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Information technology — Unique identifiers —

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

Technologies de l'information — Identificateurs uniques —

Partie 5: Identificateur unique pour les entités de transport retournables

Please see the administrative notes on page iii

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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.

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ISO/IEC 15459-5 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*

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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, at the returnable transport item, 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 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 returnable transport item is represented in a radio frequency identification (RFID) transponder, in bar code format, or in 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 item;

— the identify code is unique and cannot appear on any other item during the lifetime of the item.

The unique identifier of returnable transport items (RTIs) 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 RTI, 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 5:
Unique identifier for returnable transport items (RTIs)

1 Scope

This part of ISO/IEC 15459 specifies a unique, non-significant string of characters for the unique identification of returnable transport items (RTIs). The character string is intended to be represented in a radio frequency identification (RFID) transponder, bar code label or other automatic identification and data capture (AIDC) media attached to the item to meet supply chain management needs. To address management needs different classes of RTI are recognised 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 for the unique identifier for RTIs, to identify the unique occurrence of an item, with the identity being relevant for the complete life cycle of the item, are defined and supported by an example.

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 17364, *Supply chain applications of RFID — Returnable transport items (RTIs)*[1)]

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

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

GS1 General Specifications, GS1

1) To be published.

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3 Terms and definitions

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

3.1
returnable transport item
RTI
all means to assemble goods for transportation, storage, handling and product protection in the supply chain which are returned for further usage

NOTE 1 Examples of RTIs include pallets with and without cash deposits as well as all forms of reusable crates, trays, boxes, roll pallets, barrels, trolleys, pallet collars and lids.

NOTE 2 The term “returnable transport item” is usually allocated to secondary and tertiary packaging. But in certain circumstances also primary packaging may be considered as a form of RTI.

NOTE 3 Freight containers, trailers and other similar enclosed modules are not covered by the term “returnable transport item”.

NOTE 4 Returnable transport equipment is considered to have the same definition within an electronic data interchange environment.

4 Class identification of items

Each returnable transport item shall be unambiguously identified by a code as defined in Clause 5. So that items of this class can be distinguished from items of other classes, the unique identifier shall be combined with a class identifier. These class identifiers shall be used with encodation of RTIs in AIDC media and be one of the following:

— One of the GS1 Application Identifiers **8003** or **8004**.

  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 ANS MH10.8.2, **25B** or **1B**.

  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 MH 10 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 5: for an RTI identifier for supply chain management 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 5 1: for an RTI identifier for supply chain management equivalent to GS1 Application Identifier **8003**;

  — 1 0 15459 5 2: for an RTI identifier for supply chain management equivalent to GS1 Application Identifier **8004**;

  — 1 0 15459 5 3: for an RTI identifier for supply chain management equivalent to ASC MH 10 Data Identifier **25B**;

  — 1 0 15459 5 4: for a unit identifier for supply chain management equivalent to ASC MH 10 Data Identifier **1B**.

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5 Unique identifier of returnable transport items (RTIs)

5.1 General

A unique identifier is assigned to an RTI 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 of returnable transport items (RTIs)

The unique identifier for RTIs shall not contain more than 35 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.

5.3 Permissible character sets in a unique identifier of returnable transport items (RTIs)

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.

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

6 Implementation of coding using radio frequency identification (RFID) technology

When this part of ISO/IEC 15459 is implemented using radio frequency identification (RFID) technology, the parameters established in ISO 17364 shall be used.

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Annex A
(informative)

Unique Identifiers of returnable transport items (RTIs)

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

In addition to the requirements of an Issuing Agency, outlined elsewhere in ISO/IEC 15459, each Issuing Agency is expected to provide guidelines if returnable transport item identification is relevant to its IAC domain.

A.2 Considerations with unique returnable transport item identification

To illustrate the usage of Unique Identification of Returnable Transport Items (UII – RTI), the hypothetical example is given using the two issuing agencies (IAs), recognised by the Registration Authority (RA), GS1 and ODETTE.

The construction of the UII - RTI minimally includes the Issuing Agency Code (IAC), Company Identification Number (CIN), and serial number (SN) assuming that the serial number is unambiguous within the CIN. In some cases serial numbers are not unambiguous within the CIN but are unambiguous within a specific asset type under the control of a company. If the serial number is not unambiguous within the enterprise, the UII - RTI must include the manufacturer's asset type code. Thus the UII – RTI established by the UII – RTI issuer cannot be the same as that established by another. Moreover, ISO/IEC 15459-2 ensures all the UII – RTI Identifications are unambiguous.

A.3 GS1 Unique Identifier for Item Identification

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 for RTI identification consists of no more than 14 numeric digits followed by no more than 16 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 UII – RTI issuer.

EXAMPLE 1: Typical Unique Returnable Item Identification issued under the rules of GS1. In this example, the IAC/CIN/Asset Identifier is "0009875610013" and the serial number is "000110780". See Figure A.1.

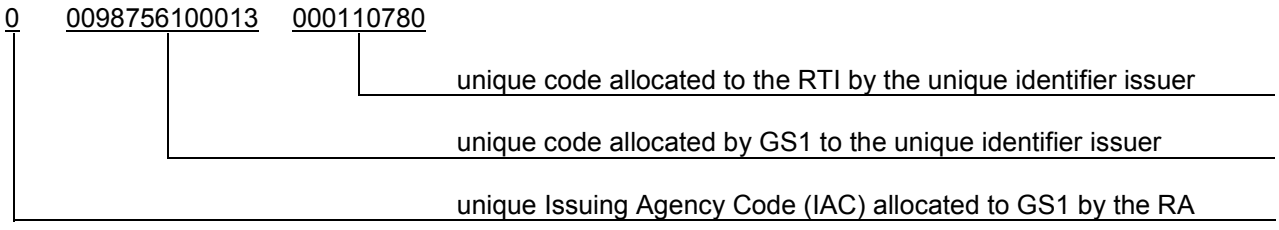


Figure A.1 — Unique identifier for GS1 global returnable asset identification

This unique identifier can be contained in a GS1-128 bar code symbol with the GS1 Application Identifier "8003".

The bar code symbol when scanned can be expected to pass the data string given in Table A.1 to the computer system.

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Table A.1 — Data stream – GS1

]C1	**8003**	**00098756100013000110780** [a]
symbology identifier	GS1 Application Identifier	unique identifier
[a] In this example, the Identification Number for Assets is "**00098756100013**" and the serial number is "**000110780**".		

A.4 ASC MH 10 Unique identifier for Item Identification

The rules of ODETTE, to whom the Issuing Agency Code "OD" has been allocated by the Registration Authority, are that the UII – RTI consists of no more than 50 alphanumeric characters. The characters following the Issuing Agency Code "OD" are allocated by ODETTE to automotive entities. The unique identifier issuer then assigns the remaining characters. See Figure A.2.

EXAMPLE 2: Typical the UII – RTI issued under the rules of "ODETTE": In this example, the IAC is "OD", the CIN is "SYST", and the serial number is "000110780".

Figure A.2 shows an ODETTE RTI identifier (Data Identifier "25B").

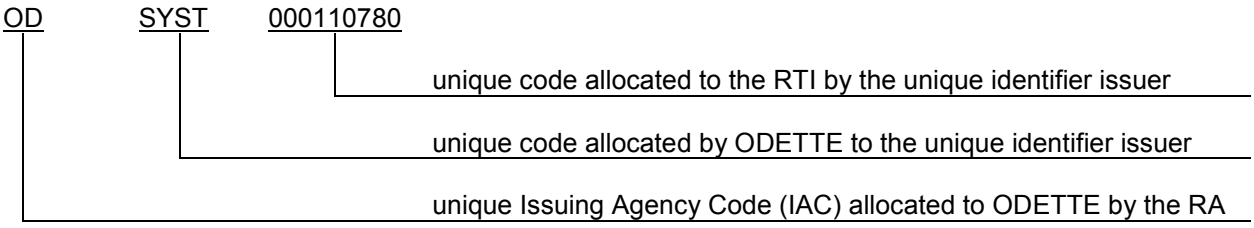


Figure A.2 — Unique identifier for ODETTE RTI identification

This unique identifier can be contained in a bar code symbol or other AIDC media, using Data Identifier "25B".

The bar code symbol when scanned can be expected to pass the data string given in Table A.2 to the computer system.

Table A.2 — Data Stream – ODETTE

]C0	**25B**	**ODSYST000110780**
symbology identifier	ASC MH 10 Data Identifier	unique identifier

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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 15418, *Information technology — EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance*[2)]

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

2) 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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