American National Standard

ANSI Z136.9 – 2013

American National Standard for Safe Use of Lasers in Manufacturing Environments

Laser Institute of America
Laser Applications and Safety

Approved American National Standard
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First Printing

American National Standard for Safe Use of Lasers in Manufacturing Environments

Secretariat
Laser Institute of America

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American National Standard

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Foreword

(This introduction is not a normative part of ANSI Z136.9-2013, *American National Standard for Safe Use of Lasers in Manufacturing Environments.)*

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. Since 1985, Z136 standards are developed by the ANSI Accredited Standards Committee (ASC) Z136 for Safe Use of Lasers. A copy of the procedures for development of these standards can be obtained from the secretariat, Laser Institute of America, 13501 Ingenuity Drive, Suite 128, Orlando, FL 32826 or viewed at www.z136.org.

The present scope of ASC Z136 is to protect against hazards associated with the use of lasers and optically radiating diodes.

ASC Z136 is responsible for the development and maintenance of this standard. In addition to the consensus body, ASC Z136 is composed of standards subcommittees (SSC) and technical subcommittees (TSC) involved in Z136 standards development and an editorial working group (EWG). 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	Eyewear and Protective Barriers
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 and Training
TSC-5	Non-Beam Hazards
TSC-7	Analysis and Applications
EWG	Editorial Working Group

The nine standards currently issued are:

ANSI Z136.1-2007, *American National Standard for Safe Use of Lasers* (replaces ANSI Z136.1-2000)

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

ANSI Z136.3-2011, *American National Standard for Safe Use of Lasers in Health Care* (replaces ANSI Z136.3-2005, *American National Standard for Safe Use of Lasers in Health Care Facilities*)

ANSI Z136.4-2010, *American National Standard Recommended Practice for Laser Safety Measurements for Hazard Evaluation* (replaces ANSI Z136.4-2005)

ANSI Z136.5-2009, *American National Standard for Safe Use of Lasers in Educational Institutions* (replaces ANSI Z136.5-2000)

ANSI Z136.6-2005, *American National Standard for Safe Use of Lasers Outdoors* (replaces ANSI Z136.6-2000)

ANSI Z136.7-2008, *American National Standard for Testing and Labeling of Laser Protective Equipment* (first edition)

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

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

This purpose of this American National Standard is to provide specific guidance for the safe use of lasers in manufacturing environments. It has been published as part of the ANSI Z136 series of laser safety standards. The base document of the series is the American National Standard for Safe Use of Lasers, ANSI Z136.1.

The procedures and methodologies described in this standard are based on requirements previously established in ANSI Z136.1 and are intended to give more specific practices for accomplishing laser safety, and to provide more specific user guidance for protecting individuals with the potential for laser exposure when lasers are used in manufacturing environments.

This standard includes policies and procedures to ensure laser safety in areas where lasers are used in manufacturing, including public and private industries, and product development and testing settings. In general, this standard may be used independently of ANSI Z136.1; however, instances

where additional guidance contained in ANSI Z136.1 is required are noted in the text of this document.

The body of this standard is a normative standard that applies to manufacturing environments that use lasers. The appendices, excluding Appendix A, are informative providing examples and discipline specific supplementary information.

It is expected that this standard will be periodically revised as new information and experience in the use of lasers are gained. Future revisions may have modified content 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 Z136 standards represent a consensus of concerned interests, it is important to ensure that any interpretation has also received the concurrence of a balance of interests. For this reason, the secretariat is not able to provide an instant response to interpretation requests except in those cases where the matter has previously 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.

This standard was processed and approved for submittal to ANSI by ASC Z136. Committee approval of the standard does not necessarily imply that all members voted for its approval.

Robert Thomas, Committee Chair
Sheldon Zimmerman, Committee Vice-Chair
Ben Edwards, Committee Secretary

Notice

(This notice is not a normative part of ANSI Z136.9-2013, *American National Standard for Safe Use of Lasers in Manufacturing Environments.)*

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 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 Academy of Dermatology	Mark Nestor
American College of Obstetricians & Gynecologists	Ira Horowitz
American Dental Association	Joel White
American Glaucoma Society	Michael Berlin
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International Imaging Industry Association (I3A)	Joseph Greco
International Laser Display Association (ILDA)	Patrick Murphy
Kentek Corporation	William Arthur
KLA-Tencor	Karl Umstadter
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Laser Institute of America	Gus Anibarro
Laser Safety Consulting, LLC.	Darrell Seeley
Lawrence Berkeley National Laboratory	Ken Barat
Lawrence Livermore National Laboratory	Robert Ehrlich
Lightwave International	Roberta McHatton
Los Alamos National Laboratory	Connon Odom
National Aeronautics and Space Administration	Guy Camomilli Randall Scott (Alt)
National Institute of Standards and Technology (NIST)	Joshua Hadler

Organization Represented	*Name of Representative*
North American Association for Laser Therapy (NAALT)	Raymond Lanzafame
Power Technology, Inc.	William Burgess
Rockwell Laser Industries	William Ertle
Solta Medical Inc.	George Frangineas
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Underwriters Laboratories, Inc.	Peter Boden
University of Texas, Southwestern Medical Center	John Hoopman
US Department of Health and Human Services, Center for Devices and Radiological Health	Richard Felten Robert James (Alt)
US Department of Labor, Occupational Safety & Health Administration	Jeffrey Lodwick
US Department of the Air Force, Air Force Research Laboratory	Benjamin Rockwell Robert Thomas (Alt)
US Department of the Air Force, Surgeon General's Office	Edward Kelly
US Department of the Army, Army Institute of Public Health Command (AIPH)	Jeffrey Pfoutz Penelope Galoff (Alt)
US Department of the Army, Army Institute of Surgical Research	Bruce Stuck
US Department of the Navy, Naval Air Systems Command	James Sheehy
US Department of the Navy, Naval Sea Systems Command	Sheldon Zimmerman Mary Zimmerman (Alt)
Individual Members	Robert Aldrich Prem Batra Hong Chen Richard Crowson Jerome Dennis David Dewey Ben Edwards Mark Festenstein Donald Haes Robert Handren, Jr. Ami Kestenbaum David J. Lund Martin Mainster Wesley Marshall J. Stuart Nelson Patti Owens Jay Parkinson

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