INTERNATIONAL STANDARD

ISO

28219

Packaging — Labelling and direct product marking with linear bar code and two-dimensional symbols

Emballage — Étiquetage et marquage direct sur le produit avec un code à barres et des symboles bidimensionnels

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 ISO documents 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 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 voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 122, *Packaging*.

This second edition cancels and replaces the first edition (ISO 28219:2009), which has been technically revised.

Introduction

Today, global industries widely use machine-readable markings on products for inventory control, quality control, and product life cycle management. Common technologies, data structures, conformance, and applications standards are necessary to enable all trading partners to use such markings internally and throughout the supply chain.

A number of different product labelling and marking standards exist, each designed to meet the requirements of the specific industry sector. For effective and economic use within and between industry sectors, one common multi-industry standard is a necessity.

A standard linear bar code or two-dimensional symbol marked on a product or part will facilitate the automation of inventory control, quality control, and product life cycle management. The linear bar code or two-dimensional symbol information on the product can be used as a key to access the appropriate database that contains detailed information about the product, including information transmitted via EDI. In addition, a product mark can contain other information as agreed between the trading partners.

This document does not supersede or replace any applicable safety or regulatory marking or labelling requirements. This document is meant to satisfy the minimum product package requirements of numerous applications and industry groups. As such, its applicability is to a wide range of industries, each of which can have specific implementation guidelines for this document. This document is intended to be applied in addition to any other mandated labelling requirements.

This document supersedes and replaces ANS MH10.8.7.

This document supersedes and replaces CEA-802.

This document supersedes and replaces CEA-621-A.

Packaging — Labelling and direct product marking with linear bar code and two-dimensional symbols

1 Scope

This document

— defines minimum requirements for identifying items,

— provides guidelines for item marking with machine-readable symbols,

— covers both labels and direct marking of items,

— includes testing procedures for label adhesive characteristics and mark durability,

— provides guidance for the formatting on the label of data presented in linear bar code, two-dimensional symbol or human-readable form,

— is intended for applications which include, but are not limited to, support of systems that automate the control of items during the processes of:

  — production,

  — inventory,

  — distribution,

  — field service,

  — point of sale,

  — point of care,

  — repair, and

— is intended to include, but it is not limited to, multiple industries including:

  — automotive,

  — aerospace,

  — chemical,

  — consumer items,

  — electronics,

  — health care,

  — marine,

  — rail,

  — telecommunications.

The location and application method of the marking are not defined (these will be reviewed and agreed upon by suppliers and manufacturers and their trading partners before implementing this document).

This document does not supersede or replace any applicable safety or regulatory marking or labelling requirements. This document is meant to satisfy the minimum item marking requirements of numerous applications and industry groups and as such its applicability is to a wide range of industries, each of which may have specific implementation guidelines for it. This document is to be applied in addition to any other mandated labelling direct-marking requirements.

The labelling and direct marking requirement of this document and other standards can be combined into one label or marking area or appear as separate labels or marking areas.

This document uses the terms "part marking" and "item marking" interchangeably. Unless otherwise stated, this document will use the term "item marking" to describe both the labelling and direct part marking (DPM) of an item, where DPM includes, but is not limited to, altering (e.g. dot peen, laser etch, chemical etch), as well as additive type processes (e.g. ink jet, vacuum deposition).

The purpose of this document is to establish the machine-readable (linear, two-dimensional, and composite symbols) and human-readable content for direct marking and labelling of items, parts, and components.

This document provides a means for items, parts and components to be marked, and read in either fixtured or hand-held scanning environments at any manufacturer's facility and then read by customers purchasing items for subsequent manufacturing operations or for final end use. Intended applications include, but are not limited to, supply chain applications, e.g. inventory, distribution, manufacturing, quality control, acquisition, transportation, supply, repair, and disposal.

The figures are illustrative and not necessarily to scale or to the quality requirements specified in this document.

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 21067, *Packaging — Vocabulary*

ISO/IEC 646, *Information technology — ISO 7-bit coded character set for information interchange*

ISO 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*

ISO/IEC 15415, *Information technology — Automatic identification and data capture techniques — Bar code symbol print quality test specification — Two-dimensional symbols*

ISO/IEC 15416, *Automatic identification and data capture techniques — Bar code print quality test specification — Linear symbols*

ISO/IEC 15417, *Information technology — Automatic identification and data capture techniques — Code 128 bar code symbology specification*

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

ISO/IEC 15438, *Information technology — Automatic identification and data capture techniques — PDF417 bar code symbology specification*

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

ISO/IEC 16022, *Information technology — Automatic identification and data capture techniques — Data Matrix bar code symbology specification*

ISO/IEC 16388, *Information technology — Automatic identification and data capture techniques — Code 39 bar code symbology specification*

ISO/IEC 18004, *Information technology — Automatic identification and data capture techniques — QR Code bar code symbology specification*

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

ISO/IEC 24723, *Information technology — Automatic identification and data capture techniques — GS1 Composite bar code symbology specification*

ISO/IEC 24728, *Information technology — Automatic identification and data capture techniques — MicroPDF417 bar code symbology specification*

ANS ATIS-0300213, *American National Standard for Telecommunication — Coded Identification of Equipment Entities of the North American Telecommunications System for Information Exchange*

ANS MH10.8.2, *Data Application Identifier Standard*

Dun & Bradstreet (D&B), *DUNS®[1] Number*

GS1, *General Specifications*

NAMSA, *ACodP-1(D)*, Chapter 2, Subsection 242-243, (NCAGE)

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 19762 and ISO 21067 and the following 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

3.1
cell
smallest element of a two-dimensional matrix symbol

3.2
CLEITM[2] **code**
coding structure maintained by Telcordia d.b.a. iconectiv that identifies communications equipment and describes product type, features, source document and associated drawings and vintages per ANS ATIS-0300213

3.3
components
parts (bare printed circuit board, integrated circuits, capacitor, diodes, switch, valve, spring, bearing, bracket, bolt, etc.) of a *first level/modular assembly* (3.6)

3.4
data element separator
specified character used to delimit discrete fields of data

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