



Global Silicon Wafer Japan TC Chapter

Meeting Summary and Minutes

Japan Standards Winter 2021 Meetings

Friday, January 15, 2021, 10:00 –17:00

SEMI Japan office, Tokyo, Japan

TC Chapter Announcements

Next TC Chapter Meeting

Friday, April 23, 2021, 13:30-17:00

SEMI Japan office, Tokyo, Japan /WEB

Table 1 Meeting Attendees

Italics indicate virtual participants

Co-Chairs: Name (Company) Naoyuki Kawai (Meiji University), Tetsuya Nakai (SUMCO), Ryuji Takeda (Global Wafers Japan)

SEMI Staff: Mami Nakajo

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
Meiji University	Kawai	Naoyuki	SUMCO	Nakai	Tetsuya
<i>Wafer Information Service</i>	<i>Yoshise</i>	<i>Masanori</i>	TEL	Mashiro	Supika
<i>Global Wafers Japan</i>	<i>Takeda</i>	<i>Ryuji</i>	<i>Kobelco Research Institute.INC</i>	<i>Sumie</i>	<i>Shingo</i>
<i>KOKUSAI ELECTRIC</i>	<i>Matsuda</i>	<i>Mitsuhiro</i>	<i>Hitachi High-Technologies</i>	<i>Oka</i>	<i>Kenji</i>
<i>KLA</i>	<i>Haller</i>	<i>Kurt</i>	<i>Acteon NEXT LLC</i>	<i>Komatsu</i>	<i>Shoji</i>
<i>TEL</i>	<i>Machida</i>	<i>Ryo</i>	<i>SEMI</i>	<i>Nguyen</i>	<i>Thai</i>
SEMI Japan	Kanno	Hirofumi	SEMI Japan	Nakajo	Mami

Table 2 Leadership Changes

<i>WG/TF/SC/TC Name</i>	<i>Previous Leader</i>	<i>New Leader</i>
Silicon Wafer Japan TC	Naoyuki Kawai (Meiji University)	Ryuji Takeda (Global Wafers Japan)

Table 3 Committee Structure Changes

<i>Previous WG/TF/SC Name</i>	<i>New WG/TF/SC Name or Status Change</i>
International 450 mm Shipping Box TF	Disband

Table 4 Ballot Results

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
6680	Reapproval of SEMI M77-01015, Test Method for Determining Wafer Near-Edge Geometry Using Roll-Off Amount, ROA	Passed as balloted

Table 4 Ballot Results

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
6681	Reapproval of SEMI MF1451-0707, Test Method for Measuring SORI on Silicon Wafers by Automated 00 Noncontact Scanning	Passed as balloted
The following ballots reviews are transferred from NA TC Chapter (approved by the GCS)		
6363	Revision of SEMI M52-0214 With Title Change To: Guide For Specifying Scanning Surface Inspection Systems For Silicon Wafers For The 130 nm To 5 nm Technology Generations	Passed with Editorial Change
6613	Reapproval of SEMI M20-0215, Practice for Establishing a Wafer Coordinate System	Passed as balloted
5981	NEW STANDARD: TEST METHOD FOR RECOMBINATION LIFETIME OF THE EPILAYER OF THE SILICON EPITAXIAL WAFER (p/p+, n/n+) BY THE SHORT WAVELENGTH EXCITATION MICROWAVE PHOTOCONDUCTIVE DECAY METHOD	Passed with Editorial Change
6526B	NEW STANDARD: TEST METHOD FOR BULK MICRO DEFECT DENSITY AND DENUDED ZONE WIDTH IN ANNEALED SILICON WAFERS BY OPTICAL MICROSCOPY AFTER PREFERENTIAL ETCHING	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

<i>#</i>	<i>Type</i>	<i>SC/TF/WG</i>	<i>Details</i>
6363	Ballot	International Advanced Surface Inspection TF	Revision of SEMI M52-0214 With Title Change To: Guide For Specifying Scanning Surface Inspection Systems For Silicon Wafers For The 130 nm To 5 nm Technology Generations
6613	Ballot	International Advanced Wafer Geometry TF	Reapproval of SEMI M20-0215, Practice for Establishing a Wafer Coordinate System
5981	Ballot	International Test Method TF	NEW STANDARD: TEST METHOD FOR RECOMBINATION LIFETIME OF THE EPILAYER OF THE SILICON EPITAXIAL WAFER (p/p+, n/n+) BY THE SHORT WAVELENGTH EXCITATION MICROWAVE PHOTOCONDUCTIVE DECAY METHOD
6526B	Ballot	International Test Method TF	NEW STANDARD: TEST METHOD FOR BULK MICRO DEFECT DENSITY AND DENUDED ZONE WIDTH IN ANNEALED SILICON WAFERS BY OPTICAL MICROSCOPY AFTER PREFERENTIAL ETCHING

No activity requested by the Japan TC Chapter between meetings.

The NA TC Chapter requested for transferring the ballot reviews of 6363,6613,5981 and 6526B at the Japan TC Chapter meeting on Nov. 26,2020 and the GCS approved them.

Table 6 Authorized Activities

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

<i>#</i>	<i>Type</i>	<i>SC/TF/WG</i>	<i>Details</i>
6702	SNARF	Japan Test Method Task Force	Revision of M60: TEST METHOD FOR TIME DEPENDENT DIELECTRIC BREAKDOWN CHARACTERISTICS OF Amorphous SiO2 FILMS FOR Silicon WAFER EVALUATION

#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
None			

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

#	TF	Title	Expiration Date
5772	Japan Test Method Task Force	Revision of MF391-0310: Test Methods for Minority Carrier Diffusion Length in Extrinsic Semiconductors by Measurement of Steady-state Surface photovoltage	2021/09/11

Table 9 SNARF(s) Abolished

#	TF	Title
None		

Table 10 Standard(s) to receive Inactive Status

Standard Designation	Title
None	

Table 11 New Action Items

Item #	Assigned to	Details
20210115-01	SEMI Staff	To send all passed ballots to A&R
20210115-02	Co-chairs	To propose the reconsideration of Silicon Wafer TC local rule that require all Letter ballot reviews to be conducted at TC chapter meetings held in conjunction with SEMICON show, as OVTCCM can be used and allows global participation.

Table 12 Previous Meeting Action Items

Item #	Assigned to	Details
20200929-01	SEMI Staff	To update SNARF#5769 data., SNARF abolished > CLOSED
20200929-02	Co-chairs	To list up in-process ballots and consider how to process them. > CLOSED
20200929-03	Co-chairs	To get JRSC approval for the appointment of Ryuji Takeda (Global Wafers) as the third Co-chair. > CLOSED
20200929-04	SEMI Staff	To show the recommended OS for SVM > CLOSED

1 Welcome, Reminders, and Introductions

Naoyuki Kawai (Meiji University), called the meeting to order at 10:00. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves.

Attachment: 01-02_SEMI Standards Required Elements_June2020_E+J

2 Review of Previous Meeting Minutes

The TC Chapter reviewed the minutes of the previous meeting.

Motion:	Approve the previous meeting minutes of the Silicon Wafer Japan TC Chapter on December 12, 2019 with editorial changes.
By / 2nd:	Tetsuya Nakai (SUMCO) / Ryuji Takeda (Global Wafers Japan)
Discussion:	Matsuda Mitsuhiro (KOKUSAI ELECTRIC) pointed out to add comments in Action Item# 20200929-01 since the SNARF was abolished.
Vote:	8 in favor and 0 opposed. Motion Passed with changed.

Attachment: 02-01_20200929_Global Silicon Wafer Japan TC Chapter Meeting Minutes_final_Rev2,

- ◇ Since considering of the minimize the inconvenience (time difference) for the NA participants, this meeting was held in a different order than usual.

3 Ballot Review

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.

- 3.1 Cycle 3-2020 submitted by the NA TC Chapter (the GCS authorized to transfer responsibilities for Letter Ballot review from the NA TC Chapter to the Japan Chapter of Silicon Wafer Committee for these documents)
 - 3.1.1 Doc. 6363, Revision of SEMI M52-0214 With Title Change To: Guide For Specifying Scanning Surface Inspection Systems For Silicon Wafers For The 130 nm To 5 nm Technology Generations
 - 3.1.2 Doc. 6613, Reapproval of SEMI M20-0215, Practice for Establishing a Wafer Coordinate System
- 3.2 Cycle 8-2020 submitted by the Japan TC Chapter
 - 3.2.1 Doc. 6680 - Reapproval of SEMI M77-1015, Test Method for Determining Wafer Near-Edge Geometry Using Roll-Off Amount, ROAcations
 - 3.2.2 Doc. 6681 - Reapproval of SEMI MF1451-0707 (Reapproved 0319), Test Method for Measuring SORI on Silicon Wafers by Automated Noncontact Scanning
- 3.3 Cycle 2-2020 submitted by the NA TC Chapter (the GCS authorized to transfer responsibilities for Letter Ballot review from the NA TC Chapter to the Japan Chapter of Silicon Wafer Committee for these documents)
 - 3.3.1 Doc. 5981, New Standard: Test Method For Recombination Lifetime Of The Epilayer Of The Silicon Epitaxial Wafer (p/p+, n/n+) By The Short Wavelength Excitation Microwave Photoconductive Decay Method
 - 3.3.2 Doc. 6526B, New Standard: Test Method for Bulk Micro Defect Density and Denuded Zone Width in Annealed Silicon Wafers by Optical Microscopy after Preferential Etching

Action Item: 20210115-01:SEMI Staff to send all passed ballots to A&R

Attachment: 03-01_5981 Ballot Report_Rev1, 03-02_6363 Ballot Report_Rev1, 03-03_6526B Ballot Report_Rev1, 03-04_6613 Ballot Report_Rev1, 03-05_6680 Ballot Report_Rev1, 03-06_6681 Ballot Report_Rev1

4 Subcommittee and Task Force Reports

4.1 International Advanced Automated Surface Inspection Task Force

Kenji Oka (*Hitachi High-Technologies*) reported for the International Advanced Automated Surface Inspection Task Force. Kurt Haller (KLA) reported the following ballot and SNARF for Major revision of MF1048.

- 6363: Revision of SEMI M52-0214 With Title Change To: Guide For Specifying Scanning Surface Inspection Systems For Silicon Wafers For The 130 nm To 5 nm Technology Generations
 - Passed as balloted at Ballot Review section

Action Item: None,

Attachment: 04-01_IAASI TF meeting Japan 2021 Jan.Rev1.21

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

Masanori Yoshise (Wafer Information Service) reported for the International Advanced Wafer Geometry Task Force/Japan Advanced Wafer Geometry Task Force as follows.

- 6613: Reapproval of SEMI M20-0215, Practice for Establishing a Wafer Coordinate System
 - Passed as balloted at Ballot Review section
- 6680: Reapproval of SEMI M77-1015, Test Method for Determining Wafer Near-Edge Geometry Using Roll-Off Amount, ROA
 - Passed as balloted at Ballot Review section
- 6681: Reapproval of SEMI MF1451-0707 (Reapproved 0319), Test Method for Measuring SORI on Silicon Wafers by Automated Noncontact Scanning
 - Passed as balloted at Ballot Review section

Action Item: None,

Attachment: 04-02_20210114 AWG TF Meeting Minute

4.3 *International/Japan Test Method Task Force*

Ryuji Takeda (Global Wafers Japan) reported for the Japan Test Method Task Force.

- 5981: New Standard: Test Method For Recombination Lifetime Of The Epilayer Of The Silicon Epitaxial Wafer (p/p+, n/n+) By The Short Wavelength Excitation Microwave Photoconductive Decay Method
 - Passed as balloted at Ballot Review section
- 6526B: New Standard: Test Method for Bulk Micro Defect Density and Denuded Zone Width in Annealed Silicon Wafers by Optical Microscopy after Preferential Etching
 - Passed as balloted at Ballot Review section

Action Item: None,

Attachment: 04-03_Test Method TF Meeting_2021.1.14(Submit)

The following documents are still on the "5-year Review Check" list and Ryuji Takeda (Global Wafers Japan) reported the status in the Task Force report.

- M51-1012: Test Method for Characterizing Silicon Wafer by Gate Oxide Integrity
- M60-1014: Test Method for Time Dependent Dielectric Breakdown Characteristics of SiO₂ Films for Si Wafer Evaluation

4.4 *International 450mm Shipping Box Task Force*



Shoji Komatsu(Acteon NEXT LLC) requested to disband the TFOF since 450mm Shipping Box TF in NA has already been disbanded.

Motion:	Approve the disband of the International 450mm Shipping Box Task Force
By / 2nd:	Shoji Komatsu(Acteon NEXT LLC) / Tetsuya Nakai (SUMCO)
Discussion:	450mm Shipping Box TF in NA has already been disbanded.
Vote:	7 in favor and 0 opposed. Motion passed.

4.5 International Polished Wafers Task Force

No special topic was reported at this meeting.

Action Item: none,

Attachment: none,

4.6 International Epitaxial Wafers Task Force

No special topic was reported at this meeting.

Action Item: none,

Attachment: none,

4.7 International Annealed Wafers Task Force

No special topic was reported at this meeting.

Action Item: None,

Attachment: None,

4.8 International SOI Wafers Task Force

No special topic was reported at this meeting.

Action Item: none,

Attachment: none,

4.9 International Terminology Task Force

No special topic was reported at this meeting.

Action Item: none,

Attachment: none,

5 Liaison Reports

5.1 Silicon Wafer Europe TC Chapter

Tetsuya Nakai (SUMCO) reported for the Silicon Wafer Europe TC Chapter.

Action Item: None

Attachment: 03-01_Europe Si Wafer Liaison Report Sept2020 v1



5.2 Silicon Wafer North America TC Chapter

Tetsuya Nakai (SUMCO) reported for the Silicon Wafer North America TC Chapter.

Action Item: None

Attachment: 03-02_NA Silicon Wafer TC Liaison Report Sept 2020 v1

5.3 GCS

Tetsuya Nakai (SUMCO) reported for the GCS. Of note:

GCS approved to transfer responsibilities for Letter Ballot review from the North America Chapter to the Japan Chapter of Silicon Wafer Committee for the following documents on Nov. 26,2020.

- 6363: Revision of SEMI M52-0214 With Title Change To: Guide For Specifying Scanning Surface Inspection Systems For Silicon Wafers For The 130 nm To 5 nm Technology Generations
- 6613: Reapproval of SEMI M20-0215, Practice for Establishing a Wafer Coordinate System
- 5981: New Standard: Test Method For Recombination Lifetime Of The Epilayer Of The Silicon Epitaxial Wafer (p/p+, n/n+) By The Short Wavelength Excitation Microwave Photoconductive Decay Method
- 6526B: New Standard: Test Method for Bulk Micro Defect Density and Denuded Zone Width in Annealed Silicon Wafers by Optical Microscopy after Preferential Etching

Action Item: None

Attachment: None

5.4 SEMI Staff Report

Mami Nakajo (SEMI) gave the SEMI Staff Report.

Attachment: 04-01_Staff Report August 2020_v1,

6 Old Business

6.1 Project Period Review

The following SNARF is active and granted a one-year extension.

6.1.1 #5772 SNARF for: Revision of MF391-0310: Test Methods for Minority Carrier Diffusion Length in Extrinsic Semiconductors by Measurement of Steady-state Surface photovoltage

- By Japan Test Method TF
- Expiration Date: 2021/09/11

Motion:	Approve a one-year extension of the project period for the SNARF
By / 2nd:	Ryuji Takeda (Global Wafers Japan) / Tetsuya Nakai (SUMCO)
Discussion:	None
Vote:	7 in favor and 0 opposed. Motion passed.

6.2 5 Year Review Check

The following documents are still on the "5-year Review Check" list, and the Test Method TF is checking the status.

Ryuji Takeda (Global Wafers Japan) reported it in the Japan Test Method Task Force report.(See 4.3)

- M51-1012: Test Method for Characterizing Silicon Wafer by Gate Oxide Integrity

- M60-1014: Test Method for Time Dependent Dielectric Breakdown Characteristics of SiO₂ Films for Si Wafer Evaluation

7 Honor Award

The following member received Honor Award.

- Naoyuki Kawai (Meiji University)

8 New Business

8.1 Committee Leadership Change

Naoyuki Kawai (Meiji University) addressed the committee on this topic.

Naoyuki Kawai (Meiji University) stepped down as a Co-chair of Silicon Wafer Japan TC Chapter at the end of this meeting. Ryuji Takeda (Global Wafers Japan) was approved as a Co-chair of the Silicon Wafer Japan TC Chapter by JRSC in December ,2020.

8.2 SNARF Submission

8.2.1 : Revision of M60: TEST METHOD FOR TIME DEPENDENT DIELECTRIC BREAKDOWN CHARACTERISTICS OF Amorphous SiO₂ FILMS FOR Silicon WAFER EVALUATION

Ryuji Takeda (Global Wafers Japan) addressed the TC Chapter on this topic.

The SNARF was distributed from Dec.18,2020 to Jan.4,2021 for the TC Member Review and no substantial feedback.

Motion:	Authorize the SNARF submission for 6702: Revision of M60: TEST METHOD FOR TIME DEPENDENT DIELECTRIC BREAKDOWN CHARACTERISTICS OF Amorphous SiO ₂ FILMS FOR Silicon WAFER EVALUATION
By / 2nd:	Ryuji Takeda (Global Wafers Japan) / Tetsuya Nakai (SUMCO)
Discussion:	None
Vote:	6 in favor and 0 opposed. Motion passed.

9 Action Item Review

9.1 Open Action Item

20200929-01	SEMI Staff	To update SNARF#5769 data., SNARF abolished > CLOSED
20200929-02	Co-chairs	To list up in-process ballots and consider how to process them. > CLOSED
20200929-03	Co-chairs	To get JRSC approval for the appointment of Ryuji Takeda (Global Wafers) as the third Co-chair. > CLOSED
20200929-04	SEMI Staff	To show the recommended OS for SVM > CLOSED

9.2 New Action Item

20210115-01	SEMI Staff	To send all passed ballots to A&R
20210115-02	Co-chairs	To propose the reconsideration of Silicon Wafer TC local rule that require all Letter ballot reviews to be conducted at TC chapter meetings held in conjunction with SEMICON show, as OVTCCM can be used and allows global participation.

10 Next Meeting and Adjournment

The next meeting is scheduled for April,23 Friday 13:30-17:00 at SEMI Japan office / WEB.



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

Adjournment: [16:00]>.

Respectfully submitted by:

Mami Nakajo

Coordinator

SEMI Japan

Phone: +81.3.3222.5757

Email: mnakajo@semi.org

Minutes tentatively approved by:

Tetsuya Nakai (SUMCO), Co-chair	February 4, 2021
Ryuji Takeda (Global Wafers Japan), Co-chair	February 4, 2021

Table 13 Index of Available Attachments^{#1}

<i>Title</i>	<i>Title</i>
01-02_SEMI Standards Required Elements_June2020_E+J	04-01_IAASI TF meeting Japan 2021 Jan.Rev1.21
03-01_5981 Ballot Report_Rev1	04-02_20210114 AWG TF Meeting Minute
03-02_6363 Ballot Report_Rev1	04-03_Test Method TF Meeting_2021.1.14(Submit)
03-03_6526B Ballot Report Rev1	05-01_Europe Si Wafer Liaison Report Jan2021 v1
03-04_6613 Ballot Report_Rev1	05-02_NA Si Wafer TC Chapter Liaison Report Jan 2021
03-05_6680 Ballot Report_Rev1	06-01_StaffReport11302020
03-06_6681 Ballot Report_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.