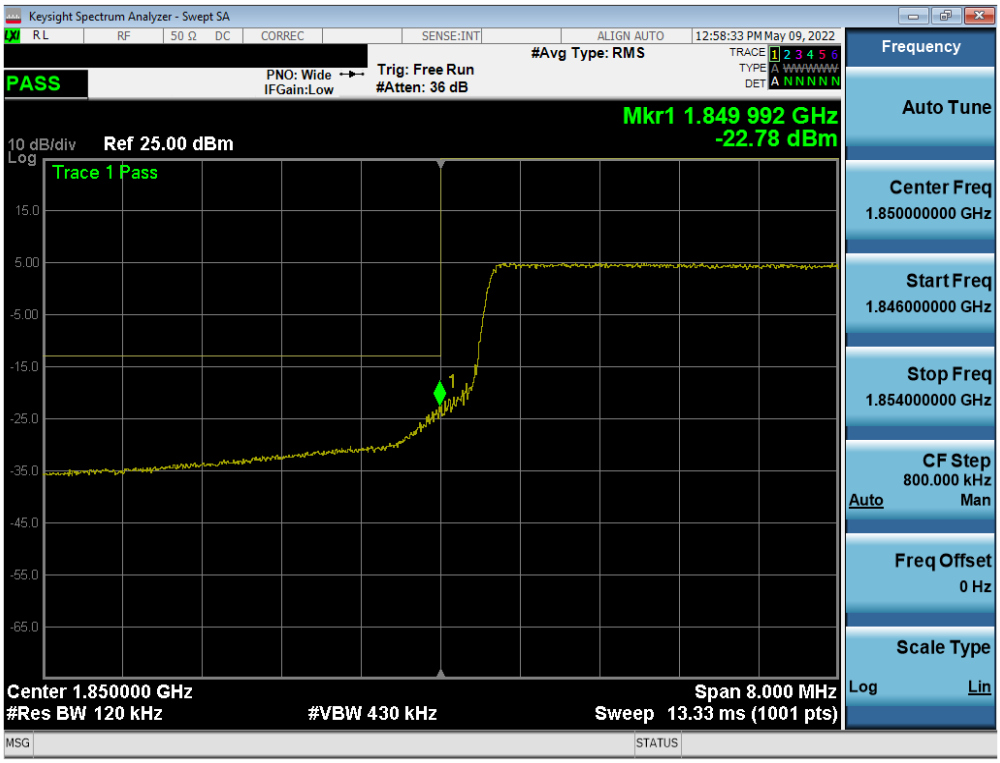
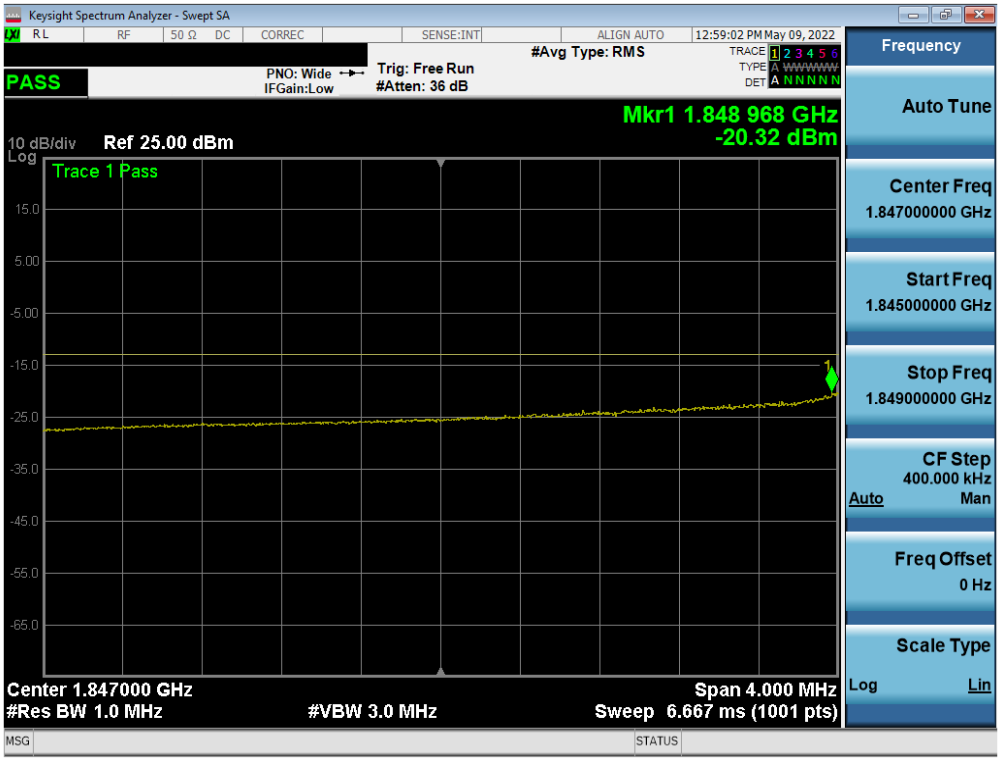
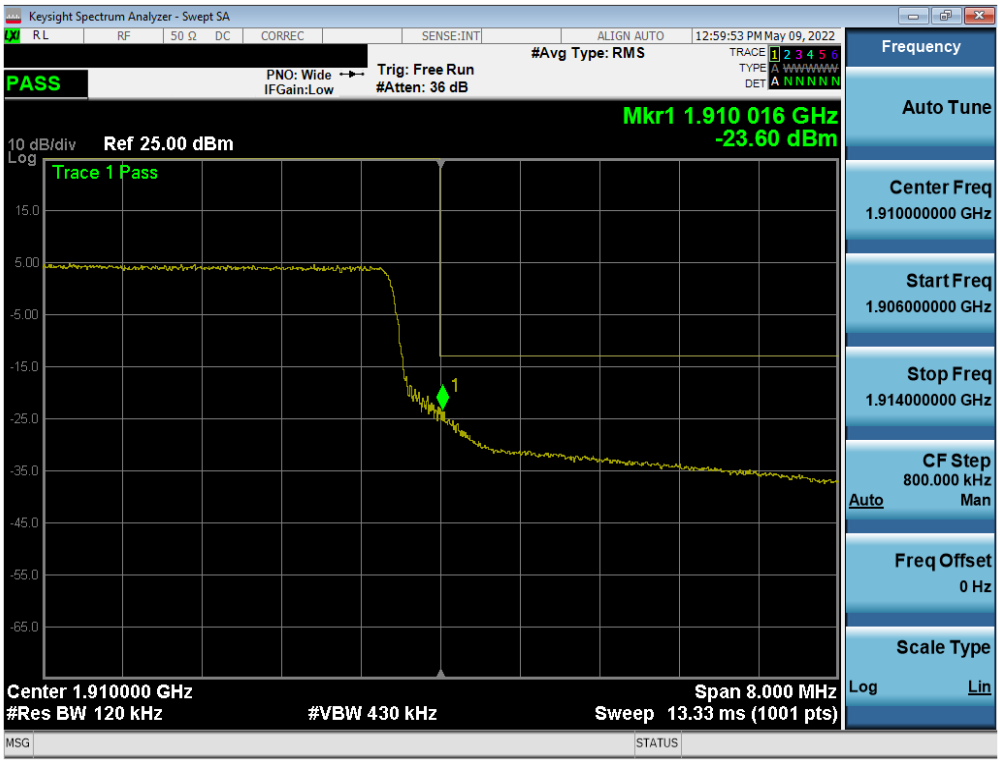


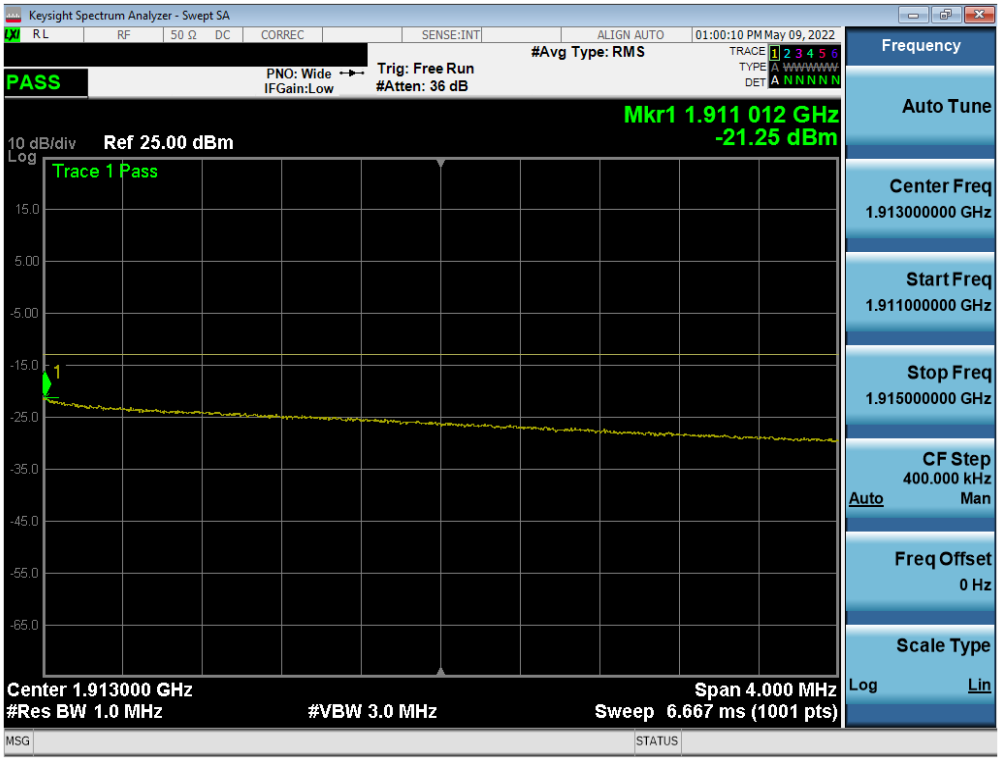
Plot 7-68. Lower Band Edge Plot (LTE Band 2 – 10MHz QPSK – Full RB Configuration)



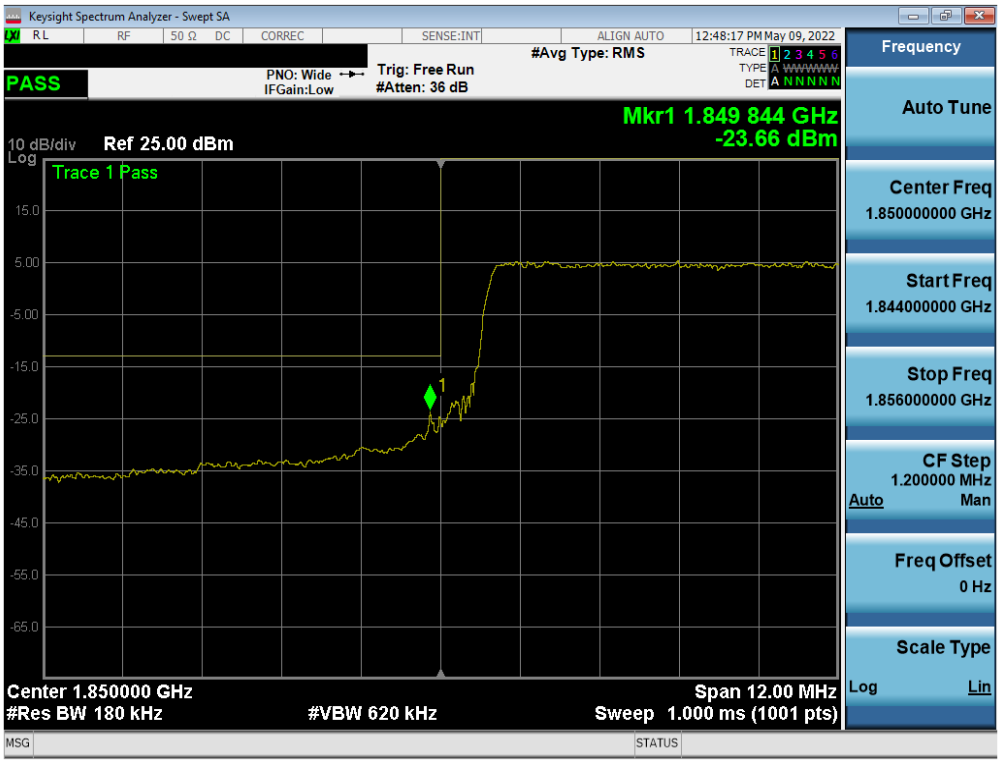
Plot 7-69. Extended Lower Band Edge Plot (LTE Band 2 – 10MHz QPSK – Full RB Configuration)



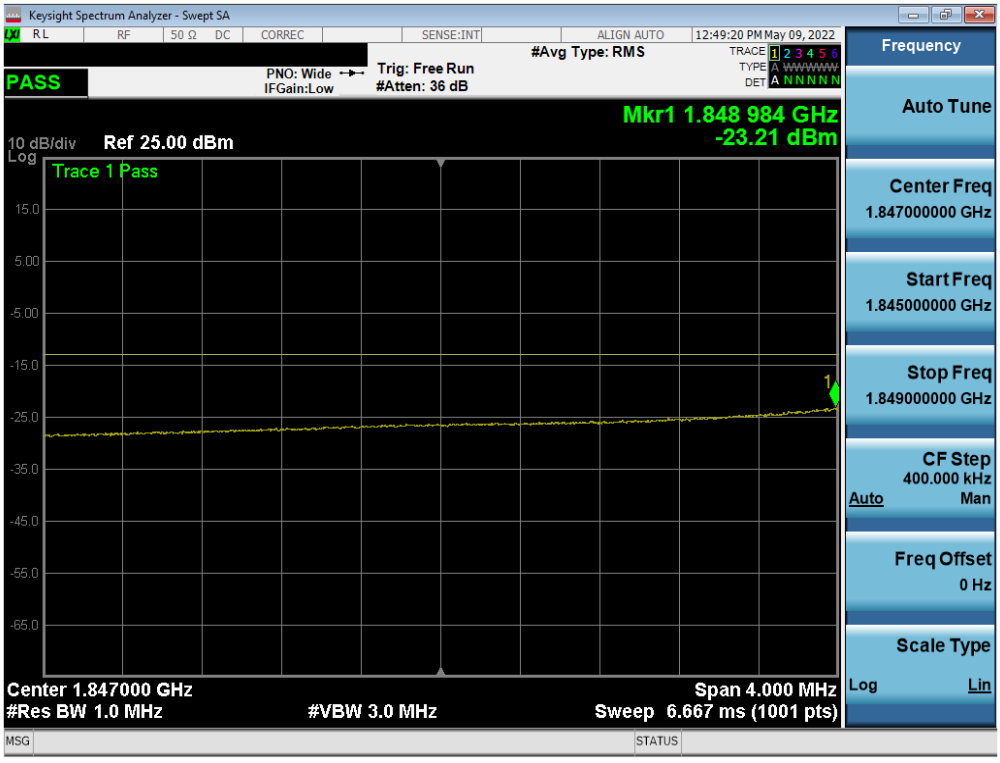
Plot 7-70. Upper Band Edge Plot (LTE Band 2 – 10MHz QPSK – Full RB Configuration)



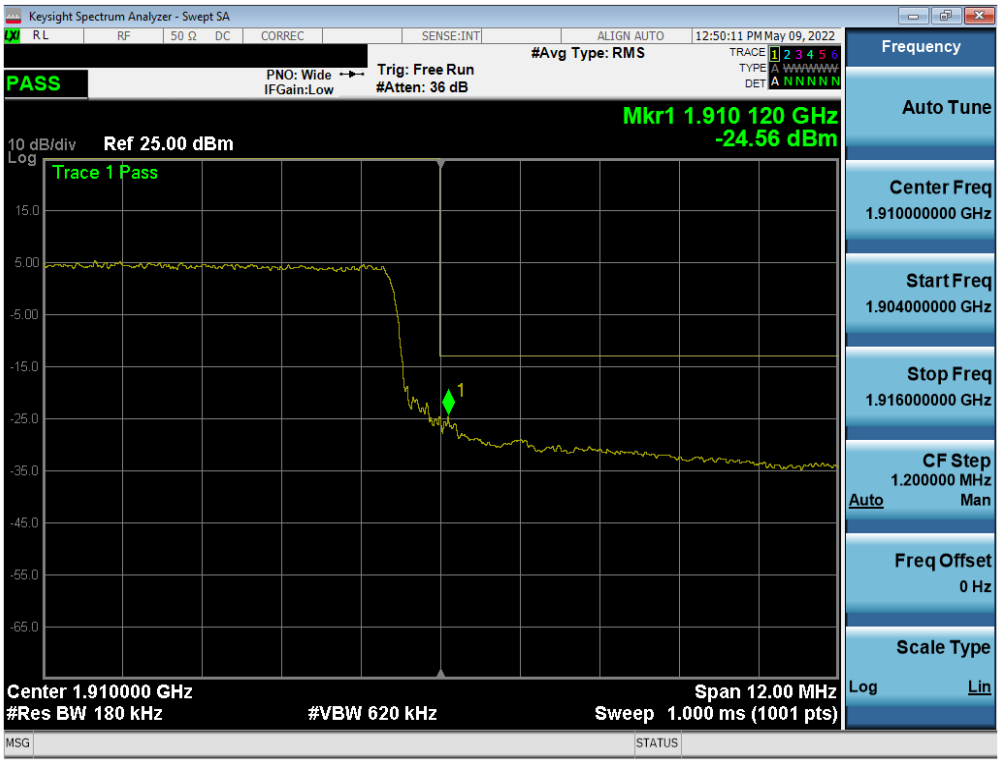
Plot 7-71. Extended Upper Band Edge Plot (LTE Band 2 – 10MHz QPSK – Full RB Configuration)



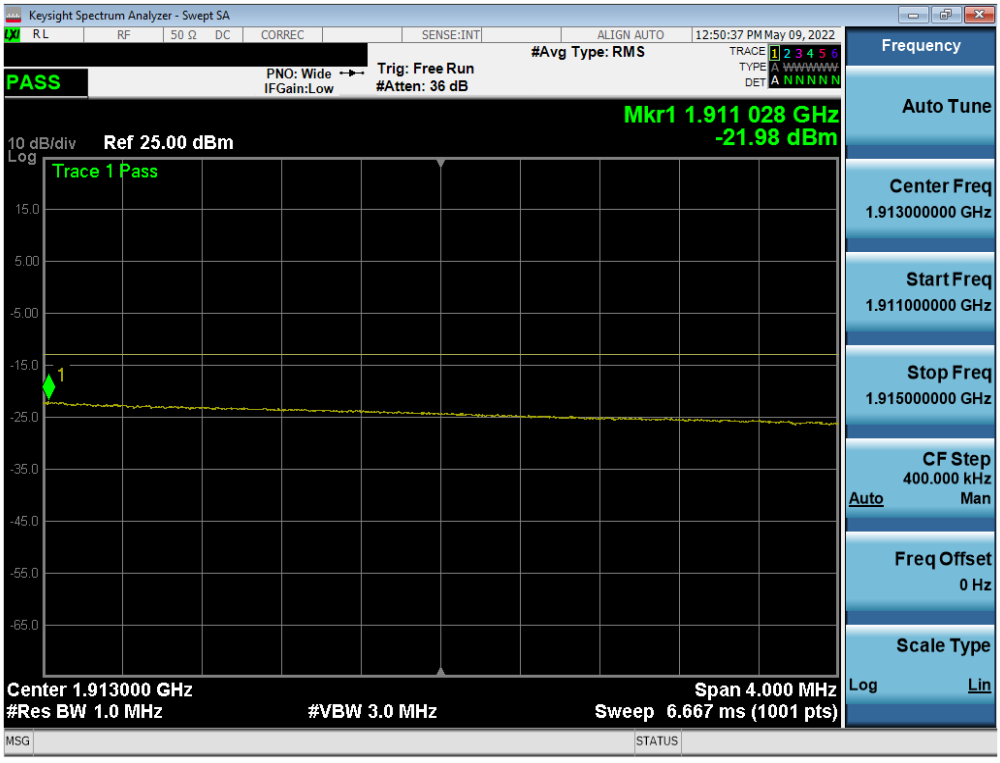
Plot 7-72. Lower Band Edge Plot (LTE Band 2 – 15MHz QPSK – Full RB Configuration)



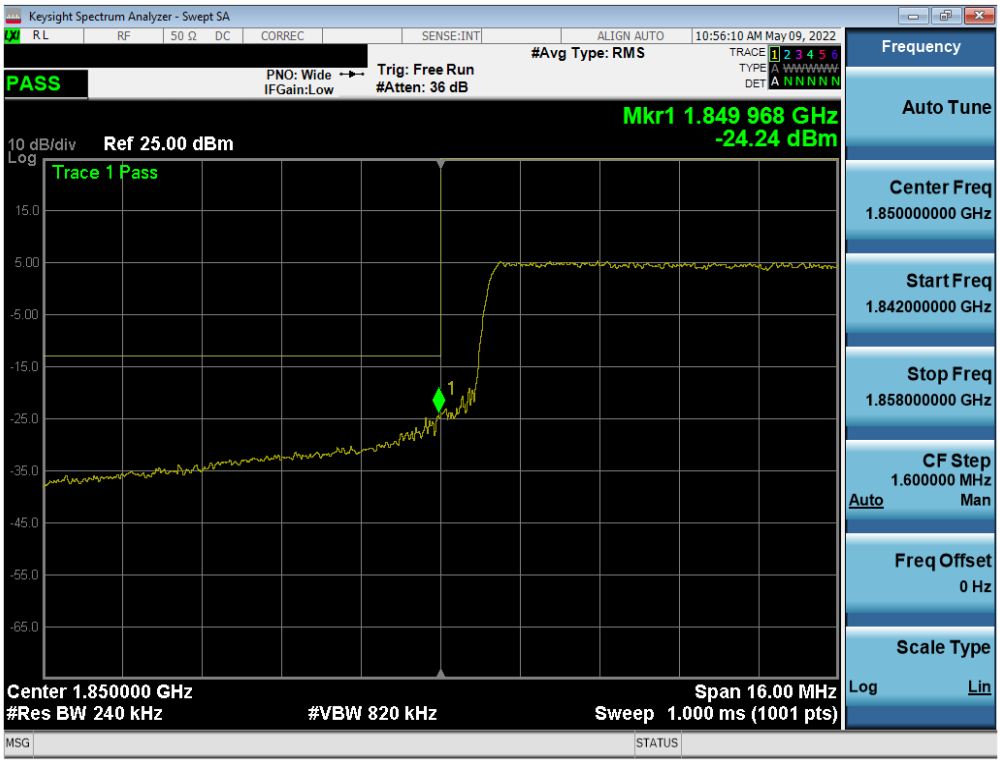
Plot 7-73. Extended Lower Band Edge Plot (LTE Band 2 – 15MHz QPSK – Full RB Configuration)



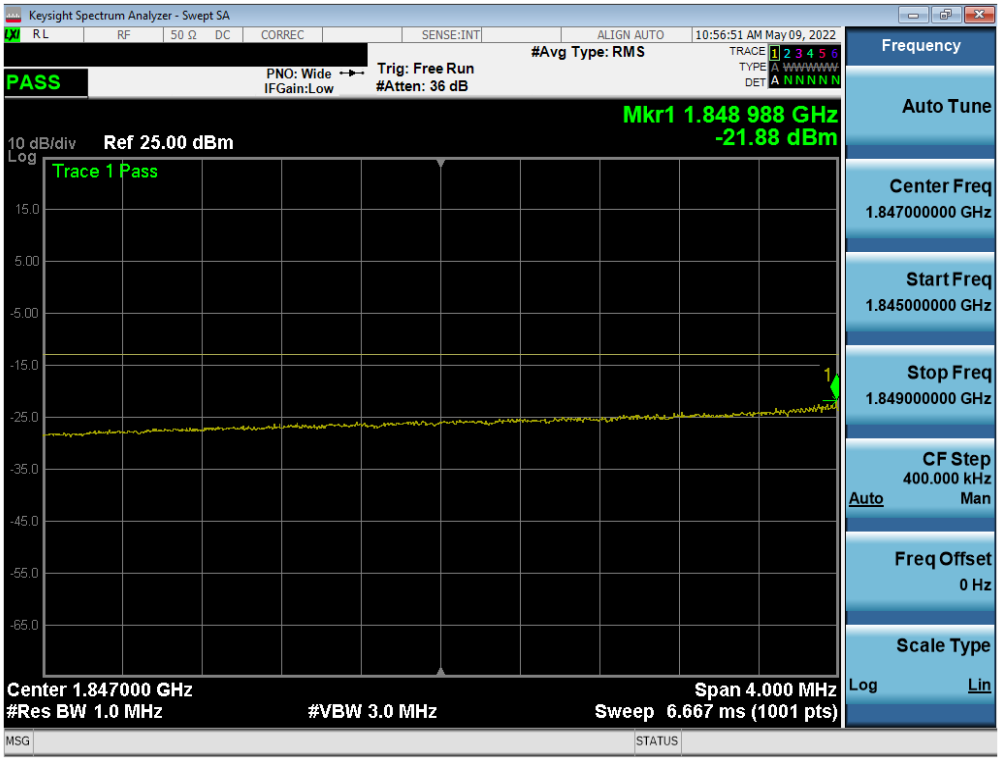
Plot 7-74. Upper Band Edge Plot (LTE Band 2 – 15MHz QPSK – Full RB Configuration)



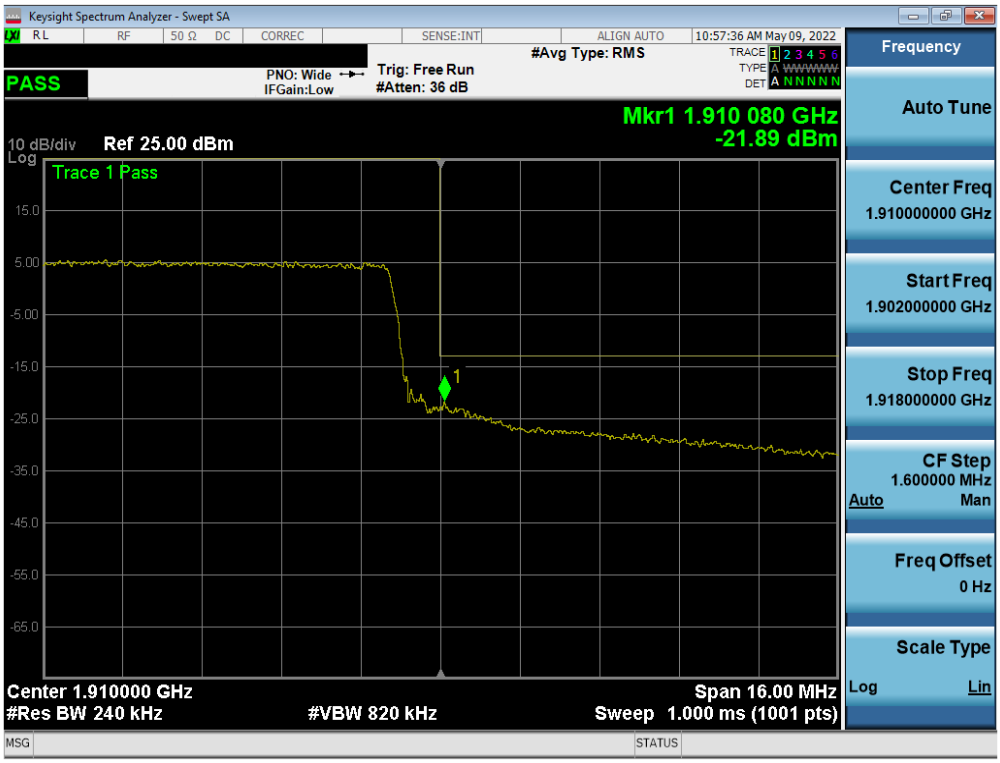
Plot 7-75. Extended Upper Band Edge Plot (LTE Band 2 – 15MHz QPSK – Full RB Configuration)



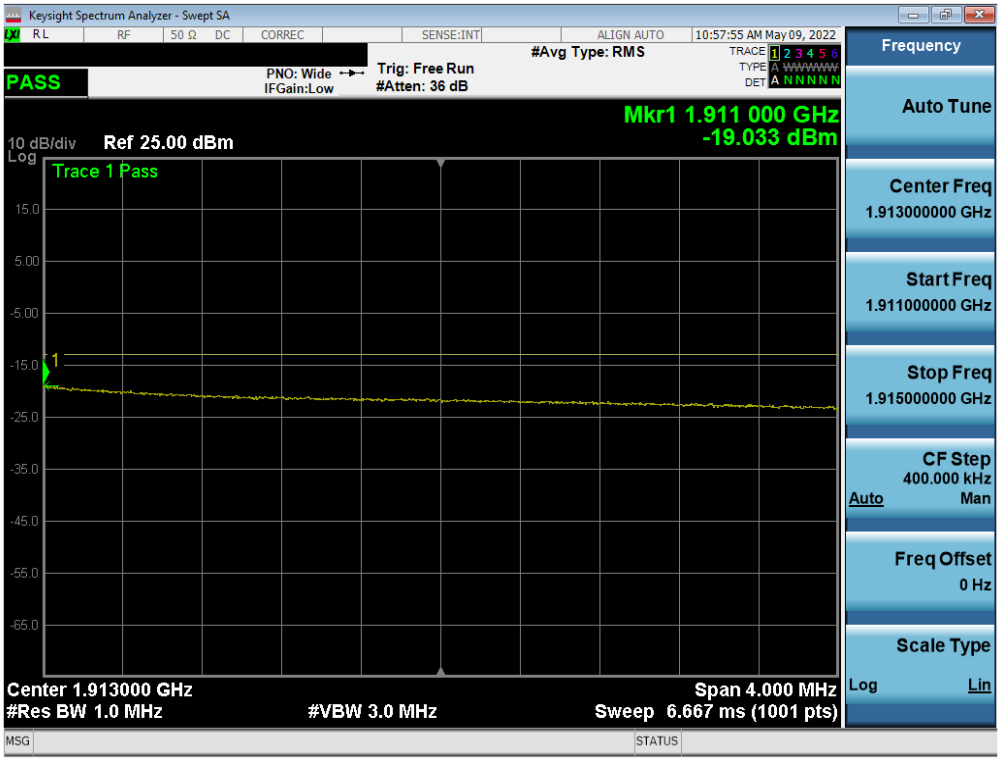
Plot 7-76. Lower Band Edge Plot (LTE Band 2 – 20MHz QPSK – Full RB Configuration)



Plot 7-77. Extended Lower Band Edge Plot (LTE Band 2 – 20MHz QPSK – Full RB Configuration)

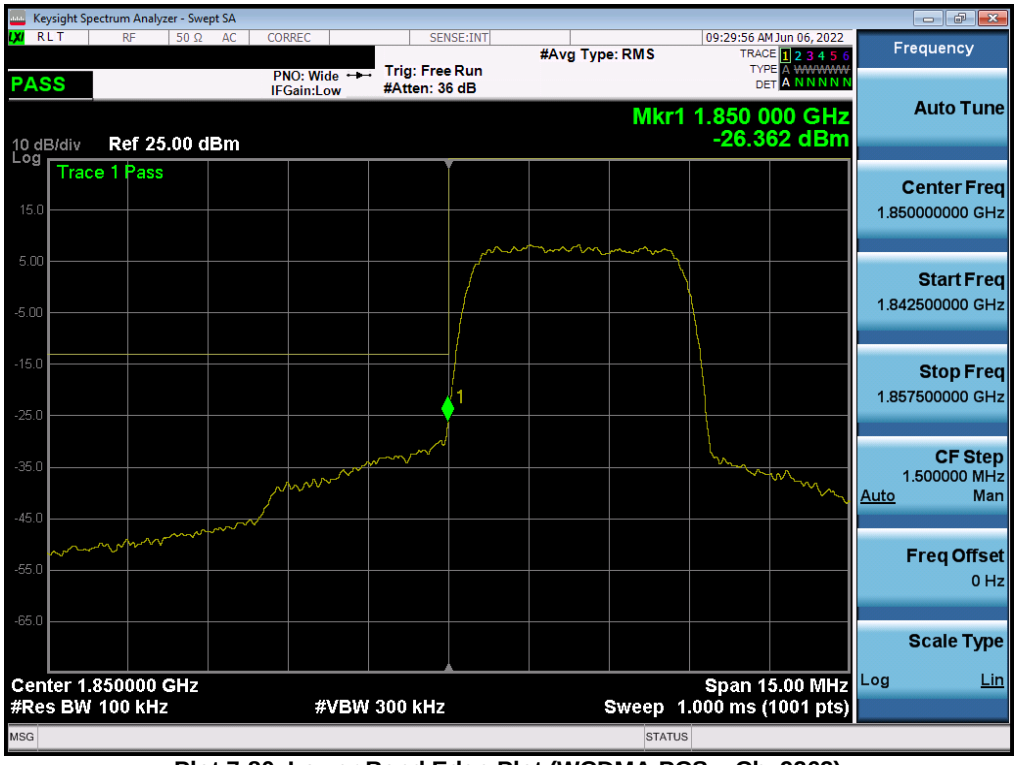


Plot 7-78. Upper Band Edge Plot (LTE Band 2 – 20MHz QPSK – Full RB Configuration)

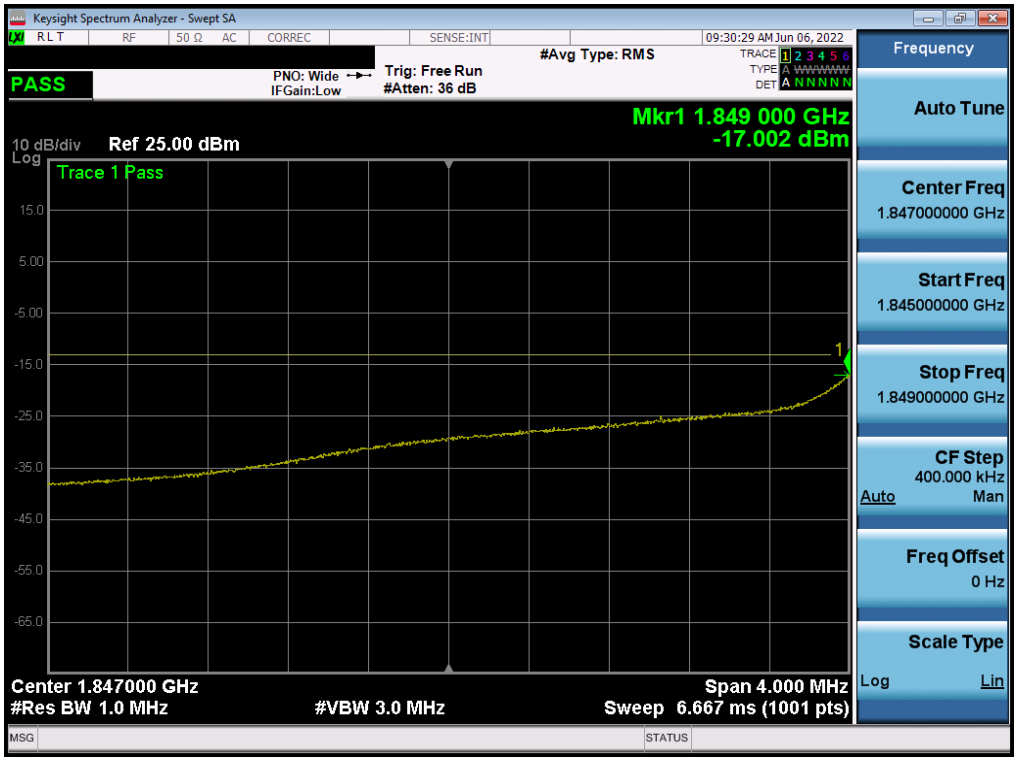


Plot 7-79. Extended Upper Band Edge Plot (LTE Band 2 – 20MHz QPSK – Full RB Configuration)

WCDMA PCS

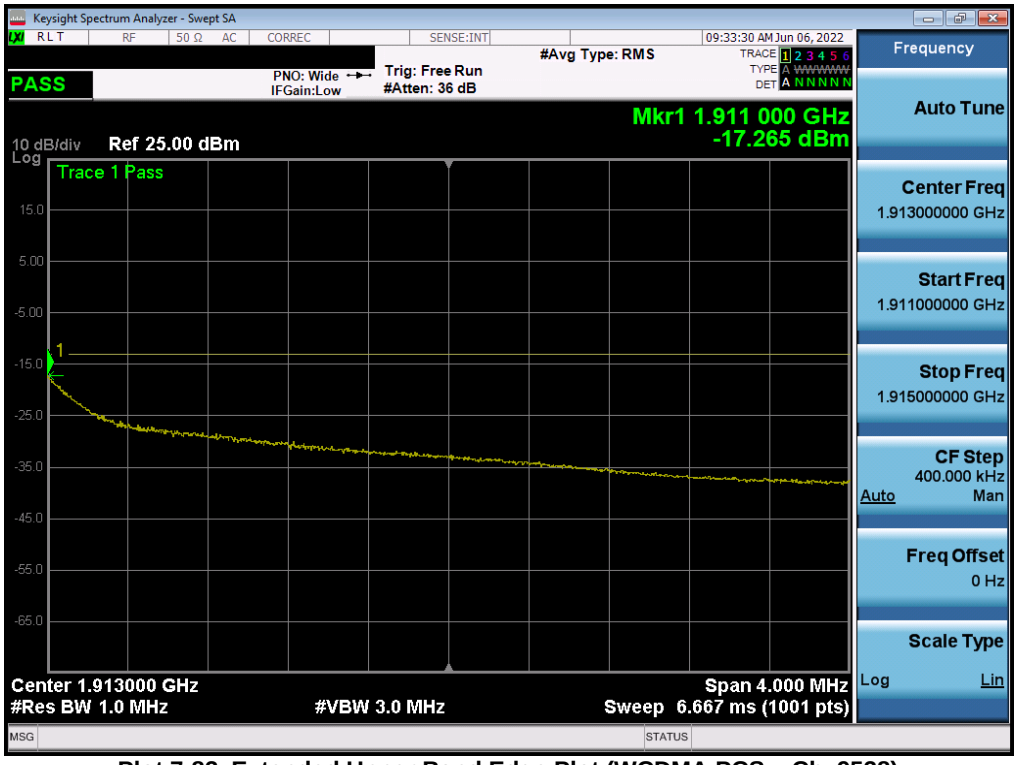


Plot 7-80. Lower Band Edge Plot (WCDMA PCS – Ch. 9262)



Plot 7-81. Extended Lower Band Edge Plot (WCDMA PCS – Ch. 9262)

Plot 7-82. Upper Band Edge Plot (WCDMA PCS – Ch. 9538)



Plot 7-83. Extended Upper Band Edge Plot (WCDMA PCS – Ch. 9538)

7.5 Peak-Average Ratio

§24.232(d)

Test Overview

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

Test Procedure Used

KDB 971168 D01 v03r01 – Section 5.7.1

Test Settings

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

Test Setup

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

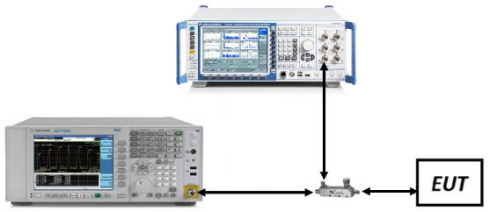
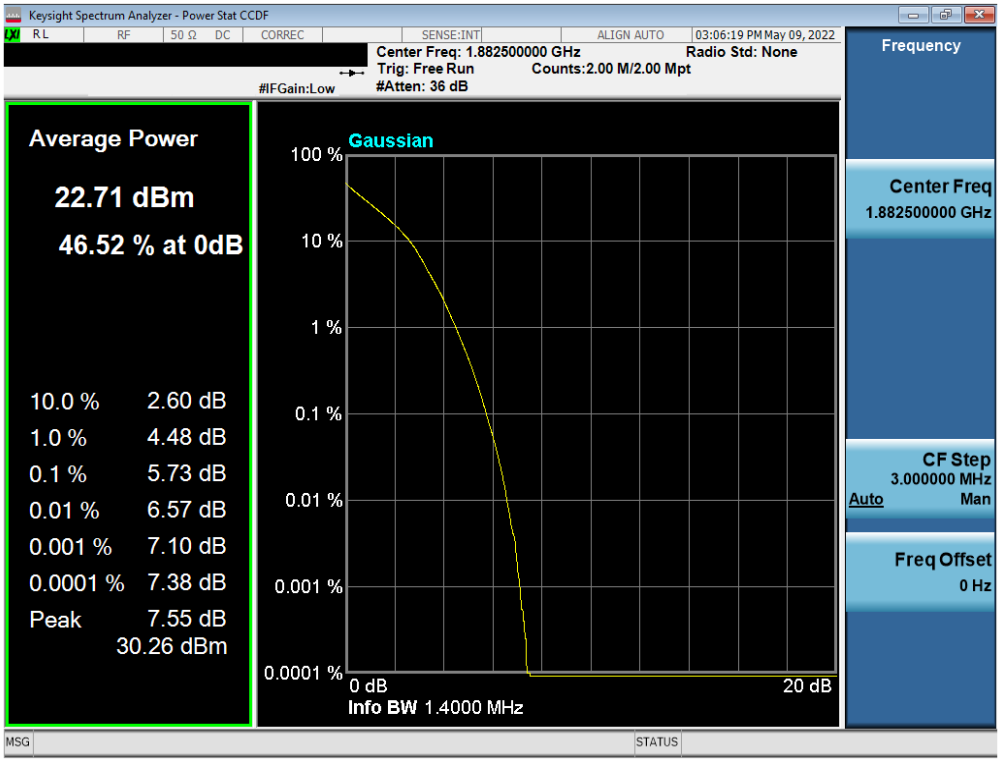


Figure 7-4. Test Instrument & Measurement Setup

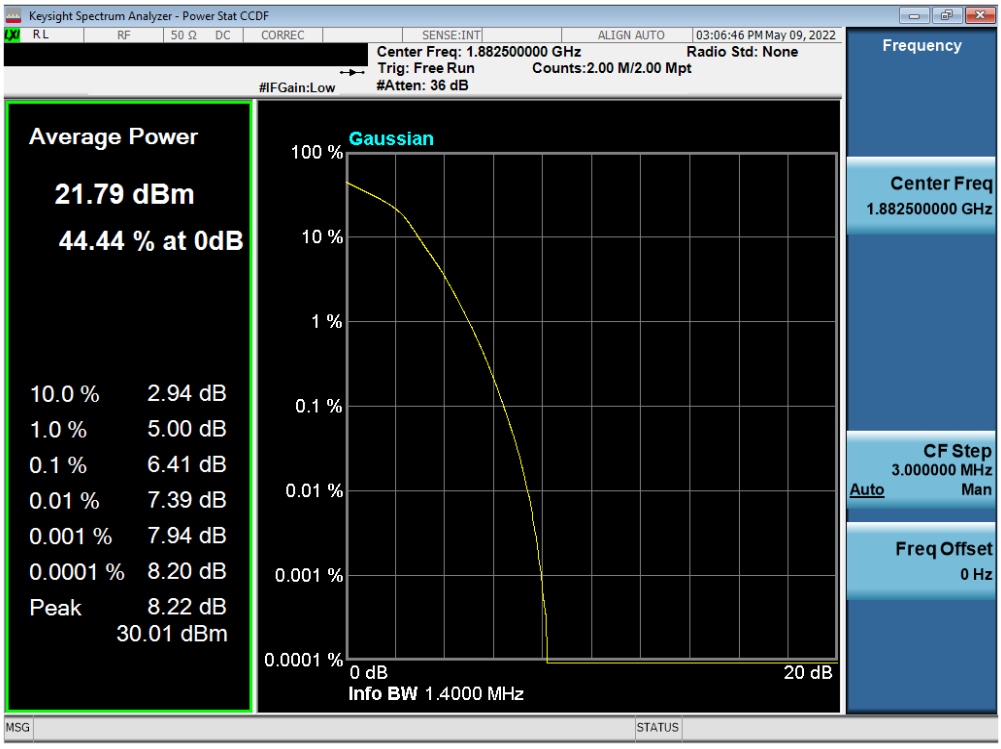
Test Notes

None.

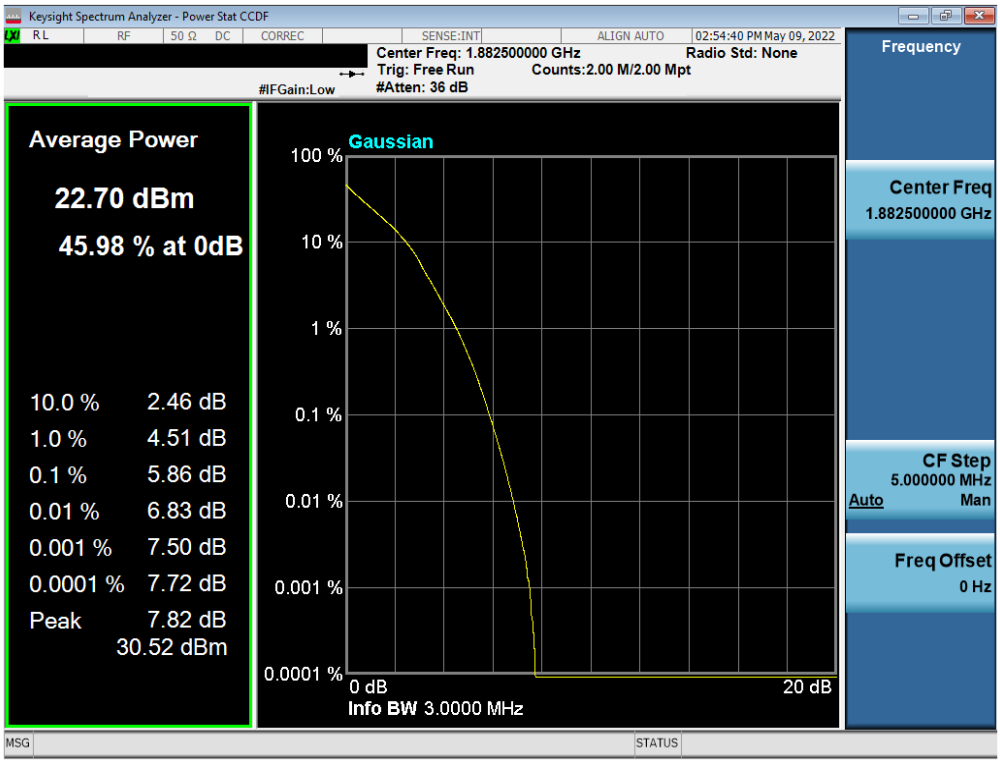
LTE Band 25



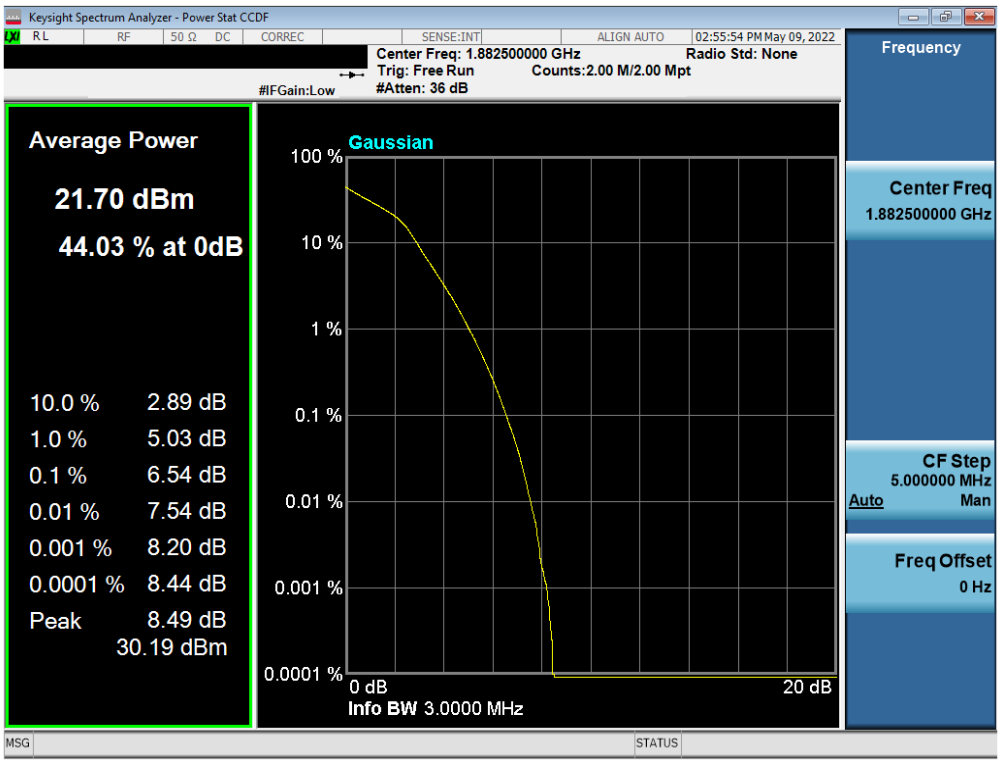
Plot 7-84. PAR Plot (LTE Band 25 - 1.4MHz QPSK - Full RB Configuration)



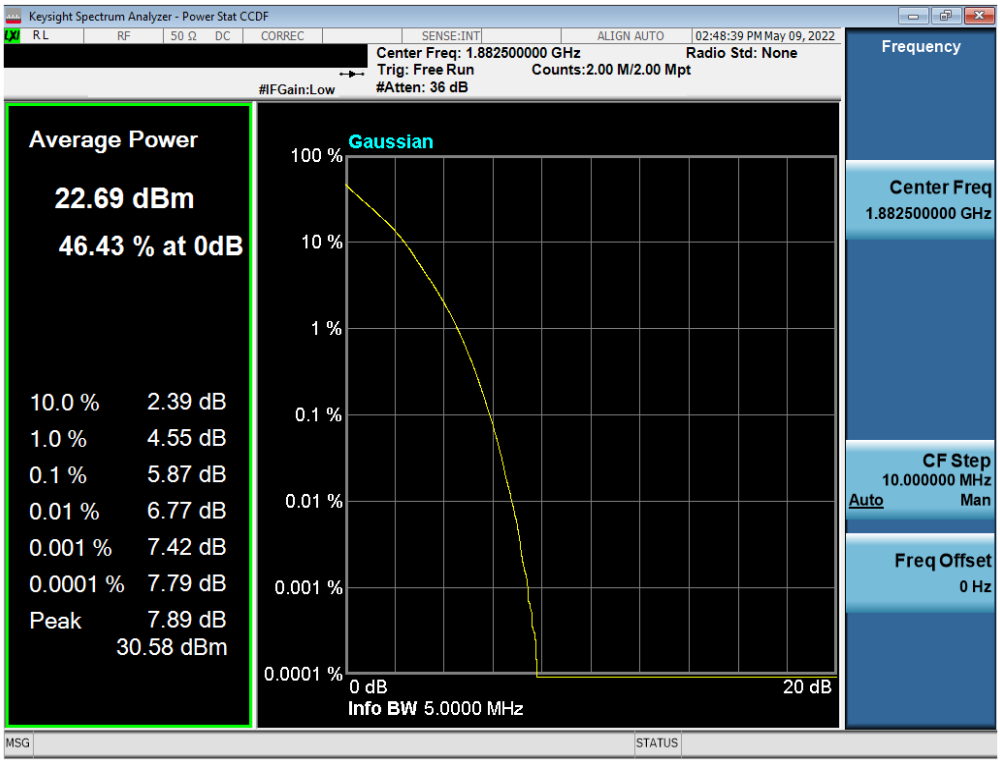
Plot 7-85. PAR Plot (LTE Band 25 - 1.4MHz 16-QAM - Full RB Configuration)



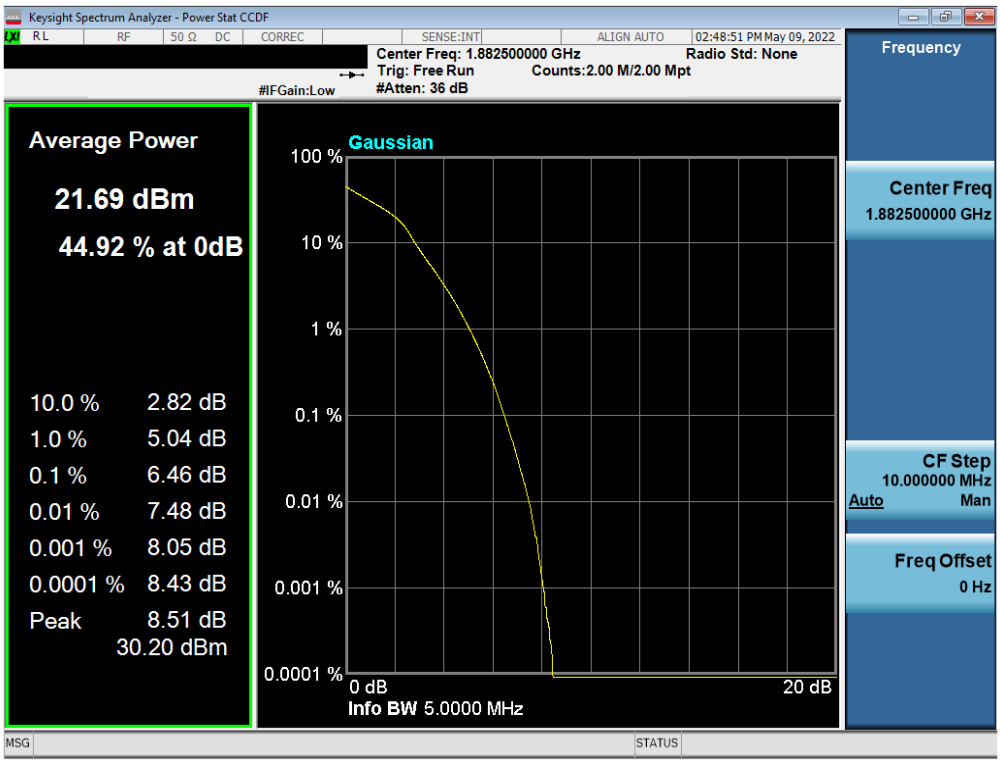
Plot 7-86. PAR Plot (LTE Band 25 - 3MHz QPSK - Full RB Configuration)



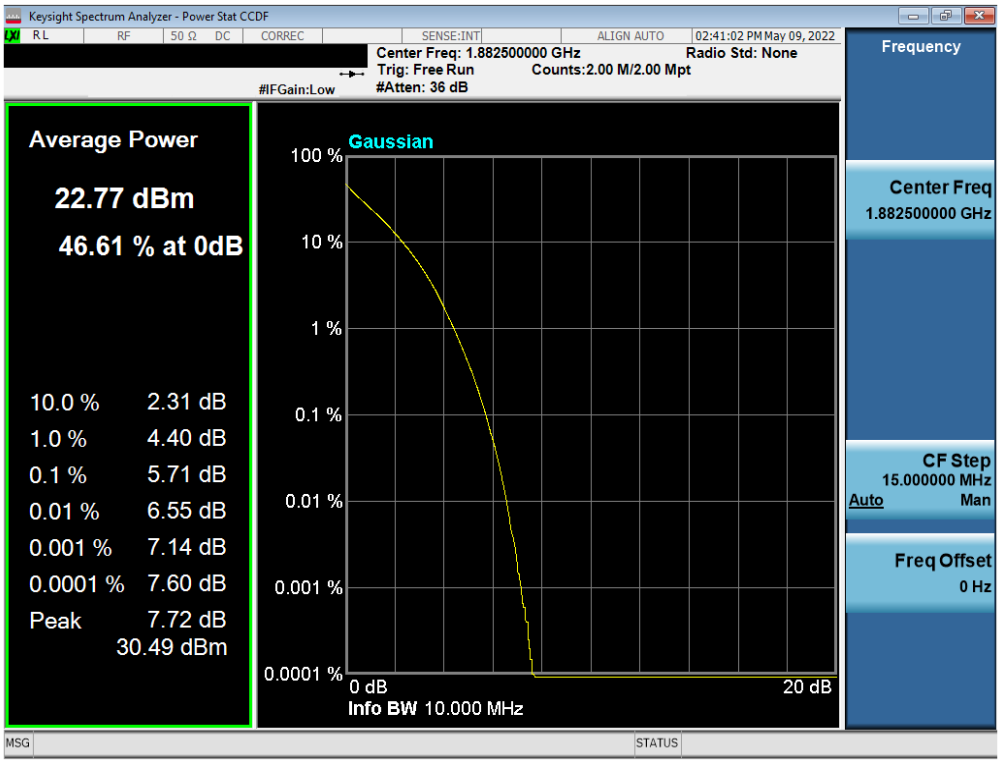
Plot 7-87. PAR Plot (LTE Band 25 - 3MHz 16-QAM - Full RB Configuration)



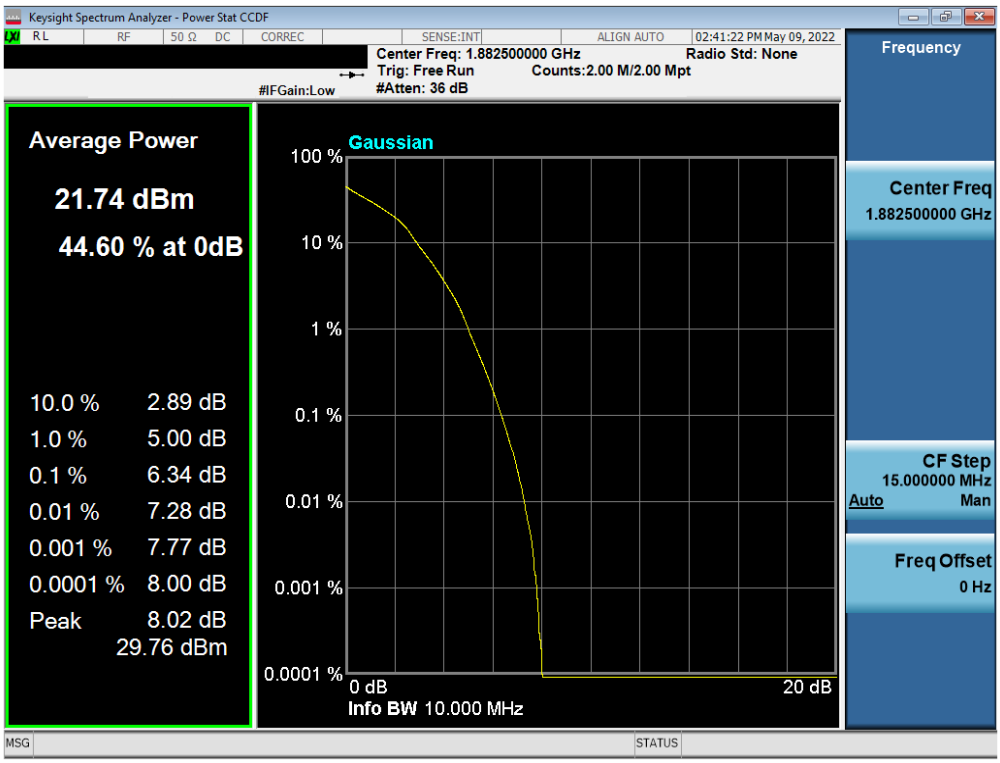
Plot 7-88. PAR Plot (LTE Band 25 - 5MHz QPSK - Full RB Configuration)



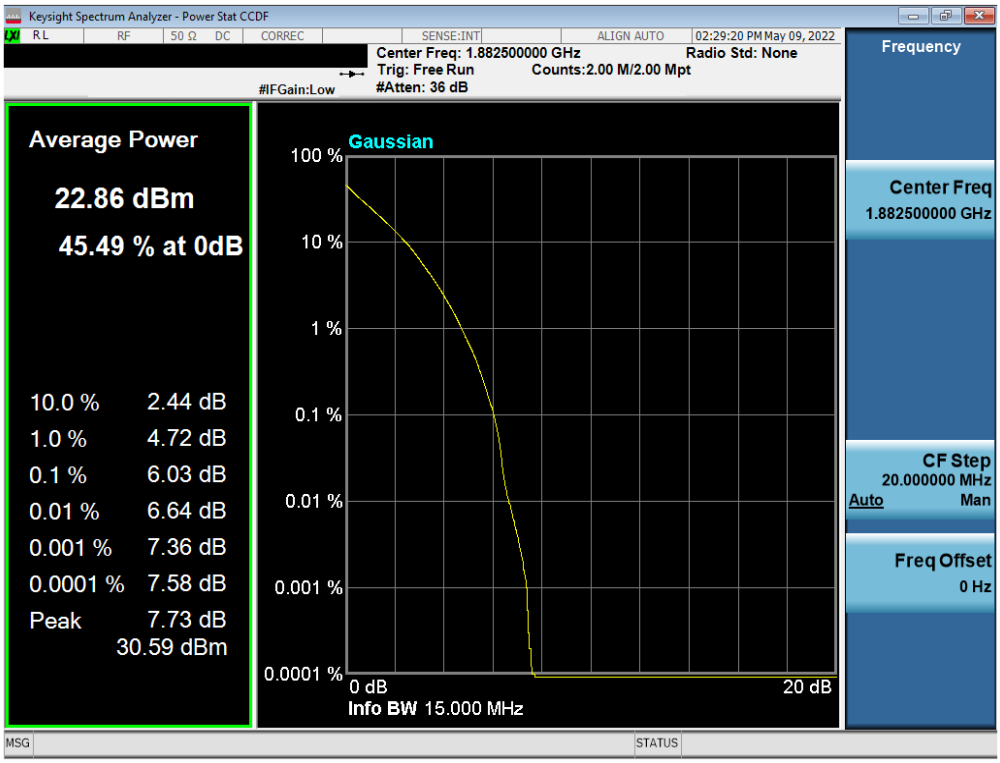
Plot 7-89. PAR Plot (LTE Band 25 - 5MHz 16-QAM - Full RB Configuration)



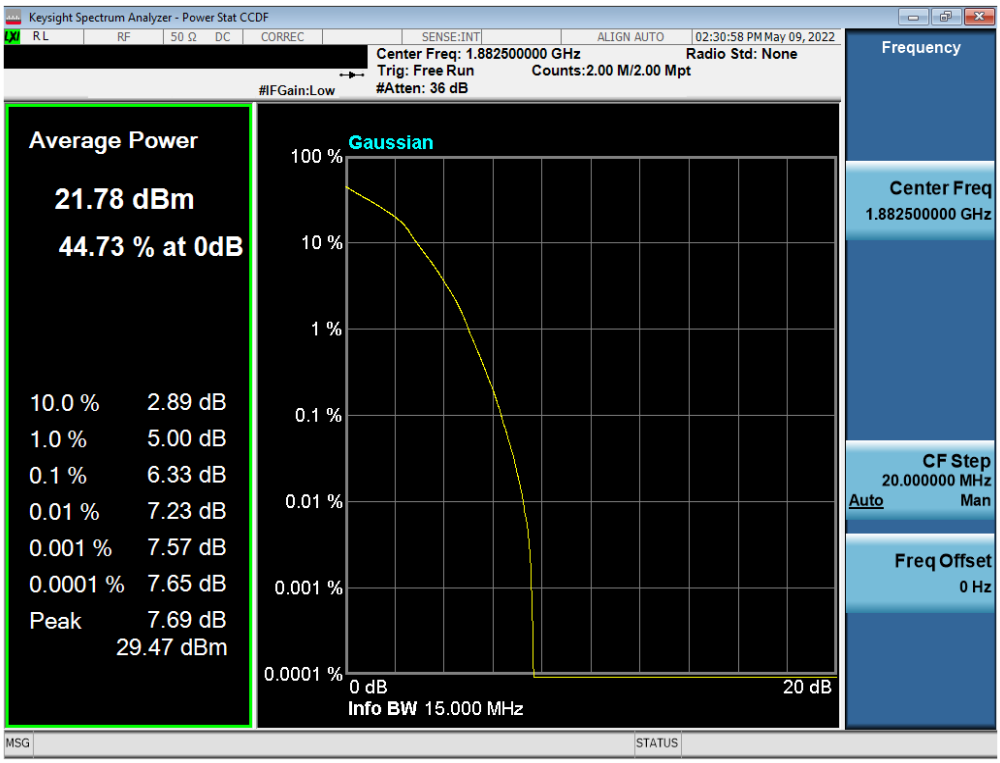
Plot 7-90. PAR Plot (LTE Band 25 - 10MHz QPSK - Full RB Configuration)



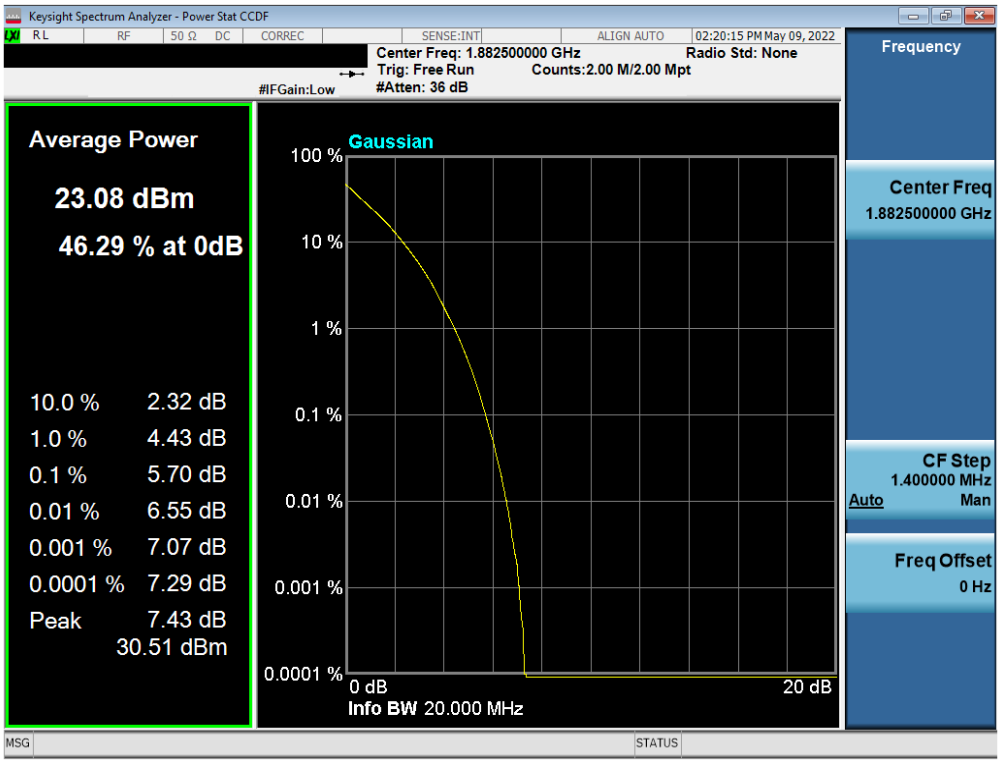
Plot 7-91. PAR Plot (LTE Band 25 - 10MHz 16-QAM - Full RB Configuration)



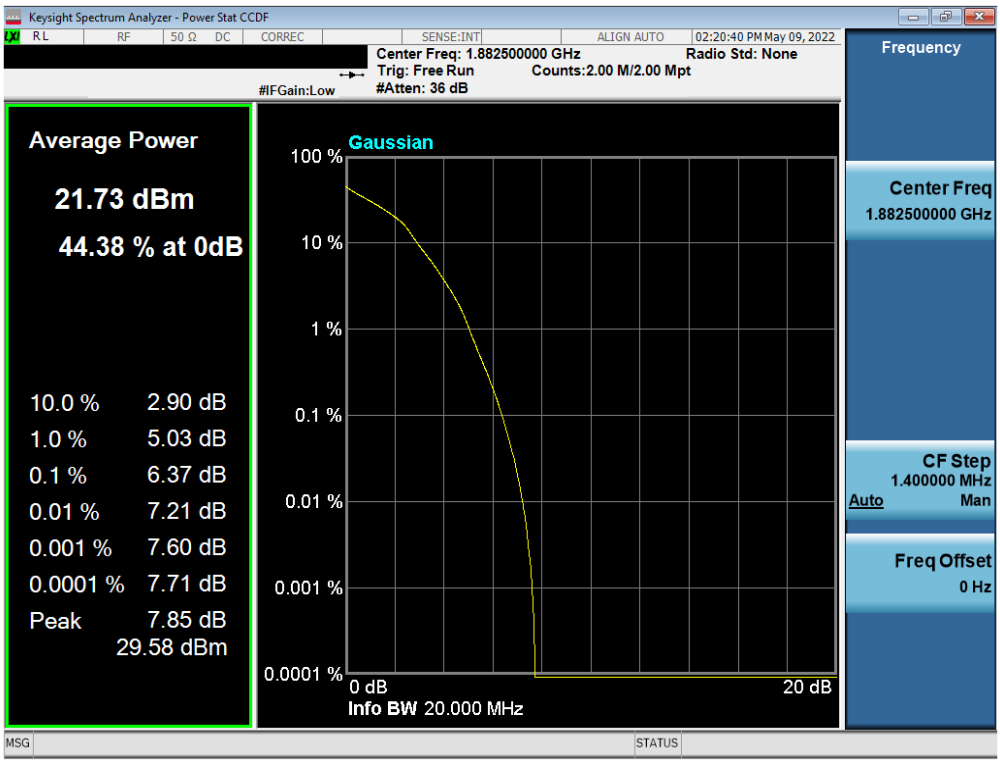
Plot 7-92. PAR Plot (LTE Band 25 - 15MHz QPSK - Full RB Configuration)



Plot 7-93. PAR Plot (LTE Band 25 - 15MHz 16-QAM - Full RB Configuration)

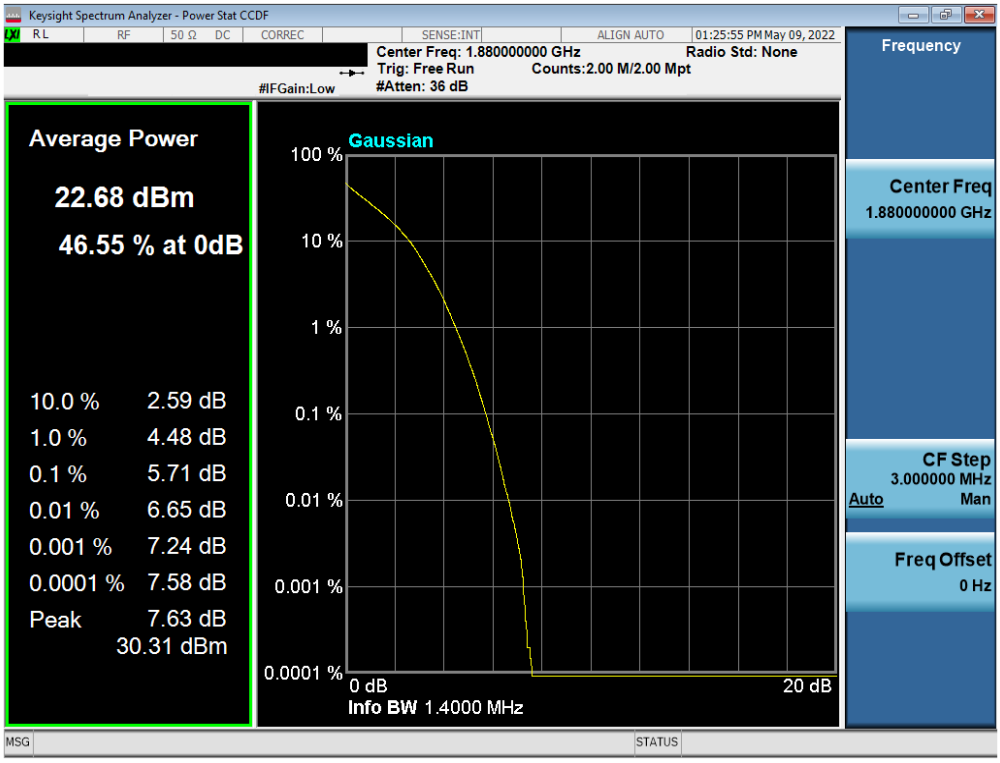


Plot 7-94. PAR Plot (LTE Band 25 - 20MHz QPSK - Full RB Configuration)

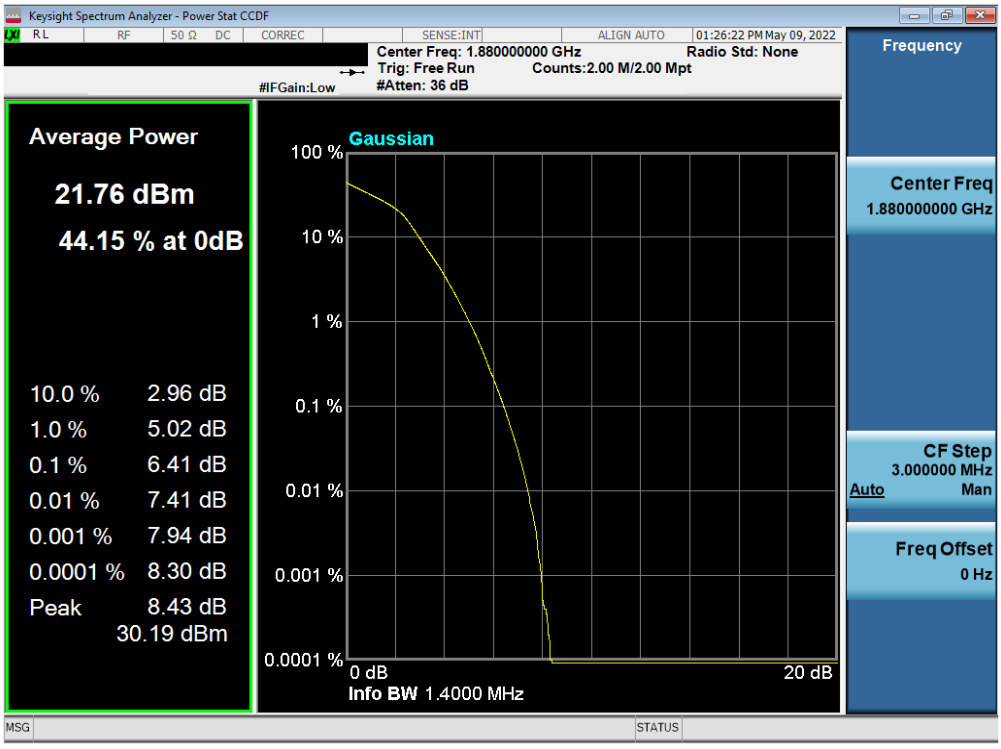


Plot 7-95. PAR Plot (LTE Band 25 - 20MHz 16-QAM - Full RB Configuration)

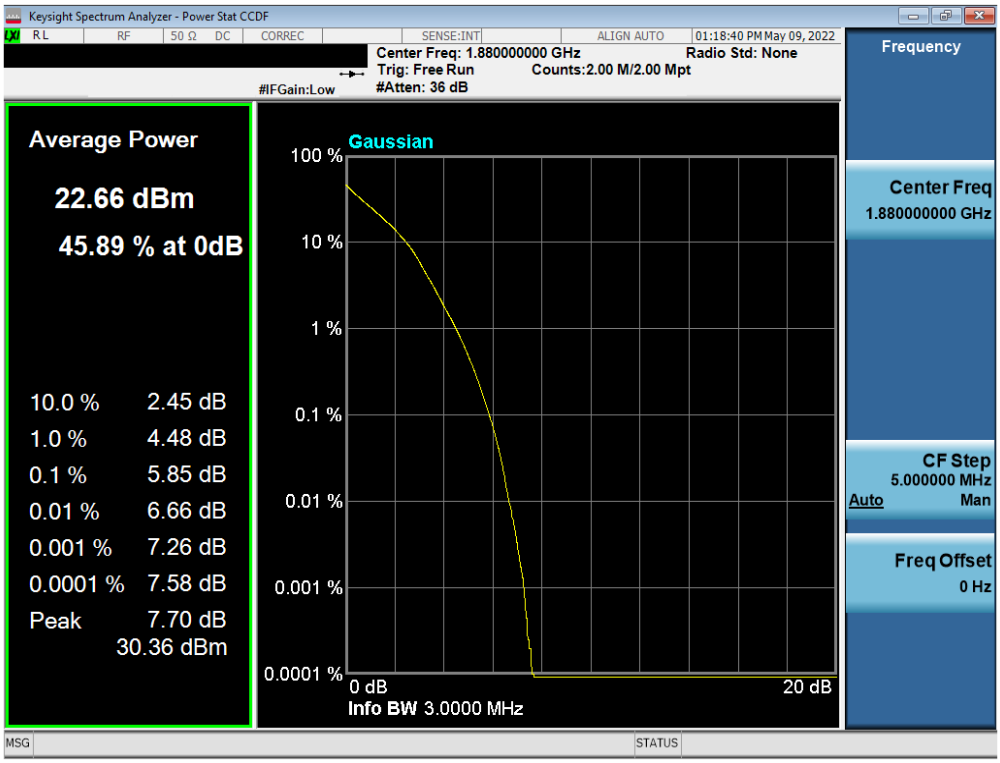
LTE Band 2



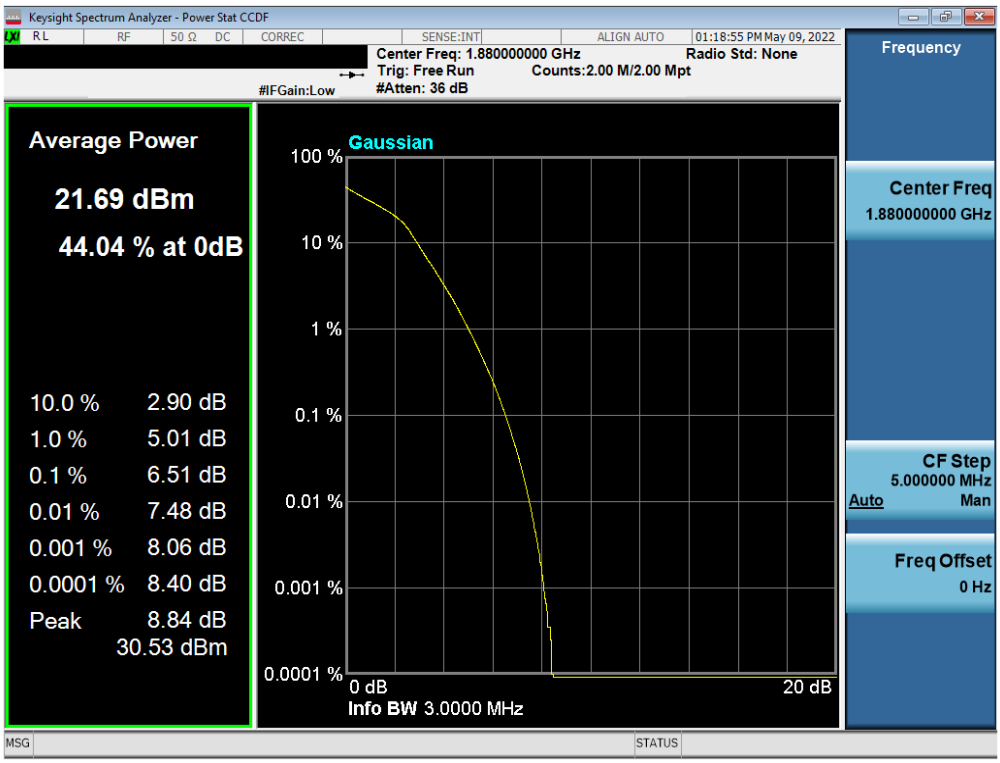
Plot 7-96. PAR Plot (LTE Band 2 - 1.4MHz QPSK - Full RB Configuration)



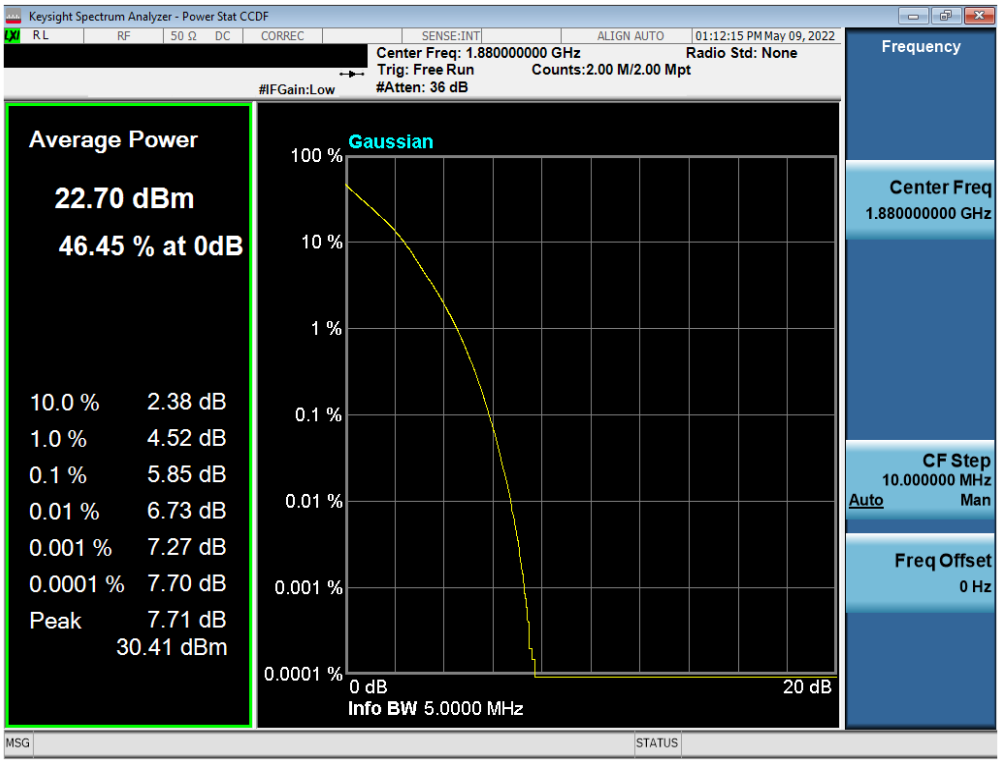
Plot 7-97. PAR Plot (LTE Band 2 - 1.4MHz 16-QAM - Full RB Configuration)



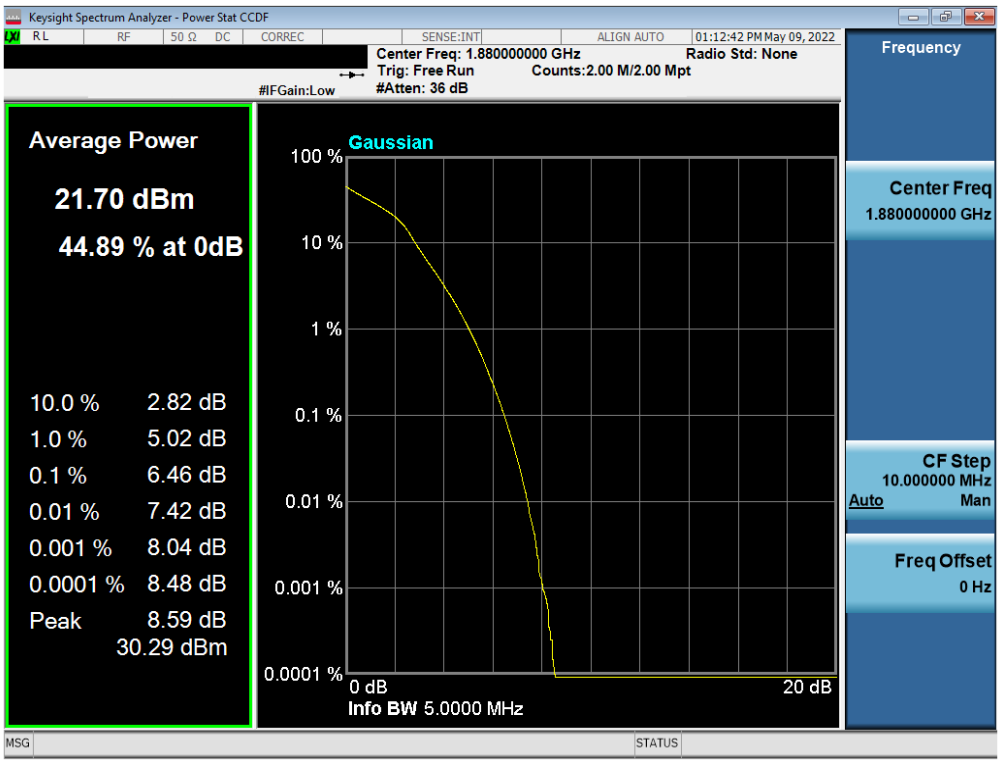
Plot 7-98. PAR Plot (LTE Band 2 - 3MHz QPSK - Full RB Configuration)



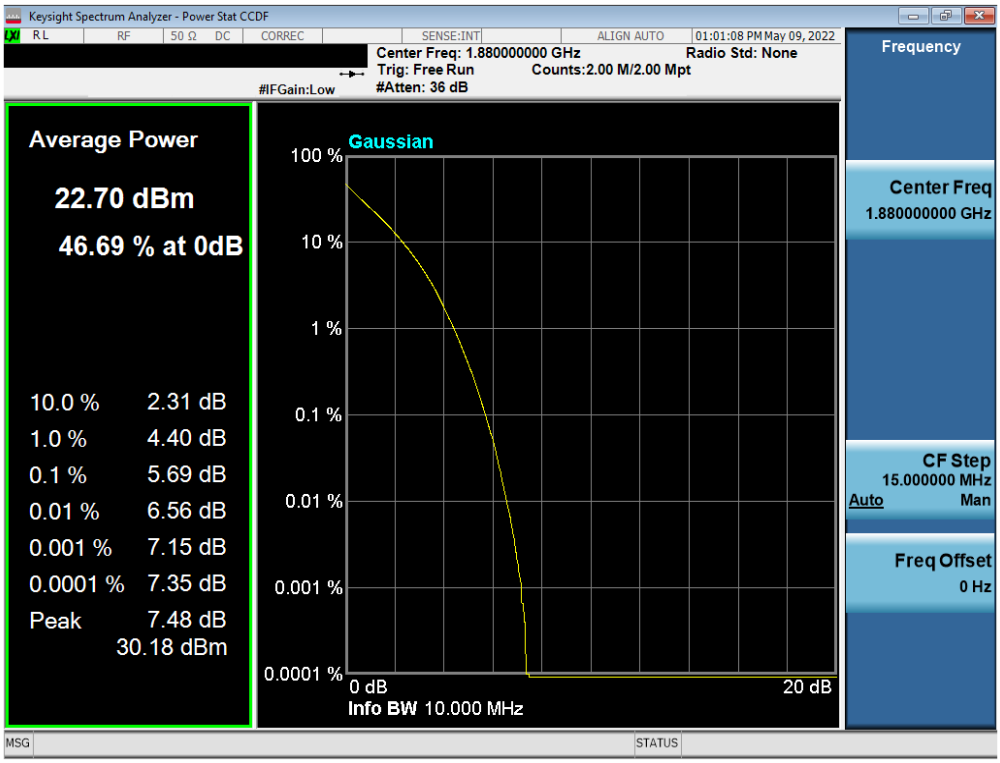
Plot 7-99. PAR Plot (LTE Band 2 - 3MHz 16-QAM - Full RB Configuration)



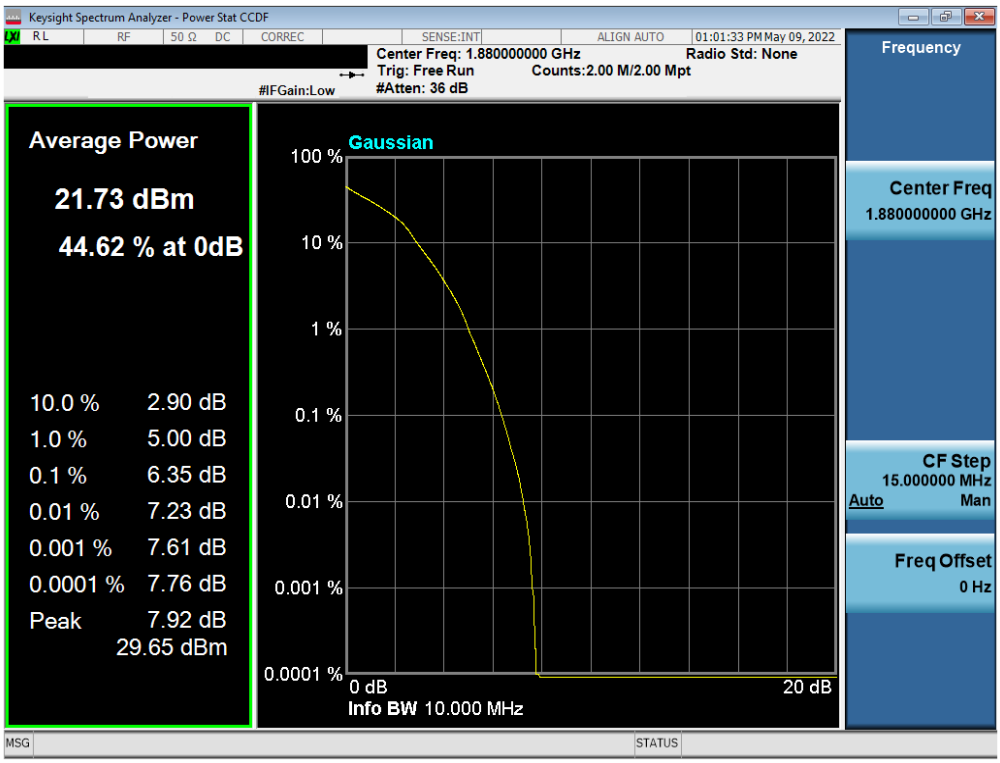
Plot 7-100. PAR Plot (LTE Band 2 - 5MHz QPSK - Full RB Configuration)



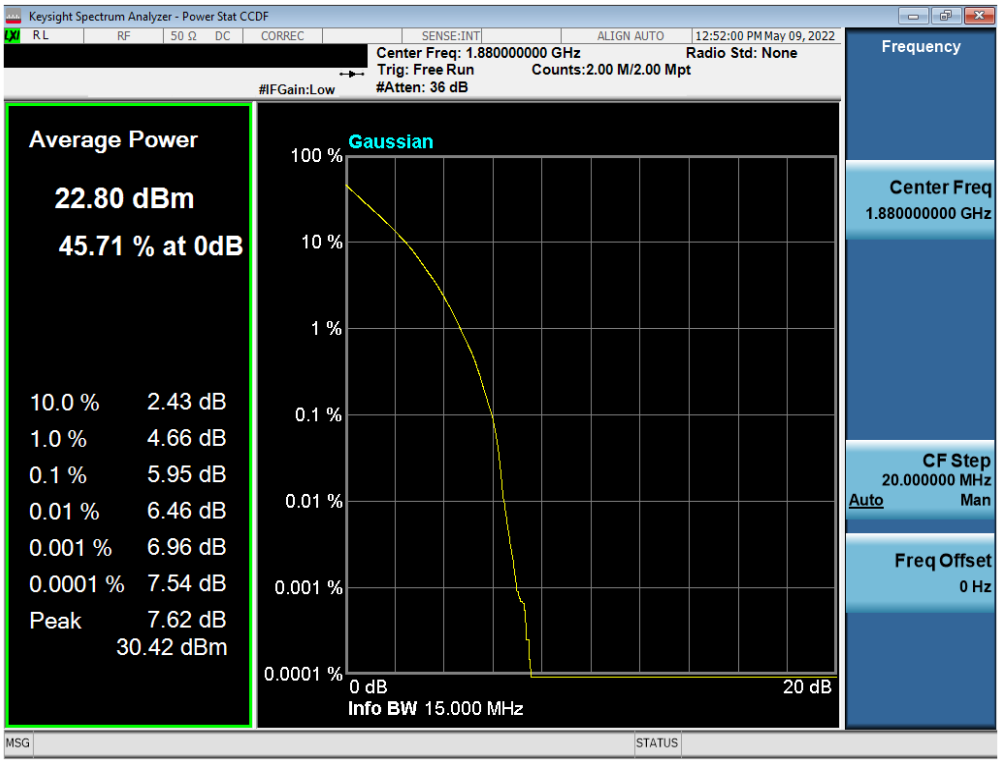
Plot 7-101. PAR Plot (LTE Band 2 - 5MHz 16-QAM - Full RB Configuration)



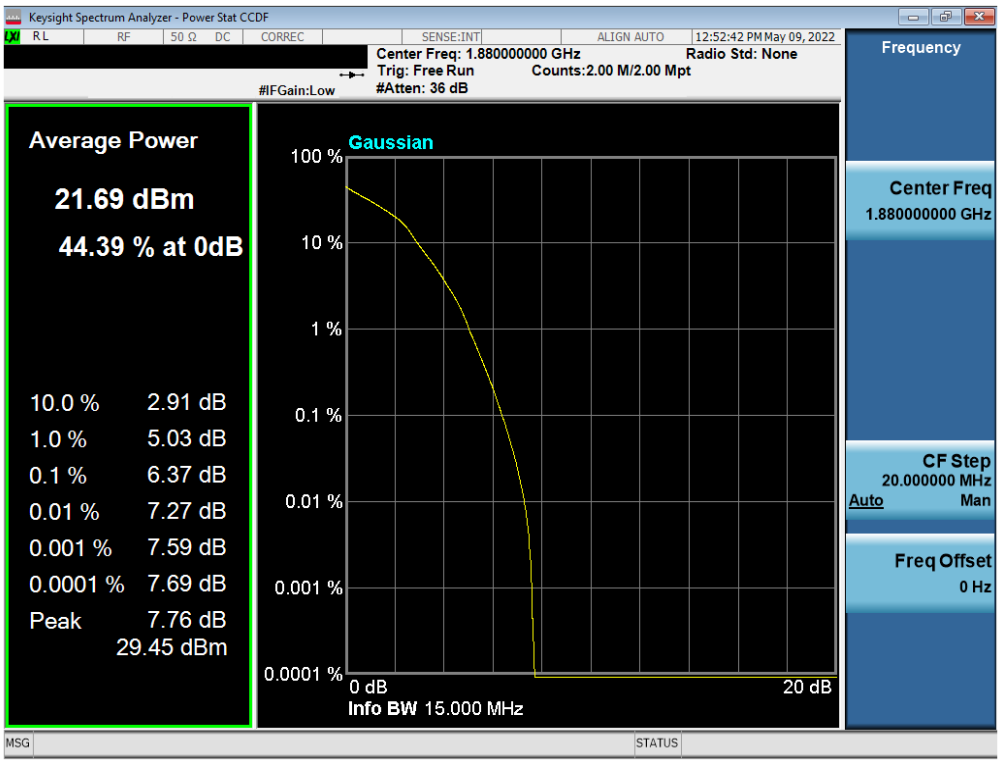
Plot 7-102. PAR Plot (LTE Band 2 - 10MHz QPSK - Full RB Configuration)



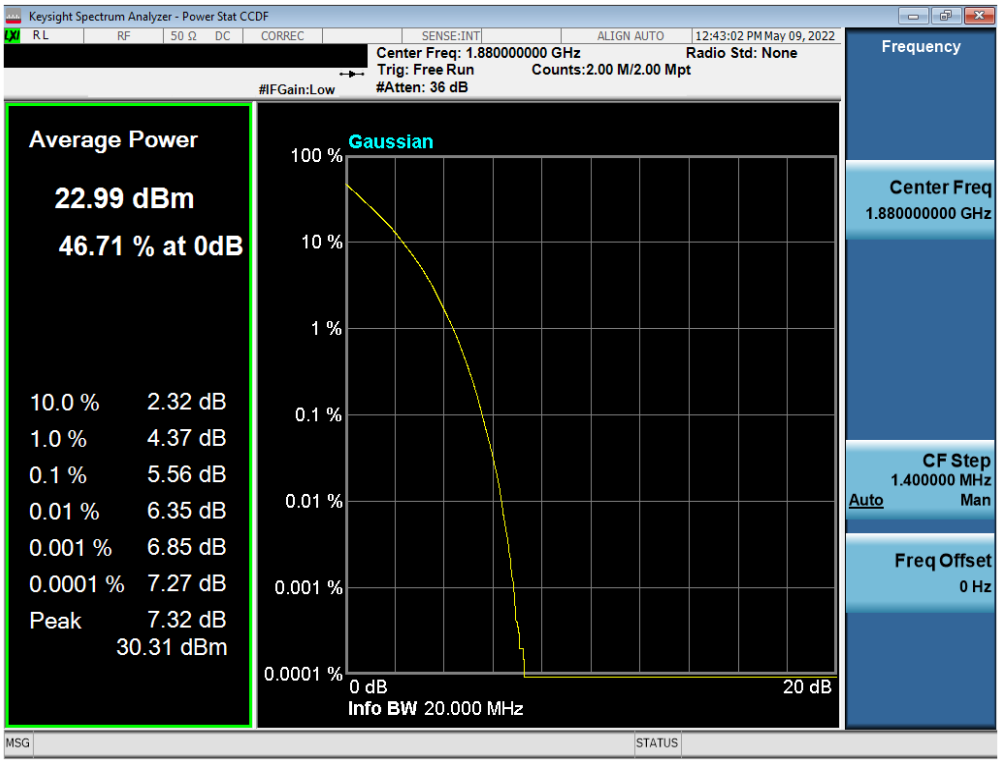
Plot 7-103. PAR Plot (LTE Band 2 - 10MHz 16-QAM - Full RB Configuration)



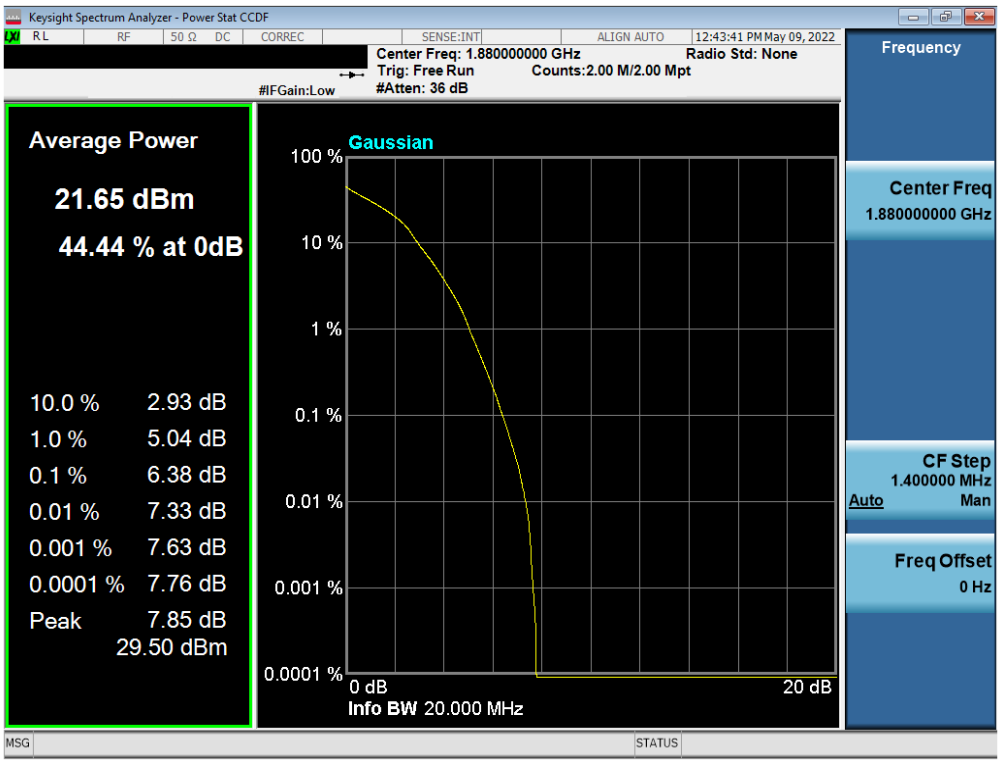
Plot 7-104. PAR Plot (LTE Band 2 - 15MHz QPSK - Full RB Configuration)



Plot 7-105. PAR Plot (LTE Band 2 - 15MHz 16-QAM - Full RB Configuration)

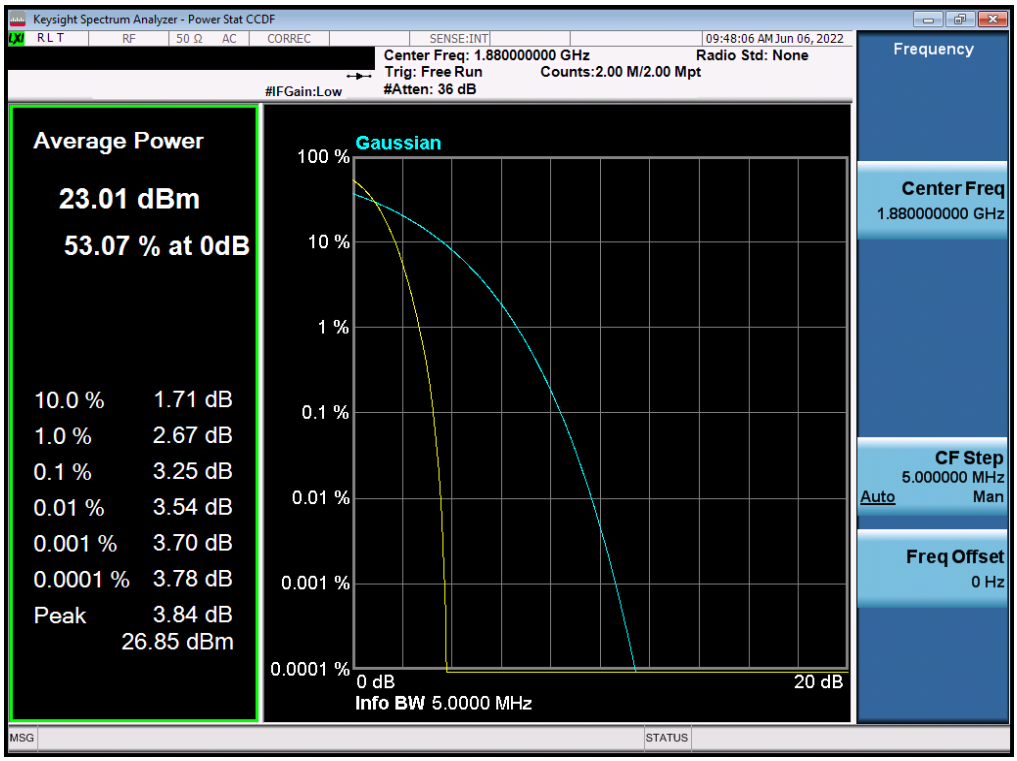


Plot 7-106. PAR Plot (LTE Band 2 - 20MHz QPSK - Full RB Configuration)



Plot 7-107. PAR Plot (LTE Band 2 - 20MHz 16-QAM - Full RB Configuration)

WCDMA PCS



Plot 7-108. PAR Plot (WCDMA, Ch. 9400)

7.6 Radiated Power (EIRP)

§24.232(c)

Test Overview

Equivalent Isotropic Radiated Power (EIRP) measurements are calculated by adding highest antenna gain to maximum measured conducted output power. 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 C63.26-2015 – Section 5.2.5.5

Test Settings

The relevant equation for determining the EIRP from the conducted RF output power measured is:

EIRP = PMeas – LC + GT

Where:

EIRP = Equivalent Isotropic Radiated Power (expressed in the same units as PMeas, typically dBW or dBm)

PMeas = measured transmitter output power or PSD, in dBW or dBm

LC = signal attenuation in the connecting cable between the transmitter and antenna in dB

GT = gain of the transmitting antenna, in dBi (EIRP)

Test Setup

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

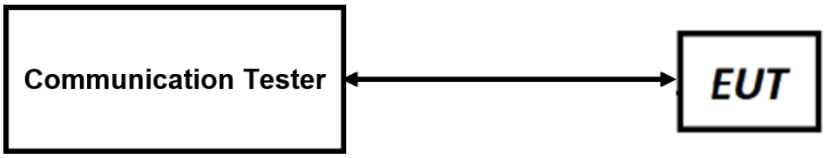


Figure 7-5. EIRP Measurement Setup

Test Notes

1. The EUT was tested in all possible test configurations. The worst case emissions are reported with the EUT 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 Level (dBm) readings in the table were taken with a correction table loaded into the base station simulator. The correction table was used to account for the signal attenuation in the connecting cable between the transmitter and antenna.

4. The Ant. Gains (GT) are listed in dBi.

5. 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”.

Antenna FCM LTE Band 25

Bandwidth	Mod.	Frequency [MHz]	Ant. Gain [dBi]	RB Size/Offset	Conducted Power [dBm]	EIRP [dBm]	EIRP [mW]	EIRP Limit [dBm]	Margin [dB]
1.4 MHz	QPSK	1850.7	-8.40	1 / 0	24.05	15.65	36.728	33.01	-17.36
		1882.5	-8.40	1 / 5	24.33	**15.93**	39.174	33.01	-17.08
		1914.3	-8.40	1 / 0	24.21	15.81	38.107	33.01	-17.20
	16-QAM	1882.5	-8.40	1 / 5	23.84	15.44	34.995	33.01	-17.57
3 MHz	QPSK	1851.5	-8.40	1 / 7	24.09	15.69	37.068	33.01	-17.32
		1882.5	-8.40	1 / 7	24.31	**15.91**	38.994	33.01	-17.10
		1913.5	-8.40	1 / 0	24.13	15.73	37.411	33.01	-17.28
	16-QAM	1882.5	-8.40	1 / 14	23.87	15.47	35.237	33.01	-17.54
5 MHz	QPSK	1852.5	-8.40	1 / 24	24.29	15.89	38.815	33.01	-17.12
		1882.5	-8.40	1 / 24	24.49	**16.09**	40.644	33.01	-16.92
		1912.5	-8.40	1 / 0	24.28	15.88	38.726	33.01	-17.13
	16-QAM	1882.5	-8.40	1 / 24	23.85	15.45	35.075	33.01	-17.56
10 MHz	QPSK	1855.0	-8.40	1 / 49	24.28	15.88	38.726	33.01	-17.13
		1882.5	-8.40	1 / 49	24.39	**15.99**	39.719	33.01	-17.02
		1910.0	-8.40	1 / 25	24.34	15.94	39.264	33.01	-17.07
	16-QAM	1882.5	-8.40	1 / 25	23.88	15.48	35.318	33.01	-17.53
15 MHz	QPSK	1857.5	-8.40	1 / 37	24.50	**16.10**	40.738	33.01	-16.91
		1882.5	-8.40	1 / 74	24.38	15.98	39.628	33.01	-17.03
		1907.5	-8.40	1 / 37	24.30	15.90	38.905	33.01	-17.11
	16-QAM	1882.5	-8.40	1 / 74	23.92	15.52	35.645	33.01	-17.49
20 MHz	QPSK	1860.0	-8.40	1 / 50	24.39	15.99	39.719	33.01	-17.02
		1882.5	-8.40	1 / 99	24.26	15.86	38.548	33.01	-17.15
		1905.0	-8.40	1 / 0	24.46	**16.06**	40.365	33.01	-16.95
	16-QAM	1905.0	-8.40	1 / 0	23.88	15.48	35.318	33.01	-17.53

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

Antenna FCM LTE Band 2

Bandwidth	Mod.	Frequency [MHz]	Ant. Gain [dBi]	RB Size/Offset	Conducted Power [dBm]	ERP [dBm]	EIRP [mW]	EIRP Limit [dBm]	Margin [dB]
1.4 MHz	QPSK	1850.7	-8.40	1 / 0	24.11	15.71	37.239	33.01	-17.30
		1880.0	-8.40	1 / 5	24.28	15.88	38.726	33.01	-17.13
		1909.3	-8.40	1 / 5	24.50	**16.10**	40.738	33.01	-16.91
	16-QAM	1880.0	-8.40	1 / 5	23.79	15.39	34.594	33.01	-17.62
3 MHz	QPSK	1851.5	-8.40	1 / 14	24.09	15.69	37.068	33.01	-17.32
		1880.0	-8.40	1 / 7	24.29	15.89	38.815	33.01	-17.12
		1908.5	-8.40	1 / 7	24.31	**15.91**	38.994	33.01	-17.10
	16-QAM	1908.5	-8.40	1 / 0	23.87	15.47	35.237	33.01	-17.54
5 MHz	QPSK	1852.5	-8.40	1 / 24	24.32	15.92	39.084	33.01	-17.09
		1880.0	-8.40	1 / 24	24.45	**16.05**	40.272	33.01	-16.96
		1907.5	-8.40	1 / 24	24.34	15.94	39.264	33.01	-17.07
	16-QAM	1880.0	-8.40	1 / 12	23.80	15.40	34.674	33.01	-17.61
10 MHz	QPSK	1855.0	-8.40	1 / 49	24.30	15.90	38.905	33.01	-17.11
		1880.0	-8.40	1 / 49	24.37	15.97	39.537	33.01	-17.04
		1905.0	-8.40	1 / 49	24.39	**15.99**	39.719	33.01	-17.02
	16-QAM	1905.0	-8.40	1 / 49	23.97	15.57	36.058	33.01	-17.44
15 MHz	QPSK	1857.5	-8.40	1 / 74	24.50	**16.10**	40.738	33.01	-16.91
		1880.0	-8.40	1 / 74	24.37	15.97	39.537	33.01	-17.04
		1902.5	-8.40	1 / 0	24.37	15.97	39.537	33.01	-17.04
	16-QAM	1880.0	-8.40	1 / 74	23.97	15.57	36.058	33.01	-17.44
20 MHz	QPSK	1860.0	-8.40	1 / 50	24.42	16.02	39.994	33.01	-16.99
		1880.0	-8.40	1 / 99	24.31	15.91	38.994	33.01	-17.10
		1900.0	-8.40	1 / 0	24.50	**16.10**	40.738	33.01	-16.91
	16-QAM	1900.0	-8.40	1 / 99	23.89	15.49	35.400	33.01	-17.52

Table 7-3. Antenna FCM EIRP Data (LTE Band 2)

Antenna FCM WCDMA PCS

Frequency [MHz]	Mode	Conducted Power [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [mW]	EIRP Limit [dBm]	Margin [dB]
1852.40	WCDMA1900	23.91	-8.40	15.51	35.563	33.01	-17.50
1880.00	WCDMA1900	24.00	-8.40	**15.60**	**36.308**	33.01	-17.41
1907.60	WCDMA1900	23.98	-8.40	15.58	36.141	33.01	-17.43

Table 7-4. Antenna FCM EIRP Data (WCDMA PCS)

7.7 Radiated Spurious Emissions

§2.1053, 24.238(a)

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.

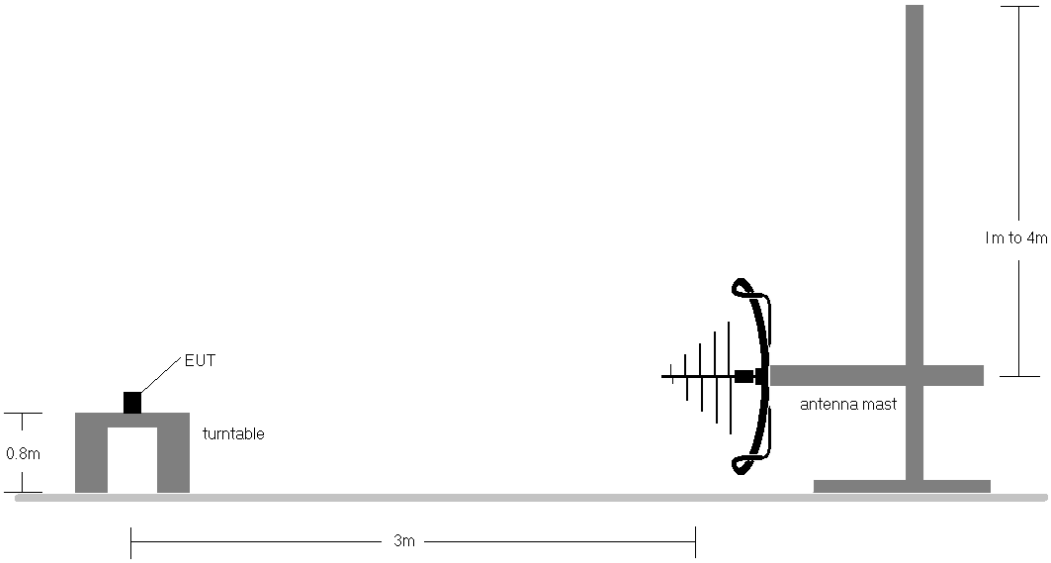


Figure 7-6. Test Instrument & Measurement Setup < 1GHz

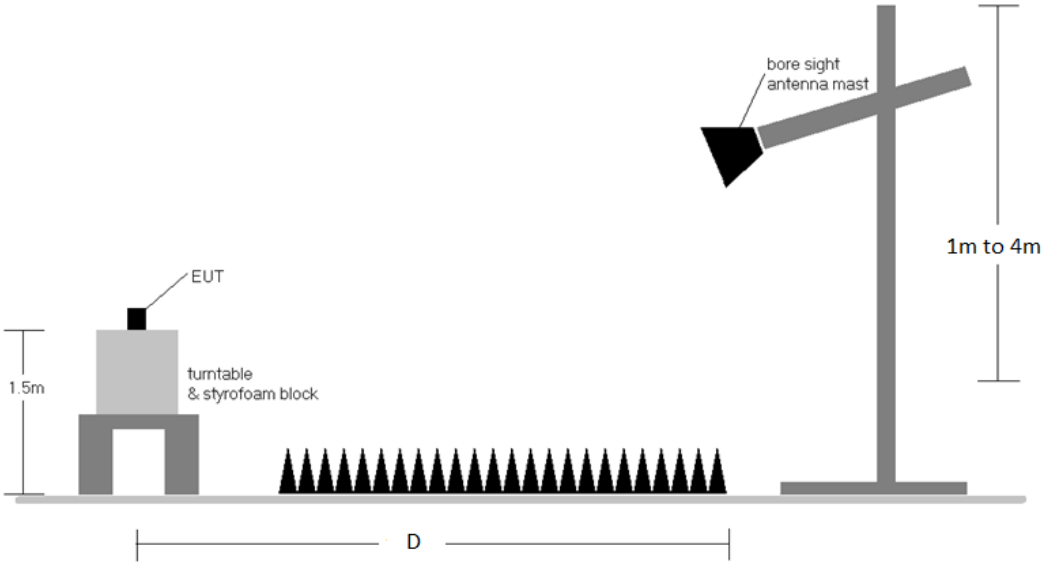


Figure 7-7. Test Instrument & Measurement Setup >1 GHz

Test Notes

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

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.

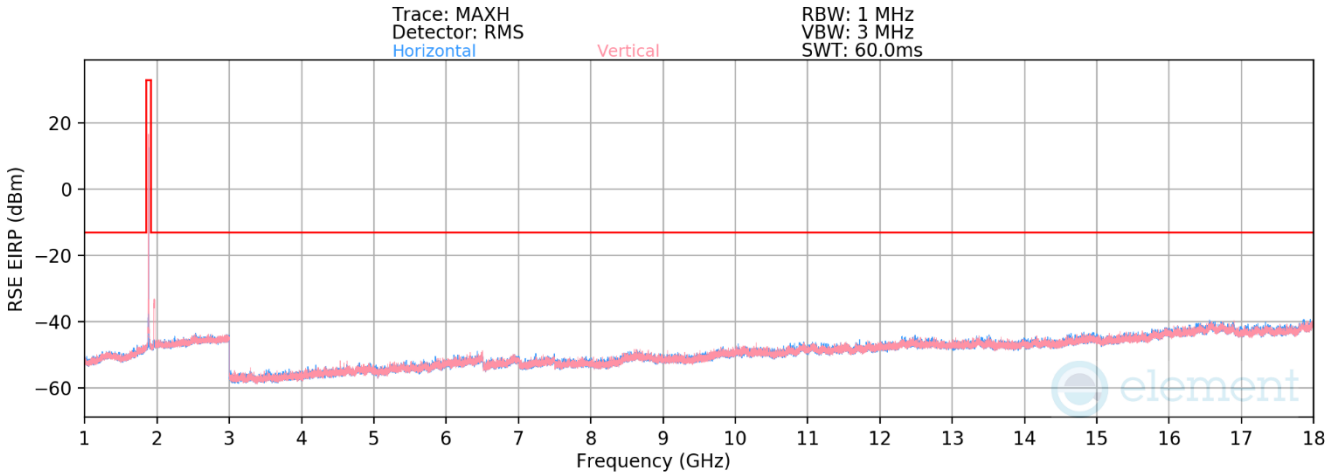
5. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.

6. D is the measurement test distance and emissions 1-18GHz were measured at a 3 meters test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.

7. No significant emissions were found for below 1GHz and Above 18GHz measurement.

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

7.7.1 Antenna FCM – Radiated Spurious Emission Measurement
LTE Band 25/2



Plot 7-109. Antenna FCM 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	V	-	-	-80.35	5.05	31.70	-63.56	-13.00	-50.56
5580.0	V	-	-	-81.47	7.11	32.64	-62.62	-13.00	-49.62
7440.0	V	-	-	-82.73	10.20	34.47	-60.78	-13.00	-47.78

Table 7-5. Antenna FCM 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	V	-	-	-79.94	5.32	32.38	-62.87	-13.00	-49.87
5647.5	V	-	-	-81.50	7.63	33.13	-62.13	-13.00	-49.13
7530.0	V	-	-	-82.85	10.42	34.57	-60.69	-13.00	-47.69

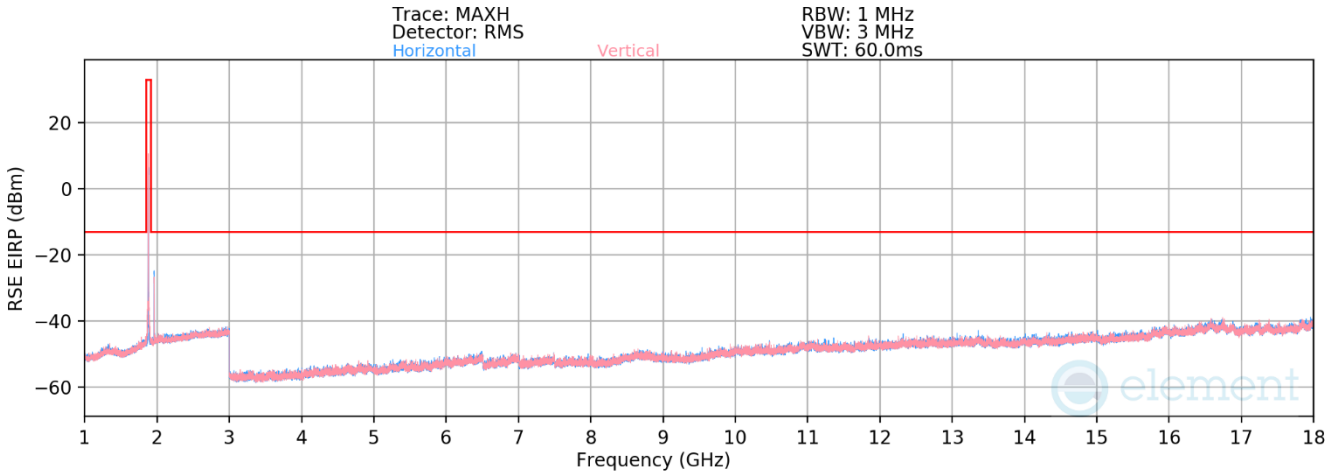
Table 7-6. Antenna FCM Radiated Spurious Data (LTE Band 25/2 – Mid Channel)

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	V	-	-	-80.28	5.21	31.93	-63.33	-13.00	-50.33
5715.00	V	-	-	-81.96	8.04	33.08	-62.18	-13.00	-49.18
7620.00	V	-	-	-82.86	10.67	34.81	-60.45	-13.00	-47.45

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

WCDMA PCS



Plot 7-110. Antenna FCM 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	V	-	-	-78.51	4.32	32.81	-62.45	-13.00	-49.45
5557.2	V	-	-	-79.80	7.64	34.84	-60.42	-13.00	-47.42
7409.6	V	-	-	-79.93	9.73	36.80	-58.46	-13.00	-45.46

Table 7-8. Antenna FCM 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	V	-	-	-78.92	4.60	32.68	-62.58	-13.00	-49.58
5640.0	V	-	-	-79.36	6.88	34.52	-60.74	-13.00	-47.74
7520.0	V	-	-	-80.89	10.23	36.34	-58.92	-13.00	-45.92

Table 7-9. Antenna FCM 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	V	-	-	-79.06	4.36	32.30	-62.96	-13.00	-49.96
5722.8	V	-	-	-80.48	7.88	34.40	-60.85	-13.00	-47.85
7630.4	V	-	-	-81.81	9.78	34.97	-60.29	-13.00	-47.29

Table 7-10. Antenna FCM Radiated Spurious Data (WCDMA PCS – High Channel)

7.8 Frequency Stability / Temperature Variation

§2.1055, §24.235

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26-2015 and 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 24 the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Procedure Used

ANSI C63.26-2015

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

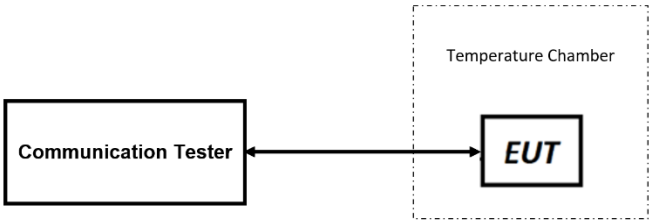


Figure 7-8. Test Instrument & Measurement Setup

Test Notes

1. None.

Frequency Stability / Temperature Variation

LTE Band 25/2

Low Channel Frequency (Hz):	1,860,000,000
High Channel Frequency (Hz):	1,905,000,000
Ref. Voltage (VDC):	3.80

Voltage (%)	Power (VDC)	Temp (°C)	Low Freq. (Hz)	High Freq. (Hz)	Low Freq. Dev. (Hz)	High Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	- 30	1,860,000,002	1,905,000,001	0.61	0.38	0.00000003
		- 20	1,860,000,001	1,905,000,001	0.29	0.64	0.00000003
		- 10	1,860,000,001	1,905,000,001	0.46	0.78	0.00000004
		0	1,860,000,002	1,905,000,001	0.67	0.75	0.00000004
		+ 10	1,860,000,001	1,904,999,999	0.49	-1.09	-0.00000006
		+ 20 (Ref)	1,860,000,001	1,905,000,001	0.00	0.00	0.00000000
		+ 30	1,860,000,002	1,905,000,002	0.82	1.17	0.00000006
		+ 40	1,860,000,002	1,905,000,001	0.69	0.94	0.00000005
		+ 50	1,860,000,001	1,905,000,002	0.49	1.25	0.00000007
Battery Endpoint	3.40	+ 20	1,860,000,000	1,905,000,002	-1.29	1.53	0.00000008

Table 7-11. LTE Band 25/2 Frequency Stability Data

Note: The lowest and highest channel of this band have been tested and is determined to remain operating in-band over the temperature and voltage range as tested

Frequency Stability / Temperature Variation

WCDMA PCS

Low Channel Frequency (Hz):	1,852,400,000
High Channel Frequency (Hz):	1,907,600,000
Ref. Voltage (VDC):	3.80

Voltage (%)	Power (VDC)	Temp (°C)	Low Freq. (Hz)	High Freq. (Hz)	Low Freq. Dev. (Hz)	High Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	- 30	1,852,399,999	1,907,599,999	-0.69	-0.42	-0.00000004
		- 20	1,852,399,999	1,907,599,999	-0.45	-0.32	-0.00000002
		- 10	1,852,400,000	1,907,600,000	0.52	0.34	0.00000003
		0	1,852,399,998	1,907,599,999	-0.79	-0.28	-0.00000004
		+ 10	1,852,399,999	1,907,599,999	-0.62	-0.47	-0.00000003
		+ 20 (Ref)	1,852,399,999	1,907,600,000	0.00	0.00	0.00000000
		+ 30	1,852,399,998	1,907,599,999	-0.85	-1.14	-0.00000006
		+ 40	1,852,399,999	1,907,600,000	-0.52	-0.24	-0.00000003
		+ 50	1,852,399,998	1,907,599,999	-0.77	-0.42	-0.00000004
Battery Endpoint	3.40	+ 20	1,852,400,001	1,907,600,001	1.93	1.35	0.00000010

Table 7-12. WCDMA PCS Frequency Stability Data

Note: The lowest and highest channel of this band have been tested and is determined to remain operating in-band over the temperature and voltage range as tested

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the Apple **Watch FCC ID: BCG-A2622** complies with all the requirements of Part 24 of the FCC rules.

9.0 APPENDIX A

Antenna gains provided by manufacturer:

Cellular Antenna Gain (FCM), Type: IFA			
Band	**Frequency (MHz)**	**Horizontal (dBi)**	**Vertical (dBi)**
1	1921.6	-8.4	-7.9
1	1950.0	-8.0	-7.2
1	1978.4	-8.0	-6.9
3	1711.6	-13.3	-11.7
3	1747.5	-13.4	-11.8
3	1783.4	-13.0	-11.5
7	2502.6	-8.9	-8.3
7	2535.0	-7.1	-7.2
7	2567.4	-6.9	-7.8
25	1851.0	-10.5	-9.7
25	1882.4	-9.2	-8.4
25	1914.0	-8.7	-8.4
39	1882.6	-9.1	-8.1
39	1900.0	-8.7	-8.2
39	1917.4	-8.4	-7.9
40	2302.6	-3.2	-3.3
40	2350.0	-4.8	-4.2
41	2498.6	-8.1	-7.9
41	2593.0	-7.2	-6.9
41	2687.4	-9.6	-8.8

Table 9-1. Antenna Gains