ANSI Z136 Standards Series Update & Z136.1 Philosophy for Next Revision
American National Standard Z136 Series

Z136.1 for Safe Use of Lasers

Horizontal Standard
Fundamental Information

Vertical Standards - Specific Information
Various Applications
DRAFT Standard

Z136.10 for Safe Use of Lasers

Entertainment, Displays & Exhibitions
# ANSI Z136 Standards History and Status

<table>
<thead>
<tr>
<th>ANSI Standard</th>
<th>Latest Publication Date</th>
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<tr>
<td>36.3</td>
<td>2011</td>
<td>1988, 1996, 2005</td>
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Recent Changes in Z136.1

The beginning of the shift to a horizontal standard for all Z136 vertical standards, where vertical standards have precedence within the scope of those standards. Units changed to nanometers for all wavelengths shorter than 2,999 nm (180 nm to 2,999 nm) and microns for longer wavelengths (3 µm to 1,000 µm).Tables have been expanded for clarity and ease of use. Includes Optics Transmission in Hazard Classification sections 4 (control measures) and 7 (non-beam hazards) and Appendix B (Example Calculations) reorganized and rewritten.
Recent Changes in Z136.1

Some new maximum permissible exposure limits (MPEs)

Added 19 definitions, deleted 9 definitions.

- Added: administrative control measure; beam divergence; beam waist; conduit; control measure; engineering control measure; laser controlled area; crossover pulse-repetition frequency; hot spot; illuminance; laser target interaction radiation (LTIR); personal protective equipment (PPE); photopic luminous efficiency; procedural control measure; saturable absorption; $t_{\text{min}}$; troland; visible luminous transmission (VLT); and visual interference effects.
Plans for Next Revision of Z136.1

Overall philosophy
- Information must be broadly applicable to remain in or be added to the horizontal standard to include
  - Definitions
  - Examples
  - Control Measures
  - Training
  - Non-Beam Hazards
  - Measurements
- Anything that applies to a particular application or two should be included in that/those standards or recommended practices
Plans for Next Revision of Z136.1

It is anticipated that the horizontal standard will primarily consist of:

- Broadly Applicable Definitions
- Hazard Evaluation and Classification
- MPEs
- Fundamental Control Measures
- Fundamental Education and Training Requirements
- General Medical Exam Requirements
- General Non-Beam Hazards
- Classification and Hazard Evaluation Examples
Effects of Next Revision on Z136 Series

Overall philosophy
- It is the hope of the Z136.1 Chairman that vertical standards will include information specific to their application, whilst leaving out general information.
- Having very little repeated information in the parent standard and the vertical standards should result in
  • Less redundancy
  • Fewer conflicts
  • Avoids vertical standards becoming outdated by a revision of the parent standard and vice versa.
- Possible drawback – Vertical standards will not be stand-alone documents.
Effects of Next Revision on Z136 Series

It is anticipated that the vertical standards and recommended practices will primarily consist of:

- Application specific Definitions
- Control Measures
- Education and Training Requirements
- Non-Beam Hazards
- Classification and Hazard Evaluation Examples
Thank you

- We would like to acknowledge Dr. Ben Rockwell, previous chair of SSC-1, and Barbara Sams, Director of Standards Development for the LIA, for information used in this presentation.