

**BAYESIAN OPTIMUM PLANNING FOR ACCELERATED LIFE TESTS**

by

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This paper describes a Bayesian method for optimum accelerated life test planning with one accelerating variable, when the acceleration model is linear in the parameters, based on censored data from a log-location-scale distribution. We use a Bayesian criterion based on estimation precision of a distribution quantile at a specified use condition and use this criterion to find optimum test plans. A large-sample normal approximation provides an easy-to-interpret yet useful simplification to this planning problem. We present a numerical example using the Weibull distribution with Type I censoring to illustrate the method and to examine the effects of the prior distribution, censoring, and sample size. The general equivalence theorem is used to verify that the numerically optimized test plans are globally optimum. The resulting optimum plans are also evaluated by using simulation.