MEMS/NEMS North America TC Chapter

Meeting Summary and Minutes

SEMI Standards NA Winter Meetings 2025

Thursday, February 27, 09:00 – 11:00 Pacific

SEMI Global Headquarters, Milpitas, California, and via Official Virtual TC Chapter Meeting (OVTCCM)

TC Chapter Announcements

Next TC Chapter Meeting

SEMI Standards NA Summer Meetings 2025

Monday, June 2, 10:00 – 11:30 Pacific

SEMI Global Headquarters, Milpitas, California

Table 1 Meeting Attendees

Co-Chairs: Michelle Bourke (Lam Research), Steve Martell (Nordson SONOSCAN)

SEMI Staff: Laura Nguyen

Company	*Last*	*First*	*Company*	*Last*	*First*
Camenzind Solutions	*Camenzind*	*Mark*	*SoftMEMS LLC*	*Maher*	*Mary Ann*
Lam Research	*Bourke*	*Michelle*	*Teledyne Micralyne Inc*	*Harrison*	*Tyler*
Nordson SONOSCAN	*Martell*	*Steve*			
Okmetic	*Santala*	*Petri*	SEMI	Nguyen	Laura

Table 2 Leadership Changes

None

Table 3 Committee Structure Changes

None

Table 4 Ballot Results

Document #	*Document Title*	*Committee Action*
7304	Reapproval of SEMI MS1-0307 (Reapproved 0318), Guide to Specifying Wafer-Wafer Bonding Alignment Targets	**Passed**, as balloted.
7305	Reapproval of SEMI MS10-0912 (Reapproved 0318), Test Method to Measure Fluid Permeation Through MEMS Packaging Materials	**Passed**, as balloted.
7306	Reapproval of SEMI MS11-0318, Specification for Microfluidic Port and Pitch Dimensions	**Passed**, as balloted.

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

#2 **Failed** ballots and line items were returned to the originating task forces for re-work and re-balloting or abandoning.

Table 5 Ratification Ballot Results

None

Table 6 Activities Approved by the GCS between meetings of the TC Chapter

None

Table 7 Authorized Activities

Listing of all revised or new SNARF(s) and TFOF(s) approved by the Originating TC Chapter.

#	*Type*	*SC/TF/WG*	*Details*
7340	SNARF	NA MEMS / NEMS TC	Reapproval of SEMI MS2-1113 (Reapproved 0819), Test Method for Step Height Measurements of Thin Films
7341	SNARF	NA MEMS / NEMS TC	Reapproval of SEMI MS5-0813 (Reapproved 0819), Test Method for Wafer Bond Strength Measurements Using Micro-Chevron Test Structures
7342	SNARF	MEMS Substrate TF	Reapproval of SEMI MS12-0220, Specification for Silicon Substrates Used in Fabrication of MEMS Devices

NOTE 1: SNARFs and TFOFs are available for review on the SEMI Web site at: http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARF

Table 8 Authorized Ballots

Listing of documents authorized by the Originating TC Chapter for Letter Ballot.

#	*When*	*TF*	*Details*
7340	Cycle 3, or 4-2025	NA MEMS / NEMS TC	Reapproval of SEMI MS2-1113 (Reapproved 0819), Test Method for Step Height Measurements of Thin Films
7341	Cycle 3, or 4-2025	NA MEMS / NEMS TC	Reapproval of SEMI MS5-0813 (Reapproved 0819), Test Method for Wafer Bond Strength Measurements Using Micro-Chevron Test Structures
7342	Cycle 3, or 4-2025	MEMS Substrate TF	Reapproval of SEMI MS12-0220, Specification for Silicon Substrates Used in Fabrication of MEMS Devices

Table 9 SNARF(s) Granted a One-Year Extension

None

Table 10 SNARF(s) Canceled

None

Table 11 Standard(s) to receive Inactive Status

None

Table 12 New Action Items

Item #	*Assigned to*	*Details*
2025Feb#01	SEMI/Chairs	Review existing MEMS TFs with MSIG (plan to disband, rename, and change leadership)
2025Feb#02	TC	Review potential topics (top 5-10 issues industry needs support on)

Table 13 Previous Meeting Action Items

Item #	*Assigned to*	*Details*
2021Dec#01	Steve Martell	Provide Laura N. a list of MEMS/Sensors conferences/symposium to potentially present a MSIG WGs and SEMI Standards Update. Ongoing.
2024Nov#01	SEMI, MSIG	How to increase participants in SEMI Standards, WGs, WG meeting, and to other events? Ongoing.

1 Welcome, Reminders, and Introductions

Steve Martell (Nordson SONOSCAN), called the meeting to order at 09:08 Pacific. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves.

Attachment: SEMI Standards Required 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:	By: Michelle Bourke / Lam Research Second: Petri Santala / Okmetic Inc
Discussion:	None.
Vote:	3-0 in favor. Motion passed.

Attachment: [2024Fall] MEMS NEMS NA TC Chapter Meeting Minutes FINAL

3 Liaison Reports

3.1 *SEMI Staff Report*

Laura Nguyen (SEMI) gave the SEMI Staff Report. Of note:

SEMI Global 2025 Calendar of Events

- SEMICON China (March 26-28; Shanghai)
- SEMICON SEA (May 20-22; Singapore)
- SEMICON India (Sept 1-3; New Delhi, India)
- SEMICON Taiwan (Sept 10-12; Taipei, Taiwan)
- SEMCON West (Oct 7-9; Phoenix, Arizona)
- SEMICON Europa (Nov 18-21; Munich, Germany)
- SEMICON Japan (December 17-19; Tokyo, Japan)

SEMICON West 2025-2030 ← **NEW!**

- **2025—October 7-9 | Phoenix Convention Center | Phoenix, AZ**
- 2026—October 13-15 | Moscone Center | San Francisco, CA
- **2027—October 12-14 | Phoenix Convention Center | Phoenix, AZ**
- 2028—October 10-12 | Moscone Center | San Francisco, CA
- **2029—October 9-11 | Phoenix Convention Center | Phoenix, AZ**
- 2030—October 29-31 | Moscone Center | San Francisco, CA

Upcoming NA Meetings 2025

- NA Standards Summer Meetings: June 2-5, 2025, at SEMI HQ, Milpitas, California/USA
- SEMICON West: Oct 6-9, 2025, at Phoenix Convention Center, Phoenix, Arizona/USA

Critical Dates for SEMI Standards Ballots

- Cycle 2-2025: Ballot Submission Due: Jan 23/Voting Period: Feb 11 – Mar 13
- Cycle 3-2025: Ballot Submission Due: Mar 5/Voting Period: Mar 19 – Apr 18
- Cycle 4-2025: Ballot Submission Due: Mar 20/Voting Period: Apr 9 – May 9
- Cycle 5-2025: Ballot Submission Due: May 8/Voting Period: May 28 – June 27

- Cycle 6-2025: Ballot Submission Due: June 19/Voting Period: July 9 – Aug 8
- Cycle 7-2025: Ballot Submission Due: July 24/Voting Period: Aug 13 – Sep 12
- Cycle 8-2025: Ballot Submission Due: Sept 3/Voting Period: Sept 24 – Oct 24
- Cycle 9-2025: Ballot Submission Due: Oct 1/Voting Period: Oct 21 – Nov 20

https://www.semi.org/en/collaborate/standards/ballots

Standards Publications Report

Cycle	*New*	*Revised*	*Reapproved*	*Withdrawn*
November 2024	2	0	0	0
December 2024	0	11	6	0
January 2025	3	2	4	0

Total in portfolio – 1,098 (includes 356 Inactive Standards)

New Standards

Cycle	*Designation*	*Title*	*Committee*	*Region*
November 2024	SEMI E190	Specification for Equipment Data Publication (EDP)	Information & Control	NA
November 2024	SEMI E190.1	Specification for Common Data for Etch Components	Information & Control	NA
January 2025	SEMI E192	Guide for Equipment Adoption Criteria for GEM and GEM-related Standards	Information & Control	NA
January 2025	SEMI D87	Test Method for Response Time Evaluation of Displays with Variable Refresh Rate	FPD – Metrology	KO
January 2025	SEMI PV102	Guide for Tube PECVD Graphite Boat Materials for Solar Cell Production	Photovoltaic	CH

Connect@SEMI Communities for all SEMI Standards Task Forces *{update}*

- By Feb 2025, all Standards Task Forces shall use Connect@SEMI to host documents that are currently in development.
  - **The ISC Regulations SC recommends to postpone enforcement of implementation until next Regs/PM revision (which is currently aimed to become effective by NA Summer meeting in June)**
  - **Regs SC is working with SEMI to Update both Connect@SEMI and rules so that they are aligned each other**
- Each Standards Task Force will have its own Community Page on Connect@SEMI.
- All program members may log in at: https://connect.semi.org (username and password is same as program membership log-in)

Activities Approved via GCS

- SNARF and Ballot Authorization
  - Doc 7150, New Standard: Guide to MEMS Manufacturing Readiness Levels

Five-Year Review

- SEMI MS5-0813 (Reapproved 0819), Test Method for Wafer Bond Strength Measurements Using Micro-Chevron Test Structures
- SEMI MS2-1113 (Reapproved 0819), Test Method for Step Height Measurements of Thin Films
- SEMI MS12-0220, Specification for Silicon Substrates Used in Fabrication of MEMS Devices

Staff Contact: Laura Nguyen, Lnguyen@semi.org

Attachment: Staff Report Feb 2025 v3_MEMS

4 Ballot Review

NOTE 1: TC Chapter adjudication on ballots reviewed is detailed in the Audits & Review (A&R) Subcommittee Forms for procedural review. The A&R forms are available as attachments to these minutes. The attachment number for each balloted document is provided under each ballot review section below.

4.1 Document 7304 — Reapproval of SEMI MS1-0307 (Reapproved 0318), Guide to Specifying Wafer-Wafer Bonding Alignment Targets

- The ballot passed TC Chapter review as balloted. Refer to the attachment for ballot adjudication.

Attachment: 7304_ProceduralReview

4.2 Document 7305 — Reapproval of SEMI MS10-0912 (Reapproved 0318), Test Method to Measure Fluid Permeation Through MEMS Packaging Materials

- The ballot passed TC Chapter review as balloted. Refer to the attachment for ballot adjudication.

Attachment: 7305_ProceduralReview

4.3 Document 7306 — Reapproval of SEMI MS11-0318, Specification for Microfluidic Port and Pitch Dimensions

- The ballot passed TC Chapter review as balloted. Refer to the attachment for ballot adjudication.

Attachment: 7306_ProceduralReview

5 Subcommittee and Task Force Reports

The following task forces are currently inactive:

- Packaging TF
- Terminology TF
- Wafer Bond TF

5.1 *Joint MSIG (Manufacturing WG), MEMS Reliability, MEMS Substrate, and MEMS Material Characterization Task Force*

This Task Force reviewed standards for the upcoming Five-Year Review at the last meeting and decided to submit them for Reapproval Ballot. Refer to § 4 for Ballot Review and adjudication of these standards.

5.2 *Joint MSIG (Device WG), MEMS and Miniaturized Gas Sensing Task Force*

There is no update at this time.

5.3 *MEMS Microfluidics Task Force*

There is no update at this time.

6 Old Business

6.1 *Standards Due for Five-year Review*

Motion:	Approve the Reapproval SNARFs for the below and authorize for Letter Ballot in Cycle 3, or 4-2025. • SEMI MS5-0813 (Reapproved 0819), Test Method for Wafer Bond Strength Measurements Using Micro-Chevron Test Structures • SEMI MS2-1113 (Reapproved 0819), Test Method for Step Height Measurements of Thin Films • SEMI MS12-0220, Specification for Silicon Substrates Used in Fabrication of MEMS Devices
By / 2nd:	By: Petri Santala / Okmetic Inc Second: Michelle Bourke / Lam Research
Discussion:	None.
Vote:	4-0 in favor. Motion passed.

7 New Business

7.1 *Open Discussion*

- Action items recorded to review existing MEMS TFs with MSIG and plan to disband, rename, and change leadership. Next steps to review potential standard topics (top 5-10 issues industry needs support on) in collaboration with SEMI MSIG Technology Community.
- Discussion: *How to utilize SEMI's framework to create greater visibility to bring in new activities.*

8 Action Item Review

8.1 New Action Items are noted in Table 11. Previous action items are noted in Table 12 in 'red' and for recent updates in 'blue'. There is no further business.

9 Next Meeting and Adjournment

9.1 The next meeting is tentatively scheduled for the week of June 2-5, in conjunction with SEMI Standards NA Summer Meetings 2025. Schedule details TBD. Please check www.semi.org/standards for updates.

Tentative Schedule:

- Monday, June 2
  - 10:00-11:30, MEMS/NEMS NA TC Chapter

Adjournment: 10:27.

Respectfully submitted by:

Laura Nguyen

Sr. Coordinator, International Standards

SEMI Global Headquarters

Phone: +1.408.943.7019

Email: lnguyen@semi.org

Minutes tentatively approved by:

Michelle Bourke (Lam Research), Co-chair	<Date approved>
Steve Martell (Nordson SONOSCAN), Co-chair	<Date approved>

Minutes approved by: **MEMS/NEMS NA OVTCCM on June 2, 2025.**

Table 14 Index of Available Attachments[#1]

Title	*Title*
SEMI Standards Required Elements	7304_ProceduralReview
[2024Fall] MEMS NEMS NA TC Chapter Meeting Minutes	7305_ProceduralReview
Staff Report Feb 2025 v3_MEMS	7306_ProceduralReview

#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.