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Nota di contenuto	Front Cover -- Accelerated Testing and Validation -- Copyright Page -- Contents -- Preface -- What's on the CD-ROM? -- CHAPTER 1. The Time Value of Information -- Historical Business Models and the Information Needed -- Working Group Structure (Entrepreneur) -- Modern Business Models and the Information Needed -- CHAPTER 2. Precise But Useless Data -- Accurate But Not Beneficial -- Precise Test -- CHAPTER 3. What Not To Know -- Scenario One: A Key Physical property is wrong -- Scenario Two: A primary failure mode of a product -- Scenario Three: The Mean Time to Failure (MTTF) -- CHAPTER 4. Accelerated Testing Catalog -- TOOL NAME: Design Failure Modes and Effects Analysis (DFMEA) -- TOOL NAME: Fault Tree Analysis (FTA) -- TOOL NAME: Fully Censored Testing -- TOOL NAME: Step Stress Testing -- TOOL NAME: Accelerated Reliability -- TOOL NAME: Highly Accelerated Life Testing (HALT) -- TOOL NAME: Failure Mode Varification Test (FMVT ®) -- TOOL NAME: Computer Modeling -- CHAPTER 5. Design Failure Mode Effects Analysis (DFMEA) -- Basic DFMEA -- Hypothesis and the DFMEA -- CHAPTER 6. Fully Censored Testing -- Representative -- Homogeneous -- When to Use it? -- CHAPTER 7. Step Stress Testing -- Life Test Stresses and Levels --

Stepping Magnitude -- Business Style -- CHAPTER 8. Trading Stress for Time -- Basic Principles -- Description of Accelerated Reliability Method -- Single Variable Model -- Two-Variable Model -- Three-Variable Model -- CHAPTER 9. Highly Accelerated Life Testing (HALT) -- A Typical HALT -- Hot Temperature Steps -- Cold Temperature Steps -- Ramp Rates -- Vibration -- Combined Run -- Business Structures -- CHAPTER 10. Failure Mode Verification Testing (FMVT) -- Development FMVT -- More About Stress -- More About Failures -- More About Setup and Execution -- More on Data Analysis -- Comparison FMVT. FMVT Life Prediction-Equivalent Wear and Cycle Counting -- FMVT Warranty -- More on Vibration -- Reliability and Design Maturity -- Business Considerations -- CHAPTER 11. Computer and Math Modeling -- Math models -- Finite Element Analysis (FEA) -- Boundary Conditions and Assumptions -- Business Considerations -- CHAPTER 12. Hybrid Testing -- Fully Coupled and partially Coupled Hybrid Tests -- The Field as a Test Method -- CHAPTER 13. Validation Synthesis Model -- The Primary Question -- Timing -- Efficiency -- CHAPTER 14. Downspout Generator Example -- Downspout Generator (DSG) -- Basic Numbers -- Research (Day 0-30) -- Feasibility (Day 30-60) -- Development/Design (Day 60-150) -- Design Validation (Day 150-180) -- Production Validation (Day 180-210) -- Production (Day 210-1095) -- About the Author -- Index.

Sommario/riassunto

Accelerated Testing and Validation Methods is a cross-disciplinary guide that describes testing and validation tools and techniques throughout the product development process. Alex Porter not only focuses on what information is needed but also on what tools can produce the information in a timely manner. From the information provided, engineers and managers can determine what data is needed from a test and validation program and then how to select the best, most effective methods for obtaining the data. This book integrates testing and validation methods with a business perspective so readers can understand when, where, and how such methods can be economically justified. Testing and validation is about generating key information at the correct time so that sound business and engineering decisions can be made. Rather than simply describing various testing and validation techniques, the author offers readers guidance on how to select the best tools for a particular need, explains the appropriateness of different techniques to various situations and shows how to deploy them to ensure the desired information is accurately gathered. * Emphasizes developing a strategy for testing and validation * Companion website includes example spreadsheets, program source code, case studies, video clips and much more * Teaches how to design a testing and validation program that deliver information in a timely and cost-effective manner
