



# Compound Semiconductor Materials EU TC Chapter

## Meeting Summary and Minutes

April 27, 2017

Nuremburg, Germany

### Table 1 Meeting Attendees

**Co-Chairs:** Arnd Weber (SiCrystal)

**SEMI Staff:** James Amano

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
Munich University	Alt	Hans-Christian			
SemiMap	Jantz	Wolfgang			
SiCrystal	Weber	Arnd			

### 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.

**Failed** ballots and line items were returned to the originating task forces for re-work and re-balloting.

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
4689	Revision of SEMI M55 0315, Specification for Polished Monocrystalline Silicon Carbide Wafers	<b>Passed as balloted</b>

### Table 4 Authorized Activities

None

NOTE 1: 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

<i>#</i>	<i>When</i>	<i>SC/TF/WG</i>	<i>Details</i>
6015	Cycle 5, 6, or 7-2017	SiC Material and Wafer Specification TF	Line Item Revision SEMI M81-0611 - Guide to Defects Found in Monocrystalline Silicon Carbide Substrates

**Table 6 New Action Items**

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
A	James Amano	Staff to issue ballot 6015 (Line Item Revision SEMI M81-0611 - Guide to Defects Found in Monocrystalline Silicon Carbide Substrates) for adjudication at SEMICON Europa 2017 <b>CLOSED</b>
B	James Amano	James Amano to forward A&R form for 4689 to Audit & Reviews Subcommittee for procedural review <b>CLOSED</b>
C	James Amano	James Amano to check for examples of round robin Auxiliary Standards where multiple labs ran test equipment only made by a single supplier. <b>YES – AUX019-0211</b> Research Report on Interlaboratory Study to Establish Precision Statements for SEMI PV1, Test Method for Measuring Trace Elements in Silicon Feedstock for Silicon Solar Cells by High-Mass Resolution Glow Discharge Mass Spectrometry

**Table 7 Previous Meeting Action Items**

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
1	Arnd Weber	Fix and announce next meeting date and location (Nuremberg) <b>CLOSED</b>

## 1 Welcome, Reminders, and Introductions

Arnd Weber called the meeting to order at 2PM. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed. Attendees introduced themselves.

**Attachment:** SEMI Standards Required Elements\_June2016.ppt

## 2 Review of Previous Meeting Minutes

The TC Chapter reviewed the minutes of the previous meeting.

**Motion:** To approve the minutes as written.

**By / 2<sup>nd</sup>:** Hans-Christian Alt/Wolfgang Jantz

**Discussion:** None

**Vote:** 3-0

## 3 Liaison Reports

### 3.1 NA TC Chapter

James Amano (SEMI) reported for the NA TC Chapter. Of note:

- Next meeting
  - May 24 for CS MANTECH 2017 at Hyatt Regency Indian Wells, Palm Springs, California. More info at [www.csmantech.org/](http://www.csmantech.org/)
- Recent Ballot Review
  - 5882: Line Item Revision to SEMI M10-1296 With Title Change To: Terminology for Identification of Structures and Features Seen on Gallium Arsenide Wafers **PASSED**
  - 5883: Line Item Revision to SEMI M42-0211 Specification for Compound Semiconductor Epitaxial Wafer **PASSED**
  - 5884: Line Item Revision to SEMI M65-0306 With Title Change To: Specification for Sapphire Substrates to use for Compound Semiconductor Epitaxial Wafers **PASSED**



- 5885: Line Item Revision to SEMI M75-0812 With Title Change To: Specification for Polished Monocrystalline Gallium Antimonide Wafers **PASSED**
- 5886: Line Item Revision to SEMI M9-0914 With Title Change To: Specification for Polished Monocrystalline Gallium Arsenide Wafers **PASSED**
- Upcoming Ballots for Adjudication at Next Meeting
  - Line Item Revision to SEMI M10 Terminology for Identification of Structures and Features Seen on Gallium Arsenide Wafers (To follow up with a ballot comment)
  - Reapproval of SEMI M23-0811 Specification for Polished Monocrystalline Indium Phosphide Wafers
  - Reapproval of SEMI M79-0211 Specification for Round 100 mm Polished Monocrystalline Germanium Wafers for Solar Cell Applications
- Task Force Updates
  - GaN TF
    - Document 4979A (New Standard: Specification for Polished Monocrystalline C-Plane Gallium Nitride Wafers) published as SEMI M86-0915.
    - Potential new activity for larger diameter in the future
  - Electrical Properties TF
    - Ongoing: GaN HEMT Mobility Round Robin (Evaluation of Test Methods Employed for Characterizing HEMT Structure of GaN Material Grown on SiC, Si or Sapphire Substrates) under ASTM F1.15 Subcommittee on Compound Semiconductors

Attachment: CSM NA TC Liaison report 09062016.ppt

#### 4 Ballot Review

**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.

NOTE 2: 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.

4.1 Document # 4689, Revision of SEMI M55 0315, Specification for Polished Monocrystalline Silicon Carbide Wafers **PASSED**

**Action Item:** James Amano to forward A&R form for 4689 to Audit & Reviews Subcommittee for procedural review

**Attachment:** 4689 Procedural Review v1.doc

#### 5 Subcommittee and Task Force Reports

5.1 M54 Task Force

No report

5.2 SiC Task Force

Arnd Weber reported

- M55 – ballot 4689 review today
- M81 – ready for ballot, to be adjudicated at next EU TC Chapter meeting



Motion: To authorize ballot 6015 (Line Item Revision SEMI M81-0611 - Guide to Defects Found in Monocrystalline Silicon Carbide Substrates) for issuance

By/2<sup>nd</sup>: Alt/Jantz

Discussion: None

Vote: 3-0

#### 5.3 Contactless Capacitive Resistivity Measurement of SI-Semiconductors TF

- Major work has been completed SEMI M87: Test Method For Contactless Resistivity Measurement Of Semi-insulating Semiconductors
- Currently planning round robin. **Action Item:** Only a single supplier – are there any examples of SEMI round robins where multiple labs test on a single supplier's equipment? James Amano to follow up.

### 6 Next Meeting and Adjournment

In conjunction with SEMICON Europa 2017, November 14 - 17 in Munich, Germany. Details, when available, will be posted to <http://www.semi.org/en/standards-events>

Respectfully submitted by:

James Amano

SEMI HQ