1-a.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | sample variance | standard error σ |  |  |  | α | β |  |  |
| 348.5067 | 17.49382 | 4.182561 | 350 | 354.1826 | 4.182561 | 0.002 | 0.2 | 25.05967 | -6.7232 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| waffer | average |  | waffer | average |  |
| 46 | 349.2 | -2.89128 | 66 | 347.8 | -68.9169 |
| 47 | 349.6 | -5.38256 | 67 | 348.4 | -72.6082 |
| 48 | 343.2 | -14.2738 | 68 | 347.4 | -77.2995 |
| 49 | 343.6 | -22.7651 | 69 | 346.8 | -82.5907 |
| 50 | 349.2 | -25.6564 | 70 | 347 | -87.682 |
| 51 | 349.4 | -28.3477 | 71 | 348.8 | -90.9733 |
| 52 | 354.6 | -25.839 | 72 | 338.4 | -104.665 |
| 53 | 349 | -28.9302 | 73 | 347.8 | -108.956 |
| 54 | 350.4 | -30.6215 | 74 | 347.6 | -113.447 |
| 55 | 349.8 | -32.9128 | 75 | 346 | -119.538 |
| 56 | 349.4 | -35.6041 | 76 | 347.6 | -124.03 |
| 57 | 349.2 | -38.4954 | 77 | 346.6 | -129.521 |
| 58 | 347 | -43.5866 | 78 | 349 | -132.612 |
| 59 | 347.8 | -47.8779 | 79 | 349.8 | -134.904 |
| 60 | 350.4 | -49.5692 | 80 | 349.6 | -137.395 |
| 61 | 349.8 | -51.8605 | 81 | 348 | -141.486 |
| 62 | 349.8 | -54.1518 | 82 | 349 | -144.577 |
| 63 | 346.6 | -59.6431 | 83 | 346.6 | -150.069 |
| 64 | 348.6 | -63.1343 | 84 | 350.4 | -151.76 |
| 65 | 350.6 | -64.6256 | 85 | 348.6 | -155.251 |

Sequential likelihood ratio test shows that most of the are below the . It accepts and rejects .

1-b.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | sample variance | standard error σ |  |  |  |  |  |
| 348.5067 | 17.49382 | 4.182561 | 350 | 0.5 | 5 | 2.091281 | 20.91281 |



|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | sample variance | standard error σ |  |  |  |  |  |
| 348.5067 | 17.49382 | 4.182561 | 350 | 0.3 | 7 | 1.254768 | 29.27793 |



There wasn’t any out of control signal.

1-c.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| shift | Δ | δ=Δ/σ | K=Δ/2 | k | H=σh\* |  |
| 0.5σ | 2.091281 | 0.5 | 1.04564 | 0.25 | 13.31951 | 3.327538 |
| 1.0σ | 4.182561 | 1 | 2.091281 | 0.5 | 13.31951 | 1.915518 |
| 1.5σ | 6.273842 | 1.5 | 3.136921 | 0.75 | 13.31951 | 1.33591 |
| 2.0σ | 8.365122 | 2 | 4.182561 | 1 | 13.31951 | 1.023815 |



There wasn’t any out of control signal.