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Information technology — Automatic identification and data capture techniques — Unique identification —

Part 5:
Individual returnable transport items (RTIs)

Technologies de l'information — Identification automatique et techniques de capture de données — Identification unique —

Partie 5: Entités de transport retournables individuelles (RTIs)

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is 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 15459-5:2007), which has been technically revised.

This corrected version of ISO/IEC 15459-5:2014 incorporates the following correction plus other minor editorial modifications. Clause 5.3 has been modified as follows:

"5.3 Permissible character sets in an identity

The identity shall use alphabetic, numeric and special characters from the invariant character set ISO/IEC 646, see Annex A in ISO/IEC 15459-3.

More compact data encoding may be attained by using only upper case alphabetic characters and numeric digits.

An Issuing Agency may have additional requirements on the repertoire of characters found within identities using its IAC.

Any data processing system shall be capable of processing identities using the full repertoire of characters permitted by ISO/IEC 646."

A list of all parts in the ISO/IEC 15459 series can be found on the ISO website.

Introduction

Unique identities can occur at many different levels, at item level, on the transport unit, on the returnable transport item, at grouping levels, and elsewhere. Such entities are often handled by several parties, both public and private, throughout their lifecycle. Each of these parties must be able to identify and trace such distinct entities so that reference can be made to associated information such as quality inspection data, the chemical substance contained, the batch or lot number of parts, components or raw materials, etc.

The associated information is typically held in some kind of database. The information can be accessed using EDI exchange or another appropriate access protocol, e.g. a directory access protocol. There are considerable benefits if the identity of the entity is represented as a bar code 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 minimizing 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 entity.

All AIDC technologies have the potential to encode an identity. It is expected that application standards, using various automatic identification technologies, will be developed based upon the identity as a prime key. These application standards, which can include additional rules for which level of identification should be used, are often made available from the Issuing Agency.

The identity for returnable transport items (RTIs) defined in this part of ISO/IEC 15459, and represented in AIDC media attached to the RTIs, meets the needs defined in ISO/IEC 15459-3, Common rules.

Information technology — Automatic identification and data capture techniques — Unique identification —

Part 5: Individual returnable transport items (RTIs)

1 Scope

This part of ISO/IEC 15459 specifies a unique string of characters for the identification of individual returnable transport items (RTIs). The character string is intended to be represented in a bar code label or other AIDC media attached to the item to meet management needs. To address management needs different classes of identities are recognized in the various parts of ISO/IEC 15459, which allows different requirements to be met by the identities associated with each class.

The rules for the identification for RTIs, with the identity being relevant for the complete life cycle of the item, are defined and supported by example.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 — Automatic identification and data capture techniques — Unique identification — Part 2: Registration procedures*

ISO/IEC 15459-3, *Information technology — Automatic identification and data capture techniques — Unique identification — Part 3: Common rules*

ISO/IEC 19762-1, *Information technology — Automatic identification and data capture (AIDC) techniques — Harmonized vocabulary — Part 1: General terms relating to AIDC*

GS1 General Specifications

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 19762-1 and ISO/IEC 15459-3 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

4 Identities for individual returnable transport items (RTIs)

Each individual RTI shall be unambiguously identified by a qualifier and a string as defined in Clause 5 so that individual items of this type can be distinguished from items of other types.

The qualifier component of an identity for a returnable transport item may use any data format supported by ISO/IEC 15434 or ISO/IEC 9834-1. What formats to be used are to be specified by the Issuing Agency rules. For the purpose of this standard examples are not meant to be exhaustive, but rather representative of the full suite of data qualifiers possible to use and relevant to this standard;

— GS1 Application Identifiers **8003** or **8004**

 If this method is used to create the identity each unique identity issuer would select the appropriate GS1 Application Identifier, conforming to the requirements of the GS1 General Specification, to act as the qualifier of the identity.

— ASC MH 10 Data Identifier **25B**

 If this method is used to create the identity each unique identity issuer would select the appropriate ASC MH10 Data Identifier as required by the appropriate Issuing Agency to act as the qualifier of the identity.

— When employing an ISO/IEC compliant high capacity AIDC data carrier an additional option is the object identifiers:

1 0 15459 5:	for an RTI identifier for item 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 item management equivalent to GS1 Application Identifier **8003** or **8004**;
1 0 15459 5 3:	for an RTI identifier for item management equivalent to ASC MH 10 Data Identifier **25B**;

5 Identity for returnable transport items (RTIs)

5.1 General

An identity is assigned to an RTI by an identity issuer. This shall be done in accordance with the rules established by an authorized Issuing Agency, as identified in ISO/IEC 15459-3 and ISO/IEC 15459-2.

5.2 Maximum number of characters permissible in a string

The identity for individual RTIs shall not contain more than 50 characters.

For efficient use within various AIDC data carrier systems, it is recommended that the number of characters to be coded by one line linear bar code should not exceed 20 characters, and number of characters should be kept as short as possible regardless of the permissible maximum of 50 characters.

5.3 Permissible character sets in an identity

The identity shall use alphabetic, numeric and special characters from the invariant character set ISO/IEC 646, see Annex A in ISO/IEC 15459-3.

More compact data encoding may be attained by using only upper case alphabetic characters and numeric digits.

An Issuing Agency may have additional requirements on the repertoire of characters found within identities using its IAC.

Any data processing system shall be capable of processing identities using the full repertoire of characters permitted by ISO/IEC 646.

6 Implementation of coding using AIDC media

All AIDC technologies have the potential to encode an identity. It is expected that application standards for entities, using various automatic identification technologies, will be developed based upon the ISO/IEC 15459 identity as a prime key. These application standards may be made available from the Issuing Agency.

Annex A
(informative)

Unique identification of returnable transport items (RTIs)

The examples shown in this Annex are illustrative of those qualifiers permitted and are not to be exhaustive.

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 individual RTI identification is relevant to its IAC domain.

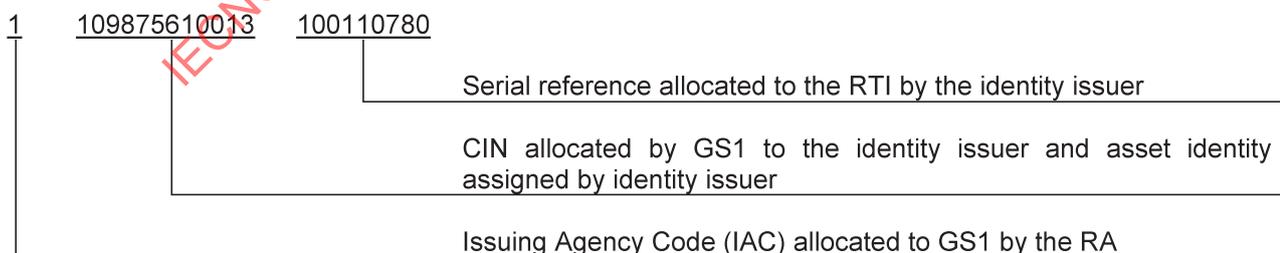## A.2   Considerations with returnable transport item identification

To illustrate the usage of an individual identity, the hypothetical example is given using the two issuing agencies (IAs) recognized by the Registration Authority (RA), GS1 and ODETTE.

The construction of the identity minimally includes the Issuing Agency Code (IAC), Company Identification Number (CIN), and string component (ID) assuming that the ID is unambiguous within the CIN. In some cases IDs are not unambiguous within the CIN but are unambiguous within a specific asset type under the control of a company. If the ID is not unambiguous within the company, the identity must include a company asset type code, or similar. Thus the identity established by the identity issuer cannot be the same as that established by another. Moreover, ISO/IEC 15459-2 ensures all the identities are unambiguous.

A.3   GS1 unique identification

The rules of GS1, to whom the Issuing Agency Codes "0" till "9" have been allocated by the Registration Authority, are that the string for RTIs 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 string issuer (company prefix) and the following characters are assigned by the string issuer.

EXAMPLE 1   Typical RTI identity issued under the rules of GS1. In this example, the IAC/CIN/Asset Identity is "109875610013" and the serial number is "100110780". See Figure A.1.

1   109875610013   100110780

	Serial reference allocated to the RTI by the identity issuer
	CIN allocated by GS1 to the identity issuer and asset identity assigned by identity issuer
	Issuing Agency Code (IAC) allocated to GS1 by the RA

Figure A.1 — GS1 string for returnable asset

This string can be contained in a GS1-128 bar code, or other AIDC media, with the GS1 Application Identifier "8003".

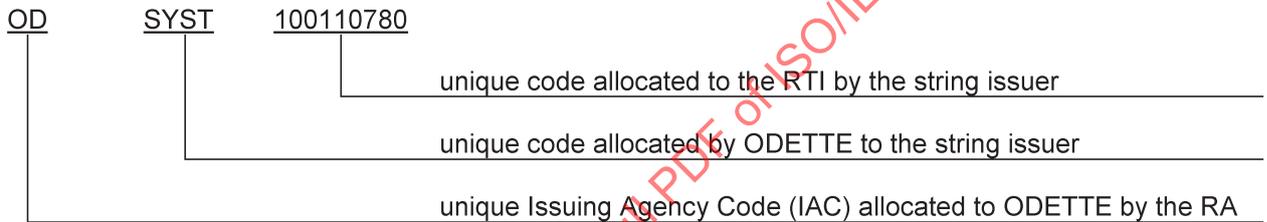The bar code symbol when scanned can be expected to pass the following data string (Table A.1) to the computer system.

Table A.1 — Data stream – GS1

Symbology identifier	Identity	
	Qualifier	String
]C1	**8003**	**10098756100013100110780**

NOTE   The Application Identifier "8003" is not included in the string, but included in the identity. The symbology identifier is not included in the bar code but, but is provided by the reader identifying the data carrier used. In the example above, the data carrier is a GS1–128 bar code.ODETTE unique 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 string 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 "100110780".

OD   SYST   100110780

unique code allocated to the RTI by the string issuer

unique code allocated by ODETTE to the string issuer

unique Issuing Agency Code (IAC) allocated to ODETTE by the RA

Figure A.2 — String for ODETTE RTI identification

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

The bar code when scanned can be expected to pass the following data string (Table A.2) to the computer system.

Table A.2 — Data Stream – ODETTE

Symbology identifier	Identity	
	Qualifier	String
]C0	**25B**	**ODSYST100110780**

NOTE   The Data Identifier "25B" is not included in the string, but included in the identity. The symbology identifier is not included in the bar code but, but is provided by the reader identifying the data carrier used. In the example above, the data carrier is a Code 128 bar code.

Annex B
(informative)

Returnable versus recyclable and reusable items

The examples shown in this Annex are illustrative of those qualifiers permitted and are not to be exhaustive.

B.1 Returnable items

With a returnable item the ownership of the item remains unchanged, i.e. others can use the item ("borrow" it) but the ownership is not changed.

A typical use of a returnable item is for transportation of goods where the item can be reused in terms of that the content and carrier can change but the owner is still the same.

B.1.1 Identification

This part of ISO/IEC 15459 covers identification for individual RTIs.

B.2 Recyclable item

With a recyclable item the ownership of the item will change over time, i.e. the actual user (that has bought an item) can decide if the item is to be recycled or not.

A typical use recyclable item is a battery, which can be disposed at a recycling station and parts of the content can be recycled and used for manufacturing of new batteries.

B.2.1 Identification

ISO/IEC 15459-4 addresses identification of individual recyclable items (products).

B.3 Reusable item

With a reusable item the ownership will change over time, i.e. the actual user (that has bought an item) can decide if the item is to be reused or not.

A typical use recyclable item is a hard plastic bottle, which can either be reused by the user (i.e. filling the bottle with new content after cleaning it) or disposed at a recycling station and depending on its constituents parts can be reused (i.e. cleaned and refilled) or recycled and used for "manufacturing" of new bottles.

B.3.1 Identification

ISO/IEC 15459-4 addresses identification of individual reusable items (products).

B.4 Simple overview

Figure B.1 below is to show a very simple overview of the interpretation of the terms returnable, recyclable and reusable.