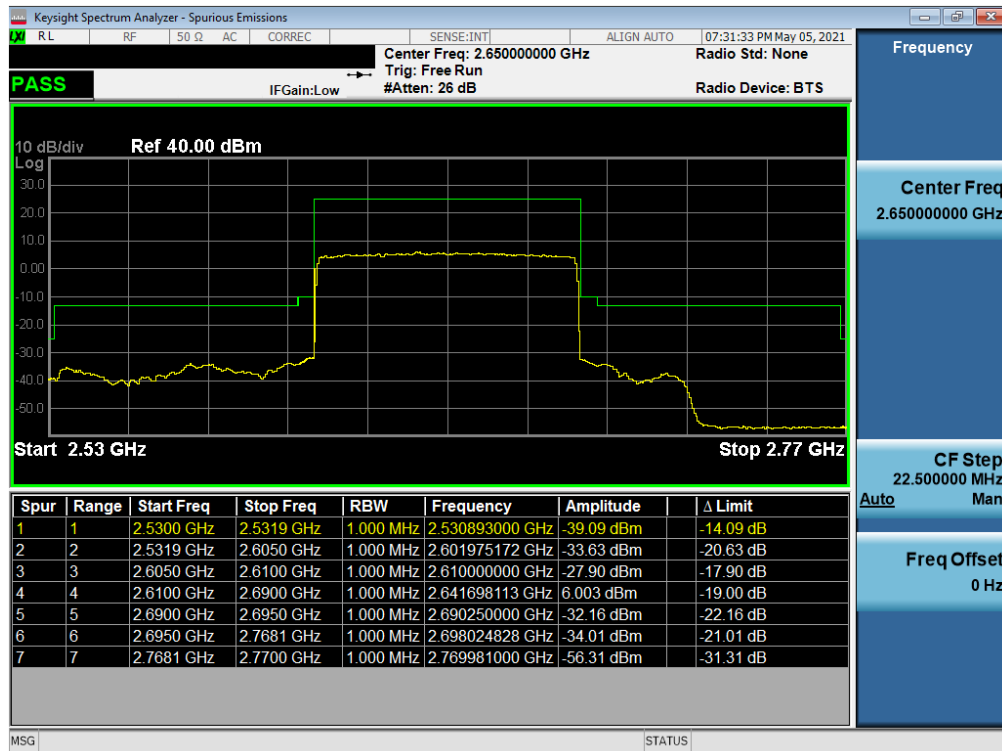




Plot 7-188. Lower ACP Plot (NR Band n41 - 80MHz CP-OFDM-QPSK - Full RB)

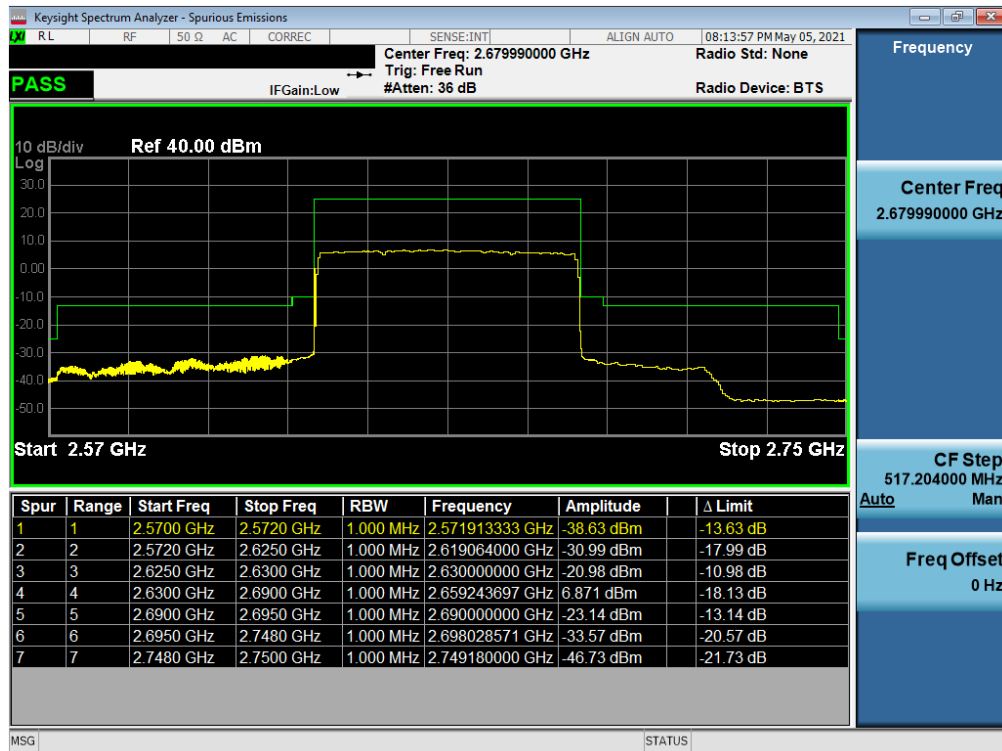


Plot 7-189. Upper ACP Plot (NR Band n41 - 80MHz CP-OFDM-QPSK - Full RB)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of Samsung	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 - 6/11/2021	EUT Type: Portable Handset		Page 117 of 169



Plot 7-190. Lower ACP Plot (NR Band n41 - 60MHz CP-OFDM-QPSK - Full RB)

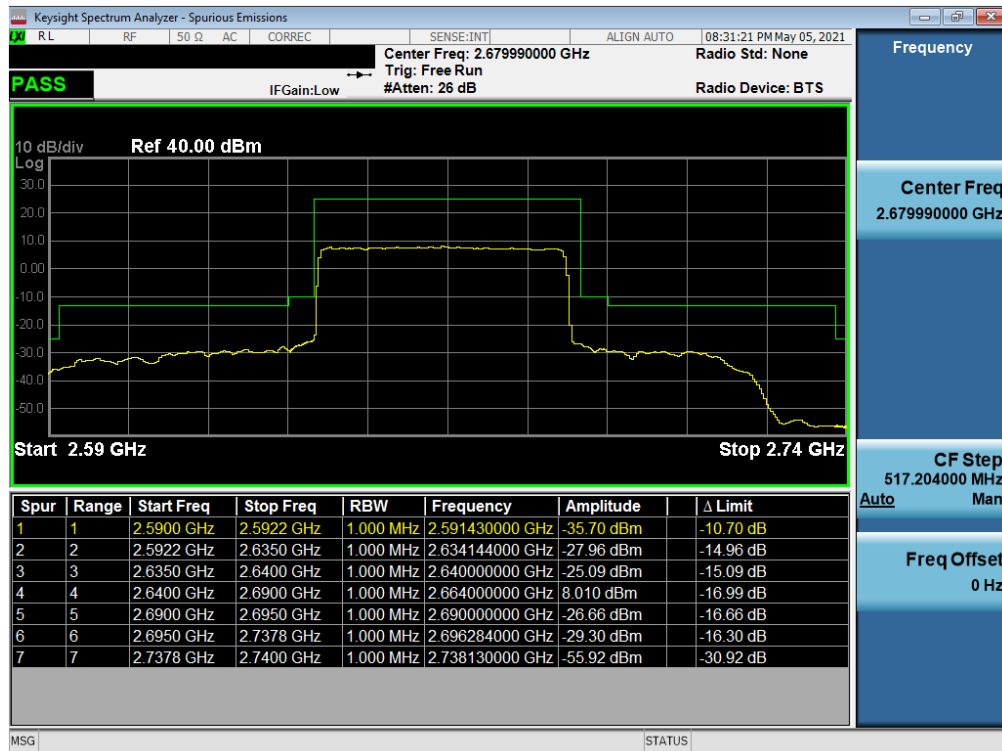


Plot 7-191. Upper ACP Plot (NR Band n41 - 60MHz CP-OFDM-QPSK - Full RB)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of Samsung	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 - 6/11/2021	EUT Type: Portable Handset		Page 118 of 169

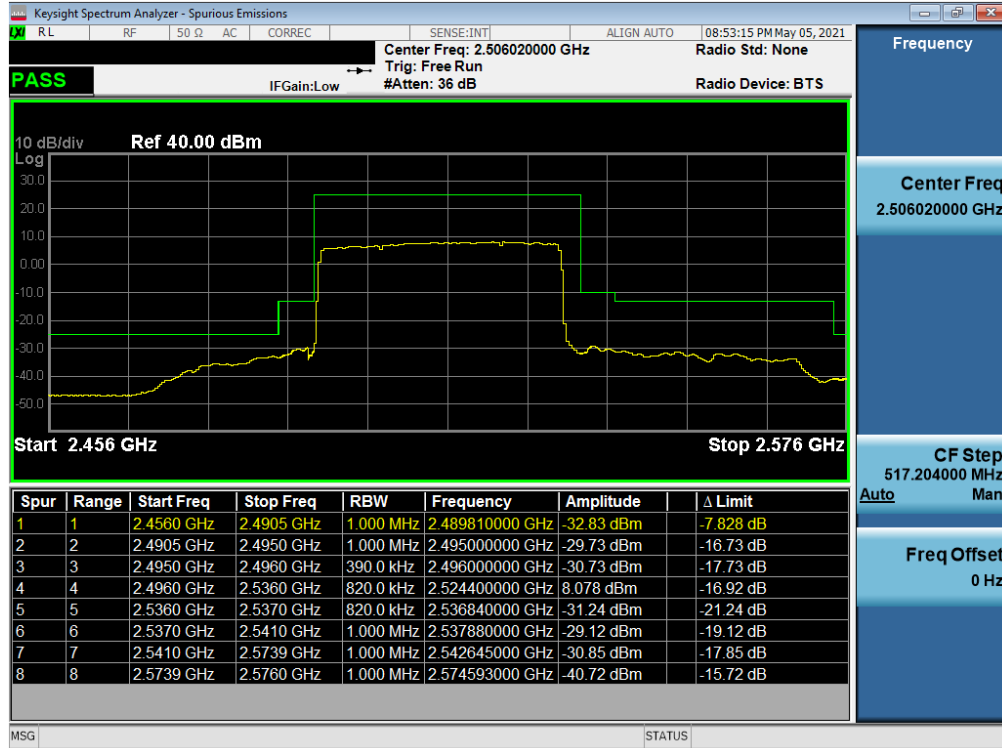


Plot 7-192. Lower ACP Plot (NR Band n41 - 50MHz CP-OFDM-QPSK - Full RB)

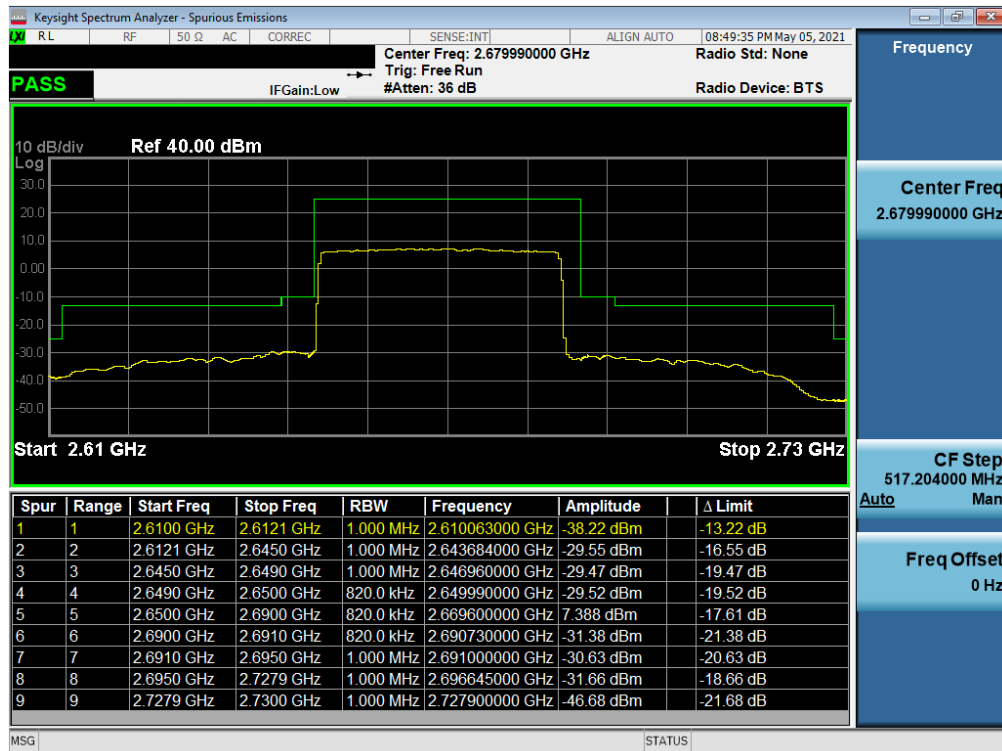


Plot 7-193. Upper ACP Plot (NR Band n41 - 50MHz CP-OFDM-QPSK - Full RB)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of Samsung	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 - 6/11/2021	EUT Type: Portable Handset		Page 119 of 169

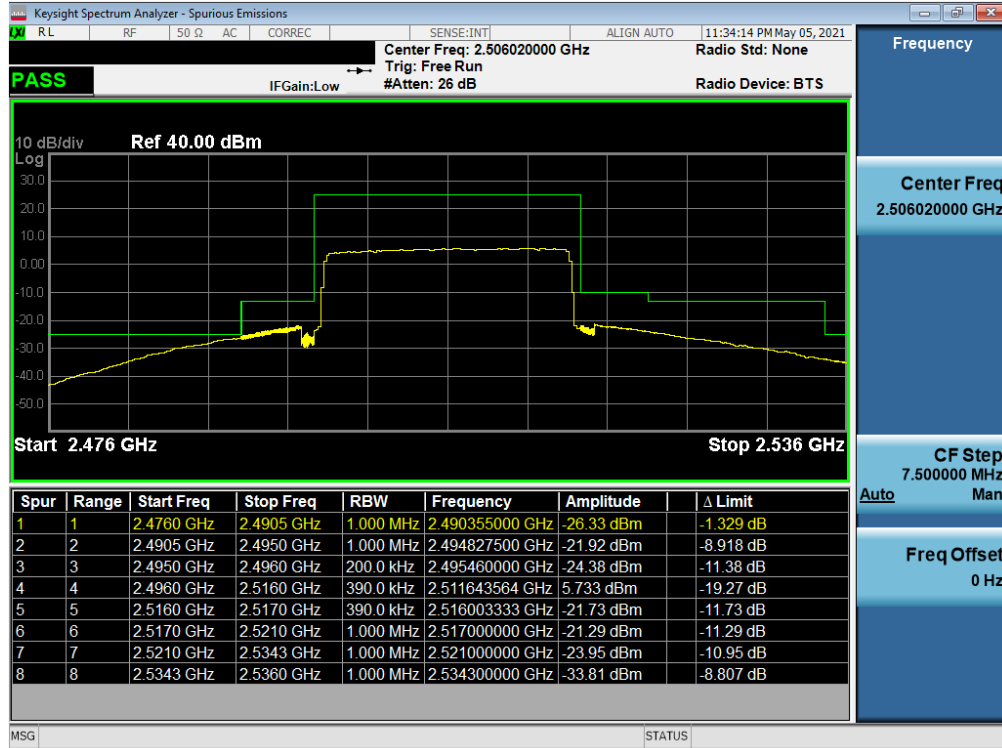


Plot 7-194. Lower ACP Plot (NR Band n41 - 40MHz CP-OFDM-QPSK - Full RB)

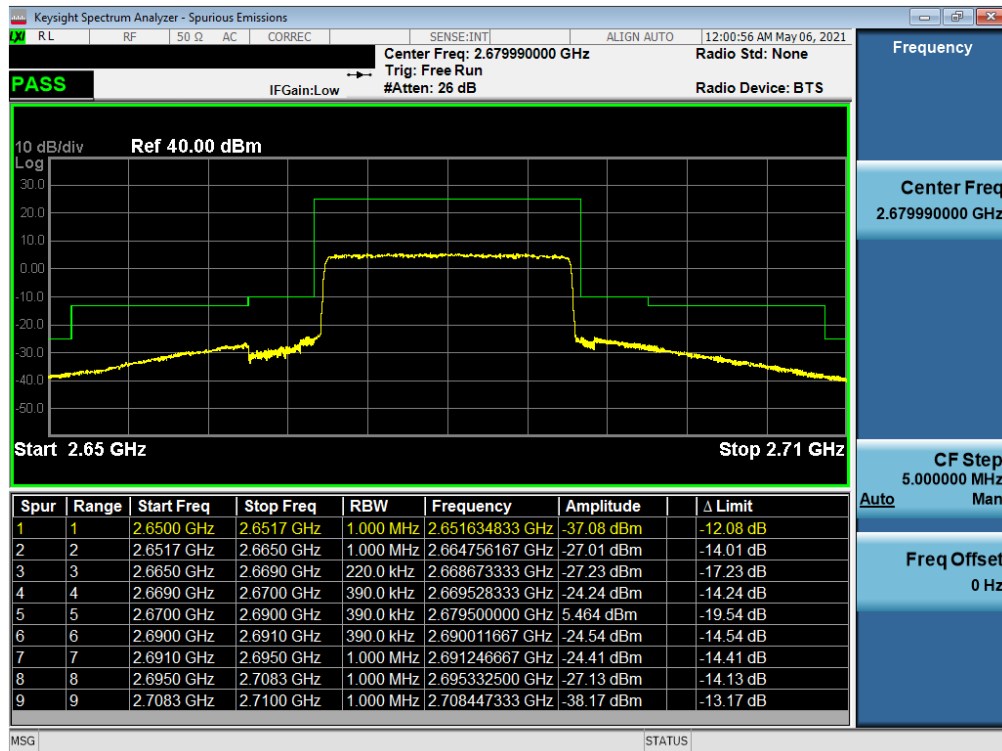


Plot 7-195. Upper ACP Plot (NR Band n41 - 40MHz CP-OFDM-QPSK - Full RB)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 - 6/11/2021	EUT Type: Portable Handset		Page 120 of 169



Plot 7-196. Lower ACP Plot (NR Band n41 - 20MHz CP-OFDM-QPSK - Full RB)



Plot 7-197. Upper ACP Plot (NR Band n41 - 20MHz CP-OFDM-QPSK - Full RB)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 - 6/11/2021	EUT Type: Portable Handset		Page 121 of 169

7.6 Uplink Carrier Aggregation

§27.53(m)

Test Overview

The EUT is set up to transmit two contiguous LTE channels. The power level of both carriers and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates 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.

For Band 41/38 the minimum permissible attenuation level of any spurious emission is $55 + 10 \log_{10}(P_{\text{Watts}})$.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to at least 10 * the fundamental frequency (separated into at least two plots per channel)
2. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. Please see test notes below for RBW and VBW settings

Test Setup

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

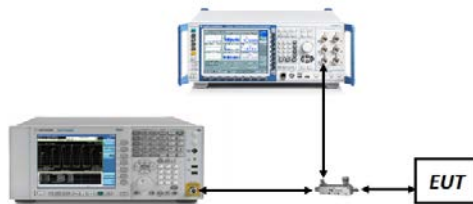


Figure 7-5. Test Instrument & Measurement Setup

Test Notes

1. 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.
2. Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

FCC ID: A3LSMF711U1	PCTEST Proud to be part of Samsung	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Uplink CA Configuration 41C

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 B41 (PC2)	20MHz + 20MHz	QPSK	39750	2506.0	1	99	QPSK	39948	2525.8	1	0	25.29
				40620	2593.0	1	99		40818	2612.8	1	0	26.41
				41490	2680.0	1	0		41292	2660.2	1	99	26.35
			QPSK	40620	2593	100	0	QPSK	40818	2612.8	100	0	26.11
			16-QAM	40620	2593	100	0	16-QAM	40818	2612.8	100	0	25.74
			64-QAM	40620	2593	100	0	64-QAM	40818	2612.8	100	0	24.81
			256-QAM	40620	2593	100	0	256-QAM	40818	2612.8	100	0	23.91

Table 7-3. Conducted Power Data (ULCA LTE B41(PC2))

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 B41 (PC3)	20MHz + 20MHz	QPSK	39750	2506.0	1	99	QPSK	39948	2525.8	1	0	24.89
				40620	2593.0	1	99		40818	2612.8	1	0	25.05
				41490	2680.0	1	0		41292	2660.2	1	99	24.9
			QPSK	40620	2593	100	0	QPSK	40818	2612.8	100	0	23.05
			16-QAM	40620	2593	100	0	16-QAM	40818	2612.8	100	0	22.14
			64-QAM	40620	2593	100	0	64-QAM	40818	2612.8	100	0	22.11
			256-QAM	40620	2593	100	0	256-QAM	40818	2612.8	100	0	20.12

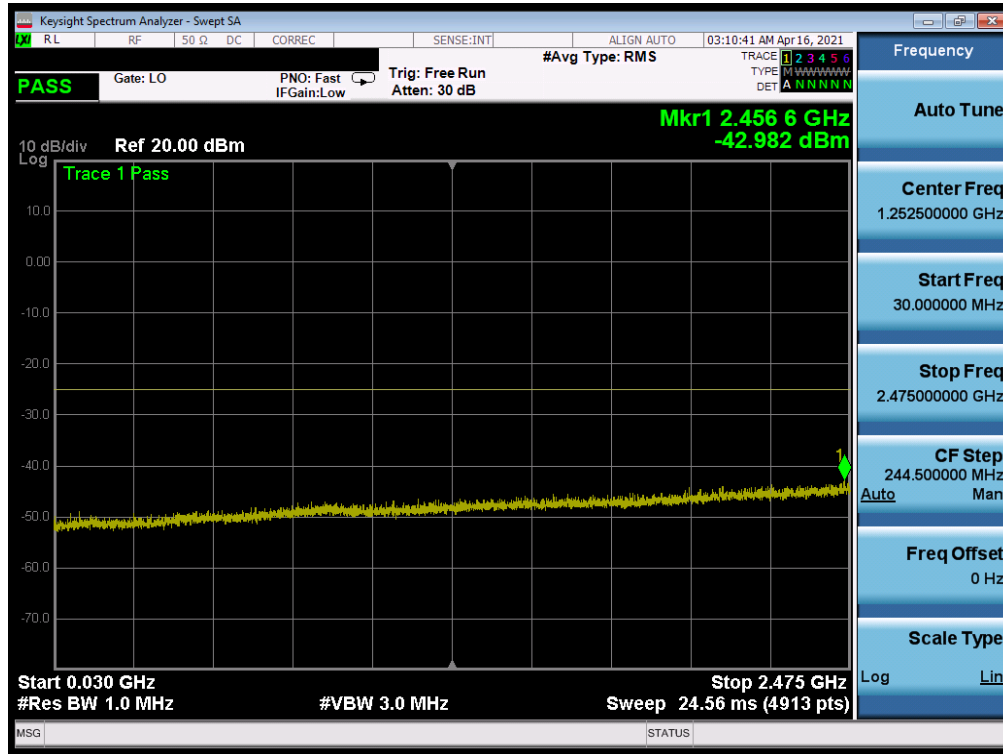
Table 7-4. Conducted Power Data (ULCA LTE B41(PC3))

Test Case	Channel BW [MHz]	PCC Channel Number	PCC Channel Frequency [MHz]	SCC Channel Number	SCC Channel Frequency [MHz]	Modulation	PCC RB Size	PCC RB Offset	SCC RB Size	SCC RB Offset	MPR [dB]	Target Output Power (dBm)	A-MPR [dB]	A-MPR Measured Power [dBm]
1	20 + 20	39750	2506	39948	2525.8	QPSK	100	0	100	0	1	27.00	≤ 5	21.50
						16-QAM	100	0	100	0	2	26.00		21.04
						64-QAM	100	0	100	0	3	25.00		21.07
2	20 + 20	39750	2506	39948	2525.8	QPSK	1	99	1	0	0	27.00	≤ 0	27.72
						16-QAM	1	99	1	0	1	26.00		27.06
						64-QAM	1	99	1	0	2	25.00		24.63
3	20 + 20	39790	2510	39988	2529.8	QPSK	100	0	100	0	1	27.00	≤ 5	21.46
						16-QAM	100	0	100	0	2	26.00		20.97
						64-QAM	100	0	100	0	3	25.00		21.01
4	20 + 20	39790	2510	39988	2529.8	QPSK	1	99	1	0	0	27.00	≤ 0	27.68
						16-QAM	1	99	1	0	1	26.00		27.23
						64-QAM	1	99	1	0	2	25.00		24.50
5	20 + 20	39989	2529.9	40187	2549.7	QPSK	100	0	100	0	1	27.00	≤ 0	23.40
						16-QAM	100	0	100	0	2	26.00		22.45
						64-QAM	100	0	100	0	3	25.00		22.42
6	20 + 20	39989	2529.9	40187	2549.7	QPSK	1	99	1	0	0	27.00	≤ 0	27.46
						16-QAM	1	99	1	0	1	26.00		27.09
						64-QAM	1	99	1	0	2	25.00		24.65

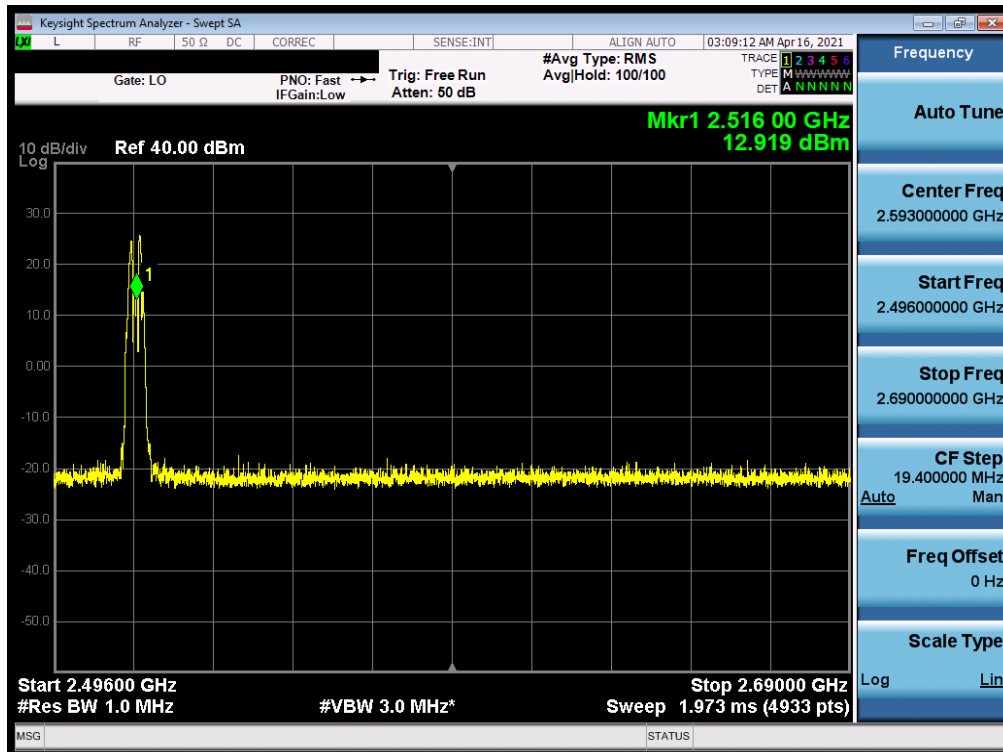
Table 7-5. A-MPR Conducted Power Data (LTE Band 41(PC2))

FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset
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ULCA - LTE B41(PC2)

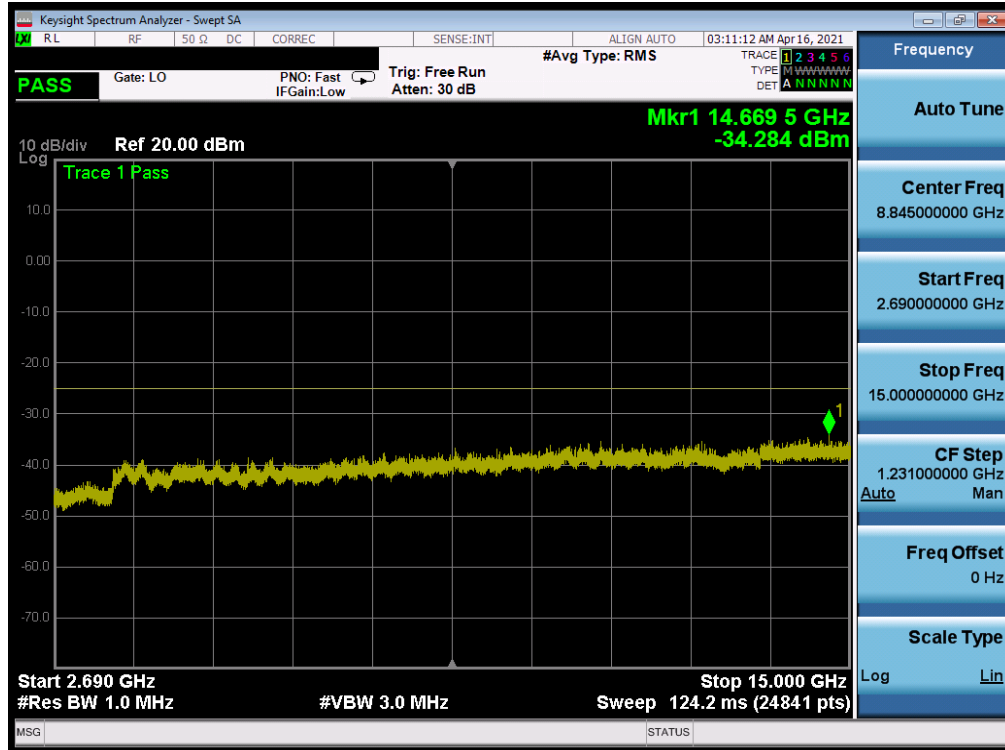


Plot 7-198. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

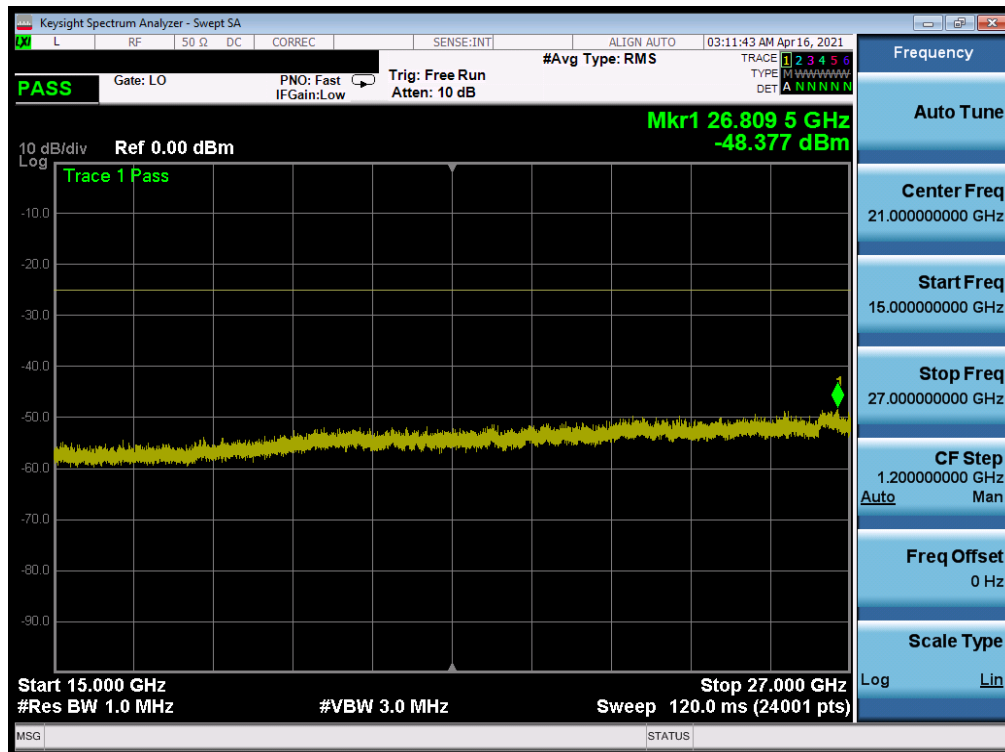


Plot 7-199. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset		Page 124 of 169

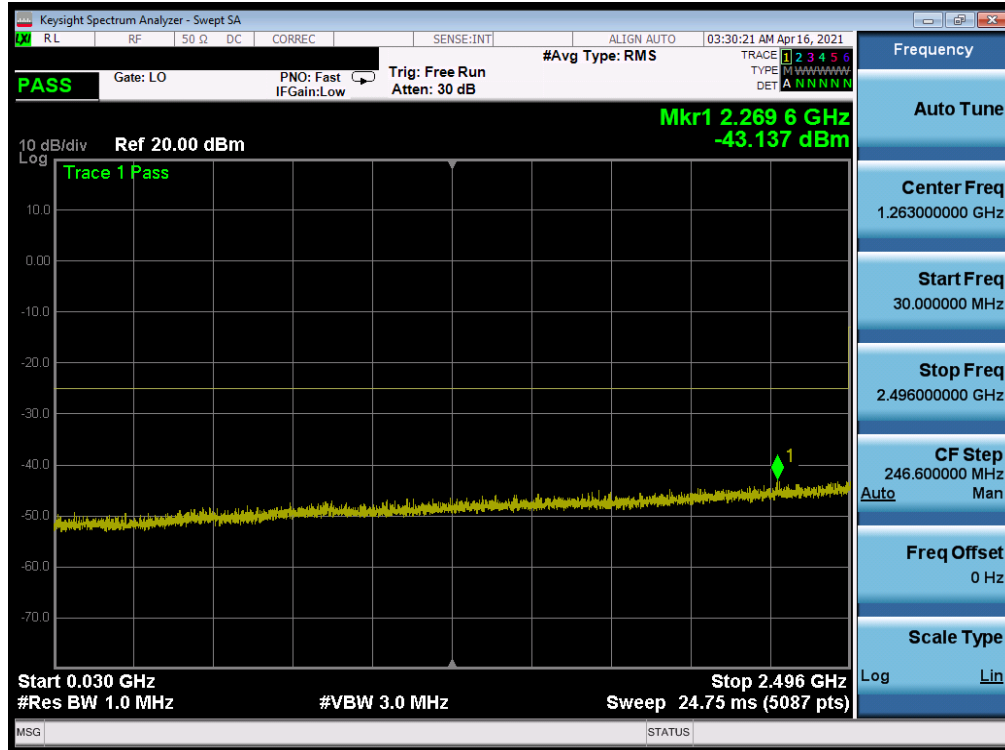


Plot 7-200. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

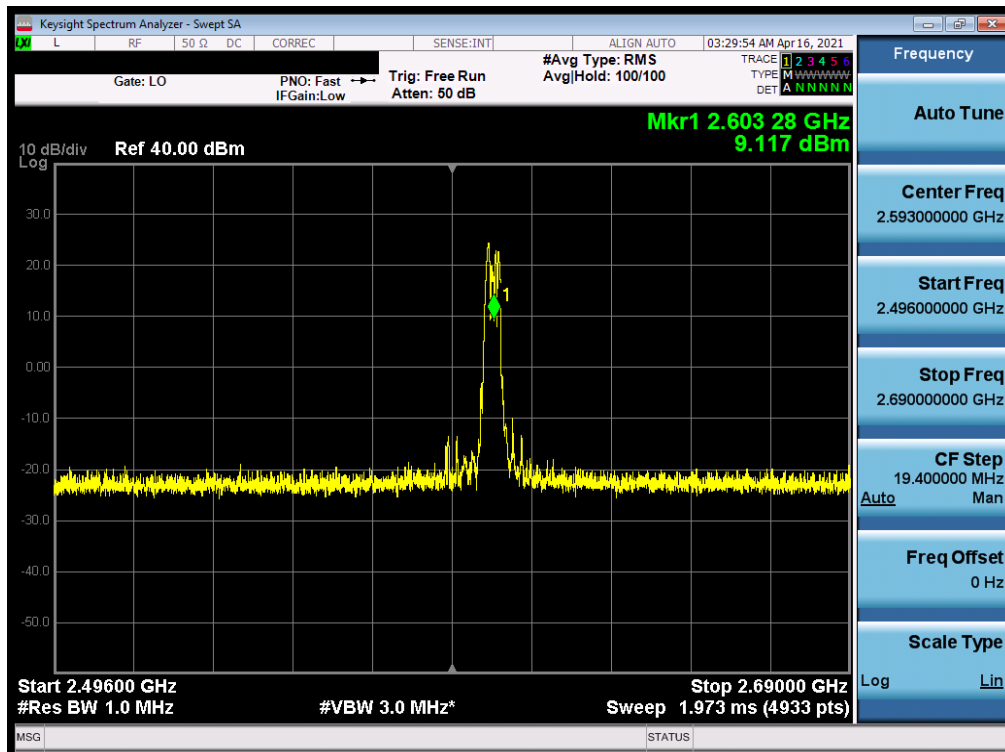


Plot 7-201. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset		Page 125 of 169

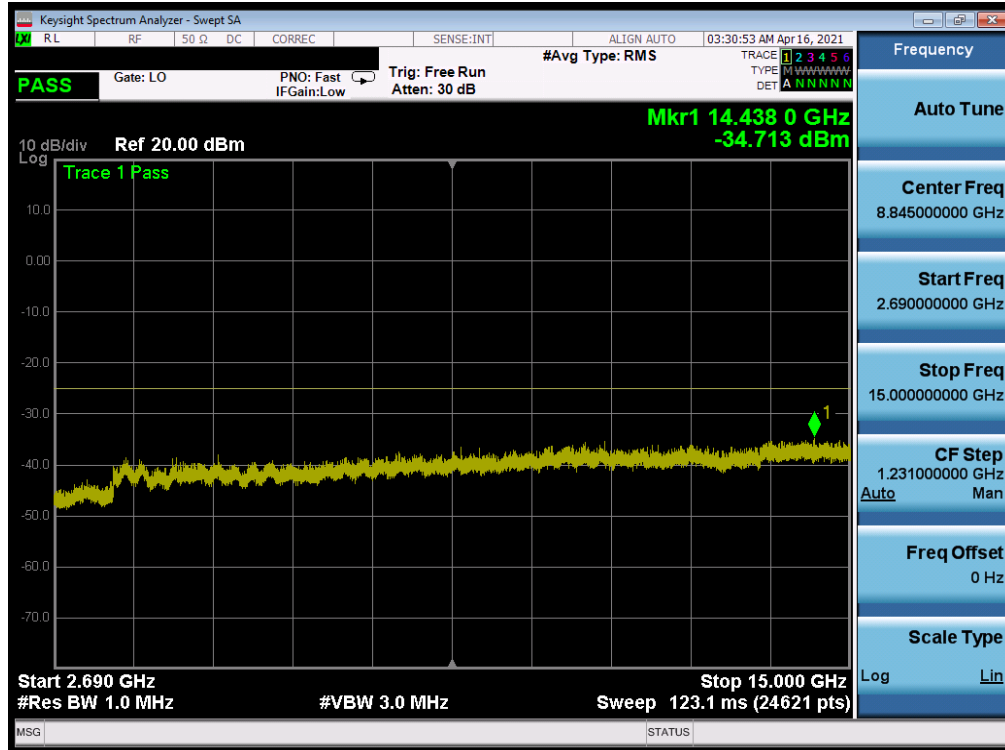


Plot 7-202. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

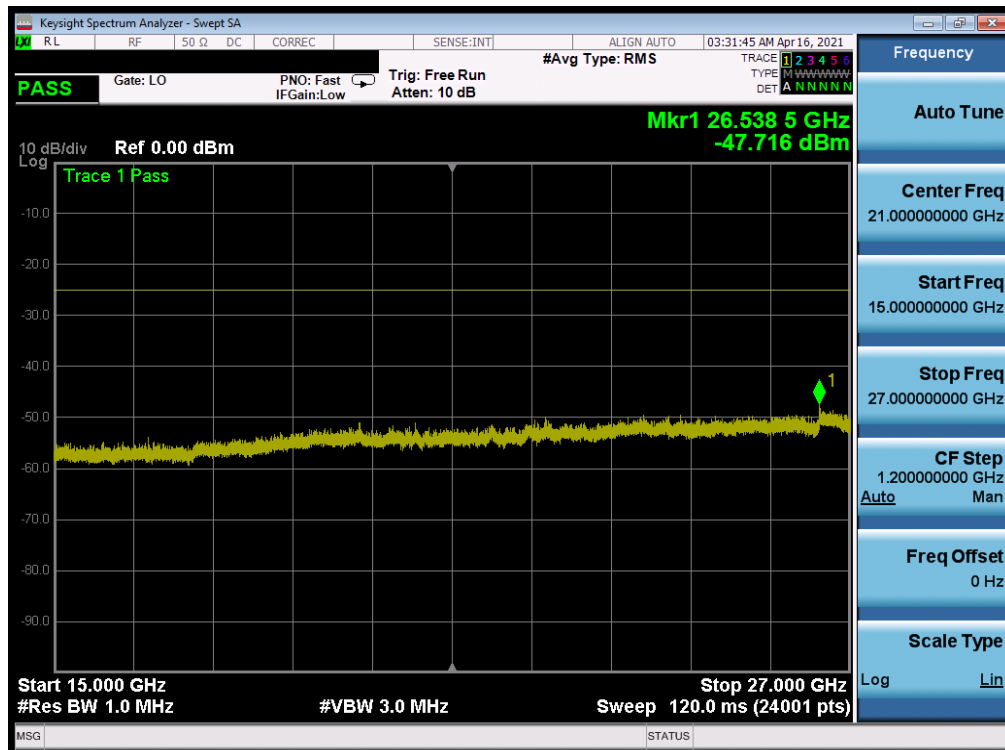


Plot 7-203. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset		Page 126 of 169

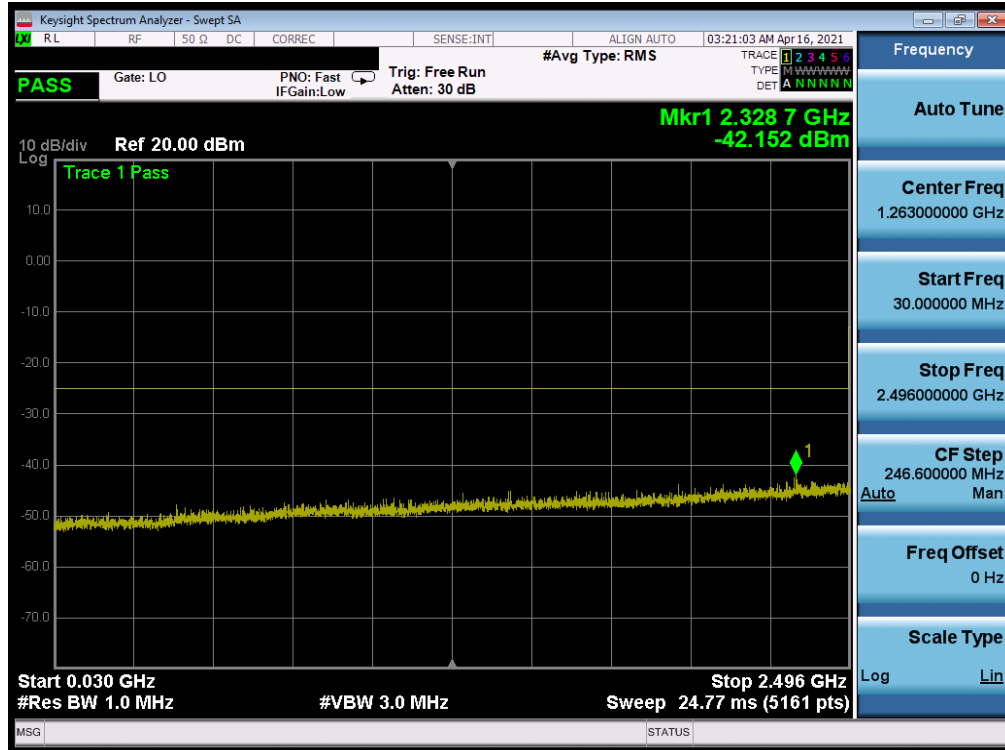


Plot 7-204. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

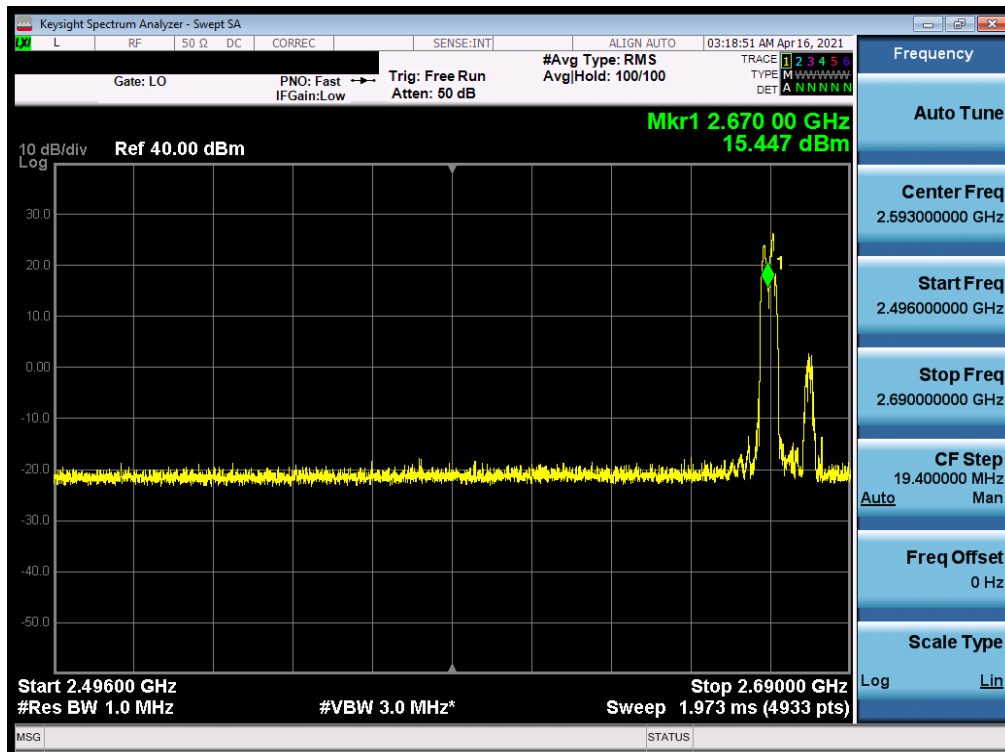


Plot 7-205. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset		Page 127 of 169

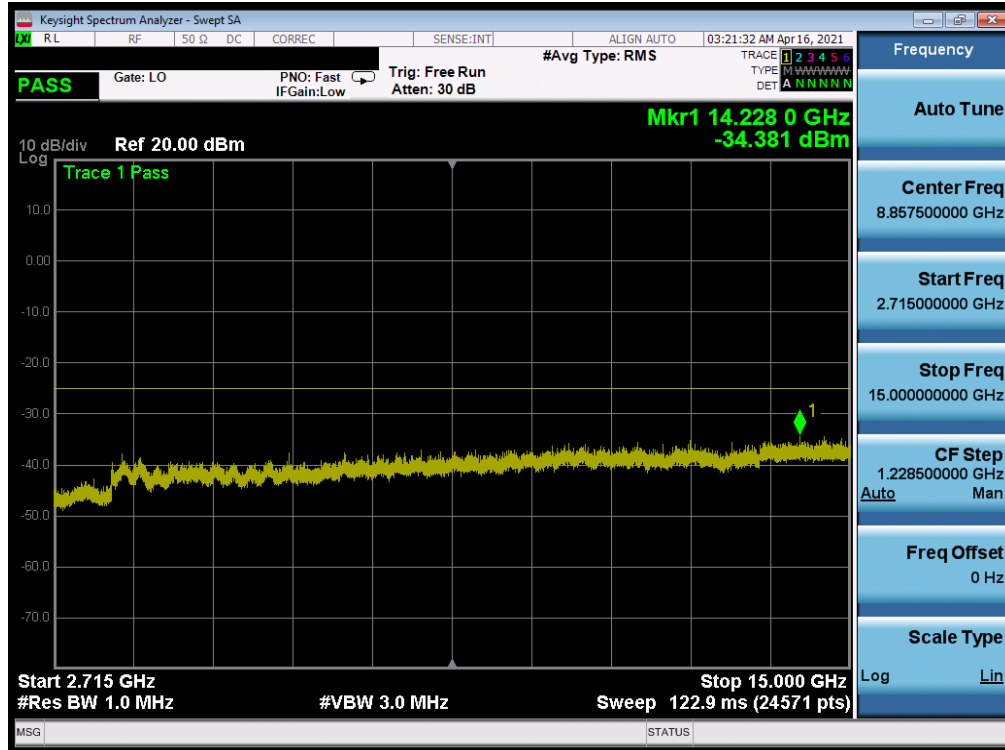


Plot 7-206. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

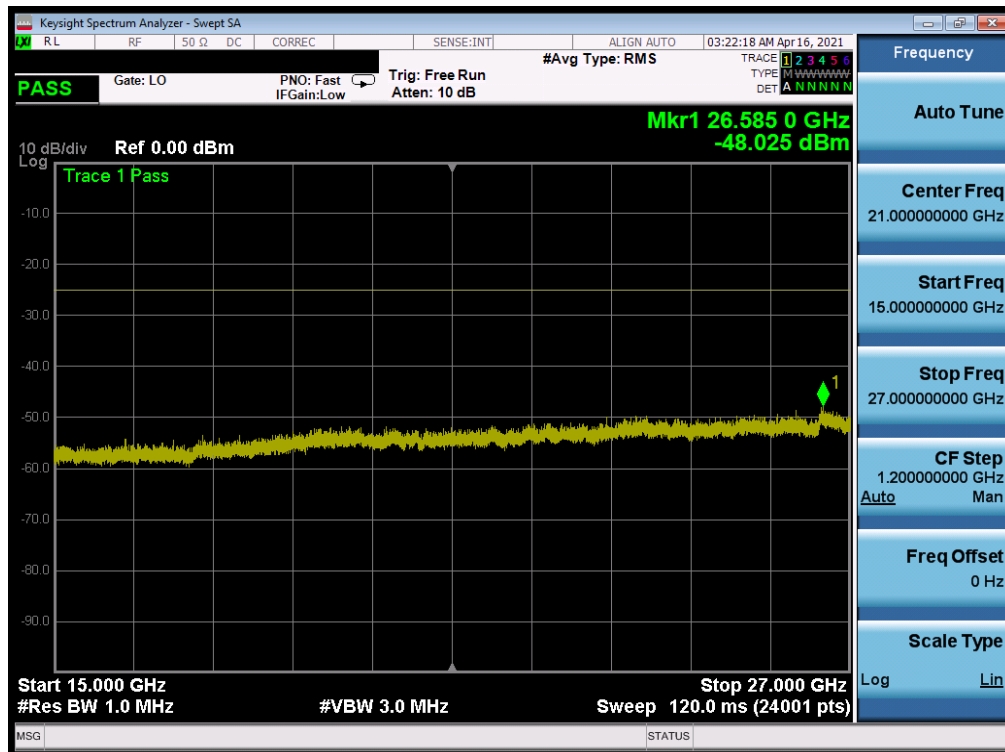


Plot 7-207. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMF711U1	PCTEST PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset	Page 128 of 169



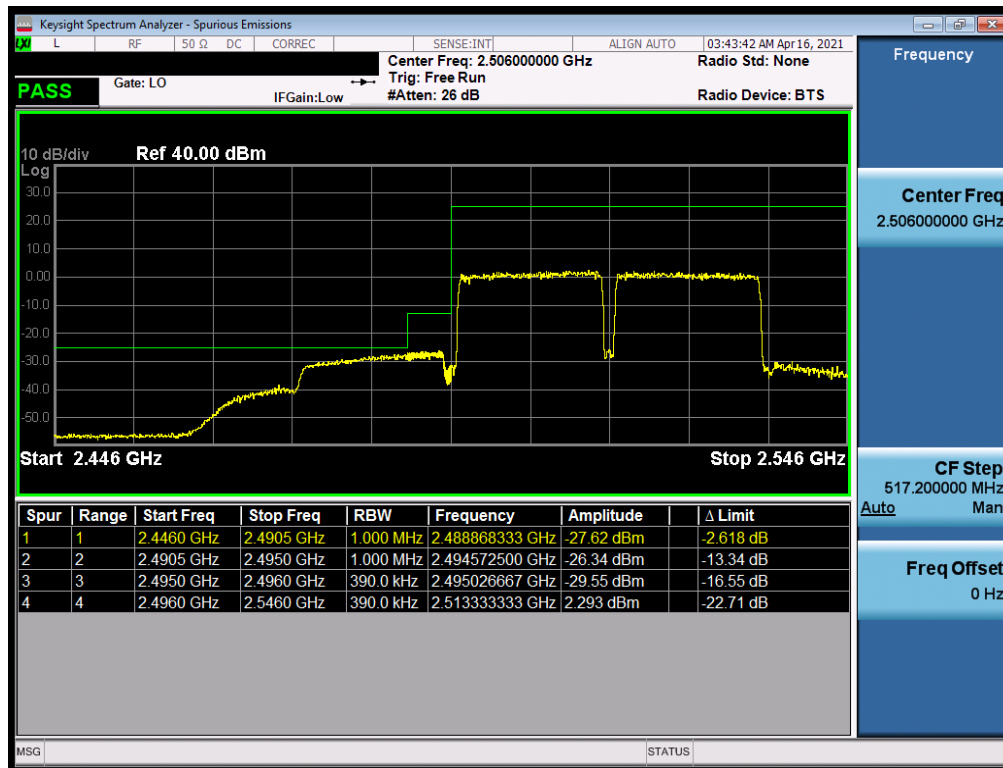
Plot 7-208. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



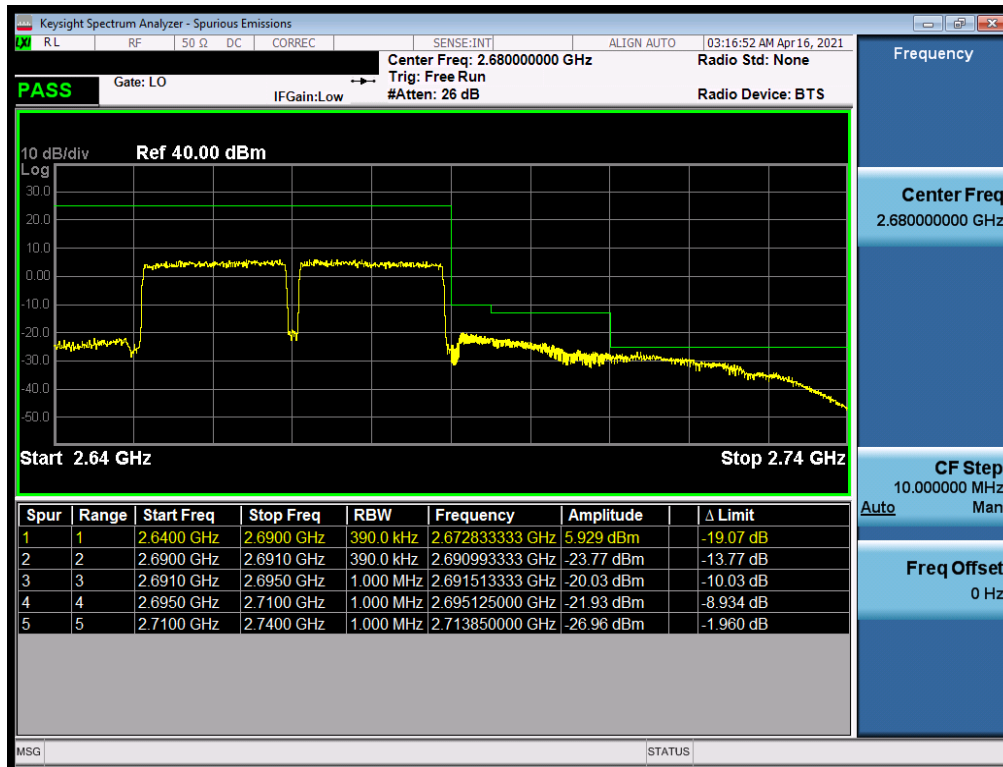
Plot 7-209. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset		Page 129 of 169

ULCA - LTE Band 41(PC2)



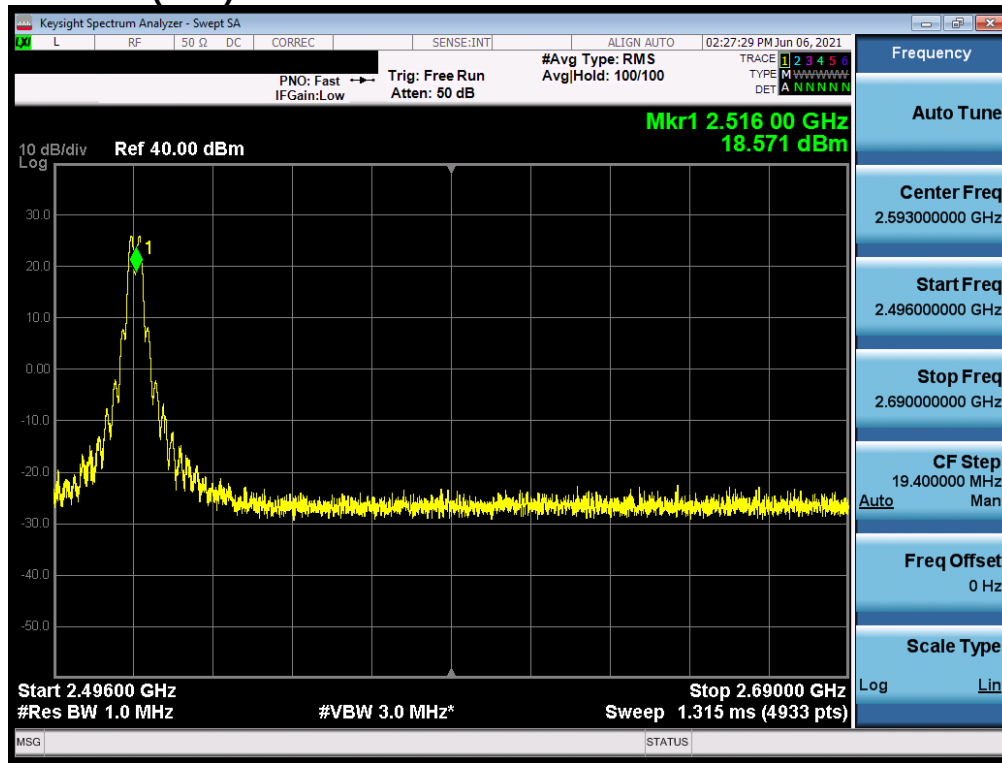
Plot 7-210. Lower ACP Plot – With A-MPR (ULCA LTE B41(PC2) - 20MHz QPSK – Full RB)



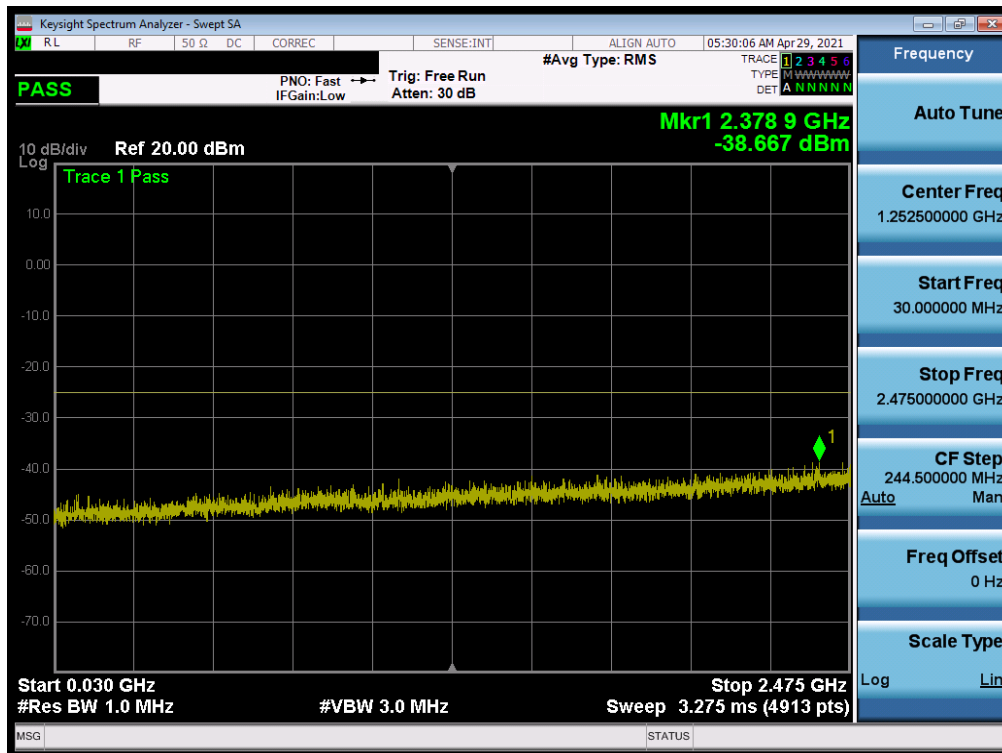
Plot 7-211. Upper ACP Plot (ULCA LTE B41(PC2) - 20MHz QPSK – Full RB)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset		Page 130 of 169

ULCA - LTE Band 41(PC3)

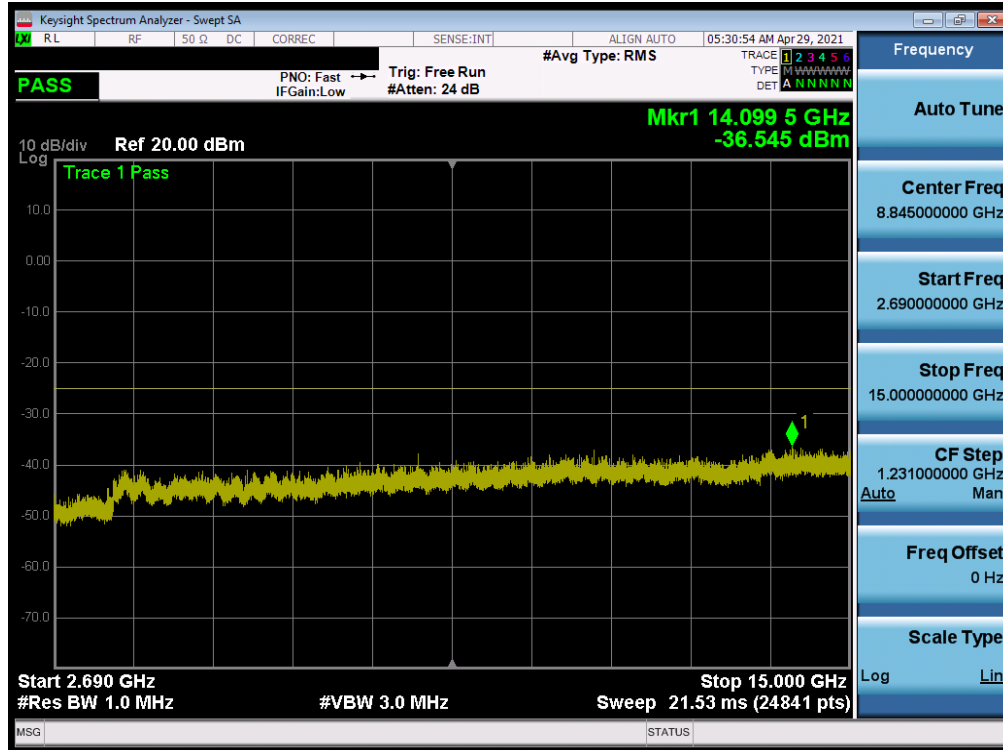


Plot 7-212. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

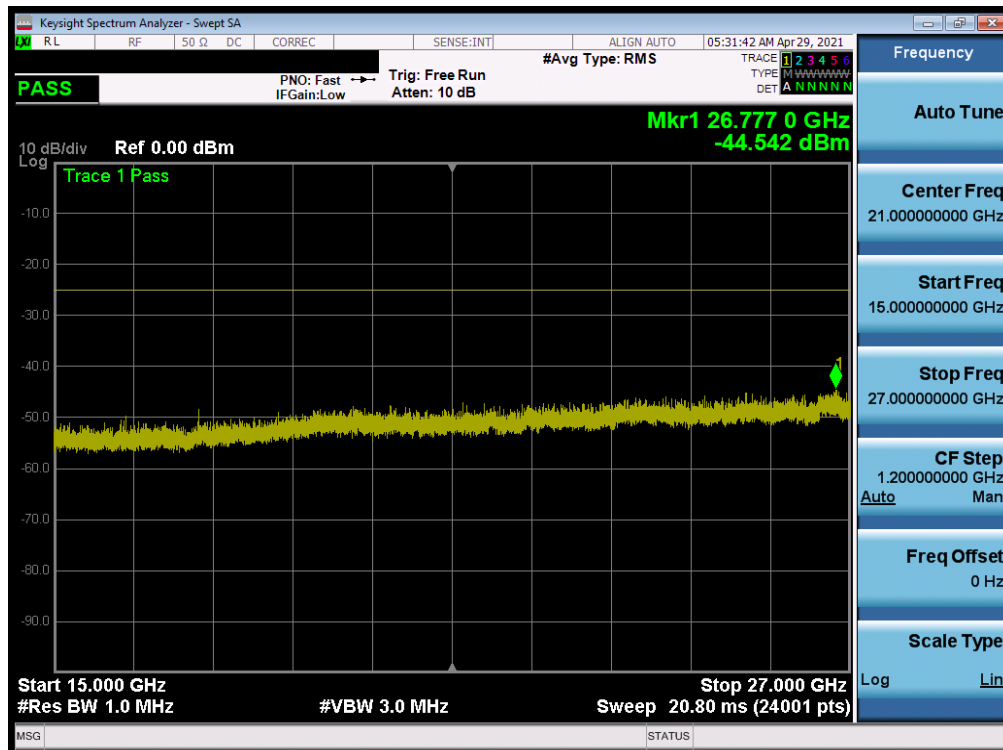


Plot 7-213. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of Samsung	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset		Page 131 of 169

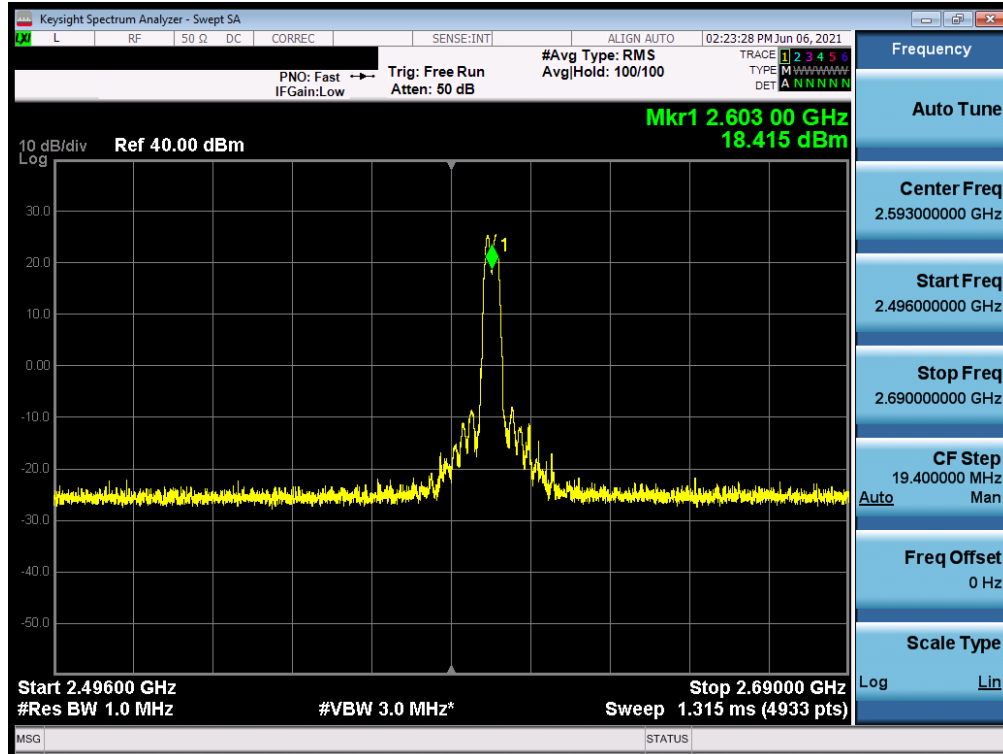


Plot 7-214. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

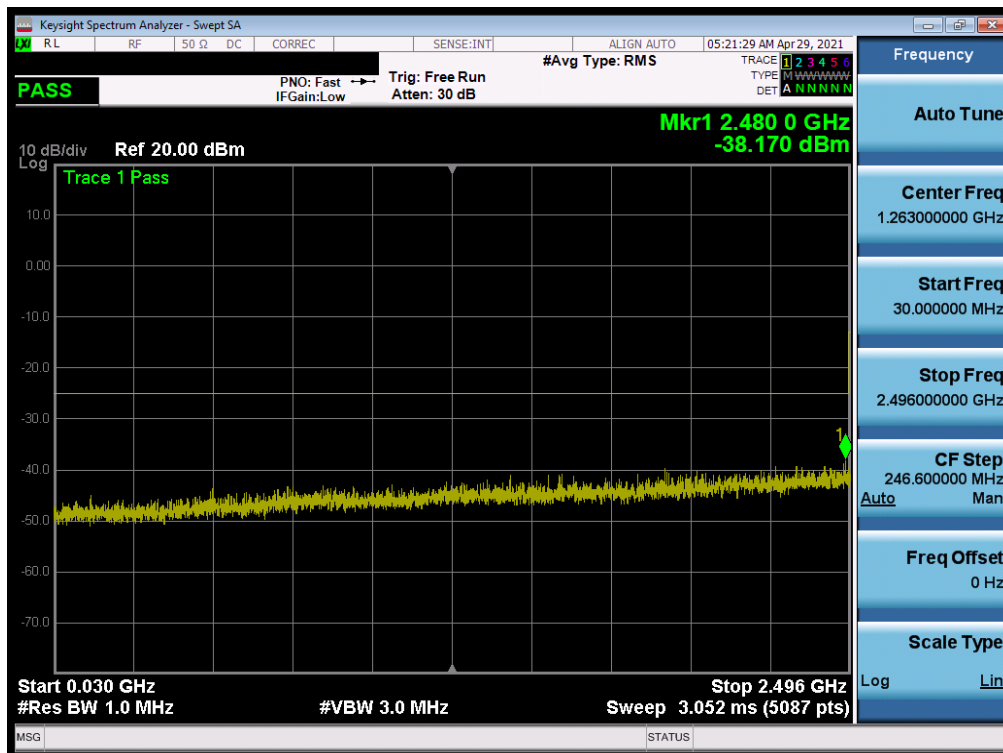


Plot 7-215. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset		Page 132 of 169

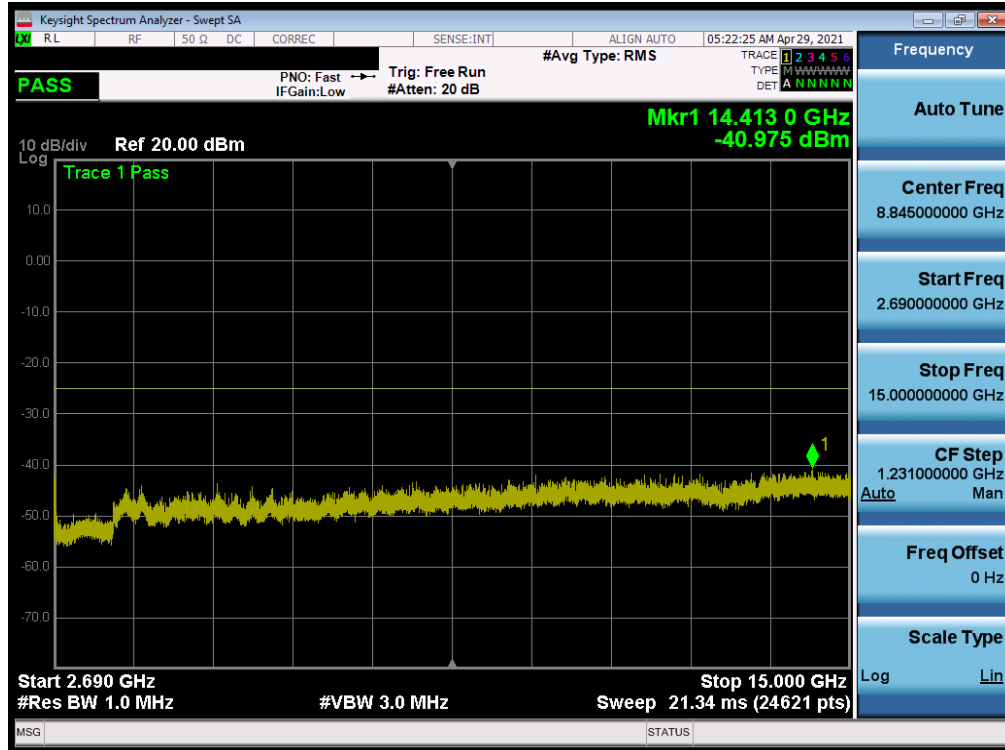


Plot 7-216. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

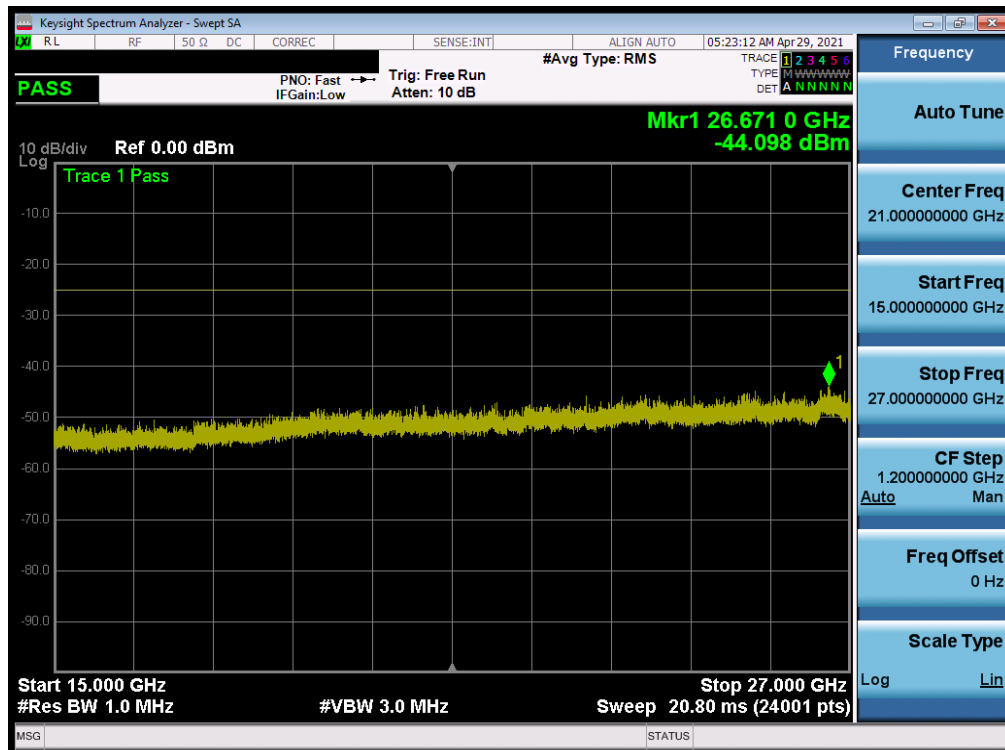


Plot 7-217. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset		Page 133 of 169

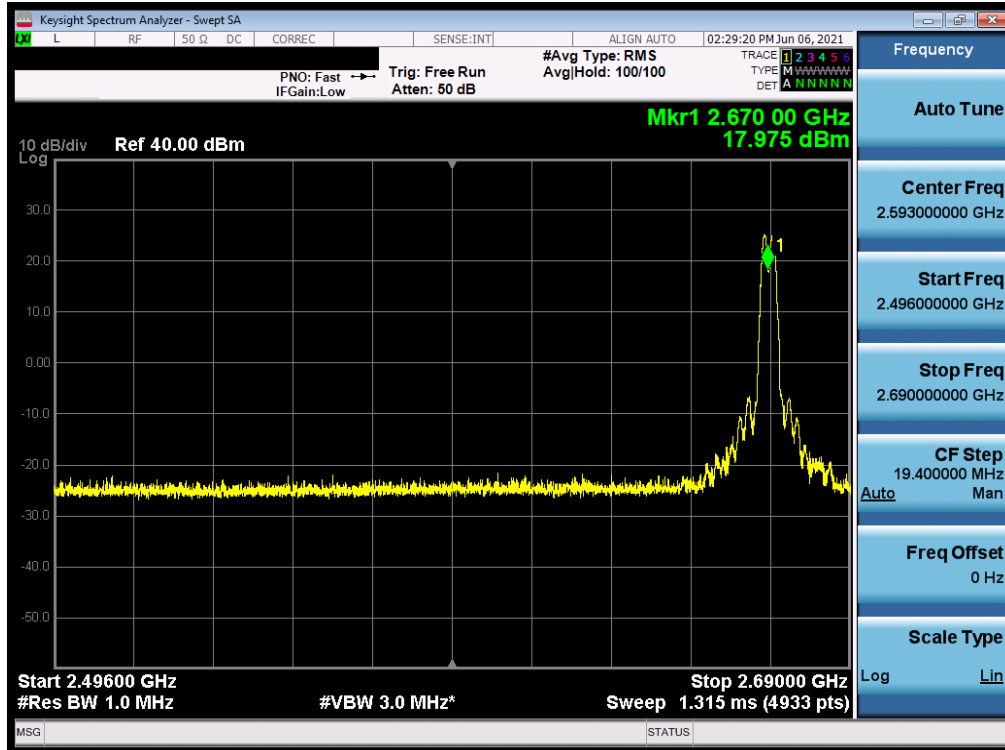


Plot 7-218. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

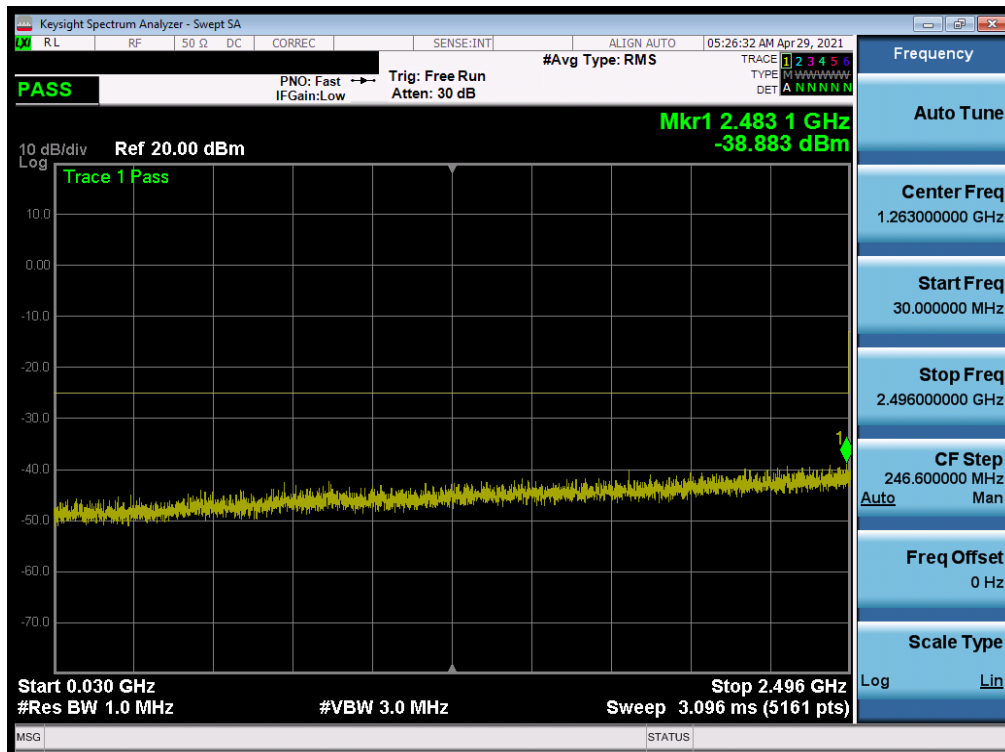


Plot 7-219. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset		Page 134 of 169

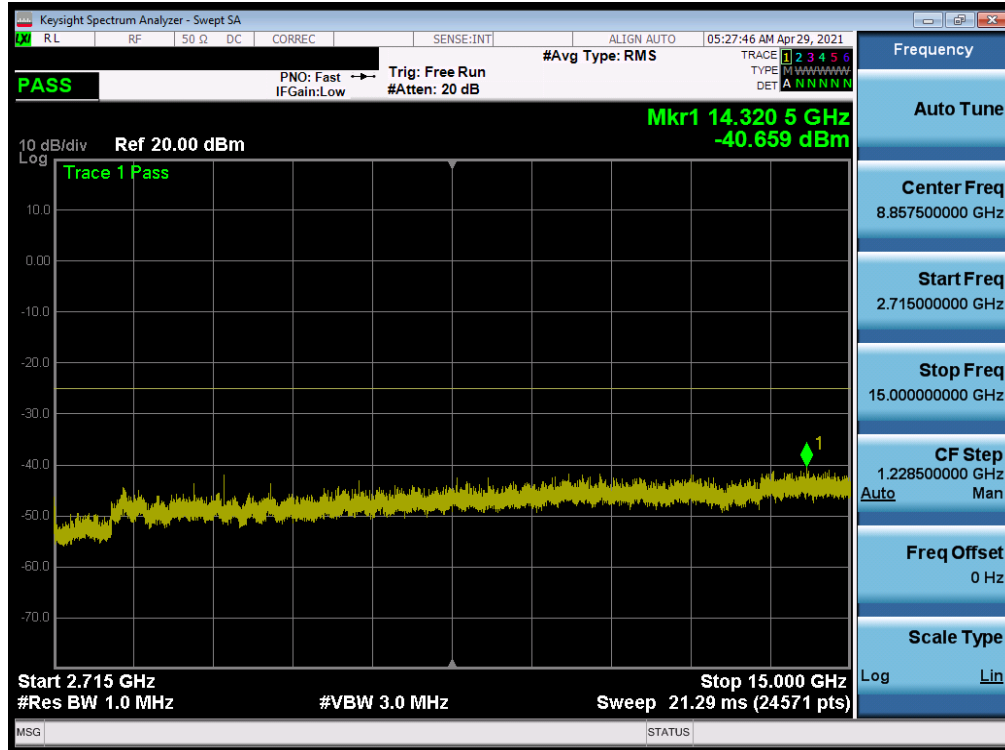


Plot 7-220. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

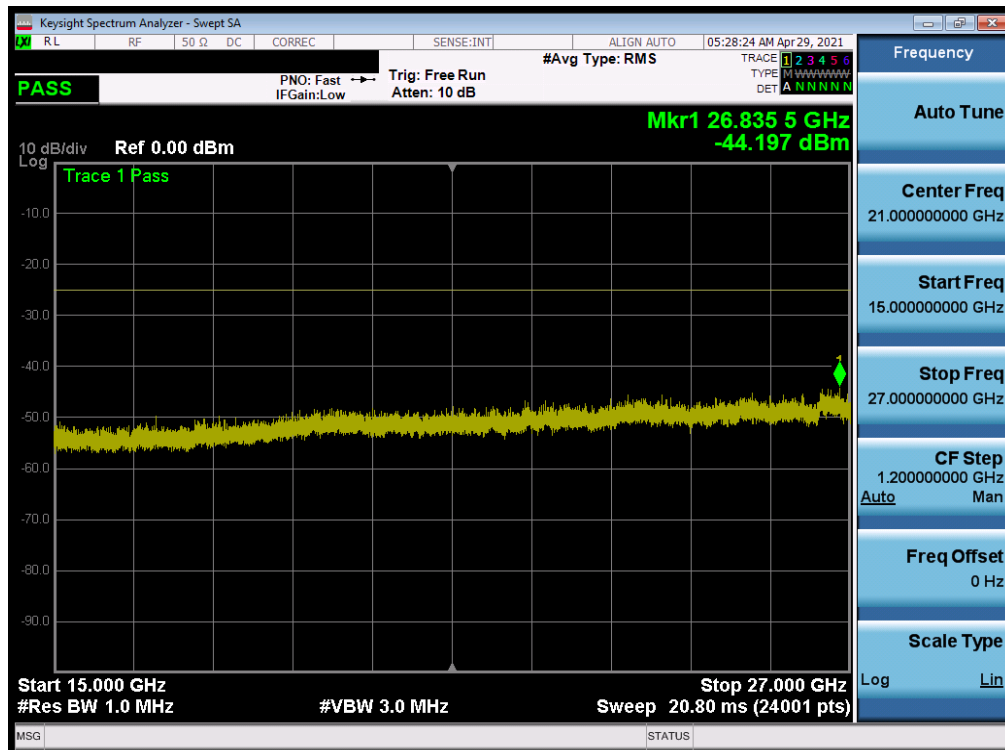


Plot 7-221. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: A3LSMF711U1	PCTEST Proud to be part of	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset		Page 135 of 169

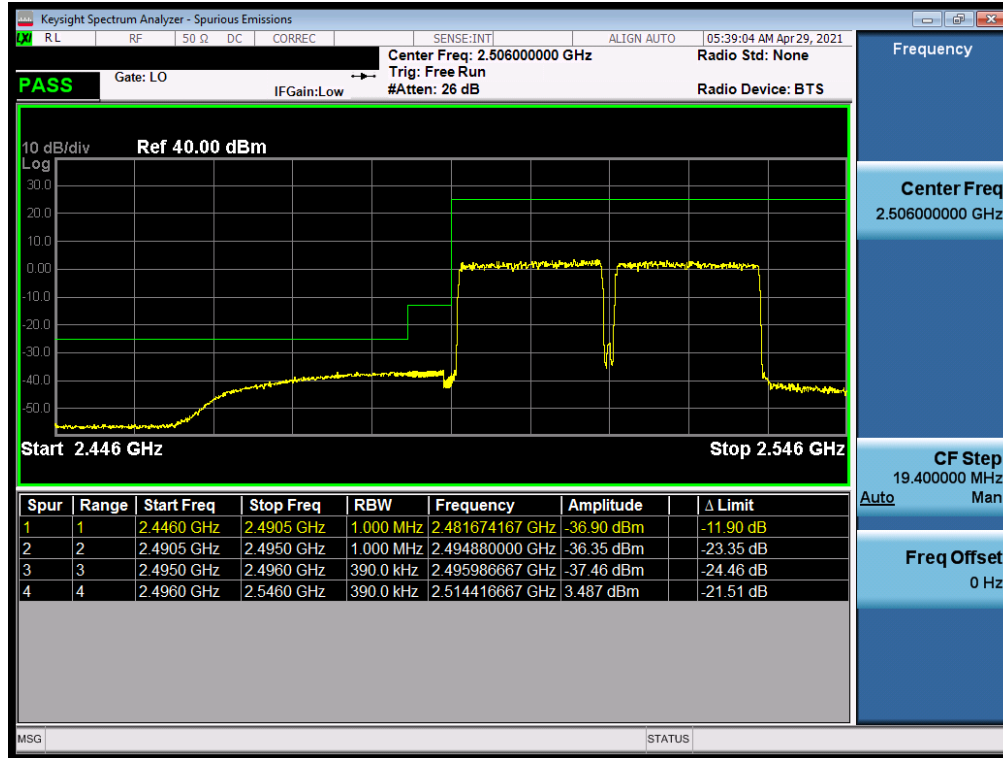


Plot 7-222. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

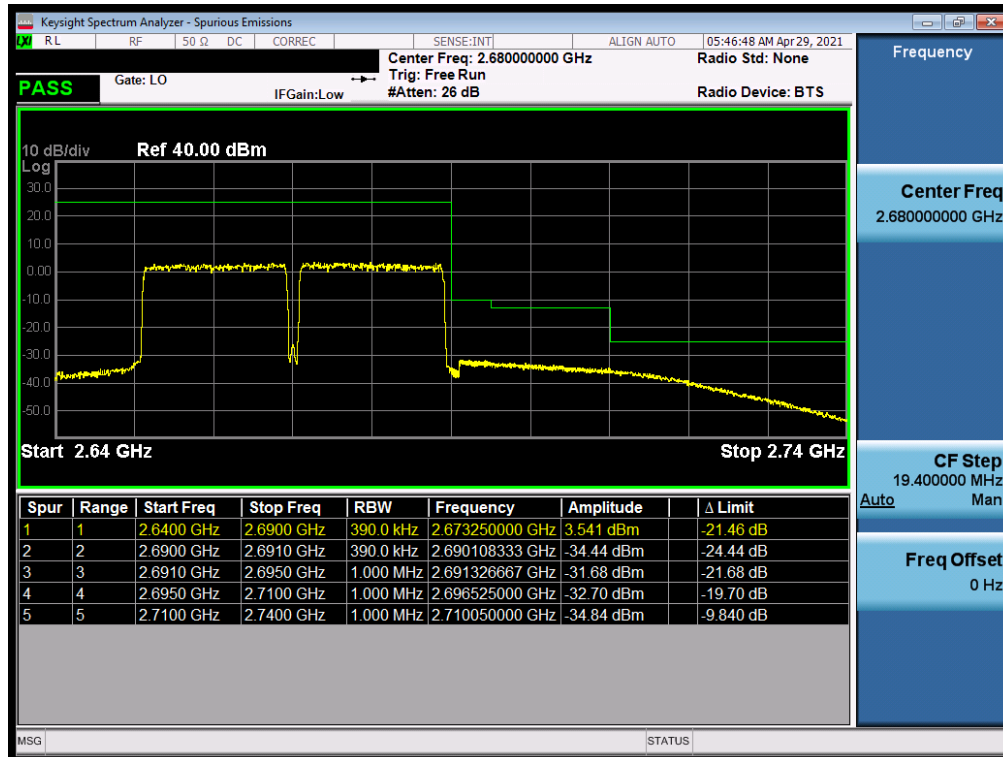


Plot 7-223. Conducted Spurious Plot (ULCA LTE B41(PC2) - 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

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Plot 7-224. Lower ACP Plot (ULCA LTE B41(PC3) - 20MHz QPSK - Full RB)



Plot 7-225. Upper ACP Plot (ULCA LTE B41(PC3) - 20MHz QPSK - Full RB)

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7.7 Radiated Power (EIRP)

Test Overview

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. For signals with burst transmission, the signal analyzer's "time domain power" measurement capability is used
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". Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the "gating" function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power
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.

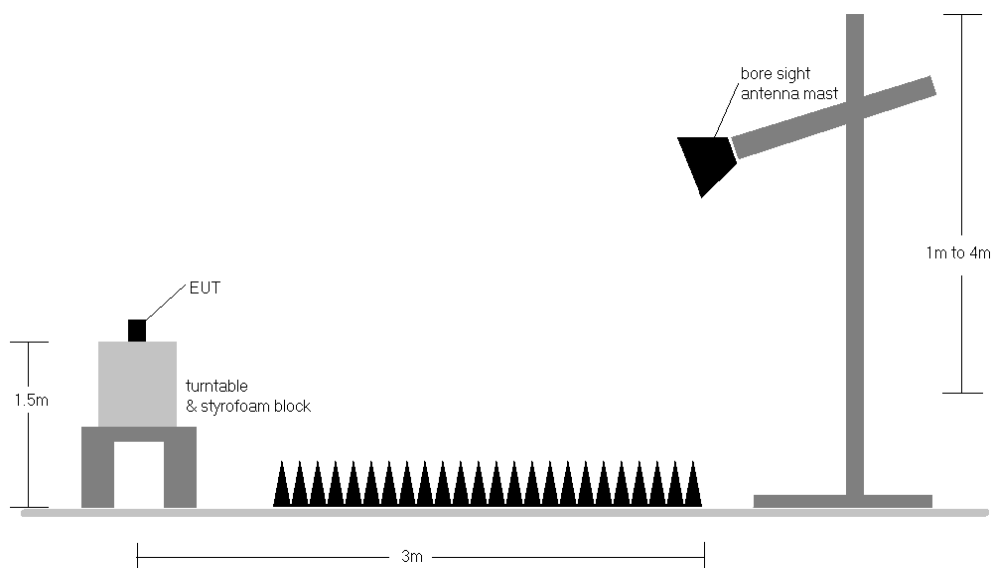


Figure 7-6. Radiated Test Setup >1GHz

Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 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]
10 MHz	QPSK	2310.0	H	148	192	10.34	1 / 25	12.54	22.88	0.194	23.98	-1.10
	16-QAM	2310.0	H	148	192	10.34	1 / 25	11.62	21.96	0.157	23.98	-2.02
5 MHz	QPSK	2307.5	H	148	192	10.33	1 / 12	12.44	22.77	0.189	23.98	-1.21
		2310.0	H	148	192	10.34	1 / 12	12.50	22.83	0.192	23.98	-1.15
		2312.5	H	148	192	10.34	1 / 12	12.43	22.76	0.189	23.98	-1.22
	16-QAM	2310.0	H	148	192	10.34	1 / 12	11.41	21.75	0.150	23.98	-2.23
10 MHz	Opposite Pol.	2310.0	V	103	263	10.25	1 / 12	12.39	22.64	0.184	23.98	-1.34
	QPSK (WCP)	2310.0	H	121	181	10.34	1 / 12	12.53	22.87	0.193	23.98	-1.11
	QPSK (Closed)	2310.0	H	151	354	10.34	1 / 12	10.28	20.62	0.115	23.98	-3.36

Table 7-6. EIRP Data (LTE Band 30)

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	2510.0	H	150	220	9.51	1 / 0	14.37	23.88	0.244	33.01	-9.13
		2535.0	H	148	219	9.40	1 / 0	14.50	23.90	0.246	33.01	-9.11
		2560.0	H	139	216	9.43	1 / 99	14.70	24.13	0.259	33.01	-8.88
	16-QAM	2560.0	H	139	216	9.43	1 / 99	14.33	23.76	0.238	33.01	-9.25
15 MHz	QPSK	2507.5	H	150	220	9.50	1 / 0	14.38	23.88	0.244	33.01	-9.13
		2535.0	H	148	219	9.40	1 / 37	14.55	23.95	0.249	33.01	-9.06
		2562.5	H	139	216	9.43	1 / 37	14.71	24.13	0.259	33.01	-8.88
	16-QAM	2562.5	H	139	216	9.43	1 / 37	14.47	23.89	0.245	33.01	-9.12
10 MHz	QPSK	2505.0	H	150	220	9.50	1 / 0	14.35	23.85	0.243	33.01	-9.16
		2535.0	H	148	219	9.40	1 / 0	14.59	23.99	0.251	33.01	-9.02
		2565.0	H	139	216	9.42	1 / 0	14.79	24.21	0.263	33.01	-8.80
	16-QAM	2565.0	H	139	216	9.42	1 / 0	14.29	23.71	0.235	33.01	-9.30
5 MHz	QPSK	2502.5	H	150	220	9.49	1 / 12	14.40	23.89	0.245	33.01	-9.12
		2535.0	H	148	219	9.40	1 / 0	14.66	24.06	0.255	33.01	-8.95
		2567.5	H	139	216	9.42	1 / 0	14.86	24.27	0.268	33.01	-8.74
	16-QAM	2567.5	H	139	216	9.42	1 / 0	14.35	23.77	0.238	33.01	-9.24
5 MHz	Opposite Pol.	2567.5	V	246	255	9.41	1/99	12.29	21.70	0.148	33.01	-11.31
	QPSK (Closed)	2567.5	H	123	349	9.41	1/99	10.86	20.27	0.106	33.01	-12.74
	WCP	2567.5	H	146	217	9.41	1/50	13.22	22.63	0.183	33.01	-10.38

Table 7-7. EIRP Data (LTE Band 7)

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	2506.0	H	101	215	9.50	1 / 50	17.37	26.87	0.487	33.01	-6.14
		2593.0	H	101	202	9.58	1 / 50	18.23	27.81	0.604	33.01	-5.20
		2680.0	H	130	223	9.86	1 / 99	17.50	27.36	0.545	33.01	-5.65
	16-QAM	2593.0	H	101	202	9.58	1 / 50	17.67	27.25	0.531	33.01	-5.76
15 MHz	QPSK	2503.5	H	101	215	9.50	1 / 37	17.73	27.23	0.529	33.01	-5.78
		2593.0	H	101	202	9.58	1 / 37	18.15	27.73	0.593	33.01	-5.28
		2682.5	H	130	223	9.86	1 / 37	17.51	27.37	0.546	33.01	-5.64
	16-QAM	2593.0	H	101	202	9.58	1 / 37	17.65	27.23	0.529	33.01	-5.78
10 MHz	QPSK	2501.0	H	101	215	9.50	1 / 25	17.51	27.01	0.502	33.01	-6.00
		2593.0	H	101	202	9.58	1 / 25	18.19	27.77	0.599	33.01	-5.24
		2685.0	H	130	223	9.86	1 / 25	17.57	27.43	0.554	33.01	-5.58
	16-QAM	2593.0	H	101	202	9.58	1 / 25	17.74	27.32	0.540	33.01	-5.69
5 MHz	QPSK	2498.5	H	101	215	9.50	1 / 0	17.69	27.19	0.524	33.01	-5.82
		2593.0	H	101	202	9.58	1 / 12	18.22	27.80	0.603	33.01	-5.21
		2687.5	H	130	223	9.86	1 / 12	17.56	27.42	0.553	33.01	-5.59
	16-QAM	2593.0	H	101	202	9.58	1 / 12	17.76	27.34	0.542	33.01	-5.67
20MHz	Opposite Pol.	2593.0	V	285	276	9.58	1 / 50	16.84	26.42	0.439	33.01	-6.59
	QPSK (Closed)	2593.0	H	117	350	9.58	1 / 99	14.47	24.05	0.254	33.01	-8.96
	WCP	2593.0	H	169	230	9.58	1 / 50	16.97	26.55	0.452	33.01	-6.46

Table 7-8. EIRP Data (LTE Band 41(PC2))

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]
20 MHz	QPSK	2506.0	H	103	199	9.50	1 / 50	13.73	23.23	0.210	33.01	-9.78
		2593.0	H	109	201	9.49	1 / 50	15.95	25.44	0.350	33.01	-7.57
		2680.0	H	117	214	9.87	1 / 99	14.22	24.09	0.257	33.01	-8.92
15 MHz	QPSK	2593.0	H	109	201	9.49	1 / 50	15.69	25.18	0.330	33.01	-7.83
		2503.5	H	103	199	9.50	1 / 0	13.74	23.24	0.211	33.01	-9.77
		2593.0	H	109	201	9.49	1 / 37	15.92	25.41	0.348	33.01	-7.60
10 MHz	QPSK	2682.5	H	117	214	9.87	1 / 74	14.23	24.09	0.257	33.01	-8.92
		2593.0	H	109	201	9.49	1 / 37	15.62	25.11	0.324	33.01	-7.90
		2501.0	H	103	199	9.49	1 / 0	13.78	23.27	0.212	33.01	-9.74
5 MHz	QPSK	2593.0	H	109	201	9.49	1 / 25	15.95	25.44	0.350	33.01	-7.57
		2685.0	H	117	214	9.86	1 / 25	14.27	24.13	0.259	33.01	-8.88
		2593.0	H	109	201	9.49	1 / 25	15.76	25.25	0.335	33.01	-7.76
20MHz	QPSK	2498.5	H	103	199	9.49	1 / 24	13.80	23.29	0.213	33.01	-9.72
		2593.0	H	109	201	9.49	1 / 12	15.97	25.46	0.352	33.01	-7.55
		2687.5	H	117	214	9.86	1 / 0	14.27	24.12	0.258	33.01	-8.89
20MHz	QPSK (Closed)	2593.0	H	109	201	9.49	1 / 24	15.71	25.20	0.331	33.01	-7.81
		Opposite Pol.	V	285	278	9.46	1 / 50	15.54	25.00	0.316	33.01	-8.01
		WCP	H	117	357	9.49	1 / 50	11.08	20.57	0.114	33.01	-12.44
20MHz	WCP	2593.0	H	165	218	9.49	1 / 0	13.14	22.63	0.183	33.01	-10.38

Table 7-9. EIRP Data (LTE Band 41(PC3)/38)

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]
10 MHz	QPSK	2310.0	V	150	312	8.84	1 / 38	14.12	22.96	0.198	23.98	-1.02
		2310.0	V	150	312	8.84	1 / 38	14.01	22.85	0.193	23.98	-1.13
		2310.0	V	150	312	8.84	1 / 38	13.43	22.27	0.169	23.98	-1.71
5 MHz	QPSK	2307.5	V	150	312	8.84	1 / 12	14.01	22.86	0.193	23.98	-1.12
		2310.0	V	150	312	8.84	1 / 6	14.05	22.89	0.195	23.98	-1.09
		2312.5	V	150	312	8.83	1 / 12	14.09	22.92	0.196	23.98	-1.06
10 MHz	QPSK	2307.5	V	150	312	8.84	1 / 6	13.91	22.76	0.189	23.98	-1.22
		2310.0	V	150	312	8.84	1 / 18	13.73	22.58	0.181	23.98	-1.40
		2312.5	V	150	312	8.83	1 / 12	13.68	22.51	0.178	23.98	-1.47
10 MHz	QPSK (CP-OFDM)	2310.0	V	150	132	8.84	1/49	10.79	19.63	0.092	23.98	-4.35
		Opposite Pol.	H	121	203	9.07	1/25	13.22	22.29	0.169	23.98	-1.69
		WCP	H	113	340	9.07	1/25	10.46	19.53	0.090	23.98	-4.45
10 MHz	WCP	2310.0	V	126	304	8.84	1/49	11.70	20.54	0.113	23.98	-3.44

Table 7-10. EIRP Data (NR Band n30)

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]
100 MHz	π/2 BPSK	2546.0	H	100	205	9.38	1 / 68	15.26	24.64	0.291	33.01	-8.37
		2593.0	H	122	188	9.49	1 / 68	15.18	24.67	0.293	33.01	-8.34
		2640.0	H	100	193	9.89	1 / 136	15.92	25.81	0.381	33.01	-7.20
	QPSK	2546.0	H	100	205	9.38	1 / 68	14.86	24.24	0.265	33.01	-8.77
		2593.0	H	122	188	9.49	1 / 68	15.05	24.54	0.285	33.01	-8.47
		2640.0	H	100	193	9.89	1 / 136	15.72	25.61	0.364	33.01	-7.40
90 MHz	π/2 BPSK	2640.0	H	100	193	9.89	1 / 136	14.09	23.98	0.250	33.01	-9.03
		2541.0	H	100	205	9.39	1 / 122	15.32	24.71	0.296	33.01	-8.30
		2593.0	H	122	188	9.49	1 / 61	14.39	23.88	0.244	33.01	-9.13
	QPSK	2645.0	H	100	193	9.91	1 / 122	15.47	25.38	0.345	33.01	-7.63
		2541.0	H	100	205	9.39	1 / 122	15.21	24.59	0.288	33.01	-8.42
		2593.0	H	122	188	9.49	1 / 61	14.40	23.89	0.245	33.01	-9.12
80 MHz	π/2 BPSK	2645.0	H	100	193	9.91	1 / 122	14.70	24.61	0.289	33.01	-8.40
		2645.0	H	100	193	9.91	1 / 122	13.01	22.92	0.196	33.01	-10.09
		2536.0	H	100	205	9.40	1 / 108	15.33	24.73	0.297	33.01	-8.28
	QPSK	2593.0	H	122	188	9.49	1 / 54	13.82	23.31	0.214	33.01	-9.70
		2650.0	H	100	193	9.93	1 / 108	15.33	25.26	0.336	33.01	-7.75
		2536.0	H	100	205	9.40	1 / 108	15.52	24.92	0.310	33.01	-8.09
60 MHz	π/2 BPSK	2593.0	H	122	188	9.49	1 / 54	14.07	23.56	0.227	33.01	-9.45
		2650.0	H	100	193	9.93	1 / 108	15.09	25.03	0.318	33.01	-7.98
		2650.0	H	100	193	9.93	1 / 108	13.37	23.31	0.214	33.01	-9.70
	QPSK	2526.0	H	100	205	9.43	1 / 81	15.19	24.62	0.290	33.01	-8.39
		2593.0	H	122	188	9.49	1 / 40	15.18	24.67	0.293	33.01	-8.34
		2660.0	H	100	193	9.85	1 / 81	15.96	25.81	0.381	33.01	-7.20
50 MHz	π/2 BPSK	2526.0	H	100	205	9.43	1 / 81	14.81	24.24	0.265	33.01	-8.77
		2593.0	H	122	188	9.49	1 / 40	15.05	24.54	0.285	33.01	-8.47
		2660.0	H	100	193	9.85	1 / 81	15.76	25.61	0.364	33.01	-7.40
	QPSK	2660.0	H	100	193	9.85	1 / 81	14.13	23.98	0.250	33.01	-9.03
		2521.0	H	100	205	9.45	1 / 66	15.26	24.71	0.296	33.01	-8.30
		2593.0	H	122	188	9.49	1 / 33	14.38	23.87	0.244	33.01	-9.14
40 MHz	π/2 BPSK	2665.0	H	100	193	9.84	1 / 66	15.90	25.74	0.375	33.01	-7.27
		2521.0	H	100	205	9.45	1 / 66	15.28	24.73	0.297	33.01	-8.28
		2593.0	H	122	188	9.49	1 / 33	15.12	24.61	0.289	33.01	-8.40
	QPSK	2665.0	H	100	193	9.84	1 / 66	15.23	25.06	0.321	33.01	-7.95
		2516.0	H	100	205	9.48	1 / 53	13.71	23.19	0.208	33.01	-9.82
		2593.0	H	122	188	9.49	1 / 26	12.93	22.43	0.175	33.01	-10.58
30 MHz	π/2 BPSK	2670.0	H	100	193	9.82	1 / 53	14.68	24.50	0.282	33.01	-8.51
		2516.0	H	100	205	9.48	1 / 53	13.50	22.97	0.198	33.01	-10.04
		2593.0	H	122	188	9.49	1 / 26	13.12	22.61	0.182	33.01	-10.40
	QPSK	2670.0	H	100	193	9.82	1 / 53	14.46	24.28	0.268	33.01	-8.73
		2670.0	H	100	193	9.82	1 / 53	12.53	22.35	0.172	33.01	-10.66
		2511.0	H	100	205	9.50	1 / 39	14.54	24.04	0.254	33.01	-8.97
20 MHz	π/2 BPSK	2593.0	H	122	188	9.49	1 / 39	12.87	22.37	0.172	33.01	-10.64
		2675.0	H	100	193	9.85	1 / 39	14.98	24.83	0.304	33.01	-8.18
		2511.0	H	100	205	9.50	1 / 39	13.66	23.17	0.207	33.01	-9.85
	QPSK	2593.0	H	122	188	9.49	1 / 19	13.41	22.90	0.195	33.01	-10.11
		2675.0	H	100	193	9.85	1 / 39	14.57	24.42	0.277	33.01	-8.59
		2675.0	H	100	193	9.85	1 / 39	12.62	22.47	0.177	33.01	-10.54
100MHz	π/2 BPSK	2506.0	H	100	205	9.50	1 / 25	14.56	24.06	0.255	33.01	-8.95
		2593.0	H	122	188	9.49	1 / 13	13.76	23.25	0.211	33.01	-9.76
		2680.0	H	100	193	9.87	1 / 25	15.84	25.71	0.372	33.01	-7.30
	QPSK	2506.0	H	100	205	9.50	1 / 25	13.73	23.23	0.210	33.01	-9.78
		2593.0	H	122	188	9.49	1 / 13	13.65	23.14	0.206	33.01	-9.87
		2680.0	H	100	193	9.87	1 / 25	15.27	25.14	0.326	33.01	-7.87
100MHz	16-QAM	2680.0	H	100	193	9.87	1 / 25	13.34	23.21	0.209	33.01	-9.80
	QPSK (CP-OFDM)	2640.0	H	100	193	9.89	1/136	13.67	23.56	0.227	33.01	-9.45
	QPSK (Opposite Pol.)	2640.0	V	297	274	9.89	1/136	13.33	23.22	0.210	33.01	-9.79
	Closed	2640.0	H	148	301	9.59	1/136	12.62	22.21	0.166	33.01	-10.80
100MHz	QPSK (WCP)	2640.0	H	247	12	9.89	1/136	8.68	18.57	0.072	33.01	-14.44

Table 7-11. EIRP Data (NR Band n41 PC2)

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]
100 MHz	π/2 BPSK	2546.0	H	100.0	204.0	8.27	1 / 204	14.41	22.68	0.186	33.01	-10.33
		2593.0	H	101.0	202.0	8.37	1 / 68	14.74	23.11	0.205	33.01	-9.90
		2640.0	H	103.0	196.0	8.76	1 / 136	14.29	23.05	0.202	33.01	-9.96
	QPSK	2546.0	H	100.0	204.0	8.27	1 / 204	14.39	22.66	0.185	33.01	-10.35
		2593.0	H	101.0	202.0	8.37	1 / 68	14.53	22.90	0.195	33.01	-10.11
		2640.0	H	103.0	196.0	8.76	1 / 136	14.25	23.01	0.200	33.01	-10.00
90 MHz	π/2 BPSK	2541.0	H	100.0	204.0	8.29	1 / 122	14.47	22.76	0.189	33.01	-10.25
		2593.0	H	101.0	202.0	8.37	1 / 61	13.95	22.32	0.170	33.01	-10.69
		2645.0	H	103.0	196.0	8.77	1 / 122	13.84	22.62	0.183	33.01	-10.39
	QPSK	2541.0	H	100.0	204.0	8.29	1 / 122	14.73	23.02	0.201	33.01	-9.99
		2593.0	H	101.0	202.0	8.37	1 / 61	13.88	22.25	0.168	33.01	-10.76
		2645.0	H	103.0	196.0	8.77	1 / 122	13.23	22.01	0.159	33.01	-11.00
80 MHz	π/2 BPSK	2536.0	H	100.0	204.0	8.31	1 / 108	14.47	22.78	0.190	33.01	-10.23
		2593.0	H	101.0	202.0	8.37	1 / 54	13.38	21.75	0.150	33.01	-11.26
		2650.0	H	103.0	196.0	8.79	1 / 108	13.72	22.50	0.178	33.01	-10.51
	QPSK	2536.0	H	100.0	204.0	8.31	1 / 108	15.03	23.34	0.216	33.01	-9.67
		2593.0	H	101.0	202.0	8.37	1 / 54	13.55	21.92	0.156	33.01	-11.09
		2650.0	H	103.0	196.0	8.79	1 / 108	13.64	22.43	0.175	33.01	-10.58
60 MHz	π/2 BPSK	2526.0	H	100.0	204.0	8.38	1 / 81	14.28	22.66	0.185	33.01	-10.35
		2593.0	H	101.0	202.0	8.37	1 / 40	14.74	23.11	0.205	33.01	-9.90
		2660.0	H	103.0	196.0	8.68	1 / 81	14.38	23.05	0.202	33.01	-9.96
	QPSK	2526.0	H	100.0	204.0	8.38	1 / 81	14.28	22.66	0.185	33.01	-10.35
		2593.0	H	101.0	202.0	8.37	1 / 40	14.53	22.90	0.195	33.01	-10.11
		2660.0	H	103.0	196.0	8.68	1 / 81	14.34	23.01	0.200	33.01	-10.00
50 MHz	π/2 BPSK	2660.0	H	103.0	196.0	8.68	1 / 81	13.23	21.90	0.155	33.01	-11.11
		2521.0	H	100.0	204.0	8.43	1 / 66	14.32	22.76	0.189	33.01	-10.25
		2593.0	H	101.0	202.0	8.37	1 / 33	13.94	22.30	0.170	33.01	-10.71
	QPSK	2665.0	H	103.0	196.0	8.69	1 / 66	14.28	22.98	0.198	33.01	-10.03
		2521.0	H	100.0	204.0	8.43	1 / 66	14.72	23.15	0.207	33.01	-9.86
		2593.0	H	101.0	202.0	8.37	1 / 33	14.60	22.96	0.198	33.01	-10.05
40 MHz	π/2 BPSK	2665.0	H	103.0	196.0	8.69	1 / 66	13.77	22.46	0.176	33.01	-10.55
		2593.0	H	101.0	202.0	8.37	1 / 33	13.21	21.58	0.144	33.01	-11.43
		2516.0	H	100.0	204.0	8.53	1 / 53	12.71	21.23	0.133	33.01	-11.78
	QPSK	2516.0	H	100.0	204.0	8.53	1 / 26	12.49	20.86	0.122	33.01	-12.15
		2670.0	H	103.0	196.0	8.71	1 / 53	13.03	21.74	0.149	33.01	-11.27
		2516.0	H	100.0	204.0	8.53	1 / 53	12.87	21.40	0.138	33.01	-11.61
30 MHz	π/2 BPSK	2593.0	H	101.0	202.0	8.37	1 / 26	12.60	20.97	0.125	33.01	-12.04
		2670.0	H	103.0	196.0	8.71	1 / 53	12.97	21.68	0.147	33.01	-11.33
		2670.0	H	103.0	196.0	8.71	1 / 53	11.56	20.27	0.106	33.01	-12.74
	QPSK	2511.0	H	100.0	204.0	8.63	1 / 39	13.46	22.09	0.162	33.01	-10.92
		2593.0	H	101.0	202.0	8.37	1 / 39	12.43	20.80	0.120	33.01	-12.21
		2675.0	H	103.0	196.0	8.72	1 / 39	13.34	22.07	0.161	33.01	-10.94
20 MHz	π/2 BPSK	2511.0	H	100.0	204.0	8.63	1 / 39	12.96	21.59	0.144	33.01	-11.42
		2593.0	H	101.0	202.0	8.37	1 / 19	12.89	21.26	0.134	33.01	-11.75
		2675.0	H	103.0	196.0	8.72	1 / 39	13.10	21.82	0.152	33.01	-11.19
	QPSK	2675.0	H	103.0	196.0	8.72	1 / 39	11.67	20.39	0.109	33.01	-12.62
		2506.0	H	100.0	204.0	8.66	1 / 25	13.44	22.10	0.162	33.01	-10.91
		2593.0	H	101.0	202.0	8.37	1 / 13	13.32	21.69	0.148	33.01	-11.32
100 MHz	π/2 BPSK	2680.0	H	103.0	196.0	8.74	1 / 25	14.21	22.95	0.197	33.01	-10.06
		2506.0	H	100.0	204.0	8.66	1 / 25	13.00	21.66	0.147	33.01	-11.35
		2593.0	H	101.0	202.0	8.37	1 / 13	13.13	21.50	0.141	33.01	-11.51
	QPSK	2680.0	H	103.0	196.0	8.74	1 / 25	13.80	22.54	0.179	33.01	-10.47
		2680.0	H	103.0	196.0	8.74	1 / 25	12.39	21.13	0.130	33.01	-11.88
		2593.0	H	101.0	202.0	8.37	1/68	11.07	19.44	0.088	33.01	-13.57
100 MHz	QPSK (CP-OFDM)	2593.0	H	101.0	202.0	8.37	1/68	13.89	22.33	0.171	33.01	-10.68
	QPSK (Opposite Pol.)	2593.0	V	227.0	280.0	8.44	1/68	11.76	20.13	0.103	33.01	-12.88
	Closed	2593.0	H	146.0	335.0	8.37	1/68	9.10	17.47	0.056	33.01	-15.54

Table 7-12. EIRP Data (NR Band n41 PC3)

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7.8 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.

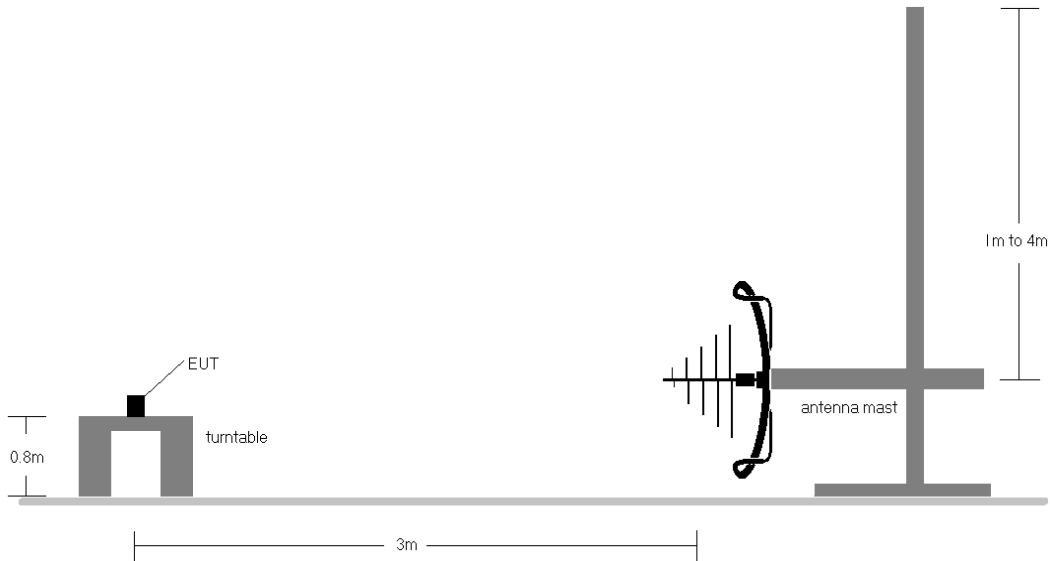


Figure 7-7. Test Instrument & Measurement Setup < 1GHz

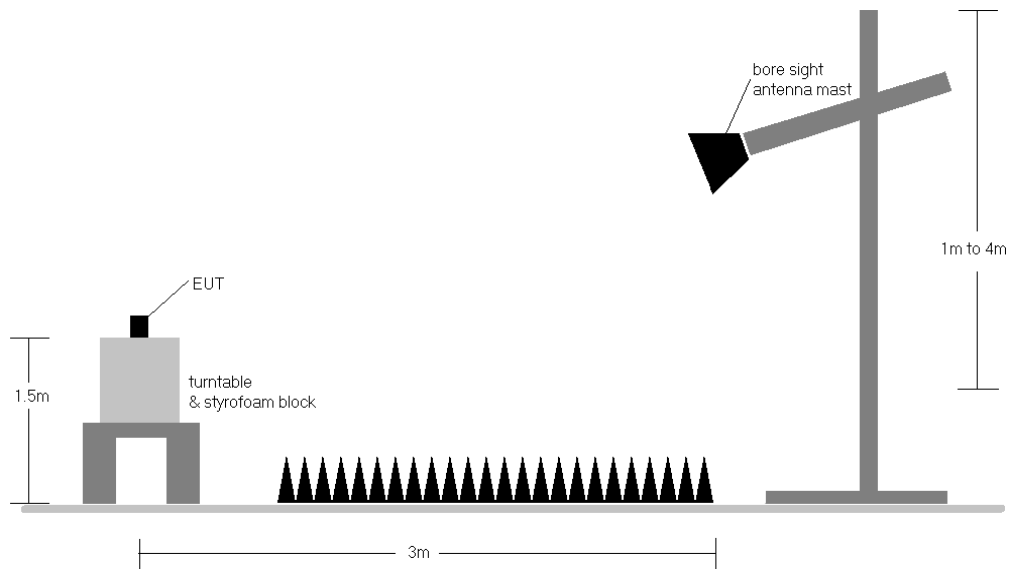


Figure 7-8. Test Instrument & Measurement Setup >1 GHz

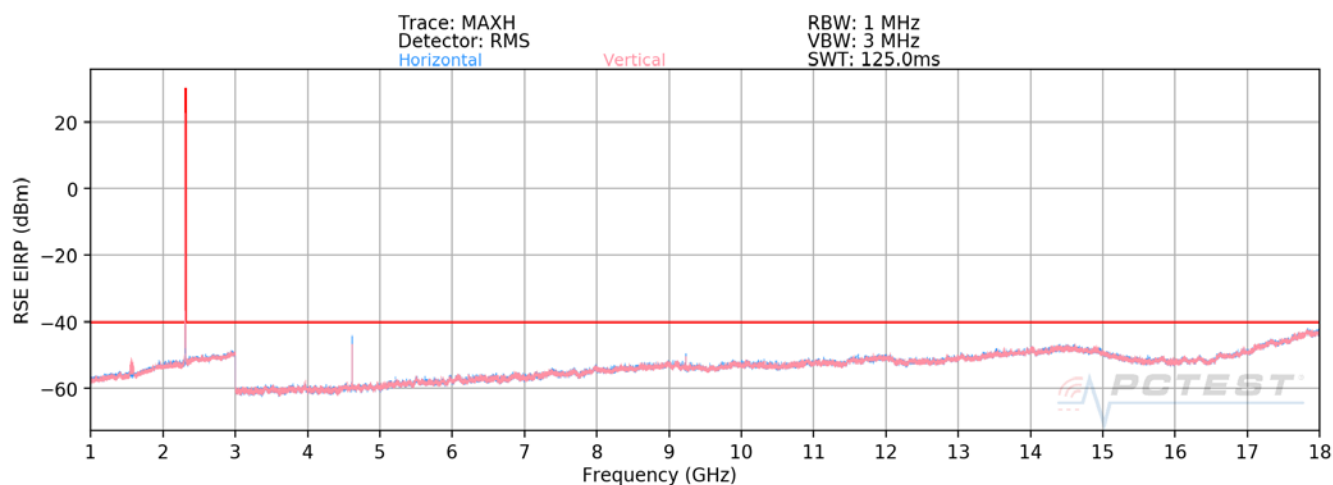
FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
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Test Notes

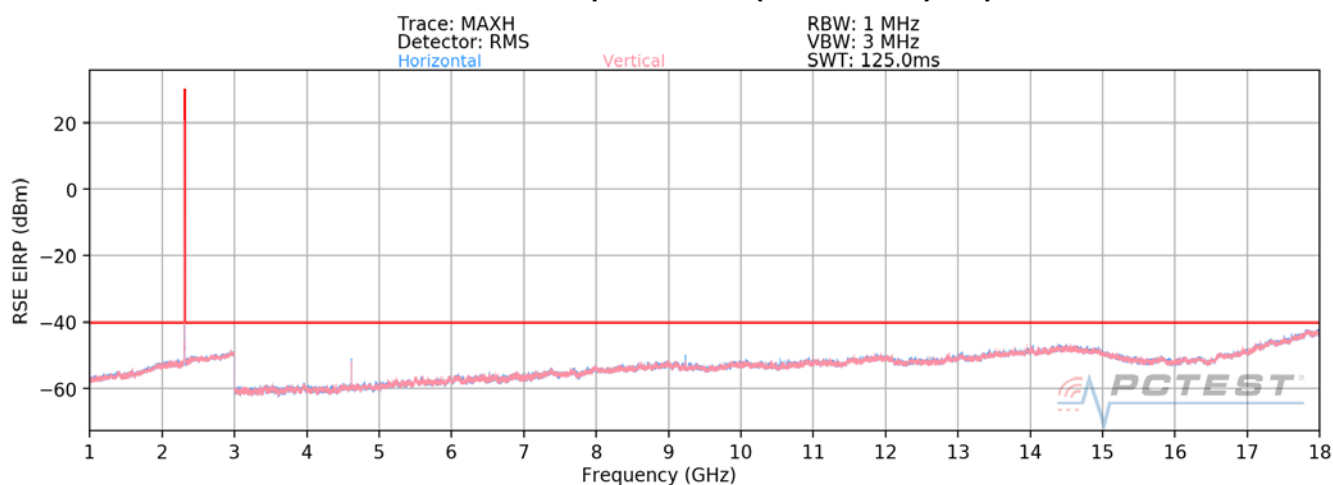
- 1) Field strengths are calculated using the Measurement quantity conversions in KDB 971168 Section 5.8.4.
 - b) $E(\text{dB}\mu\text{V/m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$
 - d) $\text{EIRP (dBm)} = E(\text{dB}\mu\text{V/m}) + 20\log D - 104.8$; 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 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.
- 5) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 6) 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.
- 7) The "-" shown in the following RSE tables are used to denote a noise floor measurement.
- 8) 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.
- 9) 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.
- 10) 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 30



Plot 7-226. Radiated Spurious Plot (LTE Band 30) – Open



Plot 7-227. Radiated Spurious Plot (LTE Band 30) – Closed

Bandwidth (MHz):	10
Frequency (MHz):	2310.0
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]
4620.0	H	274	314	-58.83	3.21	51.38	-43.88	-40.00	-3.88
6930.0	H	-	-	-79.86	7.38	34.52	-60.74	-40.00	-20.74
9240.0	H	272	359	-71.02	10.44	46.42	-48.84	-40.00	-8.84
11550.0	H	-	-	-81.96	13.84	38.88	-56.37	-40.00	-16.37
13860.0	H	-	-	-82.72	16.89	41.17	-54.08	-40.00	-14.08

Table 7-13. Radiated Spurious Data (LTE Band 30 – Mid Channel) – Open

FCC ID: A3LSMF711U1	PCTEST PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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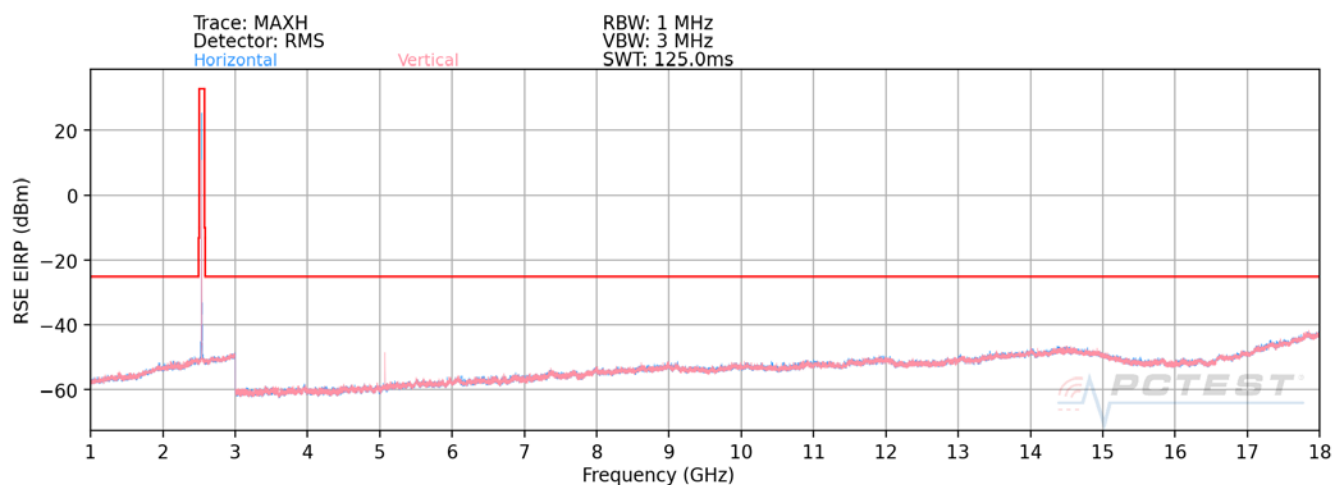
Bandwidth (MHz):	10
Frequency (MHz):	2310.0
RB / Offset:	1 / 25

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]
4620.00	H	327	14	-63.51	3.21	46.70	-48.56	-40.00	-8.56
6930.00	H	-	-	-80.04	7.38	34.34	-60.92	-40.00	-20.92
9240.00	H	383	278	-77.09	10.44	40.35	-54.91	-40.00	-14.91
11550.00	H	-	-	-81.91	13.84	38.93	-56.32	-40.00	-16.32
13860.00	H	-	-	-82.63	16.89	41.26	-53.99	-40.00	-13.99

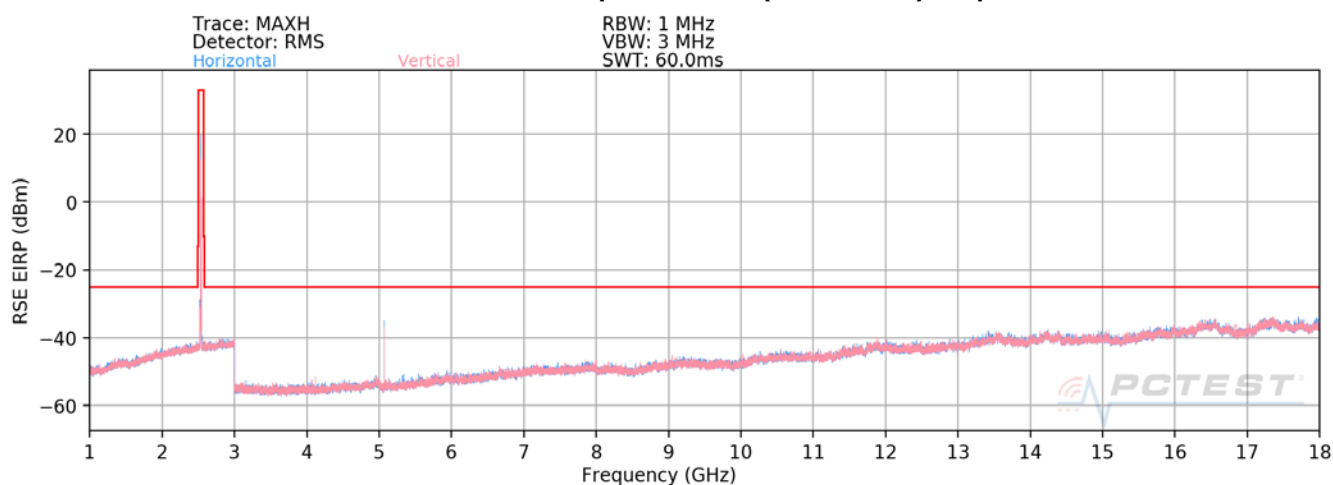
Table 7-14. Radiated Spurious Data (LTE Band 30 – Mid Channel) – With WCP– Open

FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
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LTE Band 7



Plot 7-228. Radiated Spurious Plot (LTE Band 7) – Open



Plot 7-229. Radiated Spurious Plot (LTE Band 7) – Closed

Bandwidth (MHz):	20
Frequency (MHz):	2510.0
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]
5020.0	V	113	22	-59.32	4.33	52.01	-43.25	-25.00	-18.25
7530.0	V	121	115	-79.18	8.99	36.81	-58.45	-25.00	-33.45
10040.0	V	-	-	-80.22	11.47	38.25	-57.01	-25.00	-32.01
12550.0	V	-	-	-81.87	13.60	38.73	-56.53	-25.00	-31.53

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

FCC ID: A3LSMF711U1	PCTEST PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Bandwidth (MHz):	20
Frequency (MHz):	2535.0
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]
5070.0	V	113	19	-58.08	4.67	53.59	-41.67	-25.00	-16.67
7605.0	V	280	116	-79.47	8.80	36.33	-58.93	-25.00	-33.93
10140.0	V	-	-	-80.94	11.51	37.57	-57.69	-25.00	-32.69
12675.0	V	-	-	-81.75	13.33	38.58	-56.68	-25.00	-31.68

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

Bandwidth (MHz):	20
Frequency (MHz):	2560.0
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]
5120.00	V	118	32	-52.29	4.65	59.36	-35.90	-25.00	-10.90
7680.00	V	-	-	-79.64	9.39	36.75	-58.51	-25.00	-33.51
10240.00	V	-	-	-81.25	11.79	37.54	-57.71	-25.00	-32.71

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

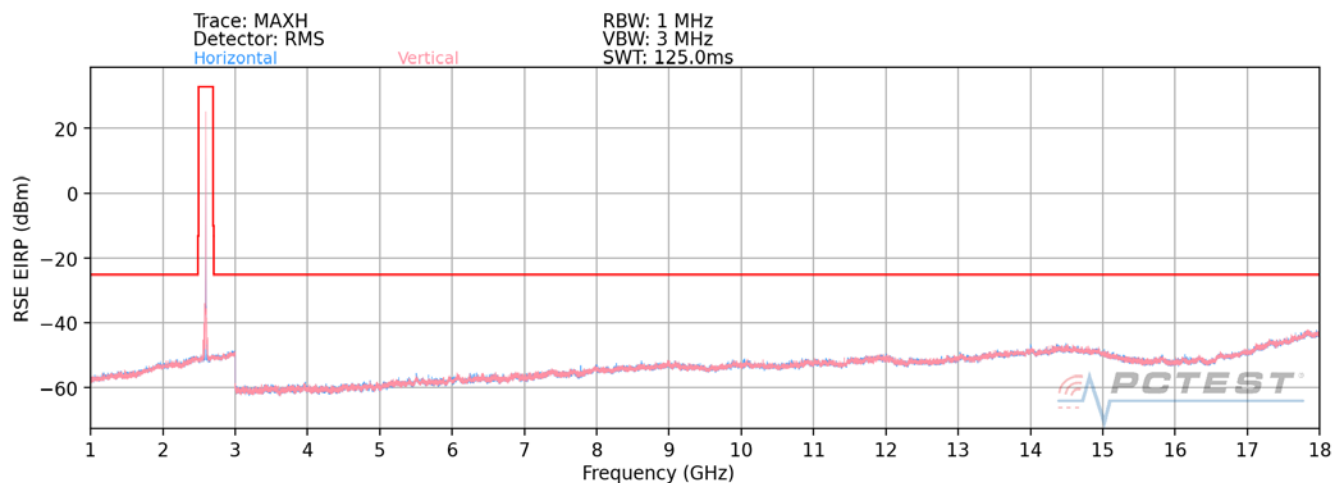
Case:	WCP
Bandwidth (MHz):	20
Frequency (MHz):	2560.0
RB / Offset:	1/50

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]
5120.0	V	384	101	-57.66	4.65	53.99	-41.27	-25.00	-16.27
7680.0	V	-	-	-79.73	9.39	36.66	-58.60	-25.00	-33.60
10240.0	V	-	-	-81.18	11.79	37.61	-57.64	-25.00	-32.64

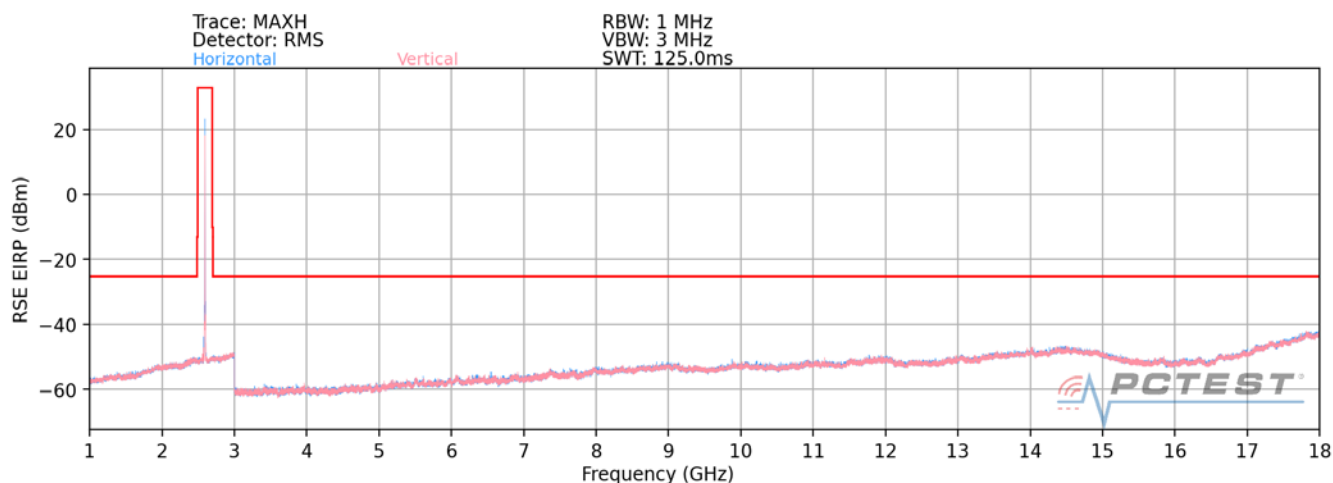
Table 7-18. Radiated Spurious Data (LTE Band 7 – High Channel) – With WCP – Open

FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
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LTE Band 41(PC2)



Plot 7-230. Radiated Spurious Plot (LTE Band 41(PC2)) – Open



Plot 7-231. Radiated Spurious Plot (LTE Band 41(PC2)) – Closed

Bandwidth (MHz):	20
Frequency (MHz):	2506.0
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]
5012.0	H	325	50	-68.42	4.26	42.84	-52.42	-25.00	-27.42
7518.0	H	203	233	-75.51	8.86	40.35	-54.90	-25.00	-29.90
10024.0	H	228	341	-75.85	11.20	42.35	-52.91	-25.00	-27.91
12530.0	H	189	307	-76.53	13.60	44.07	-51.19	-25.00	-26.19
15036.0	H	236	343	-73.07	15.67	49.60	-45.66	-25.00	-20.66
17542.0	H	-	-	-78.27	19.41	48.14	-47.12	-25.00	-22.12
20048.0	H	-	-	-58.92	4.38	52.46	-52.34	-25.00	-27.34
22554.0	H	-	-	-59.58	5.48	52.90	-51.90	-25.00	-26.90

Table 7-19. Radiated Spurious Data (LTE Band 41(PC2) – Low Channel) – Open

FCC ID: A3LSMF711U1	PCTEST PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Bandwidth (MHz):	20
Frequency (MHz):	2593.0
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]
5186.0	H	395	358	-68.99	5.13	43.14	-52.12	-25.00	-27.12
7779.0	H	224	38	-72.27	8.69	43.42	-51.84	-25.00	-26.84
10372.0	H	-	-	-78.16	11.80	40.64	-54.61	-25.00	-29.61
12965.0	H	219	8	-77.21	13.80	43.59	-51.66	-25.00	-26.66
15558.0	H	183	32	-74.11	13.06	45.95	-49.31	-25.00	-24.31
18151.0	H	-	-	-58.67	3.68	52.00	-52.80	-25.00	-27.80
20744.0	H	-	-	-59.47	4.52	52.05	-52.75	-25.00	-27.75
23337.0	H	-	-	-59.37	5.37	53.00	-51.80	-25.00	-26.80

Table 7-20. Radiated Spurious Data (LTE Band 41(PC2) – Mid Channel) – Open

Bandwidth (MHz):	20
Frequency (MHz):	2680.0
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]
5360.0	H	398	346	-67.40	5.05	44.65	-50.61	-25.00	-25.61
8040.0	H	365	288	-75.22	9.72	41.50	-53.76	-25.00	-28.76
10720.0	H	203	42	-77.61	12.69	42.08	-53.17	-25.00	-28.17
13400.0	H	163	280	-78.24	14.86	43.62	-51.64	-25.00	-26.64
16080.0	H	196	33	-72.02	13.47	48.45	-46.81	-25.00	-21.81
18760.0	H	-	-	-58.44	4.05	52.61	-52.19	-25.00	-27.19
21440.0	H	-	-	-58.81	5.17	53.35	-51.45	-25.00	-26.45
24120.0	H	-	-	-58.73	6.07	54.34	-50.46	-25.00	-25.46

Table 7-21. Radiated Spurious Data (LTE Band 41(PC2) – High Channel) – Open

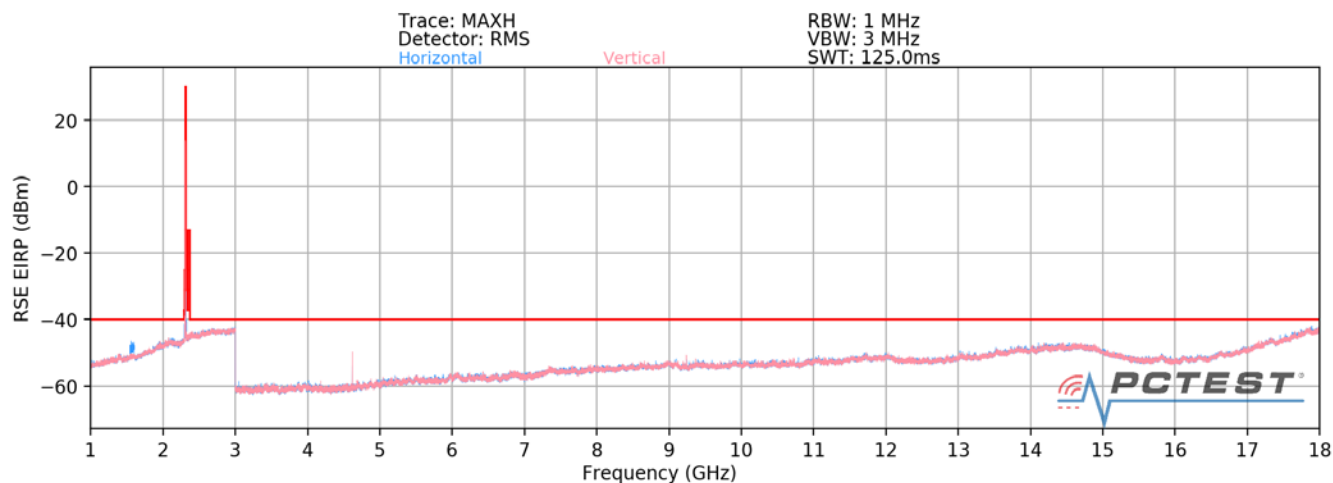
Case:	WCP
Bandwidth (MHz):	20
Frequency (MHz):	2680.0
RB / Offset:	1 / 50

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]
5360.0	H	280	339	-68.65	5.05	43.40	-51.86	-25.00	-26.86
8040.0	H	251	346	-75.73	9.72	40.99	-54.27	-25.00	-29.27
10720.0	H	184	358	-78.37	12.69	41.32	-53.93	-25.00	-28.93
13400.0	H	138	37	-78.77	14.86	43.09	-52.17	-25.00	-27.17
16080.0	H	228	334	-73.21	13.47	47.26	-48.00	-25.00	-23.00
18760.0	H	-	-	-57.98	4.05	53.06	-51.74	-25.00	-26.74
21440.0	H	-	-	-59.03	5.17	53.14	-51.66	-25.00	-26.66
24120.0	H	-	-	-58.59	6.07	54.48	-50.32	-25.00	-25.32

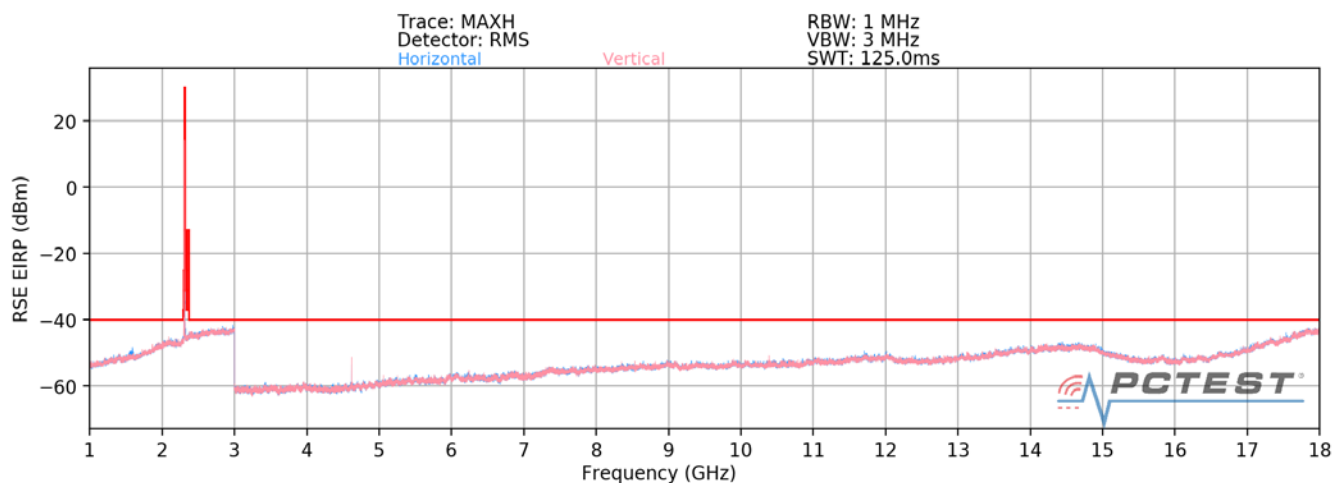
Table 7-22. Radiated Spurious Data (LTE Band 41(PC2) – High Channel) – With WCP – Open

FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset
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NR Band n30



Plot 7-232. Radiated Spurious Plot (NR Band n30) – Open



Plot 7-233. Radiated Spurious Plot (NR Band n30) – Closed

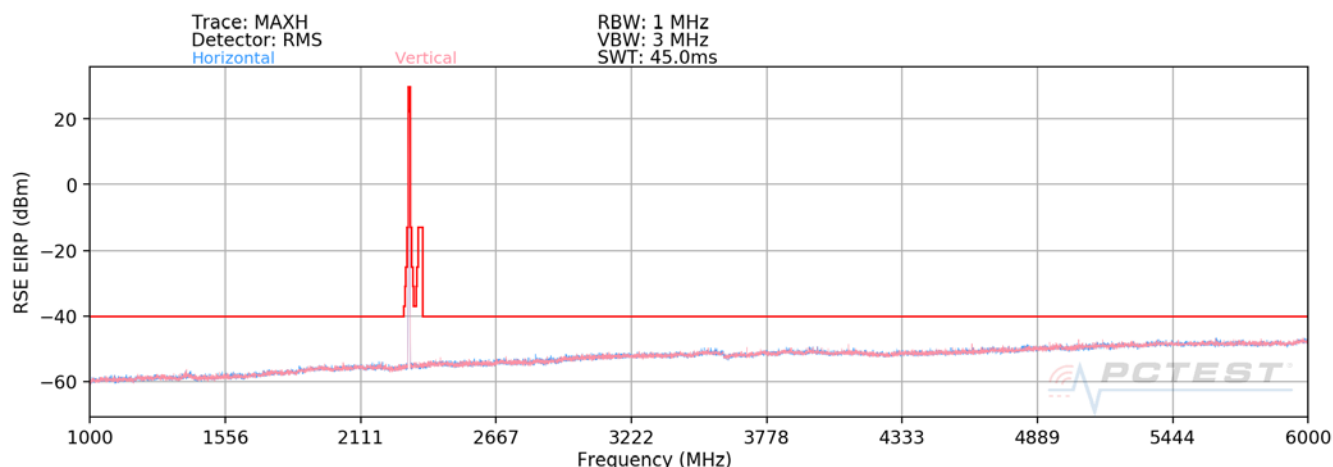
Bandwidth (MHz):	10
Frequency (MHz):	2310.0
RB / Offset:	1 / 25
Mode:	SA

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]
4620.0	V	158	26	-60.27	3.21	49.94	-45.32	-40.00	-5.32
6930.0	V	-	-	-80.11	7.38	34.27	-60.99	-40.00	-20.99
9240.0	V	117	6	-74.34	10.44	43.10	-52.16	-40.00	-12.16
11550.0	V	-	-	-82.48	13.84	38.36	-56.89	-40.00	-16.89
13860.0	V	170	349	-82.02	16.89	41.87	-53.38	-40.00	-13.38
16170.0	V	-	-	-83.31	14.25	37.94	-66.86	-40.00	-26.86

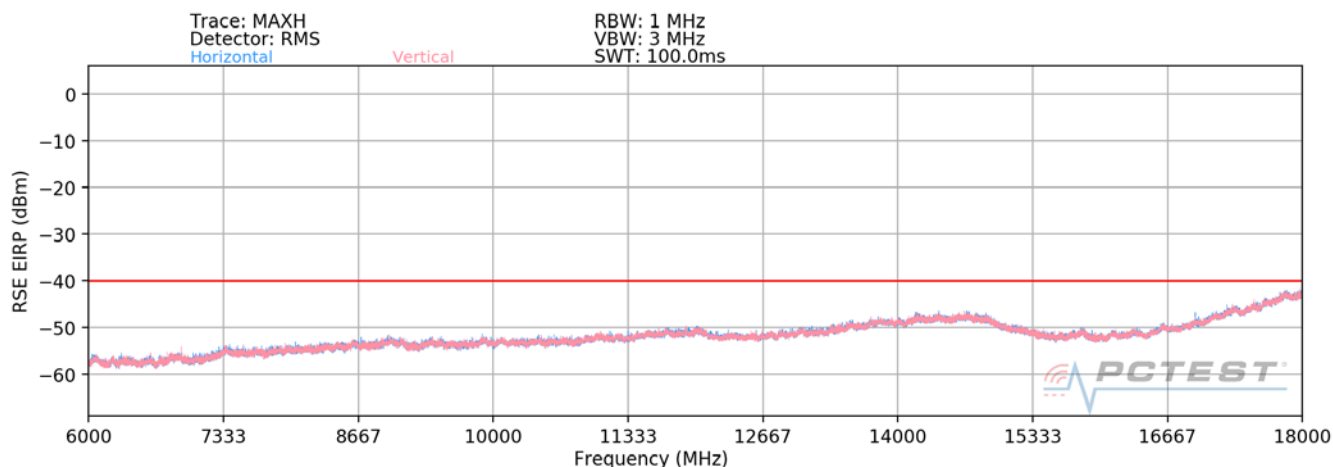
Table 7-23. Radiated Spurious Data (NR Band n30 – Mid Channel) – Open

FCC ID: A3LSMF711U1	PCTEST PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset	Page 153 of 169

EN-DC n30 – B14



Plot 7-234. Radiated Spurious Plot (EN-DC n30 - B14) 1 – 6GHz – Open



Plot 7-235. Radiated Spurious Plot (EN-DC n30 - B14) 6 – 18GHz – Open

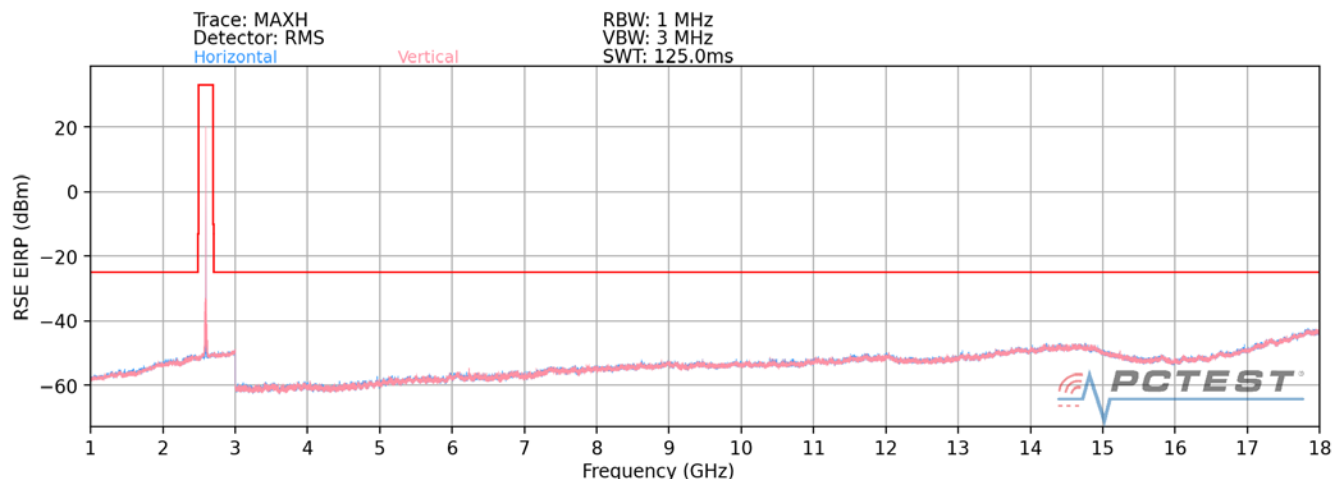
Bandwidth (MHz):	10
Frequency (MHz):	2310.0
RB / Offset:	1 / 25
Mode:	EN-DC
Anchor Band:	B14

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]
2244.0	H	-	-	-77.43	5.49	35.06	-60.19	-40.00	-20.19
3762.0	H	-	-	-78.83	11.89	40.06	-55.20	-40.00	-15.20
4620.0	H	116	54	-76.58	12.29	42.71	-52.55	-40.00	-12.55
5280.0	H	-	-	-79.44	14.35	41.91	-53.35	-40.00	-13.35

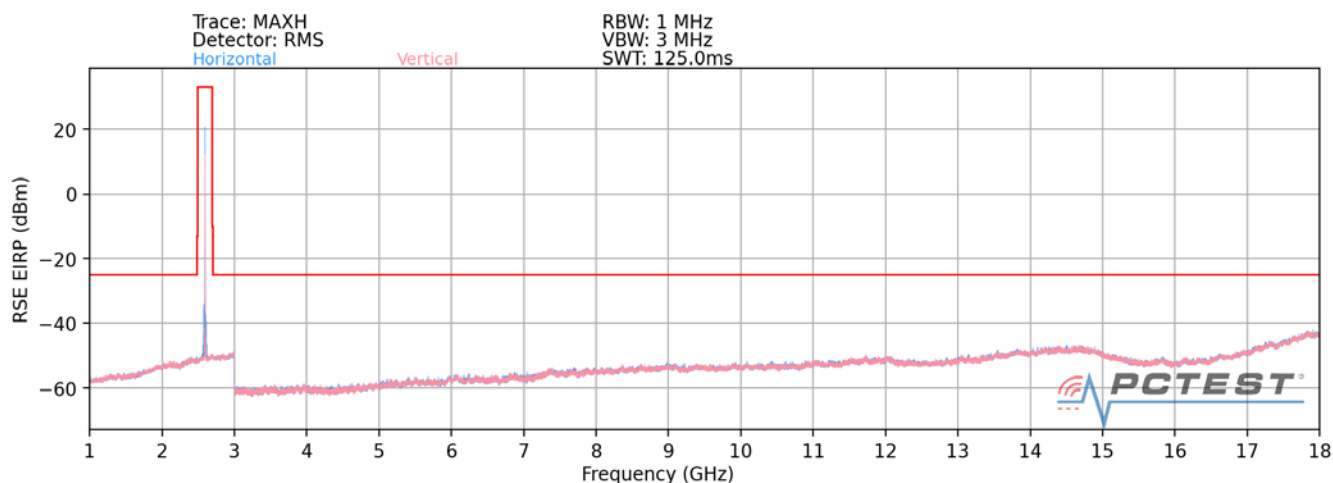
Table 7-24. Radiated Spurious Data (EN-DC n30-B14) – Open

NR Band n41

FCC ID: A3LSMF711U1	PCTEST Proud to be part of Element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset		Page 154 of 169



Plot 7-236. Radiated Spurious Plot (NR Band n41) – Open



Plot 7-237. Radiated Spurious Plot (NR Band n41) – Closed

Bandwidth (MHz):	100
Frequency (MHz):	2546.0
RB / Offset:	1 / 136
Mode:	SA

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]
5092.0	H	144	312	-78.10	4.60	33.50	-61.75	-25.00	-36.75
7638.0	H	-	-	-80.38	9.27	35.89	-59.37	-25.00	-34.37
10184.0	H	-	-	-81.41	11.87	37.46	-57.80	-25.00	-32.80

Table 7-25. Radiated Spurious Data (NR Band n41 – Low Channel) – Open

FCC ID: A3LSMF711U1	PCTEST PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset	Page 155 of 169

Bandwidth (MHz):	100
Frequency (MHz):	2593.0
RB / Offset:	1 / 136
Mode:	SA

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]
5186.0	H	149	57	-77.73	5.13	34.40	-60.86	-25.00	-35.86
7779.0	H	-	-	-80.02	8.69	35.67	-59.59	-25.00	-34.59
10372.0	H	-	-	-81.54	11.80	37.26	-57.99	-25.00	-32.99

Table 7-26. Radiated Spurious Data (NR Band n41 – Mid Channel) – Open

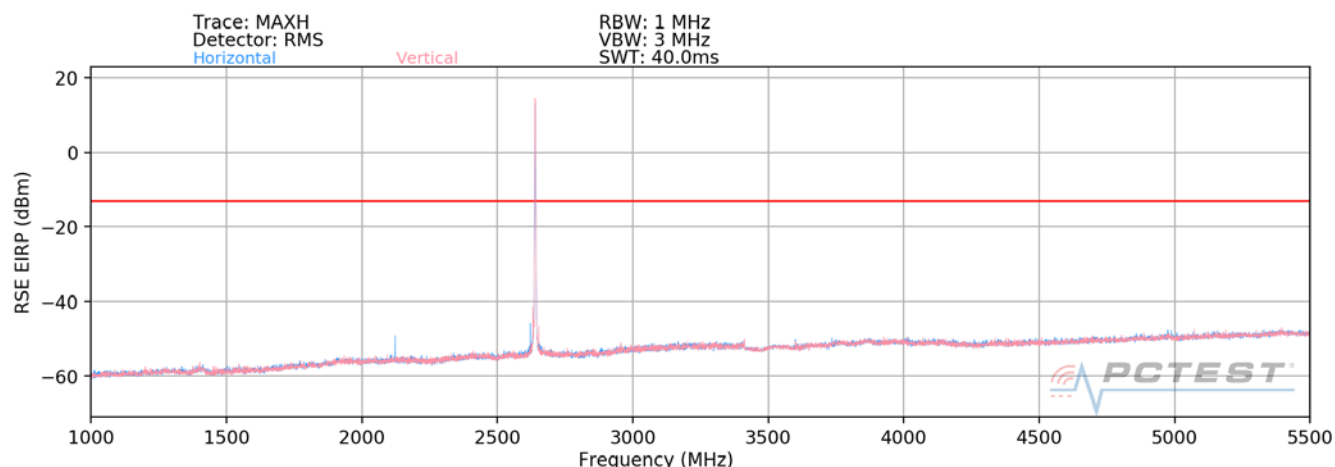
Bandwidth (MHz):	100
Frequency (MHz):	2640.0
RB / Offset:	1 / 136
Mode:	SA

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]
5280.0	H	228	74	-77.15	4.69	34.54	-60.72	-25.00	-35.72
7920.0	H	-	-	-80.64	9.34	35.70	-59.56	-25.00	-34.56
10560.0	H	-	-	-81.87	12.03	37.16	-58.10	-25.00	-33.10

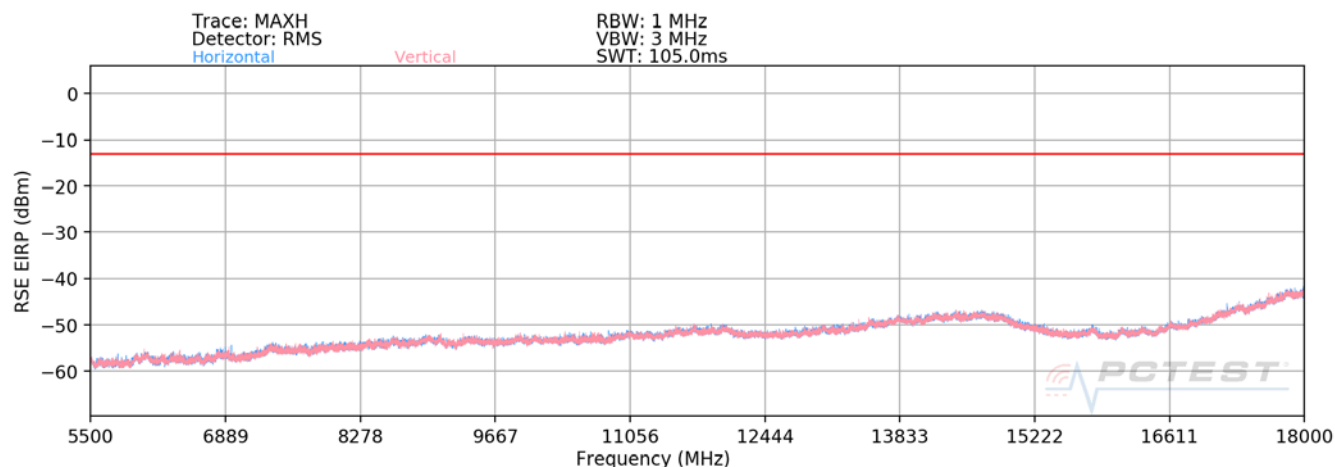
Table 7-27. Radiated Spurious Data (NR Band n41 – High Channel) – Open

FCC ID: A3LSMF711U1	 PCTEST measuring people	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset		Page 156 of 169

EN-DC n41 –B12



Plot 7-238. Radiated Spurious Plot (EN-DC n41 – B12) – 1 – 5.5GHz – Open



Plot 7-239. Radiated Spurious Plot (EN-DC n41 – B12) – 5.5 – 18GHz – Open

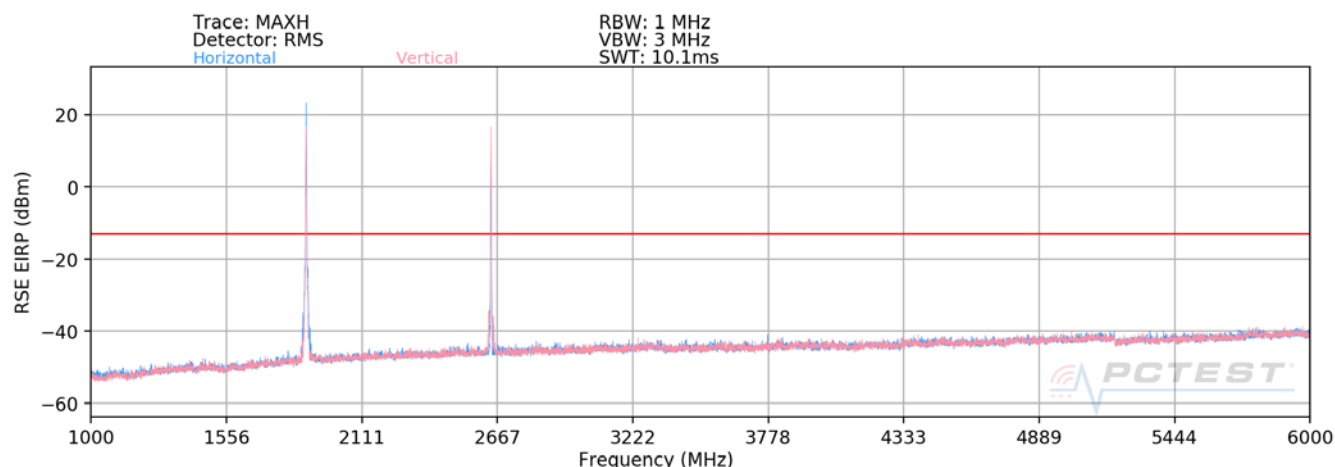
Bandwidth (MHz):	100
Frequency (MHz):	2640.0
RB / Offset:	1 / 136
Mode:	EN-DC
Anchor Band:	LTE Band 12

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1225.0	H	-	-	-75.93	-6.27	24.80	-70.46	-25.00	-45.46
3157.5	H	-	-	-77.09	0.27	30.18	-65.08	-25.00	-40.08
4572.5	H	-	-	-78.31	2.39	31.08	-64.18	-25.00	-39.18
6505.0	H	-	-	-79.10	6.71	34.61	-60.65	-25.00	-35.65

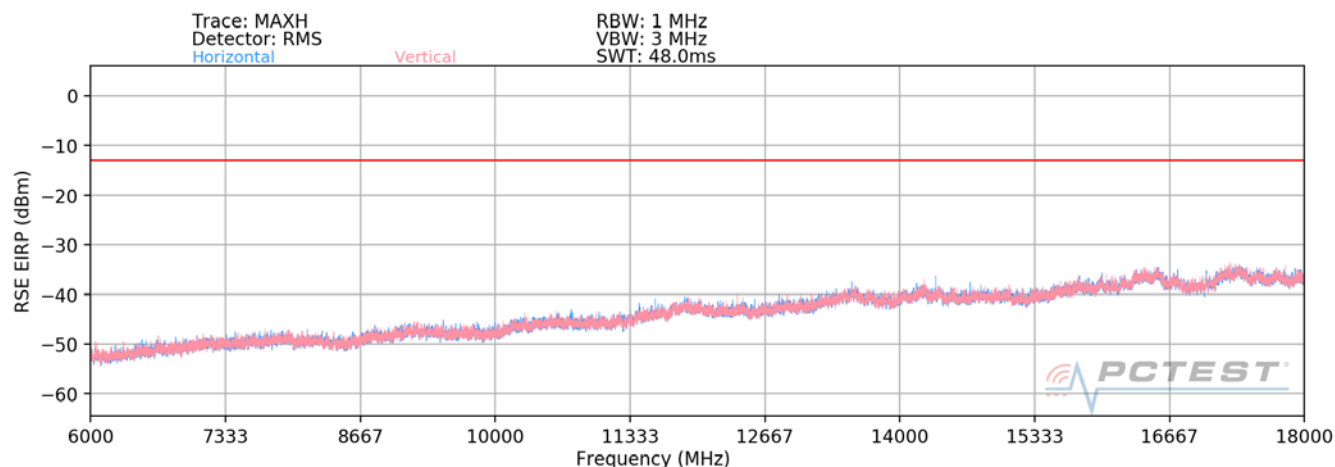
Table 7-28. Radiated Spurious Data (EN-DC n41 – B12) – Open

FCC ID: A3LSMF711U1	PCTEST PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset	Page 157 of 169

EN-DC n41 – B25



Plot 7-240. Radiated Spurious Plot (EN-DC n41 – B25) – 1 – 6GHz – Open



Plot 7-241. Radiated Spurious Plot (EN-DC n41 – B25) – 6 – 18GHz – Open

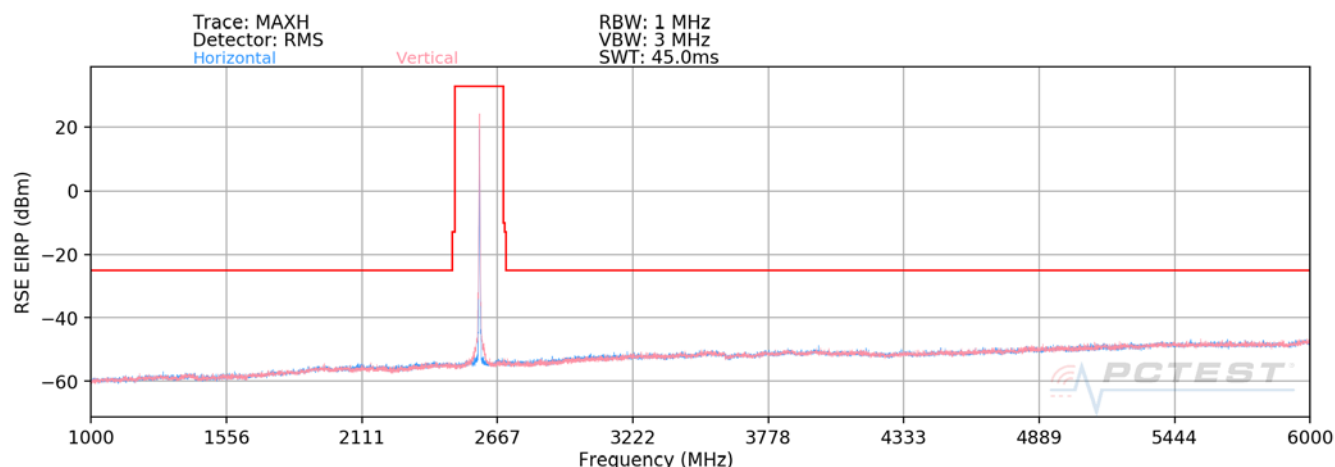
Bandwidth (MHz):	100
Frequency (MHz):	2640.0
RB / Offset:	1 / 136
Mode:	EN-DC
Anchor Band:	LTE Band 25

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]
1125.0	H	-	-	-77.68	-1.43	27.89	-67.37	-25.00	-42.37
3397.5	H	-	-	-79.87	7.36	34.49	-60.77	-25.00	-35.77
4155.0	H	-	-	-80.52	8.38	34.86	-60.40	-25.00	-35.40
4912.5	H	-	-	-80.69	9.37	35.68	-59.58	-25.00	-34.58

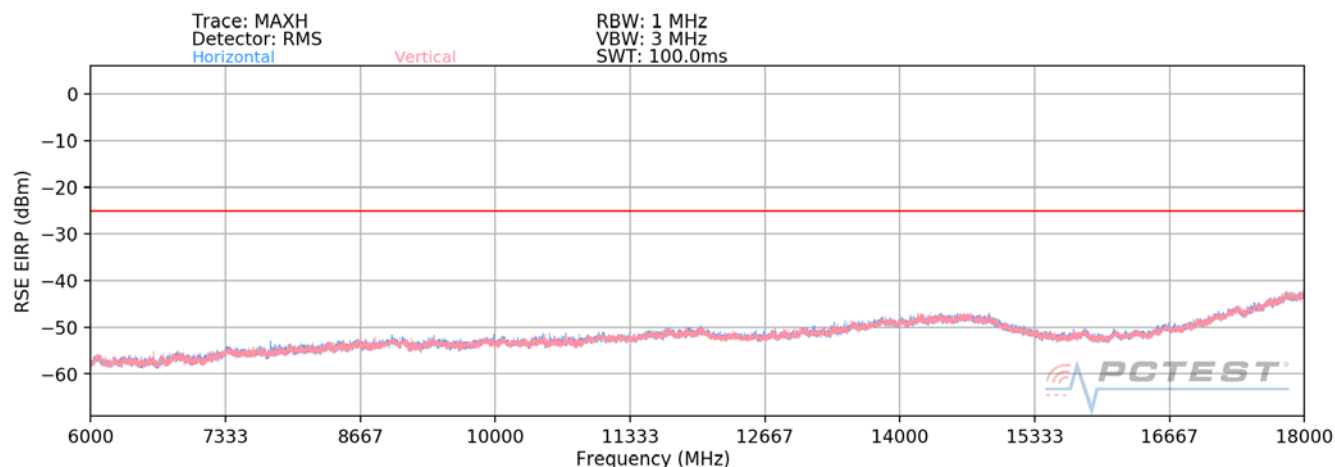
Table 7-29. Radiated Spurious Data (EN-DC n41 – B25) – Open

FCC ID: A3LSMF711U1	PCTEST Proud to be part of Element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset		Page 158 of 169

EN-DC n41 – B41



Plot 7-242. Radiated Spurious Plot (EN-DC n41 – B41) – 1 – 6GHz – Open



Plot 7-243. Radiated Spurious Plot (EN-DC n41 – B41) – 6 – 18GHz – Open

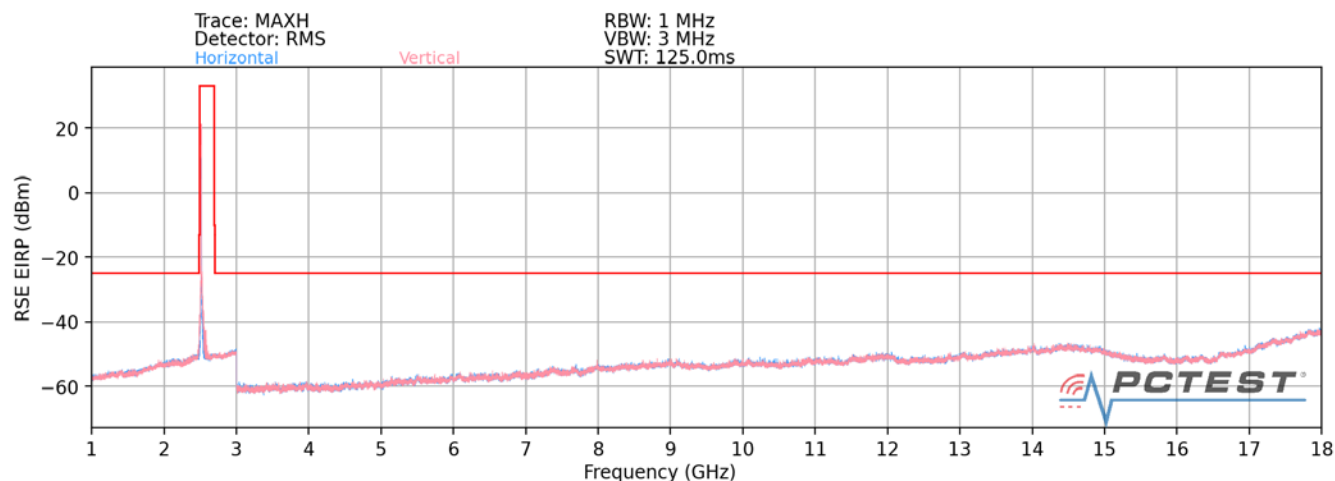
Bandwidth (MHz):	100
Frequency (MHz):	2593.0
RB / Offset:	1 / 136
Mode:	EN-DC
Anchor Band:	LTE Band 41 PC2

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]
5186.0	V	-	-	-78.98	5.13	33.15	-62.11	-25.00	-37.11
7779.0	V	361	357	-59.38	8.69	56.31	-38.95	-25.00	-13.95
10372.0	V	-	-	-80.67	11.80	38.13	-57.12	-25.00	-32.12
12965.0	V	206	356	-80.06	13.80	40.74	-54.51	-25.00	-29.51
15558.0	V	-	-	-81.23	13.06	38.83	-56.43	-25.00	-31.43

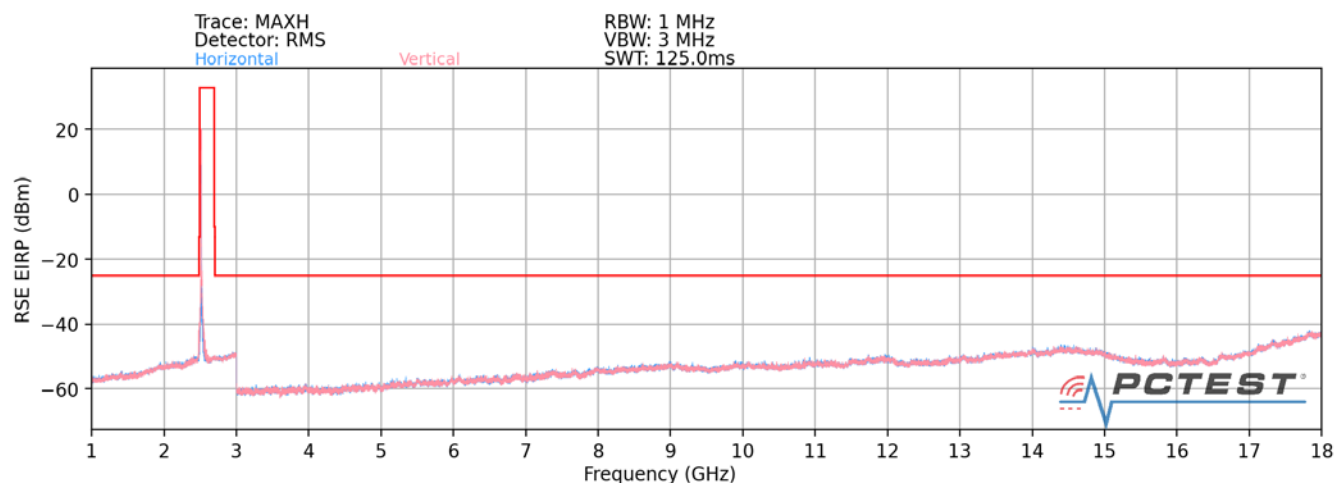
Table 7-30. Radiated Spurious Data (EN-DC n41 – B41) – Open

FCC ID: A3LSMF711U1	PCTEST PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset	Page 159 of 169

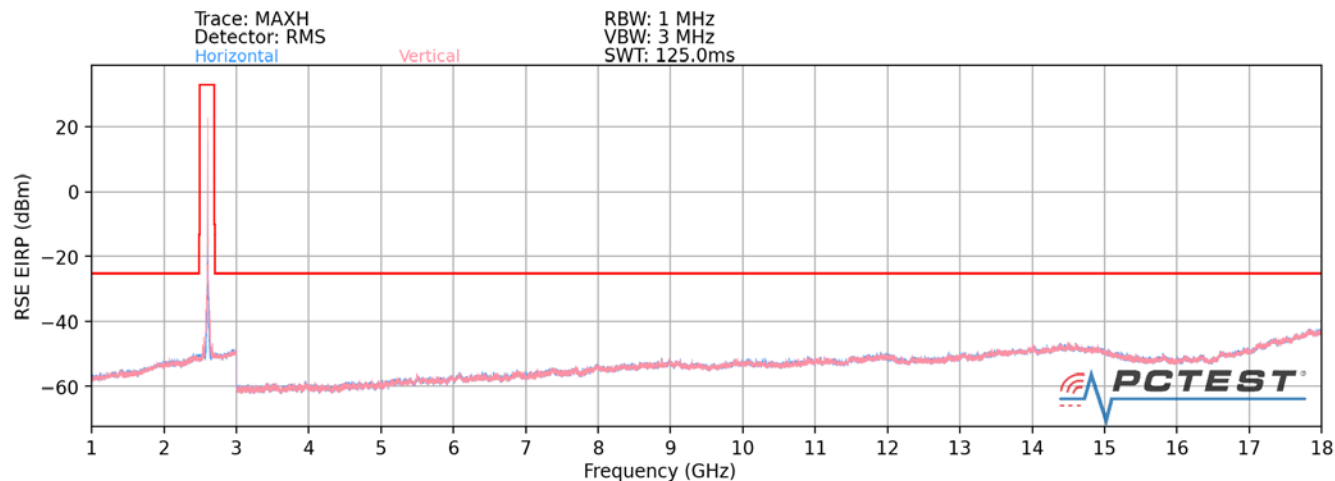
ULCA - LTE B41(PC2)



Plot 7-244. Radiated Spurious Plot (ULCA LTE B41(PC2) – Low Channel) – Open

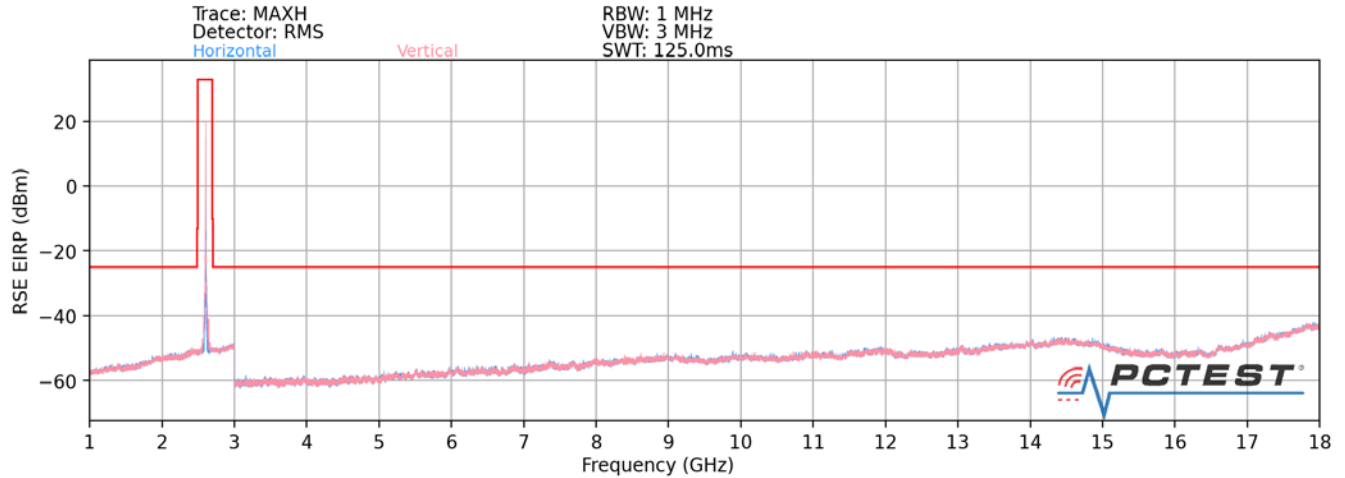


Plot 7-245. Radiated Spurious Plot (ULCA LTE B41(PC2) – Low Channel) – Closed

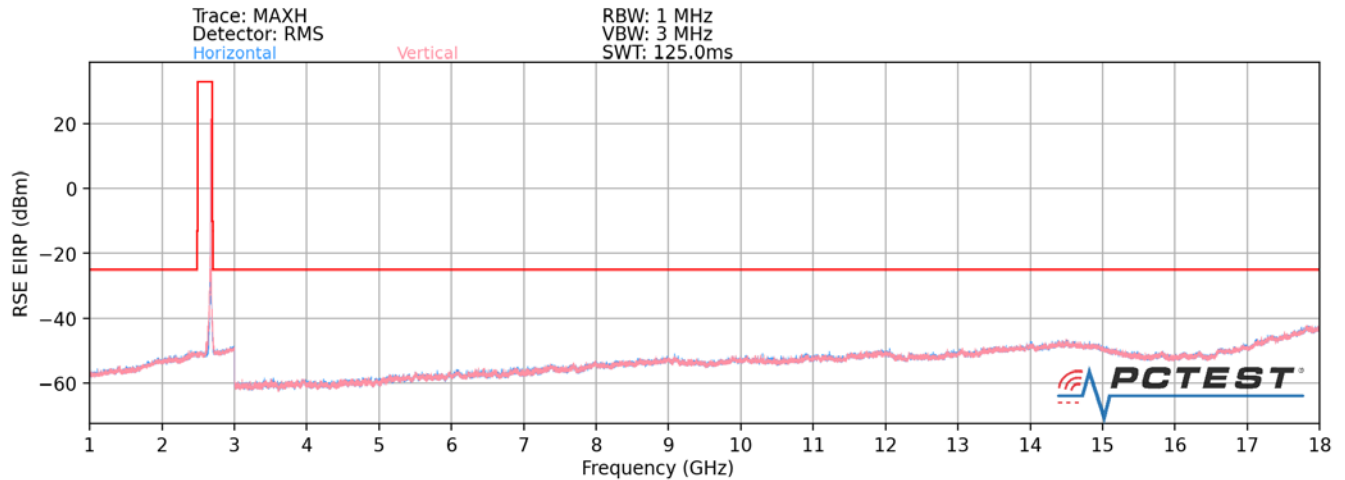


Plot 7-246. Radiated Spurious Plot (ULCA LTE B41(PC2) – Mid Channel) – Open

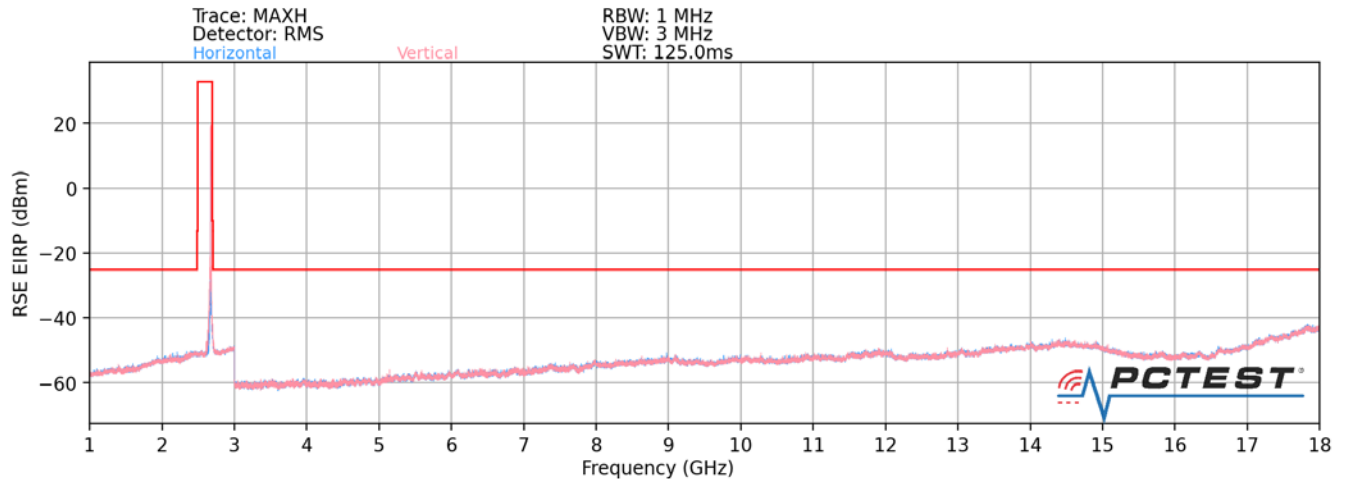
FCC ID: A3LSMF711U1	PCTEST PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset	Page 160 of 169



Plot 7-247. Radiated Spurious Plot (ULCA LTE B41(PC2) – Mid Channel) – Closed



Plot 7-248. Radiated Spurious Plot (ULCA LTE B41(PC2) – High Channel) – Open



Plot 7-249. Radiated Spurious Plot (ULCA LTE B41(PC2) – High Channel) – Closed

FCC ID: A3LSMF711U1	PCTEST Proud to be part of	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset		Page 161 of 169

PCC Bandwidth (MHz):	20
PCC Frequency (MHz):	2506.0
PCC RB / Offset:	1 / 99
SCC Bandwidth (MHz):	20
SCC Frequency (MHz):	2525.8
SCC RB / Offset:	1 / 0

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
5012.0	V	310	320	-70.40	4.26	40.86	-54.40	-25.00	-29.40
7518.0	V	-	-	-77.36	8.86	38.50	-56.75	-25.00	-31.75
10024.0	V	-	-	-77.48	11.20	40.72	-54.54	-25.00	-29.54
12530.0	V	-	-	-78.32	13.60	42.28	-52.98	-25.00	-27.98

Table 7-31. Radiated Spurious Data (ULCA LTE B41(PC2) – Low Channel) – Open

PCC Bandwidth (MHz):	20
PCC Frequency (MHz):	2593.0
PCC RB / Offset:	1 / 99
SCC Bandwidth (MHz):	20
SCC Frequency (MHz):	2612.8
SCC RB / Offset:	1 / 0

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
5186.0	V	266	330	-72.11	5.13	40.02	-55.24	-25.00	-30.24
7779.0	V	-	-	-76.90	8.69	38.79	-56.47	-25.00	-31.47
10372.0	V	-	-	-78.29	11.80	40.51	-54.74	-25.00	-29.74
12965.0	V	-	-	-78.42	13.80	42.38	-52.87	-25.00	-27.87

Table 7-32. Radiated Spurious Data (ULCA LTE B41(PC2) – Mid Channel) – Open

PCC Bandwidth (MHz):	20
PCC Frequency (MHz):	2680.0
PCC RB / Offset:	1 / 0
SCC Bandwidth (MHz):	20
SCC Frequency (MHz):	2660.2
SCC RB / Offset:	1 / 99

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
5360.0	V	137	78	-72.76	5.05	39.29	-55.97	-25.00	-30.97
8040.0	V	-	-	-77.09	9.72	39.63	-55.63	-25.00	-30.63
10720.0	V	-	-	-78.63	12.69	41.06	-54.19	-25.00	-29.19
13400.0	V	-	-	-78.31	14.86	43.55	-51.71	-25.00	-26.71

Table 7-33. Radiated Spurious Data (ULCA LTE B41(PC2) – High Channel) – Open

FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset
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7.9 Frequency Stability / Temperature Variation

Test Overview and Limit

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

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

Test Procedure Used

ANSI/TIA-603-E-2016

Test Settings

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

Test Setup

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

Test Notes

None

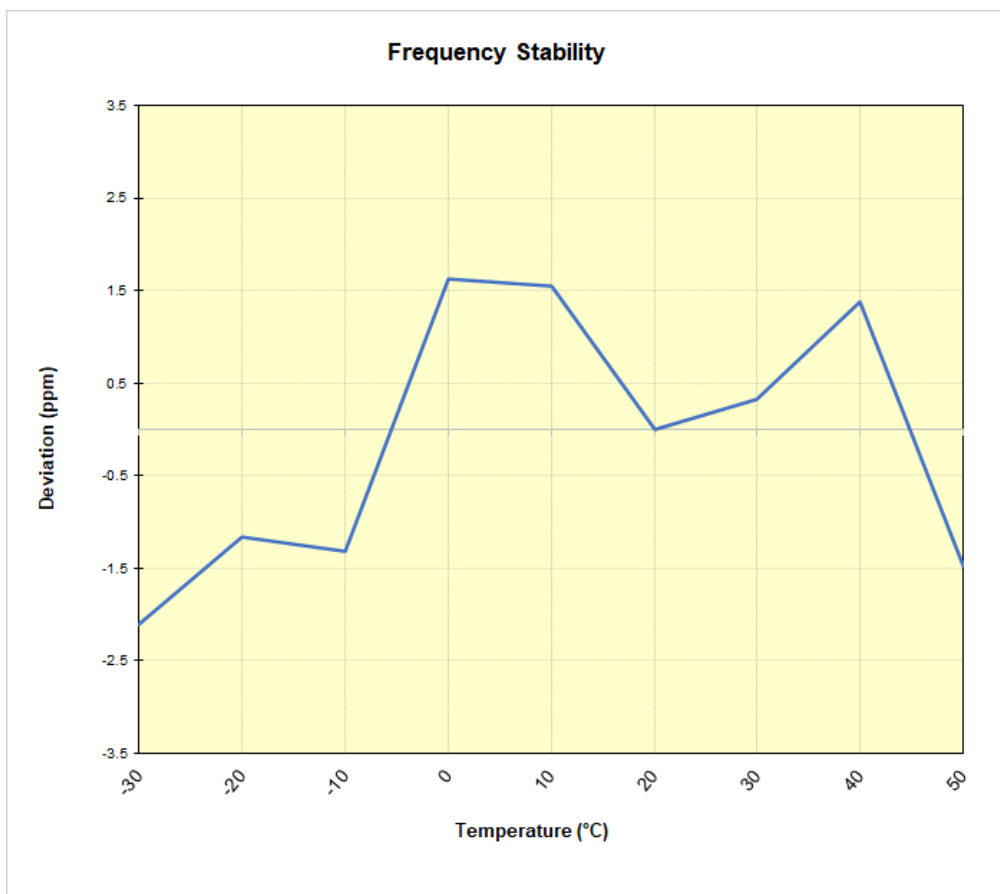
FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
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LTE Band 30

Operating Frequency (Hz):	2,310,000,000
Ref. Voltage (VDC):	4.43

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.43	- 30	2,309,991,283	-4,849	-0.0002099
		- 20	2,309,993,451	-2,682	-0.0001161
		- 10	2,309,993,077	-3,056	-0.0001323
		0	2,309,999,881	3,749	0.0001623
		+ 10	2,309,999,727	3,594	0.0001556
		+ 20 (Ref)	2,309,996,133	0	0.0000000
		+ 30	2,309,996,877	744	0.0000322
		+ 40	2,309,999,334	3,201	0.0001386
		+ 50	2,309,992,723	-3,410	-0.0001476
Battery Endpoint	3.36	+ 20	2,309,996,279	147	0.0000063

Table 7-34. LTE Band 30 Frequency Stability Data



Plot 7-250. LTE Band 30 Frequency Stability Chart

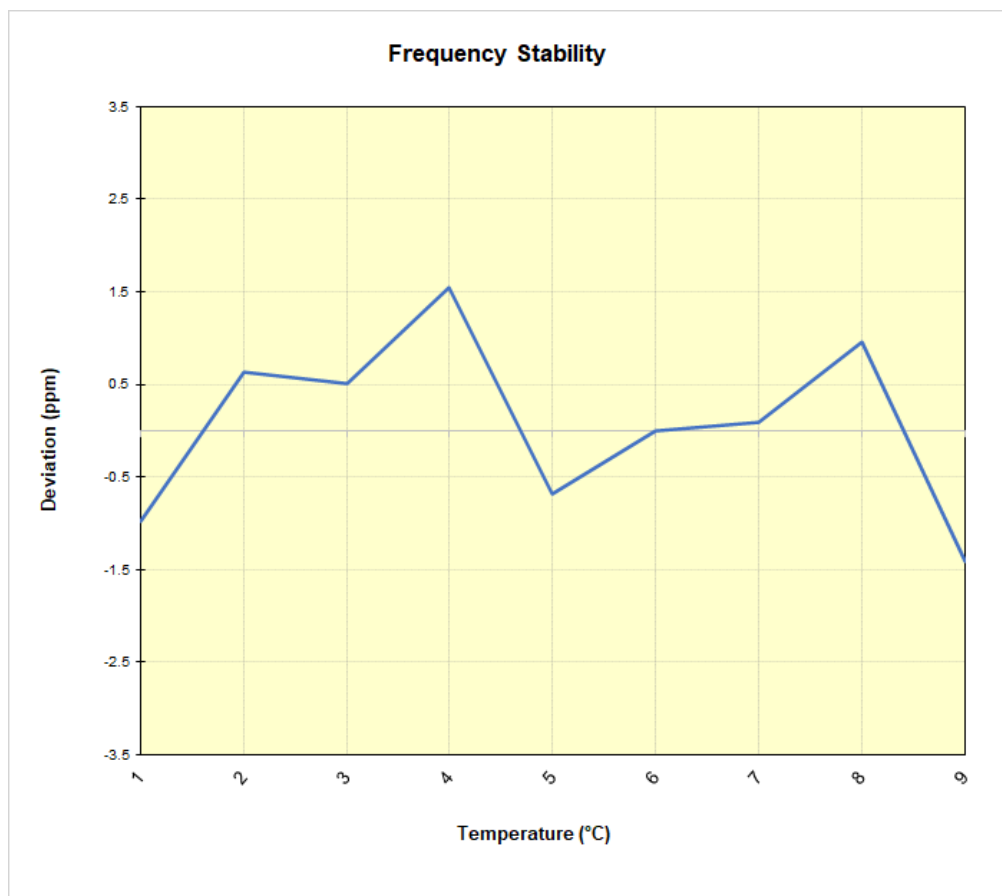
FCC ID: A3LSMF711U1	PCTEST Proud to be part of Samsung	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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LTE Band 7

Operating Frequency (Hz):	2,535,000,000
Ref. Voltage (VDC):	4.43

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.43	- 30	2,534,993,610	-2,476	-0.0000977
		- 20	2,534,997,687	1,601	0.0000632
		- 10	2,534,997,398	1,312	0.0000517
		0	2,535,000,022	3,936	0.0001553
		+ 10	2,534,994,343	-1,743	-0.0000687
		+ 20 (Ref)	2,534,996,086	0	0.0000000
		+ 30	2,534,996,327	241	0.0000095
		+ 40	2,534,998,519	2,433	0.0000960
		+ 50	2,534,992,500	-3,586	-0.0001415
Battery Endpoint	3.36	+ 20	2,534,994,776	-1,310	-0.0000517

Table 7-35. LTE Band 7 Frequency Stability Data



Plot 7-251. LTE Band 7 Frequency Stability Chart

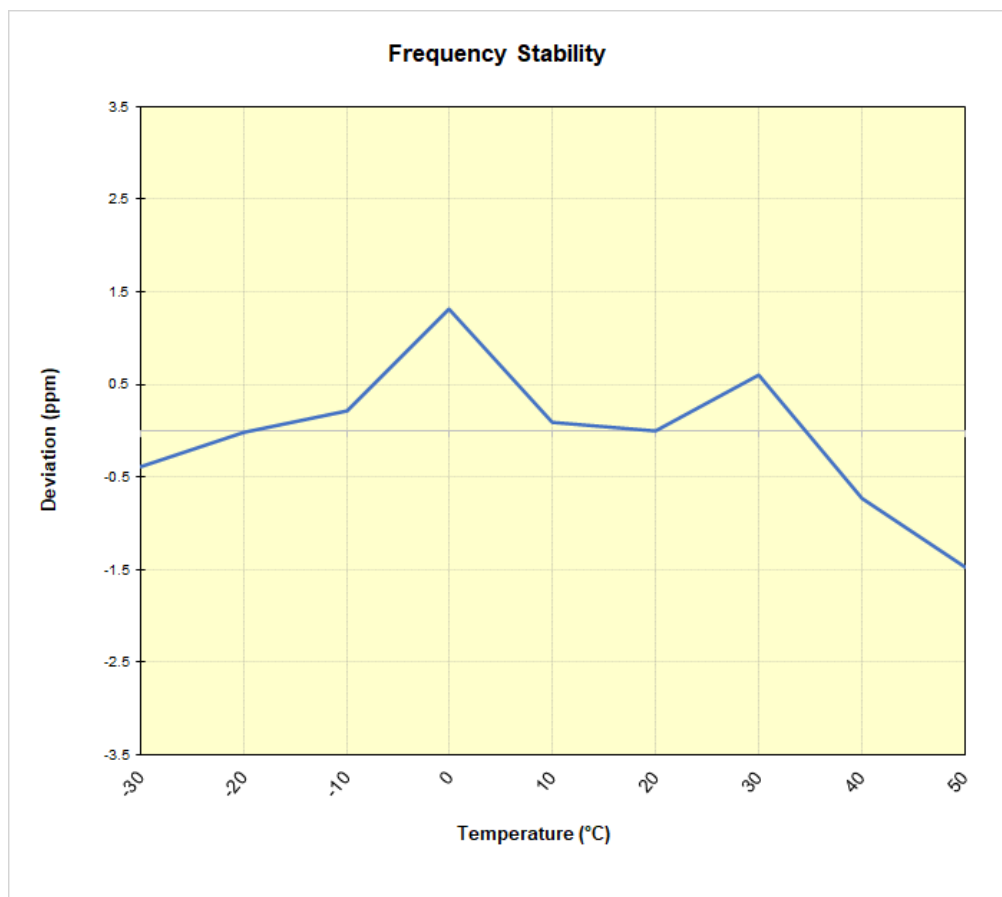
FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
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LTE Band 41

Operating Frequency (Hz):	2,593,000,000
Ref. Voltage (VDC):	4.43

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.43	- 30	2,592,998,711	-995	-0.0000384
		- 20	2,592,999,650	-56	-0.0000022
		- 10	2,593,000,249	543	0.0000209
		0	2,593,003,121	3,415	0.0001317
		+ 10	2,592,999,952	246	0.0000095
		+ 20 (Ref)	2,592,999,706	0	0.0000000
		+ 30	2,593,001,287	1,581	0.0000610
		+ 40	2,592,997,812	-1,895	-0.0000731
		+ 50	2,592,995,887	-3,819	-0.0001473
Battery Endpoint	3.36	+ 20	2,593,001,914	2,208	0.0000851

Table 7-36. LTE Band 41(PC2) Frequency Stability Data



Plot 7-252. LTE Band 41(PC2) Frequency Stability Chart

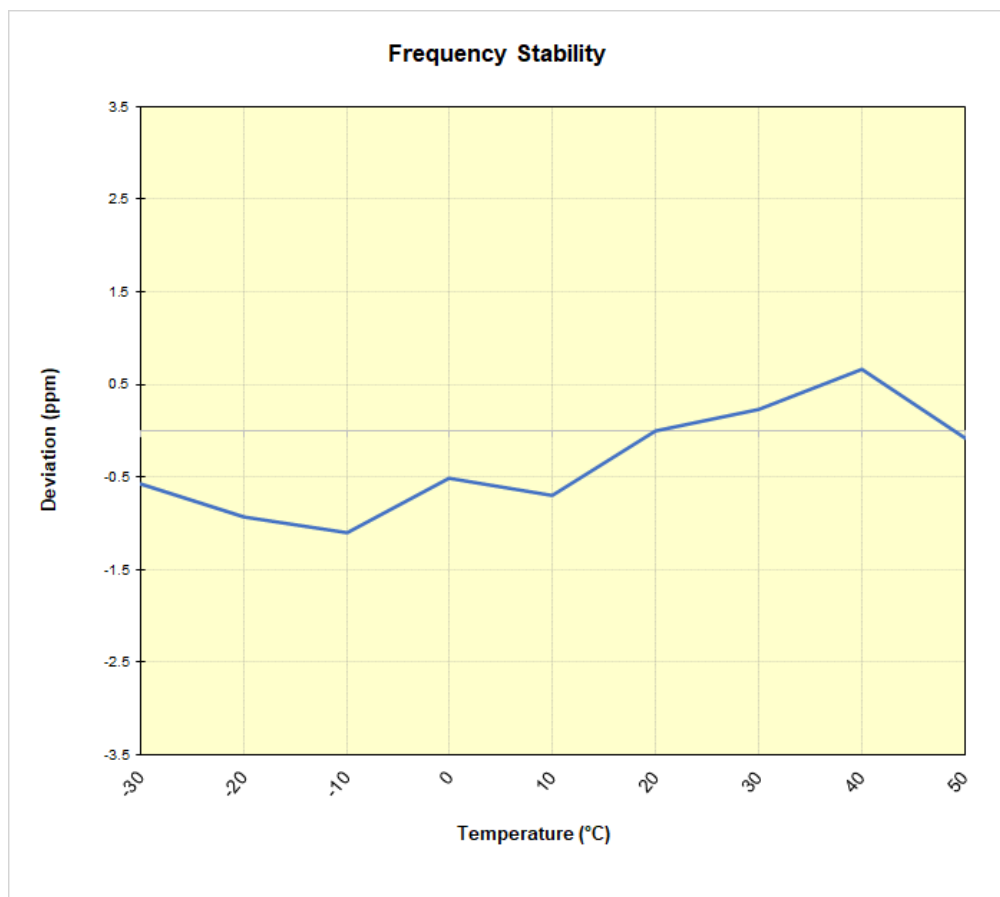
FCC ID: A3LSMF711U1	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
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NR Band n30

Operating Frequency (Hz):	2,310,000,000
Ref. Voltage (VDC):	4.43

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.43	- 30	2,310,065,511	-1,334	-0.0000577
		- 20	2,310,064,697	-2,147	-0.0000930
		- 10	2,310,064,320	-2,524	-0.0001093
		0	2,310,065,654	-1,191	-0.0000515
		+ 10	2,310,065,225	-1,619	-0.0000701
		+ 20 (Ref)	2,310,066,844	0	0.0000000
		+ 30	2,310,067,395	550	0.0000238
		+ 40	2,310,068,394	1,549	0.0000671
		+ 50	2,310,066,679	-165	-0.0000072
Battery Endpoint	3.36	+ 20	2,310,065,546	-1,298	-0.0000562

Table 7-37. NR Band n30 Frequency Stability Data



Plot 7-253. NR Band n30 Frequency Stability Chart

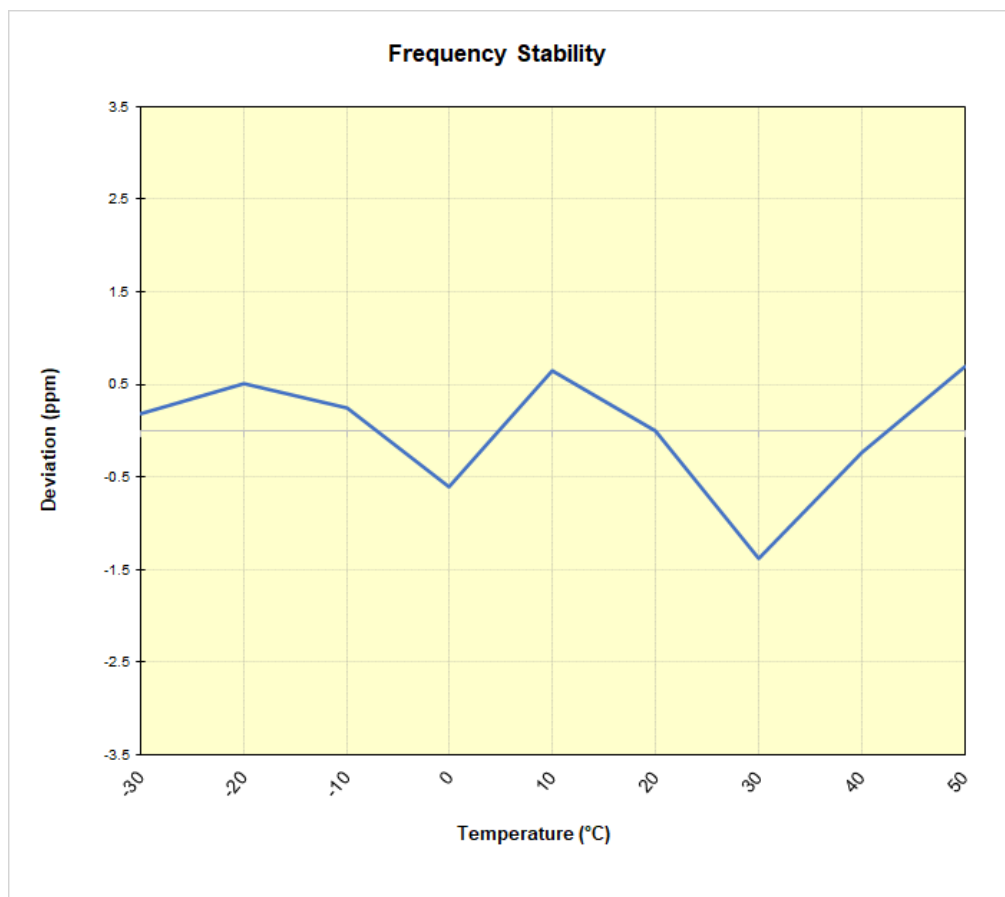
FCC ID: A3LSMF711U1	PCTEST Proud to be part of Samsung	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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NR Band n41

Operating Frequency (Hz):	2,593,000,000
Ref. Voltage (VDC):	4.43

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.43	- 30	2,593,063,723	501	0.0000193
		- 20	2,593,064,542	1,320	0.0000509
		- 10	2,593,063,865	643	0.0000248
		0	2,593,061,647	-1,576	-0.0000608
		+ 10	2,593,064,900	1,678	0.0000647
		+ 20 (Ref)	2,593,063,223	0	0.0000000
		+ 30	2,593,059,660	-3,563	-0.0001374
		+ 40	2,593,062,634	-588	-0.0000227
		+ 50	2,593,065,024	1,801	0.0000695
Battery Endpoint	3.36	+ 20	2,593,061,165	-2,058	-0.0000794

Table 7-38. NR Band n41 Frequency Stability Data



Plot 7-254. NR Band n41 Frequency Stability Chart

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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the Samsung **Portable Handset** **FCC ID: A3LSMF711U1** complies with all the requirements of Part 27 of the FCC rules.

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Test Report S/N: 1M2107290086-06.A3L	Test Dates: 4/12/2021 – 6/11/2021	EUT Type: Portable Handset
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