

# A Review of Reliability Growth Models and Life Testing Techniques in Engineering Applications

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**Abstract:** *Reliability engineering plays a critical role in ensuring the safety, quality, and performance of engineering systems. Reliability growth models and life testing techniques are essential tools for assessing and improving product reliability throughout the development and operational phases. Reliability growth models help quantify improvements in system reliability as faults are identified and corrected, while life testing techniques estimate product lifespan and failure behavior under various operating conditions. This review paper examines the fundamental concepts, classifications, applications, advantages, and limitations of major reliability growth models and life testing methodologies used in engineering applications. The study highlights recent developments and future research directions aimed at improving reliability assessment in complex engineering systems.*

**Keywords:** Reliability Engineering, Reliability Growth Models, Life Testing, Accelerated Life Testing, NHPP Models, Engineering Applications