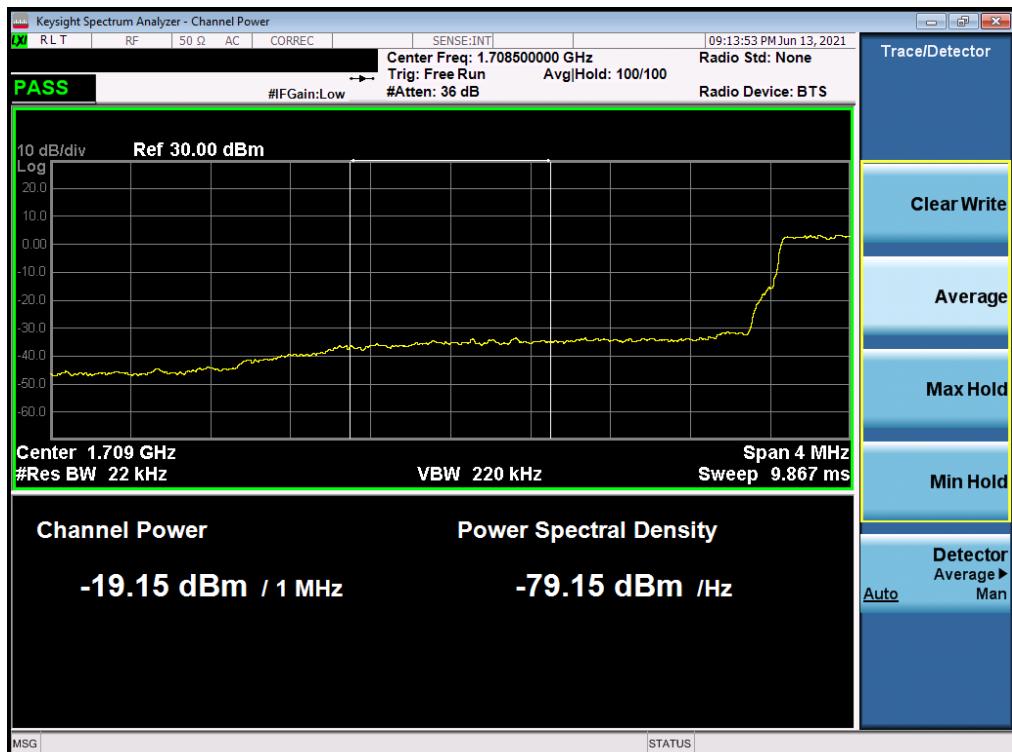


Plot 7-60. Lower Band Edge Plot (LTE Band 4 - 3MHz QPSK – Full RB)

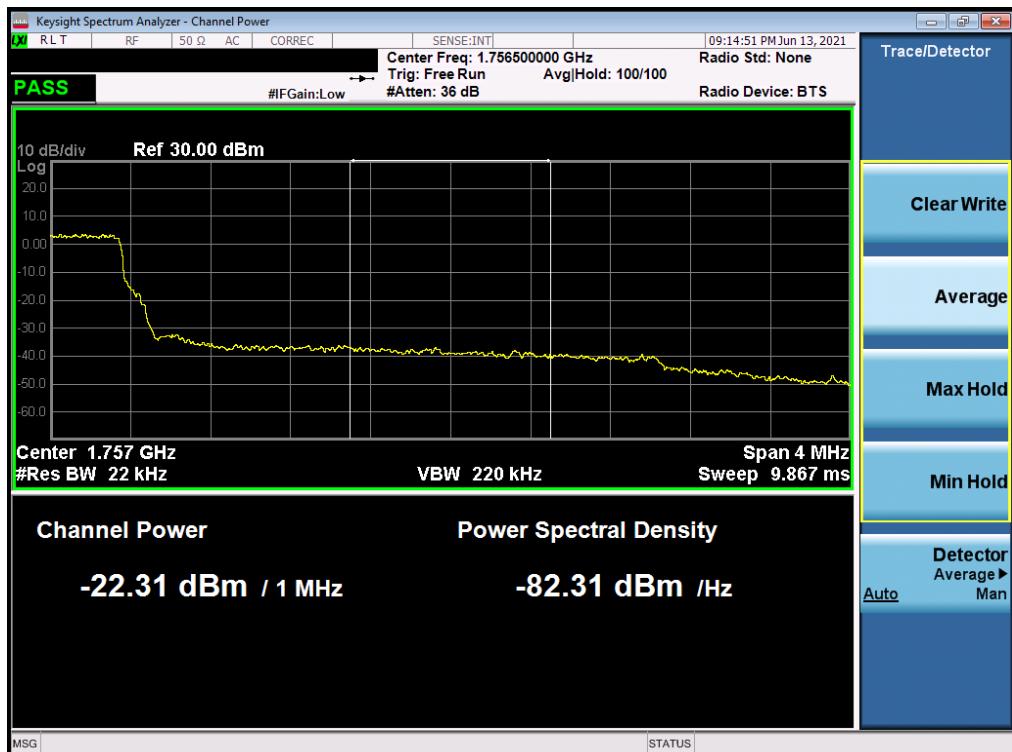


Plot 7-61. Lower Extended Band Edge Plot (LTE Band 4 - 3MHz QPSK – Full RB)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Approved by: Quality Manager Page 49 of 89

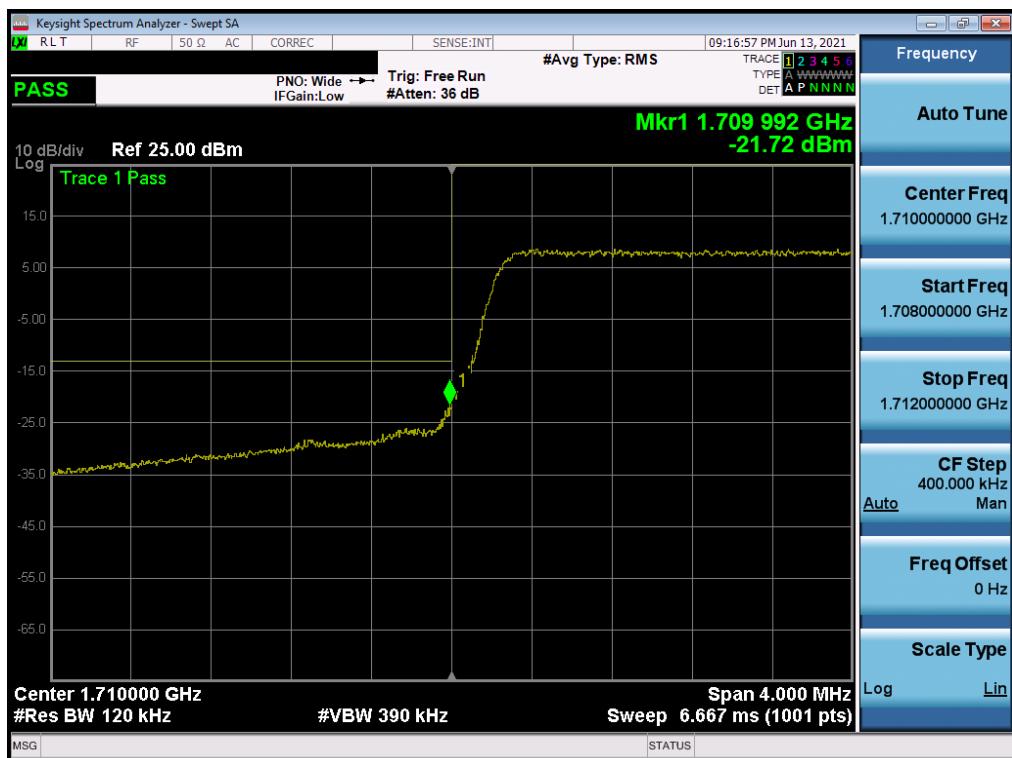


Plot 7-62. Upper Band Edge Plot (LTE Band 4 - 3MHz QPSK – Full RB)

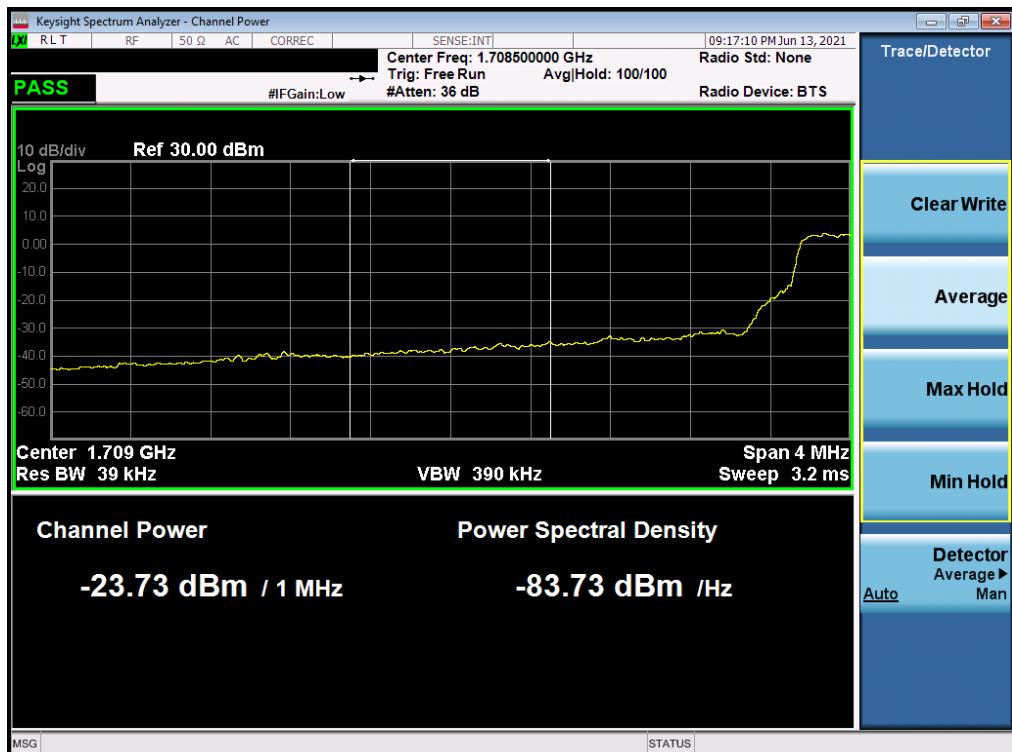


Plot 7-63. Upper Extended Band Edge Plot (LTE Band 4 - 3MHz QPSK – Full RB)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Page 50 of 89



Plot 7-64. Lower Band Edge Plot (LTE Band 4 - 5MHz QPSK – Full RB)

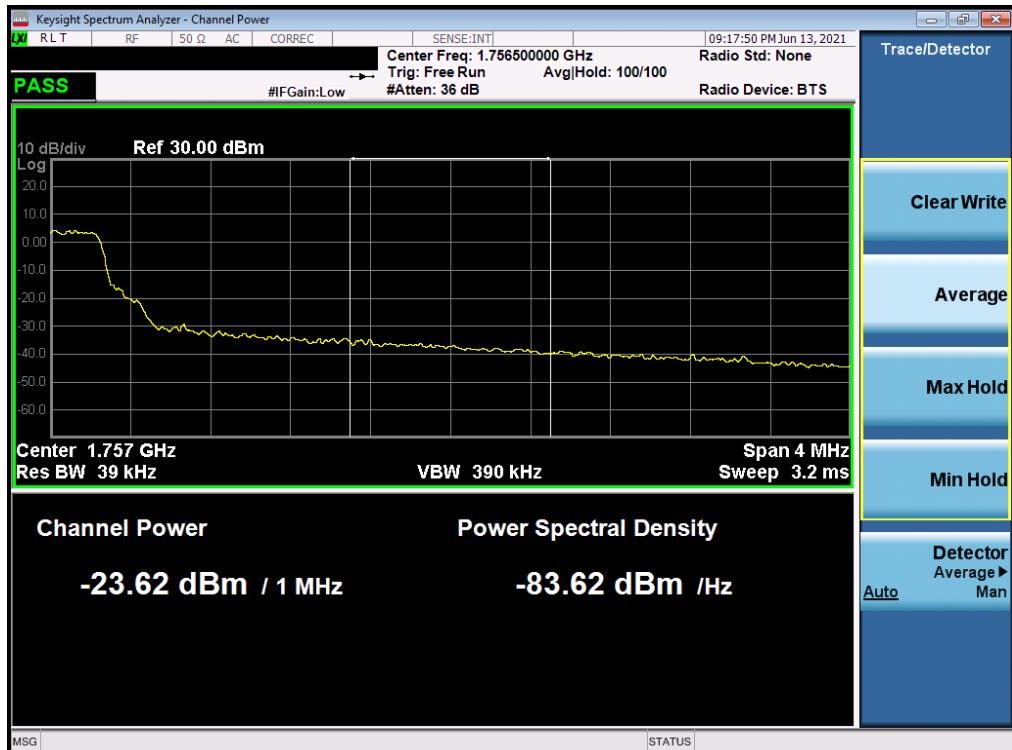


Plot 7-65. Lower Extended Band Edge Plot (LTE Band 4 - 5MHz QPSK – Full RB)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch		Page 51 of 89

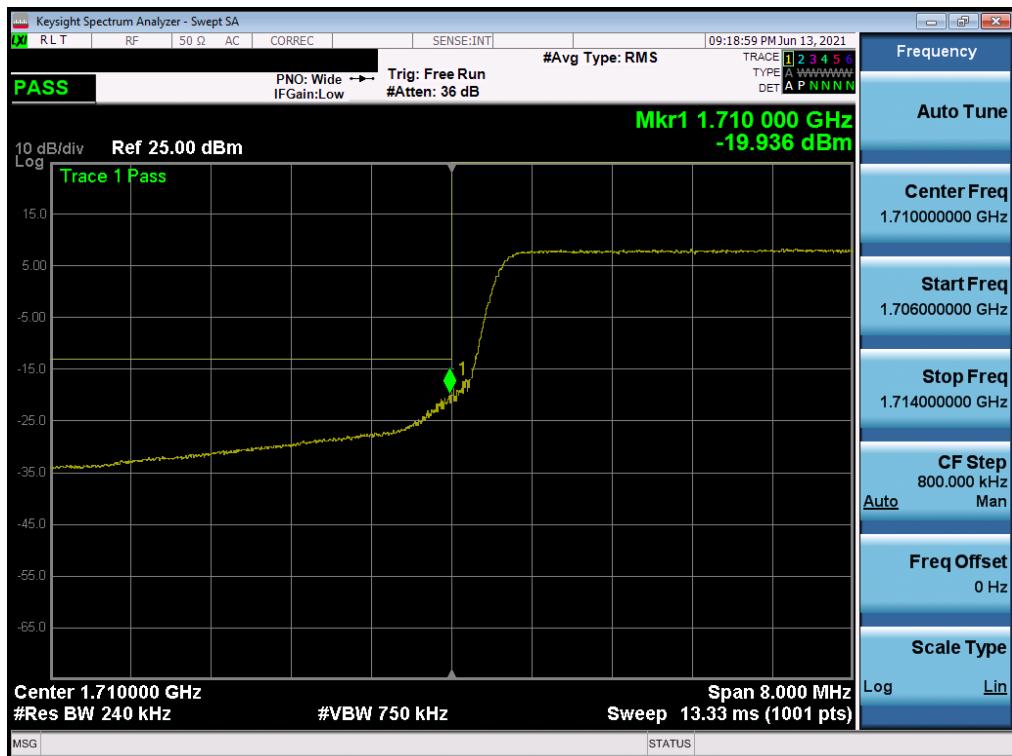


Plot 7-66. Upper Band Edge Plot (LTE Band 4 - 5MHz QPSK – Full RB)

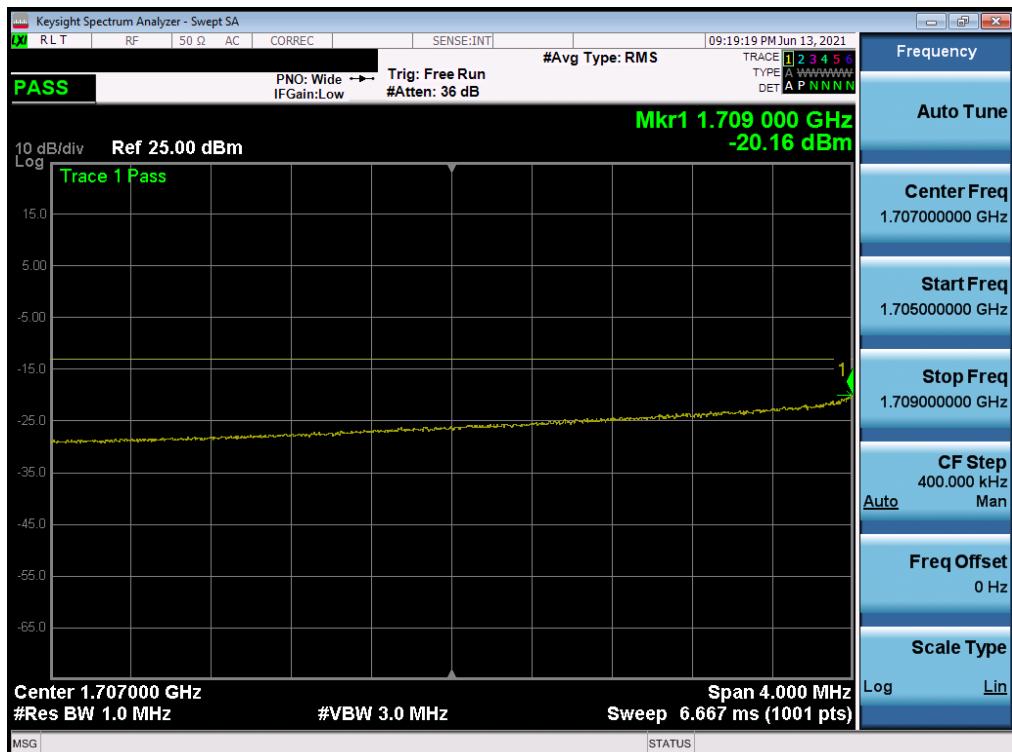


Plot 7-67. Upper Extended Band Edge Plot (LTE Band 4 - 5MHz QPSK – Full RB)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Page 52 of 89



Plot 7-68. Lower Band Edge Plot (LTE Band 4 - 10MHz QPSK – Full RB)

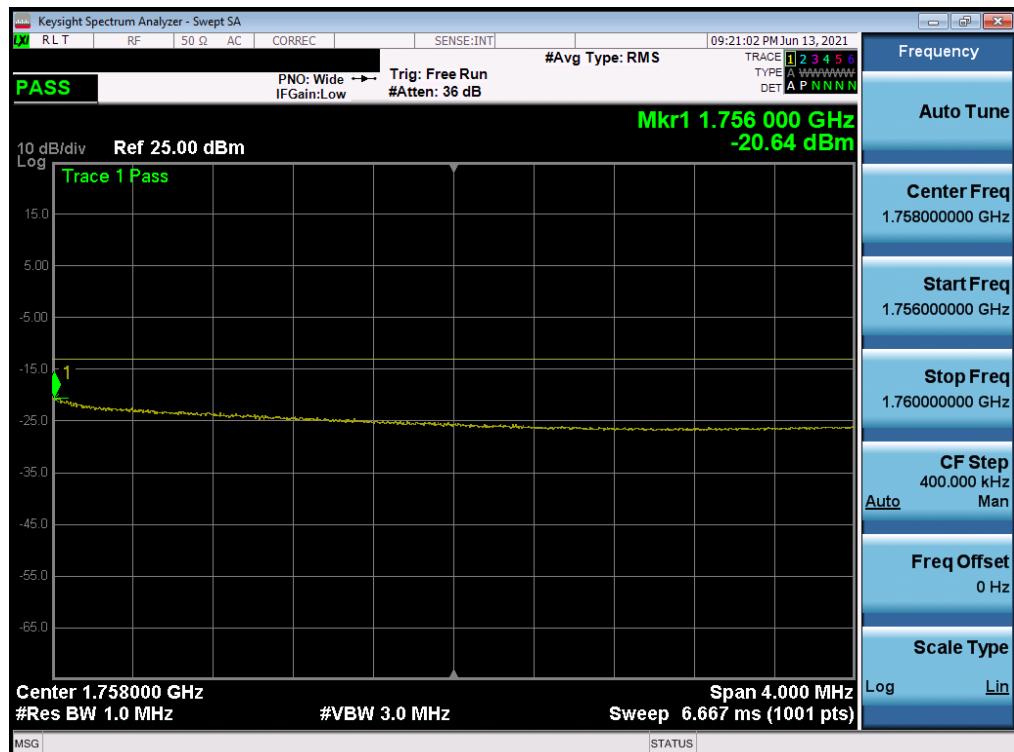


Plot 7-69. Lower Extended Band Edge Plot (LTE Band 4 - 10MHz QPSK – Full RB)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Page 53 of 89

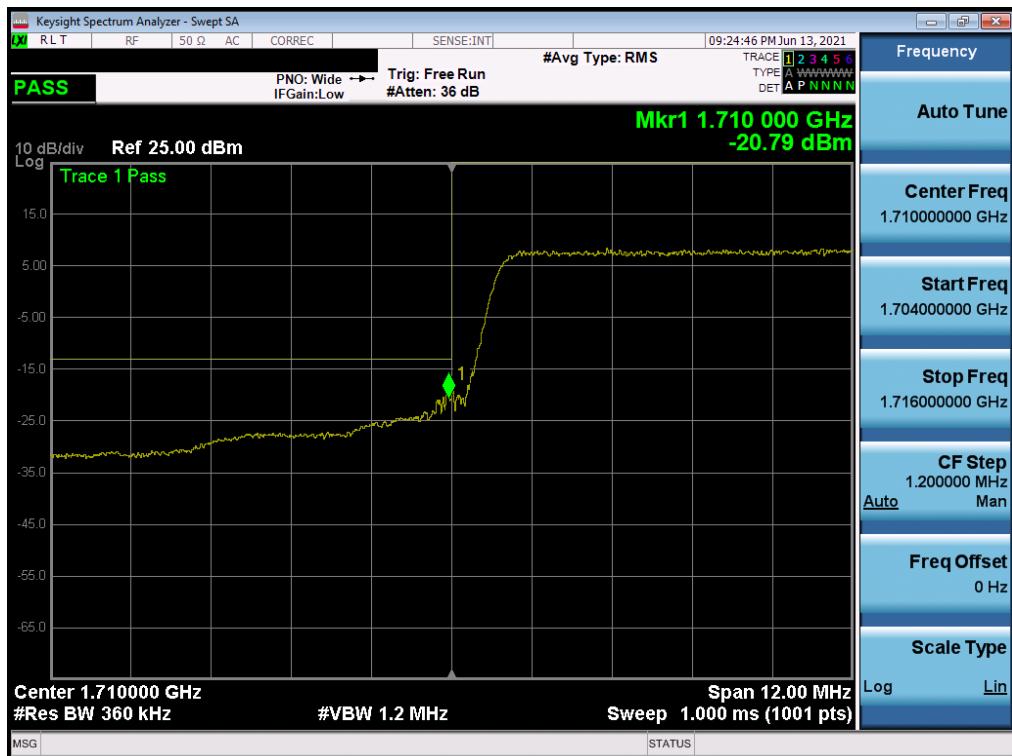


Plot 7-70. Upper Band Edge Plot (LTE Band 4 - 10MHz QPSK – Full RB)



Plot 7-71. Upper Extended Band Edge Plot (LTE Band 4 - 10MHz QPSK – Full RB)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Page 54 of 89

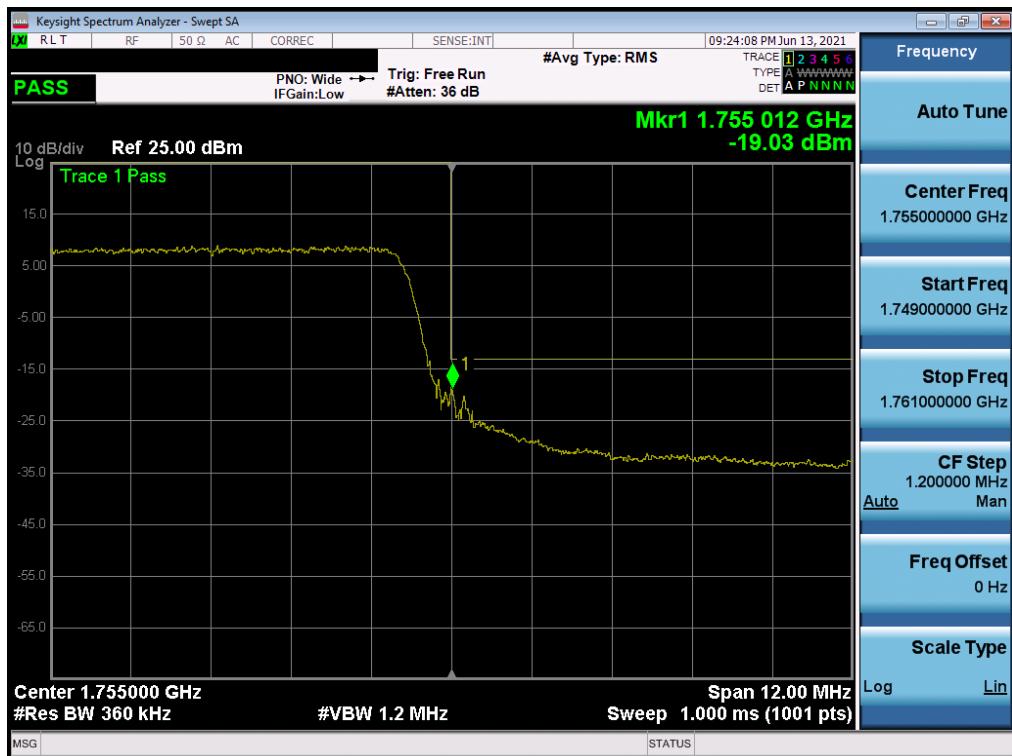


Plot 7-72. Lower Band Edge Plot (LTE Band 4 - 15MHz QPSK – Full RB)



Plot 7-73. Lower Extended Band Edge Plot (LTE Band 4 - 15MHz QPSK – Full RB)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Page 55 of 89

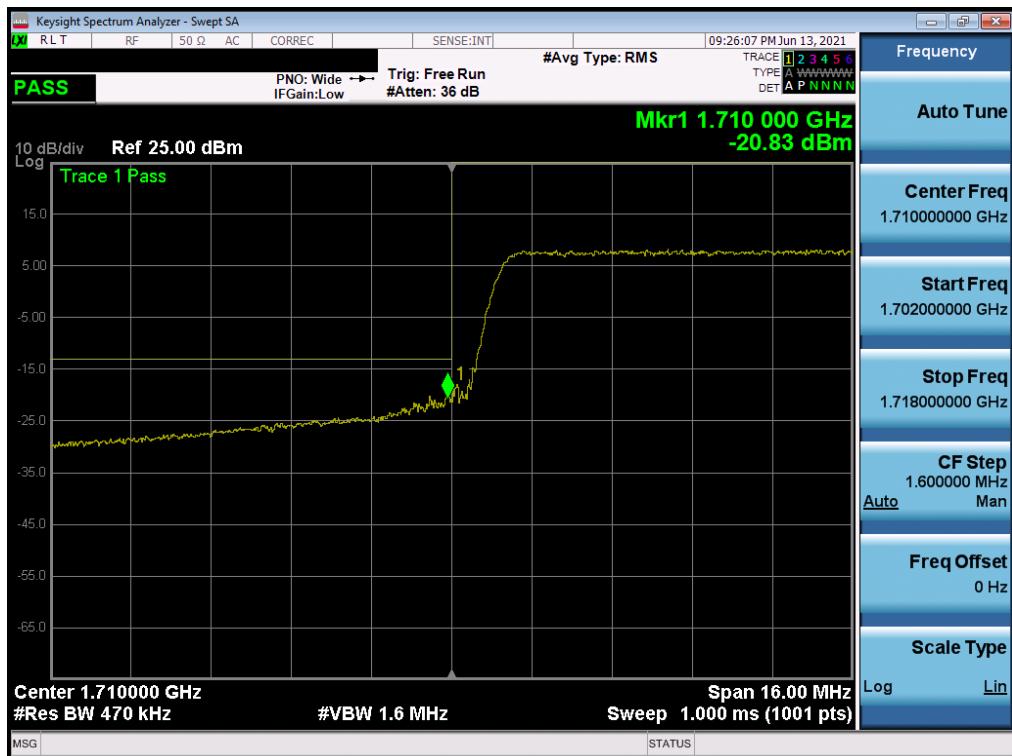


Plot 7-74. Upper Band Edge Plot (LTE Band 4 - 15MHz QPSK – Full RB)

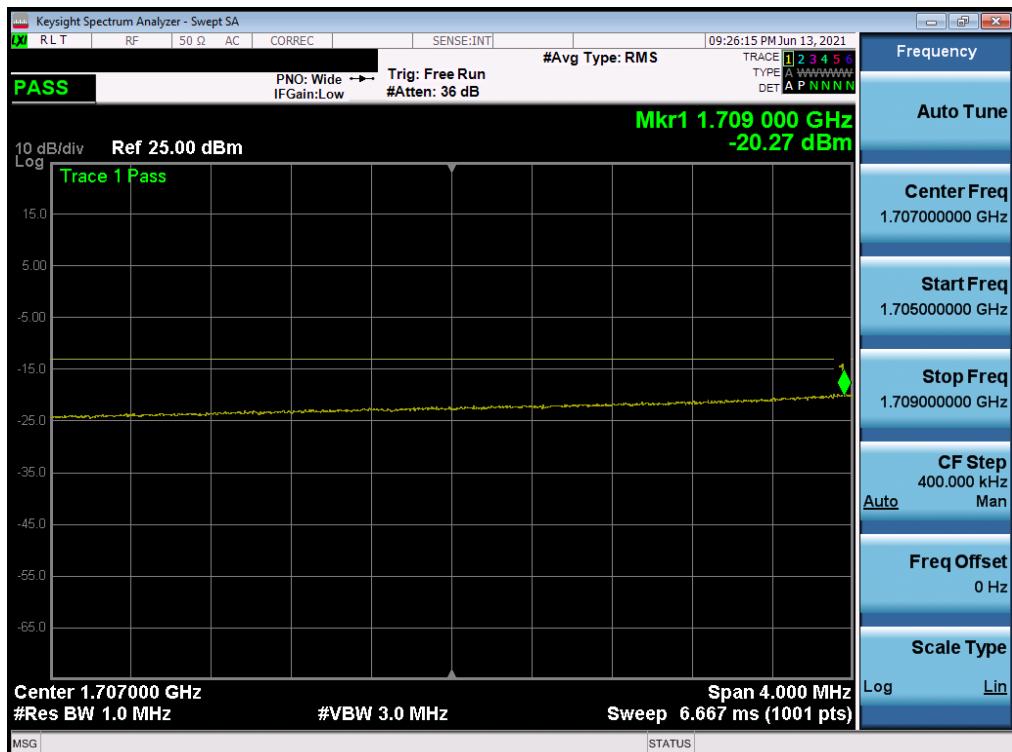


Plot 7-75. Upper Extended Band Edge Plot (LTE Band 4 - 15MHz QPSK – Full RB)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Page 56 of 89



Plot 7-76. Lower Band Edge Plot (LTE Band 4 - 20MHz QPSK – Full RB)



Plot 7-77. Lower Extended Band Edge Plot (LTE Band 4 - 20MHz QPSK – Full RB)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Page 57 of 89



Plot 7-78. Upper Band Edge Plot (LTE Band 4 - 20MHz QPSK – Full RB)



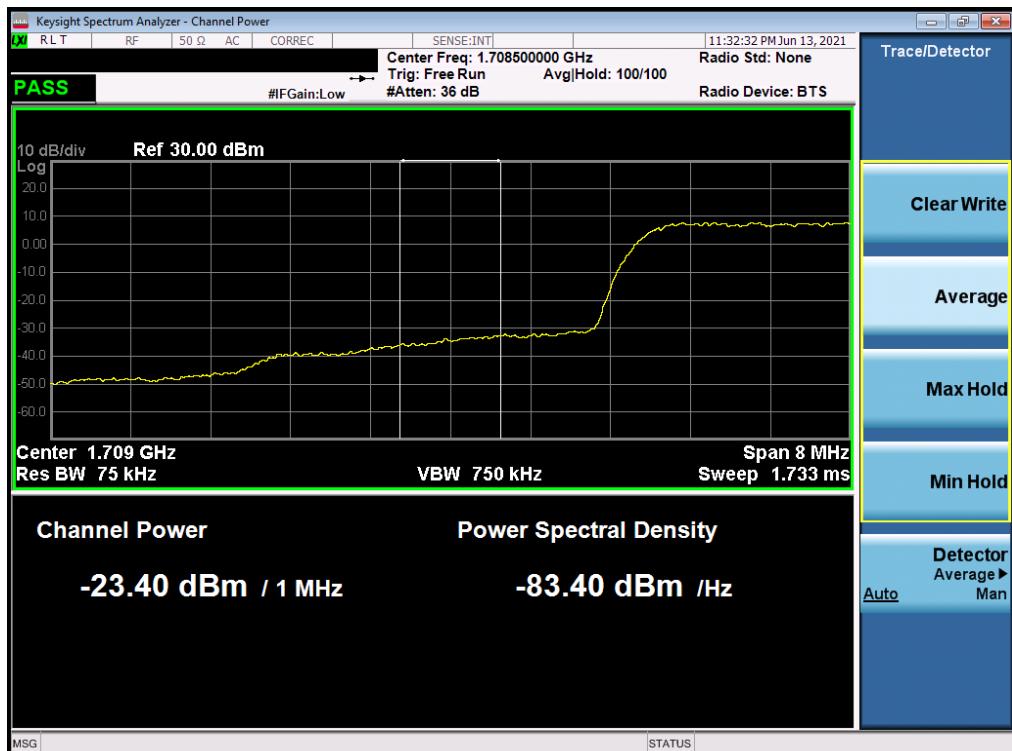
Plot 7-79. Upper Extended Band Edge Plot (LTE Band 4 - 20MHz QPSK – Full RB)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Page 58 of 89

WCDMA AWS



Plot 7-80. Lower Band Edge Plot (WCDMA AWS – Ch. 1312)

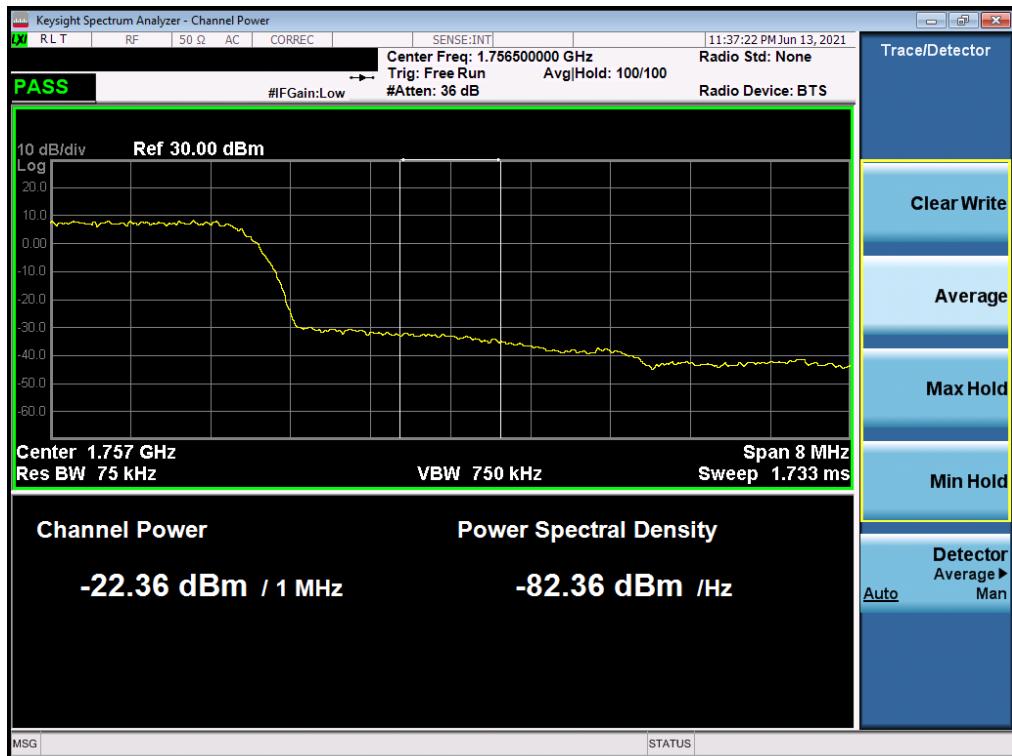


Plot 7-81. Lower Extended Band Edge Plot (WCDMA AWS – Ch. 1312)

FCC ID: BCG-A2476	 PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Page 59 of 89



Plot 7-82. Upper Band Edge Plot (WCDMA AWS – Ch. 1513)



Channel Power

-22.36 dBm / 1 MHz

Power Spectral Density

-82.36 dBm /Hz

Plot 7-83. Upper Extended Band Edge Plot (WCDMA AWS – Ch. 1513)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch		Page 60 of 89

7.5 Peak-Average Ratio

§27.50(d)(5)

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. All ports were tested and only the worst case data were reported.

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 \geq 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.

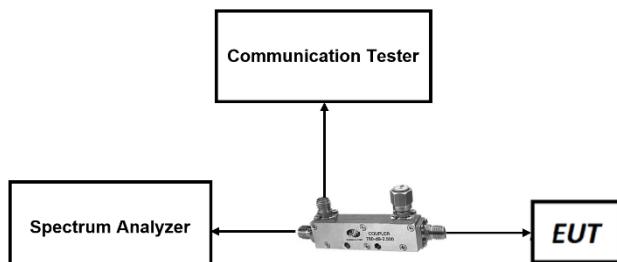


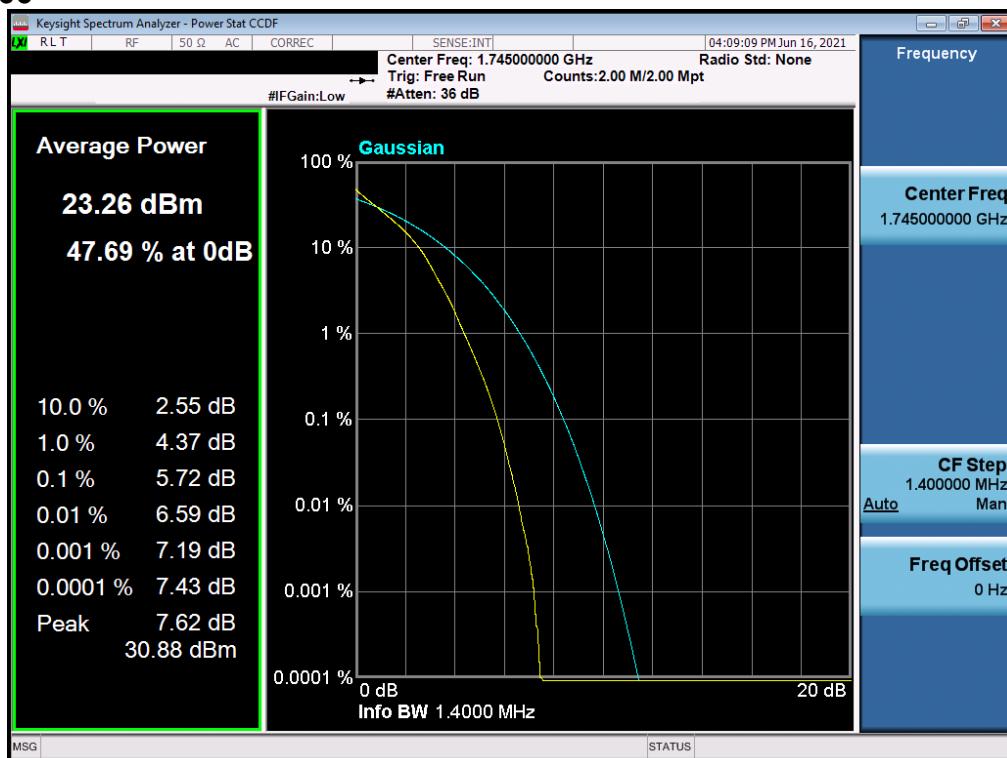
Figure 7-4. Test Instrument & Measurement Setup

Test Notes

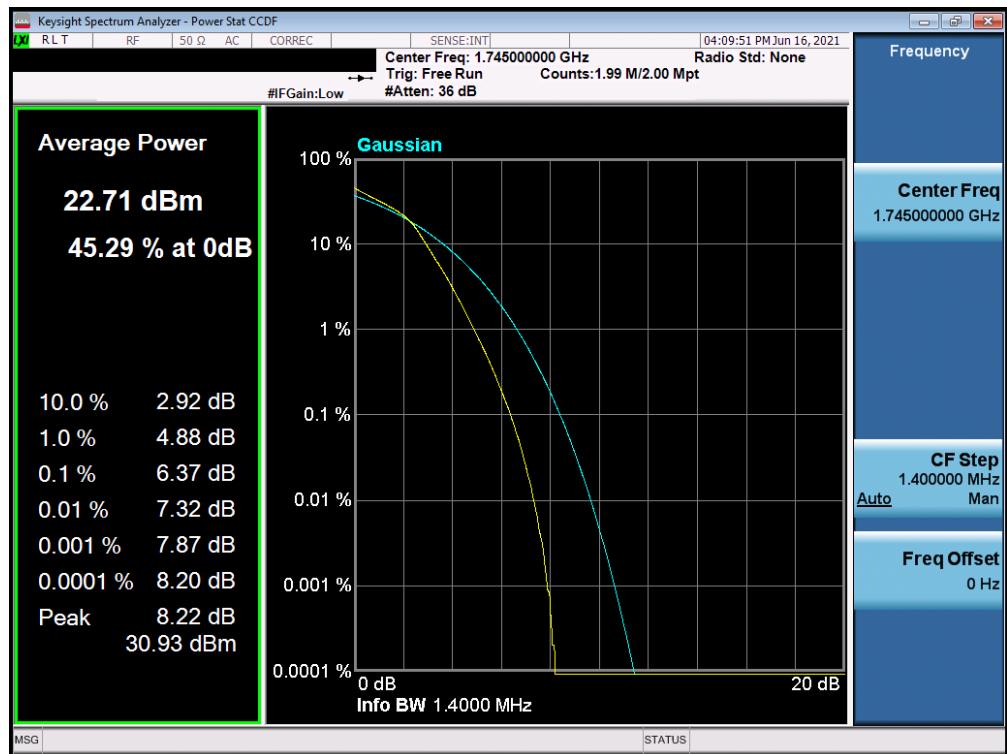
None.

FCC ID: BCG-A2476	 PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch		Page 61 of 89

LTE Band 66

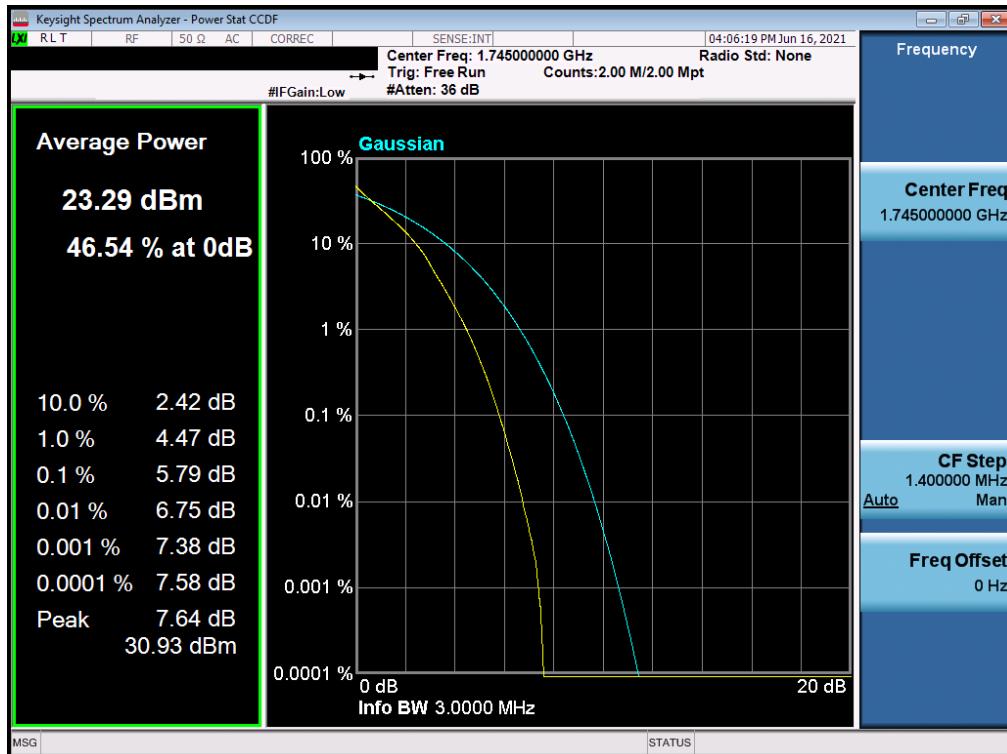


Plot 7-84. PAR Plot (LTE Band 66 - 1.4MHz QPSK - Full RB)

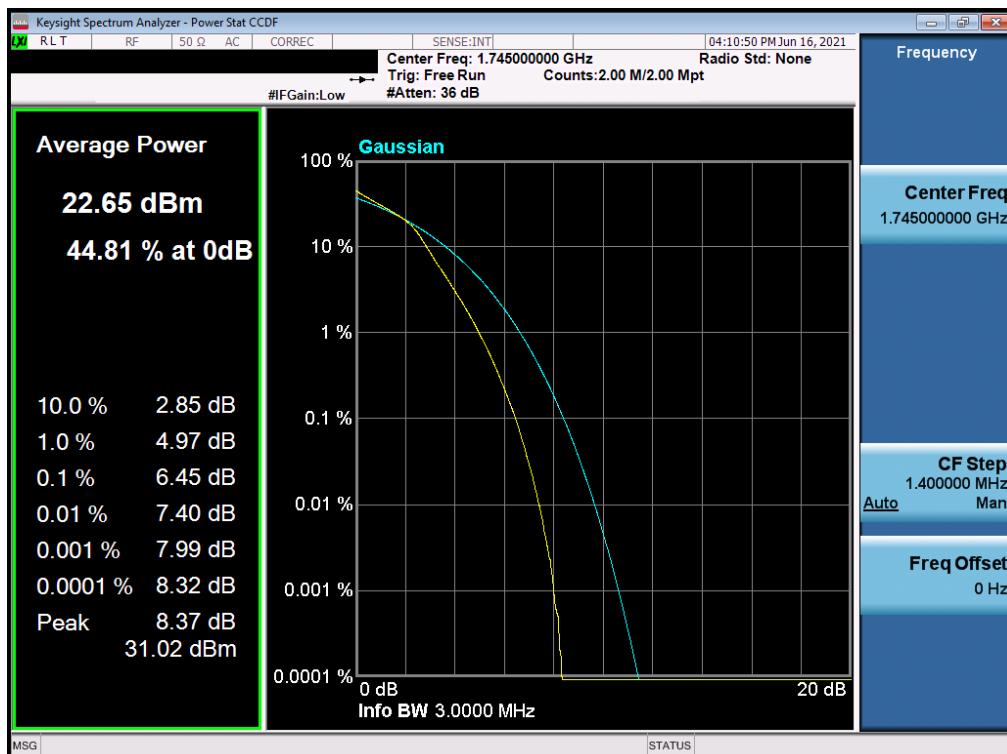


Plot 7-85. PAR Plot (LTE Band 66 - 1.4MHz 16-QAM - Full RB)

FCC ID: BCG-A2476	 Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch		Page 62 of 89

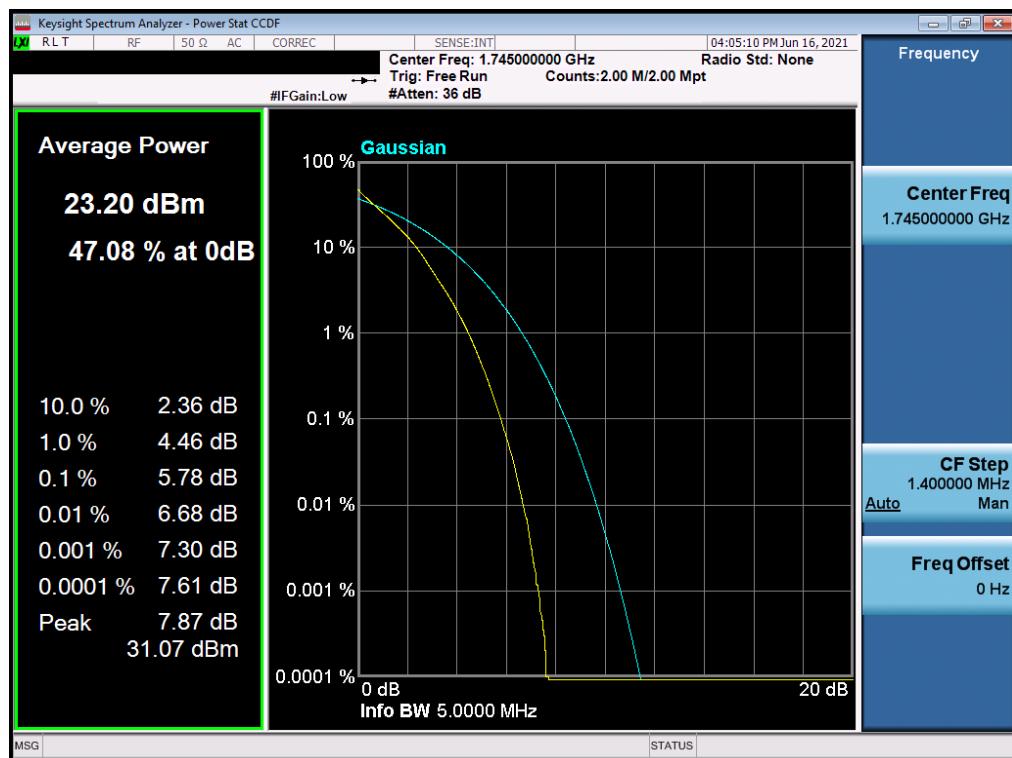


Plot 7-86. PAR Plot (LTE Band 66 - 3MHz QPSK - Full RB)

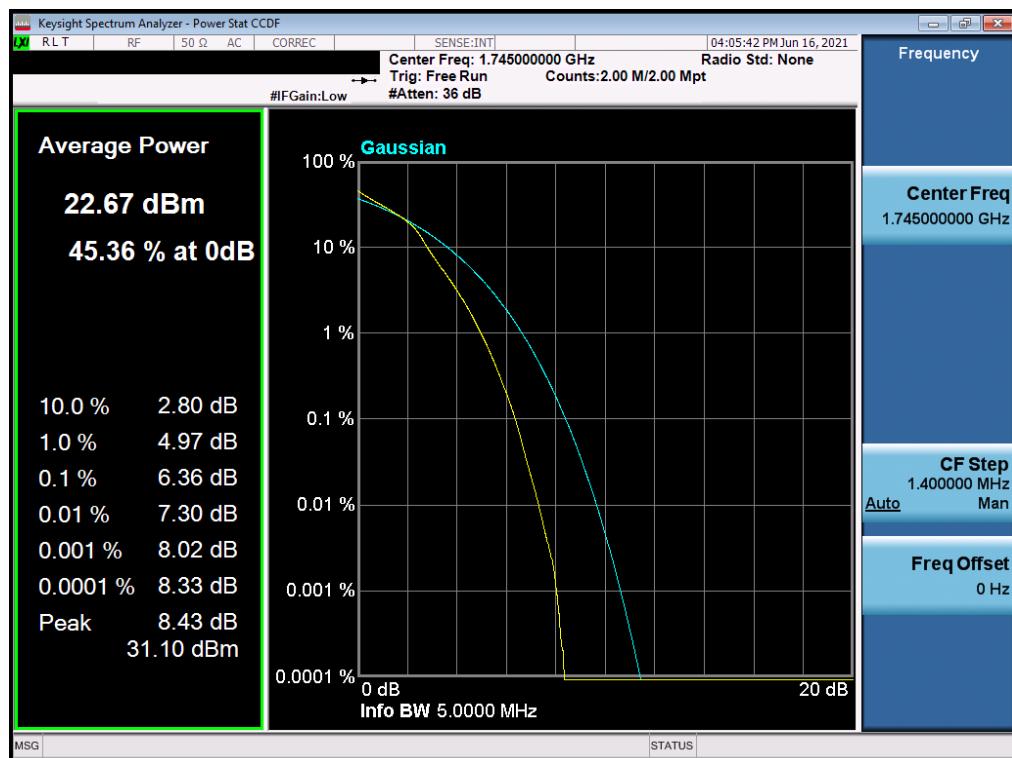


Plot 7-87. PAR Plot (LTE Band 66 - 3MHz 16-QAM - Full RB)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch		Page 63 of 89

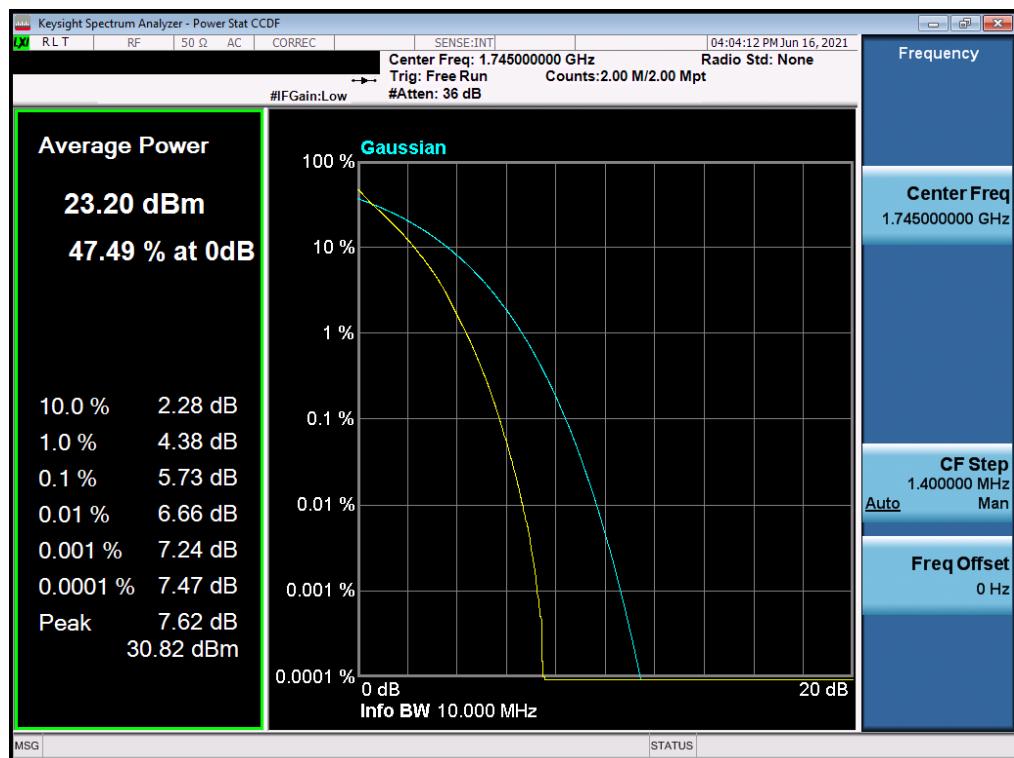


Plot 7-88. PAR Plot (LTE Band 66 - 5MHz QPSK - Full RB)

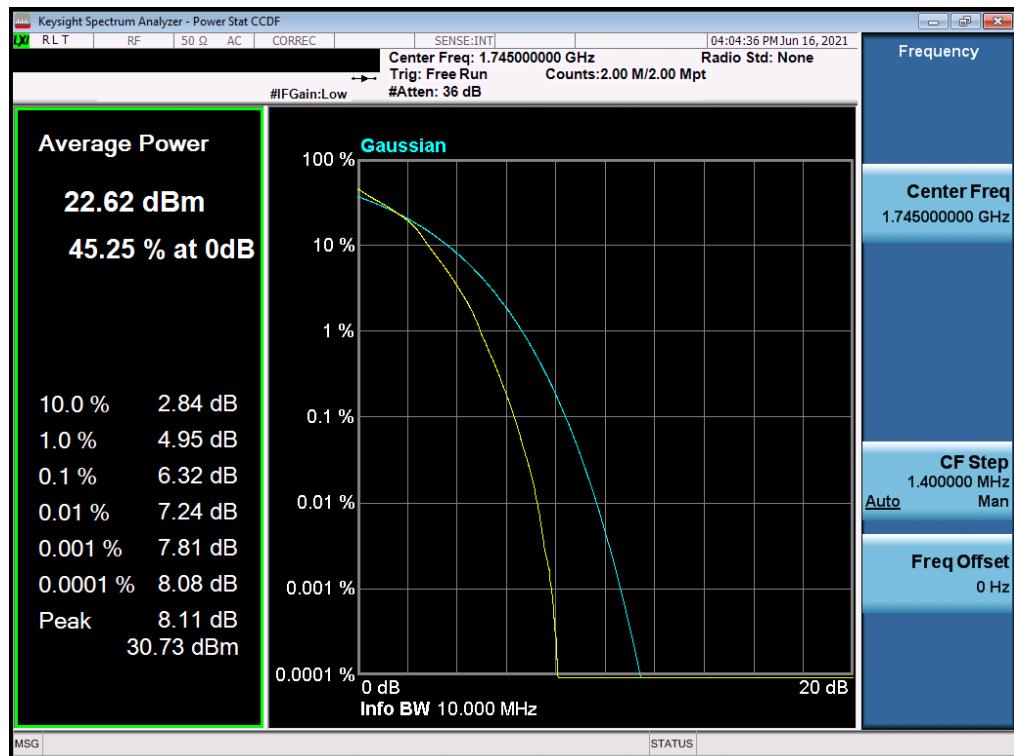


Plot 7-89. PAR Plot (LTE Band 66 - 5MHz 16-QAM - Full RB)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch		Page 64 of 89

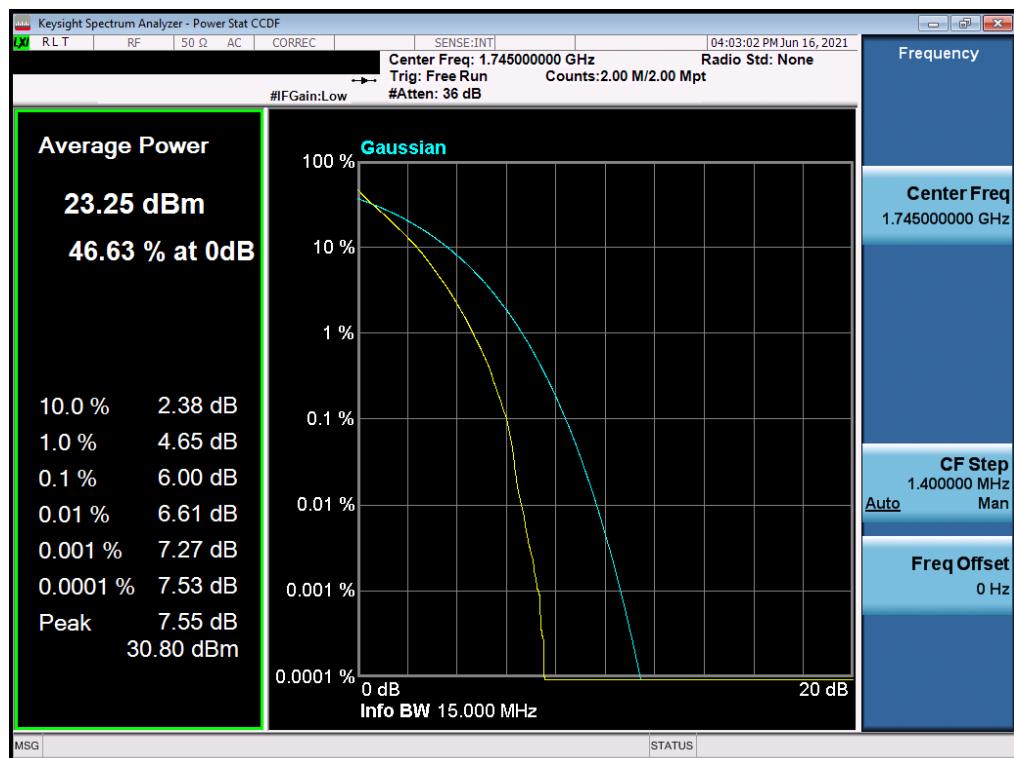


Plot 7-90. PAR Plot (LTE Band 66 - 10MHz QPSK - Full RB)

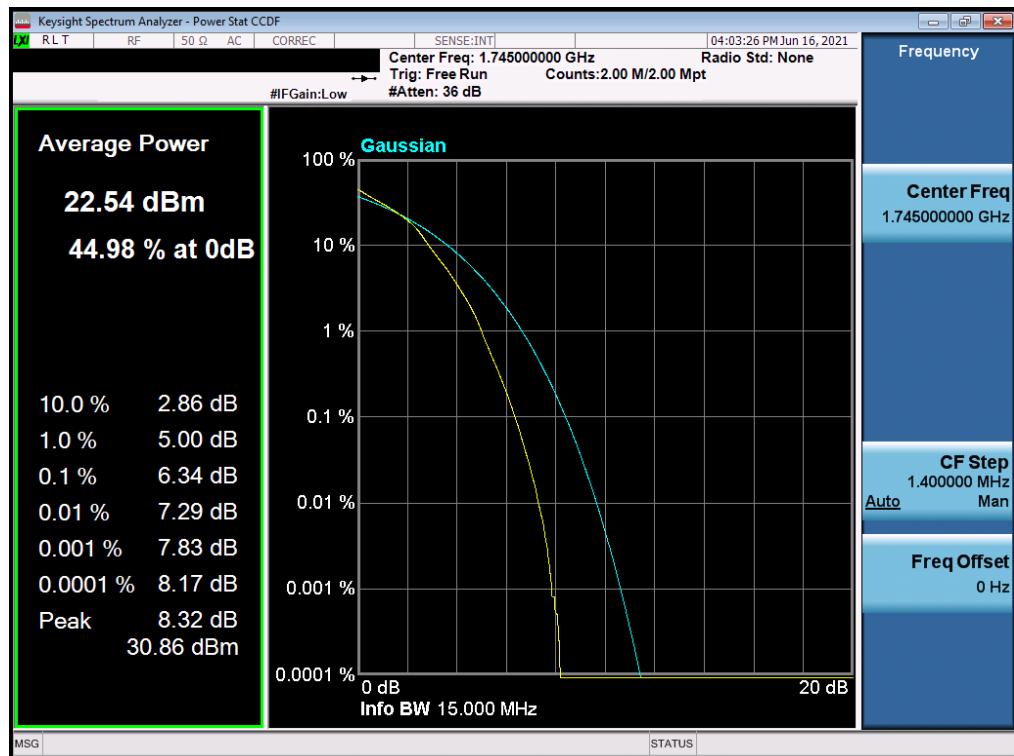


Plot 7-91. PAR Plot (LTE Band 66 - 10MHz 16-QAM - Full RB)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Approved by: Quality Manager Page 65 of 89

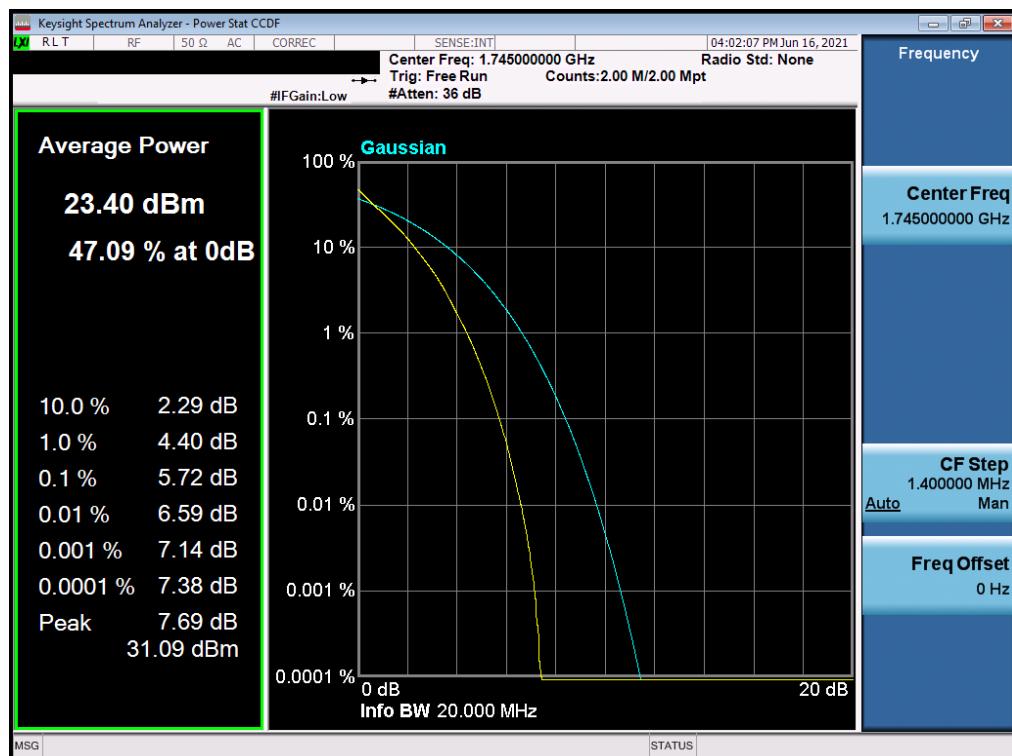


Plot 7-92. PAR Plot (LTE Band 66 - 15MHz QPSK - Full RB)

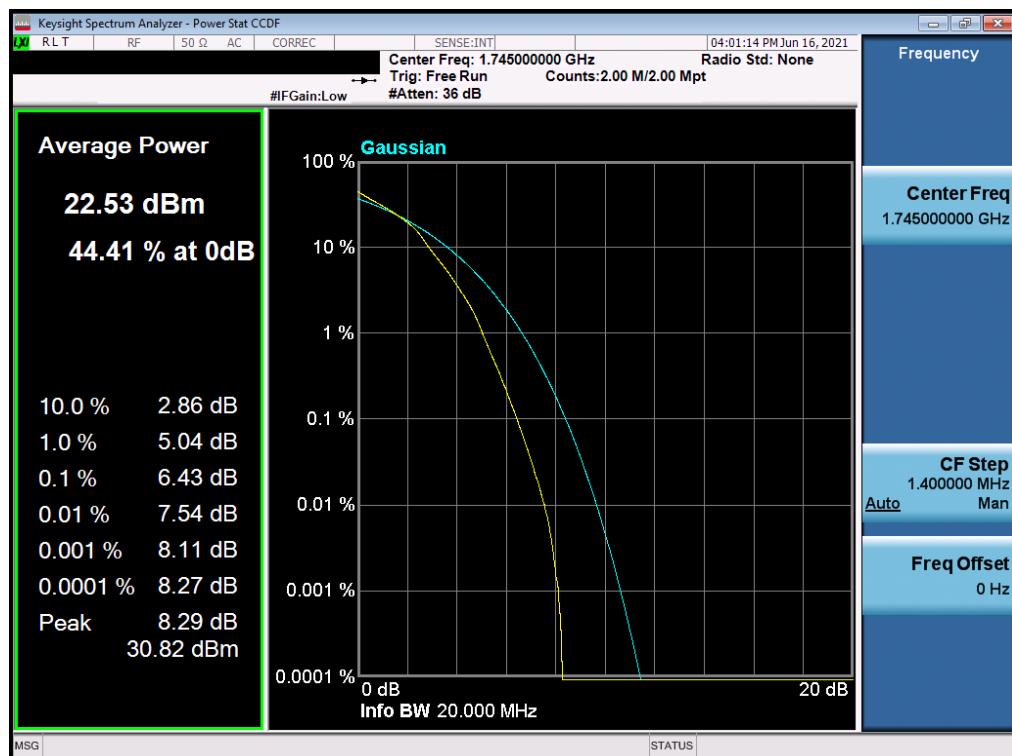


Plot 7-93. PAR Plot (LTE Band 66 - 15MHz 16-QAM - Full RB)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Approved by: Quality Manager Page 66 of 89



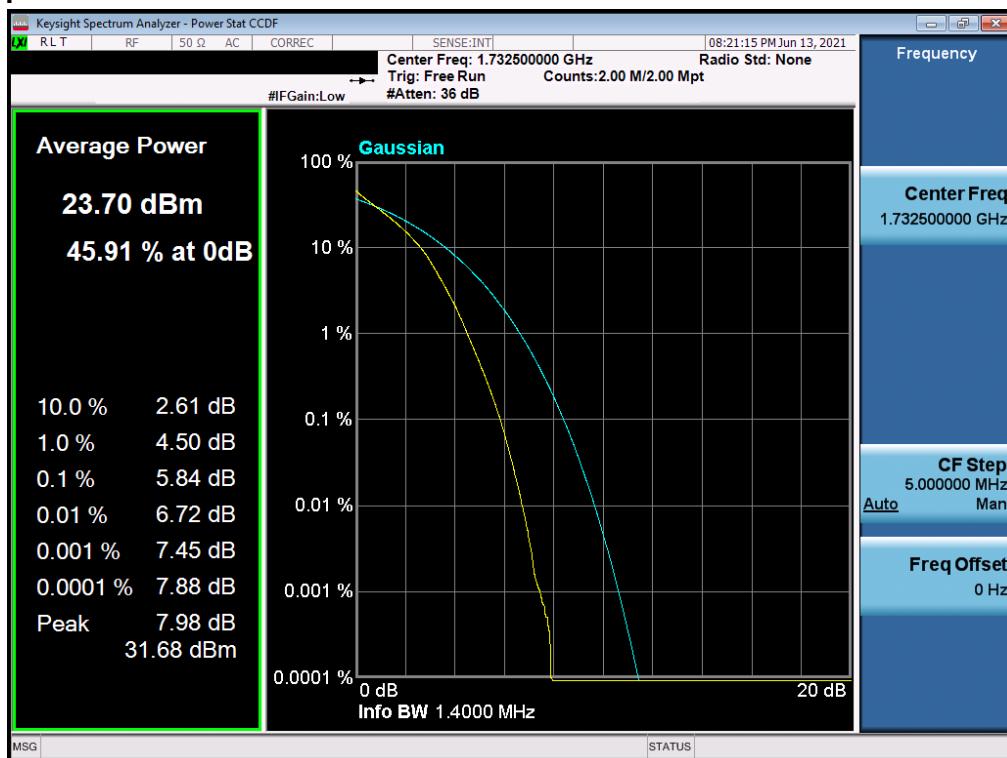
Plot 7-94. PAR Plot (LTE Band 66 - 20MHz QPSK - Full RB)



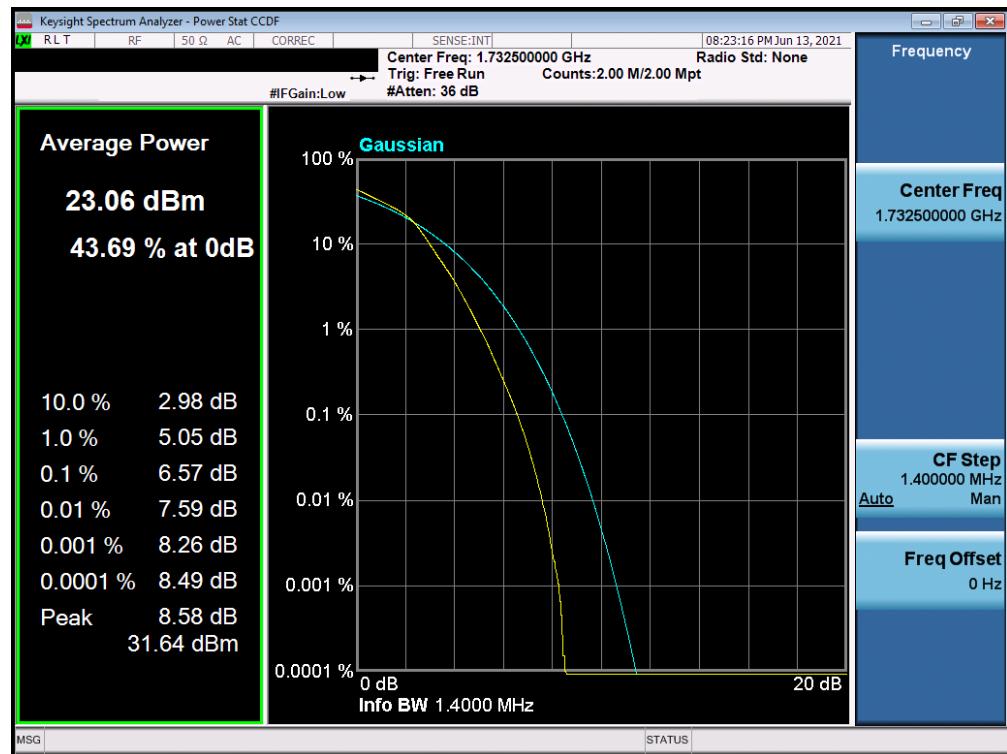
Plot 7-95. PAR Plot (LTE Band 66 - 20MHz 16-QAM - Full RB)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Approved by: Quality Manager Page 67 of 89

LTE Band 4

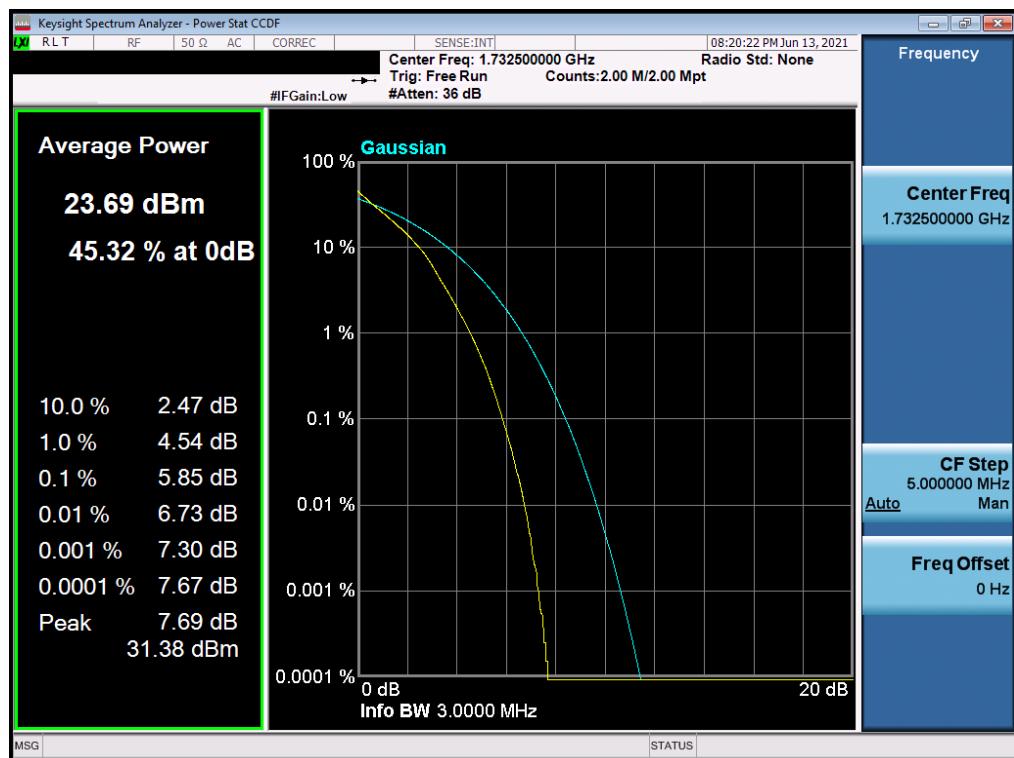


Plot 7-96. PAR Plot (LTE Band 4 - 1.4MHz QPSK - Full RB)

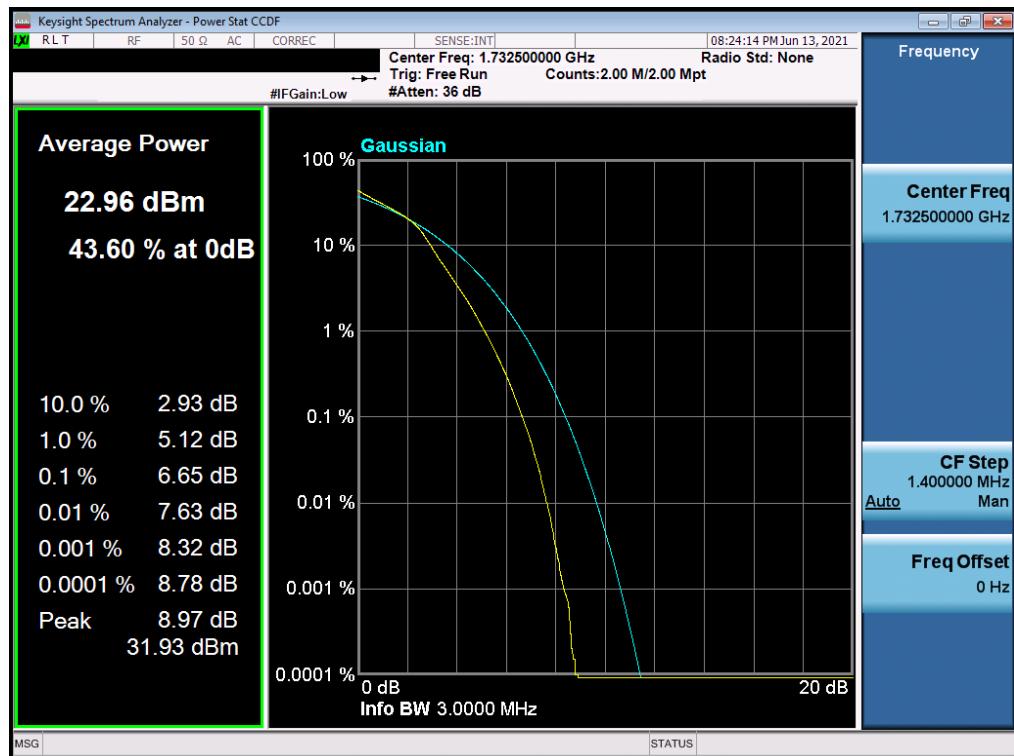


Plot 7-97. PAR Plot (LTE Band 4 - 1.4MHz 16-QAM - Full RB)

FCC ID: BCG-A2476	 PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch		Page 68 of 89

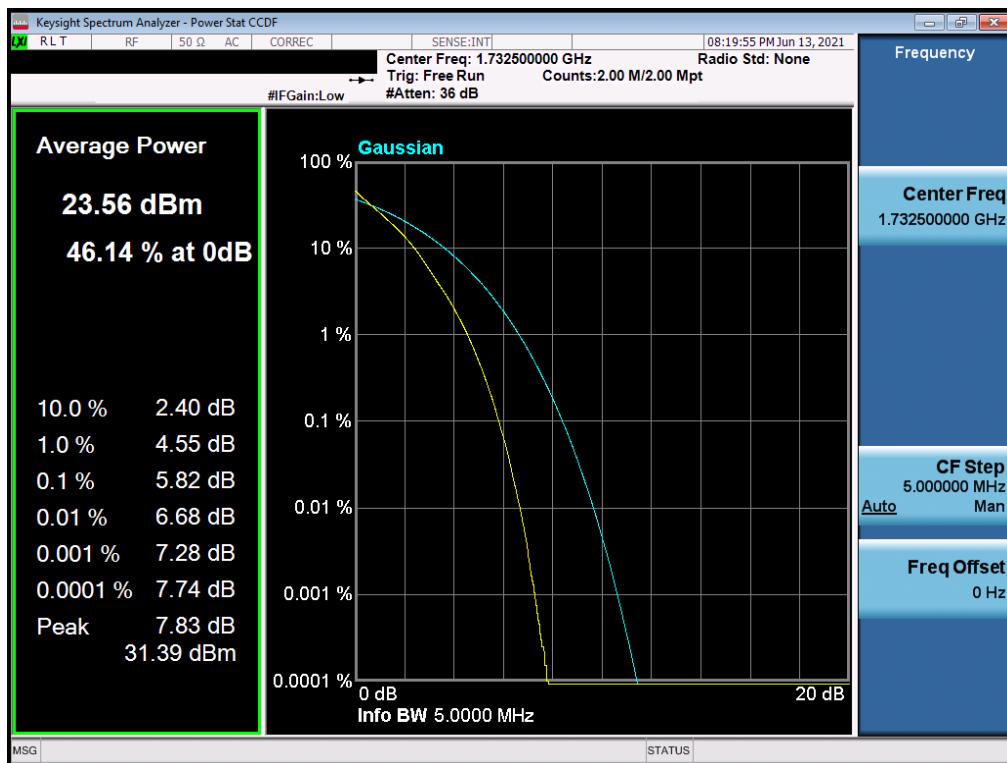


Plot 7-98. PAR Plot (LTE Band 4 - 3MHz QPSK - Full RB)

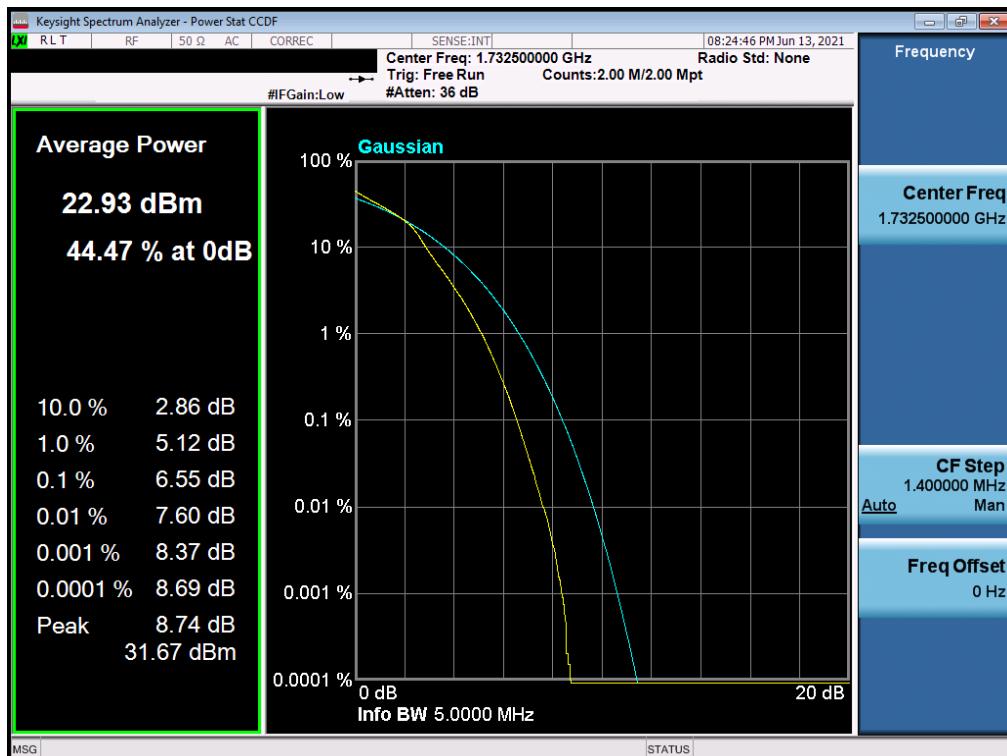


Plot 7-99. PAR Plot (LTE Band 4 - 3MHz 16-QAM - Full RB)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Approved by: Quality Manager Page 69 of 89

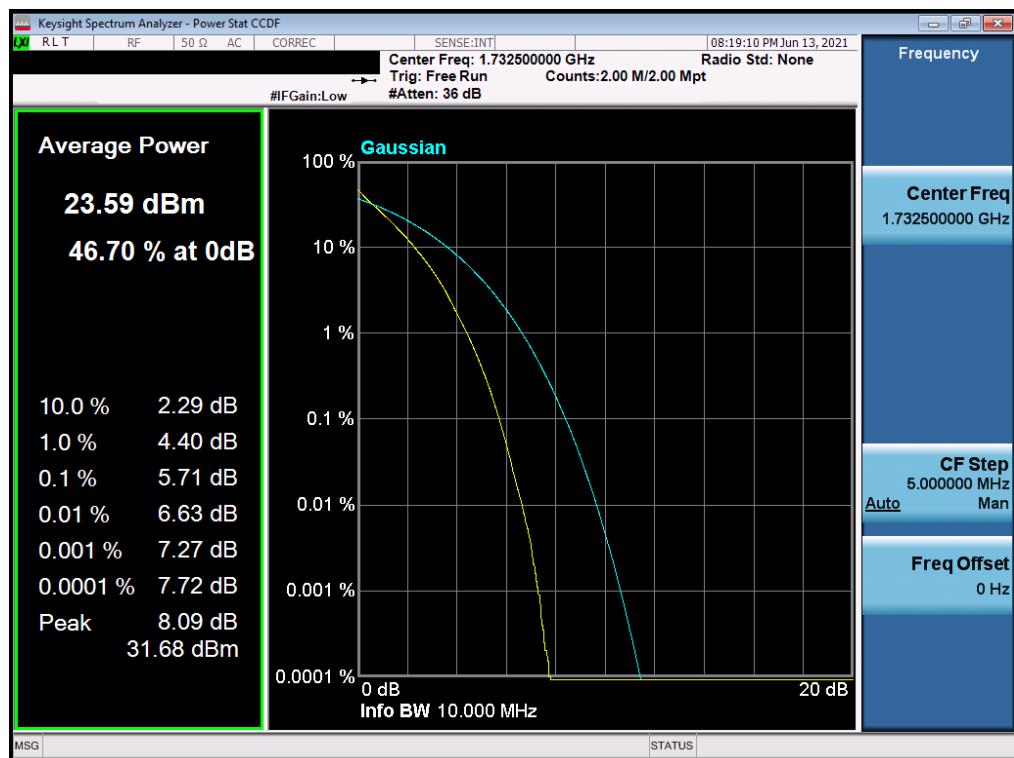


Plot 7-100. PAR Plot (LTE Band 4 - 5MHz QPSK - Full RB)

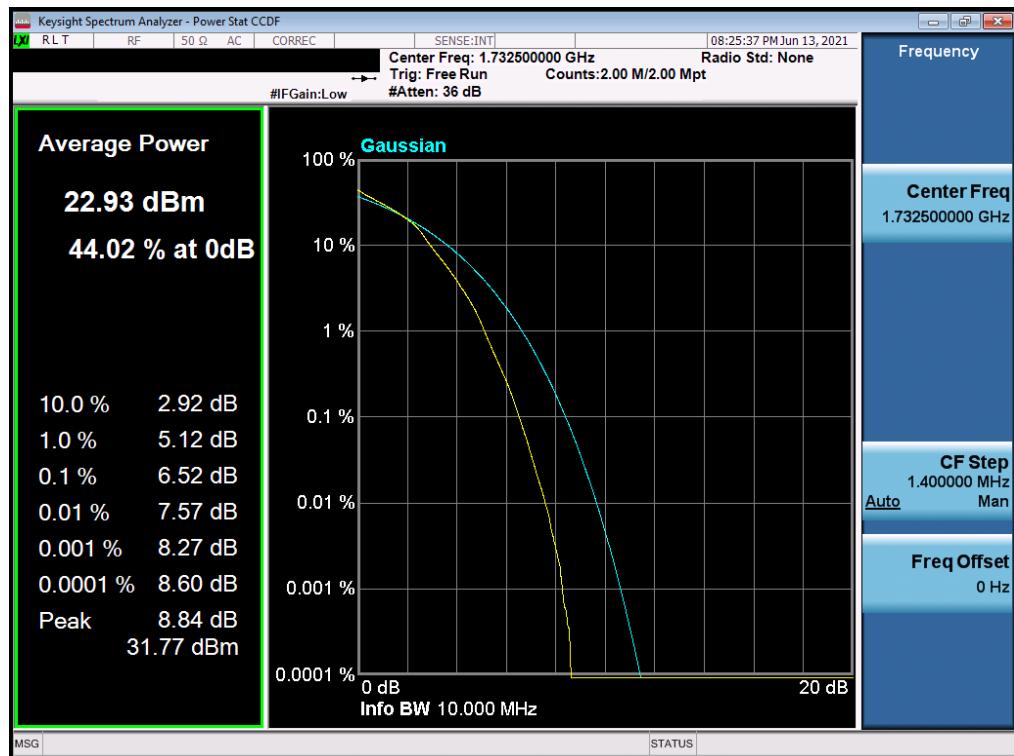


Plot 7-101. PAR Plot (LTE Band 4 - 5MHz 16-QAM - Full RB)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Page 70 of 89	

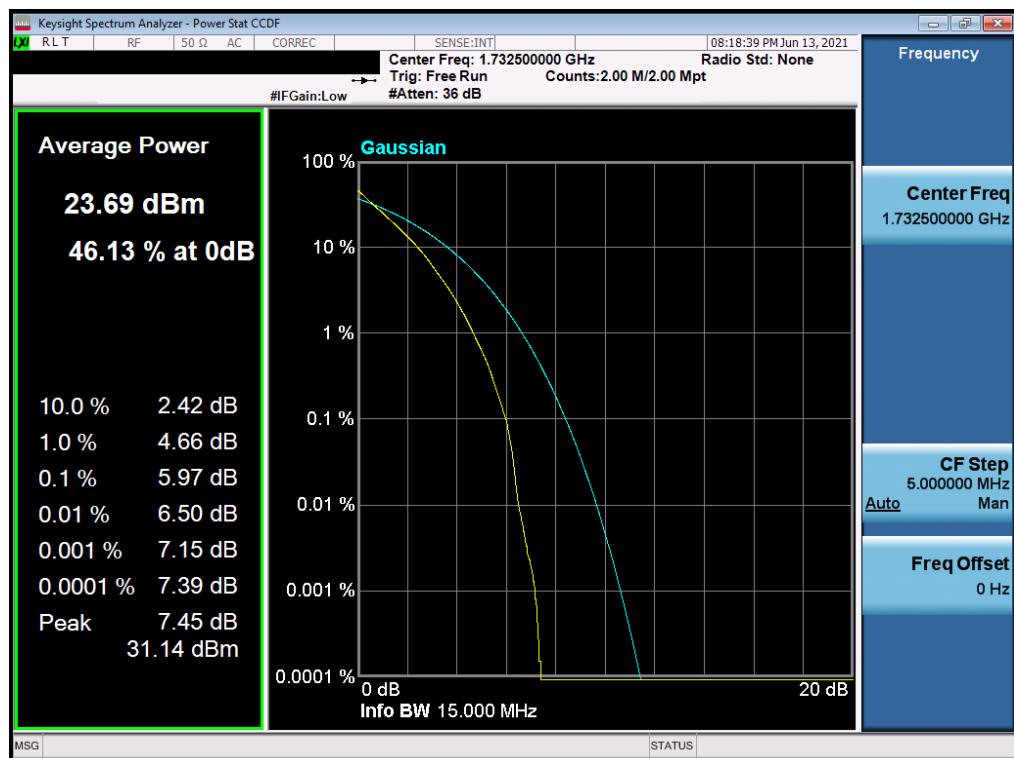


Plot 7-102. PAR Plot (LTE Band 4 - 10MHz QPSK - Full RB)

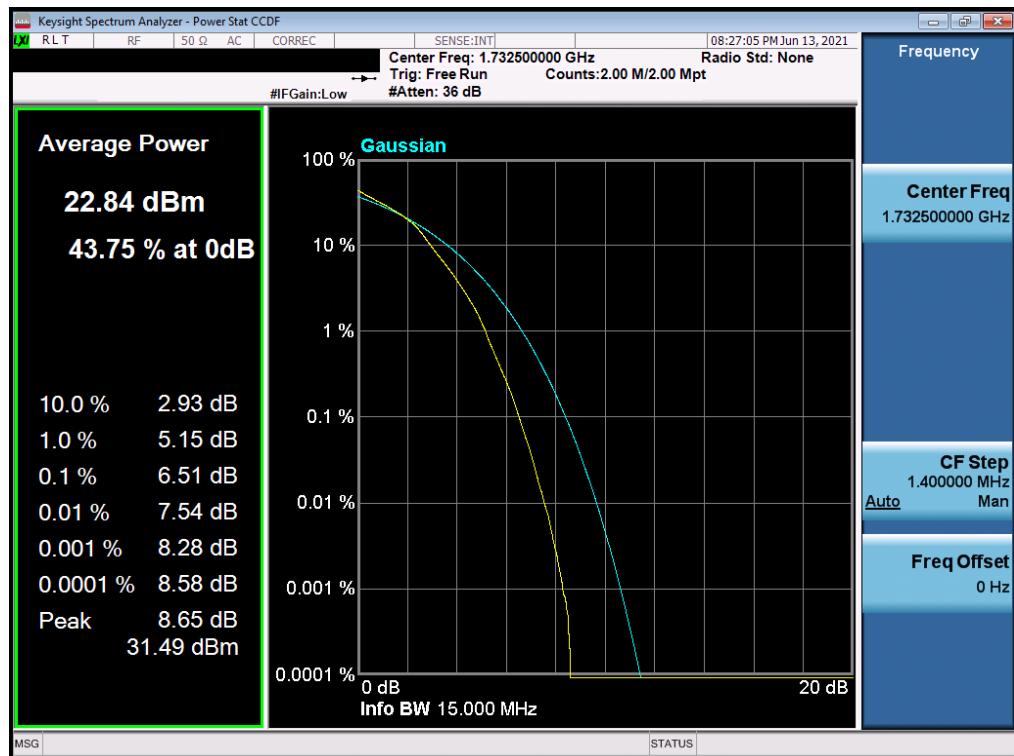


Plot 7-103. PAR Plot (LTE Band 4 - 10MHz 16-QAM - Full RB)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Approved by: Quality Manager Page 71 of 89

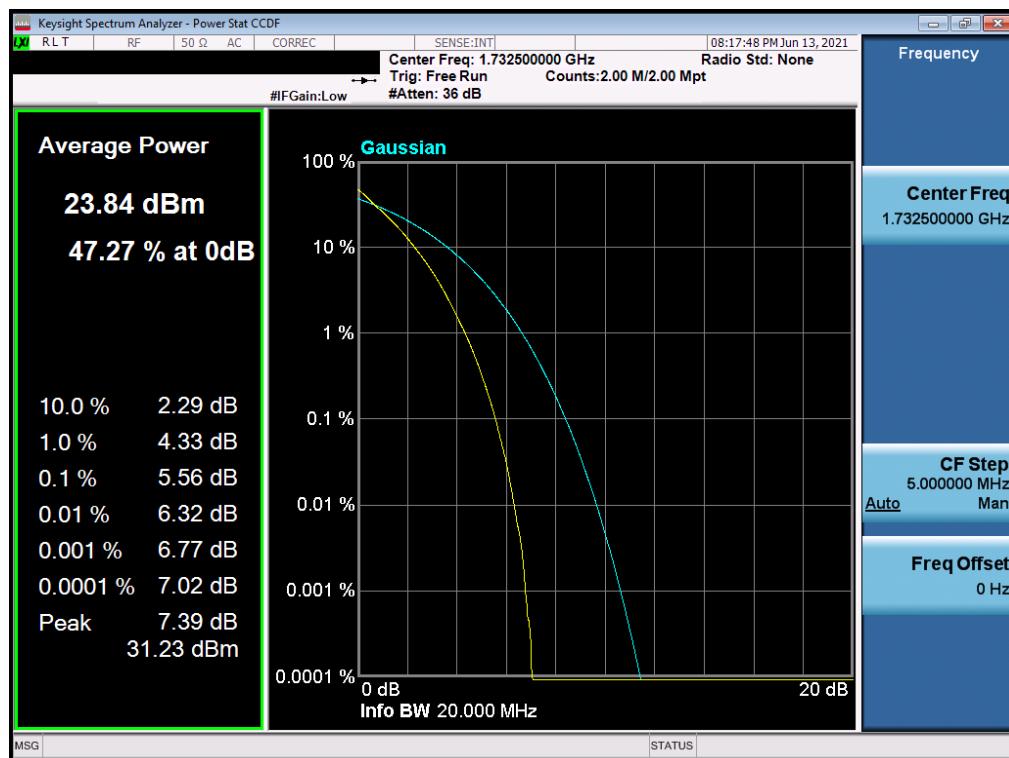


Plot 7-104. PAR Plot (LTE Band 4 - 15MHz QPSK - Full RB)

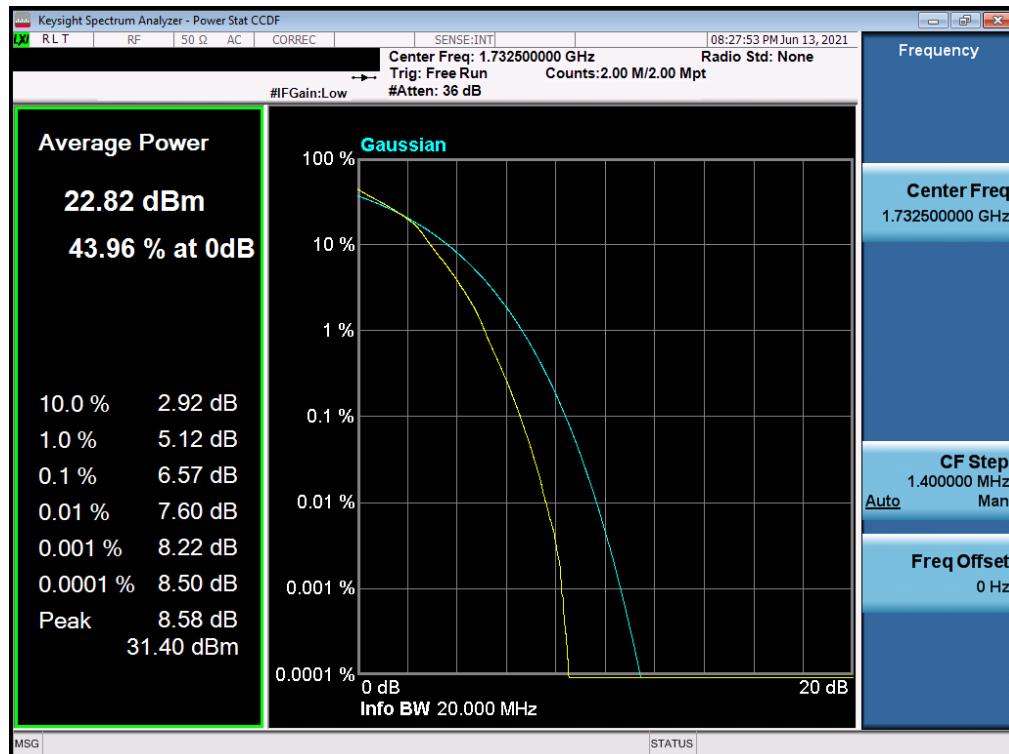


Plot 7-105. PAR Plot (LTE Band 4 - 15MHz 16-QAM - Full RB)

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Approved by: Quality Manager Page 72 of 89



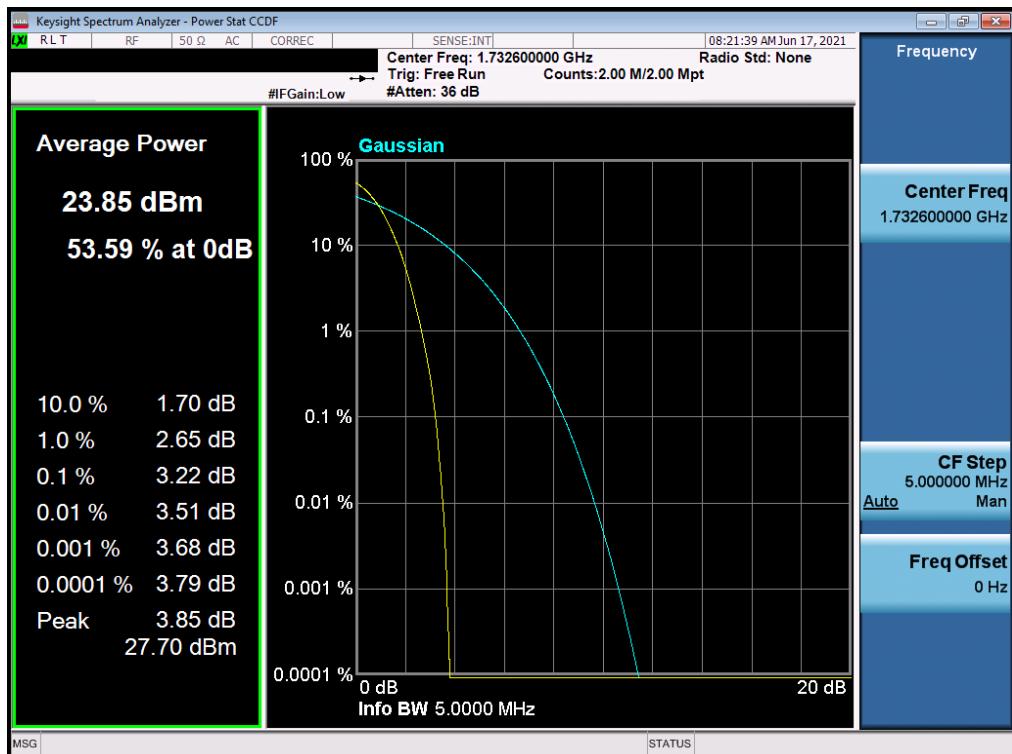
Plot 7-106. PAR Plot (LTE Band 4 - 20MHz QPSK - Full RB)



Plot 7-107. PAR Plot (LTE Band 4 - 20MHz 16-QAM - Full RB)

FCC ID: BCG-A2476	 PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch		Page 73 of 89

WCDMA AWS



Plot 7-108. PAR Plot (WCDMA, Ch. 1413)

FCC ID: BCG-A2476	 PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch		Page 74 of 89

7.6 Radiated Power (EIRP)

§27.50(b)(10), §27.50(c)(10), §27.50(d)(4)

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:

$$\text{EIRP} = \text{PMes} - \text{LC} + \text{GT}$$

Where:

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

PMes = 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.

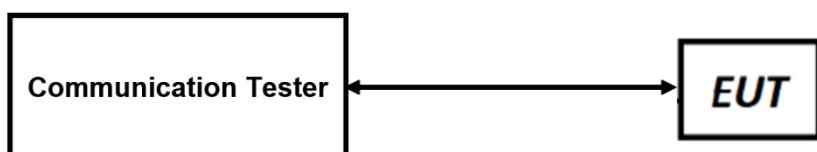
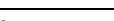


Figure 7-5. EIRP Measurement Setup

FCC ID: BCG-A2476	 PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Page 75 of 89

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. 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."
5. The Ant. Gains (GT) are listed in dBi.

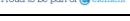
FCC ID: BCG-A2476	 Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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Antenna FCM – EIRP

LTE Band 66

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	1710.7	-13.00	1 / 0	23.89	10.89	12.274	30.00	-19.11
		1745.0	-13.00	1 / 5	23.56	10.56	11.376	30.00	-19.44
		1779.3	-13.00	1 / 3	24.02	11.02	12.647	30.00	-18.98
	16-QAM	1710.7	-13.00	1 / 0	23.51	10.51	11.246	30.00	-19.49
3 MHz	QPSK	1711.5	-13.00	1 / 0	24.05	11.05	12.735	30.00	-18.95
		1745.0	-13.00	1 / 0	23.54	10.54	11.324	30.00	-19.46
		1778.5	-13.00	1 / 7	23.90	10.90	12.303	30.00	-19.10
	16-QAM	1711.5	-13.00	1 / 0	23.36	10.36	10.864	30.00	-19.64
5 MHz	QPSK	1712.5	-13.00	1 / 12	23.78	10.78	11.967	30.00	-19.22
		1745.0	-13.00	1 / 24	23.60	10.60	11.482	30.00	-19.40
		1777.5	-13.00	1 / 0	24.13	11.13	12.972	30.00	-18.87
	16-QAM	1745.0	-13.00	1 / 24	23.53	10.53	11.298	30.00	-19.47
10 MHz	QPSK	1715.0	-13.00	1 / 25	24.15	11.15	13.032	30.00	-18.85
		1745.0	-13.00	1 / 25	23.63	10.63	11.561	30.00	-19.37
		1775.0	-13.00	1 / 25	23.80	10.80	12.023	30.00	-19.20
	16-QAM	1715.0	-13.00	1 / 25	23.40	10.40	10.965	30.00	-19.60
15 MHz	QPSK	1717.5	-13.00	1 / 37	24.32	11.32	13.552	30.00	-18.68
		1745.0	-13.00	1 / 37	23.68	10.68	11.695	30.00	-19.32
		1772.5	-13.00	1 / 37	23.82	10.82	12.078	30.00	-19.18
	16-QAM	1717.5	-13.00	1 / 0	23.52	10.52	11.272	30.00	-19.48
20 MHz	QPSK	1720.0	-13.00	1 / 50	24.12	11.12	12.942	30.00	-18.88
		1745.0	-13.00	1 / 50	23.94	10.94	12.417	30.00	-19.06
		1770.0	-13.00	1 / 50	23.97	10.97	12.503	30.00	-19.03
	16-QAM	1770.0	-13.00	1 / 50	23.80	10.80	12.023	30.00	-19.20

Table 7-2. Antenna FCM EIRP Data (LTE Band 66)

FCC ID: BCG-A2476	 PCTEST [®] Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch			

LTE Band 4

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	1710.7	-13.00	1 / 3	24.02	11.02	12.647	30.00	-18.98
		1732.5	-13.00	1 / 5	23.80	10.80	12.023	30.00	-19.20
		1754.3	-13.00	1 / 5	23.77	10.77	11.940	30.00	-19.23
	16-QAM	1732.5	-13.00	1 / 5	23.53	10.53	11.298	30.00	-19.47
3 MHz	QPSK	1711.5	-13.00	1 / 0	23.73	10.73	11.830	30.00	-19.27
		1732.5	-13.00	1 / 0	24.20	11.20	13.183	30.00	-18.80
		1753.5	-13.00	1 / 0	23.74	10.74	11.858	30.00	-19.26
	16-QAM	1732.5	-13.00	1 / 7	23.54	10.54	11.324	30.00	-19.46
5 MHz	QPSK	1712.5	-13.00	1 / 12	23.73	10.73	11.830	30.00	-19.27
		1732.5	-13.00	1 / 0	24.05	11.05	12.735	30.00	-18.95
		1752.5	-13.00	1 / 24	23.77	10.77	11.940	30.00	-19.23
	16-QAM	1732.5	-13.00	1 / 12	23.72	10.72	11.803	30.00	-19.28
10 MHz	QPSK	1715.0	-13.00	1 / 25	23.70	10.70	11.749	30.00	-19.30
		1732.5	-13.00	1 / 0	24.10	11.10	12.882	30.00	-18.90
		1750.0	-13.00	1 / 49	23.71	10.71	11.776	30.00	-19.29
	16-QAM	1732.5	-13.00	1 / 25	23.65	10.65	11.614	30.00	-19.35
15 MHz	QPSK	1717.5	-13.00	1 / 37	23.61	10.61	11.508	30.00	-19.39
		1732.5	-13.00	1 / 0	24.23	11.23	13.274	30.00	-18.77
		1747.5	-13.00	1 / 0	23.53	10.53	11.298	30.00	-19.47
	16-QAM	1732.5	-13.00	1 / 0	23.42	10.42	11.015	30.00	-19.58
20 MHz	QPSK	1720.0	-13.00	1 / 99	23.76	10.76	11.912	30.00	-19.24
		1732.5	-13.00	1 / 0	24.24	11.24	13.305	30.00	-18.76
		1745.0	-13.00	1 / 50	23.79	10.79	11.995	30.00	-19.21
	16-QAM	1732.5	-13.00	1 / 0	23.72	10.72	11.803	30.00	-19.28

Table 7-3. Antenna FCM EIRP Data (LTE Band 4)

WCDMA AWS

Frequency [MHz]	Mode	Conducted Power [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [mW]	EIRP Limit [dBm]	Margin [dB]
1712.40	WCDMA1700	23.98	-13.00	10.98	12.531	30.00	-19.02
1732.60	WCDMA1700	23.86	-13.00	10.86	12.190	30.00	-19.14
1752.60	WCDMA1700	23.92	-13.00	10.92	12.359	30.00	-19.08

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

FCC ID: BCG-A2476	 PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)				Approved by: Quality Manager
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7.7 Radiated Spurious Emissions

§2.1053, §27.53(f)

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 broadband hybrid antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed while the EUT is operating at maximum power and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.8

ANSI C63.26 2015, 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 \geq 3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points \geq 2 x span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

FCC ID: BCG-A2476	 PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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Test Setup

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

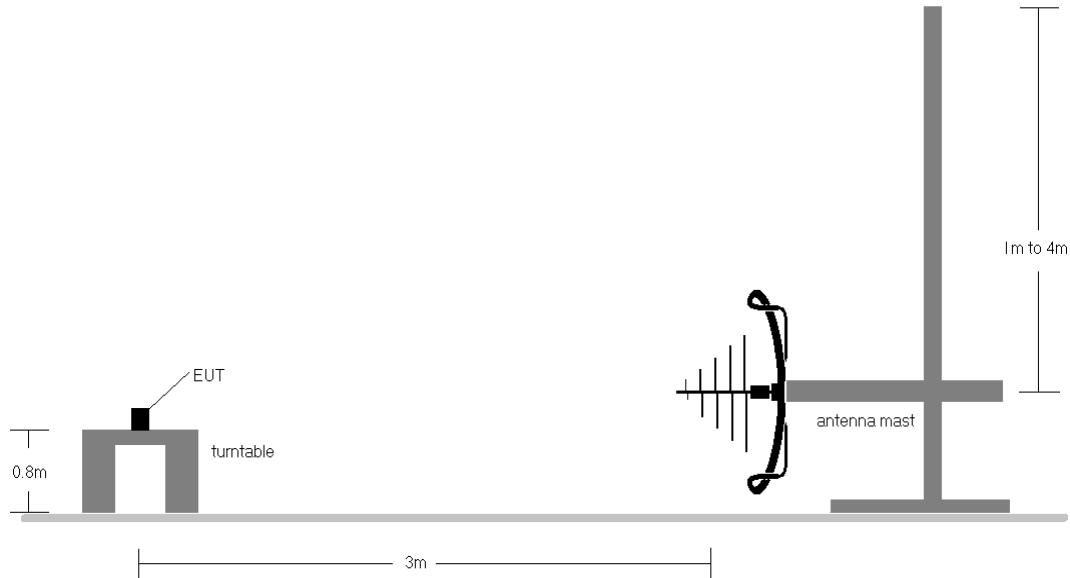


Figure 7-6. Test Instrument & Measurement Setup < 1GHz

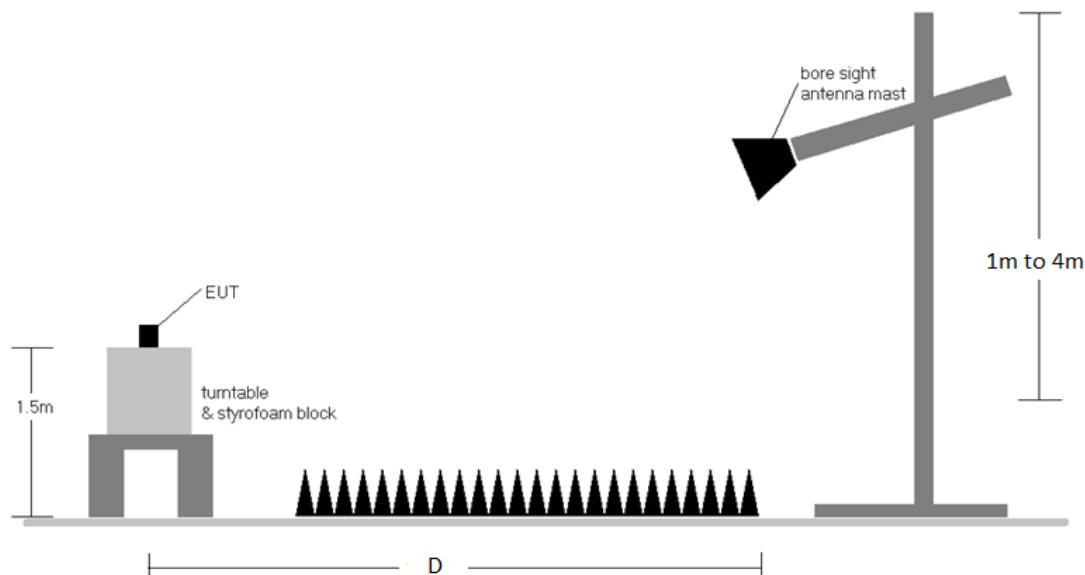


Figure 7-7. Test Instrument & Measurement Setup > 1GHz

FCC ID: BCG-A2476	PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch		Page 80 of 89

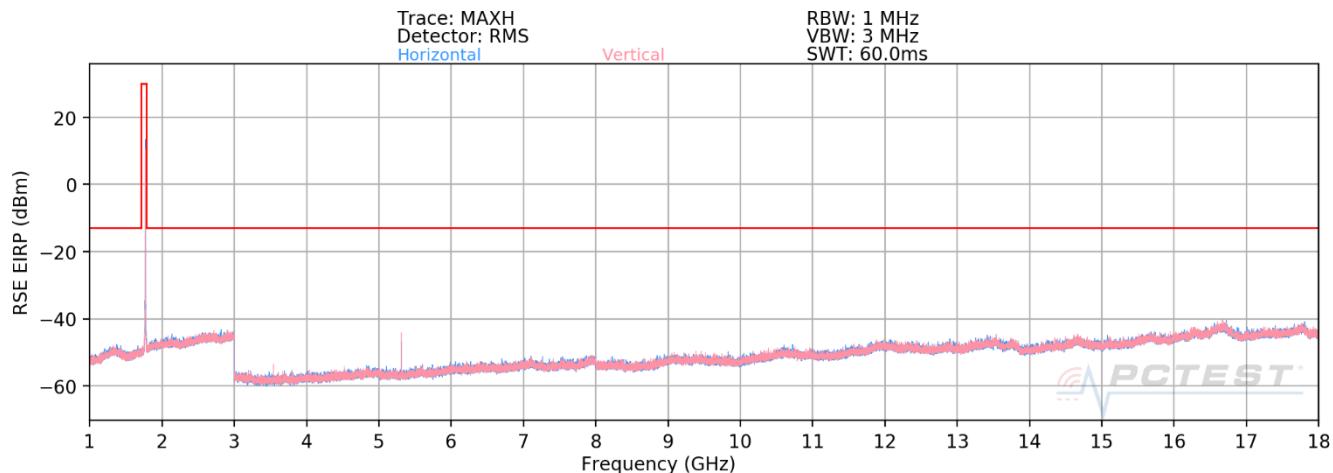
Test Notes

1. Field strengths are calculated using the Measurement quantity conversions in KDB 971168 Section 5.8.4.
 - a. $E(\text{dB}\mu\text{V}/\text{m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$
 - b. $\text{EIRP (dBm)} = E(\text{dB}\mu\text{V}/\text{m}) + 20\log D - 104.8$; where D is the measurement distance in meters.
2. 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.
3. This unit was tested with its standard battery.
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. 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.
6. The "-" shown in the following RSE tables are used to denote a noise floor measurement.

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7.7.1 Antenna FCM – Radiated Spurious Emission Measurement

LTE Band 66/4



Plot 7-109. Antenna FCM Radiated Spurious Emission above 1GHz (LTE Band 66/4)

FCC ID: BCG-A2476	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Bandwidth (MHz):	20								
Frequency (MHz):	1720.0								
RB / Offset:	1 / 50								
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3440.0	V	117	149	-72.09	5.64	40.55	-54.71	-13.00	-41.71
5160.0	V	347	5	-72.34	9.29	43.95	-51.31	-13.00	-38.31
6880.0	V	-	-	-84.32	11.64	34.32	-60.94	-13.00	-47.94
8600.0	V	-	-	-85.22	13.21	34.99	-60.27	-13.00	-47.27
10320.0	V	-	-	-84.74	15.32	37.58	-57.68	-13.00	-44.68

Table 7-5. Antenna FCM Radiated Spurious Data (LTE Band 66/4 – Low Channel)

Bandwidth (MHz):	20								
Frequency (MHz):	1745.0								
RB / Offset:	1 / 50								
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3490.0	V	109	150	-73.99	6.03	39.04	-56.22	-13.00	-43.22
5235.0	V	311	159	-71.53	8.86	44.33	-50.93	-13.00	-37.93
6980.0	V	-	-	-84.11	11.98	34.87	-60.39	-13.00	-47.39
8725.0	V	-	-	-84.60	13.21	35.61	-59.65	-13.00	-46.65
10470.0	V	-	-	-85.16	16.46	38.30	-56.95	-13.00	-43.95

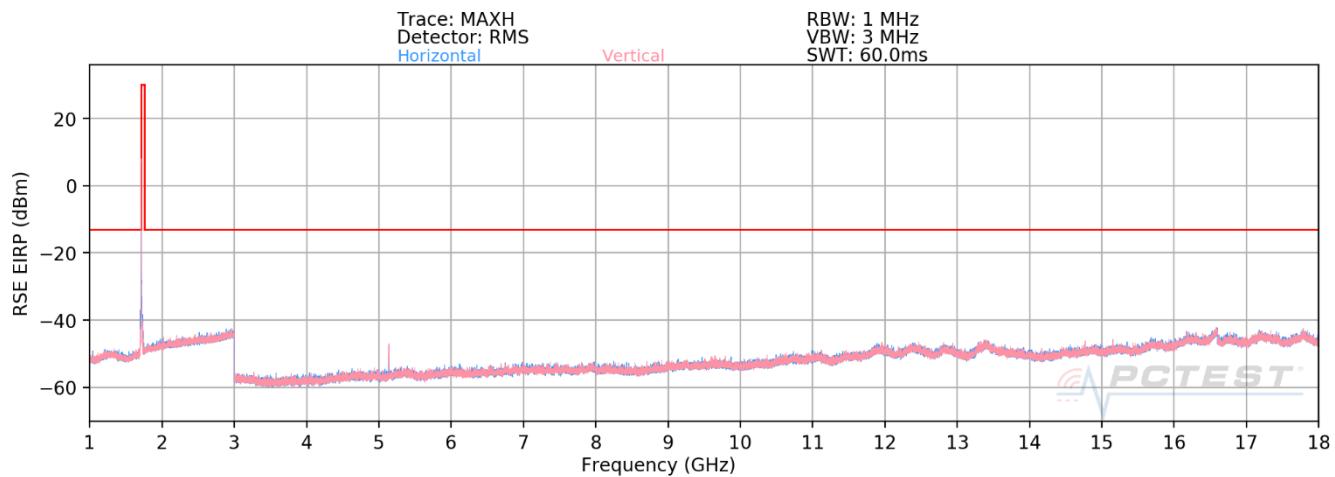
Table 7-6. Antenna FCM Radiated Spurious Data (LTE Band 66/4 – Mid Channel)

Bandwidth (MHz):	20								
Frequency (MHz):	1770.0								
RB / Offset:	1 / 50								
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3540.00	V	101	149	-77.78	6.19	35.41	-59.85	-13.00	-46.85
5310.00	V	273	148	-68.22	8.78	47.56	-47.70	-13.00	-34.70
7080.00	V	-	-	-84.16	12.18	35.02	-60.23	-13.00	-47.23
8850.00	V	-	-	-84.32	13.26	35.94	-59.32	-13.00	-46.32
10620.00	V	-	-	-84.70	16.78	39.08	-56.17	-13.00	-43.17

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

FCC ID: BCG-A2476	 PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)						Approved by: Quality Manager
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WCDMA AWS



Plot 7-110. Antenna FCM Radiated Spurious Emission above 1GHz (WCDMA AWS)

FCC ID: BCG-A2476	 PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch		Page 84 of 89

Mode:	WCDMA RMC								
Channel:	1312								
Frequency (MHz):	1712.4								
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3424.8	V	106	136	-76.76	4.14	34.38	-60.88	-13.00	-47.88
5137.2	V	338	141	-67.63	7.19	46.56	-48.69	-13.00	-35.69
6849.6	V	-	-	-82.23	9.56	34.33	-60.93	-13.00	-47.93
8562.0	V	-	-	-84.14	11.04	33.90	-61.35	-13.00	-48.35
10274.4	V	-	-	-84.01	12.91	35.90	-59.35	-13.00	-46.35

7-8. Antenna FCM Radiated Spurious Data (WCDMA AWS – Low Channel)

Mode:	WCDMA RMC								
Channel:	1413								
Frequency (MHz):	1732.6								
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3465.2	V	110	125	-75.11	4.36	36.25	-59.00	-13.00	-46.00
5197.8	V	394	99	-73.28	7.52	41.24	-54.01	-13.00	-41.01
6930.4	V	-	-	-82.29	9.29	34.00	-61.26	-13.00	-48.26
8663.0	V	-	-	-83.94	11.26	34.32	-60.94	-13.00	-47.94
10395.6	V	-	-	-83.74	12.76	36.02	-59.23	-13.00	-46.23

Table 7-9. Antenna FCM Radiated Spurious Data (WCDMA AWS – Mid Channel)

Mode:	WCDMA RMC								
Channel:	1513								
Frequency (MHz):	1752.6								
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3505.2	V	114	130	-75.15	4.21	36.06	-59.20	-13.00	-46.20
5257.8	V	321	120	-72.52	8.34	42.82	-52.43	-13.00	-39.43
7010.4	V	-	-	-81.97	9.67	34.70	-60.56	-13.00	-47.56
8763.0	V	-	-	-83.27	10.95	34.68	-60.57	-13.00	-47.57
10515.6	V	-	-	-84.07	13.60	36.53	-58.73	-13.00	-45.73

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

FCC ID: BCG-A2476	 PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)					Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch					

7.8 Frequency Stability / Temperature Variation

§2.1053, §27.53

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:

- Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- 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 27, 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

- The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
- 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.
- 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

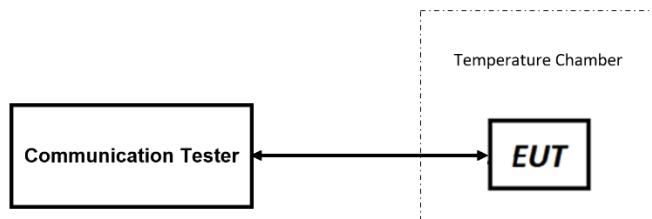
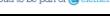


Figure 7-8. Test Instrument & Measurement Setup

Test Notes

None.

FCC ID: BCG-A2476	 PCTEST [®] Proud to be part of 		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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Frequency Stability / Temperature Variation

LTE Band 66/4							
		Low Channel Frequency (Hz):		1,720,000,000			
		High Channel Frequency (Hz):		1,770,000,000			
		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	1,720,000,062	1,770,000,059	29.43	33.70	0.0000019
		- 20	1,720,000,059	1,770,000,043	26.18	17.31	0.0000015
		- 10	1,720,000,055	1,770,000,047	22.02	21.54	0.0000013
		0	1,720,000,064	1,770,000,049	30.70	23.33	0.0000018
		+ 10	1,720,000,062	1,770,000,050	29.10	24.75	0.0000017
		+ 20 (Ref)	1,720,000,033	1,770,000,026	0.00	0.00	0.0000000
		+ 30	1,720,000,070	1,770,000,054	36.66	28.05	0.0000021
		+ 40	1,720,000,062	1,770,000,062	29.43	36.13	0.0000020
		+ 50	1,720,000,065	1,770,000,059	31.64	33.37	0.0000019
		Battery Endpoint	3.40	+ 20	1,720,000,053	1,770,000,052	20.07
					20.07	26.18	0.0000015

Table 7-11. LTE Band 66/4 Frequency Stability Data

FCC ID: BCG-A2476	 PCTEST® Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Page 87 of 89

Frequency Stability / Temperature Variation

WCDMA AWS							
		Low Channel Frequency (Hz):		1,712,400,000			
		High Channel Frequency (Hz):		1,752,600,000			
		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	1,712,400,000	1,752,600,000	0.00	0.00	0.0000000
		- 20	1,712,399,999	1,752,600,000	-1.00	0.00	-0.0000001
		- 10	1,712,399,998	1,752,600,000	-2.00	0.00	-0.0000001
		0	1,712,399,998	1,752,599,999	-2.00	-1.00	-0.0000001
		+ 10	1,712,400,000	1,752,599,999	0.00	-1.00	-0.0000001
		+ 20 (Ref)	1,712,400,000	1,752,600,000	0.00	0.00	0.0000000
		+ 30	1,712,400,000	1,752,600,000	0.00	0.00	0.0000000
		+ 40	1,712,400,001	1,752,600,001	1.00	1.00	0.0000001
		+ 50	1,712,400,001	1,752,599,999	1.00	-1.00	0.0000001
Battery Endpoint	3.40	+ 20	1,712,400,001	1,752,600,001	1.00	1.00	0.0000001

Table 7-23. WCDMA AWS Frequency Stability Data

FCC ID: BCG-A2476	 PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Page 88 of 89

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Apple Watch FCC ID: BCG-A2476** complies with all the requirements of Part 27 of the FCC rules.

FCC ID: BCG-A2476	 PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C2106070044-03.BCG	Test Dates: 06-08-2021 – 08-04-2021	EUT Type: Watch	Page 89 of 89