

Lognormal Distribution

ARL Table for scale parameter decrease from the in-control value in LN(0,1)

σ	μ_X	$n = 5$				$n = 10$				$n = 20$			
		\bar{X} chart		\tilde{X} chart		\bar{X} chart		\tilde{X} chart		\bar{X} chart		\tilde{X} chart	
		ARL^-	ARL	ARL^-	ARL	ARL^-	ARL	ARL^-	ARL	ARL^-	ARL	ARL^-	ARL
1.0	1.65	202.20	98.89	198.78	101.11	200.65	99.70	198.87	100.36	193.88	98.83	199.33	99.61
0.9	1.50	345.51	228.51	678.99	218.24	261.56	210.55	981.46	200.33	184.48	164.80	1564.11	159.70
0.8	1.38	711.97	610.49	2837.89	489.00	399.70	380.76	7898.24	343.30	186.28	183.97	27042.76	171.74

ARL Table for shifts of both parameters increase from the in-control values in LN(0,1)

μ	σ	μ_X	$n = 5$				$n = 10$				$n = 20$			
			\bar{X} chart		\tilde{X} chart		\bar{X} chart		\tilde{X} chart		\bar{X} chart		\tilde{X} chart	
			ARL	ARL^+	ARL	ARL^+	ARL	ARL^+	ARL	ARL^+	ARL	ARL^+	ARL	ARL^+
0.0	1.0	1.65	99.43	198.61	99.19	198.17	99.76	202.08	100.19	200.68	99.79	202.12	98.66	197.08
0.1	1.1	2.02	42.43	52.17	54.22	80.79	35.41	39.49	48.47	65.71	25.56	26.96	41.87	50.79
0.2	1.2	2.51	17.91	19.39	30.76	39.88	12.09	12.28	25.17	29.32	6.55	6.56	18.35	19.66
0.3	1.3	3.14	8.85	9.03	19.37	23.79	5.03	5.00	14.60	16.09	2.32	2.35	9.71	10.25
0.4	1.4	3.97	4.91	5.04	13.22	15.53	2.45	2.70	0.31	0.31	1.00	0.98	6.07	6.15

ARL Table for shifts of both parameters decrease from the in-control values in LN(0,1)

μ	σ	μ_X	$n = 5$				$n = 10$				$n = 20$			
			\bar{X} chart		\tilde{X} chart		\bar{X} chart		\tilde{X} chart		\bar{X} chart		\tilde{X} chart	
			ARL^-	ARL	ARL^-	ARL	ARL^-	ARL	ARL^-	ARL	ARL^-	ARL	ARL^-	ARL
0.0	1.0	1.65	202.41	100.09	200.35	99.69	200.82	101.13	196.62	99.20	197.71	98.37	194.96	98.70
-0.1	0.9	1.36	171.67	150.27	237.19	176.56	104.95	99.12	183.36	155.52	55.47	54.32	130.56	117.99
-0.2	0.8	1.13	140.01	139.47	279.47	262.94	51.08	50.47	158.40	154.34	14.89	15.20	70.92	72.43
-0.3	0.7	0.95	112.44	112.70	327.86	327.96	22.58	22.38	118.23	117.30	3.82	3.78	32.02	31.33