



Compound Semiconductor Materials North America Technical Committee Chapter Meeting Summary and Minutes

CS MANTECH 2017
24 May 2017, 0700 – 0800 PM PDT
Hyatt Regency; Indian Wells, California

Committee Announcements

Next Committee Meeting

CS MANTECH 2018

Wednesday, May 9, 2018 (7:00-8:00 PM)

CS MANTECH Austin, Texas

Table 1 Meeting Attendees

Italics indicate virtual participants

Co-Chairs: Jim Oliver (Northrop Grumman), Russ Kremer (Freiberger Compound Materials)

SEMI Staff: Kevin Nguyen

<i>Company</i>	<i>Last</i>	<i>First</i>
NuFlare Technologies	Bjorkman	Claes
<i>Lehighon Electronics</i>	<i>Blew</i>	<i>Austin</i>
Freiberger Compound Materials	Kremer	Russ
NOVASiC	Kronwasser	Judy
AXRTECH	Mills	Craig
Lehighon Electronics	Nguyen	Danh
SEMI	Nguyen	Kevin
Northrop Grumman	Oliver	Jim
Frontier Semiconductor	Walecki	Wojtek
Lehighon Electronics	Weber	Joseph

Table 2 Leadership Changes

None

Table 3 Ballot Results

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

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
6132	Line Item Revision of SEMI M79-0211, Specification for Round 100 mm Polished Monocrystalline Germanium Wafers for Solar Cell Applications	Passed
6133	Line Item Revision of SEMI M10-0816, Terminology For Identification Of Structures And Features Seen On Gallium Arsenide Wafers	Passed
6134	Reapprovals of SEMI M23-0811, Specification For Polished Monocrystalline Indium Phosphide Wafers, SEMI M23.1 0211, SEMI M23.2 0211, SEMI M23.4 0211, SEMI M23.5 0211, and SEMI M23.6 0211	Passed

Table 4 Authorized Activities

<i>#</i>	<i>Type</i>	<i>SC/TF/WG</i>	<i>Details</i>
<i>None</i>			



Note: SNARFs and TFOFs are available for review on the SEMI Web site at:
<http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARF>

Table 5 Authorized Ballots

#	When	SC/TF/WG	Details
None			

Table 6 New Action Items

Item #	Assigned to	Details
2017May #01	Kevin Nguyen	Send Jim Oliver and Russ Kremer list of inactive Compound Materials Standards
2017May #02	Kevin Nguyen	To follow up with Roy Blunt on a ballot comment for doc. 6133, M10, Line Item Revision
2017May #03	Kevin Nguyen	To send Judy Kronwasser access to SEMI M86 Gallium Nitride standard

Table 7 Previous Meeting Actions Items

Item #	Assigned to	Details	Status
2016May #01	Kevin Nguyen	Send a copy of SEMI M23 to Judy Kronwasser for review. Send a copy of SEMI M79 to Hani Badawi (AXT) for review.	Closed

1 Welcome, Reminders, and Introductions

Jim Oliver, committee co-chair, called the meeting to order at 7:05 PM. 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.

2 Review of Previous Meeting Minutes

The committee reviewed the minutes of the previous meeting held in May 2016.

Motion: Accept the minutes of the previous meeting as written.

By / 2nd: Russ Kremer / Judy Kronwasser

Discussion: None

Vote: 7-0 in favor. Motion passed.

Attachment: 01, NA CSM Minutes 2016 CSMANTECH

3 Liaison Reports

3.1 Europe Compound Semiconductor Materials Committee

Kevin Nguyen presented the Europe CSM liaison report. The key items were as follows:

- Leadership
 - Arnd Weber (SiCrystal)
 - Looking for a second cochair.
- Meetings
 - Last Meeting: April 27, 2017 (Germany)
 - Next Meeting: November 2017, SEMICON Europa, Munich Germany
- Global SiC Task Force
 - Leader: Arnd-Dietrich Weber, SiCrystal



- 4689, Revision of SEMI M55-0315, Specification for Polished Monocrystalline Silicon Carbide Wafers
 - Passed committee review at April 27, 2017 meeting, pending publication
- 6015, Line Item Revision SEMI M81-0611 - Guide to Defects Found in Monocrystalline Silicon Carbide Substrates
 - To be issued in Cycle 6- or 7-2017 for review at SEMICON Europa
- Contactless Capacitive Resistivity Measurement of SI-Semiconductors TF
 - Leader: Wolfgang Jantz, Semimap
 - The contactless resistivity standard is published as M87-0116 Test Method for Contactless Resistivity Measurement of Semi-Insulating Semiconductors
 - Currently planning Round Robin

Attachment: 02, EU CSM Liaison Report May 2017 v1

4 Staff Report

4.1 Kevin Nguyen presented the report. Of notes,

4.1.1 SEMI Global 2017 Calendar of Events

- SEMICON West (July 11-13, 2017, San Francisco, California)
- SEMICON Taiwan (September 13-15, 2017, Taipei, Taiwan)
- PV Taiwan (October 12-14, 2017, Taipei, Taiwan)
- SEMICON Europa (November 14-17, 2017, Munich, Germany)
- SEMICON Japan (December 13-15, 2017, Big Sight Tokyo, Japan)

4.1.2 Upcoming North America Meetings 2017

- SEMICON West 2017 Meetings (July 10-13, San Francisco, California)
- NA Standards Fall 2017 Meetings (November 6-9, 2017 (tentative), SEMI HQ, California)

4.1.3 Letter Ballot Critical Dates for NA Standards Spring 2017 meetings

- Cycle 4-17: due Apr 14 / Voting Period: Apr 25 – May 25
- Cycle 5-17: due May 12 / Voting Period: May 26 – June 26
- Cycle 6-17: due Jul 21 / Voting Period: Aug 1 – Aug 31
- Cycle 7-17: due Aug 18 / Voting Period: Sep 1 – Oct 2
- Cycle 8-17: due Oct 13 / Voting Period: Oct 27 – Nov 27
- Cycle 9-17: due Nov 16 / Voting Period: Nov 29 – Dec 29
- <http://www.semi.org/en/Standards/Ballots>

4.1.4 SEMI Standards Publications

- Total SEMI Standards in portfolio: 972
- Includes 170 Inactive Standards

4.1.5 Inactive Standards

Committee : Compound Semiconductor Materials

- SEMI M14-89 - Specification for Ion Implantation and Activation Process for Semi-Insulating Gallium Arsenide Single Crystals



- SEMI M15-0298 - Polished Wafer Defect Limits Table for Semi-Insulating Gallium Arsenide Wafers
- SEMI M19-91 - Specification for Electrical Properties of Bulk Gallium Arsenide Single Crystal Substrates
- SEMI M37-0699 - Test Method for Measuring Etch Pit Density (EPD) in Low Dislocation Density Indium Phosphide Wafers
- SEMI M39-0999 - Test Method for Measuring Resistivity and Hall Coefficient and Determining Hall Mobility in Semi-Insulating GaAs Single Crystals

Attachment: 03, Staff Report May 2017 v5

Action Item # 1: Kevin Nguyen to send the list of inactive standards to co-chairs.

5 Ballot Review

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

NOTE 1: Committee adjudication on 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 Doc. 6132, Line Item Revision of SEMI M79-0211 Specification for Round 100 mm Polished Monocrystalline Germanium Wafers for Solar Cell Applications

5.1.1 Ballot passed.

5.2 Doc. 6133, Line Item Revision of SEMI M10-0816 Terminology For Identification Of Structures And Features Seen On Gallium Arsenide Wafers

5.2.1 Ballot passed. However, there was a comment from Roy Blunt, who submitted a comment requesting to see full copy of M10.

Action Item # 2 – Kevin to follow up with Roy.

5.3 Doc. 6134, Reapprovals of SEMI M23-0811, Specification For Polished Monocrystalline Indium Phosphide Wafers, SEMI M23.1 0211, SEMI M23.2 0211, SEMI M23.4 0211, SEMI M23.5 0211, and SEMI M23.6 0211

5.3.1 Ballot passed.

Attachment: 04, A&R NA CS MANTECH

6 Task Force Reports

6.1 Gallium Nitride (GaN) Task Force

Judy Kronwasser reported for the GaN Task Force was completed and published as SEMI M86-0915 - Specification for Polished Monocrystalline c-Plane Gallium Nitride Wafers. There is no need to keep the task force.

Motion: To disband the Gallium Nitride TF

By / 2nd: Judy Kronwasser/ Russ Kremer

Discussion: None

Vote: 7-0 in favor. Motion passed.

Action Item #3: Kevin Nguyen to send Judy access to view SEMI M86 for her reference.

6.2 Silicon Carbide Task Force

This is a liaison Task Force. All activities were reported under the Europe Liaison report.



6.3 Electrical Properties Task Force

Austin Blew reported ASTM F1.15 subcommittee is working on Gallium Nitride. The goal is to come up with reference materials similar to that of silicon base. A survey will be sent to find out who should be able to purchase these reference materials. Danh Nguyen has a summary of his work. Anyone is interested, please contact Danh or Austin.

7 Old Business

None

8 New Business

None

9 Action Item Review

9.1 Open Action Items

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

9.2 New Action Items

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

10 Adjournment

Having no further business, a motion was made to adjourn the NA Compound Semiconductor Materials Committee meeting on May 24 in conjunction with CS MANTECH 2017. Adjournment was at 8:00 PM.

Respectfully submitted by:

Kevin Nguyen
Manager, International Standards Operations

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Minutes approved by:

Russ Kremer (Freiberger Compound Materials), Cochair	May 20, 2017
Jim Oliver (Northrop Grumman), Cochair	May 20, 2017

Table 8 Index of Available Attachments #1

#	Title	#	Title
1	NA CSM Minutes 2016 CSMANTECH	3	Staff Report May 2017 v5
2	EU CSM Liaison Report May 2017 v1	4	A&R NA CS MANTECH

#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 Kevin Nguyen at the contact information above.