





Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
20 MHz	QPSK	1720.0	V	109	324	9.33	1 / 50	16.09	25.42	0.348	30.00	-4.58
	QPSK	1745.0	V	100	323	9.03	1 / 50	15.11	24.14	0.260	30.00	-5.86
	QPSK	1770.0	V	131	326	9.10	1 / 50	15.39	24.49	0.281	30.00	-5.51
	16-QAM	1720.0	V	109	324	9.33	1 / 50	15.51	24.84	0.305	30.00	-5.16
15 MHz	QPSK	1717.5	V	109	324	9.33	1 / 74	16.10	25.43	0.349	30.00	-4.57
	QPSK	1745.0	V	100	323	9.03	1 / 37	15.01	24.05	0.254	30.00	-5.95
	QPSK	1772.5	V	131	326	9.10	1 / 74	15.39	24.49	0.281	30.00	-5.51
	16-QAM	1717.5	V	109	324	9.33	1 / 37	15.03	24.36	0.273	30.00	-5.64
10 MHz	QPSK	1715.0	V	109	324	9.33	1 / 25	16.12	25.45	0.351	30.00	-4.55
	QPSK	1745.0	V	100	323	9.03	1 / 25	15.22	24.25	0.266	30.00	-5.75
	QPSK	1775.0	V	131	326	9.10	1 / 25	15.30	24.39	0.275	30.00	-5.61
	16-QAM	1715.0	V	109	324	9.33	1 / 49	15.01	24.34	0.271	30.00	-5.66
5 MHz	QPSK	1712.5	V	109	324	9.33	1 / 12	16.26	25.59	0.362	30.00	-4.41
	QPSK	1745.0	V	100	323	9.03	1 / 0	15.10	24.13	0.259	30.00	-5.87
	QPSK	1777.5	V	131	326	9.10	1 / 12	15.39	24.49	0.281	30.00	-5.51
	16-QAM	1712.5	V	109	324	9.33	1 / 12	15.27	24.60	0.289	30.00	-5.40
3 MHz	QPSK	1711.5	V	109	324	9.33	1 / 14	16.18	25.51	0.356	30.00	-4.49
	QPSK	1745.0	V	100	323	9.03	1 / 7	15.10	24.13	0.259	30.00	-5.87
	QPSK	1778.5	V	131	326	9.10	1 / 14	15.38	24.48	0.281	30.00	-5.52
	16-QAM	1711.5	V	109	324	9.33	1 / 0	15.35	24.68	0.294	30.00	-5.32
1.4 MHz	QPSK	1710.7	V	109	324	9.33	1 / 0	16.17	25.50	0.355	30.00	-4.50
	QPSK	1745.0	V	100	323	9.03	1 / 0	15.20	24.23	0.265	30.00	-5.77
	QPSK	1779.3	V	131	326	9.10	1 / 3	15.40	24.50	0.282	30.00	-5.50
	16-QAM	1710.7	V	109	324	9.33	1 / 3	15.06	24.39	0.275	30.00	-5.61
20 MHz	Opposite Pol.	1720.0	H	135	196	9.47	1 / 50	15.37	24.84	0.305	30.00	-5.16
	WCP	1720.0	V	102	326	9.33	1 / 0	12.53	21.86	0.153	30.00	-8.14

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

FCC ID: A3LSMS906U	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 203 of 253



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]
40 MHz	$\pi/2$ BPSK	1730.0	V	149	226	9.20	1 / 108	15.04	24.24	0.265	30.00	-5.76
	$\pi/2$ BPSK	1745.0	V	151	227	9.03	1 / 54	14.33	23.36	0.217	30.00	-6.64
	$\pi/2$ BPSK	1760.0	V	134	216	9.08	1 / 54	13.99	23.07	0.203	30.00	-6.93
	QPSK	1730.0	V	149	226	9.20	1 / 108	14.99	24.19	0.262	30.00	-5.81
	QPSK	1745.0	V	151	227	9.03	1 / 54	14.39	23.42	0.220	30.00	-6.58
	QPSK	1760.0	V	134	216	9.08	1 / 54	13.79	22.87	0.194	30.00	-7.13
	16-QAM	1730.0	V	149	226	9.20	1 / 108	14.27	23.47	0.222	30.00	-6.53
30 MHz	$\pi/2$ BPSK	1725.0	V	149	226	9.26	1 / 40	15.02	24.29	0.268	30.00	-5.71
	$\pi/2$ BPSK	1745.0	V	151	227	9.03	1 / 80	14.40	23.43	0.220	30.00	-6.57
	$\pi/2$ BPSK	1765.0	V	134	216	9.09	1 / 119	13.97	23.06	0.202	30.00	-6.94
	QPSK	1725.0	V	149	226	9.26	1 / 40	14.90	24.16	0.261	30.00	-5.84
	QPSK	1745.0	V	151	227	9.03	1 / 80	14.55	23.58	0.228	30.00	-6.42
	QPSK	1765.0	V	134	216	9.09	1 / 119	13.95	23.04	0.202	30.00	-6.96
	16-QAM	1725.0	V	149	226	9.26	1 / 40	14.33	23.60	0.229	30.00	-6.40
20 MHz	$\pi/2$ BPSK	1720.0	V	149	226	9.33	1 / 79	14.97	24.30	0.269	30.00	-5.70
	$\pi/2$ BPSK	1745.0	V	151	227	9.03	1 / 53	14.39	23.42	0.220	30.00	-6.58
	$\pi/2$ BPSK	1770.0	V	134	216	9.10	1 / 79	13.95	23.05	0.202	30.00	-6.95
	QPSK	1720.0	V	149	226	9.33	1 / 79	14.95	24.28	0.268	30.00	-5.72
	QPSK	1745.0	V	151	227	9.03	1 / 53	14.35	23.39	0.218	30.00	-6.61
	QPSK	1770.0	V	134	216	9.10	1 / 79	13.78	22.87	0.194	30.00	-7.13
	16-QAM	1720.0	V	149	226	9.33	1 / 79	14.21	23.54	0.226	30.00	-6.46
15 MHz	$\pi/2$ BPSK	1717.5	V	149	226	9.38	1 / 20	14.93	24.30	0.269	30.00	-5.70
	$\pi/2$ BPSK	1745.0	V	151	227	9.03	1 / 20	14.44	23.47	0.222	30.00	-6.53
	$\pi/2$ BPSK	1772.5	V	134	216	9.11	1 / 58	13.93	23.05	0.202	30.00	-6.95
	QPSK	1717.5	V	149	226	9.38	1 / 20	14.91	24.29	0.268	30.00	-5.71
	QPSK	1745.0	V	151	227	9.03	1 / 20	14.50	23.54	0.226	30.00	-6.46
	QPSK	1772.5	V	134	216	9.11	1 / 58	13.83	22.94	0.197	30.00	-7.06
	16-QAM	1717.5	V	149	226	9.38	1 / 20	14.20	23.58	0.228	30.00	-6.42
10 MHz	$\pi/2$ BPSK	1715.0	V	149	226	9.42	1 / 13	14.85	24.27	0.267	30.00	-5.73
	$\pi/2$ BPSK	1745.0	V	151	227	9.03	1 / 26	14.43	23.47	0.222	30.00	-6.53
	$\pi/2$ BPSK	1775.0	V	134	216	9.13	1 / 26	13.98	23.12	0.205	30.00	-6.88
	QPSK	1715.0	V	149	226	9.42	1 / 13	14.75	24.17	0.261	30.00	-5.83
	QPSK	1745.0	V	151	227	9.03	1 / 26	14.42	23.46	0.222	30.00	-6.54
	QPSK	1775.0	V	134	216	9.13	1 / 26	13.86	22.99	0.199	30.00	-7.01
	16-QAM	1715.0	V	149	226	9.42	1 / 13	14.50	23.92	0.247	30.00	-6.08
5 MHz	$\pi/2$ BPSK	1712.5	V	149	226	9.47	1 / 6	14.82	24.29	0.269	30.00	-5.71
	$\pi/2$ BPSK	1745.0	V	151	227	9.03	1 / 12	14.43	23.46	0.222	30.00	-6.54
	$\pi/2$ BPSK	1777.5	V	134	216	9.15	1 / 12	13.98	23.13	0.206	30.00	-6.87
	QPSK	1712.5	V	149	226	9.47	1 / 6	14.83	24.30	0.269	30.00	-5.70
	QPSK	1745.0	V	151	227	9.03	1 / 12	14.47	23.50	0.224	30.00	-6.50
	QPSK	1777.5	V	134	216	9.15	1 / 12	13.94	23.09	0.204	30.00	-6.91
	16-QAM	1712.5	V	149	226	9.47	1 / 6	14.54	24.01	0.252	30.00	-5.99
40 MHz	QPSK (CP-OFDM)	1730.0	V	149	226	9.20	1 / 108	13.56	22.76	0.189	30.00	-7.24
	BPSK (Opposite Pol.)	1730.0	H	124	194	9.48	1 / 108	13.62	23.10	0.204	30.00	-6.90
	BPSK (WCP)	1730.0	V	131	223	9.20	1 / 54	11.57	20.77	0.119	30.00	-9.23

Table 7-12. EIRP Data (NR Band n66 – Ant A)

FCC ID: A3LSMS906U	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 204 of 253

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]
40 MHz	$\pi/2$ BPSK	1730.0	H	100	45	9.48	1 / 54	12.79	22.27	0.169	30.00	-7.73
	$\pi/2$ BPSK	1745.0	H	100	48	9.48	1 / 54	11.65	21.13	0.130	30.00	-8.87
	$\pi/2$ BPSK	1760.0	H	100	49	9.44	1 / 54	11.04	20.48	0.112	30.00	-9.52
	QPSK	1730.0	H	100	45	9.48	1 / 54	12.73	22.21	0.167	30.00	-7.79
	QPSK	1745.0	H	100	48	9.48	1 / 54	11.57	21.05	0.127	30.00	-8.95
	QPSK	1760.0	H	100	49	9.44	1 / 54	11.04	20.48	0.112	30.00	-9.52
30 MHz	16-QAM	1730.0	H	100	45	9.48	1 / 54	11.62	21.10	0.129	30.00	-8.90
	$\pi/2$ BPSK	1725.0	H	100	45	9.48	1 / 119	12.78	22.26	0.168	30.00	-7.74
	$\pi/2$ BPSK	1745.0	H	100	48	9.48	1 / 119	11.61	21.09	0.129	30.00	-8.91
	$\pi/2$ BPSK	1765.0	H	100	49	9.42	1 / 80	11.15	20.56	0.114	30.00	-9.44
	QPSK	1725.0	H	100	45	9.48	1 / 119	12.82	22.30	0.170	30.00	-7.70
	QPSK	1745.0	H	100	48	9.48	1 / 80	11.74	21.22	0.132	30.00	-8.78
20 MHz	QPSK	1765.0	H	100	49	9.42	1 / 80	11.02	20.43	0.111	30.00	-9.57
	16-QAM	1725.0	H	100	45	9.48	1 / 119	11.33	20.81	0.121	30.00	-9.19
	$\pi/2$ BPSK	1720.0	H	100	45	9.47	1 / 79	12.81	22.28	0.169	30.00	-7.72
	$\pi/2$ BPSK	1745.0	H	100	48	9.48	1 / 79	11.69	21.17	0.131	30.00	-8.83
	$\pi/2$ BPSK	1770.0	H	100	49	9.39	1 / 53	11.08	20.47	0.112	30.00	-9.53
	QPSK	1720.0	H	100	45	9.47	1 / 79	12.69	22.16	0.164	30.00	-7.84
15 MHz	QPSK	1745.0	H	100	48	9.48	1 / 79	11.58	21.06	0.128	30.00	-8.94
	QPSK	1770.0	H	100	49	9.39	1 / 53	10.95	20.34	0.108	30.00	-9.66
	16-QAM	1720.0	H	100	45	9.47	1 / 79	11.03	20.50	0.112	30.00	-9.50
	$\pi/2$ BPSK	1717.5	H	100	45	9.49	1 / 58	12.70	22.19	0.166	30.00	-7.81
	$\pi/2$ BPSK	1745.0	H	100	48	9.48	1 / 58	11.67	21.15	0.130	30.00	-8.85
	$\pi/2$ BPSK	1772.5	H	100	49	9.36	1 / 58	11.22	20.58	0.114	30.00	-9.42
10 MHz	QPSK	1717.5	H	100	45	9.49	1 / 58	12.78	22.27	0.169	30.00	-7.73
	QPSK	1745.0	H	100	48	9.48	1 / 58	11.70	21.19	0.131	30.00	-8.81
	QPSK	1772.5	H	100	49	9.36	1 / 58	11.00	20.36	0.109	30.00	-9.64
	16-QAM	1717.5	H	100	45	9.49	1 / 58	11.34	20.83	0.121	30.00	-9.17
	$\pi/2$ BPSK	1715.0	H	100	45	9.52	1 / 38	12.66	22.17	0.165	30.00	-7.83
	$\pi/2$ BPSK	1745.0	H	100	48	9.48	1 / 38	11.74	21.22	0.132	30.00	-8.78
5 MHz	$\pi/2$ BPSK	1775.0	H	100	49	9.34	1 / 38	11.31	20.65	0.116	30.00	-9.35
	QPSK	1715.0	H	100	45	9.52	1 / 38	12.54	22.06	0.161	30.00	-7.94
	QPSK	1745.0	H	100	48	9.48	1 / 38	11.80	21.28	0.134	30.00	-8.72
	QPSK	1775.0	H	100	49	9.34	1 / 38	11.24	20.57	0.114	30.00	-9.43
	16-QAM	1715.0	H	100	45	9.52	1 / 38	10.94	20.46	0.111	30.00	-9.54
	$\pi/2$ BPSK	1712.5	H	100	45	9.54	1 / 12	12.71	22.25	0.168	30.00	-7.75
5 MHz	$\pi/2$ BPSK	1745.0	H	100	48	9.48	1 / 18	11.67	21.15	0.130	30.00	-8.85
	$\pi/2$ BPSK	1777.5	H	100	49	9.31	1 / 12	11.26	20.57	0.114	30.00	-9.43
	QPSK	1712.5	H	100	45	9.54	1 / 12	12.67	22.22	0.167	30.00	-7.78
	QPSK	1745.0	H	100	48	9.48	1 / 18	11.70	21.18	0.131	30.00	-8.82
	QPSK	1777.5	H	100	49	9.31	1 / 12	11.04	20.35	0.108	30.00	-9.65
	16-QAM	1712.5	H	100	45	9.54	1 / 12	11.38	20.92	0.124	30.00	-9.08

Table 7-13. EIRP Data (NR Band n66 – Ant I)

FCC ID: A3LSMS906U	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 205 of 253

7.8 Uplink Carrier Aggregation Measurements §2.1053

Test Overview

The EUT is set up to transmit two contiguous LTE channels. Conducted power and spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device. The worst case (highest) powers were found while operating with QPSK modulation with both carriers set to transmit using 1RB.

Test Setup

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

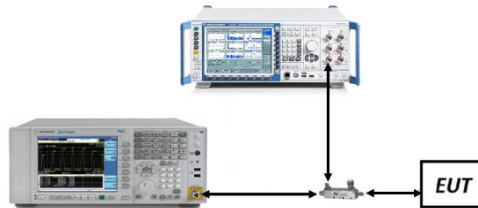


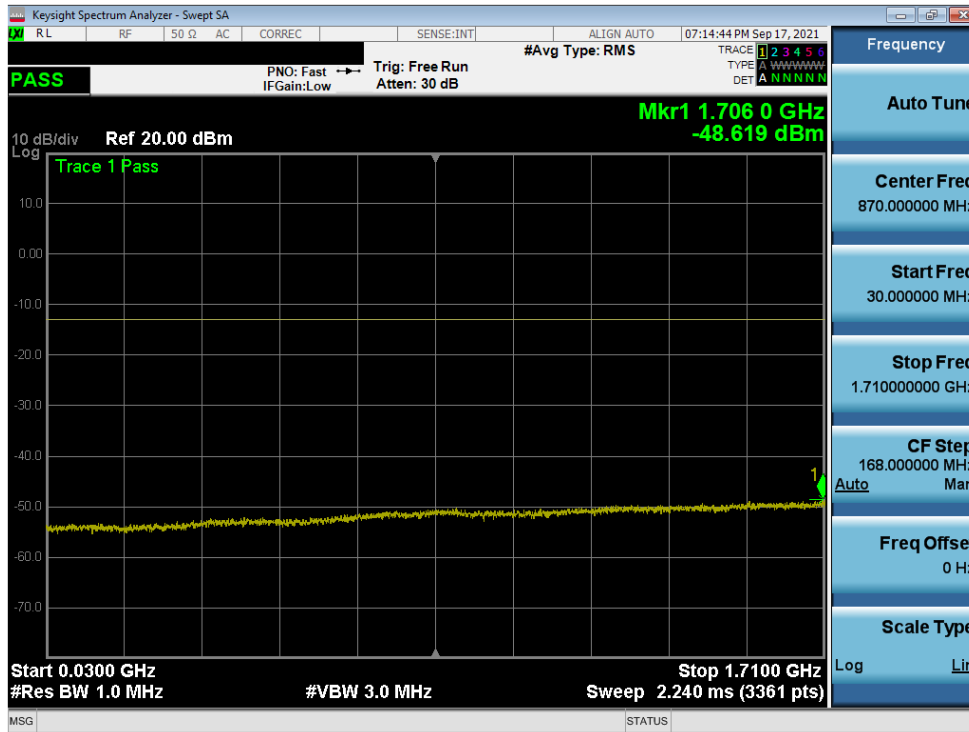
Figure 7-8. Test Instrument & Measurement Setup

Power State	Band	Bandwidth (PCC + SCC)	PCC				SCC				ULCA Tx. Power [dBm]		
			Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	Modulation	UL Channel	UL Frequency		UL # RB	UL RB Offset
Max	LTE B66	20MHz + 20MHz	QPSK	132072	1720.0	1	99	QPSK	132270	1739.8	1	0	24.05
				132322	1745.0	1	99		132520	1764.8	1	0	24.83
				132572	1770.0	1	0		132374	1750.2	1	99	24.81
			QPSK	132322	1745.0	100	0	QPSK	132520	1764.8	100	0	22.85
			16-QAM	132322	1745.0	100	0	16-QAM	132520	1764.8	100	0	21.92
			64-QAM	132322	1745.0	100	0	64-QAM	132520	1764.8	100	0	21.51
			256-QAM	132322	1745.0	100	0	256-QAM	132520	1764.8	100	0	19.91

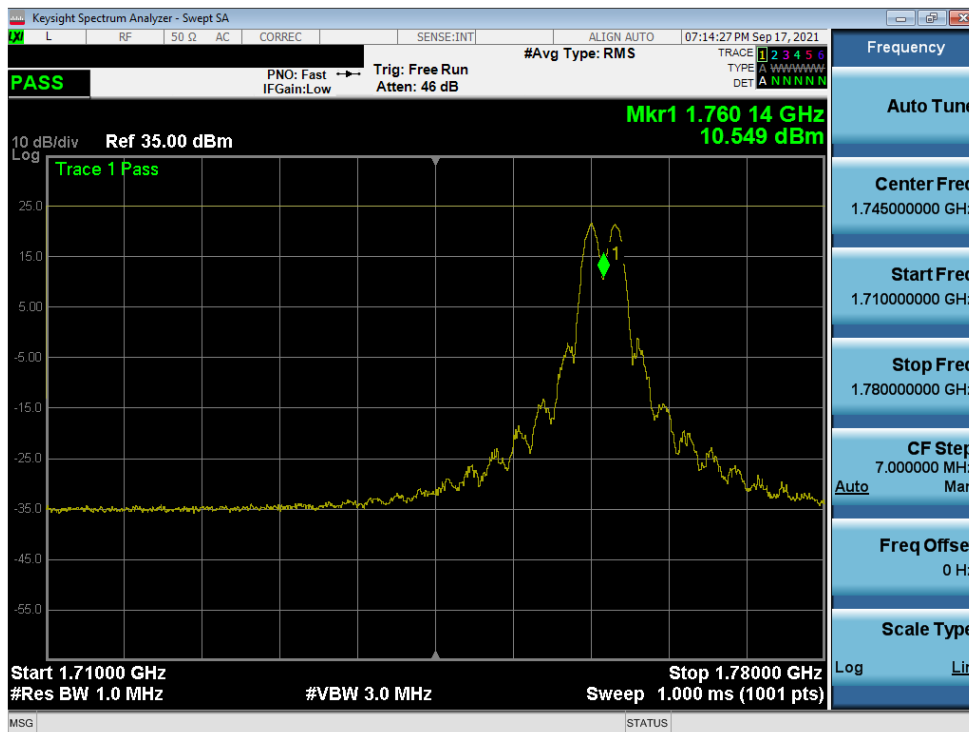
Table 7-14. Conducted Powers (Uplink CA LTE Band 66B/C)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 206 of 253

Uplink CA LTE Band 66B/C

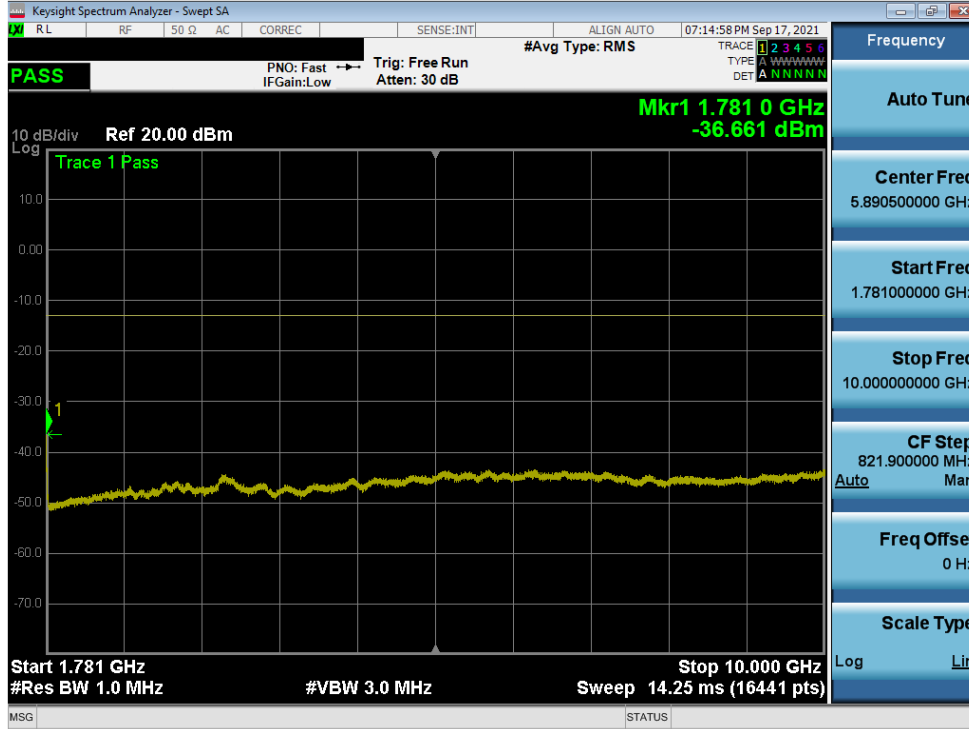


Plot 7-341. Conducted Spurious Plot (ULCA LTE Band 66 Low Channel)

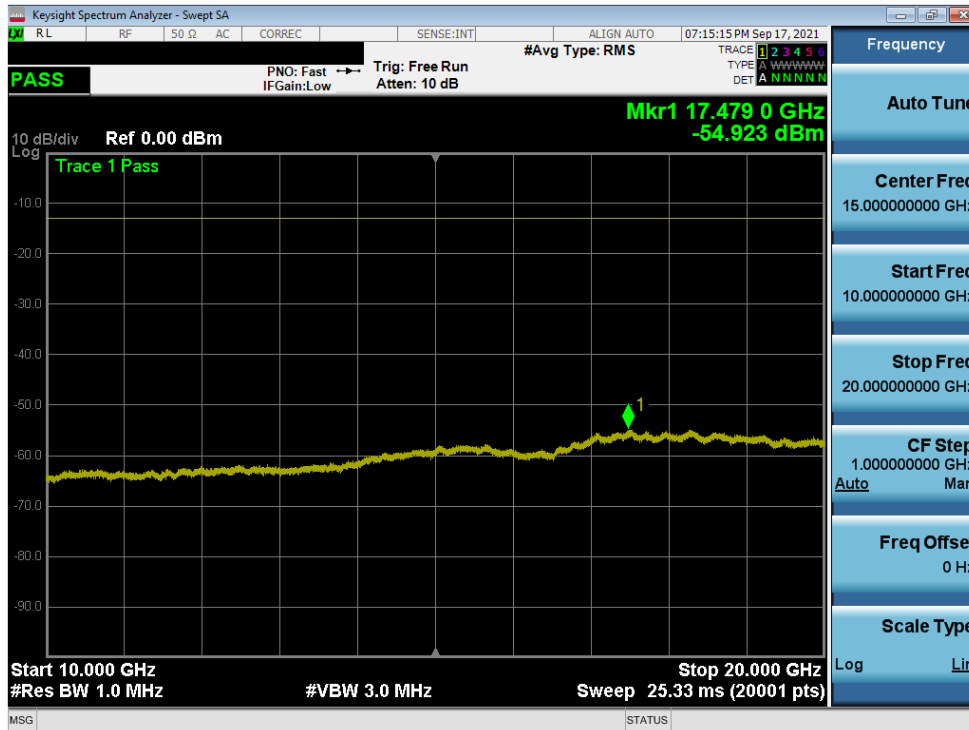


Plot 7-342. Conducted Spurious Plot (ULCA LTE Band 66 Low Channel)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 207 of 253

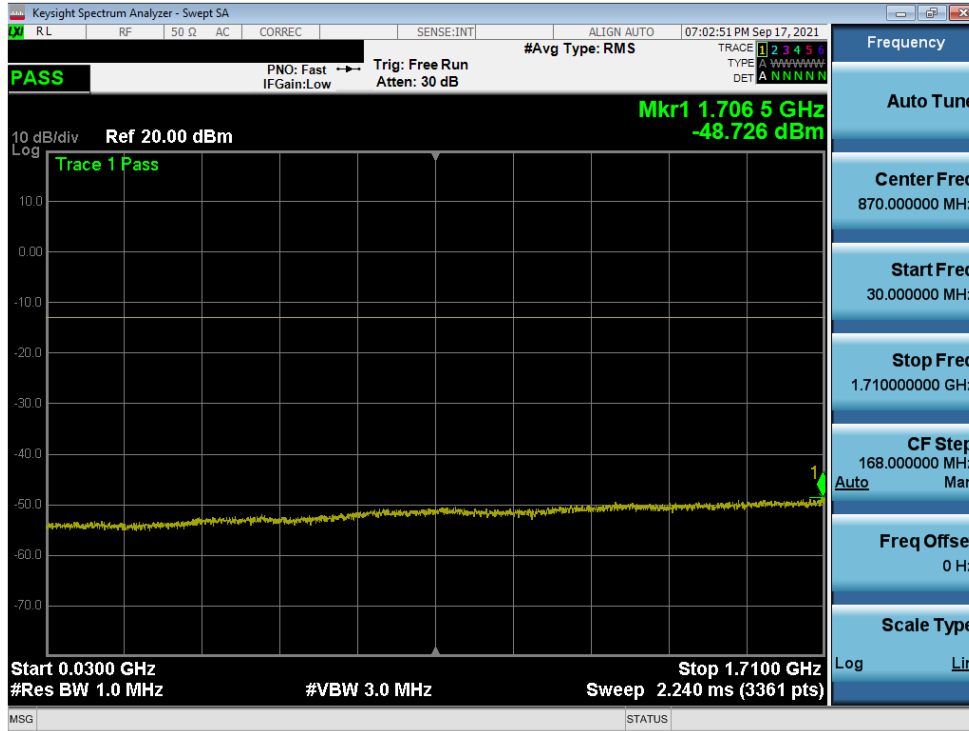


Plot 7-343. Conducted Spurious Plot (ULCA LTE Band 66 Low Channel)

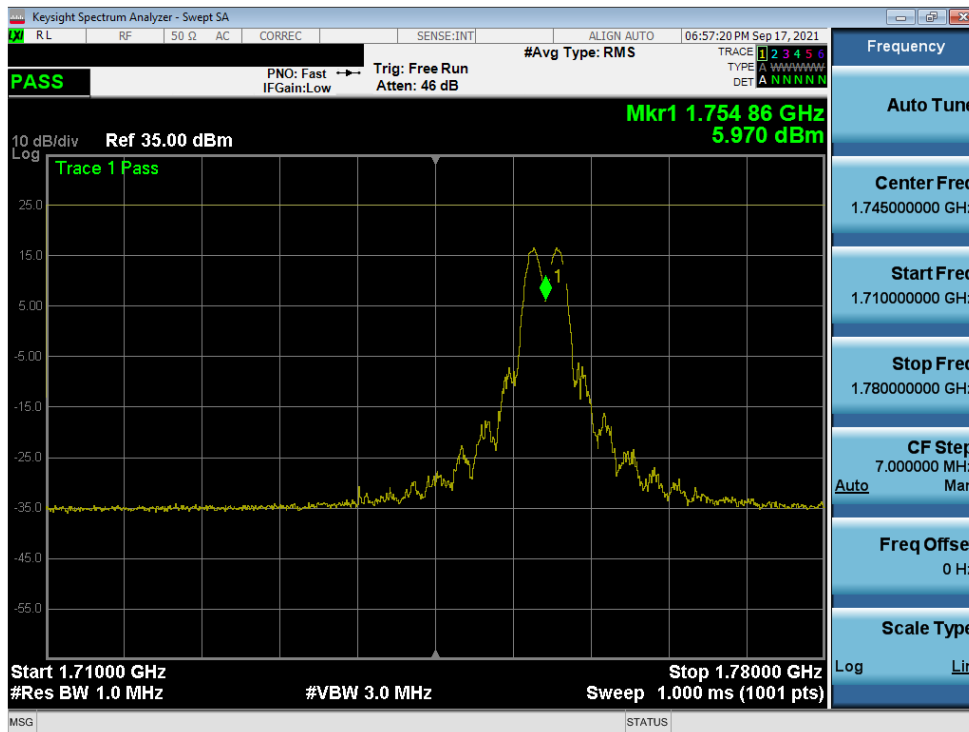


Plot 7-344. Conducted Spurious Plot (ULCA LTE Band 66 Low Channel)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 208 of 253

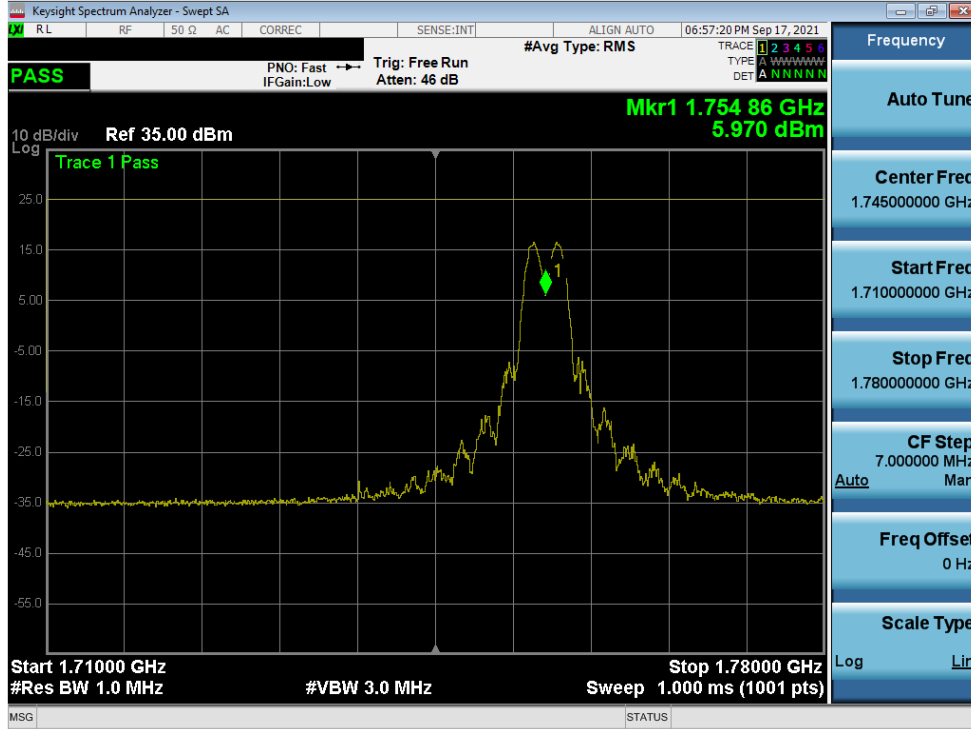


Plot 7-345. Conducted Spurious Plot (ULCA LTE Band 66 Mid Channel)

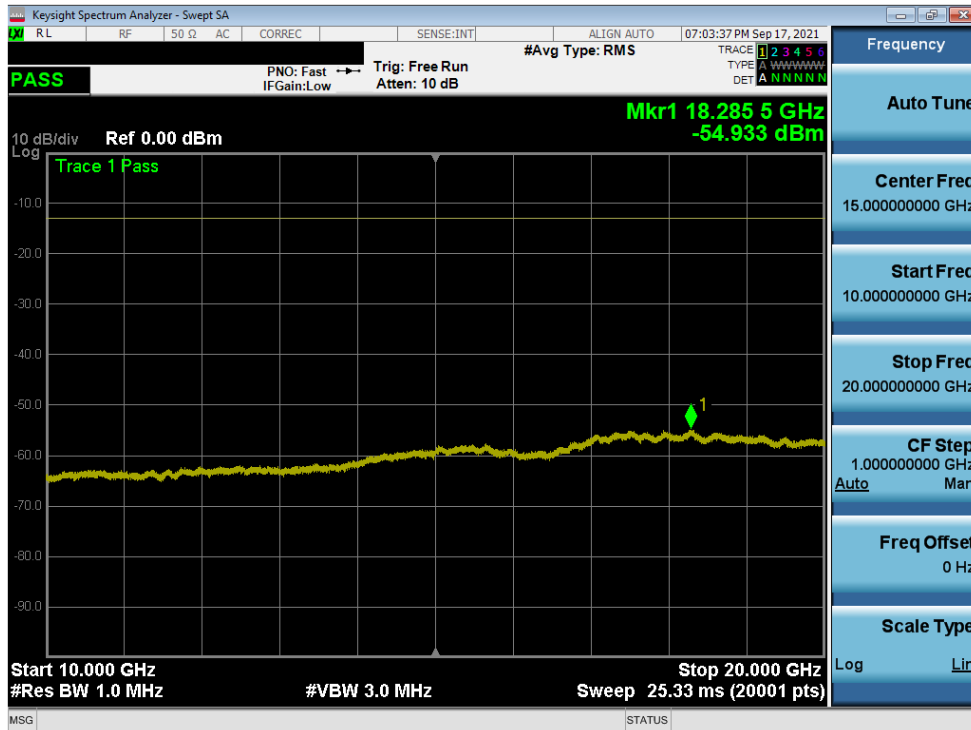


Plot 7-346. Conducted Spurious Plot (ULCA LTE Band 66 Mid Channel)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 209 of 253

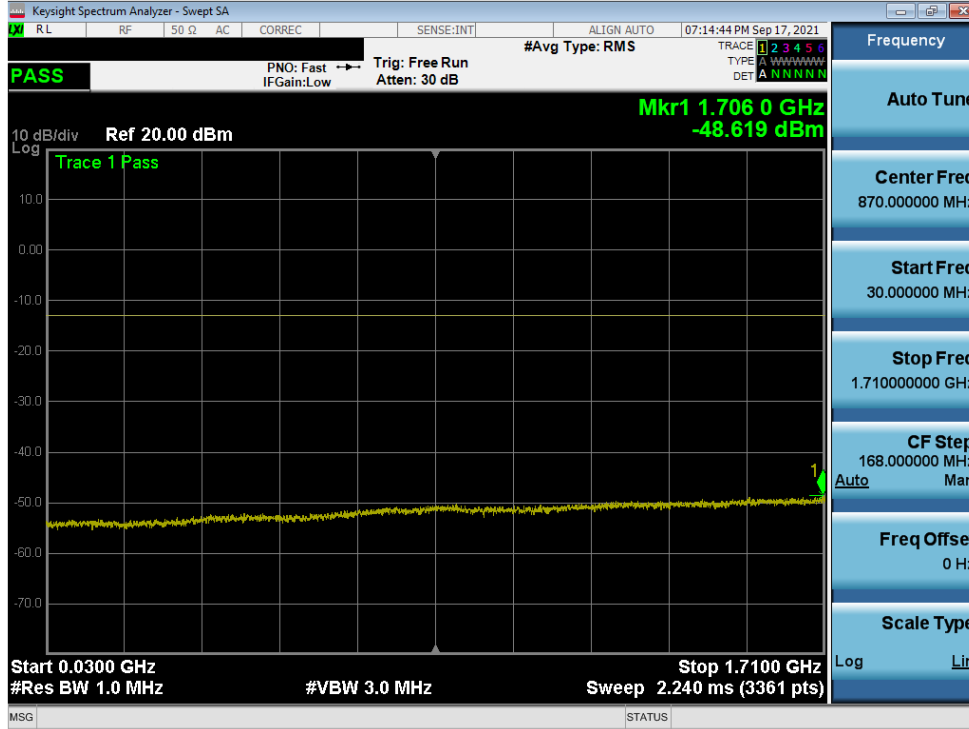


Plot 7-347. Conducted Spurious Plot (ULCA LTE Band 66 Mid Channel)

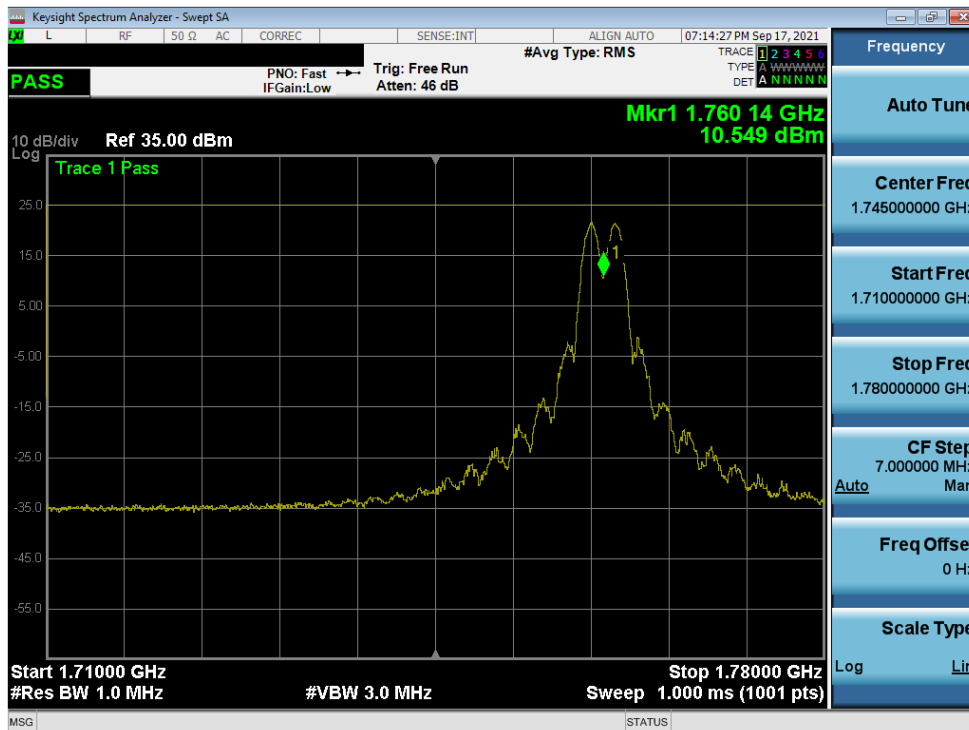


Plot 7-348. Conducted Spurious Plot (ULCA LTE Band 66 Mid Channel)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 210 of 253

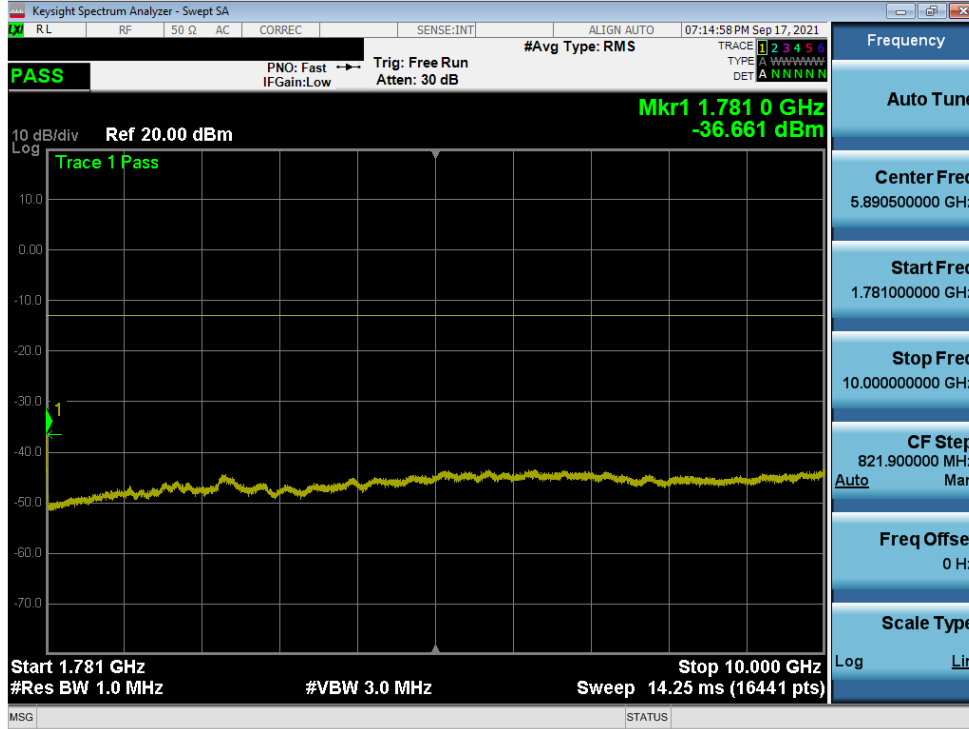


Plot 7-349. Conducted Spurious Plot (ULCA LTE Band 66 High Channel)

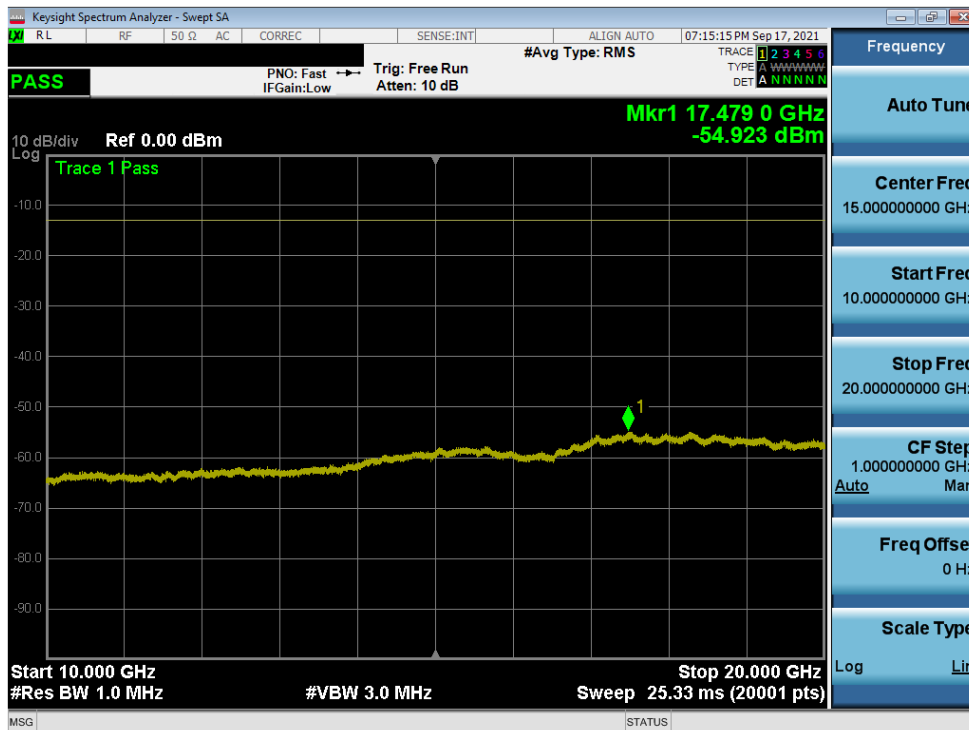


Plot 7-350. Conducted Spurious Plot (ULCA LTE Band 66 High Channel)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 211 of 253

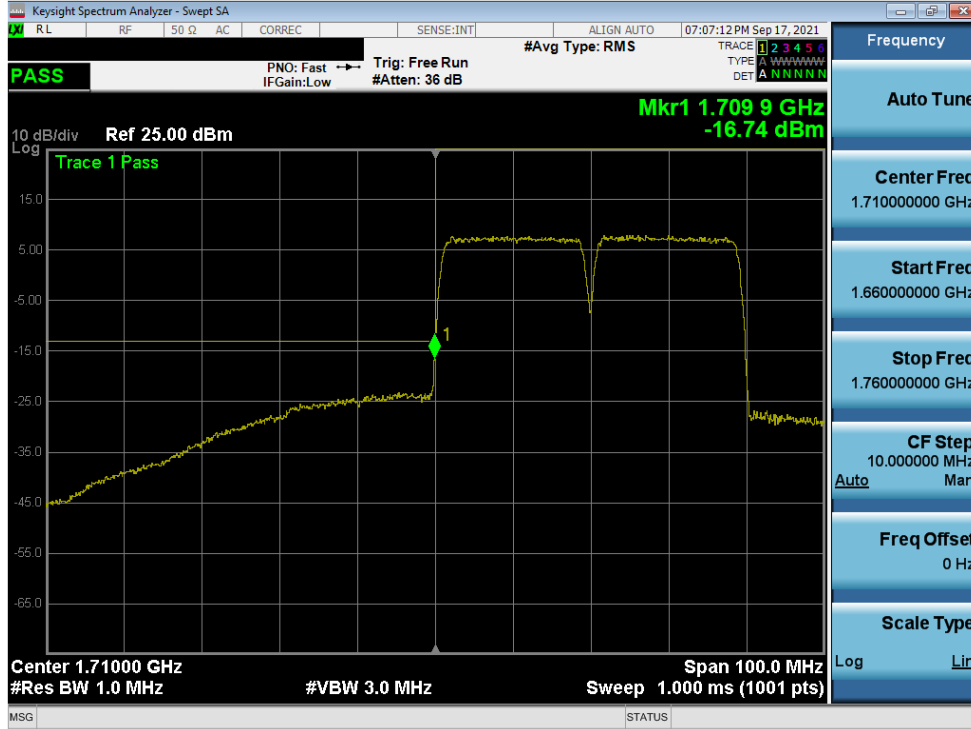


Plot 7-351. Conducted Spurious Plot (ULCA LTE Band 66 High Channel)

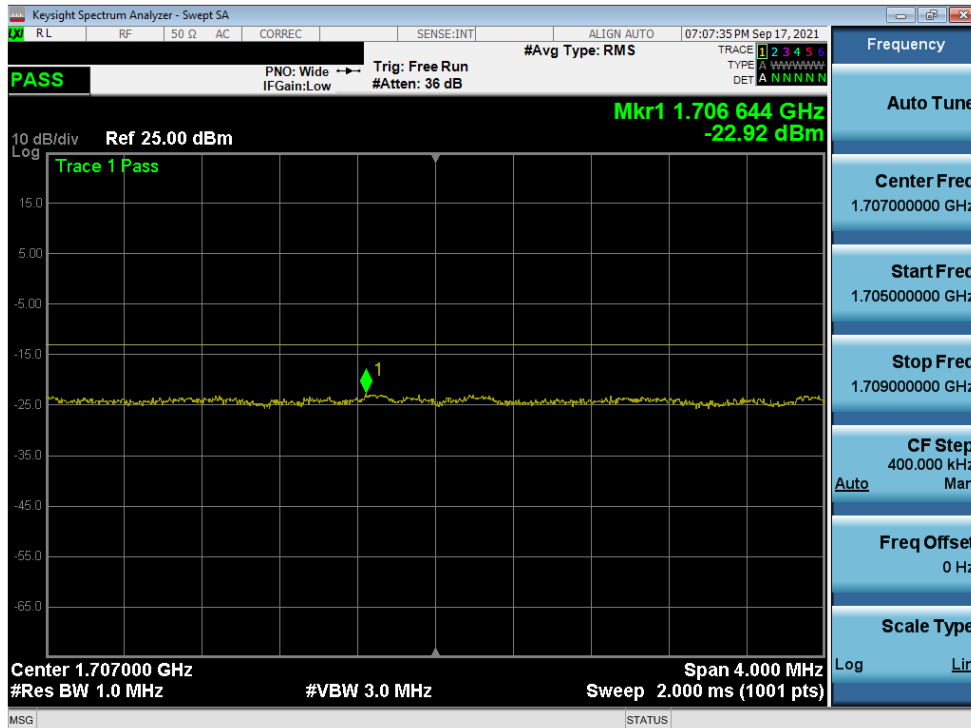


Plot 7-352. Conducted Spurious Plot (ULCA LTE Band 66 High Channel)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 212 of 253

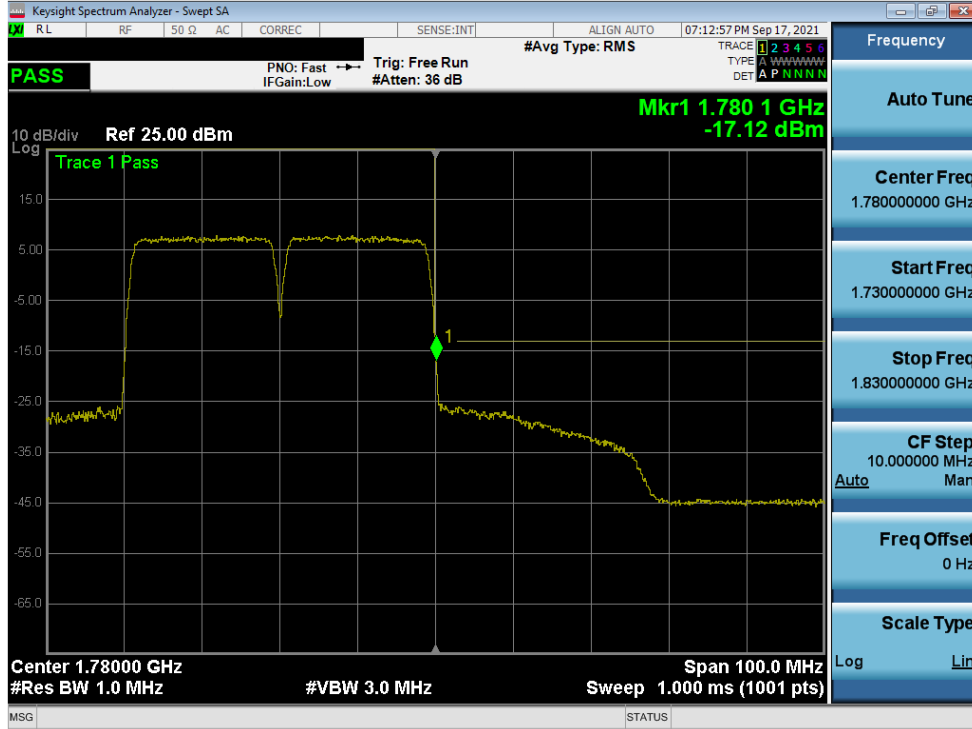


Plot 7-353. Lower Band Edge Plot (ULCA LTE Band 66)

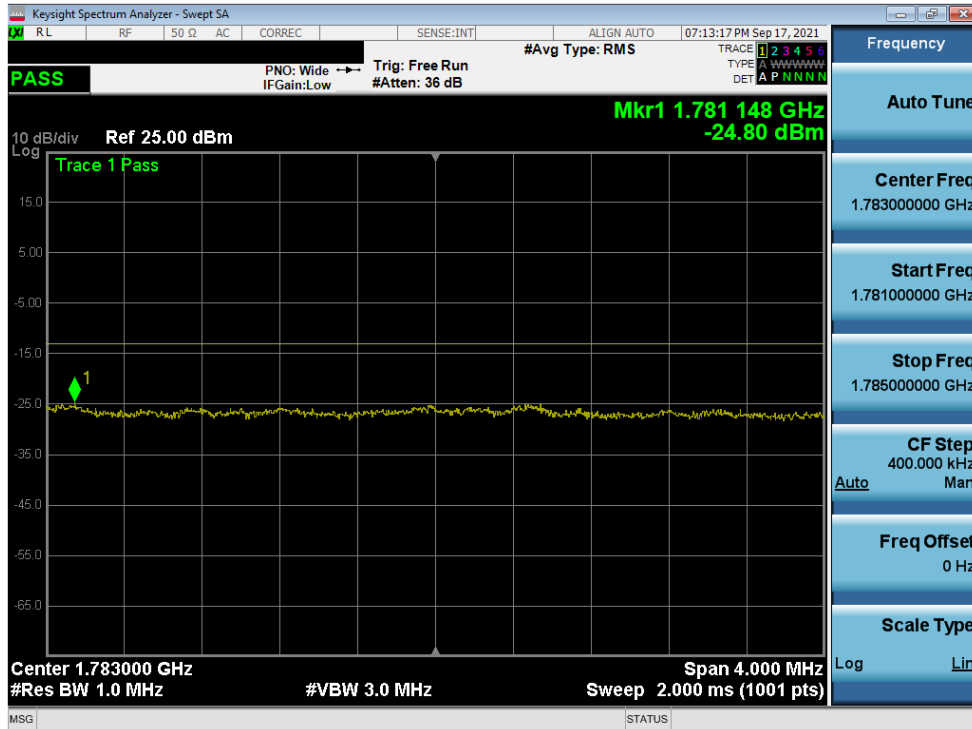


Plot 7-354. Lower Extended Band Edge Plot (ULCA LTE Band 66)




FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 213 of 253



Plot 7-355. Upper Band Edge Plot (ULCA LTE Band 66)



Plot 7-356. Upper Extended Band Edge Plot (ULCA LTE Band 66)

FCC ID: A3LSMS906U	 PCTEST Proud to be part of 	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 214 of 253

7.9 Radiated Spurious Emissions Measurements

Test Overview

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



Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.8

ANSI/TIA-603-E-2016 – Section 2.2.12

Test Settings

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

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Test Setup

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

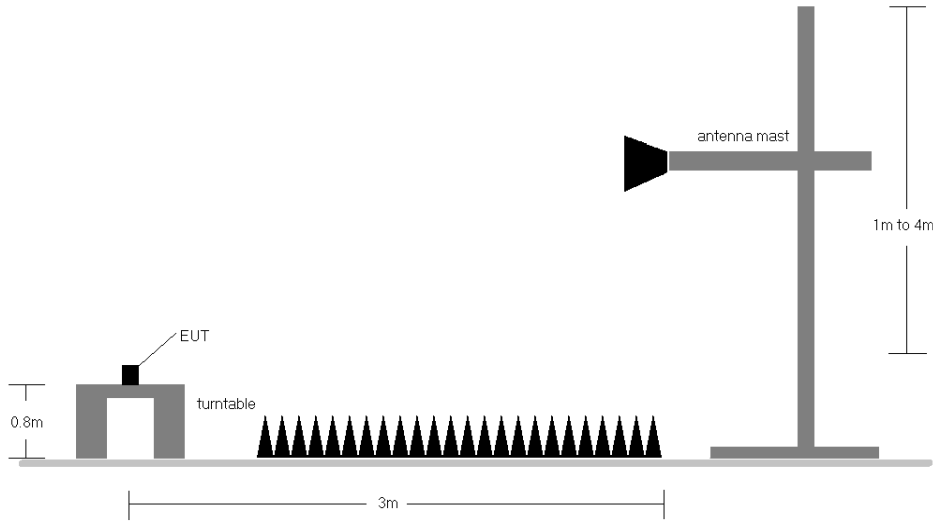


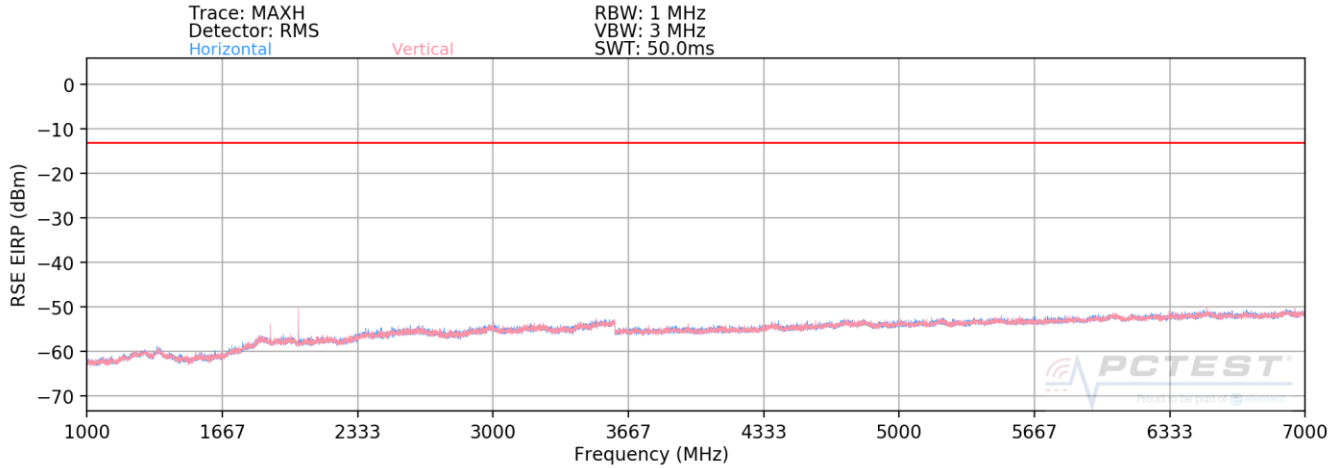
Figure 7-9. Test Instrument & Measurement Setup

Test Notes

- 1) Field strengths are calculated using the Measurement quantity conversions in KDB 971168 Section 5.8.4.
 - a) $E(\text{dB}\mu\text{V}/\text{m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$
 - b) $\text{EIRP (dBm)} = E(\text{dB}\mu\text{V}/\text{m}) + 20\log D - 104.8$; where D is the measurement distance in meters.
- 2) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 3) This unit was tested with its standard battery.
- 4) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 5) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 6) The "-" shown in the following RSE tables are used to denote a noise floor measurement.
- 7) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.
- 8) Spurious emissions shown in this section are measured while operating in EN-DC mode with Sub 6GHz NR carrier as well as an LTE carrier (anchor). Spurious emissions from the NR carrier device, is subject to the rules under which the NR carrier operates. Spurious emission caused by the LTE carrier must meet the requirements of the rules under which the LTE carrier operates.
- 9) Spurious emissions measurements are included in this section to address compliance of the NR FR1 ULCA capability. The EUT was set to transmit at the widest bandwidth and on the middle channel of each band.

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LTE Band 71



Plot 7-357. Radiated Spurious Plot (LTE Band 71)

Bandwidth (MHz):	20
Frequency (MHz):	673
RB / Offset:	1 / 50



Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1346.0	H	339	341	-76.98	-1.31	28.71	-66.54	-13.00	-53.54
2019.0	H	150	46	-67.14	1.06	40.92	-54.33	-13.00	-41.33
2692.0	H	-	-	-78.31	2.46	31.15	-64.10	-13.00	-51.10
3365.0	H	-	-	-78.44	3.17	31.73	-63.53	-13.00	-50.53
4038.0	H	-	-	-79.17	4.11	31.94	-63.32	-13.00	-50.32

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

Bandwidth (MHz):	20
Frequency (MHz):	680.5
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1361.0	H	120	23	-77.02	-1.30	28.68	-66.58	-13.00	-53.58
2041.5	H	191	40	-66.87	0.77	40.90	-54.36	-13.00	-41.36
2722.0	H	-	-	-78.18	2.35	31.17	-64.09	-13.00	-51.09
3402.5	H	-	-	-78.29	3.01	31.72	-63.54	-13.00	-50.54
4083.0	H	-	-	-79.54	4.51	31.97	-63.28	-13.00	-50.28



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

FCC ID: A3LSMS906U	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 217 of 253

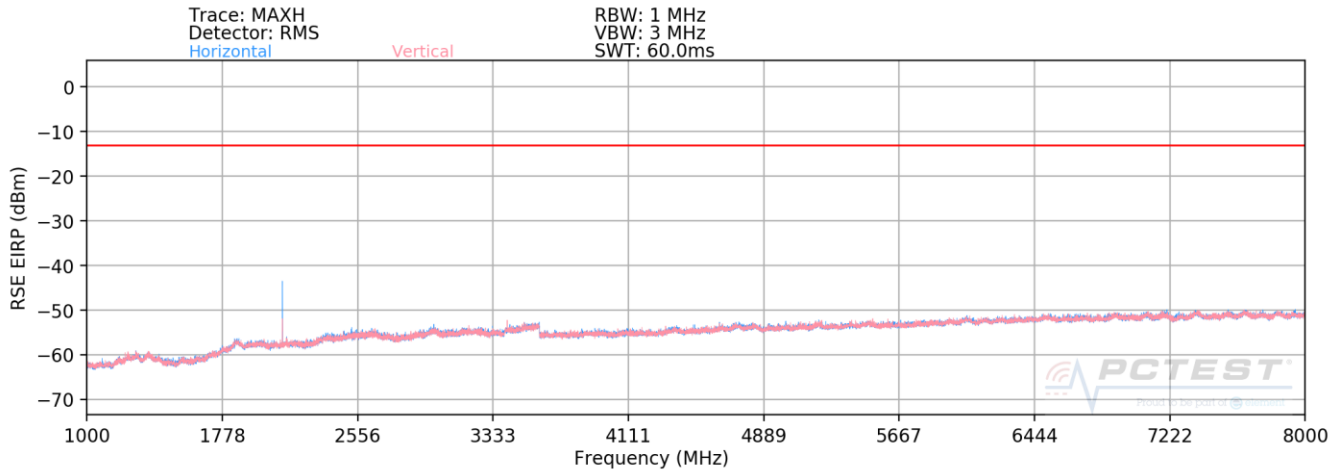
Bandwidth (MHz):	20
Frequency (MHz):	688
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1376.0	H	291	86	-77.41	-1.63	27.96	-67.30	-13.00	-54.30
2064.0	H	399	139	-64.87	0.75	42.88	-52.37	-13.00	-39.37
2752.0	H	-	-	-77.75	1.94	31.19	-64.07	-13.00	-51.07
3440.0	H	-	-	-78.23	3.05	31.82	-63.44	-13.00	-50.44
4128.0	H	-	-	-78.38	4.29	32.91	-62.35	-13.00	-49.35

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

FCC ID: A3LSMS906U	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset
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LTE Band 12



Plot 7-358. Radiated Spurious Plot (LTE Band 12)

Bandwidth (MHz):	10
Frequency (MHz):	704
RB / Offset:	1 / 25



Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1408.0	H	174	356	-75.28	-2.31	29.41	-65.84	-13.00	-52.84
2112.0	H	151	18	-58.82	0.99	49.17	-46.09	-13.00	-33.09
2816.0	H	-	-	-78.06	2.24	31.18	-64.08	-13.00	-51.08
3520.0	H	-	-	-78.44	3.67	32.23	-63.03	-13.00	-50.03
4224.0	H	-	-	-78.32	4.07	32.75	-62.51	-13.00	-49.51

Table 7-18. Radiated Spurious Data (LTE Band 12 – Low Channel)

Bandwidth (MHz):	10
Frequency (MHz):	707.5
RB / Offset:	1 / 25

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1415.0	H	-	-	-77.03	-2.37	27.60	-67.65	-13.00	-54.65
2122.5	H	149	27	-56.20	1.04	51.84	-43.42	-13.00	-30.42
2830.0	H	-	-	-78.05	2.14	31.09	-64.16	-13.00	-51.16
3537.5	H	-	-	-78.75	3.77	32.02	-63.24	-13.00	-50.24
4245.0	H	-	-	-78.59	4.21	32.62	-62.64	-13.00	-49.64



Table 7-19. Radiated Spurious Data (LTE Band 12 – Mid Channel)

FCC ID: A3LSMS906U	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 219 of 253

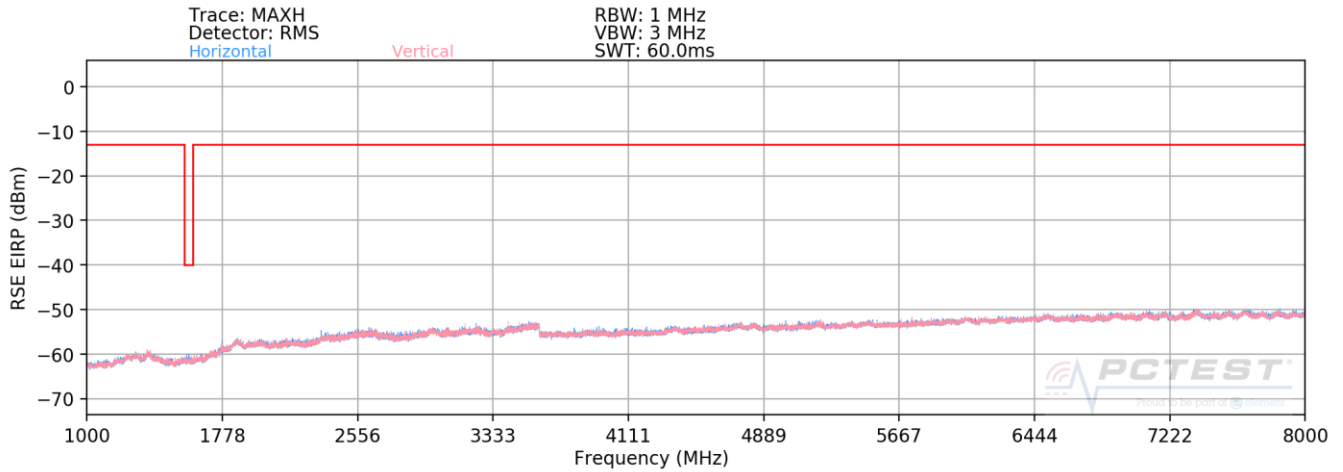
Bandwidth (MHz):	10
Frequency (MHz):	711
RB / Offset:	1 / 25

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1422.0	H	223	49	-74.82	-2.45	29.73	-65.53	-13.00	-52.53
2133.0	H	129	27	-54.40	1.09	53.69	-41.56	-13.00	-28.56
2844.0	H	-	-	-78.31	2.20	30.89	-64.37	-13.00	-51.37
3555.0	H	-	-	-78.78	3.70	31.92	-63.34	-13.00	-50.34
4266.0	H	-	-	-79.08	4.36	32.28	-62.98	-13.00	-49.98

Table 7-20. Radiated Spurious Data (LTE Band 12 – High Channel)

FCC ID: A3LSMS906U	 PCTEST® Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 220 of 253

LTE Band 13





Plot 7-359. Radiated Spurious Plot (LTE Band 13)

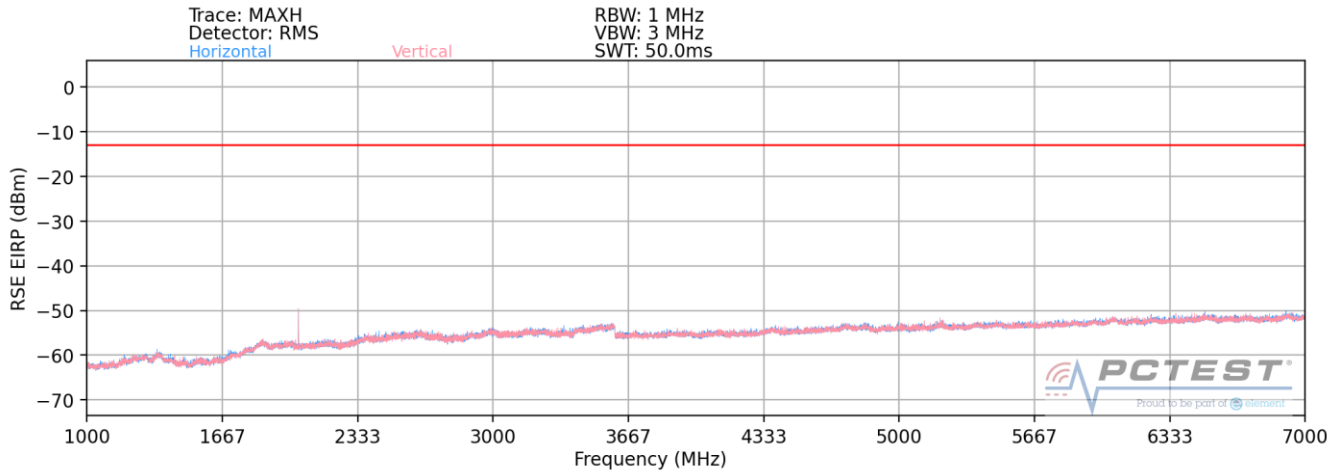
Bandwidth (MHz):	10
Frequency (MHz):	782
RB / Offset:	1 / 25

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1564.0	H	-	-	-76.84	-2.53	27.63	-67.63	-40.00	-27.63
2346.0	H	-	-	-77.45	1.88	31.43	-63.83	-13.00	-50.83
3128.0	H	-	-	-77.82	3.14	32.32	-62.94	-13.00	-49.94
3910.0	H	-	-	-78.69	4.29	32.60	-62.65	-13.00	-49.65

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

FCC ID: A3LSMS906U	 PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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NR Band n71



Plot 7-360. Radiated Spurious Plot (NR Band n71)

Bandwidth (MHz):	20
Frequency (MHz):	673
RB / Offset:	1 / 53
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1346.0	H	118	90	-75.69	-1.31	30.00	-65.25	-13.00	-52.25
2019.0	H	115	221	-65.31	1.06	42.75	-52.50	-13.00	-39.50
2692.0	H	-	-	-77.06	2.46	32.40	-62.85	-13.00	-49.85
3365.0	H	-	-	-77.41	3.17	32.76	-62.50	-13.00	-49.50
4038.0	H	-	-	-78.33	4.11	32.78	-62.48	-13.00	-49.48

Table 7-22. Radiated Spurious Data (NR Band n71 – Low Channel)

Bandwidth (MHz):	20
Frequency (MHz):	680.5
RB / Offset:	1 / 53
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1361.0	H	-	-	-76.35	-1.30	29.35	-65.91	-13.00	-52.91
2041.5	H	127	222	-63.21	0.77	44.56	-50.70	-13.00	-37.70
2722.0	H	-	-	-77.08	2.35	32.27	-62.99	-13.00	-49.99
3402.5	H	-	-	-77.22	3.01	32.79	-62.47	-13.00	-49.47
4083.0	H	-	-	-78.41	4.51	33.10	-62.15	-13.00	-49.15




Table 7-23. Radiated Spurious Data (NR Band n71 – Mid Channel)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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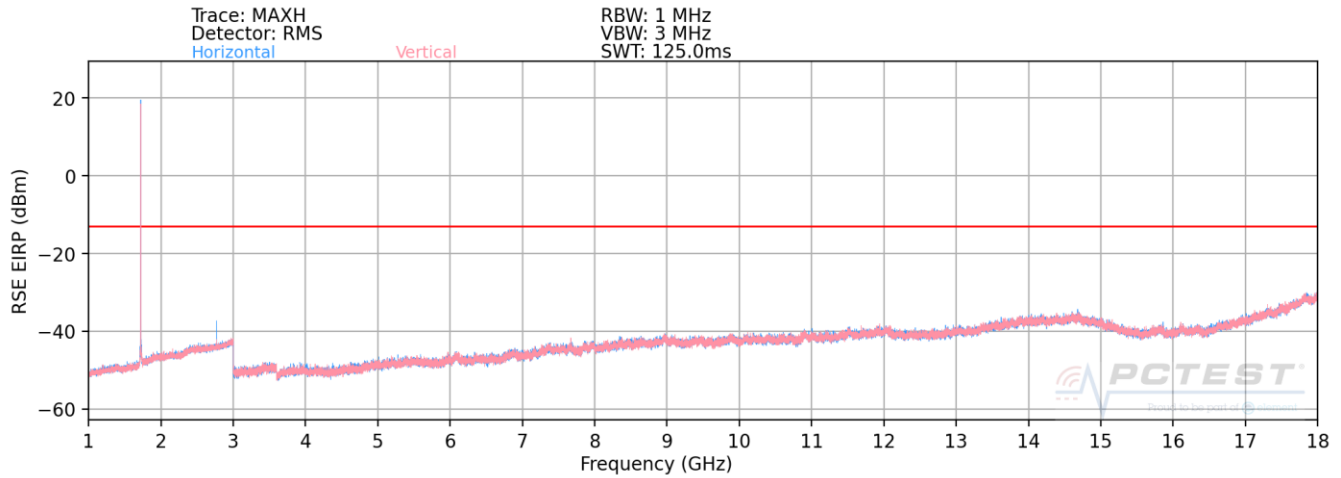
Bandwidth (MHz):	20
Frequency (MHz):	688
RB / Offset:	1 / 53
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1376.0	H	-	-	-76.32	-1.63	29.05	-66.21	-13.00	-53.21
2064.0	H	166	213	-64.40	0.75	43.35	-51.90	-13.00	-38.90
2752.0	H	-	-	-76.92	1.94	32.02	-63.24	-13.00	-50.24
3440.0	H	-	-	-77.24	3.05	32.81	-62.45	-13.00	-49.45
4128.0	H	-	-	-77.78	4.29	33.51	-61.75	-13.00	-48.75

Table 7-24. Radiated Spurious Data (NR Band n71 – High Channel)

FCC ID: A3LSMS906U	 PCTEST Proud to be part of  element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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NR Band n71 – B66





Plot 7-361. Radiated Spurious Plot (NR Band n71 – B66)

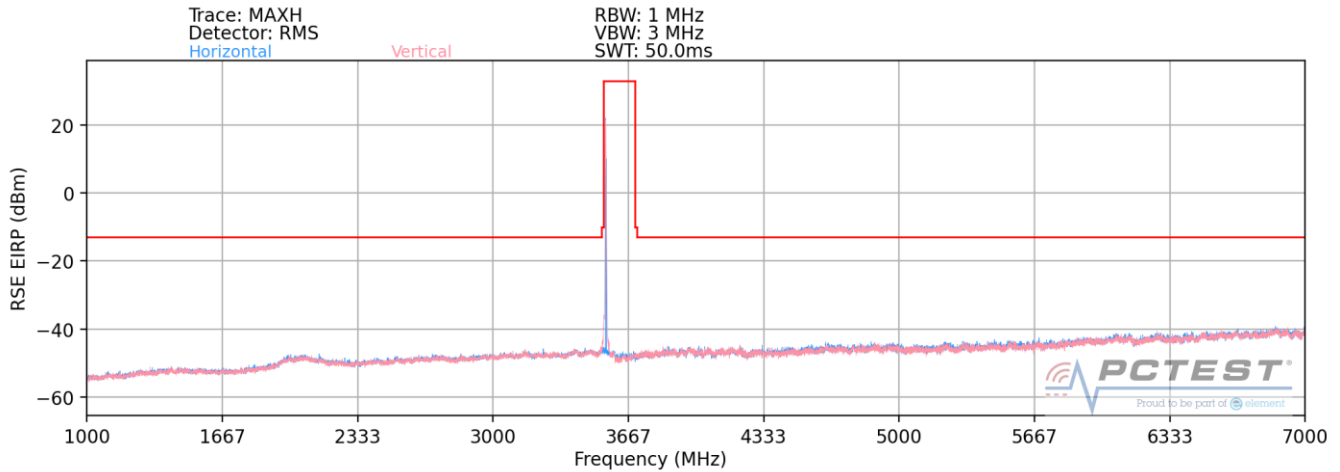
Bandwidth (MHz):	20 / 20
Frequency (MHz):	673 / 1720
RB / Offset:	1 / 53 & 1 / 50
Mode:	EN-DC
Anchor Band:	66

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
2393.0	H	-	-	-65.32	6.77	48.45	-46.81	-13.00	-33.81
2767.0	H	-	-	-65.03	7.51	49.48	-45.78	-13.00	-32.78
3066.0	H	-	-	-65.02	9.14	51.12	-44.14	-13.00	-31.14
3440.0	H	-	-	-63.91	9.82	52.91	-42.34	-13.00	-29.34
4113.0	H	-	-	-70.66	11.74	48.08	-47.18	-13.00	-34.18
5908.0	H	-	-	-71.08	14.94	50.86	-44.40	-13.00	-31.40

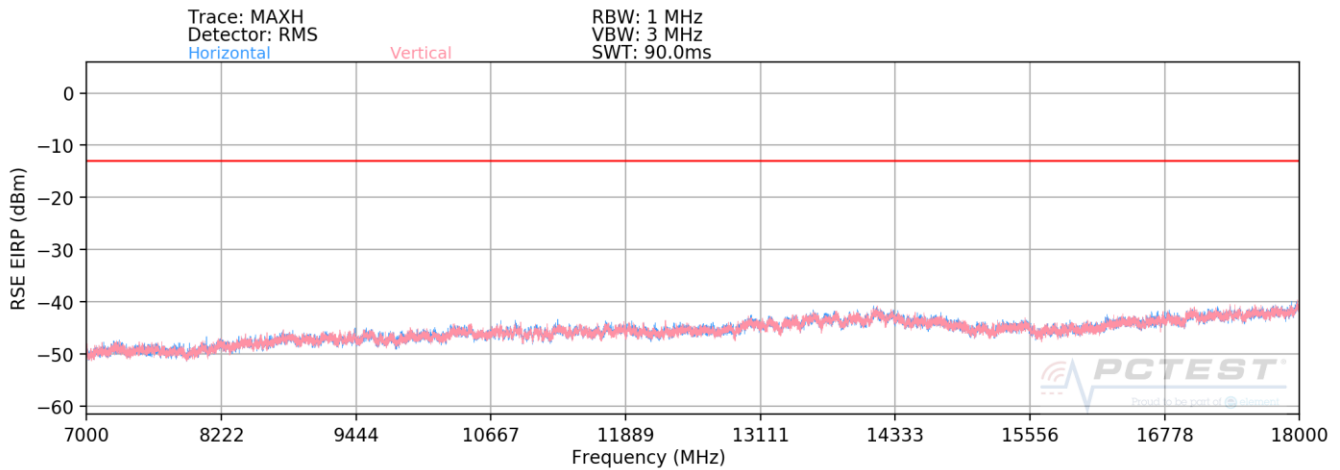
Table 7-25. Radiated Spurious Data (NR Band n71 – B66)

FCC ID: A3LSMS906U	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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NR Band n71 – B48



Plot 7-362. Radiated Spurious Plot (NR Band n71 – B48)



Plot 7-363. Radiated Spurious Plot (NR Band n71 – B48)

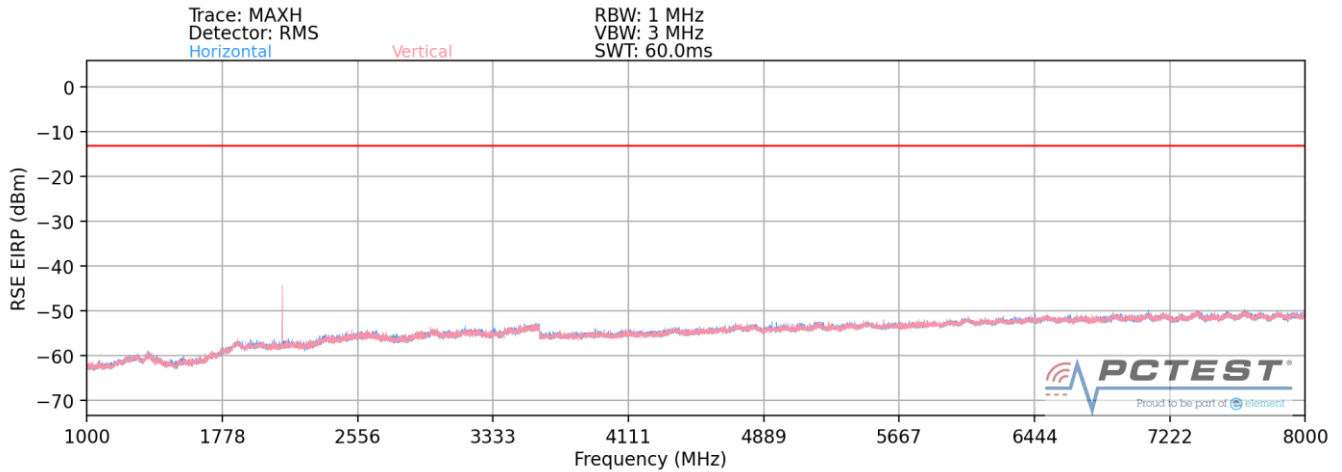
Bandwidth (MHz):	20 / 20
Frequency (MHz):	680.5 / 3625
RB / Offset:	1 / 53 & 1 / 50
Mode:	EN-DC
Anchor Band:	B48

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
2214.0	H	-	-	-67.73	3.13	42.40	-52.86	-13.00	-39.86
5101.0	H	-	-	-71.83	1.07	36.24	-59.02	-13.00	-46.02
6447.0	H	-	-	-72.36	4.14	38.78	-56.48	-13.00	-43.48
7988.0	H	-	-	-73.27	6.56	40.29	-54.97	-13.00	-41.97
10875.0	H	-	-	-75.16	10.34	42.18	-53.08	-13.00	-40.08
12221.0	H	-	-	-75.18	11.01	42.83	-52.43	-13.00	-39.43

Table 7-26. Radiated Spurious Data (NR Band n71 – B48)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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NR Band n12



Plot 7-364. Radiated Spurious Plot (NR Band n12)

Bandwidth (MHz):	15
Frequency (MHz):	706.5
RB / Offset:	1 / 39
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1413.0	V	167	210	-73.97	-2.35	30.68	-64.57	-13.00	-51.57
2119.5	V	111	142	-58.81	1.02	49.21	-46.04	-13.00	-33.04
2826.0	V	-	-	-77.11	2.18	32.07	-63.19	-13.00	-50.19
3532.5	V	-	-	-77.54	3.77	33.23	-62.03	-13.00	-49.03
4239.0	V	-	-	-77.61	4.12	33.51	-61.74	-13.00	-48.74

Table 7-27. Radiated Spurious Data (NR Band n12 – Low Channel)

Bandwidth (MHz):	15
Frequency (MHz):	707.5
RB / Offset:	1 / 39
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1415.0	V	134	142	-73.37	-2.37	31.26	-63.99	-13.00	-50.99
2122.5	V	168	278	-56.75	1.04	51.29	-43.97	-13.00	-30.97
2830.0	V	-	-	-77.30	2.14	31.84	-63.41	-13.00	-50.41
3537.5	V	-	-	-77.78	3.77	32.99	-62.27	-13.00	-49.27
4245.0	V	-	-	-77.75	4.21	33.46	-61.80	-13.00	-48.80



Table 7-28. Radiated Spurious Data (NR Band n12 – Mid Channel)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 226 of 253

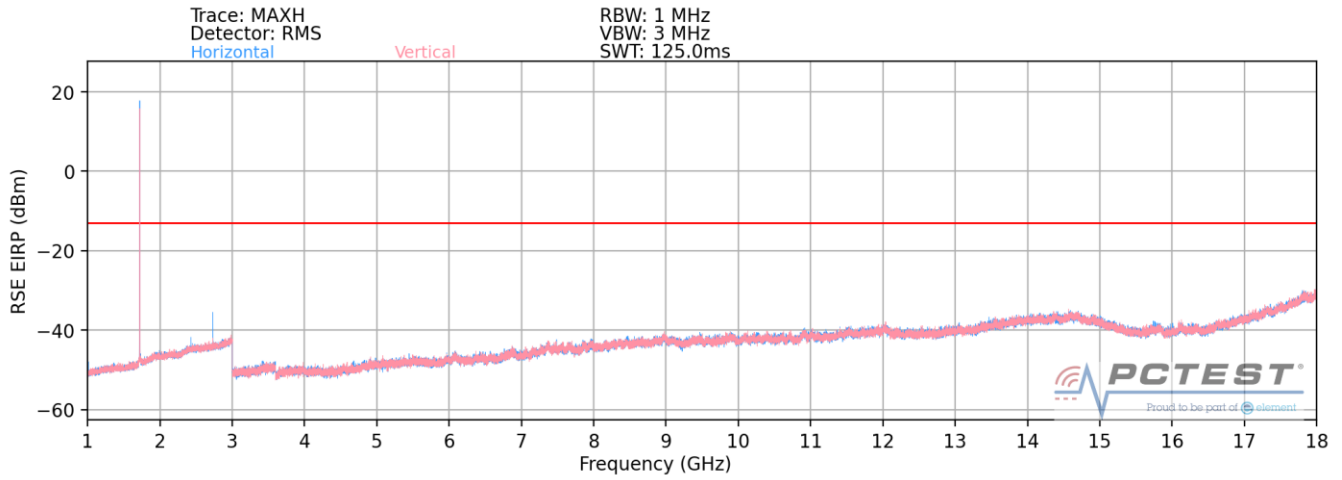
Bandwidth (MHz):	15
Frequency (MHz):	708.5
RB / Offset:	1 / 39
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1417.0	V	176	307	-73.49	-2.39	31.12	-64.14	-13.00	-51.14
2125.5	V	168	278	-56.76	1.05	51.29	-43.97	-13.00	-30.97
2834.0	V	-	-	-77.24	2.14	31.90	-63.36	-13.00	-50.36
3542.5	V	-	-	-77.51	3.76	33.25	-62.01	-13.00	-49.01
4251.0	V	-	-	-77.74	4.29	33.55	-61.71	-13.00	-48.71

Table 7-29. Radiated Spurious Data (NR Band n12 – High Channel)

FCC ID: A3LSMS906U	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset
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NR Band n12 – B66



Plot 7-365. Radiated Spurious Plot (NR Band n12 – B66)

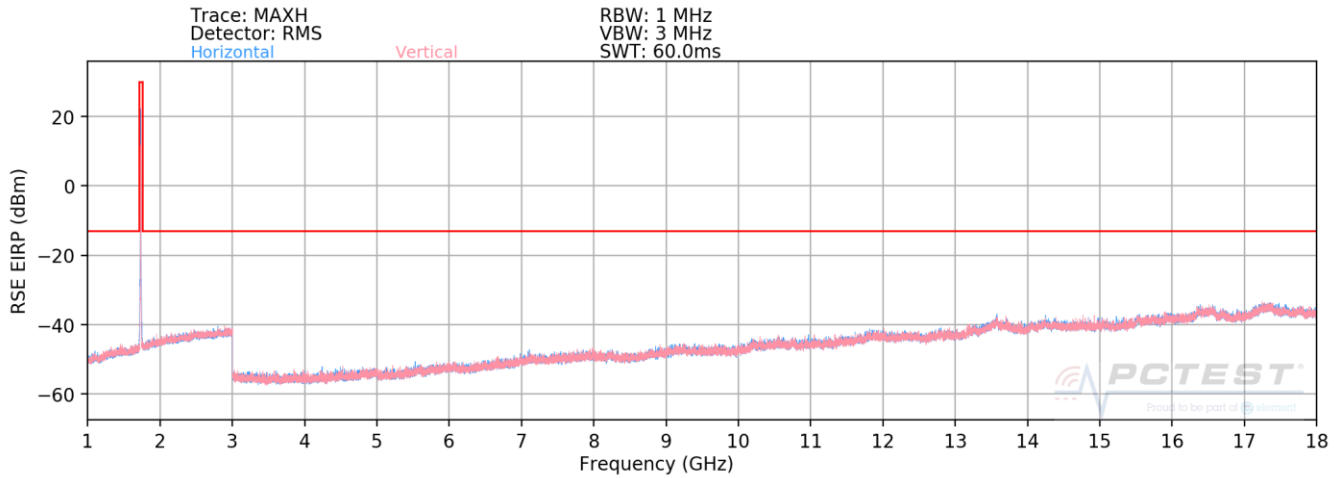
Bandwidth (MHz):	20 / 20
Frequency (MHz):	704 / 1745
RB / Offset:	1 / 53 & 1 / 50
Mode:	EN-DC
Anchor Band:	66

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
2344.0	H	-	-	-46.49	7.21	67.72	-27.54	-13.00	-14.54
2736.0	H	-	-	-46.58	8.23	68.65	-26.61	-13.00	-13.61
3752.0	H	-	-	-53.11	2.05	55.94	-39.31	-13.00	-26.31
4768.0	H	-	-	-52.02	2.41	57.39	-37.86	-13.00	-24.86
5784.0	H	-	-	-53.21	3.49	57.28	-37.98	-13.00	-24.98

Table 7-30. Radiated Spurious Data (NR Band n12 – B66)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset	Page 228 of 253	

WCDMA AWS



Plot 7-366. Radiated Spurious Plot (WCDMA AWS)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3424.8	H	-	-	-80.21	7.23	34.02	-61.23	-13.00	-48.23
5137.2	H	-	-	-81.22	10.07	35.85	-59.40	-13.00	-46.40
6849.6	H	-	-	-82.55	14.03	38.48	-56.78	-13.00	-43.78
8562.0	H	-	-	-83.75	17.07	40.32	-54.94	-13.00	-41.94
10274.4	H	-	-	-83.93	19.91	42.98	-52.27	-13.00	-39.27
11986.8	H	-	-	-84.01	22.75	45.74	-49.52	-13.00	-36.52

7-31. Radiated Spurious Data (WCDMA AWS – Low Channel)

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

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3465.2	H	-	-	-80.43	7.16	33.73	-61.52	-13.00	-48.52
5197.8	H	-	-	-81.99	10.38	35.39	-59.87	-13.00	-46.87
6930.4	H	-	-	-82.31	13.68	38.37	-56.88	-13.00	-43.88
8663.0	H	-	-	-83.97	17.73	40.76	-54.50	-13.00	-41.50
10395.6	H	-	-	-83.74	20.05	43.31	-51.95	-13.00	-38.95
12128.2	H	-	-	-84.31	23.44	46.13	-49.13	-13.00	-36.13



Table 7-32. Radiated Spurious Data (WCDMA AWS – Mid Channel)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M210909103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 229 of 253

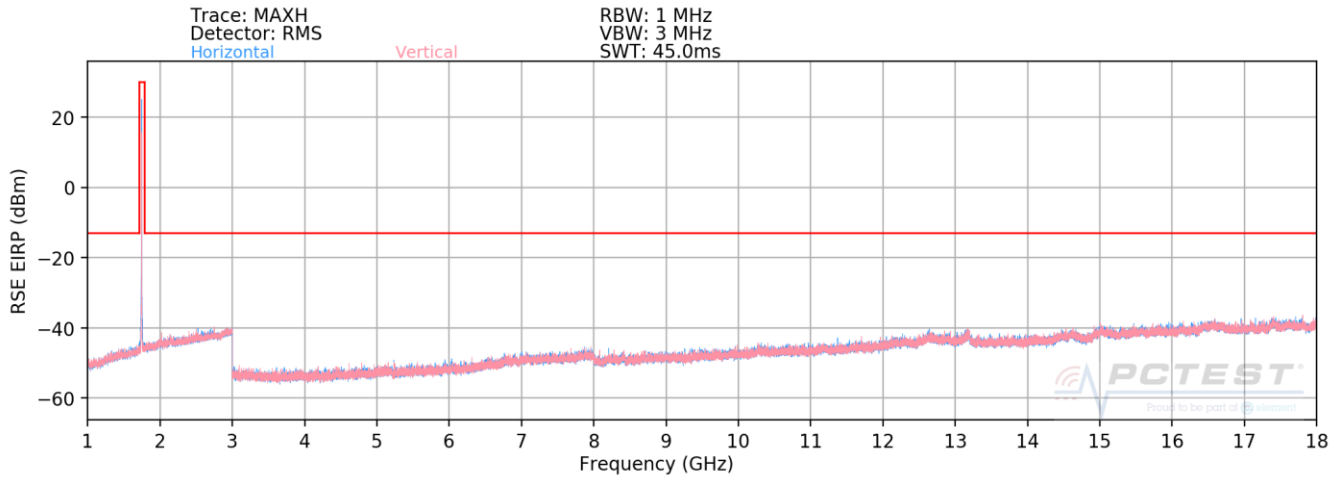
Mode:	WCDMA RMC
Channel:	1513
Frequency (MHz):	1752.6

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3505.2	H	-	-	-80.29	7.36	34.07	-61.19	-13.00	-48.19
5257.8	H	-	-	-81.56	10.50	35.94	-59.32	-13.00	-46.32
7010.4	H	-	-	-82.33	14.46	39.13	-56.13	-13.00	-43.13
8763.0	H	-	-	-83.50	17.26	40.76	-54.49	-13.00	-41.49
10515.6	H	-	-	-83.99	20.27	43.28	-51.98	-13.00	-38.98
12268.2	H	-	-	-84.17	23.31	46.14	-49.11	-13.00	-36.11

Table 7-33. Radiated Spurious Data (WCDMA AWS – High Channel)

FCC ID: A3LSMS906U	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset	Page 230 of 253	

LTE Band 66/4



Plot 7-367. Radiated Spurious Plot (LTE Band 66/4)

Bandwidth (MHz):	20
Frequency (MHz):	1720
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3440.0	H	-	-	-79.02	7.23	35.21	-60.05	-13.00	-47.05
5160.0	H	251	9	-76.94	10.05	40.11	-55.15	-13.00	-42.15
6880.0	H	-	-	-79.89	13.82	40.93	-54.32	-13.00	-41.32
8600.0	H	-	-	-80.27	16.92	43.65	-51.61	-13.00	-38.61
10320.0	H	-	-	-80.93	19.62	45.69	-49.57	-13.00	-36.57

Table 7-34. Radiated Spurious Data (LTE Band 66/4 – Low Channel)

Bandwidth (MHz):	20
Frequency (MHz):	1745
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3490.0	H	-	-	-78.29	7.09	35.80	-59.46	-13.00	-46.46
5235.0	H	101	38	-74.51	10.20	42.69	-52.57	-13.00	-39.57
6980.0	H	-	-	-79.53	14.41	41.88	-53.38	-13.00	-40.38
8725.0	H	-	-	-80.52	16.93	43.41	-51.85	-13.00	-38.85
10470.0	H	-	-	-81.38	20.07	45.69	-49.57	-13.00	-36.57




Table 7-35. Radiated Spurious Data (LTE Band 66/4 – Mid Channel)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset	Page 231 of 253	

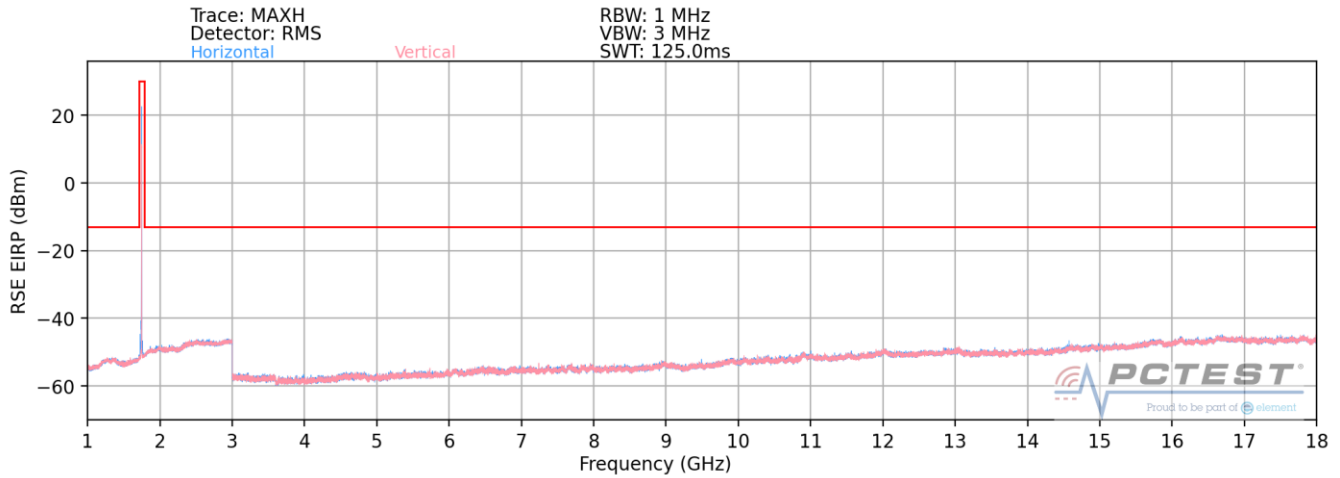
Bandwidth (MHz):	20
Frequency (MHz):	1770
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3540.0	H	-	-	-78.43	7.69	36.26	-58.99	-13.00	-45.99
5310.0	H	100	29	-73.83	10.75	43.92	-51.34	-13.00	-38.34
7080.0	H	-	-	-80.07	14.63	41.56	-53.70	-13.00	-40.70
8850.0	H	-	-	-81.30	17.14	42.84	-52.42	-13.00	-39.42
10620.0	H	-	-	-81.79	20.34	45.55	-49.71	-13.00	-36.71

Table 7-36. Radiated Spurious Data (LTE Band 66/4 – High Channel)

FCC ID: A3LSMS906U	 PCTEST Proud to be part of  element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 232 of 253

NR Band n66 – Ant A



Plot 7-368. Radiated Spurious Plot (NR Band n66 – Ant A)

Bandwidth (MHz):	40
Frequency (MHz):	1730.0
RB / Offset:	1 / 108
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3460.0	H	-	-	-77.62	4.25	33.63	-61.63	-13.00	-48.63
5190.0	H	-	-	-78.38	6.77	35.39	-59.87	-13.00	-46.87
6920.0	H	-	-	-79.43	8.61	36.18	-59.08	-13.00	-46.08
8650.0	H	-	-	-80.45	10.32	36.87	-58.39	-13.00	-45.39

Table 7-37. Radiated Spurious Data (NR Band n66 – Low Channel – Ant A)

Bandwidth (MHz):	40
Frequency (MHz):	1745.0
RB / Offset:	1 / 108
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3490.0	H	-	-	-77.27	4.31	34.04	-61.22	-13.00	-48.22
5235.0	H	242	71	-77.57	6.83	36.26	-59.00	-13.00	-46.00
6980.0	H	-	-	-79.09	8.50	36.41	-58.84	-13.00	-45.84
8725.0	H	-	-	-79.67	10.48	37.81	-57.45	-13.00	-44.45
10470.0	H	-	-	-80.95	12.50	38.55	-56.71	-13.00	-43.71

Table 7-38. Radiated Spurious Data (NR Band n66 – Mid Channel – Ant A)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 233 of 253

Bandwidth (MHz):	40
Frequency (MHz):	1760.0
RB / Offset:	1 / 108
Mode:	Stand Alone



Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3520.0	H	-	-	-77.33	4.21	33.88	-61.37	-13.00	-48.37
5280.0	H	-	-	-78.65	6.87	35.22	-60.03	-13.00	-47.03
7040.0	H	-	-	-79.26	9.13	36.87	-58.39	-13.00	-45.39
8800.0	H	-	-	-79.43	10.69	38.26	-57.00	-13.00	-44.00

Table 7-39. Radiated Spurious Data (NR Band n66 – High Channel – Ant A)

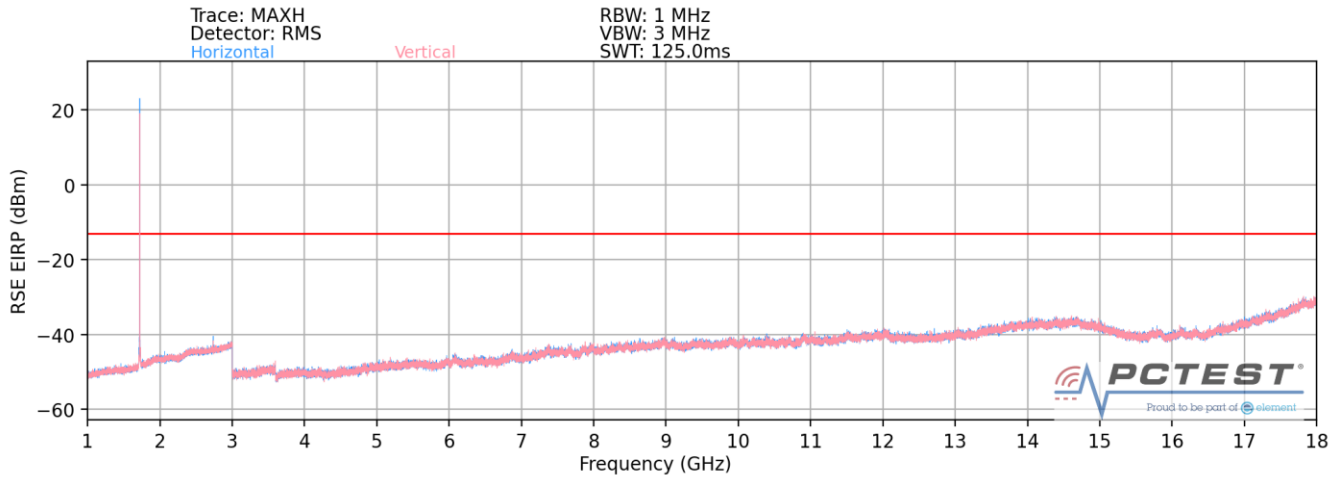
Case:	w/ Wireless Charging Pad
Bandwidth (MHz):	40
Frequency (MHz):	1745
RB / Offset:	1 / 108
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3490.0	H	-	-	-77.29	4.31	34.02	-61.24	-13.00	-48.24
5235.0	H	-	-	-78.84	6.83	34.99	-60.27	-13.00	-47.27
6980.0	H	-	-	-79.09	8.50	36.41	-58.84	-13.00	-45.84
8725.0	H	-	-	-79.63	10.48	37.85	-57.41	-13.00	-44.41

Table 7-40. Radiated Spurious Data with WCP (NR Band n66 – Ant A)

FCC ID: A3LSMS906U	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset
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NR Band n66 – B12



Plot 7-369. Radiated Spurious Plot (NR Band n66 – B12)

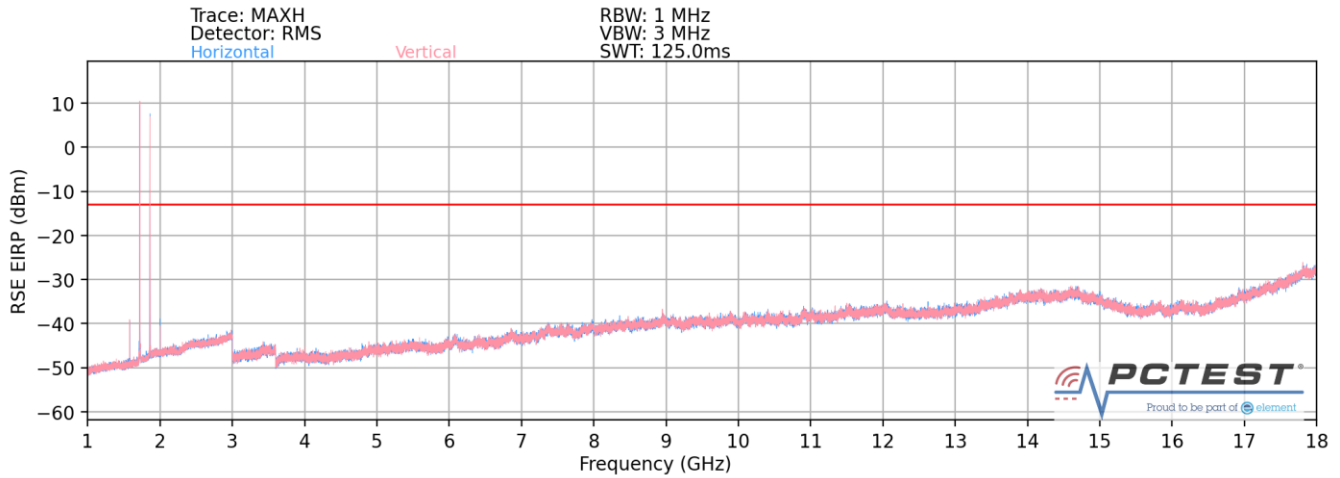
Bandwidth (MHz):	40 / 20
Frequency (MHz):	1720 / 707.5
RB / Offset:	1 / 108 & 1 / 20
Mode:	EN-DC
Anchor Band:	12

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
2344.0	H	-	-	-46.83	7.21	67.38	-27.88	-13.00	-14.88
2736.0	H	-	-	-46.21	8.23	69.02	-26.24	-13.00	-13.24
3752.0	H	-	-	-57.18	2.05	51.87	-43.38	-13.00	-30.38
4768.0	H	-	-	-55.23	2.41	54.18	-41.07	-13.00	-28.07
5784.0	H	-	-	-56.07	3.49	54.42	-40.84	-13.00	-27.84

Table 7-41. Radiated Spurious Data (NR Band n66 – B12)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 235 of 253

NR Band n66 – B2



Plot 7-370. Radiated Spurious Plot (NR Band n66 – B2)

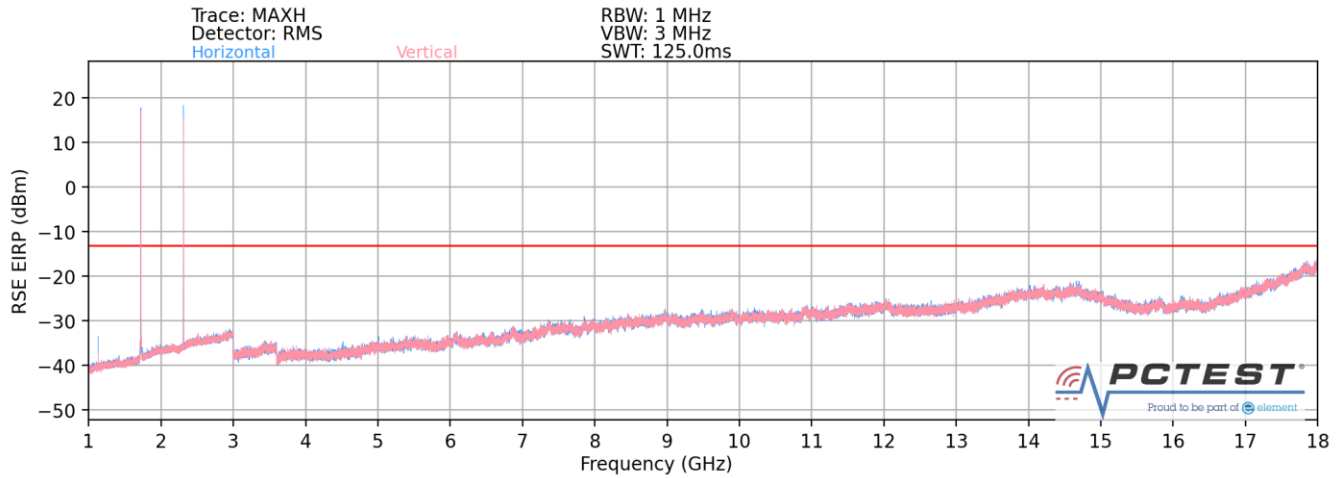
Bandwidth (MHz):	20 / 20
Frequency (MHz):	1720 / 1860
RB / Offset:	1 / 53 & 1 / 50
Mode:	EN-DC
Anchor Band:	2

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1580.0	H	194	47	-43.13	2.98	66.85	-28.40	-13.00	-15.40
2000.0	H	204	57	-43.98	5.47	68.49	-26.77	-13.00	-13.77
2140.0	H	-	-	-51.76	5.89	61.13	-34.12	-13.00	-21.12
2280.0	H	-	-	-51.51	5.75	61.24	-34.01	-13.00	-21.01
2420.0	H	-	-	-50.40	6.80	63.40	-31.86	-13.00	-18.86

Table 7-42. Radiated Spurious Data (NR Band n66 – B2)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 236 of 253

NR Band n66 – B30



Plot 7-371. Radiated Spurious Plot (NR Band n66 – B30)

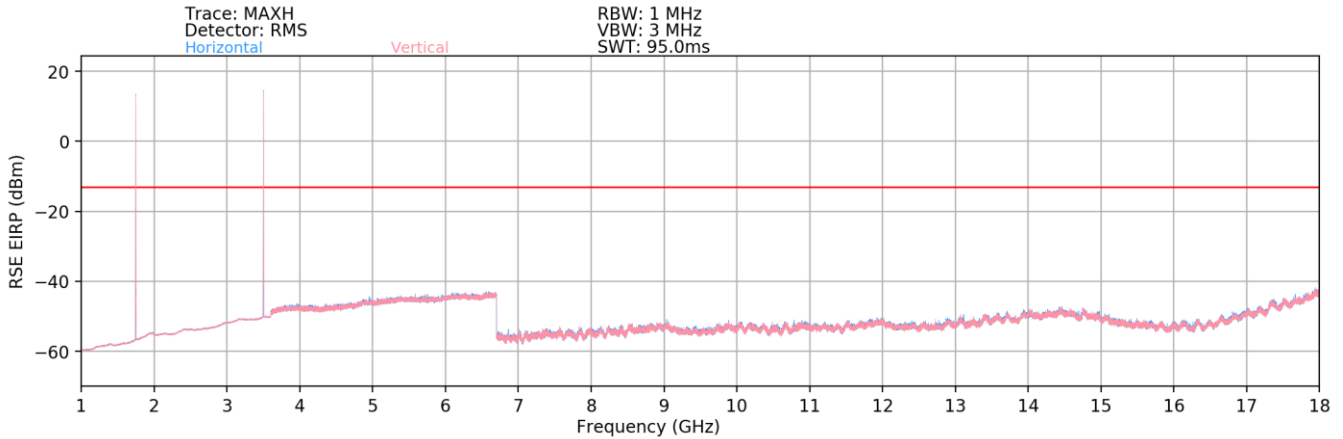
Bandwidth (MHz):	40
Frequency (MHz):	1745.0
RB / Offset:	1 / 108
Mode:	EN-DC
Anchor Band:	30

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1180.0	V	-	-	-77.05	4.89	34.84	-60.41	-13.00	-47.41
2875.0	V	-	-	-77.91	10.90	39.99	-55.26	-13.00	-42.26
3490.0	V	147	224	-73.41	11.26	44.85	-50.40	-13.00	-37.40
4005.0	V	-	-	-79.34	12.38	40.04	-55.21	-13.00	-42.21
6980.0	V	294	12	-74.76	8.92	41.16	-54.09	-13.00	-41.09
14233.0	V	-	-	-82.36	15.25	39.89	-55.36	-13.00	-42.36

Table 7-43. Radiated Spurious Data (NR Band n66 – B30)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 237 of 253

NR FR1 ULCA: NR n66 - n77



Plot 7-372. Radiated Spurious Plot (NR Band n66 – n77)

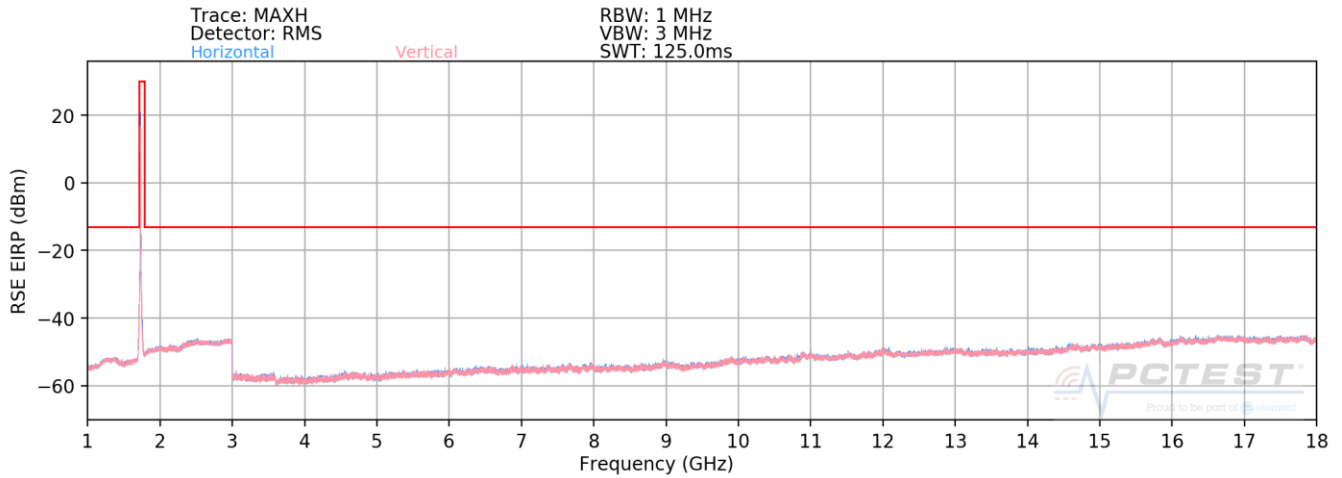
PCC Bandwidth (MHz):	40
PCC Frequency (MHz):	1745.0
PCC RB / Offset:	1/108
SCC Bandwidth (MHz):	100
SCC Frequency (MHz):	3500.0
SCC RB / Offset:	1/108
Detector / Trace Mode:	RMS / Average
RBW / VBW:	100kHz / 300kHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1755.00	H	-	-	-75.36	4.07	35.71	-59.55	-13.00	-46.55
3510.00	H	-	-	-66.33	10.27	50.94	-44.31	-13.00	-31.31
5245.00	H	-	-	-64.66	7.64	49.98	-45.28	-13.00	-32.28
5255.00	H	-	-	-68.36	14.35	52.99	-42.27	-13.00	-29.27
8735.00	H	-	-	-84.27	20.48	43.21	-52.05	-13.00	-39.05

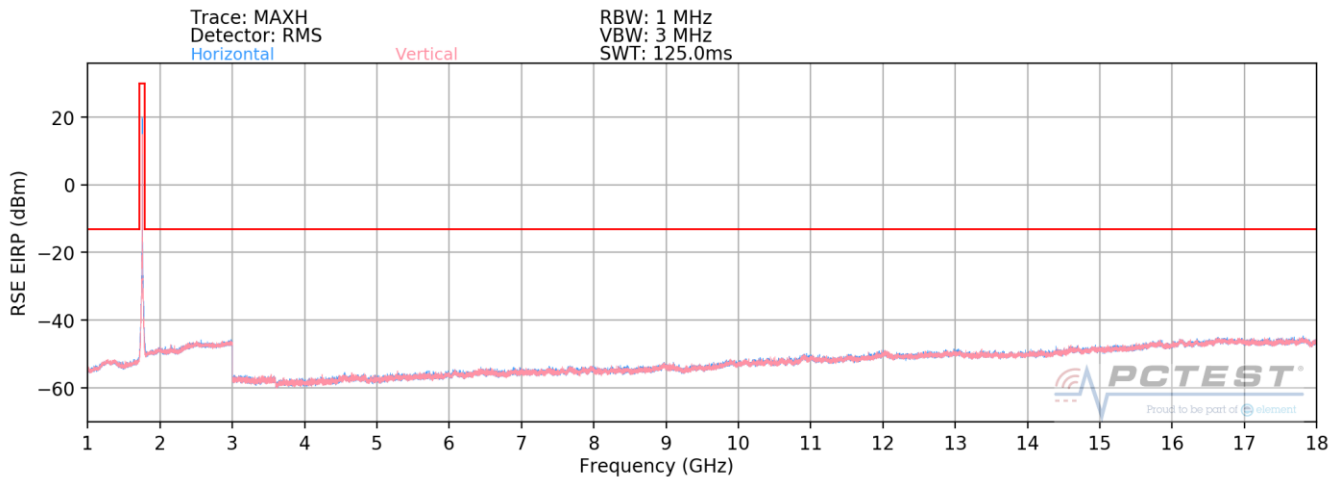
Table 7-44. Radiated Spurious Data (NR Band n66 – n77)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 238 of 253

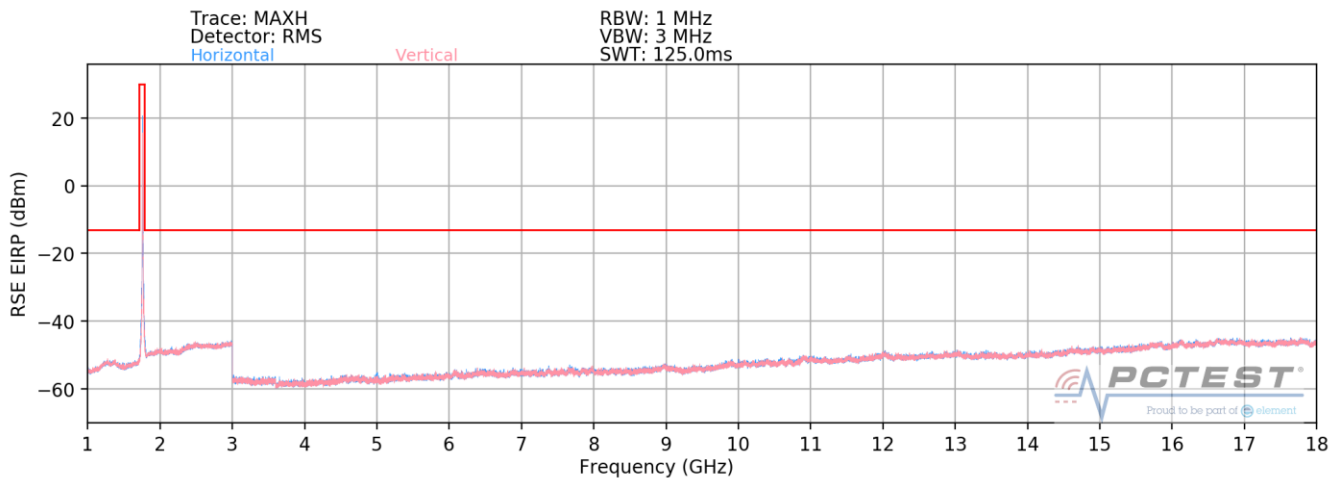
Uplink CA LTE Band 66B/C



Plot 7-373. Radiated Spurious Plot (ULCA LTE Band 66 – Low)



Plot 7-374. Radiated Spurious Plot (ULCA LTE Band 66 – Mid)



Plot 7-375. Radiated Spurious Plot (ULCA LTE Band 66 – High)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 239 of 253

PCC Bandwidth (MHz):	20
PCC Frequency (MHz):	1720.0
PCC RB / Offset:	1 / 99
SCC Bandwidth (MHz):	20
SCC Frequency (MHz):	1739.8
SCC RB / Offset:	1 / 0

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3459.8	H	-	-	-77.52	3.71	33.19	-62.07	-13.00	-49.07
5189.7	H	120	313	-75.46	6.62	38.16	-57.09	-13.00	-44.09
6919.6	H	-	-	-79.11	8.45	36.34	-58.92	-13.00	-45.92
8649.5	H	-	-	-80.24	9.56	36.32	-58.94	-13.00	-45.94
10379.4	H	-	-	-80.71	12.31	38.60	-56.66	-13.00	-43.66
12109.3	H	-	-	-80.77	13.90	40.13	-55.13	-13.00	-42.13

7-45. Radiated Spurious Data (ULCA LTE66 – Low Channel)

PCC Bandwidth (MHz):	20
PCC Frequency (MHz):	1745.0
PCC RB / Offset:	1 / 99
SCC Bandwidth (MHz):	20
SCC Frequency (MHz):	1764.8
SCC RB / Offset:	1 / 0



Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3509.8	H	-	-	-77.38	3.84	33.46	-61.80	-13.00	-48.80
5264.7	H	119	313	-75.01	6.09	38.08	-57.18	-13.00	-44.18
7019.6	H	400	270	-78.58	8.00	36.42	-58.84	-13.00	-45.84
8774.5	H	-	-	-79.56	9.20	36.64	-58.61	-13.00	-45.61
10529.4	H	-	-	-80.61	11.97	38.36	-56.90	-13.00	-43.90
12284.3	H	-	-	-80.56	13.78	40.22	-55.04	-13.00	-42.04

Table 7-46. Radiated Spurious Data (ULCA LTE66 – Mid Channel)

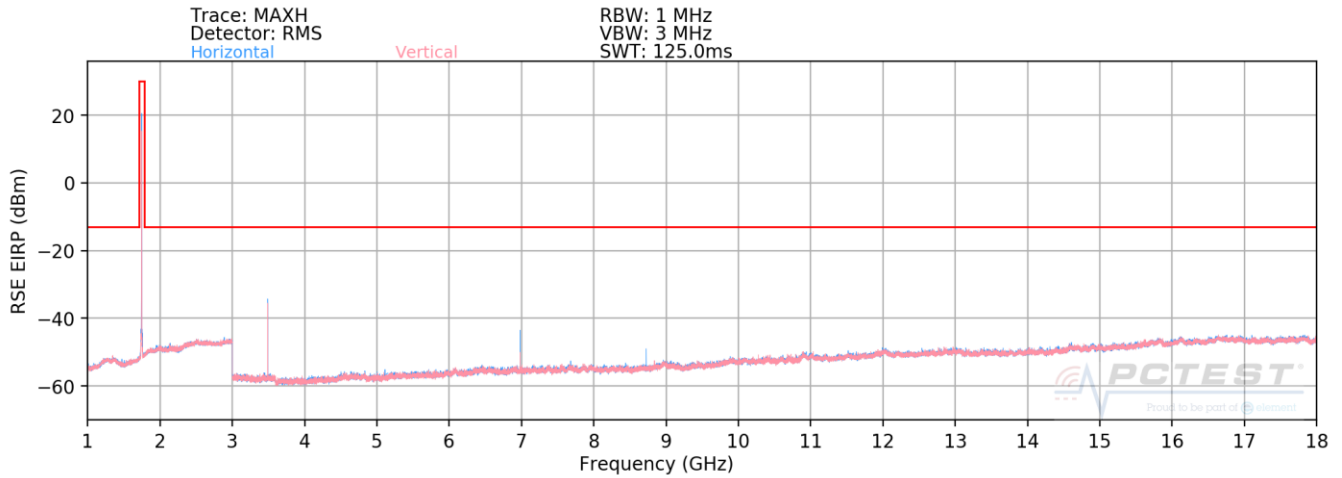
PCC Bandwidth (MHz):	20
PCC Frequency (MHz):	1770.0
PCC RB / Offset:	1 / 0
SCC Bandwidth (MHz):	20
SCC Frequency (MHz):	1750.2
SCC RB / Offset:	1 / 99

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3520.2	H	-	-	-77.35	3.84	33.49	-61.76	-13.00	-48.76
5280.3	H	125	14	-75.51	6.30	37.79	-57.46	-13.00	-44.46
7040.4	H	-	-	-79.01	8.29	36.28	-58.98	-13.00	-45.98
8800.5	H	-	-	-79.27	8.98	36.71	-58.55	-13.00	-45.55
10560.6	H	-	-	-80.95	12.33	38.38	-56.88	-13.00	-43.88
12320.7	H	-	-	-80.77	13.87	40.10	-55.16	-13.00	-42.16

Table 7-47. Radiated Spurious Data (ULCA LTE66 – High Channel)

FCC ID: A3LSMS906U	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M210909103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset	Page 240 of 253	

NR Band n66 – Ant I



Plot 7-376. Radiated Spurious Plot (NR Band n66 – Ant I)

Bandwidth (MHz):	20
Frequency (MHz):	1720
RB / Offset:	1 / 50
Mode:	Stand Alone



Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3440.00	H	199.00	156.00	-61.33	4.31	49.98	-45.27	-13.00	-32.27
5160.00	H	134.00	215.00	-78.07	6.65	35.58	-59.68	-13.00	-46.68
6880.00	H	283.00	50.00	-74.38	8.46	41.08	-54.17	-13.00	-41.17
8600.00	H	314.00	302.00	-74.60	9.59	41.99	-53.27	-13.00	-40.27
10320.00	H	-	-	-80.55	12.32	38.77	-56.49	-13.00	-43.49
12040.00	H	-	-	-80.88	14.77	40.89	-54.37	-13.00	-41.37
13760.00	H	-	-	-80.94	16.43	42.49	-52.77	-13.00	-39.77

Table 7-48. Radiated Spurious Data (NR Band n66 – Low Channel – Ant I)

Bandwidth (MHz):	20
Frequency (MHz):	1745
RB / Offset:	1 / 53
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3490.00	H	398.00	43.00	-52.48	4.31	58.83	-36.43	-13.00	-23.43
5235.00	H	180.00	287.00	-78.02	6.83	35.81	-59.45	-13.00	-46.45
6980.00	H	129.00	311.00	-69.85	8.50	45.65	-49.60	-13.00	-36.60
8725.00	H	138.00	11.00	-74.81	10.48	42.67	-52.59	-13.00	-39.59
10470.00	H	-	-	-80.87	12.50	38.63	-56.63	-13.00	-43.63
12215.00	H	-	-	-80.56	14.45	40.89	-54.37	-13.00	-41.37
13960.00	H	-	-	-80.84	16.01	42.17	-53.08	-13.00	-40.08



Table 7-49. Radiated Spurious Data (NR Band n66 – Mid Channel – Ant I)

FCC ID: A3LSMS906U	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 241 of 253

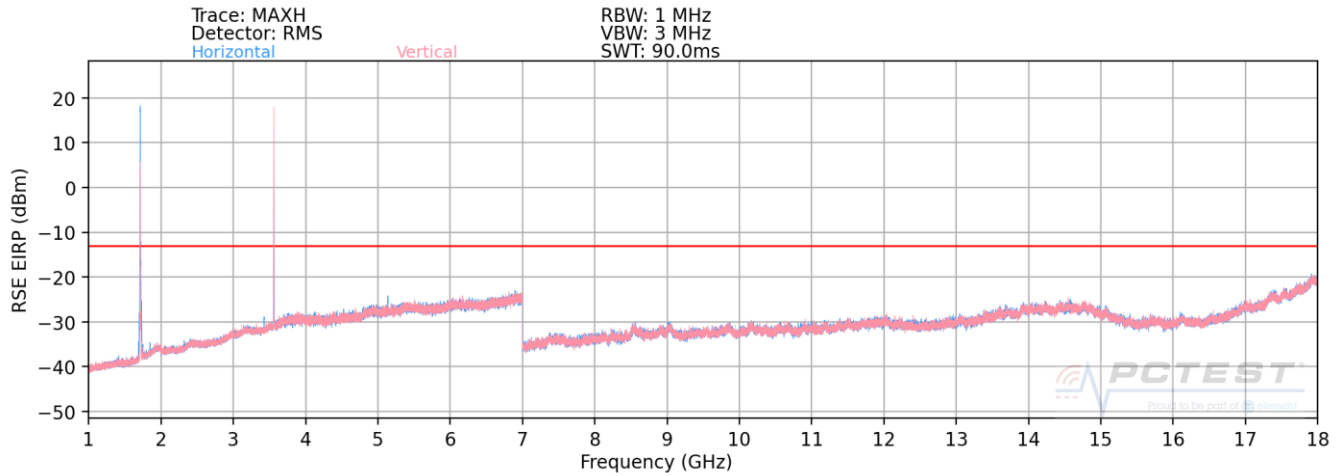
Bandwidth (MHz):	20
Frequency (MHz):	1770
RB / Offset:	1 / 50
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3540.00	H	233.00	36.00	-48.91	4.08	62.17	-33.08	-13.00	-20.08
5310.00	H	263.00	304.00	-75.26	6.72	38.46	-56.80	-13.00	-43.80
7080.00	H	290.00	357.00	-66.99	8.45	48.46	-46.80	-13.00	-33.80
8850.00	H	250.00	311.00	-73.62	10.62	44.00	-51.25	-13.00	-38.25
10620.00	H	-	-	-81.02	13.30	39.28	-55.98	-13.00	-42.98
12390.00	H	-	-	-80.96	14.11	40.15	-55.11	-13.00	-42.11
14160.00	H	-	-	-81.14	16.34	42.20	-53.05	-13.00	-40.05

Table 7-50. Radiated Spurious Data (NR Band n66 – High Channel – Ant I)

FCC ID: A3LSMS906U	 PCTEST[®] Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset	Page 242 of 253	

NR Band n66 – B48



Plot 7-377. Radiated Spurious Plot (NR Band n66 – B48)

Bandwidth (MHz):	20 / 20
Frequency (MHz):	1720 / 3560
RB / Offset:	1 / 53 & 1 / 50
Mode:	EN-DC
Anchor Band:	48

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3800.0	H	252	250	-53.07	11.80	65.73	-29.53	-13.00	-16.53
5400.0	H	114	184	-50.78	14.73	70.95	-24.31	-13.00	-11.31
5138.0	H	186	250	-52.71	13.99	68.28	-26.98	-13.00	-13.98
6986.0	H	123	181	-50.71	16.76	73.05	-22.21	-13.00	-9.21
7240.0	H	-	-	-64.67	9.43	51.76	-43.49	-13.00	-30.49
9080.0	H	-	-	-65.33	12.43	54.10	-41.16	-13.00	-28.16
10920.0	H	-	-	-65.09	12.81	54.72	-40.54	-13.00	-27.54

Table 7-51. Radiated Spurious Data (NR Band n66 – B48)

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 243 of 253

7.10 Frequency Stability / Temperature Variation

Test Overview and Limit

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

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

For Part 27, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Procedure Used

ANSI/TIA-603-E-2016

Test Settings



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

Test Setup

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

Test Notes

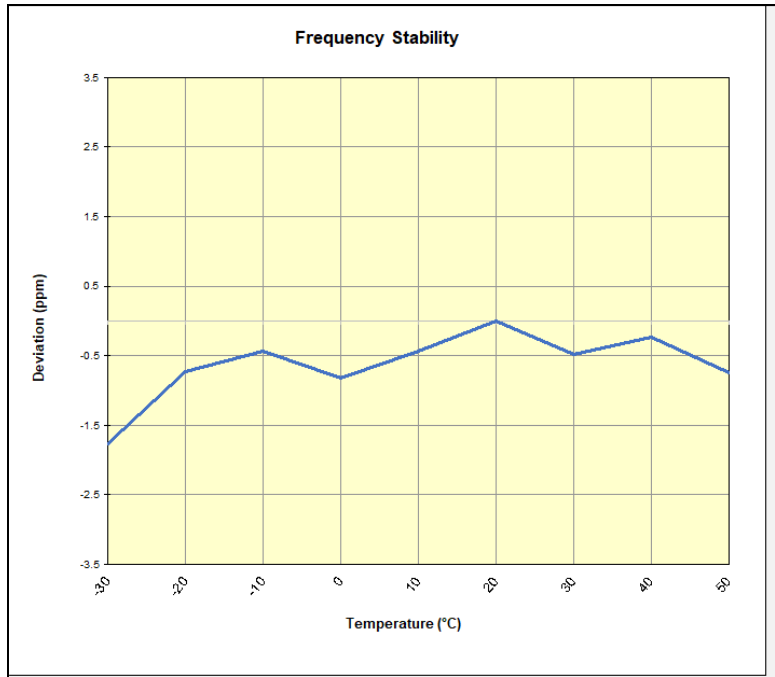
None

FCC ID: A3LSMS906U	 PCTEST® Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 244 of 253

Frequency Stability / Temperature Variation

LTE Band 71					
Operating Frequency (Hz):		680,500,000			
Ref. Voltage (VDC):		4.44			
Deviation Limit:		± 0.00025% or 2.5 ppm			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.44	- 30	680,500,231	-1,205	-0.0001771
		- 20	680,500,937	-499	-0.0000733
		- 10	680,501,145	-291	-0.0000428
		0	680,500,873	-563	-0.0000827
		+ 10	680,501,138	-298	-0.0000438
		+ 20 (Ref)	680,501,436	0	0.0000000
		+ 30	680,501,114	-322	-0.0000473
		+ 40	680,501,281	-155	-0.0000228
Battery Endpoint	3.84	+ 20	680,501,302	-134	-0.0000197

Table 7-52. LTE Band 71 Frequency Stability Data



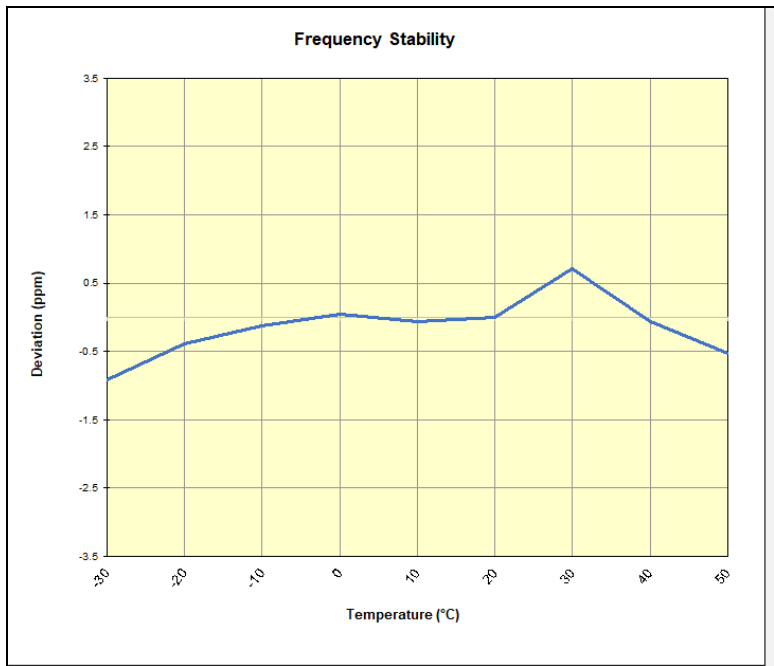
Plot 7-378. LTE Band 71 Frequency Stability Chart

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 245 of 253

Frequency Stability / Temperature Variation

LTE Band 12					
Operating Frequency (Hz):		707,500,000			
Ref. Voltage (VDC):		4.44			
Deviation Limit:		± 0.00025% or 2.5 ppm			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.44	- 30	707,500,622	-651	-0.0000920
		- 20	707,500,995	-278	-0.0000393
		- 10	707,501,184	-89	-0.0000126
		0	707,501,309	36	0.0000051
		+ 10	707,501,230	-43	-0.0000061
		+ 20 (Ref)	707,501,273	0	0.0000000
		+ 30	707,501,779	506	0.0000715
		+ 40	707,501,231	-42	-0.0000059
		+ 50	707,500,904	-369	-0.0000522
Battery Endpoint	3.84	+ 20	707,501,399	126	0.0000178

Table 7-53. LTE Band 12 Frequency Stability Data



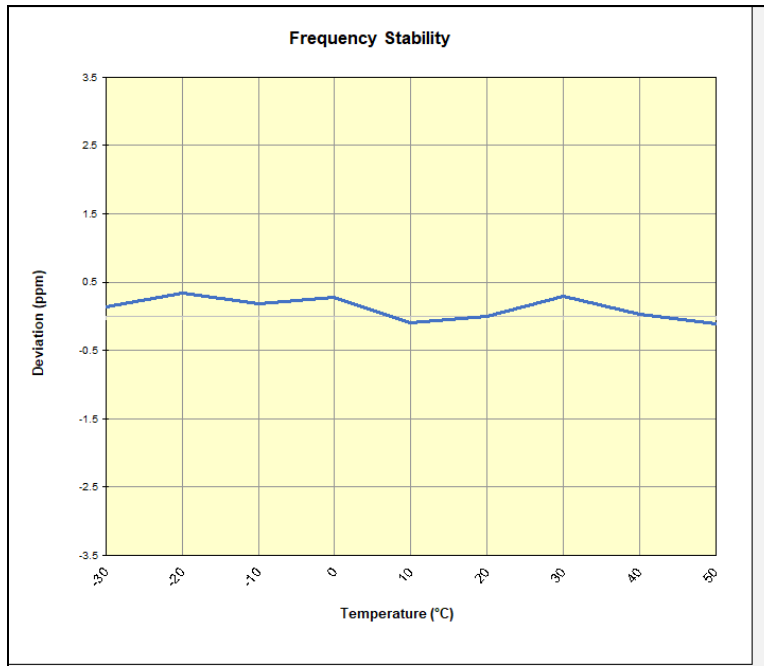
Plot 7-379. LTE Band 12 Frequency Stability Chart

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 246 of 253



Frequency Stability / Temperature Variation

LTE Band 13					
Operating Frequency (Hz):		782,000,000			
Ref. Voltage (VDC):		4.44			
Deviation Limit:		± 0.00025% or 2.5 ppm			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.44	- 30	782,001,061	111	0.0000142
		- 20	782,001,221	271	0.0000347
		- 10	782,001,101	151	0.0000193
		0	782,001,170	220	0.0000281
		+ 10	782,000,876	-74	-0.0000095
		+ 20 (Ref)	782,000,950	0	0.0000000
		+ 30	782,001,181	231	0.0000295
		+ 40	782,000,971	21	0.0000027
		+ 50	782,000,867	-83	-0.0000106
Battery Endpoint	3.84	+ 20	782,000,964	14	0.0000018

Table 7-54. LTE Band 13 Frequency Stability Data



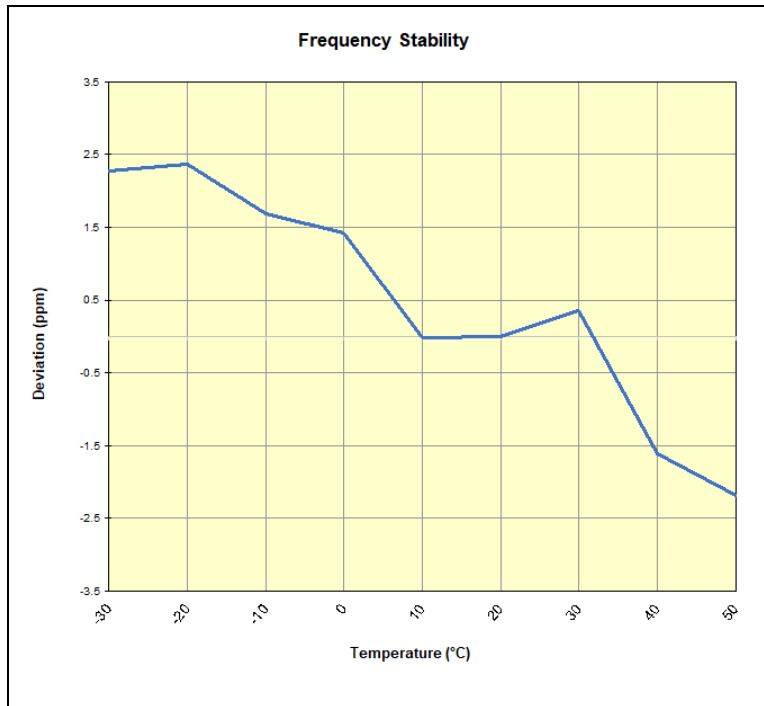
Plot 7-380. LTE Band 13 Frequency Stability Chart

FCC ID: A3LSMS906U	 PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset	Page 247 of 253

Frequency Stability / Temperature Variation

NR Band n71					
Operating Frequency (Hz):		680,500,000			
Ref. Voltage (VDC):		4.44			
Deviation Limit:		± 0.00025% or 2.5 ppm			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.44	- 30	680,586,241	1,546	0.0002272
		- 20	680,586,312	1,617	0.0002376
		- 10	680,585,846	1,151	0.0001691
		0	680,585,662	967	0.0001421
		+ 10	680,584,686	-9	-0.0000013
		+ 20 (Ref)	680,584,695	0	0.0000000
		+ 30	680,584,934	239	0.0000351
		+ 40	680,583,601	-1,094	-0.0001607
Battery Endpoint	3.84	+ 20	680,584,628	-67	-0.0000098

Table 7-55. NR Band n71 Frequency Stability Data



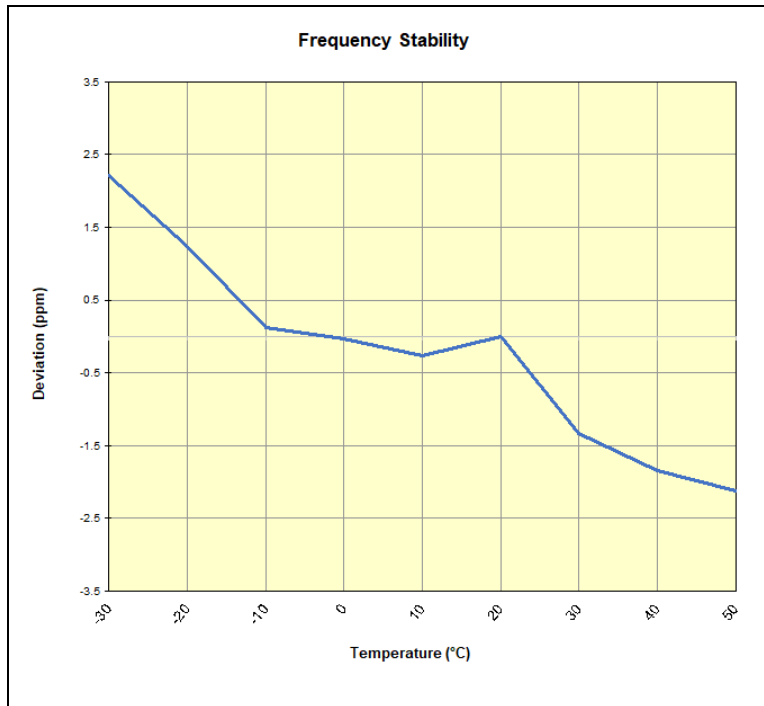
Plot 7-381. NR Band n71 Frequency Stability Chart

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Frequency Stability / Temperature Variation

NR Band n12					
Operating Frequency (Hz):		707,500,000			
Ref. Voltage (VDC):		4.44			
Deviation Limit:		± 0.00025% or 2.5 ppm			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.44	- 30	707,158,901	1,567	0.0002216
		- 20	707,158,215	881	0.0001246
		- 10	707,157,417	83	0.0000117
		0	707,157,309	-25	-0.0000035
		+ 10	707,157,150	-184	-0.0000260
		+ 20 (Ref)	707,157,334	0	0.0000000
		+ 30	707,156,389	-945	-0.0001336
		+ 40	707,156,029	-1,305	-0.0001845
Battery Endpoint	3.84	+ 20	707,157,229	-105	-0.0000148

Table 7-56. NR Band n12 Frequency Stability Data



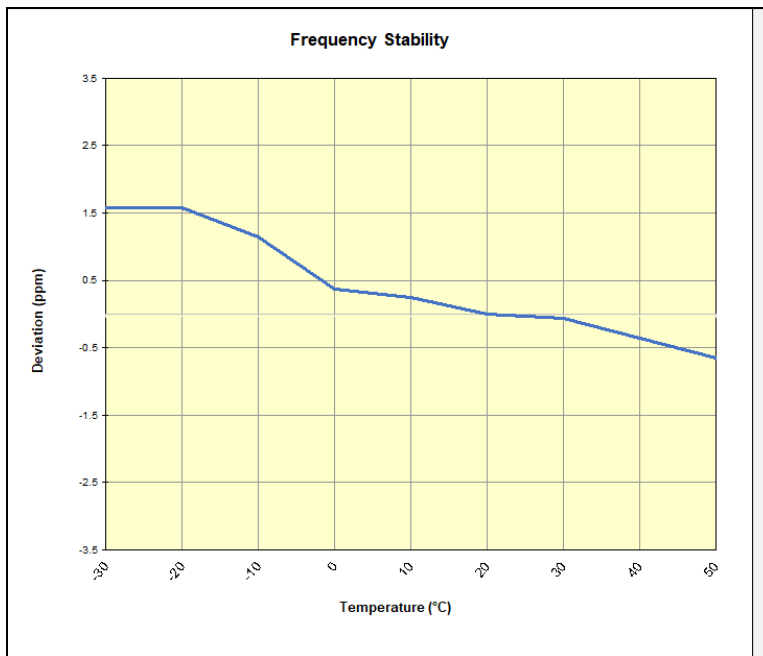
Plot 7-382. NR Band n12 Frequency Stability Chart

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 249 of 253

Frequency Stability / Temperature Variation

WCDMA AWS					
Operating Frequency (Hz):		1,732,600,000			
Ref. Voltage (VDC):		4.44			
Deviation Limit:		± 0.00025% or 2.5 ppm			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.44	- 30	1,732,604,904	2,746	0.0001585
		- 20	1,732,604,881	2,723	0.0001572
		- 10	1,732,604,148	1,990	0.0001149
		0	1,732,602,791	633	0.0000365
		+ 10	1,732,602,584	426	0.0000246
		+ 20 (Ref)	1,732,602,158	0	0.0000000
		+ 30	1,732,602,052	-106	-0.0000061
		+ 40	1,732,601,551	-607	-0.0000350
Battery Endpoint	3.84	+ 20	1,732,602,337	179	0.0000103

Table 7-57. WCDMA AWS Frequency Stability Data



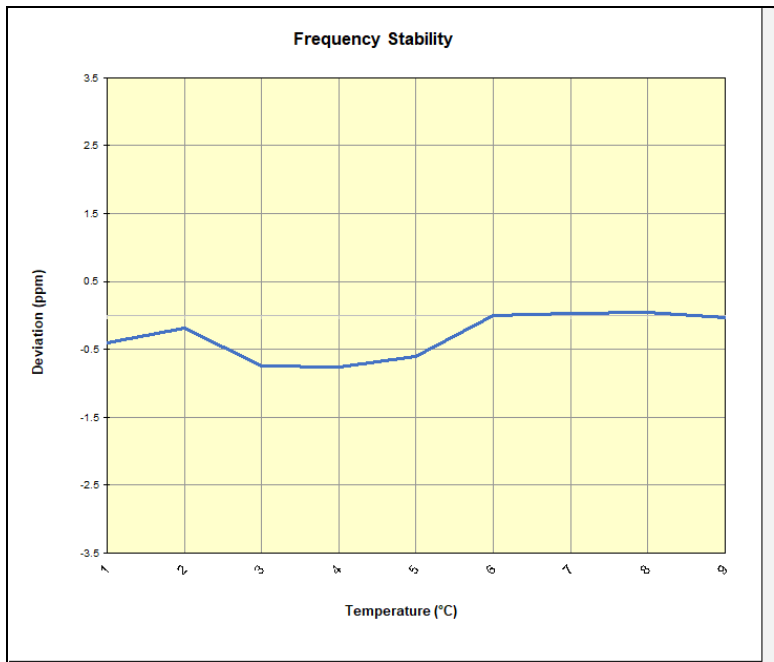
Plot 7-383. WCDMA AWS Frequency Stability Chart

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 250 of 253



Frequency Stability / Temperature Variation

LTE Band 66/4					
Operating Frequency (Hz):		1,745,000,000			
Ref. Voltage (VDC):		4.44			
Deviation Limit:		± 0.00025% or 2.5 ppm			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.44	- 30	1,745,001,033	-695	-0.0000398
		- 20	1,745,001,402	-326	-0.0000187
		- 10	1,745,000,418	-1,310	-0.0000751
		0	1,745,000,411	-1,317	-0.0000755
		+ 10	1,745,000,680	-1,048	-0.0000601
		+ 20 (Ref)	1,745,001,728	0	0.0000000
		+ 30	1,745,001,779	51	0.0000029
		+ 40	1,745,001,820	92	0.0000053
Battery Endpoint	3.84	+ 20	1,745,001,710	-18	-0.0000010

Table 7-58. LTE Band 66/4 Frequency Stability Data



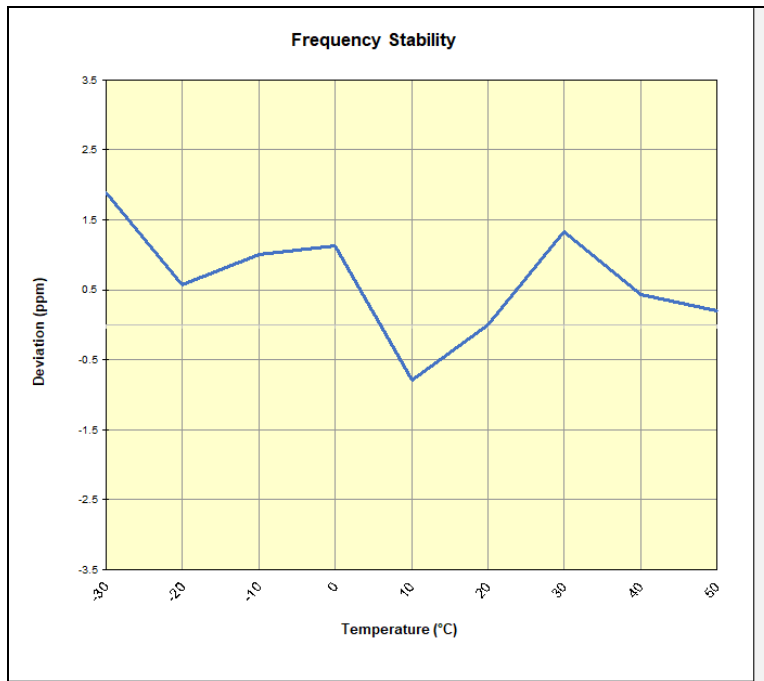
Plot 7-384. LTE Band 66/4 Frequency Stability Chart

FCC ID: A3LSMS906U	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
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Frequency Stability / Temperature Variation

NR Band n66					
Operating Frequency (Hz):		1,745,000,000			
Ref. Voltage (VDC):		4.44			
Deviation Limit:		± 0.00025% or 2.5 ppm			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.44	- 30	1,745,098,759	3,298	0.0001890
		- 20	1,745,096,461	1,000	0.0000573
		- 10	1,745,097,214	1,753	0.0001005
		0	1,745,097,444	1,983	0.0001136
		+ 10	1,745,094,093	-1,368	-0.0000784
		+ 20 (Ref)	1,745,095,461	0	0.0000000
		+ 30	1,745,097,796	2,335	0.0001338
		+ 40	1,745,096,220	759	0.0000435
		+ 50	1,745,095,824	363	0.0000208
Battery Endpin	3.84	+ 20	1,745,095,048	-413	-0.0000237

Table 7-59. NR Band n66 Frequency Stability Data





Plot 7-385. NR Band n66 Frequency Stability Chart

FCC ID: A3LSMS906U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset		Page 252 of 253

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMS906U** complies with all the requirements of Part 27 of the FCC rules.

FCC ID: A3LSMS906U		PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2109090103-04-R1.A3L	Test Dates: 09/09/2021 - 11/10/2021	EUT Type: Portable Handset	Page 253 of 253