

Z136.8 What is coming your way

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Present Status

- As we meet today the first revision of Z136.8 Safe Use of Lasers in the Research Development and Testing Environment is in the revision process
- After 2 years of work a completed document has gone out for committee vote
- Committee comments are in the process of being reviewed
- Then a grammatical review
- Next step is a vote by the central ANSI laser committee
- Then publication

Committee members are voluntary & noble people

- Committee members hold down real jobs and give up their time and effort to work on the standard committee
- Which explains why some revisions take so long to complete
- I admire and wish to thank all the committee members for their efforts, regardless of how much time they have put into the revision project
- In my mind the Secretariat (the publisher) of the standard could do more. They do reap the rewards of the committees work, but seem more than happy to stand to the side

Background info

Three parts of Standard

- Sections
- Appendixes
 - Normative?
 - Non Normative?
- Figures
- We have tried to improve each and I hope that will be your opinion once you see the finished product

Z136.8 - 2012

- As with any research Z136.8 broke new ground, First Z136 standard:
 - To recognize alignment eyewear----now in Z136.1
 - Use the Warning signal word-----now in Z136.1
 - Introduce On the Job Training
 - Color images-----now in Z136.1
 - Break with 50 years of stick diagrams
 - Introduced many to Export Controls
 - Recognize not every laser is a commercial product
 - Expanded sample forms
 - And more

Trying to affect a lower cost

- Moving many sample forms (downloadable) to OSHA Alliance web site, with the assistance of LIA
- Also planning to have forms as a phone app, through the help of Rockwell Laser Industries
- Hoping these steps in addition to making information more available will lower the cost of the standard (committee has no direct input on price)

First a word on Z136.1

- The stated goal of the next version *of Z136.1 Safe Use of Lasers* is to contain all generic items and strip out application related topics.
- How successful this will be is to be seen
- With that in mind, the new version of Z136.8 has a mixture of accepting that concept and keeping a “stand alone” posture.

Z136.8 Sections

2012 sections

1. General
2. Definitions
3. Hazard Evaluations & Classification
4. Control Measures
5. Education & Training
6. Medical Examinations
7. Non Beam Hazards
8. Criteria for Exposures of Eye & Skin

2017 Sections

1. General
2. Acronyms & Definitions
3. Hazard Evaluations & Classification
4. Control Measures
5. Education & Training
6. Medical Examinations
7. Non Beam Hazards

New items

Interlocked Entry Doors

- Defeatable and non-defeatable entryway interlocks **shall be tested at least annually and documentation of such a performance test shall be available for LSO review.**
- The documentation shall include any problem as found and corrective actions taken.
- A written test procedure should be developed to ensure consistency of test methods and performance.
- NOTE: See Appendix H for a sample interlock test form.

New in Sections

- Specific note on ability to use other laser standards than Z136.1
- Addition of Acronyms
- Some new definitions
- Alternate controls, clearly called out, was lost in General Consideration
 - If alternate control measures are used, all personnel directly **affected shall be** provided appropriate laser safety and operational training, and documentation of these control measures and training is recommended – same as Z136.1
- **4.1.2.4 Laser Technology Transfer**
- Another alternative is requiring a tool for removing the housing or covering; an appropriate warning label shall be included on the panel/covering.

Expansion, Improvement, New

- Optical fiber
- User Facility
- Robotic items
- Inclusion of High Intensity lasers and an appendix on the subject
- Warning sign for 3B & 4 usage (in line with Z136.1-2014)

5.4 Hands-on Training aka On-the-Job Training (OJT).

- **OJT training shall be required** for all personnel likely to encounter exposure levels above the Class 3R MPE.
- Training shall include safety procedures for applicable non-beam hazards associated with laser systems in use

Table 1. Laser Safety Officer (LSO) Duties and Responsibilities

- Similar to the famous table 10 series outlining Engineering and Administrative controls by class
- This table just shows what sections relate to many LSO duties
- The goal to make it easier to find sections that relate to LSO duties and responsibilities

Figures: Optical Table with perimeter guard around it



- Perimeter guard, purpose to contain beams and reflections on the optical table. Best practice is to have the guard with a diffuse surface, at least on the inside and to be noncombustible for the laser output in use.

Appendix, every appendix has been updated or is New

2012 edition

- A. Laser Safety Program
- B. Sample Forms
- C. Frequently Report Incidents
- D. Employee Training Guide
- E. Medical Examinations
- F. Non Beam
- G. Biological Effects of the Eye & Skin
- H. Laser Product Rules (CDRH)

2017 edition

- A. Laser Safety Program
- B. Frequently Asked Questions**
- C. Regulatory Overview**
- D. Elements of Laser Safety Training
- E. Laser Accidents
- F. High Intensity Lasers**
- G. Non Beam Hazards
- H. Sample Forms
- I. US Laser Product Rules

Appendixes on the Web

OSHA Alliance Page or link given (i.e. CDRH)

- A. Laser Safety Program-----In hardcopy
- B. Frequently Asked Questions----- In hardcopy
- C. Regulatory Overview-----On web
- D. Elements of Laser Safety Training----- In hardcopy
- E. Laser Accidents----- Both(?)
- F. High Intensity Lasers-----Both(?)
- G. Non Beam Hazards----- In hardcopy
- H. Sample Forms-----On the web
- I. US Laser Product Rules-----On the web

Conclusion

- *As an advertisement, I have submitted an abstract for ILSC on a topic near to the heart to many of us here*
- *Is it time to retire the SOP requirement?*
- **This coming revision of Z136.8 will be a useful resource to any LSO at a University, National Lab, Research Center or Product Development Lab**
- **I am proud to be the chair of this committee**

Why was this talk given on the last day?

- *SO YOU WILL REMEMBER THIS ONE*
- **There will be a meeting Friday AM and open to anyone with question or comments about the standard**
- **Questions?**
 - **If time allows I will show all the new diagrams**