



**Silicon Wafer Committee
EU Chapter
Meeting Summary and Minutes**

SEMICON Europa
October 7, 2015
Dresden, Germany

Table 1 Meeting Attendees

Co-Chairs: Peter Wagner (Self), Fritz Passek (Siltronic), Werner Bergholz (Jacobs University)

SEMI Staff: James Amano

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
KLA-Tencor	Haller	Kurt	Self	Wagner	Peter
Hitachi High-Tech	Ikota	Masami	Siltronic	Riedel	Frank
SUMCO	Nakai	Tetsuya	Tokyo Electron	Mashiro	Supika
SITEX	Dumitru	Ulieru	Self	Yoshise	Masanori
Jacobs University	Bergholz	Werner	Siltronic	Passek	Fritz

Table 2 Leadership Changes

<i>Group</i>	<i>Previous Leader</i>	<i>New Leader</i>
None		

Table 3 Ballot Results (or move to Section 4, Ballot Review)

Passed ballots and line items will be submitted 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>
5737	Revision of SEMI MF1391-1107 (Reapproved 0912), Test Method for Substitutional Atomic Carbon Content of Silicon by Infrared Absorption	Failed
5804	Revision of SEMI M53-0310, Practice for Calibrating Scanning Surface Inspection Systems Using Certified Depositions of Monodisperse Reference Spheres on Unpatterned Semiconductor Wafer Surfaces	Passed
5859	Line Item Revision of SEMI MF1811-0310, Guide for Estimating the Power Spectral Density Function and Related Finish Parameters from Surface Profile Data	
LI 1	Changed “a-priori” to “a priori” in ¶¶ 2.8, 4.2.16.1, and 4.2.28.1	Passed
LI 2	In ¶ 4.2.29.2.1, eliminated the line break in the inline equation	Passed
LI 3	In ¶ 5.3.1, added missing square bracket to Eq 29	Passed
LI 4	In ¶ 5.4.2, spelt bookkeeping without a hyphen	Passed

Table 4 Authorized Ballots

#	When	SC/TF/WG	Details
5893	Cycle 8-2015	International Polished Wafers Task Force	This revision of SEMI M1 is intended primarily to remove the listing of wafer categories in the Scope section so that modifications of this listing can be made with line item ballots and other items to bring the standard up to date.

Table 5 Authorized Activities

#	Type	SC/TF/WG	Details
4812	SNARF	International Advanced Wafer Geometry Task Force	New Standard: Guide for Flatness Measurement on 450 mm Wafers. As part of the three-year SNARF review, this SNARF was abolished.
5893	SNARF	International Polished Wafers Task Force	This revision of SEMI M1 is intended primarily to remove the listing of wafer categories in the Scope section so that modifications of this listing can be made with line item ballots and other items to bring the standard up to date.

NOTE 1: 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

None

Table 7 Previous Meeting Action Items

None

1 Welcome, Reminders, and Introductions

Fritz Passek called the meeting to order at 14:10. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves.

2 Review of Previous Meeting Minutes

The committee reviewed the minutes of the previous meeting.

Motion: Approve as submitted
By / 2nd: Kurt Haller/Tetsuya Nakai
Discussion: None
Vote: 6-0

3 Liaison Reports

3.1 NA Silicon Wafer TC Chapter

Kurt Haller reported. Of note:

- Int'l 450 mm Wafer TF – Abandoned SNARFs

- Doc. 5070, Revision to SEMI M76-0710, Specification for Developmental 450 mm Diameter Polished Single Crystal Silicon Wafers
- Doc. 5071, Revision to M76, Specification for developmental 450 mm diameter polished single crystal silicon wafers
- Doc. 5794, New Standard: Specification Of Developmental 450mm Diameter Polished Single Crystal Notchless Silicon Wafers With Back Surface Fiducial Mark
- Standards to go inactive
 - SEMI M76-0710, Specification for Developmental 450 mm Diameter Polished Single Crystal Silicon Wafers
- SOI TF
 - MEMS/NEMS and 3D-IC groups for collaboration and needs
 - High resistivity SOI specification
 - May need to revise M71-0912 - Specification for Silicon-on-Insulator (SOI) Wafers for CMOS LSI

Attachment: NA Si Wafer Liaison Report 20150811.ppt

3.2 Japan Silicon Wafer TC Chapter

Tetsuya Naki reported for Japan. Of note:

3.2.1 JEITA/JEIDA Standards transferred to SEMI

- EM-3503 - 5737: Revision of SEMI MF1391-1107, Test Method for Substitutional Atomic Carbon Content of Silicon by Infrared Absorption (drafting: Cycle6)
- EM-3506 will be worked after JEIDA-53 transferred (SEMIMF1535)
**EM-3506: The measurement method for recombination lifetime of the epilayer of the silicon epitaxial wafer (P/P+, N/N+) by the short wavelength excitation microwave photoconductivity decay method)
- EM-3508 - 5770: New Standard, Test Method for Bulk Micro Defect Density and Denuded Zone Width in Annealed Silicon Wafers (drafting: Cycle6)
- EM-3509 - 5774: New Standard: Sample Preparation Method for Minority Carrier Diffusion Length Measurement in Silicon Wafers by Surface Photovoltage Method (Activity starts soon)
- EM-3511 - 5772: Revision of MF391-0310: Test Methods for Minority Carrier Diffusion Length in Extrinsic Semiconductors by Measurement of Steady-state Surface photovoltage (Activity starts soon)
- EM-3512 - 5769: New Standard: Test Method for Nitrogen Content in Silicon by Infrared Absorption (Activity start soon)
- EM-3604 - SOI Task Force #5736: Line Item Revision to M41-1213 Specification of Silicon-on-Insulator (SOI) for Power Device/ICs) (passed)
- JEIDA-53 - 5313C: Revision of SEMI MF1535-0707 Test Method for Carrier Recombination Lifetime in Silicon Wafers by Noncontact Measurement of Photoconductivity Decay by Microwave Reflectance –NA Activity
- JEIDA-61: transferred to M44
- EM-3510: transferred to SEMI M77

Attachment: 1507_JA_SiW_LR_for_SW2015_R0.1.ppt

3.3 SEMI Staff Report

James Amano (SEMI) gave the Staff Report. Of note:

- 9 ballot cycles for 2016

- <http://www.semi.org/Standards/Ballots>
- SEMI Standards Publications
 - Total SEMI Standards in portfolio: 949
- 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 be completed within 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.
 - Procedures for Correcting Nonconforming Titles of Published Standards Document (PM Appendix 4)
 - Some Standards qualify for a special procedure where a line item change can be used to correct the titles. Otherwise, the corrective action will likely require a major revision.

Attachment: SEMI Staff Report (10 1 2015).ppt

4 Ballot Review

4.1 Document # 5737, Revision of SEMI MF1391-1107 (Reapproved 0912), Test Method for Substitutional Atomic Carbon Content of Silicon by Infrared Absorption

Motion: To find negative "The first sentence is not appropriate for Limitation section" From Supika Mashiro technically related and persuasive. Requirement on how to prepare specimen should be in "Test Specimen" section. See Appendix 3 of Procedure Manual (Row #A3-16 or of Table A3-1)

By / 2nd: Peter Wagner/Frank Riedel

Discussion: None

Vote: 5-0

4.2 Document # 5804, Revision of SEMI M53-0310, Practice for Calibrating Scanning Surface Inspection Systems Using Certified Depositions of Monodisperse Reference Spheres on Unpatterned Semiconductor Wafer Surfaces

Approved as balloted

4.3 Document # 5859, LI 1, 2, 3, 4, Line Item Revision of SEMI MF1811-0310, Guide for Estimating the Power Spectral Density Function and Related Finish Parameters from Surface Profile Data

All Line Items approved as balloted

5 Subcommittee & Task Force Reports

5.1 AWG Task Force

Frank Riedel reported. Highlights:

- Ballot Development
 - Doc 5744A: Line Item Revision to SEMI M49, Guide for Specifying Geometry Measurement Systems for Silicon Wafers for the 130 nm to 16 nm Technology Generations
 - Ballot of Doc 5744 failed with technically persuasive rejects. These were discussed at Semicon West
 - Yoshise-san submitted a revised SNARF and an updated Doc 5744A for discussion at this TF meeting
 - The SNARF applies for approval of changes both in SEMI M49 and in SEMI M59, Terminology for Silicon Wafers, regarding exclusion window definition and recommended specifications
 - AWG TF gave the advice not to combine changes in both documents but to pursue changes related to SEMI M49 first
 - Once revision of M49 is adjudicated and approved, related changes in SEMI M59 require a separate SNARF
The TF made some changes to Doc 5744A during the meeting, however, due to time constraints consensus could not be reached on content and wording of all changes
 - It was decided few TF members jointly develop content and wording to reflect exclusion window realities when applying wafer geometry and LLS measurement equipment
 - Jaydeep recommends KLA-Tencor team members take a lead in drafting this document with proper wording that supports equipment performance

5.2 Polished Wafer Task Force

Frank Riedel reported. Highlights:

- Revised SNARF for Revision of SEMI M1-0915 Specifications for Polished Single Crystal Silicon Wafers
 - Murray Bullis submitted the revised version of the SNARF, which had already been approved at Semicon West in July
 - There was unanimous consensus to pursue this activity
 - The revised SNARF will thus be adjudicated on Wednesday, October 7, at the Europe Silicon Wafer TC Chapter meeting
- Doc. #5893, Revision of SEMI M1-0915 Specifications for Polished Single Crystal Silicon Wafers
 - The TF reviewed the revision to M1 according to Doc. #5893 provided by Murray Bullis
 - There was unanimous consensus to recommend approval by the Silicon Wafer Committee
 - Doc. #5893 will thus be adjudicated on Wednesday, October 7, at the Europe Silicon Wafer TC Chapter meeting

6 Old Business

6.1 Revised Silicon Wafer Global Committee Charter

Proposed Revision:

Charter –Silicon Wafer Global Technical Committee:

To develop international technical Standards applicable to silicon wafers used in electronic device manufacturing.

These Standards include:

- Specifications and guides for silicon wafers (bare and processed).
- Test methods and practices for wafer properties and quality.
- Specifications and guides for silicon wafer metrology.
- Specifications for wafer shipping boxes.

The International Silicon Wafer Technical Committee will also work to promote technical communication and understanding between and among silicon suppliers, equipment suppliers and users, within the framework of SEMI Standards regulations, and to maintain active liaison with other Technical Committees, e.g., Traceability regarding wafer ID.

Motion: For the EU Silicon Wafer TC Chapter to endorse the revised Silicon Wafer Global Committee Charter

By / 2nd: Peter Wagner/Frank Riedel

Discussion: None

Vote: 6-0

7 New Business

None

8 Action Item Review

8.1 *Open Action Items*

James Amano reviewed the open action items. These can be found in the Open Action Items table at the beginning of these minutes.

8.2 *New Action Items*

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

9 Next Meeting and Adjournment

The next meeting of the Europe Silicon Wafer TC Chapter is scheduled for October 2016 at SEMICON Europa in Grenoble, France.

Respectfully submitted by:

James Amano, SEMI HQ

Minutes approved by:

<Name> (<Company>), Co-chair	<Date approved>
<Name> (<Company>), Co-chair	<Date approved>

Table 8 Index of Available Attachments^{#1}

#	<i>Title</i>	#	<i>Title</i>
	AWG TF Europe Report Dresden 20151006 (2)		AWG TF Europe Report Dresden 20151006 (2)
	EU Silicon Wafer Meeting Minutes 20141008 v1		
	IPW TF Europe Report Dresden 20151006 (2)		

#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.