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**Ophthalmic optics — Bar code  
specifications**

*Optique ophtalmique — Spécification des codes à barres*

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 13230 was prepared by Technical Committee ISO/TC 172, *Optics and optical instruments*, Subcommittee SC 7, *Ophthalmic optics and instruments*.

Annex A of of this International Standard is for information only.

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## Introduction

This International Standard was developed to encourage the use of bar code symbology throughout the various levels of production and distribution in the ophthalmic industry.

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# Ophthalmic optics — Bar code specifications

## 1 Scope

This International Standard provides unified specifications for bar code symbology, for use in the communication of orders between manufacturers for stock and semi-finished spectacle lenses, spectacle frames, contact lenses and contact lens care products.

## 2 Abbreviations of bar code systems

**EAN-13:** International Article Number

**JAN-13:** Japanese Article Number

**OPC:** Optical Product Code

**UPC:** Universal Product Code

NOTE The UPC code is compatible with the EAN-13 code.

## 3 Specifications of bar code systems

### 3.1 Layout of bar code systems

The requirements for layout of bar code systems are given in Table 1.

### 3.2 Printing

Colour, location, design and the use of readable digital code equivalents are at the manufacturer's discretion (see annex A).

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Table 1 — Layout of bar code systems

Bar code		EAN-13 <sup>a</sup>	OPC	UPC
Symbology		EAN-13 code <sup>a</sup>	ITF	UPC-12 code or ITF
Length	Total length	13 digits	10 digits	12 digits
	Country code	digits 1 and 2 or 1 to 3	—	digit 1 (numbering system character)
	Identification of the manufacturer	digits 3 to 7 or 4 to 7	digits 1 to 5	digits 2 to 6
	Manufacturer's product identification	digits 8 to 12	digits 6 to 9	digits 7 to 11
	Check digit	digit 13	digit 10	digit 12
Bar code height (Y-dimension)		minimum	minimum	minimum
omnidirectional		21,48 mm	6,35 mm	21,48 mm
hand-held scanner <sup>b</sup>		9,00 mm	—	—
in restricted conditions <sup>b</sup>		3,00 mm	—	—
Bar code width (X-dimension)		minimum	minimum	minimum
narrow bar or narrow space		0,264 mm	0,254 mm	—
in restricted conditions <sup>b</sup>		0,19 mm	—	—
Ratio of widths of narrow to wide bars		—	1:2,5 minimum 1:3,0 maximum	UPC: — ITF 2/5: 1:2,0 minimum 1:3,0 maximum
Quiet zone		An empty space of at least 11 times the X-dimension and of at least 7 times the X-dimension shall respectively precede and follow the code	An empty space of at least 10 times the X-dimension or 2,54 mm, whichever is greater, shall precede and follow the code	UPC: An empty space of at least 9 times the X-dimensions shall precede and follow the code ITF 2/5: Same as OPC

<sup>a</sup> In Japan EAN-13 is also called JAN-13.

<sup>b</sup> If product does not allow higher bar code.

## **Annex A** **(informative)**

### **Printing**

Excellent quality printing equipment is an implied necessity to print readable codes near the minimum standards of the narrow bar width and narrow-to-wide bar ratio.

Black on white provides the highest contrast. Any colour combination that has an equivalent signal-to-noise ratio is acceptable. In selecting colours, consideration should be given to such factors as shelf-life, fading, dust and handling, all of which may adversely affect the readability of the code.

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