

EU Compound Semiconductor Materials Committee Meeting Summary and Minutes

SEMICON Europa
9 October, 2012
Dresden, Germany

Next Committee Meeting

March 2013, in conjunction with CS Europe.

Table 1 Meeting Attendees

Co-Chairs: Arnd Weber (SiCrystal)

SEMI Staff: James Amano (SEMI HQ)

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
Bridgestone	Endo	Shigeki	FHM	Alt	Hans-Christian
SiCrystal	Weber	Arnd	SEMI	Dutron	Anne-Marie
Trustsec	Petzold	Frank	SEMI	Amano	James

Table 2 Leadership Changes

<i>Group</i>	<i>Previous Leader</i>	<i>New Leader</i>
None		

Table 3 Ballot Results

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.

No ballots were reviewed at this meeting.

Table 4 Authorized Ballots

#	<i>When</i>	<i>SC/TF/WG</i>	<i>Details</i>
5370	Cycle 3-2013 or 4-2013	SiC Material and Wafer Specification TF	Specification for 150mm Silicon Carbide single-crystalline substrates
5498	Cycle 1-2013	Carbon in Gallium Arsenide TF	Revision to SEMI M82-0712: Test Method for the Carbon Acceptor Concentration in Semi-Insulating Gallium Arsenide Single Crystals by Infrared Absorption Spectroscopy
5499	Cycle 1-2013	Determination of Dislocation Etch Pit Density in Monocrystals of III-V-Compound Semiconductors TF	Revision to SEMI M83: Determination of Dislocation Etch Pit Density in Monocrystals of III-V-Compound Semiconductors

Table 5 Authorized Activities

#	<i>Type</i>	<i>SC/TF/WG</i>	<i>Details</i>
5498	SNARF	Carbon in Gallium	Revision to SEMI M82-0712: Test Method for the Carbon Acceptor Concentration in Semi-Insulating Gallium Arsenide Single Crystals by Infrared

Table 5 Authorized Activities

#	Type	SC/TF/WG	Details
		Arsenide TF	Absorption Spectroscopy
5499	SNARF	Determination of Dislocation Etch Pit Density in Monocrystals of III-V-Compound Semiconductors TF	Revision to SEMI M83: Determination of Dislocation Etch Pit Density in Monocrystals of III-V-Compound Semiconductors

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

Table 6 New Action Items

Item #	Assigned to	Details
EU CSM 20121009-01	H.C. Alt	H.C. Alt to submit line item ballot for revision to M82 to SEMI staff in early January 2013, for inclusion in Cycle 1-2013
EU CSM 20121009-02	Ulrich Kretzer	Ulrich Kretzer to submit line item ballot for revision to M83 to SEMI staff in early January 2013, for inclusion in Cycle 1-2013

Table 7 Previous Meeting Action Items

Item #	Assigned to	Details
EU CSM 20120417-01	James Amano	James Amano (SEMI staff) to prepare procedural review forms for ballots 4618, 4809, and 4810, and forward to ISC Audits & Reviews Subcommittee. CLOSED

1 Welcome, Reminders, and Introductions

Committee Chair Arnd Weber called the meeting to order at 13:30 AM. Attendees introduced themselves. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed by James Amano.

2 Review of Previous Meeting Minutes

The committee reviewed the minutes of the previous meeting.

Motion: Approve the minutes of the previous meeting as written

By / 2nd: Hans Christian Alt / Frank Petzold

Discussion: None

Vote: Motion approved unanimously.

3 Liaison Reports

3.1 NA Compound Semiconductor Materials Committee

James Amano reported. Of note:

- Gallium Nitride (GaN) TF

- Discussing how to move forward (4979 Informational Ballot was rejected) with characteristics such as diameter, planar defect, edge pit density
 - Activity focuses on bulk GaN (vs epi on sapphire)
 - Needs to solicit more inputs from both suppliers and users
- Germanium (Ge) for Photovoltaic Applications TF
 - Continuing development of 150 mm Ge wafer specification (#5221)
- Silicon Carbide (SiC) TF
 - Leader stepped down, looking for successor
- Electrical Properties TF
 - A questionnaire will be circulated to gather inputs for use in the development of a new reference material for sheet resistance and mobility measurement calibration
 - Current discussions suggest a move towards larger diameters and the use float zone silicon as the substrate material
 - ASTM F1.15 Backside Processing Task Group is still working on the micropipe activity
- Other discussions – GaAs pHEMT Round Robin
 - Evaluation of test methods employed for characterizing HEMT structure of GaN material growth on SiC or sapphire substrates.
 - GaAs pHEMT structures could be included in the testing as well
- Next meeting: April 25 for CS MANTECH 2012, Boston, Massachusetts Reapproval or revision ballots will be issued for the below published Standards in early 2012:
 - SEMI M9.3, Standard for Round 2 inch Diameter Polished Monocrystalline Gallium Arsenide Slices for Optoelectric Applications
 - SEMI M9.4, Standard for Round 3 inch Diameter Polished Monocrystalline Gallium Arsenide Slices for Optoelectric Applications
 - SEMI M9.8, Specification for Round 200 mm Polished Monocrystalline Gallium Arsenide Wafers (Notched)
- Gallium Nitride (GaN) TF
 - Discussing how to move forward (4979 Informational Ballot was rejected) with characteristics such as diameter, planar defect, edge pit density
 - Activity focuses on bulk GaN (vs epi on sapphire)
 - Needs to solicit more inputs from both suppliers and users
- Germanium (Ge) for Photovoltaic Applications TF
 - Continuing development of 150 mm Ge wafer specification (#5221)
- Silicon Carbide (SiC) TF
 - TF stepped down, looking for successor
- Electrical Properties TF
 - A questionnaire will be circulated to gather inputs for use in the development of a new reference material for sheet resistance and mobility measurement calibration
 - Current discussions suggest a move towards larger diameters and the use float zone silicon as the substrate material

- Evaluation of test methods employed for characterizing HEMT structure of GaN material growth on SiC or sapphire substrates.

4 Subcommittee & Task Force Reports

4.1 Silicon Carbide Task Force

Arnd Weber reported. The TF is continuing work on the 150mm draft (5370) via frequent telecons. A ballot should be ready by Spring 2013. The TF is also working on 5-year review of M55.

Motion: To approve ballot 5370 for issuance in Cycle 3- or 4-2013.
By / 2nd: H.C. Alt/Frank Petzold
Discussion: None
Vote: 4-0

4.2 C in GaAs Task Force

Hans Christian Alt reported. SEMI M82-0712: Test Method for the Carbon Acceptor Concentration in Semi-Insulating Gallium Arsenide Single Crystals by Infrared Absorption Spectroscopy, has been published. However, Hans Christian found an error in an equation which can be corrected via a LI ballot.

Motion: To approve the SNARF for revision to M82 and approve issuance of the ballot in Cycle 1-2013.
By / 2nd: H.C. Alt/Frank Petzold
Discussion: None
Vote: 4-0

4.3 EPD in GaAs Task Force

No report from Ulrich Kretzer. However, there was a motion to for a LI ballot to correct errors in M83: Determination of Dislocation Etch Pit Density in Monocrystals of III-V-Compound Semiconductors.

Motion: To approve the SNARF for revision to M83 and approve issuance of the ballot in Cycle 1-2013.
By / 2nd: H.C. Alt/ Frank Petzold
Discussion: None
Vote: 4-0

4.4 Contactless Capacitive Resistivity & Mobility Task Force

No update.

4.5 GaSb Wafer Specification Task Force

A revision to SEMI M75: Specifications for Polished Monocrystalline Gallium Antimonide Wafers has been published. Consider disbanding TF at next committee meeting.

5 Ballot Review

No ballots were reviewed at this meeting.

6 Action Item Review

6.1 Open Action Items

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

6.2 *New Action Items*

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

7 **Next Meeting and Adjournment**

The next meeting of the EU Compound Semiconductor Materials Committee is tentatively scheduled for March 2013 in conjunction with CS Europe. Check <http://www.semi.org/Standards/CalendarEvents> for details.

Respectfully submitted by:

James Amano

SEMI HQ

Minutes approved by:

<Name> (<Company>), Co-chair	<Date approved>
<Name> (<Company>), Co-chair	<Date approved>