

Experiences in Reliability Data Analysis

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This talk consists of a collection of examples illustrating different life data applications in product reliability and materials evaluation. For each example, we provide background on the problem and some discussion of the methods that were used with conclusions and lessons learned from each analysis. We highlight the use of a mix of techniques that have shown to be useful to practitioners. The methodology is current and makes use of modern graphics and emerging computer-based technology. The methodology presented includes nonparametric estimation, probability plotting, and maximum likelihood estimation of parametric models, likelihood-based confidence intervals, acceleration models, accelerated life testing, repeated measures accelerated degradation testing, and destructive degradation testing. The purpose of the presentation is to illustrate the appropriate statistical methods for analyzing different kinds of reliability data including both field data and accelerated test data.

The emphasis is on concepts and ideas and the presentation does not assume an audience with previous background on the subject matter.

*Work in collaboration with Professor Bill Meeker from Iowa State University.