

# Bayesian C-optimal life testing plans under progressive type-I interval censoring scheme

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## Highlights

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- Optimal [Bayesian](#) life tests plans are presented under Progressive Type-I Interval [Censoring Scheme](#).

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- Bayesian C-optimal [design criterion](#) is used.

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- An algorithm is presented for log-location-scale family of distributions.

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- A comparative study is provided for Weibull and log-normal [lifetime distributions](#).

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- Sampling variations are visualized through MCMC methods.

## Abstract

This work considers optimal planning of progressive type-I interval censoring schemes for log-location-scale family of distributions. Optimum schemes are obtained by using a Bayesian C-optimality design criterion. The C-optimality criterion is formed to attain precision in estimating a particular lifetime quantile. An algorithm is proposed to obtain the optimal censoring schemes. Optimal schemes are obtained under two different scenarios for the Weibull and log-normal models, which are two popular special cases of log-location-scale family of distributions. A sensitivity analysis is conducted to study the effect of various prior inputs on the optimal censoring schemes. Furthermore, a simulation study is undertaken to illustrate the sampling variations resulting from the optimal censoring schemes.