1. Record Nr. UNINA9910466481103321

Autore	Loznen Steli <1952->
Titolo	Electrical product compliance and safety engineering / / Steli Loznen, Constantin Bolintineanu, Jan Swart
Pubbl/distr/stampa	Boston, Massachusetts : , : Artech House, , [2017] [Piscataqay, New Jersey] : , : IEEE Xplore, , [2017]
ISBN	1-5231-1928-4 1-63081-456-3
Descrizione fisica	1 online resource (xx, 458 pages) : illustrations
Collana	Artech House technology management and professional development series
Disciplina	614.8
Soggetti	Electric apparatus and appliances - Safety measures Product safety Engineering - Safety measures Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Intro; Contents; Foreword; Preface; 1 Why Do We Need Electrical ProductCompliance and Safety?; 1.1 Product Compliance and Safety in the Twenty-First Century; 1.2 Electrical Product Safety Legislation and Liability; 1.3 Designing for Safety; 1.4 Safety Cost Estimation; 2 International Regulations and GlobalMarket Access; 2.1 Regional Regulations: How They Differ; 2.2 CE Marking; 2.3 NRTLs; 2.4 Certification Body (CB) Scheme; 2.5 Product Certification Marks; 2.6 ISO Registration Process; 3 Product Safety Standards; 3.1 Introduction; 3.2 Product Safety and Standardization 3.3 What Is a Standard?3.4 Structure of the Product Safety Standard; 3.5 Conformity to Product Safety Standards; 3.6 Types of Product Safety Standards; 3.7 Objectives for Products Safety Standards; 3.8 Product Safety Standard Developers; 4 Electrical Products Safety Philosophy; 4.1 Introduction; 4.2 Safety Versus Safe; 4.3 How Do Reliability Engineering and Product Safety Differ?; 4.4 Perception of Risk; 4.5 Failure; 4.6 Single-Fault Safe; 4.7 Redundancy; 4.8 Safety Factors; 4.9 Work Safety Versus Product Safety; 5 Methods for Failure Analysis; 5.1 FMEA; 5.2

FTA

5.3 Hazard and Operability Study (HAZOP)5.4 Action Error Analysis (AEA); 5.5 Event Tree Analysis (ETA); 6 Risk Management for Product Safety; 6.1 Introduction; 6.2 Identifying Hazards; 6.3 Estimation of the Risk; 6.4 Risk Evaluation; 6.5 Risk Control; 6.6 Functional Safety; 6.7 Standards for Risk Management; 7 Electrical Product Safety Concepts; 7.1 Means of Protection; 7.2 Insulation Diagrams; 7.3 Safe Current and Voltage limits; 7.4 Leakage Currents; 7.5 Spacing: Air Clearance and Creepage Distances; 7.6 Earthing/Grounding; 7.7 Fire, Electrical, and Mechanical Enclosures; 7.8 Ratings
7.9 Types of Circuits7.10 Normal Load; 7.11 Abnormal Operating Conditions; 8 Selection of Components; 8.1 Introduction; 8.2 Semiconductors; 8.3 Passive; 8.4 Temperature Control Devices; 8.5 Motors and Fans; 8.6 Thermoplastic Materials; 8.7 Terminal Blocks; 8.8 Connectors; 8.9 Internal Wiring; 9 Batteries; 9.1 Introduction; 9.2 Secondary Batteries; 9.3 Secondary Battery Safety Standards; 9.4 Primary Batteries; 9.5 Primary Battery Safety Standards; 9.6 Battery Safety Design; 10 Power Source; 10.1 Introduction; 10.2 Power Supplies: Plugs, Connectors, and Cord Sets; 10.3 Fuses/Fuse Holders 10.4 Power Entry Modules10.5 Switches; 10.6 Varistors; 10.7 Transformers; 10.8 Power Supplies; 11 Product Construction Requirements; 11.1 Introduction; 11.2 Enclosures; 11.3 Circuit Separation; 11.4 Grounding and Bonding; 11.5 Resistance to Fire and Flame Rating; 11.6 Interlocks; 11.7 Moving Parts; 11.8 Constructive Aspects Related to EMC; 11.9 Parts Subjected to Pressure; 11.10 Serviceability; 12 Markings, Indicators, and Accompanying Documents; 12.1 Marking/Safety Labels/External Marking; 12.2 Internal Markings; 12.3 Marking of Controls and Instruments; 12.4 Color of Indicators and Lights

Sommario/riassunto

This comprehensive resource is designed to guide professionals in product compliance and safety in order to develop more profitable products, contribute to customer satisfaction, and reduce the risk of liability. This book analyzes the principles and methods of critical standards, highlighting how they should be applied in the field. It explores the philosophy of electrical product safety and analyzes the concepts of compliance and safety, perception of risk, failure, normal and abnormal conditions, and redundancy. Professionals find valuable information on power sources, product construction requirements, markings, compliance testing, and manufacturing of safe electrical products.