



North America MEMS / NEMS Standards Committee Meeting Summary and Minutes



SEMI®
International
Standards

SEMICON West 2015 Meetings
13 July, 14:30 – 16:30 Pacific Time
SEMI Headquarters in San Jose, California

Committee Announcements

Next Committee Meeting

NA Standards Fall 2015 Meetings

November 2, 2015

SEMI Headquarters in San Jose, California

Table 1 Meeting Attendees

Italics indicate virtual participants

Co-Chairs: Win Baylies (BayTech-Resor), Steve Martell (Sonoscan)

SEMI Staff: Paul Trio

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
BayTech-Resor	Baylies	Win	NIST	Allen	Rich
BayTech-Resor	Moore	Chris	Sonoscan	Martell	Steve
BW & Associates	Wu	Bevan	SEMI	Trio	Paul

Table 2 Leadership Changes

<i>Group</i>	<i>Previous Leader</i>	<i>New Leader</i>
None		

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>
5870	Line item revision to SEMI MS4-1113, Standard Test Method for Young's Modulus Measurements of Thin, Reflecting Films Based on the Frequency of Beams in Resonance with title change to: Test Method for Young's Modulus Measurements of Thin, Reflecting Films Based on the Frequency of Beams in Resonance	
Line Item 1	Correct the Title of SEMI MS4 from "Standard Test Method" to "Test Method"	Failed to reach the 60% return rate, will be reballoted

Table 4 Authorized Activities

<i>#</i>	<i>Type</i>	<i>SC/TF/WG</i>	<i>Details</i>
None			

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
5870A	Cycle 6, 2015	NA MEMS/NEMS 5-Year Review TF	Line item revision to SEMI MS4-1113, <i>Standard Test Method for Young's Modulus Measurements of Thin, Reflecting Films Based on the Frequency of Beams in Resonance</i> with title change to: <i>Test Method for Young's Modulus Measurements of Thin, Reflecting Films Based on the Frequency of Beams in Resonance</i>

Table 6 Previous Meeting Actions Items

Item #	Assigned to	Details
2015Jul #01	Paul Trio	Inform Mark Tondra of Microfluidics TF SNARFs that are past the three-year document development period and determine next steps.
2015Jul #02	Paul Trio	Inform Mark Tondra of NA MEMS/NEMS Fall 2015 meeting schedule and determine if any changes are needed for the Microfluidics TF meeting time.

Table 7 Previous Meeting Actions Items

Item #	Assigned to	Details
None		

1 Welcome, Reminders, and Introductions

Steve Martell, committee co-chair, called the meeting to order at 2:50 PM. After welcoming all attendees, the SEMI meeting reminders on membership requirements, antitrust, patentable technology, and meeting guidelines were presented and explained. 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 March 30 in conjunction with the NA Standards Spring 2015 meetings.

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

By / 2nd: Chris Moore (BayTech-Resor) / Win Baylies (BayTech-Resor)

Discussion: None

Vote: 4-0 in favor. Motion passed.

Attachment: 02, NA MEMS/NEMS Spring 2015 meeting (March 30) minutes



3 SEMI Staff Report

Paul Trio (SEMI) gave the SEMI Staff Report. The key items were as follows:

- 2015 Global Calendar of Events
 - SEMICON West (July 14-16, San Francisco, California)
 - SEMICON Taiwan (September 2-4, Taipei)
 - European MEMS Summit (September 17-18, Milan, Italy)
 - Strategic Materials Conference [SMC] (September 22-23, Mountain View, California)
 - SEMICON Europa / Plastic Electronic Conference (October 6-8, Dresden, Germany)
 - SEMICON Japan (December 16-18, Tokyo)
- 2016 Global Calendar of Events (Jan to mid-July)
 - European 3D Summit (January 18-20, Grenoble, France)
 - Advanced Semiconductor Manufacturing Conference [ASMC] (May 16-19, Saratoga Springs, New York)
 - SEMICON West (July 12-14, San Francisco, California)
- Upcoming North America Meetings (2015)
 - 2015:
 - NA Standards Fall 2015 Meetings (November 2-5, San Jose, California)
 - 2016:
 - NA Standards Spring 2016 Meetings (April 4-7, San Jose, California)
 - SEMICON West 2016 Meetings (July 11-14, San Francisco, California)
- NA Standards Meetings at SEMICON West 2015 (July 13-16)
 - 3DS-IC | EHS | Facilities | Gases | HB-LED | Information & Control | Liquid Chemicals | MEMS/NEMS | Metrics | Microlithography | PV Materials | Physical Interfaces & Carriers | Silicon Wafer | Traceability
- Technical Ballot Critical Dates for NA Standards Fall 2015 meetings
 - Cycle 6: due July 22 / Voting Period: July 29 – August 28
 - Cycle 7: due August 17 / Voting Period: August 31 – September 30
- SEMI Standards Publications
 - Publications Report

Cycle	New	Revised	Reapproved	Withdrawn
March 2015	1	5	2	0
April 2015	3	2	0	0
May 2015	1	5	1	0
June 2015	4	3	15	0

- Total in portfolio – 937 (includes 110 Inactive Standards)



o New Standards

<i>Cycle</i>	<i>Designation</i>	<i>Title</i>	<i>Committee</i>	<i>Region</i>
March 2015	SEMI 3D12	Guide for Measuring Flatness and Shape of Low Stiffness Wafers	3D-IC	NA
April 2015	SEMI C86	Guide for Ethylene Glycol	Liquid Chemicals	NA
April 2015	SEMI E173	Specification for XML SECS-II Message Notation (SMN)	Information & Control	NA
April 2015	SEMI PV55	Data Definition Specification for a Horizontal Communication Between Equipment for Photovoltaic Fabrication System	Automation Technology	EU
May 2015	SEMI C87	Test Method for Determining Roughness of Polymer Surfaces Used in Ultrapure Water and Liquid Chemical Distribution Systems by Contact Profilometry	Liquid Chemicals	NA
June 2015	SEMI 3D14	Guide for Incoming/Outgoing Quality Control and Testing Flow for 3DS-IC Products	3D-IC	TW
June 2015	SEMI HB5	Test Method for Measurement of Saw Marks on Crystalline Sapphire Wafers by Using Optical Probes	HB-LED	NA
June 2015	SEMI HB6	Test Method for Measurement of Thickness and Shape of Crystalline Sapphire Wafers by Using Optical Probes	HB-LED	NA
June 2015	SEMI HB7	Test Method for Measurement of Waviness of Crystalline Sapphire Wafers by Using Optical Probes	HB-LED	NA

• New Requirements/Process Reminders for TC Chapter Meetings

o Standards Document Development Project Period

- Project period shall not exceed 3 years (Regs 8.3.2)
 - SNARF approval to TC Chapter approval
- If document development activity is found to be continuing, but cannot completed with the project period, TC Chapter may grant one-year extension at a time, as many times as necessary.
- The TC Chapter should review the expiration dates for all applicable SNARFs at each TC Chapter meeting. (PM Note 10)

o 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. (Regs 8.2.1)
 - If the SNARF is submitted at a TC Chapter meeting, the committee can review and approve, but the SNARF will need to be distributed for two weeks and then approved via GCS.

o New SNARF & TFOF forms *{embedded in Staff Report, see Attachment 03 of these minutes}*

o Procedures for Correcting Nonconforming Titles of Published Standards Document (PM 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.



- Nonconforming Titles
 - MS4-1113, Standard Test Method for Young's Modulus Measurements of Thin, Reflecting Films Based on the Frequency of Beams in Resonance
 - Ballot 5870 issued in cycle 5-15 to remove “Standard” from the title
 - Refer to Procedure Manual (PM) Appendix Table A4-1 for details on nonconforming titles
- 5-Year Review
 - SEMI MS9-0611 Specification for High Density Permanent Connections Between Microfluidic Devices
 - TC Chapter action needed by June 2016
 - SEMI MS7-0708 Specification for Microfluidic Interfaces to Electronic Device Packages
 - To go Inactive
 - SEMI MS6-0308 Guide for Design and Materials for Interfacing Microfluidic Systems
 - To go Inactive
- SNARF 3 year Status
 - Granted 1 year extension in March 2015 meeting
 - 4819, New Standard, Standard Test Method for Electroosmotic Mobility in Microfluidic Systems
 - SNARF needs to be revised to correct title
 - 5267, New Standard, Specification for Microfluidic Port and Pitch Dimensions
 - 5268, New Standard, Test Method for Autofluorescence of Materials
 - 5515, Revision to SEMI MS7-0708, Specification for Microfluidic Interfaces to Electronic Device Packages
 - TC approval of extension needed by Oct 2015
 - TC Chapter may grant a one-year extension

Action Item: 2015Jul #01, Paul Trio to inform Mark Tondra of Microfluidics TF SNARFs that are past the three-year document development period and determine next steps.

Attachment: 03, 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 1: Committee adjudication on Cycle 5, 2015 ballots are detailed in the Audits & Reviews (A&R) Subcommittee Forms for procedural review. These A&R forms are available as attachments to these minutes. The attachment number for each document is provided below the summary tables.

4.1 Cycle 5, 2015 Ballots

Document #	Document Title	Committee Action
5870	Line item revision to SEMI MS4-1113, Standard Test Method for Young's Modulus Measurements of Thin, Reflecting Films Based on the Frequency of Beams in Resonance with title change to: Test Method for Young's Modulus Measurements of Thin, Reflecting Films Based on the Frequency of Beams in Resonance	
Line Item 1	Correct the Title of SEMI MS4 from "Standard Test Method" to "Test Method"	Failed to reach the 60% return rate, will be reballoted

5 Task Force Reports

The following task forces under the NA MEMS/NEMS TC Chapter are currently inactive: Materials Characterization TF, Packaging TF, Reliability TF, Terminology TF, and Wafer Bond TF.

5.1 Microfluidics Task Force

Mark Tondra reported that the TF planned to discuss the Microfluidics standards effort in Europe. However, Mark pointed out that the sensor interfaces are still immature and not ready for public disclosure. The TF then discussed possible courses of action for MS6 (*Guide for Design and Materials for Interfacing Microfluidic Systems*) and MS7 (*Specification for Microfluidic Interfaces to Electronic Device Packages*) as these Standards are due for 5-year review. Mark has completed a careful review of MS7 and recommended that no further changes are necessary. Therefore, he proposed that MS7 go into Inactive status.

Motion: NA MEMS / NEMS approves MS7 to go into Inactive Status.

By / 2nd: Chris Moore (BayTech-Resor) / Rich Allen (NIST)

Discussion: None

Vote: 4-0 in favor. Motion passed.

Attachment: 04, Microfluidics Task Force Report

5.2 Packaging Task Force

Win Baylies reported that he may have a candidate to lead the MEMS Packaging TF activities. He explained that the focus will be on advanced packaging. The committee discussed whether this effort should reside in 3DS-IC instead and, if so, whether the current 3DS-IC charter and scope will need to be revisited. Steve Martell also reported that with regard to finding volunteers to work on outgassing for MEMS packing, he was unable to find anyone able to drive the activity. He recommended raising this issue in the 3DS-IC committee.

6 Old Business

None.



7 New Business

7.1 Collaborating with the MEMS Industry Group (MIG)

The committee discussed ways to engage MIG from both member and activity perspectives. Getting connected with the MIG network can help bring in new volunteers as well as drive new activities under SEMI. Furthermore, having someone present on SEMI MEMS Standards (including accomplishments and strengths) would help make inroads in identifying possible SEMI-MIG standardization efforts. Nevertheless, Paul Trio pointed out that the recent SEMI-MIG survey on MEMS standardization is a solid step in strengthening relations with MIG.

7.2 Upcoming Ballot Authorization

#	When	SC/TF/WG	Details
5870A	Cycle 6, 2015	NA MEMS/NEMS 5-Year Review TF	Line Item revision to SEMI MS4-1113, <i>Standard Test Method for Young's Modulus Measurements of Thin, Reflecting Films Based on the Frequency of Beams in Resonance</i> with title change to: <i>Test Method for Young's Modulus Measurements of Thin, Reflecting Films Based on the Frequency of Beams in Resonance</i>

Motion: Authorize to resubmit ballot 5870A for Cycle 6, 2015 voting period.

By / 2nd: Rich Allen (NIST) / Chris Moore (BayTech-Resor)

Discussion: None

Vote: 4-0 in favor. Motion passed.

8 Next Meeting and Adjournment

The next meeting of the North America MEMS/NEMS committee is scheduled for Monday, November 2 in conjunction with the NA Standards Fall 2015 meetings at SEMI Headquarters in San Jose, California. The tentative schedule is provided below:

NA Standards Fall 2015 Meetings

November 2-5, 2015

SEMI Headquarters

3081 Zanker Road

San Jose, California 95134

U.S.A.

Monday, November 2

- Microfluidics TF (1:30 PM to 2:30 PM)

- NA MEMS / NEMS TC Chapter (2:30 PM to 4:30 PM)

Action Item: 2015Jul #02, Paul Trio to inform Mark Tondra of NA MEMS/NEMS Fall 2015 meeting schedule and determine if any changes are needed for the Microfluidics TF meeting time.

Having no further business, a motion was made to adjourn the NA MEMS/NEMS Technical Committee Chapter meeting at SEMICON West 2015. Adjournment was at 4:25 PM.



Respectfully submitted by:

Paul Trio
SEMI North America Standards
ptrio@semi.org
1.408.943.7041

Minutes approved by:

Win Baylies (BayTech-Resor)	September 8, 2015
Steve Martell (Sonoscan)	September 4, 2015

Table 8 Index of Available Attachments #1

#	<i>Title</i>
1	SEMI Standards Required Meeting Elements
2	NA MEMS / NEMS Spring 2015 Meeting (March 30) Minutes
3	SEMI Standards Staff Report
4	Microfluidics TF Report

#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.