Information & Control NA TC Chapter

Meeting Summary and Minutes

NA Fall Meetings

Thursday, November 9, 2023

1:30-5:30 PM Pacific

TC Chapter Announcements

Next TC Chapter Meeting

Thursday, March 28, 2024

3:00-5:30 PM Pacific

SEMI HQ

Table 1 Meeting Attendees

Italics indicate virtual participants

Co-Chairs: David Bouldin (Fab Consulting), Mark Frankfurth (Cymer), Vladimir Kraz (BestESD)
SEMI Staff: Michelle Sun

Company	*Last*	*First*	*Company*	*Last*	*First*
AIM Photonics	*Eisenbraun*	*Eric*	Persys Engineering Inc.	*Vanek*	*Yitzhak*
Cymer	*Frankfurth*	*Mark*	SCREEN Semiconductor Solution Co., Ltd.	Nishimura	Takayuki
BestESD Technical Services	*Kraz*	*Vladimir*	SEMI	Sun	Michelle
BIRD ELECTRONIC CORP	*Dummermuth*	*Martin*	SUNY Albany	Eisenbraun	Eric
Fab Consulting	*Bouldin*	*David*	Teilch	*Godoy*	*Pedro*
Intel Corporation	*Schneider*	*Paul*	Tokyo Electron Ltd.	Mashiro	Supika
KLA Corporation	*Ganev*	*Todor*	Zama Consulting	*Sakamoto*	*Mitsune*
PEER Group Inc.	*Fuchigami*	*Albert*			

Table 2 Leadership Changes

WG/TF/SC/TC Name	*Previous Leader*	*New Leader*
None		

Table 3 Committee Structure Changes

Previous WG/TF/SC Name	*New WG/TF/SC Name or Status Change*
None	

Table 4 Ballot Results

Document #	*Document Title*	*Committee Action*
6931	New Standard: Test Method for Measuring Organics Contamination Through Thermal Desorption or Solvent Extraction Gas Chromatography Mass Spectrometry of Critical Chamber Components Used in Semiconductor Wafer Processing and Inspection	**Failed**
7129	New Standard: Test Method for Measuring Particles and Contamination by A Liquid Particle Counter of Critical Chamber Components Used in Semiconductor Wafer Processing and Inspection	**Failed**
7130	New Standard: Test Method for Measuring Surface Contamination by Particle Concentration Through Replacement Substrate and Optical Metrology of Critical Chamber Components Used in Semiconductor Wafer Processing and Inspection	**Failed**
7131	Reapproval of SEMI E135-0918, Test Method for RF Generators to Determine Transient Response for RF Power Delivery Systems Used in Semiconductor Processing Equipment	**Passed with editorial changes**
7132	Reapproval of SEMI E143-0306 (Reapproved 0518), Test Method for Measuring Power and Variation into a 50-Ω Load and Power Variation and Spectrum into a Load with a VSWR of 2.0 at any phase Angle	**Passed with editorial changes**

#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 Ratification Ballot Results

Document #	*Document Title*	*ISC A&R Action*
None		

Table 6 Activities Approved by the GCS between meetings of the TC Chapter

#	*Type*	*SC/TF/WG*	*Details*
None			

Table 7 Authorized Activities

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

#	*Type*	*SC/TF/WG*	*Details*
7167	SNARF	CCC TF	New Standard: Test Method for Measuring and Characterizing Surface Particle Contamination on Critical Chamber Components with Airborne Particle Counter and Dry Aerosolizing Chamber

#1 SNARFs and TFOFs are available for review on the SEMI Web site at:
http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARF

Table 8 Authorized Ballots

#	*When*	*TF*	*Details*
6931A	Cycle 1-2023 or later	CCC TF	New Standard: Test Method for Measuring Organics Contamination Through Thermal Desorption or Solvent Extraction Gas Chromatography Mass Spectrometry of Critical Chamber Components Used in Semiconductor Wafer Processing and Inspection

Table 8 Authorized Ballots

#	When	TF	Details
7129A	Cycle 1-2023 or later	CCC TF	New Standard: Test Method for Measuring Particles and Contamination by A Liquid Particle Counter of Critical Chamber Components Used in Semiconductor Wafer Processing and Inspection
7130A	Cycle 1-2023 or later	CCC TF	New Standard: Test Method for Measuring Surface Contamination by Particle Concentration Through Replacement Substrate and Optical Metrology of Critical Chamber Components Used in Semiconductor Wafer Processing and Inspection
TBD	Cycle 1-2023 or later	Metrics Committee	Reapproval of SEMI E43-0813 (Reapproved 1019), Guide for Electrostatic Measurements on Objects and Surfaces

Table 9 SNARF(s) Granted a One-Year Extension

#	TF	Title	Expiration Date
None			

Table 10 SNARF(s) Abolished

#	TF	Title
None		

Table 11 Standard(s) to receive Inactive Status

Standard Designation	Title
None	

Table 12 New Action Items

Item #	Assigned to	Details
1	Thai Nguyen (SEMI)	Ask IT if we can kill timer early when everyone has voted
2	David Bouldin (Fab Consulting)	Check SEMI E43 for restricted biased terms and other allowed editorial changes
3	Pedro Godoy (Teilch)	Send rough draft of document to David B for feedback
4	Greg Larson (Intel)	Please provide updates on IEC meetings during Metrics meetings (under liaison report)
5	Michelle Sun (SEMI)	Explore Type II liaison with EDSA with Greg Larson (Intel)

Table 13 Previous Meeting Action Items

Item #	Assigned to	Details
1	Michelle Sun (SEMI)	Follow up on IEC meeting result - **DONE**

1 Welcome, Reminders, and Introductions

David Bouldin (Fab Consulting) called the meeting to order at 1:37. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves.

Attachment: Required Meeting Elements Nov 2022

2 Review of Previous Meeting Minutes

The TC Chapter reviewed the minutes of the previous meeting.

Motion:	Approve the minutes as written
By / 2nd:	By: Paul Schneider / Intel Corporation Second: Todor Ganev / KLA Corporation
Discussion:	None
Vote:	3-Y 0-N. Motion passed.

Attachment: NA-Metrics-Minutes-West2023

3 Liaison Reports

3.1 *Metrics Japan TC Chapter*

Michelle Sun (SEMI) reported for the Information & Control China TC Chapter. Of note:

- Meeting Schedule
  - Last Meeting: July 26, 2023
  - Next Meeting: December 13, 2023
- Authorized Ballots for Cycle 7-2023
  - 6550A, Revision to SEMI E113-0306 (Reapproved 0518), Specification for Semiconductor Processing Equipment RF Power Delivery Systems

Attachment: 20231026_MetricsJapan_Liaison_draft_v1.0

3.2 *SEMI Staff Report*

Michelle Sun (SEMI) gave the SEMI Staff Report. Of note:

2024 Calendar of Events

- SEMICON Korea: Jan 31-Feb 2, 2024
- SEMICON China: March 20-22, 2024
- SEMICON SEA: May 28-30, 2024
- SEMICON West: July 9-11, 2024

Upcoming NA Meetings

- NA Standards Spring Meetings
  - March 25-28, 2024
  - SEMI HQ, Milpitas
- SEMICON West
  - July 8-11, 2024
  - Moscone Center, San Francisco

Critical Dates for SEMI Standards Ballots – 2023 & 2024

2023	Ballot Submission Deadline	Voting Opens	Voting Closes
Cycle 1	January 3	January 17	February 16
Cycle 2	February 1	February 14	March 15
Cycle 3	March 6	March 20	April 19
Cycle 4	April 24	May 8	June 7
Cycle 5	May 7	May 21	June 20

SEMI Standards Publications

- Total SEMI Standards in portfolio: 1,085
- Includes 335 Inactive Standards

New Standards

Cycle	Designation	Title	Committee	Region
August 2023	SEMI P49 (Preliminary)	Specification for Experimental Curvilinear Multigon Extension to SEMI P39	Micropatterning	NA
August 2023	SEMI PV101	Guide for Scrap Judgement of Photovoltaic Modules in Building	Photovoltaic	CH
August 2023	SEMI D84	Test Method for Warm-Up Properties of Display Picture Quality	FPD – Metrology	JA
September 2023	SEMI F121	Guide for Evaluating Metrology for Particle Precursors in Ultrapure Water	Liquid Chemicals	NA
September 2023	SEMI C105	Guide for Trace Iron Analysis in High Purity 2-Propanol (IPA)	Process Chemicals	NA
September 2023	SEMI M93	Test Method for Quantifying Basal Plane Dislocation Density in 4H-SiC by X-Ray Diffraction Topography/Imaging	Compound Semiconductor Materials	EU

SVM – Addressing Critical Issues

- User Data Quality
    - Problem – User Data in SVM shows incorrect information
    - Cause – The SVM Login process has a separate User Database than the existing Online Ballot System and requires ongoing synchronization. Also affects https://connect.semi.org
- Progress

- Completed internal testing
- Documentation and Training in development

- Open Community Preview of the New Online Ballot System during Cycle 9, 2023
- Committee Members to become familiar with new interface and provide feedback
- Open New Online Ballot System for Live Ballot voting for Cycle 1, 2024

Five-Year Review

- SEMI E43-0813 (Reapproved 1019), Guide for Electrostatic Measurements on Objects and Surfaces

SDO Liaisons

- International Electrotechnical Commission (IEC), WG13 – Generic EMC Standards - Maintenance of IEC 61000-2-5
  - Technical Field: Standardization in the field of electromagnetic compatibility with regard to generic immunity standards, to the description/classification of electromagnetic environments, to installation measures and to functional safety.
- Purpose:
  - To promote collaboration with IEC EMI Standards to avoid unnecessary overlaps/gaps
  - Since IEC Standards are often nationalized (regionalized) and harmonized with regulations in EU or countries, harmonization of SEMI Standards with the IEC Standards would result in faster implementation of newer EMI requirements/recommendations to machine/electrical equipment/devices used in semiconductor manufacturing industry that are traditionally addressed by SEMI Standards".
- Approved by IEC on October 19, 2023

Attachment: Metrics Staff Report Nov 2023 v3

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 #6931, New Standard: Test Method for Measuring Organics Contamination Through Thermal Desorption or Solvent Extraction Gas Chromatography Mass Spectrometry of Critical Chamber Components Used in Semiconductor Wafer Processing and Inspection

Negative Text:	This definition requires that a CCC must be in line of sight of both "the wafer and the light source" due to the use of "and" and must be "in the process environment during both "processing and inspection" and at least one of the following subitems 1 to 3 due to the use of "or" in subitem 2. This definition is so restrictive that it eliminates all or at least almost all of the intended CCCs. Changing each "and" to "and/or" should solve the problem, but cannot be done editorially. (David Bouldin / Fab Consulting)
Motion:	Negative is related and persuasive.
By / 2nd:	By: Supika Mashiro / Tokyo Electron Ltd. Second: Albert Fuchigami / PEER Group Inc.
Discussion:	None
Vote:	8-Y 1-N. Motion passed.

Motion:	This Document failed TC Chapter review and will be returned to the TF for rework.
By / 2nd:	By: Supika Mashiro / Tokyo Electron Ltd. Second: Mark Frankfurth / ASML Netherlands BV
Discussion:	None
Vote:	9-Y 0-N. Motion passed.

4.2 Document #7129, New Standard: Test Method for Measuring Particles and Contamination by A Liquid Particle Counter of Critical Chamber Components Used in Semiconductor Wafer Processing and Inspection

Negative Text:	Wording makes it difficult for Standard to be applied to the intended CCC components. (Supika Mashiro / TEL)
Motion:	Negative is related and persuasive.
By / 2nd:	By: Supika Mashiro / Tokyo Electron Ltd. Second: Yitzhak Vanek / Persys Engineering Inc.
Discussion:	None
Vote:	10-Y 0-N. Motion passed.

Motion:	This Document failed TC Chapter review and will be returned to the TF for rework.
By / 2nd:	By: Supika Mashiro / Tokyo Electron Ltd. Second: Albert Fuchigami / PEER Group Inc.
Discussion:	None
Vote:	7-Y 0-N. Motion passed.

4.3 Document #7130, New Standard: Test Method for Measuring Surface Contamination by Particle Concentration Through Replacement Substrate and Optical Metrology of Critical Chamber Components Used in Semiconductor Wafer Processing and Inspection

Negative Text:	This missing section needs to be added and include the key terms/definitions from the other ballots such as critical chamber component, processing equipment, supplier, and users. Define the ones with acronyms at first usage in text and then use them consistently throughout the Document. Avoid using term variations such as just “critical part” and “critical components” and use the acronym. (David Bouldin / Fab Consulting)
Motion:	Negative is related and persuasive.
By / 2nd:	By: Paul Schneider / Intel Corporation Second: Todor Ganev / KLA Corporation
Discussion:	None
Vote:	10-Y 0-N. Motion passed.

Motion:	This Document failed TC Chapter review and will be returned to the TF for rework.
By / 2nd:	By: Supika Mashiro / Tokyo Electron Ltd. Second: Albert Fuchigami / PEER Group Inc.
Discussion:	None
Vote:	10-Y 0-N. Motion passed.

For the other documents which passed review, please refer to their respective A&R Forms.

5 Subcommittee and Task Force Reports

5.1 *CCC Task Force*

Supika Mashiro (TEL) reported for the CCC Task Force. Of note:

- Doc#6931 received 2 Rejects.

- Doc#7129 received 1 Reject.
- Doc#7130 received 1 Reject.
- The TF unanimously agreed to recommend the TC Chapter to find one of Negatives on each of those Ballots "Related and Technically Persuasive", fail them, and return them to the TF for rework.

Attachment: CCC Test Method TF Meeting Notes and Report_20231109

5.2 *RF Measurements Task Force*

Supika Mashiro (TEL) reported for the RF Measurements Task Force. Of note:

- Joint TF meetings were held for:
  - Preparation of Doc.#6550A (E113 Revision)
  - Examination of E135 and E143 to check if any revision as opposed to Reapproval would be necessary for them. TF found they are good enough for Reappoval.
- JA TC Chapter approved submission of Doc.#6550A
- JA LTF submitted Doc.#6550A for voting in Cycle 7.
- NA (Primary) TF submitted Doc.#7131 and 7132 for reapproval of E135 and E143 respectively.
- No TF meeting was deemed necessary for Doc.#7131 and 7132 as they received no Rejects or substantial (serious) Comments.

Attachment: Joint RF Measurement TF report_20231109

5.3 *EMC Task Force*

Vladimir Kraz (BestESD) reported for the EMC Task Force. Of note:

- **Intel Proposal**: EMC testing should be performed with the semiconductor manufacturing equipment fully installed and operational if doing so is practical and reasonable. EMC (ELF emissions) testing should be performed at the manufacturer's facility with the semiconductor manufacturing equipment fully installed and operational prior to user delivery. **Vendor accountability to perform testing prior to user installation
- **Question**: This section would replace overall EMC section with narrow ELF section. Perhaps ELF section should be an additional item without canceling overall EMC testing
- **Action Items**
  - RMS strength levels in the Standard have very low thresholds to test against
  - Which companies are affected by changes to the RMS strength level?
  - If increased protection increases equipment maintenance cost, there may be rejects to this proposal

Attachment: SEMI Stds EMC TF November 2023

6 Next Meeting and Adjournment

The next meeting is scheduled for Thursday, March 28, 2024, at SEMI HQ in Milpitas. See http://www.semi.org/standards-events for the current list of events.

Adjournment: 3:55.

Respectfully submitted by:

Michelle Sun

Coordinator

SEMI North America
Phone: 408.943.7982
Email: msun@semi.org

Minutes tentatively approved by:

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

Table 14 Index of Available Attachments[#1]

Title	*Title*
Required Meeting Elements Nov 2022	Metrics Staff Report Nov 2023 v3
NA-Metrics-Minutes-West2023	AR - 7131
20231026_MetricsJapan_Liaison_draft_v1.0	AR - 7132
CCC Test Method TF Meeting Notes and Report_20231109	Joint RF Measurement TF report_20231109
SEMI Stds EMC TF November 2023	

#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.