American National Standard

ANSI Z136.7 – 2020

American National Standard for Testing and Labeling of Laser Protective Equipment

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Z136.7 – 2020
Revision of
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American National Standard for Testing and Labeling of Laser Protective Equipment

Secretariat

Laser Institute of America

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American National Standards Institute, Inc.

American National Standard

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Foreword

(This introduction is not a normative part of ANSI Z136.7-2020, *American National Standard for Testing and Labeling of Laser Protective Equipment.*)

In 1968, the American National Standards Institute (ANSI) approved the initiation of the Safe Use of Lasers Standards Project under the sponsorship of the Telephone Group.

Prior to 1985, Z136 standards were developed by ANSI Committee Z136 and submitted for approval and issuance as ANSI Z136 standards. In 1985, the Committee became the Accredited Standards Committee (ASC) Z136.

Today, Laser Institute of America (LIA) is recognized as the ANSI-Accredited Standards Developer (ASD) of Z136 standards and is responsible for managing the implementation of the consensus process that Z136 standards are subject to. ASC Z136 is the consensus body that approves/disapproves the content of Z136 standards. The present scope of ASC Z136 is to protect against hazards associated with the use of lasers and optically radiating diodes. A copy of the procedures for development of these standards and a copy of the current ASC Z136 member roster can be obtained from LIA by emailing lia@lia.org.

Standards subcommittees (SSC) and technical subcommittees (TSC) are involved in the development of the content of Z136 standards and an editorial working group (EWG) provides editorial comments. At the time of this printing, the following standards and technical subcommittees were active:

SSC-1	Safe Use of Lasers (parent document)
SSC-2	Safe Use of Lasers and LEDs in Telecommunications Applications
SSC-3	Safe Use of Lasers in Health Care
SSC-4	Measurements and Instrumentation
SSC-5	Safe Use of Lasers in Educational Institutions
SSC-6	Safe Use of Lasers Outdoors
SSC-7	Testing and Labeling of Laser Protective Equipment
SSC-8	Safe Use of Lasers in Research, Development, and Testing
SSC-9	Safe Use of Lasers in Manufacturing Environments
SSC-10	Safe Use of Lasers in Entertainment, Displays, and Exhibitions
TSC-1	Biological Effects and Medical Surveillance
TSC-2	Hazard Evaluation and Classification
TSC-4	Control Measures, Training, and Laser Safety Programs
TSC-5	Non-Beam Hazards
TSC-7	Analysis and Applications
EWG	Editorial Working Group

The eight standards currently issued are:

ANSI Z136.1-2014, *American National Standard for Safe Use of Lasers*

ANSI Z136.2-2012, *American National Standard for Safe Use of Optical Fiber Communication Systems Utilizing Laser Diode and LED Sources*

ANSI Z136.3-2018, *American National Standard for Safe Use of Lasers in Health Care*

ANSI Z136.5-2020, *American National Standard for Safe Use of Lasers in Educational Institutions*

ANSI Z136.6-2015, *American National Standard for Safe Use of Lasers Outdoors*

ANSI Z136.7-2020, *American National Standard for Testing and Labeling of Laser Protective Equipment*

ANSI Z136.8-2012, *American National Standard for Safe Use of Lasers in Research, Development, or Testing*

ANSI Z136.9-2013, *American National Standard for Safe Use of Lasers in Manufacturing Environments*

This American National Standard provides guidance for the testing and labeling of laser protective equipment such as laser eye protection, filters, windows, and barriers for use with lasers and laser systems. Emphasis is given to ensuring adequate testing of laser protective eyewear (e.g., absorptive, interference/reflective, and hybrid filter technologies).

This standard has been published as part of the American National Standard Z136 series. This document is the American National Standard Z136.7. This document may be used independently of ANSI Z136.1 in the determination of required retinal angular protection/coverage. Where applicable, tables from ANSI Z136.1 are included. Instances where additional guidance contained in ANSI Z136.1 is required are noted and referenced in the appropriate sections of this document.

It is expected that this standard will be periodically revised as new information and experience in the use of lasers is gained. Future revisions may have modified methodology, and use of the most current document is highly recommended.

While there is considerable compatibility among existing laser safety standards, some requirements differ among state, federal, and international standards and regulations. These differences may have an effect on the particulars of the applicable control measures.

Occasionally, questions may arise regarding the meaning or intent of portions of this standard as it relates to specific applications. When the need for an interpretation is brought to the attention of the secretariat, the secretariat will initiate action to prepare an appropriate response. Since ANSI-approved Z136 standards represent a consensus of concerned interests, it is important to ensure that any interpretation has also received formal consideration. Requests for interpretations and suggestions for improvements of the standard are welcome. They should be sent to ASC Z136 Secretariat, Laser Institute of America, 13501 Ingenuity Drive, Suite 128, Orlando, FL 32826.

The content of this standard was developed by SSC-7 "Testing and Labeling of Laser Protective Equipment" and approved by ASC Z136. Committee approval of the standard does not necessarily imply that all members voted for its approval.

Sheldon Zimmerman, Committee Chair
C.D. Clark III, Committee Vice-Chair
Edward Early, Committee Secretary

Notice

(This notice is not a normative part of ANSI Z136.7-2020, *American National Standard for Testing and Labeling of Laser Protective Equipment.*)

Z136 standards and recommended practices are developed through a consensus standards development process approved by the American National Standards Institute. The process brings together volunteers representing varied viewpoints and interests to achieve consensus on laser safety related issues. As Accredited Standards Developer (ASD) and secretariat to ASC Z136, the Laser Institute of America (LIA) administers the process and provides financial and clerical support to the committee.

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Participants At the time it approved this standard, ASC Z136 had the following members:

Organization Represented	*Name of Representative*
Academy of Laser Dentistry	Scott Benjamin
Altos Photonics, Inc.	Lucian Hand
American Glaucoma Society	Michael Berlin
American Industrial Hygiene Association	Stephen Hemperly
American Society for Laser Medicine & Surgery	Rebecca Sprague
	Macrene Alexiades (Alt)
American Society of Safety Engineers	Steven Ramiza (Alt)
American Veterinary Medical Association	Kenneth Sullins
American Welding Society	Paul Denney
Association of periOperative Registered Nurses (AORN)	Patti Owens
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Camden County College	Fred Seeber
Daniel Laser Safety	Paul Daniel, Jr.
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SAIC Corp.	Edward Early
Fort Hays State University	C.D. Clark III
Health Physics Society	Ken Barat
	Thomas Johnson (Alt)
High-Rez Diagnostics	Richard Hughes
International Council on Surgical Plume	Penny J. Smalley
International Laser Display Association (ILDA)	Patrick Murphy
Johns Hopkins University, WSE	Nathaniel Leon
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Lawrence Livermore National Laboratory	Jamie King
Los Alamos National Laboratory	Joanna Casson
National Aeronautics and Space Administration	Angel Plaza
	Kurt Geber (Alt)
National Institute of Standards and Technology (NIST)	Joshua Hadler
NoIR LaserShields	David Bothner
North American Association for Photobiomodulation Therapy (NAALT)	Raymond Lanzafame

Organization Represented	*Name of Representative*
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Power Technology, Inc.	William Burgess
Rockwell Laser Industries	William Ertle
Salem Veterans Affairs Medical Center	Damien Luviano
SLAC National Accelerator Laboratory	Michael Woods
Underwriters Laboratories, Inc.	Winn Henderson
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U.S. Department of Labor, Occupational Safety & Health Administration	Jeffrey Lodwick
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U.S. Naval Air Warfare Center Aircraft Division Vision Lab	Christine Stanley Adam Carlisle (Alt)
Wellstar Health System	Evangeline Dennis

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Richard Crowson
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David Dewey
Ben Edwards
Mark Festenstein
John Flores-McLaughlin
Penelope Galoff
Joseph Greco
Donald Haes
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Ami Kestenbaum
David J. Lund
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Emeritus Members	Prem Batra Robert Handren R. Timothy Hitchcock James Smith Robert Weiner Myron Wolbarsht