Silicon Wafer EU TC Chapter

Meeting Summary and Minutes

SEMICON Europa 2016

October 26, 2016

Grenoble, France

Table 1 Meeting Attendees

Italics indicate virtual participants

Co-Chairs: Friedrich Passek (Siltronic), Peter Wagner (Self), Werner Bergholz (Int'l Standards Consulting)
SEMI Staff: James Amano

Company	*Last*	*First*	*Company*	*Last*	*First*
Int'l Standards Consulting	Bergholz	Werner	Tokyo Electron	Mashiro	Supika
Microsense	*Kallus*	*Dave*	Self	Wagner	Peter
STS	*Poduje*	*Noel*	FEI	Kwakman	Laurens
SUMCO	Nakai	Tetsuya	KLA-Tencor	Haller	Kurt
Siltronic	Riedel	Frank			

Table 2 Leadership Changes

None

Table 3 Committee Structure Changes

None

Table 4 Ballot Results

Document #	*Document Title*	*Committee Action*
5995	Line Item Revision of SEMI MF1048-1111, Test Method for Measuring Reflective Total Integrated Scatter	**Passed**

#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 prior to the Originating TC Chapter meeting

None

Table 6 Authorized Activities

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

#	*SC/TF/WG*	*Details*
6096	Int'l Advanced Surface Inspection TF	Line Item Revision to SEMI M53-0216 Practice for Calibrating Scanning Surface Inspection Systems Using Certified Depositions of Monodispere Reference Spheres on Unpatterned Semiconductor Wafer Surfaces (Addition of a related information section to SEMI M53 regarding the relationship of calibrated sizes assigned to defects by surface inspection systems to their actual physical size)

#	SC/TF/WG	Details
6097	International Polished Wafer TF	Line Item Revision to SEMI M1-0416 Specification for Polished Single Crystal Silicon Wafers, to address issues with primary fiducials across text, table and figures.

#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
6041	Cycle 1-2017	Int'l Advanced Surface Inspection TF	Line Item Revision to SEMI M21-1110, Guide For Assigning Addresses to Rectangular Elements in a Cartesian Array

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

None

Table 9 SNARF(s) Abolished

None

Table 10 Standard(s) to receive Inactive Status

None

Table 11 New Action Items

None

Table 12 Previous Meeting Action Items

None

1 Welcome, Reminders, and Introductions

Peter Wagner 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.

2 Review of Previous Meeting Minutes

The TC Chapter reviewed the minutes of the previous meeting.

Motion: Approve as submitted.
By / 2nd: Bergholz/Haller
Discussion: None
Vote: 4-0

Attachment: EU Silicon Wafer Meeting Minutes 20151007 v2

3 Liaison Reports

3.1 *Japan TC Chapter*

Tetsuya Nakai reported. Of note:

- JEITA/JSNM
  - Japan Society of Newer Metals (JSNM) takes over the functionality of the Committee, including management related to JIS standards based on JEITA standards
  - JAIDA/JEITA Standards documents
    - are archived and can be accessed on the JEITA website (http://www.jeita-smtj.com/jp/index_silicon.htm) until 2026/03 from now on.
    - JSNM also started to post those documents with selected reports from old JEITA silicon technology committee.
  -
  - 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
    - Liaison member from SEMI: Masayoshi Yoshise .
  - Discussion: Peter Wagner asked why JSNM is developing semiconductor-related standards, rather than bringing their proposals to SEMI. Supika Mashiro followed that if the standards are intended to be used globally, JSNM needs to communicate what's happening. Tetsuya Nakai responded that Masayoshi Yoshise, as an informal liaison, would report on JSNM activities.

Attachment: JA Si Liaison Report 2016.10.17.ppt

3.2 *NA TC Chapter*

Kurt Haller reported. Of note:

- Leadership Changes
  - Int'l Polished Wafer TF
    - Mike Goldstein stepped down
  - Int'l SOI TF
    - Bich-Yen Nguyen stepped down
    - Gerd Pfeiffer (GlobalFoundries) was appointed as the new leader
- New SNARFs
  - Int'l AWG TF
    - Doc. 5915, Line Item Revision to SEMI M1-0215, Addition to Related Information : Illustration of Flatness and Shape Metrics for Silicon Wafers
      - SNARF was revised
    - Doc. 6041, Line Item Revision to M21-1110 Guide For Assigning Addresses To Rectangular Elements In A Cartesian Array
  - Int'l Test Methods Task Force
    - Reapproval and line item revision (title conformance)
      - MF1763, MF28, MF673, MF928, MF1982, MF728, MF978

- Presentation at SEMICON West meeting
    - Substrate requirement for Low power application (FD-SOI) by Gerd Pfeiffer

Attachment: NA Silicon Wafer TC Liaison Report August 2016.ppt

3.3 *SEMI Staff Report*

James Amano gave the SEMI Staff Report. Of note:

- New Requirements/Process Reminders for TC Chapter Meetings
    - Standards Document Development Project Period
        - Project period shall not exceed 3 years (Regs 8.3.2)
            - SNARF approval to TC Chapter approval
        - 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.
        - The TC Chapter should review the expiration dates for all applicable SNARFs at each TC Chapter meeting. (PM Note 10)
    - 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.
- Nonconforming Titles
    - SEMI M84-0414, SPECIFICATIONS FOR POLISHED SINGLE CRYSTAL SILICON WAFERS FOR GALLIUM NITRIDE-ON-SILICON APPLICATIONS
        - Nonconforming term
            - SPECIFICATIONS
        - Replacement term
            - SPECIFICATION
    - SEMI M73-1013, TEST METHODS FOR EXTRACTING RELEVANT CHARACTERISTICS FROM MEASURED WAFER EDGE PROFILES
        - Nonconforming term
            - TEST METHODS
        - Replacement term
            - TEST METHOD
- Standards due for Five-year review
    - None
- SNARFs approaching three years

- None

Attachment: Staff Report Oct 2016 for Silicon Wafer.ppt

4 Ballot Review

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.

4.1 Document Doc. 5995, Line Item Revision of SEMI MF1048-1111, Test Method for Measuring Reflective Total Integrated Scatter **Passed as balloted**

Attachment: 5995_ProceduralReview.doc

5 Subcommittee and Task Force Reports

5.1 *Int'l Advanced Wafer Geometry Task Force*

Frank Riedel reported. Of note:

- Leaders: N. Poduje, SMS, J. Sinha,S. Akiyama, Raytex, F. Passek, Siltronic AG/F. Riedel, Siltronic AG
- Meeting at SEMICON Europa 2016
  - Document #5915 - Line Item Revision to SEMI M1-0215 Specifications for Polished Single Crystal Silicon Wafers
    - Nakai-san presented the current status of the addition to Related Information : Illustration of Flatness and Shape Metrics for Silicon Wafers (SNARF was revised)
    - Figure R4-1 and its caption sparked lively discussion
  - SNARF: Invalid sectors – A generic approach/guidance for the exclusion details needs to be added to ERO (ESFQR/ZDD/...) documents
    - Initial SNARF aims at a wrong format for adding such information to existing standard documents (M67, M68)
    - updated SNARF will be submitted at Semicon Japan

Attachment: AWG TF Europe Report Grenoble 20161025.ppt

5.2 Int'l Advanced Surface Inspection Task Force

Frank Riedel reported. Of note:

- Leaders: K. Haller, KLA-Tencor, Y. Tamaki, F. Riedel, Siltronic AG
- Meeting at SEMICON Europa 2016
  - #5995, 5-year Review and Line Item Revision to MF1048 Test Method for Measuring Reflective Total Integrated Scatter
    - passed Silicon Wafer cycle 6 ballot with 100 % acceptance w/o any comment
  - #6041, Line Item Revision to SEMI M21-1110, Guide For Assigning Addresses to Rectangular Elements in a Cartesian Array
    - To be balloted in Cycle 1-2017 for adjudication at SEMICON West
  - New SNARF 6096: Addition of a related information section to SEMI M53 regarding the relationship of calibrated sizes assigned to defects by surface inspection systems to their actual physical size

- lingering misunderstandings of SSIS size calibration in the industry could be addressed in a new Appendix or Related Information section, added to M52 or M53
- Potential directions of such consideration (illustrated with light scattering model calculations) are
- Ideal particles (spheres): effect of different wavelengths, different material refractive index, non-monotonic response vs. size
- Effect of non-ideal (but tractable) particle shapes; non-particle defects (scratches, pits, stacking faults)

Attachment: IAASI TF Europe Report Grenoble 20161025.ppt

Motion: To approve SNARF: Line Item Revision to SEMI M53-0216 Practice for Calibrating Scanning Surface Inspection Systems Using Certified Depositions of Monodispere Reference Spheres on Unpatterned Semiconductor Wafer Surfaces (Addition of a related information section to SEMI M53 regarding the relationship of calibrated sizes assigned to defects by surface inspection systems to their actual physical size)

By / 2nd: Riedel/Bergholz

Discussion: None

Vote: 5-0

Motion: To authorize 6041 (Line Item Revision to SEMI M21-1110, Guide For Assigning Addresses to Rectangular Elements in a Cartesian Array) for balloting in Cycle 1-2017 for adjudication at SEMICON West 2017.

By / 2nd: Haller/Riedel

Discussion: None

Vote: 5-0

5.3 Int'l Polished Wafer Task Force

Frank Riedel reported. Of note:

- Document 6019A, Line Item Revision to SEMI M1
  - Murray Bullis will rework line item 3, which failed at SEMICON West 2016, until NA Spring TF 2017
  - First draft will be available at NA Spring Meeting in April 2017
- New SNARF: Line Item Revision to SEMI M1
  - John Valley gave the presentation entitled "The Meaning of Coordinates in SEMI M1" to explain the background of this SNARF.
  - IPW Task Force recommends approval of the SNARF by the Silicon Wafer Committee.
- Laurens Kwakman gave the presentation entitled „Enabling HVM TEM metrology support - standards for TEM lamella carriers"
  - He explained the background of the industry need for standardizing TEM grids compatible with all available FIB/SEM/TEM systems
  - A workshop should be organized to discuss this initiative among TEM stakeholders and TEM equipment vendors

Motion: Approve SNARF for Line Item Revision to SEMI M1-0416 Specification for Polished Single Crystal Silicon Wafers, to address issues with primary fiducials across text, table and figures.

By / 2nd: Riedel/Haller

Discussion: None

Vote: 5-0

Attachment: IPW TF Europe Report Grenoble 20161025.ppt

5.4 GCS

Peter Wagner reported. The GCS has been discussing that M59 (Terminology) was redundant as terms are included in Compilation of Terms. At SEMICON West, the GCS decides to eventually return terms to their original documents. Tetsuya Nakai commented that the Japan TC Chapter would discuss the matter.

6 Old Business

None

7 New Business

None

8 Next Meeting and Adjournment

The next meeting is scheduled for SEMICON Europa 2017 in Munich, Germany. See http://www.semi.org/en/events for the current list of meeting schedules.

Having no further business, the meeting was adjourned at 16:00.

Respectfully submitted by:

James Amano

SEMI HQ

Table 13 Index of Available Attachments#1

Title	*Title*
EU Silicon Wafer Meeting Minutes 20151007 v2	IAASI TF Europe Report Grenoble 20161025
JA Si Liaison Report 2016.10.17.ppt	IPW TF Europe Report Grenoble 20161025.ppt
NA Silicon Wafer TC Liaison Report August 2016.ppt	
Staff Report Oct 2016 for Silicon Wafer.ppt	
5995_ProceduralReview.doc	
AWG TF Europe Report Grenoble 20161025.ppt	

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.