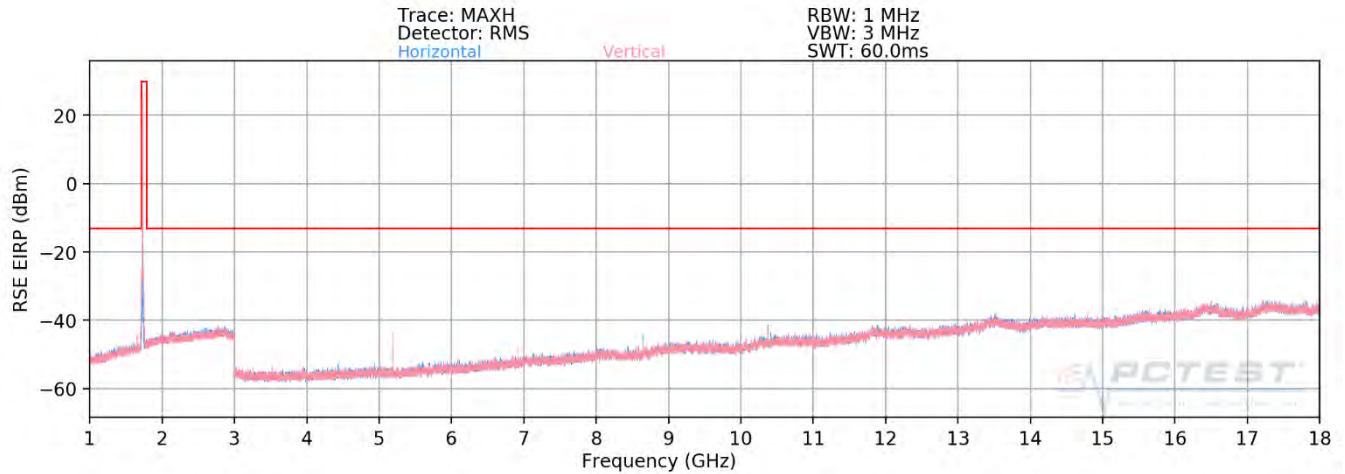
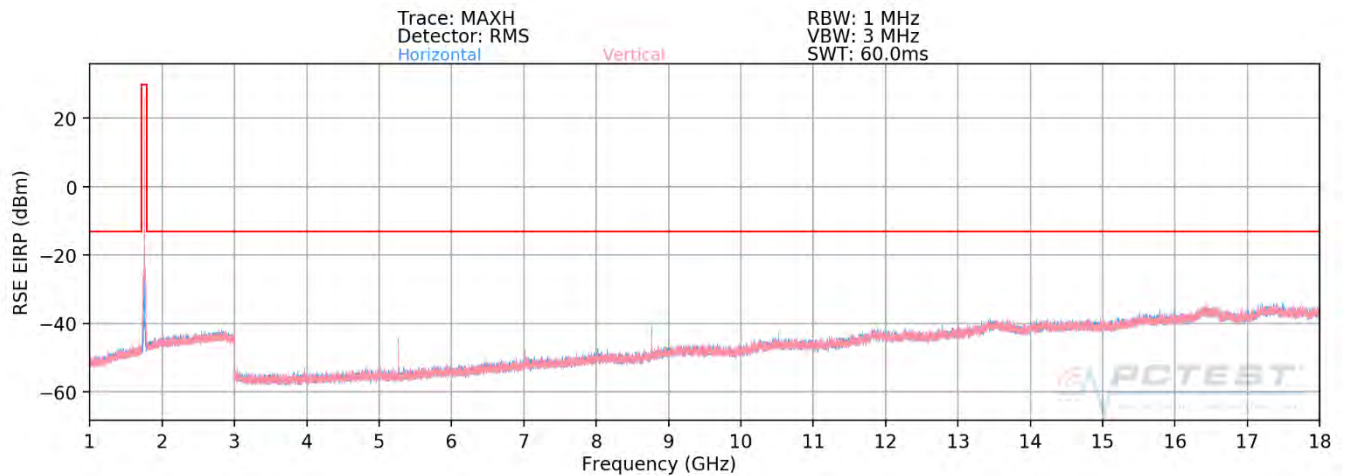


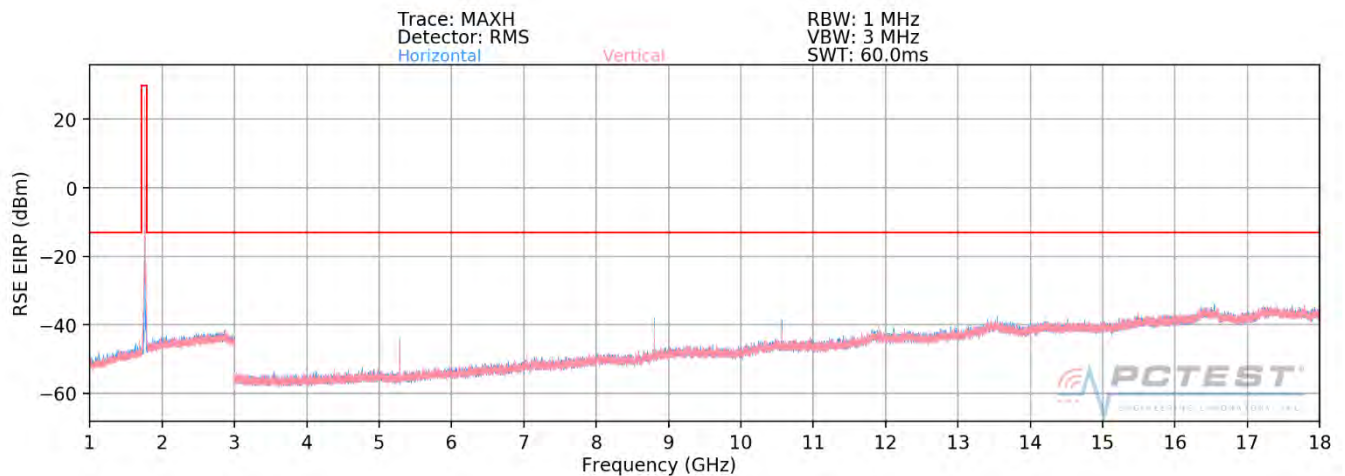
ULCA Band 66



Plot 7-478. Radiated Spurious Plot above 1GHz (ULCA Band 66 Low Channel – PCC/SCC: 1RB)



Plot 7-479. Radiated Spurious Plot above 1GHz (ULCA Band 66 Mid Channel – PCC/SCC: 1RB)



Plot 7-480. Radiated Spurious Plot above 1GHz (ULCA Band 66 High Channel – PCC/SCC: 1RB)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 306 of 331

OPERATING FREQUENCY (PCC): 1720.00 MHz
 OPERATING FREQUENCY (SCC): 1739.80 MHz
 CHANNEL (PCC): 132072
 CHANNEL (SCC): 132270
 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	-	-	-69.19	7.51	-61.68	-48.7
5160.00	H	101	344	-60.66	11.10	-49.56	-36.6
6880.00	H	176	332	-66.53	11.72	-54.80	-41.8
8600.00	H	219	347	-60.23	8.83	-51.39	-38.4
10320.00	H	229	335	-62.60	12.38	-50.22	-37.2
12040.00	H	-	-	-62.47	12.71	-49.76	-36.8
13760.00	H	-	-	-59.51	11.99	-47.53	-34.5

Table 7-50. Radiated Spurious Plot (ULCA B66 PCC: RB 1 Offset 99, SCC: RB 1 Offset 0- Low Channel)

OPERATING FREQUENCY (PCC): 1745.00 MHz
 OPERATING FREQUENCY (SCC): 1764.80 MHz
 CHANNEL (PCC): 132322
 CHANNEL (SCC): 132520
 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	-	-	-69.00	7.50	-61.50	-48.5
5235.00	H	104	78	-64.47	11.26	-53.21	-40.2
6980.00	H	188	355	-65.09	11.85	-53.24	-40.2
8725.00	H	250	39	-55.71	8.41	-47.30	-34.3
10470.00	H	230	25	-57.92	12.58	-45.34	-32.3
12215.00	H	384	287	-63.87	13.11	-50.76	-37.8
13960.00	H	-	-	-58.92	11.85	-47.07	-34.1
15705.00	H	-	-	-61.74	16.63	-45.12	-32.1

Table 7-51. Radiated Spurious Plot (ULCA B66 PCC: RB 1 Offset 99, SCC: RB 1 Offset 0- Mid Channel)

FCC ID: A3LSMN970U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset	Page 307 of 331

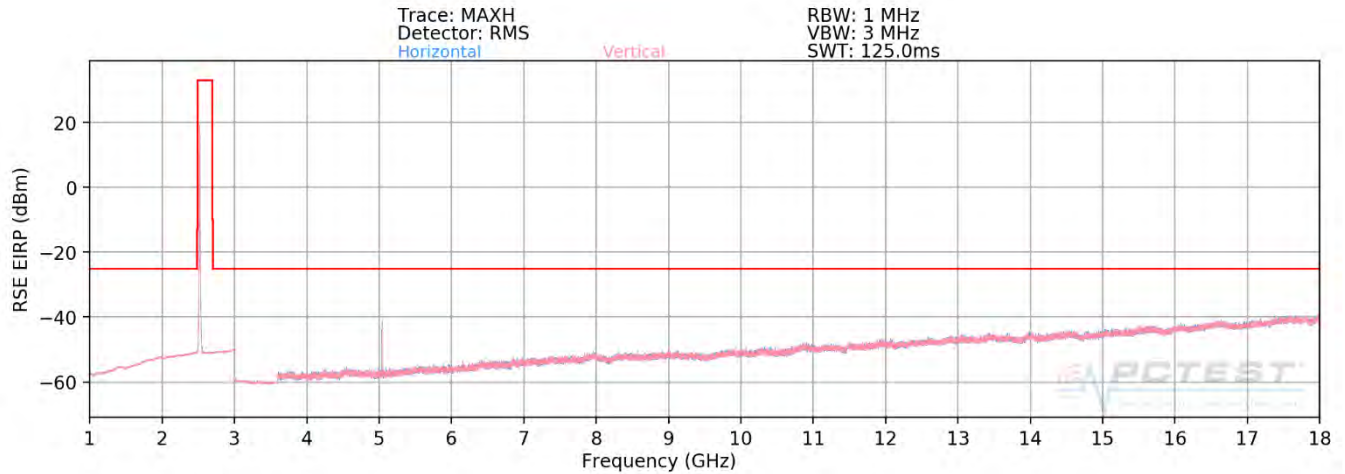
OPERATING FREQUENCY (PCC): 1770.00 MHz
 OPERATING FREQUENCY (SCC): 1750.20 MHz
 CHANNEL (PCC): 132572
 CHANNEL (SCC): 132374
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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	-	-	-68.75	7.24	-61.50	-48.5
5310.00	H	236	309	-57.77	11.51	-46.26	-33.3
7080.00	H	188	293	-64.21	11.94	-52.27	-39.3
8850.00	H	215	345	-48.45	7.62	-40.82	-27.8
10620.00	H	247	62	-52.86	12.58	-40.29	-27.3
12390.00	H	-	-	-63.60	13.33	-50.26	-37.3
14160.00	H	-	-	-57.75	11.53	-46.21	-33.2

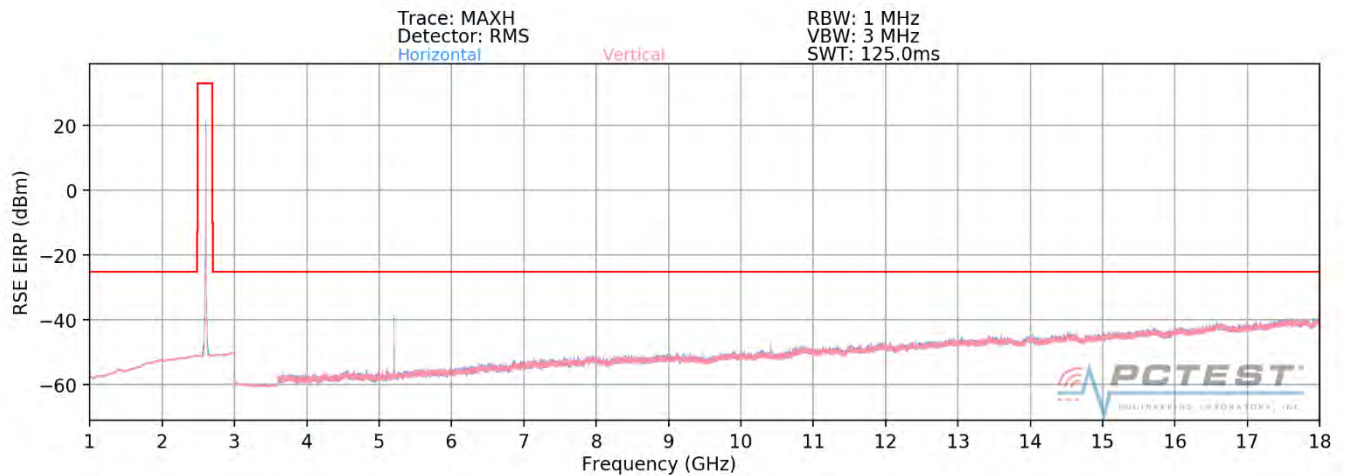
Table 7-52. Radiated Spurious Plot (ULCA B66 PCC: RB 1 Offset 0, SCC: RB 1 Offset 99- High Channel)

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 308 of 331

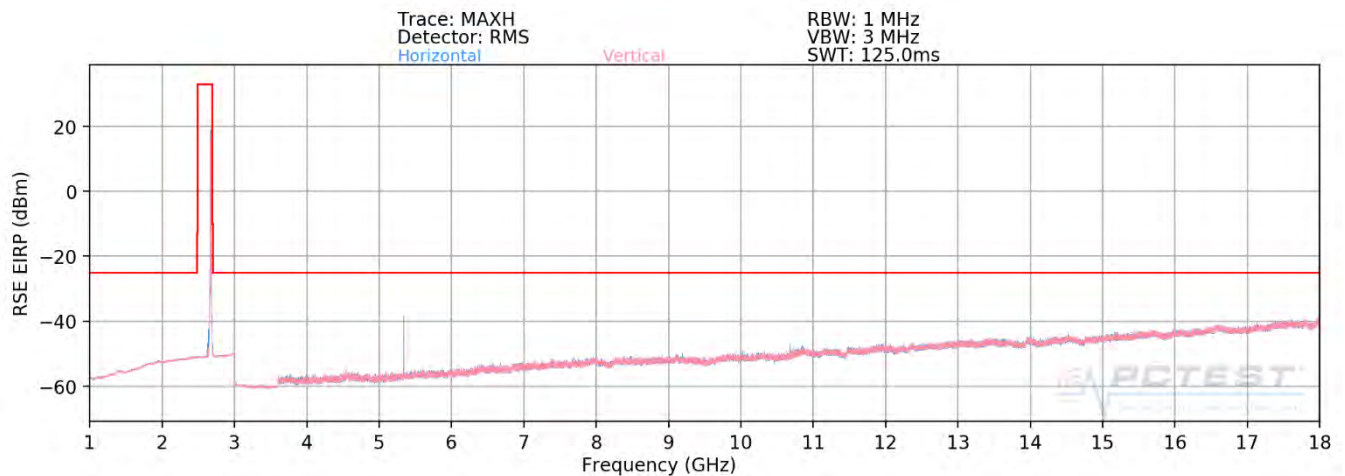
ULCA Band 41 (PC2)



Plot 7-481. Radiated Spurious Plot above 1GHz (ULCA Band 41 PC2 Low Channel – PCC/SCC: 1RB)

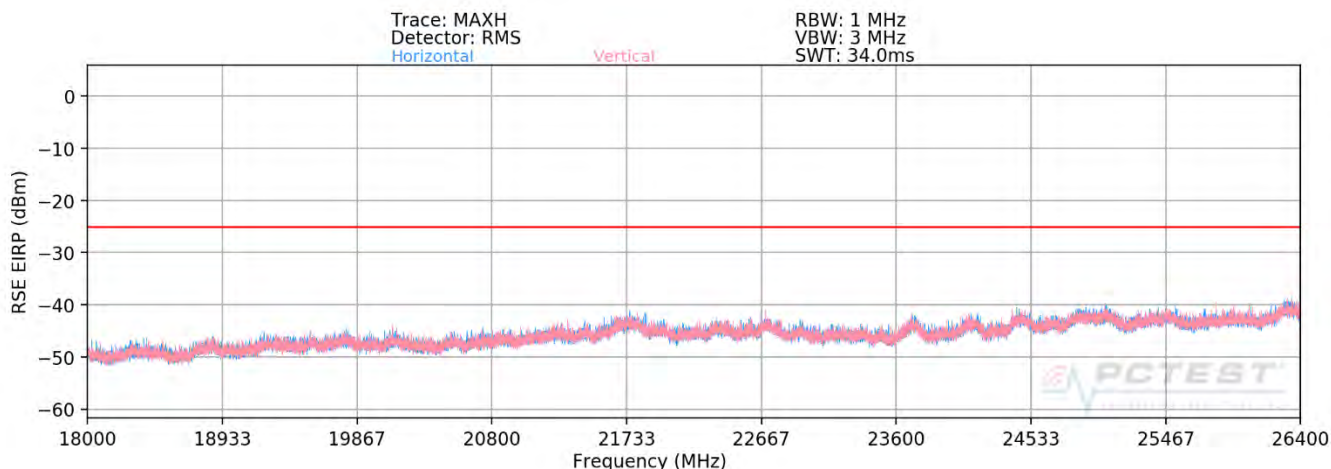


Plot 7-482. Radiated Spurious Plot above 1GHz (ULCA Band 41 PC2 Mid Channel – PCC/SCC: 1RB)



Plot 7-483. Radiated Spurious Plot above GHz (ULCA Band 41 PC2 High Channel – PCC/SCC: 1RB)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 309 of 331



Plot 7-484. Radiated Spurious Plot 18GHz – 26.5GHz (ULCA Band 41 PC2)

OPERATING FREQUENCY (PCC): 2510.00 MHz
 OPERATING FREQUENCY (SCC): 2529.80 MHz
 CHANNEL (PCC): 39750
 CHANNEL (SCC): 39988
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5020.00	H	193	354	-50.31	10.88	-39.42	-14.4
7530.00	H	-	-	-64.61	11.13	-53.48	-28.5
10040.00	H	179	50	-62.35	11.99	-50.36	-25.4
12550.00	H	158	15	-62.03	13.56	-48.46	-23.5
15060.00	H	-	-	-59.61	13.58	-46.03	-21.0
17570.00	H	-	-	-53.98	11.59	-42.39	-17.4

Table 7-53. Radiated Spurious Plot (ULCA B41 PC2 PCC: RB 1 Offset 99, SCC: RB 1 Offset 0- Low Channel)

FCC ID: A3LSMN970U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset			Page 310 of 331

OPERATING FREQUENCY (PCC): 2593.00 MHz
 OPERATING FREQUENCY (SCC): 2612.80 MHz
 CHANNEL (PCC): 40620
 CHANNEL (SCC): 40818
 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]
5186.00	H	166	53	-45.96	10.74	-35.22	-10.2
7779.00	H	-	-	-66.03	11.44	-54.59	-29.6
10372.00	H	174	312	-61.02	11.99	-49.03	-24.0
12965.00	H	178	10	-61.63	13.56	-48.07	-23.1
15558.00	H	-	-	-59.08	13.58	-45.51	-20.5
18151.00	H	-	-	-54.03	11.59	-42.44	-17.4

Table 7-54. Radiated Spurious Plot (ULCA B41 PC2 PCC: RB 1 Offset 99, SCC: RB 1 Offset 0- Mid Channel)

OPERATING FREQUENCY (PCC): 2680.00 MHz
 OPERATING FREQUENCY (SCC): 2660.20 MHz
 CHANNEL (PCC): 41490
 CHANNEL (SCC): 41292
 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]
5360.00	H	155	35	-44.38	10.70	-33.68	-8.7
8040.00	H	122	26	-64.18	11.16	-53.02	-28.0
10720.00	H	122	28	-57.02	12.59	-44.42	-19.4
13400.00	H	-	-	-60.76	12.59	-48.17	-23.2
16080.00	H	-	-	-58.75	16.68	-42.07	-17.1

Table 7-55. Radiated Spurious Plot (ULCA B41 PC2 PCC: RB 1 Offset 0, SCC: RB 1 Offset 99- High Channel)

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 311 of 331

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 $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency. For Part 24, Part 27, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Procedure Used

ANSI/TIA-603-E-2016

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

Test Notes

None

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 312 of 331

Band 71 Frequency Stability Measurements

OPERATING FREQUENCY: 680,500,000 Hz
 CHANNEL: 133297
 REFERENCE VOLTAGE: 4.32 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.32	- 30	680,500,004	4	0.0000006
100 %		- 20	680,500,223	223	0.0000328
100 %		- 10	680,500,394	394	0.0000579
100 %		0	680,500,004	4	0.0000006
100 %		+ 10	680,500,011	11	0.0000016
100 %		+ 20	680,499,869	-131	-0.0000193
100 %		+ 30	680,499,906	-94	-0.0000138
100 %		+ 40	680,499,651	-349	-0.0000513
100 %		+ 50	680,500,058	58	0.0000085
BATT. ENDPOINT	3.36	+ 20	680,500,004	4	0.0000006

Table 7-56. 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: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset	Page 313 of 331	

Band 71 Frequency Stability Measurements

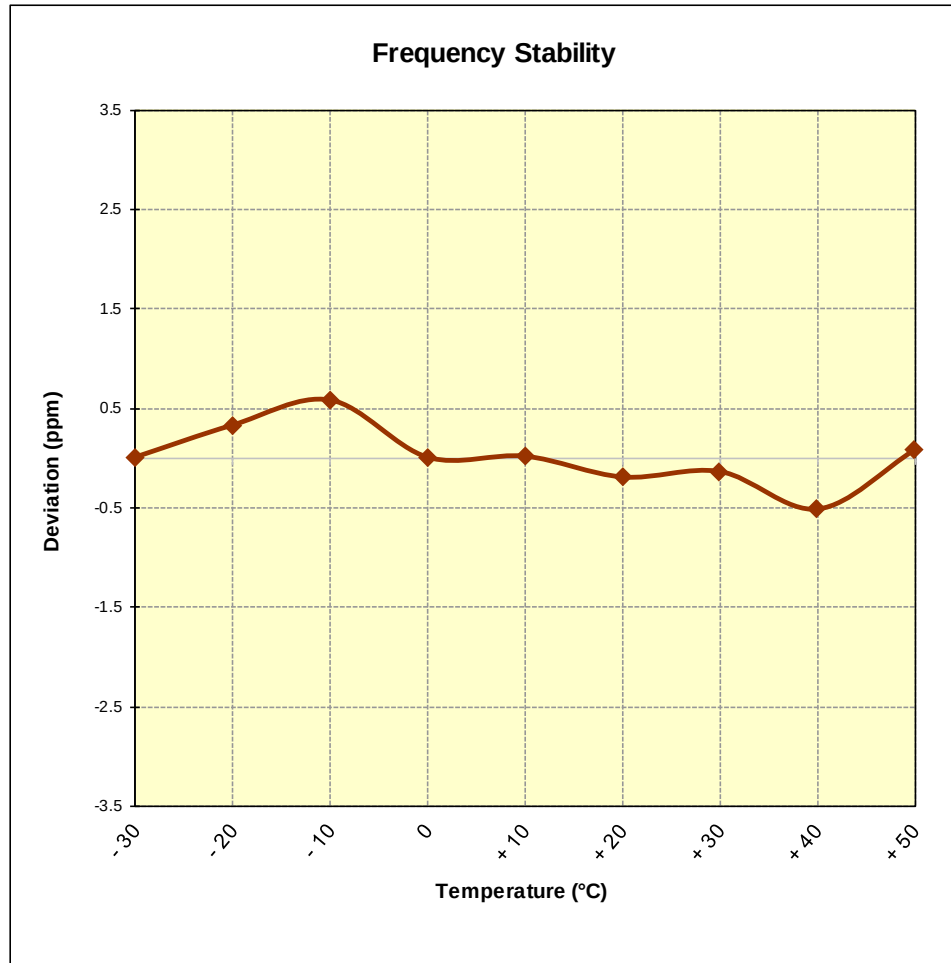


Figure 7-11. Frequency Stability Graph (Band 71)

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 314 of 331

Band 12 Frequency Stability Measurements

OPERATING FREQUENCY: 707,500,000 Hz
 CHANNEL: 23790
 REFERENCE VOLTAGE: 4.32 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.32	- 30	707,499,672	-328	-0.0000464
100 %		- 20	707,499,998	-2	-0.0000003
100 %		- 10	707,500,362	362	0.0000512
100 %		0	707,499,917	-83	-0.0000117
100 %		+ 10	707,499,950	-50	-0.0000071
100 %		+ 20	707,499,781	-219	-0.0000310
100 %		+ 30	707,500,070	70	0.0000099
100 %		+ 40	707,500,097	97	0.0000137
100 %		+ 50	707,499,876	-124	-0.0000175
BATT. ENDPOINT	3.36	+ 20	707,499,777	-223	-0.0000315

Table 7-57. 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: A3LSMN970U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset	Page 315 of 331

Band 12 Frequency Stability Measurements

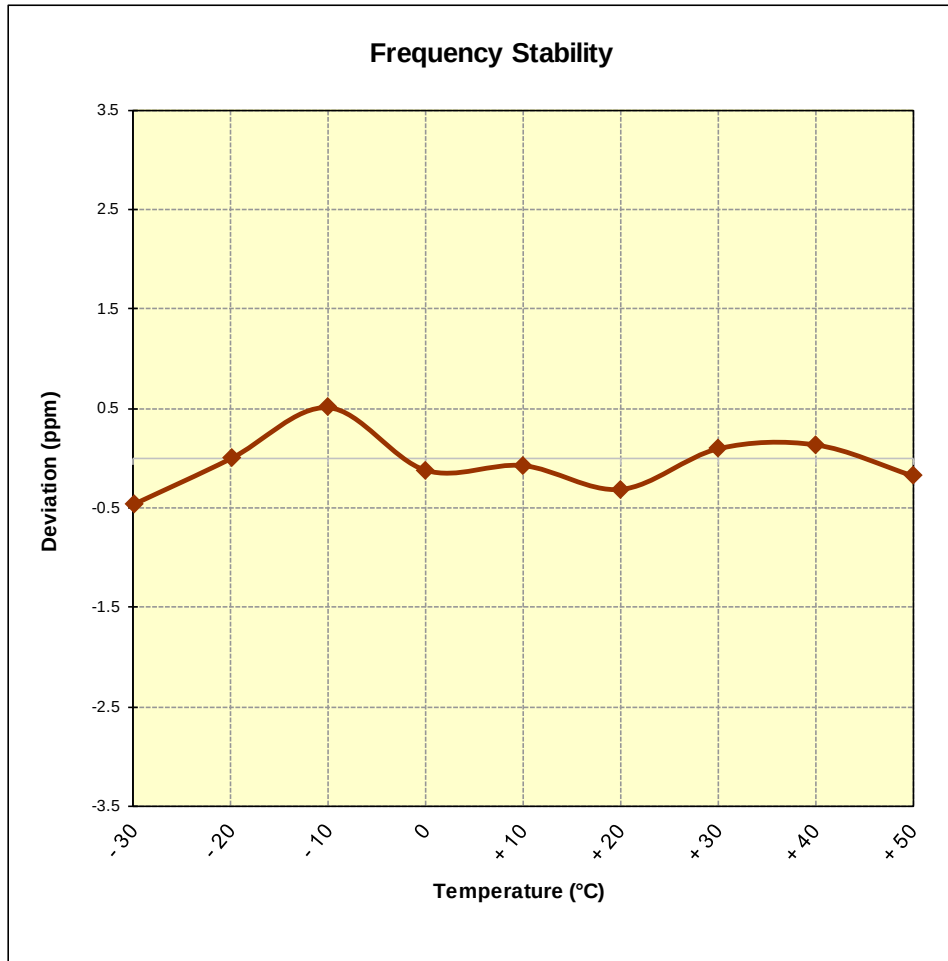


Figure 7-12. Frequency Stability Graph (Band 12)

FCC ID: A3LSMN970U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset	Page 316 of 331

Band 13 Frequency Stability Measurements

OPERATING FREQUENCY: 782,000,000 Hz
 CHANNEL: 23230
 REFERENCE VOLTAGE: 4.32 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.32	- 30	782,000,121	121	0.0000155
100 %		- 20	781,999,957	-43	-0.0000055
100 %		- 10	782,000,116	116	0.0000148
100 %		0	782,000,018	18	0.0000023
100 %		+ 10	782,000,056	56	0.0000072
100 %		+ 20	781,999,963	-37	-0.0000047
100 %		+ 30	782,000,129	129	0.0000165
100 %		+ 40	782,000,018	18	0.0000023
100 %		+ 50	782,000,237	237	0.0000303
BATT. ENDPOINT	3.36	+ 20	781,999,979	-21	-0.0000027

Table 7-58. 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: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 317 of 331

Band 13 Frequency Stability Measurements

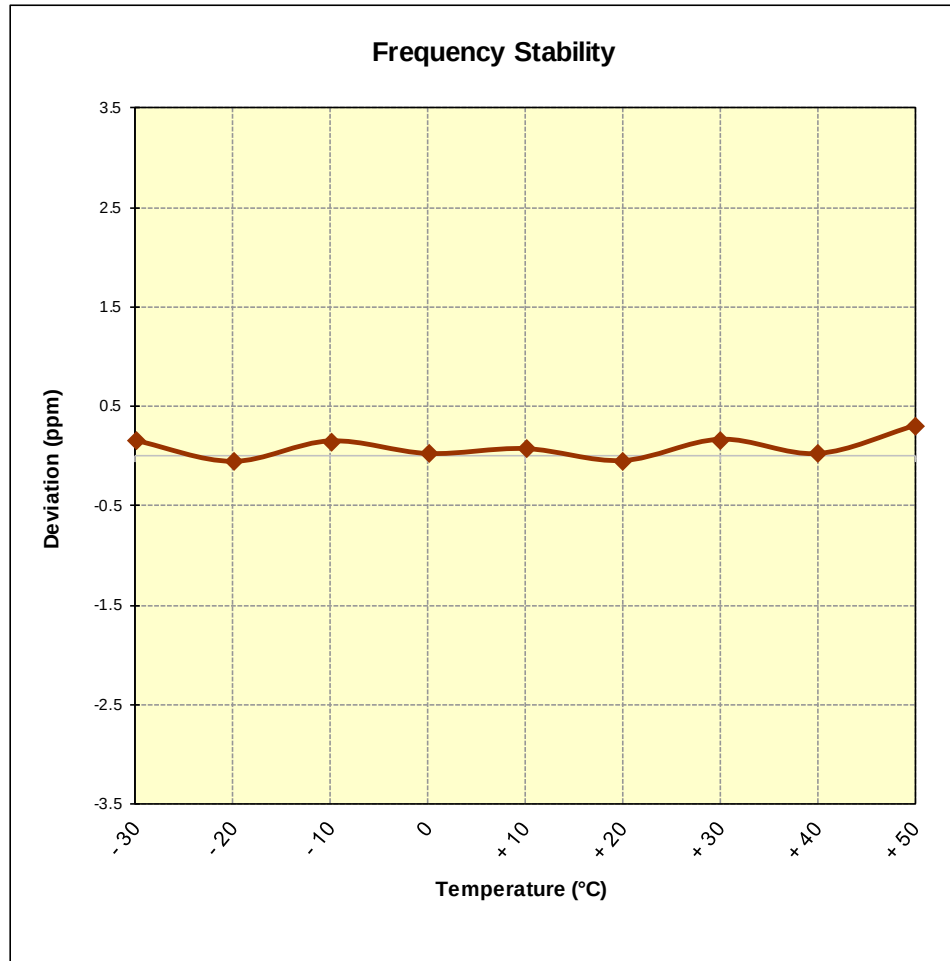


Figure 7-13. Frequency Stability Graph (Band 13)

FCC ID: A3LSMN970U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset	Page 318 of 331

Band 26/5 Frequency Stability Measurements

OPERATING FREQUENCY: 831,500,000 Hz
 CHANNEL: 26865
 REFERENCE VOLTAGE: 4.32 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.32	- 30	831,499,776	-224	-0.0000269
100 %		- 20	831,499,705	-295	-0.0000355
100 %		- 10	831,500,091	91	0.0000109
100 %		0	831,500,438	438	0.0000527
100 %		+ 10	831,499,927	-73	-0.0000088
100 %		+ 20	831,500,223	223	0.0000268
100 %		+ 30	831,499,788	-212	-0.0000255
100 %		+ 40	831,499,947	-53	-0.0000064
100 %		+ 50	831,499,936	-64	-0.0000077
BATT. ENDPOINT	3.36	+ 20	831,499,843	-157	-0.0000189

Table 7-59. Frequency Stability Data (Band 26/5)

FCC ID: A3LSMN970U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset	Page 319 of 331

Band 26/5 Frequency Stability Measurements

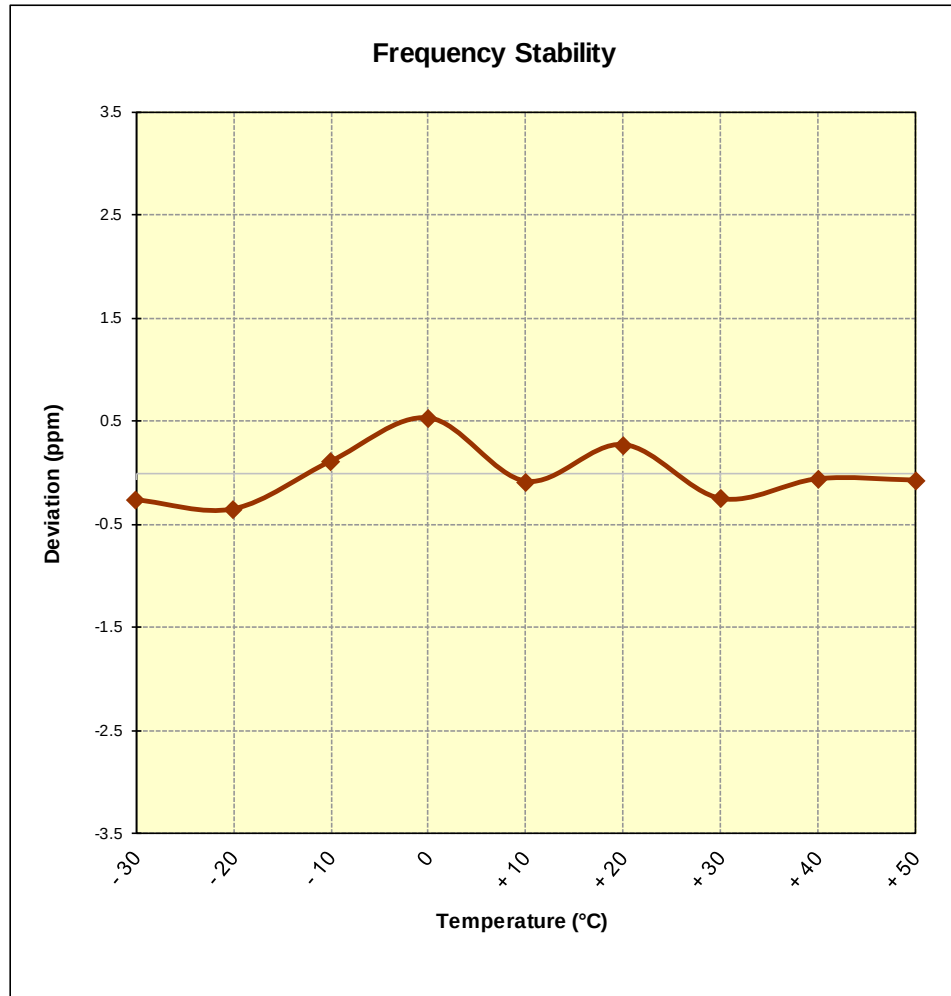


Figure 7-14. Frequency Stability Graph (Band 26/5)

FCC ID: A3LSMN970U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset	Page 320 of 331

Band 66/4 Frequency Stability Measurements

OPERATING FREQUENCY: 1,745,000,000 Hz
 CHANNEL: 132322
 REFERENCE VOLTAGE: 4.32 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.32	- 30	1,744,999,855	-145	-0.0000083
100 %		- 20	1,744,999,860	-140	-0.0000080
100 %		- 10	1,745,000,404	404	0.0000232
100 %		0	1,744,999,946	-54	-0.0000031
100 %		+ 10	1,745,000,287	287	0.0000164
100 %		+ 20	1,744,999,677	-323	-0.0000185
100 %		+ 30	1,745,000,091	91	0.0000052
100 %		+ 40	1,745,000,226	226	0.0000130
100 %		+ 50	1,744,999,631	-369	-0.0000211
BATT. ENDPOINT	3.36	+ 20	1,744,999,683	-317	-0.0000182

Table 7-60. 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: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 321 of 331

Band 66/4 Frequency Stability Measurements

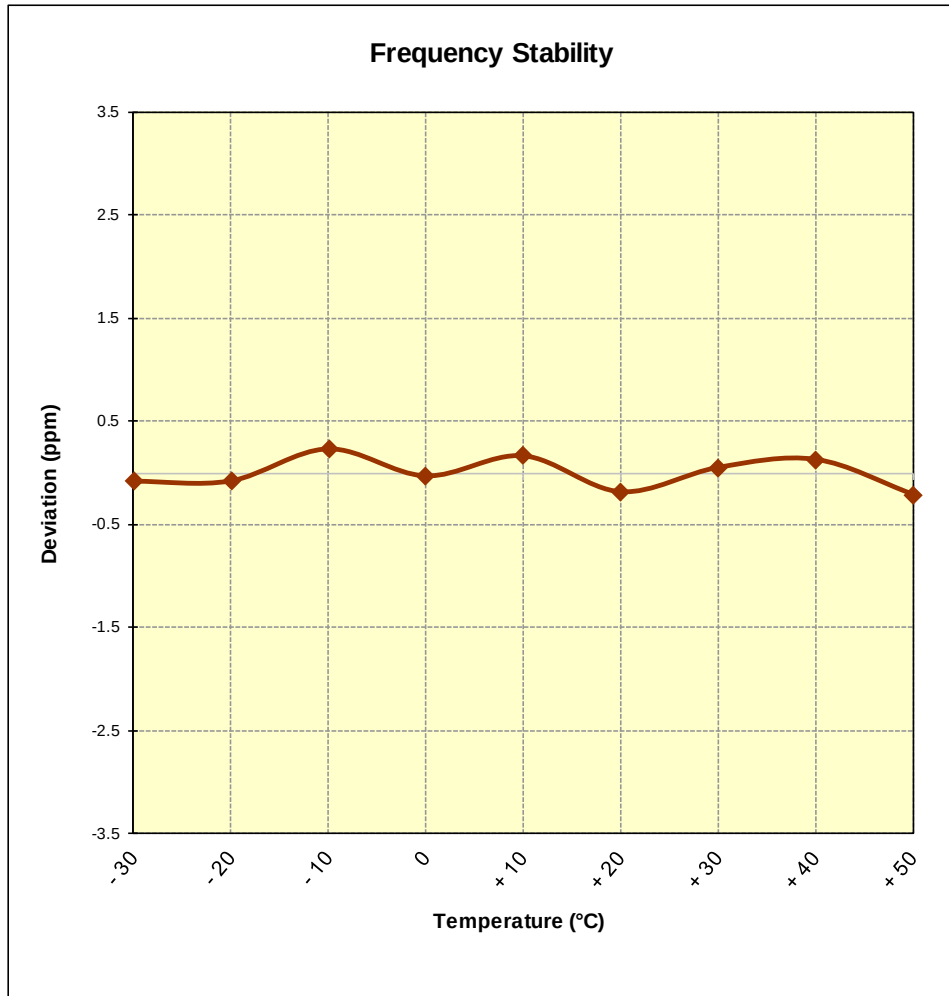


Figure 7-15. Frequency Stability Graph (Band 66/4)

FCC ID: A3LSMN970U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset	Page 322 of 331

Band 25/2 Frequency Stability Measurements

OPERATING FREQUENCY: 1,882,500,000 Hz
 CHANNEL: 26365
 REFERENCE VOLTAGE: 4.32 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.32	- 30	1,882,500,339	339	0.0000180
100 %		- 20	1,882,500,115	115	0.0000061
100 %		- 10	1,882,500,003	3	0.0000002
100 %		0	1,882,499,998	-2	-0.0000001
100 %		+ 10	1,882,499,914	-86	-0.0000046
100 %		+ 20	1,882,499,703	-297	-0.0000158
100 %		+ 30	1,882,500,204	204	0.0000108
100 %		+ 40	1,882,499,849	-151	-0.0000080
100 %		+ 50	1,882,499,928	-72	-0.0000038
BATT. ENDPOINT	3.36	+ 20	1,882,500,064	64	0.0000034

Table 7-61. Frequency Stability Data (Band 25/2)

FCC ID: A3LSMN970U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset	Page 323 of 331

Band 25/2 Frequency Stability Measurements

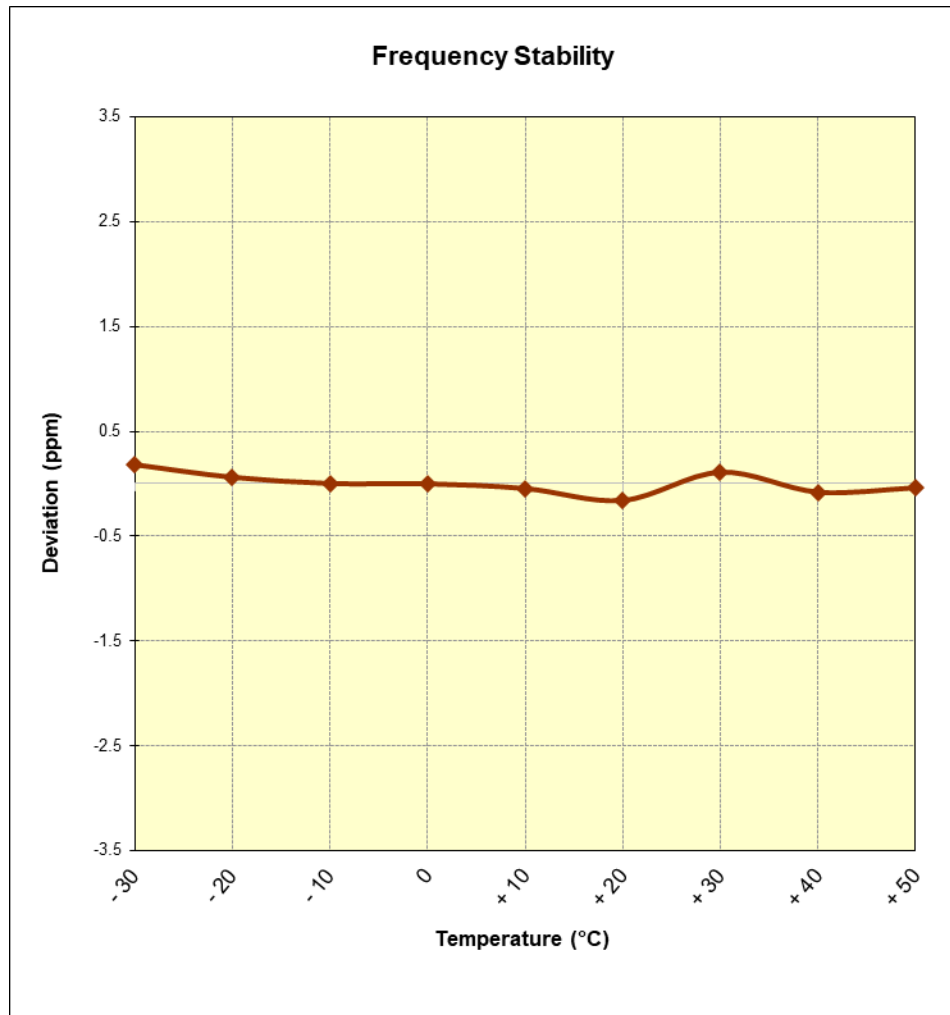


Figure 7-16. Frequency Stability Graph (Band 25/2)

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 324 of 331

Band 30 Frequency Stability Measurements

OPERATING FREQUENCY: 2,310,000,000 Hz
 CHANNEL: 27710
 REFERENCE VOLTAGE: 4.32 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.32	- 30	2,310,000,265	265	0.0000115
100 %		- 20	2,310,000,213	213	0.0000092
100 %		- 10	2,310,000,030	30	0.0000013
100 %		0	2,310,000,136	136	0.0000059
100 %		+ 10	2,310,000,203	203	0.0000088
100 %		+ 20	2,309,999,863	-137	-0.0000059
100 %		+ 30	2,309,999,962	-38	-0.0000016
100 %		+ 40	2,310,000,018	18	0.0000008
100 %		+ 50	2,309,999,960	-40	-0.0000017
BATT. ENDPOINT	3.36	+ 20	2,310,000,057	57	0.0000025

Figure 7-17. 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.

FCC ID: A3LSMN970U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset	Page 325 of 331

Band 30 Frequency Stability Measurements

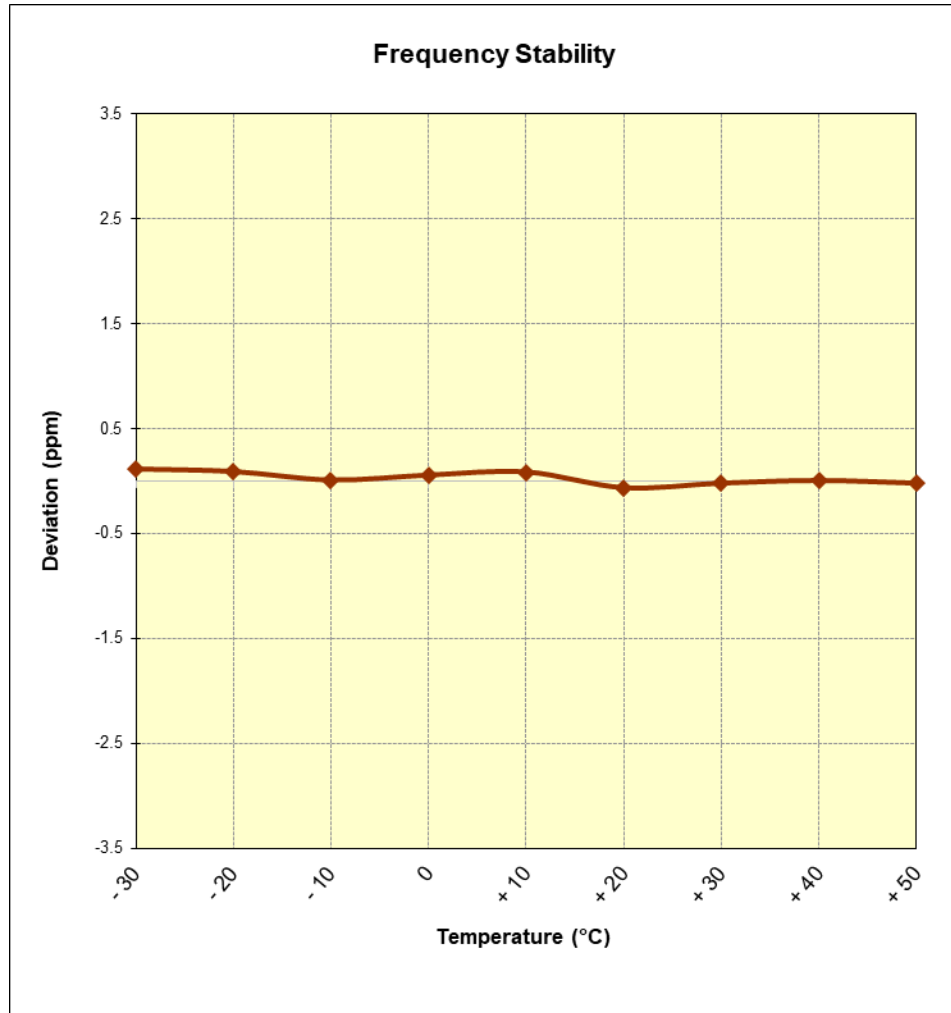


Figure 7-18. Frequency Stability Graph (Band 30)

FCC ID: A3LSMN970U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset	Page 326 of 331

Band 7 Frequency Stability Measurements

OPERATING FREQUENCY: 2,535,000,000 Hz
 CHANNEL: 21100
 REFERENCE VOLTAGE: 4.32 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.32	- 30	2,535,000,212	212	0.0000084
100 %		- 20	2,535,000,013	13	0.0000005
100 %		- 10	2,534,999,980	-20	-0.0000008
100 %		0	2,535,000,029	29	0.0000011
100 %		+ 10	2,534,999,821	-179	-0.0000071
100 %		+ 20	2,534,999,909	-91	-0.0000036
100 %		+ 30	2,534,999,869	-131	-0.0000052
100 %		+ 40	2,535,000,394	394	0.0000155
100 %		+ 50	2,535,000,068	68	0.0000027
BATT. ENDPOINT	3.36	+ 20	2,534,999,730	-270	-0.0000107

Figure 7-19. 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: A3LSMN970U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset	Page 327 of 331

Band 7 Frequency Stability Measurements

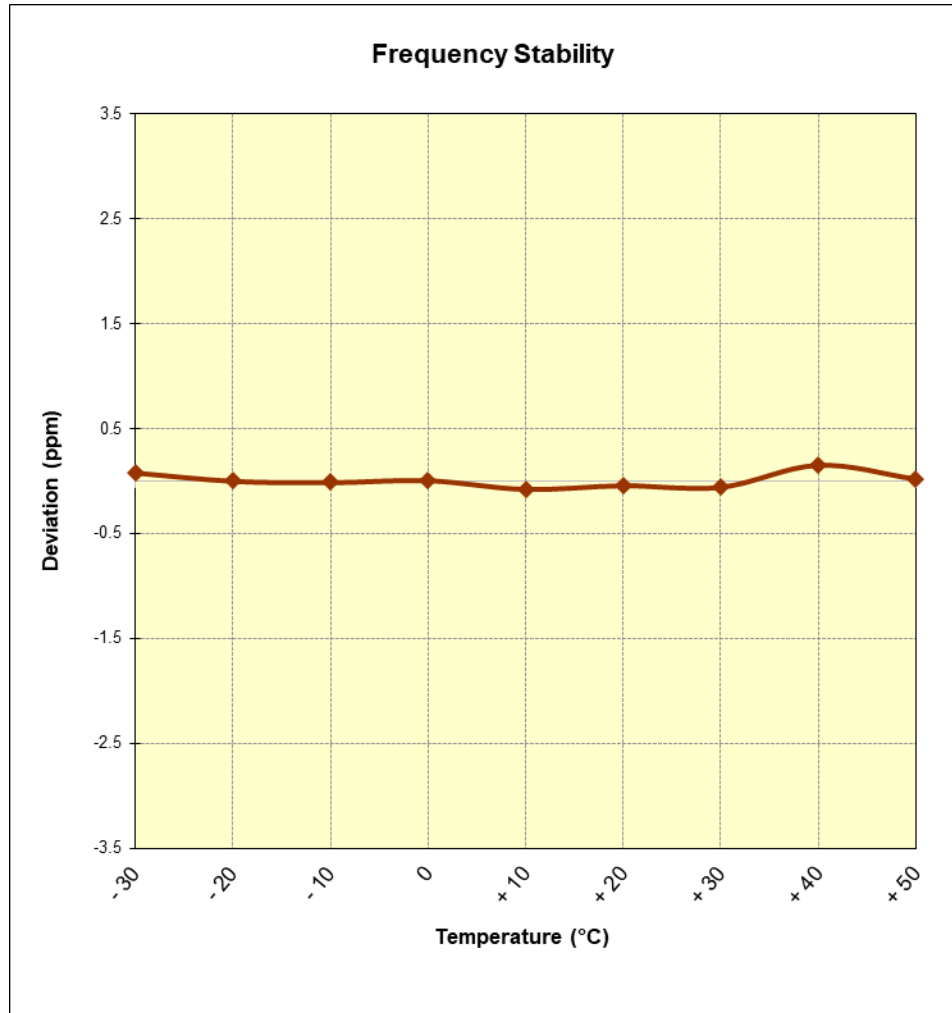


Figure 7-20. Frequency Stability Graph (Band 7)

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 328 of 331

Band 41/38 Frequency Stability Measurements

OPERATING FREQUENCY: 2,593,000,000 Hz
 CHANNEL: 40620
 REFERENCE VOLTAGE: 4.32 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.32	- 30	2,593,000,126	126	0.0000049
100 %		- 20	2,592,999,791	-209	-0.0000081
100 %		- 10	2,592,999,716	-284	-0.0000110
100 %		0	2,593,000,006	6	0.0000002
100 %		+ 10	2,592,999,695	-305	-0.0000118
100 %		+ 20	2,593,000,081	81	0.0000031
100 %		+ 30	2,593,000,130	130	0.0000050
100 %		+ 40	2,592,999,783	-217	-0.0000084
100 %		+ 50	2,593,000,052	52	0.0000020
BATT. ENDPOINT	3.36	+ 20	2,593,000,141	141	0.0000054

Figure 7-21. Frequency Stability Data (Band 41/38)

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: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 329 of 331

Band 41/38 Frequency Stability Measurements

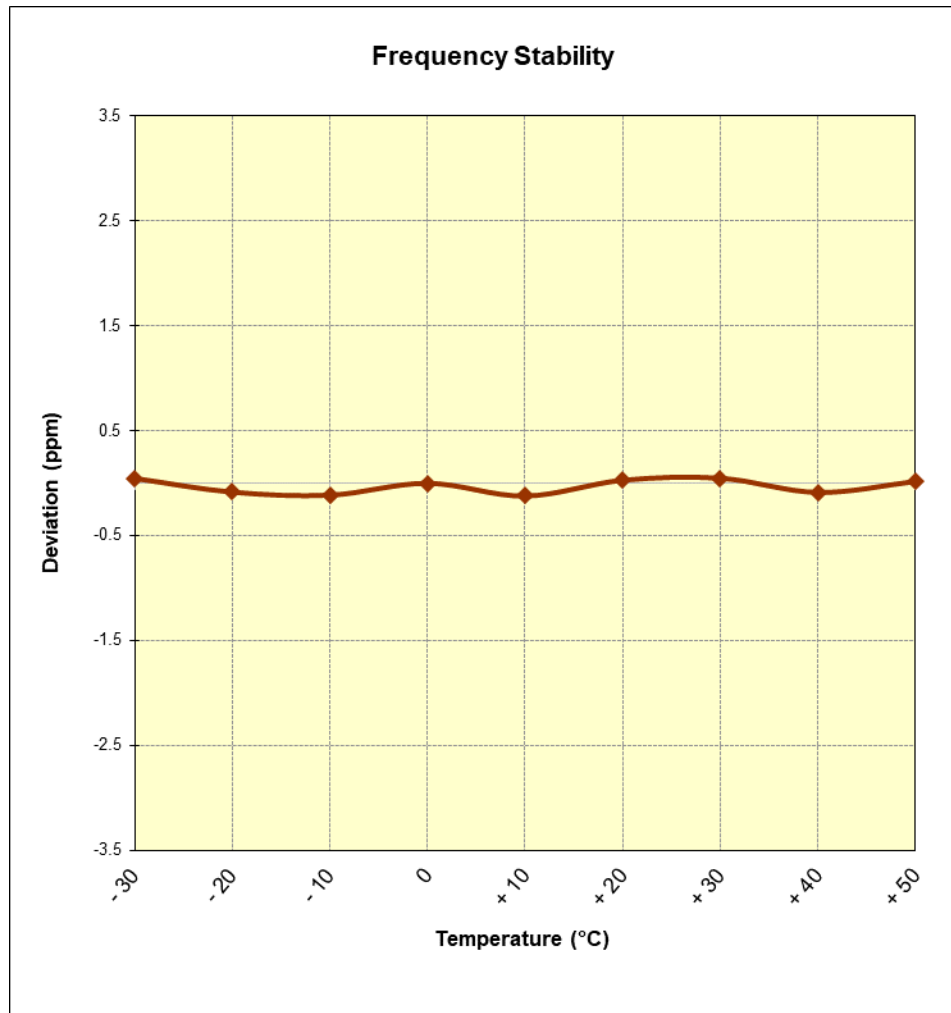


Figure 7-22. Frequency Stability Graph (Band 41/38)

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 330 of 331

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset** **FCC ID: A3LSMN970U** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.

FCC ID: A3LSMN970U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905220084-03.A3L	Test Dates: 05/22 - 07/10/2019	EUT Type: Portable Handset		Page 331 of 331