



MEMS/NEMS North America TC Chapter

Meeting Summary and Minutes

NA Standards Fall 2016 Meetings

Monday, November 7, 2016, 15:30 – 17:30

SEMI Headquarters in San Jose, California

TC Chapter Announcements

Next TC Chapter Meeting

NA Standards Spring 2017 Meetings

Monday, April 3, 2016, 15:30 – 17:30

SEMI Headquarters in Milpitas, California

Table 1 Meeting Attendees

Italics indicate virtual participants

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

SEMI Staff: Laura Nguyen

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
Asahi Glass Company (AGC)	Takahashi	Mark	NIST	Allen	Richard
BW & Associates	Wu	Bevan	Sonoscan	Martell	Steve
<i>Diagnostic Biosensors</i>	<i>Tondra</i>	<i>Mark</i>	SEMI	Nguyen	Laura

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>
None.		

Table 4 Authorized Activities

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

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

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



Table 6 New Action Items

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
2016Nov#01	Laura Nguyen	Follow-up with Mark Tondra on SNARF revision for Doc. 5267; send out prior to Spring Meetings 2017.
2016Nov#02	Mark Tondra	To send link of ISO/IWA.
2016Nov#03	Laura Nguyen	Find out about a possible face-to-face meeting at MSIG Technical Conference on May 9/10.

Table 7 Previous Meeting Action Items

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
2016July#01	Laura Nguyen	Add discussion of ISO/IWA:23 on agenda for Fall meetings. CLOSED.
2016July#02	Rich Allen	Follow up with results and feedback of the Bond Void Survey for distribution. CLOSED – move to 3DS-IC committee for comments.
2016July#03	Laura Nguyen	Request a digital copy of MSIG-SEMI Workshop member list from Bettina. CLOSED.
2016July#04	Laura Nguyen	Add to new business on agenda for Fall Meetings of whether MEMS/NEMS Spring meetings will be help elsewhere (MSIG Technical Conference). CLOSED.

1 Welcome, Reminders, and Introductions

Steve Martell called the meeting to order at 15:32. 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.

Motion: To accept the previous meeting minutes as written.

By / 2nd: Steve Martell (Sonoscan) / Richard Allen (NIST)

Discussion: None.

Vote: 3-0 in favor. Motion passed.

Attachment: [2016West] NA MEMS NEMS DRAFT

3 Liaison Reports

3.1 SEMI Staff Report

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

- SEMI Global 2016 & 2017 Calendar of Events
 - SEMICON Japan (December 14-16, 2016; Tokyo, Japan)
 - SEMICON Korea (February 8-10, 2017; Seoul, Korea)
 - SEMICON China (March 14-16, 2017; Shanghai, China)
 - LED Taiwan (April 12-15, 2017; Taipei Taiwan)
 - SEMICON Southeast Asia (April 25-27, 2017; Penang, Malaysia)
 - Intersolar Europe (May 31-June 2, 2017; Munich, Germany)
 - SEMICON West (July 11-13, 2017, San Francisco, California)
 - SEMICON Taiwan (September 13-15, 2017; Taipei, Taiwan)



- PV Taiwan (October 12-14, 2017; Taipei, Taiwan)
- SEMICON Europa (November 14-17, 2017; Munich, Germany)
- SEMICON Japan (December 13-15, 2017; Tokyo, Japan)
- Upcoming North America Standards Meetings
 - NA Standards Spring 2017 Meetings (April 3-6, SEMI HQ in Milpitas, California)
 - SEMICON West 2016 (July 10-13, 2017, San Francisco, California)
 - NA Standards Fall 2017 Meetings (November 6-9 [tentative], SEMI HQ in Milpitas, California)
- Letter Ballot Critical Dates for 2016
 - Spring 2017 adjudication
 - Cycle 8: ballot submission due: Oct 17/Voting Period: Oct 24 – Nov 23
 - Cycle 9: ballot submission due: Nov 16/Voting Period: Nov 30 – Dec 30
 - Critical Dates 2017; <http://www.semi.org/en/Standards/Ballots>

- Standards Publications Report

<i>Cycle</i>	<i>New</i>	<i>Revised</i>	<i>Reapproved</i>	<i>Withdrawn</i>
July 2016	0	2	0	0
August 2016	0	7	3	0
September 2016	0	1	0	0
October 2016	1	12	1	0

- Total in portfolio – 965 (includes 158 Inactive Standards)

- Nonconforming Titles
 - None for MEMS/NEMS NA TC Chapter
- MEMS/NEMS Standards needing Five-Year Review
 - SEMI MS10-0912, Test Method to Measure Fluid Permeation Through MEMS Packaging Materials
 - SEMI MS1-0812, Guide to Specifying Wafer-Wafer Bonding Alignment Targets
- SNARF 3 Year Status
 - Doc. 5267, New Standard: *Specification for Microfluidic Port and Pitch Dimensions*
 - Granted 1 year extension in Spring 2015, Granted additional year in Spring 2016
 - Action needed by Spring 2017
 - TC Chapter may grant a one-year extension
- Staff Contact: Laura Nguyen (lnguyen@semi.org)

Attachment: [2016Fall] Staff Report MEMS NEMS

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.

None.

5 Subcommittee & Task Force Reports

The following task forces are currently inactive:

- Packaging TF
- Reliability TF
- Terminology TF
- Wafer Bond TF

5.1 MEMS Substrate Task Force

Steve Martell reported for the MEMS Substrate Task Force. During the task force meeting, the committee reviewed and made suggested changes to draft document 6018, New Standard: Specification for Silicon Substrates used in fabrication of MEMS Devices, during the task force meeting. Currently, the document contains basic information and is hoping for input from the MSIG core working group for additional comments. If anyone is interested in participating in the document or would like to be added to the mailing list, please contact Chris Moore (chris.moore@baytech-resor.com).

5.2 Materials Characterization Task Force

Rich Allen reported for the Materials Characterization Task Force. During the task force meeting, the committee reviewed draft document 6007, New Standard: Specification for a Test Pattern for Deep Reactive Ion Etching (DRIE) Process, and is hoping to ask to ballot at the Spring meetings or SEMICON West 2017. The objective is find out what type of test patterns they would like to see for the DRIE process. If anyone is interested in participating in the document or would like to be added to the mailing list, please contact Rich Allen (richard.allen@nist.gov).

5.3 Microfluidics Task Force

Mark Tondra reported for the Microfluidics Task Force. The task force did not meet at the Fall meetings, but Mark reported about SNARF 5267. Document 5267 has some relevant activity to an ISO/IWA23 (International Workshop Agreement 23) working group. The IWA 23 is a consensus document developed by the workshop participants and observers in response to the need for standardization and harmonization of pitch spacing dimension, initial device classification and terminology of relevance. The ISO/IWA 23 was published recently and references some of SEMI's MS Standards. Mark will circle back with Laura on SNARF 5267 and will be looking to revise the SNARF to reflect recent activity that came out of the ISO/IWA23 document. The link below points to more information regarding ISO/IWA 23, Interoperability of microfluidic devices — Guidelines for pitch spacing dimensions and initial device classification.

<https://www.iso.org/obp/ui/#iso:std:iso:iwa:23:ed-1:v1:en>

6 Old Business

Previous action items has been closed. Steve Martell reviewed Standards coming up for Five-Year review and moved to make a motion to send MS 10 for reapproval. During the discussion, the committee decided to hold off on sending MS 10 to ballot and will revisit the decision during July meetings.

Motion: To send MS 10 to ballot in the latest cycle before Spring Meetings.

By / 2nd: Rich Allen (NIST) / Bevan Wu (B&W Associates)

Discussion: The committee decided to not to ballot before Spring meetings, and will revisit the Standards coming up for Five-Year review at the SEMICON West meetings, resulting in withdrawing this motion.

Vote: None.



7 New Business

7.1 Activity updates between SEMI and the MEMS & Sensors Industry Group (MSIG)

The MSIG is officially joining SEMI early next year. The MSIG group meets every two weeks via phone. Bettina Weis and Steve Whalley are co-chairs of this group and has about 25 members with about 13 members who remain active. There are discussions overall about Standards and road maps. Part of the activity happening within the group is the formation of two new Standards that are coming out of the NA MEMS/NEMS Global Committee. The MSIG is hosting a technical conference at Stanford in Palo Alto, California and the committee is hoping to set up a face-to-face task force meeting during the conference to encourage additional participation. The link provided is more information about the MEMS & Sensors Technical Congress 2017. http://www.semi.org/en/msig-mstc?mc_cid=ae868c51c6&mc_eid=7dcd9059b2

Action Item: 2016Nov#03, Laura to find out about a possible face-to-face meeting at MSIG Technical Conference on May 10 for the MEMS Substrate and MEMS Material Characterization Task Forces.

8 Next Meeting and Adjournment

The next meeting is scheduled for Monday, April 3, 2017 at the NA Standards Spring 2017 Meetings at SEMI Headquarters. See <http://www.semi.org/en/standards-events> for the current list of meeting schedules.

The tentative schedule is provided below:

Monday, April 3 (**Tentative**)

- Microfluidics Task Force (TBD)
- MEMS Substrate Task Force (13:30 – 14:30)
- Material Characterization Task Force (14:30 – 15:30)
- MEMS/NEMS TC Chapter (15:30 – 17:30)

Having no further business, a motion was made to adjourn. Adjournment was at 16:21.

Respectfully submitted by:

Laura Nguyen

SEMI International Standards Coordinator

Phone: +1.408.943.7019

Email: lnguyen@semi.org

Minutes approved by:

Win Baylies (BayTech-Resor), Co-chair	<Date Approved>
Steve Martell (Sonoscan), Co-chair	April 3, 2017

Table 8 Index of Available Attachments^{#1}

<i>Title</i>	<i>Title</i>
SEMI Standards Required Meeting Elements	[2016Fall] Staff Report MEMS NEMS
[2016West] NA MEMS NEMS Minutes DRAFT	

^{#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.