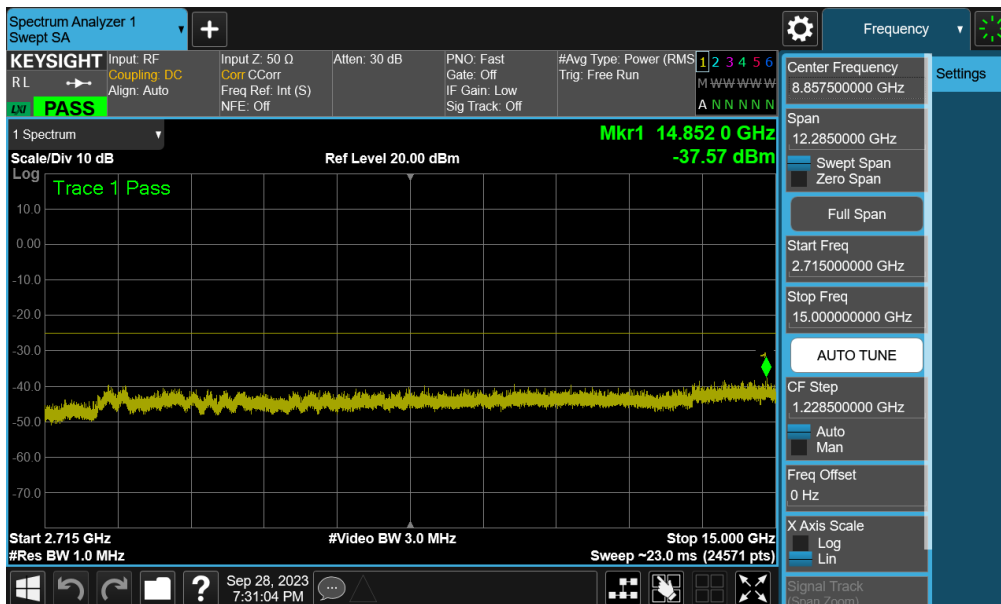
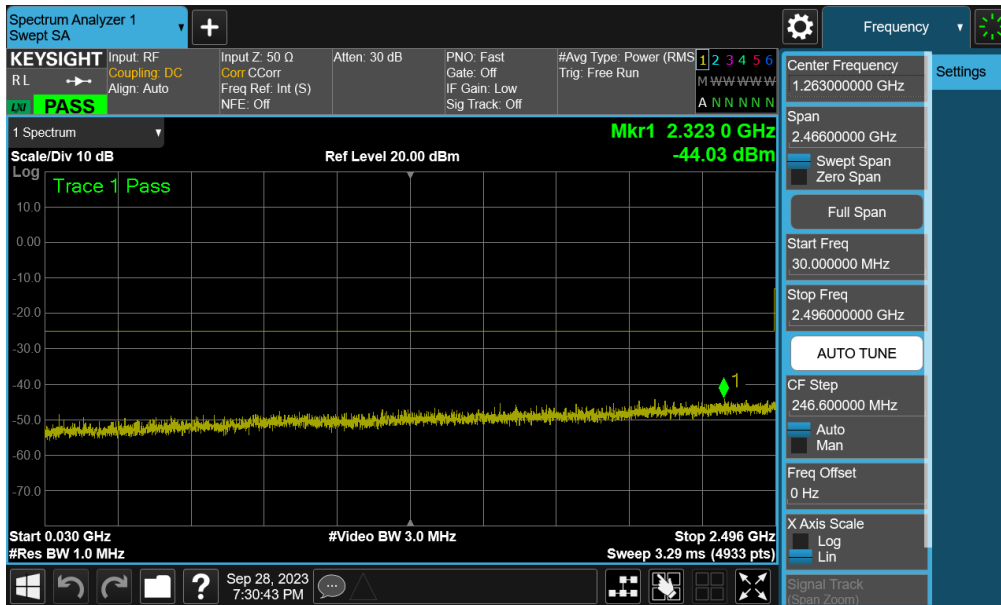
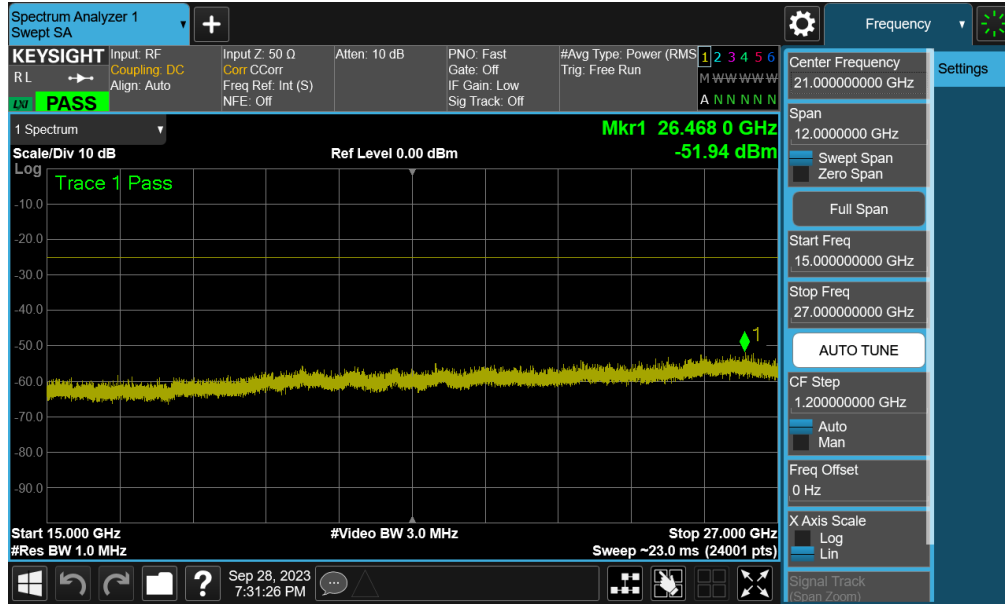


# NR Band n41



FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 60 of 100



Plot 7-85. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel Ant1)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 61 of 100

## 7.5 Band Edge Emissions at Antenna Terminal

### Test Overview

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 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.

***The minimum permissible attenuation level for Band 30 is  $> 43 + 10 \log_{10}(P[\text{Watts}]$  at 2300-2305MHz & 2345-2360MHz,  $> 55 + 10 \log_{10}(P[\text{Watts}]$  at 2320-2324MHz & 2341-2345MHz,  $> 61 + 10 \log_{10}(P[\text{Watts}]$  at 2324-2328MHz & 2337-2341MHz,  $> 67 + 10 \log_{10}(P[\text{Watts}]$  at 2288-2292MHz & 2328-2337MHz, and  $> 70 + 10 \log_{10}(P[\text{Watts}]$  at frequencies  $< 2288\text{MHz}$  &  $> 2365\text{MHz}$ .***

***The minimum permissible attenuation level for Band 7 and 41 is as noted in the Test Notes on the following page.***

### Test Procedure Used

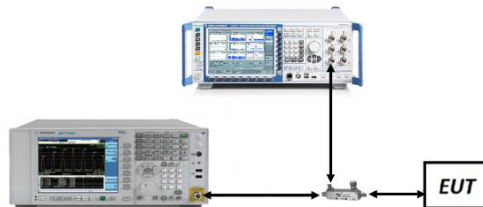
ANSI C63.26-2015 – Section 5.7.3

### Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW  $\geq$  1% of the emission bandwidth
4. VBW  $\geq$  3 x RBW
5. Detector = RMS
6. Number of sweep points  $\geq$  2 x Span/RBW
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize

### Test Setup

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



**Figure 7-4. Test Instrument & Measurement Setup**

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 62 of 100

**Test Notes**

1. Per 27.53(a)(5) in the 1 MHz bands immediately outside and adjacent to the channel blocks at 2305, 2310, 2315, 2320, 2345, 2350, 2355, and 2360 MHz, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e., 1 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.
  
2. Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth. In addition, the attenuation factor shall not be less than  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz.
  
3. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

FCC ID: A3LSMA156U	<b>PART 27 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2309070100-04.A3L	<b>Test Dates:</b> 09/08 - 11/09/2023	<b>EUT Type:</b> Portable Handset	Page 63 of 100

Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
LTE B30	10 MHz	Low	Band Edge	-30.83	-13	-17.83
		Low	Extended	-41.71	-37	-4.71
		High	Band Edge	-28.38	-13	-15.38
		High	Extended	-44.60	-37	-7.60
	5 MHz	Low	Band Edge	-27.11	-13	-14.11
		Low	Extended	-14.54	-13	-1.54
		High	Band Edge	-25.60	-13	-12.60
		High	Extended	-48.31	-38	-10.74
LTE B7	20 MHz	Low	Band Edge	-37.40	-25	-12.40
		High	Band Edge	-46.02	-25	-21.02
	15 MHz	Low	Band Edge	-37.68	-25	-12.68
		High	Band Edge	-41.85	-25	-16.85
	10 MHz	Low	Band Edge	-42.91	-25	-17.91
		High	Band Edge	-41.64	-25	-16.64
	5 MHz	Low	Band Edge	-42.18	-25	-17.18
		High	Band Edge	-42.24	-25	-17.24
LTE B41 PC2	20 MHz	Low	Band Edge	-35.14	-25	-10.14
		High	Band Edge	-37.01	-25	-12.01
	15 MHz	Low	Band Edge	-33.73	-25	-8.73
		High	Band Edge	-36.84	-25	-11.84
	10 MHz	Low	Band Edge	-32.33	-25	-7.33
		High	Band Edge	-34.78	-25	-9.78
	5 MHz	Low	Band Edge	-15.13	-13	-2.13
		High	Band Edge	-35.35	-25	-10.35
LTE B41 PC3	20 MHz	Low	Band Edge	-38.12	-25	-13.12
		High	Band Edge	-34.40	-13	-21.40
	15 MHz	Low	Band Edge	-38.97	-25	-13.97
		High	Band Edge	-45.23	-25	-20.23
	10 MHz	Low	Band Edge	-39.59	-25	-14.59
		High	Band Edge	-43.51	-25	-18.51
	5 MHz	Low	Band Edge	-39.54	-25	-14.54
		High	Band Edge	-22.82	-10	-12.82
LTE-B41 PC3	20+20MHz	Low	Band Edge	-35.28	-25	-10.28
		High	Band Edge	-36.95	-25	-11.95

Table 7-86. Band Edge Emissions Test Results

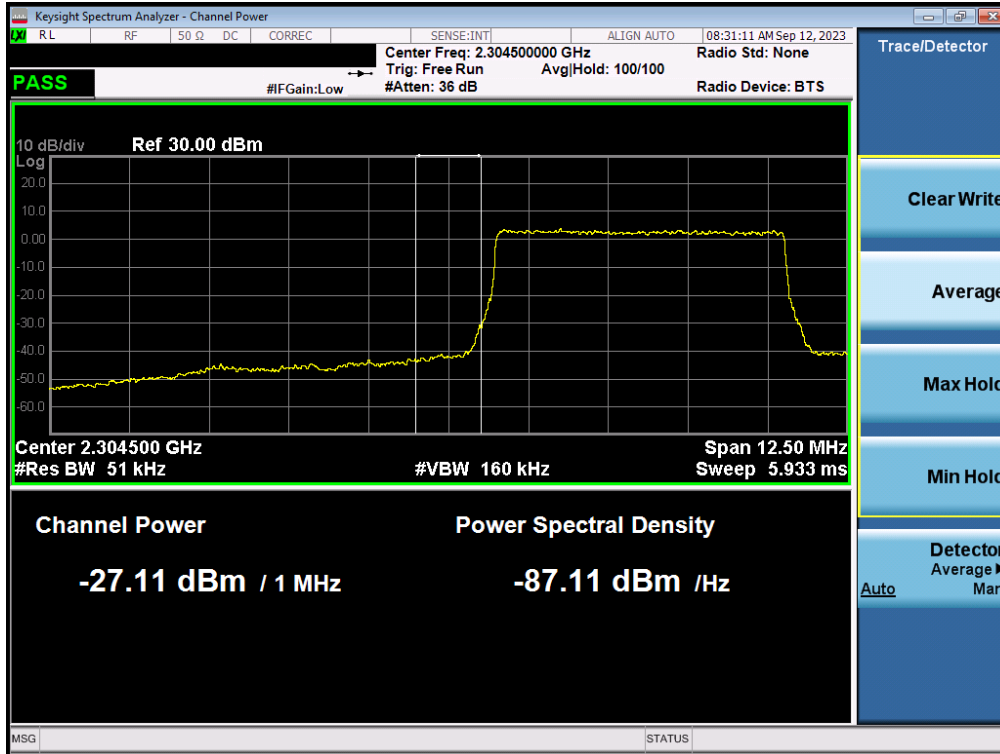
FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 64 of 100

Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
NR n41	100 MHz	Low	Band Edge	-25.37	-13	-12.37
		High	Band Edge	-30.11	-10	-20.11
	90 MHz	Low	Band Edge	-27.66	-13	-14.66
		High	Band Edge	-31.35	-10	-21.35
	80 MHz	Low	Band Edge	-39.83	-25	-14.83
		High	Band Edge	-32.49	-10	-22.49
	70 MHz	Low	Band Edge	-38.84	-25	-13.84
		High	Band Edge	-36.15	-13	-23.15
	60 MHz	Low	Band Edge	-38.05	-25	-13.05
		High	Band Edge	-23.40	-10	-13.40
	50 MHz	Low	Band Edge	-37.56	-25	-12.56
		High	Band Edge	-34.71	-13	-21.71
	40 MHz	Low	Band Edge	-36.32	-25	-11.32
		High	Band Edge	-35.12	-13	-22.12
	30 MHz	Low	Band Edge	-34.41	-25	-9.41
		High	Band Edge	-45.16	-25	-20.16
	20 MHz	Low	Band Edge	-34.33	-25	-9.33
		High	Band Edge	-43.41	-25	-18.41
	15 MHz	Low	Band Edge	-31.62	-25	-6.62
		High	Band Edge	-41.56	-25	-16.56
10 MHz	Low	Band Edge	-15.10	-13	-2.10	
	High	Band Edge	-39.01	-25	-14.01	

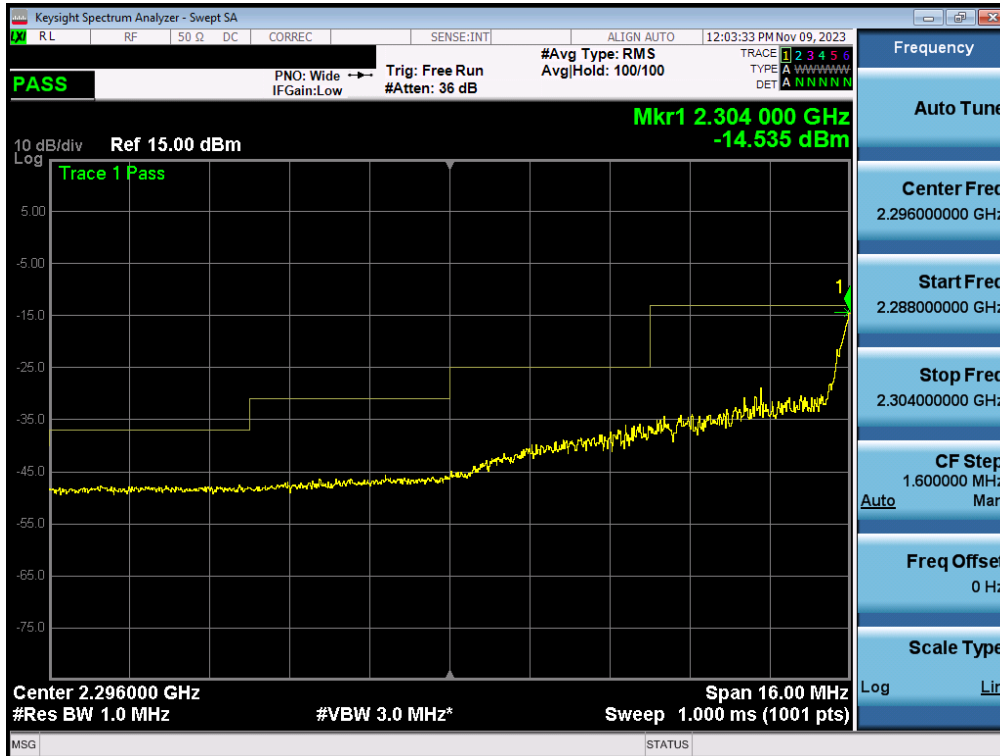
Table 7-87. Band Edge Emissions Test Results

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 65 of 100

# LTE Band 30

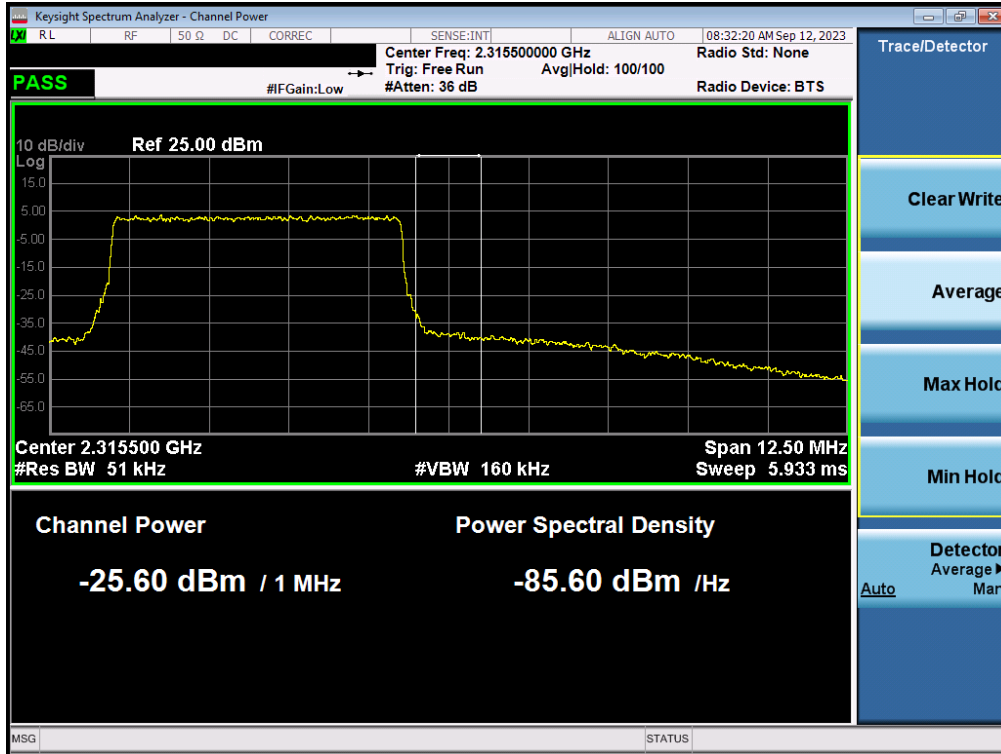


Plot 7-88. Lower Band Edge Plot (LTE Band 30 - 5MHz QPSK – Full RB)

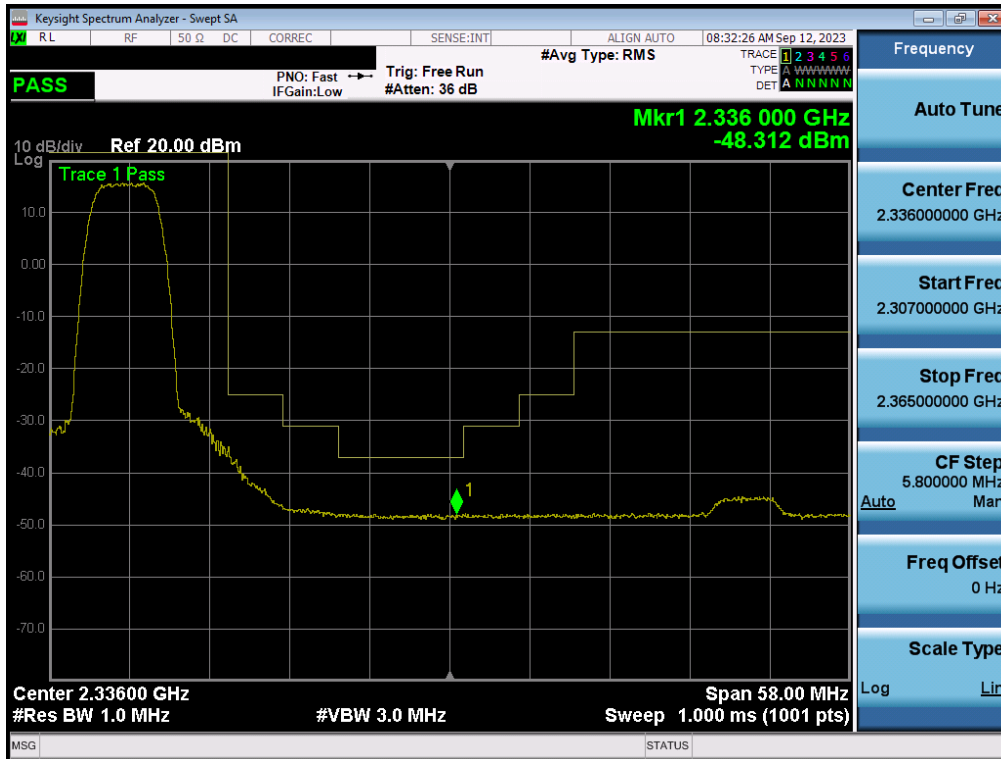


Plot 7-89. Extended Lower Band Edge Plot (LTE Band 30 - 5MHz QPSK – Full RB)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 66 of 100



Plot 7-90. Upper Band Edge Plot (LTE Band 30 - 5MHz QPSK - Full RB)

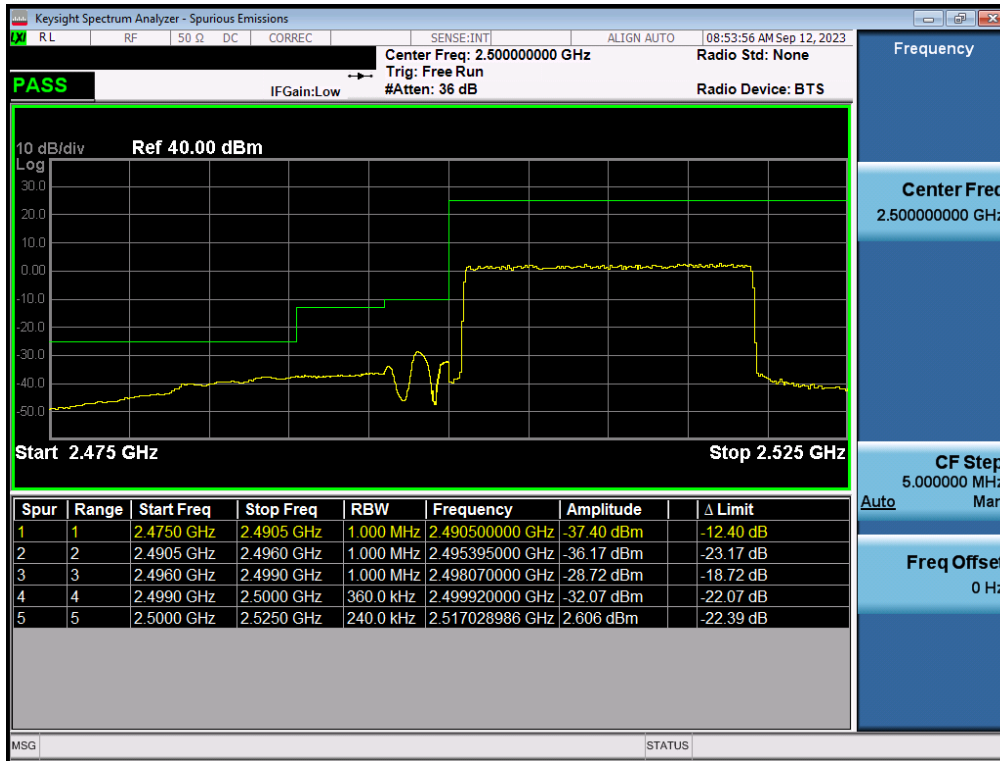


Plot 7-91. Extended Upper Band Edge Plot (LTE Band 30 - 5MHz QPSK - Full RB)

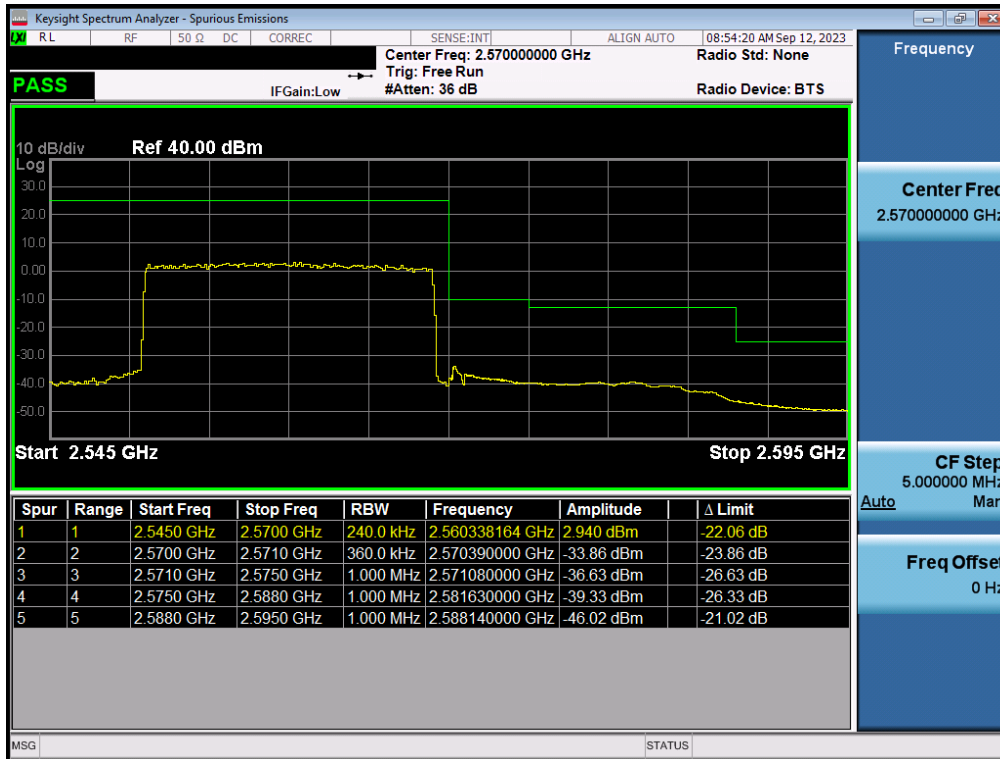
FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 67 of 100



# LTE Band 7



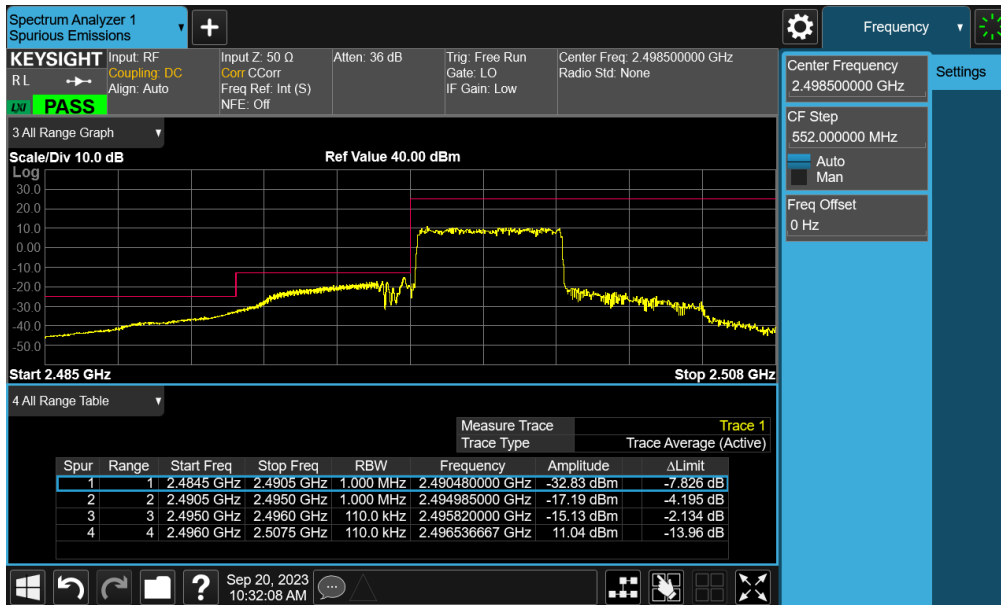
Plot 7-92. Lower ACP Plot (LTE Band 7 - 20MHz QPSK – Full RB)



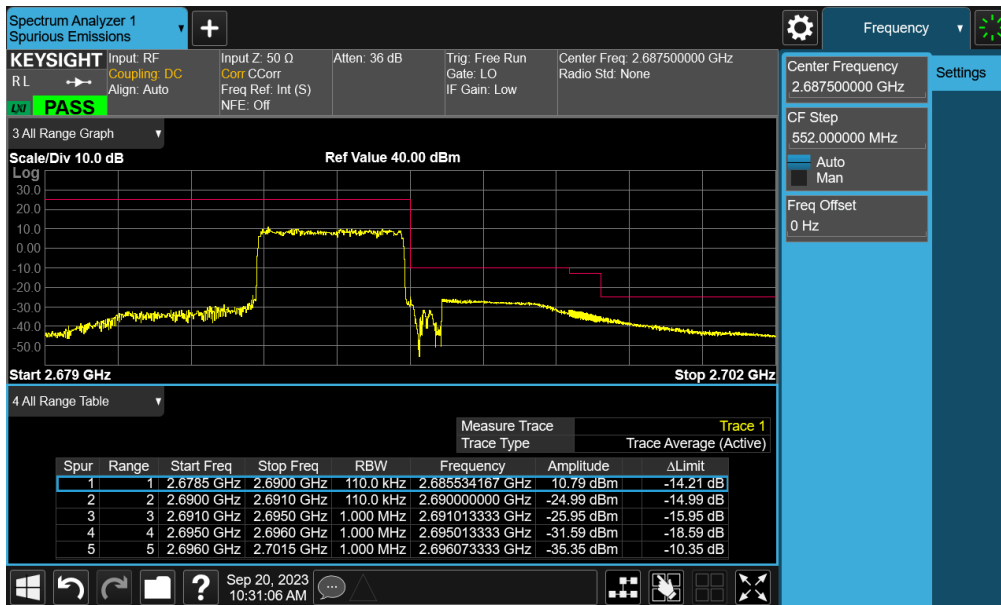
Plot 7-93. Upper ACP Plot (LTE Band 7 - 20MHz QPSK – Full RB)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 68 of 100

# LTE Band 41(PC2)



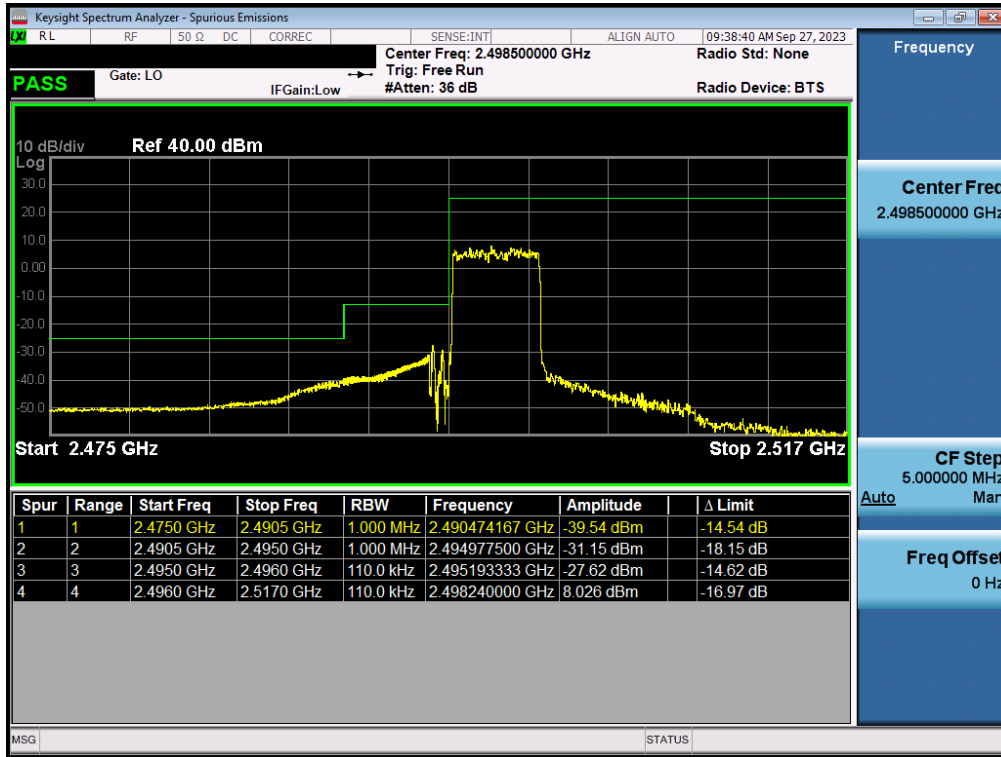
Plot 7-94. Lower ACP Plot (LTE Band 41(PC2) - 5MHz QPSK - Full RB)



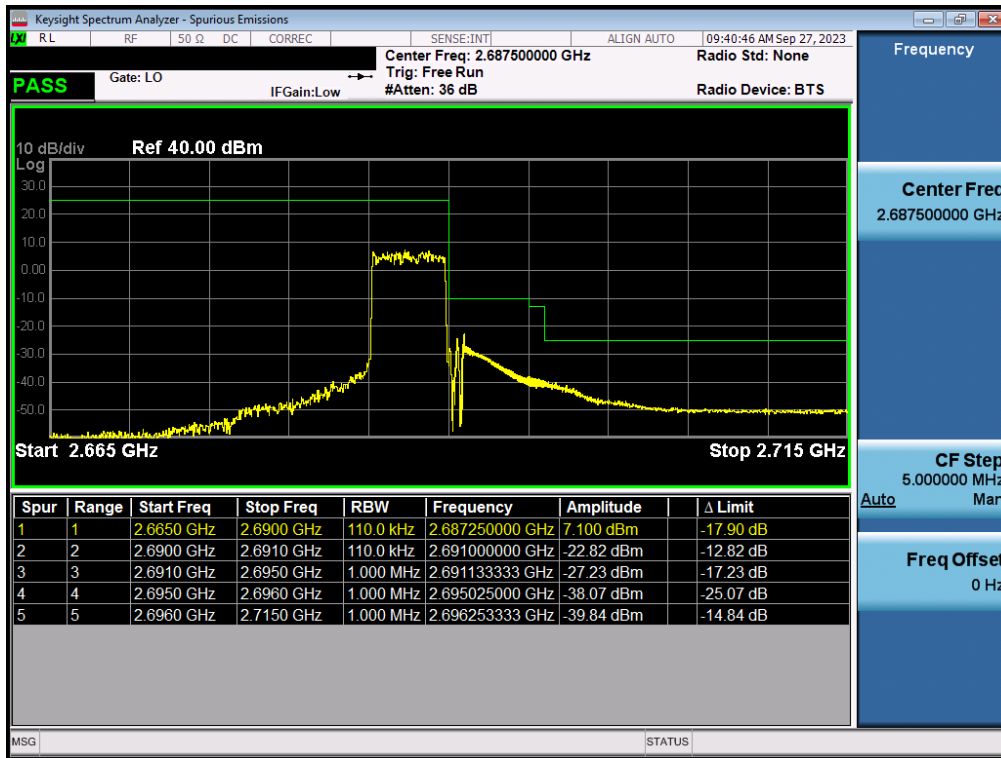
Plot 7-95. Upper ACP Plot (LTE Band 41(PC2) - 5MHz QPSK - Full RB)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 69 of 100

# LTE Band 41(PC3)



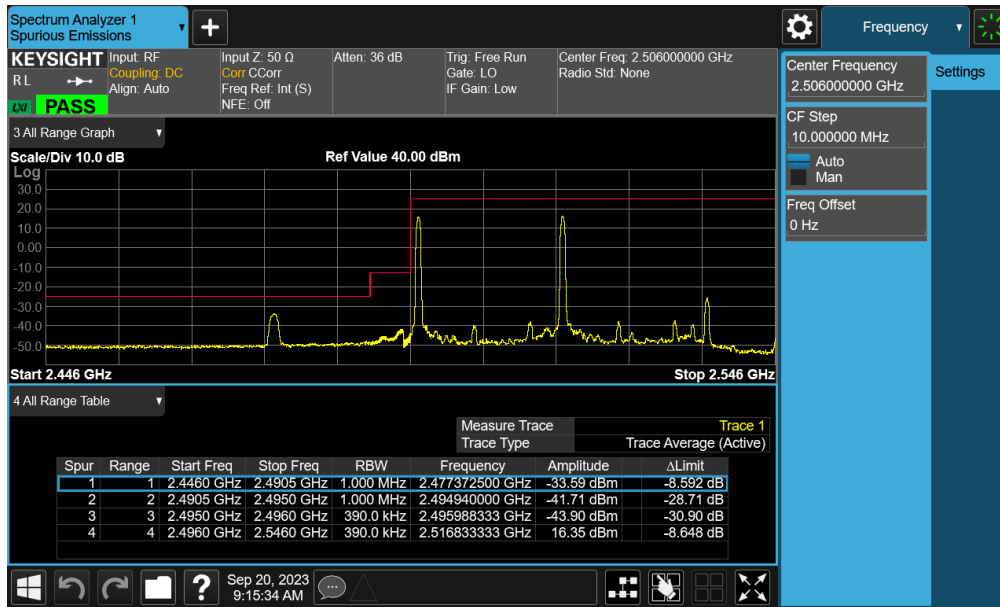
Plot 7-96. Lower ACP Plot (LTE Band 41(PC3) - 5MHz QPSK - Full RB)



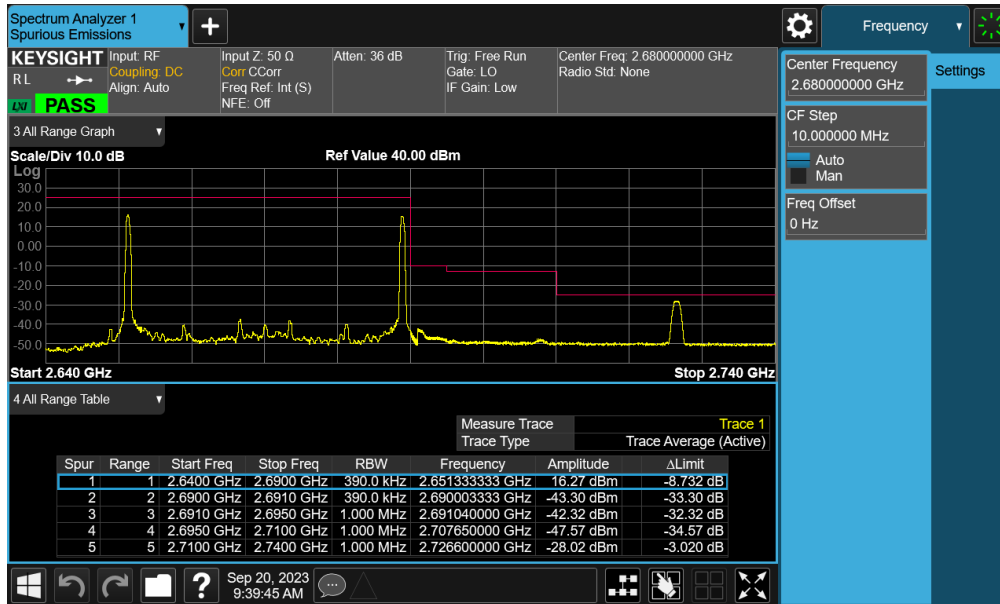
Plot 7-97. Upper ACP Plot (LTE Band 41(PC3) - 5MHz QPSK - Full RB)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 70 of 100

# ULCA - LTE Band 41(PC3)



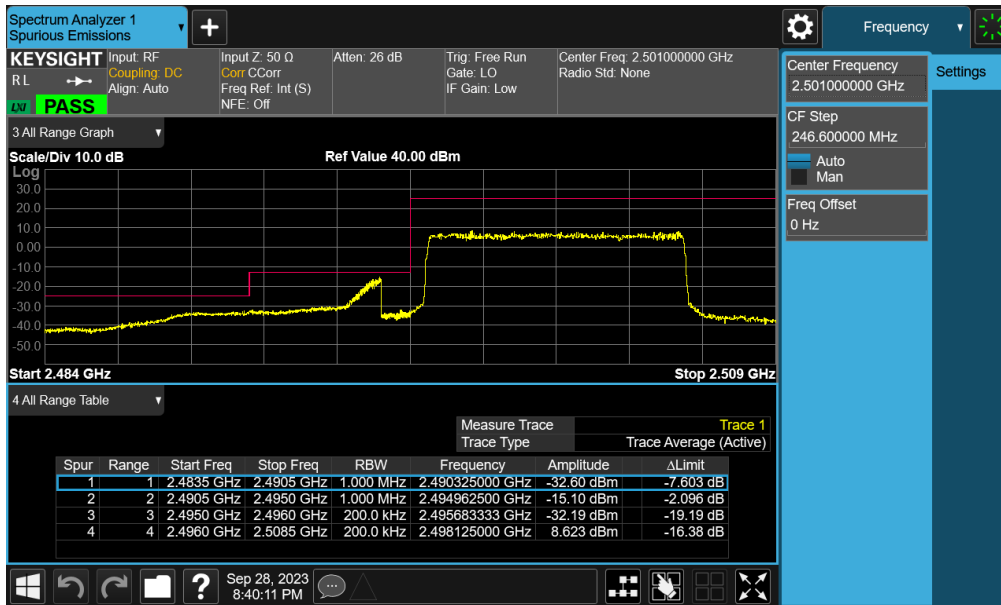
Plot 7-98. Lower ACP Plot (ULCA LTE B41(PC3) - 20MHz QPSK – Full RB)



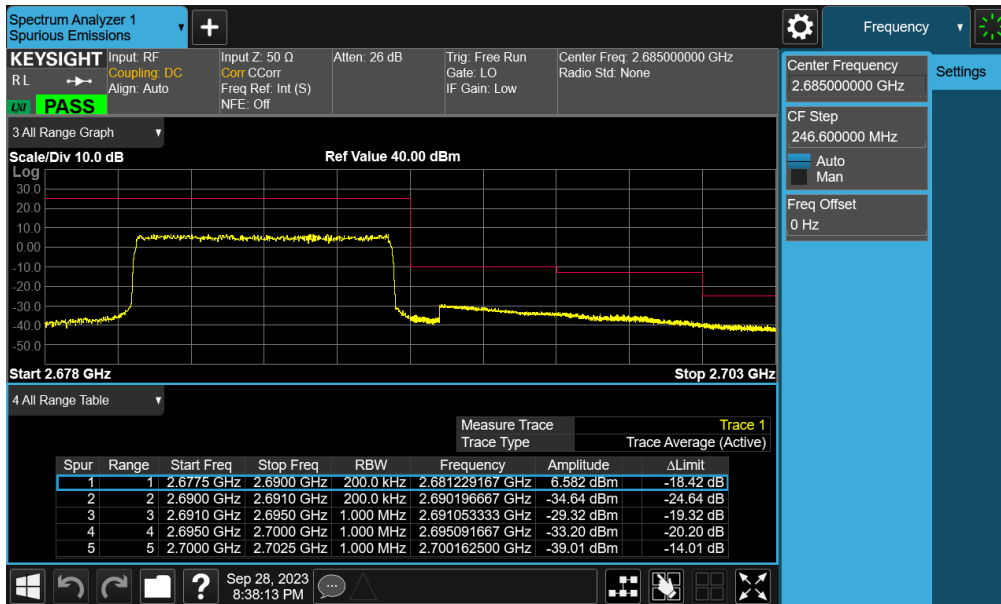
Plot 7-99. Upper ACP Plot (ULCA LTE B41(PC3) - 20MHz QPSK – Full RB)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 71 of 100

# NR Band n41



Plot 7-100. Lower ACP Plot (NR Band n41 - 10MHz CP-OFDM-QPSK – Full RB)



Plot 7-101. Upper ACP Plot (NR Band n41 - 10MHz CP-OFDM-QPSK – Full RB)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 72 of 100



## 7.6 Radiated Power (EIRP)

### Test Overview

Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements 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

ANSI C63.26-2015 – Section 5.2.4.4

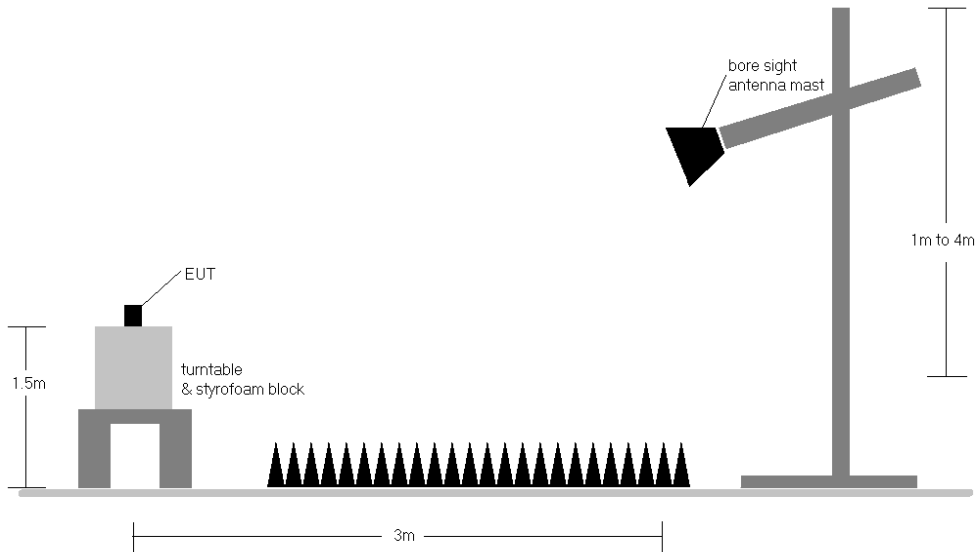
### Test Settings

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 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”. 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.

FCC ID: A3LSMA156U	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 73 of 100

## Test Setup

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



**Figure 7-5. 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) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 74 of 100



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	199	14	3.66	1 / 0	16.21	<b>19.87</b>	0.097	23.98	-4.11
	16-QAM	2310.0	H	199	14	3.66	1 / 0	15.26	18.92	0.078	23.98	-5.06
5 MHz	QPSK	2307.5	H	199	14	3.66	1 / 0	16.32	19.97	0.099	23.98	-4.01
	QPSK	2310.0	H	199	14	3.66	1 / 0	16.36	<b>20.03</b>	0.101	23.98	-3.95
	QPSK	2312.5	H	199	14	3.67	1 / 24	16.15	19.82	0.096	23.98	-4.16
	16-QAM	2307.5	H	199	14	3.66	1 / 0	15.25	18.91	0.078	23.98	-5.07
	16-QAM	2310.0	H	199	14	3.66	1 / 0	15.31	18.97	0.079	23.98	-5.01
	16-QAM	2312.5	H	199	14	3.67	1 / 24	15.11	18.77	0.075	23.98	-5.20

Table 7-2. 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	V	142	87	4.15	1 / 50	18.51	22.66	0.184	33.01	-10.35
	QPSK	2535.0	V	108	100	4.14	1 / 99	18.64	<b>22.78</b>	0.190	33.01	-10.23
	QPSK	2560.0	V	114	99	4.14	1 / 50	18.11	22.25	0.168	33.01	-10.76
	16-QAM	2510.0	V	142	87	4.15	1 / 50	17.67	21.82	0.152	33.01	-11.19
	16-QAM	2535.0	V	108	100	4.14	1 / 99	17.84	21.98	0.158	33.01	-11.03
	16-QAM	2560.0	V	114	99	4.14	1 / 50	17.24	21.38	0.137	33.01	-11.63
15 MHz	QPSK	2507.5	V	142	87	4.15	1 / 37	18.55	22.69	0.186	33.01	-10.32
	QPSK	2535.0	V	108	100	4.14	1 / 37	18.67	<b>22.81</b>	0.191	33.01	-10.20
	QPSK	2562.5	V	114	99	4.14	1 / 37	18.01	22.14	0.164	33.01	-10.87
	16-QAM	2507.5	V	142	87	4.15	1 / 37	17.71	21.86	0.153	33.01	-11.15
	16-QAM	2535.0	V	108	100	4.14	1 / 37	17.93	22.07	0.161	33.01	-10.94
	16-QAM	2562.5	V	114	99	4.14	1 / 37	17.15	21.28	0.134	33.01	-11.73
10 MHz	QPSK	2505.0	V	142	87	4.15	1 / 25	18.32	22.47	0.177	33.01	-10.54
	QPSK	2535.0	V	108	100	4.14	1 / 49	18.49	<b>22.63</b>	0.183	33.01	-10.39
	QPSK	2565.0	V	114	99	4.14	1 / 25	17.92	22.06	0.161	33.01	-10.96
	16-QAM	2505.0	V	142	87	4.15	1 / 25	17.46	21.61	0.145	33.01	-11.40
	16-QAM	2535.0	V	108	100	4.14	1 / 49	17.70	21.84	0.153	33.01	-11.17
	16-QAM	2565.0	V	114	99	4.14	1 / 25	17.08	21.22	0.132	33.01	-11.79
5 MHz	QPSK	2502.5	V	142	87	4.15	1 / 0	18.39	22.54	0.179	33.01	-10.47
	QPSK	2535.0	V	108	100	4.14	1 / 12	18.45	<b>22.59</b>	0.182	33.01	-10.42
	QPSK	2567.5	V	114	99	4.14	1 / 0	18.07	22.21	0.166	33.01	-10.80
	16-QAM	2502.5	V	142	87	4.15	1 / 0	17.47	21.62	0.145	33.01	-11.39
	16-QAM	2535.0	V	108	100	4.14	1 / 12	17.82	21.96	0.157	33.01	-11.05
	16-QAM	2567.5	V	114	99	4.14	1 / 0	17.21	21.35	0.136	33.01	-11.66

Table 7-3. EIRP Data (LTE Band 7)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 75 of 100



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	V	140	70	4.15	1 / 99	21.33	25.48	0.353	33.01	-7.53
	QPSK	2593.0	V	105	101	4.14	1 / 0	21.63	25.77	0.378	33.01	-7.24
	QPSK	2680.0	V	123	77	4.49	1 / 50	21.55	<b>26.04</b>	0.402	33.01	-6.97
	16-QAM	2506.0	V	140	70	4.15	1 / 99	20.32	24.47	0.280	33.01	-8.54
	16-QAM	2593.0	V	105	101	4.14	1 / 0	20.76	24.90	0.309	33.01	-8.11
	16-QAM	2680.0	V	123	77	4.49	1 / 99	20.41	24.90	0.309	33.01	-8.11
15 MHz	QPSK	2503.5	V	140	70	4.15	1 / 74	21.23	25.38	0.345	33.01	-7.63
	QPSK	2593.0	V	105	101	4.14	1 / 0	21.61	25.75	0.376	33.01	-7.26
	QPSK	2682.5	V	123	77	4.50	1 / 0	21.57	<b>26.06</b>	0.404	33.01	-6.95
	16-QAM	2503.5	V	140	70	4.15	1 / 74	20.20	24.35	0.272	33.01	-8.66
	16-QAM	2593.0	V	105	101	4.14	1 / 0	20.79	24.93	0.311	33.01	-8.08
	16-QAM	2682.5	V	123	77	4.50	1 / 0	20.37	24.86	0.306	33.01	-8.15
10 MHz	QPSK	2501.0	V	140	70	4.15	1 / 49	21.21	25.36	0.343	33.01	-7.65
	QPSK	2593.0	V	105	101	4.14	1 / 0	21.43	25.57	0.361	33.01	-7.44
	QPSK	2685.0	V	123	77	4.50	1 / 25	21.50	<b>26.00</b>	0.398	33.01	-7.01
	16-QAM	2501.0	V	140	70	4.15	1 / 49	20.25	24.40	0.275	33.01	-8.61
	16-QAM	2593.0	V	105	101	4.14	1 / 0	20.67	24.81	0.303	33.01	-8.20
	16-QAM	2685.0	V	123	77	4.50	1 / 25	20.35	24.85	0.306	33.01	-8.16
5 MHz	QPSK	2498.5	V	140	70	4.14	1 / 12	21.15	25.29	0.338	33.01	-7.72
	QPSK	2593.0	V	105	101	4.14	1 / 0	21.43	25.57	0.361	33.01	-7.44
	QPSK	2687.5	V	123	77	4.50	1 / 12	21.57	<b>26.07</b>	0.405	33.01	-6.94
	16-QAM	2498.5	V	140	70	4.14	1 / 12	20.14	24.28	0.268	33.01	-8.73
	16-QAM	2593.0	V	105	101	4.14	1 / 0	20.72	24.86	0.306	33.01	-8.15
	16-QAM	2687.5	V	123	77	4.50	1 / 12	20.34	24.84	0.305	33.01	-8.17

Table 7-4. EIRP Data (LTE Band 41(PC2))

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	V	116	72	4.15	1 / 99	20.18	24.33	0.271	33.01	-8.68
	QPSK	2593.0	V	110	86	4.14	1 / 50	19.99	24.13	0.259	33.01	-8.88
	QPSK	2680.0	V	118	74	4.49	1 / 50	20.08	<b>24.57</b>	0.287	33.01	-8.44
	16-QAM	2506.0	V	116	72	4.15	1 / 50	18.97	23.12	0.205	33.01	-9.89
	16-QAM	2593.0	V	110	86	4.14	1 / 50	18.87	23.01	0.200	33.01	-10.00
	16-QAM	2680.0	V	118	74	4.49	1 / 50	18.96	23.45	0.221	33.01	-9.56
15 MHz	QPSK	2503.5	V	116	72	4.15	1 / 37	20.14	24.29	0.268	33.01	-8.72
	QPSK	2593.0	V	110	86	4.14	1 / 0	19.93	24.07	0.255	33.01	-8.94
	QPSK	2682.5	V	118	74	4.50	1 / 0	20.08	<b>24.57</b>	0.287	33.01	-8.44
	16-QAM	2503.5	V	116	72	4.15	1 / 37	18.95	23.10	0.204	33.01	-9.91
	16-QAM	2593.0	V	110	86	4.14	1 / 0	18.81	22.95	0.197	33.01	-10.06
	16-QAM	2682.5	V	118	74	4.50	1 / 0	18.92	23.41	0.219	33.01	-9.60
10 MHz	QPSK	2501.0	V	116	72	4.15	1 / 49	20.16	24.31	0.270	33.01	-8.70
	QPSK	2593.0	V	110	86	4.14	1 / 25	19.94	24.08	0.256	33.01	-8.93
	QPSK	2685.0	V	118	74	4.50	1 / 0	20.10	<b>24.60</b>	0.288	33.01	-8.41
	16-QAM	2501.0	V	116	72	4.15	1 / 0	18.96	23.11	0.205	33.01	-9.90
	16-QAM	2593.0	V	110	86	4.14	1 / 25	18.74	22.88	0.194	33.01	-10.13
	16-QAM	2685.0	V	118	74	4.50	1 / 0	18.96	23.46	0.222	33.01	-9.55
5 MHz	QPSK	2498.5	V	116	72	4.14	1 / 12	20.14	24.28	0.268	33.01	-8.73
	QPSK	2593.0	V	110	86	4.14	1 / 12	19.95	24.09	0.257	33.01	-8.92
	QPSK	2687.5	V	118	74	4.50	1 / 0	20.07	<b>24.57</b>	0.287	33.01	-8.44
	16-QAM	2498.5	V	116	72	4.14	1 / 12	18.98	23.12	0.205	33.01	-9.89
	16-QAM	2593.0	V	110	86	4.14	1 / 12	18.73	22.87	0.194	33.01	-10.14
	16-QAM	2687.5	V	118	74	4.50	1 / 0	18.89	23.39	0.218	33.01	-9.62

Table 7-5. EIRP Data (LTE Band 41(PC3)/38)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 76 of 100



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	2546.01	V	162	94	4.13	1 / 136	21.89	26.02	0.400	33.01	-6.99
	π/2 BPSK	2592.99	V	139	112	4.14	1 / 136	22.10	<b>26.24</b>	0.421	33.01	-6.77
	π/2 BPSK	2640.00	V	126	106	4.39	1 / 136	20.75	25.14	0.326	33.01	-7.87
	QPSK	2546.01	V	162	94	4.13	1 / 136	21.84	25.97	0.396	33.01	-7.04
	QPSK	2592.99	V	139	112	4.14	1 / 136	22.03	26.17	0.414	33.01	-6.84
	QPSK	2640.00	V	126	106	4.39	1 / 136	20.79	25.18	0.329	33.01	-7.83
90 MHz	16-QAM	2592.99	V	139	112	4.14	1 / 136	21.80	25.94	0.393	33.01	-7.07
	π/2 BPSK	2541.00	V	162	94	4.14	1 / 122	22.02	<b>26.15</b>	0.413	33.01	-6.86
	π/2 BPSK	2592.99	V	139	112	4.14	1 / 1	22.00	26.14	0.411	33.01	-6.87
	π/2 BPSK	2644.98	V	126	106	4.42	1 / 243	20.69	25.11	0.324	33.01	-7.90
	QPSK	2541.00	V	162	94	4.14	1 / 122	21.84	25.97	0.396	33.01	-7.04
	QPSK	2592.99	V	139	112	4.14	1 / 1	21.92	26.06	0.404	33.01	-6.95
80 MHz	QPSK	2644.98	V	126	106	4.42	1 / 243	20.69	25.11	0.324	33.01	-7.90
	16-QAM	2592.99	V	139	112	4.14	1 / 1	21.77	25.91	0.390	33.01	-7.10
	π/2 BPSK	2536.02	V	162	94	4.14	1 / 1	21.92	26.05	0.403	33.01	-6.96
	π/2 BPSK	2592.99	V	139	112	4.14	1 / 1	21.96	26.10	0.408	33.01	-6.91
	π/2 BPSK	2649.99	V	126	106	4.45	1 / 215	20.71	25.16	0.328	33.01	-7.85
	QPSK	2536.02	V	162	94	4.14	1 / 1	21.79	25.92	0.391	33.01	-7.09
70 MHz	QPSK	2592.99	V	139	112	4.14	1 / 1	21.93	26.07	0.405	33.01	-6.94
	QPSK	2649.99	V	126	106	4.45	1 / 215	20.78	25.23	0.333	33.01	-7.78
	16-QAM	2592.99	V	139	112	4.14	1 / 1	21.70	25.84	0.384	33.01	-7.17
	π/2 BPSK	2531.01	V	162	94	4.14	1 / 94	22.03	26.17	0.414	33.01	-6.84
	π/2 BPSK	2592.99	V	139	112	4.14	1 / 1	21.76	25.90	0.389	33.01	-7.11
	π/2 BPSK	2655.00	V	126	106	4.45	1 / 187	20.64	25.10	0.323	33.01	-7.91
60 MHz	QPSK	2531.01	V	162	94	4.14	1 / 94	22.09	<b>26.23</b>	0.420	33.01	-6.78
	QPSK	2592.99	V	139	112	4.14	1 / 1	21.76	25.90	0.389	33.01	-7.11
	QPSK	2655.00	V	126	106	4.45	1 / 187	20.63	25.09	0.323	33.01	-7.92
	16-QAM	2592.99	V	139	112	4.14	1 / 1	21.54	25.68	0.370	33.01	-7.33
	π/2 BPSK	2526.00	V	162	94	4.14	1 / 81	22.03	<b>26.17</b>	0.414	33.01	-6.84
	π/2 BPSK	2592.99	V	139	112	4.14	1 / 1	21.69	25.83	0.383	33.01	-7.18
50 MHz	π/2 BPSK	2659.98	V	126	106	4.46	1 / 160	20.77	25.23	0.333	33.01	-7.78
	QPSK	2526.00	V	162	94	4.14	1 / 81	21.77	25.91	0.390	33.01	-7.10
	QPSK	2592.99	V	139	112	4.14	1 / 1	21.58	25.72	0.374	33.01	-7.29
	QPSK	2659.98	V	126	106	4.46	1 / 160	20.78	25.24	0.334	33.01	-7.77
	16-QAM	2526.00	V	162	94	4.14	1 / 81	21.60	25.74	0.375	33.01	-7.27
	π/2 BPSK	2521.02	V	162	94	4.14	1 / 66	22.14	<b>26.28</b>	0.425	33.01	-6.73
40 MHz	π/2 BPSK	2592.99	V	139	112	4.14	1 / 1	21.64	25.78	0.379	33.01	-7.23
	π/2 BPSK	2664.99	V	126	106	4.47	1 / 131	20.84	25.31	0.339	33.01	-7.70
	QPSK	2521.02	V	162	94	4.14	1 / 66	22.05	26.19	0.416	33.01	-6.82
	QPSK	2592.99	V	139	112	4.14	1 / 1	21.54	25.68	0.370	33.01	-7.33
	QPSK	2664.99	V	126	106	4.47	1 / 131	20.88	25.35	0.343	33.01	-7.66
	16-QAM	2521.02	V	162	94	4.14	1 / 66	21.60	25.74	0.375	33.01	-7.27
30 MHz	π/2 BPSK	2516.01	V	162	94	4.15	1 / 53	22.20	<b>26.34</b>	0.431	33.01	-6.67
	π/2 BPSK	2592.99	V	139	112	4.14	1 / 1	21.60	25.74	0.375	33.01	-7.27
	π/2 BPSK	2670.00	V	126	106	4.48	1 / 104	20.73	25.21	0.332	33.01	-7.80
	QPSK	2516.01	V	162	94	4.15	1 / 53	21.83	25.97	0.396	33.01	-7.04
	QPSK	2592.99	V	139	112	4.14	1 / 1	21.46	25.60	0.363	33.01	-7.41
	QPSK	2670.00	V	126	106	4.48	1 / 104	20.70	25.18	0.329	33.01	-7.83
20 MHz	16-QAM	2516.01	V	162	94	4.15	1 / 53	21.69	25.83	0.383	33.01	-7.18
	π/2 BPSK	2511.00	V	162	94	4.15	1 / 39	22.19	<b>26.33</b>	0.430	33.01	-6.68
	π/2 BPSK	2592.99	V	139	112	4.14	1 / 39	21.58	25.72	0.374	33.01	-7.29
	π/2 BPSK	2674.98	V	126	106	4.48	1 / 39	20.86	25.35	0.343	33.01	-7.66
	QPSK	2511.00	V	162	94	4.15	1 / 39	21.98	26.12	0.410	33.01	-6.89
	QPSK	2592.99	V	139	112	4.14	1 / 39	21.46	25.60	0.363	33.01	-7.41
15 MHz	QPSK	2674.98	V	126	106	4.48	1 / 39	20.88	25.37	0.344	33.01	-7.64
	16-QAM	2511.00	V	162	94	4.15	1 / 39	21.80	25.94	0.393	33.01	-7.07
	π/2 BPSK	2506.02	V	162	94	4.15	1 / 25	22.32	<b>26.46</b>	0.443	33.01	-6.55
	π/2 BPSK	2592.99	V	139	112	4.14	1 / 25	21.43	25.57	0.361	33.01	-7.44
	π/2 BPSK	2679.99	V	126	106	4.49	1 / 25	20.99	25.48	0.353	33.01	-7.53
	QPSK	2506.02	V	162	94	4.15	1 / 25	21.99	26.13	0.411	33.01	-6.88
10 MHz	QPSK	2592.99	V	139	112	4.14	1 / 25	21.57	25.71	0.373	33.01	-7.30
	QPSK	2679.99	V	126	106	4.49	1 / 25	20.80	25.29	0.338	33.01	-7.72
	16-QAM	2506.02	V	162	94	4.15	1 / 25	21.62	25.76	0.377	33.01	-7.25
	π/2 BPSK	2503.50	V	162	94	4.15	1 / 19	22.22	26.37	0.434	33.01	-6.64
	π/2 BPSK	2592.99	V	139	112	4.14	1 / 19	21.56	25.70	0.372	33.01	-7.31
	π/2 BPSK	2682.48	V	126	106	4.50	1 / 19	20.76	25.26	0.336	33.01	-7.75
100 MHz	QPSK	2503.50	V	162	94	4.15	1 / 19	21.95	26.10	0.408	33.01	-6.91
	QPSK	2592.99	V	139	112	4.14	1 / 19	21.45	25.59	0.363	33.01	-7.42
	QPSK	2682.48	V	126	106	4.50	1 / 19	20.69	25.19	0.330	33.01	-7.82
	16-QAM	2503.50	V	162	94	4.15	1 / 36	21.72	25.87	0.387	33.01	-7.14
	π/2 BPSK	2501.01	V	162	94	4.15	1 / 1	22.04	26.19	0.416	33.01	-6.82
	π/2 BPSK	2592.99	V	139	112	4.14	1 / 12	21.44	25.58	0.362	33.01	-7.43
10 MHz	π/2 BPSK	2685.00	V	126	106	4.50	1 / 1	20.46	24.96	0.313	33.01	-8.05
	QPSK	2501.01	V	162	94	4.15	1 / 1	21.96	26.11	0.409	33.01	-6.90
	QPSK	2592.99	V	139	112	4.14	1 / 12	21.31	25.45	0.351	33.01	-7.56
	QPSK	2685.00	V	126	106	4.50	1 / 1	20.47	24.97	0.314	33.01	-8.04
100 MHz	QPSK (CP-OFDM)	2592.99	V	148	122	4.14	1 / 136	19.07	23.21	0.210	33.01	-9.80

Table 7-6. EIRP Data (NR Band n41)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 77 of 100



## 7.7 Radiated Spurious Emissions Measurements

### Test Overview

Radiated spurious emissions measurements are performed using the field strength conversion method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using hybrid (biconical/log) 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

ANSI C63.26-2015 – Section 5.5.4

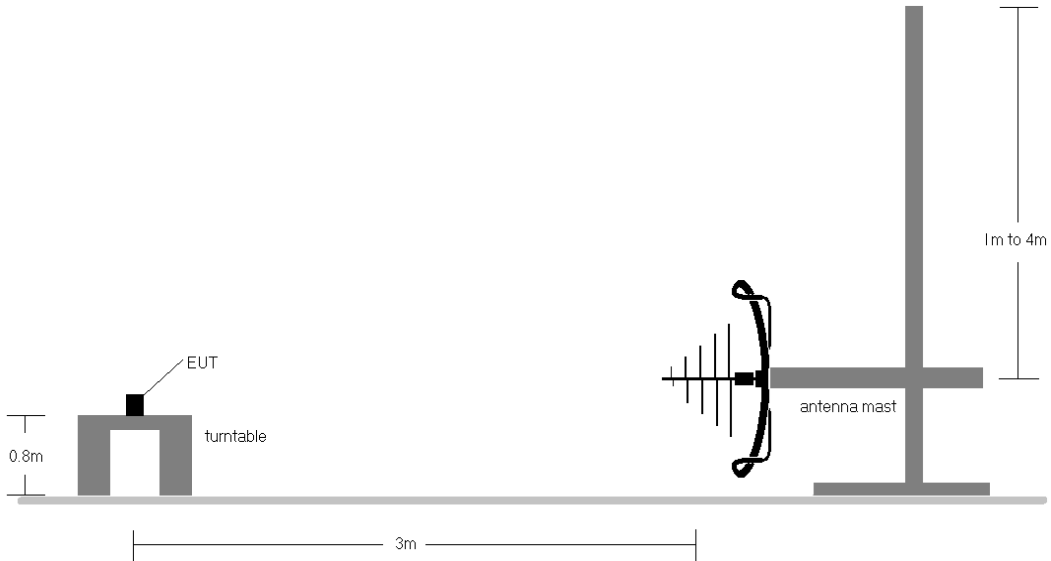
### Test Settings

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

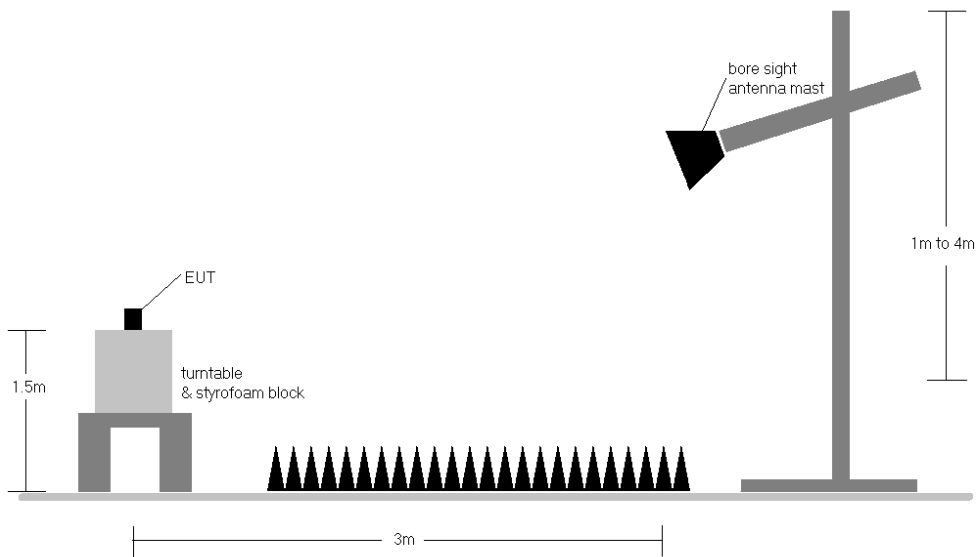
FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 78 of 100

**Test Setup**

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



**Figure 7-6. Test Instrument & Measurement Setup < 1GHz**



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

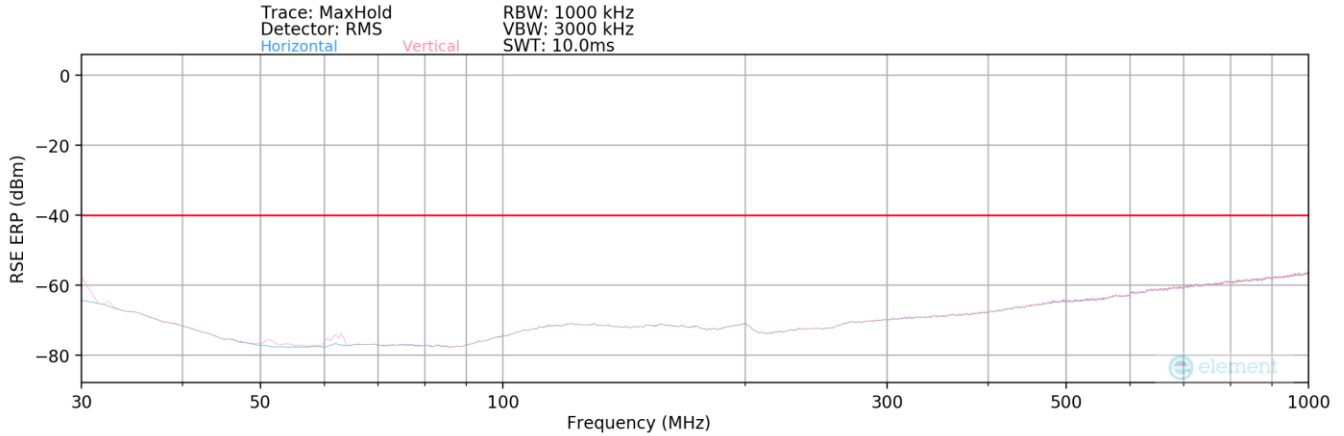
FCC ID: A3LSMA156U	<b>PART 27 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 79 of 100

**Test Notes**

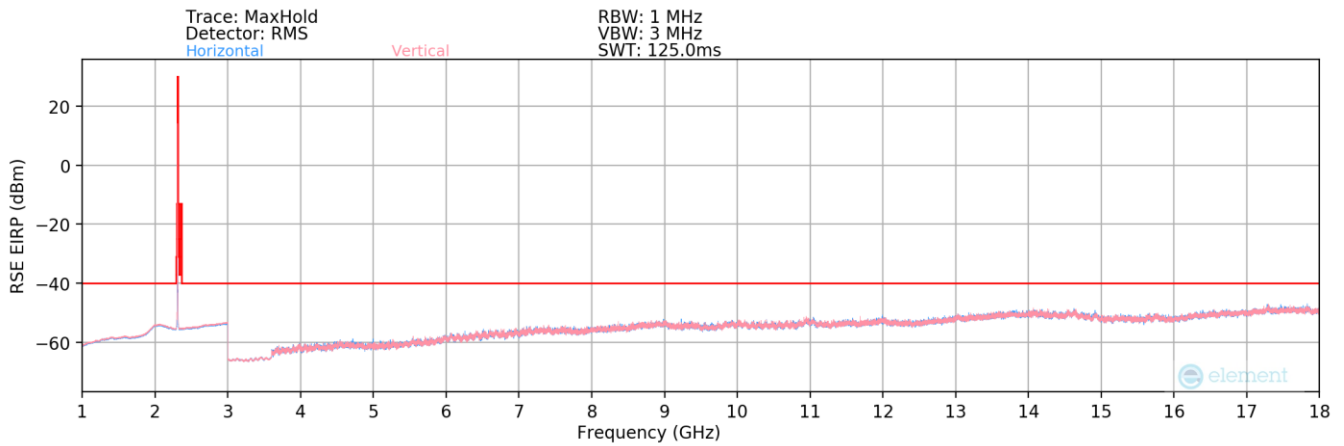
- 1) Field strengths are calculated using the Measurement quantity conversions in ANSI C63.26-2015 Section 5.2.7:
  - a)  $E(\text{dB}\mu\text{V}/\text{m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$
  - b)  $\text{EIRP (dBm)} = E(\text{dB}\mu\text{V}/\text{m}) + 20\log D - 104.8$ ; 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 emission in EN-DC Operating mode with Sub 6GHz NR carrier as well as an LTE carrier (anchor) has been checked and was found to not to be the worst case.

FCC ID: A3LSMA156U	<b>PART 27 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2309070100-04.A3L	<b>Test Dates:</b> 09/08 - 11/09/2023	<b>EUT Type:</b> Portable Handset	Page 80 of 100

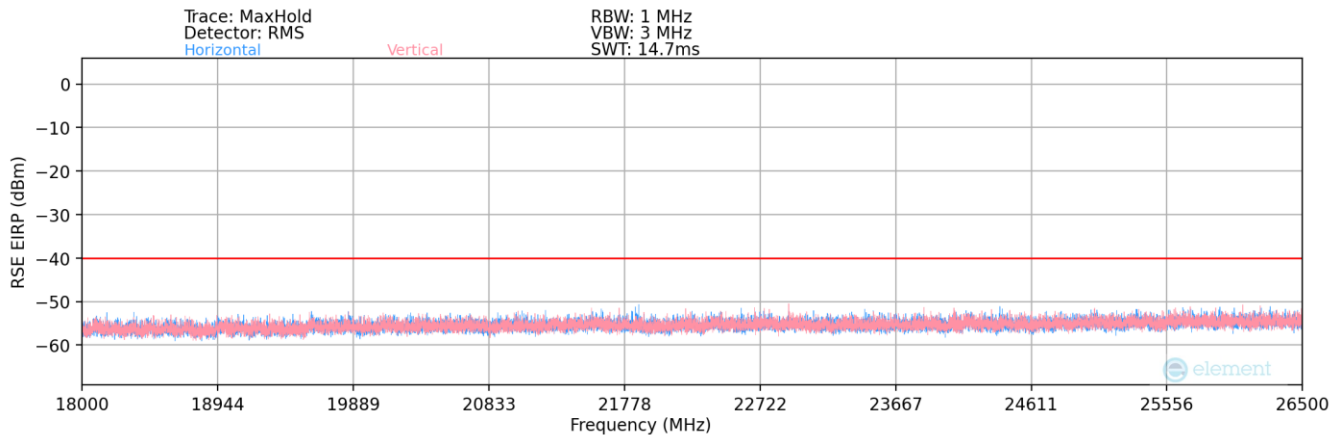
## LTE Band 30



Plot 7-102. Radiated Spurious Plot (LTE Band 30 – Below 1GHz)



Plot 7-103. Radiated Spurious Plot (LTE Band 30)



Plot 7-104. Radiated Spurious Plot (LTE Band 30 – Above 18GHz)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 81 of 100



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]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
865.00	H	-	-	-89.72	30.90	48.18	-49.23	-40.00	-9.23

Table 7-7. Radiated Spurious Data (LTE Band 30 – Below 1GHz)

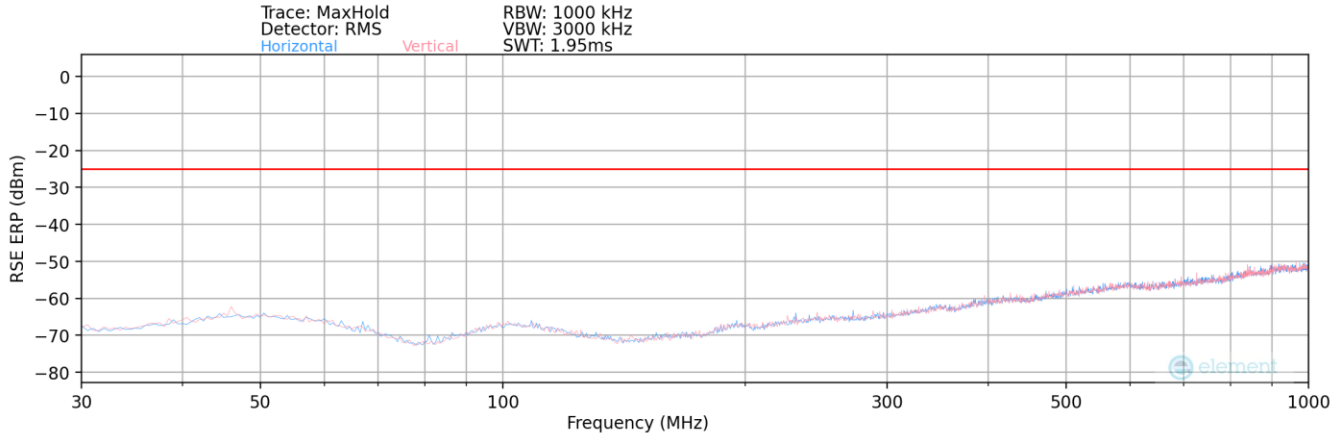
Bandwidth (MHz):	10
Frequency (MHz):	2310.0
RB / Offset:	1 / 25

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	137	47	-72.24	2.79	37.55	-57.70	-40.00	-17.70
6930.00	H	-	-	-75.23	8.25	40.02	-55.24	-40.00	-15.24
9240.00	H	127	5	-72.35	10.63	45.28	-49.98	-40.00	-9.98
11550.00	H	220	359	-73.24	12.70	46.46	-48.80	-40.00	-8.80
13860.00	H	-	-	-75.52	16.56	48.04	-47.21	-40.00	-7.21
16170.00	H	-	-	-75.27	15.13	46.86	-48.40	-40.00	-8.40

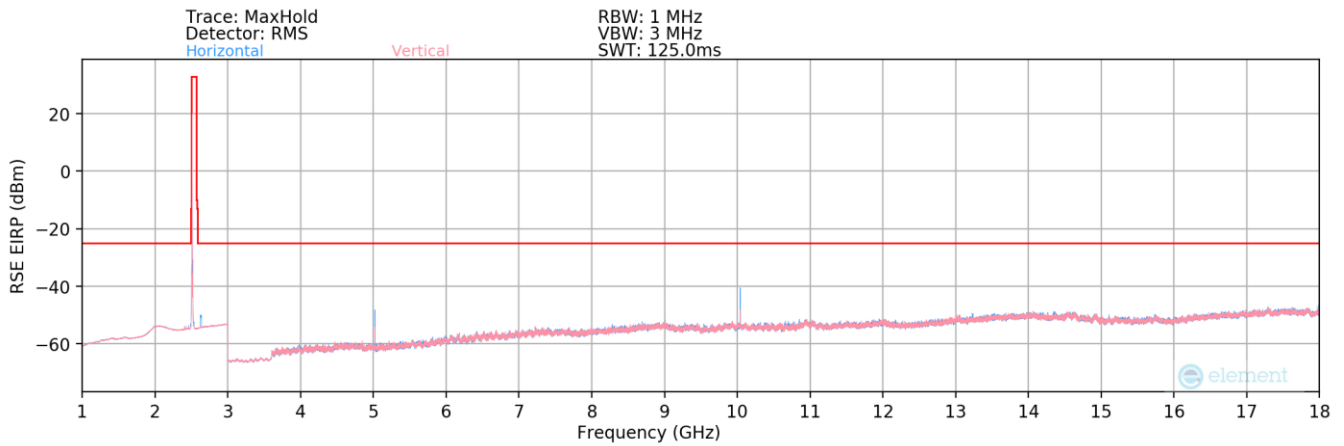
Table 7-8. Radiated Spurious Data (LTE Band 30 – Mid Channel)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 82 of 100

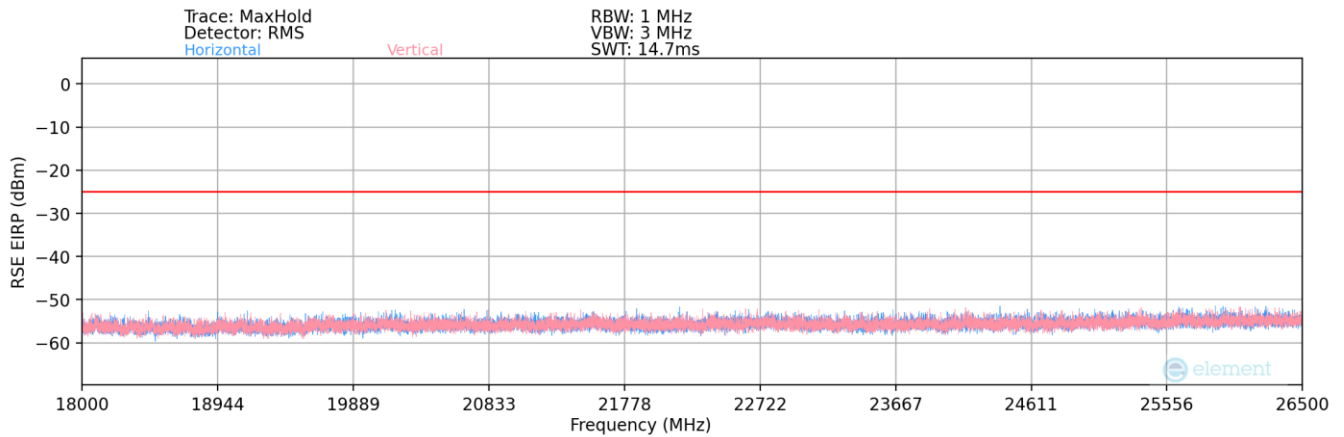
## LTE Band 7



**Plot 7-105. Radiated Spurious Plot (LTE Band 7 – Below 1GHz)**



**Plot 7-106. Radiated Spurious Plot (LTE Band 7)**



**Plot 7-107. Radiated Spurious Plot (LTE Band 7 – Above 18GHz)**

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 83 of 100



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]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
493.51	H	-	-	-69.05	-4.35	33.60	-63.81	-25.00	-38.81

Table 7-9. Radiated Spurious Data (LTE Band 7 – Below 1GHz)

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]
5020.00	H	159	85	-63.55	3.15	46.60	-48.65	-25.00	-23.65
7530.00	H	131	289	-73.04	9.00	42.96	-52.30	-25.00	-27.30
10040.00	H	314	173	-67.59	11.18	50.59	-44.67	-25.00	-19.67
12550.00	H	-	-	-75.24	13.10	44.86	-50.40	-25.00	-25.40
15060.00	H	-	-	-75.28	14.25	45.97	-49.29	-25.00	-24.29

Table 7-10. Radiated Spurious Data (LTE Band 7 – Low Channel)

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]
5070.00	H	151	96	-62.41	3.12	47.71	-47.55	-25.00	-22.55
7605.00	H	395	284	-73.66	9.19	42.53	-52.73	-25.00	-27.73
10140.00	H	123	57	-64.02	11.41	54.39	-40.87	-25.00	-15.87
12675.00	H	-	-	-75.35	13.50	45.15	-50.11	-25.00	-25.11
15210.00	H	-	-	-75.18	15.20	47.02	-48.24	-25.00	-23.24
17745.00	H	-	-	-75.39	17.66	49.27	-45.99	-25.00	-20.99

Table 7-11. Radiated Spurious Data (LTE Band 7 – Mid Channel)

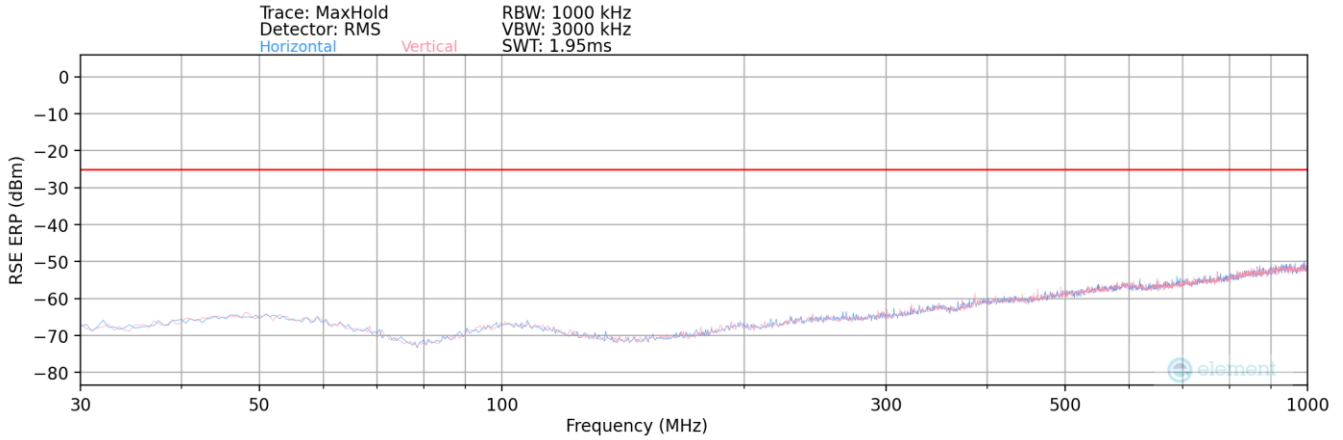
Bandwidth (MHz):	20
Frequency (MHz):	2560.0
RB / Offset:	1 / 50

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	H	185	24	-58.21	3.28	52.07	-43.18	-25.00	-18.18
7680.00	H	-	-	-74.71	8.40	40.69	-54.56	-25.00	-29.56
10240.00	H	237	56	-62.32	11.52	56.20	-39.06	-25.00	-14.06
12800.00	H	-	-	-75.50	13.71	45.21	-50.05	-25.00	-25.05
15360.00	H	-	-	-75.21	14.03	45.82	-49.44	-25.00	-24.44

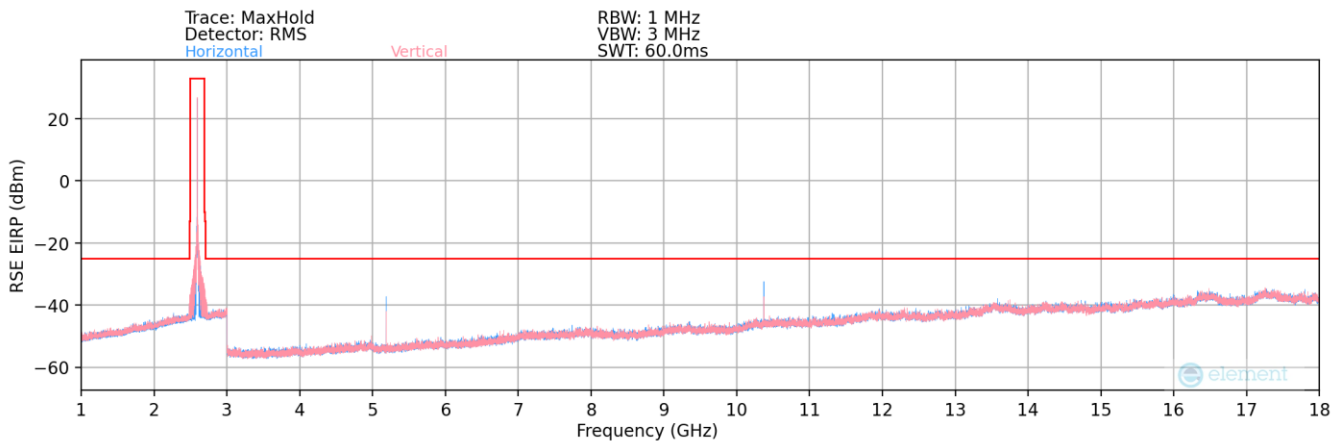
Table 7-12. Radiated Spurious Data (LTE Band 7 – High Channel)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 84 of 100

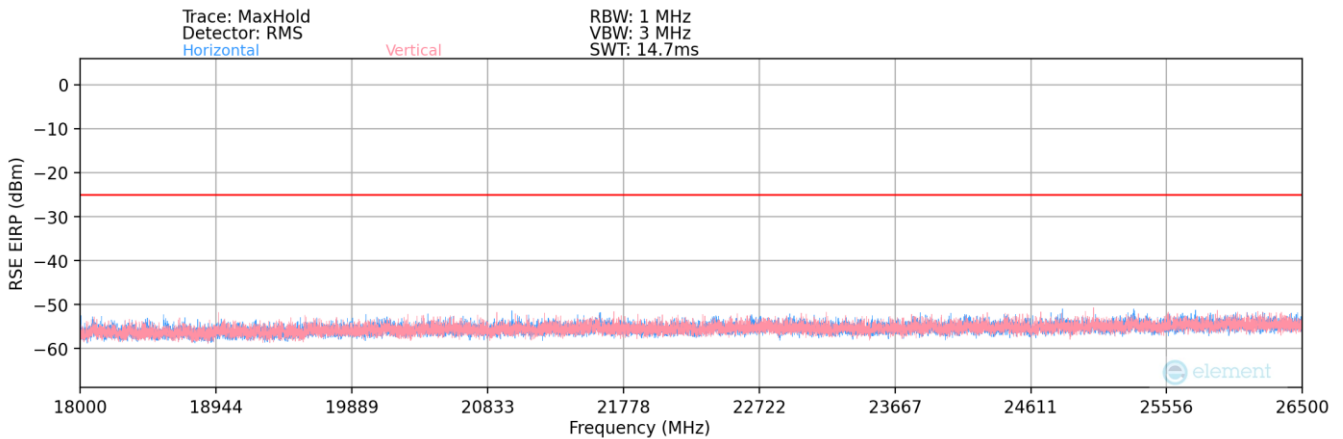
# LTE Band 41(PC2)



**Plot 7-108. Radiated Spurious Plot (LTE Band 41(PC2) – Below 1GHz)**



**Plot 7-109. Radiated Spurious Plot (LTE Band 41(PC2))**



**Plot 7-110. Radiated Spurious Plot (LTE Band 41(PC2) – Above 18GHz)**

FCC ID: A3LSMA156U	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 85 of 100



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]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
580.97	H	-	-	-62.41	-2.67	41.92	-55.49	-25.00	-30.49

Table 7-13. Radiated Spurious Data (LTE Band 41(PC2) – Below 1GHz)

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]
5012.00	H	166	133	-61.18	10.11	55.93	-39.32	-25.00	-14.32
7518.00	H	127	287	-72.16	15.46	50.30	-44.96	-25.00	-19.96
10024.00	H	160	64	-66.52	18.72	59.20	-36.06	-25.00	-11.06
12530.00	H	-	-	-75.29	23.28	54.99	-40.26	-25.00	-15.26
15036.00	H	-	-	-75.12	26.22	58.10	-37.16	-25.00	-12.16

Table 7-14. Radiated Spurious Data (LTE Band 41(PC2) – Low Channel)

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]
5186.00	H	167	133	-55.54	10.31	61.77	-33.49	-25.00	-8.49
7779.00	H	-	-	-72.44	15.45	50.01	-45.24	-25.00	-20.24
10372.00	H	121	46	-60.72	19.59	65.87	-29.38	-25.00	-4.38
12965.00	H	-	-	-75.33	24.06	55.73	-39.53	-25.00	-14.53
15558.00	H	-	-	-75.59	28.20	59.61	-35.64	-25.00	-10.64

Table 7-15. Radiated Spurious Data (LTE Band 41(PC2) – Mid Channel)

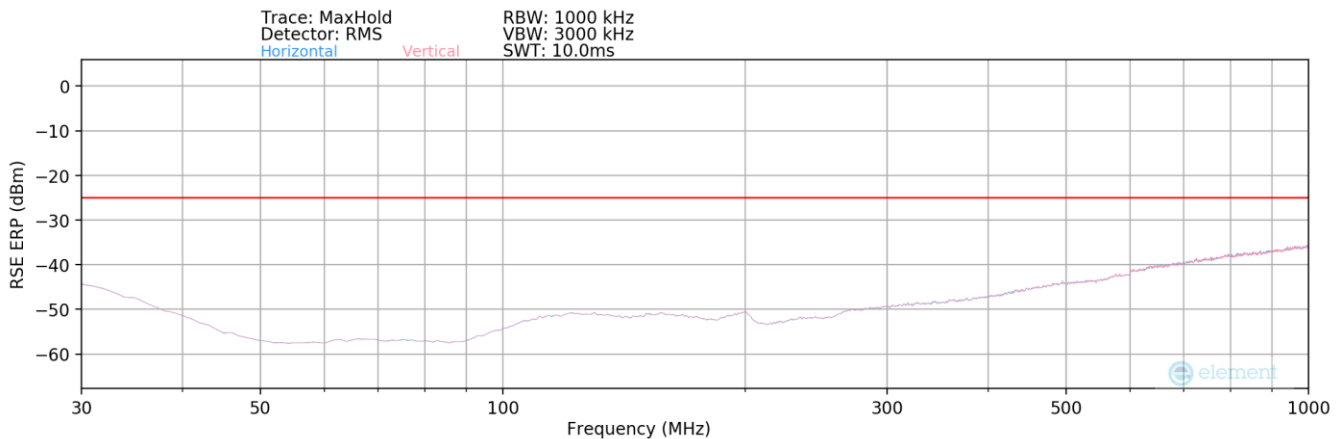
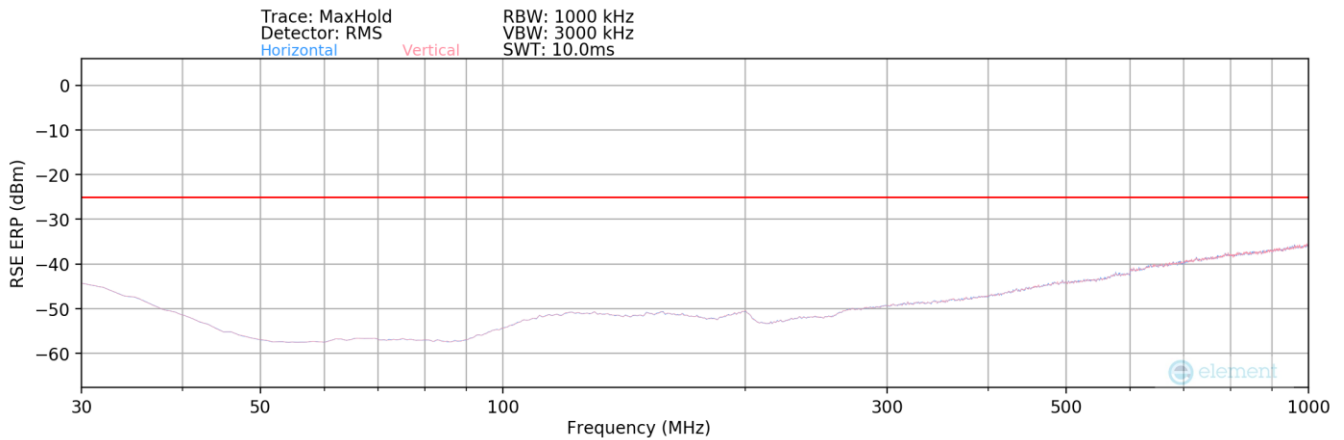
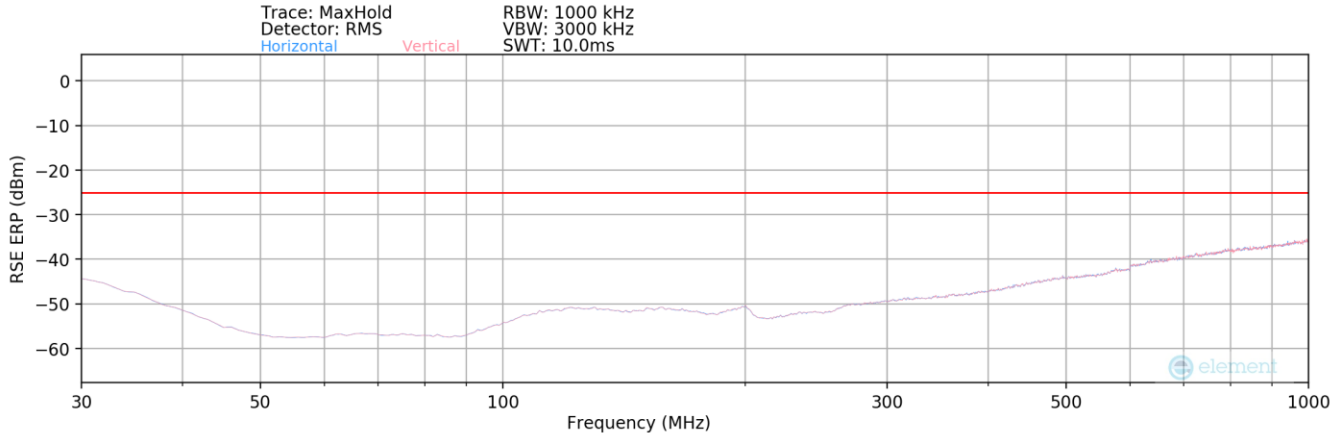
Bandwidth (MHz):	20
Frequency (MHz):	2680.0
RB / Offset:	1 / 50

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]
5360.00	H	207	69	-54.49	10.55	63.06	-32.20	-25.00	-7.20
8040.00	H	-	-	-73.63	15.94	49.31	-45.95	-25.00	-20.95
10720.00	H	142	325	-60.33	20.20	66.87	-28.39	-25.00	-3.39
13400.00	H	-	-	-75.12	24.56	56.44	-38.81	-25.00	-13.81
16080.00	H	-	-	-75.75	27.90	59.15	-36.11	-25.00	-11.11

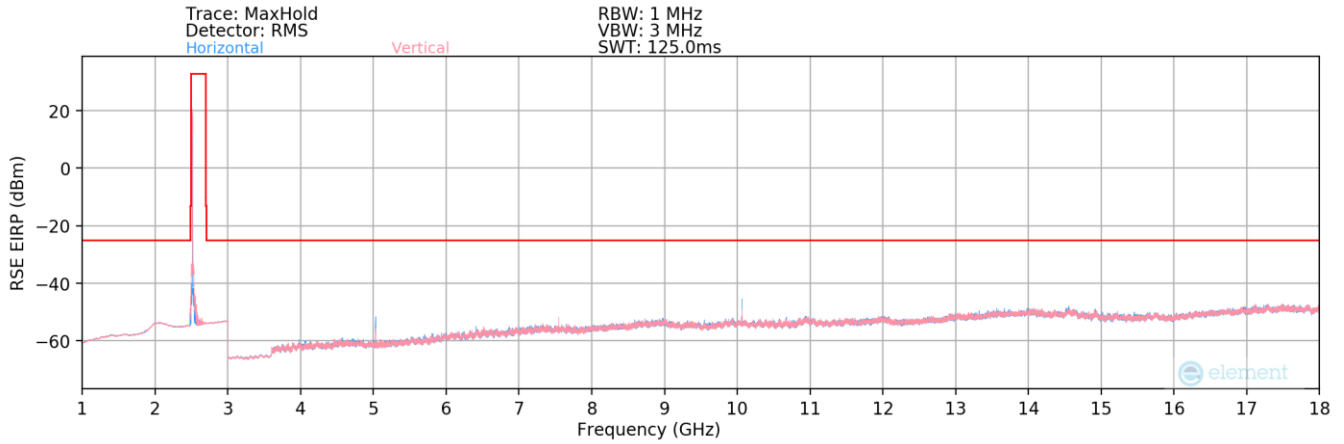
Table 7-16. Radiated Spurious Data (LTE Band 41(PC2) – High Channel)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 86 of 100

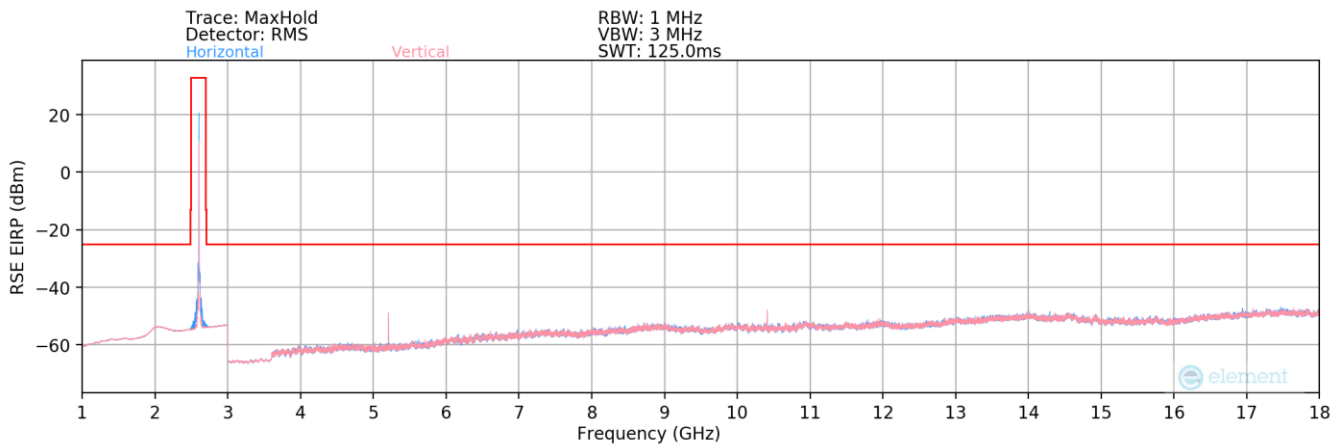
# ULCA - LTE B41(PC3)



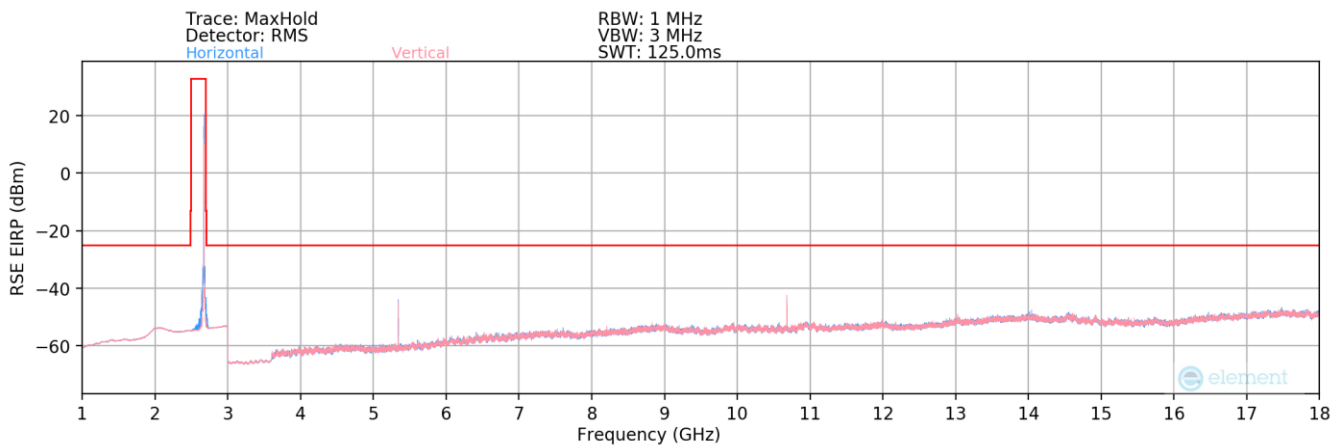
FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 87 of 100



Plot 7-114. Radiated Spurious Plot (LTE Band 41 – Low Channel)

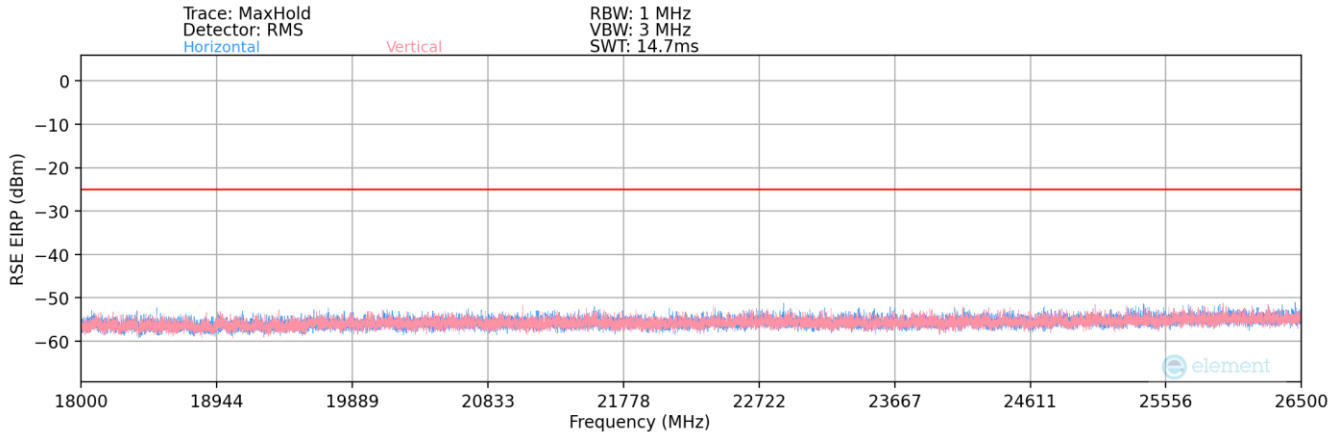


Plot 7-115. Radiated Spurious Plot (LTE Band 41 – Mid Channel)

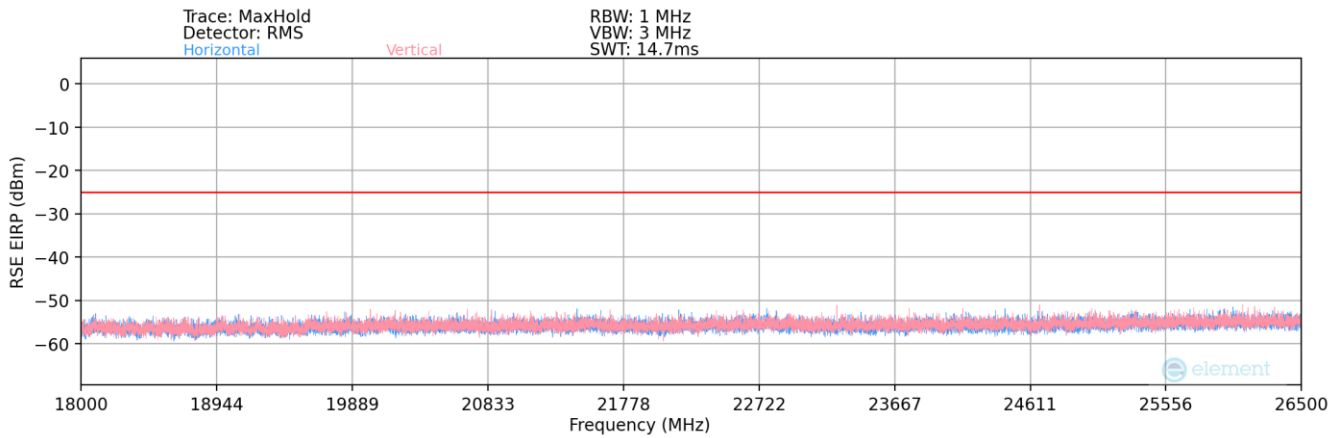


Plot 7-116. Radiated Spurious Plot (LTE Band 41 – High Channel)

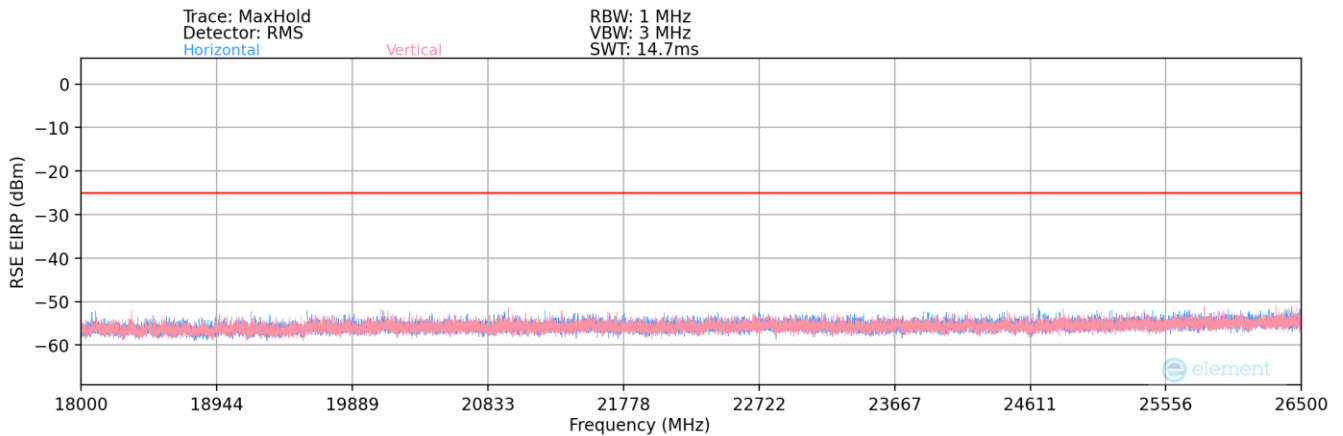
FCC ID: A3LSMA156U	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 88 of 100



**Plot 7-117. Radiated Spurious Plot (LTE Band 41 – 18GHz – Low Channel)**



**Plot 7-118. Radiated Spurious Plot (LTE Band 41 – Above 18GHz – Mid Channel)**



**Plot 7-119. Radiated Spurious Plot (LTE Band 41 – Above 18GHz – High Channel)**

FCC ID: A3LSMA156U	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 89 of 100



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]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
926.00	H	-	-	-84.01	31.28	54.27	-43.14	-25.00	-18.14

Table 7-17. Radiated Spurious Data (LTE Band 41 – Below 1GHz)

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]
5012.00	H	167	131	-60.11	3.17	50.06	-45.20	-25.00	-20.20
7518.00	H	394	305	-69.65	8.91	46.26	-49.00	-25.00	-24.00
10024.00	H	224	77	-64.43	11.10	53.67	-41.59	-25.00	-16.59
12530.00	H	-	-	-79.81	12.91	40.10	-55.16	-25.00	-30.16
15036.00	H	-	-	-79.95	14.66	41.71	-53.55	-25.00	-28.55
17542.00	H	-	-	-79.44	16.72	44.28	-50.98	-25.00	-25.98

Table 7-18. Radiated Spurious Data (ULCA LTE B41(PC3) – Low Channel)

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]
5186.00	H	198	145	-56.58	3.49	53.91	-41.34	-25.00	-16.34
7779.00	H	-	-	-78.13	8.22	37.09	-58.17	-25.00	-33.17
10372.00	H	239	59	-61.28	11.63	57.35	-37.91	-25.00	-12.91
12965.00	H	-	-	-79.66	14.13	41.47	-53.79	-25.00	-28.79
15558.00	H	-	-	-79.54	13.98	41.44	-53.82	-25.00	-28.82

Table 7-19. Radiated Spurious Data (ULCA LTE B41(PC3) – Mid Channel)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 90 of 100



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

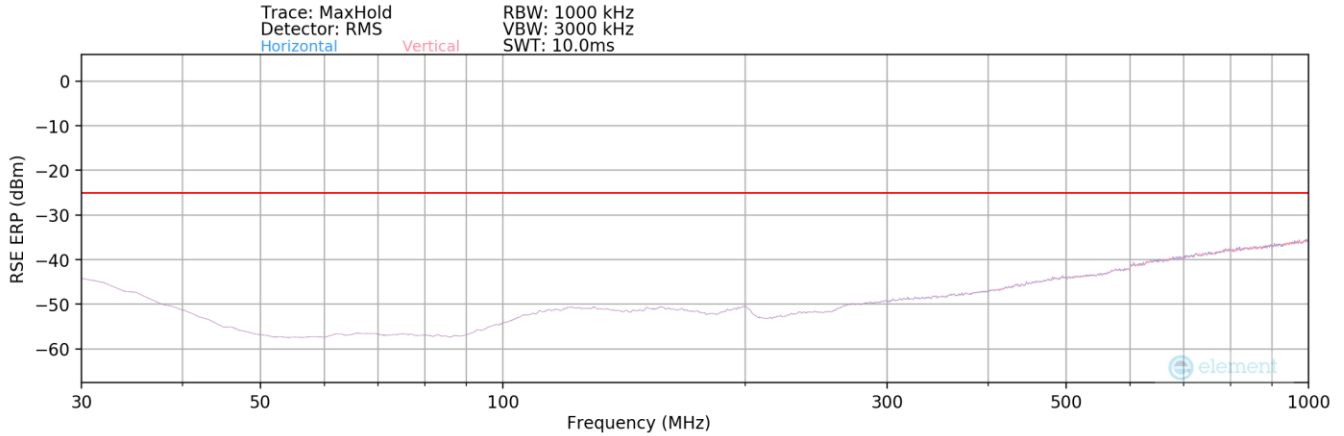
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
5360.00	H	181	84	-53.03	3.36	57.33	-37.93	-25.00	-12.93
8040.00	H	-	-	-77.90	9.00	38.10	-57.16	-25.00	-32.16
10720.00	H	385	152	-64.62	11.91	54.29	-40.97	-25.00	-15.97
13400.00	H	-	-	-79.36	14.98	42.62	-52.63	-25.00	-27.63
16080.00	H	-	-	-79.94	14.59	41.65	-53.60	-25.00	-28.60

Table 7-20. Radiated Spurious Data (ULCA LTE B41(PC3) – High Channel)

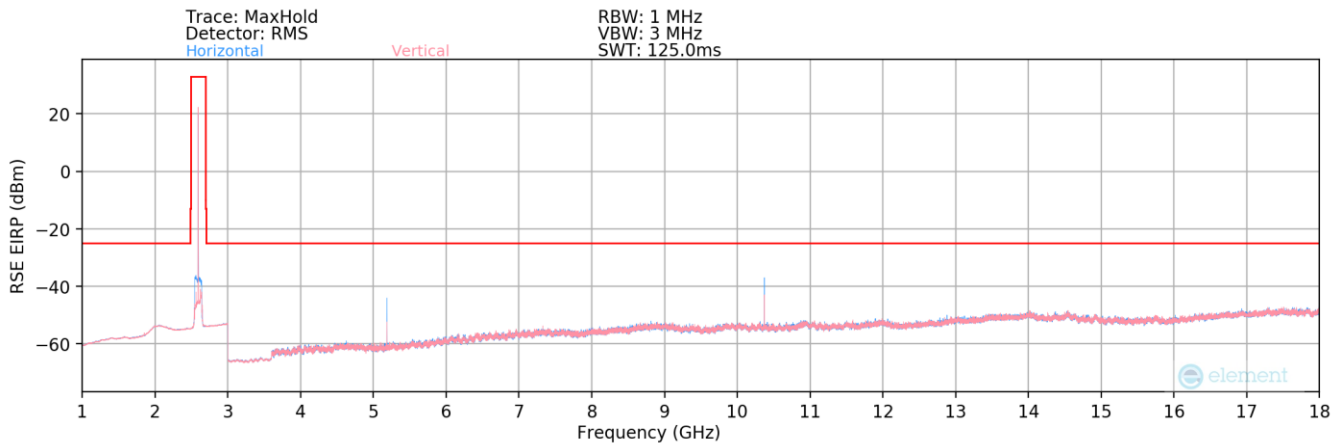
FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 91 of 100



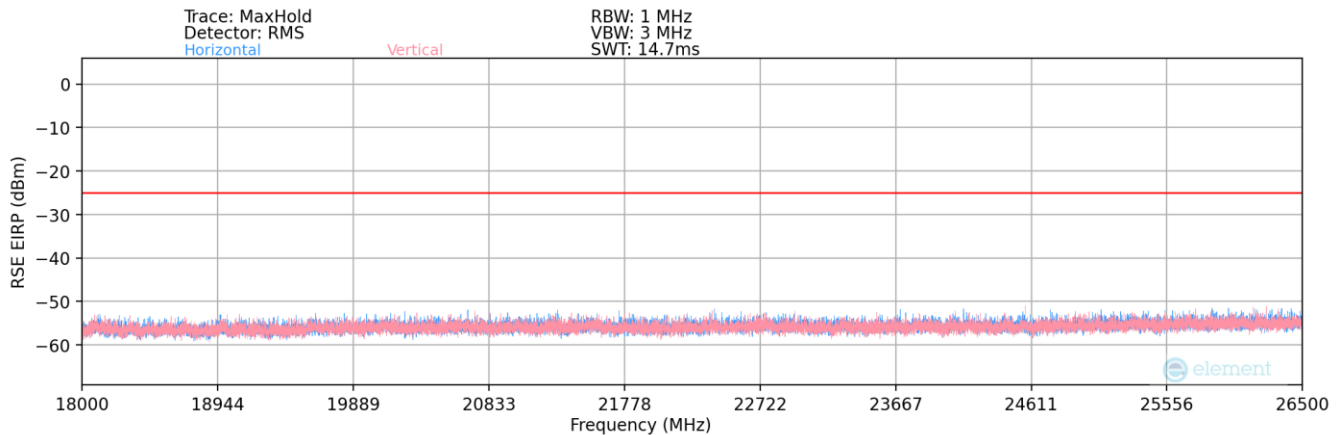
## NR Band n41



Plot 7-120. Radiated Spurious Plot (NR Band n41 – Below 1GHz)



Plot 7-121. Radiated Spurious Plot (NR Band n41)



Plot 7-122. Radiated Spurious Plot (NR Band n41 – Above 18GHz)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 92 of 100



Bandwidth (MHz):	100
Frequency (MHz):	2592.99
RB / Offset:	1 / 136
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
106.00	H	-	-	-80.26	19.05	45.79	-51.62	-25.00	-26.62
183.49	H	-	-	-80.71	18.29	44.58	-52.82	-25.00	-27.82
416.00	H	-	-	-80.36	23.65	50.29	-47.12	-25.00	-22.12

Table 7-21. Radiated Spurious Data (NR Band n41 – Below 1GHz)

Bandwidth (MHz):	100
Frequency (MHz):	2546.01
RB / Offset:	1 / 136
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
5092.02	H	135	32	-54.67	3.29	55.62	-39.63	-25.00	-14.63
7638.03	H	382	318	-71.11	9.13	45.02	-50.24	-25.00	-25.24
10184.04	H	226	64	-60.35	11.61	58.26	-37.00	-25.00	-12.00
12730.05	H	-	-	-78.53	13.49	41.96	-53.30	-25.00	-28.30
15276.06	H	-	-	-78.44	14.34	42.90	-52.35	-25.00	-27.35
17822.07	H	-	-	-79.04	18.27	46.23	-49.03	-25.00	-24.03

Table 7-22. Radiated Spurious Data (NR Band n41 – Low Channel)

Bandwidth (MHz):	100
Frequency (MHz):	2592.99
RB / Offset:	1 / 136
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
5185.98	H	192	142	-55.67	3.49	54.82	-40.43	-25.00	-15.43
7778.97	H	238	39	-75.14	8.22	40.08	-55.18	-25.00	-30.18
10371.96	H	159	60	-58.89	11.63	59.74	-35.52	-25.00	-10.52
12964.95	H	-	-	-78.64	14.13	42.49	-52.77	-25.00	-27.77
15557.94	H	-	-	-78.24	13.98	42.74	-52.52	-25.00	-27.52
18150.93	H	-	-	-56.89	1.51	51.62	-53.18	-25.00	-28.18

Table 7-23. Radiated Spurious Data (NR Band n41 – Mid Channel)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 93 of 100



Bandwidth (MHz):	100
Frequency (MHz):	2640.00
RB / Offset:	1 / 136
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
5280.00	H	281	92	-57.54	3.34	52.80	-42.46	-25.00	-17.46
7920.00	H	337	228	-77.29	9.19	38.90	-56.36	-25.00	-31.36
10560.00	H	331	67	-62.35	12.23	56.88	-38.38	-25.00	-13.38
13200.00	H	-	-	-78.47	14.71	43.24	-52.01	-25.00	-27.01
15840.00	H	-	-	-78.93	14.94	43.01	-52.25	-25.00	-27.25
18480.00	H	-	-	-57.57	1.82	51.25	-53.55	-25.00	-28.55

Table 7-24. Radiated Spurious Data (NR Band n41 – High Channel)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 94 of 100



## 7.8 Frequency Stability / Temperature Variation

### Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26-2015. The frequency stability of the transmitter is measured by:

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

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

### Test Procedure Used

ANSI C63.26-2015 – Section 5.6

### 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

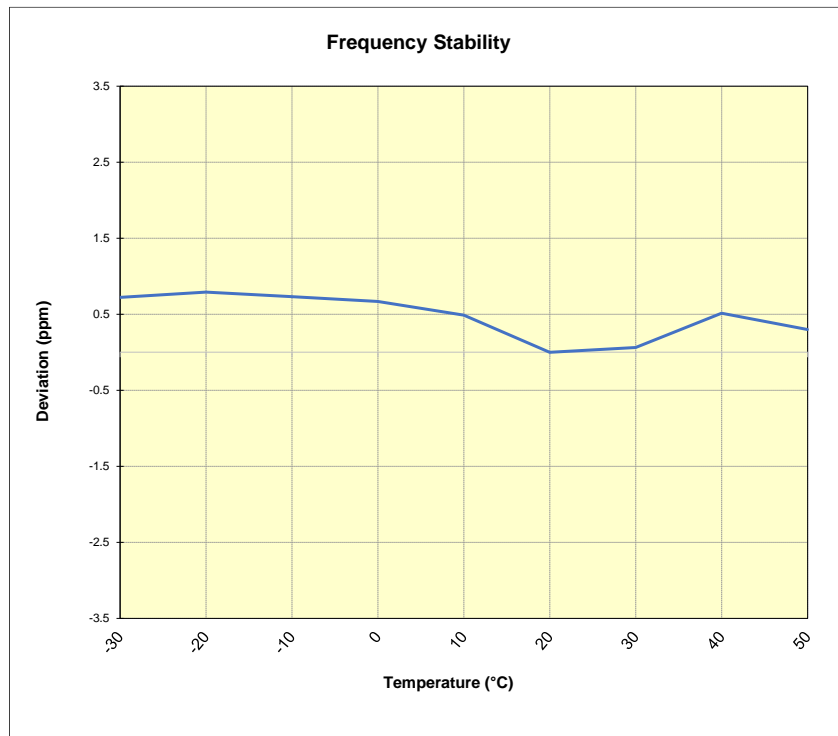
None

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 95 of 100

### LTE Band 30

LTE Band 30					
Operating Frequency (Hz):		2,310,000,000			
Ref. Voltage (VDC):		4.358			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.358	- 30	2,310,000,083	1,670	0.0000723
		- 20	2,310,000,244	1,831	0.0000793
		- 10	2,310,000,106	1,693	0.0000733
		0	2,309,999,960	1,547	0.0000670
		+ 10	2,309,999,544	1,131	0.0000490
		+ 20 (Ref)	2,309,998,413	0	0.0000000
		+ 30	2,309,998,556	143	0.0000062
		+ 40	2,309,999,603	1,190	0.0000515
Battery Endpoint	3.372	+ 20	2,309,998,818	405	0.0000175

Table 7-25. LTE Band 30 Frequency Stability Data



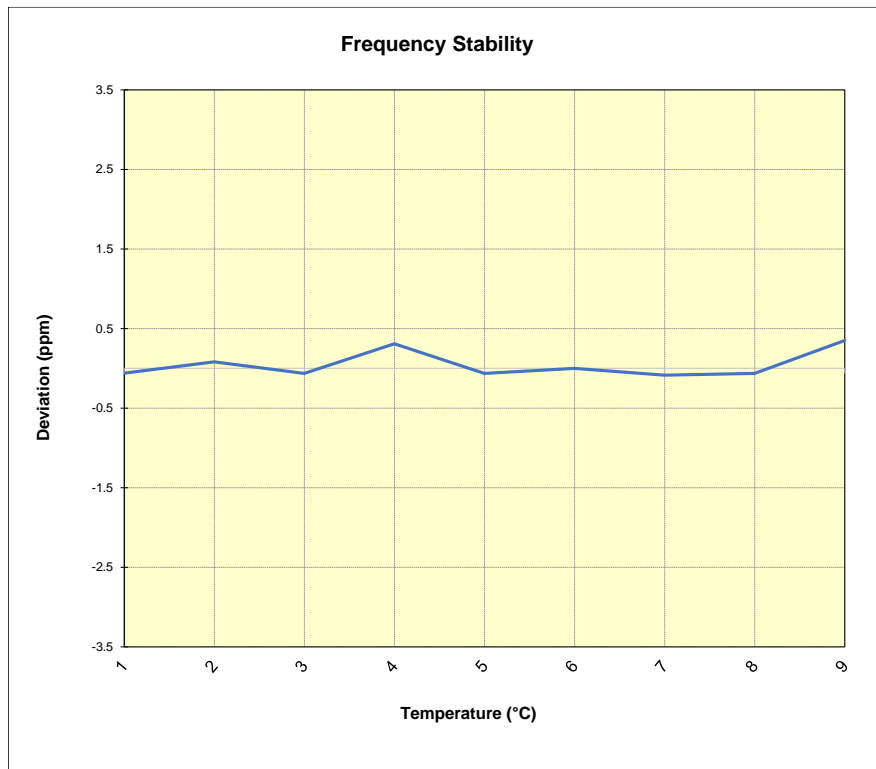
Plot 7-123. LTE Band 30 Frequency Stability Chart

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 96 of 100

### LTE Band 7

LTE Band 7					
		Operating Frequency (Hz):		2,535,000,000	
		Ref. Voltage (VDC):		4.358	
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.358	- 30	2,534,999,579	-153	-0.0000061
		- 20	2,534,999,939	207	0.0000081
		- 10	2,534,999,575	-157	-0.0000062
		0	2,535,000,518	786	0.0000310
		+ 10	2,534,999,575	-157	-0.0000062
		+ 20 (Ref)	2,534,999,732	0	0.0000000
		+ 30	2,534,999,515	-217	-0.0000085
		+ 40	2,534,999,572	-160	-0.0000063
Battery Endpoint	3.372	+ 20	2,534,999,586	-146	-0.0000057

Table 7-26. LTE Band 7 Frequency Stability Data



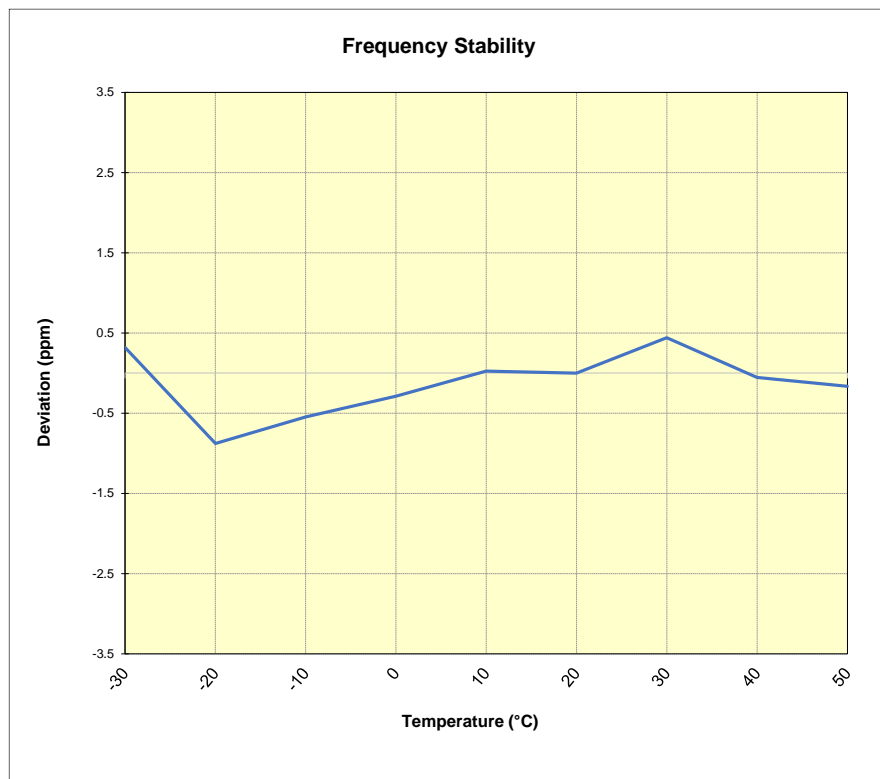
Plot 7-124. LTE Band 7 Frequency Stability Chart

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 97 of 100

### LTE Band 41/38

		Operating Frequency (Hz):		2,593,000,000	
		Ref. Voltage (VDC):		4.358	
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.358	- 30	2,593,001,208	827	0.0000319
		- 20	2,592,998,104	-2,277	-0.0000878
		- 10	2,592,998,965	-1,416	-0.0000546
		0	2,592,999,634	-747	-0.0000288
		+ 10	2,593,000,449	68	0.0000026
		+ 20 (Ref)	2,593,000,381	0	0.0000000
		+ 30	2,593,001,527	1,146	0.0000442
		+ 40	2,593,000,241	-139	-0.0000054
		+ 50	2,592,999,954	-426	-0.0000164
Battery Endpoint	3.372	+ 20	2,593,000,727	347	0.0000134

**Table 7-27. LTE Band 41/38 Frequency Stability Data**



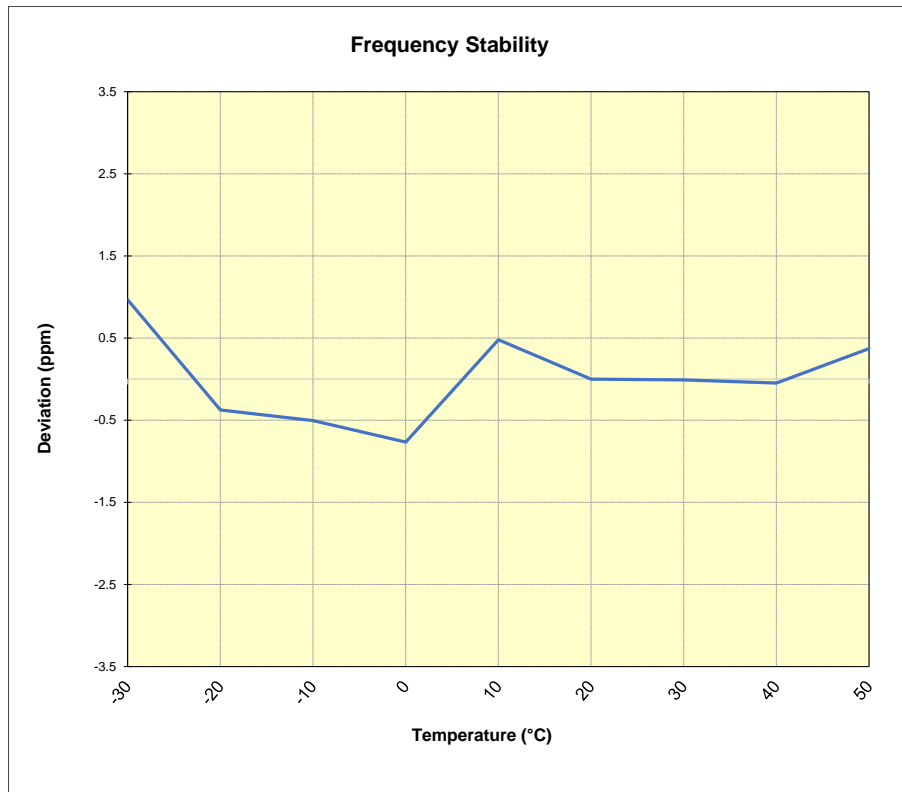
**Plot 7-125. LTE Band 41/38 Frequency Stability Chart**

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 98 of 100

NR Band n41

NR Band n41					
		Operating Frequency (Hz):		2,593,000,000	
		Ref. Voltage (VDC):		4.358	
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.358	- 30	2,593,155,372	2,500	0.0000964
		- 20	2,593,151,899	-973	-0.0000375
		- 10	2,593,151,564	-1,307	-0.0000504
		0	2,593,150,882	-1,990	-0.0000767
		+ 10	2,593,154,117	1,245	0.0000480
		+ 20 (Ref)	2,593,152,872	0	0.0000000
		+ 30	2,593,152,846	-26	-0.0000010
		+ 40	2,593,152,751	-121	-0.0000047
Battery Endpoint	3.372	+ 20	2,593,152,664	-208	-0.0000080

Table 7-28. NR Band n41 Frequency Stability Data



Plot 7-126. NR Band n41 Frequency Stability Chart

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-04.A3L	Test Dates: 09/08 - 11/09/2023	EUT Type: Portable Handset	Page 99 of 100



## 8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMA156U** complies with all the requirements of Part 27 of the FCC rules.

<b>FCC ID:</b> A3LSMA156U	<b>PART 27 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2309070100-04.A3L	<b>Test Dates:</b> 09/08 - 11/09/2023	<b>EUT Type:</b> Portable Handset	Page 100 of 100