

**China PV Standards Committee
Meeting Summary and Minutes**
China Winter Standards Meeting 2015
Nov. 20th, 2015, Friday, 09:00 -17:40
Shenzhen Hall, 2F, Wuzhou Guest House
No.6001, Shennan Road, Shenzhen, China

Next Committee Meeting
Friday, March 15th, 2016

Table 1 Meeting Attendees

Co-Chairs: Guangchun Zhang (CSI)

SEMI Staff: Kris Shen – SEMI China, Allen Lu – SEMI China, Mina Chen – SEMI China

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
3M	Zhu	Xiaoqing	Heruite	Wang	Wenge
Archersinc	Lu	Junxiong	Heruite	Qiao	Weimin
Astronergy	Niu	Xinwei	HHU	Zhang	Zhen
Borouge	Zheng	Hongyun	Honbest	Rao	Hui
CESI	Feng	Yabin	JAsolar	Huang	Xinming
CETC 48	Yang	Zhiquan	Jinko	Wu	Zhenyu
CETC 48	Guo	Li	Jinko	Li	Ning
CETC 48	Cai	Xianwu	Jinko	Jin	Hao
CETC 48	Lv	Wenli	Jolywood	Zhao	Tongrong
CETC 48	Liu	Liangyu	JYT	Liu	Hesong
CETC 48	Wang	Lizheng	JYT	Chen	Hui
ChianSC	Li	Shijun	LDK	Liu	Linyan
ChianSC	Wang	Chenguang	LDK	Zhang	Tao
ChianSC	Li	Guoqing	Linton	Liu	Erfei
CNSMQ	Yang	Suxin	LONGi	Deng	Liangping
CNSMQ	He	Dongjiang	LONGi	Fu	Nannan
CPVT	He	Li	LSZJ	Liang	Hong
CSI	Xu	Tao	Maxwell	Zhou	Jian
CSI	Zhao	Changrui	MKS	Shao	Wei
CSI	Guo	Suqin	Personal	Liu	Yong
Darbond	Wang	Xuegang	Rietech	Lu	Jinggong
Diat	Duan	Qingqing	SCCC	Wu	Pengzhen
Dupont	Wang	Mao	Semilab	Huang	Li
Dupont	Hu	Fenfang	Sevenstar	Li	Dongqi
ENFI	Chen	Guie	Sevenstar	Li	Buzhong
FJL	Lin	Jianchun	Sevenstar	Si	Yu
FJL	Guo	Caimeng	Sinosico	Yan	Dazhou
Fuji	Tang	Jingjing	Sinosico	Chu	Dongxu
GCL	You	Da	Sinosico	Cao	Junying
GCL	Lu	Wenfeng	SMP	Cai	Chun
GCL	Lv	Jinbiao	Solar-Sunshine	Liu	Linhua
GGsolar	Wu	Xiexiang	Sornid	Zhang	Zexing
GGsolar	Tang	Bosheng	Sornid	Liang	Haibo
Gnetek	Yao	Huawen	Sunport	Lu	Zhonglin
GoldStone	Li	Wenhong	Sunred	Zhang	Hailin
GoldStone	Zhu	Baixi	Suntech	Zhu	Jingbing
GoldStone	Zhang	Zhiyong	Suntech	Liang	Zhe
GoldStone	Liu	Xinbo	Talesun	Ni	Zhichun

GoldStone	Yang	Shuiping	Talesun	Wei	Qingzhu
Hanergy	Tong	Xiang	TEBA	Qiu	Yanmei
Hanergy	Ding	Jian	Trina	Zhou	Wei
Hanergy	Li	Xuan	Trina	Yan	Ping
Hanergy	Shi	Zhenliang	Trina	Xiao	Taoyun
Hareon	Tang	Yunhe	Tuv-sud	Wu	Zhongyao
Hareon	Li	Xinchang	Twnesolar	Lin	Hongfeng
Hareon	Qian	Xuhao	Vitronic	Wang	Hongbiao
Hebei University	Mai	Yaohua	Yingli	Yuan	Beihai
Henan Jiancai	Geng	Xiaoju	Yingli	Tian	Tao
Heraeus	Wang	Yihua	Yingli	Yu	Bo

Table 2 Leadership Changes

<i>Group</i>	<i>Previous Leader</i>	<i>New Leader</i>
PV Silicon Wafer Task Force	Xiaoyong Wang (JAsolar)	Liangping Deng (LONGi)
PV Module Task Force	Ton Schless (Sibco)	Zhen Zhang (HHU)
PV Diffusion Furnace Test Methods Task Force		Jianyu Zheng (SevenStar)
Multi-wire Saws Task Force		Honglin Sui (CETC 48)

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>
5478	New Standard: Test Method for Thin-film Silicon PV Modules Light Soaking	Passed with editorial changes
5564C	New Standard: Test Method for the Measurement of Chlorine in Silicon by Ion Chromatography	Passed with editorial changes

Table 4 Authorized Ballots

<i>#</i>	<i>When</i>	<i>SC/TF/WG</i>	<i>Details</i>
5768	9-2015	PV Module Task Force	New Standard: Specification for Testing Requirements of Electroluminescence Defect Detection System for Crystalline Silicon PV Modules
5773	9-2015	PV Module Task Force	New Standard: Test Method for Cell Defects in Crystalline Silicon PV Modules by Using Electroluminescence
5830	9-2015	PV Module Task Force	New Standard: Classification for Electroluminescence Inspection of Crystalline Silicon Photovoltaic Modules

Table 5 Authorized Activities

<i>#</i>	<i>Type</i>	<i>SC/TF/WG</i>	<i>Details</i>
5968	SNARF	PV Module Task Force	New Standard: Guide for Sample Preparation Method for Photovoltaic Backsheet Performance Tests

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

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
None		

Table 7 Previous Meeting Action Items

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>	<i>Status</i>
ChinaPV-071 5-01	PV Module Task Force	Translate Chinese version of published 6 standards -- SEMI PV44-0513, SEMI PV44-0513, SEMI PV47-0513, SEMI PV61-0115, SEMI PV62-0215, SEMI PV63-0215	3 standards completed (SEMI PV47-0513, SEMI PV61-0115, SEMI PV63-0215) Others ongoing
ChinaPV-071 5-02	PV Silicon Raw Materials Task Force	Translate Chinese version of published 3 standards -- SEMI PV50-0114, SEMI PV59-0115, SEMI PV64-0715	Ongoing
ChinaPV-071 5-03	PV Diffusion Furnace Test Methods Task Force	Translate Chinese version of published 1 standards -- SEMI PV53-0514	Ongoing
ChinaPV-071 5-04	Crystalline Silicon Solar Cell Task Force	Translate Chinese version of published 4 standards -- SEMI PV54-0514, SEMI PV58-0115, SEMI PV65-0715, SEMI PV66-0715	Ongoing

1 Welcome, Reminders, and Introductions

Committee co-chair Guangchun Zhang chaired the meeting and welcomed all attendees, all the attendees introduced themselves. Kris Shen called the meeting to order at 9:45 AM. The meeting reminders on antitrust issues, intellectual property issues and effective meeting guidelines were reviewed. Agenda was reviewed.

2 Review of Previous Meeting Minutes

Minutes were reviewed. No change was made.

Motion: To accept the minutes of the previous meeting as submitted

By / 2nd: Tongrong Zhao (Jolywood) / Yong Liu (Personal)

Discussion: None

Vote: 54-0. Motion passed

[Attachment-1, China PV TC Meeting Minutes 20150731.pdf](#)

3 Staff Report

Kris Shen (SEMI China) gave the staff report. Highlights

- Overview the SEMI Global 2015 & 2016 Calendar of Events
- SEMI standards publications update
- Recently Published PV Standards
- 2 ballots passed A&R cycle, will be published soon
- 2 reminders to committee members

[Attachment-2, SEMI Staff Report 20151120.pdf](#)

4 Liaison Reports

4.1 North America PV Materials Committee

Kris Shen (SEMI China) reported. Highlights:

- Next meeting - NA Spring Standards Meeting, SEMI HQ, San Jose CA, Wednesday, April 6, 2016
- SNARFs
 - Reapprovals of
 - ◆ SEMI PV25-1011 Test Method for Simultaneously Measuring Oxygen, Carbon, Boron And Phosphorus in Solar Silicon Wafers and Feedstock by Secondary Ion Mass Spectrometry
 - ◆ SEMI PV21-1011 Guide for Silane (SiH₄), Used in Photovoltaic Applications
 - ◆ SEMI PV24-1011 Guide for Ammonia (NH₃) in Cylinders, Used in Photovoltaic Applications

◆ SEMI PV26-1011 Guide for Hydrogen Selenide (H₂Se) in Cylinders, Used in Photovoltaic Applications

- Doc. 5902A, Line Item Revision of SEMI PV1-0211 Test Method for Measuring Trace Elements in Silicon Feedstock for Silicon Solar Cells by High-Mass Resolution Glow Discharge Mass Spectrometry (SNARF was revised)

Attachment-3, NA Liaison Report PV Materials 20151109.pdf

4.2 *Europe PV Materials Committee*

Kris Shen (SEMI China) reported. Highlights:

- No more updating between last meeting to this meeting

Attachment-4, 150716 Europe_PVMat_LiaisonReport.pdf

4.3 *Japan PV and PV Materials Committee*

Kris Shen (SEMI China) reported. Highlights:

- Japan TC Chapters of PV Global TC and PV Materials Global TC have been jointly discussing the reorganization, concluding to keep current structure of the two TC chapters.
- Last Meeting--December 10, 2014, @ SEMI Japan Office, Tokyo, Japan
- New Standard: “Test Method for Measurement of Cracks in PV Silicon Wafers in PV Modules by Laser Scanning” has been published as SEMI PV60-0115

Attachment-5, 150731 LiaisonReport JA_PV&PVM_v1.1.pdf

4.4 *Taiwan PV Committee*

Kris Shen (SEMI China) reported. Highlights:

- Ongoing Ballot:
 - Doc #5647 passed extended cycle 5 voting and to be published as PV69-1015
 - Doc #5739 passed extended cycle 7 voting and will soon proceed to ISC A&R
- Ongoing Drafts:
 - SEMI Doc #5560 - Classification of BIPV – Part 1: Classification of BIPV Module Dimension
 - SEMI Doc #5598- Test Method for Durability of Low Light Intensity Organic Photovoltaic (OPV) and Dye Sensitized Solar Cell (DSSC)
 - SEMI Doc #5740 Test Method of Electrochemical Corrosion for PV Module

Attachment-6, Taiwan PV Liaison Report Oct 2015.pdf

5 **Ballot Review**

5.1 Cycle 7-2015: Doc. 5478, New Standard: Test Method for Thin-film Silicon PV Modules Light Soaking

5.1.1 Document Passed with editorial changes.

Attachment-7, 5478 Procedural Review.pdf

5.2 Doc.5564C, New Standard: Test Method for the Measurement of Chlorine in Silicon by Ion Chromatography

5.2.1 Document Passed with editorial changes.

Attachment-8, 5564C Procedural Review.pdf

6 **Task Force Reports**

6.1 *PV Silicon Raw Materials Task Force*

- Working on:
 - Doc. 5564C, New Standard: Test Method for the Measurement of Chlorine in Silicon by Ion Chromatography. Balloted in cycle 7-2015.

Attachment-9, PV Silicon Raw Material TF Report 20151120.pdf

6.2 *PV Silicon Wafer Task Force*

- Leadership changed: Xiaoyong Wang quit and Liangping Deng (LONGi) joined as the new leader.

- Working on
 - Doc. 5767, New Standard : Guide for Material Requirements of Internal Feeders Used in Mono-crystal Silicon Growers
 - Doc. 5843, New SNARF: Revision of SEMI PV22-1011, Specification for Silicon Wafers for Use in Photovoltaic Solar Cells
 - Doc. 5927, Revision of SEMI PV22-1011, Specification for Silicon Wafers for Use in Photovoltaic Solar Cells

[Attachment-10, PV Silicon Wafer TF Report 20151120.pdf](#)

6.3 Crystalline Silicon Solar Cell Task Force

- Working on
 - Doc. 5842, Test Method for Metal-Wrap-Through Solar Cell Via Resistance

[Attachment-11, Crystalline Silicon Solar Cell TF Report 20151120.pdf](#)

6.4 PV Module Task Force

- Leadership changed: Ton Schless quit and Zhen Zhang (Hohai University) joined as the new leader.
- Working on
 - Doc. 5661, New Standard: Test Method for Electrical Parameters of Bifacial Solar Module
 - Doc. 5725, New Standard: Practice for Metal Wrap Through (MWT) Back Contact PV Module Assembly
 - Doc. 5768, New Standard: Specification for Testing Requirements of Electroluminescence Defect Detection System for Crystalline Silicon PV Modules
 - Doc. 5773, New Standard: Test Method for Cell Defects in Crystalline Silicon PV Modules by Using Electroluminescence
 - Doc. 5925, New Standard: Specification for Dual-glass Module with Crystalline Silicon Terrestrial Solar Cell
 - Doc. 5830, New Standard: Classification for Electroluminescence Inspection Defects in Solar Modules
- New SNARF:
 - Test Method for Retention Rate of Backsheet for PV module
 - Guide for Calibration of PV Reference Devices Used for Irradiance Measurements

[Attachment-12, PV Module TF Report 20151120.pdf](#)

6.5 Thin Film PV Module Task Force

- Working on
 - Doc. 5478, New Standard: Test method for thin-film silicon PV modules light soaking
 - Doc. 5026, New Standard: Test method for Bending Property of Flexible Thin Film PV Modules

[Attachment-13, Thin Film PV Module TF Report 20151120.pdf](#)

6.6 PV Diffusion Furnace Test Methods Task Force

- Leadership changed: Jianyu Zheng (SevenStar) joined as the new leader.
- Working on: New Standard: Doc 5841, Guide for Specifying Low Pressure Diffusion Furnace

[Attachment-14, PV Diffusion Furnace Test Methods TF Report 20151120.pdf](#)

6.7 Multi-wire Saws Task Force

- Leadership changed: Honglin Sui (CETC-48) joined as the new leader.
- Working on: Doc 5728, Test Method for the Wire Tension of Multi-wire Saws

[Attachment-15, Multi-wire Swas TF Report 20151120.pdf](#)

7 Old Business

None

8 New Business

8.1 New SNARFs & TFOFs

- SNARF- New Standard: Guide for Calibration of Photoelectric Pyranometers

Motion: To approve the SNARF

By: Caimeng Guo (FJL) / Jingbing Zhu (Suntech)

Discussion: Jingbing Zhu (Suntech): 'Calibration of PV Reference Devices Used for Irradiance Measurements' maybe not necessary to do, because on-sit of I-V characteristic measurements is not an accurate measurement process, although this SNARF can calibrate the PV reference devices very well, it maybe not useful.

Zhen Zhang (HHU): 'Calibration of PV Reference Devices Used for Irradiance Measurements' is important to make sure that outdoor irradiance, the SNARF is necessary for outdoor irradiance.

Other committee members:

1. The title maybe not accurately enough for the calibrate target.

Vote: 4-32, Motion Failed

- SNARF- New standard : Test Method for Retention Rate of Backsheet for PV Module

Motion: To approve the SNARF

By: Beihai Yuan (Yingli) / Tongrong Zhao (Jolywood)

Discussion:

1. The title "Test Method for Retention Rate of Backsheet for PV Module" is changed to "Guide for Sample Preparation Method for Photovoltaic Backsheet Performance Tests".
2. In this standard the explicit performance tests: breaking elongation, tensile strength, permeable rate, breakdown voltage, partial discharge and the adhesive strength between backsheet and EVA.
3. The sample preparation method in this standard need to do comparison test with the normal preparation method. After the standard participant organizations are determined, we will conduct the experimental verification together.

Vote: 36-0, Motion passed

- SNARF- New Standard: Guide for Wafer Sorting Rule in Wafer Sorter

Motion: To approve the SNARF

By: Li Guo (CETC 48) / Jingbing Zhu (Suntech)

Discussion: Liu Yong: The classification rules of the silicon wafer are not unified, and the guidance of production is very little.

Other committee members:

1. At present, the detection results of PL cannot be completely corresponding to the battery efficiency, but also has some difficulty.
2. The standard of the silicon wafer is inconvenient to unify, can try to make the standard of the silicon wafer sorting equipment better.

Vote: 3-24, Motion Failed

8.2 Request for Ballots in cycle 1-2016

- Doc 5773, New Standard: Test Method for Cell Defects in Crystalline Silicon PV Modules by Using Electroluminescence

Motion: To approve Doc. 5773 for ballot in cycle 1-2016

By/2nd: Ping Yan (Trina)/ Jingbing Zhu (Suntech)

Discussion:

- 1、The type of defects can be identified by SEMI 5830 , SEMI 5773 need not including this part;
- 2、Adjust the 12.2.3.1 to : Set the test parameters according to the sample information. Generally, keep value of the current as the level of 0.1 to 1.2 times of the short-circuit current (Isc), and the value of the voltage as 1.1 to 1.5 times of the open circuit voltage (Voc); then adjust the imaging time and other parameters to ensure the resolution better than 0.5mm per pixel.
- 3、Invite EL system manufacture, such as G-Solar and ASIC PY-shanghai join the in the SEMI standard group.

Vote: 38-0, Motion Passed

- Doc. 5830, New Standard: Classification for Electroluminescence Inspection of Crystalline Silicon Photovoltaic Modules

Motion: To approve Doc. 5830 for ballot in cycle 1-2016

By/2nd: Changrui Zhao (CSI) / Jingbing Zhu (Suntech)

Discussion:

Guangchun Zhang (CSI): the appendix of acceptance criteria is an unmatched part with standard name.

Zhen Zhang (HHU): The acceptance criteria should be retained for user as a reference.

Tao Xu (CSI): In winter meeting 2014, it was agreed by majority committee member that acceptance criteria wasn't be included in the standard. So it should be deleted.

Yabing Feng (CESI): the appendix of acceptance criteria should be removed since it was not correspond with the standard name.

Other committee members:

1. Acceptance criteria is generally related to commerce clause, it is irrelevant to standard and should be removed

Vote: 42-0, Motion Passed

8.3 Request for publish the Chinese version of standards

- SEMI PV47-0513 Specification for Anti-Reflective Coated Glass, Used in Crystalline Silicon Photovoltaic Modules /晶体硅光伏组件用减反射镀膜玻璃技术规范

Motion: To approve for publish Chinese version of standard

By/2nd: Zhe Liang (Suntech) / Jingbing Zhu (Suntech)

Discussion: None

Vote: 42-0, Motion Passed

- SEMI PV61-0115 Specification for Framing Tape for PV Modules/光伏组件用封框胶带

Motion: To approve for publish Chinese version of standard

By/2nd: Beihai (Yingli) / Jingbing Zhu (Suntech)

Discussion: None

Vote: 39-0, Motion Passed

- SEMI PV63-0215 Specification for Ultra-thin Glasses Used for Photovoltaic Modules/光伏组件用超薄玻璃规范

Motion: To approve for publish Chinese version of standard

By/2nd: Taoyun Xiao (Trina) / Jingbing Zhu (Suntech)

Discussion: None

Vote: 43-0, Motion Passed

9 Action Item Review

9.1 Open Action Items

See Table 7.

9.2 New Action Items

See Table 6.

10 Next Meeting and Adjournment

The next meeting of the China PV Standards committee Chapter will be on March 15th, 2016, Friday, in Shanghai, China.

Respectfully submitted by:

Kris Shen

SEMI China

Minutes approved by:

Guangchun Zhang (CanadianSolar), Co-chair	2015/12/01
Jun Liu (CESI), Co-chair	2015/12/01

Table 8 Index of Available Attachments #1

#	Title	#	Title
1	China PV TC Minutes 20150731.pdf	9	PV_Silicon_Raw_Meterial TF Report 20151120.pdf
2	SEMI Staff Report 20151120.pdf	10	PV Silicon Wafer TF Report 20151120.pdf
3	NA Liaison Report PV Materials 20151109.pdf	11	Crystalline Silicon Solar Cell TF Report 20151120.pdf
4	150716_Europe_PVMat_LiaisonReport.pdf	12	PV Module TF Report 20151120.pdf
5	150731_LiaisonReport_JA_PV&PVM_v1.1.pdf	13	Thin Film PV Module TF Report 20151120.pdf
6	Taiwan PV Liaison Report Oct 2015.pdf	14	PV Diffusion Furnace Test Methods TF Report 20151120.pdf
7	5478 Procedural Review.pdf	15	Multi-wire Swas _TF Report 20151120.pdf
8	5564C Procedural Review.pdf		

#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.