Physical Interfaces & Carriers North America TC Chapter

Meeting Summary and Minutes

SEMI Standards NA Winter Meetings 2025
Wednesday, February 26, 09:00 – 12:00 Noon Pacific
SEMI Global Headquarters, Milpitas, California, and via Official Virtual TC Chapter Meeting (OVTCCM)

TC Chapter Announcements

Next TC Chapter Meeting

SEMI Standards NA Summer Meetings 2025

Wednesday, June 4, 09:00 – 12:00 Noon Pacific

SEMI Global Headquarters, Milpitas, California/USA

Table 1 Meeting Attendees

Italics indicate virtual participants

Co-Chairs: Melvin Jung (Intel), Matt Fuller (Entegris)
SEMI Staff: Laura Nguyen

Company	*Last*	*First*	*Company*	*Last*	*First*
Acteon NEXT LLC	*Komatsu*	*Shoji*	*Intel*	*Radloff*	*Stefan*
Brooks Automation	*Babbs*	*Daniel*	*Intel*	*Raman*	*Kartik*
Daewon	Sanders	Trevor	JEOL Ltd.	Asayama	Kyoichiro
Entegris	*Fuller*	*Matthew*	*Lam Research*	*Gould*	*Richard*
GlobalFoundries	Fosnight	Bill	*LK Semiconductor Consulting Services*	*Kwakman*	*Laurens*
Hitachi-High Tech	Onishi	Tsuyoshi	*Tokyo Electron Limited*	*Mashiro*	*Supika*
Infineon	*Felux*	*Florian*			
Intel	*Jung*	*Melvin*	SEMI	Nguyen	Laura

Table 2 Leadership Changes

None

Table 3 Committee Structure Changes

None

Table 4 Ballot Results

Document #	*Document Title*	*TC Chapter Action*
6896	New Standard: Specification for 300 mm Film Frame FOUP (FFF) (Type 2 Editorial)	**Passed**, submitted to ISC A&R SC for Procedural Review.

NOTE 1: **Passed** ballots and line items will be submitted to the ISC Audit & Review Subcommittee for procedural review.

NOTE 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

None

NOTE 1: **Passed** Ratification ballots will be submitted to SEMI publication for final processing.

NOTE 2: **Failed** Ratification ballots were returned to the originating task forces for re-work and re-balloting or abandoning.

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

None

Table 7 Authorized Activities

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

#	*Type*	*SC/TF/WG*	*Details*
7343	SNARF	Global PIC Maintenance TF	Reapproval of SEMI E177-0919E, Specification for Transmission Electron Microscope (TEM) Lamella Carriers Used in Electron Microscopy Workflows

NOTE 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

Listing of documents authorized by the Originating TC Chapter for Letter Ballot.

#	*When*	*TF*	*Details*
6592	Q2	Electron Microscopy Workflow TF	New Standard: Specification for Container for Transport and Storage of Transmission Electron Microscope (TEM) Lamella Carriers within Electron Microscopy Workflows
7194	Cycle 5, or 6-2025	Film Frame FOUP (FFF) TF	New Standard: Specification for 300 mm Film Frame FOUP Load Port
7343	Cycle 3, or 4-2025	Global PIC Maintenance TF	Reapproval of SEMI E177-0919E, Specification for Transmission Electron Microscope (TEM) Lamella Carriers Used in Electron Microscopy Workflows

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

#	*TF*	*Title*	*Expiration Date*
6592	Electron Microscopy Workflow TF	New Standard: Specification for Container for Transport and Storage of Transmission Electron Microscope (TEM) Lamella Carriers within Electron Microscopy Workflows	Winter 2026
6832	Electron Microscopy Workflow TF	New Standard: Specification for Shipping Container for Transport of Transmission Electron Microscope (TEM) Lamella Carriers (LC) from LC-supplier to LC-end user	Winter 2026

NOTE 1: If the Standards Document Development Project is found to be continuing, but cannot be completed within the current project period, the TC Chapter may grant a one-year extension at a time, as many times as necessary. [*Regulations* § 8.3]

Table 10 SNARF(s) Cancelled

None

Table 11 Standard(s) to receive Inactive Status

None

NOTE 1: *Inactive, adj.* — Status of a Standard or Safety Guideline that is not currently supported by the GTC. [*Regulations* ¶ 4.2.19]

Table 12 New Action Items

None

Table 13 Previous Meeting Action Items

Item #	*Assigned to*	*Details*
2017April#04	Laura Nguyen	To identify which documents under the global task force, belong to which committees. Ongoing. Unsure how this should be done.
2022Mar#01	Larry Hartsough	Larry to check Five-Year docs for "must", "shall", and other PM related items. Ongoing.
2022Mar#02	Laura Nguyen	Laura to check internally to share top formatting examples to TF leaders. Ongoing.
2022July#01	Larry Hartsough	Provide tutorial for Inactive Standards. Ongoing.
2022Nov#01	Larry Hartsough	Put together a slide on how to add other things to consider in the future (such as, how to resolve different types of conflict; ex: SEMI E131 and E15.1 conflict) Ongoing.

1 Welcome, Reminders, and Introductions

Matt Fuller (Entegris) called the meeting to order at 09:03. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves.

Attachment: SEMI Standards Required Meetings Elements

2 Review of Previous Meeting Minutes

The TC Chapter reviewed the minutes of the previous meeting.

Motion: To accept the previous meeting minutes as written.
By / 2nd: By: Shoji Komatsu / Acteon NEXT LLC
Second: Stefan Radloff / Intel
Discussion: None.
Vote: 8-0 in favor. Motion passed.

Attachment: [2024Fall] PIC NA TC Chapter Meeting Minutes

3 Liaison Reports

3.1 *Physical Interfaces & Carriers Japan TC Chapter*

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

Meeting Information

- Last meeting:
  - Thursday, December 12, 2024
  - Room702 7F Int'l Conference Tower, Tokyo Big Sight + Official Virtual TC Chapter Meeting during SEMICON Japan 2024
- Next Meeting:
  - Friday, April 18th, 2025
  - Official Virtual TC Chapter Meeting / SEMI Japan Office Room 1 (Hybrid)

Leadership Change:

- Shoji Komatsu / Acteon NEXT was appointed as a leader of Next Gen Assembly / Test Material Handling TF.

Organization Chart (*refer to attachment)*

Ballot Results

Document #	*Document Title*	*TC Chapter Action*
7290	Line Item Revision to SEMI E182-0424 - Specification for Panel FOUP Loadport for Panel Level Packaging	**Passed**

Activities Approved via GCS between Meetings

Doc #	*Type*	*SC/TF/WG*	*Title / Details*
7332	SNARF	Next Gen Assembly / Test Material Handling TF	New Standard: Specification for Large JEDEC ™ Tray Stack Loadport ***- Approved by GCS on 07/02/2025***
7333	SNARF	Panel Level Packaging (PLP) Panel FOUP TF	Revision to add a new Subordinate Standard, SPECIFICATION FOR PANEL FOUP LOADPORT GROUND BASED VEHICLE DELIVERY EXCLUSION VOLUME to SEMI E182 SPECIFICATION FOR PANEL FOUP LOADPORT FOR PANEL LEVEL PACKAGING' ***- Approved by GCS on 07/02/2025***

Authorized Activities

#	*Type*	*SC/TF/WG*	*Details*
7329	SNARF	Panel Level Packaging (PLP) Panel FOUP TF	Line Item Revision to SEMI E182-0424 - Specification for Panel FOUP Loadport for Panel Level Packaging
_	Publication Change Request (PCR)	Panel Level Packaging (PLP) Panel FOUP TF	Corrected the title of the figure - SEMI E181.3 Specification for Panel FOUP for 600 to 600 mm Panel Size and 12 Slots *IP check and safety Check will be held on next meeting.
_	Publication Change Request (PCR)	Panel Level Packaging (PLP) Panel FOUP TF	Corrected the title of the figure - SEMI E181.4 Specification for Panel FOUP for 600 to 600 mm Panel Size and 6 Slots *IP check and safety Check will be held on next meeting.

Authorized Ballots

#	*When*	*SC/TF/WG*	*Details*
7329	Cycle 2, 2025	Panel Level Packaging (PLP) Panel FOUP TF	Line Item Revision to SEMI E181-0424 - Specification for Panel FOUP for Panel Level Packaging

Open SNARFs

Doc #	*TF*	*Document Title/Details*	*Expiration Date*
7332	Next Gen Assembly / Test Material Handling Task Force	New Standard: Specification for Next Gen Assembly / Test Carrier	February 2028
7333	Panel Level Packaging (PLP) Panel FOUP TF	Line Item Revision to SEMI E182-0424 - Specification for Panel FOUP Loadport for Panel	February 2028

Five-Year Review: *None*

Task Force Highlights

Global PIC Standards Maintenance Task Force

- No activity

Japan Electron Microscopy Workflow liaison TF

- Details of LCC standard (Doc. 6592) is progressing in the discussion.
- EM Workflow TF schedules to hold the ballot submission in Q2 2025.
- The Japanese team has begun preparations for processing an actual prototype of LCC.
    - The LCC will be made of conductive plastic.
    - This project will be carried out with an injection molding manufacturer in Kyoto.
    - The results of prototype will be shared in the EM Workflow Task Force.
- The discussion of LCSC (Lamella Carrier Shipping Container, Doc. 6832) have been starting.

Panel Level Packaging(PLP) Panel FOUP TF

- Revision of E182-0424
    - Ballot for E182 Panel FOUP Loadport
    - Doc.7329 is currently voting in cycle 2.
        - Line Item 1
            - Correction of inequality sign in Figure 2 and add the extended flange area to Figure 18
- Add the new Subordinate Standard to E182
    - At the request from NGAT-TF, a Subordinate Standard will be added to E182, and SNARF has been approved by GCS.
    - A new exclusion area for AMRs, AGVs, etc. will be defined in the LP.

Next Gen Assembly / Test Material Handling Task Force

- TF reviewed 2 new proposals:
    - Interface standard between EFEM or process cell and mainframe robot
    - Udpate to E84 to include TCP/IP based signal communication
- TF provided proposal to the Panel FOUP TF for a LP exclusion zone
- Expect to kick off regular ~1-2x/month meetings beginning in 2025 to review the above proposals
- Komatsu-san has volunteered to join NGAT TF as co-chair

The changes to E84 will be discussed with I&CC-TC members at this NA Winter Meeting.

Staff Contact: Takeaki Hirabara at thirabara@semi.org

Attachment: JA_PIC_Liaison_Feb2025_ver2_distr

3.2 *SEMI Staff Report*

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

SEMI Global 2025 Calendar of Events

- SEMICON China (March 26-28; Shanghai)
- SEMICON SEA (May 20-22; Singapore)
- SEMICON India (Sept 1-3; New Delhi, India)
- SEMICON Taiwan (Sept 10-12; Taipei, Taiwan)
- SEMCON West (Oct 7-9; Phoenix, Arizona)
- SEMICON Europa (Nov 18-21; Munich, Germany)
- SEMICON Japan (December 17-19; Tokyo, Japan)

SEMICON West 2025-2030 ← **NEW!**

- **2025—October 7-9 | Phoenix Convention Center | Phoenix, AZ**

- 2026—October 13-15 | Moscone Center | San Francisco, CA
- **2027—October 12-14 | Phoenix Convention Center | Phoenix, AZ**
- 2028—October 10-12 | Moscone Center | San Francisco, CA
- **2029—October 9-11 | Phoenix Convention Center | Phoenix, AZ**
- 2030—October 29-31 | Moscone Center | San Francisco, CA

Upcoming NA Meetings 2025

- NA Standards Summer Meetings: June 2-5, 2025, at SEMI HQ, Milpitas, California/USA
- SEMICON West: Oct 6-9, 2025, at Phoenix Convention Center, Phoenix, Arizona/USA

Critical Dates for SEMI Standards Ballots

https://www.semi.org/en/collaborate/standards/ballots

Standards Publications Report

Cycle	*New*	*Revised*	*Reapproved*	*Withdrawn*
November 2024	2	0	0	0
December 2024	0	11	6	0
January 2025	3	2	4	0

Total in portfolio – 1,098 (includes 356 Inactive Standards)

New Standards

Cycle	*Designation*	*Title*	*Committee*	*Region*
November 2024	SEMI E190	Specification for Equipment Data Publication (EDP)	Information & Control	NA
November 2024	SEMI E190.1	Specification for Common Data for Etch Components	Information & Control	NA
January 2025	SEMI E192	Guide for Equipment Adoption Criteria for GEM and GEM-related Standards	Information & Control	NA
January 2025	SEMI D87	Test Method for Response Time Evaluation of Displays with Variable Refresh Rate	FPD – Metrology	KO
January 2025	SEMI PV102	Guide for Tube PECVD Graphite Boat Materials for Solar Cell Production	Photovoltaic	CH

Connect@SEMI Communities for all SEMI Standards Task Forces *{update}*

- By Feb 2025, all Standards Task Forces shall use Connect@SEMI to host documents that are currently in development.
  - **The ISC Regulations SC recommends to postpone enforcement of implementation until next Regs/PM revision (which is currently aimed to become effective by NA Summer meeting in June)**
  - **Regs SC is working with SEMI to Update both Connect@SEMI and rules so that they are aligned each other**
- Each Standards Task Force will have its own Community Page on Connect@SEMI.
- All program members may log in at: https://connect.semi.org (username and password is same as program membership log-in)

Five-Year Review

- SEMI E177-0919E, *Specification for Transmission Electron Microscope (TEM) Lamella Carriers Used in Electron Microscopy Workflows*

Staff Contact: Laura Nguyen, Lnguyen@semi.org

Attachment: Staff Report Feb 2025 v3_PIC

4 Ballot Review

None

5 Subcommittee and Task Force Reports

5.1 *Film Frame FOUP Task Force*

Stefan Radloff (Intel) reported for this Task Force. Of note:

- FFF ballot passed superclean last fall. Waiting on publication....
- Help needed: TF added text color to the doc to highlight different first wafer height options. Doc balloted and passed with text color. SEMI Publications seems unwilling to publish document with color w/out a "one time exception" from Paul.
- What Style Manual regulation prohibits color? Unable to locate a requirement for colored text.
- Color in tables and figures is "discouraged"
- Discouraging color in standards documents seems to be a relic of the 1980s when standards documents were printed and computing used monochrome CRT displays.
- Current focus = FFF LP standard. Significant reuse of existing 300mm FOUP standards with ~10 new dimensions.
- Motion 1 – revised
  - Make an editorial change to add a note to section 8 clarifying the color options:
  - Ballot Review: refer to Table 4
  - NOTE XX: In this Standard, first slot height dimension options are specifically indicated by zXA or zXB, where X is the dimension number and A/B indicates the slot height option. In addition, dimensions specific to option A are also indicated in blue color text and option B dimensions are also indicated by maroon color text.

Attachment: 6896_ProceduralReview-EditorialChangeType2

- Motion 2
  - TF requests PIC approval to ballot SEMI Draft Document 7194, Specification for 300m Film Frame FOUP (FFF) Load Port in 2025 cycle 5 or 6 (depending on document readiness).

Motion:	Authorize the Document for Letter Ballot 7194, New Standard: Specification for 300 mm Film Frame FOUP Load Port, in Cycle 5, or 6-2025 (depending on document readiness).
By / 2nd:	By: Stefan Radloff / Intel Second: Shoji Komatsu / Acteon NEXT LLC
Discussion:	None
Vote:	7-0 in favor. Motion passed.

Attachment: FFF NGAT TF update 2_26_25

5.2 *Electron Microscopy Workflow Task Force*

Laurens Kwakman (LK Semiconductor Consulting) reported for this Task Force. Of note *{See attachment for images}*:

Activity Update

- Since November 2024, the Taskforce has continued to advance the LCC specifications through focus team and taskforce meetings
  - 6 focus team meetings and 3 Taskforce meetings were organized in these last four months. After version Doc6592, V1.3, that was thought to be almost final, still two newer versions were needed to correct the shortcomings that were detected during final critical reviews.
  - More activities were needed to meet the goals, and it will take one more month to transform current version V1.5 into a final version ready for ballot.

- Progress made in November 2024 – February 2025 period
    - In Q4 2024, the Taskforce has identified shortcomings in certain specs:
        - Tolerances for critical dimensions related to LC pockets and LC confinement structures
        - O-ring dimensions and kinematic coupling details (V-groove dimensions and radial position)
    - Peter Wagner has updated Doc 6592 twice to incorporate various corrections.
    - The new standard for the LCSC (shipping container) has been defined at high level
        - Some characteristics are defined and are compatible with the LCC Standard
        - For cost aspect reasons, some design proposals are different from LCC concepts, e.g. lid opening and LC containment methods: Proof of concept tests are needed before continuing the specifications.

- LCC specifications have been revisited. *‘phase of more questions than answers…”{refer to attachment for images}*

<u>Summary and Planning 2025 activities</u>

- Aiming at a LCC Standards document ready for Ballot before end Q2 2025
    - We have almost completed the specifications review for the LCC.
    - Doc 6592 has been updated to V1.5 and last details are under discussion
        - Finalization of all critical LC pocket specifications
        - Finalization of Kinematic coupling and O-ring interface specifications
    - Approve Doc 6592 V1.5+ at TF level
      March 25, 2025
    - Create final draft for Ballot, approve ballot version at Taskforce level April 2025
    - Issue final version of Doc.6592 for a ballot cycle in Q2 2025 April-May 2025
    - Continue work on Standard for LC shipping box Q2-Q4,2025
      LC shipping container SNARF and Doc 6832
    - Start prototype testing of LCC and LCSC and translate learning into
      SEMI Standard revisions – if and where needed. 2025 + Q1 2026

<u>Extensions of SNARFs (beyond Q1 2025) are needed</u> (Validity of SNARF 6592 ends April 1 2025)

- An extended collaboration period is proposed to
    - Finalize the LCC standard activity with a released document
    - Start real life evaluation of the new Standard LCC and prepare for a revision of the Standard if necessary
    - If necessary, start a ballot cycle for the revision approval
- Hence, the EM Workflow Taskforce requests an extension of SNARF 6592 to complete the work needed to arrive at a new LCC Standard (and a first revision if necessary):

On behalf of Laurens Kwakman (LK Semiconductor Consulting):

Motion: Approve a 1 year extension of the project period for the SNARF 6832, New Standard: *Specification for Shipping Container for Transport of Transmission Electron Microscope (TEM) Lamella Carriers (LC) from LC-supplier to LC-end user.*

By / 2nd: By: laurens kwakman / LK Semiconductors Consulting Services
Second: Kyoichiro Asayama / JEOL

Discussion: None

Vote: 7-0 in favor. Motion passed.

- An extended collaboration period is proposed to
    - Start Proof of concept Tests to guide LCSC design choices
        - Trade-off between cost and functionality/reliability
        - Sharing of data within the Taskforce

  - Prepare the LCSC Standard document Doc 6832
  - Finalize the LCSC standard activity with a released document
- Hence, the EM Workflow Taskforce requests an extension of SNARF 6832 to complete the work needed to arrive at a new LCSC Standard :

On behalf of Laurens Kwakman (LK Semiconductor Consulting):

Motion:	Authorize the Document for Letter Ballot 6592, New Standard: *Specification for Container for Transport and Storage of Transmission Electron Microscope (TEM) Lamella Carriers within Electron Microscopy Workflows*, for a cycle in Q2
By / 2nd:	By: laurens kwakman / LK Semiconductors Consulting Services Second: Kyoichiro Asayama / JEOL
Discussion:	None
Vote:	5-0 in favor. Motion passed.

Attachment: SEMI EM TF -PIC Update 26 February 2025

5.3 *"6x12" Reticle Carrier & Load Port Task Force*

Matt Fuller (Entegris) reported for this Task Force on behalf of Huaping Wang (Entegris). Of note:

Summary (Matt)

- Very well attended Task Force
- Lots of progress – basically taking EUV pod and doubling the side of the reticle
- Goal is to make three standards
  - Pod used in manufacturer of the reticle
  - Pod used in the operation in the fab
  - Loadport to work with the reticle
- Goal to submit two standards by June 2025 (refer to below key milestones)

Key Technical Decisions

- Mask shop applications
  - Name of pod: RSP612
  - Pod bottom opening
  - Reticle orientation relative to tool – short side facing tool
- Fab applications
  - Name of pod: EUV612
  - Pod bottom opening
  - Reticle orientation relative to tool – short side facing tool

Key Milestones and Timeline

	Milestone	Expected Completion Date
1	Provide update on this Task Force's status at the 2nd Workshop on Large EUV Mask Format at BACUS in Monterey, CA	Sept. 29, 2024
2	Seek ASML's agreement to issue a public spec for mask blank dimensions, handling exclusion zone, etc. (SEMI P1 equivalent)	Sept. 29, 2024
3	Submit first drafts of the two standards (RSP612 and loadport) by the TF for ballot	June 2025

"6x12inch" Reticle Specs by ASML *{refer to attachment for images}*

- ASML has made some basic 6x12-inch mask dimension specs public
- TF members requested the following (additional)

- Add width of edge exclusion zone
- Add pellicle frame dimension specs (but ASML isn't far along on pellicle frame design) and locations of frame studs – ASML outsourced this design to a third party
- Remove RPAS windows from drawing as they are incorrect hence misleading
- Backside edge exclusion zones details

Next Steps

- Start the first draft of RSP612 – by modifying SEMI E100
- Start the first draft of "6x12 inch" Reticle Load Port – by modifying SEMI E117 (Specification for Reticle Load Port) but following the E154 methodology (everything on the loadport is in one standard)
  - Ref E154 (Mechanical Interface Speficiation for 450mm Load Port)
  - Ref E63 (Mechanical Specification for 300mm Box Opener/Loader to Tool Standard (BOLTS-M) Interface)
- Start the first draft of EUV612 – by modifying SEMI E152
- TF agreed that we should start developing the "6x12 inch" standards by making changes to 6x6 standards, and vote on one change at a time

Notes: TF confirmed that the Load Port standard will be based off of E117, but following the E154 methodology (everything on the loadport is in one standard)

  - Also Reaching out for representation for other device makers

Attachment: SEMI TF 612 meeting agenda and notes Feb 18 2025

5.4 *SEMI E72 Revision Task Force*

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

Agenda

- TF roster and meeting attendance
- Activities from NA Fall meeting 24' and today
- Document 7298
- Next Actions

Activities from NA Fall meeting and today

- The TF has continued on disposition of Negatives/Comments received on the ballot (Doc.#7195) and reflected to the CoC Table.
  - Currently most controversial point of discussion is around Negatives on Sub Fab/Main Fab footprint ratio requirement of E72.
- TF has been working on Document #7298. It aims to address different type of Fab by separating specs for older/newer Fabs.

Next Actions

- Bi-weekly meeting 16:00-17:00 Wednesday (PT) is planed until we finish with dispositioning Negatives / Comments and become ready for next Ballot.
- Next meeting is planned on March 5

Attachment: E72Revision TF Report to NAPIC TC_20250226

5.5 *Global PIC Maintenance Task Force (did not meet)*

Of note:

- There are currently no meetings and no active business, request for Reapproval ballot; motion to be made in 'Old Buisness'

5.6 *JA Next Gen Assembly / Test Material Handling Task Force*

Stefan Radloff (Intel) reported for this Task Force. Of note:

- Overall SATAS standards vision presented at Global Standards Summit at Semicon Japan 2024
- JEDEC Large Tray Update
  - JEDEC large tray standard has been published by JEDEC! This tray will be contained by a SEMI standard FOUP
  - JEDEC Design Requirements for Outlines of Solid State and Related Products, JEDEC Publication 95 (JEP95), Design Guide 4.10, Generic Shipping & Handing Matrix Tray. February 2025, Item 11.2-1029S, Issue E
- How to Access and Download the Tray Standard
  - Direct download link: https://www.jedec.org/system/files/docs/DG4.10E.pdf

  OR
  - Search for "dg4.10" from the JEDEC home page https://www.jedec.org/
  - The standard is free, but JEDEC registration is required
  - Click on "site login", then follow the directions to register for standards access
- NGAT Status Update

TF meetings are scheduled biweekly: Tues PM US time / Wed AM Asia. All documents, etc posted at Connect @ SEMI

- E84 with TCP/IP
  - Decision made to pause the SNARF to discuss standard options: New document? Can a new document use "E84" in the title? ie, Standard for E84 with TCP/IP Signal Transmission. NO - consider a subordinate standard...
  - Extension / addition to the existing document
- Large tray stack FOUP
  - Initial focus: carrier compatible with E181/E181.1 external dimensions + internal supports for large JEDEC trays. Proposal from SATAS reviewed last week.
- E182 LP side/bottom exclusion zones
  - Zones will enable floor based delivery for heavy payloads. Proposal from SATAS reviewed at Semicon Japan 2024.

Attachment: FFF NGAT TF update 2_26_25

5.7 *Integrated Workflows in Failure Analysis TF (have not met)*

Florian Felux (Infineon) reported for this Task Force verbally. Of note:

- Currently aligning JSON activity with Information & Control NA Chapter before kickoff meeting is planned.
- Presented JSON SNARF to be approved at Information & Control NA TC Chapter
  - Feedback during TC meeting resulted in adding clarification text to charter regarding results of FA
- Discussion:
  - Background: first SNARF under PIC, Doc 7310, New Standard: *Specification for Universal Sample Holder*, was approved last year. This SNARF is in parallel with I&C for the data side.
  - Objective to structure and organize the necessary meta data that is produced with a minimum set of data required to communicate FA information, etc.

Attachment: SNARF_JSON_Header_revised_in_TC_DraftSept2024

6 Old Business

6.1 *Standards Upcoming for Five-Year*

SEMI E177, *Specification for Transmission Electron Microscope (TEM) Lamella Carriers Used in Electron Microscopy Workflows*

Motion:	Approve the Reapproval SNARF for E177 and authorize for Letter Ballot in Cycle 3 or 4-2025.
By / 2nd:	By: laurens kwakman / LK Semiconductors Consulting Services Second: Kyoichiro Asayama / JEOL
Discussion:	None
Vote:	7-0 in favor. Motion passed.

7 New Business

7.1 *New Standard(s) to Standardize Assembly Test Payloads*

Stefan Radloff (Intel) brought this topic up to the Committee. Of note:

- In FFF TF, someone brought up 300x300/310x310 mm panels in a carrier (smaller size panels)
- More scenarios/situations, especially in semi test space, where we're using the external dimensions of existing carriers, but putting different "stuff" in those carriers.
- Proposing standards for those "scenarios" vs doing it as a custom thing
- Discussion:
  - Matt→ Makes sense to standardize these scenarios.
  - Trevor→ Heavily involved in this space – is interested to see standards for this (interface between carrier and panel)
  - Matt→ new standard(s) to standardize panels that would fit within the footprint, or using existing FOUP infrastructure
  - Stefan→ "footprint-ish" for example without corners, or with square corners in the back (radius in the FOUP standards that would have to ignore in some case)
    - Applications internally that are similar to the large tray that is being currently standardized, but for regular size JEDEC tray as well, other options or opportunities here.
  - The result could be new standard(s) to standardize assembly test payloads (panels, trays, etc., that would fit into a 300 mm FOUP footprint)

8 Action Item Review

8.1 No New Action Items. 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 SEMI Standards NA Summer Meetings 2025 are tentatively scheduled for June 2-5, 2025, at SEMI HQ in Milpitas, California. Schedule details TBD. Schedule details TBD. Please check www.semi.org/standards for updates.

Adjournment: 12:03.

Respectfully submitted by:

Laura Nguyen

Sr. Coordinator, International Standards

SEMI Global Headquarters

Phone: +1.408.943.7019

Email: lnguyen@semi.org

Minutes tentatively approved by:

Matthew Fuller (Entegris), Co-chair	<Date approved>
Melvin Jung (Intel), Co-chair	<Date approved>

Minutes officially approved by: **PIC NA OVTCCM on June 4, 2025.**

Table 14 Index of Available Attachments[#1]

Title	*Title*
Required Meeting Elements March 2024	FFF NGAT TF update 2_26_25
[2024Fall] PIC NA TC Chapter Meeting Minutes	SEMI EM TF -PIC Update 26 February 2025
JA_PIC_Liaison_Feb2025_ver2_distr	E72Revision TF Report to NAPIC TC_20250226
Staff Report Feb 2025 v3_PIC	SEMI TF 612 meeting agenda and notes Feb 18 2025
6896_ProceduralReview-EditorialChangeType2	SNARF_JSON_Header_revised_in_TC_DraftSept2024

#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.