



Accelerated Life Testing : Analysis and Optimization

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Mots-clés	accelerated test [4], bayesian estimation [5], operational cost [6], optimization [7], qualification [8], reliability [9], Robustness [10], test planning [11], testing cost [12]
Résumé en anglais	<p>This paper describes a methodology to conduct a sequential test defined by an optimal accelerated testing plan. This test plan is based on an economic approach defined in previous work, a prior knowledge on reliability parameters (choice of reliability function, scale and shape parameters ...) and acceleration model (choice of model, model parameters ...) to evaluate the proportions of failure at each accelerated level. When conducting a test, it is possible to verify the compatibility of results with prior knowledge from a consistency criterion that measures the compatibility between prior distribution and likelihood provided by the data. We can also reduce the censoring time in case of "Good results" while keeping the same level of risk. This possibility is authorized because the robust test is longer than basic optimal test plan. In the process of product development, we will use the qualification. Qualification is an application-specific process involving the evaluation of the product with respect to its quality and reliability. The purpose of qualification is to define the acceptable range of variability for all critical product parameters affected by design and manufacturing. The methodology will be illustrated by a numerical example.</p>
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