

7.5 Peak-Average Ratio

§24.232(d) RSS-130(4.4) RSS-132(5.4) RSS-133(6.4) RSS-139(6.5)

Test Overview

A peak to average ratio measurement is performed at the conducted port of the EUT. The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

Test Procedure Used

KDB 971168 D01 v03 – Section 5.7.1

Test Settings

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW > Emission bandwidth of signal
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms.

Test Setup

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

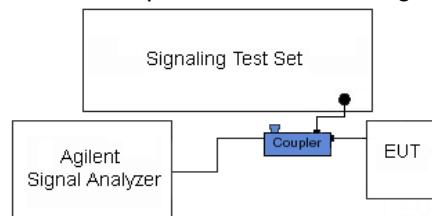


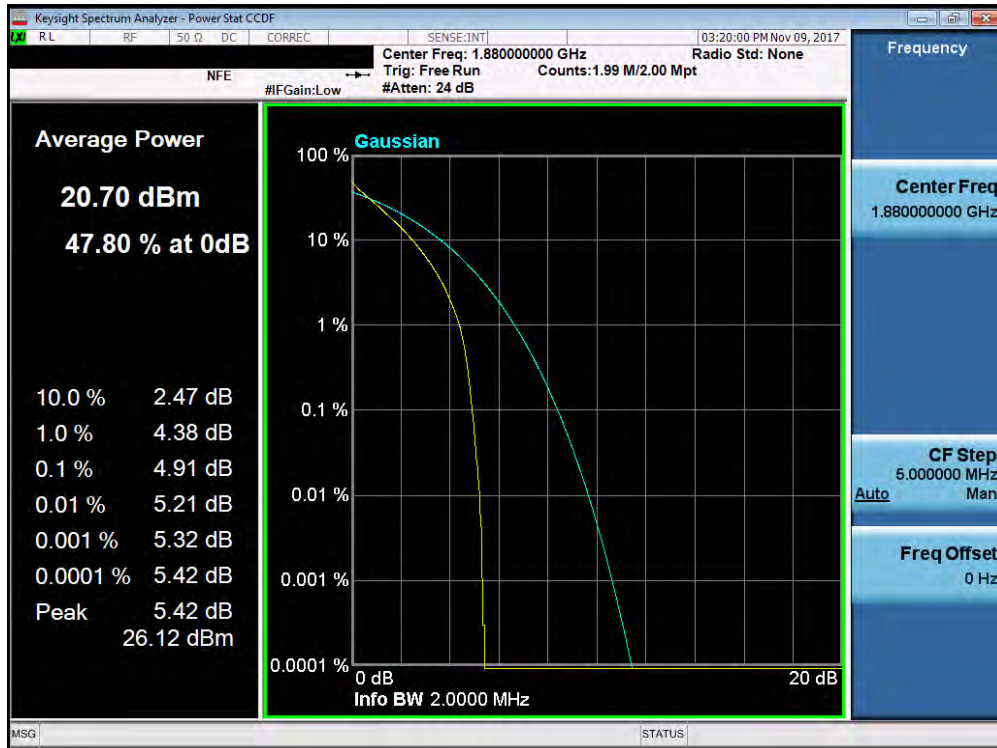
Figure 7-4. Test Instrument & Measurement Setup

Test Notes

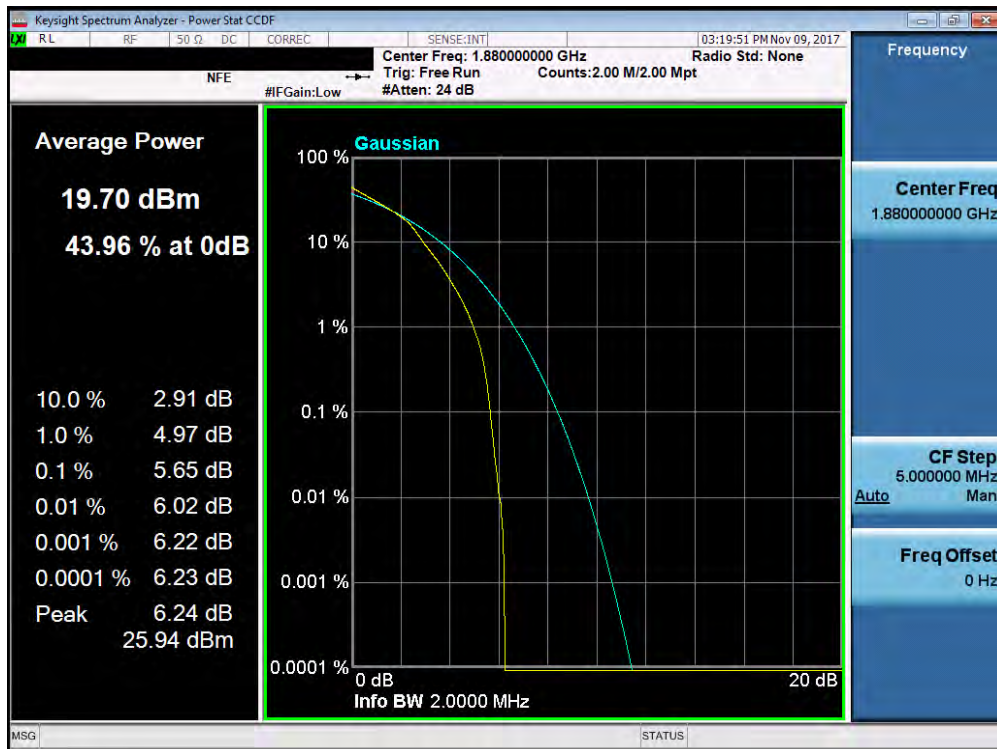
None.

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Band 2



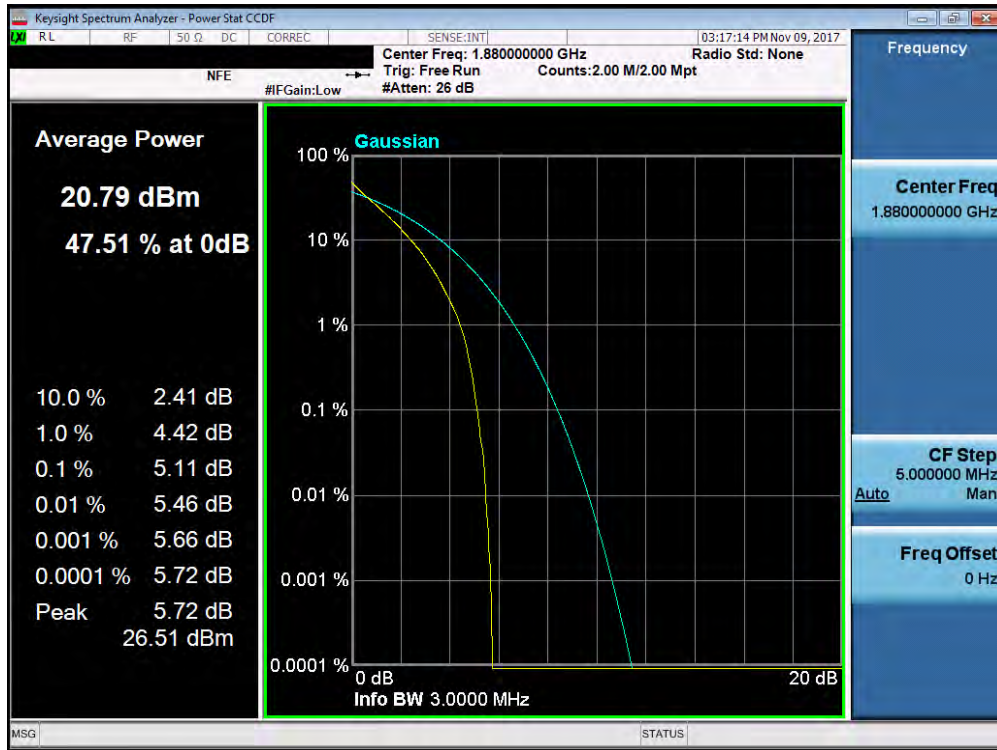
Plot 7-193. PAR Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)



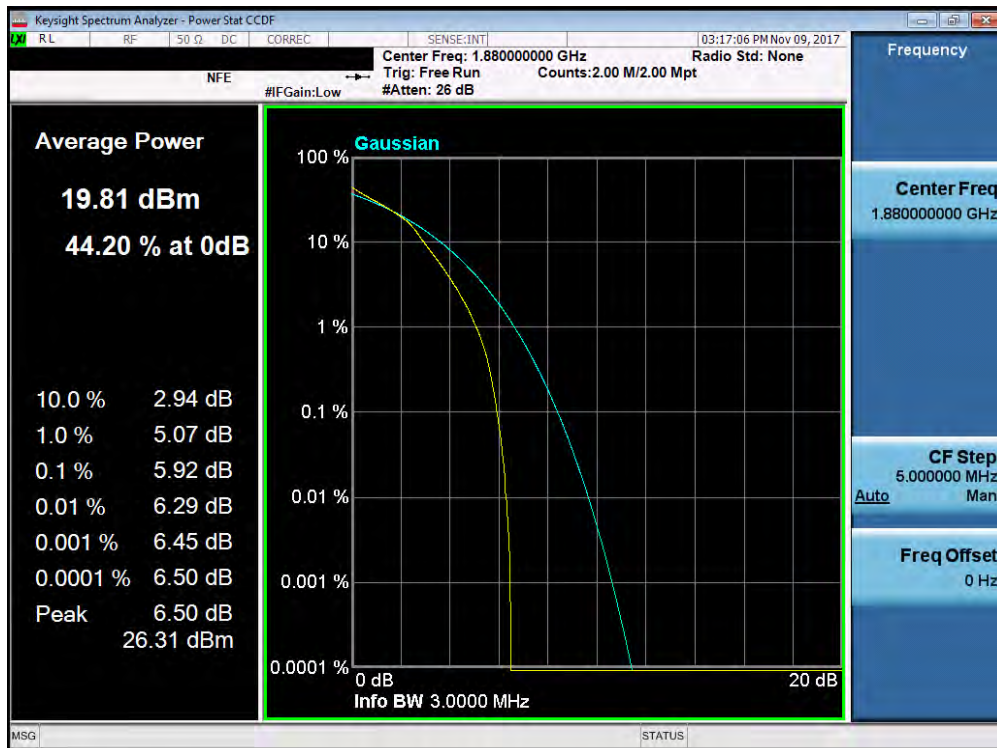
Plot 7-194. PAR Plot (Band 2 - 1.4MHz 16-QAM - Full RB Configuration)

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Band 2



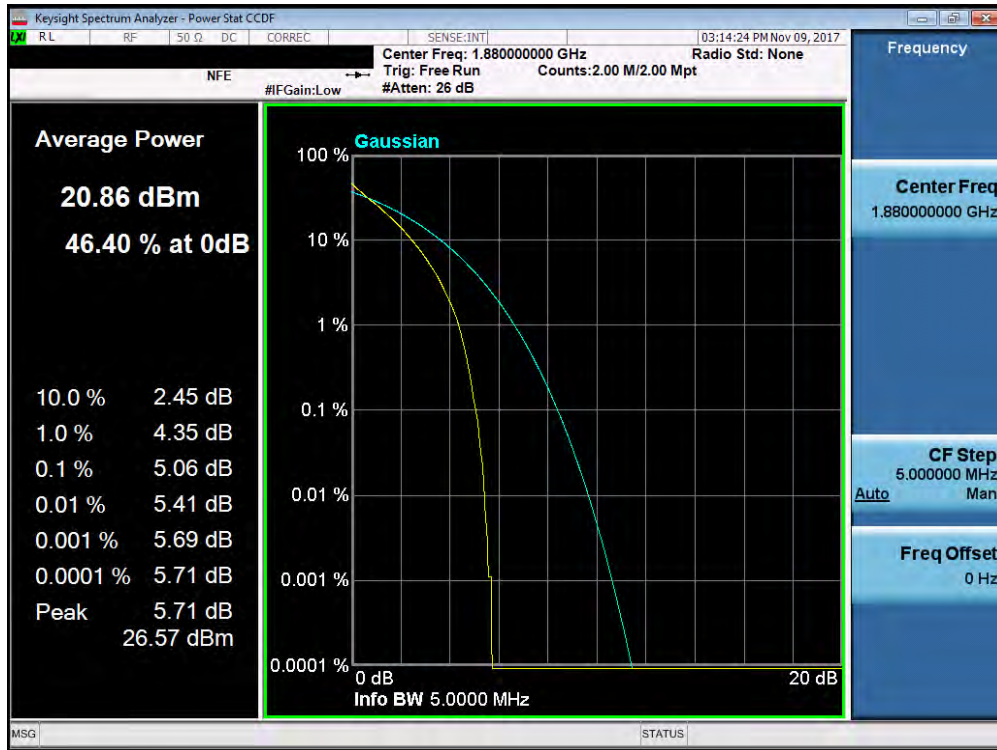
Plot 7-195. PAR Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)



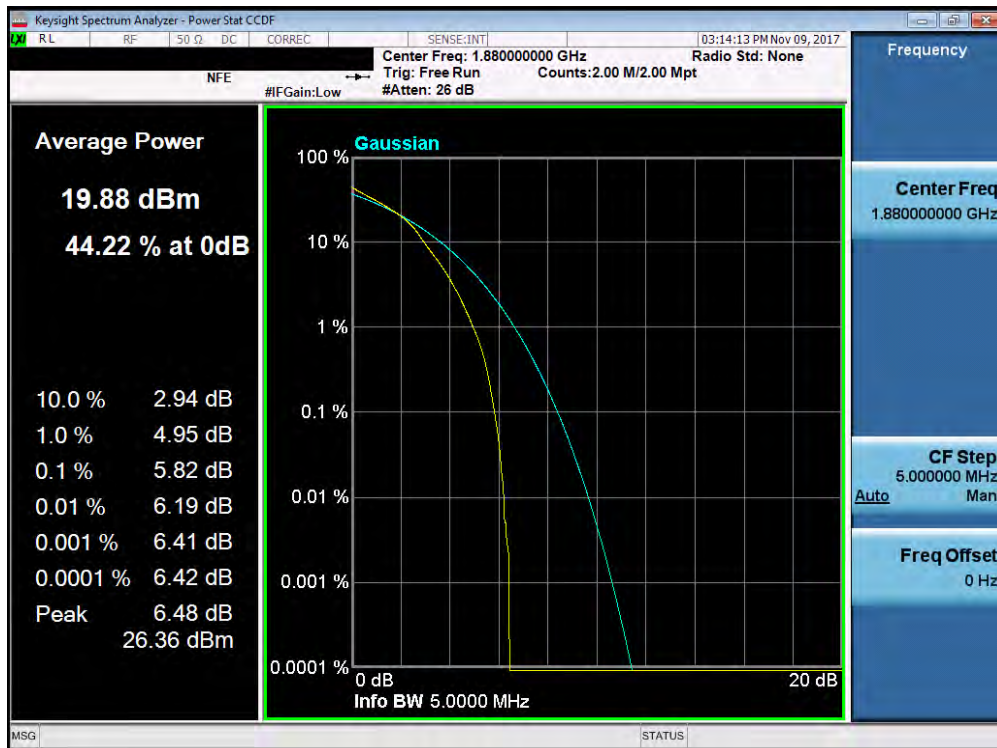
Plot 7-196. PAR Plot (Band 2 - 3.0MHz 16-QAM - Full RB Configuration)

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Band 2



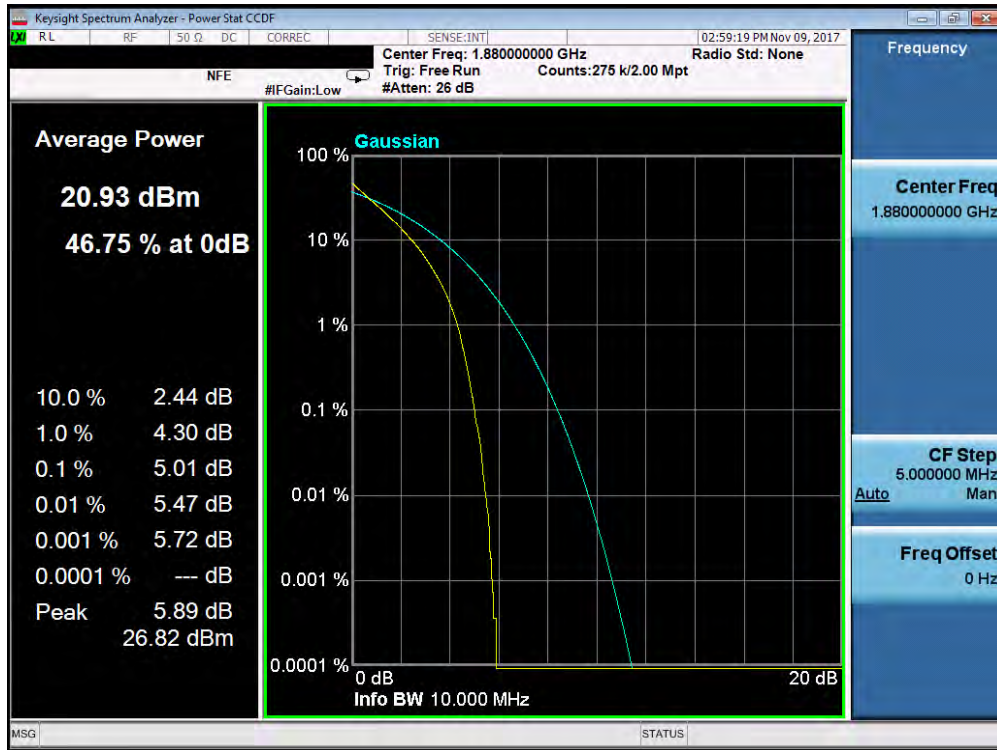
Plot 7-197. PAR Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)



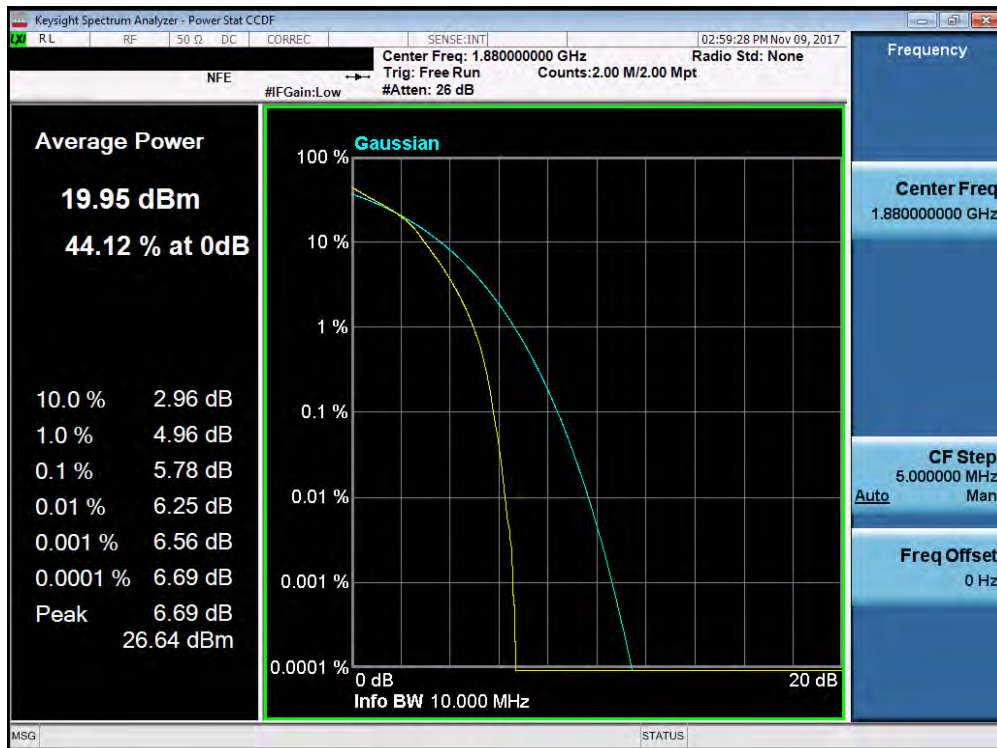
Plot 7-198. PAR Plot (Band 2 - 5.0MHz 16-QAM - Full RB Configuration)

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Band 2



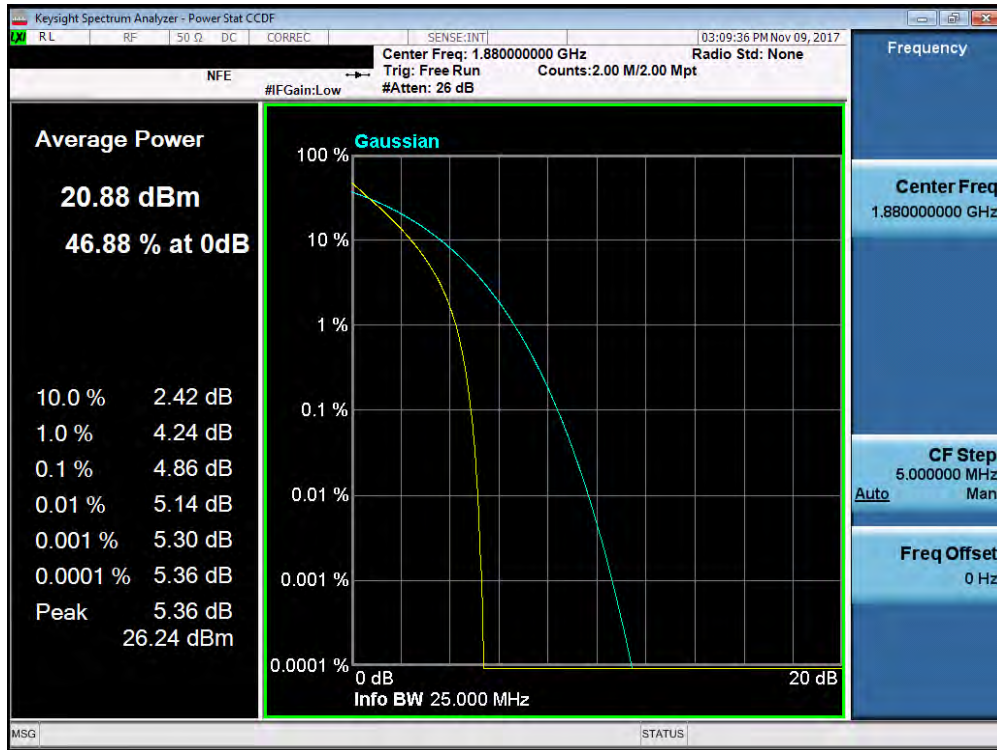
Plot 7-199. PAR Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)



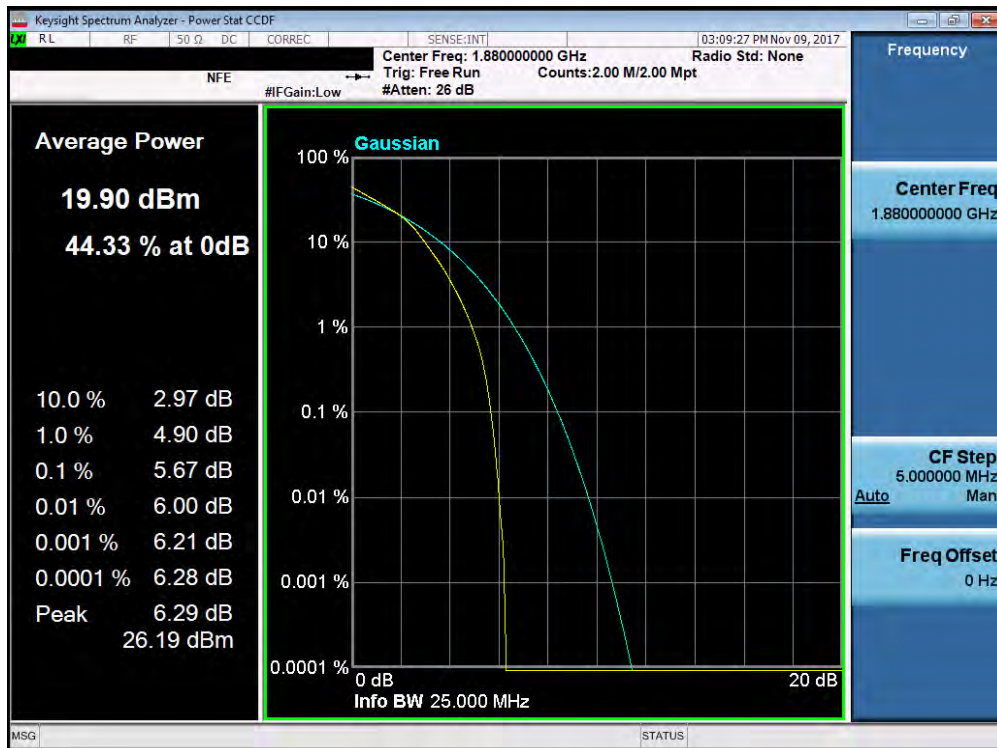
Plot 7-200. PAR Plot (Band 2 - 10.0MHz 16-QAM - Full RB Configuration)

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Band 2



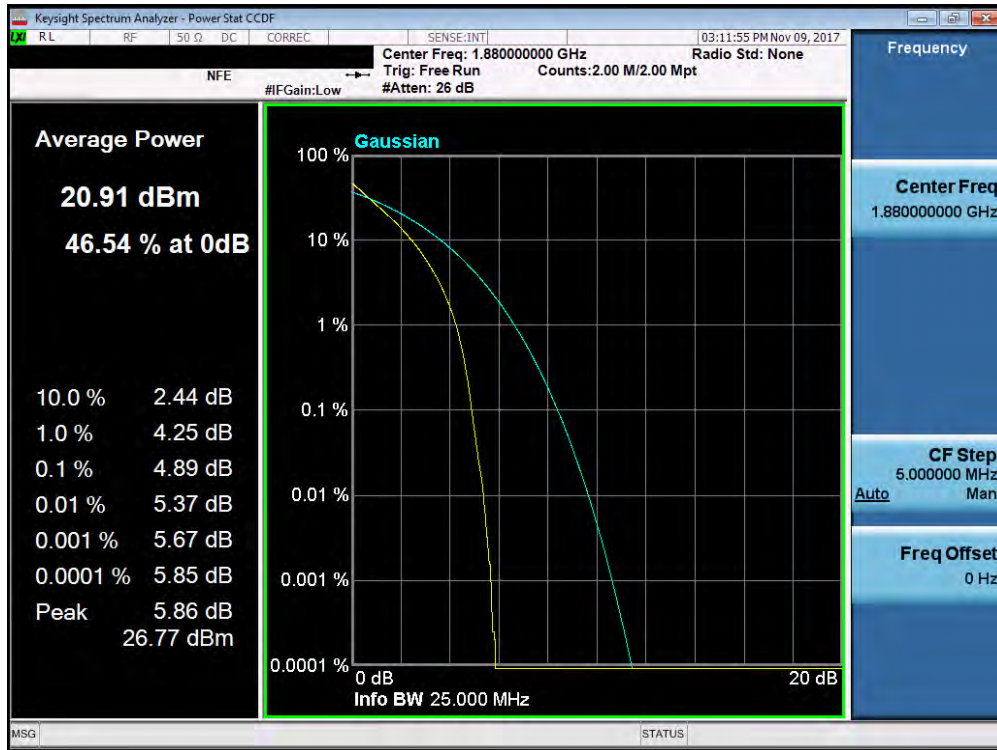
Plot 7-201. PAR Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)



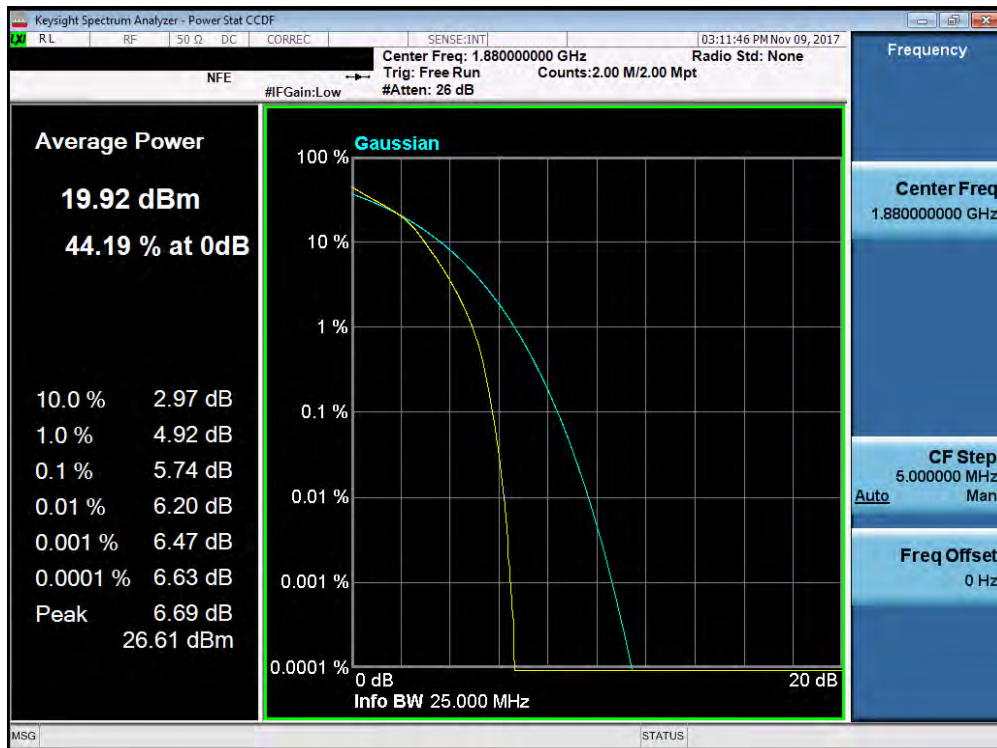
Plot 7-202. PAR Plot (Band 2 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMJ250M	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band 2



Plot 7-203. PAR Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-204. PAR Plot (Band 2 - 20.0MHz 16-QAM - Full RB Configuration)

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7.6 Radiated Power (ERP/EIRP)

§22.913(a)(2) §24.232(c.2) §27.50(h)(2) §27.50(b)(10) §27.50(c)(10) §27.50(d)(4) RSS-130(4.4) RSS-132(5.4) RSS-133(6.4) RSS-139(6.5) RSS-199(4.4)

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 v03 – 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.

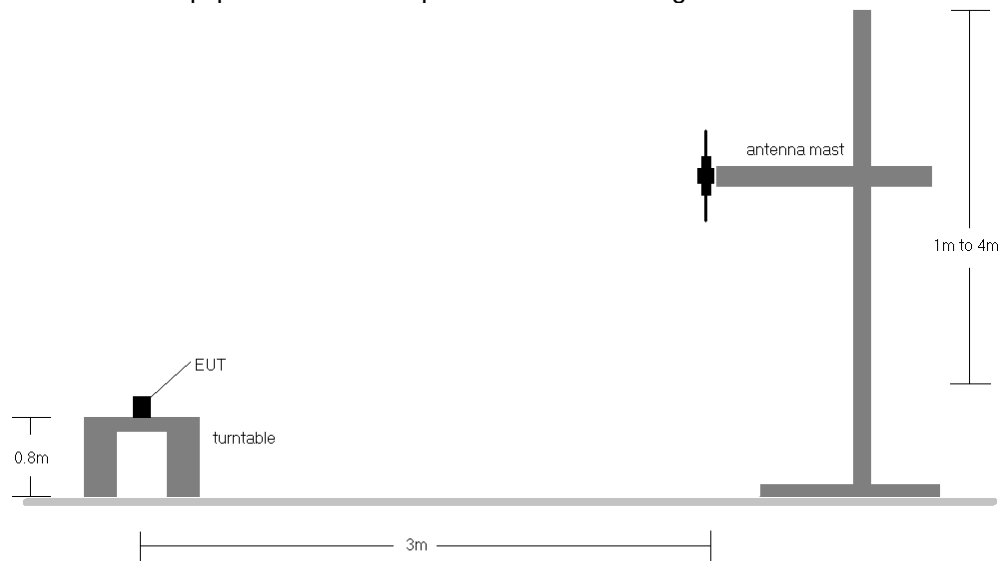


Figure 7-5. Radiated Test Setup <1GHz

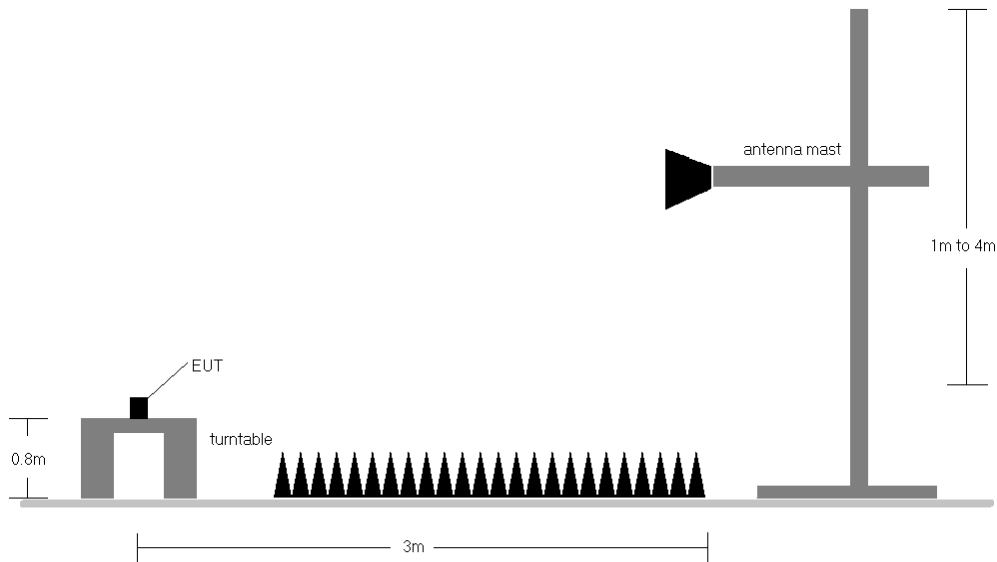


Figure 7-6. Radiated Test Setup >1GHz

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]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	V	150	13	1 / 5	16.98	1.10	15.93	0.039	34.77	-18.84	18.08	0.064	40.61	-22.53
707.50	1.4	QPSK	V	150	25	1 / 0	16.92	1.13	15.90	0.039	34.77	-18.87	18.05	0.064	40.61	-22.56
715.30	1.4	QPSK	V	150	8	1 / 0	17.63	1.16	16.64	0.046	34.77	-18.13	18.79	0.076	40.61	-21.82
699.70	1.4	16-QAM	V	150	13	1 / 5	16.11	1.10	15.06	0.032	34.77	-19.71	17.21	0.053	40.61	-23.40
700.50	3	QPSK	V	150	3	1 / 14	16.90	1.10	15.85	0.038	34.77	-18.92	18.00	0.063	40.61	-22.60
707.50	3	QPSK	V	150	7	1 / 0	17.12	1.13	16.10	0.041	34.77	-18.67	18.25	0.067	40.61	-22.36
714.50	3	QPSK	V	150	2	1 / 14	17.79	1.16	16.80	0.048	34.77	-17.97	18.95	0.078	40.61	-21.66
707.50	3	16-QAM	V	150	7	1 / 0	16.35	1.13	15.33	0.034	34.77	-19.44	17.48	0.056	40.61	-23.13
701.50	5	QPSK	V	150	7	1 / 24	17.01	1.11	15.97	0.040	34.77	-18.81	18.12	0.065	40.61	-22.49
707.50	5	QPSK	V	150	9	1 / 24	17.10	1.13	16.08	0.041	34.77	-18.69	18.23	0.067	40.61	-22.38
713.50	5	QPSK	V	150	364	1 / 24	17.81	1.15	16.81	0.048	34.77	-17.96	18.96	0.079	40.61	-21.64
713.50	5	16-QAM	V	150	364	1 / 24	16.67	1.15	15.67	0.037	34.77	-19.10	17.82	0.061	40.61	-22.78
704.00	10	QPSK	V	150	10	1 / 49	16.91	1.12	15.88	0.039	34.77	-18.89	18.03	0.063	40.61	-22.58
707.50	10	QPSK	V	150	5	1 / 49	17.28	1.13	16.26	0.042	34.77	-18.51	18.41	0.069	40.61	-22.20
711.00	10	QPSK	V	150	0	1 / 49	17.57	1.14	16.56	0.045	34.77	-18.21	18.71	0.074	40.61	-21.89
711.00	10	16-QAM	V	150	0	1 / 49	16.31	1.14	15.30	0.034	34.77	-19.47	17.45	0.056	40.61	-23.15
713.50	5	QPSK	H	150	236	1 / 0	15.97	1.15	14.97	0.031	34.77	-19.80	17.12	0.052	40.61	-23.48

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

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	V	150	10	1 / 0	19.65	1.32	18.82	0.076	34.77	-15.95	20.97	0.125	40.61	-19.64
782.00	5	QPSK	V	150	2	1 / 0	19.71	1.33	18.89	0.077	34.77	-15.88	21.04	0.127	40.61	-19.57
784.50	5	QPSK	V	150	10	1 / 0	19.77	1.34	18.96	0.079	34.77	-15.81	21.11	0.129	40.61	-19.50
784.50	5	16-QAM	V	150	10	1 / 0	18.53	1.34	17.72	0.059	34.77	-17.05	19.87	0.097	40.61	-20.74
782.00	10	QPSK	V	150	158	1 / 0	19.82	1.33	19.00	0.079	34.77	-15.77	21.15	0.130	40.61	-19.46
782.00	10	16-QAM	V	150	158	1 / 0	18.89	1.33	18.07	0.064	34.77	-16.70	20.22	0.105	40.61	-20.39
782.00	10	QPSK	H	150	235	1 / 0	17.73	1.33	16.91	0.049	34.77	-17.86	19.06	0.081	40.61	-21.55

Table 7-3. ERP/EIRP Data (Band 13)

FCC ID: A3LSMJ250M	 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]
824.70	1.4	QPSK	H	150	10	1 / 0	20.08	1.50	19.43	0.088	38.45	-19.02	21.58	0.144	36.99	-15.41
836.50	1.4	QPSK	H	150	28	1 / 5	19.81	1.50	19.16	0.082	38.45	-19.29	21.31	0.135	36.99	-15.68
848.30	1.4	QPSK	H	150	10	1 / 0	19.94	1.50	19.29	0.085	38.45	-19.16	21.44	0.139	36.99	-15.55
824.70	1.4	16-QAM	H	150	10	1 / 0	17.96	1.50	17.31	0.054	38.45	-21.14	19.46	0.088	36.99	-17.53
825.50	3	QPSK	H	150	10	1 / 14	20.22	1.50	19.57	0.091	38.45	-18.88	21.72	0.149	36.99	-15.27
836.50	3	QPSK	H	150	10	1 / 0	20.27	1.50	19.62	0.092	38.45	-18.83	21.77	0.150	36.99	-15.22
847.50	3	QPSK	H	150	10	1 / 0	20.12	1.50	19.47	0.089	38.45	-18.98	21.62	0.145	36.99	-15.37
836.50	3	16-QAM	H	150	10	1 / 0	18.59	1.50	17.94	0.062	38.45	-20.51	20.09	0.102	36.99	-16.90
826.50	5	QPSK	H	150	10	1 / 24	20.22	1.50	19.57	0.091	38.45	-18.88	21.72	0.149	36.99	-15.27
836.50	5	QPSK	H	150	5	1 / 0	20.12	1.50	19.47	0.089	38.45	-18.98	21.62	0.145	36.99	-15.37
846.50	5	QPSK	H	150	7	1 / 0	19.93	1.50	19.28	0.085	38.45	-19.17	21.43	0.139	36.99	-15.56
836.50	5	16-QAM	H	150	5	1 / 0	17.36	1.50	16.71	0.047	38.45	-21.74	18.86	0.077	36.99	-18.13
829.00	10	QPSK	H	150	9	1 / 0	20.06	1.50	19.41	0.087	38.45	-19.04	21.56	0.143	36.99	-15.43
836.50	10	QPSK	H	150	10	1 / 49	20.04	1.50	19.39	0.087	38.45	-19.06	21.54	0.143	36.99	-15.45
844.00	10	QPSK	H	150	150	1 / 0	20.06	1.50	19.41	0.087	38.45	-19.04	21.56	0.143	36.99	-15.43
829.00	10	16-QAM	H	150	9	1 / 0	17.64	1.50	16.99	0.050	38.45	-21.46	19.14	0.082	36.99	-17.85
836.50	3	QPSK	V	150	201	1 / 0	18.59	1.50	17.94	0.062	38.45	-20.51	20.09	0.102	36.99	-16.90

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

FCC ID: A3LSMJ250M	 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]
1710.70	1.4	QPSK	V	150	277	1 / 5	18.29	5.65	23.94	0.247	30.00	-6.06
1745.00	1.4	QPSK	V	150	280	1 / 5	18.40	5.27	23.67	0.233	30.00	-6.33
1779.30	1.4	QPSK	V	150	283	1 / 5	17.91	4.90	22.81	0.191	30.00	-7.19
1710.70	1.4	16-QAM	V	150	277	1 / 5	17.45	5.65	23.10	0.204	30.00	-6.90
1711.50	3	QPSK	V	150	276	1 / 14	18.33	5.64	23.97	0.249	30.00	-6.03
1745.00	3	QPSK	V	150	279	1 / 14	18.44	5.27	23.71	0.235	30.00	-6.29
1778.50	3	QPSK	V	150	274	1 / 14	18.12	4.91	23.03	0.201	30.00	-6.97
1711.50	3	16-QAM	V	150	276	1 / 14	17.19	5.64	22.83	0.192	30.00	-7.17
1712.50	5	QPSK	V	150	268	1 / 0	17.99	5.63	23.62	0.230	30.00	-6.38
1745.00	5	QPSK	V	150	278	1 / 0	18.58	5.27	23.85	0.243	30.00	-6.15
1777.50	5	QPSK	V	150	281	1 / 24	18.22	4.92	23.14	0.206	30.00	-6.86
1745.00	5	16-QAM	V	150	278	1 / 0	17.93	5.27	23.20	0.209	30.00	-6.80
1715.00	10	QPSK	V	150	378	1 / 0	18.50	5.60	24.10	0.257	30.00	-5.90
1745.00	10	QPSK	V	150	273	1 / 0	18.60	5.27	23.87	0.244	30.00	-6.13
1775.00	10	QPSK	V	150	273	1 / 0	17.88	4.95	22.83	0.192	30.00	-7.17
1745.00	10	16-QAM	V	150	273	1 / 0	17.74	5.27	23.01	0.200	30.00	-6.99
1717.50	15	QPSK	V	150	275	1 / 74	18.70	5.57	24.27	0.267	30.00	-5.73
1745.00	15	QPSK	V	150	277	1 / 74	18.69	5.27	23.96	0.249	30.00	-6.04
1772.50	15	QPSK	V	150	287	1 / 0	17.35	4.97	22.32	0.171	30.00	-7.68
1717.50	15	16-QAM	V	150	275	1 / 74	17.87	5.57	23.44	0.221	30.00	-6.56
1720.00	20	QPSK	V	150	277	1 / 0	18.38	5.54	23.92	0.247	30.00	-6.08
1745.00	20	QPSK	V	150	274	1 / 0	18.77	5.27	24.04	0.254	30.00	-5.96
1770.00	20	QPSK	V	150	273	1 / 0	18.29	5.00	23.29	0.213	30.00	-6.71
1745.00	20	16-QAM	V	150	274	1 / 0	17.64	5.27	22.91	0.195	30.00	-7.09
1717.50	15	QPSK	H	150	234	1 / 0	17.00	5.56	22.56	0.180	30.00	-7.44

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

FCC ID: A3LSMJ250M	 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	V	150	292	1 / 0	20.68	4.79	25.47	0.352	33.01	-7.54
1880.00	1.4	QPSK	V	150	282	1 / 0	20.46	4.84	25.30	0.339	33.01	-7.71
1909.30	1.4	QPSK	V	150	287	1 / 0	20.01	4.86	24.87	0.307	33.01	-8.14
1850.70	1.4	16-QAM	V	150	292	1 / 0	18.58	4.79	23.37	0.217	33.01	-9.64
1851.50	3	QPSK	V	150	290	1 / 14	19.89	4.79	24.68	0.294	33.01	-8.33
1880.00	3	QPSK	V	150	280	1 / 14	20.46	4.84	25.30	0.339	33.01	-7.71
1908.50	3	QPSK	V	150	300	1 / 14	20.06	4.86	24.92	0.311	33.01	-8.09
1880.00	3	16-QAM	V	150	280	1 / 14	19.58	4.84	24.42	0.277	33.01	-8.59
1852.50	5	QPSK	V	150	252	1 / 0	20.20	4.79	24.99	0.316	33.01	-8.02
1880.00	5	QPSK	V	150	287	1 / 24	20.34	4.84	25.18	0.330	33.01	-7.83
1907.50	5	QPSK	V	150	277	1 / 0	19.92	4.87	24.79	0.301	33.01	-8.22
1907.50	5	16-QAM	V	150	277	1 / 0	19.21	4.87	24.08	0.256	33.01	-8.93
1855.00	10	QPSK	V	150	287	1 / 0	20.06	4.80	24.86	0.306	33.01	-8.15
1880.00	10	QPSK	V	150	302	1 / 0	20.66	4.84	25.50	0.355	33.01	-7.51
1905.00	10	QPSK	V	150	304	1 / 0	20.48	4.87	25.35	0.343	33.01	-7.66
1880.00	10	16-QAM	V	150	302	1 / 0	19.61	4.84	24.45	0.279	33.01	-8.56
1857.50	15	QPSK	V	150	292	1 / 74	20.29	4.80	25.09	0.323	33.01	-7.92
1880.00	15	QPSK	V	150	295	1 / 74	20.39	4.84	25.23	0.334	33.01	-7.78
1902.50	15	QPSK	V	150	305	1 / 0	20.70	4.88	25.58	0.361	33.01	-7.43
1902.50	15	16-QAM	V	150	305	1 / 0	19.49	4.88	24.37	0.273	33.01	-8.64
1860.00	20	QPSK	V	150	302	1 / 99	20.62	4.81	25.43	0.349	33.01	-7.59
1880.00	20	QPSK	V	150	300	1 / 0	20.56	4.84	25.40	0.347	33.01	-7.61
1900.00	20	QPSK	V	150	305	1 / 0	20.50	4.88	25.38	0.345	33.01	-7.63
1900.00	20	16-QAM	V	150	305	1 / 0	19.82	4.88	24.70	0.295	33.01	-8.31
1902.50	15	QPSK	H	150	237	1 / 0	19.85	4.88	24.73	0.297	33.01	-8.28

Table 7-6. EIRP Data (Band 2)

FCC ID: A3LSMJ250M	 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]
2502.50	5	QPSK	H	150	19	1 / 24	19.18	5.74	24.92	0.310	33.01	-8.09
2535.00	5	QPSK	H	150	20	1 / 0	19.08	5.86	24.94	0.312	33.01	-8.07
2567.50	5	QPSK	H	150	239	1 / 0	17.58	5.98	23.56	0.227	33.01	-9.45
2535.00	5	16-QAM	H	150	20	1 / 0	17.14	5.86	23.00	0.200	33.01	-10.01
2505.00	10	QPSK	H	150	19	1 / 0	19.41	5.75	25.16	0.328	33.01	-7.85
2535.00	10	QPSK	H	150	26	1 / 0	19.17	5.86	25.03	0.318	33.01	-7.98
2565.00	10	QPSK	H	150	26	1 / 0	18.07	5.97	24.04	0.254	33.01	-8.97
2535.00	10	16-QAM	H	150	26	1 / 0	17.77	5.86	23.63	0.231	33.01	-9.38
2507.50	15	QPSK	H	150	18	1 / 74	19.21	5.76	24.97	0.314	33.01	-8.04
2535.00	15	QPSK	H	150	23	1 / 0	19.09	5.86	24.95	0.313	33.01	-8.06
2562.50	15	QPSK	H	150	20	1 / 0	18.70	5.96	24.66	0.293	33.01	-8.35
2507.50	15	16-QAM	H	150	18	1 / 74	17.98	5.76	23.74	0.236	33.01	-9.27
2510.00	20	QPSK	H	150	21	1 / 99	19.23	5.77	25.00	0.316	33.01	-8.01
2535.00	20	QPSK	H	150	18	1 / 0	19.44	5.86	25.30	0.339	33.01	-7.71
2560.00	20	QPSK	H	150	24	1 / 0	18.96	5.95	24.91	0.310	33.01	-8.10
2535.00	20	16-QAM	H	150	18	1 / 0	17.22	5.86	23.08	0.203	33.01	-9.93
2535.00	20	QPSK	V	150	200	1 / 0	17.66	5.74	23.40	0.219	33.01	-9.61

Table 7-7. EIRP Data (Band 7)

FCC ID: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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7.7 Radiated Spurious Emissions Measurements

§2.1053 §22.917(a) §24.238(a) §27.53(c) §27.53(f) §27.53(g) §27.53(h) §27.53(m) RSS-130(4.6) RSS-132(5.5) RSS-133(6.5) RSS-139(6.6) RSS-199(4.5)

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 v03 – 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

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Test Setup

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

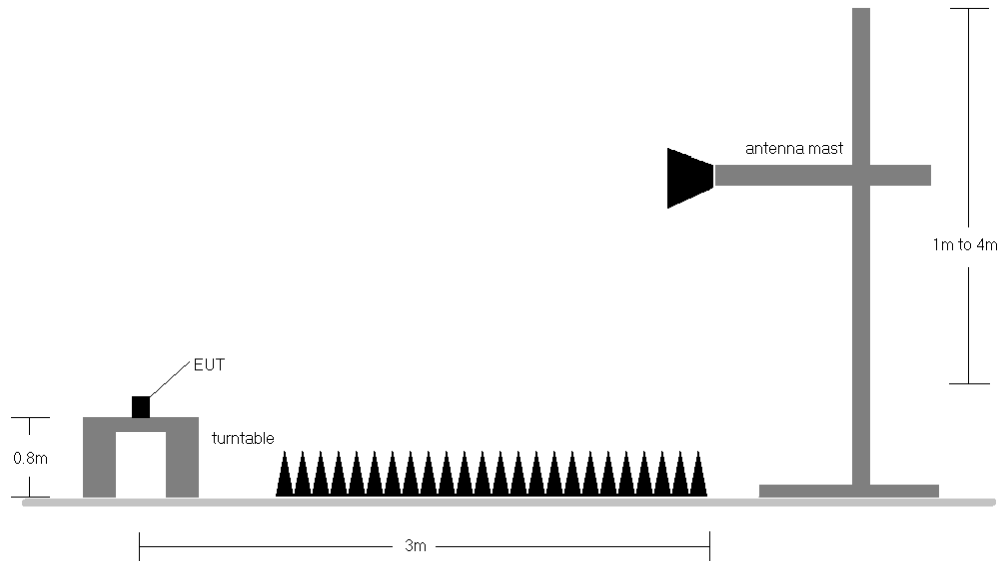


Figure 7-7. Test Instrument & Measurement Setup

Test Notes

- 1) 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.

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Band 12/17

OPERATING FREQUENCY: 701.50 MHz
 CHANNEL: 23035
 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]
1403.00	V	188	353	-59.84	8.35	-51.49	-38.5
2104.50	V	175	338	-63.18	8.99	-54.19	-41.2
2806.00	V	135	189	-67.84	10.05	-57.79	-44.8
3507.50	V	100	270	-48.19	9.65	-38.54	-25.5
4209.00	V	103	115	-54.67	10.38	-44.29	-31.3
4910.50	V	128	20	-68.87	11.20	-57.67	-44.7
5612.00	V	100	82	-63.13	11.06	-52.07	-39.1
6313.50	V	235	194	-64.92	11.16	-53.76	-40.8
7015.00	V	-	-	-64.12	10.95	-53.17	-40.2

Table 7-8. Radiated Spurious Data (Band 12/17 – Low Channel)

OPERATING FREQUENCY: 707.50 MHz
 CHANNEL: 23095
 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]
1415.00	V	124	342	-71.12	8.41	-62.71	-49.7
2122.50	V	220	18	-63.78	8.95	-54.84	-41.8
2830.00	V	128	194	-67.30	10.11	-57.19	-44.2
3537.50	V	103	278	-52.11	9.72	-42.39	-29.4
4245.00	V	100	104	-58.42	10.50	-47.93	-34.9
4952.50	V	-	-	-69.75	11.18	-58.58	-45.6

Table 7-9. Radiated Spurious Data (Band 12/17 – Mid Channel)

FCC ID: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
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OPERATING FREQUENCY: 713.50 MHz
 CHANNEL: 23155
 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]
1427.00	V	110	210	-62.12	8.46	-53.66	-40.7
2140.50	V	131	290	-62.24	8.91	-53.33	-40.3
2854.00	V	117	190	-64.82	10.17	-54.66	-41.7
3567.50	V	103	255	-49.10	9.78	-39.33	-26.3
4281.00	V	110	89	-54.45	10.65	-43.80	-30.8
4994.50	V	-	-	-68.87	11.16	-57.71	-44.7

Table 7-10. Radiated Spurious Data (Band 12/17 – High Channel)

FCC ID: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 13

OPERATING FREQUENCY: 782.00 MHz
 CHANNEL: 23230
 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]
1564.00	H	134	13	-60.33	8.72	-51.61	-38.6
2346.00	H	112	30	-62.09	9.48	-52.61	-39.6
3128.00	H	118	35	-56.58	9.35	-47.23	-34.2
3910.00	H	150	54	-61.48	9.49	-51.99	-39.0
4692.00	H	110	294	-72.09	10.92	-61.17	-48.2
5474.00	H	113	283	-62.53	10.82	-51.72	-38.7
6256.00	H	118	30	-69.83	11.53	-58.30	-45.3
7038.00	H	328	38	-68.90	11.81	-57.09	-44.1
7820.00	H	110	283	-62.19	11.36	-50.83	-37.8

Table 7-11. Radiated Spurious Data (Band 13 – Low Channel)

FCC ID: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 5

OPERATING FREQUENCY: 825.50 MHz
 CHANNEL: 20415
 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]
1651.00	V	135	50	-60.06	8.89	-51.17	-38.2
2476.50	V	220	89	-68.56	9.67	-58.89	-45.9
3302.00	V	370	333	-65.17	9.65	-55.51	-42.5
4127.50	V	114	0	-67.29	10.21	-57.08	-44.1
4953.00	V	124	254	-72.04	10.82	-61.22	-48.2
5778.50	V	116	253	-67.81	11.44	-56.37	-43.4
6604.00	V	384	1	-69.20	11.97	-57.22	-44.2

Table 7-12. Radiated Spurious Data (Band 5 – Low Channel)

OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 20525
 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]
1673.00	V	135	83	-64.75	8.92	-55.83	-42.8
2509.50	V	110	244	-73.59	9.80	-63.78	-50.8
3346.00	V	111	66	-67.06	9.68	-57.38	-44.4
4182.50	V	115	306	-72.19	10.38	-61.81	-48.8
5019.00	V	-	-	-72.69	10.87	-61.82	-48.8

Table 7-13. Radiated Spurious Data (Band 5 – Mid Channel)

FCC ID: A3LSMJ250M		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 847.50 MHz
 CHANNEL: 20635
 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]
1695.00	V	172	150	-68.82	8.95	-59.87	-46.9
2542.50	V	110	-74	-67.60	9.77	-57.84	-44.8
3390.00	V	110	90	-63.27	9.71	-53.56	-40.6
4237.50	V	113	308	-69.79	10.54	-59.25	-46.2
5085.00	V	110	359	-68.18	10.81	-57.37	-44.4
5932.50	V	111	2	-72.64	11.48	-61.17	-48.2

Table 7-14. Radiated Spurious Data (Band 5 – High Channel)

FCC ID: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 66/4

OPERATING FREQUENCY: 1717.50 MHz
 CHANNEL: 132047
 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	114	120	-42.39	9.54	-32.86	-19.9
5152.50	H	104	188	-63.59	10.79	-52.81	-39.8
6870.00	H	149	286	-68.77	10.85	-57.92	-44.9
8587.50	H	114	251	-69.10	11.68	-57.42	-44.4
10305.00	H	123	269	-66.41	12.49	-53.92	-40.9
12022.50	H	-	-	-66.43	12.22	-54.21	-41.2

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

OPERATING FREQUENCY: 1745.00 MHz
 CHANNEL: 132322
 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	133	111	-43.40	9.65	-33.75	-20.8
5235.00	H	170	186	-68.49	10.93	-57.56	-44.6
6980.00	H	114	293	-69.60	10.96	-58.64	-45.6
8725.00	H	104	259	-69.22	11.83	-57.39	-44.4
10470.00	H	123	71	-67.96	12.56	-55.40	-42.4
12215.00	H	-	-	-66.90	12.42	-54.48	-41.5

Table 7-16. Radiated Spurious Data (Band 66/4 – Mid Channel)

FCC ID: A3LSMJ250M		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 1772.50 MHz
CHANNEL: 132597
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	151	359	-51.11	9.70	-41.41	-28.4
5317.50	H	114	185	-66.66	10.97	-55.69	-42.7
7090.00	H	-	-	-69.89	11.00	-58.89	-45.9

Table 7-17. Radiated Spurious Data (Band 66/4 – High Channel)

FCC ID: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 2

OPERATING FREQUENCY: 1857.50 MHz
 CHANNEL: 18675
 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	104	49	-52.93	9.66	-43.27	-30.3
5572.50	H	199	333	-59.07	11.03	-48.04	-35.0
7430.00	H	191	42	-61.72	10.86	-50.86	-37.9
9287.50	H	199	32	-68.31	12.29	-56.02	-43.0
11145.00	H	-	-	-68.70	12.98	-55.72	-42.7

Table 7-18. Radiated Spurious Data (Band 2 – Low Channel)

OPERATING FREQUENCY: 1880.00 MHz
 CHANNEL: 18900
 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	149	50	-50.10	9.50	-40.60	-27.6
5640.00	H	171	0	-56.75	11.16	-45.59	-32.6
7520.00	H	218	54	-59.09	11.03	-48.06	-35.1
9400.00	H	206	15	-65.22	12.19	-53.03	-40.0
11280.00	H	176	344	-67.69	13.15	-54.54	-41.5
13160.00	H	255	14	-66.57	12.88	-53.69	-40.7
15040.00	H	-	-	-63.34	11.73	-51.61	-38.6

Table 7-19. Radiated Spurious Data (Band 2 – Mid Channel)

FCC ID: A3LSMJ250M		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 1902.50 MHz
 CHANNEL: 19125
 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	190	43	-48.84	9.35	-39.49	-26.5
5707.50	H	179	157	-58.19	11.30	-46.90	-33.9
7610.00	H	151	48	-59.52	11.21	-48.30	-35.3
9512.50	H	161	16	-68.24	12.20	-56.04	-43.0
11415.00	H	161	94	-68.80	13.26	-55.54	-42.5
13317.50	H	-	-	-67.54	12.83	-54.72	-41.7

Table 7-20. Radiated Spurious Data (Band 2 – High Channel)

FCC ID: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 7

OPERATING FREQUENCY: 2510.00 MHz
 CHANNEL: 20850
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 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]
5020.00	H	264	293	-62.51	11.09	-51.41	-26.4
7530.00	H	114	282	-53.90	11.05	-42.85	-17.8
10040.00	H	294	52	-54.48	12.18	-42.30	-17.3
12550.00	H	-	-	-67.55	12.80	-54.75	-29.8

Table 7-21. Radiated Spurious Data (Band 7 – Low Channel)

OPERATING FREQUENCY: 2535.00 MHz
 CHANNEL: 21100
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 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]
5070.00	H	348	287	-66.25	10.91	-55.34	-30.3
7605.00	H	114	281	-54.41	11.22	-43.18	-18.2
10140.00	H	208	71	-58.37	12.28	-46.09	-21.1
12675.00	H	-	-	-67.24	12.91	-54.33	-29.3

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

FCC ID: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
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OPERATING FREQUENCY: 2560.00 MHz
 CHANNEL: 21350
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 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]
5120.00	H	389	70	-67.95	10.84	-57.11	-32.1
7680.00	H	104	284	-51.93	11.34	-40.59	-15.6
10240.00	H	205	68	-59.28	12.42	-46.86	-21.9
12800.00	H	-	-	-66.67	12.91	-53.77	-28.8

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

FCC ID: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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7.8 Frequency Stability / Temperature Variation

\$2.1055 \$22.355 \$24.235 \$27.54 RSS-130(4.3) RSS-132(5.3) RSS-133(6.3) RSS-139(6.3) RSS-195(5.4) RSS-199(4.3)

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

For Part 22, RSS-132 and RSS-133, the frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency. For Part 24, Part 27, RSS-130, RSS-139 and RSS-199, 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: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION)		 Approved by: Quality Manager
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Band 12/17 Frequency Stability Measurements

§2.1055 §27.54 RSS-130(4.3)

OPERATING FREQUENCY: 707,500,000 Hz
 CHANNEL: 23790
 REFERENCE VOLTAGE: 3.80 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	707,499,775	-225	-0.0000318
100 %		- 30	707,499,993	-7	-0.0000010
100 %		- 20	707,499,832	-168	-0.0000237
100 %		- 10	707,500,243	243	0.0000343
100 %		0	707,499,697	-303	-0.0000428
100 %		+ 10	707,499,957	-43	-0.0000061
100 %		+ 20	707,499,874	-126	-0.0000178
100 %		+ 30	707,499,723	-277	-0.0000392
100 %		+ 40	707,499,531	-469	-0.0000663
100 %		+ 50	707,499,711	-289	-0.0000408
BATT. ENDPOINT	3.42	+ 20	707,500,387	387	0.0000547

Table 7-24. Frequency Stability Data (Band 12/17)

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: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 12/17 Frequency Stability Measurements
§2.1055 §27.54 RSS-130(4.3)

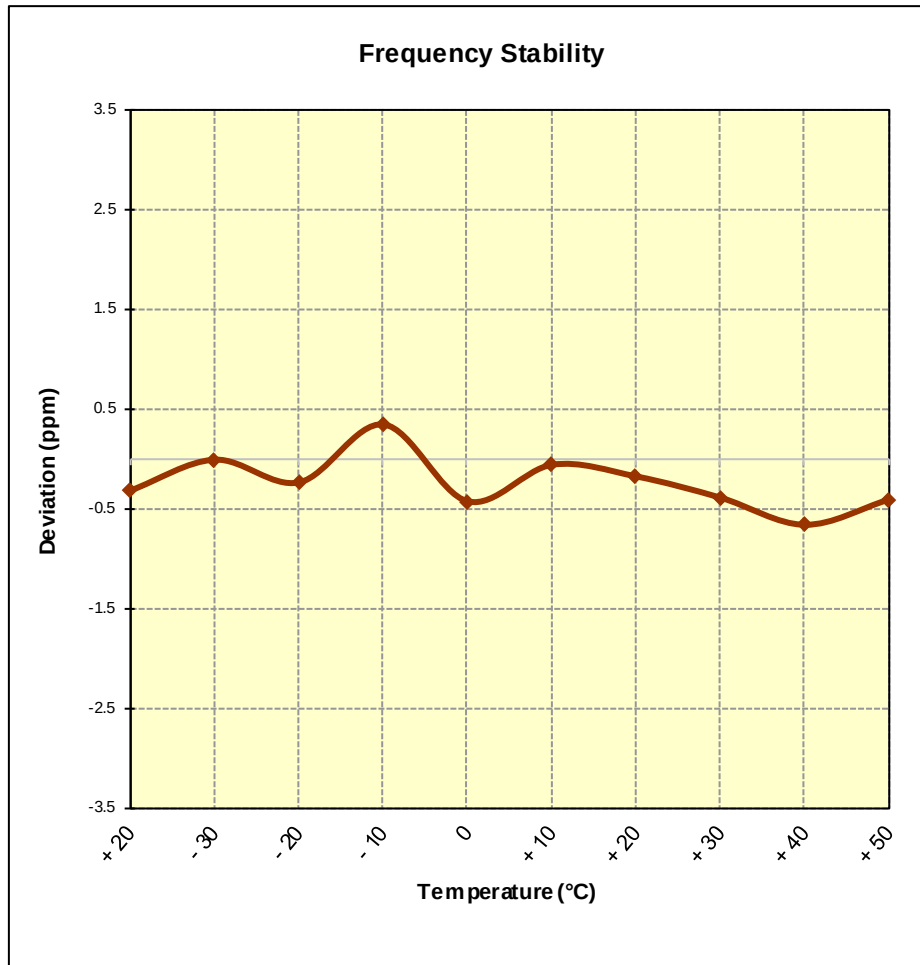


Figure 7-8. Frequency Stability Graph (Band 12/17)

FCC ID: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 13 Frequency Stability Measurements

§2.1055 §27.54 RSS-130(4.3)

OPERATING FREQUENCY: 782,000,000 Hz

CHANNEL: 23230

REFERENCE VOLTAGE: 3.80 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	782,000,133	133	0.0000170
100 %		- 30	781,999,663	-337	-0.0000431
100 %		- 20	781,999,863	-137	-0.0000175
100 %		- 10	782,000,060	60	0.0000077
100 %		0	782,000,154	154	0.0000197
100 %		+ 10	782,000,246	246	0.0000315
100 %		+ 20	782,000,078	78	0.0000100
100 %		+ 30	782,000,102	102	0.0000130
100 %		+ 40	782,000,054	54	0.0000069
100 %		+ 50	781,999,776	-224	-0.0000286
BATT. ENDPOINT	3.42	+ 20	781,999,857	-143	-0.0000183

Table 7-25. 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.

FCC ID: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 13 Frequency Stability Measurements

§2.1055 §27.54 RSS-130(4.3)

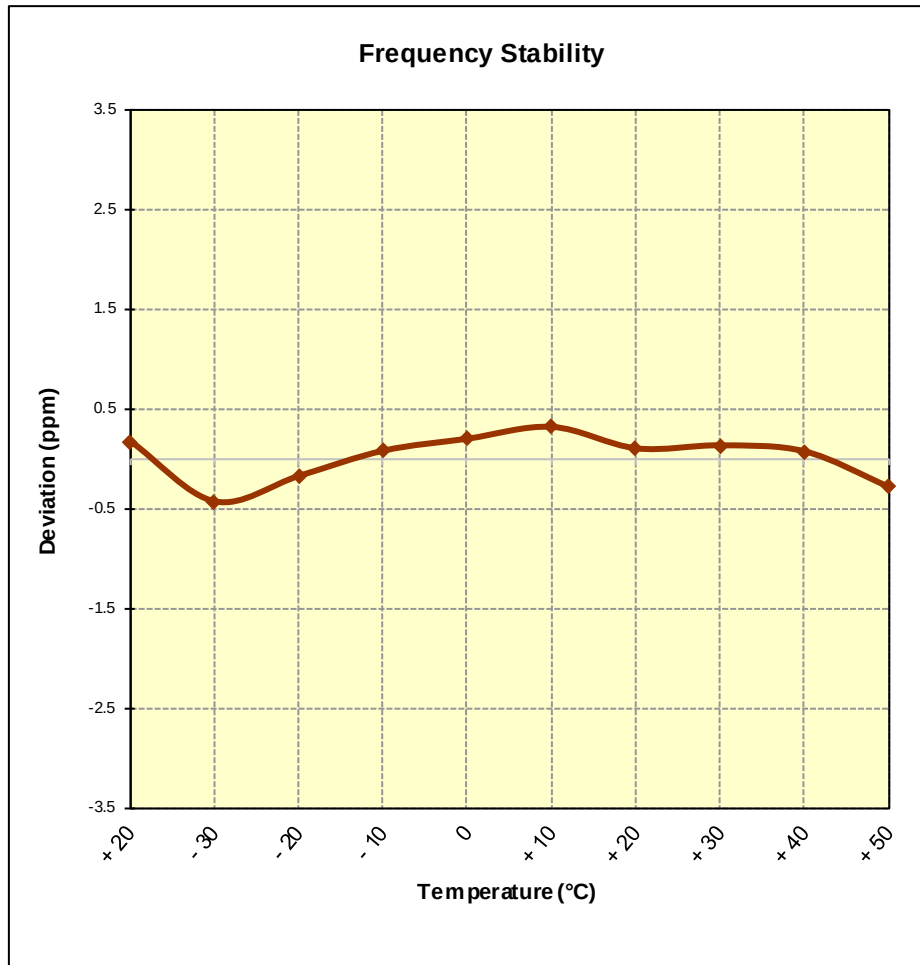


Figure 7-9. Frequency Stability Graph (Band 13)

FCC ID: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 5 Frequency Stability Measurements

§2.1055 §22.355 RSS-132(5.3)

OPERATING FREQUENCY: 836,500,000 Hz
 CHANNEL: 20525
 REFERENCE VOLTAGE: 3.80 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	836,499,925	-75	-0.0000090
100 %		- 30	836,499,939	-61	-0.0000073
100 %		- 20	836,500,196	196	0.0000234
100 %		- 10	836,499,947	-53	-0.0000063
100 %		0	836,500,076	76	0.0000091
100 %		+ 10	836,499,960	-40	-0.0000048
100 %		+ 20	836,499,664	-336	-0.0000402
100 %		+ 30	836,499,868	-132	-0.0000158
100 %		+ 40	836,499,907	-93	-0.0000111
100 %		+ 50	836,500,020	20	0.0000024
BATT. ENDPOINT	3.42	+ 20	836,500,436	436	0.0000521

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

FCC ID: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1711020282-03.A3L	Test Dates: 11/02/2017-11/29/2017	EUT Type: Portable Handset	Page 150 of 158

Band 5 Frequency Stability Measurements

§2.1055 §22.355 RSS-132(5.3)

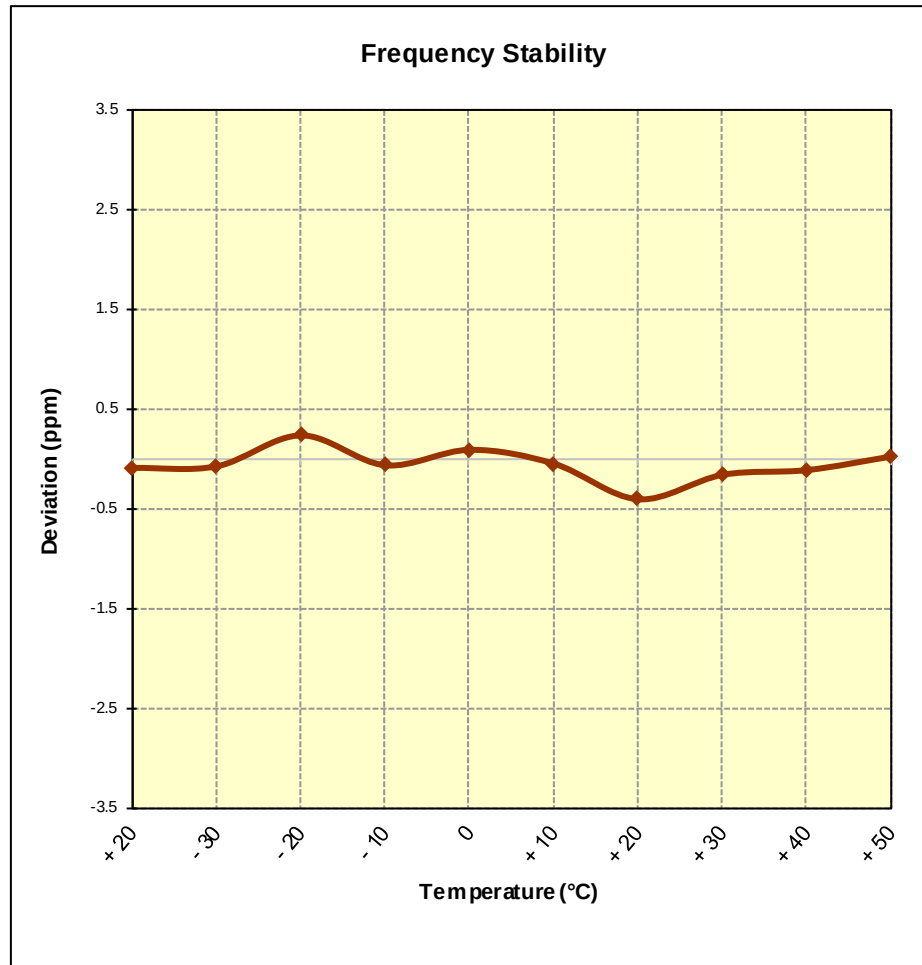


Figure 7-10. Frequency Stability Graph (Band 5)

FCC ID: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 66/4 Frequency Stability Measurements

§2.1055 §§27.54 RSS-139(6.4)

CHANNEL: 132322

REFERENCE VOLTAGE: 3.80 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	1,744,999,933	-67	-0.0000038
100 %		- 30	1,745,000,268	268	0.0000154
100 %		- 20	1,744,999,741	-259	-0.0000148
100 %		- 10	1,744,999,999	-1	-0.0000001
100 %		0	1,745,000,027	27	0.0000015
100 %		+ 10	1,745,000,204	204	0.0000117
100 %		+ 20	1,744,999,924	-76	-0.0000044
100 %		+ 30	1,745,000,112	112	0.0000064
100 %		+ 40	1,744,999,693	-307	-0.0000176
100 %		+ 50	1,745,000,120	120	0.0000069
BATT. ENDPOINT	3.42	+ 20	1,745,000,032	32	0.0000018

Table 7-27. 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.

FCC ID: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 66/4 Frequency Stability Measurements
§2.1055 §§27.54 RSS-139(6.4)

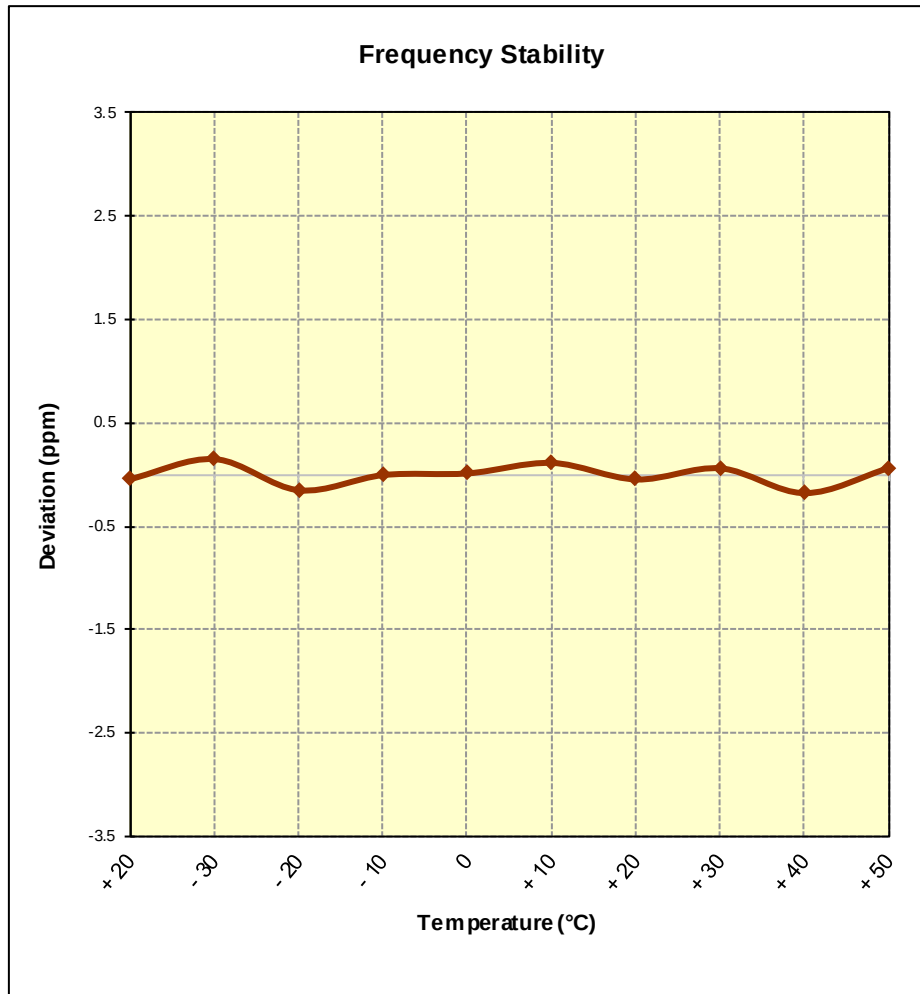


Figure 7-11. Frequency Stability Graph (Band 66/4)

FCC ID: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 2 Frequency Stability Measurements

§2.1055 §24.235 RSS-133(6.3)

OPERATING FREQUENCY: 1,880,000,000 Hz
 CHANNEL: 18900
 REFERENCE VOLTAGE: 3.80 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	1,879,999,766	-234	-0.0000124
100 %		- 30	1,880,000,140	140	0.0000074
100 %		- 20	1,879,999,921	-79	-0.0000042
100 %		- 10	1,880,000,055	55	0.0000029
100 %		0	1,879,999,873	-127	-0.0000068
100 %		+ 10	1,880,000,359	359	0.0000191
100 %		+ 20	1,880,000,034	34	0.0000018
100 %		+ 30	1,880,000,130	130	0.0000069
100 %		+ 40	1,880,000,039	39	0.0000021
100 %		+ 50	1,880,000,209	209	0.0000111
BATT. ENDPOINT	3.42	+ 20	1,879,999,813	-187	-0.0000099

Table 7-28. Frequency Stability Data (Band 2)

FCC ID: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 2 Frequency Stability Measurements

§2.1055 §24.235 RSS-133(6.3)

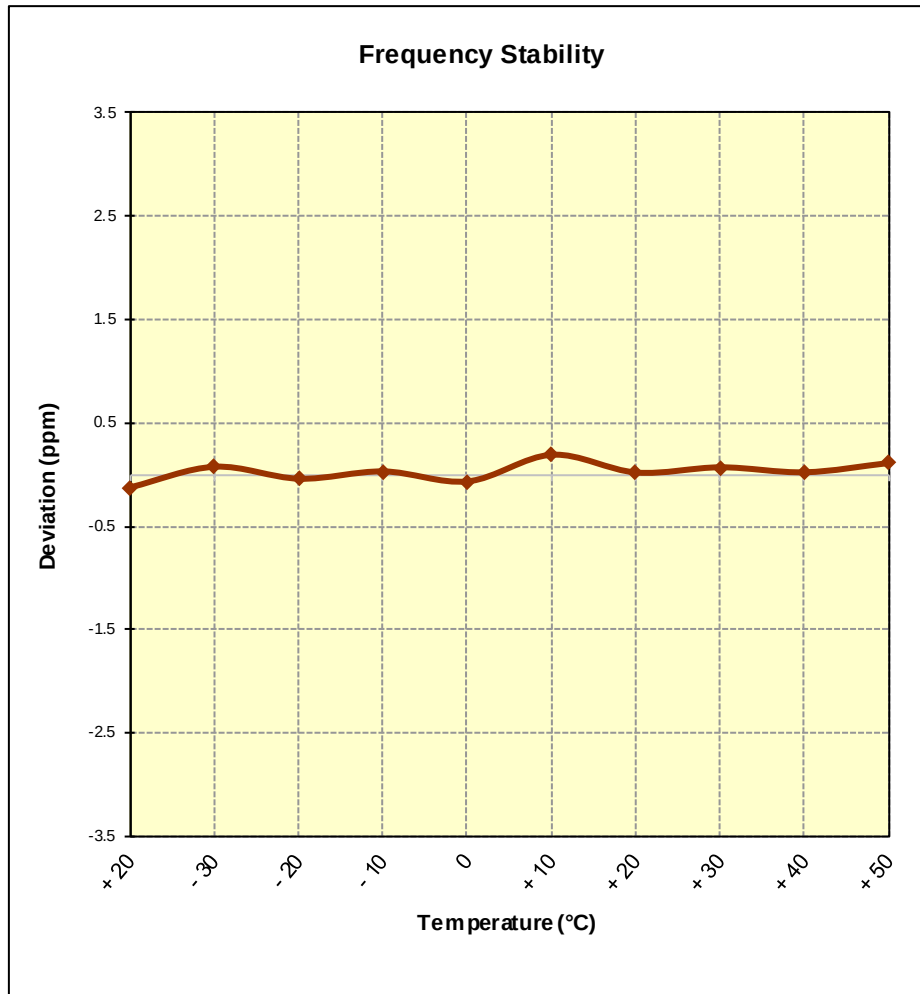


Figure 7-12. Frequency Stability Graph (Band 2)

FCC ID: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 7 Frequency Stability Measurements

§2.1055 §27.54 RSS-199(4.3)

OPERATING FREQUENCY: 2,535,000,000 Hz
 CHANNEL: 21100
 REFERENCE VOLTAGE: 3.80 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	2,535,000,319	319	0.0000126
100 %		- 30	2,534,999,852	-148	-0.0000058
100 %		- 20	2,535,000,010	10	0.0000004
100 %		- 10	2,534,999,835	-165	-0.0000065
100 %		0	2,534,999,909	-91	-0.0000036
100 %		+ 10	2,534,999,726	-274	-0.0000108
100 %		+ 20	2,535,000,035	35	0.0000014
100 %		+ 30	2,534,999,993	-7	-0.0000003
100 %		+ 40	2,535,000,193	193	0.0000076
100 %		+ 50	2,534,999,950	-50	-0.0000020
BATT. ENDPOINT	3.42	+ 20	2,535,000,071	71	0.0000028

Table 7-29. Frequency Stability Data (Band 7)

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: A3LSMJ250M	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 7 Frequency Stability Measurements

§2.1055 §27.54 RSS-199(4.3)

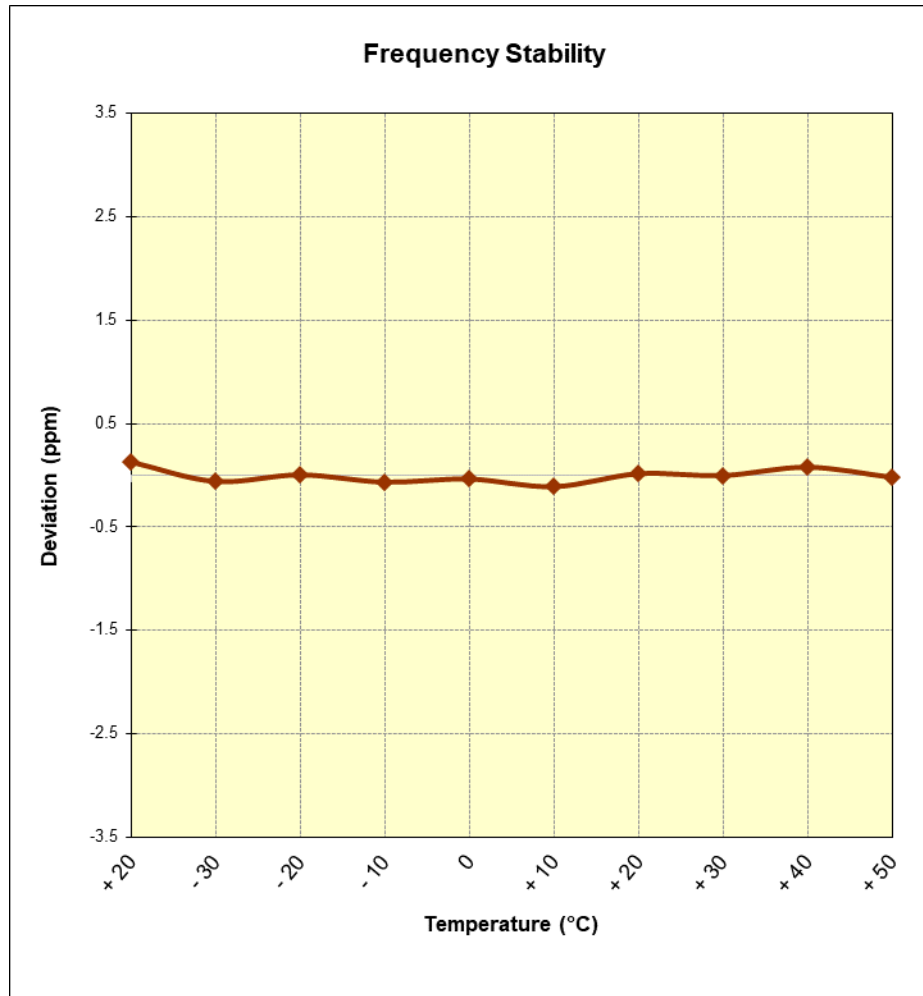


Figure 7-13. Frequency Stability Graph (Band 7)

FCC ID: A3LSMJ250M	 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 **Samsung Portable Handset**
FCC ID: A3LSMJ250M complies with all the requirements of Part of the FCC Rules for LTE operation only.

FCC ID: A3LSMJ250M		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1711020282-03.A3L	Test Dates: 11/02/2017-11/29/2017	EUT Type: Portable Handset		Page 158 of 158