

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 value 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^+ | arlyp.2 |
| 0.2 | 1.2 | 2.51 | 17.91 | 19.39 | 30.76 | 39.88 | 12.06 | 12.30 | 25.08 | 29.12 | 6.55 | 6.56 | 18.35 | 19.66 |
| 0.4 | 1.4 | 3.97 | 4.91 | 5.04 | 13.22 | 15.53 | 2.50 | 2.49 | 9.42 | 10.35 | 1.00 | 0.98 | 6.07 | 6.15 |
| 0.6 | 1.6 | 6.55 | 2.03 | 2.03 | 7.28 | 8.32 | 0.85 | 0.84 | 5.13 | 5.43 | 0.23 | 0.23 | 3.18 | 3.31 |
| 0.8 | 1.8 | 11.25 | 1.02 | 1.04 | 4.63 | 5.51 | 0.36 | 0.36 | 3.44 | 3.77 | 0.06 | 0.06 | 2.23 | 2.31 |

ARL Table for shifts of both parameters decrease from the in-control value 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 | arly.2 |
| -0.2 | 0.8 | 1.13 | 140.01 | 139.47 | 279.47 | 463.17 | 51.12 | 50.44 | 161.66 | 3.44 | 0.06 | 0.06 | 2.23 | 2.23 |
| -0.4 | 0.6 | 0.80 | 87.01 | 85.93 | 377.82 | 463.17 | 8.81 | 8.81 | 75.88 | 3.44 | 0.81 | 0.80 | 10.66 | 2.23 |
| -0.6 | 0.4 | 0.59 | 41.47 | 41.07 | 463.17 | 463.17 | 0.69 | 0.70 | 12.81 | 3.44 | 0.00 | 0.00 | 0.36 | 2.23 |