



**International
Standard**

ISO/IEC 29167-21

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

**Part 21:
Crypto suite SIMON security
services for air interface
communications**

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

*Partie 21: Services de sécurité par suite cryptographique SIMON
pour communications par interface radio*

**Second edition
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Contents

| | Page |
|--|-----------|
| Foreword | v |
| Introduction | vi |
| 1 Scope | 1 |
| 2 Normative references | 1 |
| 3 Terms, definitions, symbols and abbreviated terms | 1 |
| 3.1 Terms and definitions..... | 1 |
| 3.2 Symbols..... | 2 |
| 3.3 Abbreviated terms..... | 3 |
| 4 Conformance | 3 |
| 4.1 Air interface protocol specific information..... | 3 |
| 4.2 Interrogator conformance and obligations..... | 3 |
| 4.3 Tag conformance and obligations..... | 4 |
| 5 Overview of the SIMON crypto suite | 4 |
| 6 Parameter and variable descriptions | 4 |
| 7 Crypto suite state diagram | 5 |
| 8 Initialization and resetting | 6 |
| 9 Authentication | 6 |
| 9.1 General..... | 6 |
| 9.2 Message and response formatting..... | 7 |
| 9.3 Tag authentication (AuthMethod “00”)..... | 7 |
| 9.3.1 General..... | 7 |
| 9.3.2 TAM1 message..... | 7 |
| 9.3.3 Intermediate Tag processing..... | 8 |
| 9.3.4 TAM1 response..... | 8 |
| 9.3.5 Final Interrogator processing..... | 8 |
| 9.4 Interrogator authentication (AuthMethod “01”)..... | 9 |
| 9.4.1 General..... | 9 |
| 9.4.2 IAM1 message..... | 9 |
| 9.4.3 Intermediate Tag processing #1..... | 10 |
| 9.4.4 IAM1 response..... | 10 |
| 9.4.5 Intermediate Interrogator processing..... | 10 |
| 9.4.6 IAM2 message..... | 10 |
| 9.4.7 Intermediate Tag processing #2..... | 11 |
| 9.4.8 IAM2 response..... | 11 |
| 9.4.9 Final Interrogator processing..... | 11 |
| 9.5 Mutual authentication (AuthMethod “10”)..... | 12 |
| 9.5.1 General..... | 12 |
| 9.5.2 MAM1 message..... | 12 |
| 9.5.3 Intermediate Tag processing #1..... | 13 |
| 9.5.4 MAM1 response..... | 13 |
| 9.5.5 Intermediate Interrogator processing..... | 14 |
| 9.5.6 MAM2 message..... | 14 |
| 9.5.7 Intermediate Tag processing #2..... | 14 |
| 9.5.8 MAM2 response..... | 15 |
| 9.5.9 Final Interrogator processing..... | 15 |
| 10 Communication | 16 |
| 10.1 General..... | 16 |
| 10.2 Message and response formatting..... | 16 |
| 10.3 Transforming a payload prior to encapsulation..... | 17 |
| 10.3.1 General..... | 17 |
| 10.3.2 Encapsulating an Interrogator command..... | 18 |

ISO/IEC 29167-21:2026(en)

| | | |
|---------------------|---|-----------|
| 10.3.3 | Cryptographically protecting a Tag reply..... | 19 |
| 10.4 | Processing an encapsulated or cryptographically-protected reply | 20 |
| 10.4.1 | General | 20 |
| 10.4.2 | Recovering an encapsulated Interrogator command..... | 21 |
| 10.4.3 | Recovering a cryptographically-protected Tag response..... | 22 |
| 11 | Key table and key update..... | 22 |
| Annex A | (normative) Crypto suite state transitions | 23 |
| Annex B | (normative) Errors and error handling..... | 24 |
| Annex C | (normative) Description of SIMON and SILC v3..... | 25 |
| Annex D | (informative) Test vectors | 29 |
| Annex E | (normative) Protocol specific information..... | 40 |
| Bibliography | | 43 |

Foreword

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This document was prepared by Joint 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 29167-21:2018), which has been technically revised.

The main change is as follows: [Annex E](#) has been updated to reflect changes to the over-the-air protocol.

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

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

Introduction

This document provides a common crypto suite for security for radio frequency identification (RFID) devices. The crypto suite is defined in alignment with existing air interfaces and specifies a variety of security services provided by the lightweight block cipher SIMON.

Information technology — Automatic identification and data capture techniques —

Part 21:

Crypto suite SIMON security services for air interface communications

1 Scope

This document specifies the crypto suite for SIMON for the ISO/IEC 18000 air interface standards for radio frequency identification (RFID) devices.

SIMON is a symmetric block cipher that is parameterized in both its block length and key length. The block/key length options supported in this crypto suite (in bits) are 64/96, 96/96, 64/128, 128/128 and 128/256.

In this document, 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 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 — Vocabulary*

Bibliography

- [1] ISO/IEC 18000 (all parts), *Information technology — Radio frequency identification for item management*
- [2] ISO/IEC 29167 (all parts), *Information technology — Automatic identification and data capture techniques*
- [3] EPC™ Radio-Frequency Identity Protocols, Class-1 Generation-2 UHF RFID, Protocol for Communications at 860 MHz – 960 MHz, Version 2.0.1; EPCglobal™ Inc.
- [4] THE SIMON AND SPECK FAMILIES OF LIGHTWEIGHT BLOCK CIPHERS. R. Beaulieu, D. Shors, J. Smith, S. Treatman-Clark, B. Weeks, and L. Wingers. Available from: <https://eprint.iacr.org/2013/404.pdf>
- [5] CLOC and SILC v3. Tetsu Iwata, Kazuhiko Minematsu, Jian Guo, Sumio Morioka, and Eita Kobayashi. Version 3.0, September 15, 2016. Available from: <https://competitions.cryp.to/round3/clocsilcv3.pdf>