PV Japan TC Chapter and PV Materials Japan TC Chapter joint

Meeting Summary and Minutes

Japan Standards Winter 2016 Meetings
Monday, December 19, 2016, 13:30-16:00
SEMI Japan office, Tokyo, Japan

TC Chapter Announcements

Next TC Chapter Meeting
Friday, April 7, 2017, 13:30-17:00
SEMI Japan office, Tokyo, Japan

Table 1 Meeting Attendees
*Italics* indicate virtual participants

**PV Committee/Co-Chairs:** Kazuhiko Kashima (Tokyo Institute of Technology), Masaaki Yamamichi (AIST)
**PV Material Committee/Co-Chairs:** Kazuhiko Kashima (Tokyo Institute of Technology), Takashi Ishihara (Mitsubishi Electric), Tetsuo Fukuda (AIST)
**SEMI Staff:** Chie Yanagisawa (SEMI Japan)

<table>
<thead>
<tr>
<th>Company</th>
<th>Last</th>
<th>First</th>
<th>Company</th>
<th>Last</th>
<th>First</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIST</td>
<td>Yamamichi</td>
<td>Masaaki</td>
<td>Tokyo Institute of Technology</td>
<td>Kashima</td>
<td>Kazuhiko</td>
</tr>
<tr>
<td>AIST</td>
<td>Fukuda</td>
<td>Tetsuo</td>
<td>Mitsubishi Electric</td>
<td>Ishihara</td>
<td>Takashi</td>
</tr>
<tr>
<td>AIST</td>
<td>Tanahashi</td>
<td>Tadanori</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FujiFilm</td>
<td>Hayashi</td>
<td>Toshiaki</td>
<td>SEMI Japan</td>
<td>Yanagisawa</td>
<td>Chie</td>
</tr>
</tbody>
</table>

Table 2 Leadership Changes

<table>
<thead>
<tr>
<th>WG/TF/SC/TC Name</th>
<th>Previous Leader</th>
<th>New Leader</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
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</tbody>
</table>

Table 3 Committee Structure Changes

<table>
<thead>
<tr>
<th>Previous WG/TF/SC Name</th>
<th>New WG/TF/SC Name or Status Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

Table 4 Ballot Results

<table>
<thead>
<tr>
<th>Document #</th>
<th>Document Title</th>
<th>Committee Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 Activities Approved by the GCS prior to the Originating TC Chapter meeting

<table>
<thead>
<tr>
<th>#</th>
<th>Type</th>
<th>SC/TF/WG</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 6 Authorized Activities

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

<table>
<thead>
<tr>
<th>#</th>
<th>SC/TF/WG</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

### Table 7 Authorized Ballots

<table>
<thead>
<tr>
<th>#</th>
<th>When</th>
<th>TF</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>#6016</td>
<td>Cycle 1-2017</td>
<td>PV Materials TF</td>
<td>New Standard: Test Method for Exposure Durability of PV Cells to Acetic Acid Vapor</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>#</th>
<th>TF</th>
<th>Title</th>
<th>Expiration Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 9 SNARF(s) Abolished

<table>
<thead>
<tr>
<th>#</th>
<th>TF</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 10 Standard(s) to receive Inactive Status

<table>
<thead>
<tr>
<th>Standard Designation</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

### Table 11 New Action Items

<table>
<thead>
<tr>
<th>Item #</th>
<th>Assigned to</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 12 Previous Meeting Action Items

<table>
<thead>
<tr>
<th>Item #</th>
<th>Assigned to</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1 Welcome, Reminders, and Introductions

Masaaki Yamamichi (AIST) called the meeting to order at 13:30. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves.

Attachment: 01_Required_Elements_Reg_20150327_E+J

2 Review of Previous Meeting Minutes

The TC Chapter reviewed the minutes of the previous meeting.

<table>
<thead>
<tr>
<th>Motion:</th>
<th>Approve the previous meeting minutes with an editorial changes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>By / 2nd:</td>
<td>Takashi Ishihara (Mitsubishi Electric) / Tetsuo Fukuda (AIST)</td>
</tr>
<tr>
<td>Discussion:</td>
<td>None</td>
</tr>
<tr>
<td>Vote:</td>
<td>5 in favor and 0 opposed. Motion passed.</td>
</tr>
</tbody>
</table>

3 Liaison Reports

3.1 PV China TC Chapter and PV Materials China TC Chapter joint

Chie Yanagisawa (SEMI Japan) reported for the join report of PV China TC Chapter and the PV Materials China TC Chapter. Of note:

- The formation of PV Materials TC Chapter in China
  - NARSC has approved the formation of the China PV Materials TC Chapter on Nov. 9.
- Organizations are as following

- 2 new SNARFs:
- 3 ballots failed committee review and return to TF
PV Silicon Wafer Task Force: Doc 5767, New Standard: Guide for Material Requirements of Internal Feeders Used in Mono-crystal Silicon Growers


- China PV TC Chapter Ongoing Drafts
  - Crystalline Silicon Solar Cell Task Force
  - PV Silicon Raw Materials Task Force
    - None
  - PV Silicon Wafer Task Force
    - Doc 5767, New Standard: Guide for Material Requirements of Internal Feeders Used in Mono-crystal Silicon Growers
    - Doc 5843, Revision of SEMI PV22-1011, Specification for Silicon Wafers for Use in Photovoltaic Solar Cells
  - Thin Film PV Module Task Force
    - Doc 5926, New Standard: Test Method for Bending Property of Flexible Thin Film PV Modules
  - PV Diffusion Furnace Test Methods Task Force
    - Doc 5841, New Standard: Guide for Specifying Low Pressure Horizontal Diffusion Furnace
    - Doc 5983, New Standard: Test Method for In-line Sheet Resistance Inspection
  - Multi-wire Saws Task Force
    - None
  - PV Module Task Force
    - Doc 5725, New standard: Practice for Metal Wrap Through (MWT) Back Contact PV Module Assembly
    - Doc 5840, New Standard: Guide for Calibration of PV Module UV Test Chambers
    - Doc 6070, New Standard: Test Method for Cell Defects in Crystalline Silicon PV Modules by Electroluminescence (EL) Imaging
    - Doc 5982, New Standard: Specification for Crystalline Silicon Photovoltaic Module Dimensions
    - Doc 6069, New Standard: Specification for Structural Silicone Adhesive for the Back Rail Fixture on PV Modules
3.2 PV Materials Europe TC Chapter

Chie Yanagisawa (SEMI Japan) reported for the PV Materials Europe TC Chapter. Of note:

- Leadership changes
  - H. Aulich will resign as co-chair as of December 31, 2016, and his contributions and leadership during the past 9 years are greatly appreciated
  - Ch. Hagendorf, FhG-CSP, is nominated as new co-chair
  - ERSC is kindly asked to approve Ch. Hagendorf as new co-chair of the European Chapter of the PV Materials TC
- PV Silicon Materials TF
  - New business; several standards are coming up for 5 year review: PV22-1011, PV32-0312, PV41-0912
- PV Materials Degradation TF
  - Doc. 5889, TEST METHOD ON CELL LEVEL FOR POTENTIAL-INDUCED DEGRADATION SUSCEPTIBILITY OF SOLAR CELLS AND MODULE ENCAPSULATION MATERIALS
    - Ballot results were discussed and all negatives and comments were addressed
    - Doc. 5889 recommended to be forward to A&R SC for further processing (to be published as PV75-1016)


3.3 PV Materials NA TC Chapter

Chie Yanagisawa (SEMI Japan) reported for the PV Materials NA TC Chapter. Of note:

- Ballot passed
  - Doc. 6039, Reapproval of SEMI PV31-0212 Test Method For Spectrally Resolved Reflective And Transmissive Haze Of Transparent Conducting Oxide (TCO) Films For PV Application
- Ballot approved for next meeting
- Int’l PV Analytical Test Methods, Metrology, and Inspection TF
  - Drafting: Doc. 5801: New Standard: Guide for the Planning, Implementing and Analyzing data from a Round Robin used to verify a Test Method

Attachment: 04_PVMaterials NA TC Chapter Liaison Report Nov 2016
3.4 PV Taiwan TC Chapter

Chie Yanagisawa (SEMI Japan) reported for the PV Taiwan TC Chapter. Of note:

- **Ballot Result**
    - Passed and forwarded to procedural review

- **Approval Renamed TF**
  - Organic and Dye Sensitized Solar Cell Task Force (DSSC&OPV TF) has approved to revised TFOF and renamed as Organic, Dye Sensitized and Perovskite Solar Cell Task Force (DSSC, OPV& PSC TF)

- **Authorized 1 Doc for Procedural Review**
    - Passed and forwarded to ISC for procedural review

- **1 new SNARF:**
  - PV Reliability Test Method TF: Doc 6071, SNARF for New Standard: Test Method for Polymer Foil dependent Discoloration of Silver Fingers on PV modules

- **Ongoing Drafts:**
  - Doc #5560 - Classification of BIPV – Part 1: Classification of BIPV Module Dimension
  - Doc #5740 - Test Method of Electrochemical Corrosion for PV Module
  - Doc #5979 - Specification of indoor lighting simulator requirements for emerging PV
  - Doc #5980 - Test method of current-voltage (I-V) measurement at indoor lighting for DSC and OPV

**Attachment:** 05_Taiwan PV Standards Committee Liaison Report Nov 2016

3.5 SEMI Staff Report

Chie Yanagisawa (SEMI Japan) gave the SEMI Staff Report. Of note:

- SEMI Global 2016 & 2017 Calendar of Events
- Global Standards Meeting Schedule
- 2016 & 2017 Critical Dates for SEMI Standards Ballots
- SEMI Standards Publications
- Updates to Regulations Governing SEMI Standards Program Approved
- SEMI Japan Standards Awards

**Attachment:** 06_SEMI Staff Report 20161216_v1.0
4 New Business for both PV Technical Committee and PV Materials Technical Committee

4.1 Report of IEC/SEMI PV Standardization meeting held on December 15, 2016

Masaaki Yamamichi (AIST) introduced the summary of this meeting as attached.

A comment was given that it would be desirable that SEMI Standards should be consistent with the other SDO documents such as IEC and should be cited in those documents related to international certification.

Attachment: 07_IEC=SEMI_PV-StandardizationMtgMinutes_20161215_3.1

PV Japan TC Chapter

5 Ballot Review

None

6 Subcommittee and Task Force Reports

None

7 Old Business

None

8 New Business

None

9 Action Item Review

None
PV Materials Japan TC Chapter

10 Ballot Review
None

11 Subcommittee & Task Force Reports
11.1 Japan PV Materials Task Force
Tetsuo Fukuda (AIST) gave the report for Japan PV Materials Task Force as following.

- #6016: New Standard Draft Document (Test Method for Exposure Durability of PV Cells to Acetic Acid Vapor) was proposed and introduced by Tadanori Tanahashi (AIST).
- At the task force meeting held on November 7, 2016, all attendees were in favor of proposing the draft document to PV/PV Materials Japan TC Chapters joint meeting scheduled to be held on December 19, 2016.

Attachment: 08_PVMaterials-TF_MeetingMinutes_20161107

12 Old Business
None

13 New Business
13.1 Submission of Ballot #6016: New Standard: Test Method for Exposure Durability of PV Cells to Acetic Acid Vapor
Tadanori Tanahashi (AIST) introduced the points of this document and addressed this topic to this committee.

<table>
<thead>
<tr>
<th>Motion:</th>
<th>Approve the submission of the Ballot #6016 for Cycle 1-2017.</th>
</tr>
</thead>
<tbody>
<tr>
<td>By / 2nd:</td>
<td>Masaaki Yamamichi (AIST) / Takashi Ishihara (Mitsubishi Electric)</td>
</tr>
<tr>
<td>Discussion:</td>
<td>None</td>
</tr>
<tr>
<td>Note:</td>
<td>5 in favor and 0 opposed. Motion passed.</td>
</tr>
</tbody>
</table>

14 Action Item Review
None

15 Next Meeting and Adjournment
The next meeting is scheduled for Friday, April 7, 2017 13:30-17:00, at SEMI Japan office, Tokyo Japan. See http://www.semi.org/en/events for the current list of meeting schedules.

Having no further business, a motion was made to adjourn. Adjournment was at 16:00.
Respectfully submitted by:

Chie Yanagisawa
Manager
SEMI Japan
Phone: +81.3.3222.5863
Email: cyanagisawa@semi.org

Minutes tentatively approved by:

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Takashi Ishihara (Mitsubishi Electric), Co-chair</td>
<td>March 8, 2017</td>
</tr>
<tr>
<td>Tetsuo Fukuda (AIST), Co-chair</td>
<td>March 9, 2017</td>
</tr>
</tbody>
</table>

Table 13 Index of Available Attachments

<table>
<thead>
<tr>
<th>#</th>
<th>Title</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>01_Required_Elements_Reg_20150327_E+J</td>
<td>05_Taiwan PV Standards Committee Liaison Report Nov 2016</td>
</tr>
<tr>
<td>02</td>
<td>02_China PV&amp;PVM Committee Chapter Liaison Report20161205</td>
<td>06_SEMI Staff Report 20161216_v1.0</td>
</tr>
<tr>
<td>03</td>
<td>03_EUPVMaterialReportOct2016</td>
<td>07_IEC~SEMI_PV-StandardizationMtgMinutes_20161215_3.1</td>
</tr>
<tr>
<td>04</td>
<td>04_PVMaterials NA TC Chapter Liaison Report Nov 2016</td>
<td>08_PVMaterials-TF_MeetingMinutes_20161107</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 [SEMI Staff Name] at the contact information above.