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Reliability analysis of a k-out-of-n:F system under a linear degradation model with calibrations

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Abstract A k-out-of-n:F system with both of soft and hard failures is considered such that its components degrade through internal and external factors. A linear model is considered for degradation path of each component. Reliability function of the system is derived and the effect of varying the parameters are studied on reliability function for some systems. Moreover, the effect of calibration on reliability and maximum working time of such a system is investigated. The optimal number of calibrations is also determined for some special cases.

Keywords Calibration · Soft failure · Hard failure · Internal degradation · External degradation · Reliability · Sensitivity analysis · Optimization

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