

ABSTRACT

Several control charts have been constructed to simultaneously monitor the process mean and variability. A single chart is often used instead of two charts to detect shift in process mean and variability separately. A new single generally weighted moving average (GWMA) control chart is now proposed to monitor process mean and dispersion simultaneously, based on Taguchi's loss function. A Monte Carlo simulation is used to calculate average run length (ARL) to study the performance of this control chart when the process is shifted. Distribution of new developed statistic of the proposed chart has shown and also two special cases of this chart have been discussed with specific combination of design parameters. A comparison is made with an exponentially weighted moving average (EWMA) control chart in terms of ARLs. Two practical examples are included with the tabulated as well as graphical representation; one from real data and other from simulated data, for showing the practical application of the proposed control chart.