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Design of optimal progressively censored sampling plans using average risks

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SUMMARY

The optimal design of approximate reliability sampling plans is considered for progressively censored life tests when the lifetime variable follows a log-normal distribution. In the conventional acceptance sampling of a product is usually assumed a constant nonconforming proportion. However, in many cases, this proportion should not be considered constant. This paper presents a general procedure for determining the optimal designs using average risks for a generalized beta family of priors. The use of prior information to define the sampling risks can reduce, in many cases, the sampling size of the designs despite the progressive censoring and provide a better assessment of the true sampling risks. Several optimal sampling plans using this type of risks are tabulated for selected censoring levels and specifications according to the available partial prior information.

Keywords: reliability sampling plans, operating characteristic curve, acceptable and rejectable quality level, average producer's and consumer's risks

AMS Classification: 62N05

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