Compound Semiconductor Materials Europe TC Chapter

Meeting Summary and Minutes

SEMICON Europa 2022

November 16, 2022, 11:30 AM to 1:00 PM

International Congress Center Messe Munchen in Munich, Germany

TC Chapter Announcements

Next TC Chapter Meeting

Spring 2023 (end of March or early April) via virtual meeting. Meeting date to be announced once finalized.

Table 1 Meeting Attendees

Italics indicate virtual participants

Co-Chairs: Arnd Weber (SiCrystal)
SEMI Staff: Paul Trio

Company	*Last*	*First*	*Company*	*Last*	*First*
ASML	Planting	Bert	Northrop Grumman	Oliver	Jim
Bruker Semi X-ray	van der Meer	Juliette	Scientific Visual	Cheze	Caroline
Fraunhofer IISB	Kranert	Christian	Siltronic AG	Passek	Fritz
GlobalWafers	Sanna	Cristina	*SK Siltron*	*Soukhojak*	*Andrey*
KLA	Haller	Kurt	Wolfspeed	Barbieri	Tom
Munich University	Alt	Hans Christian			

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*
None		

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

#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 between meetings of the TC Chapter

#	*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*
None			

#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*
None			

Table 9 SNARF(s) Abolished

#	*TF*	*Title*
None		

Table 10 Standard(s) to receive Inactive Status

Standard Designation	*Title*
SEMI M46	Test Method for Measuring Carrier Concentrations in Epitaxial Layer Structures by ECV Profiling
SEMI M75	Specification for Polished Monocrystalline Gallium Antimonide Wafers

Table 11 New Action Items

Item #	*Assigned to*	*Details*
None		

Table 12 Previous Meeting Action Items

Item #	*Assigned to*	*Details*
None		

1 Welcome, Reminders, and Introductions

Arnd Weber called the meeting to order at 12:06 PM. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves.

Attachment: 01, SEMI Standards Required Meeting Elements

2 Review of Previous Meeting Minutes

The TC Chapter reviewed the minutes of the previous meeting.

Motion:	Approve the minutes as written.
By / 2nd:	Maria Cristina Sanna / Tom Barbieri
Discussion:	None
Vote:	7-0

Attachment: 02, Compound Semiconductor Materials Europe TC Chapter November 17, 2021 Meeting Minutes

3 Subcommittee and Task Force Reports

3.1 *SiC Task Force*

Arnd Weber reported that given the related activities in CSM China Chapter, it is a good opportunity to network with that group. Tom Barbieri also encouraged committee members to review ballots from the China TC chapter to help ensure global alignment.

Arnd also reported that the Task Force is looking into SEMI M81 (*Guide to Defects Found in Monocrystalline Silicon Carbide Substrates*) to see what needs to be updated. The TF will plan to start an activity in 2023.

3.2 *Test Methods Task Force*

Christian Kranert reported that the TF has been working on the draft *Test Method for Quantifying Basal Plane Dislocations in 4H-SiC by X-ray Topography* (SNARF #6870) which received inputs. The TF will plan to request for authorization to ballot at the next meeting. Finally, Christian reported that SEMI M91 has been published – *Test Method for Determination of Threading Screw Dislocation Density in 4H-SIC by X-Ray Topography*.

3.3 *5-Year Review Task Force*

Hans Christian Alt reported that the TF has been looking at standards due for 5-year review. He reported that there were no inputs from experts regarding M46 (*Test Method for Measuring Carrier Concentrations in Epitaxial Layer Structures by ECV Profiling*) and M75 (*Specification for Polished Monocrystalline Gallium Antimonide Wafers*). Therefore, he recommend that M46 and M75 be put into Inactive status.

As for M63 (*Test Method for Measuring the Al Fraction in AlGaAs on GaAs Substrates by High Resolution X-Ray Diffraction*), he reported that while there are no planned technical changes, clarifications will be made, including terminology. The TF will plan to work on updates to M63 at the next meeting.

Motion:	Move SEMI M46 and M75 to Inactive Status
By / 2nd:	Tom Barbieri / Hans Christian Alt
Discussion:	None
Vote:	7-0

4 Liaison Reports

4.1 *CSM North America TC Chapter*

Paul Trio reported for the CSM North America TC Chapter. Of note:

- Last Meeting: November 22, 2022 via online

- Next Meeting: May 17, 2023 at CS MANTECH *[tentative]*
- 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

Additional Discussion:

- Jim Oliver reported that the next meeting report for CS MANTECH is tentative. The NA TC Chapter may meet sometime during the fall instead.

Attachment: 03, CSM North America Liaison Report

4.2 *CSM Japan TC Chapter*

Paul Trio reported for the CSM Japan TC Chapter. Of note:

- Last meeting: Jan. 19, 2022 at Japan Winter 2022 Meetings | via OVTCCM
- Next meeting: 2023 Spring, Exact date and time will be determined | via OVTCCM
- New Task Force: SiC Epitaxial Wafer liaison TF
    - *Charter:* Discussions will be held in Japan to support and complement Silicon Carbide Epitaxial Wafer revision and new standards development activities in other regions.
    - *Scope:* To cover the scope of the SiC Epitaxial Wafer Task Force for its on existing SEMI Silicon Carbide Standards and new Standards as such become necessary
- Ballot Review meetings
    - 2022 Cycle 1: 4 China ballots were reviewed on February 9, 2022

Attachment: 04, CSM Japan Liaison Report

4.3 *CSM China TC Chapter*

Paul Trio reported for the CSM China TC Chapter. Of note:

- Last meeting: Apr 27th, Spring 2022 Meeting | via OVTCCM, China
- Next meeting: TBD
- Leadership changes for the SiC Substrate Task Force
    - *Previous Leaders:* Min LU (MigeLab); Hongjun ZHENG (Institute of Semiconductors, CAS); Fangliang YAN (MigeLab)
    - *New Leaders:* Min LU (Perfect Crystal), Hongjun ZHENG (SPTAIKE), Fangliang YAN (MigeLab)
- Ballot Results

  - (6693) New Standard: *Specification for 4H-SiC Homoepitaxial Wafer* – Passed with Technical Changes. Ratification ballot to be issued.
  - (6767) New Standard: *Test Method for Flatness of Silicon Carbide Wafers by Optical Interference* – Failed
  - (6768) New Standard: *Test Method for Micropipe Density of Silicon Carbide Wafer by Laser Reflection* – Failed
  - (6769) New Standard: *Test Method for Residual Stress of Silicon Carbide Wafers* by Photoelastic – Failed
- SEMI Staff Contact
  - Cassie Li / SEMI China / Cassie.li@semichina.org
  - Isadora Jin / SEMI China / ijin@semi.org

Attachment: 05, CSM China Liaison Report

4.4 *SEMI Staff Report*

Paul Trio gave the SEMI Staff Report. Of note:

- Upcoming Events
  - SEMICON Japan (December 14-16, 2022) in Tokyo
  - SEMICON Korea (February 1-3, 2023) in Seoul
  - SEMICON China (now June 29-July 1, 2023) in Shanghai
- North America Standards Fall 2022 Meetings took place on November 7-10 at SEMI HQ in Milpitas, California
- North America Standards Spring 2023 Meetings scheduled for April 3-6 at SEMI HQ
- Critical Dates for SEMI Standards Ballots

2022	*Ballot Submission Deadline*	*Voting Opens*	*Voting Closes*
Cycle 8	October 4	October 18	November 17
Cycle 9	November 15	November 29	December 29
2023			
Cycle 1	January 4	January 18	February 17
Cycle 2	February 1	February 15	March 17
Cycle 3	March 8	March 22	April 21
Cycle 4	April 19	May 3	June 2

- SEMI Standards Publications
  - Total Standards in Portfolio: 1,069 (includes 320 Inactive standards)

Cycle	*New*	*Revised*	*Reapproved*	*Withdrawn*
July 2022	0	3	0	0

August 2022	0	5	0	2
September 2022	2	3	6	1
October 2022	3	8	0	0

- New Standards

Cycle	*Designation*	*Title*	*Committee*	*Region*
September 2022	SEMI F120	Test Method for the Electrochemical Critical Pitting Voltage Testing of Stainless Steel Used in Corrosive Gas Systems	Gases	NA
September 2022	SEMI E120.2	Specification for Protocol Buffers for Common Equipment Model (CEM)	Information & Control	NA
October 2022	SEMI E125.2	Specification for Protocol Buffers for Equipment Self Description (EqSD)	Information & Control	NA
October 2022	SEMI E134.2	Specification for Protocol Buffers of Data Collection Management	Information & Control	NA
October 2022	SEMI E142.4	Specification for SECS II Protocol for Substrate Mapping Using Item Transfer	Information & Control	NA

- New SEMI Corporate PPT Template
    - New SEMI corporate PPT template now available. TFs are encouraged to begin transitioning to the new template. Please reach out to SEMI staff if needing assistance

Attachment: 06, SEMI Staff Report

5 Ballot Review

None

6 Old Business

None

7 New Business

7.1 *Standards due for 5-Year Review*

SEMI M81 (*Guide to Defects Found in Monocrystalline Silicon Carbide Substrates*) is due for 5-year review. 5-Year Review TF will plan to have an update on this at the next meeting. Meanwhile, the committee will plan for Cycle 4-2023 for its next set of ballots. This will be confirmed at the next TC chapter meeting.

8 Next Meeting and Adjournment

The next meeting is planned for Spring 2023 (end of March or early April) via virtual meeting. Meeting date to be announced once finalized.

Adjournment: 1:00 PM.

Respectfully submitted by:

Paul Trio

Director, Standards

SEMI

Phone: +1.408.943.7041

Email: ptrio@semi.org

Minutes tentatively approved by:

Arnd Weber (SiCrystal), Co-chair	<Date approved>

Table 13 Index of Available Attachments[#1]

Attachment #	*Title*
01	SEMI Standards Required Meeting Elements
02	Compound Semiconductor Materials Europe TC Chapter November 17, 2021 Meeting Minutes
03	CSM North America Liaison Report
04	CSM Japan Liaison Report
05	CSM China Liaison Report
06	SEMI Staff Report

#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.