Channel)

OPERATING FREQUENCY:	836.50	MHz
CHANNEL:	26915	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.00	H	111	353	-74.85	5.73	-69.13	-56.1
2509.50	H	126	242	-67.37	5.77	-61.60	-48.6
3346.00	H	111	10	-71.90	7.91	-63.99	-51.0
4182.50	H	-	-	-73.11	9.29	-63.82	-50.8

Table 7-23. Radiated Spurious Data with WCP (Band 26/5 – Mid Channel)

OPERATING FREQUENCY:	847.50	MHz
CHANNEL:	27025	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1695.00	H	274	181	-74.26	5.65	-68.61	-55.6
2542.50	H	385	330	-69.29	5.89	-63.40	-50.4
3390.00	H	-	-	-73.37	7.96	-65.40	-52.4

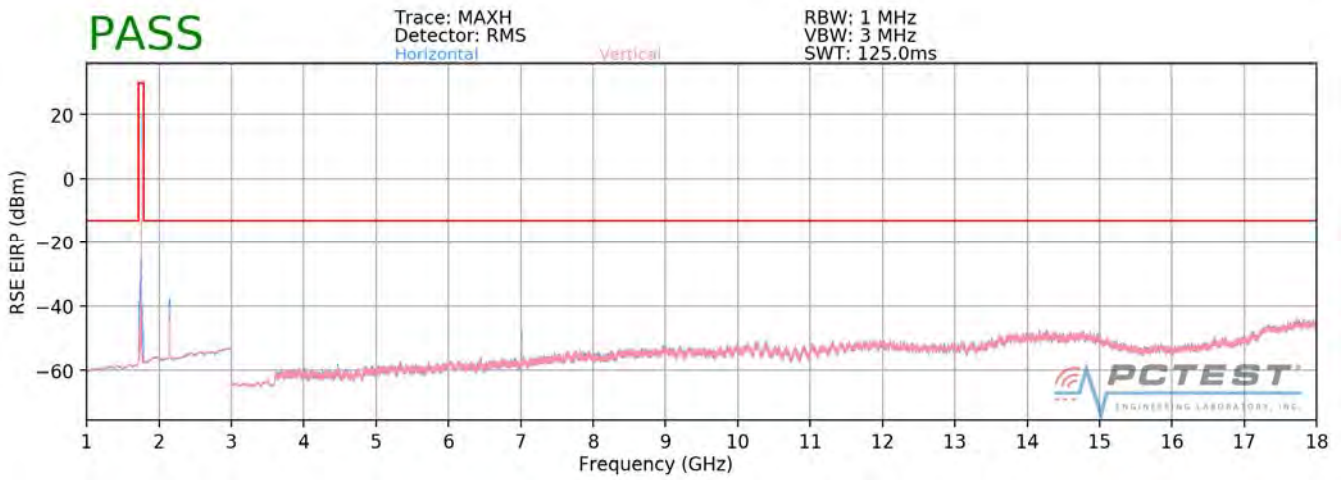
Table 7-24. Radiated Spurious Data with WCP (Band 26/5 – High Channel)

OPERATING FREQUENCY:	836.50	MHz
CHANNEL:	26915	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.00	H	383	179	-76.78	5.73	-71.06	-58.1
2509.50	H	393	330	-71.17	5.77	-65.40	-52.4
3346.00	H	-	-	-72.34	7.91	-64.43	-51.4

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

Band 66/4



Plot 7-298. Radiated Spurious Plot above 1GHz (Band 66/4)

OPERATING FREQUENCY:	1720.00	MHz
CHANNEL:	132072	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3440.00	V	117	137	-69.85	8.19	-61.65	-48.7
5160.00	V	109	132	-71.22	10.25	-60.97	-48.0
6880.00	V	111	90	-65.63	11.38	-54.26	-41.3
8600.00	V	-	-	-69.69	13.03	-56.66	-43.7

Table 7-26. Radiated Spurious Data (Band 66/4 – Low Channel)

OPERATING FREQUENCY:	1745.00	MHz
CHANNEL:	132322	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3490.00	V	113	127	-66.16	8.46	-57.70	-44.7
5235.00	V	342	55	-71.96	10.28	-61.68	-48.7
6980.00	V	117	87	-61.30	11.47	-49.84	-36.8
8725.00	V	110	101	-66.79	13.12	-53.67	-40.7
10470.00	V	-	-	-70.40	13.14	-57.25	-44.3

Table 7-27. Radiated Spurious Data (Band 66/4 – Mid Channel)

OPERATING FREQUENCY:	1770.00	MHz
CHANNEL:	132572	
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	V	110	295	-70.55	8.52	-62.03	-49.0
5310.00	V	112	177	-70.22	10.32	-59.90	-46.9
7080.00	V	111	85	-61.65	11.58	-50.07	-37.1
8850.00	V	-	-	-69.44	13.15	-56.28	-43.3

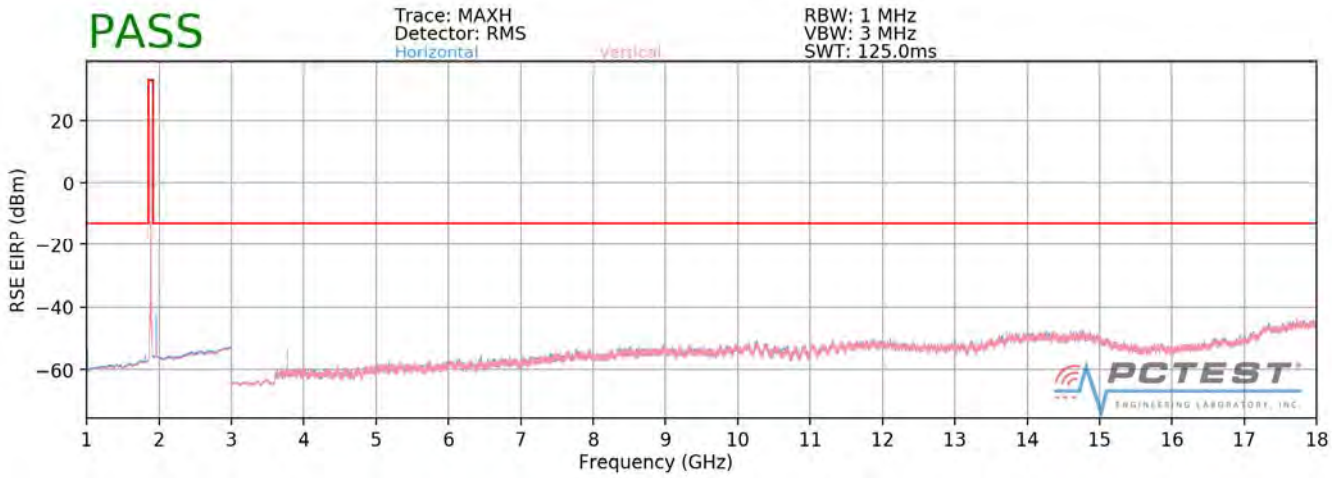
Table 7-28. Radiated Spurious Data (Band 66/4 – High Channel)

OPERATING FREQUENCY:	1745.00	MHz
CHANNEL:	132322	
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	109	355	-64.69	8.46	-56.23	-43.2
5235.00	H	115	221	-72.09	10.28	-61.81	-48.8
6980.00	H	291	106	-62.98	11.47	-51.52	-38.5
8725.00	H	311	81	-68.20	13.12	-55.08	-42.1
10470.00	H	-	-	-70.43	13.14	-57.28	-44.3

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

Band 25/2



Plot 7-299. Radiated Spurious Plot above 1GHz (Band 25/2)

Note:
Emission were investigated up through the 10th harmonic for this band. No significant emissions were found above 18GHz.

OPERATING FREQUENCY:	1855.00	MHz
CHANNEL:	26090	
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]
3710.00	V	110	328	-60.56	8.33	-52.24	-39.2
5565.00	V	111	9	-70.85	10.55	-60.30	-47.3
7420.00	V	337	27	-65.63	11.94	-53.69	-40.7
9275.00	V	-	-	-70.77	13.41	-57.37	-44.4

Table 7-30. Radiated Spurious Data (Band 25/2 – Low Channel)

OPERATING FREQUENCY:	1882.50	MHz
CHANNEL:	26365	
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]
3765.00	V	111	329	-59.86	8.47	-51.39	-38.4
5647.50	V	338	35	-71.65	10.60	-61.06	-48.1
7530.00	V	110	179	-68.21	12.11	-56.10	-43.1
9412.50	V	-	-	-70.52	13.34	-57.18	-44.2

Table 7-31. Radiated Spurious Data (Band 25/2 – Mid Channel)

OPERATING FREQUENCY:	1910.00	MHz
CHANNEL:	26640	
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]
3820.00	V	109	333	-57.01	8.56	-48.46	-35.5
5730.00	V	313	168	-70.07	10.65	-59.43	-46.4
7640.00	V	335	23	-67.06	12.20	-54.86	-41.9
9550.00	V	-	-	-70.05	13.30	-56.75	-43.8

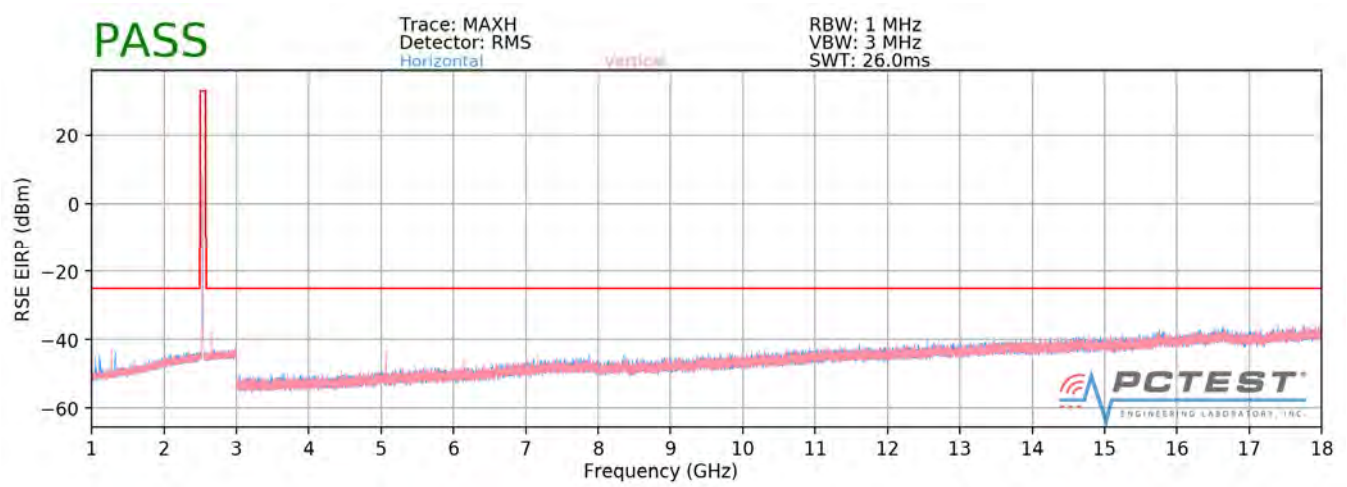
Table 7-32. Radiated Spurious Data (Band 25/2 – High Channel)

OPERATING FREQUENCY:	1910.00	MHz
CHANNEL:	26640	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

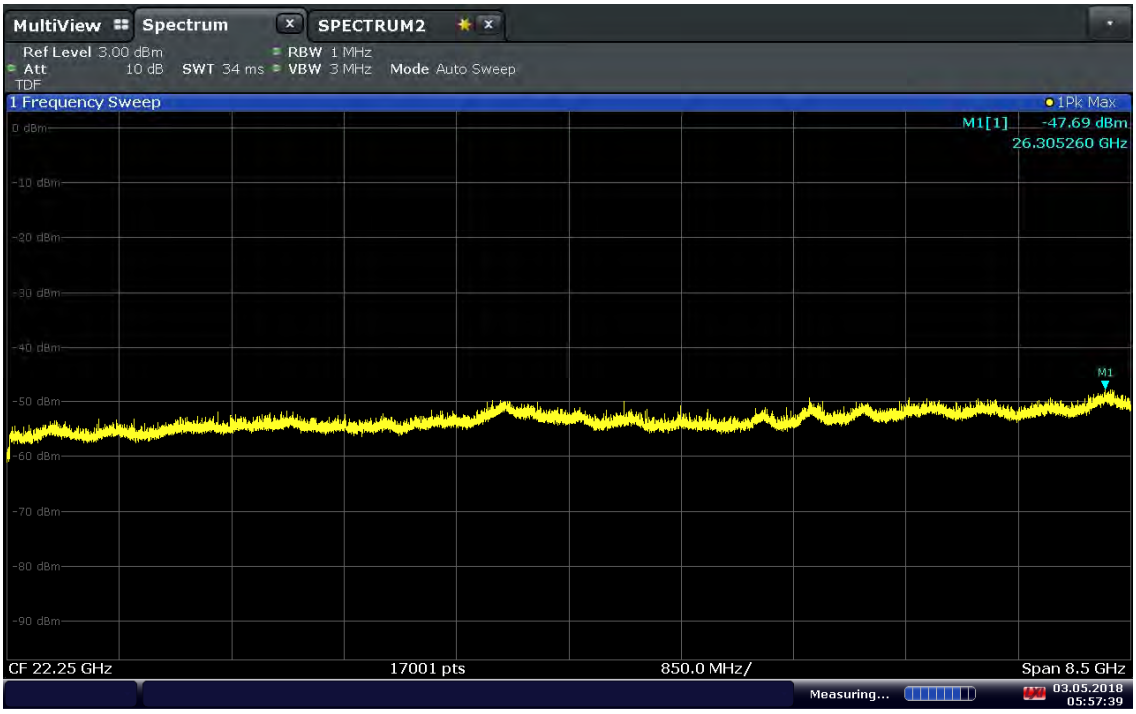
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3820.00	H	378	250	-59.22	8.33	-50.90	-37.9
5730.00	H	356	345	-69.42	10.55	-58.87	-45.9
7640.00	H	115	349	-69.22	11.94	-57.28	-44.3
9550.00	H	-	-	-71.37	13.41	-57.97	-45.0

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

Band 7



Plot 7-300. Radiated Spurious Plot 1GHz - 18GHz (Band 7)



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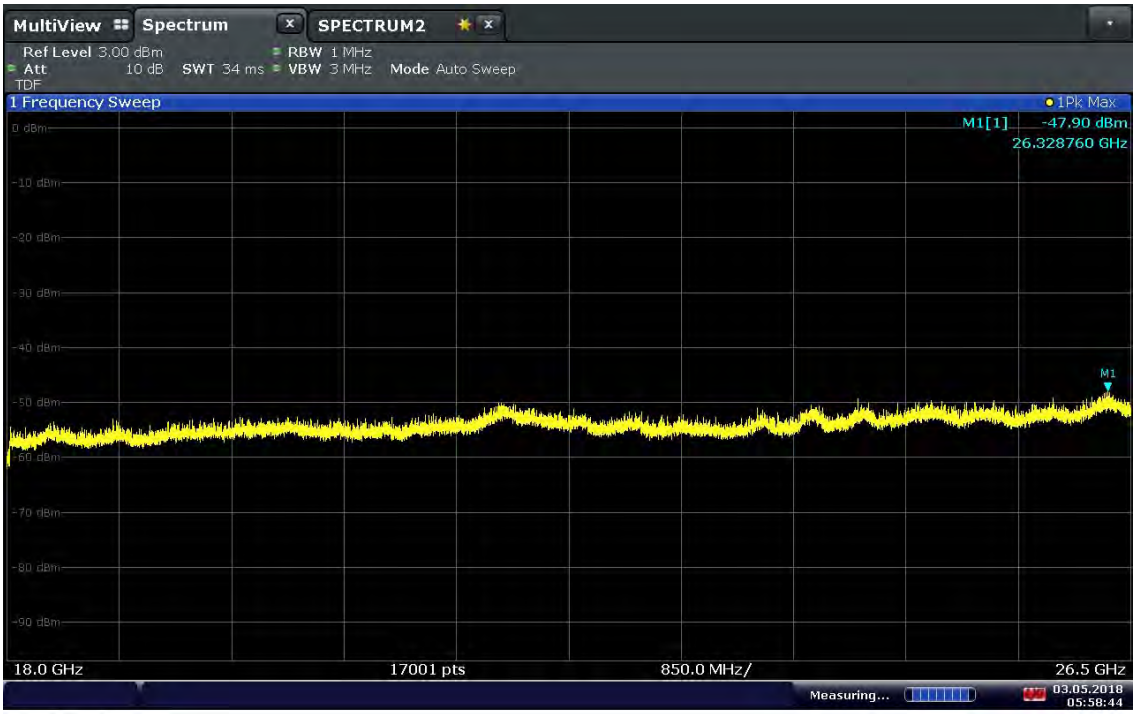
Plot 7-301. Radiated Spurious Plot 18GHz – 26.5GHz (Band 7 Ant. H)



Plot 7-302. Radiated Spurious Plot 18GHz – 26.5GHz (Band 7 Ant. V)

OPERATING FREQUENCY:	2510.00	MHz
CHANNEL:	20850	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5020.00	V	150	320	-56.97	10.09	-46.88	-21.9
7530.00	V	150	338	-65.54	12.10	-53.44	-28.4
10040.00	V	-	-	-67.68	13.19	-54.49	-29.5

Table 7-34. Radiated Spurious Data (Band 7 – Low Channel)

OPERATING FREQUENCY:	2535.00	MHz
CHANNEL:	21100	
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	31	-58.15	10.18	-47.97	-23.0
7605.00	V	150	349	-68.11	12.15	-55.96	-31.0
10140.00	V	-	-	-67.62	13.11	-54.51	-29.5

Table 7-35. Radiated Spurious Data (Band 7 – Mid Channel)

OPERATING FREQUENCY:	2560.00	MHz
CHANNEL:	21350	
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	150	25	-61.21	10.24	-50.97	-26.0
7680.00	V	150	244	-67.57	12.28	-55.29	-30.3
10240.00	V	-	-	-67.79	13.11	-54.67	-29.7

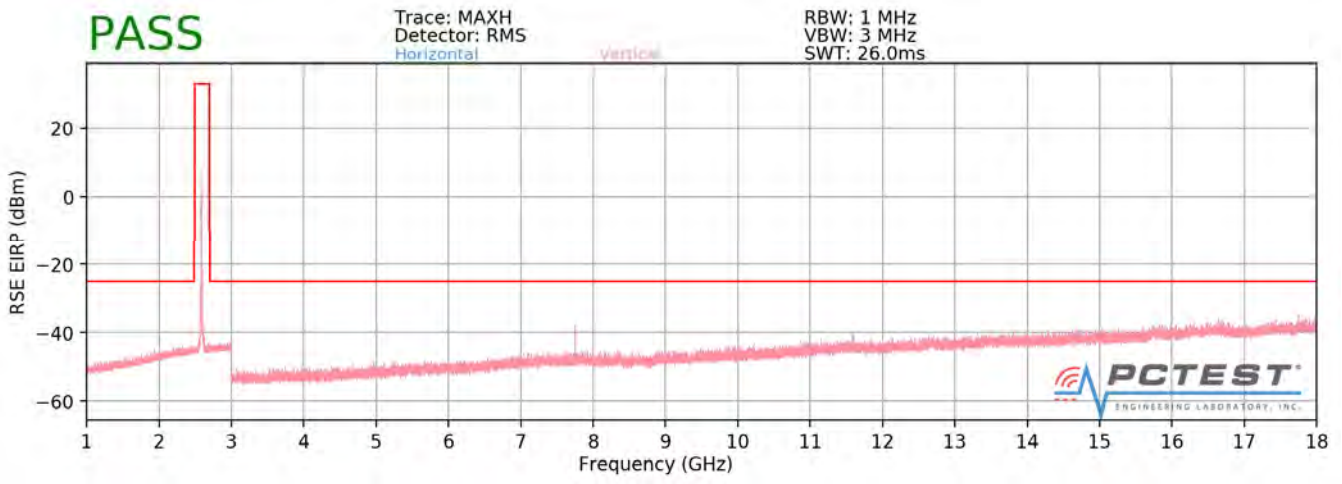
Table 7-36. Radiated Spurious Data (Band 7 – High Channel)

OPERATING FREQUENCY:	2535.00	MHz
CHANNEL:	21100	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

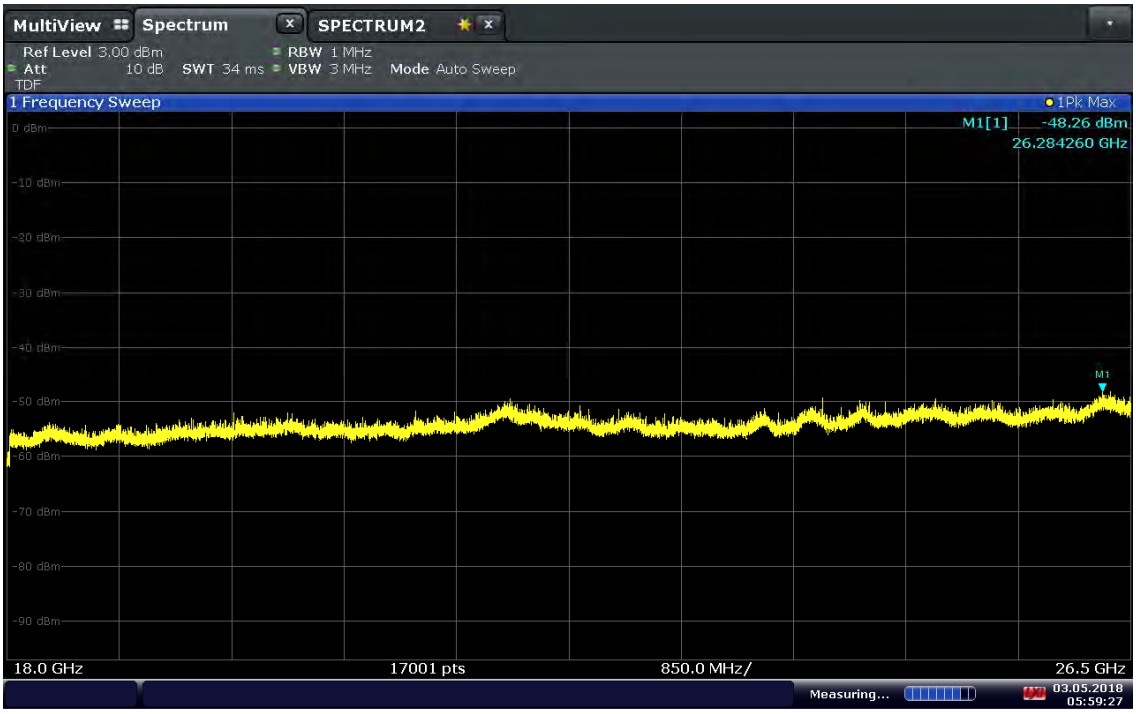
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5070.00	V	150	217	-66.67	10.24	-56.43	-31.4
7605.00	V	150	217	-62.30	12.28	-50.02	-25.0
10140.00	V	-	-	-68.39	13.11	-55.27	-30.3

Table 7-37. Radiated Spurious Data with WCP (Band 7 – Mid Channel)

Band 41/38



Plot 7-303. Radiated Spurious Plot 1GHz - 18GHz (Band 41/38)



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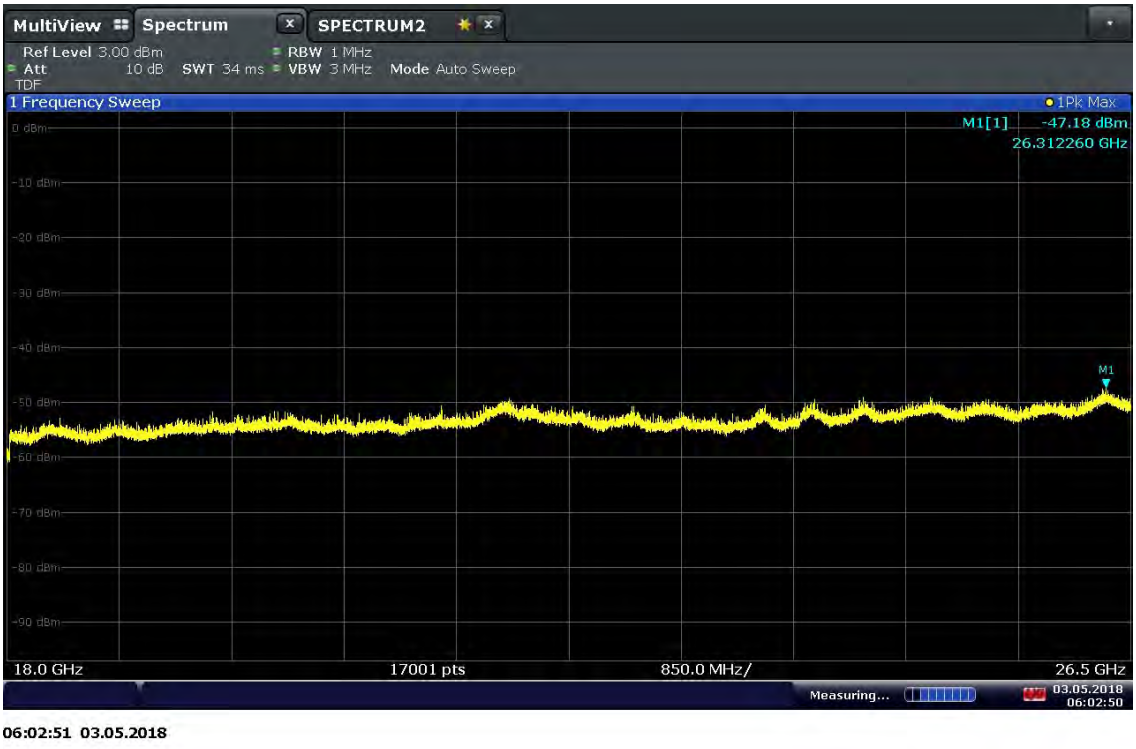
Plot 7-304. Radiated Spurious Plot 18GHz – 26.5GHz (Band 41/38 Ant. H)



Plot 7-305. Radiated Spurious Plot 18GHz – 26.5GHz (Band 41/38 Ant. V)

Note:
Emission were investigated up through the 10th harmonic for this band. No significant emissions were found above 26.5GHz.

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5010.00	H	150	32	-59.91	10.10	-49.81	-24.8
7515.00	H	150	34	-49.83	12.11	-37.72	-12.7
10020.00	H	-	-	-66.15	13.18	-52.98	-28.0

Table 7-38. Radiated Spurious Data (Band 41/38 – Low Channel)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	H	150	230	-64.77	10.27	-54.50	-29.5
7779.00	H	150	22	-52.52	12.28	-40.24	-15.2
10372.00	H	-	-	-66.11	13.12	-52.99	-28.0

Table 7-39. Radiated Spurious Data (Band 41/38 – Mid Channel)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5370.00	H	150	84	-63.46	10.42	-53.04	-28.0
8055.00	H	150	46	-56.21	12.60	-43.61	-18.6
10740.00	H	-	-	-63.97	13.12	-50.85	-25.9

Table 7-40. Radiated Spurious Data (Band 41/38 – High Channel)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	H	150	326	-62.44	10.27	-52.18	-27.2
7779.00	H	150	117	-55.55	12.28	-43.27	-18.3
10372.00	H	-	-	-65.87	13.12	-52.75	-27.8

Table 7-41. Radiated Spurious Data with WCP (Band 41/38 – Mid Channel)

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

Band 12/17 Frequency Stability Measurements

OPERATING FREQUENCY:	707,500,000	Hz
CHANNEL:	23790	
REFERENCE VOLTAGE:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	707,499,783	-217	-0.0000307
100 %		- 30	707,500,121	121	0.0000171
100 %		- 20	707,500,008	8	0.0000011
100 %		- 10	707,500,004	4	0.0000006
100 %		0	707,500,239	239	0.0000338
100 %		+ 10	707,500,041	41	0.0000058
100 %		+ 20	707,500,134	134	0.0000189
100 %		+ 30	707,499,959	-41	-0.0000058
100 %		+ 40	707,500,027	27	0.0000038
100 %		+ 50	707,499,863	-137	-0.0000194
BATT. ENDPOINT	3.45	+ 20	707,499,866	-134	-0.0000189

Table 7-42. Frequency Stability Data (Band 12/17)

Note:

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

Band 12/17 Frequency Stability Measurements

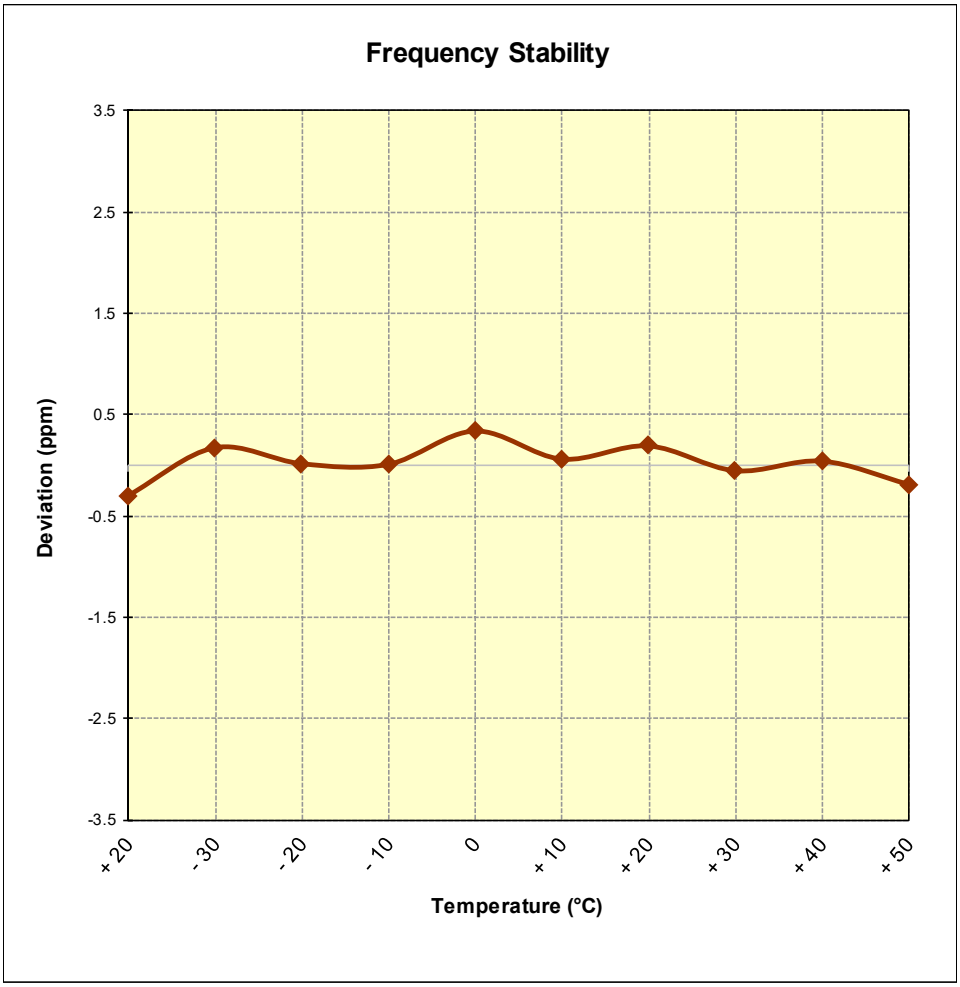


Figure 7-8. Frequency Stability Graph (Band 12/17)

Band 13 Frequency Stability Measurements

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

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	782,000,234	234	0.0000299
100 %		- 30	781,999,882	-118	-0.0000151
100 %		- 20	781,999,986	-14	-0.0000018
100 %		- 10	782,000,241	241	0.0000308
100 %		0	781,999,921	-79	-0.0000101
100 %		+ 10	782,000,334	334	0.0000427
100 %		+ 20	781,999,663	-337	-0.0000431
100 %		+ 30	782,000,098	98	0.0000125
100 %		+ 40	782,000,052	52	0.0000066
100 %		+ 50	782,000,068	68	0.0000087
BATT. ENDPOINT	3.45	+ 20	781,999,845	-155	-0.0000198

Table 7-43. Frequency Stability Data (Band 13)

Note:

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

Band 13 Frequency Stability Measurements

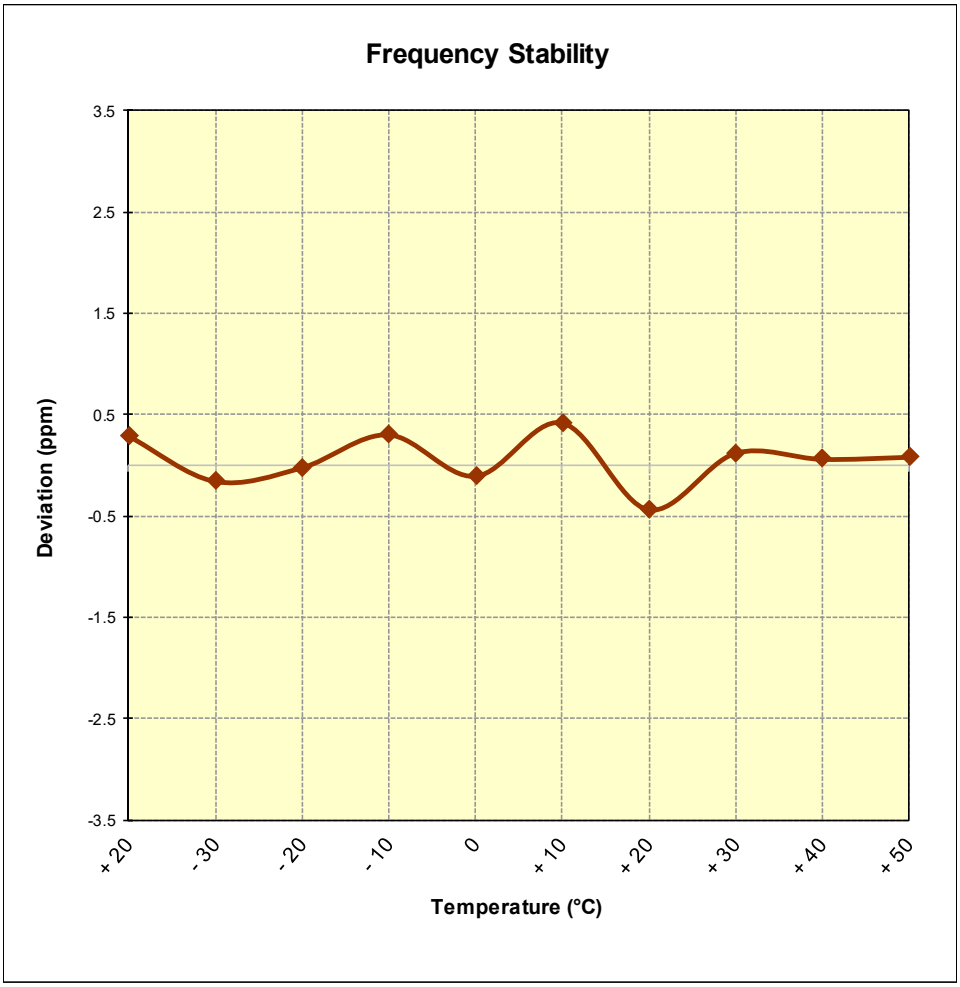


Figure 7-9. Frequency Stability Graph (Band 13)

Band 26/5 Frequency Stability Measurements

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

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	831,500,092	92	0.0000111
100 %		- 30	831,499,882	-118	-0.0000142
100 %		- 20	831,499,886	-114	-0.0000137
100 %		- 10	831,499,818	-182	-0.0000219
100 %		0	831,499,889	-111	-0.0000133
100 %		+ 10	831,499,866	-134	-0.0000161
100 %		+ 20	831,499,900	-100	-0.0000120
100 %		+ 30	831,499,965	-35	-0.0000042
100 %		+ 40	831,499,928	-72	-0.0000087
100 %		+ 50	831,499,985	-15	-0.0000018
BATT. ENDPOINT	3.45	+ 20	831,499,853	-147	-0.0000177

Table 7-44. Frequency Stability Data (Band 26/5)

Band 26/5 Frequency Stability Measurements

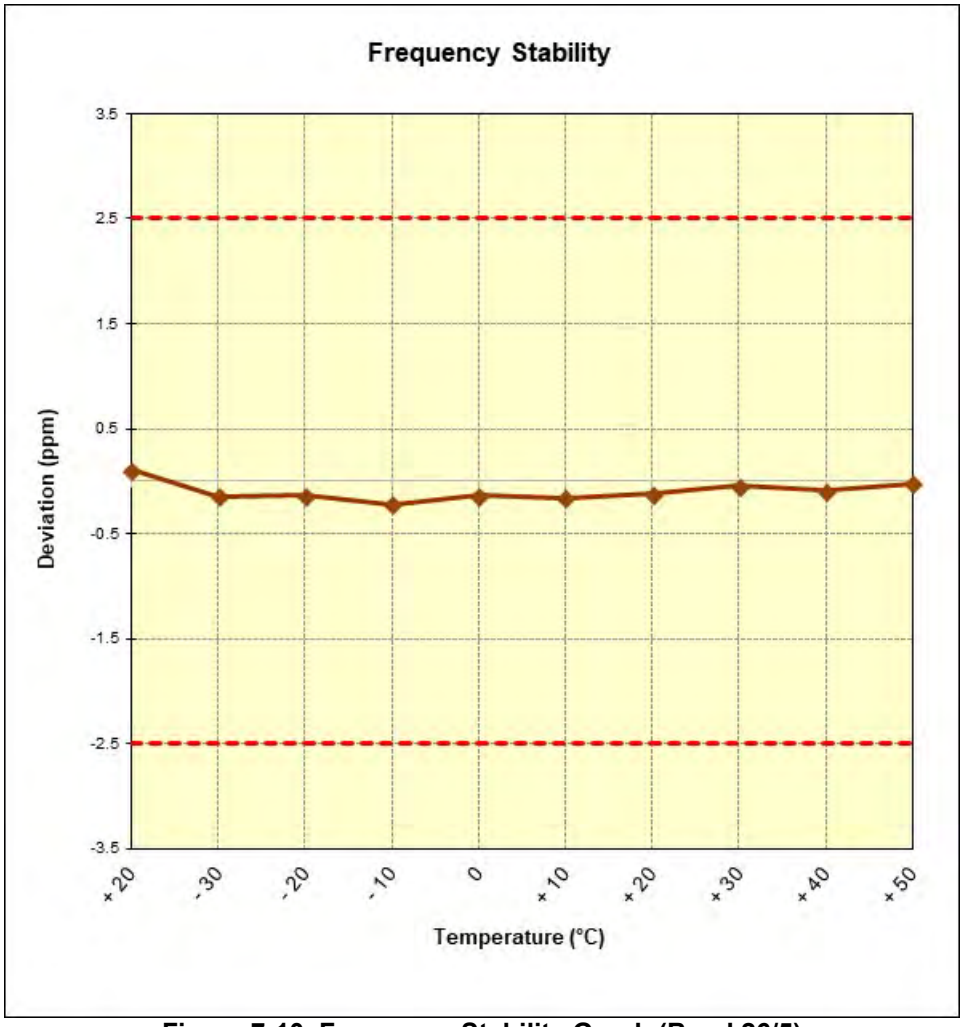


Figure 7-10. Frequency Stability Graph (Band 26/5)

Band 66/4 Frequency Stability Measurements

OPERATING FREQUENCY:	1,745,000,000	Hz
CHANNEL:	132322	
REFERENCE VOLTAGE:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,744,999,597	-403	-0.0000231
100 %		- 30	1,744,999,847	-153	-0.0000088
100 %		- 20	1,745,000,087	87	0.0000050
100 %		- 10	1,745,000,014	14	0.0000008
100 %		0	1,744,999,830	-170	-0.0000097
100 %		+ 10	1,744,999,977	-23	-0.0000013
100 %		+ 20	1,745,000,010	10	0.0000006
100 %		+ 30	1,744,999,868	-132	-0.0000076
100 %		+ 40	1,745,000,037	37	0.0000021
100 %		+ 50	1,744,999,896	-104	-0.0000060
BATT. ENDPOINT	3.45	+ 20	1,745,000,112	112	0.0000064

Table 7-45. 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.

Band 66/4 Frequency Stability Measurements

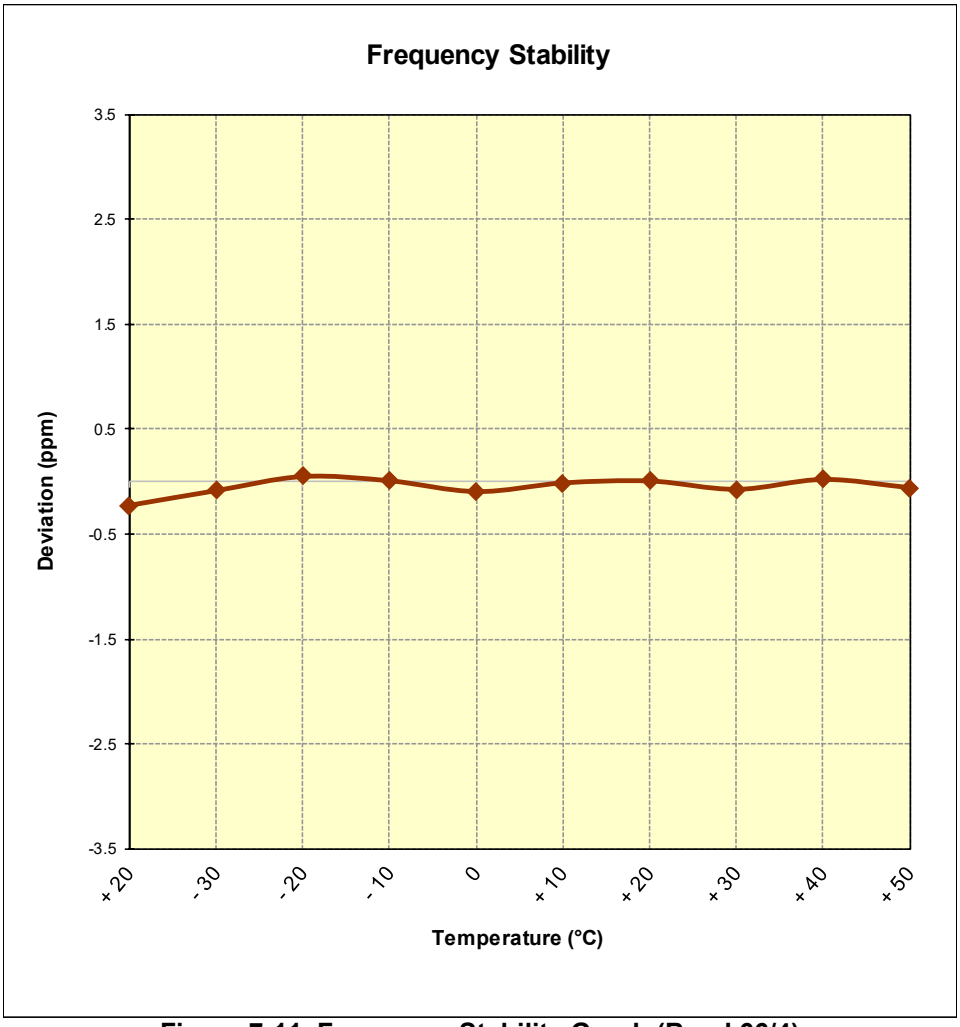


Figure 7-11. Frequency Stability Graph (Band 66/4)

Band 25/2 Frequency Stability Measurements

OPERATING FREQUENCY:	1,882,500,000	Hz
CHANNEL:	26365	
REFERENCE VOLTAGE:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,882,500,181	181	0.0000096
100 %		- 30	1,882,499,997	-3	-0.0000002
100 %		- 20	1,882,499,980	-20	-0.0000011
100 %		- 10	1,882,499,739	-261	-0.0000139
100 %		0	1,882,499,708	-292	-0.0000155
100 %		+ 10	1,882,499,747	-253	-0.0000134
100 %		+ 20	1,882,499,920	-80	-0.0000042
100 %		+ 30	1,882,500,158	158	0.0000084
100 %		+ 40	1,882,499,992	-8	-0.0000004
100 %		+ 50	1,882,499,777	-223	-0.0000118
BATT. ENDPOINT	3.45	+ 20	1,882,499,802	-198	-0.0000105

Table 7-46. Frequency Stability Data (Band 25/2)

Note:

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

Band 25/2 Frequency Stability Measurements

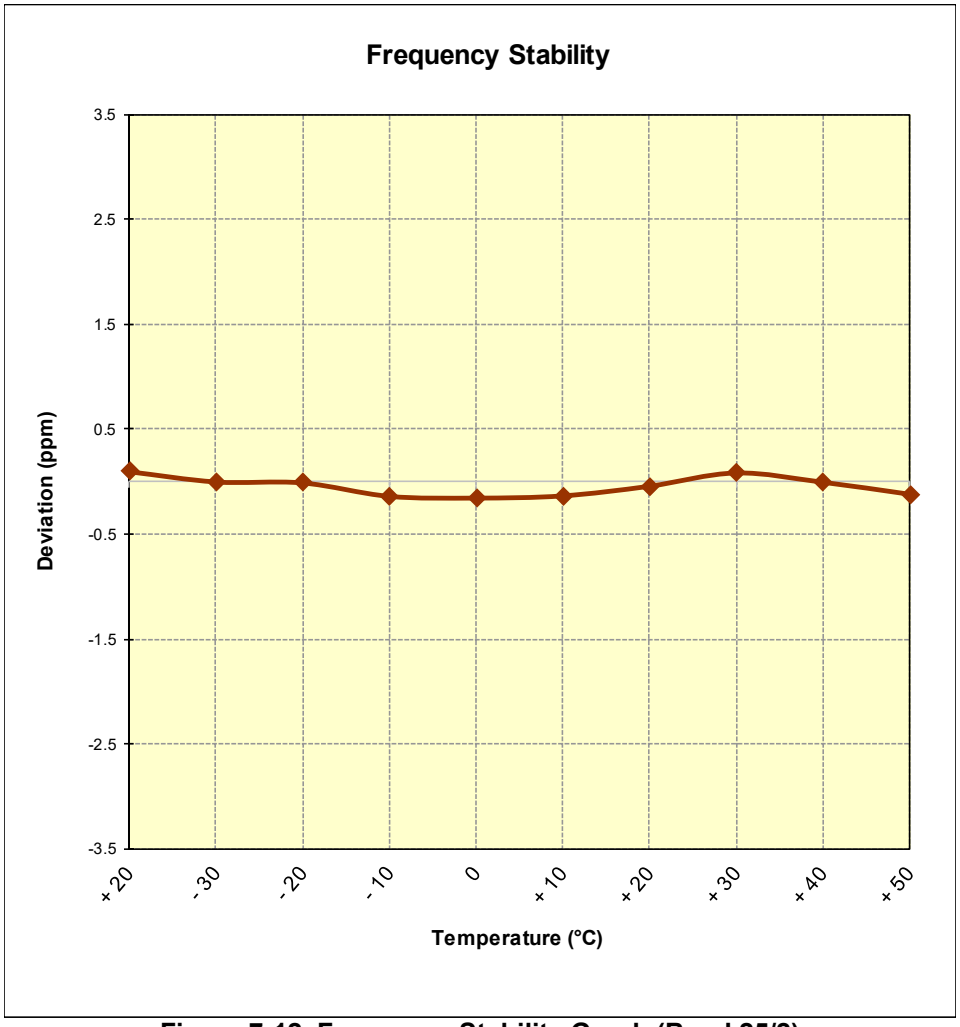


Figure 7-12. Frequency Stability Graph (Band 25/2)

Band 7 Frequency Stability Measurements

OPERATING FREQUENCY:	2,535,000,000	Hz
CHANNEL:	21100	
REFERENCE VOLTAGE:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	2,534,999,967	-33	-0.0000013
100 %		- 30	2,534,999,791	-209	-0.0000082
100 %		- 20	2,535,000,106	106	0.0000042
100 %		- 10	2,535,000,281	281	0.0000111
100 %		0	2,534,999,904	-96	-0.0000038
100 %		+ 10	2,534,999,770	-230	-0.0000091
100 %		+ 20	2,534,999,744	-256	-0.0000101
100 %		+ 30	2,534,999,947	-53	-0.0000021
100 %		+ 40	2,535,000,144	144	0.0000057
100 %		+ 50	2,535,000,050	50	0.0000020
BATT. ENDPOINT	3.45	+ 20	2,535,000,018	18	0.0000007

Table 7-47. Frequency Stability Data (Band 7)

Note:

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

Band 7 Frequency Stability Measurements

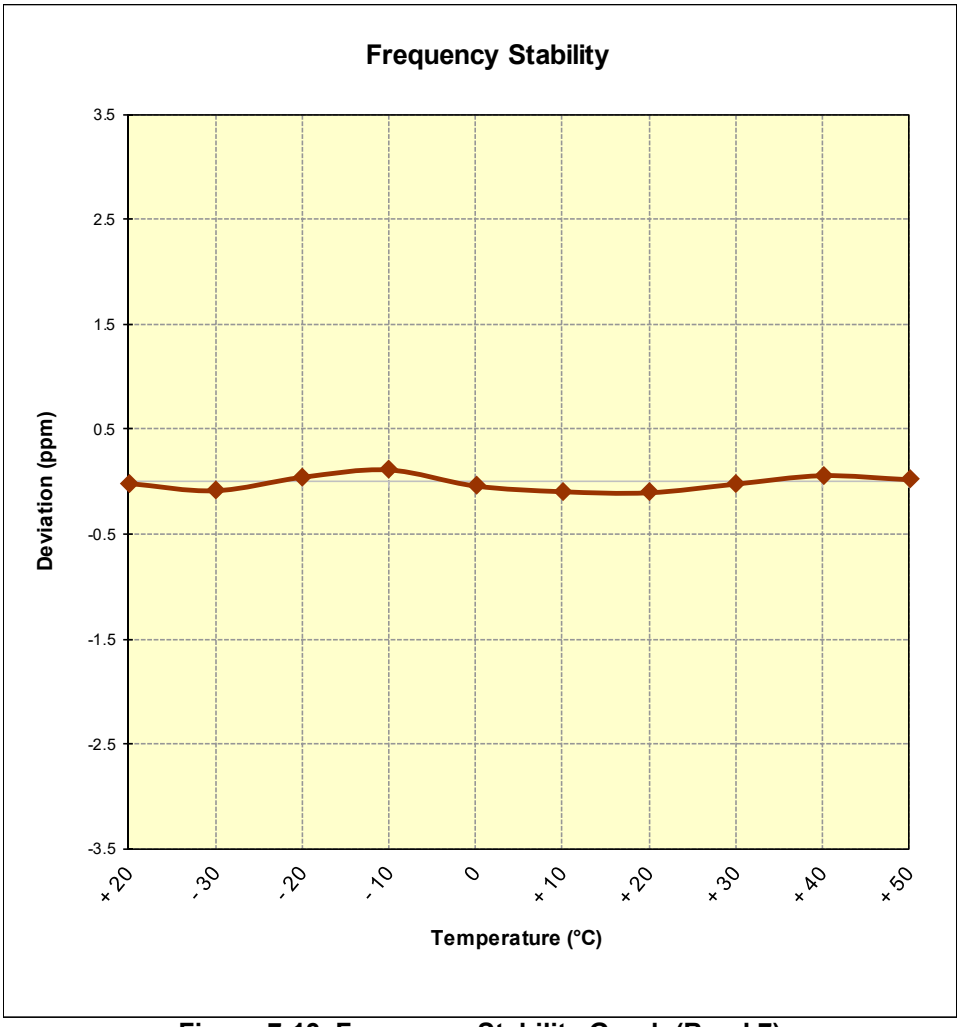


Figure 7-13. Frequency Stability Graph (Band 7)

Band 41/38 Frequency Stability Measurements

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

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	2,593,000,042	42	0.0000016
100 %		- 30	2,592,999,689	-311	-0.0000120
100 %		- 20	2,592,999,839	-161	-0.0000062
100 %		- 10	2,592,999,803	-197	-0.0000076
100 %		0	2,592,999,776	-224	-0.0000086
100 %		+ 10	2,593,000,148	148	0.0000057
100 %		+ 20	2,592,999,966	-34	-0.0000013
100 %		+ 30	2,593,000,117	117	0.0000045
100 %		+ 40	2,592,999,894	-106	-0.0000041
100 %		+ 50	2,592,999,811	-189	-0.0000073
BATT. ENDPOINT	3.45	+ 20	2,593,000,068	68	0.0000026

Table 7-48. Frequency Stability Data (Band 41/38)

Note:

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

Band 41/38 Frequency Stability Measurements

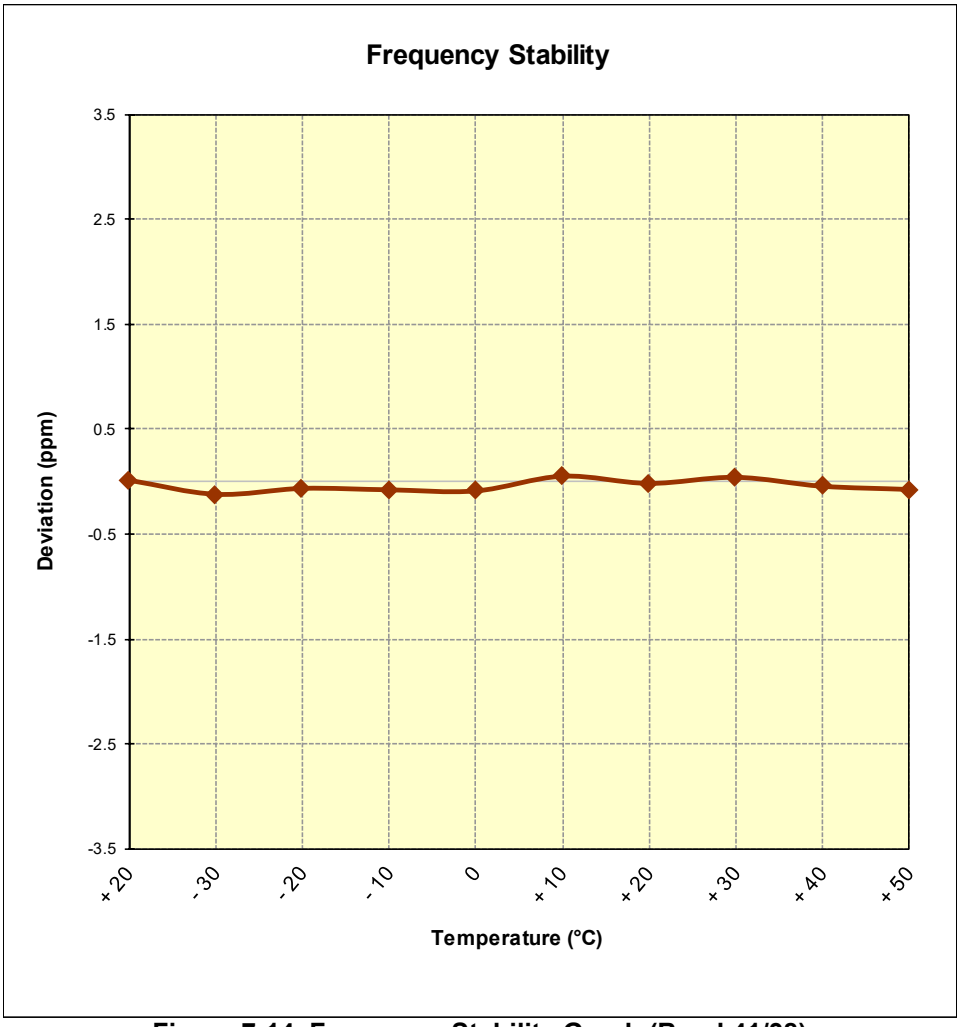


Figure 7-14. Frequency Stability Graph (Band 41/38)

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMN960F** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.