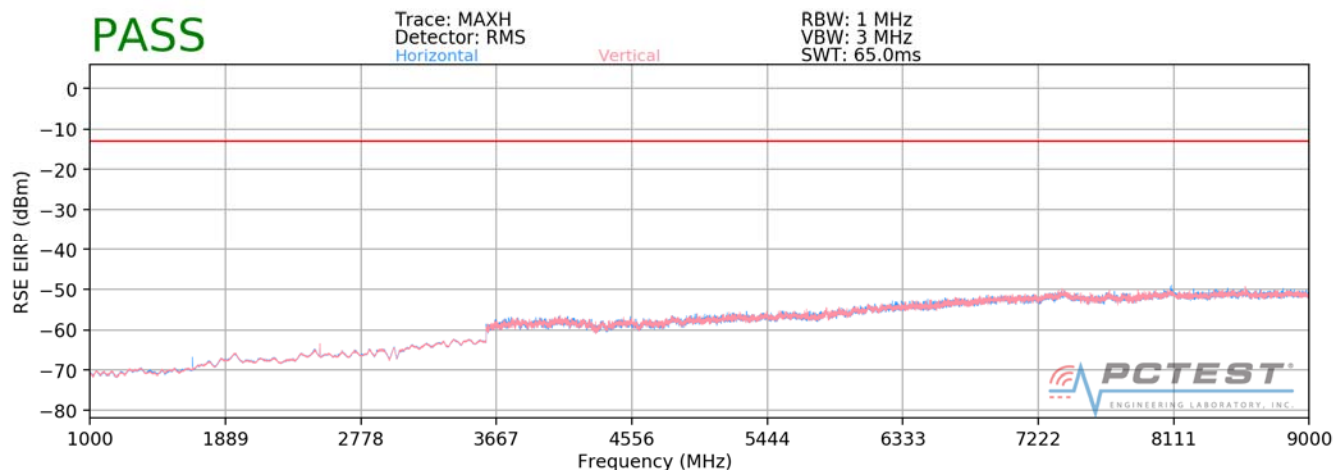


Cellular CDMA Mode



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

OPERATING FREQUENCY: 824.70 MHz

CHANNEL: 1013

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	H	201	166	-79.60	9.01	-70.59	-57.6
2474.10	H	200	0	-72.17	9.12	-63.05	-50.0
3298.80	H	-	-	-75.43	9.37	-66.06	-53.1
4123.50	H	-	-	-73.55	9.85	-63.71	-50.7

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

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: Portable Handset		Page 80 of 107

OPERATING FREQUENCY: 836.52 MHz
 CHANNEL: 384
 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	H	163	27	-75.65	8.85	-66.80	-53.8
2509.56	H	155	25	-72.03	9.17	-62.86	-49.9
3346.08	H	-	-	-76.67	9.36	-67.31	-54.3
4182.60	H	-	-	-74.08	10.19	-63.89	-50.9

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

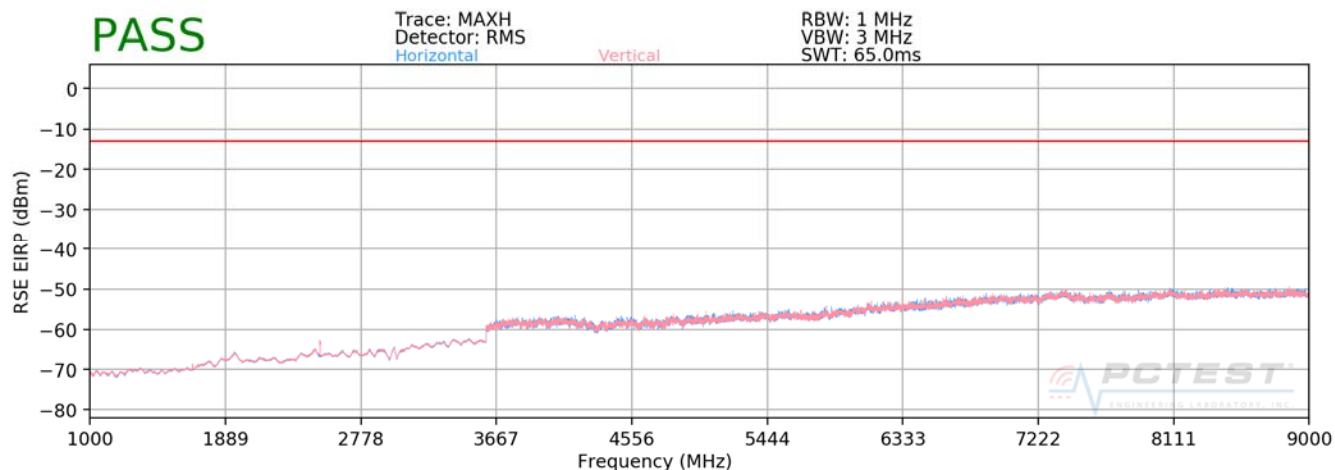
OPERATING FREQUENCY: 848.31 MHz
 CHANNEL: 777
 MODULATION SIGNAL: CDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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	H	148	24	-74.23	8.68	-65.55	-52.5
2544.93	H	160	31	-70.41	9.27	-61.14	-48.1
3393.24	H	-	-	-74.66	9.46	-65.20	-52.2
4241.55	H	-	-	-73.84	10.47	-63.37	-50.4

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

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: Portable Handset		Page 81 of 107

Cellular WCDMA Mode



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

OPERATING FREQUENCY: 826.40 MHz
CHANNEL: 4132
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	351	1	-80.40	8.99	-71.41	-58.4
2479.20	V	-	-	-77.21	9.12	-68.09	-55.1
3305.60	V	-	-	-75.40	9.37	-66.03	-53.0

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

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: Portable Handset		Page 82 of 107

OPERATING FREQUENCY: 836.60 MHz
 CHANNEL: 4183
 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	100	8	-79.00	8.85	-70.15	-57.2
2509.80	V	-	-	-78.68	9.17	-69.52	-56.5
3346.40	V	-	-	-76.92	9.36	-67.56	-54.6

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

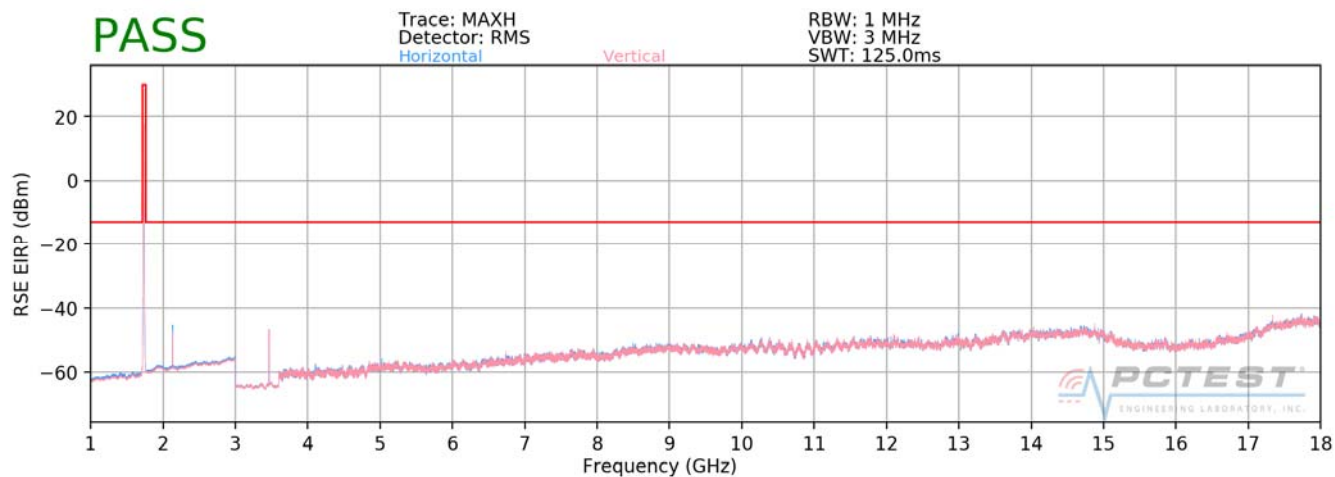
OPERATING FREQUENCY: 846.60 MHz
 CHANNEL: 4233
 MODULATION SIGNAL: WCDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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	-	-	-80.16	8.70	-71.46	-58.5
2539.80	V	-	-	-77.18	9.26	-67.92	-54.9

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

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: Portable Handset		Page 83 of 107

AWS WCDMA Mode



Plot 7-103. Radiated Spurious Plot above 1 GHz (AWS WCDMA Mode)

OPERATING FREQUENCY: 1712.40 MHz
CHANNEL: 1312
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	119	122	-60.65	9.83	-50.82	-37.8
5137.20	H	-	-	-72.67	10.69	-61.98	-49.0
6849.60	H	-	-	-69.54	11.64	-57.90	-44.9

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

FCC ID: ZNFL414DL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: Portable Handset		Page 84 of 107

OPERATING FREQUENCY: 1732.60 MHz
CHANNEL: 1413
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	136	126	-51.49	9.88	-41.62	-28.6
5197.80	H	-	-	-72.01	10.76	-61.25	-48.3
6930.40	H	-	-	-69.66	11.74	-57.92	-44.9

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

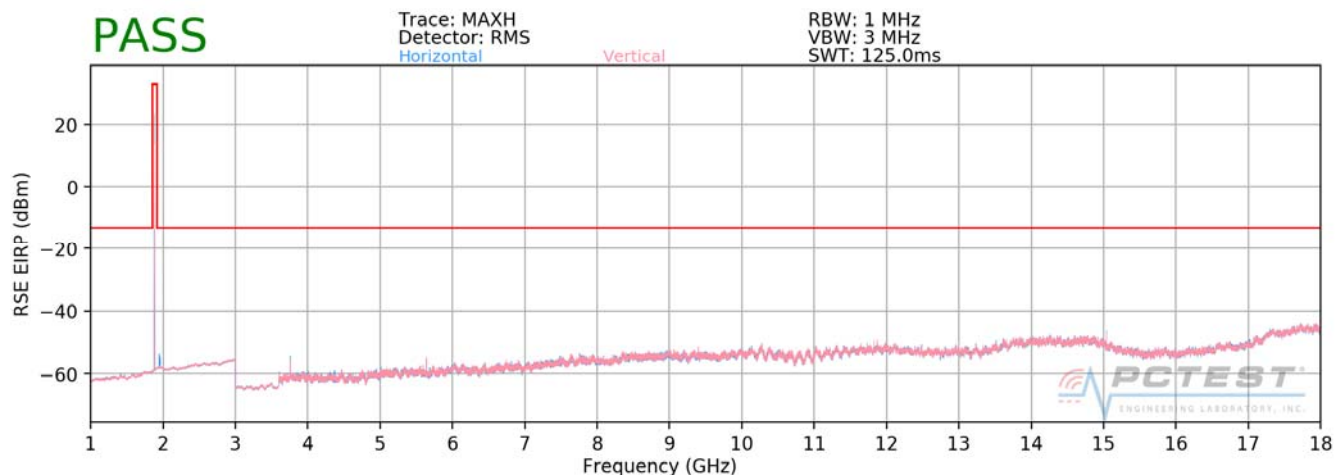
OPERATING FREQUENCY: 1752.60 MHz
CHANNEL: 1513
MODULATION SIGNAL: WCDMA
DISTANCE: 3 meters
LIMIT: -13 dBm

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	114	120	-53.74	9.92	-43.82	-30.8
5257.80	H	-	-	-72.10	10.72	-61.39	-48.4
7010.40	H	-	-	-70.54	11.86	-58.68	-45.7

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

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: Portable Handset		Page 85 of 107

PCS GPRS Mode



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

OPERATING FREQUENCY: 1850.20 MHz

CHANNEL: 512

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	V	349	265	-86.76	31.83	-54.94	-41.9
5550.60	V	245	95	-79.06	34.11	-44.95	-32.0
7400.80	V	-	-	-92.03	36.82	-55.22	-42.2
9251.00	V	204	130	-87.64	37.24	-50.40	-37.4
11101.20	V	-	-	-92.65	38.17	-54.48	-41.5

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

FCC ID: ZNFL414DL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: Portable Handset		Page 86 of 107

OPERATING FREQUENCY: 1880.00 MHz
 CHANNEL: 661
 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	V	356	270	-61.52	9.50	-52.03	-39.0
5640.00	V	299	87	-53.54	11.16	-42.37	-29.4
7520.00	V	-	-	-67.26	11.03	-56.23	-43.2
9400.00	V	199	145	-52.73	12.19	-40.54	-27.5
11280.00	V	-	-	-65.60	13.15	-52.45	-39.4

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

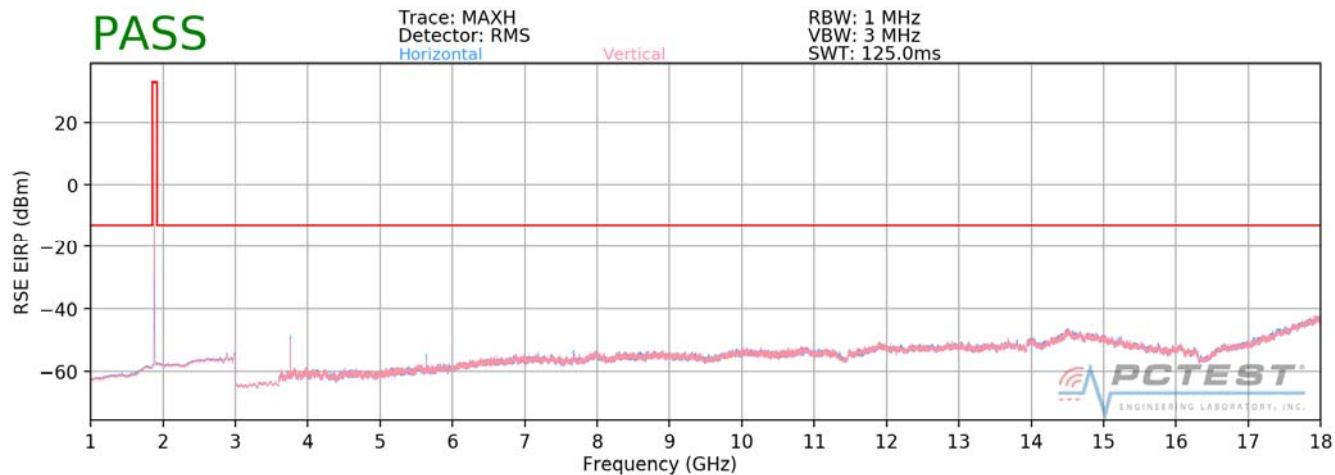
OPERATING FREQUENCY: 1909.80 MHz
 CHANNEL: 810
 MODULATION SIGNAL: GPRS (GMSK)
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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	V	375	157	-62.76	9.29	-53.47	-40.5
5729.40	V	110	111	-53.13	11.34	-41.79	-28.8
7639.20	V	-	-	-64.79	11.28	-53.51	-40.5
9549.00	V	176	205	-58.92	12.24	-46.68	-33.7
11458.80	V	-	-	-64.97	13.26	-51.71	-38.7

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

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: Portable Handset		Page 87 of 107

PCS CDMA Mode



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

OPERATING FREQUENCY: 1851.25 MHz

CHANNEL: 25

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	122	307	-63.83	9.73	-54.10	-41.1
5553.75	H	120	316	-72.38	10.98	-61.40	-48.4
7405.00	H	-	-	-69.11	10.78	-58.33	-45.3
9256.25	H	-	-	-71.23	12.28	-58.95	-46.0

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

FCC ID: ZNFL414DL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: Portable Handset		Page 88 of 107

OPERATING FREQUENCY: 1880.00 MHz
 CHANNEL: 600
 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	104	316	-57.09	9.50	-47.59	-34.6
5640.00	H	115	321	-69.05	11.16	-57.89	-44.9
7520.00	H	-	-	-70.46	11.03	-59.43	-46.4
9400.00	H	-	-	-70.46	12.19	-58.27	-45.3

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

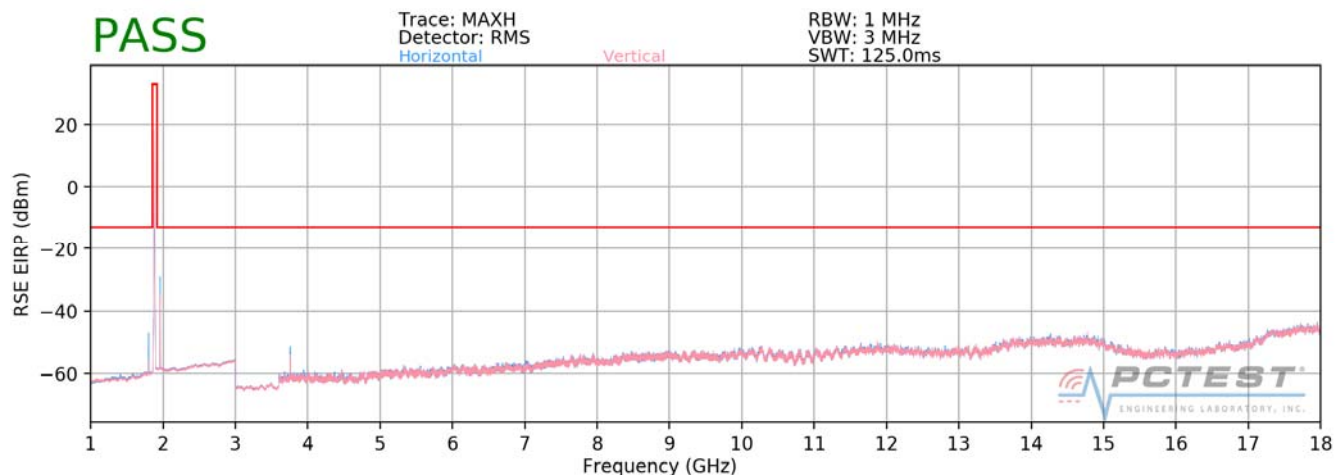
OPERATING FREQUENCY: 1908.75 MHz
 CHANNEL: 1175
 MODULATION SIGNAL: CDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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	125	311	-56.05	9.30	-46.75	-33.8
5726.25	H	145	3	-68.28	11.33	-56.95	-43.9
7635.00	H	-	-	-70.63	11.27	-59.36	-46.4
9543.75	H	-	.	-70.69	12.23	-58.46	-45.5

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

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: Portable Handset		Page 89 of 107

PCS WCDMA Mode



Plot 7-106. Radiated Spurious Plot above 1 GHz (PCS WCDMA Mode)

OPERATING FREQUENCY: 1852.40 MHz

CHANNEL: 9262

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	V	272	298	-69.53	9.72	-59.81	-46.8
5557.20	V	252	356	-69.80	10.99	-58.82	-45.8
7409.60	V	-	-	-68.41	10.79	-57.62	-44.6
9262.00	V	-	-	-69.53	12.28	-57.25	-44.3

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

FCC ID: ZNFL414DL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: Portable Handset		Page 90 of 107

OPERATING FREQUENCY: 1880.00 MHz
 CHANNEL: 9400
 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	V	269	285	-62.26	9.50	-52.76	-39.8
5640.00	V	241	0	-68.01	11.16	-56.85	-43.9
7520.00	V	-	-	-69.46	11.03	-58.43	-45.4
9400.00	V	-	-	-69.21	12.19	-57.02	-44.0

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

OPERATING FREQUENCY: 1907.60 MHz
 CHANNEL: 9538
 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	V	255	291	-59.58	9.30	-50.28	-37.3
5722.80	V	-	-	-73.00	11.33	-61.67	-48.7
7630.40	V	-	-	-69.53	11.26	-58.27	-45.3

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

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	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 $\pm 0.00025\%$ (± 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: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	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: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	836,600,194	194	0.0000232
100 %		- 30	836,600,120	120	0.0000143
100 %		- 20	836,599,841	-159	-0.0000190
100 %		- 10	836,600,124	124	0.0000148
100 %		0	836,599,929	-71	-0.0000085
100 %		+ 10	836,600,035	35	0.0000042
100 %		+ 20	836,599,876	-124	-0.0000148
100 %		+ 30	836,600,139	139	0.0000166
100 %		+ 40	836,599,942	-58	-0.0000069
100 %		+ 50	836,600,426	426	0.0000509
BATT. ENDPOINT	3.45	+ 20	836,600,141	141	0.0000169

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

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: Portable Handset		Page 93 of 107

Frequency Stability / Temperature Variation

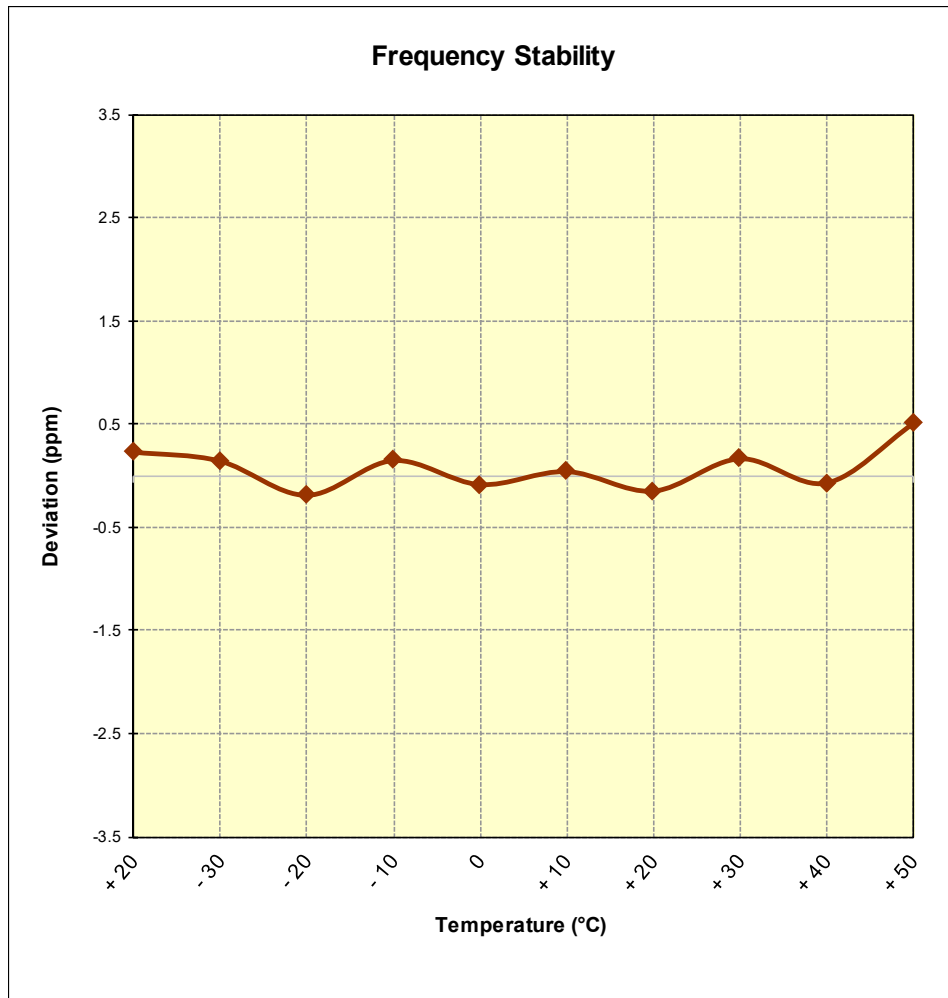


Figure 7-8. Frequency Stability Graph (Cellular GPRS Mode – Ch. 190)

FCC ID: ZNFL414DL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	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: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	836,519,964	-36	-0.0000043
100 %		- 30	836,520,163	163	0.0000195
100 %		- 20	836,519,623	-377	-0.0000451
100 %		- 10	836,520,188	188	0.0000225
100 %		0	836,520,346	346	0.0000414
100 %		+ 10	836,519,763	-237	-0.0000283
100 %		+ 20	836,519,670	-330	-0.0000394
100 %		+ 30	836,520,011	11	0.0000013
100 %		+ 40	836,520,267	267	0.0000319
100 %		+ 50	836,519,733	-267	-0.0000319
BATT. ENDPOINT	3.45	+ 20	836,519,884	-116	-0.0000139

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

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: Portable Handset		Page 95 of 107

Frequency Stability / Temperature Variation

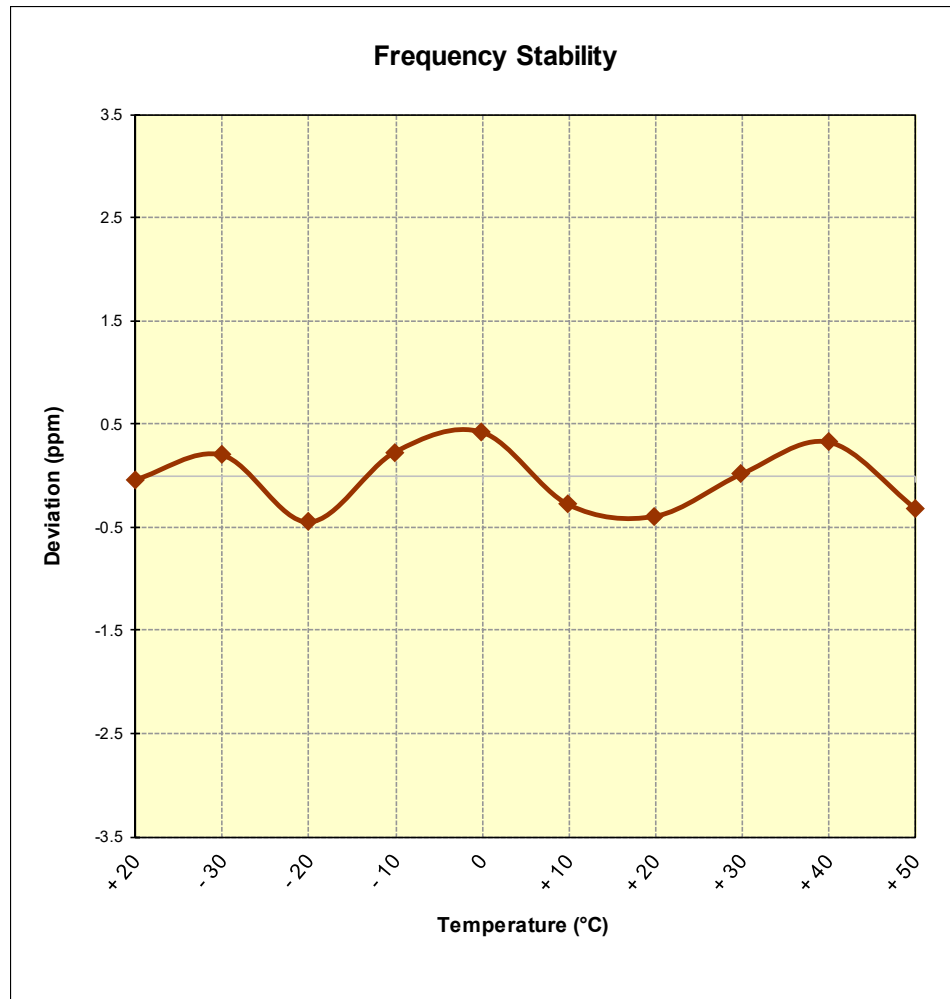


Figure 7-9. Frequency Stability Graph (Cellular CDMA Mode – Ch. 384)

FCC ID: ZNFL414DL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: 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: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	836,599,989	-11	-0.0000013
100 %		- 30	836,600,031	31	0.0000037
100 %		- 20	836,600,227	227	0.0000271
100 %		- 10	836,599,899	-101	-0.0000121
100 %		0	836,599,960	-40	-0.0000048
100 %		+ 10	836,599,732	-268	-0.0000320
100 %		+ 20	836,600,255	255	0.0000305
100 %		+ 30	836,600,150	150	0.0000179
100 %		+ 40	836,600,216	216	0.0000258
100 %		+ 50	836,599,727	-273	-0.0000326
BATT. ENDPOINT	3.45	+ 20	836,599,670	-330	-0.0000394

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

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: Portable Handset		Page 97 of 107

Frequency Stability / Temperature Variation

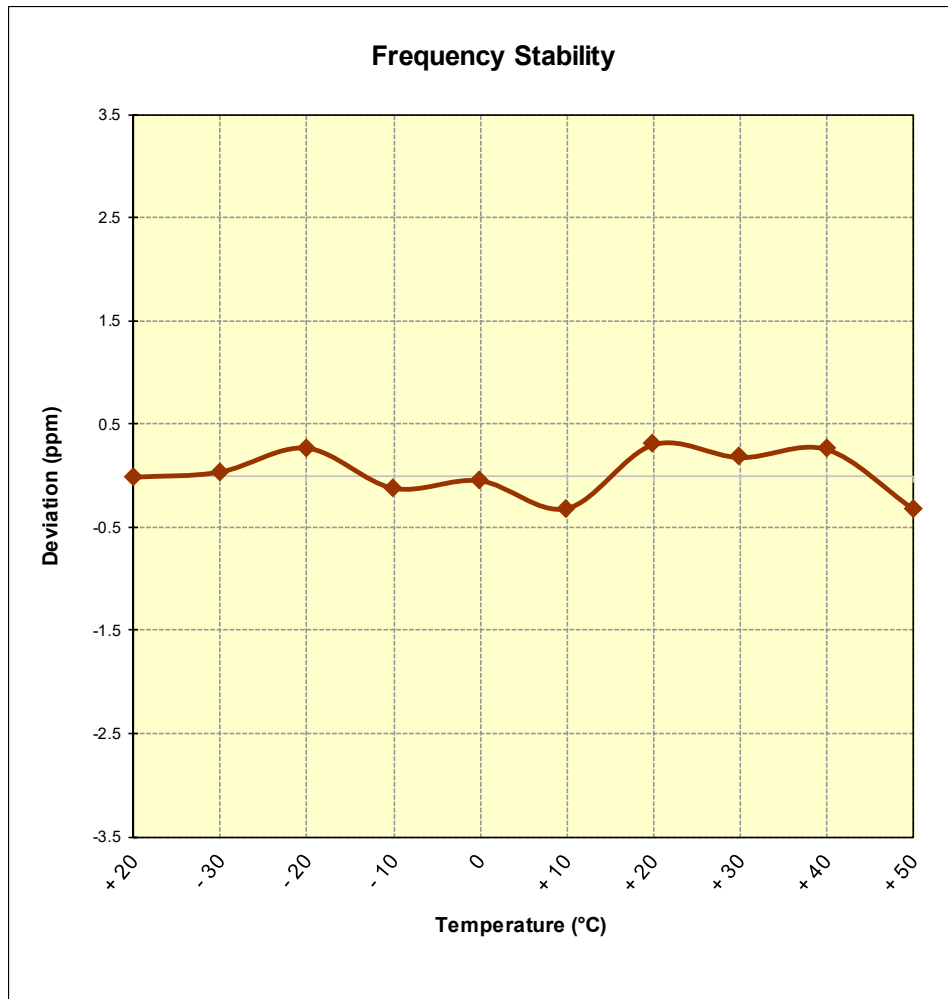


Figure 7-10. Frequency Stability Graph (Cellular WCDMA Mode – Ch. 4183)

FCC ID: ZNFL414DL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: 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	+ 20 (Ref)	1,732,600,203	203	0.0000117
100 %		- 30	1,732,600,002	2	0.0000001
100 %		- 20	1,732,600,103	103	0.0000059
100 %		- 10	1,732,599,729	-271	-0.0000156
100 %		0	1,732,600,025	25	0.0000014
100 %		+ 10	1,732,600,022	22	0.0000013
100 %		+ 20	1,732,600,255	255	0.0000147
100 %		+ 30	1,732,599,659	-341	-0.0000197
100 %		+ 40	1,732,600,140	140	0.0000081
100 %		+ 50	1,732,599,918	-82	-0.0000047
BATT. ENDPOINT	3.45	+ 20	1,732,600,001	1	0.0000001

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: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: Portable Handset		Page 99 of 107

Frequency Stability / Temperature Variation

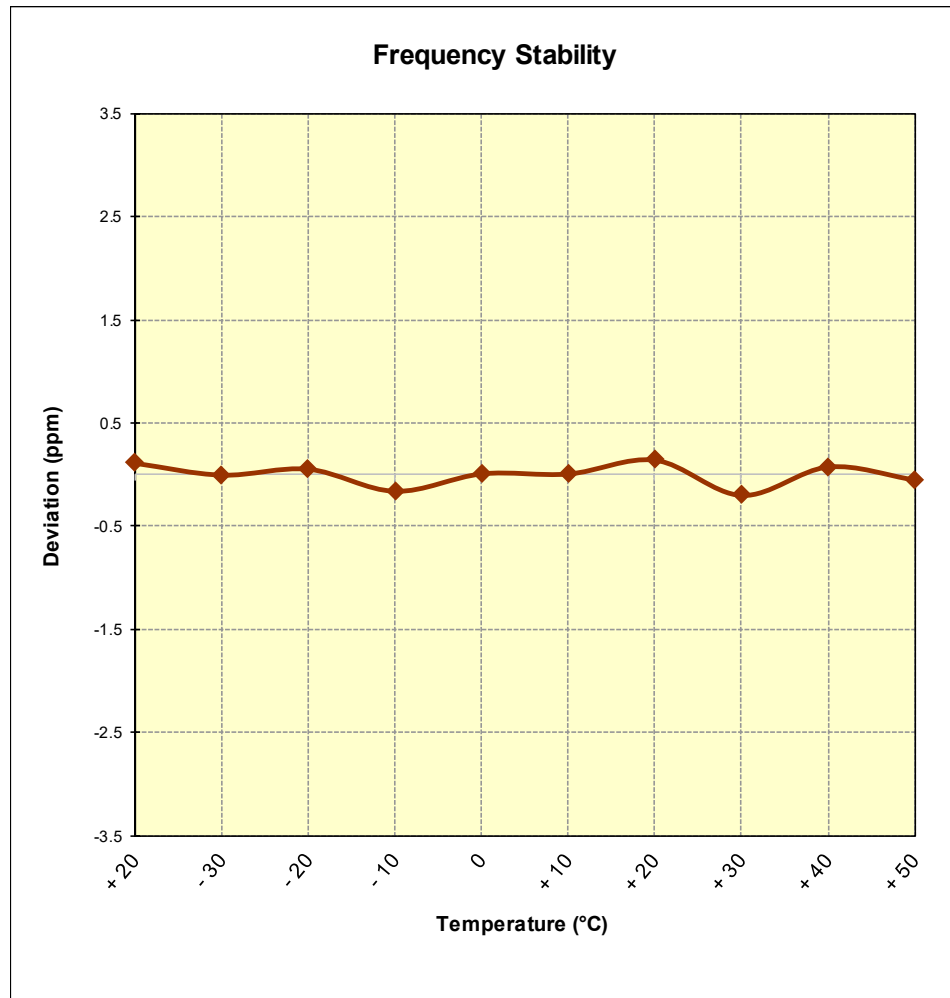


Figure 7-11. Frequency Stability Graph (AWS WCDMA Mode – Ch. 1413)

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	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

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,879,999,792	-208	-0.0000111
100 %		- 30	1,879,999,829	-171	-0.0000091
100 %		- 20	1,880,000,160	160	0.0000085
100 %		- 10	1,880,000,151	151	0.0000080
100 %		0	1,880,000,150	150	0.0000080
100 %		+ 10	1,879,999,943	-57	-0.0000030
100 %		+ 20	1,880,000,128	128	0.0000068
100 %		+ 30	1,879,999,816	-184	-0.0000098
100 %		+ 40	1,880,000,061	61	0.0000032
100 %		+ 50	1,879,999,927	-73	-0.0000039
BATT. ENDPOINT	3.45	+ 20	1,880,000,047	47	0.0000025

Table 7-34. Frequency Stability Data (PCS GPRS 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: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: Portable Handset		Page 101 of 107

Frequency Stability / Temperature Variation

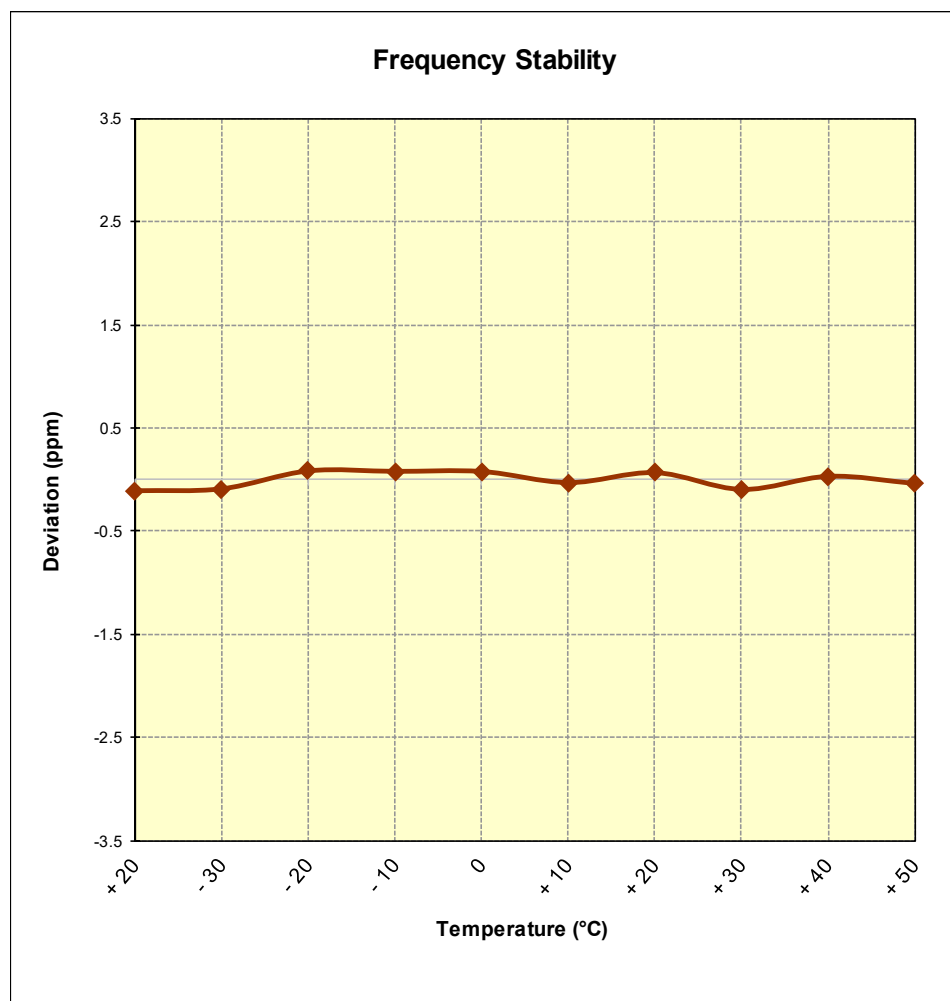


Figure 7-12. Frequency Stability Graph (PCS GPRS Mode – Ch. 661)

FCC ID: ZNFL414DL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	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

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,879,999,937	-63	-0.0000034
100 %		- 30	1,879,999,724	-276	-0.0000147
100 %		- 20	1,879,999,909	-91	-0.0000048
100 %		- 10	1,879,999,718	-282	-0.0000150
100 %		0	1,879,999,888	-112	-0.0000060
100 %		+ 10	1,880,000,068	68	0.0000036
100 %		+ 20	1,879,999,872	-128	-0.0000068
100 %		+ 30	1,880,000,201	201	0.0000107
100 %		+ 40	1,879,999,853	-147	-0.0000078
100 %		+ 50	1,880,000,328	328	0.0000174
BATT. ENDPOINT	3.45	+ 20	1,879,999,841	-159	-0.0000085

Table 7-35. 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: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: Portable Handset		Page 103 of 107

Frequency Stability / Temperature Variation

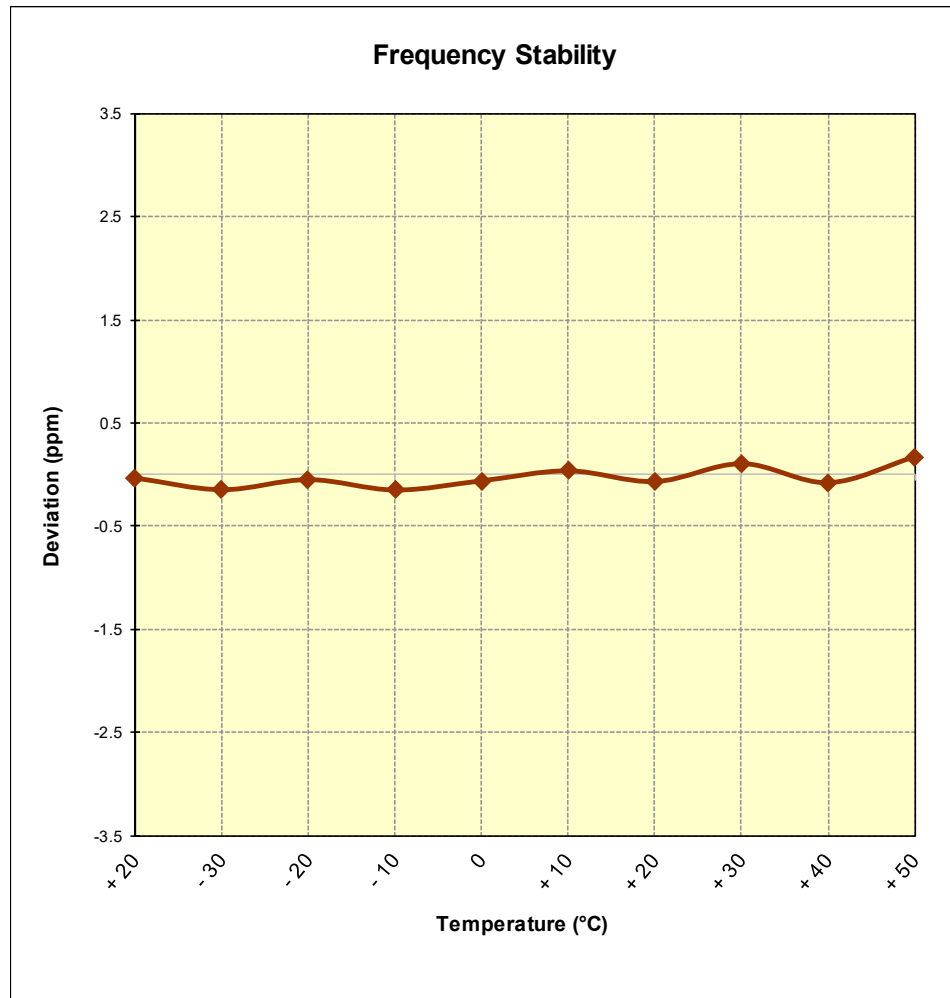


Figure 7-13. Frequency Stability Graph (PCS CDMA Mode – Ch. 600)

FCC ID: ZNFL414DL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	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

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,879,999,998	-2	-0.0000001
100 %		- 30	1,879,999,587	-413	-0.0000220
100 %		- 20	1,880,000,080	80	0.0000043
100 %		- 10	1,880,000,099	99	0.0000053
100 %		0	1,880,000,340	340	0.0000181
100 %		+ 10	1,879,999,734	-266	-0.0000141
100 %		+ 20	1,880,000,177	177	0.0000094
100 %		+ 30	1,880,000,000	0	0.0000000
100 %		+ 40	1,879,999,880	-120	-0.0000064
100 %		+ 50	1,880,000,118	118	0.0000063
BATT. ENDPOINT	3.45	+ 20	1,880,000,292	292	0.0000155

Table 7-36. 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: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: Portable Handset		Page 105 of 107

Frequency Stability / Temperature Variation

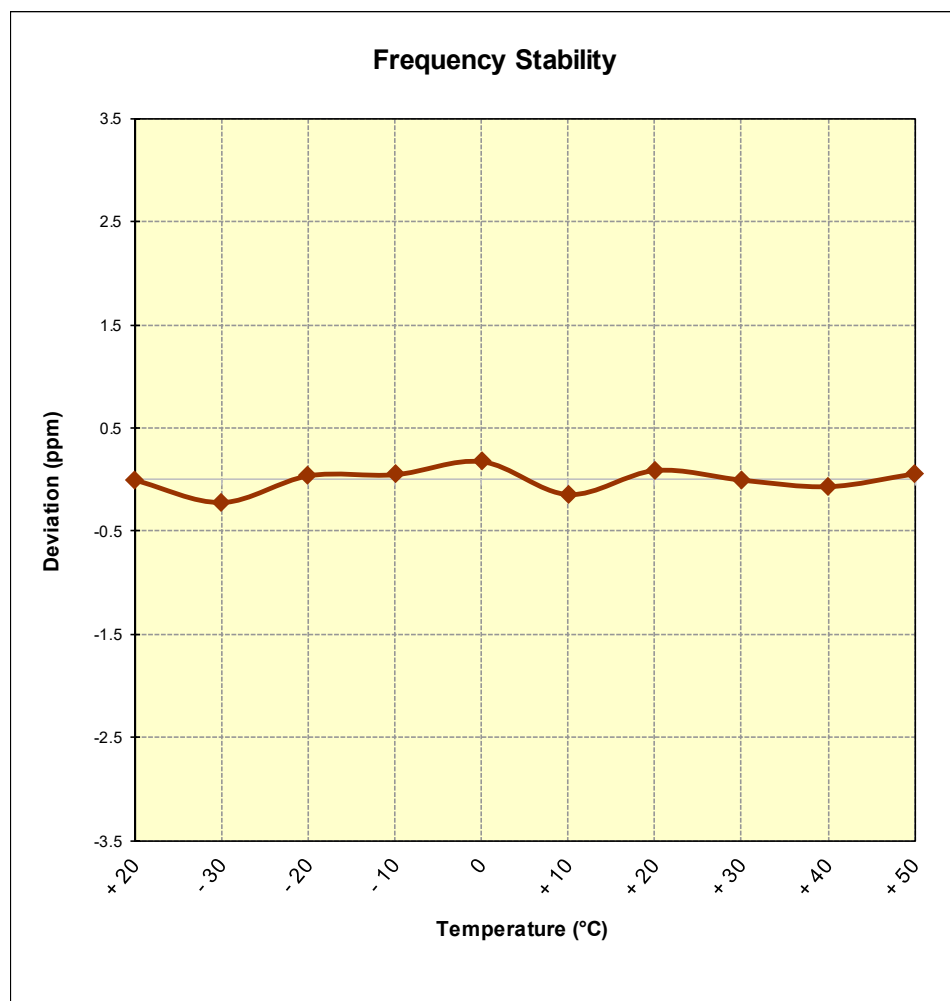


Figure 7-14. Frequency Stability Graph (PCS WCDMA Mode – Ch. 9400)

FCC ID: ZNFL414DL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	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: ZNFL414DL** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules.

FCC ID: ZNFL414DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1805030091-02.ZNF	Test Dates: 5/8/2018 - 5/25/2018	EUT Type: Portable Handset		Page 107 of 107