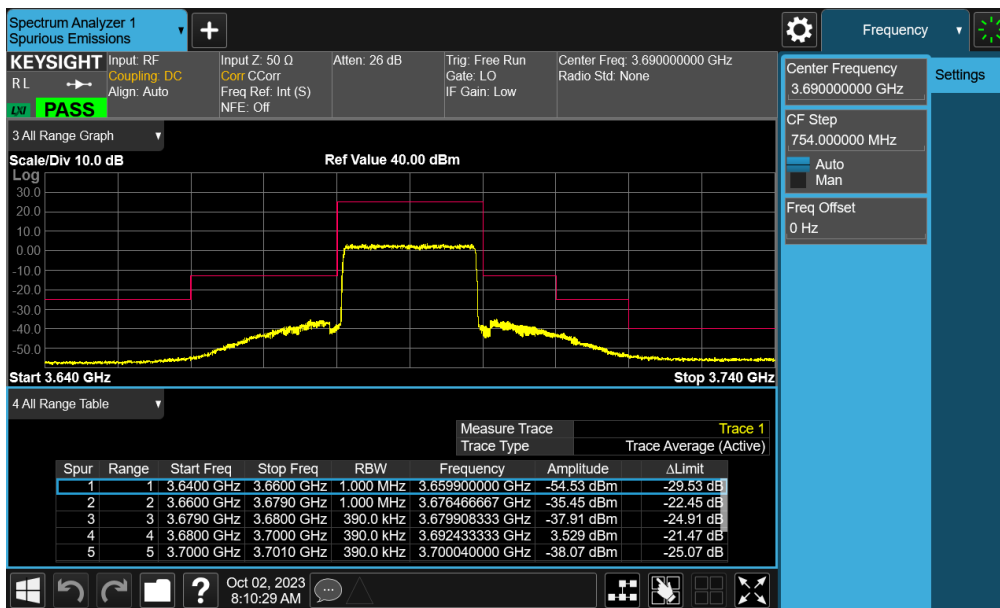


Plot 7-61. Channel Edge Plot (LTE Band 48 - 20MHz QPSK - Mid Channel)



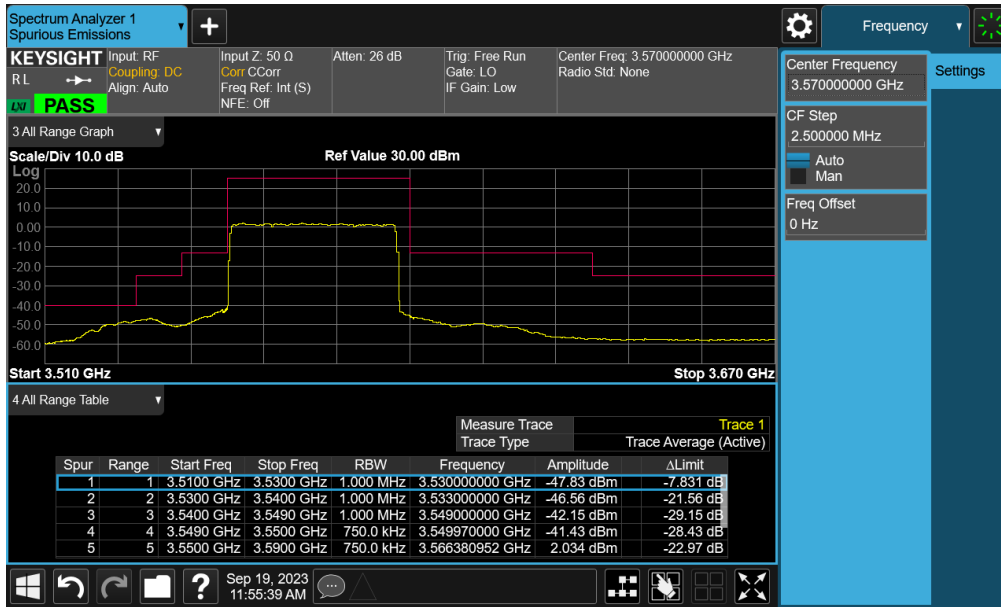
Plot 7-62. Channel Edge Plot (LTE Band 48 - 20MHz QPSK - High Channel)

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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### NR Band n48 ANT F

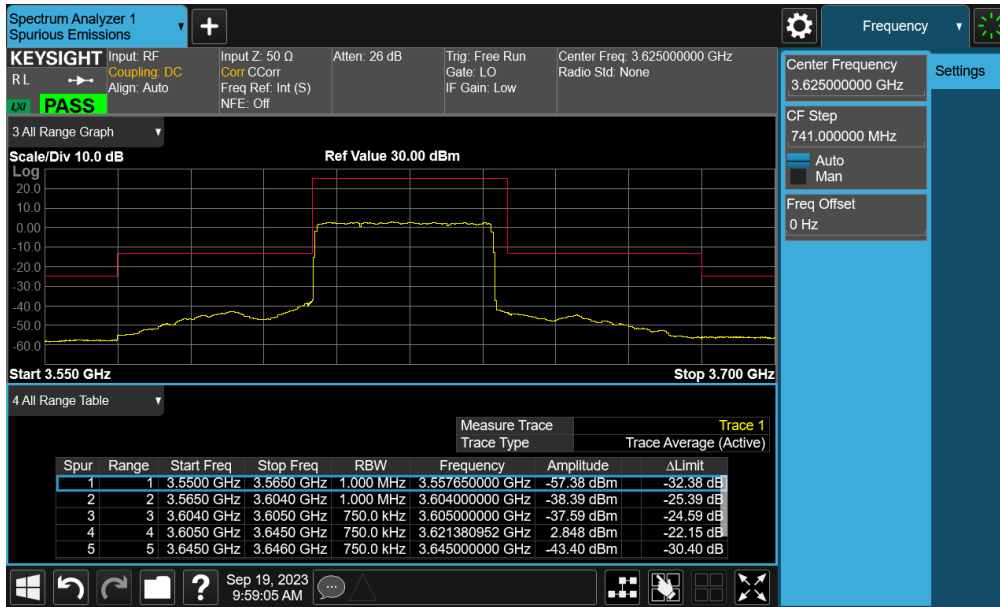
Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
NR Band n48	40MHz	Low	Band Edge	-47.83	-40	-7.83
		Mid	Band Edge	-39.49	-13	-26.49
		High	Band Edge	-47.95	-40	-7.95
	30MHz	Low	Band Edge	-49.21	-40	-9.21
		Mid	Band Edge	-36.73	-13	-23.73
		High	Band Edge	-48.68	-40	-8.68
	20MHz	Low	Band Edge	-52.15	-40	-12.15
		Mid	Band Edge	-35.14	-13	-22.14
		High	Band Edge	-53.74	-40	-13.74
	15MHz	Low	Band Edge	-55.68	-40	-15.68
		Mid	Band Edge	-33.09	-13	-20.09
		High	Band Edge	-54.89	-40	-14.89
10MHz	Low	Band Edge	-28.80	-13	-15.80	
	Mid	Band Edge	-32.03	-13	-19.03	
	High	Band Edge	-54.97	-40	-14.97	

Table 7-14. Band Edge Emissions Test Result (NR Band n48)

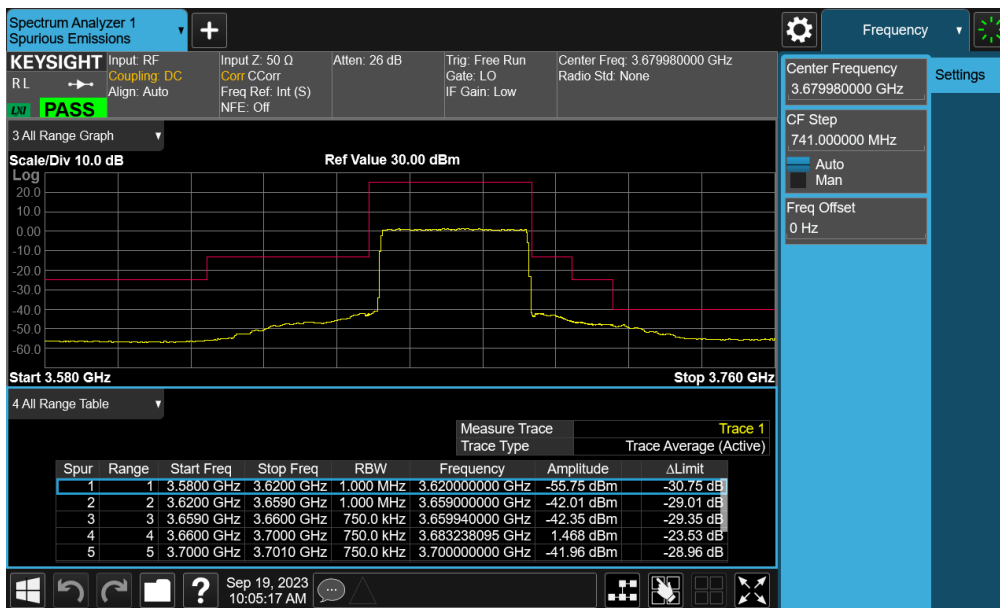


Plot 7-63. Channel Edge Plot (NR Band n48 - 40MHz QPSK - Low Channel)

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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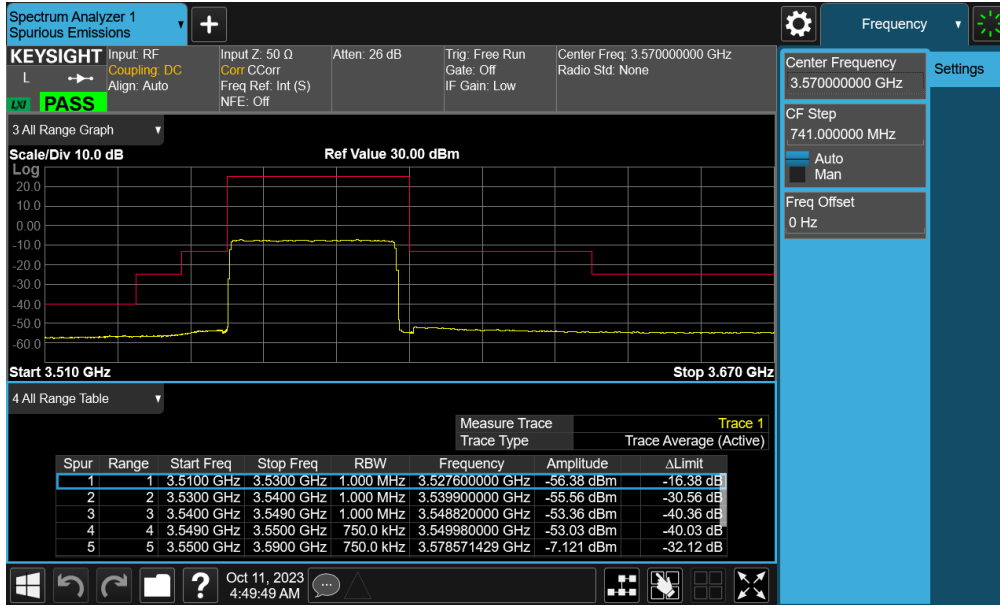
Plot 7-64. Channel Edge Plot (NR Band n48 - 40MHz QPSK - Mid Channel)



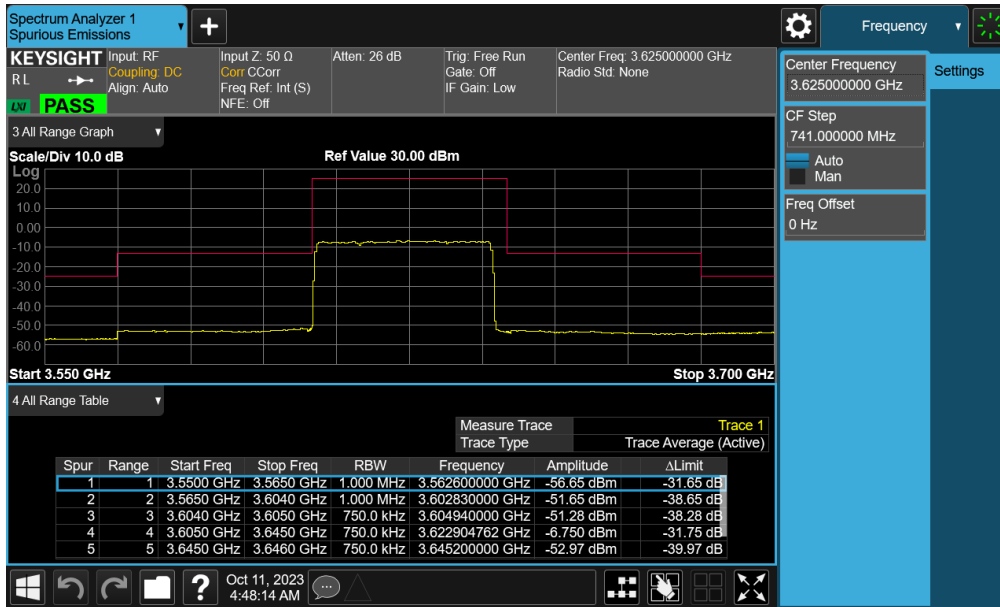
Plot 7-65. Channel Edge Plot (NR Band n48 - 40MHz QPSK - High Channel)

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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# NR Band n48 ANT E

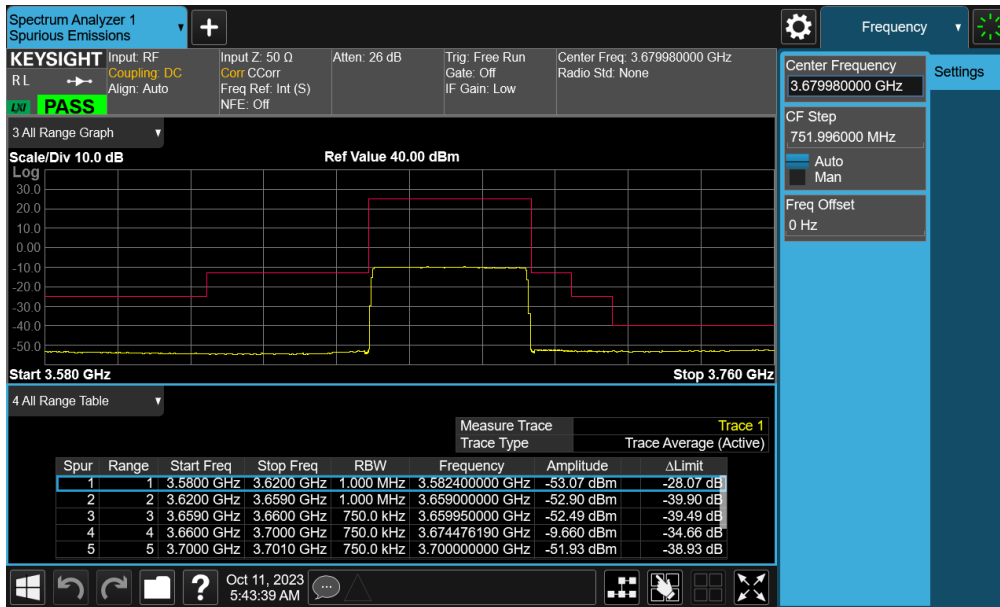


Plot 7-66. Channel Edge Plot (NR Band n48 - 40MHz QPSK - Low Channel)



Plot 7-67. Channel Edge Plot (NR Band n48 - 40MHz QPSK - Mid Channel)

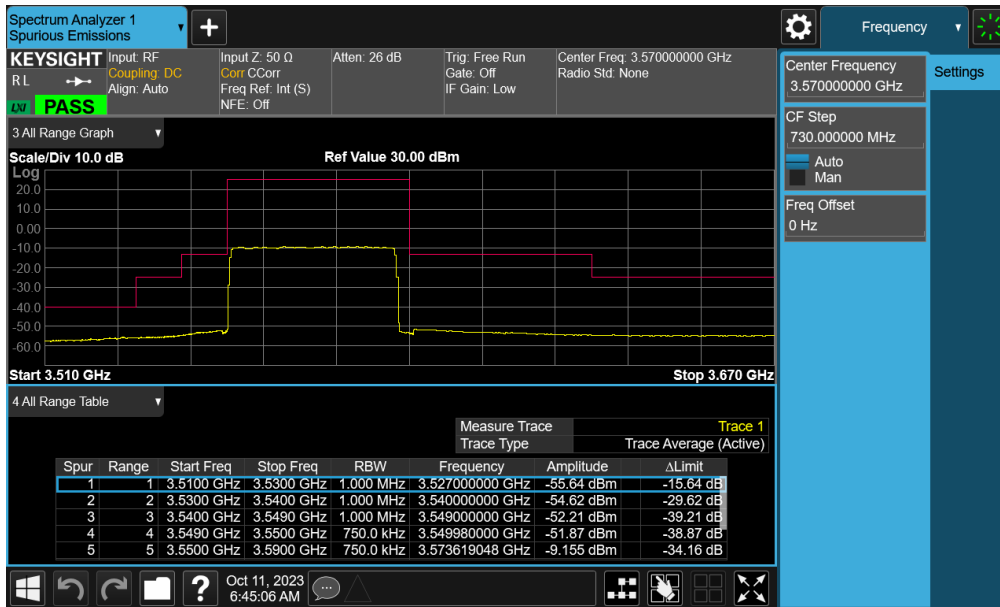
FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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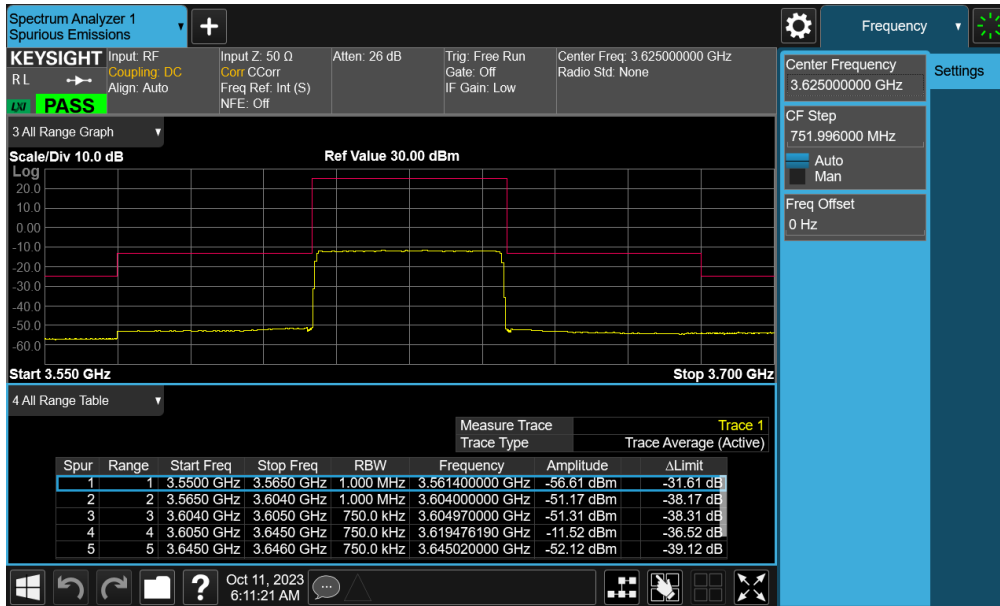
Plot 7-68. Channel Edge Plot (NR Band n48 - 40MHz QPSK - High Channel)

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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# NR Band n48 ANT H

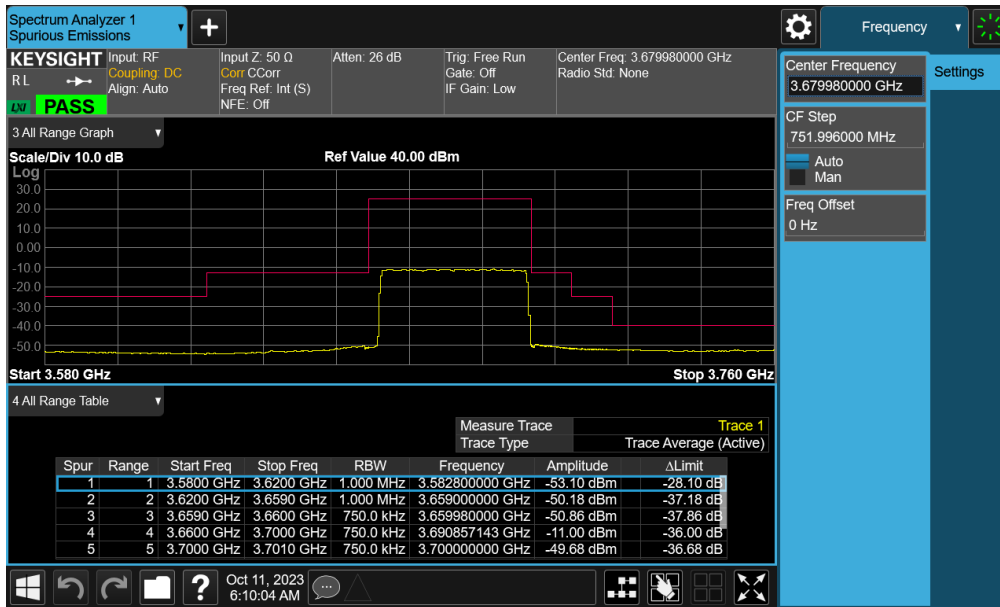


Plot 7-69. Channel Edge Plot (NR Band n48 - 40MHz QPSK - Low Channel)



Plot 7-70. Channel Edge Plot (NR Band n48 - 40MHz QPSK - Mid Channel)

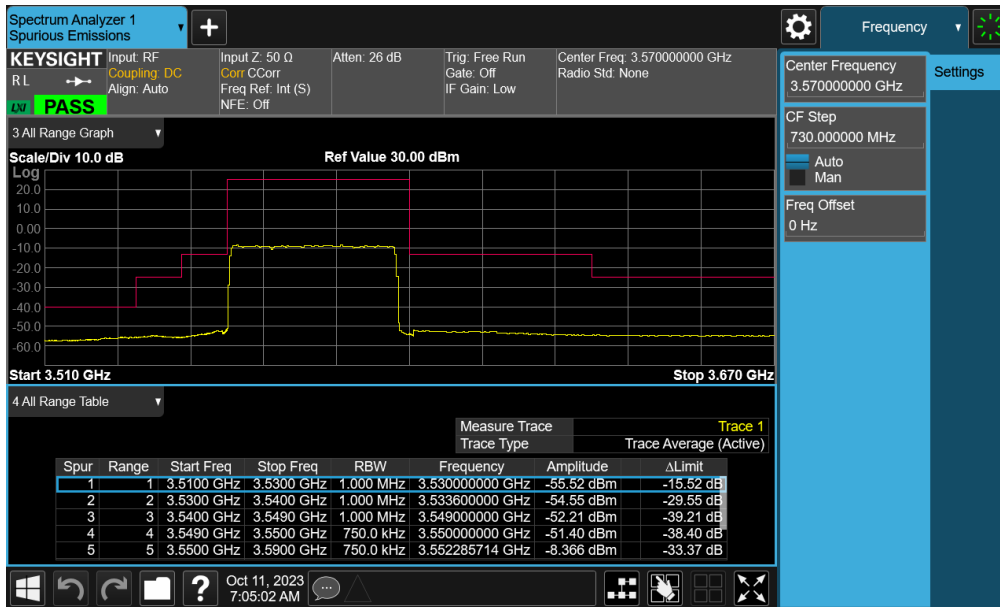
FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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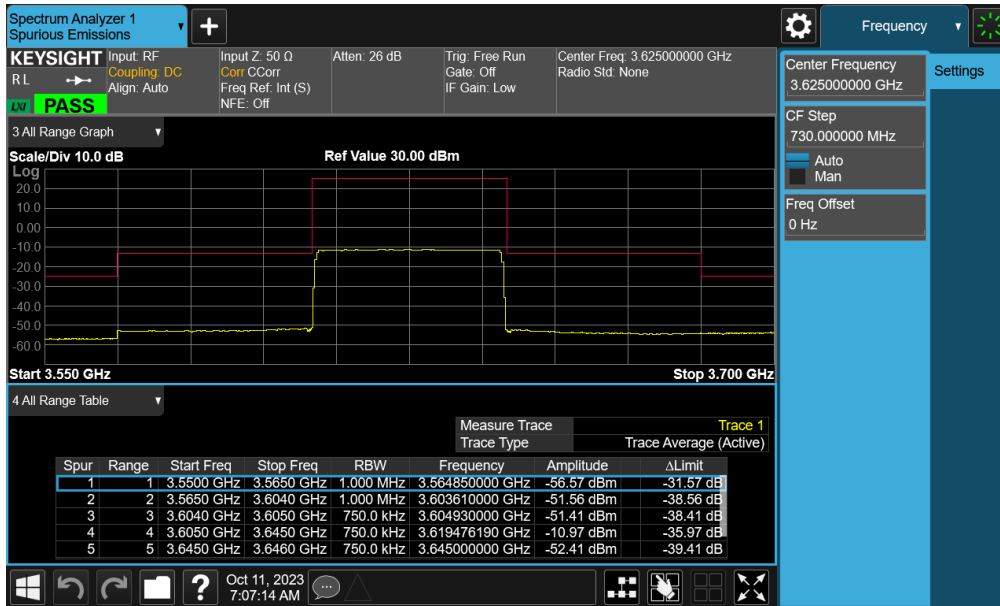
Plot 7-71. Channel Edge Plot (NR Band n48 - 40MHz QPSK - High Channel)

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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# NR Band n48 ANT G



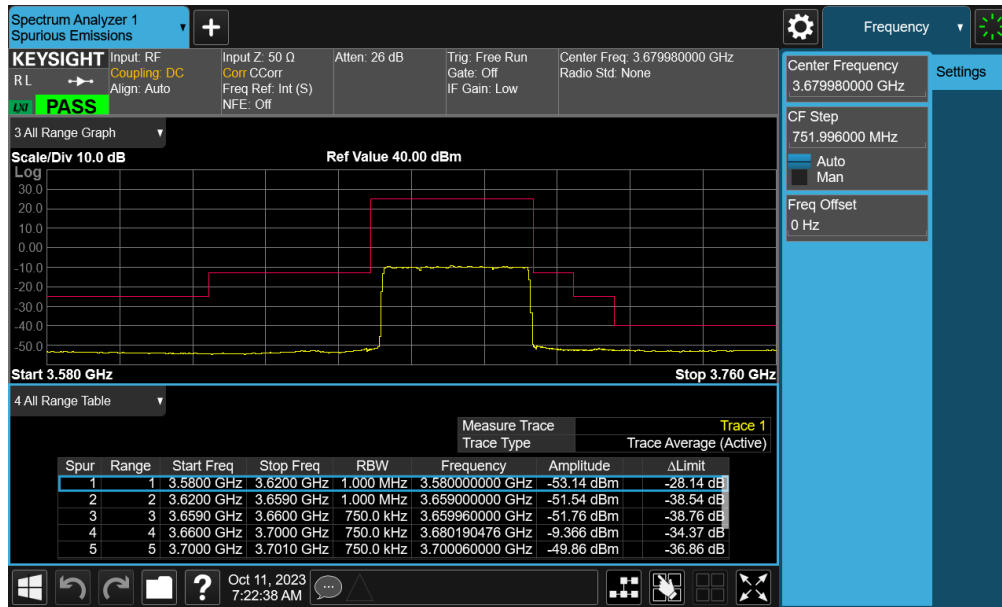
Plot 7-72. Channel Edge Plot (NR Band n48 - 40MHz QPSK - Low Channel)



Plot 7-73. Channel Edge Plot (NR Band n48 - 40MHz QPSK - Mid Channel)

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-74. Channel Edge Plot (NR Band n48 - 40MHz QPSK - High Channel)

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## 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

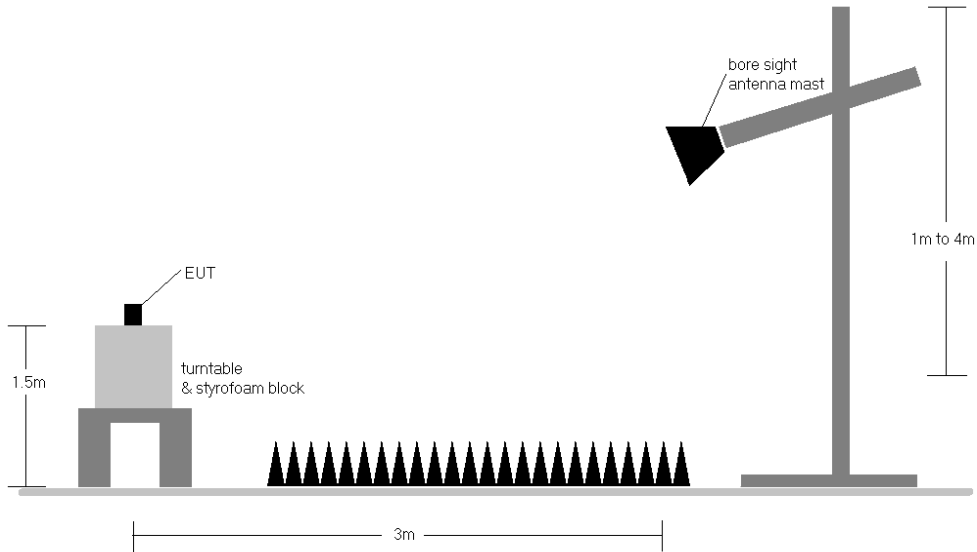
### Test Settings

1. Radiated power measurements are performed using the signal analyzer’s “channel power” measurement capability for signals with continuous operation.
2. RBW = 1 – 5% of the expected OBW
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 set equal to 10MHz. 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 7-5. 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.
- 4) The worst case EIRP shown in this section is found with LTE operating only using 1RB. As such, the EIRP/10MHz and full channel EIRP values will be identical since 1RB is fully contained within all available channel bandwidths for LTE Band 48 (i.e. 5, 10, 15, 20MHz).

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Bandwidth	Modulation	PCC			SCC			Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degrees]	Ant. Gain [dBi]	Substitute Level [dBm]	EIRP [dBm/10MHz]	EIRP [Watts/10MHz]	EIRP Limit [dBm/10MHz]	Margin [dB]
		Bandwidth [MHz]	Frequency [MHz]	RB / Offset	Bandwidth [MHz]	Frequency [MHz]	RB / Offset									
40 MHz	QPSK	20	3560.0	1 / 99	20	3579.8	1 / 0	H	159	300	6.51	15.24	21.75	0.150	23.00	-1.25
		20	3625.0	1 / 99	20	3644.8	1 / 0	H	139	294	6.70	15.18	21.88	0.154	23.00	-1.12
		20	3690.0	1 / 0	20	3670.2	1 / 99	H	139	296	6.86	14.79	21.65	0.146	23.00	-1.35
	16-QAM	20	3560.0	1 / 99	20	3579.8	1 / 0	H	159	300	6.51	14.2	20.71	0.118	23.00	-2.29
		20	3625.0	1 / 99	20	3644.8	1 / 0	H	139	294	6.70	14.24	20.94	0.124	23.00	-2.06
		20	3690.0	1 / 0	20	3670.2	1 / 99	H	139	296	6.86	13.82	20.68	0.117	23.00	-2.32
35 MHz	QPSK	20	3557.5	1 / 99	15	3577.1	1 / 0	H	159	300	6.51	15.18	21.68	0.147	23.00	-1.32
		20	3625.0	1 / 99	15	3642.1	1 / 0	H	139	294	6.70	15.20	21.90	0.155	23.00	-1.10
		20	3692.5	1 / 0	15	3672.9	1 / 74	H	139	296	6.86	14.78	21.64	0.146	23.00	-1.36
	16-QAM	20	3557.5	1 / 99	15	3577.1	1 / 0	H	159	300	6.51	14.14	20.64	0.116	23.00	-2.36
		20	3625.0	1 / 99	15	3642.1	1 / 0	H	139	294	6.70	14.26	20.96	0.125	23.00	-2.04
		20	3692.5	1 / 0	15	3672.9	1 / 74	H	139	296	6.86	13.70	20.56	0.114	23.00	-2.44
30 MHz	QPSK	20	3555.0	1 / 99	10	3574.4	1 / 0	H	159	300	6.50	15.19	21.69	0.148	23.00	-1.31
		20	3625.0	1 / 99	10	3639.4	1 / 0	H	139	294	6.70	15.18	21.88	0.154	23.00	-1.12
		20	3695.0	1 / 0	10	3678.3	1 / 49	H	139	296	6.86	14.73	21.60	0.144	23.00	-1.40
	16-QAM	20	3555.0	1 / 99	10	3574.4	1 / 0	H	159	300	6.50	14.15	20.65	0.116	23.00	-2.35
		20	3625.0	1 / 99	10	3639.4	1 / 0	H	139	294	6.70	14.17	20.87	0.122	23.00	-2.13
		20	3695.0	1 / 0	10	3678.3	1 / 49	H	139	296	6.86	13.65	20.52	0.113	23.00	-2.48
25 MHz	QPSK	20	3552.5	1 / 99	5	3571.7	1 / 0	H	159	300	6.50	15.19	21.68	0.147	23.00	-1.32
		20	3625.0	1 / 99	5	3636.7	1 / 0	H	139	294	6.70	15.17	21.87	0.154	23.00	-1.13
		20	3697.5	1 / 0	5	3678.3	1 / 24	H	139	296	6.87	14.73	21.60	0.144	23.00	-1.40
	16-QAM	20	3552.5	1 / 99	5	3571.7	1 / 0	H	159	300	6.50	15.15	21.64	0.146	23.00	-1.36
		20	3625.0	1 / 99	5	3636.7	1 / 0	H	139	294	6.70	14.19	20.89	0.123	23.00	-2.11
		20	3697.5	1 / 0	5	3678.3	1 / 24	H	139	296	6.87	13.66	20.53	0.113	23.00	-2.47

Table 7-15. EIRP Data (LTE ULCA Band 48)

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/10MHz]	EIRP [Watts/10MHz]	EIRP Limit [dBm/10MHz]	Margin [dB]
20 MHz	QPSK	3560.00	H	102	307	6.51	1 / 50	15.45	<b>21.96</b>	<b>0.157</b>	23.00	-1.04
	QPSK	3625.00	H	131	305	6.70	1 / 0	15.19	21.89	0.154	23.00	-1.11
	QPSK	3690.00	H	119	306	6.86	1 / 50	14.62	21.48	0.141	23.00	-1.52
	16-QAM	3560.00	H	102	307	6.51	1 / 99	14.46	20.97	0.125	23.00	-2.03
	16-QAM	3625.00	H	131	305	6.70	1 / 0	14.39	21.09	0.128	23.00	-1.91
	16-QAM	3690.00	H	119	306	6.86	1 / 99	13.23	20.09	0.102	23.00	-2.91
15 MHz	QPSK	3557.50	H	102	307	6.51	1 / 36	15.36	<b>21.86</b>	<b>0.154</b>	23.00	-1.14
	QPSK	3625.00	H	131	305	6.70	1 / 1	15.01	21.71	0.148	23.00	-1.29
	QPSK	3692.50	H	119	306	6.86	1 / 36	14.64	21.50	0.141	23.00	-1.50
	16-QAM	3557.50	H	102	307	6.51	1 / 36	14.34	20.84	0.121	23.00	-2.16
	16-QAM	3625.00	H	131	305	6.70	1 / 1	14.19	20.89	0.123	23.00	-2.11
	16-QAM	3692.50	H	119	306	6.86	1 / 36	13.23	20.09	0.102	23.00	-2.91
10 MHz	QPSK	3555.00	H	102	307	6.50	1 / 22	15.25	<b>21.75</b>	<b>0.150</b>	23.00	-1.25
	QPSK	3625.00	H	131	305	6.70	1 / 1	15.00	21.70	0.148	23.00	-1.30
	QPSK	3695.00	H	119	306	6.86	1 / 22	14.61	21.48	0.141	23.00	-1.52
	16-QAM	3555.00	H	102	307	6.50	1 / 22	14.28	20.78	0.120	23.00	-2.22
	16-QAM	3625.00	H	131	305	6.70	1 / 1	14.19	20.89	0.123	23.00	-2.11
	16-QAM	3695.00	H	119	306	6.86	1 / 22	13.18	20.05	0.101	23.00	-2.95
5 MHz	QPSK	3552.50	H	102	307	6.50	1 / 5	15.27	<b>21.76</b>	<b>0.150</b>	23.00	-1.24
	QPSK	3625.00	H	131	305	6.70	1 / 5	15.04	21.74	0.149	23.00	-1.26
	QPSK	3697.50	H	119	306	6.87	1 / 5	14.60	21.47	0.140	23.00	-1.53
	16-QAM	3552.50	H	102	307	6.50	1 / 5	14.26	20.75	0.119	23.00	-2.25
	16-QAM	3625.00	H	131	305	6.70	1 / 5	14.25	20.95	0.124	23.00	-2.05
	16-QAM	3697.50	H	119	306	6.87	1 / 5	13.20	20.07	0.102	23.00	-2.93

Table 7-16. EIRP Data (LTE Band 48)

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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/10MHz]	EIRP [Watts/10MHz]	EIRP Limit [dBm/10MHz]	Margin [dB]
40 MHz	π/2 BPSK	3570.00	H	126	311	6.53	1 / 53	14.01	20.54	<b>0.113</b>	23.00	-2.46
	π/2 BPSK	3625.00	H	156	297	6.70	1 / 53	13.68	20.38	0.109	23.00	-2.62
	π/2 BPSK	3680.00	H	137	298	6.84	1 / 104	13.36	20.20	0.105	23.00	-2.80
	QPSK	3570.00	H	126	311	6.53	1 / 53	13.92	20.45	0.111	23.00	-2.55
	QPSK	3625.00	H	156	297	6.70	1 / 1	13.62	20.32	0.108	23.00	-2.68
	QPSK	3680.00	H	137	298	6.84	1 / 1	13.46	20.30	0.107	23.00	-2.70
	16-QAM	3570.00	H	126	311	6.53	1 / 53	13.33	19.86	0.097	23.00	-3.14
	16-QAM	3625.00	H	156	297	6.70	1 / 53	12.93	19.63	0.092	23.00	-3.37
	16-QAM	3680.00	H	137	298	6.84	1 / 53	12.54	19.38	0.087	23.00	-3.62
30 MHz	π/2 BPSK	3565.00	H	126	311	6.52	1 / 76	13.96	20.48	<b>0.112</b>	23.00	-2.52
	π/2 BPSK	3625.00	H	156	297	6.70	1 / 39	13.72	20.42	0.110	23.00	-2.58
	π/2 BPSK	3685.00	H	137	298	6.85	1 / 1	13.23	20.08	0.102	23.00	-2.92
	QPSK	3565.00	H	126	311	6.52	1 / 76	13.90	20.42	0.110	23.00	-2.58
	QPSK	3625.00	H	156	297	6.70	1 / 39	13.75	20.45	0.111	23.00	-2.55
	QPSK	3685.00	H	137	298	6.85	1 / 1	13.32	20.17	0.104	23.00	-2.83
	16-QAM	3565.00	H	126	311	6.52	1 / 76	13.26	19.78	0.095	23.00	-3.22
	16-QAM	3625.00	H	156	297	6.70	1 / 39	13.07	19.77	0.095	23.00	-3.23
	16-QAM	3685.00	H	137	298	6.85	1 / 1	12.41	19.26	0.084	23.00	-3.74
20 MHz	π/2 BPSK	3560.00	H	126	311	6.51	1 / 25	13.55	20.06	0.101	23.00	-2.94
	π/2 BPSK	3625.00	H	156	297	6.70	1 / 25	13.73	20.43	0.110	23.00	-2.57
	π/2 BPSK	3690.00	H	137	298	6.86	1 / 1	12.87	19.72	0.094	23.00	-3.28
	QPSK	3560.00	H	126	311	6.51	1 / 25	13.73	20.24	0.106	23.00	-2.76
	QPSK	3625.00	H	156	297	6.70	1 / 25	14.08	<b>20.78</b>	<b>0.120</b>	23.00	-2.22
	QPSK	3690.00	H	137	298	6.86	1 / 1	13.01	19.86	0.097	23.00	-3.14
	16-QAM	3560.00	H	126	311	6.51	1 / 25	13.00	19.51	0.089	23.00	-3.49
	16-QAM	3625.00	H	156	297	6.70	1 / 25	13.16	19.86	0.097	23.00	-3.14
	16-QAM	3690.00	H	137	298	6.86	1 / 1	12.20	19.05	0.080	23.00	-3.95
15 MHz	π/2 BPSK	3557.50	H	126	311	6.51	1 / 36	13.29	19.79	0.095	23.00	-3.21
	π/2 BPSK	3625.00	H	156	297	6.70	1 / 36	13.68	20.38	<b>0.109</b>	23.00	-2.62
	π/2 BPSK	3692.50	H	137	298	6.86	1 / 19	12.90	19.76	0.095	23.00	-3.24
	QPSK	3557.50	H	126	311	6.51	1 / 36	13.16	19.66	0.093	23.00	-3.34
	QPSK	3625.00	H	156	297	6.70	1 / 36	13.65	20.35	0.108	23.00	-2.65
	QPSK	3692.50	H	137	298	6.86	1 / 19	13.19	20.05	0.101	23.00	-2.95
	16-QAM	3557.50	H	126	311	6.51	1 / 36	12.59	19.09	0.081	23.00	-3.91
	16-QAM	3625.00	H	156	297	6.70	1 / 36	12.96	19.66	0.092	23.00	-3.34
	16-QAM	3692.50	H	137	298	6.86	1 / 19	12.22	19.08	0.081	23.00	-3.92
10 MHz	π/2 BPSK	3555.00	H	126	311	6.50	1 / 22	13.12	19.62	0.092	23.00	-3.38
	π/2 BPSK	3625.00	H	156	297	6.70	1 / 22	13.72	<b>20.42</b>	<b>0.110</b>	23.00	-2.58
	π/2 BPSK	3695.00	H	137	298	6.86	1 / 1	13.03	19.89	0.098	23.00	-3.11
	QPSK	3555.00	H	126	311	6.50	1 / 22	12.98	19.48	0.089	23.00	-3.52
	QPSK	3625.00	H	156	297	6.70	1 / 22	13.68	20.38	0.109	23.00	-2.62
	QPSK	3695.00	H	137	298	6.86	1 / 1	13.11	19.97	0.099	23.00	-3.03
	16-QAM	3555.00	H	126	311	6.50	1 / 22	12.41	18.91	0.078	23.00	-4.09
	16-QAM	3625.00	H	156	297	6.70	1 / 22	12.94	19.64	0.092	23.00	-3.36
	16-QAM	3695.00	H	137	298	6.86	1 / 1	12.22	19.08	0.081	23.00	-3.92

Table 7-17. EIRP Data (NR Band n48) – ANT F

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/10MHz]	EIRP [Watts/10MHz]	EIRP Limit [dBm/10MHz]	Margin [dB]
40 MHz	π/2 BPSK	3570.00	H	108	142	6.53	1 / 53	6.91	13.44	0.022	23.00	-9.56
	π/2 BPSK	3625.00	H	105	142	6.70	1 / 53	6.71	13.41	0.022	23.00	-9.59
	π/2 BPSK	3680.00	H	105	146	6.84	1 / 53	6.75	13.59	0.023	23.00	-9.41
	QPSK	3570.00	H	108	142	6.53	1 / 53	6.93	13.46	0.022	23.00	-9.54
	QPSK	3625.00	H	105	142	6.70	1 / 53	6.72	13.42	0.022	23.00	-9.58
	QPSK	3680.00	H	105	146	6.84	1 / 53	6.80	<b>13.64</b>	<b>0.023</b>	23.00	-9.36
	16-QAM	3570.00	H	108	142	6.53	1 / 53	5.79	12.32	0.017	23.00	-10.68
	16-QAM	3625.00	H	105	142	6.70	1 / 53	5.61	12.31	0.017	23.00	-10.69
	16-QAM	3680.00	H	105	146	6.84	1 / 53	5.63	12.47	0.018	23.00	-10.53

Table 7-18. EIRP Data (NR Band n48) – ANT E

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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/10MHz]	EIRP [Watts/10MHz]	EIRP Limit [dBm/10MHz]	Margin [dB]
40 MHz	$\pi/2$ BPSK	3570.00	H	104	319	6.53	1 / 1	-3.09	3.44	0.002	23.00	-19.56
	$\pi/2$ BPSK	3625.00	H	102	317	6.70	1 / 53	-3.64	3.06	0.002	23.00	-19.94
	$\pi/2$ BPSK	3680.00	H	102	315	6.84	1 / 104	-2.26	<b>4.58</b>	<b>0.003</b>	23.00	-18.42
	QPSK	3570.00	H	104	319	6.53	1 / 1	-3.07	3.46	0.002	23.00	-19.54
	QPSK	3625.00	H	102	317	6.70	1 / 53	-3.66	3.04	0.002	23.00	-19.96
	QPSK	3680.00	H	102	315	6.84	1 / 104	-2.35	4.49	0.003	23.00	-18.51
	16-QAM	3570.00	H	104	319	6.53	1 / 1	-4.17	2.36	0.002	23.00	-20.64
	16-QAM	3625.00	H	102	317	6.70	1 / 53	-4.68	2.02	0.002	23.00	-20.98
16-QAM	3680.00	H	102	315	6.84	1 / 104	-3.45	3.39	0.002	23.00	-19.61	

Table 7-19. EIRP Data (NR Band n48) – ANT H

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/10MHz]	EIRP [Watts/10MHz]	EIRP Limit [dBm/10MHz]	Margin [dB]
40 MHz	$\pi/2$ BPSK	3570.00	H	102	222	6.53	1 / 53	0.78	<b>7.31</b>	<b>0.005</b>	23.00	-15.69
	$\pi/2$ BPSK	3625.00	H	102	220	6.70	1 / 1	0.49	7.19	0.005	23.00	-15.81
	$\pi/2$ BPSK	3680.00	H	102	223	6.84	1 / 104	0.31	7.15	0.005	23.00	-15.85
	QPSK	3570.00	H	102	222	6.53	1 / 53	0.72	7.25	0.005	23.00	-15.75
	QPSK	3625.00	H	102	220	6.70	1 / 1	0.39	7.09	0.005	23.00	-15.91
	QPSK	3680.00	H	102	223	6.84	1 / 104	0.30	7.14	0.005	23.00	-15.86
	16-QAM	3570.00	H	102	222	6.53	1 / 53	-0.37	6.16	0.004	23.00	-16.84
	16-QAM	3625.00	H	102	220	6.70	1 / 1	-0.66	6.04	0.004	23.00	-16.96
16-QAM	3680.00	H	102	223	6.84	1 / 104	-0.75	6.09	0.004	23.00	-16.91	

Table 7-20. EIRP Data (NR Band n48) - ANT G

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## 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

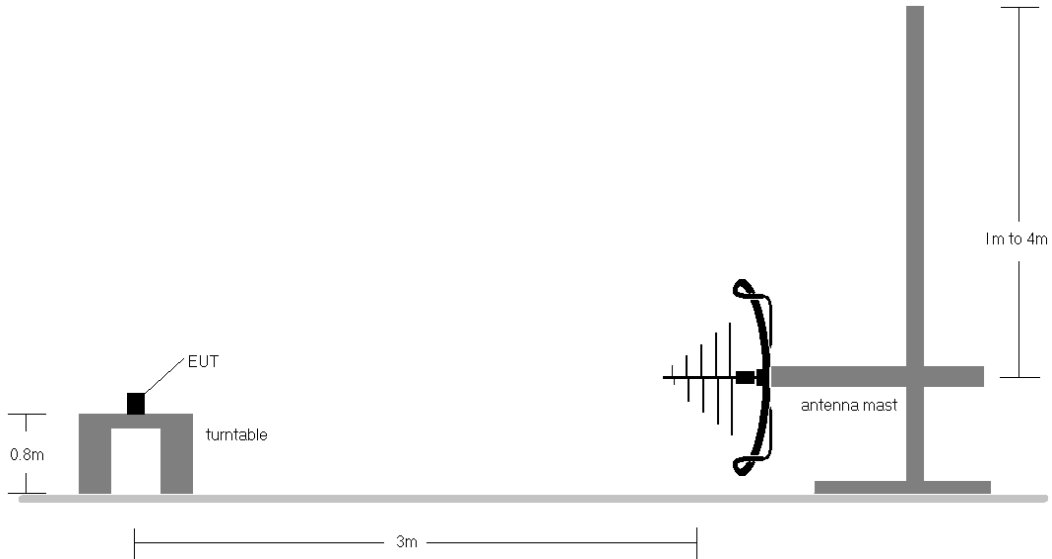
### Test Settings

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 = Max Hold (In cases where the level is within 2dB of the limit, the final measurement is taken using triggering/gating and trace averaging.)
7. The trace was allowed to stabilize

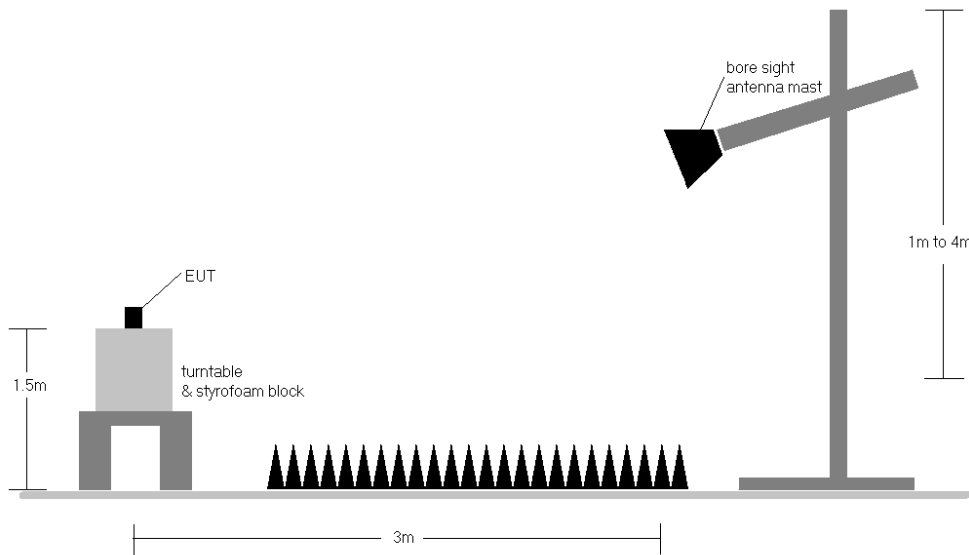
FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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**Test Setup**

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



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



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

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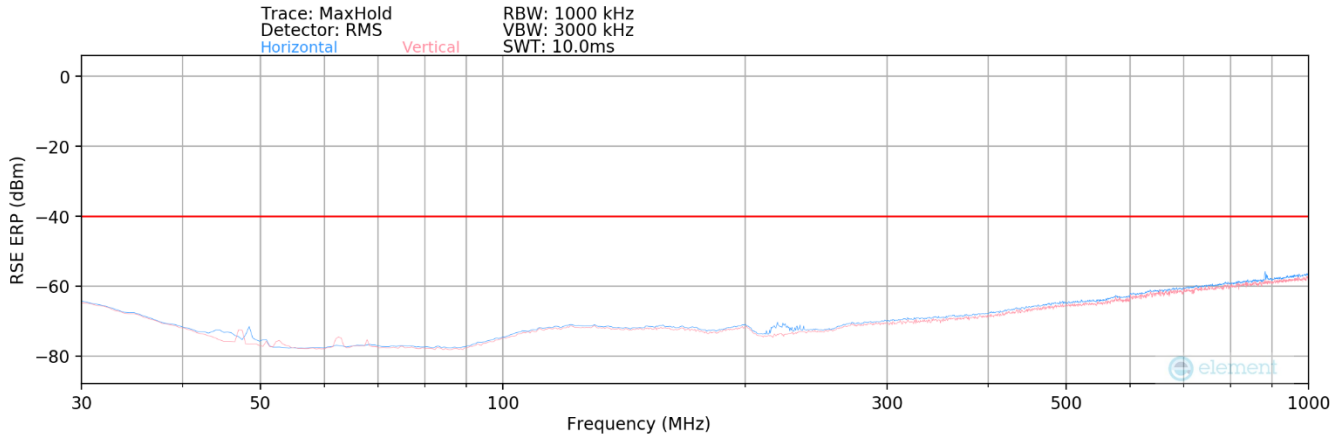


**Test Notes**

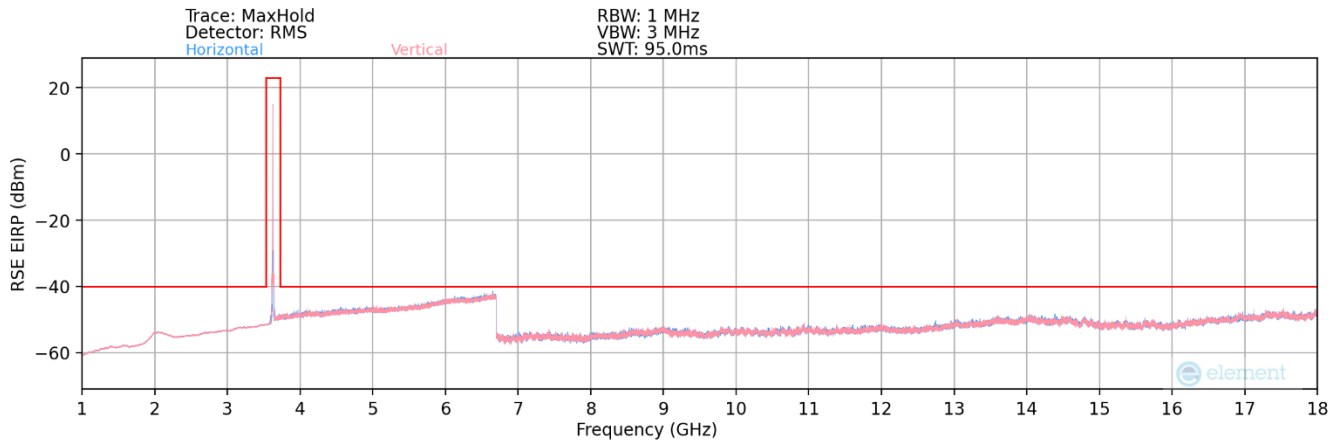
- 1) Field strengths are calculated using the Measurement quantity conversions in ANSI C63.26-2015 Section 5.2.7:
  - a)  $E(\text{dB}\mu\text{V}/\text{m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$
  - b)  $\text{EIRP (dBm)} = E(\text{dB}\mu\text{V}/\text{m}) + 20\log D - 104.8$ ; 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) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.
- 8) Spurious 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. Spurious emissions from the NR carrier device are subject to the rules under which the NR carrier operates. Spurious emissions caused by the LTE carrier must meet the requirements of the rules under which the LTE carrier operates.

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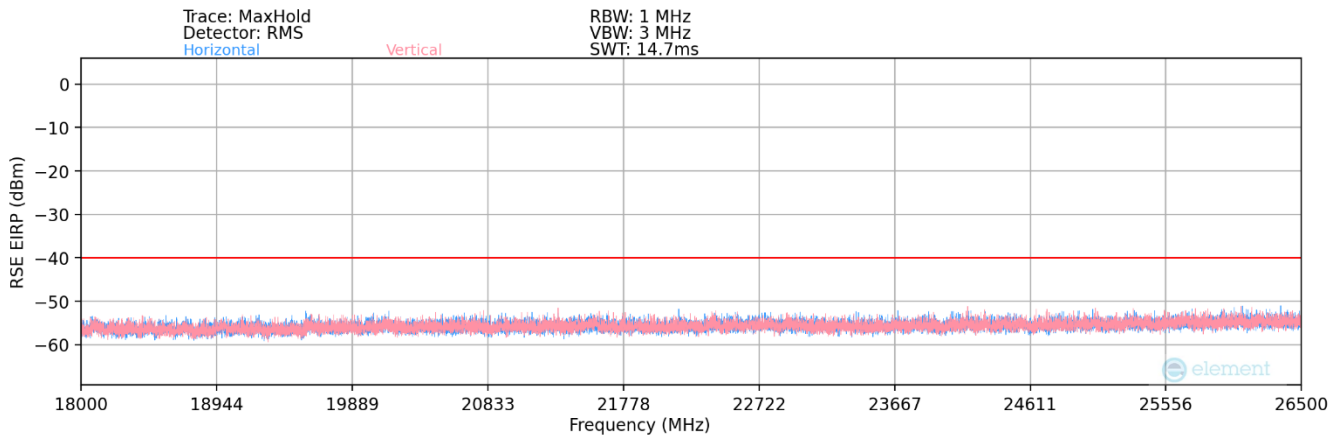
# LTE Band 48



Plot 7-75. Radiated Spurious Plot (LTE Band 48 – Below 1GHz)

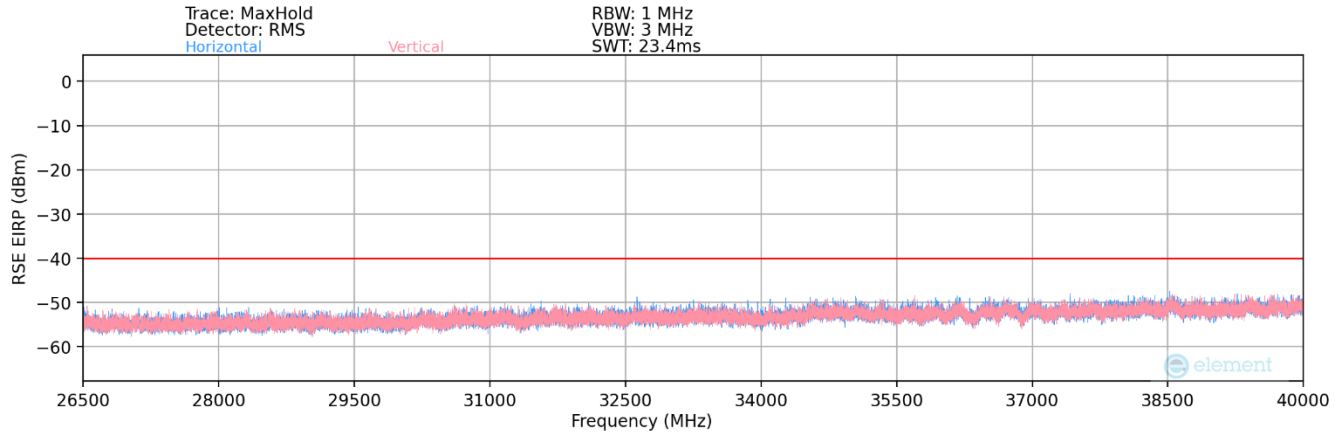


Plot 7-76. Radiated Spurious Plot (LTE Band 48- 1GHz -18GHz)



Plot 7-77. Radiated Spurious Plot (LTE Band 48 - 18GHz -26.5GHz)

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Plot 7-78. Radiated Spurious Plot (LTE Band 48 – 26.5GHz-40GHz)

Bandwidth (MHz):	20
Frequency (MHz):	3625.0
RB Config (Size / 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]
883.00	H	-	-	-98.11	30.82	39.71	-57.70	-40.00	-17.70

Table 7-21. Radiated Spurious Data (LTE Band 48 – Below 1GHz)

Bandwidth (MHz):	20
Frequency (MHz):	3560.0
RB Config (Size / 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]
7120.00	H	-	-	-77.30	9.26	38.96	-56.29	-40.00	-16.29
10680.00	H	226	332	-77.24	12.33	42.09	-53.16	-40.00	-13.16
14240.00	H	-	-	-79.87	16.01	43.14	-52.12	-40.00	-12.12
17800.00	H	-	-	-80.04	17.28	44.24	-51.02	-40.00	-11.02

Table 7-22. Radiated Spurious Data (LTE Band 48 – Low Channel)

Bandwidth (MHz):	20
Frequency (MHz):	3625.0
RB Config (Size / 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]
7250.00	H	307	76	-76.85	9.18	39.33	-55.93	-40.00	-15.93
10875.00	H	181	52	-75.62	11.95	43.33	-51.93	-40.00	-11.93
14500.00	H	-	-	-79.80	15.94	43.14	-52.11	-40.00	-12.11

Table 7-23. Radiated Spurious Data (LTE Band 48 – Mid Channel)

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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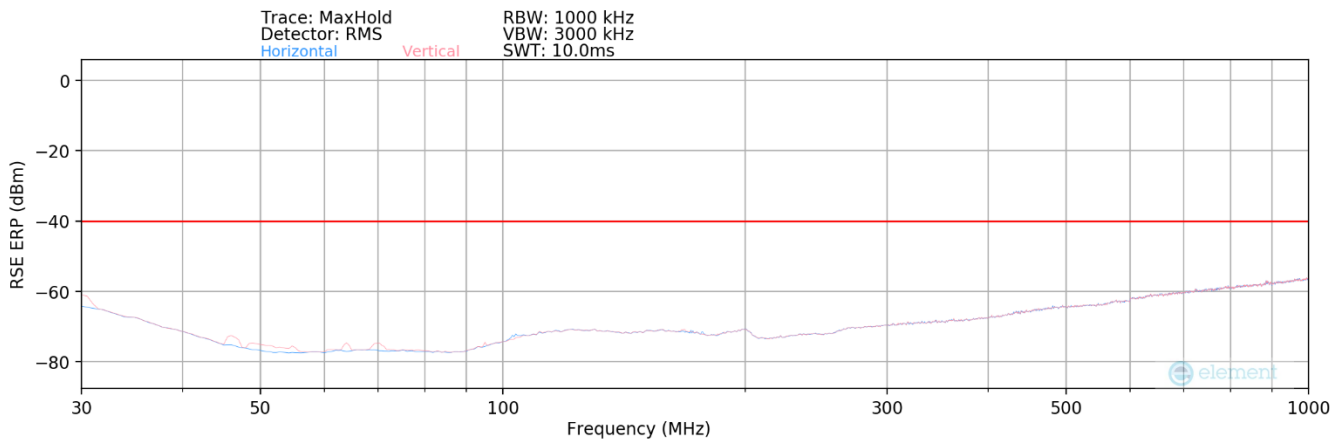
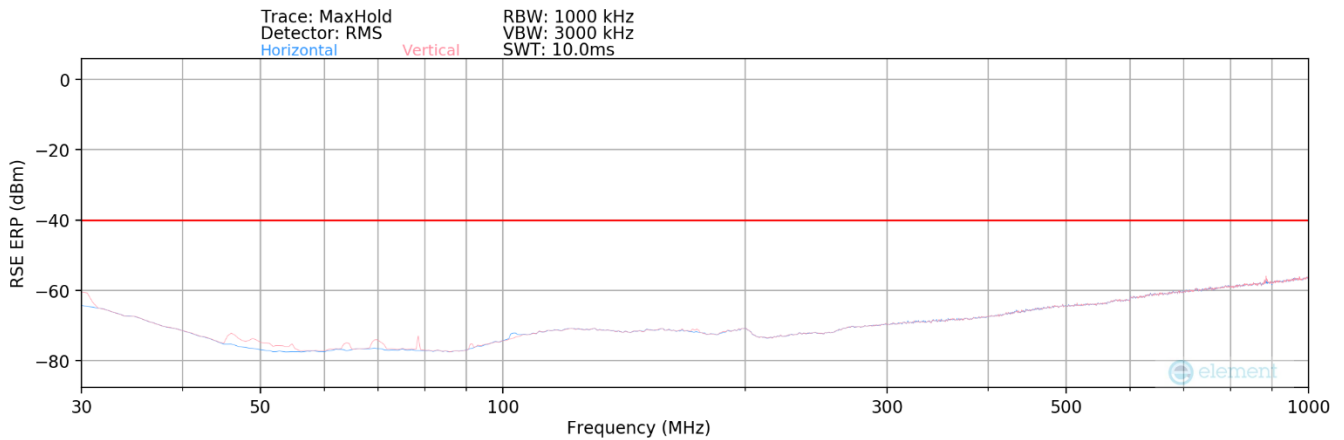
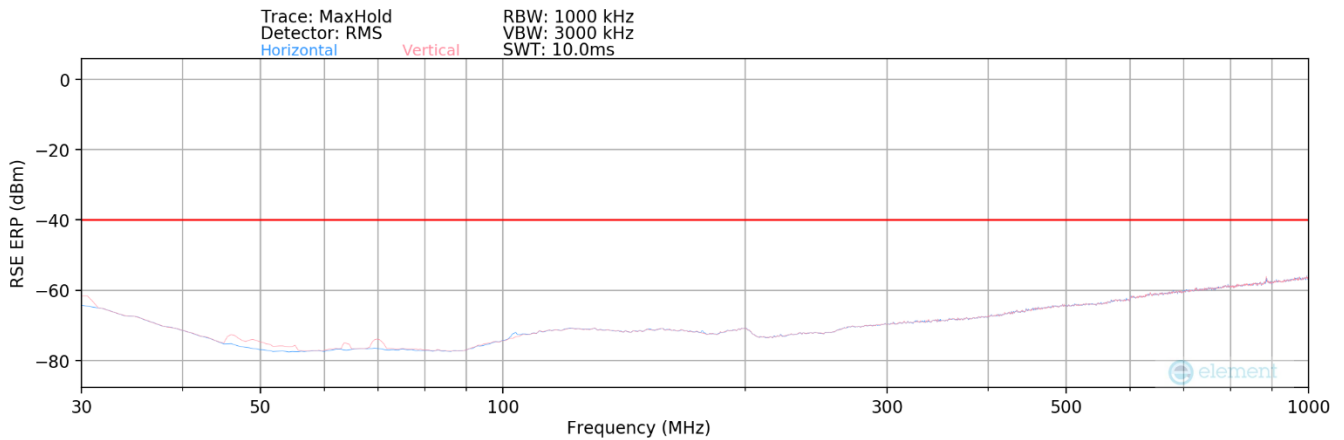
Bandwidth (MHz):	20
Frequency (MHz):	3690.0
RB Config (Size / Offset):	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7380.00	H	-	-	-78.12	9.82	38.70	-56.56	-40.00	-16.56
11070.00	H	-	-	-79.39	12.05	39.66	-55.59	-40.00	-15.59
14760.00	H	-	-	-80.52	15.62	42.10	-53.16	-40.00	-13.16

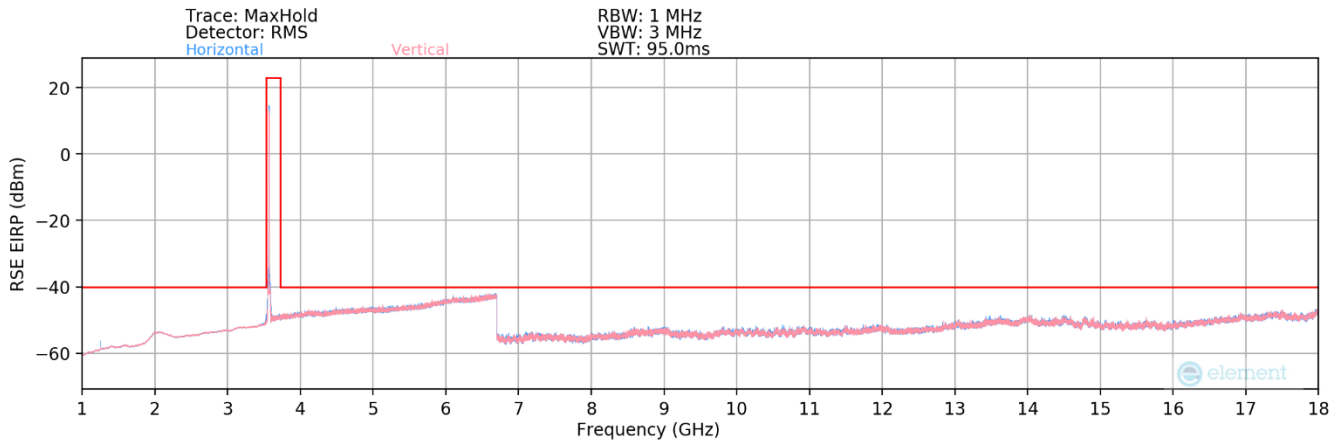
Table 7-24. Radiated Spurious Data (LTE Band 48 – High Channel)

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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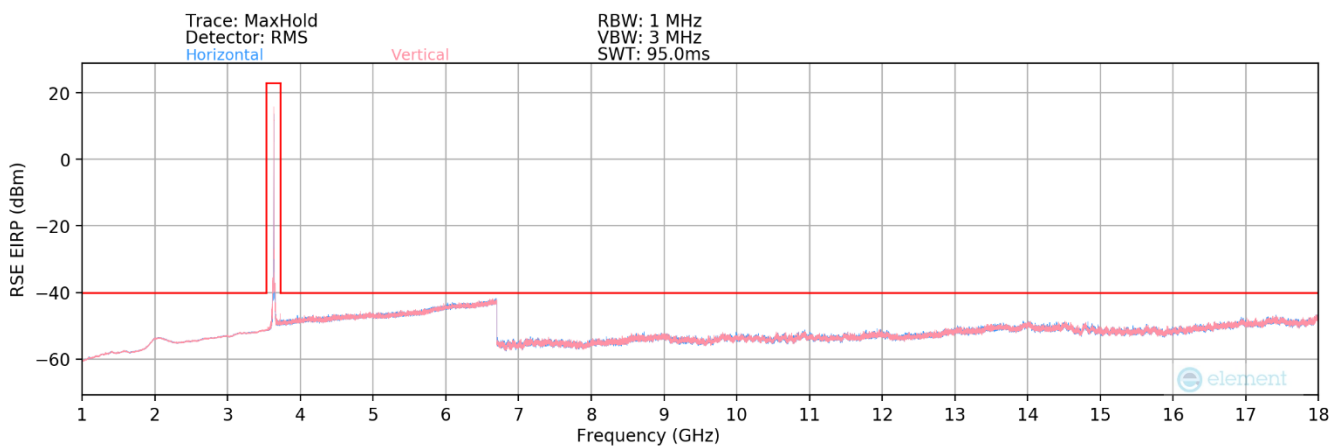
# ULCA LTE Band 48



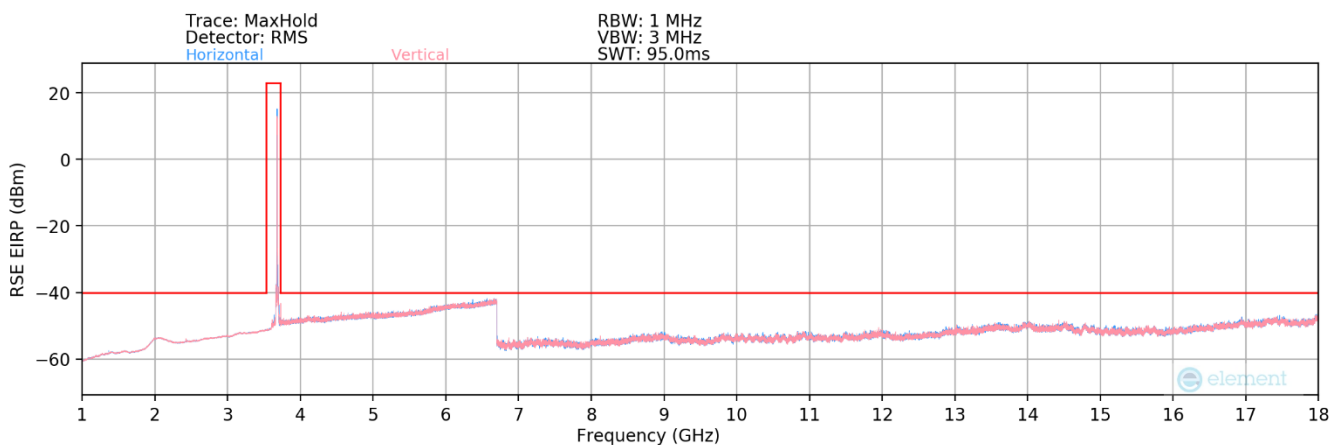
FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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**Plot 7-82. Radiated Spurious Plot (ULCA LTE Band 48 – Low channel – 1GHz -18GHz)**

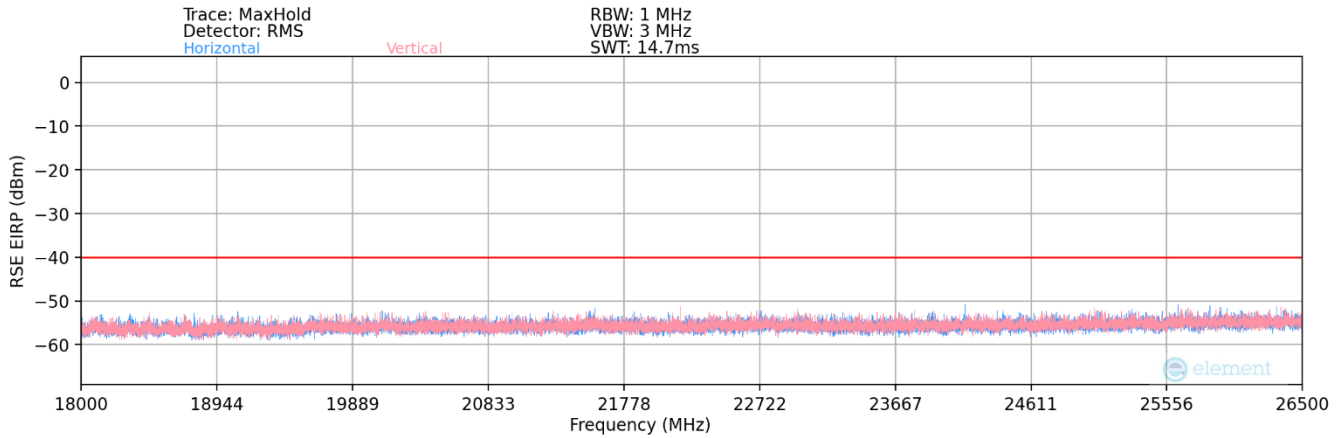


**Plot 7-83. Radiated Spurious Plot (ULCA LTE Band 48 – Mid channel – 1GHz -18GHz)**

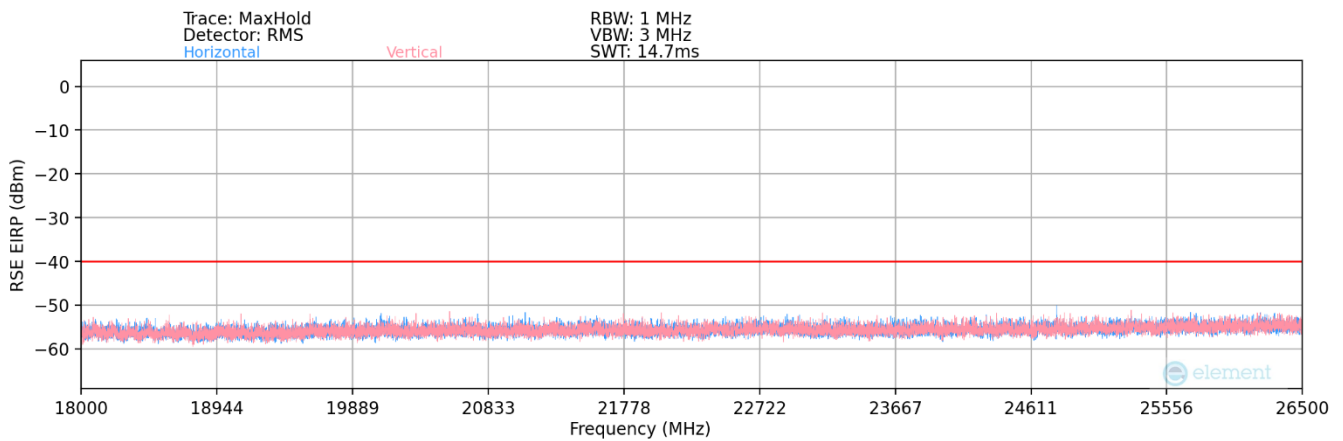


**Plot 7-84. Radiated Spurious Plot (ULCA LTE Band 48 – High Channel – 1GHz -18GHz)**

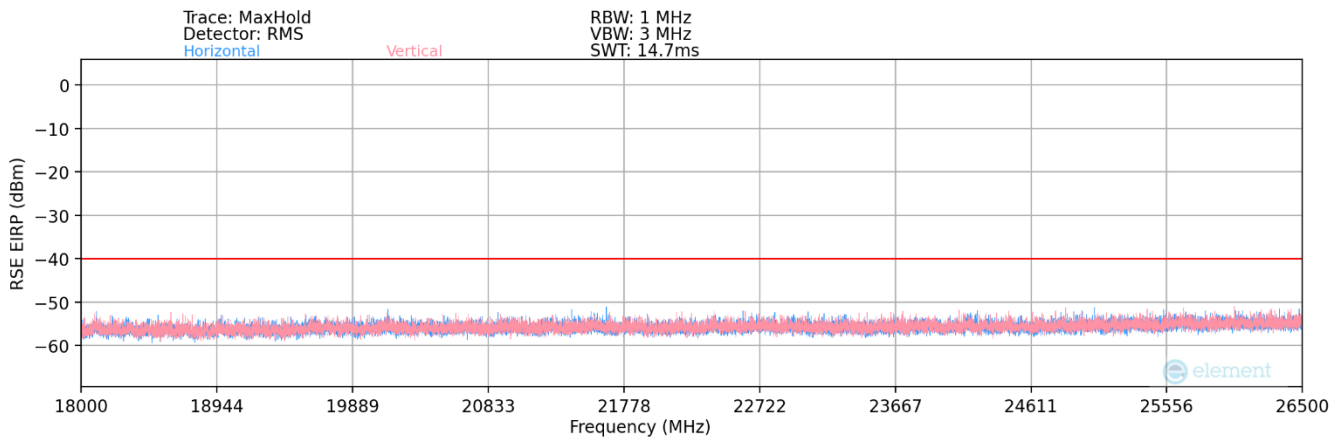
<b>FCC ID:</b> A3LSMA156U	<b>PART 96 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2309070100-07.A3L	<b>Test Dates:</b> 09/08 - 10/30/2023	<b>EUT Type:</b> Portable Handset	Page 79 of 107



**Plot 7-85. Radiated Spurious Plot (ULCA LTE Band 48 – Low channel – 18GHz -26.5GHz)**

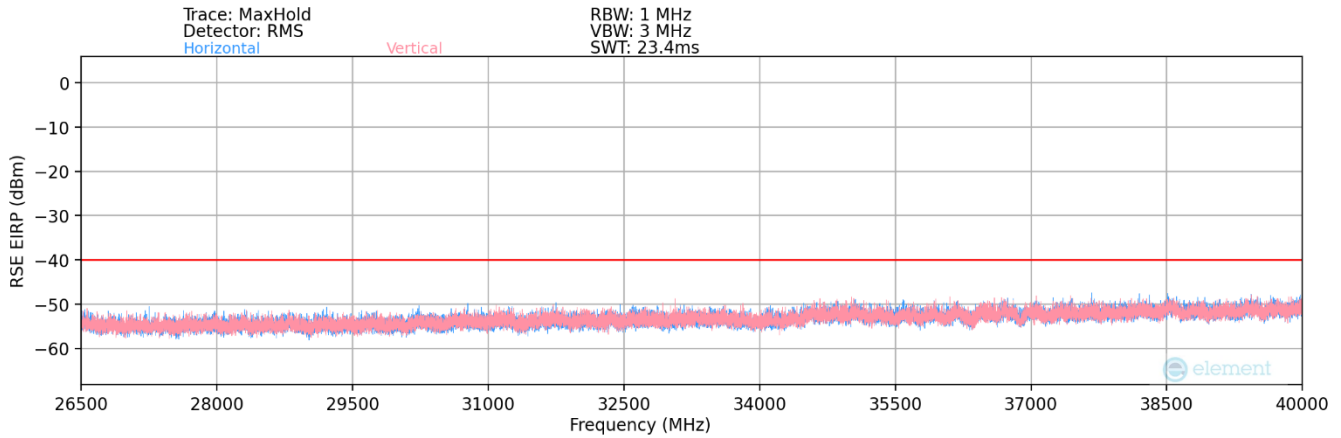


**Plot 7-86. Radiated Spurious Plot (ULCA LTE Band 48 – Mid channel – 18GHz -26.5GHz)**

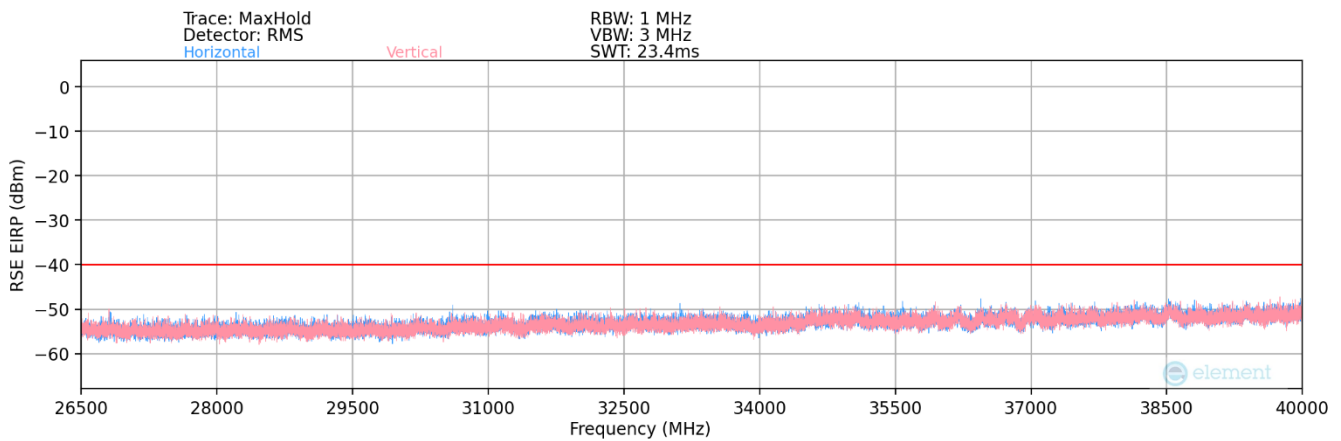


**Plot 7-87. Radiated Spurious Plot (ULCA LTE Band 48 – High Channel – 18GHz -26.5GHz)**

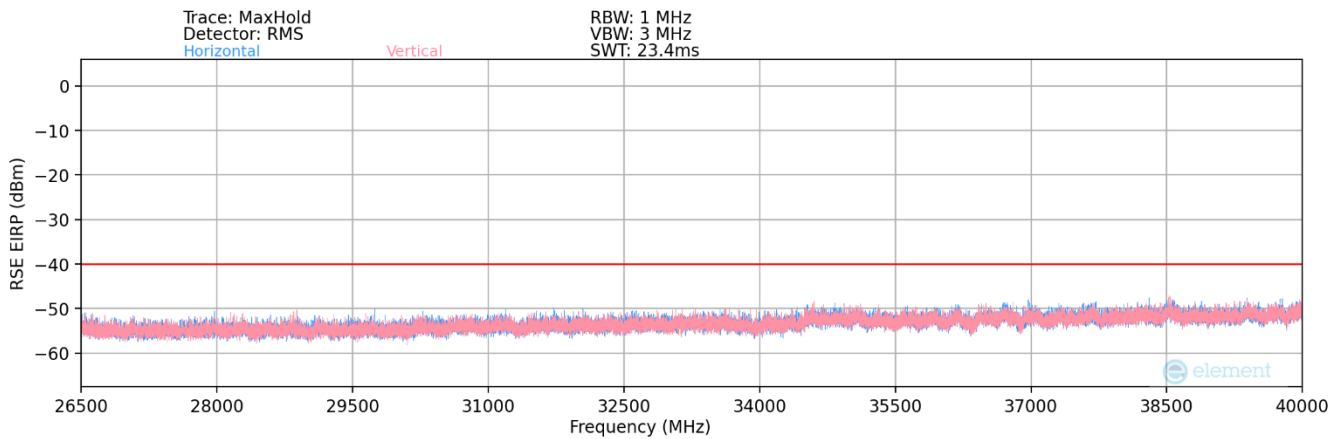
FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-88. Radiated Spurious Plot (ULCA LTE Band 48 - Low Channel - 26.5GHz-40GHz)



Plot 7-89. Radiated Spurious Plot (ULCA LTE Band 48 - Mid Channel - 26.5GHz-40GHz)



Plot 7-90. Radiated Spurious Plot (ULCA LTE Band 48 - High Channel - 26.5GHz-40GHz)

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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PCC Bandwidth (MHz):	20
PCC Frequency (MHz):	3625.0
PCC RB / Offset:	1 / 99
SCC Bandwidth (MHz):	20
SCC Frequency (MHz):	3644.8
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]
161.00	H	-	-	-80.66	19.93	46.27	-51.13	-40.00	-11.13
311.00	H	-	-	-80.87	21.53	47.66	-49.75	-40.00	-9.75

Table 7-25. Radiated Spurious Data (ULCA LTE Band 48 – Below 1GHz)

PCC Bandwidth (MHz):	20
PCC Frequency (MHz):	3560.0
PCC RB / Offset:	1 / 99
SCC Bandwidth (MHz):	20
SCC Frequency (MHz):	3579.8
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]
7120.00	H	-	-	-76.90	9.26	39.36	-55.89	-40.00	-15.89
10680.00	H	-	-	-78.38	12.33	40.95	-54.30	-40.00	-14.30
14240.00	H	-	-	-78.65	16.01	44.36	-50.90	-40.00	-10.90

Table 7-26. Radiated Spurious Data (ULCA LTE Band 48 – Low Channel)

PCC Bandwidth (MHz):	20
PCC Frequency (MHz):	3625.0
PCC RB / Offset:	1 / 99
SCC Bandwidth (MHz):	20
SCC Frequency (MHz):	3644.8
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]
7250.00	H	-	-	-76.20	9.18	39.98	-55.28	-40.00	-15.28
10875.00	H	-	-	-78.08	11.95	40.87	-54.39	-40.00	-14.39
14500.00	H	-	-	-78.57	15.94	44.37	-50.88	-40.00	-10.88

Table 7-27. Radiated Spurious Data (ULCA LTE Band 48 – Mid Channel)

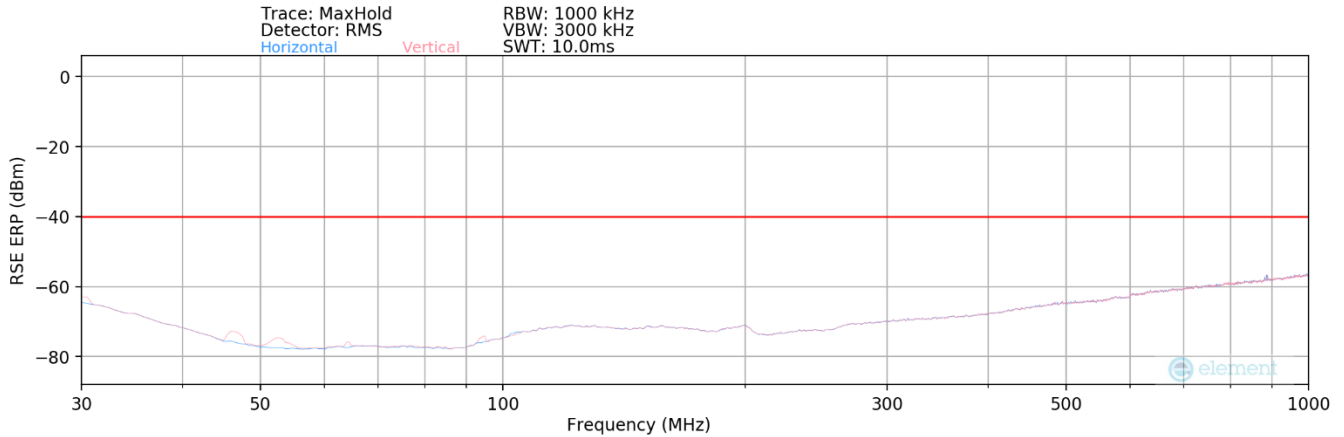
PCC Bandwidth (MHz):	20
PCC Frequency (MHz):	3690.0
PCC RB / Offset:	1 / 0
SCC Bandwidth (MHz):	20
SCC Frequency (MHz):	3670.2
SCC RB / Offset:	1 / 99

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]
7380.00	H	-	-	-75.94	9.82	40.88	-54.38	-40.00	-14.38
11070.00	H	-	-	-76.26	12.05	42.79	-52.46	-40.00	-12.46
14760.00	H	-	-	-77.58	15.62	45.04	-50.22	-40.00	-10.22

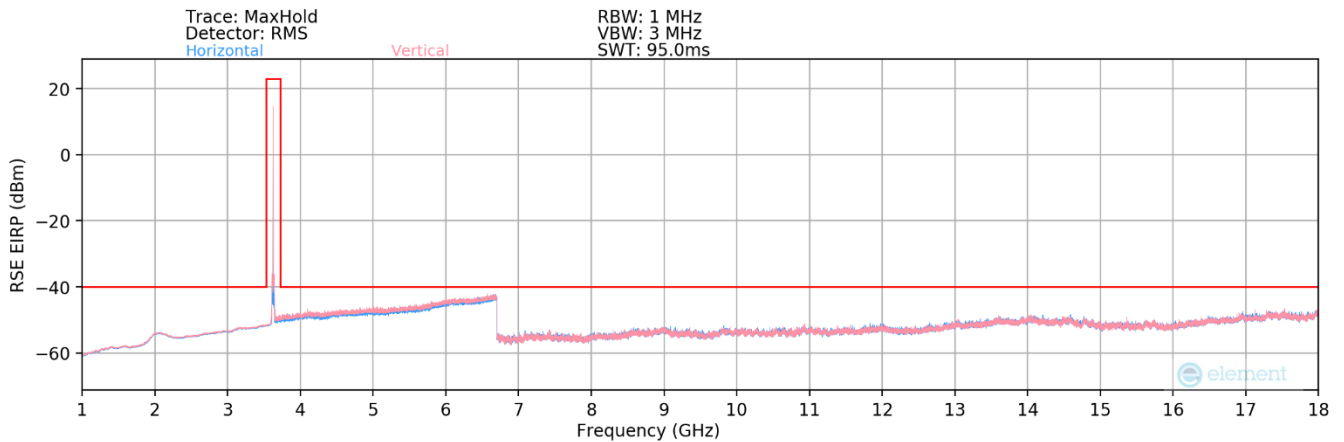
Table 7-28. Radiated Spurious Data (ULCA LTE Band 48 – High Channel)

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT							Approved by: Technical Manager	
Test Report S/N: 1M2309070100-07.A3L	Test Dates: 09/08 - 10/30/2023	EUT Type: Portable Handset					Page 82 of 107		

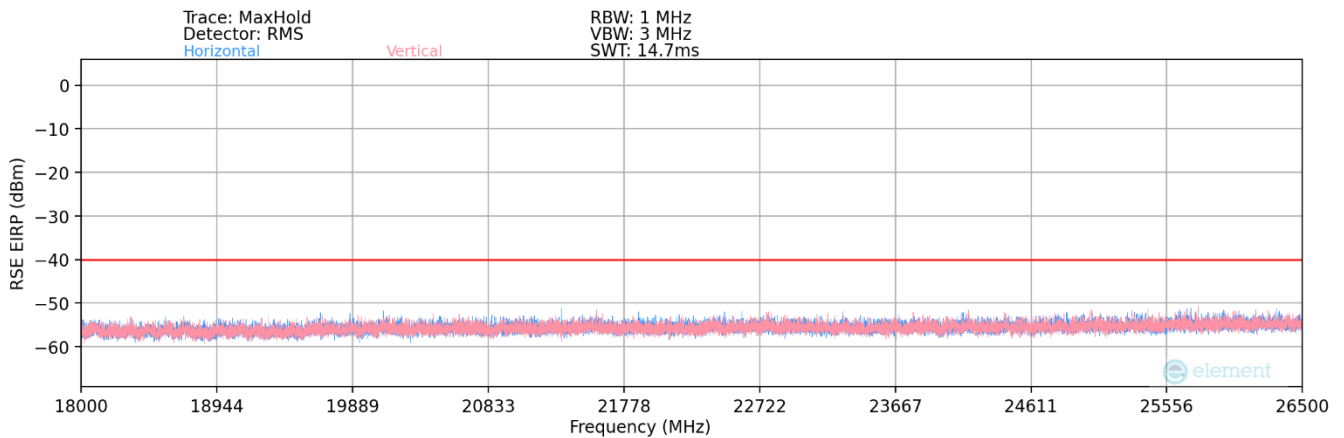
# NR Band n48 ANT F



**Plot 7-91. Radiated Spurious Plot (NR Band n48 – Below 1GHz)**

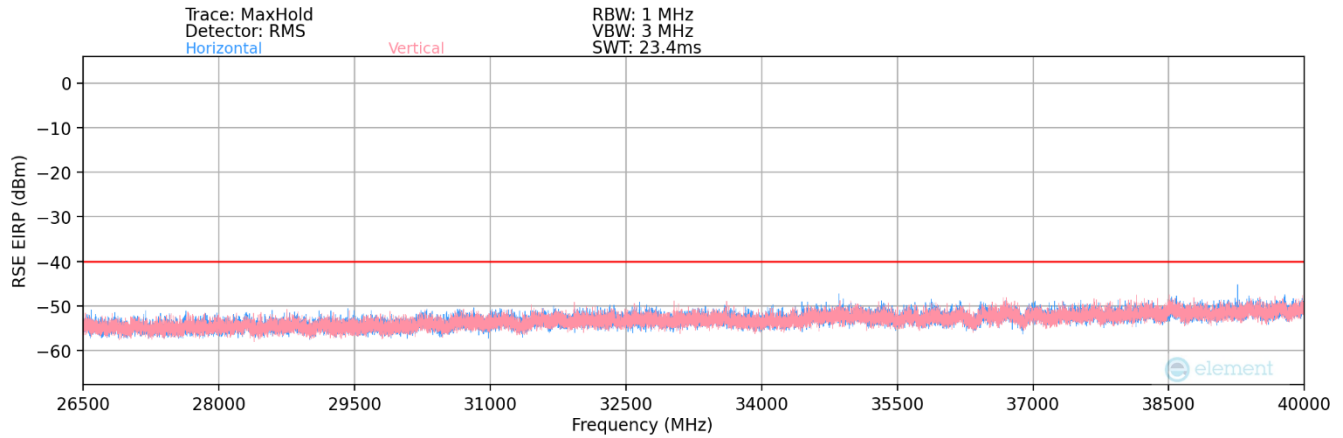


**Plot 7-92. Radiated Spurious Plot (NR Band n48- 1GHz -18GHz)**



**Plot 7-93. Radiated Spurious Plot (NR Band n48 – 18GHz -26.5GHz)**

FCC ID: A3LSMA156U	<b>PART 96 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2309070100-07.A3L	Test Dates: 09/08 - 10/30/2023	EUT Type: Portable Handset	Page 83 of 107



Plot 7-94. Radiated Spurious Plot (NR Band n48 – 26.5GHz-40GHz)

Bandwidth (MHz):	40
Frequency (MHz):	3625.0
RB Config (Size / Offset):	1 / 53

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]
732.00	H	-	-	-97.42	29.13	38.71	-58.70	-40.00	-18.70

Table 7-29. Radiated Spurious Data (NR Band n48 – Below 1GHz)

Bandwidth (MHz):	40
Frequency (MHz):	3570.0
RB Config (Size / Offset):	1 / 53

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]
7140.00	H	-	-	-77.86	9.56	38.70	-56.56	-40.00	-16.56
10710.00	H	-	-	-79.10	11.90	39.80	-55.46	-40.00	-15.46
14280.00	H	-	-	-79.79	15.51	42.72	-52.54	-40.00	-12.54

Table 7-30. Radiated Spurious Data (NR Band n48 – Low Channel)

Bandwidth (MHz):	40
Frequency (MHz):	3625.0
RB Config (Size / Offset):	1 / 53

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]
7250.00	H	-	-	-76.95	9.18	39.23	-56.03	-40.00	-16.03
10875.00	H	-	-	-79.17	11.95	39.78	-55.48	-40.00	-15.48
14500.00	H	-	-	-79.80	15.94	43.14	-52.11	-40.00	-12.11

Table 7-31. Radiated Spurious Data (NR Band n48 – Mid Channel)

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-07.A3L	Test Dates: 09/08 - 10/30/2023	EUT Type: Portable Handset	Page 84 of 107



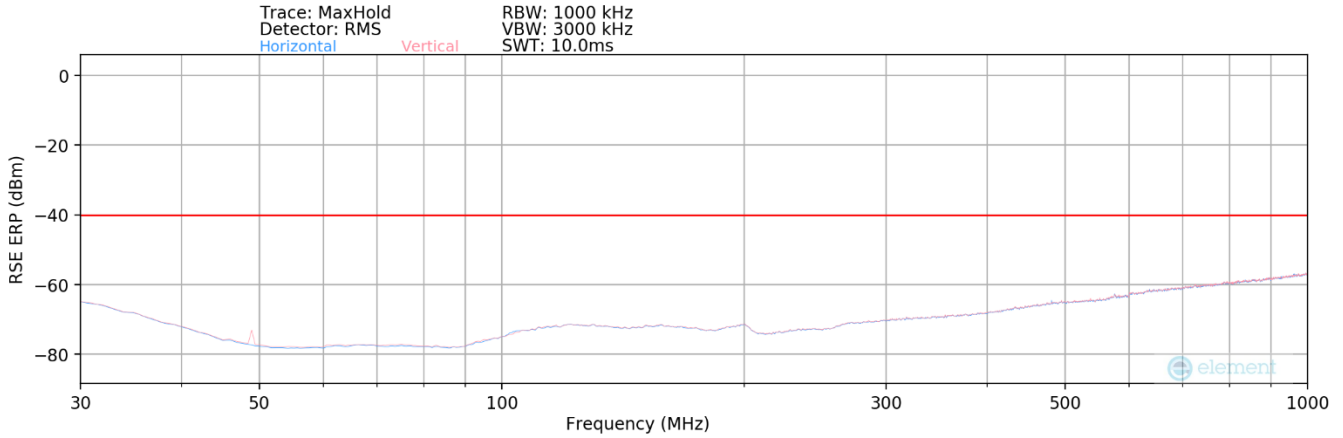
Bandwidth (MHz):	40
Frequency (MHz):	3680.0
RB Config (Size / Offset):	1 / 53

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7360.00	H	-	-	-77.56	8.94	38.38	-56.87	-40.00	-16.87
11040.00	H	-	-	-79.05	12.12	40.07	-55.19	-40.00	-15.19
14720.00	H	-	-	-80.49	15.63	42.14	-53.11	-40.00	-13.11

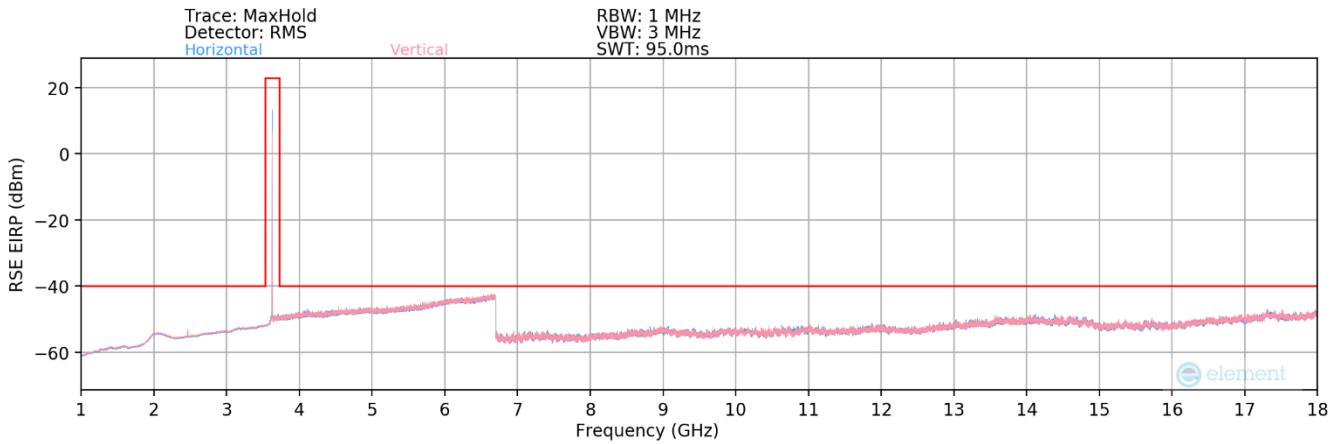
Table 7-32. Radiated Spurious Data (NR Band n48 – High Channel)

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-07.A3L	Test Dates: 09/08 - 10/30/2023	EUT Type: Portable Handset	Page 85 of 107

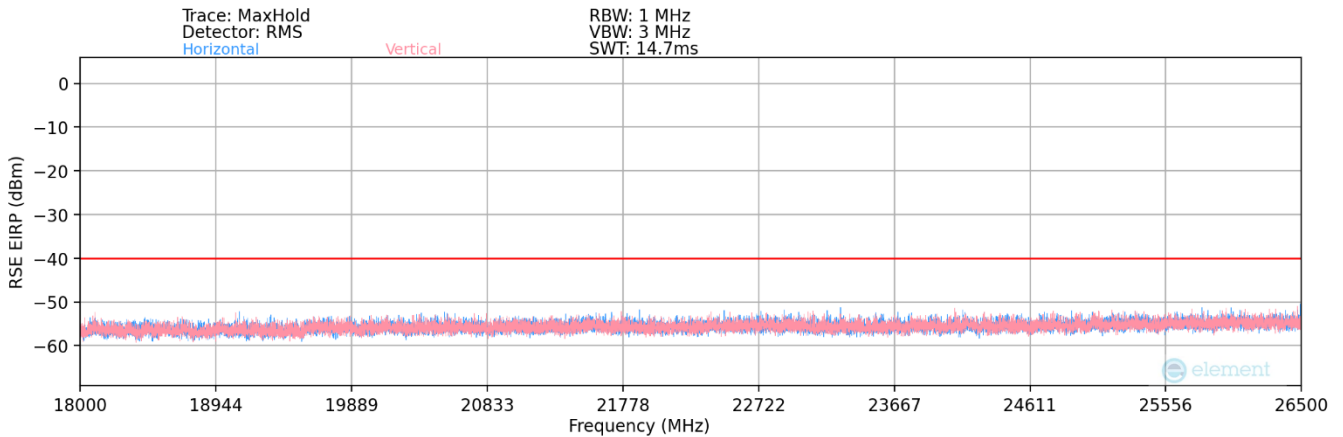
# NR Band n48 ANT E



Plot 7-95. Radiated Spurious Plot (NR Band n48 – Below 1GHz)

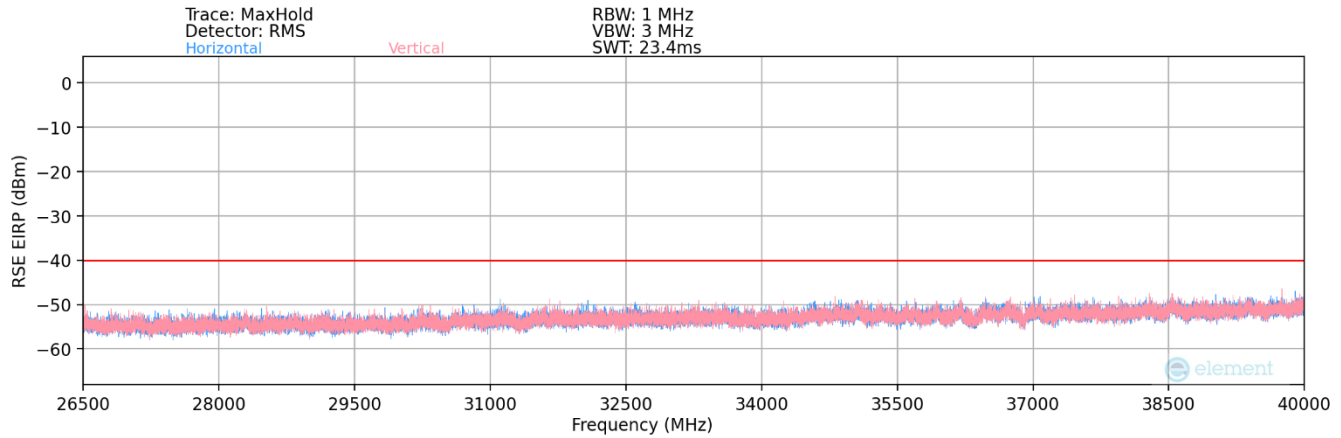


Plot 7-96. Radiated Spurious Plot (NR Band n48– 1GHz -18GHz)



Plot 7-97. Radiated Spurious Plot (NR Band n48 – 18GHz -26.5GHz)

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-07.A3L	Test Dates: 09/08 - 10/30/2023	EUT Type: Portable Handset	Page 86 of 107



**Plot 7-98. Radiated Spurious Plot (NR Band n48 – 26.5GHz-40GHz)**

Bandwidth (MHz):	40
Frequency (MHz):	3625.0
RB Config (Size / Offset):	1 / 53

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]
48.24	H	-	-	-84.24	15.34	38.10	-59.30	-40.00	-19.30
102.48	H	-	-	-84.18	17.81	40.63	-56.77	-40.00	-16.77
199.27	H	-	-	-84.10	20.10	43.00	-54.41	-40.00	-14.41

**Table 7-33. Radiated Spurious Data (NR Band n48 – Below 1GHz)**

Bandwidth (MHz):	40
Frequency (MHz):	3570.0
RB Config (Size / Offset):	1 / 53

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]
7140.00	H	-	-	-79.41	9.62	37.21	-58.05	-40.00	-18.05
10710.00	H	-	-	-80.23	12.33	39.10	-56.15	-40.00	-16.15
14280.00	H	-	-	-80.28	15.60	42.32	-52.94	-40.00	-12.94

**Table 7-34. Radiated Spurious Data (NR Band n48 – Low Channel)**

Bandwidth (MHz):	40
Frequency (MHz):	3625.0
RB Config (Size / Offset):	1 / 53

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]
7250.00	H	-	-	-78.63	9.18	37.55	-57.71	-40.00	-17.71
10875.00	H	-	-	-80.10	11.95	38.85	-56.41	-40.00	-16.41
14500.00	H	-	-	-80.52	15.94	42.42	-52.83	-40.00	-12.83

**Table 7-35. Radiated Spurious Data (NR Band n48 – Mid Channel)**

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-07.A3L	Test Dates: 09/08 - 10/30/2023	EUT Type: Portable Handset	Page 87 of 107



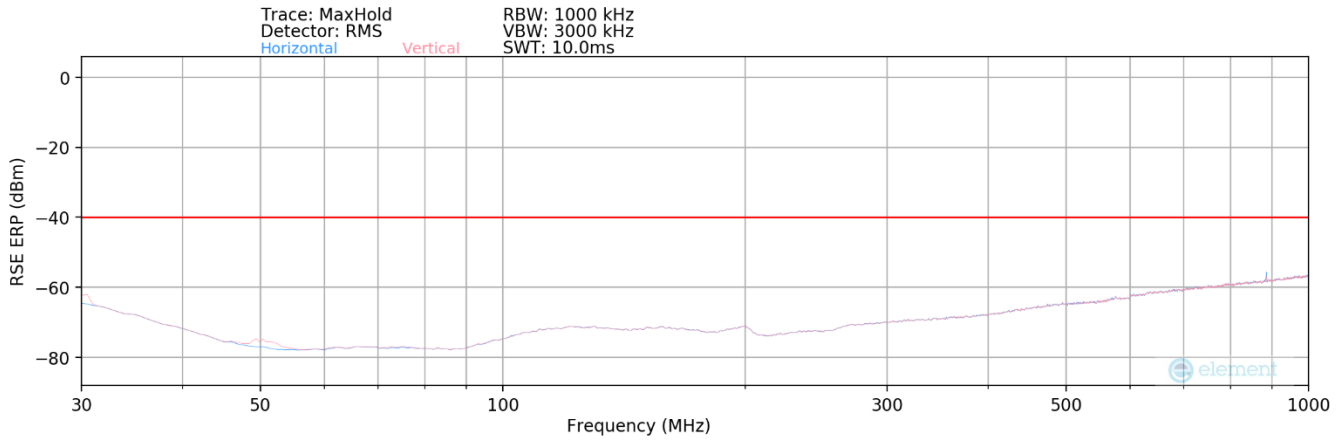
Bandwidth (MHz):	40
Frequency (MHz):	3680.0
RB Config (Size / Offset):	1 / 53

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7360.00	H	-	-	-79.01	9.60	37.59	-57.67	-40.00	-17.67
11040.00	H	-	-	-80.26	12.06	38.80	-56.46	-40.00	-16.46
14720.00	H	-	-	-80.59	15.48	41.89	-53.36	-40.00	-13.36

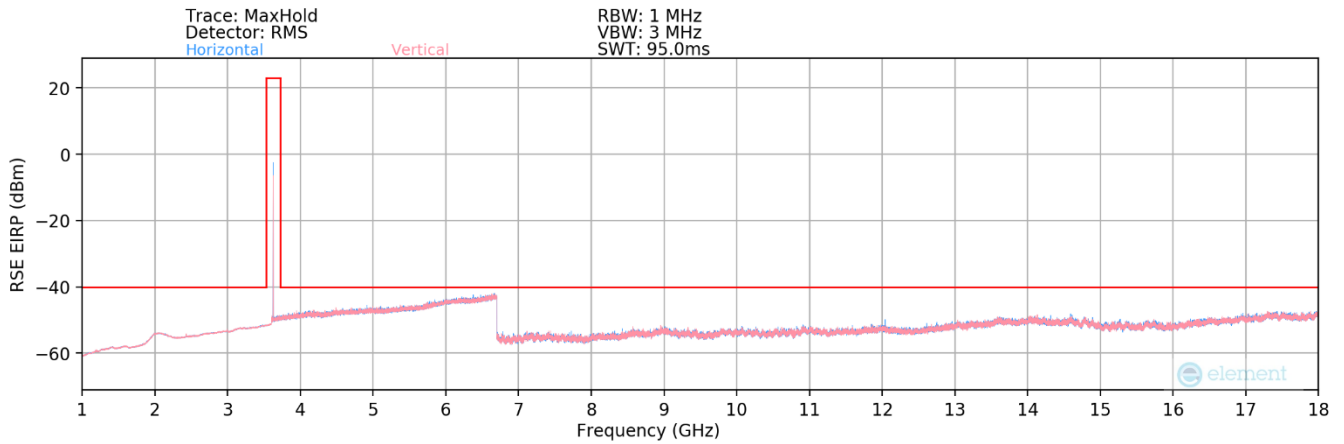
Table 7-36. Radiated Spurious Data (NR Band n48 – High Channel)

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-07.A3L	Test Dates: 09/08 - 10/30/2023	EUT Type: Portable Handset	Page 88 of 107

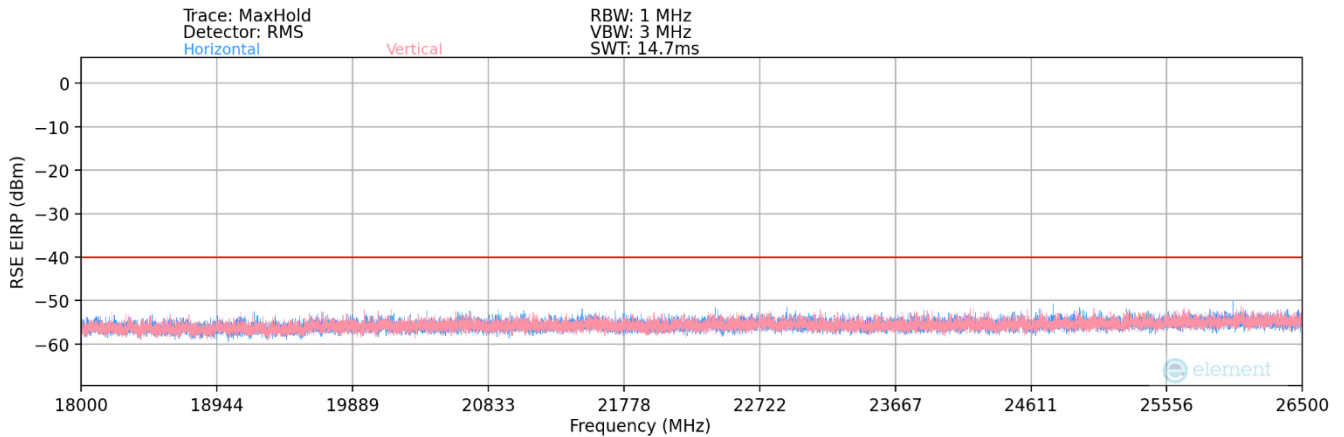
# NR Band n48 ANT H



Plot 7-99. Radiated Spurious Plot (NR Band n48 – Below 1GHz)



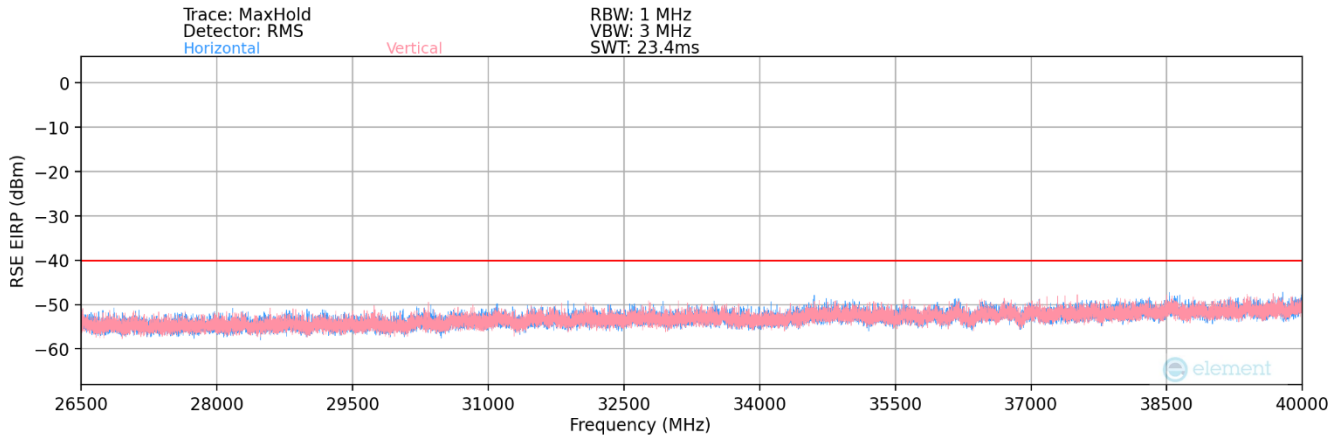
Plot 7-100. Radiated Spurious Plot (NR Band n48– 1GHz -18GHz)



Plot 7-101. Radiated Spurious Plot (NR Band n48 – 18GHz -26.5GHz)

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-07.A3L	Test Dates: 09/08 - 10/30/2023	EUT Type: Portable Handset	Page 89 of 107





Plot 7-102. Radiated Spurious Plot (NR Band n48 – 26.5GHz-40GHz)

Bandwidth (MHz):	40
Frequency (MHz):	3625.0
RB Config (Size / Offset):	1 / 53

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]
885.00	H	-	-	-95.23	31.08	42.85	-54.56	-40.00	-14.56

Table 7-37. Radiated Spurious Data (NR Band n48 – Below 1GHz)

Bandwidth (MHz):	40
Frequency (MHz):	3570.0
RB Config (Size / Offset):	1 / 53

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]
7140.00	H	-	-	-77.82	9.62	38.80	-56.46	-40.00	-16.46
10710.00	H	-	-	-79.01	12.33	40.32	-54.93	-40.00	-14.93
14280.00	H	-	-	-78.98	15.60	43.62	-51.64	-40.00	-11.64

Table 7-38. Radiated Spurious Data (NR Band n48 – Low Channel)

Bandwidth (MHz):	40
Frequency (MHz):	3625.0
RB Config (Size / Offset):	1 / 53

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]
7250.00	H	-	-	-77.14	9.18	39.04	-56.22	-40.00	-16.22
10875.00	H	-	-	-79.20	11.95	39.75	-55.51	-40.00	-15.51
14500.00	H	-	-	-79.88	15.94	43.06	-52.19	-40.00	-12.19

Table 7-39. Radiated Spurious Data (NR Band n48 – Mid Channel)

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-07.A3L	Test Dates: 09/08 - 10/30/2023	EUT Type: Portable Handset	Page 90 of 107



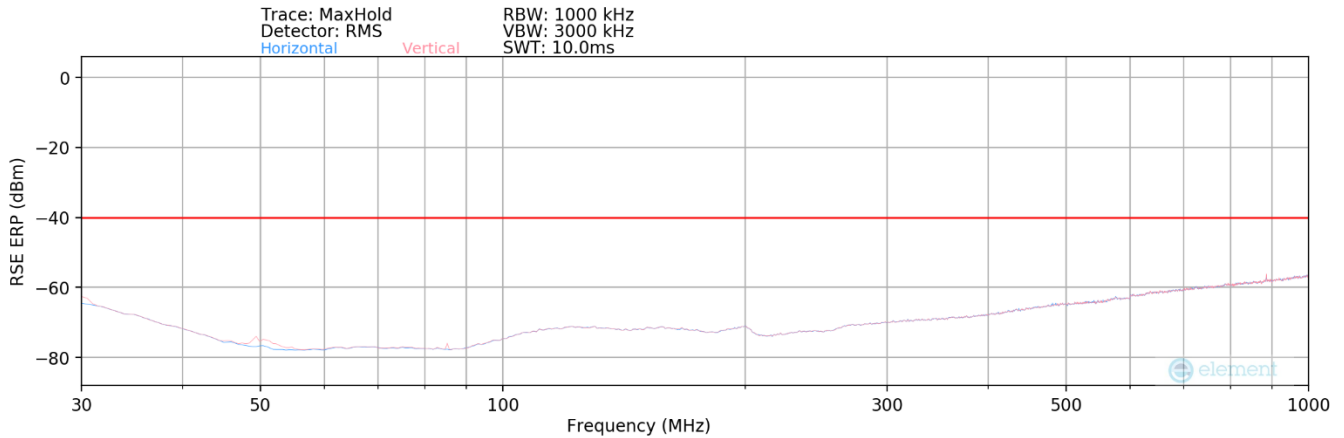
Bandwidth (MHz):	40
Frequency (MHz):	3680.0
RB Config (Size / Offset):	1 / 53

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7360.00	H	-	-	-77.58	9.60	39.02	-56.24	-40.00	-16.24
11040.00	H	-	-	-79.20	12.06	39.86	-55.40	-40.00	-15.40
14720.00	H	-	-	-80.52	15.48	41.96	-53.29	-40.00	-13.29

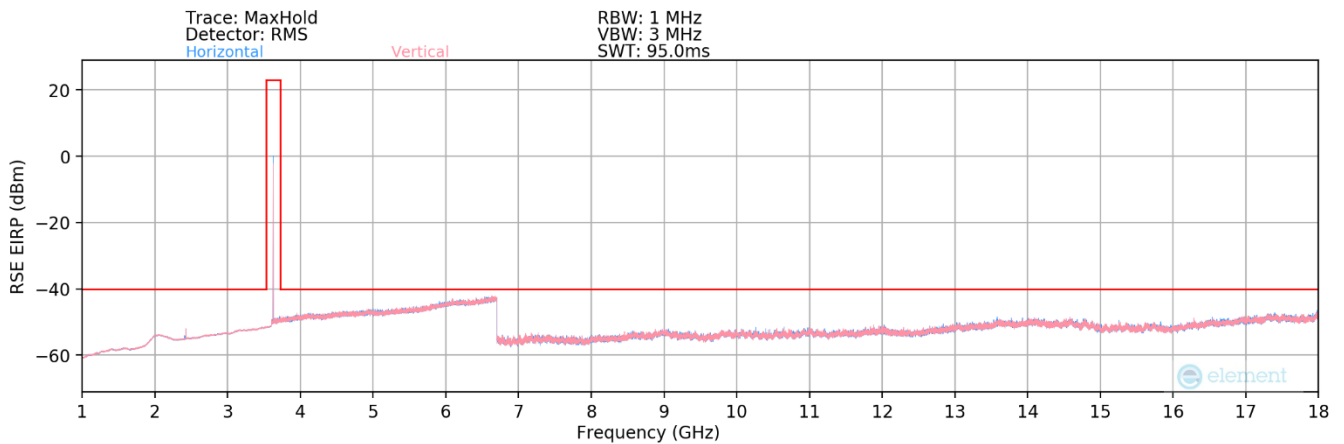
Table 7-40. Radiated Spurious Data (NR Band n48 – High Channel)

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-07.A3L	Test Dates: 09/08 - 10/30/2023	EUT Type: Portable Handset	Page 91 of 107

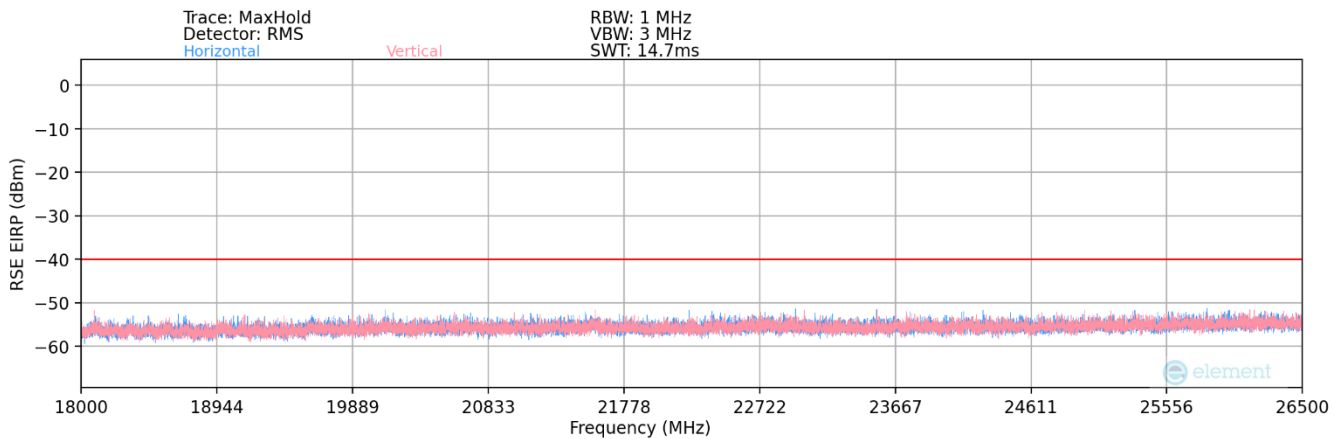
# NR Band n48 ANT G



**Plot 7-103. Radiated Spurious Plot (NR Band n48 – Below 1GHz)**

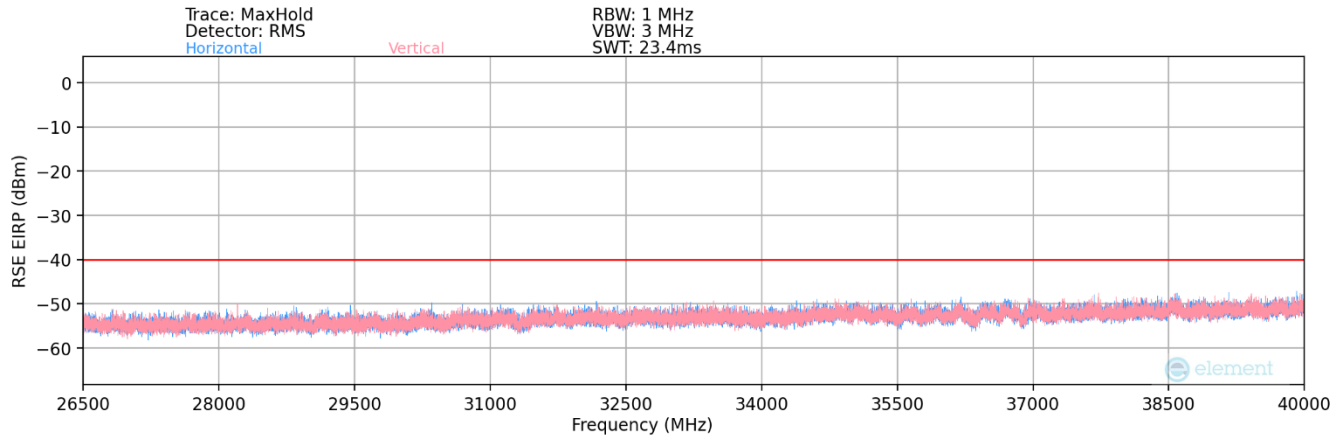


**Plot 7-104. Radiated Spurious Plot (NR Band n48– 1GHz -18GHz)**



**Plot 7-105. Radiated Spurious Plot (NR Band n48 – 18GHz -26.5GHz)**

<b>FCC ID:</b> A3LSMA156U	<b>PART 96 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2309070100-07.A3L	<b>Test Dates:</b> 09/08 - 10/30/2023	<b>EUT Type:</b> Portable Handset	Page 92 of 107



Plot 7-106. Radiated Spurious Plot (NR Band n48 – 26.5GHz-40GHz)

Bandwidth (MHz):	40
Frequency (MHz):	3625.0
RB Config (Size / Offset):	1 / 53

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]
886.00	H	-	-	-95.71	30.98	42.27	-55.14	-40.00	-15.14

Table 7-41. Radiated Spurious Data (NR Band n48 – Below 1GHz)

Bandwidth (MHz):	40
Frequency (MHz):	3570.0
RB Config (Size / Offset):	1 / 53

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]
7140.00	H	-	-	-78.35	9.62	38.27	-56.99	-40.00	-16.99
10710.00	H	-	-	-79.28	12.33	40.05	-55.20	-40.00	-15.20
14280.00	H	-	-	-79.77	15.60	42.83	-52.43	-40.00	-12.43

Table 7-42. Radiated Spurious Data (NR Band n48 – Low Channel)

Bandwidth (MHz):	40
Frequency (MHz):	3625.0
RB Config (Size / Offset):	1 / 53

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]
7250.00	H	-	-	-76.99	9.18	39.19	-56.07	-40.00	-16.07
10875.00	H	-	-	-79.36	11.95	39.59	-55.67	-40.00	-15.67
14500.00	H	-	-	-79.82	15.94	43.12	-52.13	-40.00	-12.13

Table 7-43. Radiated Spurious Data (NR Band n48 – Mid Channel)

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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Bandwidth (MHz):	40
Frequency (MHz):	3680.0
RB Config (Size / Offset):	1 / 53

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7360.00	H	-	-	-77.27	8.94	38.67	-56.58	-40.00	-16.58
11040.00	H	-	-	-79.08	12.12	40.04	-55.22	-40.00	-15.22
14720.00	H	-	-	-80.89	15.63	41.74	-53.51	-40.00	-13.51

Table 7-44. Radiated Spurious Data (NR Band n48 – High Channel)

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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## 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 96, 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

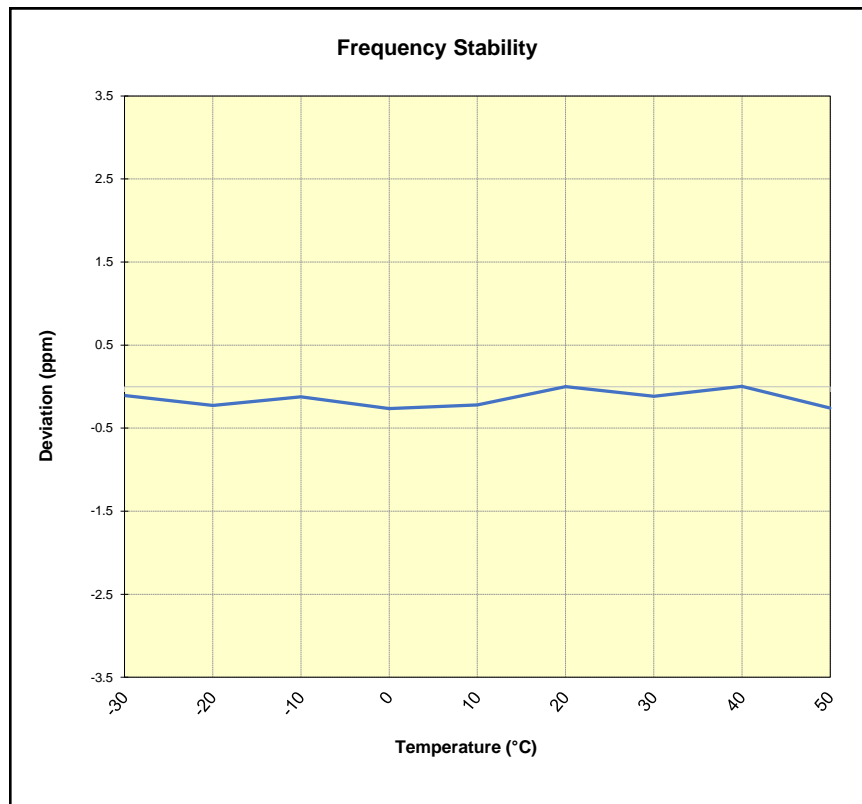
None

<b>FCC ID:</b> A3LSMA156U	<b>PART 96 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2309070100-07.A3L	<b>Test Dates:</b> 09/08 - 10/30/2023	<b>EUT Type:</b> Portable Handset	Page 95 of 107

## Frequency Stability / Temperature Variation

<b>LTE Band 48</b>					
Operating Frequency (Hz):		3,625,000,000			
Ref. Voltage (VDC):		4.36			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.36	- 30	3,625,000,251	-384	-0.0000106
		- 20	3,624,999,816	-819	-0.0000226
		- 10	3,625,000,196	-439	-0.0000121
		0	3,624,999,676	-959	-0.0000265
		+ 10	3,624,999,839	-795	-0.0000219
		+ 20 (Ref)	3,625,000,635	0	0.0000000
		+ 30	3,625,000,210	-425	-0.0000117
		+ 40	3,625,000,649	14	0.0000004
Battery Endpoint	3.37	+ 20	3,624,998,843	-1,792	-0.0000494

**Table 7-45. LTE Band 48 Frequency Stability Data**



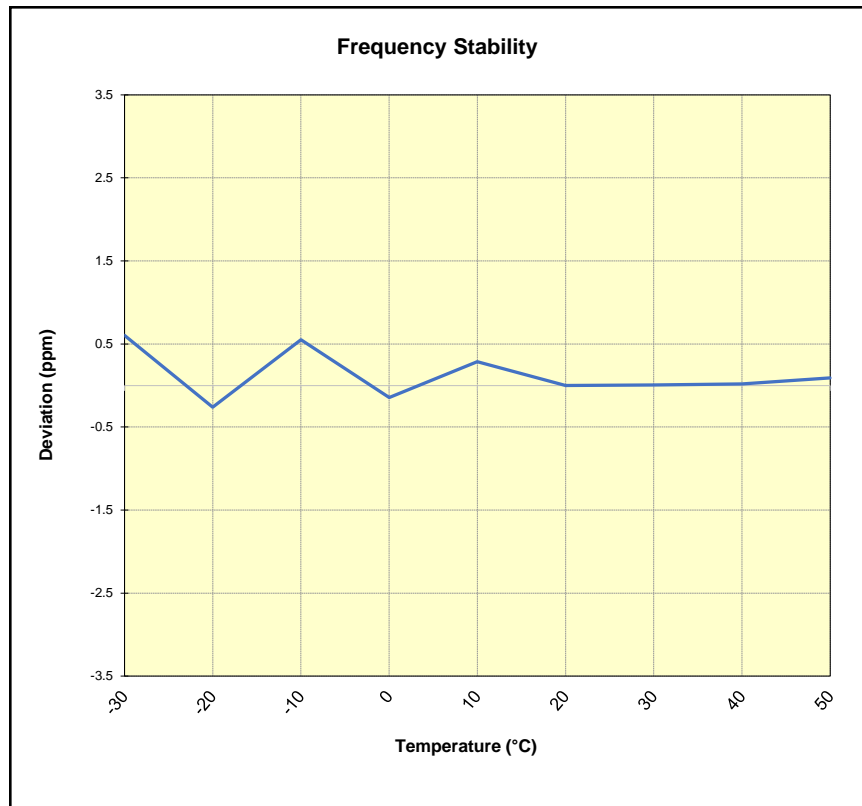
**Plot 7-107. LTE Band 48 Frequency Stability Chart**

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-07.A3L	Test Dates: 09/08 - 10/30/2023	EUT Type: Portable Handset	Page 96 of 107

## Frequency Stability / Temperature Variation

NR Band n48					
Operating Frequency (Hz):		3,625,000,000			
Ref. Voltage (VDC):		4.36			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.36	- 30	3,625,155,386	2,192	0.0000605
		- 20	3,625,152,248	-947	-0.0000261
		- 10	3,625,155,190	1,996	0.0000551
		0	3,625,152,673	-521	-0.0000144
		+ 10	3,625,154,237	1,043	0.0000288
		+ 20 (Ref)	3,625,153,194	0	0.0000000
		+ 30	3,625,153,216	22	0.0000006
		+ 40	3,625,153,263	69	0.0000019
Battery Endpoint	3.37	+ 20	3,625,154,726	1,532	0.0000422

Table 7-46. NR Band n48 Frequency Stability Data



Plot 7-108. NR Band n48 Frequency Stability Chart

FCC ID: A3LSMA156U	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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## 7.9 End User Device Additional Requirement (CBSD Protocol)

### Test Overview and Limit

End user device additional requirements are tested per the test procedures listed below. During testing, the EUT is connected to a certified LTE CBSD (Ruckus FCC ID: S9GQ910US00) and an NR CBSD (Airspan FCC ID: PIDAV2700) as a companion device to show compliance with Part 96.47.

***End User Devices may operate only if they can positively receive and decode an authorization signal transmitted by a CBSD, including the frequencies and power limits for their operation.***

***An End User Device must discontinue operations, change frequencies, or change its operational power level within 10 seconds of receiving instructions from its associated CBSD.***

### Test Procedure Used

KDB 940660 D01 v03, WINNF-18-IN-00178 v1.0.0.00

### Test Setup/Method

The EUT was connected via an RF cable to a certified CBSD and spectrum analyzer. The following procedure is performed by applying WINNF-TS-0122 CBRS CBSD Test Specification.

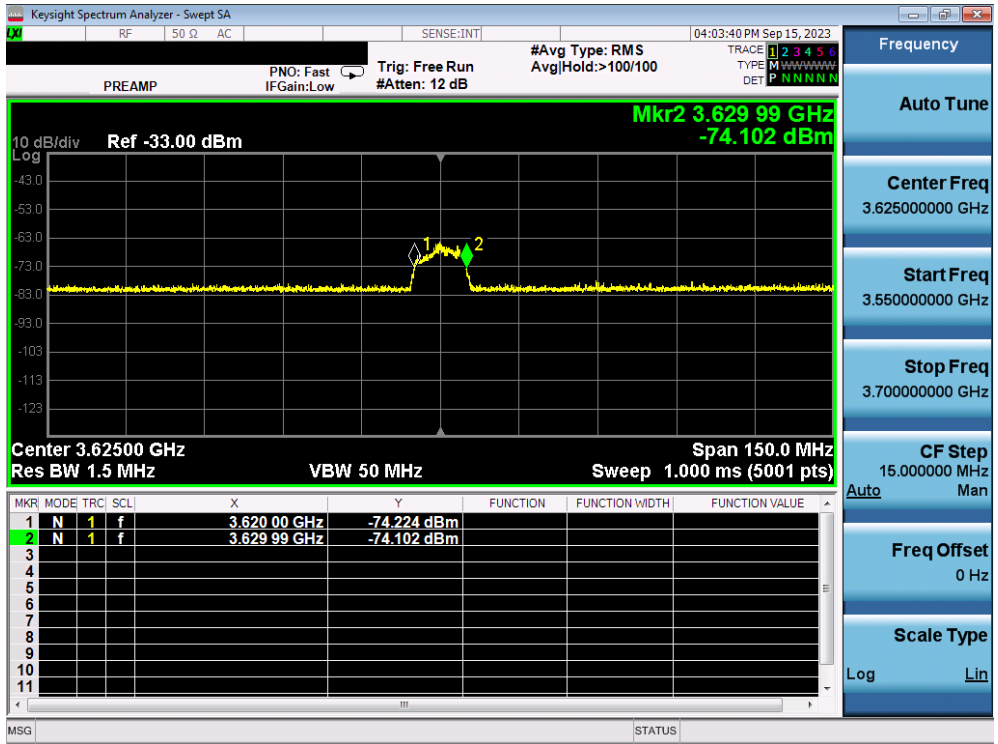
1. Run#1:
  - a. Setup WINNF.PT.C.HBT.1 with 3615MHz – 3635MHz.
  - b. Enable AP service from Ruckus Cloud management.
  - c. Check EUT Tx frequency.
  - d. Disable AP service from Ruckus Cloud management and check EUT stop transmission within 10s.
2. Run#2:
  - a. Setup WINNF.PT.C.HBT.1 with 3660MHz – 3680MHz.
  - b. Enable AP service from Ruckus Cloud management.
  - c. Check EUT Tx frequency.
  - d. Disable AP service from Ruckus Cloud management and check EUT stop transmission within 10s.

### Test Notes

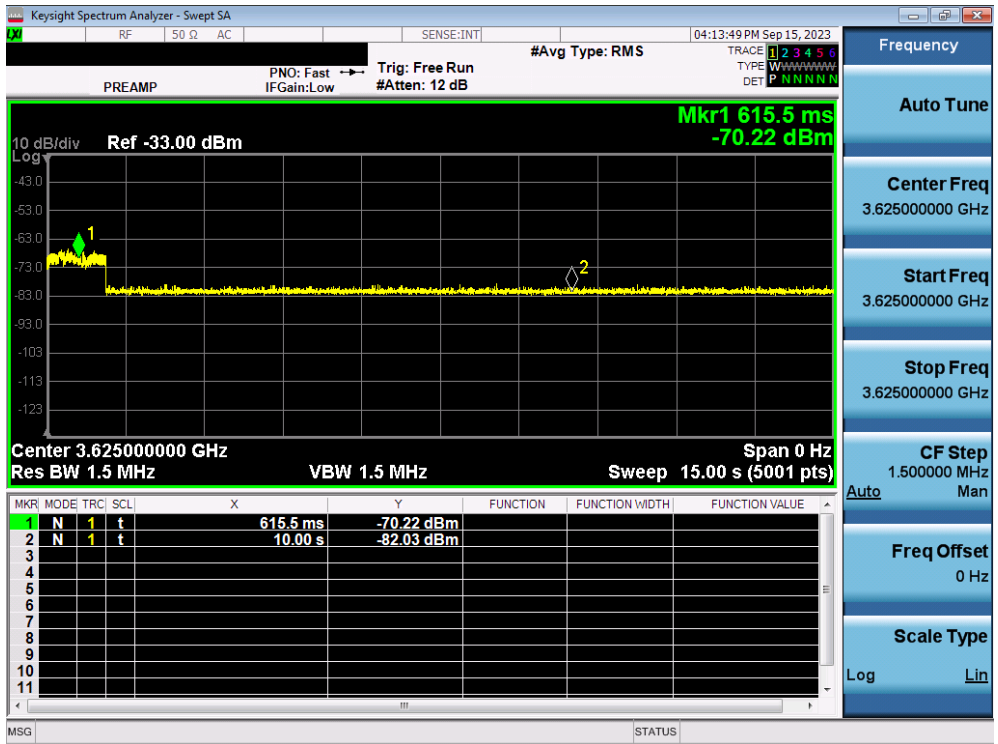
The EUT is an End User Device.

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Run#1 – LTE Band 48:



Plot 7-109. Run#1 End User Device Frequency of Operations



Plot 7-110. Run#1 End User Device Discontinues Operations within 10s

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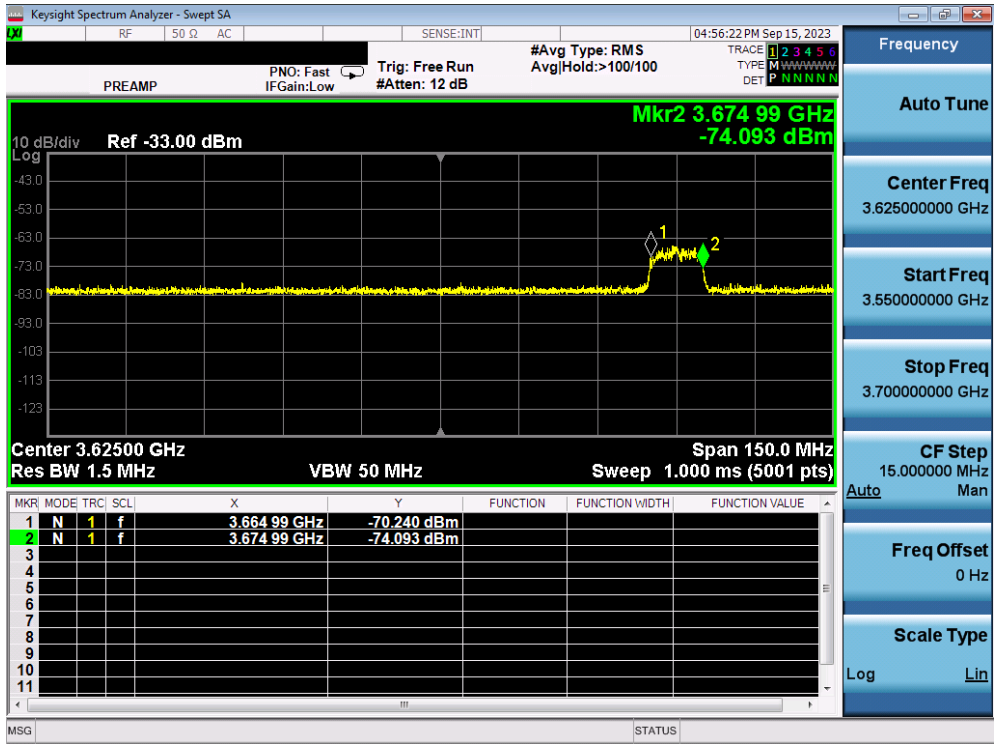


**Note:**

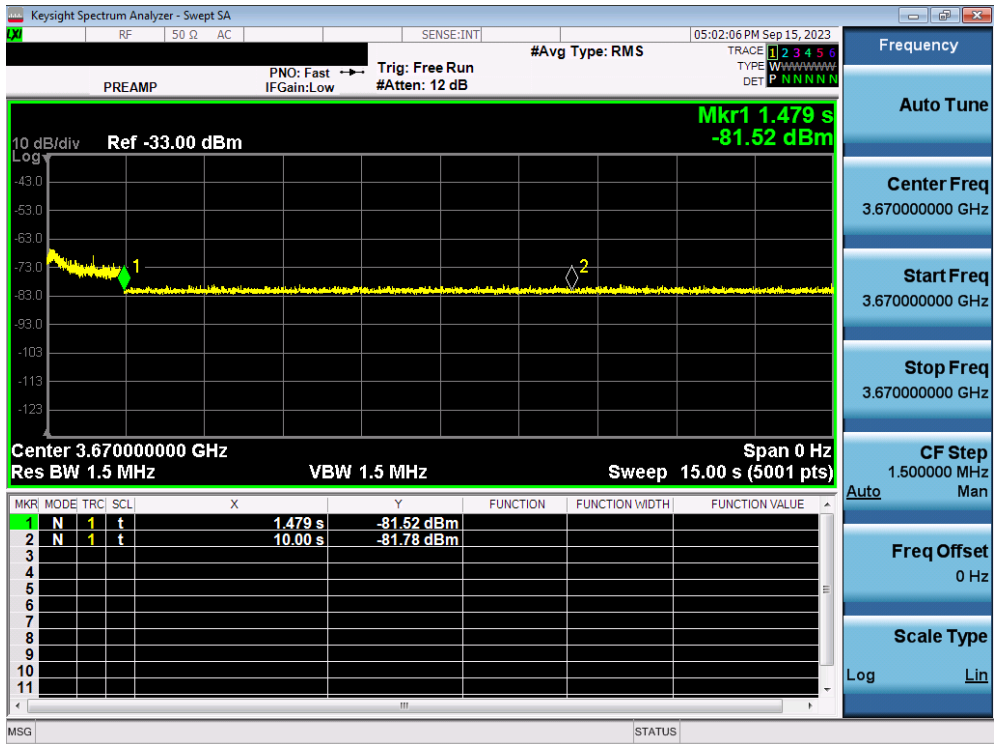
Marker 1: CBSD sends instructions to discontinue LTE operations.  
Marker 2: EUT discontinues operation.  
Marker 3: 10 seconds elapsed time from CBSD sending instructions to EUT.

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### Run#2 – LTE Band 48:



Plot 7-111. Run#2 End User Device Frequency of Operations



Plot 7-112. Run#2 End User Device Discontinues Operations within 10s

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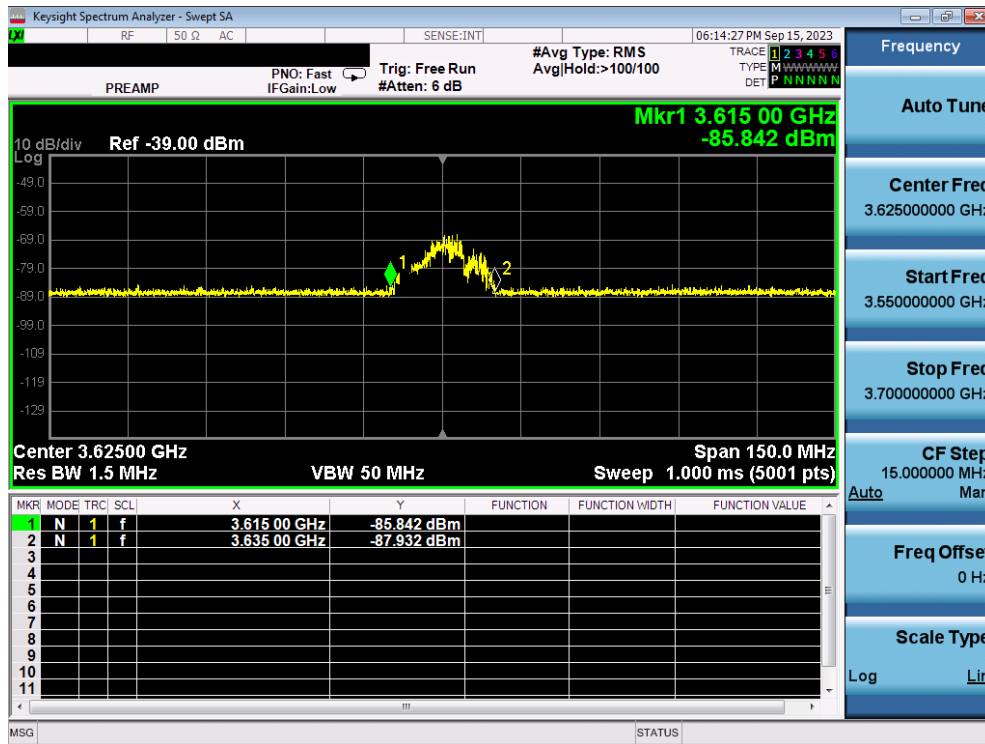


**Note:**

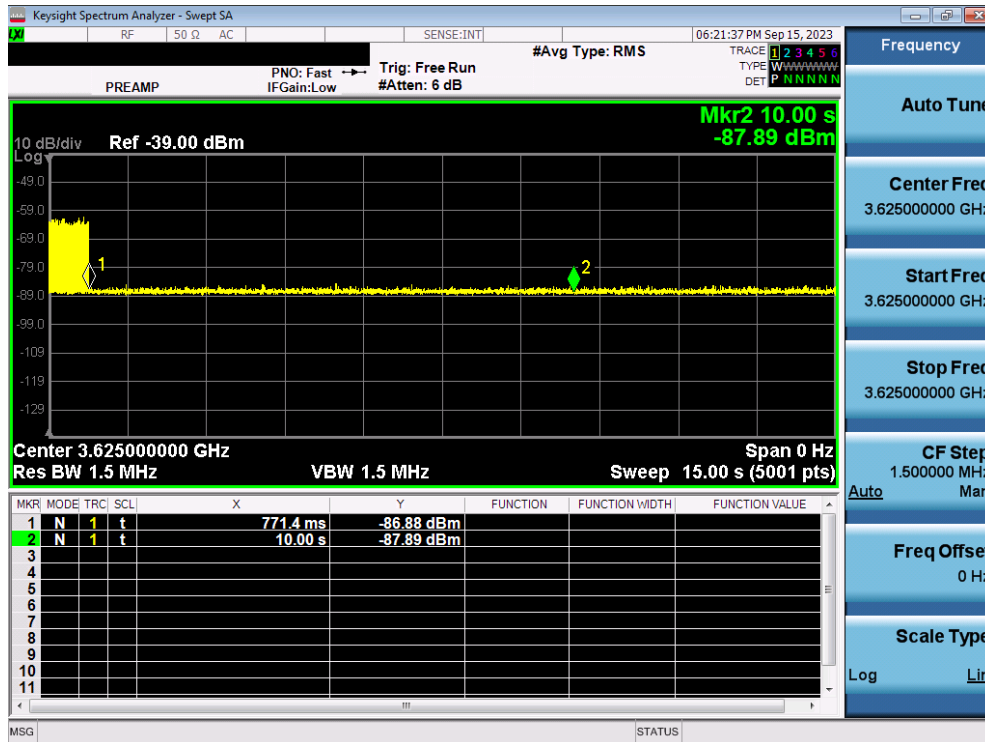
Marker 1: CBSD sends instructions to discontinue LTE operations.  
Marker 2: EUT discontinues operation.  
Marker 3: 10 seconds elapsed time from CBSD sending instructions to EUT.

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### Run#1 – NR Band n48:



Plot 7-113. Run#1 End User Device Frequency of Operations



Plot 7-114. Run#1 End User Device Discontinues Operations within 10s

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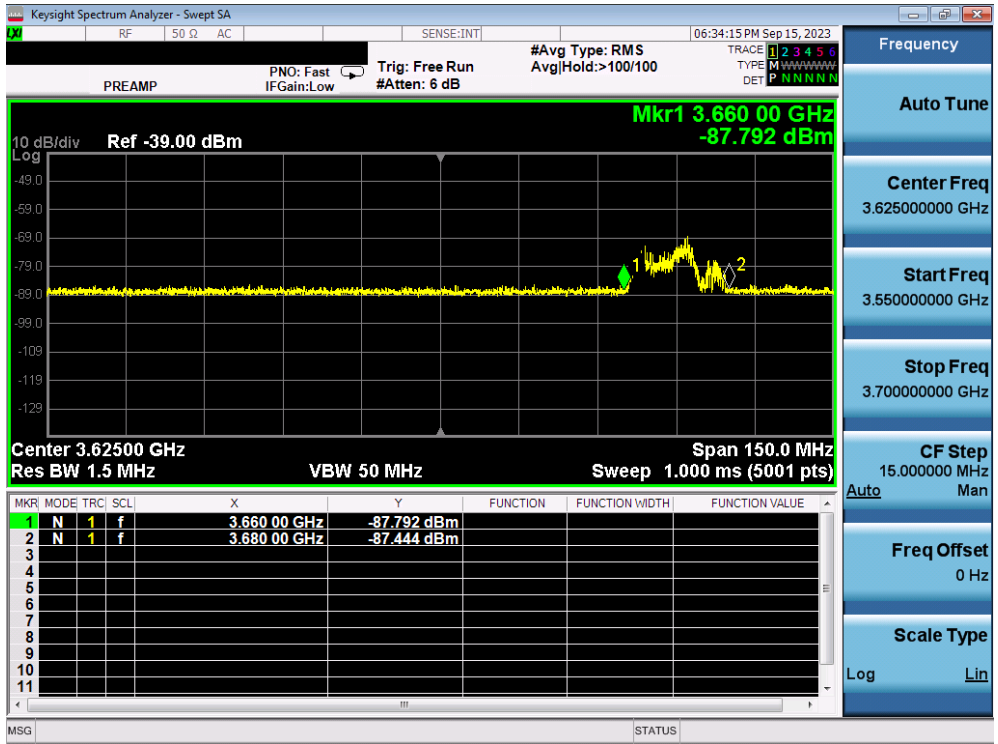


**Note:**

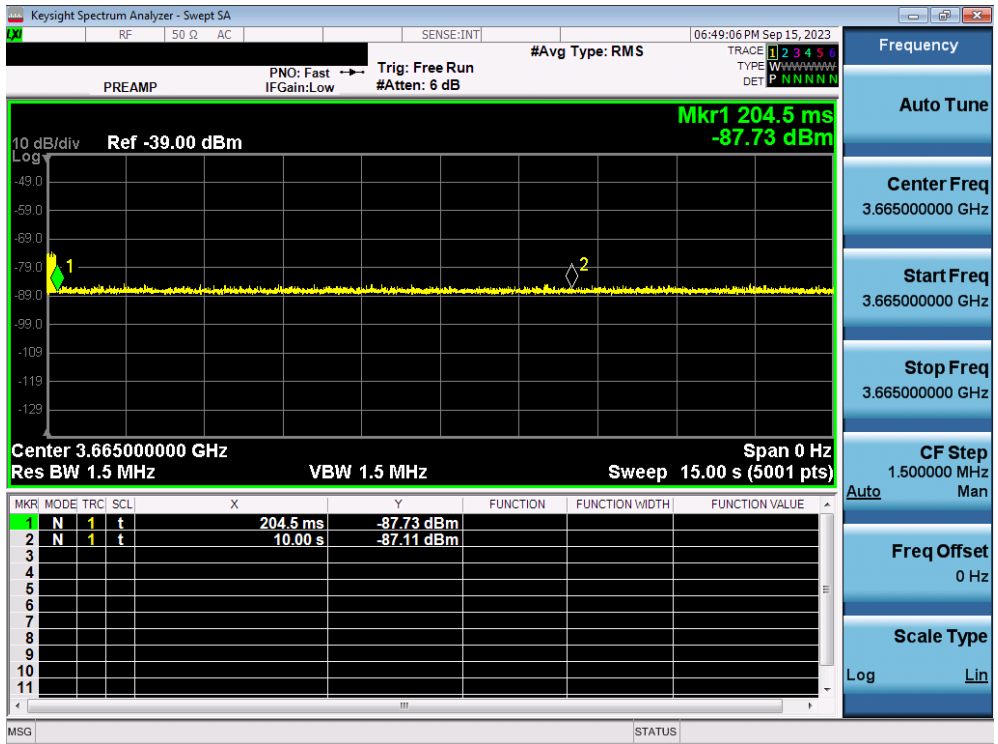
Marker 1: CBSD sends instructions to discontinue NR operations.  
Marker 2: EUT discontinues operation.  
Marker 3: 10 seconds elapsed time from CBSD sending instructions to EUT.

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Run#2 – NR Band n48:



Plot 7-115. Run#2 End User Device Frequency of Operations



Plot 7-116. Run#2 End User Device Discontinues Operations within 10s

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**Note:**

Marker 1: CBSD sends instructions to discontinue NR operations.  
Marker 2: EUT discontinues operation.  
Marker 3: 10 seconds elapsed time from CBSD sending instructions to EUT.

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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: A3LSMA156U** complies with all of the End User Device requirements of Part 96 of the FCC Rules for LTE operation only.

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