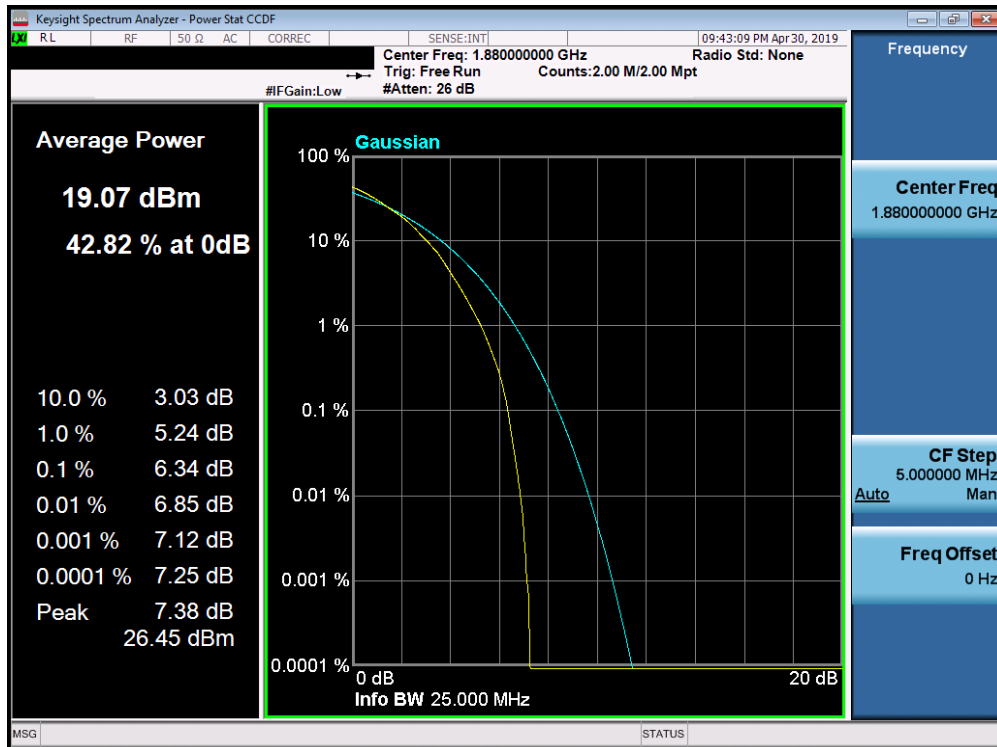
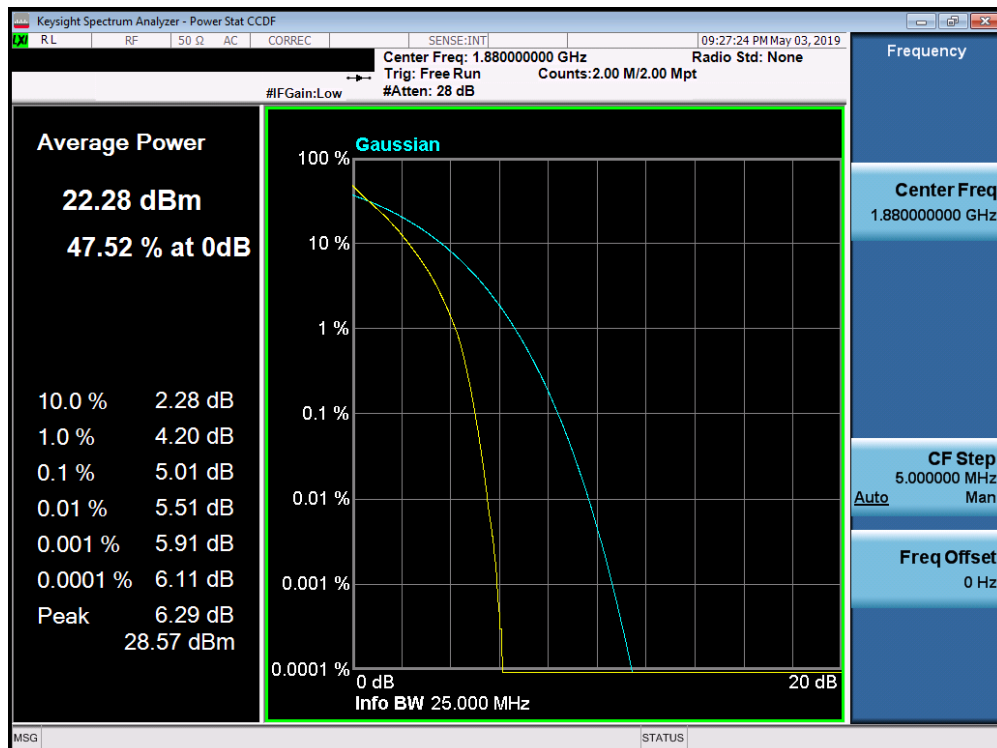


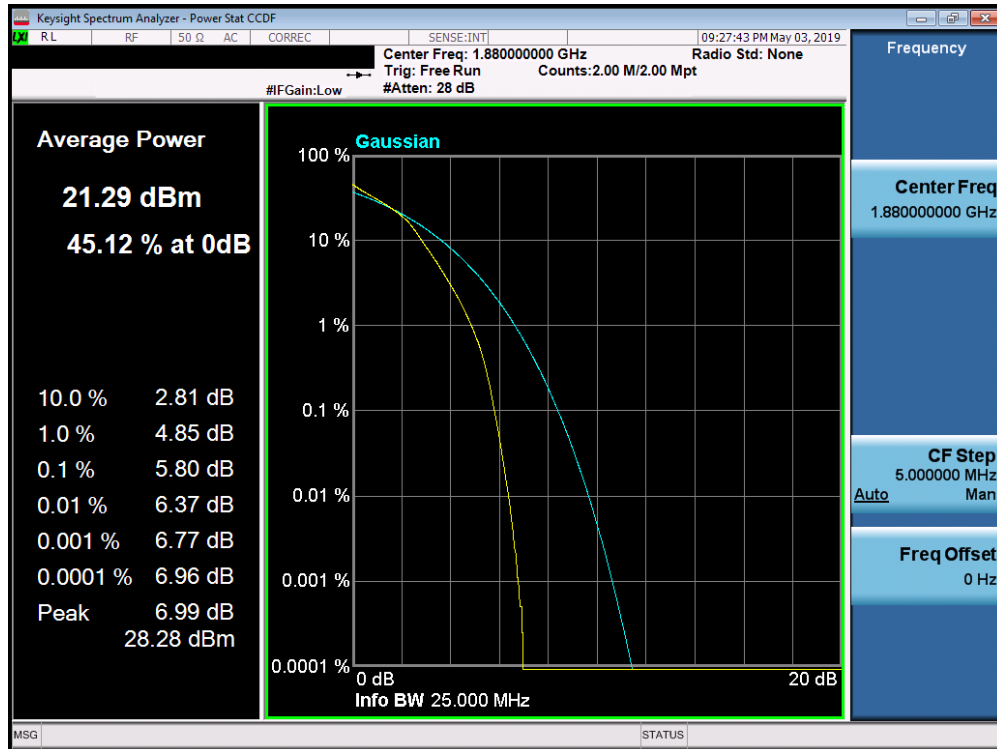


Plot 7-239. PAR Plot (Band 2 - 15.0MHz 64-QAM - Full RB Configuration)

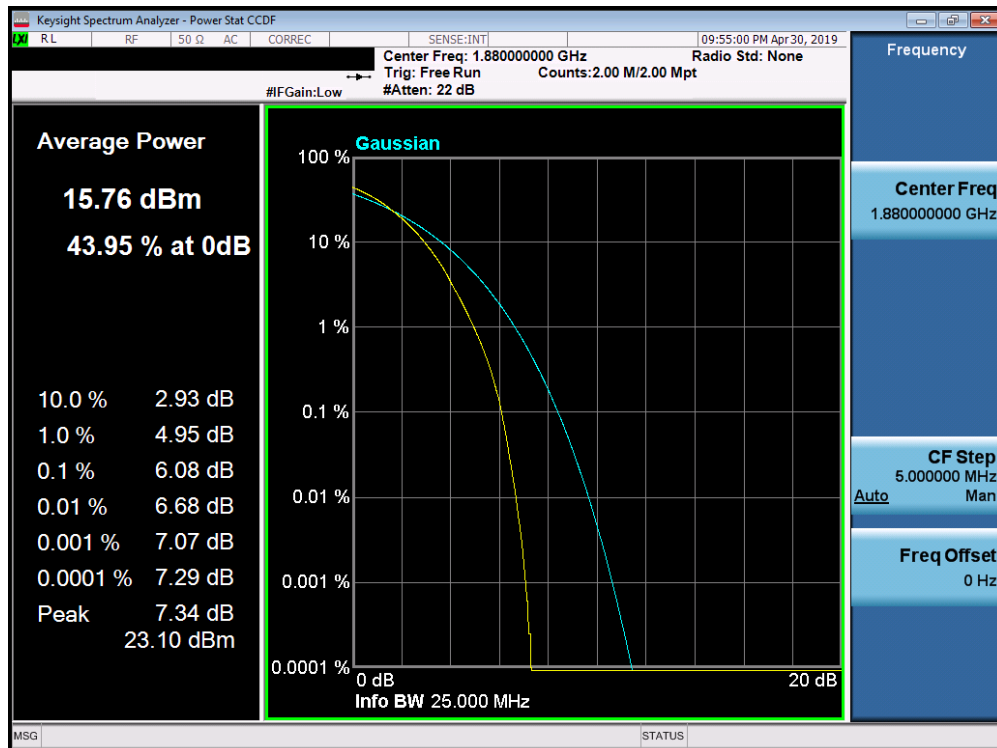


Plot 7-240. PAR Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFL722DL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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Plot 7-241. PAR Plot (Band 2 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-242. PAR Plot (Band 2 - 20.0MHz 64-QAM - Full RB Configuration)

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Test Report S/N: 1M1904080056-03-R1.ZNF	Test Dates: 4/08 - 5/03/2019	EUT Type: Portable Handset		Page 143 of 179

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 its maximum duty cycle, 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.
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW $\geq 3 \times$ RBW
4. Span = 1.5 times the OBW
5. No. of sweep points $\geq 2 \times$ span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

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Test Setup

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

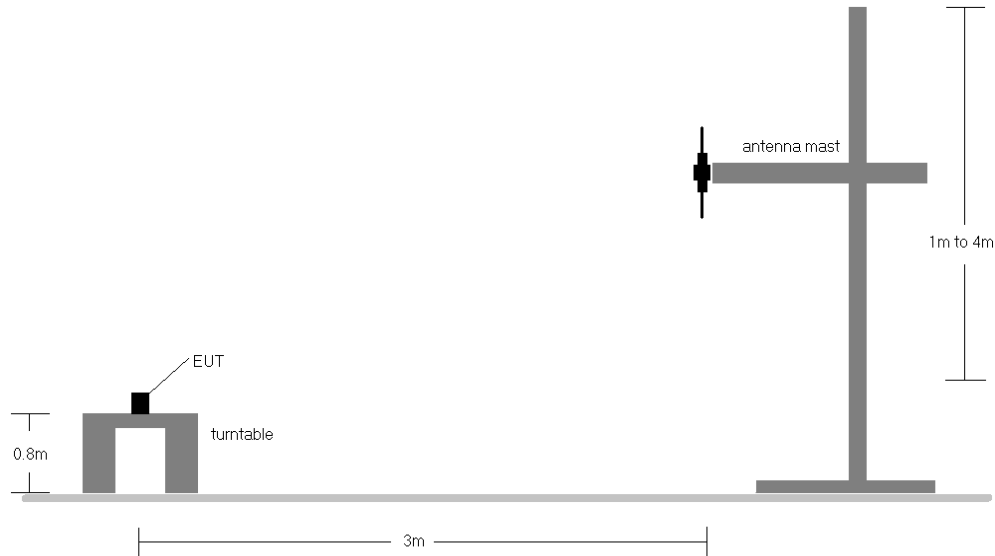


Figure 7-5. Radiated Test Setup <1GHz

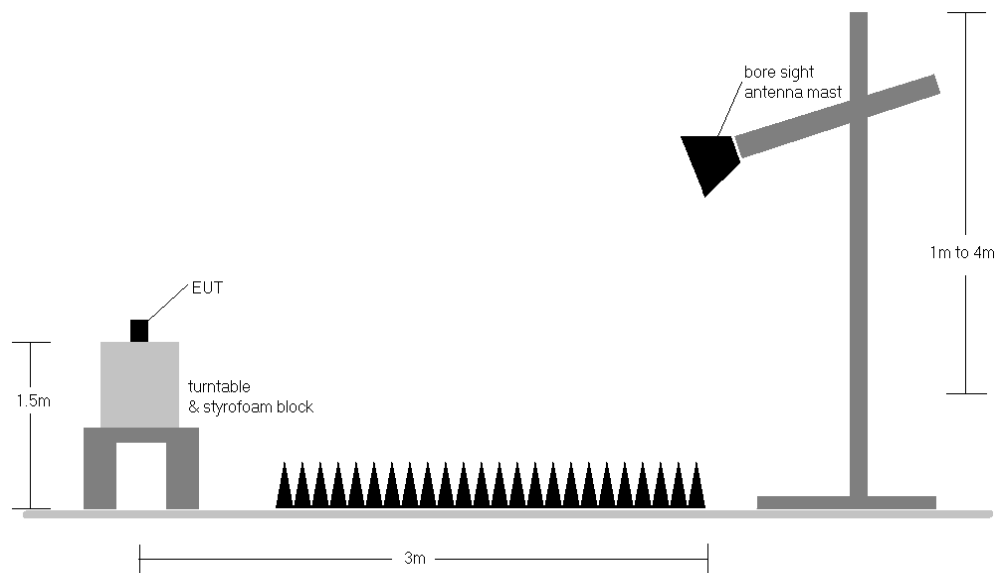


Figure 7-6. Radiated Test Setup >1GHz

Test Notes

- 1) 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.
- 2) This unit was tested with its standard battery.

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
665.50	5	QPSK	V	175	309	1 / 0	14.52	2.90	15.27	0.034	34.77	-19.50
680.50	5	QPSK	V	183	27	1 / 0	14.75	3.20	15.80	0.038	34.77	-18.97
695.50	5	QPSK	V	195	311	1 / 0	14.67	3.30	15.82	0.038	34.77	-18.95
680.50	5	16-QAM	V	183	27	1 / 0	14.66	3.20	15.71	0.037	34.77	-19.06
680.50	5	64-QAM	V	183	27	1 / 0	13.54	3.20	14.59	0.029	34.77	-20.18
668.00	10	QPSK	V	108	83	1 / 49	13.99	2.90	14.74	0.030	34.77	-20.03
680.50	10	QPSK	V	165	90	1 / 49	14.12	3.20	15.17	0.033	34.77	-19.60
693.00	10	QPSK	V	104	51	1 / 49	14.91	3.30	16.06	0.040	34.77	-18.71
693.00	10	16-QAM	V	104	51	1 / 49	14.78	3.30	15.93	0.039	34.77	-18.84
693.00	10	64-QAM	V	104	51	1 / 49	13.79	3.30	14.94	0.031	34.77	-19.83
670.50	15	QPSK	V	106	252	1 / 0	14.16	3.00	15.01	0.032	34.77	-19.76
680.50	15	QPSK	V	102	122	1 / 0	14.41	3.20	15.46	0.035	34.77	-19.31
690.50	15	QPSK	V	199	309	75 / 0	13.95	3.30	15.10	0.032	34.77	-19.67
680.50	15	16-QAM	V	102	122	1 / 0	14.38	3.20	15.43	0.035	34.77	-19.34
670.50	15	64-QAM	V	106	252	1 / 0	13.56	3.00	14.41	0.028	34.77	-20.36
673.00	20	QPSK	V	248	324	1 / 0	14.67	3.10	15.62	0.036	34.77	-19.15
680.50	20	QPSK	V	255	319	1 / 0	15.17	3.20	16.22	0.042	34.77	-18.55
688.00	20	QPSK	V	194	309	100 / 0	14.59	3.30	15.74	0.037	34.77	-19.03
680.50	20	16-QAM	V	255	319	1 / 0	14.94	3.20	15.99	0.040	34.77	-18.78
680.50	20	64-QAM	V	255	319	1 / 0	14.06	3.20	15.11	0.032	34.77	-19.66
680.50	20	QPSK	H	247	112	1 / 0	12.11	3.20	13.16	0.021	34.77	-21.61

Table 7-2. ERP Data (Band 71)

FCC ID: ZNFL722DL	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	H	289	92	1 / 5	13.48	5.19	16.52	0.045	34.77	-18.25
707.50	1.4	QPSK	H	298	88	1 / 5	14.74	5.19	17.78	0.060	34.77	-16.99
715.30	1.4	QPSK	H	299	97	1 / 5	15.12	5.26	18.23	0.066	34.77	-16.55
715.30	1.4	16-QAM	H	299	97	1 / 5	14.81	5.26	17.92	0.062	34.77	-16.86
715.30	1.4	64-QAM	H	299	97	1 / 5	13.75	5.26	16.86	0.048	34.77	-17.92
700.50	3	QPSK	H	297	105	1 / 14	13.48	5.14	16.47	0.044	34.77	-18.30
707.50	3	QPSK	H	295	87	1 / 14	14.65	5.19	17.69	0.059	34.77	-17.08
714.50	3	QPSK	H	295	95	1 / 14	15.36	5.25	18.46	0.070	34.77	-16.31
714.50	3	16-QAM	H	295	95	1 / 14	15.00	5.25	18.10	0.065	34.77	-16.67
714.50	3	64-QAM	H	295	95	1 / 0	13.97	5.25	17.07	0.051	34.77	-17.70
701.50	5	QPSK	H	301	93	1 / 24	13.89	5.15	16.89	0.049	34.77	-17.88
707.50	5	QPSK	H	293	100	1 / 24	14.34	5.19	17.38	0.055	34.77	-17.39
713.50	5	QPSK	H	294	84	1 / 24	15.14	5.24	18.23	0.067	34.77	-16.54
713.50	5	16-QAM	H	294	84	1 / 0	14.75	5.24	17.84	0.061	34.77	-16.93
713.50	5	64-QAM	H	294	84	1 / 24	13.52	5.24	16.61	0.046	34.77	-18.16
704.00	10	QPSK	H	298	106	1 / 49	14.51	5.17	17.53	0.057	34.77	-17.24
707.50	10	QPSK	H	301	90	1 / 49	14.99	5.19	18.03	0.064	34.77	-16.74
711.00	10	QPSK	H	294	94	1 / 49	15.10	5.22	18.17	0.066	34.77	-16.60
711.00	10	16-QAM	H	294	94	1 / 49	14.79	5.22	17.86	0.061	34.77	-16.91
711.00	10	64-QAM	H	294	94	1 / 49	13.77	5.22	16.84	0.048	34.77	-17.93
714.50	3	QPSK	V	182	77	1 / 14	14.77	5.25	17.87	0.061	34.77	-16.90

Table 7-3. ERP Data (Band 12)

FCC ID: ZNFL722DL	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
779.50	5	QPSK	H	160	95	1 / 24	12.67	6.09	16.61	0.046	34.77	-18.16	18.76	0.075	36.99	-18.23
782.00	5	QPSK	H	167	97	1 / 24	12.32	6.13	16.30	0.043	34.77	-18.47	18.45	0.070	36.99	-18.53
784.50	5	QPSK	H	170	83	1 / 24	12.86	6.18	16.89	0.049	34.77	-17.88	19.04	0.080	36.99	-17.95
784.50	5	16-QAM	H	170	83	1 / 24	12.45	6.18	16.48	0.044	34.77	-18.29	18.63	0.073	36.99	-18.36
784.50	5	64-QAM	H	170	83	1 / 24	11.68	6.18	15.71	0.037	34.77	-19.06	17.86	0.061	36.99	-19.13
782.00	10	QPSK	H	164	95	1 / 0	12.99	6.13	16.97	0.050	34.77	-17.80	19.12	0.082	36.99	-17.86
782.00	10	16-QAM	H	164	95	1 / 49	12.55	6.13	16.53	0.045	34.77	-18.24	18.68	0.074	36.99	-18.30
782.00	10	64-QAM	H	164	95	1 / 49	11.80	6.13	15.78	0.038	34.77	-18.99	17.93	0.062	36.99	-19.05
782.00	10	QPSK	V	163	115	1 / 0	11.92	6.13	15.90	0.039	34.77	-18.87	18.05	0.064	36.99	-18.93

Table 7-4. ERP Data (Band 13)

FCC ID: ZNFL722DL	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1904080056-03-R1.ZNF	Test Dates: 4/08 - 5/03/2019	EUT Type: Portable Handset	Page 148 of 179

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	H	137	32	1 / 5	8.65	6.89	13.39	0.022	38.45	-25.06
836.50	1.4	QPSK	H	129	144	1 / 5	11.10	7.08	16.03	0.040	38.45	-22.42
848.30	1.4	QPSK	H	139	31	1 / 5	10.56	7.28	15.69	0.037	38.45	-22.76
836.50	1.4	16-QAM	H	129	144	1 / 5	10.75	7.08	15.68	0.037	38.45	-22.77
836.50	1.4	64-QAM	H	129	144	1 / 5	9.63	7.08	14.56	0.029	38.45	-23.89
825.50	3	QPSK	H	133	39	1 / 14	8.70	6.90	13.45	0.022	38.45	-25.00
836.50	3	QPSK	H	142	32	1 / 14	11.18	7.08	16.11	0.041	38.45	-22.34
847.50	3	QPSK	H	137	40	1 / 0	10.39	7.26	15.50	0.036	38.45	-22.95
836.50	3	16-QAM	H	142	32	1 / 14	10.81	7.08	15.74	0.038	38.45	-22.71
836.50	3	64-QAM	H	142	32	1 / 14	9.72	7.08	14.65	0.029	38.45	-23.80
826.50	5	QPSK	H	147	28	1 / 24	9.15	6.92	13.92	0.025	38.45	-24.53
836.50	5	QPSK	H	140	28	1 / 24	10.96	7.08	15.89	0.039	38.45	-22.56
846.50	5	QPSK	H	139	35	1 / 0	10.97	7.25	16.07	0.040	38.45	-22.38
846.50	5	16-QAM	H	139	35	1 / 0	10.63	7.25	15.73	0.037	38.45	-22.72
846.50	5	64-QAM	H	139	35	1 / 0	9.70	7.25	14.80	0.030	38.45	-23.65
829.00	10	QPSK	H	139	39	1 / 49	10.40	6.96	15.21	0.033	38.45	-23.24
836.50	10	QPSK	H	142	34	1 / 49	11.45	7.08	16.38	0.043	38.45	-22.07
844.00	10	QPSK	H	135	32	1 / 0	10.86	7.21	15.92	0.039	38.45	-22.53
836.50	10	16-QAM	H	142	34	1 / 49	11.31	7.08	16.24	0.042	38.45	-22.21
836.50	10	64-QAM	H	142	34	1 / 49	10.13	7.08	15.06	0.032	38.45	-23.39
836.50	10	QPSK	V	146	243	1 / 49	11.36	7.08	16.29	0.043	38.45	-22.16

Table 7-5. ERP Data (Band 5)

FCC ID: ZNFL722DL	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1904080056-03-R1.ZNF	Test Dates: 4/08 - 5/03/2019	EUT Type: Portable Handset		Page 149 of 179

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	H	102	7	1 / 0	12.29	9.63	21.92	0.155	30.00	-8.08
1745.00	1.4	QPSK	H	101	-2	1 / 0	13.19	9.49	22.68	0.185	30.00	-7.32
1779.30	1.4	QPSK	H	102	0	1 / 0	11.02	9.35	20.37	0.109	30.00	-9.63
1745.00	1.4	16-QAM	H	101	-2	1 / 5	13.16	9.49	22.65	0.184	30.00	-7.35
1745.00	1.4	64-QAM	H	101	-2	1 / 0	12.48	9.49	21.97	0.157	30.00	-8.03
1711.50	3	QPSK	H	102	6	1 / 0	12.46	9.62	22.08	0.162	30.00	-7.92
1745.00	3	QPSK	H	100	3	1 / 0	13.34	9.49	22.83	0.192	30.00	-7.17
1778.50	3	QPSK	H	101	4	15 / 0	11.05	9.35	20.40	0.110	30.00	-9.60
1745.00	3	16-QAM	H	100	3	1 / 0	13.12	9.49	22.61	0.182	30.00	-7.39
1745.00	3	64-QAM	H	100	3	1 / 0	12.55	9.49	22.04	0.160	30.00	-7.96
1712.50	5	QPSK	H	104	358	1 / 24	12.61	9.62	22.23	0.167	30.00	-7.77
1745.00	5	QPSK	H	104	1	1 / 0	13.28	9.49	22.77	0.189	30.00	-7.23
1777.50	5	QPSK	H	100	358	1 / 0	11.08	9.36	20.44	0.111	30.00	-9.56
1745.00	5	16-QAM	H	104	1	1 / 0	13.15	9.49	22.64	0.183	30.00	-7.36
1745.00	5	64-QAM	H	104	1	1 / 0	12.60	9.49	22.09	0.162	30.00	-7.91
1715.00	10	QPSK	H	104	3	1 / 49	13.19	9.61	22.80	0.191	30.00	-7.20
1745.00	10	QPSK	H	100	5	1 / 49	13.53	9.49	23.02	0.200	30.00	-6.98
1775.00	10	QPSK	H	101	1	1 / 49	11.87	9.37	21.24	0.133	30.00	-8.76
1745.00	10	16-QAM	H	100	5	1 / 49	13.39	9.49	22.88	0.194	30.00	-7.12
1745.00	10	64-QAM	H	100	5	1 / 49	12.52	9.49	22.01	0.159	30.00	-7.99
1717.50	15	QPSK	H	111	359	1 / 74	13.03	9.60	22.63	0.183	30.00	-7.37
1745.00	15	QPSK	H	108	1	1 / 0	14.03	9.49	23.52	0.225	30.00	-6.48
1772.50	15	QPSK	H	101	130	1 / 0	11.68	9.38	21.06	0.128	30.00	-8.94
1745.00	15	16-QAM	H	108	1	1 / 0	13.99	9.49	23.48	0.223	30.00	-6.52
1745.00	15	64-QAM	H	108	1	1 / 0	13.19	9.49	22.68	0.185	30.00	-7.32
1720.00	20	QPSK	H	129	3	1 / 0	12.77	9.59	22.36	0.172	30.00	-7.64
1745.00	20	QPSK	H	114	0	1 / 0	13.61	9.49	23.10	0.204	30.00	-6.90
1770.00	20	QPSK	H	122	8	1 / 99	11.68	9.39	21.07	0.128	30.00	-8.93
1745.00	20	16-QAM	H	114	0	1 / 0	13.41	9.49	22.90	0.195	30.00	-7.10
1745.00	20	64-QAM	H	114	0	1 / 0	12.91	9.49	22.40	0.174	30.00	-7.60
1745.00	15	QPSK	V	138	149	1 / 0	13.45	9.49	22.94	0.197	30.00	-7.06

Table 7-6. EIRP Data (Band 66/4)

FCC ID: ZNFL722DL	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	H	165	5	1 / 0	11.05	9.07	20.12	0.103	33.01	-12.90
1880.00	1.4	QPSK	H	159	6	1 / 0	13.01	9.15	22.16	0.164	33.01	-10.85
1909.30	1.4	QPSK	H	152	17	1 / 0	11.13	9.27	20.40	0.110	33.01	-12.61
1880.00	1.4	16-QAM	H	159	6	1 / 0	12.95	9.15	22.10	0.162	33.01	-10.91
1880.00	1.4	64-QAM	H	159	6	1 / 5	12.35	9.15	21.50	0.141	33.01	-11.51
1851.50	3	QPSK	H	145	23	1 / 0	11.83	9.07	20.90	0.123	33.01	-12.11
1880.00	3	QPSK	H	152	13	1 / 14	13.14	9.15	22.29	0.169	33.01	-10.72
1908.50	3	QPSK	H	149	21	1 / 0	11.80	9.26	21.06	0.128	33.01	-11.95
1880.00	3	16-QAM	H	152	13	1 / 14	12.97	9.15	22.12	0.163	33.01	-10.89
1880.00	3	64-QAM	H	152	13	1 / 0	12.27	9.15	21.42	0.139	33.01	-11.59
1852.50	5	QPSK	H	159	13	25 / 0	11.97	9.07	21.04	0.127	33.01	-11.97
1880.00	5	QPSK	H	153	11	1 / 24	13.40	9.15	22.55	0.180	33.01	-10.46
1907.50	5	QPSK	H	148	22	1 / 0	12.21	9.26	21.47	0.140	33.01	-11.54
1880.00	5	16-QAM	H	153	11	1 / 0	13.10	9.15	22.25	0.168	33.01	-10.76
1880.00	5	64-QAM	H	153	11	1 / 24	12.85	9.15	22.00	0.158	33.01	-11.01
1855.00	10	QPSK	H	158	13	1 / 49	11.17	9.08	20.25	0.106	33.01	-12.76
1880.00	10	QPSK	H	152	15	1 / 49	12.82	9.15	21.97	0.157	33.01	-11.04
1905.00	10	QPSK	H	146	15	1 / 0	12.89	9.24	22.13	0.163	33.01	-10.88
1905.00	10	16-QAM	H	146	15	1 / 0	12.74	9.24	21.98	0.158	33.01	-11.03
1905.00	10	64-QAM	H	146	15	1 / 0	12.14	9.24	21.38	0.137	33.01	-11.63
1857.50	15	QPSK	H	154	354	1 / 74	12.92	9.08	22.00	0.159	33.01	-11.01
1880.00	15	QPSK	H	152	6	1 / 74	13.49	9.15	22.64	0.184	33.01	-10.37
1902.50	15	QPSK	H	147	9	1 / 0	13.18	9.22	22.40	0.174	33.01	-10.61
1880.00	15	16-QAM	H	152	6	1 / 74	13.35	9.15	22.50	0.178	33.01	-10.51
1880.00	15	64-QAM	H	152	6	1 / 74	12.88	9.15	22.03	0.160	33.01	-10.98
1860.00	20	QPSK	H	151	3	1 / 99	13.28	9.09	22.37	0.173	33.01	-10.64
1880.00	20	QPSK	H	155	365	1 / 0	13.43	9.15	22.58	0.181	33.01	-10.43
1900.00	20	QPSK	H	157	18	1 / 0	13.29	9.20	22.49	0.178	33.01	-10.52
1880.00	20	16-QAM	H	155	365	1 / 0	13.16	9.15	22.31	0.170	33.01	-10.70
1880.00	20	64-QAM	H	155	365	1 / 0	12.66	9.15	21.81	0.152	33.01	-11.20
1880.00	15	QPSK	V	108	40	1 / 74	13.22	9.15	22.37	0.173	33.01	-10.64

Table 7-7. EIRP Data (Band 2)

FCC ID: ZNFL722DL	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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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 vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas.

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 $\geq 3 \times$ 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: ZNFL722DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1904080056-03-R1.ZNF	Test Dates: 4/08 - 5/03/2019	EUT Type: Portable Handset		Page 152 of 179

Test Setup

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

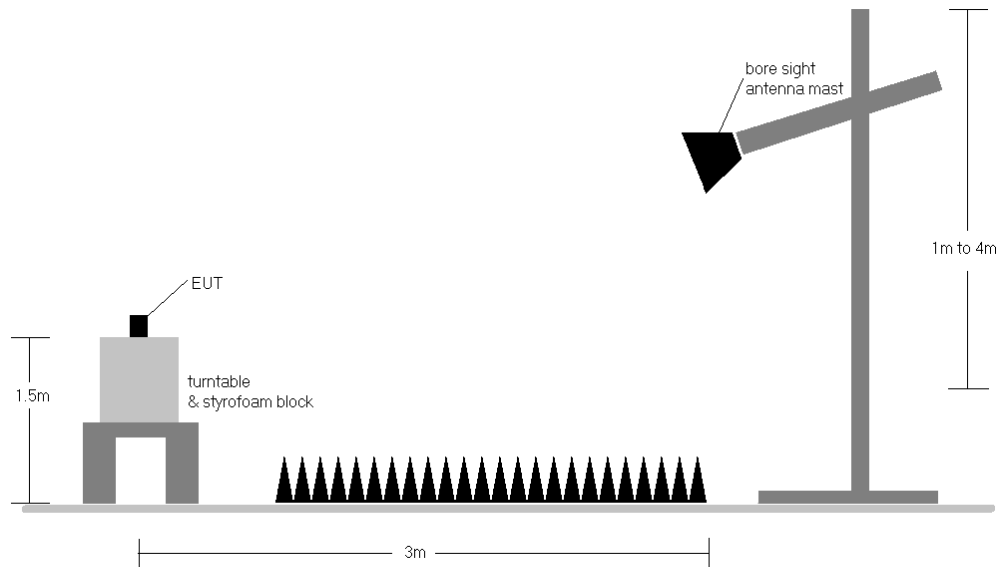


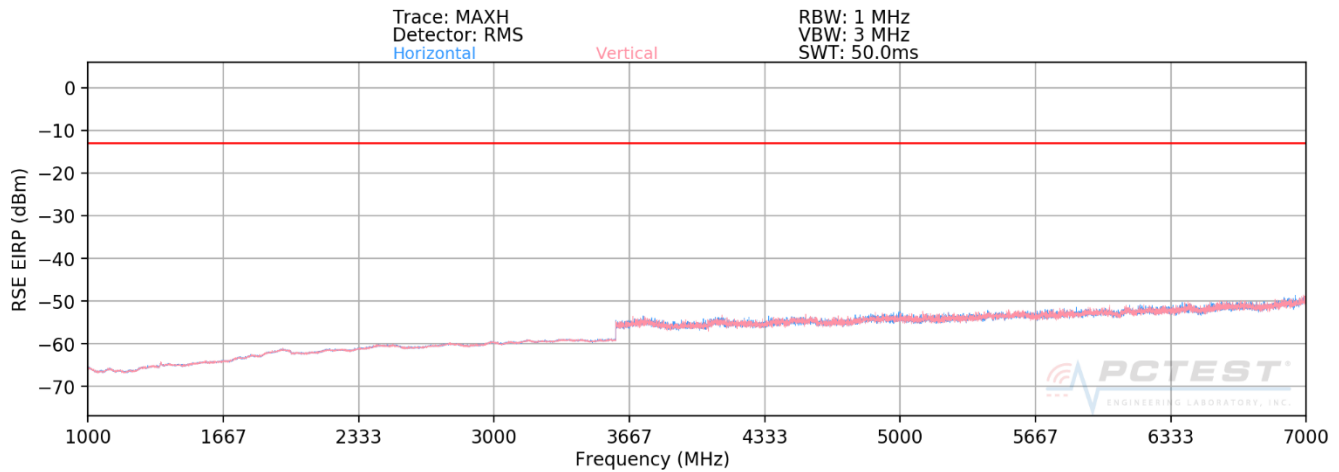
Figure 7-7. Test Instrument & Measurement Setup

Test Notes

- 1) 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.
- 2) This unit was tested with its standard battery.
- 3) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 4) 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.
- 5) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

FCC ID: ZNFL722DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 71



Plot 7-243. Radiated Spurious Plot above 1GHz (Band 71)

OPERATING FREQUENCY: 673.00 MHz
MODULATION SIGNAL: QPSK
BANDWIDTH: 20.0 MHz
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]
1346.00	V	108	287	-69.96	7.47	-62.48	-49.5
2019.00	V	-	-	-69.94	8.68	-61.26	-48.3
2692.00	V	-	-	-69.37	9.99	-59.39	-46.4
3365.00	V	-	-	-67.33	9.66	-57.67	-44.7
4038.00	V	-	-	-70.06	9.84	-60.22	-47.2

Table 7-8. Radiated Spurious Data (Band 71 – Low Channel)

FCC ID: ZNFL722DL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1904080056-03-R1.ZNF	Test Dates: 4/08 - 5/03/2019	EUT Type: Portable Handset		Page 154 of 179

OPERATING FREQUENCY: 680.50 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 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]
1361.00	V	102	276	-68.04	7.48	-60.56	-47.6
2041.50	V	149	51	-67.45	8.76	-58.69	-45.7
2722.00	V	-	-	-68.92	10.08	-58.84	-45.8
3402.50	V	-	-	-67.55	9.80	-57.75	-44.8
4083.00	V	-	-	-69.43	10.05	-59.37	-46.4

Table 7-9. Radiated Spurious Data (Band 71 – Mid Channel)

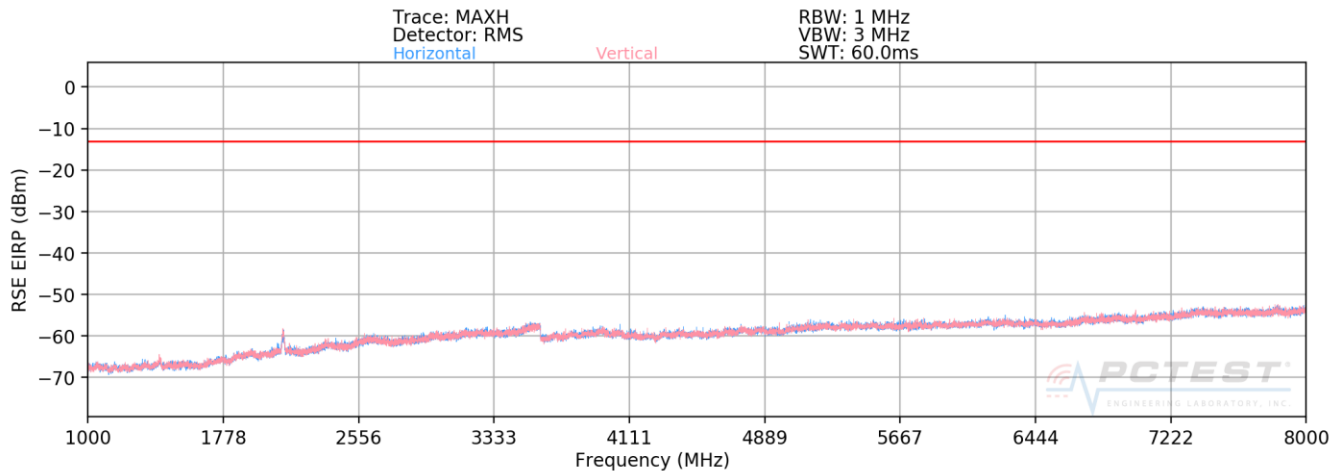
OPERATING FREQUENCY: 688.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
1376.00	V	248	336	-69.13	7.46	-61.67	-48.7
2064.00	V	-	-	-68.46	8.80	-59.66	-46.7
2752.00	V	-	-	-70.62	10.17	-60.45	-47.5
3440.00	V	-	-	-68.23	9.84	-58.39	-45.4
4128.00	V	-	-	-69.50	10.18	-59.32	-46.3

Table 7-10. Radiated Spurious Data (Band 71 – High Channel)

FCC ID: ZNFL722DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1904080056-03-R1.ZNF	Test Dates: 4/08 - 5/03/2019	EUT Type: Portable Handset		Page 155 of 179

Band 12



Plot 7-244. Radiated Spurious Plot above 1GHz (Band 12)

OPERATING FREQUENCY: 700.50 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 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]
1401.00	V	135	305	-63.27	7.45	-55.82	-42.8
2101.50	V	121	136	-65.04	8.84	-56.20	-43.2
2802.00	V	-	-	-69.17	10.14	-59.03	-46.0
3502.50	V	-	-	-68.94	9.92	-59.01	-46.0
4203.00	V	-	-	-69.93	10.42	-59.51	-46.5

Table 7-11. Radiated Spurious Data (Band 12 – Low Channel)

FCC ID: ZNFL722DL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		LG	Approved by: Quality Manager
Test Report S/N: 1M1904080056-03-R1.ZNF	Test Dates: 4/08 - 5/03/2019	EUT Type: Portable Handset			Page 156 of 179

OPERATING FREQUENCY: 707.50 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 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]
1415.00	V	195	307	-65.04	7.63	-57.41	-44.4
2122.50	V	190	128	-64.30	8.86	-55.44	-42.4
2830.00	V	-	-	-69.09	10.10	-59.00	-46.0
3537.50	V	-	-	-68.63	9.90	-58.74	-45.7
4245.00	V	-	-	-69.79	10.58	-59.20	-46.2

Table 7-12. Radiated Spurious Data (Band 12 – Mid Channel)

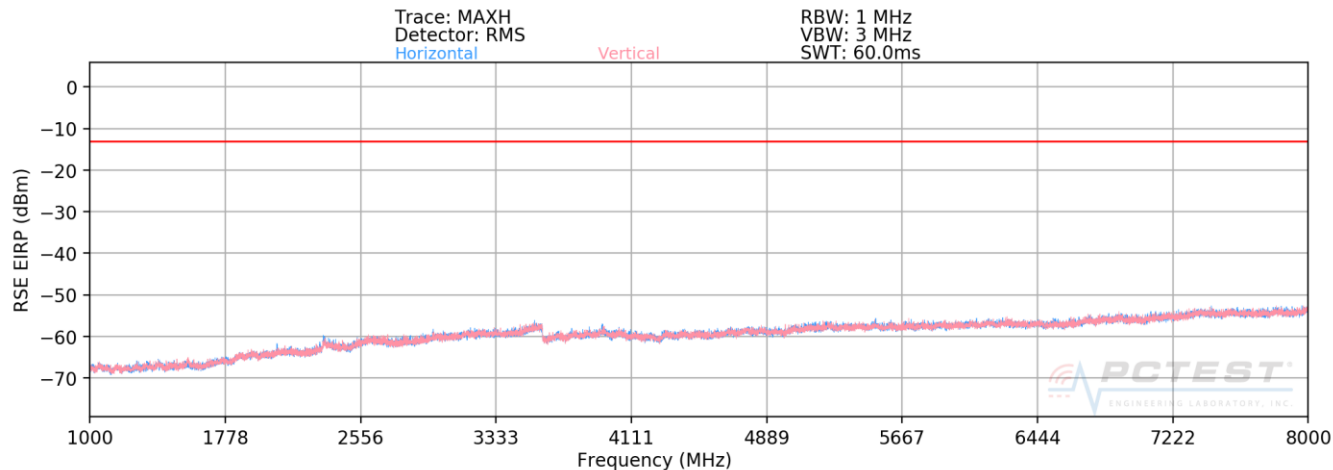
OPERATING FREQUENCY: 714.50 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
1429.00	V	190	302	-63.63	7.81	-55.82	-42.8
2143.50	V	198	126	-62.42	8.88	-53.54	-40.5
2858.00	V	-	-	-69.89	10.04	-59.84	-46.8
3572.50	V	-	-	-68.69	9.93	-58.76	-45.8
4287.00	V	-	-	-70.41	10.71	-59.70	-46.7

Table 7-13. Radiated Spurious Data (Band 12 – High Channel)

FCC ID: ZNFL722DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1904080056-03-R1.ZNF	Test Dates: 4/08 - 5/03/2019	EUT Type: Portable Handset		Page 157 of 179

Band 13



Plot 7-245. Radiated Spurious Plot above 1GHz (Band 13)

OPERATING FREQUENCY: 782.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 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]
2346.00	H	111	227	-70.28	9.43	-60.84	-47.8
3128.00	H	-	-	-68.66	9.34	-59.32	-46.3
3910.00	H	-	-	-67.51	9.37	-58.14	-45.1
4692.00	H	-	-	-73.93	10.93	-63.00	-50.0

Table 7-14. Radiated Spurious Data (Band 13 – Mid Channel)

FCC ID: ZNFL722DL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1904080056-03-R1.ZNF	Test Dates: 4/08 - 5/03/2019	EUT Type: Portable Handset		Page 158 of 179

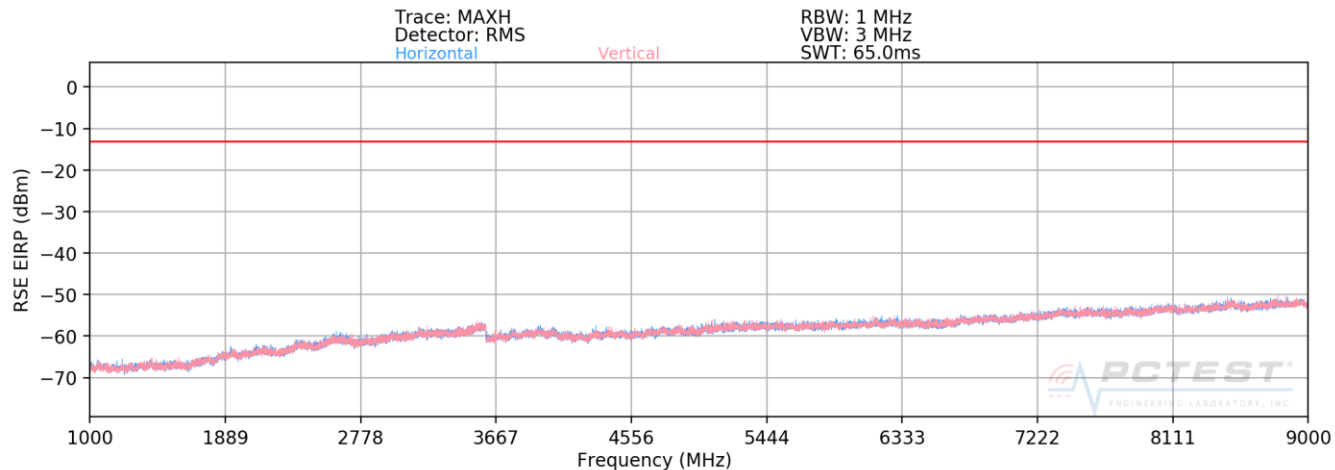
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.00	MHz
DISTANCE:	3	meters
NARROWBAND EMISSION LIMIT:	-50	dBm
WIDEBAND EMISSION LIMIT:	-40	dBm/MHz

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]
1564.00	H	376	85	-71.14	8.53	-62.61	-22.6

Table 7-15. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

FCC ID: ZNFL722DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1904080056-03-R1.ZNF	Test Dates: 4/08 - 5/03/2019	EUT Type: Portable Handset		Page 159 of 179

Band 5



Plot 7-246. Radiated Spurious Plot above 1GHz (Band 5)

OPERATING FREQUENCY: 829.00 MHz
MODULATION SIGNAL: QPSK
BANDWIDTH: 10.0 MHz
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]
1658.00	H	310	279	-65.29	8.95	-56.34	-43.3
2487.00	H	-	-	-62.24	9.70	-52.54	-39.5
3316.00	H	-	-	-61.84	9.59	-52.26	-39.3
4145.00	H	-	-	-61.72	10.22	-51.50	-38.5

Table 7-16. Radiated Spurious Data (Band 5 – Low Channel)

FCC ID: ZNFL722DL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1904080056-03-R1.ZNF	Test Dates: 4/08 - 5/03/2019	EUT Type: Portable Handset		Page 160 of 179

OPERATING FREQUENCY: 836.50 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 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]
1673.00	H	243	337	-65.01	8.95	-56.06	-43.1
2509.50	H	-	-	-63.25	9.75	-53.50	-40.5
3346.00	H	-	-	-61.58	9.60	-51.97	-39.0
4182.50	H	-	-	-60.67	10.34	-50.32	-37.3

Table 7-17. Radiated Spurious Data (Band 5 – Mid Channel)

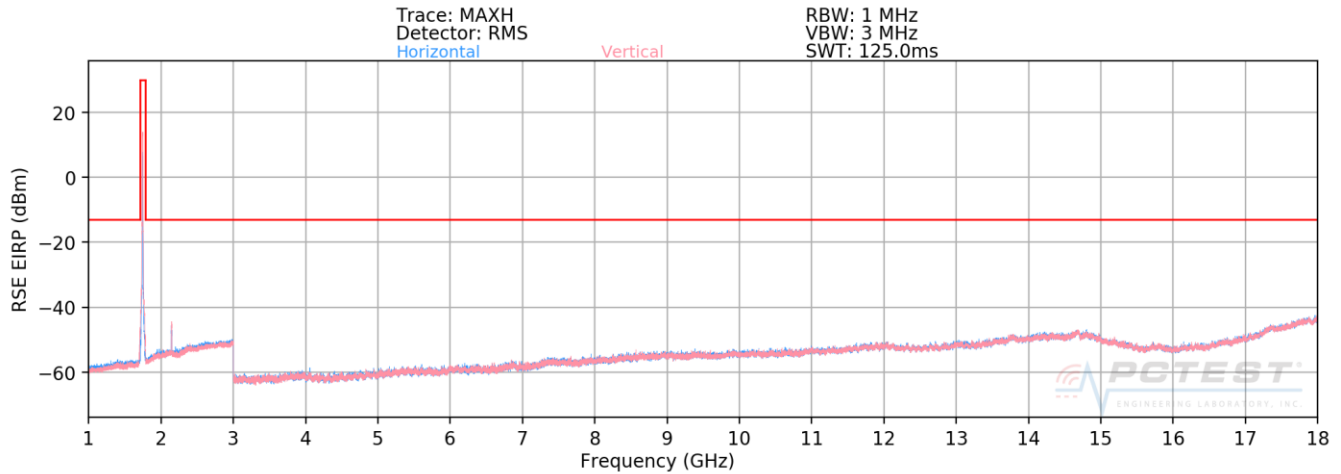
OPERATING FREQUENCY: 844.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
1688.00	H	387	323	-65.01	8.95	-56.06	-43.1
2532.00	H	-	-	-62.44	9.75	-52.69	-39.7
3376.00	H	-	-	-61.91	9.71	-52.21	-39.2
4220.00	H	-	-	-61.23	10.48	-50.74	-37.7

Table 7-18. Radiated Spurious Data (Band 5 – High Channel)

FCC ID: ZNFL722DL	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1904080056-03-R1.ZNF	Test Dates: 4/08 - 5/03/2019	EUT Type: Portable Handset	Page 161 of 179

Band 66/4



Plot 7-247. Radiated Spurious Plot above 1GHz (Band 66/4)

OPERATING FREQUENCY: 1717.50 MHz
MODULATION SIGNAL: QPSK
BANDWIDTH: 15.0 MHz
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]
3435.00	H	331	312	-67.89	9.84	-58.05	-45.1
5152.50	H	-	-	-66.86	10.70	-56.16	-43.2
6870.00	H	-	-	-67.18	11.67	-55.51	-42.5
8587.50	H	-	-	-63.47	11.10	-52.37	-39.4

Table 7-19. Radiated Spurious Data (Band 66/4 – Low Channel)

FCC ID: ZNFL722DL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1904080056-03-R1.ZNF	Test Dates: 4/08 - 5/03/2019	EUT Type: Portable Handset		Page 162 of 179

OPERATING FREQUENCY: 1745.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 15.0 MHz
 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]
3490.00	H	318	313	-66.87	9.91	-56.96	-44.0
5235.00	H	-	-	-66.52	10.73	-55.78	-42.8
6980.00	H	-	-	-67.90	11.82	-56.07	-43.1
8725.00	H	-	-	-63.74	11.00	-52.74	-39.7

Table 7-20. Radiated Spurious Data (Band 66/4 – Mid Channel)

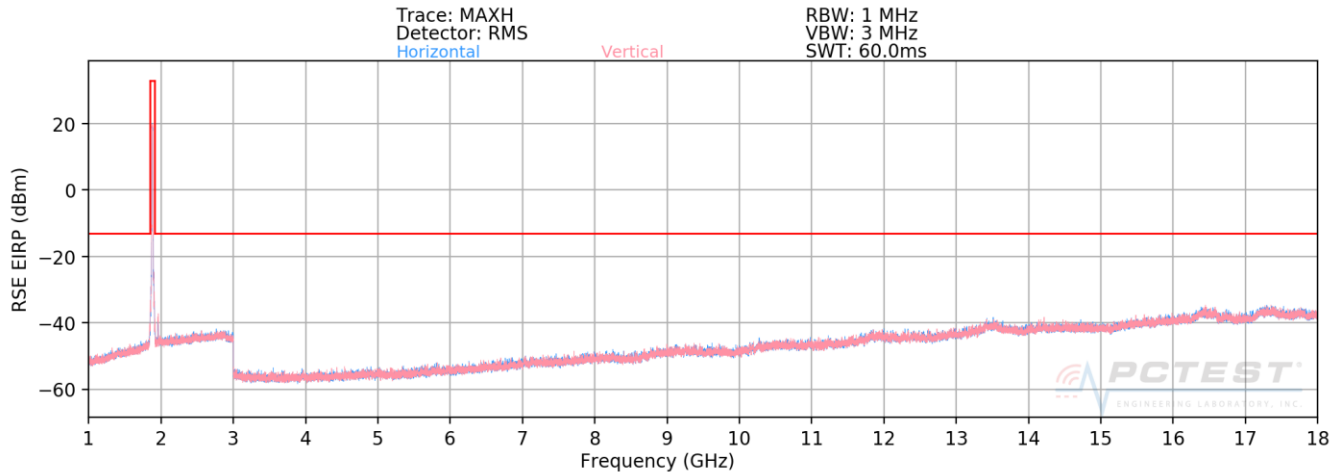
OPERATING FREQUENCY: 1772.50 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 15.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
3545.00	H	367	310	-67.26	9.89	-57.37	-44.4
5317.50	H	-	-	-66.81	10.69	-56.12	-43.1
7090.00	H	-	-	-66.86	11.77	-55.09	-42.1
8862.50	H	-	-	-63.30	11.01	-52.29	-39.3

Table 7-21. Radiated Spurious Data (Band 66/4 – High Channel)

FCC ID: ZNFL722DL	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1904080056-03-R1.ZNF	Test Dates: 4/08 - 5/03/2019	EUT Type: Portable Handset	Page 163 of 179

Band 2



Plot 7-248. Radiated Spurious Plot above 1GHz (Band 2)

OPERATING FREQUENCY: 1857.50 MHz

MODULATION SIGNAL: QPSK

BANDWIDTH: 15.0 MHz

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]
3715.00	H	-	-	-61.01	9.53	-51.49	-38.5
5572.50	H	-	-	-60.17	10.97	-49.19	-36.2
7430.00	H	-	-	-56.13	10.98	-45.15	-32.2
9287.50	H	-	-	-53.27	11.61	-41.66	-28.7

Table 7-22. Radiated Spurious Data (Band 2 – Low Channel)

FCC ID: ZNFL722DL	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1904080056-03-R1.ZNF	Test Dates: 4/08 - 5/03/2019	EUT Type: Portable Handset		Page 164 of 179

OPERATING FREQUENCY: 1880.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 15.0 MHz
 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	161	329	-60.50	9.37	-51.14	-38.1
5640.00	H	-	-	-60.46	11.17	-49.29	-36.3
7520.00	H	-	-	-56.51	11.11	-45.40	-32.4
9400.00	H	-	-	-52.89	11.57	-41.31	-28.3

Table 7-23. Radiated Spurious Data (Band 2 – Mid Channel)

OPERATING FREQUENCY: 1902.50 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 15.0 MHz
 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]
3805.00	H	-	-	-60.44	9.29	-51.15	-38.2
5707.50	H	-	-	-60.04	11.33	-48.71	-35.7
7610.00	H	-	-	-55.66	11.26	-44.40	-31.4
9512.50	H	-	-	-53.30	11.70	-41.60	-28.6

Table 7-24. Radiated Spurious Data (Band 2 – High Channel)

FCC ID: ZNFL722DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1904080056-03-R1.ZNF	Test Dates: 4/08 - 5/03/2019	EUT Type: Portable Handset		Page 165 of 179

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, 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, 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

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Band 71 Frequency Stability Measurements

OPERATING FREQUENCY: 680,500,000 Hz
 CHANNEL: 133297
 REFERENCE VOLTAGE: 4.20 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.20	- 30	680,499,898	-102	-0.0000150
100 %		- 20	680,500,036	36	0.0000053
100 %		- 10	680,499,652	-348	-0.0000511
100 %		0	680,499,586	-414	-0.0000608
100 %		+ 10	680,499,983	-17	-0.0000025
100 %		+ 20	680,499,794	-206	-0.0000303
100 %		+ 30	680,500,408	408	0.0000600
100 %		+ 40	680,499,904	-96	-0.0000141
100 %		+ 50	680,499,863	-137	-0.0000201
BATT. ENDPOINT	3.59	+ 20	680,499,858	-142	-0.0000209

Table 7-25. Frequency Stability Data (Band 71)

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.

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Band 71 Frequency Stability Measurements

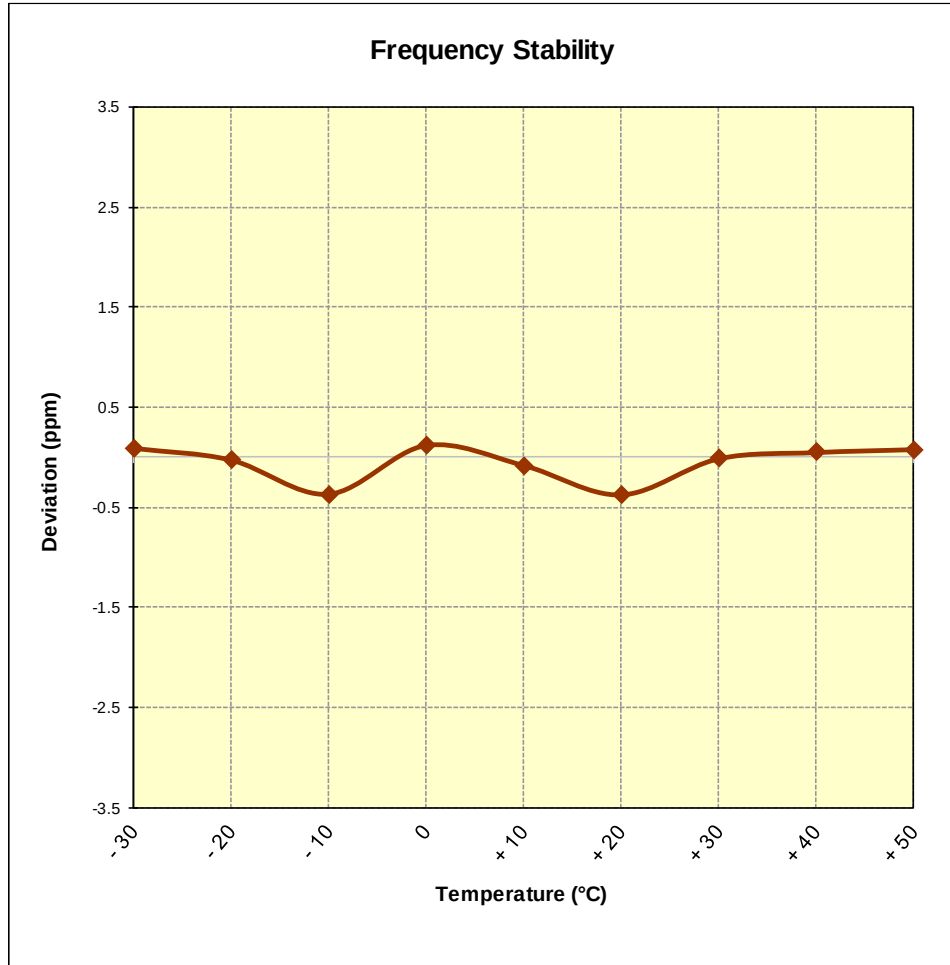


Figure 7-8. Frequency Stability Graph (Band 71)

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Band 12 Frequency Stability Measurements

OPERATING FREQUENCY: 707,500,000 Hz
 CHANNEL: 23790
 REFERENCE VOLTAGE: 4.20 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.20	- 30	707,500,077	77	0.0000109
100 %		- 20	707,500,366	366	0.0000517
100 %		- 10	707,499,834	-166	-0.0000235
100 %		0	707,500,093	93	0.0000131
100 %		+ 10	707,500,143	143	0.0000202
100 %		+ 20	707,499,954	-46	-0.0000065
100 %		+ 30	707,500,160	160	0.0000226
100 %		+ 40	707,499,972	-28	-0.0000040
100 %		+ 50	707,499,928	-72	-0.0000102
BATT. ENDPOINT	3.59	+ 20	707,499,981	-19	-0.0000027

Table 7-26. Frequency Stability Data (Band 12)

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.

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Band 12 Frequency Stability Measurements

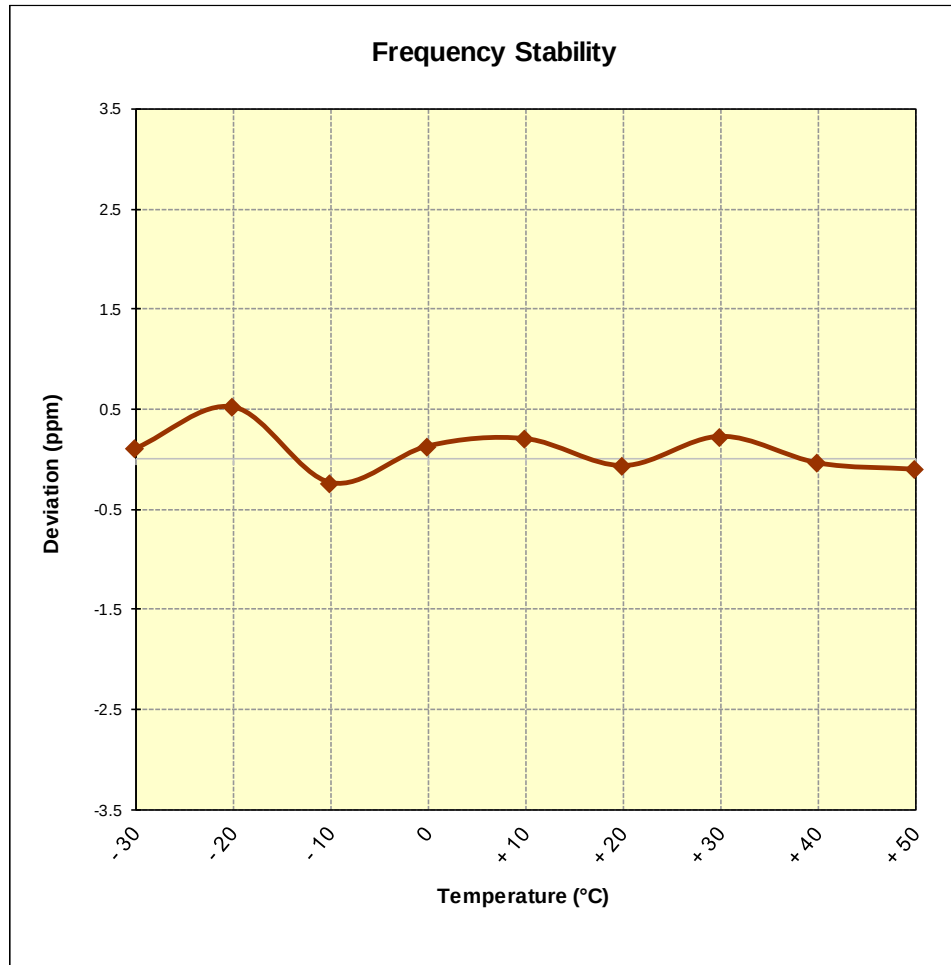


Figure 7-9. Frequency Stability Graph (Band 12)

FCC ID: ZNFL722DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 13 Frequency Stability Measurements

OPERATING FREQUENCY: 782,000,000 Hz
 CHANNEL: 23230
 REFERENCE VOLTAGE: 4.20 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.20	- 30	782,000,084	84	0.0000107
100 %		- 20	781,999,847	-153	-0.0000196
100 %		- 10	782,000,084	84	0.0000107
100 %		0	782,000,068	68	0.0000087
100 %		+ 10	782,000,037	37	0.0000047
100 %		+ 20	781,999,813	-187	-0.0000239
100 %		+ 30	782,000,323	323	0.0000413
100 %		+ 40	781,999,916	-84	-0.0000107
100 %		+ 50	781,999,594	-406	-0.0000519
BATT. ENDPOINT	3.59	+ 20	781,999,773	-227	-0.0000290

Table 7-27. Frequency Stability Data (Band 13)

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.

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Band 13 Frequency Stability Measurements

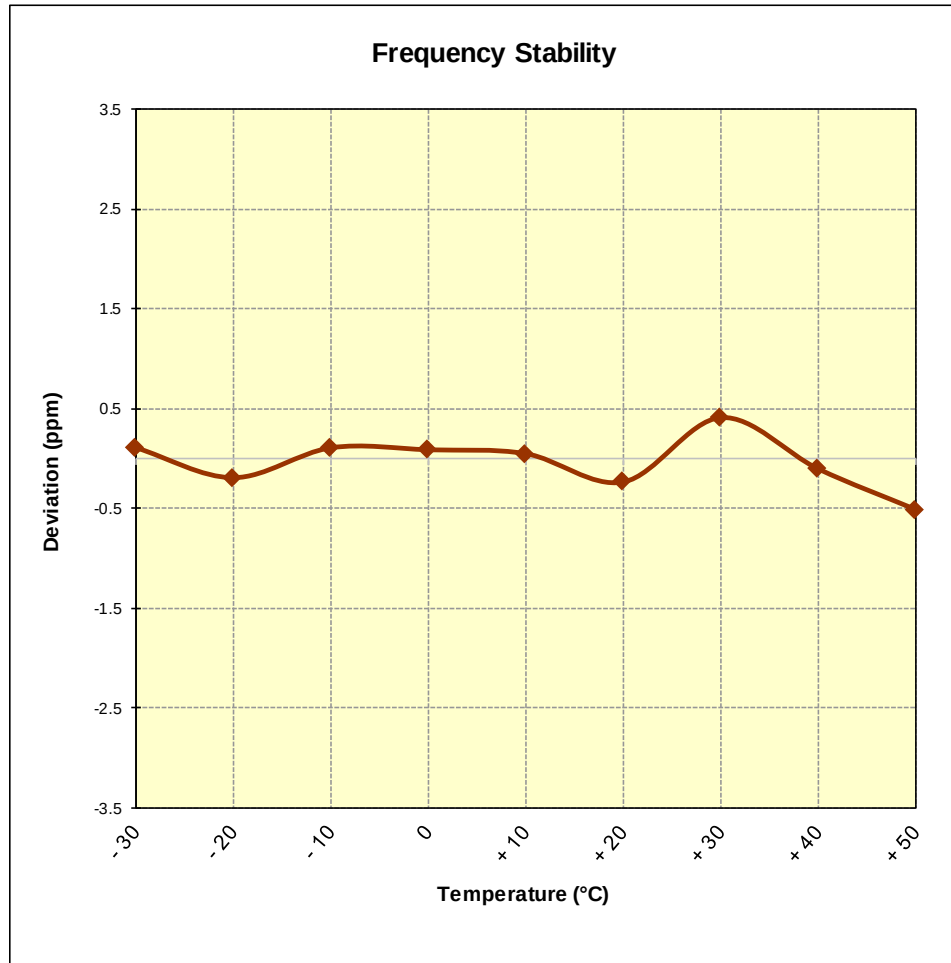


Figure 7-10. Frequency Stability Graph (Band 13)

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Band 5 Frequency Stability Measurements

OPERATING FREQUENCY: 836,500,000 Hz
 CHANNEL: 20525
 REFERENCE VOLTAGE: 4.20 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.20	- 30	836,499,890	-110	-0.0000132
100 %		- 20	836,499,957	-43	-0.0000051
100 %		- 10	836,500,239	239	0.0000286
100 %		0	836,499,980	-20	-0.0000024
100 %		+ 10	836,499,691	-309	-0.0000369
100 %		+ 20	836,500,299	299	0.0000357
100 %		+ 30	836,500,172	172	0.0000206
100 %		+ 40	836,499,983	-17	-0.0000020
100 %		+ 50	836,500,007	7	0.0000008
BATT. ENDPOINT	3.59	+ 20	836,500,156	156	0.0000186

Table 7-28. Frequency Stability Data (Band 5)

FCC ID: ZNFL722DL	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 5 Frequency Stability Measurements

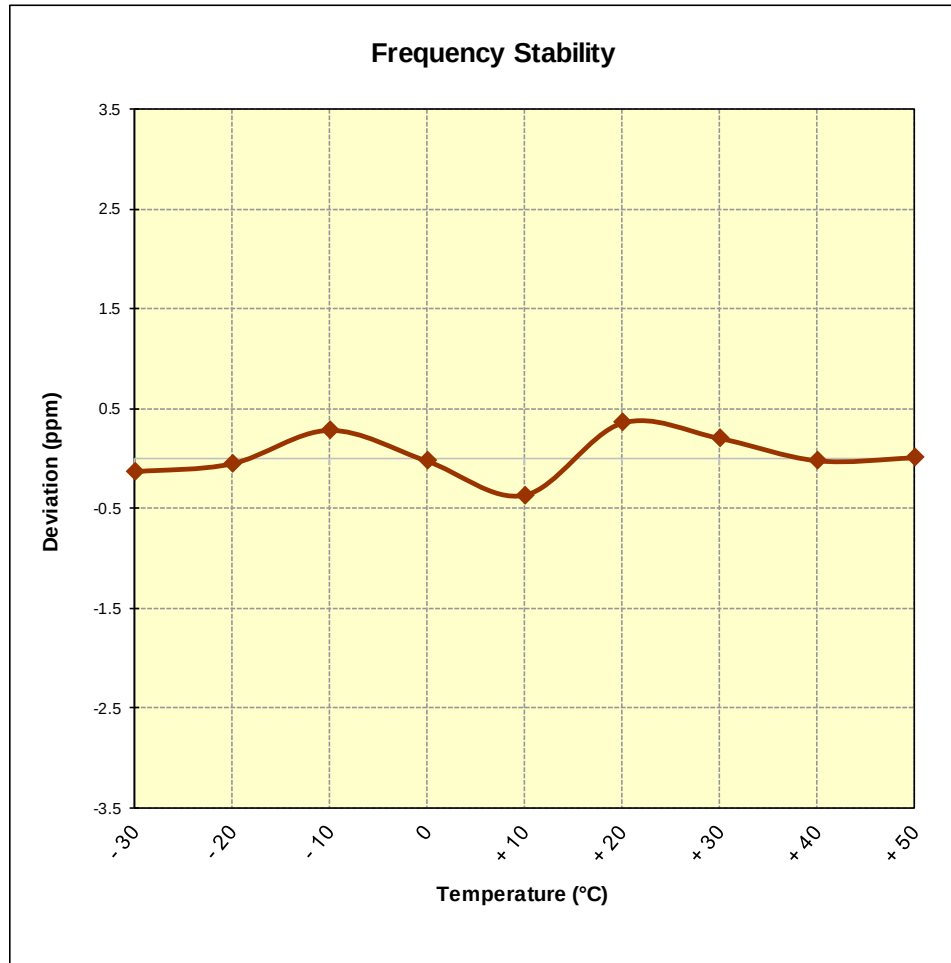


Figure 7-11. Frequency Stability Graph (Band 5)

FCC ID: ZNFL722DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 66/4 Frequency Stability Measurements

OPERATING FREQUENCY: 1,745,000,000 Hz
 CHANNEL: 132322
 REFERENCE VOLTAGE: 4.20 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.20	- 30	1,745,000,229	229	0.0000131
100 %		- 20	1,745,000,165	165	0.0000095
100 %		- 10	1,745,000,007	7	0.0000004
100 %		0	1,744,999,712	-288	-0.0000165
100 %		+ 10	1,744,999,702	-298	-0.0000171
100 %		+ 20	1,745,000,224	224	0.0000128
100 %		+ 30	1,745,000,238	238	0.0000136
100 %		+ 40	1,745,000,072	72	0.0000041
100 %		+ 50	1,745,000,014	14	0.0000008
BATT. ENDPOINT	3.59	+ 20	1,744,999,553	-447	-0.0000256

Table 7-29. Frequency Stability Data (Band 66/4)

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.

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Band 66/4 Frequency Stability Measurements

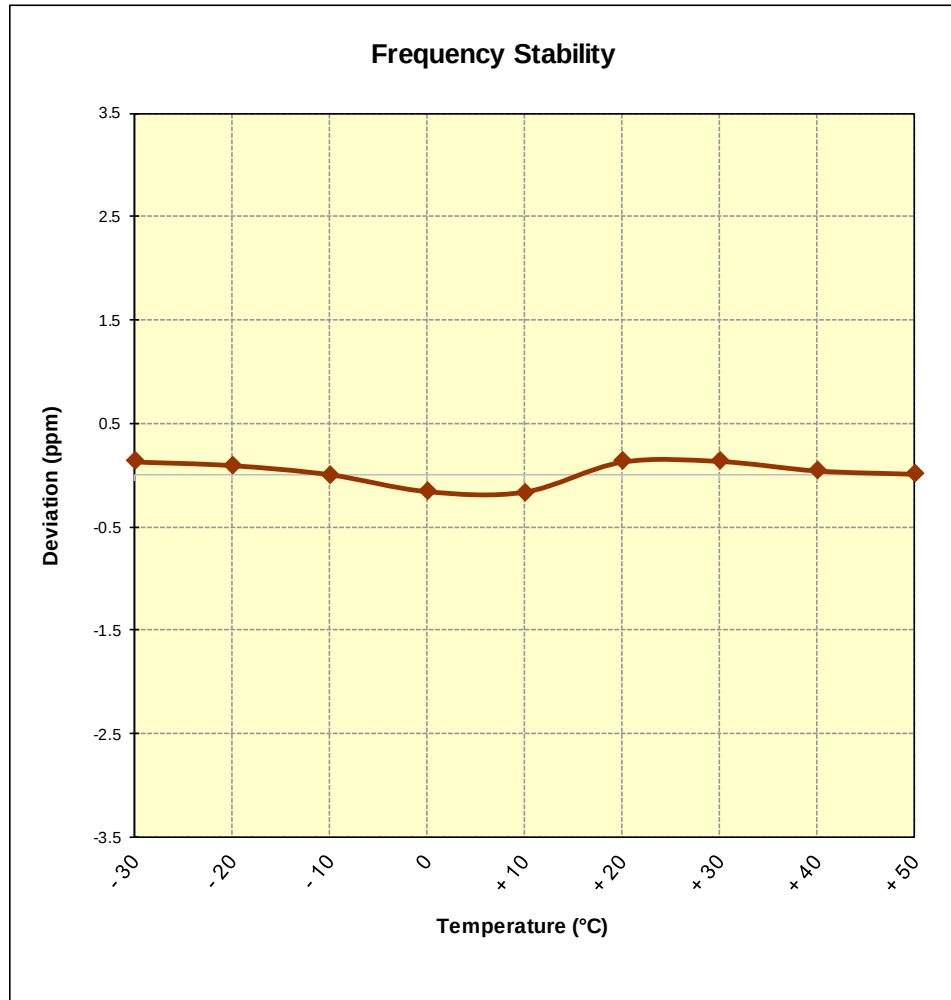


Figure 7-12. Frequency Stability Graph (Band 66/4)

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Band 2 Frequency Stability Measurements

OPERATING FREQUENCY: 1,880,000,000 Hz
 CHANNEL: 18900
 REFERENCE VOLTAGE: 4.20 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.20	- 30	1,879,999,588	-412	-0.0000219
100 %		- 20	1,879,999,941	-59	-0.0000031
100 %		- 10	1,880,000,423	423	0.0000225
100 %		0	1,880,000,247	247	0.0000131
100 %		+ 10	1,879,999,920	-80	-0.0000043
100 %		+ 20	1,879,999,809	-191	-0.0000102
100 %		+ 30	1,880,000,174	174	0.0000093
100 %		+ 40	1,880,000,122	122	0.0000065
100 %		+ 50	1,879,999,813	-187	-0.0000099
BATT. ENDPOINT	3.59	+ 20	1,879,999,988	-12	-0.0000006

Table 7-30. Frequency Stability Data (Band 2)

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: ZNFL722DL	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 2 Frequency Stability Measurements

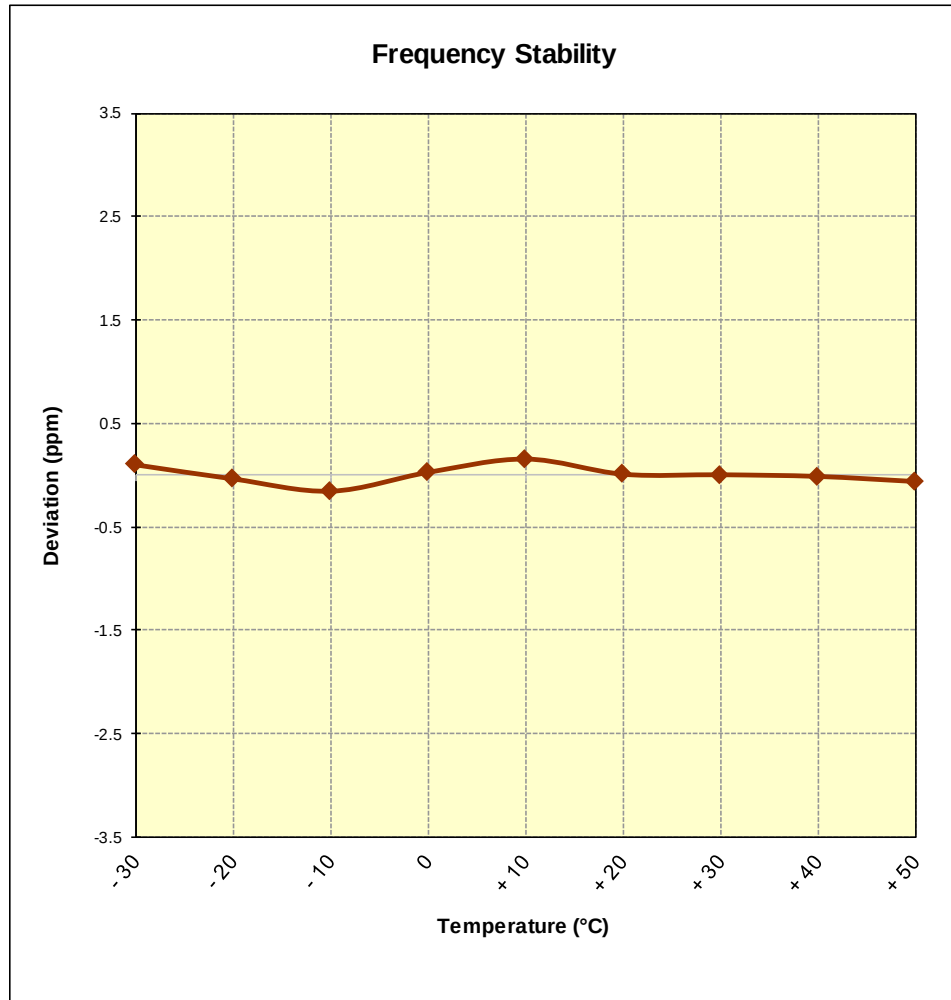


Figure 7-13. Frequency Stability Graph (Band 2)

FCC ID: ZNFL722DL		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFL722DL** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.

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