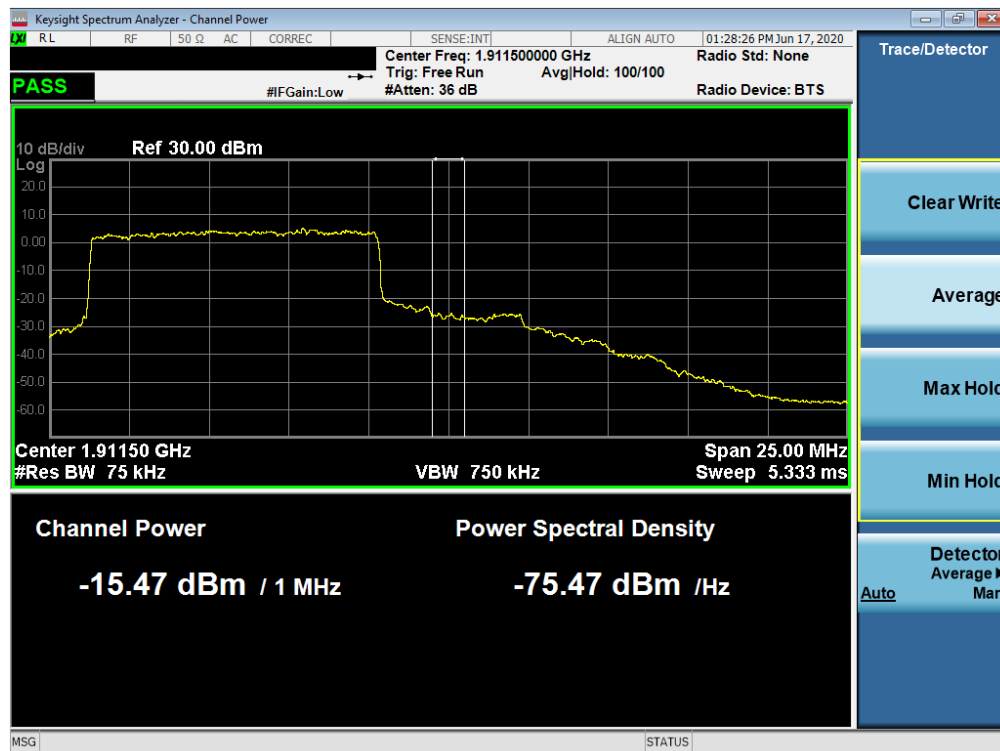




Plot 7-122. Upper Band Edge Plot (NR Band n2 – 10.0MHz - Full RB)

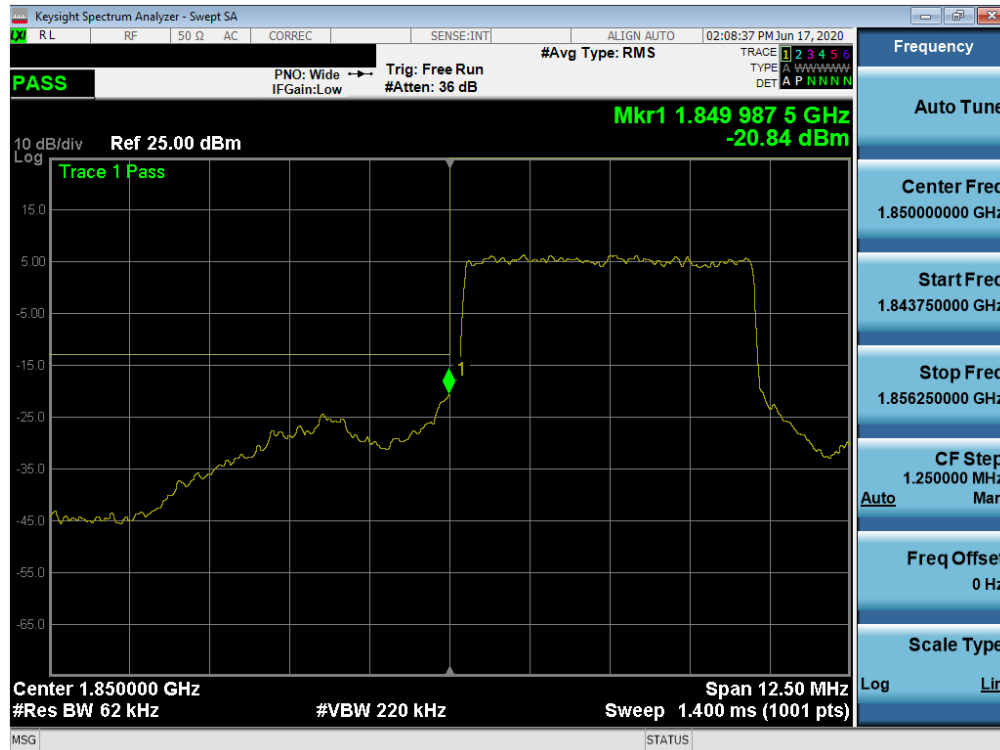


Plot 7-123. Upper Extended Band Edge Plot (NR Band n2 – 10.0MHz - Full RB)

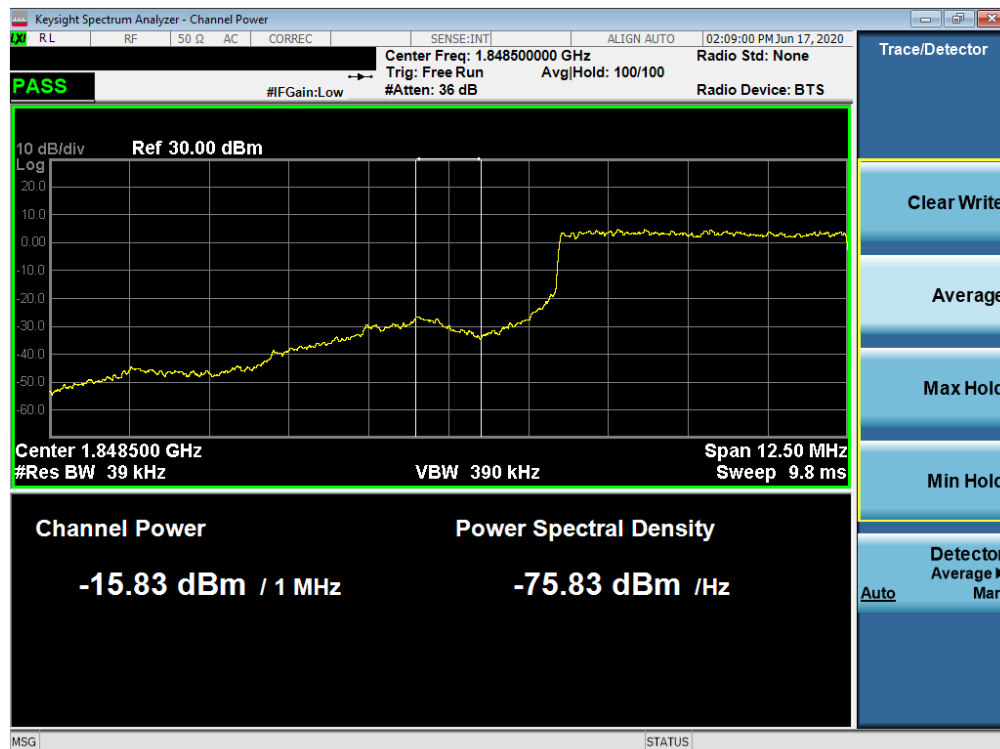
FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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Plot 7-124. Lower Band Edge Plot (NR Band n2 – 5.0MHz - Full RB)

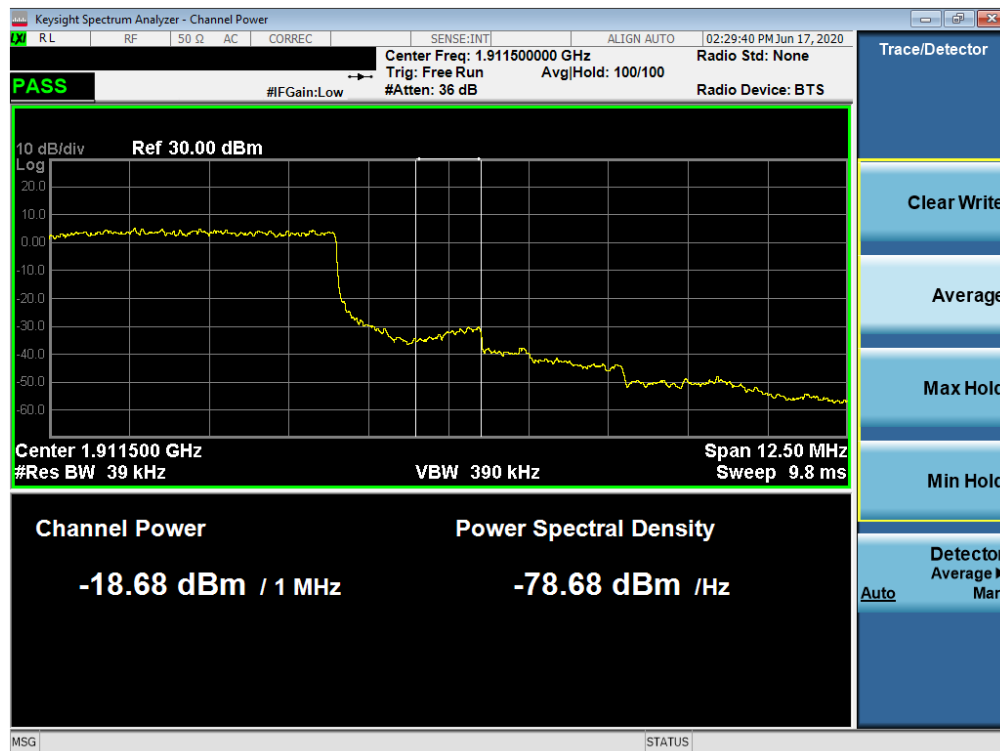


Plot 7-125. Lower Extended Band Edge Plot (NR Band n2 – 5.0MHz - Full RB)

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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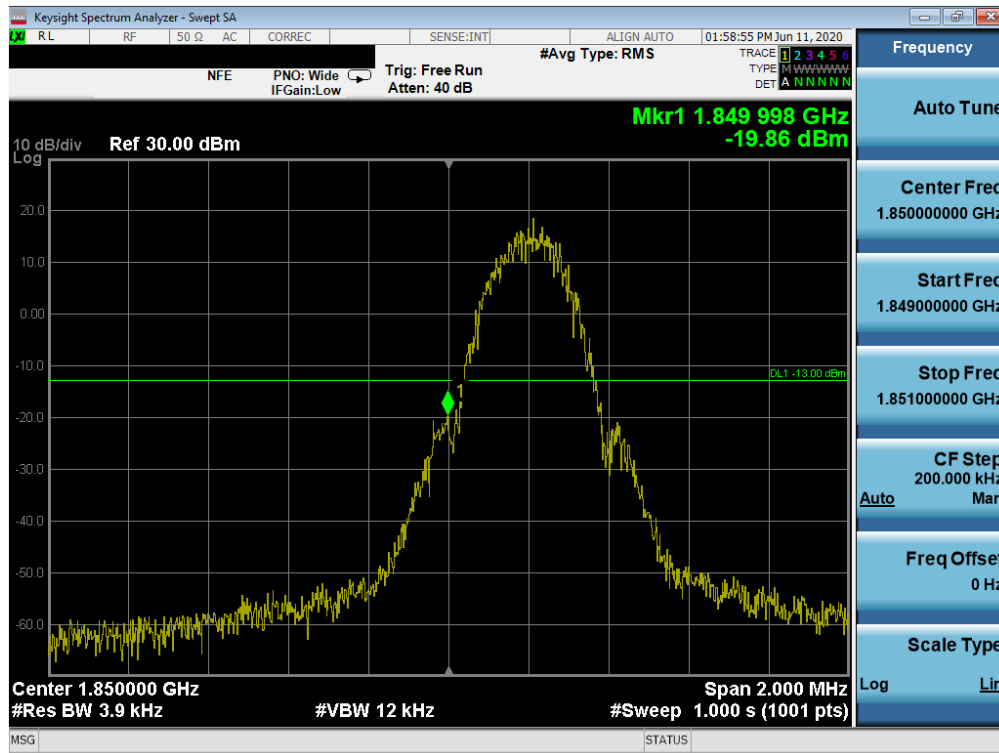
Plot 7-126. Upper Band Edge Plot (NR Band n2 – 5.0MHz - Full RB)



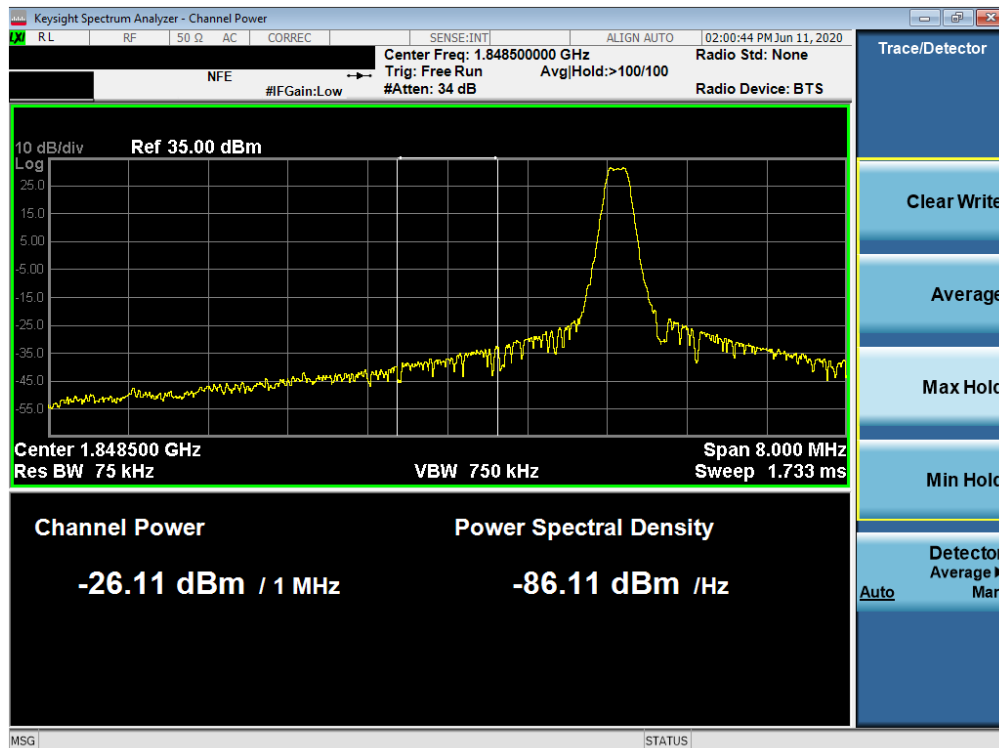
Plot 7-127. Upper Extended Band Edge Plot (NR Band n2 – 5.0MHz - Full RB)

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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GSM/GPRS PCS



Plot 7-128. Lower Band Edge Plot (GPRS PCS – Ch. 512)

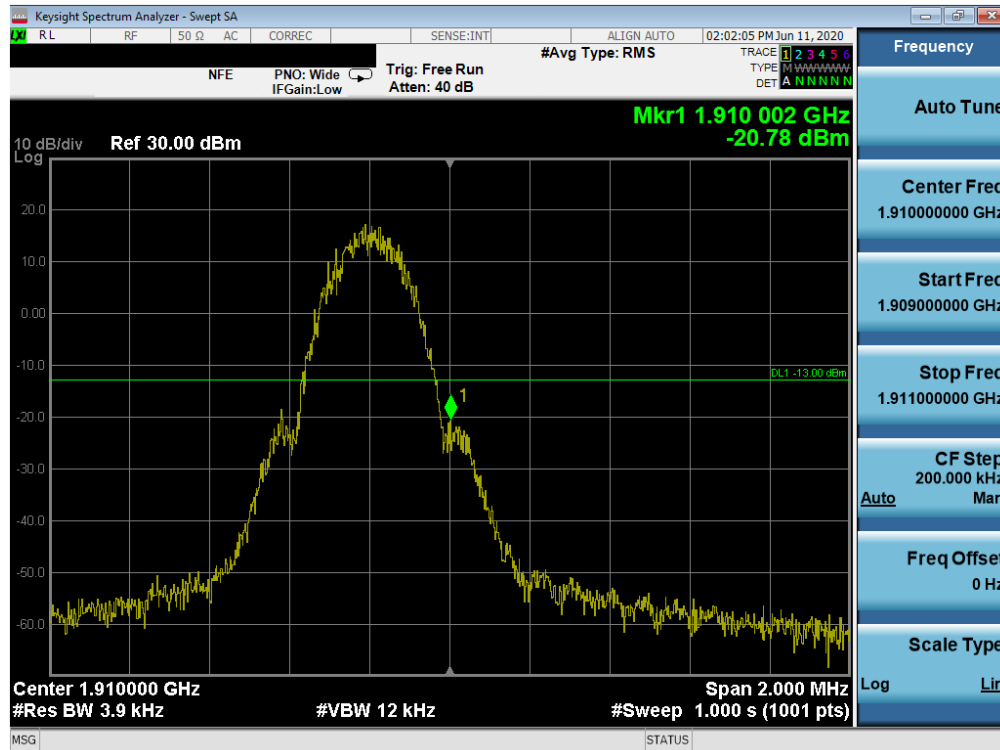


Plot 7-129. Extended Lower Band Edge Plot (GPRS PCS – Ch. 512)

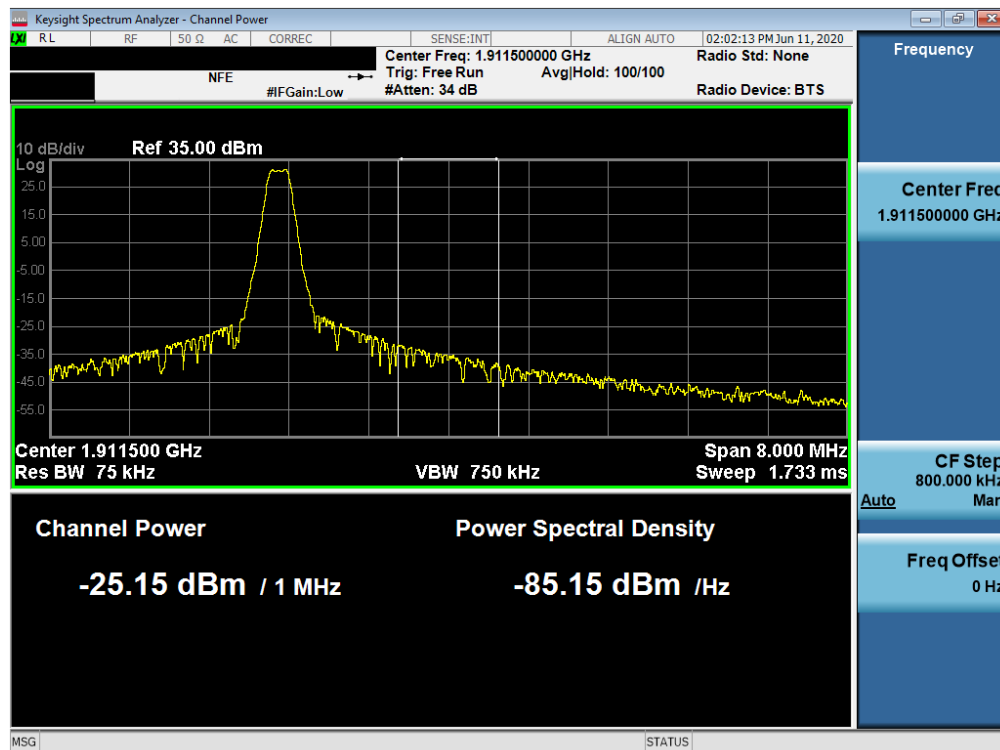
FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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Plot 7-130. Upper Band Edge Plot (GPRS PCS – Ch. 810)



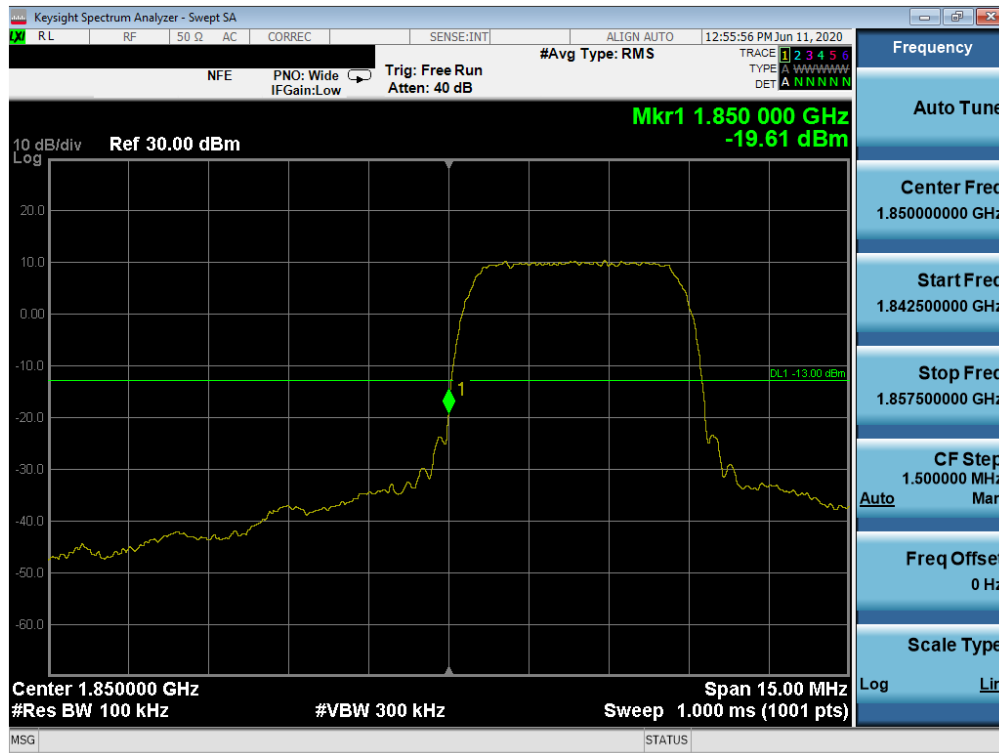
Plot 7-131. Extended Upper Band Edge Plot (GPRS PCS – Ch. 810)

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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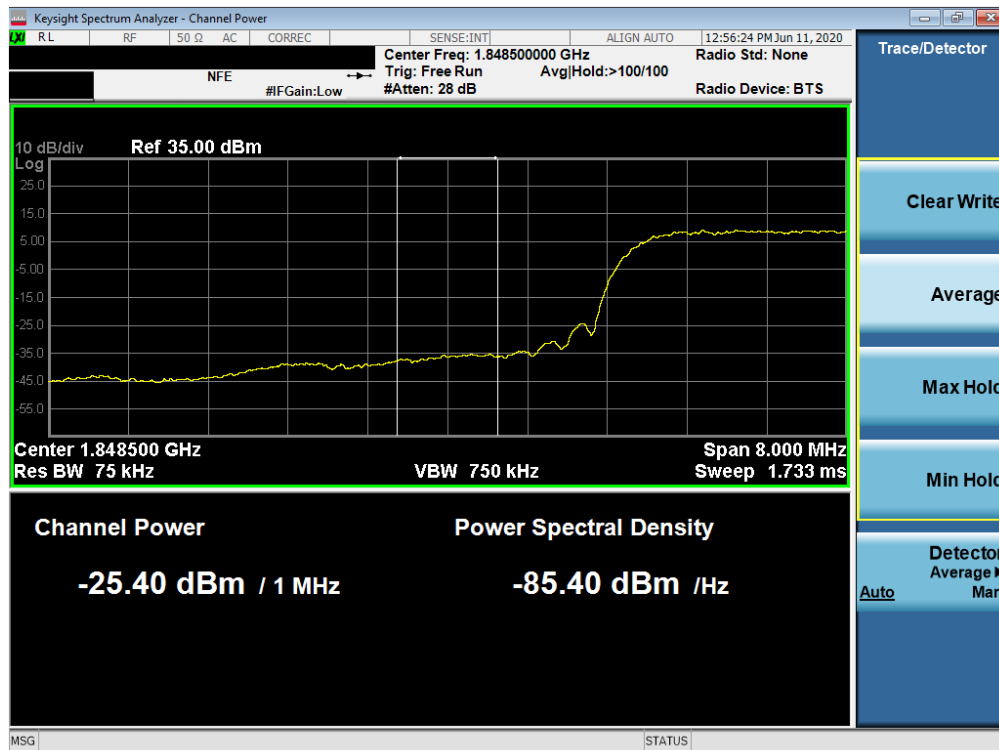
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WCDMA PCS



Plot 7-132. Lower Band Edge Plot (WCDMA PCS – Ch. 9262)



Plot 7-133. Extended Lower Band Edge Plot (WCDMA PCS – Ch. 9262)

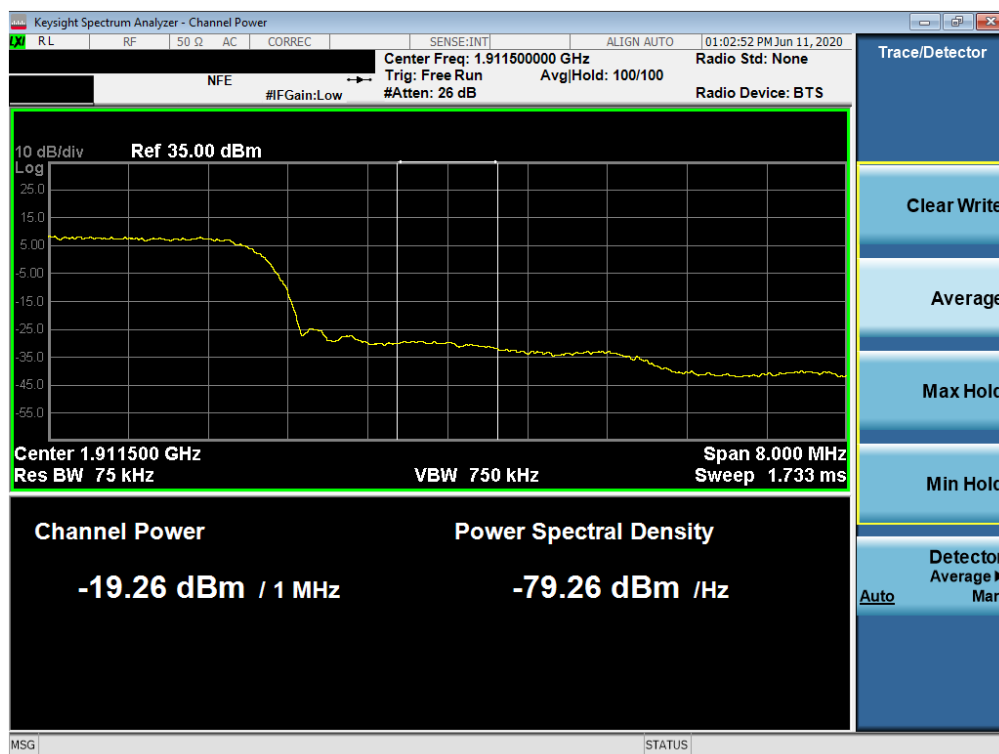
FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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Plot 7-134. Upper Band Edge Plot (WCDMA PCS – Ch. 9538)



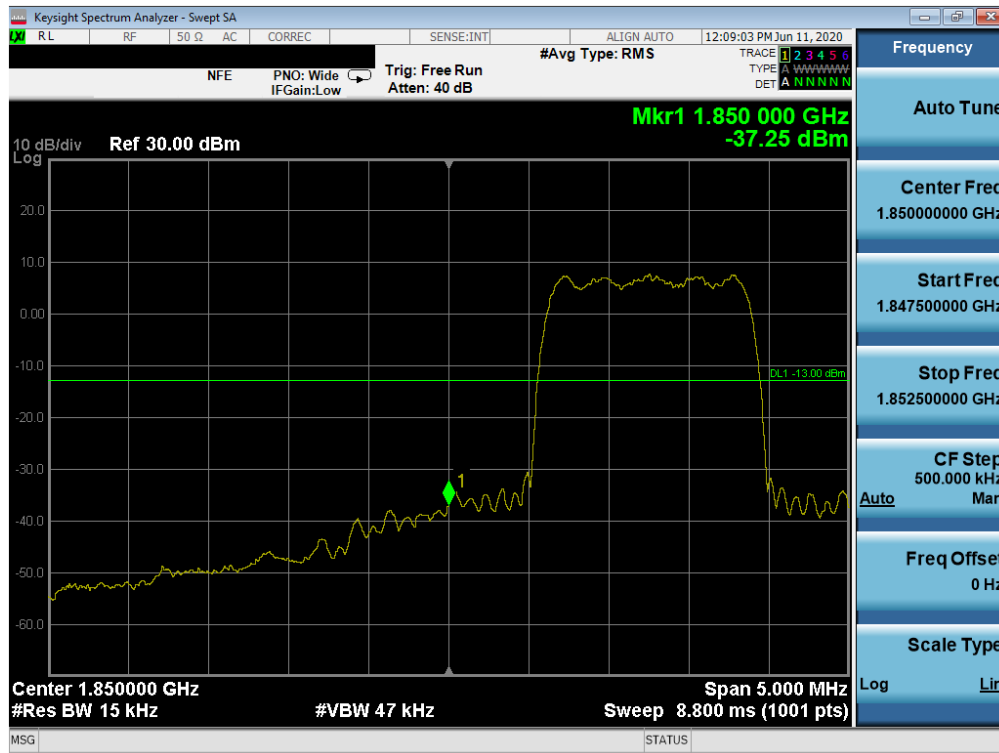
Plot 7-135. Extended Upper Band Edge Plot (WCDMA PCS – Ch. 9538)

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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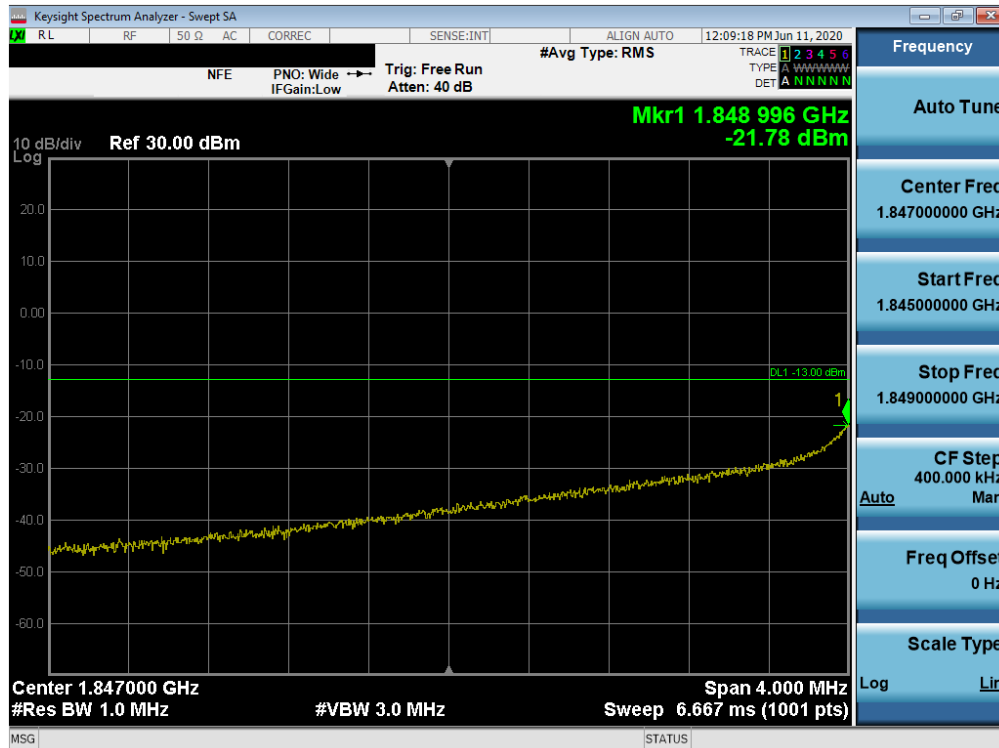
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CDMA PCS



Plot 7-136. Lower Band Edge Plot (CDMA PCS – Ch. 25)

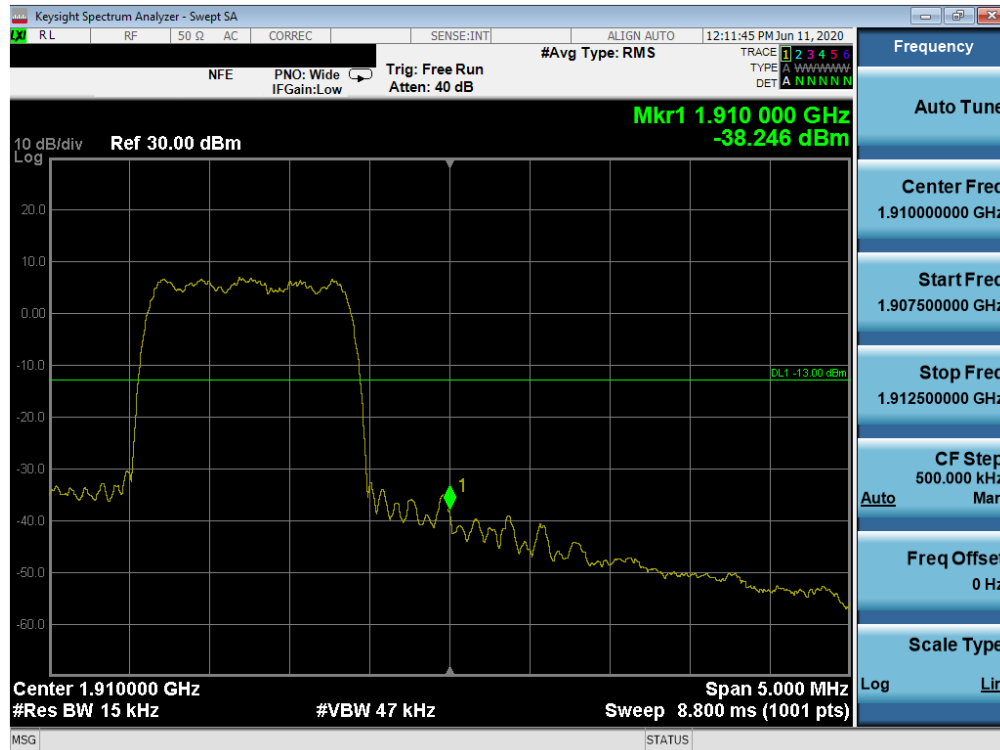


Plot 7-137. Extended Lower Band Edge Plot (CDMA PCS – Ch. 25)

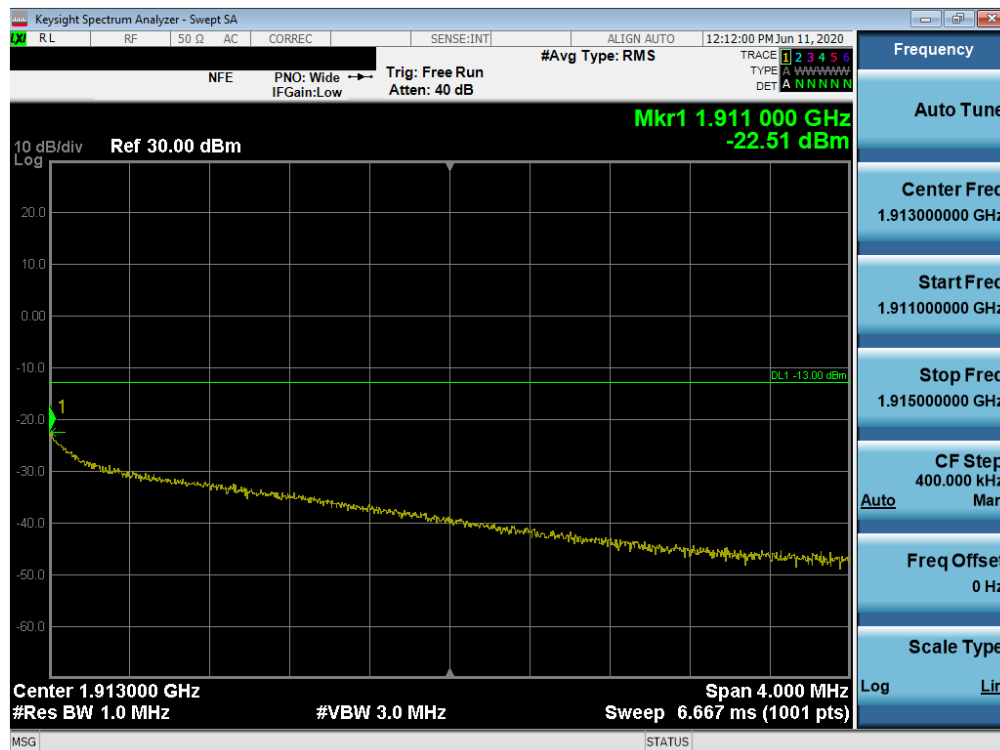
FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Quality Manager
Test Report S/N: 1M2004230076-03.ZNF	Test Dates: 4/27/2020 - 6/25/2020	EUT Type: Portable Handset		Page 88 of 138

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Plot 7-138. Upper Band Edge Plot (CDMA PCS – Ch. 1175)



Plot 7-139. Extended Upper Band Edge Plot (CDMA PCS – Ch. 1175)

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Quality Manager
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7.5 Peak-Average Ratio

Test Overview

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

Test Procedure Used

KDB 971168 D01 v03r01 – Section 5.7.1

Test Settings

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW $\geq$ 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.

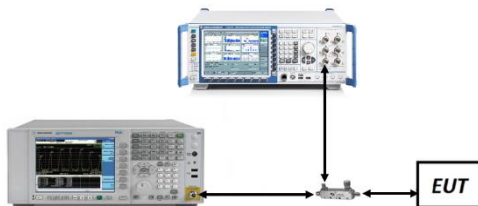


Figure 7-4. Test Instrument & Measurement Setup

Test Notes

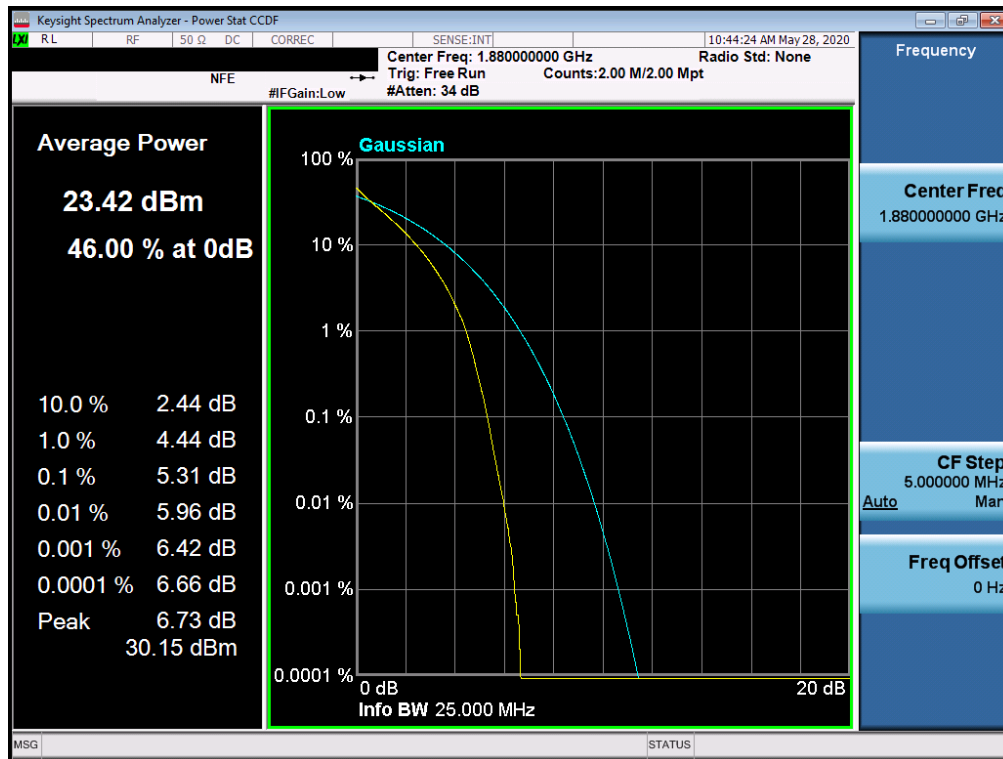
None.

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Quality Manager
Test Report S/N: 1M2004230076-03.ZNF	Test Dates: 4/27/2020 - 6/25/2020	EUT Type: Portable Handset		Page 90 of 138

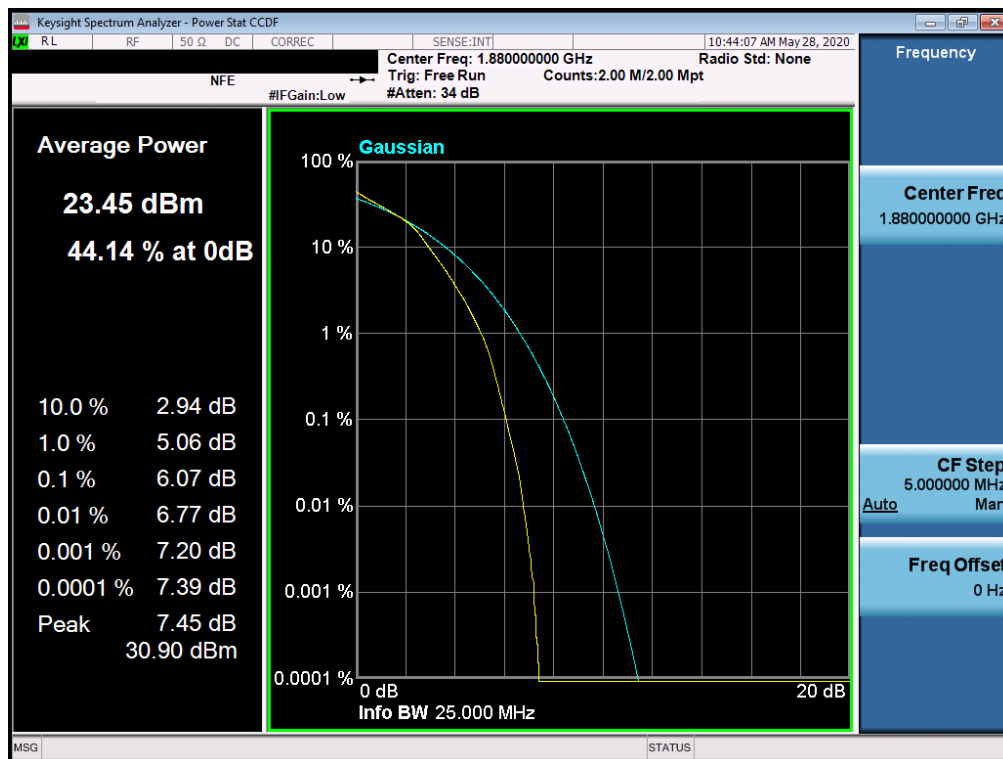
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LTE Band 2



Plot 7-140. PAR Plot (LTE Band 2 - 20MHz QPSK - Full RB Configuration)

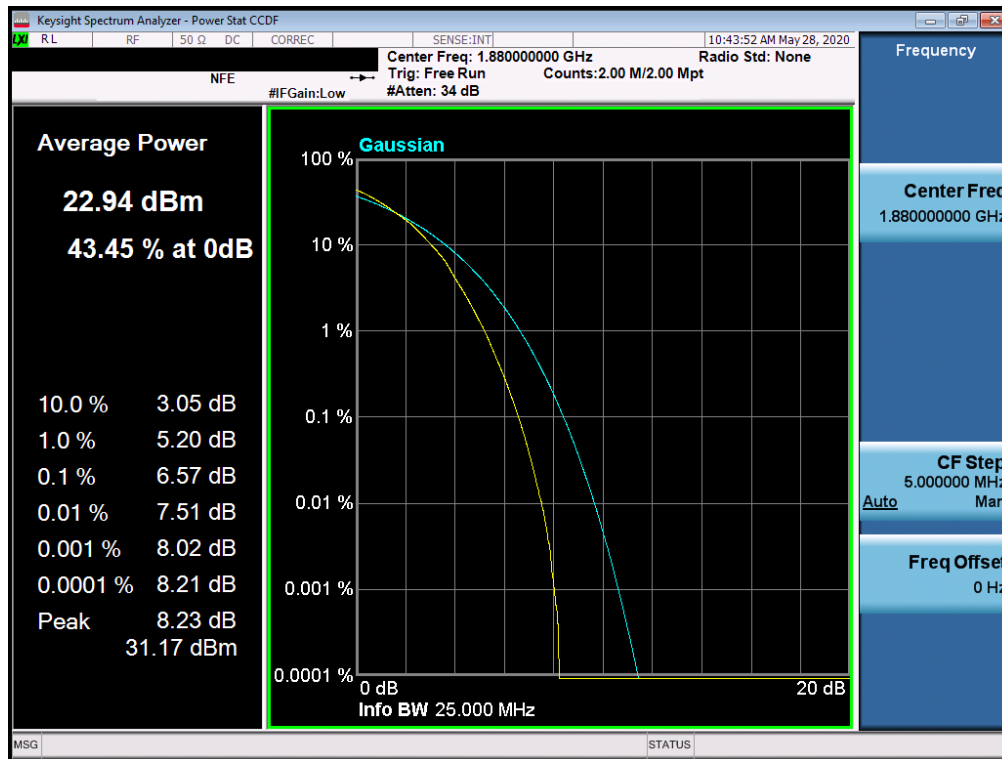


Plot 7-141. PAR Plot (LTE Band 2 - 20MHz 16-QAM - Full RB Configuration)

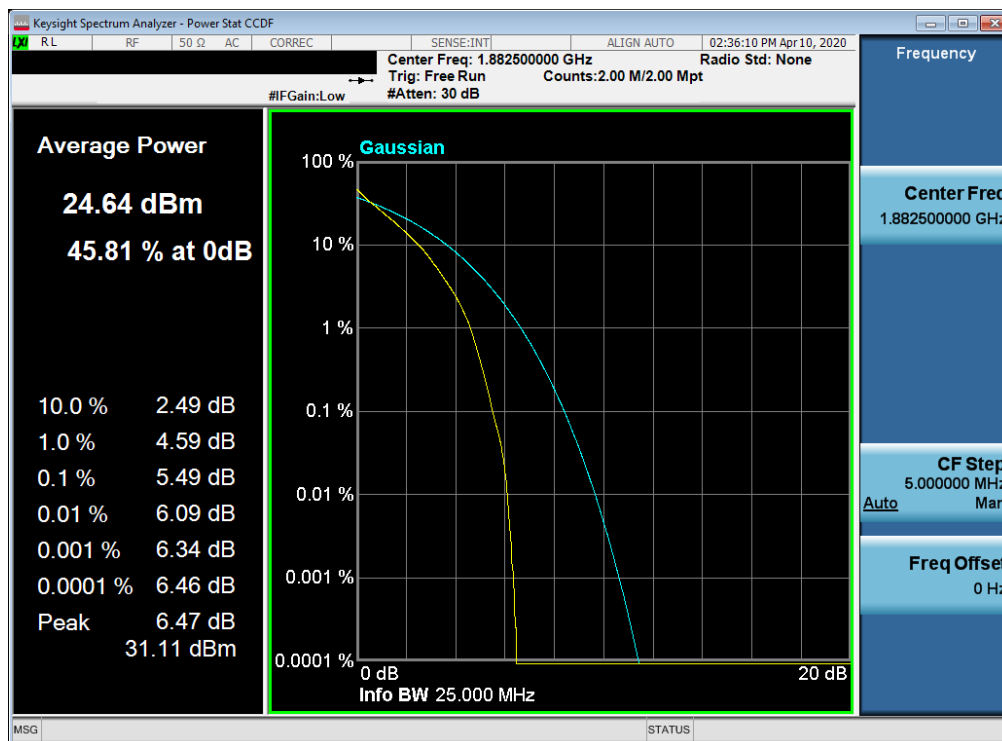
FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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Plot 7-142. PAR Plot (LTE Band 2 - 20MHz 64-QAM - Full RB Configuration)

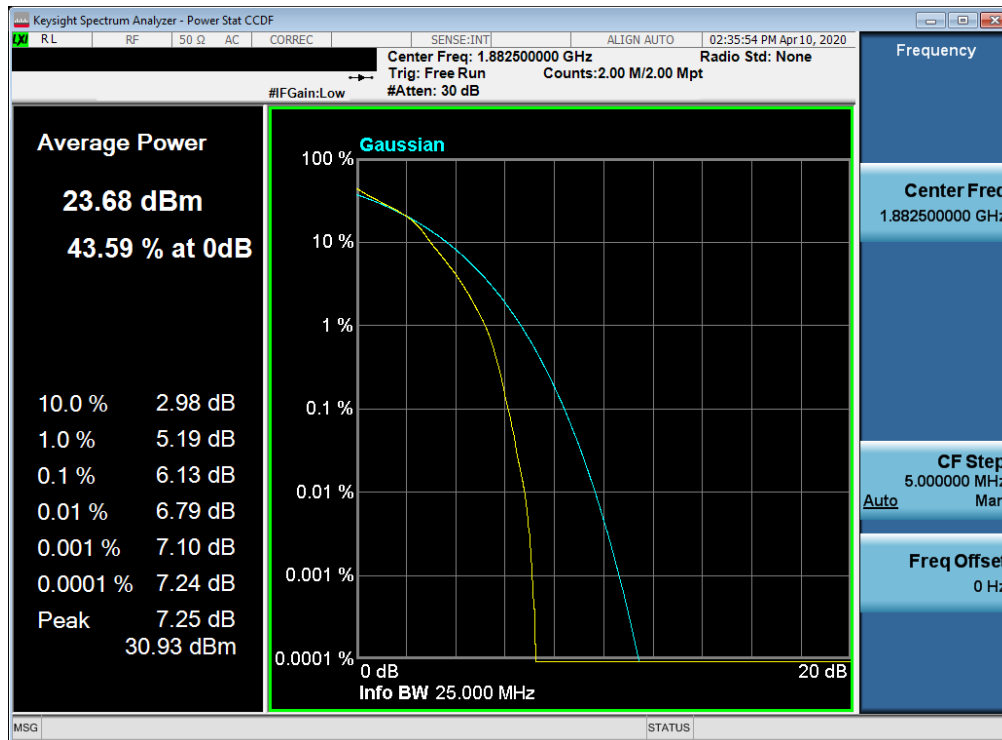


Plot 7-143. PAR Plot (LTE Band 2 - 15MHz QPSK - Full RB Configuration)

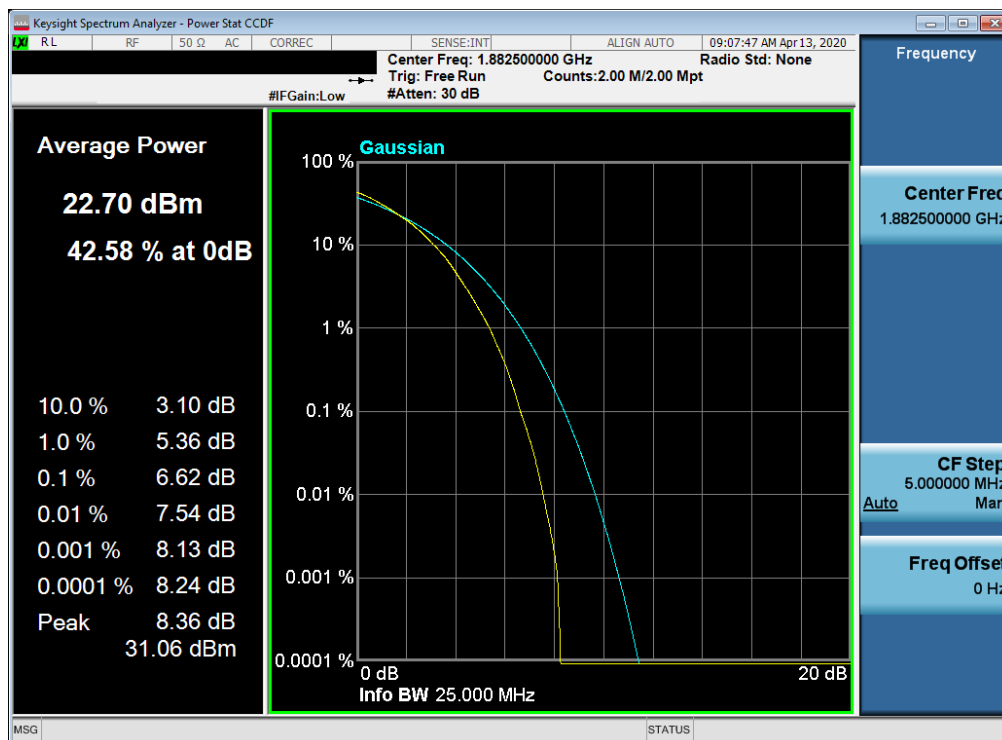
FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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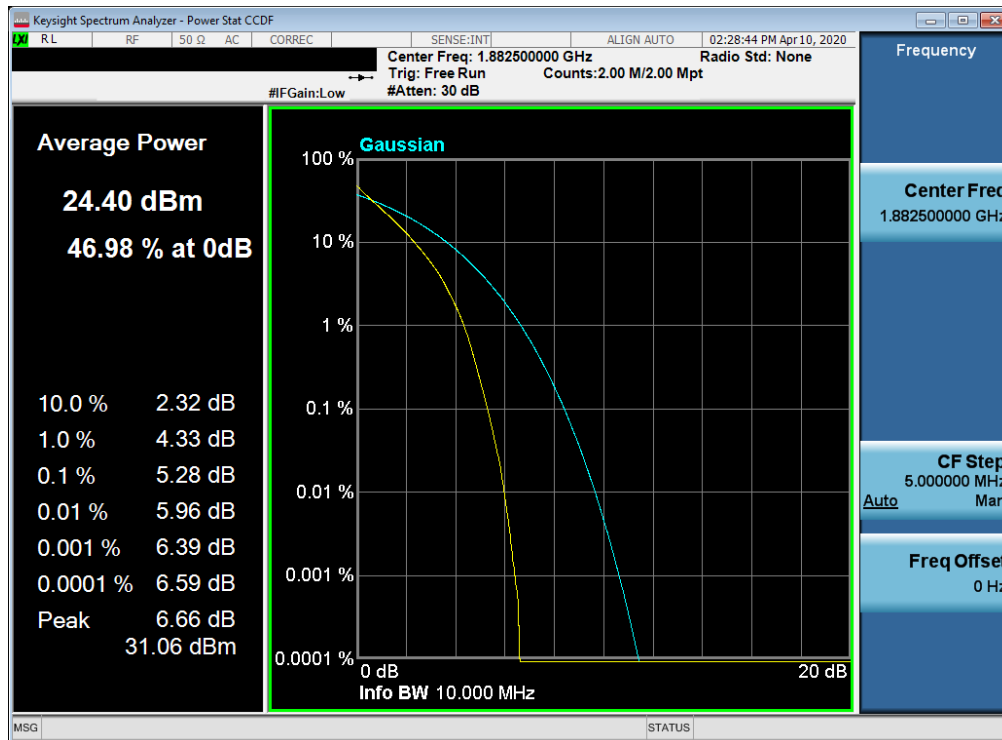


Plot 7-144. PAR Plot (LTE Band 2 - 15MHz 16-QAM - Full RB Configuration)

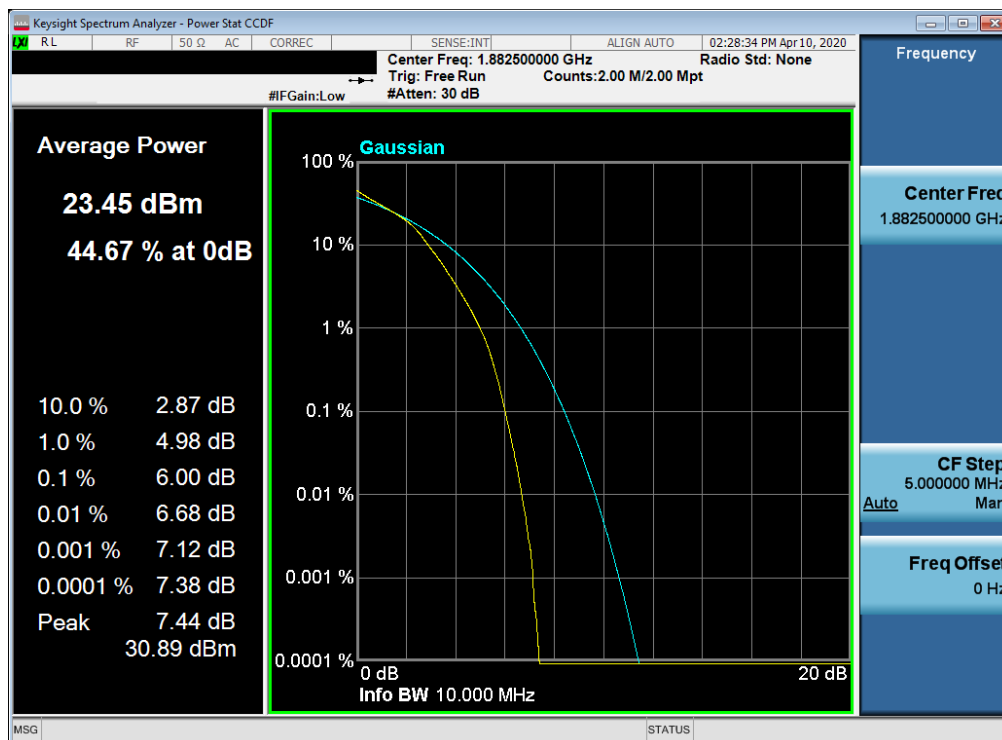


Plot 7-145. PAR Plot (LTE Band 2 - 15MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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Plot 7-146. PAR Plot (LTE Band 2 - 10MHz QPSK - Full RB Configuration)

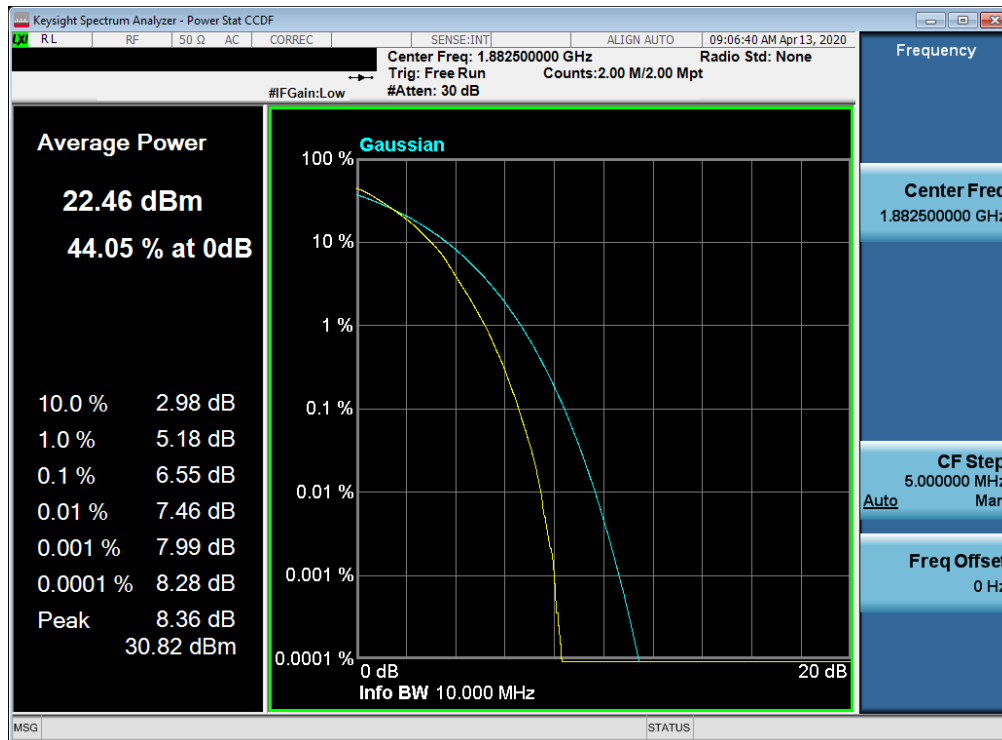


Plot 7-147. PAR Plot (LTE Band 2 - 10MHz 16-QAM - Full RB Configuration)

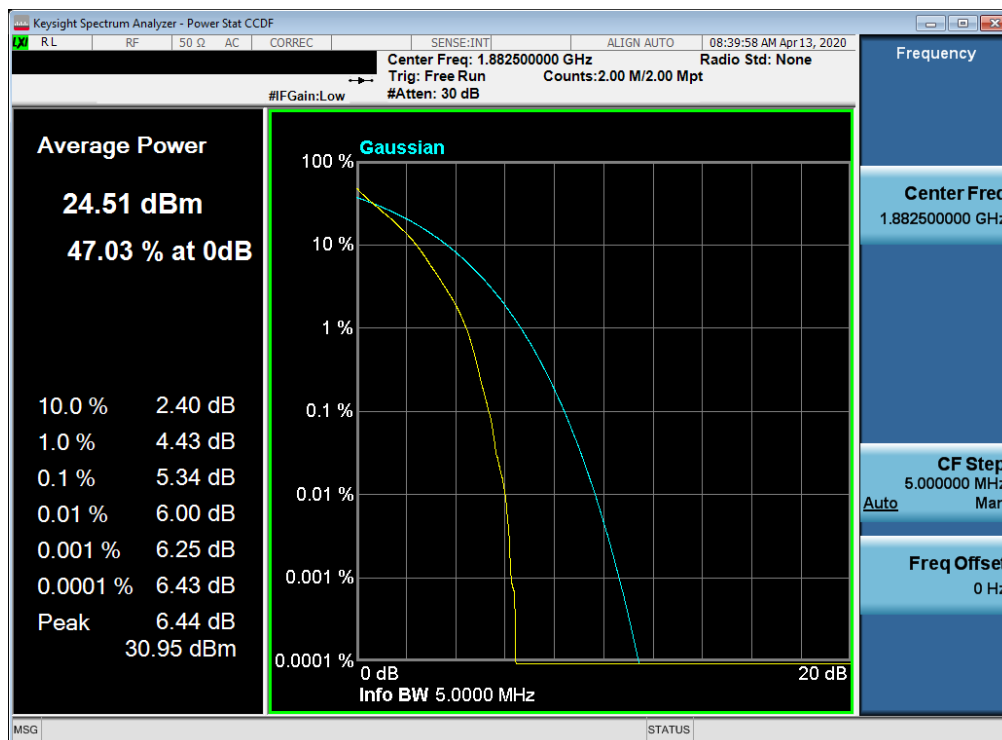
FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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Plot 7-148. PAR Plot (LTE Band 2 - 10MHz 64-QAM - Full RB Configuration)

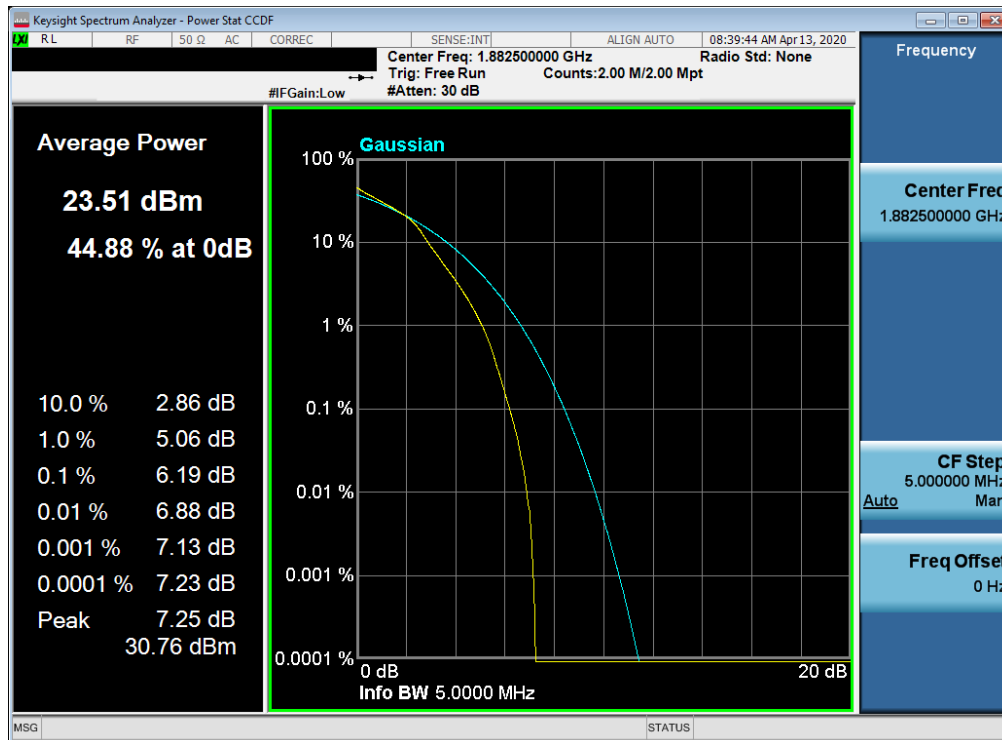


Plot 7-149. PAR Plot (LTE Band 2 - 5MHz QPSK - Full RB Configuration)

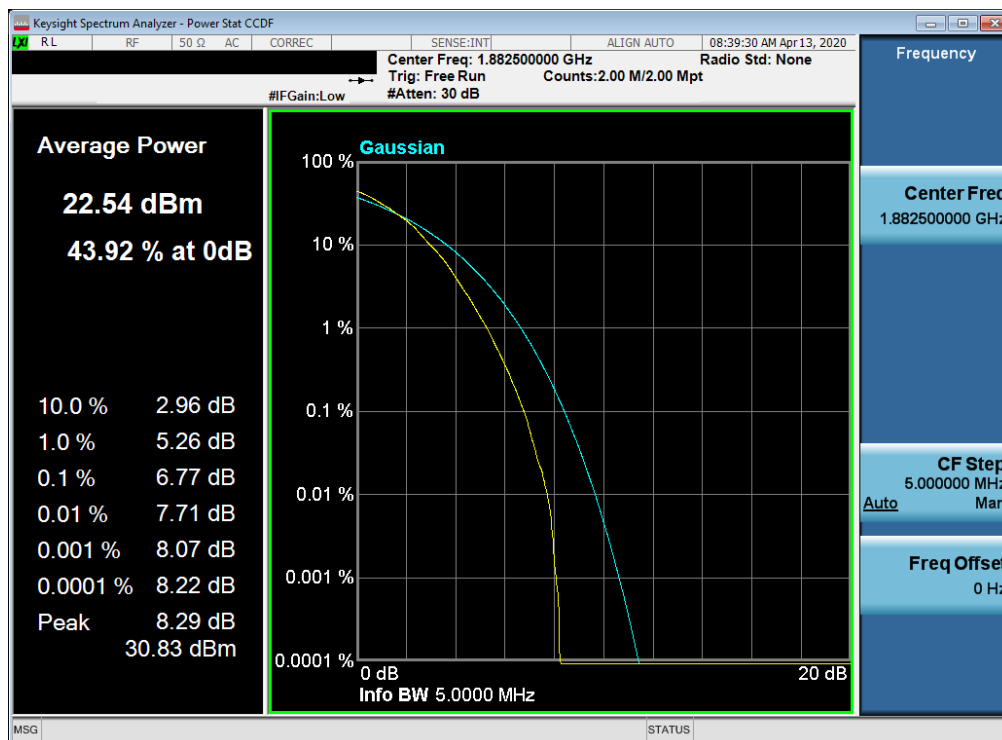
FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
Test Report S/N: 1M2004230076-03.ZNF	Test Dates: 4/27/2020 - 6/25/2020	EUT Type: Portable Handset	Page 95 of 138

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Plot 7-150. PAR Plot (LTE Band 2 - 5MHz 16-QAM - Full RB Configuration)

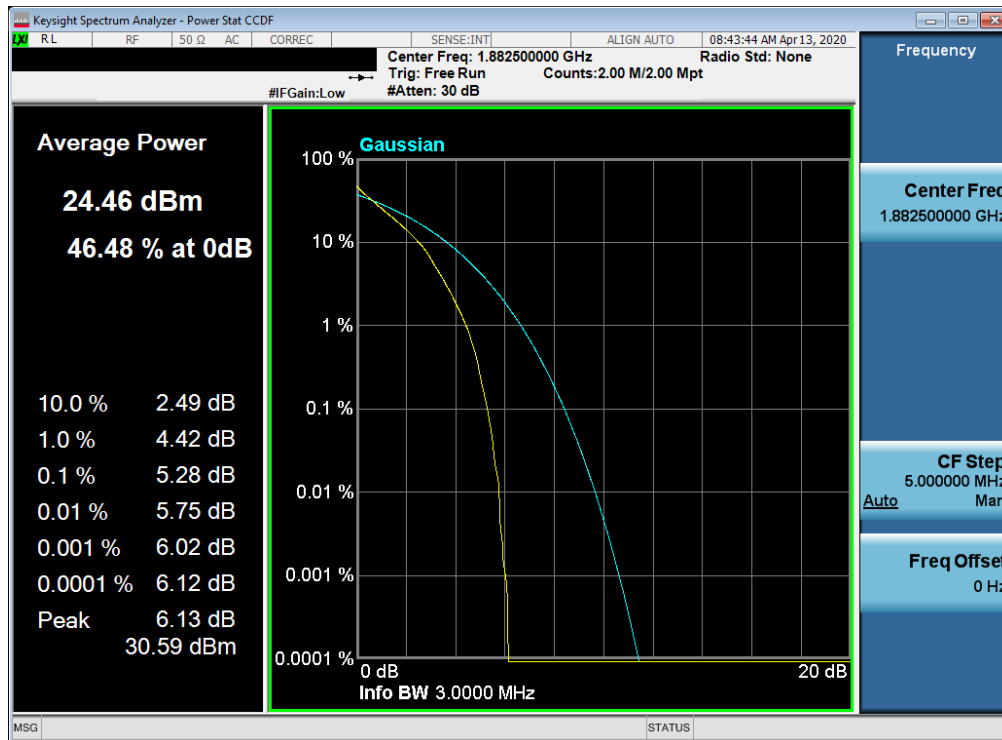


Plot 7-151. PAR Plot (LTE Band 2 - 5MHz 64-QAM - Full RB Configuration)

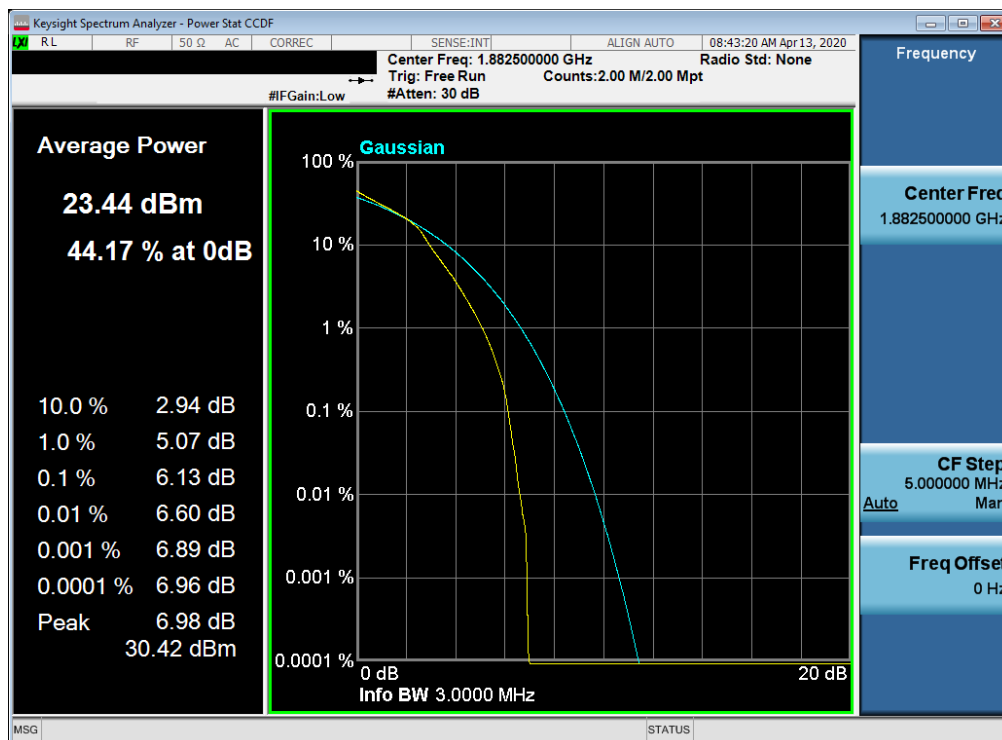
FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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Plot 7-152. PAR Plot (LTE Band 2 - 3MHz QPSK - Full RB Configuration)

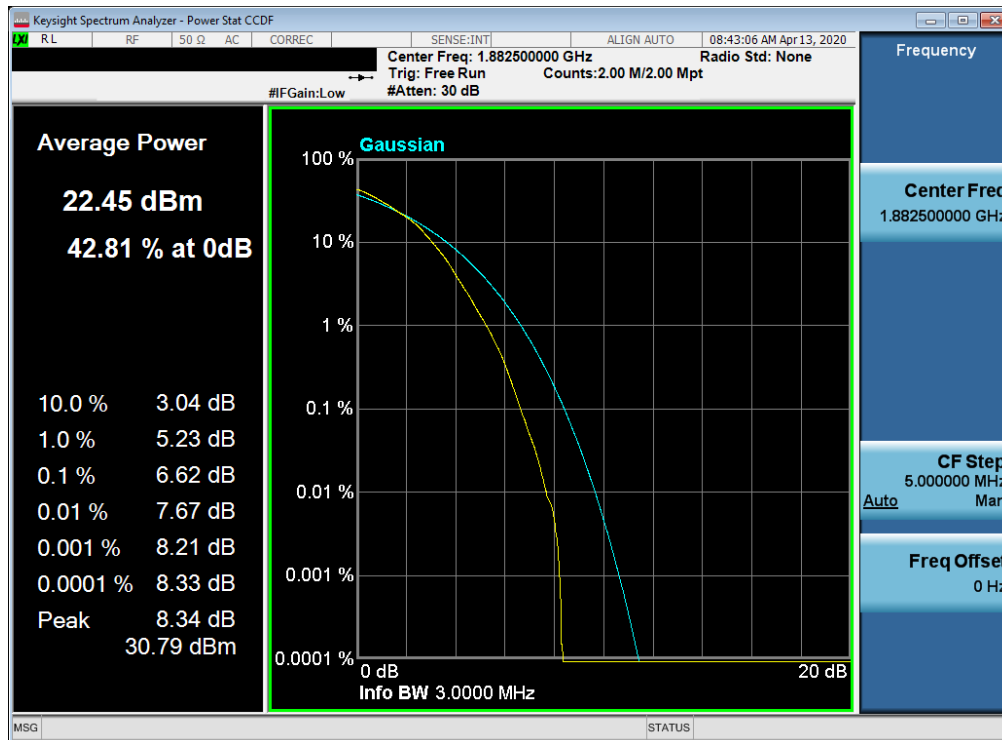


Plot 7-153. PAR Plot (LTE Band 2 - 3MHz 16-QAM - Full RB Configuration)

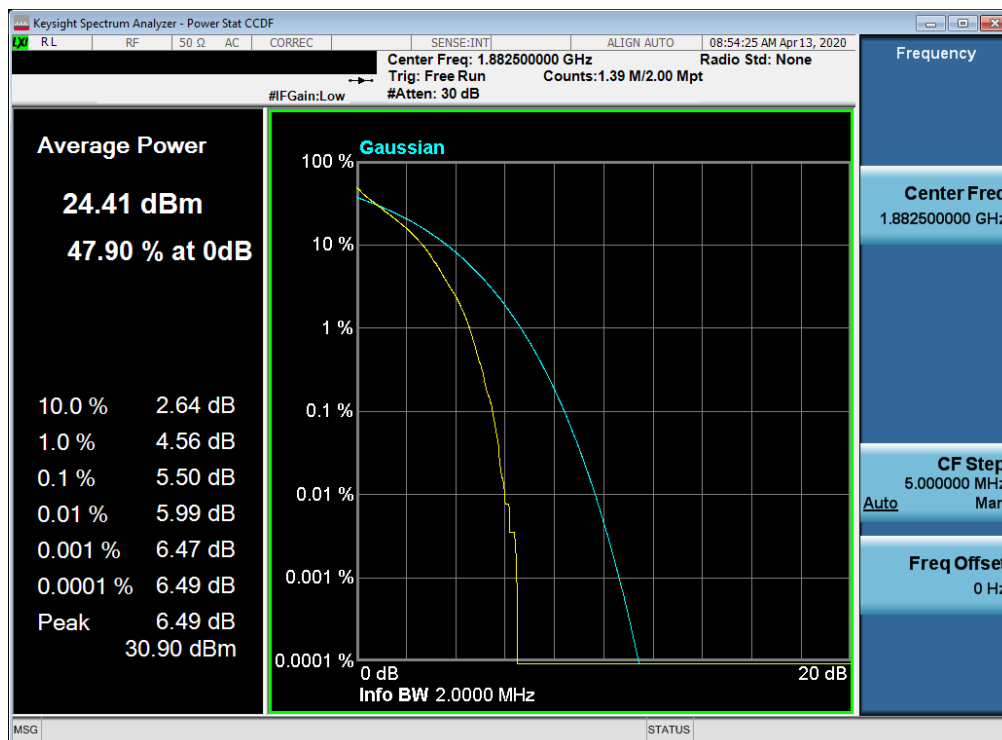
FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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Plot 7-154. PAR Plot (LTE Band 2 - 3MHz 64-QAM - Full RB Configuration)

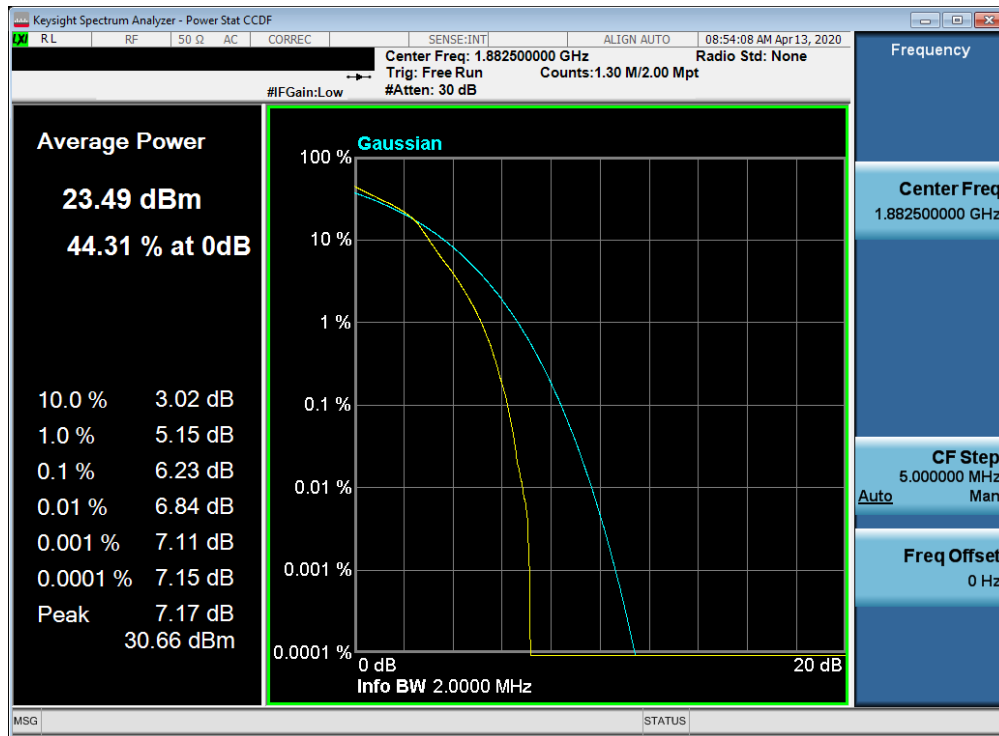


Plot 7-155. PAR Plot (LTE Band 2 - 1.4MHz QPSK - Full RB Configuration)

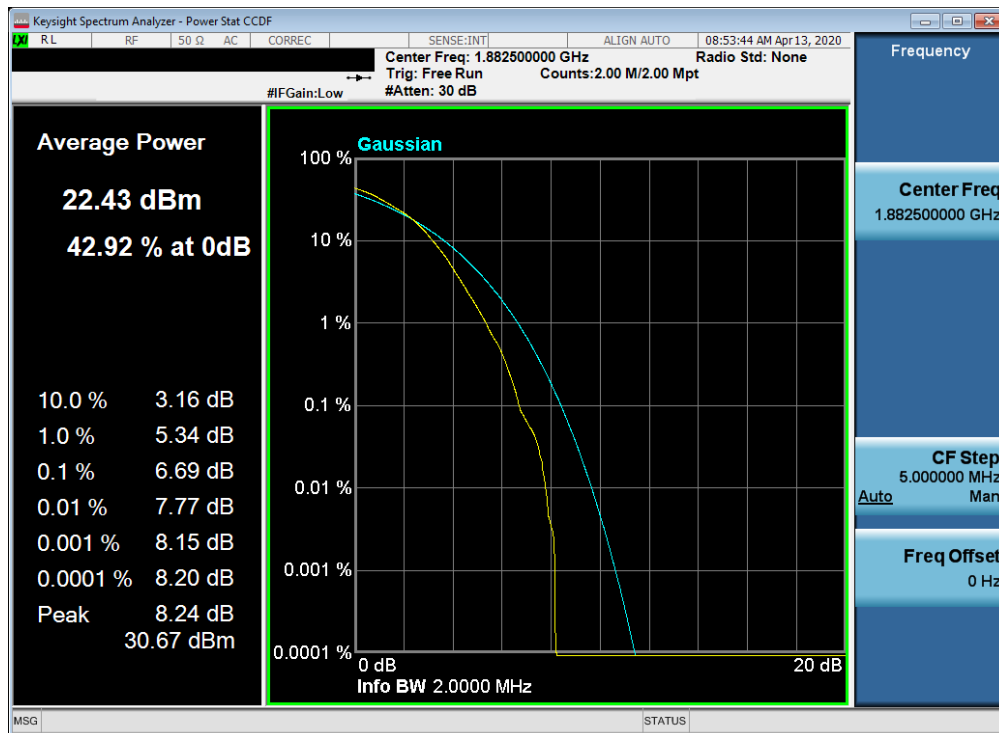
FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
Test Report S/N: 1M2004230076-03.ZNF	Test Dates: 4/27/2020 - 6/25/2020	EUT Type: Portable Handset	Page 98 of 138

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Plot 7-156. PAR Plot (LTE Band 2 - 1.4MHz 16-QAM - Full RB Configuration)



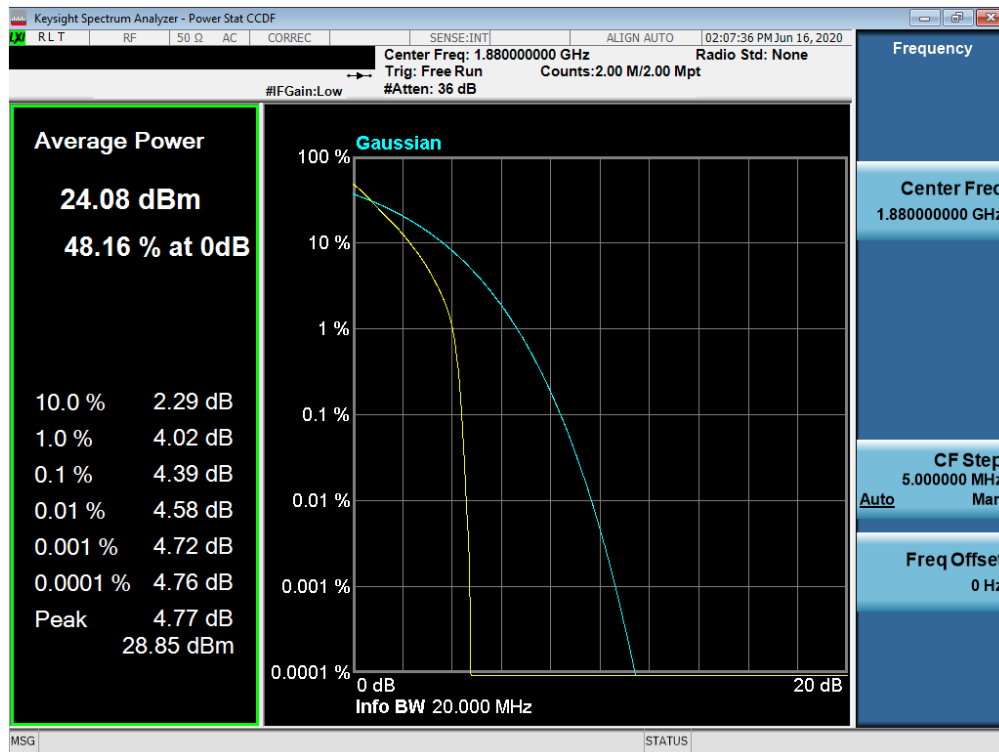
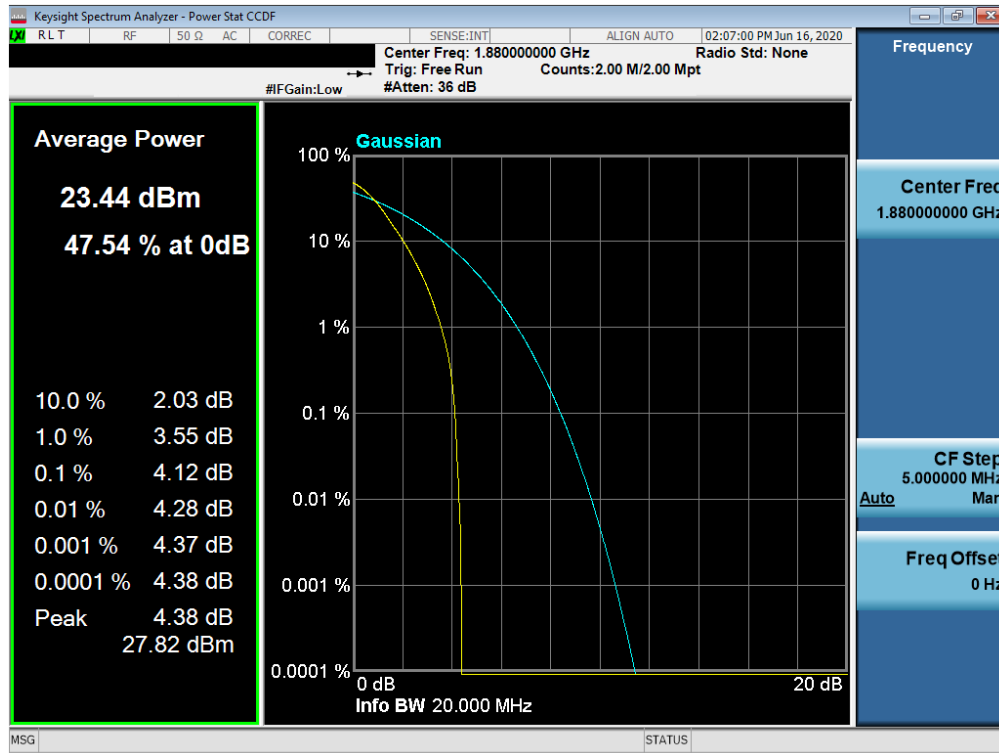
Plot 7-157. PAR Plot (LTE Band 2 - 1.4MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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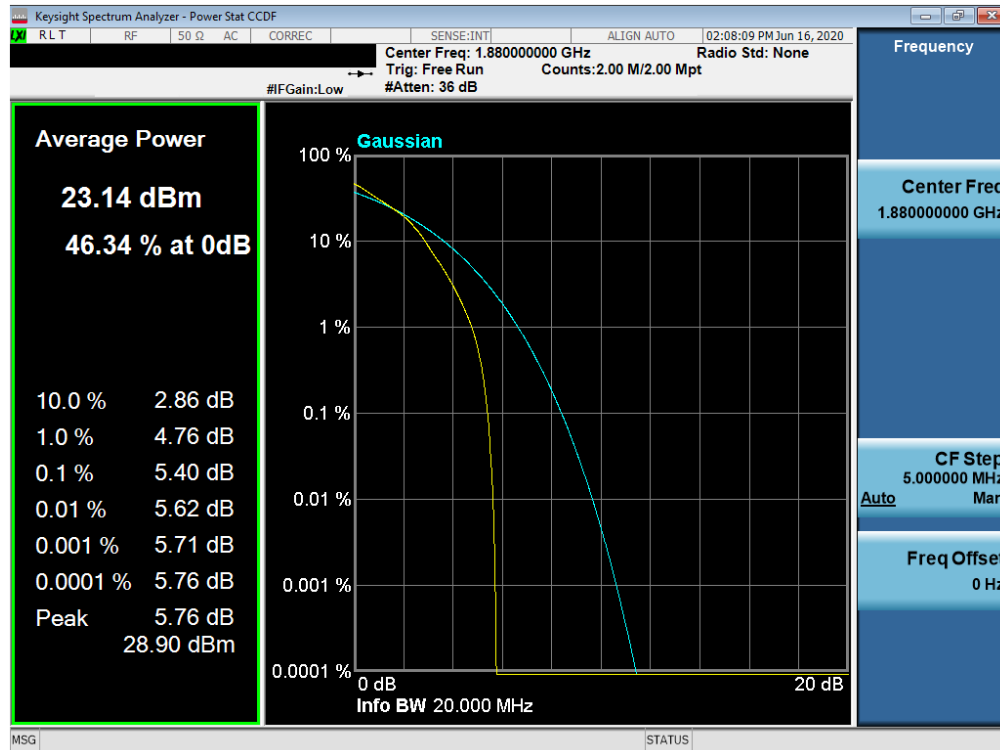
NR Band n2



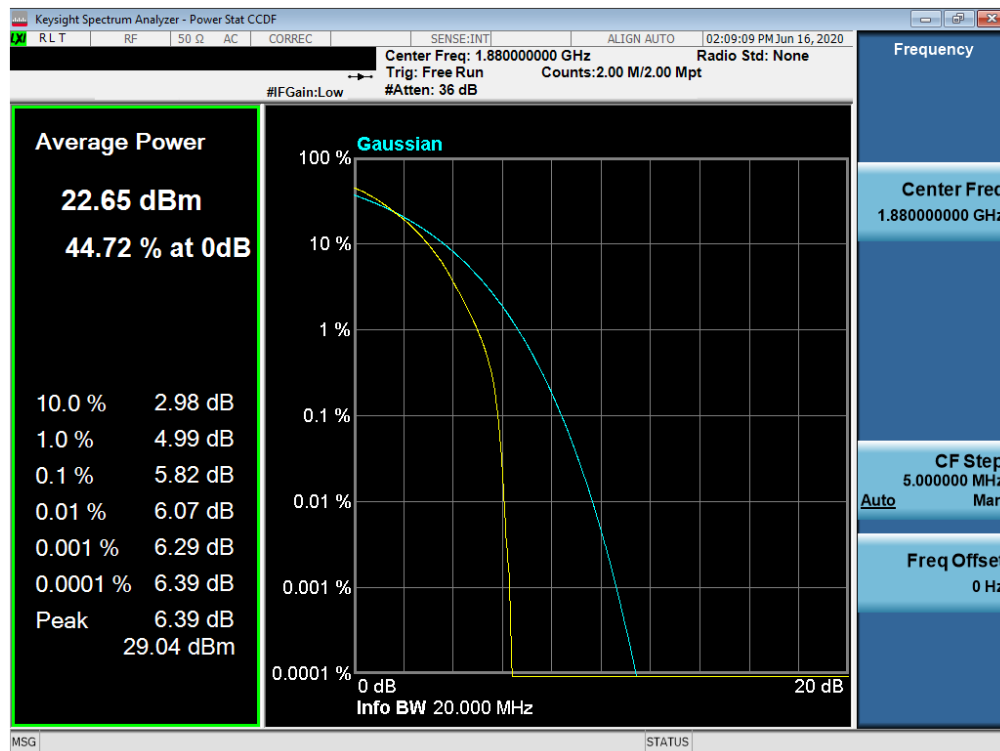
FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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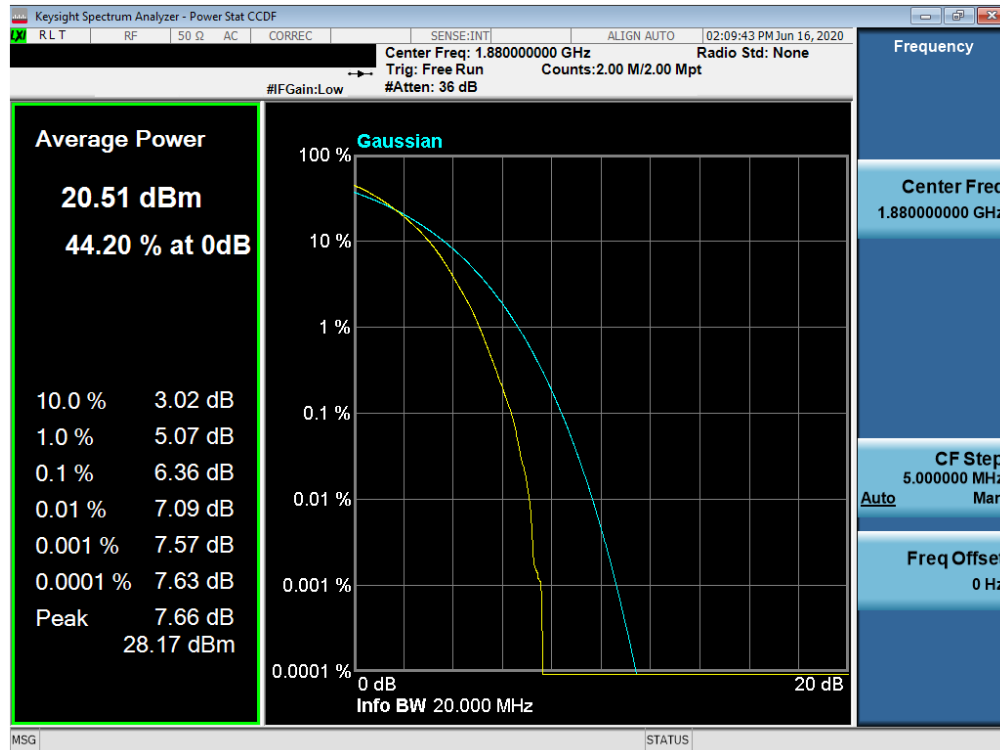


Plot 7-160. PAR Plot (NR Band n2 - 20.0MHz CP-OFDM 16-QAM - Full RB)

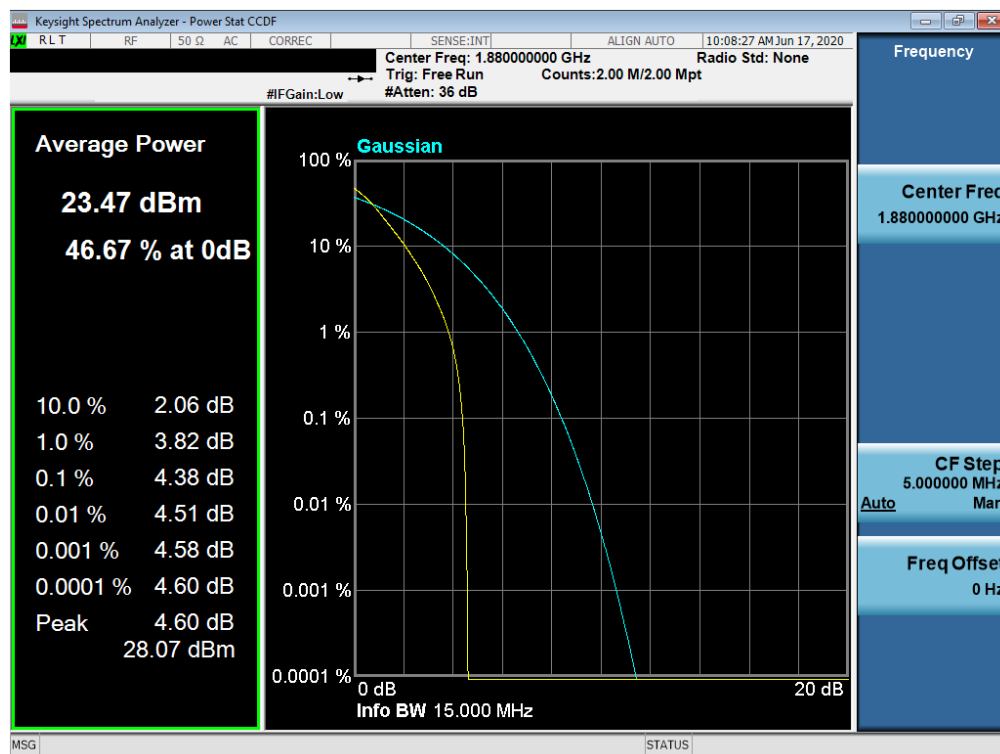


Plot 7-161. PAR Plot (NR Band n2 - 20.0MHz CP-OFDM 64-QAM - Full RB)

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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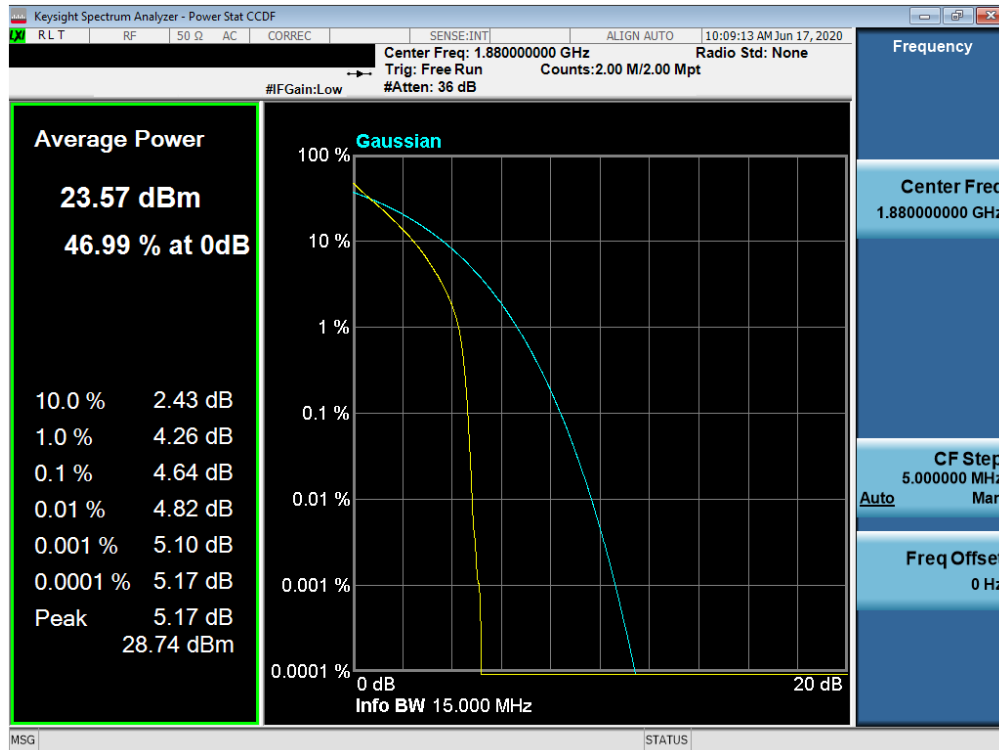


Plot 7-162. PAR Plot (NR Band n2 - 20.0MHz CP-OFDM 256-QAM - Full RB)

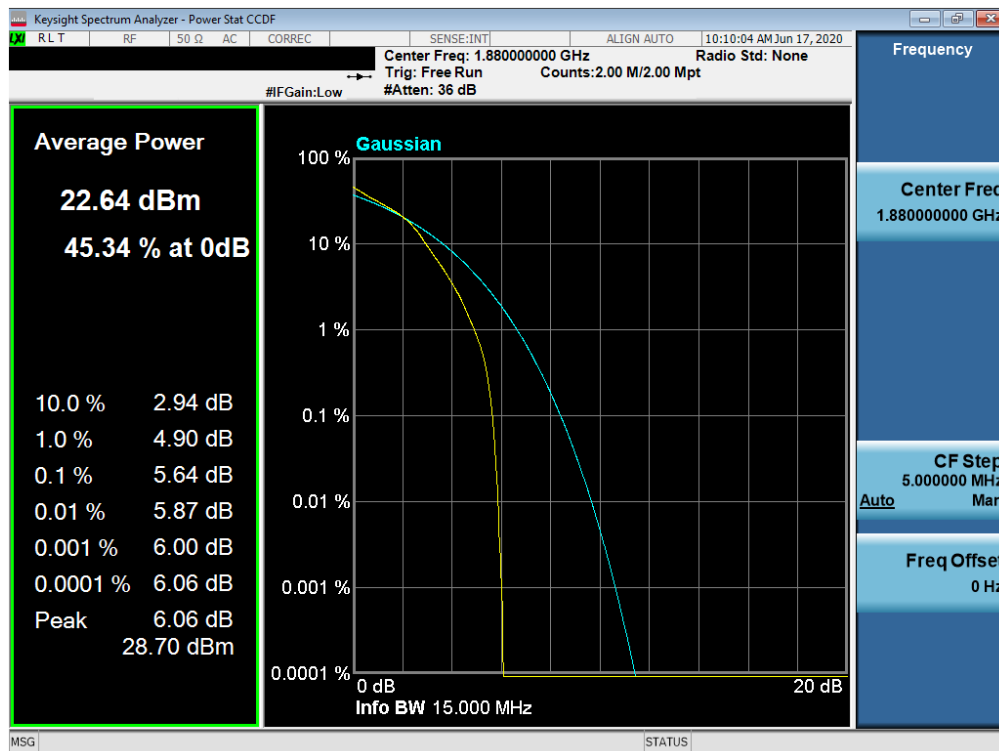


Plot 7-163. PAR Plot (NR Band n2 - 15.0MHz DFT-s-OFDM BPSK - Full RB)

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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Plot 7-164. PAR Plot (NR Band n2 - 15.0MHz CP-OFDM QPSK - Full RB)

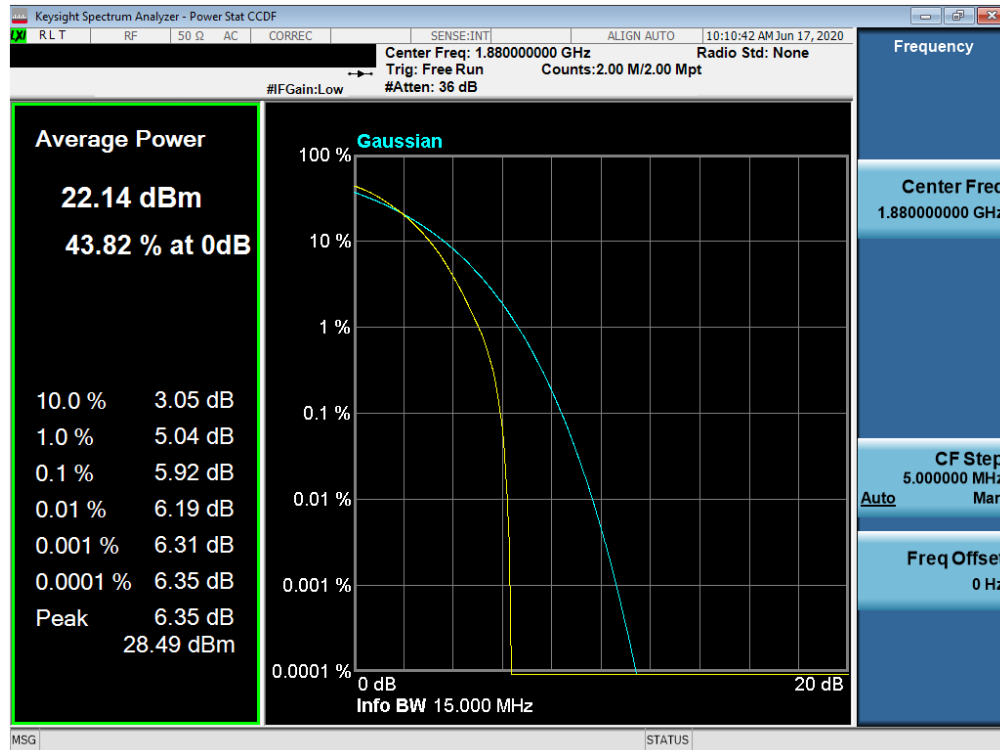


Plot 7-165. PAR Plot (NR Band n2 - 15.0MHz CP-OFDM 16-QAM - Full RB)

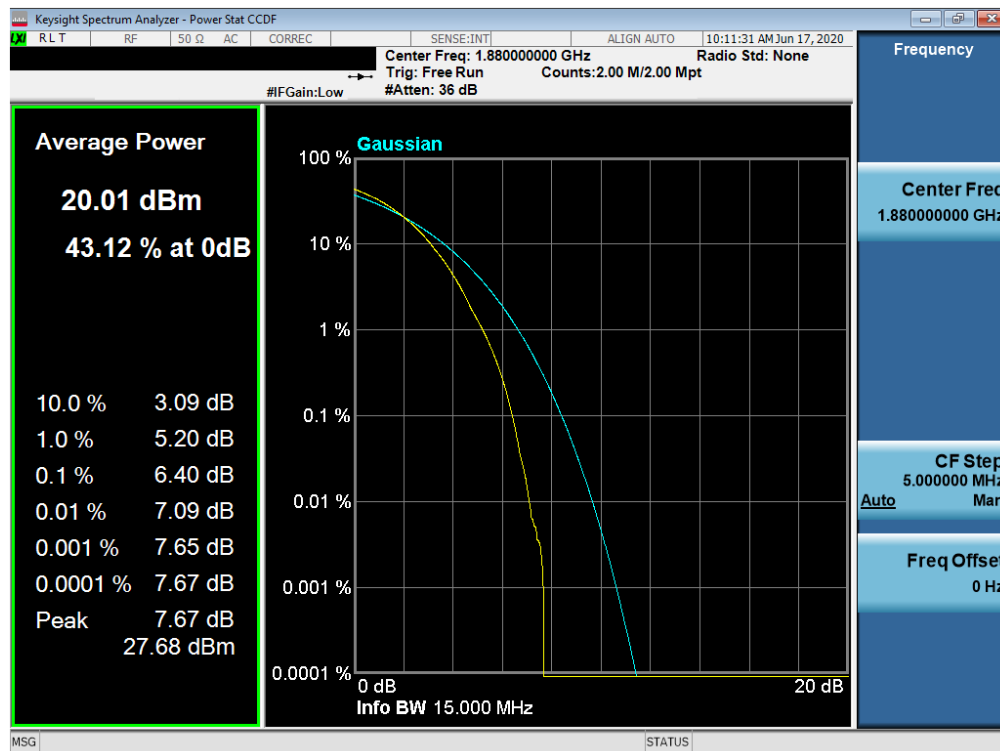
FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Quality Manager
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Plot 7-166. PAR Plot (NR Band n2 - 15.0MHz CP-OFDM 64-QAM - Full RB)

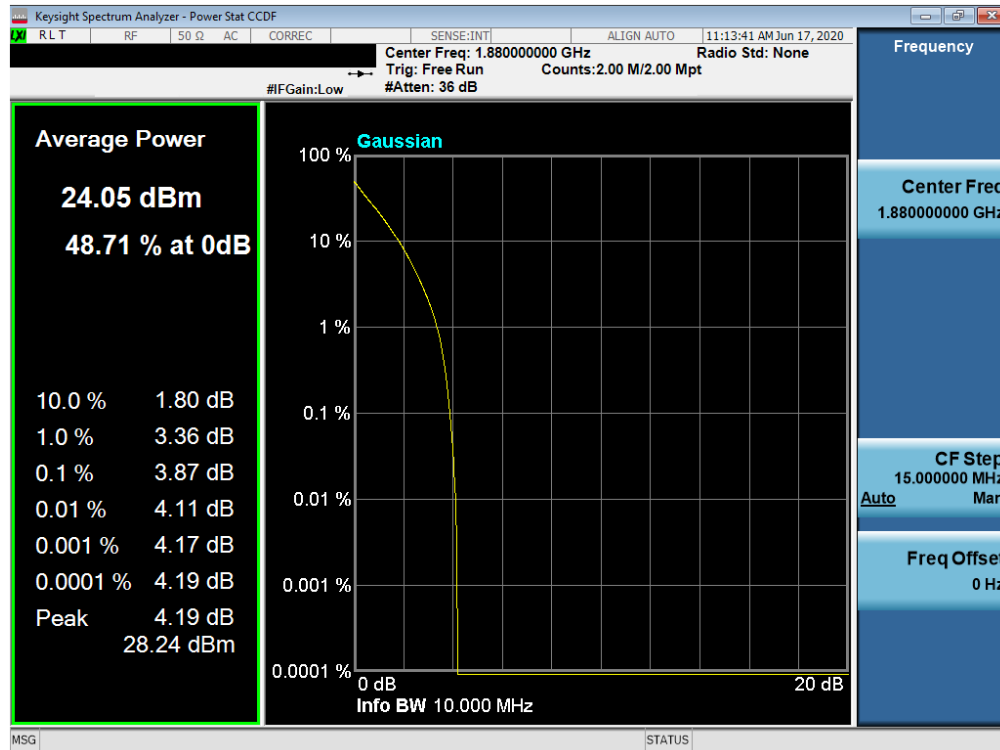


Plot 7-167. PAR Plot (NR Band n2 - 15.0MHz CP-OFDM 256-QAM - Full RB)

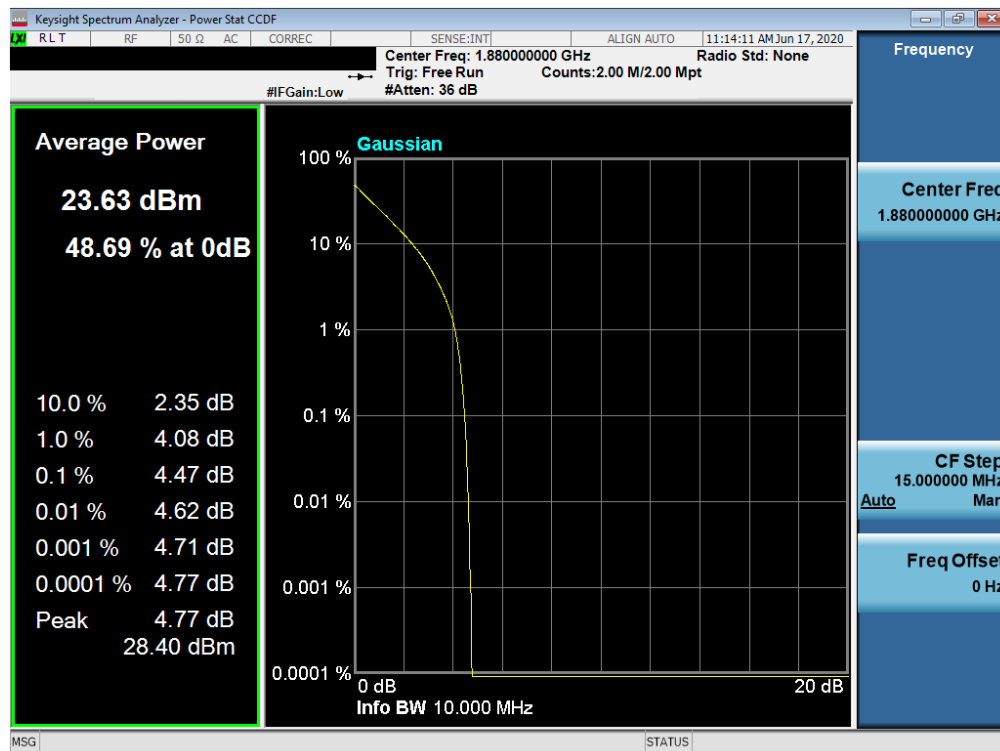
FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Quality Manager
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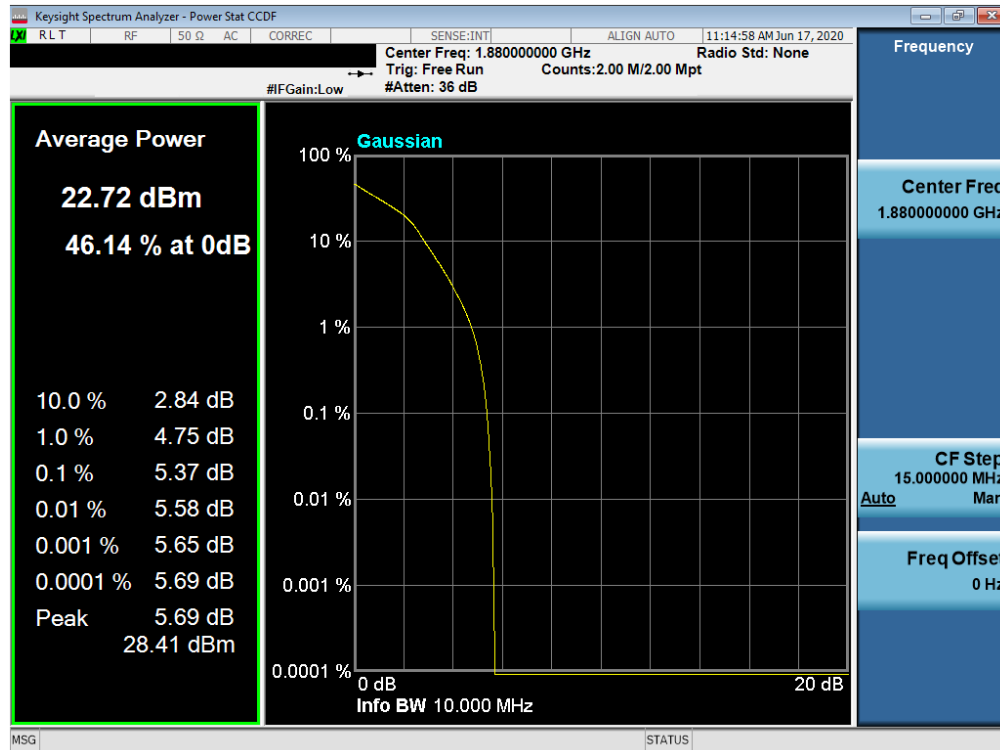


Plot 7-168. PAR Plot (NR Band n2 - 10.0MHz DFT-s-OFDM BPSK - Full RB)

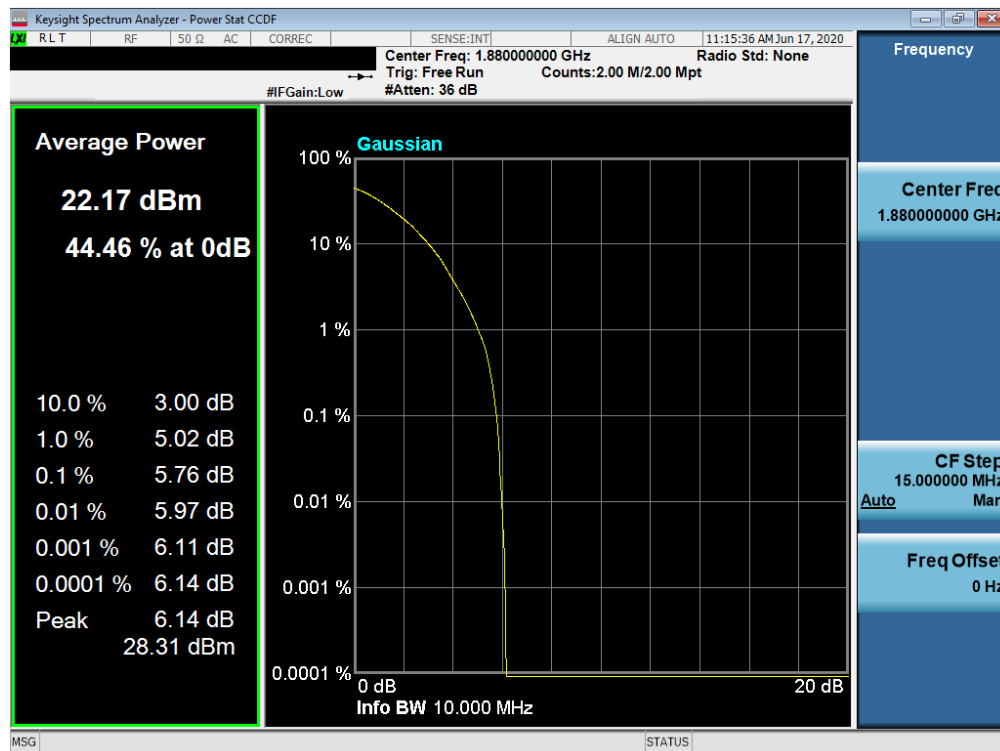


Plot 7-169. PAR Plot (NR Band n2 - 10.0MHz CP-OFDM QPSK - Full RB)

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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Plot 7-170. PAR Plot (NR Band n2 - 10.0MHz CP-OFDM 16-QAM - Full RB)

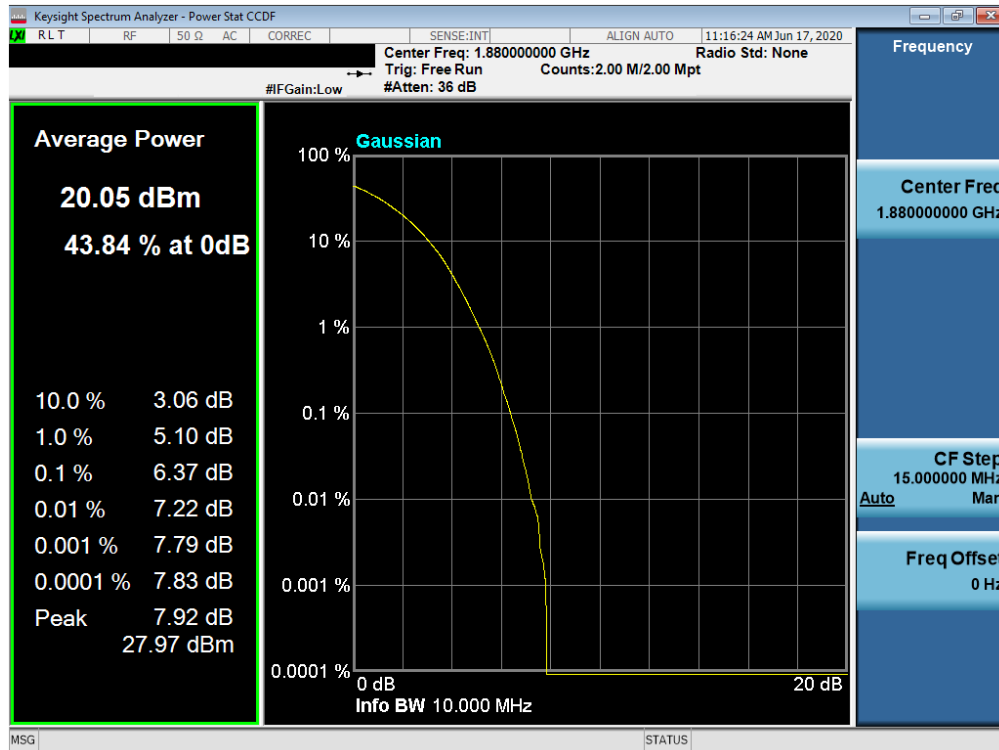


Plot 7-171. PAR Plot (NR Band n2 - 10.0MHz CP-OFDM 64-QAM - Full RB)

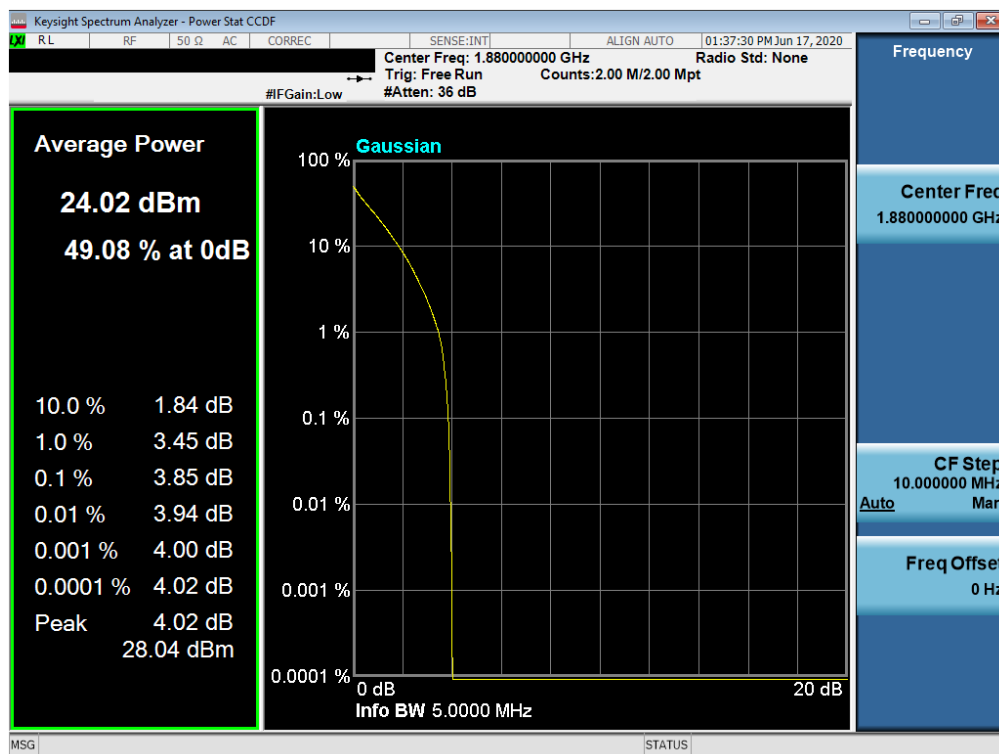
FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Quality Manager
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Plot 7-172. PAR Plot (NR Band n2 - 10.0MHz CP-OFDM 256-QAM - Full RB)

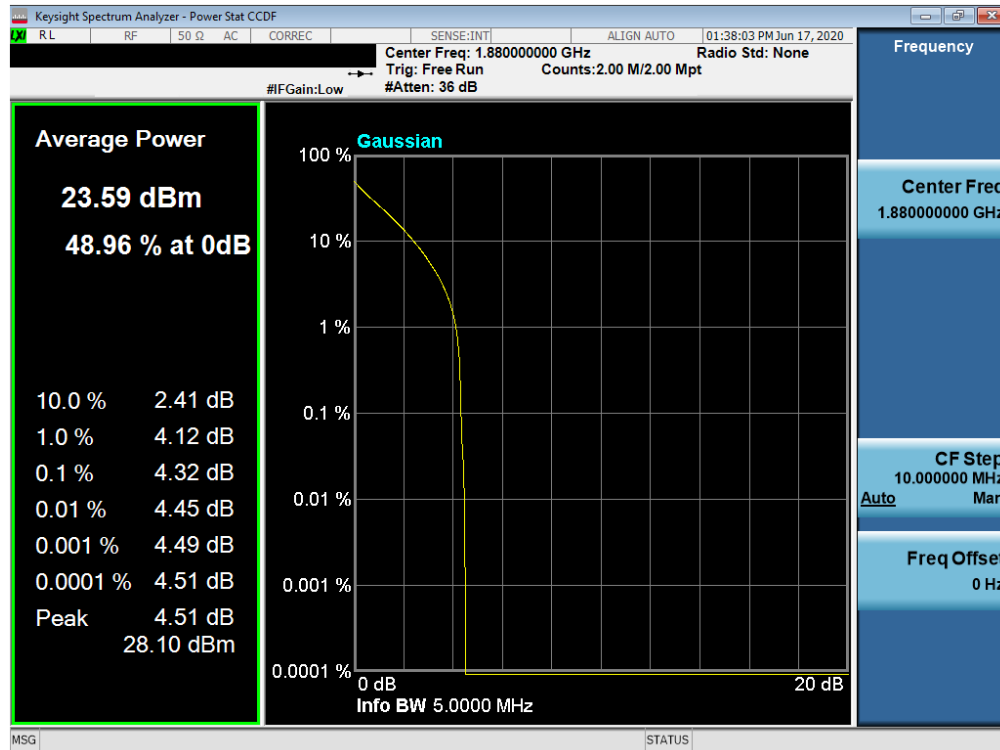


Plot 7-173. PAR Plot (NR Band n2 - 5.0MHz DFT-s-OFDM BPSK - Full RB)

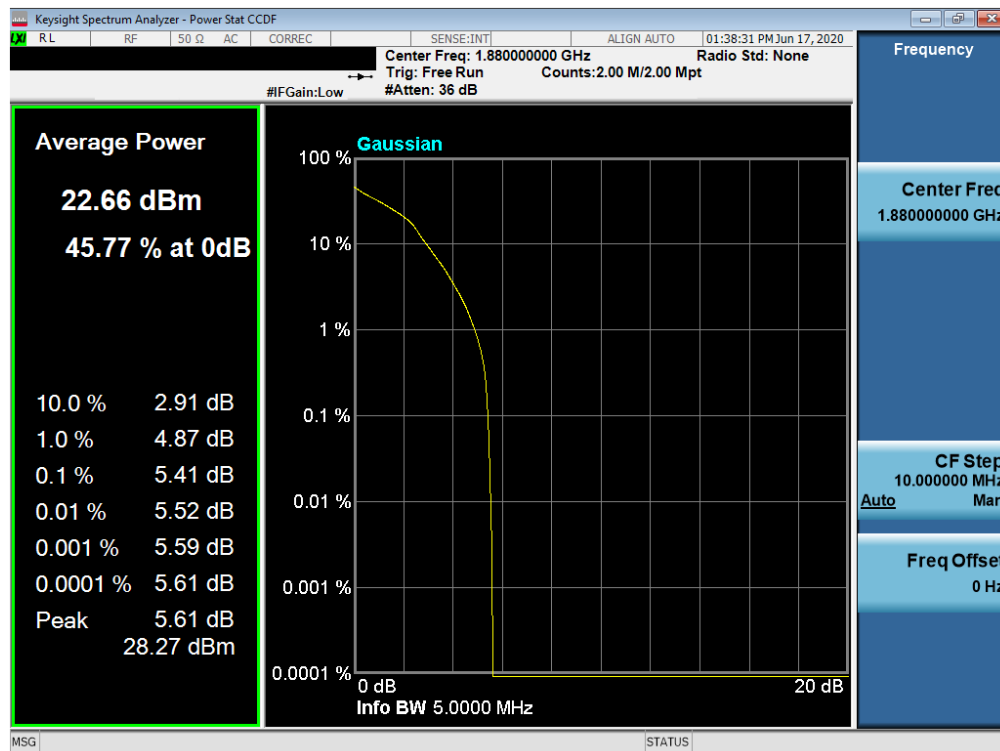
FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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Plot 7-174. PAR Plot (NR Band n2 - 5.0MHz CP-OFDM QPSK - Full RB)

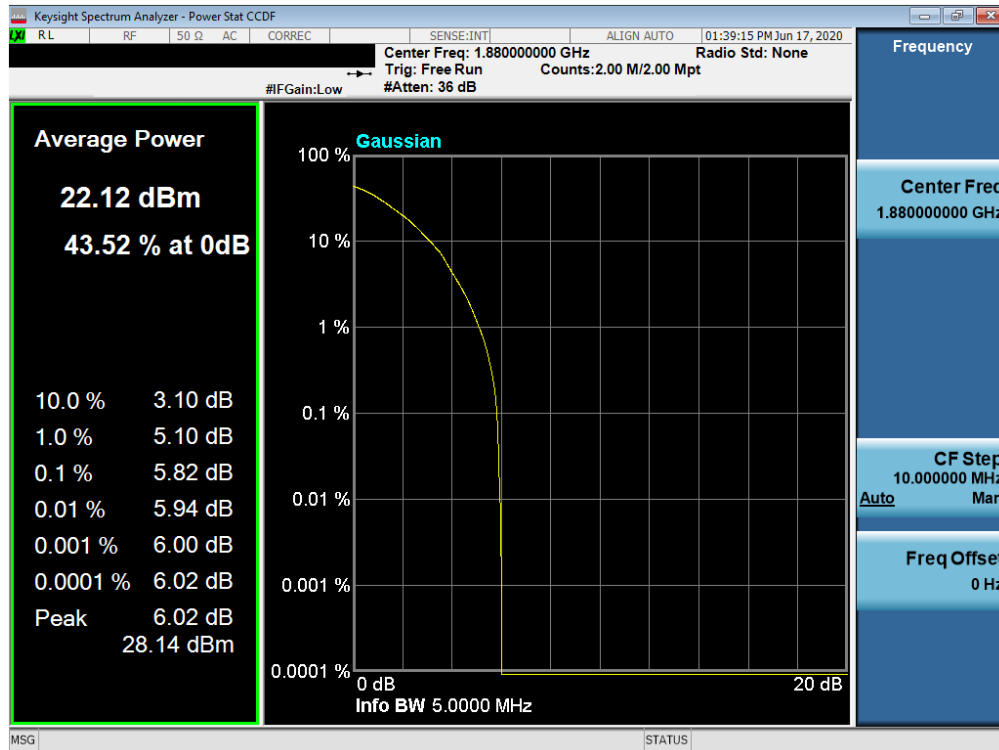


Plot 7-175. PAR Plot (NR Band n2 - 5.0MHz CP-OFDM 16-QAM - Full RB)

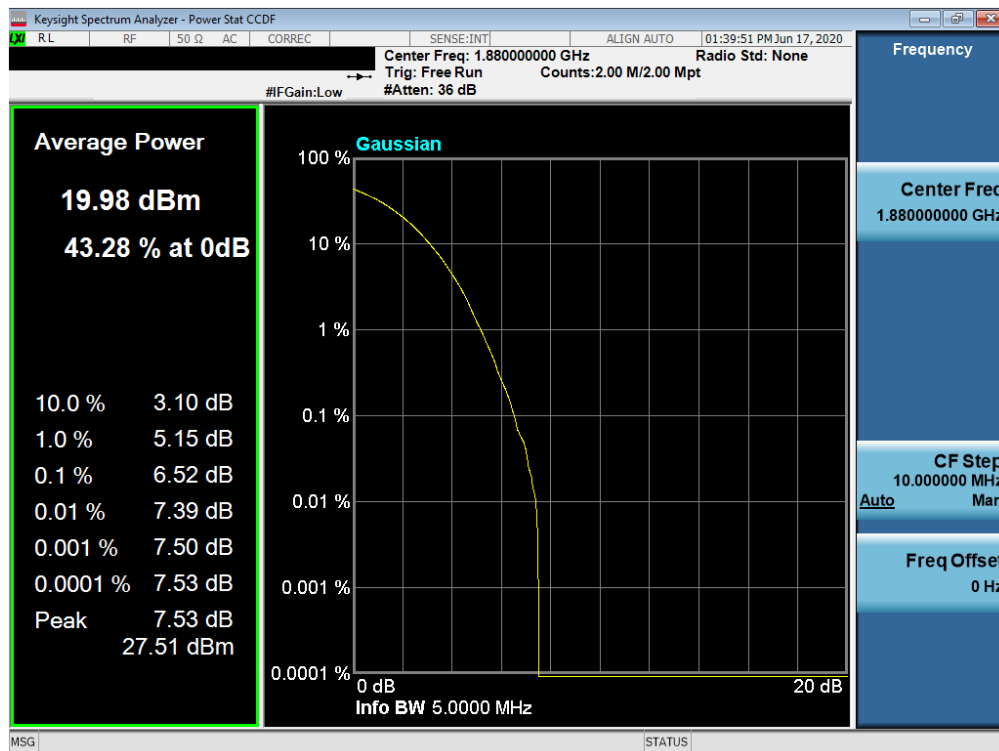
FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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Plot 7-176. PAR Plot (NR Band n2 - 5.0MHz CP-OFDM 64-QAM - Full RB)



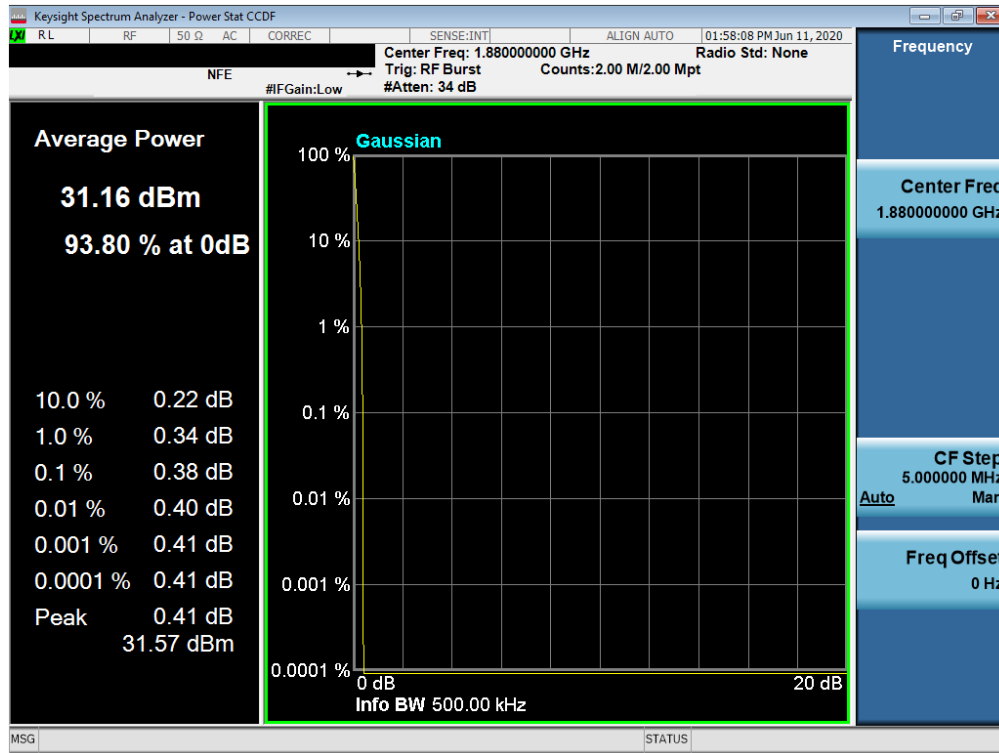
Plot 7-177. PAR Plot (NR Band n2 - 5.0MHz CP-OFDM 256-QAM - Full RB)

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Quality Manager
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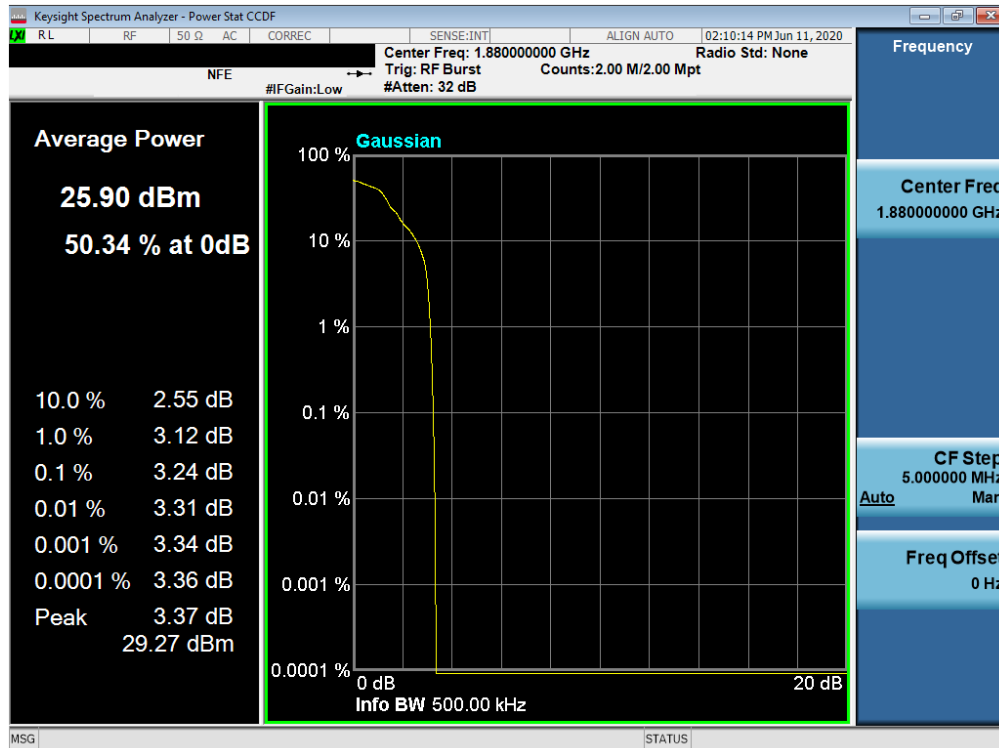
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GSM/GPRS PCS



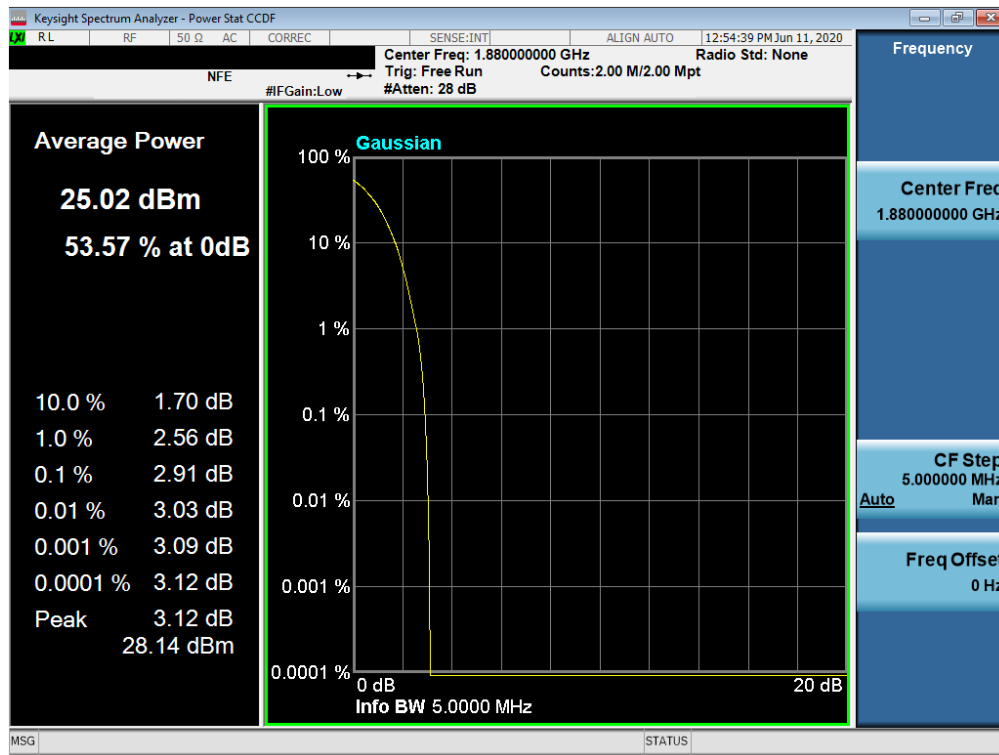
Plot 7-178. PAR Plot (GPRS, Ch. 661)



Plot 7-179. PAR Plot (EDGE, Ch. 661)

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
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WCDMA PCS



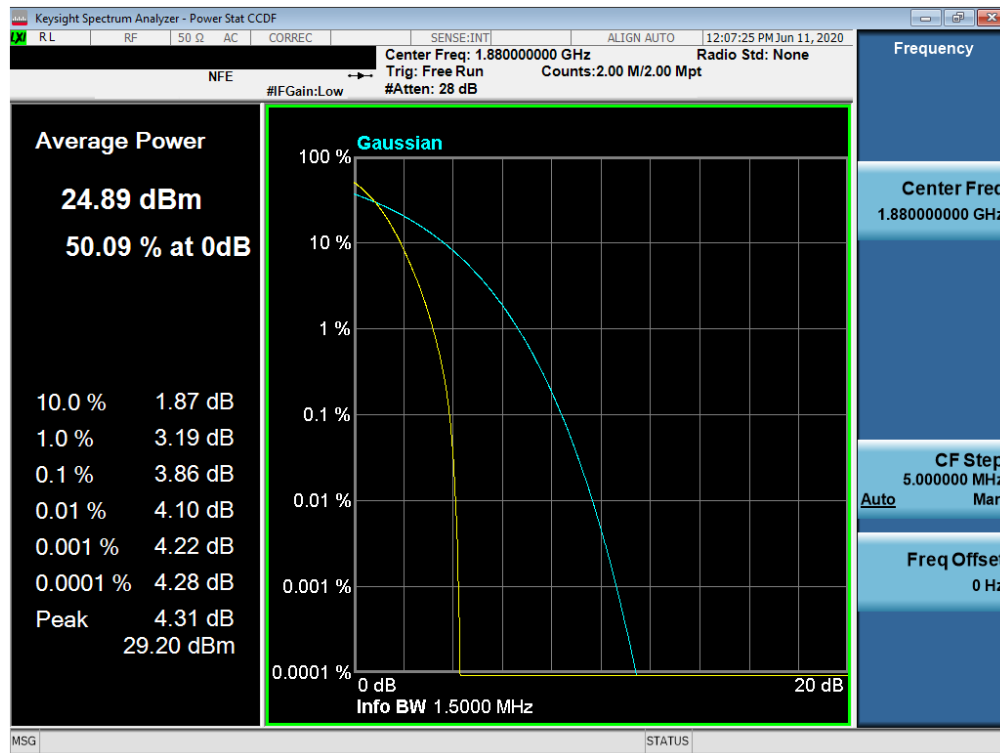
Plot 7-180. PAR Plot (WCDMA, Ch. 9400)

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Quality Manager
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CDMA PCS



Plot 7-181. PAR Plot (CDMA, Ch. 600)

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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 $\geq 3 \times$ RBW
4. Span = 1.5 times the OBW
5. No. of sweep points $\geq 2 \times$ 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

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Test Setup

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

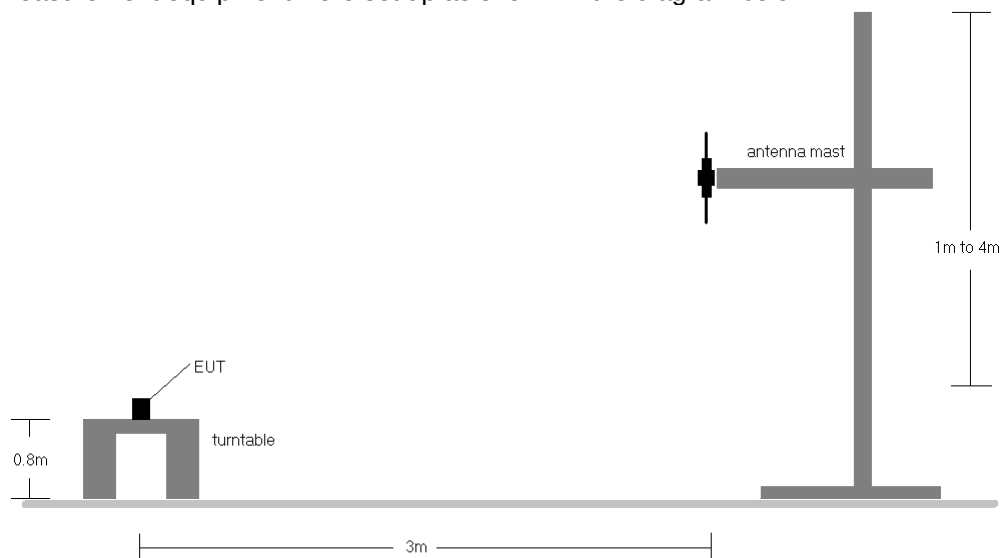


Figure 7-5. Radiated Test Setup <1GHz

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) 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.
- 4) 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.
- 5) This unit was tested with its standard battery.
- 6) 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.
- 7) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

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Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	ERP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
20 MHz	QPSK	1860.0	H	145.0	227.0	9.64	1 / 99	12.04	21.68	0.147	33.01	-11.33
		1880.0	H	153.0	241.0	9.93	1 / 0	12.40	22.33	0.171	33.01	-10.68
		1900.0	H	149.0	244.0	10.20	1 / 50	12.47	22.67	0.185	33.01	-10.34
	16-QAM	1900.0	H	149.0	244.0	10.20	1 / 50	12.10	22.30	0.170	33.01	-10.71
	64-QAM	1900.0	H	149.0	244.0	10.20	1 / 50	11.90	22.10	0.162	33.01	-10.91
15 MHz	QPSK	1857.5	H	145.0	227.0	9.61	1 / 37	12.12	21.72	0.149	33.01	-11.29
		1880.0	H	153.0	241.0	9.93	1 / 37	12.36	22.29	0.169	33.01	-10.72
		1902.5	H	149.0	244.0	10.22	1 / 37	12.68	22.90	0.195	33.01	-10.11
	16-QAM	1902.5	H	149.0	244.0	10.22	1 / 37	12.76	22.98	0.199	33.01	-10.03
	64-QAM	1902.5	H	149.0	244.0	10.22	1 / 37	12.38	22.60	0.182	33.01	-10.41
10 MHz	QPSK	1855.0	H	145.0	227.0	9.57	1 / 25	12.00	21.57	0.144	33.01	-11.44
		1880.0	H	153.0	241.0	9.93	1 / 25	12.25	22.18	0.165	33.01	-10.83
		1905.0	H	149.0	244.0	10.24	1 / 25	12.50	22.74	0.188	33.01	-10.27
	16-QAM	1905.0	H	149.0	244.0	10.24	1 / 25	12.55	22.79	0.190	33.01	-10.22
	64-QAM	1905.0	H	149.0	244.0	10.24	1 / 25	12.41	22.65	0.184	33.01	-10.36
5 MHz	QPSK	1852.5	H	145.0	227.0	9.54	1 / 0	11.97	21.50	0.141	33.01	-11.51
		1880.0	H	153.0	241.0	9.93	1 / 12	12.16	22.09	0.162	33.01	-10.92
		1907.5	H	149.0	244.0	10.26	1 / 12	12.44	22.70	0.186	33.01	-10.31
	16-QAM	1907.5	H	149.0	244.0	10.26	1 / 12	12.70	22.96	0.198	33.01	-10.05
	64-QAM	1907.5	H	149.0	244.0	10.26	1 / 12	12.35	22.61	0.183	33.01	-10.40
3 MHz	QPSK	1851.5	H	145.0	227.0	9.52	1 / 0	12.13	21.65	0.146	33.01	-11.36
		1880.0	H	153.0	241.0	9.93	1 / 0	12.24	22.17	0.165	33.01	-10.84
		1908.5	H	149.0	244.0	10.27	1 / 0	12.45	22.72	0.187	33.01	-10.29
	16-QAM	1908.5	H	149.0	244.0	10.27	1 / 0	12.43	22.70	0.186	33.01	-10.31
	64-QAM	1908.5	H	149.0	244.0	10.27	1 / 0	12.34	22.61	0.183	33.01	-10.40
1.4 MHz	QPSK	1850.7	H	145.0	227.0	9.51	3 / 2	12.19	21.70	0.148	33.01	-11.31
		1880.0	H	153.0	241.0	9.93	3 / 0	12.23	22.16	0.164	33.01	-10.85
		1909.3	H	149.0	244.0	10.28	3 / 2	12.51	22.78	0.190	33.01	-10.23
	16-QAM	1909.3	H	149.0	244.0	10.28	1 / 2	12.52	22.79	0.190	33.01	-10.22
	64-QAM	1909.3	H	149.0	244.0	10.28	1 / 2	12.12	22.39	0.174	33.01	-10.62
	Opposite Pol.	1900.0	V	135.0	18.0	9.96	1 / 50	9.66	19.62	0.092	33.01	-13.39

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

FCC ID: ZNFG900VM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	 LG	Approved by: Quality Manager
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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	π/2 BPSK	1860.0	H	267.0	23.0	9.64	1 / 50	7.55	17.19	0.052	33.01	-15.82
		1880.0	H	105.0	9.0	9.93	1 / 50	8.85	18.78	0.075	33.01	-14.23
		1900.0	H	190.0	9.0	10.20	1 / 99	9.16	19.36	0.086	33.01	-13.65
	QPSK	1860.0	H	267.0	23.0	9.64	1 / 50	7.55	17.19	0.052	33.01	-15.82
		1880.0	H	105.0	9.0	9.93	1 / 50	8.90	18.83	0.076	33.01	-14.18
		1900.0	H	190.0	9.0	10.20	1 / 99	9.18	19.38	0.087	33.01	-13.63
	16-QAM	1900.0	H	190.0	9.0	10.20	1 / 99	8.56	18.76	0.075	33.01	-14.25
	64-QAM	1900.0	H	190.0	9.0	10.20	1 / 99	6.99	17.19	0.052	33.01	-15.82
	256-QAM	1880.0	H	105.0	9.0	9.93	1 / 50	5.10	15.03	0.032	33.01	-17.98
15 MHz	π/2 BPSK	1857.5	H	267.0	23.0	9.61	1 / 73	7.89	17.50	0.056	33.01	-15.51
		1880.0	H	105.0	9.0	9.93	1 / 37	9.01	18.94	0.078	33.01	-14.07
		1902.5	H	190.0	9.0	10.22	1 / 73	9.40	19.63	0.092	33.01	-13.39
	QPSK	1857.5	H	267.0	23.0	9.61	1 / 73	7.91	17.52	0.056	33.01	-15.49
		1880.0	H	105.0	9.0	9.93	1 / 73	9.43	19.35	0.086	33.01	-13.66
		1902.5	H	190.0	9.0	10.22	1 / 73	9.59	19.82	0.096	33.01	-13.19
	16-QAM	1902.5	H	190.0	9.0	10.22	1 / 73	8.44	18.66	0.073	33.01	-14.35
	64-QAM	1902.5	H	190.0	9.0	10.22	1 / 1	6.39	16.61	0.046	33.01	-16.40
	256-QAM	1880.0	H	105.0	9.0	9.93	1 / 37	4.65	14.57	0.029	33.01	-18.44
10 MHz	π/2 BPSK	1855.0	H	267.0	23.0	9.57	1 / 25	7.80	17.37	0.055	33.01	-15.64
		1880.0	H	105.0	9.0	9.93	1 / 25	9.09	19.02	0.080	33.01	-13.99
		1905.0	H	190.0	9.0	10.24	1 / 48	9.34	19.58	0.091	33.01	-13.43
	QPSK	1855.0	H	267.0	23.0	9.57	1 / 25	7.88	17.45	0.056	33.01	-15.56
		1880.0	H	105.0	9.0	9.93	1 / 25	9.48	19.41	0.087	33.01	-13.60
		1905.0	H	190.0	9.0	10.24	1 / 25	9.37	19.61	0.091	33.01	-13.40
	16-QAM	1905.0	H	190.0	9.0	10.24	1 / 25	8.05	18.29	0.067	33.01	-14.72
	64-QAM	1905.0	H	190.0	9.0	10.24	1 / 25	6.28	16.53	0.045	33.01	-16.48
	256-QAM	1880.0	H	105.0	9.0	9.93	1 / 48	4.62	14.55	0.029	33.01	-18.46
5 MHz	π/2 BPSK	1852.5	H	267.0	23.0	9.54	1 / 12	7.91	17.45	0.056	33.01	-15.56
		1880.0	H	105.0	9.0	9.93	1 / 12	9.11	19.04	0.080	33.01	-13.97
		1907.5	H	190.0	9.0	10.26	1 / 12	9.21	19.48	0.089	33.01	-13.53
	QPSK	1852.5	H	267.0	23.0	9.54	1 / 12	7.94	17.48	0.056	33.01	-15.53
		1880.0	H	105.0	9.0	9.93	1 / 12	9.22	19.15	0.082	33.01	-13.86
		1907.5	H	190.0	9.0	10.26	1 / 12	9.07	19.34	0.086	33.01	-13.67
	16-QAM	1907.5	H	190.0	9.0	10.26	1 / 12	8.14	18.40	0.069	33.01	-14.61
	64-QAM	1880.0	H	105.0	9.0	9.93	1 / 12	6.83	16.75	0.047	33.01	-16.26
	256-QAM	1880.0	H	105.0	9.0	9.93	25 / 0	4.50	14.42	0.028	33.01	-18.59
	QPSK (CP-OFDM)	1900.0	H	190.0	9.0	10.20	1 / 99	8.45	18.65	0.073	33.01	-14.36
	QPSK (Opposite Pol.)	1900.0	V	244.0	319.0	10.20	1 / 99	8.17	18.37	0.069	33.01	-14.64

Table 7-3. EIRP Data (NR Band n2)

FCC ID: ZNFG900VM	 PCTEST® Proud to be part of element	PART 24 MEASUREMENT REPORT	 LG	Approved by: Quality Manager
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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	GSM1900	V	197	343	18.27	8.67	26.94	0.494	33.01	-6.07
1880.00	GSM1900	V	145	5	18.42	8.51	26.93	0.493	33.01	-6.08
1909.80	GSM1900	V	100	37	18.51	8.43	26.94	0.494	33.01	-6.07
1850.20	GSM1900	H	155	239	18.18	8.67	26.85	0.484	33.01	-6.16
1850.20	EDGE1900	V	197	343	13.73	8.67	22.40	0.174	33.01	-10.61
1850.20	GSM1900 (WCP)	H	176	350	14.62	9.51	24.13	0.259	33.01	-8.88

Table 7-4. 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	V	275	282	15.13	8.66	23.79	0.239	33.01	-9.22
1880.00	WCDMA1900	V	319	270	15.92	8.51	24.43	0.277	33.01	-8.58
1907.60	WCDMA1900	V	301	263	14.25	8.42	22.67	0.185	33.01	-10.34
1880.00	WCDMA1900	H	188	357	13.33	8.51	21.84	0.153	33.01	-11.17
1880.00	WCDMA1900 (WCP)	H	154	55	10.63	9.93	20.56	0.114	33.01	-12.45

Table 7-5. 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	127	176	12.35	9.52	21.87	0.154	33.01	-11.14
1880.00	CDMA1900	H	151	219	12.00	9.93	21.93	0.156	33.01	-11.08
1908.75	CDMA1900	H	154	239	11.88	10.27	22.15	0.164	33.01	-10.86
1908.75	CDMA1900	V	244	280	10.93	9.93	20.86	0.122	33.01	-12.15
1908.75	CDMA1900 (WCP)	H	133	329	9.10	9.93	19.03	0.080	33.01	-13.98

Table 7-6. EIRP Data (CDMA PCS)

FCC ID: ZNFG900VM	 PCTEST® Proud to be part of element	PART 24 MEASUREMENT REPORT	 LG	Approved by: Quality Manager
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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 $\geq 3 \times$ RBW
3. Span = 1.5 times the OBW
4. No. of sweep points $\geq 2 \times$ span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

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Test Setup

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

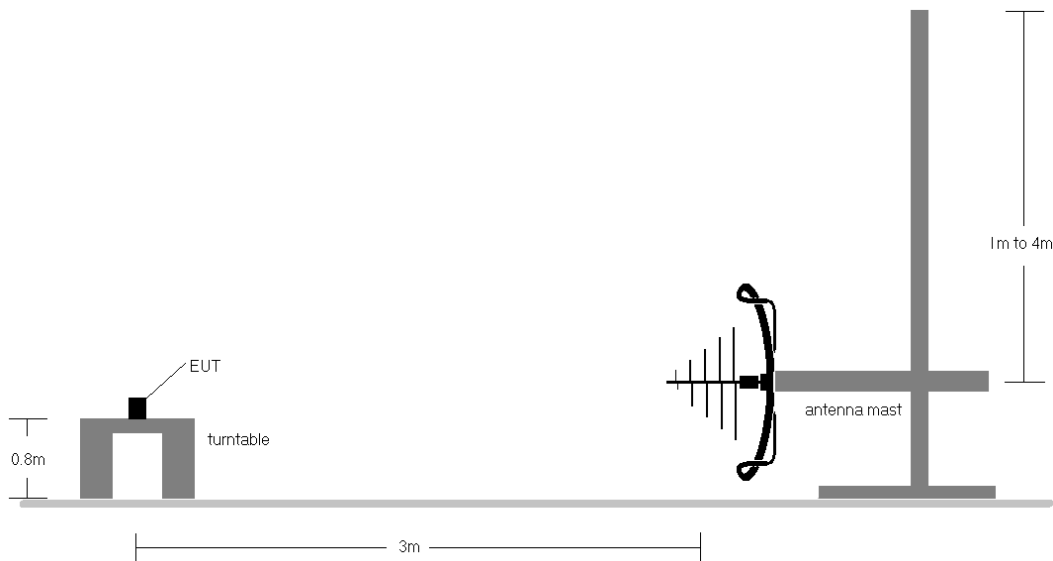


Figure 7-6. Test Instrument & Measurement Setup < 1GHz

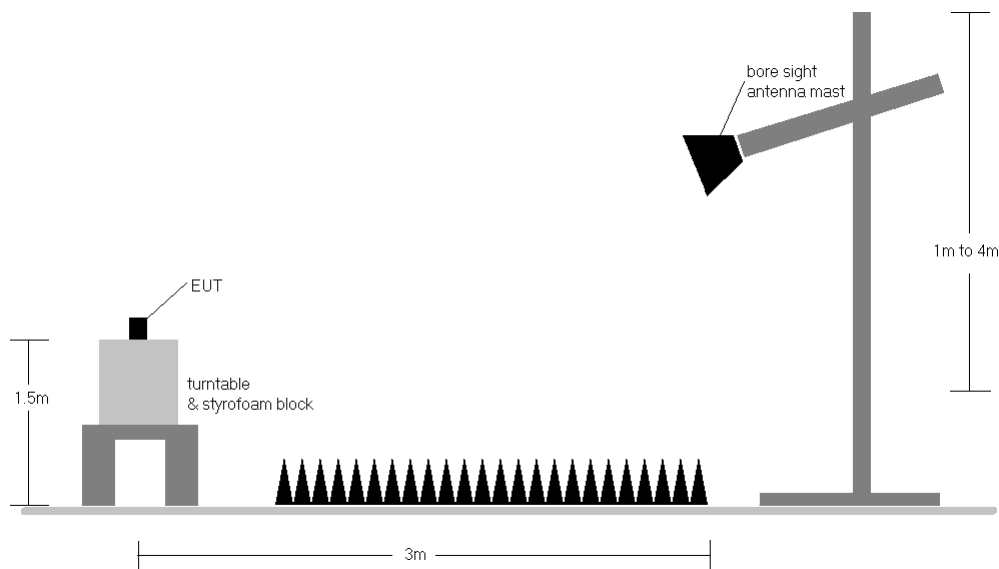


Figure 7-7. Test Instrument & Measurement Setup >1 GHz

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Test Notes

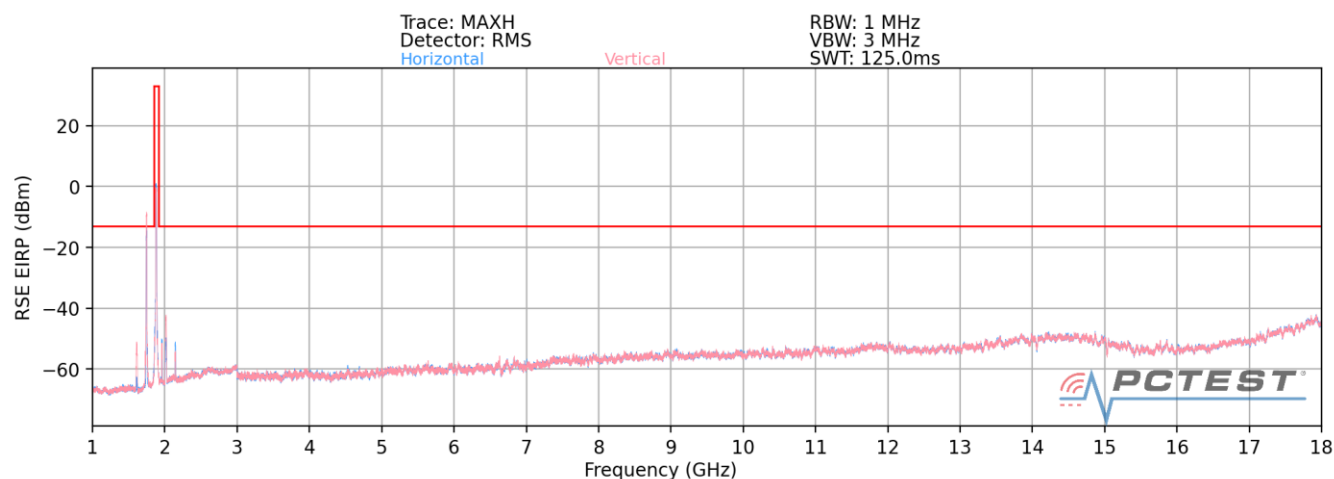
- 1) Field strengths are calculated using the Measurement quantity conversions in KDB 971168 Section 5.8.4.
 - b) $E(\text{dB}\mu\text{V/m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$
 - d) $\text{EIRP (dBm)} = E(\text{dB}\mu\text{V/m}) + 20\log D - 104.8$; 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.
- 11) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.
- 12) Spurious emissions shown in this section are measured while operating in EN-DC mode with Sub 6GHz NR carrier as well as an LTE carrier (anchor). Spurious emissions from the NR carrier device, is subject to the rules under which the NR carrier operates. Spurious emission caused by the LTE carrier must meet the requirements of the rules under which the LTE carrier operates.

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LTE Band 2



Plot 7-182. Radiated Spurious Plot (LTE Band 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	145	206	-48.00	-0.30	58.70	-36.56	-13.00	-23.56
5580.0	H	142	221	-60.29	3.48	50.19	-45.07	-13.00	-32.07
7440.0	H	141	230	-59.25	8.85	56.60	-38.66	-13.00	-25.66
9300.0	H	140	232	-79.24	11.38	39.14	-56.12	-13.00	-43.12
11160.0	H	138	243	-74.14	13.52	46.38	-48.87	-13.00	-35.87
13020.0	H	-	-	-81.96	17.39	42.43	-52.83	-13.00	-39.83
14880.0	H	-	-	-82.10	18.89	43.79	-51.47	-13.00	-38.47

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

Bandwidth (MHz):	20
Frequency (MHz):	1880.0
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]
3760.0	H	101	192	-49.94	-0.38	56.68	-38.58	-13.00	-25.58
5640.0	H	101	178	-64.82	4.33	46.51	-48.75	-13.00	-35.75
7520.0	H	115	164	-63.36	8.86	52.50	-42.76	-13.00	-29.76
9400.0	H	100	179	-78.65	11.84	40.19	-55.07	-13.00	-42.07
11280.0	H	100	192	-74.38	13.27	45.89	-49.37	-13.00	-36.37
13160.0	H	104	178	-80.15	16.73	43.58	-51.68	-13.00	-38.68
15040.0	H	-	-	-80.21	18.53	45.32	-49.94	-13.00	-36.94
16920.0	H	-	-	-82.19	16.35	41.16	-54.10	-13.00	-41.10

Table 7-8. Radiated Spurious Data (LTE Band 2 – Mid Channel)

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Quality Manager
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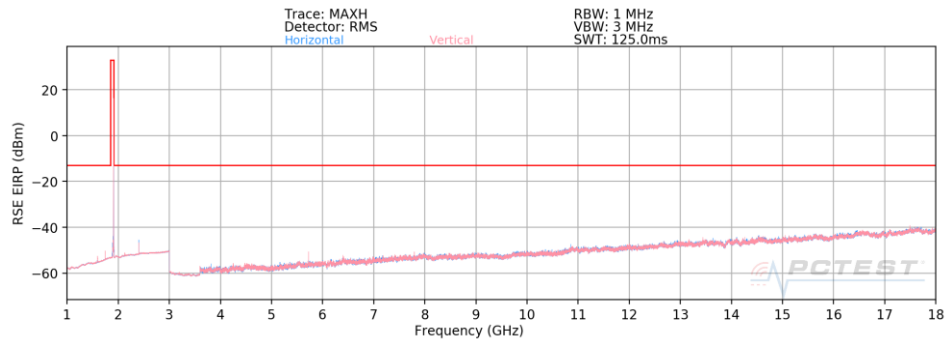
Bandwidth (MHz):	20
Frequency (MHz):	1900.0
RB / Offset:	1 / 50

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]
3800.00	H	100	199	-53.80	0.03	53.23	-42.03	-13.00	-29.03
5700.00	H	105	214	-65.79	4.58	45.79	-49.46	-13.00	-36.46
7600.00	H	110	228	-63.86	8.90	52.04	-43.22	-13.00	-30.22
9500.00	H	113	243	-77.89	11.19	40.30	-54.96	-13.00	-41.96
11400.00	H	117	248	-79.96	13.50	40.54	-54.71	-13.00	-41.71
13300.00	H	-	-	-82.26	17.37	42.11	-53.15	-13.00	-40.15
15200.00	H	-	-	-82.27	17.31	42.04	-53.22	-13.00	-40.22

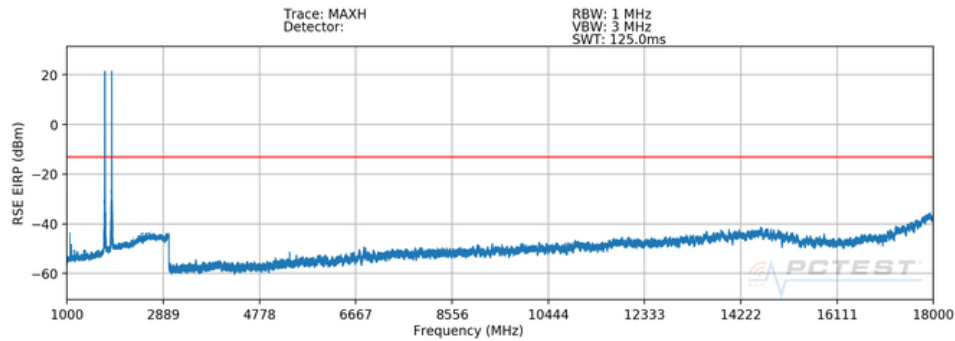
Table 7-9. Radiated Spurious Data (LTE Band 2 – High Channel)

FCC ID: ZNFG900VM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Quality Manager
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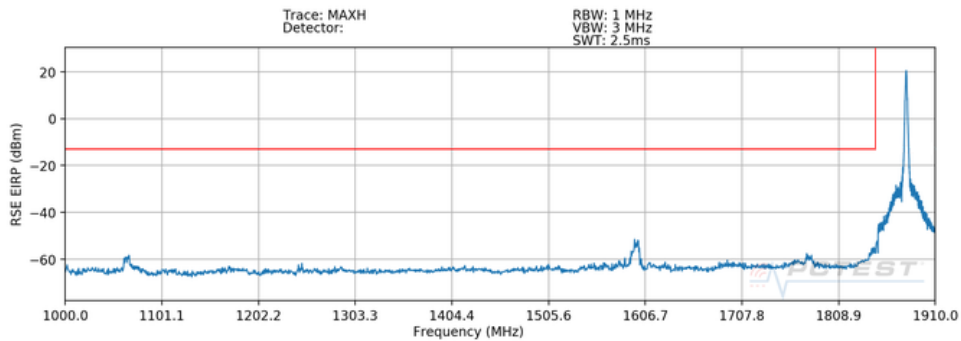
NR Band n2



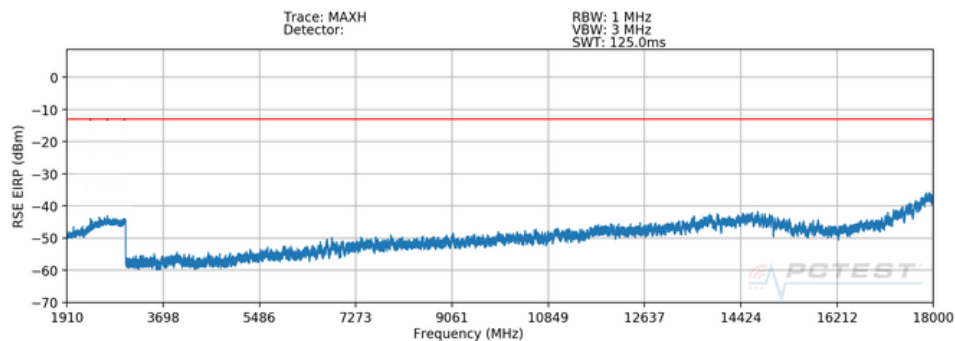
Plot 7-183. Radiated Spurious Plot (NR Band n2)



Plot 7-184. Radiated Spurious Plot (ENDC n2-LB66)



Plot 7-185. Radiated Spurious Plot (ENDC n2-LB13)



Plot 7-186. Radiated Spurious Plot (ENDC n2-LB13)

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Quality Manager
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Bandwidth (MHz):	20
Frequency (MHz):	1860.0
RB / Offset:	1 / 50
Mode:	Stsnd Alone

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	166	98	-68.87	5.16	43.29	-51.97	-13.00	-38.97
5580.0	H	130	269	-71.44	7.77	43.33	-51.92	-13.00	-38.92
7440.0	H	-	-	-76.76	11.95	42.19	-53.06	-13.00	-40.06

Table 7-10. Radiated Spurious Data (LTE Band 2 – Low Channel)

Bandwidth (MHz):	20
Frequency (MHz):	1880.0
RB / Offset:	1 / 50
Mode:	Stsnd Alone

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	158	105	-68.44	5.97	44.53	-50.73	-13.00	-37.73
5640.0	H	124	272	-72.11	8.02	42.91	-52.35	-13.00	-39.35
7520.0	H	-	-	-77.03	12.27	42.24	-53.01	-13.00	-40.01

Table 7-11. Radiated Spurious Data (LTE Band 2 – Mid Channel)

Bandwidth (MHz):	20
Frequency (MHz):	1900.0
RB / Offset:	1 / 50
Mode:	Stsnd Alone

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]
3800.0	H	187	169	-70.17	5.92	42.75	-52.51	-13.00	-39.51
5700.0	H	117	317	-73.52	8.01	41.49	-53.77	-13.00	-40.77
7600.0	H	-	-	-77.23	12.79	42.56	-52.70	-13.00	-39.70

Table 7-12. Radiated Spurious Data (LTE Band 2 – High Channel)

FCC ID: ZNFG900VM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Quality Manager
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Bandwidth (MHz):	20
Frequency (MHz):	1880
RB / Offset:	1 / 50
Mode:	EN-DC
Anchor Band:	LTE Band 66

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]
1476.0	H	400	318	-78.22	22.62	51.40	-43.86	-13.00	-30.86
1610.6	H	205.82	43	-75.35	23.47	55.12	-40.14	-13.00	-27.14
2014.0	H	119	71	-75.32	25.83	57.51	-37.75	-13.00	-24.75
2149.0	H	-	-	-78.64	25.98	54.34	-40.91	-13.00	-27.91

Table 7-13. Radiated Spurious Data (ENDC n2-LB66)

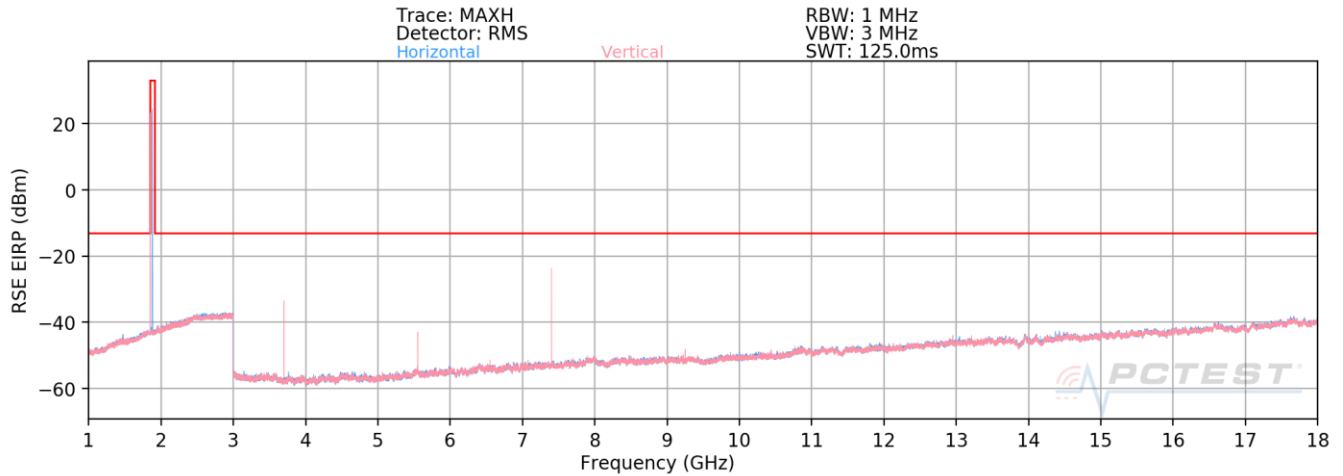
Bandwidth (MHz):	20
Frequency (MHz):	1880.0
RB / Offset:	1 / 50
Mode:	EN-DC
Anchor Band:	LTE Band 13

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]
2346.3	H	400	160	-77.80	26.63	55.83	-39.43	-13.00	-26.43
2661.8	H	398.82	158	-75.84	28.18	59.34	-35.92	-13.00	-22.92
2977.7	H	400	353	-78.09	29.14	58.05	-37.21	-13.00	-24.21

Table 7-14. Radiated Spurious Data (ENDC n2-LB13)

FCC ID: ZNFG900VM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Quality Manager
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GSM/GPRS PCS



Plot 7-187. 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	100	266	-42.47	-0.55	63.98	-31.28	-13.00	-18.28
5550.6	H	117	285	-51.19	3.38	59.19	-36.07	-13.00	-23.07
7400.8	H	153	103	-45.16	8.95	70.79	-24.47	-13.00	-11.47
9251.0	H	109	23	-67.39	11.34	50.95	-44.31	-13.00	-31.31
11101.2	H	162	104	-61.48	13.29	58.81	-36.45	-13.00	-23.45
12951.4	H	115	101	-69.17	17.66	55.49	-39.77	-13.00	-26.77
14801.6	H	-	-	-74.11	19.37	52.26	-43.00	-13.00	-30.00
16651.8	H	-	-	-74.75	16.95	49.20	-46.06	-13.00	-33.06

Table 7-15. 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	101	211	-43.91	-0.38	62.71	-32.55	-13.00	-19.55
5640.0	H	150	102	-47.83	4.33	63.50	-31.76	-13.00	-18.76
7520.0	H	150	101	-48.01	8.86	67.85	-27.41	-13.00	-14.41
9400.0	H	101	110	-68.89	11.84	49.95	-45.31	-13.00	-32.31
11280.0	H	132	99	-64.02	13.27	56.25	-39.01	-13.00	-26.01
13160.0	H	146	107	-69.75	16.73	53.98	-41.28	-13.00	-28.28
15040.0	H	-	-	-74.61	18.53	50.92	-44.34	-13.00	-31.34
16920.0	H	-	-	-74.44	16.35	48.91	-46.35	-13.00	-33.35

Table 7-16. Radiated Spurious Data (GPRS PCS – Mid Channel)

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	Approved by: Quality Manager
Test Report S/N: 1M2004230076-03.ZNF	Test Dates: 4/27/2020 - 6/25/2020	EUT Type: Portable Handset	Page 126 of 138

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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	139	216	-45.58	0.05	61.47	-33.79	-13.00	-20.79
5729.4	H	114	32	-47.73	4.22	63.49	-31.76	-13.00	-18.76
7639.2	H	172	102	-49.74	8.85	66.11	-29.15	-13.00	-16.15
9549.0	H	101	255	-70.45	11.35	47.90	-47.36	-13.00	-34.36
11458.8	H	181	102	-71.81	13.28	48.47	-46.79	-13.00	-33.79
13368.6	H	130	100	-71.28	16.83	52.55	-42.70	-13.00	-29.70
15278.4	H	-	-	-74.58	16.84	49.26	-45.99	-13.00	-32.99
17188.2	H	-	-	-74.92	18.19	50.27	-44.99	-13.00	-31.99

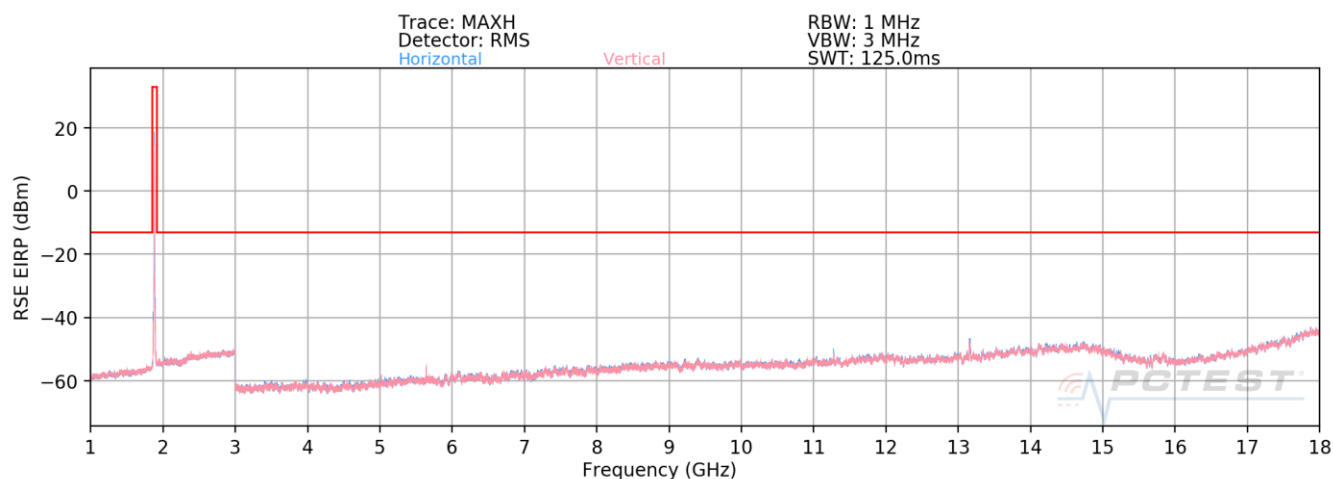
Table 7-17. Radiated Spurious Data (GPRS PCS – High Channel)

FCC ID: ZNFG900VM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Quality Manager
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WCDMA PCS



Plot 7-188. 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	100	219	-53.03	-0.55	53.42	-41.83	-13.00	-28.83
5557.2	H	117	176	-65.98	3.35	44.37	-50.88	-13.00	-37.88
7409.6	H	184	102	-57.87	9.03	58.16	-37.10	-13.00	-24.10
9262.0	H	-	-	-80.49	10.73	37.24	-58.02	-13.00	-45.02
11114.4	H	154	109	-79.27	13.54	41.27	-53.99	-13.00	-40.99
12966.8	H	-	-	-82.44	17.75	42.31	-52.95	-13.00	-39.95
14819.2	H	-	-	-82.28	19.38	44.10	-51.15	-13.00	-38.15

Table 7-18. 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	100	214	-57.23	-0.38	49.39	-45.87	-13.00	-32.87
5640.0	H	160	102	-68.48	4.33	42.85	-52.41	-13.00	-39.41
7520.0	H	154	100	-60.21	8.86	55.65	-39.61	-13.00	-26.61
9400.0	H	-	-	-81.10	11.84	37.74	-57.52	-13.00	-44.52
11280.0	H	-	-	-81.52	13.27	38.75	-56.51	-13.00	-43.51
13160.0	H	-	-	-82.11	16.73	41.62	-53.64	-13.00	-40.64

Table 7-19. Radiated Spurious Data (WCDMA PCS – Mid Channel)

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Quality Manager
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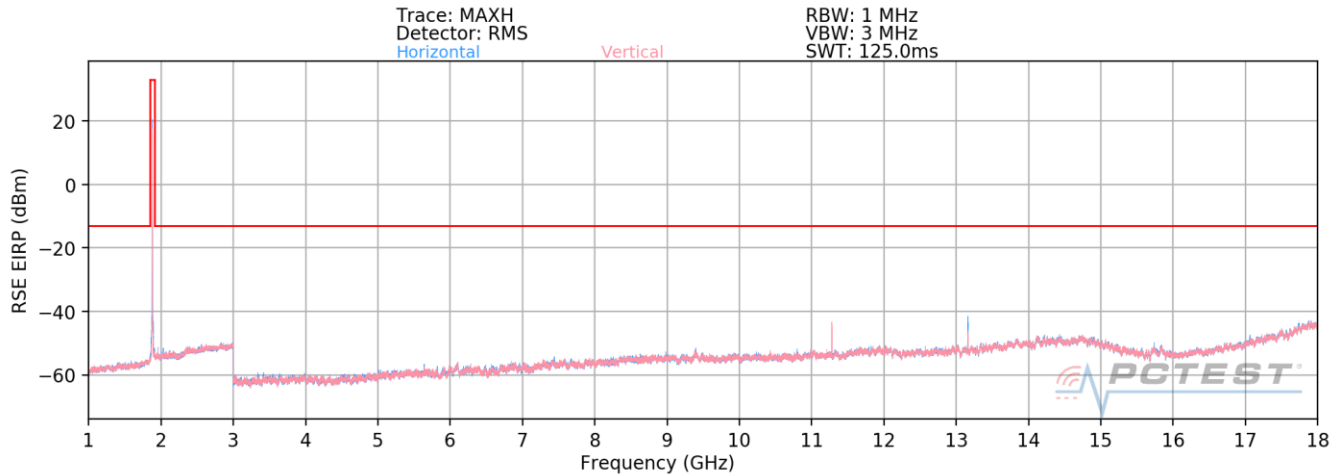
Mode:	WCDMA RMC
Channel:	9538
Frequency (MHz):	1907.6

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	142	206	-63.61	0.04	43.43	-51.83	-13.00	-38.83
5722.8	H	186	105	-69.03	4.32	42.29	-52.97	-13.00	-39.97
7630.4	H	174	102	-67.33	8.81	48.48	-46.78	-13.00	-33.78
9538.0	H	-	-	-80.07	11.96	38.89	-56.37	-13.00	-43.37
11445.6	H	-	-	-81.87	14.14	39.27	-55.98	-13.00	-42.98

Table 7-20. Radiated Spurious Data (WCDMA PCS – High Channel)

FCC ID: ZNFG900VM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Quality Manager
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CDMA PCS



Plot 7-189. 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	100	45	-76.08	5.36	36.28	-58.97	-13.00	-45.97
5553.75	H	353	250	-70.81	8.07	44.26	-51.00	-13.00	-38.00
7405.00	H	-	-	-81.26	12.22	37.96	-57.30	-13.00	-44.30

Table 7-21. 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	130	341	-77.53	5.60	35.07	-60.19	-13.00	-47.19
5640.00	H	102	330	-71.85	7.68	42.83	-52.43	-13.00	-39.43
7520.00	H	-	-	-81.58	11.79	37.21	-58.04	-13.00	-45.04

Table 7-22. Radiated Spurious Data (CDMA PCS – Mid Channel)

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Quality Manager
Test Report S/N: 1M2004230076-03.ZNF	Test Dates: 4/27/2020 - 6/25/2020	EUT Type: Portable Handset		Page 130 of 138

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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	299	220	-78.59	5.05	33.46	-61.80	-13.00	-48.80
5726.25	H	101	335	-73.10	8.36	42.26	-53.00	-13.00	-40.00
7635.00	H	-	-	-81.75	12.57	37.82	-57.43	-13.00	-44.43

Table 7-23. Radiated Spurious Data (CDMA PCS – High Channel)

FCC ID: ZNFG900VM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Quality Manager
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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

FCC ID: ZNFG900VM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	 LG	Approved by: Quality Manager
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LTE Band 2

LTE Band 2					
Operating Frequency (Hz):			1,880,000,000		
Ref. Voltage (VDC):			3.85		
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	1,880,000,202	329	0.0000175
		- 20	1,880,000,356	483	0.0000257
		- 10	1,879,999,803	-70	-0.0000037
		0	1,879,999,616	-257	-0.0000137
		+ 10	1,879,999,752	-121	-0.0000064
		+ 20 (Ref)	1,879,999,873	0	0.0000000
		+ 30	1,879,999,923	50	0.0000027
		+ 40	1,879,999,734	-139	-0.0000074
		+ 50	1,880,000,183	310	0.0000165
Battery Endpoint	2.96	+ 20	1,879,999,887	14	0.0000007

Table 7-24. LTE Band 2 Frequency Stability Data

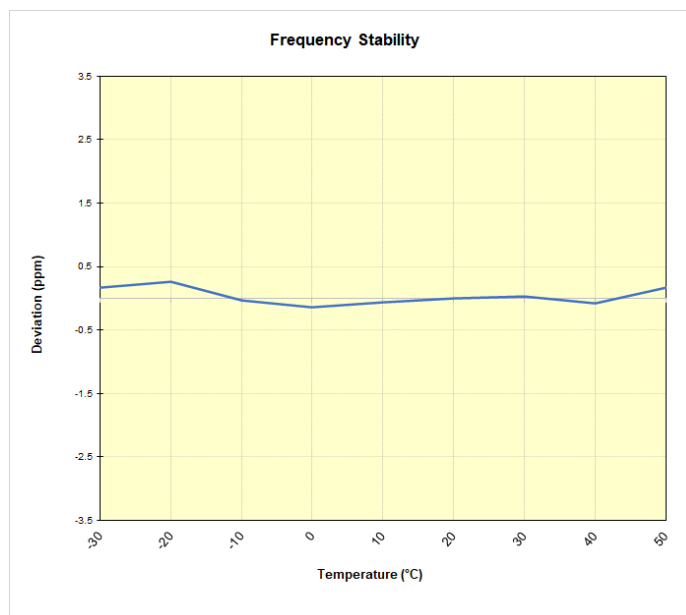


Figure 7-8. LTE Band 2 Frequency Stability Chart

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Quality Manager
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NR Band n2

NR Band n2					
Operating Frequency (Hz):			1,880,000,000		
Ref. Voltage (VDC):			3.85		
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	1,880,000,442	201	0.0000107
		- 20	1,879,999,562	-679	-0.0000361
		- 10	1,880,000,103	-138	-0.0000073
		0	1,879,999,620	-621	-0.0000330
		+ 10	1,879,999,607	-634	-0.0000337
		+ 20 (Ref)	1,880,000,241	0	0.0000000
		+ 30	1,880,000,343	102	0.0000054
		+ 40	1,879,999,504	-737	-0.0000392
		+ 50	1,880,000,273	32	0.0000017
Battery Endpoint	2.96	+ 20	1,879,999,627	-614	-0.0000327

Table 7-25. NR Band n2 Frequency Stability Data

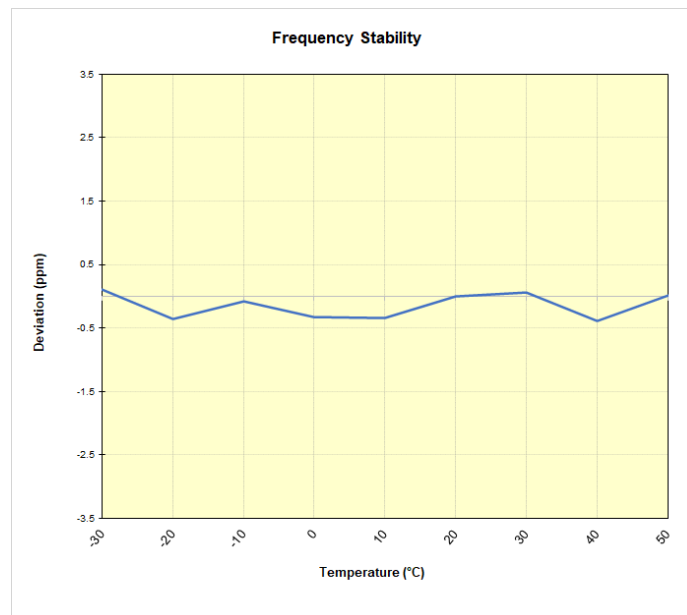


Figure 7-9. NR Band n2 Frequency Stability Chart

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Quality Manager
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GSM/GPRS PCS

GSM/GPRS PCS					
Operating Frequency (Hz):			1,880,000,000		
Ref. Voltage (VDC):			3.85		
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	1,880,000,109	290	0.0000154
		- 20	1,879,999,559	-260	-0.0000138
		- 10	1,880,000,089	270	0.0000144
		0	1,880,000,002	183	0.0000097
		+ 10	1,879,999,724	-95	-0.0000051
		+ 20 (Ref)	1,879,999,819	0	0.0000000
		+ 30	1,880,000,134	315	0.0000168
		+ 40	1,880,000,317	498	0.0000265
		+ 50	1,880,000,357	538	0.0000286
Battery Endpoint	2.96	+ 20	1,880,000,062	243	0.0000129

Table 7-26. GSM/GPRS PCS Frequency Stability Data

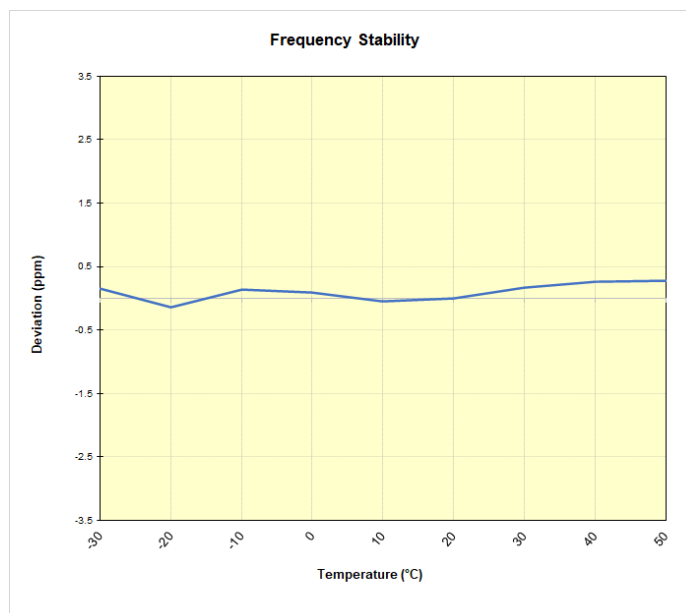


Figure 7-10. GSM/GPRS PCS Frequency Stability Chart

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Quality Manager
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WCDMA PCS

WCDMA PCS					
Operating Frequency (Hz):			1,880,000,000		
Ref. Voltage (VDC):			3.85		
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	1,880,000,077	349	0.0000186
		- 20	1,880,000,423	695	0.0000370
		- 10	1,880,000,072	344	0.0000183
		0	1,879,999,692	-36	-0.0000019
		+ 10	1,880,000,391	663	0.0000353
		+ 20 (Ref)	1,879,999,728	0	0.0000000
		+ 30	1,880,000,271	543	0.0000289
		+ 40	1,880,000,123	395	0.0000210
		+ 50	1,880,000,334	606	0.0000322
Battery Endpoint	2.96	+ 20	1,879,999,798	70	0.0000037

Table 7-27. WCDMA PCS Frequency Stability Data

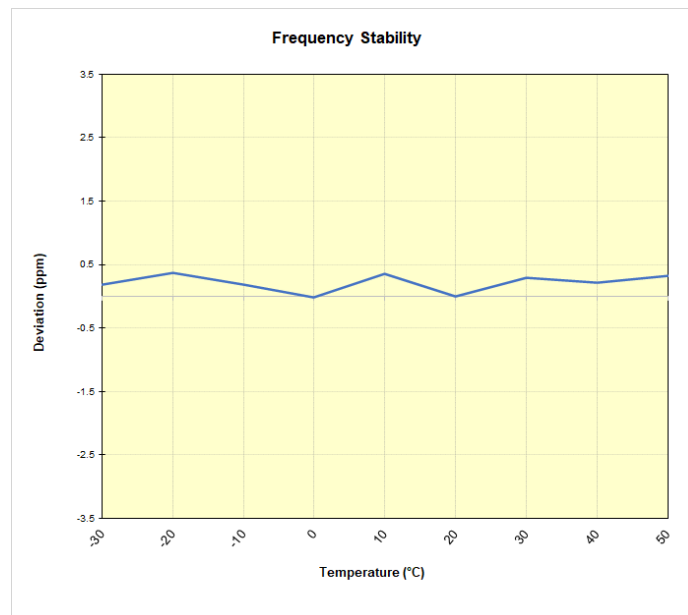


Figure 7-11. WCDMA PCS Frequency Stability Chart

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Quality Manager
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CDMA PCS

CDMA PCS					
Operating Frequency (Hz):			1,880,000,000		
Ref. Voltage (VDC):			3.85		
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	1,880,000,196	287	0.0000153
		- 20	1,879,999,613	-296	-0.0000157
		- 10	1,880,000,498	589	0.0000313
		0	1,879,999,550	-359	-0.0000191
		+ 10	1,879,999,769	-140	-0.0000074
		+ 20 (Ref)	1,879,999,909	0	0.0000000
		+ 30	1,879,999,657	-252	-0.0000134
		+ 40	1,880,000,114	205	0.0000109
		+ 50	1,879,999,924	15	0.0000008
Battery Endpoint	2.96	+ 20	1,879,999,845	-64	-0.0000034

Table 7-28. CDMA PCS Frequency Stability Data

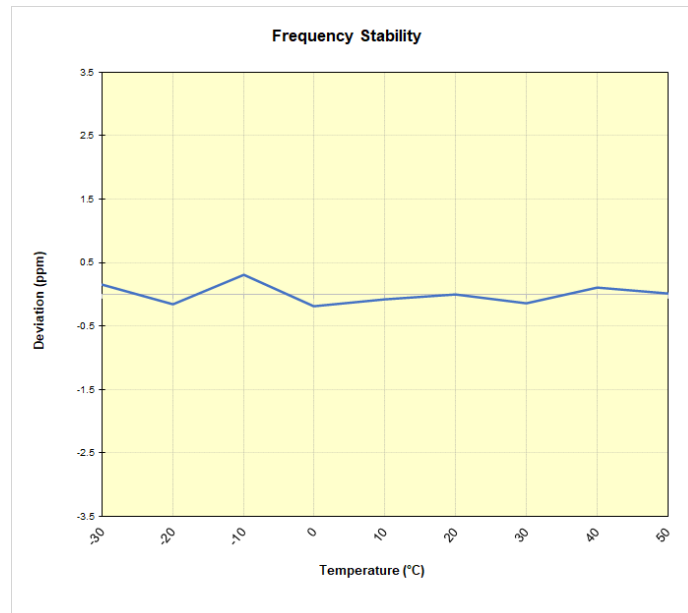


Figure 7-12. CDMA PCS Frequency Stability Chart

FCC ID: ZNFG900VM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Quality Manager
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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the LG **Portable Handset** **FCC ID: ZNFG900VM** complies with all the requirements of Part 24 of the FCC rules.

FCC ID: ZNFG900VM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT	 LG	Approved by: Quality Manager
Test Report S/N: 1M2004230076-03.ZNF	Test Dates: 4/27/2020 - 6/25/2020	EUT Type: Portable Handset		Page 138 of 138

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