
**Information technology — Automatic
identification and data capture
techniques —**

**Part 1:
Security services for RFID air
interfaces**

*Technologies de l'information — Techniques automatiques
d'identification et de capture de données —*

Partie 1: Services de sécurité pour les interfaces radio RFID

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, Subcommittee SC 31, *Automatic identification and data capture techniques*.

This second edition cancels and replaces the first edition (ISO/IEC 29167-1:2012) which has been technically revised.

ISO/IEC 29167 consists of the following parts, under the general title *Information technology — Automatic identification and data capture techniques*:

- *Part 1: Security services for RFID air interfaces*
- *Part 10: Crypto suite AES-128 security services for air interface communications*
- *Part 11: Air interface for security services — Crypto suite PRESENT-80*
- *Part 12: Crypto suite ECC-DH security services for air interface communication*
- *Part 13: Air interface for security services — Crypto suite Grain-128A*
- *Part 14: Air interface for security services — Crypto suite AES OFB*
- *Part 15: Air interface for security services — Crypto suite XOR*
- *Part 16: Air interface for security services crypto suite ECDSA-ECDH*
- *Part 17: Air interface for security services crypto suite cryptoGPS*
- *Part 19: Air interface for security services crypto suite RAMON*

Introduction

ISO/IEC 29167 describes security as applicable for ISO/IEC 18000. ISO/IEC 29167 is an optional extension to the ISO/IEC 18000 air interfaces.

The ISO/IEC 18000 series of International Standards on radio frequency identification (RFID) for item management does not offer strong security of the tag and interrogator data and identity. For example, the unique item identifiers (UII) of tags are typically transmitted to every other device in the RF field and can thus be easily tracked. Additionally, sensitive data such as passwords are typically transmitted over RF without encryption and can easily be intercepted. Moreover, utilized passwords may be short in length. ISO/IEC 29167 fulfills the need for applications requiring effective security in the handling of sensitive information including the unauthorized interception and tracking of data and devices.

ISO/IEC 29167 covers the crypto suites for interrogators and tags that have security mechanisms on board. ISO/IEC 29167 only applies to tags that perform the computations that are required for the security mechanisms. Tag-to-tag communication is not excluded.

ISO/IEC 29167 covers a number of cryptographic suites designed for protecting application information transmitted across the RFID air interface, product authentication, and protecting access to resources on the tag. Suite implementations relative to specific ISO/IEC 18000 series RFID air interface standards, where relevant, are described in the Annexes of each cryptographic suite. Users should be aware that they must assess their own risk management needs for their application (e.g. amount of necessary security features, management of keys, etc.) in order to determine the appropriate suite for implementation.

This part of ISO/IEC 29167 describes a framework to implement security mechanisms used in an RFID system. The other parts of ISO/IEC 29167 specify individual crypto suites.

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