BAYESIAN ACCELERATED LIFE MODELS

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Abstract: *A common problem of high reliability computing is, on one hand, the magnitude of total testing time required, particularly in the case of high reliability components and, on the other hand, the number of devices under test. In both cases, the objective is to minimize the costs involved in testing without reducing the quality of the data obtained. One solution is based on accelerated life testing techniques which permit to decrease testing time. Another solution is to incorporate prior beliefs, engineering experience, or previous data into the testing framework. It is in this spirit that the use of a Bayesian approach can, in many cases, significantly reduce the amount of devices required.*
This paper presents the study of Exponential-Arrhenius model by an evaluation of parameters using maximum likelihood and Bayesian methods. A Monte Carlo simulation has been performed to examine the asymptotic behavior of these different estimators.