



3D Packaging & Integration North America TC Chapter

Meeting Summary and Minutes

NA Standards Fall Meetings 2022

Tuesday, November 8, 13:00–14:30 Noon (Pacific) Hybrid

SEMI Global Headquarters, Milpitas, California, and via Official Virtual TC Chapter Meeting (OVTCCM)

TC Chapter Announcements

Next TC Chapter Meeting

NA Standards Spring Meetings 2023

Thursday, April 6, 13:00 – 14:30 Pacific

SEMI Global Headquarters, Milpitas, California/USA

Table 1 Meeting Attendees

Co-Chairs: Bill Kerr (Evergreen Enhancement), Chris Moore (Covalent Metrology)

SEMI Staff: Laura Nguyen

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
<i>Air Products</i>	<i>Arslanian</i>	<i>Gregory</i>	<i>SEMI Pathfinders</i>	<i>Chu</i>	<i>Cristina</i>
<i>Corning</i>	<i>Schmidt</i>	<i>Ilona</i>	<i>Sony</i>	<i>Hanakura</i>	<i>Yuuri</i>
<i>EV Group</i>	<i>Oakes</i>	<i>Garrett</i>	<i>Thermo Fisher Scientific</i>	<i>Biedrzycki</i>	<i>Mark</i>
<i>NIST</i>	<i>Allen</i>	<i>Richard</i>	<i>Wooptix</i>	<i>Gaudestad</i>	<i>Jan</i>
<i>Nordson SONOSCAN</i>	<i>Martell</i>	<i>Steve</i>	<i>SEMI</i>	<i>Nguyen</i>	<i>Laura</i>

Table 2 Leadership Changes

None

Table 3 Committee Structure Changes

None

Table 4 Ballot Results

None

Table 5 Activities Approved by the GCS between meetings of the TC Chapter

None

Table 6 Authorized Activities

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

None



Table 7 Authorized Ballots

None

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

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
2022Nov#01	Steve Martell	Talk to Masahiro Tsuriya about new docs from the encapsulation task force and connect with Cristina Chu on the 3D panel standard. None of the standards affect 3D20. Completed.

Table 12 Previous Meeting Action Items

None

1 Welcome, Reminders, and Introductions

Steve Martell (Nordson SONOSCAN), called the meeting to order at 13:10 Pacific. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves.

Attachment: SEMI Standards Required Elements (File name: Required Element Nov 2020 Rev1)

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: Garrett Oakes / EV Group
Second: Ilona Schmidt / Corning Inc.

Discussion: None.

Vote: 5-0 in favor. Motion passed.

Attachment: [2022Fall] 3DP&I NA TC Chapter Meeting Minutes FINAL

3 Liaison Reports

3.1 3D Packaging & Integration Japan TC Chapter

Laura Nguyen (SEMI HQ) reported for the Japan TC Chapter. Of note:



Meeting Information

- Last meeting: Monday, May 16, 2022 at the SEMI Standards Japan Spring Meetings, online via OVTCCM
- Next meeting: Wednesday, December 14, 2022 in conjunction with SEMICON Japan 2022, Tokyo Big Sight, Tokyo, Japan + OVTCCM (Hybrid)

See attachment for Org Chart

Ballot Results

<i>Doc#</i>	<i>Document Title</i>	<i>TC Chapter Action</i>
6867	REAPPROVAL OF SEMI G86-0217 TEST METHOD FOR MEASUREMENT OF CHIP (DIE) STRENGTH BY MEAN OF 3-POINT BENDING	Passed , as balloted

Task Force Highlights

- Encapsulation Characteristics for Wafer Level Package and Panel Level Packaging TF
 - Developed final ballot drafts for 8 encapsulate materials characteristics and 3 items for performances by the end of Q3.
 - Ballots for 8 material characteristics submitted to Cycle 08-2021
 - Passed, with technical changes, Ratification Ballot to be issued at 3DP&I JA TC Chapter meeting on Jan.18,2022
 - #6706 - New Standard: Specification for CTE and Tg Measurement Methodology for PLP/WLP Encapsulation Materials
 - #6707 - New Standard: Specification for Flowability Measurement Methodology for PLP/WLP Encapsulation materials
 - #6708 - New Standard: Specification for Gel Time Measurement Methodology for PLP/WLP Encapsulation materials
 - #6709 - New Standard: Specification for Modulus Measurement Methodology for PLP/WLP Encapsulation materials
 - #6710 - New Standard: Specification for Shear Strength Measurement Methodology for PLP/WLP Encapsulation Materials
 - #6711 - New Standard: Specification for Viscosity Measurement Methodology for PLP/WLP Encapsulation materials
 - #6712 - New Standard: Specification for Wettability Measurement Methodology for PLP/WLP Encapsulation materials
- Five Years Review TF
 - Listed up the documents which require 5-years-review in 2021.
 - All documents are identified as re-approval or inactive.
 - Two documents submitted to Cycle08-2021.
 - Passed, with technical changes, Ratification Ballot to be issued at 3DP&I JA TC Chapter meeting on Jan.18,2022
 - #6858 - Revision to SEMI G13-88 (Reapproved 0811) with Title Change from “Standard Test Method for Expansion Characteristics of Molding Compounds” to: “Test Method For Thermal Expansion Characteristics Of Molding Compounds”
 - #6703A - Revision to SEMI G63-95 (Reapproved 0811) “Test Method for Measurement of Die Shear Strength”
- 3DS IC Bonded Layer Inspection Metrology TF
 - In process of tested inspection ability study for bonded layer inspection of 2nd trial sample is undergoing at two measurement sites.



- Also under study whether current ID mark at each layer can be detectable through the inspection.
- Developing Guidelines for layer inspection technique considering above results.
- 3D Packaging & Integration Steering Group WG
 - Continue to brainstorm the potential areas of SEMI Standard.
 - Displayed 3 posters at SEMICON Japan 2021
- Panel Level Packaging (PLP) Glass Carrier TF
 - Ballot 6590, New Standard: Specification for Glass Carrier Characteristics for Panel Level Packaging (PLP) Applications
 - Published as 3D023-0721 in July, 2021
 - Panel Level Packaging (PLP) Glass Carrier ID Marking TF established under Traceability TC

Staff Contact: Mami Nakajo, mnakajo@semi.org

Attachment: JA 3DP&I TC Chapter Liaison Report August 2022_LNN

3.2 3D Packaging & Integration Taiwan TC Chapter

Laura Nguyen (SEMI HQ) reported for the Taiwan TC Chapter. Of note:

Meeting Information

- Last meeting: September 2, 2022, at the SEMI Standards Taiwan Summer 2022 Meetings, virtual meeting, OVTCCM
- Next meeting: TBD

Leadership

- Committee Co-Chairs:
 - Wei-Chung Lo (ITRI), Wendy Chen (King Yuan Electronics), Roger Hwang (ASE)

Organization Chart {See attachment for Org Chart}

Task Force Highlights

- Testing Task Force
 - #6921 New Standard: Guide for Adding Maximum Allowable Current (MAC) Information for Wafer Testing Probe in the TC Meeting.
 - To update the draft status
 - New members request for the Testing Task Force
- Middle End Process Task Force
 - New members request for the CMP Standard for hybrid bonding New Topic.

Staff Contact: Cher Wu; cherwu@semi.org

Attachment: 3D P&I TW Liaison Report_20220902_v1_LNN

3.3 SEMI Staff Report

Laura Nguyen (SEMI) gave the SEMI Staff Report. Of note:

SEMI Global 2022 & 2023 Calendar of Events

- [2022] SEMICON Europa (Nov 15-17; Munich, Germany), SEMICON Japan (December 15-17; Tokyo)
- [2023] SEMICON Korea (Feb 1-3; Seoul, Korea), SEMICON China (Mar 22-24; Shanghai, China)

Upcoming NA Meetings

- NA Standards Spring Meetings



- April 3-6, 2023, at SEMI HQ, Milpitas, California/USA

Critical Dates for SEMI Standards Ballots

- Cycle 8-2022: Ballot Submission Due: Oct 4/Voting Period: Oct 18 – Nov 17
- Cycle 9-2022: Ballot Submission Due: Nov 15/Voting Period: Nov 29 – Dec 29

2023 Cycle dates can be found here: <http://www.semi.org/en/Standards/Ballots>

Standards Publications Report

<i>Cycle</i>	<i>New</i>	<i>Revised</i>	<i>Reapproved</i>	<i>Withdrawn</i>
July 2022	0	3	0	0
August 2022	0	5	0	2
September 2022	2	3	6	1
October 2022	3	8	0	0

Total in portfolio – 1,069 (includes 320 Inactive Standards)

New Standards

<i>Cycle</i>	<i>Designation</i>	<i>Title</i>	<i>Committee</i>	<i>Region</i>
September 2022	SEMI F120	Test Method for the Electrochemical Critical Pitting Voltage Testing of Stainless Steel Used in Corrosive Gas Systems	Gases	NA
September 2022	SEMI E120.2	Specification for Protocol Buffers for Common Equipment Model (CEM)	Information & Control	NA
October 2022	SEMI E125.2	Specification for Protocol Buffers for Equipment Self Description (EqSD)	Information & Control	NA
October 2022	SEMI E134.2	Specification for Protocol Buffers of Data Collection Management	Information & Control	NA
October 2022	SEMI E142.4	Specification for SECS II Protocol for Substrate Mapping Using Item Transfer	Information & Control	NA

Publications Backlog

Processing Queue: 37

YTD Published: 93

- 5/5/2022 A&R cycle: 8
- 6/30/2022 A&R cycle: 11
- 8/18/2022 A&R cycle: 9
- 10/12/2022 A&R cycle: 9
- New Standards: 11
- Revisions: 43
- Reapprovals: 36
- Withdrawals: 3

Contributing Factors

- Increased A&R cycles have resulted in a constant rate of documents for processing.
- Ballots are becoming more complex and require more time to process.
- As the Regulations, Procedure Manual, and Style Manual are updated, there is the potential for delays in processing documents (e.g., ensuring documents comply).

NEW! SEMI Corporate PPT Template

- SEMI launched a new corporate PPT template earlier this year
 - Standards is among the first to use the new template ★
- We encourage TFs to begin transitioning over to the new template
 - Please reach out to your Staff contact for assistance
 - Templates will be sent out by Staff and can be found on the SEMI Web site www.semi.org/standards (under Tools for Developing Standards)

Five-Year Review

Designation #	Standard Title	Action By	Assigned to
SEMI 3D17-1217	Specification for Reference Material for Bonded Wafer Stack Void Metrology	12/2022	Inspection and Metrology TF

Attachment: Staff Report Nov 2022 v6_3DP&I

4 Ballot Review

None

5 Subcommittee and Task Force Reports

5.1 Panel Level Packaging (PLP) Panel Task Force – did not meet

Task Force Leader Cristina Chu (SEMI Pathfinders) reported for the PLP Panel TF.

Of note, there are no planned meetings on the 2023 calendar yet. Some new items the TF will possibly look at will include, but not limited to CTE, flow, modulus, shear strength, wettability, etc. The TF leader continues to liaise with the PIC PLP activities to ensure both documents don't overlap and complement each other.

Steve Martell (Nordson SONOSCAN) noted that the Encapsulation TF in Japan is also doing work on PLP and he will contact the leader about their new documents in the pipeline. **(Action Item)**

5.2 3DP&I Inspection & Metrology and Bonded Wafer Stacks Task Force – did not meet

Task Force Leader Steve Martell (Nordson SONOSCAN) reported for both the 3DP&I Inspection & Metrology and 3DP&I Bonded Wafer Stacks Task Forces.

Of note, the TF will plan to ballot in Cycle 2, 2023, a revision for SEMI 3D17-1217, Specification for Reference Material for Bonded Wafer Stack Void Metrology.

6 Old Business

None

7 New Business

None

8 Action Item Review

8.1 New Action Items are noted in Table 11. Previous action items are noted in Table 12 in 'red' and for recent updates in 'blue'. There is no further business.

9 Next Meeting and Adjournment

9.1 The next meeting is tentatively scheduled for the week of April 3-6, in conjunction with SEMI Standards NA Spring Meetings 2023. Schedule details TBD. Please check www.semi.org/standards for updates.



Tentative Schedule:

- Thursday, April 6, 2023
 - 11:00-12:00, Joint 3DP&I Bonded Wafer Stacks Task Force, and 3DP&I Inspection & Metrology Task Force
 - TBD, PLP Panel TF
 - 13:00-14:30, 3DP&I NA TC Chapter

Adjournment: 13:44.

Respectfully submitted by:

Laura Nguyen

Sr. Coordinator, International Standards

SEMI Global Headquarters

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Minutes tentatively approved by:

Bill Kerr (Evergreen Enhancement), Co-chair	<Date approved>
Chris Moore (Covalent Metrology), Co-chair	<Date approved>

Minutes approved by: 3DP&I NA OVTCCM on Thursday, April 06, 2023.

Table 13 Index of Available Attachments#1

<i>Title</i>	<i>Title</i>
SEMI Standards Required Elements	JA 3DPI TC Chapter Liaison Report March 2023_r3_distr
[2022Fall] 3DP&I NA TC Chapter Meeting Minutes FINAL	Staff Report Nov 2022 v6_3DP&I
3D P&I TW Liaison Report_20220902_v1_distr	

#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 Laura Nguyen at the contact information above.