



Metrics North America TC Chapter Meeting Summary and Minutes

NA Standards Spring 2016 Meetings
Wednesday, April 6, 2016, 14:00 – 17:00
SEMI Headquarters in San Jose, California

TC Chapter Announcements

Next TC Chapter Meeting

SEMICON West 2016 Meetings

Wednesday, July 13, 2016; 14:00 – 17:00

SF Marriott Marquis in San Francisco, California

Table 1 Meeting Attendees

Italics indicate virtual participants

Co-Chairs: David Bouldin (Fab Consulting), Mark Frankfurth (ASML/Cymer)

SEMI Staff: Laura Nguyen, Kathleen Johnson

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
BayTech-Resor	Moore	Chris	Tokyo Electron	Mashiro	Supika
Best ESD Technical Services	Kraz	Vladimir			
<i>Fab Consulting</i>	<i>Bouldin</i>	<i>David</i>	SEMI	Nguyen	Laura
<i>Intel</i>	<i>Meyer</i>	<i>Steven</i>	SEMI	Johnson	Kathleen

Table 2 Leadership Changes

<i>Group</i>	<i>Previous Leader</i>	<i>New Leader</i>
Equipment COO Task Force	Darin Dance – Step down	David Jimenez – Co-Leader
ESD/ESC Task Force	Arnie Steinman – will step down	Chuck McClain (Micron) – Co-Leader
Wait Time Waste Metrics and Methods (WTW TF)	Lance Rist (Ristex)	This task force has been disbanded.

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>
5819A	Reapproval of SEMI E114 0302E (Reapproved 0309): Test Method for RF Cable Assemblies Used in Semiconductor Processing Equipment RF Power Delivery Systems	Passed
5820A	Reapproval of SEMI E115 0302E (Reapproved 0309): Test Method for Determining the Load Impedance and Efficiency of Matching Networks Used in Semiconductor Processing Equipment RF Power Delivery Systems	Passed



Table 4 Authorized Activities

#	Type	SC/TF/WG	Details
5596	SNARF	EMC Task Force	Revised the SNARF for New Standard, Guide To Assess and Minimize Electromagnetic Interference (EMI) in a Semiconductor Manufacturing Environment

NOTE 1: 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
None			

Table 6 New Action Items

Item #	Assigned to	Details
2016April#01	David Bouldin	Follow up with Mark and Malti on TF status updates and West meetings.
2016April#02	David Bouldin	Determine if there will be an ECOO TF meeting at the West meetings.

Table 7 Previous Meeting Actions Items

Item #	Assigned to	Details
2015Nov#01	David Bouldin	Email Vladimir Kraz for key EMC TF members and request read-only file access to E33 for them. CLOSED.

1 Welcome, Reminders, and Introductions

David Bouldin, TC Chapter cochair, called the meeting to order at 14:15. After welcoming all attendees, a round of introductions followed. The SEMI meeting reminders on membership requirements, antitrust, patentable technology, and meeting guidelines were then presented and explained.

Attachment: SEMI Standards Required Meeting Elements

2 Review of Previous Meeting Minutes

The TC Chapter reviewed the minutes of the previous meeting held November 4, 2015 in conjunction with the NA Standards Fall 2015 meetings.

Motion: Accept the minutes of the previous meeting as written.

By / 2nd: David Bouldin (Fab Consultant) / Supika Mashiro (Tokyo Electron)

Discussion: None.

Vote: 3-0 in favor. Motion passed.

Attachment: NA Metrics Minutes 2015 Fall Final

3 Liaison Reports

3.1 Europe (EU) TC Chapter

No activity reported.

3.2 Japan Metrics TC Chapter

Supika Mashiro reported that the Japan Chapter has been dormant and there has been discussion of disbanding this Chapter.

3.3 Technical Editors Board

David Bouldin reported that the board meets via email. David is working directly with Shannon Austin, SEMI Publications Manager, for a new revision to the *Style Manual* and provided feedback to align with the latest *Regulations* and *Procedure Manual*.

3.4 Technical Architects Board

David Bouldin reported this board is inactive.

3.5 ESDA Liaison Report

Vladimir Kraz reported that there is no new development as far as the ESDA Association Standard Meeting; which will meet next week in Orange County, California.

3.6 SEMI Staff Report

Laura Nguyen (SEMI) gave the SEMI Staff Report. The key items were as follows:

- SEMI Global 2016 Calendar of Events
 - SEMICON Southeast Asia (April 26-28, Penang, Malaysia)
 - SEMICON West (July 12-14, 2016, San Francisco, California)
 - SEMICON Taiwan (September 7-9, Taipei, Taiwan)
 - SEMICON Europa (October 25-27, Grenoble, France)
 - SEMICON Japan (December 14-16, Tokyo, Japan)
- Upcoming North America Standards Meetings
 - SEMICON West 2016 (July 11-14, 2016, San Francisco, California)
 - NA Standards Fall 2016 Meetings (November 7-10, 2016, SEMI HQ in San Jose, California)
 - NA Standards Spring 2016 Meetings (April 3-6 [tentative], SEMI HQ in San Jose, California)
- Letter Ballot Critical Dates for 2016
 - West 2016 adjudication
 - Cycle 4: ballot submission due: April 15/Voting Period: April 26 – May 26
 - Cycle 5: ballot submission due: May 10/Voting Period: May 24 – June 23
 - Fall 2016 adjudication
 - Cycle 6: ballot submission due: July 22/Voting Period: August 1 – September 1
 - Cycle 7: ballot submission due: August 17/Voting Period: August 31 – September 30

- Standards Publications Report

<i>Cycle</i>	<i>New</i>	<i>Revised</i>	<i>Reapproved</i>	<i>Withdrawn</i>
December 2015	0	3	2	0
January 2016	6	7	0	0
February 2016	4	4	3	0
March 2016	2	21	4	0

- Total in portfolio – 962 (includes 131 Inactive Standards)

- New Standards *{list of new Standards can be found on Slide 11-13 of the Staff Report, see the attachments of these minutes}*
- Inactive Standards *{list of inactive Standards can be found on Slide 14-15 of the Staff Report, see the attachments of these minutes}*
- New Requirements/Process Reminders for TC Chapter Meetings
 - Standards Document Development Project Period
 - Project period shall not exceed three years (*Regulations ¶ 8.3.2*).
 - SNARF approval to TC Chapter approval
 - If Document development activity is found to be continuing, but cannot completed within the project period, TC Chapter may grant one-year extension at a time, as many times as necessary.
 - SNARF Review Period
 - A submitted SNARF for a new, or for a major revision to an existing, Standard or Safety Guideline is made available to all members of a TC Chapter’s parent global technical committee for two weeks for their review and comment. (*Regulations ¶ 8.2.1*).
 - If the SNARF is submitted at a TC Chapter meeting, the TC Chapter can review and approve, but the SNARF will need to be distributed for two weeks and then approved via GCS.
 - New SNARF & TFOF forms *{embedded in Staff Report, see the attachments of these minutes}*
 - Procedures for Correcting Nonconforming Titles of Published Standards Document (*Procedure Manual Appendix 4*)
 - Some Standards qualify for a special procedure where a line-item change can be used to correct the titles. Otherwise, the corrective action will likely require a major revision.
 - None for NA Metrics TC Chapter
 - Metrics Standards needing Five-Year Review
 - SEMI E35-0312, Guide to Calculate Cost of Ownership (COO) Metrics for Semiconductor Manufacturing Equipment
 - SEMI E140-0312, Guide to Calculate Cost of Ownership (COO) Metrics for Gas Delivery Systems
 - SEMI E163-0212, Guide for the Handling of Reticles and Other Extremely Electrostatic Sensitive (EES) Items Within Specially Designated Areas
 - SEMI E161-0611 Guide for Identification and Classification of Training Tiers
 - SNARF 3 Year Status
 - Doc. 5596, New Standard: Guide for Semiconductor Manufacturing Facilities Electromagnetic Compatibility (EMC)
 - SNARF was approved on 4/29/2013



- Staff Contact: Laura Nguyen (Inguyen@semi.org)

Attachment: SEMI Standards Staff Report

4 Ballot Review

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.

NOTE 2: TC Chapter adjudication on ballots reviewed is detailed in the Audits & Reviews (A&R) Subcommittee Forms for procedural review. The A&R forms are available as attachments to these minutes.

4.1 Document #5819A, Reapproval of SEMI E114-0302E (Reapproved 0309): Test Method for RF Cable Assemblies Used in Semiconductor Processing Equipment RF Power Delivery Systems

- The ballot passed as balloted. See attachment for ballot adjudication.

Attachment: 5819AProceduralReview

4.2 Document #5820A, Reapproval of SEMI E115-0302E (Reapproved 0309): Test Method for Determining the Load Impedance and Efficiency of Matching Networks Used in Semiconductor Processing Equipment RF Power Delivery Systems

- The ballot passed as balloted. See attachment for ballot adjudication.

Attachment: 5820AProceduralReview

5 Subcommittee & Task Force Reports

5.1 Wait Time Waste (WTW) Metrics and Methods Task Force

David Bouldin (Fab Consulting) reported for the WTW Task Force. David has been in communication with Lance Rist (Ristex), TF leader and reported that Lance has stepped down from leadership. There is no current activity. They discussed discharging this task force since there are no planned activities. They successfully created 1 primary Standard and 3 subordinate Standards.

Motion: Discharge WTW Metrics and Methods TF.

By / 2nd: David Bouldin (Fab Consulting)/Vladimir Kraz (Best ESD Technical Services)

Discussion: David made an attempt to find another leader, but was unsuccessful of finding anyone with interest to continue this TF.

Vote: 3-0 in favor. Motion Passed.

5.2 Equipment Training and Documentation Task Force

David Bouldin (Fab Consulting) reported for the Equipment Training and Documentation Task Force. This task force is currently inactive and to remain inactive until SEMI E161 is up for 5-year review. The task force needs to decide whether this Document will go for reapproval or will need a revision.

5.3 EMC Task Force

Vladimir Kraz (Best ESD Tech Services) reported for the EMC Task Force. The key items were as follows:

- Industry Update
 - EMC
 - The new European Union EMC Directive 2014/30/EU goes into effect on April 20, 2016, and the previous EMC Directive 2004/1008/EC will be withdrawn. The new directive is a “recast” directive and does not change the scope or essential requirements as related to the current directive it replaces.
 - The new EMCD will be applied to products placed on the market on or after 20 April 2016. You cannot apply the new EMCD before this date! There is no transition period applicable to the new directive and implementation shall apply as follows:
 - For products placed on market* before April 20, 2016, use the old EMC Directive
 - For products placed on market* on or after April 20, 2016, use the new EMC Directive
 - Actionable changes are not substantial enough to do “emergency” update of SEMI E.33 – will update reference to the new Directive when something else needs to be updated
 - ESD:
 - ESD Standards session: April 14 through 4-17, 2016 in Orange County
- Summary
 - 4 attendees (all on line).
 - Discussion of the document
 - Some TF members shared their data experience with mitigating EMI with the group
 - InCompliance magazine ((largest EMC-related publication) will publish my article on SEMI EMC standards and current progress in June 2016. The purpose is to publicize SEMI and SEMI standards and to attract larger audience to our forum
 - Laura created for us shared directory at SEMI.org where we can place and share large files – thank you, Laura!
 - We decided to place our document on information ballot to gather feedback from the larger audience
 - SEMI E.33 may need to have a line ballot to accommodate new revision of referenced European EMC Directive.
- Document review for SNARF 3 year status
 - The task force reviewed and made revisions to SNARF Doc. 5596, New Standard: Guide for Semiconductor Manufacturing Facilities Electromagnetic Compatibility (EMC). This SNARF was approved 04/29/2013.
 - See attachments for the revised SNARF 5596.

Motion: To approve this revised SNARF 5596 as edited.

By / 2nd: David Bouldin (Fab Consulting) / Chris Moore (BayTech-Resor)

Discussion: None.

Vote: 3-0 in favor. Motion passed.

Motion: To approve this SNARF 5596 for 1 year extension.

By / 2nd: David Bouldin (Fab Consulting) / Vladimir Kraz (Best ESD Technical Services)

Discussion: None.

Vote: 3-0 in favor. Motion passed.

Attachment: EMC Task Force Meeting 4-5-2016 Summary



Attachment: SNARF 5596-VK+DLB edits 20160406

5.4 ESD/ESC Task Force

David Bouldin (Fab Consulting) reported for the ESD/ESC Task Force. David has been in contact with Arnie Steinman and informed the committee that he is actively trying to find a new co-leader with his intent to step down as a task force leader after a transition period. David appointed pending confirmation from by the TC Chapter, a new task force co-leader with Arnie, Chuck McClain from Micron Semiconductor.

Motion: To approve Chuck McClain as the new ESD/ESC TF co-leader with Arnie Steinman.

By / 2nd: David Bouldin (Fab Consulting) / Vladimir Kraz (Best ESD Technical Services)

Discussion: None.

Vote: 3-0 in favor. Motion passed.

This task force is currently inactive, but will revisit activities at West.

5.5 Equipment RAMP Metrics Task Force

Steve Meyer (Intel) reported for the Equipment RAMP Metrics Task Force. This task force meets via email. The key items were as follows:

- Meeting Attendance:
 - No recent meetings. Virtual progress made via email by David Bouldin (Fab Consulting), David Busing (Co-Leader, Consultant), Steve Meyer (Co-Leader, Intel)
- No Leadership Changes
- New Task Force Business
 - No new or updated SNARFs or ballot plans
- Old Task Force Business
 - Webinars in development; 3 complete in 2015
 - Overview of SEMI equipment metrics standards (Audio: David Bouldin)
 - SEMI E10 overview (Audio: David Bouldin)
 - SEMI E10 example part 1 (Audio: David Busing & Steve Meyer)
 - Another currently in development
 - EMI E79 overview (Audio: David Bouldin)
- “Free” Webinars (content will not reveal critical IP of related standards)
 - Overview of Metrics Global TC and Equipment Performance Standards – RECORDED
 - Overview of E10 – RECORDED
 - Overview of E79 – RECORDED, final production tweaking
- “Charged” Webinars (content may reveal critical IP of related standards)
 - Example Scenario and Calculations in E10, Part I: States Transitions –RECORDED, Not released by SEMI on Standards Webinar Website yet!
 - Sample Calculations in E10, Part II: Fundamental Quantities and Metrics— TBD
 - PPT 100%, script 0%
 - Sample Calculations in E79 — TBD
 - PPT 100%, script 0%

Attachment: Equip RAMP TF Report 2016April

5.6 Equipment Cost of Ownership (ECOO) Task Force

David Bouldin (Fab Consulting) reported for the ECOO TF. This task force is currently inactive, but plans to become active again in 2017. This task force has a two Documents coming up for 5 year review. Darin Dance is the current leader, but has retired from working an official job. He has agreed to step down at least for the time being as the co-leader position. In his place, David Jimenez (WWK) agreed to take his place. David is one of the top industry experts as Darin is in cost of ownership. David generated one of the very early cost of ownership models. Their company is the one that worked with Sematech to commercialize the primary cost of ownership software that is used by the industry. Darin plans to reengage as an active task form member in the next year or so.

Motion: To approve David Jimenez (WWK) as the new ECOO co-leader replacing Darin Dance.

By / 2nd: David Bouldin (Fab Consulting) / Vladimir Kraz (Best ESD Technical Services)

Discussion: None.

Vote: 3-0 in favor. Motion passed.

6 Old Business

Previous action items has been closed. There is no further old business.

7 New Business

7.1 No new business was reported.

8 Next Meeting and Adjournment

The next meeting is scheduled for Wednesday, July 13, 2016 at the SEMICON West 2016 Standards Meetings in San Francisco, California. See <http://www.semi.org/en/events> for the current list of meeting schedules.

The tentative schedule(s) are provided below:

Tuesday, July 12 (**Tentative**)

- EMC Task Force (17:00 – 19:00 Pacific)

Wednesday, July 13 (**Tentative**)

- Equipment Training and Documentation Task Force (TBD)
- Equipment Cost of Ownership Task Force (TBD)
- Equipment RAMP Metrics Task Force (09:00 – 12:00 Pacific Time)
- Metrics Global TC Chapter (14:00 – 17:00 Pacific Time)

Action Item: 2016April#01, David to follow up with Mark and Malti on task force status and West meetings.

Action Item: 2016April#01, David to follow up if there will be an ECOO TF meeting at the West meetings

Having no further business, a motion was made to adjourn. Adjournment was at 3:35 PM.



Respectfully submitted by:
Laura Nguyen
International Standards Coordinator
SEMI North America
Phone: +1.408.942.7019
Email: lnguyen@semi.org

Minutes approved by:

David Bouldin (Fab Consulting), Co-chair	<Date approved>
Mark Frankfurth (ASML/Cymer), Co-chair	<Date approved>

<i>Title</i>	<i>Title</i>
SEMI Standards Required Meeting Elements	EMC Task Force Meeting 4-5-16
NA Metrics Minutes 2015 Fall Final	Equip RAMP TF Report 2016April
SEMI Standards Staff Report	5819AProceduralReview
SNARF 5596-VK+DLB edits 20160406	5820AProceduralReview

#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 Laura Nguyen at the contact information above.