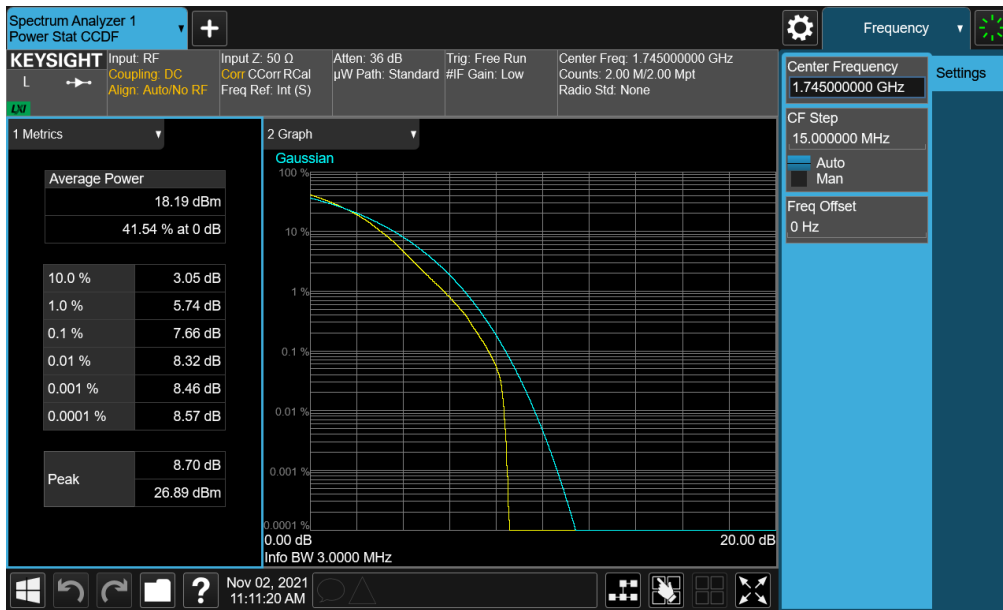


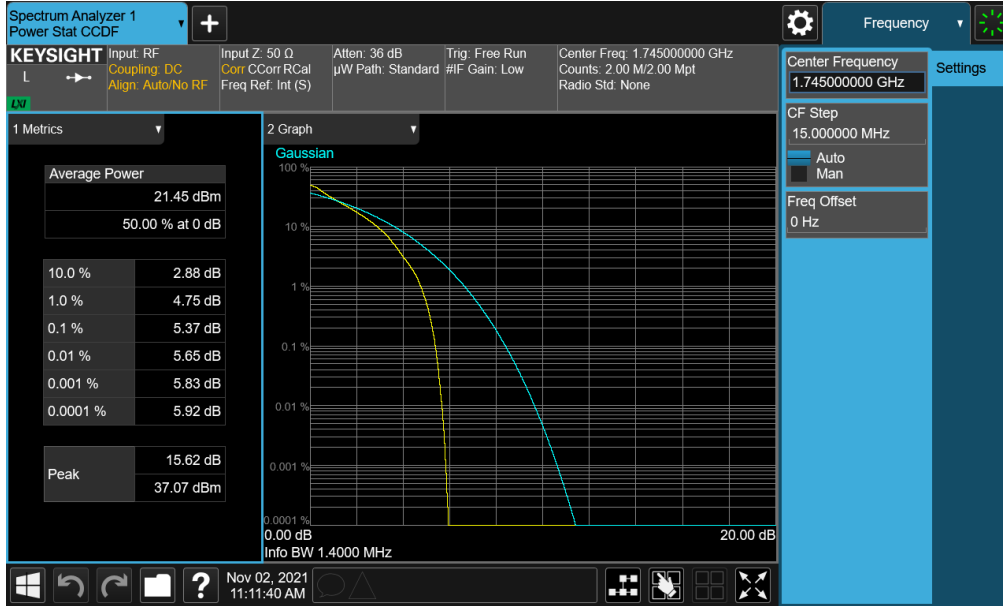


Plot 7-123. PAR Plot (LTE Band 66/4 - 3MHz QPSK - Full RB)



Plot 7-124. PAR Plot (LTE Band 66/4 - 3MHz 256-QAM - Full RB)

FCC ID: A3LSMS906E	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2110010116-29.A3L	Test Dates: 11/15/2021 - 12/03/2021	EUT Type: Portable Handset
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Plot 7-125. PAR Plot (LTE Band 66/4 - 1.4MHz QPSK - Full RB)



Plot 7-126. PAR Plot (LTE Band 66/4 - 1.4MHz 256-QAM - Full RB)

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7.6 Radiated Power (ERP/EIRP)

Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at maximum power, and at the appropriate frequencies.



Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.2.1

ANSI/TIA-603-E-2016 – Section 2.2.17

Test Settings

1. Radiated power measurements are performed using the signal analyzer’s “channel power” measurement capability for signals with continuous operation.
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW \geq 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points \geq 2 x span / RBW
6. Detector = RMS
7. Trigger is set to “free run” for signals with continuous operation with the sweep times set to “auto”.
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: A3LSMS906E	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Test Setup

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

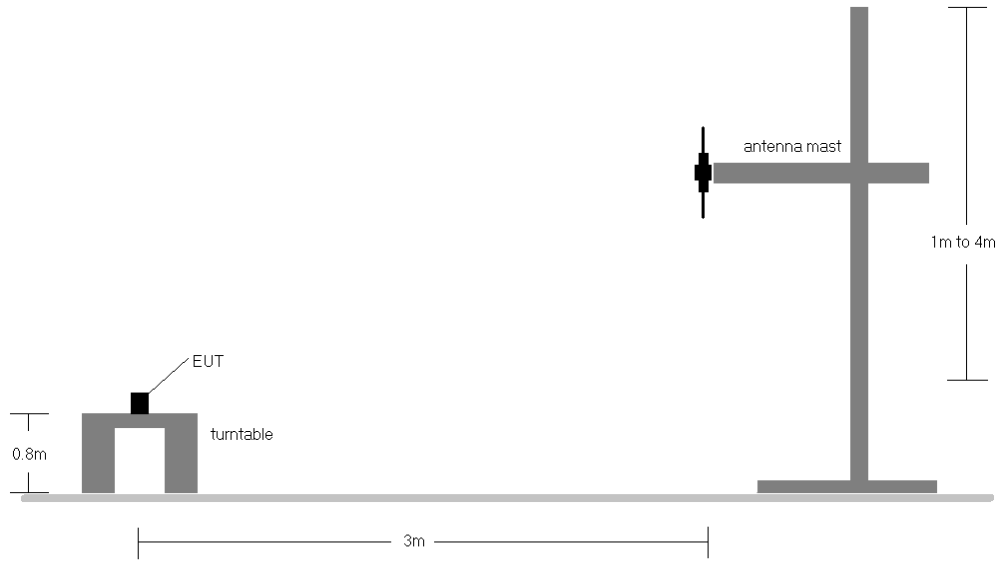


Figure 7-5. Radiated Test Setup <1GHz

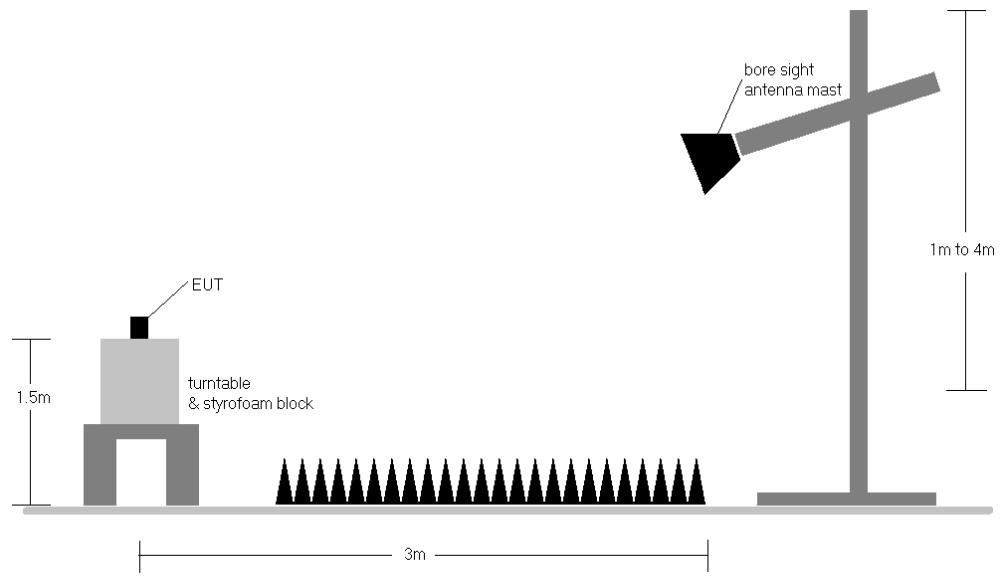




Figure 7-6. Radiated Test Setup >1GHz

FCC ID: A3LSMS906E	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2110010116-29.A3L	Test Dates: 11/15/2021 - 12/03/2021	EUT Type: Portable Handset		Page 84 of 102

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 device employs UMTS technology with WCDMA (AMR/RMC) and HSDPA capabilities. The EUT was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1".
- 3) This unit was tested with its standard battery.

FCC ID: A3LSMS906E		PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
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Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
10 MHz	QPSK	704.0	H	101	275	1.34	1 / 49	17.49	18.83	0.076	36.99	-18.16	16.68	0.047	34.77	-18.09
	QPSK	707.5	H	100	264	1.33	1 / 49	17.74	19.07	0.081	36.99	-17.92	16.92	0.049	34.77	-17.85
	QPSK	711.0	H	101	283	1.33	1 / 25	17.59	18.92	0.078	36.99	-18.07	16.77	0.047	34.77	-18.01
	16-QAM	711.0	H	101	283	1.33	1 / 25	16.89	18.22	0.066	36.99	-18.77	16.07	0.040	34.77	-18.71
5 MHz	QPSK	701.5	H	101	275	1.35	1 / 24	17.09	18.44	0.070	36.99	-18.55	16.29	0.043	34.77	-18.48
	QPSK	707.5	H	100	264	1.33	1 / 24	17.53	18.86	0.077	36.99	-18.13	16.71	0.047	34.77	-18.06
	QPSK	713.5	H	101	283	1.32	1 / 12	17.75	19.07	0.081	36.99	-17.92	16.92	0.049	34.77	-17.85
	16-QAM	713.5	H	101	283	1.32	1 / 12	17.00	18.32	0.068	36.99	-18.67	16.17	0.041	34.77	-18.60
3 MHz	QPSK	700.5	H	101	275	1.35	1 / 7	17.05	18.40	0.069	36.99	-18.59	16.25	0.042	34.77	-18.52
	QPSK	707.5	H	100	264	1.33	1 / 14	17.69	19.02	0.080	36.99	-17.97	16.87	0.049	34.77	-17.90
	QPSK	714.5	H	101	283	1.32	1 / 7	17.72	19.04	0.080	36.99	-17.95	16.89	0.049	34.77	-17.88
	16-QAM	714.5	H	101	283	1.32	1 / 7	17.07	18.39	0.069	36.99	-18.60	16.24	0.042	34.77	-18.53
1.4 MHz	QPSK	699.7	H	101	275	1.35	1 / 5	16.92	18.27	0.067	36.99	-18.72	16.12	0.041	34.77	-18.65
	QPSK	707.5	H	100	264	1.33	1 / 3	17.49	18.82	0.076	36.99	-18.17	16.67	0.046	34.77	-18.10
	QPSK	715.3	H	101	283	1.32	1 / 0	17.76	19.08	0.081	36.99	-17.91	16.93	0.049	34.77	-17.85
	16-QAM	715.3	H	101	283	1.32	1 / 0	17.04	18.36	0.068	36.99	-18.63	16.21	0.042	34.77	-18.57
1.4 MHz	Opposite Pol.	715.3	V	149	340	1.32	1 / 3	17.69	19.01	0.080	36.99	-17.98	16.86	0.049	34.77	-17.91
	WCP	715.3	H	156	260	1.32	1 / 5	16.92	18.24	0.067	36.99	-18.75	16.09	0.041	34.77	-18.68



Table 7-2. ERP Data (LTE Band 12/17)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
10 MHz	QPSK	782.0	V	154	228	1.17	1 / 0	20.50	21.67	0.147	36.99	-15.32	19.52	0.090	34.77	-15.25
	16-QAM	782.0	V	154	228	1.17	1 / 0	19.77	20.94	0.124	36.99	-16.05	18.79	0.076	34.77	-15.98
5 MHz	QPSK	779.5	V	163	238	1.17	1 / 0	20.49	21.66	0.147	36.99	-15.33	19.51	0.089	34.77	-15.26
	QPSK	782.0	V	154	228	1.17	1 / 0	20.09	21.26	0.134	36.99	-15.73	19.11	0.081	34.77	-15.66
	QPSK	784.5	V	154	258	1.16	1 / 0	19.56	20.72	0.118	36.99	-16.27	18.57	0.072	34.77	-16.20
	16-QAM	779.5	V	154	228	1.17	1 / 0	19.73	20.90	0.123	36.99	-16.09	18.75	0.075	34.77	-16.02
10 MHz	Opposite Pol.	782.0	H	246	279	1.17	1 / 24	16.97	18.14	0.065	36.99	-18.85	15.99	0.040	34.77	-18.78
	WCP	782.0	V	136	254	1.17	1 / 0	15.02	16.19	0.042	36.99	-20.80	14.04	0.025	34.77	-20.73

Table 7-3. ERP Data (LTE Band 13)



Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1712.40	WCDMA 1700	V	101	328	16.89	8.43	25.32	0.340	30.00	-4.68
1732.60	WCDMA 1700	V	107	322	15.37	8.24	23.61	0.230	30.00	-6.39
1752.60	WCDMA 1700	V	100	325	14.68	8.09	22.77	0.189	30.00	-7.23
1712.40	WCDMA 1700	H	171	180	14.33	8.43	22.76	0.189	30.00	-7.24
1712.40	WCDMA 1700 (WCP)	V	106	309	14.13	8.43	22.56	0.180	30.00	-7.44

Table 7-4. EIRP Data (WCDMA AWS)

FCC ID: A3LSMS906E	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
20 MHz	QPSK	1720.0	V	133	314	8.36	1 / 0	15.20	23.56	0.227	30.00	-6.44
	QPSK	1745.0	V	104	319	8.13	1 / 50	14.79	22.92	0.196	30.00	-7.08
	QPSK	1770.0	V	100	318	8.11	1 / 0	14.29	22.40	0.174	30.00	-7.60
	16-QAM	1720.0	V	133	314	8.36	1 / 0	14.36	22.72	0.187	30.00	-7.28
15 MHz	QPSK	1717.5	V	133	314	8.38	1 / 37	15.29	23.67	0.233	30.00	-6.33
	QPSK	1745.0	V	104	319	8.13	1 / 37	15.12	23.25	0.212	30.00	-6.75
	QPSK	1772.5	V	100	318	8.11	1 / 0	14.38	22.49	0.177	30.00	-7.51
	16-QAM	1717.5	V	133	314	8.38	1 / 37	14.52	22.90	0.195	30.00	-7.10
10 MHz	QPSK	1715.0	V	133	314	8.40	1 / 25	15.56	23.96	0.249	30.00	-6.04
	QPSK	1745.0	V	104	319	8.13	1 / 25	15.25	23.38	0.218	30.00	-6.62
	QPSK	1775.0	V	100	318	8.11	1 / 25	14.34	22.45	0.176	30.00	-7.55
	16-QAM	1715.0	V	133	314	8.40	1 / 25	14.65	23.05	0.202	30.00	-6.95
5 MHz	QPSK	1712.5	V	133	314	8.42	1 / 12	15.79	24.21	0.264	30.00	-5.79
	QPSK	1745.0	V	104	319	8.13	1 / 12	15.36	23.49	0.224	30.00	-6.51
	QPSK	1777.5	V	100	318	8.11	1 / 12	14.08	22.19	0.166	30.00	-7.81
	16-QAM	1712.5	V	133	314	8.42	1 / 12	15.23	23.65	0.232	30.00	-6.35
3 MHz	QPSK	1711.5	V	133	314	8.43	1 / 7	16.02	24.45	0.279	30.00	-5.55
	QPSK	1745.0	V	104	319	8.13	1 / 7	15.43	23.56	0.227	30.00	-6.44
	QPSK	1778.5	V	100	318	8.12	1 / 7	14.11	22.23	0.167	30.00	-7.77
	16-QAM	1711.5	V	133	314	8.43	1 / 7	15.13	23.56	0.227	30.00	-6.44
1.4 MHz	QPSK	1710.7	V	133	314	8.44	1 / 0	14.33	22.77	0.189	30.00	-7.23
	QPSK	1745.0	V	104	319	8.13	1 / 3	15.61	23.74	0.237	30.00	-6.26
	QPSK	1779.3	V	100	318	8.12	1 / 3	14.12	22.24	0.167	30.00	-7.76
	16-QAM	1745.0	V	104	319	8.13	1 / 3	14.71	22.84	0.192	30.00	-7.16
3 MHz	Opposite Pol.	1711.5	H	139	179	8.43	1 / 3	13.70	22.13	0.163	30.00	-7.87
	WCP	1711.5	V	107	321	8.43	1 / 0	11.04	19.47	0.089	30.00	-10.53

Table 7-5. EIRP Data (LTE Band 66/4)

FCC ID: A3LSMS906E	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2110010116-29.A3L	Test Dates: 11/15/2021 - 12/03/2021	EUT Type: Portable Handset
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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 horizontally and vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS measurements while the EUT is operating at maximum power, and at the appropriate frequencies.



Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.8

ANSI/TIA-603-E-2016 – Section 2.2.12

Test Settings

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

FCC ID: A3LSMS906E		PART 27 MEASUREMENT REPORT	 Approved by: Technical Manager
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Test Setup

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

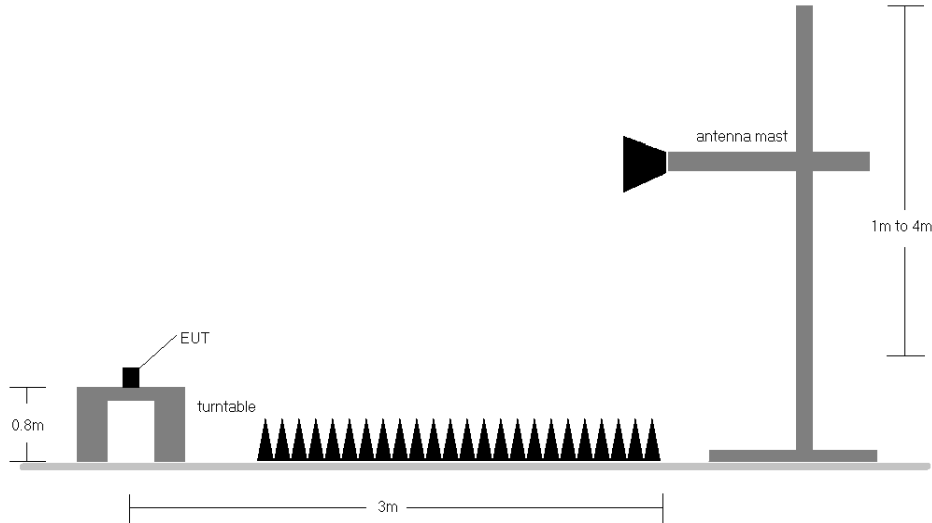


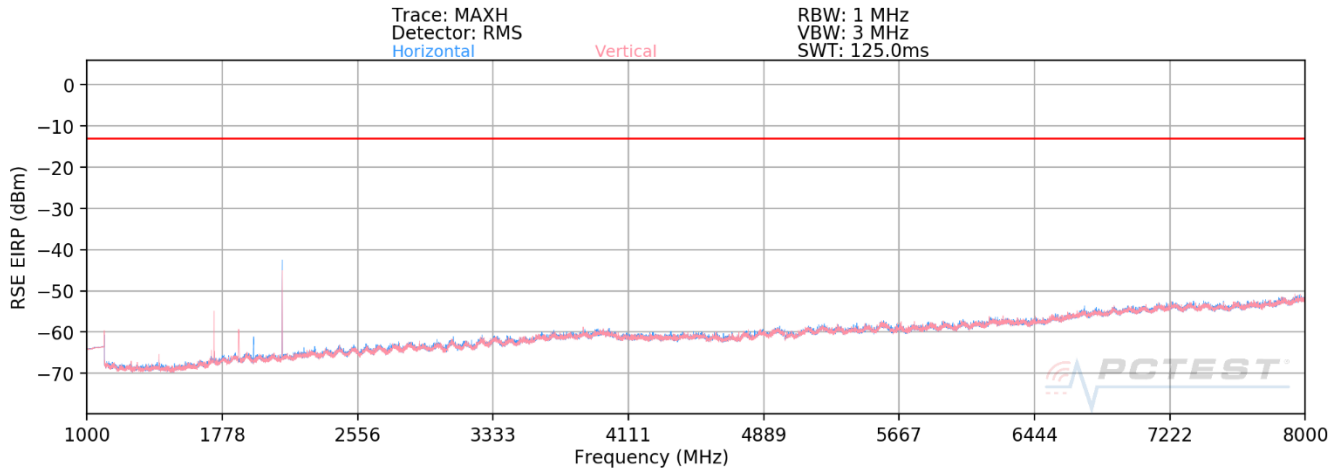
Figure 7-7. Test Instrument & Measurement Setup

Test Notes

- 1) Field strengths are calculated using the Measurement quantity conversions in KDB 971168 Section 5.8.4.
 - a) $E(\text{dB}\mu\text{V}/\text{m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$
 - b) $\text{EIRP (dBm)} = E(\text{dB}\mu\text{V}/\text{m}) + 20\log D - 104.8$; where D is the measurement distance in meters.
- 2) 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.
- 3) This device employs UMTS technology with WCDMA (AMR/RMC) and HSDPA capabilities. The EUT was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1".
- 4) This unit was tested with its standard battery.
- 5) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 6) 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.
- 7) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

FCC ID: A3LSMS906E	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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LTE Band 12



Plot 7-127. Radiated Spurious Plot (LTE Band 12)

Bandwidth (MHz):	1.4
Frequency (MHz):	699.7
RB / Offset:	1 / 0



Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1399.40	V	-	-	-75.03	-8.58	23.39	-71.87	-13.00	-58.87
2099.10	V	107	277	-49.21	-5.79	52.00	-43.25	-13.00	-30.25
2798.80	V	-	-	-76.17	-3.23	27.60	-67.66	-13.00	-54.66
3498.50	V	-	-	-76.37	-1.00	29.63	-65.63	-13.00	-52.63
4198.20	V	-	-	-76.89	0.41	30.52	-64.74	-13.00	-51.74
4897.90	V	-	-	-77.54	1.44	30.90	-64.36	-13.00	-51.36

Table 7-6. Radiated Spurious Data (LTE Band 12 – Low Channel)

Bandwidth (MHz):	1.4
Frequency (MHz):	707.5
RB / Offset:	1 / 0

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1415.00	V	-	-	-74.98	-8.55	23.47	-71.79	-13.00	-58.79
2122.50	V	118	296	-50.18	-5.65	51.17	-44.09	-13.00	-31.09
2830.00	V	-	-	-76.41	-3.32	27.27	-67.98	-13.00	-54.98
3537.50	V	-	-	-77.04	-0.81	29.15	-66.11	-13.00	-53.11
4245.00	V	-	-	-76.91	0.41	30.50	-64.76	-13.00	-51.76
4952.50	V	-	-	-77.75	1.70	30.95	-64.31	-13.00	-51.31



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

FCC ID: A3LSMS906E	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2110010116-29.A3L	Test Dates: 11/15/2021 - 12/03/2021	EUT Type: Portable Handset
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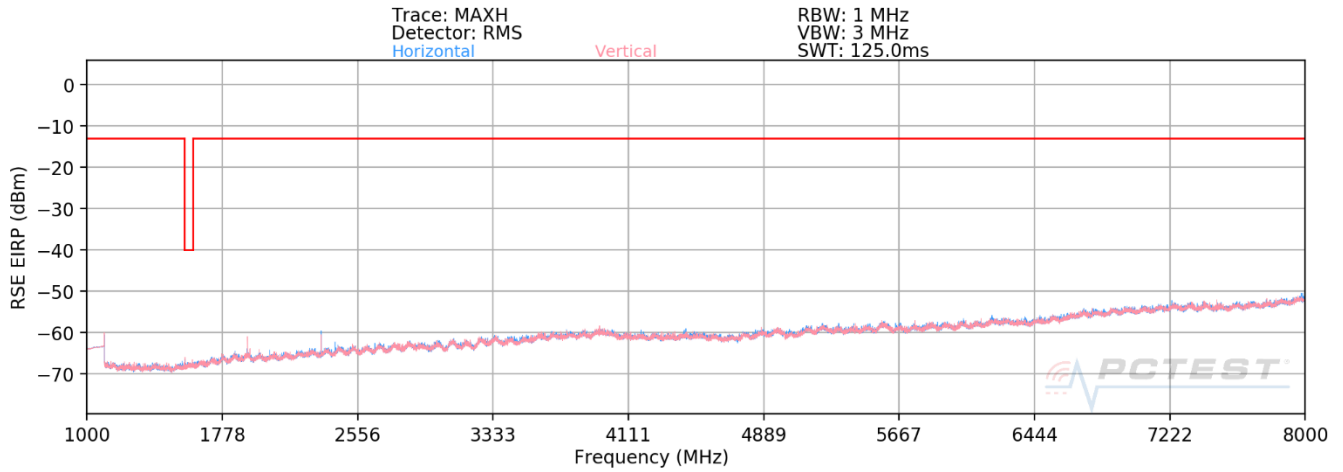
Bandwidth (MHz):	1.4
Frequency (MHz):	715.3
RB / Offset:	1 / 0

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1430.60	V	-	-	-76.69	-8.53	21.78	-73.48	-13.00	-60.48
2145.90	V	109	269	-48.85	-5.77	52.38	-42.87	-13.00	-29.87
2861.20	V	-	-	-75.90	-3.15	27.95	-67.31	-13.00	-54.31
3576.50	V	-	-	-76.52	-0.63	29.85	-65.41	-13.00	-52.41
4291.80	V	-	-	-77.18	0.21	30.03	-65.22	-13.00	-52.22
5007.10	V	-	-	-77.28	1.14	30.86	-64.40	-13.00	-51.40

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

FCC ID: A3LSMS906E	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2110010116-29.A3L	Test Dates: 11/15/2021 - 12/03/2021	EUT Type: Portable Handset
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LTE Band 13



Plot 7-128. Radiated Spurious Plot (LTE Band 13)

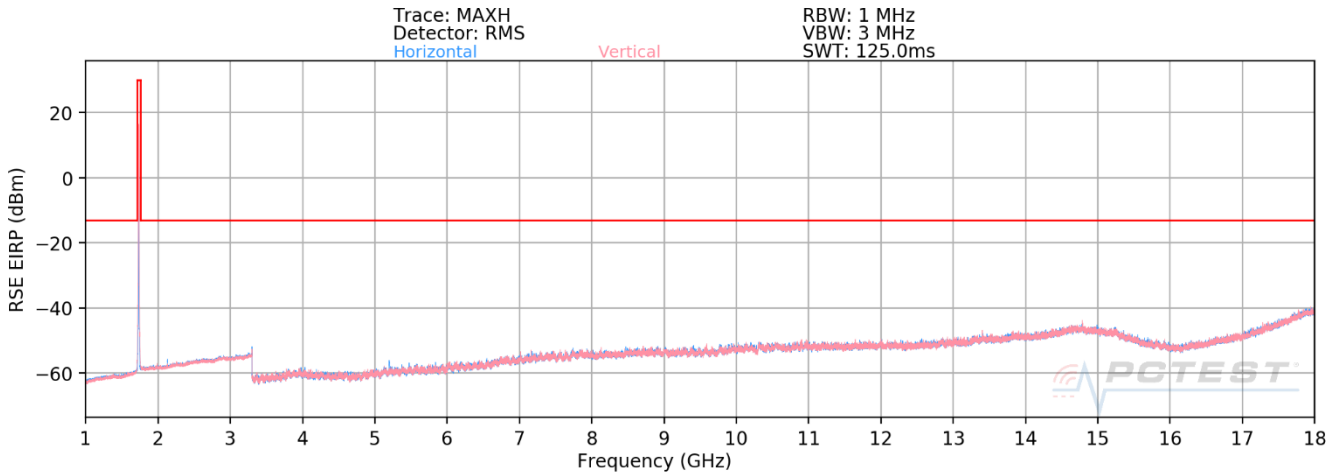
Bandwidth (MHz):	10
Frequency (MHz):	782
RB / Offset:	1 / 49

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1564.00	H	112	197	-72.54	-8.09	26.37	-68.89	-40.00	-28.89
2346.00	H	119	168	-61.30	-4.64	41.06	-54.19	-13.00	-41.19
3128.00	H	-	-	-77.42	-1.60	27.98	-67.28	-13.00	-54.28
3910.00	H	-	-	-76.68	1.01	31.33	-63.93	-13.00	-50.93
4692.00	H	-	-	-76.92	0.61	30.69	-64.56	-13.00	-51.56
5474.00	H	-	-	-77.84	3.57	32.73	-62.52	-13.00	-49.52

Table 7-9. Radiated Spurious Data (LTE Band 13 – Mid Channel)

FCC ID: A3LSMS906E	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N: 1M2110010116-29.A3L	Test Dates: 11/15/2021 - 12/03/2021	EUT Type: Portable Handset
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WCDMA AWS



Plot 7-129. Radiated Spurious Plot (WCDMA AWS)

Mode:	WCDMA RMC
Channel:	1312
Frequency (MHz):	1712.4

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3424.80	V	101	123	-67.25	-0.33	39.42	-55.84	-13.00	-42.84
5137.20	V	-	-	-69.01	3.05	41.04	-54.22	-13.00	-41.22
6849.60	V	-	-	-71.05	7.17	43.12	-52.13	-13.00	-39.13
8562.00	V	-	-	-72.57	10.46	44.89	-50.37	-13.00	-37.37
10274.40	V	-	-	-73.98	12.14	45.16	-50.09	-13.00	-37.09
11986.80	V	-	-	-72.39	15.39	50.00	-45.26	-13.00	-32.26

7-10. Radiated Spurious Data (WCDMA AWS – Low Channel)

Mode:	WCDMA RMC
Channel:	1413
Frequency (MHz):	1732.6

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3465.20	V	101	137	-69.19	-0.13	37.68	-57.58	-13.00	-44.58
5197.80	V	-	-	-68.62	2.58	40.96	-54.30	-13.00	-41.30
6930.40	V	-	-	-70.50	7.02	43.52	-51.74	-13.00	-38.74
8663.00	V	-	-	-72.25	10.58	45.33	-49.92	-13.00	-36.92
10395.60	V	-	-	-72.85	12.41	46.56	-48.70	-13.00	-35.70
12128.20	V	-	-	-74.41	14.84	47.43	-47.82	-13.00	-34.82



Table 7-11. Radiated Spurious Data (WCDMA AWS – Mid Channel)

FCC ID: A3LSMS906E	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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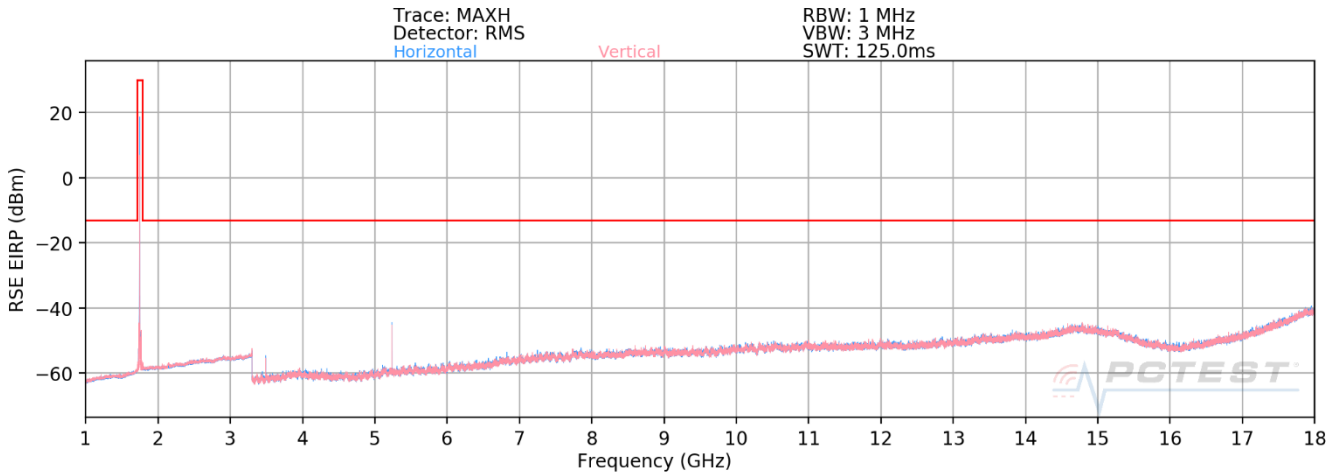
Mode:	WCDMA RMC
Channel:	1513
Frequency (MHz):	1752.6

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3505.20	V	107	127	-68.34	-0.06	38.60	-56.66	-13.00	-43.66
5257.80	V	-	-	-69.21	2.52	40.31	-54.94	-13.00	-41.94
7010.40	V	-	-	-71.15	7.69	43.54	-51.72	-13.00	-38.72
8763.00	V	-	-	-72.62	10.70	45.08	-50.18	-13.00	-37.18
10515.60	V	-	-	-72.46	12.71	47.25	-48.01	-13.00	-35.01
12268.20	V	-	-	-74.56	15.42	47.86	-47.40	-13.00	-34.40

Table 7-12. Radiated Spurious Data (WCDMA AWS – High Channel)

FCC ID: A3LSMS906E		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 66/4



Plot 7-130. Radiated Spurious Plot (LTE Band 66/4 – Ant1)

Bandwidth (MHz):	3
Frequency (MHz):	1711.5
RB / Offset:	1 / 0

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3423.00	H	-	-	-76.48	-0.37	30.15	-65.10	-13.00	-52.10
5134.50	H	100	29	-74.15	3.06	35.91	-59.35	-13.00	-46.35
6846.00	H	-	-	-78.08	7.18	36.10	-59.16	-13.00	-46.16
8557.50	H	-	-	-79.65	10.62	37.97	-57.29	-13.00	-44.29
10269.00	H	-	-	-79.00	12.36	40.36	-54.90	-13.00	-41.90
11980.50	H	-	-	-78.06	15.51	44.45	-50.81	-13.00	-37.81

Table 7-13. Radiated Spurious Data (LTE Band 66/4 – Low Channel)

Bandwidth (MHz):	3
Frequency (MHz):	1745
RB / Offset:	1 / 0

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3490.00	H	-	-	-77.04	-0.19	29.77	-65.48	-13.00	-52.48
5235.00	H	100	31	-71.17	2.61	38.44	-56.82	-13.00	-43.82
6980.00	H	-	-	-78.71	7.80	36.09	-59.17	-13.00	-46.17
8725.00	H	-	-	-78.94	10.90	38.96	-56.30	-13.00	-43.30
10470.00	H	-	-	-79.44	12.77	40.33	-54.93	-13.00	-41.93
12215.00	H	-	-	-78.99	15.57	43.58	-51.68	-13.00	-38.68



Table 7-14. Radiated Spurious Data (LTE Band 66/4 – Mid Channel)

FCC ID: A3LSMS906E		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Bandwidth (MHz):	3
Frequency (MHz):	1778.5
RB / Offset:	1 / 0

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3557.00	H	-	-	-76.21	-0.10	30.69	-64.56	-13.00	-51.56
5335.50	H	101	32	-72.21	2.73	37.52	-57.74	-13.00	-44.74
7114.00	H	-	-	-77.88	7.55	36.67	-58.58	-13.00	-45.58
8892.50	H	-	-	-78.62	11.98	40.36	-54.90	-13.00	-41.90
10671.00	H	-	-	-78.70	13.46	41.76	-53.49	-13.00	-40.49
12449.50	H	-	-	-78.81	15.06	43.25	-52.01	-13.00	-39.01

Table 7-15. Radiated Spurious Data (LTE Band 66/4 – High Channel)

FCC ID: A3LSMS906E	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
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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 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

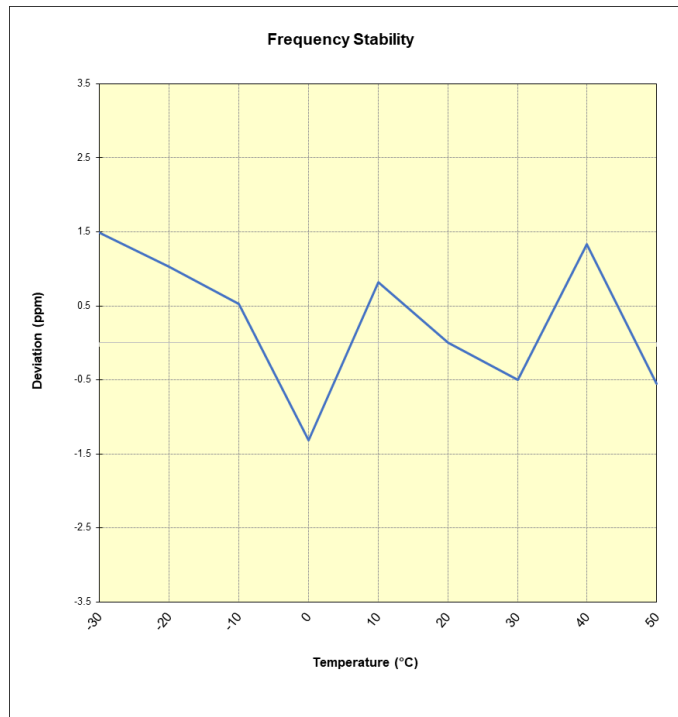
None

FCC ID: A3LSMS906E	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 12/17

LTE Band 12/17					
Operating Frequency (Hz):		707,500,000			
Ref. Voltage (VDC):		4.39			
Deviation Limit:		± 0.00025% or 2.5 ppm			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.39	- 30	707,499,509	1,054	0.0001490
		- 20	707,499,181	726	0.0001026
		- 10	707,498,825	370	0.0000523
		0	707,497,525	-930	-0.0001314
		+ 10	707,499,037	582	0.0000823
		+ 20 (Ref)	707,498,455	0	0.0000000
		+ 30	707,498,103	-352	-0.0000498
		+ 40	707,499,395	940	0.0001329
Battery Endpoint	3.80	+ 20	707,497,575	-880	-0.0001244

Table 7-16. LTE Band 12/17 Frequency Stability Data



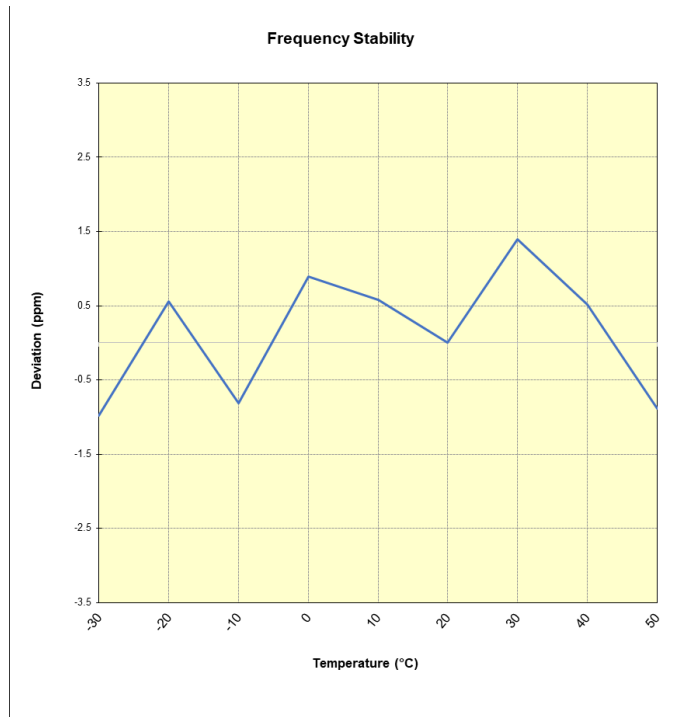
Plot 7-131. LTE Band 12/17 Frequency Stability Chart

FCC ID: A3LSMS906E	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 13

LTE Band 13					
		Operating Frequency (Hz):		782,000,000	
		Ref. Voltage (VDC):		4.39	
		Deviation Limit:		± 0.00025% or 2.5 ppm	
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.39	- 30	781,999,848	-766	-0.0000980
		- 20	782,001,052	438	0.0000560
		- 10	781,999,978	-636	-0.0000813
		0	782,001,310	696	0.0000890
		+ 10	782,001,068	454	0.0000581
		+ 20 (Ref)	782,000,614	0	0.0000000
		+ 30	782,001,705	1,091	0.0001395
		+ 40	782,001,020	406	0.0000519
		+ 50	781,999,920	-694	-0.0000887
Battery Endpoint	3.80	+ 20	782,000,428	-186	-0.0000238

Table 7-17. LTE Band 13 Frequency Stability Data



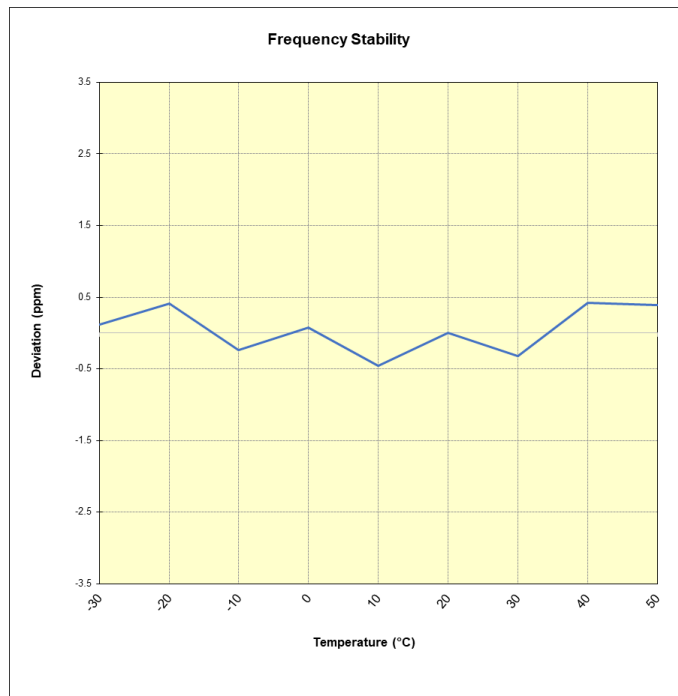
Plot 7-132. LTE Band 13 Frequency Stability Chart

FCC ID: A3LSMS906E	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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WCDMA AWS

WCDMA AWS					
Operating Frequency (Hz):		1,732,600,000			
Ref. Voltage (VDC):		4.39			
Deviation Limit:		± 0.00025% or 2.5 ppm			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.39	- 30	1,732,601,250	209	0.0000120
		- 20	1,732,601,759	718	0.0000414
		- 10	1,732,600,631	-411	-0.0000237
		0	1,732,601,180	139	0.0000080
		+ 10	1,732,600,248	-794	-0.0000458
		+ 20 (Ref)	1,732,601,042	0	0.0000000
		+ 30	1,732,600,490	-552	-0.0000318
		+ 40	1,732,601,778	737	0.0000425
		+ 50	1,732,601,723	682	0.0000393
Battery Endpoint	3.80	+ 20	1,732,600,288	-754	-0.0000435

Table 7-18. WCDMA AWS Frequency Stability Data



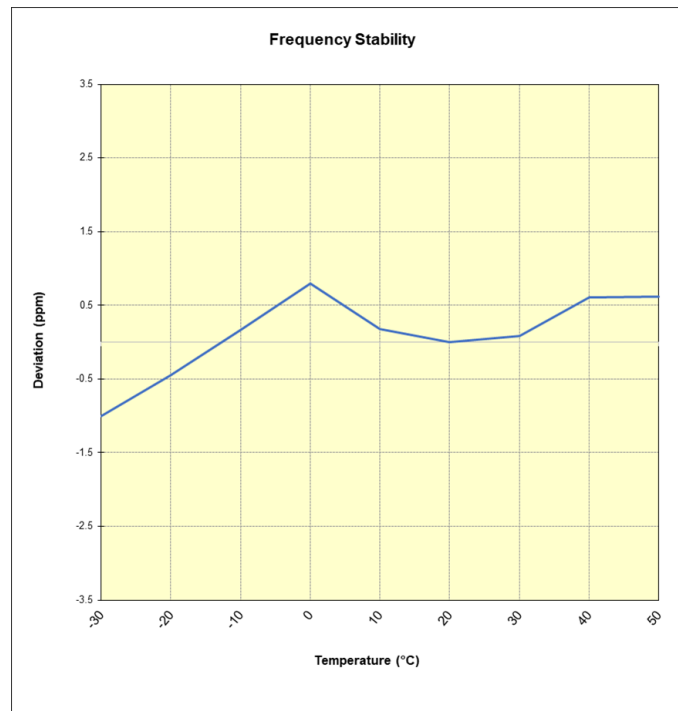
Plot 7-133. WCDMA AWS Frequency Stability Chart

FCC ID: A3LSMS906E	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 66/4

LTE Band 66/4					
Operating Frequency (Hz):		1,745,000,000			
Ref. Voltage (VDC):		4.39			
Deviation Limit:		± 0.00025% or 2.5 ppm			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.39	- 30	1,744,997,005	-1,751	-0.0001003
		- 20	1,744,997,972	-784	-0.0000449
		- 10	1,744,999,050	294	0.0000168
		0	1,745,000,143	1,387	0.0000795
		+ 10	1,744,999,066	310	0.0000178
		+ 20 (Ref)	1,744,998,756	0	0.0000000
		+ 30	1,744,998,899	143	0.0000082
		+ 40	1,744,999,821	1,065	0.0000610
		+ 50	1,744,999,831	1,075	0.0000616
Battery Endpoint	3.80	+ 20	1,744,997,475	-1,281	-0.0000734

Table 7-19. LTE Band 66/4 Frequency Stability Data





Plot 7-134. LTE Band 66/4 Frequency Stability Chart

FCC ID: A3LSMS906E	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMS906E** complies with all the requirements of Part 27 of the FCC rules.

FCC ID: A3LSMS906E		PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2110010116-29.A3L	Test Dates: 11/15/2021 - 12/03/2021	EUT Type: Portable Handset	Page 102 of 102