Silicon Wafer NA TC Chapter
Meeting Summary and Minutes

NA Winter Meetings
Tuesday, February 25, 2025
9:00 AM – 12:00 PM
SEMI HQ, Milpitas, CA

TC Chapter Announcements

Next TC Chapter Meeting
Tuesday, June 3rd, 2025, SEMI HQ, Milpitas, CA in conjunction with NA Summer Meetings. Check www.semi.org/en/standards for the latest update.

Table 1 Meeting Attendees

Co-Chairs: Noel Poduje (SMS), Dinesh Gupta (STA)
SEMI Staff: Kevin Nguyen (SEMI HQ)

Company	*Last*	*First*	*Company*	*Last*	*First*
STA	**Gupta**	**Dinesh**	*SMS*	*Poduje*	*Noel*
GlobalFoundries	*Grabbe*	*Alex*	*Siltronic*	*Riedel*	*Frank*
KLA	*Haller*	*Kurt*	*Okmetic*	*Santala*	*Petri*
Nordson	*Martell*	*Steve*	*GlobalWafers*	*Takeda*	*Ryuji*
SUMCO	*Nakai*	*Tetsuya*	*Self*	*Wagner*	*Peter*
Siltronic	*Passek*	*Fritz*			

Italic indicates remote participant. Bold indicates in person participant.

Table 2 Leadership Changes

WG/TF/SC/TC Name	*Previous Leader*	*New Leader*
None		

Table 3 Ballot Results

Document #	*Document Title*	*Committee Action*
None		

#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 4 Ratification Ballot Results

Document #	*Document Title*	*ISC A&R Action*	*A&R Forms*
None			

Table 5 Activities Approved by the GCS between meetings of the TC Chapter

#	*Type*	*SC/TF/WG*	*Details*
None			

Table 6 Authorized Activities

#	*Type*	*SC/TF/WG*	*Details*
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 7 Authorized Ballots

#	*When*	*SC/TF/WG*	*Details*
None			

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

#	*TF*	*Title*	*Expiration Date*
None			

Table 9 SNARF(s) Cancelled

#	*TF*	*Title*
None		

Table 10 Standard(s) to receive Inactive Status

Standard Designation	*Title*
None	

Table 11 New Action Items

Item #	*Assigned to*	*Details*
Feb25-2025	GCS	Request the GCS to work out a routine schedule for international meeting in the future as SEMICON West is now moved to Oct.

Table 12 Previous Meeting Action Items

Item #	*Assigned to*	*Details*	*Status*
None			

1 Welcome, Reminders, and Introductions

1.1 Dinesh Gupta called the meeting to order at 9:00 AM. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves. Noel requested staff to investigate ways for members to introducing themselves since there are people in person as well as online.

2 Review of Previous Meeting Minutes

2.1 The TC Chapter reviewed the minutes of the previous meeting.

Motion:	Accept the minutes as written.
By / 2nd:	By: Kurt Haller / KLA-Tencor Second: Frank Riedel / Siltronic AG
Discussion:	None
Vote:	10-0

3 Review of Schedule for the next meeting (Summer Meetings, June 2025)

3.1 There are no North America (NA) meetings scheduled until October 2025. This gap is too long to wait to continue work on the ballot, particularly the revision of SEMI M49. Therefore, it is proposed that a meeting be held in June, during the traditional SEMICON West time frame."

Motion: The June time frame serves as the international meeting for the North America region. The SEMICON West meeting, held in October, will take place but will not be considered an international meeting. A request was made for the GCS to develop a regular schedule for future international meetings.
By: Friedrich Passek / Siltronic AG
Second: Kurt Haller / KLA-Tencor
Discussion: It is an GCS issue which should be discussed.

Result: 8-Y 0-N Voting Result: Pass - 100.00%.

3.2 Draft schedule is attached.

Attachment: June2025_CommitteeDetails_v01

4 Liaison Reports

4.1 *Europe TC Chapter*

4.1.1 Frank Riedel reported. Of notes

- Last meeting
    - November 14, 2024
- Next meeting
    - SEMICON Europa, November 2025
    - Check www.semi.org/standards for the latest update
- Ballot Results
    - 7192 Revision of SEMI M73-1013E (Reapproved 1019), Test Method for Extracting Relevant Characteristics from Measured Wafer Edge Profiles
    - 7261 Reapproval of SEMI M53-0220, Practice for Calibrating Scanning Surface Inspection Systems Using Certified Depositions of Monodisperse Reference Spheres on Unpatterned Semiconductor Wafer Surfaces

    - 7262 Reapproval of SEMI M58-1109 (Reapproved 0320) Test Method For Evaluating DMA Based Particle Deposition Systems And Processes
    - 7263 Line-Item Revision of SEMI M35-1114 (Reapproved 1019) Guide For Developing Specifications For Silicon Wafer Surface Features Detected By Automated Inspection
    - 7264 Line-Item Revision of SEMI M52-0923 Guide for Specifying Scanning Surface Inspection Systems for Silicon Wafers for the 130 nm to 5 nm Technology Generations
    - All ballots passed
- Int'l Advanced Wafer Geometry TF
    - Ballot Development
        - 6983, Revision for SEMI M49, Guide for Specifying Geometry Measurement Systems for Silicon Wafers for the 130 nm to 16 nm Technology Generation
    - 5 Years Review
        - SEMI M67-0720 - Test Method for Determining Wafer Near-Edge Geometry from a Measured Thickness Data Array Using the ESFQR, ESFQD, and ESBIR Metrics
        - SEMI M68-0720 - Test Method for Determining Wafer Near-Edge Geometry from a Measured Height Data Array Using a Curvature Metric, ZDD
- Int'l Automated Advanced Surface Inspection TF
    - Status of AFM Roughness Working Group Activities
        - WG leader Judith Wittmann (Siltronic AG) compiled the current status:
            - AFM roughness, LLS haze working group started in Q2/2023
            - Round Robin started in Q2/2024 with Haze measurements at KLA site
                - 7 companies participating, 23 wafers provided
                - In November, wafers were shipped to Siltronic AG from SUMCO
            - Estimate to complete the Round Robin by End of Q1/2025
            - Focus is on the data evaluation and a concept of data presentation as basis for the development of a new standard.
- Int'l Polished Wafer TF
    - Ballot Development
        - Proposal to issue a new SNARF for SEMI M1 to remove 450mm wafers references
        - SNARF to be submitted during the Semicon Japan 2024 in December
- Int'l Test Methods TF
    - SEMI Working Group – Phase Out of Mercury
        - A generic project plan was generated and is updated in each meeting.
            - Collect wafers for the round robin test, Carry-out RR and evaluate data, summarize developments in a SEMI standard form.
        - Drafting doc. 7162, New Standard: Test Method for epi-resistivity determination in Si wafers by Surface Charge Profiling
    - New Japan Working Group: Epi resistivity measurement using hard (solid) metal contact CV method (Naoyuki J. Kawai, Ryuji Takeda reported on status)

- Review of related SNARF for New Standard: Test Method for net carrier density and resistivity of silicon epitaxial layer by capacitance-voltage measurements with an evaporated metal Schottky diode

Attachment: EU SiW Liaison Report November 2024

4.2 *Japan TC Chapter*

4.2.1 Nakai-san reported for the Japan TC Chapter.

- Last meeting
    - Thursday, December 12, 2024
- Next meeting
    - Friday, April 18, 2025
    - OVTCCM/ SEMI Japan, Tokyo, Japan (Hybrid)
- Ballot results
    - 7266, Reapproval of SEMI M71-0120, Specification for Silicon-on-Insulator (SOI) Wafers for CMOS LSI
    - 7265, Reapproval of SEMI MF391-0310E, Test Method for Minority Carrier Diffusion Length in Extrinsic Semiconductors by Measurement of Steady-State Surface Photovoltage
    - 7291, Revision to SEMI M62-0317, Specification For Silicon Epitaxial Wafers
- Authorized activities
    - 7318, New Standard: Test Method for Net Carrier Density And Resistivity Of Silicon Epitaxial Layer By Capacitance-Voltage Measurements With An Evaporated Metal Schottky Diode
    - 7319, Line-item revision to SEMI M88-0119, Practice for Sample Preparation Methods for Measuring Minority Carrier Diffusion Length in Silicon Wafers by Surface Photovoltage Methods
    - 7320, Revision to SEMI M1-0924, Specification for Polished Single Crystal Silicon Wafers
- Authorized ballots
    - 7318, New Standard: Test Method for Net Carrier Density And Resistivity Of Silicon Epitaxial Layer By Capacitance-Voltage Measurements With An Evaporated Metal Schottky Diode
    - 7319, Line-item revision to SEMI M88-0119, Practice for Sample Preparation Methods for Measuring Minority Carrier Diffusion Length in Silicon Wafers by Surface Photovoltage Methods
    - 7320, Revision to SEMI M1-0924, Specification for Polished Single Crystal Silicon Wafers
    - 6570B, New Standard: Guide for Measuring Bulk Micro Defect Density and Denuded Zone Width in Annealed Silicon Wafers by a Laser-Scatter Tomography Technique

Attachment: **JA SiW_Liaison Report_February 2025_R0**

5 SEMI Staff Report

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

- SEMI upcoming event
- SEMICON West 2025-2030
    - 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 2025 Meetings

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

- 2025 Critical Dates for SEMI Standards Ballots
  - https://www.semi.org/en/collaborate/standards/ballots
- The Use of Connect@SEMI for TF Management and Document Development Depository
  - Kevin Nguyen provided a quick demo on Connect@SEMI online collaboration.
  - Refer to PM § 6.4.5 Operation of TFs
    - Task Forces have until 6/2/25 to implement use of Connect@SEMI. (https://connect.semi.org)
    - Once TFs have implemented use of Connect@SEMI, they shall use it to:
      - Maintain the TF member roster up to date.
      - Share the working drafts.
        - The default format for working Draft Document sharing shall be Adobe Acrobat PDF.
      - Distribute the Draft Document at least one week before ballot submission to SEMI.
    - All existing TFs have been set up in Connect@SEMI as Communities with the TF leaders assigned community admin and moderator capabilities
    - Training materials for TF leaders and members (users) are available at
      - https://www.semi.org/standards
        - Under Standards Developer Resources → Collaboration Tools (scroll to the bottom)
- SEMI Standards Publications
  - Total SEMI Standards in portfolio: 1,098
    - Includes 356 Inactive Standards

Attachment: **Staff Report Feb 2025 v2**

6 Regulations Change Report (if applicable)

6.1 No new update.

7 Ballot Review

7.1 None

8 Task Force Reports

8.1 *Int'l Advanced Wafer Geometry Task Force /Noel Poduje (SMS)*

8.1.1 Noel reported. Of note:

- Ballot Review
  - None
- Ballot development
  - 6983A - Revision of SEMI M49-0918 With Title Change To: Guide for Specifying Geometry Measurement Systems for Silicon Wafers for the 130 nm to 3 nm Technology Generations
    - As reported by Yoshi above, the JA AWG TF agreed go with "No value on Table 3" and report it to SWC.
    - This meeting then addressed three aspects of producing a ballot-ready draft:
      - Changes related to removing reference values from Table 3 for small nodes.
      - Various other changes, editorial and substantive, not related to Table 3.
      - Changes to Related Information resulting from removal of reference values.
    - In summary, Peter agreed to lead the effort to put all this together as a ballot ready draft for the next meeting. He welcomes and encourages TF member input to this end.
- 5-year review
  - SEMI M67-0720 - Test Method for Determining Wafer Near-Edge Geometry from a Measured Thickness Data Array Using the ESFQR, ESFQD, and ESBIR Metrics
  - SEMI M68-0720 - Test Method for Determining Wafer Near-Edge Geometry from a Measured Height Data Array Using a Curvature Metric, ZDD
  - These are coming up for review. They will be discussed at the next meeting. Kurt will inquire at KLA regarding possible issues.

Attachment: **AWG NA Spring 2025 minutes**

8.2 *Int'l Automated Advanced Surface Inspection Task Force/ Kurt Haller (KLA-Tencor)*

8.2.1 Kurt reported. Of note:

- Prior meetings and working groups
  - Kurt reviewed activity of the TF and the AFM WG since the last NA TF meeting at SEMICON West, July 2024.
- Ballot Development/Reports
  - The TF currently has no ballots in SNARF-sanctioned development. Kurt gave a status update of the AFM Working Group's 21 wafer round-robin, expected to complete before SEMICON West in October, 2025, at which time a SNARF for a new standard for AFM measurement of surface roughness on device-grade silicon wafers may also be forthcoming.

Attachment: IAASI_Minutes_SEMI_NA_Feb_2025 rev1

8.3 *Int'l SOI Wafers TF/Gerd Pfeiffer (SOITEC)*

8.3.1 No meeting, no report.

8.4 *Int'l Polished Wafer TF/TBD*

8.4.1 Dinesh reported. Of note:

- 7320 - Revision to SEMI M1-0924, Specification for Polished Single Crystal Silicon Wafers (removal of 450 mm wafer references)
    - The ballot is issued in cycle 2-25 for review at SEMICON West in October 2025.

8.5 *Int'l Test Methods TF/ Dinesh Gupta (STA)*

8.5.1 Dinesh reported. Of note:

- 7319 - Line-item revision to SEMI M88-0119, Practice for Sample Preparation Methods for Measuring Minority Carrier Diffusion Length in Silicon Wafers by Surface Photovoltage Method
    - The ballot is issued in cycle 2-25 for review at SEMICON West in October 2025.
- 6570B - New Standard: Guide for Measuring Bulk Micro Defect Density and Denuded Zone Width in Annealed Silicon Wafers by a Laser-Scattering Tomography Technique
    - The ballot is issued in cycle 2-25 for review at SEMICON West in October 2025.
- 7318 - New Standard: Test Method for Net Carrier Density And Resistivity Of Silicon Epitaxial Layer By Capacitance-Voltage Measurements With An Evaporated Metal Schottky Diode
    - The ballot is issued in cycle 2-25 for review at SEMI Japan office on April 18 2025 meeting.

9 Old Business

9.1 None

10 New Business

10.1 5 Year Review.

10.1.1 5-Year Review Standards are handled by various Task Forces.

11 Next Meeting and Adjournment

11.1 The next meeting is scheduled for NA Winter Meeting, June 3 in Milpitas, CA. Refer http://www.semi.org/standards for the current list of meeting schedules.

Respectfully submitted by:

Kevin Nguyen,
SEMI Standards Operations Manager
Phone: 408-943-7997
Email: knguyen@semi.org

Minutes approved by:

Dinesh Gupta (STA)	<Date approved>
Noel Poduje (SMS)	<Date approved>

Table 13 Index of Available Attachments[#1]

Title	*Title*
June2025_CommitteeDetails_v01	Staff Report Feb 2025 v2
EU SiW Liaison Report November 2024	AWG NA Spring 2025 minutes
JA SiW_Liaison Report_February 2025_R0	IAASI_Minutes_SEMI_NA_Feb_2025 rev1

#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 [SEMI Staff Name] at the contact information above.