INTERNATIONAL STANDARD

ISO/IEC 15459-6

First edition
2007-06-15

Information technology — Unique identifiers —

Part 6: Unique identifier for product groupings

Technologies de l'information — Identificateurs uniques —

Partie 6: Identificateur unique pour les regroupements de produits

Reference number
ISO/IEC 15459-6:2007(E)

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Published in Switzerland

Foreword

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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 15459-6 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 31, *Automatic identification and data capture techniques*.

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: Unique identifiers for supply chain management*

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

— *Part 6: Unique identifier for product groupings*

Introduction

Unique identifiers can occur at many different levels in the supply chain, at the transport unit, at the item level, at the returnable transport item, at the product and/or material level, at the product and/or material grouping level, and elsewhere. Such distinct entities are often handled by several parties: the manufacturer, the wholesaler, the retailer, the consumer, related governmental agency, etc. Each of these parties must be able to identify and trace the product grouping so that reference can be made to associated information such as quality inspection data, the chemical substance to contain, the batch or lot number of parts, components or raw materials, 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 product grouping is represented by linear bar code and two-dimensional symbols, radio frequency identification (RFID) transponder or other automatic identification and data capture (AIDC) 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 product grouping;

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

The unique identifier for product groupings defined in this part of ISO/IEC 15459, and represented by linear bar code and two-dimensional symbols, RFID transponder or other AIDC media attached to the entities (e.g. raw material, parts, work in progress, finished goods, certain consumer products), 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.

Information technology — Unique identifiers —

Part 6:
Unique identifier for product groupings

1 Scope

This part of ISO/IEC 15459 specifies a unique, non-significant string of characters for the unique identifier of product groupings. The character string is intended to be represented in linear bar code and two-dimensional symbols, radio frequency identification (RFID) transponder or other automatic identification and data capture (AIDC) media attached to the product and/or material to meet the management needs in a batch or lot unit. To address management needs, different classes of item are recognised in the various parts of ISO/IEC 15459. This allows different requirements to be met by the unique identifiers of each class.

The unique identifier for product grouping enables a product grouping defined by a batch or lot number to be uniquely identified from all other lots and batches compliant with this part of ISO/IEC 15459. Encoding this unique identifier in a data carrier enables information about the quality of product and end-of-life processing to be clearly identified.

The rules for the unique identifier for product grouping, to identify the unique occurrence of that quality, are defined and supported by an example.

NOTE The unique identifier for product groupings is intended for “look-up” purposes, and cannot be directly used as a unique item identifier in the strictest sense of the definition (as used, for example, in ISO/IEC 15459-1, ISO/IEC 15459-4, and ISO/IEC 15459-5.

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 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 15459-4, *Information technology — Unique identifiers — Part 4: Unique identifiers for supply chain management*

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

ANS MH10.8.2, *ASC M H 10 Data Identifiers and Application Identifiers*

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.

4 Identification of a unique entity

An individual instance of an entity is aptly identified by a serial number unique from any other serial number. The description of such a form of unique identification is described in ISO/IEC 15459-4. Where an identifier for an individual item is required employing a specific instance of an entity, ISO/IEC 15459-4 shall be used. Where an identifier for product grouping is required, the provisions of this part of ISO/IEC 15459 shall be used.

5 Identification of group of entities

The group of entities of which the quality is considered the same shall be defined uniquely and distinctly. Each group of entities shall be unambiguously identified by a code as defined in Clause 6.

So that groups of entities of this class can be distinguished from groups of entities of other classes, the unique identifier shall be combined with a class identifier. These class identifiers shall be one of the following:

— the GS1 Application Identifier (See GS1 General Specifications, latest version) “01”(GTIN: Global Trade Item Number) followed by “10” [Traceability Number assigned by the Supplier to Identify/trace a unique group of entities (e.g. Lot or Batch Number)];

— the ASC MH 10 Data Identifier “25T” (see ANS MH10.8.2, latest version), which starts with an Issuing Agency Code.

NOTE There are situations where the identifier may need to be constructed from various factors, such as the manufacturing date, materials, production facilities, operator, environmental conditions, and many kinds of parameters at the manufacturing process is required to specify the quality of a product uniquely, dependent on the characteristics of the product. In such a case, these factors should be reflected elsewhere in an AIDC domain; not as an identifier but as an attribute.

6 Unique identifier for product groupings

6.1 Introduction

A unique identifier is assigned to a product and/or material to enable follow up 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.

6.2 Maximum number of characters permissible in a unique identification for product groupings

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

For efficient use within bar code 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.

6.3 Permissible character sets in a unique identifier for product groupings

The unique identifier shall only contain upper-case alphabetic characters and numerals of the invariant character set of ISO/IEC 646.

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

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

Annex A
(informative)

Unique identifiers for product groupings

A.1 Role of the Issuing Agency in providing application guidance for product groupings

In addition to the requirements of an Issuing Agency, outlined elsewhere in this International Standard, each Issuing Agency is expected to provide a guideline if identification for product and/or material follow up is relevant to its IAC domain.

A.2 Unique identification for product groupings

To illustrate the usage of Unique Item Identifiers for product groupings, the hypothetical example is given using the two issuing agencies (IAs) recognised by the Registration Authority (RA): GS1 and JIPDEC/CII (Japan Information processing Development Corporation / Electronic Commerce Promotion Centre).

The construction of the unique product grouping identifiers minimally includes the Issuing Agency Code (IAC), Company Identification Number (CIN), and Lot or Batch number. The Lot or Batch number should be assigned by Company Identified in CIN. In some cases Lot or Batch numbers are not unambiguous within the CIN but are unambiguous within a specific product class and/or production date under the control of a company. If the Lot or Batch number is not unambiguous within the enterprise, the unique product grouping identifiers and Lot must include the manufacturer's product class code and/or production date. Thus the unique product grouping identifiers and Lot established by the issuer cannot be the same as that established by another. Moreover, ISO/IEC 15459-2 ensures all the Unique Item Identifiers are unambiguous.

A.3 GS1 Unique Identifier for group of entities

The rules of GS1, to whom the Issuing Agency Codes "0" to "9" have been allocated by the Registration Authority, are that the unique identifier for lot/batch identification consists of 14 numeric digits followed by up to 20 alphanumeric characters. The first numeric string of characters is allocated by GS1 to the Unique Item Identification issuer (company prefix) and the following characters are assigned by the traceability number issuer.

EXAMPLE 1 Typical Unique Item Identification issued under the rules of GS1. In this example the AI is "01" (Global Trade item number), and "10" (Batch or Lot Number).

This unique identifier can be contained in an endorsed AIDC data carrier as laid down by the Issuing Agency' with the GS1 Application Identifiers "01" and "10".

For example a GS1-128 bar code symbol when scanned can be expected to pass the following data string to the computer system. See Table A.1.

Table A.1 — Data stream – GS1

]C1	**01**	**08410055033021**	**10**	**000002340**
symbology identifier	GS1 Application Identifier	GTIN	GS1 Application Identifier	Batch or Lot Number

A.4 ASC MH10 Unique identifier for groups of entities

The rules of JIPDEC/CII, to whom the Issuing Agency Code “LA” has been allocated by the Registration Authority, are that the Unique Item Identifiers and Lot consists of no more than 50 alphanumeric characters. The characters following the Issuing Agency Code “LA” are allocated by JIPDEC/CII to electronic-parts entities. The unique identifier issuer then assigns the remaining characters.

EXAMPLE 2: Typical the UII - LOT issued under the rules of “JIPDEC/CII”: In this example the Data Identifier is “25T”, the IAC is “LA”, the CIN is “506022000001”, and the unique lot/batch number is “2005101312345”. See Figure A.1.

The example below shows a JIPDEC/CII identifier (Data Identifier 25T).

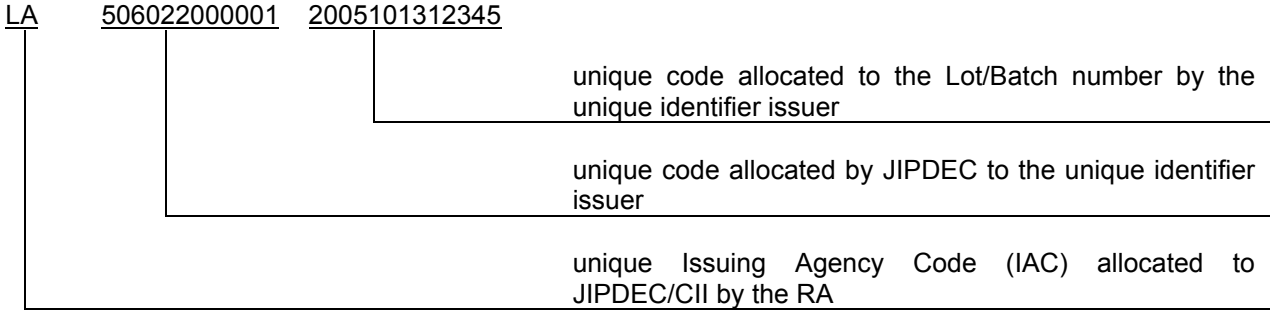

Figure A.1 — Unique identifier for JIPDEC/CII Lot identification

This unique identifier can be contained in an endorsed AIDC media as laid down by the Issuing Agency using Data Identifier “25T”.

For example a Code-128 bar code symbol when scanned can be expected to pass the following data string to the computer system. See Table A.2.

Table A.2 — Data Stream – JIPDEC/CII

]C0	25T	LA506022000000120051013123 45
symbology identifier	ASC MH10 Data Identifier	unique identifier

Annex B
(informative)

Use case for unique identifiers for product groupings

B.1 An example of traceability (trace back)

Traceability that goes back through the supply chain is realised by the following procedures.

Step 1: A consumer discovers a defect on a product and makes a complaint to a store.

Step 2: The store notifies the unique item identifier defined in this part of ISO/IEC 15459 to the manufacturer.

Step 3: The manufacturer investigates the following attributes of the group to which the goods belong from the obtained identifier, and searches for the cause of the defect:

- date of manufacture;
- production equipments or facilities;
- various kinds of parameters at the time of manufacture (temperature, pressure, others);
- Lot number of materials;
- person engaged in manufacture.

B.2 An example of traceability (trace forward)

Traceability from a manufacturer through the supply chain is realised as follows.

Step 1: A manufacturer discovers a poor part used in a product.

Step 2: The manufacturer notifies the unique item identifier(s) defined by this part of ISO/IEC 15459 to store(s).

Step 3: Store(s) stop selling the product with the same identifier defined in this part of ISO/IEC 15459.

Step 4: A manufacturer agrees the recall and/or repair of the faulty product.

B.3 An example of traceability (a safe waste treatment process)

Traceability in a waste treatment process is realised as follows.

Step 1: A certain product reaches the end of its useful life and is carried to a waste disposal plant.

Step 2: A waste disposer identifies the identifier for product groupings.

Step 3: Depending on information services available, the waste disposer can either look up appropriate attributes of the product, or contact the manufacturer for relevant information. This attribute-based information should include

— whether the product contains a recoverable component or a dangerous component, or toxic substance,

— whether the product contains components upon which a duty of recovery is imposed or not,

— the safe recovery method for dealing with a dangerous component, or toxic substance.

Bibliography

[1] ISO/IEC Directives, Part 2: *Rules for the structure and drafting of International Standards*, 2004

[2] 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*

[3] ISO 15394, *Packaging — Bar code and two-dimensional symbols for shipping, transport and receiving labels*

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

ICS 35.040

Price based on 8 pages