



PV Committee China TC Chapter
PV Materials Committee China TC Chapter
Joint Meeting Summary and Minutes

China Spring Standards Meeting 2021

April 23rd, 2021, 09:00-16:00

Aikosolar, Global Photovoltaic Joint Innovation Center, Yiwu, Zhejiang, China.

TC Chapter Announcements

Next TC Chapter Meeting

China Fall Standards Meeting 2021

TBD, 2021, 09:00-17:00

Yiwu, China

Table 1 Meeting Attendees

Italics indicate virtual participants

Co-Chairs: Guangchun Zhang (CSI)

SEMI Staff: Daniel Qi – SEMI China, Isadora Jin – SEMI China, Ein Wu (SEMI China)

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
Canadian Solar	Zhang	Guangchun	Canadian Solar	Xu	Tao
Runergy	Chen	Rulong	Canadian Solar	Guo	Suqin
Red Solar	Long	Hui	JA Solar	Xu	Desheng
NAURA	Li	Buzhong	NAURA	Tian	Tao
SINOSICO	Chu	Dongxu	NAURA	Li	Dianpu
SINOSICO	Yan	Dazhou	Hohai University	Zhang	Zhen
Linton	Li	Zhixin	Linton	Liu	Erfei
GCL	Zhou	Jie	GCL	Hu	Dongli
GCL	Liu	Tao	h.a.l.m	Zhou	Wei
LONGi	Fu	Nannan	LONGi	Zhou	Rui
LONGi	Ren	Gaigai	LONGi	Liu	Songmin
LONGi	Tang	Yilin	LONGi	Tian	Lei
Shenzhen S.C	Li	Shijun	Shenzhen S.C	Tan	Haoyun
Leadmicro	Li	Weiming	Sunland	Zhu	Jingbing
Jingrui	Fu	Hua	JINAN University	Wu	Shaohang
Sunchine	Wang	Tong	Gain Solar	Zhao	Weiwei
SEMILAB	Fu	Shaoyong	TÜV Rheinland	Sun	Yimeng



<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
TaleSun	Lian	Weifei	JYT	Guo	Dawei
Rutech	Xu	Fan	CPVT	Wang	Meijuan
Henkel	Zhang	Jiayun	CPVT	Wu	Xiaoli
Jicui	Wang	Taoxia	Saiwei Solar	Li	Jianmin
SUNTECH	Chen	Liping	SUNTECH	Yan	Tingting
TÜV SUD	Wu	Yaozhong	Sunflare	Wang	Lei
Staubli	Yu	Ying	Yongxiang	Wang	Yaping
Jolywood	Jiao	Mingjian	Jolywood	Chen	Jia
Jolywood	Zhang	Man	Jolywood	Zhu	Haibin
CHINT	Wang	Shipeng	CHINT	Lin	Sainv
CHINT	Zhang	Haitao	CHINT	Li	Jiawei
CHINT	Gan	Haiping	CHINT	Xue	Xinying
CHINT	Luo	Yi	CHINT	He	Sheng
Trina Solar	Jin	Yunhong	Trina Solar	Li	Ting
Zhonghuan	Zhang	Xuenan	Safest	Lu	Wenfeng
Cimetrix	Liu	Bo	Cimetrix	Liu	Licong
Xinte Energy	Qiu	Yanmei	DASOLAR	Huang	Weihong
Yingli	Wang	Xiuxiang	Yingli	Li	Yingye
Wynn Tech	Wei	Qingzhu	DK TECH	Yi	Dawen
Fusion CZ	Bao	Jian	UtMost Light	Yu	Zhenrui
SF DHL	Zhang	Chun		Lv	Jinbiao

Table 2 Leadership Changes

<i>WG/TF/SC/TC Name</i>	<i>Previous Leader</i>	<i>New Leader</i>
<i>Photovoltaic</i>		
None		
<i>Photovoltaic Materials</i>		
None		

Table 3 Committee Structure Changes

<i>Previous WG/TF/SC Name</i>	<i>New WG/TF/SC Name or Status Change</i>
<i>Photovoltaic</i>	
None	
<i>Photovoltaic Materials</i>	
None	



Table 4 Ballot Results

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
<i>Photovoltaic</i>		
None		
<i>Photovoltaic Materials</i>		
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

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

Table 6 Authorized Activities

Listing of all revised or new SNARF(s) approved by the Originating TC Chapter.

<i>#</i>	<i>Type</i>	<i>SC/TF/WG</i>	<i>Details</i>
<i>Photovoltaic</i>			
	SNARF	Thin Film PV Module Task Force	Reapproval of SEMI PV78-0817, Test Method for Bending Property of Flexible Thin Film Photovoltaic (PV) Modules
<i>Photovoltaic Materials</i>			
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

<i>#</i>	<i>When</i>	<i>TF</i>	<i>Details</i>
<i>Photovoltaic</i>			
None			
<i>Photovoltaic Materials</i>			
None			

Table 8 SNARF(s) Granted a One-Year Extension

<i>#</i>	<i>TF</i>	<i>Title</i>	<i>Expiration Date</i>
<i>Photovoltaic</i>			
6401	Thin Film PV Module TF	New Standard: Test Method for Indentation Force of Flexible Thin Film PV Modules	2022/5/26
6402	Thin Film PV Module TF	New Standard: Test Method for Vibration of Flexible Thin Film PV Module	2022/5/26
5983	PV Equipment TF	New Standard: Test Method for In-line Sheet Resistance Inspection	2022/3/15



Table 8 SNARF(s) Granted a One-Year Extension

#	TF	Title	Expiration Date
<i>Photovoltaic Materials</i>			
None			

Table 9 SNARF(s) Abolished

#	TF	Title
<i>Photovoltaic</i>		
None		
<i>Photovoltaic Materials</i>		
None		

Table 10 Standard(s) to receive Inactive Status

Standard Designation	Title
<i>Photovoltaic</i>	
None	
<i>Photovoltaic Materials</i>	
None	

Table 11 Table 10 Standard(s) to receive Withdrawal Status

Standard Designation	Title
<i>PV</i>	
None	
<i>PV Materials</i>	
PV73-0216	Test Method for Thin-Film Silicon Photovoltaic (PV) Modules Light Soaking

Table 12 New Action Items

Item #	Assigned to	Details
None		

Table 13 Previous Meeting Action Items

Item #	Assigned to	Details
None		

1 Welcome, Reminders, and Introductions

Committee co-chair Guangchun Zhang chaired the meeting and welcomed all attendees. All the attendees introduced themselves. SEMI Staff called the meeting to order at 09:00AM. The meeting reminders on antitrust issues, intellectual property issues and holding meetings with international attendance were reviewed.

Agenda was reviewed.

Attachment: 1 Chinese SEMI Standard Meeting Reminders

2 Review of Previous Meeting Minutes

The TC Chapter reviewed the minutes of the previous meeting.

Motion: To approve the minutes of the previous meeting as written

By / 2nd: Rulong Chen (Runergy)/ Zhixin Li (Linton)

Discussion: None

Vote: 41Y - 0 N (2 Abstain). Total 43 companies. Motion Passed.

Attachment: 2 China PV&PVM TC Joint Fall Meeting Minutes 20201113

3 Liaison Reports

3.1 PV Materials North America TC Chapter

Isadora Jin (SEMI) reported for the PV Materials North America TC Chapter. Of note:

Action Item: Next meeting –TBD

- The Co-chair of North America PV Materials TC is Hugh Gotts (Air Liquide).
- Ballot Results
 - None
- Ballot Review
 - Doc. 6642, Reapproval of SEMI PV13 - Test Method for Contactless Excess-Charge-Carrier Recombination Lifetime Measurement in Silicon Wafers, Ingots, and Bricks Using an Eddy-Current Sensor
 - Ballot was supposed to be reviewed in July 2020 meeting, but COVID-19 forces to postpone.
 - Ballot review transferred to China TC Chapter. Passed as balloted.
 - Many thanks to China TC Chapter for adjudicating this ballot

Attachment: 6 PV Materials NA TC Chapter Liaison report April 2021

3.2 PV Materials Europe TC Chapter

Isadora Jin (SEMI) reported for the PV Materials Europe TC Chapter. Of note:

Action Item: Next meeting – TBD

- The Co-chairs of Europe PV Materials TC are C.Hagendorf (Fraunhofer Center for Solar Photovoltaics) and P.Wagner (Self).
- Task Forces
 - PV Ribbon TF (inactive)
 - Leader: U. Prischmann, Ulbrich
 - PV Silicon Materials TF
 - Leader: P. Wagner
 - PV Materials Degradation TF
 - Leaders: C. Hagendorf, FhG-CSP, M. Köntopp, Hanwha-Q-Cells
- Ballot Results: All passed.

- Doc. 6373, New Standard: Test Method For Accelerated Cell Level Testing For Light And Elevated Temperature Induced Degradation (LeTID) Susceptibility Of Solar Cells
- Doc. 6543, Reapproval of SEMI PV42-0314: Test Method for In-Line Measurement of Waviness of PV Silicon Wafers by a Light Sectioning Technique Using Multiple Line Segments
- Doc. 6544, Reapproval of SEMI PV51-0214: Test Method for In-Line Characterization of Photovoltaic Silicon Wafers by Using Photoluminescence
- Doc. 6545, Reapproval of SEMI PV52-0214: Test Method for In-Line Characterization of Photovoltaic Silicon Wafers Regarding Grain Size

Attachment: 7 EU PV Materials Liaison Report April 2021 v1

3.3 PV and PV Materials Japan Joint TC Chapter

- None

3.4 Photovoltaic Taiwan TC Chapter

Isadora Jin (SEMI) reported for the PV Taiwan TC Chapter. Of note:

Action Item: Next meeting –78th Building, No. 195, Section 4, Zhongxing Road, Zhudong Township., Hsinchu, Taiwan, May 6, 2021

- The Co-chairs of Europe PV Materials TC are C.Hagendorf (Fraunhofer Center for Solar Photovoltaics) and P.Wagner (Self).
- Leadership Changes
 - None
- Ballot Results
 - None
- Authorized Activities
 - None
- Authorized Ballots
 - 6705 Reapproval of SEMI PV72-0316-EN Test Method of to Evaluate an Accelerated Thermo Humidity Resistance of PV Encapsulation
 - 6731 Revision of SEMI PV69 - Test Method for Spectrum Response (SR) Measurement of Organic Photovoltaic (OPV) and Dye-Sensitized Solar Cell (DSSC)and Perovskite Solar Cell(PSC)
 - 6730 Revision of SEMI PV57 - Test Method for Current-Voltage (I-V) Performance Measurement of Organic Photovoltaic (OPV) and Dye-Sensitized Solar Cell (DSSC) and Perovskite Solar Cell(PSC)
 - 6732 Revision of SEMI PV76 - Test Method for Durability of Low Light Intensity Organic Photovoltaic (OPV) and Dye-Sensitized Solar Cell (DSSC) and Perovskite Solar Cell(PSC)
 - 6733 Revision of SEMI PV80 - Specification of Indoor Lighting Simulator Requirements for Emerging Photovoltaic and Perovskite Solar Cell(PSC)
 - 6734 Revision of SEMI PV89 - Test Method of Current-Voltage (I-V) Measurement in Indoor Lighting for Dye-Sensitized Solar Cell and Organic Photovoltaic and Perovskite Solar Cell(PSC)
- Abolished SNARF(s)
 - None
- Task Force Highlights



- OPV, DSSC&PSC TF
 - To add [and Perovskite Solar Cell(PSC)] into headline of PV69, PV57, PV76, PV80, PV89 standards title, and process to 2021 cycle4
- PV Reliability Test TF
 - Reapproval of SEMI PV72-0316-EN Test Method of to Evaluate an Accelerated Thermo Humidity Resistance of PV Encapsulation for one year extension.
- Five-Year Review
 - None

Attachment: 5 PV Taiwan Liasion Report_20210225

3.5 SEMI Staff Report

Isadora Jin (SEMI) gave the SEMI Staff Report. Of note:

Action Item:

- Standards Technical Committees
- 2021 Critical Dates for SEMI Standards Ballots
- SEMI Standards Publications
- 5 Year Review List
- A&R SC Membership
- Organization chart for China PV Committee
- Organization chart for China PVM Committee
- China PV&PV Materials TC Update

Attachment: 4 SEMI Staff Report 20210423

3.6 Other SDO (Standards Development Organization) Update

- None

4 Ballot Review

- None

5 Subcommittee and Task Force Reports

5.1 Information & Control Task Force

Clare Liu (Cimatrix) reported for the Smart Manufacturing Task Force. This report contained information on :

Action Item:

- Introduced the task force's leaders and members.
- Working on
 - SEMI Standards Information & Control China Technical Committee Petition to NARSC

Attachment: 8 China Smart Manufacturing TF Report 2021-04-22(1)

5.2 PV Silicon Raw Materials Task Force

Wenfeng Lu (Safest) reported for the PV Silicon Raw Materials Task Force. This report contained information on:

Action Item:

- Introduced the task force's leaders and members.
- Introduced published standards.
- Working on
 - Doc 6458A, New standard: Specification for Silicon Powder used in Polysilicon Production

Attachment: 9 SEMI PV Task Force Report-PV Silicon Raw Material20210423-rev

5.3 PV Silicon Wafer Task Force

Rui Zhou (LONGi) reported for the PV Silicon Wafer Task Force. This report contained information on:

Action Item:

- Introduced the task force's leaders and members.
- Documents in work:
 - Doc. 6609 - Specification for Silicon Wafers for Use in Photovoltaic Solar Cells

Attachment: 10 PV Silicon Wafer TF Report Apr. 23th, 2021V5

5.4 Crystalline Silicon Solar Cell Task Force

Xiuxiang Wang (YINGLI) reported for the Crystalline Silicon Solar Cell Task Force. This report contained information on:

Action Item:

- Introduced the task force's leaders and members
- Introduced published standards.
- Working on
 - Doc 6670, Reapproval of SEMI PV58-0115, Specification for Aluminum Paste, Used in Back Surface Field of Crystalline Silicon Solar Cells
- Work Plan for the Next Step
 - SNARF for low-temperature slurry and are preparing relevant materials.

Attachment: 11 Crystalline Silicon Solar Cell Report--电池工作组汇报 PPT--0423

5.5 PV Module Task Force

Zhen Zhang (Hohai) reported for the PV Module Task Force. This report contained information on:

Action Item:

- Introduced the task force's leaders and members
- Introduced published standards
- Working on

- Doc 6113, Test Method for Abrasion Resistance of the Polymer Backsheet of Crystalline Silicon Solar Modules
- Doc 6610, Specification for Crystalline Silicon Photovoltaic Module Dimensions (Revision to PV86-1018)
- SEMI PV63-0215, Specification for Ultra-thin glasses used for photovoltaic modules
- **Attachment:** 12 SEMI PV Module TF Report 2021-04-20

5.6 Building Integrated Photovoltaic (BIPV) Task Force

Xiuxiang Wang (YINGLI) reported for the Building Integrated Photovoltaic (BIPV) Task Force. This report contained information on:

Action Item:

- Introduced the task force's leaders and members
- Introduced published standards
- Working on
 - Doc. 6542, Guide for Scrap Judgement of Photovoltaic modules in building
 - Doc. 6700, Test Methods of Wind Uplift Resistance for Roof-Top Building Integrated Photovoltaics (BIPV)
- Work Plan for the Next Step
 - Submit Doc. 6700 to TC for ballot Cycle in autumn meeting 2021

Attachment: 13 Building Integrated Photovoltaic (BIPV) Task Force--BIPV 工作组汇报 PPT--0423(1)

5.7 PV Equipment Task Force

Hui Long (RedSolar) reported for the PV Equipment Task Force. This report contained information on:

Action Item:

- Introduced the task force's leaders and members
- Introduced published standards
- Working on
 - Doc. 5983D, Test Method for In-line Sheet Resistance Inspection Using the Junction Photo-Voltage Method
- Work Plan for the Next Step
 - In the TF, it is further decided whether the draft standard 5983D will continue to be implemented
 - Plans to submit new SNARF about PV equipment.

Attachment: 14 semi 光伏设备工作组汇报 ppt(2021 春季会议)v2-20210423(不涉密)

5.8 Thin Film PV Modules Task Force

Shaohang Wu ((Jinan University) reported for the Thin Film PV Modules Task Force. This report contained information on:

Action Item:



- Introduced the task force's leaders and members
- Working on
 - Reactivated Document Number: 6401 SNARF for: New Standard: Test Method for Indentation Force of Flexible Thin Film PV Modules
 - Reactivated Document Number: 6402 SNARF for: New Standard: Test Method for Vibration Durability of Flexible Thin Film PV Module
 - Reapproval SEMI PV78-0817: Test Method for Bending Property of Flexible Thin Film Photovoltaic (PV) Modules

Attachment: 15 Thin Film PV Modules TF Report April 23rd, 2021

6 Old Business

6.1 *Refer to Table 12 Previous Meeting Action Items*

7 New Business

7.1 *Requests for ballots in Cycle of 2021*

None

7.2 *New SNARFs*

- None

7.3 *Five-Year-Review*

7.3.1 5-Year-Review SNARF, SEMI PV78-0817, New Standard: Test Method for Bending Property of Flexible Thin Film Photovoltaic (PV) Modules

Motion: Shaohang Wu ((Jinan University) moved that the committee approve the SNARF for 5-Year-Review: SEMI PV78-0817, New Standard: Test Method for Bending Property of Flexible Thin Film Photovoltaic (PV) Modules.

By / 2nd: Shaohang Wu ((Jinan University) / Dazhou Yan (SINOSICO)

Discussion: None

Vote: 43 in favor and 0 opposed. (Total 43 companies.) Motion passed.

Attachment: 15 Thin Film PV Modules TF Report April 23rd, 2021

7.4 *SNARF(s) Granted a One-Year Extension*

7.4.1 Doc. 6401, Test Method for Indentation Force of Flexible Thin Film PV Modules

Motion: Shaohang Wu ((Jinan University) moved that the committee approve Document 6401 for one year extension.

By / 2nd: Shaohang Wu ((Jinan University) / Dazhou Yan (SINOSICO)

Discussion: None

Vote: 43 in favor and 0 opposed. (Total 43 companies. 0 companies abstain.) Motion passed as ballot.

Attachment: 15 Thin Film PV Modules TF Report April 23rd, 2021

7.4.2 Doc. 6402, Test Method for Vibration Durability of Flexible Thin Film PV Module



Motion: Shaohang Wu ((Jinan University) moved that the committee approve Document 6402 for one year extension.
By / 2nd: Shaohang Wu ((Jinan University) / Rulong Chen (Runergy)
Discussion: None
Vote: 41 in favor and 0 opposed. (Total 43 companies. 2 companies abstain.) Motion passed as ballot.
Attachment: 15 Thin Film PV Modules TF Report April 23rd, 2021

8 Next Meeting and Adjournment

The next meeting of the PV & PV Materials China TC Chapter is scheduled for TBD, 2020 in Hangzhou, China.
 For more information, please visit Standards Calendar at <http://www.semi.org/en/standards>

Adjournment: 15:30.

Respectfully submitted by:

Isadora Jin
 Standards, Manager
 SEMI China
 Phone: 86-21-60278578
 Email: ijin@semi.org

Minutes tentatively approved by:

Guangchun Zhang (CSI), PV Committee and PV Materials Committee China TC Chapter Co-chair	<2021/05>
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Table 14 Index of Available Attachments^{#1}

<i>Title</i>	<i>Title</i>
1 Chinese SEMI Standard Meeting Reminders	2 China PV&PVM TC Joint Fall Meeting Minutes 20201113
4 SEMI Staff Report 20210423	5 PV Taiwan Liaison Report_20210225
6 PV Materials NA TC Chapter Liaison report April 2021	7 EU PV Materials Liaison Report April 2021 v1
8 China Smart Manufacturing TF Report 2021-04-22(1)	9 SEMI PV Task Force Report-PV Silicon Raw Material20210423-rev
10 PV Silicon Wafer TF Report Apr. 23th, 2021V5	11 Crystalline Silicon Solar Cell Report--电池工作组汇报 PPT--0423
12 SEMI PV Module TF Report 2021-04-20	13 Building Integrated Photovoltaic (BIPV) Task Force--BIPV 工作组汇报 PPT--0423(1)
14 DOC5983D (2021 年春季会议)	14 semi 光伏设备工作组汇报 ppt(2021 春季会议)v2-20210423(不涉密)
15 Thin Film PV Modules TF Report April 23rd, 2021	22 Test Method of Wind Uplift Resistance for Roof-Top Building Integrated p...



Table 14 Index of Available Attachments^{#1}

#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.