INTERNATIONAL STANDARD

ISO

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Ophthalmic optics — Format of digital data files for data transfer for the profiling of spectacle lenses —

Part 1:
Two-dimensional tracers

Optique ophtalmique — Format fichiers numériques utilisés pour le transfert d'information en façonnage des verres de lunettes —

Partie 1: Palpeurs bidimensionnels

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.

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 11715 was prepared by Technical Committee ISO/TC 172, *Optics and optical instruments,* Subcommittee SC 7, *Ophthalmic optics and instruments*.

International Standard ISO 11715 consists of the following parts, under the general title: *Ophthalmic optics — Format of digital data files for data transfer for the profiling of spectacle lenses*

— *Part 1: Two-dimensional tracers*

— *Part 2: Three-dimensional tracers*

Annexes A and B of this part of ISO 11715 are for information only.

Ophthalmic optics — Format of digital data files for data transfer for the profiling of spectacle lenses —

Part 1:
Two-dimensional tracers

1 Scope

This part of ISO 11715 specifies the content and structure of electronic data encoding for two-dimensional tracers. These data files are used to instruct electronically controlled formerless spectacle-lens profiling machinery.

NOTE The electronic data files are used as an alternative to the mechanical formers specified in ISO 11380.

2 Normative references

The following International Standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 11715. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 11715 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC 646:1991, *Information technology — ISO 7-bit coded character set for information interchange.*

ISO/IEC 2022:1994, *Information technology — Character code structure and extension techniques.*

ISO 8429:1986, *Optics and optical instruments — Ophthalmology — Graduated dial scale.*

ISO 8624:1991, *Optics and optical instruments — Ophthalmic optics — Measuring system for spectacle frames.*

ISO 11380:1994, *Optics and optical instruments — Ophthalmic optics — Formers.*

ISO 13666: — [1]), *Ophthalmic optics — Spectacle lenses — Vocabulary.*

3 Definitions

For the purposes of this part of ISO 11715, the definitions given in ISO 13666 and the following definitions apply:

3.1
tracer
device to measure the spectacle lens size of spectacle frames

[see ISO 11380: 1994, 2.1]

_____
[1]) To be published.

3.2
profiling machinery
machinery designed for profiling (edging) spectacle lenses before insertion into spectacle frames

4 Requirements

4.1 Data encoding

The file shall be a pure text file in ISO 7-bit coded character set format (see ISO/IEC 646).

The data shall be encoded as follows:

— length data shall be given to the nearest 0,01 mm,

— the minimum circumscribing perimeter shall be recorded to the nearest 0,01 mm,

— the horizontal and vertical spectacle lens sizes (see ISO 8624) shall be recorded to the nearest millimetre,

— angular data shall be given to the nearest 0,1° using the system specified in ISO 8429,

— polar coordinates shall be referred to the boxed centre C of the boxed spectacle lens shape (see ISO 8624 for the boxed lens system), and the first coordinate shall be that of the 0,0° meridian of the 360° protractor specified in ISO 8429.

The data shall be presented for the right spectacle lens.

Blocks shall be introduced by the character ":".

Comments in any block, including block 4, shall be introduced by the character ",".

NOTE Comments may be added at the end of any field.

4.2 Contents and structure of data files

The contents of the data files shall be derived either from a mechanical former or from the mathematical data relating to the spectacle frame design and shall be given for the right spectacle lens, if the shape of the left spectacle lens is symmetrically equal.

The data shall be presented in data blocks as shown in table 1.

An example is given in annex A.

5 Reference to this part of ISO 11715

If the manufacturer or supplier claims compliance of the product with this part of ISO 11715, reference shall be made to ISO 11715-1.

Table 1 — Contents and structure of data blocks

Nature of information		Field definition		Indication of field	
		Length of field	Nature of field	Start	End
Block 1				:	
a)	Manufacturer	12	alphabetic		
b)	Model name	24	alphanumeric		
c)	Model reference	12	alphanumeric		
d)	Horizontal and vertical spectacle lens sizes, in mm, in the form xx/xx	5	alphanumeric		
e)	Date of design (in the form yyyy/mm/dd)	10	alphanumeric		
Block 2				:	
a)	Surface area, in mm²	4	numeric		
b)	Minimum circumference, in 0,01 mm	5	numeric		
c)	Maximum extension of shape in polar coordinates, in 0,01 mm/0,1° in the form xxxx/xxxx	9	alphanumeric		
Block 3 [1]				:	
a)	Shape data	4	numeric		
b)	Start of polar coordinates	1	alphabetic	(	
c)	Polar coordinates in 0,01 mm/0,1° in the form (xxxx/xxxx)	11	alphanumeric	(	)
d)	End of polar coordinates	1	alphabetic		)
Block 4 [2]				:	
Field of additional information		variable	alphanumeric	,	,
Block 5				:	
Proof sum CRC 32		11	alphanumeric		hex
[1] The number of coordinates defining the spectacle lens shape may vary according to the shape. For any particular shape, the angular distance between coordinates may vary.					
[2] This is an extension field for any additional information, e.g. distance between spectacle lenses.					

Annex A
(informative)

Example

Block 1

a) betaformde
b) bbbbbcccccdddddeeeee2224
c) hhhhhggggg12
d) 48/21
e) 1996/08/30

:betaformdebbbbbcccccdddddeeeee2224hhhhhggggg1248/211996/08/30

Block 2

a) 3848
b) 15025
c) 2891/2438

:3848150252891/2438

Block 3

a) 1234
b) (
c) (2405/0000)(2418/0008)(..../....)(..   ..)(2394/3950)
d))

:1234((2405/0000)(2418/0008)(..../....)(..   ..)(2394/3950))

Block 4

errare humanum est

:,errare humanum est,

Block 5

CRC 32

:12345678hex