A New Procedure to Monitor the Mean of a Quality Characteristic

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ABSTRACT

A new control chart is proposed to monitor the mean of a quality characteristic, whose control limits are constructed by considering exact parameter distributions. In particular, a normal distribution is considered for known parameters (mean and standard deviation), and a t distribution for unknown parameters. Some of the advantages of the proposed chart over other approaches (e.g. the Shewhart, the Bonferroni-adjustment, and the analysis-of-means approaches) is that it is based on the average run length and the use of exact distributions, which allows for its implementation with small sample sizes.

KEY WORDS: Shewhart chart; Bonferroni-adjusted chart; Analysis of means chart; Average run length; False alarm probability

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