

# ISO 7870-9:2020 (E)

## Control charts — Part 9: Control charts for stationary processes

---

### Contents

|         |   |
|---------|---|
|         | Foreword  |
|         | Introduction  |
| 1       | Scope   |
| 2       | Normative references  |
| 3       | Terms and definitions, and abbreviated terms and symbols                              |
| 3.1     | Terms and definitions   |
| 3.2     | Abbreviated terms and symbols   |
| 3.2.1   | Abbreviated terms   |
| 3.2.2   | Symbols   |
| 4       | Control charts for autocorrelated processes for monitoring process mean               |
| 4.1     | General   |
| 4.2     | Residual charts   |
| 4.3     | Traditional control charts with adjusted control limits                               |
| 4.3.1   | Modified EWMA chart   |
| 4.3.2   | Modified CUSUM chart  |
| 4.4     | Comparisons among charts for autocorrelated data                                      |
| 5       | Monitoring process variability for stationary processes                               |
| 6       | Other approaches to deal with process autocorrelation                                 |
| Annex A | (informative) Stochastic process and time series                                      |
| A.1     | General   |
| A.2     | Autocovariance and autocorrelation of a time series                                   |
| A.3     | Stationary time series and stationary time series models                              |
| A.3.1   | General   |
| A.3.2   | White noise   |
| A.3.3   | First order autoregressive [AR(1)] processes  |
| A.4     | Estimation of the mean, autocovariance and autocorrelation for stationary time series |
| A.4.1   | Estimation of $\mu$   |
| A.4.2   | Estimation of $\gamma(\tau)$ and $\rho(\tau)$   |
| A.5     | Tests of autocorrelation of time series data  |
| Annex B | (informative) Performance of traditional control charts for autocorrelated data       |

Page count: 21