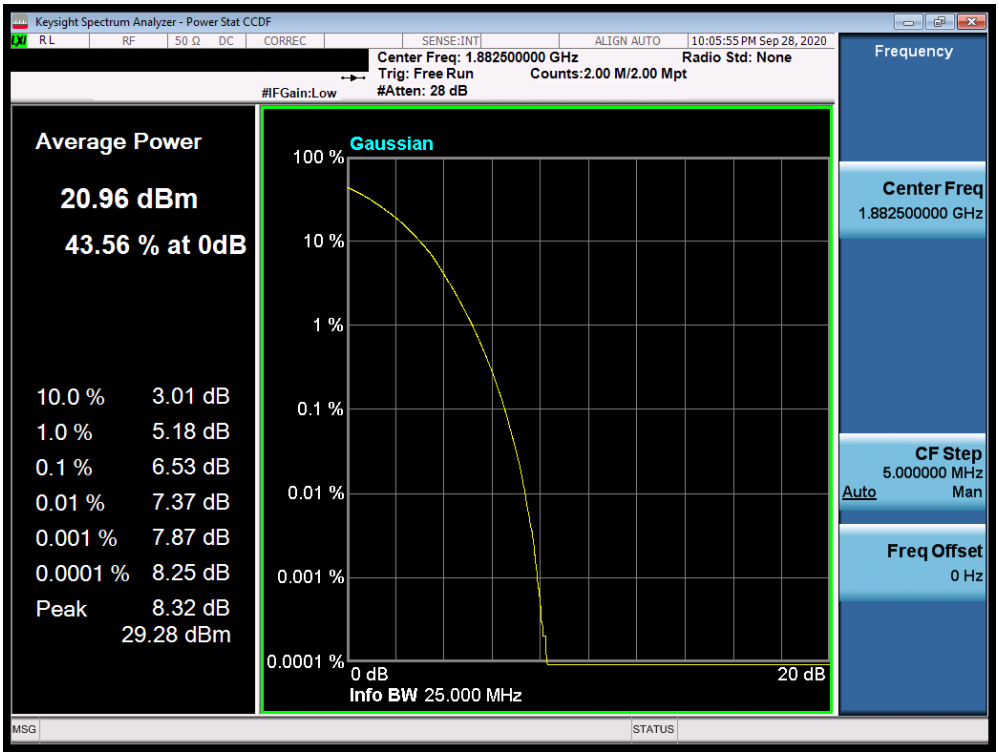
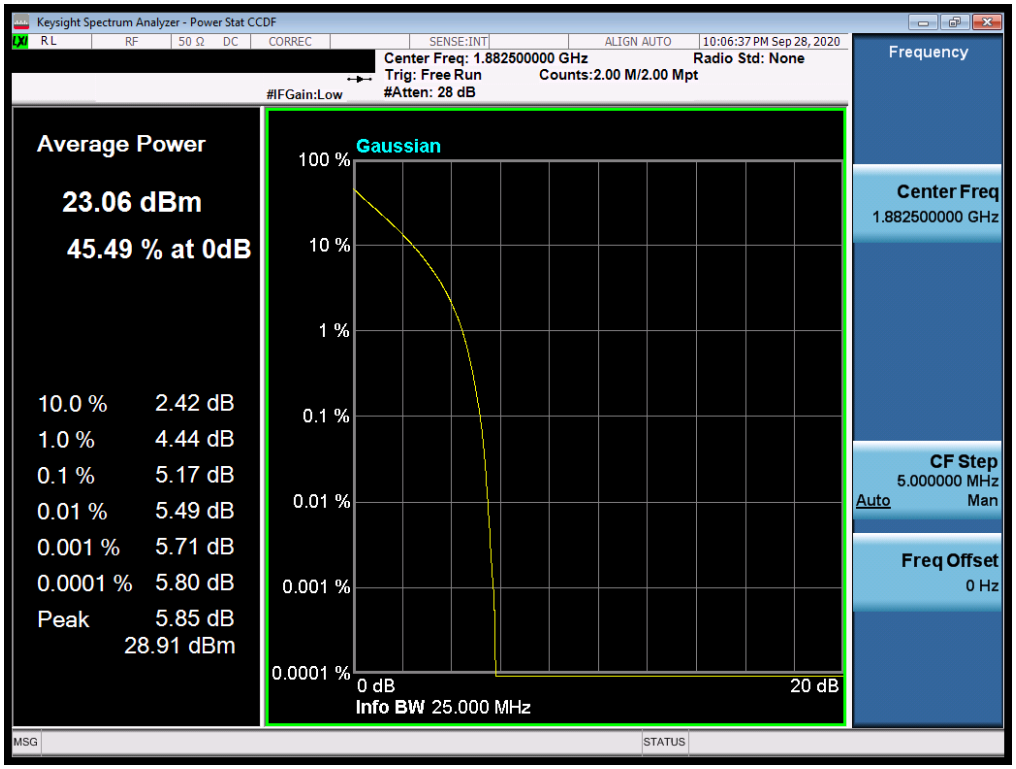
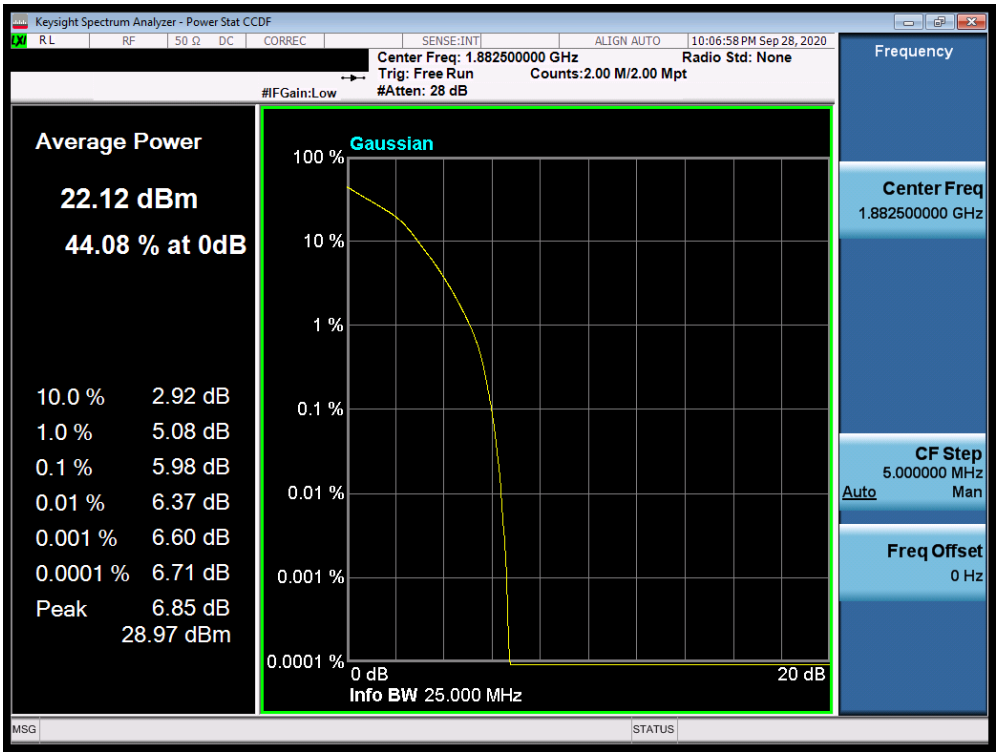


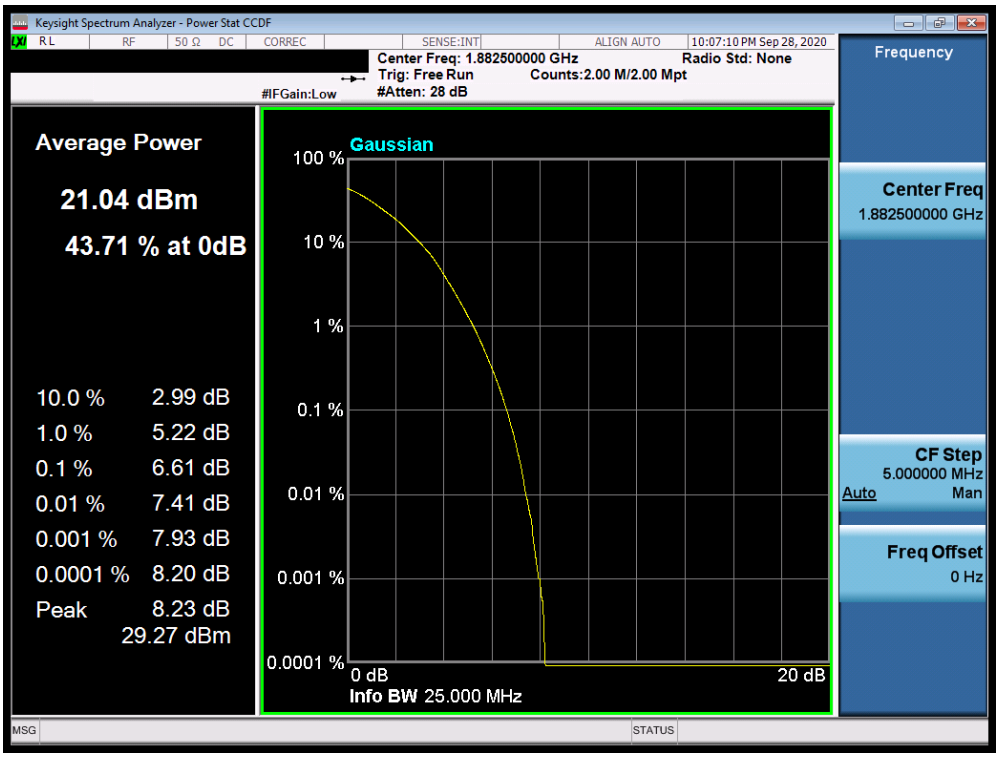
Plot 7-101. PAR Plot (LTE Band 25/2 - 20MHz 64-QAM - Full RB Configuration)



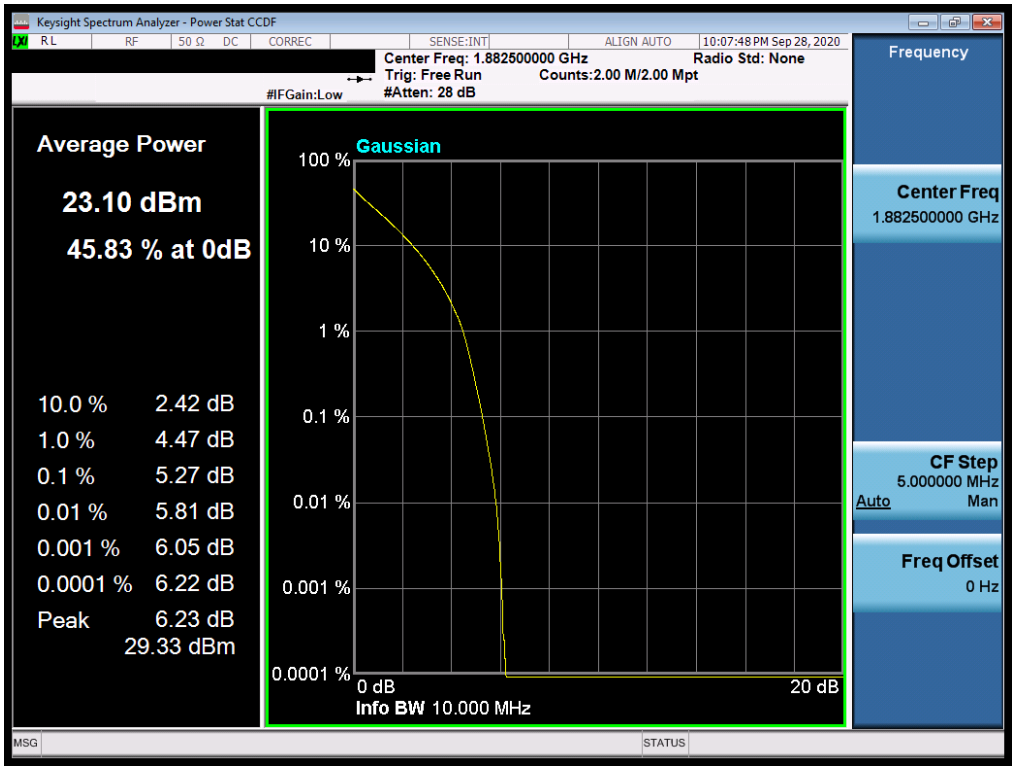
Plot 7-102. PAR Plot (LTE Band 25/2 - 15MHz QPSK - Full RB Configuration)



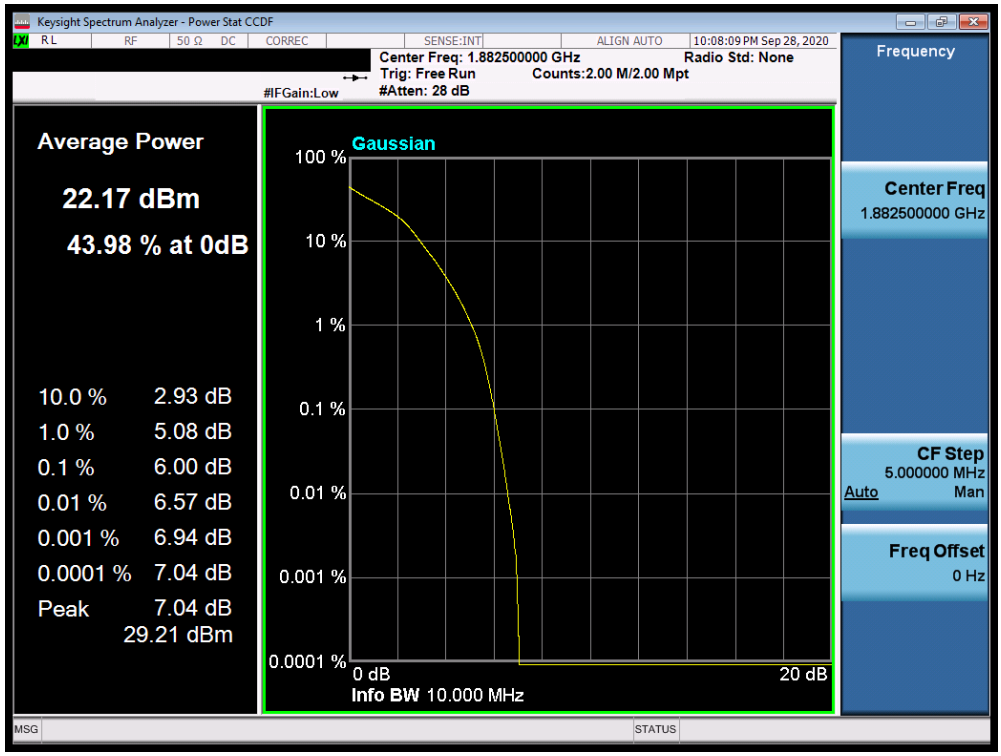
Plot 7-103. PAR Plot (LTE Band 25/2 - 15MHz 16-QAM - Full RB Configuration)



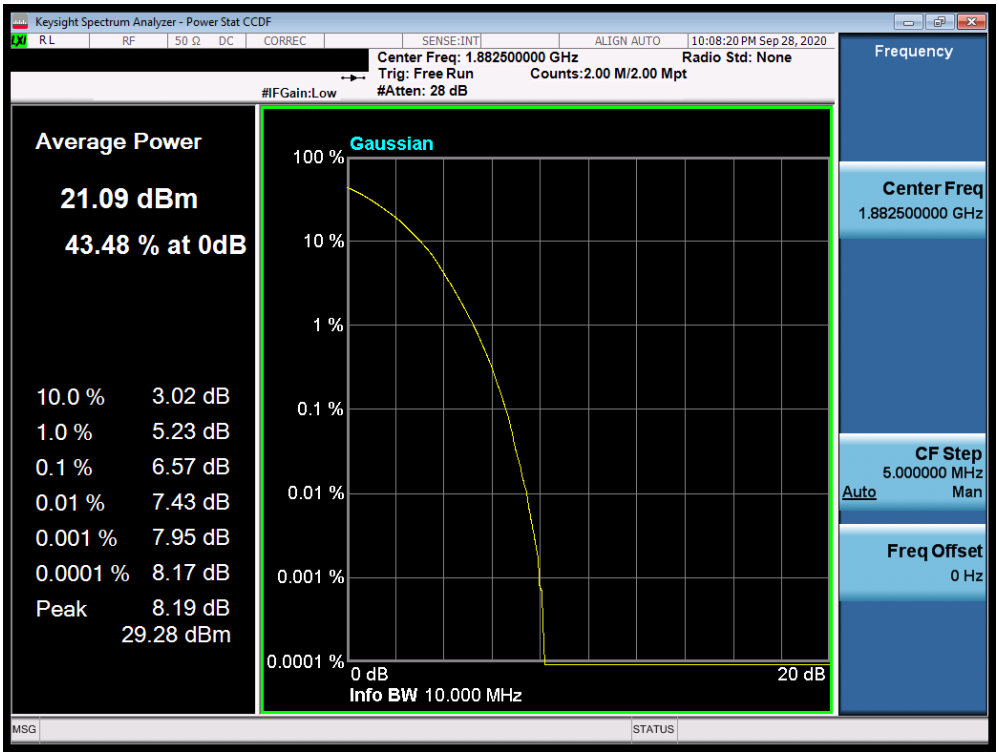
Plot 7-104. PAR Plot (LTE Band 25/2 - 15MHz 64-QAM - Full RB Configuration)



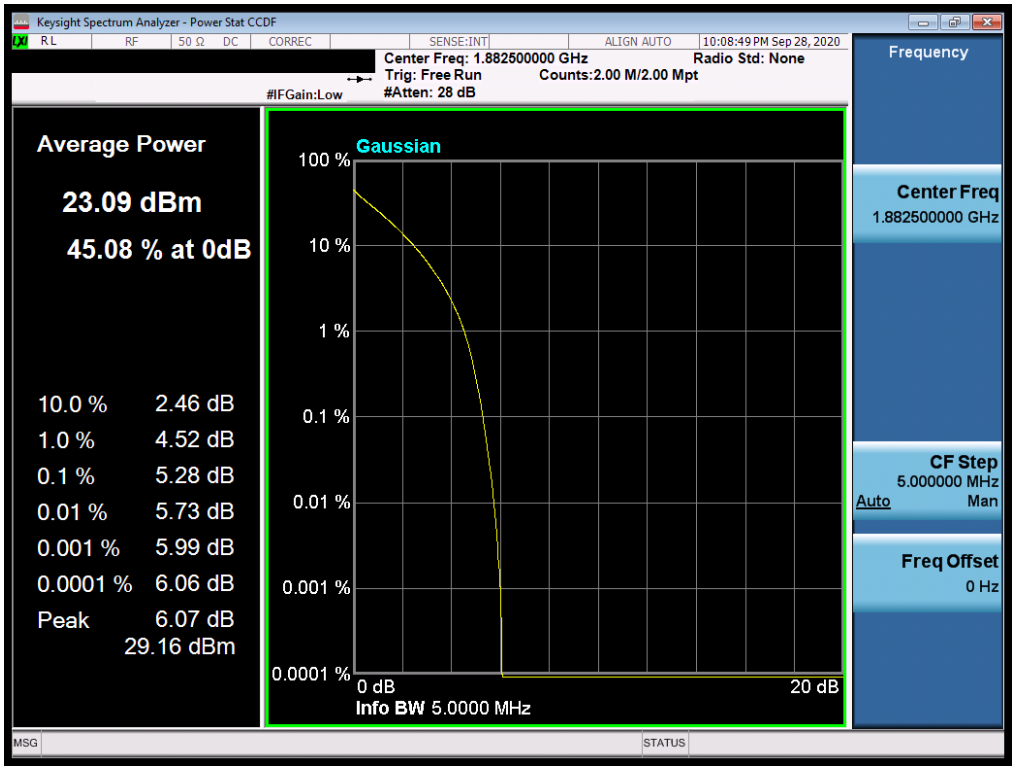
Plot 7-105. PAR Plot (LTE Band 25/2 - 10MHz QPSK - Full RB Configuration)



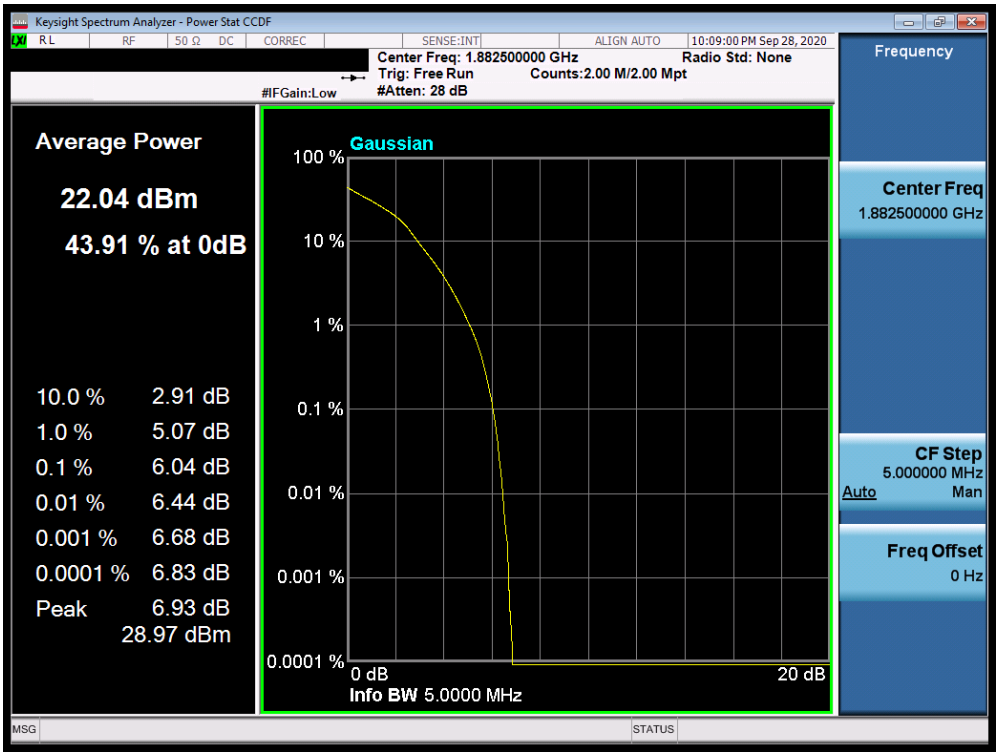
Plot 7-106. PAR Plot (LTE Band 25/2 - 10MHz 16-QAM - Full RB Configuration)



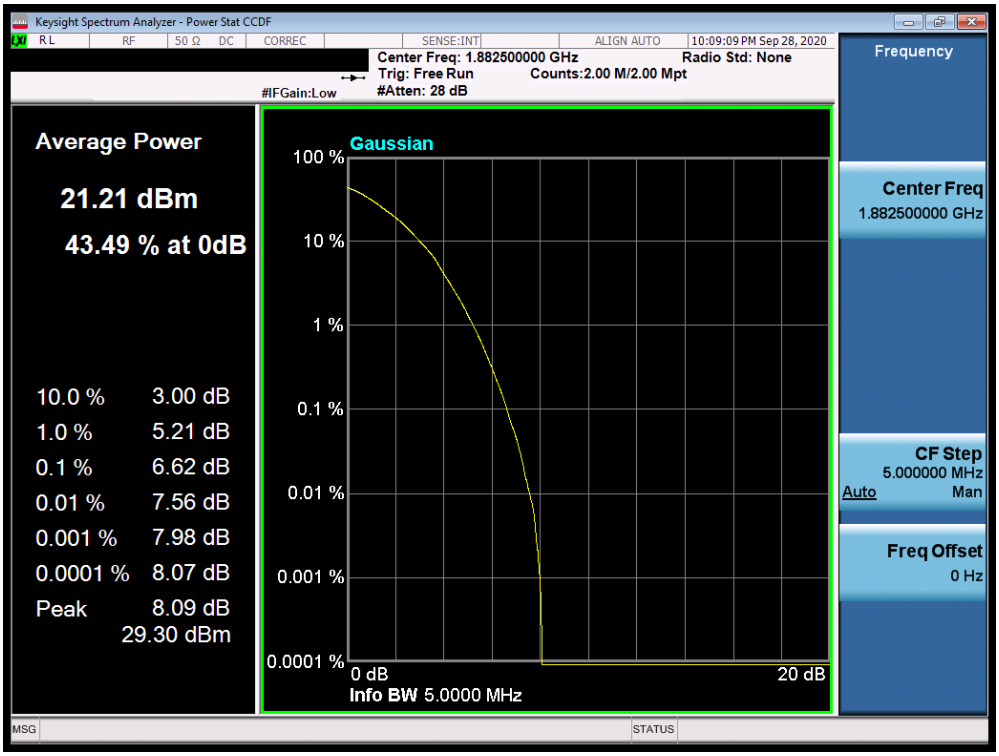
Plot 7-107. PAR Plot (LTE Band 25/2 - 10MHz 64-QAM - Full RB Configuration)



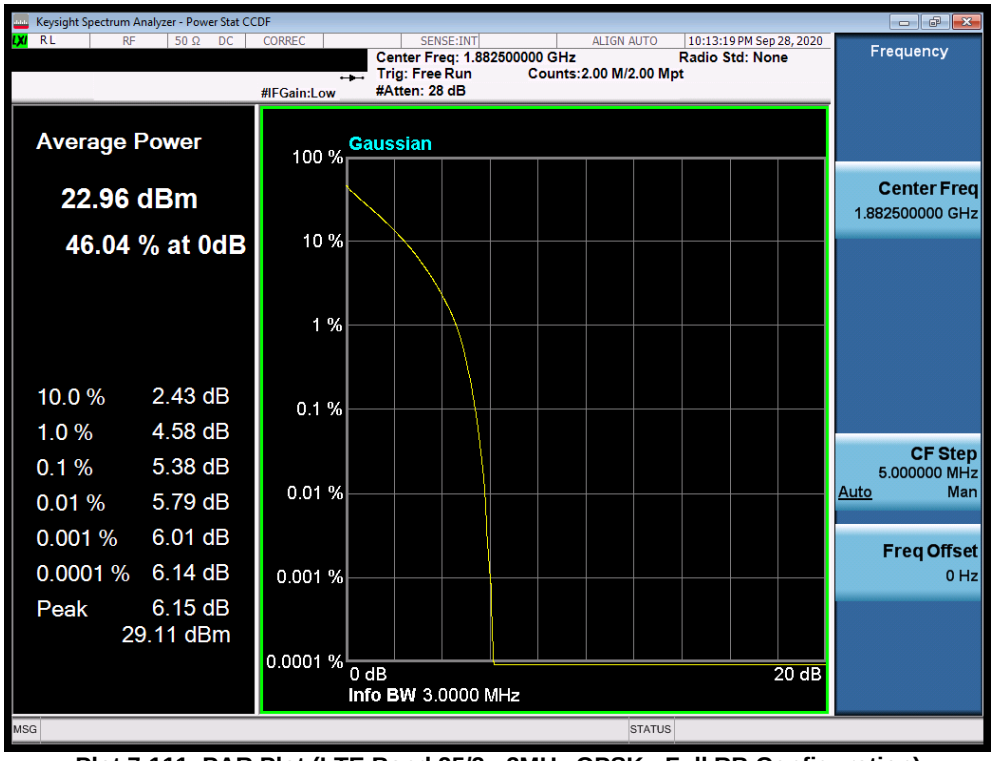
Plot 7-108. PAR Plot (LTE Band 25/2 - 5MHz QPSK - Full RB Configuration)



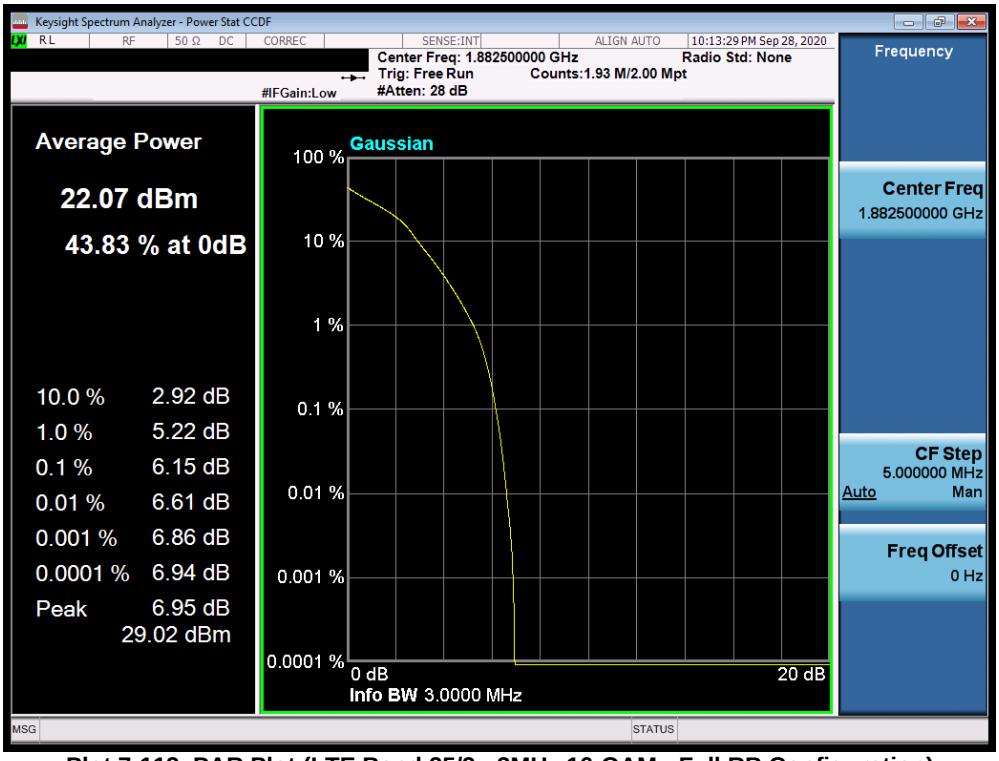
Plot 7-109. PAR Plot (LTE Band 25/2 - 5MHz 16-QAM - Full RB Configuration)



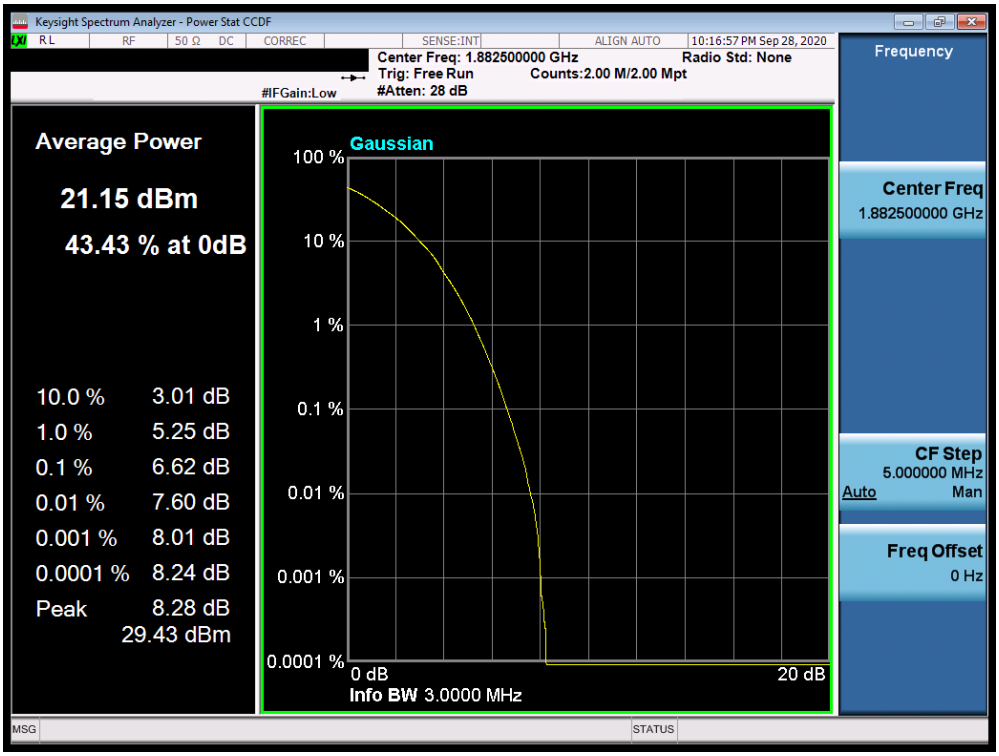
Plot 7-110. PAR Plot (LTE Band 25/2 - 5MHz 64-QAM - Full RB Configuration)



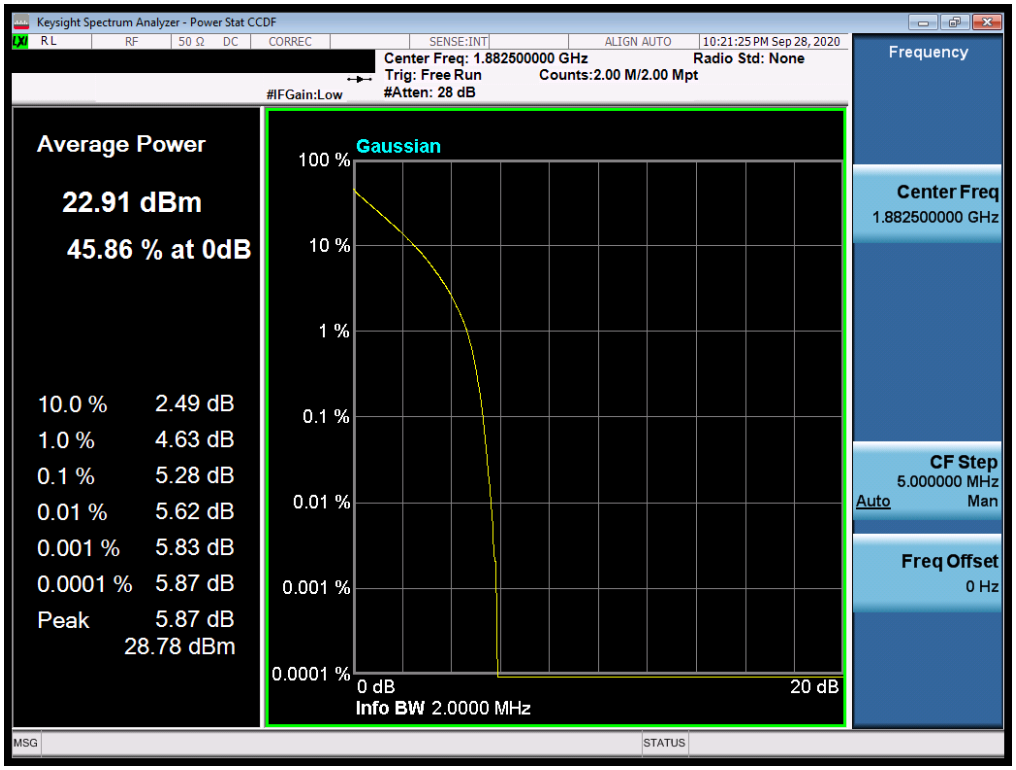
Plot 7-111. PAR Plot (LTE Band 25/2 - 3MHz QPSK - Full RB Configuration)



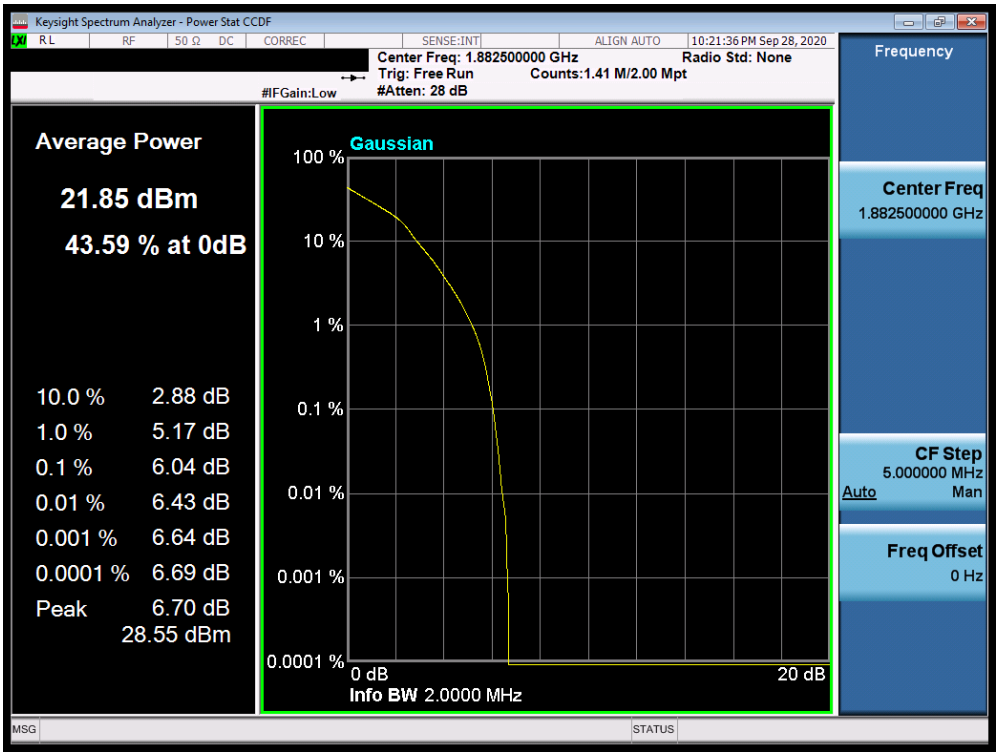
Plot 7-112. PAR Plot (LTE Band 25/2 - 3MHz 16-QAM - Full RB Configuration)



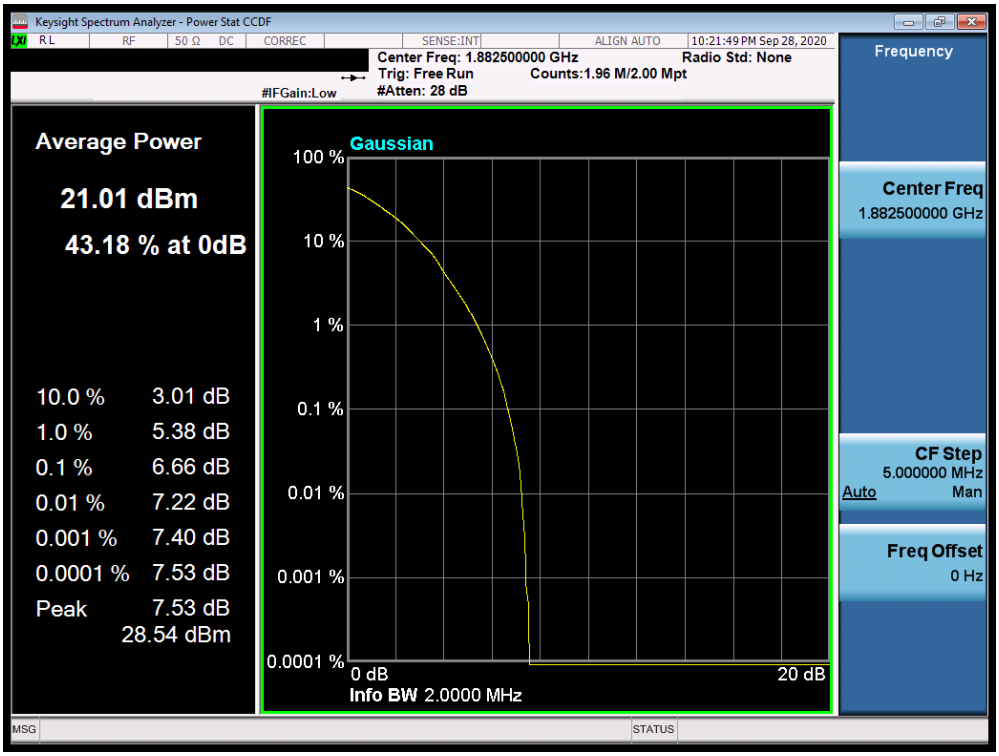
Plot 7-113. PAR Plot (LTE Band 25/2 - 3MHz 64-QAM - Full RB Configuration)



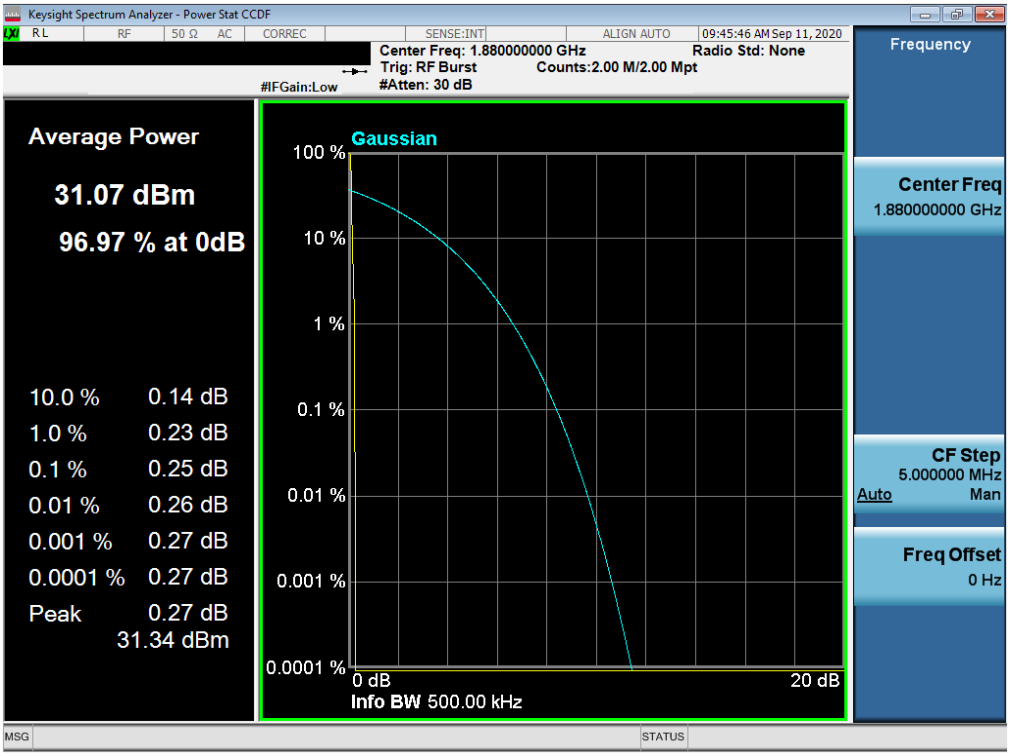
Plot 7-114. PAR Plot (LTE Band 25/2 - 1.4MHz QPSK - Full RB Configuration)



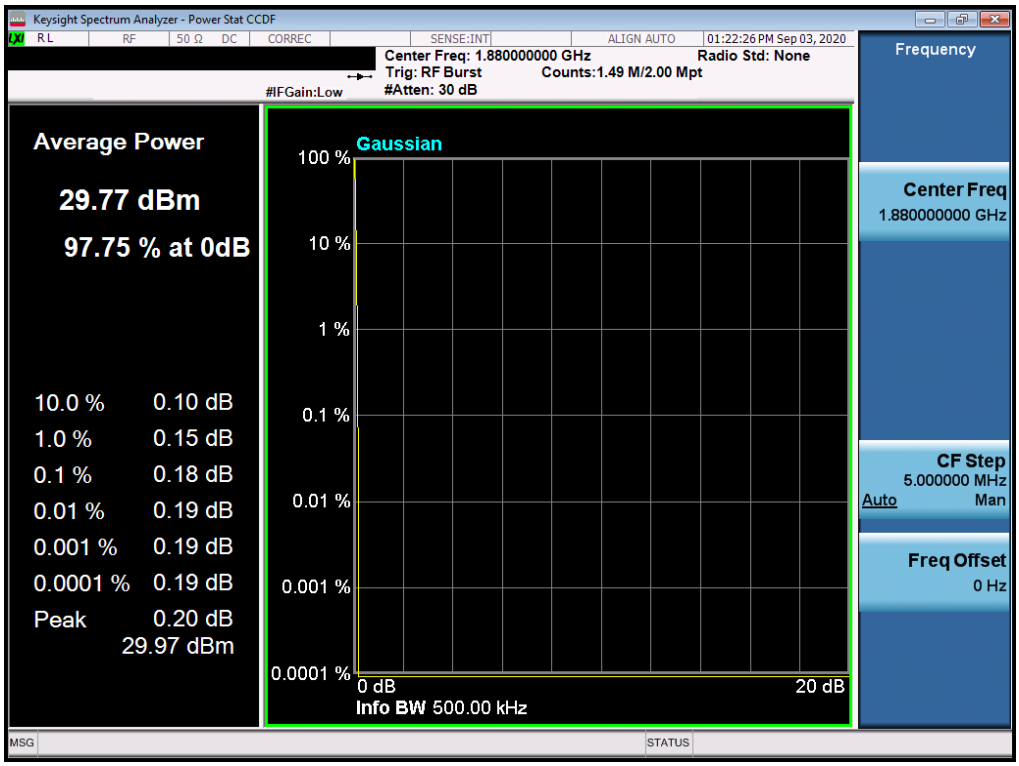
Plot 7-115. PAR Plot (LTE Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)



Plot 7-116. PAR Plot (LTE Band 25/2 - 1.4MHz 64-QAM - Full RB Configuration)

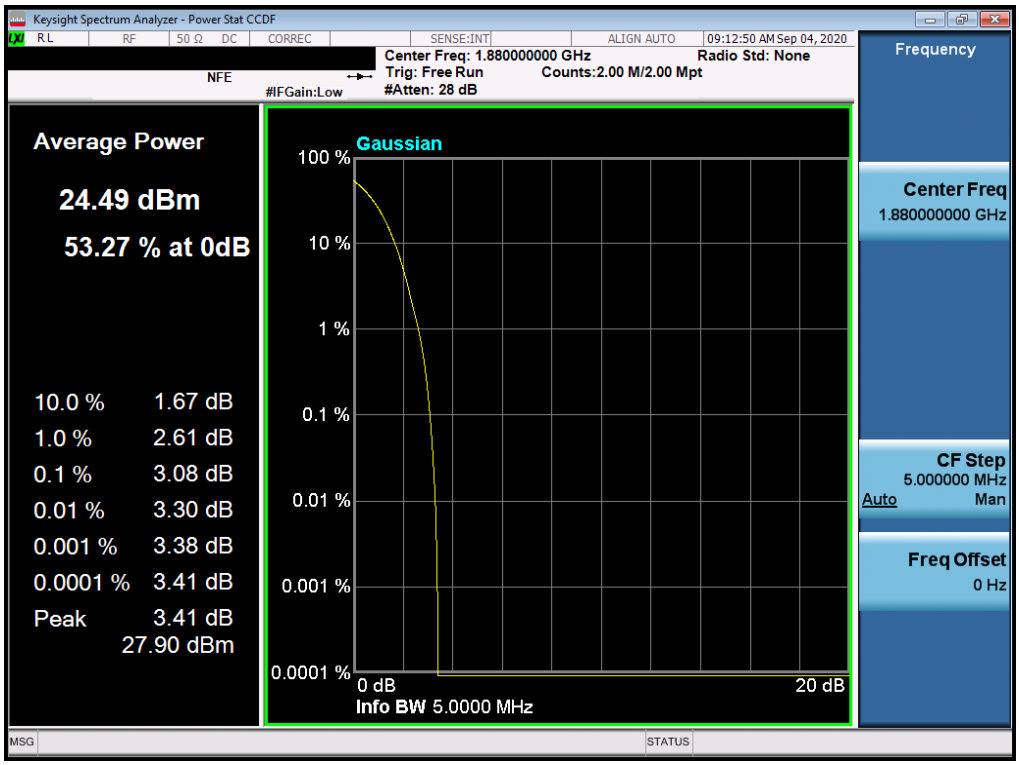


Plot 7-117. PAR Plot (GPRS, Ch. 661)



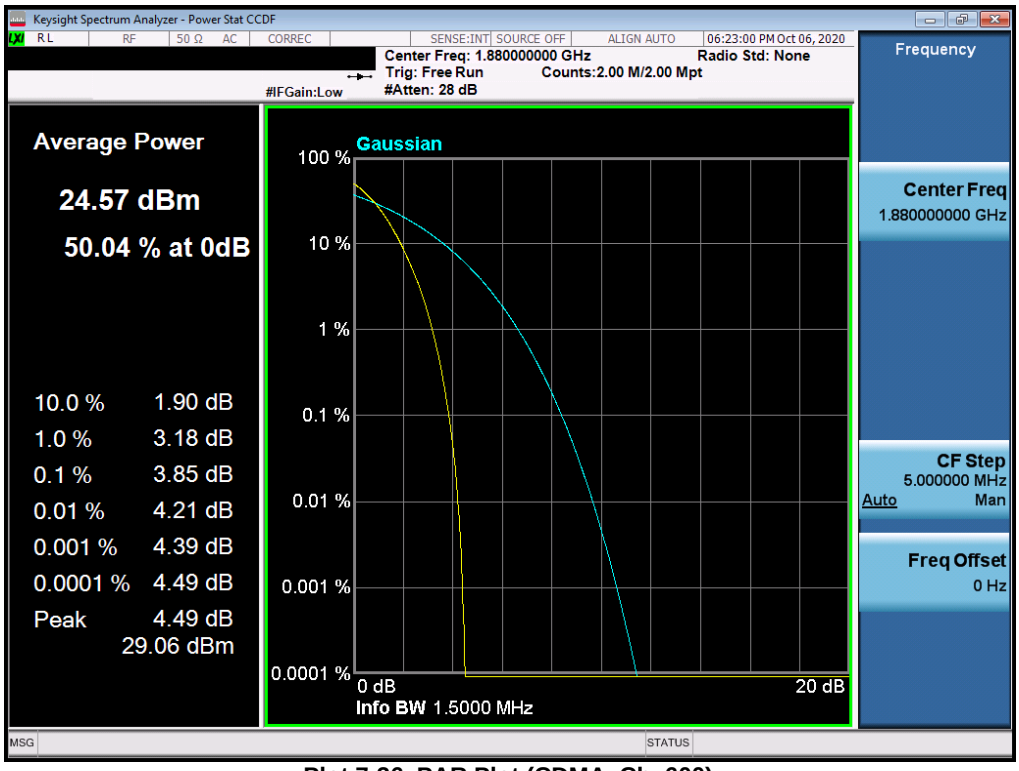
Plot 7-118. PAR Plot (EDGE, Ch. 661)

WCDMA PCS



Plot 7-119. PAR Plot (WCDMA, Ch. 9400)

CDMA PCS



Plot 7-36. PAR Plot (CDMA, Ch. 600)

7.6 Radiated Power (ERP/EIRP)

Test Overview

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

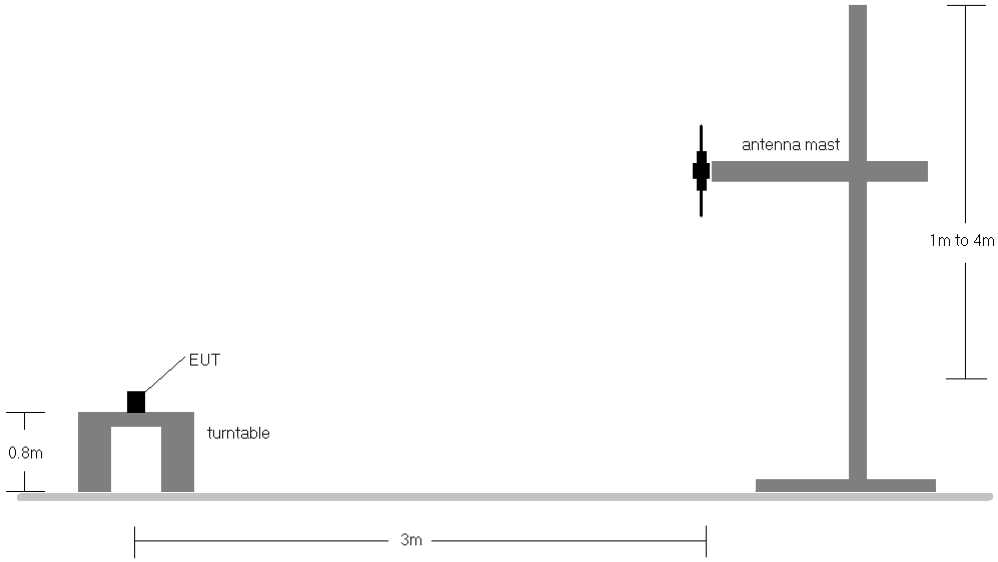


Figure 7-5. Radiated Test Setup <1GHz

Test Notes

1) This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest powers is reported in GPRS mode while transmitting with one slot active.

2) This device employs UMTS technology with WCDMA (AMR/RMC) and HSDPA capabilities. The EUT was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1".

3) 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.

4) This unit was tested with its standard battery.

5) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
20 MHz	QPSK	1860.0	H	204.0	24.0	9.64	1 / 99	13.99	23.63	0.231	33.01	-9.38
		1882.5	H	196.0	20.0	9.96	1 / 0	14.30	24.26	0.267	33.01	-8.75
		1905.0	H	190.0	28.0	10.24	1 / 0	14.06	**24.30**	0.269	33.01	-8.71
	16-QAM	1905.0	H	190.0	28.0	10.24	1 / 0	13.45	**23.69**	0.234	33.01	-9.32
	64-QAM	1882.5	H	196.0	20.0	9.96	1 / 0	12.62	**22.58**	0.181	33.01	-10.43
15 MHz	QPSK	1857.5	H	204.0	24.0	9.61	1/36	13.45	23.05	0.202	33.01	-9.96
		1882.5	H	196.0	20.0	9.96	1/36	14.27	24.23	0.265	33.01	-8.78
		1907.5	H	190.0	28.0	10.26	1/36	14.13	**24.39**	0.275	33.01	-8.62
	16-QAM	1907.5	H	190.0	28.0	10.26	1/0	13.29	**23.55**	0.227	33.01	-9.46
	64-QAM	1882.5	H	196.0	20.0	9.96	1/36	11.79	**21.75**	0.150	33.01	-11.26
10 MHz	QPSK	1855.0	H	204.0	24.0	9.57	1/25	13.96	23.53	0.226	33.01	-9.48
		1882.5	H	196.0	20.0	9.96	1/25	14.20	24.16	0.261	33.01	-8.85
		1910.0	H	190.0	28.0	10.28	1/0	14.05	**24.33**	0.271	33.01	-8.68
	16-QAM	1910.0	H	190.0	28.0	10.28	1/25	13.73	**24.01**	0.252	33.01	-9.00
	64-QAM	1910.0	H	190.0	28.0	10.28	1/25	11.66	**21.94**	0.156	33.01	-11.07
5 MHz	QPSK	1852.5	H	204.0	24.0	9.54	1/12	14.08	23.61	0.230	33.01	-9.40
		1882.5	H	196.0	20.0	9.96	1/12	14.59	**24.55**	0.285	33.01	-8.46
		1912.5	H	190.0	28.0	10.30	1/12	13.61	23.91	0.246	33.01	-9.10
	16-QAM	1912.5	H	190.0	28.0	10.30	1/12	13.17	**23.47**	0.223	33.01	-9.54
	64-QAM	1882.5	H	196.0	20.0	9.96	1/12	12.41	**22.37**	0.173	33.01	-10.64
3 MHz	QPSK	1851.5	H	204.0	24.0	9.52	1/7	14.01	23.53	0.226	33.01	-9.48
		1882.5	H	196.0	20.0	9.96	1/14	14.28	**24.24**	0.266	33.01	-8.77
		1913.5	H	190.0	28.0	10.31	1/14	13.92	24.23	0.265	33.01	-8.78
	16-QAM	1913.5	H	190.0	28.0	10.31	1/7	13.04	**23.35**	0.216	33.01	-9.66
	64-QAM	1882.5	H	196.0	20.0	9.96	1/7	12.37	**22.33**	0.171	33.01	-10.68
1.4 MHz	QPSK	1850.7	H	204.0	24.0	9.51	1/2	13.93	23.44	0.221	33.01	-9.57
		1882.5	H	196.0	20.0	9.96	1/0	14.22	**24.18**	0.262	33.01	-8.83
		1914.3	H	190.0	28.0	10.32	1/2	13.75	24.06	0.255	33.01	-8.95
	16-QAM	1914.3	H	190.0	28.0	10.32	1/0	12.82	**23.13**	0.206	33.01	-9.88
	64-QAM	1882.5	H	196.0	20.0	9.96	1/0	11.78	**21.74**	0.149	33.01	-11.27
	Opposite Pol.	1905.0	V	100.0	123.0	10.15	1 / 0	12.23	22.38	0.173	33.01	-10.63

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

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.20	GPRS1900	H	163	37	16.07	9.51	25.58	0.361	33.01	-7.43
1880.00	GPRS1900	H	245	22	18.68	9.93	28.61	0.725	33.01	-4.40
1909.80	GPRS1900	H	115	32	18.63	10.28	**28.91**	**0.778**	33.01	-4.10
1909.80	GPRS1900	V	137	56	16.46	10.28	26.74	0.472	33.01	-6.27
1909.80	EDGE1900	H	115	32	14.65	10.28	**24.93**	0.311	33.01	-8.08

Table 7-3. EIRP Data (GPRS PCS)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1852.40	WCDMA1900	H	163	35	11.05	9.54	20.59	0.114	33.01	-12.42
1880.00	WCDMA1900	H	157	26	13.02	9.93	**22.95**	**0.197**	33.01	-10.06
1907.60	WCDMA1900	H	118	20	11.92	10.26	22.18	0.165	33.01	-10.83
1880.00	WCDMA1900	V	139	282	10.41	10.13	20.54	0.113	33.01	-12.47

Table 7-4. EIRP Data (WCDMA PCS)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1851.25	CDMA1900	H	117	9	14.17	9.52	23.69	0.234	33.01	-9.32
1880.00	CDMA1900	H	127	12	13.18	9.93	23.11	0.204	33.01	-9.90
1908.75	CDMA1900	H	165	7	13.72	10.27	**23.99**	**0.251**	33.01	-9.02
1908.75	CDMA1900	V	139	44	11.69	9.91	21.60	0.145	33.01	-11.41

Table 7-37. EIRP Data (CDMA PCS)

7.7 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the field strength conversion method described in KDB 971168 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using horizontally and vertically 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 maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.8

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.

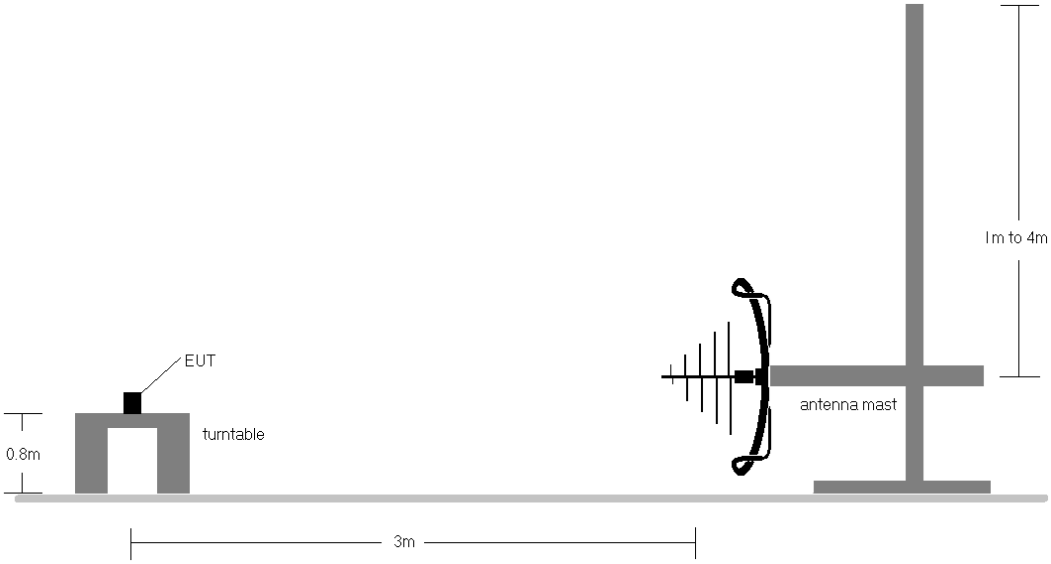


Figure 7-6. Test Instrument & Measurement Setup < 1GHz

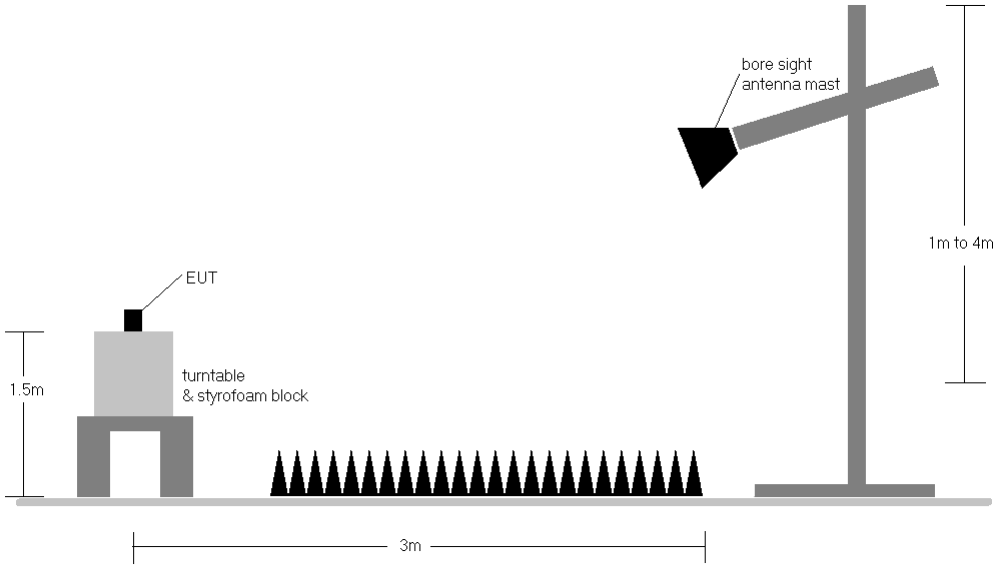


Figure 7-7. Test Instrument & Measurement Setup >1 GHz

Test Notes

1) Field strengths are calculated using the Measurement quantity conversions in KDB 971168 Section 5.8.4.
   b) E(dBµV/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m)
   d) EIRP (dBm) = E(dBµV/m) + 20logD – 104.8; where D is the measurement distance in meters.

2) This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest powers is reported in GPRS mode while transmitting with one slot active.

3) This device employs UMTS technology with WCDMA (AMR/RMC) and HSDPA capabilities. The EUT was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to “1”.

4) For CDMA, this device was tested under all RC and SO combinations and the worst case is reported with RC3/SO55 with "All Up" power control bits.

5) 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.

6) This unit was tested with its standard battery.

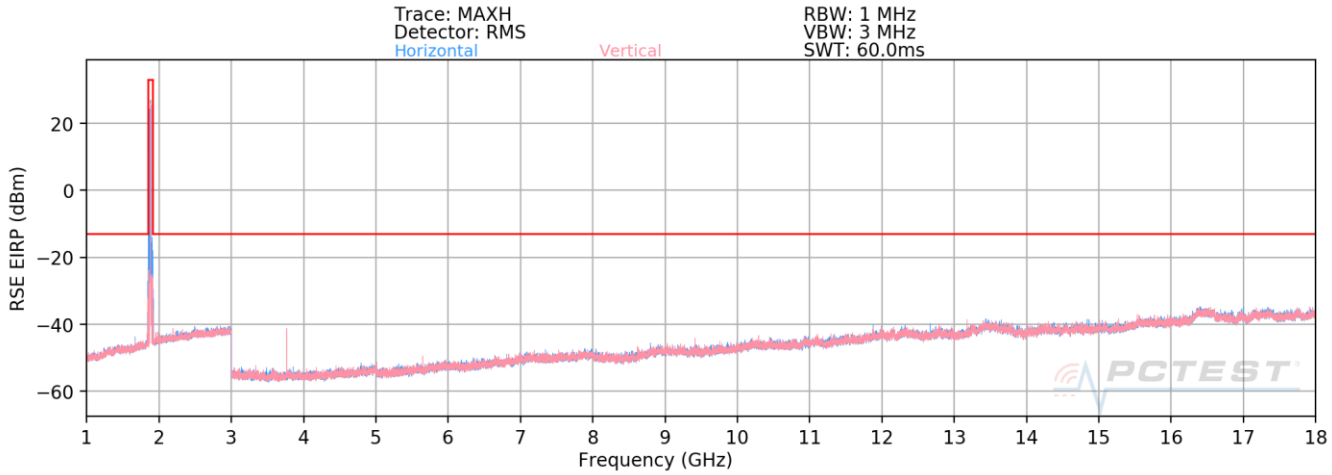
7) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.

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

9) 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.

10) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

LTE Band 25/2



Plot 7-120. Radiated Spurious Plot (LTE Band 25/2)

Bandwidth (MHz):	20
Frequency (MHz):	1860.0
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3720.0	H	150	161	-63.76	7.68	50.92	-44.33	-13.00	-31.33
5580.0	H	112	213	-80.17	11.37	38.20	-57.06	-13.00	-44.06
7440.0	H	110	23	-80.72	15.22	41.50	-53.76	-13.00	-40.76
9300.0	H	109	366	-83.19	17.69	41.50	-53.76	-13.00	-40.76
11160.0	H	102	199	-81.85	20.70	45.85	-49.40	-13.00	-36.40
13020.0	H	-	-	-84.23	23.61	46.38	-48.87	-13.00	-35.87
14880.0	H	-	-	-84.92	26.52	48.60	-46.65	-13.00	-33.65
16740.0	H	-	-	-84.64	29.05	51.41	-43.85	-13.00	-30.85

Table 7-5. Radiated Spurious Data (LTE Band 25/2 – Low Channel)

Bandwidth (MHz):	20
Frequency (MHz):	1882.5
RB / Offset:	1 / 50

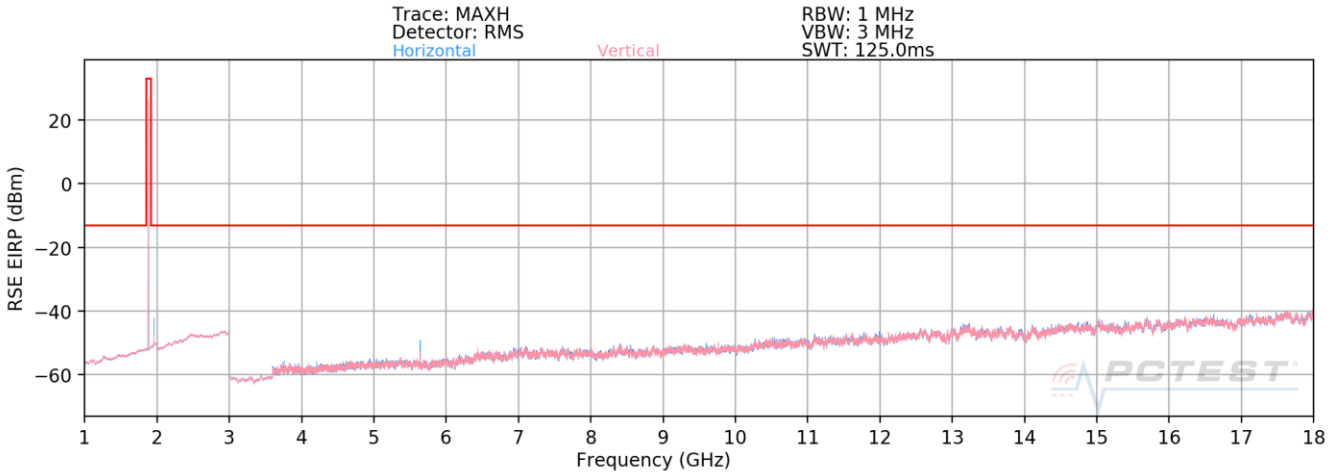
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3765.0	H	104	145	-60.73	8.16	54.43	-40.83	-13.00	-27.83
5647.5	H	100	183	-77.25	10.74	40.49	-54.77	-13.00	-41.77
7530.0	H	100	165	-80.28	15.52	42.24	-53.01	-13.00	-40.01
9412.5	H	101	355	-82.41	18.37	42.96	-52.30	-13.00	-39.30
11295.0	H	101	180	-81.75	21.15	46.40	-48.86	-13.00	-35.86
13177.5	H	115	178	-82.58	23.91	48.33	-46.92	-13.00	-33.92
15060.0	H	-	-	-85.14	27.00	48.86	-46.40	-13.00	-33.40
16942.5	H	-	-	-84.63	29.34	51.71	-43.54	-13.00	-30.54

Table 7-6. Radiated Spurious Data (LTE Band 25/2 – Mid Channel)

Bandwidth (MHz):	20
Frequency (MHz):	1905.0
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3810.00	H	100	315	-67.70	8.54	47.84	-47.42	-13.00	-34.42
5715.00	H	109	178	-75.41	11.61	43.20	-52.06	-13.00	-39.06
7620.00	H	101	227	-80.77	15.79	42.02	-53.24	-13.00	-40.24
9525.00	H	103	355	-80.26	18.26	45.00	-50.25	-13.00	-37.25
11430.00	H	114	197	-82.27	21.07	45.80	-49.46	-13.00	-36.46
13335.00	H	-	-	-84.41	24.34	46.93	-48.33	-13.00	-35.33
15240.00	H	-	-	-85.32	26.99	48.67	-46.59	-13.00	-33.59
17145.00	H	-	-	-85.07	29.65	51.58	-43.68	-13.00	-30.68

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



Plot 7-121. Radiated Spurious Plot (GPRS PCS)

Mode:	GPRS 1 Tx Slot
Channel:	512
Frequency (MHz):	1850.2

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3700.4	H	224	215	-74.35	5.34	37.99	-57.27	-13.00	-44.27
5550.6	H	180	320	-66.18	8.66	49.48	-45.77	-13.00	-32.77
7400.8	H	-	-	-77.10	12.29	42.19	-53.07	-13.00	-40.07
9251.0	H	-	-	-77.73	13.51	42.78	-52.47	-13.00	-39.47
11101.2	H	-	-	-77.70	16.41	45.71	-49.55	-13.00	-36.55

Table 7-8. Radiated Spurious Data (GPRS PCS – Low Channel)

Mode:	GPRS 1 Tx Slot
Channel:	661
Frequency (MHz):	1880

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3760.0	H	298	227	-74.71	6.37	38.66	-56.60	-13.00	-43.60
5640.0	H	166	310	-64.86	8.38	50.52	-44.74	-13.00	-31.74
7520.0	H	-	-	-76.68	12.20	42.52	-52.74	-13.00	-39.74
9400.0	H	-	-	-77.48	14.49	44.01	-51.25	-13.00	-38.25
11280.0	H	-	-	-77.61	16.65	46.04	-49.22	-13.00	-36.22

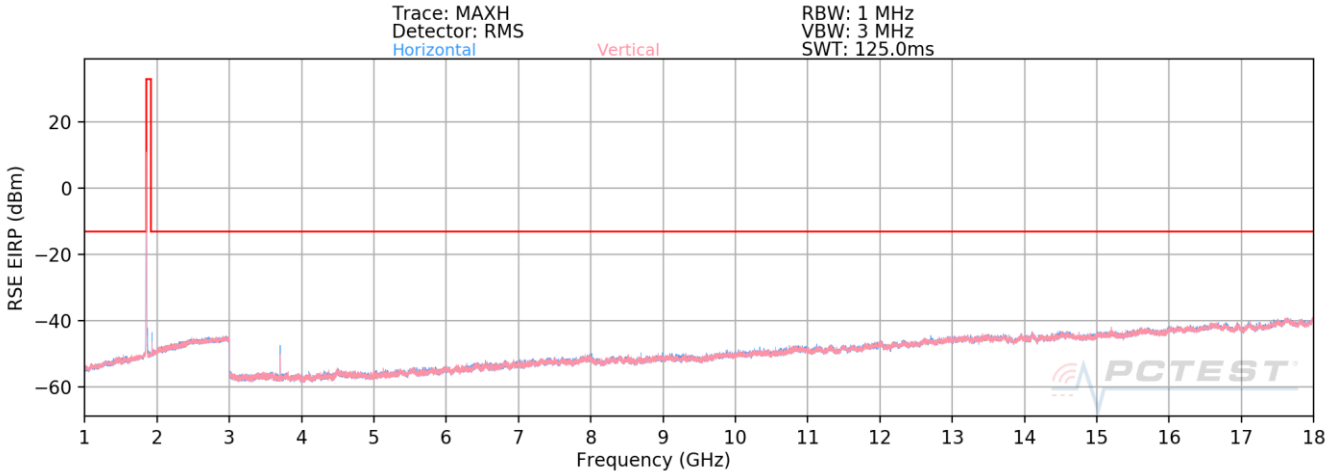
Table 7-9. Radiated Spurious Data (GPRS PCS – Mid Channel)

Mode:	GPRS 1 Tx Slot
Channel:	810
Frequency (MHz):	1909.8

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3819.6	H	158	75	-75.54	6.14	37.60	-57.66	-13.00	-44.66
5729.4	H	169	305	-63.08	8.27	52.19	-43.07	-13.00	-30.07
7639.2	H	-	-	-77.46	12.13	41.67	-53.58	-13.00	-40.58
9549.0	H	-	-	-77.93	14.08	43.15	-52.11	-13.00	-39.11
11458.8	H	-	-	-78.21	17.02	45.81	-49.45	-13.00	-36.45

Table 7-10. Radiated Spurious Data (GPRS PCS – High Channel)

WCDMA PCS



Plot 7-123. Radiated Spurious Plot (WCDMA PCS)

Mode:	WCDMA RMC
Channel:	9262
Frequency (MHz):	1852.4

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3704.8	H	148	341	-62.48	2.21	46.73	-48.53	-13.00	-35.53
5557.2	H	332	271	-79.02	4.52	32.50	-62.76	-13.00	-49.76
7409.6	H	-	-	-80.04	8.40	35.36	-59.90	-13.00	-46.90
9262.0	H	-	-	-80.51	10.19	36.68	-58.58	-13.00	-45.58
11114.4	H	-	-	-81.79	12.26	37.47	-57.79	-13.00	-44.79

Table 7-11. Radiated Spurious Data (WCDMA PCS – Low Channel)

Mode:	WCDMA RMC
Channel:	9400
Frequency (MHz):	1880

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3760.0	H	144	341	-60.14	2.36	49.22	-46.03	-13.00	-33.03
5640.0	H	117	175	-78.42	4.76	33.34	-61.92	-13.00	-48.92
7520.0	H	-	-	-70.67	8.41	44.74	-50.51	-13.00	-37.51
9400.0	H	-	-	-82.04	11.65	36.61	-58.65	-13.00	-45.65
11280.0	H	-	-	-81.62	12.39	37.77	-57.49	-13.00	-44.49

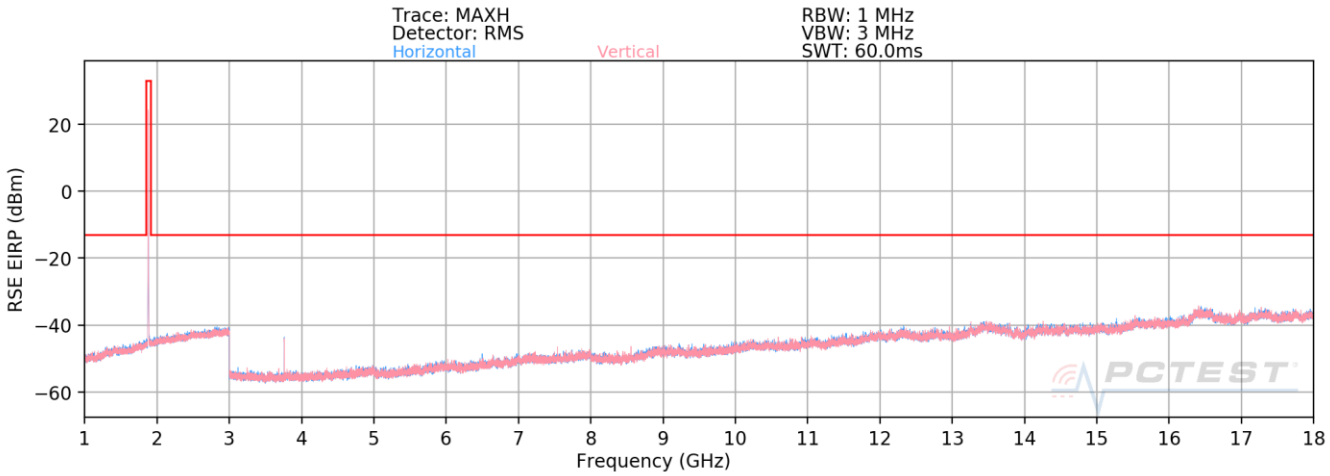
Table 7-12. Radiated Spurious Data (WCDMA PCS – Mid Channel)

Mode:	WCDMA RMC
Channel:	9538
Frequency (MHz):	1907.6

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3815.2	H	21	15	-62.87	1.96	46.09	-49.17	-13.00	-36.17
5722.8	H	113	170	-76.52	4.32	34.80	-60.45	-13.00	-47.45
7630.4	H	-	-	-80.27	8.62	35.35	-59.91	-13.00	-46.91
9538.0	H	-	-	-80.98	11.23	37.25	-58.01	-13.00	-45.01
11445.6	H	-	-	-81.56	12.54	37.98	-57.28	-13.00	-44.28

Table 7-13. Radiated Spurious Data (WCDMA PCS – High Channel)

CDMA PCS



Plot 7-38. Radiated Spurious Plot (CDMA PCS)

Mode:	CDMA
Channel:	25
Frequency (MHz):	1851.25

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3702.50	H	129	144	-65.32	7.62	49.30	-45.96	-13.00	-32.96
5553.75	H	-	-	-81.50	11.27	36.77	-58.49	-13.00	-45.49
7405.00	H	-	-	-81.76	15.06	40.30	-54.96	-13.00	-41.96
9256.25	H	-	-	-83.28	18.28	42.00	-53.26	-13.00	-40.26

Table 7-14. Radiated Spurious Data (CDMA PCS – Low Channel)

Mode:	CDMA
Channel:	600
Frequency (MHz):	1880

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3760.00	H	101	148	-65.13	7.91	49.78	-45.48	-13.00	-32.48
5640.00	H	-	-	-80.89	10.76	36.87	-58.39	-13.00	-45.39
7520.00	H	-	-	-81.41	15.34	40.93	-54.33	-13.00	-41.33
9400.00	H	-	-	-83.88	18.64	41.76	-53.50	-13.00	-40.50

Table 7-15. Radiated Spurious Data (CDMA PCS – Mid Channel)

Mode:	CDMA
Channel:	1175
Frequency (MHz):	1908.75

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3817.50	H	100	1	-67.96	8.52	47.56	-47.70	-13.00	-34.70
5726.25	H	-	-	-81.78	11.90	37.12	-58.14	-13.00	-45.14
7635.00	H	-	-	-82.58	15.96	40.38	-54.88	-13.00	-41.88
9543.75	H	-	-	-82.71	18.26	42.55	-52.71	-13.00	-39.71

Table 7-16. Radiated Spurious Data (CDMA PCS – High Channel)

7.8 Frequency Stability / Temperature Variation

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. The frequency stability of the transmitter is measured by:

a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

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

LTE Band 25/2

Operating Frequency (Hz):	1,882,500,000
Ref. Voltage (VDC):	3.79
Deviation Limit:	± 0.00025% or 2.5 ppm

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.79	- 30	1,882,499,990	-10	-0.0000005
		- 20	1,882,499,680	-320	-0.0000170
		- 10	1,882,500,022	22	0.0000012
		0	1,882,500,062	62	0.0000033
		+ 10	1,882,500,412	412	0.0000219
		+ 20 (Ref)	1,882,500,137	137	0.0000073
		+ 30	1,882,499,997	-3	-0.0000002
		+ 40	1,882,499,860	-140	-0.0000074
		+ 50	1,882,500,117	117	0.0000062
Battery Endpoint	3.04	+ 20	1,882,500,084	84	0.0000045

Table 7-17. LTE Band 25/2 Frequency Stability Data

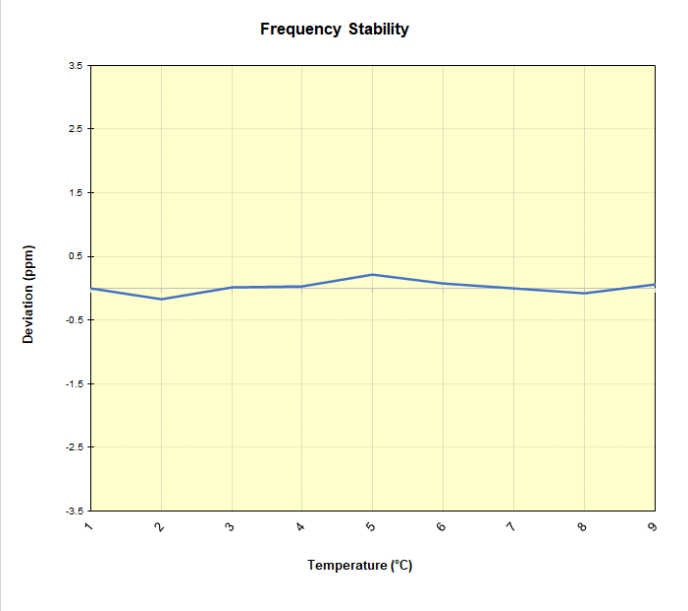


Table 7-18. LTE Band 25/2 Frequency Stability Chart

GSM/GPRS PCS

Operating Frequency (Hz):	1,880,000,000
Ref. Voltage (VDC):	3.79
Deviation Limit:	± 0.00025% or 2.5 ppm

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.79	- 30	1,879,999,784	-216	-0.0000115
		- 20	1,879,999,969	-31	-0.0000016
		- 10	1,880,000,092	92	0.0000049
		0	1,879,999,747	-253	-0.0000135
		+ 10	1,879,999,782	-218	-0.0000116
		+ 20 (Ref)	1,879,999,960	-40	-0.0000021
		+ 30	1,879,999,862	-138	-0.0000073
		+ 40	1,879,999,896	-104	-0.0000055
		+ 50	1,880,000,087	87	0.0000046
Battery Endpoint	3.04	+ 20	1,879,999,996	-4	-0.0000002

Table 7-19. GSM/GPRS PCS Frequency Stability Data

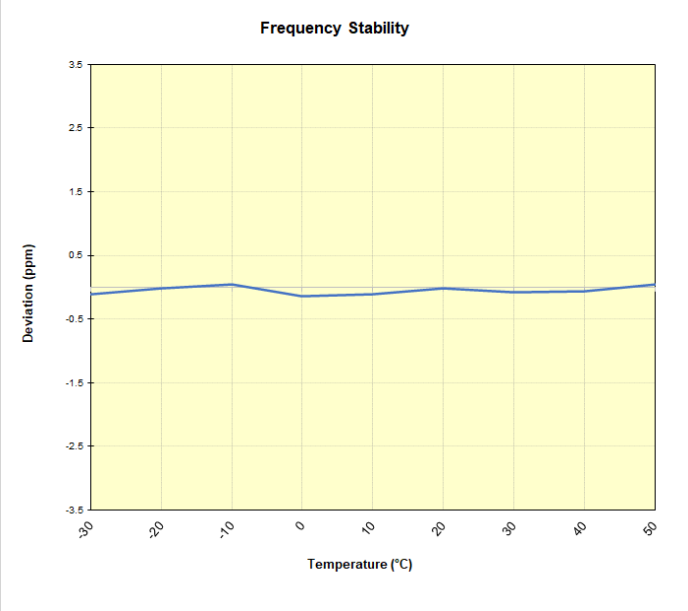


Table 7-20. GSM/GPRS PCS Frequency Stability Chart

WCDMA PCS

Operating Frequency (Hz):	1,880,000,000
Ref. Voltage (VDC):	3.79
Deviation Limit:	± 0.00025% or 2.5 ppm

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.79	- 30	1,880,000,333	333	0.0000177
		- 20	1,879,999,912	-88	-0.0000047
		- 10	1,880,000,178	178	0.0000095
		0	1,879,999,775	-225	-0.0000120
		+ 10	1,880,000,216	216	0.0000115
		+ 20 (Ref)	1,880,000,023	23	0.0000012
		+ 30	1,880,000,133	133	0.0000071
		+ 40	1,880,000,010	10	0.0000005
		+ 50	1,879,999,925	-75	-0.0000040
Battery Endpoint	3.04	+ 20	1,879,999,824	-176	-0.0000094

Table 7-21. WCDMA PCS Frequency Stability Data

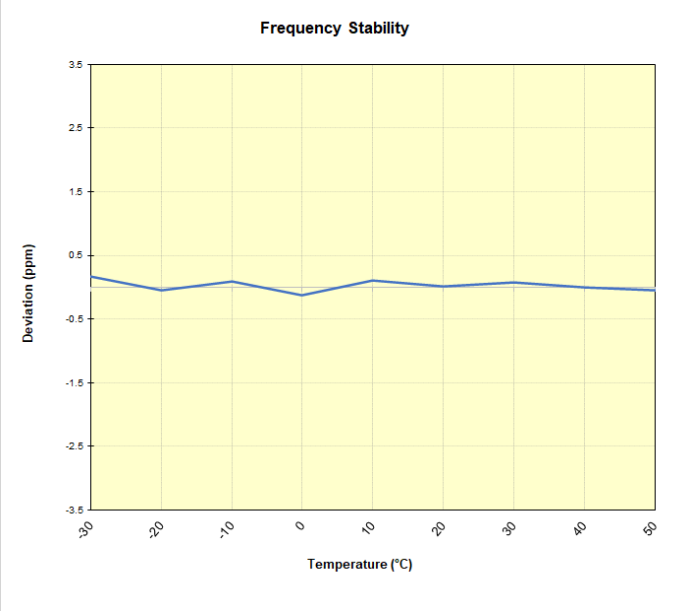


Table 7-22. WCDMA PCS Frequency Stability Chart

CDMA PCS

Operating Frequency (Hz):	1,880,000,000
Ref. Voltage (VDC):	3.79
Deviation Limit:	± 0.00025% or 2.5 ppm

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.79	- 30	1,880,000,330	330	0.0000176
		- 20	1,880,000,195	195	0.0000104
		- 10	1,880,000,007	7	0.0000004
		0	1,880,000,271	271	0.0000144
		+ 10	1,879,999,674	-326	-0.0000173
		+ 20 (Ref)	1,880,000,428	428	0.0000228
		+ 30	1,879,999,788	-212	-0.0000113
		+ 40	1,880,000,208	208	0.0000111
		+ 50	1,879,999,948	-52	-0.0000028
Battery Endpoint	3.04	+ 20	1,879,999,976	-24	-0.0000013

Table 7-23. CDMA PCS Frequency Stability Data

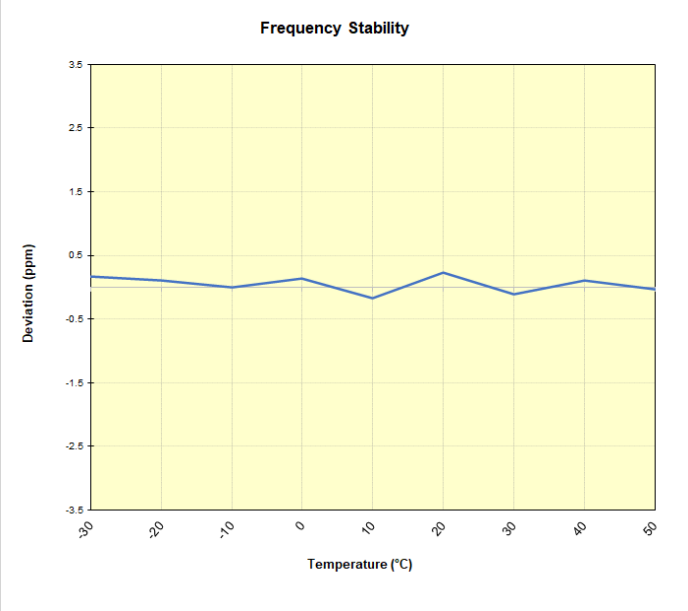


Table 7-24. CDMA PCS Frequency Stability Chart

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the LG **Portable Handset FCC ID: ZNFK200QM** complies with all the requirements of Part 24 of the FCC rules.