

## NA Silicon Wafer TC Chapter Meeting Minutes

NA Spring Standards Meeting 2016  
 Tuesday, April 5, 2015, 9:00 AM - 12:00 PM  
 KLA-Tencor, Milpitas, CA

### Next Committee Meeting

Tuesday, July 12, 2016, San Francisco, CA in conjunction with SEMICON West Standards Meetings. Check [www.semi.org/standards](http://www.semi.org/standards) for the latest update.

### Attendees:

#### SEMI Staff

Kevin Nguyen – SEMI HQ

**Co-chair** – Dinesh Gupta (STA)

**Table 1 – Meeting Attendees**

<i>Last Name</i>	<i>First Name</i>	<i>Company</i>
Haller	Kurt	KLA-Tencor
Nakai	Tetsuya	SUMCO
Perroots	Len	Supersight
<i>Poduje</i>	<i>Noel</i>	<i>SMS</i>
Sinha	Jaydeep	Self
<i>Wagner</i>	<i>Peter</i>	<i>Self</i>
Whitlock	Mathew	Daewon SPIC

*Italic* indicates attended via teleconference

**Table 2 – Task Force Changes**

None

**Table 3 – Ballot Summary**

None

**Table 4 – Authorized Ballots**

<i>#</i>	<i>When</i>	<i>SC/TF/WG</i>	<i>Details</i>
5989	Cycle 4-16	Int'l Epi Wafer Task Force	Revision of SEMI M62-0515, Specifications for Silicon Epitaxial Wafers
5990	Cycle 4-16	Int'l Automated Advance Surface Inspection Task Force	Revision of SEMI MF1811-0116, Guide for Estimating the Power Spectral Density Function and Related Finish Parameters from Surface Profile Data
5994	Cycle 4-16	Int'l Automated Advance Surface Inspection Task Force	Line Item Revision to SEMI M50, Test Methods for Determining Capture Rate and False Count Rate for Surface Scanning Inspection Systems by the Overlay Method (Fix title for conformance)
5993	Cycle 5-16	Polished Wafer Task Force	Line Item Revision of SEMI M1-0416, Specification for Polished Single Crystal Silicon Wafers

**Table 5 – Authorized Activities**

#	Type	SC/TF/WG	Details
5993	SNARF	Int'l Polished Wafer Task Force	Line Item Revision of SEMI M1-0416, Specification for Polished Single Crystal Silicon Wafers
5994	SNARF	Int'l Automated Advance Surface Inspection Task Force	Line Item Revision to SEMI M50, Test Methods for Determining Capture Rate and False Count Rate for Surface Scanning Inspection Systems by the Overlay Method (Fix title for conformance)
5995	SNARF	Int'l Automated Advance Surface Inspection Task Force	Line Item Revision of SEMI MF1048-1111, TEST METHOD FOR MEASURING REFLECTIVE TOTAL INTEGRATED SCATTER

**Note:** SNARFs and TFOFs are available for review on the SEMI Web site at:

<http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARF>

**Table 6 – Previous Meeting Actions Items**

Item #	Assigned to	Details	Status
0315-1	Leaders of Int'l Polished Wafer TF	To review charter and scope of the Int'l Polished Wafer TF and modify as necessary.	Pending

**Table 7 – New Actions Items**

Item #	Assigned to	Details
0416-1	Dinesh Gupta	Formally send an email to Mike Goldstein and John Valley to confirm if they are still interested in chairing the Polished Wafer TF
0416-2	Dinesh Gupta	To contact device manufacturers (e.g., HP, IBM, and others) for a possible interest in running SOI TF. Jaydeep will also help contacting GlobalFoundries.
0416-3	Noel Poduje	To prepare an Excel matrix listing all international silicon wafer TFs with leaders.
0416-4	Kevin Nguyen	To circulate SEMI M21, M43 and M78 to AWG TF members for 5 year review.

### 1. Call to Order

Dinesh Gupta called the meeting to order and welcomed everyone who attended. A round of self introduction was made. All SEMI standards meetings are subjected to SEMI Anti-Trust Reminder and Guidelines concerning Patentable Technology. SEMI Regulations now require all attendees to be members of SEMI standards. Membership enrollment is at [www.semi.org/standardsmembership](http://www.semi.org/standardsmembership). Agenda was reviewed and proceed.

### 2. Review of Schedule for the Next Meeting (SEMICON West Standards Meeting, July 11-12, 2016)

The next meeting is scheduled at the SEMICON West Standards Meeting, July 11-12, 2016 in San Francisco, CA. Check [www.semi.org/standards](http://www.semi.org/standards) on the calendar of entry for the latest schedule and meeting location. See attachment for tentative schedule.

[Attachment – 1, Sch SiWfr 0716](#)

### 3. Review and Approval of the Minutes from SEMICON West meetings, July 14, 2015 in Santa Clara, CA

The meeting minutes were reviewed.

**Motion:** Accept the minutes of the previous meeting.

**By / 2<sup>nd</sup>:** Kurt Haller/Tetsuya Nakai

**Discussion:** None

**Vote:** 5/0 in favor. Motion passed

[Attachment – 2, Minutes NA SiWfr 20150714](#)

## 4. Liaison Reports

### 4.1. Europe Committee

Kevin Nguyen reported there was no meeting since October 2015. The old report was given from the previous meeting in November 2014.

### 4.2. Japan Committee

Nakai-san reported. Highlights.

- Last Meeting
  - March 11, 2016 during Japan Spring Meetings 2015 at SEMI Japan, Tokyo, Japan
- Next Meeting
  - June 10, 2016 during Japan Summer Meetings 2015 at SEMI Japan, Tokyo, Japan
- Revision to current Charter
  - Approved by ISC
- JEITA
  - Silicon Technology Committee sunsets on March 31st.
  - Japan Society of Newer Metals (JSNM) takes over the functionality of the Committee, including management related to JIS standards based on JEITA standards
  - Although JEIDA/JEITA Standards will be abolished, the documents will be available on JEITA website for 10 years in future. JSNM will also put them on its.
  - JEITA also transfers JSNM their standard specimens used for standardization.
  - JSNM Material Standards Study Group for Semiconductor Supply-Chain(M4S) is established on April 1, 2016 to take over JEITA Silicon Wafer Technology Committee.
    - develop JSNM semiconductor related standards
    - will have good relation with SEMI
      - M4S will discuss that SEMI becomes liaison part with this group.
  - Japan staff - Junko Collins (jcollins@semi.org)

[Attachment – 3, JA Si Liaison Report \(NA Spring\) 2016 04 05a](#)

## 5. Regulations Change Report

Kevin reported several changes in the published Feb 2016 edition including 30 days effective date after distribution and a new procedure for SEMI Letter Designation change.

## 6. Staff Report

Report was given by Kevin. Highlights:

- SEMICON West Visitor Registration
  - Complimentary Expo Only badge is opened from March 15-May 6
  - Register Today!
    - <http://www.semiconwest.org/attend/registration>
- There are now 9 ballots cycle for 2016
  - [http://www.semi.org/en/Standards/P\\_000788](http://www.semi.org/en/Standards/P_000788)
- SEMI Standards Publications
  - Total SEMI Standards in portfolio: 962
- New Requirements/Process Reminders for TC Chapter Meetings from December 2014 Regulations
  - Standards Document Development Project Period
    - Project period shall not exceed 3 years (Regs 8.3.2)
    - 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.
- 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.
  - New SNARF & TFOF Form

[Attachment – 4, Staff Report April 2016\\_SiWafer](#)

## 6.0 Ballot Review

- 6.1 There was no ballot to review.

## 7.0 Task Force Reports

### 7.1 Int'l Advanced Wafer Geometry TF/ Jaydeep Sinha

- Minutes were presented by Jaydeep.
  - Ballot developments
    - Doc5915 - Line Item Rev. to M1 - illustration of Geometry Parameters
      - Noel brought up that in some of the Figures terms not defined in the document and some are not clear. Nakai-san will also communicate with Peter to get the original versions of the figures (not pictures) so that changes can be made more easily. Nakai-san will work together with KLA-Tencor to make sure the figures are aligned with the algorithm implementation and the definitions in Standards documents. This can be reviewed and presented for ballot during SEMICON West.
    - Doc5744 - Line Item Rev. to M49 - exclusion windows – This document was reviewed briefly. Kevin will remind members to vote.
    - SEMI M21, M43 and M78:
      - These documents are up for 5 year review. **Action Item:** The TF requested Kevin to circulate to members for review. If there is no feedback, these documents can be sent for reapproval.

[Attachment – 5, AWG Spring 2016](#)

### 7.2 Int'l Automated Advanced Surface Inspection TF/Kurt Haller (KLA-Tencor)

- Kurt reported Doc # 5990: Revision of SEMI MF1811-0116, Guide for Estimating the Power Spectral Density Function and Related Finish Parameters from Surface Profile Data, is ready for ballot.
 

**Motion:** To send doc. 5990 for cycle 4-16 for review at SEMICON West  
**By / 2<sup>nd</sup>:** Kurt Haller/Jaydeep Sinha  
**Discussion:** None  
**Vote:** 5-0 in favor. Motion passed
- SEMI MF1048-1111 - Test Method for Measuring the Reflective Total Integrated Scatter is due for five year review. SNARF was presented.
 

**Motion:** To approve SNARF for MF1048 revision.  
**By / 2<sup>nd</sup>:** Kurt Haller/Jaydeep Sinha  
**Discussion:** None  
**Vote:** 5-0 in favor. Motion passed

- SEMI M50-0310, Test Methods for Determining Capture Rate and False Count Rate for Surface Scanning Inspection Systems by the Overlay Method, has a nonconforming title.

**Motion:** To approve SNARF for M50 for line item revision to correct the title and forward for cycle 4-2016 ballot.

**By / 2<sup>nd</sup>:** Kurt Haller/Mike Goldstein

**Discussion:** None

**Vote:** 5-0 in favor. Motion passed

[Attachment – 6, IAASIMinutes\\_4Apr2016](#)

### 7.3 Int'l SOI TF/Bich-Yen Nguyen (SOITEC USA)

- No meeting.

### 7.4 Int'l Annealed Wafer TF/Dinesh Gupta (STA)

- No meeting.

### 7.5 Int'l Epitaxial Wafer TF/ Dinesh Gupta (STA)

- Dinesh reported doc. 5989, Revision of SEMI M62-0515, Specifications For Silicon Epitaxial Wafers ballot is ready.

**Motion:** To authorize doc. 5989 for cycle 4 for review at SEMICON West 2016

**By / 2<sup>nd</sup>:** Dinesh Gupta/Kurt Haller

**Discussion:** None

**Vote:** 5/0 in favor. Motion passed

[Attachment – 7, 5989](#)

### 7.6 Int'l Test Methods TF/Dinesh Gupta (STA)

- Dinesh reported these standards below are due for 5 year. He and Murray will review and determine whether to send for reapproval or revision.

- **Nonconforming Titles**

- SEMI MF28-0707 (Reapproved 0912) Test Methods for Minority Carrier Lifetime in Bulk Germanium and Silicon by Measurement of Photoconductivity Decay
- SEMI MF391-0310 Test Methods for Minority Carrier Diffusion Length in Extrinsic Semiconductors by Measurement of Steady-State Surface Photovoltage
- SEMI MF673-1014 Test Methods For Measuring Resistivity Of Semiconductor Wafers Or Sheet Resistance Of Semiconductor Films With A Noncontact Eddy-current Gauge
- SEMI MF928-1014 Test Methods For Edge Contour Of Circular Semiconductor Wafers And Rigid Disk Substrates
- SEMI MF1763-0706 (Reapproved 1111) Test Methods For Measuring Contrast Of A Linear Polarizer
- SEMI MF1982-0714 Test Methods For Analyzing Organic Contaminants On Silicon Wafer Surfaces By Thermal Desorption Gas Chromatography

- **5 Year Review**

- SEMI MF374-0312 Test Method for Sheet Resistance of Silicon Epitaxial, Diffused, Polysilicon, and Ion-implanted Layers Using an In-Line Four-Point Probe with the Single-Configuration Procedure
- SEMI MF525-0312 Test Method for Measuring Resistivity of Silicon Wafers Using a Spreading Resistance Probe
- SEMI MF1763-0706 (Reapproved 1111) Test Methods for Measuring Contrast of a Linear Polarizer
- SEMI MF728-1106 (Reapproved 1111) Practice for Preparing an Optical Microscope for Dimensional Measurements
- SEMI MF978-1106 (Reapproved 1111) Test Method for Characterizing Semiconductor

Deep Levels by Transient Capacitance Techniques

- SEMI MF1048-1111 Test Method for Measuring the Reflective Total Integrated Scatter
- SEMI MF391-0310 Test Methods for Minority Carrier Diffusion Length in Extrinsic Semiconductors by Measurement of Steady-State Surface Photovoltage

#### 7.7 Int'l Polished Wafer TF/Leaders-TBD

- According to Murray, a Line Item Revision of SEMI M1-0416, Specification for Polished Single Crystal Silicon Wafers needs to be sent.

**Motion:** To approve a SNARF for line item revision to SEMI M1.

**By / 2<sup>nd</sup>:** Dinesh Gupta/Kurt Haller

**Discussion:** None

**Vote:** 5/0 in favor. Motion passed

**Motion:** To authorize line item revision to SEMI M1 for cycle 4 or 5-2016 for review in San Francisco.

**By / 2<sup>nd</sup>:** Dinesh Gupta/Kurt Haller

**Discussion:** Nakai suggested to circulate the ballot to Japan and Europe leaders for consensus prior to issuing the ballot.

**Vote:** 5/0 in favor. Motion passed

[Attachment – 8, SNARF for Line Item revision of SEMI M1-0216 \(1\)](#)

[Attachment – 9, 5993 M1](#)

#### 7.8 Int'l Terminology TF/Leader-TBD

- No meeting. Noel reported Murray Bullis has been leading the task force. All terms from Silicon Wafer standards are balloted and added in SEMI M59, Terminology for Silicon Technology. Once completed, terms in individual standards are removed via ballot. The work is mostly clerical, and can be done by each task force.
- Peter Wagner mentioned this process is redundant since SEMI publishes a Compilation of Term (COT) publicly on the web. Per Noel, these terms are not in SEMI M59, but rather stays in each standard.
- Noel is soliciting for an alternative solution. Nakai-san proposes to have this discussion at the GCS meeting during SEMICON West.

### 8.0 Old Business

None

### 9.0 New Business

#### 9.1 TF leadership.

- International Annealed Wafer TF and International Epitaxial Wafer TF
  - Both are inactive. Revisions can be done as needed. Dinesh will still be the task force leader for NA region.
- International Polished Wafer TF
  - John Valley and Mike Goldstein are listed, but neither was in the meeting. Is Mike and John committing on running the meeting?
  - **Action Item** – Dinesh will formally send an email to both to confirm their interest
- International SOI Wafer TF
  - Bich-Yen is listed, but there is little progress for the past few years. Per Dinesh, SOI technology is active. HP, IBM, and other device makers are using SOI. The Task Force should have an active agenda.
  - Jaydeep suggested to ping GlobalFoundries.
  - **Action Item** – Dinesh to draft an email and send to those he knows for a possibility of running the SOI TF. Jaydeep will use Dinesh's message and forward to the user community as well.

- International Terminology TF
  - More will be discussed at the next GCS meeting during SEMICON West.
- **Action Item** - Noel volunteered to put together an Excel spreadsheet containing all the international task force with NA, EU, and JA. He will circulate among those in attendance.

### 10.0 Action Item Reviews

Kevin Nguyen reviewed no old action items. New action items at this meeting are noted in Table 7.

### 11.0 Adjourn

The meeting was adjourned at 11:00 AM.

These minutes are respectfully submitted by:

Kevin Nguyen,  
 SEMI Int'l Standards Operation Manager  
 Phone: 408-943-7997  
 Email: [knguyen@semi.org](mailto:knguyen@semi.org)

Minutes approved by:

Dinesh Gupta (STA) – Co-chair  
 Noel Poduje (SMS) – Co-chair

Date: April 26, 2016  
 Date: April 25, 2016

**Table 8 – Index of Attachment Summary**

#	<i>Title</i>	#	<i>Title</i>
1	<a href="#">Sch SiWfr 0716</a>	6	<a href="#">IAASIMinutes 4Apr2016</a>
2	<a href="#">Minutes NA SiWfr 20150714</a>	7	<a href="#">5989</a>
3	<a href="#">JA Si Liaison Report (NA Spring) 2016 04 05a</a>	8	<a href="#">SNARF for Line Item revision of SEMI M1-0216 (1)</a>
4	<a href="#">Staff Report April 2016_SiWafer</a>	9	<a href="#">5993 M1</a>
5	<a href="#">AWG Spring 2016</a>		

#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](http://www.semi.org). For additional information or to obtain individual attachments, please contact Kevin Nguyen at the contact information above