
**Information technology — Automatic
identification and data capture (AIDC)
techniques — Harmonized vocabulary —**

Part 2:

Optically readable media (ORM)

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*Technologies de l'information — Techniques d'identification
automatique et de capture de données (AIDC) — Vocabulaire
harmonisé —*

Partie 2: Médias lisibles optiquement (ORM)

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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 19762-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 31, *Automatic identification and data capture techniques*.

ISO/IEC 19762 consists of the following parts, under the general title *Information technology — Automatic identification and data capture (AIDC) techniques — Harmonized vocabulary*:

- Part 1: *General terms relating to AIDC* [ISO/IEC 19762-2:2005](https://standards.iteh.ai/catalog/standards/sist/8507f71e-a175-42fb-a6fd-1e609a01c074/iso-iec-19762-2-2005)
- Part 2: *Optically readable media (ORM)*
- Part 3: *Radio frequency identification (RFID)*

Introduction

ISO/IEC 19762 is intended to facilitate international communication in information technology, specifically in the area of automatic identification and data capture (AIDC) techniques. It provides a listing of terms and definitions used across multiple AIDC techniques.

Abbreviations used within each part of ISO/IEC 19762 and an index of all definitions used within each part of ISO/IEC 19762 are found at the end of each document.

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Information technology — Automatic identification and data capture (AIDC) techniques — Harmonized vocabulary —

Part 2: Optically readable media (ORM)

Scope

This part of ISO/IEC 19762 provides terms and definitions unique to optically readable media (ORM) in the field of automatic identification and data capture techniques. This glossary of terms enables the communication between non-specialist users and specialists in optically readable media through a common understanding of basic and advanced concepts.

Classification of entries

The numbering system employed within ISO 19762 is in the format nn.nn.nnn, in which the first two numbers (nn.nn.nnn) represent the “Top Level” reflecting whether the term is related to 01 = Common to All AIDC Techniques, 02 = Common to All Optically Readable Media, 03 = Linear Bar Code Symbols, 04 = Two-dimensional Symbols, and 05 = Radio Frequency Identification. The second two numbers (nn.nn.nnn) represent the “Mid Level” reflecting whether the term is related to 01 = Basic Concepts/Data, 02 = Technical Features 03 Symbolology, 04 = Hardware, and 05 = Applications. The third two or three numbers (nn.nn.nnn) represent the “Fine” reflecting a sequence of terms.

The numbering in this part of ISO/IEC 19762 employs “Top Level” numbers (nn.nn.nnn) of 02, 03 and 04.

Terms and definitions

02.01.01

pixel

picture element

smallest element of a display surface that can be independently assigned attributes such as color and intensity

02.01.02

element

<symbol character or symbol> single **bar** or space in a bar code **symbol** or a polygonal or circular single cell in a matrix symbol, which according to symbology rules form a symbol **character**

NOTE The width of individual elements may be expressed in **modules**, or in multiples of the **X dimension**.

02.01.03

resolution(1)

smallest distance between indications of a measure's attribute that can be meaningfully distinguished

NOTE The attribute may be amplitude, color, distance, etc.

02.01.04

resolution(2)

width of the narrowest **element** capable of being read by the scanner equipment under test

02.01.05

X dimension

specified width of the narrow **elements** in a bar code **symbol** or the specified width of a single element in a two-dimensional **symbol**

cf. **Z dimension**

02.01.06

Y dimension

specified height of the **elements** in a linear bar code **symbol** or a **row** in a multi-row **symbolology**

cf. **bar height**

02.01.07

decoding

process of restoring information from its coded representation to the original form

[IEC 60050-702 702705-15]

02.01.08

decodability

measurement of relations from combinations of **bars** and spaces together or alone according the reference decode **algorithm**

NOTE The value gives a measurement of how well a bar code **symbol** can be **decoded**.

02.01.09

effective aperture

apparent **field of view** of a scanner or similar device determined by the smaller of the **spot** size and the physical **aperture** of the scanner for reception of reflected light

02.01.10

reading distance

distance (or range of distances) from the exit window of a scanner at which the scanner can reliably **read** a **symbol**

NOTE The minimum reading distance is equal to the **optical throw** and the maximum reading distance is equal to the **range** of the scanner.

cf. **depth of field, optical throw, range**

02.01.11

depth of field(1)

range between the minimum and maximum distances from the **sensor** at which the focused image is acceptably shaped

02.01.12

depth of field(2)

range of distances over which a scanner can reliably **read** a **symbol** of given characteristics which is equal to the range of the scanner minus its **optical throw**

cf. **optical throw, range, reading distance**

02.01.13**optical throw**

distance from the face of a scanning device to the beginning of the **depth of field**, for a **symbol** of given characteristics

cf. **depth of field, range, reading distance**

02.01.14**read rate**

percentage representing the number of good **reads** per 100 attempts to read a particular **symbol**

02.01.15**character**

member of a set of elements used by agreement for the organization, representation or control of information

NOTE Characters may be letters, digits, punctuation marks or other symbols and, by extension, function controls such as space shift, carriage return or line feed contained in a message.

[IEC 60050-702 702-05-10]

02.01.16**auxiliary character/pattern**

non-data **character**

EXAMPLE **start character, stop character**, center pattern, **delineator** pattern, **latch character** mode indicator, **shift character** code subset change characters, and function characters.

cf. **overhead**

02.01.17**data character**

single **numeric digit**, **alphabetic character** or **punctuation mark**, or **control character**, which represents information

cf. **symbol character**

02.01.18**font**

set of characters of a specific style and size of graphic type

NOTE 1 In text processing, a font is a set of **characters** of the same size and style; for example, 9-point Helvetica.

NOTE 2 Also used analogously to refer to the set of **bar code symbol** characters for a **symbology** in on-demand printing equipment.

02.01.19**human readable character**

eye-readable character

representation of a **bar code, data character**, or **data check character** in a standard eye-readable alphabet or numerals, as distinct from its machine-readable representation

02.01.20**symbol**

graphic representation of a concept that has meaning in a specific context

[ISO/IEC 2382-1, 01.02.07]

02.01.21

linear bar code

graphic representation of data in the form of a combination of symbol characters and features required by a particular linear bar code or two-dimensional symbol, which together form a complete scannable entity

NOTE Features include **quiet zones**, **start** and **stop characters**, **data characters**, check characters and other auxiliary patterns.

02.01.22

transmittance(1)

⟨incident radiation of given spectral composition, polarization and geometrical distribution (τ)⟩ ratio of the transmitted radiant or luminous flux to the incident flux in the given conditions

NOTE Adapted from IEC 50 (845) 845-04-59.

02.01.23

transmittance(2)

optical density [D_τ]

algorithm to base ten of the reciprocal of the transmittance ($D_\tau = -\log_{10} \tau$)

[IEC 50 (845) 845-04-66]

NOTE τ - transmittance.

02.01.24

symbol character

bar code character

physical representation of the codeword as a pattern of dark and light elements

NOTE 1 There may be no direct one-to-one mapping between symbol character and **data character** or auxiliary character.

NOTE 2 Decoding through the compaction rules is necessary to identify the **data**.

02.01.25

reflectance difference

difference between the **reflectance** of light and dark elements of a bar code **symbol**

02.01.26

reference threshold

boundary point used by a **reference decode algorithm** to make a decision as to the measurement of an element or combination of elements

02.01.27

defect

lack of, or deficiency in, a characteristic essential in satisfying applicable requirements, that may affect the ability of a functional unit to perform a required function

NOTE Usually referred to as **spots** or **voids**.

02.01.28

opacity

property of a substance of preventing light from passing through it

NOTE **Substrate** opacity affects show through from the reverse side of the substrate or any substance underneath it; ink opacity determines the **show through** from the substrate.

02.01.29

gloss

propensity of a surface to reflect a proportion of incident light in a specular manner

02.01.30**wide:narrow ratio**

ratio of the widths of wider elements in a **symbol** to those of narrow elements

02.01.31**bar width adjustment****BWA**

amount of decrease or increase in **bar width** by which the **bars** of a **bar code master** are adjusted to compensate respectively for gain or loss of bar width during reprographic and printing processes

02.01.32**reading angle**

angle characterizing the angular rotation of a symbol in an axis relative to a scan line

NOTE There are three types of reading angle: **pitch**, **skew**, and **tilt**.

02.01.33**pitch**

reading angle characterising the rotation of a bar code **symbol** about an axis parallel to the height of the **bars**

cf. **skew**, **tilt**

02.01.34**skew**

reading angle characterising the rotation of a bar code **symbol** about an axis parallel to the symbol **width**

cf. **pitch**, **tilt**

02.01.35**tilt**

reading angle, characterising the rotation of a bar code **symbol** about an axis perpendicular to the **substrate**

cf. **pitch**, **skew**

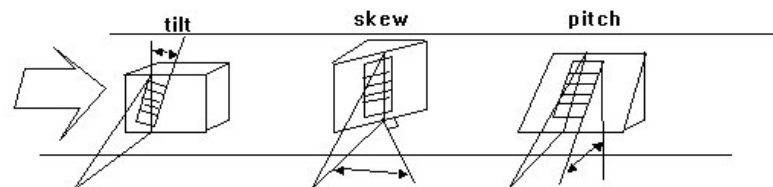


Figure 1 — tilt, skew, and pitch

02.01.36**verifier**

device used for verification of a symbol

NOTE A verifier is used to measure and analyze quality attributes of a symbol such as symbol element width and **quiet zone** dimensions, **reflectance**, and other aspects against a standard to which the linear **bar code** and two-dimensional **symbols** should conform.

02.01.37**bar**

dark element corresponding to a region of a **scan reflectance profile** below the global threshold

02.01.38

bar width

transverse dimension of an individual **bar** in a linear bar code **symbol** or two-dimensional **symbol** measured parallel to the scanning direction

NOTE The number of possible width variations within a particular printed **symbol** depends on the **symbology** used.

02.01.39

bar width compensation

BWC

extent by which the widths of a bar in a bar code master or in a digital bar code file are reduced or increased in order to correct for expected print/image gain or loss, respectively

02.01.40

bar height

dimension of an individual **bar** in a linear bar code symbol or in a row of a multi-row bar code symbol measured perpendicular to the scanning direction

cf. **Y dimension**

02.01.41

shift character

symbology character which is used to switch from one **code set** to another for a single **character**, or in the case of "double shift" or "triple shift" characters, for two or three characters, respectively, following which data encodation reverts automatically to the code set from which the shift was invoked

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02.01.42

Z dimension(1)

(two-width symbologies) average achieved width of the narrow elements in a **bar code symbol**, equal to half the sum of the average narrow bar width and the average narrow space width

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02.01.43

Z dimension(2)

(modular symbologies) average achieved width of the narrow elements in a **bar code symbol**, equal to the quotient of the average overall **character** width divided by the number of **modules** per character

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02.01.44

omnidirectional

in all directions

NOTE Used to refer to symbols which can be scanned in any orientation with an appropriate scanner, or to such a scanner.

02.01.45

verification

method by which a **symbol** is measured to determine its conformance with the specification for that symbol

02.02.01

reference decode algorithm

decode **algorithm** quoted in a **symbology** specification as the basis for the **reference threshold decodability** values

02.02.02

aperture

effective opening in an optical system that establishes the field of view