First edition 2012-10-01

Information technology — Security techniques — Lightweight cryptography —

Part 3: **Stream ciphers**

Technologies de l'information — Techniques de sécurité — Cryptographie pour environnements contraints —

Partie 3: Chiffrements à flot



ISO/IEC 29192-3:2012(E)

This is a preview of "ISO/IEC 29192-3:2012". Click here to purchase the full version from the ANSI store.



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2012

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

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

Published in Switzerland

Contents Page Forewordiv Introduction......v 1 Scope......1 2 3 Terms and definitions1 4 Symbols and operational terms......3 5 General models for stream ciphers4 5.1 General4 5.2 Synchronous Keystream generators4 5.3 Output functions......4 Dedicated keystream generators......5 6.1 Enocoro-128v2 keystream generator5 6.2 Enocoro-80 keystream generator10 6.3 Trivium keystream generator......13 Annex A (normative) Object Identifiers16 Annex E (informative) Computation over a finite field27 Bibliography......28

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

ISO/IEC 29192-3 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 27, *IT Security techniques*.

ISO/IEC 29192 consists of the following parts, under the general title *Information technology* — *Security techniques* — *Lightweight cryptography*:

- Part 1: General
- Part 2: Block ciphers
- Part 3: Stream ciphers
- Part 4: Mechanisms using asymmetric techniques

Introduction

This part of ISO/IEC 29192 specifies keystream generators for lightweight stream ciphers tailored for implementation in constrained environments. ISO/IEC 29192-1 specifies the requirements for lightweight cryptography. A stream cipher is an encryption mechanism that uses a keystream generator to generate a keystream to encrypt a plaintext in bitwise or block-wise manner.

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 may involve the use of patents.

ISO and IEC take no position concerning the evidence, validity and scope of these patent rights.

The holders of these patent rights have assured ISO and IEC that they are willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holders of these patent rights are registered with ISO and IEC. Information may be obtained from:

René-MichaelCordes/ErnstSchobesberger/M&C ConsultInvest&TradeGmbH LogoDynamic Unit GmbH Prinz Eugen Strasse 52/9, A-1040 Vienna Austria

Hitachi Ltd.
IP Licensing Department
Intellectual Property Group
Marunouchi Center Building
6-1, Marunouchi 1-chome,
Chiyoda-ku,
Tokyo, 100-8220
Japan

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO (<u>www.iso.org/patents</u>) and IEC (<u>http://patents.iec.ch</u>) maintain on-line databases of patents relevant to their standards. Users are encouraged to consult the databases for the most up to date information concerning patents.