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h i j **Information technology – Automatic** identification and data capture techniques - Bar code printer and bar code reader performance testing ŝifi. specification



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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.

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For an explanation of 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 www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

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

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 <u>www.iso.org/members.html</u> and <u>www.iec.ch/national-committees</u>.

Introduction

Bar code printers and bar code readers are key equipment in auto-ID systems. However, manufacturers of this equipment evaluate their products' performance by their own test methods and measures, specifying this performance in their catalogues. As a result, actual performance varies, although there are some performance values that are the same across catalogues. Therefore, users are forced to test the equipment in order to find the most suitable solutions for their applications, at their own cost.

This document was developed to provide standard test and ranking methods giving users a **common ruler** to be able to evaluate performance values in selecting equipment to meet their needs.

Furthermore, this document is expected to be used in avoiding using poor quality products.

NOTE There are ISO/IEC 15419 and ISO/IEC 15423. ISO/IEC 15419 mainly specifies how to print a barcode as a digital image, so that the contents focus on software development and look like a technical suggestion with no details on how to evaluate performances of a bar code printer in total.

This document specifies more details how to test and evaluate complete printer performances including durability of printed labels.

ISO/IEC 15423 is made based on that a scanner and a decoder are separated devices, which is a quite old fashion system. Although, a combination case of a scanner and a decoder is mentioned.

This document specifies more details how to test and evaluate reader performances, which covers test items specified in ISO/IEC 15423.

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Information technology – Automatic identification and data capture techniques – Bar code printer and bar code reader performance testing specification

1 Scope

This document specifies the performance evaluation specifications of thermal transfer type printers (hereinafter referred to as bar code printers), consumables, and bar code readers (regardless of the reading method) used in bar code systems. The rank of performance is also defined by the evaluation items.

This document can be applied to the following evaluation tests by combining ISO/IEC 15416 and ISO/IEC 15415, which define the print qualities of bar code symbols.

NOTE This document is not prevented from being cited in the evaluation of thermal printers using thermal paper and printers using "plain or exclusive paper" (commercial printing, ink jet printers, electrophotographic printers, etc.).

- a) Print performance of bar code printers (including consumables)
- b) Brightness and smoothness of "reception paper or label", and adhesion of the label
- c) Strength of reception paper or label on which the bar code is printed
- d) Reading performance of bar code readers
- e) Electrical, mechanical and environmental characteristics of bar code printers and bar code readers

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 105-A03, Textiles — Tests for colour fastness — Part A03: Grey scale for assessing staining

ISO 105-C06, Textiles — Tests for colour fastness — Part C06: Colour fastness to domestic and commercial laundering

ISO 105-F09, Textiles — Tests for colour fastness — Part F09: Specification for cotton rubbing cloth

ISO 105-X11, Textiles — Tests for colour fastness — Part X11: Colour fastness to hot pressing

ISO 105-X12, Textiles — Tests for colour fastness — Part X12: Colour fastness to rubbing

ISO 2470-1, Paper, board and pulps — Measurement of diffuse blue reflectance factor — Part 1: Indoor daylight conditions (ISO brightness)

ISO 29862, Self adhesive tapes — Determination of peel adhesion properties

ISO 6353-2, Reagents for chemical analysis — Part 2: Specifications — First series

ISO 8791-5, Paper and board — Determination of roughness/smoothness (air leak methods) — Part 5: Oken method

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ISO/IEC 15426-1, Information technology — Automatic identification and data capture techniques — Bar code verifier conformance specification — Part 1: Linear symbols

ISO/IEC 15426-2, Information technology — Automatic identification and data capture techniques — Bar code verifier conformance specification — Part 2: Two-dimensional symbols

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

ISO/IEC 60068-2-1, Environmental testing — Part 2-1: Tests — Test A: Cold

ISO/IEC 60068-2-6, Environmental testing — Part 2-6: Tests — Test Fc: Vibration (sinusoidal)

ISO/IEC 60068-2-78, Environmental testing — Part 2-78: Tests — Test Cab: Damp heat, steady state

ISO/IEC 60529, Degrees of protection provided by enclosures (IP Code)

ISO/IEC 61000-4-2, Electromagnetic compatibility (EMC) — Part 4-2: Testing and measurement techniques — Electrostatic discharge immunity test

ISO/IEC 61000-4-3, Electromagnetic compatibility (EMC) — Part 4-3: Testing and measurement techniques — Radiated, radio-frequency, electromagnetic field immunity test

ISO/IEC 61000-4-4, Electromagnetic compatibility (EMC) — Part 4-4: Testing and measurement techniques — Electrical fast transient/burst immunity test

IEC CISPR 32, Electromagnetic compatibility of multimedia equipment — Emission requirements

3 Terms, definitions and symbols

For the purposes of this document, the terms and definitions given in 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 <u>https://www.iso.org/obp</u>
- IEC Electropedia: available at https://www.electropedia.org/

3.1 Terms and definitions

3.1.1

adhesion characteristics

clinging performance of a label attached to a base material to be adhered.

3.1.2

brightness

degree of whiteness of the print surface of the reception paper or label.

3.1.3

ceramic label

label in which a bar code symbol is printed on the surface of a raw ceramic material before-burning, and then is burned to form a ceramic.

3.1.4

consumables

reception papers, labels and ribbons that shall be refilled by the user as needed.

3.1.5

fixed mount reader

bar code reader (also called a stationary reader) that is fixed to specific locations.