Simulation on Control Chart in Monitoring the Multivariate Process Variability

Besse Helmi Mustawinar¹,a), Nurtiti Sunusi²,b), and Erna Tri Herdiani²,c)

¹Mathematics Department, Cokroaminoto University, Jl Latamacelling No 19, Palopo, Indonesia, 91921
²Mathematics Department, Hasanuddin University, Jl Perintis Kemerdekaan Km 10 Tamalanrea, Makassar, Indonesia, 90245

a)corresponding author; emmy.emm92@gmail.com
b)ntitisanusi@gmail.com
c)herdiani.erna@gmail.com

Abstract. Control chart used to monitor shifts in the process mean and variability for multivariate data. This paper aims to monitor process variability through $\sqrt{|S|}$ chart. Process variability observed by using the determinant of the sample covariance matrix, which is called $|S|$. The result of this paper show that the improved $\sqrt{|S|}$chart is more sensitive to shifts in the process variability. The standard $\sqrt{|S|}$ chart has a bigger ARL than the improved chart by simulation.

REFERENCES