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Automatic identification and data capture techniques — Supply chain applications of RFID — Product tagging, product packaging, transport units, returnable transport units and returnable packaging items

Techniques automatiques d'identification et de capture des données — Applications de chaîne d'approvisionnements de RFID — Étiquetage de produits, empaquetage de produits, unités de transport, éléments restituables de transport et éléments d'empaquetage restituables

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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.

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 or www.iec.ch/members_experts/refdocs).

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

This first edition of ISO/IEC 17360 cancels and replaces ISO 17367:2013, ISO 17366:2013, ISO 17365:2013 and ISO 17364:2013, which has been technically and editorially revised.

The main changes are as follows:

— ISO 17367:2013, ISO 17366:2013, ISO 17365:2013 and ISO 17364:2013 have been integrated into this document;

— 8-bit encoding and decoding using the UTF-8 encoding set has been added;

— binary encoding of the UII has been added;

— outdated processes and information have been updated.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

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Introduction

The Supply Chain is a multi-level concept that covers all aspects of taking a product from raw materials to a final product, including shipping to a final place of sale, use and maintenance and, potentially, disposal. Each of these levels covers many aspects of dealing with products and the business process for each level is both unique and overlaps other levels.

For the purposes of this document, “product”, “product packaging”, “transport unit”, and “returnable transport item (RTI) and returnable packaging item (RPI)” are all called items.

For the purposes of this document, the value of a single byte is represented using hexadecimal characters written as 0xnn, where “0x” is the hexadecimal indicator and “nn” is the hexadecimal value.

For the purposes of this document, a series of 1’s and/or 0’s followed by a subscript 2 indicates that these series of digits are to be interpreted as bit values, or as a number expressed in binary form.

For the purposes of this document, the representation of the tags memory banks (MB) 00_2, $MB01_2$, $MB10_2$ and $MB11_2$ are represented as MB00, MB01, MB10 and MB11.

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Automatic identification and data capture techniques — Supply chain applications of RFID — Product tagging, product packaging, transport units, returnable transport units and returnable packaging items

1 Scope

This document defines the basic features of RFID for use in the supply chain when applied to product tagging, product packaging, transport units and returnable transport items (RTIs) and returnable packaging items (RPIs). This document:

— provides specifications for the identification of the items,

— makes recommendations about additional information on the RF tag,

— specifies the semantics and data syntax to be used,

— specifies the data protocol to be used to interface with business applications and the RFID system,

— specifies the minimum performance requirements,

— specifies the air interface standards between the RF interrogator and RF tag, and

— specifies the reuse and recyclability of the RF tag.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 445, *Pallets for materials handling — Vocabulary*

ISO/IEC 15418, *Information technology — Automatic identification and data capture techniques — GS1 Application Identifiers and ASC MH10 Data Identifiers and maintenance*

ISO/IEC 15434, *Information technology — Automatic identification and data capture techniques — Syntax for high-capacity ADC media*

ISO/IEC 15459-2, *Information technology — Automatic identification and data capture techniques — Unique identification — Part 2: Registration procedures*

ISO/IEC 15961-1, *Information technology — Data protocol for radio frequency identification (RFID) for item management — Part 1: Application interface*

ISO/IEC 18000-3, *Information technology — Radio frequency identification for item management — Part 3: Parameters for air interface communications at 13,56 MHz*

ISO/IEC 18000-63, *Information technology — Radio frequency identification for item management — Part 63: Parameters for air interface communications at 860 MHz to 960 MHz Type C*

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

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ISO/IEC 20248, *Information technology — Automatic identification and data capture techniques — Digital signature data structure schema*

ISO/IEC 29160, *Information technology — Radio frequency identification for item management — RFID Emblem*

ANSI MH10.8.2, *Data Identifiers*

GS1 *EPC Tag Data Standard (TDS)*

GS1 *General Specifications.*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 445, ISO/IEC 19762 and the following apply.

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

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

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

3.1
domain authority identifier
DAID
unique identifier of an entity fulfilling the role of a Domain Authority who is the issuer of the data contain in the tag

3.2
packaging
material used for the containment, protection, handling, delivery, storage, transport and presentation of goods

Note 1 to entry: Ownership changes at time of purchase or delivery.

3.3
returnable packaging item
RPI
material used for the “protection” of goods during handling, delivery, storage and transport that are returned for further usage

Note 1 to entry: See Annex E for details on the use of returnable *packaging* (3.2) items.

Note 2 to entry: Ownership does not change at time of purchase or delivery.

4 Concepts

Figures 1 and 2 give a graphical representation of supply chain layers. They show a conceptual model of possible supply chain relationships – not a one-for-one representation of physical things. Although several layers in Figure 2 have clear physical counterparts, some common supply chain physical items fit in several layers depending on the use case. For example, as shown in Figure 2, a repetitively used pallet under constant ownership will be covered as a returnable transport item (RTI), a pallet that is part of a consolidated unit load will be covered as a transport unit and a pallet that is integral to a single item will be covered as product packaging. See Annex E for additional details on RTIs.

The term “supply chain layers” or levels, is a multi-level concept that covers all aspects of taking a product from raw materials to:

— a final product;

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