

1. Record Nr.	UNINA9910140553403321
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Titolo	RFID handbook : fundamentals and applications in contactless smart cards, radio frequency identification and near-field communication // Klaus Finkenzeller ; translated by Deort Meuller
Pubbl/distr/stampa	Chichester, West Sussex ; , : Wiley, , c2010 [Piscataqay, New Jersey] : , : IEEE Xplore, , [2010]
ISBN	1-119-99187-0 1-282-66357-7 9786612663574 0-470-66512-2 0-470-66511-4
Edizione	[3rd ed.]
Descrizione fisica	1 online resource (480 p.)
Disciplina	621.38411 658.7/87
Soggetti	Inventory control - Automation Radio frequency identification systems Smart cards
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preface to the Third Edition -- List of Abbreviations -- 1 Introduction -- 1.1 Automatic Identification Systems -- 1.2 A Comparison of Different ID Systems -- 1.3 Components of an RFID System -- 2 Differentiation Features of RFID Systems -- 2.1 Fundamental Differentiation Features -- 2.2 Transponder Construction Formats -- 2.3 Frequency, Range and Coupling -- 2.4 Active and Passive Transponder -- 2.5 Information Processing in the Transponder -- 2.6 Selection Criteria for RFID Systems -- 3 Fundamental Operating Principles -- 3.1 1-Bit Transponder -- 3.2 Full- and Half-Duplex Procedure -- 3.3 Sequential Procedures -- 3.4 Near-Field Communication (NFC) -- 4 Physical Principles of RFID Systems -- 4.1 Magnetic Field -- 4.2 Electromagnetic Waves -- 4.3 Surface Waves -- 5 Frequency Ranges and Radio Licensing Regulations -- 5.1 Frequency Ranges Used -- 5.2 The International Telecommunication Union (ITU)

-- 5.3 European Licensing Regulations -- 5.4 National Licensing Regulations in Europe -- 5.5 National Licensing Regulations -- 5.6 Comparison of National Regulations -- 6 Coding and Modulation -- 6.1 Coding in the Baseband -- 6.2 Digital Modulation Procedures -- 7 Data Integrity -- 7.1 The Checksum Procedure -- 7.2 Multi-Access Procedures / Anticollision -- 8 Security of RFID Systems -- 8.1 Attacks on RFID Systems -- 8.2 Protection by Cryptographic Measures -- 9 Standardisation -- 9.1 Animal Identification -- 9.2 Contactless Smart Cards -- 9.3 ISO/IEC 69873 / Data Carriers for Tools and Clamping Devices -- 9.4 ISO/IEC 10374 / Container Identification -- 9.5 VDI 4470 / Anti-theft Systems for Goods -- 9.6 Item Management -- 10 The Architecture of Electronic Data Carriers -- 10.1 Transponder with Memory Function -- 10.2 Microprocessors -- 10.3 Memory Technology -- 10.4 Measuring Physical Variables -- 11 Readers -- 11.1 Data Flow in an Application -- 11.2 Components of a Reader -- 11.3 Integrated Reader ICs -- 11.4 Connection of Antennas for Inductive Systems -- 11.5 Reader Designs. 11.6 Near-Field Communication -- 12 The Manufacture of Transponders and Contactless Smart Cards -- 12.1 Glass and Plastic Transponders -- 12.2 Contactless Smart Cards -- 13 Example Applications -- 13.1 Contactless Smart Cards -- 13.2 Public Transport -- 13.3 Contactless Payment Systems -- 13.4 NFC Applications -- 13.5 Electronic Passport -- 13.6 Ski Tickets -- 13.7 Access Control -- 13.8 Transport Systems -- 13.9 Animal Identification -- 13.10 Electronic Immobilisation -- 13.11 Container Identification -- 13.12 Sporting Events -- 13.13 Industrial Automation -- 14 Appendix -- 14.1 Contact Addresses, Associations and Technical Periodicals -- 14.2 Relevant Standards and Regulations -- 14.3 Printed Circuit Board Layouts -- References -- Index.

Sommario/riassunto

This is the third revised edition of the established and trusted RFID Handbook; the most comprehensive introduction to radio frequency identification (RFID) available. This essential new edition contains information on electronic product code (EPC) and the EPC global network, and explains near-field communication (NFC) in depth. It includes revisions on chapters devoted to the physical principles of RFID systems and microprocessors, and supplies up-to-date details on relevant standards and regulations. The text explores schematic circuits of simple transponders and readers, and includes new material on active and passive transponders, ISO/IEC 18000 family, ISO/IEC 15691 and 15692. It also describes the technical limits of RFID systems. A unique resource offering a complete overview of the large and varied world of RFID, Klaus Finkenzeller's volume is useful for end-users of the technology as well as practitioners in auto ID and IT designers of RFID products. Computer and electronics engineers in security system development, microchip designers, and materials handling specialists benefit from this book, as do automation, industrial and transport engineers. Clear and thorough explanations also make this an excellent introduction to the topic for graduate level students in electronics and industrial engineering design.

2. Record Nr.	UNISANNIOUBO2913789
Autore	Coenraads, Robert R.
Titolo	Rocce e fossili / Robert R. Coenraads
Pubbl/distr/stampa	Milano, : Touring club italiano, c2006
ISBN	8836536352 9788836547463
Descrizione fisica	304 p. : ill. ; 24x24 cm.
Disciplina	551.7 552 560
Soggetti	Fossili Rocce
Collocazione	SALA 552 COE.ro
Lingua di pubblicazione	Italiano
Formato	Materiale a stampa
Livello bibliografico	Monografia