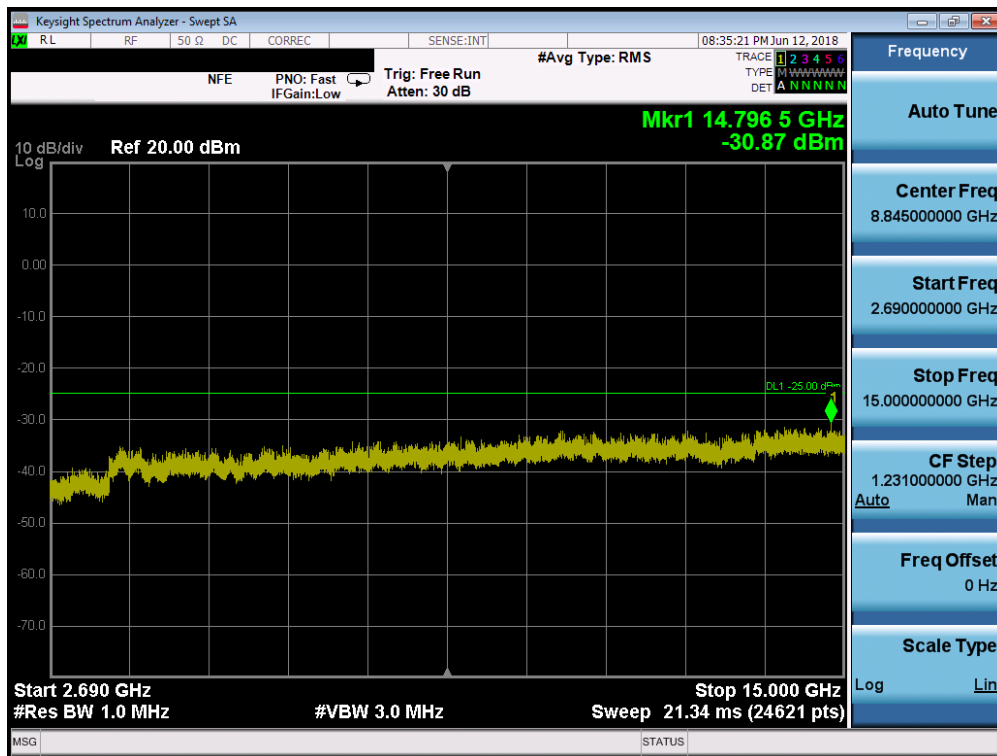
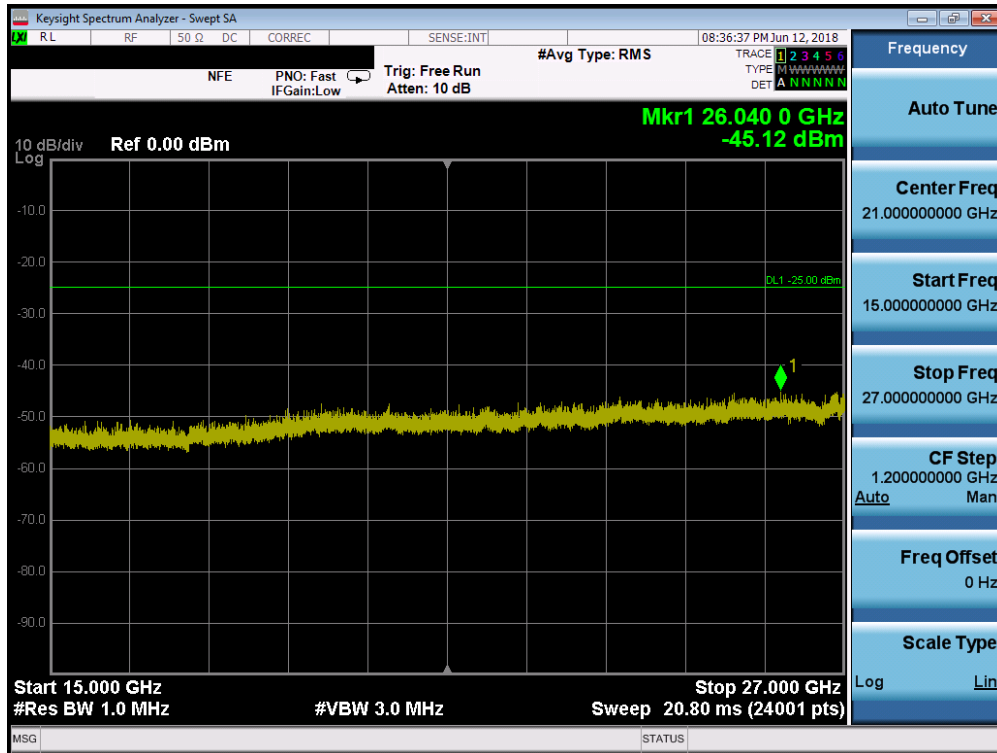


Plot 7-352. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid hannel)

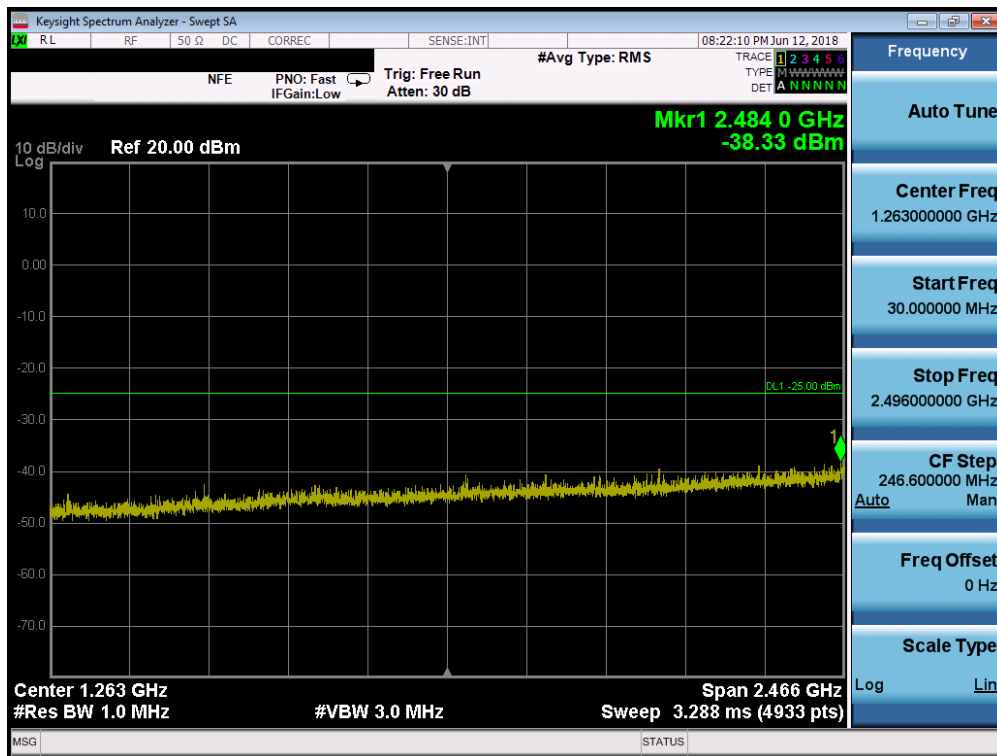


Plot 7-353. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 204 of 261

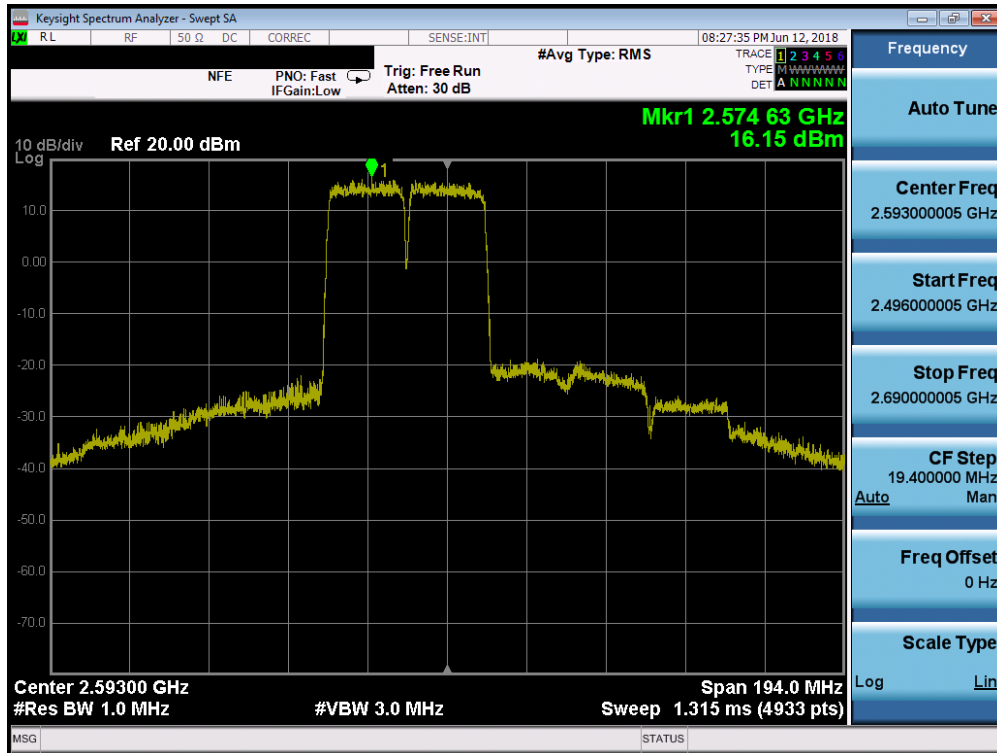


Plot 7-354. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

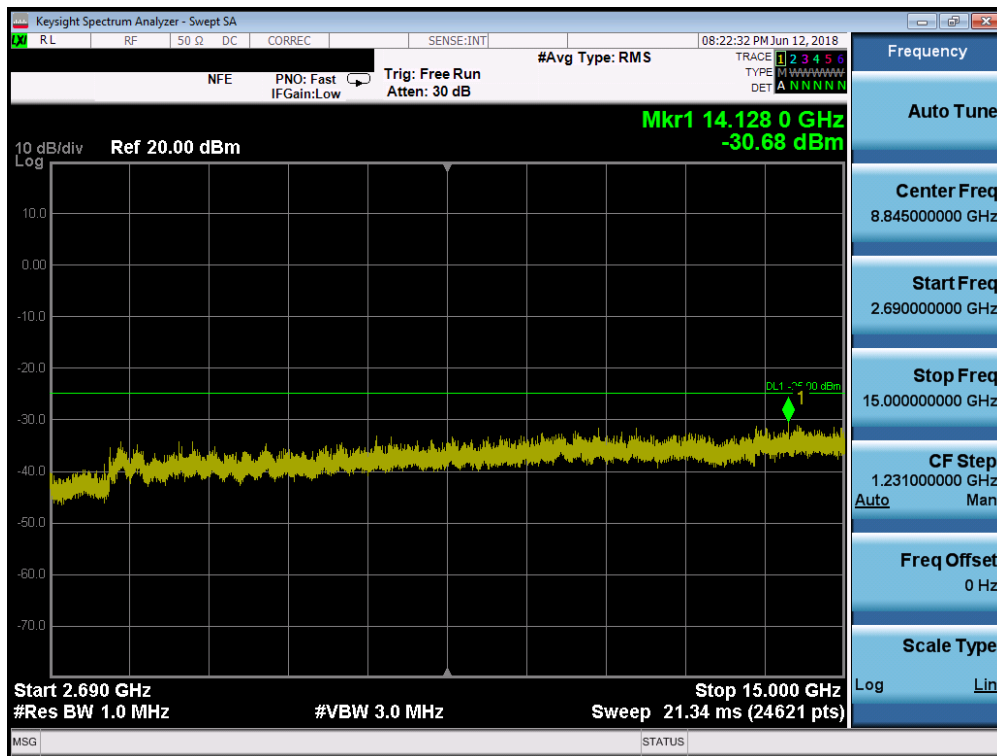


Plot 7-355. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 100/0 SCC 100/0 – Mid Channel)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 205 of 261

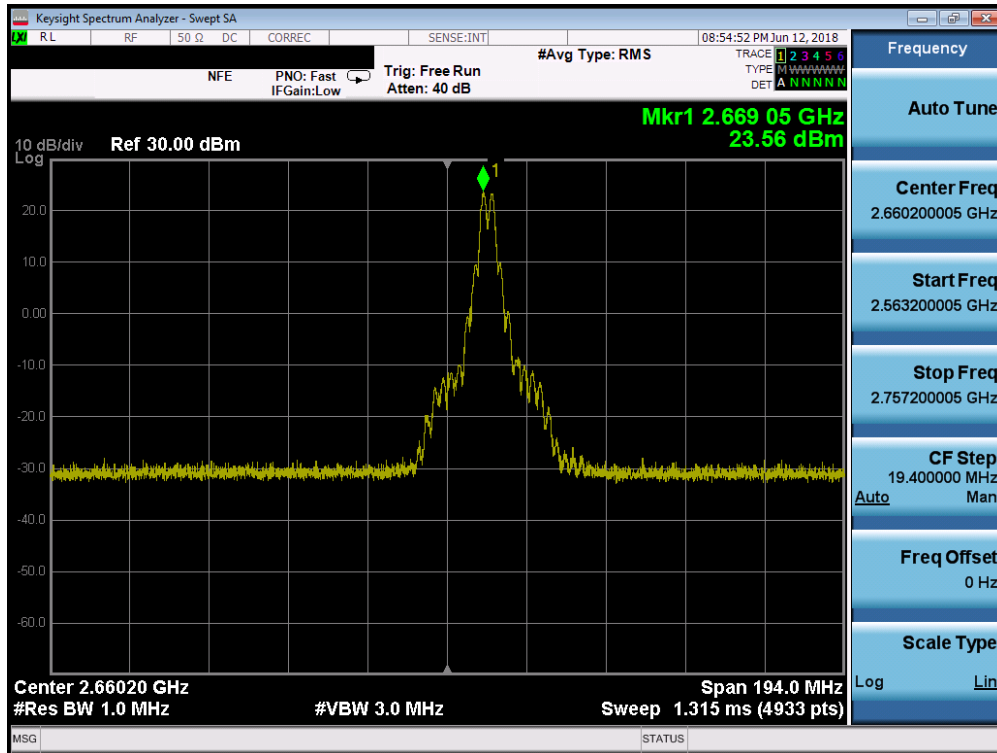


Plot 7-356. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 100/0 SCC 100/0 – Mid Channel)

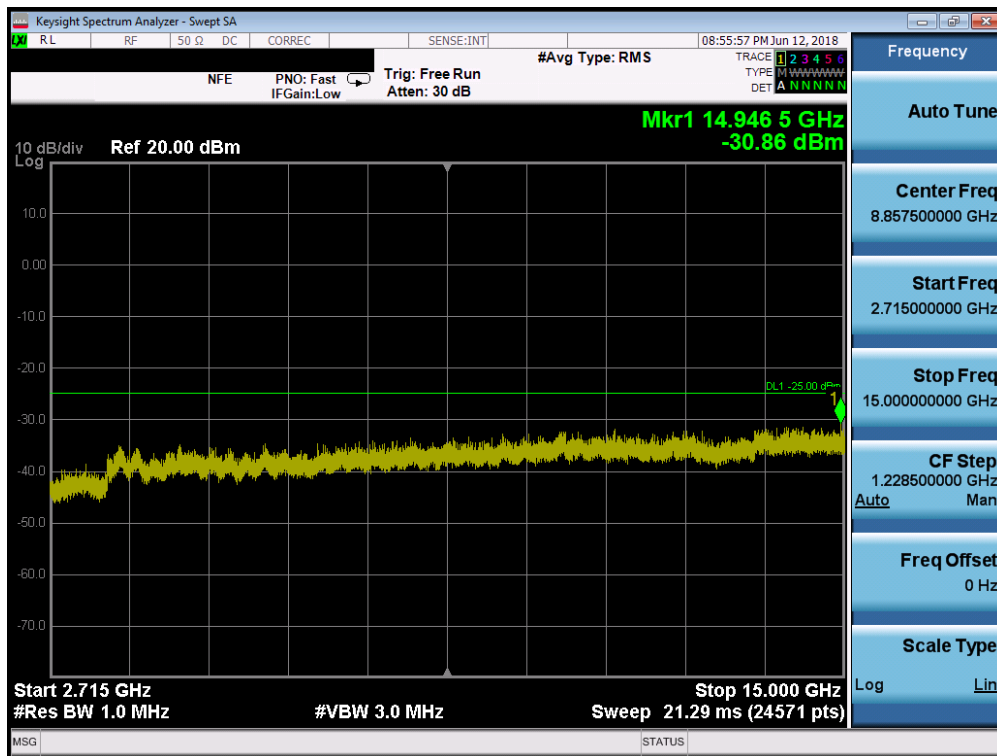


Plot 7-357. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 100/0 SCC 100/0 – Mid Channel)

FCC ID: A3LSMN9600	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 206 of 261



Plot 7-360. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – High hannel)

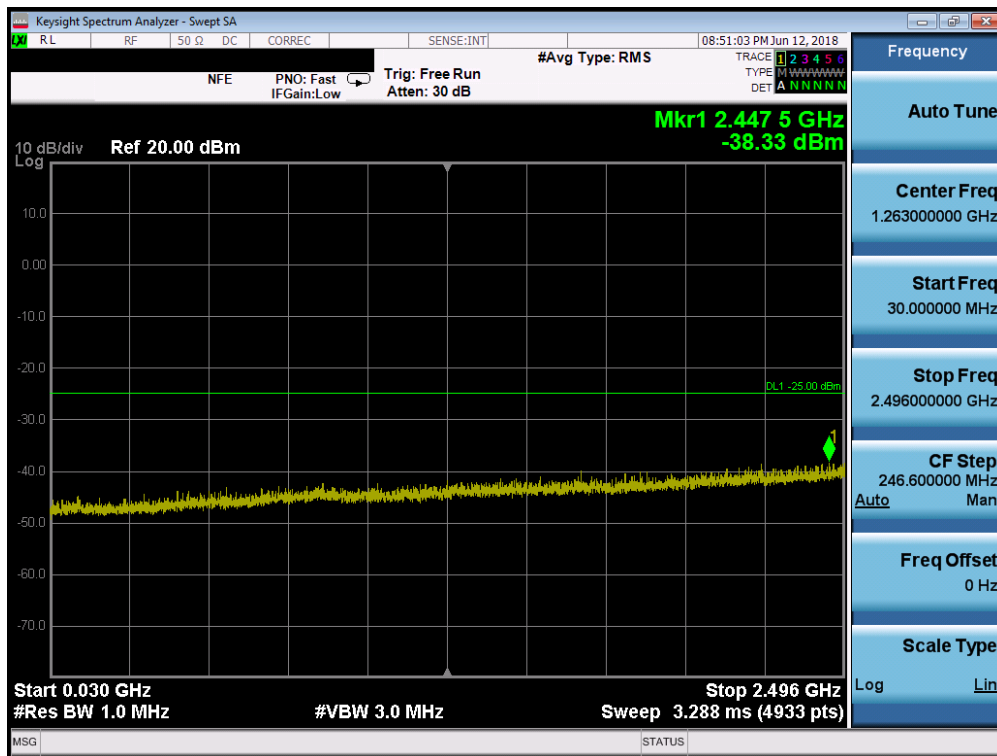


Plot 7-361. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – High Channel)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 208 of 261

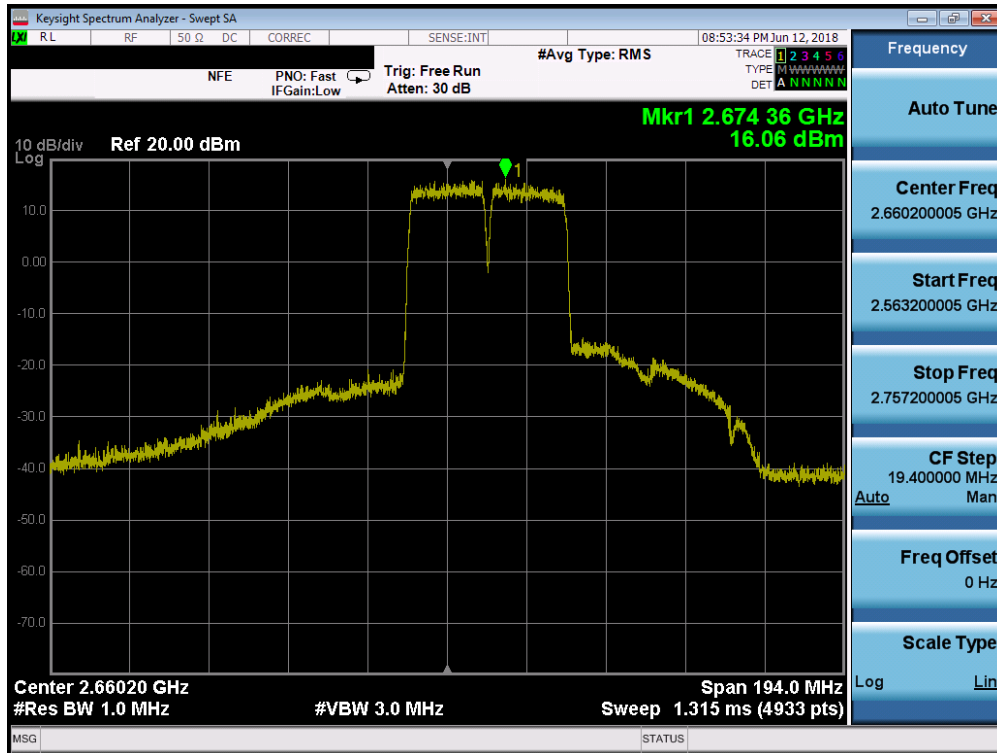


Plot 7-362. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – High Channel)

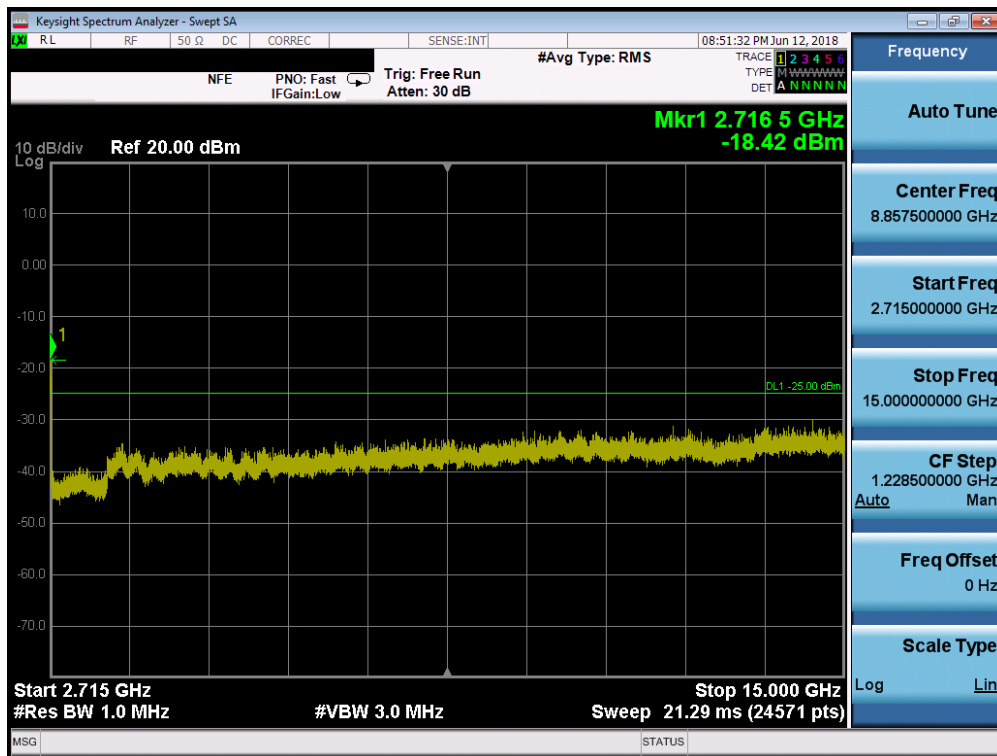


Plot 7-363. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 100/0 SCC 100/0 – High Channel)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 209 of 261

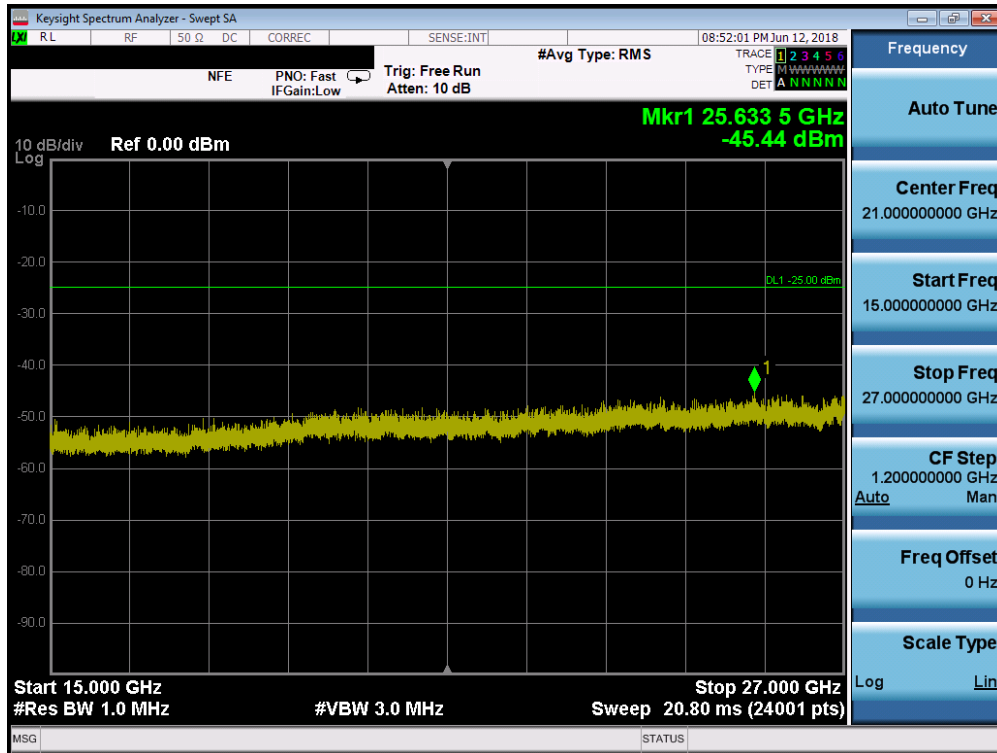


Plot 7-364. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 100/0 SCC 100/0 – High Channel)

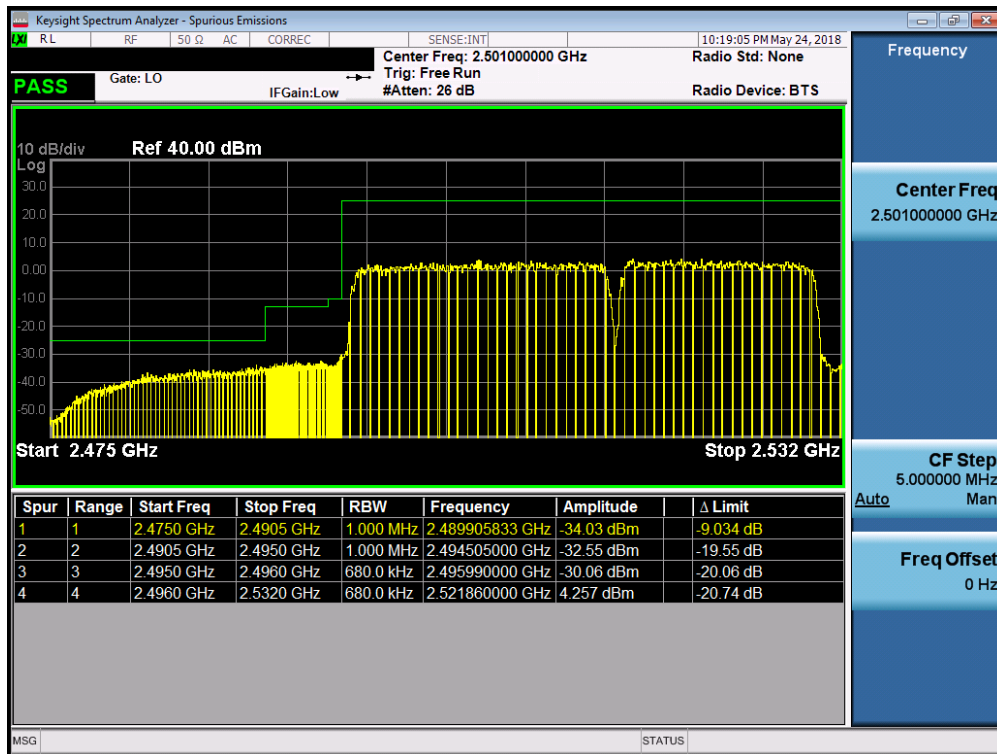


Plot 7-365. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 100/0 SCC 100/0 – High Channel)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 210 of 261

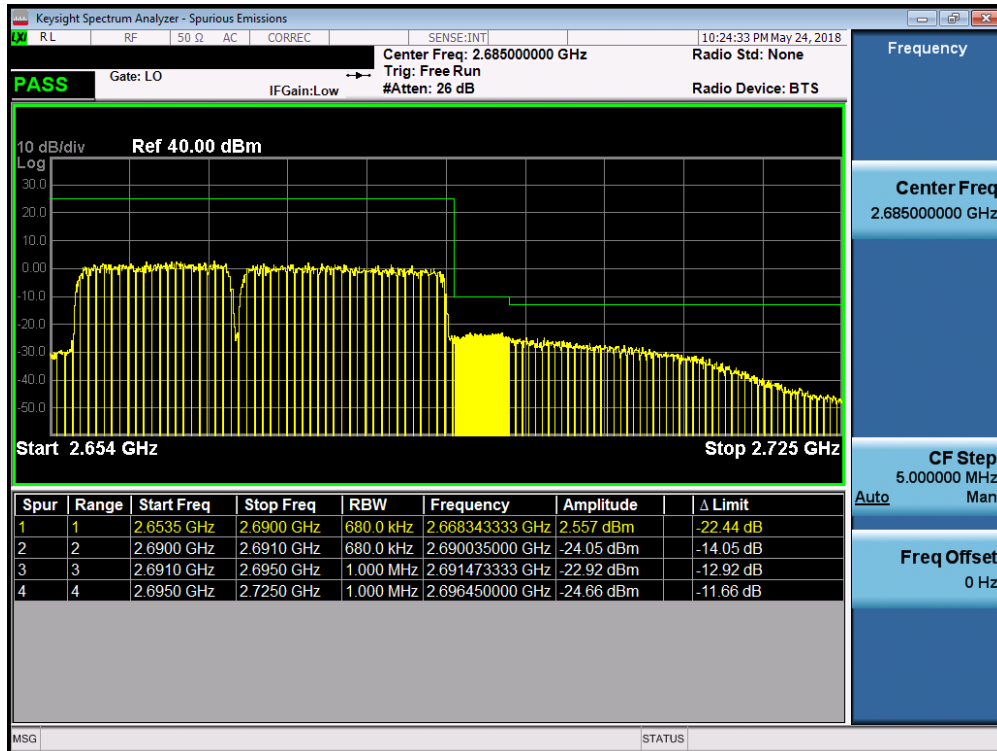


Plot 7-366. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 100/0 SCC 100/0 – High Channel)

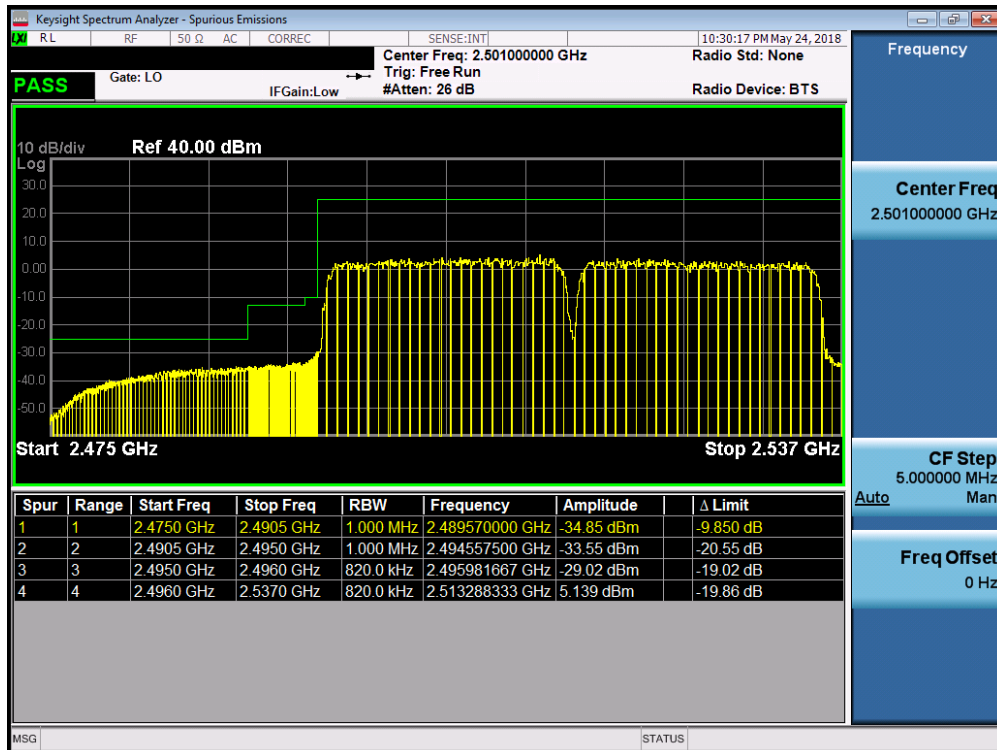


Plot 7-367. Lower ACP Plot (Band 41 QPSK – PCC:20 MHz SCC:15 MHz – Full RB)

FCC ID: A3LSMN9600	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 211 of 261

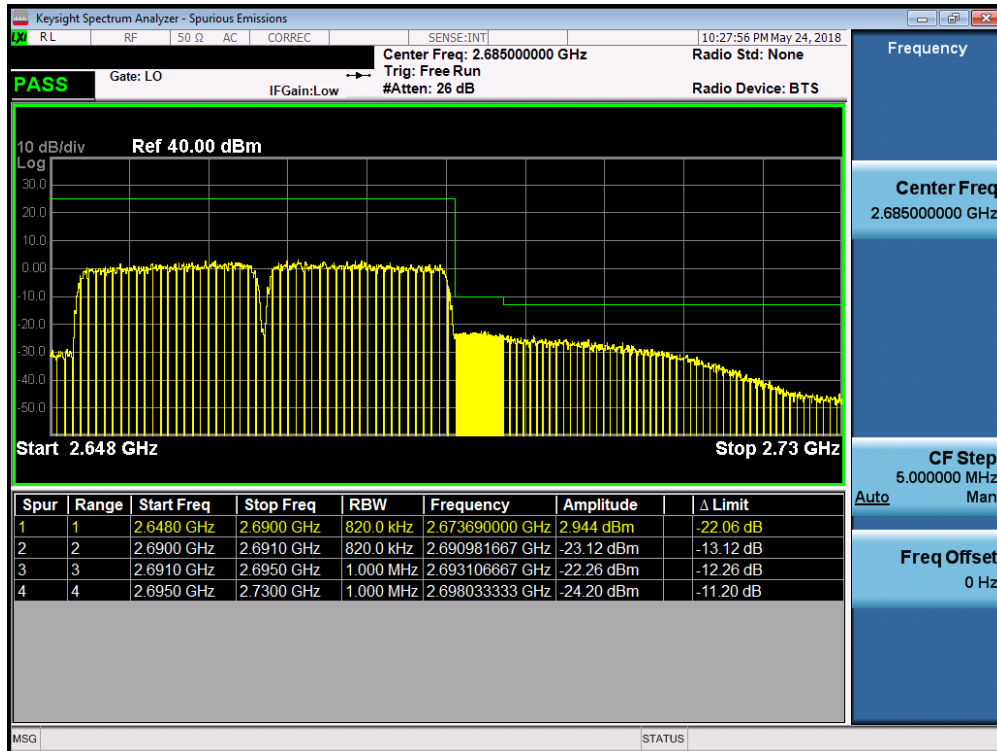


Plot 7-368. Upper ACP Plot (Band 41 QPSK – PCC:15 MHz SCC:20 MHz – Full RB)



Plot 7-369. Lower ACP Plot (Band 41 QPSK – PCC:20 MHz SCC:20 MHz – Full RB)

FCC ID: A3LSMN9600	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 212 of 261



Plot 7-370. Upper ACP Plot (Band 41 QPSK – PCC:20 MHz SCC:20 MHz – Full RB)

FCC ID: A3LSMN9600	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 213 of 261	

7.8 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 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: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 214 of 261	

Test Setup

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

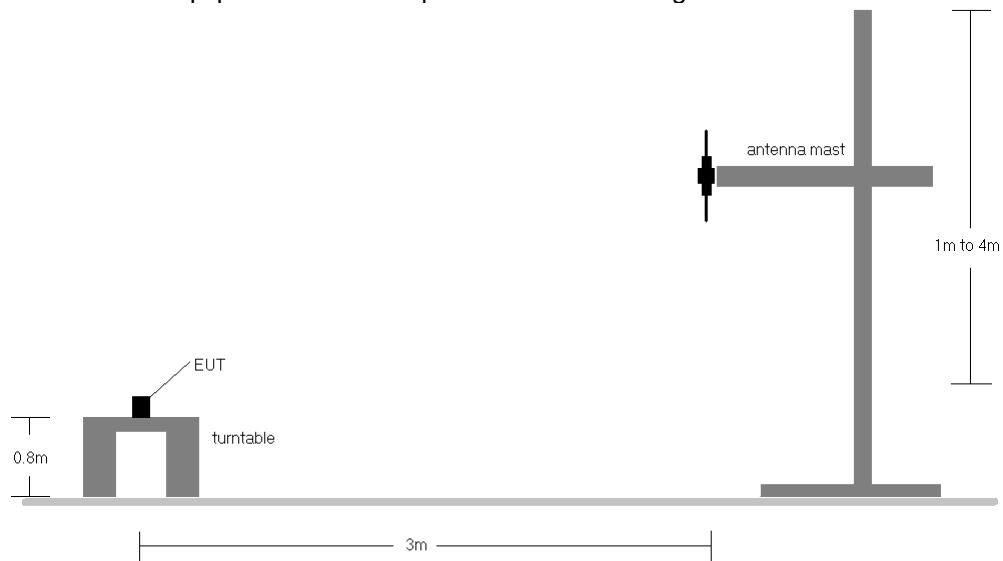


Figure 7-7. Radiated Test Setup <1GHz

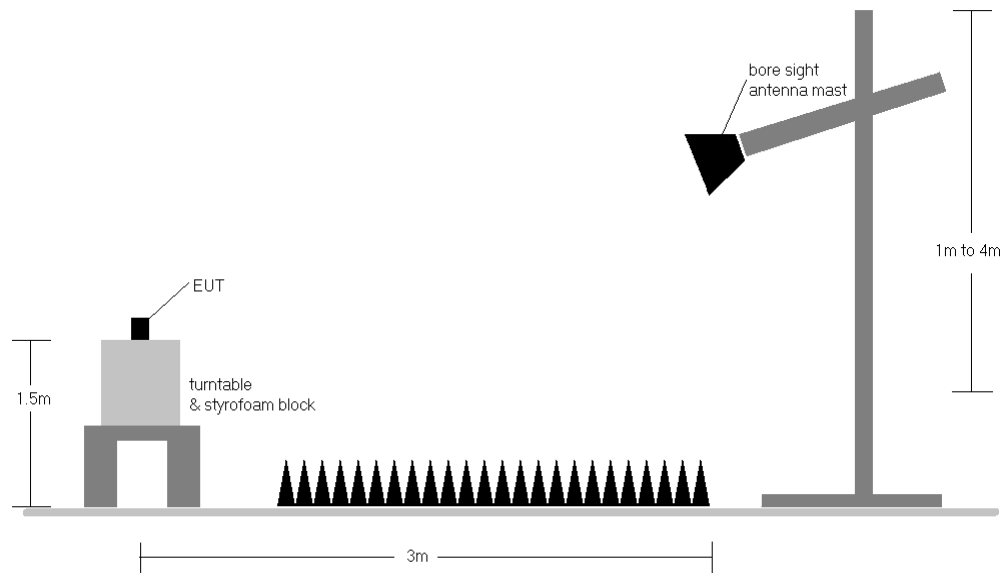


Figure 7-8. Radiated Test Setup >1GHz

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: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 215 of 261	

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	H	150	16	1 / 5	17.87	1.10	16.82	0.048	34.77	-17.95	18.97	0.079	36.99	-18.02
707.50	1.4	QPSK	H	150	15	1 / 0	18.11	1.13	17.09	0.051	34.77	-17.68	19.24	0.084	36.99	-17.75
715.30	1.4	QPSK	H	150	16	1 / 0	18.17	1.16	17.18	0.052	34.77	-17.59	19.33	0.086	36.99	-17.66
715.30	1.4	16-QAM	H	150	16	1 / 0	17.42	1.16	16.43	0.044	34.77	-18.34	18.58	0.072	36.99	-18.41
715.30	1.4	64-QAM	H	150	16	1 / 0	16.49	1.16	15.50	0.035	34.77	-19.27	17.65	0.058	36.99	-19.34
700.50	3	QPSK	H	150	16	1 / 0	17.90	1.10	16.85	0.048	34.77	-17.92	19.00	0.079	36.99	-17.99
707.50	3	QPSK	H	150	15	1 / 0	18.16	1.13	17.14	0.052	34.77	-17.63	19.29	0.085	36.99	-17.70
714.50	3	QPSK	H	150	13	1 / 0	18.39	1.16	17.40	0.055	34.77	-17.37	19.55	0.090	36.99	-17.44
714.50	3	16-QAM	H	150	13	1 / 0	17.72	1.16	16.73	0.047	34.77	-18.04	18.88	0.077	36.99	-18.11
714.50	3	64-QAM	H	150	13	1 / 0	16.66	1.16	15.67	0.037	34.77	-19.10	17.82	0.061	36.99	-19.17

Table 7-6. ERP Data (Band 12)

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]
701.50	5	QPSK	H	150	18	1 / 24	18.31	1.11	17.27	0.053	34.77	-17.51	19.42	0.087	36.99	-17.57
707.50	5	QPSK	H	150	13	1 / 24	18.61	1.13	17.59	0.057	34.77	-17.18	19.74	0.094	36.99	-17.25
713.50	5	QPSK	H	150	13	1 / 0	18.13	1.15	17.13	0.052	34.77	-17.64	19.28	0.085	36.99	-17.71
707.50	5	16-QAM	H	150	13	1 / 24	18.00	1.13	16.98	0.050	34.77	-17.79	19.13	0.082	36.99	-17.86
707.50	5	64-QAM	H	150	13	1 / 24	17.33	1.13	16.31	0.043	34.77	-18.46	18.46	0.070	36.99	-18.53
704.00	10	QPSK	H	150	15	1 / 49	18.06	1.12	17.03	0.050	34.77	-17.74	19.18	0.083	36.99	-17.81
707.50	10	QPSK	H	150	11	1 / 49	18.24	1.13	17.22	0.053	34.77	-17.55	19.37	0.087	36.99	-17.62
711.00	10	QPSK	H	150	16	1 / 0	17.99	1.14	16.98	0.050	34.77	-17.79	19.13	0.082	36.99	-17.86
707.50	10	16-QAM	H	150	11	1 / 49	17.27	1.13	16.25	0.042	34.77	-18.52	18.40	0.069	36.99	-18.59
707.50	10	64-QAM	H	150	11	1 / 49	16.63	1.13	15.61	0.036	34.77	-19.16	17.76	0.060	36.99	-19.23
707.50	5	QPSK	V	150	233	1 / 24	18.41	1.13	17.39	0.055	34.77	-17.38	19.54	0.090	36.99	-17.45
707.50	5 (WCP)	QPSK	H	150	267	1 / 24	16.97	1.13	15.95	0.039	34.77	-18.82	18.10	0.065	36.99	-18.89

Table 7-7. ERP 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	244	1 / 0	16.18	1.32	15.35	0.034	34.77	-19.42	17.50	0.056	36.99	-19.49
782.00	5	QPSK	V	150	250	1 / 24	15.93	1.33	15.11	0.032	34.77	-19.66	17.26	0.053	36.99	-19.73
784.50	5	QPSK	V	150	254	1 / 24	16.42	1.34	15.61	0.036	34.77	-19.16	17.76	0.060	36.99	-19.23
784.50	5	16-QAM	V	150	254	1 / 24	15.67	1.34	14.86	0.031	34.77	-19.91	17.01	0.050	36.99	-19.98
784.50	5	64-QAM	V	150	254	1 / 24	14.49	1.34	13.68	0.023	34.77	-21.09	15.83	0.038	36.99	-21.16
782.00	10	QPSK	V	150	253	1 / 49	17.07	1.33	16.25	0.042	34.77	-18.52	18.40	0.069	36.99	-18.59
782.00	10	16-QAM	V	150	253	1 / 49	16.13	1.33	15.31	0.034	34.77	-19.46	17.46	0.056	36.99	-19.53
782.00	10	64-QAM	V	150	253	1 / 49	15.44	1.33	14.62	0.029	34.77	-20.15	16.77	0.048	36.99	-20.22
782.00	10	QPSK	H	150	149	1 / 49	15.59	1.34	14.78	0.030	34.77	-19.99	16.93	0.049	36.99	-20.06
782.00	10 (WCP)	QPSK	V	150	282	1 / 49	14.41	1.34	13.60	0.023	34.77	-21.17	15.75	0.038	36.99	-21.24

Table 7-8. ERP Data (Band 13)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 216 of 261	

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	289	1 / 5	18.21	1.50	17.56	0.057	38.45	-20.89	19.71	0.094	40.61	-20.90
836.50	1.4	QPSK	H	150	295	1 / 0	18.63	1.50	17.98	0.063	38.45	-20.47	20.13	0.103	40.61	-20.48
848.30	1.4	QPSK	H	150	301	1 / 5	17.76	1.50	17.11	0.051	38.45	-21.34	19.26	0.084	40.61	-21.35
836.50	1.4	16-QAM	H	150	295	1 / 0	18.03	1.50	17.38	0.055	38.45	-21.07	19.53	0.090	40.61	-21.08
836.50	1.4	64-QAM	H	150	295	1 / 5	16.89	1.50	16.24	0.042	38.45	-22.21	18.39	0.069	40.61	-22.22
825.50	3	QPSK	H	150	292	1 / 14	18.39	1.50	17.74	0.059	38.45	-20.71	19.89	0.097	40.61	-20.72
836.50	3	QPSK	H	150	287	1 / 0	18.93	1.50	18.28	0.067	38.45	-20.17	20.43	0.110	40.61	-20.18
847.50	3	QPSK	H	150	283	1 / 0	18.56	1.50	17.91	0.062	38.45	-20.54	20.06	0.101	40.61	-20.55
836.50	3	16-QAM	H	150	287	1 / 0	18.05	1.50	17.40	0.055	38.45	-21.05	19.55	0.090	40.61	-21.06
836.50	3	64-QAM	H	150	287	1 / 0	17.20	1.50	16.55	0.045	38.45	-21.90	18.70	0.074	40.61	-21.91
826.50	5	QPSK	H	150	292	1 / 24	18.65	1.50	18.00	0.063	38.45	-20.45	20.15	0.104	40.61	-20.46
836.50	5	QPSK	H	150	287	1 / 0	18.81	1.50	18.16	0.065	38.45	-20.29	20.31	0.107	40.61	-20.30
846.50	5	QPSK	H	150	287	1 / 24	18.53	1.50	17.88	0.061	38.45	-20.57	20.03	0.101	40.61	-20.58
836.50	5	16-QAM	H	150	287	1 / 24	18.17	1.50	17.52	0.056	38.45	-20.93	19.67	0.093	40.61	-20.94
836.50	5	64-QAM	H	150	287	1 / 24	17.24	1.50	16.59	0.046	38.45	-21.86	18.74	0.075	40.61	-21.87
829.00	10	QPSK	H	150	297	1 / 49	18.19	1.50	17.54	0.057	38.45	-20.91	19.69	0.093	40.61	-20.92
836.50	10	QPSK	H	150	285	1 / 0	18.68	1.50	18.03	0.064	38.45	-20.42	20.18	0.104	40.61	-20.43
844.00	10	QPSK	H	150	295	1 / 49	18.29	1.50	17.64	0.058	38.45	-20.81	19.79	0.095	40.61	-20.82
836.50	10	16-QAM	H	150	285	1 / 0	18.29	1.50	17.64	0.058	38.45	-20.81	19.79	0.095	40.61	-20.82
836.50	10	64-QAM	H	150	285	1 / 0	17.14	1.50	16.49	0.045	38.45	-21.96	18.64	0.073	40.61	-21.97
836.50	3	QPSK	V	150	255	1 / 0	18.13	1.50	17.48	0.056	38.45	-20.97	19.63	0.092	40.61	-20.98
836.50	3 (WCP)	QPSK	H	150	241	1 / 0	15.51	1.50	14.86	0.031	38.45	-23.59	17.01	0.050	40.61	-23.60

Table 7-9. 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]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
831.50	15	QPSK	H	150	296	1 / 74	18.50	1.50	17.85	0.061	38.45	-20.60	20.00	0.100	40.61	-20.61
836.50	15	QPSK	H	150	298	1 / 74	18.09	1.50	17.44	0.055	38.45	-21.01	19.59	0.091	40.61	-21.02
841.50	15	QPSK	H	150	291	1 / 0	18.49	1.50	17.84	0.061	38.45	-20.61	19.99	0.100	40.61	-20.62
841.50	15	16-QAM	H	150	291	1 / 0	18.09	1.50	17.44	0.055	38.45	-21.01	19.59	0.091	40.61	-21.02
841.50	15	64-QAM	H	150	291	1 / 0	16.81	1.50	16.16	0.041	38.45	-22.29	18.31	0.068	40.61	-22.30

Table 7-10. ERP Data (Band 26)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 217 of 261	

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	356	1 / 0	18.58	5.56	24.14	0.259	30.00	-5.86
1745.00	1.4	QPSK	H	150	350	1 / 0	18.34	5.32	23.66	0.232	30.00	-6.34
1779.30	1.4	QPSK	H	150	360	1 / 5	18.88	5.09	23.97	0.250	30.00	-6.03
1779.30	1.4	16-QAM	H	150	360	1 / 5	18.10	5.09	23.19	0.209	30.00	-6.81
1779.30	1.4	64-QAM	H	150	360	1 / 5	17.17	5.09	22.26	0.168	30.00	-7.74
1711.50	3	QPSK	H	150	357	1 / 0	18.64	5.55	24.19	0.263	30.00	-5.81
1745.00	3	QPSK	H	150	350	1 / 14	18.45	5.32	23.77	0.238	30.00	-6.23
1778.50	3	QPSK	H	150	361	1 / 0	18.95	5.10	24.05	0.254	30.00	-5.95
1711.50	3	16-QAM	H	150	357	1 / 0	18.00	5.55	23.55	0.227	30.00	-6.45
1711.50	3	64-QAM	H	150	357	1 / 0	17.22	5.55	22.77	0.189	30.00	-7.23
1712.50	5	QPSK	H	150	357	1 / 0	18.73	5.55	24.28	0.268	30.00	-5.72
1745.00	5	QPSK	H	150	352	1 / 0	18.44	5.32	23.76	0.238	30.00	-6.24
1777.50	5	QPSK	H	150	358	1 / 24	18.93	5.10	24.03	0.253	30.00	-5.97
1777.50	5	16-QAM	H	150	358	1 / 24	18.20	5.10	23.30	0.214	30.00	-6.70
1777.50	5	64-QAM	H	150	358	1 / 24	17.12	5.10	22.22	0.167	30.00	-7.78
1715.00	10	QPSK	H	150	357	1 / 0	18.65	5.53	24.18	0.262	30.00	-5.82
1745.00	10	QPSK	H	150	352	1 / 0	18.58	5.32	23.90	0.246	30.00	-6.10
1775.00	10	QPSK	H	150	359	1 / 49	18.90	5.12	24.02	0.252	30.00	-5.98
1715.00	10	16-QAM	H	150	357	1 / 0	18.00	5.53	23.53	0.225	30.00	-6.47
1715.00	10	64-QAM	H	150	357	1 / 0	17.14	5.53	22.67	0.185	30.00	-7.33
1717.50	15	QPSK	H	150	356	1 / 0	18.94	5.51	24.45	0.279	30.00	-5.55
1745.00	15	QPSK	H	20	351	1 / 0	18.44	5.32	23.76	0.238	30.00	-6.24
1772.50	15	QPSK	H	150	359	1 / 74	18.90	5.14	24.04	0.253	30.00	-5.96
1772.50	15	16-QAM	H	150	359	1 / 74	18.18	5.14	23.32	0.215	30.00	-6.68
1717.50	15	64-QAM	H	150	356	1 / 0	16.97	5.51	22.48	0.177	30.00	-7.52
1720.00	20	QPSK	H	150	355	1 / 0	18.97	5.49	24.46	0.279	30.00	-5.54
1745.00	20	QPSK	H	150	350	1 / 0	18.89	5.32	24.21	0.264	30.00	-5.79
1770.00	20	QPSK	H	150	358	1 / 99	18.93	5.15	24.08	0.256	30.00	-5.92
1720.00	20	16-QAM	H	150	355	1 / 0	18.17	5.49	23.66	0.232	30.00	-6.34
1720.00	20	64-QAM	H	150	355	1 / 0	17.28	5.49	22.77	0.189	30.00	-7.23
1720.00	20	QPSK	V	150	50	1 / 0	15.57	5.49	21.06	0.128	30.00	-8.94
1720.00	20 (WCP)	QPSK	H	150	359	1 / 0	17.70	5.49	23.19	0.209	30.00	-6.81

Table 7-11. EIRP Data (Band 66/4)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 218 of 261

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	H	150	5	1 / 5	17.77	4.82	22.59	0.181	33.01	-10.42
1882.50	1.4	QPSK	H	150	7	1 / 0	17.15	4.73	21.88	0.154	33.01	-11.13
1914.30	1.4	QPSK	H	150	6	1 / 5	16.44	4.68	21.12	0.129	33.01	-11.89
1850.70	1.4	16-QAM	H	150	5	1 / 0	17.14	4.82	21.96	0.157	33.01	-11.05
1850.70	1.4	64-QAM	H	150	5	1 / 5	16.24	4.82	21.06	0.128	33.01	-11.95
1851.50	3	QPSK	H	150	0	1 / 0	18.06	4.82	22.88	0.194	33.01	-10.13
1882.50	3	QPSK	H	150	356	1 / 0	16.93	4.73	21.66	0.147	33.01	-11.35
1913.50	3	QPSK	H	150	0	1 / 0	16.50	4.68	21.18	0.131	33.01	-11.83
1851.50	3	16-QAM	H	150	0	1 / 0	17.32	4.82	22.14	0.164	33.01	-10.87
1851.50	3	64-QAM	H	150	0	1 / 0	16.29	4.82	21.11	0.129	33.01	-11.90
1852.50	5	QPSK	H	150	359	1 / 0	18.16	4.81	22.97	0.198	33.01	-10.04
1882.50	5	QPSK	H	150	358	1 / 0	17.03	4.73	21.76	0.150	33.01	-11.25
1912.50	5	QPSK	H	150	357	1 / 0	16.28	4.68	20.96	0.125	33.01	-12.05
1852.50	5	16-QAM	H	150	359	1 / 0	17.30	4.81	22.11	0.163	33.01	-10.90
1852.50	5	64-QAM	H	150	359	1 / 0	16.47	4.81	21.28	0.134	33.01	-11.73
1855.00	10	QPSK	H	150	2	1 / 0	18.55	4.81	23.36	0.217	33.01	-9.65
1882.50	10	QPSK	H	150	1	1 / 0	17.56	4.73	22.29	0.170	33.01	-10.72
1910.00	10	QPSK	H	150	0	1 / 0	16.74	4.68	21.42	0.139	33.01	-11.59
1855.00	10	16-QAM	H	150	2	1 / 0	18.02	4.81	22.83	0.192	33.01	-10.18
1855.00	10	64-QAM	H	150	2	1 / 0	17.07	4.81	21.88	0.154	33.01	-11.13
1857.50	15	QPSK	H	150	4	1 / 0	18.13	4.80	22.93	0.196	33.01	-10.08
1882.50	15	QPSK	H	150	359	1 / 0	17.43	4.73	22.16	0.165	33.01	-10.85
1907.50	15	QPSK	H	150	4	1 / 0	16.87	4.68	21.55	0.143	33.01	-11.46
1857.50	15	16-QAM	H	150	4	1 / 0	17.26	4.80	22.06	0.161	33.01	-10.95
1857.50	15	64-QAM	H	150	4	1 / 0	16.34	4.80	21.14	0.130	33.01	-11.87
1860.00	20	QPSK	H	150	6	1 / 0	18.24	4.79	23.03	0.201	33.01	-9.98
1882.50	20	QPSK	H	150	3	1 / 0	17.59	4.73	22.32	0.171	33.01	-10.69
1905.00	20	QPSK	H	150	4	1 / 0	16.97	4.68	21.65	0.146	33.01	-11.36
1860.00	20	16-QAM	H	150	6	1 / 0	17.95	4.79	22.74	0.188	33.01	-10.27
1860.00	20	64-QAM	H	150	6	1 / 0	16.91	4.79	21.70	0.148	33.01	-11.31
1855.00	10	QPSK	V	150	280	1 / 0	13.89	4.73	18.62	0.073	33.01	-14.39
1855.00	10 (WCP)	QPSK	H	150	0	1 / 0	14.58	4.73	19.31	0.085	33.01	-13.70

Table 7-12. EIRP Data (Band 25/2)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 219 of 261

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]
2498.50	5	QPSK	V	150	290	1 / 0	19.59	5.73	25.32	0.340	33.01	-7.69
2593.00	5	QPSK	V	150	295	1 / 24	18.71	6.07	24.78	0.301	33.01	-8.23
2687.50	5	QPSK	V	150	276	1 / 0	17.49	6.48	23.97	0.250	33.01	-9.04
2593.00	5	16-QAM	V	150	295	1 / 24	18.44	6.07	24.51	0.283	33.01	-8.50
2498.50	5	64-QAM	V	150	290	1 / 0	18.74	5.73	24.47	0.280	33.01	-8.54
2501.00	10	QPSK	V	150	283	1 / 0	19.27	5.73	25.00	0.317	33.01	-8.01
2593.00	10	QPSK	V	150	276	1 / 0	20.42	6.07	26.49	0.446	33.01	-6.52
2685.00	10	QPSK	V	150	273	1 / 0	18.64	6.47	25.11	0.325	33.01	-7.90
2593.00	10	16-QAM	V	150	276	1 / 0	19.80	6.07	25.87	0.387	33.01	-7.14
2501.00	10	64-QAM	V	150	283	1 / 0	19.33	5.73	25.06	0.321	33.01	-7.95
2503.50	15	QPSK	V	150	306	1 / 0	16.51	5.74	22.25	0.168	33.01	-10.76
2593.00	15	QPSK	V	150	303	1 / 74	18.19	6.07	24.26	0.267	33.01	-8.75
2682.50	15	QPSK	V	150	292	1 / 0	15.81	6.46	22.27	0.169	33.01	-10.74
2593.00	15	16-QAM	V	150	303	1 / 74	17.68	6.07	23.75	0.237	33.01	-9.26
2593.00	15	64-QAM	V	150	303	1 / 74	16.55	6.07	22.62	0.183	33.01	-10.39
2506.00	20	QPSK	V	150	285	1 / 0	20.46	5.75	26.21	0.418	33.01	-6.80
2593.00	20	QPSK	V	150	278	1 / 0	18.22	6.07	24.29	0.269	33.01	-8.72
2680.00	20	QPSK	V	150	271	1 / 0	16.78	6.45	23.23	0.210	33.01	-9.78
2506.00	20	16-QAM	V	150	285	1 / 0	18.87	5.75	24.62	0.290	33.01	-8.39
2506.00	20	64-QAM	V	150	285	1 / 0	16.72	5.75	22.47	0.177	33.01	-10.54
2593.00	10	QPSK	H	150	221	1 / 0	19.21	6.07	25.28	0.337	33.01	-7.73
2593.00	10 (WCP)	QPSK	V	150	340	1 / 0	15.69	6.07	21.76	0.150	33.01	-11.25

Table 7-13. EIRP Data (Band 41 PC2)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 220 of 261	

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]
2498.50	5	QPSK	V	150	286	1 / 0	15.35	5.73	21.08	0.128	33.01	-11.93
2593.00	5	QPSK	V	150	283	1 / 0	15.00	6.07	21.07	0.128	33.01	-11.94
2687.50	5	QPSK	V	150	272	1 / 24	16.16	6.48	22.64	0.184	33.01	-10.37
2593.00	5	16-QAM	V	150	283	1 / 0	14.20	6.07	20.27	0.106	33.01	-12.74
2687.50	5	64-QAM	V	150	272	1 / 24	14.25	6.48	20.73	0.118	33.01	-12.28
2501.00	10	QPSK	V	150	284	1 / 0	15.24	5.73	20.97	0.125	33.01	-12.04
2593.00	10	QPSK	V	150	277	1 / 0	17.39	6.07	23.46	0.222	33.01	-9.55
2685.00	10	QPSK	V	150	270	1 / 0	16.55	6.47	23.02	0.201	33.01	-9.99
2593.00	10	16-QAM	V	150	277	1 / 0	16.94	6.07	23.01	0.200	33.01	-10.00
2593.00	10	64-QAM	V	150	277	1 / 0	14.58	6.07	20.65	0.116	33.01	-12.36
2503.50	15	QPSK	V	150	280	1 / 74	15.71	5.74	21.45	0.140	33.01	-11.56
2593.00	15	QPSK	V	150	277	1 / 0	17.56	6.07	23.63	0.231	33.01	-9.38
2682.50	15	QPSK	V	150	270	1 / 74	17.04	6.46	23.50	0.224	33.01	-9.51
2593.00	15	16-QAM	V	150	277	1 / 0	16.55	6.07	22.62	0.183	33.01	-10.39
2682.50	15	64-QAM	V	150	270	1 / 0	16.36	6.46	22.82	0.192	33.01	-10.19
2506.00	20	QPSK	V	150	256	1 / 0	15.52	5.75	21.27	0.134	33.01	-11.74
2593.00	20	QPSK	V	150	263	1 / 0	17.85	6.07	23.92	0.247	33.01	-9.09
2680.00	20	QPSK	V	150	270	1 / 99	16.55	6.45	23.00	0.200	33.01	-10.01
2593.00	20	16-QAM	V	150	263	1 / 0	16.52	6.07	22.59	0.182	33.01	-10.42
2680.00	20	64-QAM	V	150	270	1 / 0	15.29	6.45	21.74	0.149	33.01	-11.27
2593.00	20	QPSK	H	150	221	1 / 0	16.70	6.07	22.77	0.189	33.01	-10.24
2593.00	20 (WCP)	QPSK	V	150	276	1 / 0	16.77	6.07	22.84	0.192	33.01	-10.17

Table 7-14. EIRP Data (Band 41 PC3)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 221 of 261	

7.9 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: A3LSMN9600	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 222 of 261

Test Setup

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

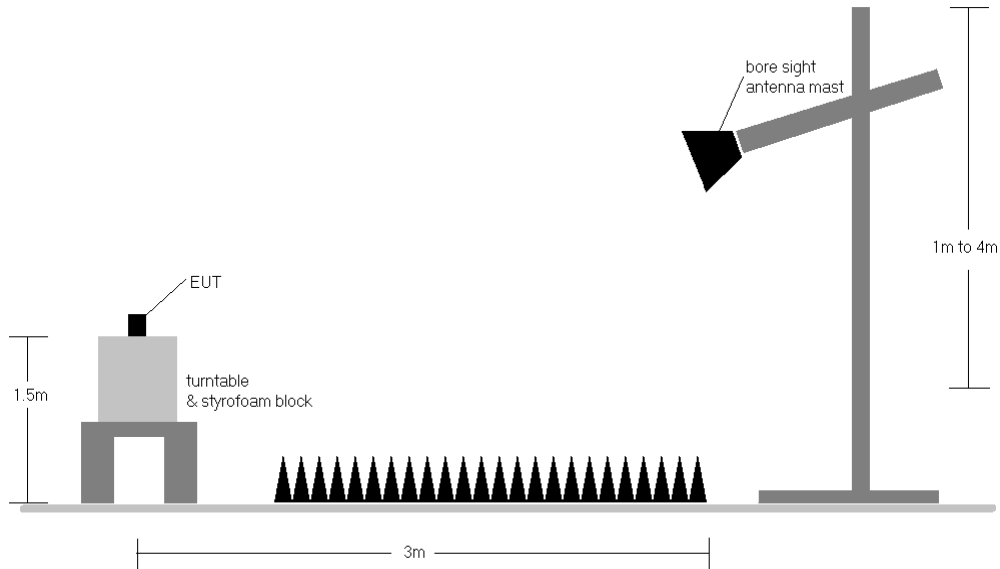


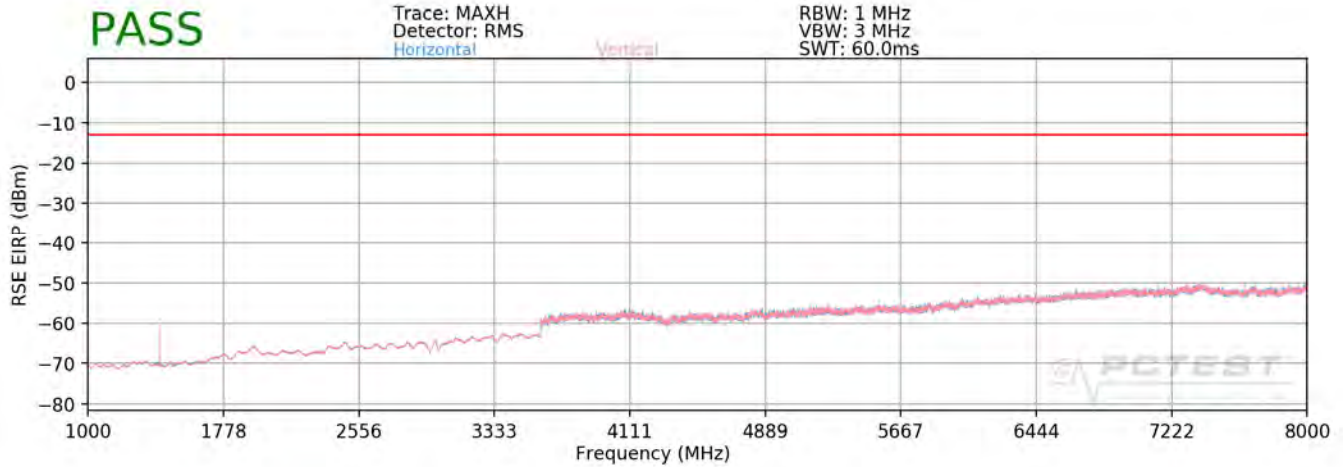
Figure 7-9. Test Instrument & Measurement Setup

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: A3LSMN9600	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 223 of 261

Band 12/17



Plot 7-371. Radiated Spurious Plot above 1GHz (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	H	146	240	-69.56	7.94	-61.62	-48.6
2104.50	H	143	261	-77.24	8.90	-68.34	-55.3
2806.00	H	-	-	-77.50	10.07	-67.43	-54.4

Table 7-15. Radiated Spurious Data (Band 12/17– Low Channel)

FCC ID: A3LSMN9600	PCTEST ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 224 of 261		

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	H	113	263	-64.82	8.09	-56.73	-43.7
2122.50	H	118	294	-76.33	8.88	-67.45	-54.4
2830.00	H	-	-	-76.36	10.13	-66.23	-53.2

Table 7-16. Radiated Spurious Data (Band 12/17 – Mid Channel)

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	H	153	291	-70.96	8.23	-62.73	-49.7
2140.50	H	151	291	-76.77	8.86	-67.91	-54.9
2854.00	H	-	-	-77.21	10.18	-67.03	-54.0

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

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 225 of 261

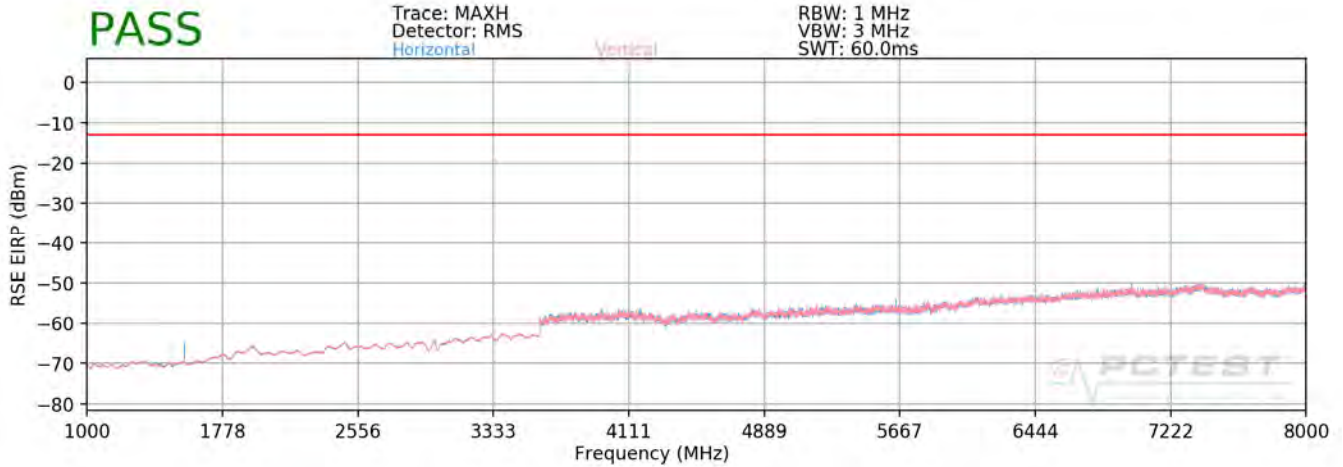
OPERATING FREQUENCY: 707.50 MHz
 CHANNEL: 23095
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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	H	149	191	-69.95	8.09	-61.86	-48.9
2122.50	H	149	185	-76.61	8.88	-67.73	-54.7
2830.00	H	-	-	-77.04	10.13	-66.91	-53.9

Table 7-18. Radiated Spurious Data with WCP (Band 12/17 – Mid Channel)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 226 of 261

Band 13



Plot 7-372. Radiated Spurious Plot above 1GHz (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]
2346.00	H	-	-	-78.08	9.49	-68.59	-55.6
3128.00	H	-	-	-75.80	9.53	-66.27	-53.3

Table 7-19. Radiated Spurious Data (Band 13 – Mid Channel)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	H	118	134	-72.91	8.73	-64.18	-24.2

Table 7-20. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 227 of 261	

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]
2346.00	H	-	-	-75.05	9.49	-65.56	-52.6
3128.00	H	-	-	-76.10	9.53	-66.57	-53.6

Table 7-21. Radiated Spurious Data with WCP (Band 13 –Mid Channel)

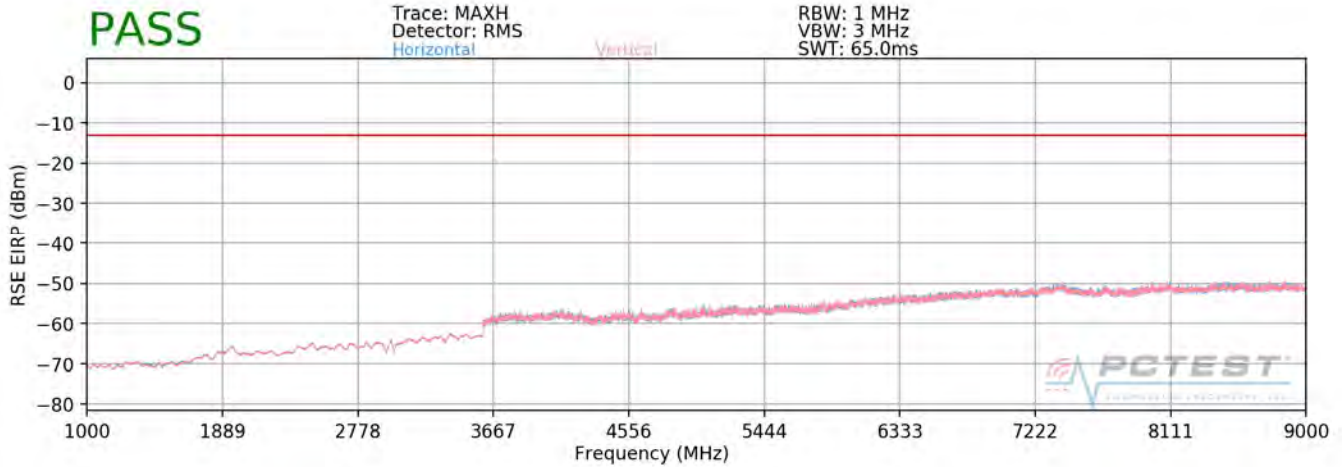
MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.00 MHz
 DISTANCE: 3 meters
 NARROWBAND EMISSION LIMIT: -50 dBm
 WIDEBAND EMISSION LIMIT: -40 dBm/MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	H	-	-	-77.91	9.49	-68.42	-28.4

Table 7-22. Radiated Spurious Data with WCP (Band 13 – 1559-1610MHz Band)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 228 of 261	

Band 26/5



Plot 7-373. Radiated Spurious Plot above 1GHz (Band 26/5)

OPERATING FREQUENCY: 825.50 MHz
 CHANNEL: 26805
 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	H	-	-	-80.56	9.31	-71.25	-58.2
2476.50	H	118	115	-73.48	8.63	-64.85	-51.9
3302.00	H	-	-	-72.31	8.27	-64.04	-51.0

Table 7-23. Radiated Spurious Data (Band 26/5 – Low Channel)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 229 of 261	

OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 26915
 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	H	315	254	-80.92	9.45	-71.47	-58.5
2509.50	H	324	56	-74.85	8.50	-66.35	-53.4
3346.00	H	-	-	-73.93	8.71	-65.22	-52.2

Table 7-24. Radiated Spurious Data (Band 26/5 – Mid Channel)

OPERATING FREQUENCY: 847.50 MHz
 CHANNEL: 27025
 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	H	232	27	-80.75	9.58	-71.17	-58.2
2542.50	H	-	-	-74.47	8.43	-66.04	-53.0
3390.00	H	-	-	-72.83	9.01	-63.82	-50.8

Table 7-25. Radiated Spurious Data (Band 26/5 – High Channel)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 230 of 261

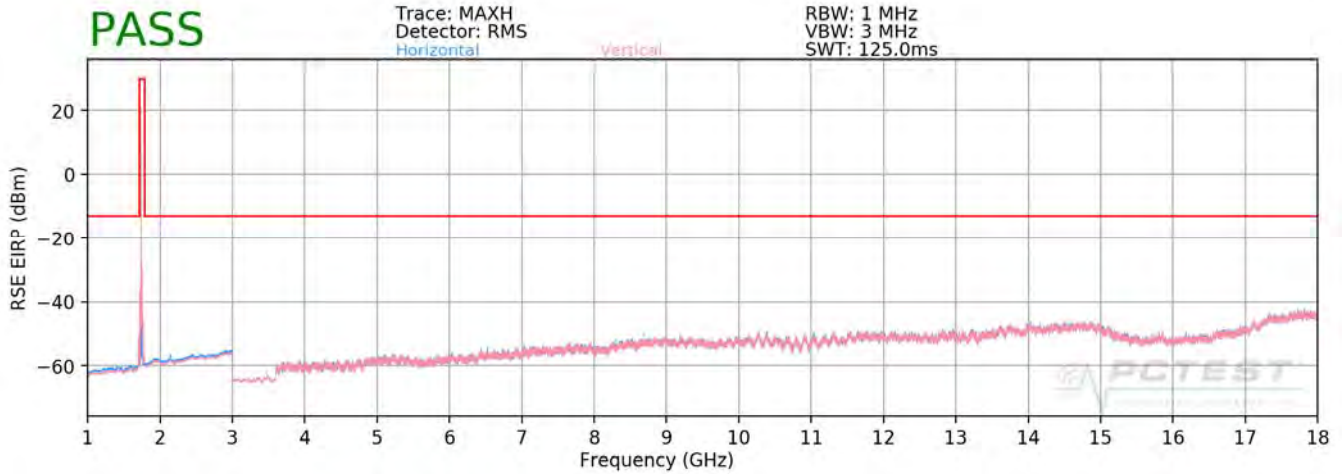
OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 26915
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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	H	-	-	-80.70	9.45	-71.25	-58.2
2509.50	H	-	-	-74.46	8.50	-65.96	-53.0
3346.00	H	-	-	-73.34	8.71	-64.63	-51.6

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

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 231 of 261	

Band 66/4



Plot 7-374. Radiated Spurious Plot above 1GHz (Band 66/4)

OPERATING FREQUENCY: 1720.00 MHz
 CHANNEL: 132072
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3440.00	V	147	7	-68.70	9.84	-58.86	-45.9
5160.00	V	-	-	-69.44	10.71	-58.73	-45.7
6880.00	V	-	-	-68.09	11.68	-56.41	-43.4

Table 7-27. Radiated Spurious Data (Band 66/4 – Low Channel)

FCC ID: A3LSMN9600			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 232 of 261	

OPERATING FREQUENCY: 1745.00 MHz
 CHANNEL: 132322
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3490.00	V	130	344	-68.78	9.91	-58.86	-45.9
5235.00	V	-	-	-69.80	10.73	-59.07	-46.1
6980.00	V	-	-	-68.69	11.82	-56.87	-43.9

Table 7-28. Radiated Spurious Data (Band 66/4 – Mid Channel)

OPERATING FREQUENCY: 1770.00 MHz
 CHANNEL: 132572
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3540.00	V	129	221	-71.60	9.89	-61.70	-48.7
5310.00	V	-	-	-69.36	10.69	-58.68	-45.7
7080.00	V	-	-	-68.57	11.79	-56.78	-43.8

Table 7-29. Radiated Spurious Data (Band 66/4 – High Channel)

FCC ID: A3LSMN9600			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 233 of 261		

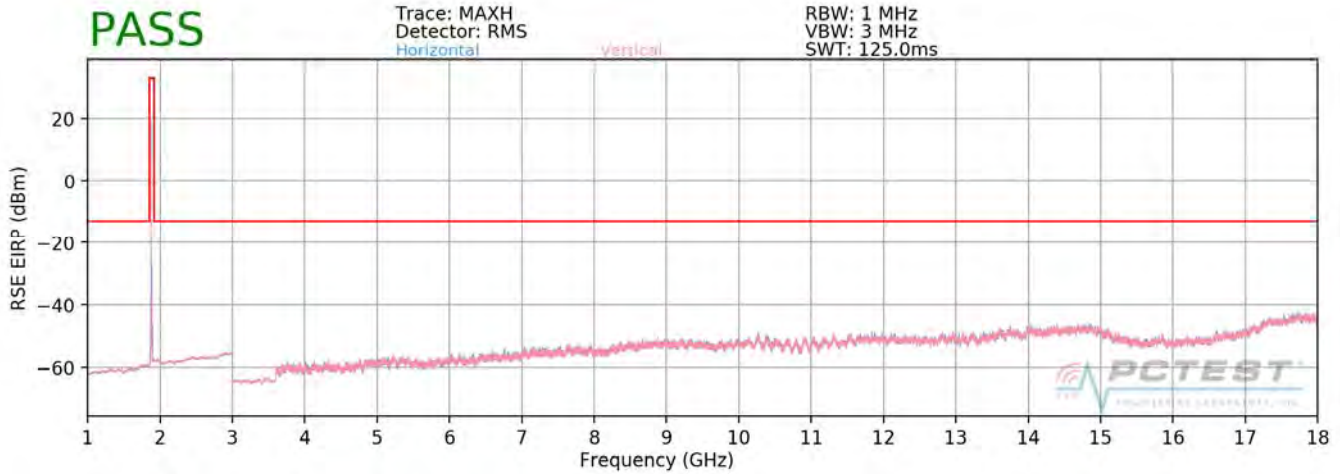
OPERATING FREQUENCY: 1720.00 MHz
 CHANNEL: 132072
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3440.00	V	113	300	-66.70	9.84	-56.86	-43.9
5160.00	V	-	-	-69.51	10.71	-58.80	-45.8
6880.00	V	-	-	-68.14	11.68	-56.46	-43.5

Table 7-30. Radiated Spurious Data with WCP (Band 66/4 – Low Channel)

FCC ID: A3LSMN9600	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 234 of 261

Band 25/2



Plot 7-375. Radiated Spurious Plot above 1GHz (Band 25/2)

OPERATING FREQUENCY: 1855.00 MHz
 CHANNEL: 26090
 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]
3710.00	H	376	313	-66.68	9.55	-57.13	-44.1
5565.00	H	-	-	-69.41	10.96	-58.45	-45.5
7420.00	H	-	-	-66.83	10.97	-55.86	-42.9

Table 7-31. Radiated Spurious Data (Band 25/2 – Low Channel)

FCC ID: A3LSMN9600			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 235 of 261	

OPERATING FREQUENCY: 1882.50 MHz
 CHANNEL: 26365
 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]
3765.00	H	382	333	-72.99	9.36	-63.63	-50.6
5647.50	H	-	-	-70.08	11.19	-58.89	-45.9
7530.00	H	-	-	-65.81	11.13	-54.68	-41.7

Table 7-32. Radiated Spurious Data (Band 25/2 – Mid Channel)

OPERATING FREQUENCY: 1910.00 MHz
 CHANNEL: 26640
 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]
3820.00	H	391	360	-69.28	9.31	-59.98	-47.0
5730.00	H	-	-	-69.67	11.39	-58.28	-45.3
7640.00	H	-	-	-65.17	11.34	-53.83	-40.8

Table 7-33. Radiated Spurious Data (Band 25/2 – High Channel)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 236 of 261	

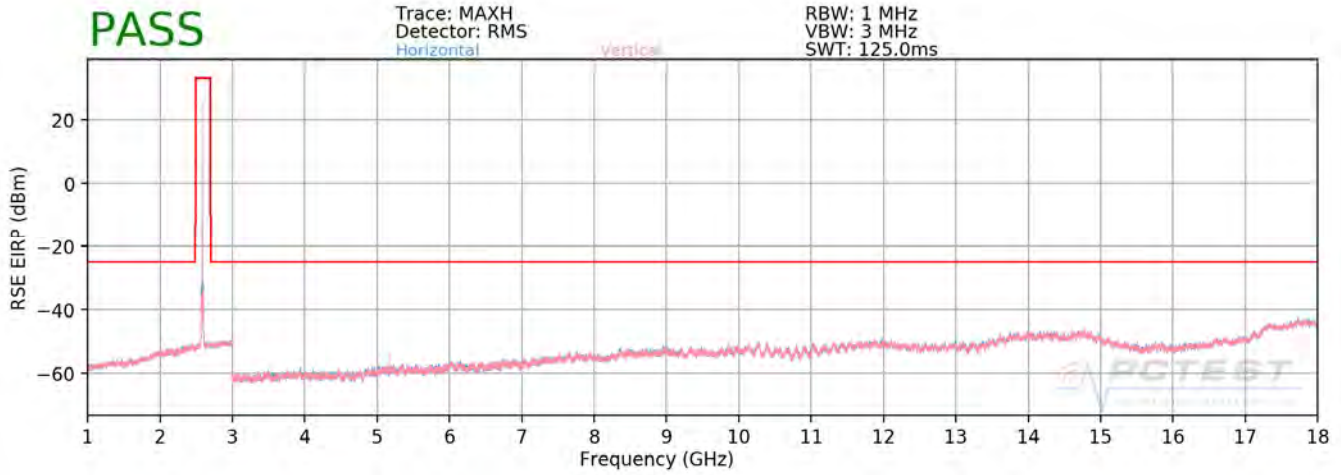
OPERATING FREQUENCY: 1855.00 MHz
 CHANNEL: 26090
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
3710.00	H	135	42	-68.72	9.55	-59.17	-46.2
5565.00	H	-	-	-69.34	10.96	-58.38	-45.4
7420.00	H	-	-	-66.88	10.97	-55.91	-42.9

Table 7-34. Radiated Spurious Data with WCP (Band 25/2 – Low Channel)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 237 of 261	

Band 41 (PC2)



Plot 7-376. Radiated Spurious Plot above 1GHz (Band 41)

OPERATING FREQUENCY: 2505.00 MHz
 CHANNEL: 39740
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 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]
5010.00	H	155	56	-62.54	10.91	-51.64	-26.6
7515.00	H	112	10	-66.49	11.10	-55.39	-30.4
10020.00	H	341	340	-65.60	11.99	-53.61	-28.6
12525.00	H	-	-	-68.00	13.56	-54.44	-29.4

Table 7-35. Radiated Spurious Data (Band 41 – Low Channel)

FCC ID: A3LSMN9600			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 238 of 261	

OPERATING FREQUENCY: 2593.00 MHz
 CHANNEL: 40620
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 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]
5186.00	H	121	5	-61.55	10.74	-50.81	-25.8
7779.00	H	111	370	-65.11	11.44	-53.67	-28.7
10372.00	H	364	356	-65.47	12.42	-53.05	-28.0
12965.00	H	-	-	-67.26	13.29	-53.97	-29.0

Table 7-36. Radiated Spurious Data (Band 41 – Mid Channel)

OPERATING FREQUENCY: 2685.00 MHz
 CHANNEL: 41540
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 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]
5370.00	H	124	109	-62.73	10.69	-52.04	-27.0
8055.00	H	338	288	-66.50	11.17	-55.34	-30.3
10740.00	H	355	323	-68.49	12.61	-55.88	-30.9
13425.00	H	-	-	-66.82	12.59	-54.23	-29.2

Table 7-37. Radiated Spurious Data (Band 41 –High Channel)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 239 of 261	

OPERATING FREQUENCY: 2593.00 MHz
 CHANNEL: 40620
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 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]
5186.00	H	116	254	-65.31	10.74	-54.57	-29.6
7779.00	H	113	0	-65.85	11.44	-54.41	-29.4
10372.00	H	157	325	-65.30	12.42	-52.88	-27.9
12965.00	H	-	-	-67.95	13.29	-54.66	-29.7

Table 7-38. Radiated Spurious Data with WCP (Band 41 – Mid Channel)

FCC ID: A3LSMN9600	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 240 of 261

7.10 Uplink Carrier Aggregation Radiated Measurements

§2.1053

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. All measurements are performed as peak measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

Test Procedures Used

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. No. of sweep points $\geq 2 \times$ span / RBW
4. Detector = RMS
5. Trace mode = Max Hold
6. The trace was allowed to stabilize

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 241 of 261	

Test Setup

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

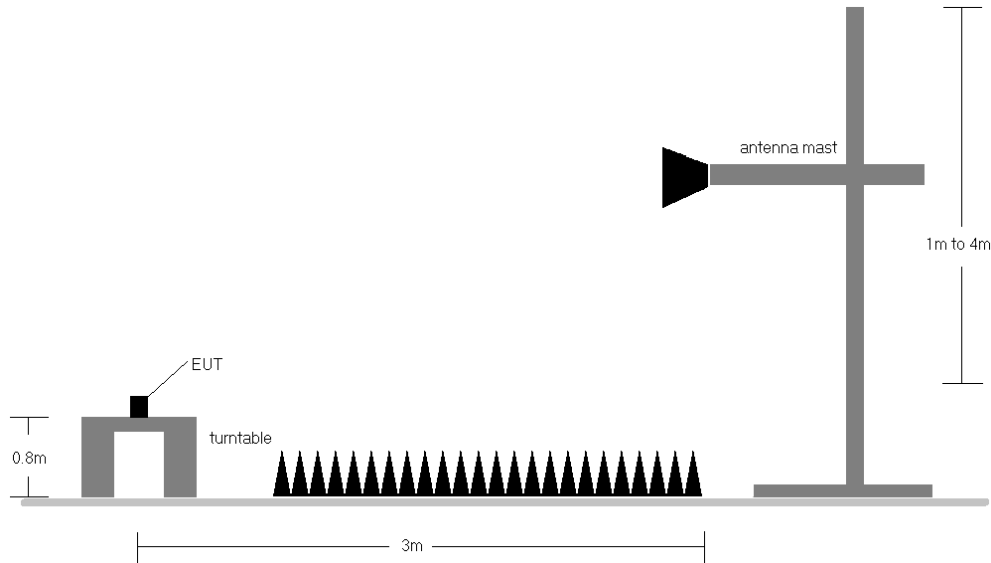
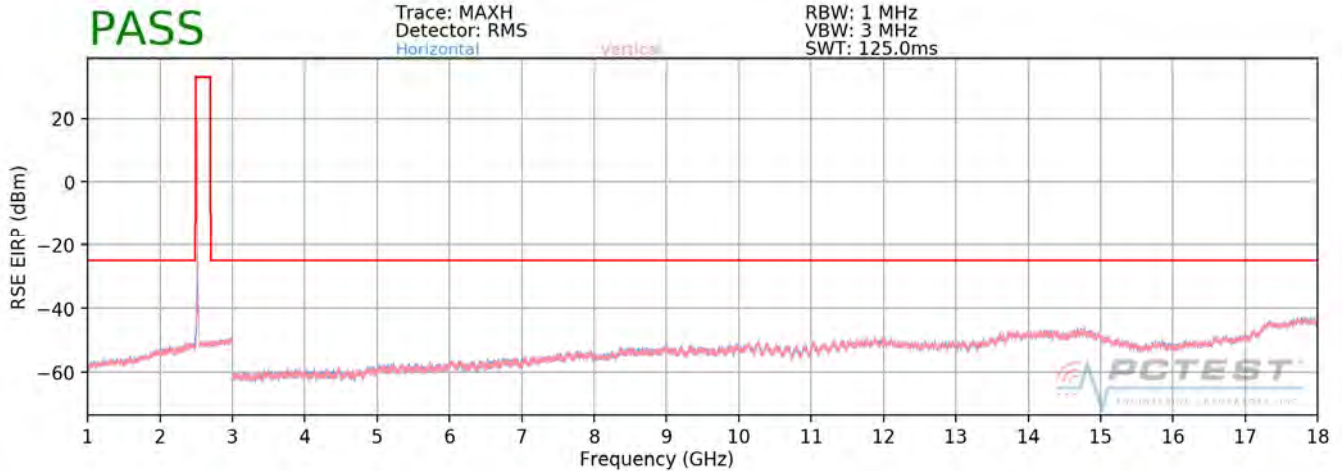


Figure 7-10. Test Instrument & Measurement Setup

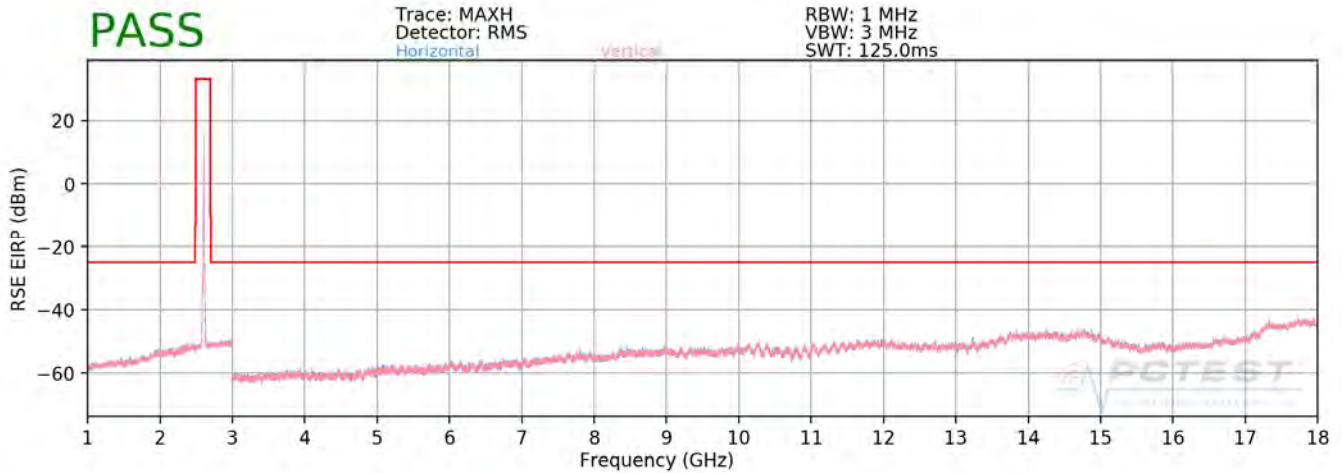
Test Notes

- 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) Radiated spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. The worst case (highest) emissions were found while operating with QPSK modulation with both carriers set to transmit using 1RB.
- 4) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 5) 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.
- 6) No significant emissions were found as a result of two uplink carriers operating contiguously.

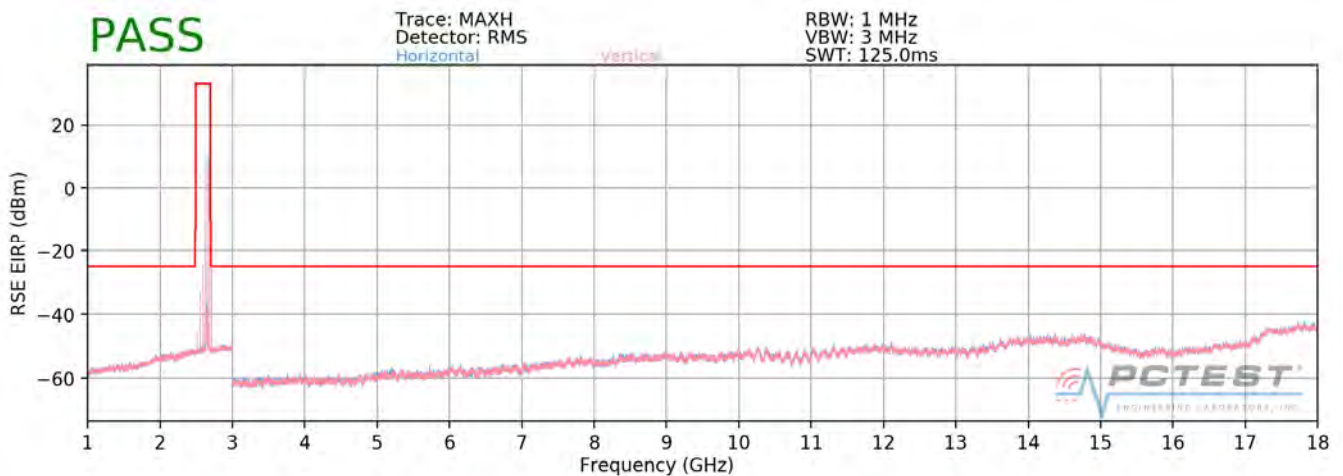
FCC ID: A3LSMN9600	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 242 of 261	



Plot 7-377. Radiated Spurious Plot (ULCA B41 PCC: RB 1 Offset 99, SCC: RB 1 Offset 0 – Low Channel)

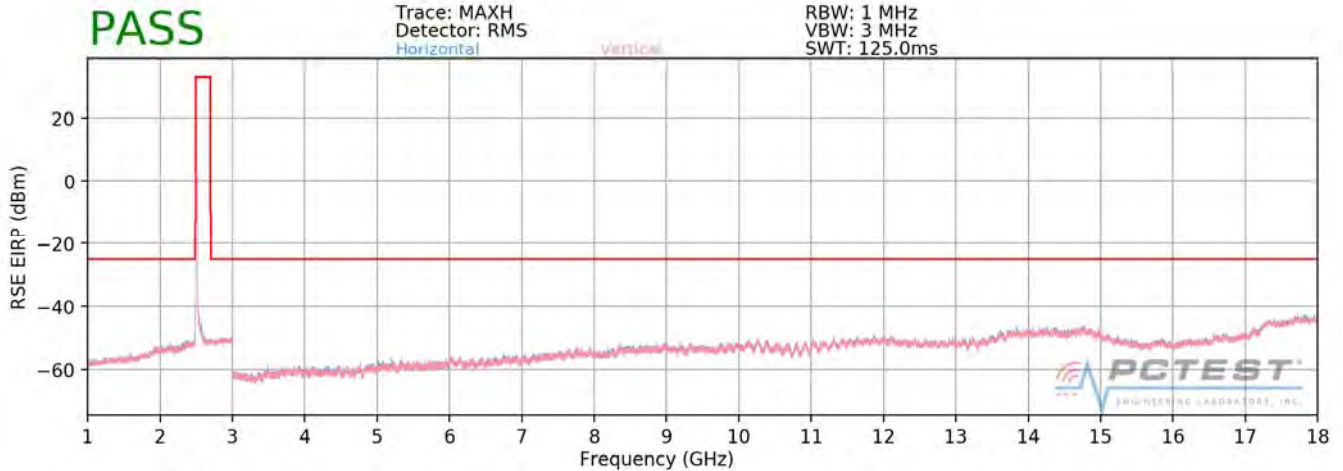


Plot 7-378. Radiated Spurious Plot (ULCA B41 PCC: RB 1 Offset 99, SCC: RB 1 Offset 0 – Mid Channel)

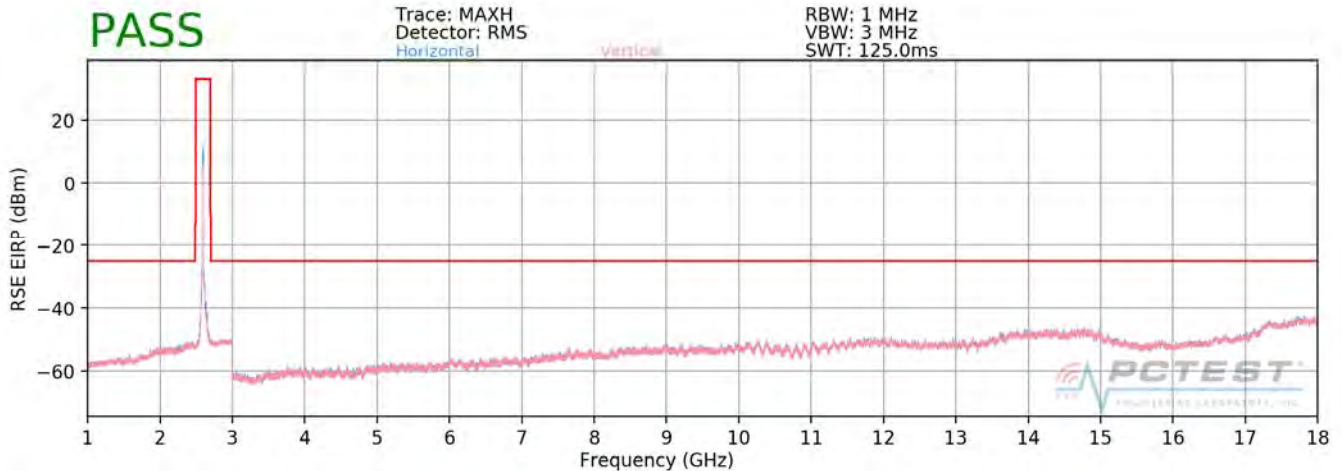


Plot 7-379. Radiated Spurious Plot (ULCA B41 PCC: RB 1 Offset 99, SCC: RB 1 Offset 0 – High Channel)

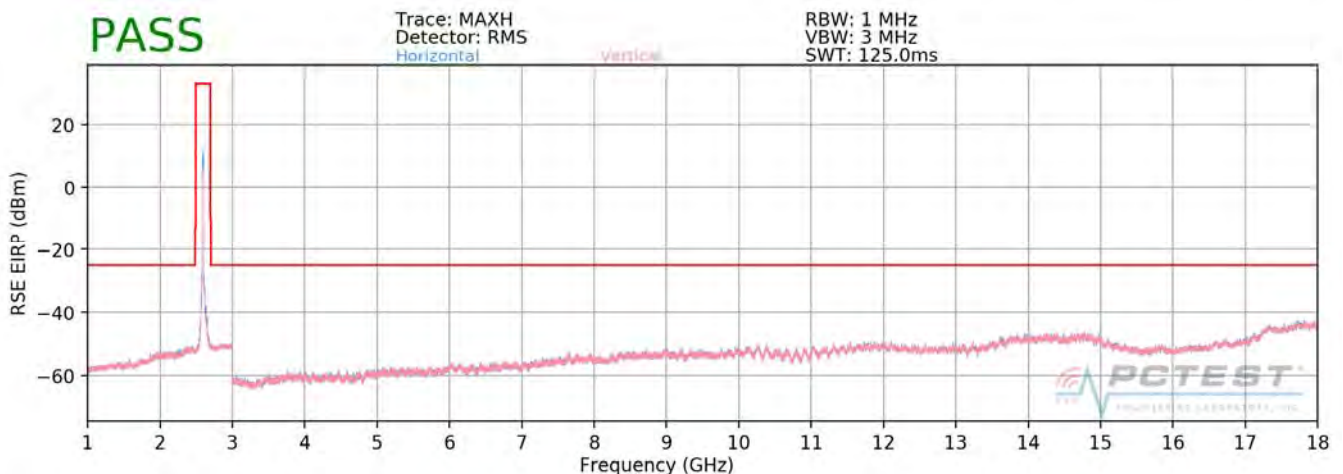
FCC ID: A3LSMN9600	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 243 of 261	



Plot 7-380. Radiated Spurious Plot (ULCA B41 PCC: RB 100 Offset 0, SCC: RB 100 Offset 0 – Low Channel)

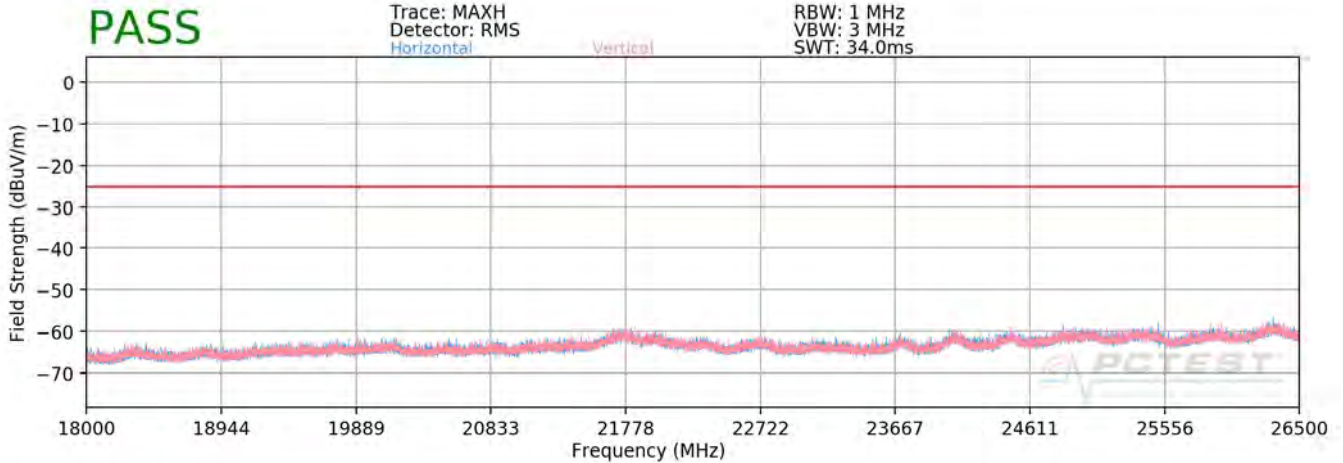


Plot 7-381. Radiated Spurious Plot (ULCA B41 PCC: RB 100 Offset 0, SCC: RB 100 Offset 0 – Mid Channel)

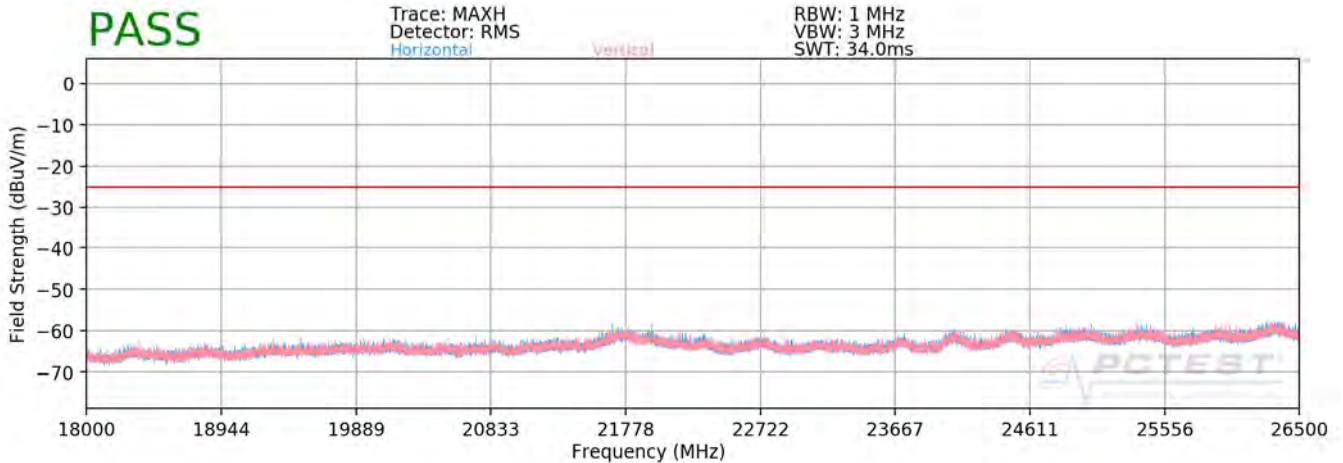


Plot 7-382. Radiated Spurious Plot (ULCA B41 PCC: RB 100 Offset 0, SCC: RB 100 Offset 0 – High Channel)

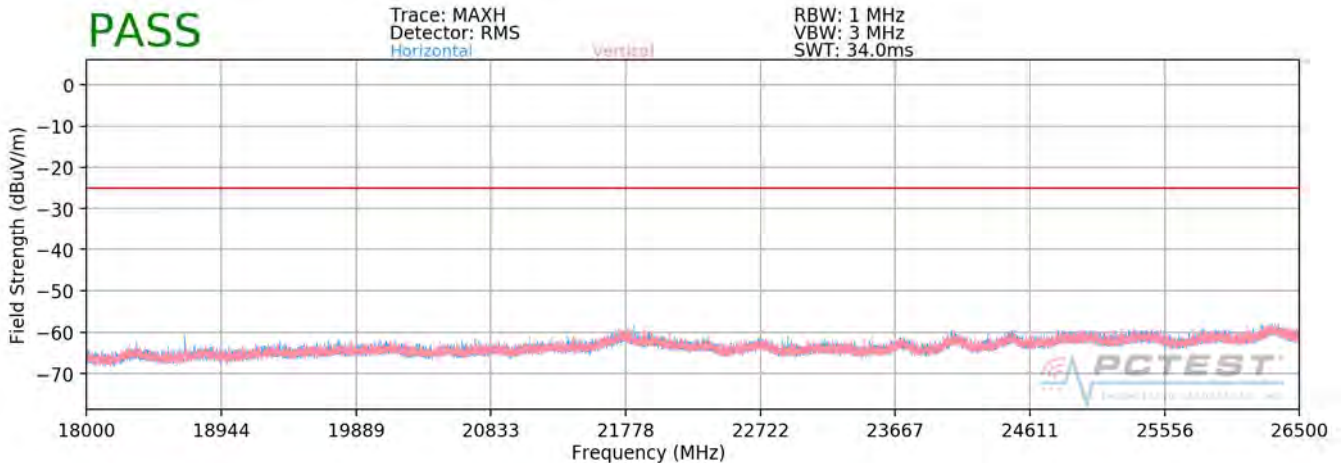
FCC ID: A3LSMN9600	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 244 of 261



Plot 7-383. Radiated Spurious Plot (ULCA B41 PCC: RB 1 Offset 99, SCC: RB 1 Offset 0 – Low Channel)



Plot 7-384. Radiated Spurious Plot (ULCA B41 PCC: RB 1 Offset 99, SCC: RB 1 Offset 0 – Mid Channel)



Plot 7-385. Radiated Spurious Plot (ULCA B41 PCC: RB 1 Offset 99, SCC: RB 1 Offset 0 – High Channel)

FCC ID: A3LSMN9600	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 245 of 261

OPERATING FREQUENCY (PCC): 2506.00 MHz
 OPERATING FREQUENCY (SCC): 2525.80 MHz
 CHANNEL (PCC): 39750
 CHANNEL (SCC): 39948
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20 + 20 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turtable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5012.00	V	-	-	-69.65	10.90	-58.75	-33.8
7518.00	V	113	289	-61.17	11.11	-50.07	-25.1
10024.00	V	-	-	-64.03	11.99	-52.04	-27.0
12530.00	V	-	-	-63.83	13.56	-50.27	-25.3

Table 7-39. Radiated Spurious Data (ULCA B41 - PCC: RB 1 Offset 0, SCC: RB 1 Offset 99 – Low Channel)

OPERATING FREQUENCY (PCC): 2593.00 MHz
 OPERATING FREQUENCY (SCC): 2612.80
 CHANNEL (PCC): 40620
 CHANNEL (SCC): 40818
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20 + 20 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turtable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	V	-	-	-67.63	10.74	-56.89	-31.9
7779.00	V	122	339	-63.56	11.44	-52.12	-27.1
10372.00	V	-	-	-63.56	12.42	-51.14	-26.1
12965.00	V	-	-	-64.61	13.29	-51.32	-26.3

Table 7-40. Radiated Spurious Data (ULCA B41 - PCC: RB 1 Offset 0, SCC: RB 1 Offset 99 – Mid Channel)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 246 of 261

OPERATING FREQUENCY (PCC): 2660.20 MHz
 OPERATING FREQUENCY (SCC): 2680.00
 CHANNEL (PCC): 41292
 CHANNEL (SCC): 41490
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20 + 20 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]
5360.00	V	-	-	-68.36	10.70	-57.67	-32.7
8040.00	V	-	-	-65.71	11.16	-54.55	-29.5
10720.00	V	-	-	-68.11	12.59	-55.52	-30.5

Table 7-41. Radiated Spurious Data (ULCA B41 - PCC: RB 1 Offset 0, SCC: RB 1 Offset 99 –High Channel)

OPERATING FREQUENCY (PCC): 2593.00 MHz
 OPERATING FREQUENCY (SCC): 2612.80
 CHANNEL (PCC): 40620
 CHANNEL (SCC): 40818
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20 + 20 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]
5012.00	V	-	-	-69.68	10.90	-58.78	-33.8
7518.00	V	114	296	-63.54	11.11	-52.44	-27.4
10024.00	V	-	-	-63.96	11.99	-51.97	-27.0
12530.00	V	-	-	-63.79	13.56	-50.23	-25.2

Table 7-42. Radiated Spurious Data with WCP (ULCA B41 - PCC: RB 1 Offset 0, SCC: RB 1 Offset 99 – Mid Channel)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 247 of 261	

7.11 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 ±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

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 248 of 261	

Band 12/17 Frequency Stability Measurements

OPERATING FREQUENCY: 707,500,000 Hz
 CHANNEL: 23790
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	707,500,007	7	0.0000010
100 %		- 30	707,500,164	164	0.0000232
100 %		- 20	707,499,949	-51	-0.0000072
100 %		- 10	707,499,700	-300	-0.0000424
100 %		0	707,500,012	12	0.0000017
100 %		+ 10	707,500,013	13	0.0000018
100 %		+ 20	707,500,458	458	0.0000647
100 %		+ 30	707,500,291	291	0.0000411
100 %		+ 40	707,499,993	-7	-0.0000010
100 %		+ 50	707,500,113	113	0.0000160
BATT. ENDPOINT		3.45	+ 20	707,500,144	144

Table 7-43. 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: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 249 of 261	

Band 12/17 Frequency Stability Measurements

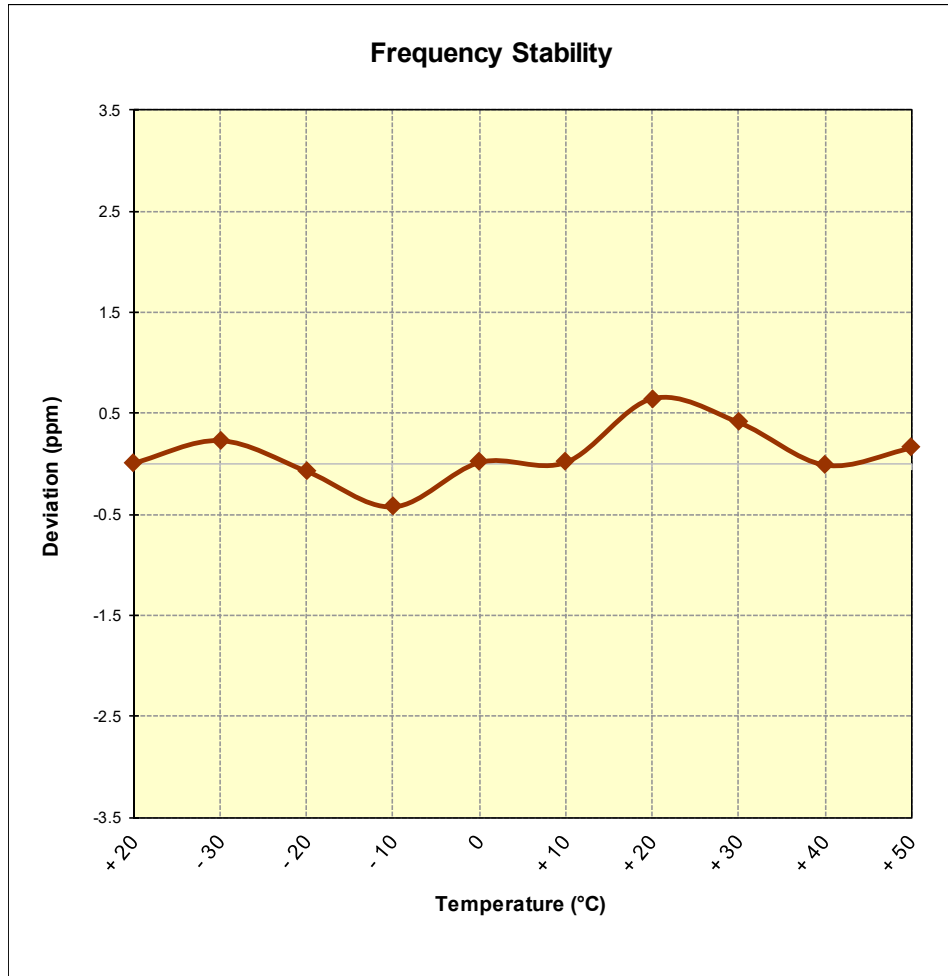


Figure 7-11. Frequency Stability Graph (Band 12/17)

FCC ID: A3LSMN9600	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 250 of 261

Band 13 Frequency Stability Measurements

OPERATING FREQUENCY: 782,000,000 Hz
 CHANNEL: 23230
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	782,000,041	41	0.0000052
100 %		- 30	781,999,721	-279	-0.0000357
100 %		- 20	782,000,093	93	0.0000119
100 %		- 10	781,999,875	-125	-0.0000160
100 %		0	782,000,077	77	0.0000098
100 %		+ 10	782,000,092	92	0.0000118
100 %		+ 20	782,000,132	132	0.0000169
100 %		+ 30	782,000,334	334	0.0000427
100 %		+ 40	781,999,855	-145	-0.0000185
100 %		+ 50	781,999,794	-206	-0.0000263
BATT. ENDPOINT		3.45	+ 20	781,999,977	-23

Table 7-44. 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: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 251 of 261	

Band 13 Frequency Stability Measurements

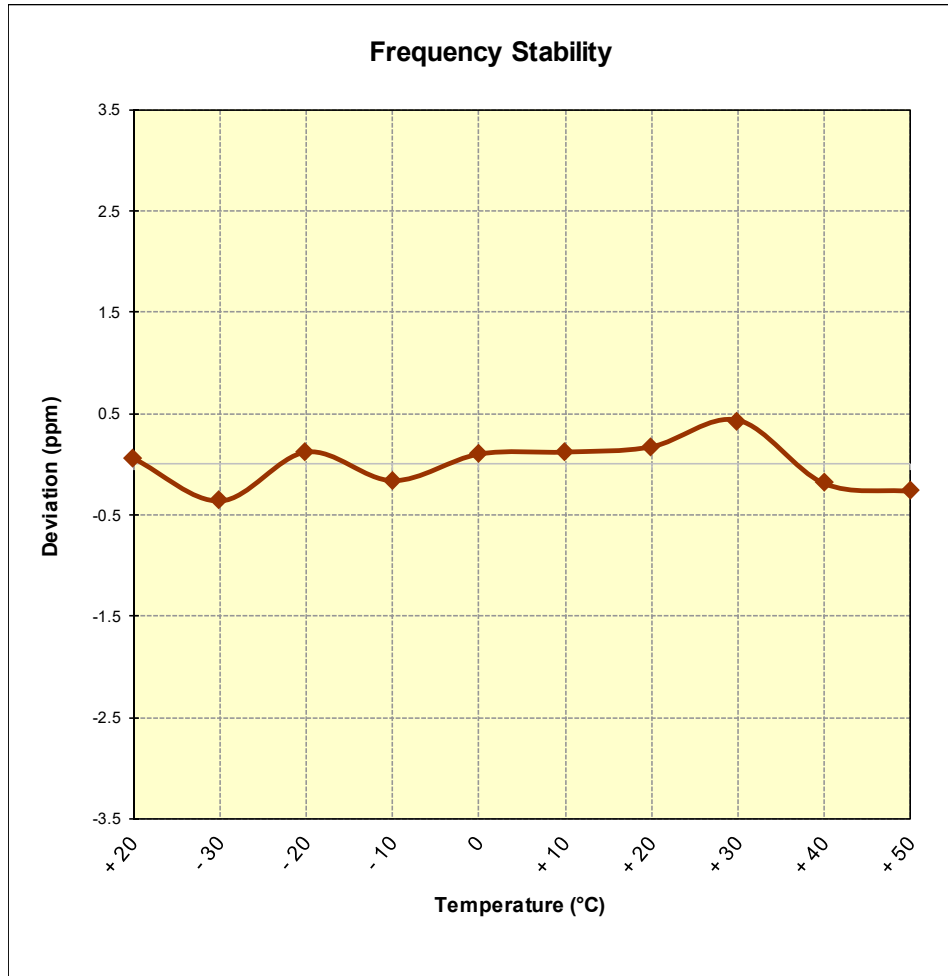


Figure 7-12. Frequency Stability Graph (Band 13)

FCC ID: A3LSMN9600	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 252 of 261	

Band 26/5 Frequency Stability Measurements

OPERATING FREQUENCY: 831,500,000 Hz
 CHANNEL: 26865
 REFERENCE VOLTAGE: 3.85 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	831,500,003	3	0.0000004
100 %		- 30	831,500,363	363	0.0000437
100 %		- 20	831,499,933	-67	-0.0000081
100 %		- 10	831,499,807	-193	-0.0000232
100 %		0	831,499,855	-145	-0.0000174
100 %		+ 10	831,499,923	-77	-0.0000093
100 %		+ 20	831,499,829	-171	-0.0000206
100 %		+ 30	831,499,945	-55	-0.0000066
100 %		+ 40	831,500,319	319	0.0000384
100 %		+ 50	831,500,281	281	0.0000338
BATT. ENDPOINT		3.45	+ 20	831,499,747	-253

Table 7-45. Frequency Stability Data (Band 26/5)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 253 of 261	

Band 26/5 Frequency Stability Measurements

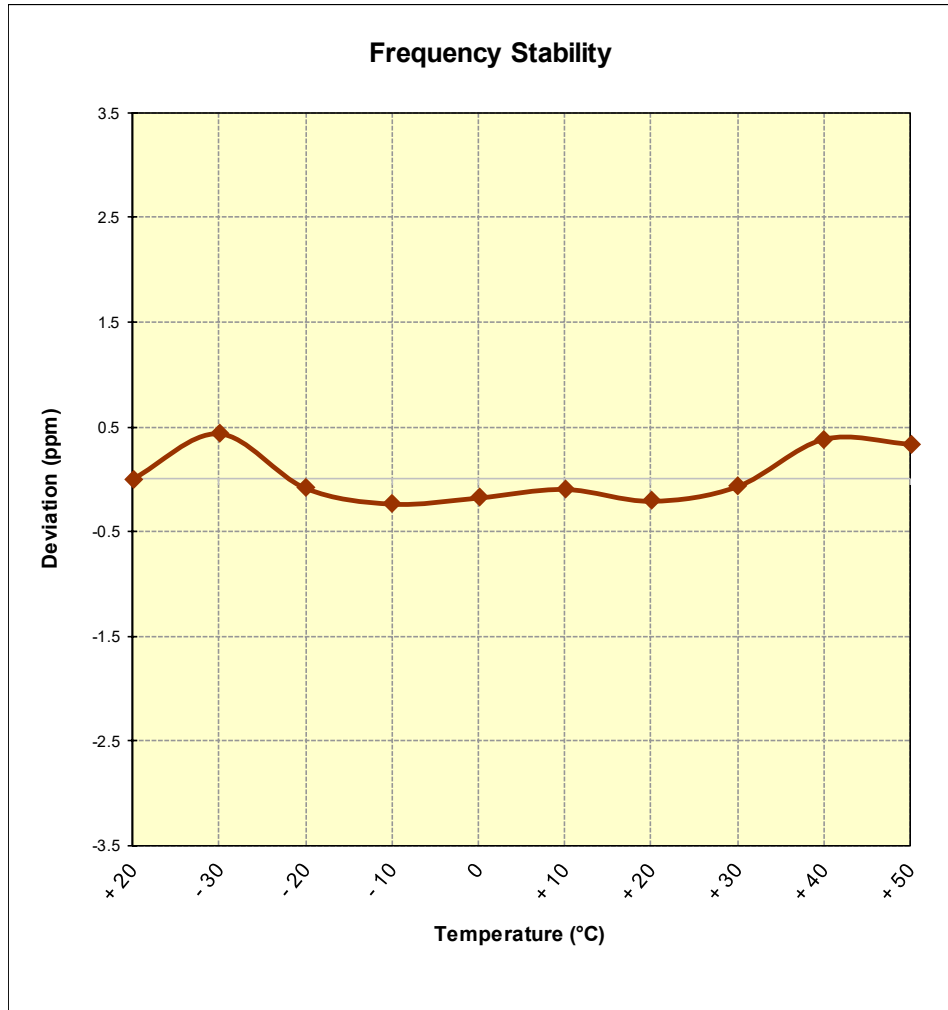


Figure 7-13. Frequency Stability Graph (Band 26/5)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 254 of 261

Band 66/4 Frequency Stability Measurements

OPERATING FREQUENCY: 1,745,000,000 Hz
 CHANNEL: 132322
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,745,000,017	17	0.0000010
100 %		- 30	1,745,000,012	12	0.0000007
100 %		- 20	1,744,999,938	-62	-0.0000036
100 %		- 10	1,744,999,873	-127	-0.0000073
100 %		0	1,744,999,602	-398	-0.0000228
100 %		+ 10	1,745,000,086	86	0.0000049
100 %		+ 20	1,745,000,105	105	0.0000060
100 %		+ 30	1,744,999,617	-383	-0.0000219
100 %		+ 40	1,745,000,118	118	0.0000068
100 %		+ 50	1,744,999,744	-256	-0.0000147
BATT. ENDPOINT		3.45	+ 20	1,744,999,822	-178

Table 7-46. 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: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 255 of 261	

Band 66/4 Frequency Stability Measurements

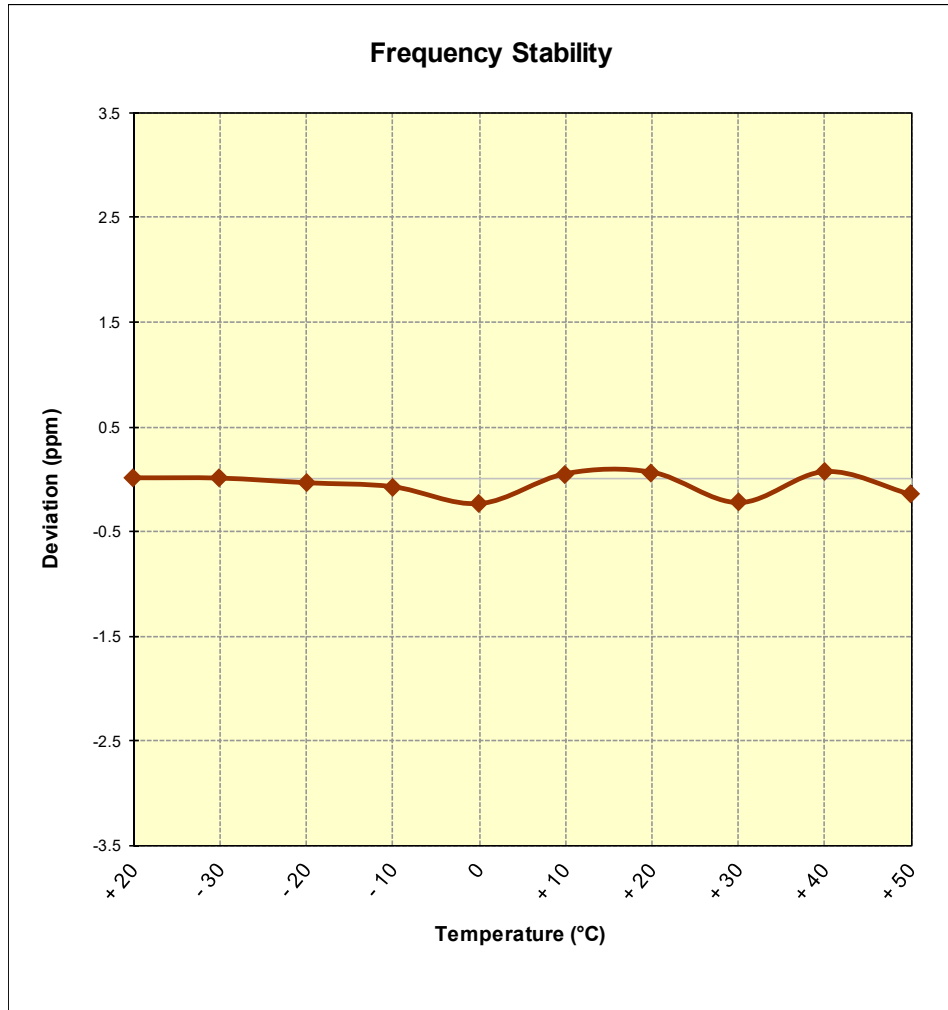


Figure 7-14. Frequency Stability Graph (Band 66/4)

FCC ID: A3LSMN9600	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 256 of 261	

Band 25/2 Frequency Stability Measurements

OPERATING FREQUENCY: 1,882,500,000 Hz
 CHANNEL: 26365
 REFERENCE VOLTAGE: 3.85 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,882,499,797	-203	-0.0000108
100 %		- 30	1,882,499,977	-23	-0.0000012
100 %		- 20	1,882,500,327	327	0.0000174
100 %		- 10	1,882,500,027	27	0.0000014
100 %		0	1,882,500,174	174	0.0000092
100 %		+ 10	1,882,500,101	101	0.0000054
100 %		+ 20	1,882,500,080	80	0.0000042
100 %		+ 30	1,882,499,949	-51	-0.0000027
100 %		+ 40	1,882,499,617	-383	-0.0000203
100 %		+ 50	1,882,499,821	-179	-0.0000095
BATT. ENDPOINT		3.45	+ 20	1,882,499,952	-48

Table 7-47. Frequency Stability Data (Band 25/2)

FCC ID: A3LSMN9600			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 257 of 261		

Band 25/2 Frequency Stability Measurements

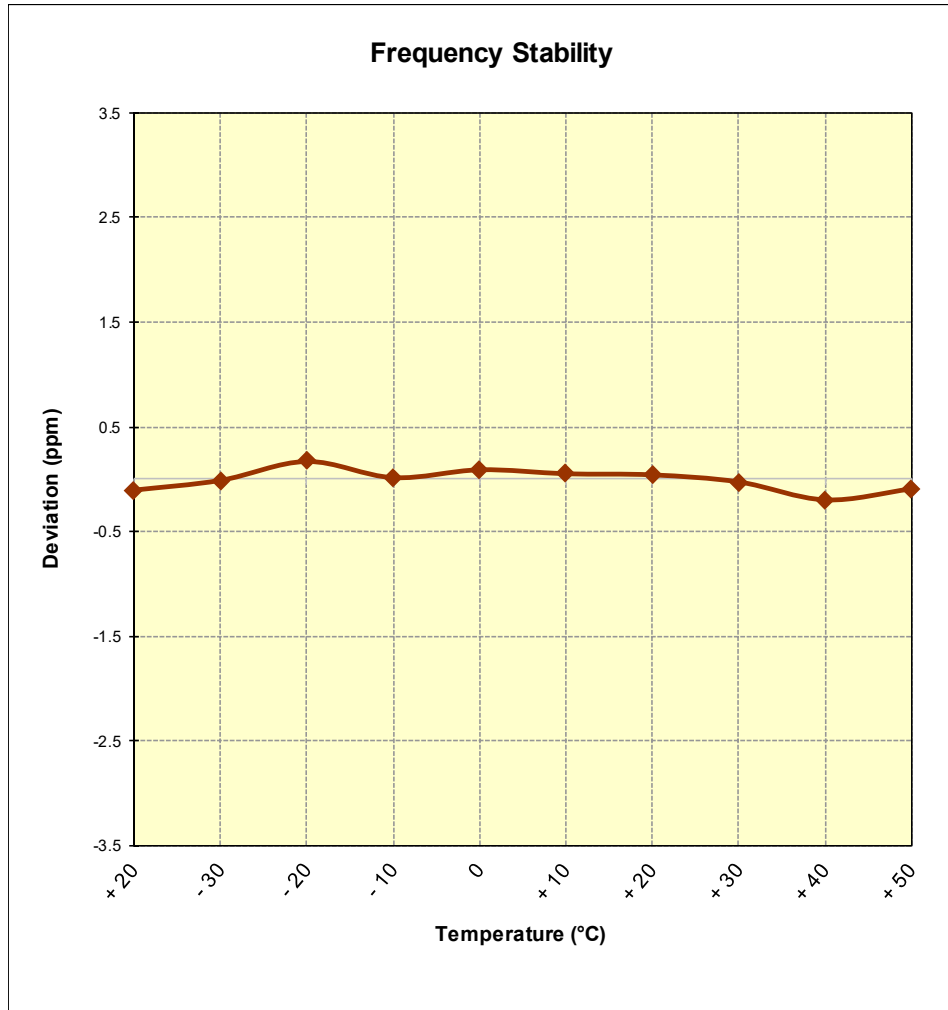


Figure 7-15. Frequency Stability Graph (Band 25/2)

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset		Page 258 of 261

Band 41 Frequency Stability Measurements

OPERATING FREQUENCY: 2,593,000,000 Hz
 CHANNEL: 40620
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	2,593,000,054	54	0.0000021
100 %		- 30	2,593,000,089	89	0.0000034
100 %		- 20	2,593,000,011	11	0.0000004
100 %		- 10	2,592,999,952	-48	-0.0000019
100 %		0	2,593,000,064	64	0.0000025
100 %		+ 10	2,592,999,822	-178	-0.0000069
100 %		+ 20	2,592,999,904	-96	-0.0000037
100 %		+ 30	2,593,000,031	31	0.0000012
100 %		+ 40	2,593,000,118	118	0.0000046
100 %		+ 50	2,592,999,964	-36	-0.0000014
BATT. ENDPOINT		3.45	+ 20	2,593,000,001	1

Table 7-48. Frequency Stability Data (Band 41)

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: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 259 of 261	

Band 41 Frequency Stability Measurements

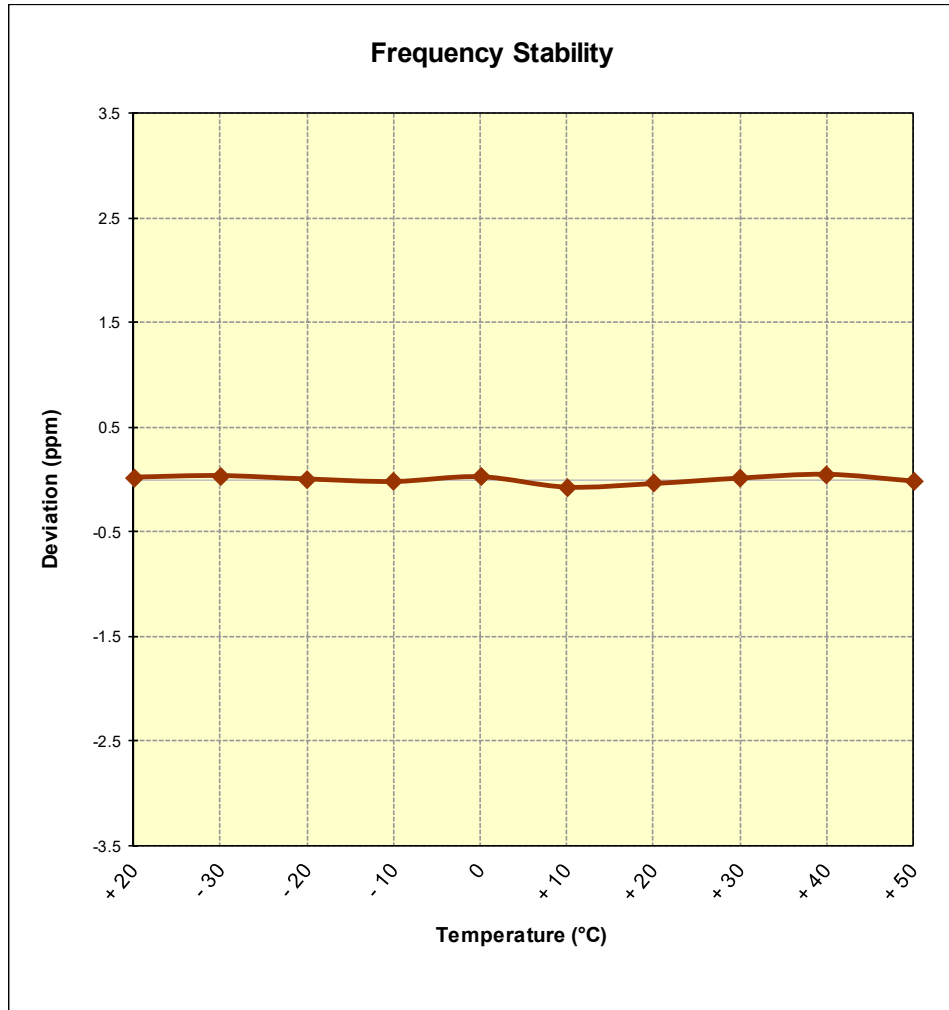


Figure 7-16. Frequency Stability Graph (Band 41)

FCC ID: A3LSMN9600	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 260 of 261	

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMN9600** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.

FCC ID: A3LSMN9600		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804300090-03.A3L	Test Dates: 5/3 - 6/22/2018	EUT Type: Portable Handset	Page 261 of 261	