

North America EHS Committee Meeting Summary and Minutes

NA Standards Fall 2013 Meetings
 31 October 2013, 0900 – 1600 Pacific Time
 SEMI Headquarters in San Jose, California

Next Committee Meeting

North America Standards Spring 2014 Meetings
 Thursday 3 April 2014, 0900 – 1600 Pacific Time
 SEMI Headquarters in San Jose, California

Table 1 Meeting Attendees

Italics indicate virtual participants

Co-Chairs: Chris Evanston (Salus Engineering), Sean Larsen (Lam Research AG), Bert Planting (ASML)

SEMI Staff: Paul Trio

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
AKT	Wong	Carl	Salus	Evanston	Chris
Applied Materials	Karl	Edward	Salus	Visty	John
ASML	Planting	Bert	Seagate	Layman	Curt
Brooks Automation	Sleiman	Samir	SEMATECH	Ferrell	Jackie
Cymer	Frankfurth	Mark	Texas Instruments	Schwab	Paul
Cymer	Yakimow	Byron	Tokyo Electron	Mashiro	Supika
Intertek	Rai	Sunny	Tokyo Electron	Hamilton	Jeff
KLA-Tencor	Crane	Lauren	Tokyo Electron	Fessler	Mark
KLA-Tencor	Crockett	Alan	TUV Rheinland	Pochon	Stephan
Lam Research	Claes	Brian	TUV SUD	Faust	Bruce
Lam Research AG	Larsen	Sean			
Product EHS Consulting	Brody	Steven	SEMI	Trio	Paul

Table 2 Leadership Changes

<i>Group</i>	<i>Previous Leader</i>	<i>New Leader</i>
S2 Ladders & Steps Task Force		Lindy Austin (Salus) has been appointed as new TF co-leader serving with Ron Macklin (Macklin & Associates) and Carl Wong (AKT).
S10 Task Force		Bert Planting (ASML) and Thomas Pilz (Pilz GmbH) will lead the new S10 TF.

Table 3 Ballot Results

Passed ballots and line items will be submitted to the ISC Audit & Review Subcommittee for procedural review.

Failed ballots and line items were returned to the originating task forces for re-work and re-balloting.

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
4316J	Line Item Revision to SEMI S2-0712a, Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment, and SEMI S22-0712, Safety Guideline for the Electrical Design of Semiconductor Manufacturing Equipment. Delayed Revision Related to Programmable Safety Circuits	
Line Item 1	Fail-to-safe Equipment Control Systems Revision	Failed , to be reballoted
5009B	Line Item Revisions to SEMI S8-0712, Safety Guidelines for Ergonomics Engineering of Semiconductor Manufacturing Equipment. Delayed Revisions on Multiple Topics	
Line Item 1	Changes to Terminology for Critical Controls and Displays	Passed with editorial changes
Line Item 2	Ergonomic Clearances Clarification	Failed , to be reballoted
Line Item 3	Changes to Appendix 1: “Actual/Conforms?” Column Modifications	Passed as balloted
Line Item 4	Changes to Appendix 1, ¶ 6.4.1: Ball Handle Minimum Diameter	Passed as balloted
Line Item 5	Changes to Appendix 1, § 7: New Whole Body Clearance Criteria and Movement of Select Criteria to a New Maintenance and Service Section	Failed , to be reballoted
Line Item 6	Changes to Appendix 1, § 9: Hand Control Location Applications	Passed as balloted. Superclean
Line Item 7	Changes to Appendix 1, ¶ 9.1: Hand Control Location Pictogram Addition	Passed as balloted. Superclean
5649	Delayed Line Item Revisions to SEMI S22, Safety Guideline for the Electrical Design of Semiconductor Manufacturing Equipment	
Line Item 1	Termination of the Supply Conductors	Failed , to be reballoted
Line Item 2	Modification to Main Disconnecting Means Guarding	Failed , to be reballoted
Line Item 3	Modification to Uninterruptible Power Supply Interruption	Failed , to be reballoted
Line Item 4	Modification to Local Lighting Overcurrent Protection Criteria	Passed as balloted
Line Item 5	Modification to Electrical Motor Criteria	Failed , to be reballoted
Line Item 6	Addition of Motor Overload Test Method	Passed as balloted
Line Item 7	Grounding Criteria	Failed , to be reballoted
Line Item 8	Modification to Phase Marking	Passed as balloted
Line Item 9	Modification to Cord and Plug Disconnect Criteria	Passed with editorial changes

Table 4 Authorized Activities

<i>#</i>	<i>Type</i>	<i>SC/TF/WG</i>	<i>Details</i>
---	TFOF	S10 Task Force	<p>New task force</p> <p><u>Charter:</u> To update the SEMI S10 (<i>Safety Guideline for Risk Assessment and Risk Evaluation Process</i>) based on negatives received in the S10 reapproval ballot (Draft Document #5599)</p> <p><u>Scope:</u></p> <ul style="list-style-type: none"> - Look at better definitions in the severity table - Discuss the likelihood table and how to define frequency - General update - Update Appendices/Related Information to latest standards

Table 4 Authorized Activities

#	Type	SC/TF/WG	Details
5681	SNARF	S6 Revision TF	Revision to SEMI S6, <i>EHS Guideline for Exhaust Ventilation of Semiconductor Manufacturing Equipment</i> <u>Rationale:</u> S6 Reapproval Ballot resulted in several negatives. TF will work to address negatives submitted to existing document. <u>Scope:</u> SEMI S6 – 0707 Document Will not only include negatives received on reapproval ballot but other sections of S6.

Note: SNARFs and TFOFs are available for review on the SEMI Web site at:
<http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARF>

Table 5 Authorized Ballots

#	When	SC/TF/WG	Details
4683C	Cycle 8, 2013	S2 Chemical Exposure TF	Line Item Revisions to SEMI S2, <i>Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment</i> Delayed Revisions Related to Chemical Exposure
4316K	Cycle 1, 2014	S22 TF	Line Item Revisions to SEMI S2, <i>Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment</i> , and SEMI S22, <i>Safety Guideline for the Electrical Design of Semiconductor Manufacturing Equipment</i> Delayed Revision Related to Programmable Safety Circuits
5625	Cycle 1, 2014	S2 Non-ionizing Radiation TF	Line Item Revisions to SEMI S2, <i>Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment</i> Delayed revisions related to non-ionizing radiation
5649A	Cycle 1, 2014	S22 TF	Delayed Line Item Revisions to SEMI S22, <i>Safety Guideline for the Electrical Design of Semiconductor Manufacturing Equipment</i>
4449E	Cycle 2, 2014	S2 Ladders & Steps TF	Delayed Line Item Revision to SEMI S2-0712, <i>Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment</i> . Line Item Revisions related to Work at Elevated Locations and Design Criteria for Platforms, Steps, and Ladders
5009C	Cycle 2, 2014	Ergonomics TF	Line Item Revisions to SEMI S8-0712, <i>Safety Guidelines for Ergonomics Engineering of Semiconductor Manufacturing Equipment</i> . Delayed Revisions on Multiple Topics

1 Welcome, Reminders, and Introductions

Sean Larsen called the meeting to order at 9:05 AM. Attendees introduced themselves. The SEMI meeting reminders on Standards membership requirement, antitrust issues, intellectual property issues, and effective meeting guidelines were presented. Finally, the agenda was reviewed.

Attachment: 01, SEMI Standards Required Meeting Elements

2 Review of Previous Meeting Minutes

The committee reviewed the minutes of the previous meeting held July 11 in conjunction with SEMICON West 2013.

Motion: Approve as written

By / 2nd: Lauren Crane (KLA-Tencor) / Bert Planting (ASML)

Discussion: None

Vote: 8-0. Motion passed.

Attachment: 02, NA EHS SEMICON West 2013 meeting (July11) minutes

3 Leadership and Liaison Reports

3.1 Japan EHS Committee

Supika Mashiro reported for the Japan EHS Committee. Of note:

- Task Force Leadership Changes
 - S18 Revision Task Force
 - TF has been disbanded
 - Supika Mashiro (Tokyo Electron) and Moray Crawford (Hatsuta) stepped down as TF co-leaders
 - GHG Emission Characterization Task Force
 - Minoru Kagino (Toshiba) stepped down as TF co-leader
 - Tetsuya Kitagawa (Sony) was appointed as new TF co-leader
- Next meeting: December 6 in conjunction with SEMICON Japan 2013 (Makuhari Messe in Chiba)
- Upcoming Ballots (earliest possible cycle)
 - Doc. 5513A, Revision to SEMI S23-0311, *Guide for Conservation of Energy, Utilities and Materials Used by Semiconductor Manufacturing Equipment* [S23 Revision TF]
 - Doc. 5556, Line Item Revisions to SEMI S2-0712, *Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment Revisions Related to Section 19 Seismic Protection* [Seismic Protection TF]
- S23 Revision TF
 - Working on Doc. 5513A (see above)
 - Under Preparation of the expansion of RI2 (Temperature Control Unit)
 - Introduced the details of revision of SEMI S23 at energy saving meeting by JEITA and SEAJ for promotion of effective use.
- Greenhouse Gas (GHG) Emission Characterization Task Force
 - Working for the promotion and the practical use of SEMI S29.
 - Activities dissemination with JEITA PFC committee and SEAJ
- Seismic Protection Task Force
 - Working on Doc 5556 (see above), SNARF scope was revised as below, as result of discussion.
 - This documentation activity covers changes in section 19 of SEMI S2 and Related Information 4
 - To change Design Load based on ASCE7-10
 - To modify related Information 4 based on ASCE7-10
 - Will draft the document on target to submit it for the earliest possible cycle.
- FPD System Safety Task Force
 - The TF currently has no activity

- STEP Planning Working Group
 - STEP/ SEMI S2 will be held in fall on November 15 at SEMI Japan (Tokyo)
 - <http://www.semi.org/jp/node/17701/> (Japanese Only)
- Other activities
 - Program for SEMICON Japan 2013
 - SEMI EHS Standards Workshop: EHS Challenges for 450mm (December 4, Makuhari Messe)
 - <http://www.semiconjapan.org/en/sessions/std1>
- SEMI staff contact: Naoko Tejima (ntejima@semi.org)

Additional Discussion:

- With regard to the S23 Revision TF, Lauren Crane reported that one of the concerns from the NA side is the need to clarify the energy roadmapping.
- Sean Larsen asked whether there are any efforts on S18 Chinese translation. Supika Mashiro responded that there are efforts on translating S18 into Traditional Chinese, but she also expressed concern on the level of the translation. Chris Evanston also expressed concern about technical translations into other languages. Supika stated that it is important to understand the discussion behind the content. In Japan, specific experts are consulted on certain sections. Nevertheless, she pointed out that other organizations face similar translation issues. Finally, Alan Crockett said that he has also experienced similar issues with equipment labels where their Chinese engineers have reported literal translation in cases where it should not be.

Attachment: 03, Japan EHS Committee Report

3.2 *Europe EHS Committee*

Bert Planting reported for the Europe EHS Committee.

- Disbanded at SEMICON Europa 2013 (Oct)
- NA EHS TC Chapter accepted the responsibility of the SEMI S10 and S25 Safety Guidelines
 - SEMI S10, Safety Guideline for Risk Assessment and Risk Evaluation Process
 - SEMI S25, Safety Guideline for Hydrogen Peroxide Storage & Handling Systems

3.3 *RSC / Committee Leadership Report*

Chris Evanston provided the cochairs report. Of note:

- Bert Planting (ASML) officially made NA EHS co-chair
- Added Cycle 8 Voting
 - Ballot submission: Nov 15
 - Voting period: November 29 – December 31
- RSC Report High Lights
 - 49 New PV standards Published – 3 from the Chinese committee

- Regulation Subcommittee Report
 - There was much discussion about the use of term “Inactive” to describe standards
 - Concern: It may imply to some that the standard cannot be used
 - RSC took vote and decided to do nothing
 - Minority reports being discussed by Regulations Subcommittee about adding additional definition and requirements

Additional Discussion:

- Lauren Crane asked whether the addition of an 8th voting cycle could potentially add more work for the committee members. Chris Evanston pointed out that the additional voting cycle would actually help spread the work out. Paul Trio added that one of the motivations for the additional voting cycle is to accommodate a request from other regions (e.g., Korea). He did acknowledge that Cycle 8 voting may be challenging as it coincides with the Christmas and New Year holidays.

Sean Larsen shared with the committee a presentation provided during the NARSC Regulations Working Group meeting on “Ballot Adjudication and Virtual Meetings.” The presentation aimed to explore current problems with ballot adjudication:

What are the current problems with ballot adjudication?

- Some topics being discussed
 - Do all interested parties get adequate representation in the adjudication process?
 - Do travel restrictions or other issues prevent adequate discussion as part of the adjudication process?
 - Are supporting or opposing ideas not being adequately discussed
 - Would adding the ability for remote/virtual participants to vote on top of the ability to participate in the discussion help address any problems?
 - Other ideas??

Other Ideas

- What problems do you think need to be addressed with the current adjudication process?
 - Are editorial changes being handled incorrectly?
 - Is the determination of related or persuasive occurring incorrectly or being inadequately discussed?
 - Would it be helpful to have some means to make technical changes to a ballot with a more simplified means of approval?
 - Other problems or concerns?

Questions or unresolved challenges with virtual meetings

- Time zones
 - How do you reasonably support people 8 to 9 time zones away or when have participants from around the world (e.g., US, EU, Asia)
- Language issues
 - Often hard to follow conversations over the phone in non-native languages
 - Room acoustics, poor phone equipment and bad connections all make it more difficult as well

- How to present items being voted on
 - Do all need to be typed out?
 - Prepared ahead of time?
 - Adequate review time?
- How to collect votes
 - Verbally?
 - Through a voting tool of the teleconference system?
 - Do in room participants also have to have votes recorded?
- How to ensure who is on the line
 - Current discussions on this topic are more stringent or restrictive then the requirement for showing up face to face

Additional Discussion:

- With regard to ballot adjudication, Lauren Crane suggested that voters should submit votes in their “original language” then perhaps have someone in the room help with the translation. There is usually someone in the room to help represent (or argue) the vote/comments.
- John Visty reported that the number of phone participants seem to have decreased. Mark Frankfurth commented that phone participants [in TC Chapter meetings] are always reminded that their votes do not count. Sean Larsen pointed out that while phone participants cannot vote, virtual participants can influence people/voters in the room. Alan Crockett said that in other committees, attendance has gone down because most of the 450 mm work has already been completed.
- Carl Wong pointed out the case where NA EHS committee members will be the ones dialing into another region’s TC Chapter meeting. Paul Trio added that taking into consideration such a scenario could help the committee better identify the processes that need to be in place for effective and efficient virtual meetings.
- Lauren Crane also pointed out that there seems to be varying treatment among TFs on how remaining negatives are treated if a ballot fails.
- With regard to virtual meetings, Alan Crockett recommended doing a roll call. This process may be slower, but at least all votes are captured.
- Supika Mashiro pointed out that this matter is not only a Regulations Subcommittee issue, but there are also infrastructure challenges (e.g., how to capture votes).

Attachment: 04, Leadership Report

Attachment: 05, NARSC Regulations WG Presentation “Ballot Adjudication and Virtual Meetings”

3.4 SEMI EHS Division/ International Compliance and Regulatory Committee (ICRC) Report

Mark Frankfurth reported that a number of interesting topics were brought up and will be worked on. Brian Claes reported that with regard to S2 to Machinery Directive mapping, issues were raised on the application of requirements (e.g., surveillance section on CE marking). He pointed out that these will be replaced with pointers to new regulations. Brian commented that topics being discussed in the EHS Division will affect standards in the near future.

3.5 SEMI Staff Report

Paul Trio gave the SEMI Staff Report. Of note:

- 2013 Global Calendar of Events
 - PV Taiwan (October 30 – November 1, Taipei)
 - SEMICON Japan (December 4-6, Chiba)
- [early] 2014 Global Calendar of Events
 - European 3D TSV Summit (January 21-22, Grenoble, France)
 - SEMICON Korea / LED Korea (February 12-14, Seoul)
 - SEMICON China (March 18-20, Shanghai)
 - SEMICON Singapore (April 23-25, Marina Bay Sands)
 - SEMICON West (July 8-10, San Francisco, California)
- NA Standards Fall 2013 Meetings (October 28-31)
 - Committees meeting at SEMI Headquarters (San Jose)
 - 3DS-IC | EHS | Facilities & Gases | HB-LED | Information & Control | MEMS/NEMS | Metrics | PV Materials
 - SEMI thanks Intel (Santa Clara) for hosting the PIC and Silicon Wafer meetings
- Standards Publications Report
 - July 2013 Cycle
 - New Standards – 2, Revised Standards – 2, Reapproved Standards – 3, Withdrawn Standards – 0
 - August 2013 Cycle
 - New Standards – 0, Revised Standards – 15, Reapproved Standards – 0, Withdrawn Standards – 0
 - September 2013 Cycle
 - New Standards – 3, Revised Standards – 2, Reapproved Standards – 6, Withdrawn Standards – 0, Total in portfolio – 892 (includes 98 Inactive Standards)
- New Cycle 8 Voting Period
 - Ballot Submission Date: Nov 15, 2013
 - Voting Period Starts: Nov 29, 2013
 - Voting Period Ends: Dec 31, 2013
- Upcoming North America Meetings (2013)
 - NA Liquid Chemicals Fall 2013 Meetings [*task force and committee meetings*] (November 5; SEMI HQ in San Jose, California)
 - NA Compound Semiconductor Materials [*committee meeting*] (November 15, teleconference and web meeting only)

- North America Standards 2014 Meetings
 - NA Standards Spring 2014 Meetings (March 31 – April 3 at SEMI HQ in San Jose, California)
 - NA Standards Meetings at SEMICON West 2014 (July 7-10 in San Francisco, California)
 - NA Standards Fall 2014 Meetings (November 3-6 at SEMI HQ in San Jose, California)
- Standards Usage Interview
 - Looking for details on how standards are actually used:
 - Development/Engineering
 - Procurement
 - Manufacturing
 - Interview should take less than 30 minutes – contact James or any Standards staff
- Official SEMI Standards Groups
 - LinkedIn
 - <http://www.linkedin.com/groups/Official-SEMI-Standards-Group-1774298/about>
 - Twitter
 - @SEMI_standard

Attachment: 06, SEMI Staff Report

4 Ballot Review

4.1 Document # 4316J, Line Item Revision to SEMI S2-0712a, *Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment*, and SEMI S22-0712, *Safety Guideline for the Electrical Design of Semiconductor Manufacturing Equipment*. Delayed Revision Related to Programmable Safety Circuits

4.1.1 Line Item # 1 – *Fail-to-safe Equipment Control Systems Revision*

Tallies at Close of Voting

Voting Return Data		Acceptance Rate Data	
Voting Interest Returns	55	Voting Interest Accept Votes (VIAccept)	39
Total Voting Interests	80	Interest Reject Votes (IReject)	3
Voting Interest Return %	68.75%	Approval % [VIAccept / (VIAccept + IReject)]	92.86%
Other Returns (Intercommittee, etc.)		# of Interest Rejects that Need to be not found Valid for	
	32	Final Approval % >= 90%	0
Total Votes	87		
Total Votes with Comments	3		
Total Reject Votes	3		

Rejects/Negatives

Company: Submitter	ID	Negs	Disp	Company: Submitter	ID	Negs	Disp
KLA-Tencor: Lauren Crane	KT	8					
Lam Research: Brian Claes	LMRC	4					
Sokudo: Eiji Nakatani	SKDO	2					

Negatives from < KLA-Tencor: Lauren Crane >

W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant

#	Ref.	Negative <u>including Justification</u>	TF Finding <u>and Reason</u>	Motion <u>and Reason</u> in Committee:	Final
KT-1	S2 11.6.2	<p>Negative</p> <p>The qualifier “and the FECS has been evaluated and tested as a device separate from the semiconductor manufacturing equipment in which it is to be used” does not make sense. The subsequent criteria are related to control over the interlock system programing in the FECS, this is relevant whether the FECS is evaluated and tested separately or not.</p> <p>Proposed Solution: Delete the phrase, e.g.,</p> <p>“11.6.2 If a FECS is used as part of the safety interlock system, and the FECS has been evaluated and tested as a device separate from the semiconductor manufacturing equipment in which it is to be used, then the additional following criteria should be satisfied.”</p> <p>Technical</p>	<p>(Select 1)</p> <p><input type="checkbox"/> Not related</p> <p><input type="checkbox"/> Not persuasive (assumes related)</p> <p><input checked="" type="checkbox"/> Related & persuasive</p> <p>Reason:</p> <p>Lauren C / Bert P V: 6-0</p>	<p><input type="checkbox"/> Withdrawn by Subm. (Date: _____)</p> <p>Move to find this negative: (select 1)</p> <p><input type="checkbox"/> Not related (requires reason, follow)</p> <p><input type="checkbox"/> Committee new business</p> <p><input type="checkbox"/> Assigned to: _____</p> <p><input type="checkbox"/> Not persuasive (requires reason)</p> <p><input checked="" type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Reason:</p> <p>By/2nd: Lauren Crane / Chris Evanston Disc: None Vote: 10-0. Motion passed</p> <p>Significance finding/method: (select 1)</p> <p><input type="checkbox"/> Not significant by agreement</p> <p><input type="checkbox"/> Not significant by motion</p> <p><input type="checkbox"/> Significant by % of NP vote (>10%)</p> <p><input type="checkbox"/> Significant by agreement</p> <p><input type="checkbox"/> Significant by motion</p> <p>By/2nd: Disc: Vote: #-#-#. Motion passed failed</p>	

Comments

Company: Submitter	ID	#	Company: Submitter	ID	#
KLA-Tencor: Lauren Crane	KT	1			
Lam Research AG: Sean Larsen	LMAG	1			
Projects: George Rutherford	PROJ	1			

Follow up Activity Authorization

Move to:

- Return ballot to the originating task force for rework
- and authorize a follow-up ballot
- Transfer ballot to the (name) task force for rework
- and authorize a follow-up ballot
- Discontinue work on ballot.

By/2nd: Lauren Crane / Bert Planting

Disc:

Vote: 8-0. Motion **passed**

Attachment: 07, 4316J-LI1 Compiled Responses

4.2 Document # 5009B, Line Item Revisions to SEMI S8-0712, *Safety Guidelines for Ergonomics Engineering of Semiconductor Manufacturing Equipment*. Delayed Revisions on Multiple Topics

4.2.1 Line Item #1 – *Changes to Terminology for Critical Controls and Displays*

Tallies at Close of Voting

Voting Return Data		Acceptance Rate Data	
Voting Interest Returns	55	Voting Interest Accept Votes (VIAccept)	38
Total Voting Interests	80	Interest Reject Votes (IReject)	1
Voting Interest Return %	68.75%	Approval % [VIAccept / (VIAccept + IReject)]	97.44%
Other Returns (Intercommittee, etc.)		# of Interest Rejects that Need to be not found Valid for	
	32	Final Approval % >= 90%	0
Total Votes	87		
Total Votes with Comments	1		
Total Reject Votes	1		

Rejects/Negatives

Company: Submitter	ID	Negs	Disp	Company: Submitter	ID	Negs	Disp
Lam Research: Stanley Hughes	LMRC	1					

Negatives from < Lam Research: Stanley Hughes >

W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant

#	Ref.	Negative including Justification	TF Finding and Reason	Motion and Reason in Committee:	Final
LMRC-1	5.2.5 Exception	Criticality would seem to be related to time. The examples provided of an EMO, E-Stop, and emergency gas off all require quick action by the user to an event. Instead of looking at risk assessment, (Low/ Very Low) risk critical controls should be defined in terms of how quickly the user must respond.	(Select 1) <input type="checkbox"/> Not related <input type="checkbox"/> Not persuasive (assumes related) <input checked="" type="checkbox"/> Related & persuasive Reason:	X Withdrawn by Stan Hughes. (Date: 10/29/2013) Move to find this negative: (select 1) <input type="checkbox"/> Not related (requires reason, follow) <input type="checkbox"/> Committee new business <input type="checkbox"/> Assigned to: _____ <input type="checkbox"/> Not persuasive (requires reason) <input type="checkbox"/> Related & persuasive (ballot fails) Reason: <i>By/2nd:</i> <i>Disc:</i> <i>Vote: #-#.#. Motion passed failed</i> Significance finding/method: (select 1) <input type="checkbox"/> Not significant by agreement <input type="checkbox"/> Not significant by motion <input type="checkbox"/> Significant by % of NP vote (>10%) <input type="checkbox"/> Significant by agreement <input type="checkbox"/> Significant by motion <i>By/2nd:</i> <i>Disc:</i> <i>Vote: #-#.#. Motion passed failed</i>	

Comments

Company: Submitter	ID	#	Company: Submitter	ID	#
KLA-Tencor: Lauren Crane	KT	1			

#	Ref.	Comment	TF Response	Committee Action:
KT-1	L11 5.25	<p>Comment</p> <p>The definition is a little awkward because it implies that EMO system might be provided to address anticipated malfunctions. A general equipment design principle (and one that is explicitly stated in the Machinery Directive), is that “Emergency stop devices must be a back-up to other safeguarding measures and not a substitute for them.” Therefore, if a malfunction can be anticipated, it should be addressed by other design features than an EMO system.</p> <p>Proposed Solution: Change to the effect of... “...in response to an anticipated a malfunction.”</p> <p>Or perhaps</p> <p>“...in response to an <u>un</u>anticipated malfunction.”</p> <p>Editorial</p>	Propose this as an editorial change for vote by the EHS committee.	<p>(Select one)</p> <p><input type="checkbox"/> No further action</p> <p><input type="checkbox"/> Refer to TF for further review</p> <p><input type="checkbox"/> New Business</p> <p><input checked="" type="checkbox"/> Editorial Change: # <u>1</u> in ECs below</p> <p><input type="checkbox"/> Other:</p> <p>(Select one)</p> <p><input type="checkbox"/> Committee agrees (no motion nec.)</p> <p><input checked="" type="checkbox"/> Motion to act as indicated above: <i>see motion below.</i></p> <p>By/2nd:</p> <p>Disc:</p> <p>Vote: ##-#. Motion passed failed</p>

Summary of Editorial Changes

#	Ref.	Before	After	Object? (Y/N)	Motion to Approve: (if necessary)
1	5.2.5	5.2.5 critical controls and displays — <u>manual controls (actuators) that are intentionally provided to reduce risk to personnel, equipment, or the environment to Low or Very Low (see SEMI-S10) in response to an anticipated malfunction. Examples of critical controls include, but are not limited to: EMO actuators, emergency gas off actuators, and emergency stop actuators.</u>	5.2.5 critical controls and displays — <u>manual controls (actuators) that are intentionally provided to reduce risk to personnel, equipment, or the environment to Low or Very Low (see SEMI-S10) in response to an anticipated malfunction. Examples of critical controls include, but are not limited to: EMO actuators, emergency gas off actuators, and emergency stop actuators.</u>		<p>Justification: Editorial Change proposed because “<i>anticipated</i>” is redundant with intentional provision.</p> <p>Motion: Accept as an editorial change.</p> <p>By/2nd: Paul Schwab / Bert Planting</p> <p>Disc:</p> <p>Vote: 11-0. Motion passed</p>

Safety Check

Move to find that this document:

Is NOT a safety document: when all safety-related information is removed, the document is still technically sound and complete.

IS a safety document: when all safety-related information is removed, the document is not technically sound and complete.

The Safety Checklist (Regulations 13.3) for this document is complete and has accompanied the document through the balloting process.

By/2nd: Paul Schwab (Texas Instruments) / Ed Karl (Applied Materials)

Disc: None

Vote: 11-0. **Motion passed**

Intellectual Property Check

The meeting chair asked those present in person or by electronic link, if they were aware of any patented or copyrighted material in the Standard or Guideline.

(Note: Such material might have become known since the Standard or Safety Guideline was last reviewed, or might become relevant due to this ballot.)

- No patented or copyrighted material is known to exist in the Standard or Guideline. (no motion needed)
- Patented or copyrighted material is known to exist in the Standard or Guideline but release for such material has been obtained or presented to the committee. (no motion needed)
- Patented or copyrighted material is known to exist in the Standard or Guideline but release for some of the material(s) has NOT been obtained or presented to the committee. The committee moves to:
 - Ask the ISC for special permission to publish the standard without release
 - Quit the activity
 - Wait for the release of the patented or copyrighted material.

By/2nd:

Disc: Lauren Crane (KLA-Tencor) asked whether some of the values used in the Document were taken from other documents. Paul Schwab (Texas Instruments) responded that most of the values were taken from military spec, but also from other documents. He pointed out that that these referenced documents also reference values from other documents. Paul added that efforts were taken to ensure that the original sources for the values used were researched. It was also pointed out that the figures used in S8 and in the ballot were developed by Paul Schwab. Paul also pointed out that most of the referenced documents are in the public domain and those that are not also pull values from documents in the public domain. Supika Mashiro (Tokyo Electron) stated that, from her experience, there are generally no issues from pulling values from other documents. However, she pointed out that there may be reproduction issues when taking tables, exactly as formatted, and using them in the Document. Nevertheless, she stated that it is the committee's decision to determine whether copyright has been reproduced. It was pointed out that pulling values from other documents has been the practice in EHS for many years and for many of the Safety Guidelines. The values used in S8 are a consolidation of values taken from other resources and not just from a single source. The committee, then, raised the following question for SEMI legal counsel: Is pulling values from another standard considered copyright infringement?

Vote: #-#-#. **Motion passed failed**

Final Action

Move to:

- Pass this document as balloted and forward to the A&R for procedural review.
- Pass this document with editorial changes and forward to the A&R for procedural review.

By/2nd: Paul Schwab (Texas Instruments) / Lauren Crane (KLA-Tencor)

Disc: None

Vote: 10-0. **Motion passed**

Attachment: 08, 5009B-LI1 Compiled Responses

4.2.2 Line Item #2 – Ergonomic Clearances Clarification

Tallies at Close of Voting

Voting Return Data		Acceptance Rate Data	
Voting Interest Returns	55	Voting Interest Accept Votes (VIAccept)	37
Total Voting Interests	80	Interest Reject Votes (IReject)	2
Voting Interest Return %	68.75%	Approval % [VIAccept / (VIAccept + IReject)]	94.87%
Other Returns (Intercommittee, etc.)		# of Interest Rejects that Need to be not found Valid for	
	32	Final Approval % >= 90%	0
Total Votes	87		
Total Votes with Comments	1		
Total Reject Votes	2		

Rejects/Negatives

Company: Submitter	ID	Negs	Disp	Company: Submitter	ID	Negs	Disp
Dainippon Screen: Naokatsu Nishiguchi	DNS	1					
Lam Research AG: Sean Larsen	LMAG	4					

Negative from < Lam Research AG: Sean Larsen >

W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant

#	Ref.	Negative including Justification	TF Finding and Reason	Motion and Reason in Committee:	Final
LMAG-2	L12 3.5 calling out 7.1	<p>Guidance needs to be provided on how to risk rank many ergonomic items as there currently is very little. This makes for very inconsistent risk assessments</p> <p>Suggestion / Justification Add guidance on risk ranking ergonomic items, addressing things like NIOSH LI and other lift evaluation tools, how to risk rank variations in space and reach allowances, and how to address repetitive issues, likely in an appendix to S8.</p>	<p>(Select 1) <input type="checkbox"/> Not related <input type="checkbox"/> Not persuasive (assumes related) <input checked="" type="checkbox"/> Related & persuasive</p> <p>Reason: Intention is for task force to continue work on this. 9-1 vote so this line item fails.</p>	<p><input type="checkbox"/> Withdrawn by Subm. (Date: _____)</p> <p>Move to find this negative: (select 1) <input type="checkbox"/> Not related (requires reason, follow) <input type="checkbox"/> Committee new business <input type="checkbox"/> Assigned to: _____ <input type="checkbox"/> Not persuasive (requires reason) <input checked="" type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Reason: By/2nd: Paul Schwab / Bert Planting Disc: Vote: 9-0. Motion passed</p> <p>Significance finding/method: (select 1) <input type="checkbox"/> Not significant by agreement <input type="checkbox"/> Not significant by motion <input type="checkbox"/> Significant by % of NP vote (>10%) <input type="checkbox"/> Significant by agreement <input type="checkbox"/> Significant by motion</p> <p>By/2nd: Disc: Vote: #-#-. Motion passed failed</p>	

Comments

<i>Company: Submitter</i>	<i>ID</i>	<i>#</i>	<i>Company: Submitter</i>	<i>ID</i>	<i>#</i>
KLA-Tencor: Lauren Crane	KT	4			

Followup Activity Authorization

Move to:

- Return ballot to the originating task force for rework
 and authorize a follow-up ballot
- Transfer ballot to the (name) task force for rework
 and authorize a follow-up ballot
- Discontinue work on ballot.

By/2nd: Paul Schwab (Texas Instruments) / Lauren Crane (KLA-Tencor)

Disc: None

Vote: 10-0. Motion **passed**

Attachment: 09, 5009B-LI2 Compiled Responses

4.2.3 Line Item #3 – Changes to Appendix I: “Actual/Conforms?” Column Modifications

Tallies at Close of Voting

Voting Return Data		Acceptance Rate Data	
<i>Voting Interest Returns</i>	55	<i>Voting Interest Accept Votes (VIAccept)</i>	35
<i>Total Voting Interests</i>	80	<i>Interest Reject Votes (IReject)</i>	1
<i>Voting Interest Return %</i>	68.75%	<i>Approval % [VIAccept / (VIAccept + IReject)]</i>	97.22%
<i>Other Returns (Intercommittee, etc.)</i>	32	<i># of Interest Rejects that Need to be not found Valid for</i>	
		<i>Final Approval % >= 90%</i>	0
<i>Total Votes</i>	87		
<i>Total Votes with Comments</i>	0		
<i>Total Reject Votes</i>	1		

Rejects/Negatives

<i>Company: Submitter</i>	<i>ID</i>	<i>Negs</i>	<i>Disp</i>	<i>Company: Submitter</i>	<i>ID</i>	<i>Negs</i>	<i>Disp</i>
Lam Research AG: Sean Larsen	LMAG	1					

Negatives from < Lam Research AG: Sean Larsen >

W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant

#	Ref.	Negative <u>including Justification</u>	TF Finding <u>and Reason</u>	Motion <u>and Reason</u> in Committee:	Final
LMAG-1	LI3 Whole change	<p>Unless the unstated intent is that much of the SESC list will be repeated for each and every task evaluated, this change will not encourage any better reporting. Some of the criteria are only evaluated once per S8 evaluation. Many of the criteria must be evaluated for each task to determine if the spaces available and body positions are acceptable.</p> <p>Suggestion / Justification I am not against this change if some related explicit guidance is given on how to document the various tasks being evaluated. A single pass through the SESC to evaluate 10 to 30 operator, maintenance and service tasks is useless to try and determine what review was actually done.</p>	<p>(Select 1) <input type="checkbox"/> Not related <input type="checkbox"/> Not persuasive (assumes related) <input checked="" type="checkbox"/> Related & persuasive</p> <p>Reason: Comment, P. Schwab. This is a checklist so checkboxes should be provided. Many third party evaluators create their own templates so this should not be a problem for complex assessments.</p>	<p><input checked="" type="checkbox"/> Withdrawn by Sean Larsen. (Date: 10/29)</p> <p>Move to find this negative: (select 1) <input type="checkbox"/> Not related (requires reason, follow) <input type="checkbox"/> Committee new business <input type="checkbox"/> Assigned to: _____ <input type="checkbox"/> Not persuasive (requires reason) <input checked="" type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Reason:</p> <p>By/2nd: Disc: Vote: #-#-#. Motion passed failed</p> <p>Significance finding/method: (select 1) <input type="checkbox"/> Not significant by agreement <input type="checkbox"/> Not significant by motion <input type="checkbox"/> Significant by % of NP vote (>10%) <input type="checkbox"/> Significant by agreement <input type="checkbox"/> Significant by motion</p> <p>By/2nd: Disc: Vote: #-#-#. Motion passed failed</p>	

Comments

Summary: 0 Total Items Submitted

Safety Check

Move to find that this document:

Is NOT a safety document: when all safety-related information is removed, the document is still technically sound and complete.

IS a safety document: when all safety-related information is removed, the document is not technically sound and complete.

The Safety Checklist (Regulations 13.3) for this document is complete and has accompanied the document through the balloting process.

By/2nd: Paul Schwab (Texas Instruments) / Ed Karl (Applied Materials)

Disc: None

Vote: 11-0. **Motion passed**

Intellectual Property Check

The meeting chair asked those present in person or by electronic link, if they were aware of any patented or copyrighted material in the Standard or Guideline.

(Note: Such material might have become known since the Standard or Safety Guideline was last reviewed, or might become relevant due to this ballot.)

- No patented or copyrighted material is known to exist in the Standard or Guideline. (no motion needed)
- Patented or copyrighted material is known to exist in the Standard or Guideline but release for such material has been obtained or presented to the committee. (no motion needed)
- Patented or copyrighted material is known to exist in the Standard or Guideline but release for some of the material(s) has NOT been obtained or presented to the committee. The committee moves to:
 - Ask the ISC for special permission to publish the standard without release
 - Quit the activity
 - Wait for the release of the patented or copyrighted material.

By/2nd:

Disc: Lauren Crane (KLA-Tencor) asked whether some of the values used in the Document were taken from other documents. Paul Schwab (Texas Instruments) responded that most of the values were taken from military spec, but also from other documents. He pointed out that that these referenced documents also reference values from other documents. Paul added that efforts were taken to ensure that the original sources for the values used were researched. It was also pointed out that the figures used in S8 and in the ballot were developed by Paul Schwab. Paul also pointed out that most of the referenced documents are in the public domain and those that are not also pull values from documents in the public domain. Supika Mashiro (Tokyo Electron) stated that, from her experience, there are generally no issues from pulling values from other documents. However, she pointed out that there may be reproduction issues when taking tables, exactly as formatted, and using them in the Document. Nevertheless, she stated that it is the committee’s decision to determine whether copyright has been reproduced. It was pointed out that pulling values from other documents has been the practice in EHS for many years and for many of the Safety Guidelines. The values used in S8 are a consolidation of values taken from other resources and not just from a single source. The committee, then, raised the following question for SEMI legal counsel: Is pulling values from another standard considered copyright infringement?

Vote: #-#-#. **Motion passed failed**

Final Action

Move to:

- Pass this document as balloted and forward to the A&R for procedural review.
- Pass this document with editorial changes and forward to the A&R for procedural review.

By/2nd: Paul Schwab (Texas Instruments) / Lauren Crane (KLA-Tencor)

Disc: None

Vote: 10-0. **Motion passed**

Attachment: 10, 5009B-LI3 Compiled Responses

4.2.4 Line Item #4 – Changes to Appendix I, ¶ 6.4.1: Ball Handle Minimum Diameter

Tallies at Close of Voting

Voting Return Data		Acceptance Rate Data	
Voting Interest Returns	55	Voting Interest Accept Votes (VIAccept)	35
Total Voting Interests	80	Interest Reject Votes (IReject)	0
Voting Interest Return %	68.75%	Approval % [VIAccept / (VIAccept + IReject)]	100.00%
Other Returns (Intercommittee, etc.)		# of Interest Rejects that Need to be not found Valid for	
	32	Final Approval % >= 90%	0
Total Votes	87		
Total Votes with Comments	1		
Total Reject Votes	0		

Rejects/Negatives

Summary: 0 Total Items Submitted

Comments

<i>Company: Submitter</i>	<i>ID</i>	<i>#</i>	<i>Company: Submitter</i>	<i>ID</i>	<i>#</i>
Lam Research AG: Sean Larsen	LMAG	1			

<i>#</i>	<i>Ref.</i>	<i>Comment</i>	<i>TF Response</i>	<i>Committee Action:</i>
LMAG-1	LI4	<p>Unrelated UNCOMMENT</p> <p>How do you get to acceptable pull forces and body positions for the non-enclosed handles not in 6.7?</p> <p>Suggestion / Justification</p> <p>Please provide some guidance, either directly or by reference, in the applicable sections of the SESC.</p>	Task force recommends take this under consideration.	<p>(Select one)</p> <p><input type="checkbox"/> No further action</p> <p><input checked="" type="checkbox"/> Refer to TF for further review</p> <p><input type="checkbox"/> New Business</p> <p><input type="checkbox"/> Editorial Change: #__ in ECs below</p> <p><input type="checkbox"/> Other:</p> <p>(Select one)</p> <p><input type="checkbox"/> Committee agrees (no motion nec.)</p> <p><input checked="" type="checkbox"/> Motion to act as indicated above:</p> <p><i>By/2nd:</i> Sean Larsen / Lauren Crane</p> <p><i>Disc:</i></p> <p><i>Vote:</i> 11-0 Motion passed</p>

Safety Check

Move to find that this document:

- Is NOT a safety document: when all safety-related information is removed, the document is still technically sound and complete.
- IS a safety document: when all safety-related information is removed, the document is not technically sound and complete.
- The Safety Checklist (Regulations 13.3) for this document is complete and has accompanied the document through the balloting process.

By/2nd: Paul Schwab (Texas Instruments) / Ed Karl (Applied Materials)

Disc: None

Vote: 11-0. **Motion passed**

Intellectual Property Check

The meeting chair asked those present in person or by electronic link, if they were aware of any patented or copyrighted material in the Standard or Guideline.

(Note: Such material might have become known since the Standard or Safety Guideline was last reviewed, or might become relevant due to this ballot.)

- No patented or copyrighted material is known to exist in the Standard or Guideline. (no motion needed)
- Patented or copyrighted material is known to exist in the Standard or Guideline but release for such material has been obtained or presented to the committee. (no motion needed)
- Patented or copyrighted material is known to exist in the Standard or Guideline but release for some of the material(s) has NOT been obtained or presented to the committee. The committee moves to:
- Ask the ISC for special permission to publish the standard without release
- Quit the activity
- Wait for the release of the patented or copyrighted material.

By/2nd:

Disc: Lauren Crane (KLA-Tencor) asked whether some of the values used in the Document were taken from other documents. Paul Schwab (Texas Instruments) responded that most of the values were taken from military spec, but also from other documents. He pointed out that that these referenced documents also reference values from other documents. Paul added that efforts were taken to ensure that the original sources for the values used were researched. It was also pointed out that the figures used in S8 and in the ballot were developed by Paul Schwab. Paul also pointed out that most of the referenced documents are in the public domain and those that are not also pull values from documents in the public domain. Supika Mashiro (Tokyo Electron) stated that, from her experience, there are generally no issues from pulling values from other documents. However, she pointed out that there may be reproduction issues when taking tables, exactly as formatted, and using them in the Document. Nevertheless, she stated that it is the committee’s decision to determine whether copyright has been reproduced. It was pointed out that pulling values from other documents has been the practice in EHS for many years and for many of the Safety Guidelines. The values used in S8 are a consolidation of values taken from other resources and not just from a single source. The committee, then, raised the following question for SEMI legal counsel: Is pulling values from another standard considered copyright infringement?

Vote: #-#-#. **Motion passed failed**

Final Action

Move to:

- Pass this document as balloted and forward to the A&R for procedural review.
- Pass this document with editorial changes and forward to the A&R for procedural review.

By/2nd: Paul Schwab (Texas Instruments) / Lauren Crane (KLA-Tencor)

Disc: None

Vote: 10-0. **Motion passed**

Attachment: 11, 5009B-LI4 Compiled Responses

4.2.5 Line Item #5 – Changes to Appendix 1, § 7: New Whole Body Clearance Criteria and Movement of Select Criteria to a New Maintenance and Service Section

Tallies at Close of Voting

Voting Return Data		Acceptance Rate Data	
Voting Interest Returns	55	Voting Interest Accept Votes (VIAccept)	33
Total Voting Interests	80	Interest Reject Votes (IReject)	3
Voting Interest Return %	68.75%	Approval % [VIAccept / (VIAccept + IReject)]	91.67%
Other Returns (Intercommittee, etc.)		# of Interest Rejects that Need to be not found Valid for	
	32	Final Approval % >= 90%	0
Total Votes	87		
Total Votes with Comments	2		
Total Reject Votes	3		

Rejects/Negatives

Company: Submitter	ID	Negs	Disp	Company: Submitter	ID	Negs	Disp
Applied Materials: Edward Karl	AMAT	1					
Lam Research: Stanley Hughes	LMRC	4					
Lam Research AG: Sean Larsen	LMAG	2					

Negative from < Applied Materials: Edward Karl >

W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant

#	Ref.	Negative <u>including Justification</u>	TF Finding <u>and Reason</u>	Motion <u>and Reason</u> in Committee:	Final
AMAT-1	7.1.2	<p>Negative</p> <p>The proposed change (Walking surface width minimum 457 mm (18 in)) is less stringent than EN ISO 14122-2, Section 4.2.2 and may not meet essential health and safety criteria of Section 1.1.6 of Annex 1 of the Machinery Directive. ISO 14122-2 that the width of walkways intended for operation and maintenance should be determined by specified criteria. It also states that:</p> <p><i>"Unless there are exceptional circumstances, the clear width of a walkway shall be minimum 600 mm but preferably 800 mm. When the walkway is usually subject to passage or crossing of several persons simultaneously, the width shall be increased to 1000 mm. The width of the walkway, when designated as an escape way shall meet the requirements of appropriate regulations."</i></p> <p><i>"NOTE 2 When justified by the risk assessment and restrictions due to the machinery or environment, the free width may be reduced to no less than 500 mm if:</i></p> <p style="padding-left: 40px;"><i>the working platform or walkway is used only occasionally, and</i></p> <p style="padding-left: 40px;"><i>the reduction is made only for a short distance."</i></p> <p><u>Proposed Solution</u></p> <p>Define the minimum width as 600 mm, but include a similar note to allow for a width of 500 mm if justified by a risk assessment.</p>	<p>(Select 1)</p> <p><input type="checkbox"/> Not related</p> <p><input type="checkbox"/> Not persuasive (assumes related)</p> <p><input checked="" type="checkbox"/> Related & persuasive</p> <p>Reason:</p> <p>The TF found a parenthetical value to a metric value was paired incorrectly. The normative value was incorrect. The TF recommends to fail this line item based on this reason (not because of AMAT-1).</p> <p>Comment, P. Schwab. This criterion is limited to maintenance activities. 9-0 vote.</p> <p>Committee votes to fail this line item based on an incorrect dimension.</p>	<p><input type="checkbox"/> Withdrawn by Subm. (Date: _____)</p> <p>Move to find this negative: (select 1)</p> <p><input type="checkbox"/> Not related (requires reason, follow)</p> <p><input type="checkbox"/> Committee new business</p> <p><input type="checkbox"/> Assigned to: _____</p> <p><input type="checkbox"/> Not persuasive (requires reason)</p> <p><input checked="" type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Reason:</p> <p>The TF found a parenthetical value to a metric value was paired incorrectly. The normative value was incorrect. The TF recommends to fail this line item based on this reason (not because of AMAT-1).</p> <p>By/2nd: Paul Schwab / Bert Planting</p> <p>Disc:</p> <p>Vote: 9-0. Motion passed</p> <p>Significance finding/method: (select 1)</p> <p><input type="checkbox"/> Not significant by agreement</p> <p><input type="checkbox"/> Not significant by motion</p> <p><input type="checkbox"/> Significant by % of NP vote (>10%)</p> <p><input type="checkbox"/> Significant by agreement</p> <p><input type="checkbox"/> Significant by motion</p> <p>By/2nd:</p> <p>Disc:</p> <p>Vote: #-#-#. Motion passed failed</p>	

W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant

#	Ref.	Negative including Justification	TF Finding and Reason	Motion and Reason in Committee:	Final
EN ISO 14122-2, Section 4.2.2					
<p>In accordance with the values mentioned in EN 547-1 and EN 547-3 standards, unless exceptional circumstances exist the minimum headroom over working platforms and walkways shall be 2100 mm.</p> <p>NOTE 1 When justified by the risk assessment and restrictions due to the machinery or environment, the clear height may be reduced to no less than 1900 mm if:</p> <ul style="list-style-type: none"> — the working platform or walkway is used only occasionally, or — the reduction is made only for a short distance. <p>Unless there are exceptional circumstances, the clear width of a walkway shall be minimum 600 mm but preferably 800 mm. When the walkway is usually subject to passage or crossing of several persons simultaneously, the width shall be increased to 1000 mm. The width of the walkway, when designated as an escape way shall meet the requirements of appropriate regulations.</p> <p>NOTE 2 When justified by the risk assessment and restrictions due to the machinery or environment, the free width may be reduced to no less than 500 mm if:</p> <ul style="list-style-type: none"> — the working platform or walkway is used only occasionally, and — the reduction is made only for a short distance. 					
<p>Final disposition of this reject:</p> <p><input type="checkbox"/> Valid (includes at least one significant negative)</p> <p><input type="checkbox"/> Not Valid (all negatives withdrawn, found not related, or found not significant)</p>					

Comments

Company: Submitter	ID	#	Company: Submitter	ID	#
Applied Materials: Edward Karl	AMAT	3			
KLA-Tencor: Lauren Crane	KT	2			

Follow up Activity Authorization

Move to:

- Return ballot to the originating task force for rework
 and authorize a follow-up ballot
- Transfer ballot to the (name) task force for rework
 and authorize a follow-up ballot
- Discontinue work on ballot.

By/2nd: Paul Schwab (Texas Instruments) / Lauren Crane (KLA-Tencor)

Disc: None

Vote: 10-0. Motion passed

Attachment: 12, 5009B-LI5 Compiled Responses

4.2.6 Line Item #6 – Changes to Appendix 1, § 9: Hand Control Location Applications

Tallies at Close of Voting

Voting Return Data		Acceptance Rate Data	
Voting Interest Returns	55	Voting Interest Accept Votes (VIAccept)	36
Total Voting Interests	80	Interest Reject Votes (IReject)	0
Voting Interest Return %	68.75%	Approval % [VIAccept / (VIAccept + IReject)]	100.00%
Other Returns (Intercommittee, etc.)		# of Interest Rejects that Need to be not found Valid for	
	32	Final Approval % >= 90%	0
Total Votes	87		
Total Votes with Comments	0		
Total Reject Votes	0		

Rejects/Negatives

Summary: 0 Total Items Submitted

Comments

Summary: 0 Total Items Submitted

Safety Check

Move to find that this document:

- Is NOT a safety document: when all safety-related information is removed, the document is still technically sound and complete.
- IS a safety document: when all safety-related information is removed, the document is not technically sound and complete.
- The Safety Checklist (Regulations 13.3) for this document is complete and has accompanied the document through the balloting process.

By/2nd: Paul Schwab (Texas Instruments) / Ed Karl (Applied Materials)

Disc: None

Vote: 11-0. **Motion passed**

Intellectual Property Check

The meeting chair asked those present in person or by electronic link, if they were aware of any patented or copyrighted material in the Standard or Guideline.

(Note: Such material might have become known since the Standard or Safety Guideline was last reviewed, or might become relevant due to this ballot.)

- No patented or copyrighted material is known to exist in the Standard or Guideline. (no motion needed)
- Patented or copyrighted material is known to exist in the Standard or Guideline but release for such material has been obtained or presented to the committee. (no motion needed)
- Patented or copyrighted material is known to exist in the Standard or Guideline but release for some of the material(s) has NOT been obtained or presented to the committee. The committee moves to:
 - Ask the ISC for special permission to publish the standard without release
 - Quit the activity
 - Wait for the release of the patented or copyrighted material.

By/2nd:

Disc: Lauren Crane (KLA-Tencor) asked whether some of the values used in the Document were taken from other documents. Paul Schwab (Texas Instruments) responded that most of the values were taken from military spec, but also from other

documents. He pointed out that that these referenced documents also reference values from other documents. Paul added that efforts were taken to ensure that the original sources for the values used were researched. It was also pointed out that the figures used in S8 and in the ballot were developed by Paul Schwab. Paul also pointed out that most of the referenced documents are in the public domain and those that are not also pull values from documents in the public domain. Supika Mashiro (Tokyo Electron) stated that, from her experience, there are generally no issues from pulling values from other documents. However, she pointed out that there may be reproduction issues when taking tables, exactly as formatted, and using them in the Document. Nevertheless, she stated that it is the committee’s decision to determine whether copyright has been reproduced. It was pointed out that pulling values from other documents has been the practice in EHS for many years and for many of the Safety Guidelines. The values used in S8 are a consolidation of values taken from other resources and not just from a single source. The committee, then, raised the following question for SEMI legal counsel: Is pulling values from another standard considered copyright infringement?

Vote: #-#-#. **Motion passed failed**

Final Action

Move to:

- Pass this document as balloted and forward to the A&R for procedural review.
- Pass this document with editorial changes and forward to the A&R for procedural review.

By/2nd: Paul Schwab (Texas Instruments) / Lauren Crane (KLA-Tencor)

Disc: None

Vote: 10-0. **Motion passed**

Attachment: 13, 5009B-LI6 Compiled Responses

4.2.7 Line Item #7 – Changes to Appendix 1, ¶ 9.1: Hand Control Location Pictogram Addition

Tallies at Close of Voting

Voting Return Data		Acceptance Rate Data	
Voting Interest Returns	55	Voting Interest Accept Votes (VIAccept)	37
Total Voting Interests	80	Interest Reject Votes (IReject)	0
Voting Interest Return %	68.75%	Approval % [VIAccept / (VIAccept + IReject)]	100.00%
Other Returns (Intercommittee, etc.)		# of Interest Rejects that Need to be not found Valid for	
	32	Final Approval % >= 90%	0
Total Votes	87		
Total Votes with Comments	0		
Total Reject Votes	0		

Rejects/Negatives

Summary: 0 Total Items Submitted

Comments

Summary: 0 Total Items Submitted

Safety Check

Move to find that this document:

- Is NOT a safety document: when all safety-related information is removed, the document is still technically sound and complete.
- IS a safety document: when all safety-related information is removed, the document is not technically sound and complete.
- The Safety Checklist (Regulations 13.3) for this document is complete and has accompanied the document through the balloting process.

By/2nd: Paul Schwab (Texas Instruments) / Ed Karl (Applied Materials)

Disc: None

Vote: 11-0. **Motion passed**

Intellectual Property Check

The meeting chair asked those present in person or by electronic link, if they were aware of any patented or copyrighted material in the Standard or Guideline.

(Note: Such material might have become known since the Standard or Safety Guideline was last reviewed, or might become relevant due to this ballot.)

- No patented or copyrighted material is known to exist in the Standard or Guideline. (no motion needed)
- Patented or copyrighted material is known to exist in the Standard or Guideline but release for such material has been obtained or presented to the committee. (no motion needed)
- Patented or copyrighted material is known to exist in the Standard or Guideline but release for some of the material(s) has NOT been obtained or presented to the committee. The committee moves to:
 - Ask the ISC for special permission to publish the standard without release
 - Quit the activity
 - Wait for the release of the patented or copyrighted material.

By/2nd:

Disc: Lauren Crane (KLA-Tencor) asked whether some of the values used in the Document were taken from other documents. Paul Schwab (Texas Instruments) responded that most of the values were taken from military spec, but also from other documents. He pointed out that that these referenced documents also reference values from other documents. Paul added that efforts were taken to ensure that the original sources for the values used were researched. It was also pointed out that the figures used in S8 and in the ballot were developed by Paul Schwab. Paul also pointed out that most of the referenced documents are in the public domain and those that are not also pull values from documents in the public domain. Supika Mashiro (Tokyo Electron) stated that, from her experience, there are generally no issues from pulling values from other documents. However, she pointed out that there may be reproduction issues when taking tables, exactly as formatted, and using them in the Document. Nevertheless, she stated that it is the committee's decision to determine whether copyright has been reproduced. It was pointed out that pulling values from other documents has been the practice in EHS for many years and for many of the Safety Guidelines. The values used in S8 are a consolidation of values taken from other resources and not just from a single source. The committee, then, raised the following question for SEMI legal counsel: Is pulling values from another standard considered copyright infringement?

Vote: #-#-#. **Motion passed failed**

Final Action

Move to:

- Pass this document as balloted and forward to the A&R for procedural review.
- Pass this document with editorial changes and forward to the A&R for procedural review.

By/2nd: Paul Schwab (Texas Instruments) / Lauren Crane (KLA-Tencor)

Disc: None

Vote: 10-0. **Motion passed**

Attachment: 14, 5009B-LI7 Compiled Responses



4.3 Document # 5649, Delayed Line Item Revisions to SEMI S22, *Safety Guideline for the Electrical Design of Semiconductor Manufacturing Equipment*

4.3.1 Line Item # 1 – *Termination of the Supply Conductors*

Tallies at Close of Voting

Voting Return Data		Acceptance Rate Data	
Voting Interest Returns	55	Voting Interest Accept Votes (VIAccept)	33
Total Voting Interests	80	Interest Reject Votes (IReject)	3
Voting Interest Return %	68.75%	Approval % [VIAccept / (VIAccept + IReject)]	91.67%
Other Returns (Intercommittee, etc.)		# of Interest Rejects that Need to be not found Valid for	
	32	Final Approval % >= 90%	0
Total Votes	87		
Total Votes with Comments	2		
Total Reject Votes	3		

Rejects/Negatives

Company: Submitter	ID	Negs	Disp	Company: Submitter	ID	Negs	Disp
Applied Materials: Edward Karl	AMAT	2					
KLA-Tencor: Lauren Crane	KT	1					
Lam Research:							
Brian Claes	LRCA	1					
Tou Vang	LRCB	2					

Negatives from < Applied Materials: Ed Karl >

W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant

#	Ref.	Negative <i>including Justification</i>	TF Finding <i>and Reason</i>	Motion <i>and Reason in Committee:</i>	Final
AMAT-1	9.1.2	<p>Negative</p> <p>The proposed change (relaxation of the supply conductor termination) does not align with NFPA 79-2012 and could result in non-compliance with NFPA 79, Section 5.1.2 which only permits limited excepted circuits from being connected to other than the main disconnecting means.</p> <p>Proposed Solution: Either leave section 9.1.2 as is or incorporate excepted circuits consistent with those of NFPA 79, Section 5.3.5.</p>	<p>(Select 1)</p> <p><input type="checkbox"/> Not related</p> <p><input type="checkbox"/> Not persuasive (assumes related)</p> <p><input checked="" type="checkbox"/> Related & persuasive</p> <p>Reason:</p> <p>Ed Karl / Alan Crockett 4-0</p> <p>Note to authors: If 9.1.2 is reworded, then 9.1.2.1 should also be reworded.</p>	<p><input type="checkbox"/> Withdrawn by Subm. (Date: _____)</p> <p>Move to find this negative: (select 1)</p> <p><input type="checkbox"/> Not related (requires reason, follow)</p> <p><input type="checkbox"/> Committee new business</p> <p><input type="checkbox"/> Assigned to: _____</p> <p><input type="checkbox"/> Not persuasive (requires reason)</p> <p><input checked="" type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Reason:</p> <p>By/2nd: Chris Evanston / Lauren Crane Disc: Vote: 6-0. Motion passed</p> <p>Significance finding/method: (select 1)</p> <p><input type="checkbox"/> Not significant by agreement</p> <p><input type="checkbox"/> Not significant by motion</p> <p><input type="checkbox"/> Significant by % of NP vote (>10%)</p> <p><input type="checkbox"/> Significant by agreement</p> <p><input type="checkbox"/> Significant by motion</p> <p>By/2nd: Disc: Vote: #-#-#. Motion passed failed</p>	

Comments

Company: Submitter	ID	#	Company: Submitter	ID	#
KLA-Tencor: Lauren Crane	KT	2			
Hatsuta: Moray Crawford	HATS	1			
Lam Research AG: Sean Larsen	LMAG	1			

Follow up Activity Authorization

Move to:

- Return ballot to the originating task force for rework
- and authorize a follow-up ballot
- Transfer ballot to the (name) task force for rework
- and authorize a follow-up ballot
- Discontinue work on ballot.

By/2nd: Chris Evanston (Salus) / Bert Planting (ASML)

Disc: None

Vote: 11-0. Motion **passed**

Attachment: 15, 5649-LI1 Compiled Responses

4.3.2 Line Item # 2 – Modification to Main Disconnecting Means Guarding

Tallies at Close of Voting

Voting Return Data		Acceptance Rate Data	
Voting Interest Returns	55	Voting Interest Accept Votes (VIAccept)	31
Total Voting Interests	80	Interest Reject Votes (IReject)	2
Voting Interest Return %	68.75%	Approval % [VIAccept / (VIAccept + IReject)]	93.94%
Other Returns (Intercommittee, etc.)		# of Interest Rejects that Need to be not found Valid for	
	32	Final Approval % >= 90%	0
Total Votes	87		
Total Votes with Comments	0		
Total Reject Votes	2		

Rejects/Negatives

Company: Submitter	ID	Negs	Disp	Company: Submitter	ID	Negs	Disp
KLA-Tencor: Lauren Crane	KT	1					
Lam Research: Brian Claes	LMRC	1					

Negatives from < KLA-Tencor: Lauren Crane >

W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant

#	Ref.	Negative including Justification	TF Finding and Reason	Motion and Reason in Committee:	Final
KT-1	LI2-9.3.3.c	<p>Negative</p> <p>The test probe description does not address the admittance diameter limit of the test probe. For example, without this information someone could think a 26mm diameter opening above an electric shock hazard recessed 16mm is acceptable.... It is not.</p> <p>东莞安规检测 ANGUI TESTING</p> <p>Proposed Solution: Change to the effect of ... "Compliance can be demonstrated by verifying that a probe extending from the center of a 25mm diameter disk and tapering linearly from 4mm in diameter at the disk to 3mm in diameter and 15 mm long cannot contact live parts (e.g., see test probe 13 of IEC 61032).</p> <p>Technical</p>	<p>(Select 1)</p> <p><input type="checkbox"/> Not related</p> <p><input type="checkbox"/> Not persuasive (assumes related)</p> <p><input checked="" type="checkbox"/> Related & persuasive</p> <p>Reason:</p> <p>Lauren Crane / Alan Crockett Vote: 9-0</p>	<p><input type="checkbox"/> Withdrawn by Subm. (Date: ____)</p> <p>Move to find this negative: (select 1)</p> <p><input type="checkbox"/> Not related (requires reason, follow)</p> <p><input type="checkbox"/> Committee new business</p> <p><input type="checkbox"/> Assigned to: _____</p> <p><input type="checkbox"/> Not persuasive (requires reason)</p> <p><input checked="" type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Reason:</p> <p>By/2nd: Chris Evanston / Lauren Crane Disc: Vote: 9-0 Motion passed</p> <p>Significance finding/method: (select 1)</p> <p><input type="checkbox"/> Not significant by agreement</p> <p><input type="checkbox"/> Not significant by motion</p> <p><input type="checkbox"/> Significant by % of NP vote (>10%)</p> <p><input type="checkbox"/> Significant by agreement</p> <p><input type="checkbox"/> Significant by motion</p> <p>By/2nd: Disc: Vote: ##-#. Motion passed failed</p>	

Comments

Summary: 0 Total Items Submitted

Follow up Activity Authorization

Move to:

- Return ballot to the originating task force for rework
- and authorize a follow-up ballot
- Transfer ballot to the (name) task force for rework
- and authorize a follow-up ballot
- Discontinue work on ballot.

By/2nd: Chris Evanston (Salus) / Bert Planting (ASML)

Disc: None

Vote: 11-0. Motion **passed**

Attachment: 16, 5649-LI2 Compiled Responses

4.3.3 Line Item # 3 – *Modification to Uninterruptible Power Supply Interruption*

Tallies at Close of Voting

Voting Return Data		Acceptance Rate Data	
Voting Interest Returns	55	Voting Interest Accept Votes (VIAccept)	32
Total Voting Interests	80	Interest Reject Votes (IReject)	2
Voting Interest Return %	68.75%	Approval % [VIAccept / (VIAccept + IReject)]	94.12%
Other Returns (Intercommittee, etc.)		# of Interest Rejects that Need to be not found Valid for	
	32	Final Approval % >= 90%	0
Total Votes	87		
Total Votes with Comments	0		
Total Reject Votes	2		

Rejects/Negatives

Company: Submitter	ID	Negs	Disp	Company: Submitter	ID	Negs	Disp
KLA-Tencor: Lauren Crane	KT	2					
Dainippon Screen: Ryosuke Imamiya	DNS	2					

Negatives from < KLA-Tencor: Lauren Crane >

W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant

#	Ref.	Negative <i>including Justification</i>	TF Finding <i>and Reason</i>	Motion <i>and Reason in Committee:</i>	Final
KT-1	LI3-8.6.1.a	<p>Negative</p> <p>I do not think the goal of the task force has not been achieved with the grammatical structure of this change.</p> <p>I assume that the task force wants to allow the interruption of the UPS power supply (when the main disconnect is opened) to be controlled alternately by a disconnect at the UPS output rather than requiring some sort of automatic function tied to the main disconnect.</p> <p>The grammar of this change, however, has instead created a criteria that says the power from the UPS should be interrupted when ... the equipment main disconnect is open OR when a lockable etc.. which nonetheless requires the UPS power to be interrupted when the main disconnect is opened.</p> <p><u>Proposed Solution:</u> Achieve the goal with an exception to point b.</p> <p>Change to the effect of...</p> <p>"... b) the equipment main disconnecting means is opened or when a lockable disconnect specific to the UPS output is opened.</p> <p>... <u>Exception to b): a lockable disconnecting means is provided specific to the UPS output and it is grouped or labeled according to the criteria of 9.3.2 and the wiring and terminals in the wiring between the UPS output and the lockable disconnecting means input terminals are clearly labeled as remaining energized after the UPS output disconnecting means is opened.</u></p> <p>Technical</p>	<p>(Select 1)</p> <p><input type="checkbox"/> Not related</p> <p><input type="checkbox"/> Not persuasive (assumes related)</p> <p><input checked="" type="checkbox"/> Related & persuasive</p> <p>Reason:</p> <p>Lauren C / Alan C Vote: 6-0</p>	<p>Withdrawn by Subm. (Date: _____)</p> <p>Move to find this negative: (select 1)</p> <p><input type="checkbox"/> Not related (requires reason, follow)</p> <p><input type="checkbox"/> Committee new business</p> <p><input type="checkbox"/> Assigned to: _____</p> <p><input type="checkbox"/> Not persuasive (requires reason)</p> <p><input checked="" type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Reason:</p> <p>By/2nd: Chris Evanston / Lauren Crane Disc: Vote: 7-1. Motion passed</p> <p>Significance finding/method: (select 1)</p> <p><input type="checkbox"/> Not significant by agreement</p> <p><input type="checkbox"/> Not significant by motion</p> <p><input type="checkbox"/> Significant by % of NP vote (>10%)</p> <p><input type="checkbox"/> Significant by agreement</p> <p><input type="checkbox"/> Significant by motion</p> <p>By/2nd: Disc: Vote: #-#-#. Motion passed failed</p>	

Comments

Summary: 0 Total Items Submitted

Follow up Activity Authorization

Move to:

- Return ballot to the originating task force for rework
- and authorize a follow-up ballot
- Transfer ballot to the (name) task force for rework
- and authorize a follow-up ballot
- Discontinue work on ballot.

By/2nd: Chris Evanston (Salus) / Bert Planting (ASML)

Disc: None

Vote: 11-0. Motion passed

Attachment: 17, 5649-LI3 Compiled Responses

4.3.4 Line Item # 4 – *Modification to Local Lighting Overcurrent Protection Criteria*

Tallies at Close of Voting

Voting Return Data		Acceptance Rate Data	
Voting Interest Returns	55	Voting Interest Accept Votes (VIAccept)	32
Total Voting Interests	80	Interest Reject Votes (IReject)	1
Voting Interest Return %	68.75%	Approval % [VIAccept / (VIAccept + IReject)]	96.97%
Other Returns (Intercommittee, etc.)	32	# of Interest Rejects that Need to be not found Valid for	
	87	Final Approval % >= 90%	0
Total Votes	87		
Total Votes with Comments	0		
Total Reject Votes	1		

Rejects/Negatives

Company: Submitter	ID	Negs	Disp	Company: Submitter	ID	Negs	Disp
Dainippon Screen: Ryosuke Imamiya	DNS	1					

Negatives from < Dainippon Screen: Ryosuke Imamiya >

<i>W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant</i>					
#	Ref.	<u>Negative including Justification</u>	<u>TF Finding and Reason</u>	<u>Motion and Reason in Committee:</u>	Final
DNS-1	---	Non-process lighting sounds strange. Delete non-process and maybe add a note to give some supplementary. I think "lighting" distinguish from the special purpose, a note is not necessary.	<p>(Select 1)</p> <p><input type="checkbox"/> Not related</p> <p><input checked="" type="checkbox"/> Not persuasive (assumes related)</p> <p><input type="checkbox"/> Related & persuasive</p> <p>Reason: Japanese speaker present in the TF meeting did not see this as an issue.</p> <p>Alan Crockett / Lauren Crane Vote: 6-0</p>	<p><input type="checkbox"/> Withdrawn by Subm. (Date: _____)</p> <p>Move to find this negative: (select 1)</p> <p><input type="checkbox"/> Not related (requires reason, follow)</p> <p><input type="checkbox"/> Committee new business</p> <p><input type="checkbox"/> Assigned to: _____</p> <p><input checked="" type="checkbox"/> Not persuasive (requires reason)</p> <p><input type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Reason:</p> <p><i>By/2nd:</i> Chris Evanston / Bert Planting <i>Disc:</i> <i>Vote:</i> 8-0. Motion passed</p> <p>Significance finding/method: (select 1)</p> <p><input type="checkbox"/> Not significant by agreement</p> <p><input type="checkbox"/> Not significant by motion</p> <p><input type="checkbox"/> Significant by % of NP vote (>10%)</p> <p><input type="checkbox"/> Significant by agreement</p> <p><input type="checkbox"/> Significant by motion</p> <p><i>By/2nd:</i> <i>Disc:</i> <i>Vote:</i> #-#-#. Motion passed failed</p>	

Comments

Summary: 0 Total Items Submitted

Safety Check

Move to find that this document:

Is NOT a safety document: when all safety-related information is removed, the document is still technically sound and complete.

IS a safety document: when all safety-related information is removed, the document is not technically sound and complete.

The Safety Checklist (Regulations 13.3) for this document is complete and has accompanied the document through the balloting process.

By/2nd: Chris Evanston (Salus) / Bert Planting (ASML)

Disc:

Vote: 6-0. **Motion passed**

Intellectual Property Check

The meeting chair asked those present in person or by electronic link, if they were aware of any patented or copyrighted material in the Standard or Guideline.

(Note: Such material might have become known since the Standard or Safety Guideline was last reviewed, or might become relevant due to this ballot.)

No patented or copyrighted material is known to exist in the Standard or Guideline. (no motion needed)

- Patented or copyrighted material is known to exist in the Standard or Guideline but release for such material has been obtained or presented to the committee. (no motion needed)
- Patented or copyrighted material is known to exist in the Standard or Guideline but release for some of the material(s) has NOT been obtained or presented to the committee. The committee moves to:
 - Ask the ISC for special permission to publish the standard without release
 - Quit the activity
 - Wait for the release of the patented or copyrighted material.

By/2nd:

Disc: See discussion in Document #5009B (§ 4.2 of these minutes)

Vote: #-#-#. **Motion passed failed**

Final Action

Move to:

- Pass this document as balloted and forward to the A&R for procedural review.
- Pass this document with editorial changes and forward to the A&R for procedural review.

By/2nd: Chris Evanston (Salus) / Lauren Crane (KLA-Tencor)

Disc: None

Vote: 7-0. **Motion passed**

Attachment: 18, 5649-LI4 Compiled Responses

4.3.5 Line Item # 5 – Modification to Electrical Motor Criteria

Tallies at Close of Voting

Voting Return Data		Acceptance Rate Data	
Voting Interest Returns	55	Voting Interest Accept Votes (VIAccept)	31
Total Voting Interests	80	Interest Reject Votes (IReject)	2
Voting Interest Return %	68.75%	Approval % [VIAccept / (VIAccept + IReject)]	93.94%
Other Returns (Intercommittee, etc.)	32	# of Interest Rejects that Need to be not found Valid for	
Total Votes	87	Final Approval % >= 90%	0
Total Votes with Comments	0		
Total Reject Votes	2		

Rejects/Negatives

Company: Submitter	ID	Negs	Disp	Company: Submitter	ID	Negs	Disp
KLA-Tencor: Lauren Crane	KT	1					
Lam Research: Brian Claes	LMRC	1					

Negatives from < KLA-Tencor: Lauren Crane >

W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant

#	Ref.	Negative <i>including Justification</i>	TF Finding <i>and Reason</i>	Motion <i>and Reason</i> in Committee:	Final
KT-1	L15	<p>Negative, Many of the criteria in section 18 are related to mechanical or temperature hazards, not electrical hazards. Mechanical hazards for example may be relevant even if the VA rating is below 240VA. The horsepower or watts of a motor is a better expression of its potential mechanical hazard than VA. VA is an input measurement for a motor, and the resultant motor power can vary depending on the efficiency and power factor of the motor. This change could, for example, bring many DC motors into scope that were not in scope before, and it may put 3 phase motors out of scope what have higher torques than under the current values. See Annex I, below.</p> <p><u>Proposed Solution:</u> Leave application of section 18 criteria as is.</p> <p>Technical</p>	<p>(Select 1) <input type="checkbox"/> Not related <input type="checkbox"/> Not persuasive (assumes related) <input checked="" type="checkbox"/> Related & persuasive</p> <p>Reason: Lauren Crane / Bert Planting Vote: 2-3</p>	<p><input type="checkbox"/> Withdrawn by Subm. (Date: _____)</p> <p>Move to find this negative: (select 1) <input type="checkbox"/> Not related (requires reason, follow) <input type="checkbox"/> Committee new business <input type="checkbox"/> Assigned to: _____ <input type="checkbox"/> Not persuasive (requires reason) <input checked="" type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Reason: <i>By/2nd:</i> Brian Claes / Lauren Crane <i>Disc:</i> Lauren Crane pointed out that alignment with international documents does not bring ratings into consistency. Chris Evanston (Salus) reported that IEC 60204-33 states 240 VA (volt-amperes) as the threshold. Carl Wong (AKT) reported that NFPA 70 has motor nameplate criteria in horsepower (HP) and does not say anything in VA. He pointed out that you cannot expect to find VA rating in motor because it is HP. He then asked how VA would be converted to HP. Stephan Pochon (TUV Rheinland NA) reported that IEC 60034 is in VA or watts. Chris Evanston reported that S22, ¶ 18.1.4 states: "Motors should be marked with their voltage, current and frequency rating." Brian Claes offered a recommendation for the task force: if the TF builds criteria for maximum VA into the motor (from the circuit) then the TF may not get much objection with this approach. Curt Layman (Segate) asked whether there is alignment with IEC 60204-33. The answer was "No." Carl Wong then asked whether there is a reason to align with 60204-33. Chris Evanston responded, "No". However, he pointed out that there are changes that happen in -33 that are parallel with S22. Chris stated that the committee does not have to make this change, but there is still a disconnect within S22.</p> <p><i>Vote:</i> 6-3. Motion passed</p>	

Annex I – Horse Power and VA

Motor Type	Typical Efficiency (η)	Typical Power Factor (PF)	HP of a 240VA motor (UI = 240)
DC	50% (ref)	n/a	HP = η U I / 746 → HP = .5 x 240 / 746 = .16
Single Phase	80% (ref)	.82 (ref)	HP = η U I PF → HP = .8 x 240 x .82 / 746 = .21
Two Phase			HP = η 2 U I PF → HP = .8 x 2 x 240 x .82 / 746 = .42
Three Phase			HP = η 1.73 U I PF → HP = .80 x 1.73 x 240 x .82 / 746 = .36

Power in Watts

Direct Current

Electric power of a motor can be expressed as:

$$P = \eta U I \quad (1)$$

Where: P = power (W), η = motor efficiency, U = voltage (V), I = current (A, amps)

Single Phase

$$P = \eta U I PF \quad (1b)$$

Where: PF = Power Factor

Two Phase Four Wire

$$P = \eta 2 U I PF \quad (1c)$$

Three Phase

$$P = \eta 1.73 U I PF \quad (1d)$$

Power in Horsepower

Horse power of a motor can be expressed as:

$$HP = P / 746 \quad (2)$$

Where: HP = horsepower

Example - The Horsepower of an Electrical Motor

The horse power of an 230 V electrical motor with 85% efficiency pulling 10 amps can be calculated as:

$$HP = 0.85 (230 V) (10 amps) / 746 = \underline{2.62}$$

Comments

Summary: 0 Total Items Submitted

Follow up Activity Authorization

Move to:

Return ballot to the originating task force for rework

and authorize a follow-up ballot

Transfer ballot to the (name) task force for rework

and authorize a follow-up ballot

Discontinue work on ballot.

By/2nd: Chris Evanston (Salus) / Bert Planting (ASML)

Disc: None

Vote: 11-0. Motion **passed**

Attachment: 19, 5649-LI5 Compiled Responses

4.3.6 Line Item # 6 – Addition of Motor Overload Test Method

Tallies at Close of Voting

Voting Return Data		Acceptance Rate Data	
Voting Interest Returns	55	Voting Interest Accept Votes (VIAccept)	31
Total Voting Interests	80	Interest Reject Votes (IReject)	3
Voting Interest Return %	68.75%	Approval % [VIAccept / (VIAccept + IReject)]	91.18%
Other Returns (Intercommittee, etc.)		# of Interest Rejects that Need to be not found Valid for	
	32	Final Approval % >= 90%	0
Total Votes	87		
Total Votes with Comments	0		
Total Reject Votes	3		

Rejects/Negatives

Company: Submitter	ID	Negs	Disp	Company: Submitter	ID	Negs	Disp
KLA-Tencor:							
Lauren Crane	KTA	1					
Alan Crockett	KTB	1					
Lam Research: Brian Claes	LMRC	3					
Safety Related Control Systems (Projects etc): George Rutherford	PROJ	1					

Negatives from < KLA-Tencor: Lauren Crane [KTA-], Alan Crockett [KTAB-] >

W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant					
#	Ref.	Negative including Justification	TF Finding and Reason	Motion and Reason in Committee:	Final
KTA-1	L16 22.18	<p>Negative</p> <p>There is something odd in the logic here, if the motor etc operates from hazardous voltage or power or could cause fire or injury it must already be in accordance with 8.4.1 so the motor test would never be required. Which means the only motor motor/controller potentially subject to this test are ones that do not operate from hazardous voltage or power and cannot cause fire or personal injury, so why bother with the locked rotor test?</p> <p>The bulleted "in accordance with" phrases are poorly structured - section 8.4.1 does not address "motor/controller combinations" "overload protection devices" nor "inherent protection" per se.</p>	<p>(Select 1)</p> <p><input type="checkbox"/> Not related</p> <p><input type="checkbox"/> Not persuasive (assumes related)</p> <p><input checked="" type="checkbox"/> Related & persuasive</p> <p>Reason:</p> <p>Withdrawn on October 28.</p>	<p><input checked="" type="checkbox"/> Withdrawn by Subm. (Date: October 28, 2013)</p> <p>Move to find this negative: (select 1)</p> <p><input type="checkbox"/> Not related (requires reason, follow)</p> <p><input type="checkbox"/> Committee new business</p> <p><input type="checkbox"/> Assigned to: _____</p> <p><input type="checkbox"/> Not persuasive (requires reason)</p> <p><input type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Reason:</p> <p>By/2nd:</p> <p>Disc:</p> <p>Vote: #-#-#. Motion passed failed</p> <p>Significance finding/method: (select 1)</p> <p><input type="checkbox"/> Not significant by agreement</p>	

<i>W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant</i>					
#	Ref.	<u>Negative including Justification</u>	<u>TF Finding and Reason</u>	<u>Motion and Reason in Committee:</u>	Final
		<p>This test should be excluded if the motor is excluded from the criteria of section 18.</p> <p>There is something odd in the logic here, if the motor etc operates from hazardous voltage or power or could cause fire or injury it must already be in accordance with 8.4.1 so the motor test would never be required. Which means the only motor motor/controller potentially subject to this test are ones that do not operate from hazardous voltage or power and cannot cause fire or personal injury, so why bother with the locked rotor test?.</p> <p><u>Proposed Solution:</u> Clarify the logic of applying this test... And apply the following as appropriate... Add a bullet to the beginning of the bulleted list to the effect of "• a motor that is not within the scope of section 18, or" Change the bulleted phrases to reflect what it is about 8.4.1 that the various scenarios should be in accordance with, to the effect of... "... • a motor/controller combination <u>certified and used</u> in accordance with 8.4.1, or • a motor provided with an overload protection device <u>certified and used</u> in accordance with 8.4.1 and <u>in a form according to</u> 18.4.3, or • a motor having inherent protection (e.g. thermal protection or impedance protection) <u>certified and used</u> in accordance with 8.4.1..."</p> <p>Technical</p>		<p><u>Not significant by motion</u> <u>Significant by % of NP vote (>10%)</u> <u>Significant by agreement</u> <u>Significant by motion</u></p> <p>By/2nd: Disc: Vote: #-#-#. Motion passed failed</p>	

<i>W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant</i>					
#	Ref.	<u>Negative including Justification</u>	<u>TF Finding and Reason</u>	<u>Motion and Reason in Committee:</u>	Final
KTB-1	---	Negative: Line Item 6 22.18 bullets: should refer to 18.4.1 and 18.4.3 - not 8.4.1 (I think)	<u>(Select 1)</u> <input type="checkbox"/> Not related <input type="checkbox"/> Not persuasive (assumes related) <input checked="" type="checkbox"/> Related & persuasive Reason: Withdrawn on October 28.	<input checked="" type="checkbox"/> Withdrawn by Subm. (Date: October 28, 2013) Move to find this negative: (select 1) <input type="checkbox"/> Not related (requires reason, follow) <input type="checkbox"/> Committee new business <input type="checkbox"/> Assigned to: _____ <input type="checkbox"/> Not persuasive (requires reason) <input checked="" type="checkbox"/> Related & persuasive (ballot fails) Reason: <i>By/2nd:</i> <i>Disc:</i> <i>Vote: #-#-#. Motion passed failed</i> Significance finding/method: (select 1) <input type="checkbox"/> Not significant by agreement <input type="checkbox"/> Not significant by motion <input type="checkbox"/> Significant by % of NP vote (>10%) <input type="checkbox"/> Significant by agreement <input type="checkbox"/> Significant by motion <i>By/2nd:</i> <i>Disc:</i> <i>Vote: #-#-#. Motion passed failed</i>	

Negatives from < Lam Research: Brian Claes >

W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant

#	Ref.	Negative <i>including Justification</i>	TF Finding <i>and Reason</i>	Motion <i>and Reason in Committee:</i>	Final
LMRC-1	22.18	<p>Motor overload tests apply to a range of overload conditions and not just locked rotor.</p> <p>Suggestion / Justification Revise 22.18 to read "Motor Overload Test (Rocked Rotor Test) - This test...."</p>	<p>(Select 1) <input type="checkbox"/> Not related <input checked="" type="checkbox"/> Not persuasive (assumes related) <input type="checkbox"/> Related & persuasive</p> <p>Reason: The benchmark from protection standards is Overload.</p> <p>Alan / Bert 6-0</p>	<p>Withdrawn by Subm. (Date: _____)</p> <p>Move to find this negative: (select 1) <input type="checkbox"/> Not related (requires reason, follow) <input type="checkbox"/> Committee new business <input type="checkbox"/> Assigned to: _____ <input checked="" type="checkbox"/> Not persuasive (requires reason) <input type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Discussion before motion: Brian Claes stated that overload test method is different from locked rotor test method. Chris Evanston pointed out that locked rotor is a type of overload being tested.</p> <p>Reason: By/2nd: Chris Evanston / Mark Fessler Disc: Vote: 7-1. Motion passed</p> <p>Significance finding/method: (select 1) <input type="checkbox"/> Not significant by agreement <input type="checkbox"/> Not significant by motion <input type="checkbox"/> Significant by % of NP vote (>10%) <input type="checkbox"/> Significant by agreement <input type="checkbox"/> Significant by motion</p> <p>By/2nd: Disc: Vote: #-#-#. Motion passed failed</p>	

<i>W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant</i>					
#	Ref.	<u>Negative including Justification</u>	<u>TF Finding and Reason</u>	<u>Motion and Reason in Committee:</u>	<i>Final</i>
LMRC -2	22.18	<p>The inherent protection described in the 3rd bullet (including the parenthetical examples) is redundant to that in 18.4.3 as addressed in the 2nd bullet.</p> <p>Suggestion / Justification Delete the 3rd bullet as it is redundant to the 2nd bullet (and therefore potentially confusing).</p>	<p>(Select 1) <input type="checkbox"/> Not related <input checked="" type="checkbox"/> Not persuasive (assumes related) <input type="checkbox"/> Related & persuasive</p> <p>Reason: The distinction is about <u>listed</u> inherent protection and not just inherent protection.</p> <p>Alan Crockett / Bert Planting 4-0</p>	<p>Withdrawn by Subm. (Date: _____)</p> <p>Move to find this negative: (select 1) <input type="checkbox"/> Not related (requires reason, follow) <input type="checkbox"/> Committee new business <input type="checkbox"/> Assigned to: _____ <input checked="" type="checkbox"/> Not persuasive (requires reason) <input type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Reason: The distinction is about <u>listed</u> inherent protection and not just inherent protection.</p> <p><i>By/2nd:</i> Chris Evanston / Alan Crockett <i>Disc:</i> <i>Vote:</i> 9-0. Motion passed</p> <p>Significance finding/method: (select 1) <input type="checkbox"/> Not significant by agreement <input type="checkbox"/> Not significant by motion <input type="checkbox"/> Significant by % of NP vote (>10%) <input type="checkbox"/> Significant by agreement <input type="checkbox"/> Significant by motion</p> <p><i>By/2nd:</i> <i>Disc:</i> <i>Vote:</i> #-#-#. Motion passed failed</p>	

W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant

#	Ref.	Negative including Justification	TF Finding and Reason	Motion and Reason in Committee:	Final
LMRC-3	22.18.3	<p>"No signs of damage" is a very subjective criterion without identifiable threshold. For instance, is a small odor indicative of damage not readily visible to the eye? Or are we looking for a threshold at a higher level such as no evidence of charred insulation?</p> <p>Suggestion / Justification No specific suggestion other than to select a usable definition and threshold for acceptable versus non-acceptable damage.</p>	<p>(Select 1) <input type="checkbox"/> Not related <input checked="" type="checkbox"/> Not persuasive (assumes related) <input type="checkbox"/> Related & persuasive</p> <p>Reason: Test labs do not need to be instructed in pass/fail criteria.</p> <p>Alan Crockett / Ed Karl 8-0</p>	<p>Withdrawn by Subm. (Date: ____)</p> <p>Move to find this negative: (select 1) <input type="checkbox"/> Not related (requires reason, follow) <input type="checkbox"/> Committee new business <input type="checkbox"/> Assigned to: _____ <input checked="" type="checkbox"/> Not persuasive (requires reason) <input type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Discussion prior to motion: Stephan Pochon (TUV Rheinland NA) reported that 61010 actually allows for signs for smoke. Lauren Crane (KLA-Tencor) reported that wire flexing calls for "signs for physical damage."</p> <p>Reason: Test labs do not need to be instructed in pass/fail criteria.</p> <p><i>By/2nd:</i> Chris Evanston / Ed Karl <i>Disc:</i> Carl Wong asked whether smoke is considered a sign of damage. Mark Fessler pointed out that S22 does not answer that question either way. Chris Evanston stated that some judgment has to be made with regard to the presence of smoke. Brian Claes asked, "If there are no signs of damage, what criteria would you use?" Finally, Mark Fessler stated that while he advocated making the effort of making things clear in S22, but he asked the committee not to focus on this particular item in getting more things cleared up. <i>Vote:</i> 9-2. Motion passed</p> <p>Significance finding/method: (select 1) <input type="checkbox"/> Not significant by agreement <input type="checkbox"/> Not significant by motion <input type="checkbox"/> Significant by % of NP vote (>10%) <input type="checkbox"/> Significant by agreement <input type="checkbox"/> Significant by motion</p> <p><i>By/2nd:</i> <i>Disc:</i> <i>Vote:</i> #-#-#. Motion passed failed</p>	

Negatives from < Safety Related Control Systems (Projects etc): George Rutherford >

<i>W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant</i>					
#	Ref.	Negative <i>including Justification</i>	TF Finding <i>and Reason</i>	Motion <i>and Reason in Committee:</i>	Final
PROJ-1	---	Unless I have mis read this or missed some info - I object to the text that implies that if an approved overload protection is fitted then the motor lock test is not needed. The correct selection/rating (and some cases setting) of the overload MUST be considered and therefore a lock test is necessary to prove an adequate arrangement is in place. George Rutherford (tech@projectsetc.com).	<p>(Select 1) <input type="checkbox"/> Not related <input checked="" type="checkbox"/> Not persuasive (assumes related) <input type="checkbox"/> Related & persuasive</p> <p>Reason: The presumption of the negative is that considered design and testing is not performed prior to this evaluation test. The TF believes that to be incorrect.</p> <p>Mark Frankfurth / Alan Crockett 7-0</p>	<p>Withdrawn by Subm. (Date: _____)</p> <p>Move to find this negative: (select 1) <input type="checkbox"/> Not related (requires reason, follow) <input type="checkbox"/> Committee new business <input type="checkbox"/> Assigned to: _____ <input checked="" type="checkbox"/> Not persuasive (requires reason) <input type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Reason: The presumption of the negative is that considered design and testing is not performed prior to this evaluation test. The TF believes that to be incorrect.</p> <p>By/2nd: Alan Crockett / Chris Evanston Disc: Vote: 7-2. Motion passed</p> <p>Significance finding/method: (select 1) <input type="checkbox"/> Not significant by agreement <input type="checkbox"/> Not significant by motion <input type="checkbox"/> Significant by % of NP vote (>10%) <input type="checkbox"/> Significant by agreement <input type="checkbox"/> Significant by motion</p> <p>By/2nd: Disc: Vote: #-#-#. Motion passed failed</p>	

Comments

Summary: 0 Total Items Submitted

Safety Check

Move to find that this document:

Is NOT a safety document: when all safety-related information is removed, the document is still technically sound and complete.

IS a safety document: when all safety-related information is removed, the document is not technically sound and complete.

The Safety Checklist (Regulations 13.3) for this document is complete and has accompanied the document through the balloting process.

By/2nd: Chris Evanston (Salus) / Bert Planting (ASML)

Disc:

Vote: 6-0. **Motion passed**

Intellectual Property Check

The meeting chair asked those present in person or by electronic link, if they were aware of any patented or copyrighted material in the Standard or Guideline.

(Note: Such material might have become known since the Standard or Safety Guideline was last reviewed, or might become relevant due to this ballot.)

- No patented or copyrighted material is known to exist in the Standard or Guideline. (no motion needed)
- Patented or copyrighted material is known to exist in the Standard or Guideline but release for such material has been obtained or presented to the committee. (no motion needed)
- Patented or copyrighted material is known to exist in the Standard or Guideline but release for some of the material(s) has NOT been obtained or presented to the committee. The committee moves to:
 - Ask the ISC for special permission to publish the standard without release
 - Quit the activity
 - Wait for the release of the patented or copyrighted material.

By/2nd:

Disc: See discussion in Document #5009B (§ 4.2 of these minutes)

Vote: #-#-#. **Motion passed failed**

Final Action

Move to:

- Pass this document as balloted and forward to the A&R for procedural review.
- Pass this document with editorial changes and forward to the A&R for procedural review.

By/2nd: Chris Evanston (Salus) / Lauren Crane (KLA-Tencor)

Disc: None

Vote: 7-0. **Motion passed**

Attachment: 20, 5649-LI6 Compiled Responses

4.3.7 Line Item # 7 – Grounding Criteria

Tallies at Close of Voting

Voting Return Data		Acceptance Rate Data	
Voting Interest Returns	55	Voting Interest Accept Votes (VIAccept)	31
Total Voting Interests	80	Interest Reject Votes (IReject)	2
Voting Interest Return %	68.75%	Approval % [VIAccept / (VIAccept + IReject)]	93.94%
Other Returns (Intercommittee, etc.)		# of Interest Rejects that Need to be not found Valid for	
	32	Final Approval % >= 90%	0
Total Votes	87		
Total Votes with Comments	0		
Total Reject Votes	2		

Rejects/Negatives

Company: Submitter	ID	Negs	Disp	Company: Submitter	ID	Negs	Disp
KLA-Tencor: Lauren Crane	KT	1					
Lam Research: Brian Claes	LMRC	2					

Negatives from < KLA-Tencor: Lauren Crane >

W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant

#	Ref.	Negative <u>including Justification</u>	TF Finding <u>and Reason</u>	Motion <u>and Reason</u> in Committee:	Final
KT-1	L17 22.3.3 Exception	<p>Negative, Do not reference an external standard to qualify an exception.</p> <p>IEC 60204-33 Annex A does not address "fault clearing times". The times that are referenced in Annex A are disconnecting time apparently limited to TN systems and circuits intended to supply class 1 handheld and portable equipment. It does not seem correct to say those criteria can be extended to full equipment.</p> <p>The proposed application of the exception is reversed in logic from 60204-33 which says the 0.1ohm value may be used as an exception to testing for clearing times.</p> <p><u>Proposed Solution:</u> Do not provide this exception, or if an exception must be provided, put clearing time criteria directly in S22 and make sure it is worded such that it can be applied to the entire equipment rather than a circuit subset, and make sure application of the exception is consistent with the state of the art (i.e., 0.1 ohm excuses clearing time testing, not clearing time testing excuses 0.1 ohm)</p> <p>Technical</p>	<p>(Select 1) <input type="checkbox"/> Not related <input type="checkbox"/> Not persuasive (assumes related) <input checked="" type="checkbox"/> Related & persuasive</p> <p>Reason: Note to author: Consider revising definition to make it consistent w/ IEC 60204-33. Add Annex B???</p> <p>Lauren Crane / Alan Crockett 4-0</p>	<p><input type="checkbox"/> Withdrawn by Subm. (Date: _____)</p> <p>Move to find this negative: (select 1) <input type="checkbox"/> Not related (requires reason, follow) <input type="checkbox"/> Committee new business <input type="checkbox"/> Assigned to: _____ <input type="checkbox"/> Not persuasive (requires reason) <input checked="" type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Reason: <i>By/2nd:</i> Chris Evanston / Bert Planting <i>Disc:</i> <i>Vote:</i> 8-0. Motion passed</p> <p>Significance finding/method: (select 1) <input type="checkbox"/> Not significant by agreement <input type="checkbox"/> Not significant by motion <input type="checkbox"/> Significant by % of NP vote (>10%) <input type="checkbox"/> Significant by agreement <input type="checkbox"/> Significant by motion</p> <p><i>By/2nd:</i> <i>Disc:</i> <i>Vote:</i> #-#-#. Motion passed failed</p>	

Comments

Summary: 0 Total Items Submitted

Follow up Activity Authorization

Move to:

- Return ballot to the originating task force for rework
- and authorize a follow-up ballot
- Transfer ballot to the (name) task force for rework
- and authorize a follow-up ballot
- Discontinue work on ballot.

By/2nd: Chris Evanston (Salus) / Bert Planting (ASML)

Disc: None



Vote: 11-0. Motion **passed**

Attachment: 21, 5649-LI7 Compiled Responses

4.3.8 Line Item # 8 – *Modification to Phase Marking*

Tallies at Close of Voting

Voting Return Data		Acceptance Rate Data	
Voting Interest Returns	55	Voting Interest Accept Votes (VIAccept)	29
Total Voting Interests	80	Interest Reject Votes (IReject)	2
Voting Interest Return %	68.75%	Approval % [VIAccept / (VIAccept + IReject)]	93.55%
Other Returns (Intercommittee, etc.)		# of Interest Rejects that Need to be not found Valid for	
	32	Final Approval % >= 90%	0
Total Votes	87		
Total Votes with Comments	0		
Total Reject Votes	2		

Rejects/Negatives

<i>Company: Submitter</i>	<i>ID</i>	<i>Negs</i>	<i>Disp</i>	<i>Company: Submitter</i>	<i>ID</i>	<i>Negs</i>	<i>Disp</i>
KLA-Tencor: Lauren Crane	KT	1					
Dainippon Screen: Ryosuke Imamiya	DNS	1					

Negatives from < KLA-Tencor: Lauren Crane >

W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant

#	Ref.	Negative <u>including Justification</u>	TF Finding <u>and Reason</u>	Motion <u>and Reason</u> in Committee:	Final
KT-1	L18 Note XX	<p>Negative,</p> <p>Do not start a precedent of calling out all S22 criteria that do not conform with other standards that could potentially apply. With regard to understanding the application of S22, it does not matter what other standards require.</p> <p><u>Proposed Solution:</u> Delete the Note</p> <p>Technical</p>	<p>(Select 1)</p> <p><input type="checkbox"/> Not related</p> <p><input type="checkbox"/> Not persuasive (assumes related)</p> <p><input checked="" type="checkbox"/> Related & persuasive</p> <p>Reason:</p> <p>Withdrawn October 28</p>	<p><input checked="" type="checkbox"/> Withdrawn by Subm. (Date: October 28, 2013)</p> <p>Move to find this negative: (select 1)</p> <p><input type="checkbox"/> Not related (requires reason, follow)</p> <p><input type="checkbox"/> Committee new business</p> <p><input type="checkbox"/> Assigned to: _____</p> <p><input type="checkbox"/> Not persuasive (requires reason)</p> <p><input checked="" type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Reason:</p> <p><i>By/2nd:</i></p> <p><i>Disc:</i></p> <p><i>Vote: #-#-#. Motion passed failed</i></p> <p>Significance finding/method: (select 1)</p> <p><input type="checkbox"/> Not significant by agreement</p> <p><input type="checkbox"/> Not significant by motion</p> <p><input type="checkbox"/> Significant by % of NP vote (>10%)</p> <p><input type="checkbox"/> Significant by agreement</p> <p><input type="checkbox"/> Significant by motion</p> <p><i>By/2nd:</i></p> <p><i>Disc:</i></p> <p><i>Vote: #-#-#. Motion passed failed</i></p>	

Negatives from < Dainippon Screen: Ryosuke Imamiya >

<i>W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant</i>					
#	Ref.	Negative <i>including Justification</i>	TF Finding <i>and Reason</i>	Motion <i>and Reason in Committee:</i>	Final
DNS-1	---	Be consistent with the requirements of IEC60203-33.	<p>(Select 1)</p> <p><input type="checkbox"/> Not related</p> <p><input checked="" type="checkbox"/> Not persuasive (assumes related)</p> <p><input type="checkbox"/> Related & persuasive</p> <p>Reason: The TF does not want to consider a document that is more restrictive as needed.</p> <p>Lauren / Alan Vote:6-0</p>	<p><input type="checkbox"/> Withdrawn by Subm. (Date: _____)</p> <p>Move to find this negative: (select 1)</p> <p><input type="checkbox"/> Not related (requires reason, follow)</p> <p><input type="checkbox"/> Committee new business</p> <p><input type="checkbox"/> Assigned to: _____</p> <p><input checked="" type="checkbox"/> Not persuasive (requires reason)</p> <p><input type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Reason: The TF does not want to consider a document that is more restrictive as needed.</p> <p><i>By/2nd:</i> Chris Evanston / Bert Planting <i>Disc:</i> <i>Vote:</i> 10-0. Motion passed</p> <p>Significance finding/method: (select 1)</p> <p><input type="checkbox"/> Not significant by agreement</p> <p><input type="checkbox"/> Not significant by motion</p> <p><input type="checkbox"/> Significant by % of NP vote (>10%)</p> <p><input type="checkbox"/> Significant by agreement</p> <p><input type="checkbox"/> Significant by motion</p> <p><i>By/2nd:</i> <i>Disc:</i> <i>Vote:</i> #-#-#. Motion passed failed</p>	

Comments

Summary: 0 Total Items Submitted

Safety Check

Move to find that this document:

Is NOT a safety document: when all safety-related information is removed, the document is still technically sound and complete.

IS a safety document: when all safety-related information is removed, the document is not technically sound and complete.

The Safety Checklist (Regulations 13.3) for this document is complete and has accompanied the document through the balloting process.

By/2nd: Chris Evanston (Salus) / Bert Planting (ASML)

Disc:

Vote: 6-0. **Motion passed**

Intellectual Property Check

The meeting chair asked those present in person or by electronic link, if they were aware of any patented or copyrighted material in the Standard or Guideline.

(Note: Such material might have become known since the Standard or Safety Guideline was last reviewed, or might become relevant due to this ballot.)

- No patented or copyrighted material is known to exist in the Standard or Guideline. (no motion needed)
- Patented or copyrighted material is known to exist in the Standard or Guideline but release for such material has been obtained or presented to the committee. (no motion needed)
- Patented or copyrighted material is known to exist in the Standard or Guideline but release for some of the material(s) has NOT been obtained or presented to the committee. The committee moves to:
 - Ask the ISC for special permission to publish the standard without release
 - Quit the activity
 - Wait for the release of the patented or copyrighted material.

By/2nd:

Disc: See discussion in Document #5009B (§ 4.2 of these minutes)

Vote: #-#-#. **Motion passed failed**

Final Action

Move to:

- Pass this document as balloted and forward to the A&R for procedural review.
- Pass this document with editorial changes and forward to the A&R for procedural review.

By/2nd: Chris Evanston (Salus) / Lauren Crane (KLA-Tencor)

Disc: None

Vote: 7-0. **Motion passed**

Attachment: 22, 5649-LI8 Compiled Responses

4.3.9 Line Item # 9 – Modification to Cord and Plug Disconnect Criteria

Tallies at Close of Voting

Voting Return Data		Acceptance Rate Data	
Voting Interest Returns	55	Voting Interest Accept Votes (VIAccept)	32
Total Voting Interests	80	Interest Reject Votes (IReject)	1
Voting Interest Return %	68.75%	Approval % [VIAccept / (VIAccept + IReject)]	96.97%
Other Returns (Intercommittee, etc.)		# of Interest Rejects that Need to be not found Valid for	
	32	Final Approval % >= 90%	0
Total Votes	87		
Total Votes with Comments	1		
Total Reject Votes	1		

Rejects/Negatives

Company: Submitter	ID	Negs	Disp	Company: Submitter	ID	Negs	Disp
Applied Materials: Edward Karl	AMAT	1					

Negatives from < Applied Materials: Ed Karl >

W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant

#	Ref.	Negative <u>including Justification</u>	TF Finding <u>and Reason</u>	Motion <u>and Reason</u> in Committee:	Final
AMAT-1	9.4.5	<p>Negative</p> <p>The exception is open ended and does not state what requirements do not apply if the rating does not exceed 16A and 3 kW.</p> <p><u>Proposed Solution:</u> Change exception to the following or equivalent:</p> <p>EXCEPTION: The breaking capacity requirement does not apply if the rated current does not exceed 16A and the rated power does not exceed 3kW.</p>	<p>(Select 1)</p> <p><input type="checkbox"/> Not related</p> <p><input type="checkbox"/> Not persuasive (assumes related)</p> <p><input checked="" type="checkbox"/> Related & persuasive</p> <p>Reason:</p> <p>Editorial Change:</p> <p>EXCEPTION: The breaking capacity criteria does not apply if the rated current does not exceed 16A and the rated power does not exceed 3kW.</p> <p>Accept EC Ed / Bert 8-0</p> <p>Negative withdrawn w/ motion to accept EC passing.</p>	<p><input checked="" type="checkbox"/> Withdrawn by Subm. (Date: October 28, 2013)</p> <p>Move to find this negative: (select 1)</p> <p><input type="checkbox"/> Not related (requires reason, follow)</p> <p><input type="checkbox"/> Committee new business</p> <p><input type="checkbox"/> Assigned to: _____</p> <p><input type="checkbox"/> Not persuasive (requires reason)</p> <p><input checked="" type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Reason:</p> <p>By/2nd: Disc: Vote: #-#-#. Motion passed failed</p> <p>Significance finding/method: (select 1)</p> <p><input type="checkbox"/> Not significant by agreement</p> <p><input type="checkbox"/> Not significant by motion</p> <p><input type="checkbox"/> Significant by % of NP vote (>10%)</p> <p><input type="checkbox"/> Significant by agreement</p> <p><input type="checkbox"/> Significant by motion</p> <p>By/2nd: Disc: Vote: #-#-#. Motion passed failed</p>	

Comments

Company: Submitter	ID	#	Company: Submitter	ID	#
Hatsuta: Moray Crawford	HATS	1			

#	Ref.	Comment	TF Response	Committee Action:
HATS-1	LII	comment Line item 9 Exception is confusing Why don't you need 'at least the rated current of the machine at the rated voltage' for every case?	Editorial change proposed to alleviate confusion (see above).	(Select one) <input type="checkbox"/> No further action <input type="checkbox"/> Refer to TF for further review <input type="checkbox"/> New Business <input checked="" type="checkbox"/> Editorial Change: # <u>1</u> in ECs below <input type="checkbox"/> Other: (Select one) <input checked="" type="checkbox"/> Committee agrees (no motion nec.) <input type="checkbox"/> Motion to act as indicated above: <i>By/2nd:</i> <i>Disc:</i> <i>Vote:</i> #-#-#. Motion passed failed

Summary of Editorial Changes

#	Ref.	Before	After	Object? (Y/N)	Motion to Approve: (if necessary)
1		EXCEPTION: If the rated current does not exceed 16A and the rated power does not exceed 3kW.	EXCEPTION: <u>The breaking capacity criteria does not apply</u> if the rated current does not exceed 16A and the rated power does not exceed 3kW.		Justification: Grammatical correctness. Motion to approve EC <i>By/2nd:</i> Bert Planting / Chris Evanston <i>Disc:</i> <i>Vote:</i> 12-0. Motion passed

Safety Check

Move to find that this document:

Is NOT a safety document: when all safety-related information is removed, the document is still technically sound and complete.

IS a safety document: when all safety-related information is removed, the document is not technically sound and complete.

The Safety Checklist (Regulations 13.3) for this document is complete and has accompanied the document through the balloting process.

By/2nd: Chris Evanston (Salus) / Bert Planting (ASML)

Disc:

Vote: 6-0. **Motion passed**

Intellectual Property Check

The meeting chair asked those present in person or by electronic link, if they were aware of any patented or copyrighted material in the Standard or Guideline.

(Note: Such material might have become known since the Standard or Safety Guideline was last reviewed, or might become relevant due to this ballot.)

No patented or copyrighted material is known to exist in the Standard or Guideline. (no motion needed)

- Patented or copyrighted material is known to exist in the Standard or Guideline but release for such material has been obtained or presented to the committee. (no motion needed)
- Patented or copyrighted material is known to exist in the Standard or Guideline but release for some of the material(s) has NOT been obtained or presented to the committee. The committee moves to:
 - Ask the ISC for special permission to publish the standard without release
 - Quit the activity
 - Wait for the release of the patented or copyrighted material.

By/2nd:

Disc: See discussion in Document #5009B (§ 4.2 of these minutes)

Vote: #-#-#. **Motion passed failed**

Final Action

Move to:

- Pass this document as balloted and forward to the A&R for procedural review.
- Pass this document with editorial changes and forward to the A&R for procedural review.

By/2nd: Chris Evanston (Salus) / Lauren Crane (KLA-Tencor)

Disc: None

Vote: 7-0. **Motion passed**

Attachment: 23, 5649-LI9 Compiled Responses

5 Subcommittee & Task Force Reports

5.1 Manufacturing Equipment Safety Subcommittee (MESSC)

Lauren Crane reported. Report highlights:

- SEMATECH presented on “*Energetics in Semiconductor Processing – Best Known Methods and Standardization*”
 - Presentation from Jackie Ferrell
 - 70+ incidents learned of in 2013 benchmark survey were from across the full lifecycle of energetics (producing, using, disposing of the chemicals).
 - MESSC comments to SEMATECH in developing their Energetics BKM (best known methods)
 - Consider concerns of equipment start up – may be gaps in “responsibility” where piping joins equipment.
 - BKM being developed should reference SEMI standards already present (having good, relevant guidance) – possibly S18, S26, S28, S3, S2, S13. Don’t let current scoping of these document interfere with consideration of their potential benefits.
 - Define the list of chemicals used and process steps concerned.
 - Discuss the other hazards of the substances (i.e., besides being energetics).
 - NFPA 318 is probably relevant to this topic, as well as building codes.
 - Also contact Japan EHS committee (and other regional EHS committees).
 - We are looking forward to working on this issue, but It is too early to predict rate of progress in SEMI standards.
 - Keep in mind that “shall” is not part of the Safety Guideline vocabulary (by design).

- Next Steps:
 - Draft BKM from SEMATECH expected in January 2014.
 - Draft will be announced to MESSC. MESSC members review draft as feasible
 - Start discussions at NA Spring 2014 MESSC meeting on appropriate way to incorporate BKM information into SEMI Standards
 - Interested SEMI standards members can likely join the current SEMATECH BKM Working Group – contact Andy McIntyre (mcintyrea@eorm.com) or Steve Trammell (steve.trammell@sematech.org)
- Possible S2/S22 HEI mismatch in philosophy from S2/MD Mapping TF
 - Issue: S2 and S22 appear to have different HEI philosophies that would apply to cord and plug connected equipment.
 - Notified NA EHS Hazardous Energy Control Isolation Devices TF of the concern

Attachment: 24, MESSC Report (includes SEMATECH “Energetics in Semiconductor Processing – Best Known Methods and Standardization” presentation)

5.2 Fail-Safe / Fault-Tolerant Task Force

Lauren Crane reported that the TF is continuing discussions on current agenda topics as well as future activities.

5.3 Fire Protection Discussion

Lauren Crane reported that while no formal TF meeting was held, those present in the room discussed Fire Protection TF-related matters.

- Scope of Work
 - Deal with S14 and S2 §14 (In favor 8 – 0)
- Classes of equipment that do and do not need S14 assessment - Brainstorm
 - Is S14 needed for all equipment types – we think not
 - Rough ideas for what does not need S14 assessment*
 - 1) Significantly constructed of non-combustible material.
 - 2) No fuel for a sustained flame – smolders and goes out is okay
 - 3) 95% made of metal or non-combustible and no flammables (process chems)
 - 4) Any combustible mater
 - 5) Fire risk substantially address by electrical safety assessment.
 - 6) Electrical circuits below 8watts. (or other – 15w) also ref 61010 limited circuit concept.
 - 7) Hot surface analysis perhaps with results below some threshold.
 - Rough ideas for what does need S14 assessment*
 - 1) Solids Liquids or gases that are combustible flammable pyrophoric. Considering also effluents,
 - 2) Lithium or other types of batteries or stored energy.

* the inverse of each item goes in the other set.

- Arranging S2 §14 so a single “N/A” will close out equipment that does not have fire detection or fire suppression systems.
 - Can we arrange section 14 for easier assessment (or appendix) for “single NA” when tool does not have fire protection.
 - We think this is just a question of how the document is organized and not related to new technical requirements or their application.
 - Mod S2 14.4.4.and 14.4.5 put balance of subsequent material in a new appendix – no change of assessment criteria.
 - Chris Evanston will prepare SNARF as needed for Committee.
 - Vote: In favor 11 – 0
- Alignment of S10 and S14
 - Try to put S14 matrix severity schedules into S10
 - To have a unified risk assessment applicable to all hazards.
 - Address the risk cell dis-join 4A (frequent / minor)
 - Medium in S14 vs. Low in S10
 - Vote – Change the 4A cell in S10 to medium from low (In favor 5 – 5)
- AHJ communications about non-life-safety-systems
 - Jurisdictions requiring equipment systems to meet all local life safety system requirements. Options...
 - Rename system as a monitor
 - Pull out system
 - Renaming has been successful sometimes.
 - We would like some sort of open letter from SEMI to AHJs to move their interpretation.
 - Put this in ICRC – Done
- Future Plans / Timeline
 - Ballot modifying S2 §14
 - Continue work on other issues listed earlier

Action Item: 2013Oct #06, Chris Evanston to put together SNARF for S2 § 14 revision.

Attachment: 25, Fire Protection Discussion Report

5.4 Hazardous Energy Isolation Devices Task Force

Mark Fessler reported.

3 Previously Raised LOTO Concerns

- Concern #1 - Remote LOTO Challenges:
 - Control of Hazardous Energy does not allow the use of Remote LOTO devices (low voltage control circuit isolation) as defined in US OSHA energy control device.

- Concern #2 - SEMI S2 Section 17: Hazardous Energy Isolation:
 - Additional Gaps in SEMI S2 for Chemical LOTO: Within Section 17, the concept of isolation de-energization and verification of de-energization is clarified well for electrical but has gap for ... chemical hazardous energies.
- Concern #3 - SEMI S2 Section 11: Interlocks:
 - Safety Interlocks: - should SEMI S2 specify the need for safety interlock for pressurized chemical/gas access doors?

Open Discussions – Working Sessions

- *Remote LOTO*: Some New Topics we want to also consider... Consider:
 - How to change OSHA?
 - Potential for SEMI Industry Advocacy??
 - Coordinate with RIA? Other industries?
 - Question: Does it take an act of congress to change OSHA?
 - Is there enough interest? UL 6420
 - Standard for Equipment Used for System Isolation and Rated as a Single Unit (First Edition; October 19, 2012)
- *Foreseeable Misuse-Issue*: Tool in sub-fab and LOTO only there is a situation where local switching “remote LOTO” at the chamber makes sense.
- *SEMI S2 Section 17*: We feel this can be interpreted either way (with or without remote LOTO) and no specific requirements on how to “verify” non-electrical energies

What Should The TF Work On?

- *Remote LOTO* (TF straw poll, which should we prioritize first – 7 votes for this)
 - *Advantages*: Ease of Use, Alignment with other countries, cost, uptime savings if you would have to go to sub-fab
 - *Disadvantages*: Time – act of congress?, requires training of designers on “functional safety” requirements (e.g. ISO 13849-1, IEC 62061, ISO 61508, etc...)
- *Clean Up Chemical LOTO [flush purge steps]* (TF straw poll, which should we prioritize first – 3 votes for this)
 - *Advantages*: Easier solution expected, less time and less misinterpretation (more clarity) of existing requirements
 - *Disadvantages*: This should be done already if we are saying we are compliant.
- Next Steps
 - Set up Reoccurring Teleconferences
 - Investigate other industry contacts for alignment (e.g. RIA, others?)
 - See if we (SEMI TF) can get copy of GM’s approved variance of allowing remote LOTO.

Additional Discussion:

- Sean Larsen asked whether LOTO can be regional specific. Mark Fessler responded that this is how LOTO is being treated today. Mark then explained remote LOTO vs human error considerations when having someone go down to the sub-fab to lockout-tagout. Finally, Mark stated that the TF will pursue: how remote LOTO can be tolerated by OSHA.

Attachment: 26, Hazardous Energy Isolation Devices Task Force Report

5.5 NA Seismic Liaison Task Force

Lauren Crane reported. Of note:

- Reviewed the draft proposal from the Japan TF
- TF discussion with regard to S2 § 19, vertical details
 - Changes also needed to notes 113 and 114 (on assumptions underlying force values)
 - Add Oregon to list of areas surveyed for seismogenic potential – Pauline Derbyshire will look this up and provide it.
 - Need to further discuss merits of adding consideration of rigidity / flexibility of equipment to force criteria – may require advice on how to make the decision of equipment being considered rigid (or not).

Additional Discussion:

- Chris Evanston asked when the Japan TF plans to submit a ballot. Supika Mashiro responded that the TF plans to submit at the earliest possible cycle, currently targeted for Cycle 2-14, but it ultimately depends on the level of agreement.
- Sean Larsen asked whether there were any specific cases that were identified where equipment was affected. Supika Mashiro responded that most of the locations where the data was collected feel that the S2 value is good. However, some feel that certain updates are needed.
- Carl Wong expressed concern that these values will be challenged or questioned despite the development efforts currently taking place.
- Supika Mashiro reported that Taiwan has requested the TF to include considerations for higher floors.

Action Item: 2013Oct #05, Paul Trio/Cher Wu to communicate existing Seismic TF activity to Taiwan EHS Committee members and request for participation

Attachment: 27, NA Seismic Liaison Task Force Report

5.6 S1 Revision Task Force

Lauren Crane reported. Report highlights:

- Background
 - On July 11, 2013, SNARF and TFOF were submitted to the NA EHS Committee to:
 - Prepare revision ballot(s) to improve SEMI S1 as prompted by reject comments to the re-approval ballot.
 - Scope of the SEMI S1 TF would be to review and, where feasible, address the negative and comments received during the ballot of SEMI Draft Document #5521. This may include changes to achieve more harmony with National and International hazard alert labeling standards (e.g., ANSI Z535, ISO 3864, etc.)
 - NA EHS Committee approved the SNARF and TFOF on July 11, 2013.
- SEMI S1 TF Leaders emailed Geoffrey Peckham (past co-chair of SEMI S1) to seek his assistance with the issuance of an updated copyright release to SEMI for the purpose of updating SEMI S1 to align with ANSI Z535.4.

- G. Peckham responded on August 8th, 2013, *“I believe SEMI S1 should be retired and SEMI S2 should refer to the above standards to direct equipment manufacturers to regarding current best practices related to product safety labeling... It is my personal opinion that their time will be better spent working on SEMI standards that are relevant to specifically to semiconductor industry instead of putting time and effort into constantly revising SEMI S1.”*
- Some of the basis outlined in G. Peckham’s letter included:
 - ISO 3864-2 and ANSI Z535.4 have now harmonized to a large degree. It would take SEMI S1 a lot to be brought up to date, and even then, it would be playing a constant game of catch-up.
 - ISO 7010 has become the global source for standardized safety symbols. ANSI Z535 committee made a major modification to the 2011 version of ANSI Z535.3 safety symbol standard by removing all symbol examples from the standards and instead, referencing ISO 7010 as of the primary resources for safety symbols.
 - ISO 3864-3 is an excellent standard pertaining to the design of new symbols.
 - Referencing the ANSI and ISO standards will serve your industry better in the long run because they have been created by experts in visual safety communication.
- Based on input from Geoffrey Peckham, TF consensus: Keep SEMI S1 as-is and only address those ‘low-hanging-fruit’ negatives through line item ballots that do not involve copyright matters.
- Future Plans
 1. Create line item ballot covering negatives received
 2. 1st Ballot draft ASAP
 3. Send out by email for TF review
 4. Discuss ballot draft F2F at Spring meetings.
 5. Send Ballot after Spring meetings
 6. Only work on S1 related solutions to negatives received in the re-approval ballot.

Additional Discussion:

- Brian Claes asked whether the TF was looking into gaps between S1 and other documents. Lauren Crane responded that the TF is not planning on this.

Action Item: 2013Oct #04, S1 Revision TF to put together a list of concerns/scenarios that SEMI would use to obtain guidance on how to proceed with S1 revision effort.

Attachment: 28, S1 Revision Task Force Report

5.7 S2 Chemical Exposure Task Force

John Visty reported. Current activities:

- 4683B Update / clarification of 23.5 text to select sampling method and use of accredited lab
- Added language acknowledging surrogates, their general application and priority then points to S6
- Future discussion:
 - Representative Sampling
 - N2 & inert environments
 - Alternate Exposure Routes (e.g. skin)

Attachment: 29, S2 Chemical Exposure Task Force Report

5.8 S2 Ladders & Steps Task Force

Carl Wong reported that he and Ron Macklin have not been able to work on the 4449E ballot. Lindy Austin (Salus) will be joining the TF leadership to help move things along. The working draft is close to ballot with negatives addressed, but need someone to help finish. The TF plans to ballot by the next meeting.

- Motion:** NA EHS approved to appoint Lindy Austin (Salus) as S2 Ladders & Steps TF leader.
- By / 2nd:** Carl Wong (AKT) / Chris Evanston (Salus)
- Discussion:** Sean Larsen asked whether Lindy would be willing to serve as NA EHS Committee Technical Editor. Chris Evanston responded that this opportunity would be considered at a later time.
- Vote:** 12-0. Motion passed.

5.9 S2 to Machinery Directive Mapping Task Force

Lauren Crane reported. Current activities:

- DONE – we have 300 assessment points. Rough draft review complete.

<i>Status</i>	<i>Count*</i>	<i>%</i>
[1] Full Coverage	97	32%
[2] Partial Coverage	63	21%
[3] No Coverage	113	37%
[4] Moot for semi	29	10%
Total	302*	100%

* Error of 2 in tally... not sure where.

- 3rd Party Review of Process
- Discussed Next Steps
 - Get work “endorsed” by vote of NA EHS committee to publish as AUX document with some cleanup of the rough document – following email request to all EHS committee members for further review ~30 days prior.
 - THEN from the “endorsed” work....
 - Identify priority S2/MD gaps for possible S2 revision
 - Publish deltas as RI in S2.

Motion: NA EHS approved to ask SEMI staff to send repackaged end work in email to all EHS committees requesting them to review the document and provide comments with a view towards voting within the NA EHS committee to make the document a AUX document after received comments are reviewed, and acted on in a manner similar to ballot adjudication (also within the NA EHS Committee).

By / 2nd: Lauren Crane (KLA-Tencor) / Bert Planting (ASML)

- Discussion:**
- Lauren Crane will continue assisting with the clean-up effort.
 - Lauren Crane to put together email template that would be used to send to EHS committee members.
 - Supika Mashiro recalled an EHS committee process where, ALL regions must first approve AUX

proposals.

- It was pointed out that this applies to RI, but can also be extended to AUX.
- Changing that agreement will require approval from other regions.
- NA EHS has no desire to change this agreement.

Vote: 10-0. Motion passed.

Action Item: 2013Oct #01, Lauren Crane to send clean up S2 MD document and email letter template to Paul Trio.

Action Item: 2013Oct #02, Paul Trio to send S2 MD document to all EHS Committee members for feedback.

Action Item: 2013Oct #03, Paul Trio/Lauren Crane to request time in the next Japan EHS agenda to present the S2 MD Mapping TF report, including next steps, and NA EHS Committee action.

Attachment: 30, S2 to Machinery Directive Mapping Task Force Report

5.10 S2 Non-Ionizing Task Force

Sean Larsen reported that the TF is continuing its work on ballot 5625 (includes incorporating graphs from the previous ballot's background into the main document).

5.11 S6 Revision Task Force

John Visty reported. Current activities:

- TF Discussion
 - Realistic worst case release scenarios and release rate calculations
 - TF evenly divided so thought was to look at design requirements that could be used reduce risk factors possibly leading to testing at a lower release rate for S6 validation.
 - Discussed white paper vs. appendix approach that would identify controls and risk reduction factors
 - Surrogate testing procedure especially for wet chemistry (overlap w/ Chem Exposure TF)
 - Optimization of exhaust for normal operation
 - PDCB use and low TLV chemistry
 - Gas detector approval/listing requirement and difficulty in obtain said sensor
- A new SNARF for S6 (*EHS Guideline for Exhaust Ventilation of Semiconductor Manufacturing Equipment*) revision was then presented to the committee for approval
 - Rationale: S6 Reapproval Ballot resulted in several negatives. TF will work to address negatives submitted to existing document.
 - Scope: SEMI S6; will not only include negatives received on reapproval ballot, but other sections of S6.

Motion: NA EHS approves new SNARF for S6 revision.

By / 2nd: John Visty (Salus) / Bert Planting (ASML)

Discussion: None

Vote: 7-0. Motion passed.

Attachment: 31, S6 Revision Task Force Report

5.12 S10 (Safety Guideline for Risk Assessment and Risk Evaluation Process) Revision Activity

Bert Planting presented a TFOF for the formation of the S10 Revision Task Force (formerly under the Europe EHS TC Chapter, see ¶ 3.2 of these minutes)

- **TF Leaders:** Bert Planting (ASML), Thomas Pilz (Pilz GmbH)
- **Charter:** To update the SEMI S10 (Safety Guideline for Risk Assessment and Risk Evaluation Process) based on negatives received in the S10 reapproval ballot (Draft Document #5599)
- **Scope:**
 - Look at better definitions in the severity table
 - Discuss the likelihood table and how to define frequency
 - General update
 - Update Appendices/Related Information to latest standards

Additional Discussion:

- Lauren Crane asked whether the TF intends to address any issues outside of what has been identified by negatives received on the # 5599 ballot. Bert Planting responded, “Yes.”
- Bert Planting stated that the TF has yet to determine whether the S10 revision ballot will be a major revision or line item only.

Motion: NA EHS approves formation of the S10 Revision Task Force.

By / 2nd: Lauren Crane (KLA-Tencor) / Bert Planting (ASML)

Discussion: None

Vote: 11-0. Motion passed.

5.13 EMC Task Force (under the NA Metrics Committee)

Mark Frankfurth reported that the TF discussed KLA-Tencor’s review & feedback on ASML “Current Sense-Wire” alternative test method white paper for large equipment EMC testing. This test method is intended to be peer-reviewed and eventually considered for incorporation in E33. Unfortunately, the TF did not have key participants or critical mass for review. The TF is also watching the EU EMC Directive Recast. Mark stated that market surveillance will have an effect on recast. Finally, SNARF # 5596 was approved. The activity focuses on EMC for facilities, not safety. First draft is targeted for April 2014.

Additional Discussion:

- Lauren Crane asked whether the TF is trying to set a standard to meet. Mark Frankfurth responded that ideas on how to address this issue are still nebulous at this time.

5.14 Energy Saving Equipment Communication Task Force (under the NA Information & Control Committee)

Supika Mashiro reported that the TF has started phase 2 of its activities: information exchange between equipment (e.g., etcher) and subsystem (that is controlled by the equipment). She noted there was some confusion here initially but the intent was ultimately clarified by the end of the TF meeting. Supika also reported that there is known IP, but was unclear where the IP would be involved. Furthermore, she pointed out that since the Regulations require a Letter of Intent (LOI) before the SNARF can be approved, the SNARF has not yet been approved at this time. Finally, she stated that the aim is to make S23 sleep mode easier.

6 Old Business

None

7 New Business

7.1 Ballot Authorization

#	When	SC/TF/WG	Details
4683C	Cycle 8, 2013	S2 Chemical Exposure TF	Line Item Revisions to SEMI S2, <i>Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment</i> Delayed Revisions Related to Chemical Exposure
4316K	Cycle 1, 2014	S22 TF	Line Item Revisions to SEMI S2, <i>Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment</i> , and SEMI S22, <i>Safety Guideline for the Electrical Design of Semiconductor Manufacturing Equipment</i> Delayed Revision Related to Programmable Safety Circuits
5625	Cycle 1, 2014	S2 Non-ionizing Radiation TF	Line Item Revisions to SEMI S2, <i>Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment</i> Delayed revisions related to non-ionizing radiation
5649A	Cycle 1, 2014	S22 TF	Delayed Line Item Revisions to SEMI S22, <i>Safety Guideline for the Electrical Design of Semiconductor Manufacturing Equipment</i>
4449E	Cycle 2, 2014	S2 Ladders & Steps TF	Delayed Line Item Revision to SEMI S2-0712, <i>Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment</i> . Line Item Revisions related to Work at Elevated Locations and Design Criteria for Platforms, Steps, and Ladders
5009C	Cycle 2, 2014	Ergonomics TF	Line Item Revisions to SEMI S8-0712, <i>Safety Guidelines for Ergonomics Engineering of Semiconductor Manufacturing Equipment</i> . Delayed Revisions on Multiple Topics

Motion: NA EHS TC approves distribution of ballots as shown above

By / 2nd: Bert Planting (ASML) / Lauren Crane (KLA-Tencor)

Discussion: None

Vote: 10-0. Motion passed.

7.2 NA EHS Proposed Meeting Schedule at the NA Standards Spring 2014 Meetings

North America Standards Spring 2014 Meetings

March 31 – April 3, 2014

SEMI Headquarters

3081 Zanker Road

San Jose, California 95134

Monday, March 31

- S22 (Electrical Safety) TF (9:00 AM to 10:30 AM)
- Hazardous Energy Control Isolation Devices TF (10:30 AM to 12:00 Noon)
- EHS Process Meeting / Lunch Break (12:00 Noon to 1:00 PM)
- S2 Non-Ionizing Radiation TF (1:00 PM to 2:00 PM)
- S2 Chemical Exposure TF (2:00 PM to 3:30 PM)
- S6 Revision TF (3:30 PM to 5:00 PM)
- Seismic Liaison TF (5:00 PM to 6:00 PM)

Tuesday, April 1

- Fire Protection TF (9:00 AM to 10:30 Noon)
- S10 Revision TF (11:00 AM to 12:00 Noon)
- Fail-Safe Fault-Tolerant TF (1:00 PM to 2:00 PM)
- S1 Revision TF (2:00 PM to 3:30 PM)
- S2 Ladders & Steps TF (3:30 PM to 5:00 PM)
- S23 Revision Japan TF (5:00 PM to 6:00 PM)

Wednesday, April 2

- [ICRC (9:00 AM to 12:00 Noon)]
- EHS Leadership Meeting / Lunch Break (12:00 Noon to 1:00 PM)
- S2 Machinery Directive Mapping TF (1:00 PM to 2:00 PM)
- MESSC (2:00 PM to 4:00 PM)
- S8 Ergonomics TF (4:00 PM to 5:30 PM)

Thursday, April 3

- EHS Committee (9:00 AM to 6:00 PM)

For more information about the NA Standards Spring 2014 meetings, please visit: semi.org/standards
 So that meeting attendees can plan their travel schedules accordingly, the committee agreed that the last day to make changes to the NA Standards Fall 2013 meeting schedule is March 1, 2014.

7.3 New Action Items

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
2013Oct #01	Lauren Crane	Send clean up S2 MD document and email letter template to Paul Trio.
2013Oct #02	Paul Trio	Send S2 MD document to all EHS Committee members for feedback.
2013Oct #03	Paul Trio/Lauren Crane	Request time in the next Japan EHS agenda to present the S2 MD Mapping TF report, including next steps, and NA EHS Committee action.
2013Oct #04	S1 Revision TF	Put together a list of concerns/scenarios that SEMI would use to obtain guidance on how to proceed with S1 revision effort.
2013Oct #05	Paul Trio/Cher Wu	Communicate existing Seismic TF activity to Taiwan EHS Committee members and request for participation
2013Oct #06	Chris Evanston	Put together SNARF for S2 § 14 revision.

8 Next Meeting and Adjournment

The next meeting of the North America Environmental, Health, and Safety committee is scheduled for April 3 in conjunction with the NA Standards Spring 2014 meetings. Adjournment was at 4:00 PM.

Respectfully submitted by:

Paul Trio
 Senior Manager, Standards Operations
 SEMI North America
 Phone: +1.408.943.7041
 Email: ptrio@semi.org

Minutes approved by:

Chris Evanston (Salus Engineering), Co-chair	
Sean Larsen (Lam Research AG), Co-chair	
Bert Planting (ASML), Co-chair	February 16, 2014

Table 6 Index of Available Attachments #1

#	Title	#	Title
01	SEMI Standards Required Meeting Elements	17	5649-LI3 Compiled Responses
02	NA EHS SEMICON West 2013 Meeting (July 11) Minutes	18	5649-LI4 Compiled Responses
03	Japan EHS Committee Report	19	5649-LI5 Compiled Responses
04	Leadership Report	20	5649-LI6 Compiled Responses
05	NARSC Regulations WG Presentation “Ballot Adjudication and Virtual Meetings”	21	5649-LI7 Compiled Responses
06	SEMI Staff Report	22	5649-LI8 Compiled Responses
07	4316J-LI1 Compiled Responses	23	5649-LI9 Compiled Responses
08	5009B-LI1 Compiled Responses	24	MESSC Report
09	5009B-LI2 Compiled Responses	25	Fire Protection Discussion Report
10	5009B-LI3 Compiled Responses	26	Hazardous Energy Isolation Devices TF Report
11	5009B-LI4 Compiled Responses	27	NA Seismic Liaison TF Report
12	5009B-LI5 Compiled Responses	28	S1 Revision TF Report
13	5009B-LI6 Compiled Responses	29	S2 Chemical Exposure TF Report
14	5009B-LI7 Compiled Responses	30	S2 to Machinery Directive Mapping TF Report
15	5649-LI1 Compiled Responses	31	S6 Revision TF Report
16	5649-LI2 Compiled Responses		

#1 Due to file size and delivery issues, attachments must be downloaded separately. A .zip file containing all attachments for these minutes is available at www.semi.org. For additional information or to obtain individual attachments, please contact Paul Trio at the contact information above.