

North America Metrics TC Chapter Meeting Summary and Minutes

N.A. Standards SEMICON West 2013 Meetings

Wednesday, July 10, 2013

3:00 PM – 6:00 PM PDST

San Francisco Marriott Marquis Hotel in San Francisco, California

Next N.A. TC Chapter Meeting

The next meeting of the North America (N.A.) Chapter of the Metrics Global Technical Committee (TC Chapter) is scheduled in conjunction with the N.A. Standards Fall 2013 Meetings on October 30, 2013 at SEMI Headquarters in San Jose, California. The meeting details and the latest schedule will be updated at:

<http://www.semi.org/en/node/46221>

Table 1 Meeting Attendees

Cochairs: David L. Bouldin (Fab Consulting), Mark Frankfurth (Cymer)

SEMI Staff: Michael Tran

Company	Last	First	Company	Last	First
BestESD Technical Services	Kraz	Vladimir	SEMATECH	Ferrell	Jackie
Cymer	Frankfurth	Mark	Tokyo Electron	Mashiro	Supika
Electronics Workshop	Steinman	Arnold	TSMC	Huang	Jeremy
<i>Fab Consulting</i>	<i>Bouldin</i>	<i>David</i>			
Industry Consultant	Rist	Lance			
<i>Intel</i>	<i>Cohran</i>	<i>Mark</i>	SEMI Japan	Kanno	Hirofumi
<i>KLA-Tencor</i>	<i>Busing</i>	<i>David</i>	SEMI N.A.	Tran	Michael

Note: *Italics indicates virtual participants.*

Table 2 Leadership Changes

None.

Table 3 Ballot Results

None.

Table 4 Authorized Activities

#	Type	TF	Details
5627	SNARF	Wait Time Waste TF	Revision to add New Subordinate Standard, <i>Specification for Product Time Measurement Active in GEM 300 Production Equipment</i> to SEMI Draft Document 5592
5592	Revised SNARF	Wait Time Waste TF	New Standard, <i>Specification for Product Time Measurement</i>
5597	Revised SNARF	Equipment Training and Documentation TF	Revision to SEMI E149-0708, <i>Guide for Equipment Supplier-Provided Documentation for the Acquisition and Use of Manufacturing Equipment</i>
5598	Revised SNARF	Equipment Training and Documentation TF	Revision to SEMI E150-1107, <i>Guide for Equipment Training Best Practices</i>
5340	Revised SNARF	Equipment RAMP Metrics TF	Revision to SEMI E10-0312, <i>Specification for Definition and Measurement of Equipment Reliability, Availability, and Maintainability (RAM) and Utilization</i>
5341	Revised SNARF	Equipment RAMP Metrics TF	Revision to SEMI E79-1106, <i>Specification for Definition and Measurement of Equipment Productivity and for Reconciliation with SEMI E10-0312</i>

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	TF	Details
5627	Cycle 6, 2013	Wait Time Waste TF	New Subordinate Standard, <i>Specification for Product Time Measurement Active in GEM 300 Production Equipment</i>
5592	Cycle 6, 2013	Wait Time Waste TF	New Standard, <i>Specification for Product Time Measurement</i>
5645	Cycle 6, 2013	Equipment Training and Documentation TF	Revision to SEMI E149-0708, <i>Guide for Equipment Supplier-Provided Documentation for the Acquisition and Use of Manufacturing Equipment</i>
5646	Cycle 6, 2013	Equipment Training and Documentation TF	Revision to SEMI E150-1107, <i>Guide for Equipment Training Best Practices</i>
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5341	Cycle 1, 2014	Equipment RAMP Metrics TF	Revision to SEMI E79-1106, <i>Specification for Definition and Measurement of Equipment Productivity and for Reconciliation with SEMI E10-0312</i>

Table 6 New Action Items

Item #	Assigned to	Details
2013Jul#01	Michael Tran	Draft an email for the GCS to approve the revised Metrics charter.
2013Jul#02	Michael Tran	Schedule the next WTW TF meeting time for three hours and parallel the DDA TF of the I&C committee.
2013Jul#03	Michael Tran	Schedule the meeting time of the EMC TF to be at 4:00 PM PST on Mon., 10/28.
2013Jul#04	Michael Tran	Schedule the meeting time of the ESD TF to be at 1:00 PM PST on Tues., 10/29.

Table 7 Previous Meeting Actions Items

Item #	Assigned to	Details	Status
2013Apr#01	Michael Tran	Coordinate with Jackie Ferrell and Supika Mashiro for when the WTW TF will meet at SEMICON West 2013.	CLOSED
2013Apr#02	Jackie Ferrell and Supika Mashiro	Work together on the Requirement IDs for the new Draft Document, <i>Specification for Measurement of Product Time in Semiconductor Manufacturing</i>	CLOSED
2013Apr#03	Jackie Ferrell	Prepare Requirement IDs training slides to educate people at SEMICON West or a webinar.	CLOSED
2012Oct#02	Michael Tran	Show Jackie Ferrell (ISMI/SEMATECH) how to use web meeting and the teleconference services for the WTW TF meetings.	CLOSED

1 Welcome, Reminders, and Introductions

1.1 David Bouldin (Fab Consulting) and Mark Frankfurth (Cymer) called the meeting to order at 3:09 PM PST. The meeting reminders on program membership requirements, antitrust issues, intellectual property issues, and holding meetings with international attendance were reviewed. Attendees introduced themselves.

Attachment: 01, SEMI Standards Required Meeting Elements

2 Review of Previous Meeting Minutes

2.1 The TC Chapter reviewed the previous meeting minutes.

Motion: To approve the previous meeting minutes (Spring 2013) as written.

By / 2nd: Vladimir Kraz (BestESD Technical Services) / Jackie Ferrell (SEMATECH)

Discussion: None.

Vote: 6-0 in favor. Motion passed.

Attachment: 02, Metrics Committee Meeting Minutes (Spring 2013)

3 Liaison Reports

3.1 Europe Metrics TC Chapter

3.1.1 There was no report received.

- SEMI Europe contact, Yann Guillou, yguillou@semi.org

3.2 Japan Metrics TC Chapter

3.2.1 There was no report received.

- SEMI Japan contact, Hirofumi Kanno, hkanno@semi.org

3.3 Technical Editors Board

3.3.1 David Bouldin (Fab Consulting) reported for the Technical Editors Board. The new *SEMI Standards Style Manual* Version 5.1 was published in May 2013 and is posted at the SEMI Standards Web site at: <http://www.semi.org/en/Standards/StandardsPublications>.

3.4 Technical Architects Board

3.4.1 Jackie Ferrell (SEMATECH) reported for the Technical Architects Board. There have been no activities in the board and there was no report given.

3.5 Electrostatic Discharge Association (ESDA) Liaison Report

3.5.1 Arnold Steinman (Electronics Workshop) reported for the ESDA. The key items were as follows:

- ESDA and JEDEC released an updated Human Body Model (HBM) document available on the ESDA and JEDEC Web sites.
 - The Charged Device Model (CDM) document is almost completed.
- Web site - www.esda.org –
 - Information and free download of ANSI ESD S20.20 (static control program), ANSI ESD S541 (packaging) documents. Translations into Spanish, Thai, and Chinese of S20.20 are also available. ESDA Glossary of Terms – online and searchable on the Web site. ESD Technology Roadmap for device ESD sensitivity is available on the Web site. Device Test standards (referenced in SEMI documents) are available as a free download - STM 5.1 Human Body Model, STM 5.2 – Machine Model, STM 5.3.1 – Charged Device Model.
- ESDA has started an activity with the Automotive Electronics Council (AEC) to harmonize device testing documents.

- ESD Standards meeting will be September 5-8 in Las Vegas, NV followed by the ESD Symposium in September 8-12. Check the ESDA Web site for more information.

3.6 SEMI N.A. Standards Staff Report

3.6.1 Michael Tran (SEMI N.A.) gave the SEMI N.A. Standards Staff Report. The key items were as follows:

- Some Upcoming SEMI Major Events
 - SEMICON Taiwan 2013 / LED Taiwan 2013
 - September 4-6, 2013 in Taipei
 - SEMICON Europa 2013 / Plastic Electronics Exhibition and Conference
 - October 8-10, 2013 Dresden, Germany
 - SEMICON Japan 2013
 - December 4-6, 2013 in Chiba
- Upcoming North America Standards Meeting
 - NA Standards Fall 2013 Meetings
 - October 28-31, 2013 in San Jose and Santa Clara, California
 - Inviting local companies willing and able to host some of the meetings to maintain one-week format
- Cycle 6-2013 Critical Dates for SEMI Standards Ballots
 - Cycle 6, 2013
 - Ballot Submission Date: August 15, 2013
 - Voting Period Starts: August 29, 2013
 - Voting Period Ends: September 30, 2013
- SEMI Standards Publications
 - Standards published from April 2013 to June 2013:
 - New Standards: 16
 - Revised Standards: 11
 - Reapproved Standards: 15
 - Withdrawn Standards: 0
 - There are a total of 887 SEMI Standards in portfolio and that includes 94 Inactive standards.
- SEMI N.A. Standards staff contact: Michael Tran, mtran@semi.org

Attachment: 03, SEMI North America Standards Staff Report (West 2013)

4 Ballot Review

4.1 There were no ballots to review.

5 Subcommittee and Task Force Reports

5.1 *Equipment Reliability, Availability, Maintainability and Productivity (RAMP) Metrics Task Force*

5.1.1 David Busing (KLA-Tencor) reported for the Equipment RAMP Metrics TF. The TF is making progress on revising SEMI E10 (Equipment Reliability, Availability, and Maintainability) and SEMI E79 (Equipment Productivity). The revised SNARFs for both documents (see §§ 7.2 and 7.3 of these minutes for details) were approved by the TC Chapter and will be balloted for Cycle 1-2014.

5.2 *Equipment Training and Documentation (T&D) Task Force*

5.2.1 Mark Cohran (Intel) reported for the Equipment T&D TF. The TF discussed future activities regarding implementation of 450 mm guidelines/standards for generic skills task list. The TF also discussed former TPIC documents and whether there is a need to bring them within SEMI Standards. Mark Cohran will look at list of documents and provide recommendations to TF by the October Standards Meeting.

5.2.2 The TC Chapter approved the revised SNARFs for the revision to SEMI E149 and SEMI E150 (see §§ 7.2 and 7.3 of these minutes for details) and they will be balloted for Cycle 6-2013.

Attachment: 04, Equipment Training and Documentation Task Force Report (West 2013)

5.3 *Electromagnetic Compatibility (EMC) Task Force*

5.3.1 Vladimir Kraz (BestESD Technical Services) reported for the EMC TF. Some key items of note:

- Industry Activities:
 - August 2013
 - The next upcoming IEEE EMC Symposium is August 5 - 9 in Denver, CO.
 - September 2013
 - The next ESD Symposium: Sept. 8 - 13, Las Vegas, NV
 - November 2013
 - ESD Symposium (Factory Level) in Penang
 - Taiwan ESD Symposium in Hsinchu
- Summary of the meetings:
 - The TF would like to schedule the next meeting so European participants could attend.
 - The TF proposed moving the meeting to 1:30 PM.
 - Mart Coenen (ASML) presented his white paper on alternative test methods for large equipment EMC test. This document will be peer-reviewed and eventually considered for a Related Information section in SEMI E33 (Equipment Electromagnetic Compatibility).
 - The SNARF for New Standard: *Guide for Semiconductor Manufacturing Facilities Electromagnetic Compatibility (EMC)* was approved by the Metrics Global Coordinating Subcommittee after the N.A. Standards Spring 2013 Meetings and the document number is 5596.

Attachment: 05, EMC Task Force Report (West 2013)

5.4 Electrostatic Discharge / Electrostatic Charge (ESD/ESC) Task Force

5.4.1 Arnold Steinman (Electronics Workshop) reported for the ESD/ESC Task Force. The TF is looking to work on issues found in SEMI E78 (Guide for ESA and ESD for Equipment) for 300 mm and 450 mm equipment. For SEMI E43 (Electrostatic Measurements), the TF might incorporate discharge time effects for conductors vs. insulators and look into ESD event monitoring techniques and limitations. The TF will devise a test method to define damage to devices that occurs when the package becomes tribocharged, when the device is equipotentially bonded without a discharge occurring, and electric field stress on components internal to the device. Some other items of note:

- The TF will include work by others in future documents such as:
 - New issues regarding Charged Board Event (CBE), Electrical Overstress (EOS), and Cable Discharge Events (CDE)
 - Adding discharge current testing to SEMI E78 and SEMI E129 (Electrostatic charge in Semiconductor Manufacturing Facility)
 - Relationship between ESD device testing and ESD damage that occurs during manufacturing
- Other
 - Including information in E78 and E129 on reticle sensitivity to electric fields developed for E163 (Extremely Electrostatic Sensitive) – on delay until more data is available
- Effect of equipotential bonding of Extremely Electrostatic Sensitive (EES) items during manufacturing - Discussion postponed to next Fall 2013 TF meeting

Attachment: 06, ESD/ESC Task Force Report (West 2013)

5.5 Wait Time Waste (WTW) Task Force

5.5.1 Jackie Ferrell (SEMATECH) reported for the WTW TF. The TF gave an overview on Wait Time Waste for new TF members including doing a demo of reference for implementation and validation. Details on Standard content were reviewed. The TF revised SNARF #5592 and drafted a SNARF (#5627) for a new subordinate document (Specification for Product Time Measurement Active in GEM 300 Production Equipment) to accompany Document 5592 (Specification for Product Time Measurement). See § 7.2 of these minutes.

5.5.2 The TF would like to have three hours from 1:00 PM to 4:00 PM on Monday at the next meeting or have it parallel the DDA TF under the N.A. TC Chapter of the Information & Control Global Technical Committee .

Attachment: 07, Wait Time Waste Task Force Report (West 2013)

6 Old Business

6.1 5-Year Review Update

6.1.1 The TC Chapter looked at Documents needed for five-year review:

<i>Document #</i>	<i>Document Title</i>	<i>Status</i>
SEMI E43-1108	<i>Recommended Practice for Electrostatic Measurements on Objects and Surfaces</i>	Still waiting to be published.

Document #	Document Title	Status
SEMI E79-1106	<i>Specification for Definition And Measurement of Equipment Productivity</i>	Ballot will be submitted in Cycle 1-2014. See §§ 5.1, 7.2 and 7.3 of these minutes for details.
SEMI E149-0708	<i>Guide for Equipment Supplier-Provided Documentation for the Acquisition and Use of Manufacturing Equipment</i>	Document submitted in Cycle 6-2013. See §§ 5.2, 7.2 and 7.3 of these minutes for details.
SEMI E150-1107	<i>Guide for Equipment Training Best Practices</i>	Document submitted in Cycle 6-2013. See §§ 5.2, 7.2 and 7.3 of these minutes for details.

7 New Business

7.1 Metrics Global Technical Committee Charter Review

7.1.1 The TC Chapter reviewed the proposed Metrics Global Technical Committee charter revised by David Bouldin and Mark Frankfurth. Supika recommends deleting the phrase “between suppliers and users” to make it a little broader so it doesn’t have to be revised each time. Jackie said as for software in the charter, the Wait Time Waste TF will be defining software for Metrics. David Bouldin will check with the other Metrics TC cochairs then Michael Tran will send a GCS email for approval of the revised charter. Please see Attachment 09 for the revised charter by the TC Chapter.

Attachment: 08, Revised Metrics Charter at SEMICON West 2013

7.2 New Activities

7.2.1 The following SNARFs was submitted to the TC Chapter for approval:

#	Type	TF	Details
5627	SNARF	Wait Time Waste TF	Revision to add New Subordinate Standard, <i>Specification for Product Time Measurement Active in GEM 300 Production Equipment</i> to SEMI Draft Document 5592
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Note: SNARFs and TFOFs are available for review on the SEMI Web site at:

<http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARF>.

Motion: To approve revised SNARF #5592.

By / 2nd: Jackie Ferrell (SEMATECH) / Vladimir Kraz (BestESD Technical Services)

Discussion: None

Vote: 6-0 in favor. Motion passed.

Motion: To approve SNARF #5627.

By / 2nd: Lance Rist (Industry consultant) / Vladimir Kraz (BestESD Technical Services)

Discussion: None

Vote: 6-0 in favor. Motion passed.

Motion: To approve revised SNARF #5598.

By / 2nd: Mark Cohran (Intel) / Jackie Ferrell (SEMATECH)

Discussion: None

Vote: 6-0 in favor. Motion passed.

Motion: To approve revised SNARF #5597.

By / 2nd: Mark Corhan (Intel) / David Bouldin (Fab Consulting)

Discussion: None

Vote: 6-0 in favor. Motion passed.

Motion: To approve revised SNARF #5340.

By / 2nd: David Busing (KLA-Tencor) / Arnie Steinman (Electronics Workshop)

Discussion: None

Vote: 4-0 in favor. Motion passed.

Motion: To approve revised SNARF #5341.

By / 2nd: David Busing (KLA-Tencor) / David Bouldin (Fab Consulting)

Discussion: None

Vote: 4-0 in favor. Motion passed.

7.3 New Ballots Submission

7.3.1 The following Documents were submitted for Letter Ballot to the TC Chapter for approval:

#	When	TF	Details
5627	Cycle 6, 2013	Wait Time Waste TF	New Subordinate Standard, <i>Specification for Product Time Measurement Active in GEM 300 Production Equipment</i>
5592	Cycle 6, 2013	Wait Time Waste TF	New Standard, <i>Specification for Product Time Measurement</i>
5645	Cycle 6, 2013	Equipment Training and Documentation TF	Revision to SEMI E149-0708, <i>Guide for Equipment Supplier-Provided Documentation for the Acquisition and Use of Manufacturing Equipment</i>
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5341	Cycle 1, 2014	Equipment RAMP Metrics TF	Revision to SEMI E79-1106, <i>Specification for Definition and Measurement of Equipment Productivity and for Reconciliation with SEMI E10-0312</i>

Motion: To approve the ballot submissions of Documents 5627 and 5592 for Cycle 6-2013.

By / 2nd: Jackie Ferrell (SEMATECH) / Vladimir Kraz (BestESD Technical Services)

Discussion: None
Vote: 6-0 in favor. Motion passed.

Motion: To approve the ballot submissions of Documents 5645 and 5646 for Cycle 6-2013.
By / 2nd: Mark Cohran (Intel) / David Busing (KLA-Tencor)
Discussion: None
Vote: 6-0 in favor. Motion passed.

Motion: To approve the ballot submission of Document 5340 for Cycle 6-2013.
By / 2nd: David Busing (KLA-Tencor) / Arnie Steinman (Electronics Workshop)
Discussion: None
Vote: 4-0 in favor. Motion passed.

Motion: To approve the ballot submission of Document 5341 for Cycle 6-2013.
By / 2nd: David Busing (KLA-Tencor) / David Bouldin (Fab Consulting)
Discussion: None
Vote: 4-0 in favor. Motion passed.

8 Action Item Review

8.1 Open Action Items

8.1.1 Michael Tran (SEMI N.A.) reviewed the open action items. These can be found in the Open Action Items table at the beginning of these minutes.

8.2 New Action Items

8.2.1 Michael Tran (SEMI N.A.) reviewed the new action items. These can be found in the New Action Items table at the beginning of these minutes.

9 Next Meeting and Adjournment

9.1 The next meeting of the North America (N.A.) Chapter of the Metrics Global Technical Committee (TC Chapter) is scheduled in conjunction with the N.A. Standards Fall 2013 Meetings on October 30, 2013 at SEMI Headquarters in San Jose, California. The meeting details and the latest schedule will be updated at: <http://www.semi.org/en/node/46221>.

Tentative Schedule

Monday, October 28*

· EMC TF (3:00 PM – 5:00 PM)

Tuesday, October 29*

· Equipment T&D TF (9:00 AM – 12:00 PM Noon)
· ESD/ESC TF (3:00 PM – 5:00 PM)

Wednesday, October 30*

· Equipment RAMP Metrics TF (9:00 AM – 12:00 PM Noon)

- Wait Time Waste TF (1:00 PM – 3:00 PM)
- N.A. Metrics TC Chapter (3:00 PM – 6:00 PM)

*All times are in PST. Times and dates are subject to change without notice.

9.2 Having no further business, a motion was made to adjourn the N.A. Metrics TC Chapter meeting on July 10, 2013 in conjunction with the N.A. Standards SEMICON West 2013 Meetings at the San Francisco Marriott Marquis Hotel in San Francisco, California.

Respectfully submitted by:

Michael Tran
Senior Standards Engineer
SEMI North America
Phone: 1-408-943-7019
Email: mtran@semi.org

Minutes approved by:

David Bouldin (Fab Consulting), Cochair	August 29, 2013
Mark Frankfurth (Cymer), Cochair	

Table 8 Index of Available Attachments ^{#1}

#	Title	#	Title
01	SEMI Standards Required Meeting Elements	06	ESD/ESC Task Force Report (West 2013)
02	Metrics Committee Meeting Minutes (Spring 2013)	07	Wait Time Waste Task Force Report (West 2013)
03	SEMI North America Standards Staff Report (West 2013)	08	Revised Metrics Charter at SEMICON West 2013
04	Equipment Training and Documentation Task Force Report (West 2013)	09	CoO Standards in the Semiconductor Industry
05	EMC Task Force Report (West 2013)		

#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 Michael Tran at the contact information above.