

## **Design and Analysis of Adaptive Type-I Progressive Hybrid Censoring Plan under Step Stress Partially Accelerated Life Testing Using Competing Risk**

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**Abstract :** Statistical distributions have long been employed in the assessment of semiconductor devices and product reliability. The power function-distribution is one of the most important distributions in the modern reliability practice and can be frequently preferred over mathematically more complex distributions, such as the Weibull and the lognormal, because of its simplicity. Moreover, it may exhibit a better fit for failure data and provide more appropriate information about reliability and hazard rates in some circumstances. This study deals with estimating information about failure times of items under step-stress partially accelerated life tests for competing risk based on adoptive type-I progressive hybrid censoring criteria. The life data of the units under test is assumed to follow Mukherjee-Islam distribution. The point and interval maximum-likelihood estimations are obtained for distribution parameters and tampering coefficient. The performances of the resulting estimators of the developed model parameters are evaluated and investigated by using a simulation algorithm.

**Keywords :** adoptive progressive hybrid censoring, competing risk, mukherjee-islam distribution, partially accelerated life testing, simulation study

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