



Plot 7-341. PAR Plot (NR Band n66 - 5.0MHz CP-OFDM QPSK - Full RB)



Plot 7-342. PAR Plot (NR Band n66 - 5.0MHz CP-OFDM 256-QAM - Full RB)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 197 of 262

NR Band n66 – Ant I



FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 198 of 262



Plot 7-345. PAR Plot (NR Band n66 - 40.0MHz CP-OFDM 256-QAM - Full RB)



Plot 7-346. PAR Plot (NR Band n66 - 30.0MHz DFT-s-OFDM BPSK - Full RB)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 199 of 262



Plot 7-347. PAR Plot (NR Band n66 - 30.0MHz CP-OFDM QPSK - Full RB)



Plot 7-348. PAR Plot (NR Band n66 - 30.0MHz CP-OFDM 256-QAM - Full RB)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 200 of 262



FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 201 of 262



Plot 7-351. PAR Plot (NR Band n66 - 20.0MHz CP-OFDM 256-QAM - Full RB)



Plot 7-352. PAR Plot (NR Band n66 - 15.0MHz DFT-s-OFDM BPSK - Full RB)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 202 of 262



Plot 7-353. PAR Plot (NR Band n66 - 15.0MHz CP-OFDM QPSK - Full RB)



Plot 7-354. PAR Plot (NR Band n66 - 15.0MHz CP-OFDM 256-QAM - Full RB)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 203 of 262



FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 204 of 262



Plot 7-357. PAR Plot (NR Band n66 - 10.0MHz CP-OFDM 256-QAM - Full RB)



Plot 7-358. PAR Plot (NR Band n66 - 5.0MHz DFT-s-OFDM BPSK - Full RB)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 205 of 262



Plot 7-359. PAR Plot (NR Band n66 - 5.0MHz CP-OFDM QPSK - Full RB)



Plot 7-360. PAR Plot (NR Band n66 - 5.0MHz CP-OFDM 256-QAM - Full RB)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 206 of 262

7.7 Uplink Carrier Aggregation Radiated 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.

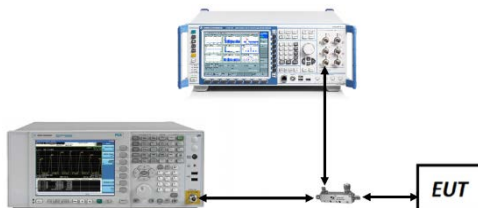


Figure 7-6. Test Instrument & Measurement Setup

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

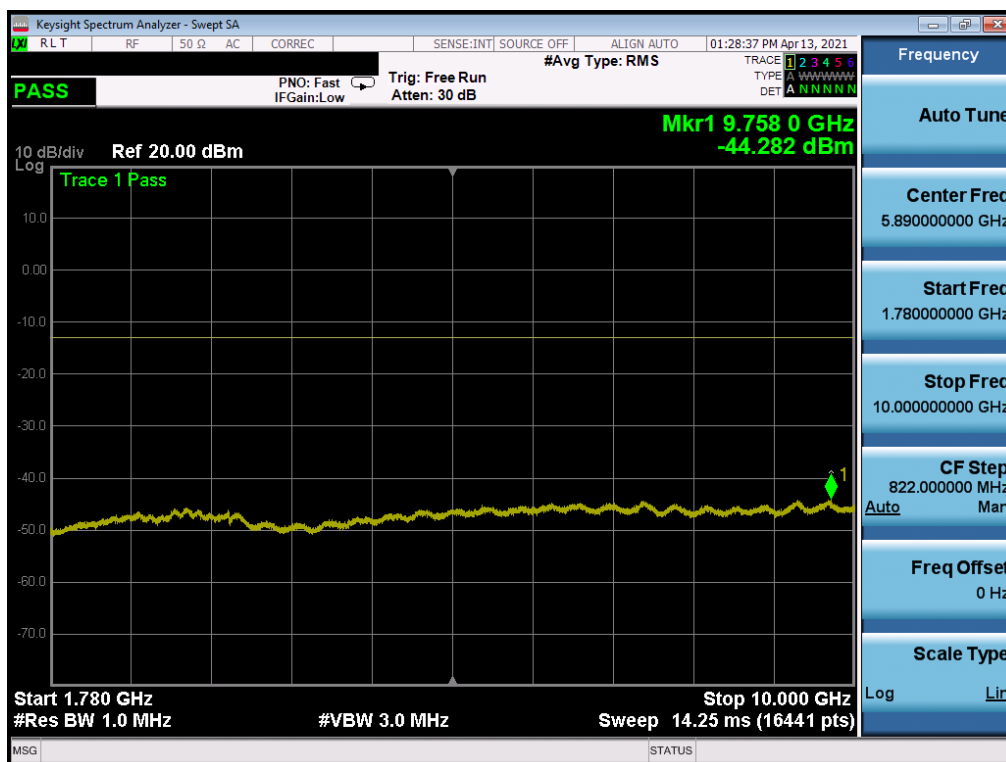
Table 7-3. Conducted Powers (Uplink CA LTE Band 66B/C)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 207 of 262

Uplink CA LTE Band 66B/C

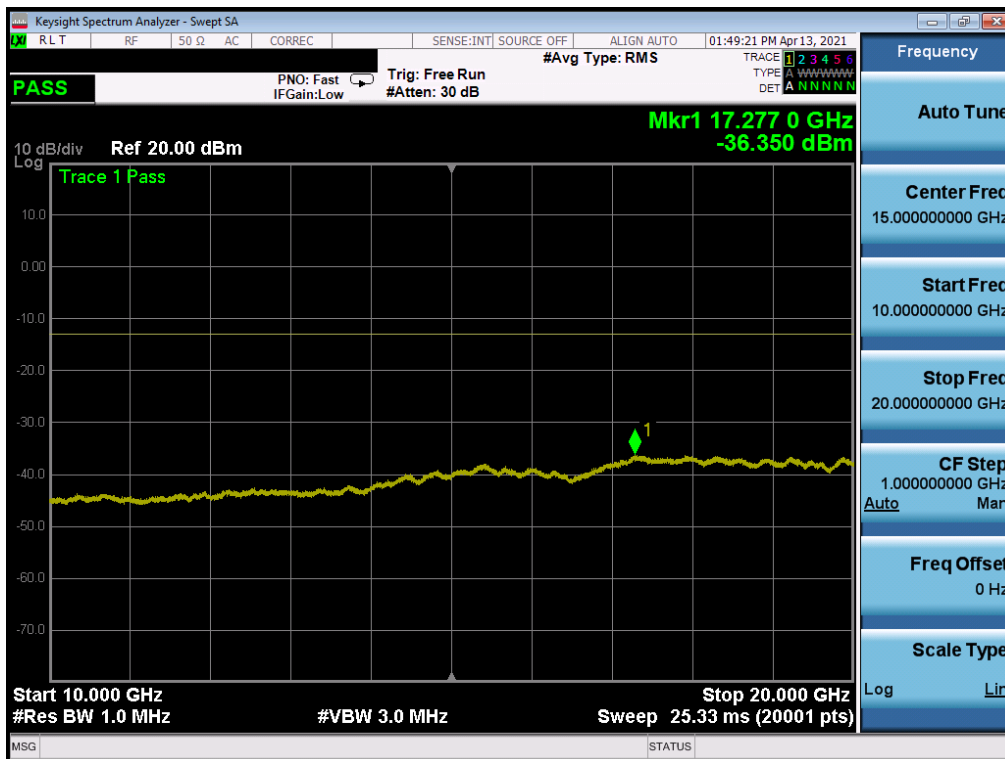


Plot 7-361. Conducted Spurious Plot (ULCA LTE Band 66 Low Channel)

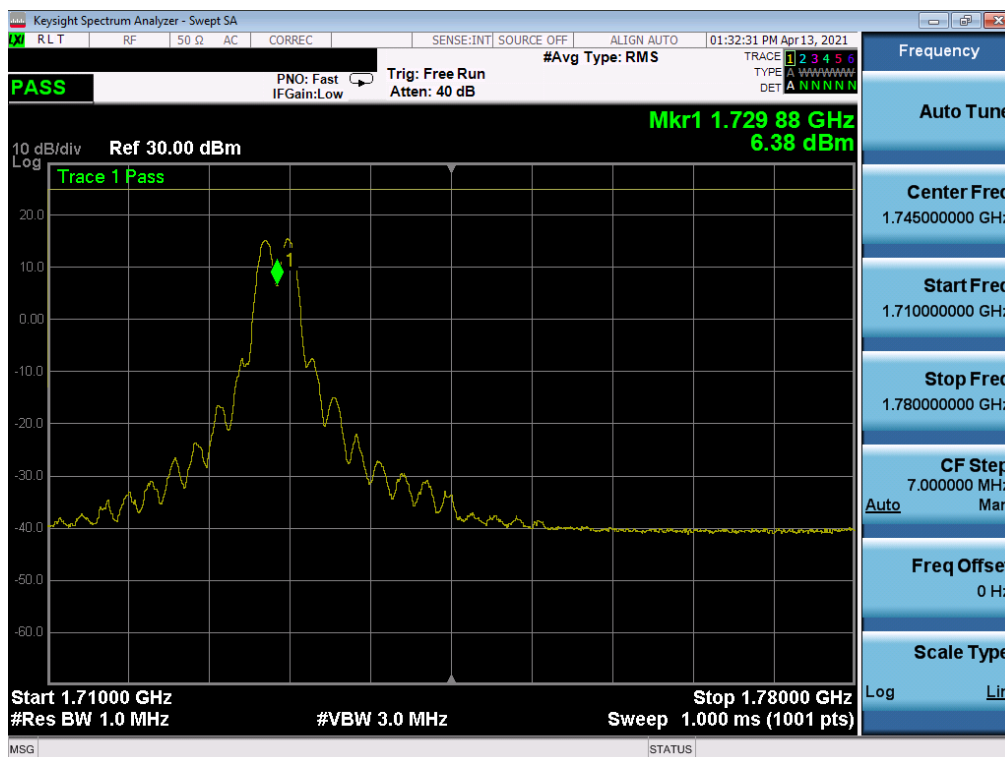


Plot 7-362. Conducted Spurious Plot (ULCA LTE Band 66 Low Channel)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 208 of 262

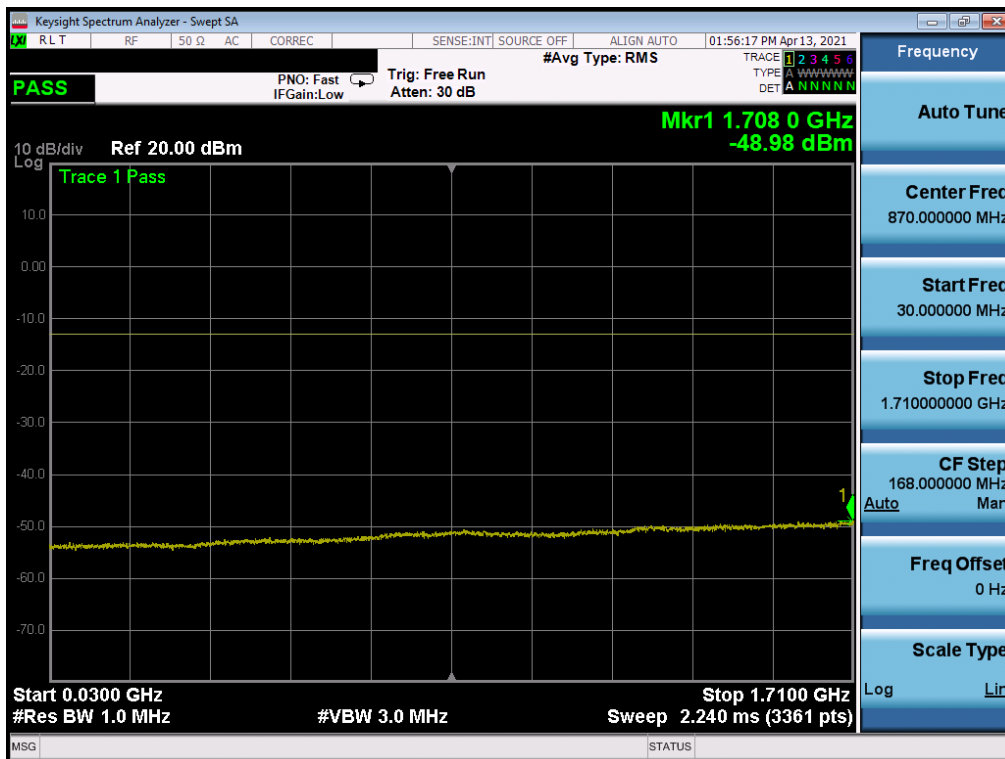


Plot 7-363. Conducted Spurious Plot (ULCA LTE Band 66 Low Channel)

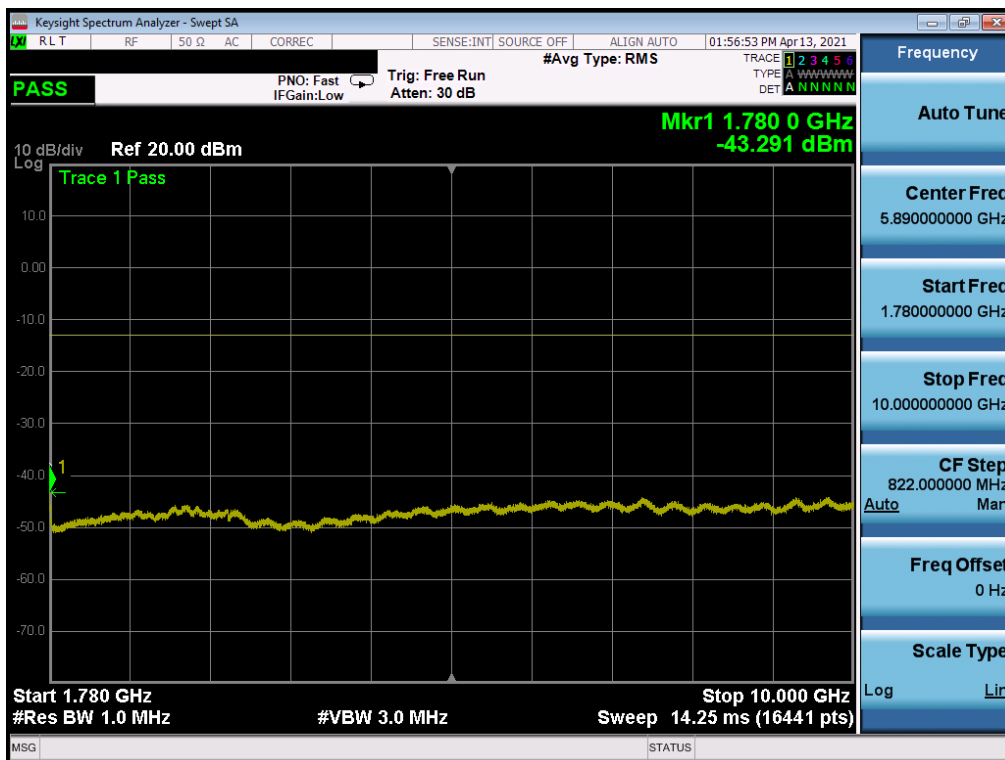


Plot 7-364. Conducted Spurious Plot (ULCA LTE Band 66 Low Channel)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 209 of 262

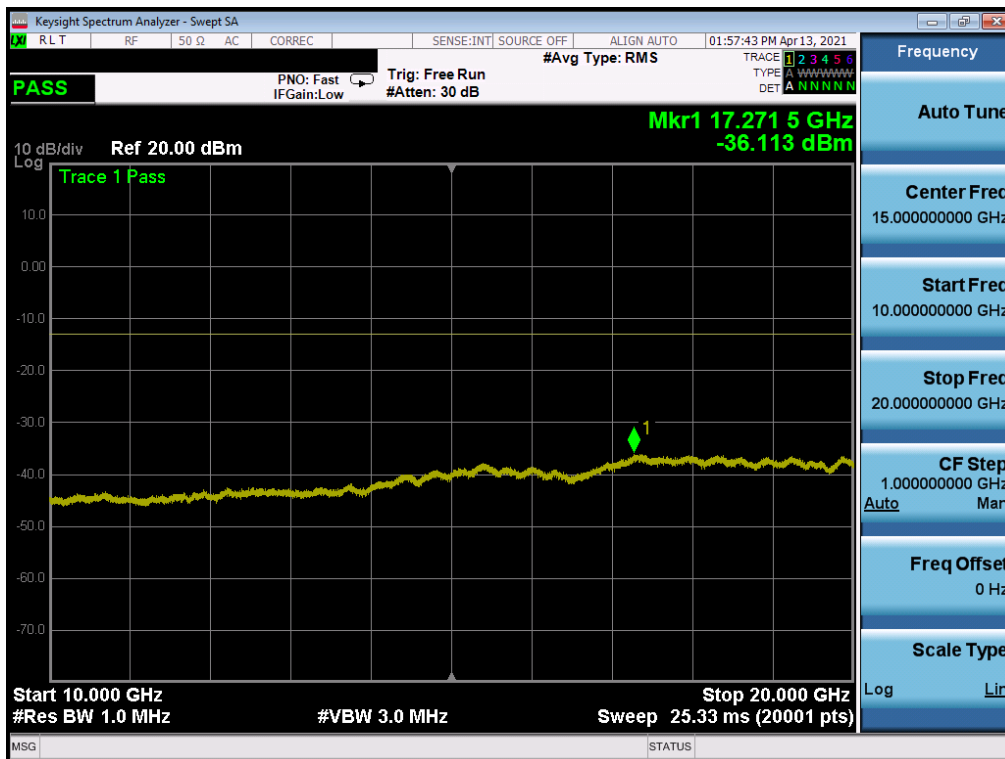


Plot 7-365. Conducted Spurious Plot (ULCA LTE Band 66 Mid Channel)

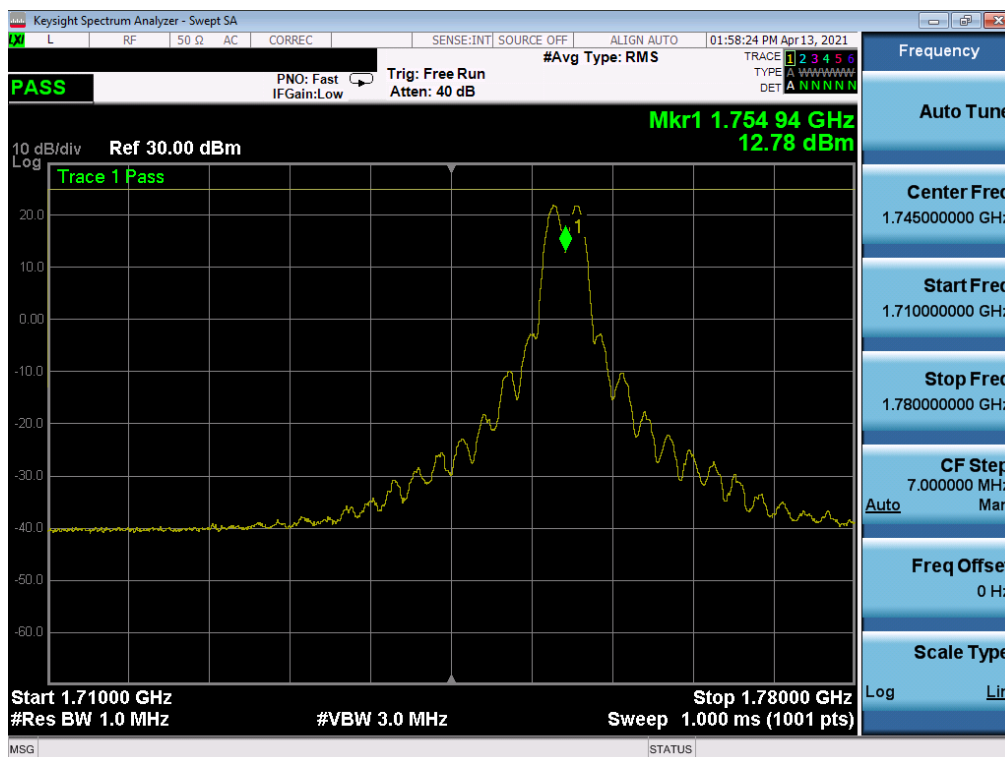


Plot 7-366. Conducted Spurious Plot (ULCA LTE Band 66 Mid Channel)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 210 of 262

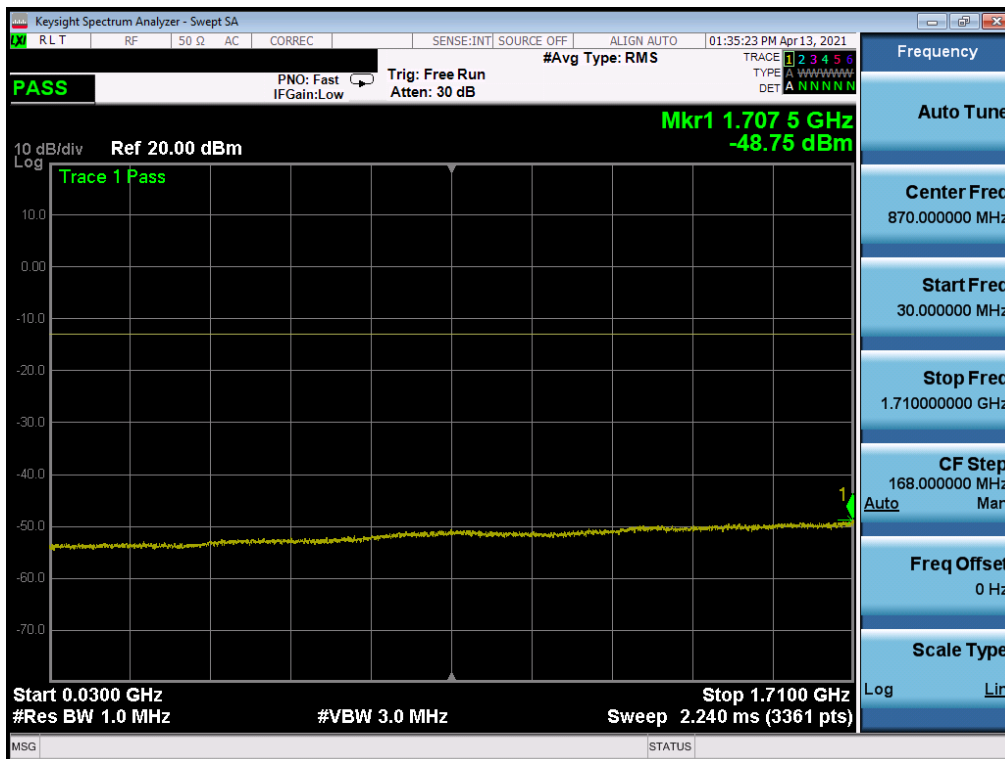


Plot 7-367. Conducted Spurious Plot (ULCA LTE Band 66 Mid Channel)

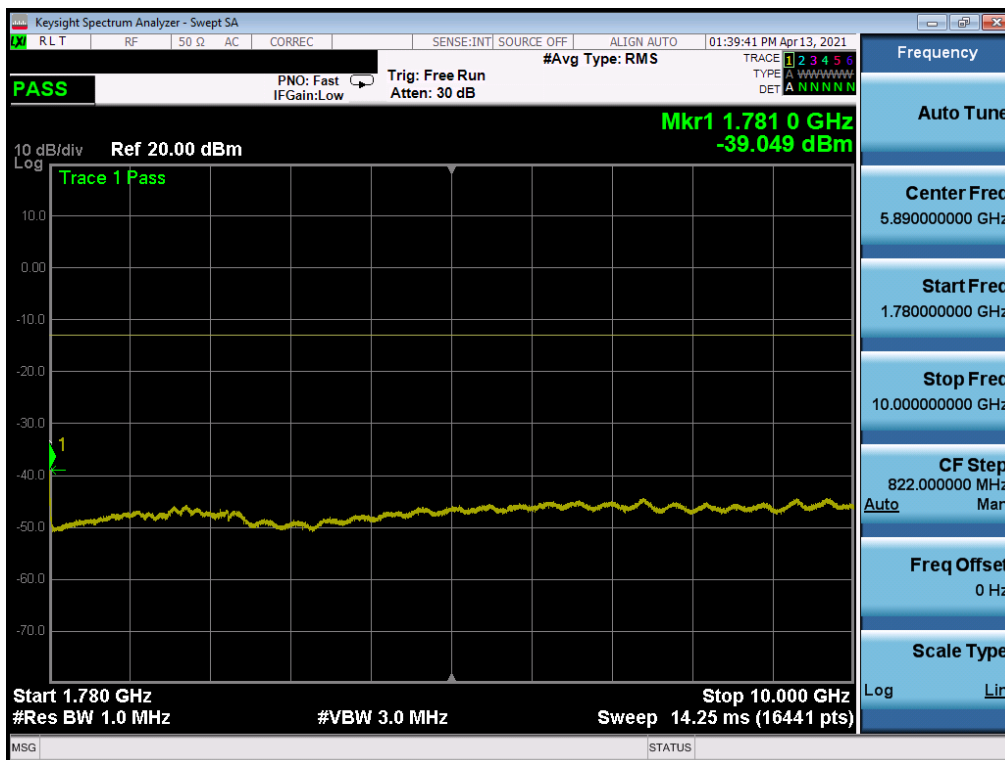


Plot 7-368. Conducted Spurious Plot (ULCA LTE Band 66 Mid Channel)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 211 of 262

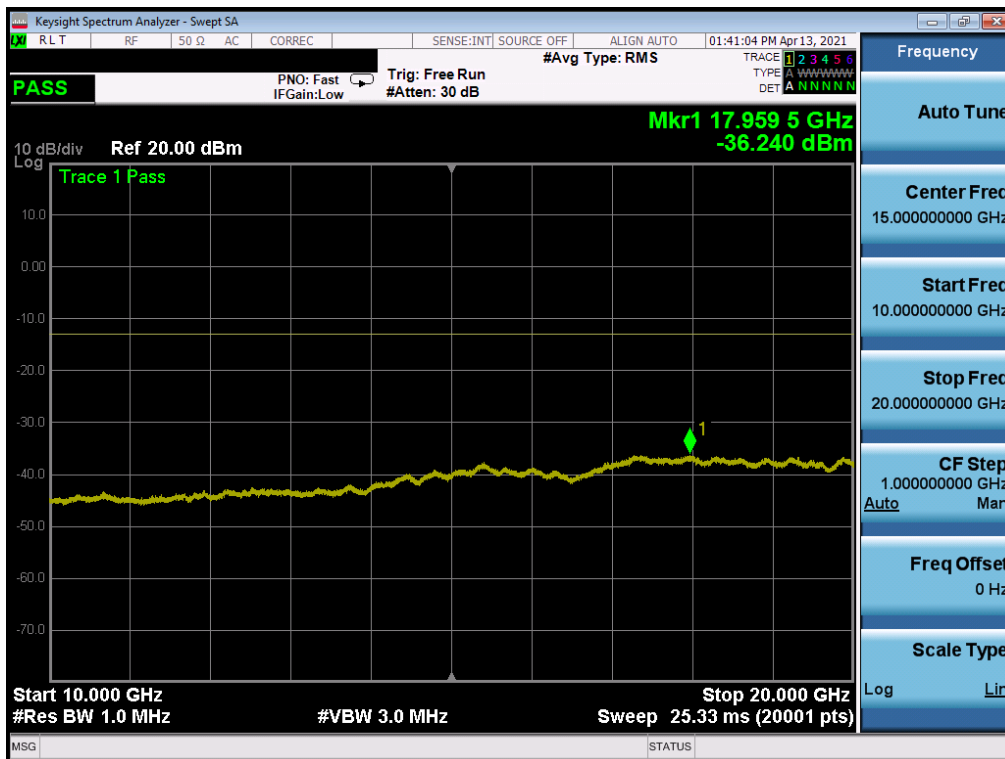


Plot 7-369. Conducted Spurious Plot (ULCA LTE Band 66 High Channel)

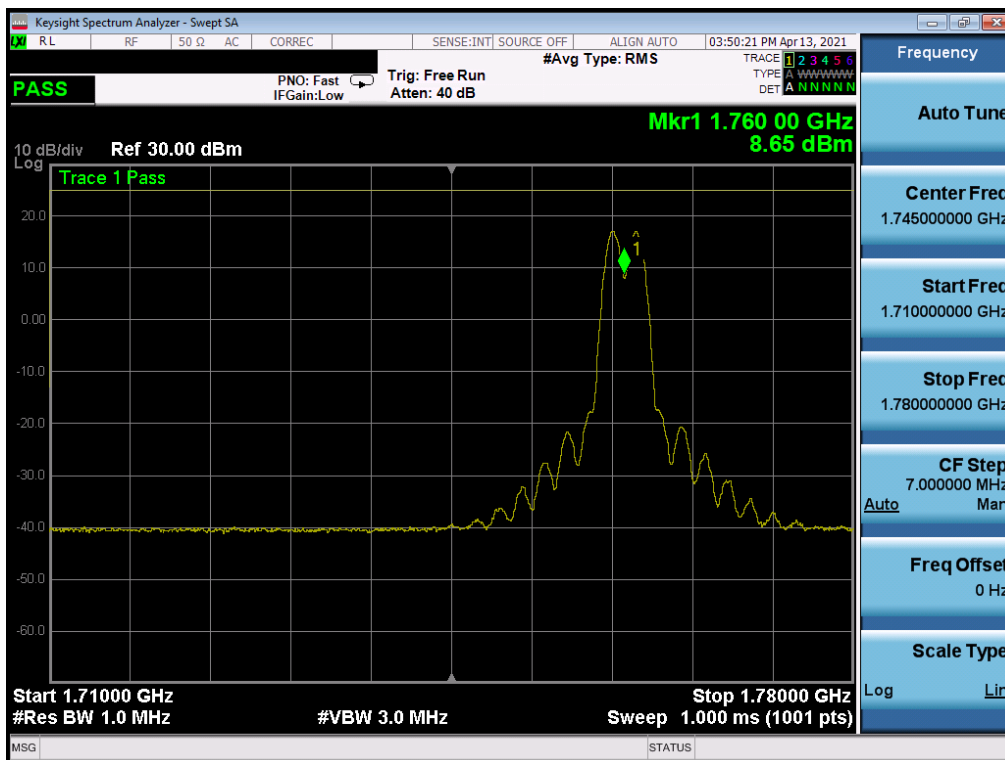


Plot 7-370. Conducted Spurious Plot (ULCA LTE Band 66 High Channel)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 212 of 262

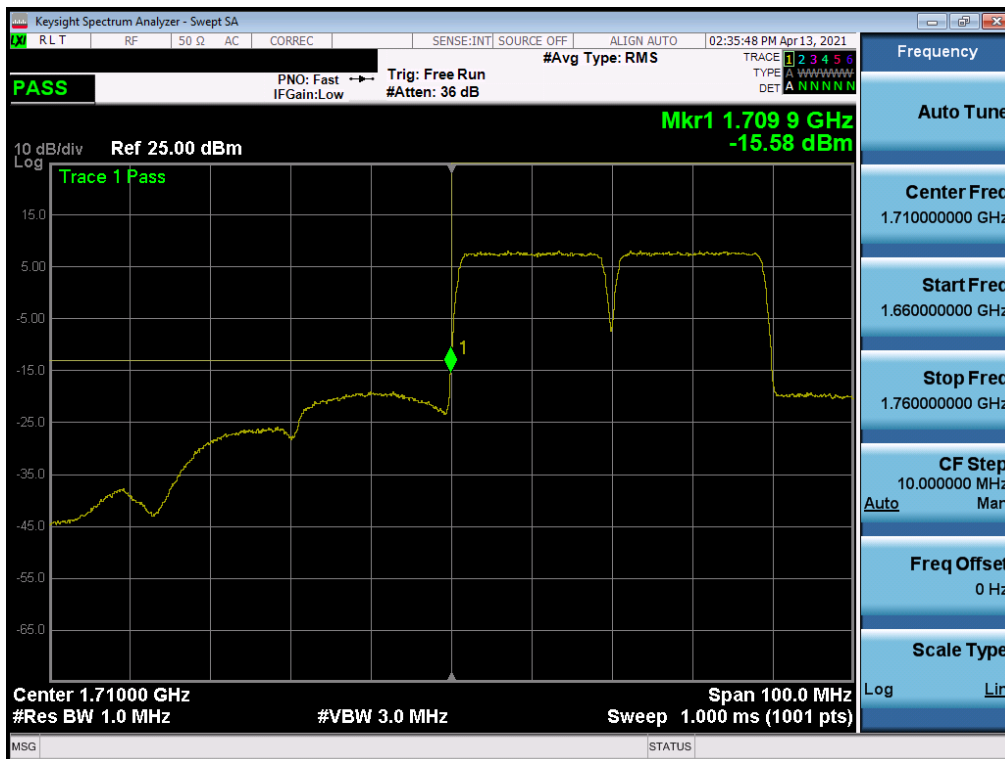


Plot 7-371. Conducted Spurious Plot (ULCA LTE Band 66 High Channel)

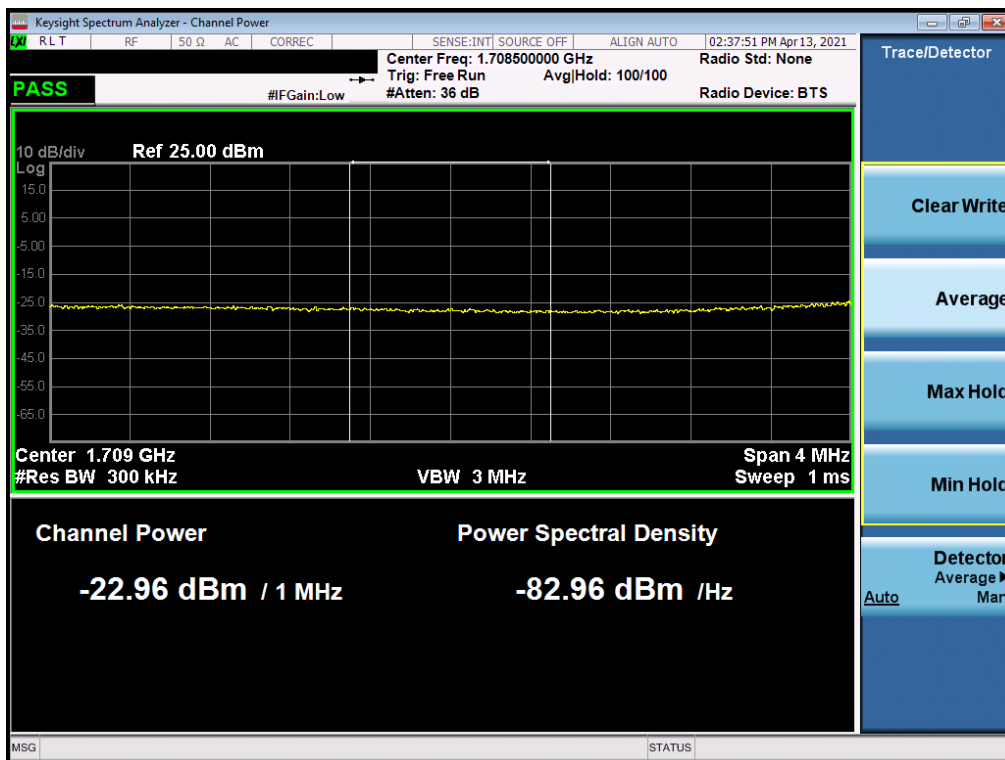


Plot 7-372. Conducted Spurious Plot (ULCA LTE Band 66 High Channel)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 213 of 262



Plot 7-373. Lower Band Edge Plot (ULCA LTE Band 66)

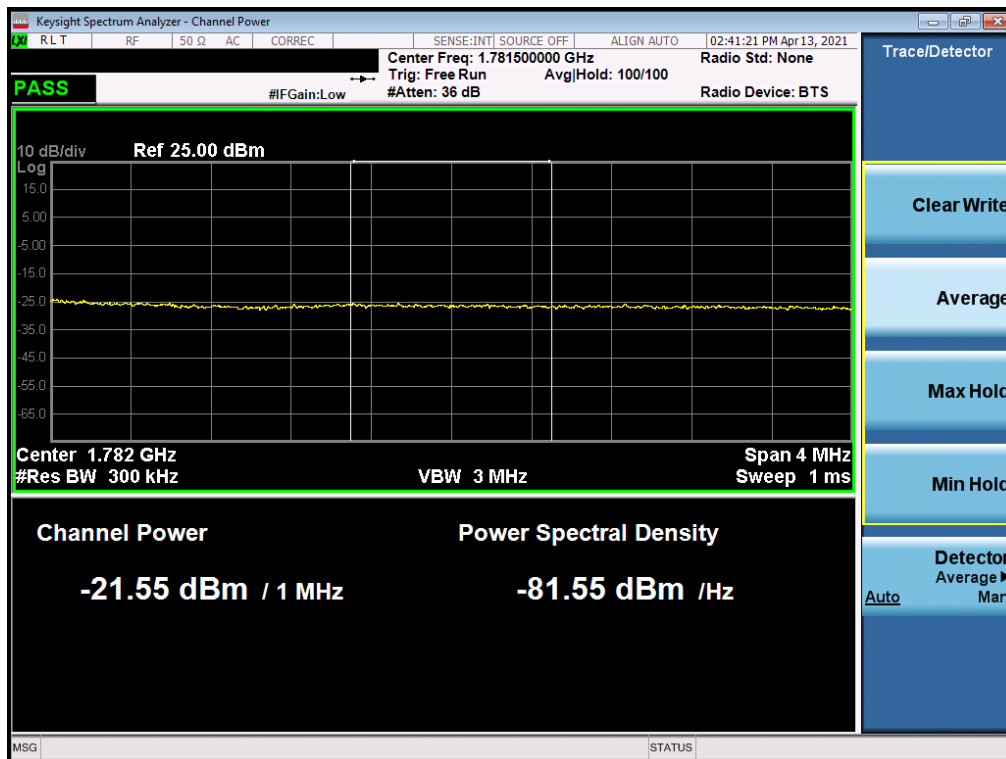


Plot 7-374. Lower Extended Band Edge Plot (ULCA LTE Band 66)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 214 of 262



Plot 7-375. Upper Band Edge Plot (ULCA LTE Band 66)



Plot 7-376. Upper Extended Band Edge Plot (ULCA LTE Band 66)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 215 of 262

7.8 Radiated Power (ERP/EIRP)

Test Overview

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

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.2.1

ANSI/TIA-603-E-2016 – Section 2.2.17

Test Settings

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

FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
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Test Setup

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

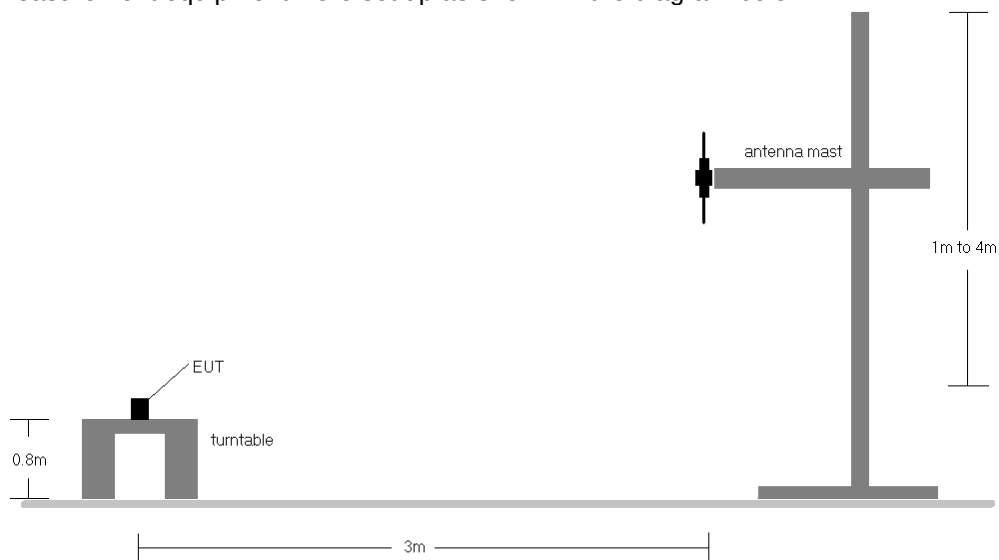


Figure 7-7. Radiated Test Setup <1GHz

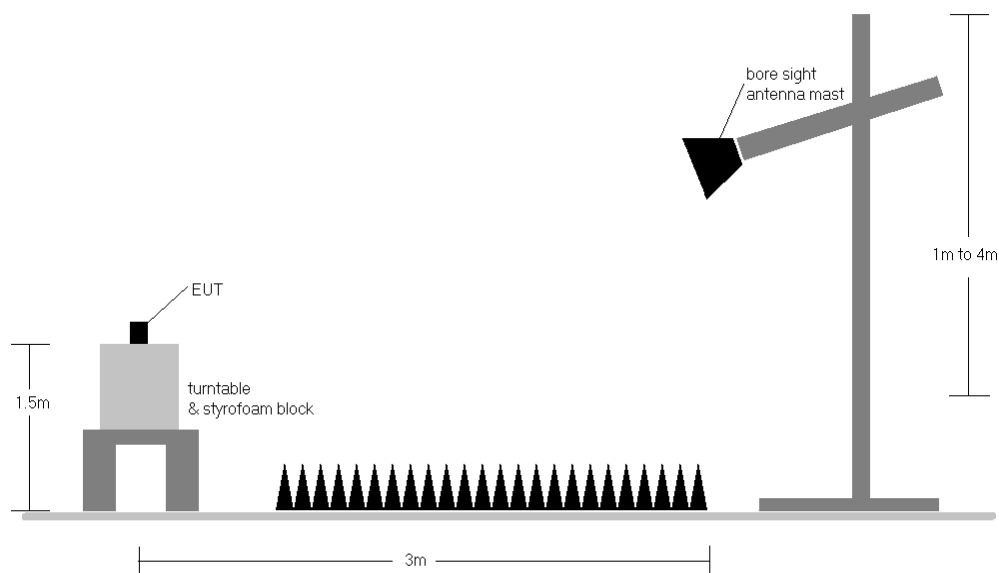


Figure 7-8. Radiated Test Setup >1GHz

FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
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Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) 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.

FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset

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]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
20 MHz	QPSK	673.0	V	100	197	2.89	1 / 99	16.98	19.87	0.097	36.99	-17.12	17.72	0.059	34.77	-17.05
	QPSK	680.5	V	100	201	3.09	1 / 99	17.83	20.92	0.123	36.99	-16.07	18.77	0.075	34.77	-16.01
	QPSK	688.0	V	100	9	3.28	1 / 99	16.48	19.76	0.095	36.99	-17.23	17.61	0.058	34.77	-17.16
	16-QAM	680.5	V	100	201	3.09	1 / 99	17.14	20.23	0.105	36.99	-16.76	18.08	0.064	34.77	-16.70
15 MHz	QPSK	670.5	V	100	197	2.76	1 / 74	16.80	19.56	0.090	36.99	-17.43	17.41	0.055	34.77	-17.37
	QPSK	680.5	V	100	201	3.09	1 / 37	17.86	20.94	0.124	36.99	-16.04	18.79	0.076	34.77	-15.98
	QPSK	690.5	V	100	9	3.31	1 / 0	16.99	20.30	0.107	36.99	-16.69	18.15	0.065	34.77	-16.62
	16-QAM	680.5	V	100	201	3.09	1 / 37	17.17	20.26	0.106	36.99	-16.73	18.11	0.065	34.77	-16.66
10 MHz	QPSK	668.0	V	100	197	2.72	1 / 25	16.68	19.40	0.087	36.99	-17.59	17.25	0.053	34.77	-17.52
	QPSK	680.5	V	100	201	3.09	1 / 49	18.25	21.34	0.136	36.99	-15.65	19.19	0.083	34.77	-15.58
	QPSK	693.0	V	100	9	3.44	1 / 25	16.88	20.33	0.108	36.99	-16.66	18.18	0.066	34.77	-16.59
	16-QAM	680.5	V	100	201	3.09	1 / 49	17.56	20.65	0.116	36.99	-16.34	18.50	0.071	34.77	-16.28
5 MHz	QPSK	665.5	V	100	197	2.59	1 / 12	17.31	19.90	0.098	36.99	-17.09	17.75	0.060	34.77	-17.02
	QPSK	680.5	V	100	201	3.09	1 / 12	18.35	21.44	0.139	36.99	-15.55	19.29	0.085	34.77	-15.49
	QPSK	695.5	V	100	9	3.48	1 / 12	16.64	20.12	0.103	36.99	-16.87	17.97	0.063	34.77	-16.80
	16-QAM	680.5	V	100	201	3.09	1 / 12	17.90	20.98	0.125	36.99	-16.01	18.83	0.076	34.77	-15.94
20 MHz	Opposite Pol.	680.5	H	139	17	3.09	1 / 99	16.14	19.23	0.084	36.99	-17.76	17.08	0.051	34.77	-17.70
	Opposite Pol.	680.5	H	141	280	3.09	1 / 99	15.84	18.93	0.078	36.99	-18.06	16.78	0.048	34.77	-18.00
	WCP	680.5	V	102	251	3.09	1 / 99	11.40	14.49	0.028	36.99	-22.50	12.34	0.017	34.77	-22.44

Table 7-4. ERP Data (LTE Band 71)

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]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
10 MHz	QPSK	704.0	V	100	194	3.58	1 / 0	16.69	20.27	0.106	36.99	-16.72	18.12	0.065	34.77	-16.65
	QPSK	707.5	V	172	325	3.62	1 / 0	15.30	18.92	0.078	36.99	-18.07	16.77	0.048	34.77	-18.00
	QPSK	711.0	V	101	358	3.67	1 / 49	15.70	19.37	0.086	36.99	-17.62	17.22	0.053	34.77	-17.55
	16-QAM	704.0	V	100	194	3.58	1 / 0	16.01	19.59	0.091	36.99	-17.40	17.44	0.055	34.77	-17.33
5 MHz	QPSK	701.5	V	100	194	3.55	1 / 0	16.65	20.20	0.105	36.99	-16.79	18.05	0.064	34.77	-16.72
	QPSK	707.5	V	172	325	3.62	1 / 12	15.48	19.11	0.081	36.99	-17.88	16.96	0.050	34.77	-17.81
	QPSK	713.5	V	101	358	3.80	1 / 24	15.45	19.25	0.084	36.99	-17.74	17.10	0.051	34.77	-17.67
	16-QAM	701.5	V	100	194	3.55	1 / 12	16.23	19.78	0.095	36.99	-17.21	17.63	0.058	34.77	-17.14
3 MHz	QPSK	700.5	V	100	194	3.54	1 / 14	16.76	20.29	0.107	36.99	-16.70	18.14	0.065	34.77	-16.63
	QPSK	707.5	V	172	325	3.62	1 / 14	15.43	19.05	0.080	36.99	-17.94	16.90	0.049	34.77	-17.87
	QPSK	714.5	V	101	358	3.81	1 / 0	15.30	19.11	0.081	36.99	-17.88	16.96	0.050	34.77	-17.81
	16-QAM	700.5	V	100	194	3.54	1 / 0	15.96	19.50	0.089	36.99	-17.49	17.35	0.054	34.77	-17.42
1.4 MHz	QPSK	699.7	V	100	194	3.53	1 / 3	16.65	20.18	0.104	36.99	-16.81	18.03	0.064	34.77	-16.74
	QPSK	707.5	V	172	325	3.62	1 / 0	15.34	18.96	0.079	36.99	-18.03	16.81	0.048	34.77	-17.96
	QPSK	715.3	V	101	358	3.85	1 / 3	15.38	19.23	0.084	36.99	-17.76	17.08	0.051	34.77	-17.69
	16-QAM	699.7	V	100	194	3.53	1 / 3	16.13	19.65	0.092	36.99	-17.34	17.50	0.056	34.77	-17.27
10 MHz	Opposite Pol.	704.0	H	256	14	3.48	1 / 49	14.97	18.45	0.070	36.99	-18.54	16.30	0.043	34.77	-18.47
	Opposite Pol.	704.0	H	307	264	3.48	1 / 49	14.08	17.56	0.057	36.99	-19.43	15.41	0.035	34.77	-19.36
	WCP	704.0	V	157	64	3.58	1 / 49	9.13	12.71	0.019	36.99	-24.28	10.56	0.011	34.77	-24.21

Table 7-5. ERP Data (LTE Band 12)

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]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
10 MHz	QPSK	782.0	V	149	266	5.99	1 / 49	14.63	20.62	0.115	36.99	-16.37	18.47	0.070	34.77	-16.30
	16-QAM	782.0	V	149	266	5.99	1 / 49	13.83	19.82	0.096	36.99	-17.17	17.67	0.059	34.77	-17.10
5 MHz	QPSK	779.5	V	149	266	5.97	1 / 24	14.39	20.35	0.108	36.99	-16.64	18.20	0.066	34.77	-16.57
	QPSK	782.0	V	149	266	5.99	1 / 24	14.86	20.85	0.122	36.99	-16.14	18.70	0.074	34.77	-16.07
	QPSK	784.5	V	149	266	6.07	1 / 24	14.36	20.43	0.110	36.99	-16.56	18.28	0.067	34.77	-16.49
	16-QAM	779.5	V	149	266	5.97	1 / 24	14.13	20.10	0.102	36.99	-16.89	17.95	0.062	34.77	-16.82
10 MHz	Opposite Pol.	782.0	H	227	21	6.09	1 / 0	13.55	19.64	0.092	36.99	-17.35	17.49	0.056	34.77	-17.28
	Opposite Pol.	782.0	H	237	289	6.09	1 / 0	12.87	18.96	0.079	36.99	-18.03	16.81	0.048	34.77	-17.96
	WCP	782.0	V	138	1	5.99	1 / 49	7.91	13.90	0.025	36.99	-23.09	11.75	0.015	34.77	-23.02

Table 7-6. ERP Data (LTE Band 13)

FCC ID: A3LSMF711U1		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 219 of 262

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]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
20 MHz	$\pi/2$ BPSK	673.0	V	104	288	2.89	1 / 26	15.79	18.68	0.074	36.99	-18.31	16.53	0.045	34.77	-18.24
	$\pi/2$ BPSK	680.5	V	164	363	3.09	1 / 26	15.74	18.83	0.076	36.99	-18.16	16.68	0.047	34.77	-18.10
	$\pi/2$ BPSK	688.0	V	100	297	3.28	1 / 26	15.42	18.70	0.074	36.99	-18.29	16.55	0.045	34.77	-18.22
	QPSK	673.0	V	104	288	2.89	1 / 26	15.94	18.83	0.076	36.99	-18.16	16.68	0.047	34.77	-18.09
	16-QAM	688.0	V	100	297	3.28	1 / 26	15.01	18.29	0.067	36.99	-18.70	16.14	0.041	34.77	-18.63
15 MHz	$\pi/2$ BPSK	670.5	V	104	288	2.76	1 / 20	15.76	18.52	0.071	36.99	-18.47	16.37	0.043	34.77	-18.40
	$\pi/2$ BPSK	680.5	V	164	363	3.09	1 / 39	15.83	18.92	0.078	36.99	-18.07	16.77	0.048	34.77	-18.00
	$\pi/2$ BPSK	690.5	V	100	297	3.31	1 / 20	15.59	18.91	0.078	36.99	-18.08	16.76	0.047	34.77	-18.02
	QPSK	670.5	V	104	288	2.76	1 / 20	16.21	18.97	0.079	36.99	-18.02	16.82	0.048	34.77	-17.95
	16-QAM	690.5	V	100	297	3.31	1 / 20	15.23	18.55	0.072	36.99	-18.44	16.40	0.044	34.77	-18.37
10 MHz	$\pi/2$ BPSK	668.0	V	104	288	2.72	1 / 13	16.06	18.78	0.076	36.99	-18.21	16.63	0.046	34.77	-18.14
	$\pi/2$ BPSK	680.5	V	164	363	3.09	1 / 26	15.84	18.93	0.078	36.99	-18.06	16.78	0.048	34.77	-17.99
	$\pi/2$ BPSK	693.0	V	100	297	3.44	1 / 26	15.33	18.77	0.075	36.99	-18.22	16.62	0.046	34.77	-18.15
	QPSK	668.0	V	104	288	2.72	1 / 13	16.18	18.91	0.078	36.99	-18.08	16.76	0.047	34.77	-18.01
	16-QAM	693.0	V	100	297	3.44	1 / 26	14.81	18.25	0.067	36.99	-18.74	16.10	0.041	34.77	-18.67
5 MHz	$\pi/2$ BPSK	665.5	V	104	288	2.59	1 / 6	16.18	18.77	0.075	36.99	-18.21	16.62	0.046	34.77	-18.15
	$\pi/2$ BPSK	680.5	V	164	363	3.09	1 / 6	15.97	19.06	0.081	36.99	-17.93	16.91	0.049	34.77	-17.86
	$\pi/2$ BPSK	695.5	V	100	297	3.48	1 / 6	15.28	18.76	0.075	36.99	-18.23	16.61	0.046	34.77	-18.17
	QPSK	665.5	V	104	288	2.59	1 / 6	16.24	18.83	0.076	36.99	-18.16	16.68	0.047	34.77	-18.09
	16-QAM	695.5	V	100	297	3.48	1 / 6	14.98	18.45	0.070	36.99	-18.54	16.30	0.043	34.77	-18.47
20 MHz	QPSK (CP-OFDM)	673.0	V	100	348	2.89	1 / 26	14.70	17.59	0.057	36.99	-19.40	15.44	0.035	34.77	-19.33
	QPSK (Opposite Pol.)	673.0	H	295	28	2.99	1 / 79	14.48	17.47	0.056	36.99	-19.52	15.32	0.034	34.77	-19.45
	QPSK (Opposite Pol.)	673.0	H	150	253	2.99	1 / 79	12.94	15.93	0.039	36.99	-21.06	13.78	0.024	34.77	-20.99
	QPSK (WCP)	673.0	V	153	175	2.89	1 / 26	6.49	9.38	0.009	36.99	-27.61	7.23	0.005	34.77	-27.54

Table 7-7. EIRP Data (NR Band n71)

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]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
15 MHz	$\pi/2$ BPSK	706.5	H	101	169	3.51	1 / 20	14.30	17.81	0.060	36.99	-19.18	15.66	0.037	34.77	-19.11
	$\pi/2$ BPSK	707.5	H	101	168	3.52	1 / 39	14.51	18.03	0.064	36.99	-18.96	15.88	0.039	34.77	-18.89
	$\pi/2$ BPSK	708.5	H	102	166	3.54	1 / 39	14.63	18.17	0.066	36.99	-18.82	16.02	0.040	34.77	-18.76
	QPSK	708.5	H	102	166	3.54	1 / 20	14.48	18.02	0.063	36.99	-18.97	15.87	0.039	34.77	-18.91
	16-QAM	708.5	H	102	166	3.54	1 / 20	13.98	17.52	0.056	36.99	-19.47	15.37	0.034	34.77	-19.41
10 MHz	$\pi/2$ BPSK	704.0	H	101	169	3.48	1 / 38	14.31	17.79	0.060	36.99	-19.20	15.64	0.037	34.77	-19.13
	$\pi/2$ BPSK	707.5	H	101	168	3.52	1 / 38	14.53	18.05	0.064	36.99	-18.93	15.90	0.039	34.77	-18.87
	$\pi/2$ BPSK	711.0	H	102	166	3.57	1 / 38	14.40	17.97	0.063	36.99	-19.02	15.82	0.038	34.77	-18.96
	QPSK	711.0	H	102	166	3.57	1 / 38	14.52	18.09	0.064	36.99	-18.90	15.94	0.039	34.77	-18.83
	16-QAM	711.0	H	102	166	3.57	1 / 38	13.98	17.55	0.057	36.99	-19.44	15.40	0.035	34.77	-19.38
5 MHz	$\pi/2$ BPSK	701.5	H	101	169	3.45	1 / 18	14.53	17.98	0.063	36.99	-19.01	15.83	0.038	34.77	-18.94
	$\pi/2$ BPSK	707.5	H	101	168	3.52	1 / 18	14.53	18.06	0.064	36.99	-18.93	15.91	0.039	34.77	-18.86
	$\pi/2$ BPSK	713.5	H	102	166	3.70	1 / 18	14.40	18.10	0.065	36.99	-18.89	15.95	0.039	34.77	-18.82
	QPSK	713.5	H	102	166	3.70	1 / 18	14.26	17.96	0.063	36.99	-19.03	15.81	0.038	34.77	-18.96
	16-QAM	701.5	H	101	169	3.45	1 / 18	14.33	17.78	0.060	36.99	-19.21	15.63	0.037	34.77	-19.14
15 MHz	QPSK (CP-OFDM)	708.5	H	165	166	3.54	1 / 39	12.73	16.27	0.042	36.99	-20.72	14.12	0.026	34.77	-20.66
	QPSK (Opposite Pol.)	708.5	V	160	221	3.64	1 / 58	13.10	16.74	0.047	36.99	-20.25	14.59	0.029	34.77	-20.19
	QPSK (Opposite Pol.)	708.5	V	150	170	3.64	1 / 39	9.91	13.55	0.023	36.99	-23.44	11.40	0.014	34.77	-23.38
	QPSK (WCP)	708.5	H	152	28	3.54	1 / 20	5.60	9.14	0.008	36.99	-27.85	6.99	0.005	34.77	-27.79

Table 7-8. EIRP Data (NR Band n12)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1712.40	WCDMA1700	H	139	176	14.44	9.46	23.90	0.246	30.00	-6.10
1732.60	WCDMA1700	H	115	144	13.96	9.34	23.30	0.214	30.00	-6.70
1752.60	WCDMA1700	H	172	144	13.39	9.24	22.63	0.183	30.00	-7.37
1712.40	WCDMA1700	V	175	325	12.00	9.37	21.37	0.137	30.00	-8.63
1712.40	WCDMA1700 (Closed)	H	189	171	11.31	9.46	20.77	0.119	30.00	-9.23
1712.40	WCDMA1700 (WCP)	H	243	198	12.56	9.46	22.02	0.159	30.00	-7.98

Table 7-9. EIRP Data (WCDMA AWS)

FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset
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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	H	183	237	9.41	1 / 0	12.38	21.79	0.151	30.00	-8.21
		1745.0	H	172	227	9.26	1 / 99	13.57	22.83	0.192	30.00	-7.17
		1770.0	H	168	231	9.27	1 / 0	13.77	23.04	0.201	30.00	-6.96
	16-QAM	1770.0	H	168	231	9.27	1 / 0	13.15	22.42	0.175	30.00	-7.58
15 MHz	QPSK	1717.5	H	183	237	9.43	1 / 37	12.58	22.01	0.159	30.00	-7.99
		1745.0	H	172	227	9.26	1 / 37	13.57	22.83	0.192	30.00	-7.17
		1772.5	H	168	231	9.27	1 / 0	13.76	23.03	0.201	30.00	-6.97
	16-QAM	1772.5	H	168	231	9.27	1 / 0	13.23	22.50	0.178	30.00	-7.50
10 MHz	QPSK	1715.0	H	183	237	9.44	1 / 25	12.51	21.96	0.157	30.00	-8.04
		1745.0	H	172	227	9.26	1 / 25	13.66	22.92	0.196	30.00	-7.08
		1775.0	H	168	231	9.28	1 / 0	13.43	22.71	0.187	30.00	-7.29
	16-QAM	1775.0	H	168	231	9.28	1 / 0	12.97	22.25	0.168	30.00	-7.75
5 MHz	QPSK	1712.5	H	183	237	9.46	1 / 0	12.50	21.96	0.157	30.00	-8.04
		1745.0	H	172	227	9.26	1 / 12	13.68	22.94	0.197	30.00	-7.06
		1777.5	H	168	231	9.28	1 / 0	13.34	22.63	0.183	30.00	-7.37
	16-QAM	1745.0	H	172	227	9.26	1 / 12	12.86	22.12	0.163	30.00	-7.88
3 MHz	QPSK	1711.5	H	183	237	9.47	1 / 14	12.68	22.15	0.164	30.00	-7.85
		1745.0	H	172	227	9.26	1 / 0	13.85	23.11	0.204	30.00	-6.89
		1778.5	H	168	231	9.28	1 / 14	13.18	22.46	0.176	30.00	-7.54
	16-QAM	1745.0	H	172	227	9.26	1 / 0	12.90	22.17	0.165	30.00	-7.83
1.4 MHz	QPSK	1710.7	H	183	237	9.47	1 / 3	12.54	22.02	0.159	30.00	-7.98
		1745.0	H	172	227	9.26	1 / 5	13.65	22.91	0.195	30.00	-7.09
		1779.3	H	168	231	9.29	1 / 5	13.13	22.42	0.175	30.00	-7.58
	16-QAM	1745.0	H	172	227	9.26	1 / 5	12.75	22.01	0.159	30.00	-7.99
20 MHz	Opposite Pol.	1770.0	V	209	92	9.14	1 / 0	11.49	20.63	0.116	30.00	-9.37
	QPSK (Closed)	1770.0	H	164	184	9.27	1 / 0	13.04	22.31	0.170	30.00	-7.69
	WCP	1770.0	H	262	190	9.27	1 / 0	13.17	22.44	0.175	30.00	-7.56

Table 7-10. EIRP Data (LTE Band 66/4)

FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset
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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	π/2 BPSK	1730.0	V	146	310	9.24	1 / 108	14.80	24.04	0.254	30.00	-5.96
		1745.0	V	132	319	9.14	1 / 108	15.07	24.21	0.263	30.00	-5.79
		1760.0	V	132	311	9.14	1 / 54	14.12	23.26	0.212	30.00	-6.74
	QPSK	1730.0	V	146	310	9.24	1 / 161	14.44	23.68	0.233	30.00	-6.32
		1745.0	V	132	319	9.14	1 / 108	14.97	24.11	0.257	30.00	-5.89
		1760.0	V	132	311	9.14	1 / 54	13.76	22.90	0.195	30.00	-7.10
	16-QAM	1745.0	V	132	319	9.14	1 / 108	14.19	23.33	0.215	30.00	-6.67
30 MHz	π/2 BPSK	1725.0	V	146	310	9.28	1 / 40	14.87	24.15	0.260	30.00	-5.85
		1745.0	V	132	319	9.14	1 / 119	15.08	24.22	0.264	30.00	-5.78
		1765.0	V	132	311	9.15	1 / 119	13.91	23.06	0.202	30.00	-6.94
	QPSK	1725.0	V	146	310	9.28	1 / 40	14.59	23.86	0.243	30.00	-6.14
		1745.0	V	132	319	9.14	1 / 119	14.96	24.10	0.257	30.00	-5.90
		1765.0	V	132	311	9.15	1 / 119	13.60	22.76	0.189	30.00	-7.24
	16-QAM	1745.0	V	132	319	9.14	1 / 119	14.36	23.49	0.224	30.00	-6.51
20 MHz	π/2 BPSK	1720.0	V	146	310	9.31	1 / 79	14.70	24.02	0.252	30.00	-5.98
		1745.0	V	132	319	9.14	1 / 26	15.06	24.19	0.263	30.00	-5.81
		1770.0	V	132	311	9.17	1 / 79	13.85	23.02	0.200	30.00	-6.98
	QPSK	1720.0	V	146	310	9.31	1 / 79	14.57	23.88	0.244	30.00	-6.12
		1745.0	V	132	319	9.14	1 / 26	14.65	23.79	0.239	30.00	-6.21
		1770.0	V	132	311	9.17	1 / 79	13.24	22.41	0.174	30.00	-7.59
	16-QAM	1745.0	V	132	319	9.14	1 / 26	14.04	23.18	0.208	30.00	-6.82
15 MHz	π/2 BPSK	1717.5	V	146	310	9.33	1 / 20	14.76	24.09	0.256	30.00	-5.91
		1745.0	V	132	319	9.14	1 / 58	15.05	24.19	0.262	30.00	-5.81
		1772.5	V	132	311	9.18	1 / 20	13.92	23.10	0.204	30.00	-6.90
	QPSK	1717.5	V	146	310	9.33	1 / 20	14.47	23.80	0.240	30.00	-6.20
		1745.0	V	132	319	9.14	1 / 58	14.77	23.91	0.246	30.00	-6.09
		1772.5	V	132	311	9.18	1 / 20	13.78	22.96	0.198	30.00	-7.04
	16-QAM	1717.5	V	146	310	9.33	1 / 20	13.72	23.05	0.202	30.00	-6.95
10 MHz	π/2 BPSK	1715.0	V	146	310	9.35	1 / 13	14.59	23.94	0.248	30.00	-6.06
		1745.0	V	132	319	9.14	1 / 38	15.06	24.19	0.263	30.00	-5.81
		1775.0	V	132	311	9.18	1 / 26	14.13	23.32	0.215	30.00	-6.68
	QPSK	1715.0	V	146	310	9.35	1 / 13	14.52	23.86	0.243	30.00	-6.14
		1745.0	V	132	319	9.14	1 / 38	14.71	23.84	0.242	30.00	-6.16
		1775.0	V	132	311	9.18	1 / 26	12.97	22.15	0.164	30.00	-7.85
	16-QAM	1745.0	V	132	319	9.14	1 / 38	13.76	22.90	0.195	30.00	-7.10
5 MHz	π/2 BPSK	1712.5	V	146	310	9.37	1 / 18	14.75	24.12	0.258	30.00	-5.88
		1745.0	V	132	319	9.14	1 / 18	15.09	24.23	0.265	30.00	-5.77
		1777.5	V	132	311	9.19	1 / 6	13.99	23.18	0.208	30.00	-6.82
	QPSK	1712.5	V	146	310	9.37	1 / 18	14.45	23.81	0.241	30.00	-6.19
		1745.0	V	132	319	9.14	1 / 18	14.82	23.96	0.249	30.00	-6.04
		1777.5	V	132	311	9.19	1 / 6	13.05	22.24	0.168	30.00	-7.76
	16-QAM	1712.5	V	146	310	9.37	1 / 18	13.77	23.13	0.206	30.00	-6.87
40 MHz	QPSK (CP-OFDM)	1745.0	V	132	319	9.14	1 / 108	13.13	22.27	0.169	30.00	-7.73
	QPSK (Closed)	1745.0	H	106	182	9.26	1 / 161	11.64	20.90	0.123	30.00	-9.10
	QPSK (Opposite Pol.)	1745.0	H	179	139	9.26	1 / 54	13.44	22.70	0.186	30.00	-7.30
	QPSK (WCP)	1745.0	V	114	310	9.14	1 / 108	8.57	17.71	0.059	30.00	-12.29

Table 7-11. EIRP Data (NR Band n66 – Ant A)

FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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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	π/2 BPSK	1730.0	H	139	214	9.35	1 / 108	12.49	21.84	0.153	30.00	-8.16
		1745.0	H	139	220	9.26	1 / 54	12.16	21.42	0.139	30.00	-8.58
		1760.0	H	126	216	9.25	1 / 54	11.42	20.67	0.117	30.00	-9.33
	QPSK	1730.0	H	139	214	9.35	1 / 108	12.47	21.82	0.152	30.00	-8.18
		1745.0	H	139	220	9.26	1 / 54	12.05	21.31	0.135	30.00	-8.69
		1760.0	H	126	216	9.25	1 / 54	11.54	20.79	0.120	30.00	-9.21
	16-QAM	1730.0	H	139	214	9.35	1 / 108	11.28	20.63	0.116	30.00	-9.37
30 MHz	π/2 BPSK	1725.0	H	139	214	9.38	1 / 40	12.57	21.95	0.157	30.00	-8.05
		1745.0	H	139	220	9.26	1 / 119	12.17	21.43	0.139	30.00	-8.57
		1765.0	H	126	216	9.26	1 / 119	11.22	20.47	0.112	30.00	-9.53
	QPSK	1725.0	H	139	214	9.38	1 / 40	12.62	22.00	0.159	30.00	-8.00
		1745.0	H	139	220	9.26	1 / 119	12.04	21.30	0.135	30.00	-8.70
		1765.0	H	126	216	9.26	1 / 119	11.39	20.65	0.116	30.00	-9.35
	16-QAM	1725.0	H	139	214	9.38	1 / 40	11.17	20.55	0.114	30.00	-9.45
20 MHz	π/2 BPSK	1720.0	H	139	214	9.41	1 / 79	12.40	21.82	0.152	30.00	-8.18
		1745.0	H	139	220	9.26	1 / 26	12.15	21.41	0.138	30.00	-8.59
		1770.0	H	126	216	9.27	1 / 79	11.16	20.43	0.110	30.00	-9.57
	QPSK	1720.0	H	139	214	9.41	1 / 79	12.60	22.02	0.159	30.00	-7.98
		1745.0	H	139	220	9.26	1 / 26	11.73	20.99	0.126	30.00	-9.01
		1770.0	H	126	216	9.27	1 / 79	11.03	20.30	0.107	30.00	-9.70
	16-QAM	1720.0	H	139	214	9.41	1 / 79	11.06	20.47	0.112	30.00	-9.53
15 MHz	π/2 BPSK	1717.5	H	139	214	9.43	1 / 20	12.46	21.89	0.154	30.00	-8.11
		1745.0	H	139	220	9.26	1 / 58	12.14	21.40	0.138	30.00	-8.60
		1772.5	H	126	216	9.27	1 / 20	11.24	20.51	0.112	30.00	-9.49
	QPSK	1717.5	H	139	214	9.43	1 / 20	12.51	21.94	0.156	30.00	-8.06
		1745.0	H	139	220	9.26	1 / 58	11.85	21.11	0.129	30.00	-8.89
		1772.5	H	126	216	9.27	1 / 20	11.58	20.85	0.122	30.00	-9.15
	16-QAM	1717.5	H	139	214	9.43	1 / 20	11.14	20.57	0.114	30.00	-9.43
10 MHz	π/2 BPSK	1715.0	H	139	214	9.44	1 / 13	12.30	21.74	0.149	30.00	-8.26
		1745.0	H	139	220	9.26	1 / 38	12.15	21.41	0.138	30.00	-8.59
		1775.0	H	126	216	9.28	1 / 26	11.45	20.73	0.118	30.00	-9.27
	QPSK	1715.0	H	139	214	9.44	1 / 13	12.56	22.00	0.159	30.00	-8.00
		1745.0	H	139	220	9.26	1 / 38	11.79	21.05	0.127	30.00	-8.95
		1775.0	H	126	216	9.28	1 / 26	10.77	20.05	0.101	30.00	-9.95
	16-QAM	1715.0	H	139	214	9.44	1 / 13	10.95	20.39	0.109	30.00	-9.61
5 MHz	π/2 BPSK	1712.5	H	139	214	9.46	1 / 18	12.46	21.92	0.156	30.00	-8.08
		1745.0	H	139	220	9.26	1 / 18	12.18	21.44	0.139	30.00	-8.56
		1777.5	H	126	216	9.28	1 / 6	11.32	20.60	0.115	30.00	-9.40
	QPSK	1712.5	H	139	214	9.46	1 / 18	12.49	21.95	0.157	30.00	-8.05
		1745.0	H	139	220	9.26	1 / 18	11.90	21.16	0.131	30.00	-8.84
		1777.5	H	126	216	9.28	1 / 6	10.86	20.14	0.103	30.00	-9.86
	16-QAM	1712.5	H	139	214	9.46	1 / 18	11.19	20.65	0.116	30.00	-9.35
40 MHz	QPSK (CP-OFDM)	1730.0	H	139	214	9.35	1 / 108	11.16	20.51	0.113	30.00	-9.49
	QPSK (Closed)	1730.0	V	100	270	9.24	1 / 161	8.78	18.02	0.063	30.00	-11.98
	QPSK (Opposite Pol.)	1730.0	V	214	282	9.24	1 / 108	11.73	20.97	0.125	30.00	-9.03
	QPSK (WCP)	1730.0	H	291	333	9.35	1 / 161	8.77	18.12	0.065	30.00	-11.88

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

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7.9 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the field strength conversion method described in KDB 971168 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

Test Settings

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

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Test Setup

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

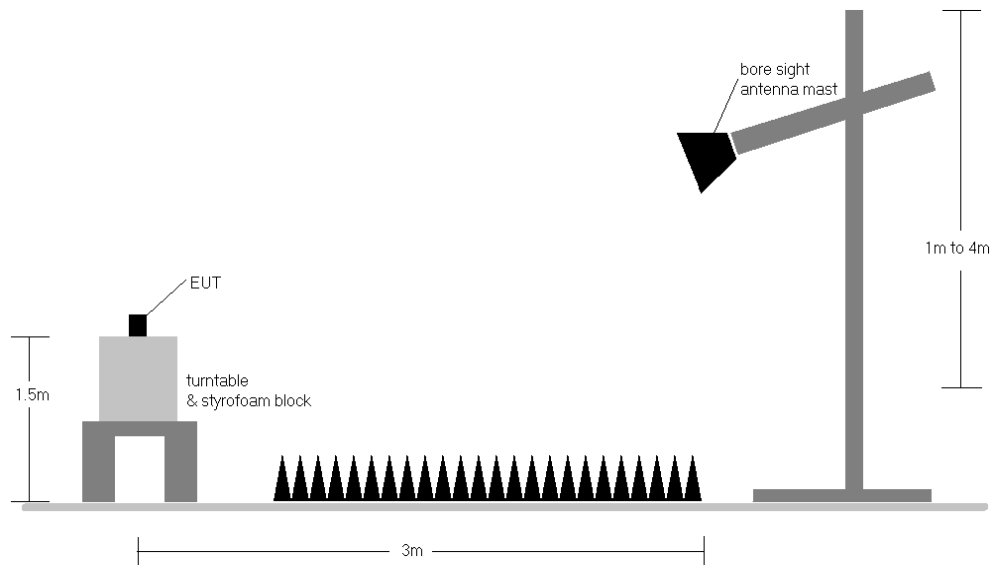


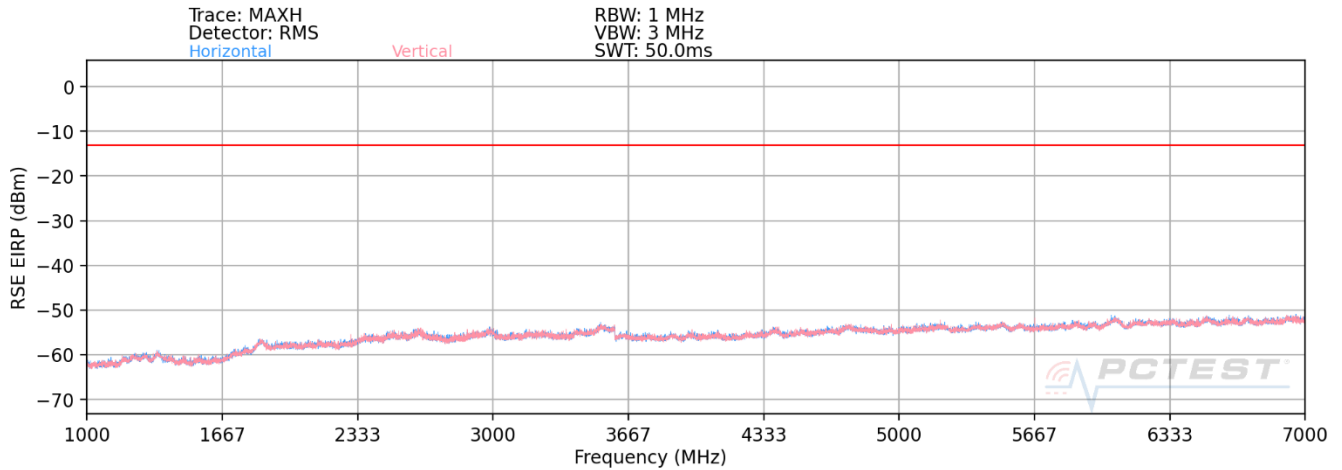
Figure 7-9. Test Instrument & Measurement Setup >1 GHz

Test Notes

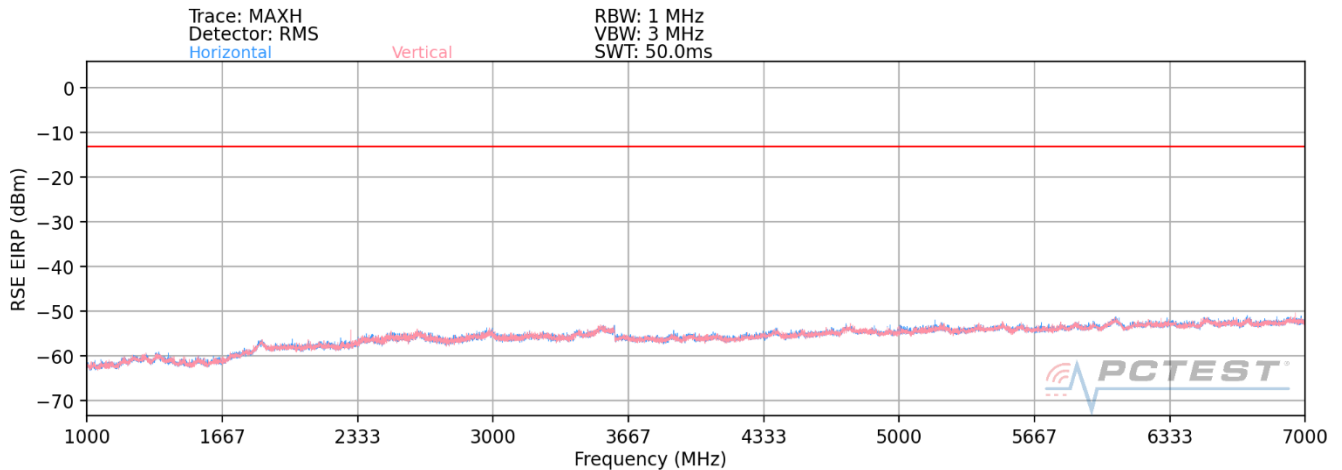
- Field strengths are calculated using the Measurement quantity conversions in KDB 971168 Section 5.8.4.
 - $E(\text{dB}\mu\text{V}/\text{m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$
 - $\text{EIRP (dBm)} = E(\text{dB}\mu\text{V}/\text{m}) + 20\log D - 104.8$; where D is the measurement distance in meters.
- 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.
- This unit was tested with its standard battery.
- The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 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.
- The "-" shown in the following RSE tables are used to denote a noise floor measurement.
- ULCA 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.
- 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.
- 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.

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LTE Band 71



Plot 7-377. Radiated Spurious Plot (LTE Band 71 – Open)



Plot 7-378. Radiated Spurious Plot (LTE Band 71 – Closed)

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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]
1346.00	H	-	-	-64.52	-1.14	41.34	-53.91	-13.00	-40.91
2019.00	H	-	-	-63.63	0.78	44.15	-51.11	-13.00	-38.11
2692.00	H	-	-	-61.56	2.22	47.66	-47.60	-13.00	-34.60

Table 7-13. Radiated Spurious Data (LTE Band 71 – Low Channel – Open)

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]
1361.00	H	-	-	-64.60	-1.52	40.88	-54.38	-13.00	-41.38
2041.50	H	-	-	-63.64	0.71	44.07	-51.19	-13.00	-38.19
2722.00	H	-	-	-61.64	2.02	47.38	-47.88	-13.00	-34.88

Table 7-14. Radiated Spurious Data (LTE Band 71 – Mid Channel – Open)

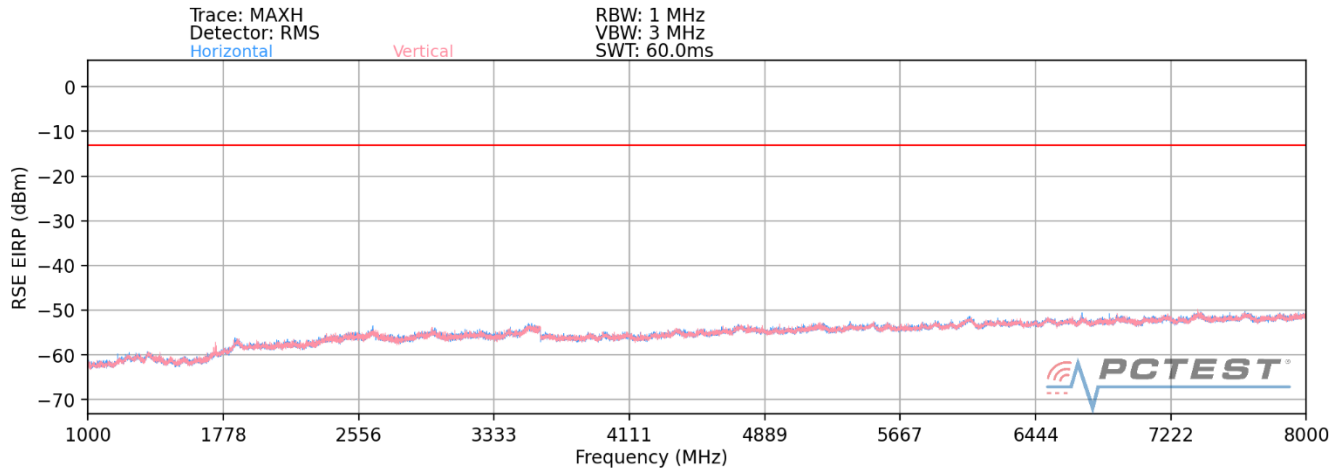
Bandwidth (MHz):	20
Frequency (MHz):	688
RB / Offset:	1 / 50

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]
1376.00	H	-	-	-64.56	-1.74	40.70	-54.55	-13.00	-41.55
2064.00	H	-	-	-63.57	0.46	43.89	-51.36	-13.00	-38.36
2752.00	H	-	-	-61.67	1.61	46.94	-48.32	-13.00	-35.32

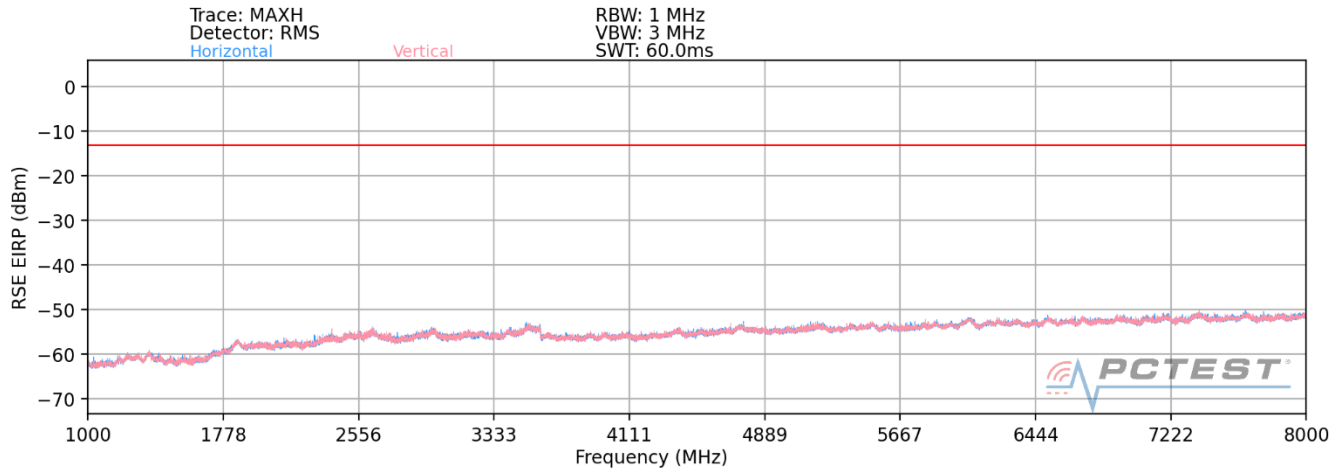
Table 7-15. Radiated Spurious Data (LTE Band 71 – High Channel – Open)

FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
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LTE Band 12



Plot 7-379. Radiated Spurious Plot (LTE Band 12 – Open)



Plot 7-380. Radiated Spurious Plot (LTE Band 12 – Closed)

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]
1408.00	H	154.00	136.00	-67.06	-2.25	37.69	-57.56	-13.00	-44.56
2112.00	H	-	-	-76.91	0.93	31.02	-64.24	-13.00	-51.24
2816.00	H	-	-	-76.93	1.97	32.04	-63.22	-13.00	-50.22

Table 7-16. Radiated Spurious Data (LTE Band 12 – Low Channel – Open)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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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]
1415.00	H	152.00	139.00	-70.90	-2.27	33.83	-61.43	-13.00	-48.43
2122.50	H	-	-	-76.86	0.95	31.09	-64.17	-13.00	-51.17
2830.00	H	-	-	-77.01	1.98	31.97	-63.29	-13.00	-50.29

Table 7-17. Radiated Spurious Data (LTE Band 12 – Mid Channel – Open)

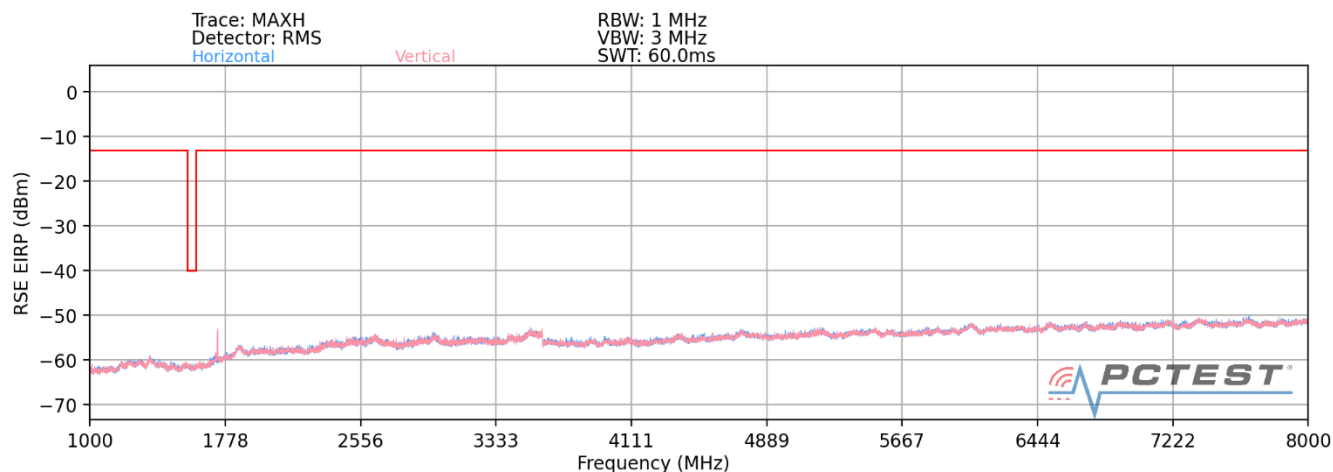
Bandwidth (MHz):	10
Frequency (MHz):	711
RB / Offset:	1 / 25

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]
1422.00	H	151.00	141.00	-70.20	-2.40	34.40	-60.86	-13.00	-47.86
2133.00	H	-	-	-76.78	1.01	31.23	-64.03	-13.00	-51.03
2844.00	H	-	-	-76.89	2.04	32.15	-63.10	-13.00	-50.10

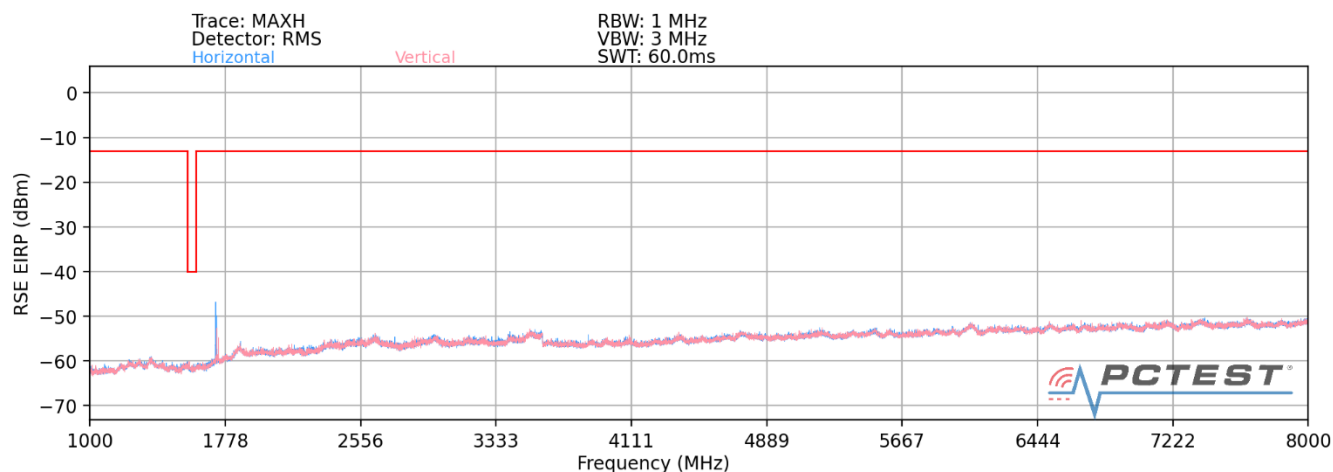
Table 7-18. Radiated Spurious Data (LTE Band 12 – High Channel – Open)

FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
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LTE Band 13



Plot 7-381. Radiated Spurious Plot (LTE Band 13 – Open)



Plot 7-382. Radiated Spurious Plot (LTE Band 13 – Closed)

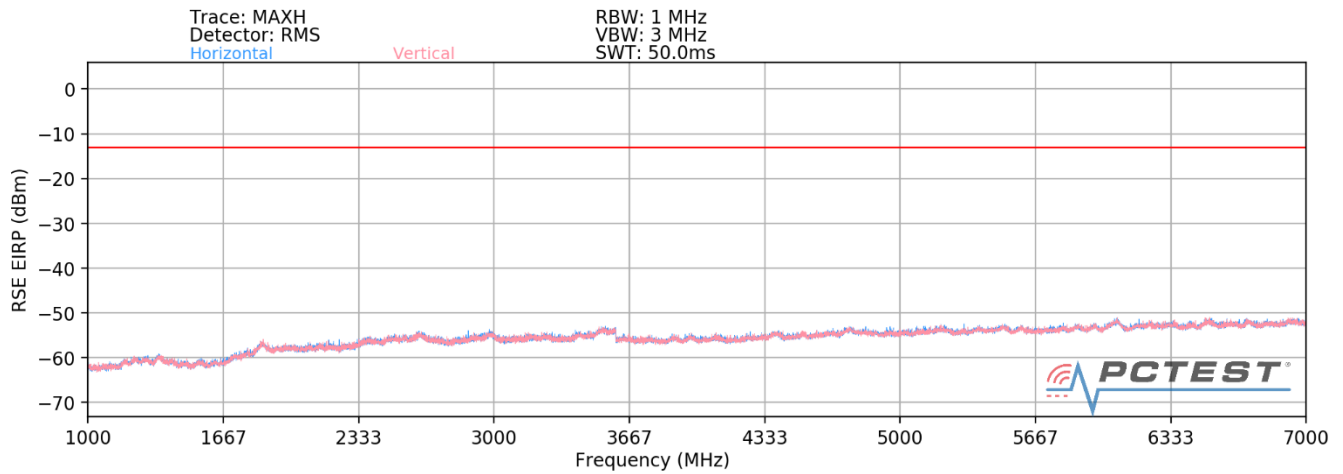
Bandwidth (MHz):	10
Frequency (MHz):	782
RB / Offset:	1 / 25

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]
1564.00	H	121.00	359.00	-75.36	-2.52	29.12	-66.14	-40.00	-26.14
2346.00	H	119.00	19.00	-74.90	1.72	33.82	-61.44	-13.00	-48.44
3128.00	H	-	-	-77.39	2.42	32.03	-63.22	-13.00	-50.22
3910.00	H	-	-	-78.28	3.48	32.20	-63.06	-13.00	-50.06

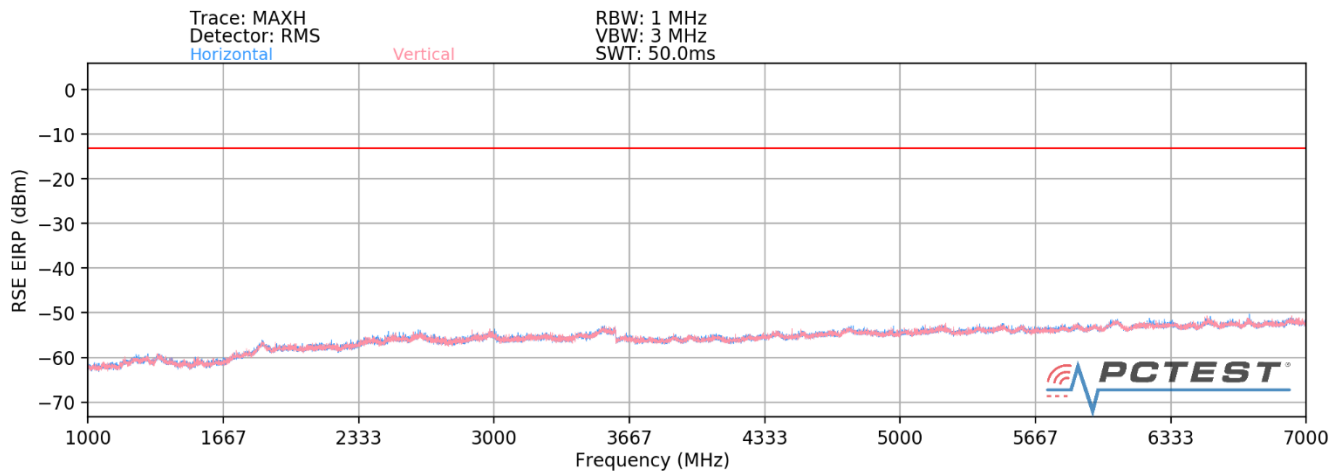
Table 7-19. Radiated Spurious Data (LTE Band 13 – Mid Channel – Open)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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NR Band n71



Plot 7-383. Radiated Spurious Plot (NR Band n71 – Open)



Plot 7-384. Radiated Spurious Plot (NR Band n71 – Closed)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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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]
1346.00	H	112	36	-73.34	-1.14	32.52	-62.73	-13.00	-49.73
2019.00	H	147	239	-76.70	0.78	31.08	-64.18	-13.00	-51.18
2692.00	H	-	-	-77.83	2.22	31.39	-63.87	-13.00	-50.87
3365.00	H	-	-	-77.91	2.32	31.41	-63.84	-13.00	-50.84

Table 7-20. Radiated Spurious Data (NR Band n71 – Low Channel – Open)

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]
1361.00	H	190	38	-74.61	-1.52	30.87	-64.39	-13.00	-51.39
2041.50	H	-	-	-77.59	0.71	30.12	-65.14	-13.00	-52.14
2722.00	H	-	-	-77.76	2.02	31.26	-64.00	-13.00	-51.00
3402.50	H	-	-	-77.98	2.46	31.48	-63.77	-13.00	-50.77

Table 7-21. Radiated Spurious Data (NR Band n71 – Mid Channel – Open)

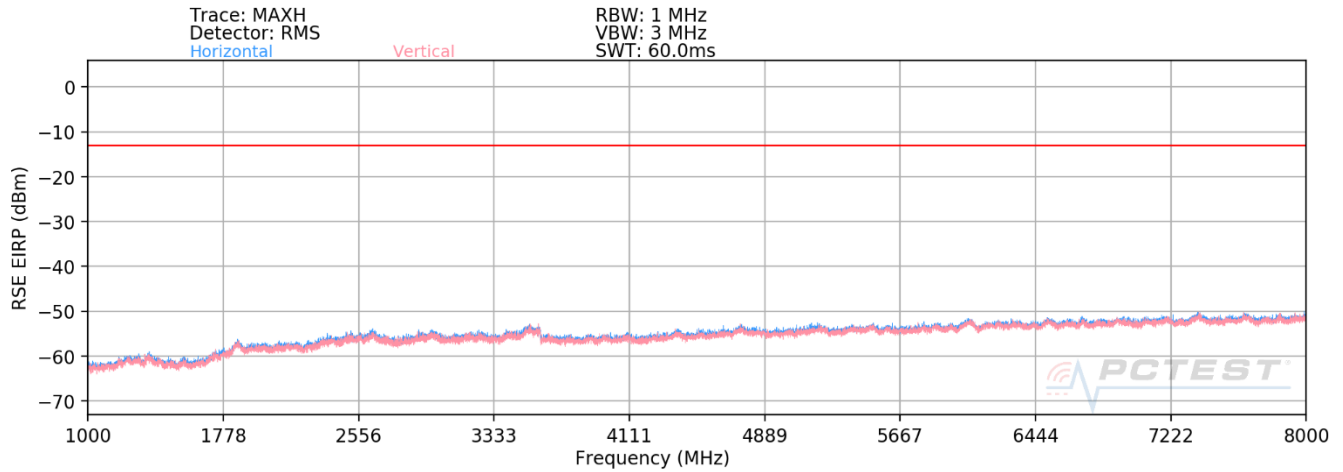
Bandwidth (MHz):	20
Frequency (MHz):	688
RB / Offset:	1 / 53
Mode:	Stand Alone

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]
1376.00	H	159	300	-76.33	-1.74	28.93	-66.32	-13.00	-53.32
2064.00	H	208	181	-76.54	0.46	30.92	-64.33	-13.00	-51.33
2752.00	H	-	-	-77.74	1.61	30.87	-64.39	-13.00	-51.39
3440.00	H	-	-	-78.02	2.19	31.17	-64.09	-13.00	-51.09

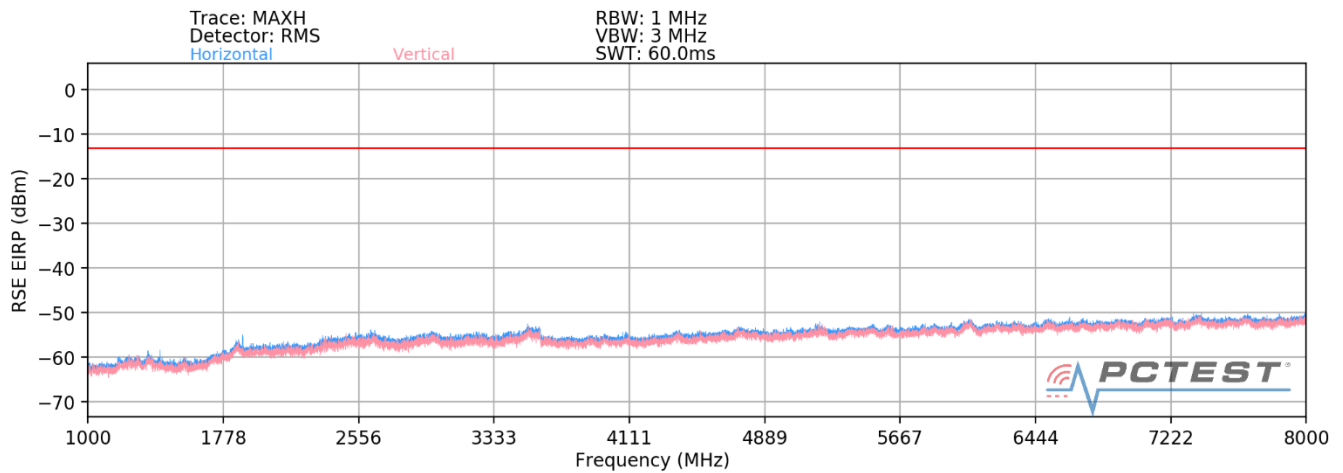
Table 7-22. Radiated Spurious Data (NR Band n71 – High Channel – Open)

FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
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NR Band n12



Plot 7-385. Radiated Spurious Plot (NR Band n12 – Open)



Plot 7-386. Radiated Spurious Plot (NR Band n12 – Closed)

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]
1413.00	H	146	136	-64.41	-2.25	40.34	-54.92	-13.00	-41.92
2119.50	H	145	192	-70.39	0.93	37.54	-57.71	-13.00	-44.71
2826.00	H	-	-	-77.83	1.98	31.15	-64.11	-13.00	-51.11
3532.50	H	-	-	-78.21	3.73	32.52	-62.74	-13.00	-49.74

Table 7-23. Radiated Spurious Data (NR Band n12 – Low Channel – Closed)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 233 of 262

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]
1415.00	H	152	143	-69.08	-2.27	35.65	-59.61	-13.00	-46.61
2122.50	H	144	183	-71.71	0.95	36.24	-59.02	-13.00	-46.02
2830.00	H	-	-	-77.91	1.98	31.07	-64.19	-13.00	-51.19
3537.50	H	-	-	-78.14	3.70	32.56	-62.70	-13.00	-49.70

Table 7-24. Radiated Spurious Data (NR Band n12 – Mid Channel – Closed)

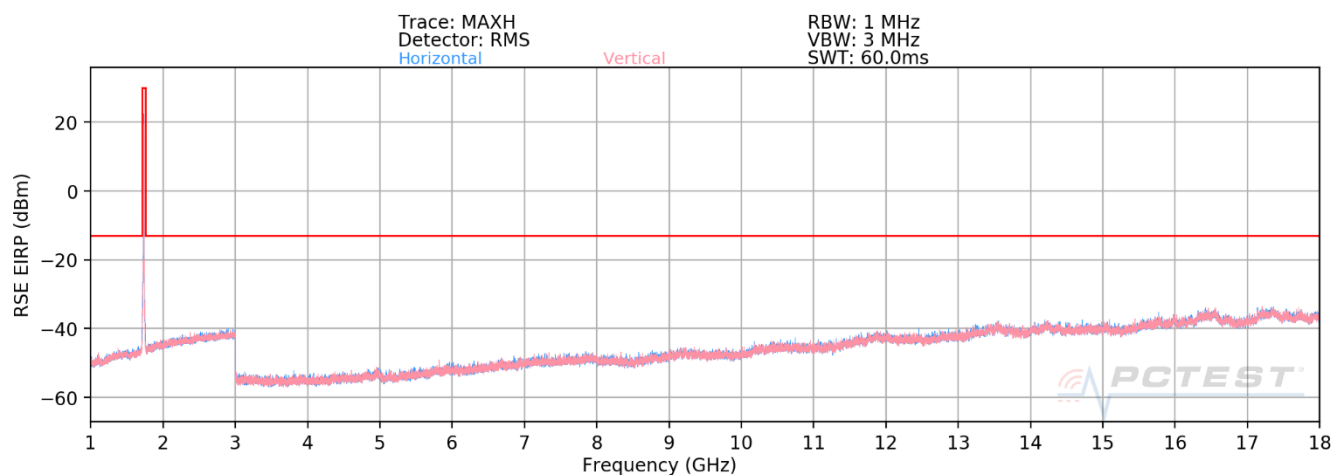
Bandwidth (MHz):	15
Frequency (MHz):	708.5
RB / Offset:	1 / 39
Mode:	Stand Alone

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]
1417.00	H	157	137	-70.53	-2.31	34.16	-61.10	-13.00	-48.10
2125.50	H	146	193	-64.90	0.96	43.06	-52.20	-13.00	-39.20
2834.00	H	-	-	-77.80	2.00	31.20	-64.06	-13.00	-51.06
3542.50	H	-	-	-78.34	3.59	32.25	-63.01	-13.00	-50.01

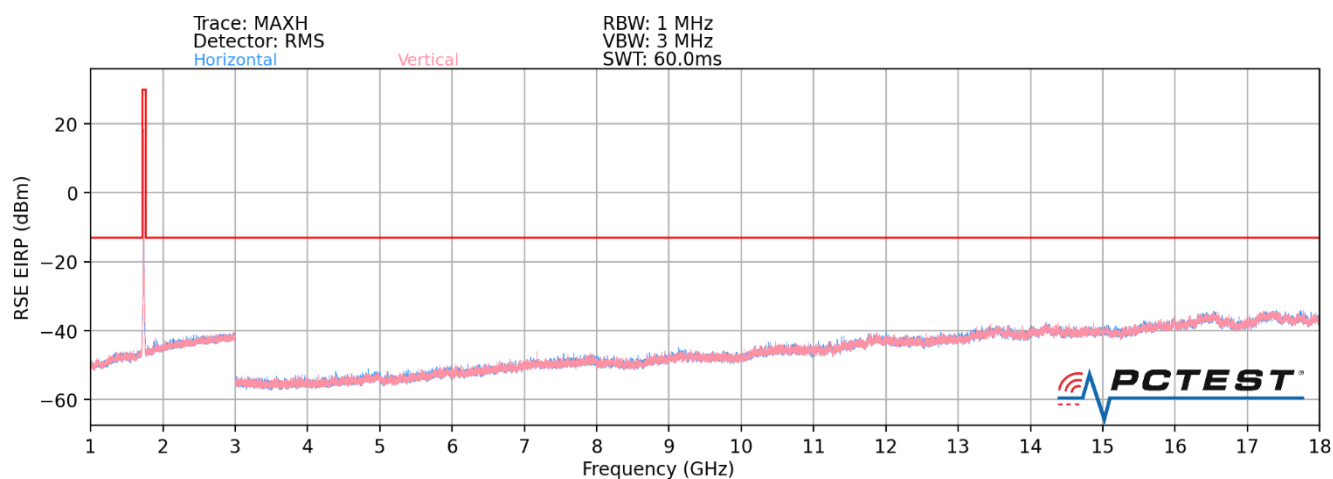
Table 7-25. Radiated Spurious Data (NR Band n12 – High Channel – Closed)

FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset
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WCDMA AWS



Plot 7-387. Radiated Spurious Plot (WCDMA AWS – Open)



Plot 7-388. Radiated Spurious Plot (WCDMA AWS – Closed)

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	V	-	-	-78.54	7.57	36.03	-59.23	-13.00	-46.23
5137.2	V	-	-	-79.12	10.73	38.61	-56.65	-13.00	-43.65
6849.6	V	-	-	-79.10	14.90	42.80	-52.45	-13.00	-39.45

7-26. Radiated Spurious Data (WCDMA AWS – Low Channel – Open)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 235 of 262

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	V	-	-	-78.01	7.24	36.23	-59.03	-13.00	-46.03
5197.8	V	-	-	-78.69	10.36	38.67	-56.59	-13.00	-43.59
6930.4	V	-	-	-79.12	14.67	42.55	-52.71	-13.00	-39.71

Table 7-27. Radiated Spurious Data (WCDMA AWS – Mid Channel – Open)

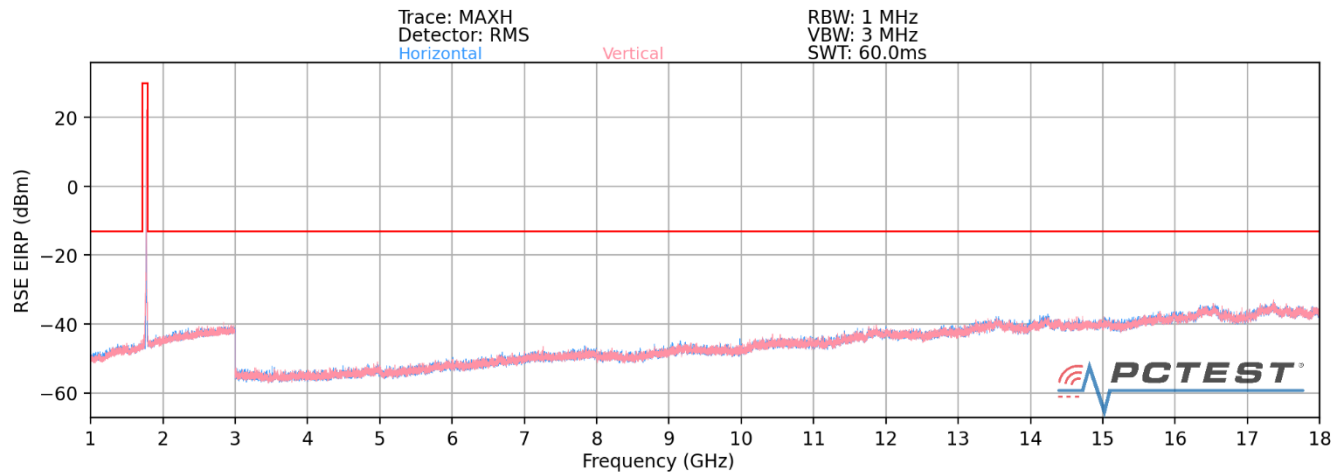
Mode:	WCDMA RMC
Channel:	1513
Frequency (MHz):	1752.6

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	V	-	-	-78.29	7.68	36.39	-58.87	-13.00	-45.87
5257.8	V	-	-	-79.35	10.82	38.47	-56.79	-13.00	-43.79
7010.4	V	-	-	-78.75	14.91	43.16	-52.09	-13.00	-39.09

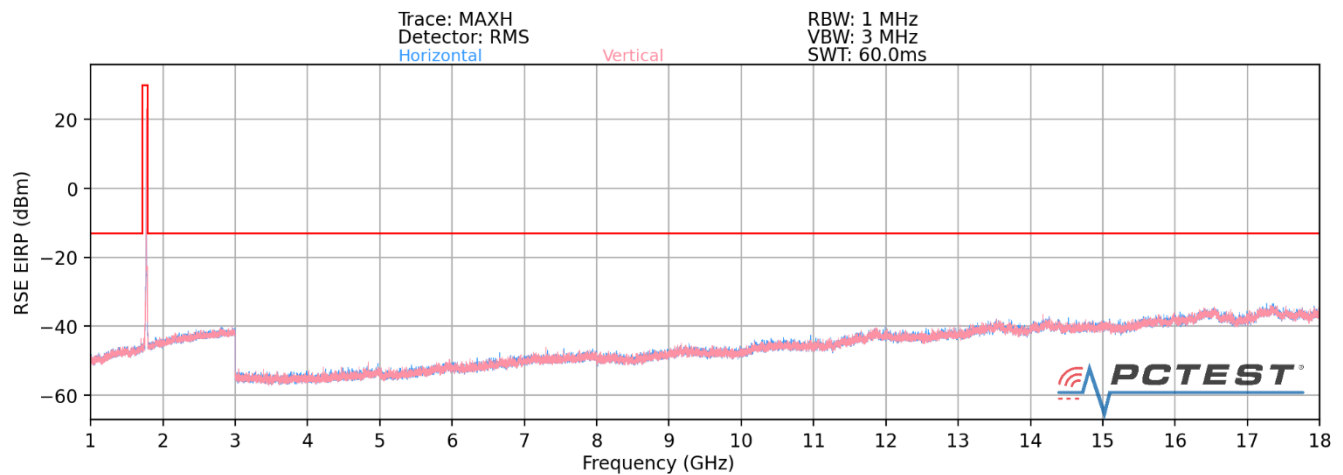
Table 7-28. Radiated Spurious Data (WCDMA AWS – High Channel – Open)

FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset
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LTE Band 66/4



Plot 7-389. Radiated Spurious Plot (LTE Band 66/4 – Open)



Plot 7-390. Radiated Spurious Plot (LTE Band 66/4 – Closed)

Bandwidth (MHz):	20
Frequency (MHz):	1720.0
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	V	-	-	-79.97	7.79	34.82	-60.44	-13.00	-47.44
5160.0	V	-	-	-81.12	10.62	36.50	-58.76	-13.00	-45.76
6880.0	V	-	-	-82.21	14.42	39.21	-56.05	-13.00	-43.05
8600.0	V	-	-	-83.17	17.90	41.73	-53.53	-13.00	-40.53

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

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 237 of 262

Bandwidth (MHz):	20
Frequency (MHz):	1745.0
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	V	102	167	-74.40	7.63	40.23	-55.03	-13.00	-42.03
5235.0	V	-	-	-81.39	10.39	36.00	-59.26	-13.00	-46.26
6980.0	V	-	-	-81.86	14.54	39.68	-55.58	-13.00	-42.58
8725.0	V	-	-	-83.37	17.61	41.24	-54.02	-13.00	-41.02

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

Bandwidth (MHz):	20
Frequency (MHz):	1770.0
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]
3540.00	V	163	137	-78.32	8.04	36.72	-58.53	-13.00	-45.53
5310.00	V	249	179	-78.75	11.38	39.63	-55.63	-13.00	-42.63
7080.00	V	-	-	-82.38	14.82	39.44	-55.81	-13.00	-42.81
8850.00	V	-	-	-83.13	17.23	41.10	-54.16	-13.00	-41.16

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

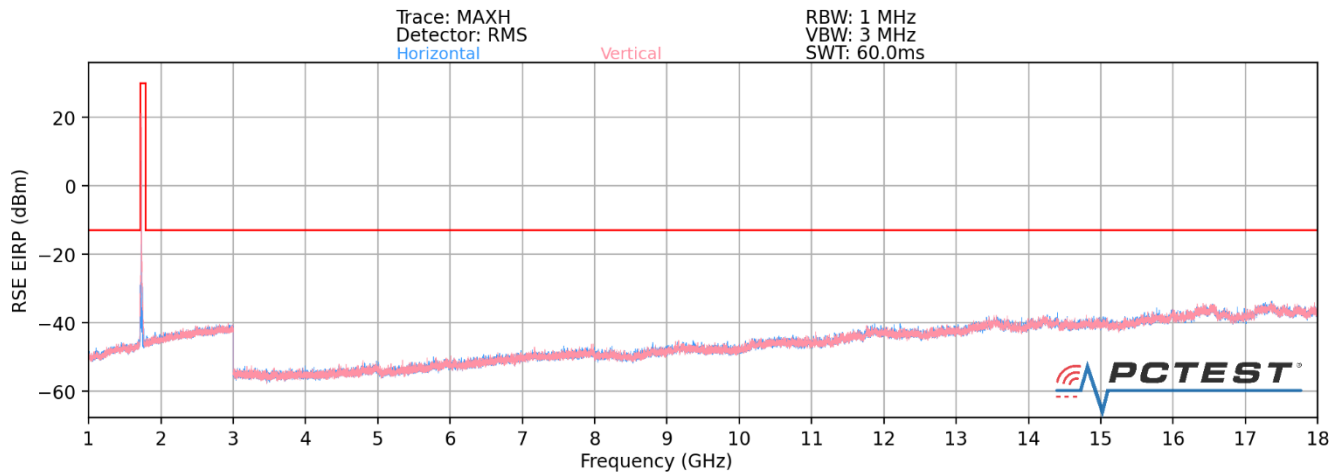
Bandwidth (MHz):	20
Frequency (MHz):	1745.0
RB / Offset:	1 / 50

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	V	-	-	-78.52	5.21	33.69	-61.57	-13.00	-48.57
5235.0	V	-	-	-79.59	7.24	34.65	-60.61	-13.00	-47.61
6980.0	V	-	-	-79.73	11.17	38.44	-56.81	-13.00	-43.81

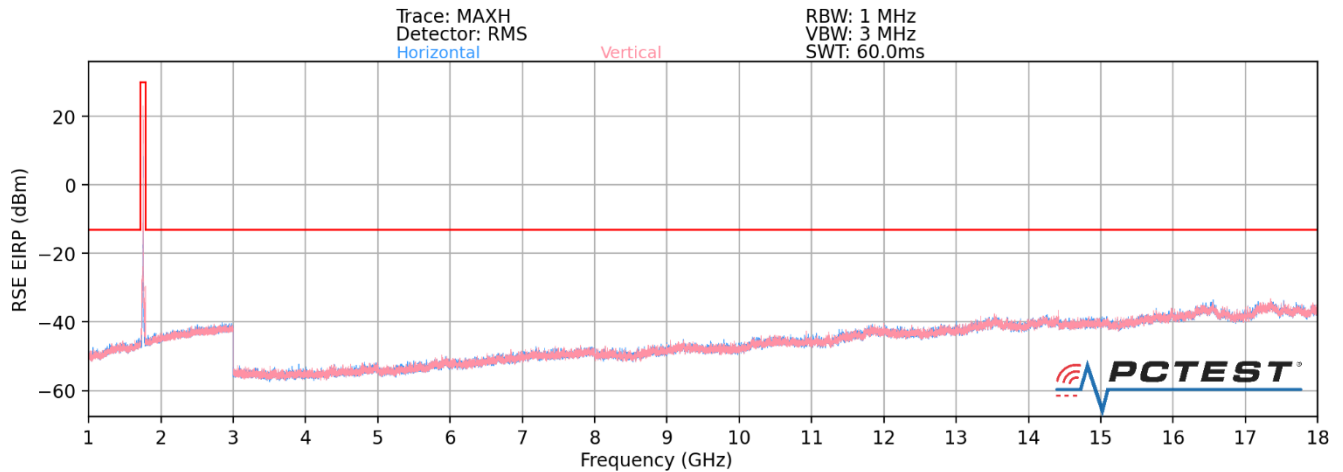
Table 7-32. Radiated Spurious Data (LTE Band 66/4 – Mid Channel – Open) – With WCP

FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset
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Uplink CA LTE Band 66B/C



Plot 7-391. Radiated Spurious Plot (ULCA LTE Band 66 – Low Channel – Open)



Plot 7-392. Radiated Spurious Plot (ULCA LTE Band 66 – Mid Channel – Open)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-05.A3L	Test Dates: 04/12/2021 – 09/06/2021	EUT Type: Portable Handset		Page 239 of 262