TECHNICAL REPORT

ISO/IEC TR 29162

First edition
2012-07-15

Information technology — Guidelines for using data structures in AIDC media

Technologies de l'information — Directives pour l'usage des structures de données dans des medias d'AIDC

Reference number
ISO/IEC TR 29162:2012(E)

© ISO/IEC 2012

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

 © ISO/IEC 2012 – All rights reserved

Contents

Page

Introduction v
1 Scope 1
2 Normative references 1
3 Terms and definitions 1
4 Abbreviated terms 1
5 Standards applied to data encoding for AIDC media 2
6 ISO/IEC 15434 application for high capacity AIDC media 3
6.1 Assigned formats in ISO/IEC 15434 4
6.2 System data elements for compatibility across all AIDC media 5
6.3 Data Carrier Identifiers for RFID and other AIDC media 5
7 RFID encoding of UII 6
7.1 Extant numbering systems for RFID 6
7.2 Tag type and UII data storage area 7
7.3 ISO/IEC 18000-63, Type C and 18000-3m3 ASK and EPCglobal memory architecture 8
7.4 Unique Identifier of a physical object (UII) 9
7.5 Data construct 11
7.6 Encoding of Memory Bank “01” Unique Item Identifier 11
8 RFID encoding of user data 14
8.1 No directory 14
8.2 Directory 14
8.3 Packed Object 14
8.4 Tag Data Profile 15
9 RFID ISO/IEC 15434 direct encoding of user data 15
10 Storing data in various types of RF tags 15
11 Methods to store UII data in RFID memory and other AIDC media 16
Bibliography 31

© ISO/IEC 2012 – All rights reserved

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.

In exceptional circumstances, when the joint technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide to publish a Technical Report. A Technical Report is entirely informative in nature and shall be subject to review every five years in the same manner as an International Standard.

Attention is drawn to the possibility that some of the elements of this Technical Report may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC TR 29162 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 31, *Automatic identification and data capture techniques*.

© ISO/IEC 2012 – All rights reserved

Introduction

Radio frequency identification (RFID) is one of the AIDC media widely used in the market place. Linear bar codes and two-dimensional symbols have long utilized AIDC media. The international standard for AIDC syntax is ISO/IEC 15434. ISO/IEC 15961 and ISO/IEC 15962 were developed as encoding rules for RFID.

Users have long utilized linear bar codes and two-dimensional symbols for item identification and numerous RFID technologies have recently been developed. Users who want to utilize RFID transponders should consider compatibility with linear bar codes and two-dimensional symbols already in the system. Because of the growing diversity and complexity of AIDC media in the market place, especially in RFID, it is not easy for users to understand how to read and write their data to each application of AIDC media.

This Technical Report explains common data structures used in both optically readable media (linear bar codes and two-dimensional symbols) and radio-frequency identification. It primarily addresses the use of ASC MH10 Data Identifiers to provide the semantics, ISO/IEC 15434 to provide the syntax, and ISO techniques of unique item identification with ISO/IEC 15961 Application Family Identifiers (AFIs) and encoding rules for RFID using ISO/IEC 15962.

Those interested in applications using Air Transport Association (ATA) SPEC 2000, Text Element Identifiers, are encouraged to contact the ATA for specific guidance.

Those interested in applications using GS1 Application Identifiers and EPC, specifically for material found in the EPC Tag Data Standard (TDS), are encouraged to contact GS1 for specific guidance.

© ISO/IEC 2012 – All rights reserved

Information technology — Guidelines for using data structures in AIDC media

1 Scope

This Technical Report provides guidance on the use of AIDC media (e.g. linear bar codes, two-dimensional symbols, RFID transponders) in the supply chain.

2 Normative references

The following referenced documents are indispensable for the application of this Technical Report. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

© ISO/IEC 2012 – All rights reserved