

ANSI Z80.23-2008

AMERICAN NATIONAL STANDARD



*for Ophthalmics –  
Corneal Topography Systems –  
Standard Terminology, Requirements*

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**ANSI**<sup>®</sup>  
**Z80.23-2008**  
(Revision of  
ANSI Z80.23-1999)

American National Standard  
for Ophthalmics –  
**Corneal Topography Systems –  
Standard Terminology, Requirements**

Secretariat

**Optical Laboratories Association** (until December 31, 2008)

**The Vision Council** (after January 1, 2009)

Approved August 4, 2008

**American National Standards Institute, Inc.**

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## Contents

	Page
Foreword .....	ii
<b>1</b> Scope and purpose .....	1
<b>2</b> Normative references .....	1
<b>3</b> Terminology .....	2
<b>4</b> Requirements .....	8
<b>5</b> Test methods and test devices .....	8
<b>6</b> Accompanying documents .....	14
<b>7</b> Marking .....	14
<b>Tables</b>	
<b>1</b> Conic section descriptors .....	7
<b>2</b> Test surfaces for type testing .....	10
<b>3</b> Tolerance levels for test surface measurements .....	11
<b>4</b> Analysis zones for accuracy and repeatability testing .....	13
<b>Figures</b>	
<b>1</b> Illustration of axial curvature, $K_a$ , axial radius of curvature, $r_a$ , meridional curvature, $K_m$ , and meridional radius of curvature, $r_m$ .....	6
<b>2</b> Illustration of the corneal vertex and the apex .....	7
<b>Annexes</b>	
<b>A</b> Test surfaces for corneal topographers .....	15
<b>B</b> Standardized displays for corneal topographers .....	17
<b>C</b> Calculation of area weighting values .....	20
<b>D</b> Preprocessing of axial elevation data prior to analysis of pared data sets .....	22

**Foreword** (This foreword is not part of American National Standard ANSI Z80.23-2008.)

This American National Standard continues to address the expressed needs of those members of the ophthalmic community who use corneal topography in clinical settings, those who manufacture corneal topographers and those who teach others regarding the use of the information collected by corneal topographers. In particular there continues to be a need for standardization of the terms and definitions used in the field, for standardization of the methods used for characterizing the performance of these instruments and for standardization of displays of corneal topographical information. The experts who worked together to create this standard felt that at this time there is not sufficient consensus within the ophthalmic community to set performance requirements for these instruments beyond those for minimum area measured and measurement sample density. The standard continues to address standardization of the methods for testing these instruments, for assessing their performance, and for reporting the results thus obtained.

The number and type of test surfaces to be used has been changed to include only test surfaces for which the results can be verified. When these surfaces are tilted or rotated the expected surface measurements are easy to predict. These surfaces were considered to be adequate as minimum verification surfaces for corneal topographers; if a corneal topography system can measure these surfaces well, it will be a clinically useful instrument. The method for standardization of color maps has been changed in an effort to improve the user's ability to discern just-noticeable-differences in corneal topography. The user always has the option of using a scale with less resolution but with greater range, as long as the scale recommended in this document is available to be used.

This standard was created by a special working group created by the Z80 Subcommittee on Ophthalmic Instruments and included experts in the field of corneal topography from the clinical, manufacturing and academic areas of the ophthalmic community.

This standard contains four annexes. Annex A is informative and is not considered to be part of this standard. Annexes B, C, and D are normative and are considered to be part of this standard.

Suggestions for improvement of this standard will be welcome. Prior to December 31, 2008, any comments should be sent to the Optical Laboratories Association, P.O. Box 200, Merrifield, VA 22116-2000. After January 1, 2009, comments should be sent to The Vision Council, 1700 Diagonal Road, Suite 500, Alexandria, VA 22314.

This standard was processed and approved for submittal to ANSI by the Accredited Standards Committee on Ophthalmics, Z80. Committee approval of this standard does not necessarily imply that all committee members voted for its approval. At the time it approved this standard, the Z80 Committee had the following members:

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Quido Cappelli, Vice-Chairman  
Robert Rosenberg, O.D., Secretary  
Daniel Torgersen, Secretariat

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	Glenn Davies (Alt.)
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	Richard Courtney (Alt.)

<i>Organization Represented</i>	<i>Name of Representative</i>
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US Leader to ISO TC 172/SC7 .....	Charles E. Campbell
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The subcommittee on Ophthalmic Instruments, which developed this standard, had the following members:

William L. Brown, O. D., Ph.D, Chairman	Charles E. Campbell
	Robert Landry
	David Loshin
	Robert Rosenberg
	Thomas White





# American National Standard for Ophthalmics – Corneal Topography Systems – Standard Terminology, Requirements

## 1 Scope and purpose

### 1.1 Scope

This American National Standard applies to instruments, systems and methods that are intended to measure the shape of the cornea of the human eye over a majority of its central anterior surface. The measurements may be of the curvature of the surface in local areas, three dimensional topographical measurements of the surface or other more global parameters used to characterize the surface. Instruments classified as ophthalmometers or keratometers are not covered by this standard.

### 1.2 Purpose

This standard defines certain terms that are peculiar to the characterization of the corneal shape so that they may be standardized throughout the field of vision care and have common meaning for all those who have occasion to participate in this area.

This standard sets forth minimum requirements for instruments and systems that fall into the class of corneal topographers.

This standard sets forth tests and verification procedures that will verify that a system or instrument complies with the standard and so qualifies as a corneal topographer in the meaning of this standard.

This standard sets forth certain tests and verification procedures that will allow the verification of capabilities of systems that are beyond the minimum required for corneal topographers.

## 2 Normative references

The following standard contains provisions that, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

ANSI Z80.20-1998, *Ophthalmics – Contact Lenses – Standard terminology, tolerances, measurements and physicochemical properties*<sup>1)</sup>

ANSI Z80.28-2004, *Ophthalmic Instruments – Methods for reporting optical aberrations of eyes*<sup>1)</sup>

ISO 8429:1986, *Optics and optical instruments – Ophthalmology – Gradual dial scale*<sup>1)</sup>

<sup>1)</sup> For electronic copies of some standards, visit ANSI's Electronic Standards Store (ESS) at [www.ansi.org](http://www.ansi.org). For printed versions of all these standards, contact Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112-5704, (800) 854-7179.