INTERNATIONAL STANDARD

**ISO/IEC 29167-10**

Second edition
2017-09

# Information technology — Automatic identification and data capture techniques —

## Part 10: Crypto suite AES-128 security services for air interface communications

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

*Partie 10: Services de sécurité par suite cryptographique AES-128 pour communications par interface radio*

Reference number
ISO/IEC 29167-10:2017(E)

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# Foreword

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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 document 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).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee 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 29167-10:2015), which has been technically revised.

A list of all parts in the ISO/IEC 29167 series can be found on the ISO website.

# Introduction

This document specifies the security services of an AES-128 crypto suite. AES has a fixed block size of 128 bits and a key size of 128 bits, 192 bits or 256 bits. This document uses AES with a fixed key size of 128 bits and is referred to as AES-128.

This document specifies procedures for the authentication of a Tag and or an Interrogator using AES-128 and provides the following features:

— Tag Authentication;

— Tag Authentication allows authenticated and encrypted reading of a part of the Tag's memory;

— Interrogator Authentication;

— Interrogator Authentication allows authenticated and encrypted writing of a part of the Tag's memory;

— Mutual Authentication.

Crypto suite only supports encryption on the Tag and uses encryption for "encrypting" messages sent from the Tag to the Interrogator and "decrypting" messages received from the Interrogator.

The International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) draw attention to the fact that it is claimed that compliance with this document might involve the use of patents concerning radio-frequency identification technology given in the clauses identified below.

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# Information technology — Automatic identification and data capture techniques —

# Part 10: Crypto suite AES-128 security services for air interface communications

## 1 Scope

This document specifies the crypto suite for AES-128 for the ISO/IEC 18000 air interfaces standards for radio frequency identification (RFID) devices. Its purpose is to provide a common crypto suite for security for RFID devices that might be referred by ISO committees for air interface standards and application standards.

This document specifies a crypto suite for AES-128 for an air interface for RFID systems. The crypto suite is defined in alignment with existing air interfaces.

This document specifies various authentication methods and methods of use for the encryption algorithm. A Tag and an Interrogator can support one, a subset, or all of the specified options, clearly stating what is supported.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 9797-1, *Information technology — Security techniques — Message Authentication Codes (MACs) — Part 1: Mechanisms using a block cipher*

ISO/IEC 18000-63, *Information technology — Radio frequency identification for item management — Part 63: Parameters for air interface communications at 860 MHz to 960 MHz Type C*

ISO/IEC 19762, *Information technology — Automatic identification and data capture (AIDC) techniques — Harmonized vocabulary*

ISO/IEC 29167-1, *Information technology — Automatic identification and data capture techniques — Part 1: Security services for RFID*