

Z136
STANDARDS COMMITTEE

ASC Z136

Annual Meeting

Wednesday, 09 March 2022
via Web Conference: Zoom

We will start at:
8 am Pacific Time
9 am Mountain Time
10 am Central Time
11 am Eastern Time



ASC Z136 for Safe Use of Lasers

Sheldon Zimmerman, Chairperson

Liliana Caldero, LIA Manager, Standards & Publications

Nathaniel Quick, LIA Executive Director

Administrative Remarks

Welcome

Members and Observers

- If you have not already done so, please take a moment to check the ASC Z136 Member Roster (www.z136.org/ascroster.php) to confirm if you are a member in the main Committee. Not all subcommittee members are members of the main Committee. Only members of the main Committee may participate in ballots during this meeting. If you are not a member, then you are an observer. Both members and observers may ask questions during Q&As.

Administrative Remarks

Speaking

- To maintain an atmosphere of order, we observe Robert's Rules of Order when conducting meetings.
- According to Roberts Rules, you must be recognized by the meeting chair before given the floor to speak.
- Use the "Raise Hand" feature if you wish to speak.
- When the chair recognizes you to speak, a host or co-host will unmute your microphone
- When making remarks, state your name/affiliation for the record
- Please allow for minute taking
- No more than 10 minutes per speaker, per question

Administrative Remarks

Voting

- Ensure your correct, full name, is displayed on Zoom under Participants. If you need to edit this, right click your name and select 'Rename'.
- Votes will be recorded in the Chat box. Questions may be asked when you are recognized by the Chair to speak.
- **Note your proxy position(s) during balloting**
- Voting options for in-person votes are: Yes, No, Abstain
- Voting members – please remain at the meeting for the entire duration to establish a quorum.
- If you experience technical issues and miss a ballot, you may submit your vote in writing within 30 calendar days of the meeting. A summary of any votes taken during the meeting will be sent out following the meeting.

Administrative Remarks

Presenting

- All presentation slides have been combined into a single presentation in the order listed on the agenda. CD Clark will share his screen and advance the slides. If there is an interruption in internet connection, Liliana Caldero will share her screen and advance the slides. Presenters should indicate when to transition to the next slide.

Audio/ Video

- Please be mindful of potential background noises and distractions (e.g., loud traffic, pets, phones ringing, etc.), when sharing audio and video live.
- This meeting will be recorded.

LIA, Secretariat for ASC Z136

Liliana Caldero

Manager, Standards & Publications

Annual Appointment of ASC Z136 Secretary

Edward (Ted) Early

Annual Appointment of ASC Z136 Chair and Vice-Chair

Sheldon Zimmerman – Chair

C.D. Clark III – Vice-Chair

Ballot Results

- A ballot was circulated for the annual appointment of ASC Z136 Chair
- Sheldon Zimmerman as ASC Z136 Chair
- The balloting results are as follows:

Date	Ballot	% Returned	% Approved
3-8-22	ASC Z136 Chair – Sheldon Zimmerman	81%	100%

Ballot Results

- A ballot was circulated for the annual appointment of ASC Z136 Vice-Chair
- C.D. Clark III as ASC Z136 Vice-Chair
- The balloting results are as follows:

Date	Ballot	% Returned	% Approved
3-8-22	ASC Z136 Vice-Chair – C.D. Clark III	81%	100%

ADCOM Members 2022-2023

The Administrative Committee (ADCOM) shall consist of the ASC Z136 Chair, ASC Z136 Vice-Chair, ASC Z136 Past-Chair, ASC Z136 Secretary, Administrative Secretary, a representative of the secretariat, and one or more members at large from ASC Z136. The member(s) at large will be appointed by the Secretariat upon the recommendation of the ADCOM, and is (are) subject to reappointment on an annual basis.

- Sheldon Zimmerman (Chair)
- CD Clark III (Vice-Chair)
- Ted Early (Secretary)
- Robert Thomas (Past-Chair)
- Liliana Caldero (Admin. Secretary)
- Nat Quick (Secretariat Rep.)
- Kevin Frey (Member-at-Large)
- Jamie King (Member-at-Large)
- Erwin Lau (Member-at-Large)
- Bret Rogers (Member-at-Large)
- Mike Woods (Member-at-Large)

ASC Z136 Chair

Sheldon Zimmerman

American National Standards Institute (ANSI)

Laser Institute of American (LIA) Accredited Standards Developer (ASD) Secretariat to ASC Z136

ASC Z136 Committee (Consensus Body)

ADCOM

Subcommittees and Working Groups

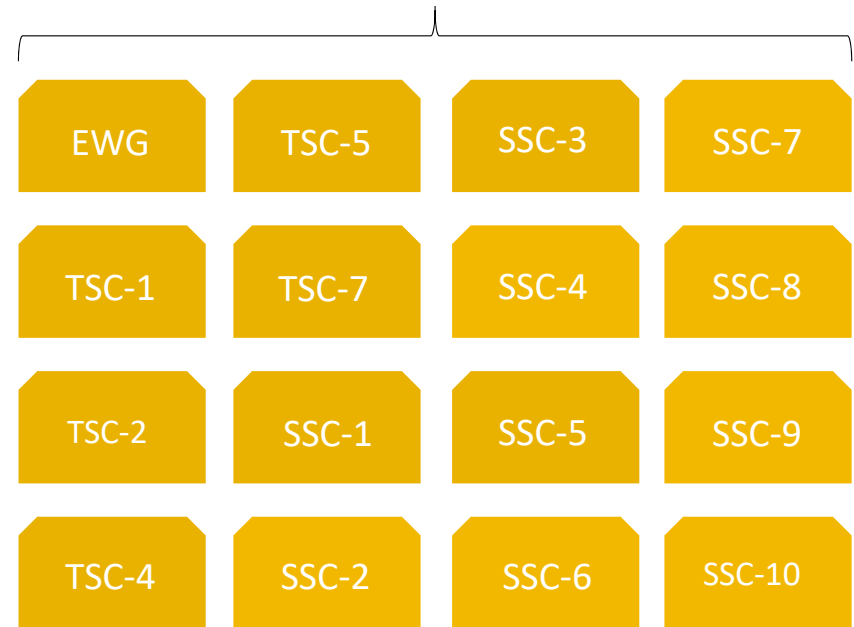
ANSI: The American National Standards Institute (ANSI) accredits standards developers and their procedures based on compliance with the ANSI Essential Requirements for Due Process.

LIA: The Laser Institute is the secretariat to the ASC Z136 Committee and subcommittees and is the ANSI-Accredited Standards Developer (ASD). LIA is responsible for ensuring the standards development process follows the ANSI-accredited procedures.

ASC Z136 Committee: The ASC Z136 is the consensus body that votes on the final approval of a draft standard (or recommended practice). The Committee is made up of a balance of interest categories and stakeholders. Some members of this Committee choose to also participate in subcommittees.

Administrative Committee (ADCOM): The ADCOM is made up of the ASC Z136 officers, a representative of the secretariat, and several members at large. They are responsible for making ASC Z136 membership recommendations and recommendations for changes to the Procedures, among other responsibilities.

Subcommittees: While the ASC Z136 Committee contributes comments on draft standards during ballots, it is the subcommittees that are responsible for drafting changes to Z136 standards and recommended practices. The chairs of subcommittees are required to also be members of the ASC Z136 Committee. Being a member of a subcommittee does not constitute membership in ASC Z136, as that is a separate role that requires recommendation of the ADCOM and confirmation via a ballot of the Committee.



Agenda Review

8:00 am	Call to Order	Sheldon Zimmerman
8:05 am	Welcome <ul style="list-style-type: none">• Appointment of Secretary*• Ballot Results – ASC Chair* and Vice-Chair*	Liliana Caldero
8:10 am	Approval of Agenda Approval of Previous Minutes	Sheldon Zimmerman
8:15 am	ADCOM Report <ul style="list-style-type: none">• Ballot Results – Appointments of Subcommittee Chairs*• Ballot Results – Membership• Inactive Members Recommendations• Results of Balloting for Previous Year• Review of Interpretations for Previous Year, Pending Interpretations	Sheldon Zimmerman

Agenda Review

8:45 am SSC & TSC Status Reports

- Z136.1 Revision

Sheldon Zimmerman

Sheldon Zimmerman

9:00 am Break (*15 minutes*)

9:15 am SSC & TSC Status Reports

- Z136.2 Revision
- Z136.3 Revision
- Z136.4 Revision
- Z136.5 Revision
- Z136.6 Revision
- Z136.7 Revision
- Z136.8 Revision
- Z136.9 Revision
- Z136.10

David Sliney

Ray Lanzafame

Ted Early

Randy Paura

Robert Aldrich

Chris Stanley

Joanna Casson

Tom Lieb

Jay Parkinson

11:00 am Break

One-hour (return promptly at 12 pm PDT/ 3 pm EDT)

Agenda Review

12:00 pm Status Reports Cont'd

- TSC-1, Bioeffects
- TSC-2, Hazard Evaluation
- TSC-4, Control Measures, Training, & Laser Safety Programs
- TSC-5, Non-Beam Hazards
- TSC-7, Analysis & Applications
- Editorial Working Group

Brian Lund

Karl Umstadter
Mike Woods

Ben Edwards
Wes Marshall
Kevin Frey

1:00 pm Old Business

- New Z136 Website

Sheldon Zimmerman
Liliana Caldero

1:30 pm New Business

- Accredited Standards Developer Designation
- Proposed Z136 Convention Revisions
- Proposed formatting of Z136 Standards

Liliana Caldero
Michael Woods
Kevin Frey, Patrick Murphy

2:20 pm Next Meeting

- ILSC 2023

Sheldon Zimmerman

2:30 pm Adjourn

Sheldon Zimmerman

Suggested Additions

Proxies Received

Committee Member	Organization (Interest Category)	Named Proxy
Jeff Pfoutz	Self (Directly Affected Public)	Sheldon Zimmerman
Penny Smalley	International Council on Surgical Plume (Professional Society)	Sheldon Zimmerman
Rebecca Sprague	ASLMS (Professional Society)	Patricia Owens
Antonio Triventi	Self (Academia)	Jamie King
Trevor Wheatley	UNSW Canberra (Academia)	Sheldon Zimmerman

7.4 Proxy Voting

".... A member serving as a proxy must exercise his or her judgment as to the viability of instruction from the assigner when announced agenda items are amended or developed through the meeting process. Members serving as proxies may only vote on approved agenda items announced through the agenda distributed prior to the meeting. Proxy voting is allowed only for those voting members who cannot attend the entire meeting; proxies may not be assigned for parts of meetings. The Chair shall announce any proxy voting to the Committee members at the start of the period in which the proxy is to be in effect. "

*Excerpt from: 2020 Procedures for Development of Z136
American National Standards*

Motion and Vote: Agenda

_____ made the motion to accept the agenda for the current ASC Z136 meeting (with stated changes).

_____ seconded the motion.

The motion passed/ was rejected.

2021 Meeting Minutes Approval

Motion and Vote: Previous Meeting Minutes

_____ made the motion to accept the minutes from the 29 May 2021 Annual Meeting (with stated changes).

_____ seconded the motion.

The motion passed/ was rejected.

ADCOM Report Balloting Results

Recommended Appointments of the following individuals as Standards Subcommittee Chairs:

SSC-1 : Z136.1	Sheldon Zimmerman
SSC-2 : Z136.2	David Sliney
SSC-3 : Z136.3	Ray Lanzafame
SSC-4 : Z136.4	Ted Early
SSC-5 : Z136.5	Randy Paura
SSC-6 : Z136.6	Robert Aldrich
SSC-7 : Z136.7	Chris Stanley
SSC-8 : Z136.8	Joanna Casson
SSC-9 : Z136.9	Tom Lieb
SSC-10: Z136.10	Jay Parkinson

ADCOM Report Balloting Results

Recommended Appointments of the following individuals as
Technical Subcommittee Chairs:

TSC-1 : Bio-Effects & Medical Surveillance

Brian Lund

TSC-2 : Hazard Evaluation

Karl Umstadter

TSC-4 : Control Measures, Training & Laser Safety Programs

Mike Woods

TSC-5 : Non-Beam Hazards

Ben Edwards

TSC-7 : Analysis & Applications

Wes Marshall

ADCOM Report Balloting Results

Recommended Appointments of the following individual as
Editorial Working Group Chairs:

EWG : Editorial Working Group

Kevin Frey

ADCOM Report Balloting Results

Date	Ballot	% Returned	% Approved
3-8-22	SSC-1 Chair – Sheldon Zimmerman	81%	100%
3-8-22	SSC-2 Chair – David Sliney	81%	98%
3-8-22	SSC-3 Chair – Ray Lanzafame	81%	96%
3-8-22	SSC-4 Chair – Ted Early	81%	100%
3-8-22	SSC-5 Chair – Randy Paura	81%	96%
3-8-22	SSC-6 Chair – Robert Aldrich	81%	100%
3-8-22	SSC-7 Chair – Chris Stanley	81%	98%
3-8-22	SSC-8 Chair – Joanna Casson	81%	98%
3-8-22	SSC-9 Chair – Tom Lieb	81%	100%
3-8-22	SSC-10 Chair – Jay Parkinson	81%	98%

ADCOM Report Balloting Results

Date	Ballot	% Returned	% Approved
3-8-22	TSC-1 Chair – Brian Lund	81%	100%
3-8-22	TSC-2 Chair – Karl Umstadter	81%	100%
3-8-22	TSC-4 Chair – Mike Woods	81%	98%
3-8-22	TSC-5 Chair – Ben Edwards	81%	98%
3-8-22	TSC-7 Chair – Wes Marshall	81%	97%
3-8-22	EWG Chair – Kevin Frey	81%	100%

ADCOM Report Membership Balloting

<i>Date</i>	<i>Ballot</i>	<i>% Returned</i>	<i>% Approved</i>
3-8-22	Approve representation to ASC Z136 by Arizona State University (ASU), as an organizational member of the ASC Z136 consensus body, and affirm the appointment of Wolfgang Bollich as the primary representative.	81%	100%
3-8-22	Approve representation to ASC Z136 by SPIE, The International Society for Optics and Photonics, as an organizational member of the ASC Z136 consensus body, and affirm the appointment of Ken Barat as the primary representative.	81%	74%
3-8-22	Approve the appointment of Edward Kelly as the alternate representative of the organizational member U.S Air Force Surgeon General to the ASC Z136 consensus body.	81%	98%
3-8-22	Approve Bret Rogers for individual membership in ASC Z136.	81%	98%
3-8-22	Approve Ritchie Buschow for individual membership in ASC Z136.	81%	98%

ADCOM Report

Summary of ASC Z136 Balloting

Date	Ballot	% Returned	% Approved
	Invitation to join Subcommittee CBBG for Z136.3	29 Members	
6-11-21	Ballot to Approve Z136.3 SCDV2	93%	100%
	Invitation to join CBBG for Z136.1	67 Members	
11-11-21	Ballot to Approve Z136.1 CDV4	97%	97%
3-8-22	Approval of Officer Appointments and Membership Requests	See Previous	

ADCOM Report Interpretations/Explanations

Review of Interpretations/Explanations for the Previous Year (2021-2022)

- There were no requests for interpretations
- There was one request for an explanation
 - Available for review on z136.lia.org

Question

This inquiry was received on July 27, 2021.

"Hi there,

I was curious on the interpretation of two contradicting statements within the ANSI Z136.1-2014 standard regarding the Medical Examinations.

Section 6.1, pg. 52, states that medical examinations shall be performed as soon as practical (usually within 48 hours) when a suspected injury or adverse effect from a laser exposure occurs.

However..

Appendix F, F1, pg. 229, states that any employee with an actual or suspected laser-induced injury should be evaluated by a medical professional as soon as possible after the exposure (usually within 48 hours).

I was hoping to receive clarification on these two statements as one section requires (shall) a medical examination and one recommends (should) a medical examination."

Dear Colin,

Section 6 is normative while Appendix F is informative. Therefore, the normative text takes precedence.

As a point of clarification, the "shalls" in Appendix F are an "if, then," as in *if* you do the exam *then* you shall conduct the exam appropriately per symptoms and by whom.

Sincerely,

Sheldon Zimmerman
SSC-1 Chairperson

ADCOM Report Membership

- *Breakdown of Eligible Votes*

- 30 Individual Members of ASC Z136
 - 45 Organizational Members of ASC Z136
 - 7 Emeritus (non-voting)
-

75 Eligible Votes*

**As of 3/3/2022*

- *Breakdown by Interest Category*

- 9 Academia
- 12 Consultant
- 1 Consumer/Consumer Organization
- 8 Department of Defense
- 2 Directly Affected Public
- 1 Distributor, Retailer
- 8 Government Contractor
- 4 Government, Non-DoD
- 6 Health Care
- 4 Industrial, Commerce
- 6 Manufacturer
- 10 Professional Society
- 2 Regulatory Agency
- 1 Testing Laboratory
- 1 Trade Association

75 Eligible Votes

Membership Activity Report 2021 - 2022

Participating ASC Z136 Organizational Member	Participating ASC Z136 Member	Interest Category	Officers & Members April 2021	Recirculation (Default) Ballot - CDY4 for Z136.1 Safe Use of Lasers - November 2021	Officers & Members Feb 2022	Z136 Annual Meeting 2022 RSYP
Academy of Laser Dentistry	Benjamin, Scott	Professional Society	x	x		
Altos Photonics	Hand, Lucian	Distributor/Retailer	.	.	.	
American Glaucoma Society	Berlin, Michael	Health Care	§	§		
American Industrial Hygiene Association	Hemperly, Stephen	Professional Society	.	x		Y
American Society for Lasers in Medicine and Surgery	Alexiades, Macrene	Professional Society	x	x	.	
American Society for Lasers in Medicine and Surgery	Sprague, Rebecca	Professional Society	x	x	.	P
American Veterinary Medical Association	Sullins, Kenneth	Professional Society		x		
American Welding Society	Denney, Paul	Professional Society		x	.	
Association of PeriOperative Registered Nurses	Owenz, Patti	Professional Society	.	.	.	Y
Association of Surgical Technologists	Folsom, Wanda	Professional Society		x	.	
Association of Surgical Technologists	Frey, Kevin	Professional Society		.	.	Y
ASSP	Ramiza, Steven	Professional Society		x		
Camden County College	Seeber, Fred	Academia	.	.	.	Y
Center for Devices and Radiological Health	Fales, Andrew	Regulatory Agency	.	x	.	Y
Center for Devices and Radiological Health	Vogt, William	Regulatory Agency	x	x	.	
Daniel Laser Safety	Daniel Jr., Paul	Consultant	.	x		
Department of Veteran Affairs Medical Center	Luviano, Damien	Government (Non-DoD)	.	x		
Dynamic Laser Solutions Inc.	Paura, Randolph	Industrial/Commerce	.	.	.	Y
Exponent Inc.	Lau, Erwin	Consultant	x	.	.	Y
Fort Hays University	Clark III, C.D.	Academia	.	.	.	Y

Membership Activity Report 2021 - 2022

Participating ASC Z136 Organizational Member	Participating ASC Z136 Member	Interest Category	Officers & Members April 2021	Recirculation (Default) Ballot - CDV4 for Z136.1 Safe Use of Lasers - November 2021	Officers & Members Feb 2022	Z136 Annual Meeting 2022 RSVP
Health Physics Society	Johnson, Thomas (Alt)	Professional Society		.	.	
Health Physics Society	Kelly, Edward	Professional Society	.	.	.	Y
International Council on Surgical Plume	Smalley, Penny	Professional Society	.	.	.	Y
Int'l Laser Display Association	Murphy, Patrick	Trade Association	x	.	.	Y
Jacobs Technical/Kennedy Space Center	Crawan, Richard	Government Contractor	.	x	.	Y
Johns Hopkins University, WSE	Kuespert, Dan	Academia		x	.	
Johns Hopkins University, WSE	Leon, Nathaniel	Academia	.	.	.	Y
L*A*I International	Lieb, Thomas	Industrial/Commerce	x	x	.	Y
Laser Institute of America	Anibarro, Gus	Professional Society	.	x		Y
Lawrence Berkeley National Laboratory	Fairchild, Robert	Government Contractor	.	x	.	
Lawrence Berkeley National Laboratory	Toncheva, Greta	Government Contractor	.	.	.	Y
Lawrence Livermore National Laboratory	Gaskin, Davin (Alt)	Government Contractor	.		.	
Lawrence Livermore National Laboratory	King, Jamie	Government Contractor	.	x	.	Y
Los Alamos National Laboratory	Casson, Joanna	Government Contractor	.	.	.	Y
NASA	Geber, Kurt	Government (Non-DoD)		x	.	
NASA	Pizzo, Angel	Government (Non-DoD)	x	.	.	
NAVAIR	Sheehy, Jim	Department of Defense	.	.		Y
NIST	Hadler, Joshua	Government (Non-DoD)	x	.	.	Y
NoIR LaserShields	Bohner, David	Manufacturer	x	.	.	Y

Membership Activity Report 2021 - 2022

Participating ASC Z136 Organizational Member	Participating ASC Z136 Member	Interest Category	Officers & Members ^{1,2} April 2021	Recirculation (Default) Ballot - CDV4 for Z136.1 Safe Use c ⁴ Lasers - November 2021	Officers & Members ^{1,2} Feb 2022	Z136 Annual Meeting 2022 RSVP
North American Association for Photobiomodulation Therapy	Lanzafame, Raymond	Health Care	.	.	.	
OSHA	Lodwick, Jeffrey	Regulatory Agency	.	x	.	
Photon Manufacturing	McHatton, Roberts	Manufacturer	x	.	.	Y
Power of Technology Inc.	Burgess, William	Manufacturer		x	.	Y
Rockwell Laser Industries	Ertle, Bill	Consultant	x	x	.	Y
SAIC	Early, Edward	Government Contractor	.	.	.	Y
SLAC National Accelerator Laboratory	Makasyuk, Igor (Alt)	Government Contractor	.		.	
SLAC National Accelerator Laboratory	Woods, Michael	Government Contractor	x	.	.	Y
UL LLC	Henderson, Winn	Testing Laboratory/Facility	x	x		
Univ of Illinois, Chicago, School of Dentistry	Colvard, DDS, PhD, Michael D.	Academia	x	x	.	
University of Texas at Austin	Bollich, Wolfgang (Alt)	Academia	.		.	Y
University of Texas at Austin	Holcomb, Robert DeWayne	Academia	.		.	
University of Texas Southwestern Medical	Hoopman, John	Health Care	.	x		
UNSW Canberra	Lambert, Andrew (Alt)	Academia		x	.	
UNSW Canberra	Wheatley, Trevor	Academia	.	.	.	P
US Navy, Naval Sea Systems Command	Zimmerman, Sheldon	Department of Defense	x	.	.	Y
USAF Research Laboratory	Rockwell, Ben	Department of Defense	.	.	.	Y
USAF Research Laboratory	Thomas, Robert (Alt)	Department of Defense		x	.	Y
USAF Surgeon General	Rogers, Bret	Department of Defense	.	.	.	Y

Membership Activity Report 2021 - 2022

Participating ASC Z136 Organizational Member	Participating ASC Z136 Member	Interest Category	Officers & Members ^{1,2} April 2021	Recirculation (Default) Ballot - CDV4 for Z136.1 Safe Use c ⁴ Lasers - November 2021	Officers & Members ^{1,2} Feb 2022	Z136 Annual Meeting 2022 RSVP
USAHPC	Sparks, Shawn	Department of Defense	.	x		Y
USAHPC	Wengraitis, Stephen (Alt)	Department of Defense	x	x	.	
USAISR	Lund, Brian	Government Contractor	-	x	.	Y
Vision Lab, NAWCAD	Carlisle, Adam (Alt)	Department of Defense	x	.	.	Y
Vision Lab, NAWCAD	Stanley, Christine	Department of Defense	.	x	.	Y
Wellstar Health System	Dennis, Vangie	Health Care	x	.	.	Y

Membership Activity Report 2021 - 2022

Participating ASC Z136 Organizational Member	Participating ASC Z136 Member	Interest Category	Officers & Members April 2021	Recirculation (Default) Ballot - CDY4 for Z136.1 Safe Use of Lasers - November 2021	Officers & Members Feb 2022	Z136 Annual Meeting 2022 RSYF
Individual member	Aldrich, Robert	Department of Defense	*	*	*	Y
Individual member	Dennis, Jerry	Consultant	*	*	*	
Individual member	Dowey, David	Manufacturer		⌘		
Individual member	Eduards, Ben	Industrial/Contractor	*	*	*	Y
Individual member	Fortenstein, Mark	Manufacturer	*	*	*	
Individual member	Florer-McLaughlin, John	Manufacturer	⌘	⌘	*	Y
Individual member	Galoff, Penelope	Consultant	*	⌘	*	
Individual member	Greco, Joseph	Consultant	⌘	*	*	Y
Individual member	Hoar, Donald	Government Contractor	*	*	*	Y
Individual member	Hunter, Jennifer	Academia	*	*	*	Y
Individual member	Kortenbaum, Ami	Consumer/Consumer Org	⌘	*	*	
Individual member	Lund, David "Jack"	Consultant	⌘	⌘	*	Y
Individual member	Mainster, Martin	Academia	⌘	⌘	*	
Individual member	Marshall, Wes	Consultant	*	⌘	*	Y
Individual member	Palmerton, Daniel	Health Care	*	⌘		

Membership Activity Report 2021 - 2022

Participating ASC Z136 Organizational Member	Participating ASC Z136 Member	Interest Category	Officers & Members April 2021	Recirculation (Default) Ballot - CDV4 for Z136.1 Safe Use of Lasers - November 2021	Officers & Members Feb 2022	Z136 Annual Meeting 2022 RSVP
Individual member	Parkinson, Jay	Consultant	*	☒	*	Y
Individual member	Pfautz, Jeffrey (Alt)	Directly Affected Public	☒	*	*	P
Individual member	Rasch, William "Pat"	Department of Defense	*	*	*	
Individual member	Seaman, Dan	Government Contractor	☒	☒		Y
Individual member	Sliney, David	Consumer/Consumer Organization	☒	*		
Individual member	Stuck, Bruce	Consultant	*	☒	*	Y
Individual member	Szekacs, Martin	Department of Defense	☒	*	*	Y
Individual member	Tortorella, Paul	Consultant		☒		
Individual member	Tierney, Thamar	Government (Non-DoD)	*	☒	*	Y
Individual member	Triventi, Antonia	Academia	*	*	*	P
Individual member	Umstadter, Karl	Industrial/Commerce	☒	☒	*	Y
Individual member	Zmarowski, Anthony	Directly Affected Public	☒	*		

Membership

New Members and New Representatives:

- University of Arizona, Wolfgang Bollich
- U.S. Air Force Surgeon General, Ed Kelly (ALT)
- SPIE, Ken Barat
- Bret Rogers, Individual Member
- Ritchie Buschow, Individual Member

Inactive Members Recommendations

- None

SSC-1 Update

Safe Use of Lasers (Z136.1)

Sheldon Zimmerman (Chair, SSC-1)

03-09-2022

ANSI Z136.1

Title:

ANSI Z136.1 American National Standard for Safe Use of Lasers

Scope:

This standard provides recommendations for the safe use of lasers and laser systems that operate at wavelengths between 180 nm and 1 mm.

Note: This revision will be a new horizontal standard that supports ANSI Z136.2, Z136.3, Z136.5, Z136.6, Z136.7, Z136.8, Z136.9, and proposed Z136.10 standards, as well as the ANSI Z136.4 recommended practice.

Membership

(AS-OF 3-3-22)

Sheldon Zimmerman (Chair) Ben Rockwell (Vice-chair) Jeff Pfoutz (Secretary)

Lorrie Agnew	Jerry Dennis	Josh Hadler	Roberta McHatton	Pat Roach	Bruce Stuck
Robert Aldrich	Michael Denton	Donald Haes	Leon McLin	Bret Rogers	Paul Szajowski
Jacqueline Ansa	Ben Edwards	Matt Harrison	Tim Mikulski	Leorraine Roque	John Takes
Scott Benjamin	Robert Ehrlich	Kerry Hoepfner	Wally Mitchell	Denny Rossbach	Paul Testagrossa
Jerry Bogert	William Ertle	Jennifer Hunter	Christopher Mordica	Karl Schulmeister	Robert Thomas
David Bothner	Robert Fairchild	Tony Imm	Patrick Murphy	Kurt Schuster	Carol Tomczyk
Chris Brumage	Andrew Fales	Robert Kang	Neal Nakafuji	Dan Seaman	Greta Toncheva
William Burgess	Katharine Fayram	Edward Kelly	John O'Hagan	Brianne Shankle	Stephen Wengraitis
Ritchie Buschow	Richard Felten	Ami Kestenbaum	Jeff Oliver	Richard Shea	Trevor Wheatley
Matthew Carey	Annette Frederiksen	Jamie King	Patti Owens	David Sliney	Wendy Terrenoire
Joanna Casson	Penelope Galoff	Jeffrey Lodwick	Ibrahim Ozcan	Penny Smalley	Michael Woods
Ricky Chitwood	Kurt Geber	Eric Logean	William Pate	Julio Soares	Susan Yeung
C. D. Clark	William Gibbons	Brian Lund	Randolph Paura	Paul Sorensen	Mike Zimmer
Jerry Cook	Troy Gonyon	David Lund	Dale Payne	Shawn Sparks	* Note New Members
Darvis Cospier	Paul Green	Damien Luviano	Tim Payne	Keith Spaulding	
		Wesley Marshall	Emily Purcell	Gary Spichiger	

Recruiting

- Candidates routinely ask to join
- I have at least one candidate awaiting approval
- I have stopped adding for now until publication

Committee Liaisons

- TSC Liaisons
 - All TSC Chairs
- SSC Liaisons
 - All other SSC Chairs

Recent Activities

- CDV1 – 93% ballots returned, 88% yes, 12% no, 4 abstentions
- CDV2 – 96% ballots returned, 93% yes, 7% no, 4 abstentions
- CDV3 – Ballot closed due to a clerical error in the CDV3 comment resolution (joint decision of the secretariat and the SSC-1 Chair) and re-opened 8 November 2021 for a new two-week balloting period
- CDV4 – 97% ballots returned, 97% yes, 3% no, 5 abstentions
- Completed public review, back to EWG, and hopefully on to publication

Notable Changes

- Did some paring down of the overall document (but not enough to satisfy most of us)
- For the next revision - most changes remain to continue paring down the standard wherever we can and deciding what to move to the vertical standards

SSC-1: Schedule

Standard Development Timeline
 for Revised Standards

What?	5-year Plan by Quarter																				Timeline
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
PINS to ANSI (prior to SSC activity)	■																				Starting point
Public review for project	■																				45 days
SPIR to ADCOM (with outline/proposed draft)	■	■																			6 months
Distribute SPIR for coordination		■	■																		concurrent
Begin work on SCD		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	2 years
Periodic circulation of successive SCDs			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	concurrent
SCDV- establishment of balloting group										■	■	■	■	■	■	■	■	■	■	■	1 month
Distribute SCDV to cooperating TSCs										■	■	■	■	■	■	■	■	■	■	■	concurrent
Subcommittee balloting										■	■	■	■	■	■	■	■	■	■	■	4-6 weeks
Ballot resolution																					2 months
Ballot recirculation/default ballot																					2 wk minimum
EWG first review																					3 months
CDV - establishment of balloting group (CBBG)																					1-2 months
Committee balloting																					1-2 months
Public review																					60 days
Ballot resolution																					3-6 months
Ballot recirculation/default ballot																					2 wk minimum
EWG final review																					1-2 months
Changes approved by SSC Chair																					1 month
Substantive changes recirculated to CBBG																					1-2 months
Summit to ANSI for approval																					1-2 months
Printing process																					4-6 weeks
Published document available																					End

Comment on SSC Schedule relative to this ideal schedule

- - Actual
- - Could start if previous is completed early/on time

Z136.1: Schedule

SCDV Development

SPIR/PINS Approval:	June 2014
Initial Ballot:	July 2017
1st Recirculation:	Nov 2018

CDV Development

Initial Ballot:	ended Sep 2020
1st Recirculation:	ended April 2021
2nd Recirculation:	CDV3 ballot closed
3rd Recirculation:	ended Nov 2021

Current Issues

- Nothing at present, as long as we get through EWG2 relatively unscathed...

Emerging Topics

- Next revision headed toward more of a pared down horizontal standard

The Year Ahead

- EWG review
- Publication (fingers crossed...)
- Much rejoicing



Conclusion

- Smooth sailing from here to publication, hopefully.
- Transition plan to begin after publication as I have just under two years until I intend to retire and have every intention of giving someone else an opportunity to lead the next revision.
- Again...



Z136 Standards
Committee for
Safe Use of Lasers

SSC-2 Update

Optical Fiber and Free-Space Communications Systems

Dr. David Sliney
(Chairman)

March 9, 2022

ASC Z136 Annual Meeting

ANSI Z136.2 - PURPOSE

- This is the only Z136-series standard devoted to Class 1 laser systems!
 - OFCS – Class 1
 - FSOCS – Class 1, 1M
- Why is a standard even needed for Class1 systems?
- Standard is devoted to *safe installation, maintenance and service*

ASC Z136 Annual Meeting

ANSI Z136.2 Status

Title:

American National Standard for the Safe Use of Optical Communications Systems Utilizing Laser Diodes and LED Sources

Harmonization:

Partially harmonized with IEC 60825 Part 2 and Part 12 but provides more guidance for the user/installer. Liaison with TC76/WG5

Challenge: Extensive discussion in WG5 in the last 12 months on whether to employ Condition 2 (high-power magnifier test for classification for the embedded lasers).

Note—This standard is designed to be used in conjunction with ANSI Z136.1.

Scope:

This standard addresses hazards and provides guidance for the safe use, maintenance, service, and installation (manufacture) of optical communications systems (OCS) utilizing laser diodes or light emitting diodes (LED) operating at wavelengths between 0.6 μm and 1 mm and not intended for visual communications.

Note—Manufacture means assembling the end-to-end system, not manufacturing individual components of the system...at least in the US!

The actual range of OFCS generally limited to $\sim 0.7 - 2 \mu\text{m}$

Scope (Continued):

For purposes of the standard, optical communication systems include end-to-end optical fiber based links (optical fiber communications systems—OFCS), fixed terrestrial point-to-point free-space links (free space optical communications systems—FSOCS) or a combination of both.

NOTE—This standard covers only free-space systems used in [telecommunications](#) applications. Other free-space systems are covered by ANSI Z136.1 and Z136.6. (FSOCS are used with remotely piloted aircraft, etc.)

Membership (2022)

David Sliney (Chair)
Robert Aldrich (Vice-chair)
Paul Testagrossa (Secretary)

Jaquiline Ansa	Ben Edwards	Kenneth Puckett
Erwin Lau	Edward Kelly	Jeffrey Lodwick
Ibrahim Oczan	Randolph Paura	Woody Strzlelecki
Wesley Marshall	Ami Kestenbaum	Scott Wohlstein
Mike Regan	Robert Thomas	David Twigg
Paul Szajowski		Sheldon Zimmerman

The SC was polled for continued interest and additional members were sought when the revision process began in 2020; newer OFCS experts recruited

Z136.2-2012: Status

- **Last Edition Approved: December 2012**
- **Current Revision Effort:**
 - 2019-2020 – Editorial discussions, reviews of any needed revisions; coordination with IEC TC76 '21, Zoom meetings
 - Revisit any impact of infrared MPEs in Z136.1-2014
 - Add Note to ANSI .2 Table 4c saying 7/70 and 7/28 is the same as 3.5/35 and 3.5/14 which is referenced in the IEC 60825-2.
 - Update the ANSI Z136.2 reference to LN50 to the latest LN50.
 - Use 100-mW skin MPE for the C_7 (ANSI C_C) AEL for the spectral region 1200-1400 nm. (Still to correlate this in ANSI Z136.2)
 - Fiber Fault Finders. What, if anything, to do about these devices?
 - Review by Mike Regan (IEC TC76/WG5) on Class, Hazard Level and Access Level was received May 2021
 - Should the user standard apply the same approach as the manufacturer standard?
 - Little agreement to these suggested changes

Issues?

- Pushback from OFCS system design engineers regarding the use of the term “hazard level”
- Confusion with multiple terms with similar meaning, e.g., Class 1 OFCS may have Class 3B transmitters but Hazard Level 1M output at port
- Complaints about complexity, e.g., time-varying limiting aperture diameters for fast APR times
- Little interest from members of the OFCS community in participating on the subcommittee

Concerns about Minimal Changes

- There appears to be little agreement on anything but very minor changes, updated reference, etc.
- At least one SSC member argued for just recertifying the standard, but after 10 years, we understand ANSI does not permit this.
- Could we have agreement that the Editorial review be limited to the few minor changes and not worry about the the sections that were not changed?

Questions?

SSC-3 Update

Z136.3-2018 American National Standard for Safe Use of Lasers in Healthcare Revision

**Raymond J. Lanzafame, M.D., M.B.A., F.A.C.S.,
Chair, SSC3 Committee**

March 9, 2022

ANSI Z136.3

Title:

American National Standard for Safe Use of Lasers in Health Care

Project Need:

User standards and guidelines are needed for the safe use of lasers as diagnostic and therapeutic modalities in health care environments and applications.

Stakeholders:

Stakeholders include, but are not limited to, health care personnel, practitioners, clinicians, ancillary personnel and others, including patients, who use or may be exposed to laser medical devices in the health care environment.

Scope:

The standard provides guidance for the safe use of lasers in the health care environment. This guidance assists the establishment and monitoring of programs that promote the safe use of lasers in health care. The scope of this standard includes all circumstances when people may be exposed to a laser used in health care. Specific processes are provided to protect anyone who might become exposed to laser radiation in health care environments and applications.

Membership

As of 2/17/22

Raymond J. Lanzafame, M.D., M.B.A., F.A.C.S., Chair

Penny Smalley, R.N., C.M.L.S.O., Vice-Chair

Patricia A Owens R.N., B.S.N., M.H.A., C.N.O.R., C.M.L.S.O., Secretary

Currently 39 Members

DoD	2	Health Care	13
Professional Society	7	Consultant	6
Manufacturer	2	Government	0
Academia	3	Regulatory	1
Consumer	2	Dir. Affected Public	1
Industry/Commerce	2		

Recruiting

- SSC-3 currently has 39 members.
- SSC-3 will continue to entertain new members.
- New members are reviewed and approved as requests have been received through the Z136 website.



Recent Activities

- Z136.3-2018 was approved by ANSI on 5/25/18 and officially published on 8/20/18.
- The PINS form was submitted on 2/21/19 to initiate the process for commencing the next revision cycle and the SPIR/PINS was approved on 8/27/19.
- A review of unresolved comments from the CDV2 2017 and the EWG committee was circulated along with PDF copy of the ANSI Z136.3-2018 and a blank Summary Comment Form was circulated to SSC-3 members (11/19/19-1/20/20).
- SCDV-1 was prepared and circulated for ballot on 12/08/20.
- SCDV-1 was approved 1/28/21 (26 of 29 ballots returned, 22 approved, 3 disapproved, 1 abstained due to lack of time).
- SCDV-2 (Recirculation) was approved 6/11/21 (27 of 29 ballots were returned, 26 approved, 0 disapproved, 1 abstained due to lack of time).
- Transmittal to EWG occurred on 7/30/21.
- EWG returned review draft on 2/14/22 with a 100 page SCF.
- The current officers have agreed to continue in their current roles for 2022-2023.

SSC-3: Schedule

Gantt chart presented at 2007 annual meeting

What?	5-year Plan by Quarter																				Timeline
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
PINS to ANSI (prior to SSC activity)	█																				Starting point
Public review for project	█																				45 days
SPIR to ADCOM (with outline/proposed draft)	█																				3-6 months
Distribute SPIR for coordination		█																			concurrent
Begin work on SCD		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	2 years
Periodic circulation of successive SCDs			█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	concurrent
SCDV- establishment of balloting group																					1 month
Distribute SCDV to cooperating TSCs																					concurrent
Subcommittee balloting																					4-6 weeks
Ballot resolution																					2 months
Ballot recirculation/default ballot																					2 wk minimum
EWG first review																					3 months
CDV - establishment of balloting group (CBBG)																					1-2 months
Committee balloting																					1-2 months
Public review																					60 days
Ballot resolution																					3-6 months
Ballot recirculation/default ballot																					2 wk minimum
EWG final review																					1-2 months
Changes approved by SSC Chair																					1 month
Substantive changes recirculated to CBBG																					1-2 months
Submit to ANSI for approval																					1-2 months
Printing process																					4-6 weeks
Published document available																					End

█ — Actual

▨ — Could start if previous is completed early/on time

Z136.3: Schedule

SCDV Development

SPIR/PINS Approval:	8/27/19
Initial Ballot SCDV1:	12/08/20 (88% Approved 1/28/21)
1 st Recirculation SCDV2:	5/22/21 (100% Approved 6/11/21)
EWG First Review:	7/30/21 (Returned 2/14/22)

CDV Development

Initial Ballot:	TBD
1 st Recirculation:	TBD
2 nd Recirculation:	TBD

The Year Ahead

- EWG First Review was completed on 2/14/22.
- The 100 page SCF and additional information in the returned draft from the EWG will be reviewed and reconciled/ adjudicated.
- Recirculation to SSC-3 CBG will be conducted in the event significant changes between SCDV-2 and the reconciled EWG draft remain.
- CBBG will be established.
- CDV-1 will be prepared and circulated to CBBG.
- Additional recirculations will occur as needed.
- The current officers have agreed to continue in their current roles for 2022-2023.

Conclusion



- The SSC-3 Committee is charged with revising the ANSI Z136.3-2018 Standard.
- The process was initiated by posting of the PINS form on 2/11/19 and subsequent approval of the SPIR on 8/27/19.
- SCD-1 was balloted and approved.
- SCDV-2 was balloted and approved.
- EWG First Review was returned on 2/14/22 with a 100-page SCF to be reviewed and reconciled.
- Our goal is to improve upon the present document and to produce an interoperable document that protects patients, operators and personnel, and promotes safety.

SSC-4 Update

Measurements and Instrumentation

Ted Early
(Chair)

9 March 2022

ANSI Z136.4

Title:

American National Standard Recommended Practice for Laser Safety Measurements for Hazard Classification and Evaluation

Scope:

This document provides adequate, practical guidance for necessary measurement procedures used for classification and hazard evaluation of lasers. This document is intended to provide guidance for manufacturers, laser safety officers (LSOs), and trained laser users

Membership

(28 January 2022)

Ted Early (Chair)

Wally Mitchell (Vice-chair)

Carol Tomczyk (Secretary)

Members (39):

Robert Aldrich
Jacqueline Ansa
Ernest Brumage
Liliana Caldero
Hong Chen
Darvis Cospers
Richard Crowson
Paul Daniel, Jr.
Jerry Dennis
Edward Early

Mark Festenstein
Tom Fraser
Joshua Hadler
Nick Harmon
Tony Imm
Edward Kelly
Ami Kestenbaum
Wesley Marshall
Roberta McHatton
Wallace Mitchell
John O'Hagan
Ibrahim Ozcan

Jay Parkinson
Randolph Paura
Jeffrey Pfoutz
Emily Purcell
Ben Rockwell
James Santucci
Kurt Schuster
David Sliney
Dale Smith
Shawn Sparks
James Stewart

Woody Strzelecki
Bruce Stuck
Paul Szajowski
Paul Testagrossa
Robert Thomas
Carol Tomczyk
Karl Umstadter
Sheldon Zimmerman

* Note New Members

ASC Z136 Annual Meeting

Recruiting

- This serves as active recruiting – next revision is starting next week, with a meeting on 16 March
- No constraints on membership

Committee Liaisons

- TSC Liaisons

- J Pfoutz TSC-1
- Vacant TSC-2
- W Marshall TSC-7

- SSC Liaisons

- S Zimmerman SSC-1
- R Aldrich SSC-6
- P Daniel SSC-9

Recent Activities

- Z136.4 – 2021 Published
- PINS closed

July 2021

December 2021

Notable Changes

- None

SSC-4: Schedule

Standard Development Timeline
 for Revised Standards

What?	5-year Plan by Quarter																				Timeline
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
PINS to ANSI (prior to SSC activity)	■																				Starting point
Public review for project	■																				45 days
SPIR to ADCOM (with outline/proposed draft)	■	■																			3-6 months
Distribute SPIR for coordination		■	■																		concurrent
Begin work on SCD		■	■	■	■	■	■	■	■	■											2 years
Periodic circulation of successive SCDs			■	■	■	■	■	■	■	■											concurrent
SCDV- establishment of balloting group									■	■											1 month
Distribute SCDV to cooperating TSCs									■	■											concurrent
Subcommittee balloting									■	■											4-6 weeks
Ballot resolution											■	■									2 months
Ballot recirculation/default ballot											■	■									2 wk minimum
EWG first review													■	■							3 months
CDV - establishment of balloting group (CBBG)													■	■							1-2 months
Committee balloting														■	■						1-2 months
Public review															■	■					60 days
Ballot resolution																■	■				3-6 months
Ballot recirculation/default ballot																	■	■			2 wk minimum
EWG final review																		■	■		1-2 months
Changes approved by SSC Chair																			■	■	1 month
Substantive changes recirculated to CBBG																			■	■	1-2 months
Summit to ANSI for approval																				■	1-2 months
Printing process																				■	4-6 weeks
Published document available																				■	End

■ - Actual
 ■ - Could start if previous is completed early/on time

Z136.4: Schedule

SCDV Development

SPIR/PINS Approval:	Mar 2022
Initial Ballot:	Mar 2024
1 st Recirculation:	#DATE#
2 nd Recirculation:	#DATE#

CDV Development

Initial Ballot:	Mar 2025
1 st Recirculation:	#DATE#
2 nd Recirculation:	#DATE#

Current Issues

➤ None

Emerging Topics

Emerging

- CCD Cameras
- Expanded Measurement Capabilities
- Dosimetry Tutorial
- Align with CIE Recommended Terminology
- Measure limiting cone angle
- Simplifying assumptions

CDV Suggested Substantive Change

- Supercontinuum laser sources
- Temporal measurements of pulsed lasers
- Multiple extended apparent sources
- Evaluate as small source
- Eye accommodation
- Non-Gaussian or top hat beams
- Seebeck effect Peltier module calorimeter
- Inadequate guidance for safety controls
- Beam waist of diffusers and diffractive elements
- Requirements of PPE eyewear
- Passive voice

The Year Ahead

- PINS/SPIR approval
- Determine Scope for next revision
- Assign lead authors for revisions

Conclusion

- **Publication of Z136.4 – 2021 in July !!!**
- Starting next revision process
- Welcome participation in next week's SSC-4 meeting

SSC-5 Update

Safe Use of Lasers in Educational Institutions

R. Paura

March 9 2022

ANSI Z136.5

Title:

American National Standard for
Safe Use of Lasers in Educational Institutions

Scope:

This standard addresses laser safety concerns and situations characteristic of the educational environment at various grade levels. This standard is not a substitute for the latest version of ANSI Z136.1, which is required for a full understanding of laser safety officer duties and laser hazard evaluation.

Membership 2022

Randy Paura (Chair)
Fred Seeber (Vice-chair)
(Secretary)

[Jacqueline Ansa](#)
[Ahsan Chowdary](#)
[Kevin Frey](#)
[Wesley Marshall](#)
[Patrick Murphy](#)
[Frank Reed](#)
[David Sliney](#)
[Karl Umstadter](#)

[Scott Benjamin](#)

[Myung Chul Jo](#)
[Leon McLin](#)
[Chrysanthos Panayiotou](#)
[Barbara Sams Contrata](#)
[Julio Soares](#)
[Trevor Wheatley](#)

[Ritchie Buschow](#)
[William Ertle](#)
[Jeffrey Lodwick](#)
[Christopher Mordica](#)
[Randolph Paura](#)
[Fred Seeber](#)
[Robert Thomas](#)
[Sheldon Zimmerman](#)

23 Members

** Notes new members*

X Notes non-balloting

Recruiting

- Done for now
- Stable membership for SCD work
- Still open to new and active participation
- --
- New applicants need to have a supporting resume/credentials
- Checked with current members for being authentic (it helps)
- Confirm valid employer/representation
- For Z136 ASC do we follow or use the Wassenaar Arrangement for additional structured guidance?

Current Work

- Start of revision work in 2022
- Some feedback from educators for SSC-5 consideration:
 - Purchasing scope of work / specifications (informative)
 - SOP format according to hazard class (informative)
 - Operator testing for competency according to hazard class (informative)
 - Enhanced training guidance (materials from K. Barat et al)
 - Enhanced guidance on written laser safety program (informative)
 - Guidance for graduated use of higher-powered lasers in classrooms.
 - Template for School Board Policy on Laser Safety (informative)
 - Laser safety “flyer” guidance/example for classroom (informative)
 - Examples for laser projects/lessons in the classroom tied to technology and safety (informative)
 - Tools for the educator

Next Meeting & Schedule

Next meeting

- Remote: TBD (late March 2022)

Schedule

- Target revision complete by 2025.



tusind tak
謝謝 dakujem vám
ngiyabonga
dziekuję
merci
suksema
danke
thank
baie dankie
धन्यवाद molte grazie
obrigada
gracias
takk
you
obrigado
gràcies
dank u
teşekkür ederim
شكرا
tänan
mahalo
tack så mycket
teşekkür edire

COMMENTS

SSC-6 Update

Safe Use of Lasers Outdoors

Robert Aldrich
(SSC-6 Chair)

9 Mar 2022

ANSI Z136.6

Title:

American National Standard for the Safe Use of Lasers Outdoors

Scope:

This standard provides guidance for the safe use of potentially hazardous lasers and laser systems in an outdoor environment. It also provides guidance for controlling disability glare from exposure to non-injurious levels of visible laser light, which might interfere with sensitive or critical tasks, and guidance for the manufacturers of these open-beam laser systems.

Membership

(as of 18 Feb 2022)

Robert Aldrich (Chair)
Penny Galoff (Vice-chair)
Paul Sorensen (Secretary)

43 Members Total (including officers)

Membership Open for Interested Stakeholders
Apply: z136.lia.org

Recent Activities

- **1 Virtual meeting**
- **1 In-Person meeting (officers)**
- **Liaison with TSC-4 & TSC-7**

Notable Changes

- Nominal Ocular Dazzle Distance (NODD)
 - Significant expansion of information regarding visual interference and its mitigation
 - Establish effect as a function of ambient light, glare angle, & wavelength
- Establish “Laser Control Groups (LCGs)”
 - New method for pairing appropriate control measures to hazard
 - Conceptionally, this is maturing
 - Numerically, we are having challenges defining thresholds that maintain simplicity of application

Emerging Topics

- Probabilistic Approach to Hazard Analysis
- Merging of Laser Safety and System Safety Terminology and Methods
- Control Measures for Lasers Controlled by GUIs
- Control Measures based on Levels of Automation
- Removal of Guidance for Military-Specific Lasers
- Further Maturity of LCGs

The Year Ahead

- Pull together provided information into a complete, updated draft for SCDV
- Back to in-person meetings
- Finalize thresholds for LCGs

SSC-7 Update

Testing and Labeling of Laser Protective Equipment

Chris Stanley

9 Mar 2022

ANSI Z136.7

American National Standard for Testing and Labeling of Laser Protective Equipment

- Scope: This standard provides recommendations for testing and labeling laser protective materials and protective equipment such as eye protection, barriers, and windows designed for use with lasers and laser systems that operate at wavelengths between 180 nm and 106 nm. All appendices are informative.
- NOTE 1—This standard does not include personal protective equipment (PPE) for high energy lasers (HEL) that require an optical density (OD) greater than seven (7).
- NOTE 2—This standard may not be adequate for very high pulse or continuous wave (CW) power lasers.

Membership

(9 Mar 2022)

Chris Stanley (Chair)

Adam Carlisle (Vice-chair)

Dr. James Sheehy (Secretary)

- David Lund
- Bruce Stuck
- Brian Lund
- Ken Barat
- Bill Ertle
- Bill Janssen
- Davis Bothner
- Robert Aldrich
- Sheldon Zimmerman
- Dr. Robert Thomas
- Leon McLin
- Dr. Michael Berlin
- Jerry Dennis
- Penelope Galoff
- John Hoopman
- Dr. Richard Huges
- Dr. Robert Kang
- Dr. Jeffery Lodwick
- Wesley Marshall
- Jay Parkinson
- Dr. Ben Rockwell
- James Santucci
- Dr. David Sliney
- Stephen Tokel*
- Dr. Barry Goettl*
- John Cueva*
- Maj Emily Purcell*
- Randolph Paura*
- Ben Lucci*
- Gabriel Keita*
- Neil Roche*

* Note New Members

Recruiting

- Open to new recruitment
- However, balance membership across organizations

* Note New Members

Committee Liaisons

- TSC Liaisons
 - TSC-1
 - TSC-4

- SSC Liaisons
 - SSC-1

Recent Activities

- Kick-Off Meeting held 6 Oct 2021
 - Potential Updates – Main body
 - Completed: Acronym list, Abrasion
 - Adding: Florescence testing, Photochromic/LEP (specifically Hysteresis), Rx/LEP testing procedures
 - Currently updating: Barriers and labeling section
 - Discussed but will not be adding Laser Protective Clothing in Dot 7 update

Notable Changes

- High Energy Laser:
 - Discussion included; How to test LEP (laser Saturation High Energy CW/Q-switch)
 - Labeling, for example:
 - Ultrafast
 - Super continuum
- Updated barriers section – will be sent by Bill Ertle
- A few admin corrections.
 - List of acronyms and abbreviations section

SSC-7: Schedule

Steps in Process	5-Year Plan by Quarters																				Timeline	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
PINS to ANSI	Actual																				Jul21	
Public review for Project		Actual																				Aug21
SPIR to ADCOM			Actual																			Oct21
Distro SPIR for coordination				Actual																		Oct21
Begin work in SCD					Actual																	Oct 21-Jan23
Periodic circulation of SCD's						Actual																Mar22-Jan23
SCDV – establish balloting group											Actual											Jan23-Mar23
Distro SCDV to cooperating TSC's												Actual										Jan23-Mar23
Subcommittee balloting													Actual									Apr23-Jun23
Ballot resolution														Actual								Jul23-Sept23
Ballot recirculation/default ballot															Actual							Jul23-Sept23
EWG first review																						Oct23-Dec23
Ballot recirculation/default group (CBBG)																						Oct23-Dec23
Committee balloting																						Jan24-Mar24
Public review																						Jan24-Mar24
Ballot resolution																						Apr24-Jun24
Ballot recirculation/default ballot																						Apr24-Jun24
EWG final review																						Jul24-Sept24
Changes approved by SSC Chair																						Oct24-Dec24
Substantive changes recirculated to CBBG																						Jan25-Mar25
Submit to ANSI for approval																						Apr25-Jun25
Printing process																						Jul25-Sept25
Published document available																						Jul25-Sept25

Actual Could start if previous is completed early/on time

Z136.7: Schedule

SCDV Development

SPIR/PINS Approval:	Oct 2021
Initial Ballot:	Jan 2023
1 st Recirculation:	Apr 2023
2 nd Recirculation:	????

CDV Development

Initial Ballot:	Jan 2024
1 st Recirculation:	Apr 2024
2 nd Recirculation:	????

Current Issues

➤ None

Emerging Topics

- High Energy – definition
- Testing with Rx
- Fluorescence
- Photochromic

The Year Ahead

- Holding second committee meeting May/June 2022
- Weekly meetings with Z136.7 appointed officers
- Will be holding various subgroup meetings periodically

Conclusion

- Questions?

SSC-8 Update

Safe Use of Lasers in Research, Development & Testing

Joanna Casson
Los Alamos National Laboratory

March 9, 2022

ANSI Z136.8

Title:

Standard for Safe Use of Lasers in Research, Development, or Testing

Scope:

This standard provides guidance and recommendations for the safe use of lasers and laser systems that operate at wavelengths between 180 nm ultraviolet (UV) and 1 mm (1000 μm) infrared (IR), used to conduct research, development, or testing predominantly in an indoor setting. Use of this standard requires an assigned laser supervisor or laser safety officer (LSO).

Membership

51 members (15 new) as of February 17, 2022

Joanna Casson (Chair)

Mary Handy (Vice-chair)

Zachariah Tribbett (Secretary)

Jacqueline Ansa*

Jerry Bogert

Zohar Cohen*

Phil Evans

William Gibbons*

Donald Haes

Stephen Hemperly

Ken Barat

Joanna Casson

Rebecca Daskalova

Robert Fairchild

Paul Green

Lucian Hand

Edward Kelly*

Robert Bernath*

Ahsan Chowdary

William Ertle

John Flores-McLaughlin

Joshua Hadler

Mary Handy

Jamie King

* Note New Members

Membership-Continued

51 members (15 new) as of February 17, 2022

Simon Lappi*
Igor Makasyuk*
Ibrahim Ozcan*
Elvet A. Potter
Ben Rockwell
Dan Seaman
Julio Soares
Tracy Tipping
Karl Umstadter
Scott Wohlstein

Nathaniel Leon
Marcum Martz*
William Pate
Emily Purcell*
Ruth Sahler*
Richard Shea
Gary Spichiger
Greta Toncheva
Trevor Wheatley*
Michael Woods

Jeffrey Lodwick*
Roberta McHatton
Randolph Paura
Judi Reilly
James Santucci*
David Sliney
Robert Thomas
Zachariah Tribbett
Charles Wilson*
Xiaowei Yan

* Note New Members

Recruiting

- Potential new members recommend to the SSC-8 were emailed and encouraged to join
- 15 new members
- No constraints

* Note New Members

Recent Activities

- May 2021 – New Chair elected
- August 2021 – PINS approved
- December 2021 – Kickoff meeting
- January 2022 – Survey sent out to SSC-8 members to determine what new topics, additions to current topics, and other concerns for Z136.8 members wanted. Also asked what sections members wanted to work on for the next revision

Notable Changes

- No changes currently pending

SSC-8: Schedule

Standard Development Timeline
 for Revised Standards

What?	5-year Plan by Quarter																				Timeline
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
PINS to ANSI (prior to SSC activity)	■																				Starting point
Public review for project	■																				45 days
SPIR to ADCOM (with outline/proposed draft)	■	■																			3-6 months
Distribute SPIR for coordination		■	■																		concurrent
Begin work on SCD		■	■	■	■	■	■	■	■												2 years
Periodic circulation of successive SCDs			■	■	■	■	■	■	■	■											concurrent
SCDV- establishment of balloting group									■												1 month
Distribute SCDV to cooperating TSCs									■												concurrent
Subcommittee balloting									■	■											4-6 weeks
Ballot resolution											■										2 months
Ballot recirculation/default ballot											■										2 wk minimum
EWG first review												■									3 months
CDV - establishment of balloting group (CBBG)													■								1-2 months
Committee balloting														■							1-2 months
Public review															■						60 days
Ballot resolution															■	■					3-6 months
Ballot recirculation/default ballot																■	■				2 wk minimum
EWG final review																	■				1-2 months
Changes approved by SSC Chair																	■	■			1 month
Substantive changes recirculated to CBBG																		■	■		1-2 months
Summit to ANSI for approval																			■		1-2 months
Printing process																				■	4-6 weeks
Published document available																				■	End

■ - Actual
 ■ - Could start if previous is completed early/on time

Z136.8: Schedule

SCDV Development

SPIR/PINS Approval: August 20, 2021 (PINS)

Initial Ballot: TBD

1st Recirculation: TBD

2nd Recirculation: TBD

CDV Development

Initial Ballot: TBD

1st Recirculation: TBD

2nd Recirculation: # DATE #

Current Issues

- No current issues

Emerging Topics

- White light continuum
- Recommended elements of a laser safety program
- Microscopes that use lasers
- Recommended elements of a laser safety manual
- Quantum laser usage
- Underwater lasers
- 3D printing

The Year Ahead

- Form committees to work on sections of document
- Determine which sections will be expanded or condensed
- Begin work on revision

Conclusion

- SSC-8 off to a good start
- Members surveyed to determine direction
- Will continue to solicit information from members
- Will determine the sections that will be revised and added
- Will form sub-committees to work on revisions

SSC-9 Update

**Safe Use of Lasers
in Manufacturing Environments**

Chair: Thomas J. Lieb, CLSO

**Tuesday, 9 March 2022
Remote Conference**

ANSI Z136.9

Title:

American National Standard for
Safe Use of Lasers in Manufacturing Environments

Scope:

This standard provides recommendations for the safe use of lasers and laser systems that operate at wavelengths between 180 nm and 1 mm.

Laser applications in the manufacturing environment include, but are not limited to, material processing, fabrication, laser alignment, leveling, inventory, metrology, and machine vision.

Membership

(May 2021)

Tom Lieb (Chair)
Randy Paura (Vice-chair)
(Secretary)

* *Notes new members*

Jacqueline Ansa
Ken Barat
Ahsan Chowdary
Jerry Dennis
William Ertle
David Felinski
Troy Gonyon
Paul Green

Thomas Lieb
Jeffrey Lodwick
Igor Makasyuk
Christopher Mordica
Ibrahim Ozcan
Randolph Paura
David Sliney

Candace Soles, Emeritus
John Takes
Robert Thomas
Carol Tomczyk
Karl Umstadter
Scott Wohlstein
Sheldon Zimmerman
22 Members

Recruiting

- Done for now
- Stable membership for SCD work
- Still open to new and active participation
- Some laser power companies and integrators prefer to contribute via SSC-9 members

Committee Liaisons

- TSC Liaisons

- D. Sliney (TSC-1)
- R. Paura (TSC-2)
- R. Paura (TSC-4)
- Carol Tomczyk (TSC-5)
- W. Ertle (TSC-7)
- R. Paura (EWG)
- K. Barat (GDG)

- SSC Liaisons

- D. Sliney (SSC-1)
- D. Sliney (SSC-2)
- (SSC-3)
- Paul Daniel Jr. (SSC-4)
- R. Paura (SSC-5)
- R. Thomas (SSC-6)
- W. Ertle (SSC-7)
- K. Barat (SSC-8)
- R. Paura (SSC-10)

Recent Activities

- SSC-9 work is in progress
- Z535 compliance guide
- Written laser safety program template drafted

Created on: 10 July 2018
 Editor: R. Paura, Member
 Filename: Z136 and Z535 Compliance Guide-Rev.4 (Condensed)

Z136 TSC-4

**Z535 Compliance Guide for Z136
 Summary and Template**

For Z136 TSC-4 Committee Members Review Only

<p>William Ertle, Chair Ben Rockwell, Vice-Chair Michael Woods, Secretary</p>	<p>Bill Adkins Prem Batra Paul Daniel, Jr. Penelope Galoff Richard Hughes Yafu Lin Leon McLin Neal Nakafuji Randolph Paura Barbara Sams Dale Smith Michael Sullivan Karl Umstadter Wendy Woehr Shefii S. Zakariyah</p>	<p>Robert Aldrich David Bothner William Ertle Patrick Hancock Bill Janssen Wesley Marshall Tim Mikulski John O'Hagan William Roach James Sheehy Casey Stack Paul Testagrossa Wei-Huang Wang Scott Wohlstein Sheldon Zimmerman</p>	<p>Gus Anibarro Darvis Casper Robert Fairchild Yuliya Henes Edward Kelly Roberta McHatton Albert Moore Patti Owens Ben Rockwell David Sliney Nikolay Stoev Robert Thomas Stephen Wengrajiie Michael Woods Tony Zmorcenski</p>	<p>Ken Barat Richard Crowson Mark Festenstein John Hoopman Thomas Lieb Mark McLearn Gene Moss Daniel Palmerton Leorraine Roque Penny Smalley Bruce Stuck Stephen Trokel Urban Widén Xiaowei Yan</p>
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Please use comment form for critique, suggestions and corrections.
 This is proposed to serve as general guidance for all Z136 members to understand and apply current Z535 conventions and principles. Material herein can also provide a baseline template for all SSCs to draw upon as appropriate.

This effort was initiated as part of SSC-9 benchmarking against noted standard, reviewed by ANSI Z535 ASC. The ANSI Z535 set represents ~278 pages of information. From that, a 35-page member guide for Z136 has been derived.

Following is a 9-page SSC-9 applicability review for TSC-4 seeking comments and suggestion.

Page 1 of 35

For TSC-4 Committee Use Only – Do Not Circulate
 For Internal Z136 Member Reference Only – R. Paura

Created on: 6 August 2017
 Editor: R. Paura, Vice-Chair
 Filename: ANSI Z136 Master Laser Safety Program Template-Rev.2

Z136 SSC-9

Industrial Laser Safety Program - Template

For Z136 SSC-9 Committee Members Review Only

<p>Tom Lieb, Chair Randy Paura, Vice-Chair Candace Soles, Secretary</p>		
<p>Roger Bahinean Jerry Cook William Ertle Randolph Paura David Sliney Robert Thomas Scott Wohlstein</p>	<p>Ken Barat Paul Daniel, Jr. Paul Green Ron Petersen Candace Soles Karl Umstadter Sheldon Zimmerman</p>	<p>James Brennan Jerry Dennis Thomas Lieb Barbara Sams Tekla Stajev Urban Widén</p>

Please use comment form for critique, suggestions and corrections.
 This is proposed to serve as a generic template as part of the informative appendix of Z136-9. Appropriate references and formatting to be upgraded upon incorporation into SSC-9 draft.
 References and acknowledgments to be added.

In compliance with ANSI Z136-9-20XX, "American National Standard for Safe Use of Lasers in Manufacturing Environments", this document provides a programmatic guidance template for the safe use of lasers at [Company Name] facilities.

For Z136 SSC-9 Committee Use Only – Do Not Circulate

Notable Changes

- Revision of Appendix B with industrial applications and examples
- Example templates and checklists drawn from State agencies and members
- Point source MPEs moved to informative Appendix
- Watermarking warning signs, labels as example only, remove specific information, use placeholders
- Better information on safety labels and their use vs area warning signs
- Informative guidance for non-beam hazard control measures
- Reference/example industrial control measures

Z136.9: Schedule

SCDV Development

SPIR/PINS Approval:

23 March 2015

Initial Ballot:

~ April 2022

1st Recirculation:

#DATE #

2nd Recirculation:

DATE

CDV Development

Initial Ballot:

#DATE #

1st Recirculation:

#DATE #

2nd Recirculation:

DATE

Current Issues

- Will be behind new horizontal Dot1:
 - Definitions will be exact to Dot1
 - Explanatory when necessary for clarity to end customer
 - Example structure established with SSC-1 and ANSI B11 series.
- Hazard analysis examples will be new and structured differently from Dot1-Horizontal. Will include more steps in the analysis.
- Will take time with TSC-7 for review. SSC-9 members to participate with analysis.
- Need to keep balloting group mindful of the SSC-9 objective and customers. E.g. point source MPEs, simplicity, err on side of caution, and no desire to split hairs on thresholds.
- Possibility to add recognition of companies in the foreword of the Standard that have contributed images and examples, (though logo and trademark free).
- Stress conformance to Z535 regarding safety warning signs and labels, structure and design.

Emerging Topics

- Editorial pre-review prior to release to EWG
 - Address the easy corrections per EWG guidance
 - Allow EWG to provide higher value by their efforts with their limited time
- Informative appendices:
 - Recommendations for industrial laser system purchase order scope
 - Guidance on scope and content of Standard Operating Procedures
 - Key safety terms and principles for the industrial LSO
- More web meetings for kick-off reviews
- Cloud editing of new material/modules within SSC-9, reduction of compilation work and increase efficiency.

The Year Ahead

- Will see the revised draft of SSC-9 (SCD) out of the gate
- Need to proceed at safe distance from SSC-1 work to ensure alignment
- Possible modules for other verticals to utilize, such as:
 - the written LSP example/template;
 - Risk assessment principles and terminology (informative appendix)
 - Z535 compliance and usage
- Improved connections with state agencies for feedback on benchmarking effort. Note, this is far beyond capacity of SSC-9 member volunteer effort, but should be achieved in some manner.

Conclusion

- We believe we are at the gate, with an innovative style standard that will add value to the presentation of safety standards in the laser work place

SSC-10 Update

Entertainment, Displays & Exhibitions

Jay Parkinson

March 2022

ANSI Z136.10

Title:

Safe Use of Lasers in Entertainment, Displays & Exhibitions

Scope:

This standard provides recommendations for the safe use of lasers and laser systems in entertainment, display and exhibitions that operate at wavelengths between 0.18 micron and 1 millimeter.

Membership

March 6th, 2022

Jay Parkinson (Chair)
Casey Stack (Vice-chair)
Roberta McHatton (Secretary)

- Robert Aldrich
- William Burgess
- Brian Gonzalez
- Gregory Makhov
- Patrick Murphy
- Daniel Palmerton
- David Sliney
- Trevor Wheatley
- Jacqueline Ansa
- William Ertle
- Michael Higlett
- Roberta McHatton
- John O'Hagan
- Jay Parkinson
- Casey Stack
- Sheldon Zimmerman
- Ken Barat
- David Felinski
- Jeffrey Lodwick
- Michael Mckervey
- Ibrahim Ozcan
- Randolph Paura
- Robert Thomas

Recruiting

- We are not actively recruiting, but we are not denying anyone that applies for membership on the committee.

Recent Activities

- Circulated SSC-10 SCDV1 to Ballot Group
 - Distributed Thursday, April 8th, 2021
 - Monday, May 10th, 2021 Ballots Closed
 - 6 Ballot Group Members Voted Negative and Submitted 92 Pages of Comments
- David Sliney, Casey Stack, and Jay Parkinson have been working through comments and proposing resolutions.

The Year Ahead

- Finish drafting responses to comments on SCDV1 and discuss proposals with submitters of negative votes.
- Distribute the comments with proposed responses by May 1st.
- Have virtual meeting with SSC-10 committee members mid-May.
- Make agreed upon changes to document and prepare SCDV2 for circulation by September 1st.

Z136.#: Schedule

SCDV Development

Distribute Comments with
Proposed Responses to SSC-10

May 1st, 2022

Virtual SSC-10 Meeting

Mid-May, 2022

2nd Recirculation:

September 2022

Questions?

TSC-1 Update

Laser Bioeffects and Medical Surveillance

Brian J. Lund
(TSC-1 Chair)

March 9, 2022

TSC-1

Technical Subcommittee:

Laser Bioeffects and Medical Surveillance

Description:

- Coordinate communication of technical information related to parameter dependence of eye or skin damage with standard subcommittees, assuring up-to-date maximum permissible exposures are established based on the most current scientific research.
- Respond to technical inquiries regarding the bioeffects of lasers.
- Determine the appropriate protocols required for sufficient medical surveillance for laser standards.

Membership

(March 9, 2022)

Brian Lund	(Chair)
David Sliney	(Vice-chair)
Bob Thomas	(Secretary)

- | | | | |
|--------------------------|-------------------|--------------------|---------------------|
| • Robert Aldrich | • Ramona Gaza | • Roberta McHatton | • James Sheehy |
| • Scott Benjamin | • Yuliya Henes | • Leon McLin | • Shawn Sparks |
| • James Brennan | • Jennifer Hunter | • John O'Hagan | • Christine Stanley |
| • Ritchie Buschow | • Robert Kang | • Jay Parkinson | • Bruce Stuck |
| • C.D. Clark III | • Edward Kelly | • Randolph Paura | • Stephen Trokel |
| • Jerry Dennis | • Erwin Lau | • Jeffrey Pfoutz | • Trevor Wheatley |
| • Michael Denton | • David Lund | • Emily Purcell | • Sheldon Zimmerman |
| • John Flores-McLaughlin | • Martin Mainster | • Ben Rockwell | |
| • Penelope Galoff | • Wesley Marshall | • Ruth Sahler | |

Recruiting

- Seek consultation from scientists actively conducting the research
- Applicants through Z136.org generally accepted
 - Made aware of TSC-1 activities
 - Demonstrate interest in laser bioeffects
 - Bioeffects researchers (CV)
 - Systems evaluators
 - Industry

Committee Liaisons

- No specific liaisons
- TSC-1 members are chair, vice chair or secretary of other SSCs or TSCs, except
 - SSC-3
 - SSC-4
 - SSC-8

Recent Activities

- Subcommittee meeting on October 19, 2022
 - Revised UV eye and skin MPEs approved by TSC-1 and sent to SSC-1
- Informal laser bioeffects discussions via Zoom
 - UV MPEs (Error in tables in Z136.1-CDV3)
 - Sub-ns MPEs
 - NIR fs corneal ED₅₀
 - Repetitive pulse (Z80.36)

Interpretations & Clarifications

- None this year

The Year Ahead

- Evaluating and revising MPEs
 - Ultrashort pulses
 - Step in MPE at 10 ps
 - Supercontinuum generation
 - Corneal ED₅₀
 - Section 8.3

Conclusion

- Questions? Comments?

TSC-2 Update

Laser Hazard Evaluation

Chair: K. Umstadter

Vice-Chair:

Secretary:

Status & Report to Z136 ASC

Wed, 09 March 2022

TSC-2

Technical Subcommittee:

Hazard Evaluation

Description:

Coordinate communication of technical information on hazard evaluation based on the most current data. Define laser classification scheme and protocol for classification for Z136 standards. Respond to technical inquiries regarding the hazard evaluation of lasers.

Membership

(6 May 2021)

Karl Umstadter (Chair)
-- OPEN -- (Vice-chair)
-- OPEN -- (Secretary)

[Robert Aldrich](#)

[Jacqueline Ansa](#)

[Ahsan Chowdary](#)

[Darvis Cospér](#)

[Jerry Dennis](#)

[Edward Early](#)

[Penelope Galoff](#)

[Edward Kelly](#)

[Wesley Marshall](#)

[Randolph Paura](#)

[Emily Purcell](#)

[Kurt Schuster](#)

[David Sliney](#)

[Robert Thomas](#)

[Karl Umstadter](#)

[Xiaowei Yan](#)

[Sheldon Zimmerman](#)

* Notes New Members

Recruiting

- No new members applied
- Have comparable roster count, need to assess participation going forward
- Always open

Committee Liaisons

TSC Liaisons

- R. Thomas (TSC-1)
- D. Cospers (TSC-4)
- P. Galoff (TSC-4)
- T. Gonyon (TSC-5)
- E. Kelly (TSC-7)
- E. Lau (TSC-7)
- R. Paura (EWG)
- K. Barat (GDG)

SSC Liaisons

- P. Szajowski (SSC-1)
- D. Sliney (SSC-2)
- P. Galoff (SSC-3)
- P. Smalley (SSC-3)
- E. Early (SSC-4)
- R. Paura (SSC-5)
- R. Aldrich (SSC-6)
- J. Sheehy (SSC-7)
- K. Umstadter (SSC-8)
- R. Paura (SSC-9)
- J. Parkinson (SSC-10)

Recent Activities

- No requests to TSC-2
- Review of Standards as presented

Interpretations & Clarifications

- No requests for interpretations or clarifications in past year

Current Issues

- None

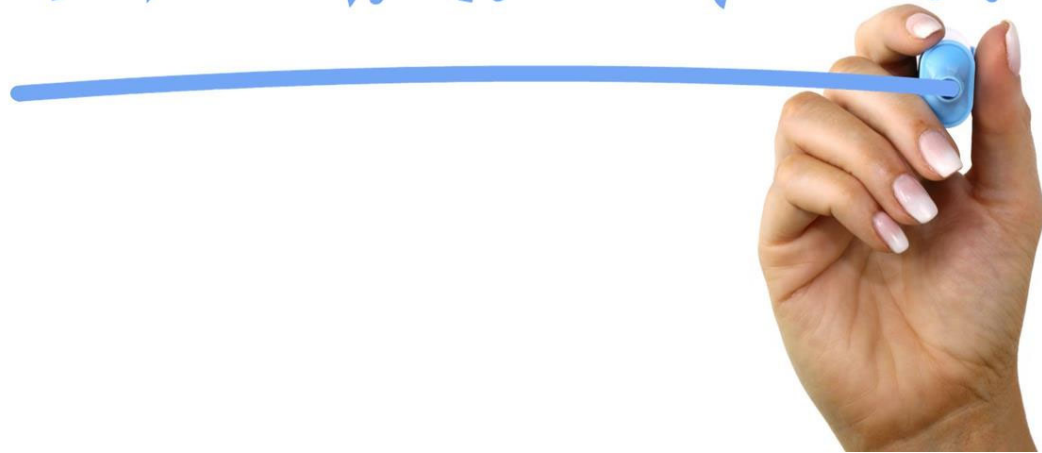
The Year Ahead

Assistance with:

Conclusion

- Very quiet year for this TSC
- Looking for Vice-Chair and Secretary
- Open to Topics for 2022-23
- Here to assist with doc revisions & interpretations

THANK YOU



TSC-4 Update

Control Measures, Training and Laser Safety Programs

Michael Woods
TSC-4 Chair

March 9, 2022

TSC-4 Scope

- Coordinate communication on control measures, training and laser safety programs.
- For the *Z136.1* horizontal standard
 - Define required and recommended control measures and training.
 - Define a laser safety program's required and recommended provisions, including responsibilities for LSOs, laser workers and laser supervisors.
- For each *Z136* vertical standard
 - Advise the SSC on required and recommended control measures and training.
 - Advise the SSC on a laser safety program's required and recommended provisions, including responsibilities for LSOs, laser workers and laser supervisors.
- Respond to inquiries regarding control measures, training and laser safety programs.

Membership

(02/18/2022)

Michael Woods, Chair

Bill Ertle, Vice-Chair

Jamie King, Secretary

Bill Adkins

Robert Aldrich

Gus Anibarro

Jacqueline Ansa

Ken Barat

Prem Batra

David Bothner

Ahsan Chowdary

Abigail Colbert

Darvis Cospers

Richard Crowson

Paul Daniel, Jr.

Jerry Dennis

William Ertle

Mark Festenstein

John Flores-McLaughlin

Penelope Galoff

Yuliya Henes

John Hoopman

Richard Hughes

Bill Janssen

Edward Kelly

Jamie King

Subashri Kurgatt

Simon Lappi*

Nathaniel Leon

Thomas Lieb

Igor Makasyuk

Wesley Marshall

Roberta McHatton

Leon McLin

Tim Mikulski

Christopher Mordica

Neal Nakafuji

John O'Hagan

Patti Owens

Daniel Palmerton

Jay Parkinson

Randolph Paura

Timothy Payne

Emily Purcell

William Roach

Ben Rockwell

Leorraine Roque

James Sheehy

David Sliney

Penny Smalley

Keith Spaulding

Casey Stack

Bruce Stuck

Paul Testagrossa

Robert Thomas

Stephen Trokel

Karl Umstadter

Wei-Hsung Wang

Trevor Wheatley

Urban Widén

Wendy Woehr Terrenoire

Scott Wohlstein

Michael Woods

Xiaowei Yan

Shefiu S. Zakariyah

Sheldon Zimmerman

Tony Zmorenski

*New Member

Recruiting

Not currently recruiting new members, but
new members are welcome

Committee Liaisons

- Chair ensures TSC-4 is listed on SPIR for standards revisions as a coordinating TSC when appropriate, so have opportunity to comment on SCDVs
- TSC-4 officers coordinate as needed with officers for other SSCs/TSCs
- With large number of members, TSC-4 is represented on all other SSCs/TSCs

Recent Activities

- TSC-4 meeting was held June 9, 2021 w/ 25 participants
- TSC-4 listed on SPIRs as a coordinating TSC for upcoming SCDVs:
 - Z136.5, Z136.6, Z136.7
 - coordination for these is by circulation of Draft
(TSC-4 Chair submitted SCDV1 comments for Z136.3, Z136.10 in 2021)
- Interlock definition: TSC-4 members provided input to SSC-6.
(Z136.1 has a definition for fail-safe interlock, but not for interlock)

Interpretations & Clarifications

- none

Issues and Emerging Topics

(discussed at June 2021 TSC-4 Meeting)

- Controls, including testing requirements for:
 - high power / high pulse energy lasers (J. King, task group lead)
 - software interfaces (HMIs, GUIs)
 - interlocks
- Training Methods (K. Barat, task group lead)
 - Task group members: A. Chowdary, B. Janssen, N. Leon, R. Paura, P. Smalley
 - Appendix example completed. Material provided for SSCs to use; posted to TSC-4 website.
- SSC-3 coordination for SCDV and upcoming CDV
 - Consensus not reached between SSC-3 officers and TSC-4 officers on some TSC-4 comments submitted for SCDV1; need to resolve during CDV.
- SSC-1 coordination for next revision
 - Addressing appropriate scope for TSC-4 content as given in Z136 Conventions
 - Addressing deferred/unresolved comments from current revision

The Year Ahead

- Next TSC-4 Meeting: plan to schedule in May
- Z136.6 SCDV1 review, including for 'laser control groups'
- SSC-10 coordination for resolving SCDV1 comments
- SSC-9 SCDV1 review as a coordinating TSC
- SSC-1 coordination for next revision
 - Addressing deferred comments from current revision
 - Updating content to match scope described in Z136 Conventions
- Task group work
 - Controls for hi power/hi pulse energy lasers, software interfaces, interlocks

TSC-5 Update

Non-Beam Hazards

Ben Edwards
(Chair)

9Mar2022

TSC-5

Technical Subcommittee:

Non-Beam Hazards

Description:

Scope: Coordinate communication of technical information on existence and hazards of non-beam hazards associated with laser use based on the most current data. Define non-beam hazard evaluation for Z136 standards. Respond to technical inquiries regarding non-beam hazards. [*from Z136.org*]

Membership

13Feb2022

Ben Edwards (Chair)
Donald Haes (Vice-chair)
[vacant] (Secretary)

- Marcus Balanky*
- Ken Barat
- Ritchie Buschow
- Troy Gunyon
- John Gough
- Yuliya Henes
- Nathaniel Leon*
- Patti Owens
- Daniel Palmerton
- William Pate
- Randolph Paura
- Angel Plaza
- Denny Rossbach
- Penny Smalley
- Carol Tomczyk
- Michael Woods

* Note New Members

Recruiting

- Added two new members
- Lost one member (resigned)
- Continuing to seek safety professionals (CIH, CSP, CHP)
- Developing succession plan

Committee Liaisons

- Liaisons to SSC's
 - Ken Barat (SSC 6, 8, 9, 10)
 - Ritchie Buschow (SSC 1, 5)
 - Ben Edwards (SSC 1, 2)
 - Troy Gonyon (SSC 1, 9)
 - Donald Haes (SSC 1, 6, 8)
 - Yuliya Henes (SSC 3)
 - Nathaniel Leon (SSC 3, 5, 8)
 - Patti Owens (SSC 1, 3)
 - Daniel Palmerton (SSC 3, 10)
 - William Pate (SSC 1, 3, 8)
 - Randolph Paura (SSC 1, 2, 5, 6, 8, 9, 10)
 - Angel Plaza (SSC 6)
 - Denny Rossbach (SSC 1, 6)
 - Penny Smalley (SSC 1, 3)
 - Carol Tomczyk (SSC 1, 9)
 - Michael Woods (SSC 1, 8)

Recent Activities

- Virtual Meeting 12Apr2022 (minutes posted to Z136.org)
 - B. Edwards reviewed TSC5 scope & role
 - K. Barat suggested NBH working group with each SSC to ensure adequate focus, and an NBH Recommended Practice publication
 - R. Paura reported on apparent gap in NBH information regarding filtration of local exhaust ventilation for welding fume LGAC, and plans to address that gap in dot 9.
 - K. Barat presented on ionizing LTIR from industrial lasers and recommended more information on this topic in dot 9.
 - K. Barat led lively discussion of Class 5 for very high power lasers.
 - B. Edwards noted he was within a couple of years from the 15 year recommended expiration date for Z136 chairs and suggested a succession plan.

Notable Changes in Technical Area

Liberty Mutual top ten causes of workplace injuries in 2021*

1. Handling objects
2. **Falls from same level [7.5.2]**
3. Falls to lower level
4. Being hit by objects
5. **Awkward postures [7.5.1]**
6. Vehicular crashes
7. **Slip or trip without fall [7.5.2]**
8. Colliding with object or equipment
9. Caught in equipment or machines
10. Repetitive motions or microtasks

Score:

NBH 3

Struck by beam 0

[*2021 Workplace Safety Index: the top 10 causes of disabling injuries - Liberty Mutual Business Insurance](#)

Interpretations & Clarifications

- None

Current Issues

- Idea of a Class 5 for very high power lasers continues to draw energy and discussion.
 - Small segment of users but legitimate concerns
 - Historically little support from Z136 community since hazard class determines beam control measures, which are the same as for Class 4
 - NBH may be an appropriate place to explore Class 5 since very high powers create NBH that don't appear at lower powers
 - If Class 5 would only apply to one application, it could go in that vertical standard, but if in several areas, it would be dot 1
 - Maybe call it something else?

The Year Ahead

- Hold TSC5 virtual meeting to build on initiatives from 12Apr2021 meeting
- Organize search for new chair and smooth transition of power

Conclusion

- Z136 Standards are for the Safe Use of Lasers
- NBH are among the hazards presented by lasers; therefore NBH must be addressed in any guidance for using lasers safely
- Laser beams can injure; NBH can kill
- The aim of TSC5 is to provide laser operators with concise, practical, and technically supportable guidance on how to recognize NBH, so that appropriate control measures can be brought to bear

TSC-7 Update

Analysis and Applications

Presenter:
Wesley J. Marshall, Chair
Erwin K. Lau, Vice-Chair

March 9, 2022

TSC-7

Technical Subcommittee:
Analysis & Applications

Description:

Provides adequate and accurate examples of applying hazard analysis methods from the Z136 series to applications of lasers and laser systems

Membership

(AS-OF DATE March 2022)

Wesley Marshall, Chair
Erwin K. Lau, Vice-chair
C.D. Clark III, Secretary

- Robert Aldrich
- Steven Daniels
- Erwin Lau
- Leon McLin
- Randolph Paura
- Robert Thomas
- Christopher Mordica
- Bruce Stuck
- Matthew Carey
- Jennifer Hunter
- Wallace Mitchell
- Ben Rockwell
- David Sliney
- Scott Wohlstein
- Trevor Wheatley
- Kurt Schuster
- C.D. Clark III
- Edward Kelly
- Wesley Marshall
- Jay Parkinson
- Leorraine Roque
- Sheldon Zimmerman
- Hong Chen
- Jacqueline Ansa

* Note New Members

Recruiting

- We have not performed any active recruiting
- Lost 0, New 0

Committee Liaisons

- Liaisons to SSC's
 - Sheldon Zimmerman (SSC-1)
 - Robert Aldrich (SSC-2)
 - Wallace Mitchell (SSC-4)
 - Randolph Paura (SSC-5)
 - Robert Aldrich (SSC-6)
 - Randolph Paura (SSC-9)

Recent Activities

- Objection to CDV2 of ANSI Z136.1 June 2021
- Changes to short wave UV limits were made incorrectly in CDV2 draft
- Objections were resolved in November 2021 by TSC-1 and SSC-1
- CDV4 draft currently in approval progress

Notable Changes in Technical Area

- Nothing significant

Interpretations & Clarifications

- No activity

Current Issues

- Nothing to report

The Year Ahead

- Technical review of CDV4 of ANSI Z136.1

Conclusion

- TSC-7 will continue to review standards for technical content to ensure consistency between each of the Z136 standard's text and the associated recommended practices and application

Update

Editorial Working Group

**Kevin B. Frey, CST, MA
Chair**

March 9, 2022

EWG

Description

The EWG is responsible for reviewing drafts for consistency, style, & use of terminology. This responsibility applies to Subcommittee Draft for Vote (SCDV) & Committee Draft for Vote (CDV), as well as galley proofs for all standards developed by the Committee.

Membership As of 3/09/2022

Chair: Kevin B. Frey

Vice-chair: Teresa Neudecker

Secretary: Still empty

- Ben Edwards
- Penelope Galoff
- Bill Janssen
- Tom Johnson
- Wesley Marshall
- Teresa Neudecker
- Randy Paura
- Jeff Pfoutz
- Emily Purcell
- Carol Tomczyk
- Stephen Wengraitis

* Note New Members

Quintet Crew

- Want to give a shout out to what I refer to as the Quintet Crew – they have completed every review since I was appointed as EWG Chair.
 - Ben Edwards
 - Bill Janssen
 - Tom Johnson
 - Jeff Pfoutz
 - Carol Tomczyk

Recruiting

- We're here with "Open Arms" for anyone that would like join us. We are a nice bunch of people on the EWG & try not to scare you away.
- Need a Secretary – I think Teresa might say it's not so bad helping me out with the EWG. My wife might say I'm a little bit off the wall, but who wouldn't be when you enjoy editing Z136 standards.

Committee Liaisons

- EWG has a member liaison with all technical committees.
- Reminder: Standards subcommittees, please remember to designate a liaison when your document is up for review.

Recent Activities

- Liliana & I completed making the changes to the SSC check list that the EWG approved at our last meeting in 2021, and it should be posted soon.
 - EWG **STRONGLY** encourages the SSCs to use the checklist prior to submitting a standard for editing.

Recent Activities

- EWG **Strongly** encourages the following when an SSC is revising a document:
 - Use definitions word-for-word from Z136.1.
 - Use abbreviations exactly as they are stated in Z136.1.
- This is all in the hopes of achieving standardization among the standards.

Recent Activities

- 2021 was a quiet year for the EWG.
 - Completing the review of the SCDV2 Z136.3.
- 2022 will be picking up for the EWG with reviews of the following anticipated – this is not the order the reviews will be received.
 - Z136.1
 - Z136.2
 - Z136.9
 - Z136.10

Conclusion

- Questions? Comments?

Photo taken several yards away in State Forest State Park, CO.

Hi, my name is Sheldon.
I'm watching you Z136!!!
Better be paying
attention during this
virtual meeting & not
checking work emails!!!
Don't poke the Bear!!!



New Z136 Website

- The new website has been launched and we are in the process of transitioning all current users over.
- We are receiving feedback and addressing bugs as they appear to ensure a smoother user experience.
- Instructions will be re-sent to all users in an attempt to migrate all users over.
- First-time log-in instructions will be posted on the new website for legacy users.

Accredited Standards Developer Designation

Liliana Caldero

LIA

Manager, Publications & Education

Disambiguation: ASC vs ASD

The ANSI Essential Requirements, first issued in 2003, eliminated reference to “3 methods” of standards development (Organization, Canvass, ASC) – though some groups retained the ASC configuration and title. ANSI currently uses the “ASD” or “Accredited Standards Developer” designation to refer to the standards developing organizations that they have accredited. In the past, LIA was considered jointly accredited with ASC Z136; currently, LIA is accredited and is the legal entity recognized by ANSI as the ASD.

- Reminder: Although our standards are “ANSI-approved”, this is not an “ANSI” Committee. The Z136 consensus body is not itself a member of ANSI. ANSI accredits the process by which we develop Z136 standards. ANSI does not review the content of our standards.
- Rather than an “ANSI” meeting, this is a Z136 meeting.

Proposed Z136 Conventions Update

Resolving Ballot Comments, Other Balloting Process Guidance

Michael Woods, Ted Early

March 9, 2022

Revision Scope

- New guidance on
 - Reference documents to be provided for SCDV, CDV ballots
 - Substantive change definition
 - Objection definition
- Sample Comment forms (added as Appendices)
 - for a CBBG member, and
 - for a coordinating TSC member
 - Forms in use updated to clarify which comments are objections
- New Section, *Addressing and resolving ballot comments*

Reference Documents

Initial Ballot documents to be provided

- a. Draft Standard
- b. Comment Form for CBBG members
- c. For a revision of an existing published standard, should also provide (*new*)
 - i. Summary of substantive changes wrt published standard
 - ii. Redline version of draft standard, indicating changes wrt published standard
 - iii. Comment Matrix summary from prior SCDV, CDV balloting processing for published standard
 - iv. EWG Comment Matrix summary for unresolved comments between EWG and SSC from review process for the published standard
- d. For a SCDV, also provide (*new*)
 - i. Documents listed in a.-c. above to coordinating TSC members, except a different Comment Form is used
- e. For a CDV, also provide (*new*)
 - i. Comment Matrix Summary with resolutions from SCDV just completed
 - ii. EWG Comment Matrix summary with resolutions from SCDV just completed

Reference Documents

Recirculation Ballot documents to be provided

- a. Clean copy of revised draft
- b. Marked copy of revised draft, identifying changes wrt previous draft
- c. Comment Form for CBBG members
- d. Comment Matrix summary with resolutions from the prior ballot (*new*)
- e. For a SCDV, also provide (*new*)
 - i. Documents listed in a.-d. above to coordinating TSC members, except a different Comment Form is used

Terminology

Substantive Change (taken from ANSI definition)

Note: a substantive change is one that directly and materially affects the use of the standard. Examples include: “shall” to “should” or “should” to “shall”; and addition, deletion, or revision of a “should” or “shall” requirement.

Objection

Note: objections are comments from CBBG members who submitted a Negative-Vote ballot, which they identify as needing to be resolved before they would change their vote. Comments proposing a substantive change that are submitted from a coordinating TSC member are also considered objections.

Appendix

A.1 Example Summary Comment Form for a CBBG member for a CDV



SUMMARY COMMENT FORM

Ballot from: _____ **Date:** _____

Title of Voting Document: Z136.x Safe Use of Lasers ...

Number and Date of Draft: CDV1 – Month Year

Title of Voting Group: CBBG Z136.x

This Summary Comment Form Used For: Affirmative-Vote Comment Negative-Vote Comment

Submitted by [First Initial. Last Name]	Text Location [Line Numbers]	Comment –Rationale or Error Indicate if <u>critical area to be addressed</u> is <u>an objection for a Negative-Vote Ballot</u> [x]	Proposed Change [detailed explanation of <i>how to</i> <i>resolve</i> the comment]	Resolution of Comment by Subcommittee

NOTES: 1. Negative Votes. Reasons for a negative vote shall be given. Please provide specific wording or actions that would resolve the objections. Indicate in the column to the left of the comment (mark with “x”) if this is an critical-commentobjection to be addressed before you would be willing to change your vote.

2. Insert additional rows as necessary.



A.2 Example Summary Comment Form for a coordinating TSC/SSC member for an SCDV



SUMMARY COMMENT FORM

Ballet Comment from: _____ Date: _____
 Title of Document: Z136.x Safe Use of Lasers ...
 Number and Date of Draft: SCDV1 – Month Year
 Commenting as a member of the following subcommittee: _____

THIS IS NOT A BALLOT

Comments received from members of coordinating TSCs and SSCs do not constitute a vote.
Please submit all comments by Month Day, Year 5:00 pm EDT.

Submitted by [First Initial. Last Name]	Text Location [Line Numbers]	Comment –Rationale or Error Indicate if <u>critical area to be addressed it is an objection where a change to a substantive requirement is proposed</u> [x]	Proposed Change <u>[detailed explanation of how to resolve the comment]</u>	Resolution of Comment by Subcommittee

NOTE: **Reasons for a negative vote shall be given. Please provide specific wording or actions that would resolve the objection. Indicate in the column to the left of the comment (mark with “x”) if this is a critical comment to be addressed before you would be willing to change your vote.**
 Insert additional rows as necessary.



Addressing and Resolving Ballot Comments (*new*)

1. Secretariat sends ballot results and Comment Matrix to SSC Officers
2. SSC Officers review all comments submitted, including those by coordinating TSC members and accepted proposed changes they deem appropriate. Resolutions are documented in the Comment Matrix.
3. SSC Officers make effort to resolve objections, including those by coordinating TSC members
 - i. Communicate with reviewers as needed to find acceptable resolution
 - ii. If cannot resolve objection with a reviewer, should enlist assistance from other CBBG or SSC/TSC members or experts to find acceptable resolution
 - iii. If objection still cannot be resolved, document reasons for and against proposed change in Comment Matrix

Z136
STANDARDS COMMITTEE

Next Meeting

**ASC Z136
Annual Meeting**

February 26, 2023

**Portland, OR
Preceding ILSC 2023**



LIA THE LASER INSTITUTE | **Z136** STANDARDS COMMITTEE