North America Information & Control Technical Committee Chapter
Meeting Summary and Minutes

SEMICON West 2015 Meetings
15 July 2015, 0800 – 1630 Pacific Time
San Francisco Marriott Marquis Hotel in San Francisco, California

Committee Announcements

Next Committee Meeting
NA Standards Fall 2015 Meetings
Wednesday, November 4, 2015; 0800 – 1630 Pacific Time
SEMI Headquarters in San Jose, California

Table 1 Meeting Attendees

*Italics* indicate virtual participants

**Co-Chairs**: Jack Ghiselli (Ghiselli Consulting), Lance Rist (RistTex), Brian Rubow (Cimetrix)

**SEMI Staff**: Paul Trio

<table>
<thead>
<tr>
<th>Company</th>
<th>Last</th>
<th>First</th>
<th>Company</th>
<th>Last</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Cimetrix</td>
<td>Rubow</td>
<td>Brian</td>
<td>Samsung Electronics</td>
<td>Cho</td>
<td>Yun Kyung</td>
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<tr>
<td>Consultant</td>
<td>Crispieri</td>
<td>Gino</td>
<td>SK Hynix</td>
<td>Ahn</td>
<td>Chul Hong</td>
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<tr>
<td>Dainippon Screen</td>
<td>Nishimura</td>
<td>Takayuki</td>
<td>Tokyo Electron</td>
<td>Murata</td>
<td>Naoko</td>
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<td>Edwards</td>
<td>Czerniak</td>
<td>Michael</td>
<td>Tokyo Electron</td>
<td>Asakawa</td>
<td>Terry</td>
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<tr>
<td>Ghiselli Consulting</td>
<td>Ghiselli</td>
<td>Jack</td>
<td>University of Michigan</td>
<td>Moyne</td>
<td>James</td>
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<td>Hitachi High-Tech</td>
<td>Toyoshima</td>
<td>Yuko</td>
<td>Windtree Technologies</td>
<td>Kim</td>
<td>Won Tae</td>
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<tr>
<td>Intel</td>
<td>Maloney</td>
<td>Chris</td>
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<tr>
<td>Miracom</td>
<td>Lee</td>
<td>Kevin</td>
<td>SEMI</td>
<td>Trio</td>
<td>Paul</td>
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<tr>
<td>PEER Group</td>
<td>McKenzie</td>
<td>Alison</td>
<td>SEMI Korea</td>
<td>Shim</td>
<td>Natalie</td>
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<tr>
<td>Rofin Laser</td>
<td>Pfaffinger</td>
<td>Josef</td>
<td>SEMI Taiwan</td>
<td>Chang</td>
<td>Dean</td>
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Table 2 Leadership Changes

<table>
<thead>
<tr>
<th>Group</th>
<th>Previous Leader</th>
<th>New Leader</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
</tr>
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</table>
### Table 3 Ballot Results

**Passed** ballots and line items will be submitted to the IS C Audit & Review Subcommittee for procedural review.

**Failed** ballots and line items were returned to the originating task forces for re-work and re-balloting.

<table>
<thead>
<tr>
<th>Document #</th>
<th>Document Title</th>
<th>Committee Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5274E</strong></td>
<td>Revision to Add a New Subordinate Standard Specification for Sensor/Actuator Network Specific Device Model of a Generic Equipment Add-On Sensor (ADDON) to SEMI E54-0413, Sensor/Actuator Network Standard</td>
<td>Failed, to be reballoted</td>
</tr>
<tr>
<td><strong>5844</strong></td>
<td>Line Item Revision to SEMI E54, Sensor/Actuator Network Standard with title change to: Specification for Sensor/Actuator Network</td>
<td>Failed, to be reballoted</td>
</tr>
<tr>
<td>Line Item 1</td>
<td>Correct Nonconforming Title of SEMI E54</td>
<td>Failed, to be reballoted</td>
</tr>
<tr>
<td>Line Item 2</td>
<td>Correct Nonconforming Title of SEMI E54.1</td>
<td>Failed, to be reballoted</td>
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<tr>
<td>Line Item 3</td>
<td>Correct Nonconforming Title of SEMI E54.2</td>
<td>Failed, to be reballoted</td>
</tr>
<tr>
<td>Line Item 4</td>
<td>Correct Nonconforming Title of SEMI E54.4</td>
<td>Failed, to be reballoted</td>
</tr>
<tr>
<td>Line Item 5</td>
<td>Correct Nonconforming Title of SEMI E54.11</td>
<td>Failed, to be reballoted</td>
</tr>
<tr>
<td>Line Item 6</td>
<td>Correct Nonconforming Title of SEMI E54.20</td>
<td>Failed, to be reballoted</td>
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### Table 4 Authorized Activities

<table>
<thead>
<tr>
<th>#</th>
<th>Type</th>
<th>SC/TF/WG</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>5914</td>
<td>SNARF</td>
<td>Sensor Bus TF</td>
<td>Reapproval for SEMI E54.3-0698 (Reapproved 1110), Specification for Sensor/Actuator Network Specific Device Model for Mass Flow Device</td>
</tr>
<tr>
<td>5913</td>
<td>SNARF</td>
<td>GEM300 TF</td>
<td>Reapproval for SEMI E157-0611, Specification for Module Process Tracking</td>
</tr>
</tbody>
</table>
| 5912 | SNARF | GEM300 TF | Line Item Revisions to:  
  - SEMI E142.1-0211, XML Schema for Substrate Mapping  
  - SEMI E142.2-0211, SECS II Protocol for Substrate Mapping  
  - SEMI E142.3-0211, Web Services for Substrate Mapping  
  To correct nonconforming titles. |

Note: SNARFs and TFOPs are available for review on the SEMI Web site at: [http://downloads.semi.org/web/wstdsbal.nsf/TFSOFSNARF](http://downloads.semi.org/web/wstdsbal.nsf/TFSOFSNARF)

### Table 5 Authorized Ballots

<table>
<thead>
<tr>
<th>#</th>
<th>When</th>
<th>SC/TF/WG</th>
<th>Details</th>
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</table>
Table 5 Authorized Ballots

<table>
<thead>
<tr>
<th>#</th>
<th>When</th>
<th>SC/TF/WG</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• SEMI E54.1-0708 (Reapproved 0413), Standard for Sensor/Actuator Network Common Device Model with title change to: Specification for Sensor/Actuator Network Common Device Model</td>
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<td></td>
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<td>• SEMI E54.2-0699 (Reapproved 0710), Guide for Writing Sensor/Actuator Network (SAN) Standard Ballots with title change to: Guide for Writing Sensor/Actuator Network (SAN) Letter Ballots</td>
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<td></td>
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<td>• SEMI E54.4-1111, Standard for Sensor/Actuator Network Communications for DeviceNet with title change to: Specification for Sensor/Actuator Network Communications for DeviceNet</td>
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<td></td>
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<td>• SEMI E54.11-1106 (Reapproved 1211), Specific Device Model for Endpoint Devices with title change to: Specification for Sensor/Actuator Network Specific Device Model for Endpoint Devices</td>
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<td></td>
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<td>• SEMI E54.20-1108 (Reapproved 0713), Standard for Sensor/Actuator Network Communications for EtherCAT with title change to: Specification for Sensor/Actuator Network Communications for EtherCAT</td>
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Table 6 New Action Items

<table>
<thead>
<tr>
<th>Item #</th>
<th>Assigned to</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015Jul #01</td>
<td>Paul Trio</td>
<td>Prepare SNARFs for E54.3 reapproval, E157 reapproval, and E142.x line item revisions to correct nonconforming titles.</td>
</tr>
<tr>
<td>2015July #02</td>
<td>Paul Trio</td>
<td>Prepare ballots for E54.3 reapproval, E157 reapproval, and E142.x line item revisions to correct nonconforming titles and send to TF leaders for review before distribution to TF members.</td>
</tr>
<tr>
<td>2015Jul #03</td>
<td>Paul Trio, Chie Yanagisawa</td>
<td>Distribute copy of Ballot 5844 to the Japan Sensor Bus TF members.</td>
</tr>
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Table 7 Previous Meeting Actions Items

<table>
<thead>
<tr>
<th>Item #</th>
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<th>Details</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>2013Jul #05</td>
<td>Paul Trio</td>
<td>Consult with the ISC Regulations Subcommittee on what should be done to SEMI E30 in light of the existing SML copyright issue.</td>
<td>Open</td>
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<tr>
<td>2012Oct #02</td>
<td>Paul Trio</td>
<td>Draft SNARF and ballot proposal for E30 revision (reorganization of introductory sections) and send to GEM300 TF leaders for review.</td>
<td>Open</td>
</tr>
</tbody>
</table>

1 Welcome, Reminders, and Introductions

Jack Ghiselli, committee co-chair, called the meeting to order at 8:15 AM. After welcoming all attendees, a round of introductions followed. The SEMI meeting reminders on membership requirements, antitrust, patentable technology, and meeting guidelines were then presented and explained.

Attachment: 01, SEMI Standards Required Meeting Elements
2 Review of Previous Meeting Minutes

The committee reviewed the minutes of the previous meeting held April 1 in conjunction with the NA Standards Spring 2015 meetings.

Motion: Accept the minutes of the previous meeting as written.
By / 2nd: Gino Crispieri (Consultant) / Chris Maloney (Intel)
Discussion: None
Vote: 13-0 in favor. Motion passed.
Attachment: 02, NA I&CC Spring 2015 meeting (April 1) minutes
3 Liaison Reports

3.1 SEMI Staff Report

Paul Trio (SEMI) gave the SEMI Staff Report. The key items were as follows:

- 2015 Global Calendar of Events
  - SEMICON West (July 14-16, San Francisco, California)
  - SEMICON Taiwan (September 2-4, Taipei)
  - European MEMS Summit (September 17-18, Milan, Italy)
  - Strategic Materials Conference [SMC] (September 22-23, Mountain View, California)
  - SEMICON Europa / Plastic Electronic Conference (October 6-8, Dresden, Germany)
  - SEMICON Japan (December 16-18, Tokyo)

- 2016 Global Calendar of Events (Jan to mid-July)
  - European 3D Summit (January 18-20, Grenoble, France)
  - SEMICON West (July 12-14, San Francisco, California)

- Upcoming North America Meetings (2015)
  - 2015:
    - NA Standards Fall 2015 Meetings (November 2-5, San Jose, California)
  - 2016:
    - NA Standards Spring 2016 Meetings (April 4-7, San Jose, California)
    - SEMICON West 2016 Meetings (July 11-14, San Francisco, California)

- NA Standards Meetings at SEMICON West 2015 (July 13-16)
  - 3DS-IC | EHS | Facilities | Gases | HB-LED | Information & Control | Liquid Chemicals | MEMS/NEMS | Metrics | Microlithography | PV Materials | Physical Interfaces & Carriers | Silicon Wafer | Traceability

- Technical Ballot Critical Dates for NA Standards Fall 2015 meetings
  - Cycle 6: due July 22 / Voting Period: July 29 – August 28
  - Cycle 7: due August 17 / Voting Period: August 31 – September 30

- SEMI Standards Publications
  - Publications Report

<table>
<thead>
<tr>
<th>Cycle</th>
<th>New</th>
<th>Revised</th>
<th>Reapproved</th>
<th>Withdrawn</th>
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<tr>
<td>March 2015</td>
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<td>5</td>
<td>2</td>
<td>0</td>
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<tr>
<td>April 2015</td>
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<td>May 2015</td>
<td>1</td>
<td>5</td>
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<td>0</td>
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<tr>
<td>June 2015</td>
<td>4</td>
<td>3</td>
<td>15</td>
<td>0</td>
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</table>

- Total in portfolio – 937 (includes 110 Inactive Standards)
### New Standards

<table>
<thead>
<tr>
<th>Cycle</th>
<th>Designation</th>
<th>Title</th>
<th>Committee</th>
<th>Region</th>
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<tbody>
<tr>
<td>March 2015</td>
<td>SEMI 3D12</td>
<td>Guide for Measuring Flatness and Shape of Low Stiffness Wafers</td>
<td>3D-IC</td>
<td>NA</td>
</tr>
<tr>
<td>April 2015</td>
<td>SEMI C86</td>
<td>Guide for Ethylene Glycol</td>
<td>Liquid Chemicals</td>
<td>NA</td>
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<tr>
<td>April 2015</td>
<td>SEMI E173</td>
<td>Specification for XML SECS-II Message Notation (SMN)</td>
<td>Information &amp; Control</td>
<td>NA</td>
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<tr>
<td>April 2015</td>
<td>SEMI PV55</td>
<td>Data Definition Specification for a Horizontal Communication Between Equipment for Photovoltaic Fabrication System</td>
<td>Automation Technology</td>
<td>EU</td>
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<td>May 2015</td>
<td>SEMI C87</td>
<td>Test Method for Determining Roughness of Polymer Surfaces Used in Ultrapure Water and Liquid Chemical Distribution Systems by Contact Profilometry</td>
<td>Liquid Chemicals</td>
<td>NA</td>
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<tr>
<td>June 2015</td>
<td>SEMI HB5</td>
<td>Test Method for Measurement of Saw Marks on Crystalline Sapphire Wafers by Using Optical Probes</td>
<td>HB-LED</td>
<td>NA</td>
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<tr>
<td>June 2015</td>
<td>SEMI HB6</td>
<td>Test Method for Measurement of Thickness and Shape of Crystalline Sapphire Wafers by Using Optical Probes</td>
<td>HB-LED</td>
<td>NA</td>
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<tr>
<td>June 2015</td>
<td>SEMI HB7</td>
<td>Test Method for Measurement of Waviness of Crystalline Sapphire Wafers by Using Optical Probes</td>
<td>HB-LED</td>
<td>NA</td>
</tr>
</tbody>
</table>

### 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.

- **New SNARF & TFOF forms** [embedded in Staff Report, see Attachment 03 of these minutes]

- **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
  o SEMI E4-0699 (Reapproved 0612), SEMI Equipment Communications Standard 1 Message Transfer (SECS-I)
  o SEMI E30-0611, Generic Model for Communications and Control of Manufacturing Equipment (GEM)
  o SEMI E30.1-0309, Inspection and Review Specific Equipment Model (ISEM)
  o SEMI E37-0413, High-Speed SECS Message Services (HSMS) Generic Services
  o SEMI E37.1-0702 (Reapproved 0413), High-Speed SECS Message Services Single Selected-Session Mode (HSMS-SS)
  o SEMI E39-0703 (Reapproved 0614), Object Services Standard: Concepts, Behavior, and Services
  o SEMI E39.1-0703 (Reapproved 0614), SECS-II Protocol for Object Services Standard (OSS)
  o SEMI E122-0703 (Reapproved 1109), Standard for Tester Equipment Specific Equipment Model (TSEM)
  o SEMI E123-0703 (Reapproved 1109), Standard for Handler Equipment Specific Equipment Model (HSEM)
  o SEMI E138-0709, XML Semiconductor Common Components
  o SEMI E139.1-0310, XML Schema for the RaP PDE
  o SEMI E139.2-1108, SECS-II Protocol for Recipe and Parameter Management (RaP)
  o SEMI E139.3-1211, XML/SOAP Binding for Recipe and Parameter Management
  o SEMI E142.1-0211, XML Schema for Substrate Mapping
  o SEMI E142.2-0211, SECS II Protocol for Substrate Mapping
  o SEMI E142.3-0211, Web Services for Substrate Mapping
  o SEMI E40-0813, Standard for Processing Management
  o SEMI E40.1-0813, SECS-II Support for Processing Management Standard
  o SEMI E5, SEMI Equipment Communications Standard 2 Message Content (SECS-II)
  o SEMI E98-0309, Provisional Standard for the Object-Based Equipment Model (OBEM)
  o SEMI E98.1-1102 (Reapproved 0309), Provisional Specification for SECS-II Protocol for the Object-Based Equipment Model

Refer to Procedure Manual (PM) Appendix Table A4-1 for details on nonconforming titles

• 5-Year Review
  o SEMI E54.21-1110, Specification for Module Process Tracking
  o SEMI E54.3-0698 (Reapproved 1110), Generic Model for Communications and Control of Manufacturing Equipment (GEM)
  o SEMI E107-1102 (Reapproved 0710), Specification for Substrate Mapping
  o SEMI E99-1104E (Reapproved 0710), Specification for Reticle and Pod Management (RPMS)
  o SEMI E153-0310, Specification for Prober Specific Equipment Model for 300 mm Environment (PSEM300)
  o SEMI E122-0703 (Reapproved 1109), Standard for Tester Equipment Specific Equipment Model (TSEM)
o SEMI E123-0703 (Reapproved 1109), Standard for Handler Equipment Specific Equipment Model (HSEM)

- SNARF 3 year Status
  - 5549, Revision to SEMI E30, Generic Model for Communications and Control of Manufacturing Equipment (GEM) with title change to: Specification for the Generic Model for Communications and Control of Manufacturing Equipment (GEM)
    - SNARF was approved on 1/31/2013
    - TC Chapter may grant a one-year extension

**Attachment:** 03, SEMI Standards Staff Report

### 3.2 Japan Information & Control Committee

Takayuki Nishimura presented the Japan I&C liaison report. The key items were as follows:

- Leadership Changes
  - Yuko Toyoshima (Hitachi High-Technologies) is confirmed appointed as the co-leader
  - Yoshihisa Takasaki (SCREEN Semiconductor Solutions) remained.

- Document Review Summary
  
<table>
<thead>
<tr>
<th>Document #</th>
<th>Description</th>
<th>Committee Action</th>
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<tbody>
<tr>
<td>5828</td>
<td>Line Item Revision to SEMI E170-0215, Specification for Production Recipe Cache (PRC) and SEMI E170.1-0215, Specification for SECS –II Protocol for Production Recipe Cache</td>
<td>Passed as balloted</td>
</tr>
<tr>
<td>LI 1</td>
<td>Introduce Secured Recipe Space and revise messages</td>
<td>Passed as balloted</td>
</tr>
<tr>
<td>LI 2</td>
<td>Introduce Secured Recipe Space and revise messages</td>
<td>Passed as balloted</td>
</tr>
<tr>
<td>LI 3</td>
<td>Clarify MaxNumber and MaxTime</td>
<td>Passed as balloted</td>
</tr>
<tr>
<td>LI 4</td>
<td>Change APPENDIX 1 to related information</td>
<td>Passed as balloted</td>
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</table>

- Approved SNARF by GCS (June 2, 2015)

<table>
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<th>Description</th>
<th>Committee Action</th>
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<tbody>
<tr>
<td>5888</td>
<td>Revision to SEMI E170-mm15, Specification for Production Recipe Cache (PRC) (Doc. 5828) and SEMI E170.1-mm15, Specification for SECS –II Protocol for Production Recipe Cache (PRC) (Doc.5828)</td>
<td>GEM300 TF</td>
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- Approved revised SNARF (Japan Standards Summer 2015 Meetings)

<table>
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<th>Document #</th>
<th>Description</th>
<th>Committee Action</th>
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<tr>
<td>5829</td>
<td>Line Item Revision to SEMI E171-0515, Specification for Predictive Carrier Logistics (PCL) and SEMI E171.1-0515,</td>
<td>GEM300 TF</td>
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</table>
**Upcoming ballots (Cycle 6/7, 2015)**

<table>
<thead>
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<th>Document #</th>
<th>Description</th>
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<tr>
<td>5601A</td>
<td>New Standard: Specification for Wafer Object Model</td>
<td>GEM300 TF</td>
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<tr>
<td>5829</td>
<td>Line Item Revision to SEMI E171-0515, Specification for Predictive Carrier Logistics (PCL) and SEMI E171.1-0515, Specification for SECS-II Protocol for Predictive Carrier Logistics</td>
<td>GEM300 TF</td>
</tr>
<tr>
<td>5888</td>
<td>Revision to SEMI E170-mm15, Specification for Production Recipe Cache (PRC) (Doc. 5828) and SEMI E170.1-mm15, Specification for SECS –II Protocol for Production Recipe Cache (PRC) (Doc.5828)</td>
<td>GEM300 TF</td>
</tr>
</tbody>
</table>

**Equipment Information System Security (EISS) TF**
  - Published as SEMI E169-0615
- Considering future activity
  - To highlight the access control with RBAC (Role Based Access Control).
  - Session for more discussion has now been planned in conjunction with the next I&C Japan TC Chapter meeting in September.

**Fiducial Mark Interoperability TF**
- T7 issues – SNARF 5890 (Remove positioning specification from T7) was approved by the GCS of Traceability TC.
  - Rational
    - T7-0415’s Scope 2.1 mentions “this specification defines the geometric and spatial relationships and content for wafers of other materials with diameters of 300 mm and larger”, but T7-0415 actually does not provide any spatial relationships specification for such wafers of larger than 300mm in diameter.
    - In T7-0415, the location of two-dimensional matrix code symbol is specified in section 5.3, however, M1-0215 already has the equivalent specification for location of two-dimensional matrix code symbol. To avoid dual standardization for location of two-dimensional matrix code symbol in SEMI T7 and SEMI M1, it is necessary to remove specification from Section 5.3 in SEMI T7.Japan TC Chapter assigned following up activity for T7 to Fiducial Mark Interoperability TF.
    - To be submitted to Cycle 7. And to be adjudicated at the next Japan TC Chapter meeting of Traceability Global Technical Committee in conjunction with SEMICON Japan 2015.
- Others
  - Silicon: Developing new Standard for 450mm Development Wafer with fiducial Mark
  - Assembly and Packaging: Discussing Standards need for backend alignment issues with introducing fiducial mark wafer.

**GEM300 TF**
- #5601A: Specification for Wafer Object Model (WOMS) concept change summary
  - From “Wafer Object” to “Wafer Job Object”
    - Object creation upon wafer or wafer information arrival to the equipment
    - Object destruction after completion of wafer departure and wafer information report
  - WJOB represents a wafer job and includes required information such as place, process specification, reservation and process log.
The concept mainly supports wafer-to-wafer feed forward control

- To be proposed following items caused by the change at the next Japan Chapter meeting.
  - Modify #5601 SNARF for this concept change
  - #5601A submission will be postponed until Cycle 8
- “#5829 Line Item Revision to E171 PCL” document was reviewed
  - SNARF was modified (add some line items) and approved at the last Japan TC Chapter meeting
  - To be submitted for Cycle 6

### Japan I&CC Maintenance

- #5615: Revision to SEMI E98-0309, *Provisional Specification for Object-Based Equipment Model* and SEMI E98.1-0309, *Provisional Specification for SECS-II Protocol for The Object-Based Equipment Model*
  - To remove “provisional”.
  - Work in progress

- SEMI E153-0310, *Specification for AMHS SEM (AMHS SEM)*
  - Technical revision is not required by Kondo-san’s review.
  - Pending due to SML and SML notation issue.

  - Maintenance TF is assigned for this revision activity.
  - SNARF to be prepared

- The activity of SEMI E107-1102 (Reapproved 0710), *Specification of Electric Failure Link Data Format for Yield Management System*
  - Hideaki Ogihara is in charge to decide the next action. (Revision / INACTIVE / …)

Next meeting: September 16 for the Japan Summer 2015 Meetings (SEMI Japan Office; Tokyo, Japan)

### Japan I&CC Meeting Schedule

- Fall – September 2015
- Winter – December 8, 2015 (tentative, in conjunction with SEMICON Japan 2015)
- Spring – April 2016
- Summer – June 2016

- Staff Contact: Chie Yanagisawa (cyanagisawa@semi.org)

#### Attachments

- 04, Japan I&C Liaison Report

### 3.3 Korea Information & Control Committee

Natalie Shim presented the Korea I&C liaison report. The key items were as follows:

- Next meeting:
  - September 18, 2015 at SEMI Korea office

- Major Updates
  - Authorized Ballot (Cycle 6)
    - 5833 (New Standard, Specification for Maintenance Program Model)
  - STEP planned for September
    - Tentative agenda: EDA
    - Target attendee: 60
• GEM300 TF
  o 3 Activities currently on hold due to SML Notation copyright issue
    ▪ 4946 (E87 revision, Add carrier ready to unload prediction feature)
    ▪ 5738 (E87.1 Revision)
    ▪ 5320 (E116 and E116.1 revision)
  o 5832 (New Standard, Specification for Generic Counter Model)
    ▪ The SNARF was approved in Feb 5
    ▪ The author requests to cancel the cycle 6 ballot as he needs more time to draft it. The ballot
      schedule will be decided in the next TC Chapter meeting
  o 5833 (New Standard, Specification for Maintenance Program Model)
    ▪ The SNARF was approved in Feb 5
    ▪ Authorized for Cycle 6 ballot

• DDA TF
  o No updates

Additional Discussion:
• James Moyne asked for more details on ballot 5833 (Specification for Maintenance Program Model). He pointed
  out that the PCS TF is working on predictive maintenance and wanted to make sure that there were no duplication
  of efforts or conflicting activities. Won Tae Kim responded that document 5833 is primarily focusing on a basic
  maintenance program.

Attachment: 05, Korea I&C Liaison Report

3.4 Europe Equipment Automation Committee (Information & Control, Metrics, Physical Interfaces & Carriers)
Paul Trio presented the Europe I&C liaison report. The key items were as follows:
• Next meeting:
  o SEMICON Europa 2015 (Dresden, Germany)
• Two documents to go inactive
  o SEMI E54.14-0309, Specification for Sensor/Actuator Network Communications for PROFINET
  o SEMI E54.8-0309, Specification for Sensor/Actuator Network Communications for PROFIBUS-
  DP
• In early June, 2014 the PV Automation TC and the ERSC validated a motion to make the following transformation.
  This has been validated by the ISC:
  o PV Automation TC → Automation Technology TC
• Automation Technology
  o New Chairman: Christian Hoffmann (PEER Group)
• Staff Contact: Andrea Busch (abusch@semi.org)

Attachment: 06, Europe I&C Liaison Report

3.5 Taiwan Information & Control Committee
Paul Trio presented the Taiwan I&C liaison report. The key items were as follows:
• This committee has been inactive for more than 3 years.
• Started evaluating current industry need in Taiwan since late 2014 and preparing to propose a new 3-TF
  committee structure going forward:
• Arranged technical presentation for NA I&C committee expert to introduce new development of EDA/Interface A technology to Taiwan I&C member companies in May.
• Continued to recruit new TC and TF members.
• Held a preparatory TC chapter meeting on June 18 to review and discuss the scope of 3 TFs.
• Plan to hold the next TC chapter meeting in early September in conjunction with eMDC symposium during SEMICON Taiwan.
• Equipment Information Integration Task Force
  o A new task force “Equipment Information Integration” to be formed under Taiwan I&C Standard Committee
  o Scope: The focus of the Equipment Information Integration Task Force is to refine the equipment automation interface standard suite to fulfill the requirement of new including
    ▪ Enable high-secured manufacturing automation: Equipment security enhancement and information protection
    ▪ Quality enhancement with the information integration of raw material CoA (Certificate of Analysis) and MES system
    ▪ Enable industry 4.0 in semiconductor manufacturing: Not only in process automation, but also in operation automation, such as maintenance automation, equipment recovery automation…etc.
    ▪ Big-data Application in semiconductor manufacturing:
      ▪ Enlarge data collection capability of EQP (Interface-A, Sensor data, equipment log… etc.)
      ▪ Equipment precise control and Equipment productivity monitoring / improvement.
• Backend Factory Integration TF
  o Backend Business Overview
    ▪ Wearables and home devices are likely to lead growth in the Internet of Things (IoT) business during the rest of this decade.
    ▪ The back-end technologies is on the trend from traditional BGA assembly towards 3D IC package (POP, TSV PIP, etc.).
    ▪ How to equip more capabilities of automating tool processing to improve the throughput and availability is one of key focuses.
  o Approach
Leveraging SEMI standards reviews and develops the equipment automation standard suite and related standards for back-end tool including Wafer Sort, Bump, Assembly and Final Test to build up the capability of full automation process.

- Next meeting: September 3, 2015 (tentative) at the Nankang Exhibition Center (SEMICON Taiwan)
- Staff Contact: Dean Chang (dchang@semi.org)

Attachment: 07, Taiwan I&C Liaison Report

4 E30/SML Copyright Update

Paul Trio read the following statement from SEMI Legal Counsel:

On February 25, 2015, SEMI filed a complaint for declaratory relief against the PEER Group Inc. (“PEER Group”) arising from PEER’s assertion of a copyright and trademark in SML and its request for attribution and other license restrictions. SEMI amended its complaint to add PEER Intellectual Property Inc. (“PEER IP” and together with PEER Group, collectively “PEER”) as a defendant, as well as to add claims for violations of federal antitrust and California state unfair competition laws. We are seeking a judicial determination and order declaring that any member of the public, including SEMI, has the right in the United States to copy the expression embodied in SML, to create and exploit derivative works incorporating SML, and to use “SML” without infringing any right of PEER under copyright or trademark law. PEER has filed a number of related counterclaims. SEMI expects that it will take some time before the litigation is resolved, and in the meantime, all committee activity related to SML and SML notation is being postponed.

5 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.

NOTE 1: Committee adjudication on Cycle 5, 2015 ballots are detailed in the Audits & Reviews (A&R) Subcommittee Forms for procedural review. These A&R forms are available as attachments to these minutes. The attachment number for each document is provided below the summary tables.

5.1 Cycle 2, 2015 Ballots

<table>
<thead>
<tr>
<th>Document #</th>
<th>Document Title</th>
<th>Committee Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>5274E</td>
<td>Revision to Add a New Subordinate Standard Specification for Sensor/Actuator Network Specific Device Model of a Generic Equipment Add-On Sensor (ADDON) to SEMI E54-0413, Sensor/Actuator Network Standard</td>
<td>Failed, to be reballoted</td>
</tr>
<tr>
<td>5844</td>
<td>Line Item Revision to SEMI E54, Sensor/Actuator Network Standard with title change to: Specification for Sensor/Actuator Network</td>
<td>Failed, to be reballoted</td>
</tr>
<tr>
<td></td>
<td>Line Item 1 Correct Nonconforming Title of SEMI E54</td>
<td>Failed, to be reballoted</td>
</tr>
<tr>
<td></td>
<td>Line Item 2 Correct Nonconforming Title of SEMI E54.1</td>
<td>Failed, to be reballoted</td>
</tr>
<tr>
<td></td>
<td>Line Item 3 Correct Nonconforming Title of SEMI E54.2</td>
<td>Failed, to be reballoted</td>
</tr>
<tr>
<td></td>
<td>Line Item 4 Correct Nonconforming Title of SEMI E54.4</td>
<td>Failed, to be reballoted</td>
</tr>
<tr>
<td></td>
<td>Line Item 5 Correct Nonconforming Title of SEMI E54.11</td>
<td>Failed, to be reballoted</td>
</tr>
<tr>
<td></td>
<td>Line Item 6 Correct Nonconforming Title of SEMI E54.20</td>
<td>Failed, to be reballoted</td>
</tr>
</tbody>
</table>

Attachment: 08, Ballot Review for Doc. 5274E
09, Ballot Review for Doc. 5844
6 Task Force Reports

6.1 Diagnostic Data Acquisition (DDA) Task Force

Gino Crispieri reported for the DDA Task Force. The key items were as follows:

- Attendance: 10 in person, 1 remote
- New Task Force Business
  - Task force reviewed and reclassified all issues tracked in the Interface A issue list
  - Task force plans are to continue supporting the current EDA standards suite and plan for Freeze 3
  - Plan is to maintain an active list such that it can be addressed once industry is ready for a new version
- DDA TF Google Site
  - https://sites.google.com/a/semi.org/ddatf/
  - Available materials: minutes, ballot drafts, issues tracking spreadsheets, other working materials

Attachment: 10, Diagnostic Data Acquisition Task Force Report

6.2 Energy Saving Equipment Communication Task Force

Gino Crispieri reported for the Energy Saving Equipment Communication Task Force. The key items were as follows:

- Attendance: 10 in person, 2 remote
- New TF Business
  - Task force will work with S23 Global task force to agree on definitions related to document
- Definitions from Document 5821A
  - sleep mode — the condition where the equipment is energized but it is using less energy than in idle mode. The sleep mode is primarily differentiated from idle mode in that it is initiated by a specific single command signal provided to the equipment, either from an equipment actuator, from an equipment electric interface, or a message received through factory control software (e.g. SECS). Other than the possible initiation of the sleep mode by an equipment actuator, entry into the sleep mode does not require manual actions. [SEMI S23]
  - sleep level — one or more equipment operational configurations (states) while the equipment is in sleep mode. Different sleep levels will provide different levels of energy consumption rates.
    - NOTE 1- SEMI S23 provides a discussion of sleep mode and information relevant to the various sleep levels equipment might have. It is generally expected that it might take more time for a subsystem to return to processing mode from sleep levels that use less energy.
- Document 5821A Definitions
  - subsystem — a functionally related aggregate of components within a piece of equipment, that behaves as a unit and is capable of performing one or more specific functions required by the equipment with some level of control autonomy. A subsystem may be a constituent of another subsystem.
  - subsystem idle mode — the condition where the subsystem is energized and ready to transition into process mode without delay, when needed; this transition may be made with or without requiring any specific control command.
    - NOTE 2- It is possible that a subsystem has no idle mode.
  - subsystem process mode — the condition where the subsystem is energized, and performing its intended function (such as abating gas, pumping gas, or controlling temperature).
  - subsystem sleep mode — the condition where the subsystem is energized and in one of several possible sleep states (initiated by a specific command provided from an actuator, discrete signal interface, or software communication protocol), in which it is expected to use less energy than in idle mode or process mode. Exiting sleep mode is initiated by a wake up command.
• Ballot Plans (for Cycle 7, 2015)
  o 5821A (New Standard: Specification for Subsystem Energy Savings Mode Communication (SES PMC))

Additional Discussion:
• Gino Crispieri also reported that the S23 Global TF, under the EHS Committee, is also in the process of updating terminology in S23 and wants to make sure that Document 5821A uses the new terminology.

Attachment: 11, Energy Saving Equipment Communication Task Force Report

6.3 GEM300 Task Force

Brian Rubow reported for the GEM300 Task Force. The key items were as follows:
• Attendance: 16 in person, 0 remote
• No leadership change
• Ballot Adjudication – None
• New/Updated SNARF(s) – None
• Ballot Plans – None

Additional Discussion:
• Gino Crispieri asked whether the NA GEM300 TF can use its meeting time to review GEM300 ballots being developed by the other regions. Brian Rubow supported the idea and stated that he too would like to review these documents.

Attachment: 12, GEM300 Task Force Report

6.4 Process Control Systems Task Force

James Moyne reported for the PCS Task Force. The key items were as follows:
• Attendance: 4
• Document under development
  o Line Items changes to E133 and E133.1 to support XML alignment with XML style guide and other improvements related to XML implementation (#5650 and #5716)
• Ballot Plans
  o Ballot 5650 and 5716 to be submitted after the NA Standards Fall 2015 meetings.

Additional Discussion:
• James Moyne reported that the TF has started discussing predictive maintenance. He invited those who are interested to participate in upcoming TF meetings.


6.5 Sensor Bus Task Force

James Moyne reported for the Sensor Bus Task Force. The key items were as follows:
• Attendance: 7
• Ballot Plans (for Cycle 7, 2015):
  o 5274F (Revision to Add a New Subordinate Standard: Specification for Sensor/Actuator Network Specific Device Model of a Generic Equipment Add-On Sensor (ADDON) to SEMI E54-0413, Sensor/Actuator Network Standard)
  o 5844A (Line Item Revision to SEMI E54 / E54.1 / E54.2 / E54.4 / E54.11 / E54.20)
- Line Item 1 – Correct Nonconforming Title of SEMI E54
- Line Item 2 – Correct Nonconforming Title of SEMI E54.1
- Line Item 3 – Correct Nonconforming Title of SEMI E54.2
- Line Item 4 – Correct Nonconforming Title of SEMI E54.4
- Line Item 5 – Correct Nonconforming Title of SEMI E54.11
- Line Item 6 – Correct Nonconforming Title of SEMI E54.20


7 Proposed Meeting Schedule for the NA Standards Fall 2015 Meetings

NA Standards Fall 2015 Meetings
November 2-5, 2015
SEMI Headquarters
3081 Zanker Road
San Jose, California 95134
U.S.A.

The tentative schedule is provided below:

Monday, November 2
- I&C Leadership (12:00 Noon to 1:00 PM)
- DDA (1:00 PM to 3:00 PM)
- PCS (3:00 PM to 5:00 PM)
- I&C GCS (5:00 PM to 6:00 PM)

Tuesday, November 3
- Energy Saving Equipment Communication (8:00 AM to 11:00 AM)
- GEM300 (11:00 AM to 2:00 PM)
- Sensor Bus (2:00 PM to 6:00 PM)

Wednesday, November 4
- I&C Committee (8:00 AM to 4:30 PM)

8 Old Business

8.1 Status update on action items generated from the previous meetings:

<table>
<thead>
<tr>
<th>Item #</th>
<th>Assigned to</th>
<th>Details</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015Apr #02</td>
<td>Paul Trio</td>
<td>Confirm with James Moyne the schedule for the Sensor Bus TF meeting at SEMICON West 2015. Determine whether it needs to be scheduled such that participants from Europe are able to attend.</td>
<td>Completed. Closed.</td>
</tr>
<tr>
<td>2013Jul #05</td>
<td>Paul Trio</td>
<td>Consult with the ISC Regulations Subcommittee on what should be done to SEMI E30 in light of the existing SML copyright issue.</td>
<td>Open</td>
</tr>
</tbody>
</table>
9 New Business


James Moyne presented a report from the ITRS Factory Integration Chapter. The key items were as follows:

- **What is the ITRS?**
  
  - International Technology Roadmap for Semiconductors (ITRS) is a 15 year forward looking roadmap
    - Evaluates industry’s difficult challenges and technology requirements and then formulates potential solutions to meet these needs
  
  - Factory Integration (FI) Chapter
    - **Scope:** factories and enterprise systems
    - **Drivers:** cost, quality, productivity, and speed

- **Societal forces impacting challenges and opportunities for Factory Integration in 2015** *(see attachment 15 for details)*

- **Proposed 2015 Factory Integration Vision and Efforts**
  
  - 2013 Adds
    - Augmenting Reactive with Predictive
    - Big Data
  
  - 2015 Adds
    - Environmental Safety and Health (merging in)
    - Yield Enhancement (Merging in; DFM as sub-section or full sub-chapter)
    - Factory Operations
    - Security; Supply Chain Integration (per resource availability)
  
  - ...after 2015, e.g., human factors

- **Example of Challenges Linked to Standards: ITRS Big Data Technology Requirements (excerpt)** *(see attachment 15 for details)*

- **Examples of Current ITRS Discussion of Challenges Linked to Standards**

<table>
<thead>
<tr>
<th>ITRS Challenge</th>
<th>Standards discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy conservation and communication between sub-system and equipment</td>
<td>Aligned with current standard effort with standard and ITRS roadmaps To be aligned</td>
</tr>
<tr>
<td>Prediction: Predictive Maintenance, Virtual Metrology, Yield Prediction, etc.</td>
<td>Need for maintenance database interface standards</td>
</tr>
<tr>
<td>Diagnostics and Fault Detection</td>
<td>Need for standards to support reporting of pumps vibration information for use into high level diagnostics systems</td>
</tr>
<tr>
<td>Big Data</td>
<td>Standards to guide emergence of this technology in the industry (Hadoop conversion, etc.)</td>
</tr>
<tr>
<td>Just about everywhere</td>
<td>Need for data quality metrics and baselines</td>
</tr>
<tr>
<td>Assembly / Test</td>
<td>Taking ICC standards into A/T</td>
</tr>
</tbody>
</table>
**Key Points**
- The ITRS is a 15 year roadmap that defines key challenges and potential solutions
- The ITRS often cites standards or emerging standards as potential solutions, or lack of standards as challenges
- The Factory Integration chapter is aligned in many ways with the charter of the I&CC
- For additional information or to participate in this open organization:
  - [www.itrs.net](http://www.itrs.net)
  - Attend the Advanced Process Control conference
    - [www.apcconference.com](http://www.apcconference.com)
    - October 12-14, Austin
- Contact James Moyne (moyne@umich.edu)

**Attachment:** 15, ITRS Factory Integration Presentation

### 9.2 NA I&C Standards due for 5-Year Review

The committee agreed to issue reapproval ballots for the following SEMI Standards:
- SEMI E54.3-0698 (Reapproved 1110), Specification for Sensor/Actuator Network Specific Device Model for Mass Flow Device
- SEMI E157-0611, Specification for Module Process Tracking

SEMI E142 (Specification for Substrate Mapping) is also due for 5-year review. However, Paul Trio also reported that the Subordinate Standards of E142 have nonconforming titles that will need to be addressed. Issuing a line item ballot to correct nonconforming titles for the following SEMI Standards will also reset the ‘5-year review clock’ of SEMI E142:
- SEMI E142.1-0211, XML Schema for Substrate Mapping
- SEMI E142.2-0211, SECS II Protocol for Substrate Mapping
- SEMI E142.3-0211, Web Services for Substrate Mapping

**Action Item:** 2015Jul #01, Paul Trio to prepare SNARFs for E54.3 reapproval, E157 reapproval, and E142.x line item revisions to correct nonconforming titles.

**Action Item:** 2015Jul #02, Paul Trio to prepare ballots for E54.3 reapproval, E157 reapproval, and E142.x line item revisions to correct nonconforming titles and send to TF leaders for review before distribution to TF members.

### 9.3 New Ballot Submission Summary

**Motion:** Approve submission of ballot 5844A for Cycle 7, 2015 voting period.

**By / 2nd:** James Moyne (University of Michigan) / Jack Ghiselli (Ghiselli Consulting)

**Discussion:** Mitsuhiro Matsuda asked for staff to distribute a copy of this ballot to the Japan Sensor Bus TF as well for review. Brian Rubow pointed out that he does not receive copies of ballots developed by Japan GEM300 TF for review prior to ballot submission.

**Vote:** 14-0 in favor. Motion passed.

**Motion:** Approve submission of ballot 5274F for Cycle 7, 2015 voting period.

**By / 2nd:** Jack Ghiselli (Ghiselli Consulting) / Chris Maloney (Intel)

**Discussion:** None.

**Vote:** 15-0 in favor. Motion passed.
Motion: Approve submission of ballot 5821A for Cycle 7, 2015 voting period.
By / 2nd: Gino Crispieri (consultant) / Mike Czerniak (Edwards)

Discussion: Mitsuhiro Matsuda asked whether the TF is indeed ready for ballot submission or additional discussion will still need to take place. Gino Crispieri responded that the TF is ready to ballot, but will continue to meet in case there are any identified issues that need to be addressed. Matsuda-san, then, asked to confirm that if there are any issues with the ballot, those can still be brought up to the TF. Gino responded, “Yes.”

Vote: 14-0 in favor. Motion passed.

Additional Discussion:
- For ballots that fail, James Moyne asked whether the ballot milestones indicated in the corresponding SNARF will need to be updated to reflect the new submission schedule. Mitsuhiro Matsuda responded that the SNARF does not have to be updated.

Action Item: 2015Jul #03, Paul Trio and Chie Yanagisawa to distribute copy of Ballot 5844A to the Japan Sensor Bus TF members for review.

10 Action Item Review

10.1 Open Action Items
Paul Trio (SEMI) reviewed the open action items. These can be found in the Open Action Items table at the beginning of these minutes.

10.2 New Action Items
Paul Trio (SEMI) reviewed the new action items. These can be found in the New Action Items table at the beginning of these minutes.

11 Adjournment
Having no further business, a motion was made to adjourn the NA I&C Committee meeting on November 4 in conjunction with the NA Standards Fall 2015 Meetings. Adjournment was at 11:00 AM.

Respectfully submitted by:
Paul Trio
SEMI North America Standards
Phone: +1.408.943.7041
Email: ptrio@semi.org

Minutes approved by:
Jack Ghiselli (Ghiselli Consulting), Co-chair September 4, 2015
Brian Rubow (Cimetrix), Co-chair September 4, 2015
Lance Rist (RistTex), Co-chair
<table>
<thead>
<tr>
<th>#</th>
<th>Title</th>
<th>#</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SEMI Standards Required Meeting Elements</td>
<td>9</td>
<td>Ballot Review for Doc. 5844</td>
</tr>
<tr>
<td>2</td>
<td>NA I&amp;C Spring 2015 (April 1) meeting minutes</td>
<td>10</td>
<td>Diagnostic Data Acquisition Task Force Report</td>
</tr>
<tr>
<td>3</td>
<td>SEMI Standards Staff Report</td>
<td>11</td>
<td>Energy Saving Equipment Task Force Report</td>
</tr>
<tr>
<td>4</td>
<td>Japan I&amp;C Liaison Report</td>
<td>12</td>
<td>GEM300 Task Force Report</td>
</tr>
<tr>
<td>7</td>
<td>Taiwan I&amp;C Liaison Report</td>
<td>15</td>
<td>ITRS Factory Integration Presentation</td>
</tr>
<tr>
<td>8</td>
<td>Ballot Review for Doc. 5274E</td>
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<td></td>
</tr>
</tbody>
</table>

#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 Paul Trio at the contact information above.