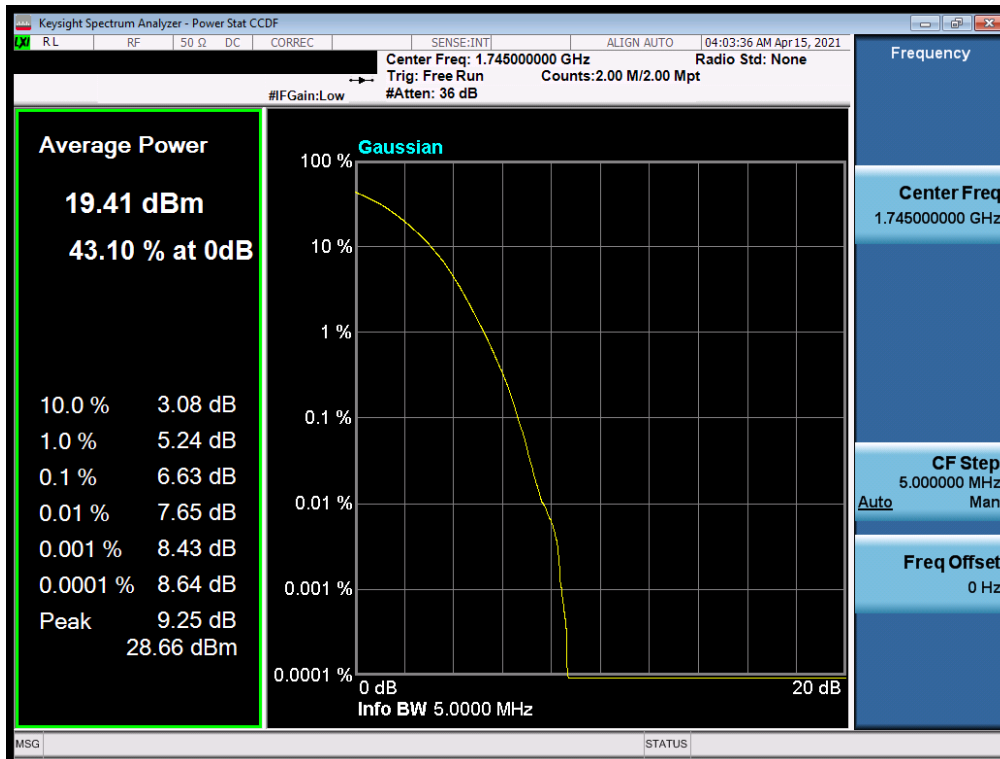
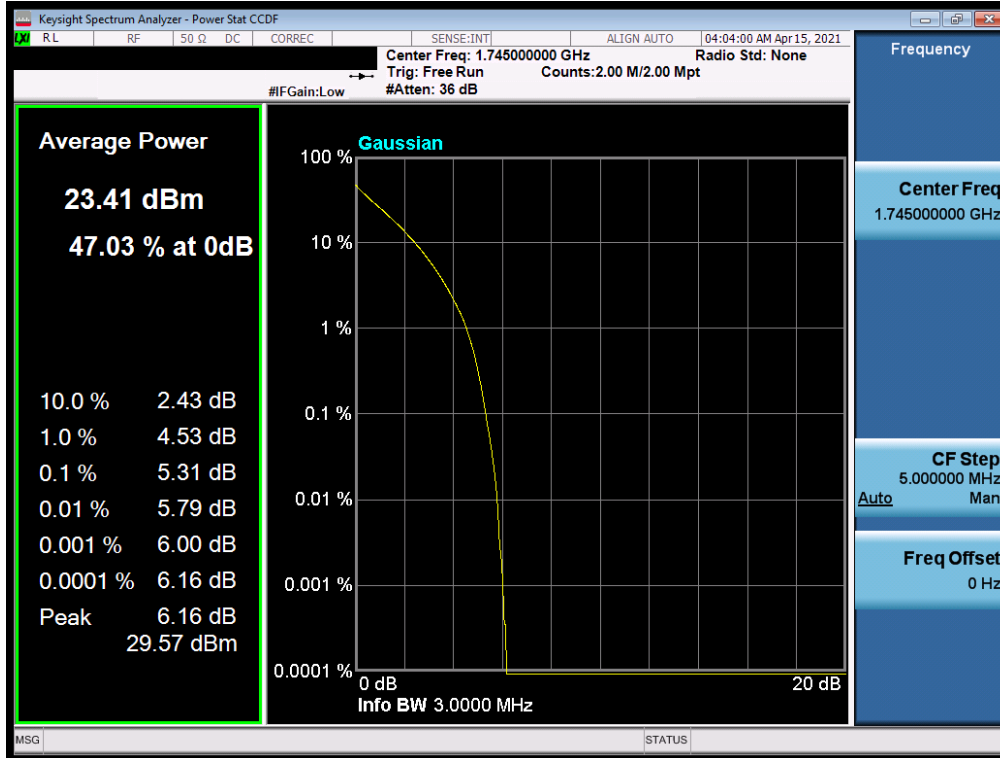


Plot 7-299. PAR Plot (LTE Band 66/4 - 5MHz QPSK - Full RB)

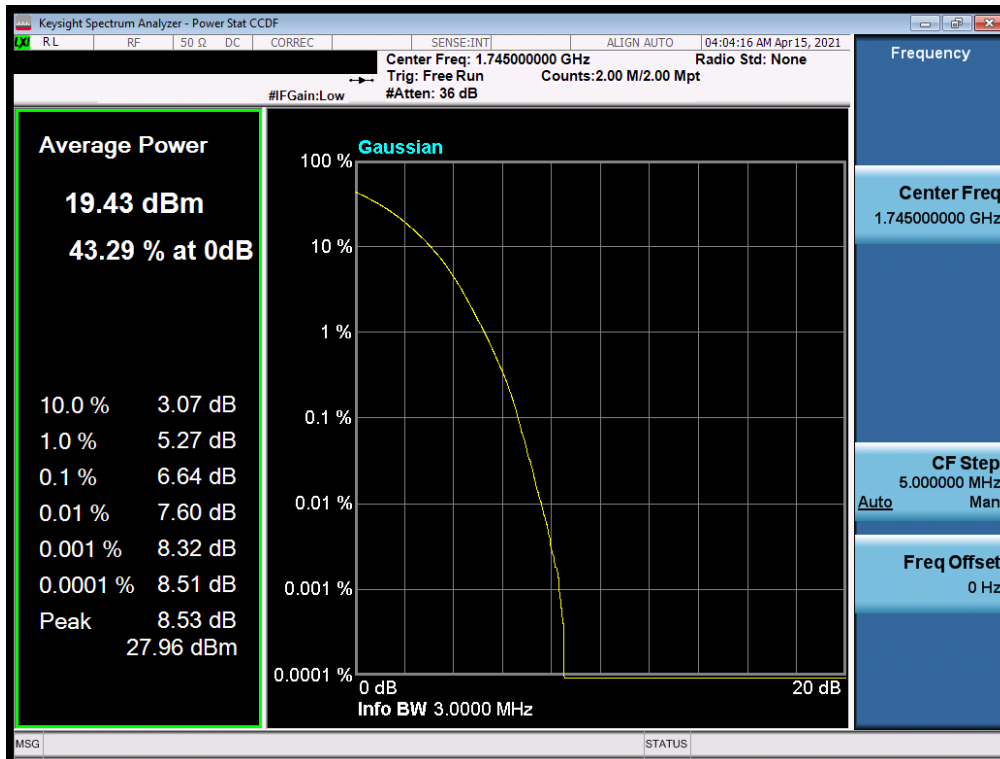


Plot 7-300. PAR Plot (LTE Band 66/4 - 5MHz 256-QAM - Full RB)

FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 - 06/04/2021	EUT Type: Portable Handset		Page 177 of 254

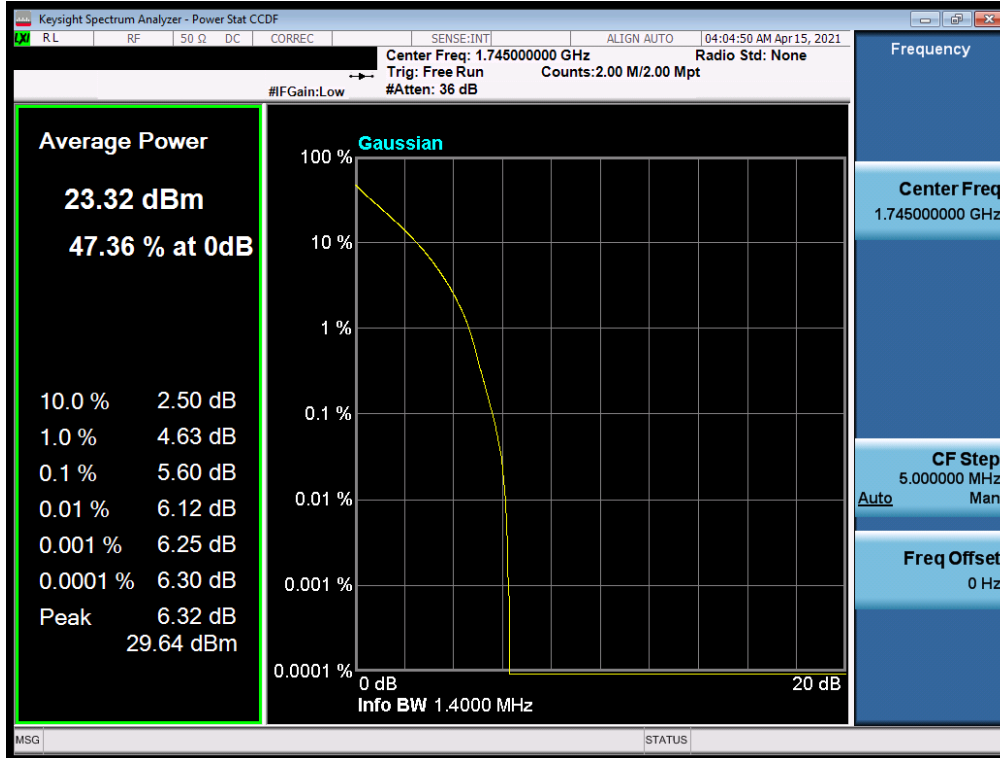


Plot 7-301. PAR Plot (LTE Band 66/4 - 3MHz QPSK - Full RB)

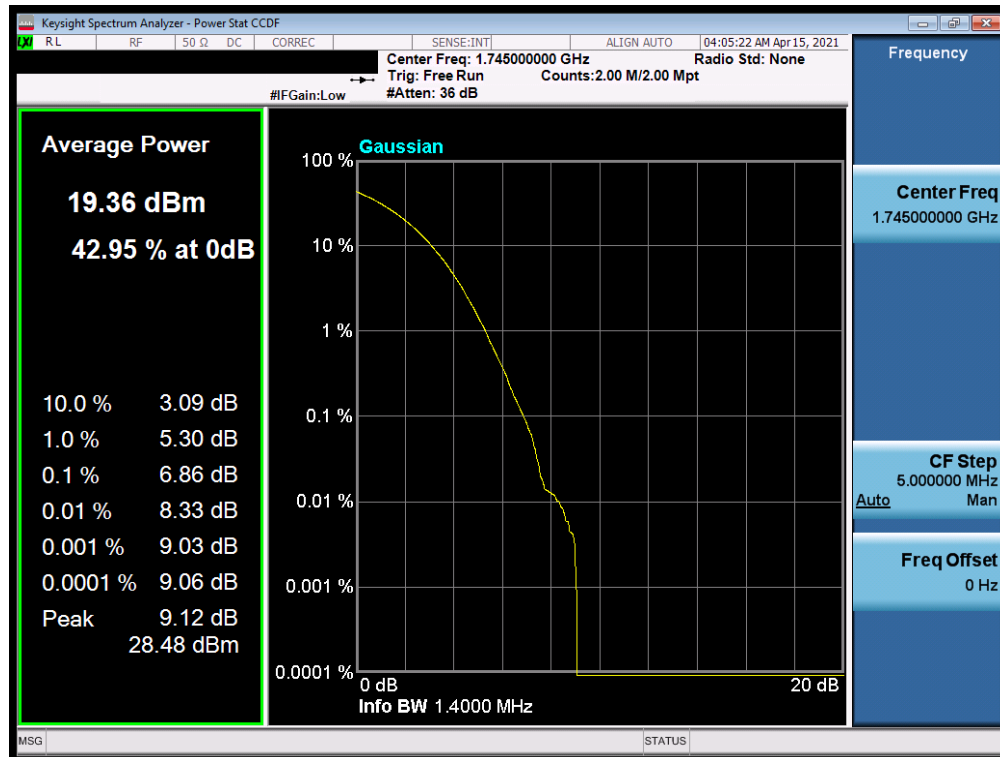


Plot 7-302. PAR Plot (LTE Band 66/4 - 3MHz 256-QAM - Full RB)

FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 - 06/04/2021	EUT Type: Portable Handset		Page 178 of 254



Plot 7-303. PAR Plot (LTE Band 66/4 - 1.4MHz QPSK - Full RB)



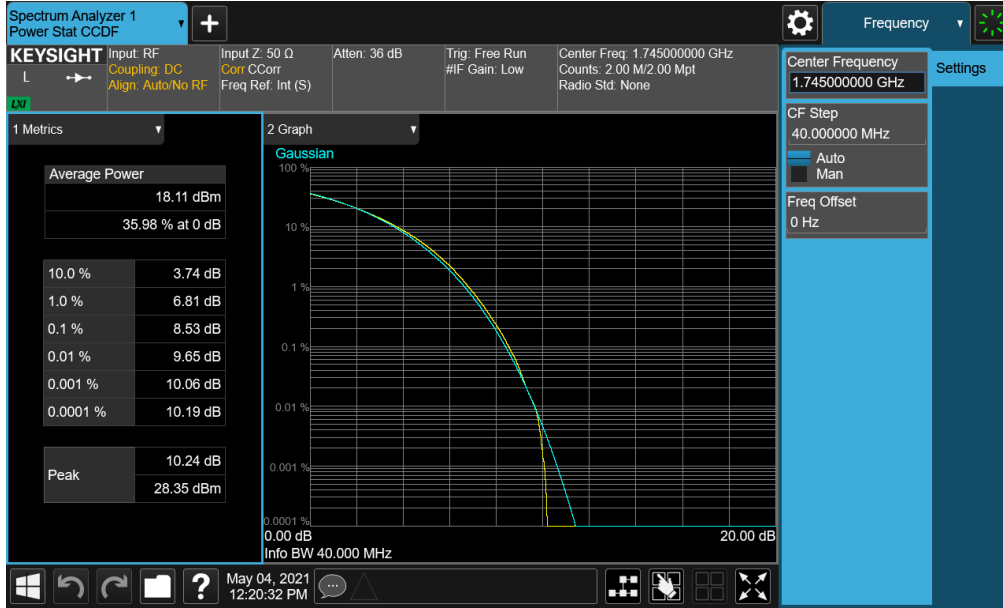
Plot 7-304. PAR Plot (LTE Band 66/4 - 1.4MHz 256-QAM - Full RB)

FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 - 06/04/2021	EUT Type: Portable Handset		Page 179 of 254

NR Band n66 – Ant A



FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 180 of 254



Plot 7-307. PAR Plot (NR Band n66 - 40.0MHz CP-OFDM 256-QAM - Full RB)



Plot 7-308. PAR Plot (NR Band n66 - 30.0MHz DFT-s-OFDM BPSK - Full RB)

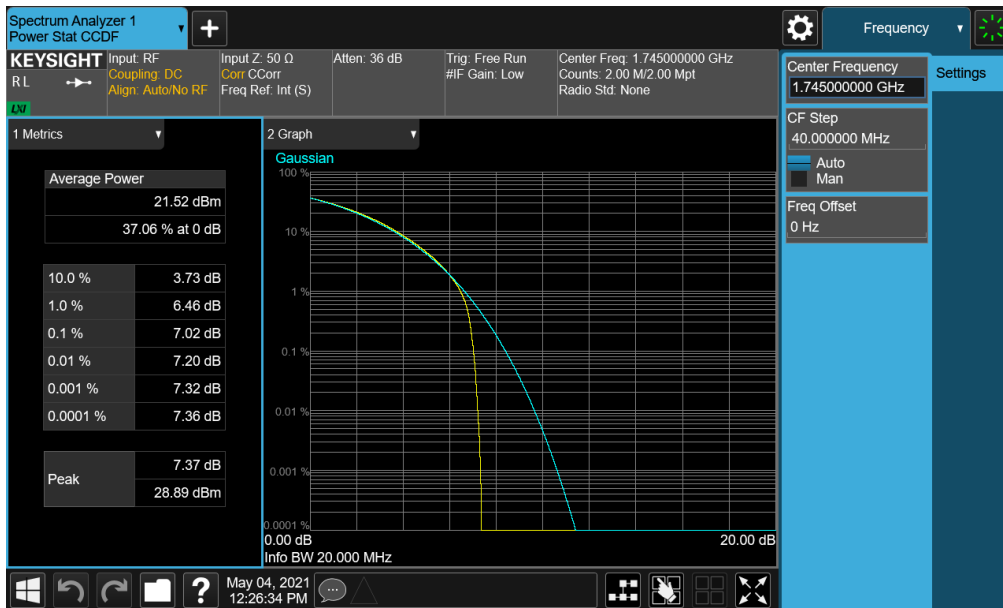
FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 181 of 254



FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 182 of 254

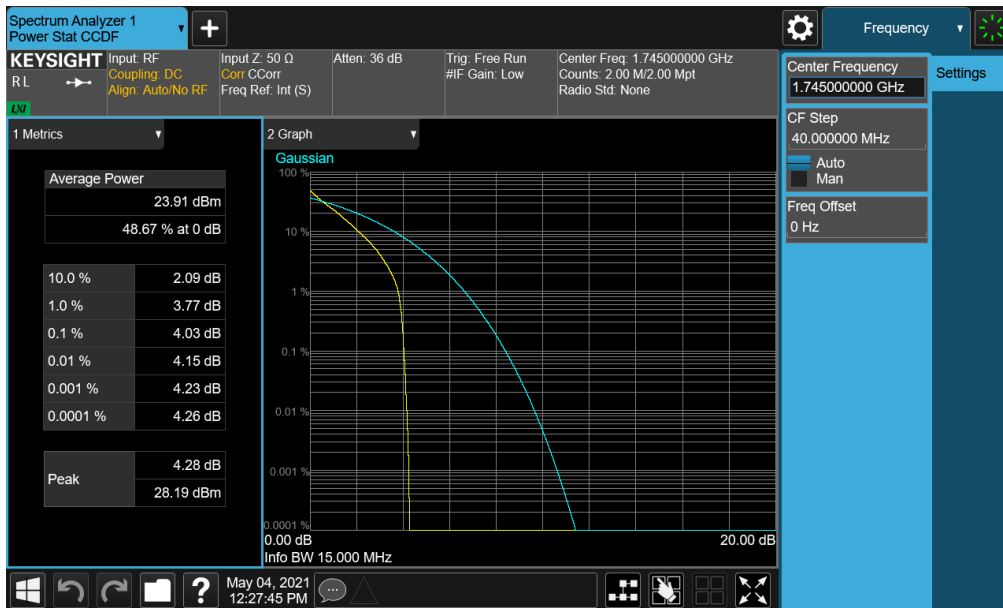


Plot 7-311. PAR Plot (NR Band n66 - 20.0MHz DFT-s-OFDM BPSK - Full RB)



Plot 7-312. PAR Plot (NR Band n66 - 20.0MHz CP-OFDM QPSK - Full RB)

FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 183 of 254





FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 184 of 254

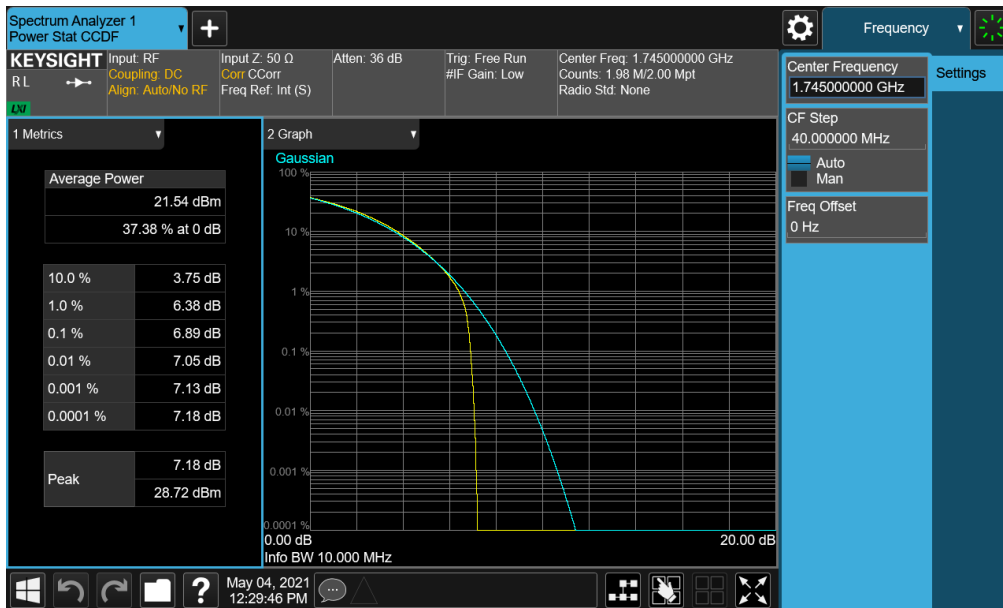
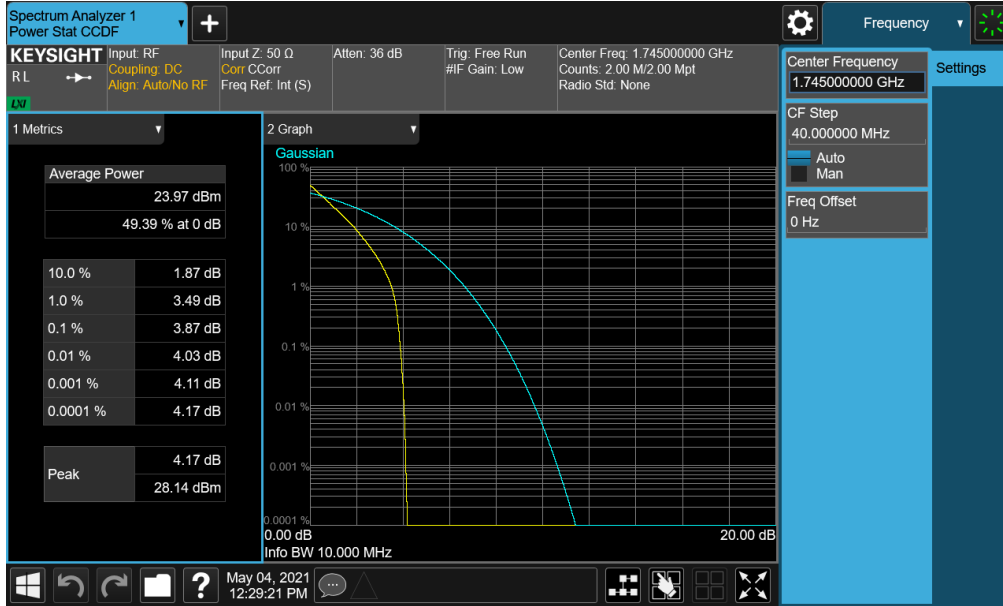


Plot 7-315. PAR Plot (NR Band n66 - 15.0MHz CP-OFDM QPSK - Full RB)

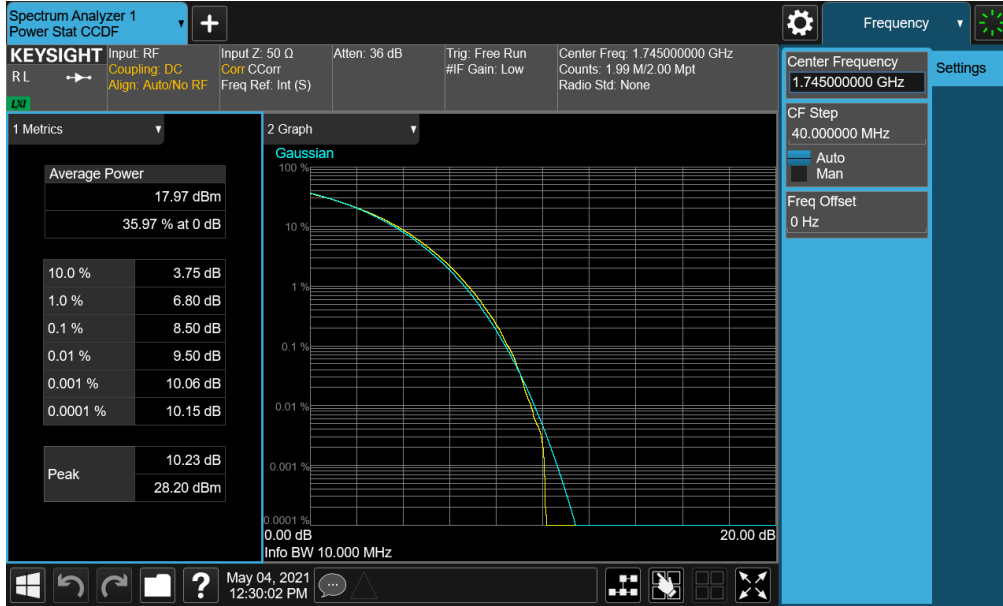


Plot 7-316. PAR Plot (NR Band n66 - 15.0MHz CP-OFDM 256-QAM - Full RB)

FCC ID: A3LSMF711U	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 185 of 254



FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 186 of 254

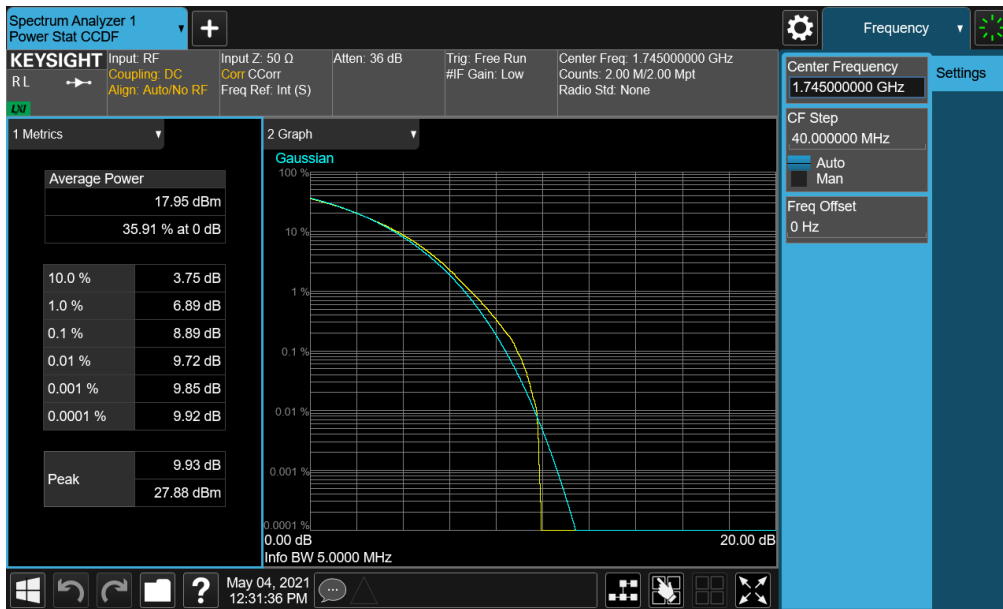
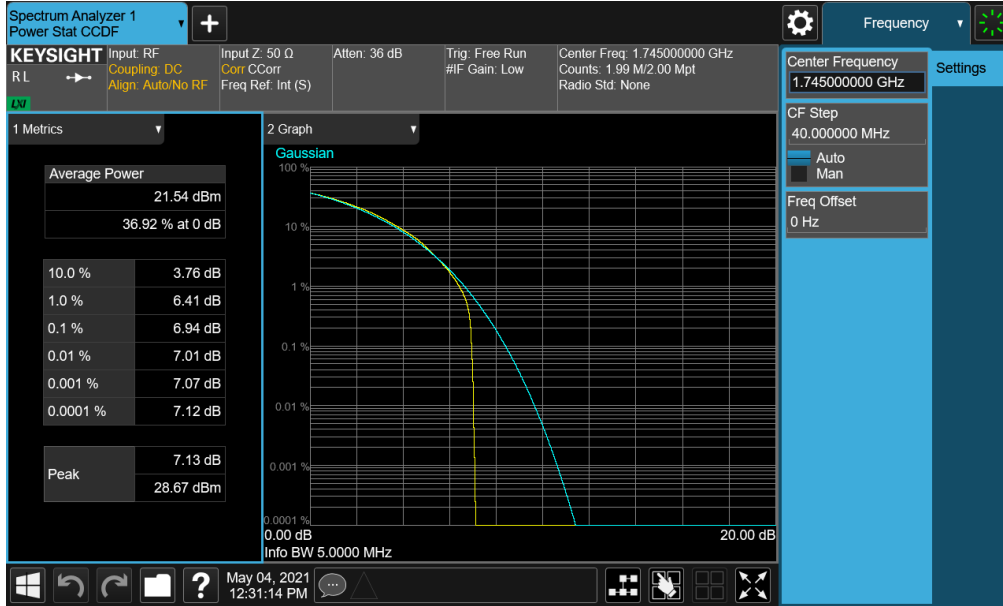


Plot 7-319. PAR Plot (NR Band n66 - 10.0MHz CP-OFDM 256-QAM - Full RB)



Plot 7-320. PAR Plot (NR Band n66 - 5.0MHz DFT-s-OFDM BPSK - Full RB)

FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 187 of 254

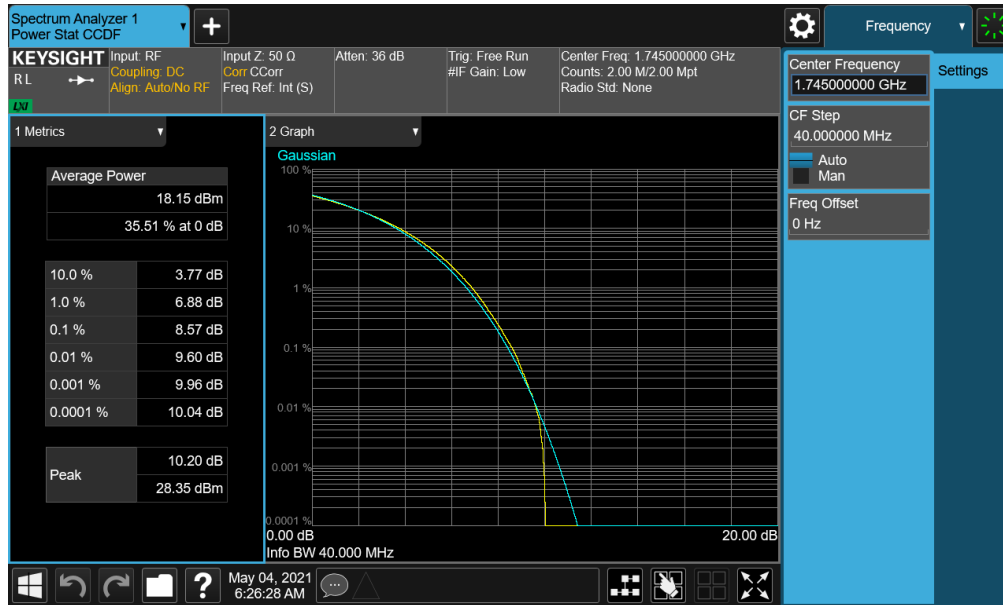


FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 188 of 254

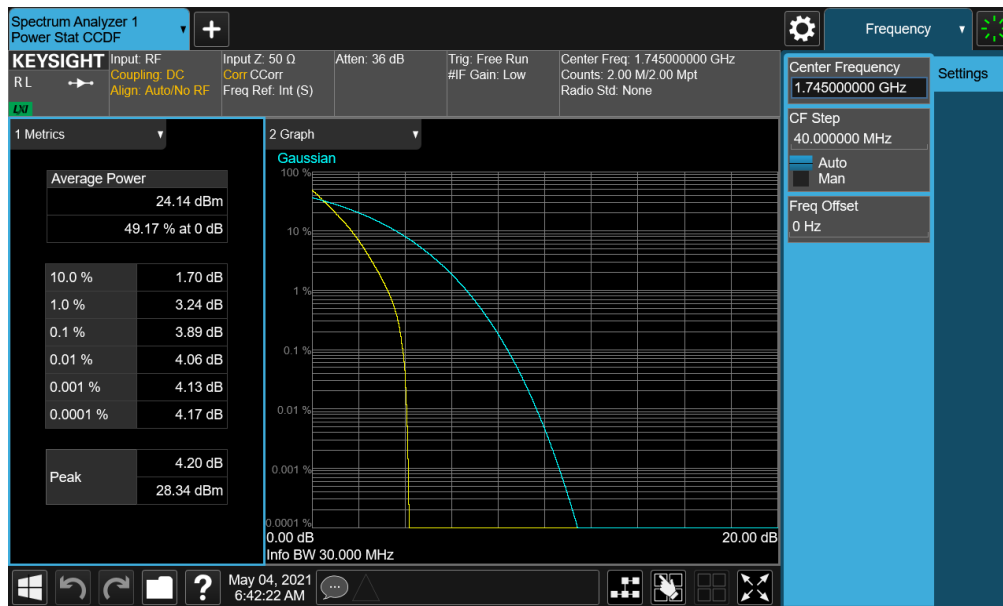
NR Band n66 – Ant I



FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 189 of 254

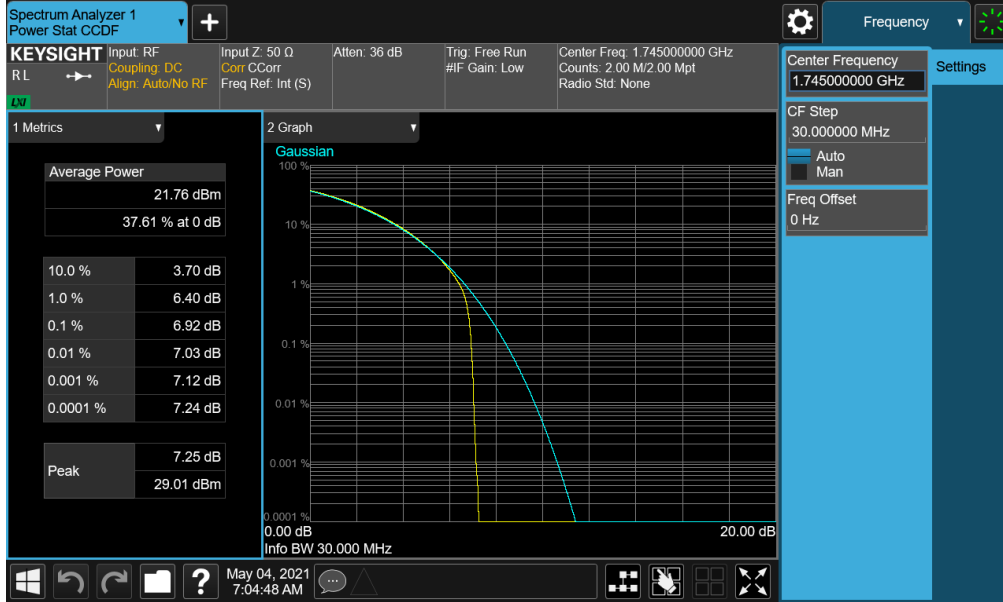


Plot 7-325. PAR Plot (NR Band n66 - 40.0MHz CP-OFDM 256-QAM - Full RB)

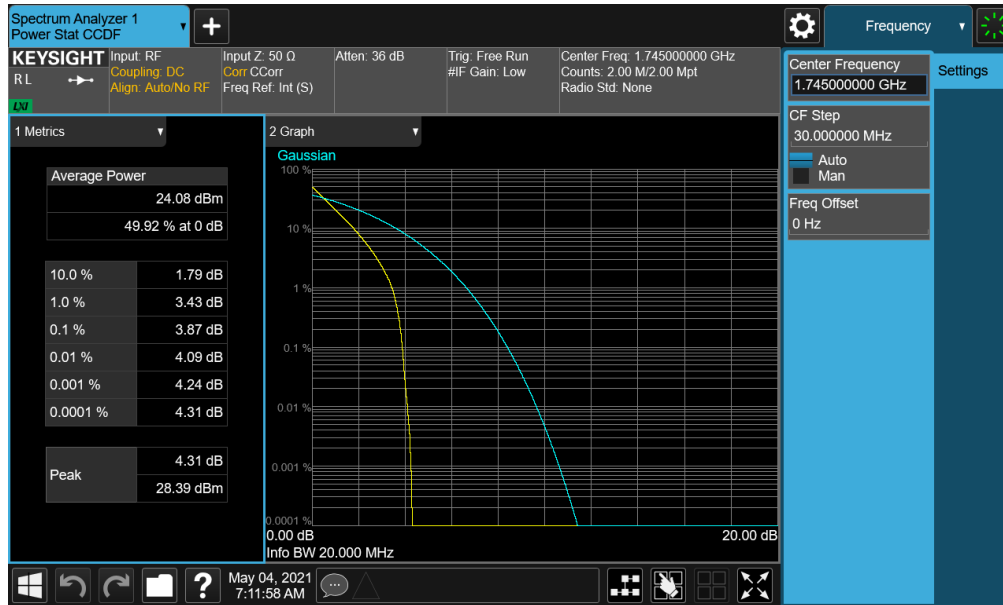


Plot 7-326. PAR Plot (NR Band n66 - 30.0MHz DFT-s-OFDM BPSK - Full RB)

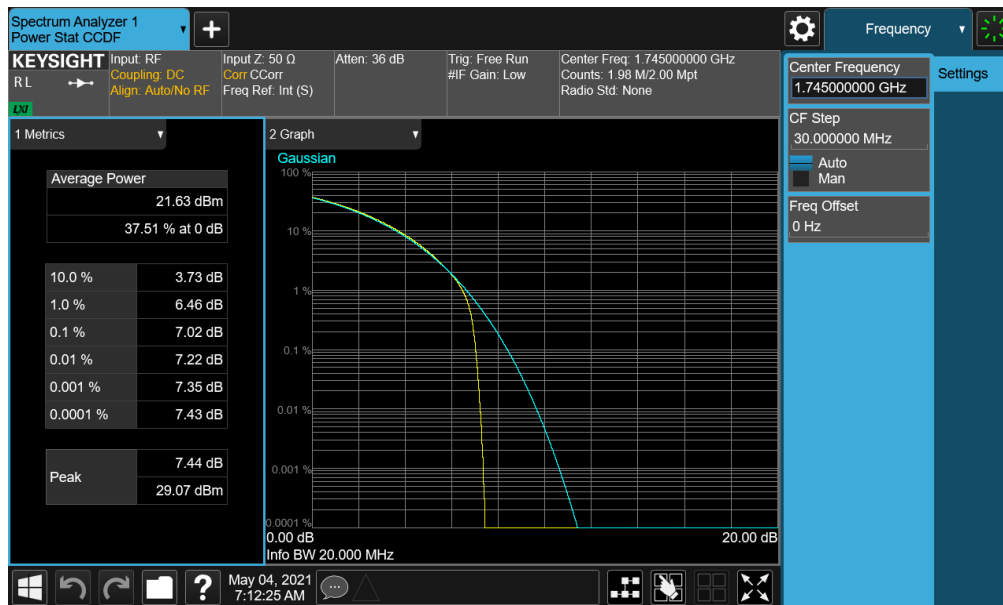
FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 190 of 254



FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 191 of 254

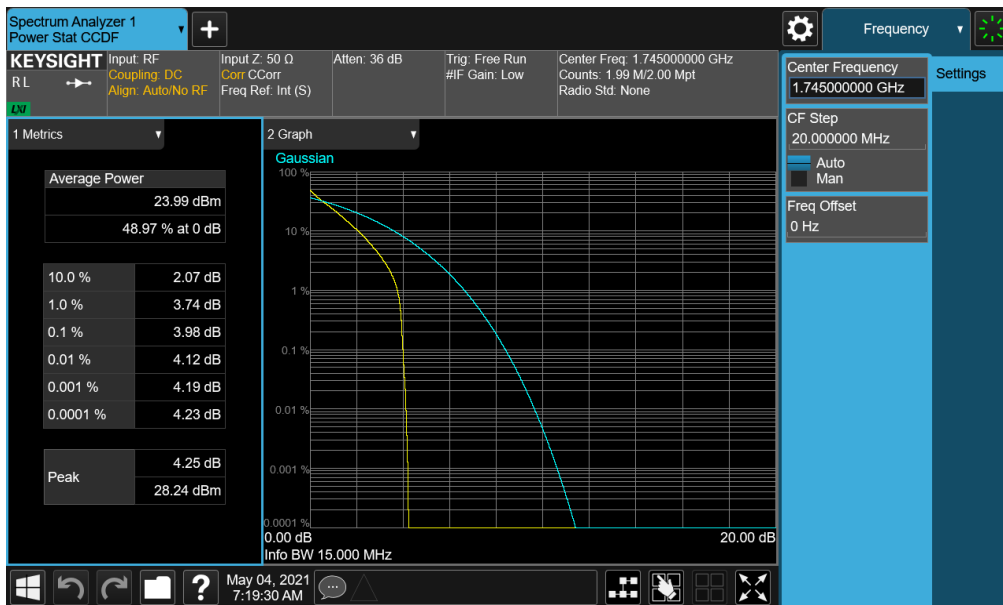


Plot 7-329. PAR Plot (NR Band n66 - 20.0MHz DFT-s-OFDM BPSK - Full RB)

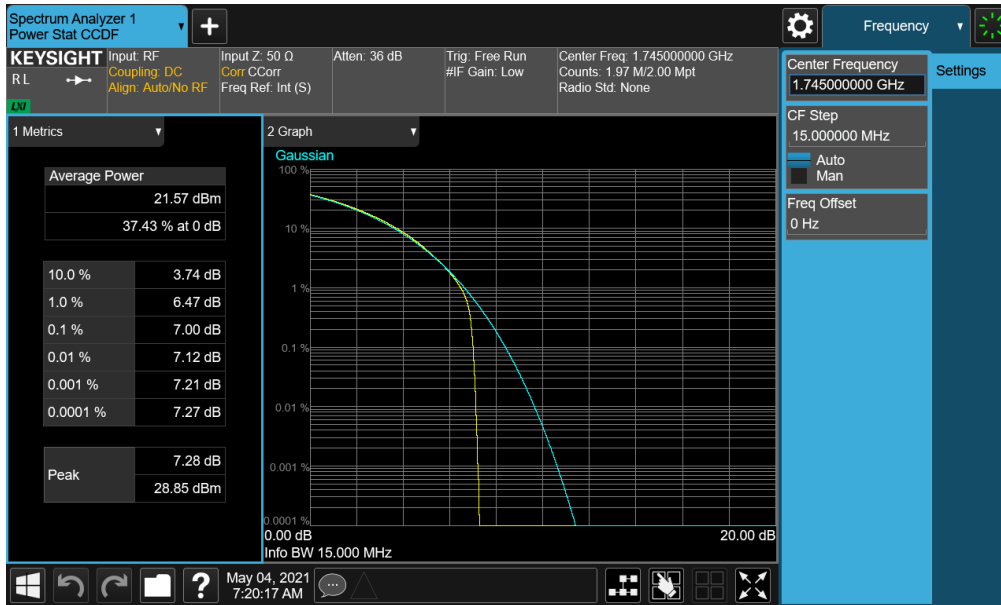


Plot 7-330. PAR Plot (NR Band n66 - 20.0MHz CP-OFDM QPSK - Full RB)

FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 192 of 254



FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 193 of 254

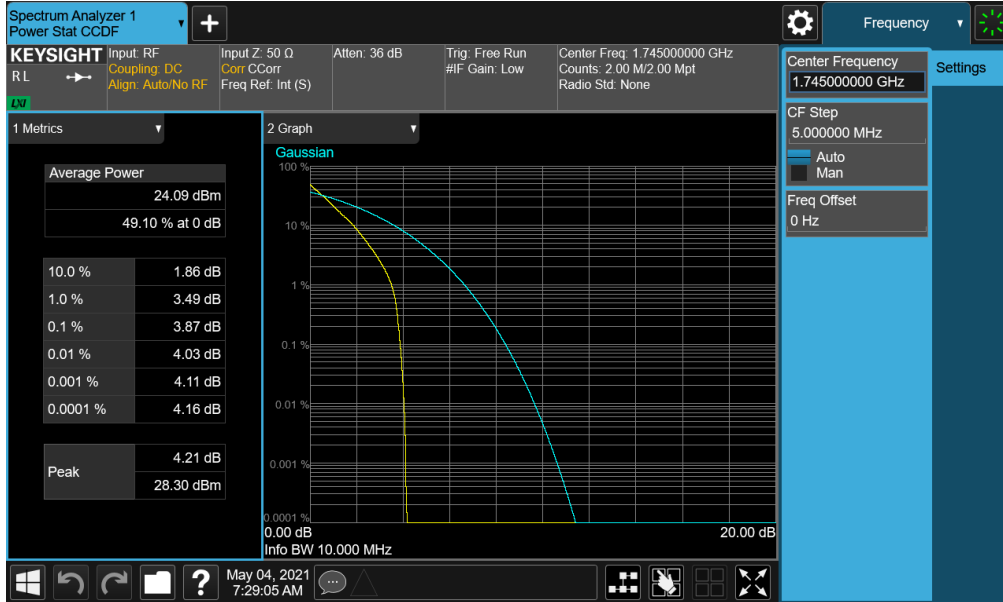


Plot 7-333. PAR Plot (NR Band n66 - 15.0MHz CP-OFDM QPSK - Full RB)



Plot 7-334. PAR Plot (NR Band n66 - 15.0MHz CP-OFDM 256-QAM - Full RB)

FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 194 of 254



Plot 7-335. PAR Plot (NR Band n66 - 10.0MHz DFT-s-OFDM BPSK - Full RB)



Plot 7-336. PAR Plot (NR Band n66 - 10.0MHz CP-OFDM QPSK - Full RB)

FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 195 of 254

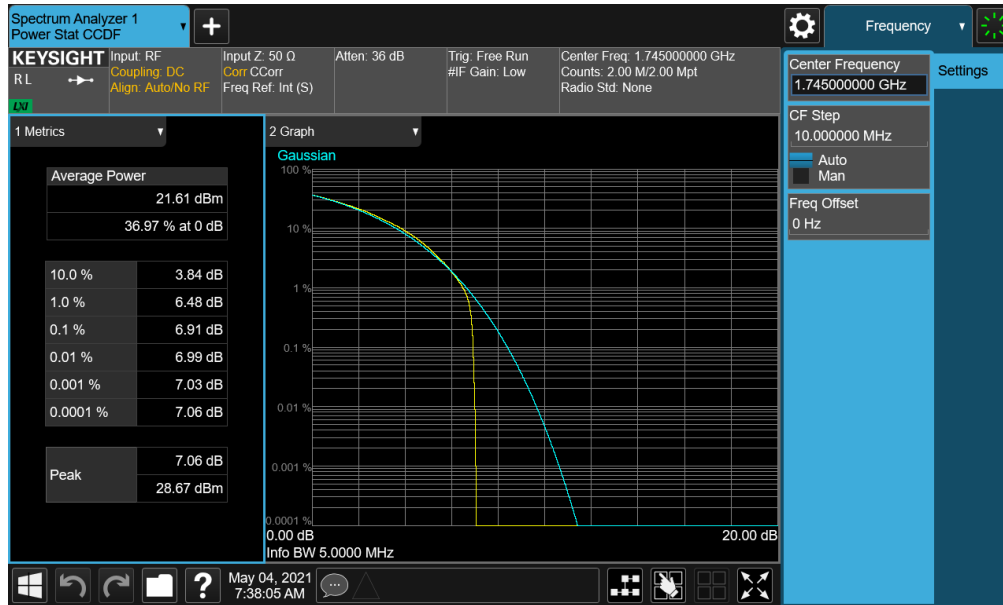


Plot 7-337. PAR Plot (NR Band n66 - 10.0MHz CP-OFDM 256-QAM - Full RB)

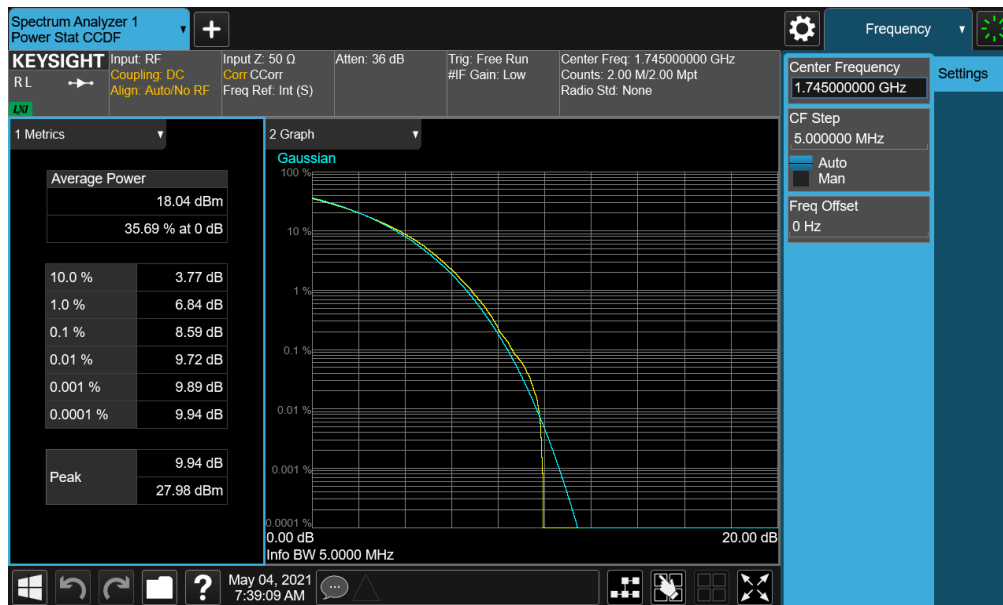


Plot 7-338. PAR Plot (NR Band n66 - 5.0MHz DFT-s-OFDM BPSK - Full RB)

FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 196 of 254



Plot 7-339. PAR Plot (NR Band n66 - 5.0MHz CP-OFDM QPSK - Full RB)



Plot 7-340. PAR Plot (NR Band n66 - 5.0MHz CP-OFDM 256-QAM - Full RB)

FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 197 of 254

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.

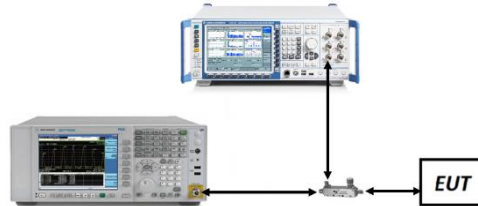




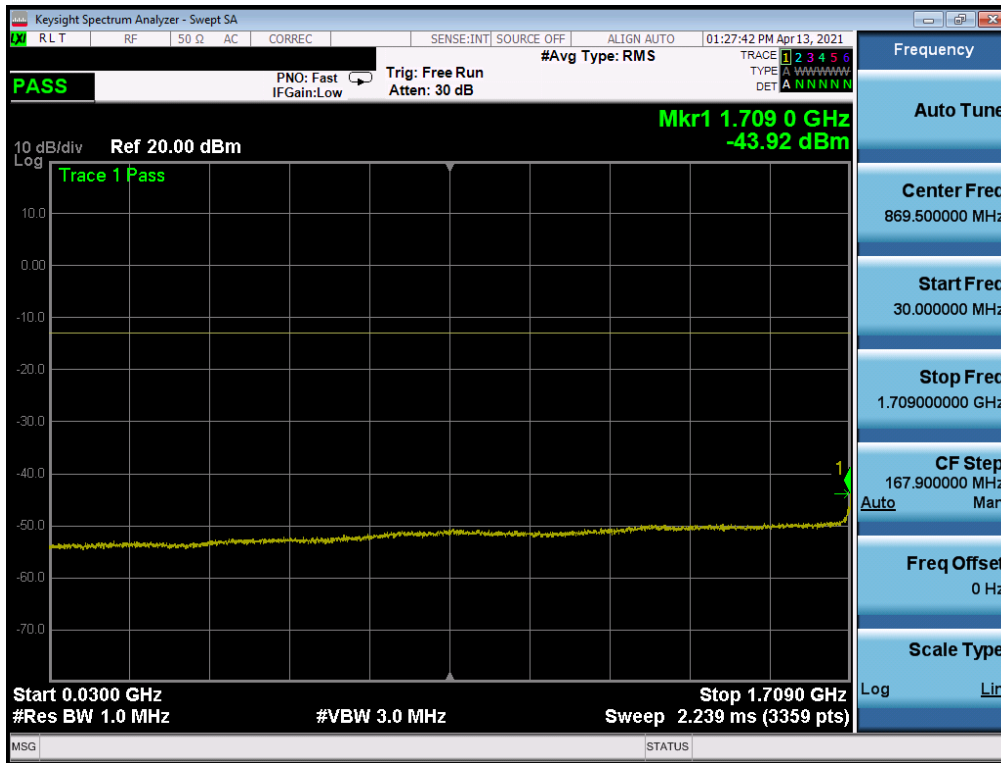
Figure 7-6. Test Instrument & Measurement Setup

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

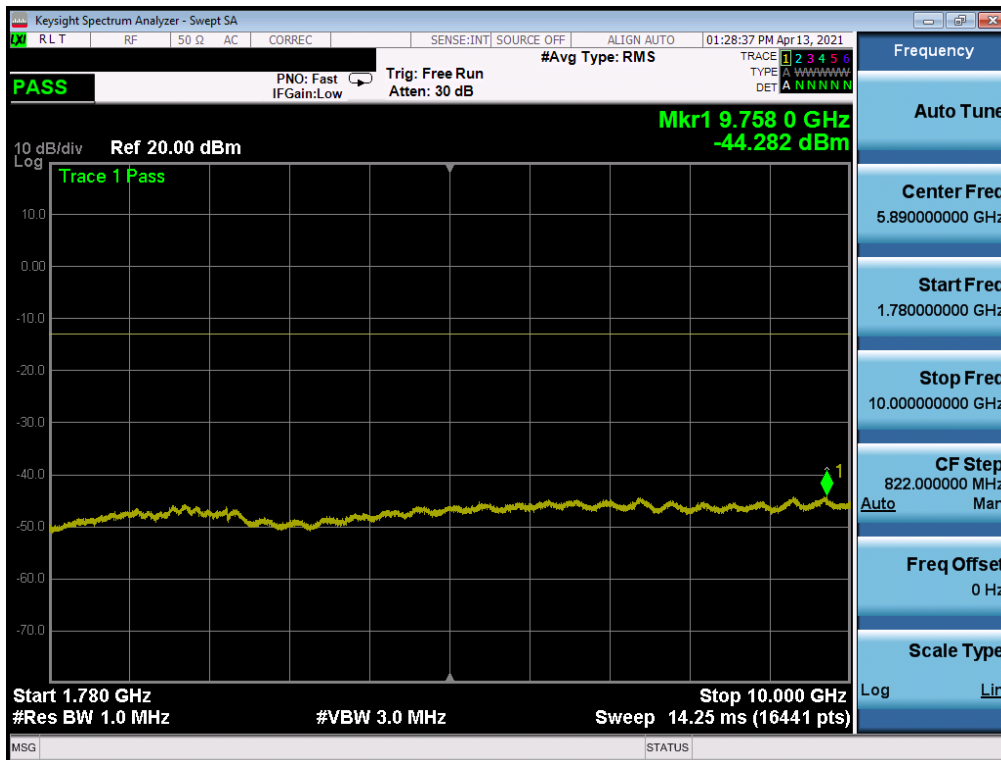
Table 7-3. Conducted Powers (Uplink CA LTE Band 66B/C)

FCC ID: A3LSMF711U	 PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset	Page 198 of 254

Uplink CA LTE Band 66B/C

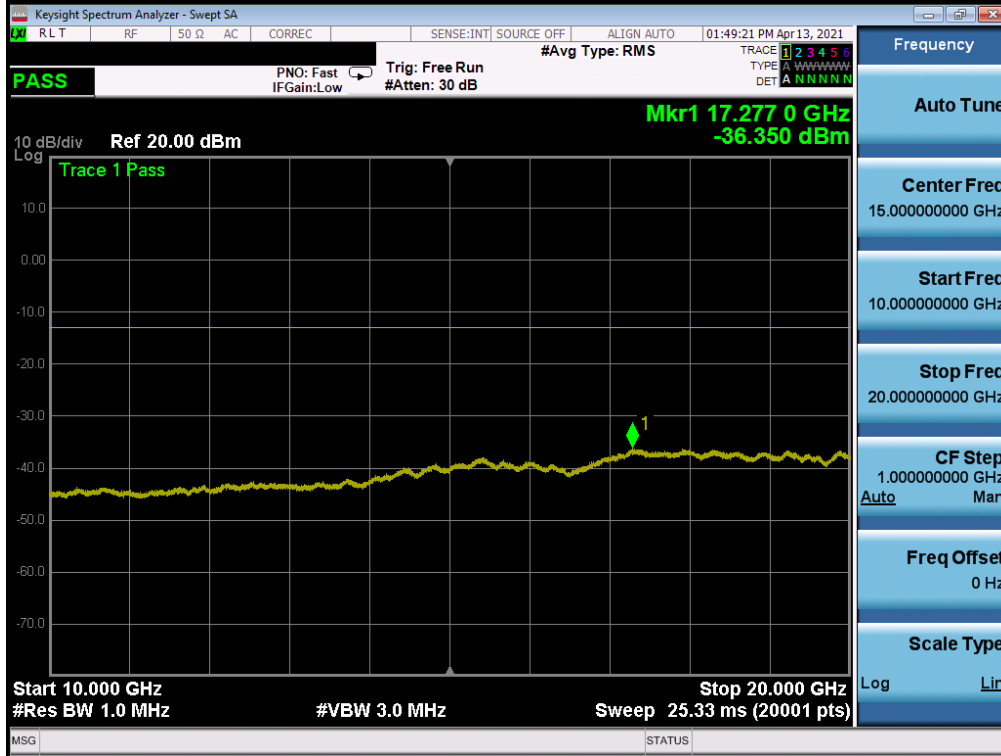


Plot 7-341. Conducted Spurious Plot (ULCA LTE Band 66 Low Channel)

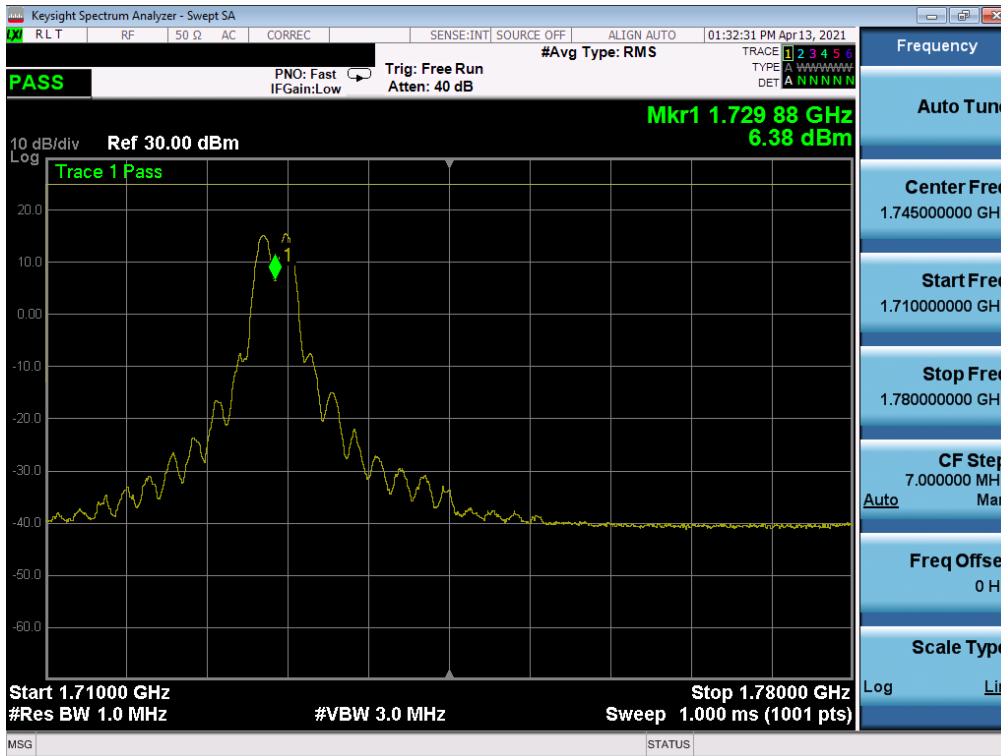


Plot 7-342. Conducted Spurious Plot (ULCA LTE Band 66 Low Channel)

FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 199 of 254

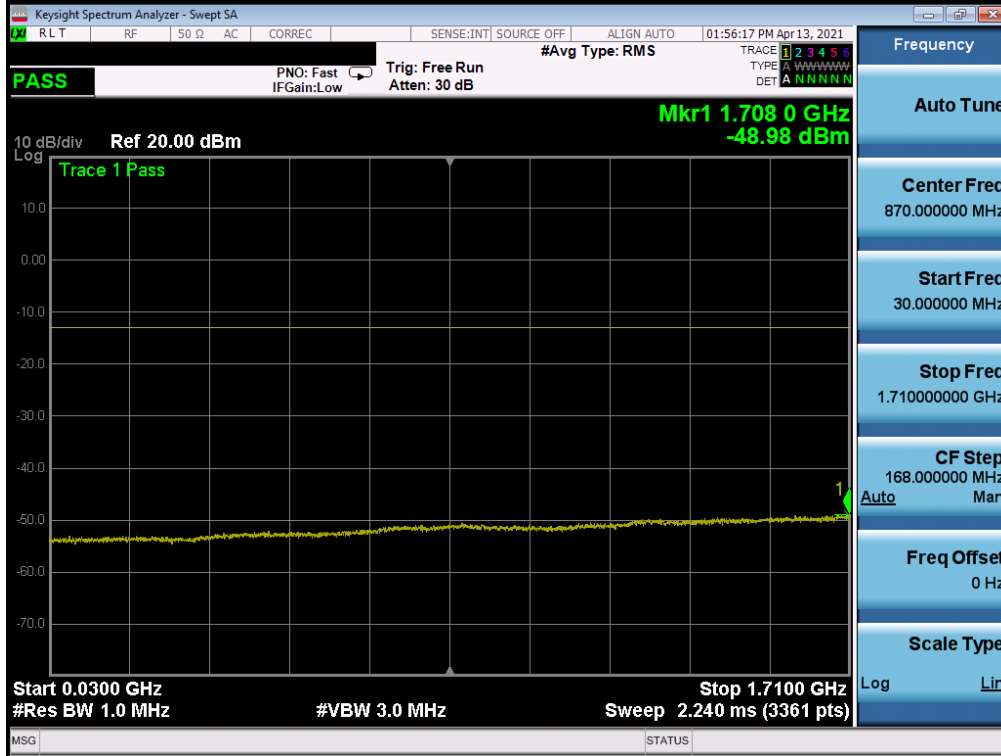


Plot 7-343. Conducted Spurious Plot (ULCA LTE Band 66 Low Channel)

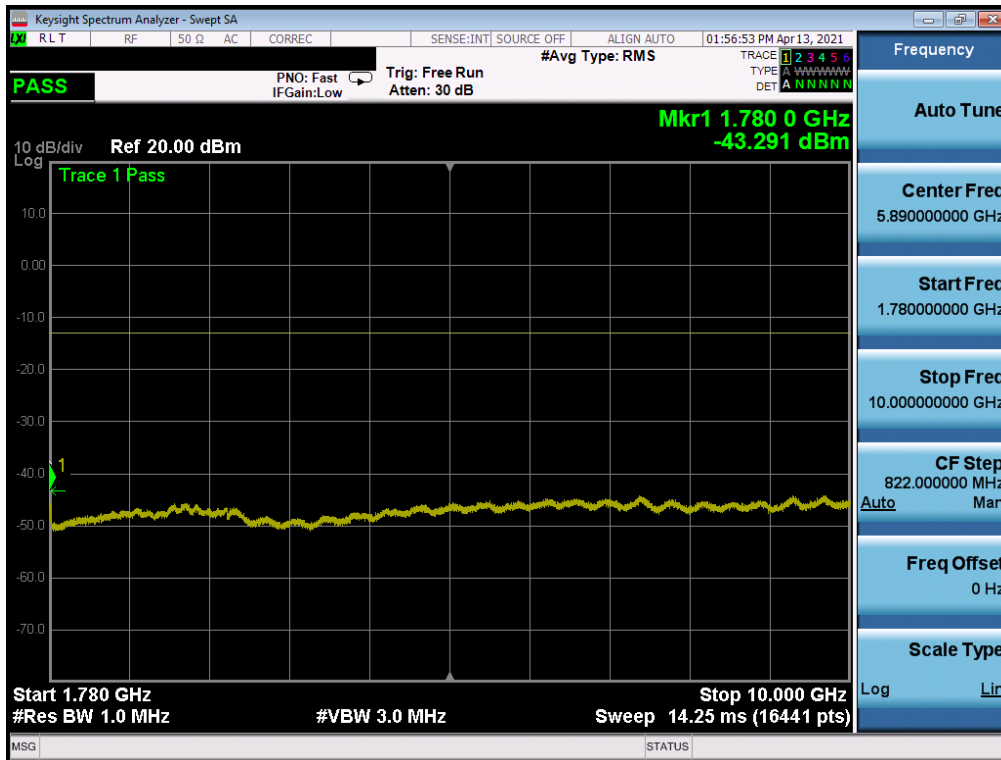


Plot 7-344. Conducted Spurious Plot (ULCA LTE Band 66 Low Channel)

FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 200 of 254

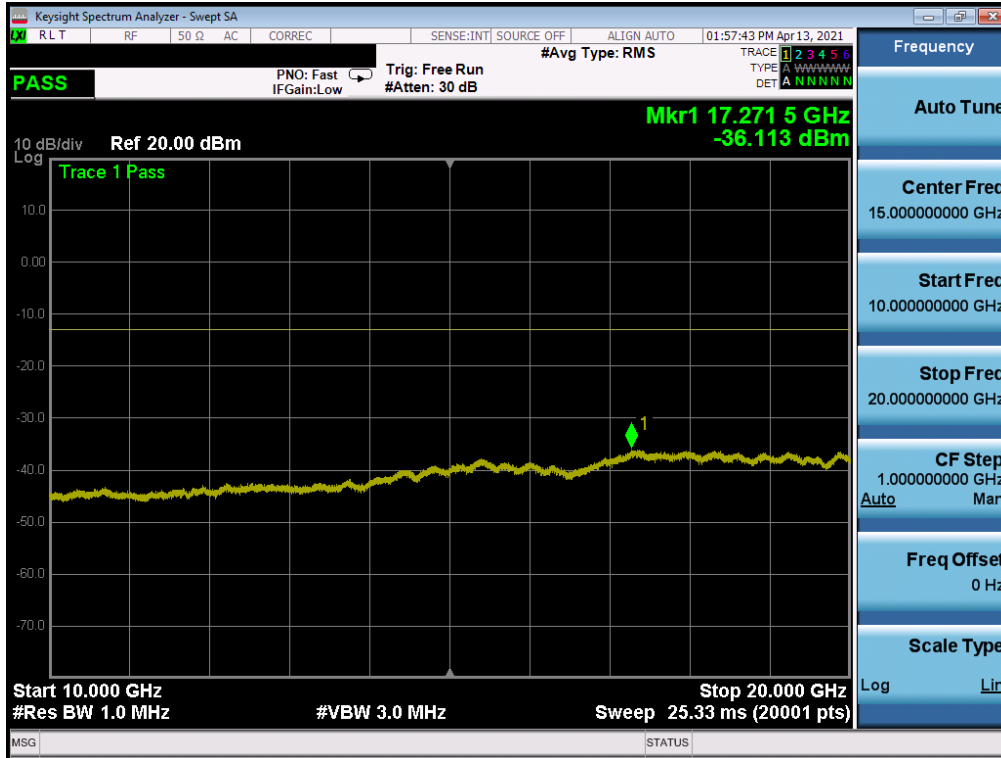


Plot 7-345. Conducted Spurious Plot (ULCA LTE Band 66 Mid Channel)

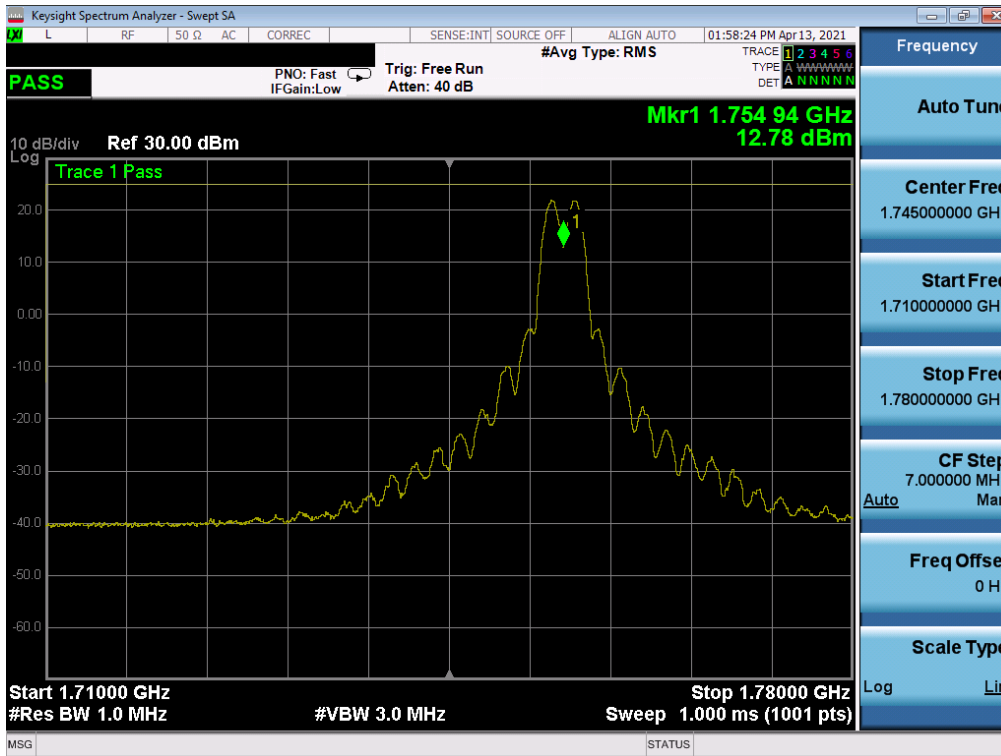


Plot 7-346. Conducted Spurious Plot (ULCA LTE Band 66 Mid Channel)

FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 201 of 254

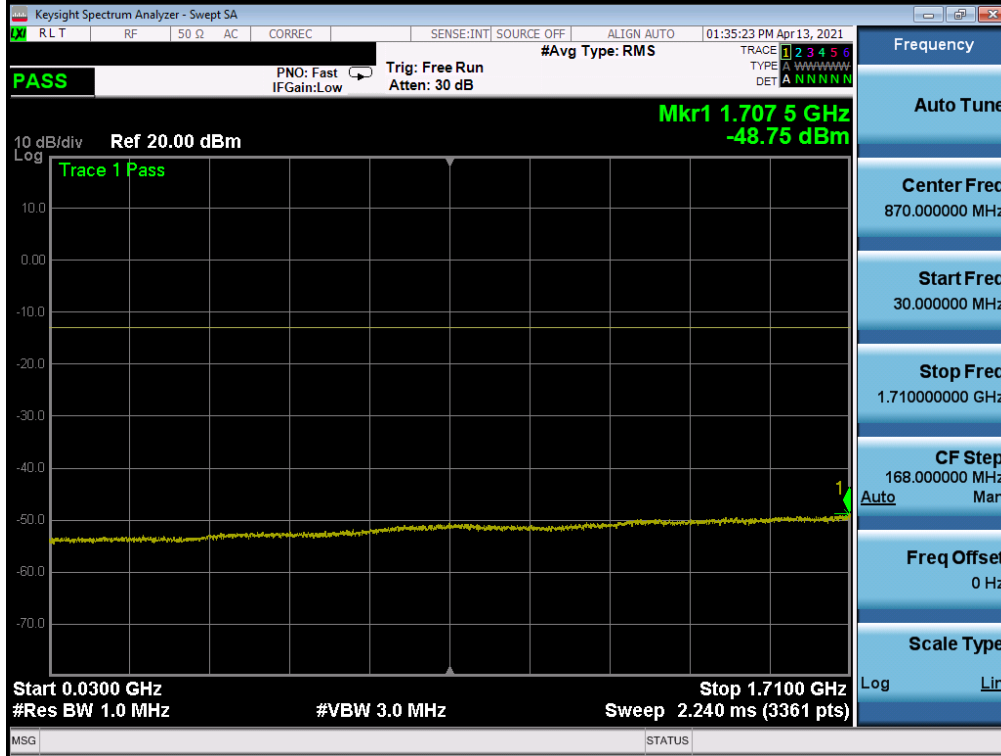


Plot 7-347. Conducted Spurious Plot (ULCA LTE Band 66 Mid Channel)

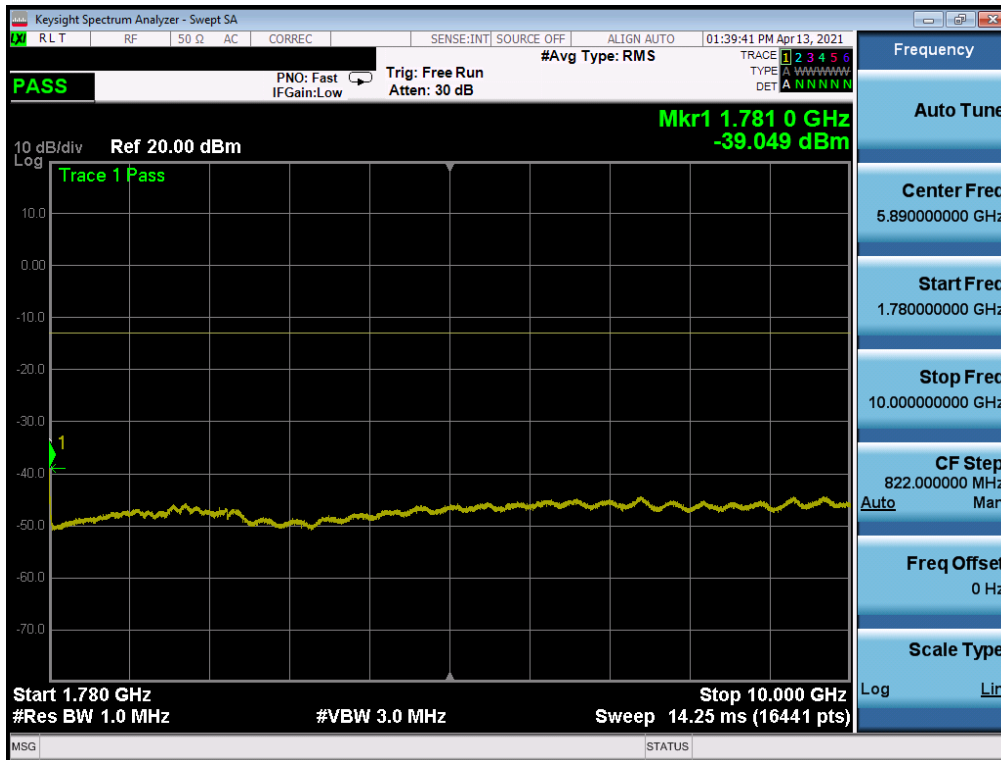


Plot 7-348. Conducted Spurious Plot (ULCA LTE Band 66 Mid Channel)

FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 202 of 254



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

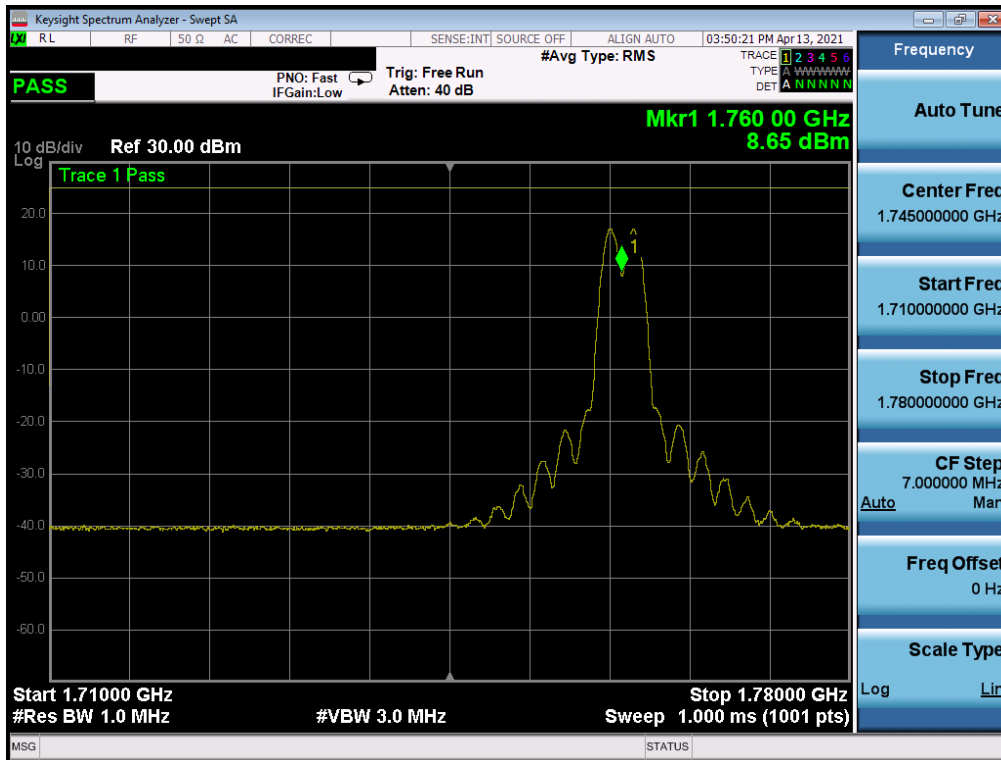


Plot 7-350. Conducted Spurious Plot (ULCA LTE Band 66 High Channel)

FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 203 of 254

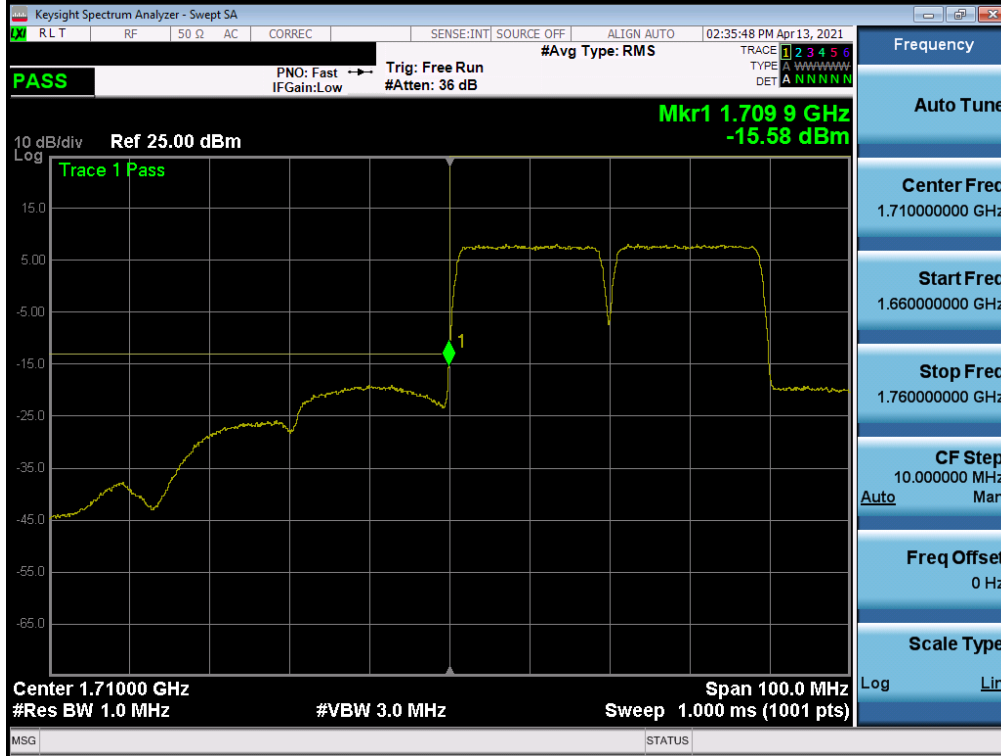


Plot 7-351. Conducted Spurious Plot (ULCA LTE Band 66 High Channel)

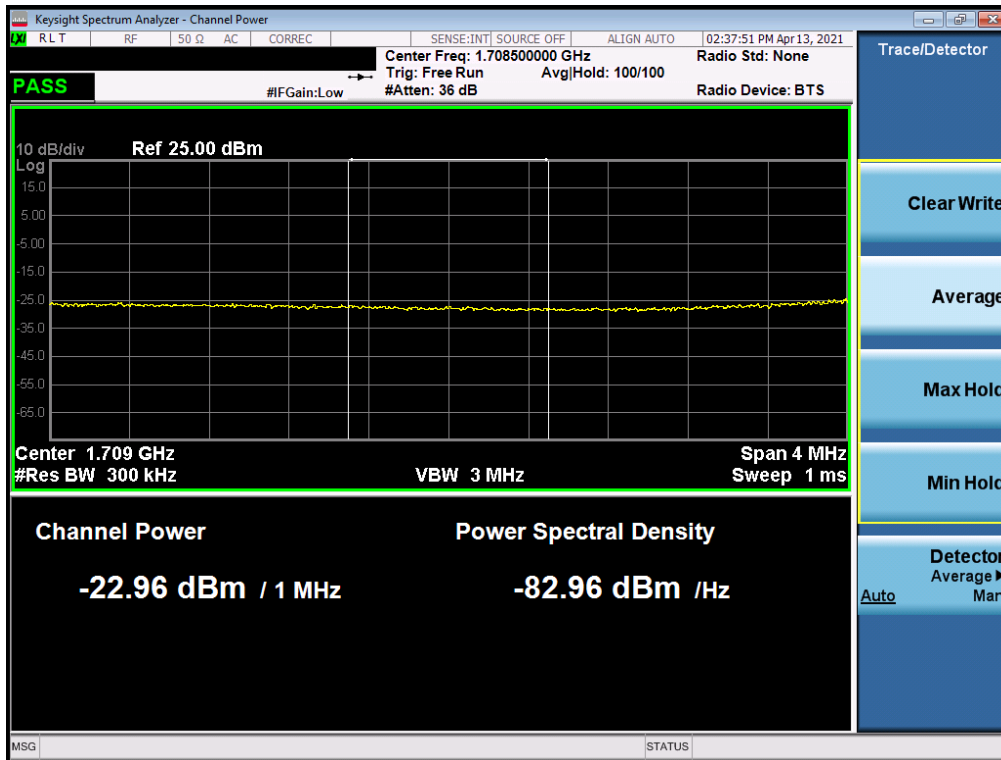


Plot 7-352. Conducted Spurious Plot (ULCA LTE Band 66 High Channel)

FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 204 of 254

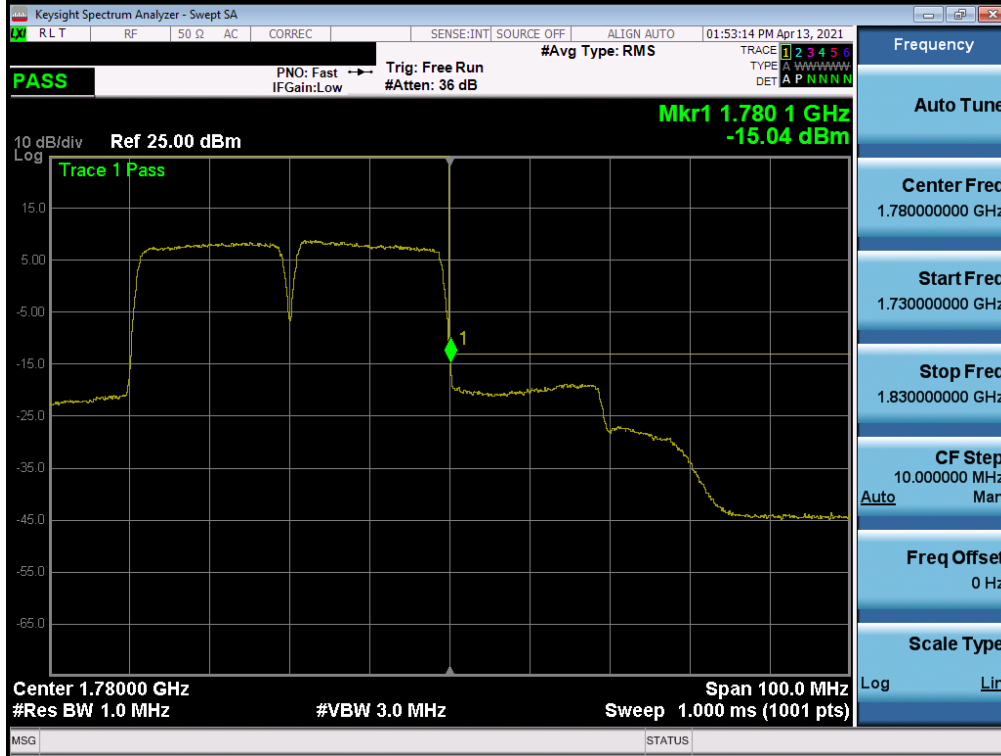


Plot 7-353. Lower Band Edge Plot (ULCA LTE Band 66)

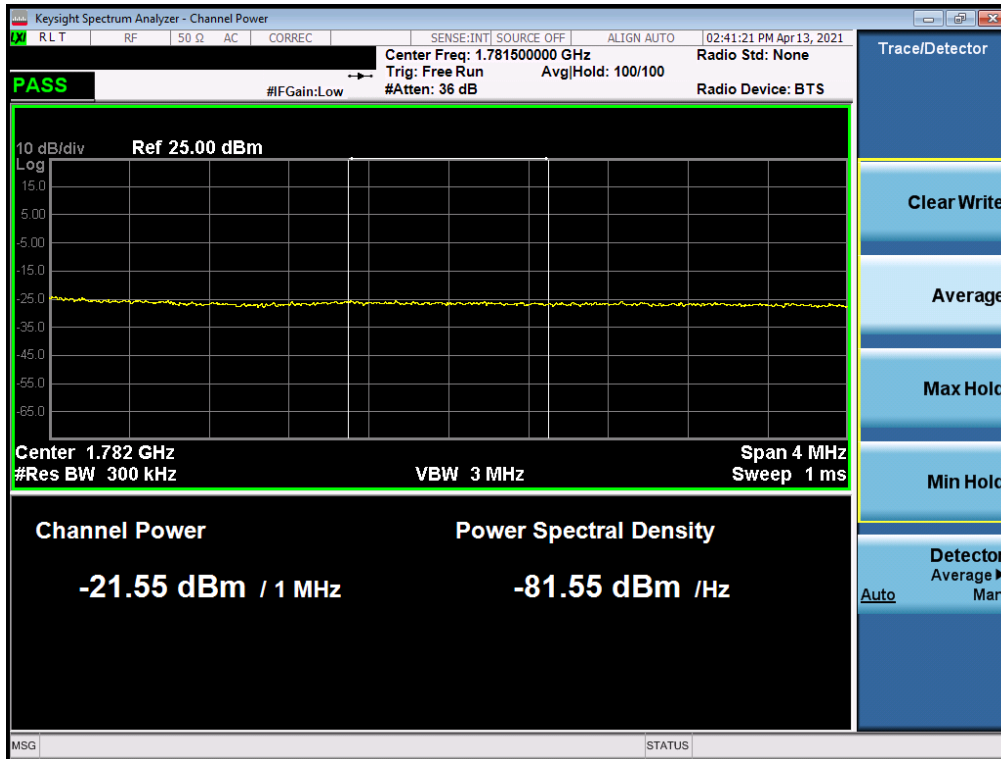


Plot 7-354. Lower Extended Band Edge Plot (ULCA LTE Band 66)

FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 205 of 254



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: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 206 of 254

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 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points \geq 2 x span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

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Test Setup

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

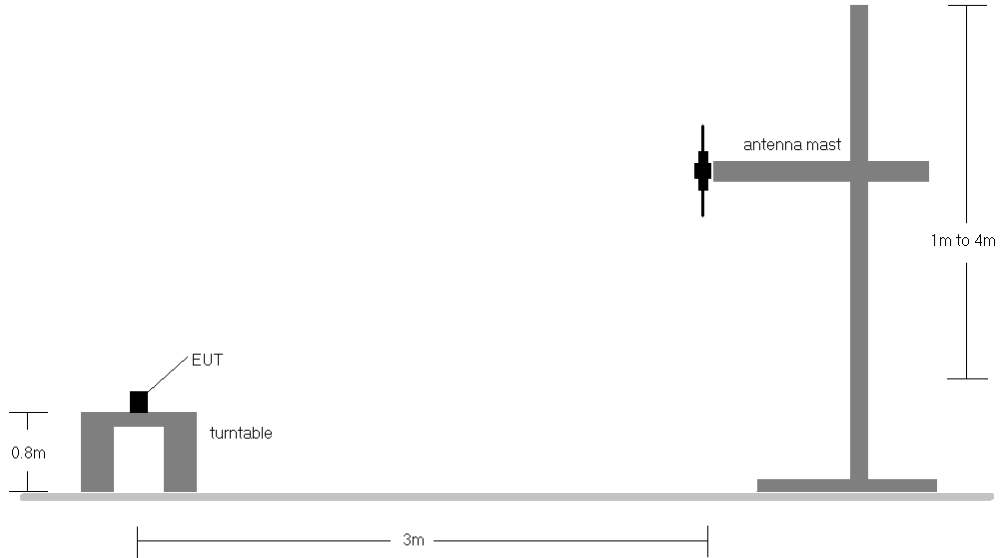


Figure 7-7. Radiated Test Setup <1GHz

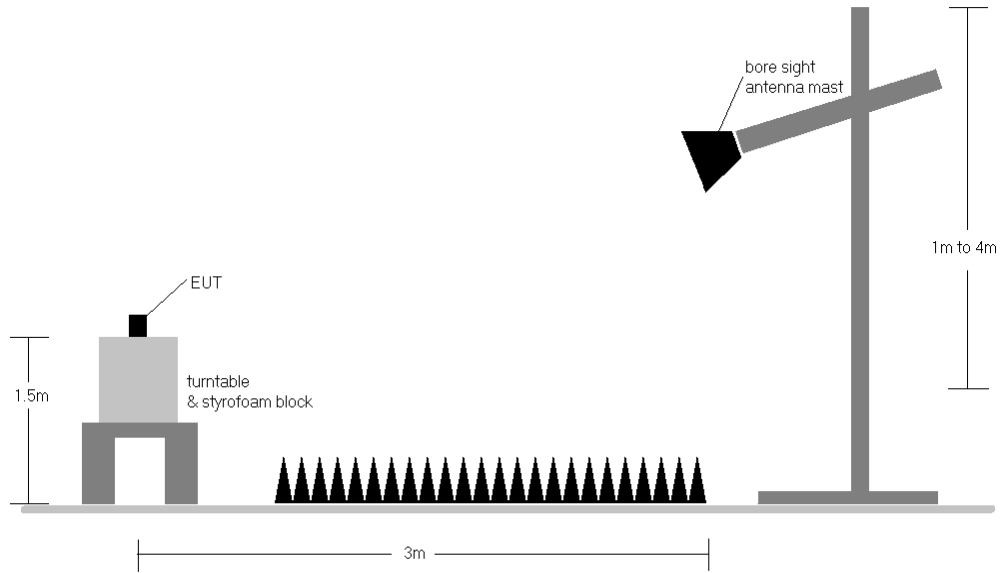




Figure 7-8. Radiated Test Setup >1GHz

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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) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.
- 4) 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.

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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]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
20 MHz	QPSK	673.0	V	100	302	4.09	1 / 99	16.15	20.24	0.106	36.99	-16.75	18.09	0.064	34.77	-16.68
		680.5	V	100	298	4.24	1 / 99	16.77	21.01	0.126	36.99	-15.98	18.86	0.077	34.77	-15.92
		688.0	V	100	302	4.48	1 / 99	16.78	21.26	0.134	36.99	-15.73	19.11	0.081	34.77	-15.66
15 MHz	QPSK	670.5	V	100	302	3.96	1 / 0	16.32	20.28	0.107	36.99	-16.71	18.13	0.065	34.77	-16.64
		680.5	V	100	298	4.24	1 / 0	16.77	21.00	0.126	36.99	-15.99	18.85	0.077	34.77	-15.92
		690.5	V	100	302	4.41	1 / 0	16.73	21.15	0.130	36.99	-15.84	19.00	0.079	34.77	-15.77
10 MHz	QPSK	688.0	V	100	302	3.82	1 / 49	16.50	20.33	0.108	36.99	-16.66	18.18	0.066	34.77	-16.59
		680.5	V	100	298	4.24	1 / 49	16.79	21.03	0.127	36.99	-15.96	18.88	0.077	34.77	-15.89
		693.0	V	100	302	4.44	1 / 0	16.74	21.19	0.131	36.99	-15.80	19.04	0.080	34.77	-15.73
5 MHz	QPSK	665.5	V	100	302	3.79	1 / 24	16.54	20.33	0.108	36.99	-16.66	18.18	0.066	34.77	-16.59
		680.5	V	100	298	4.24	1 / 24	16.85	21.09	0.128	36.99	-15.90	18.94	0.078	34.77	-15.83
		695.5	V	100	302	4.58	1 / 0	16.26	20.84	0.121	36.99	-16.15	18.69	0.074	34.77	-16.08
20 MHz	QPSK (Closed)	688.0	H	133	37	3.28	1 / 50	16.80	20.08	0.102	36.99	-16.91	17.93	0.062	34.77	-16.84
		688.0	V	106	243	4.48	1 / 50	10.70	15.18	0.033	36.99	-21.81	13.03	0.020	34.77	-21.74
		688.0	H	138	256	3.28	1 / 0	11.09	14.37	0.027	36.99	-22.62	12.22	0.017	34.77	-22.55



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	252	4.58	1 / 0	16.10	20.68	0.117	36.99	-16.31	18.53	0.071	34.77	-16.24
		707.5	V	101	248	4.62	1 / 49	15.89	20.51	0.113	36.99	-16.48	18.36	0.069	34.77	-16.41
		711.0	V	100	252	4.67	1 / 49	16.56	21.23	0.133	36.99	-15.76	19.08	0.081	34.77	-15.69
5 MHz	QPSK	711.0	V	100	252	4.67	1 / 49	16.02	20.69	0.117	36.99	-16.30	18.54	0.071	34.77	-16.23
		701.5	V	100	252	4.60	1 / 24	15.67	20.27	0.106	36.99	-16.72	18.12	0.065	34.77	-16.65
		707.5	V	101	248	4.62	1 / 12	15.90	20.53	0.113	36.99	-16.46	18.38	0.069	34.77	-16.39
3 MHz	QPSK	713.5	V	100	252	4.70	1 / 24	16.70	21.39	0.138	36.99	-15.59	19.24	0.084	34.77	-15.53
		700.5	V	100	252	4.59	1 / 14	15.85	20.44	0.111	36.99	-16.55	18.29	0.067	34.77	-16.48
		707.5	V	101	248	4.62	1 / 14	15.96	20.58	0.114	36.99	-16.41	18.43	0.070	34.77	-16.34
1.4 MHz	QPSK	714.5	V	100	252	4.71	1 / 14	16.51	21.22	0.132	36.99	-15.77	19.07	0.081	34.77	-15.70
		714.5	V	100	252	4.71	1 / 14	15.97	20.68	0.117	36.99	-16.31	18.53	0.071	34.77	-16.24
		699.7	V	100	252	4.56	1 / 3	15.74	20.29	0.107	36.99	-16.70	18.14	0.065	34.77	-16.63
10 MHz	QPSK (Closed)	707.5	V	101	248	4.62	1 / 3	15.90	20.52	0.113	36.99	-16.47	18.37	0.069	34.77	-16.40
		715.3	V	100	252	4.72	1 / 0	16.58	21.30	0.135	36.99	-15.69	19.15	0.082	34.77	-15.62
		715.3	V	100	252	4.72	1 / 0	15.83	20.55	0.113	36.99	-16.44	18.40	0.069	34.77	-16.37
10 MHz	QPSK	711.0	H	282	164	3.67	1 / 5	16.67	20.34	0.108	36.99	-16.65	18.19	0.066	34.77	-16.58
		711.0	V	153	40	4.67	1 / 5	9.86	14.53	0.028	36.99	-22.46	12.38	0.017	34.77	-22.39
		711.0	H	135	248	3.67	1 / 3	10.85	14.52	0.028	36.99	-22.47	12.37	0.017	34.77	-22.40

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	148	237	5.79	1 / 49	16.47	22.26	0.168	36.99	-14.73	20.11	0.103	34.77	-14.66
		782.0	V	148	237	5.79	1 / 49	15.62	21.41	0.138	36.99	-15.58	19.26	0.084	34.77	-15.51
5 MHz	QPSK	779.5	V	148	237	5.77	1 / 24	16.45	22.22	0.167	36.99	-14.77	20.07	0.102	34.77	-14.70
		782.0	V	148	237	5.79	1 / 12	16.45	22.24	0.168	36.99	-14.75	20.09	0.102	34.77	-14.68
		784.5	V	148	237	5.82	1 / 24	16.54	22.36	0.172	36.99	-14.63	20.21	0.105	34.77	-14.56
10 MHz	QPSK	784.5	V	148	237	5.82	1 / 24	15.49	21.31	0.135	36.99	-15.68	19.16	0.082	34.77	-15.61
		782.0	H	236	290	5.89	1 / 49	16.21	22.10	0.162	36.99	-14.89	19.95	0.099	34.77	-14.82
		782.0	V	152	251	5.79	1 / 49	9.82	15.61	0.036	36.99	-21.38	13.46	0.022	34.77	-21.31
10 MHz	QPSK (Closed)	782.0	V	148	151	5.79	1 / 49	11.51	17.30	0.054	36.99	-19.69	15.15	0.033	34.77	-19.62

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

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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]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
20 MHz	π/2 BPSK	673.0	H	128	175	3.09	1 / 53	13.64	16.73	0.047	36.99	-20.26	14.58	0.029	34.77	-20.19
		680.5	H	134	175	3.19	1 / 79	14.89	18.06	0.064	36.99	-18.91	15.93	0.039	34.77	-18.85
		688.0	H	142	173	3.28	1 / 79	14.84	18.12	0.065	36.99	-18.87	15.97	0.040	34.77	-18.80
	QPSK	673.0	H	128	175	3.09	1 / 53	13.54	16.63	0.046	36.99	-20.36	14.48	0.028	34.77	-20.29
		680.5	H	134	175	3.19	1 / 79	14.83	18.02	0.063	36.99	-18.97	15.87	0.039	34.77	-18.91
		688.0	H	142	173	3.28	1 / 79	14.60	17.88	0.061	36.99	-19.11	15.73	0.037	34.77	-19.04
16-QAM	680.5	H	134	175	3.19	1 / 79	13.79	16.98	0.050	36.99	-20.01	14.83	0.030	34.77	-19.95	
15 MHz	π/2 BPSK	670.5	H	128	175	3.06	1 / 58	13.68	16.74	0.047	36.99	-20.25	14.59	0.029	34.77	-20.18
		680.5	H	134	175	3.19	1 / 20	14.70	17.89	0.062	36.99	-19.10	15.74	0.037	34.77	-19.03
		690.5	H	142	173	3.31	1 / 20	14.76	18.07	0.064	36.99	-18.92	15.92	0.039	34.77	-18.85
	QPSK	670.5	H	128	175	3.06	1 / 58	13.39	16.44	0.044	36.99	-20.55	14.29	0.027	34.77	-20.48
		680.5	H	134	175	3.19	1 / 20	14.81	18.00	0.063	36.99	-18.99	15.85	0.038	34.77	-18.92
		690.5	H	142	173	3.31	1 / 20	14.80	18.11	0.065	36.99	-18.88	15.96	0.039	34.77	-18.81
16-QAM	690.5	H	142	173	3.31	1 / 20	14.11	17.42	0.055	36.99	-19.57	15.27	0.034	34.77	-19.50	
10 MHz	π/2 BPSK	668.0	H	128	175	3.02	1 / 38	13.60	16.63	0.046	36.99	-20.36	14.48	0.028	34.77	-20.30
		680.5	H	134	175	3.19	1 / 13	14.66	17.85	0.061	36.99	-19.14	15.70	0.037	34.77	-19.07
		693.0	H	142	173	3.34	1 / 13	14.73	18.07	0.064	36.99	-18.92	15.92	0.039	34.77	-18.85
	QPSK	668.0	H	128	175	3.02	1 / 38	13.44	16.47	0.044	36.99	-20.52	14.32	0.027	34.77	-20.45
		680.5	H	134	175	3.19	1 / 13	14.83	18.02	0.063	36.99	-18.97	15.87	0.039	34.77	-18.90
		693.0	H	142	173	3.34	1 / 13	14.36	17.70	0.059	36.99	-19.29	15.55	0.036	34.77	-19.22
16-QAM	693.0	H	142	173	3.34	1 / 13	13.54	16.88	0.049	36.99	-20.11	14.73	0.030	34.77	-20.04	
5 MHz	π/2 BPSK	665.5	H	128	175	2.99	1 / 18	13.62	16.61	0.046	36.99	-20.38	14.46	0.028	34.77	-20.31
		680.5	H	134	175	3.19	1 / 6	14.67	17.86	0.061	36.99	-19.13	15.71	0.037	34.77	-19.06
		695.5	H	142	173	3.38	1 / 6	14.17	17.54	0.057	36.99	-19.45	15.39	0.035	34.77	-19.38
	QPSK	665.5	H	128	175	2.99	1 / 18	13.55	16.54	0.045	36.99	-20.45	14.39	0.027	34.77	-20.38
		680.5	H	134	175	3.19	1 / 6	14.74	17.93	0.062	36.99	-19.06	15.78	0.038	34.77	-18.99
		695.5	H	142	173	3.38	1 / 6	13.50	16.87	0.049	36.99	-20.12	14.72	0.030	34.77	-20.05
16-QAM	680.5	H	134	175	3.19	1 / 6	13.76	16.95	0.050	36.99	-20.04	14.80	0.030	34.77	-19.97	
20 MHz	QPSK (CP-OFDM)	688.0	H	142	173	3.28	1/53	13.44	16.72	0.047	36.99	-20.27	14.57	0.029	34.77	-20.20
	QPSK (Closed)	688.0	V	101	333	4.48	1/79	13.47	17.95	0.062	36.99	-19.04	15.80	0.038	34.77	-18.97
	QPSK (WCP)	688.0	H	139	354	3.28	1/53	14.61	17.89	0.062	36.99	-19.10	15.74	0.038	34.77	-19.03



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	π/2 BPSK	706.5	V	169	196	4.61	1 / 20	14.38	18.99	0.079	36.99	-18.00	16.84	0.048	34.77	-17.93
		707.5	V	171	189	4.62	1 / 20	14.32	18.94	0.078	36.99	-18.05	16.79	0.048	34.77	-17.98
		708.5	V	170	205	4.64	1 / 20	14.07	18.71	0.074	36.99	-18.28	16.56	0.045	34.77	-18.22
	QPSK	706.5	V	169	196	4.61	1 / 20	14.29	18.90	0.078	36.99	-18.09	16.75	0.047	34.77	-18.02
		707.5	V	171	189	4.62	1 / 20	14.24	18.86	0.077	36.99	-18.13	16.71	0.047	34.77	-18.06
		708.5	V	170	205	4.64	1 / 20	13.94	18.58	0.072	36.99	-18.41	16.43	0.044	34.77	-18.35
16-QAM	706.5	V	169	196	4.61	1 / 20	13.28	17.89	0.062	36.99	-19.10	15.74	0.038	34.77	-19.03	
10 MHz	π/2 BPSK	704.0	V	169	196	4.58	1 / 13	14.27	18.85	0.077	36.99	-18.14	16.70	0.047	34.77	-18.07
		707.5	V	171	189	4.62	1 / 38	14.24	18.86	0.077	36.99	-18.13	16.71	0.047	34.77	-18.06
		711.0	V	170	205	4.67	1 / 13	14.17	18.84	0.077	36.99	-18.15	16.69	0.047	34.77	-18.08
	QPSK	704.0	V	169	196	4.58	1 / 13	14.23	18.82	0.076	36.99	-18.17	16.67	0.046	34.77	-18.11
		707.5	V	171	189	4.62	1 / 38	12.82	17.44	0.055	36.99	-19.55	15.29	0.034	34.77	-19.48
		711.0	V	170	205	4.67	1 / 13	13.96	18.63	0.073	36.99	-18.36	16.48	0.044	34.77	-18.29
16-QAM	704.0	V	169	196	4.58	1 / 13	13.11	17.69	0.059	36.99	-19.30	15.54	0.036	34.77	-19.23	
5 MHz	π/2 BPSK	701.5	V	169	196	4.60	1 / 6	14.40	19.00	0.079	36.99	-17.99	16.85	0.048	34.77	-17.92
		707.5	V	171	189	4.62	1 / 12	14.22	18.85	0.077	36.99	-18.14	16.70	0.047	34.77	-18.08
		713.5	V	170	205	4.70	1 / 18	13.97	18.66	0.073	36.99	-18.33	16.51	0.045	34.77	-18.26
	QPSK	701.5	V	169	196	4.60	1 / 6	14.24	18.84	0.077	36.99	-18.15	16.69	0.047	34.77	-18.08
		707.5	V	171	189	4.62	1 / 12	14.26	18.89	0.077	36.99	-18.10	16.74	0.047	34.77	-18.03
		713.5	V	170	205	4.70	1 / 18	13.66	18.36	0.069	36.99	-18.63	16.21	0.042	34.77	-18.56
16-QAM	701.5	V	169	196	4.60	1 / 6	13.18	17.78	0.060	36.99	-19.21	15.63	0.037	34.77	-19.14	
15 MHz	QPSK (CP-OFDM)	706.5	V	169	196	4.61	1/20	12.51	17.12	0.052	36.99	-19.87	14.97	0.031	34.77	-19.80
	QPSK (Closed)	706.5	H	281	10	3.66	1/58	15.13	18.79	0.076	36.99	-18.20	16.64	0.046	34.77	-18.13
	QPSK (WCP)	706.5	V	167	238	4.61	1/20	10.28	14.89	0.031	36.99	-22.10	12.74	0.019	34.77	-22.03

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: A3LSMF711U		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]
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: A3LSMF711U	 PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset	Page 212 of 254



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: A3LSMF711U	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104070032-04.A3L	Test Dates: 04/12/2021 – 06/04/2021	EUT Type: Portable Handset		Page 213 of 254

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.

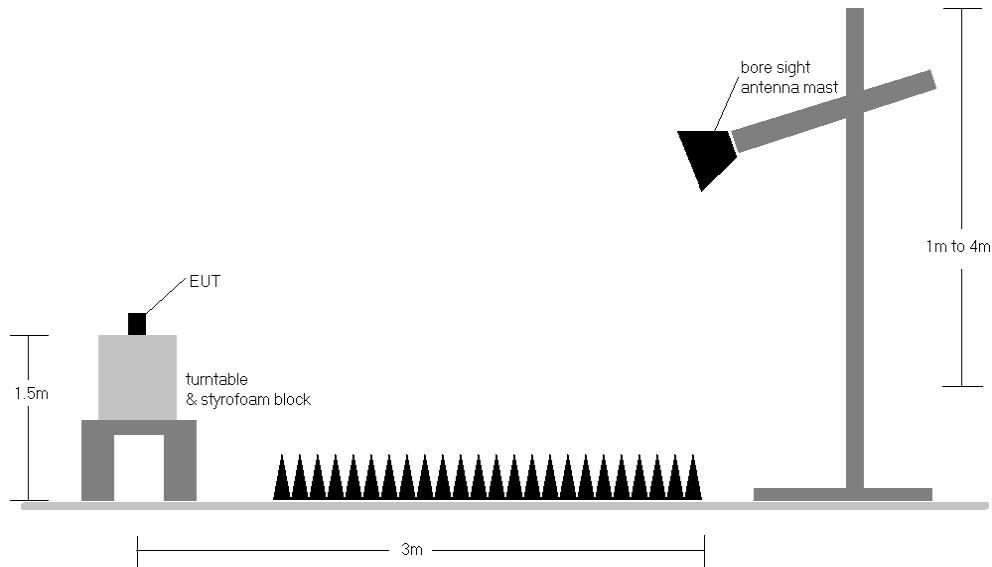






Figure 7-9. Test Instrument & Measurement Setup >1 GHz

Test Notes

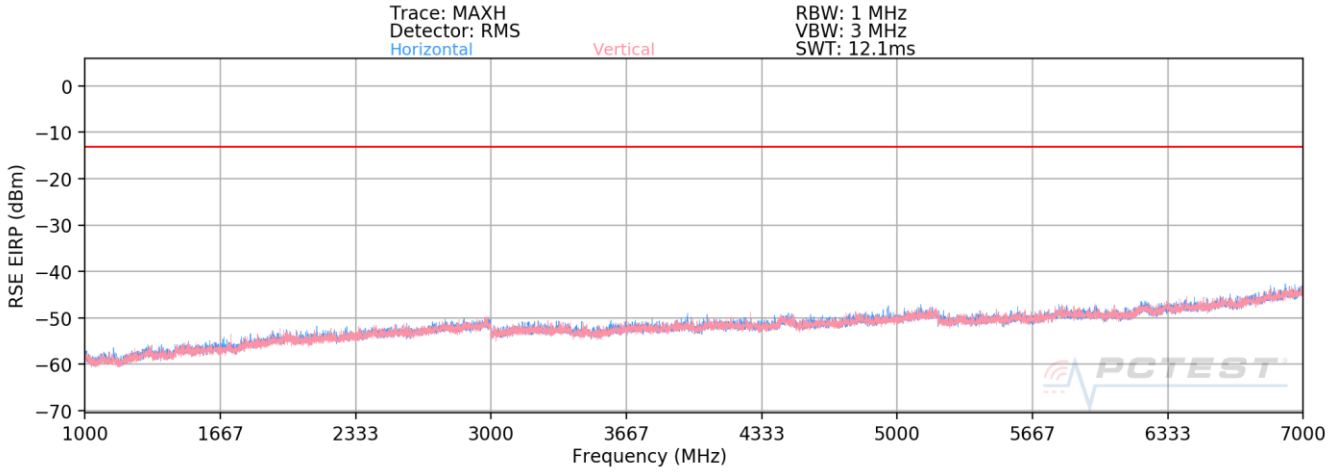
- 1) Field strengths are calculated using the Measurement quantity conversions in KDB 971168 Section 5.8.4.
 - a) $E(\text{dB}\mu\text{V}/\text{m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$
 - b) $\text{EIRP (dBm)} = E(\text{dB}\mu\text{V}/\text{m}) + 20\log D - 104.8$; 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) 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.
- 8) 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.
- 9) 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

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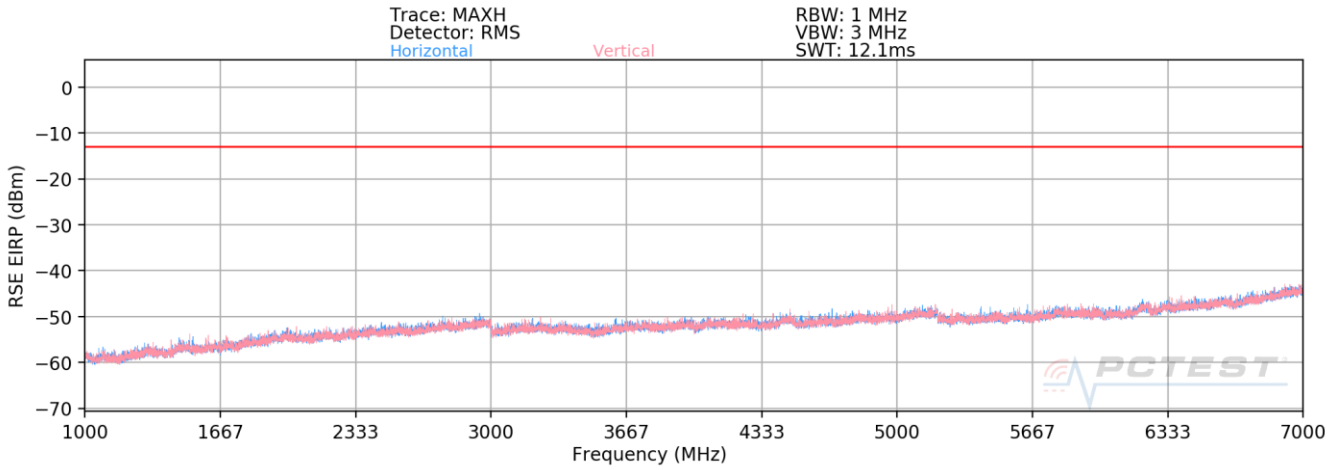
to the rules under which the NR carrier operates. Spurious emission caused by the LTE carrier must meet the requirements of the rules under which the LTE carrier operates.

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LTE Band 71



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



Plot 7-358. Radiated Spurious Plot (LTE Band 71 – Closed)

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Bandwidth (MHz):	20
Frequency (MHz):	673.0
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]
1346.0	H	-	-	-76.19	-1.44	29.37	-65.89	-13.00	-52.89
2019.0	H	-	-	-77.24	2.21	31.97	-63.28	-13.00	-50.28
2692.0	H	-	-	-77.49	3.73	33.24	-62.02	-13.00	-49.02

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]
1361.0	H	-	-	-76.43	-1.69	28.88	-66.38	-13.00	-53.38
2041.5	H	-	-	-77.26	2.01	31.75	-63.50	-13.00	-50.50
2722.0	H	-	-	-77.72	4.01	33.29	-61.97	-13.00	-48.97

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

Bandwidth (MHz):	20
Frequency (MHz):	688.0
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]
1376.0	H	237	35	-75.32	-1.56	30.12	-65.14	-13.00	-52.14
2064.0	H	-	-	-77.22	2.05	31.83	-63.43	-13.00	-50.43
2752.0	H	-	-	-78.14	4.46	33.32	-61.94	-13.00	-48.94

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

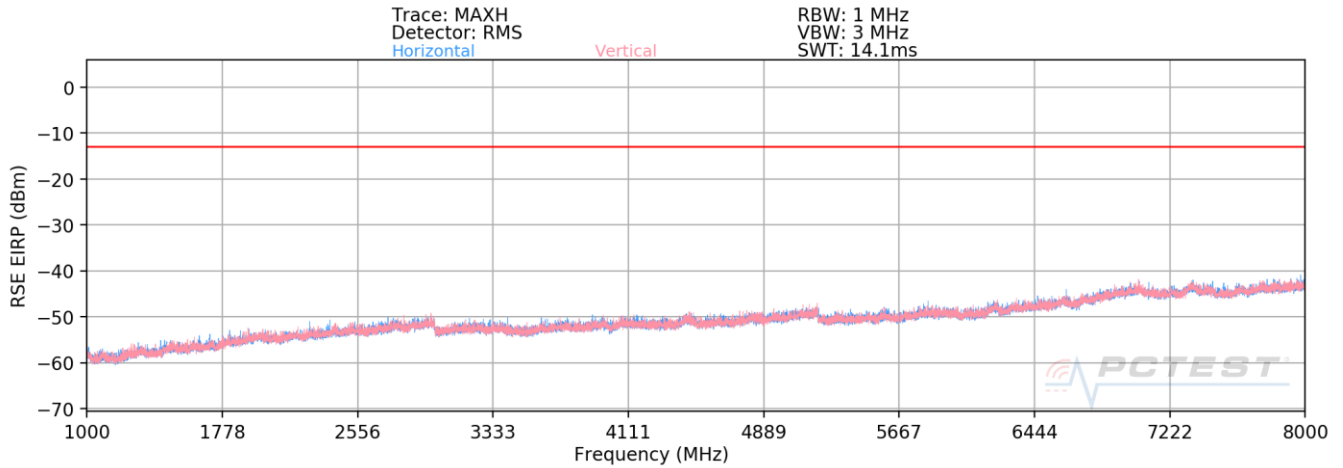
Bandwidth (MHz):	20
Frequency (MHz):	688.0
RB / Offset:	1 / 50

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]
1376.0	H	322	29	-77.10	-1.56	28.34	-66.92	-13.00	-53.92
2064.0	H	-	-	-77.53	2.05	31.52	-63.74	-13.00	-50.74
2752.0	H	-	-	-77.86	4.46	33.60	-61.66	-13.00	-48.66
3440.0	H	-	-	-79.04	4.54	32.50	-62.76	-13.00	-49.76

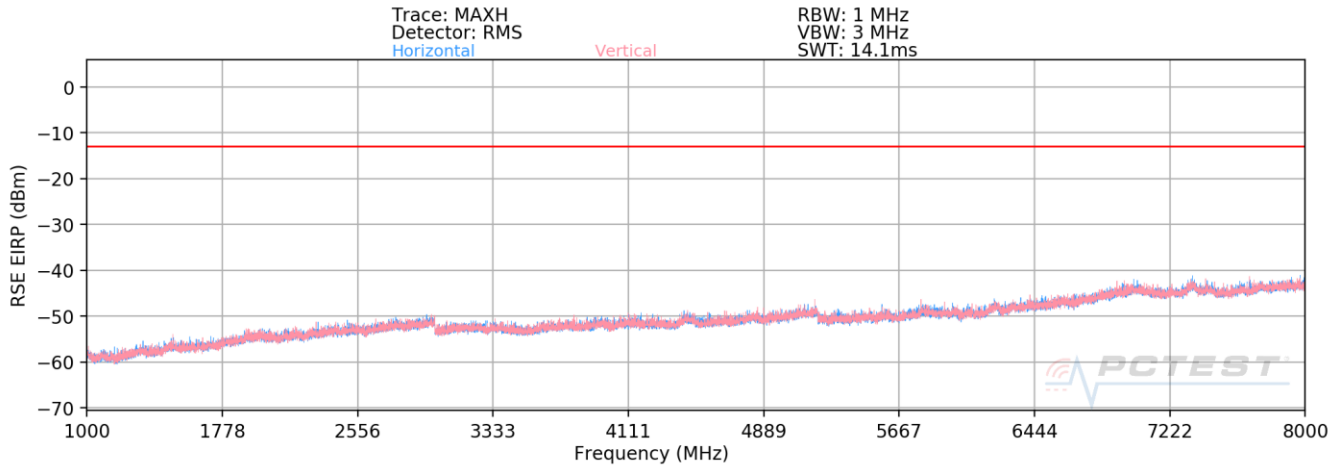
Table 7-16. Radiated Spurious Data (LTE Band 71 – High Channel – Open) – With WCP

FCC ID: A3LSMF711U	 PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 12



Plot 7-359. Radiated Spurious Plot (LTE Band 12 – Open)



Plot 7-360. Radiated Spurious Plot (LTE Band 12 – Closed)

FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Bandwidth (MHz):	10
Frequency (MHz):	704.0
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	291	45	-75.43	-1.53	30.04	-65.22	-13.00	-52.22
2112.0	H	-	-	-76.88	1.97	32.09	-63.16	-13.00	-50.16
2816.0	H	-	-	-77.60	3.88	33.28	-61.98	-13.00	-48.98
3520.0	H	-	-	-77.74	4.16	33.42	-61.83	-13.00	-48.83

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

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	107	38	-73.81	-1.48	31.71	-63.55	-13.00	-50.55
2122.5	H	-	-	-77.59	2.03	31.44	-63.81	-13.00	-50.81
2830.0	H	-	-	-77.89	3.90	33.01	-62.25	-13.00	-49.25
3537.5	H	-	-	-77.90	4.24	33.34	-61.92	-13.00	-48.92

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

Bandwidth (MHz):	10
Frequency (MHz):	711.0
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	-	-	-77.05	-1.62	28.33	-66.93	-13.00	-53.93
2133.0	H	-	-	-77.34	2.13	31.79	-63.47	-13.00	-50.47
2844.0	H	-	-	-77.79	3.90	33.11	-62.14	-13.00	-49.14

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

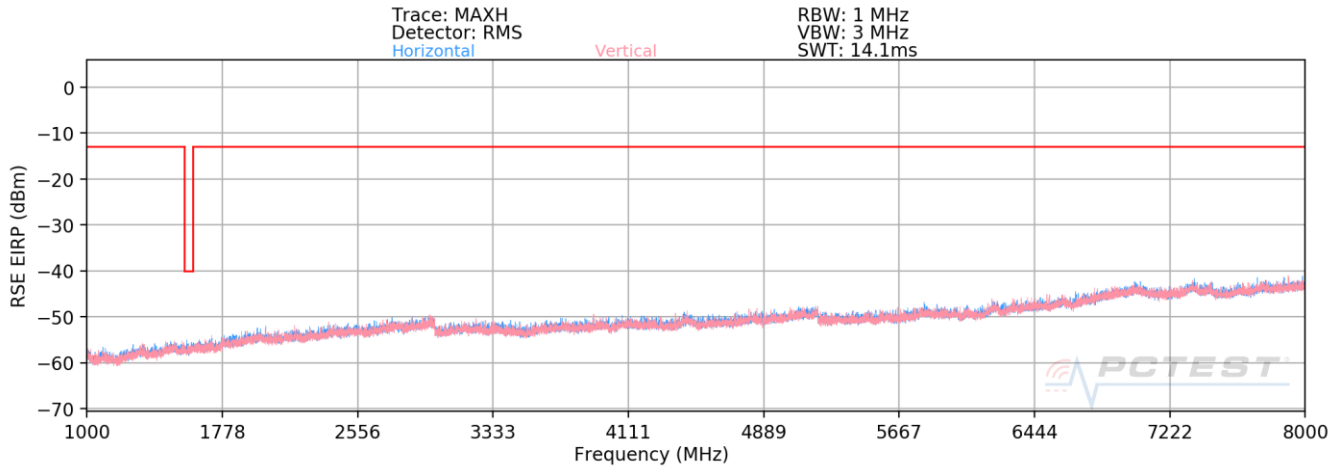
Bandwidth (MHz):	10
Frequency (MHz):	707.5
RB / Offset:	1 / 25

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	267	24	-75.04	-1.48	30.48	-64.78	-13.00	-51.78
2122.5	H	-	-	-77.38	2.03	31.65	-63.60	-13.00	-50.60
2830.0	H	-	-	-77.76	3.90	33.14	-62.12	-13.00	-49.12
3537.5	H	-	-	-77.59	4.24	33.65	-61.61	-13.00	-48.61

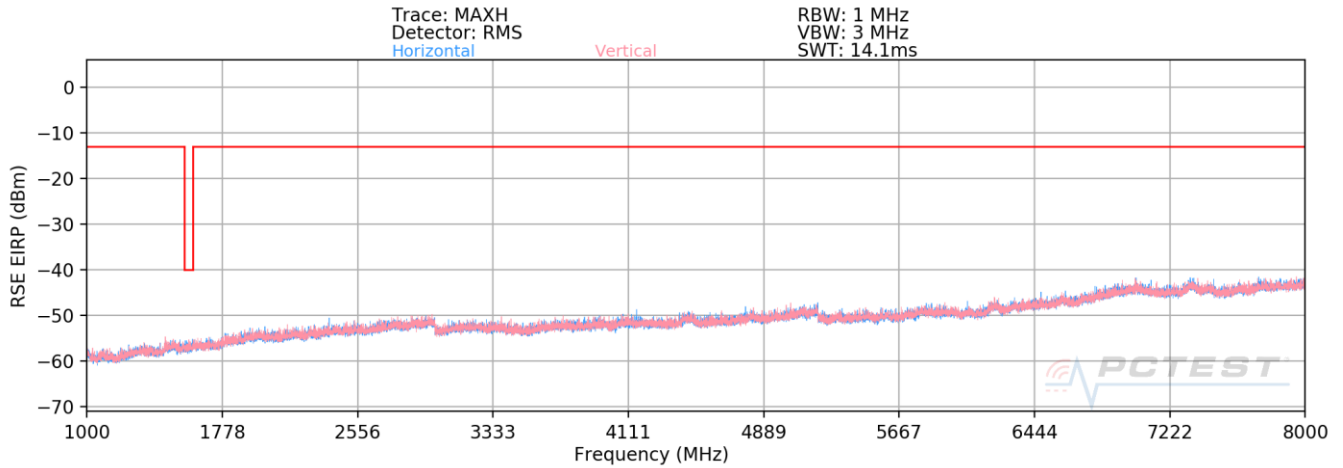
Table 7-20. Radiated Spurious Data (LTE Band 12 – Mid Channel – Open) – With WCP

FCC ID: A3LSMF711U	 PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 13



Plot 7-361. Radiated Spurious Plot (LTE Band 13 – Open)



Plot 7-362. Radiated Spurious Plot (LTE Band 13 – Closed)

FCC ID: A3LSMF711U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Bandwidth (MHz):	10
Frequency (MHz):	782.0
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	-	-	-76.88	-0.36	29.76	-65.50	-40.00	-25.50
2346.0	H	-	-	-77.27	2.89	32.62	-62.64	-13.00	-49.64
3128.0	H	-	-	-77.90	4.26	33.36	-61.90	-13.00	-48.90

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

Bandwidth (MHz):	10
Frequency (MHz):	782.0
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	-	-	-76.86	-0.36	29.78	-65.48	-40.00	-25.48
2346.0	H	-	-	-77.41	2.89	32.48	-62.78	-13.00	-49.78
3128.0	H	-	-	-78.03	4.26	33.23	-62.03	-13.00	-49.03

Table 7-22. Radiated Spurious Data (LTE Band 13 – Mid Channel – Open) – With WCP

FCC ID: A3LSMF711U	 PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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