



HB-LED Global Technical Committee

North America (NA) Chapter

Meeting Summary and Minutes

Fall 2018 Meeting
November 8, 2018 9:00AM – 10:00AM
SEMI HQ, Milpitas, CA

TC Chapter Announcements

Next TC Chapter Meeting

In conjunction with SPIE Photonics West in San Francisco, CA

Thursday, February 7, 2019 (Tentative)

Table 1 Meeting Attendees

Italics indicate virtual participants

Co-Chairs: Andrew Kim (Innovation for X), Chris Moore (Covalent Metrology), Mike Feng (Silian)

SEMI Standards Staff: Inna Skvortsova

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
<i>InnovationforX</i>	<i>Kim</i>	<i>Andrew</i>	Nordson Sonoscan	Martell	Steve
BW Associates	Wu	Bevan	SEMI	Skvortsova	Inna

Table 2 Leadership Changes

<i>WG/TF/SC/TC Name</i>	<i>Previous Leader</i>	<i>New Leader</i>
None		

Table 3 Committee Structure Changes

<i>Previous WG/TF/SC Name</i>	<i>New WG/TF/SC Name or Status Change</i>
None	n/a

Table 4 Ballot Results

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
6430	Reapproval to SEMI HB4-0913, <i>Specification of Communication Interfaces for High Brightness LED Manufacturing Equipment (HB-LED ECI)</i>	Passed

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

#	Type	SC/TF/WG	Details
None			

Table 6 Authorized Activities

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

#	Type	SC/TF/WG	Details

Note 1: SNARFs and TFOFs are available for review on the SEMI Web site at:

<http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARF>

Table 7 Authorized Ballots

#	When	TF	Details
None			

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

#	TF	Title	Expiration Date
5984	HB-LED Source Materials TF	New Standard: Guide for Biscyclopentadienylmagnesium for HB-LED Manufacturing	11/8/2019
5985	HB-LED Source Materials TF	New Standard: Guide for Triethylgallium for HB-LED Manufacturing	11/8/2019
5986	HB-LED Source Materials TF	New Standard: Guide for Trimethylaluminum for HB-LED Manufacturing	11/8/2019
5987	HB-LED Source Materials TF	New Standard: Guide for Trimethylgallium for HB-LED Manufacturing	11/8/2019
5988	HB-LED Source Materials TF	New Standard: Guide for Trimethylindium for HB-LED Manufacturing	11/8/2019

Table 9 SNARF(s) Abolished

#	TF	Title
None		

Table 10 Standard(s) to Receive Inactive Status

Standard Designation	Title
None	

Table 11 New Action Items

Item #	Assigned to	Details
2018 Nov #1	(Andrew Kim)	Provide feedback to China HB-LED Chapter on ballots #5775D. and #6192;
2018 Nov #2	(Andrew Kim)	Reach out to SEMI management for support with meeting venue for the next NA HB-LED TFs/TC meeting during Photonics West 2019. (Request submitted to SEMI/James A.)



Table 11 New Action Items

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
2018 Nov #3	(SEMI staff)	Add to the next TF/TC meeting agenda that NA HB-LED TC is supporting the following ballots under development: #S6371, 5723, 5775, 6192.

Table 12 Previous Meeting Action Items

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
2018SW#2	(Andrew Kim)	To reach out to Matheson Corp. to support standardization effort started under HB-LED Source Material Task Force. DONE. New member/task force leader Mayank Bulsara (Matheson Corp) is joining HB-LED TC.
2018Apr#5	(SEMI staff)	To contact Mike Feng for re-engagement in NA HB-LED co-Chair role. OPEN – message sent, pending feedback from Mike.
2018Apr#6	(Andrew Kim)	To reach out to relevant companies in NA to support standardization effort for HB-LED Equipment Communication Interface TF in NA and China regions. OPEN. No feedback from VEECO and AMAT, but will try to reach out to Fab equipment companies.

2 Welcome, Reminders, and Introductions

Cochair Andrew Kim called the meeting to order at 9:02 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 by Inna Skvortsova (SEMI).

Attachment 01: SEMI Standards Required Elements.ppt

3 Review of Previous Meeting Minutes

The TC Chapter reviewed and approved the minutes of the previous Spring 2018 Standards meeting.

- Motion:** To approve minutes as written.
- By / 2nd:** Steve Martell (Nordson Sonoscan) / Bevan Wu (BW Associates)
- Discussion:** None
- Vote:** 2-0 in favor. Motion passed.

Attachment 02: NA HB-LED TC Meeting Minutes (July 2018).pdf

4 SEMI Standards Staff Report

Inna Skvortsova (SEMI) gave the SEMI Staff Report. Of note:

SEMI Global 2018 Calendar of Events

- o SEMICON Europa (November 13-16, 2018, Munich, Germany)
- o SEMICON Japan (December 12-14, 2018, Tokyo, Japan)

SEMI Global 2019 Calendar of Events

- o SEMICON Korea (January 23-25, 2019), Seoul, Korea
- o MEMS and Sensor Industry Group (February 19-20, Monterey, California)



- SEMICON China (March 20-22, Shanghai, China)
- SEMICON Southeast Asia (May 7-9, Kuala Lumpur, Malaysia)
- SEMICON West (July 9-11, San Francisco, California)

Upcoming North America Meetings

- NA Standards Spring 2019 Meetings (April 1-4, 2019, SEMI HQ, Milpitas, California)
- SEMICON West 2019 Meetings (July 8-11, 2019, San Francisco, California)
- NA Standards Fall 2019 Meetings (November 4-7, 2019, SEMI HQ, Milpitas, California)

Letter Ballot Critical Dates for NA Standards meetings

- Cycle 8-18: due Oct 12 / Voting Period: Oct 26 – Nov 26
- Cycle 9-18: due Nov 14/ Voting Period: Nov 28 – Dec 28
- Cycle 1-19: due Jan 3 / Voting Period: Jan 16 – Feb 16
- Cycle 2-19: due Feb 1 / Voting Period: Feb 15 – March 18
- Cycle 3-19: due March 12 / Voting Period: March 26-April 25

<http://www.semi.org/en/Standards/Ballots>

- SEMI Standards Publications

Cycle	New	Revised	Reapproved	Withdrawn
July 2018	0	3	21	0
August 2018	2	11	4	0
September 2018	0	8	1	0
October 2018	7	8	12	0

Total SEMI Standards in portfolio: 996. Includes 252 Inactive Standards

Cycle	Designation	Title	Committee	Region
October 2018	SEMI PV85	Practice for Metal Wrap Through (MWT) Back Contact Photovoltaic (PV) Module Assembly	Photovoltaic	CH
October 2018	SEMI PV86	Specification for Crystalline Silicon Photovoltaic Module Dimensions	Photovoltaic	CH
October 2018	SEMI PV87	Test Method for Peeling Force Between Electrode and Ribbon/Back Sheet	Photovoltaic	CH



October 2018	SEMI PV88	Test Method for Determination of Hydrogen in Photovoltaic (PV) Polysilicon by Inert Gas Fusion Infrared Absorption Method	Photovoltaic	CH
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- New Forms, Regulations & Procedure Manual
 - New version of *Regulations* (June 8, 2018)
 - New version of *Procedure Manual* (June 8, 2018)
 - New TFOF & SNARF
 - New Ballot Review Templates
 - www.semi.org/standards
 - Bottom left, under **Resources!**
 - Rules for Handling of Trademark (Regulations § 16.4)
 - Sections 16.4.1 and 16.4.4 of the recently revised of the Regulations contain requirements for the use of trademarks in published Documents.
 - Existing Documents have been found that contain trademarks for items such as materials, software protocols, and equipment.
 - All TC Chapters should review their Documents **at the time a revision or reapproval ballot** is planned to determine if a trademark is used and, if so, whether its use is justified, properly represented, and that a footnote references the trademark owner.
 - Failure to do so could jeopardize ballot approval.
 - *SNARF(s) and TFOF(s) Approved by GCS in between TC Chapter Meetings*
 - NONE
 - *SNARF Three- year status—TC Chapter may grant a one-year extension:*
 - SNARF(s) # 5984, 5985, 59876, 5987, 5988 are subject to one-year extension.
 - *Nonconforming Titles*
 - NONE
- NOTE: For nonconforming title please refer to *Procedure Manual (PM)* Appendix Table A4-1 and A4-2.
- *Intercommittee Ballots*
 - NONE
 - *Documents due for Five-Year Review*
 - NONE

Attachment 03: SEMI Staff Report HB-LED TC (Nov 2018).ppt

5 Liaison Reports

5.1 HB LED China Liaison Report

Report presented by Inna Skvortsova (SEMI). Of note:

- Meeting Information
 - Last Meeting:
 - October 24, 2018, Nanchang, Jiangxi, China
 - Next Meeting
 - March (Date TBD), 2019 at SEMICON China, Shanghai, China
 - Leadership (co-Chairs):
 - Hongbo Zuo (Chairman of AURORA)
 - Jiangbo Wang (Dean of HC SemiTek (Zhejiang) Corporation)
 - Ballots Results

Doc #	Document Title	TC Chapter Action
5775D	New Standard: Specification for Sapphire Single Crystal Ingot Intended for Use for Manufacturing HB-LED Wafers	Technical Changes
6192	New Standard: Specification for Dry Etching Patterned Sapphire Substrate (DPSS)	Failed and return to TF for re-work

- Authorized Ballots

Doc #	When	TF	Document Title/Details
6371	Cycle 9-2018	Patterned Sapphire Substrate TF	New Standard: Test Method for Determining Geometrical Parameters of Patterns on Patterned Sapphire Substrate
6370	Cycle 1-2019	Equipment Communication Interface TF	New Standard: Specification of Susceptors for HB-LED MOCVD Equipment Communication

- Task Force Highlights
 - NONE
- Contact information:
 - Daniel Qi (fqi@semi.org) / 86-21-60278576
 - Isadora Jin (ijin@semi.org) / 86-21-60278578

Attachment 04: China HB-LED Liaison Report (Nov 2018).ppt

6 Ballot Review

NOTE 1: TC Chapter adjudication on ballots reviewed is detailed in the Audits & Review (A&R) Subcommittee Forms for procedural review. The A&R forms are available as attachments to these minutes. The attachment number for each balloted document is provided under each ballot review section below.



5.1 Ballot #6430

The TC Chapter reviewed the Document #6430, Reapproval to SEMI HB4-0913, *Specification of Communication Interfaces for High Brightness LED Manufacturing Equipment (HB-LED ECI)*.

The ballot **Passed** and will be forwarded to ISC A&R as balloted

Motion: Document # 6430 is not a Safety Document, when all safety-related information is removed, Document is still technically sound and complete.

By / 2nd: Steve Martell (Nordson Sonoscan) / Bevan Wu (BW Associates)

Discussion: None.

Vote: 2-0. Motion passed.

Motion: Forward Document # 6430 to the ISC A&R for procedural review as balloted.

By / 2nd: Steve Martell (Nordson Sonoscan) / Bevan Wu (BW Associates)

Discussion: None.

Vote: 2 -0. Motion passed.

Attachment 05: 6430 Procedural Review

7 Subcommittee and Task Force Reports

6.1 HB-LED Wafer TF

No report presented by the Task Force

6.2 Patterned Sapphire Substrate (PSS) TF

No report presented by the Task Force

6.3 HB-LED Source Materials Task Force

- NA Technical Committee recommendation is to disband the working group in Korea and transfer draft documents #5984, #5985, #5986, #5987, #5988 to NA TC Chapter.
- TC co-Chair reached out to Matheson Corp. to support standardization effort started under HB-LED Source Material Task Force in NA region.
- NA Technical Committee will evaluate documents and if needed will recruit new members in NA region to finish the work on Source Material documents.
- It is of great importance to organize next TF meeting during the industry event related to HB-LED supply chain. Photonics West was identified for potential co-location of next TF meeting and new members recruitment effort.

Action Item: (Andrew Kim) To provide feedback to China Chapter for ballots #5775D. and #6192;

Action Item: (Andrew Kim) Reach out to SEMI management for support with meeting venue for next NA HB-LED TFs/TC meeting during Photonics West 2019.

Action Item: (Inna Skvortsova, SEMI) For the meeting agenda, to emphasize that NA HB-LED TC is supporting the following ballots activities: Doc #6371, 5723, 5775, 6192.

8 Old Business

Inna Skvortsova addressed the TC Chapter on this topic. Of note:

7.1 Standards Due for Five-Year Review.

- NONE

7.2 SNARFs Approaching Three-Year Review

The TC Chapter reviewed the SNARFs approaching the three-year document development period:

#	TF	Title	New Expiration Date
5984	HB-LED Source Materials TF	New Standard: Guide for Biscyclopentadienylmagnesium for HB-LED Manufacturing	11/8/2019
5985	HB-LED Source Materials TF	New Standard: Guide for Triethylgallium for HB-LED Manufacturing	11/8/2019
5986	HB-LED Source Materials TF	New Standard: Guide for Trimethylaluminum for HB-LED Manufacturing	11/8/2019
5987	HB-LED Source Materials TF	New Standard: Guide for Trimethylgallium for HB-LED Manufacturing	11/8/2019
5988	HB-LED Source Materials TF	New Standard: Guide for Trimethylindium for HB-LED Manufacturing	11/8/2019

Motion: To approve 1-year extension for document development period for the following SNARFs: 5984, 5985, 5986, 5987, 5988

By / 2nd: Steve Martell (Nordson Sonoscan) / Bevan Wu (BW Associates)

Discussion: None

Vote: 2-0 in favor. Motion passed.

9 New Business

8.1 New TFOFs and SNARFs

- No new TFOFs approval during the meeting;
- No new SNARF approval during the meeting.

8.2 New Ballots Authorized

- NONE.

10 Action Items Review

9.1 Previous Meeting(s) Action Items

- NONE

9.2 New Action Items

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



11 Next Meeting and Adjournment

The next meeting is tentatively scheduled for Feb 7, 2019 in conjunction with Photonics West 2019. The meeting is subject to venue availability.

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 10:06AM.

Meeting Minutes respectfully submitted by:

Inna Skvortsova

Sr. Standards Coordinator

SEMI North America

Phone: 408-943-6996

Email: iskvortsova@semi.org

Minutes tentatively approved by:

Andrew Kim (InnovationforX), Cochair	1/25/2019
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Table 13 Index of Available Attachments^{#1}

<i>Title</i>	<i>Title</i>
(Attachment 01) SEMI Standards Required Meeting Elements.ppt	
(Attachment 02) NA HB-LED TC Meeting Minutes SEMICON West 2018.pdf	
(Attachment 03) SEMI Standards Staff Report HB-LED TC (Nov 2018).ppt	
(Attachment 04) HB-LED China TC Liaison (Nov 2018)	
(Attachment 05) 6430_Procedural Review	

^{#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 Inna Skvortsova at the contact information above.