

# Japan Silicon Wafer TC Chapter Meeting Summary and Minutes

SEMICON Japan 2014 Meetings  
 Wednesday, December 3, 2014, 13:00-17:00  
 Tokyo Big Sight, Tokyo, Japan

**Next TC Chapter Meeting**  
 Friday, March 6, 2015, 13:30-17:30  
 SEMI Japan, Tokyo, Japan

## Table 1 Meeting Attendees

**Co-Chairs:** Naoyuki Kawai (The University of Tokyo), Tetsuya Nakai (SUMCO)

**SEMI Staff:** Naoko Tejima (SEMI Japan)

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
Raytex	Akiyama	Satoshi	SUMCO	Nakai	Tetsuya
Intel	Goldstein	Mike	Miraial	Nagashima	Tsuyoshi
KLA Tencor	Haller	Kurt	Kuroda Precision	Naoi	Kaoru
Hitachi High Technologies	Ikota	Masami	HST Vision	Sasaki	Kunihiko
Shinetsu-Handotai	Imai	Toshihiko	GlobalWafers Japan	Takeda	Ryuji
The University of Tokyo	Kawai	Naoyuki	Takenaka Consulting	Takenaka	Takao
Acteon	Komatsu	Shoji	Shinetsu-Handotai	Toda	Naohisa
Kumai Consulting	Kumai	Sadao	-	Yoshise	Masanori
G450C	Lee	Kwang Wook	SEMI	Amano	James
SCAS	Machida	Ryo	SEMI Japan	Tejima	Naoko

\* alphabetical order by last name

## Table 2 Leadership Changes

None

## Table 3 Ballot Results

**Passed** ballots and line items will be forwarded 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>
5736	Line Item Revision to M41-1213 Specification of Silicon-on-Insulator (SOI) for Power Device/ICs	<b>Passed</b> with editorial changes
5742	Line Item Revision to M62-0514, Specifications for Silicon Epitaxial Wafers	<b>Passed</b>
5743	Line Item Revision to SEMI M1-1014, Specifications for Polished Single Crystal Silicon Wafers	<b>Passed</b> with editorial changes
5771	Revision to SEMI M80-0514, Mechanical Specification for Front-Opening Shipping Box used to Transport and Ship 450 mm Wafers with Title Change to Specification for Front-Opening Shipping Box used to Transport and Ship 450mm Wafer	<b>Failed</b>

**Table 4 Authorized Ballots**

Document #	When	SC/TF/WG	Details
5794	Cycle 3/4	International 450mm Wafers Task Force	<i>New Standard: Specification Of Developmental 450mm Diameter Polished Single Crystal Notchless Silicon Wafers With Back Surface Fiducial Marks</i>
5655	Cycle 3/4	International Polished Wafers Task Force	<i>Line Item Revision of SEMI M1-1013, Specifications for Polished Single Crystal Silicon Wafers, to update 450 mm wafers edge exclusion</i>
5807	Cycle 2/3	International Advanced Wafer Geometry Task Force	<i>Revision for M77 -1110, with title change from “Practice for Determining Wafer Near-Edge Geometry Using Roll-Off Amount, ROA” to “Test Method for Determining Wafer Near-Edge Geometry Using Roll-Off Amount, ROA”</i>
5746	Cycle 1/2	International Automated Advanced Surface Inspection Task Force	<i>Line Item Revision of SEMI ME1392-1109, Guide for Angle Resolved Optical Scatter Measurements on Specular or Diffuse Surfaces</i>

**Table 5 Authorized Activities**

Document #	Type	SC/TF/WG	Details
5834	SNARF	JA Test Method Task Force	<i>Line Item Revision to SEMI Standard M085-1014: Guide for the Measurement of Trace Metal Contamination on Silicon Wafer Surface by Inductively Coupled Plasma Mass Spectrometry</i>
5737	SNARF	JA Test Method Task Force	<i>Revision of SEMI MF1391-1107, Test Method for Substitutional Atomic Carbon Content of Silicon by Infrared Absorption</i>

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

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

**Table 6 New Action Items**

Item #	Assigned to	Details
SiW140911-02	All TF Leaders	To re-check the TF members name, company and contact.
SiW141203-01	SEMI staff	To forward adjudication result of <i>Doc.#5736 Line Item Revision to M41-1213 Specification of Silicon-on-Insulator (SOI) for Power Device/ICs</i> to the ISC A&R Subcommittee for procedural review.
SiW141203-02	SEMI staff	To forward adjudication result of <i>Doc.#5742 Line Item Revision to M62-0514, Specifications for Silicon Epitaxial Wafers</i> to the ISC A&R Subcommittee for procedural review.
SiW141203-03	SEMI staff	To forward adjudication result of <i>Doc.#5743 Line Item Revision to SEMI M1-1014, Specifications for Polished Single Crystal Silicon Wafers</i> to the ISC A&R Subcommittee for procedural review.
SiW141203-04	International 450mm Wafer Task Force	To submit <i>Doc.#5794, New Standard: Specification for Developmental 450 mm Diameter Polished Single Crystal Notchless Silicon Wafers with Back Surface Fiducial Marks</i> for Cycle 3 or 4.
SiW141203-05	International Polished Wafers Task Force	To submit <i>Doc.#5655, Line Item Revision to SEMI M1-1014 Specifications for Polished Single Crystal Silicon Wafers</i> for Cycle 3 or 4.
SiW141203-06	International Advanced Surface Inspection	To submit <i>Doc.#5746, Line Item Revision of SEMI ME1392-1109, Guide for Angle Resolved Optical Scatter Measurements on Specular or Diffuse Surfaces</i> for Cycle 1 or 2.
SiW141203-07	International Advanced Wafer Geometry Task Force	To submit <i>Doc.#5807, Revision for M77 -1110, with title change from “Practice for Determining Wafer Near-Edge Geometry Using Roll-Off Amount, ROA” to “Test Method for Determining Wafer Near-Edge Geometry Using Roll-Off Amount, ROA”</i> for Cycle 2 or 3.

## 1 Welcome, Reminders, and Introductions

Naoyuki Kawai, committee co-chair, called the meeting to order at 13:00. Self-introductions were made followed by the agenda review.

## 2 Required Meeting Elements

The meeting reminders on program membership requirement, antitrust issues, intellectual property issues and international effective meeting guidelines, were reviewed by SEMI staff, Naoko Tejima.

## 3 Technical Committee Award

Technical Committee Awards were given to the below members to appreciate their outstanding efforts and leadership.

- Seiji Taniike, GlobalWafers Japan Co., Ltd.
- Ryo Machida, Sumika Chemical Analysis Service, Ltd.
- Toshihiko Imai, Shin-Etsu Handotai Co., Ltd.

## 4 Review of Previous Meeting Minutes

The committee reviewed the minutes of the previous meeting held on September 11, 2014.

**Motion:** To approve the minutes of the previous meeting as submitted.

**By / 2<sup>nd</sup>:** Tetsuya Nakai (SUMCO) / Masanori Yoshise ( - )

**Discussion:** None.

**Vote:** 12 in favor and 0 opposed. **Motion passed.**

**Attachment:** 01\_JA\_SiW\_Previous\_Mtg\_Minutes\_141203

## 5 SEMI Staff Report

Naoko Tejima gave the SEMI staff report. This report included SEMI Global 2014 & 2015 Calendar of Events, Global Standards Meeting Schedule, SEMICON Japan 2014 Outline & Information, Standards Meeting Schedule & Friendship Party during SEMICON Japan 2014, Standards Awards 2014, 2014 & 2015 Critical Dates for SEMI Standards Ballots, New Regulations and Procedure guide effective December 2014, SEMI Standards Publication, A&R Ballot Review and Contact Information.

**Attachment:** 02\_SEMI\_Staff\_Report\_141203

## 6 Liaison Reports

### 6.1 Japan Regional Standards Committee (JRSC)

Tetsuya Nakai reported for the Japan Regional Standards Committee (JRSC) that there were no particular things should be reported.

### 6.2 Global Coordinating Subcommittee (GCS)

Tetsuya Nakai reported for the Global Coordinating Subcommittee (GCS) that there were no particular things should be reported.

### 6.3 North America Silicon Wafer Committee

Mike Goldstein reported for the North America Silicon Wafer Committee. This report included Meeting Information, Committee Chairmen, Organization Chart, Ballot Results, TFOF Change, New SNARFs, Revised SNARFs, Ballots approved for next meetings, Task Forces Reports and Contact Information.

**Attachment:** 03\_NA\_SiW\_Report\_Sep2014\_141203

#### 6.4 Europe Silicon Wafer Committee

Naoyuki Kawai reported for the Europe Silicon Wafer Committee. This report included Task Forces with European Participation, Meeting Information, Leadership Changes, Ballot Results, New SNARFs, Task Forces Reports and Contact Information.

**Attachment:** 04\_EU\_SiW\_Report\_June2014\_141203

#### 6.5 JEITA Report

Naoyuki Kawai reported for the JEITA activities. Of note:

- JEITA Si Technology Committee was disbanded in 2012, and the transition of some of their standards to SEMI has been proceeding.
- JEITA is still discussing on going with JSNM (Japan Society of Newer Metals)/Silicon Group about Disposition of “Standard Making Function”.

**Attachment:** 05\_JEITA\_Report\_141203

#### 6.6 JSPS Report

Takao Takenaka reported for the JSPS that there were no particular things should be reported.

### 7 Ballot Review

#### 7.1 Doc.#5736, Line Item Revision to M41-1213 Specification of Silicon-on-Insulator (SOI) for Power Device/ICs

This document passed committee review with editorial changes and will be forwarded to the ISC A&R SC for procedural review.

**Action Item:** SEMI staff to forward adjudication result of Doc.#5736 to the ISC A&R Subcommittee for procedural review.

**Attachment:** 06\_Ballot\_Report\_for\_5736\_141203

#### 7.2 Doc.#5742, Line Item Revision to M62-0514, Specifications for Silicon Epitaxial Wafers

This document passed committee review and will be forwarded to the ISC A&R SC for procedural review.

**Action Item:** SEMI staff to forward adjudication result of Doc.#5742 to the ISC A&R Subcommittee for procedural review.

**Attachment:** 07\_Ballot\_Report\_for\_5742\_141203

#### 7.3 Doc.#5743, Line Item Revision to SEMI M1-1014, Specifications for Polished Single Crystal Silicon Wafers

This document passed committee review with editorial changes and will be forwarded to the ISC A&R SC for procedural review.

**Action Item:** SEMI staff to forward adjudication result of Doc.#5743 to the ISC A&R Subcommittee for procedural review.

**Attachment:** 08\_Ballot\_Report\_for\_5743\_141203

#### 7.4 Doc.#5771, Revision to SEMI M80-0514, Mechanical Specification for Front-Opening Shipping Box used to Transport and Ship 450 mm Wafers with Title Change to Specification for Front-Opening Shipping Box used to Transport and Ship 450mm Wafer

This document failed committee review, and will be reworked by the International 450mm Shipping Box Task Force.

**Attachment:** 09\_Ballot\_Report\_for\_5771\_141203

## 8 Subcommittee & Task Force Reports

### 8.1 International 450mm Shipping Box Task Force / JA Shipping Box Task Force (actually reported at 5.1)

Tsuyoshi Nagashima reported for the International 450mm Shipping Box Task Force / JA Shipping Box Task Force. Of note:

- *Doc.#5771, Revision to SEMI M80-0514, Mechanical Specification for Front-Opening Shipping Box used to Transport and Ship 450 mm Wafers with Title Change to Specification for Front-Opening Shipping Box used to Transport and Ship 450mm Wafer*, failed committee review as previously discussed. (See 7)
- Will be reworked by the International 450mm Shipping Box Task Force.

**Attachment:** 10\_450mm\_SB-TF\_Report\_141203

### 8.2 International Polished Wafer Task Force / International 450mm Wafer Task Force

Naoyuki Kawai reported for the International Polished Wafer Task Force / International 450mm Wafer Task Force. Of note:

- Developing the following 2 documents and these documents will be submit for balloting in cycle 3 or 4, 2015, and to be adjudicated at SEMICON West in July
  - *Doc.#5794, New Standard: Specification for Developmental 450 mm Diameter Polished Single Crystal Notchless Silicon Wafers with Back Surface Fiducial Marks*
  - *Doc.#5655, Line Item Revision to SEMI M1-1014 Specifications for Polished Single Crystal Silicon Wafers*

**Motion:** To approve to submit *Doc.#5794, New Standard: Specification for Developmental 450 mm Diameter Polished Single Crystal Notchless Silicon Wafers with Back Surface Fiducial Marks*, for Cycle 3 or 4.

**By / 2<sup>nd</sup>:** Mike Goldstein (Intel) / Tetsuya Nakai (SUMCO)

**Discussion:** None.

**Vote:** 13 in favor and 0 opposed. **Motion passed.**

**Motion:** To approve to submit *Doc.#5655, Line Item Revision to SEMI M1-1014 Specifications for Polished Single Crystal Silicon Wafers*, for Cycle 3 or 4.

**By / 2<sup>nd</sup>:** Mike Goldstein (Intel) / Tetsuya Nakai (SUMCO)

**Discussion:** None.

**Vote:** 13 in favor and 0 opposed. **Motion passed.**

**Action Item:** International 450mm Wafer Task Force to submit *Doc.#5794, New Standard: Specification for Developmental 450 mm Diameter Polished Single Crystal Notchless Silicon Wafers with Back Surface Fiducial Marks* for Cycle 3 or 4.

**Action Item:** International Polished Wafers Task Force to submit *Doc.#5655, Line Item Revision to SEMI M1-1014 Specifications for Polished Single Crystal Silicon Wafers* for Cycle 3 or 4.

**Attachment:** 11\_IPW\_TF\_&\_450mm\_Wafer\_TF\_Report\_141203

### 8.3 International Epitaxial Wafers Task Force

Naohisa Toda reported for the International Epitaxial Wafers Task Force. Of note:

- *Doc.#5742, Line Item Revision to M62-0514, Specifications for Silicon Epitaxial Wafers*, passed committee review as previously discussed. (See 7)

### 8.4 International Annealed Wafers Task Force

No report was provided by the Task Force.

### 8.5 International SOI Wafers Task Force

Tetsuya Nakai reported for the International SOI Wafers Task Force. Of note:

- *Doc.#5736, Line Item Revision to M41-1213 Specification of Silicon-on-Insulator (SOI) for Power Device/ICs*, passed committee review with editorial changes as previously discussed. (See 7)
- Planning to invite Mr. Philippe Absil, Director and responsible for 3D and I/O, for feasibility study / market watch of the Photonics to SEMICON West.
- Discussing Continuously about the followings:
  - Feedback from the chair of the MEMS committee on activities/needs related to SOI wafers
  - Check if M71 standard includes high resistivity handle substrate spec
- Activities related to 3D-IC, understanding of the needs & application of SOI, are transferred to the Task Force under the 3DS-IC TC.

**Attachment:** 12\_SOI\_TF\_Report\_140911

### 8.6 International Terminology Task Force

Tetsuya Nakai reported for the International Terminology Task Force that there were no particular things should be reported..

### 8.7 International Test Method Task Force / Japan Test Method Task Force

Ryuji Takeda reported for the International Test Method Task Force. Of note:

- Should be revised the SNARF of *Doc. #5737, Revision of SEMI MF1391-1107, Test Method for Substitutional Atomic Carbon Content of Silicon by Infrared Absorption*, according to the following points,
  - In title, no need “with short baseline” description
  - Need more explanation as range or situation for applying “short baseline” and “long baseline”
  - Need more editorial changes

**Motion:** To approve to revise SNARF for *Doc. #5737, Revision of SEMI MF1391-1107, Test Method for Substitutional Atomic Carbon Content of Silicon by Infrared Absorption*, according to the following points

**By / 2<sup>nd</sup>:** Ryuji Takeda (GlobalWafers Japan) / Takao Takenaka (Takenaka Consulting)

**Discussion:** None.

**Vote:** 9 in favor and 0 opposed. **Motion passed.**

- Start to New Activities of *Line Item Revision to SEMI Standard M085-1014: Guide for the Measurement of Trace Metal Contamination on Silicon Wafer Surface by Inductively Coupled Plasma Mass Spectrometry*

**Motion:** To approve a new SNARF for *Line Item Revision to SEMI Standard M85-1014: Guide for the Measurement of Trace Metal Contamination on Silicon Wafer Surface by Inductively Coupled Plasma Mass Spectrometry*

**By / 2<sup>nd</sup>:** Ryuji Takeda (GlobalWafers Japan) / Takao Takenaka (Takenaka Consulting)

**Discussion:** None.

**Vote:** 9 in favor and 0 opposed. **Motion passed.**

- Developing continuously for *Doc. #5313, Revision of SEMI MF1535-0707 Test Method for Carrier Recombination Lifetime in Silicon Wafers by Noncontact Measurement of Photoconductivity Decay by Microwave Reflectance*
- Start to New Activities of *New Standard: Test Methods for Bulk micro defect density and denuded zone width in annealed silicon wafers*

**Attachment:** 13\_Int'l\_Test\_Method\_TF\_Mtg\_Minutes\_141203

**Attachment:** 14\_Revised\_SNARF\_for\_5737\_141203

**Attachment:** 15\_New\_SNARF\_for\_M85-1014\_141203

#### 8.8 International Advanced Wafer Geometry Task Force / Japan AWG Task Force

Masanori Yoshise reported for the International Advanced Wafer Geometry Task Force / the Japan AWG Task Force.

- Developing *Doc.#5807, Revision for M77 -1110, with title change from “Practice for Determining Wafer Near-Edge Geometry Using Roll-Off Amount, ROA” to “Test Method for Determining Wafer Near-Edge Geometry Using Roll-Off Amount, ROA”*, and will be submit for balloting in cycle 2 or 3, 2015, and to be adjudicated at SEMICON West in July.

**Motion:** To approve to submit *Doc.#5807, Revision for M77 -1110, with title change from “Practice for Determining Wafer Near-Edge Geometry Using Roll-Off Amount, ROA” to “Test Method for Determining Wafer Near-Edge Geometry Using Roll-Off Amount, ROA”* for Cycle 2 or 3.

**By / 2<sup>nd</sup>:** Masanori Yoshise ( - ) / Mike Goldstein (Intel)

**Discussion:** None.

**Vote:** 14 in favor and 0 opposed. **Motion passed.**

**Action Item:** International Advanced Wafer Geometry Task Force to submit *Doc.#5807, Revision for M77 -1110, with title change from “Practice for Determining Wafer Near-Edge Geometry Using Roll-Off Amount, ROA” to “Test Method for Determining Wafer Near-Edge Geometry Using Roll-Off Amount, ROA”* for Cycle 2 or 3.

**Attachment:** 16\_AWG\_TF\_Report\_141203

#### 8.9 International Advanced Surface Inspection Task Force

Masami Ikota reported for the International Advanced Surface Inspection Task Force. Of note:

- Developing *Doc.#5746, Line Item Revision of SEMI ME1392-1109, Guide for Angle Resolved Optical Scatter Measurements on Specular or Diffuse Surfaces*, and will be submit for balloting in cycle 1 or 2, 2015, and to be adjudicated at SEMICON West in July.

**Motion:** To approve to submit *Doc.#5746, Line Item Revision of SEMI ME1392-1109, Guide for Angle Resolved Optical Scatter Measurements on Specular or Diffuse Surfaces* for Cycle 1 or 2.

**By / 2<sup>nd</sup>:** Masanori Yoshise ( - ) / Mike Goldstein (Intel)

**Discussion:** None.

**Vote:** 14 in favor and 0 opposed. **Motion passed.**

**Action Item:** International Advanced Surface Inspection Task Force to submit *Doc.#5746, Line Item Revision of SEMI ME1392-1109, Guide for Angle Resolved Optical Scatter Measurements on Specular or Diffuse Surfaces*, for Cycle 1 or 2.

**Attachment:** 17\_IAASI\_TF\_Metg\_Minutes\_141203

#### 8.10 Fiducial Mark Interoperability Task Force

Tetsuya Nakai reported for the Fiducial Mark Interoperability Task Force. Of note:

- Discussing about the negatives and comments about *Doc.#5752, Revision to SEMI T7-0303 (Reapproved 0709) Specification for Back Surface Marking of Double-side Polished Wafers with a Two-Dimensional Matrix Code Symbol* which was submitted for Cycle 7, and will be drawn the conclusion at the nest meeting on Dec. 5.

**Attachment:** 18\_Fiducial\_Mark\_TF\_Report\_141203

## 9 Old Business

### 9.1 Previous Meeting Action Items

Naoko Tejima reviewed the previous meeting action items.

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
SiW140911-01	International 450mm Shipping Box Task Force	To submit Doc.#5771 “Revision to SEMI M80-0514, Mechanical Specification for Front-Opening Shipping Box used to Transport and Ship 450 mm Wafers with Title Change to Specification for Front-Opening Shipping Box used to Transport and Ship 450mm Wafers.” for Cycle 7... <b>Close</b>
SiW140911-02	All Task Force Leaders	To re-check the TF members name, company and contact. ... <b>Open</b>

## 10 New Business

None.

## 11 Action Item Review

### 11.1 New Action Items

Naoko Tejima reviewed the new action items. These can be found in the New Action Items table at the beginning of these minutes.

## 12 Next Meeting and Adjournment

The next meeting of the Japan Silicon Wafer Committee is scheduled for Friday, March 6, 2015, 13:30-17:30, SEMI Japan, Tokyo Japan



Respectfully submitted by:  
 Naoko Tejima  
 Manager, Standards  
 SEMI Japan  
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Minutes approved by:

Naoyuki Kawai (The University of Tokyo), Co-chair	<a href="#">January **, 2015</a>
Tetsuya Nakai (SUMCO), Co-chair	<a href="#">January **, 2015</a>

**Table 7 Index of Available Attachments #1**

#	<i>Title</i>
1	JA_SiW_Previous_Mtg_Minutes_141203
2	SEMI_Staff_Report_141203
3	NA_SiW_Report_Sep2014_141203
4	EU_SiW_Report_June2014_141203
5	JEITA_Report_141203
6	Ballot_Report_for_5736_141203
7	Ballot_Report_for_5742_141203
8	Ballot_Report_for_5743_141203
9	Ballot_Report_for_5771_141203
10	450mm_SB-TF_Report_141203
11	IPW_TF_&_450mm_Wafer_TF_Report_141203
12	SOI_TF_Report_141203
13	Int'l_Test_Method_TF_Mtg_Minutes_141203
14	Revised_SNARF_for_5737_141203
15	New_SNARF_for_M85-1014_141203
16	AWG_TF_Report_141203
17	IAASI_TF_Mtg_Minutes_141203
18	Fiducial_Mark_TF_Report_141203

#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 Naoko Tejima at the contact information above.