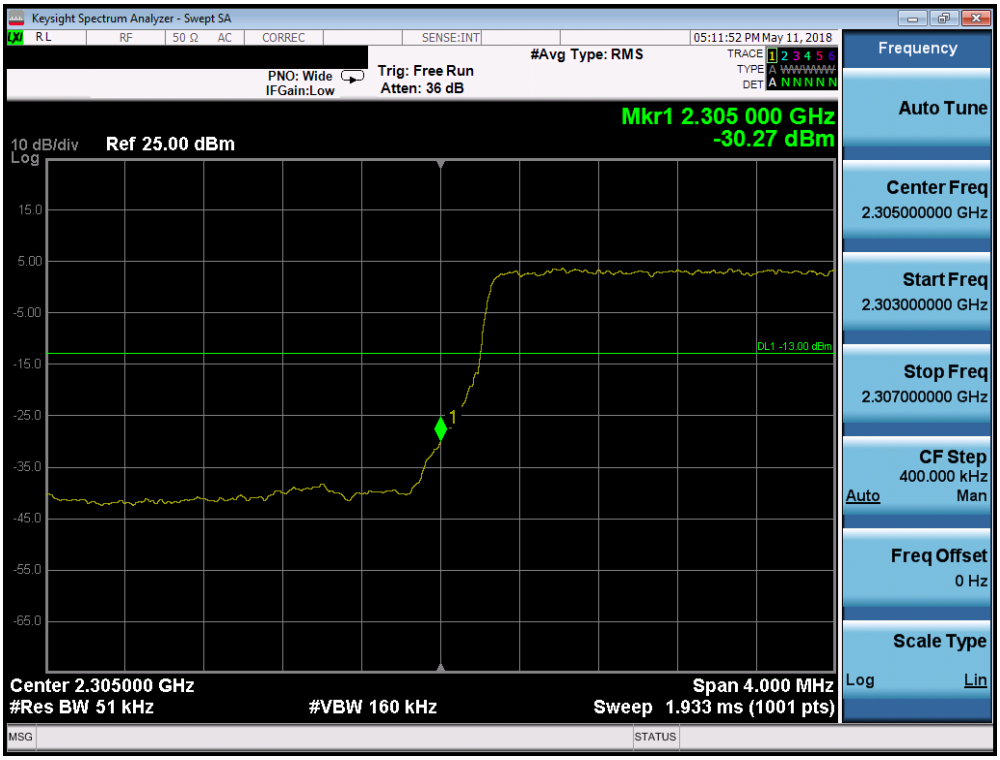
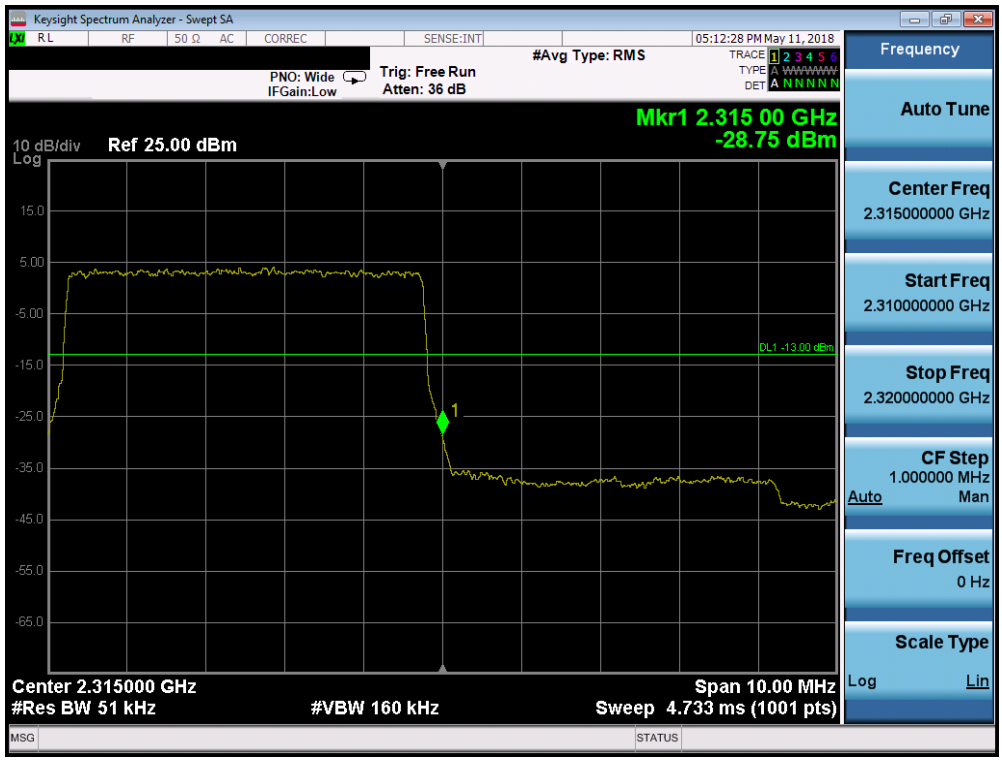
Band 30 – Antenna A



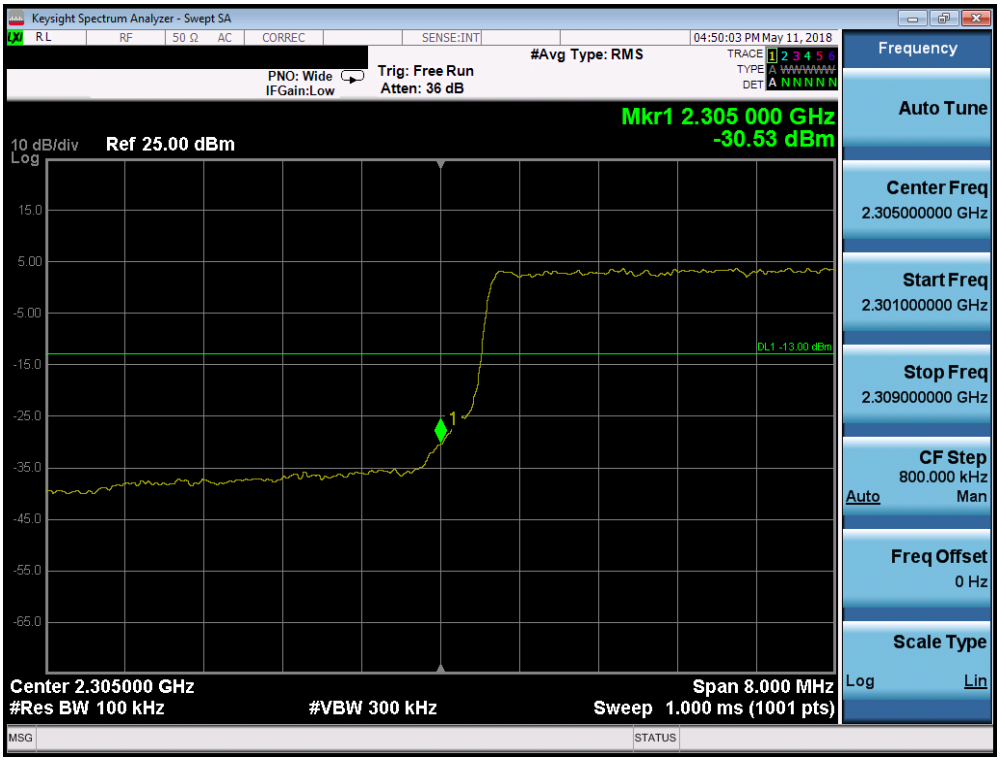
Plot 7-342. Lower Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)

Plot 7-343. Lower Extended Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)

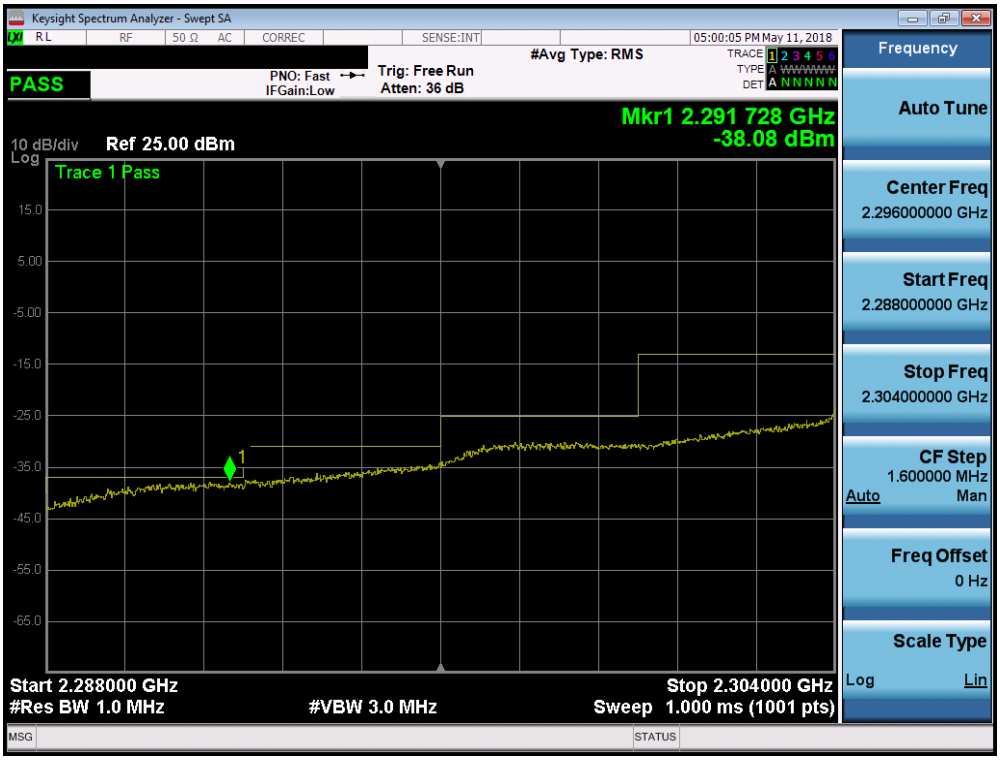


Plot 7-344. Upper Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)

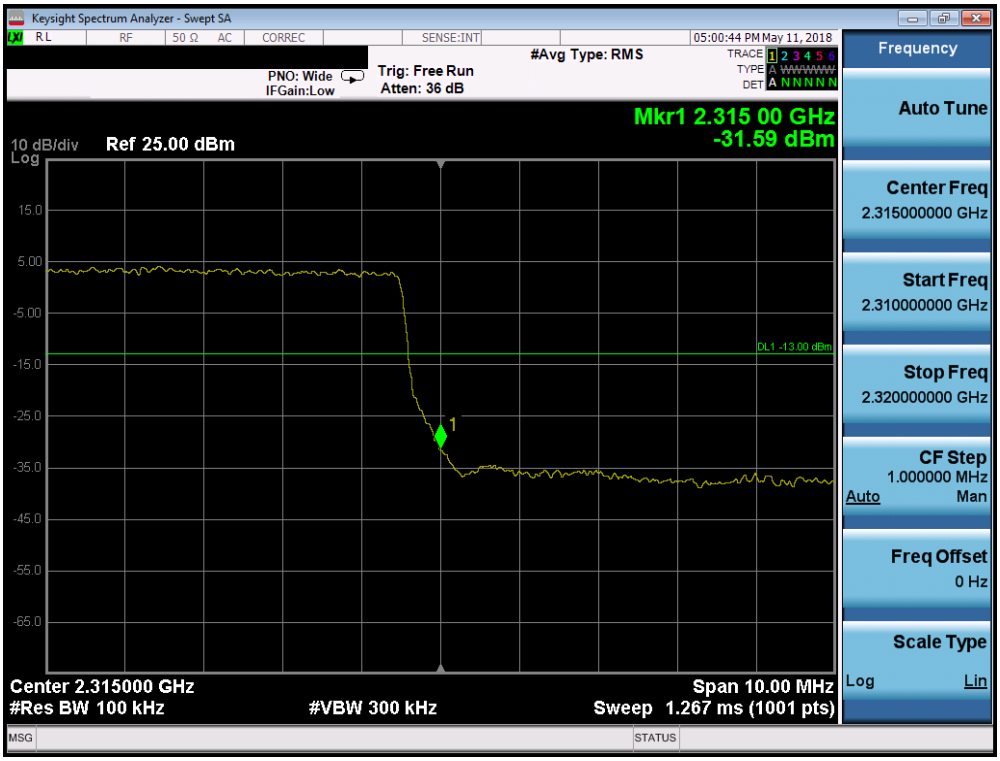
Plot 7-345. Upper Extended Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-346. Lower Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)



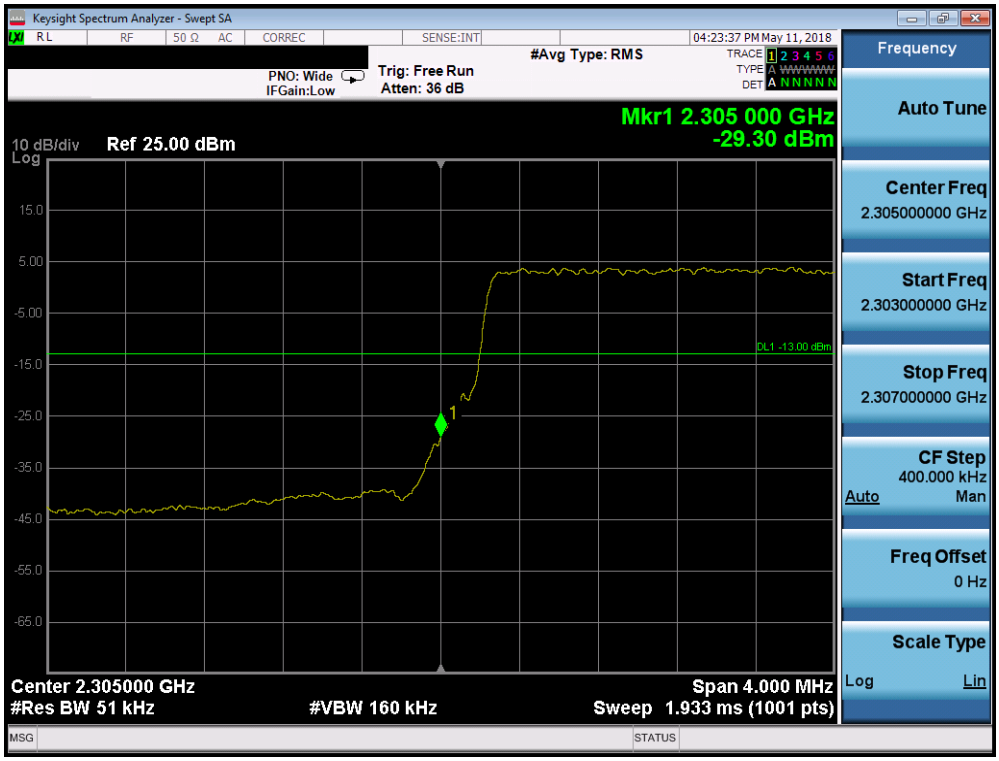
Plot 7-347. Lower Extended Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-348. Upper Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)

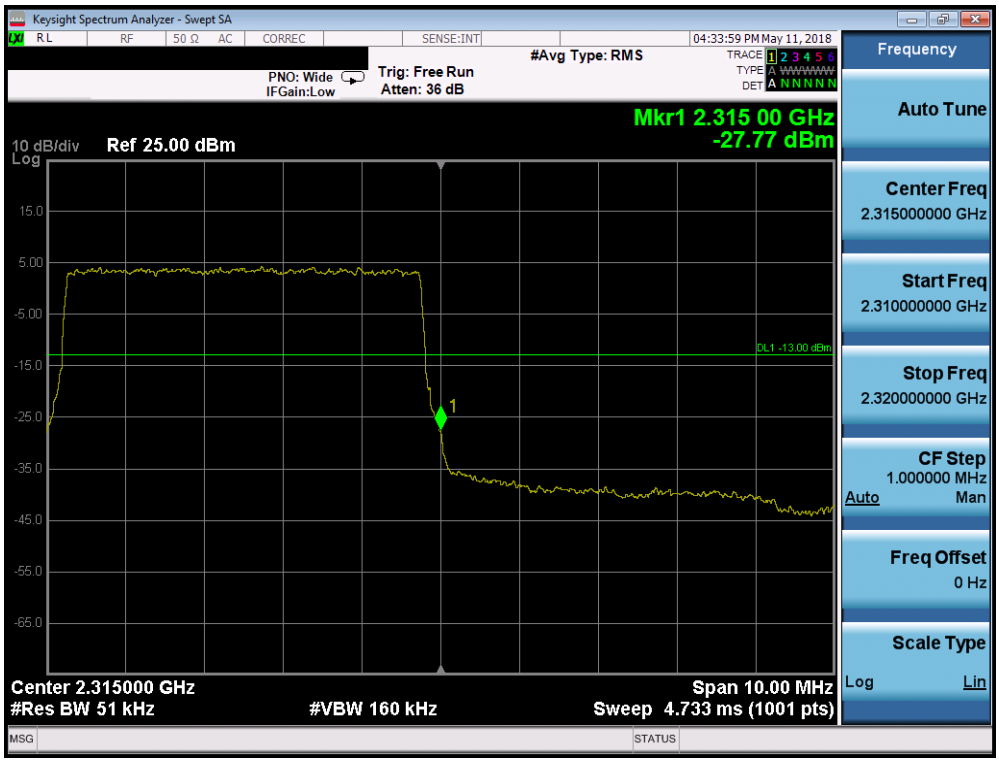
Plot 7-349. Upper Extended Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)

Band 30 – Antenna B



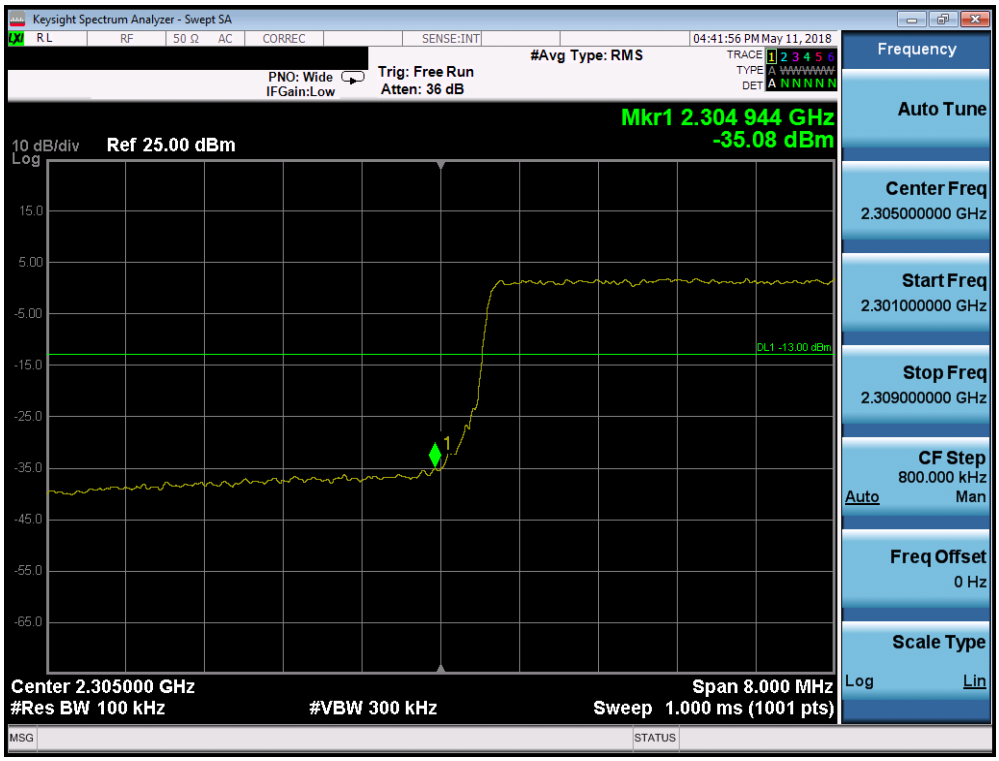
Plot 7-350. Lower Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)

Plot 7-351. Lower Extended Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)



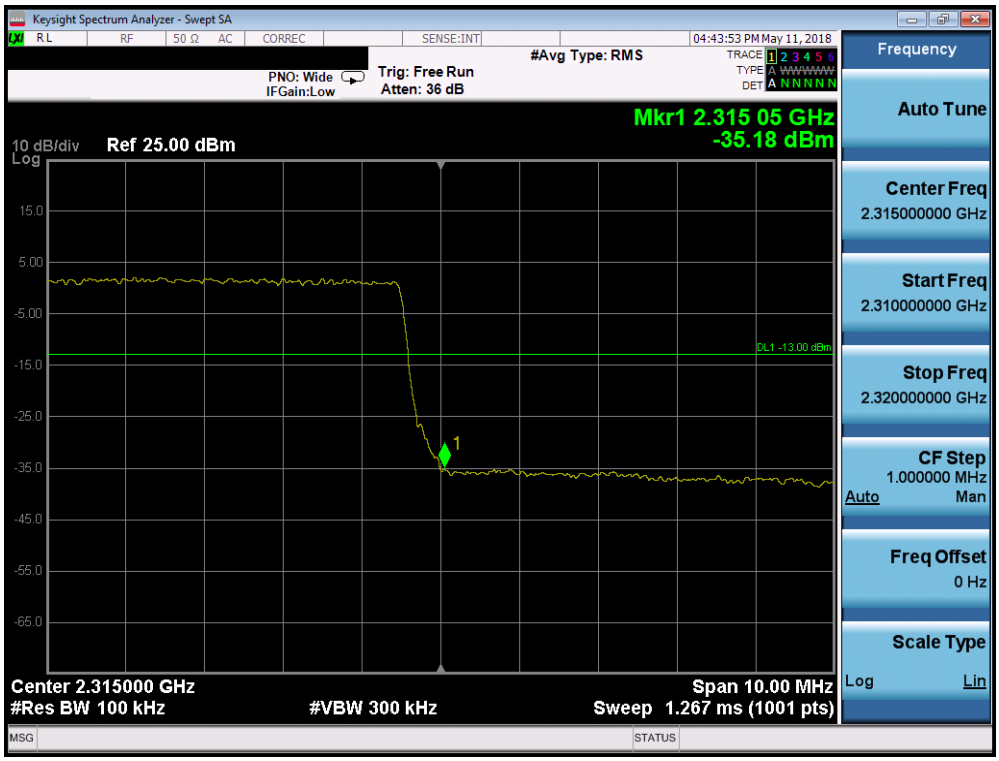
Plot 7-352. Upper Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)

Plot 7-353. Upper Extended Band Edge Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-354. Lower Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)

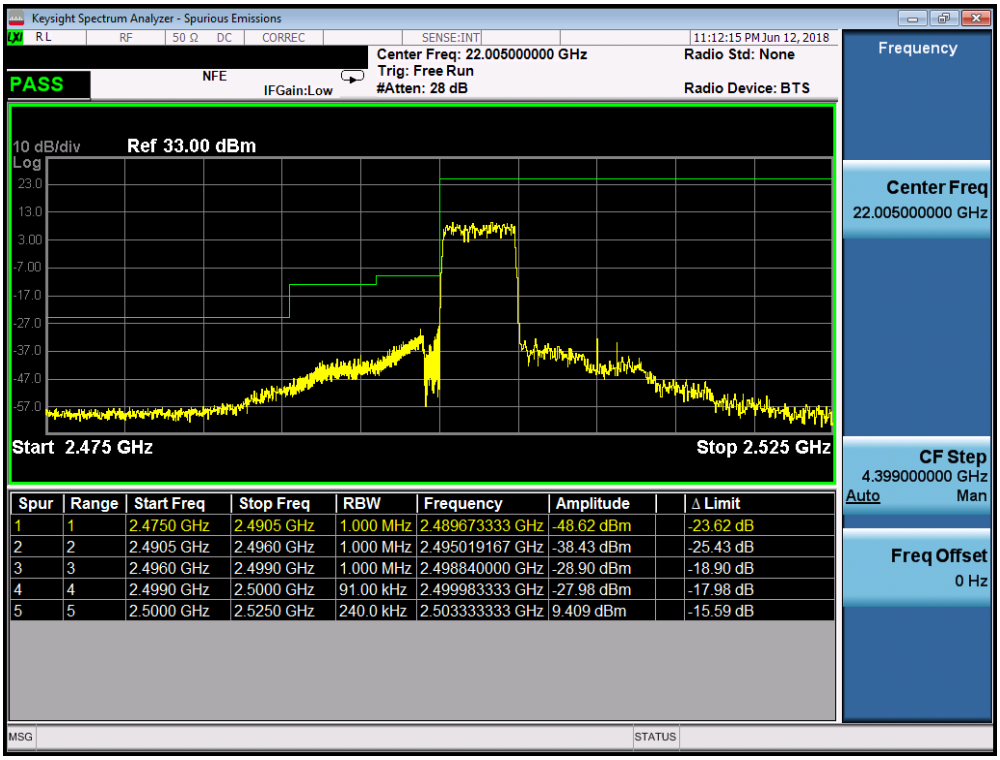
Plot 7-355. Lower Extended Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-356. Upper Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)

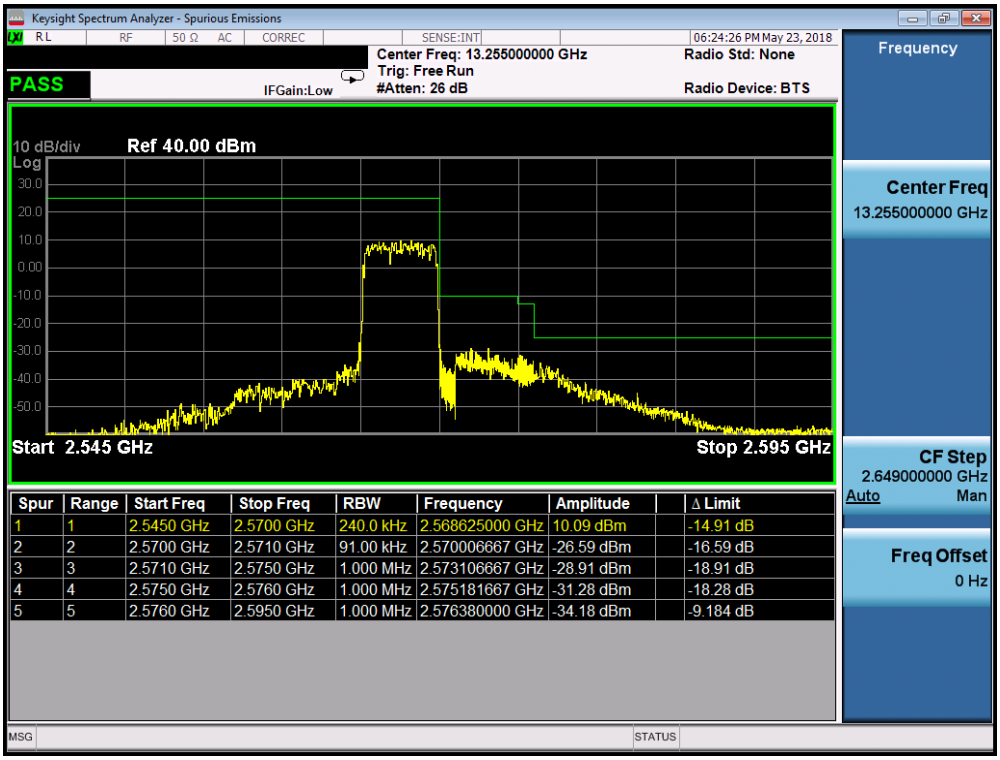
Plot 7-357. Upper Extended Band Edge Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)

Band 7 – Antenna A



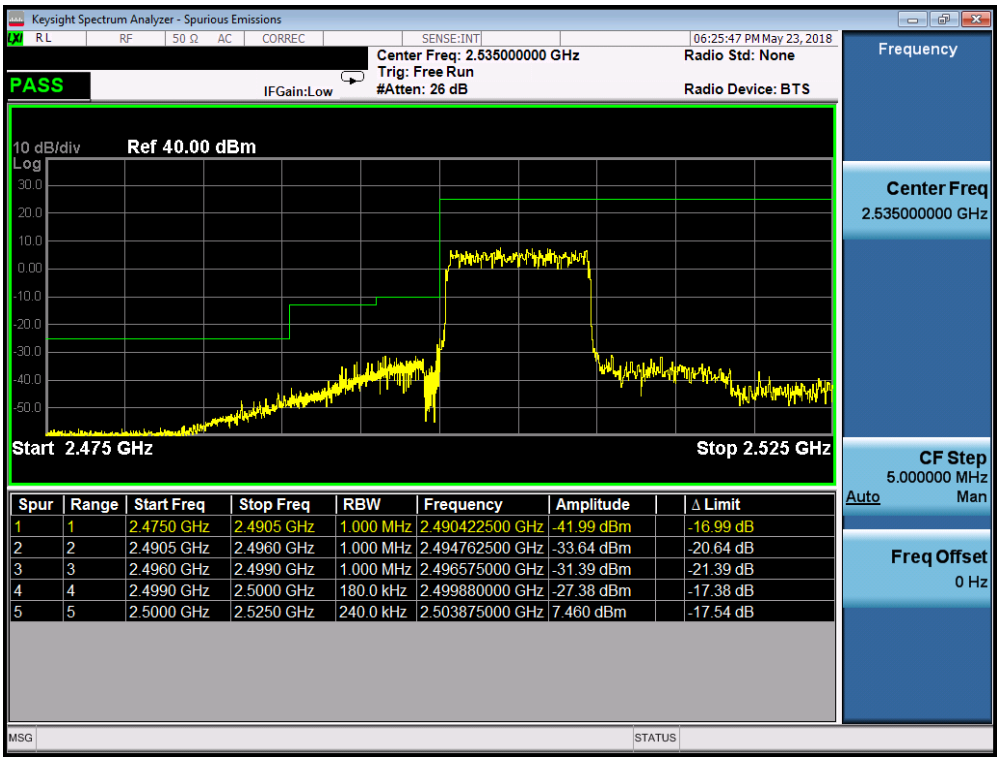
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.489673333 GHz	-48.62 dBm	-23.62 dB
2	2	2.4905 GHz	2.4960 GHz	1.000 MHz	2.495019167 GHz	-38.43 dBm	-25.43 dB
3	3	2.4960 GHz	2.4990 GHz	1.000 MHz	2.498840000 GHz	-28.90 dBm	-18.90 dB
4	4	2.4990 GHz	2.5000 GHz	91.00 kHz	2.499983333 GHz	-27.98 dBm	-17.98 dB
5	5	2.5000 GHz	2.5250 GHz	240.0 kHz	2.503333333 GHz	9.409 dBm	-15.59 dB

Plot 7-358. Lower ACP Plot (Band 7 - 5.0MHz QPSK - RB Size 25)



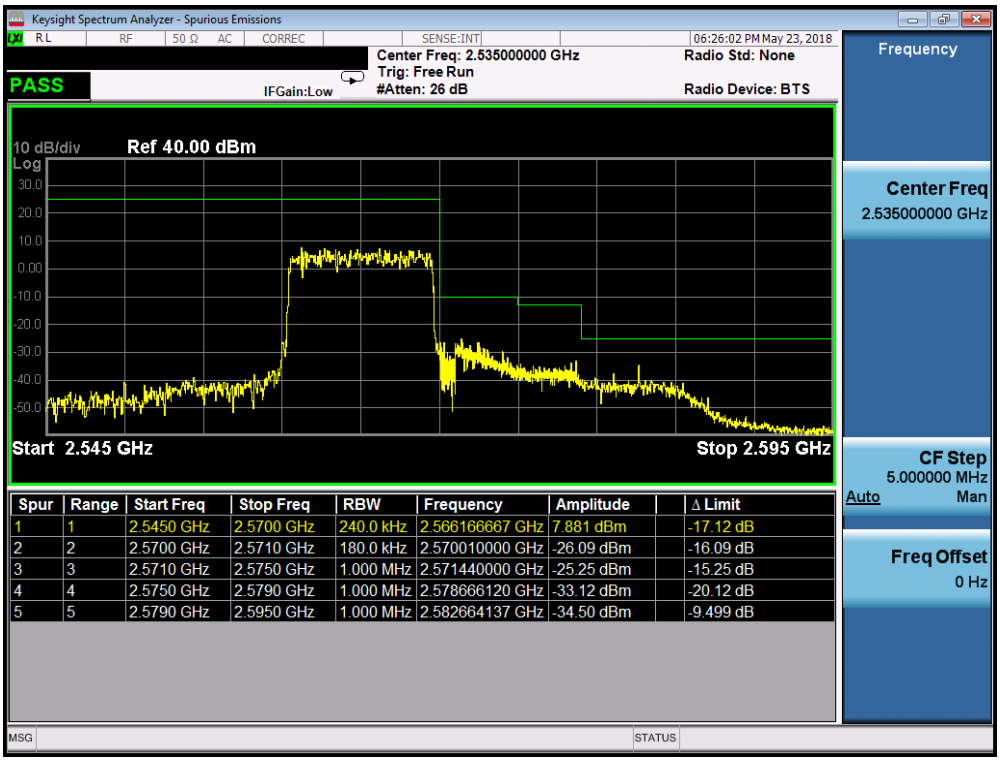
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5450 GHz	2.5700 GHz	240.0 kHz	2.568625000 GHz	10.09 dBm	-14.91 dB
2	2	2.5700 GHz	2.5710 GHz	91.00 kHz	2.570006667 GHz	-26.59 dBm	-16.59 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.573106667 GHz	-28.91 dBm	-18.91 dB
4	4	2.5750 GHz	2.5760 GHz	1.000 MHz	2.575181667 GHz	-31.28 dBm	-18.28 dB
5	5	2.5760 GHz	2.5950 GHz	1.000 MHz	2.576380000 GHz	-34.18 dBm	-9.184 dB

Plot 7-359. Upper ACP Plot (Band 7 - 5.0MHz QPSK - RB Size 25)



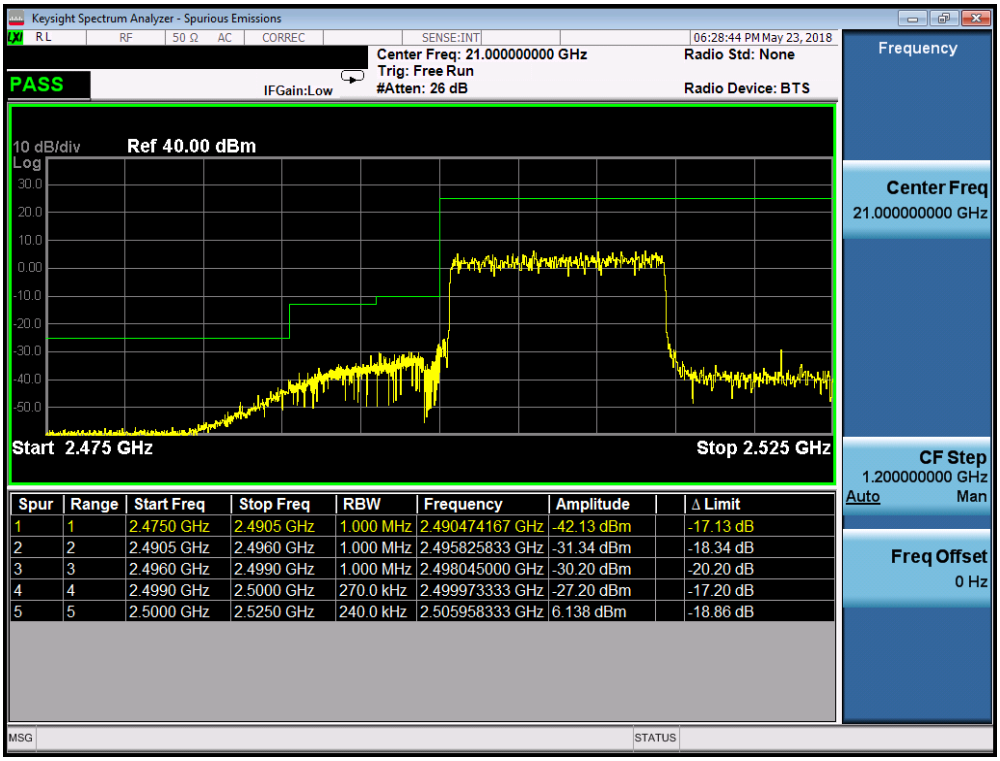
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490422500 GHz	-41.99 dBm	-16.99 dB
2	2	2.4905 GHz	2.4960 GHz	1.000 MHz	2.494762500 GHz	-33.64 dBm	-20.64 dB
3	3	2.4960 GHz	2.4990 GHz	1.000 MHz	2.496575000 GHz	-31.39 dBm	-21.39 dB
4	4	2.4990 GHz	2.5000 GHz	180.0 kHz	2.499880000 GHz	-27.38 dBm	-17.38 dB
5	5	2.5000 GHz	2.5250 GHz	240.0 kHz	2.503875000 GHz	7.460 dBm	-17.54 dB

Plot 7-360. Lower ACP Plot (Band 7 - 10.0MHz QPSK - RB Size 25)



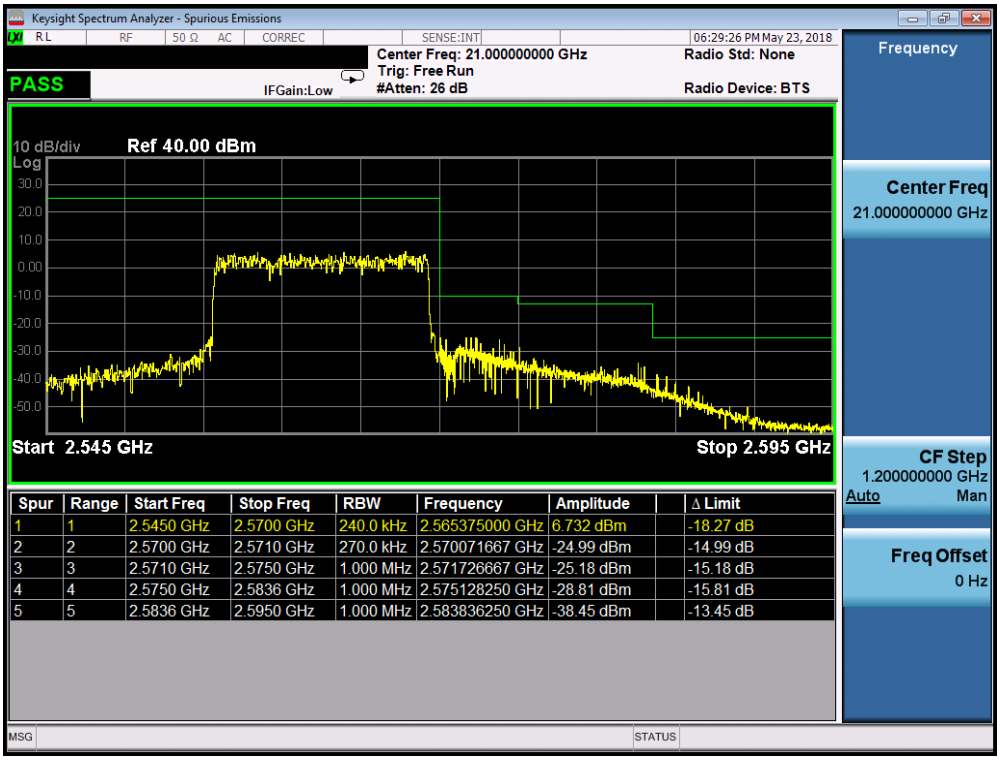
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5450 GHz	2.5700 GHz	240.0 kHz	2.566166667 GHz	7.881 dBm	-17.12 dB
2	2	2.5700 GHz	2.5710 GHz	180.0 kHz	2.570010000 GHz	-26.09 dBm	-16.09 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.571440000 GHz	-25.25 dBm	-15.25 dB
4	4	2.5750 GHz	2.5790 GHz	1.000 MHz	2.578666120 GHz	-33.12 dBm	-20.12 dB
5	5	2.5790 GHz	2.5950 GHz	1.000 MHz	2.582664137 GHz	-34.50 dBm	-9.499 dB

Plot 7-361. Upper ACP Plot (Band 7 - 10.0MHz QPSK - RB Size 25)



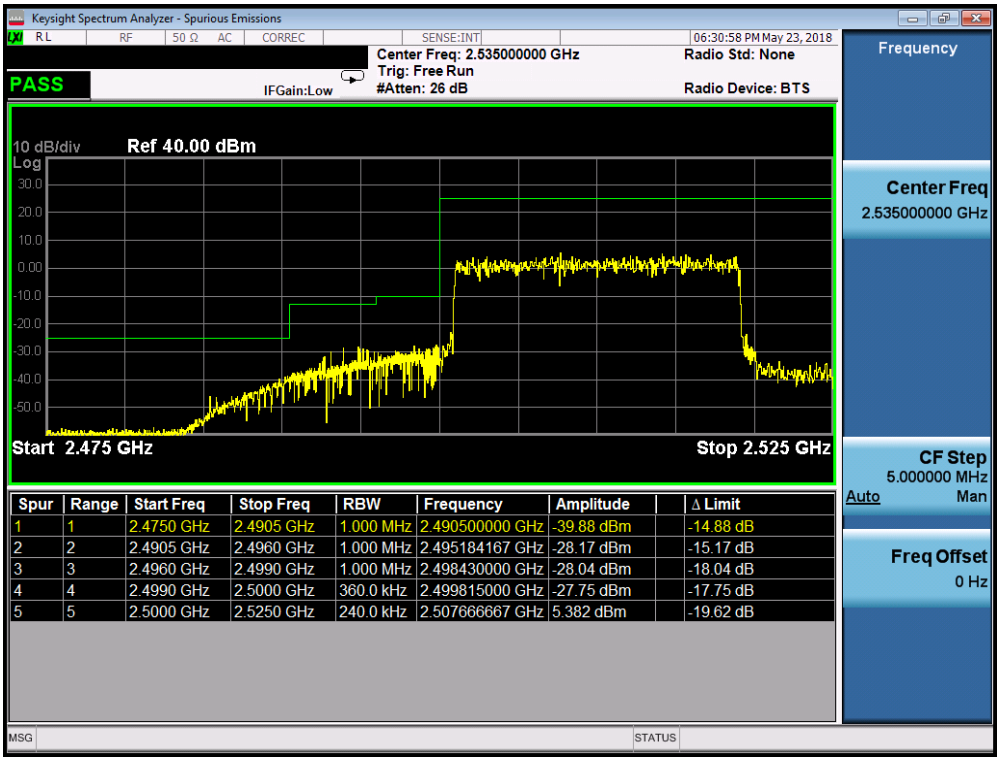
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490474167 GHz	-42.13 dBm	-17.13 dB
2	2	2.4905 GHz	2.4960 GHz	1.000 MHz	2.495825833 GHz	-31.34 dBm	-18.34 dB
3	3	2.4960 GHz	2.4990 GHz	1.000 MHz	2.498045000 GHz	-30.20 dBm	-20.20 dB
4	4	2.4990 GHz	2.5000 GHz	270.0 kHz	2.499973333 GHz	-27.20 dBm	-17.20 dB
5	5	2.5000 GHz	2.5250 GHz	240.0 kHz	2.505958333 GHz	6.138 dBm	-18.86 dB

Plot 7-362. Lower ACP Plot (Band 7 - 15.0MHz QPSK - RB Size 25)

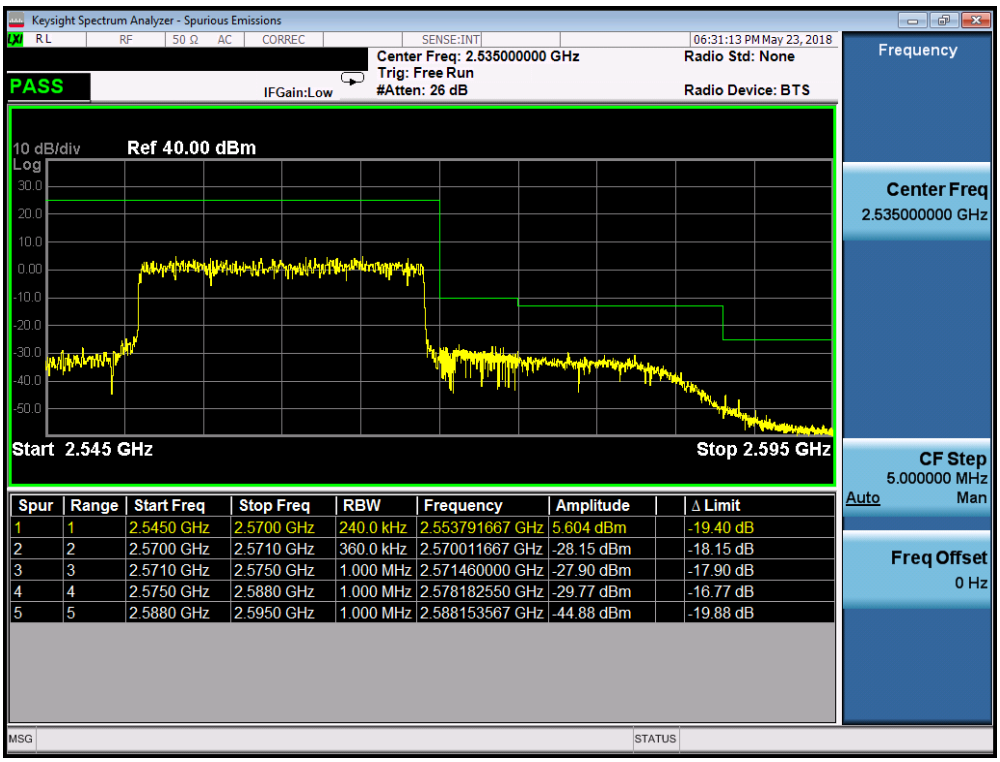


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5450 GHz	2.5700 GHz	240.0 kHz	2.565375000 GHz	6.732 dBm	-18.27 dB
2	2	2.5700 GHz	2.5710 GHz	270.0 kHz	2.570071667 GHz	-24.99 dBm	-14.99 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.571726667 GHz	-25.18 dBm	-15.18 dB
4	4	2.5750 GHz	2.5836 GHz	1.000 MHz	2.575128250 GHz	-28.81 dBm	-15.81 dB
5	5	2.5836 GHz	2.5950 GHz	1.000 MHz	2.583836250 GHz	-38.45 dBm	-13.45 dB

Plot 7-363. Upper ACP Plot (Band 7 - 15.0MHz QPSK - RB Size 25)

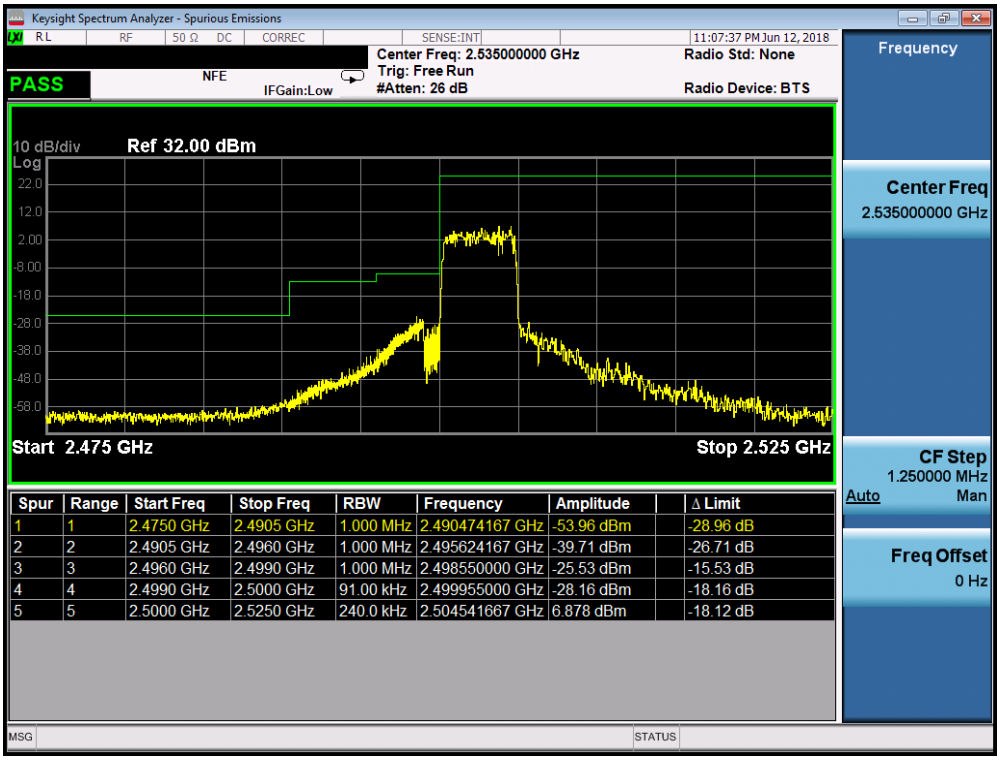


Plot 7-364. Lower ACP Plot (Band 7 - 20.0MHz QPSK - RB Size 25)



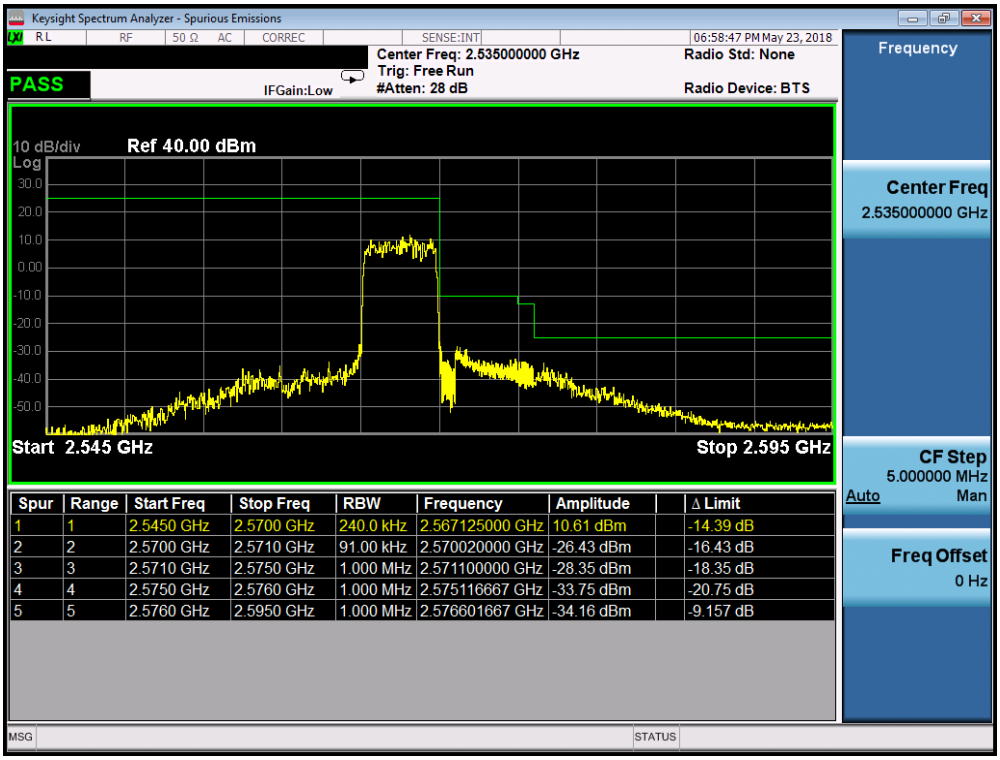
Plot 7-365. Upper ACP Plot (Band 7 - 20.0MHz QPSK - RB Size 25)

Band 7 – Antenna B



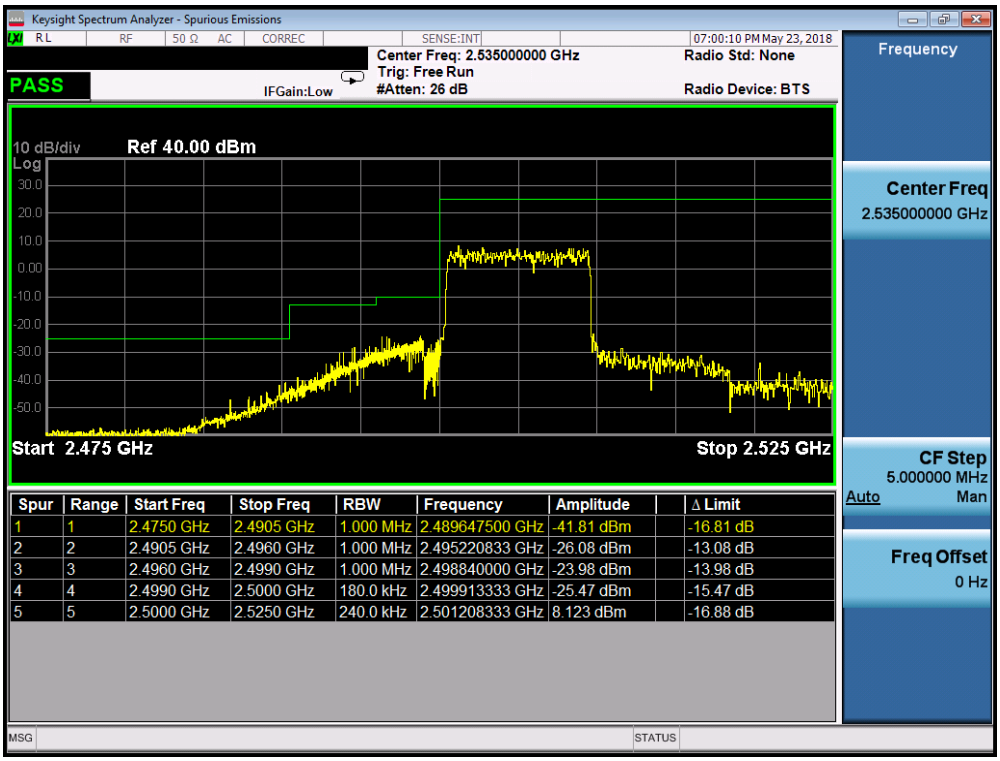
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490474167 GHz	-53.96 dBm	-28.96 dB
2	2	2.4905 GHz	2.4960 GHz	1.000 MHz	2.495624167 GHz	-39.71 dBm	-26.71 dB
3	3	2.4960 GHz	2.4990 GHz	1.000 MHz	2.498550000 GHz	-25.53 dBm	-15.53 dB
4	4	2.4990 GHz	2.5000 GHz	91.00 kHz	2.499955000 GHz	-28.16 dBm	-18.16 dB
5	5	2.5000 GHz	2.5250 GHz	240.0 kHz	2.504541667 GHz	6.878 dBm	-18.12 dB

Plot 7-366. Lower ACP Plot (Band 7 - 5.0MHz QPSK - RB Size 25)



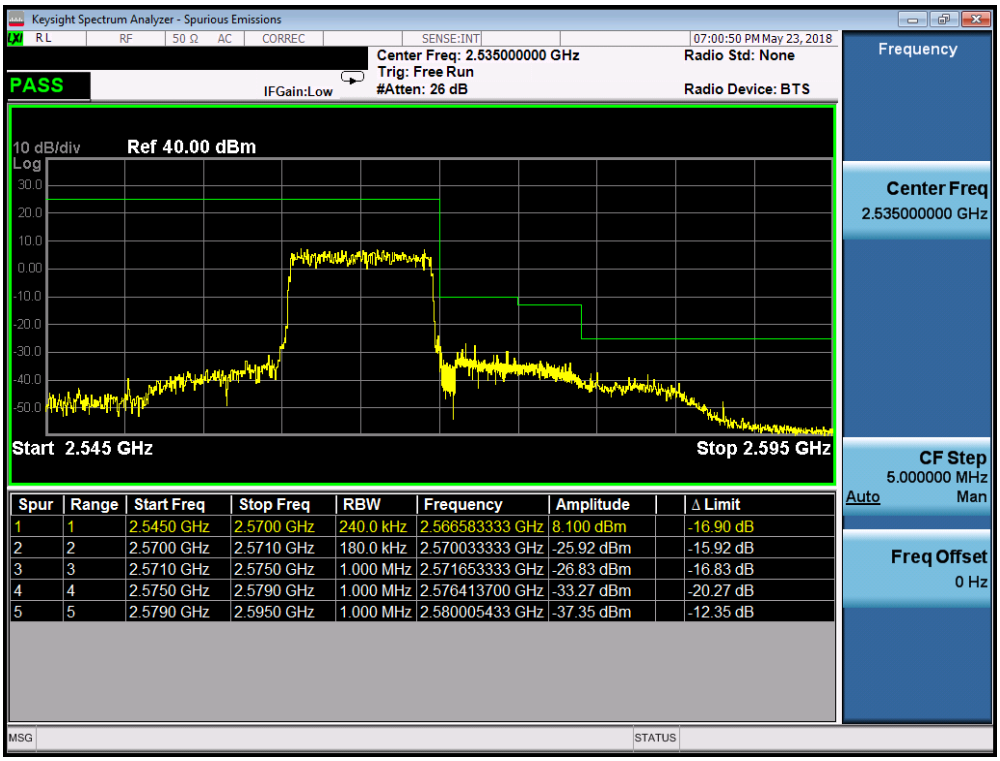
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5450 GHz	2.5700 GHz	240.0 kHz	2.567125000 GHz	10.61 dBm	-14.39 dB
2	2	2.5700 GHz	2.5710 GHz	91.00 kHz	2.570020000 GHz	-26.43 dBm	-16.43 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.571100000 GHz	-28.35 dBm	-18.35 dB
4	4	2.5750 GHz	2.5760 GHz	1.000 MHz	2.575116667 GHz	-33.75 dBm	-20.75 dB
5	5	2.5760 GHz	2.5950 GHz	1.000 MHz	2.576601667 GHz	-34.16 dBm	-9.157 dB

Plot 7-367. Upper ACP Plot (Band 7 - 5.0MHz QPSK - RB Size 25)



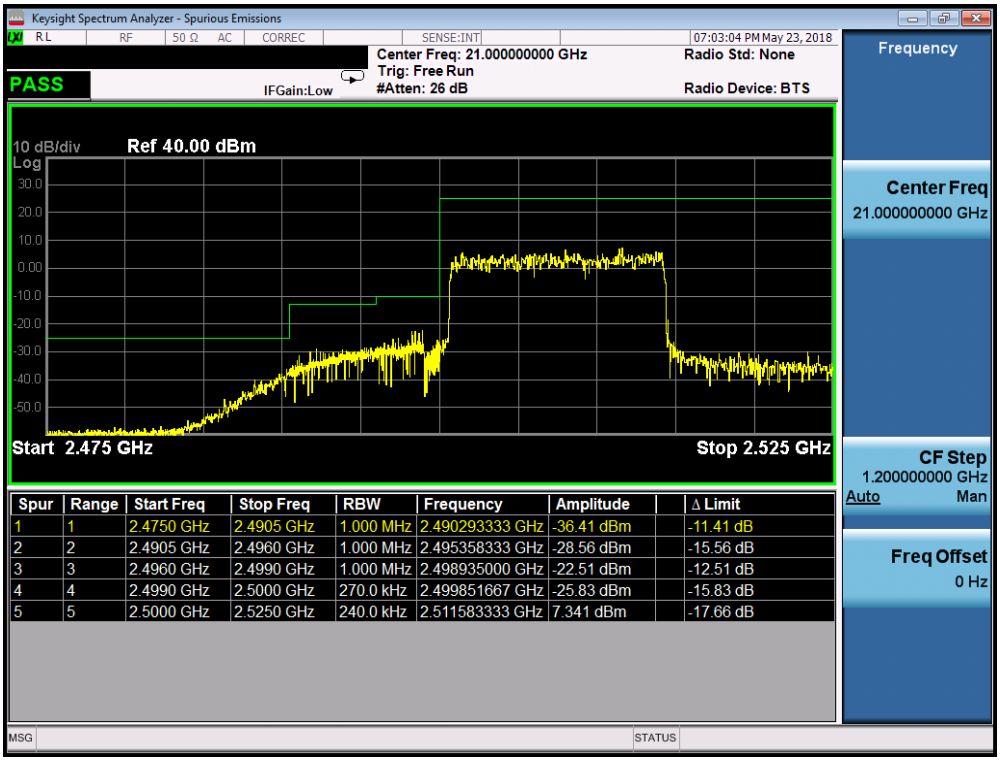
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.489647500 GHz	-41.81 dBm	-16.81 dB
2	2	2.4905 GHz	2.4960 GHz	1.000 MHz	2.495220833 GHz	-26.08 dBm	-13.08 dB
3	3	2.4960 GHz	2.4990 GHz	1.000 MHz	2.498840000 GHz	-23.98 dBm	-13.98 dB
4	4	2.4990 GHz	2.5000 GHz	180.0 kHz	2.499913333 GHz	-25.47 dBm	-15.47 dB
5	5	2.5000 GHz	2.5250 GHz	240.0 kHz	2.501208333 GHz	8.123 dBm	-16.88 dB

Plot 7-368. Lower ACP Plot (Band 7 - 10.0MHz QPSK - RB Size 25)

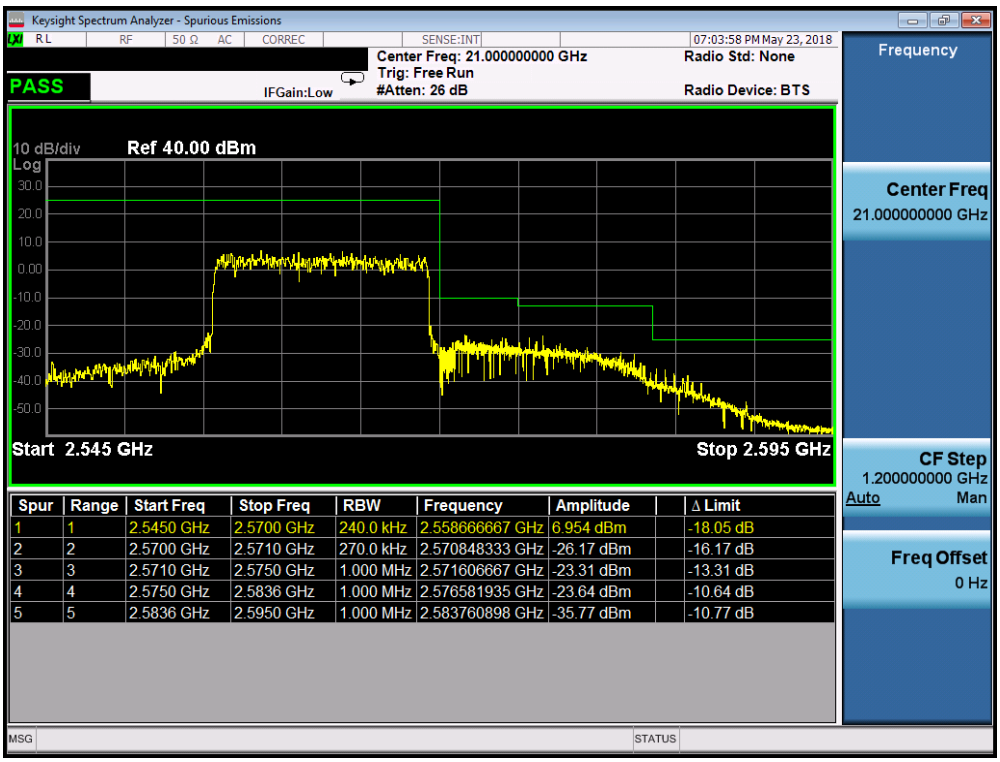


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5450 GHz	2.5700 GHz	240.0 kHz	2.566583333 GHz	8.100 dBm	-16.90 dB
2	2	2.5700 GHz	2.5710 GHz	180.0 kHz	2.570033333 GHz	-25.92 dBm	-15.92 dB
3	3	2.5710 GHz	2.5750 GHz	1.000 MHz	2.571653333 GHz	-26.83 dBm	-16.83 dB
4	4	2.5750 GHz	2.5790 GHz	1.000 MHz	2.576413700 GHz	-33.27 dBm	-20.27 dB
5	5	2.5790 GHz	2.5950 GHz	1.000 MHz	2.580005433 GHz	-37.35 dBm	-12.35 dB

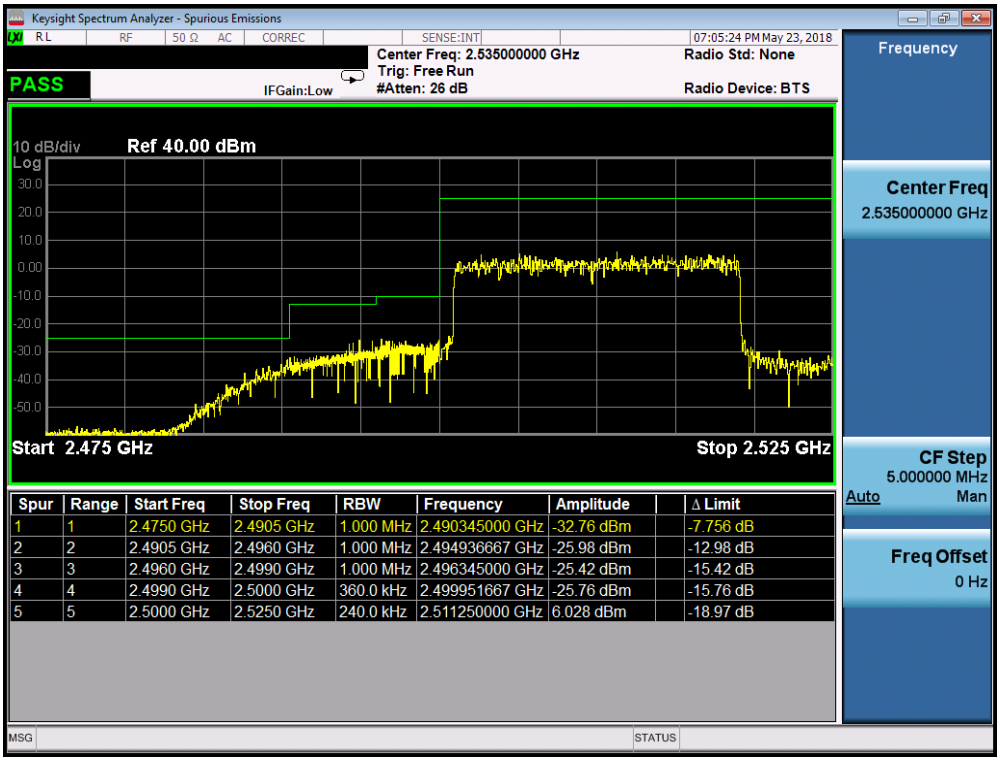
Plot 7-369. Upper ACP Plot (Band 7 - 10.0MHz QPSK - RB Size 25)



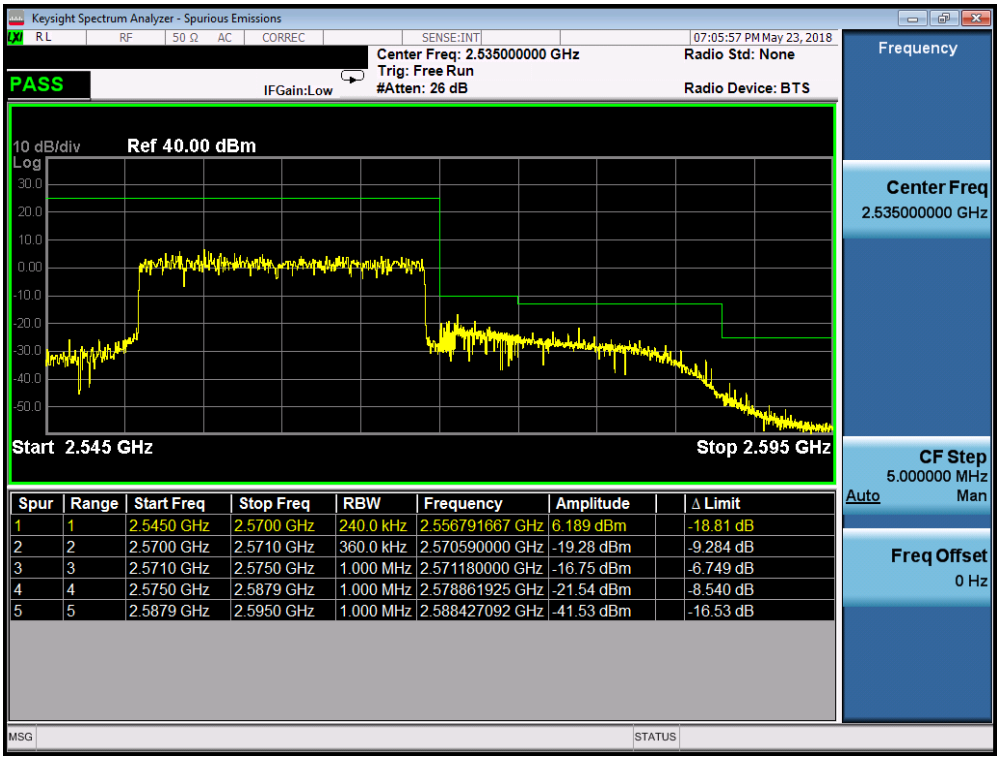
Plot 7-370. Lower ACP Plot (Band 7 - 15.0MHz QPSK - RB Size 25)



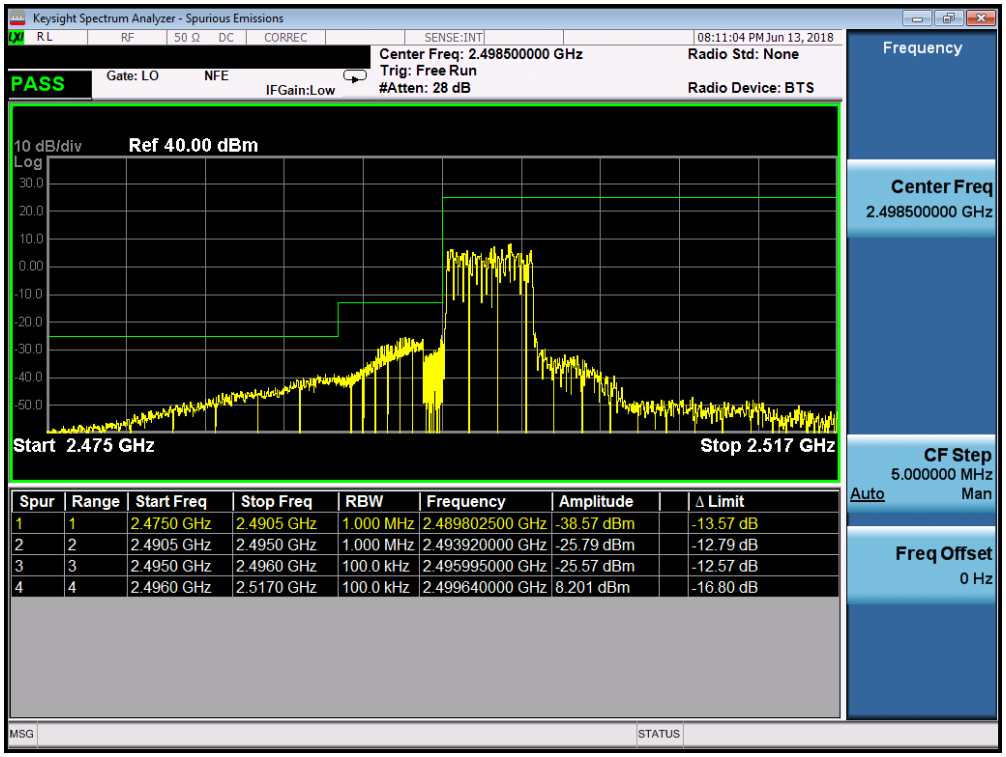
Plot 7-371. Upper ACP Plot (Band 7 - 15.0MHz QPSK - RB Size 25)



Plot 7-372. Lower ACP Plot (Band 7 - 20.0MHz QPSK - RB Size 25)

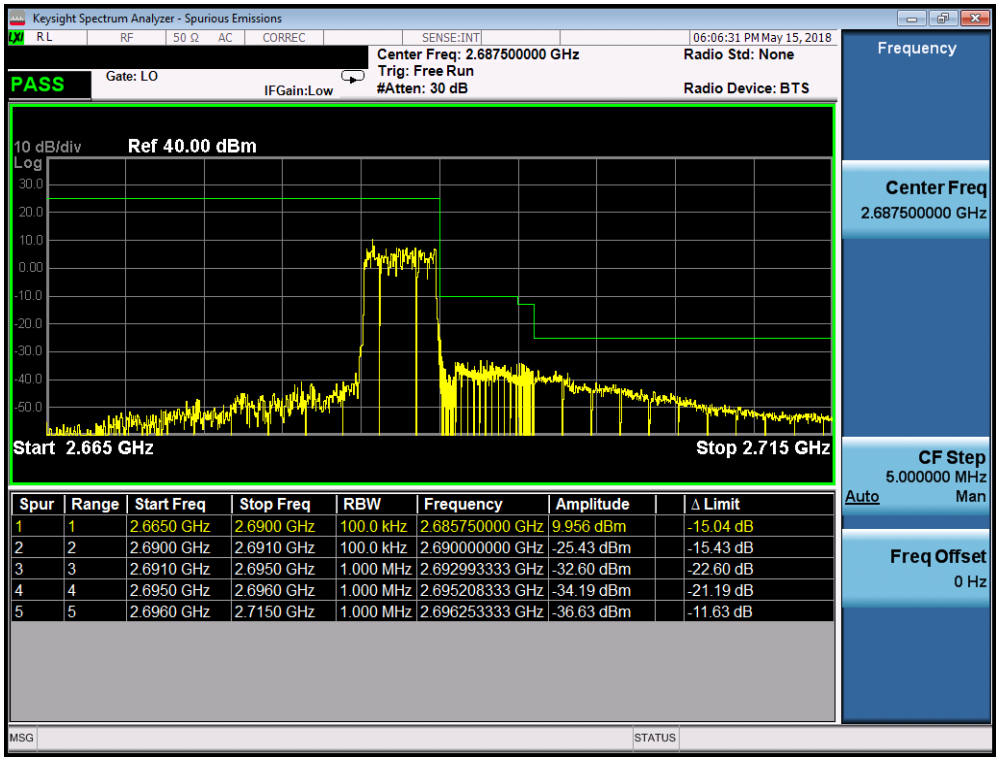


Plot 7-373. Upper ACP Plot (Band 7 - 20.0MHz QPSK - RB Size 25)



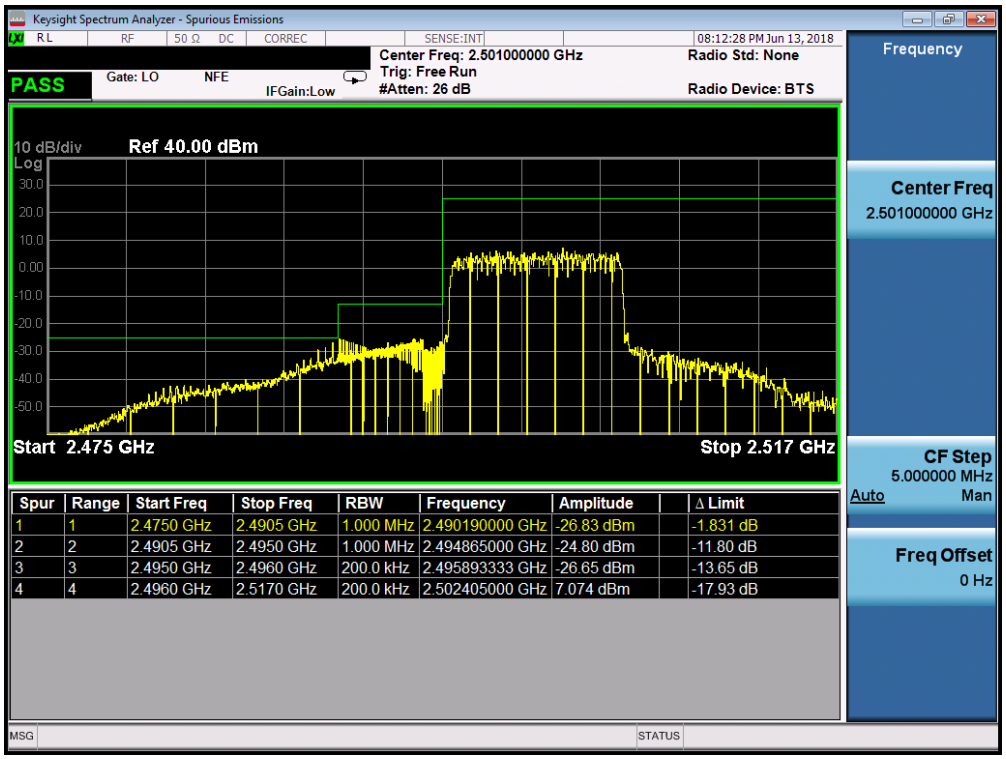
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.489802500 GHz	-38.57 dBm	-13.57 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.493920000 GHz	-25.79 dBm	-12.79 dB
3	3	2.4950 GHz	2.4960 GHz	100.0 kHz	2.495995000 GHz	-25.57 dBm	-12.57 dB
4	4	2.4960 GHz	2.5170 GHz	100.0 kHz	2.499640000 GHz	8.201 dBm	-16.80 dB

Plot 7-374. Lower ACP Plot at 2496 MHz (Band 41 - 5.0MHz QPSK - RB Size 25)



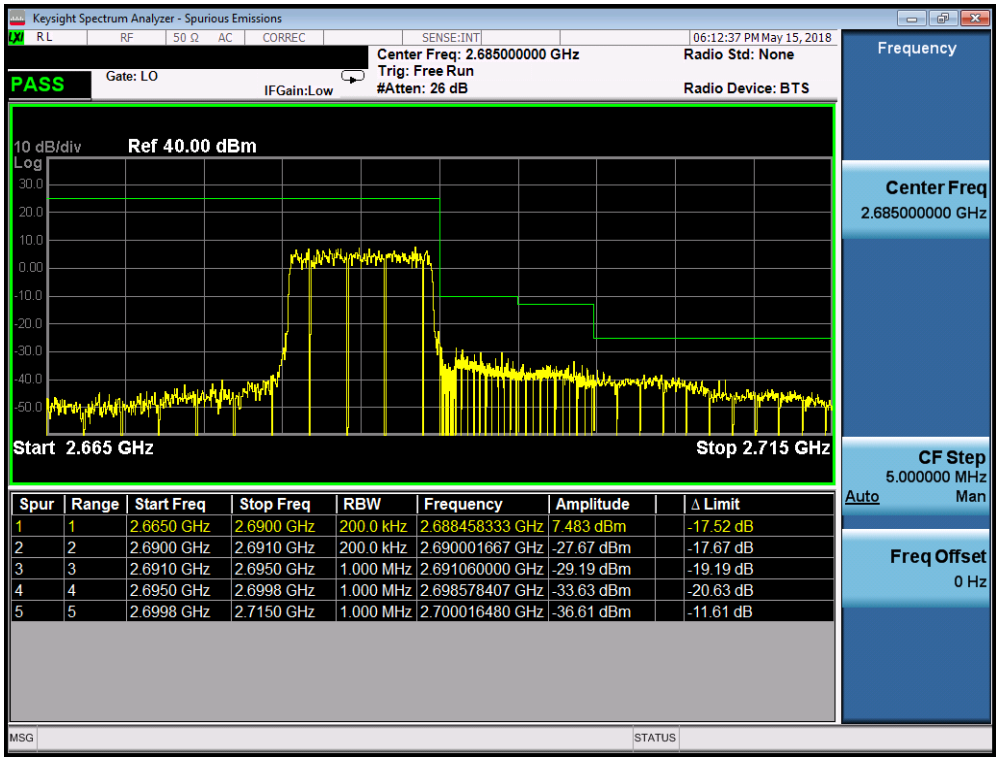
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	100.0 kHz	2.685750000 GHz	9.956 dBm	-15.04 dB
2	2	2.6900 GHz	2.6910 GHz	100.0 kHz	2.690000000 GHz	-25.43 dBm	-15.43 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.692993333 GHz	-32.60 dBm	-22.60 dB
4	4	2.6950 GHz	2.6960 GHz	1.000 MHz	2.695208333 GHz	-34.19 dBm	-21.19 dB
5	5	2.6960 GHz	2.7150 GHz	1.000 MHz	2.696253333 GHz	-36.63 dBm	-11.63 dB

Plot 7-375. Upper ACP Plot (Band 41 - 5.0MHz QPSK - RB Size 25)



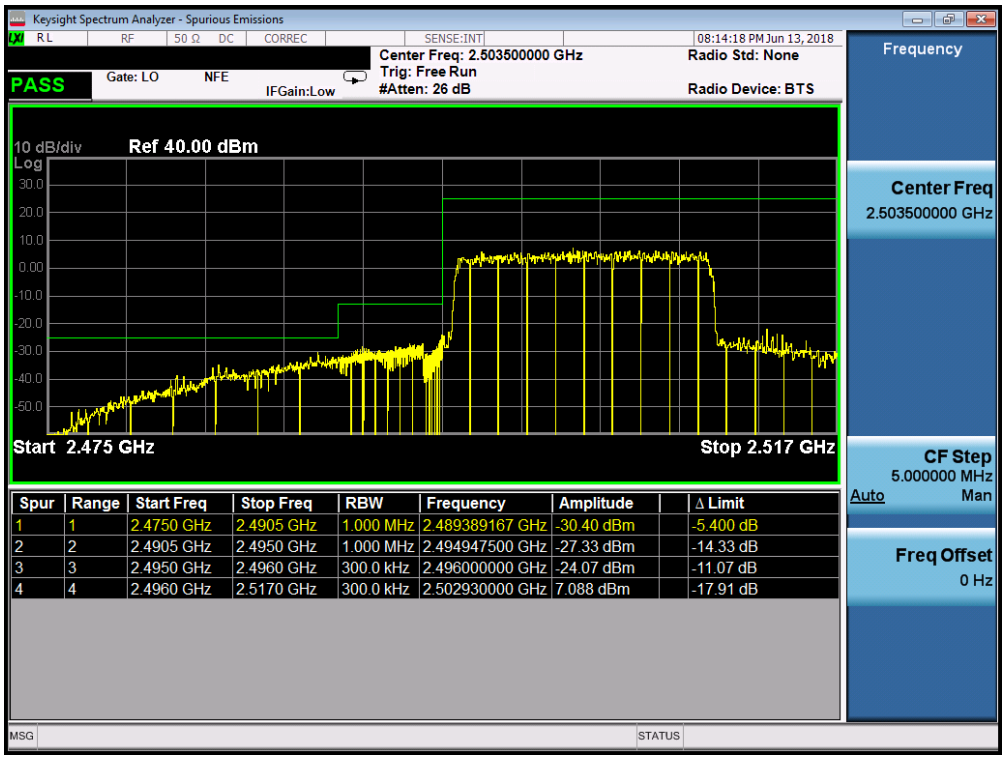
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.490190000 GHz	-26.83 dBm	-1.831 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494865000 GHz	-24.80 dBm	-11.80 dB
3	3	2.4950 GHz	2.4960 GHz	200.0 kHz	2.495893333 GHz	-26.65 dBm	-13.65 dB
4	4	2.4960 GHz	2.5170 GHz	200.0 kHz	2.502405000 GHz	7.074 dBm	-17.93 dB

Plot 7-376. Lower ACP Plot at 2496 MHz (Band 41 - 10.0MHz QPSK - RB Size 25)

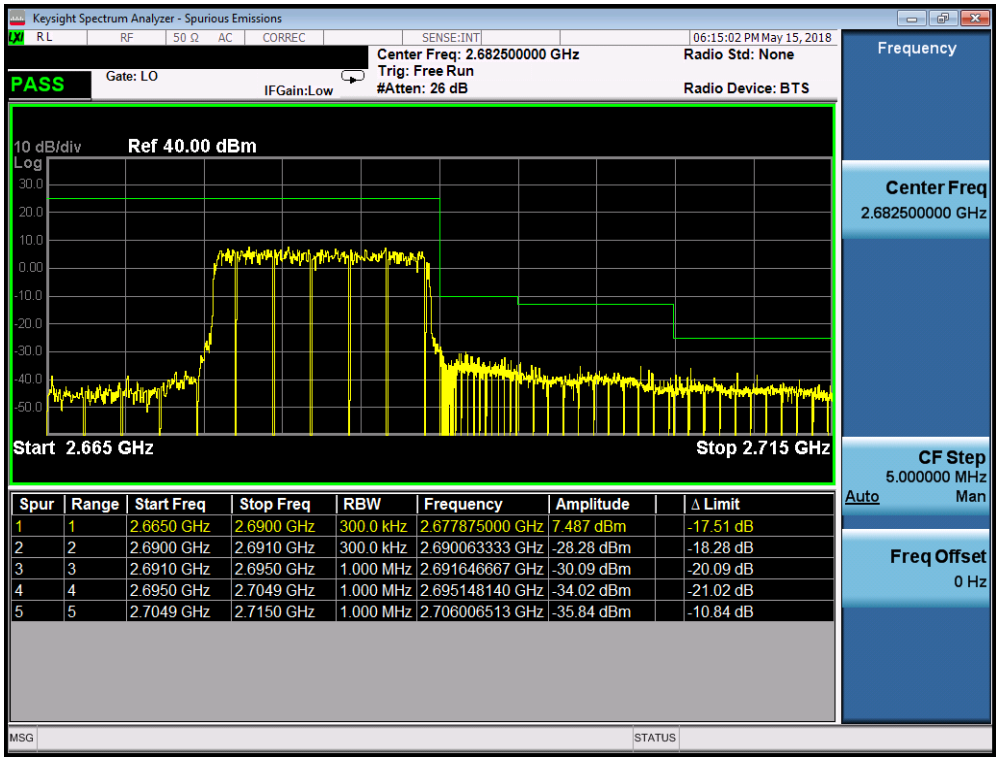


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	200.0 kHz	2.688458333 GHz	7.483 dBm	-17.52 dB
2	2	2.6900 GHz	2.6910 GHz	200.0 kHz	2.690001667 GHz	-27.67 dBm	-17.67 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691060000 GHz	-29.19 dBm	-19.19 dB
4	4	2.6950 GHz	2.6998 GHz	1.000 MHz	2.698578407 GHz	-33.63 dBm	-20.63 dB
5	5	2.6998 GHz	2.7150 GHz	1.000 MHz	2.700016480 GHz	-36.61 dBm	-11.61 dB

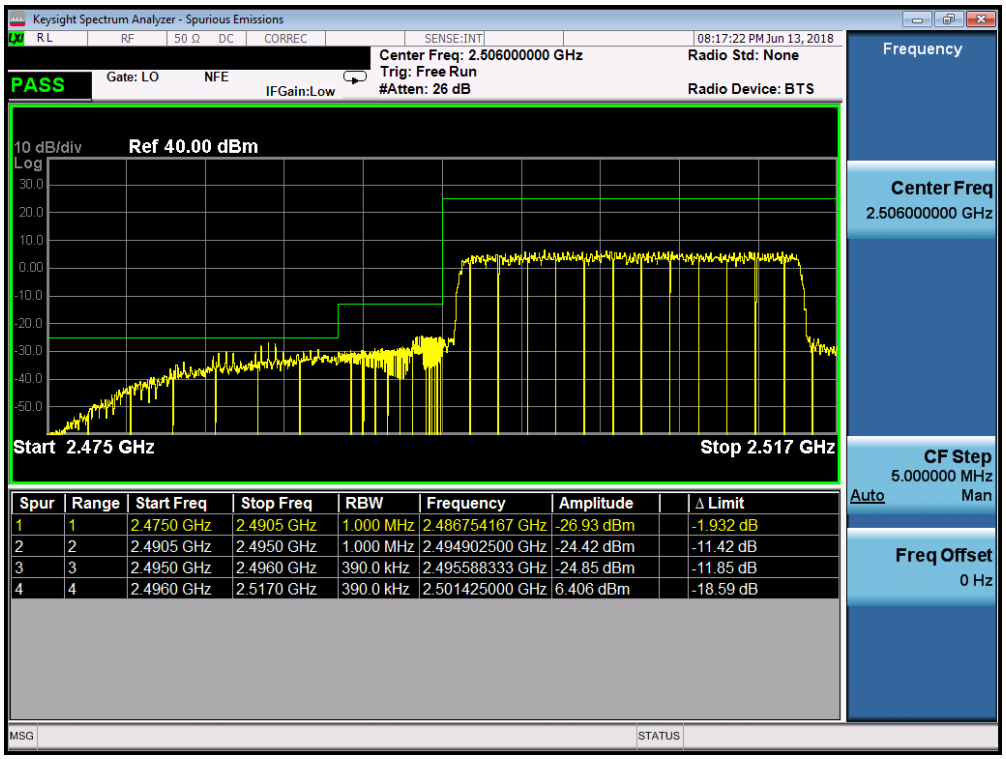
Plot 7-377. Upper ACP Plot (Band 41 - 10.0MHz QPSK - RB Size 25)



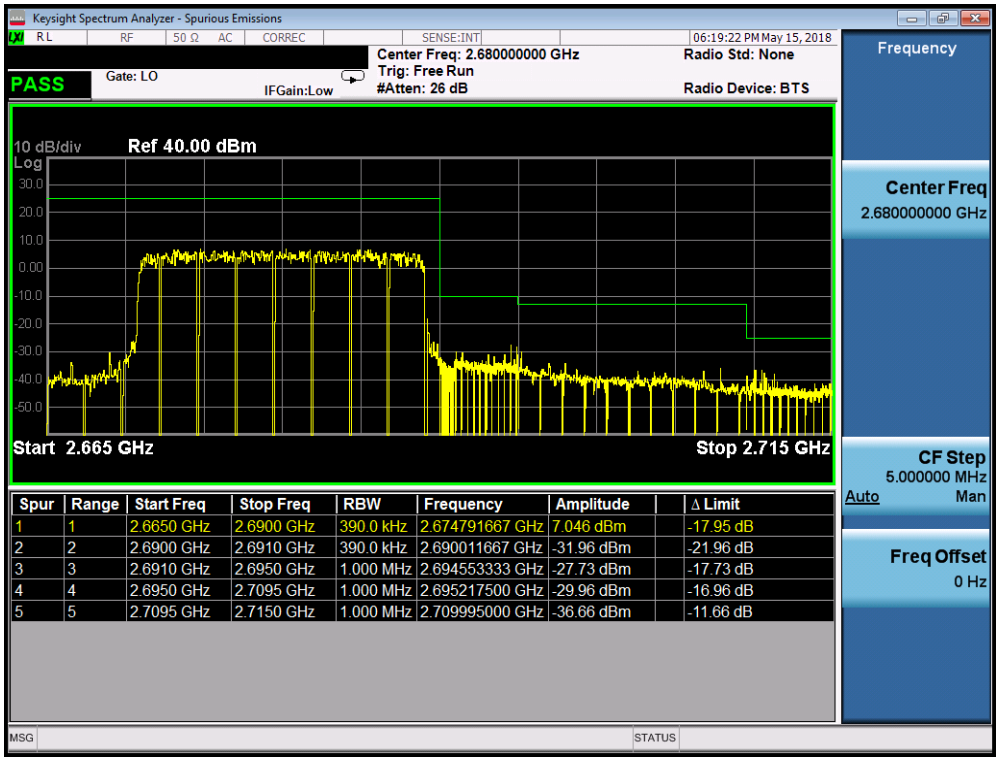
Plot 7-378. Lower ACP Plot at 2496 MHz (Band 41 - 15.0MHz QPSK - RB Size 25)



Plot 7-379. Upper ACP Plot (Band 41 - 15.0MHz QPSK - RB Size 25)

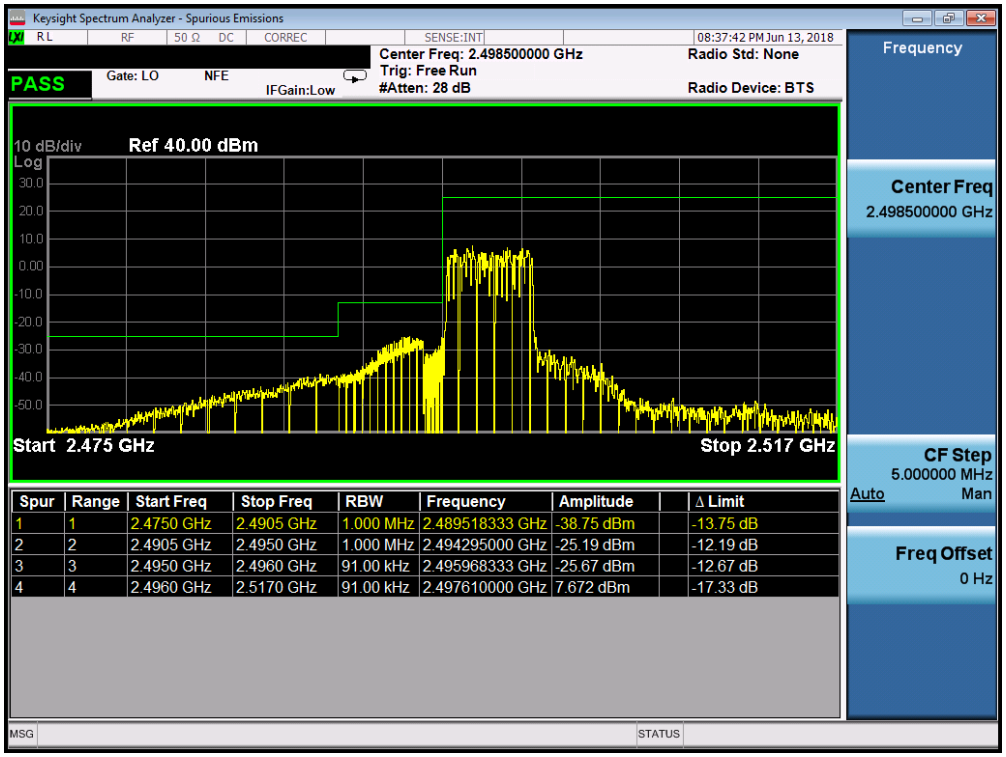


Plot 7-380. Lower ACP Plot at 2496 MHz (Band 41 - 20.0MHz QPSK - RB Size 25)



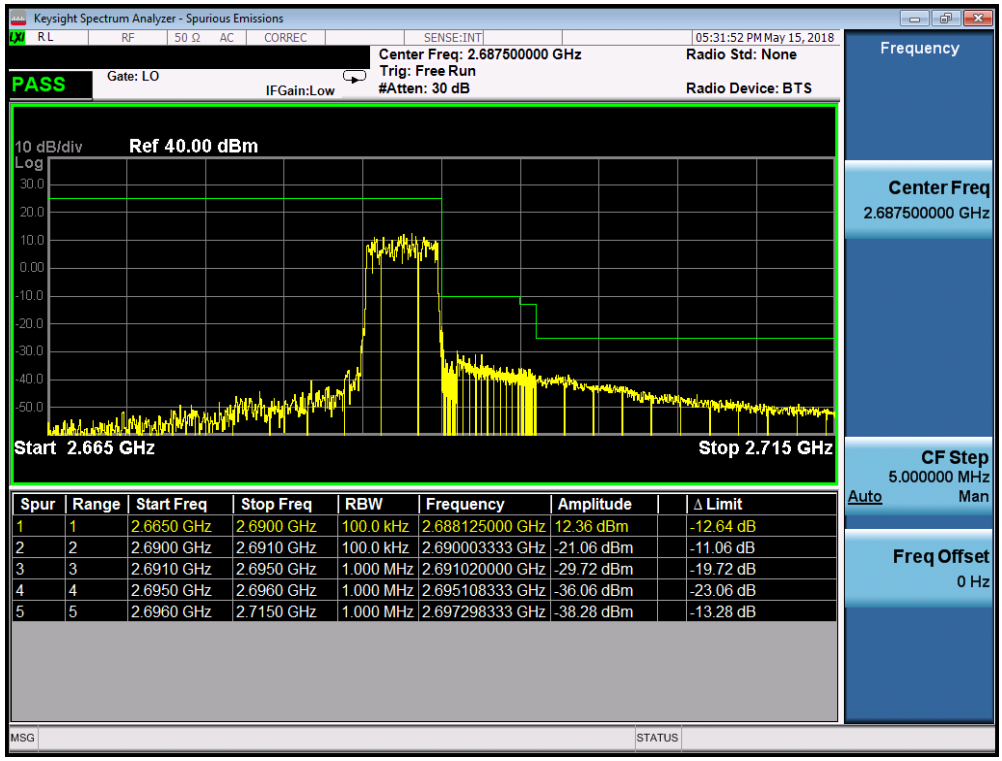
Plot 7-381. Upper ACP Plot (Band 41 - 20.0MHz QPSK - RB Size 25)

Band 41 – PC2



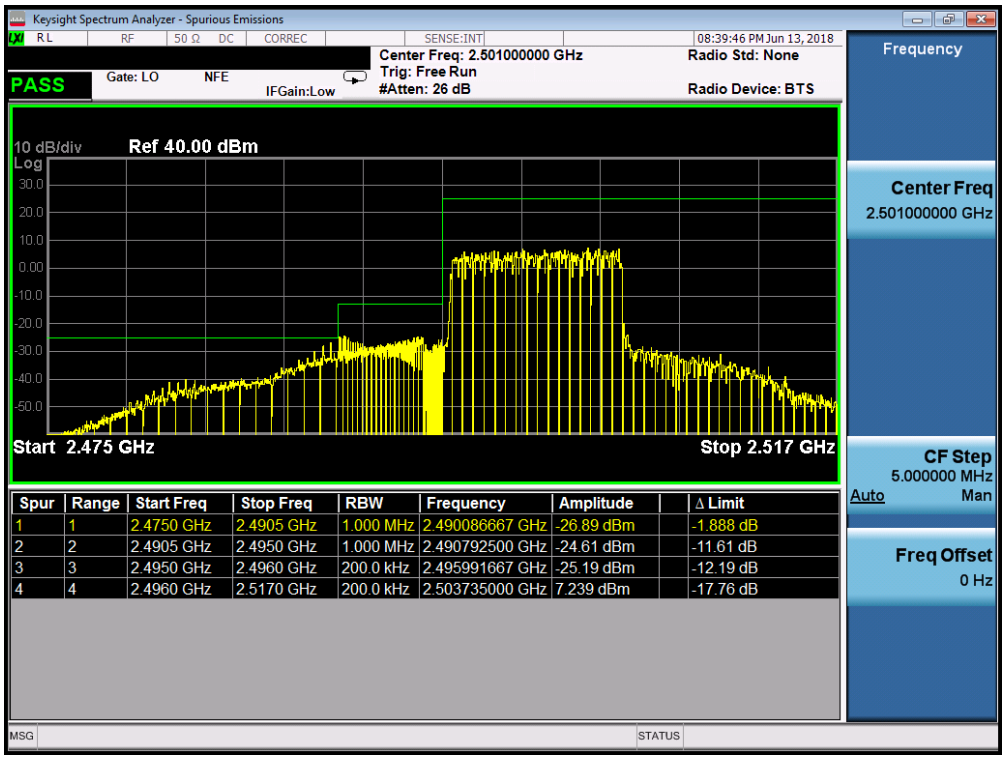
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.489518333 GHz	-38.75 dBm	-13.75 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494295000 GHz	-25.19 dBm	-12.19 dB
3	3	2.4950 GHz	2.4960 GHz	91.00 kHz	2.495968333 GHz	-25.67 dBm	-12.67 dB
4	4	2.4960 GHz	2.5170 GHz	91.00 kHz	2.497610000 GHz	7.672 dBm	-17.33 dB

Plot 7-382. Lower ACP Plot at 2496 MHz (Band 41 - 5.0MHz QPSK - RB Size 25)

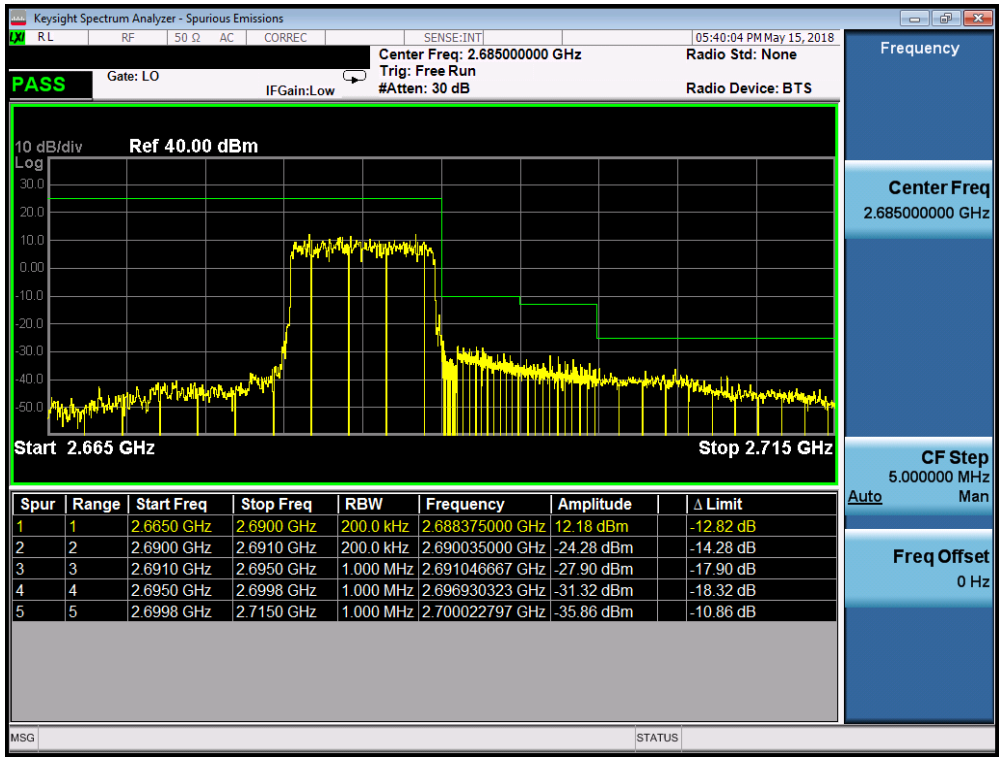


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	100.0 kHz	2.688125000 GHz	12.36 dBm	-12.64 dB
2	2	2.6900 GHz	2.6910 GHz	100.0 kHz	2.690003333 GHz	-21.06 dBm	-11.06 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691020000 GHz	-29.72 dBm	-19.72 dB
4	4	2.6950 GHz	2.6960 GHz	1.000 MHz	2.695108333 GHz	-36.06 dBm	-23.06 dB
5	5	2.6960 GHz	2.7150 GHz	1.000 MHz	2.697298333 GHz	-38.28 dBm	-13.28 dB

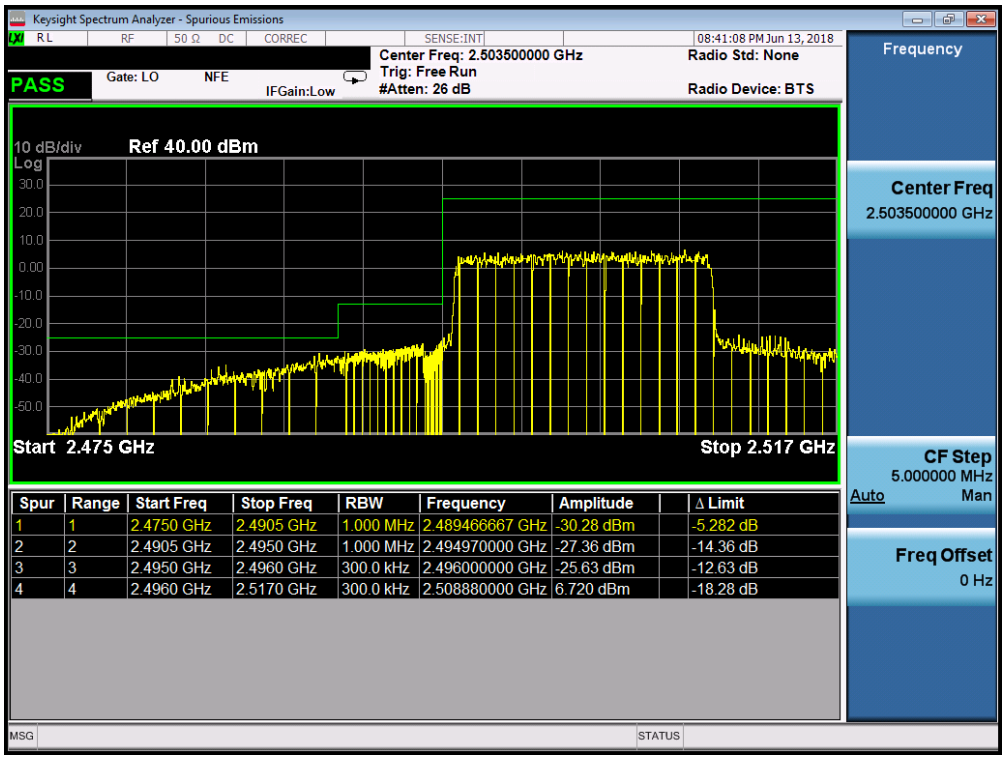
Plot 7-383. Upper ACP Plot (Band 41 - 5.0MHz QPSK - RB Size 25)



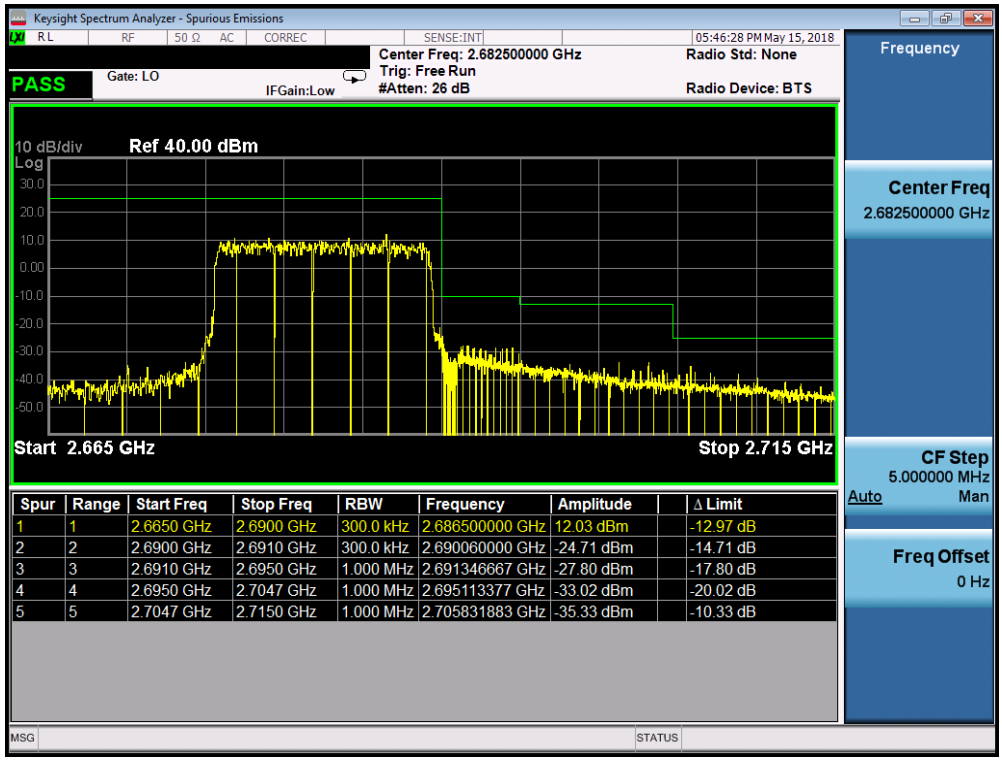
Plot 7-384. Lower ACP Plot at 2496 MHz (Band 41 - 10.0MHz QPSK - RB Size 25)



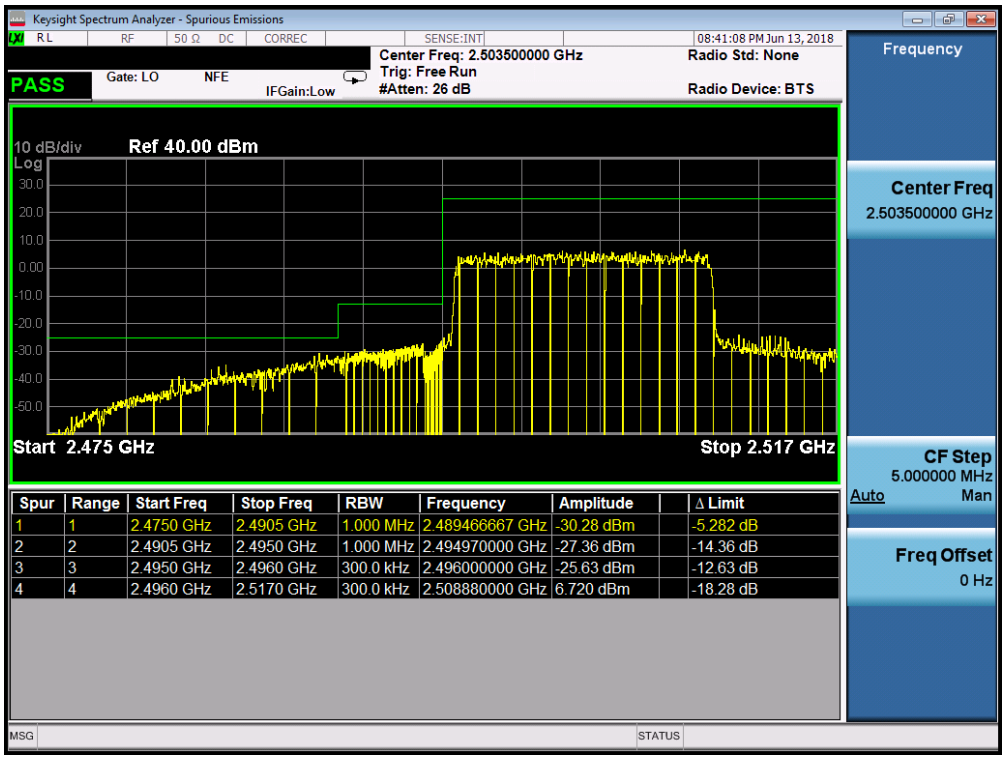
Plot 7-385. Upper ACP Plot (Band 41 - 10.0MHz QPSK - RB Size 25)



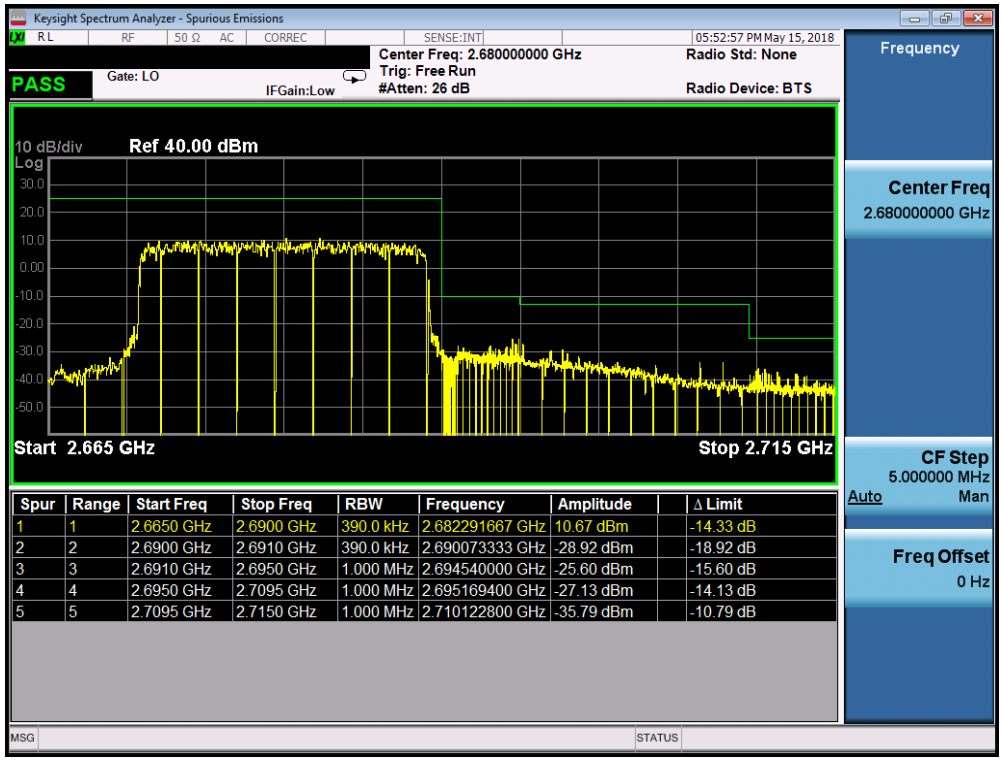
Plot 7-386. Lower ACP Plot at 2496 MHz (Band 41 - 15.0MHz QPSK - RB Size 25)



Plot 7-387. Upper ACP Plot (Band 41 - 15.0MHz QPSK - RB Size 25)



Plot 7-388. Lower ACP Plot at 2496 MHz (Band 41 - 20.0MHz QPSK - RB Size 25)



Plot 7-389. Upper ACP Plot (Band 41 - 20.0MHz QPSK - RB Size 25)

7.5 Peak-Average Ratio

Test Overview

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

Test Procedure Used

KDB 971168 D01 v03r01 – Section 5.7.1

Test Settings

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

Test Setup

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

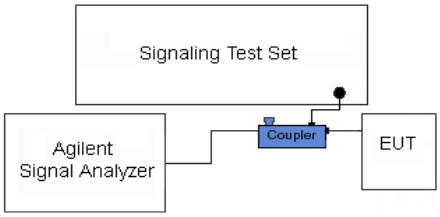
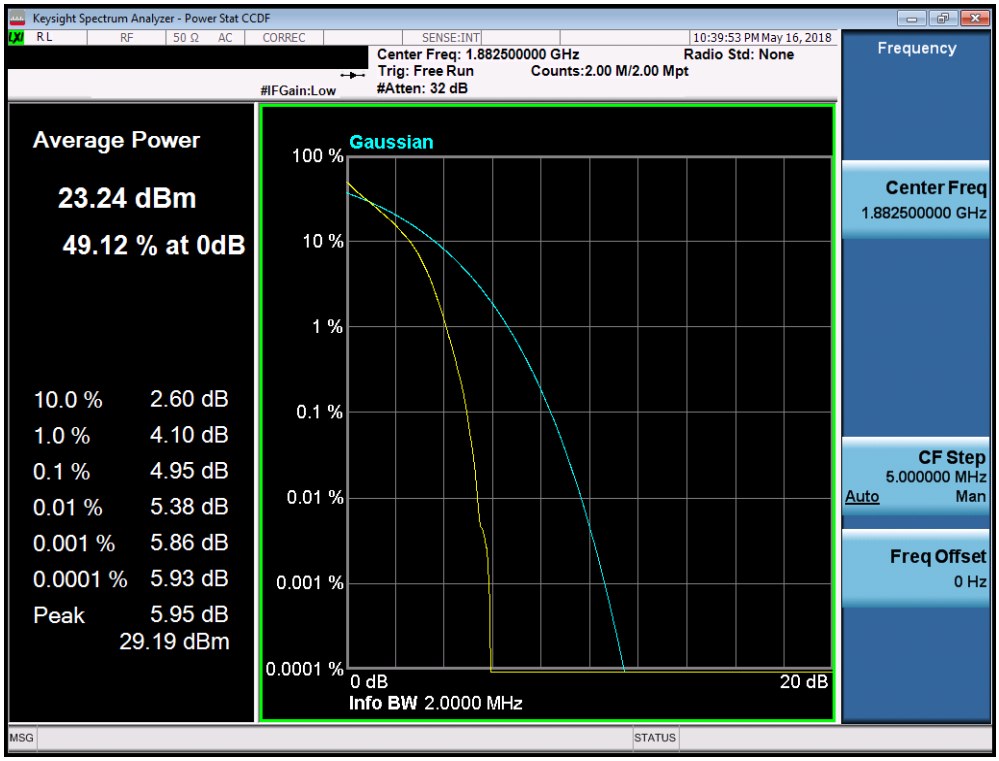


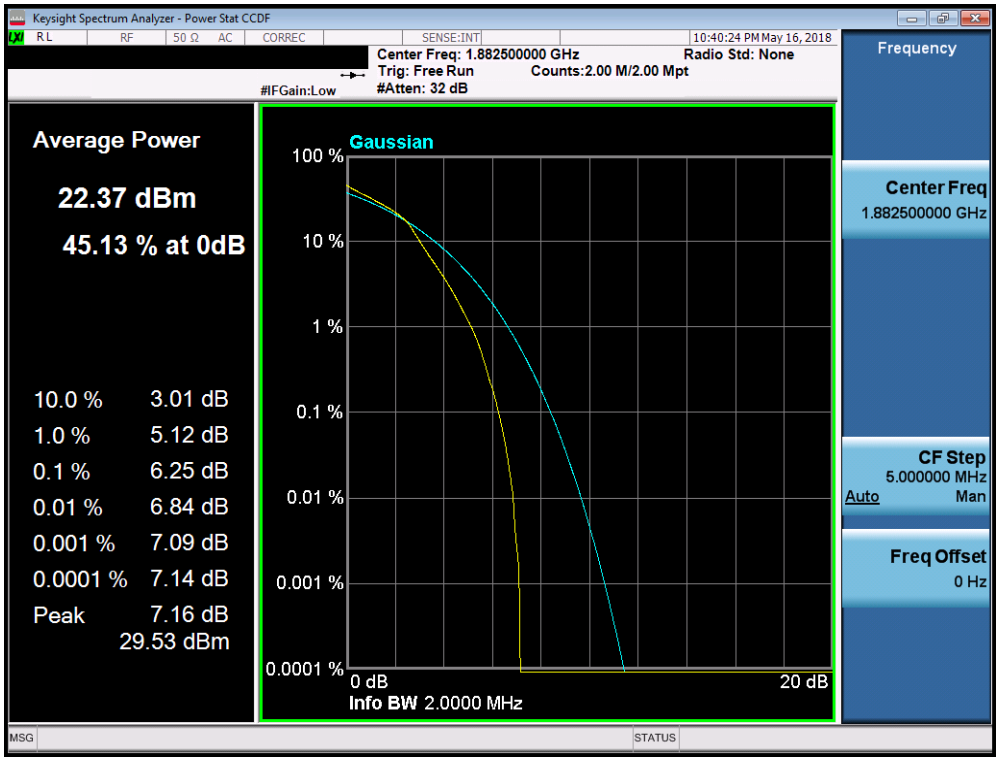
Figure 7-4. Test Instrument & Measurement Setup

Test Notes

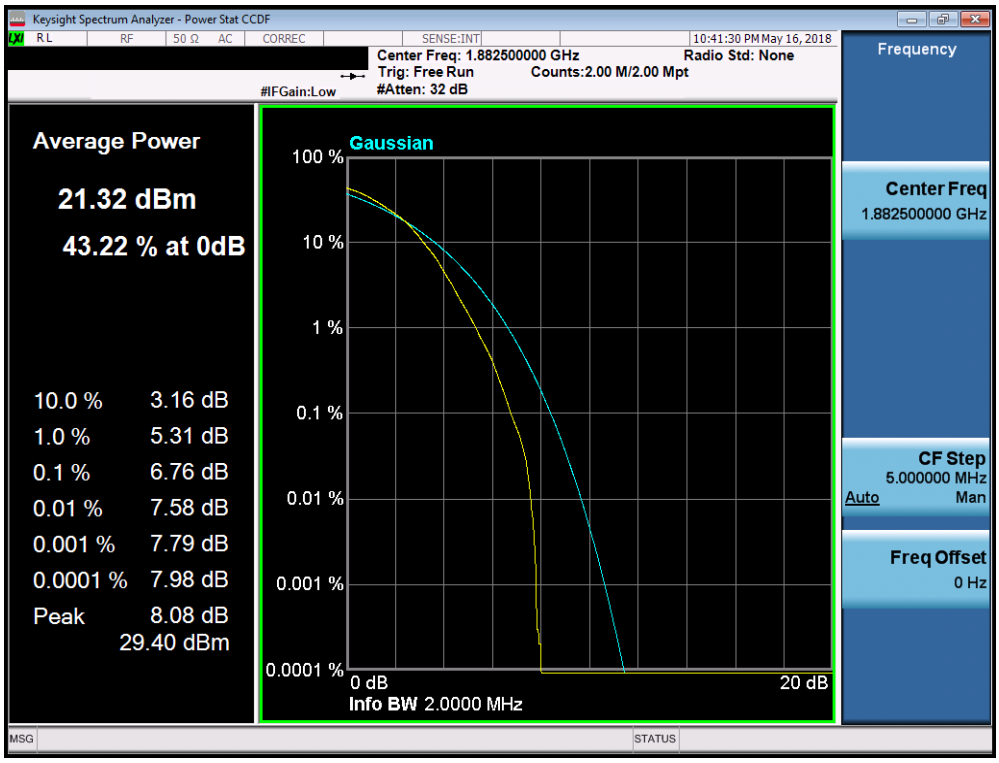
None.



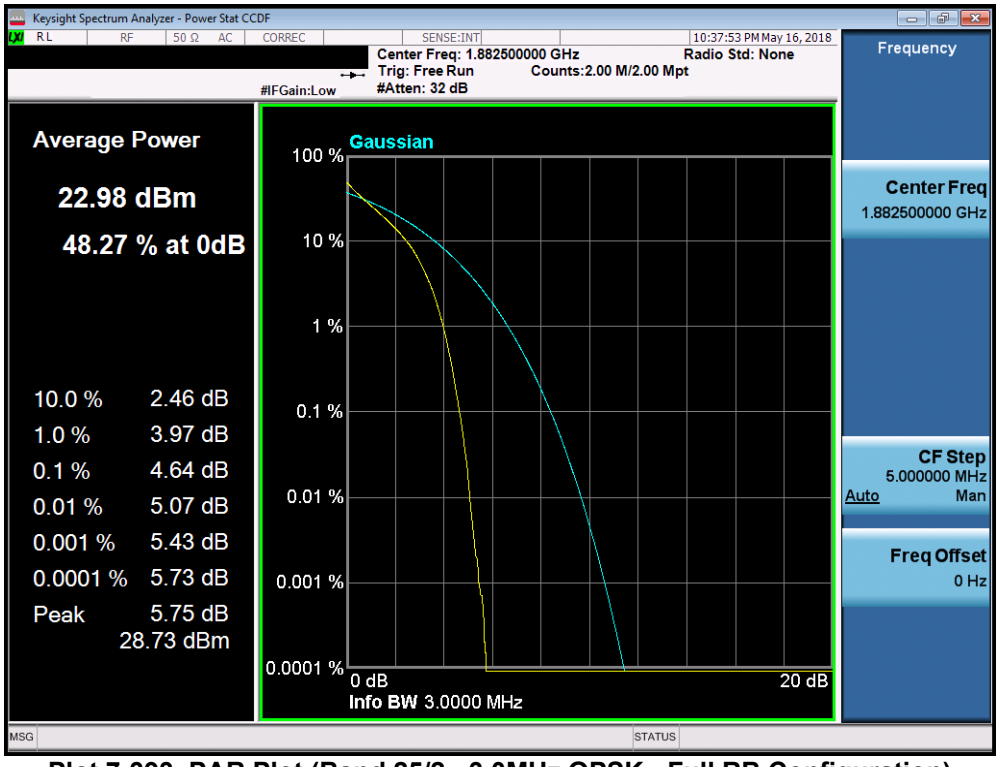
Plot 7-390. PAR Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)



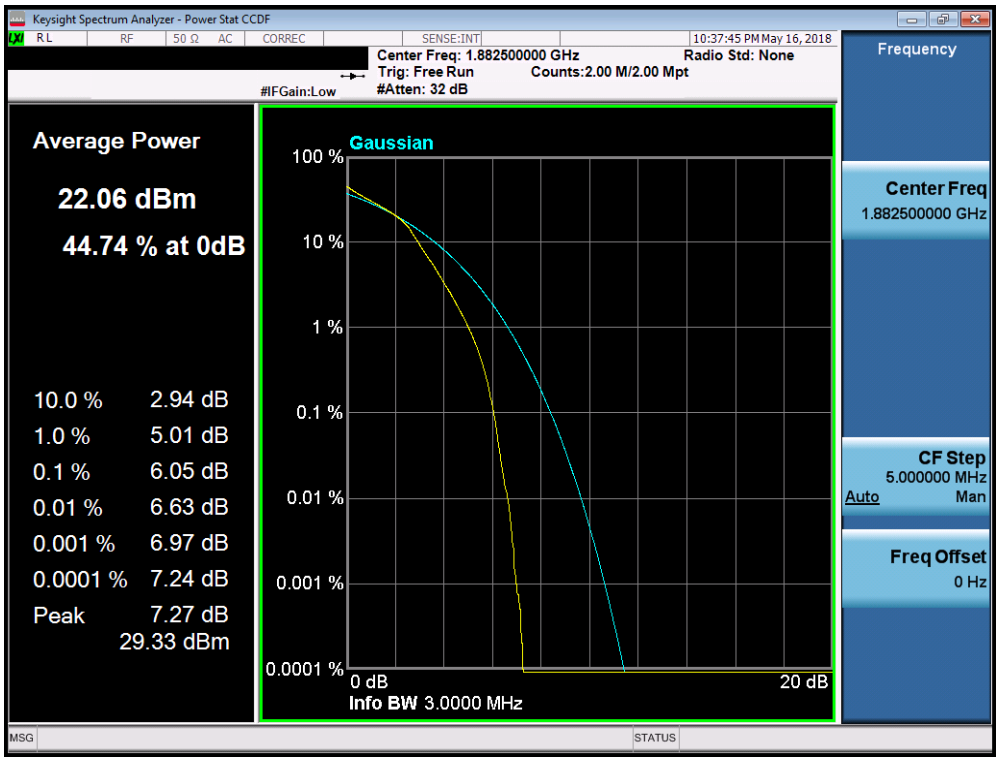
Plot 7-391. PAR Plot (Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)



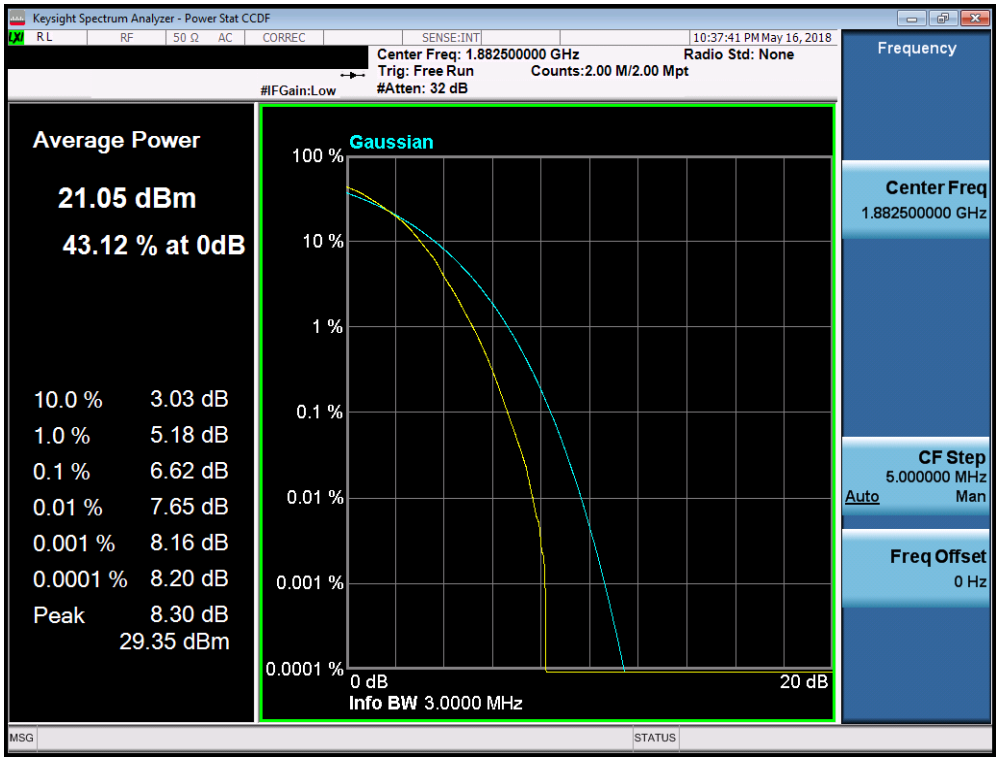
Plot 7-392. PAR Plot (Band 25/2 - 1.4MHz 64-QAM - Full RB Configuration)



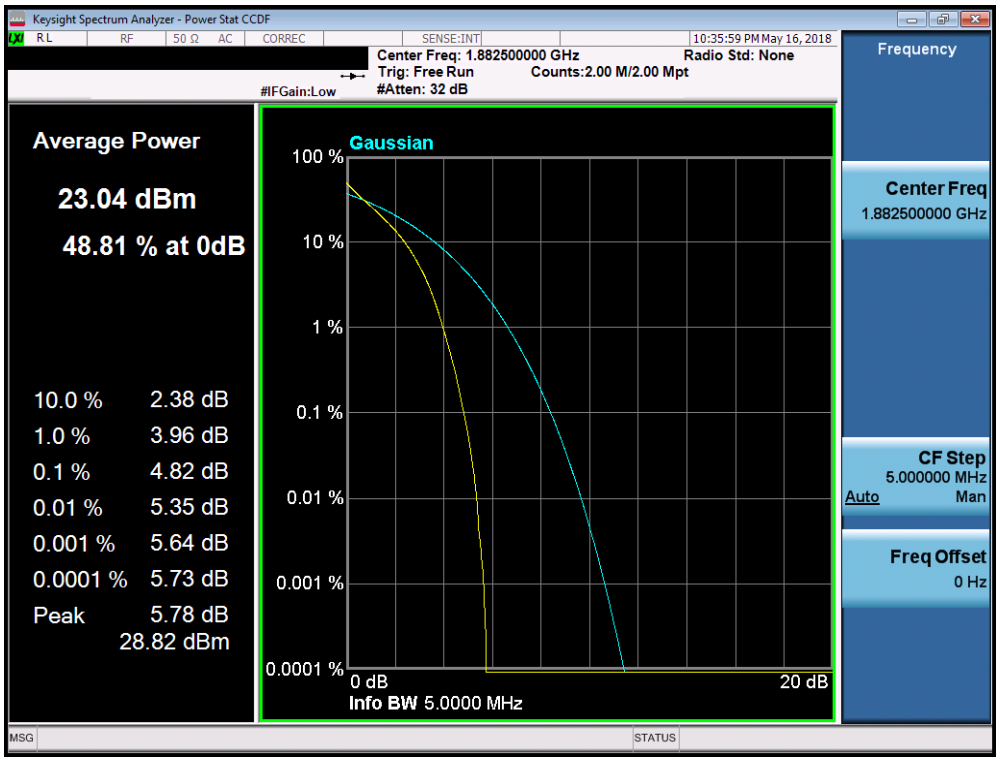
Plot 7-393. PAR Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)



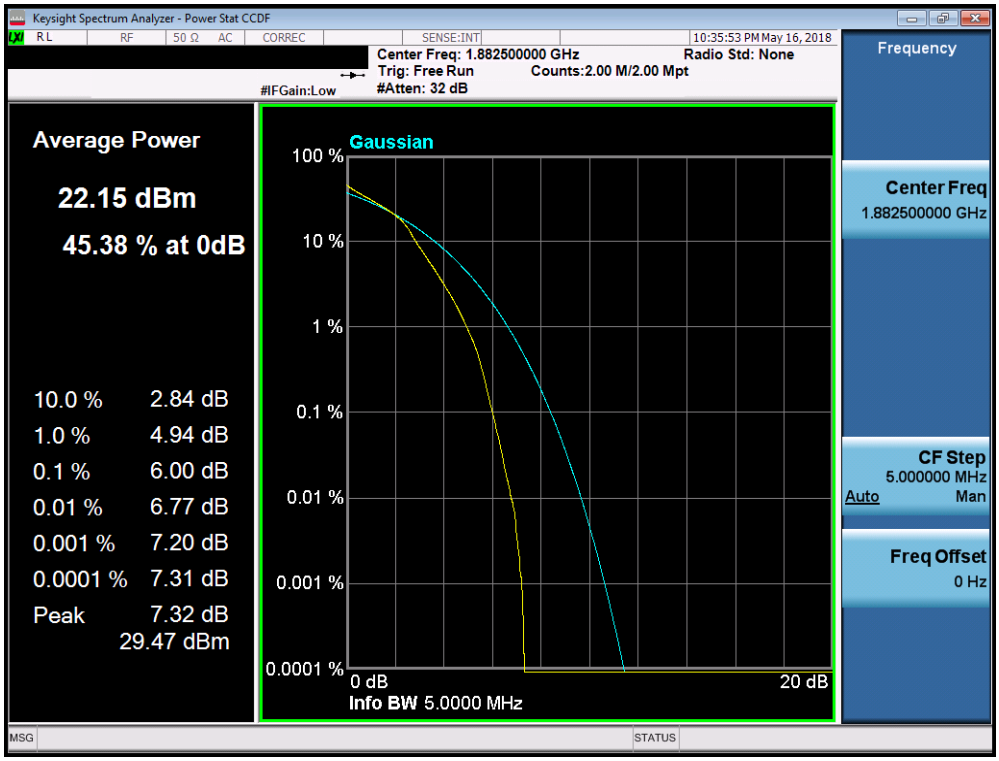
Plot 7-394. PAR Plot (Band 25/2 - 3.0MHz 16-QAM - Full RB Configuration)



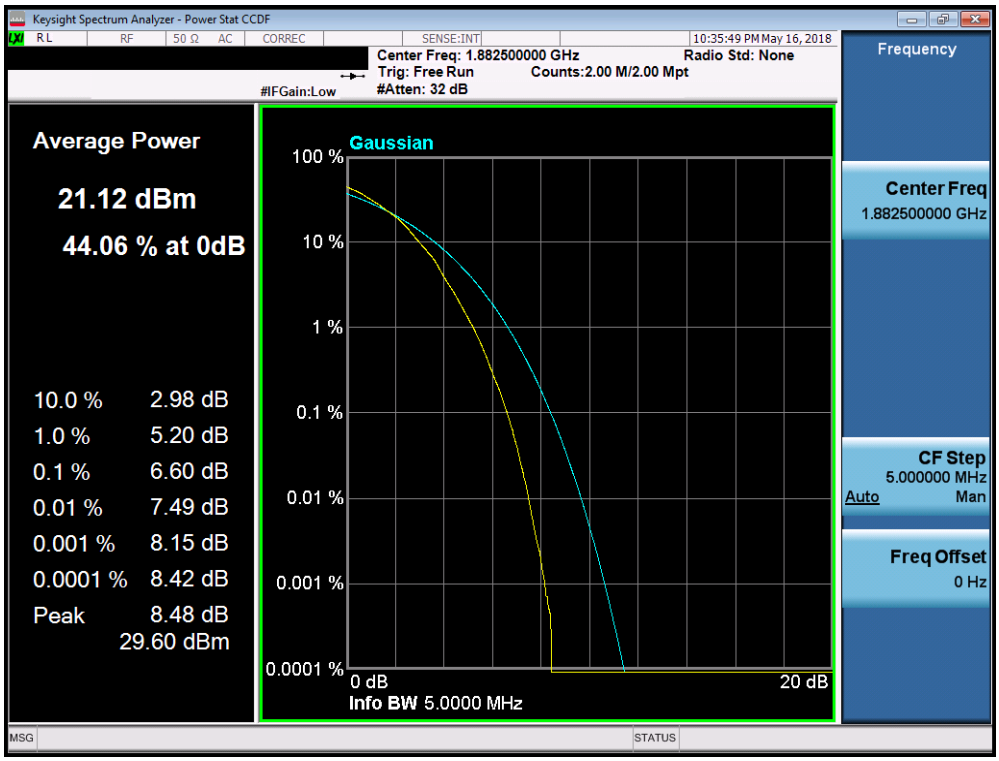
Plot 7-395. PAR Plot (Band 25/2 - 3.0MHz 64-QAM - Full RB Configuration)



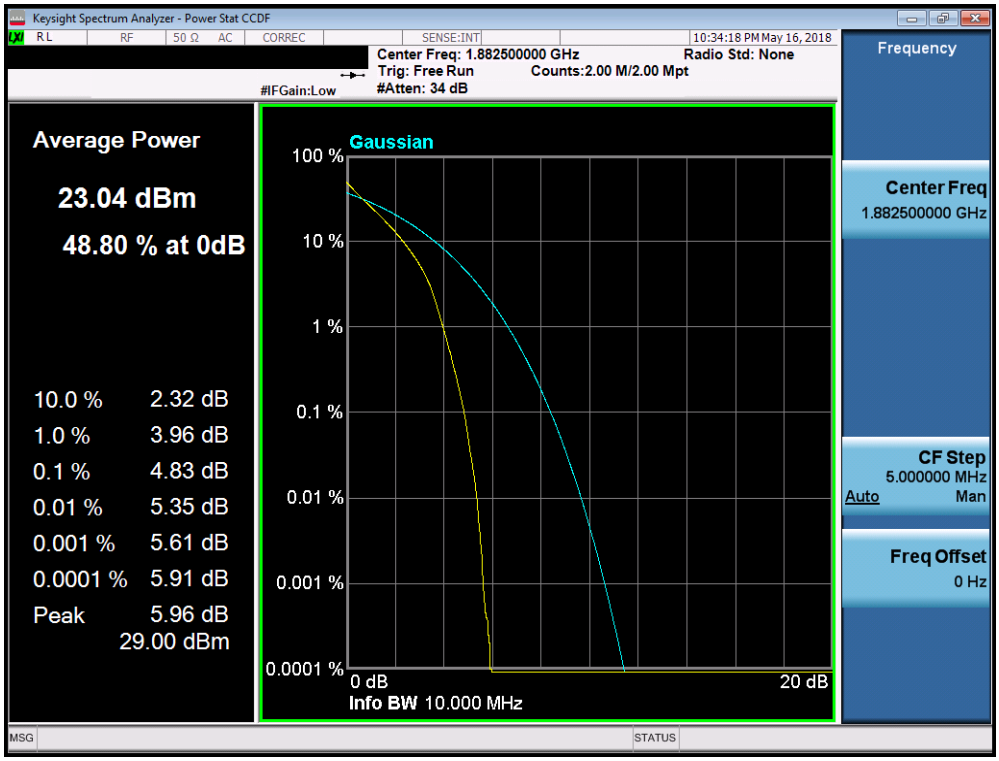
Plot 7-396. PAR Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)



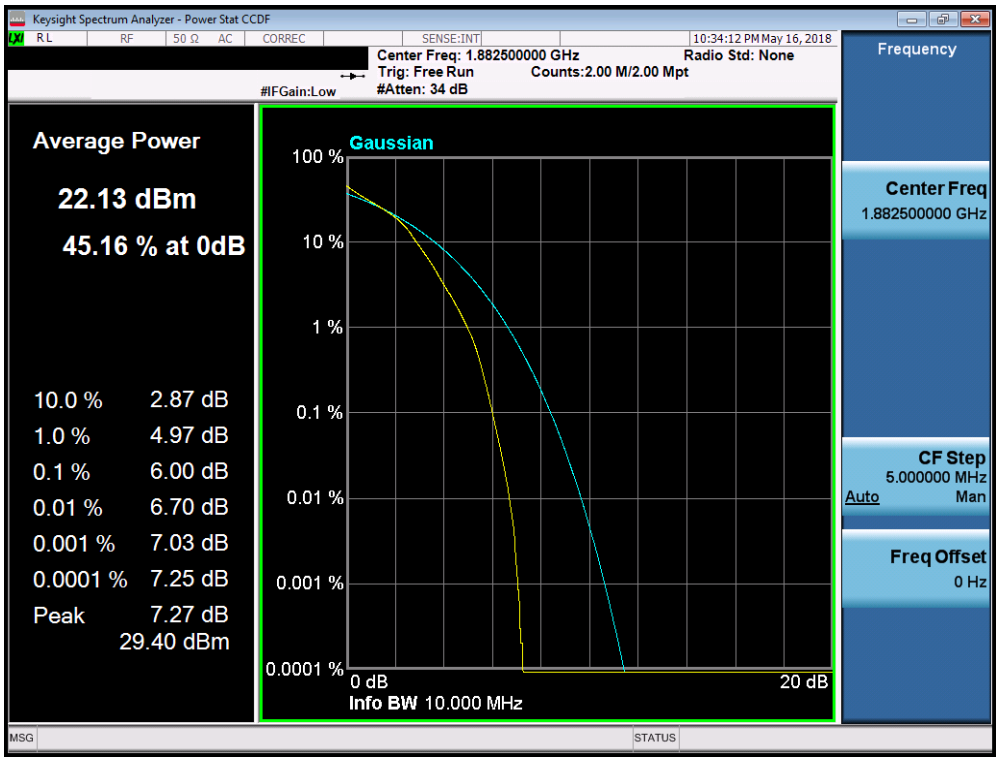
Plot 7-397. PAR Plot (Band 25/2 - 5.0MHz 16-QAM - Full RB Configuration)



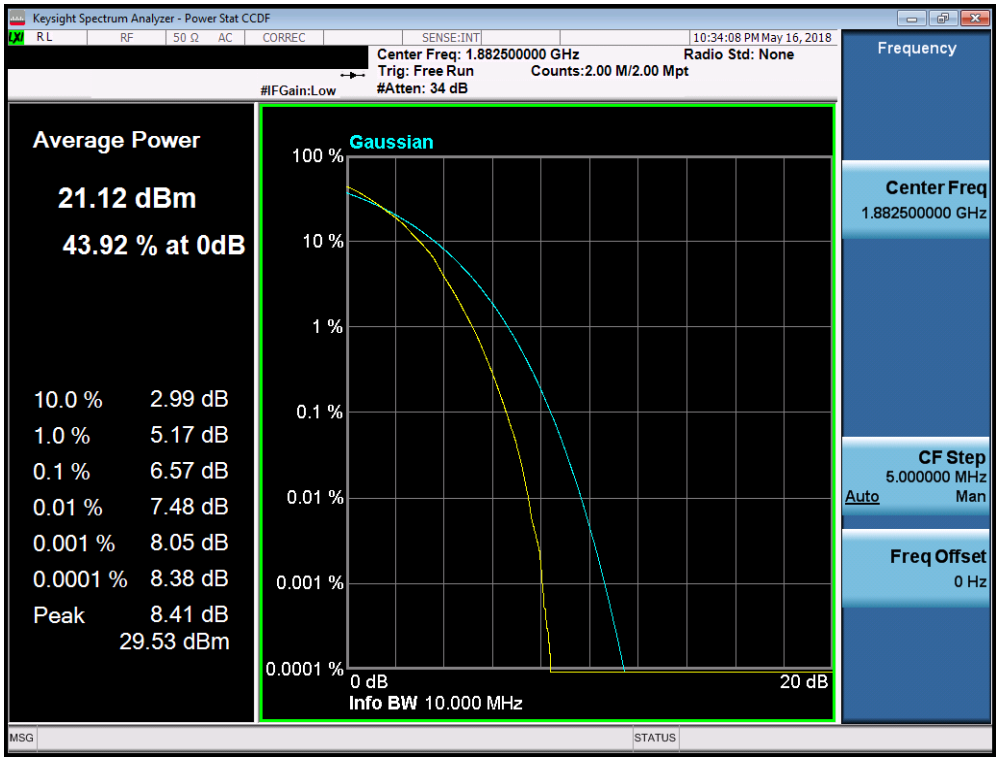
Plot 7-398. PAR Plot (Band 25/2 - 5.0MHz 64-QAM - Full RB Configuration)



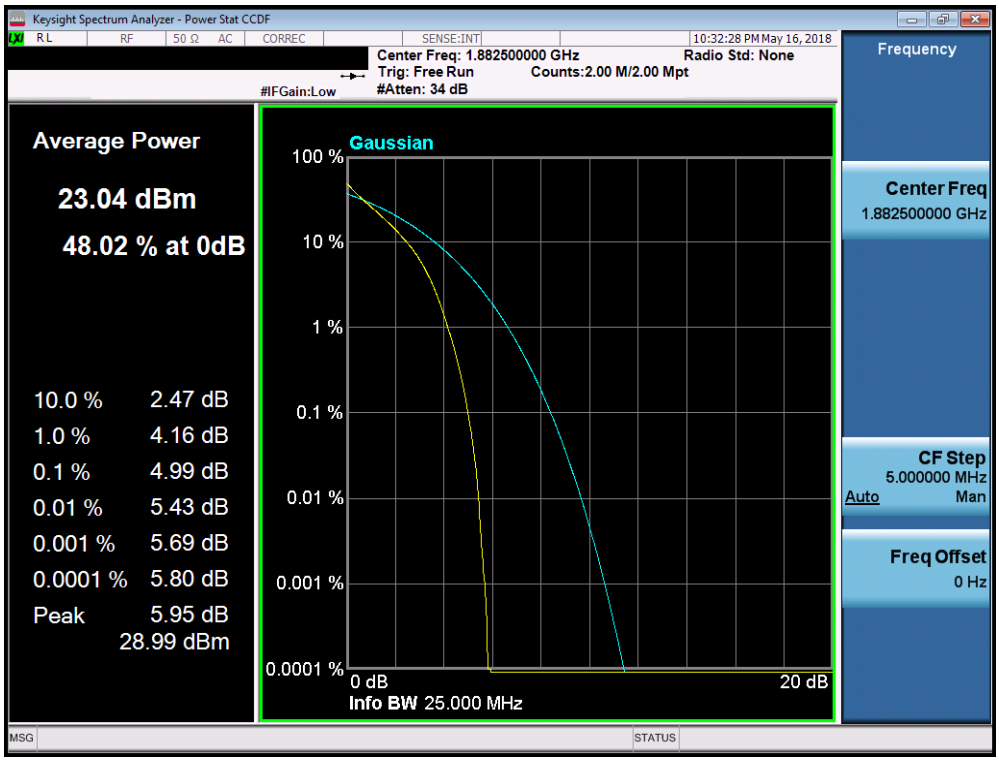
Plot 7-399. PAR Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)



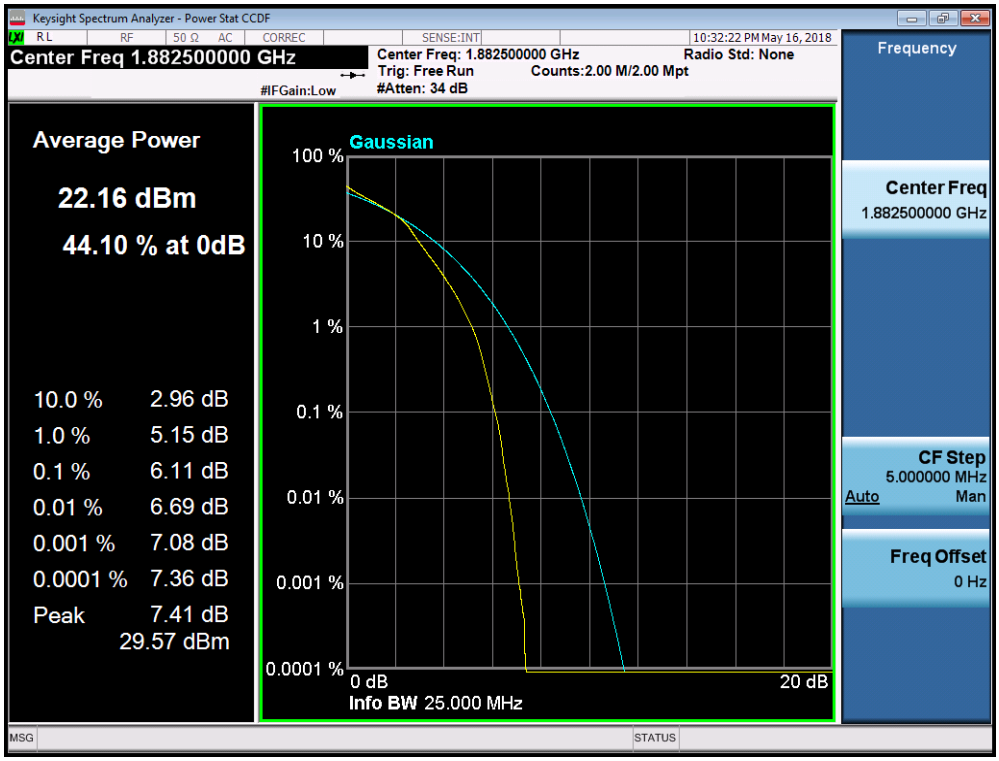
Plot 7-400. PAR Plot (Band 25/2 - 10.0MHz 16-QAM - Full RB Configuration)



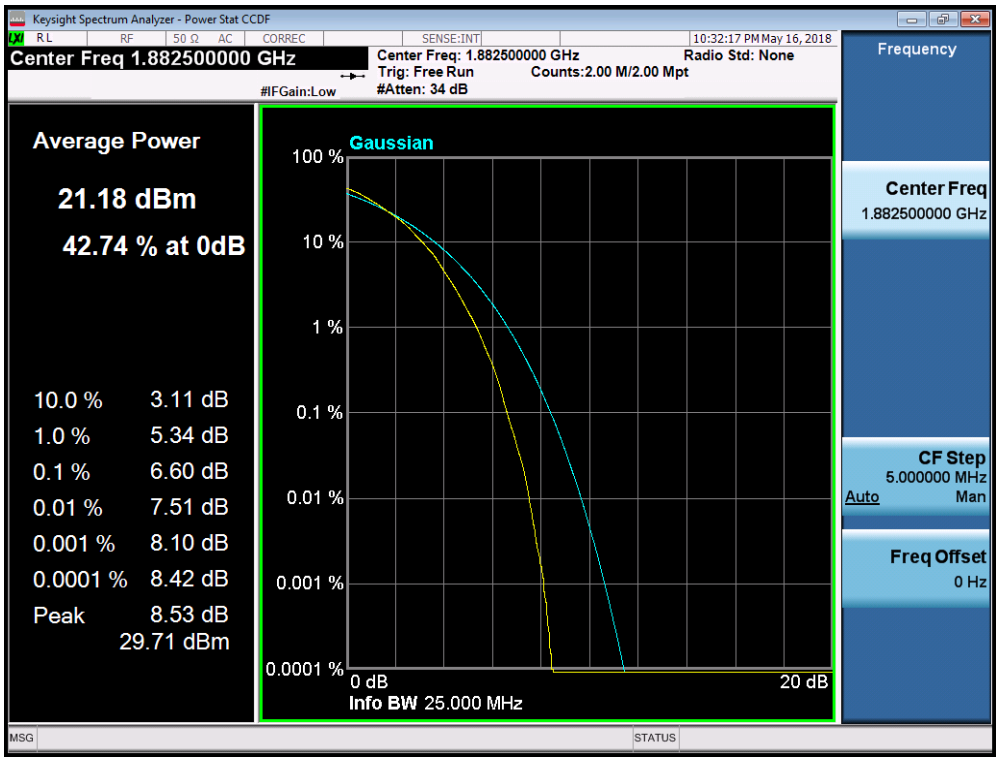
Plot 7-401. PAR Plot (Band 25/2 - 10.0MHz 64-QAM - Full RB Configuration)



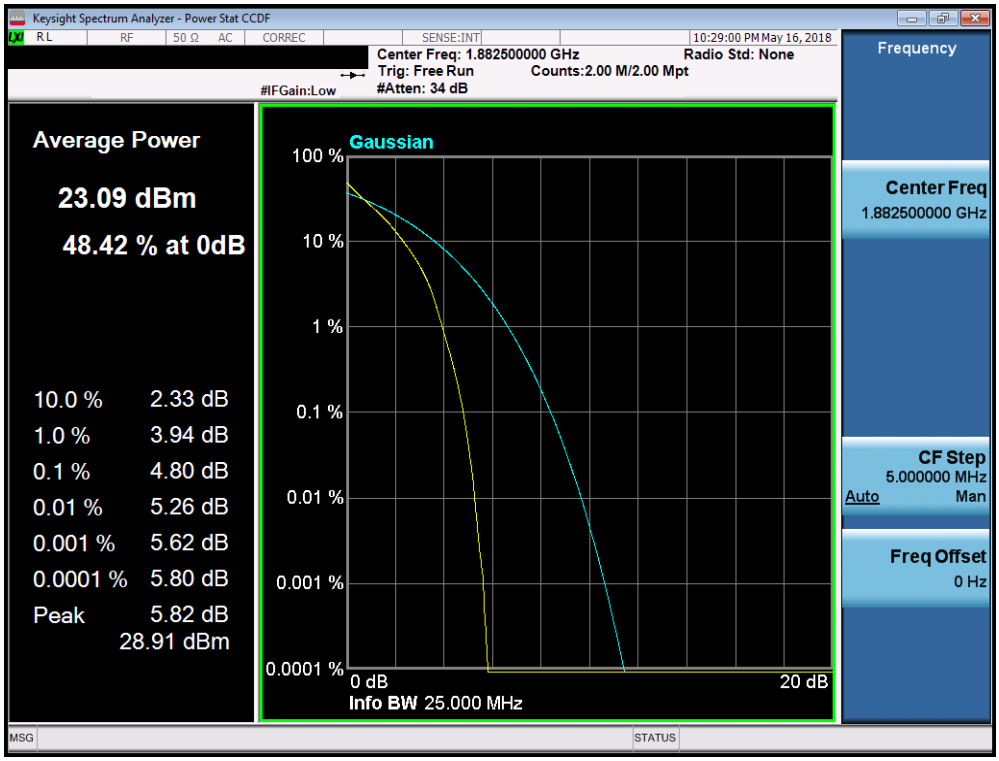
Plot 7-402. PAR Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)



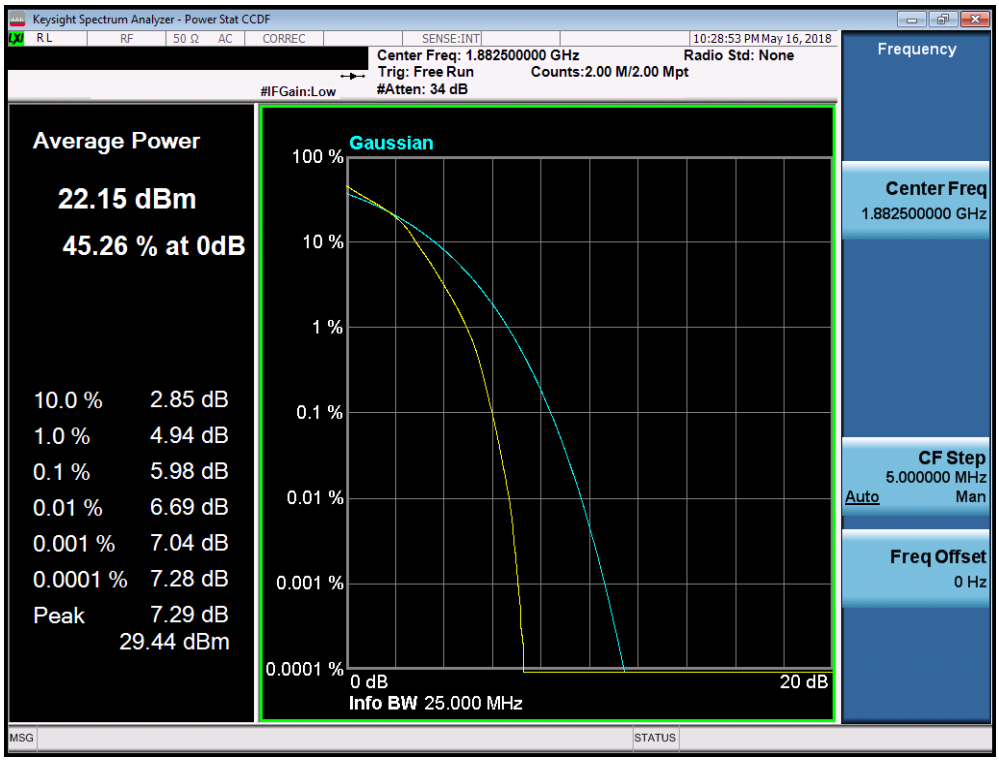
Plot 7-403. PAR Plot (Band 25/2 - 15.0MHz 16-QAM - Full RB Configuration)



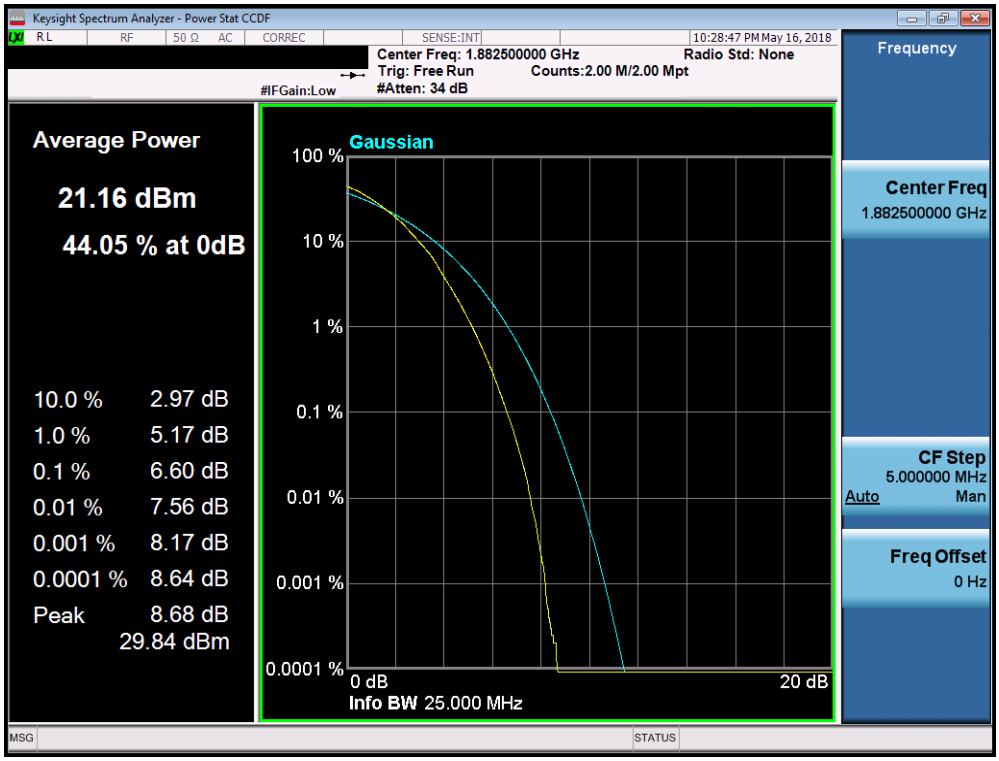
Plot 7-404. PAR Plot (Band 25/2 - 15.0MHz 64-QAM - Full RB Configuration)



Plot 7-405. PAR Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-406. PAR Plot (Band 25/2 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-407. PAR Plot (Band 25/2 - 20.0MHz 64-QAM - Full RB Configuration)

7.6 Additional Maximum Power Reduction (A-MPR)

§2.1046

Test Overview

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

Test Procedure Used

KDB 971168 D01 v03r01 – Section 5.2.2

Test Settings

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

Test Setup

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

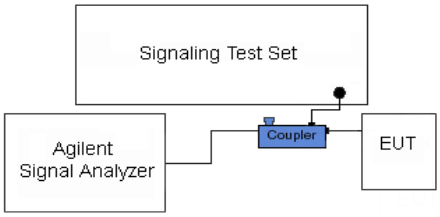


Figure 7-5. Test Instrument & Measurement Setup

Test Notes

None.

Test Case	NS	MCC	MNC	Channel BW [MHz]	Channel Number	Channel Frequency [MHz]	Modulation	RB Size	RB Offset	MPR [dB]	A-MPR [dB]	Measured Power [dBm]	Lowest Typical Power [dBm]	Delta [dB]
1	01	312	530	5	39675	2498.5	QPSK	1	0	0	≤ 3	23.96	23.7	**0.26**
							16-QAM			≤ 1		23.07	22.7	**0.37**
							64-QAM			≤ 2		22.09	21.7	**0.39**
2				5	39675	2498.5	QPSK	1	9	0	0	26.97	26.7	**0.27**
							16-QAM			≤ 1		26.34	25.7	**0.64**
							64-QAM			≤ 2		25.15	24.7	**0.45**
3				10	39700	2501	QPSK	1	0	0	≤ 5	22.08	21.7	**0.38**
							16-QAM	1	0	≤ 1		21.39	20.7	**0.69**
							64-QAM	1	0	≤ 2		20.18	19.7	**0.48**
4				10	39700	2501	QPSK	20	0	0	≤ 2	24.08	23.7	**0.38**
							16-QAM	20	0	≤ 1		23.12	22.7	**0.42**
							64-QAM	20	0	≤ 2		22.17	21.7	**0.47**
5				10	39700	2501	QPSK	50	0	0	≤ 3	23.04	22.7	**0.34**
							16-QAM	50	0	≤ 1		22.16	21.7	**0.46**
							64-QAM	50	0	≤ 2		21.15	20.7	**0.45**
6				10	39700	2501	QPSK	25	20	0	≤ 1	25.04	24.7	**0.34**
							16-QAM	25	20	≤ 1		24.17	23.7	**0.47**
							64-QAM	25	20	≤ 2		23.21	22.7	**0.51**
7				10	39700	2501	QPSK	1	36	0	0	26.96	26.7	**0.26**
							16-QAM	1	36	≤ 1		26.27	25.7	**0.57**
							64-QAM	1	36	≤ 2		25.08	24.7	**0.38**
8				15	39725	2503.5	QPSK	1	0	0	≤ 5	22.08	21.7	**0.38**
							16-QAM	1	0	≤ 1		21.39	20.7	**0.69**
							64-QAM	1	0	≤ 2		20.24	19.7	**0.54**
9				15	39725	2503.5	QPSK	20	0	0	≤ 2	24.10	23.7	**0.40**
							16-QAM	20	0	≤ 1		23.14	22.7	**0.44**
							64-QAM	20	0	≤ 2		22.26	21.7	**0.56**
10				15	39725	2503.5	QPSK	75	0	0	≤ 4	22.08	21.7	**0.38**
							16-QAM	75	0	≤ 1		21.18	20.7	**0.48**
							64-QAM	75	0	≤ 2		20.18	19.7	**0.48**
11				15	39725	2503.5	QPSK	50	15	0	≤ 3	23.05	22.7	**0.35**
							16-QAM	50	15	≤ 1		22.19	21.7	**0.49**
							64-QAM	50	15	≤ 2		21.14	20.7	**0.44**
12				15	39725	2503.5	QPSK	1	60	0	0	26.98	26.7	**0.28**
							16-QAM	1	60	≤ 1		26.32	25.7	**0.62**
							64-QAM	1	60	≤ 2		25.09	24.7	**0.39**
13				20	39750	2506	QPSK	1	0	0	≤ 5	22.12	21.7	**0.42**
							16-QAM	1	0	≤ 1		21.43	20.7	**0.73**
							64-QAM	1	0	≤ 2		20.24	19.7	**0.54**
14				20	39750	2506	QPSK	20	0	0	≤ 2	24.15	23.7	**0.45**
							16-QAM	20	0	≤ 1		23.19	22.7	**0.49**
							64-QAM	20	0	≤ 2		22.28	21.7	**0.58**
15				20	39750	2506	QPSK	100	0	0	≤ 4	22.09	21.7	**0.39**
							16-QAM	100	0	≤ 1		21.20	20.7	**0.50**
							64-QAM	100	0	≤ 2		20.17	19.7	**0.47**
16				20	39750	2506	QPSK	75	24	0	≤ 3	22.98	22.7	**0.28**
							16-QAM	75	24	≤ 1		22.11	21.7	**0.41**
							64-QAM	75	24	≤ 2		21.11	20.7	**0.41**
17				20	39750	2506	QPSK	1	77	0	0	26.94	26.7	**0.24**
							16-QAM	1	77	≤ 1		26.31	25.7	**0.61**
							64-QAM	1	77	≤ 2		25.1	24.7	**0.40**
18	01	311	490	5	39675	2498.5	QPSK	1	0	0	≤ 3	23.96	23.7	**0.26**
							16-QAM			≤ 1		23.31	22.7	**0.61**
							64-QAM			≤ 2		22.09	21.7	**0.39**
19	01	001	01	5	39675	2498.5	QPSK	1	0	0	0	26.89	26.7	**0.19**
							16-QAM			≤ 1		26.23	25.7	**0.53**
							64-QAM			≤ 2		24.96	24.7	**0.26**

Table 7-3. A-MPR Conducted Power Measurements

7.7 Uplink Carrier Aggregation

§27.53(m)

Test Overview

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

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

Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

Test Settings

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

Test Setup

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

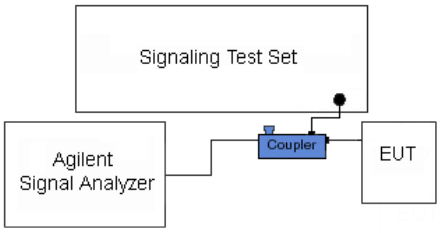


Figure 7-6. Test Instrument & Measurement Setup

Test Notes

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

2. Conducted power and spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device. The worst case (highest) powers were found while operating with QPSK modulation, as shown in Table 7-503 and 7-504 below, with both carriers set to transmit using 1RB.

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

Power State	PCC							SCC							Power
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	ULCA Tx.Power (dBm)
Max	LTE B41	10	39700	2501	QPSK	1	49	LTE B41	20	39844	2515.4	QPSK	1	0	22.36
Max	LTE B41	10	40620	2593	QPSK	1	49	LTE B41	20	40764	2607.4	QPSK	1	0	23.49
Max	LTE B41	20	41396	2670.6	QPSK	1	99	LTE B41	10	41540	2685	QPSK	1	0	23.46
Max	LTE B41	15	39725	2503.5	QPSK	1	74	LTE B41	15	39875	2518.5	QPSK	1	0	22.48
Max	LTE B41	15	39725	2503.5	QPSK	1	74	LTE B41	20	39896	2520.6	QPSK	1	0	22.36
Max	LTE B41	15	40620	2593	QPSK	1	74	LTE B41	15	40770	2608	QPSK	1	0	23.92
Max	LTE B41	15	40620	2593	QPSK	1	74	LTE B41	20	40791	2610.1	QPSK	1	0	22.69
Max	LTE B41	15	41365	2667.5	QPSK	1	74	LTE B41	15	41515	2682.5	QPSK	1	0	23.71
Max	LTE B41	20	41344	2665.4	QPSK	1	99	LTE B41	15	41515	2682.5	QPSK	1	0	23.49
Max	LTE B41	20	39750	2506	QPSK	1	99	LTE B41	10	39894	2520.4	QPSK	1	0	23.53
Max	LTE B41	20	39750	2506	QPSK	1	99	LTE B41	15	39921	2523.1	QPSK	1	0	23.48
Max	LTE B41	20	39750	2506	QPSK	1	99	LTE B41	20	39948	2525.8	QPSK	1	0	23.64
Max	LTE B41	20	40620	2593	QPSK	1	99	LTE B41	10	40764	2607.4	QPSK	1	0	23.56
Max	LTE B41	20	40620	2593	QPSK	1	99	LTE B41	15	40791	2610.1	QPSK	1	0	23.72
Max	LTE B41	20	40620	2593	QPSK	1	99	LTE B41	20	40818	2612.8	QPSK	1	0	**23.94**
Max	LTE B41	10	41346	2665.6	QPSK	1	49	LTE B41	20	41490	2680	QPSK	1	0	23.60
Max	LTE B41	15	41319	2662.9	QPSK	1	74	LTE B41	20	41490	2680	QPSK	1	0	23.66
Max	LTE B41	20	41292	2660.2	QPSK	1	99	LTE B41	20	41490	2680	QPSK	1	0	23.79

Table 7-4. Conducted Powers (B41 – PCC: RB Size 1 Offset Max SCC: RB Size 1 Offset 0)

Power State	PCC							SCC							Power
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	ULCA Tx.Power (dBm)
Max	LTE B41	20	39750	2506	QPSK	1	0	LTE B41	20	39948	2525.8	QPSK	1	0	18.67
Max	LTE B41	20	39750	2506	QPSK	1	99	LTE B41	20	39948	2525.8	QPSK	1	99	16.31
Max	LTE B41	20	39750	2506	QPSK	1	0	LTE B41	20	39948	2525.8	QPSK	1	99	10.38
Max	LTE B41	20	39750	2506	QPSK	1	50	LTE B41	20	39948	2525.8	QPSK	1	50	17.77
Max	LTE B41	20	39750	2506	QPSK	1	99	LTE B41	20	39948	2525.8	QPSK	1	0	23.54
Max	LTE B41	20	39750	2506	QPSK	100	0	LTE B41	20	39948	2525.8	QPSK	100	0	19.06
Max	LTE B41	20	39750	2506	16-QAM	100	0	LTE B41	20	39948	2525.8	16-QAM	100	0	18.15
Max	LTE B41	20	39750	2506	64-QAM	100	0	LTE B41	20	39948	2525.8	64-QAM	100	0	17.21

Table 7-5. Conducted Powers (B41 with Various Combinations for 20MHz Channel Bandwidth)

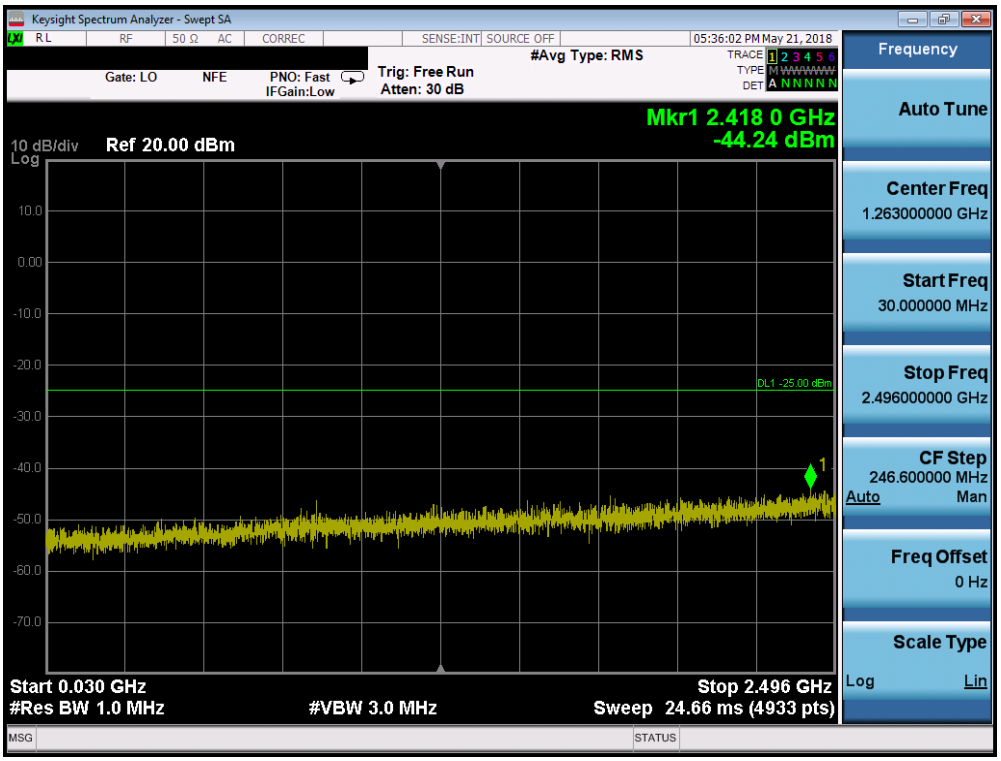


Table 7-408. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

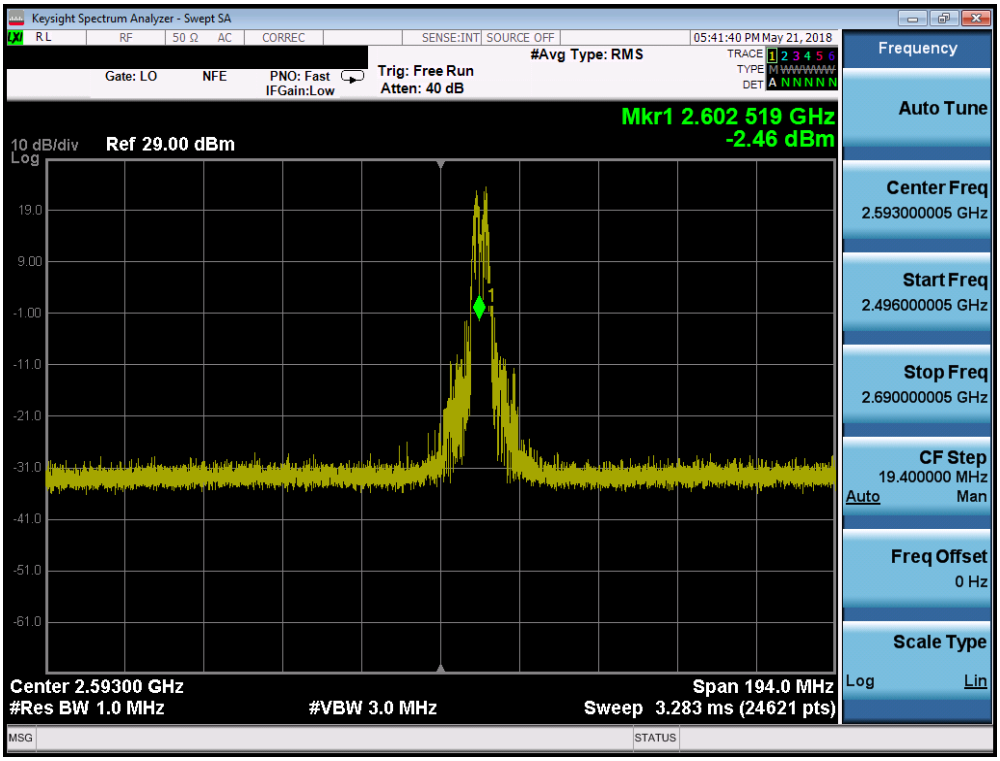


Table 7-409. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

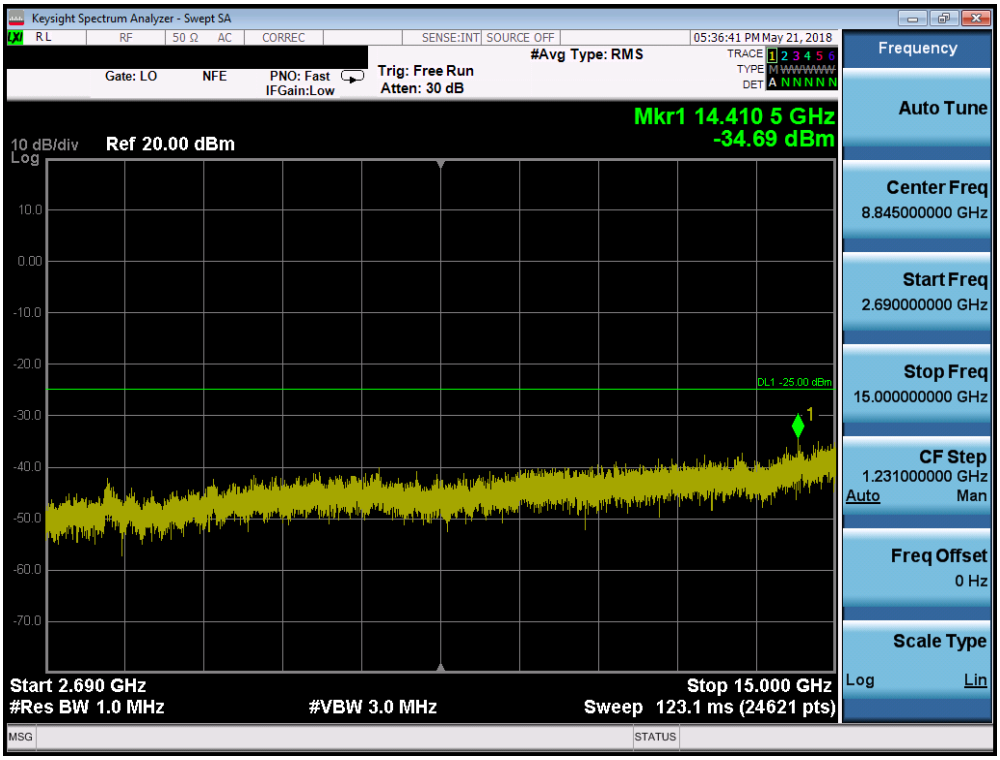


Table 7-410. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

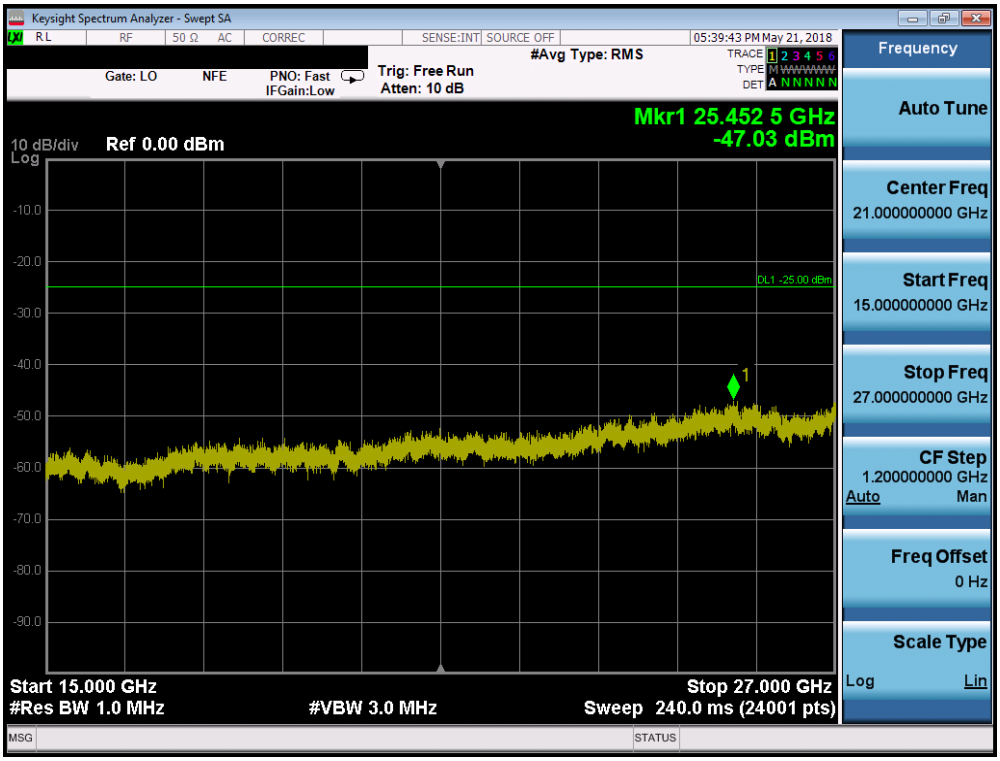


Table 7-411. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

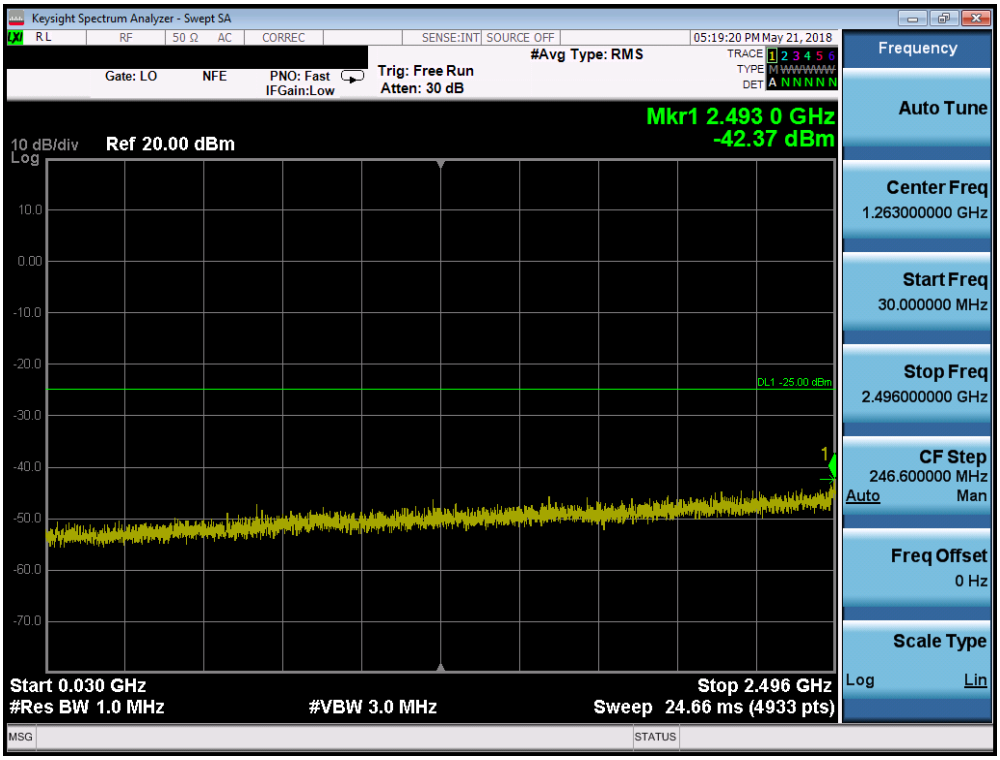


Table 7-412. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 100/0 SCC 100/0 – Mid Channel)

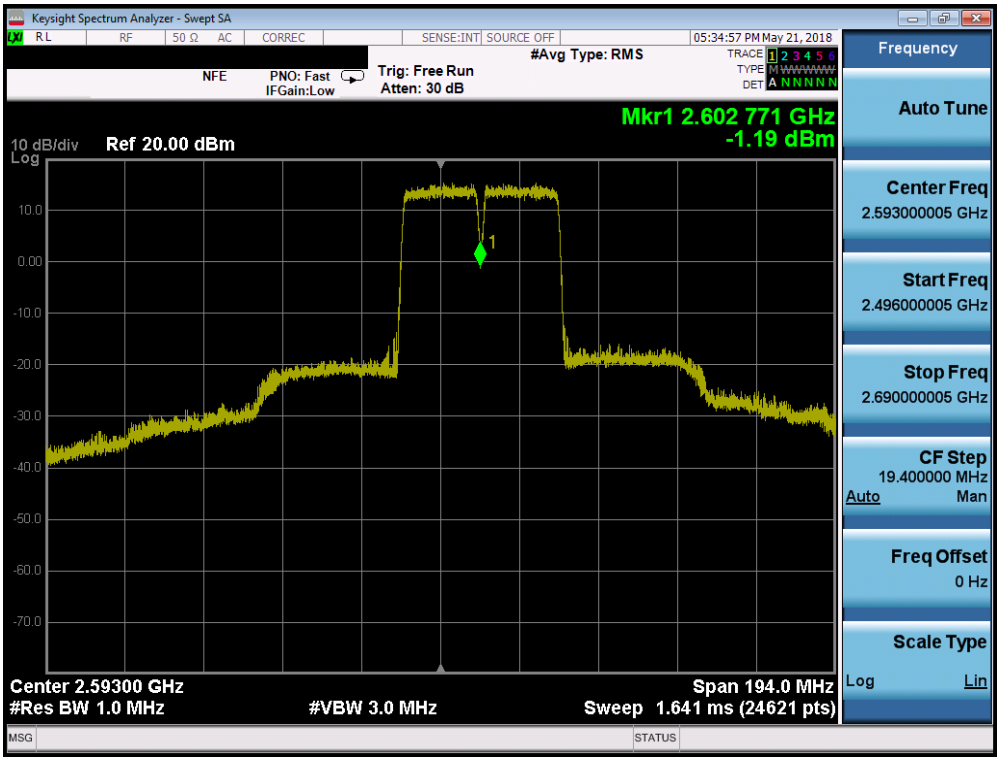


Table 7-413. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 100/0 SCC 100/0 – Mid Channel)

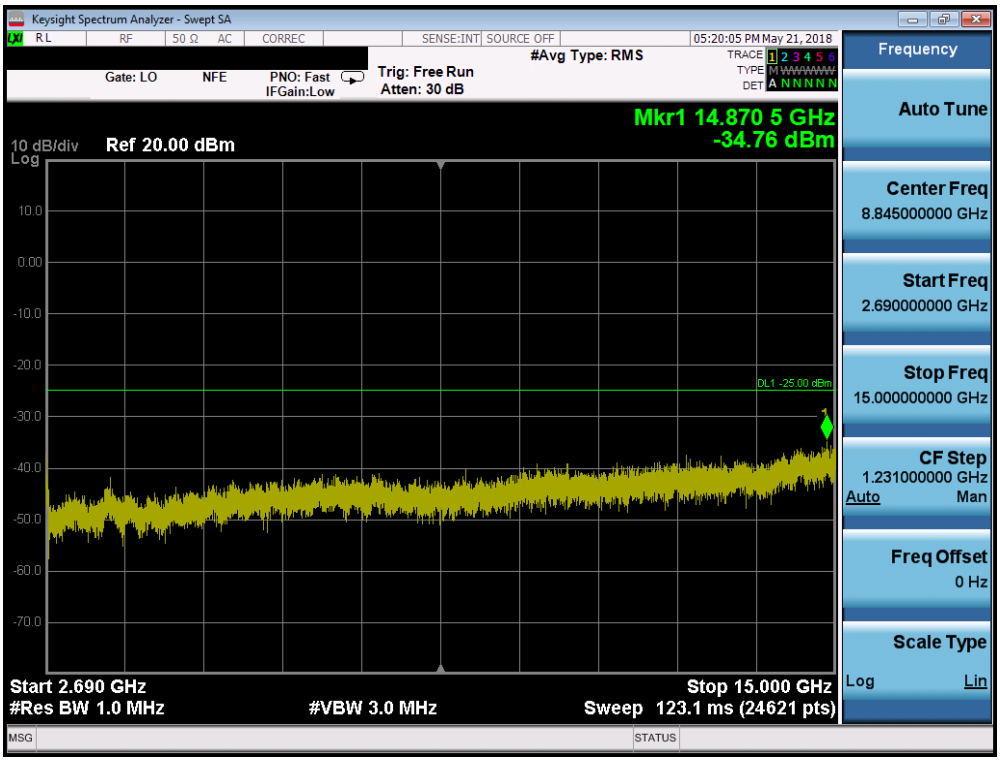


Table 7-414. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 100/0 SCC 100/0 – Mid Channel)

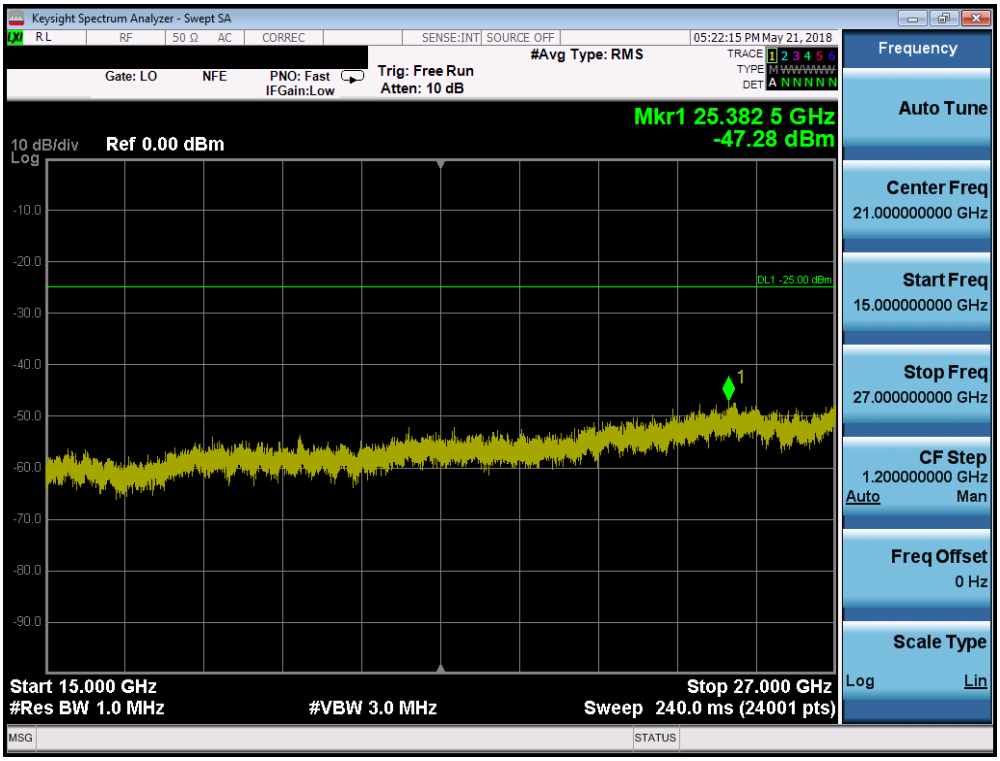


Table 7-415. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 100/0 SCC 100/0 – Mid Channel)

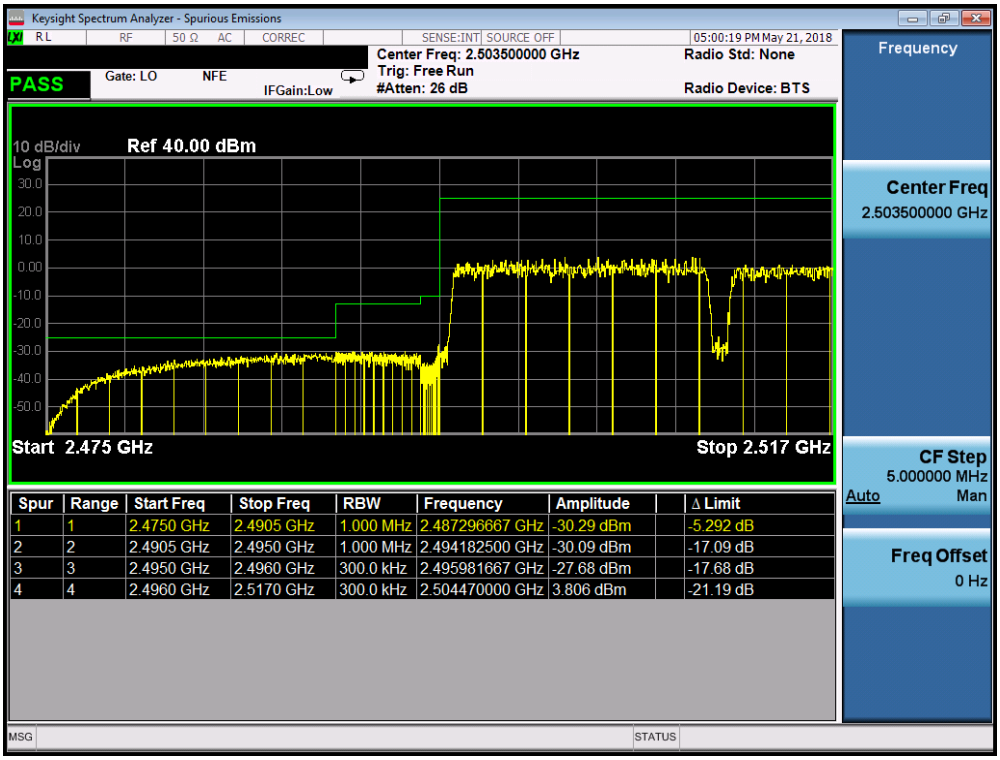
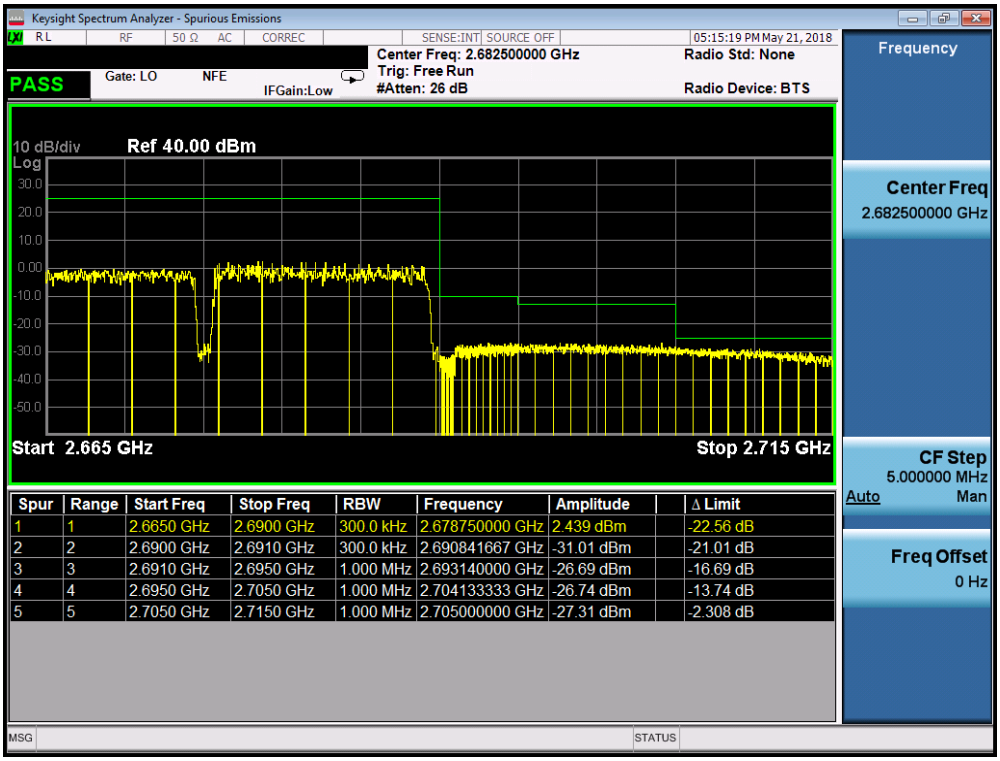
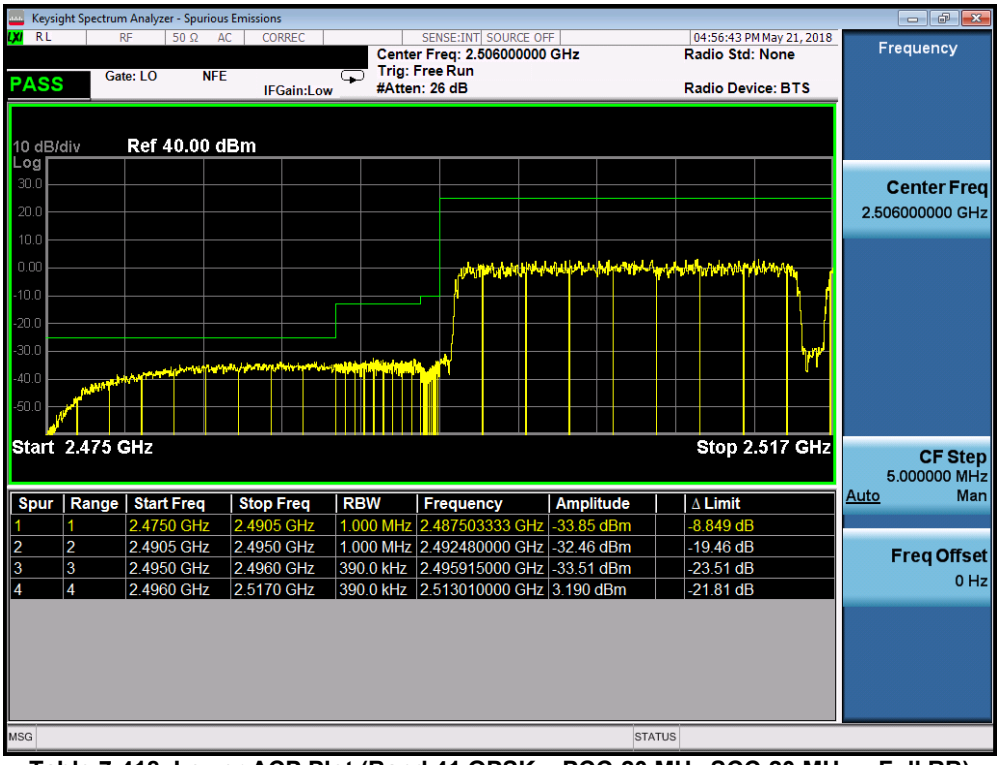


Table 7-416. Lower ACP Plot (Band 41 QPSK – PCC:15 MHz SCC:20 MHz – Full RB)



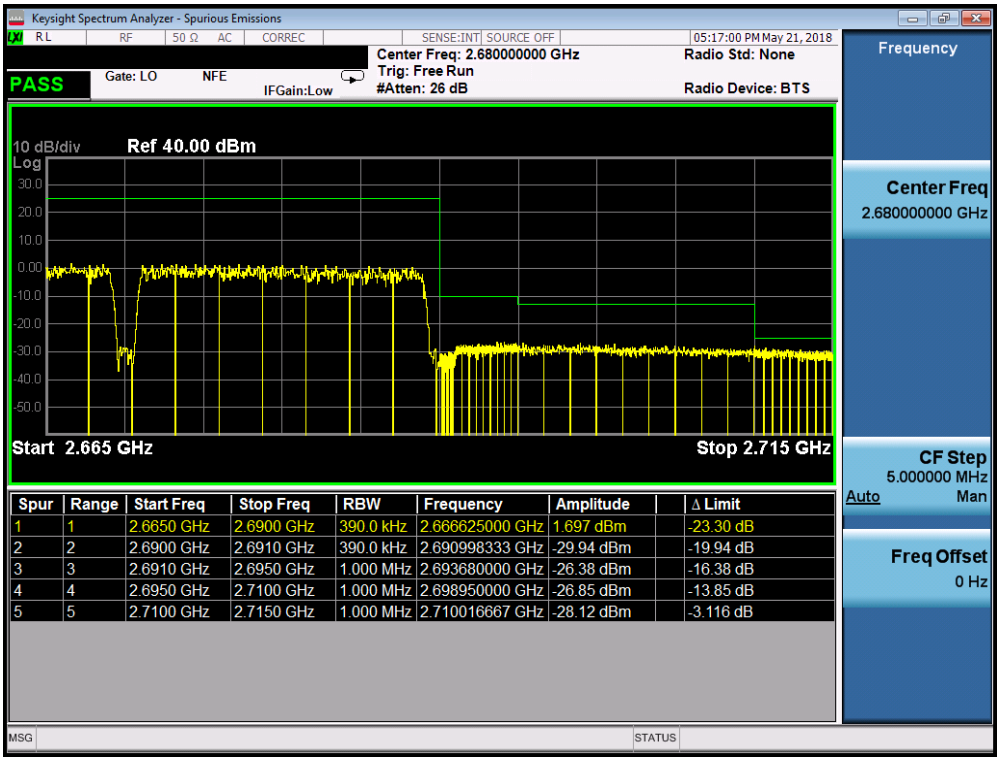
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	300.0 kHz	2.678750000 GHz	2.439 dBm	-22.56 dB
2	2	2.6900 GHz	2.6910 GHz	300.0 kHz	2.690841667 GHz	-31.01 dBm	-21.01 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.693140000 GHz	-26.69 dBm	-16.69 dB
4	4	2.6950 GHz	2.7050 GHz	1.000 MHz	2.704133333 GHz	-26.74 dBm	-13.74 dB
5	5	2.7050 GHz	2.7150 GHz	1.000 MHz	2.705000000 GHz	-27.31 dBm	-2.308 dB

Table 7-417. Upper ACP Plot (Band 41 QPSK – PCC:15 MHz SCC:20 MHz – Full RB)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4750 GHz	2.4905 GHz	1.000 MHz	2.487503333 GHz	-33.85 dBm	-8.849 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.492480000 GHz	-32.46 dBm	-19.46 dB
3	3	2.4950 GHz	2.4960 GHz	390.0 kHz	2.495915000 GHz	-33.51 dBm	-23.51 dB
4	4	2.4960 GHz	2.5170 GHz	390.0 kHz	2.513010000 GHz	3.190 dBm	-21.81 dB

Table 7-418. Lower ACP Plot (Band 41 QPSK – PCC:20 MHz SCC:20 MHz – Full RB)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	390.0 kHz	2.666625000 GHz	1.697 dBm	-23.30 dB
2	2	2.6900 GHz	2.6910 GHz	390.0 kHz	2.690998333 GHz	-29.94 dBm	-19.94 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.693680000 GHz	-26.38 dBm	-16.38 dB
4	4	2.6950 GHz	2.7100 GHz	1.000 MHz	2.698950000 GHz	-26.85 dBm	-13.85 dB
5	5	2.7100 GHz	2.7150 GHz	1.000 MHz	2.710016667 GHz	-28.12 dBm	-3.116 dB

Table 7-419. Upper ACP Plot (Band 41 QPSK – PCC:20 MHz SCC:20 MHz – Full RB)

7.8 Radiated Power (ERP/EIRP)

Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.2.1

ANSI/TIA-603-E-2016 – Section 2.2.17

Test Settings

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

Test Setup

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

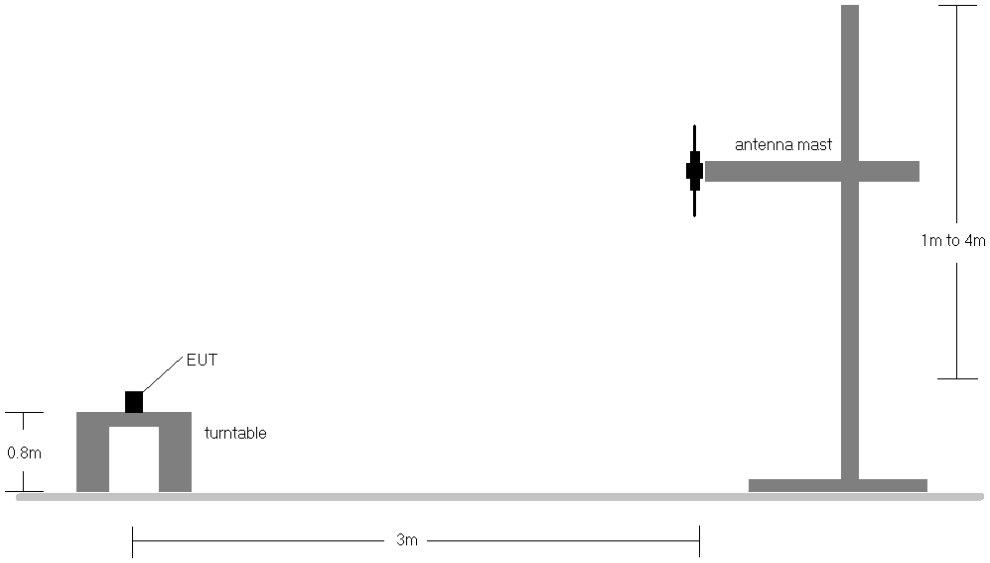


Figure 7-7. Radiated Test Setup <1GHz

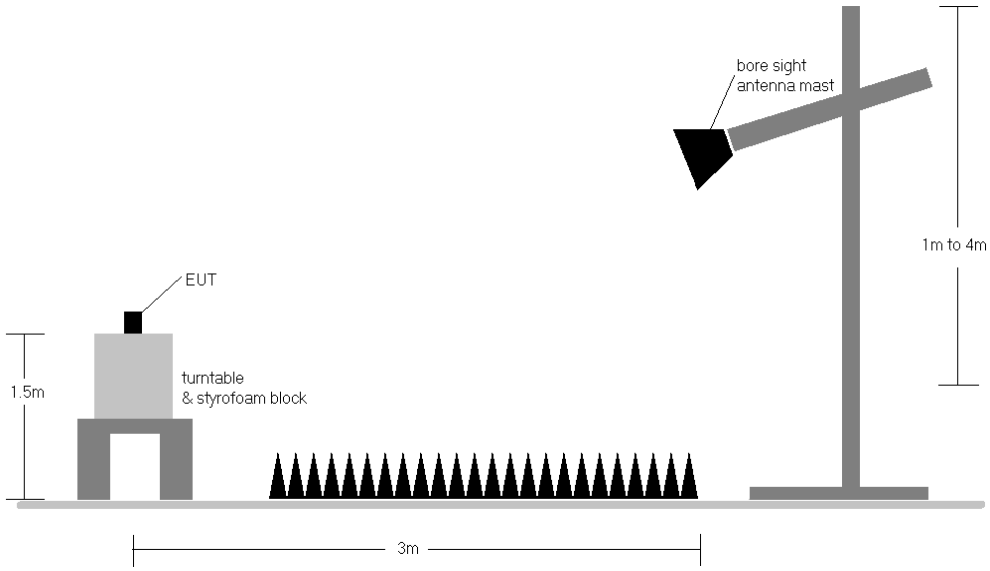


Figure 7-8. Radiated Test Setup >1GHz

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]
665.50	5	QPSK	V	171	250	1 / 24	16.96	4.99	19.80	0.096	34.77	-14.97
680.50	5	QPSK	V	169	261	1 / 24	17.66	4.99	20.50	0.112	34.77	-14.28
695.50	5	QPSK	V	172	255	1 / 24	17.84	4.99	**20.68**	**0.117**	34.77	-14.09
680.50	5	16-QAM	V	169	261	1 / 24	16.67	4.99	**19.51**	0.089	34.77	-15.26
680.50	5	64-QAM	V	169	261	1 / 24	15.71	4.99	**18.55**	0.072	34.77	-16.22
668.00	10	QPSK	V	170	252	1 / 49	16.30	4.99	19.14	0.082	34.77	-15.63
680.50	10	QPSK	V	168	249	1 / 49	16.69	4.99	19.53	0.090	34.77	-15.24
693.00	10	QPSK	V	171	250	1 / 49	17.12	4.99	**19.96**	0.099	34.77	-14.81
693.00	10	16-QAM	V	171	250	1 / 49	16.10	4.99	**18.94**	0.078	34.77	-15.83
693.00	10	64-QAM	V	171	250	1 / 49	15.04	4.99	**17.88**	0.061	34.77	-16.89
670.50	15	QPSK	V	176	252	1 / 74	17.15	4.99	19.99	0.100	34.77	-14.78
680.50	15	QPSK	V	175	257	1 / 74	17.53	4.99	20.37	0.109	34.77	-14.40
690.50	15	QPSK	V	172	251	1 / 74	17.82	4.99	**20.66**	0.116	34.77	-14.11
690.50	15	16-QAM	V	172	251	1 / 74	17.02	4.99	**19.86**	0.097	34.77	-14.91
690.50	15	64-QAM	V	172	251	1 / 74	15.99	4.99	**18.83**	0.076	34.77	-15.95
673.00	20	QPSK	V	175	256	1 / 99	16.71	4.99	19.55	0.090	34.77	-15.22
680.50	20	QPSK	V	176	252	1 / 99	17.45	4.99	20.29	0.107	34.77	-14.48
688.00	20	QPSK	V	170	260	1 / 99	17.70	4.99	**20.54**	0.113	34.77	-14.23
680.50	20	16-QAM	V	176	252	1 / 99	16.79	4.99	**19.63**	0.092	34.77	-15.14
680.50	20	64-QAM	V	176	252	1 / 99	15.87	4.99	**18.71**	0.074	34.77	-16.06
695.50	5	QPSK	H	137	151	1 / 24	12.07	4.99	14.91	0.031	34.77	-19.86
695.50	5	QPSK	V	154	333	1 / 24	17.42	4.99	20.26	0.106	34.77	-14.51

Table 7-6. ERP Data (Band 71)

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	160	246	1 / 0	17.63	4.99	20.47	0.111	34.77	-14.30
707.50	1.4	QPSK	V	157	248	1 / 5	18.40	5.14	**21.39**	0.138	34.77	-13.39
715.30	1.4	QPSK	V	165	247	1 / 5	18.28	5.21	21.34	0.136	34.77	-13.43
707.50	1.4	16-QAM	V	157	248	1 / 5	17.67	5.14	**20.66**	0.116	34.77	-14.12
707.50	1.4	64-QAM	V	157	248	1 / 5	16.53	5.14	**19.52**	0.089	34.77	-15.25
700.50	3	QPSK	V	171	246	1 / 0	17.50	5.00	20.35	0.108	34.77	-14.42
707.50	3	QPSK	V	168	241	1 / 0	18.35	5.14	**21.34**	0.136	34.77	-13.43
714.50	3	QPSK	V	167	251	1 / 0	18.27	5.20	21.32	0.136	34.77	-13.45
707.50	3	16-QAM	V	168	241	1 / 0	17.69	5.14	**20.67**	0.117	34.77	-14.10
707.50	3	64-QAM	V	168	241	1 / 0	16.59	5.14	**19.58**	0.091	34.77	-15.19

Table 7-7. 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	162	241	1 / 24	18.74	5.03	21.62	0.145	34.77	-13.15
707.50	5	QPSK	V	166	244	1 / 24	18.80	5.14	**21.79**	**0.151**	34.77	-12.98
713.50	5	QPSK	V	168	238	1 / 24	18.39	5.19	21.43	0.139	34.77	-13.34
707.50	5	16-QAM	V	166	244	1 / 24	17.92	5.14	**20.90**	0.123	34.77	-13.87
707.50	5	64-QAM	V	166	244	1 / 24	16.79	5.14	**19.78**	0.095	34.77	-14.99
704.00	10	QPSK	V	158	254	1 / 49	17.92	5.09	20.86	0.122	34.77	-13.92
707.50	10	QPSK	V	161	249	1 / 0	18.36	5.14	21.35	0.136	34.77	-13.42
711.00	10	QPSK	V	165	245	1 / 0	18.49	5.17	**21.51**	0.142	34.77	-13.26
711.00	10	16-QAM	V	165	245	1 / 0	17.83	5.17	**20.85**	0.122	34.77	-13.92
711.00	10	64-QAM	V	165	245	1 / 0	16.67	5.17	**19.69**	0.093	34.77	-15.08
707.50	5	QPSK	H	120	336	1 / 24	16.51	5.14	19.49	0.089	34.77	-15.28
707.50	5 (WCP)	QPSK	V	166	1	1 / 24	18.77	5.14	21.76	0.150	34.77	-13.01

Table 7-8. 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	238	1 / 0	20.54	1.32	19.71	0.094	34.77	-15.06
782.00	5	QPSK	V	150	236	1 / 0	20.94	1.33	**20.12**	**0.103**	34.77	-14.65
784.50	5	QPSK	V	150	243	1 / 0	20.43	1.34	19.62	0.092	34.77	-15.15
782.00	5	16-QAM	V	150	236	1 / 0	20.15	1.33	**19.33**	0.086	34.77	-15.44
782.00	5	64-QAM	V	150	236	1 / 0	19.04	1.33	**18.22**	0.066	34.77	-16.55
782.00	10	QPSK	V	150	236	1 / 0	20.20	1.33	**19.38**	0.087	34.77	-15.39
782.00	10	16-QAM	V	150	236	1 / 0	19.49	1.33	**18.67**	0.074	34.77	-16.10
782.00	10	64-QAM	V	150	236	1 / 0	18.41	1.33	**17.59**	0.057	34.77	-17.18
782.00	5	QPSK	H	150	350	1 / 0	20.64	1.33	19.82	0.096	34.77	-14.95
782.00	5 (WCP)	QPSK	V	150	26	1 / 0	20.90	1.33	20.08	0.102	34.77	-14.69

Table 7-9. 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	8	1 / 5	20.67	1.50	**20.02**	0.100	38.45	-18.43
836.50	1.4	QPSK	H	150	8	1 / 0	20.14	1.50	19.49	0.089	38.45	-18.96
848.30	1.4	QPSK	H	150	10	1 / 5	20.57	1.50	19.92	0.098	38.45	-18.53
836.50	1.4	16-QAM	H	150	8	1 / 0	19.48	1.50	**18.83**	0.076	38.45	-19.62
836.50	1.4	64-QAM	H	150	8	1 / 0	18.34	1.50	**17.69**	0.059	38.45	-20.76
825.50	3	QPSK	H	150	16	1 / 0	20.81	1.50	20.16	0.104	38.45	-18.29
836.50	3	QPSK	H	150	16	1 / 14	20.99	1.50	**20.34**	0.108	38.45	-18.11
847.50	3	QPSK	H	150	19	1 / 14	20.34	1.50	19.69	0.093	38.45	-18.76
836.50	3	16-QAM	H	150	16	1 / 14	20.40	1.50	**19.75**	0.094	38.45	-18.70
836.50	3	64-QAM	H	150	16	1 / 14	19.41	1.50	**18.76**	0.075	38.45	-19.69
826.50	5	QPSK	H	150	20	1 / 24	20.86	1.50	20.21	0.105	38.45	-18.24
836.50	5	QPSK	H	150	20	1 / 24	20.96	1.50	**20.31**	0.107	38.45	-18.14
846.50	5	QPSK	H	150	20	1 / 24	20.09	1.50	19.44	0.088	38.45	-19.01
826.50	5	16-QAM	H	150	20	1 / 24	20.04	1.50	**19.39**	0.087	38.45	-19.06
826.50	5	64-QAM	H	150	20	1 / 24	19.17	1.50	**18.52**	0.071	38.45	-19.93
829.00	10	QPSK	H	150	71	1 / 0	20.08	1.50	**19.43**	0.088	38.45	-19.02
836.50	10	QPSK	H	150	71	1 / 0	19.47	1.50	18.82	0.076	38.45	-19.63
844.00	10	QPSK	H	150	71	1 / 0	19.77	1.50	19.12	0.082	38.45	-19.33
836.50	10	16-QAM	H	150	71	1 / 0	18.84	1.50	**18.19**	0.066	38.45	-20.26
836.50	10	64-QAM	H	150	71	1 / 0	17.67	1.50	**17.02**	0.050	38.45	-21.43
836.50	3	QPSK	V	150	15	1 / 14	19.25	1.50	18.60	0.072	38.45	-19.85
836.50	3 (WCP)	QPSK	H	150	121	1 / 14	17.89	1.50	17.24	0.053	38.45	-21.21

Table 7-10. 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	V	150	15	1 / 74	20.53	1.50	**19.88**	0.097	38.45	-18.57
836.50	15	QPSK	H	150	121	1 / 74	19.49	1.50	18.84	0.077	38.45	-19.61
841.50	15	QPSK	H	150	54	1 / 0	19.85	1.50	19.20	0.083	38.45	-19.25
836.50	15	16-QAM	H	150	121	1 / 0	19.64	1.50	**18.99**	0.079	38.45	-19.46
836.50	15	64-QAM	H	150	121	1 / 0	18.55	1.50	**17.90**	0.062	38.45	-20.55

Table 7-11. 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	292	1 / 5	16.96	5.56	22.52	0.179	30.00	-7.48
1745.00	1.4	QPSK	H	150	292	1 / 5	16.85	5.41	22.26	0.168	30.00	-7.74
1779.30	1.4	QPSK	H	150	292	1 / 5	17.34	5.26	**22.60**	0.182	30.00	-7.40
1779.30	1.4	16-QAM	H	150	292	1 / 5	16.77	5.26	**22.03**	0.160	30.00	-7.97
1779.30	1.4	64-QAM	H	150	292	1 / 5	15.24	5.26	**20.50**	0.112	30.00	-9.50
1711.50	3	QPSK	H	150	258	1 / 0	17.88	5.55	**23.43**	**0.220**	30.00	-6.57
1745.00	3	QPSK	H	150	258	1 / 0	17.49	5.41	22.90	0.195	30.00	-7.10
1778.50	3	QPSK	H	150	258	1 / 0	17.32	5.26	22.58	0.181	30.00	-7.42
1711.50	3	16-QAM	H	150	258	1 / 0	17.19	5.55	**22.74**	0.188	30.00	-7.26
1711.50	3	64-QAM	H	150	258	1 / 0	16.04	5.55	**21.59**	0.144	30.00	-8.41
1712.50	5	QPSK	H	150	291	1 / 0	17.01	5.55	22.56	0.180	30.00	-7.44
1745.00	5	QPSK	H	150	291	1 / 24	17.09	5.41	22.50	0.178	30.00	-7.50
1777.50	5	QPSK	H	150	291	1 / 24	17.90	5.27	**23.17**	0.208	30.00	-6.83
1777.50	5	16-QAM	H	150	291	1 / 24	16.64	5.27	**21.91**	0.155	30.00	-8.09
1712.50	5	64-QAM	H	150	291	1 / 0	15.36	5.55	**20.91**	0.123	30.00	-9.09
1715.00	10	QPSK	H	150	295	1 / 0	16.42	5.53	21.95	0.157	30.00	-8.05
1745.00	10	QPSK	H	150	295	1 / 49	16.71	5.41	**22.12**	0.163	30.00	-7.88
1775.00	10	QPSK	H	150	295	1 / 49	16.59	5.29	21.88	0.154	30.00	-8.12
1715.00	10	16-QAM	H	150	295	1 / 0	15.68	5.53	**21.21**	0.132	30.00	-8.79
1775.00	10	64-QAM	H	150	295	1 / 49	14.79	5.29	**20.08**	0.102	30.00	-9.92
1717.50	15	QPSK	H	150	274	1 / 0	16.93	5.51	22.44	0.175	30.00	-7.56
1745.00	15	QPSK	H	150	274	1 / 0	16.26	5.41	21.67	0.147	30.00	-8.33
1772.50	15	QPSK	H	150	274	1 / 74	17.20	5.31	**22.51**	0.178	30.00	-7.49
1772.50	15	16-QAM	H	150	274	1 / 74	16.66	5.31	**21.97**	0.157	30.00	-8.03
1772.50	15	64-QAM	H	150	274	1 / 74	15.46	5.31	**20.77**	0.119	30.00	-9.23
1720.00	20	QPSK	H	150	237	1 / 99	15.67	5.49	21.16	0.131	30.00	-8.84
1745.00	20	QPSK	H	150	237	1 / 0	16.23	5.41	**21.64**	0.146	30.00	-8.36
1770.00	20	QPSK	H	150	237	1 / 0	15.96	5.32	21.28	0.134	30.00	-8.72
1745.00	20	16-QAM	H	150	237	1 / 0	15.14	5.41	**20.55**	0.113	30.00	-9.45
1745.00	20	64-QAM	H	150	237	1 / 0	14.04	5.41	**19.45**	0.088	30.00	-10.55
1711.50	3	QPSK	V	150	3	1 / 0	17.79	5.55	23.34	0.216	30.00	-6.66
1711.50	3 (WCP)	QPSK	H	150	265	1 / 0	15.54	5.55	21.09	0.129	30.00	-8.91

Table 7-12. 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	353	1 / 5	16.98	4.82	21.80	0.151	33.01	-11.21
1882.50	1.4	QPSK	H	150	353	1 / 0	18.00	4.74	22.74	0.188	33.01	-10.27
1914.30	1.4	QPSK	H	150	353	1 / 5	18.86	4.68	**23.54**	0.226	33.01	-9.47
1914.30	1.4	16-QAM	H	150	353	1 / 5	17.72	4.68	**22.40**	0.174	33.01	-10.61
1914.30	1.4	64-QAM	H	150	353	1 / 5	16.61	4.68	**21.29**	0.135	33.01	-11.72
1851.50	3	QPSK	H	150	8	1 / 0	16.87	4.82	21.69	0.147	33.01	-11.32
1882.50	3	QPSK	H	150	8	1 / 14	18.09	4.74	22.83	0.192	33.01	-10.18
1913.50	3	QPSK	H	150	8	1 / 14	18.92	4.68	**23.60**	**0.229**	33.01	-9.41
1913.50	3	16-QAM	H	150	8	1 / 14	17.77	4.68	**22.45**	0.176	33.01	-10.56
1882.50	3	64-QAM	H	150	8	1 / 14	16.61	4.74	**21.35**	0.136	33.01	-11.66
1852.50	5	QPSK	H	150	10	1 / 24	17.19	4.81	22.00	0.159	33.01	-11.01
1882.50	5	QPSK	H	150	10	1 / 24	18.17	4.74	**22.91**	0.195	33.01	-10.10
1912.50	5	QPSK	H	150	10	1 / 0	18.08	4.68	22.76	0.189	33.01	-10.25
1882.50	5	16-QAM	H	150	10	1 / 24	17.86	4.74	**22.60**	0.182	33.01	-10.41
1882.50	5	64-QAM	H	150	10	1 / 24	16.81	4.74	**21.55**	0.143	33.01	-11.46
1855.00	10	QPSK	H	150	10	1 / 49	17.05	4.81	21.86	0.153	33.01	-11.15
1882.50	10	QPSK	H	150	10	1 / 49	18.40	4.74	23.14	0.206	33.01	-9.87
1910.00	10	QPSK	H	150	10	1 / 0	18.60	4.68	**23.28**	0.213	33.01	-9.73
1882.50	10	16-QAM	H	150	10	1 / 49	17.45	4.74	**22.19**	0.166	33.01	-10.82
1882.50	10	64-QAM	H	150	10	1 / 49	16.51	4.74	**21.25**	0.133	33.01	-11.76
1857.50	15	QPSK	H	150	365	1 / 74	17.63	4.80	22.43	0.175	33.01	-10.58
1882.50	15	QPSK	H	150	365	1 / 0	18.22	4.74	22.96	0.198	33.01	-10.05
1907.50	15	QPSK	H	150	365	1 / 74	18.54	4.69	**23.23**	0.210	33.01	-9.78
1907.50	15	16-QAM	H	150	365	1 / 74	17.67	4.69	**22.36**	0.172	33.01	-10.65
1907.50	15	64-QAM	H	150	365	1 / 74	16.61	4.69	**21.30**	0.135	33.01	-11.71
1860.00	20	QPSK	H	150	10	1 / 99	17.04	4.79	21.83	0.153	33.01	-11.18
1882.50	20	QPSK	H	150	10	1 / 99	18.45	4.74	23.19	0.208	33.01	-9.82
1905.00	20	QPSK	H	150	10	1 / 0	18.85	4.69	**23.54**	0.226	33.01	-9.47
1905.00	20	16-QAM	H	150	10	1 / 0	18.07	4.69	**22.76**	0.189	33.01	-10.25
1905.00	20	64-QAM	H	150	10	1 / 0	17.18	4.69	**21.87**	0.154	33.01	-11.14
1913.50	3	QPSK	V	150	270	1 / 14	17.34	4.68	22.02	0.159	33.01	-10.99
1913.50	3 (WCP)	QPSK	H	150	54	1 / 14	17.61	4.68	22.29	0.170	33.01	-10.72

Table 7-13. 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]
2307.50	5	QPSK	V	150	315	1 / 0	15.75	5.74	21.49	0.141	23.98	-2.49
2312.50	5	QPSK	V	150	318	1 / 24	15.92	5.74	**21.66**	0.146	23.98	-2.32
2312.50	5	16-QAM	V	150	318	1 / 24	15.40	5.74	**21.14**	0.130	23.98	-2.84
2312.50	5	64-QAM	V	150	318	1 / 24	14.60	5.74	**20.34**	0.108	23.98	-3.64
2310.00	10	QPSK	V	150	315	1 / 0	15.97	5.74	**21.71**	**0.148**	23.98	-2.27
2310.00	10	16-QAM	V	150	315	1 / 0	15.13	5.74	**20.87**	0.122	23.98	-3.11
2310.00	10	64-QAM	V	150	315	1 / 0	14.29	5.74	**20.03**	0.101	23.98	-3.95
2310.00	10	QPSK	H	150	201	1 / 0	14.44	5.74	20.18	0.104	23.98	-3.80
2310.00	10 (WCP)	QPSK	V	150	358	1 / 0	13.84	5.74	19.58	0.091	23.98	-4.40

Table 7-14. EIRP Data (Band 30 – Antenna A)

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	150	243	1 / 0	15.95	5.74	21.69	0.148	23.98	-2.29
2312.50	5	QPSK	V	150	247	1 / 0	15.99	5.74	**21.73**	0.149	23.98	-2.25
2312.50	5	16-QAM	V	150	247	1 / 0	15.09	5.74	**20.83**	0.121	23.98	-3.15
2312.50	5	64-QAM	V	150	247	1 / 0	14.25	5.74	**19.99**	0.100	23.98	-3.99
2310.00	10	QPSK	V	150	246	1 / 0	16.05	5.74	**21.79**	**0.151**	23.98	-2.19
2310.00	10	16-QAM	V	150	246	1 / 0	15.15	5.74	**20.89**	0.123	23.98	-3.09
2310.00	10	64-QAM	V	150	246	1 / 0	14.28	5.74	**20.02**	0.100	23.98	-3.96
2310.00	10	QPSK	H	150	353	1 / 0	16.02	5.74	21.76	0.150	23.98	-2.22
2310.00	10 (WCP)	QPSK	V	150	175	1 / 0	14.66	5.74	20.40	0.110	23.98	-3.58

Table 7-15. EIRP Data (Band 30 – Antenna B)

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	150	217	1 / 0	14.26	5.74	20.00	0.100	33.01	-13.01
2535.00	5	QPSK	H	150	218	1 / 0	15.38	5.86	**21.24**	0.133	33.01	-11.77
2567.50	5	QPSK	H	150	214	1 / 0	15.06	5.98	21.04	0.127	33.01	-11.97
2535.00	5	16-QAM	H	150	218	1 / 0	14.72	5.86	**20.58**	0.114	33.01	-12.43
2535.00	5	64-QAM	H	150	218	1 / 0	13.70	5.86	**19.56**	0.090	33.01	-13.45
2505.00	10	QPSK	H	150	218	1 / 49	14.09	5.75	19.84	0.096	33.01	-13.17
2535.00	10	QPSK	H	150	218	1 / 49	15.31	5.86	21.17	0.131	33.01	-11.84
2565.00	10	QPSK	H	361	221	1 / 49	15.33	5.97	**21.30**	0.135	33.01	-11.71
2565.00	10	16-QAM	H	361	221	1 / 49	14.39	5.97	**20.36**	0.109	33.01	-12.65
2535.00	10	64-QAM	H	150	218	1 / 49	13.47	5.86	**19.33**	0.086	33.01	-13.68
2507.50	15	QPSK	H	150	225	1 / 74	14.48	5.76	20.24	0.106	33.01	-12.77
2535.00	15	QPSK	H	150	218	1 / 74	15.46	5.86	21.32	0.136	33.01	-11.69
2562.50	15	QPSK	H	150	218	1 / 0	15.42	5.96	**21.38**	**0.137**	33.01	-11.63
2562.50	15	16-QAM	H	150	218	1 / 0	14.89	5.96	**20.85**	0.122	33.01	-12.16
2562.50	15	64-QAM	H	150	218	1 / 0	13.75	5.96	**19.71**	0.094	33.01	-13.30
2510.00	20	QPSK	H	150	225	1 / 0	14.04	5.77	19.81	0.096	33.01	-13.20
2535.00	20	QPSK	H	150	218	1 / 0	15.16	5.86	21.02	0.126	33.01	-11.99
2560.00	20	QPSK	H	150	211	1 / 0	15.28	5.95	**21.23**	0.133	33.01	-11.78
2560.00	20	16-QAM	H	150	211	1 / 0	14.67	5.95	**20.62**	0.115	33.01	-12.39
2560.00	20	64-QAM	H	150	211	1 / 0	13.63	5.95	**19.58**	0.091	33.01	-13.43
2562.50	15	QPSK	V	150	288	1 / 0	14.18	5.96	20.14	0.103	33.01	-12.87
2562.50	15 (WCP)	QPSK	V	150	356	1 / 0	11.26	5.96	17.22	0.053	33.01	-15.79

Table 7-16. EIRP Data (Band 7 – Antenna A)

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	312	1 / 24	16.79	5.74	22.53	0.179	33.01	-10.48
2535.00	5	QPSK	V	150	312	1 / 24	16.76	5.86	**22.62**	0.183	33.01	-10.39
2567.50	5	QPSK	V	150	312	1 / 0	16.34	5.98	22.32	0.171	33.01	-10.69
2502.50	5	16-QAM	V	150	312	1 / 24	16.13	5.74	**21.87**	0.154	33.01	-11.14
2502.50	5	64-QAM	V	150	312	1 / 24	15.07	5.74	**20.81**	0.120	33.01	-12.20
2505.00	10	QPSK	V	150	328	1 / 0	17.08	5.75	22.83	0.192	33.01	-10.18
2535.00	10	QPSK	V	150	328	1 / 49	17.04	5.86	**22.90**	0.195	33.01	-10.11
2565.00	10	QPSK	V	150	328	1 / 0	16.47	5.97	22.44	0.175	33.01	-10.57
2535.00	10	16-QAM	V	150	328	1 / 49	16.13	5.86	**21.99**	0.158	33.01	-11.02
2535.00	10	64-QAM	V	150	328	1 / 49	15.16	5.86	**21.02**	0.126	33.01	-11.99
2507.50	15	QPSK	V	150	300	1 / 74	17.44	5.76	**23.20**	**0.209**	33.01	-9.81
2535.00	15	QPSK	V	150	300	1 / 0	16.62	5.86	22.48	0.177	33.01	-10.53
2562.50	15	QPSK	V	150	300	1 / 0	16.80	5.96	22.76	0.189	33.01	-10.25
2507.50	15	16-QAM	V	150	300	1 / 74	15.94	5.76	**21.70**	0.148	33.01	-11.31
2562.50	15	64-QAM	V	150	300	1 / 0	14.80	5.96	**20.76**	0.119	33.01	-12.25
2510.00	20	QPSK	V	150	316	1 / 99	16.73	5.77	22.50	0.178	33.01	-10.51
2535.00	20	QPSK	V	150	316	1 / 99	16.87	5.86	22.73	0.188	33.01	-10.28
2560.00	20	QPSK	V	150	316	1 / 0	17.05	5.95	**23.00**	0.200	33.01	-10.01
2560.00	20	16-QAM	V	150	316	1 / 0	16.09	5.95	**22.04**	0.160	33.01	-10.97
2560.00	20	64-QAM	V	150	316	1 / 0	15.07	5.95	**21.02**	0.127	33.01	-11.99
2507.50	15	QPSK	H	150	349	1 / 74	17.34	5.76	23.10	0.204	33.01	-9.91
2507.50	15 (WCP)	QPSK	V	150	354	1 / 74	14.48	5.76	20.24	0.106	33.01	-12.77

Table 7-17. EIRP Data (Band 7 – Antenna B)

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	283	1 / 0	17.26	5.73	22.99	0.199	33.01	-10.02
2502.50	5	QPSK	V	150	250	1 / 0	17.26	5.74	**23.00**	0.200	33.01	-10.01
2593.00	5	QPSK	V	150	278	1 / 0	16.39	6.07	22.46	0.176	33.01	-10.55
2687.50	5	QPSK	V	150	265	1 / 0	16.39	6.48	22.87	0.194	33.01	-10.14
2502.50	5	16-QAM	V	150	250	1 / 0	16.46	5.74	**22.20**	0.166	33.01	-10.81
2498.50	5	64-QAM	V	150	283	1 / 0	15.36	5.73	**21.09**	0.128	33.01	-11.92
2501.00	10	QPSK	V	150	278	1 / 0	17.38	5.73	**23.11**	0.205	33.01	-9.90
2505.00	10	QPSK	V	150	280	1 / 0	17.36	5.75	23.10	0.204	33.01	-9.91
2593.00	10	QPSK	V	150	273	1 / 0	16.52	6.07	22.59	0.181	33.01	-10.42
2685.00	10	QPSK	V	150	271	1 / 0	16.61	6.47	23.09	0.204	33.01	-9.92
2505.00	10	16-QAM	V	150	280	1 / 0	16.56	5.75	**22.31**	0.170	33.01	-10.70
2505.00	10	64-QAM	V	150	280	1 / 0	15.29	5.75	**21.04**	0.127	33.01	-11.97
2503.50	15	QPSK	V	150	281	1 / 0	17.43	5.74	23.18	0.208	33.01	-9.84
2507.50	15	QPSK	V	150	279	1 / 0	17.69	5.76	**23.45**	0.221	33.01	-9.56
2593.00	15	QPSK	V	150	276	1 / 0	16.62	6.07	22.69	0.186	33.01	-10.32
2682.50	15	QPSK	V	150	270	1 / 0	16.70	6.46	23.16	0.207	33.01	-9.85
2507.50	15	16-QAM	V	150	279	1 / 0	16.86	5.76	**22.62**	0.183	33.01	-10.39
2507.50	15	64-QAM	V	150	279	1 / 0	15.59	5.76	**21.35**	0.136	33.01	-11.67
2506.00	20	QPSK	V	150	254	1 / 0	17.71	5.75	23.46	0.222	33.01	-9.55
2510.00	20	QPSK	V	150	256	1 / 0	17.80	5.77	**23.56**	**0.227**	33.01	-9.45
2593.00	20	QPSK	V	150	271	1 / 0	16.55	6.07	22.62	0.183	33.01	-10.39
2680.00	20	QPSK	V	150	268	1 / 0	16.72	6.45	23.17	0.207	33.01	-9.84
2510.00	20	16-QAM	V	150	256	1 / 0	17.00	5.77	**22.77**	0.189	33.01	-10.24
2510.00	20	64-QAM	V	150	256	1 / 0	15.70	5.77	**21.47**	0.140	33.01	-11.54
2510.00	20	QPSK	H	150	222	1 / 0	16.03	5.73	21.76	0.150	33.01	-11.25
2510.00	20 (WCP)	QPSK	H	150	356	1 / 0	15.94	5.73	21.67	0.147	33.01	-11.34

Table 7-18. EIRP Data (Band 41/38)

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	316	1 / 24	20.62	5.73	26.35	0.431	33.01	-6.66
2502.50	5	QPSK	V	150	318	1 / 24	20.85	5.74	**26.59**	0.456	33.01	-6.42
2593.00	5	QPSK	V	150	301	1 / 24	20.19	6.07	26.26	0.423	33.01	-6.75
2687.50	5	QPSK	V	150	303	1 / 24	18.42	6.48	24.90	0.309	33.01	-8.11
2502.50	5	16-QAM	V	150	318	1 / 24	20.08	5.74	**25.82**	0.382	33.01	-7.19
2502.50	5	64-QAM	V	150	318	1 / 24	19.10	5.74	**24.83**	0.304	33.01	-8.18
2501.00	10	QPSK	V	150	279	1 / 49	19.18	5.73	24.91	0.310	33.01	-8.10
2505.00	10	QPSK	V	150	281	1 / 49	20.44	5.75	**26.19**	0.416	33.01	-6.82
2593.00	10	QPSK	V	150	274	1 / 49	19.81	6.07	25.88	0.387	33.01	-7.13
2685.00	10	QPSK	V	150	286	1 / 49	19.35	6.47	25.82	0.382	33.01	-7.19
2505.00	10	16-QAM	V	150	281	1 / 49	20.05	5.75	**25.80**	0.380	33.01	-7.21
2593.00	10	64-QAM	V	150	274	1 / 49	18.32	6.07	**24.39**	0.275	33.01	-8.62
2503.50	15	QPSK	V	150	316	1 / 0	20.76	5.74	26.50	0.447	33.01	-6.51
2507.50	15	QPSK	V	150	321	1 / 0	21.11	5.76	**26.87**	0.486	33.01	-6.14
2593.00	15	QPSK	V	150	301	1 / 0	18.79	6.07	24.86	0.306	33.01	-8.15
2682.50	15	QPSK	V	150	326	1 / 0	17.76	6.46	24.22	0.264	33.01	-8.79
2507.50	15	16-QAM	V	150	321	1 / 0	20.27	5.76	**26.03**	0.401	33.01	-6.98
2507.50	15	64-QAM	V	150	321	1 / 0	19.29	5.76	**25.05**	0.320	33.01	-7.96
2506.00	20	QPSK	V	150	318	1 / 0	21.15	5.75	26.90	0.490	33.01	-6.11
2510.00	20	QPSK	V	150	320	1 / 0	21.16	5.77	**26.93**	**0.493**	33.01	-6.08
2593.00	20	QPSK	V	150	324	1 / 0	17.99	6.07	24.06	0.255	33.01	-8.95
2680.00	20	QPSK	V	150	308	1 / 0	17.80	6.45	24.26	0.266	33.01	-8.75
2510.00	20	16-QAM	V	150	320	1 / 0	20.36	5.77	**26.12**	0.410	33.01	-6.89
2510.00	20	64-QAM	V	150	320	1 / 0	19.37	5.77	**25.14**	0.326	33.01	-7.87
2510.00	20	QPSK	H	150	216	1 / 0	19.25	6.07	25.32	0.341	33.01	-7.69
2510.00	20 (WCP)	QPSK	V	150	193	1 / 0	17.66	6.07	23.73	0.236	33.01	-9.28

Table 7-19. EIRP Data (Band 41 – PC2)

7.9 Radiated Spurious Emissions Measurements

Test Overview

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

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.8

ANSI/TIA-603-E-2016 – Section 2.2.12

Test Settings

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

Test Setup

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

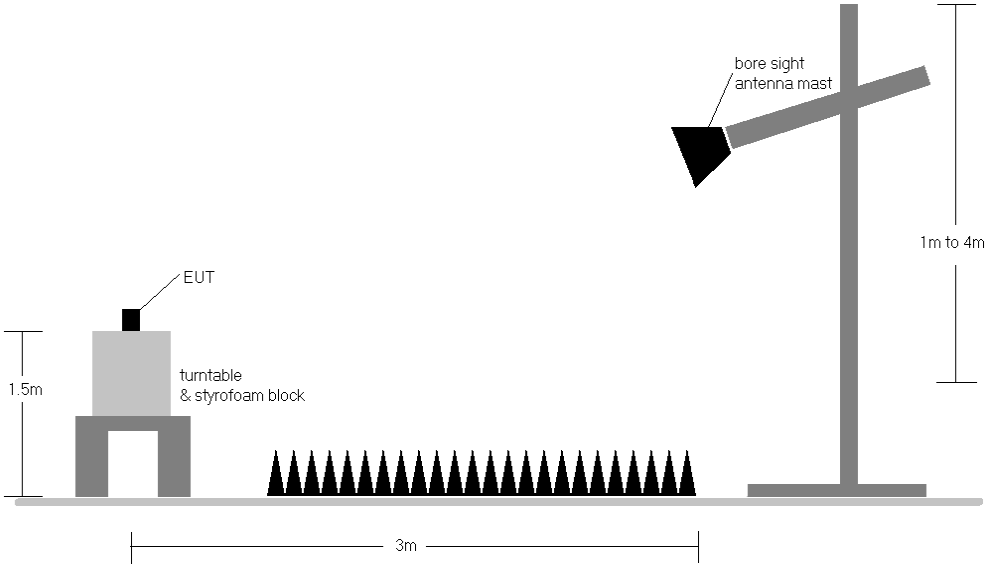


Figure 7-9. Test Instrument & Measurement Setup

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.

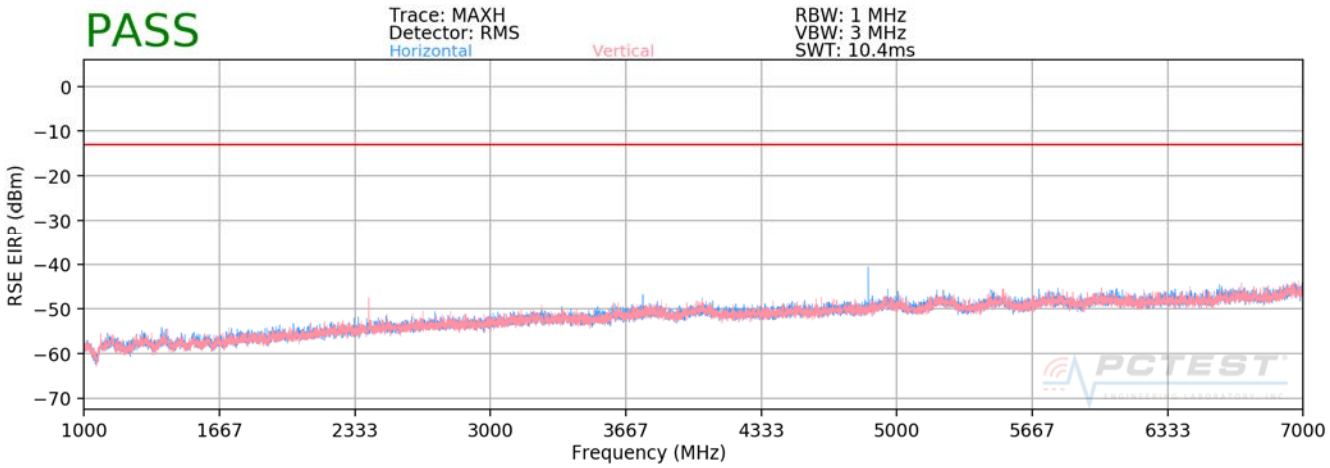
2) This unit was tested with its standard battery.

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 71



Plot 7-420. Radiated Spurious Plot above 1GHz (Band 71)

OPERATING FREQUENCY:	665.50	MHz
CHANNEL:	133147	
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]
1331.00	H	-	-	-59.16	3.87	-55.29	-42.3
1996.50	H	-	-	-57.16	4.72	-52.43	-39.4

Table 7-20. Radiated Spurious Data (Band 71 – Low Channel)

OPERATING FREQUENCY:	680.50	MHz
CHANNEL:	133297	
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]
1361.00	H	-	-	-59.01	3.90	-55.11	-42.1
2041.50	H	-	-	-57.32	4.78	-52.55	-39.5
2722.00	H	-	-	-55.93	5.49	-50.45	-37.4

Table 7-21. Radiated Spurious Data (Band 71 – Mid Channel)

OPERATING FREQUENCY:	695.50	MHz
CHANNEL:	133447	
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]
1391.00	H	150	265	-53.97	3.80	-50.16	-37.2
2086.50	H	150	21	-57.81	4.80	-53.01	-40.0
2782.00	H	-	-	-61.32	5.65	-55.67	-42.7

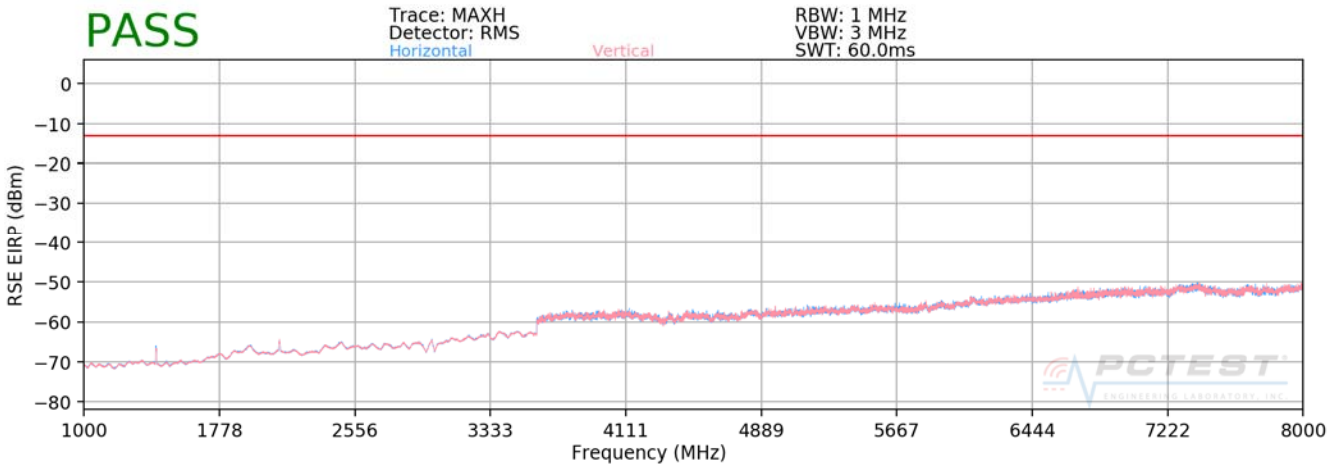
Table 7-22. Radiated Spurious Data (Band 71 – High Channel)

OPERATING FREQUENCY:	695.50	MHz
CHANNEL:	133447	
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]
1391.00	H	150	64	-61.94	3.80	-58.13	-45.1
2086.50	H	150	324	-61.68	4.80	-56.88	-43.9
2782.00	H	-	-	-63.02	5.65	-57.37	-44.4

Table 7-23. Radiated Spurious Data with WCP (Band 71 – High Channel)

Band 12/17



Plot 7-421. 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	V	150	85	-56.26	3.80	-52.46	-39.5
2104.50	V	150	227	-67.01	4.80	-62.21	-49.2
2806.00	V	-	-	-66.31	5.66	-60.65	-47.7
3507.50	V	-	-	-66.08	6.59	-59.49	-46.5

Table 7-24. 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	V	150	85	-55.75	3.90	-51.85	-38.8
2122.50	V	150	351	-63.89	4.78	-59.11	-46.1
2830.00	V	-	-	-66.19	5.73	-60.46	-47.5
3537.50	V	-	-	-65.77	6.54	-59.22	-46.2

Table 7-25. 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	V	150	75	-59.29	4.01	-55.28	-42.3
2140.50	V	150	60	-65.99	4.77	-61.22	-48.2
2854.00	V	-	-	-66.19	5.79	-60.40	-47.4
3567.50	V	-	-	-65.43	6.57	-58.86	-45.9

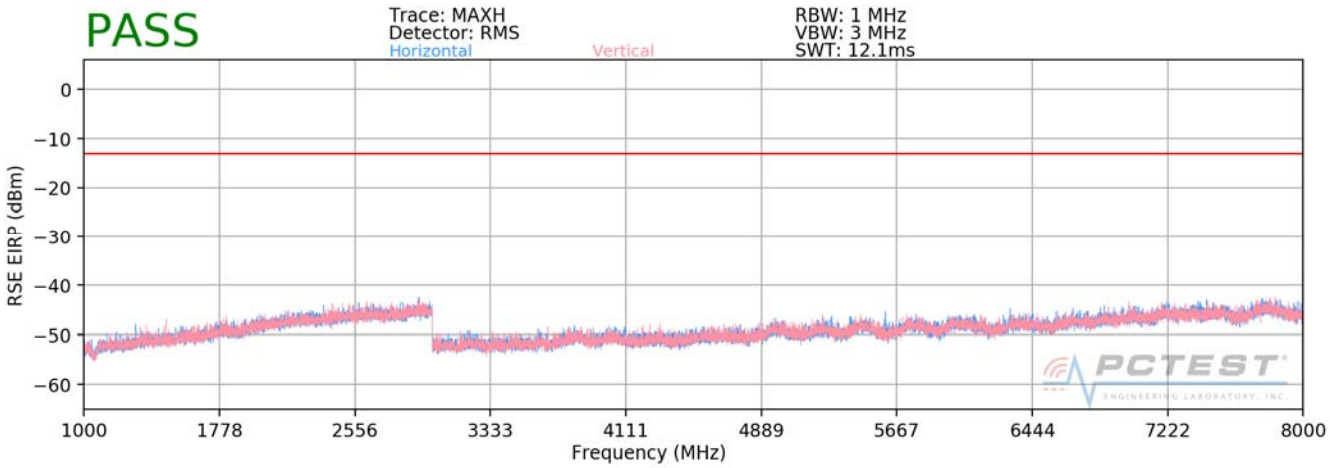
Table 7-26. Radiated Spurious Data (Band 12/17 – High Channel)

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	V	150	50	-54.39	3.90	-50.49	-37.5
2122.50	V	-	-	-56.43	4.78	-51.64	-38.6
2830.00	V	-	-	-55.49	5.73	-49.76	-36.8

Table 7-27. Radiated Spurious Data with WCP (Band 12/17 – Mid Channel)

Band 13



Plot 7-422. 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	V	-	-	-66.61	4.86	-61.74	-48.7
3118.00	V	-	-	-65.47	5.99	-59.49	-46.5

Table 7-28. 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	V	-	-	-66.08	4.88	-61.20	-48.2
3128.00	V	-	-	-65.82	6.02	-59.81	-46.8

Table 7-29. 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	V	-	-	-66.51	4.90	-61.61	-48.6
3138.00	V	-	-	-65.94	6.05	-59.89	-46.9

Table 7-30. 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	V	-	-	-68.71	4.47	-64.24	-24.2
1564.00	V	-	-	-69.03	4.50	-64.54	-24.5
1569.00	V	-	-	-69.20	4.53	-64.67	-24.7

Table 7-31. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

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	V	-	-	-66.16	4.88	-61.28	-48.3
3128.00	V	-	-	-66.22	6.02	-60.20	-47.2

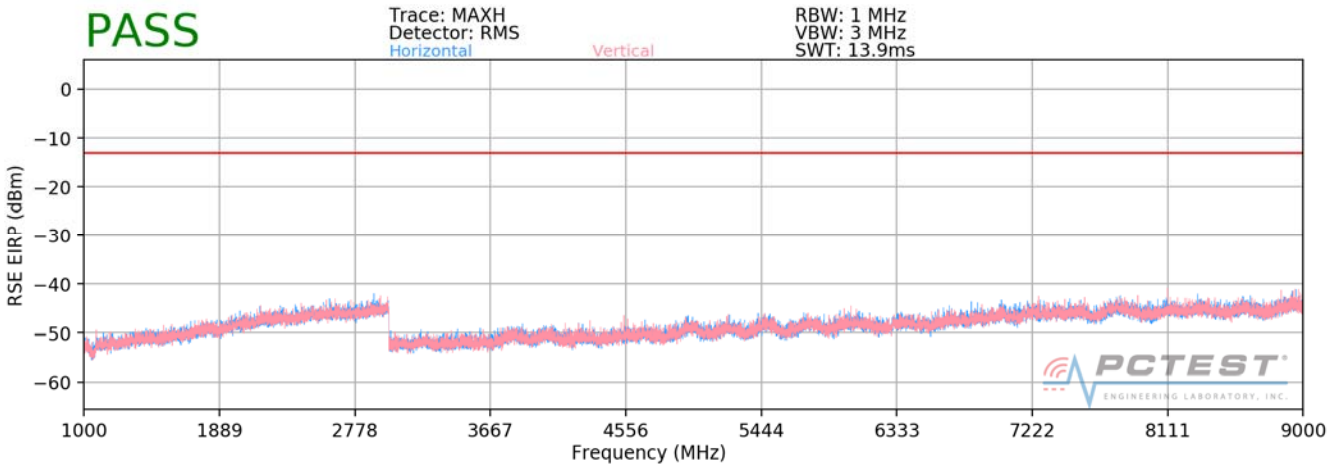
Table 7-32. Radiated Spurious Data with WCP (Band 13 – Mid Channel)

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]
1564.00	V	-	-	-69.44	4.50	-64.95	-24.9

Table 7-33. Radiated Spurious Data with WCP (Band 13 – 1559-1610MHz Band)

Band 26/5



Plot 7-423. 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	150	356	-64.48	4.82	-59.67	-46.7
2476.50	H	150	33	-65.58	5.00	-60.58	-47.6
3302.00	H	-	-	-66.59	6.25	-60.34	-47.3

Table 7-34. Radiated Spurious Data (Band 26/5 – Low Channel)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.00	H	150	1	-65.54	4.86	-60.68	-47.7
2509.50	H	150	80	-66.55	5.10	-61.45	-48.4
3346.00	H	-	-	-66.45	6.25	-60.19	-47.2

Table 7-35. Radiated Spurious Data (Band 26/5 – Mid Channel)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1695.00	H	150	358	-67.19	4.91	-62.28	-49.3
2542.50	H	-	-	-67.34	5.26	-62.08	-49.1
3390.00	H	-	-	-66.48	6.38	-60.10	-47.1

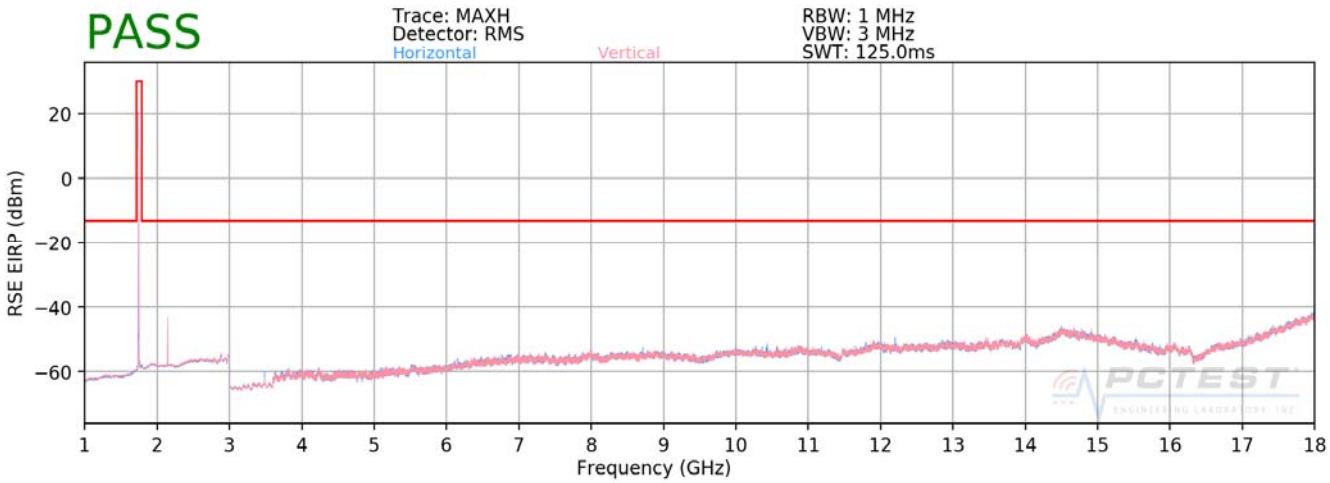
Table 7-36. Radiated Spurious Data (Band 26/5 – High Channel)

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	-	-	-68.70	4.82	-63.89	-50.9
2509.50	H	-	-	-66.27	5.00	-61.28	-48.3

Table 7-37. Radiated Spurious Data with WCP (Band 26/5 – Mid Channel)

Band 66/4



Plot 7-424. Radiated Spurious Plot above 1GHz (Band 66)

OPERATING FREQUENCY:	1711.50	MHz
CHANNEL:	131987	
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]
3423.00	H	150	348	-63.44	6.47	-56.97	-44.0
5134.50	H	150	49	-63.73	8.43	-55.30	-42.3
6846.00	H	-	-	-64.55	8.71	-55.84	-42.8
8557.50	H	150	320	-58.83	9.61	-49.22	-36.2
10269.00	H	-	-	-59.58	9.72	-49.86	-36.9

Table 7-38. Radiated Spurious Data (Band 66/4 – Low Channel)

OPERATING FREQUENCY:	1745.00	MHz
CHANNEL:	132322	
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]
3490.00	H	150	319	-60.33	6.59	-53.74	-40.7
5235.00	H	-	-	-65.17	8.42	-56.75	-43.7
6980.00	H	-	-	-65.02	8.60	-56.42	-43.4
8725.00	H	150	296	-62.10	9.88	-52.22	-39.2
10470.00	H	-	-	-61.88	9.76	-52.12	-39.1

Table 7-39. Radiated Spurious Data (Band 66/4 – Mid Channel)

OPERATING FREQUENCY:	1778.50	MHz
CHANNEL:	132657	
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]
3557.00	H	150	299	-61.58	6.54	-55.04	-42.0
5335.50	H	-	-	-65.30	8.40	-56.90	-43.9
7114.00	H	150	305	-62.11	8.46	-53.65	-40.7
8892.50	H	-	-	-64.19	10.00	-54.19	-41.2
10671.00	H	-	-	-60.51	9.58	-50.93	-37.9

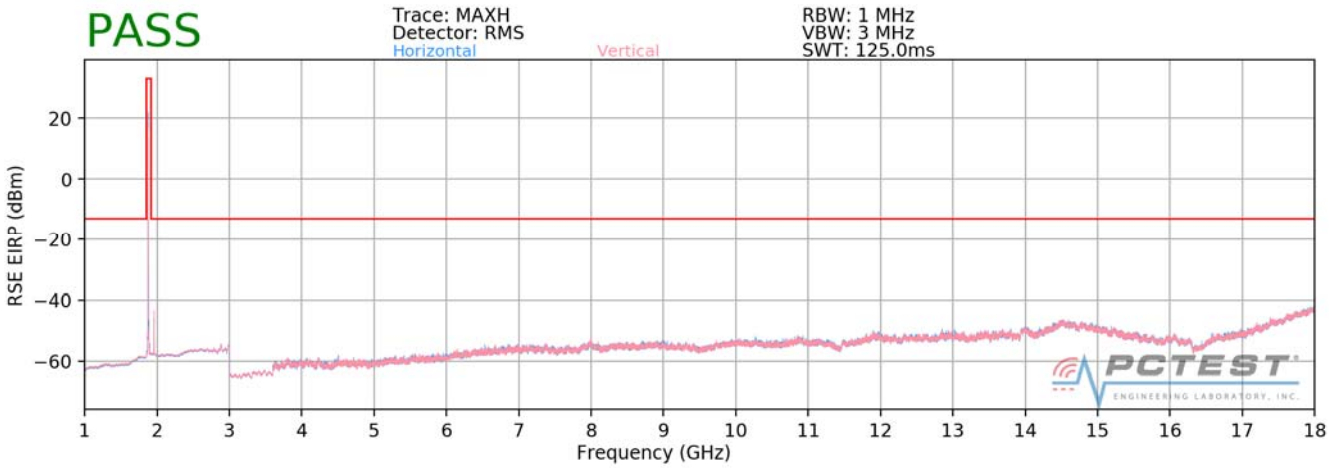
Table 7-40. Radiated Spurious Data (Band 66/4 – High Channel)

OPERATING FREQUENCY:	1711.50	MHz
CHANNEL:	131987	
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]
3423.00	H	150	11	-64.16	6.47	-57.69	-44.7
5134.50	H	-	-	-66.04	8.43	-57.61	-44.6
6846.00	H	-	-	-63.42	8.71	-54.71	-41.7
8557.50	H	-	-	-62.99	9.61	-53.38	-40.4
10269.00	H	-	-	-58.88	9.72	-49.16	-36.2
11980.50	H	-	-	-47.91	0.00	-47.91	-34.9

Table 7-41. Radiated Spurious Data with WCP (Band 66/4 – Low Channel)

Band 25/2



Plot 7-425. Radiated Spurious Plot above 1GHz (Band 25/2)

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

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3703.00	H	150	219	-65.82	6.76	-59.05	-46.1
5554.50	H	150	355	-65.74	8.44	-57.31	-44.3
7406.00	H	-	-	-63.02	8.27	-54.75	-41.8
9257.50	H	-	-	-63.64	9.88	-53.76	-40.8

Table 7-42. Radiated Spurious Data (Band 25/2 – Low Channel)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3765.00	H	150	320	-64.56	6.85	-57.70	-44.7
5647.50	H	150	78	-64.65	8.53	-56.12	-43.1
7530.00	H	-	-	-62.96	8.45	-54.51	-41.5
9412.50	H	-	-	-63.56	9.79	-53.77	-40.8

Table 7-43. Radiated Spurious Data (Band 25/2 – Mid Channel)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3827.00	H	150	317	-63.86	7.02	-56.84	-43.8
5740.50	H	150	291	-63.81	8.58	-55.23	-42.2
7654.00	H	150	46	-61.26	8.59	-52.67	-39.7
9567.50	H	-	-	-63.91	9.83	-54.08	-41.1

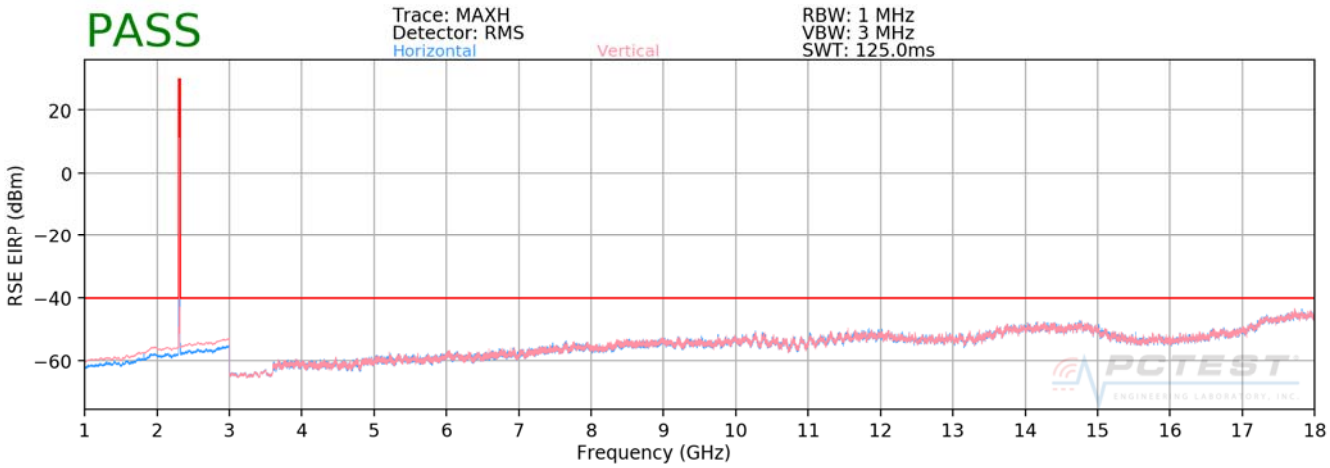
Table 7-44. Radiated Spurious Data (Band 25/2 – High Channel)

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

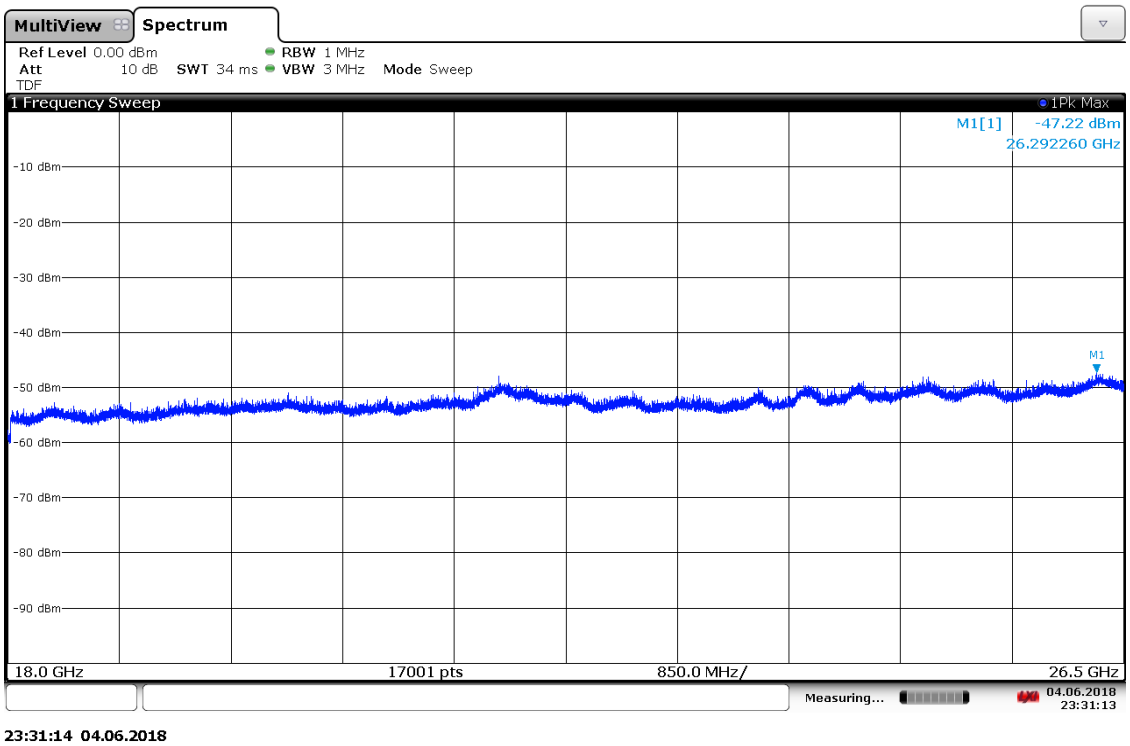
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3827.00	H	150	350	-65.02	7.02	-58.00	-45.0
5740.50	H	-	-	-65.83	8.58	-57.26	-44.3
7654.00	H	-	-	-62.18	8.59	-53.59	-40.6

Table 7-45. Radiated Spurious Data with WCP (Band 25/2 – High Channel)

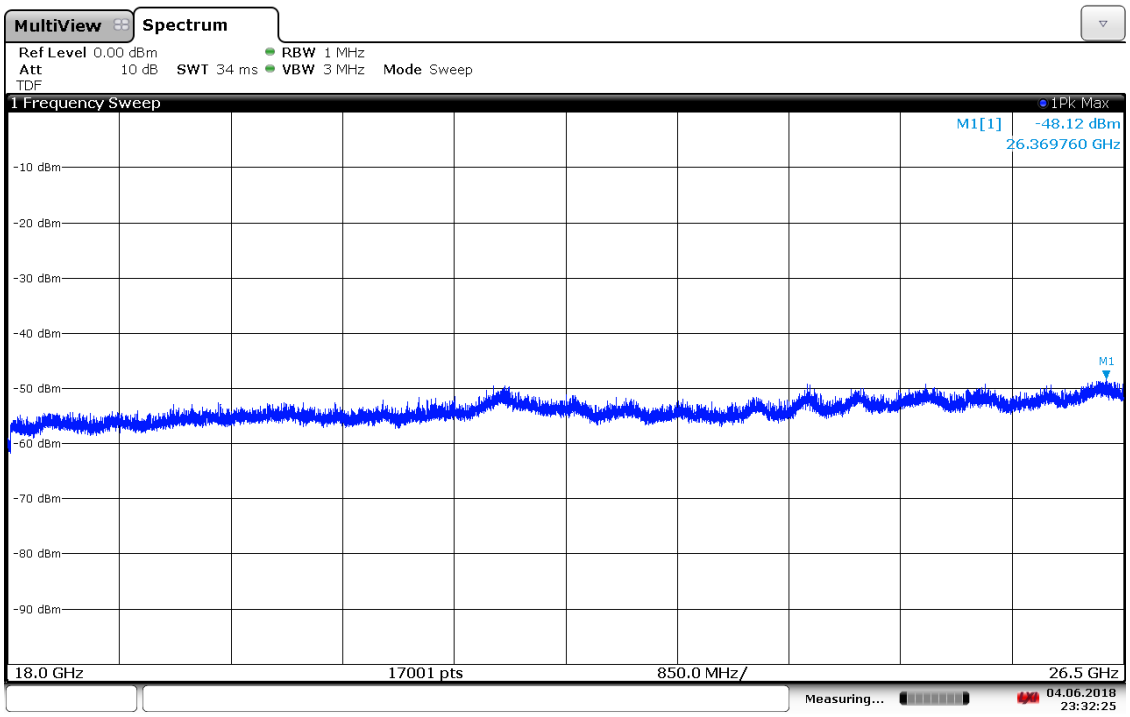
Band 30 – Antenna A



Plot 7-426. Radiated Spurious Plot 1GHz - 18GHz (Band 30)



Plot 7-427. Radiated Spurious Plot 18GHz – 26.5GHz (Band 30 Pol.H)



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Plot 7-428. Radiated Spurious Plot 18GHz – 26.5GHz (Band 30 Pol.V)

OPERATING FREQUENCY:	2310.00	MHz
CHANNEL:	27710	
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	V	109	355	-73.12	10.92	-62.21	-22.2
6930.00	V	110	337	-65.55	11.74	-53.81	-13.8
9240.00	V	116	280	-64.29	11.62	-52.67	-12.7
11550.00	V	-	-	-66.10	12.72	-53.38	-13.4
13860.00	V	-	-	-63.49	11.99	-51.49	-11.5

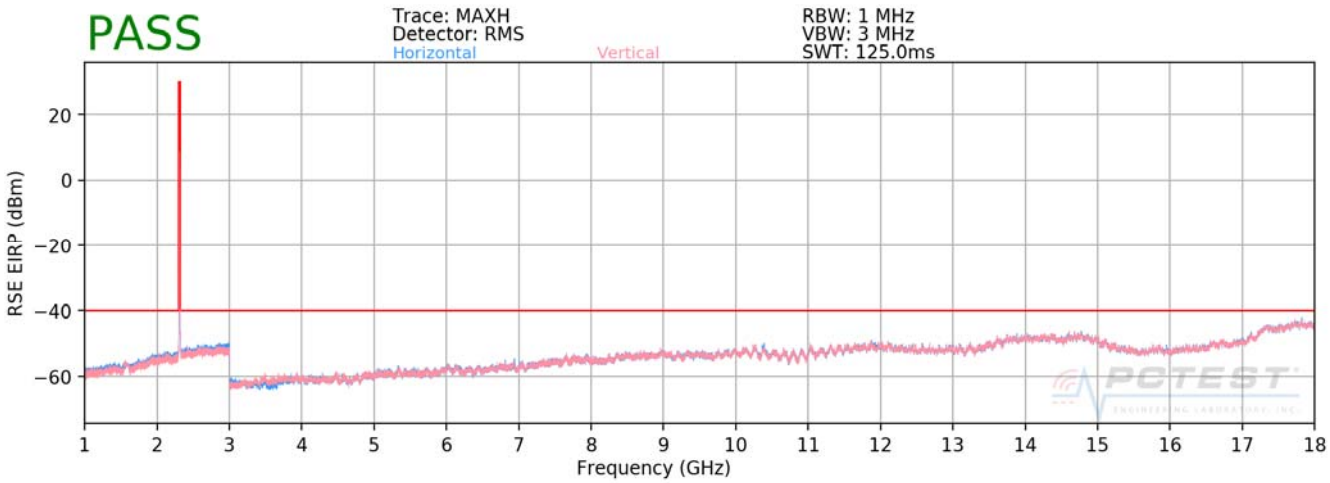
Table 7-46. Radiated Spurious Data (Band 30 – Mid Channel)

OPERATING FREQUENCY:	2310.00	MHz
CHANNEL:	27710	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-40	dBm

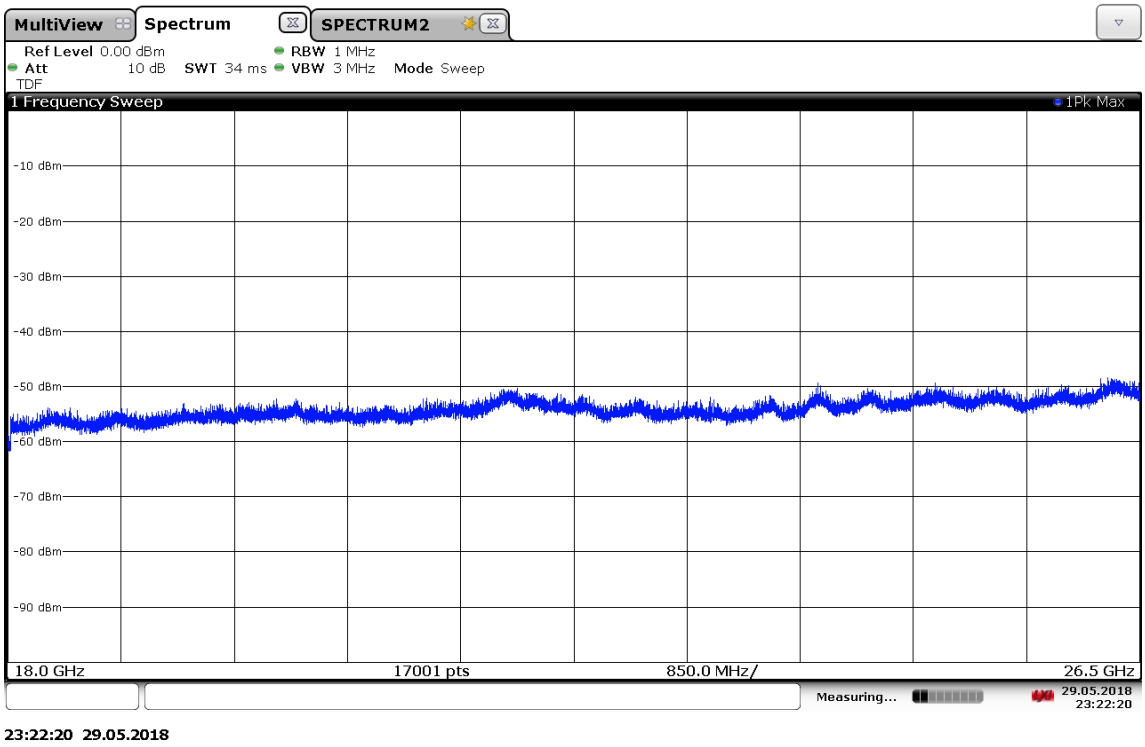
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
4620.00	H	120	12	-74.37	10.92	-63.46	-23.5
6930.00	H	117	300	-69.44	11.74	-57.70	-17.7
9240.00	H	325	299	-67.38	11.62	-55.76	-15.8
11550.00	H	-	-	-66.75	12.72	-54.03	-14.0
13860.00	H	-	-	-63.50	11.99	-51.50	-11.5

Table 7-47. Radiated Spurious Data with WCP (Band 30 – Mid Channel)

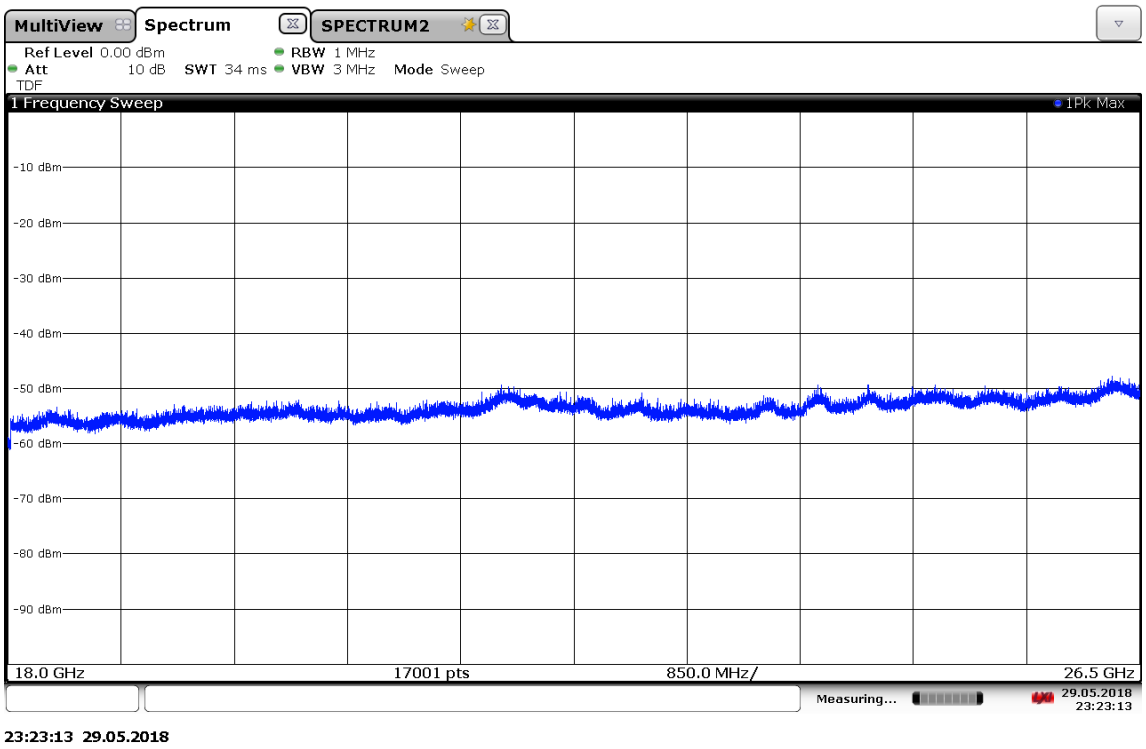
Band 30 – Antenna B



Plot 7-429. Radiated Spurious Plot 1GHz - 18GHz (Band 30)



Plot 7-430. Radiated Spurious Plot 18GHz – 26.5GHz (Band 30 Pol.H)



Plot 7-431. Radiated Spurious Plot 18GHz – 26.5GHz (Band 30 Pol.V)

OPERATING FREQUENCY:	2307.50	MHz
CHANNEL:	27685	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	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]
4615.00	H	100	307	-68.48	10.91	-57.57	-17.6
6922.50	H	102	61	-63.12	11.73	-51.38	-11.4
9230.00	H	338	306	-64.10	11.61	-52.49	-12.5
11537.50	H	-	-	-66.85	12.72	-54.12	-14.1
13845.00	H	-	-	-63.50	12.01	-51.50	-11.5

Table 7-48. Radiated Spurious Data (Band 30 – Low Channel)

OPERATING FREQUENCY:	2312.50	MHz
CHANNEL:	27735	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	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]
4625.00	H	100	307	-67.85	10.92	-56.93	-16.9
6937.50	H	101	61	-63.01	11.75	-51.26	-11.3
9250.00	H	324	306	-65.34	11.63	-53.71	-13.7
11562.50	H	-	-	-67.92	12.71	-55.22	-15.2
13875.00	H	-	-	-63.70	11.98	-51.72	-11.7

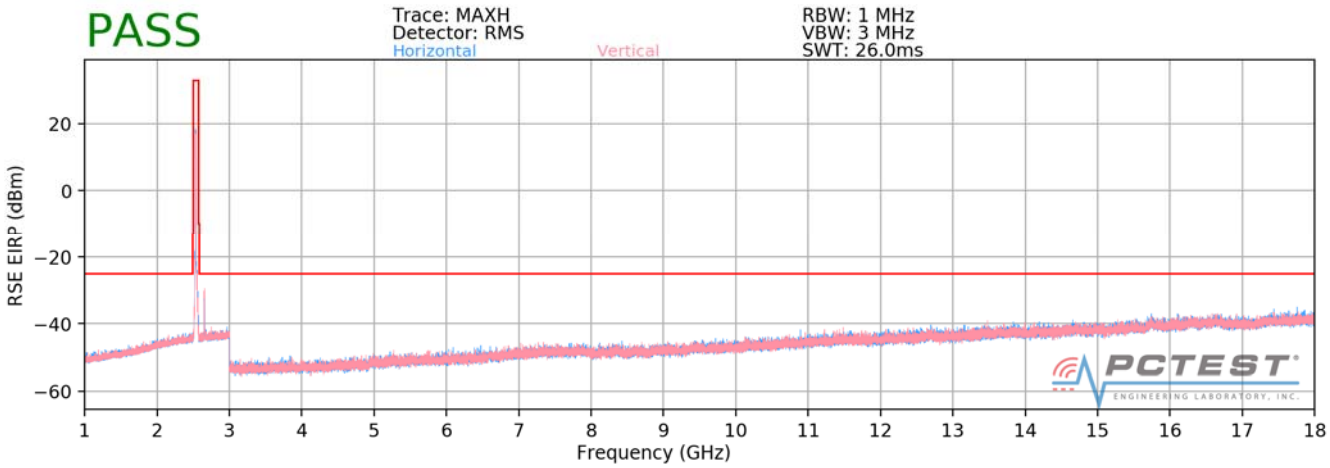
Table 7-49. Radiated Spurious Data (Band 30 – High Channel)

OPERATING FREQUENCY:	2307.50	MHz
CHANNEL:	27685	
MODULATION SIGNAL:	5.00	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-40	dBm

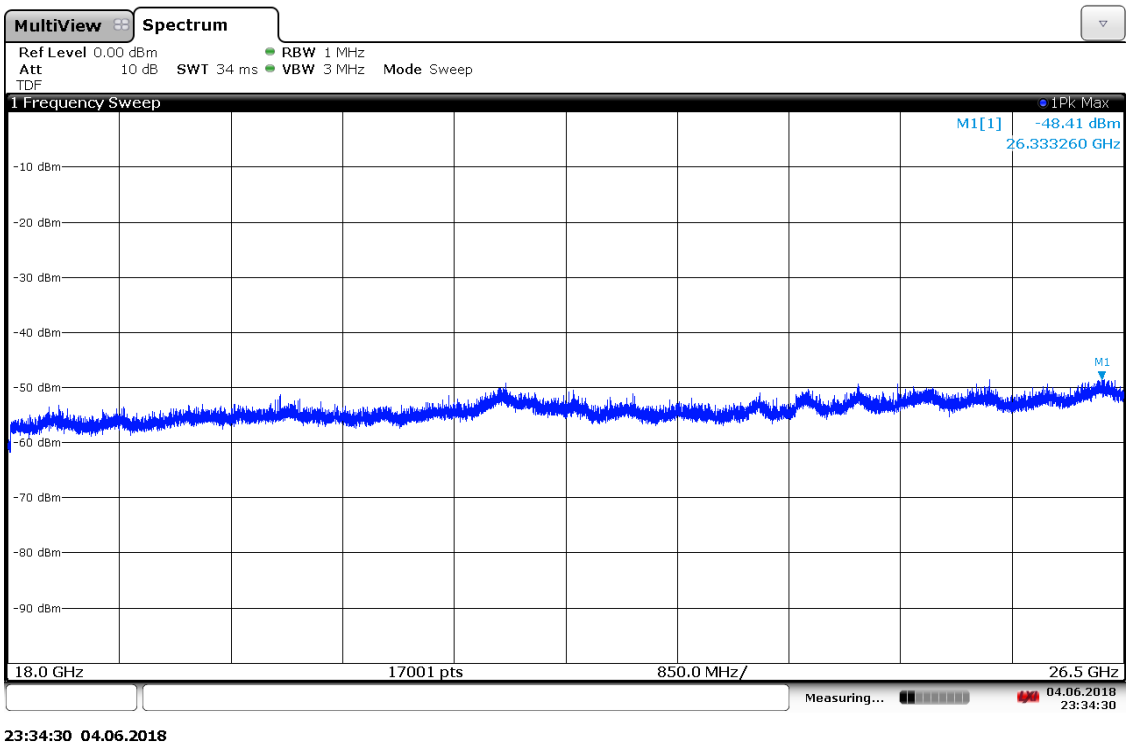
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
4615.00	H	113	274	-73.95	10.91	-63.04	-23.0
6922.50	H	128	287	-71.21	11.73	-59.47	-19.5
9230.00	H	171	65	-65.67	11.61	-54.06	-14.1
11537.50	H	-	-	-67.14	12.72	-54.41	-14.4
13845.00	H	-	-	-63.64	12.01	-51.64	-11.6

Table 7-50. Radiated Spurious Data with WCP (Band 30 – Low Channel)

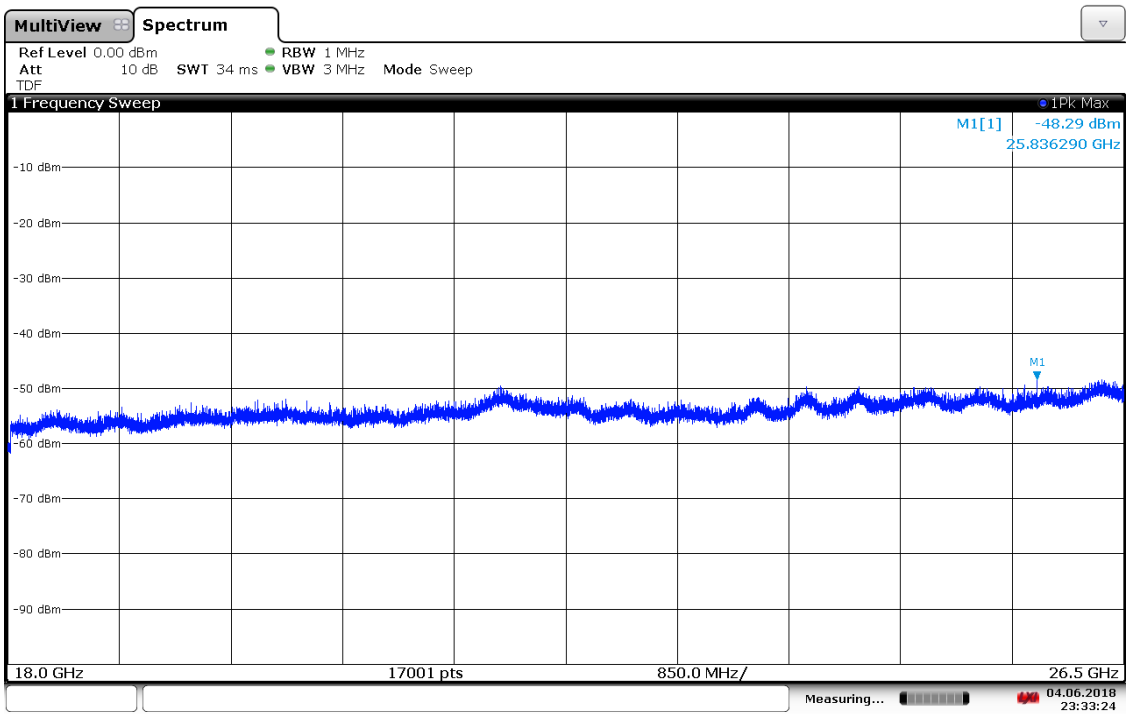
Band 7 – Antenna A



Plot 7-432. Radiated Spurious Plot 1GHz - 18GHz (Band 7)



Plot 7-433. Radiated Spurious Plot 18GHz – 26.5GHz (Band 7 Pol.H)



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Plot 7-434. Radiated Spurious Plot 18GHz – 26.5GHz (Band 7 Pol.V)

OPERATING FREQUENCY:	2507.50	MHz
CHANNEL:	20825	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	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]
5015.00	V	177	343	-71.16	11.12	-60.04	-35.0
7522.50	V	102	26	-63.31	11.04	-52.28	-27.3
10030.00	V	-	-	-67.94	12.17	-55.77	-30.8
12537.50	V	-	-	-67.60	12.79	-54.81	-29.8

Table 7-51. Radiated Spurious Data (Band 7 – Low Channel)

OPERATING FREQUENCY:	2535.00	MHz
CHANNEL:	21100	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	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	102	327	-69.08	10.91	-58.17	-33.2
7605.00	V	111	3	-65.73	11.22	-54.50	-29.5
10140.00	V	-	-	-68.50	12.28	-56.22	-31.2
12675.00	V	-	-	-67.04	12.91	-54.13	-29.1

Table 7-52. Radiated Spurious Data (Band 7 – Mid Channel)

OPERATING FREQUENCY:	2562.50	MHz
CHANNEL:	21375	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	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]
5125.00	V	102	36	-68.99	10.83	-58.16	-33.2
7687.50	V	102	3	-65.37	11.35	-54.02	-29.0
10250.00	V	-	-	-68.39	12.43	-55.97	-31.0
12812.50	V	-	-	-67.24	12.88	-54.36	-29.4

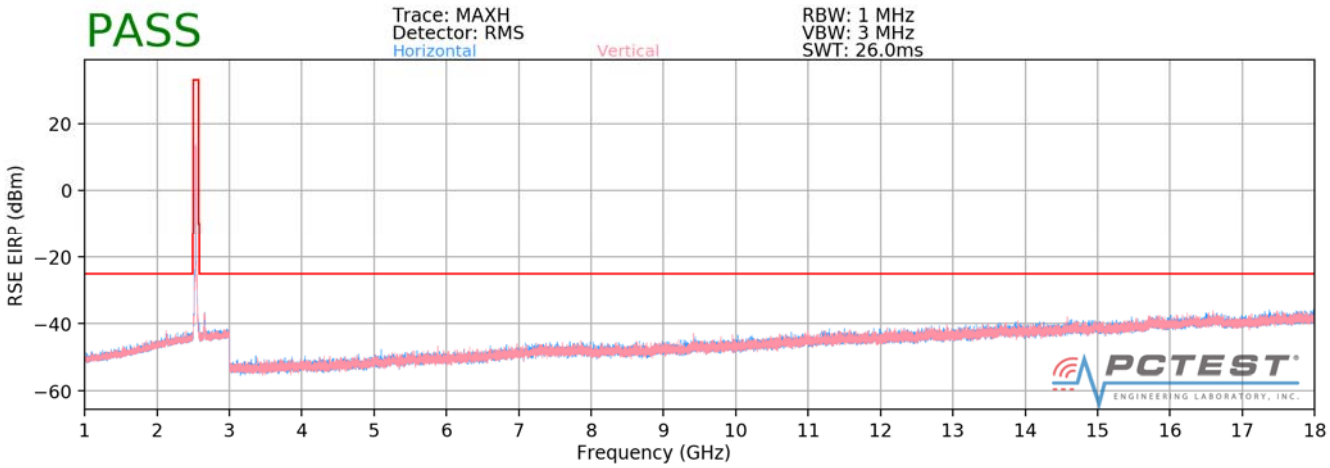
Table 7-53. Radiated Spurious Data (Band 7 – High Channel)

OPERATING FREQUENCY:	2507.50	MHz
CHANNEL:	20825	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

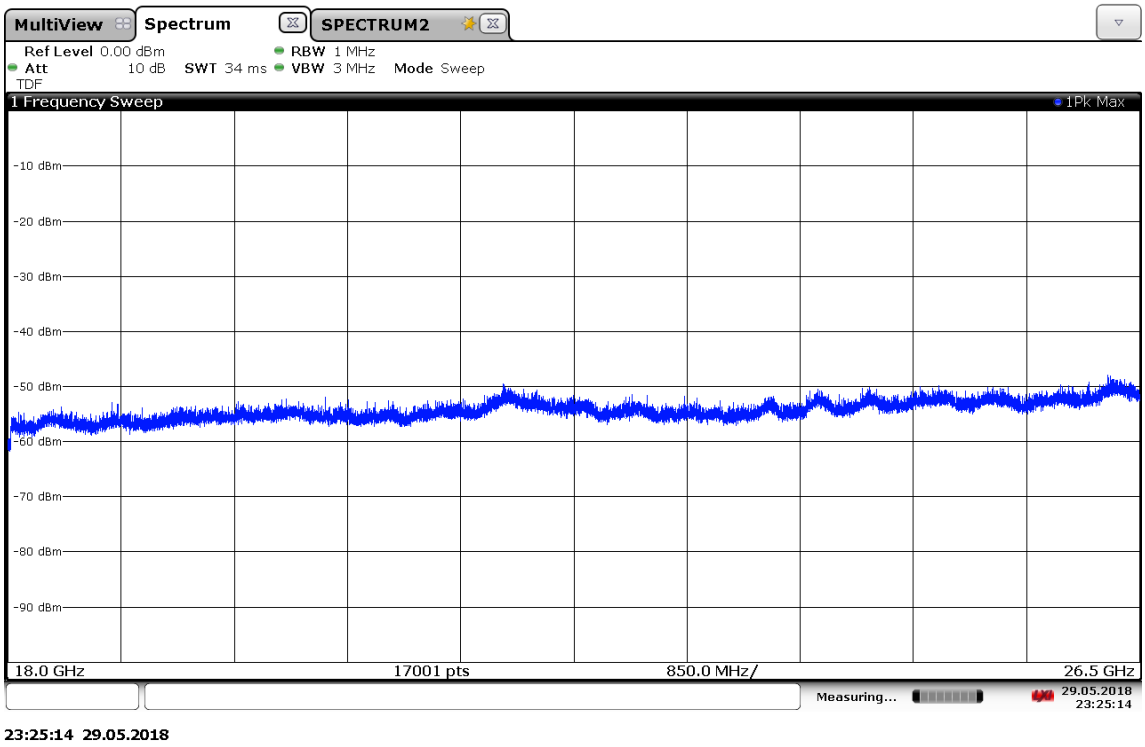
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5015.00	V	335	45	-70.18	11.12	-59.06	-34.1
7577.50	V	131	66	-67.52	11.04	-56.49	-31.5
10140.00	V	-	-	-67.86	12.17	-55.69	-30.7
12702.50	V	-	-	-67.45	12.79	-54.66	-29.7

Table 7-54. Radiated Spurious Data with WCP (Band 7 – Low Channel)

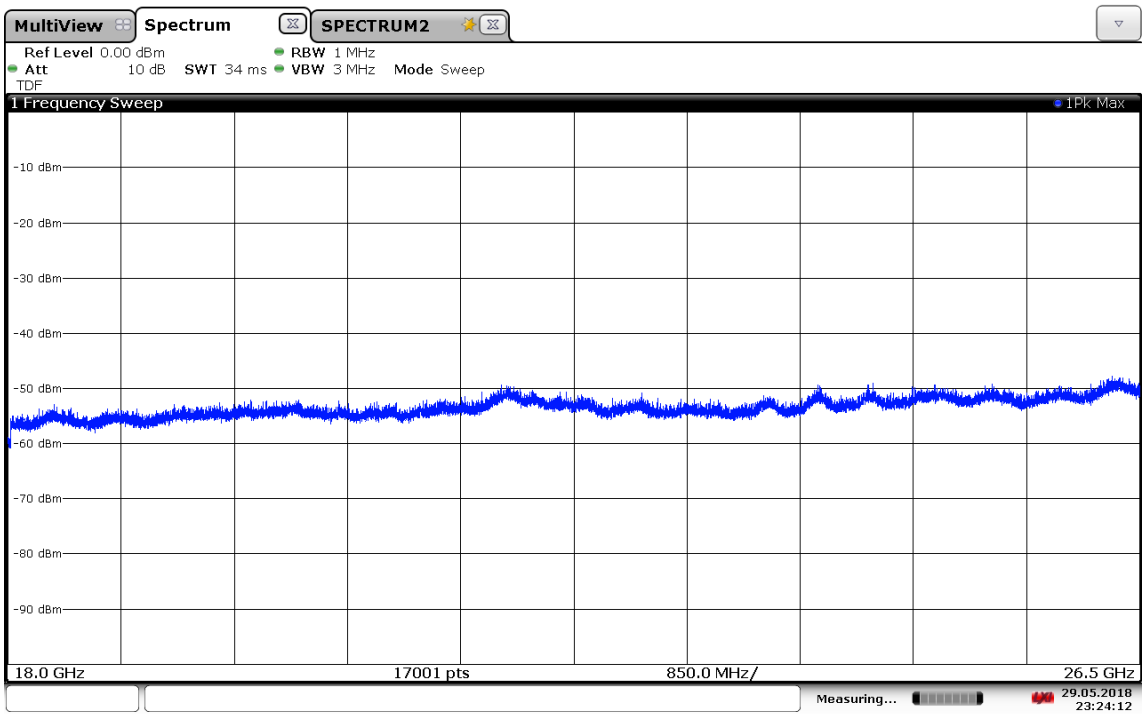
Band 7 – Antenna B



Plot 7-435. Radiated Spurious Plot 1GHz - 18GHz (Band 7)



Plot 7-436. Radiated Spurious Plot 18GHz – 26.5GHz (Band 7 Pol.H)



Plot 7-437. Radiated Spurious Plot 18GHz – 26.5GHz (Band 7 Pol.V)

OPERATING FREQUENCY:	2507.50	MHz
CHANNEL:	20825	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	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]
5015.00	H	150	40	-60.86	8.34	-52.52	-27.5
7522.50	H	150	58	-57.44	8.44	-49.00	-24.0
10030.00	H	-	-	-62.25	9.86	-52.40	-27.4
12537.50	H	-	-	-58.97	9.32	-49.66	-24.7

Table 7-55. Radiated Spurious Data (Band 7 – Low Channel)

OPERATING FREQUENCY:	2535.00	MHz
CHANNEL:	21100	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	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	H	150	54	-61.92	8.39	-53.54	-28.5
7605.00	H	150	43	-58.65	8.51	-50.14	-25.1
10140.00	H	150	58	-61.35	9.70	-51.65	-26.6
12675.00	H	-	-	-58.82	9.24	-49.58	-24.6
15210.00	H	-	-	-56.47	9.31	-47.16	-22.2

Table 7-56. Radiated Spurious Data (Band 7 – Mid Channel)

OPERATING FREQUENCY:	2562.50	MHz
CHANNEL:	21375	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	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]
5125.00	H	150	39	-60.19	8.42	-51.76	-26.8
7687.50	H	150	57	-58.28	8.65	-49.64	-24.6
10250.00	H	-	-	-61.78	9.72	-52.07	-27.1
12812.50	H	-	-	-58.29	9.23	-49.06	-24.1

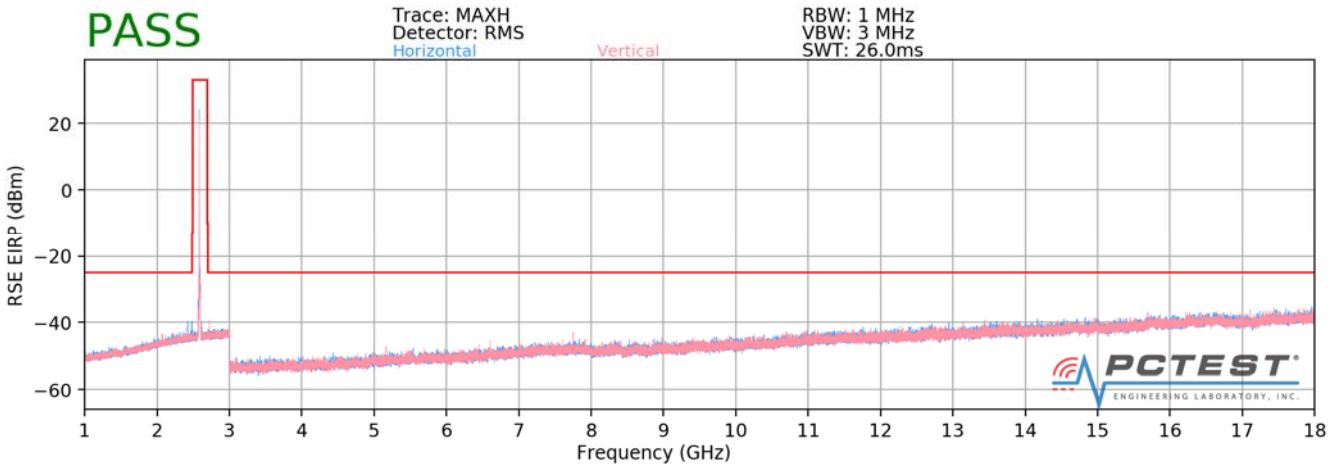
Table 7-57. Radiated Spurious Data (Band 7 – High Channel)

OPERATING FREQUENCY:	2507.50	MHz
CHANNEL:	20825	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

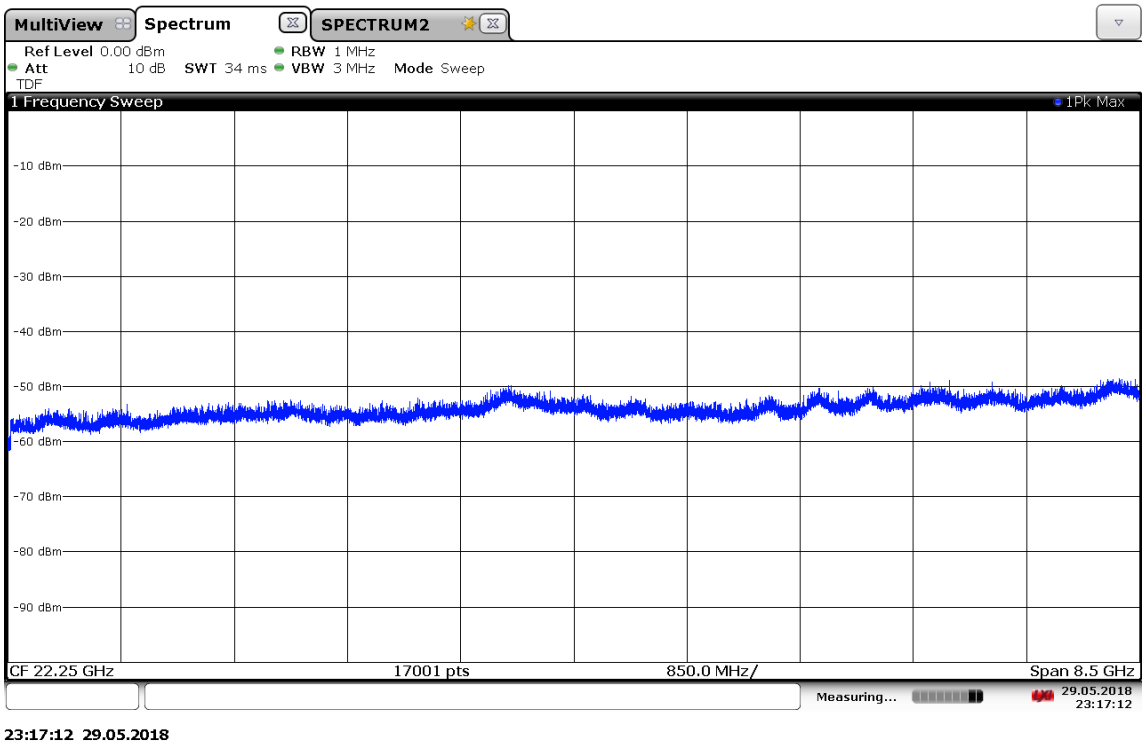
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5015.00	H	150	352	-62.31	8.34	-53.97	-29.0
7522.50	H	-	-	-62.12	8.44	-53.67	-28.7
10030.00	H	-	-	-62.83	9.86	-52.97	-28.0

Table 7-58. Radiated Spurious Data with WCP (Band 7 – High Channel)

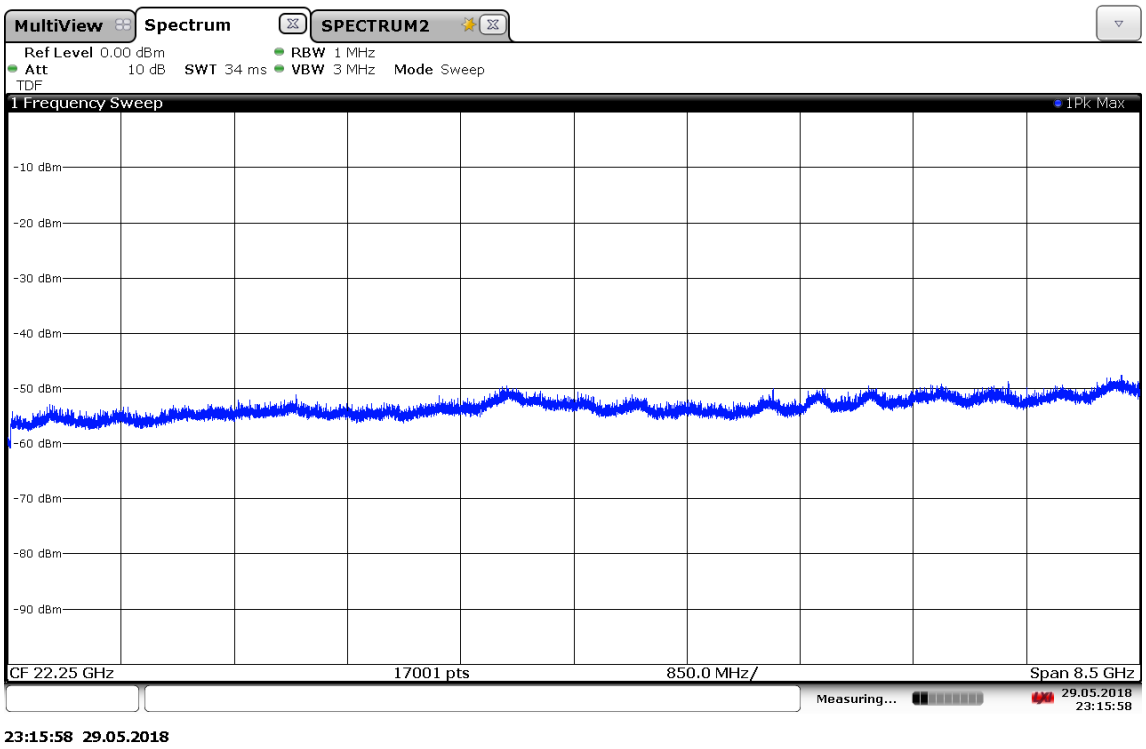
Band 41/38



Plot 7-438. Radiated Spurious Plot 1GHz - 18GHz (Band 41/38)



Plot 7-439. Radiated Spurious Plot 18GHz – 26.5GHz (Band 41/38 Pol.H)



Plot 7-440. Radiated Spurious Plot 18GHz – 26.5GHz (Band 41/38 Pol.V)

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

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5020.00	H	150	120	-57.01	8.35	-48.67	-23.7
7530.00	H	150	134	-55.86	8.45	-47.42	-22.4
10040.00	H	-	-	-59.94	9.84	-50.10	-25.1
12550.00	H	-	-	-57.14	9.29	-47.85	-22.9

Table 7-59. Radiated Spurious Data (Band 41/38 – Low Channel)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	H	150	87	-57.27	8.45	-48.82	-23.8
7779.00	H	150	331	-55.86	8.75	-47.11	-22.1
10372.00	H	-	-	-59.79	9.73	-50.06	-25.1
12965.00	H	-	-	-56.99	9.19	-47.80	-22.8

Table 7-60. Radiated Spurious Data (Band 41/38 – Mid Channel)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5360.00	H	150	22	-59.48	8.40	-51.08	-26.1
8040.00	H	150	231	-56.00	9.19	-46.82	-21.8
10720.00	H	-	-	-59.16	9.52	-49.64	-24.6
13400.00	H	-	-	-55.48	9.07	-46.41	-21.4

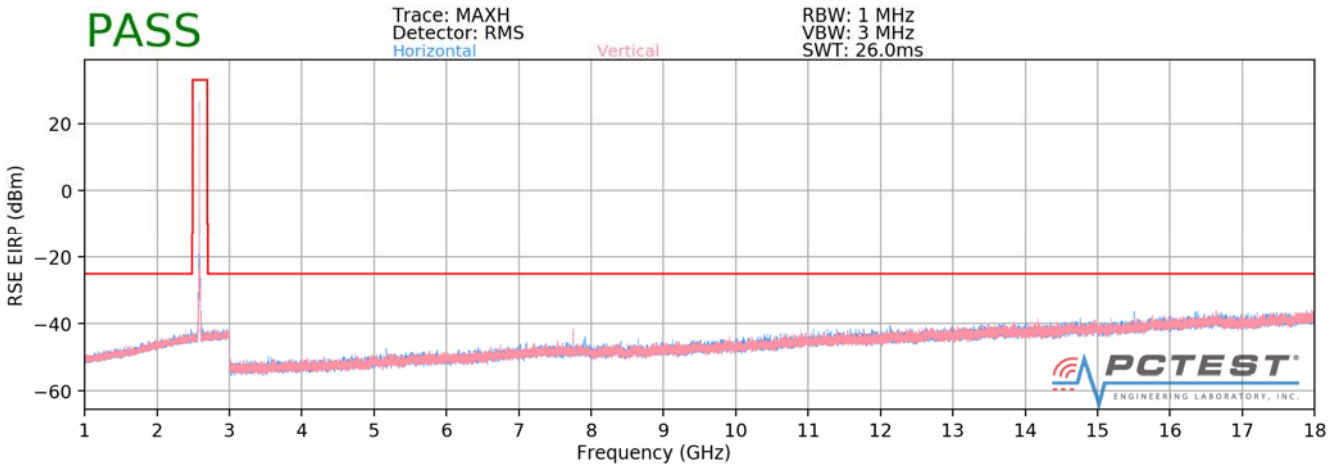
Table 7-61. Radiated Spurious Data (Band 41/38 – High Channel)

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

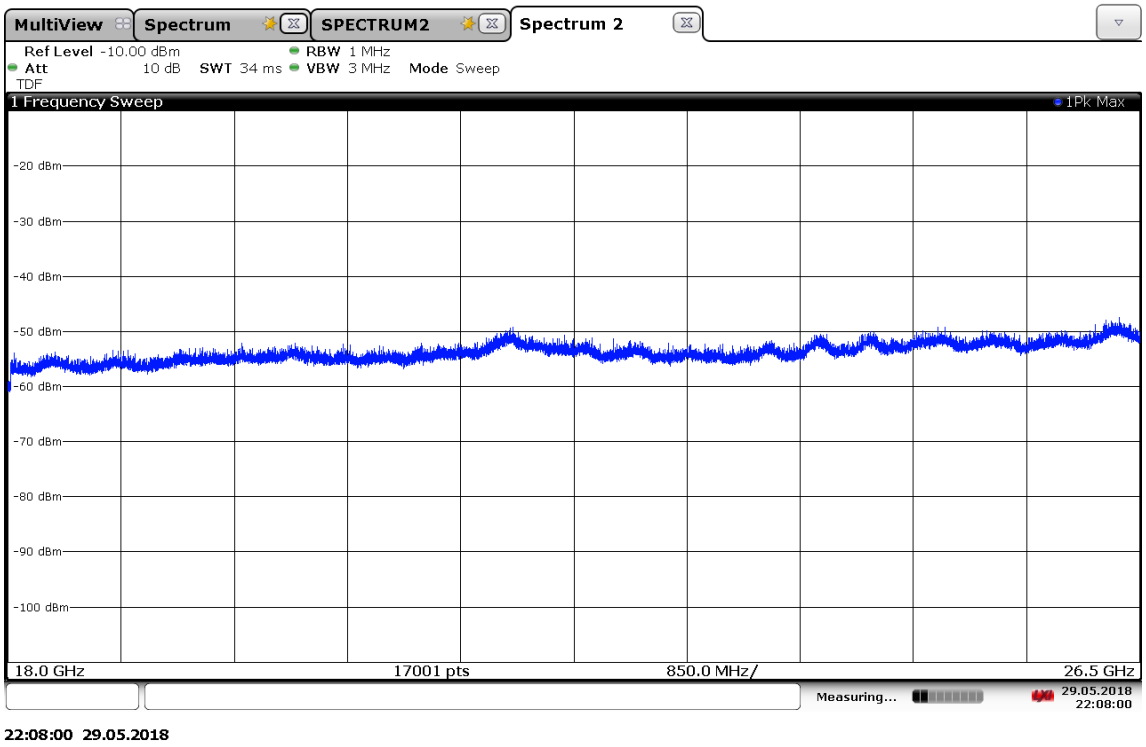
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5360.00	H	150	37	-57.98	8.40	-49.59	-24.6
8040.00	H	150	129	-56.26	9.19	-47.08	-22.1
10720.00	H	-	-	-59.73	9.52	-50.21	-25.2
13400.00	H	-	-	-56.59	9.07	-47.53	-22.5

Table 7-62. Radiated Spurious Data with WCP (Band 41/38 – High Channel)

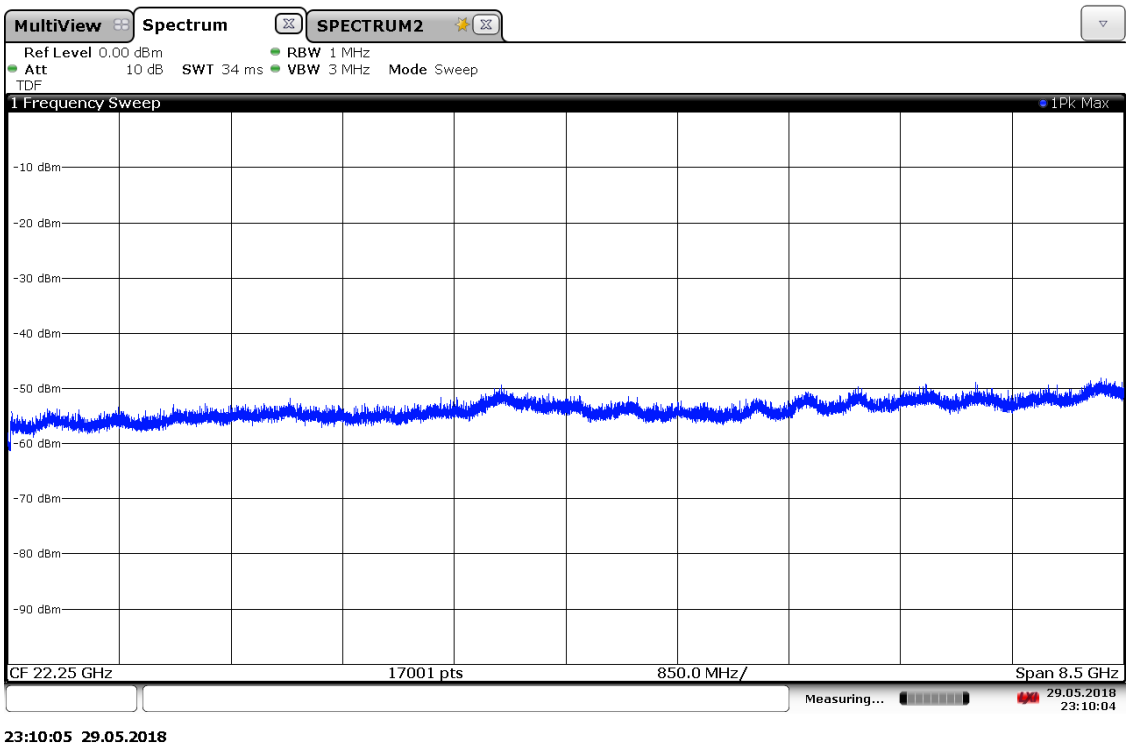
Band 41 – PC2



Plot 7-441. Radiated Spurious Plot 1GHz - 18GHz (Band 41)



Plot 7-442. Radiated Spurious Plot 18GHz – 26.5GHz (Band 41 Pol.H)



Plot 7-443. Radiated Spurious Plot 18GHz – 26.5GHz (Band 41 Pol.V)

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

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5020.00	H	150	19	-52.20	8.35	-43.85	-18.9
7530.00	H	150	141	-53.40	8.45	-44.96	-20.0
10040.00	H	-	-	-60.87	9.84	-51.02	-26.0
12550.00	H	-	-	-56.60	9.29	-47.31	-22.3

Table 7-63. Radiated Spurious Data (Band 41 – Low Channel)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	H	150	137	-58.24	8.45	-49.79	-24.8
7779.00	H	150	324	-53.35	8.75	-44.60	-19.6
10372.00	H	-	-	-60.35	9.73	-50.62	-25.6
12965.00	H	-	-	-56.54	9.19	-47.35	-22.4

Table 7-64. Radiated Spurious Data (Band 41 – Mid Channel)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5360.00	H	150	44	-56.06	8.40	-47.66	-22.7
8040.00	H	150	203	-50.59	9.19	-41.41	-16.4
10720.00	H	-	-	-58.83	9.52	-49.31	-24.3
13400.00	H	-	-	-55.25	9.07	-46.18	-21.2

Table 7-65. Radiated Spurious Data (Band 41 – High Channel)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5360.00	H	150	305	-57.61	8.40	-49.22	-24.2
8040.00	H	150	253	-54.70	9.19	-45.51	-20.5
10720.00	H	-	-	-59.31	9.52	-49.79	-24.8
13400.00	H	-	-	-55.69	9.07	-46.62	-21.6

Table 7-66. Radiated Spurious Data with WCP (Band 41 – High Channel)

7.10 Uplink Carrier Aggregation Radiated Measurements

§2.1053, §27.53(m)

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 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 peak 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 v02r02 – Section 5.8

ANSI/TIA-603-D-2010 – 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. No. of sweep points ≥ 2 x span / RBW
4. Detector = RMS
5. Trace mode = Max Hold
6. The trace was allowed to stabilize

Test Setup

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

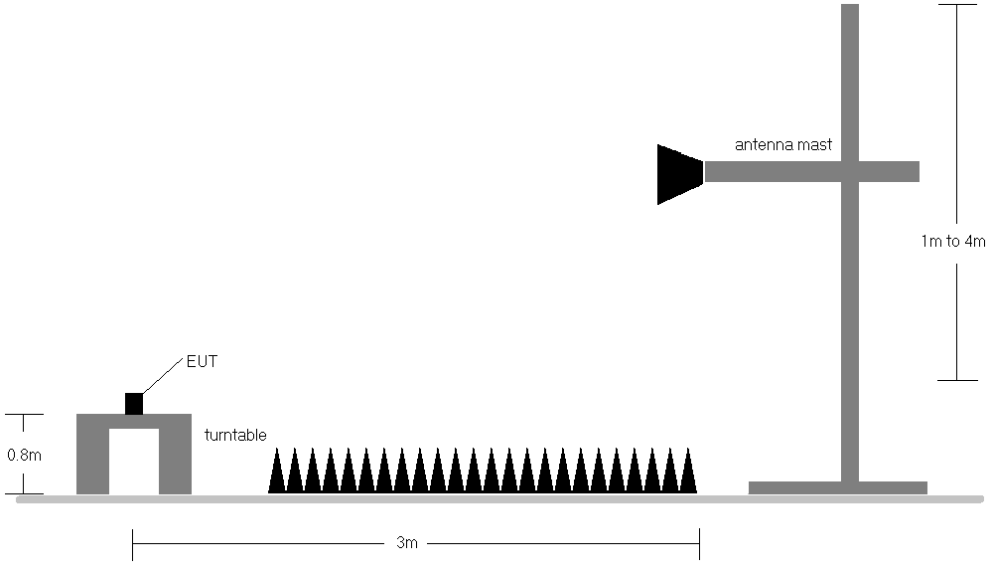


Figure 7-10. Test Instrument & Measurement Setup

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.

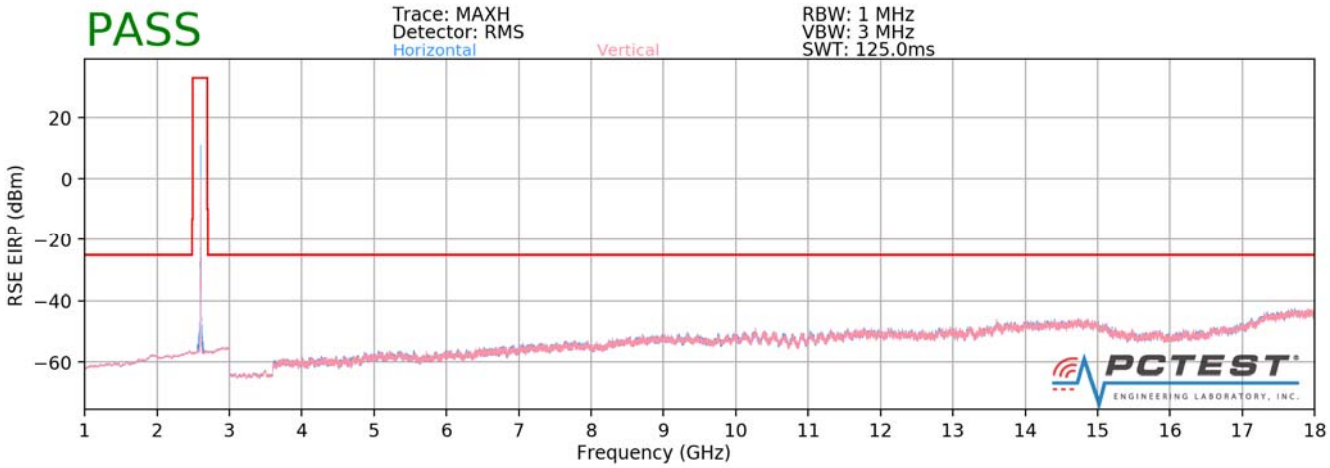
2) This unit was tested with its standard battery.

3) Radiated spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. The worst case (highest) emissions were found while operating with QPSK modulation with both carriers set to transmit using 1RB.

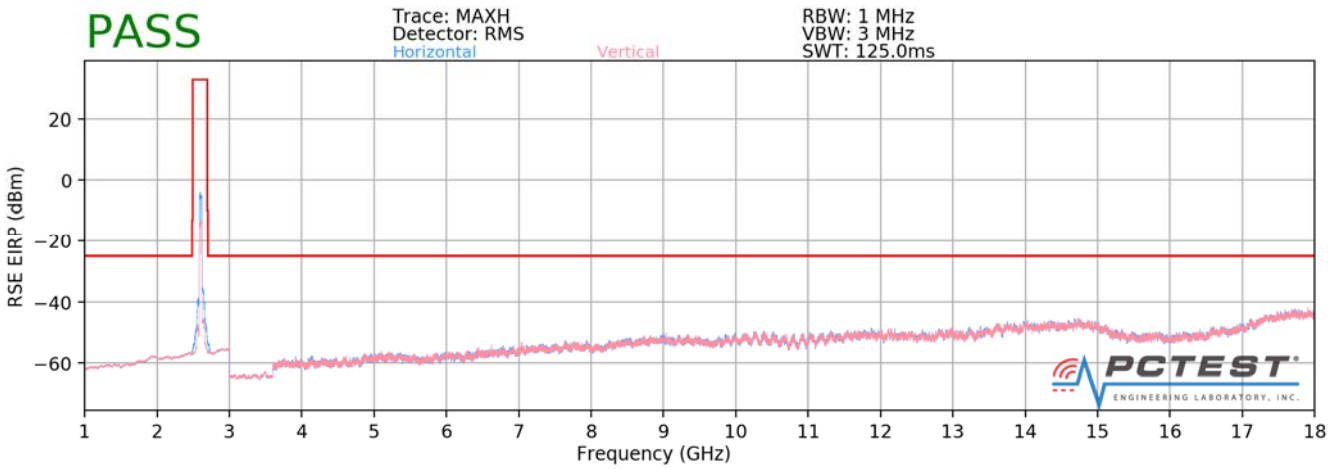
4) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.

5) 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.

6) No significant emissions were found as a result of two uplink carriers operating contiguously.



Plot 7-67. Radiated Spruious Plot (ULCA B41 PCC: RB 1 Offset 99, SCC: RB 1 Offset 0)



Plot 7-68. Radiated Spruious Plot (ULCA B41 PCC: RB 100 Offset 0, SCC: RB 100 Offset 0)

OPERATING FREQUENCY (PCC):	2593.00	MHz
OPERATING FREQUENCY (SCC):	2612.80	
CHANNEL (PCC):	40620	
CHANNEL (SCC):	40818	
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	H	150	56	-60.10	8.45	-51.65	-26.6
7779.00	H	150	87	-43.03	8.75	-34.28	-9.3
10372.00	H	150	333	-51.88	9.73	-42.15	-17.1
12965.00	H	-	-	-50.28	9.19	-41.09	-16.1

Plot 7-69. Radiated Spruious Data (ULCA B41 PCC: RB 1 Offset 99, SCC: RB 1 Offset 0)

7.11 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 71 Frequency Stability Measurements

OPERATING FREQUENCY:	680,500,000	Hz
CHANNEL:	133297	
REFERENCE VOLTAGE:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	680,499,866	-134	-0.0000197
100 %		- 30	680,500,009	9	0.0000013
100 %		- 20	680,499,932	-68	-0.0000100
100 %		- 10	680,499,820	-180	-0.0000265
100 %		0	680,500,086	86	0.0000126
100 %		+ 10	680,500,304	304	0.0000447
100 %		+ 20	680,499,784	-216	-0.0000317
100 %		+ 30	680,500,056	56	0.0000082
100 %		+ 40	680,499,985	-15	-0.0000022
100 %		+ 50	680,500,111	111	0.0000163
BATT. ENDPOINT	3.45	+ 20	680,500,025	25	0.0000037

Table 7-70. 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.

Band 71 Frequency Stability Measurements

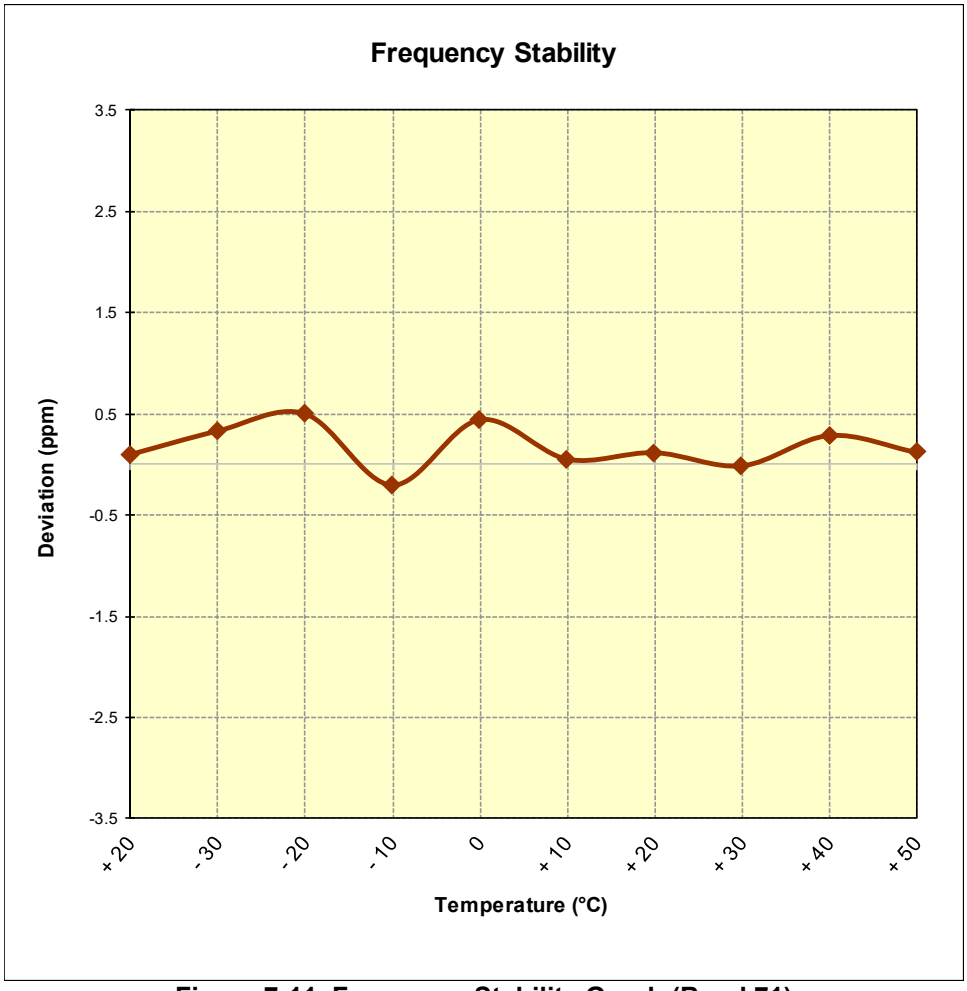


Figure 7-11. Frequency Stability Graph (Band 71)

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)	707,500,070	70	0.0000099
100 %		- 30	707,500,233	233	0.0000329
100 %		- 20	707,500,353	353	0.0000499
100 %		- 10	707,499,858	-142	-0.0000201
100 %		0	707,500,312	312	0.0000441
100 %		+ 10	707,500,038	38	0.0000054
100 %		+ 20	707,500,083	83	0.0000117
100 %		+ 30	707,499,992	-8	-0.0000011
100 %		+ 40	707,500,202	202	0.0000286
100 %		+ 50	707,500,084	84	0.0000119
BATT. ENDPOINT	3.45	+ 20	707,499,915	-85	-0.0000120

Table 7-71. 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

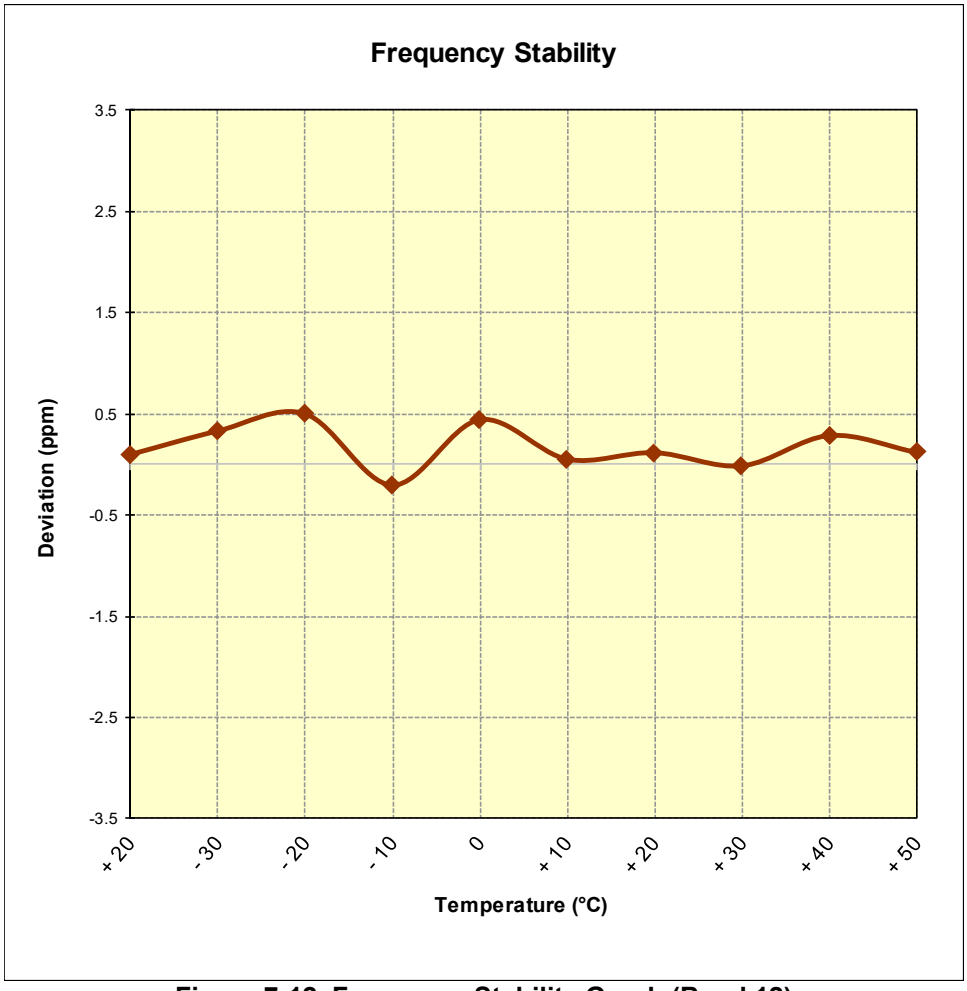


Figure 7-12. Frequency Stability Graph (Band 12)

Band 13 Frequency Stability Measurements

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

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	781,999,920	-80	-0.0000102
100 %		- 30	782,000,097	97	0.0000124
100 %		- 20	782,000,129	129	0.0000165
100 %		- 10	782,000,368	368	0.0000471
100 %		0	782,000,029	29	0.0000037
100 %		+ 10	782,000,086	86	0.0000110
100 %		+ 20	782,000,056	56	0.0000072
100 %		+ 30	781,999,936	-64	-0.0000082
100 %		+ 40	781,999,844	-156	-0.0000199
100 %		+ 50	782,000,103	103	0.0000132
BATT. ENDPOINT	3.45	+ 20	782,000,175	175	0.0000224

Table 7-72. 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

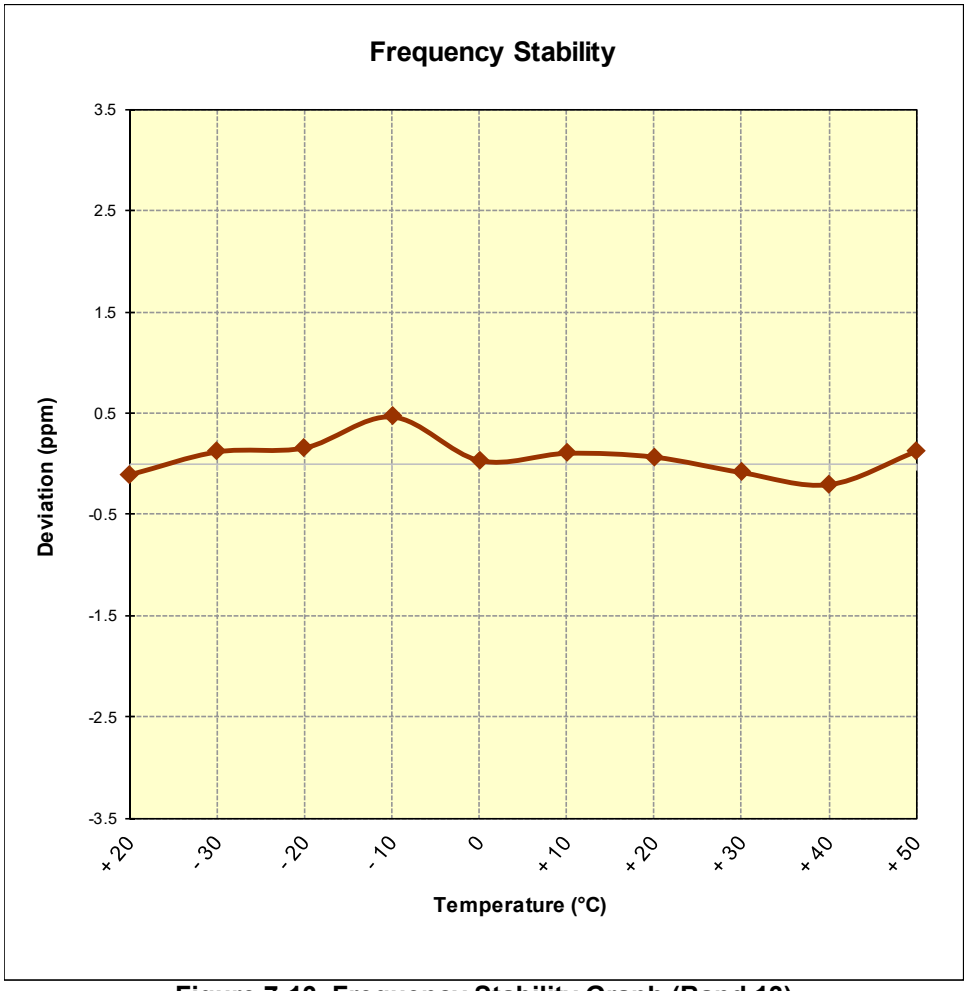


Figure 7-13. Frequency Stability Graph (Band 13)

Band 26/5 Frequency Stability Measurements

OPERATING FREQUENCY:	836,500,000	Hz
CHANNEL:	20525	
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)	836,500,129	129	0.0000154
100 %		- 30	836,500,003	3	0.0000004
100 %		- 20	836,500,251	251	0.0000300
100 %		- 10	836,500,393	393	0.0000470
100 %		0	836,500,104	104	0.0000124
100 %		+ 10	836,500,108	108	0.0000129
100 %		+ 20	836,499,939	-61	-0.0000073
100 %		+ 30	836,500,023	23	0.0000027
100 %		+ 40	836,499,669	-331	-0.0000396
100 %		+ 50	836,500,203	203	0.0000243
BATT. ENDPOINT	3.45	+ 20	836,499,559	-441	-0.0000527

Table 7-73. Frequency Stability Data (Band 26/5)

Band 26/5 Frequency Stability Measurements

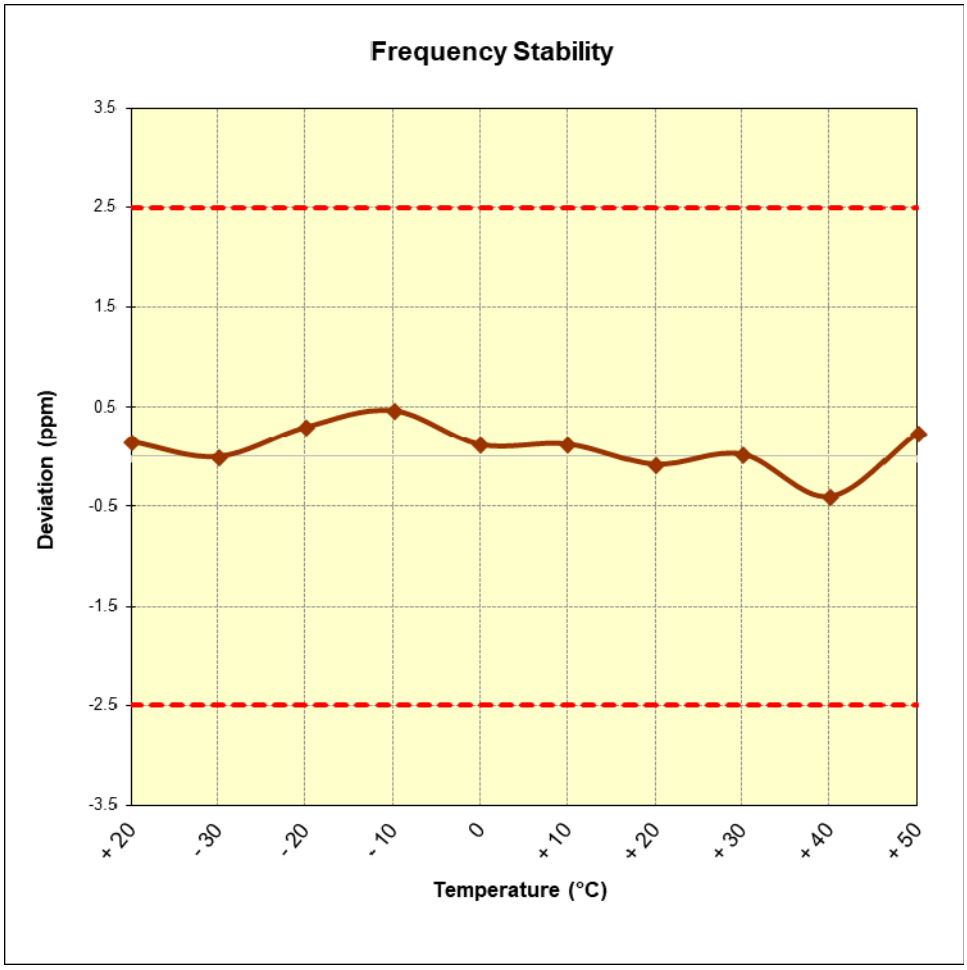


Figure 7-14. Frequency Stability Graph (Band 26/5)

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)	1,744,999,676	-324	-0.0000186
100 %		- 30	1,744,999,998	-2	-0.0000001
100 %		- 20	1,744,999,887	-113	-0.0000065
100 %		- 10	1,745,000,040	40	0.0000023
100 %		0	1,745,000,153	153	0.0000088
100 %		+ 10	1,745,000,150	150	0.0000086
100 %		+ 20	1,745,000,039	39	0.0000022
100 %		+ 30	1,745,000,067	67	0.0000038
100 %		+ 40	1,744,999,775	-225	-0.0000129
100 %		+ 50	1,744,999,679	-321	-0.0000184
BATT. ENDPOINT	3.45	+ 20	1,745,000,296	296	0.0000170

Table 7-74. 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

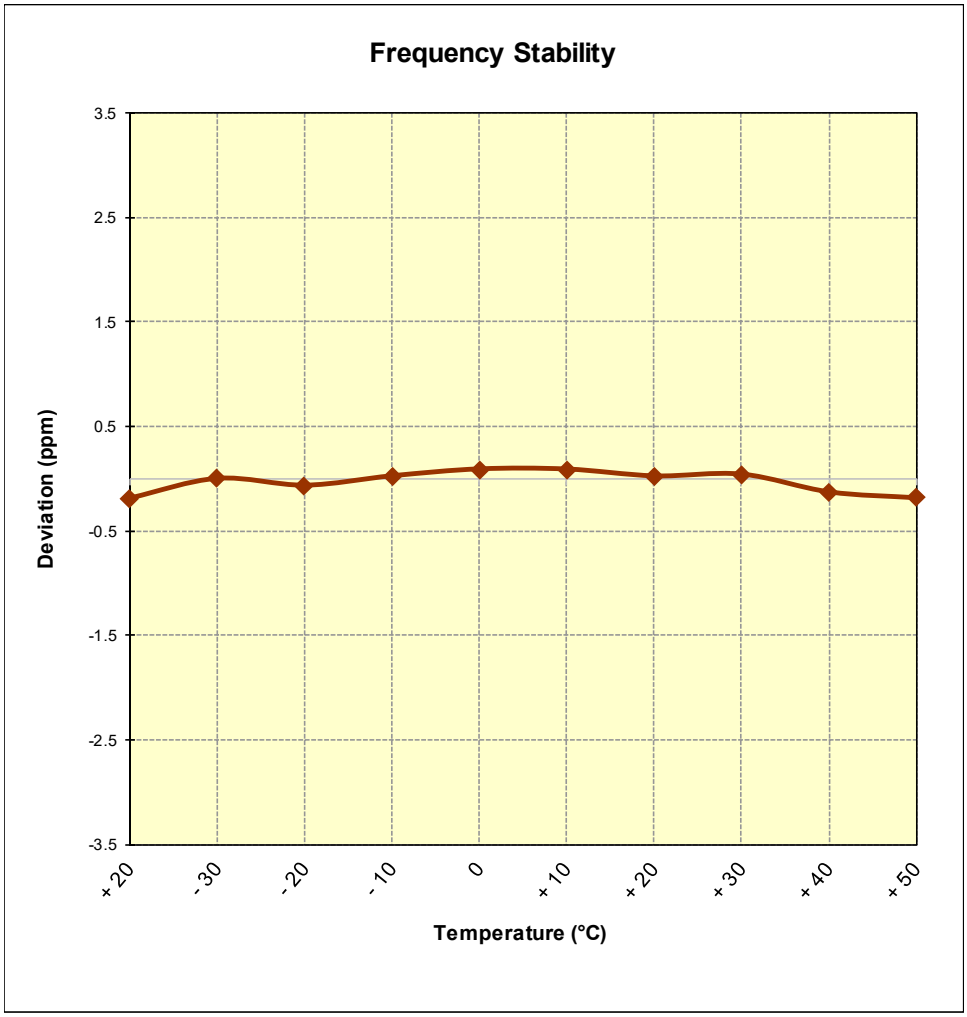


Figure 7-15. Frequency Stability Graph (Band 66/4)

Band 25/2 Frequency Stability Measurements

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

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,882,499,821	-179	-0.0000095
100 %		- 30	1,882,500,063	63	0.0000033
100 %		- 20	1,882,500,057	57	0.0000030
100 %		- 10	1,882,500,175	175	0.0000093
100 %		0	1,882,499,969	-31	-0.0000016
100 %		+ 10	1,882,499,751	-249	-0.0000132
100 %		+ 20	1,882,499,940	-60	-0.0000032
100 %		+ 30	1,882,500,064	64	0.0000034
100 %		+ 40	1,882,500,101	101	0.0000054
100 %		+ 50	1,882,499,582	-418	-0.0000222
BATT. ENDPOINT	3.45	+ 20	1,882,500,305	305	0.0000162

Table 7-75. Frequency Stability Data (Band 25/2)

Band 25/2 Frequency Stability Measurements

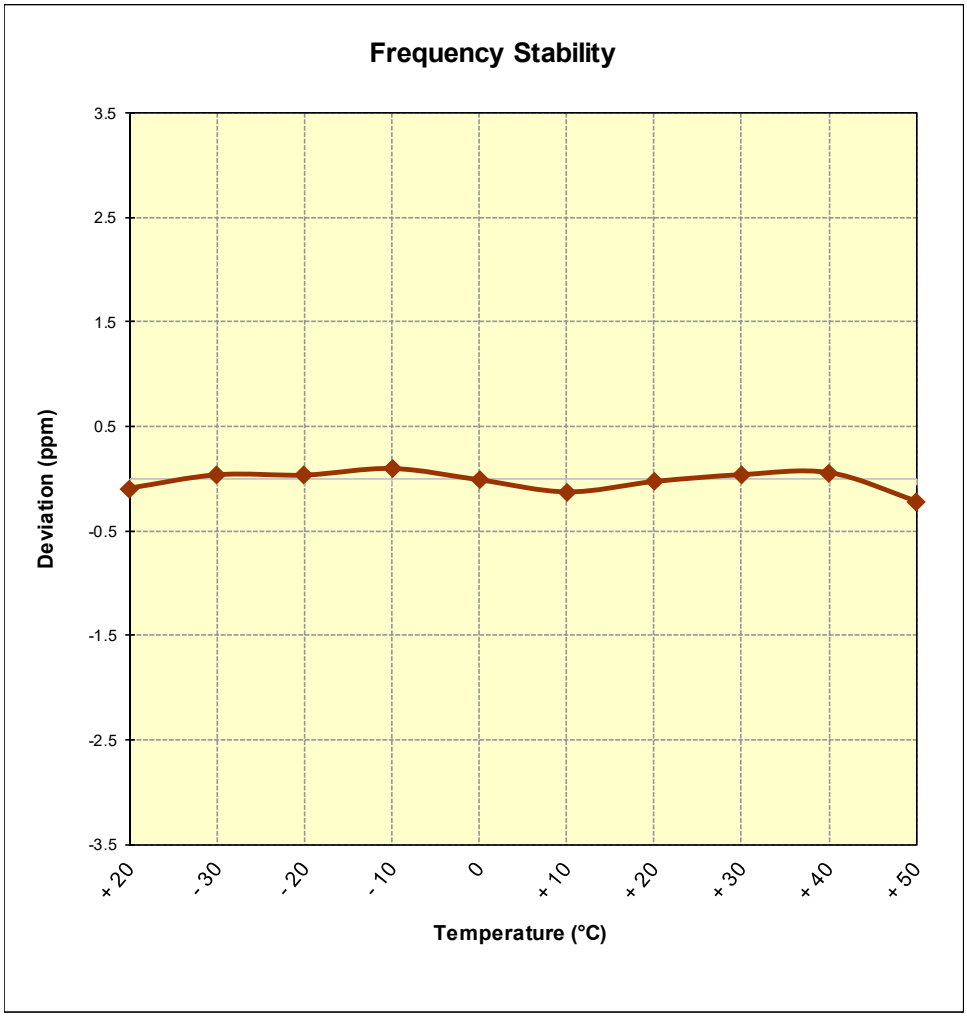


Figure 7-16. Frequency Stability Graph (Band 25/2)

Band 30 Frequency Stability Measurements

OPERATING FREQUENCY:	2,310,000,000	Hz
CHANNEL:	27710	
REFERENCE VOLTAGE:	3.85	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	2,310,000,137	137	0.0000059
100 %		- 30	2,310,000,057	57	0.0000025
100 %		- 20	2,309,999,922	-78	-0.0000034
100 %		- 10	2,310,000,034	34	0.0000015
100 %		0	2,310,000,020	20	0.0000009
100 %		+ 10	2,309,999,925	-75	-0.0000032
100 %		+ 20	2,309,999,876	-124	-0.0000054
100 %		+ 30	2,310,000,150	150	0.0000065
100 %		+ 40	2,309,999,955	-45	-0.0000019
100 %		+ 50	2,310,000,354	354	0.0000153
BATT. ENDPOINT	3.45	+ 20	2,310,000,229	229	0.0000099

Table 7-76. 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.

Band 30 Frequency Stability Measurements

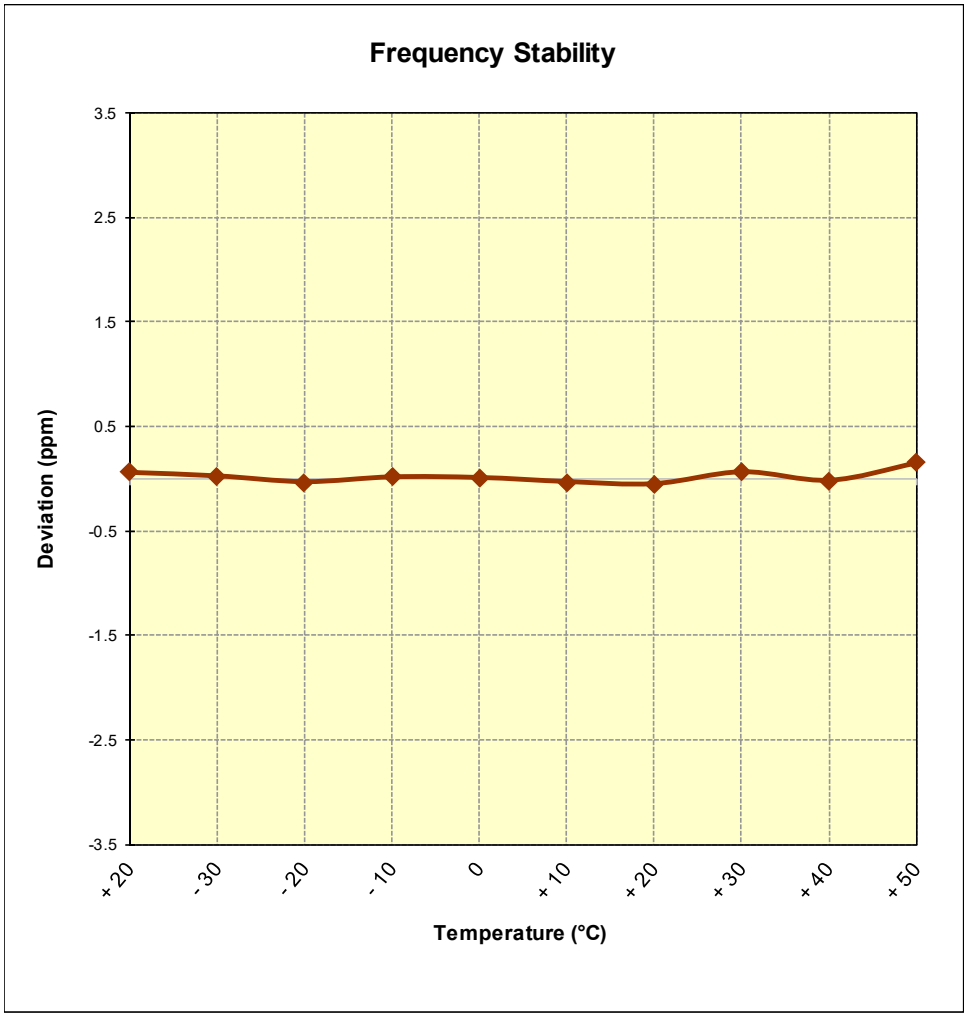


Figure 7-17. Frequency Stability Graph (Band 30)

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)	2,534,999,822	-178	-0.0000070
100 %		- 30	2,535,000,065	65	0.0000026
100 %		- 20	2,535,000,222	222	0.0000088
100 %		- 10	2,534,999,591	-409	-0.0000161
100 %		0	2,535,000,185	185	0.0000073
100 %		+ 10	2,534,999,882	-118	-0.0000047
100 %		+ 20	2,534,999,945	-55	-0.0000022
100 %		+ 30	2,534,999,932	-68	-0.0000027
100 %		+ 40	2,535,000,148	148	0.0000058
100 %		+ 50	2,534,999,981	-19	-0.0000007
BATT. ENDPOINT	3.45	+ 20	2,535,000,170	170	0.0000067

Table 7-77. 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

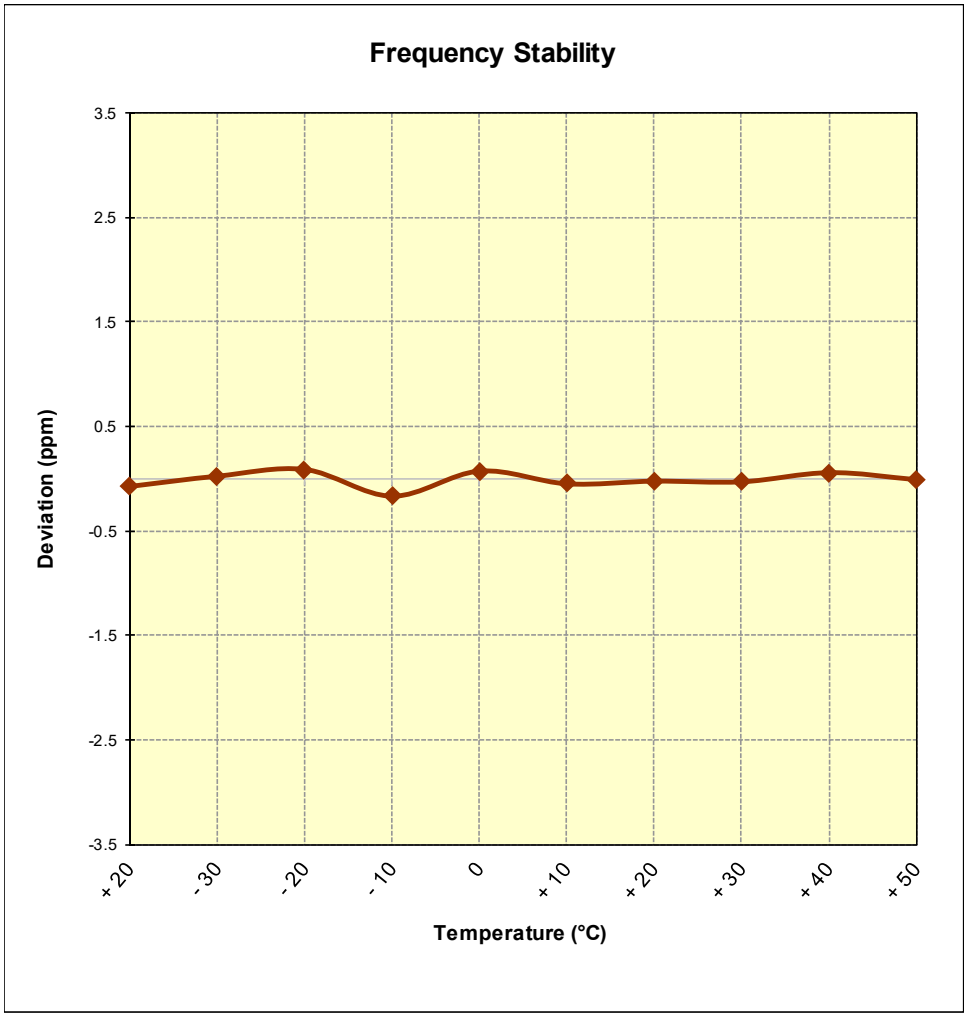


Figure 7-18. Frequency Stability Graph (Band 7)

Band 41 Frequency Stability Measurements

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

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	2,593,000,149	149	0.0000057
100 %		- 30	2,592,999,605	-395	-0.0000152
100 %		- 20	2,593,000,163	163	0.0000063
100 %		- 10	2,592,999,952	-48	-0.0000019
100 %		0	2,592,999,793	-207	-0.0000080
100 %		+ 10	2,593,000,159	159	0.0000061
100 %		+ 20	2,593,000,406	406	0.0000157
100 %		+ 30	2,593,000,066	66	0.0000025
100 %		+ 40	2,592,999,832	-168	-0.0000065
100 %		+ 50	2,592,999,903	-97	-0.0000037
BATT. ENDPOINT	3.45	+ 20	2,592,999,895	-105	-0.0000040

Table 7-78. Frequency Stability Data (Band 41)

Note:

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

Band 41 Frequency Stability Measurements

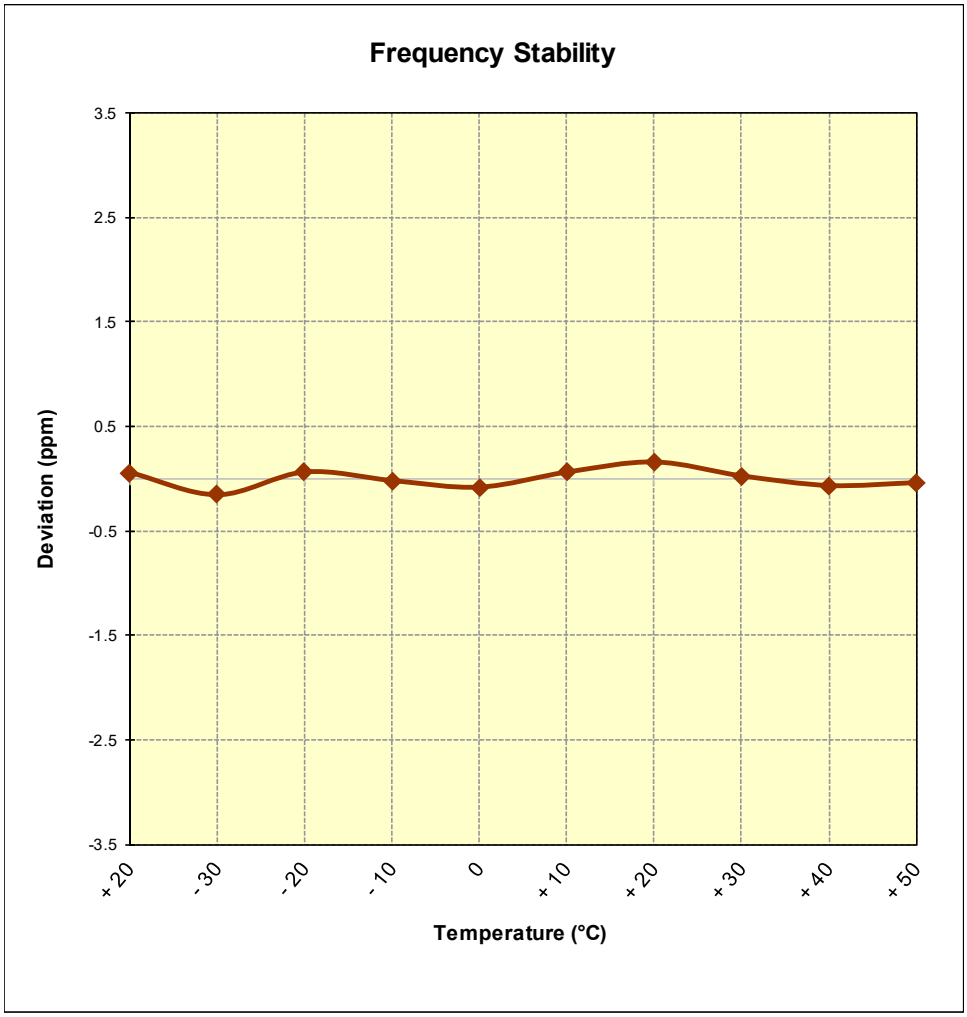


Figure 7-19. Frequency Stability Graph (Band 41)

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMN960U** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.