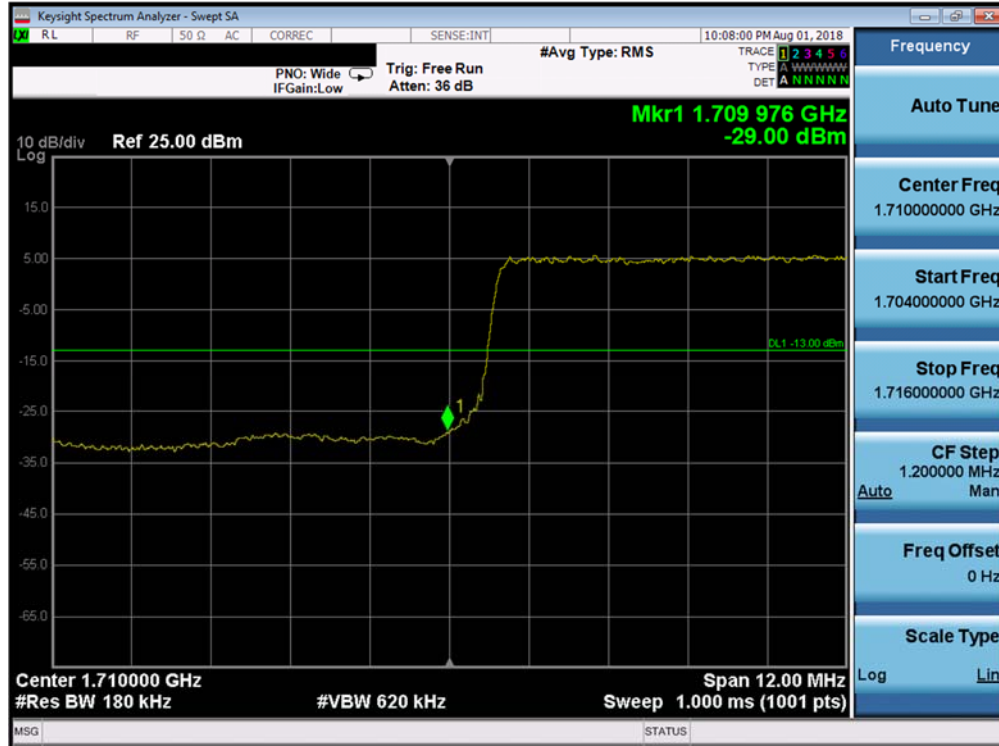
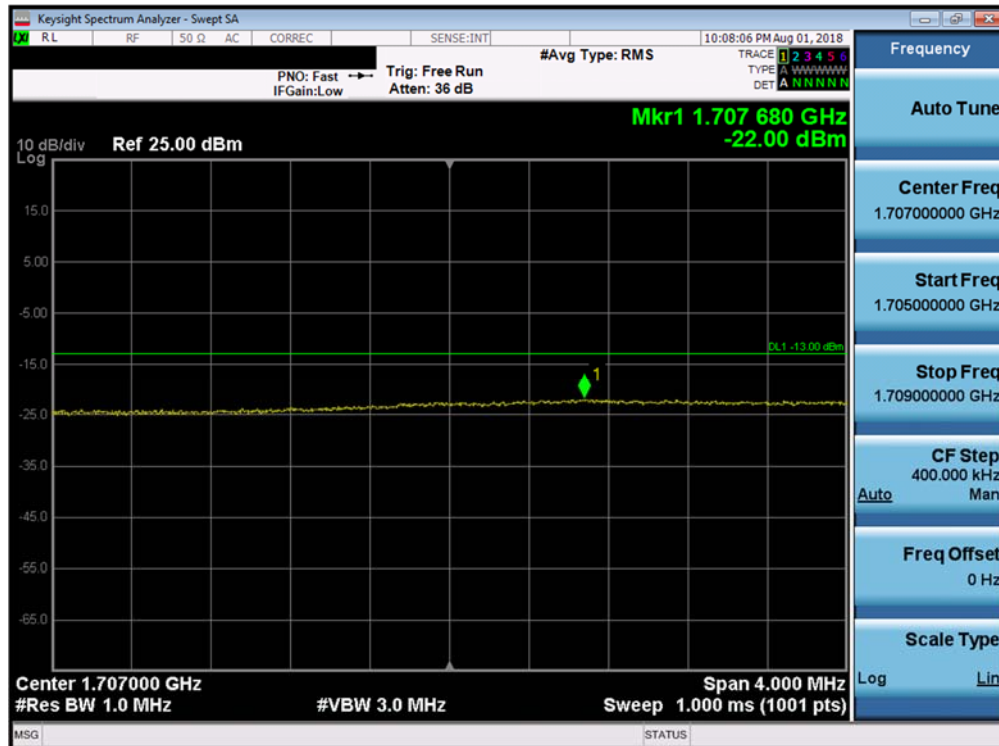


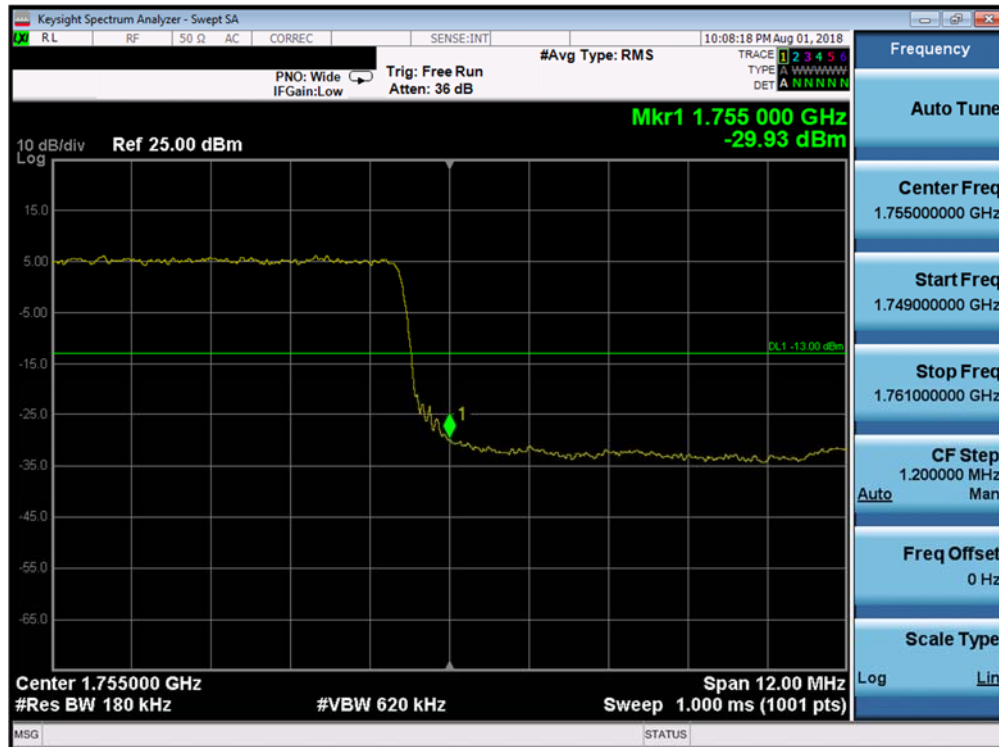


Plot 7-92. Lower Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

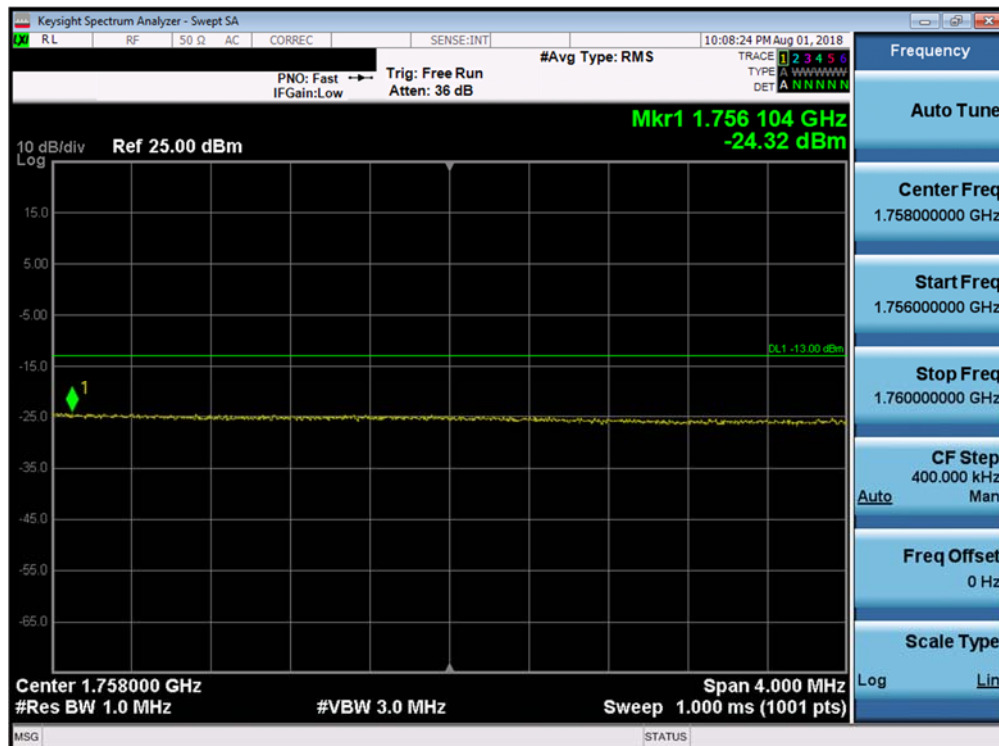


Plot 7-93. Lower Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFH871S	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1808100154-03.ZNF	Test Dates: 7/31 - 8/21/2018	EUT Type: Portable Handset		Page 65 of 89

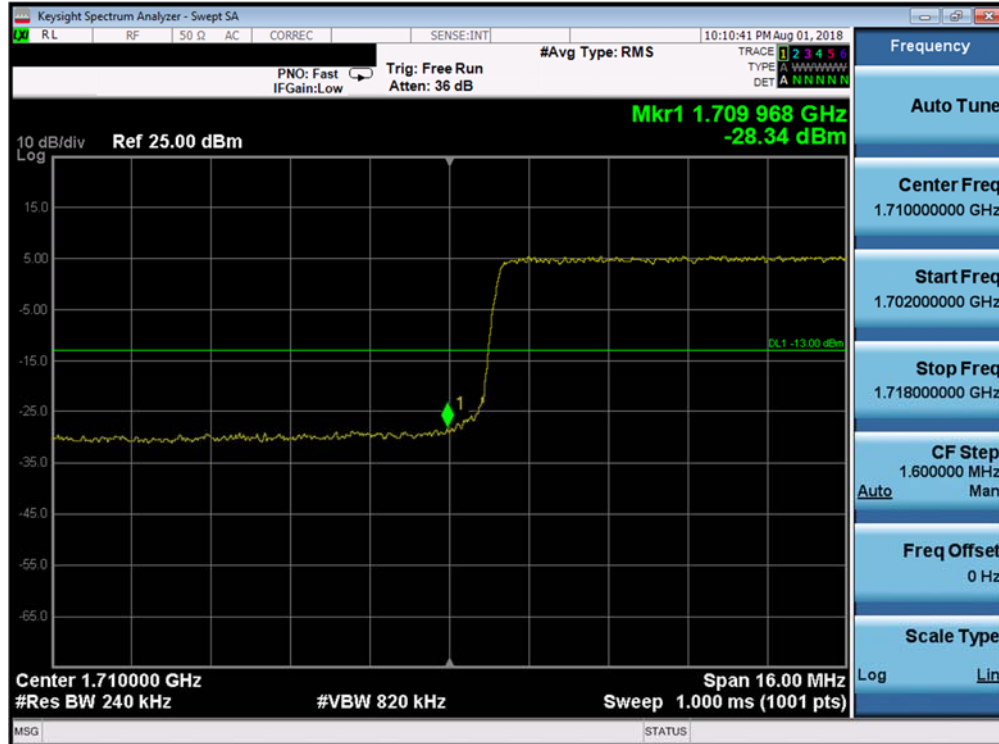


Plot 7-94. Upper Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

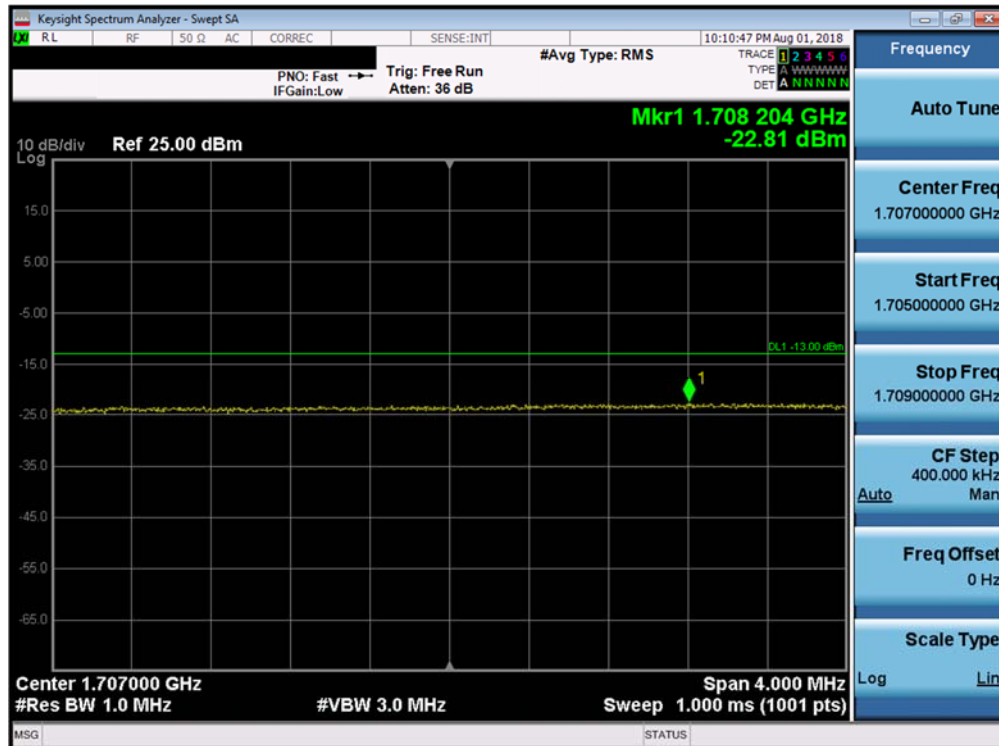


Plot 7-95. Upper Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFH871S	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1808100154-03.ZNF	Test Dates: 7/31 - 8/21/2018	EUT Type: Portable Handset		Page 66 of 89

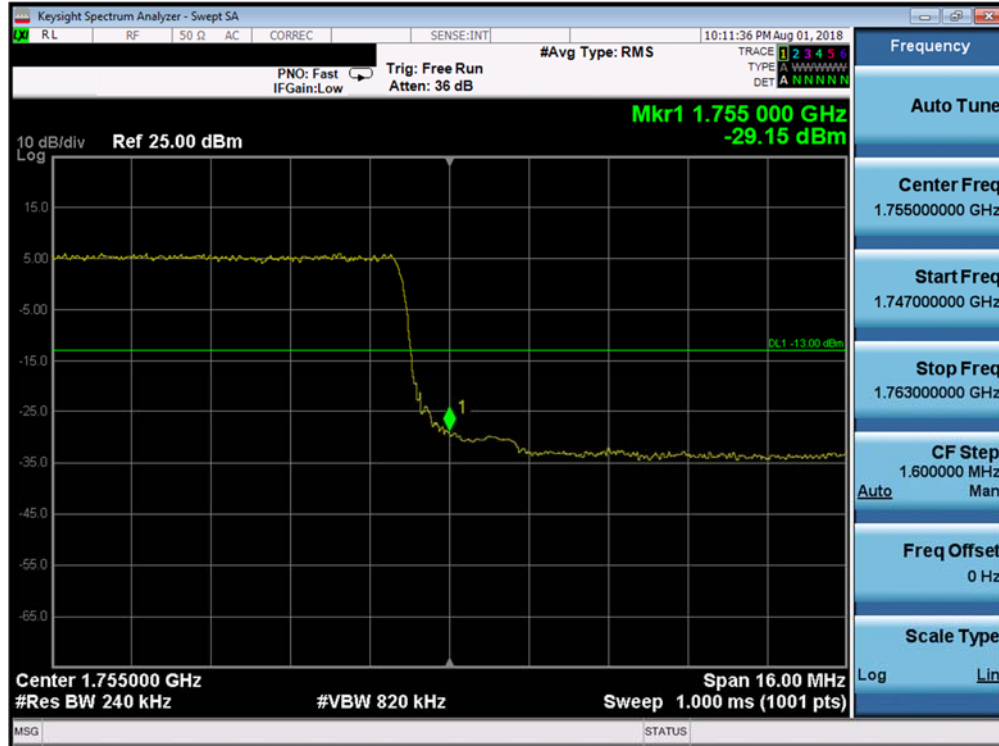


Plot 7-96. Lower Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

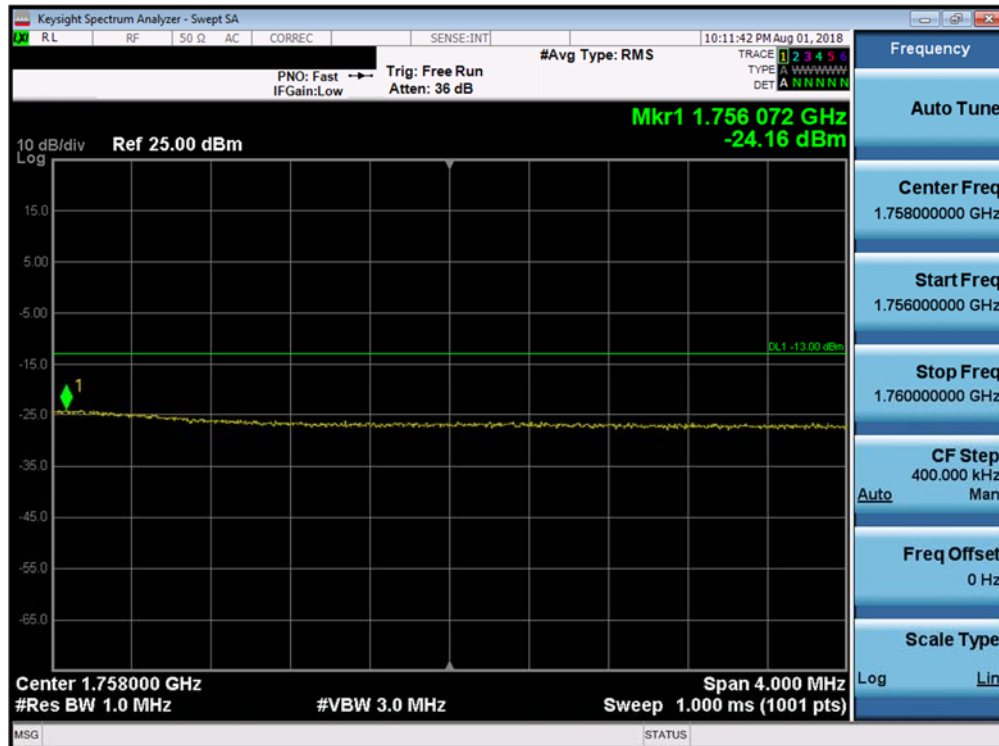


Plot 7-97. Lower Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFH871S	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1808100154-03.ZNF	Test Dates: 7/31 - 8/21/2018	EUT Type: Portable Handset		Page 67 of 89



Plot 7-98. Upper Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-99. Upper Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFH871S	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1808100154-03.ZNF	Test Dates: 7/31 - 8/21/2018	EUT Type: Portable Handset		Page 68 of 89

7.5 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

FCC ID: ZNFH871S	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1808100154-03.ZNF	Test Dates: 7/31 - 8/21/2018	EUT Type: Portable Handset	Page 69 of 89

Test Setup

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

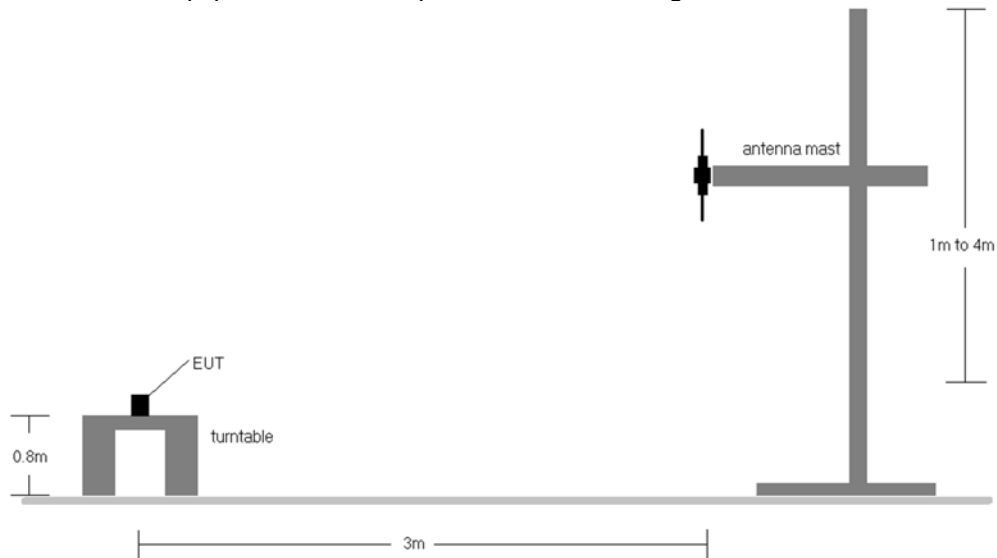


Figure 7-4. Radiated Test Setup <1GHz

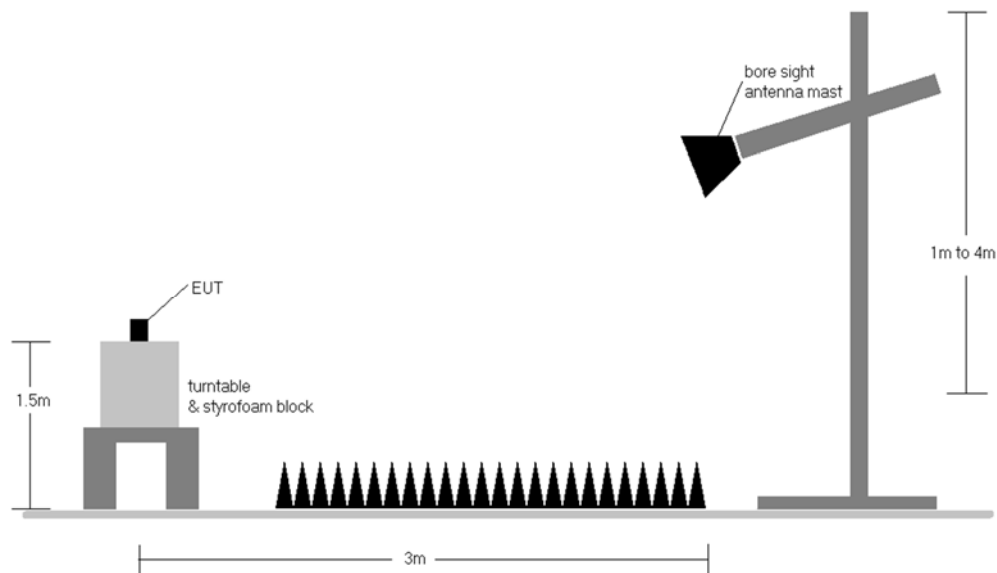


Figure 7-5. Radiated Test Setup >1GHz

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.

FCC ID: ZNFH871S	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1808100154-03.ZNF	Test Dates: 7/31 - 8/21/2018	EUT Type: Portable Handset		Page 70 of 89

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	150	185	1 / 5	18.54	1.10	17.49	0.056	34.77	-17.28
707.50	1.4	QPSK	H	150	179	1 / 0	18.71	1.13	17.69	0.059	34.77	-17.08
715.30	1.4	QPSK	H	150	175	1 / 0	19.76	1.16	18.77	0.075	34.77	-16.00
715.30	1.4	16-QAM	H	150	175	1 / 0	19.05	1.16	18.06	0.064	34.77	-16.71
700.50	3	QPSK	H	150	179	1 / 14	19.28	1.10	18.23	0.067	34.77	-16.54
707.50	3	QPSK	H	150	189	1 / 0	19.05	1.13	18.03	0.064	34.77	-16.74
714.50	3	QPSK	H	150	175	1 / 0	20.10	1.16	19.11	0.081	34.77	-15.66
714.50	3	16-QAM	H	150	175	1 / 0	19.37	1.16	18.38	0.069	34.77	-16.39
701.50	5	QPSK	H	150	190	1 / 24	19.62	1.11	18.58	0.072	34.77	-16.20
707.50	5	QPSK	H	150	187	1 / 0	19.41	1.13	18.39	0.069	34.77	-16.38
713.50	5	QPSK	H	150	186	1 / 24	19.88	1.15	18.88	0.077	34.77	-15.89
713.50	5	16-QAM	H	150	186	1 / 24	19.05	1.15	18.05	0.064	34.77	-16.72
704.00	10	QPSK	H	150	185	1 / 49	18.49	1.12	17.46	0.056	34.77	-17.31
707.50	10	QPSK	H	150	192	1 / 0	19.75	1.13	18.73	0.075	34.77	-16.04
711.00	10	QPSK	H	150	189	1 / 49	19.90	1.14	18.89	0.078	34.77	-15.88
711.00	10	16-QAM	H	150	189	1 / 49	19.28	1.14	18.27	0.067	34.77	-16.50
714.50	3	QPSK	V	150	278	1 / 0	14.53	1.16	13.54	0.023	34.77	-21.23

Table 7-3. ERP Data (Band 12)

FCC ID: ZNFH871S	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1808100154-03.ZNF	Test Dates: 7/31 - 8/21/2018	EUT Type: Portable Handset	Page 71 of 89

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	150	96	1 / 5	18.97	1.50	18.32	0.068	38.45	-20.13
836.50	1.4	QPSK	H	150	82	1 / 5	19.58	1.50	18.93	0.078	38.45	-19.52
848.30	1.4	QPSK	H	150	82	1 / 0	19.75	1.50	19.10	0.081	38.45	-19.35
848.30	1.4	16-QAM	H	150	82	1 / 0	18.90	1.50	18.25	0.067	38.45	-20.20
825.50	3	QPSK	H	150	92	1 / 0	18.82	1.50	18.17	0.066	38.45	-20.28
836.50	3	QPSK	H	150	92	1 / 0	19.50	1.50	18.85	0.077	38.45	-19.60
847.50	3	QPSK	H	150	85	1 / 0	19.47	1.50	18.82	0.076	38.45	-19.63
836.50	3	16-QAM	H	150	92	1 / 0	18.40	1.50	17.75	0.060	38.45	-20.70
826.50	5	QPSK	H	150	92	1 / 0	19.28	1.50	18.63	0.073	38.45	-19.82
836.50	5	QPSK	H	150	93	1 / 0	19.93	1.50	19.28	0.085	38.45	-19.17
846.50	5	QPSK	H	150	86	1 / 24	19.80	1.50	19.15	0.082	38.45	-19.30
836.50	5	16-QAM	H	150	93	1 / 0	19.05	1.50	18.40	0.069	38.45	-20.05
829.00	10	QPSK	H	150	89	1 / 49	18.41	1.50	17.76	0.060	38.45	-20.69
836.50	10	QPSK	H	150	88	1 / 49	18.22	1.50	17.57	0.057	38.45	-20.88
844.00	10	QPSK	H	150	81	1 / 49	18.35	1.50	17.70	0.059	38.45	-20.75
829.00	10	16-QAM	H	150	89	1 / 49	17.47	1.50	16.82	0.048	38.45	-21.63
836.50	5	QPSK	V	150	10	1 / 0	16.65	1.50	16.00	0.040	38.45	-22.45

Table 7-4. ERP Data (Band 26/5)

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]
831.50	15	QPSK	H	150	86	1 / 74	18.07	1.50	17.42	0.055	38.45	-21.03
836.50	15	QPSK	H	150	96	1 / 74	17.91	1.50	17.26	0.053	38.45	-21.19
841.50	15	QPSK	H	150	86	1 / 74	18.18	1.50	17.53	0.057	38.45	-20.92
841.50	15	16-QAM	H	150	86	1 / 74	17.33	1.50	16.68	0.047	38.45	-21.77

Table 7-5. ERP Data (Band 26)

FCC ID: ZNFH871S	 MEASUREMENT REPORT (CERTIFICATION) 				Approved by: Quality Manager
Test Report S/N: 1M1808100154-03.ZNF	Test Dates: 7/31 - 8/21/2018	EUT Type: Portable Handset			Page 72 of 89

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	150	291	1 / 0	17.95	5.56	23.51	0.224	30.00	-6.49
1732.50	1.4	QPSK	H	150	294	1 / 0	17.36	5.41	22.77	0.189	30.00	-7.23
1754.30	1.4	QPSK	H	150	297	1 / 0	17.00	5.26	22.26	0.168	30.00	-7.74
1710.70	1.4	16-QAM	H	150	291	1 / 0	17.07	5.56	22.63	0.183	30.00	-7.37
1711.50	3	QPSK	H	150	293	1 / 0	18.00	5.55	23.55	0.227	30.00	-6.45
1732.50	3	QPSK	H	150	296	1 / 0	17.38	5.41	22.79	0.190	30.00	-7.21
1753.50	3	QPSK	H	150	299	1 / 0	16.92	5.26	22.18	0.165	30.00	-7.82
1711.50	3	16-QAM	H	150	293	1 / 0	17.11	5.55	22.66	0.185	30.00	-7.34
1712.50	5	QPSK	H	150	292	1 / 0	18.05	5.55	23.60	0.229	30.00	-6.40
1732.50	5	QPSK	H	150	296	1 / 0	17.52	5.41	22.93	0.196	30.00	-7.07
1752.50	5	QPSK	H	150	295	1 / 0	17.01	5.27	22.28	0.169	30.00	-7.72
1712.50	5	16-QAM	H	150	292	1 / 0	17.38	5.55	22.93	0.196	30.00	-7.07
1715.00	10	QPSK	H	150	295	1 / 0	17.75	5.53	23.28	0.213	30.00	-6.72
1732.50	10	QPSK	H	150	295	1 / 0	17.46	5.41	22.87	0.194	30.00	-7.13
1750.00	10	QPSK	H	150	295	1 / 0	16.99	5.29	22.28	0.169	30.00	-7.72
1715.00	10	16-QAM	H	150	295	1 / 0	16.99	5.53	22.52	0.179	30.00	-7.48
1717.50	15	QPSK	H	150	295	1 / 0	17.59	5.51	23.10	0.204	30.00	-6.90
1732.50	15	QPSK	H	150	295	1 / 0	17.30	5.41	22.71	0.187	30.00	-7.29
1747.50	15	QPSK	H	150	296	1 / 0	17.15	5.31	22.46	0.176	30.00	-7.54
1717.50	15	16-QAM	H	150	295	1 / 0	16.72	5.51	22.23	0.167	30.00	-7.77
1720.00	20	QPSK	H	150	291	1 / 0	17.48	5.49	22.97	0.198	30.00	-7.03
1732.50	20	QPSK	H	150	294	1 / 0	17.34	5.41	22.75	0.188	30.00	-7.25
1745.00	20	QPSK	H	150	297	1 / 0	17.03	5.32	22.35	0.172	30.00	-7.65
1720.00	20	16-QAM	H	150	291	1 / 0	16.83	5.49	22.32	0.171	30.00	-7.68
1712.50	5	QPSK	V	150	302	1 / 0	15.53	5.55	21.08	0.128	30.00	-8.92

Table 7-6. EIRP Data (Band 4)

FCC ID: ZNFH871S	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1808100154-03.ZNF	Test Dates: 7/31 - 8/21/2018	EUT Type: Portable Handset	Page 73 of 89

7.6 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: ZNFH871S	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1808100154-03.ZNF	Test Dates: 7/31 - 8/21/2018	EUT Type: Portable Handset	Page 74 of 89

Test Setup

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

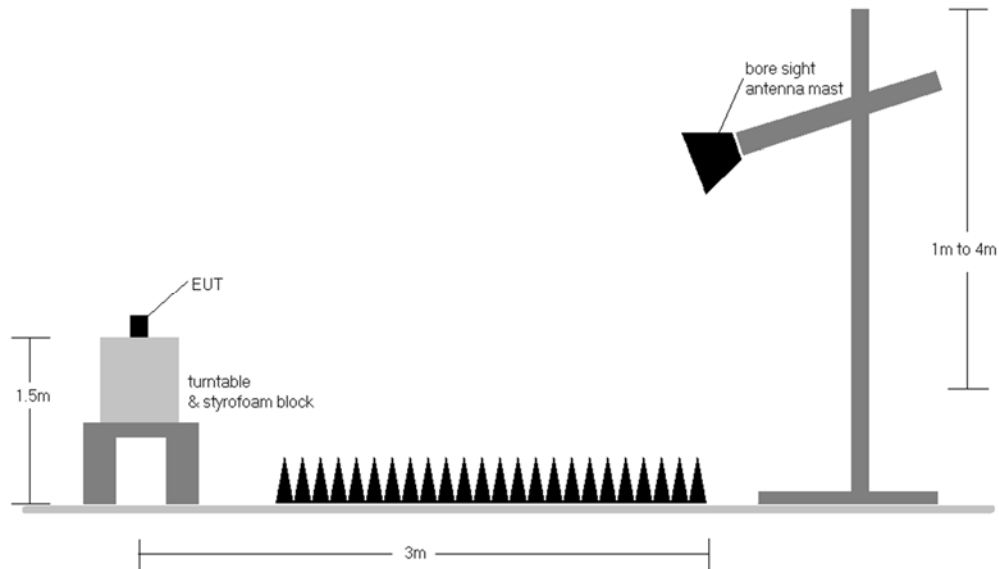


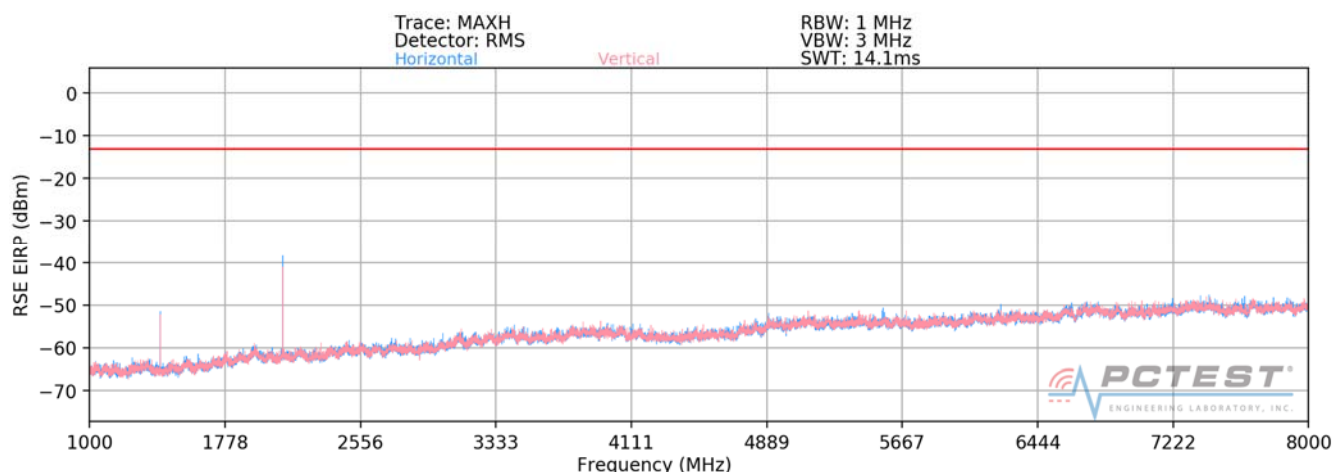
Figure 7-6. Test Instrument & Measurement Setup

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: ZNFH871S	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 12



Plot 7-100. Radiated Spurious Plot above 1GHz (Band 12)

OPERATING FREQUENCY: 700.50 MHz
CHANNEL: 23025
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	H	117	159	-66.32	7.92	-58.40	-45.4
2101.50	H	159	247	-55.71	8.91	-46.80	-33.8
2802.00	H	-	-	-78.59	10.06	-68.53	-55.5
3502.50	H	-	-	-74.65	9.67	-64.98	-52.0

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

FCC ID: ZNFH871S	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1808100154-03.ZNF	Test Dates: 7/31 - 8/21/2018	EUT Type: Portable Handset		Page 76 of 89

OPERATING FREQUENCY: 707.50 MHz
 CHANNEL: 23095
 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	H	102	153	-66.90	8.09	-58.81	-45.8
2122.50	H	149	299	-53.31	8.88	-44.43	-31.4
2830.00	H	-	-	-78.70	10.13	-68.57	-55.6
3537.50	H	-	-	-75.51	9.69	-65.81	-52.8

Table 7-8. Radiated Spurious Data (Band 12 – Mid Channel)

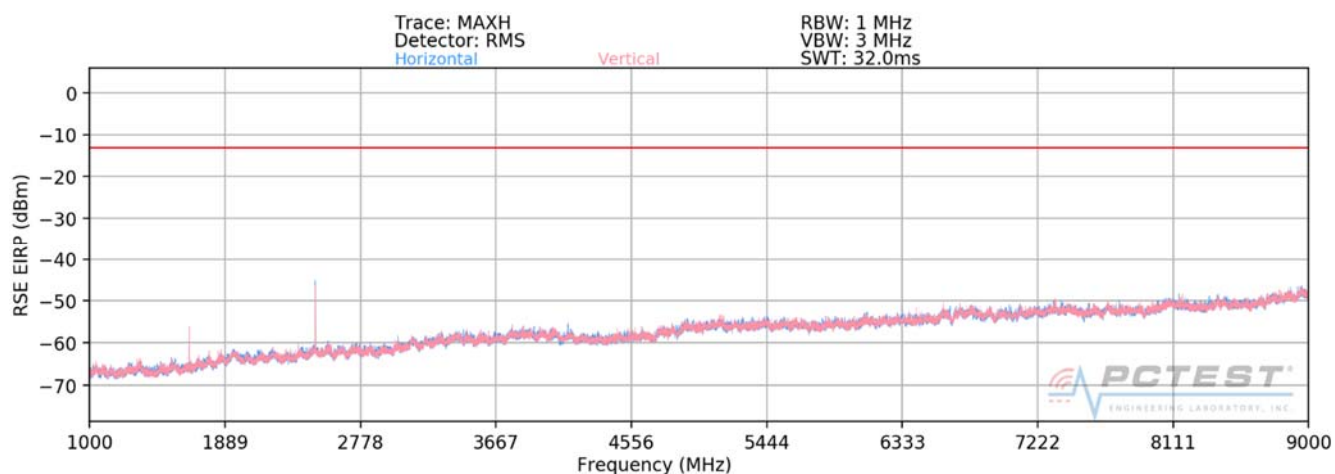
OPERATING FREQUENCY: 714.50 MHz
 CHANNEL: 23165
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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	H	154	159	-66.33	8.25	-58.07	-45.1
2143.50	H	127	297	-50.80	8.85	-41.94	-28.9
2858.00	H	-	-	-78.30	10.18	-68.11	-55.1
3572.50	H	116	51	-73.48	9.76	-63.72	-50.7
4287.00	H	-	-	-76.59	10.67	-65.92	-52.9

Table 7-9. Radiated Spurious Data (Band 12 – High Channel)

FCC ID: ZNFH871S	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1808100154-03.ZNF	Test Dates: 7/31 - 8/21/2018	EUT Type: Portable Handset	Page 77 of 89

Band 26/5



Plot 7-101. Radiated Spurious Plot above 1GHz (Band 26/5)

OPERATING FREQUENCY: 826.50 MHz
CHANNEL: 26815
MODULATION SIGNAL: QPSK
BANDWIDTH: 5.0 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]
1653.00	H	111	142	-71.32	8.99	-62.33	-49.3
2479.50	H	127	261	-61.14	9.12	-52.02	-39.0
3306.00	H	-	-	-74.19	9.37	-64.82	-51.8
4132.50	H	-	-	-74.83	9.89	-64.94	-51.9

Table 7-10. Radiated Spurious Data (Band 26/5 – Low Channel)

FCC ID: ZNFH871S	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1808100154-03.ZNF	Test Dates: 7/31 - 8/21/2018	EUT Type: Portable Handset	Page 78 of 89

OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 26915
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 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	106	139	-74.13	8.85	-65.28	-52.3
2509.50	H	116	292	-58.95	9.17	-49.78	-36.8
3346.00	H	-	-	-74.79	9.36	-65.43	-52.4
4182.50	H	-	-	-75.08	10.19	-64.89	-51.9

Table 7-11. Radiated Spurious Data (Band 26/5 – Mid Channel)

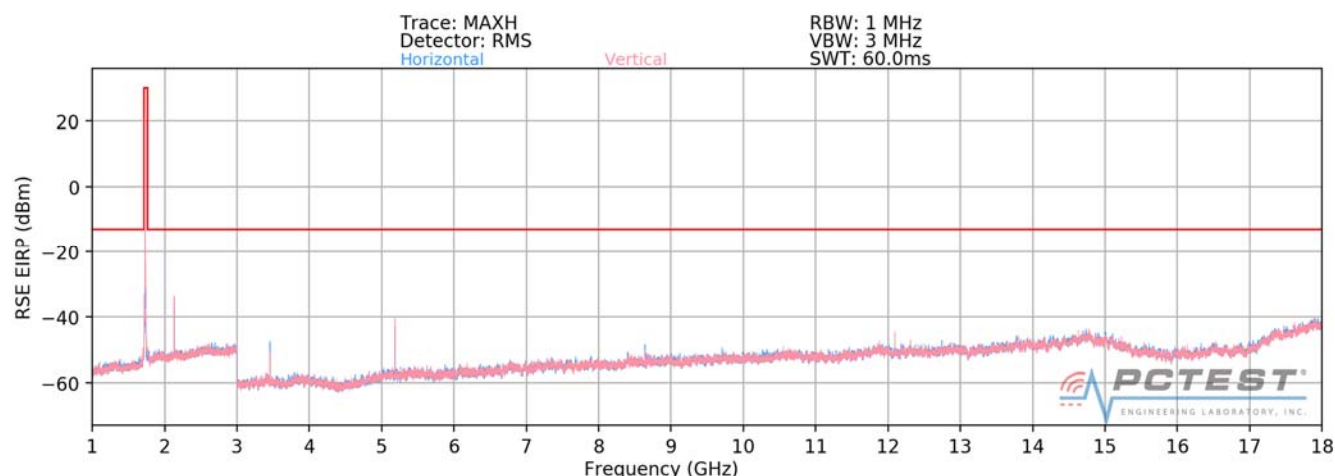
OPERATING FREQUENCY: 846.50 MHz
 CHANNEL: 27015
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
1693.00	H	111	147	-73.68	8.70	-64.97	-52.0
2539.50	H	111	310	-61.04	9.26	-51.78	-38.8
3386.00	H	-	-	-75.27	9.44	-65.82	-52.8
4232.50	H	-	-	-77.13	10.43	-66.70	-53.7

Table 7-12. Radiated Spurious Data (Band 26/5 – High Channel)

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Band 4



Plot 7-102. Radiated Spurious Plot above 1GHz (Band 4)

OPERATING FREQUENCY: 1712.50 MHz
CHANNEL: 19975
MODULATION SIGNAL: QPSK
BANDWIDTH: 5.0 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]
3425.00	V	122	97	-60.50	9.52	-50.99	-38.0
5137.50	V	182	174	-56.32	10.81	-45.52	-32.5
6850.00	V	130	44	-70.10	10.84	-59.26	-46.3
8562.50	V	205	329	-65.00	11.66	-53.34	-40.3
10275.00	V	-	-	-70.10	12.46	-57.64	-44.6
11987.50	V	136	1	-57.98	12.24	-45.74	-32.7
13700.00	V	-	-	-67.44	12.54	-54.90	-41.9

Table 7-13. Radiated Spurious Data (Band 4 – Low Channel)

FCC ID: ZNFH871S	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 1732.50 MHz
CHANNEL: 20175
MODULATION SIGNAL: QPSK
BANDWIDTH: 5.0 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]
3465.00	V	141	84	-63.89	9.59	-54.30	-41.3
5197.50	V	150	6	-57.02	10.83	-46.19	-33.2
6930.00	V	-	-	-72.78	10.90	-61.87	-48.9
8662.50	V	202	333	-66.46	11.76	-54.70	-41.7
10395.00	V	-	-	-70.20	12.57	-57.63	-44.6
12127.50	V	144	26	-58.85	12.31	-46.54	-33.5
13860.00	V	-	-	-67.14	12.32	-54.82	-41.8

Table 7-14. Radiated Spurious Data (Band 4 – Mid Channel)

OPERATING FREQUENCY: 1752.50 MHz
CHANNEL: 20375
MODULATION SIGNAL: QPSK
BANDWIDTH: 5.0 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]
3505.00	V	117	124	-70.31	9.67	-60.64	-47.6
5257.50	V	209	357	-57.20	10.97	-46.24	-33.2
7010.00	V	-	-	-72.41	11.00	-61.42	-48.4
8762.50	V	196	332	-63.17	11.89	-51.28	-38.3
10515.00	V	168	48	-68.57	12.58	-55.99	-43.0
12267.50	V	163	22	-56.09	12.49	-43.60	-30.6
14020.00	V	-	-	-65.69	11.91	-53.79	-40.8

Table 7-15. Radiated Spurious Data (Band 4 – High Channel)

FCC ID: ZNFH871S	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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7.7 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 12 Frequency Stability Measurements

OPERATING FREQUENCY: 707,500,000 Hz
 CHANNEL: 23790
 REFERENCE VOLTAGE: 4.36 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.36	+ 20 (Ref)	707,500,316	316	0.0000447
100 %		- 30	707,500,039	39	0.0000055
100 %		- 20	707,499,905	-95	-0.0000134
100 %		- 10	707,499,555	-445	-0.0000629
100 %		0	707,499,827	-173	-0.0000245
100 %		+ 10	707,500,401	401	0.0000567
100 %		+ 20	707,499,919	-81	-0.0000114
100 %		+ 30	707,499,944	-56	-0.0000079
100 %		+ 40	707,500,189	189	0.0000267
100 %		+ 50	707,500,453	453	0.0000640
BATT. ENDPOINT	3.40	+ 20	707,499,611	-389	-0.0000550

Table 7-16. 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

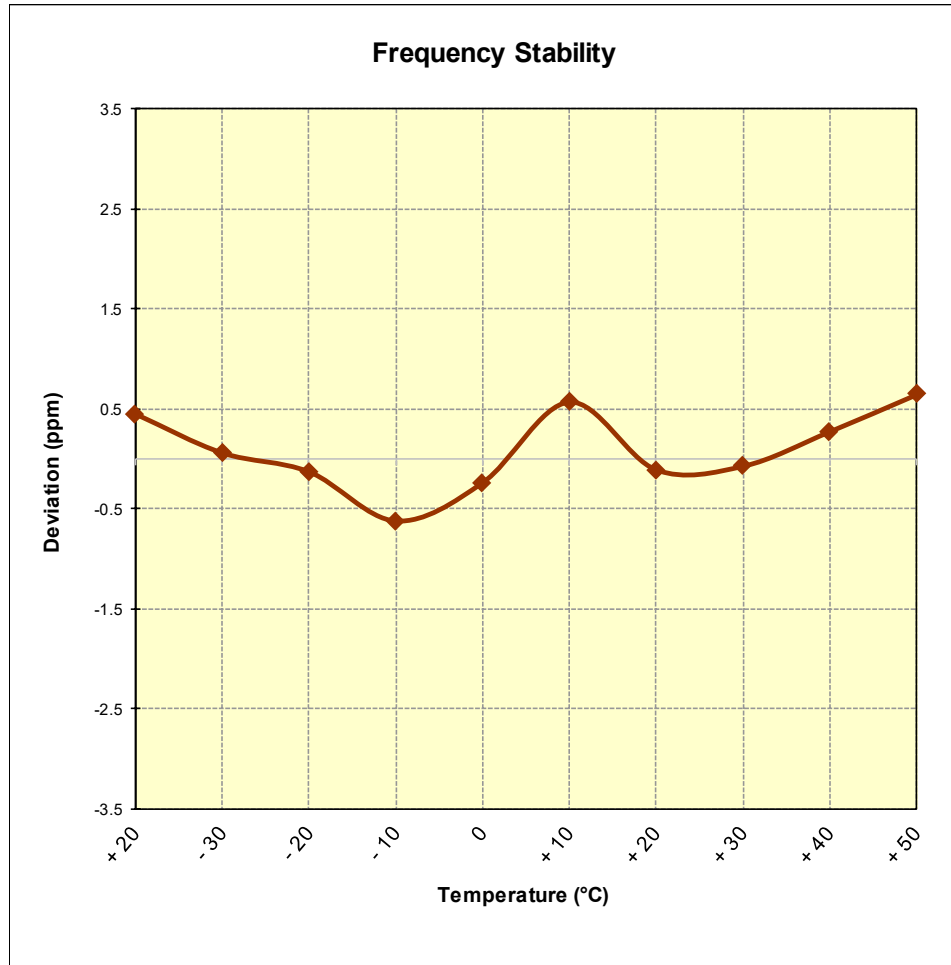


Figure 7-7. Frequency Stability Graph (Band 12)

FCC ID: ZNFH871S	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 26/5 Frequency Stability Measurements

OPERATING FREQUENCY: 831,500,000 Hz
 CHANNEL: 26865
 REFERENCE VOLTAGE: 4.36 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.36	+ 20 (Ref)	831,499,862	-138	-0.0000166
100 %		- 30	831,499,843	-157	-0.0000189
100 %		- 20	831,499,846	-154	-0.0000185
100 %		- 10	831,500,055	55	0.0000066
100 %		0	831,500,066	66	0.0000079
100 %		+ 10	831,500,042	42	0.0000051
100 %		+ 20	831,499,910	-90	-0.0000108
100 %		+ 30	831,500,136	136	0.0000164
100 %		+ 40	831,500,029	29	0.0000035
100 %		+ 50	831,499,646	-354	-0.0000426
BATT. ENDPOINT	3.40	+ 20	831,500,042	42	0.0000051

Table 7-17. Frequency Stability Data (Band 26/5)

FCC ID: ZNFH871S	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 26/5 Frequency Stability Measurements

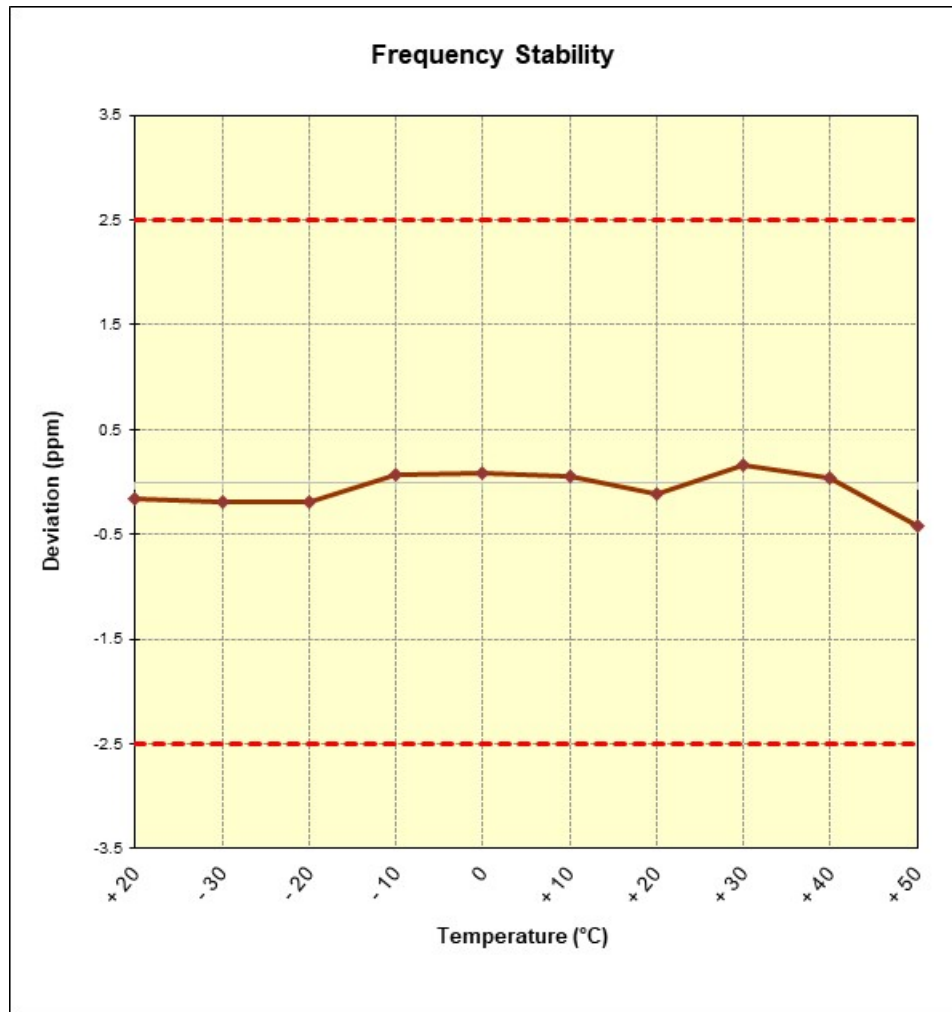


Figure 7-8. Frequency Stability Graph (Band 26/5)

FCC ID: ZNFH871S		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 4 Frequency Stability Measurements

OPERATING FREQUENCY: 1,732,500,000 Hz
 CHANNEL: 20175
 REFERENCE VOLTAGE: 4.36 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.36	+ 20 (Ref)	1,732,499,894	-106	-0.0000061
100 %		- 30	1,732,499,787	-213	-0.0000123
100 %		- 20	1,732,499,957	-43	-0.0000025
100 %		- 10	1,732,500,130	130	0.0000075
100 %		0	1,732,500,377	377	0.0000218
100 %		+ 10	1,732,500,290	290	0.0000167
100 %		+ 20	1,732,500,230	230	0.0000133
100 %		+ 30	1,732,499,998	-2	-0.0000001
100 %		+ 40	1,732,499,849	-151	-0.0000087
100 %		+ 50	1,732,499,945	-55	-0.0000032
BATT. ENDPOINT	3.40	+ 20	1,732,500,054	54	0.0000031

Table 7-18. Frequency Stability Data (Band 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 4 Frequency Stability Measurements

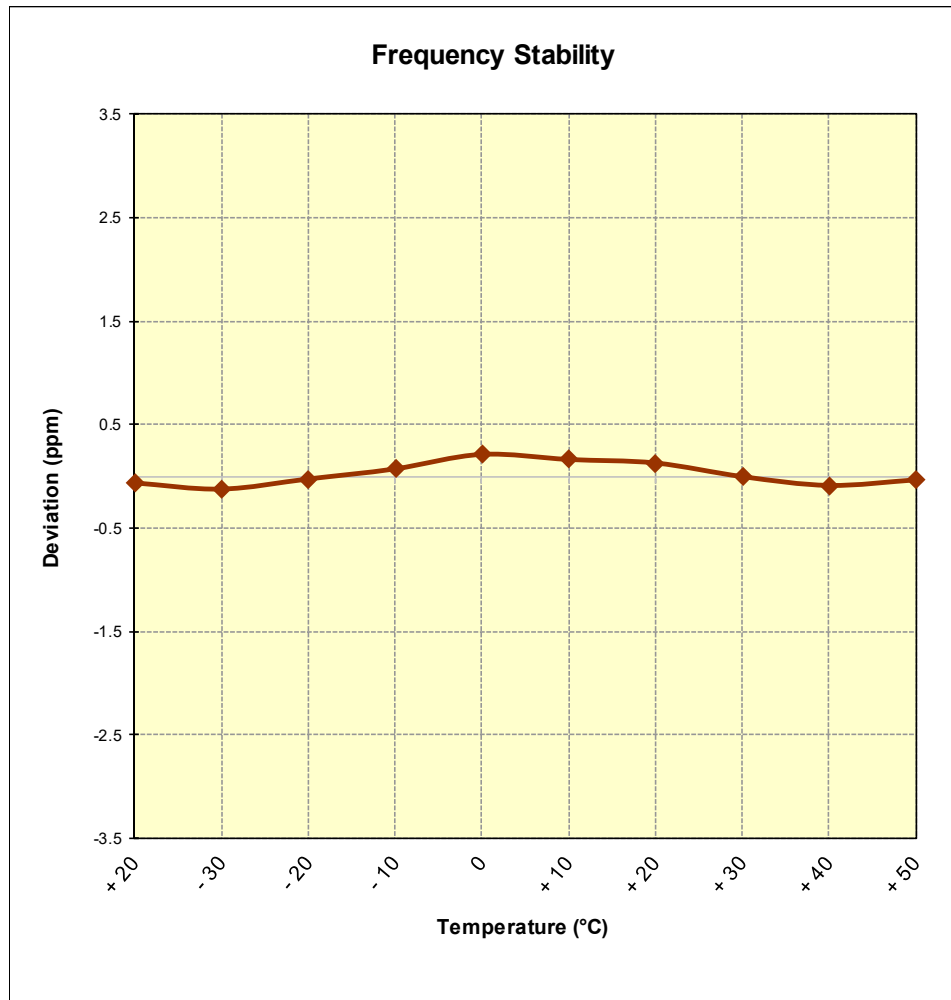


Figure 7-9. Frequency Stability Graph (Band 4)

FCC ID: ZNFH871S	 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: ZNFH871S** complies with all the requirements of Part 22 & 27 of the FCC Rules for LTE operation only.

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