Proposal of an analytical method based on linear regression for modeling reliability by Weibull law

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Abstract

The paper aims to identify a sufficiently precise and easy method that will ultimately lead to a working tool easily accessible and used for modeling reliability through the most widely used mathematical law in the field of reliability - the Weibull law. An analytical method for linearizing the Weibull function is proposed in order to allow, by using the linear regression function of the Microsoft Office software, to obtain the parameters of the reliability model. The calculation program created in Microsoft Excel allows the identification of the 3 parameters of the Weibull model and based on the Weibull model thus determined, the validation or invalidation of the reliability objectives. The application presented reveals that the proposed working tool is easy to use and the Weibull model obtained has a very good probability.

Keywords: working tools, Weibull law, reliability

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