Compound Semiconductor Materials Europe TC Chapter
Meeting Summary and Minutes

April 9, 2024
04:30 PM – 06:00 PM CEST
Online

TC Chapter Announcements

Next TC Chapter Meeting
August 6, 2024. Check www.semi.org/en/standards for the latest update.

Table 1 Meeting Attendees

Co-Chair: Arnd Weber (SiCrystal)
SEMI Staff: Kevin Nguyen (SEMI)

Company	*Last*	*First*
Munich University of Applied Sciences	*Alt*	*Hans-Christian*
Wolfspeed	*Barbieri*	*Tom*
SOITEC	*Cela*	*Enrica*
Scientic Visual	*Cheze*	*Caroline*
Fraunhofer IISB	*Kranert*	*Christian*
Freiberger Compound Materials GmbH	*Kretzer*	*Ulrich*
Wolfspeed	*Rao*	*Shailaja*
GlobalWafers	*Sanna*	*Cristina*
SiCrystal	*Weber*	*Arnd*

Italic indicates online participant. Bold indicates in-person attendance.

Table 2 Leadership Changes

WG/TF/SC/TC Name	*Previous Leader*	*New Leader*
None		

Table 3 Committee Structure Changes

Previous WG/TF/SC Name	*New WG/TF/SC Name or Status Change*
None	

Table 4 Ballot Results

Document #	*Document Title*	*Committee Action*
7161	Line-Item Revision of SEMI M93-0923 Test Method For Quantifying Basal Plane Dislocation Density In 4H-SiC By X-Ray Diffraction Topography/Imaging Line Item 1 - Make changes in Appendix 1	Passed as balloted

Table 5 Ratification Ballot Results

Document #	*Document Title*	*ISC A&R Action*	*A&R Forms*
None			

Note 1: **Passed** Ratification ballots will be submitted to SEMI publication for final processing.

Note 2: **Failed** Ratification ballots were returned to the originating task forces for re-work and re-balloting or abandoning.

Table 6 Authorized Activity

#	*Type*	*SC/TF/WG*	*Details*
TBD	SNARF	5 Year Review TF	Line-Item Revision of SEMI M54 - Guide for Semi-Insulating (SI) GaAs Material Parameters,
7225	SNARF	Silicon Carbide Engineered Substrate TF	New Standard: Specification for Silicon Carbide Engineered Substrate

#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*
TBD	Cycle 4, 5 of 2024	5 Year Review TF	Line-Item Revision of SEMI M54 - Guide for Semi-Insulating (SI) GaAs Material Parameters,

Table 8 New Action Items

Item #	*Assigned to*	*Details*
None		

Table 9 Previous Meeting Action Items

Item #	*Assigned to*	*Details*	*Status*
Nov16-2023-1	Kevin Nguyen (SEMI staff)	To distribute the SNARF for New Standard: Specification for Silicon Carbide Engineered Substrate, to all Compound Semiconductor Materials members for two weeks review.	Completed

1 Welcome, Reminders, and Introductions

1.1 Arnd Weber called the meeting to order at 04:30 PM. Attendees introduced themselves. Kevin Nguyen presented meeting reminders on antitrust, intellectual property issues and effective meeting guidelines.

2 Review of Previous Meeting Minutes

2.1 The TC Chapter reviewed the minutes of the previous meeting.

Motion:	To approve the meeting minutes
By / 2nd:	By: Christian Kranert / Fraunhofer IISB Second: Ulrich Kretzer / Freiberger Compound Materials GmbH
Discussion:	None
Vote:	5-0. Motion passed.

3 Task Force Reports

3.1 *SiC-Task Force*

3.1.1 Arnd Weber reported the TF has been reviewing SEMI M81, Guide to Defects Found in Monocrystalline Silicon Carbide Substrates, progress is made, more to be reported in the future.

3.2 *5-year Review Task Force*

3.2.1 Hans Christian Alt reported SEMI M54-0319 - Guide for Semi-Insulating (SI) GaAs Material Parameters, is due for 5 year review. Hans presented the proposed changes summary.

Motion: Approve the SNARF and authorize ballot for Line-Item Revision of SEMI M54 - Guide for Semi-Insulating (SI) GaAs Material Parameters
By: Hans Christian Alt / Munich University
Second: Ulrich Kretzer / Freiberger Compound Materials GmbH
Discussion:
Result: 3-Y 0-N Voting Result: Pass - 100.00%. Voting Rule: Majority

3.2.2 Ulrich Kretzer reported SEMI M83 - Test Method for Determination of Dislocation Etch Pit Density in Monocrystals of III-V Compound Semiconductors, is also being reviewed for 5 year. However, neither the SNARF nor the draft is expected to be ready until the next meeting.

3.3 *Test Methods Task Force*

3.3.1 Christian Kranert reported line-item revision of SEMI M93 - Test Method for Quantifying Basal Plane Dislocation Density in 4H-SiC by X-Ray Diffraction Topography/Imaging, will be reviewed. No other business is due at the moment.

3.4 *SIC Epi-Defects Task Force*

3.4.1 Christian Kranert reported the progress for doc. 7160, New Standard: Guide for Defects found in Homoepitaxial Layers of Silicon Carbide. The Task Force, over 20 people, have met twice. The third meeting will be held on the next day. Christian reported the draft may be ready for balloting by next year.

3.5 *Silicon Carbide Engineered Substrate Task Force*

3.5.1 Enrica Cela reported the SNARF for New Standard: Specification for Silicon Carbide Engineered Substrate.

Motion: Approve the SNARF New Standard: Specification for Silicon Carbide Engineered Substrate
By: Christian Kranert / Fraunhofer IISB
Second: Tom Barbieri / Wolfspeed, Inc.
Discussion:
Result: 6-Y 0-N Voting Result: Pass - 100.00%. Voting Rule: Majority

Attachment: SNARF_SiC engineered substrate specification v2

3.5.2 Enrica said the concept of this draft is based of SEMI M55 - Specification for Polished Monocrystalline Silicon Carbide Wafers. The draft is nearing completion, but she needs to discuss among the task force members before issuing for letter ballot.

4 Ballot Review

4.1 Doc. 7161, Line-Item Revision of SEMI M93-0923 Test Method For Quantifying Basal Plane Dislocation Density In 4H-SiC By X-Ray Diffraction Topography/Imaging.

4.1.1 Passed as balloted. Refer to attachment for details.

Attachment: 7161 A&R

5 Liaison Reports

5.1 *China CSM TC Chapter*

5.1.1 Kevin Nguyen reported. Of note:

- Last meeting
    - Jan 25, 2024
    - Wuxi, Jiangsu
- Next meeting
    - April 26, 2024
    - Virtual
- Authorized ballot for cycle 2-2024
    - Doc. 6769, New Standard: Test Method Qualitative for Residual Stress of Silicon Carbide Wafers by Photoelastic
- Cancelled SNARF
    - Doc, 6768, New Standard: Test Method for Micropipe Density of Silicon Carbide Wafer by Laser Reflection

Attachment: CSM China TC Chapter Apr 2023

5.2 *Japan CSM TC Chapter*

5.2.1 Kevin Nguyen reported. Of note:

- Last meeting

- Jan. 19, 2022 at Japan Winter 2022 Meetings
- Web Conference

- Next meeting
  - TBD
- New TFOF
  - Silicon Carbide Substrate liaison TF

Attachment: Japan CSM Liaison Report Feb2022 v1

5.3 *North America CSM TC Chapter*

5.3.1 Kevin Nguyen reported. Of note:

- Last Meeting: November 22, 2022 via online
- Next Meeting: TBD
- Ballot Review
  - Doc. 6952, Reapproval of SEMI M10-0218 *Terminology for Identification of Structures and Features Seen on Gallium Arsenide Wafers* – Passed as balloted
  - Doc. 6953, Line Item Revision of SEMI M79-0218 *Specification for Round 100 mm Polished Monocrystalline Germanium Wafers for Solar Cell Applications* – Passed as balloted
  - Doc. 6954, Line Item Revision of SEMI M23-0811 (Reapproved 0218) *Specification for Polished Monocrystalline Indium Phosphide Wafers* – Passed as balloted
- M86 (GaN) Revision TF
  - Doc. 6806, Revision of M86, *Specification for Polished Monocrystalline c-Plane Gallium Nitride Wafers* (Subject: To revise 1-4 inches diameter) – Passed in June 2022 and published as M86-0922

Attachment: NA CSM TC Chapter Liaison report Nov 2022 v1

6 New Business

6.1 None

7 Next Meeting and Adjournment

7.1 The next virtual meeting is scheduled for August 6, 2024 at 4:30 PM - 6:30 PM CEST. Refer to http://www.semi.org/standards for the list of meeting schedules.

Having no further business, adjournment was at 6:00 PM CEST.

Respectfully submitted by:

Kevin Nguyen,
SEMI Standards Operations Manager
Phone: 408-943-7997
Email: knguyen@semi.org

Minutes tentatively approved by:

Arnd Weber (SiCrystal)	

Table 10 Index of Available Attachments#1

Title
SNARF_SiC engineered substrate specification v2
7161 A&R
CSM China TC Chapter Jan 2024
Japan CSM Liaison Report Feb2022 v1
NA CSM TC Chapter Liaison report Nov 2022 v1

#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.