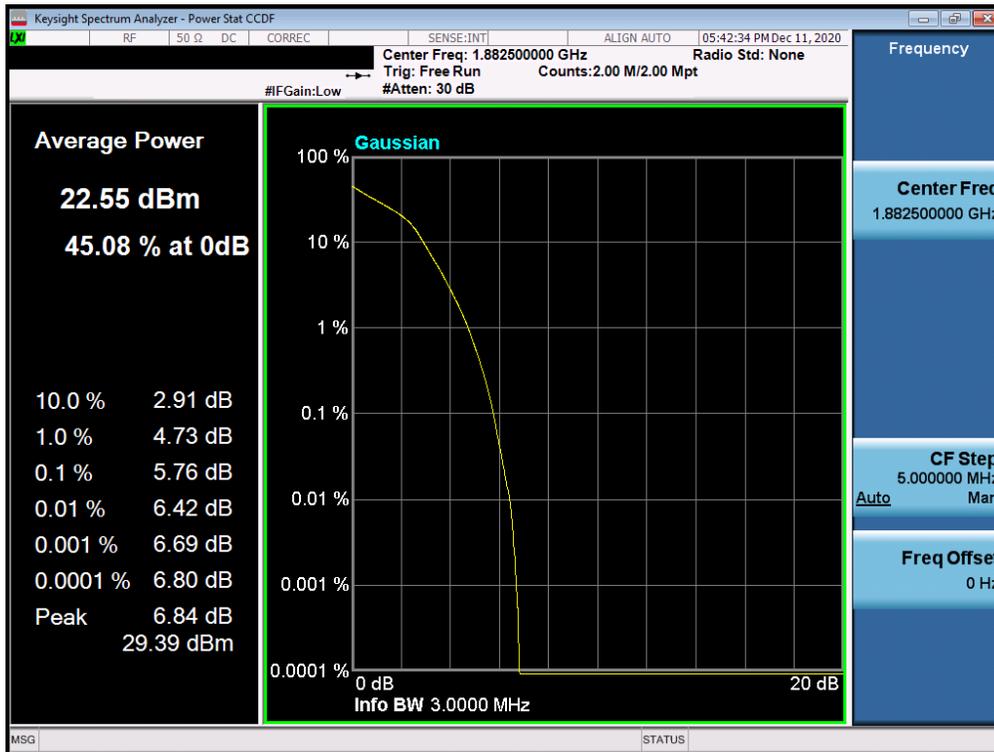
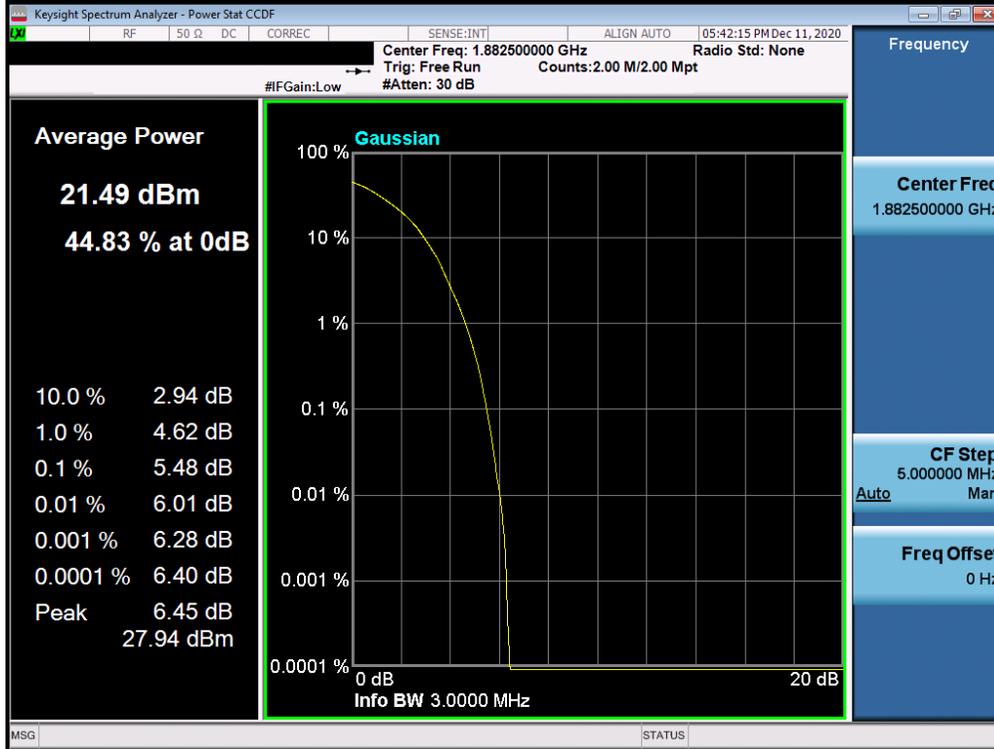


Plot 7-119. PAR Plot (LTE Band 25/2 - 3MHz QPSK - Full RB Configuration)

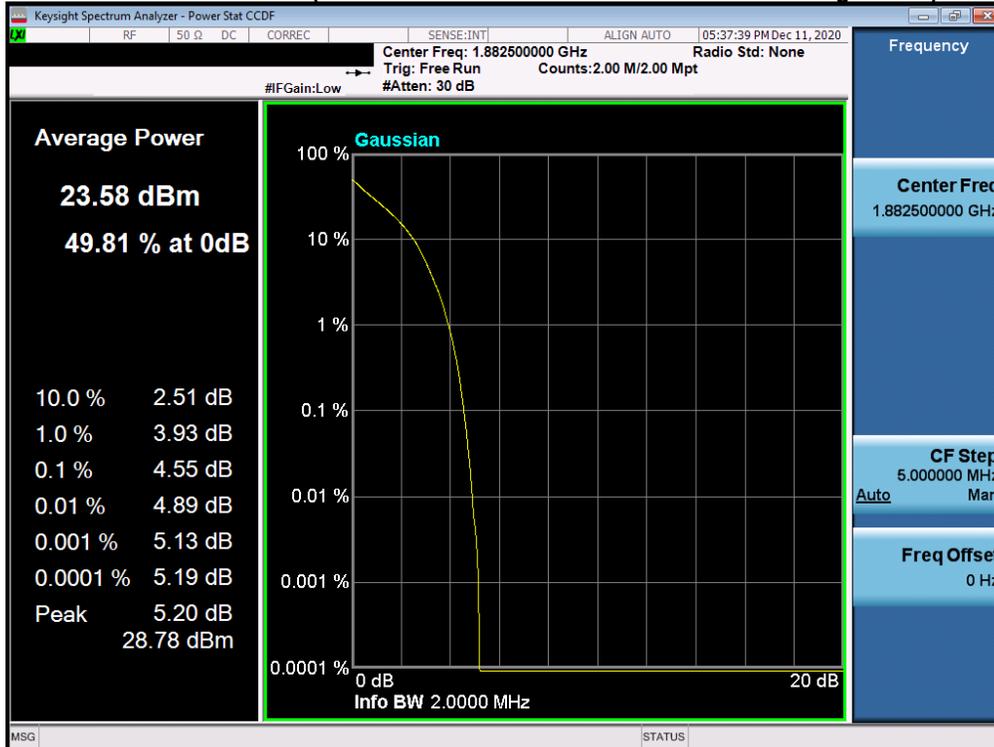


Plot 7-120. PAR Plot (LTE Band 25/2 - 3MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFK330PM	<b>PCTEST</b> Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset		Page 79 of 109

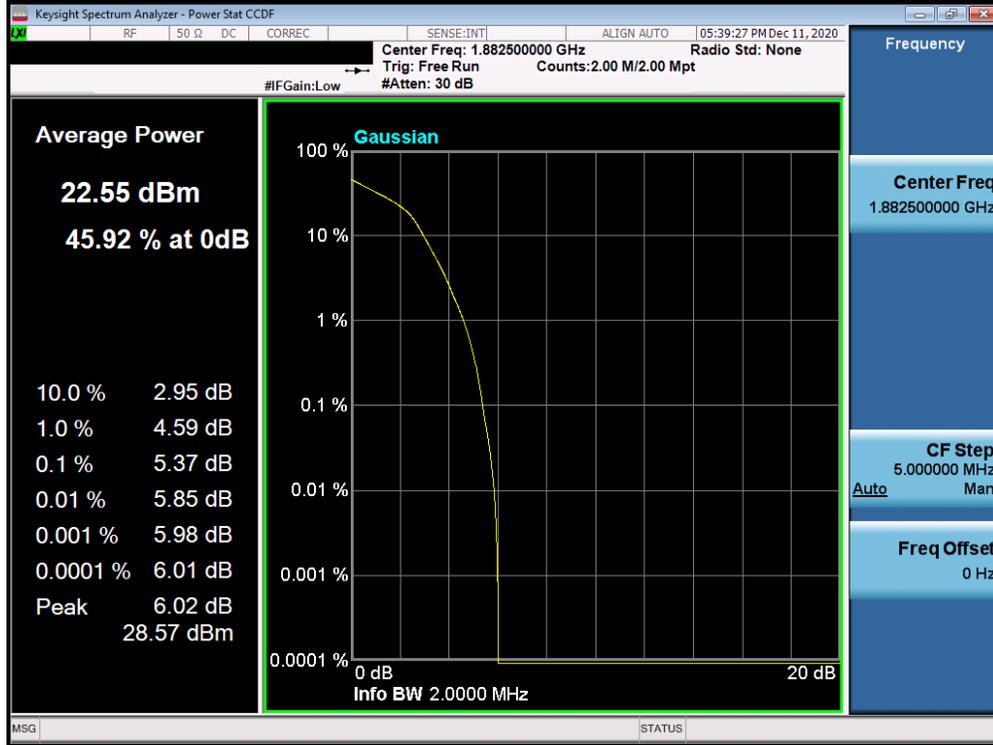


Plot 7-121. PAR Plot (LTE Band 25/2 - 3MHz 64-QAM - Full RB Configuration)

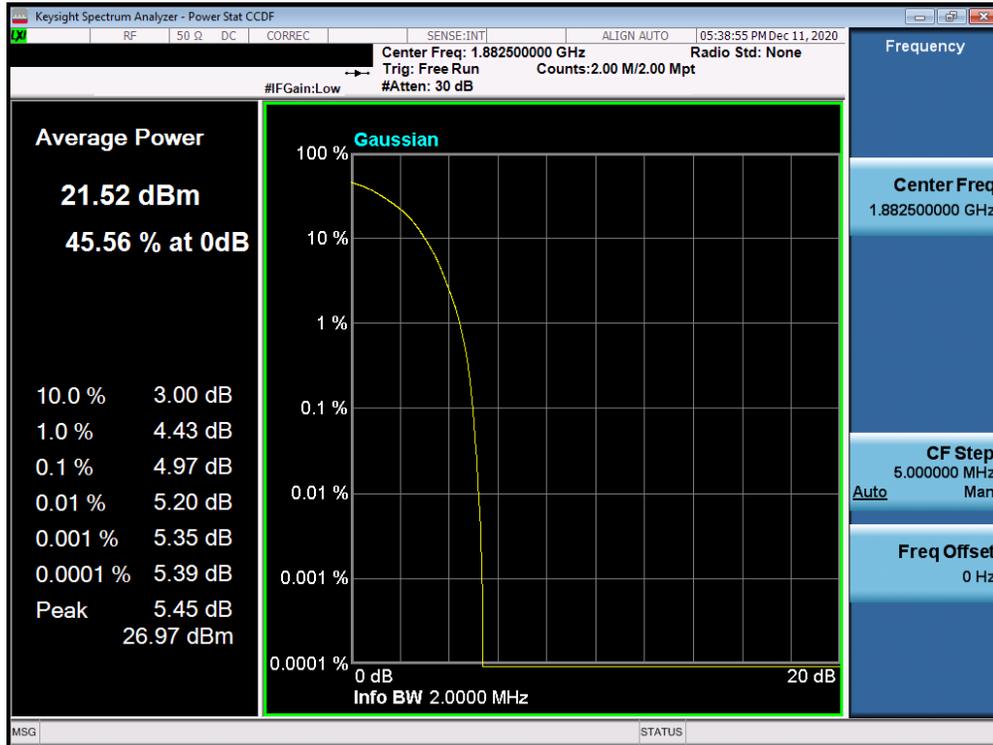


Plot 7-122. PAR Plot (LTE Band 25/2 - 1.4MHz QPSK - Full RB Configuration)

FCC ID: ZNFK330PM	<b>PCTEST</b> Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset		Page 80 of 109



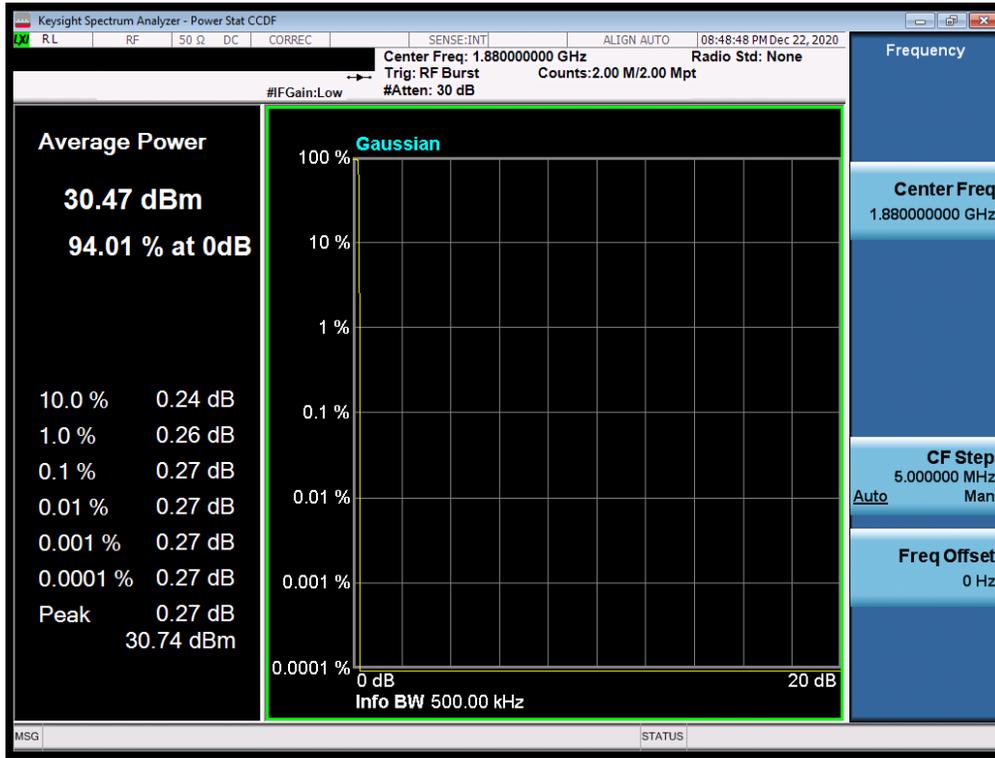
Plot 7-123. PAR Plot (LTE Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)



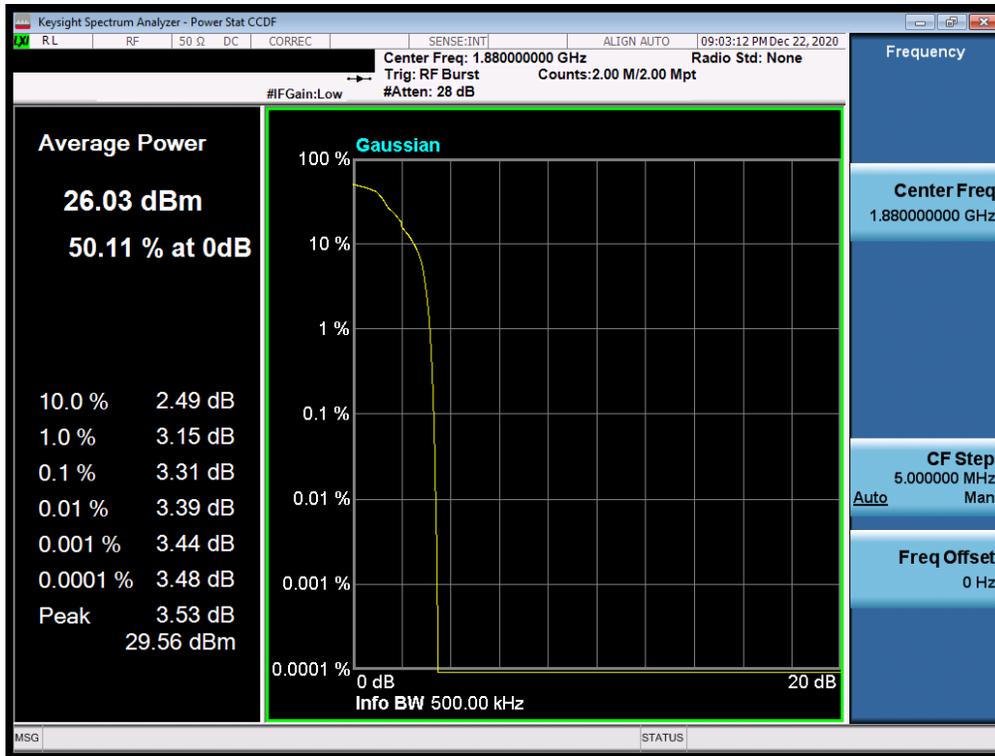
Plot 7-124. PAR Plot (LTE Band 25/2 - 1.4MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFK330PM	<b>PCTEST</b> Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset		Page 81 of 109

**GSM/GPRS PCS**



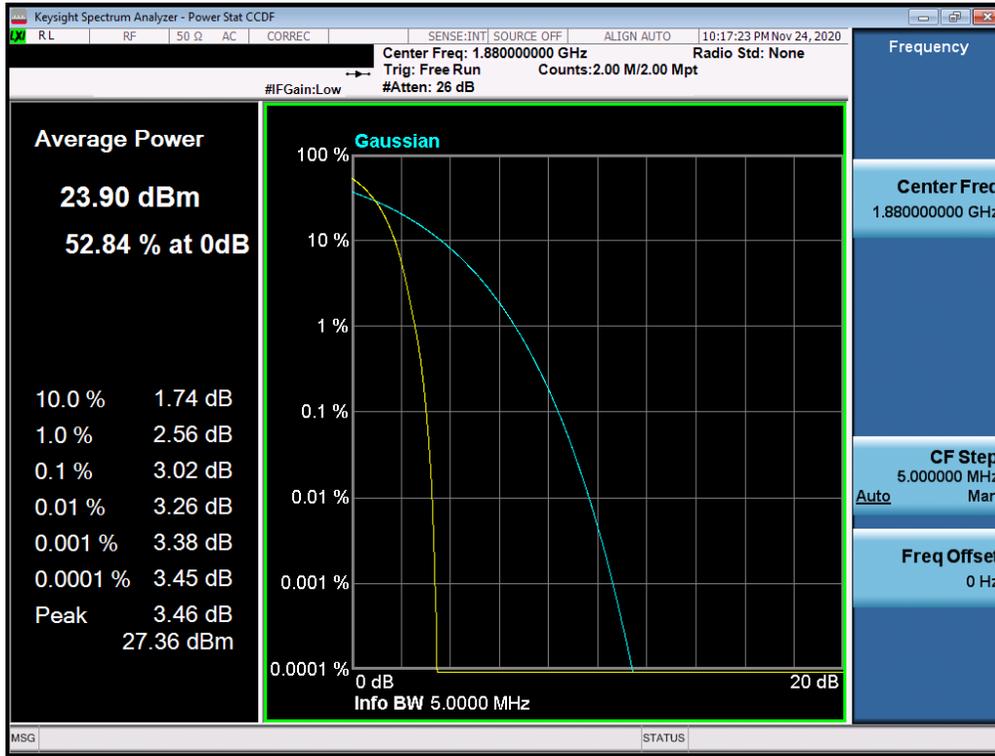
Plot 7-125. PAR Plot (GPRS, Ch. 661)



Plot 7-126. PAR Plot (EDGE, Ch. 661)

FCC ID: ZNFK330PM	<b>PCTEST</b> Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset		Page 82 of 109

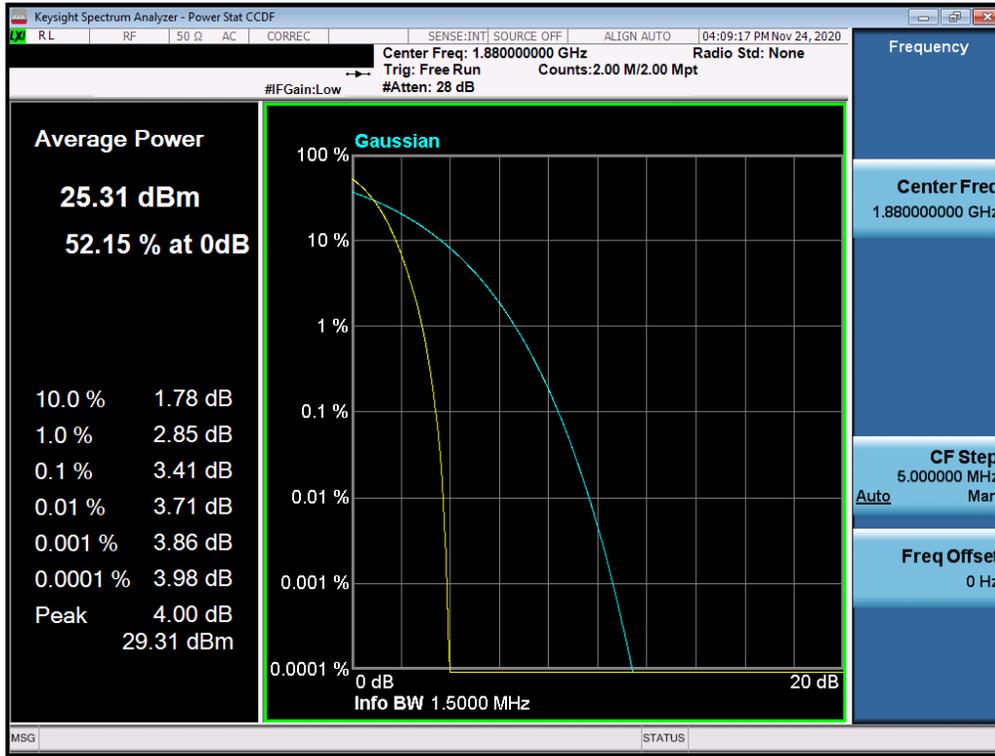
**WCDMA PCS**



**Plot 7-127. PAR Plot (WCDMA, Ch. 9400)**

FCC ID: ZNFK330PM	<b>PCTEST</b> Proud to be part of element	<b>PART 24 MEASUREMENT REPORT</b>	LG	Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset		Page 83 of 109

# CDMA PCS



Plot 7-128. PAR Plot (CDMA, Ch. 600)

FCC ID: ZNFK330PM	<b>PCTEST</b> Proud to be part of element	PART 24 MEASUREMENT REPORT	LG	Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset		Page 84 of 109

## 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

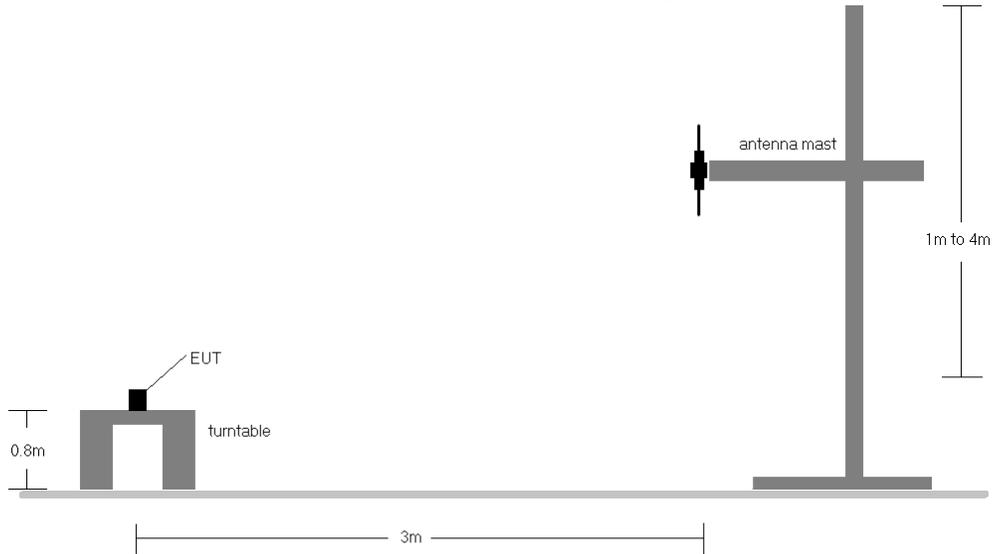
### Test Settings

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 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points  $\geq$  2 x span / RBW
6. Detector = RMS
7. Trigger is set to “free run” for signals with continuous operation with the sweep times set to “auto”. Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the “gating” function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

FCC ID: ZNFK330PM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset		Page 85 of 109

**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.

FCC ID: ZNFK330PM	<b>PCTEST</b> Proud to be part of element	<b>PART 24 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2011170181-03.ZNF	<b>Test Dates:</b> 11/18/2020 - 12/14/2020	<b>EUT Type:</b> Portable Handset		Page 86 of 109

### LTE Band 25/2

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	EUT Pol.	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
20 MHz	QPSK	1860.0	H	X	102.0	19.0	9.98	1 / 0	14.17	<b>24.15</b>	0.260	33.01	-8.86
		1882.5	H	X	102.0	18.0	10.15	1 / 0	13.82	23.97	0.250	33.01	-9.04
		1905.0	H	X	107.0	17.0	10.31	1 / 0	13.05	23.36	0.217	33.01	-9.65
	16-QAM	1860.0	H	X	102.0	19.0	9.98	1 / 0	13.36	<b>23.34</b>	0.216	33.01	-9.67
	64-QAM	1860.0	H	X	102.0	19.0	9.98	1 / 0	12.25	<b>22.23</b>	0.167	33.01	-10.78
15 MHz	QPSK	1857.5	H	X	102.0	19.0	9.96	1 / 36	13.93	<b>23.89</b>	0.245	33.01	-9.12
		1882.5	H	X	102.0	18.0	10.15	1 / 36	13.69	23.84	0.242	33.01	-9.17
		1907.5	H	X	107.0	17.0	10.33	1 / 36	13.00	23.32	0.215	33.01	-9.69
	16-QAM	1857.5	H	X	102.0	19.0	9.96	1 / 0	13.82	<b>23.78</b>	0.239	33.01	-9.23
	64-QAM	1857.5	H	X	102.0	19.0	9.96	1 / 36	12.57	<b>22.53</b>	0.179	33.01	-10.48
10 MHz	QPSK	1855.0	H	X	102.0	19.0	9.94	1 / 25	14.55	<b>24.49</b>	0.281	33.01	-8.52
		1882.5	H	X	102.0	18.0	10.15	1 / 25	14.10	24.25	0.266	33.01	-8.76
		1910.0	H	X	107.0	17.0	10.34	1 / 25	13.19	23.53	0.226	33.01	-9.48
	16-QAM	1855.0	H	X	102.0	19.0	9.94	1 / 0	13.84	<b>23.78</b>	0.239	33.01	-9.23
	64-QAM	1882.5	H	X	102.0	18.0	10.15	1 / 25	12.39	<b>22.54</b>	0.180	33.01	-10.47
5 MHz	QPSK	1852.5	H	X	102.0	19.0	9.92	1 / 12	14.59	<b>24.51</b>	0.282	33.01	-8.50
		1882.5	H	X	102.0	18.0	10.15	1 / 12	14.18	24.33	0.271	33.01	-8.68
		1912.5	H	X	107.0	17.0	10.36	1 / 12	13.54	23.89	0.245	33.01	-9.12
	16-QAM	1852.5	H	X	102.0	19.0	9.92	1 / 12	13.81	<b>23.73</b>	0.236	33.01	-9.28
	64-QAM	1852.5	H	X	102.0	19.0	9.92	1 / 12	12.68	<b>22.60</b>	0.182	33.01	-10.41
3 MHz	QPSK	1851.5	H	X	102.0	19.0	9.91	1 / 7	14.66	<b>24.57</b>	0.286	33.01	-8.44
		1882.5	H	X	102.0	18.0	10.15	1 / 7	14.06	24.21	0.264	33.01	-8.80
		1913.5	H	X	107.0	17.0	10.36	1 / 7	13.37	23.73	0.236	33.01	-9.28
	16-QAM	1851.5	H	X	102.0	19.0	9.91	1 / 14	13.86	<b>23.77</b>	0.238	33.01	-9.24
	64-QAM	1882.5	H	X	102.0	18.0	10.15	1 / 7	12.26	<b>22.41</b>	0.174	33.01	-10.60
1.4 MHz	QPSK	1850.7	H	X	102.0	19.0	9.91	1 / 2	14.66	<b>24.57</b>	0.286	33.01	-8.44
		1882.5	H	X	102.0	18.0	10.15	1 / 2	13.92	24.07	0.255	33.01	-8.94
		1914.3	H	X	107.0	17.0	10.37	1 / 2	13.22	23.58	0.228	33.01	-9.43
	16-QAM	1850.7	H	X	102.0	19.0	9.91	1 / 2	13.77	<b>23.68</b>	0.233	33.01	-9.33
	64-QAM	1882.5	H	X	102.0	18.0	10.15	1 / 2	12.21	<b>22.36</b>	0.172	33.01	-10.65
20 MHz	Opposite Pol.	1860.0	V	Y	115.0	351.0	10.15	1 / 0	9.18	19.33	0.086	33.01	-13.68

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

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.20	GSM1900	H	207	340	14.18	9.51	<b>23.69</b>	<b>0.234</b>	33.01	-9.32
1880.00	GSM1900	H	199	333	13.63	9.93	23.56	0.227	33.01	-9.45
1909.80	GSM1900	H	196	327	11.57	10.28	21.85	0.153	33.01	-11.16
1850.20	GSM1900	V	142	140	13.56	9.90	23.46	0.222	33.01	-9.55
1850.20	EDGE1900	H	207	340	8.40	9.51	<b>17.91</b>	0.062	33.01	-15.10

Table 7-3. EIRP Data (GPRS PCS)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1852.40	WCDMA1900	V	124	63	12.38	9.54	21.92	0.155	33.01	-11.09
1880.00	WCDMA1900	V	109	77	13.60	9.93	<b>23.53</b>	<b>0.225</b>	33.01	-9.48
1907.60	WCDMA1900	V	127	52	11.86	10.26	22.12	0.163	33.01	-10.89
1880.00	WCDMA1900	H	194	21	12.90	9.93	22.83	0.192	33.01	-10.18

Table 7-4. EIRP Data (WCDMA PCS)

FCC ID: ZNFK330PM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset	Page 87 of 109	

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	124	30	14.34	9.52	<b>23.86</b>	<b>0.243</b>	33.01	-9.15
1880.00	CDMA1900	H	109	29	13.45	9.93	23.38	0.218	33.01	-9.63
1908.75	CDMA1900	H	110	30	13.07	10.27	23.34	0.216	33.01	-9.67
1851.25	CDMA1900	V	136	139	13.69	9.93	23.62	0.230	33.01	-9.39

**Table 7-5. EIRP Data (CDMA PCS)**

FCC ID: ZNFK330PM	 PCTEST Proud to be part of element	<b>PART 24 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2011170181-03.ZNF	<b>Test Dates:</b> 11/18/2020 - 12/14/2020	<b>EUT Type:</b> Portable Handset		Page 88 of 109

## 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

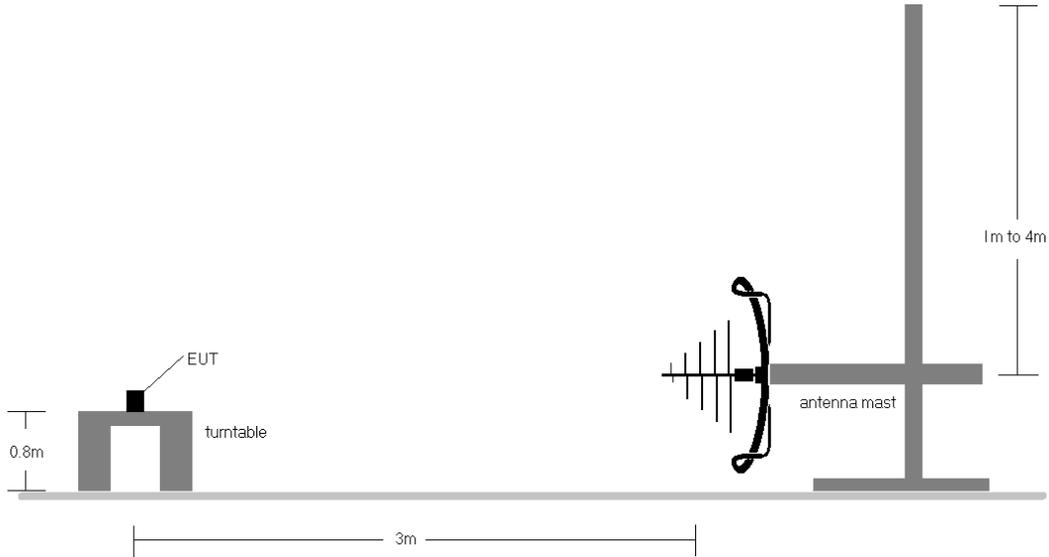
### Test Settings

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

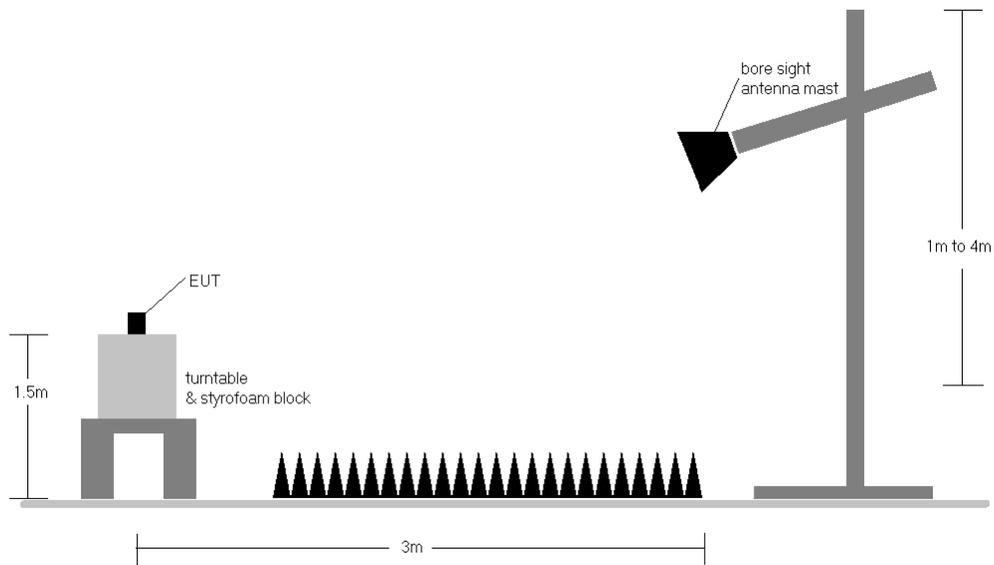
FCC ID: ZNFK330PM	 PCTEST® Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset		Page 89 of 109

**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**

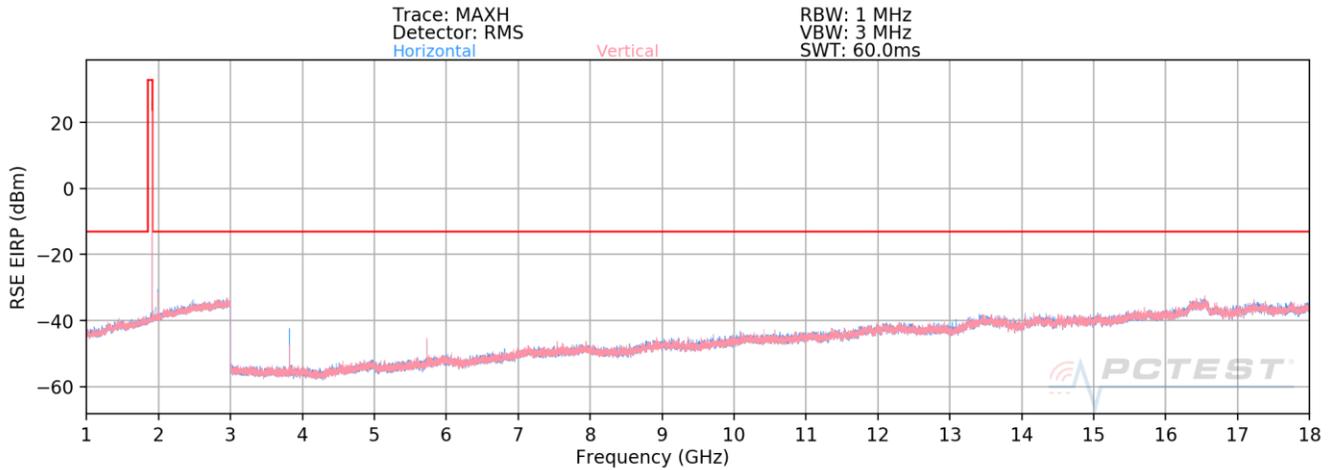
FCC ID: ZNFK330PM	<b>PCTEST</b> Proud to be part of element	<b>PART 24 MEASUREMENT REPORT</b>	<b>LG</b>	<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2011170181-03.ZNF	<b>Test Dates:</b> 11/18/2020 - 12/14/2020	<b>EUT Type:</b> Portable Handset	Page 90 of 109	

## Test Notes

- 1) Field strengths are calculated using the Measurement quantity conversions in KDB 971168 Section 5.8.4.
  - b)  $E(\text{dB}\mu\text{V}/\text{m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$
  - d)  $\text{EIRP (dBm)} = E(\text{dB}\mu\text{V}/\text{m}) + 20\log D - 104.8$ ; 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.

FCC ID: ZNFK330PM	 <b>PART 24 MEASUREMENT REPORT</b> 		Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset	Page 91 of 109

## LTE Band 25/2



Plot 7-129. Radiated Spurious Plot (LTE Band 25/2)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3720.0	H	383	324	-71.64	2.66	38.02	-57.24	-13.00	-44.24
5580.0	H	271	229	-63.03	5.02	48.99	-46.27	-13.00	-33.27
7440.0	H	-	-	-80.04	8.80	35.76	-59.50	-13.00	-46.50
9300.0	H	-	-	-79.56	10.78	38.22	-57.03	-13.00	-44.03
11160.0	H	-	-	-79.65	12.18	39.53	-55.73	-13.00	-42.73

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

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3765.0	H	366	324	-69.60	2.64	40.04	-55.22	-13.00	-42.22
5647.5	H	268	226	-61.96	5.07	50.11	-45.14	-13.00	-32.14
7530.0	H	-	-	-80.24	8.91	35.67	-59.58	-13.00	-46.58
9412.5	H	-	-	-80.35	11.82	38.47	-56.79	-13.00	-43.79
11295.0	H	-	-	-78.47	12.08	40.61	-54.64	-13.00	-41.64

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

FCC ID: ZNFK330PM	PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset	Page 92 of 109	

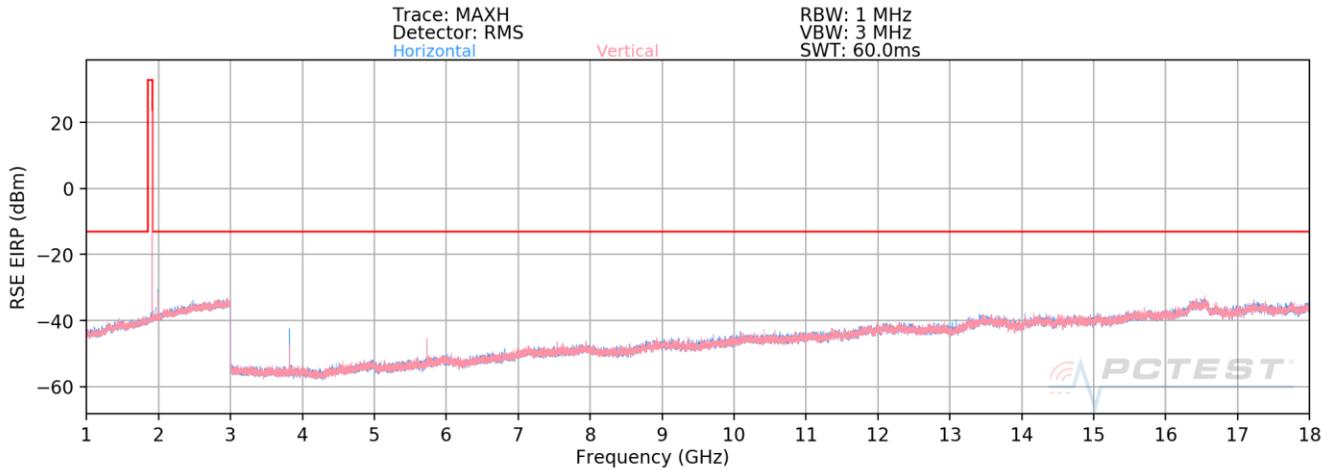
Bandwidth (MHz):	20
Frequency (MHz):	1905.0
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3810.00	H	361	329	-72.22	2.39	37.17	-58.08	-13.00	-45.08
5715.00	H	277	227	-64.66	4.79	47.13	-48.13	-13.00	-35.13
7620.00	H	-	-	-79.86	8.97	36.11	-59.15	-13.00	-46.15
9525.00	H	-	-	-79.60	11.27	38.67	-56.59	-13.00	-43.59
11430.00	H	-	-	-80.13	12.98	39.85	-55.40	-13.00	-42.40

Table 7-8. Radiated Spurious Data (LTE Band 25/2 – High Channel)

FCC ID: ZNFK330PM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset		Page 93 of 109

## GSM/GPRS PCS



**Plot 7-130. Radiated Spurious Plot (GPRS PCS)**

<b>Mode:</b>	GPRS 1 Tx Slot
<b>Channel:</b>	512
<b>Frequency (MHz):</b>	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	104	222	-60.08	7.87	54.79	-40.47	-13.00	-27.47
5550.6	H	115	10	-65.15	11.63	53.48	-41.78	-13.00	-28.78
7400.8	H	100	6	-71.44	15.96	51.52	-43.74	-13.00	-30.74
9251.0	H	-	-	-78.81	18.12	46.31	-48.95	-13.00	-35.95
11101.2	H	-	-	-79.45	21.53	49.08	-46.18	-13.00	-33.18
12951.4	H	-	-	-80.89	24.62	50.73	-44.52	-13.00	-31.52

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

<b>Mode:</b>	GPRS 1 Tx Slot
<b>Channel:</b>	661
<b>Frequency (MHz):</b>	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	111	227	-60.92	8.26	54.34	-40.92	-13.00	-27.92
5640.0	H	101	315	-66.92	11.02	51.10	-44.16	-13.00	-31.16
7520.0	H	100	12	-71.77	15.78	51.01	-44.25	-13.00	-31.25
9400.0	H	-	-	-80.61	19.12	45.51	-49.75	-13.00	-36.75
11280.0	H	-	-	-77.77	22.00	51.23	-44.03	-13.00	-31.03
13160.0	H	-	-	-79.25	24.79	52.54	-42.72	-13.00	-29.72

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

<b>FCC ID:</b> ZNFK330PM	<b>PCTEST</b> Proud to be part of element	<b>PART 24 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2011170181-03.ZNF	<b>Test Dates:</b> 11/18/2020 - 12/14/2020	<b>EUT Type:</b> Portable Handset	Page 94 of 109	

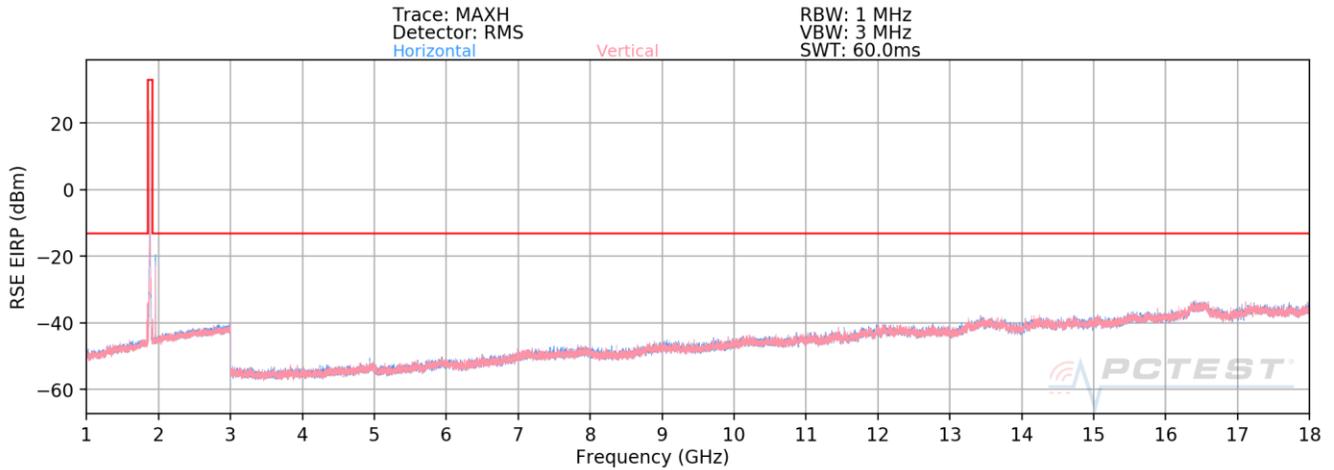
Mode:	GPRS 1 Tx Slot
Channel:	810
Frequency (MHz):	1909.8

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	129	237	-62.93	8.63	52.70	-42.55	-13.00	-29.55
5729.4	H	119	308	-66.27	12.23	52.96	-42.30	-13.00	-29.30
7639.2	H	100	10	-71.25	16.52	52.27	-42.99	-13.00	-29.99
9549.0	H	-	-	-77.64	18.93	48.29	-46.97	-13.00	-33.97
11458.8	H	-	-	-79.79	22.45	49.66	-45.59	-13.00	-32.59
13368.6	H	-	-	-76.85	25.38	55.53	-39.73	-13.00	-26.73

Table 7-11. Radiated Spurious Data (GPRS PCS – High Channel)

FCC ID: ZNFK330PM	 <b>PCTEST</b> Proud to be part of element	<b>PART 24 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset		Page 95 of 109

## WCDMA PCS



Plot 7-131. Radiated Spurious Plot (WCDMA PCS)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3704.8	V	-	-	-79.95	7.78	34.83	-60.43	-13.00	-47.43
5557.2	V	122	177	-78.83	11.86	40.03	-55.23	-13.00	-42.23
7409.6	V	-	-	-82.48	15.91	40.43	-54.83	-13.00	-41.83
9262.0	V	-	-	-83.59	18.37	41.78	-53.48	-13.00	-40.48
11114.4	V	-	-	-83.53	21.44	44.91	-50.35	-13.00	-37.35

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

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3760.0	V	-	-	-82.16	8.26	33.10	-62.16	-13.00	-49.16
5640.0	V	103	179	-77.60	11.02	40.42	-54.84	-13.00	-41.84
7520.0	V	-	-	-82.73	15.78	40.05	-55.21	-13.00	-42.21
9400.0	V	-	-	-83.76	19.12	42.36	-52.90	-13.00	-39.90
11280.0	V	-	-	-83.89	22.00	45.11	-50.15	-13.00	-37.15

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

FCC ID: ZNFK330PM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset	Page 96 of 109	

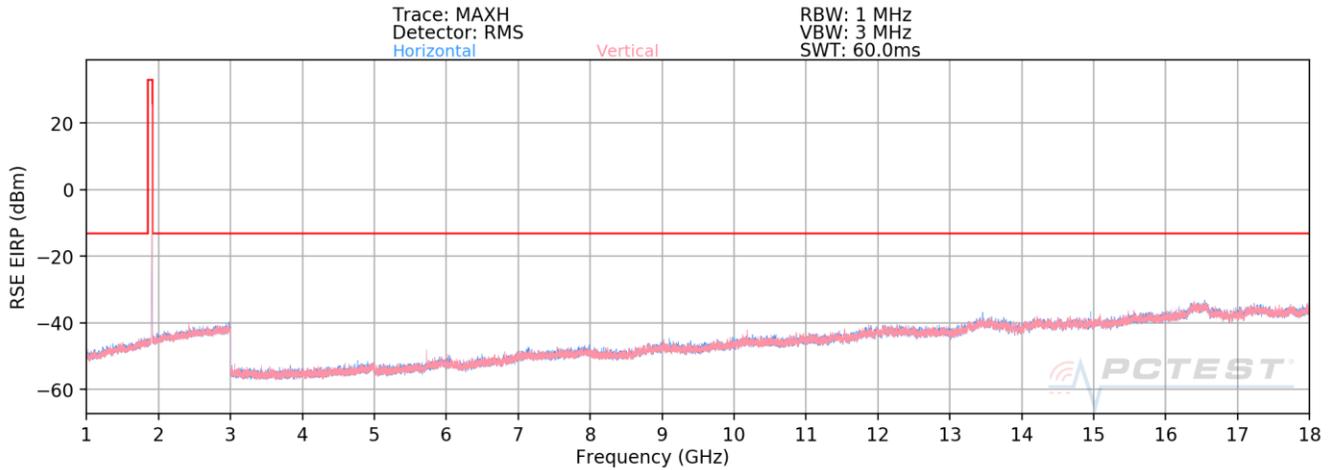
Mode:	WCDMA RMC
Channel:	9538
Frequency (MHz):	1907.6

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3815.2	V	-	-	-80.82	8.51	34.69	-60.56	-13.00	-47.56
5722.8	V	136	177	-80.80	12.05	38.25	-57.01	-13.00	-44.01
7630.4	V	-	-	-82.86	16.54	40.68	-54.57	-13.00	-41.57
9538.0	V	-	-	-83.71	18.31	41.60	-53.66	-13.00	-40.66
11445.6	V	-	-	-84.10	22.11	45.01	-50.25	-13.00	-37.25

Table 7-14. Radiated Spurious Data (WCDMA PCS – High Channel)

FCC ID: ZNFK330PM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset		Page 97 of 109

## CDMA PCS



Plot 7-132. 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	V	-	-	-81.48	7.82	33.34	-61.91	-13.00	-48.91
5553.75	V	100	167	-75.85	11.74	42.89	-52.37	-13.00	-39.37
7405.00	V	-	-	-82.27	15.93	40.66	-54.59	-13.00	-41.59
9256.25	V	-	-	-83.51	18.24	41.73	-53.53	-13.00	-40.53
11107.50	V	-	-	-83.52	21.49	44.97	-50.29	-13.00	-37.29

Table 7-15. 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	V	-	-	-80.27	8.26	34.99	-60.27	-13.00	-47.27
5640.00	V	147	177	-74.84	11.02	43.18	-52.08	-13.00	-39.08
7520.00	V	-	-	-82.89	15.78	39.89	-55.37	-13.00	-42.37
9400.00	V	-	-	-83.63	19.12	42.49	-52.77	-13.00	-39.77
11280.00	V	-	-	-83.90	22.00	45.10	-50.16	-13.00	-37.16

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

FCC ID: ZNFK330PM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
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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	V	-	-	-80.88	8.58	34.70	-60.56	-13.00	-47.56
5726.25	V	113	173	-75.85	12.26	43.41	-51.85	-13.00	-38.85
7635.00	V	-	-	-83.27	16.53	40.26	-55.00	-13.00	-42.00
9543.75	V	-	-	-83.64	18.63	41.99	-53.27	-13.00	-40.27
11452.50	V	-	-	-83.93	22.29	45.36	-49.90	-13.00	-36.90

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

FCC ID: ZNFK330PM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset		Page 99 of 109

## 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: ZNFK330PM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset		Page 100 of 109

## LTE Band 25/2

OPERATING FREQUENCY: 1,882,500,000 Hz  
 CHANNEL: 26365  
 REFERENCE VOLTAGE: 4.4V VDC  
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

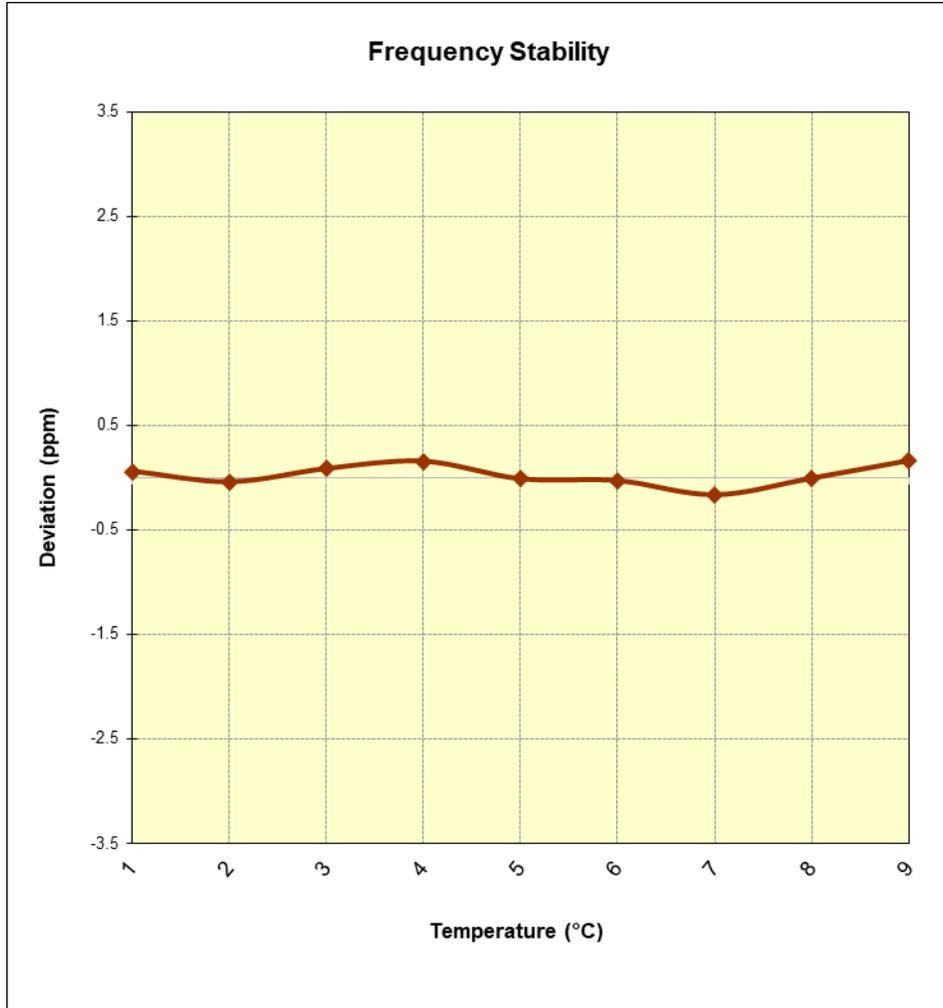
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)	
100 %	4.4V	+ 20 (Ref)	1,882,499,939	0	0.0000000	
100 %		- 30	1,882,500,053	114	0.0000061	
100 %		- 20	1,882,499,864	-75	-0.0000040	
100 %		- 10	1,882,500,100	161	0.0000086	
100 %		0	1,882,500,230	291	0.0000155	
100 %		+ 10	1,882,499,917	-22	-0.0000012	
100 %		+ 20	1,882,499,885	-54	-0.0000029	
100 %		+ 30	1,882,499,633	-306	-0.0000163	
100 %		+ 40	1,882,499,928	-11	-0.0000006	
100 %		+ 50	1,882,500,240	301	0.0000160	
85 %		+ 20	1,882,499,900	-39	-0.0000021	
BATT. ENDPOINT		2.5V	+ 20	1,882,500,036	97	0.0000052

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

**Note:**

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

FCC ID: ZNFK330PM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset		Page 101 of 109



**Plot 7-133. LTE Band 25/2 Frequency Stability Chart**

<b>FCC ID:</b> ZNFK330PM		<b>PART 24 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2011170181-03.ZNF	<b>Test Dates:</b> 11/18/2020 - 12/14/2020	<b>EUT Type:</b> Portable Handset	Page 102 of 109	

## GSM/GPRS PCS

OPERATING FREQUENCY: 1,880,000,000 Hz  
 CHANNEL: 661  
 REFERENCE VOLTAGE: 4.4V VDC

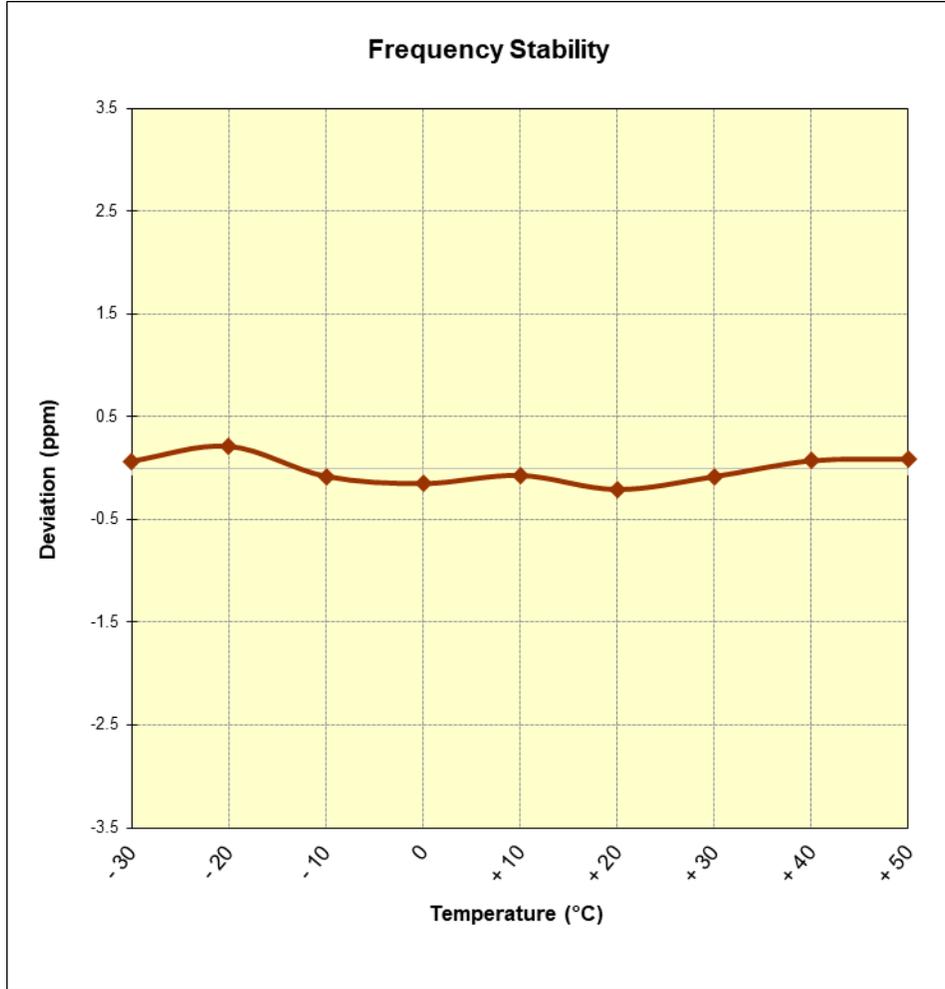
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.4V	+ 20 (Ref)	1,880,000,058	0	0.0000000
100 %		- 30	1,880,000,189	131	0.0000070
100 %		- 20	1,880,000,465	407	0.0000216
100 %		- 10	1,879,999,908	-150	-0.0000080
100 %		0	1,879,999,772	-286	-0.0000152
100 %		+ 10	1,879,999,924	-134	-0.0000071
100 %		+ 20	1,879,999,662	-396	-0.0000211
100 %		+ 30	1,879,999,902	-156	-0.0000083
100 %		+ 40	1,880,000,196	138	0.0000073
100 %		+ 50	1,880,000,227	169	0.0000090
85 %			+ 20	1,880,000,177	119
BATT. ENDPOINT	2.5V	+ 20	1,880,000,248	190	0.0000101

**Table 7-19. GSM/GPRS PCS Frequency Stability Data (PCS GSM Mode-Ch.661)**

**Note:**

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

FCC ID: ZNFK330PM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset		Page 103 of 109



**Plot 7-134. GSM/GPRS PCS Frequency Stability Chart**

FCC ID: ZNFK330PM		PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset	Page 104 of 109	

## WCDMA PCS

OPERATING FREQUENCY:	1,880,000,000	Hz
CHANNEL:	9400	
REFERENCE VOLTAGE:	4.4V	VDC

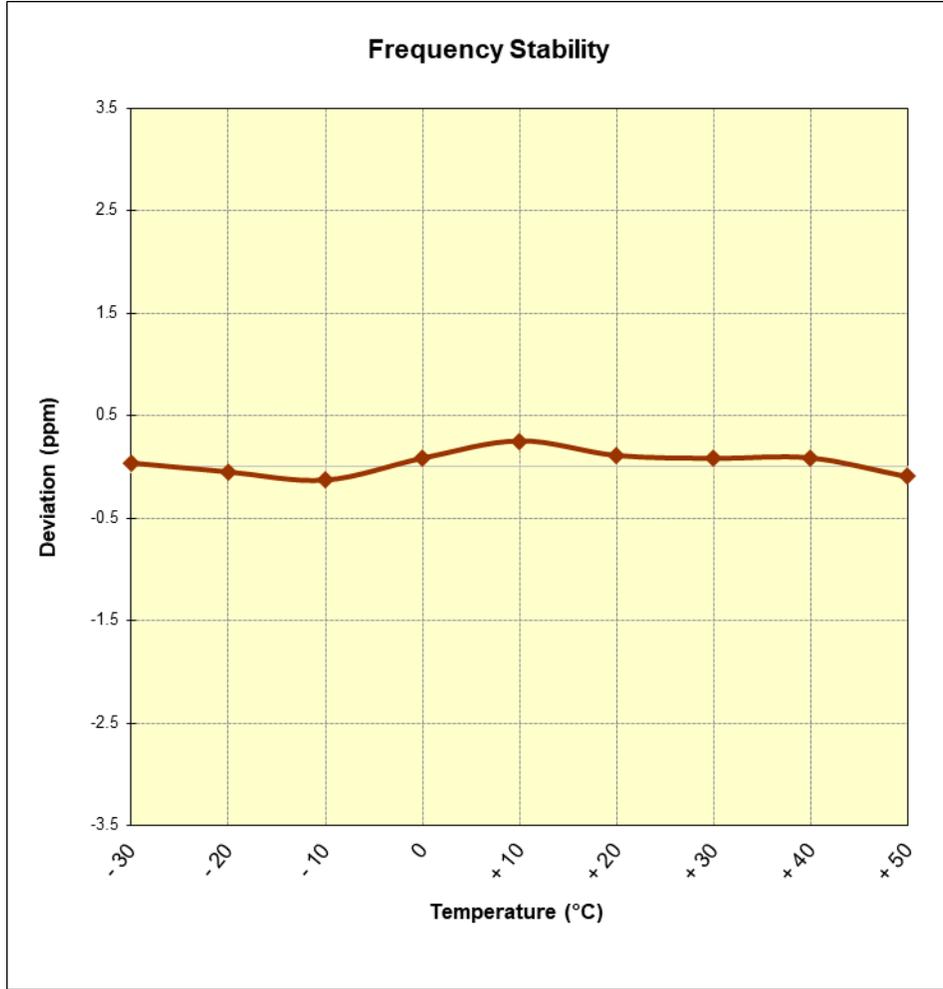
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.4V	+ 20 (Ref)	1,879,999,582	0	0.0000000
100 %		- 30	1,879,999,654	72	0.0000038
100 %		- 20	1,879,999,493	-89	-0.0000047
100 %		- 10	1,879,999,346	-236	-0.0000126
100 %		0	1,879,999,738	156	0.0000083
100 %		+ 10	1,880,000,052	470	0.0000250
100 %		+ 20	1,879,999,790	208	0.0000111
100 %		+ 30	1,879,999,736	154	0.0000082
100 %		+ 40	1,879,999,745	163	0.0000087
100 %		+ 50	1,879,999,406	-176	-0.0000094
85 %			+ 20	1,879,999,610	28
BATT. ENDPOINT	2.5V	+ 20	1,879,999,742	160	0.0000085

**Table 7-20. WCDMA PCS Frequency Stability Data (PCS WCDMA Mode- Ch.9400)**

**Note:**

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

FCC ID: ZNFK330PM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset		Page 105 of 109



**Plot 7-135. WCDMA PCS Frequency Stability Chart**

<b>FCC ID:</b> ZNFK330PM		<b>PART 24 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2011170181-03.ZNF	<b>Test Dates:</b> 11/18/2020 - 12/14/2020	<b>EUT Type:</b> Portable Handset	Page 106 of 109	

## CDMA PCS

OPERATING FREQUENCY: 1,880,000,000 Hz  
 CHANNEL: 600  
 REFERENCE VOLTAGE: 4.4V VDC

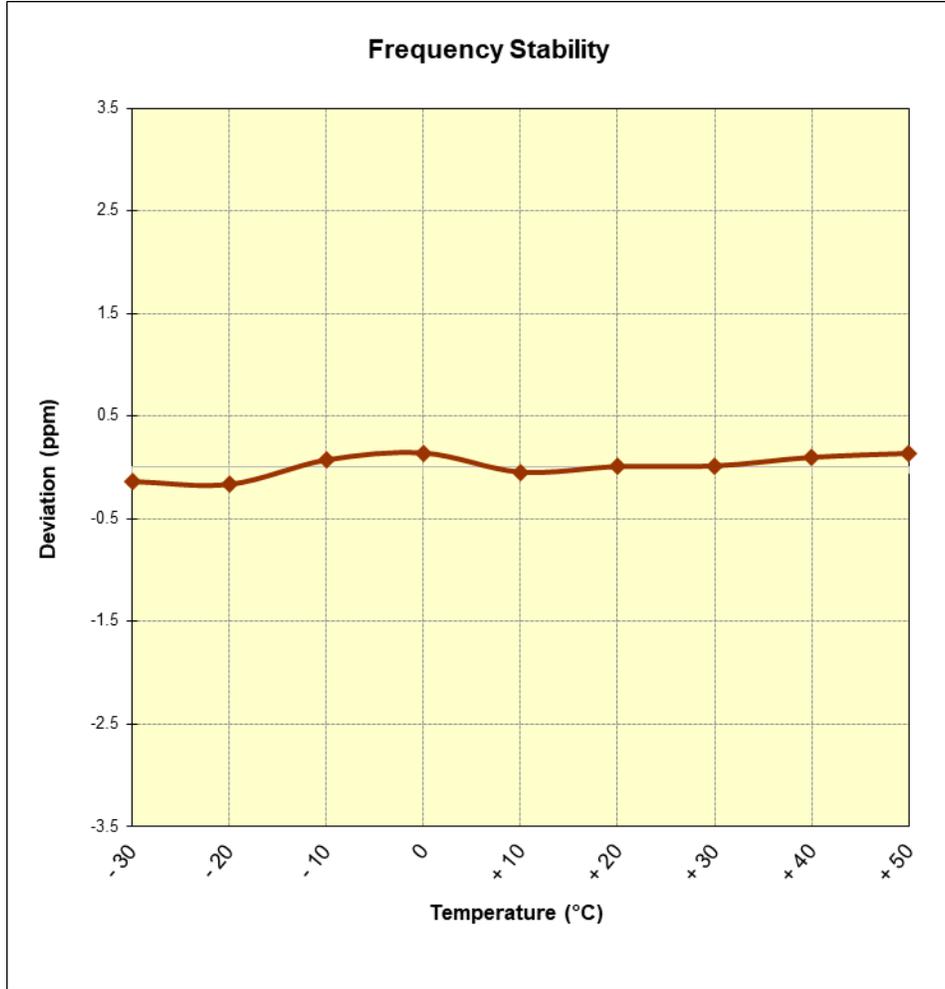
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.4V	+ 20 (Ref)	1,879,999,903	0	0.0000000
100 %		- 30	1,879,999,647	-256	-0.0000136
100 %		- 20	1,879,999,595	-308	-0.0000164
100 %		- 10	1,880,000,039	136	0.0000072
100 %		0	1,880,000,165	262	0.0000139
100 %		+ 10	1,879,999,818	-85	-0.0000045
100 %		+ 20	1,879,999,918	15	0.0000008
100 %		+ 30	1,879,999,930	27	0.0000014
100 %		+ 40	1,880,000,087	184	0.0000098
100 %		+ 50	1,880,000,158	255	0.0000136
85 %		+ 20	1,879,999,862	-41	-0.0000022
BATT. ENDPOINT	2.5V	+ 20	1,879,999,971	68	0.0000036

**Table 7-21. CDMA PCS Frequency Stability Data (PCS CDMA Mode – Ch. 600)**

**Note:**

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

FCC ID: ZNFK330PM	 PCTEST Proud to be part of element	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset		Page 107 of 109



**Plot 7-136. CDMA PCS Frequency Stability Chart**

<b>FCC ID:</b> ZNFK330PM		<b>PART 24 MEASUREMENT REPORT</b>	 <b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2011170181-03.ZNF	<b>Test Dates:</b> 11/18/2020 - 12/14/2020	<b>EUT Type:</b> Portable Handset	Page 108 of 109

## 8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFK330PM** complies with all the requirements of Part 24 of the FCC rules.

FCC ID: ZNFK330PM	 <b>PART 24 MEASUREMENT REPORT</b> 		Approved by: Technical Manager
Test Report S/N: 1M2011170181-03.ZNF	Test Dates: 11/18/2020 - 12/14/2020	EUT Type: Portable Handset	Page 109 of 109