INTERNATIONAL STANDARD

ISO/IEC 15459-4

Second edition
2008-07-15

Information technology — Unique identifiers —

Part 4: Individual items

Technologies de l'information — Identificateurs uniques —

Partie 4: Articles individuels

Reference number
ISO/IEC 15459-4:2008(E)

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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.

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.

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.

ISO/IEC 15459-4 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 15459-4:2006), of which it constitutes a minor revision. Because the scope of ISO/IEC 15459 has been expanded beyond transport units, the term “license plate” in the first edition of ISO/IEC 15459 has been replaced by “unique identifier” in the second edition.

ISO/IEC 15459 consists of the following parts, under the general title *Information technology — Unique identifiers*:

— *Part 1: Unique identifiers for transport units*

— *Part 2: Registration procedures*

— *Part 3: Common rules for unique identifiers*

— *Part 4: Individual items*

— *Part 5: Unique identifier for returnable transport items (RTIs)*

— *Part 6: Unique identifier for product groupings*

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Introduction

Unique identification can occur at many different levels in the supply chain, at the transport unit, at the item level, and elsewhere. Such distinct entities are often handled by several parties: the sender, the receiver, one or more carriers, customs authorities, etc. Each of these parties must be able to identify and trace the item so that reference can be made to associated information such as configuration, maintenance history, address, order number, contents of the item, weight, sender, batch or lot number, etc.

The information is often held on computer systems, and may be exchanged between parties involved via EDI (Electronic Data Interchange) and XML (eXtensible Markup Language) messages.

There are considerable benefits if the identity of the item is represented in bar code format, or other AIDC (Automatic Identification and Data Capture) media and attached to or made a constituent part of that which is being uniquely identified so that

— it can be read electronically, thus minimising errors;

— one identity can be used by all parties;

— each party can use the identity to look up its computer files to find the data associated with the item;

— the identifier is unique within the class and cannot appear on any other item of the class during the lifetime of the item.

The unique identifier for individual items defined in this part of ISO/IEC 15459 and represented in a bar code label, two-dimensional symbol, radio-frequency identification tag, or other AIDC media attached to the item meets these needs.

All AIDC technologies have the potential to encode a unique identifier. It is expected that application standards for items, using various automatic identification technologies, will be developed based upon the unique identifier as a prime key. These application standards may be made available from the Issuing Agency.

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Information technology — Unique identifiers —

Part 4:
Individual items

1 Scope

This part of ISO/IEC 15459 specifies a unique, non-significant, string of characters for the unique identifier for individual items. The character string is intended to be represented in a bar code label or other AIDC media attached to the item to meet supply chain needs. To address management needs, different classes of items are recognized in the various parts of ISO/IEC 15459, which allows different requirements to be met by the unique identifiers associated with each class. The rules are defined for the individual items to identify the unique occurrence of an item, understood to mean the layers zero and one as will be defined in two future International Standards (ISO 17367 and ISO 17366, respectively).

2 Normative references

The following referenced documents are indispensable for the application 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 646, *Information technology — ISO 7-bit coded character set for information interchange*

ISO/IEC 15418, *Information technology — EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance* [1)]

ISO/IEC 15459-2, *Information technology — Unique identifiers — Part 2: Registration procedures*

ISO/IEC 15459-3, *Information technology — Unique identifiers — Part 3: Common rules for unique identifiers*

ISO/IEC 9834-1, *Information technology — Open Systems Interconnection — Procedures for the operation of OSI Registration Authorities: General procedures and top arcs of the ASN.1 Object Identifier tree*

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

GS1 General Specifications, GS1

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 19762 (all parts) and ISO/IEC 15459-2 apply.

1) GS1 was formed in 2005 from the joining together of EAN International and the Uniform Code Council (UCC). Since 2005, “EAN/UCC Application Identifiers” have been re-branded “GS1 Application Identifiers”.

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4 Class identification of items for individual items

Each item shall be unambiguously identified by a code as defined in Clause 5. So that items of this class can be distinguished from other classes, the unique identifier may be combined with a class identifier determined by the Issuing Agency. The class of the unique identifier of items may be identified by one of the identifiers as defined in ISO/IEC 15418 or ISO/IEC 9834-1.

- One of the GS1 Application Identifiers **8003, 8004** or the combination **AI 01 21**

  If this class identification method is used each Issuing Agency, or unique identifier issuer if authorised by its Issuing Agency, shall select the appropriate GS1 Application Identifier to identify the sub-class representing the class of the unique identifier.

- One of the ASC MH 10 Data Identifiers, as defined in ISO/IEC 15418 (ANS MH10.8.2), **25S**

If this class identification method is used each Issuing Agency, or unique identifier issuer if authorised by it's Issuing Agency, shall select the appropriate ASC MH10 Data Identifier to identify the sub-class representing the class of the unique identifier.

- When employing an ISO/IEC compliant RFID data carrier an additional option is the object identifiers:

  — 1 0 15459 4: for a unit identifier for individual items defined by the IAC. This is independent of, and unlike the structures below, does not support mapping to GS1 Application Identifiers and ASC MH 10 Data Identifiers.

  — 1 0 15459 4 1: for a unit identifier for individual items equivalent to GS1 Application Identifier **8003**

  — 1 0 15459 4 2: for a unit identifier for individual items equivalent to GS1 Application Identifier **8004**

  — 1 0 15459 4 3: for a unit identifier for individual items equivalent to a Serialised GTIN (GS1 Application Identifiers **01** and **21**)

  — 1 0 15459 4 4: for a unit identifier for individual items equivalent to ASC MH10 Data Identifier **25S**

5 Unique identifier for items

5.1 Introduction

A unique identifier is assigned to an individual item to enable supply chain management by a unique identifier issuer. This shall be done in accordance with the rules established by an authorised Issuing Agency as identified in ISO/IEC 15459-2 and ISO/IEC 15459-3.

5.2 Maximum number of characters permissible in a unique identifier for items

The unique identifier for items shall not contain more than 50 characters.

For efficient use within bar coding and other AIDC data carrier systems, it is recommended that wherever possible the number of characters be maximum 20. However, any data processing system shall be capable of processing unique identifiers of 50 characters.

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5.3 Permissible character sets in a unique identifier for items

The unique identifier shall only contain characters and numeric digits from the invariant character set of ISO/IEC 646.

An Issuing Agency may put additional restrictions on the repertoire for unique identifiers for items using its IAC.

Any data processing system shall be capable of processing unique identifiers using the full repertoire of characters permitted for unique identifiers for items.

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Annex A
(informative)

Individual items

A.1 Role of the Issuing Agency in providing application guidance for individual items

In addition to the requirements of an Issuing Agency, outlined elsewhere in this International Standard, each Issuing Agency is expected to provide guidelines if individual items is relevant to its IAC domain.

A.2 Unique identifier for individual items

To illustrate the usage, the hypothetical example is given using the two Issuing Agencies, recognised by the Registration Authority, GS1 and NATO ALLIED COMMITTEE 135.

The rule for the construction of the unique identifier for individual items is provided by the Issuing Agency as outlined in ISO/IEC 15459-2. This ensures all unique identifiers are unambiguous within a class.

A.3 GS1 unique identifier for individual items

The rules of GS1, to whom the Issuing Agency Codes "0" till "9" have been allocated by the Registration Authority, are that the unique identifier consists of no more than 30 alphanumeric characters, the first part of which is always numeric. The first numeric string of characters is allocated by GS1 to the issuer (Global Company Prefix) and the following characters are assigned by issuer under the rules of GS1.

EXAMPLE 1 Unique identifier issued under the rules of GS1. In this example the Application Identifier is "8004", the Issuing Agency GS1 has provided the unique identifier issuer with "0098756", that starts with the Issuing Agency Code "0", and "000110780" has been assigned by the issuer.

The example below shows a GS1 unique identifier (Application Identifier 8004)

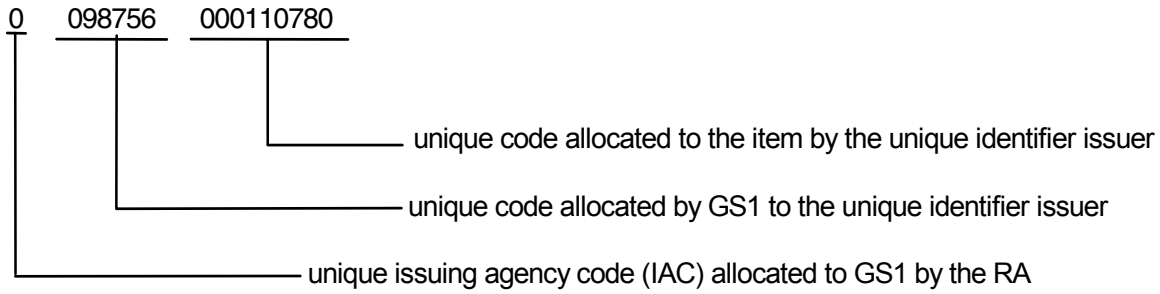


Figure A.1 — Unique identifier for GS1 individual asset identification

This unique identifier can be contained in a GS1-128 bar code symbol with the GS1 Application Identifier "8004".

The bar code symbol when scanned can be expected to pass the following data string to the computer system:

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Table A.1 — Data stream — GS1

]C1	8004	0098756000110780
symbology identifier	GS1 Application Identifier	unique identifier

A.4 ASC MH10 Unique identifier for Item Identification

NATO ALLIED COMMITTEE 135, to whom the Issuing Agency Code "D" has been allocated by the Registration Authority, have issued rules for the creating unique identifiers. The characters following the Issuing Agency Code "D" are allocated by NATO ALLIED COMMITTEE 135 to commercial or government entities and are referred to as a CAGE/NCAGE codes. The unique identifier issuer then assigns the remaining characters. See Figure A.2.

EXAMPLE 2 Typical Unique Item Identification issued under the rules of "military organization NATO ALLIED COMMITTEE 135": In this example the Data Identifier is "25S", the IAC is "D", the CIN (CAGE/NCAGE) is "1U2R7", and the serial number is "000110780".

The example below shows an NATO ALLIED COMMITTEE 135 item identifier (Data Identifier 25S)

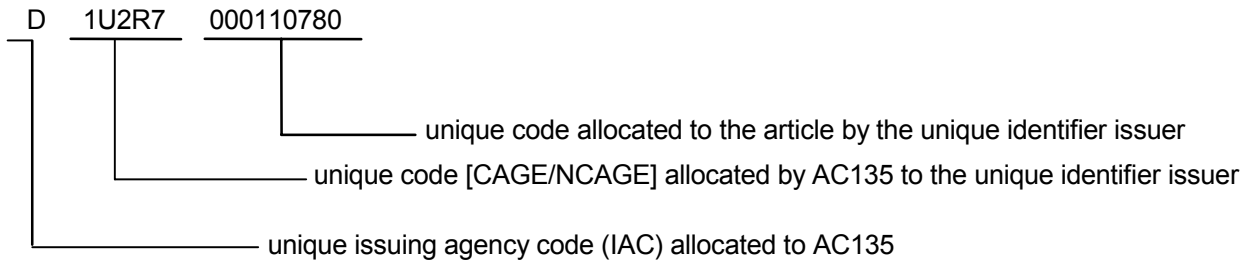


Figure A.2 — Unique identifier for NATO ALLIED COMMITTEE 135 Item Identification

This unique identifier can be contained in a Code 128 Symbol, or other AIDC Media, using Data Identifier "25S".

The bar code symbol when scanned can be expected to pass the following data string to the computer system:

Table A.2 — Data Stream — NATO ALLIED COMMITTEE 135

]C0	25S	D1U2R7000110780
symbology identifier	ASC MH10 Data Identifier	unique identifier

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[2] ISO/IEC 15459-1, *Information technology — Unique identifiers — Part 1: Unique identifiers for transport units*

[3] ISO 17366, *Supply chain applications of RFID — Product packaging*[2)]

[4] ISO 17367, *Supply chain applications of RFID — Product tagging*[2)]

2) To be published.

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ICS 35.040

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