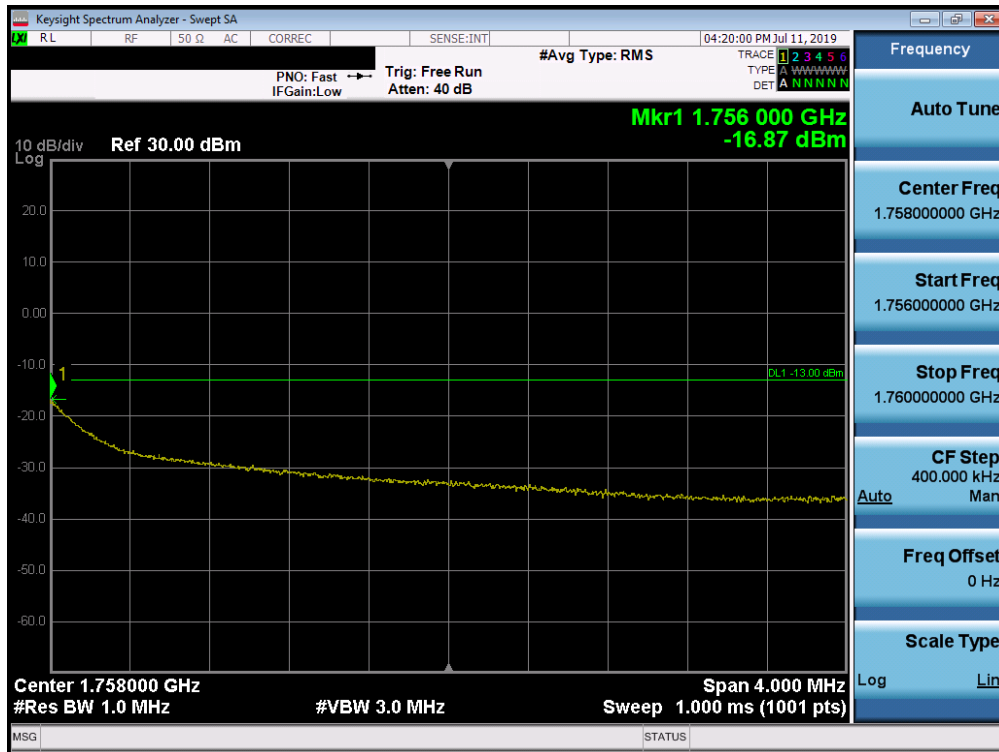




Plot 7-89. Band Edge Plot (AWS WCDMA Mode - High Channel)



Plot 7-90. 4MHz Span Plot (AWS WCDMA Mode - High Channel)

FCC ID: ZNFX420TM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 64 of 107





## 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 > Emission bandwidth of signal
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.

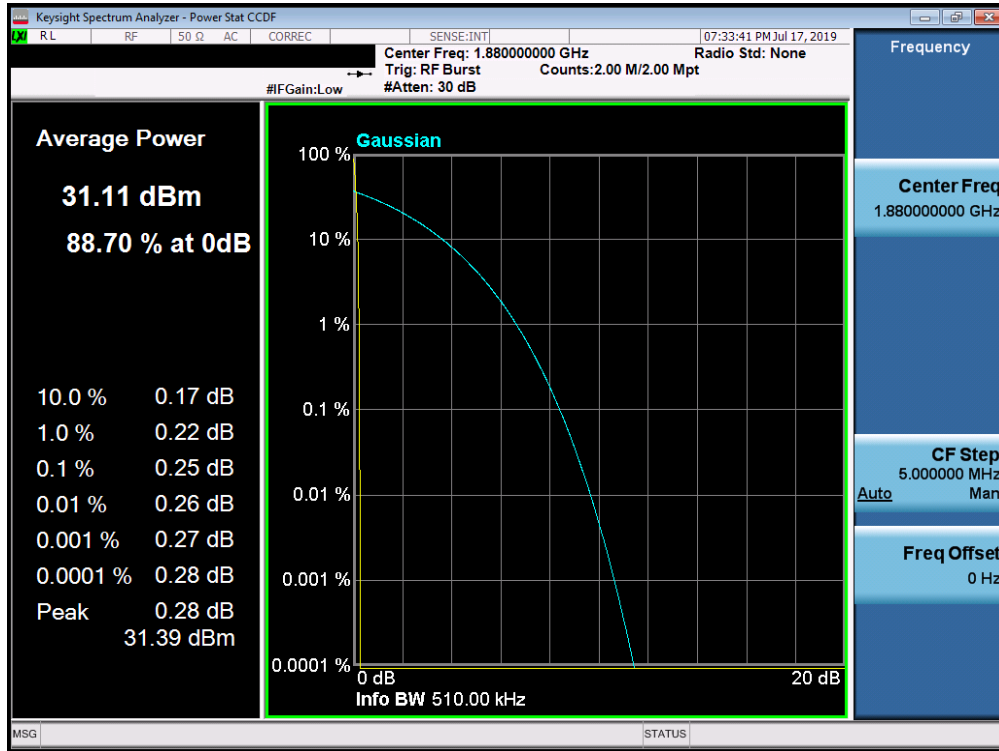


Figure 7-4. Test Instrument & Measurement Setup

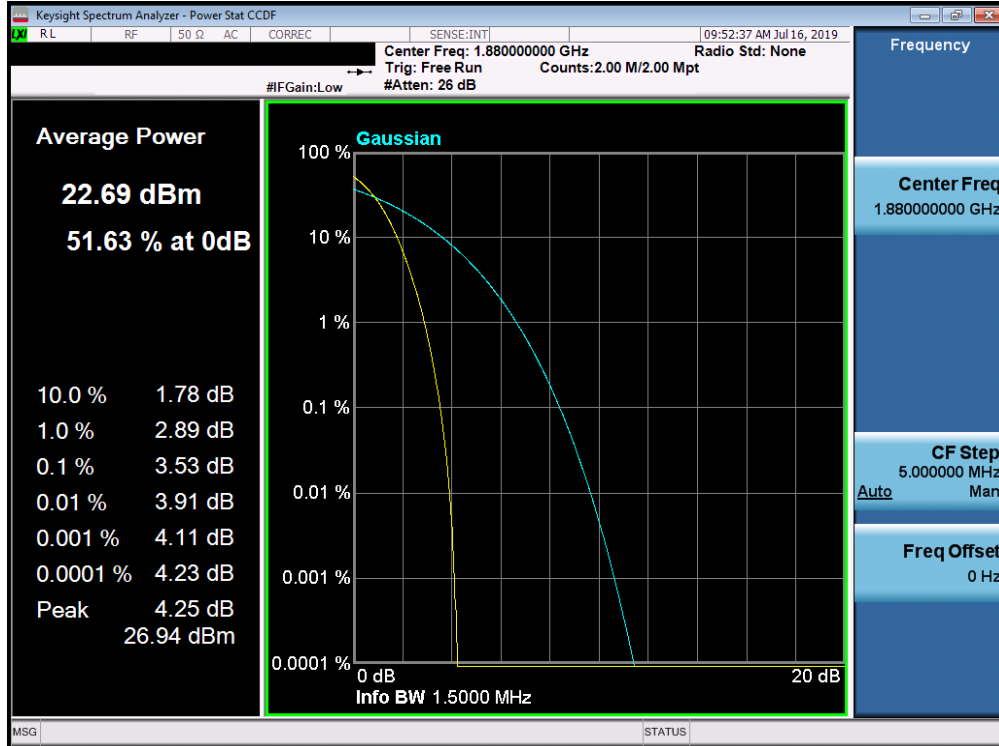
### Test Notes

None

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 67 of 107

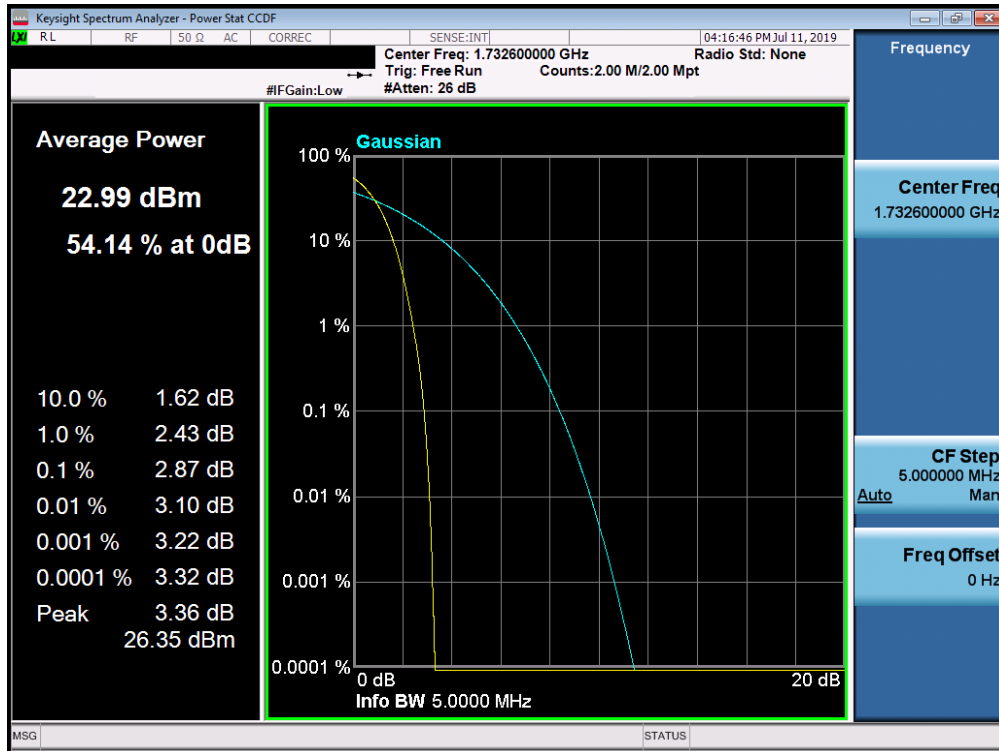


Plot 7-95. Peak-Average Ratio Plot (PCS GPRS Mode)

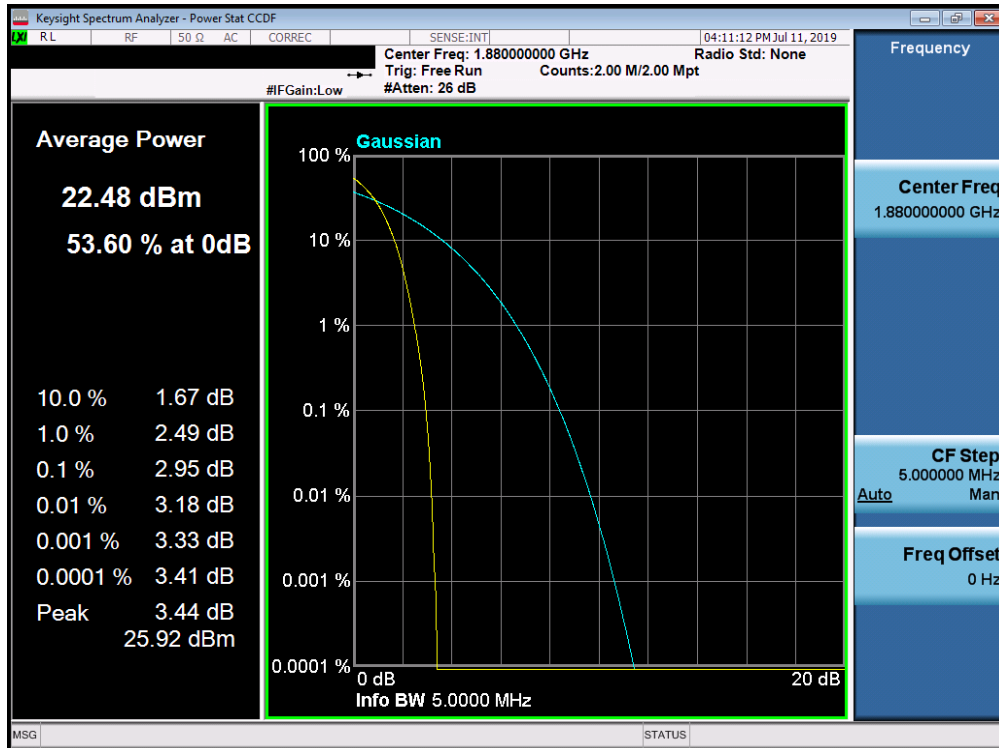


Plot 7-96. Peak-Average Ratio Plot (PCS CDMA Mode)

FCC ID: ZNFX420TM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 68 of 107



Plot 7-97. Peak-Average Ratio Plot (AWS WCDMA Mode)



Plot 7-98. Peak-Average Ratio Plot (PCS WCDMA Mode)

FCC ID: ZNFX420TM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 69 of 107

## 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

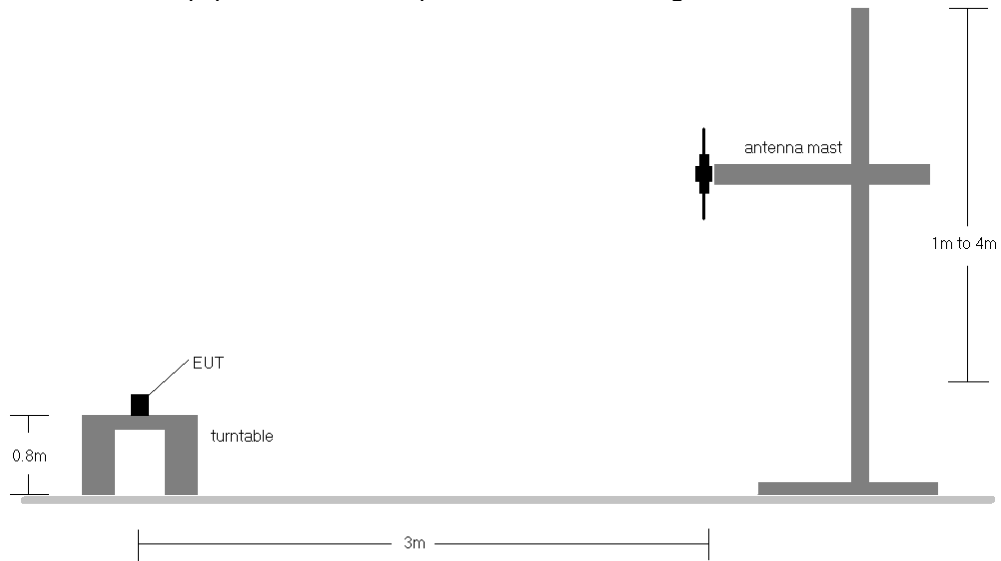
### Test Settings

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

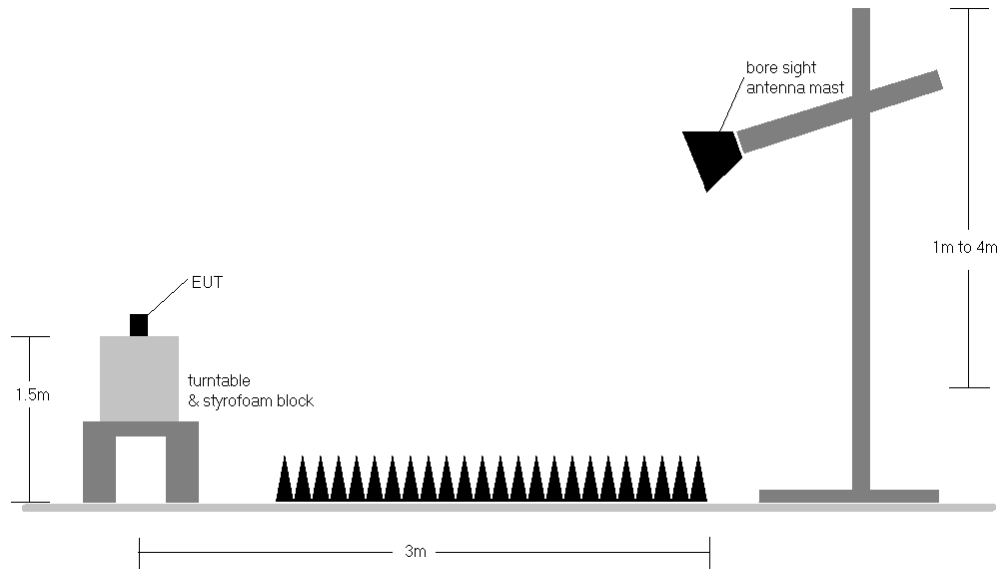
FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 70 of 107

### Test Setup

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



**Figure 7-5. Radiated Test Setup <1GHz**



**Figure 7-6. Radiated Test Setup >1GHz**

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Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset	Page 71 of 107	



### Test Notes

- 1) This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest power is reported in GPRS mode while transmitting with one slot active.
- 2) This device employs UMTS technology with WCDMA (AMR/RMC), HSDPA, and HSUPA capabilities. For WCDMA and HSUPA transmission, all configurations were investigated and the worst case UMTS emissions were found in RMC WCDMA mode at 12.2kbps with HSDPA inactive and TPC bits all set to "1."
- 3) For CDMA mode, the 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) This unit was tested with its standard battery.
- 5) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
824.20	GPRS850	V	111	331	21.94	6.70	26.49	0.446	38.45	-11.96	28.64	0.731	40.61	-11.97
836.60	GPRS850	V	100	334	21.95	6.70	26.50	0.447	38.45	-11.95	28.65	0.733	40.61	-11.96
848.80	GPRS850	V	138	325	22.50	6.70	<b>27.05</b>	<b>0.507</b>	38.45	-11.40	<b>29.20</b>	<b>0.832</b>	40.61	-11.41
848.80	GPRS850	H	112	255	21.23	6.70	25.78	0.378	38.45	-12.67	27.93	0.621	40.61	-12.68
848.80	EDGE850	V	138	325	17.01	6.70	<b>21.56</b>	0.143	38.45	-16.89	<b>23.71</b>	<b>0.235</b>	40.61	-16.90

**Table 7-2. ERP/EIRP (Cellular GPRS)**

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 72 of 107

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
824.70	CDMA850	V	132	312	14.59	6.70	19.14	38.45	-19.31	21.29	40.61	-19.32
836.52	CDMA850	V	117	310	14.94	6.70	19.49	38.45	-18.96	21.64	40.61	-18.97
848.31	CDMA850	V	132	312	15.94	6.70	<b>20.49</b>	38.45	-17.96	<b>22.64</b>	40.61	-17.97
848.31	CDMA850	H	182	166	14.81	6.70	19.36	38.45	-19.09	21.51	40.61	-19.10

Table 7-3. ERP/EIRP (Cellular CDMA)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
826.40	WCDMA850	V	139	131	13.96	6.70	18.51	38.45	-19.94	20.66	40.61	-19.95
836.60	WCDMA850	V	119	151	13.86	6.70	18.41	38.45	-20.04	20.56	40.61	-20.05
846.60	WCDMA850	V	119	130	14.32	6.60	<b>18.77</b>	38.45	-19.68	<b>20.92</b>	40.61	-19.69
846.60	WCDMA850	H	200	170	13.49	6.60	17.94	38.45	-20.51	20.09	40.61	-20.52

Table 7-4. ERP/EIRP (Cellular WCDMA)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
1712.40	WCDMA1700	H	100	546	13.16	9.43	22.59	30.00	-7.41
1732.60	WCDMA1700	H	174	48	14.12	9.31	23.43	30.00	-6.57
1752.60	WCDMA1700	H	100	44	14.27	9.21	<b>23.48</b>	30.00	-6.52
1752.60	WCDMA1700	V	200	172	13.17	9.21	22.38	30.00	-7.62

Table 7-5. EIRP (AWS WCDMA)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.20	GPRS1900	H	117	12	21.95	9.48	31.43	1.389	33.01	-1.58
1880.00	GPRS1900	H	121	11	21.45	9.90	31.35	1.365	33.01	-1.66
1909.80	GPRS1900	H	110	2	21.20	10.26	<b>31.46</b>	<b>1.398</b>	33.01	-1.55
1909.80	GPRS1900	V	190	10	19.65	10.26	29.91	0.979	33.01	-3.10
1909.80	EDGE1900	H	110	2	14.86	10.26	<b>25.12</b>	0.325	33.01	-7.89

Table 7-6. EIRP (PCS GPRS)

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 73 of 107

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	122	18	14.87	9.49	24.36	0.273	33.01	-8.65
1880.00	CDMA1900	H	118	16	15.32	9.90	<b>25.22</b>	<b>0.333</b>	33.01	-7.79
1908.75	CDMA1900	H	110	17	14.90	10.25	25.15	0.327	33.01	-7.86
1880.00	CDMA1900	V	108	130	13.92	9.90	23.82	0.241	33.01	-9.19

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

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1852.40	WCDMA1900	H	103	24	15.86	9.51	25.37	0.344	33.01	-7.64
1880.00	WCDMA1900	H	104	26	15.34	9.90	25.24	0.334	33.01	-7.77
1907.60	WCDMA1900	H	100	260	15.50	10.24	<b>25.74</b>	<b>0.375</b>	33.01	-7.27
1907.60	WCDMA1900	V	190	233	13.93	10.24	24.17	0.261	33.01	-8.84

**Table 7-8. EIRP (PCS WCDMA)**

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 74 of 107	

## 7.7 Radiated Spurious Emissions Measurements

### Test Overview

Radiated spurious emissions 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 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

ANSI/TIA-603-E-2016 – Section 2.2.12

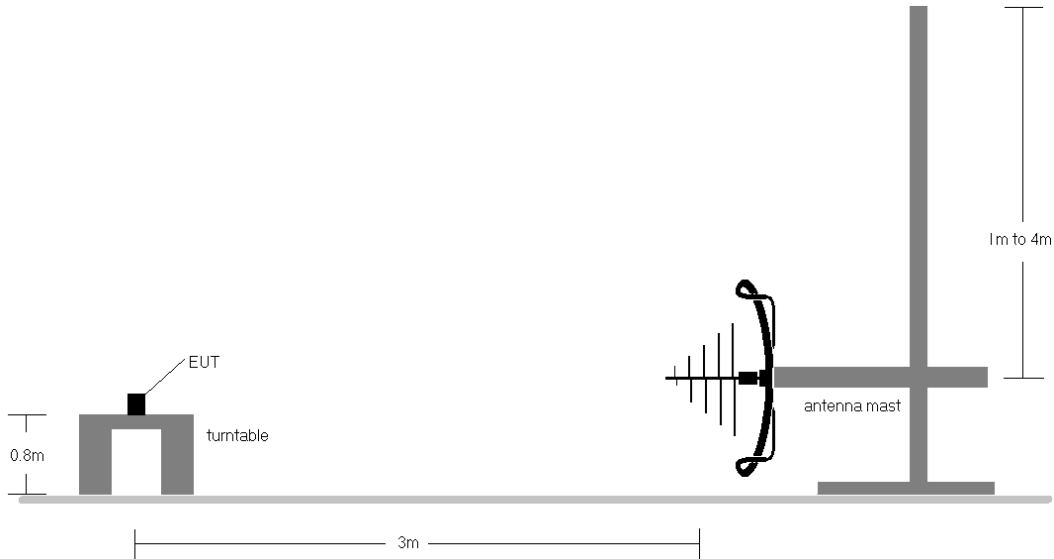
### Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW  $\geq$  3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points  $\geq$  2 x span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

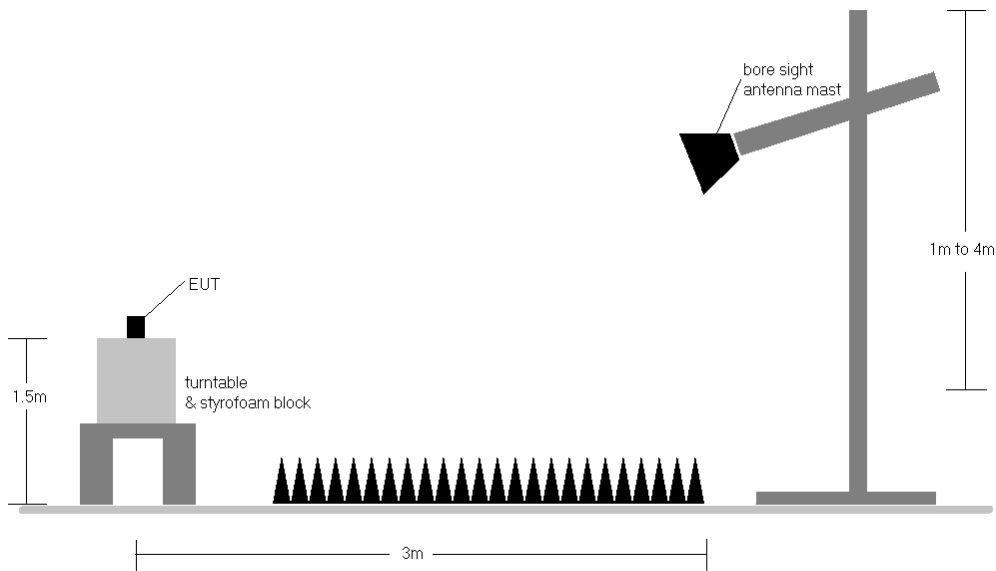
FCC ID: ZNFX420TM	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		<b>Approved by:</b> Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset	Page 75 of 107

**Test Setup**

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



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



**Figure 7-8. Test Instrument & Measurement Setup >1 GHz**

**Test Notes**

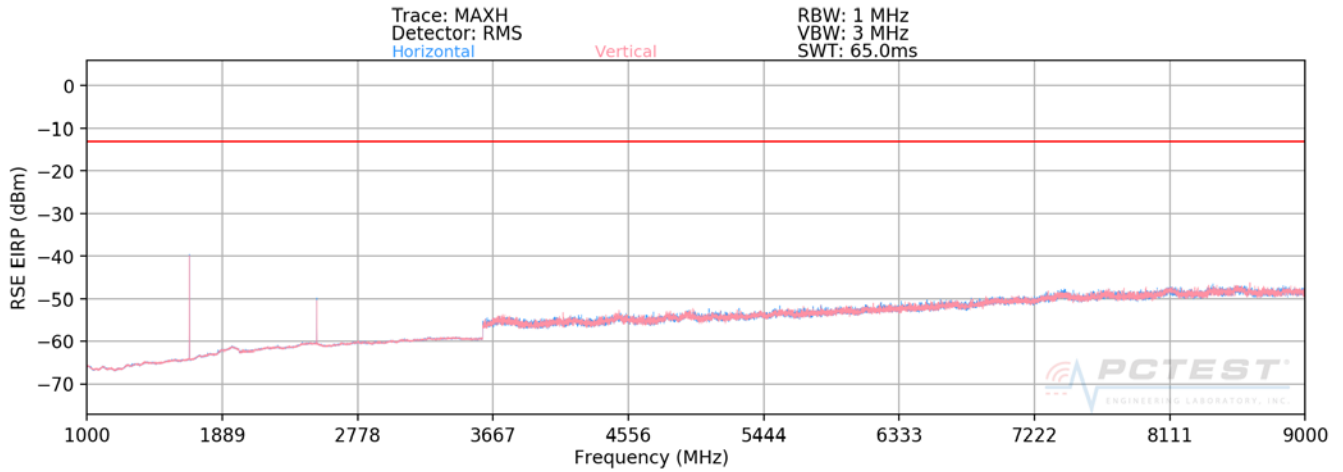
- 1) This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest power is reported in GPRS mode while transmitting with one slot active.
- 2) This device employs UMTS technology with WCDMA (AMR/RMC), HSDPA, and HSUPA capabilities. For WCDMA and HSUPA transmission, all configurations were investigated and the worst case UMTS emissions were found in RMC WCDMA mode at 12.2kbps with HSDPA inactive and TPC bits all set to "1."

FCC ID: ZNFX420TM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 76 of 107

- 3) For CDMA mode, the 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) This unit was tested with its standard battery.
- 5) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.
- 6) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 7) 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.
- 8) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

FCC ID: ZNFX420TM	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1906260110-02-R1.ZNF	<b>Test Dates:</b> 6/25 - 7/22/2019	<b>EUT Type:</b> Portable Handset	Page 77 of 107

## Cellular GPRS Mode



**Plot 7-99. Radiated Spurious Plot above 1GHz (Cellular GPRS Mode)**

OPERATING FREQUENCY: 824.20 MHz

MODULATION SIGNAL: GPRS (GMSK)

DISTANCE: 3 meters

LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1648.40	V	400	288	-46.99	8.94	-38.05	-25.0
2472.60	V	400	99	-49.08	9.64	-39.44	-26.4
3296.80	V	-	-	-68.70	9.57	-59.12	-46.1

**Table 7-9. Radiated Spurious Data (Cellular GPRS Mode – Ch. 128)**

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 78 of 107

OPERATING FREQUENCY: 836.60 MHz  
 MODULATION SIGNAL: GPRS (GMSK)  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.20	V	398	240	-49.82	8.95	-40.87	-27.9
2509.80	V	210	64	-56.75	9.75	-47.00	-34.0
3346.40	V	-	-	-69.31	9.60	-59.71	-46.7

**Table 7-10. Radiated Spurious Data (Cellular GPRS Mode – Ch. 190)**

OPERATING FREQUENCY: 848.80 MHz  
 MODULATION SIGNAL: GPRS (GMSK)  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

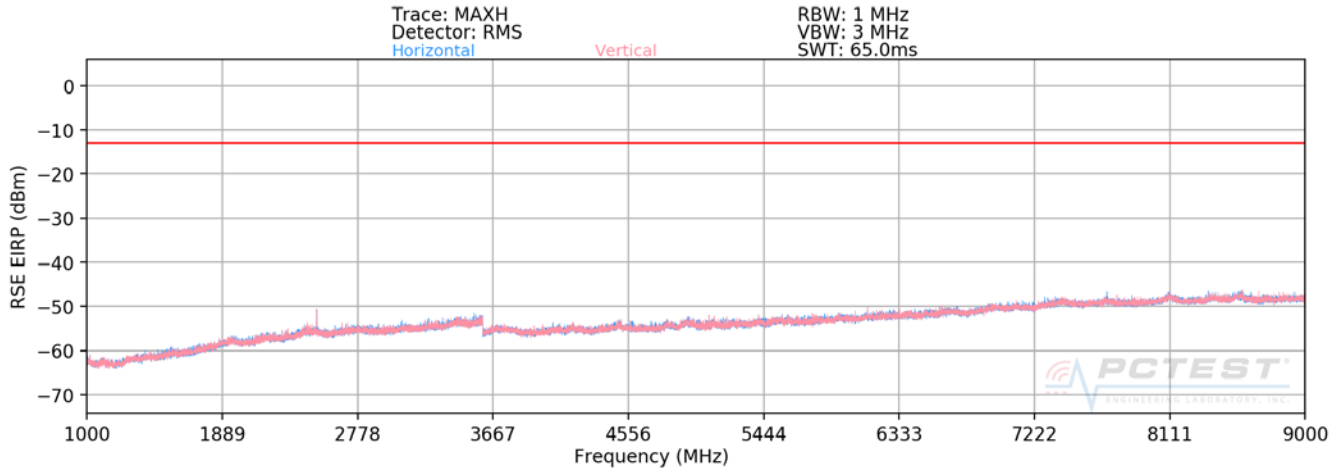
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1697.60	V	307	282	-53.82	8.95	-44.87	-31.9
2546.40	V	115	131	-57.79	9.74	-48.05	-35.1
3395.20	V	-	-	-70.26	9.78	-60.48	-47.5

**Table 7-11. Radiated Spurious Data (Cellular GPRS Mode – Ch. 251)**

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 79 of 107



# Cellular CDMA Mode



**Plot 7-100. Radiated Spurious Plot above 1GHz (Cellular CDMA Mode)**

OPERATING FREQUENCY: 824.70 MHz  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1649.40	V	400	313	-60.84	3.61	-57.24	-44.2
2474.10	V	182	172	-54.67	4.22	-50.45	-37.4
3298.80	V	-	-	-57.79	5.78	-52.01	-39.0
4123.50	V	-	-	-63.44	7.60	-55.84	-42.8

**Table 7-12. Radiated Spurious Data (Cellular CDMA Mode – Ch. 1013)**

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 80 of 107

OPERATING FREQUENCY: 836.52 MHz  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.04	V	177	122	-61.00	3.62	-57.38	-44.4
2509.56	V	158	188	-57.02	4.33	-52.69	-39.7
3346.08	V	-	-	-58.64	5.92	-52.72	-39.7
4182.60	V	-	-	-62.54	7.69	-54.85	-41.8

Table 7-13. Radiated Spurious Data (Cellular CDMA Mode – Ch. 384)

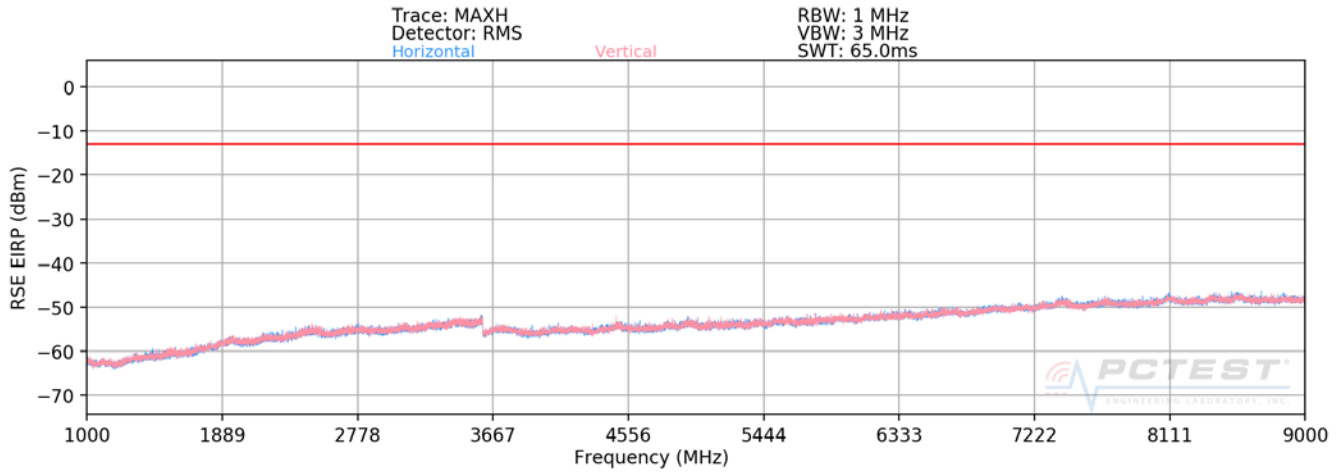
OPERATING FREQUENCY: 848.31 MHz  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1696.62	V	381	139	-62.10	3.63	-58.47	-45.5
2544.93	V	190	330	-57.16	4.55	-52.61	-39.6
3393.24	V	-	-	-62.60	6.13	-56.48	-43.5
4241.55	V	-	-	-63.64	7.79	-55.85	-42.9

Table 7-14. Radiated Spurious Data (Cellular CDMA Mode – Ch. 777)

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 81 of 107

# Cellular WCDMA Mode



**Plot 7-101. Radiated Spurious Plot above 1GHz (Cellular WCDMA Mode)**

OPERATING FREQUENCY: 826.40 MHz  
 MODULATION SIGNAL: WCDMA  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1652.80	V	-	-	-79.66	8.95	-70.71	-57.7
2479.20	V	-	-	-76.91	9.67	-67.24	-54.2

**Table 7-15. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4132)**

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset			Page 82 of 107

OPERATING FREQUENCY: 836.60 MHz  
 MODULATION SIGNAL: WCDMA  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.20	V	400	244	-79.16	8.95	-70.21	-57.2
2509.80	V	-	-	-76.95	9.75	-67.20	-54.2

**Table 7-16. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4183)**

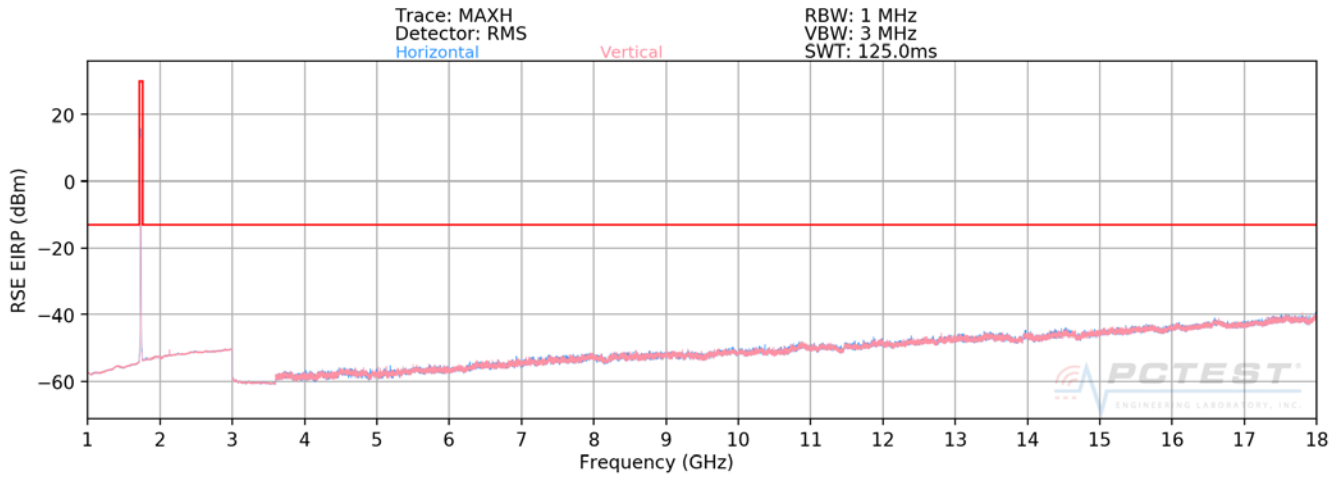
OPERATING FREQUENCY: 846.60 MHz  
 MODULATION SIGNAL: WCDMA  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1693.20	V	-	-	-79.17	8.95	-70.21	-57.2
2539.80	V	-	-	-76.27	9.74	-66.52	-53.5

**Table 7-17. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4233)**

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 83 of 107

# AWS WCDMA Mode



**Plot 7-102. Radiated Spurious Plot above 1GHz (AWS WCDMA Mode)**

OPERATING FREQUENCY: 1712.40 MHz

MODULATION SIGNAL: WCDMA

DISTANCE: 3 meters

LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3424.80	H	-	-	-73.56	9.83	-63.73	-50.7
5137.20	H	-	-	-73.43	10.69	-62.74	-49.7

**Table 7-18. Radiated Spurious Data (AWS WCDMA Mode – Ch. 1312)**

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset			Page 84 of 107

OPERATING FREQUENCY: 1732.60 MHz  
 MODULATION SIGNAL: WCDMA  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3465.20	H	120	12	-73.88	9.88	-64.00	-51.0
5197.80	H	-	-	-74.03	10.76	-63.27	-50.3

Table 7-19. Radiated Spurious Data (AWS WCDMA Mode – Ch. 1413)

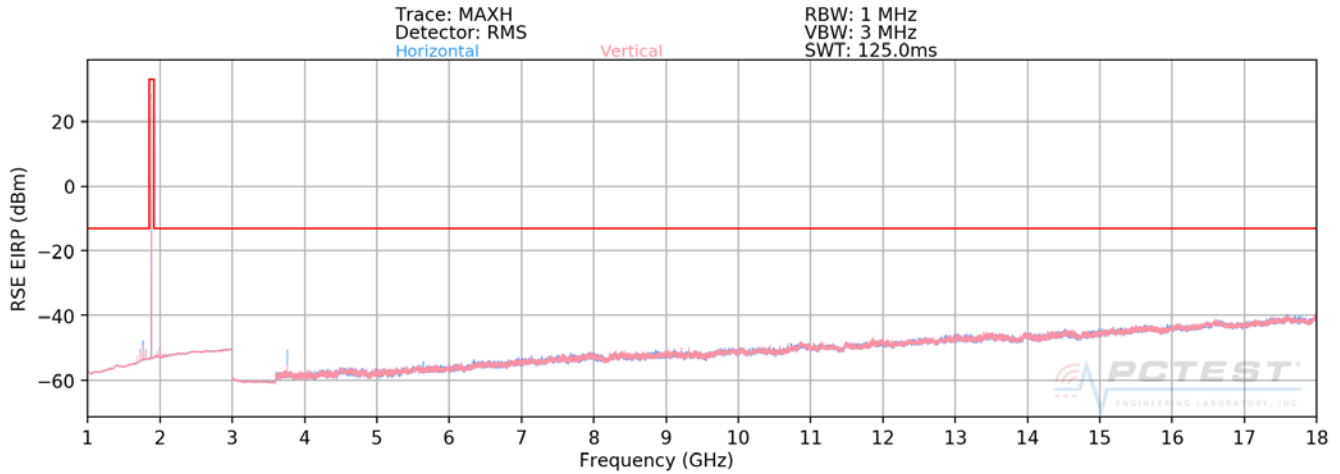
OPERATING FREQUENCY: 1752.60 MHz  
 MODULATION SIGNAL: WCDMA  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3505.20	H	131	11	-72.62	9.92	-62.70	-49.7
5257.80	H	-	-	-73.61	10.72	-62.89	-49.9

Table 7-20. Radiated Spurious Data (AWS WCDMA Mode – Ch. 1513)

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 85 of 107

# PCS GPRS Mode



**Plot 7-103. Radiated Spurious Plot above 1GHz (PCS GPRS Mode)**

OPERATING FREQUENCY: 1850.20 MHz  
 MODULATION SIGNAL: GPRS (GMSK)  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3700.40	H	121	162	-56.10	9.58	-46.52	-33.5
5550.60	H	125	180	-68.36	10.94	-57.42	-44.4
7400.80	H	-	-	-68.89	10.96	-57.94	-44.9

**Table 7-21. Radiated Spurious Data (PCS GPRS Mode – Ch. 512)**

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 86 of 107	

OPERATING FREQUENCY: 1880.00 MHz  
 MODULATION SIGNAL: GPRS (GMSK)  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3760.00	H	134	2	-55.57	9.37	-46.20	-33.2
5640.00	H	146	12	-67.01	11.17	-55.84	-42.8
7520.00	H	-	-	-69.03	11.11	-57.91	-44.9

**Table 7-22. Radiated Spurious Data (PCS GPRS Mode – Ch. 661)**

OPERATING FREQUENCY: 1909.80 MHz  
 MODULATION SIGNAL: GPRS (GMSK)  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

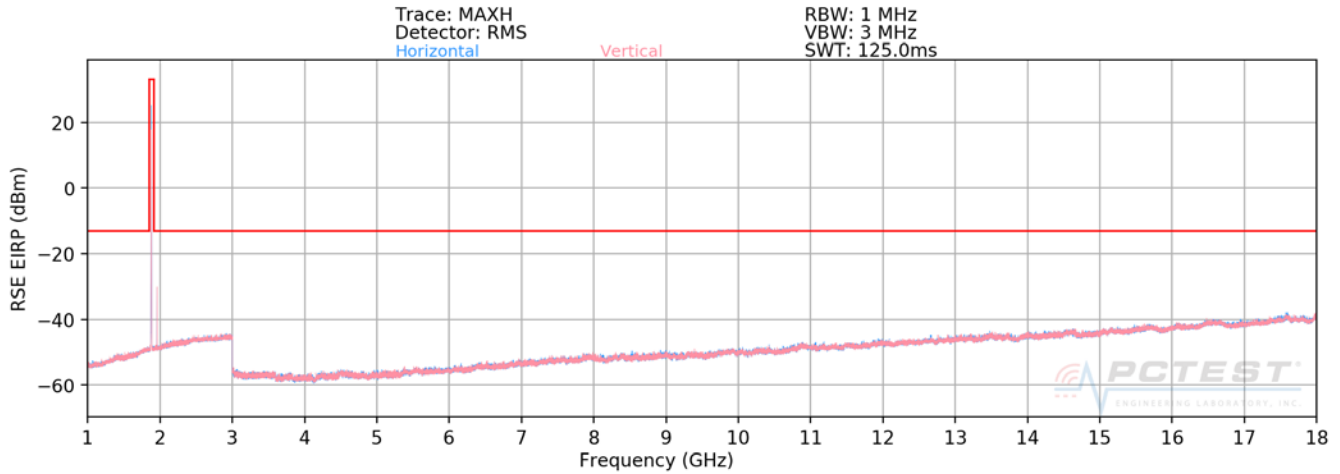
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3819.60	H	125	4	-53.01	9.30	-43.71	-30.7
5729.40	H	127	12	-67.75	11.39	-56.36	-43.4
7639.20	H	140	25	-68.52	11.33	-57.19	-44.2
9549.00	H	-	-	-67.91	11.79	-56.12	-43.1

**Table 7-23. Radiated Spurious Data (PCS GPRS Mode – Ch. 810)**

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 87 of 107



# PCS CDMA Mode



**Plot 7-104. Radiated Spurious Plot above 1GHz (PCS CDMA Mode)**

OPERATING FREQUENCY: 1851.25 MHz  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3702.50	H	192	188	-62.21	6.56	-55.64	-42.6
5553.75	H	-	-	-61.68	8.72	-52.96	-40.0
7405.00	H	-	-	-57.79	8.41	-49.38	-36.4

**Table 7-24. Radiated Spurious Data (PCS CDMA Mode – Ch. 25)**

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 88 of 107

OPERATING FREQUENCY: 1880.00 MHz  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3760.00	H	-	-	-62.01	6.67	-55.34	-42.3
5640.00	H	-	-	-62.66	8.81	-53.85	-40.8

**Table 7-25. Radiated Spurious Data (PCS CDMA Mode – Ch. 600)**

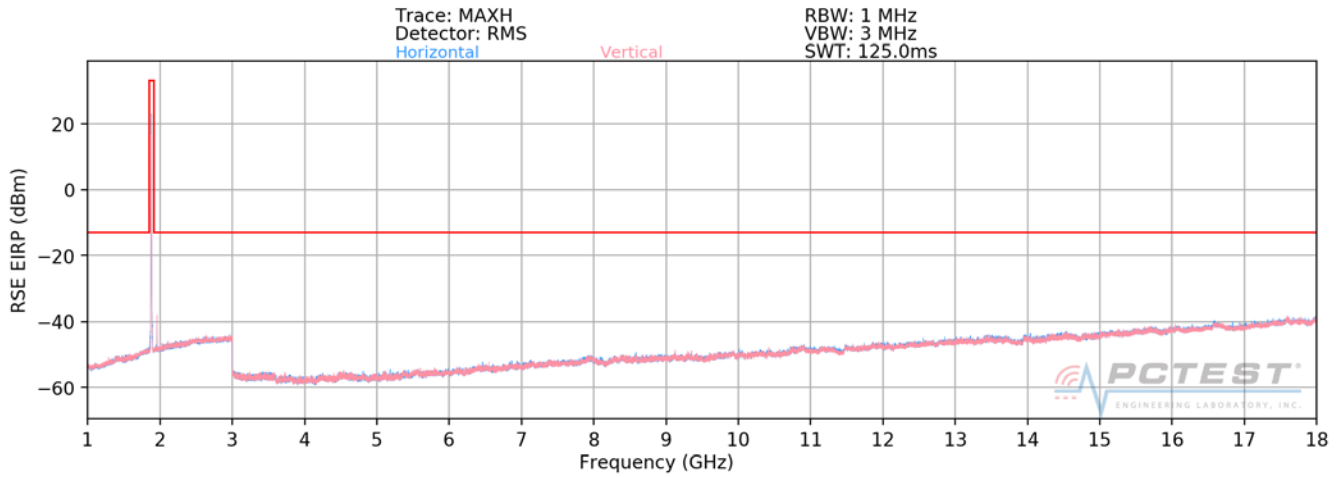
OPERATING FREQUENCY: 1908.75 MHz  
 MODULATION SIGNAL: CDMA  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3817.50	H	114	186	-59.80	6.98	-52.81	-39.8
5726.25	H	395	97	-62.32	8.77	-53.55	-40.5
7635.00	H	-	-	-58.43	8.53	-49.90	-36.9
9543.75	H	-	-	-57.08	9.42	-47.65	-34.7

**Table 7-26. Radiated Spurious Data (PCS CDMA Mode – Ch. 1175)**

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 89 of 107

# PCS WCDMA Mode



**Plot 7-105. Radiated Spurious Plot above 1GHz (PCS WCDMA Mode)**

OPERATING FREQUENCY: 1852.40 MHz  
 MODULATION SIGNAL: WCDMA  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3704.80	H	400	43	-73.26	9.57	-63.69	-50.7
5557.20	H	-	-	-73.05	10.95	-62.10	-49.1

**Table 7-27. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9262)**

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 90 of 107	

OPERATING FREQUENCY: 1880.00 MHz  
 MODULATION SIGNAL: WCDMA  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3760.00	H	400	344	-73.11	9.37	-63.74	-50.7
5640.00	H	-	-	-73.16	11.17	-61.99	-49.0

Table 7-28. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9400)

OPERATING FREQUENCY: 1907.60 MHz  
 MODULATION SIGNAL: WCDMA  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3815.20	H	111	357	-72.29	9.30	-62.99	-50.0
5722.80	H	-	-	-73.98	11.37	-62.61	-49.6

Table 7-29. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9538)

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 91 of 107

## 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.

***For Part 22, RSS-132, and RSS-133, the frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency. For Part 24, Part 27, and RSS-139, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.***

### 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: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 92 of 107

## Frequency Stability / Temperature Variation

OPERATING FREQUENCY: 836,600,000 Hz  
 CHANNEL: 190  
 REFERENCE VOLTAGE: 3.85 VDC  
 DEVIATION LIMIT:  $\pm 0.00025$  % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	836,599,970	-30	-0.0000036
100 %		- 20	836,599,918	-82	-0.0000098
100 %		- 10	836,599,996	-4	-0.0000005
100 %		0	836,599,787	-213	-0.0000255
100 %		+ 10	836,600,018	18	0.0000022
100 %		+ 20	836,600,141	141	0.0000169
100 %		+ 30	836,600,280	280	0.0000335
100 %		+ 40	836,600,234	234	0.0000280
100 %		+ 50	836,600,166	166	0.0000198
BATT. ENDPOINT	3.40	+ 20	836,599,958	-42	-0.0000050

**Table 7-30. Frequency Stability Data (Cellular GPRS Mode – Ch. 190)**

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 93 of 107

## Frequency Stability / Temperature Variation

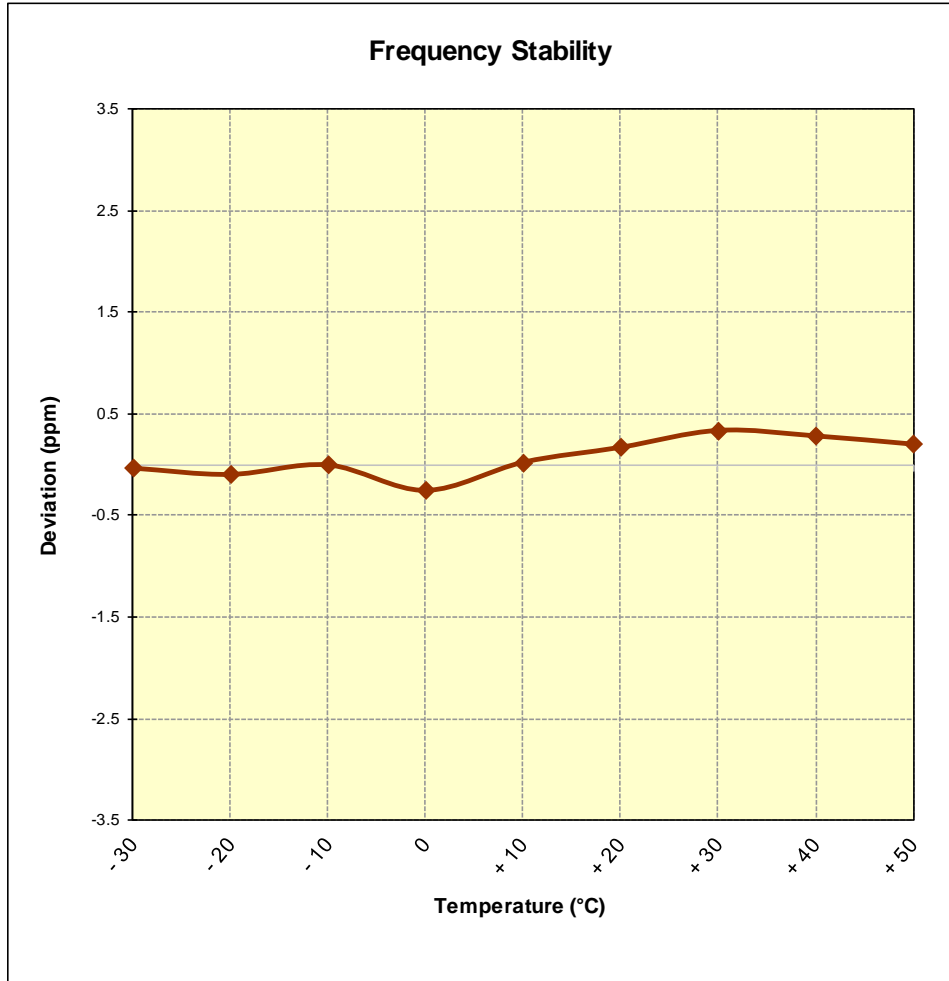


Figure 7-9. Frequency Stability Graph (Cellular GPRS Mode – Ch. 190)

FCC ID: ZNFX420TM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 94 of 107

## Frequency Stability / Temperature Variation

OPERATING FREQUENCY: 836,520,000 Hz  
 CHANNEL: 384  
 REFERENCE VOLTAGE: 3.85 VDC  
 DEVIATION LIMIT:  $\pm 0.00025$  % or 2.5 ppm

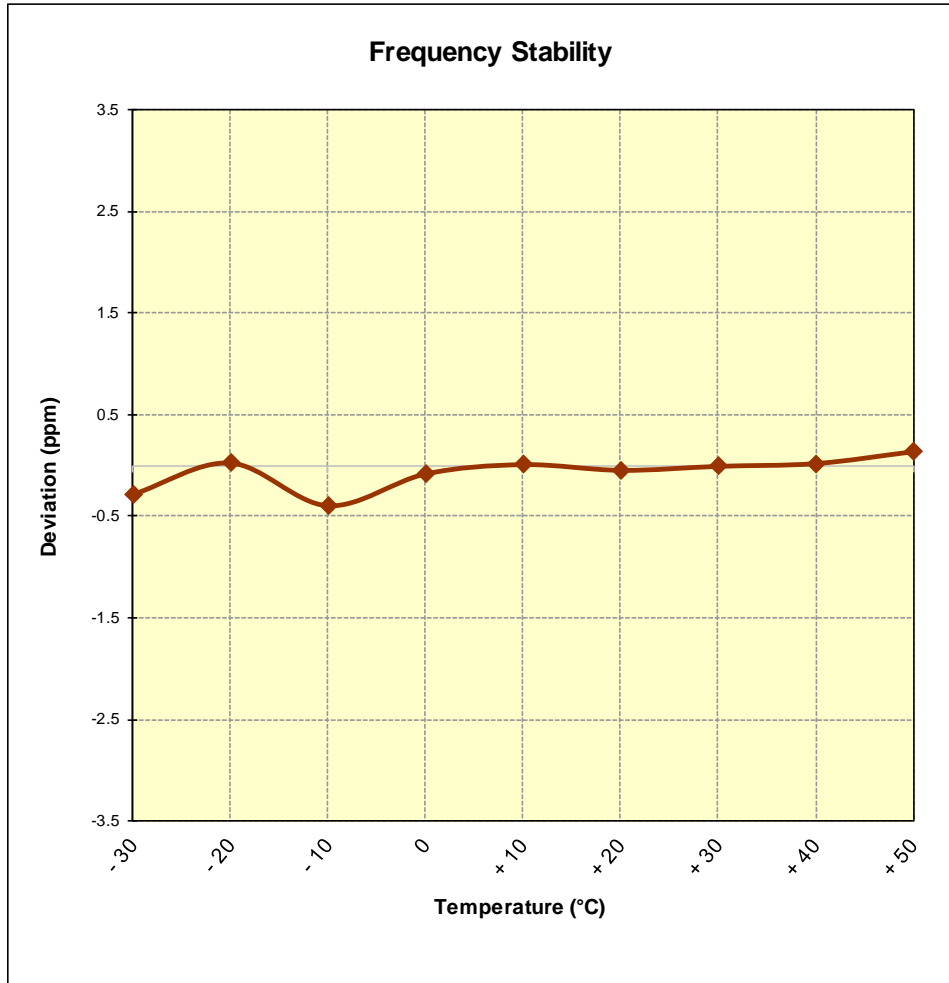
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	836,519,764	-236	-0.0000282
100 %		- 20	836,520,024	24	0.0000029
100 %		- 10	836,519,673	-327	-0.0000391
100 %		0	836,519,934	-66	-0.0000079
100 %		+ 10	836,520,011	11	0.0000013
100 %		+ 20	836,519,964	-36	-0.0000043
100 %		+ 30	836,519,997	-3	-0.0000004
100 %		+ 40	836,520,020	20	0.0000024
100 %		+ 50	836,520,118	118	0.0000141
BATT. ENDPOINT	3.40	+ 20	836,520,102	102	0.0000122

**Table 7-31. Frequency Stability Data (Cellular CDMA Mode – Ch. 384)**

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 95 of 107



**Frequency Stability / Temperature Variation**



**Figure 7-10. Frequency Stability Graph (Cellular CDMA Mode – Ch. 384)**

<b>FCC ID:</b> ZNFX420TM		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1906260110-02-R1.ZNF	<b>Test Dates:</b> 6/25 - 7/22/2019	<b>EUT Type:</b> Portable Handset	Page 96 of 107	

## Frequency Stability / Temperature Variation

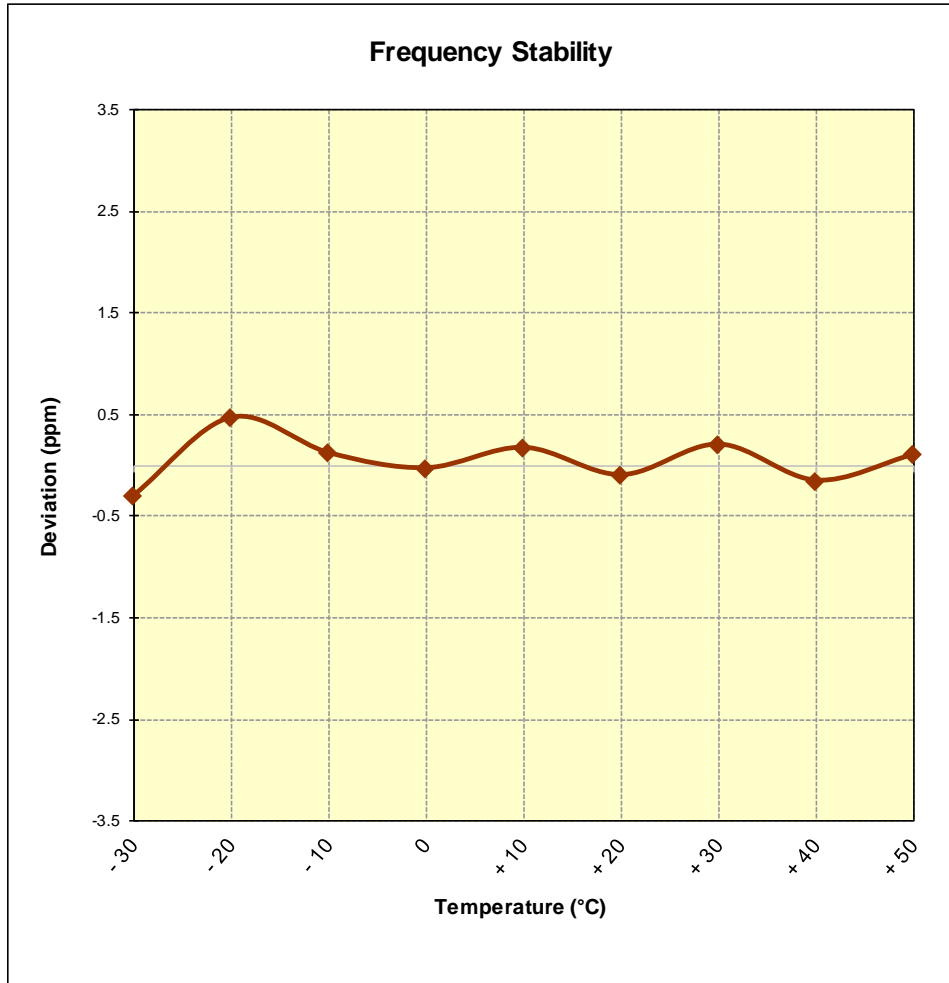
OPERATING FREQUENCY: 836,600,000 Hz  
 CHANNEL: 4183  
 REFERENCE VOLTAGE: 3.85 VDC  
 DEVIATION LIMIT:  $\pm 0.00025$  % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	836,599,753	-247	-0.0000295
100 %		- 20	836,600,402	402	0.0000481
100 %		- 10	836,600,105	105	0.0000126
100 %		0	836,599,980	-20	-0.0000024
100 %		+ 10	836,600,150	150	0.0000179
100 %		+ 20	836,599,922	-78	-0.0000093
100 %		+ 30	836,600,177	177	0.0000212
100 %		+ 40	836,599,876	-124	-0.0000148
100 %		+ 50	836,600,093	93	0.0000111
BATT. ENDPOINT		3.40	+ 20	836,600,232	232

**Table 7-32. Frequency Stability Data (Cellular WCDMA Mode – Ch. 4183)**

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 97 of 107

**Frequency Stability / Temperature Variation**



**Figure 7-11. Frequency Stability Graph (Cellular WCDMA Mode – Ch. 4183)**

<b>FCC ID:</b> ZNFX420TM		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1906260110-02-R1.ZNF	<b>Test Dates:</b> 6/25 - 7/22/2019	<b>EUT Type:</b> Portable Handset	Page 98 of 107	

## Frequency Stability / Temperature Variation

OPERATING FREQUENCY: 1,732,600,000 Hz  
 CHANNEL: 1413  
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	1,732,599,776	-224	-0.0000129
100 %		- 20	1,732,599,780	-220	-0.0000127
100 %		- 10	1,732,599,922	-78	-0.0000045
100 %		0	1,732,600,369	369	0.0000213
100 %		+ 10	1,732,599,689	-311	-0.0000179
100 %		+ 20	1,732,600,138	138	0.0000080
100 %		+ 30	1,732,600,020	20	0.0000012
100 %		+ 40	1,732,600,208	208	0.0000120
100 %		+ 50	1,732,599,975	-25	-0.0000014
BATT. ENDPOINT	3.40	+ 20	1,732,600,109	109	0.0000063

**Table 7-33. Frequency Stability Data (AWS WCDMA Mode – Ch. 1413)**

**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: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 99 of 107

## Frequency Stability / Temperature Variation

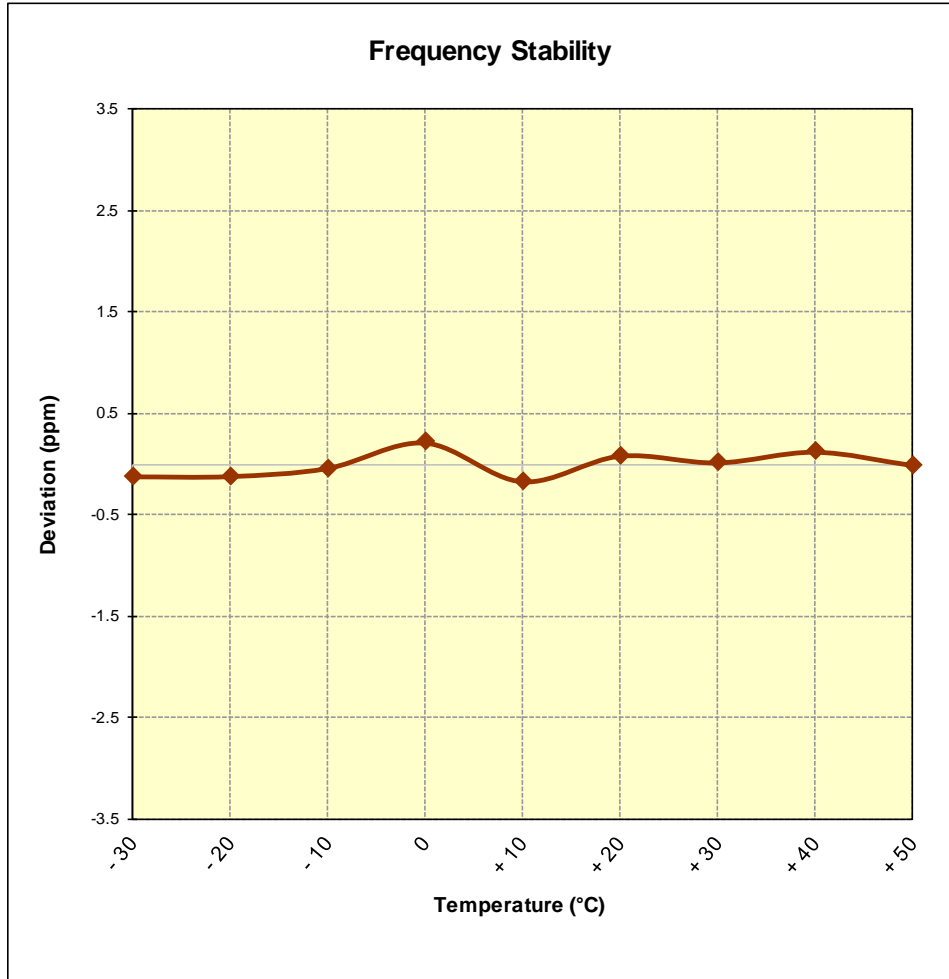


Figure 7-12. Frequency Stability Graph (AWS WCDMA Mode – Ch. 1413)

FCC ID: ZNFX420TM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 100 of 107

## Frequency Stability / Temperature Variation

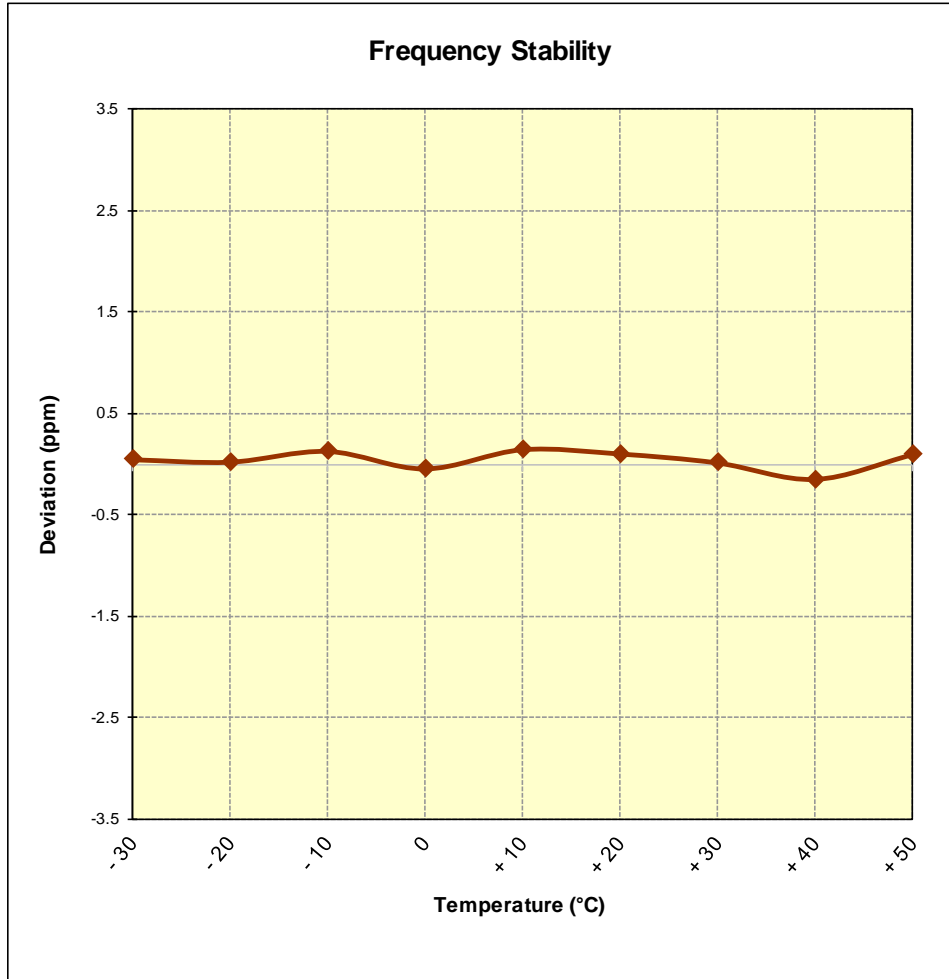
OPERATING FREQUENCY: 1,880,000,000 Hz  
 CHANNEL: 661  
 REFERENCE VOLTAGE: 3.85 VDC  
 DEVIATION LIMIT:  $\pm 0.00025$  % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	1,880,000,079	79	0.0000042
100 %		- 20	1,880,000,034	34	0.0000018
100 %		- 10	1,880,000,233	233	0.0000124
100 %		0	1,879,999,909	-91	-0.0000048
100 %		+ 10	1,880,000,264	264	0.0000140
100 %		+ 20	1,880,000,185	185	0.0000098
100 %		+ 30	1,880,000,020	20	0.0000011
100 %		+ 40	1,879,999,715	-285	-0.0000152
100 %		+ 50	1,880,000,171	171	0.0000091
BATT. ENDPOINT	3.40	+ 20	1,879,999,982	-18	-0.0000010

**Table 7-34. Frequency Stability Data (PCS GPRS Mode – Ch. 661)**

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 101 of 107

**Frequency Stability / Temperature Variation**



**Figure 7-13. Frequency Stability Graph (PCS GPRS Mode – Ch. 661)**

FCC ID: ZNFX420TM	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset	Page 102 of 107

## Frequency Stability / Temperature Variation

OPERATING FREQUENCY: 1,880,000,000 Hz  
 CHANNEL: 600  
 REFERENCE VOLTAGE: 3.85 VDC  
 DEVIATION LIMIT:  $\pm 0.00025$  % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	1,880,000,235	235	0.0000125
100 %		- 20	1,879,999,869	-131	-0.0000070
100 %		- 10	1,880,000,265	265	0.0000141
100 %		0	1,880,000,391	391	0.0000208
100 %		+ 10	1,879,999,781	-219	-0.0000116
100 %		+ 20	1,879,999,862	-138	-0.0000073
100 %		+ 30	1,880,000,123	123	0.0000065
100 %		+ 40	1,879,999,824	-176	-0.0000094
100 %		+ 50	1,880,000,372	372	0.0000198
BATT. ENDPOINT	3.40	+ 20	1,879,999,911	-89	-0.0000047

**Table 7-35. Frequency Stability Data (PCS CDMA Mode – Ch. 600)**

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset	Page 103 of 107	



## Frequency Stability / Temperature Variation

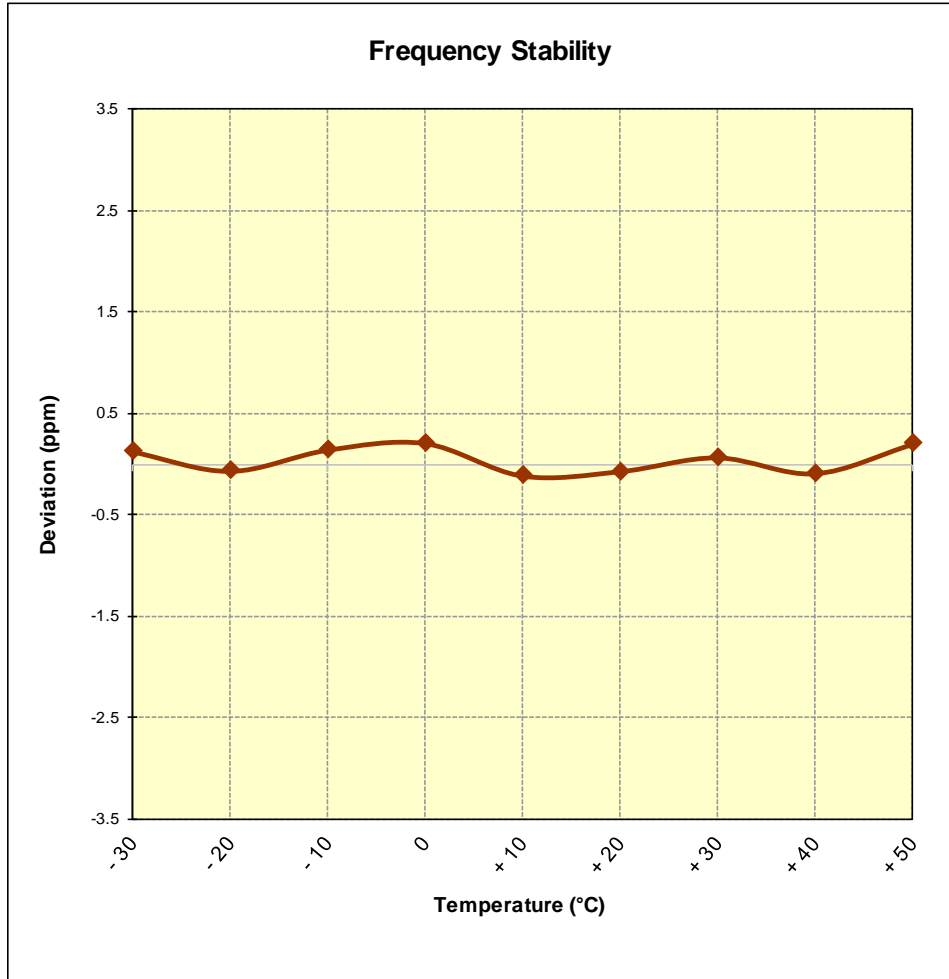


Figure 7-14. Frequency Stability Graph (PCS CDMA Mode – Ch. 600)

FCC ID: ZNFX420TM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 104 of 107

## Frequency Stability / Temperature Variation

OPERATING FREQUENCY: 1,880,000,000 Hz  
 CHANNEL: 9400  
 REFERENCE VOLTAGE: 3.85 VDC  
 DEVIATION LIMIT:  $\pm 0.00025$  % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	1,879,999,897	-103	-0.0000055
100 %		- 20	1,879,999,925	-75	-0.0000040
100 %		- 10	1,879,999,929	-71	-0.0000038
100 %		0	1,880,000,277	277	0.0000147
100 %		+ 10	1,880,000,439	439	0.0000234
100 %		+ 20	1,879,999,573	-427	-0.0000227
100 %		+ 30	1,879,999,618	-382	-0.0000203
100 %		+ 40	1,880,000,284	284	0.0000151
100 %		+ 50	1,879,999,934	-66	-0.0000035
BATT. ENDPOINT	3.40	+ 20	1,880,000,113	113	0.0000060

**Table 7-36. Frequency Stability Data (PCS WCDMA Mode – Ch. 9400)**

FCC ID: ZNFX420TM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 105 of 107

## Frequency Stability / Temperature Variation

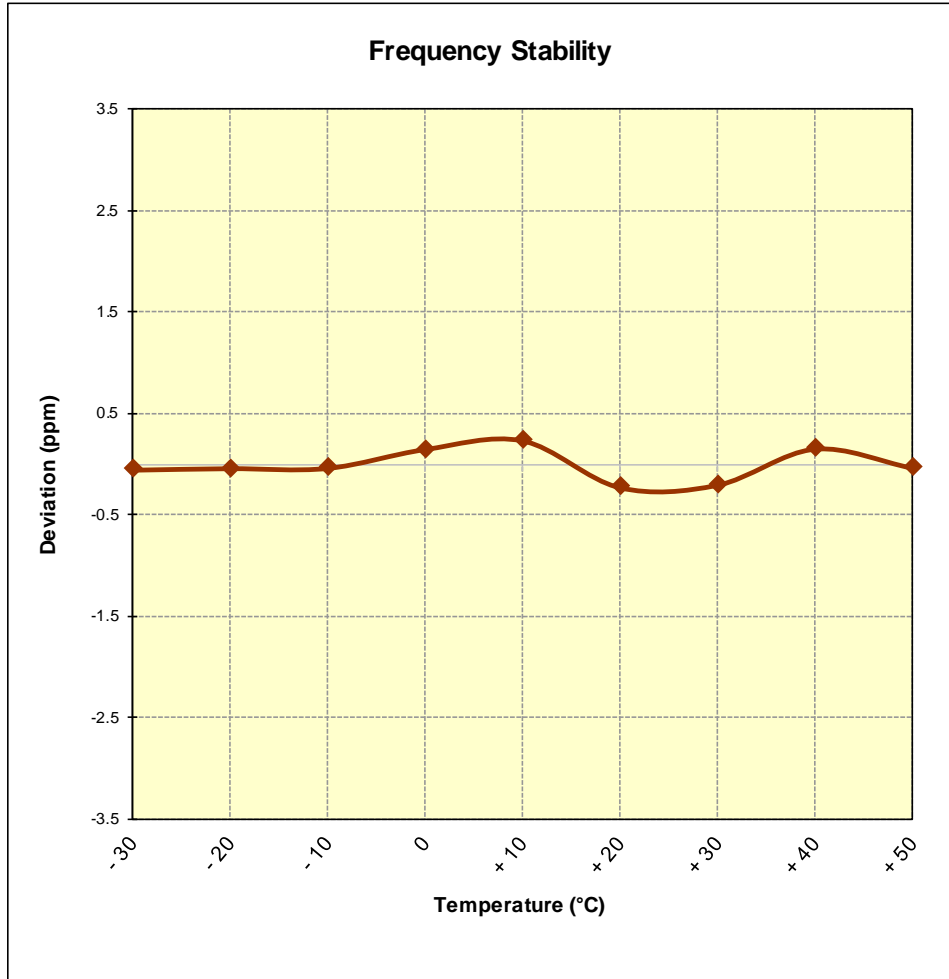


Figure 7-15. Frequency Stability Graph (PCS WCDMA Mode – Ch. 9400)

FCC ID: ZNFX420TM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1906260110-02-R1.ZNF	Test Dates: 6/25 - 7/22/2019	EUT Type: Portable Handset		Page 106 of 107

## 8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFX420TM** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules.

FCC ID: ZNFX420TM	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>			<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1906260110-02-R1.ZNF	<b>Test Dates:</b> 6/25 - 7/22/2019	<b>EUT Type:</b> Portable Handset	Page 107 of 107	