Silicon Wafer Japan TC Chapter

Meeting Summary and Minutes

Friday, April 20, 14:00 – 17:00

SEMI Japan, Tokyo, Japan

TC Chapter Announcements

Next TC Chapter Meeting

July 30, 2018, 14:00-17:00

SEMI Japan Office, Tokyo, Japan

Table 1 Meeting Attendees

Italics indicate virtual participants

Co-Chairs: Nao Kawai (Meiji University), Tetsuya Nakai (SUMCO)
SEMI Staff: Junko Collins

Company	*Last*	*First*	*Company*	*Last*	*First*
Meiji University	Kawai	Naoyuki	SUMCO	Nakai	Tetsuya
Global Wafers Japan	*Takeda*	*Ryuji*	Individual (Wafer Information Service)	Yoshise	Masanori
Hitachi High technologies	Ikota	Masami	Consultant	Kumai	Sadao
Raytex Optima	Akiyama	Satoshi	ShinEtsu Handotai	Toda	Naohisa

Table 2 Leadership Changes: None

WG/TF/SC/TC Name	*Previous Leader*	*New Leader*

Table 3 Committee Structure Changes: None

Previous WG/TF/SC Name	*New WG/TF/SC Name or Status Change*

Table 4 Ballot Results: None

Document #	*Document Title*	*Committee Action*

#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

#	*Type*	*SC/TF/WG*	*Details*

Table 6 Authorized Activities

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

#	*Type*	*SC/TF/WG*	*Details*
6207	Revision of SNARF	Int'l AWG	Line Items Revision to SEMI M1-1117. Add Bow 3Point to Shape Decision Tree and add Illustrations of Shape Parameters.
TBD	SNARF	Int'l AWG	Reapproval of SEMI MF1451-0707 (Reapproved 0512) - Test Method for Measuring Sori on Silicon Wafers by Automated Noncontact Scanning
TBD	SNARF	Int'l Epi	Reapproval of SEMI M61-0612 SPECIFICATION FOR SILICON EPITAXIAL WAFERS WITH BURIED LAYERS

#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*	*TF*	*Details*
6207	Cycle5, 2018	Int'l AWG	Line Items Revision to SEMI M1-1117. Add Bow 3Point to Shape Decision Tree and add Illustrations of Shape Parameters.
TBD	Cycle 5, 2018	Int'l AWG	Reapproval of SEMI MF1451-0707 (Reapproved 0512) - Test Method for Measuring Sori on Silicon Wafers by Automated Noncontact Scanning
TBD	Cycle 5, 2018	Int'l Epi	Reapproval of SEMI M61-0612 SPECIFICATION FOR SILICON EPITAXIAL WAFERS WITH BURIED LAYERS
5774A	Cycle 5, 2018	Int'l Test Method	NEW STANDARD: Practice for Sample Preparation Methods for Measuring Minority Carrier Diffusion Length in Silicon Wafers by Surface Photovoltage Methods

Table 8 SNARF(s) Granted a One-Year Extension: none

#	TF	Title	Expiration Date
5737	Test Method	Revision of SEMI MF1391-1107, Test Method for Substitutional Atomic Carbon Content of Silicon by Infrared Absorption	2018/06/15
5769	Test Method	New Standard: Test Method for Nitrogen Content in Silicon by Infrared Absorption	2018/06/15
5770	Test Method	Test Method for Bulk Micro Defect Density and Denuded Zone Width in Annealed Silicon Wafers	2018/06/15
5772	Test Method	Revision of MF391-0310: Test Methods for Minority Carrier Diffusion Length in Extrinsic Semiconductors by Measurement of Steady-state Surface photovoltage	2018/06/15
5774	Test Method	Sample Preparation Method for Minority Carrier Diffusion Length Measurement in Silicon Wafers by Surface Photovoltage Method	2018/06/15
5981	Test Method	NEW STANDARD: TEST METHOD FOR RECOMBINATION LIFETIME OF THE EPILAYER OF THE SILICON EPITAXIAL WAFER (p/p+, n/n+) BY THE SHORT WAVELENGTH EXCITAION MICROWAVE PHOTOCONDUCTIVE DECAY METHOD	2018/09/16

Table 9 SNARF(s) Abolished: None

#	TF	Title

Table 10 New Action Items

Item #	Assigned to	Details
SiW180420-01	M. Yoshise	To submit Items Revision to SEMI M1-1117. Add Bow 3Point to Shape Decision Tree and add Illustrations of Shape Parameters to Cycle 5
SiW180420-02	Staff/ M. Yoshise	To submit Reapproval of SEMI MF1451-0707 (Reapproved 0512) - Test Method for Measuring Sori on Silicon Wafers by Automated Noncontact Scanning
SiW180420-03	Staff/ N. Toda	To submit Reapproval of SEMI M61-0612 SPECIFICATION FOR SILICON EPITAXIAL WAFERS WITH BURIED LAYERS
SiW180420-04	R. Takeda	To submit 5774A: NEW STANDARD: Practice for Sample Preparation Methods for Measuring Minority Carrier Diffusion Length in Silicon Wafers by Surface Photovoltage Methods
SiW180420-05	Staff	To conduct two-week SNARF review by GTC members and GCS and conduct GCS approval for submission for Revision to M56

Table 11 Previous Meeting Action Items:

Item #	Assigned to	Details

1 Welcome, Reminders, and Introductions

N. Kawai (Meiji Univ.) called the meeting to order at 14:00. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves.

Attachment: 01.00 Required_Elements_Reg_20150327_E+J_2016NewStdTemplate,

2 Review of Previous Meeting Minutes

The TC Chapter reviewed the minutes of the previous meeting.

Motion:	To approve the meeting minutes of December 12 , 2017
By / 2nd:	T. Nakai (SUMCO) / S. Kumai (Consultant)
Discussion:	None
Vote:	6/0, Motion passed

Attachment: 02.00 Si Japan TC Chapter 2017.09.21 R1.0,

3 Liaison Reports

3.1 *Silicon Wafer GCS*

No special report at this meeting.

Action Item: None,

Attachment: None,

3.2 *Silicon Wafer North America TC Chapter*

The NA Chapter meeting was held on April 10 at SEMI HQ. See detailed in the following attachment.

Disbanding Terminology Task Force will be discussed at the TC Chapter meeting during SEMICON West 2018.

Action Item: None,

Attachment: NA Silicon Wafer TC Liaison Report April 2018 v1

3.3 *Silicon Wafer Europe TC Chapter*

No liaison report, since Silicon Wafer EU TC Chapter Meeting has not occurred since previous Japan TC Chapter Meeting

Action Item: None,

Attachment: None

3.4 *JSNM / M4S (Material Standards Study Group for Semiconductor Supply Chain) Report*

M. Yoshise (Wafer Information Service) reported.

Action Item: None,

Attachment: None,

3.5 *SEMI Staff Report*

J. Collins (SEMI) gave the SEMI Staff Report. Of note, new Standards staff, See the attached report.

Action Item: None,

Attachment: SEMI Staff Report 20180417_r1

4 Ballot Review

No ballot review at this meeting

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.

5 Task Force Reports

5.1 *International 450mm Shipping Box Task Force (Komatsu-san/Nagashima-san)/ JA Shipping Box Task Force (Komatsu-san/Nagashima-san.)*

No special report.

Attachment: None

5.2 *International Advanced Wafer Geometry Task Force/Japan Advanced Wafer Geometry Task Force*

M. Yoshise (Wafer Information Service) reported for the International Advanced Wafer Geometry Task Force.

See details in the attachment.

Attachment: 20180420 AWG TF Report

SNARF #6207: Line Items Revision to SEMI M1

Motion: To submit the Ballot 6207, Line Items Revision to SEMI M1-1117. Add Bow 3Point to Shape Decision Tree and add Illustrations of Shape Parameters.

By / 2nd: M. Yoshise (Wafer Information Service) / S. Akiyama (Raytex Optima)

Discussion: None

Vote: 6/0, motion passed.

Motion: To submit the Ballot 6207, Line Items Revision to SEMI M1-1117. Add Bow 3Point to Shape Decision Tree and add Illustrations of Shape Parameters. to Cycle 5

By / 2nd: M. Yoshise (Wafer Information Service) / S. Akiyama (Raytex Optima)

Discussion: None

Vote: 6/0, motion passed.

Action Item: TF to submit the ballot to cycle 5 2018,

Attachment: SNARF 6207 Revision for M1 Add Bow 3pt Rev 0420a

Reapproval of SEMI MF1451-0707 (Reapproved 0512) - Test Method for Measuring Sori on Silicon Wafers by Automated Noncontact Scanning

Motion: To propose the SNARF for Reapproval of SEMI MF1451-0707 (Reapproved 0512) - Test Method for Measuring Sori on Silicon Wafers by Automated Noncontact Scanning

By / 2nd: M. Yoshise (Wafer Information Service) / T. Nakai (SUMCO)

Discussion: None

Vote: 6/0, motion passed.

Attachment: SNARF for Reapproval of MF1451_20180420

Motion: To submit the ballot of Reapproval of SEMI MF1451-0707 (Reapproved 0512) - Test Method for Measuring Sori on Silicon Wafers by Automated Noncontact Scanning to Cycle 5

By / 2nd: M. Yoshise (Wafer Information Service) / S. Akiyama (Raytex Optima)

Discussion: None

Vote: 6/0, motion passed.

Action Item: TF to submit the ballot to Cycle 5 2018,

5.3 International Polished Wafers Task Force

No special report this time.

Action Item: None

Attachment: None,

5.4 International Epitaxial Wafers Task Force (Toda-san)

Reapproval of SEMI M61-0612 SPECIFICATION FOR SILICON EPITAXIAL WAFERS WITH BURIED LAYERS

Motion: Reapproval of SEMI M61-0612 SPECIFICATION FOR SILICON EPITAXIAL WAFERS WITH BURIED LAYERS

By / 2nd: M. Yoshise (Wafer Information Service) / T. Nakai (SUMCO)

Discussion: None

Vote: 6/0, motion passed.

Attachment: SNARF for Reapproval of M61

Motion: To submit the ballot of Reapproval of SEMI M61-0612 SPECIFICATION FOR SILICON EPITAXIAL WAFERS WITH BURIED LAYERS to Cycle 5

By / 2nd: M. Yoshise (Wafer Information Service) / S. Akiyama (Raytex Optima)

Discussion: None

Vote: 6/0, motion passed.

Action Item: TF to submit the ballot to cycle 5 2018,

REVISION TO SEMI M56-0307 (Reapproved 0512) PRACTICE FOR DETERMINING COST COMPONENTS FOR METROLOGY EQUIPMENT DUE TO MEASUREMENT VARIABILITY AND BIAS

Motion: To approve the SNARF for REVISION TO SEMI M56-0307 (Reapproved 0512) PRACTICE FOR DETERMINING COST COMPONENTS FOR METROLOGY EQUIPMENT DUE TO MEASUREMENT VARIABILITY AND BIAS

By / 2nd: R. Takeda (Global Wafers Japan) / M. Yoshise (Wafer Information Service)

Discussion: Need two week review by GTC members and GCS Approval

Vote: 6/0, motion passed.

Attachment: SNARF for Revision to M056-0307_20180420a

Motion: To submit the ballot of REVISION TO SEMI M56-0307 (Reapproved 0512) PRACTICE FOR DETERMINING COST COMPONENTS FOR METROLOGY EQUIPMENT DUE TO MEASUREMENT VARIABILITY AND BIAS to Cycle 5, after two weeks SNARF review and GCS Approval

By / 2nd: R. Takeda (Global Wafers Japan) / M. Yoshise (Wafer Information Service)

Discussion:

Vote: 6/0, motion passed.

Action Item: TF to submit the ballot to cycle 5 2018,

5.5 International Annealed Wafers Task Force (Araki-san)

There is no special report since there is no current activity.

Action Item: None,

Attachment: None,

5.6 International SOI Wafers Task Force (Ogura-san/ Nakai-san)

There is no special report since there is no current activity.

Action Item: None,

Attachment: None,

5.7 International Terminology Task Force (Nakai-san)

Discussion about M59-1014 - Terminology for Silicon Technology will be continuously conducted. When developing new documents in the future, new terminology is defined in each document.

Japan Chapter agreed with this idea. The task force will be disbanded when the M59 is in inactive status.

Action Item: None

Attachment: None

5.8 International Test Methods Task Force (Takeda-san) Japan Test Method Task Force (Takeda-san/ Otsuki-san/ Omata-san)

R. Takeda (Global Wafers Japan) reported. See the details in the attachment.

Action Item: Test Method TF Meeting Minutes_2018.4.13,

Ballot submission of 5774A

Motion: To submit the ballot of 5774A NEW STANDARD: Practice for Sample Preparation Methods for Measuring Minority Carrier Diffusion Length in Silicon Wafers by Surface Photovoltage Methods to Cycle 5

By / 2nd: R. Takeda (Global Wafers Japan) / T. Nakai (SUMCO)

Discussion: None

Vote: 6/0, motion passed.

Action Item: TF to submit the ballot to cycle 5 2018,

Revision to M56-0307 (Reapproved 0512) PRACTICE FOR DETERMINING COST COMPONENTS FOR METROLOGY EQUIPMENT DUE TO MEASUREMENT VARIABILITY AND BIAS

Motion: To propose the SNARF for REVISION TO SEMI M56-0307 (Reapproved 0512) PRACTICE FOR DETERMINING COST COMPONENTS FOR METROLOGY EQUIPMENT DUE TO MEASUREMENT VARIABILITY AND BIAS

By / 2nd: R. Takeda (Global Wafers Japan) / M. Yoshise (Wafer Information Service)

Discussion: None

Vote: 6/0, motion passed.

Attachment: SNARF for Revision to M056-0307_20180420a

Motion: To submit the ballot of REVISION TO SEMI M56-0307 (Reapproved 0512) PRACTICE FOR DETERMINING COST COMPONENTS FOR METROLOGY EQUIPMENT DUE TO MEASUREMENT VARIABILITY AND BIAS to Cycle 5

By / 2nd: R. Takeda (Global Wafers Japan) / M. Yoshise (Wafer Information Service)

Discussion: Need Two weeks review of SNARF and GSC approval

Vote: 6/0, motion passed.

Action Item: TF to submit the ballot to cycle 5 2018,

5.9 International Advanced Surface Inspection Task Force (Ikota-san / Tamaki-san)

Standardization of defect classification has started.

See more details in the attached file.

Action Item: None,

Attachment: 05.09 IAASI TF SemiconJapan2017 minutes (1),

6 Old Business

6.1 *Previous Action items*

- See Table 12. All action items are closed.

Action Item: None,

Attachment: None,

6.2 3-years project Period Check

- Approval of project period expansion

Motion: To expand the project period of SNARF 5769: New Standard: Test Method for Nitrogen Content in Silicon by Infrared Absorption

By / 2nd: R. Takeda (GlobalWafers Japan)/ T. Nakai (SUMCO)

Discussion: None

Vote: 6 in favor and 0 opposed. **Motion passed.**

Motion: To expand the project period of SNARF 5770: Test Method for Bulk Micro Defect Density and Denuded Zone Width in Annealed Silicon Wafers

By / 2nd: R. Takeda (GlobalWafers Japan)/ T. Nakai (SUMCO)

Discussion: None

Vote: 6 in favor and 0 opposed. **Motion passed.**

Motion: To expand the project period of SNARF 5772: Revision of MF391-0310: Test Methods for Minority Carrier Diffusion Length in Extrinsic Semiconductors by Measurement of Steady-state Surface photovoltage

By / 2nd: R. Takeda (GlobalWafers Japan)/ T. Nakai (SUMCO)

Discussion: None

Vote: 6 in favor and 0 opposed. **Motion passed.**

Motion: To expand the project period of SNARF 5774: Sample Preparation Method for Minority Carrier Diffusion Length Measurement in Silicon Wafers by Surface Photovoltage Method

By / 2nd: R. Takeda (GlobalWafers Japan)/ T. Nakai (SUMCO)

Discussion: None

Vote: 6 in favor and 0 opposed. **Motion passed.**

Motion: To expand the project period of SNARF 5981: NEW STANDARD: TEST METHOD FOR RECOMBINATION LIFETIME OF THE EPILAYER OF THE SILICON EPITAXIAL WAFER (p/p+, n/n+) BY THE SHORT

By / 2nd: R. Takeda (GlobalWafers Japan)/ T. Nakai (SUMCO)

Discussion: None

Vote: 6 in favor and 0 opposed. **Motion passed.**

Motion: To expand the project period of SNARF 5737: Revision of SEMI MF1391-1107, Test Method for Substitutional Atomic Carbon Content of Silicon by Infrared Absorption

By / 2nd: R. Takeda (GlobalWafers Japan)/ T. Nakai (SUMCO)

Discussion: None

Vote: 6 in favor and 0 opposed. **Motion passed.**

6.3 Consideration of 5-year Review

None

7 New Business

7.1 *New Activity*

- None,

Action Item: None,

Attachment: None,

8 Action Item, Next Meeting and Adjournment

See Table 11 for action items from this meeting.

The next meeting is scheduled for July 30, 2018 at SEMI Japan, Ichigaya, Tokyo Japan.

See http://www.semi.org/standards-events for the current list of events.

Adjournment: 17:00.

Respectfully submitted by:

Junko Collins

Standards & EHS

SEMI Japan

Phone: 81.3.3222.5819

Email: jcollins@semi.org

Minutes tentatively approved by:

Nao Kawai (Meiji University), Co-chair	<2018.07.30>
Tetsuya Nakai (SUMCO), Co-chair	<2018.07.30>

Table 12 Index of Available Attachments[#1]

Title	

#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.