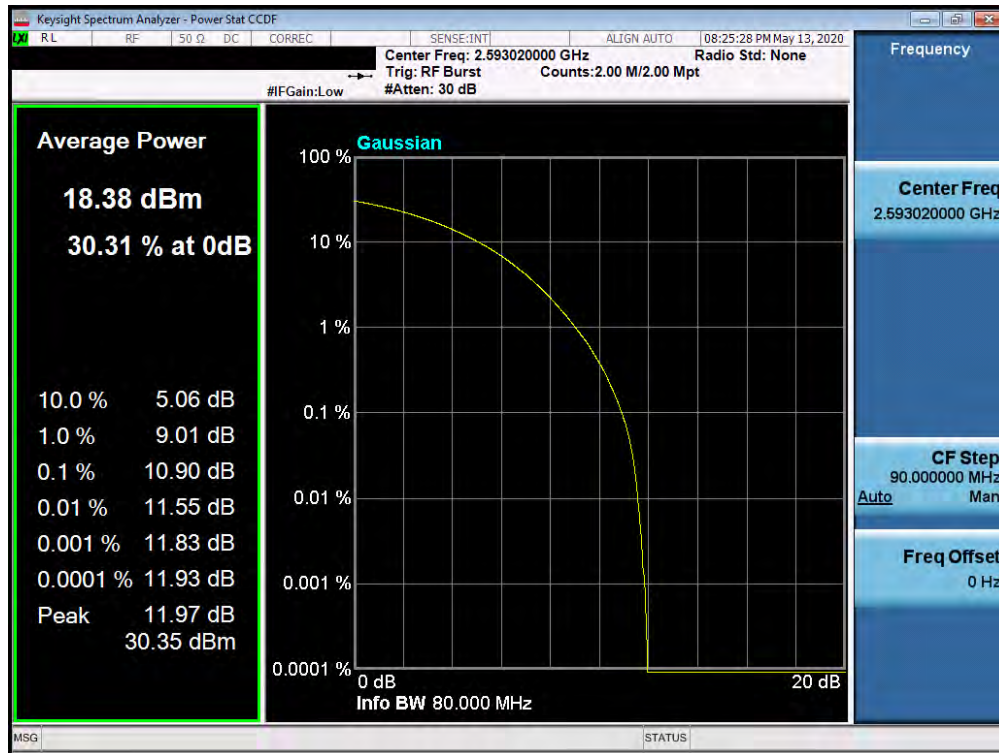
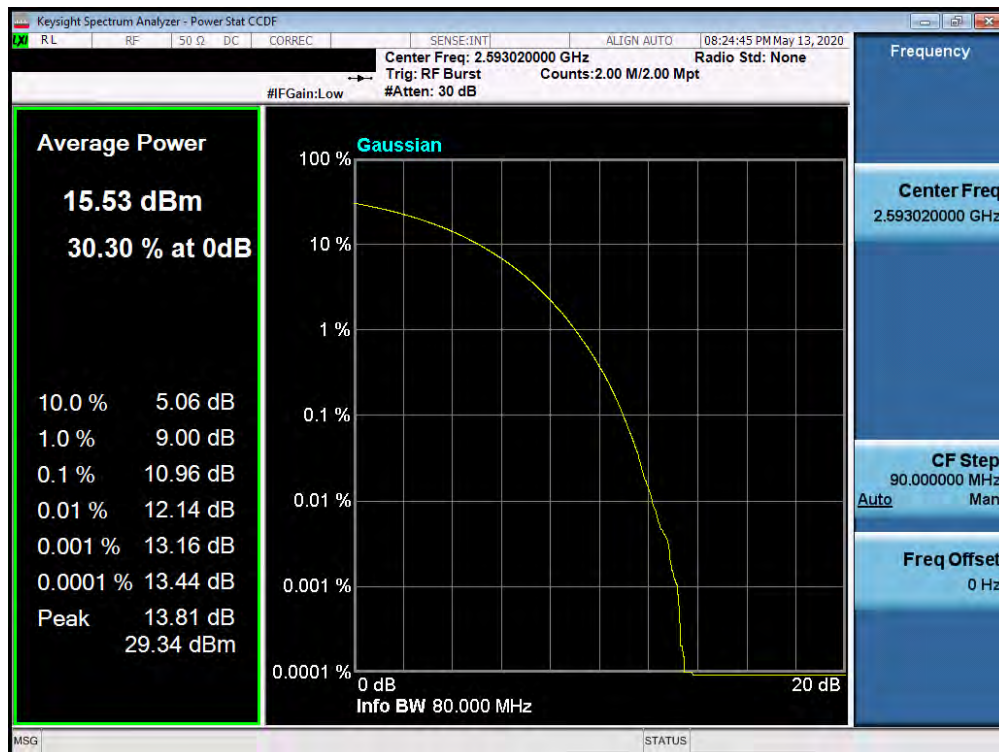


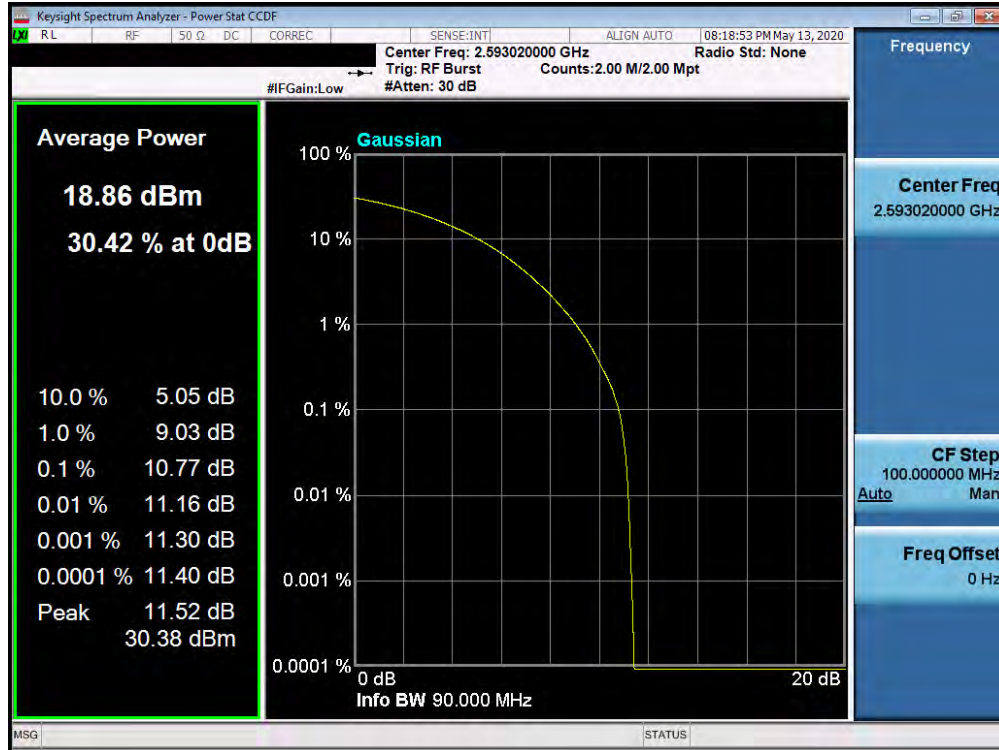


Plot 7-686. PAR Plot (Band n41 - 80.0MHz 64-QAM - Full RB Configuration)

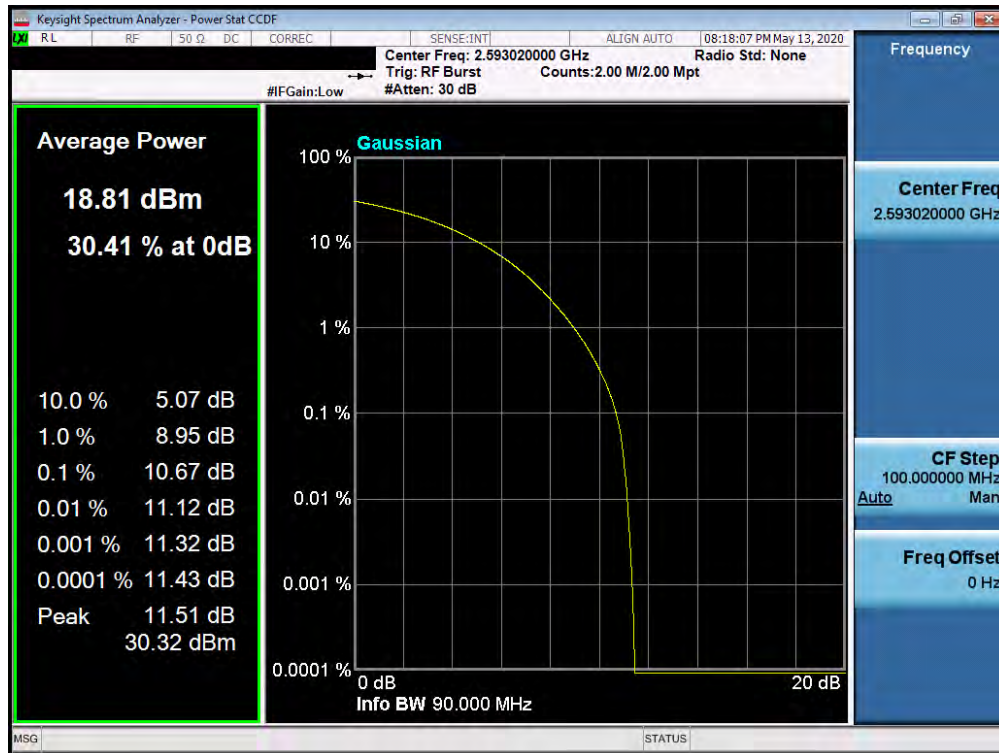


Plot 7-687. PAR Plot (Band n41 - 80.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 371 of 443

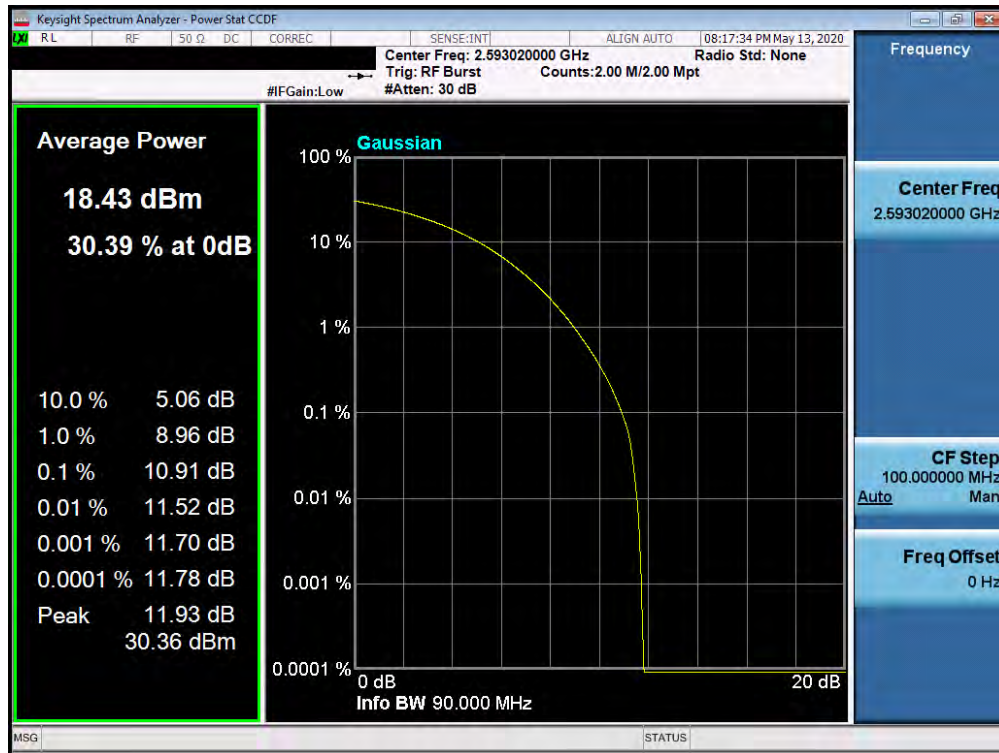


Plot 7-688. PAR Plot (Band n41 - 90.0MHz QPSK - Full RB Configuration)

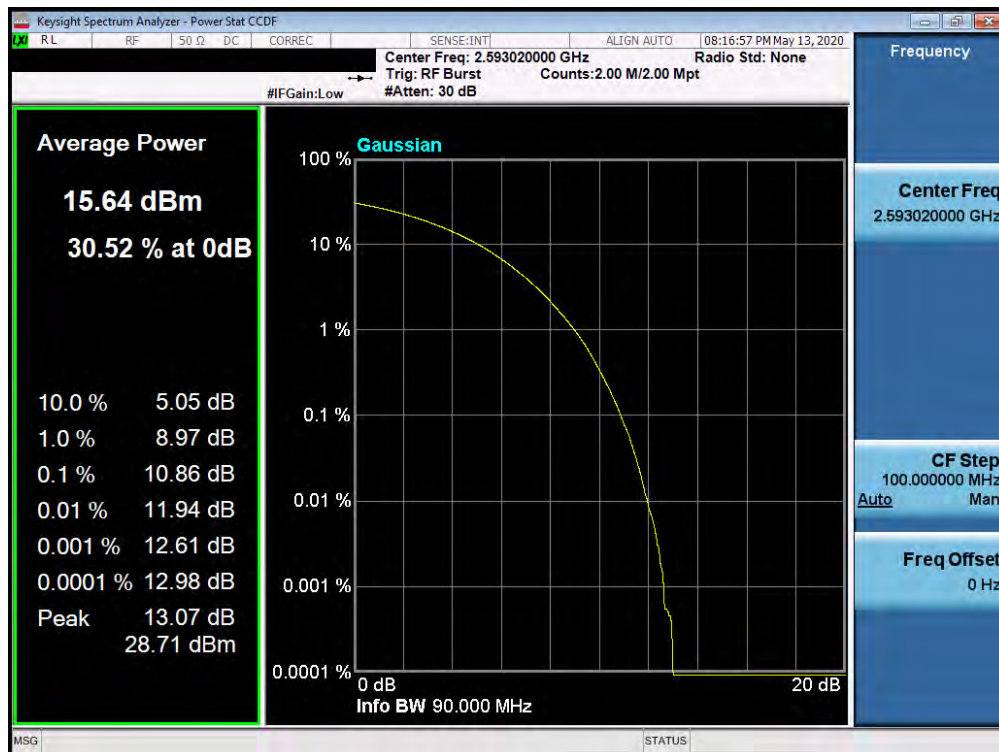


Plot 7-689. PAR Plot (Band n41 - 90.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 372 of 443

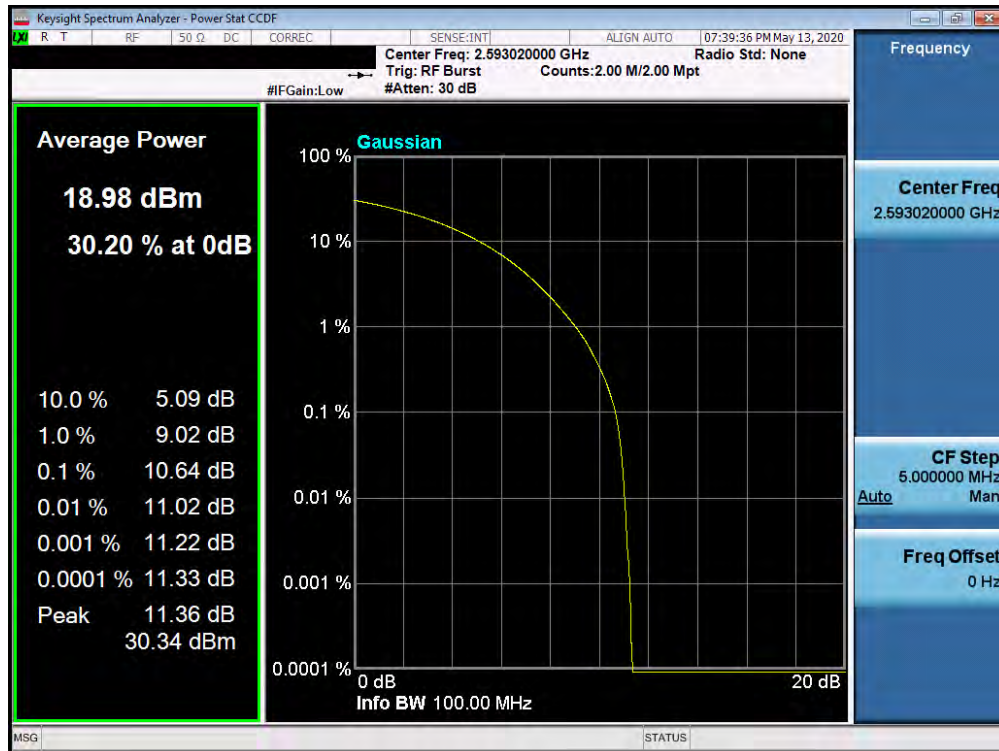


Plot 7-690. PAR Plot (Band n41 - 90.0MHz 64-QAM - Full RB Configuration)

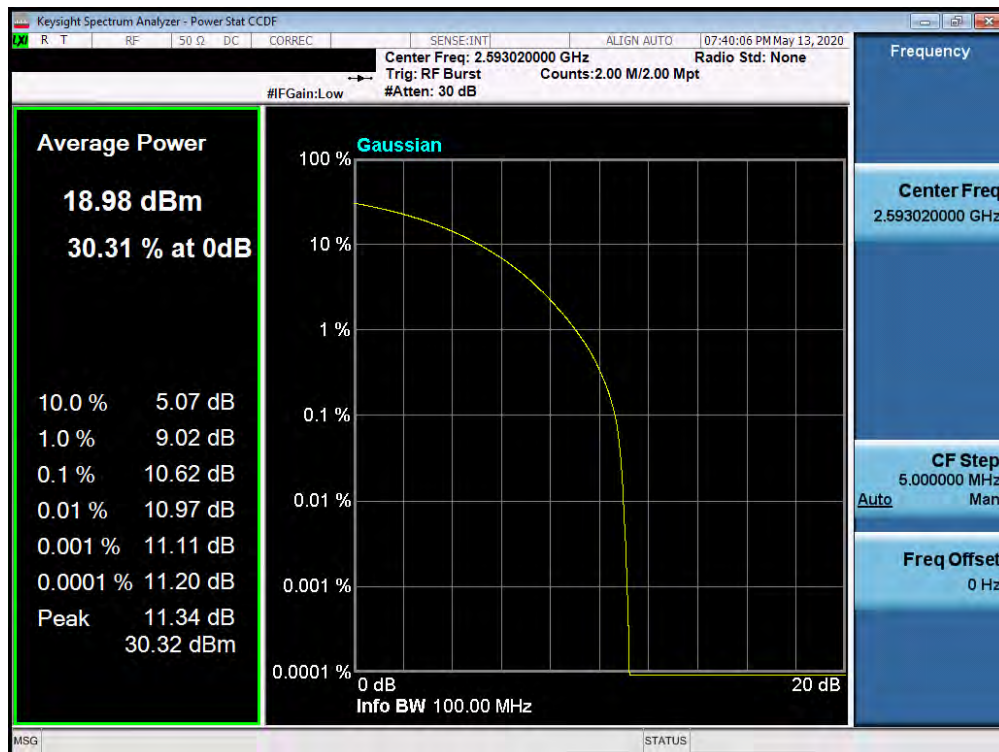


Plot 7-691. PAR Plot (Band n41 - 90.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 373 of 443

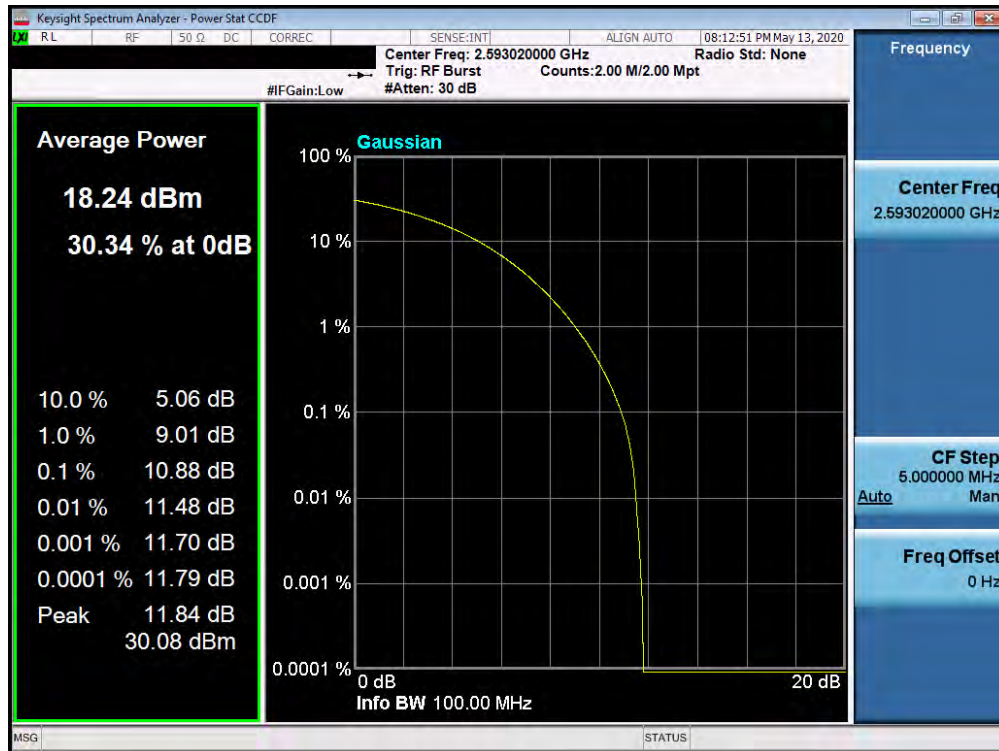


Plot 7-692. PAR Plot (Band n41 - 100.0MHz QPSK - Full RB Configuration)

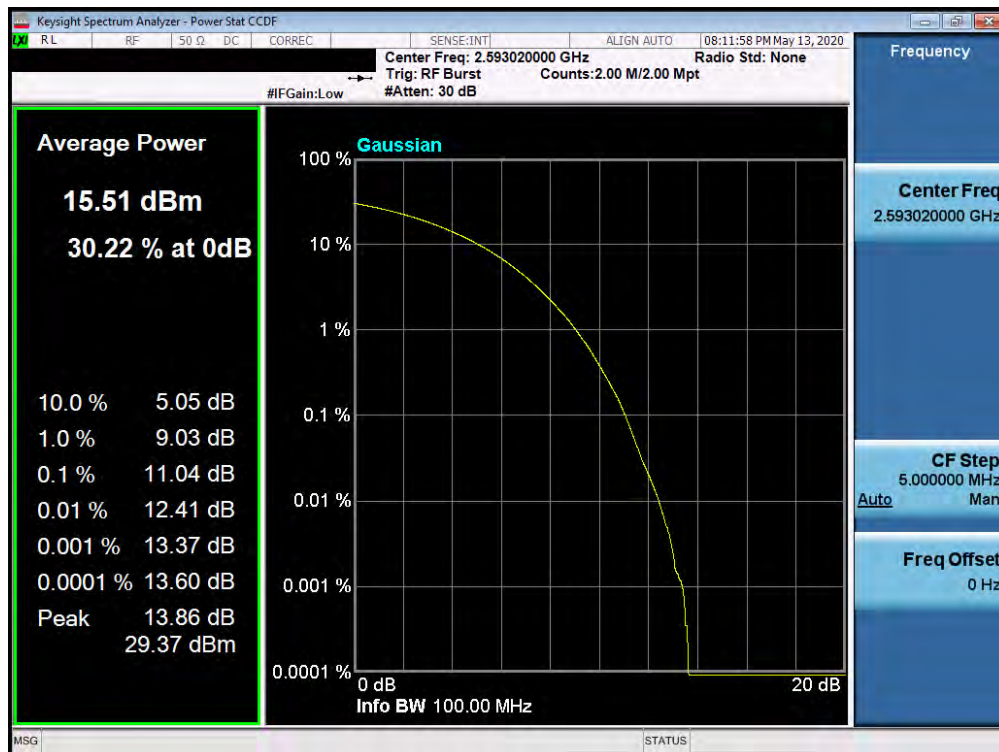


Plot 7-693. PAR Plot (Band n41 - 100.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 374 of 443



Plot 7-694. PAR Plot (Band n41 - 100.0MHz 64-QAM - Full RB Configuration)



Plot 7-695. PAR Plot (Band n41 - 100.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 375 of 443

7.6 Radiated Power (ERP/EIRP)

Test Overview

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

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.2.1

ANSI/TIA-603-E-2016 – Section 2.2.17

Test Settings

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

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Test Setup

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

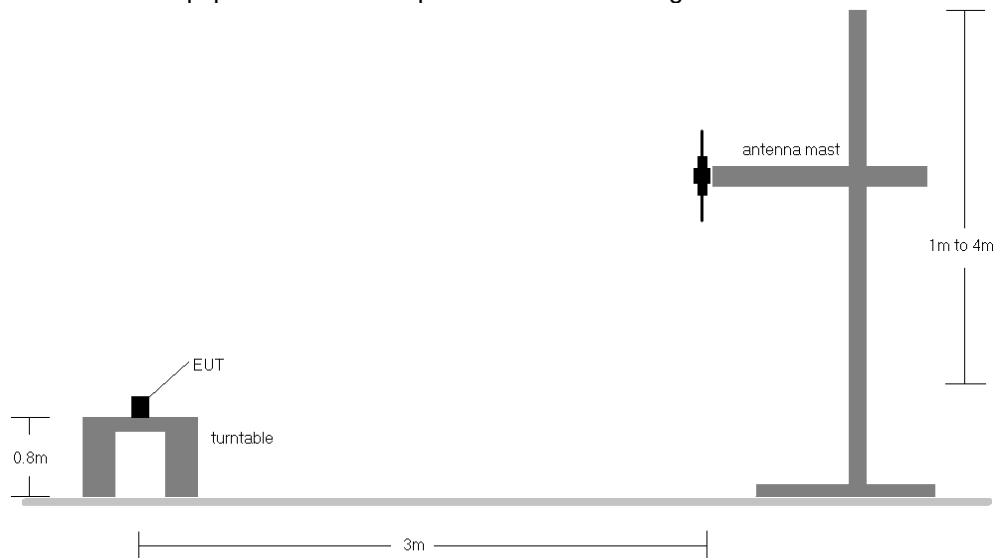


Figure 7-5. Radiated Test Setup <1GHz

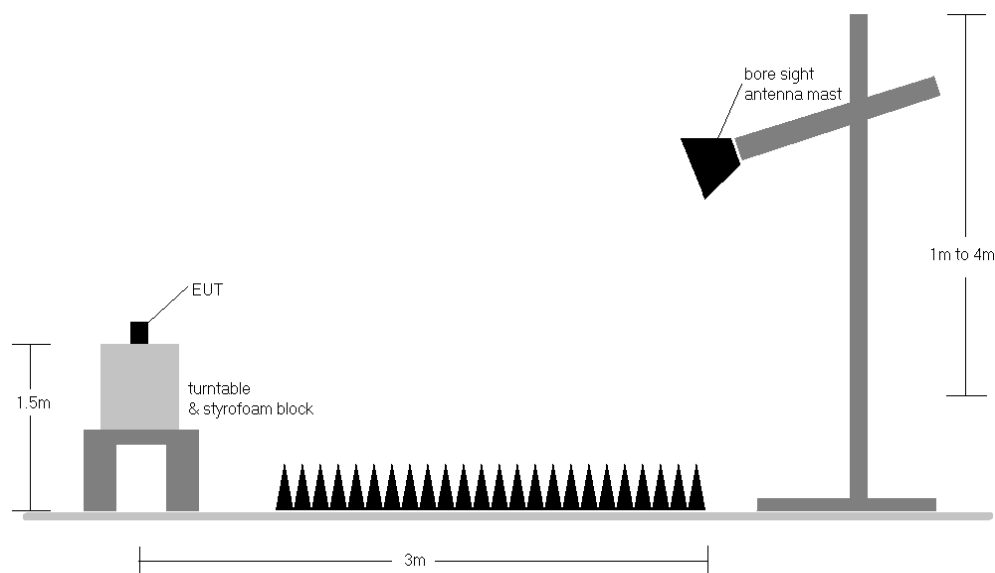


Figure 7-6. Radiated Test Setup >1GHz

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: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 377 of 443

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
665.50	5	QPSK	V	172	79	16.48	2.99	17.32	0.054	34.77	-17.45
680.50	5	QPSK	V	164	70	16.20	3.19	17.24	0.053	34.77	-17.53
695.50	5	QPSK	V	152	59	15.81	3.38	17.04	0.051	34.77	-17.73
665.50	5	16-QAM	V	172	79	15.55	2.99	16.39	0.044	34.77	-18.38
665.50	5	64-QAM	V	172	79	14.66	2.99	15.50	0.035	34.77	-19.27
665.50	5	256-QAM	V	172	79	11.74	2.99	12.58	0.018	34.77	-22.19
668.00	10	QPSK	V	160	70	16.26	3.02	17.13	0.052	34.77	-17.64
680.50	10	QPSK	V	170	64	16.16	3.19	17.20	0.052	34.77	-17.57
693.00	10	QPSK	V	146	62	15.95	3.34	17.14	0.052	34.77	-17.63
680.50	10	16-QAM	V	170	64	15.19	3.19	16.23	0.042	34.77	-18.54
680.50	10	64-QAM	V	170	64	14.50	3.19	15.54	0.036	34.77	-19.23
680.50	10	256-QAM	V	170	64	11.37	3.19	12.41	0.017	34.77	-22.36
670.50	15	QPSK	V	166	81	16.19	3.06	17.10	0.051	34.77	-17.67
680.50	15	QPSK	V	166	58	16.13	3.19	17.17	0.052	34.77	-17.60
690.50	15	QPSK	V	153	69	15.91	3.31	17.07	0.051	34.77	-17.70
680.50	15	16-QAM	V	166	58	15.26	3.19	16.30	0.043	34.77	-18.47
680.50	15	64-QAM	V	166	58	14.44	3.19	15.48	0.035	34.77	-19.29
690.50	15	256-QAM	V	153	69	11.54	3.31	12.70	0.019	34.77	-22.07
673.00	20	QPSK	V	166	81	14.14	3.09	15.08	0.032	34.77	-19.69
680.50	20	QPSK	V	166	58	15.53	3.19	16.57	0.045	34.77	-18.21
688.00	20	QPSK	V	153	69	16.07	3.28	17.20	0.052	34.77	-17.57
688.00	20	16-QAM	V	153	69	15.42	3.28	16.55	0.045	34.77	-18.22
688.00	20	64-QAM	V	153	69	14.42	3.28	15.55	0.036	34.77	-19.22
688.00	20	256-QAM	V	153	69	11.22	3.28	12.35	0.017	34.77	-22.42
665.50	5	QPSK	H	235	74	13.73	3.19	14.77	0.030	34.77	-20.01
665.50	5 (WCP)	QPSK	V	156	77	13.19	3.19	14.23	0.026	34.77	-20.55

Table 7-3. ERP Data (Band 71)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 378 of 443

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
20 MHz	π/2 BPSK	673.0	V	176.0	81.0	4.09	1 / 0	13.34	15.28	0.034	34.77	-19.49
		680.5	V	179.0	61.0	4.24	1 / 0	14.12	16.21	0.042	34.77	-18.57
		688.0	V	179.0	77.0	4.48	1 / 0	14.09	16.42	0.044	34.77	-18.35
	QPSK	673.0	V	176.0	81.0	4.09	1 / 0	13.42	15.36	0.034	34.77	-19.41
		680.5	V	179.0	61.0	4.24	1 / 0	14.28	16.37	0.043	34.77	-18.41
		688.0	V	179.0	77.0	4.48	1 / 0	14.22	16.55	0.045	34.77	-18.22
	16-QAM	688.0	V	179.0	77.0	4.48	1 / 0	13.49	15.82	0.038	34.77	-18.95
	64-QAM	680.5	V	179.0	61.0	4.24	1 / 0	12.45	14.54	0.028	34.77	-20.24
	256-QAM	680.5	V	179.0	61.0	4.24	1 / 0	10.62	12.71	0.019	34.77	-22.07
15 MHz	π/2 BPSK	670.5	V	176.0	81.0	3.96	1/1	14.44	16.25	0.042	34.77	-18.52
		680.5	V	179.0	61.0	4.24	1/1	14.20	16.29	0.043	34.77	-18.49
		690.5	V	179.0	77.0	4.41	1/1	13.77	16.03	0.040	34.77	-18.74
	QPSK	670.5	V	176.0	81.0	3.96	1/1	14.55	16.36	0.043	34.77	-18.41
		680.5	V	179.0	61.0	4.24	1/1	14.21	16.30	0.043	34.77	-18.48
		690.5	V	179.0	77.0	4.41	1/1	13.67	15.93	0.039	34.77	-18.84
	16-QAM	670.5	V	176.0	81.0	3.96	1/1	14.46	16.27	0.042	34.77	-18.50
	64-QAM	670.5	V	176.0	81.0	3.96	1/1	13.36	15.17	0.033	34.77	-19.60
	256-QAM	670.5	V	176.0	81.0	3.96	1/1	11.46	13.27	0.021	34.77	-21.50
10 MHz	π/2 BPSK	668.0	V	176.0	81.0	3.82	1/1	14.57	16.25	0.042	34.77	-18.52
		680.5	V	179.0	61.0	4.24	1/1	14.20	16.29	0.043	34.77	-18.49
		693.0	V	179.0	77.0	4.44	1/1	13.74	16.03	0.040	34.77	-18.74
	QPSK	668.0	V	176.0	81.0	3.82	1/1	14.68	16.36	0.043	34.77	-18.41
		680.5	V	179.0	61.0	4.24	1/1	14.21	16.30	0.043	34.77	-18.48
		693.0	V	179.0	77.0	4.44	1/1	13.64	15.93	0.039	34.77	-18.84
	16-QAM	680.5	V	179.0	61.0	4.24	1/1	13.77	15.86	0.039	34.77	-18.92
	64-QAM	680.5	V	179.0	61.0	4.24	1/1	12.45	14.54	0.028	34.77	-20.24
	256-QAM	680.5	V	179.0	61.0	4.24	1/1	10.49	12.58	0.018	34.77	-22.19
5 MHz	π/2 BPSK	665.5	V	176.0	81.0	3.79	1/1	14.53	16.17	0.041	34.77	-18.60
		680.5	V	179.0	61.0	4.24	1/1	14.17	16.26	0.042	34.77	-18.52
		695.5	V	179.0	77.0	4.58	1/1	13.55	15.97	0.040	34.77	-18.80
	QPSK	665.5	V	176.0	81.0	3.79	1/1	14.53	16.17	0.041	34.77	-18.60
		680.5	V	179.0	61.0	4.24	1/1	14.23	16.32	0.043	34.77	-18.46
		695.5	V	179.0	77.0	4.58	1/1	13.50	15.92	0.039	34.77	-18.85
	16-QAM	665.5	V	176.0	81.0	3.79	1/1	14.32	15.96	0.039	34.77	-18.81
	64-QAM	665.5	V	176.0	81.0	3.79	1/1	13.10	14.74	0.030	34.77	-20.03
	256-QAM	665.5	V	176.0	81.0	3.79	1/1	11.05	12.69	0.019	34.77	-22.08
	QPSK (CP-OFDM)	688.0	V	179.0	61.0	4.48	1 / 0	13.94	16.27	0.042	34.77	-18.50
	QPSK (Opposite Pol.)	688.0	H	179.0	61.0	4.48	1 / 0	12.74	15.07	0.032	34.77	-19.70
	QPSK (WCP)	688.0	V	184.0	42.0	4.48	1 / 0	12.62	14.95	0.031	34.77	-19.82

Table 7-4. ERP Data (Band n71)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 379 of 443

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	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	108	14.76	4.56	17.17	0.052	34.77	-17.60	19.32	0.086	36.99	-17.67
707.50	1.4	QPSK	V	104	95	14.57	4.62	17.04	0.051	34.77	-17.73	19.19	0.083	36.99	-17.80
715.30	1.4	QPSK	V	111	48	14.30	4.72	16.87	0.049	34.77	-17.90	19.02	0.080	36.99	-17.97
699.70	1.4	16-QAM	V	150	108	13.77	4.56	16.18	0.041	34.77	-18.59	18.33	0.068	36.99	-18.66
715.30	1.4	64-QAM	V	111	48	12.62	4.72	15.19	0.033	34.77	-19.58	17.34	0.054	36.99	-19.65
699.70	1.4	256-QAM	V	150	108	9.95	4.56	12.36	0.017	34.77	-22.41	14.51	0.028	36.99	-22.48
700.50	3	QPSK	V	150	108	14.79	4.59	17.23	0.053	34.77	-17.54	19.38	0.087	36.99	-17.61
707.50	3	QPSK	V	104	95	14.67	4.62	17.14	0.052	34.77	-17.63	19.29	0.085	36.99	-17.70
714.50	3	QPSK	V	111	48	14.41	4.71	16.97	0.050	34.77	-17.80	19.12	0.082	36.99	-17.87
700.50	3	16-QAM	V	150	108	14.01	4.59	16.45	0.044	34.77	-18.32	18.60	0.072	36.99	-18.39
700.50	3	64-QAM	V	150	108	12.86	4.59	15.30	0.034	34.77	-19.47	17.45	0.056	36.99	-19.54
700.50	3	256-QAM	V	150	108	10.04	4.59	12.48	0.018	34.77	-22.29	14.63	0.029	36.99	-22.36
701.50	5	QPSK	V	150	108	14.31	4.60	16.76	0.047	34.77	-18.01	18.91	0.078	36.99	-18.08
707.50	5	QPSK	V	104	95	14.82	4.62	17.29	0.054	34.77	-17.48	19.44	0.088	36.99	-17.55
713.50	5	QPSK	V	111	48	14.31	4.70	16.86	0.048	34.77	-17.91	19.01	0.080	36.99	-17.98
707.50	5	16-QAM	V	104	95	13.79	4.62	16.26	0.042	34.77	-18.51	18.41	0.069	36.99	-18.58
707.50	5	64-QAM	V	104	95	12.88	4.62	15.35	0.034	34.77	-19.42	17.50	0.056	36.99	-19.49
701.50	5	256-QAM	V	150	108	9.98	4.60	12.43	0.017	34.77	-22.34	14.58	0.029	36.99	-22.41
704.00	10	QPSK	V	175	140	16.58	4.58	19.01	0.080	34.77	-15.76	21.16	0.131	36.99	-15.83
707.50	10	QPSK	V	179	128	16.78	4.62	19.25	0.084	34.77	-15.52	21.40	0.138	36.99	-15.59
711.00	10	QPSK	V	179	133	16.92	4.67	19.44	0.088	34.77	-15.33	21.59	0.144	36.99	-15.40
704.00	10	16-QAM	V	175	140	15.50	4.58	17.93	0.062	34.77	-16.84	20.08	0.102	36.99	-16.91
704.00	10	64-QAM	V	175	140	14.31	4.58	16.74	0.047	34.77	-18.03	18.89	0.077	36.99	-18.10
707.50	10	256-QAM	V	179	128	12.44	4.62	14.91	0.031	34.77	-19.86	17.06	0.051	36.99	-19.93
711.00	10	QPSK	H	147	206	13.21	4.62	15.68	0.037	34.77	-19.09	17.83	0.061	36.99	-19.16
711.00	10 (WCP)	QPSK	V	177	223	12.11	4.62	14.58	0.029	34.77	-20.19	16.73	0.047	36.99	-20.26

Table 7-5. ERP Data (Band 12)

FCC ID: A3LSMN986W	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset	Page 380 of 443

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
779.50	5	QPSK	H	231	72	16.86	5.82	20.53	0.113	34.77	-14.25	22.68	0.185	36.99	-14.31
782.00	5	QPSK	H	237	79	16.98	5.89	20.72	0.118	34.77	-14.05	22.87	0.194	36.99	-14.12
784.50	5	QPSK	H	229	83	16.69	5.92	20.46	0.111	34.77	-14.31	22.61	0.182	36.99	-14.38
782.00	5	16-QAM	H	237	79	16.08	5.89	19.82	0.096	34.77	-14.95	21.97	0.158	36.99	-15.02
779.50	5	64-QAM	H	231	72	14.85	5.82	18.52	0.071	34.77	-16.26	20.67	0.117	36.99	-16.32
782.00	5	256-QAM	H	237	79	12.82	5.89	16.56	0.045	34.77	-18.21	18.71	0.074	36.99	-18.28
782.00	10	QPSK	H	237	79	16.79	5.89	20.53	0.113	34.77	-14.24	22.68	0.185	36.99	-14.31
782.00	10	16-QAM	H	237	79	15.82	5.89	19.56	0.090	34.77	-15.21	21.71	0.148	36.99	-15.28
782.00	10	64-QAM	H	237	79	13.99	5.89	17.73	0.059	34.77	-17.04	19.88	0.097	36.99	-17.11
782.00	10	256-QAM	H	237	79	11.91	5.89	15.65	0.037	34.77	-19.12	17.80	0.060	36.99	-19.19
782.00	5	QPSK	V	145	128	15.62	5.89	19.36	0.086	34.77	-15.41	21.51	0.142	36.99	-15.48
782.00	5 (WCP)	QPSK	V	156	201	12.93	5.89	16.67	0.046	34.77	-18.10	18.82	0.076	36.99	-18.17

Table 7-6. ERP Data (Band 13)

FCC ID: A3LSMN986W	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset	Page 381 of 443

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	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	V	145	125	13.46	6.36	17.67	0.058	38.45	-20.78	19.82	0.096	40.61	-20.79
836.50	1.4	QPSK	V	143	130	13.64	6.38	17.87	0.061	38.45	-20.58	20.02	0.100	40.61	-20.59
848.30	1.4	QPSK	V	143	116	12.91	6.50	17.26	0.053	38.45	-21.19	19.41	0.087	40.61	-21.20
836.50	1.4	16-QAM	V	143	130	12.73	6.38	16.96	0.050	38.45	-21.49	19.11	0.081	40.61	-21.50
836.50	1.4	64-QAM	V	143	130	11.97	6.38	16.20	0.042	38.45	-22.25	18.35	0.068	40.61	-22.26
836.50	1.4	256-QAM	V	143	130	10.39	6.38	14.62	0.029	38.45	-23.83	16.77	0.048	40.61	-23.84
825.50	3	QPSK	V	145	125	13.35	6.36	17.56	0.057	38.45	-20.89	19.71	0.094	40.61	-20.90
836.50	3	QPSK	V	143	130	13.61	6.38	17.84	0.061	38.45	-20.61	19.99	0.100	40.61	-20.62
847.50	3	QPSK	V	143	116	13.26	6.49	17.60	0.058	38.45	-20.85	19.75	0.094	40.61	-20.86
836.50	3	16-QAM	V	143	130	12.76	6.38	16.99	0.050	38.45	-21.46	19.14	0.082	40.61	-21.47
836.50	3	64-QAM	V	143	130	11.75	6.38	15.98	0.040	38.45	-22.47	18.13	0.065	40.61	-22.48
836.50	3	256-QAM	V	143	130	10.95	6.38	15.18	0.033	38.45	-23.27	17.33	0.054	40.61	-23.28
826.50	5	QPSK	V	145	125	13.38	6.37	17.60	0.058	38.45	-20.85	19.75	0.094	40.61	-20.86
836.50	5	QPSK	V	143	130	13.64	6.38	17.87	0.061	38.45	-20.58	20.02	0.100	40.61	-20.59
846.50	5	QPSK	V	143	116	13.31	6.48	17.64	0.058	38.45	-20.81	19.79	0.095	40.61	-20.82
836.50	5	16-QAM	V	143	130	12.81	6.38	17.04	0.051	38.45	-21.41	19.19	0.083	40.61	-21.42
836.50	5	64-QAM	V	143	130	11.85	6.38	16.08	0.041	38.45	-22.37	18.23	0.067	40.61	-22.38
836.50	5	256-QAM	V	143	130	10.34	6.38	14.57	0.029	38.45	-23.88	16.72	0.047	40.61	-23.89
829.00	10	QPSK	V	145	125	13.65	6.40	17.90	0.062	38.45	-20.55	20.05	0.101	40.61	-20.56
836.50	10	QPSK	V	143	130	13.76	6.38	17.99	0.063	38.45	-20.46	20.14	0.103	40.61	-20.47
844.00	10	QPSK	V	143	116	13.70	6.46	18.01	0.063	38.45	-20.44	20.16	0.104	40.61	-20.45
836.50	10	16-QAM	V	143	130	12.98	6.38	17.21	0.053	38.45	-21.24	19.36	0.086	40.61	-21.25
836.50	10	64-QAM	V	143	130	12.22	6.38	16.45	0.044	38.45	-22.00	18.60	0.072	40.61	-22.01
836.50	10	256-QAM	V	143	130	10.90	6.38	15.13	0.033	38.45	-23.32	17.28	0.053	40.61	-23.33

Table 7-7. ERP Data (5)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 382 of 443

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	H	130	150	13.18	9.47	22.65	0.184	30.00	-7.35
1745.00	1.4	QPSK	H	128	164	13.39	9.26	22.65	0.184	30.00	-7.35
1779.30	1.4	QPSK	H	122	160	14.24	9.29	23.53	0.225	30.00	-6.47
1745.00	1.4	16-QAM	H	128	164	12.86	9.26	22.12	0.163	30.00	-7.88
1710.70	1.4	64-QAM	H	130	150	12.21	9.47	21.68	0.147	30.00	-8.32
1710.70	1.4	256-QAM	H	130	150	9.60	9.47	19.07	0.081	30.00	-10.93
1711.50	3	QPSK	H	140	160	14.29	9.47	23.76	0.238	30.00	-6.24
1745.00	3	QPSK	H	128	147	14.27	9.26	23.53	0.225	30.00	-6.47
1778.50	3	QPSK	H	130	157	14.16	9.28	23.44	0.221	30.00	-6.56
1745.00	3	16-QAM	H	128	147	12.95	9.26	22.21	0.166	30.00	-7.79
1711.50	3	64-QAM	H	140	160	12.34	9.47	21.81	0.152	30.00	-8.19
1711.50	3	256-QAM	H	140	160	9.67	9.47	19.14	0.082	30.00	-10.86
1712.50	5	QPSK	H	130	111	14.06	9.46	23.52	0.225	30.00	-6.48
1745.00	5	QPSK	H	128	127	14.32	9.26	23.58	0.228	30.00	-6.42
1777.50	5	QPSK	H	131	160	14.25	9.28	23.53	0.225	30.00	-6.47
1712.50	5	16-QAM	H	130	111	13.06	9.46	22.52	0.179	30.00	-7.48
1712.50	5	64-QAM	H	130	111	12.29	9.46	21.75	0.150	30.00	-8.25
1712.50	5	256-QAM	H	130	111	9.70	9.46	19.16	0.082	30.00	-10.84
1715.00	10	QPSK	H	128	163	14.17	9.44	23.61	0.230	30.00	-6.39
1745.00	10	QPSK	H	131	160	14.34	9.26	23.60	0.229	30.00	-6.40
1775.00	10	QPSK	H	124	170	14.46	9.28	23.74	0.237	30.00	-6.26
1775.00	10	16-QAM	H	124	170	13.10	9.28	22.38	0.173	30.00	-7.62
1715.00	10	64-QAM	H	128	163	12.21	9.44	21.65	0.146	30.00	-8.35
1715.00	10	256-QAM	H	128	163	9.70	9.44	19.14	0.082	30.00	-10.86
1717.50	15	QPSK	H	141	162	14.31	9.43	23.74	0.237	30.00	-6.26
1745.00	15	QPSK	H	128	154	14.41	9.26	23.67	0.233	30.00	-6.33
1772.50	15	QPSK	H	131	152	14.36	9.27	23.63	0.231	30.00	-6.37
1772.50	15	16-QAM	H	131	152	12.98	9.27	22.25	0.168	30.00	-7.75
1717.50	15	64-QAM	H	141	162	12.51	9.43	21.94	0.156	30.00	-8.06
1717.50	15	256-QAM	H	141	162	9.81	9.43	19.24	0.084	30.00	-10.76
1720.00	20	QPSK	H	133	157	14.37	9.41	23.78	0.239	30.00	-6.22
1745.00	20	QPSK	H	128	157	14.47	9.26	23.73	0.236	30.00	-6.27
1770.00	20	QPSK	H	122	167	12.45	9.27	21.72	0.149	30.00	-8.28
1720.00	20	16-QAM	H	133	157	13.59	9.41	23.00	0.200	30.00	-7.00
1720.00	20	64-QAM	H	133	157	12.65	9.41	22.06	0.161	30.00	-7.94
1720.00	20	256-QAM	H	133	157	9.75	9.41	19.16	0.082	30.00	-10.84
1720.00	20	QPSK	V	137	343	13.75	9.41	23.16	0.207	30.00	-6.84
1720.00	20 (WCP)	QPSK	H	295	359	12.67	9.41	22.08	0.162	30.00	-7.92

Table 7-8. EIRP Data (Band 66/4)

FCC ID: A3LSMN986W	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset	Page 383 of 443

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
20 MHz	π/2 BPSK	1720.0	V	144.0	141.0	9.31	1 / 50	15.13	24.44	0.278	30.00	-5.56
		1745.0	V	133.0	150.0	9.14	1 / 50	13.64	22.78	0.190	30.00	-7.22
		1770.0	V	139.0	29.0	9.17	1 / 50	12.37	21.54	0.143	30.00	-8.46
	QPSK	1720.0	V	144.0	141.0	9.31	1 / 50	15.33	24.64	0.291	30.00	-5.36
		1745.0	V	133.0	150.0	9.14	1 / 50	14.08	23.22	0.210	30.00	-6.78
		1770.0	V	139.0	29.0	9.17	1 / 50	12.49	21.66	0.147	30.00	-8.34
	16-QAM	1720.0	V	144.0	141.0	9.31	1 / 50	14.40	23.71	0.235	30.00	-6.29
	64-QAM	1720.0	V	144.0	141.0	9.31	1 / 50	12.86	22.17	0.165	30.00	-7.83
	256-QAM	1720.0	V	144.0	141.0	9.31	1 / 50	11.35	20.66	0.116	30.00	-9.34
15 MHz	π/2 BPSK	1717.5	V	144.0	141.0	9.33	1/1	15.20	24.53	0.284	30.00	-5.47
		1745.0	V	133.0	150.0	9.14	1/1	13.64	22.78	0.190	30.00	-7.22
		1772.5	V	139.0	29.0	9.18	1/1	12.56	21.74	0.149	30.00	-8.26
	QPSK	1717.5	V	144.0	141.0	9.33	1/1	15.24	24.57	0.287	30.00	-5.43
		1745.0	V	133.0	150.0	9.14	1/1	14.00	23.14	0.206	30.00	-6.86
		1772.5	V	139.0	29.0	9.18	1/1	12.38	21.56	0.143	30.00	-8.44
	16-QAM	1717.5	V	144.0	141.0	9.33	1/1	14.64	23.97	0.250	30.00	-6.03
	64-QAM	1717.5	V	144.0	141.0	9.33	1/1	13.49	22.82	0.192	30.00	-7.18
	256-QAM	1717.5	V	144.0	141.0	9.33	1/1	10.90	20.23	0.106	30.00	-9.77
10 MHz	π/2 BPSK	1715.0	V	144.0	141.0	9.35	1/26	15.35	24.70	0.295	30.00	-5.30
		1745.0	V	133.0	150.0	9.14	1/26	13.84	22.98	0.199	30.00	-7.02
		1775.0	V	139.0	29.0	9.18	1/26	12.73	21.92	0.156	30.00	-8.08
	QPSK	1715.0	V	144.0	141.0	9.35	1/26	15.21	24.56	0.286	30.00	-5.44
		1745.0	V	133.0	150.0	9.14	1/26	14.15	23.29	0.213	30.00	-6.71
		1775.0	V	139.0	29.0	9.18	1/26	12.44	21.63	0.146	30.00	-8.37
	16-QAM	1715.0	V	144.0	141.0	9.35	1/26	14.59	23.94	0.248	30.00	-6.06
	64-QAM	1715.0	V	144.0	141.0	9.35	1/26	13.44	22.79	0.190	30.00	-7.21
	256-QAM	1715.0	V	144.0	141.0	9.35	1/26	10.65	20.00	0.100	30.00	-10.00
5 MHz	π/2 BPSK	1712.5	V	144.0	141.0	9.37	1/13	15.08	24.44	0.278	30.00	-5.56
		1745.0	V	133.0	150.0	9.14	1/13	13.80	22.94	0.197	30.00	-7.06
		1777.5	V	139.0	29.0	9.19	1/23	12.52	21.71	0.148	30.00	-8.29
	QPSK	1712.5	V	144.0	141.0	9.37	1/13	15.24	24.60	0.289	30.00	-5.40
		1745.0	V	133.0	150.0	9.14	1/13	14.10	23.24	0.211	30.00	-6.76
		1777.5	V	139.0	29.0	9.19	1/23	12.50	21.69	0.148	30.00	-8.31
	16-QAM	1712.5	V	144.0	141.0	9.37	1/13	14.52	23.88	0.244	30.00	-6.12
	64-QAM	1712.5	V	144.0	141.0	9.37	1/13	13.37	22.73	0.188	30.00	-7.27
	256-QAM	1712.5	V	144.0	141.0	9.37	1/13	10.69	20.05	0.101	30.00	-9.95
	QPSK (CP-OFDM)	1720.0	V	144.0	141.0	9.31	1 / 50	13.04	22.35	0.172	30.00	-7.65
	QPSK (Opposite Pol.)	1720.0	H	222.0	246.0	9.31	1 / 50	13.69	23.00	0.200	30.00	-7.00
	QPSK (WCP)	1720.0	V	210.0	209.0	9.31	1 / 50	11.32	20.63	0.116	30.00	-9.37

Table 7-9. EIRP Data (Band n66)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 384 of 443

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	H	121	11	13.84	9.51	23.35	0.216	33.01	-9.66
1882.50	1.4	QPSK	H	146	134	13.50	9.96	23.46	0.222	33.01	-9.55
1914.30	1.4	QPSK	H	115	321	14.07	10.32	24.39	0.275	33.01	-8.62
1914.30	1.4	16-QAM	H	115	321	13.13	10.32	23.45	0.221	33.01	-9.56
1914.30	1.4	64-QAM	H	115	321	12.07	10.32	22.39	0.173	33.01	-10.62
1914.30	1.4	256-QAM	H	115	321	9.15	10.32	19.47	0.089	33.01	-13.54
1851.50	3	QPSK	H	121	21	13.83	9.52	23.35	0.216	33.01	-9.66
1882.50	3	QPSK	H	121	11	13.60	9.96	23.56	0.227	33.01	-9.45
1913.50	3	QPSK	H	111	321	14.10	10.31	24.41	0.276	33.01	-8.60
1913.50	3	16-QAM	H	111	321	13.14	10.31	23.45	0.221	33.01	-9.56
1913.50	3	64-QAM	H	111	321	12.21	10.31	22.52	0.179	33.01	-10.49
1913.50	3	256-QAM	H	111	321	9.18	10.31	19.49	0.089	33.01	-13.52
1852.50	5	QPSK	H	117	24	13.80	9.54	23.34	0.216	33.01	-9.67
1882.50	5	QPSK	H	159	26	13.64	9.96	23.60	0.229	33.01	-9.41
1912.50	5	QPSK	H	111	5	14.07	10.30	24.37	0.274	33.01	-8.64
1912.50	5	16-QAM	H	111	5	13.19	10.30	23.49	0.223	33.01	-9.52
1912.50	5	64-QAM	H	111	5	12.18	10.30	22.48	0.177	33.01	-10.53
1912.50	5	256-QAM	H	111	5	9.17	10.30	19.47	0.089	33.01	-13.54
1855.00	10	QPSK	H	116	10	13.81	9.57	23.38	0.218	33.01	-9.63
1882.50	10	QPSK	H	109	12	13.62	9.96	23.58	0.228	33.01	-9.43
1910.00	10	QPSK	H	113	344	14.08	10.28	24.36	0.273	33.01	-8.65
1910.00	10	16-QAM	H	113	344	13.48	10.28	23.76	0.238	33.01	-9.25
1910.00	10	64-QAM	H	113	344	12.34	10.28	22.62	0.183	33.01	-10.39
1910.00	10	256-QAM	H	113	344	9.29	10.28	19.57	0.091	33.01	-13.44
1857.50	15	QPSK	H	116	10	13.80	9.61	23.41	0.219	33.01	-9.60
1882.50	15	QPSK	H	109	12	13.50	9.96	23.46	0.222	33.01	-9.55
1907.50	15	QPSK	H	113	344	14.13	10.26	24.39	0.275	33.01	-8.62
1907.50	15	16-QAM	H	113	344	13.55	10.26	23.81	0.240	33.01	-9.20
1907.50	15	64-QAM	H	113	344	12.39	10.26	22.65	0.184	33.01	-10.36
1907.50	15	256-QAM	H	113	344	9.28	10.26	19.54	0.090	33.01	-13.47
1860.00	20	QPSK	H	116	10	13.94	9.64	23.58	0.228	33.01	-9.43
1882.50	20	QPSK	H	109	12	13.74	9.96	23.70	0.234	33.01	-9.31
1905.00	20	QPSK	H	113	344	14.40	10.24	24.64	0.291	33.01	-8.37
1860.00	20	16-QAM	H	116	10	11.67	9.64	21.31	0.135	33.01	-11.70
1860.00	20	64-QAM	H	116	10	11.01	9.64	20.65	0.116	33.01	-12.36
1860.00	20	256-QAM	H	116	10	9.21	9.64	18.85	0.077	33.01	-14.16
1905.00	20	QPSK	V	204	119	11.94	9.96	21.90	0.155	33.01	-11.11
1905.00	20 (WCP)	QPSK	H	123	278	12.41	9.96	22.37	0.173	33.01	-10.64

Table 7-10. EIRP Data (Band 25/2)

FCC ID: A3LSMN986W	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset	Page 385 of 443

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2307.50	5	QPSK	V	151	254	12.53	10.26	22.79	0.190	23.98	-1.19
2312.50	5	QPSK	V	145	248	12.14	10.24	22.38	0.173	23.98	-1.60
2312.50	5	16-QAM	V	145	248	11.48	10.24	21.72	0.149	23.98	-2.26
2307.50	5	64-QAM	V	151	254	9.66	10.26	19.92	0.098	23.98	-4.06
2307.50	5	256-QAM	V	151	254	8.12	10.26	18.38	0.069	23.98	-5.60
2310.00	10	QPSK	V	149	244	12.66	10.25	22.91	0.195	23.98	-1.07
2310.00	10	16-QAM	V	149	244	11.96	10.25	22.21	0.166	23.98	-1.77
2310.00	10	64-QAM	V	149	244	10.14	10.25	20.39	0.109	23.98	-3.59
2310.00	10	256-QAM	V	149	244	7.80	10.25	18.05	0.064	23.98	-5.93
2310.00	10	QPSK	H	147	333	10.49	10.25	20.74	0.119	23.98	-3.24
2310.00	10 (WCP)	QPSK	V	234	278	10.16	10.25	20.41	0.110	23.98	-3.57

Table 7-11. EIRP Data (Band 30)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 386 of 443

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2502.50	5	QPSK	H	149	322	13.25	9.46	22.71	0.187	33.01	-10.30
2535.00	5	QPSK	H	145	320	13.91	9.42	23.33	0.215	33.01	-9.68
2567.50	5	QPSK	H	141	316	13.12	9.48	22.60	0.182	33.01	-10.41
2502.50	5	16-QAM	H	149	322	13.67	9.46	23.13	0.206	33.01	-9.88
2535.00	5	64-QAM	H	145	320	12.24	9.42	21.66	0.147	33.01	-11.35
2502.50	5	256-QAM	H	149	322	9.57	9.46	19.03	0.080	33.01	-13.98
2505.00	10	QPSK	H	149	322	13.95	9.45	23.40	0.219	33.01	-9.61
2535.00	10	QPSK	H	145	320	14.05	9.42	23.47	0.222	33.01	-9.54
2565.00	10	QPSK	H	141	316	12.75	9.47	22.22	0.167	33.01	-10.79
2505.00	10	16-QAM	H	149	322	13.68	9.45	23.13	0.206	33.01	-9.88
2505.00	10	64-QAM	H	149	322	12.41	9.45	21.86	0.153	33.01	-11.15
2505.00	10	256-QAM	H	149	322	9.53	9.45	18.98	0.079	33.01	-14.03
2507.50	15	QPSK	H	149	322	14.01	9.45	23.46	0.222	33.01	-9.55
2535.00	15	QPSK	H	145	320	13.91	9.42	23.33	0.215	33.01	-9.68
2562.50	15	QPSK	H	141	316	12.65	9.46	22.11	0.163	33.01	-10.90
2535.00	15	16-QAM	H	145	320	13.49	9.42	22.91	0.195	33.01	-10.10
2535.00	15	64-QAM	H	145	320	12.31	9.42	21.73	0.149	33.01	-11.28
2507.50	15	256-QAM	H	149	322	9.68	9.45	19.13	0.082	33.01	-13.88
2510.00	20	QPSK	H	149	322	14.14	9.45	23.59	0.228	33.01	-9.42
2535.00	20	QPSK	H	145	320	13.20	9.42	22.62	0.183	33.01	-10.39
2560.00	20	QPSK	H	141	316	12.72	9.45	22.17	0.165	33.01	-10.84
2510.00	20	16-QAM	H	149	322	13.45	9.45	22.90	0.195	33.01	-10.11
2510.00	20	64-QAM	H	149	322	11.67	9.45	21.12	0.129	33.01	-11.89
2510.00	20	256-QAM	H	149	322	9.21	9.45	18.66	0.073	33.01	-14.35
2510.00	20	QPSK	V	101	268	10.61	9.42	20.03	0.101	33.01	-12.98
2510.00	20 (WCP)	QPSK	V	125	271	7.27	9.42	16.69	0.047	33.01	-16.32

Table 7-12. EIRP Data (Band 7)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 387 of 443

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	H	141	141	12.59	9.46	22.05	0.160	33.01	-10.96
2502.50	5	QPSK	H	141	141	12.56	9.46	22.02	0.159	33.01	-10.99
2593.00	5	QPSK	H	110	136	13.47	9.58	23.05	0.202	33.01	-9.96
2687.50	5	QPSK	H	122	-133	12.21	9.85	22.06	0.161	33.01	-10.95
2593.00	5	16-QAM	H	110	136	13.05	9.58	22.63	0.183	33.01	-10.38
2593.00	5	64-QAM	H	110	136	12.13	9.58	21.71	0.148	33.01	-11.30
2593.00	5	256-QAM	H	110	136	8.96	9.58	18.54	0.071	33.01	-14.47
2501.00	10	QPSK	H	141	141	12.80	9.46	22.26	0.168	33.01	-10.75
2505.00	10	QPSK	H	141	141	12.78	9.45	22.23	0.167	33.01	-10.78
2593.00	10	QPSK	H	110	136	13.60	9.58	23.18	0.208	33.01	-9.83
2685.00	10	QPSK	H	122	-133	12.28	9.85	22.13	0.163	33.01	-10.88
2593.00	10	16-QAM	H	110	136	13.09	9.58	22.67	0.185	33.01	-10.34
2593.00	10	64-QAM	H	110	136	12.04	9.58	21.62	0.145	33.01	-11.39
2593.00	10	256-QAM	H	110	136	9.06	9.58	18.64	0.073	33.01	-14.37
2503.50	15	QPSK	H	141	141	12.74	9.45	22.19	0.166	33.01	-10.82
2507.50	15	QPSK	H	141	141	12.54	9.45	21.99	0.158	33.01	-11.02
2593.00	15	QPSK	H	110	136	13.52	9.58	23.10	0.204	33.01	-9.91
2682.50	15	QPSK	H	122	-133	12.09	9.86	21.95	0.157	33.01	-11.06
2593.00	15	16-QAM	H	110	136	12.60	9.58	22.18	0.165	33.01	-10.83
2593.00	15	64-QAM	H	110	136	11.68	9.58	21.26	0.134	33.01	-11.75
2593.00	15	256-QAM	H	110	136	8.84	9.58	18.42	0.070	33.01	-14.59
2506.00	20	QPSK	H	119	146	13.10	9.45	22.55	0.180	33.01	-10.46
2510.00	20	QPSK	H	111	137	12.87	9.45	22.32	0.171	33.01	-10.69
2593.00	20	QPSK	H	104	136	13.62	9.58	23.20	0.209	33.01	-9.81
2680.00	20	QPSK	H	115	131	12.68	9.86	22.54	0.180	33.01	-10.47
2593.00	20	16-QAM	H	104	136	13.27	9.58	22.85	0.193	33.01	-10.16
2593.00	20	64-QAM	H	104	136	12.05	9.58	21.63	0.146	33.01	-11.38
2593.00	20	256-QAM	H	104	136	8.98	9.58	18.56	0.072	33.01	-14.45
20.00	QPSK	H	V	101	91	11.06	9.58	20.64	0.116	33.01	-12.37
20.00	QPSK (WCP)	H	V	135	211	10.56	9.58	20.14	0.103	33.01	-12.87

Table 7-13. EIRP Data (Band 41)

FCC ID: A3LSMN986W	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset	Page 388 of 443

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
100 MHz	$\pi/2$ BPSK	2546.0	H	151.0	312.0	9.41	1 / 273	13.58	22.99	0.199	33.01	-10.02
		2593.0	H	106.0	316.0	9.58	1 / 1	13.88	23.46	0.222	33.01	-9.55
		2640.0	H	116.0	319.0	9.87	1 / 137	13.22	23.09	0.204	33.01	-9.92
	QPSK	2546.0	H	151.0	312.0	9.41	1 / 273	13.20	22.61	0.183	33.01	-10.40
		2593.0	H	106.0	316.0	9.58	1 / 1	12.77	22.35	0.172	33.01	-10.66
		2640.0	H	116.0	319.0	9.87	1 / 137	12.58	22.45	0.176	33.01	-10.56
	16-QAM	2546.0	H	151.0	312.0	9.41	1 / 273	11.91	21.32	0.136	33.01	-11.69
	64-QAM	2546.0	H	151.0	312.0	9.41	1 / 273	10.00	19.41	0.087	33.01	-13.60
90 MHz	$\pi/2$ BPSK	2541.0	H	151.0	312.0	9.42	1 / 123	13.65	23.06	0.202	33.01	-9.95
		2593.0	H	106.0	316.0	9.58	1 / 123	13.33	22.91	0.195	33.01	-10.10
		2645.0	H	116.0	319.0	9.90	1 / 123	13.35	23.25	0.211	33.01	-9.76
	QPSK	2541.0	H	151.0	312.0	9.42	1 / 123	13.40	22.81	0.191	33.01	-10.20
		2593.0	H	106.0	316.0	9.58	1 / 123	12.32	21.90	0.155	33.01	-11.11
		2645.0	H	116.0	319.0	9.90	1 / 123	11.37	21.27	0.134	33.01	-11.74
	16-QAM	2541.0	H	151.0	312.0	9.42	1 / 123	12.48	21.89	0.155	33.01	-11.12
	64-QAM	2541.0	H	151.0	312.0	9.42	1 / 123	9.77	19.18	0.083	33.01	-13.83
80 MHz	$\pi/2$ BPSK	2536.0	H	151.0	312.0	9.42	1 / 108	13.66	23.08	0.203	33.01	-9.93
		2593.0	H	106.0	316.0	9.58	1 / 108	13.84	23.42	0.220	33.01	-9.59
		2650.0	H	116.0	319.0	9.93	1 / 108	13.14	23.07	0.203	33.01	-9.94
	QPSK	2536.0	H	151.0	312.0	9.42	1 / 108	13.93	23.35	0.216	33.01	-9.66
		2593.0	H	106.0	316.0	9.58	1 / 108	13.38	22.96	0.198	33.01	-10.05
		2650.0	H	116.0	319.0	9.93	1 / 108	13.43	23.36	0.217	33.01	-9.65
	16-QAM	2536.0	H	151.0	312.0	9.42	1 / 108	11.53	21.46	0.140	33.01	-11.55
	64-QAM	2536.0	H	151.0	312.0	9.42	1 / 108	8.80	18.22	0.066	33.01	-14.79
60 MHz	$\pi/2$ BPSK	2536.0	H	151.0	312.0	9.42	1 / 108	6.30	15.72	0.037	33.01	-17.29
	QPSK	2526.0	H	151.0	312.0	9.43	1 / 81	14.17	23.60	0.229	33.01	-9.41
		2593.0	H	106.0	316.0	9.58	1 / 81	13.91	23.49	0.223	33.01	-9.52
	QPSK	2660.0	H	116.0	319.0	9.91	1 / 81	13.17	23.08	0.203	33.01	-9.93
		2526.0	H	151.0	312.0	9.43	1 / 81	13.65	23.08	0.203	33.01	-9.93
		2593.0	H	106.0	316.0	9.58	1 / 81	12.70	22.28	0.169	33.01	-10.73
	16-QAM	2660.0	H	116.0	319.0	9.91	1 / 81	12.90	22.81	0.191	33.01	-10.20
		2526.0	H	151.0	312.0	9.43	1 / 81	12.33	21.76	0.150	33.01	-11.25
50 MHz	$\pi/2$ BPSK	2526.0	H	151.0	312.0	9.43	1 / 81	9.78	19.21	0.083	33.01	-13.80
	QPSK	2660.0	H	116.0	319.0	9.91	1 / 81	8.96	18.87	0.077	33.01	-14.14
		2521.0	H	151.0	312.0	9.44	1 / 66	13.97	23.40	0.219	33.01	-9.61
	QPSK	2593.0	H	106.0	316.0	9.58	1 / 66	14.08	23.66	0.232	33.01	-9.35
		2665.0	H	116.0	319.0	9.90	1 / 66	13.46	23.36	0.217	33.01	-9.65
	16-QAM	2521.0	H	151.0	312.0	9.44	1 / 66	13.40	22.83	0.192	33.01	-10.18
		2593.0	H	106.0	316.0	9.58	1 / 66	12.97	22.55	0.180	33.01	-10.46
		2665.0	H	116.0	319.0	9.90	1 / 66	12.94	22.84	0.192	33.01	-10.17
40 MHz	$\pi/2$ BPSK	2521.0	H	151.0	312.0	9.44	1 / 66	12.59	22.02	0.159	33.01	-10.99
	QPSK	2521.0	H	151.0	312.0	9.44	1 / 66	9.94	19.37	0.087	33.01	-13.64
		2593.0	H	106.0	316.0	9.58	1 / 66	7.21	16.79	0.048	33.01	-16.22
	16-QAM	2516.0	H	151.0	312.0	9.44	1 / 52	13.01	22.45	0.176	33.01	-10.56
		2593.0	H	106.0	316.0	9.58	1 / 52	13.59	23.17	0.208	33.01	-9.84
		2670.0	H	116.0	319.0	9.89	1 / 52	13.12	23.01	0.200	33.01	-10.00
	QPSK	2516.0	H	151.0	312.0	9.44	1 / 52	12.87	22.31	0.170	33.01	-10.70
		2593.0	H	106.0	316.0	9.58	1 / 52	12.76	22.34	0.171	33.01	-10.67
20 MHz	$\pi/2$ BPSK	2670.0	H	116.0	319.0	9.89	1 / 52	12.96	22.85	0.193	33.01	-10.16
	QPSK	2593.0	H	106.0	316.0	9.58	1 / 52	11.59	21.17	0.131	33.01	-11.84
		2593.0	H	106.0	316.0	9.58	1 / 52	8.27	17.85	0.061	33.01	-15.16
	16-QAM	2593.0	H	106.0	316.0	9.58	1 / 52	7.79	17.37	0.055	33.01	-15.64
		2506.0	H	151.0	312.0	9.45	1 / 26	12.43	21.88	0.154	33.01	-11.13
	QPSK	2593.0	H	106.0	316.0	9.58	1 / 26	13.11	22.69	0.186	33.01	-10.32
		2680.0	H	116.0	319.0	9.86	1 / 26	11.23	21.09	0.129	33.01	-11.92
		2506.0	H	151.0	312.0	9.45	1 / 26	12.58	22.03	0.160	33.01	-10.98
20 MHz	QPSK	2593.0	H	106.0	316.0	9.58	1 / 26	12.28	21.86	0.154	33.01	-11.15
		2680.0	H	116.0	319.0	9.86	1 / 26	12.23	22.09	0.162	33.01	-10.92
		2593.0	H	106.0	316.0	9.58	1 / 26	11.49	21.07	0.128	33.01	-11.94
	64-QAM	2593.0	H	106.0	316.0	9.58	1 / 26	8.61	18.19	0.066	33.01	-14.82
20 MHz	256-QAM	2593.0	H	106.0	316.0	9.58	1 / 26	7.45	17.03	0.050	33.01	-15.98
	QPSK (CP-OFDM)	2593.0	H	112.0	21.0	9.58	1 / 0	7.75	17.33	0.054	33.01	-15.68
	QPSK (Opposite Pol.)	2593.0	V	164.0	98.0	9.58	1 / 0	8.54	18.12	0.065	33.01	-14.89
	QPSK (WCP)	2593.0	V	152.0	22.0	9.58	1 / 0	7.69	17.27	0.053	33.01	-15.74

Table 7-14. EIRP Data (Band n41)

FCC ID: A3LSMN986W	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset	Page 389 of 443

7.7 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas.

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.8

ANSI/TIA-603-E-2016 – Section 2.2.12

Test Settings

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

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 390 of 443

Test Setup

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

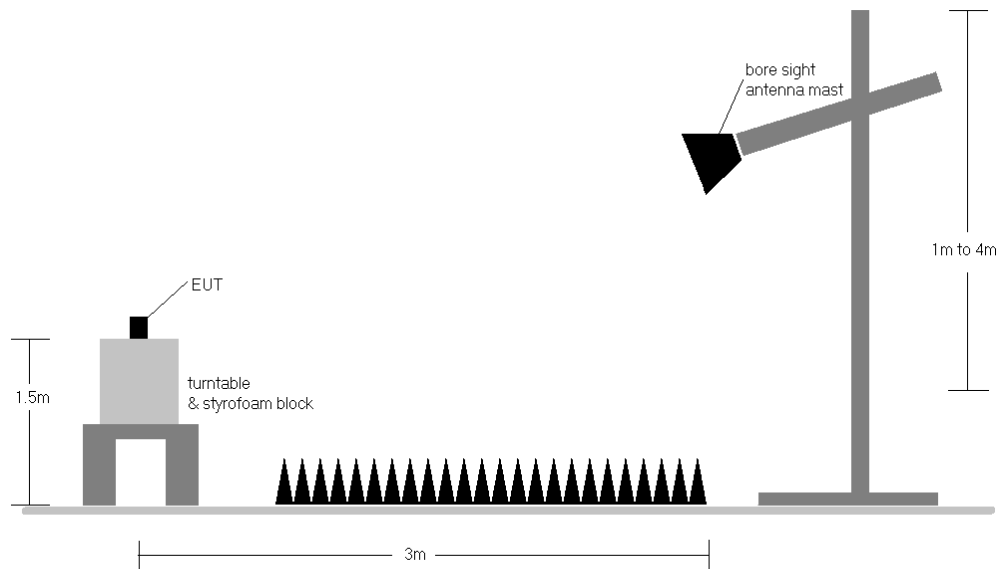


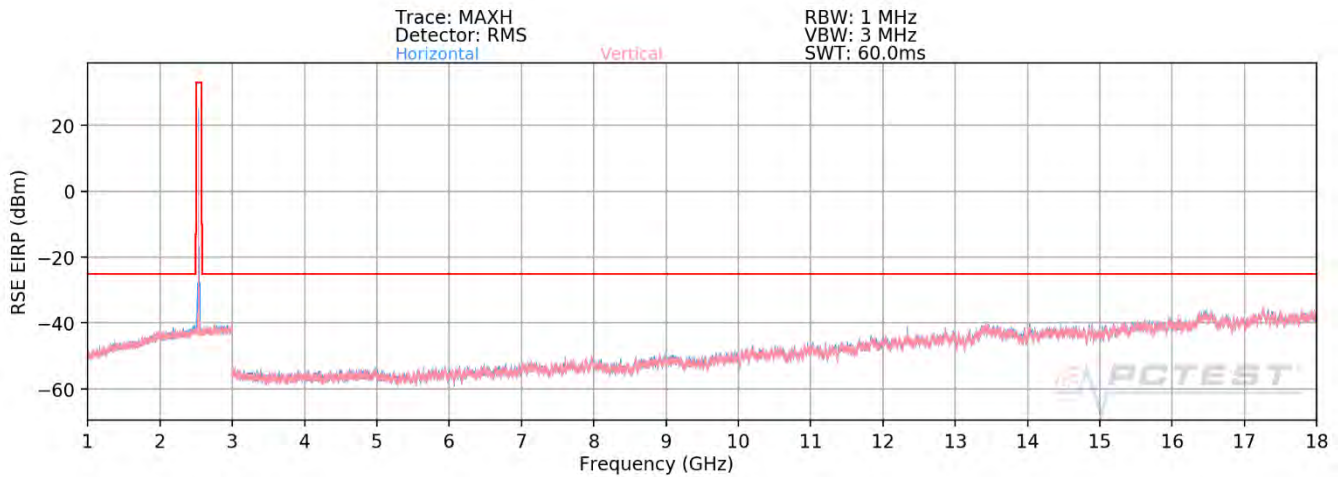
Figure 7-7. Test Instrument & Measurement Setup

Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 4) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 5) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 391 of 443

Band 71



Plot 7-696. Radiated Spurious Plot above 1GHz (Band 71)

OPERATING FREQUENCY: 673.00 MHz
MODULATION SIGNAL: QPSK
BANDWIDTH: 20.0 MHz
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1346.00	H	100	173	-55.17	2.91	-52.26	-39.3
2019.00	H	111	128	-65.30	2.82	-62.48	-49.5
2692.00	H	-	-	-66.53	4.53	-62.00	-49.0
3365.00	H	-	-	-67.86	6.10	-61.77	-48.8

Table 7-15. Radiated Spurious Data (Band 71 – Low Channel)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 392 of 443

OPERATING FREQUENCY: 680.50 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1361.00	H	101	194	-57.81	2.88	-54.94	-41.9
2041.50	H	107	70	-63.93	2.73	-61.20	-48.2
2722.00	H	-	-	-66.92	4.63	-62.30	-49.3
3402.50	H	-	-	-68.26	6.26	-62.00	-49.0

Table 7-16. Radiated Spurious Data (Band 71 – Mid Channel)

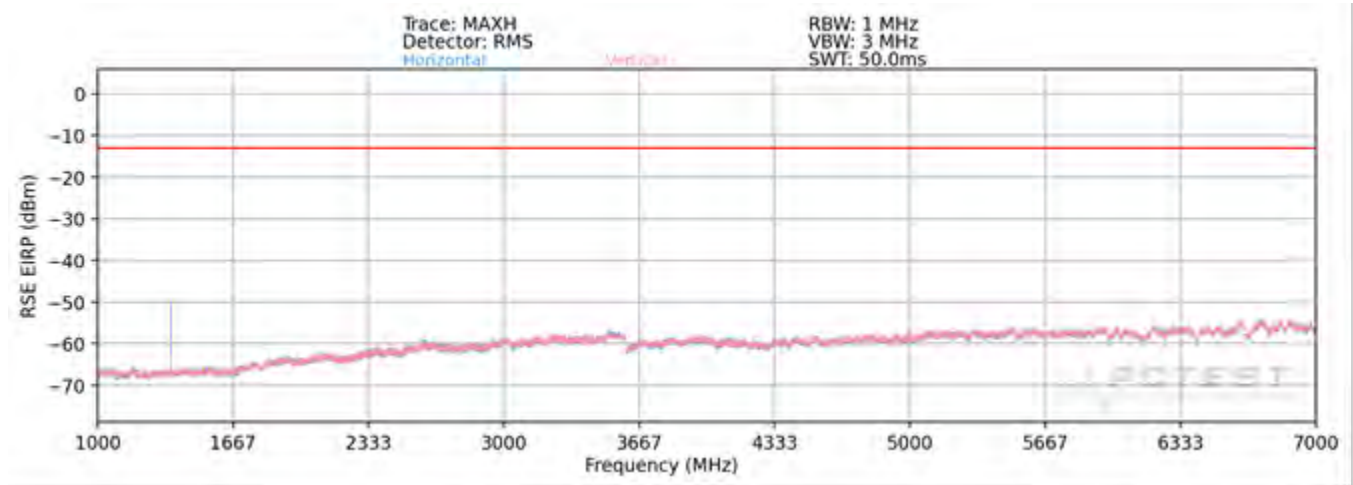
OPERATING FREQUENCY: 688.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1376.00	H	101	175	-56.70	2.64	-54.06	-41.1
2064.00	H	127	132	-64.80	2.82	-61.98	-49.0
2752.00	H	-	-	-66.02	4.60	-61.42	-48.4
3440.00	H	-	-	-67.78	6.28	-61.50	-48.5

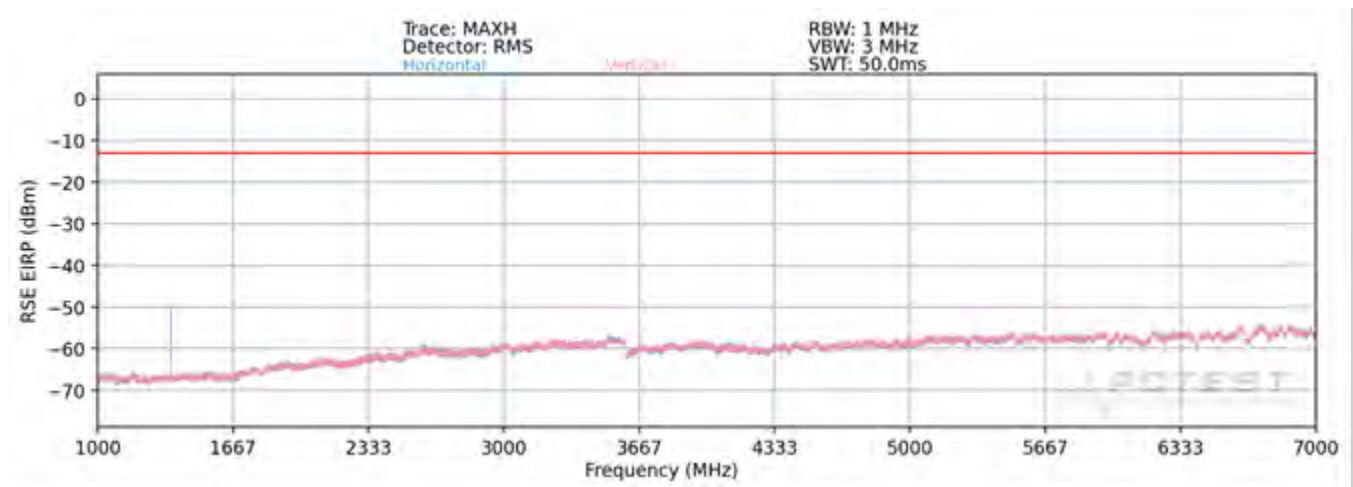
Table 7-17. Radiated Spurious Data (Band 71 – High Channel)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 393 of 443

Band n71



Plot 7-697. Radiated Spurious Plot above 1GHz (n71)



Plot 7-698. Radiated Spurious Plot above 1GHz (n71 + B2)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 394 of 443

OPERATING FREQUENCY: 673.00 MHz
 MODULATION SIGNAL: QPSK (DFT-s-OFDM)
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1346.00	H	172	214	-56.76	7.50	-49.26	-36.3
2019.00	H	-	-	-70.86	8.71	-62.14	-49.1
2692.00	H	-	-	-68.20	10.02	-58.18	-45.2
3365.00	H	-	-	-67.20	9.69	-57.51	-44.5

Table 7-18. Radiated Spurious Data (n71 – Low Channel)

OPERATING FREQUENCY: 680.50 MHz
 MODULATION SIGNAL: QPSK (DFT-s-OFDM)
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1361.00	H	161	201	-55.73	7.51	-48.21	-35.2
2041.50	H	169	194	-70.38	8.79	-61.59	-48.6
2722.00	H	-	-	-67.95	10.11	-57.84	-44.8
3402.50	H	-	-	-67.11	9.83	-57.28	-44.3

Table 7-19. Radiated Spurious Data (n71 – Mid Channel)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 395 of 443

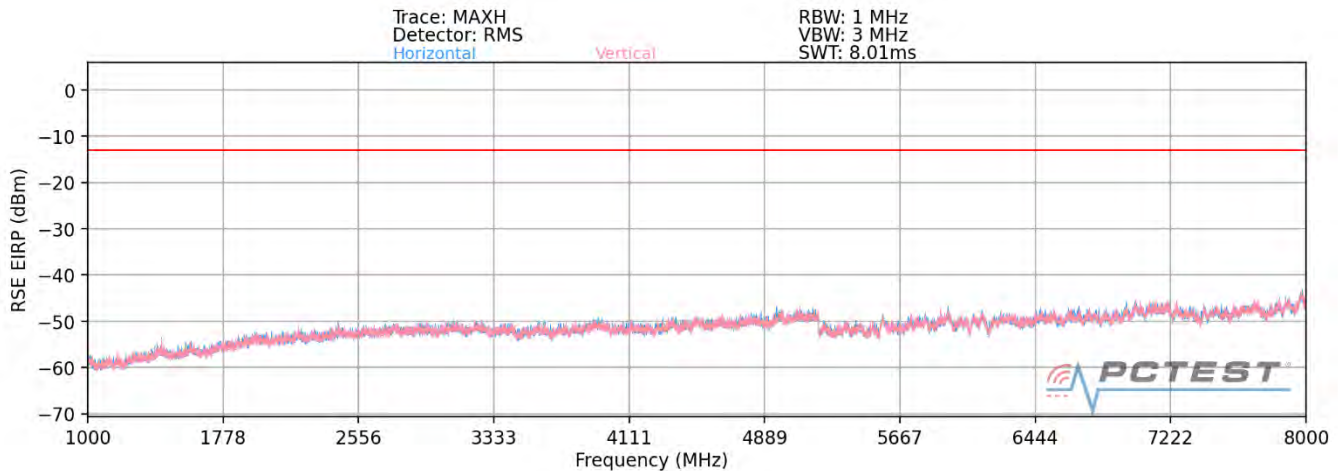
OPERATING FREQUENCY: 688.00 MHz
 MODULATION SIGNAL: QPSK (DFT-s-OFDM)
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1376.00	H	164	204	-70.17	7.49	-62.67	-49.7
2064.00	H	-	-	-70.33	8.83	-61.50	-48.5
2752.00	H	-	-	-69.78	10.20	-59.58	-46.6
3440.00	H	-	-	-67.60	9.87	-57.73	-44.7
4128.00	H	-	-	-72.42	10.21	-62.20	-49.2

Table 7-20. Radiated Spurious Data (n71 – High Channel)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 396 of 443

Band 12



Plot 7-699. Radiated Spurious Plot above 1GHz (Band 12)

OPERATING FREQUENCY: 704.00 MHz

MODULATION SIGNAL: QPSK

BANDWIDTH: 10.0 MHz

DISTANCE: 3 meters

LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1408.00	H	101	173	-62.52	2.30	-60.22	-47.2
2112.00	H	126	189	-61.09	3.12	-57.97	-45.0
2816.00	H	-	-	-67.03	4.82	-62.20	-49.2
3520.00	H	-	-	-68.23	6.48	-61.75	-48.8

Table 7-21. Radiated Spurious Data (Band 12 – Low Channel)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 397 of 443

OPERATING FREQUENCY: 707.50 MHz

MODULATION SIGNAL: QPSK

BANDWIDTH: 10.0 MHz

DISTANCE: 3 meters

LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1415.00	H	107	218	-62.80	2.39	-60.41	-47.4
2122.50	H	102	191	-62.59	3.14	-59.45	-46.5
2830.00	H	-	-	-66.91	4.87	-62.05	-49.0
3537.50	H	-	-	-68.76	6.45	-62.31	-49.3

Table 7-22. Radiated Spurious Data (Band 12 – Mid Channel)

OPERATING FREQUENCY: 711.00 MHz

MODULATION SIGNAL: QPSK

BANDWIDTH: 10.0 MHz

DISTANCE: 3 meters

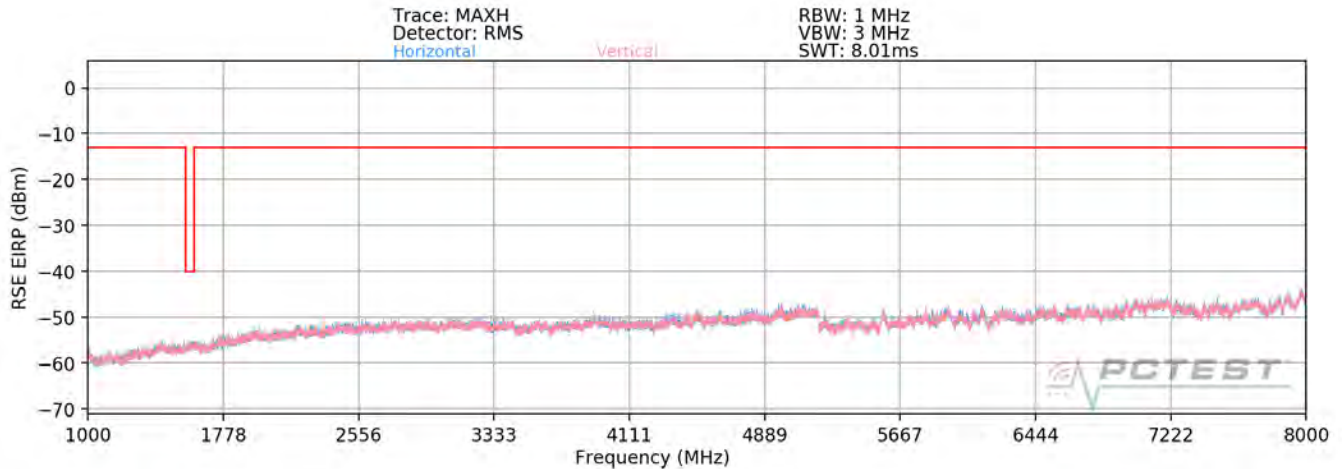
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1422.00	H	147	169	-63.23	2.53	-60.71	-47.7
2133.00	H	117	190	-62.62	3.11	-59.51	-46.5
2844.00	H	-	-	-66.82	4.91	-61.91	-48.9
3555.00	H	-	-	-68.14	6.46	-61.69	-48.7

Table 7-23. Radiated Spurious Data (Band 12 – High Channel)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 398 of 443

Band 13



Plot 7-700. Radiated Spurious Plot above 1GHz (Band 13)

OPERATING FREQUENCY: 782.00 MHz

MODULATION SIGNAL: QPSK

BANDWIDTH: 10.0 MHz

DISTANCE: 3 meters

LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2346.00	V	107	135	-57.25	4.00	-53.25	-40.3
3128.00	V	-	-	-65.06	5.38	-59.68	-46.7
3910.00	V	-	-	-66.86	7.09	-59.77	-46.8
4692.00	V	-	-	-67.30	8.37	-58.94	-45.9

Table 7-24. Radiated Spurious Data (Band 13 – Mid Channel)

MODULATION SIGNAL: QPSK

BANDWIDTH: 10.00 MHz

DISTANCE: 3 meters

NARROWBAND EMISSION LIMIT: -50 dBm

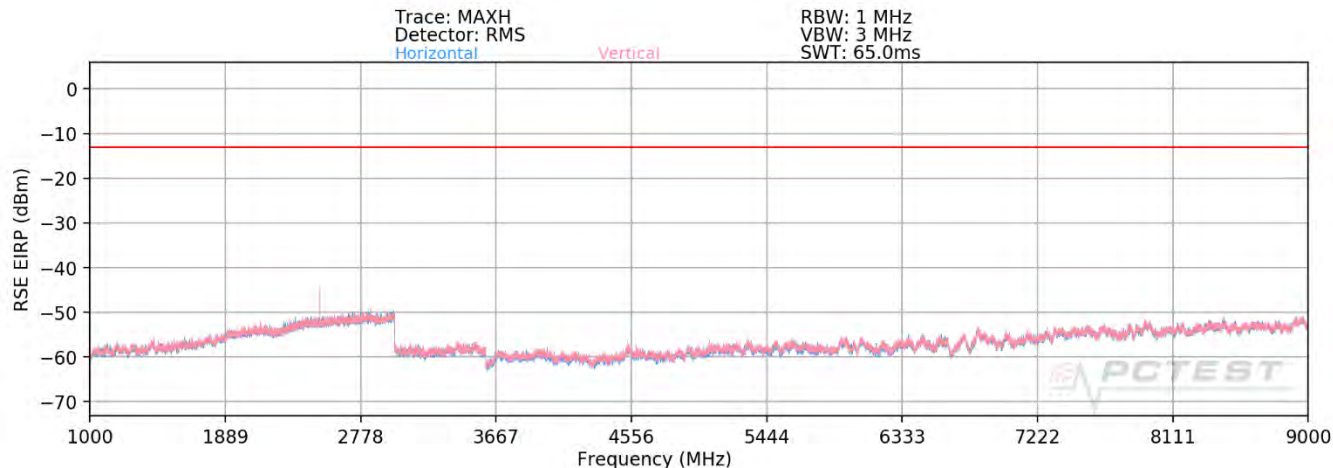
WIDEBAND EMISSION LIMIT: -40 dBm/MHz

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	V	138	130	-66.39	3.53	-62.86	-22.9

Table 7-25. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 399 of 443

Band 5



Plot 7-701. Radiated Spurious Plot above 1GHz (Band 5)

OPERATING FREQUENCY: 829.00 MHz
MODULATION SIGNAL: QPSK
BANDWIDTH: 10.0 MHz
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1658.00	V	-	-	-75.16	3.12	-72.04	-59.0
2487.00	V	112	147	-55.40	3.87	-51.53	-38.5
3316.00	V	-	-	-72.33	6.01	-66.32	-53.3
4145.00	V	-	-	-73.01	7.77	-65.24	-52.2

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

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 400 of 443

OPERATING FREQUENCY: 836.50 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.00	V	-	-	-75.29	3.10	-72.20	-59.2
2509.50	V	113	147	-56.01	4.02	-51.99	-39.0
3346.00	V	-	-	-71.97	6.03	-65.94	-52.9
4182.50	V	-	-	-72.74	7.79	-64.95	-52.0

Table 7-27. Radiated Spurious Data (Band 5 – Mid Channel)

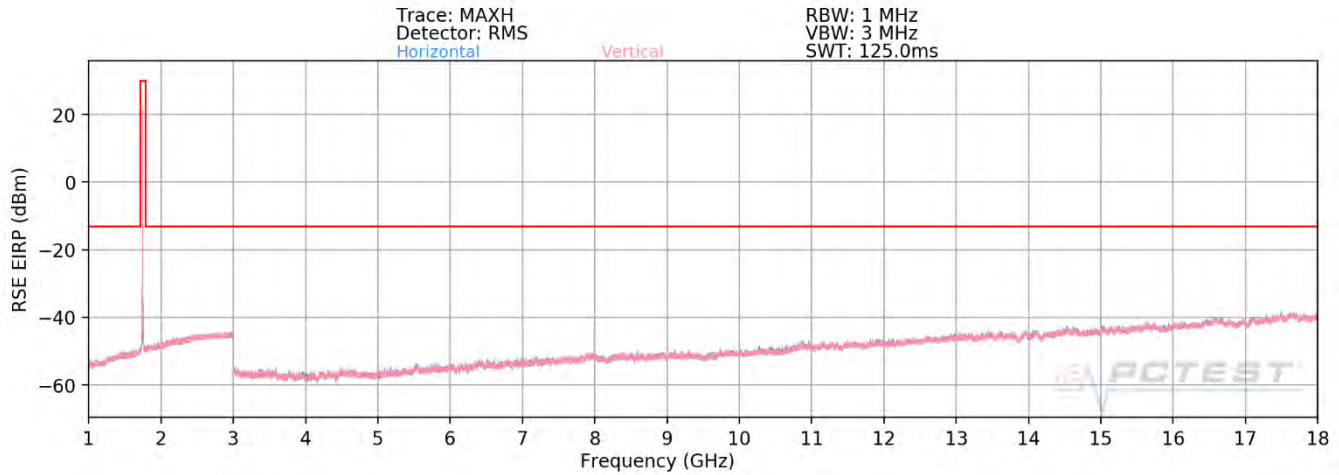
OPERATING FREQUENCY: 844.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1688.00	V	-	-	-75.46	3.18	-72.28	-59.3
2532.00	V	111	134	-56.57	4.10	-52.47	-39.5
3376.00	V	-	-	-72.81	6.15	-66.66	-53.7
4220.00	V	-	-	-73.42	7.88	-65.54	-52.5

Table 7-28. Radiated Spurious Data (Band 5 – High Channel)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 401 of 443

Band 66/4



Plot 7-702. Radiated Spurious Plot above 1GHz (Band 66/4)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3440.00	H	-	-	-64.77	6.28	-58.49	-45.5
5160.00	H	-	-	-69.66	8.98	-60.67	-47.7
6880.00	H	123	150	-66.91	9.42	-57.49	-44.5
8600.00	H	-	-	-67.30	9.62	-57.68	-44.7
10320.00	H	-	-	-65.42	9.56	-55.85	-42.9

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

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 402 of 443

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3490.00	H	398	155	-65.31	6.47	-58.84	-45.8
5235.00	H	-	-	-69.54	8.97	-60.57	-47.6
6980.00	H	113	149	-68.33	9.23	-59.10	-46.1
8725.00	H	-	-	-66.29	9.59	-56.69	-43.7
10470.00	H	-	-	-66.15	9.43	-56.72	-43.7

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

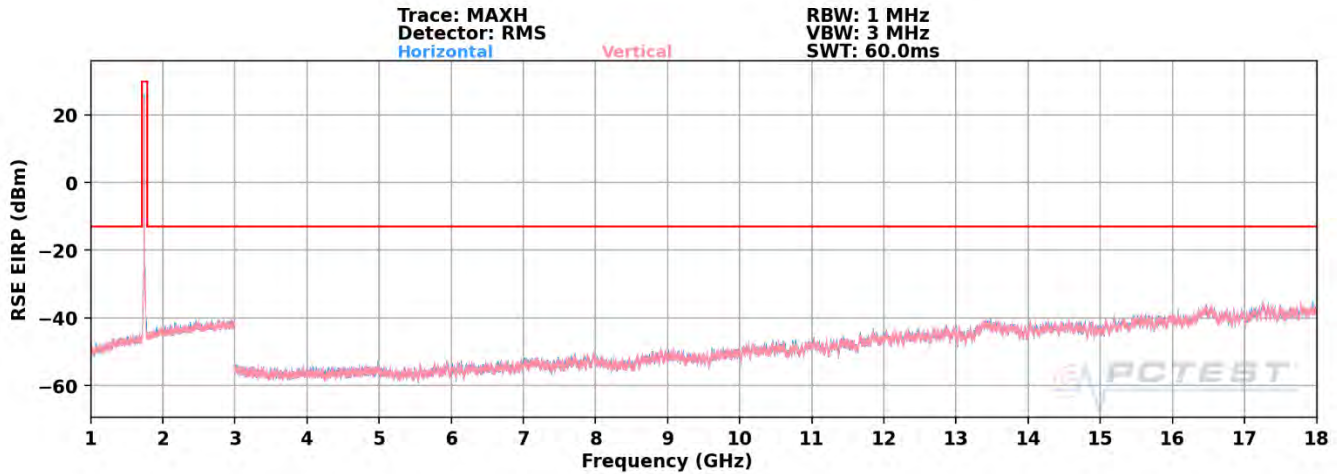
OPERATING FREQUENCY: 1770.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3540.00	H	40	160	-63.95	6.45	-57.50	-44.5
5310.00	H	-	-	-69.21	9.09	-60.12	-47.1
7080.00	H	112	149	-67.94	9.17	-58.77	-45.8
8850.00	H	-	-	-67.14	9.57	-57.57	-44.6
10620.00	H	-	-	-65.16	9.55	-55.61	-42.6

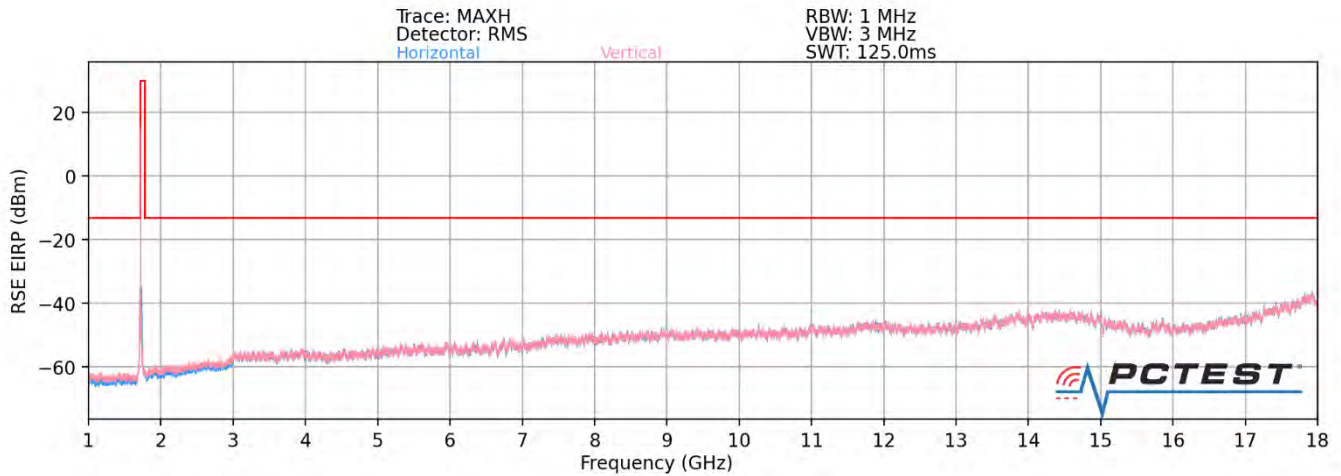
Table 7-31. Radiated Spurious Data (Band 66/4 – High Channel)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 403 of 443

NR Band n66



Plot 7-703. Radiated Spurious Plot above 1GHz (n66 Standalone)



Plot 7-704. Radiated Spurious Plot above 1GHz (n66+ Anchor B13 EN-DC)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 404 of 443

OPERATING FREQUENCY: 1720.00 MHz
 MODULATION SIGNAL: QPSK (DFT-s-OFDM)
 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	H	127	149	-66.45	6.28	-60.17	-47.2
5160.00	H	-	-	-70.31	8.98	-61.33	-48.3
6880.00	H	-	-	-69.32	9.42	-59.90	-46.9
8600.00	H	-	-	-69.24	9.62	-59.62	-46.6

Table 7-32. Radiated Spurious Data (n66 – Low Channel)

OPERATING FREQUENCY: 1745.00 MHz
 MODULATION SIGNAL: QPSK (DFT-s-OFDM)
 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	H	133	141	-68.23	6.47	-61.76	-48.8
5235.00	H	-	-	-70.08	8.97	-61.11	-48.1
6980.00	H	111	162	-67.63	9.23	-58.41	-45.4
8725.00	H	-	-	-67.67	9.59	-58.08	-45.1
10470.00	H	-	-	-64.44	9.43	-55.01	-42.0

Table 7-33. Radiated Spurious Data (n66 – Mid Channel)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 405 of 443

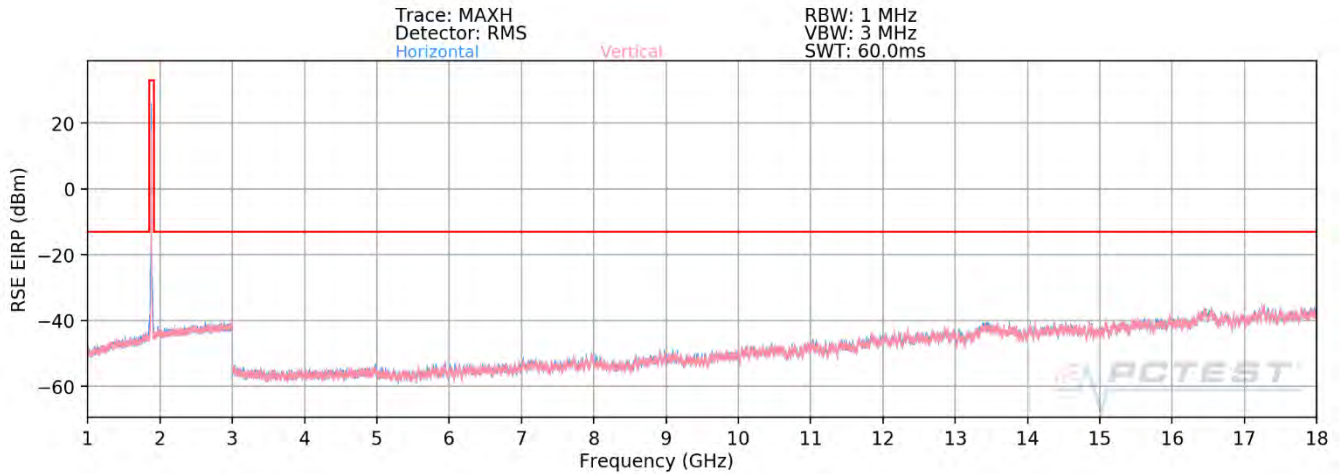
OPERATING FREQUENCY: 1770.00 MHz
 MODULATION SIGNAL: QPSK (DFT-s-OFDM)
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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	H	147	127	-68.23	6.45	-61.78	-48.8
5310.00	H	-	-	-70.33	9.09	-61.24	-48.2
7080.00	H	-	-	-67.71	9.17	-58.54	-45.5
8850.00	H	-	-	-67.71	9.57	-58.14	-45.1

Table 7-34. Radiated Spurious Data (n66 – High Channel)

FCC ID: A3LSMN986W	 MEASUREMENT REPORT (CERTIFICATION) 	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset
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Band 25/2



Plot 7-705. Radiated Spurious Plot above 1GHz (Band 25/2)

OPERATING FREQUENCY: 1860.00 MHz
MODULATION SIGNAL: QPSK
BANDWIDTH: 20.0 MHz
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3720.00	H	400	135	-69.33	6.90	-62.43	-49.4
5580.00	H	-	-	-71.68	9.06	-62.62	-49.6
7440.00	H	-	-	-69.64	9.26	-60.38	-47.4

Table 7-35. Radiated Spurious Data (Band 25/2 – Low Channel)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 407 of 443

OPERATING FREQUENCY: 1882.50 MHz

MODULATION SIGNAL: QPSK

BANDWIDTH: 20.0 MHz

DISTANCE: 3 meters

LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3765.00	H	388	153	-70.65	6.94	-63.71	-50.7
5647.50	H	-	-	-72.34	9.17	-63.17	-50.2
7530.00	H	-	-	-69.50	9.31	-60.19	-47.2

Table 7-36. Radiated Spurious Data (Band 25/2 – Mid Channel)

OPERATING FREQUENCY: 1905.00 MHz

MODULATION SIGNAL: QPSK

BANDWIDTH: 20.0 MHz

DISTANCE: 3 meters

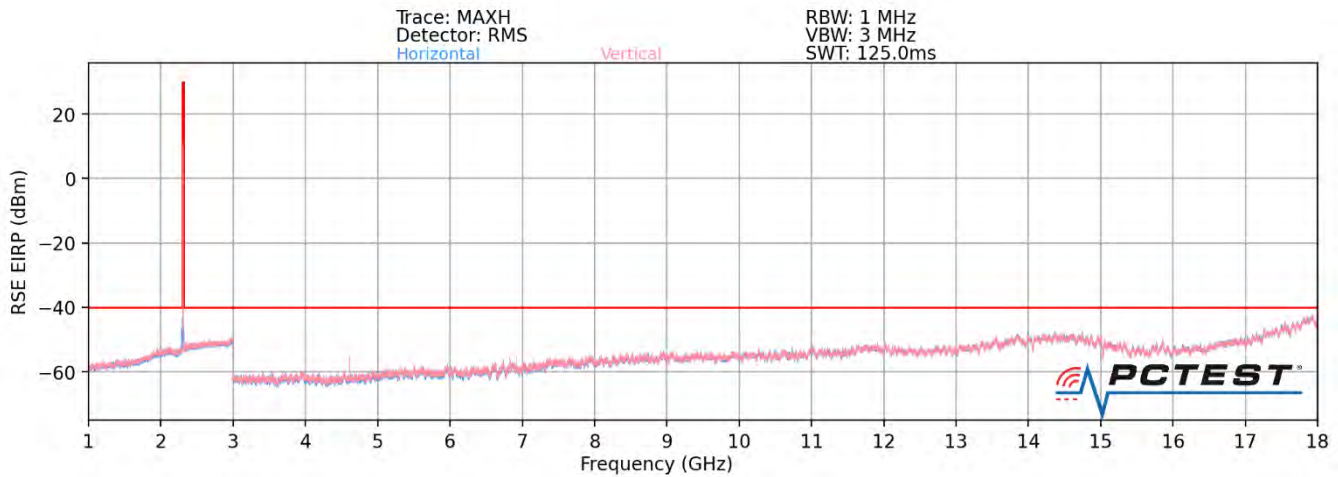
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3810.00	H	400	157	-69.75	7.07	-62.68	-49.7
5715.00	H	-	-	-72.06	9.04	-63.02	-50.0
7620.00	H	-	-	-70.30	9.27	-61.04	-48.0

Table 7-37. Radiated Spurious Data (Band 25/2 – High Channel)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 408 of 443

Band 30



Plot 7-706. Radiated Spurious Plot above 1GHz (Band 30)

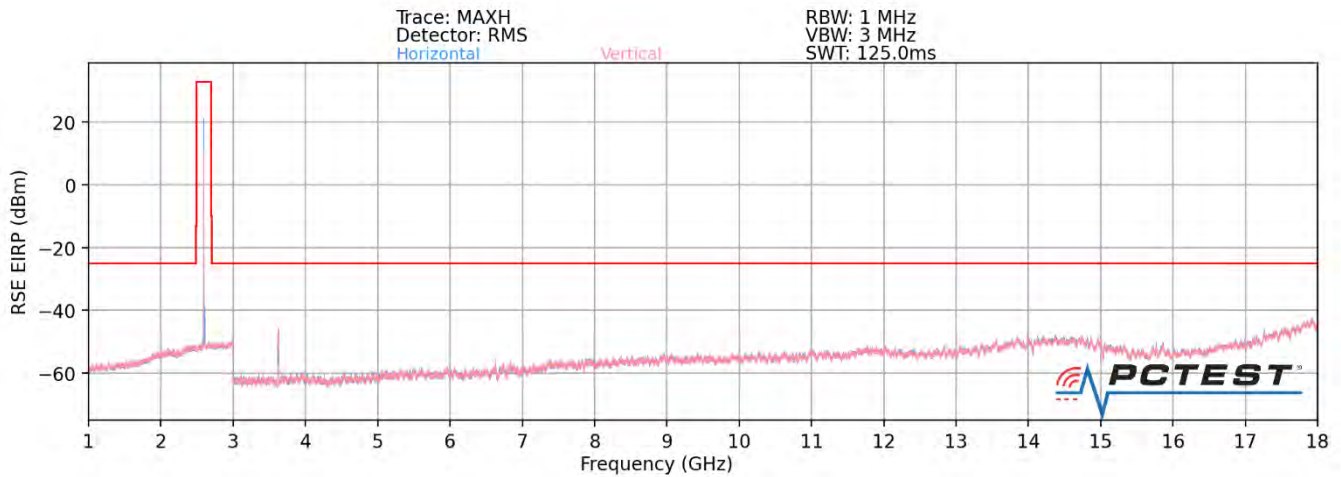
OPERATING FREQUENCY: 2310.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -40 dBm

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]
4620.00	H	101	212	-52.85	8.42	-44.43	-4.4
6930.00	H	-	-	-57.11	9.38	-47.72	-7.7
9240.00	H	-	-	-54.59	9.46	-45.12	-5.1
11550.00	H	-	-	-54.71	9.48	-45.23	-5.2

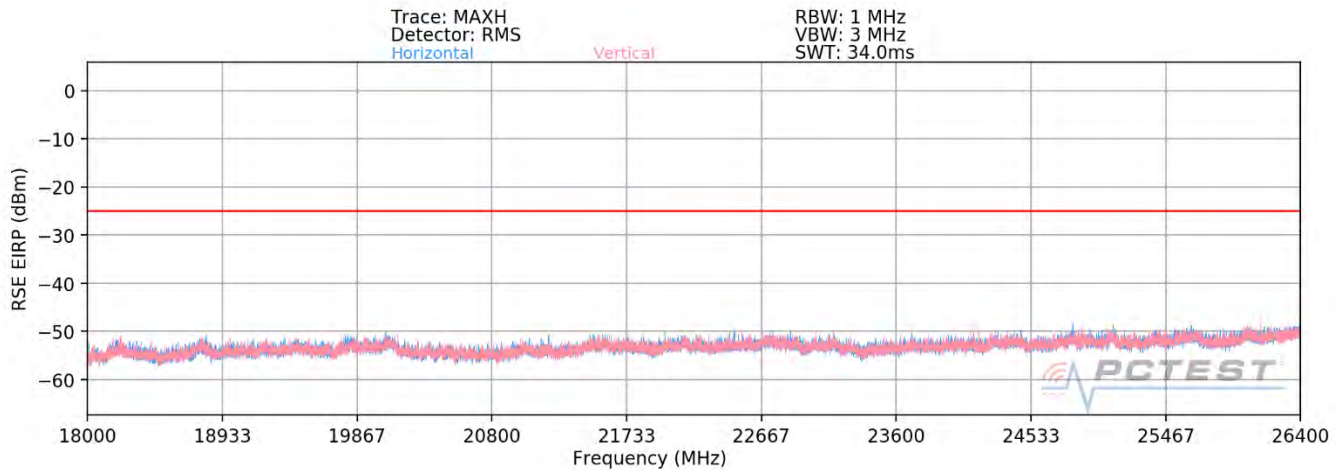
Table 7-38. Radiated Spurious Data (Band 30)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 409 of 443

Band 41/38



Plot 7-707. Radiated Spurious Plot above 1GHz (Band 41/38)



Plot 7-708. Radiated Spurious Plot 18GHz – 26.5GHz (Band 41/38)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 410 of 443

OPERATING FREQUENCY: 2510.00 MHz
 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	V	176	301	-59.97	8.78	-51.18	-26.2
7530.00	V	-	-	-56.21	9.31	-46.90	-21.9
10040.00	V	-	-	-55.16	9.78	-45.38	-20.4
12550.00	V	-	-	-49.37	8.80	-40.57	-15.6
15060.00	V	-	-	-45.77	8.89	-36.89	-11.9

Table 7-39. Radiated Spurious Data (Band 41/38 – Low Channel)

OPERATING FREQUENCY: 2535.00 MHz
 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	V	172	289	-55.86	8.89	-46.97	-22.0
7605.00	V	176	300	-55.97	9.25	-46.72	-21.7
10140.00	V	-	-	-53.19	9.75	-43.44	-18.4
12675.00	V	-	-	-45.54	8.89	-36.66	-11.7
15210.00	V	-	-	-43.37	8.73	-34.64	-9.6

Table 7-40. Radiated Spurious Data (Band 41/38 – Mid Channel)

FCC ID: A3LSMN986W	 MEASUREMENT REPORT (CERTIFICATION) 	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset
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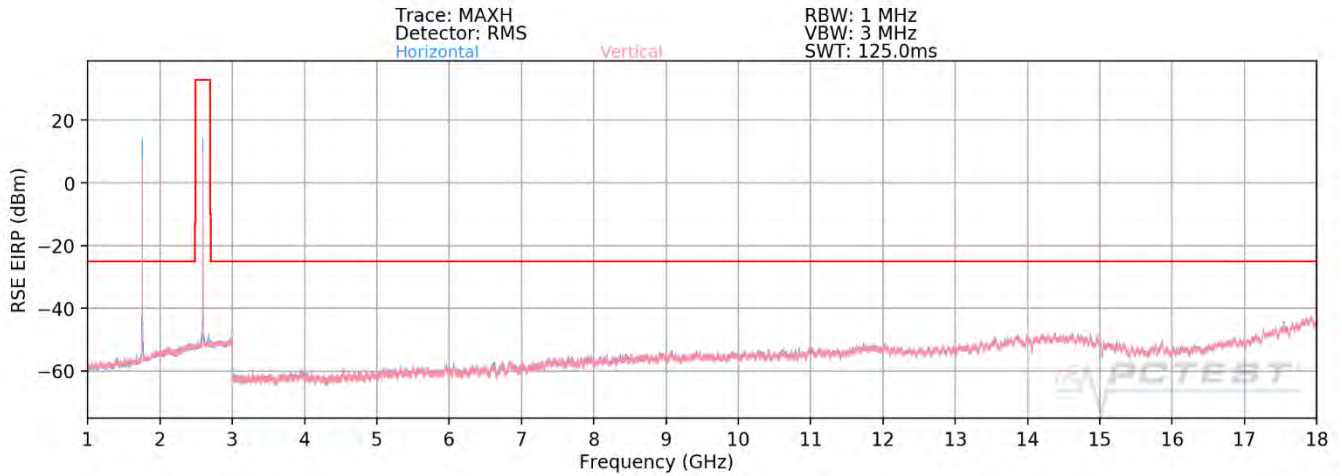
OPERATING FREQUENCY: 2560.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

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	V	106	191	-58.01	8.91	-49.09	-24.1
7680.00	V	107	200	-52.06	9.28	-42.79	-17.8
10240.00	V	-	-	-51.60	9.66	-41.95	-16.9
12800.00	V	-	-	-46.21	8.87	-37.33	-12.3
15360.00	V	-	-	-42.73	8.44	-34.29	-9.3

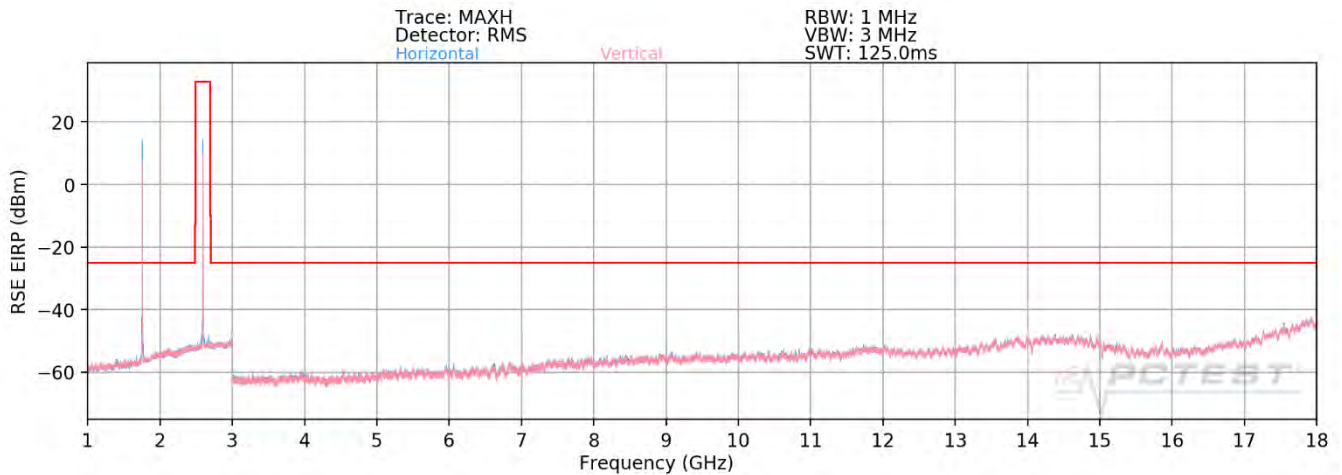
Table 7-41. Radiated Spurious Data (Band 41/38 – High Channel)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 412 of 443

NR Band n41



Plot 7-709. Radiated Spurious Plot above 1GHz (n41 Standalone)



Plot 7-710. Radiated Spurious Plot above 1GHz (n41 + Anchor B66 EN-DC)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 413 of 443

OPERATING FREQUENCY: 2545.00 MHz
 MODULATION SIGNAL: QPSK (DFT-s-OFDM)
 BANDWIDTH: 100.0 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]
5090.00	V	111	136	-61.87	10.73	-51.15	-26.1
7635.00	V	-	-	-67.37	11.35	-56.02	-31.0
10180.00	V	-	-	-66.33	12.15	-54.18	-29.2
12725.00	V	114	204	-62.71	13.68	-49.03	-24.0
15270.00	V	-	-	-66.80	14.92	-51.88	-26.9
17815.00	V	-	-	-54.03	9.99	-44.05	-19.0

Table 7-42. Radiated Spurious Data (Band n41 – Low Channel)

OPERATING FREQUENCY: 2593.00 MHz
 MODULATION SIGNAL: QPSK (DFT-s-OFDM)
 BANDWIDTH: 100.0 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	V	119	233	-62.53	10.77	-51.75	-26.8
7779.00	V	118	147	-62.76	11.47	-51.29	-26.3
10372.00	V	116	182	-65.67	12.48	-53.19	-28.2
12965.00	V	-	-	-66.24	13.34	-52.89	-27.9
15558.00	V	-	-	-70.19	16.37	-53.82	-28.8

Table 7-43. Radiated Spurious Data (Band n41 – Mid Channel)

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 414 of 443

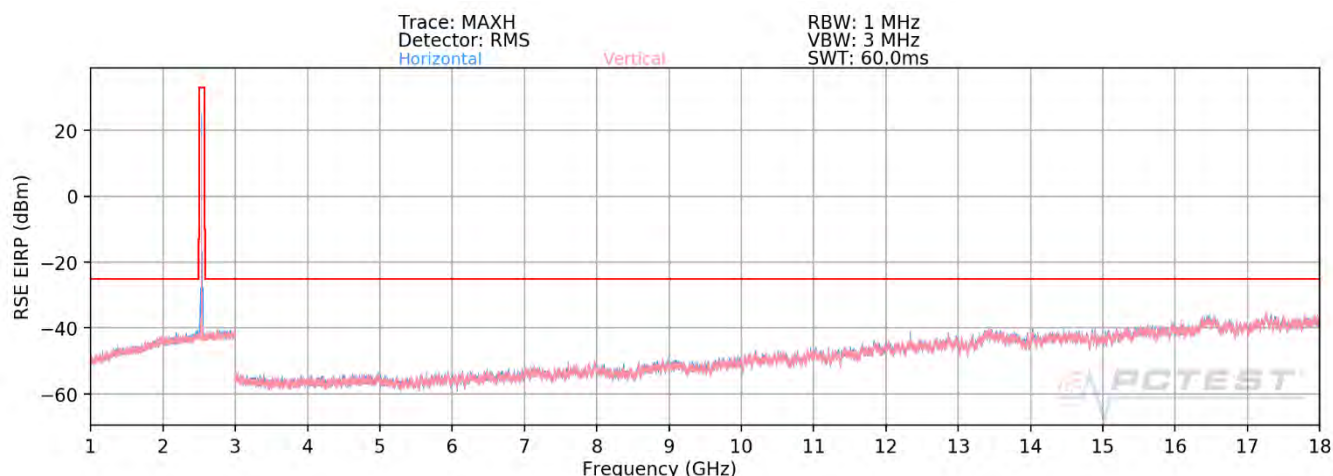
OPERATING FREQUENCY: 2645.00 MHz
 MODULATION SIGNAL: QPSK (DFT-s-OFDM)
 BANDWIDTH: 100.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

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]
5290.00	V	125	237	-62.26	10.72	-51.54	-26.5
7935.00	V	163	188	-61.10	11.28	-49.82	-24.8
10580.00	V	157	195	-65.55	12.64	-52.91	-27.9
13225.00	V	-	-	-65.76	13.04	-52.72	-27.7
15870.00	V	-	-	-68.79	16.70	-52.09	-27.1

Table 7-44. Radiated Spurious Data (Band n41 – High Channel)

FCC ID: A3LSMN986W	 MEASUREMENT REPORT (CERTIFICATION) 	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset
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Band 7



Plot 7-711. Radiated Spurious Plot above 1GHz (Band 7)

OPERATING FREQUENCY: 2510.00 MHz
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	V	176	301	-59.97	8.78	-51.18	-26.2
7530.00	V	-	-	-56.21	9.31	-46.90	-21.9
10040.00	V	-	-	-55.16	9.78	-45.38	-20.4
12550.00	V	-	-	-49.37	8.80	-40.57	-15.6
15060.00	V	-	-	-45.77	8.89	-36.89	-11.9

Table 7-45. Radiated Spurious Data (Band 7 – Low Channel)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 416 of 443

OPERATING FREQUENCY: 2535.00 MHz
 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	V	172	289	-55.86	8.89	-46.97	-22.0
7605.00	V	176	300	-55.97	9.25	-46.72	-21.7
10140.00	V	-	-	-53.19	9.75	-43.44	-18.4
12675.00	V	-	-	-45.54	8.89	-36.66	-11.7
15210.00	V	-	-	-43.37	8.73	-34.64	-9.6

Table 7-46. Radiated Spurious Data (Band 7 – Mid Channel)

OPERATING FREQUENCY: 2560.00 MHz
 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	V	106	191	-58.01	8.91	-49.09	-24.1
7680.00	V	107	200	-52.06	9.28	-42.79	-17.8
10240.00	V	-	-	-51.60	9.66	-41.95	-16.9
12800.00	V	-	-	-46.21	8.87	-37.33	-12.3
15360.00	V	-	-	-42.73	8.44	-34.29	-9.3

Table 7-47. Radiated Spurious Data (Band 7 – High Channel)

FCC ID: A3LSMN986W	 MEASUREMENT REPORT (CERTIFICATION) 	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset
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7.9 Frequency Stability / Temperature Variation

Test Overview and Limit

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

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

For Part 22, the frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency.

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: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 418 of 443

Band 71 Frequency Stability Measurements

OPERATING FREQUENCY: 680,500,000 Hz
REFERENCE VOLTAGE: 4.21 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	680,500,017	17	0.0000025
100 %		- 20	680,499,809	-191	-0.0000281
100 %		- 10	680,499,977	-23	-0.0000034
100 %		0	680,499,857	-143	-0.0000210
100 %		+ 10	680,500,214	214	0.0000314
100 %		+ 20	680,499,773	-227	-0.0000334
100 %		+ 30	680,500,017	17	0.0000025
100 %		+ 40	680,499,860	-140	-0.0000206
100 %		+ 50	680,500,188	188	0.0000276
BATT. ENDPOINT	2.84	+ 20	680,500,039	39	0.0000057

Table 7-48. Frequency Stability Data (Band 71)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 419 of 443

Band 71 Frequency Stability Measurements

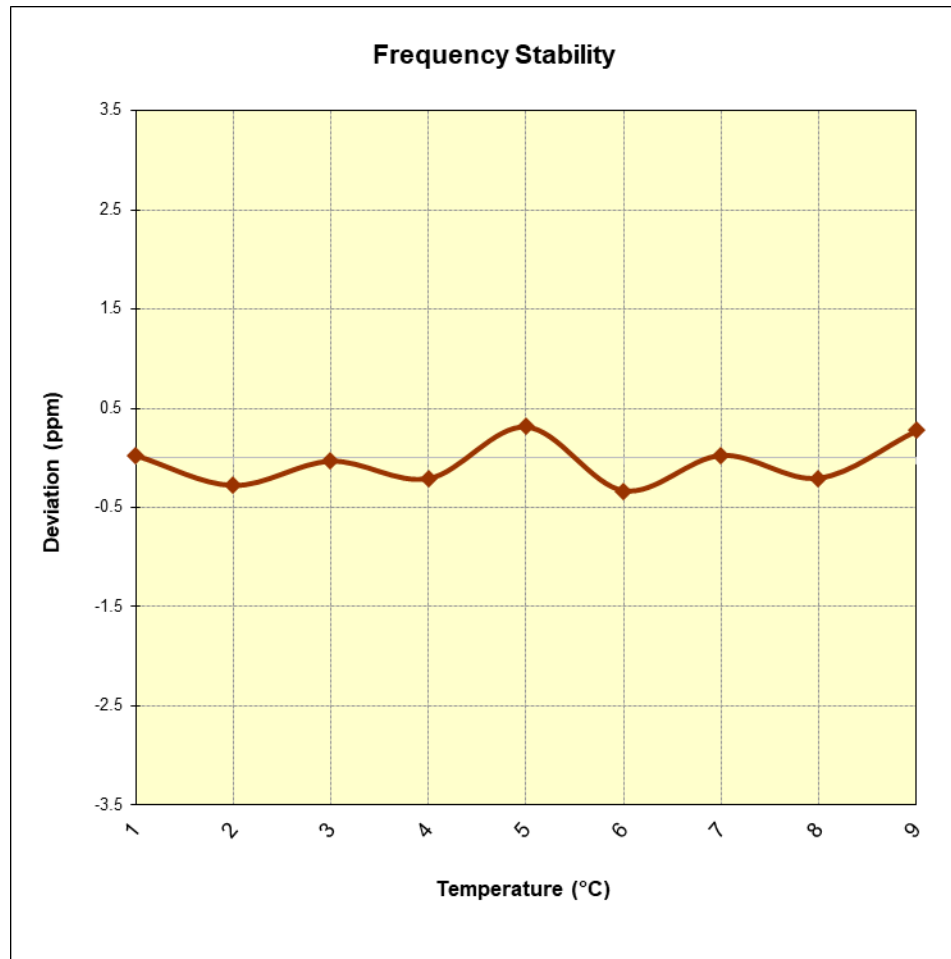


Figure 7-8. Frequency Stability Graph (Band 71)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 420 of 443

Band n71 Frequency Stability Measurements

OPERATING FREQUENCY: 680,500,000 Hz
CHANNEL: _____
REFERENCE VOLTAGE: 4.21 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	680,499,821	-179	-0.0000263
100 %		- 20	680,500,333	333	0.0000489
100 %		- 10	680,500,270	270	0.0000397
100 %		0	680,499,870	-130	-0.0000191
100 %		+ 10	680,500,378	378	0.0000555
100 %		+ 20	680,500,042	42	0.0000062
100 %		+ 30	680,499,722	-278	-0.0000409
100 %		+ 40	680,499,989	-11	-0.0000016
100 %		+ 50	680,499,703	-297	-0.0000436
BATT. ENDPOINT		+ 20	680,500,084	84	0.0000123

Table 7-49. Frequency Stability Data (Band n71)

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: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 421 of 443

Band n71 Frequency Stability Measurements

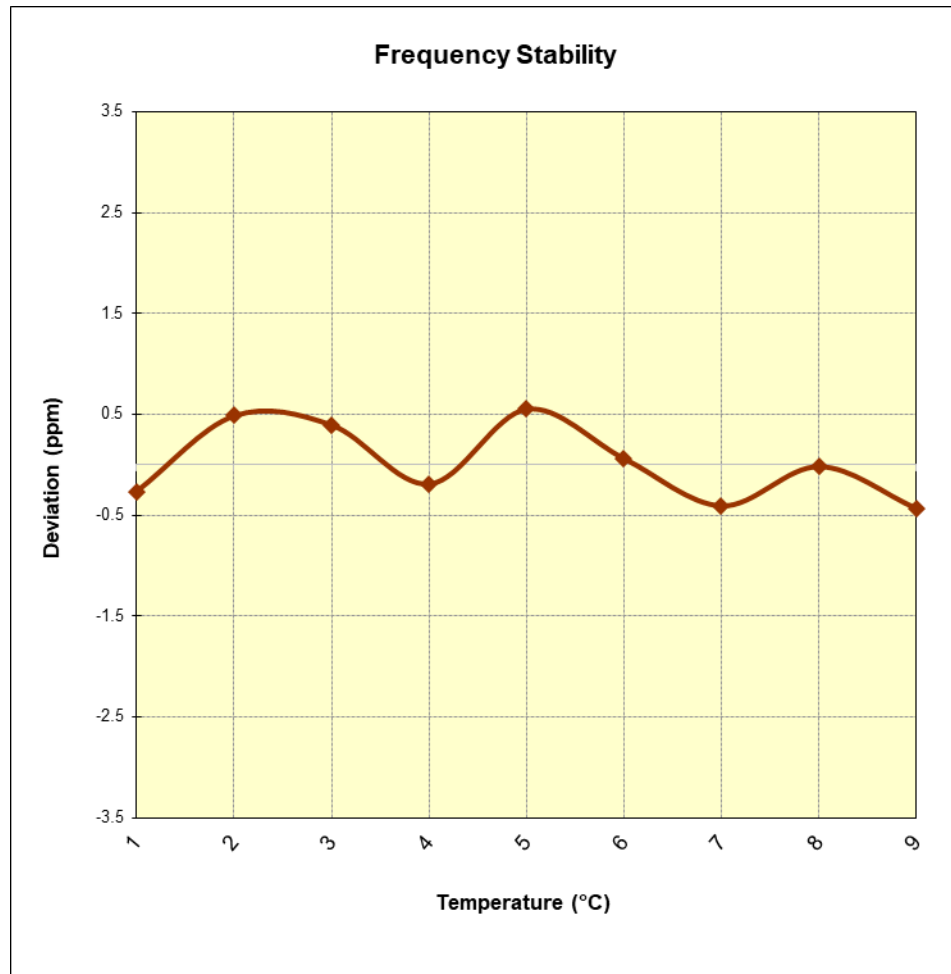


Figure 7-9. Frequency Stability Graph (Band n71)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 422 of 443

Band 12 Frequency Stability Measurements

OPERATING FREQUENCY: 707,500,000 Hz
 CHANNEL: 23790
 REFERENCE VOLTAGE: 4.21 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	707,500,067	67	0.0000095
100 %		- 20	707,499,985	-15	-0.0000021
100 %		- 10	707,499,731	-269	-0.0000380
100 %		0	707,499,864	-136	-0.0000192
100 %		+ 10	707,500,215	215	0.0000304
100 %		+ 20	707,499,939	-61	-0.0000086
100 %		+ 30	707,499,895	-105	-0.0000148
100 %		+ 40	707,499,712	-288	-0.0000407
100 %		+ 50	707,500,017	17	0.0000024
BATT. ENDPOINT	2.84	+ 20	707,499,884	-116	-0.0000164

Table 7-50. Frequency Stability Data (Band 12)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 423 of 443

Band 12 Frequency Stability Measurements

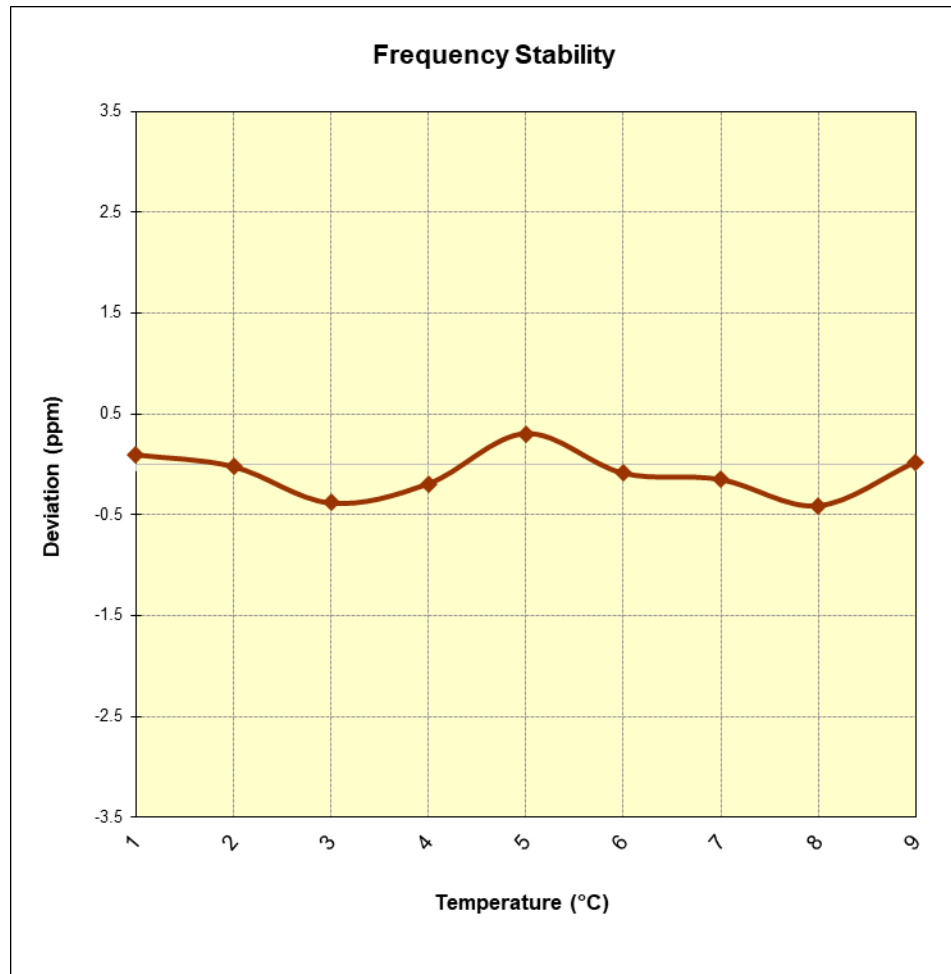


Figure 7-10. Frequency Stability Graph (Band 12)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 424 of 443

Band 13 Frequency Stability Measurements

OPERATING FREQUENCY: 782,000,000 Hz
CHANNEL: 23230
REFERENCE VOLTAGE: 4.21 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	782,000,188	188	0.0000240
100 %		- 20	781,999,798	-202	-0.0000258
100 %		- 10	782,000,091	91	0.0000116
100 %		0	782,000,038	38	0.0000049
100 %		+ 10	782,000,155	155	0.0000198
100 %		+ 20	782,000,143	143	0.0000183
100 %		+ 30	781,999,884	-116	-0.0000148
100 %		+ 40	782,000,013	13	0.0000017
100 %		+ 50	781,999,815	-185	-0.0000237
BATT. ENDPOINT	2.84	+ 20	781,999,863	-137	-0.0000175

Table 7-51. 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: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 425 of 443

Band 13 Frequency Stability Measurements

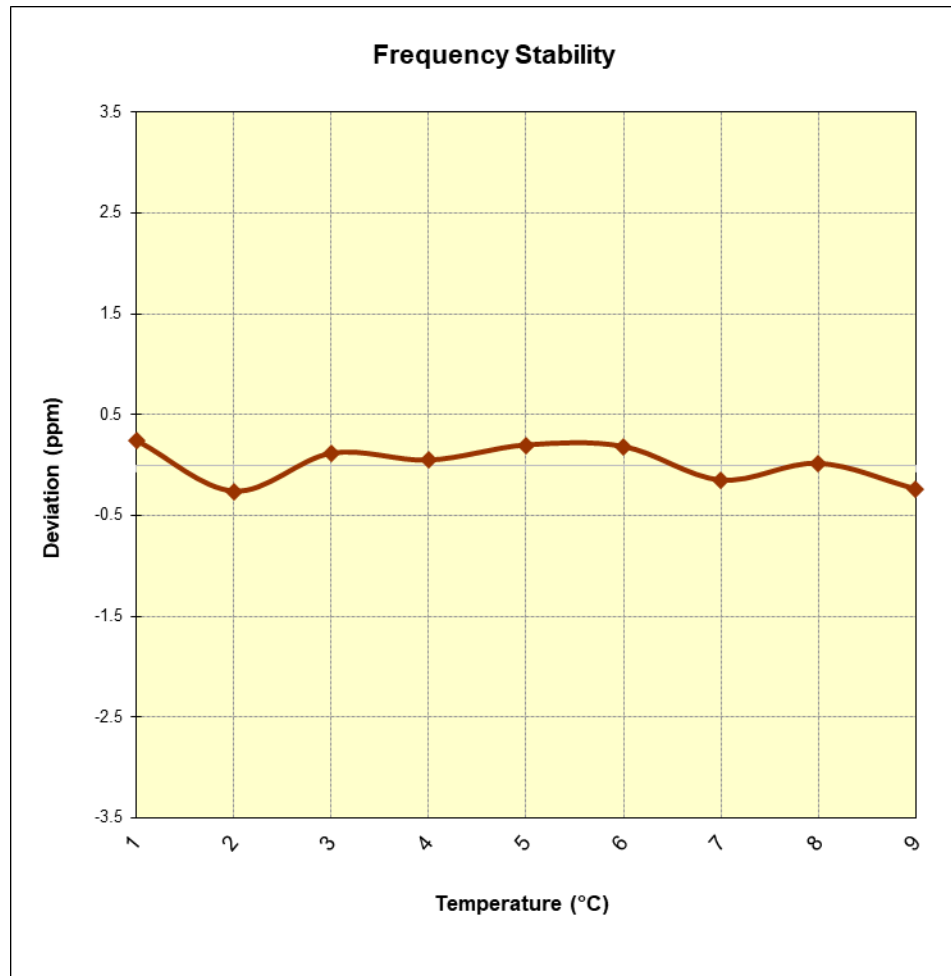


Figure 7-11. Frequency Stability Graph (Band 13)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2004170066-03.A3L	Test Dates: 4/17 - 6/22/2020	EUT Type: Portable Handset		Page 426 of 443

Band 5 Frequency Stability Measurements

OPERATING FREQUENCY: 831,500,000 Hz
 CHANNEL: 26865
 REFERENCE VOLTAGE: 4.21 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	831,500,002	2	0.0000002
100 %		- 20	831,500,361	361	0.0000434
100 %		- 10	831,500,151	151	0.0000182
100 %		0	831,499,900	-100	-0.0000120
100 %		+ 10	831,499,897	-103	-0.0000124
100 %		+ 20	831,499,938	-62	-0.0000075
100 %		+ 30	831,500,261	261	0.0000314
100 %		+ 40	831,500,274	274	0.0000330
100 %		+ 50	831,500,061	61	0.0000073
BATT. ENDPOINT	2.84	+ 20	831,500,183	183	0.0000220

Table 7-52. Frequency Stability Data (Band 5)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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Band 5 Frequency Stability Measurements

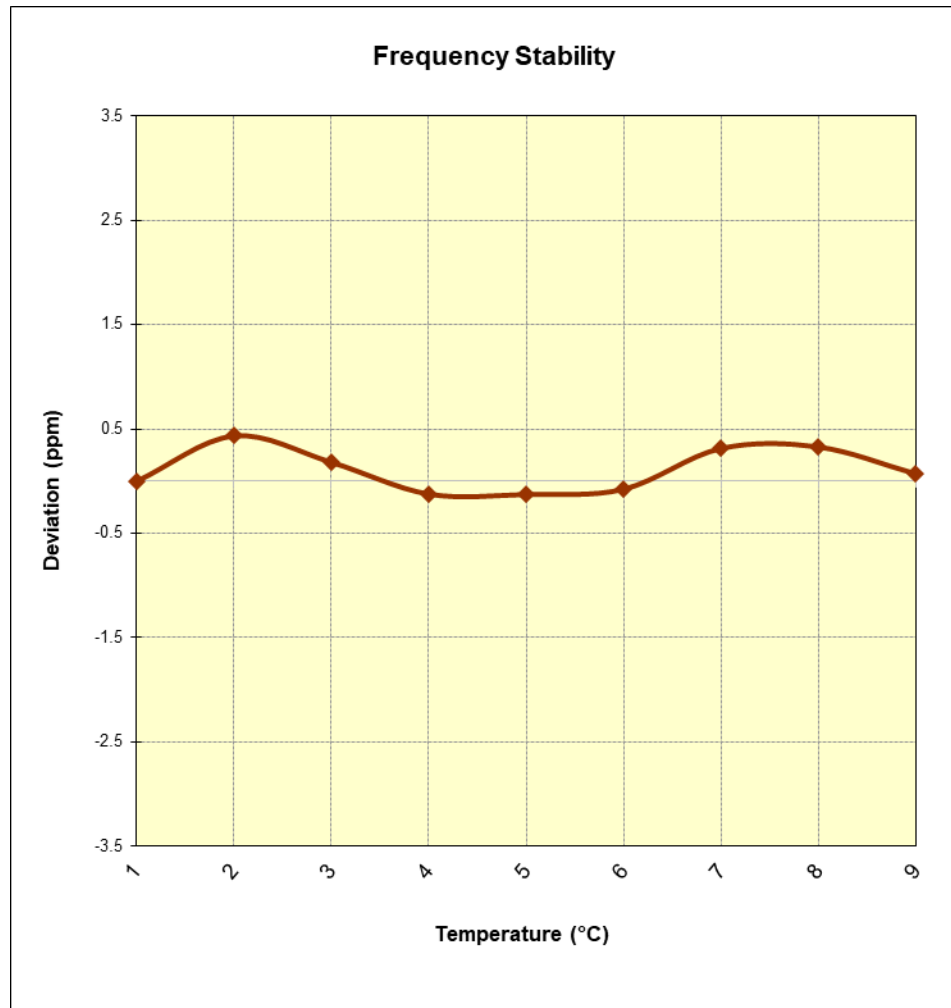


Figure 7-12. Frequency Stability Graph (Band 5)

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Band 66/4 Frequency Stability Measurements

OPERATING FREQUENCY: 1,745,000,000 Hz
CHANNEL: 132322
REFERENCE VOLTAGE: 4.21 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	1,744,999,689	-311	-0.0000178
100 %		- 20	1,744,999,624	-376	-0.0000215
100 %		- 10	1,744,999,871	-129	-0.0000074
100 %		0	1,745,000,009	9	0.0000005
100 %		+ 10	1,745,000,013	13	0.0000007
100 %		+ 20	1,745,000,277	277	0.0000159
100 %		+ 30	1,745,000,038	38	0.0000022
100 %		+ 40	1,744,999,960	-40	-0.0000023
100 %		+ 50	1,745,000,113	113	0.0000065
BATT. ENDPOINT	2.84	+ 20	1,745,000,215	215	0.0000123

Table 7-53. Frequency Stability Data (Band 66/4)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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Band 66/4 Frequency Stability Measurements

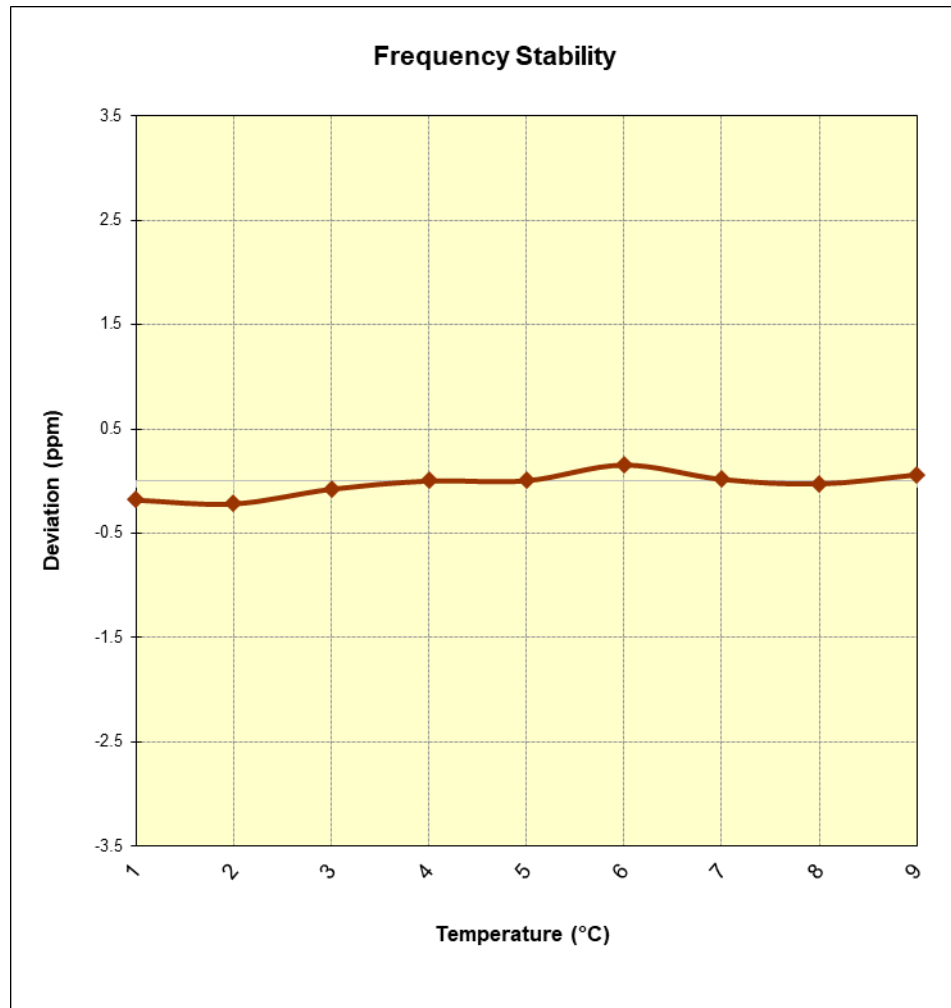


Figure 7-13. Frequency Stability Graph (Band 66/4)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band n66 Frequency Stability Measurements

OPERATING FREQUENCY: 1,745,000,000 Hz
CHANNEL: 132322
REFERENCE VOLTAGE: 4.21 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	1,744,999,943	-57	-0.0000033
100 %		- 20	1,744,999,861	-139	-0.0000080
100 %		- 10	1,744,999,794	-206	-0.0000118
100 %		0	1,745,000,064	64	0.0000037
100 %		+ 10	1,744,999,812	-188	-0.0000108
100 %		+ 20	1,745,000,356	356	0.0000204
100 %		+ 30	1,744,999,713	-287	-0.0000164
100 %		+ 40	1,745,000,198	198	0.0000113
100 %		+ 50	1,744,999,932	-68	-0.0000039
BATT. ENDPOINT		+ 20	1,744,999,776	-224	-0.0000128

Table 7-54. Frequency Stability Data (Band n66)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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Band n66 Frequency Stability Measurements

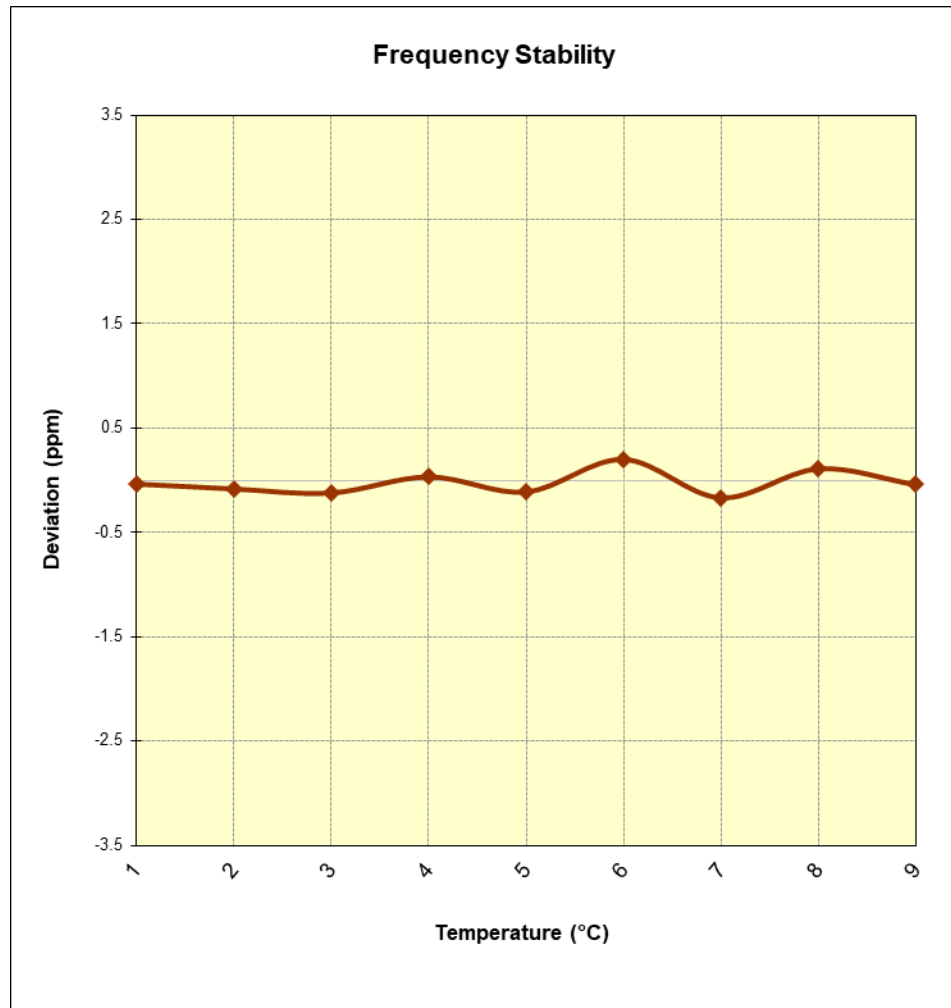


Figure 7-14. Frequency Stability Graph (Band n66)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band 25/2 Frequency Stability Measurements

OPERATING FREQUENCY: 1,882,500,000 Hz
 CHANNEL: 26365
 REFERENCE VOLTAGE: 4.21 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	1,882,500,098	98	0.0000052
100 %		- 20	1,882,499,765	-235	-0.0000125
100 %		- 10	1,882,499,994	-6	-0.0000003
100 %		0	1,882,500,212	212	0.0000113
100 %		+ 10	1,882,499,989	-11	-0.0000006
100 %		+ 20	1,882,499,699	-301	-0.0000160
100 %		+ 30	1,882,500,122	122	0.0000065
100 %		+ 40	1,882,499,929	-71	-0.0000038
100 %		+ 50	1,882,499,631	-369	-0.0000196
BATT. ENDPOINT	2.84	+ 20	1,882,499,638	-362	-0.0000192

Table 7-55. Frequency Stability Data (Band 25/2)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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Band 25/2 Frequency Stability Measurements

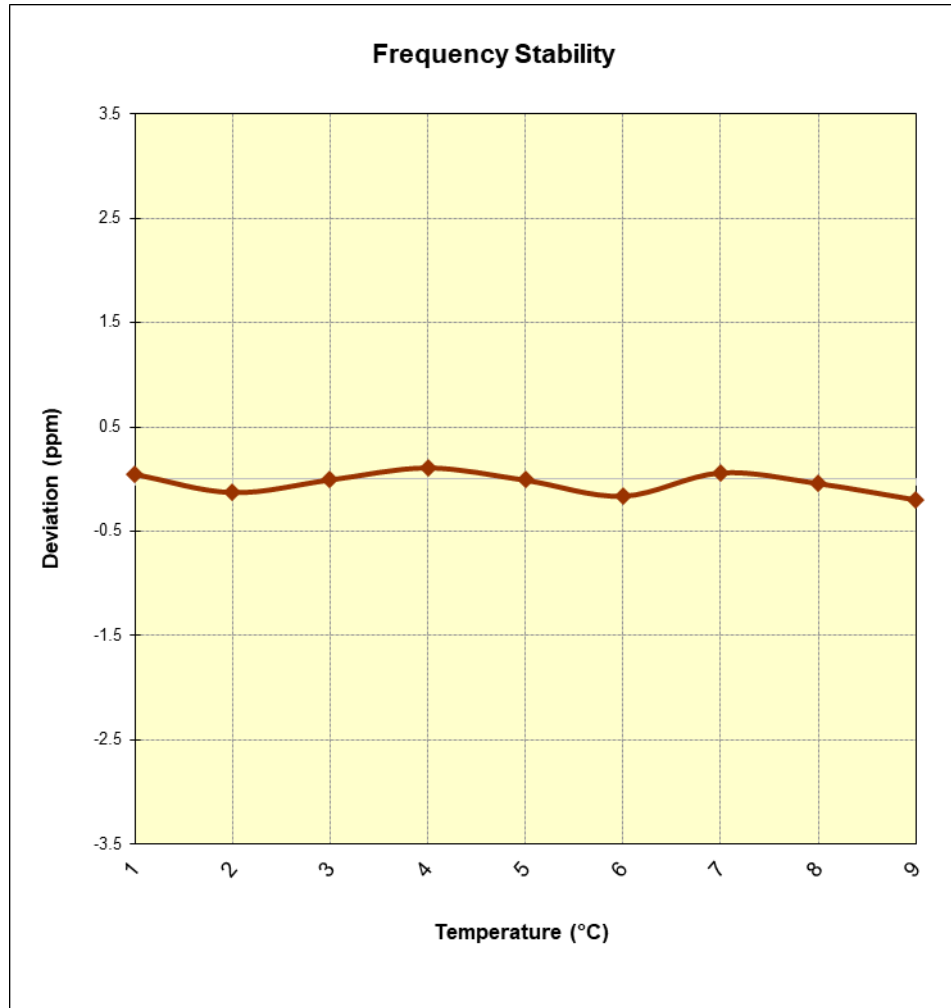


Figure 7-15. Frequency Stability Graph (Band 25/2)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band 30 Frequency Stability Measurements

OPERATING FREQUENCY: 2,310,000,000 Hz
CHANNEL: 27710
REFERENCE VOLTAGE: 4.21 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	2,309,999,963	-37	-0.0000016
100 %		- 20	2,310,000,071	71	0.0000031
100 %		- 10	2,310,000,334	334	0.0000145
100 %		0	2,309,999,918	-82	-0.0000035
100 %		+ 10	2,309,999,932	-68	-0.0000029
100 %		+ 20	2,309,999,867	-133	-0.0000058
100 %		+ 30	2,310,000,006	6	0.0000003
100 %		+ 40	2,309,999,811	-189	-0.0000082
100 %		+ 50	2,309,999,851	-149	-0.0000065
BATT. ENDPOINT	2.84	+ 20	2,309,999,572	-428	-0.0000185

Table 7-56. Frequency Stability Data (Band 30)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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Band 30 Frequency Stability Measurements

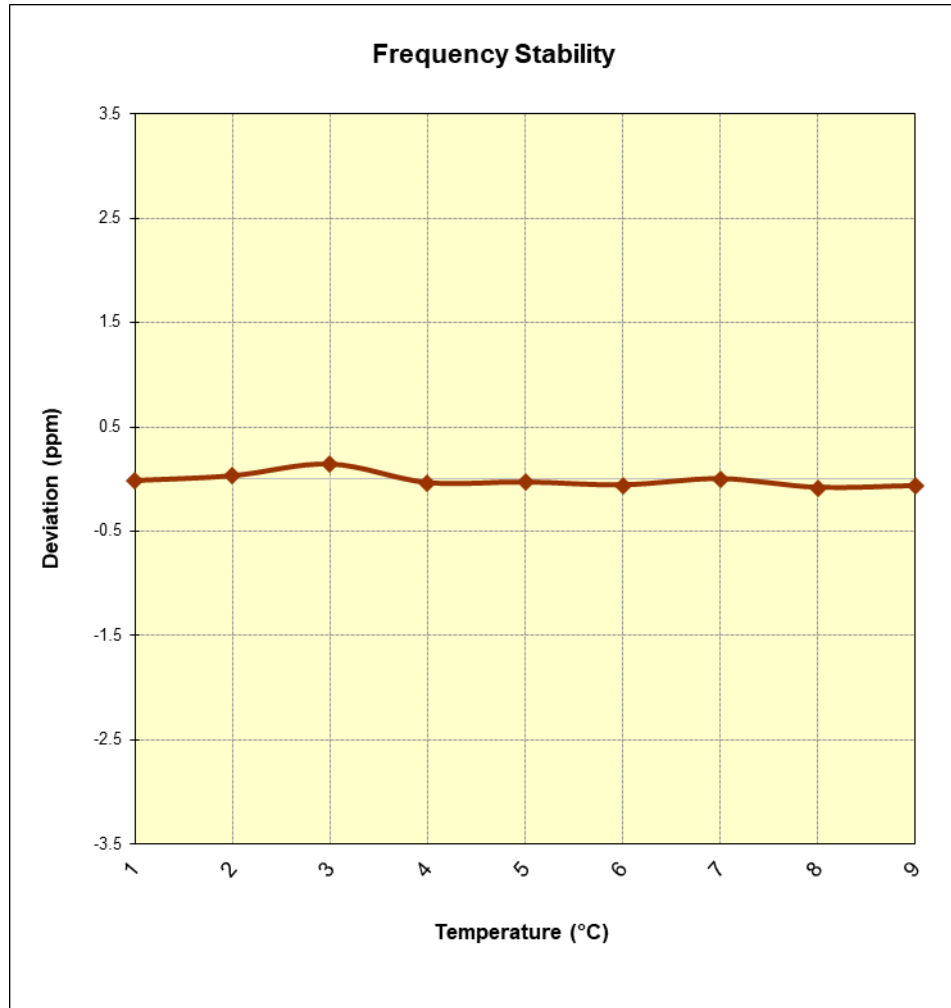


Figure 7-16. Frequency Stability Graph (Band 30)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band 41 Frequency Stability Measurements

OPERATING FREQUENCY: 2,593,000,000 Hz
 CHANNEL: 40620
 REFERENCE VOLTAGE: 4.21 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	2,593,000,002	2	0.0000001
100 %		- 20	2,593,000,316	316	0.0000122
100 %		- 10	2,592,999,663	-337	-0.0000130
100 %		0	2,592,999,984	-16	-0.0000006
100 %		+ 10	2,593,000,178	178	0.0000069
100 %		+ 20	2,593,000,467	467	0.0000180
100 %		+ 30	2,592,999,920	-80	-0.0000031
100 %		+ 40	2,592,999,693	-307	-0.0000118
100 %		+ 50	2,593,000,293	293	0.0000113
BATT. ENDPOINT	2.84	+ 20	2,593,000,023	23	0.0000009

Table 7-57. 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.

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Band 41 Frequency Stability Measurements

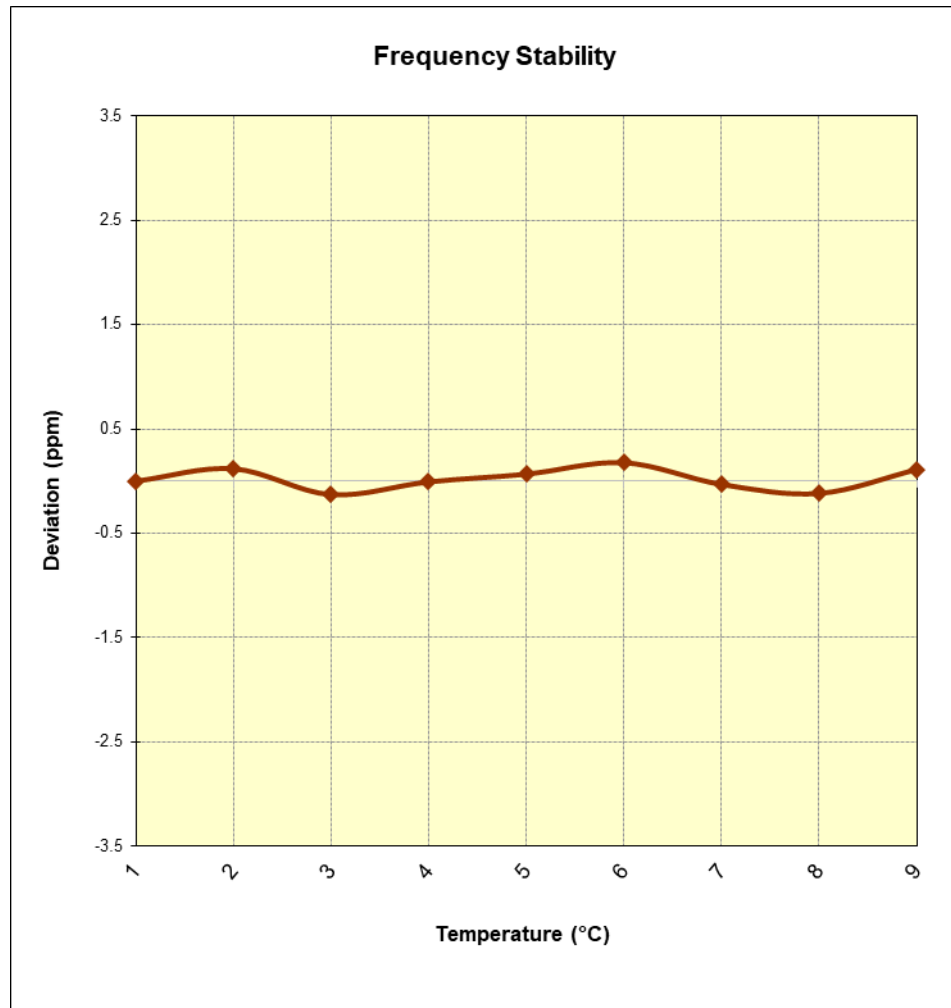


Figure 7-17. Frequency Stability Graph (Band 41)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band n41 Frequency Stability Measurements

OPERATING FREQUENCY: 2,593,000,000 Hz
CHANNEL: 40620
REFERENCE VOLTAGE: 4.21 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	2,593,000,026	26	0.0000010
100 %		- 20	2,593,000,069	69	0.0000027
100 %		- 10	2,592,999,853	-147	-0.0000057
100 %		0	2,593,000,285	285	0.0000110
100 %		+ 10	2,593,000,362	362	0.0000140
100 %		+ 20	2,593,000,095	95	0.0000037
100 %		+ 30	2,592,999,837	-163	-0.0000063
100 %		+ 40	2,592,999,933	-67	-0.0000026
100 %		+ 50	2,592,999,866	-134	-0.0000052
BATT. ENDPOINT		+ 20	2,592,999,967	-33	-0.0000013

Table 7-58. Frequency Stability Data (Band n41)

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: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band n41 Frequency Stability Measurements

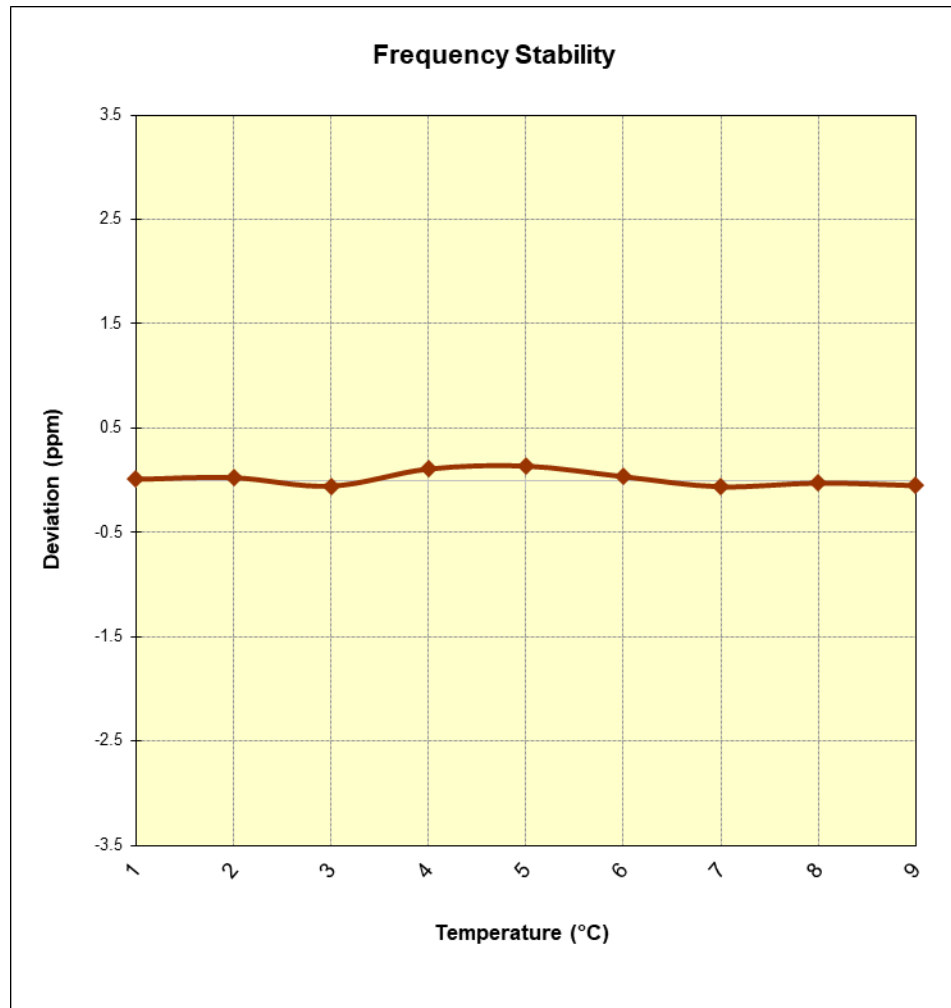


Figure 7-18. Frequency Stability Graph (Band n41)

FCC ID: A3LSMN986W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band 7 Frequency Stability Measurements

OPERATING FREQUENCY: 2,535,000,000 Hz
 CHANNEL: 21100
 REFERENCE VOLTAGE: 4.21 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	2,535,000,023	23	0.0000009
100 %		- 20	2,535,000,197	197	0.0000078
100 %		- 10	2,535,000,099	99	0.0000039
100 %		0	2,535,000,081	81	0.0000032
100 %		+ 10	2,534,999,768	-232	-0.0000092
100 %		+ 20	2,534,999,939	-61	-0.0000024
100 %		+ 30	2,534,999,942	-58	-0.0000023
100 %		+ 40	2,534,999,719	-281	-0.0000111
100 %		+ 50	2,535,000,169	169	0.0000067
BATT. ENDPOINT	2.84	+ 20	2,535,000,138	138	0.0000054

Table 7-59. 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: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 7 Frequency Stability Measurements

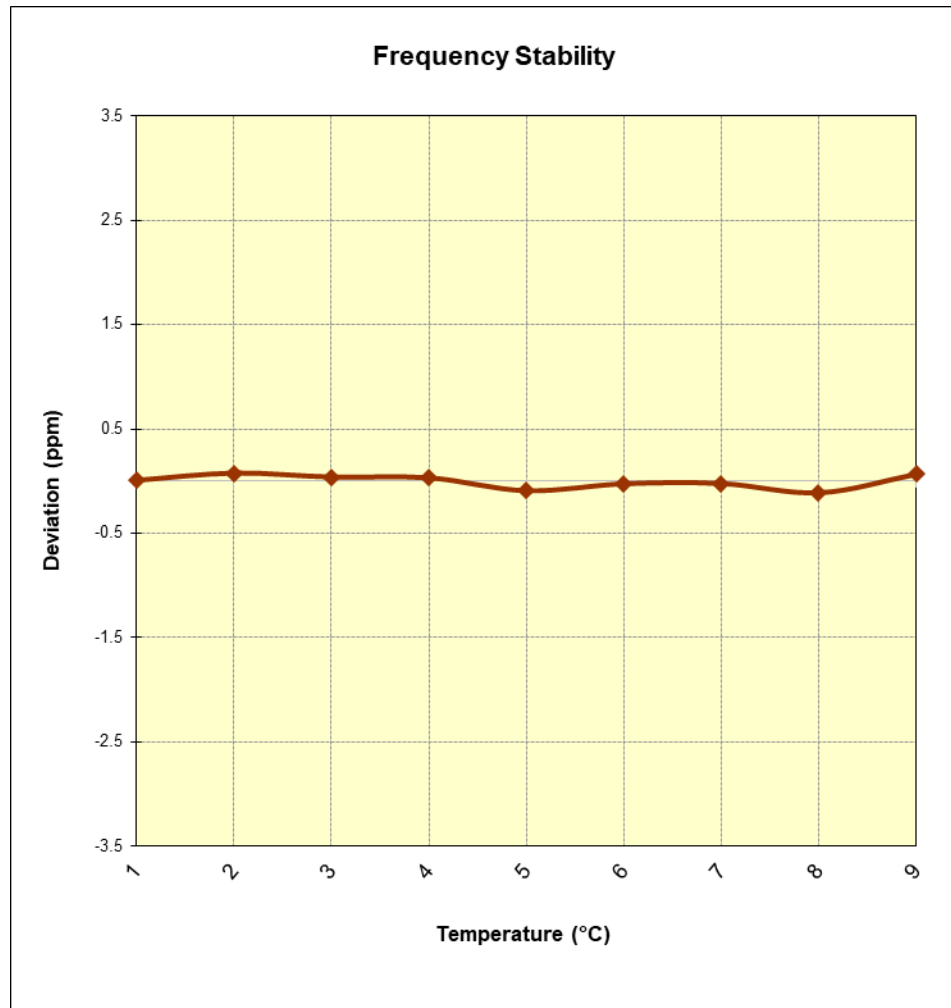


Figure 7-19. Frequency Stability Graph (Band 7)

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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: A3LSMN986W** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.

FCC ID: A3LSMN986W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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