MEMS/NEMS North America TC Chapter

Meeting Summary and Minutes

SEMICON West Standards Meetings 2021
Monday, December 6, 10:30 – 12:00 Noon (Pacific) Hybrid
Moscone Center, San Francisco, California, and via Official Virtual TC Chapter Meeting (OVTCCM)

TC Chapter Announcements

Next TC Chapter Meeting

NA Standards Spring Meetings 2022

Monday, March 28, 2022, 10:30 – 12:00 Noon Pacific

SEMI Global Headquarters, Milpitas, California [Hybrid Event]

Table 1 Meeting Attendees

Co-Chairs: Michelle Bourke (Lam Research), Steve Martell (Nordson SONOSCAN)
SEMI Staff: Laura Nguyen

Company	*Last*	*First*	*Company*	*Last*	*First*
BW & Associates	Wu	Bevan	*NIST*	*Allen*	*Richard*
Camenzind Solutions	*Camenzind*	*Mark*	*Nordson SONOSCAN*	*Martell*	*Steve*
Engis Corporation	*Gilmore*	*Sean*	*Siargo Ltd.*	*Huang*	*Liji*
Inchfab Inc.	Hsing	Mitchell	*SoftMEMS LLC*	*Maher*	*Mary Ann*
Lam Research	*Bourke*	*Michelle*	SEMI	Nguyen	Laura

Table 2 Leadership Changes

None

Table 3 Committee Structure Changes

None

Table 4 Ballot Results

Document #	*Document Title*	*Committee Action*
6843	Reapproval of SEMI MS4-0416, Test Method for Young's Modulus Measurements of Thin, Reflecting Films Based on the Frequency of Beams in Resonance	**Passed**, as balloted.
6844	Reapproval of SEMI MS8-0309 (Reapproved 0915), Guide to Evaluating Hermeticity of Microelectromechanical Systems (MEMS) Packages	**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 Activities Approved by the GCS between meetings of the TC Chapter

None

Table 6 Authorized Activities

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

None

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

Table 7 Authorized Ballots

None

Table 8 SNARF(s) Granted a One-Year Extension

None

Table 9 SNARF(s) Abolished

None

Table 10 Standard(s) to receive Inactive Status

None

Table 11 New 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.

Table 12 Previous Meeting Action Items

None

1 Welcome, Reminders, and Introductions

Steve Martell (Nordson SONOSCAN), called the meeting to order at 10:35 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 (from Fall 2021 in September) as written.
By / 2nd:	By: Michelle Bourke / Lam Research Second: Mary Ann Maher / SoftMEMS LLC
Discussion:	None.
Vote:	4-0 in favor. Motion passed.

Attachment: [2021Sept] 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 Calendar of Events

- SEMICON West (December 7-9; San Francisco, CA/USA)
- SEMICON Japan (December 15-17; Tokyo, Japan)
- SEMICON Taiwan (December 28-30; Taipei, Taiwan)

Upcoming NA Meetings

- NA Standards Spring Meetings (March 28-31, 2022; SEMI HQ, Milpitas, CA/USA)
- SEMICON West (July 11-14, 2022; San Francisco, CA/USA)
- NA Fall Meetings (TBD)

Critical Dates for SEMI Standards Ballots

- Cycle 9-2021: Ballot Submission Due: Nov 16/Voting Period: Nov 30 – Dec 30
- Cycle 1-2022: Ballot Submission Due: Jan 5/Voting Period: Jan 19 – Feb 18
- Cycle 2-2022: Ballot Submission Due: Feb 1/Voting Period: Feb 15 – Mar 17
- Cycle 3-2022: Ballot Submission Due: Mar 9/Voting Period: Mar 23 – Apr 22

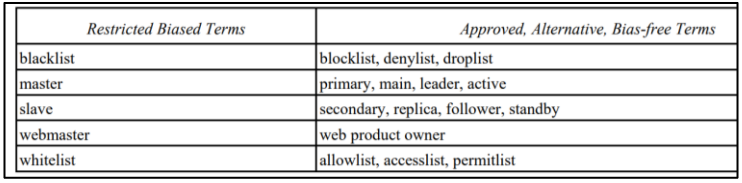
Critical Dates: http://www.semi.org/en/Standards/Ballots

Regulations and Procedure Manual Update

- *Regulations* (November 1, 2021)
  - Bias-free terminology - provide alternative, bias-free terms or option to rewrite and eliminate sensitive terms
  - Clarification of Inactive Status
  - Procedures for revising global Technical Committee charter and scope
  - https://www.semi.org/sites/semi.org/files/2021-11/Standards_Regulations_November_1_2021.pdf
- *Procedure Manual* (November 1, 2021)
  - Ballot procedures for Primary and Subordinate Standards
  - Ratification ballot improvement - clarification of the scope of Audit and Review process review to cover in authorizing, preparing, and conducting both Letter and Ratification ballots.
  - Clarifies that only Type 1 editorial changes are allowed in a reapproval ballot.
  - https://www.semi.org/sites/semi.org/files/2021-11/Procedure_Manual_November_1_2021.pdf

Style Manual update

- Style Manual (November 1, 2021)
  - New Appendix 5
  - Table A5-1 Restricted Biased Terms with Approved, Alternative, Bias-Free Terms



Restricted Biased Terms	*Approved, Alternative, Bias-free Terms*
blacklist	blocklist, denylist, droplist
master	primary, main, leader, active
slave	secondary, replica, follower, standby
webmaster	web product owner
whitelist	allowlist, accesslist, permitlist

  - Table A5-2 Biased Terms to Avoid with Approved, Alternative, Bias-Free Terms https://www.semi.org/sites/semi.org/files/2021-11/Style%20Manual%20Version%208_November%201%2C%202021_final.pdf

Standards Publications Report

Cycle	*New*	*Revised*	*Reapproved*	*Withdrawn*
August 2021	4	3	0	0
September 2021	0	5	6	0
October 2021	1	2	3	1
November 2021	3	7	7	1

Total in portfolio – 1,056 (includes 297 Inactive Standards)

New Standards

Cycle	*Designation*	*Title*	*Committee*	*Region*
August 2021	SEMI A4.1	Specification for the Automated Test Equipment Tester Event Messaging for Semiconductors (TEMS)	Automated Test Equipment	NA
August 2021	SEMI D82	Test Method for Viewing Angle of Flat Panel Displays	FPD – Metrology	KO
August 2021	SEMI F116	Guide for Drain Segregation for Semiconductor Manufacturing Tools to Support Site Water Reuse	Liquid Chemicals	NA
August 2021	SEMI M90	Test Method for Bulk Micro Defect Density and Denuded Zone Width in Annealed Silicon Wafers by Optical Microscopy After Preferential Etching	Silicon Wafer	JA
October 2021	SEMI C103	Guide for Reporting Performance Parameters of the Chemical Mechanical Planarization (CMP) Conditioning Disks Used in Semiconductor Manufacturing	Liquid Chemicals	NA
November 2021	SEMI E183	Specification for Rich Interactive Test Database (RITdb)	Automated Test Equipment	NA
November 2021	SEMI E186	Specification for Location and Dimensions for Power Connectors and EtherCAT ports in Mass Flow Controllers and Mass Flow Meters	Gases	NA
November 2021	SEMI D74	Guide for Measuring Dimensions of Plastic Films/Substrates	FPD - Materials & Components	JA

Inactive Standards (as of November 30, 2021) Cont.

Committee	*Number of Inactive Standards*
Assembly & Packaging	68
Automated Test Equipment	2
Compound Semiconductor Materials	4
Environmental Health & Safety	8
Facilities	14
FPD – Equipment	5
FPD – Factory Automation	14
FPD – Materials & Components	13
Gases	18
Information & Control	37
Liquid Chemicals	26
MEMS	4
Metrics	12

Micropatterning	30
Photovoltaic	3
Physical Interfaces & Carriers	25
Silicon Wafer	12
Traceability	8

Five-Year Review: None

Highlights

MEMS and Miniaturized Gas Sensing Task Force

- Document 6746A, New Standard: Guide for Critical Parameters of Gas Sensors
- Approved at the Fall 2021 Meeting in September
- Passed Audits and Review Subcommittee in November 2021 Cycle
- Moved to Publications for final step

Attachment: Staff Report Dec 2021 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 6843 — Reapproval of SEMI MS4-0416, Test Method for Young's Modulus Measurements of Thin, Reflecting Films Based on the Frequency of Beams in Resonance

- The ballot passed TC Chapter review as balloted. See attachment for ballot adjudication.

Attachment: 6843_ProceduralReview

4.2 Document 6844 — Reapproval of SEMI MS8-0309 (Reapproved 0915), Guide to Evaluating Hermeticity of Microelectromechanical Systems (MEMS) Packages

- The ballot passed TC Chapter review as balloted. See attachment for ballot adjudication.

Attachment: 6844_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 Substrate, and MEMS Material Characterization Task Force*

Michelle Bourke gave a verbal report on the MSIG Manufacturing WG. Of note:

- The Manufacturing WG discussed a technology readiness levels for MEMS
- Mapped out process flow from design to volume production
- Distributed tasks to members to draft sections of the document
- Next step: convert ideas to Word (i.e., problem statement)
  - Will this merit a white paper or a standard? TBD

5.2 *Joint MSIG, MEMS and Miniaturized Gas Sensing Task Force*

The Joint Task Force was held during the Committee meeting. The key items are as follows:

There is no update at this time. The ballot is in final publication processing.

5.3 *MEMS Microfluidics Task Force*

There is no update at this time.

5.4 *MEMS Reliability Task Force*

This Task Force was reactivated through the MSIG Working Groups. The Task Force is currently working on a survey; their next meeting is in January and will discuss the survey results.

6 Old Business

None

7 New Business

None

8 Next Meeting and Adjournment

8.1 The next meeting is tentatively scheduled for the week of March 28-31, in conjunction with NA Spring Meetings 2022. Schedule details TBD. Please check www.semiconwest.org for updates.

Adjournment: 11:37.

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 November 7, 2024.**

Table 13 Index of Available Attachments[#1]

Title	*Title*
SEMI Standards Required Elements	6843_ProceduralReview
[2021Sept] MEMS NEMS NA TC Chapter Meeting Minutes FINAL	6844_ProceduralReview
Staff Report Dec 2021 v3_MEMS	

#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.