Huijun Yi* (hyi146574@troy.edu). Assessing the lifetime performance index of products with two-parameter Rayleigh Distribution under progressively type II right censored samples.

In practice, process capability indices (PCIs) are widely used in the field of quality control. The lifetime performance index ($C_L$) is used to measure process potential and performance, where $L$ is the lower specification limit. In this paper, we apply data transformation technology to construct a maximum likelihood estimator (MLE) of $C_L$ under the two-parameter Raileigh distribution based on the progressively type II right censored sample. The MLE of $C_L$ is then utilized to develop a hypothesis testing procedure. Finally, we give the Monte Carlo power simulation to assess the behavior of the lifetime perform index.

**keywords:** Process capability index, The lifetime performance index, Progressive type II right censored sample, Maximum likelihood estimator, Two-parameter Rayleigh Distribution.

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