

American National Standard

*for Ophthalmic Optics –
Information Interchange for
Ophthalmic Optical Equipment*



ANSI[®]
Z80.24-2007 (R2017)
Reaffirmation of
ANSI Z80.24-2007 (R2012)

American National Standard
for Ophthalmic Optics –

Information Interchange for Ophthalmic Optical Equipment

Secretariat
The Vision Council

Approved March 28, 2007
Reaffirmed April 16, 2012
Reaffirmed December 11, 2017

American National Standards Institute, Inc.

American National Standard

Approval of an American National Standard requires review by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by the standards developer.

Consensus is established when, in the judgement of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made towards their resolution.

The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether he has approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards.

The American National Standards Institute does not develop standards and will in no circumstances give an interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise, or withdraw this standard. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

Developed by

The Accredited Committee Z80 for Ophthalmic Standards -

The Vision Council
Z80 Secretariat
225 Reinekers Lane, Suite 700
Alexandria, VA 22314

Published by

The Vision Council
225 Reinekers Lane, Suite 700
Alexandria, VA 22314

Copyright © 2017 by The Vision Council
All rights reserved.

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without prior written permission of the publisher.

Printed in the United States of America

Contents

Page

Foreword.....	ii
Introduction.....	iii
1 Scope	1
2 Normative reference	1
3 Terms and definitions	1
3.1 General.....	1
3.2 Special characters	2
3.3 Data types.....	2
3.4 Messages.....	3
3.5 Records.....	4
3.6 Sessions	4
3.7 Timeout.....	5
4 Overview	5
5 Requirements	6
5.1 Records.....	6
5.2 Reference point records	8
5.3 Generator records	10
5.4 Tracing records.....	11
5.5 Packets	18
6 Sessions	21
6.1 General.....	21
6.2 Initialization sessions.....	21
6.3 Upload sessions	29
6.4 Download sessions	31
7 Other requirements	32
7.1 RS-232 Communications parameters.....	32
7.2 Operator messages	32
Annex A (normative) Record labels	33
Annex B (informative) Packed binary format example.....	55
Annex C (informative) CRC calculation	61

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.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 16284 was prepared by Technical Committee ISO/TC 172, *Optics and optical instruments*, Subcommittee SC 7, *Ophthalmic optics and instruments*.

Annex A forms a normative part of this International Standard. Annexes B and C are for information only.

Introduction

This International Standard is the result of a desire shared by manufacturers of optical laboratory equipment and producers of software used in optical laboratories to simplify the interconnection of their products.

The International Standard defined herein provides:

- a method by which machines and computer systems conduct their exchanges of data;
- a method by which computer systems can initialize such parameters on machines as the manufacturers thereof allow;
- a method by which machines can initialize computer systems with information that the systems can use for various purposes;
- a method by which a machine can inform a computer system as to what information it wants to receive, thus allowing machines to define new interfaces dynamically.
- a standard set of records and device types that are used to communicate agreed-upon sets of information.

The last feature listed above requires that this International Standard be amended on a regular basis, as the need for new data elements is inevitable.

Ophthalmic optics — Information interchange for ophthalmic optical equipment

1 Scope

This International Standard establishes a method by which machines and computer software systems used in the fabrication of ophthalmic lenses can exchange information.

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 13666:1998, *Ophthalmic optics — Spectacle lenses — Vocabulary*.

3 Terms and definitions

For the purposes of this International Standard, the terms and definitions given in ISO 13666 and the following apply.

3.1 General

3.1.1 device

machine or instrument used in the fabrication of ophthalmic lenses that communicates with a computer system to send or receive job information

3.1.2 host

computer system providing information to or receiving information from a device

3.1.3 job

order for prescription ophthalmic lenses or spectacles

3.1.4 download

communication session in which the host system transmits data to the device

3.1.5 upload

communication session in which the device transmits data to the host