Record of Letter Ballot Review by TC Chapter for Procedural Review

Region/Locale: China
Global Technical Committee: Photovoltaic
TC Chapter Cochairs: Guangchun Zhang / CSI, Jun Liu / CESI
Standards Staff: Sophia Huang / SEMI China

	Scheduled in Background Statement	Actual
Date	10/13/2017	10/13/2017
Location	Huang He Grand Hotel NO.666 Middle Renmin Road, Jiangyan,Taizhou,Jiangsu,China	Huang He Grand Hotel NO.666 Middle Renmin Road, Jiangyan,Taizhou,Jiangsu,China
Reason for Change of Date and/or Location (if changed)		

Note: See *Regulations* ¶ 9.5 Exception for allowable reason to change.

I. Document Number and Title

Document Number	Document Title
6074	TEST METHOD FOR PEELING FORCE BETWEEN ELECTRODE AND RIBBON/BACK SHEET

II. Tally

Standards staff to fill in.

Voting Tally: As-cast tally after close of voting period

Note: A minimum of 60% of the Voting Interests that have TC Members within the global technical committee that issued the Letter Ballot must return Votes. (*Regulations* ¶ 9.7.1.1)

Voting Interests:	Returned Votes		Distribution		Return Rate	
Letter Ballot	98	÷	163	=	60.12%	≥60%
Intercommittee Ballot	21					
Voting Interest Reject(s)	0		Total Voters with Rejects			0
Voting Interest Accept(s)	55					

Voting Tally (with example values):
Note: See *Regulations* § 3.2.1 for definition of Voting Interest.

III. Rejects
None

IV. Other Technical Issues
None

V. Comments

V- (i) Voters' Comments
Commenter 1 (Jäckel, Bengt/ Underwriters Laboratories Inc.) - Comment 1

Comment	*TF/TC Chapter to fill in section/paragraph #, if necessary.		
	This should be aligned with IEC 62788 series.		
Action	**The TC Chapter agreed to do one of the following actions.**		
	*No motion is required in this step.		
		Already addressed by Commenter #, Comment #	
	X	No further action was taken by the TC Chapter.	
		Refer to the TF for more consideration.	
		New Business	
		Editorial Change	
	Options for editorial change (check one)		Case 1: No vote in this section:
			To be included and voted on as a group in § VI. *Editorial Changes Other than Those Voted on in § V*.
			Case 2: Voted in this section:
			Original section number and at least one full sentence are required in "FROM" and "TO" fields.
Editorial Changes	1	FROM: Section/Paragraph xxx	
		TO: Section/Paragraph xxx	
		Justification (If necessary)	
	2	FROM: Section/Paragraph xxx	
		TO: Section/Paragraph xxx	
		Justification (If necessary)	

Motion	None
Motion by/2nd by	None
Discussion	TF Discussed no further action to be taken based on email sent to Jaeckel Bengt on Aug 1st, 2017 14:47 This is Lu junyu from Talesun(an Chinese silicon PV manufacture company), and also the writer of SEMI Draft Document 6074 "NEW STANDARD: TEST METHOD FOR PEELING FORCE BETWEEN ELECTRODE AND RIBBON/BACK SHEET". We received your feedback during the global ballot link which are as follows: AbstainComments AFF_UL 471712 - Jäckel *This should be aligned with IEC 62788-series.* According to your suggestion, we tried to get the documents of the IEC 62788 series and compared them with our draft. We found that there is no conflict between these two documents. Actually, the relevant chapters of IEC 62788 series are more about the raw materials of PV module and quiet a part of them are not published yet. Thanks for your advice. And If you have any questions, please contact me.
Vote	XX **Y**-XX **N**; Motion passed/failed.

This table is needed for each Comment.

Commenter 2 (Vargas Bernal, Rafael / Instituto Tecnologico Superior de Irapuato) - Comment 1

Comment	***TF/TC Chapter to fill in section/paragraph #, if necessary.**		
	There are typing errors, spaces must be ' ' added in several places.		
Action	**The TC Chapter agreed to do one of the following actions.**		
	***No motion is required in this step.**		
		Already addressed by Commenter #, Comment #	
		No further action was taken by the TC Chapter.	
		Refer to the TF for more consideration.	
		New Business	
	X	Editorial Change	
	Options for editorial change **(check one)**		**Case 1: No vote in this section:**
			To be included and voted on as a group in § VI. *Editorial Changes Other than Those Voted on in § V*.
		X	**Case 2: Voted in this section:**
			Original section number and at least one full sentence are required in "FROM" and "TO" fields.

Editorial Changes	1	**FROM: Section/Paragraph 11.3.1, 11.4.1** 11.3.1 The relative error of the actual motion speed against the setting speed should be within ±0.5% under the test of zero applied force. 11.4.1 The relative error of stress speed should be within±1%, The relative error of constant stress should be within±1%.
		TO: Section/Paragraph 11.3.1, 11.4.1 11.3.1 The relative error of the actual motion speed against the setting speed should be within ± 0.5% under the test of zero applied force. 11.4.1 The relative error of stress speed should be within ± 1%, the relative error of constant stress should be within ± 1%.
		Justification (If necessary) Change the first letter of the word "The" to lowercase in 11.4.1; Replace Chinese symbol "±" with English "±", and add space before and after each symbol "±" (same changes in 9.2.1.1, 10.1.1, 11.1.1, 11.3.1, 11.4.1, 11.6.2, Table1).

Motion	To approve above editorial change(s)
Motion by/2nd by	Junyu Lu (Talesun) Rulong Chen (Suntech) / Tongrong Zhao (LINYANG PV)
Discussion	**None**
Vote	41 **Y**-0 **N**; Motion passed

Commenter 3 (Gan, Yang / Harbin Institute of Technology) - Comment 1

Comment	***TF/TC Chapter to fill in section/paragraph #, if necessary.**		
	Replace Chinese symbols and punctuations with English ones. For example, commas in 4.2, 12.2.1, 13.1.3, circled numbers in 9.2.1, Celsius degree in 10.1.1.		
Action	**The TC Chapter agreed to do one of the following actions.**		
	***No motion is required in this step.**		
	Already addressed by Commenter #, Comment #		
	No further action was taken by the TC Chapter.		
	Refer to the TF for more consideration.		
	New Business		
	X	Editorial Change	
	Options for editorial change **(check one)**		**Case 1: No vote in this section:**
			To be included and voted on as a group in § VI. *Editorial Changes Other than Those Voted on in § V*.
		X	**Case 2: Voted in this section:**
			Original section number and at least one full sentence are required in "FROM" and "TO" fields.

Editorial Changes	1	**FROM: Section/Paragraph 4** **4 Referenced Standards and Documents** *4.1 ISO 7500-1:2015, Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1 Tension/compression testing machines— Calibration and verification of the force-measuring system* *4.2 ISO 376:2004, Metallic materials— Calibration of force-proving instruments used for the verification of uniaxial testing machines* 4.3 *BS-EN-61189-2-2006 Test methods for electrical materials, printed boards and other interconnection structures and assemblies*
		TO: Section/Paragraph 4 **4 Referenced Standards and Documents** 4.1 *ISO Standards*[1] ISO 7500-1:2015 — Metallic materials – Calibration and verification of static uniaxial testing machines – Part 1 Tension/compression testing machines – Calibration and verification of the force-measuring system ISO 376:2004 — Metallic materials – Calibration of force-proving instruments used for the verification of uniaxial testing machines 4.2 *BS-EN Standards*[2] BS-EN-61189-2-2006 — Test methods for electrical materials – printed boards and other interconnection structures and assemblies **NOTICE:** Unless otherwise indicated, all documents cited shall be the latest published versions. [1] International Organization for Standardization, ISO Central Secretariat, 1 rue de Varembé, Case postale 56, CH-1211 Geneva 20, Switzerland; Telephone: 41.22.749.01.11, Fax: 41.22.733.34.30, http://www.iso.ch [2] British Standards Institution, 389 Chiswick High Road, London, W4 4AL, UK; Telephone: 44.0.20.8996.9001, Fax: 44.0.20.8996.7001, http://www.bsigroup.com
		Justification (If necessary) New format of chapter 4; Add footnote with information of standards development organization; Add “notice” at the end of this chapter.
	2	**FROM: Section/Paragraph 12.1.3** Adjust the direction of tensile force F, to reach an angle of 0°(opposite direction 180°)to the sample, (Figure 7).
		TO: Section/Paragraph 12.1.3 Adjust the direction of tensile force F, to reach an angle of 0° (180° for the opposite direction) to the sample (Figure 7).
		Justification (If necessary) Delete the Chinese symbol “，” after the words “to the sample”; Replace Chinese symbol “°” with English “°”; Change sentence “opposite direction 180°” to “180° for the opposite direction”; Add space before and after the first brackets;
	3	**FROM: Section/Paragraph 12.2.1** Sample after electrodes peeling force test as shown in Figure 8, Spalling of Si disruptions area should be < 50%,

		TO: Section/Paragraph 12.2.1 Sample after electrodes peeling force test as shown in Figure 8, spalling of Si disruptions area should be less than 50%,
		Justification (If necessary) Replace Chinese symbol "，" with English "," after words "Figure 8"; Change the first letter of the word "Spalling" to lowercase; Change symbol "<" to words "less than";
	4	**FROM: Section/Paragraph 13.1.2** For segmental electrodes test, amount data peak is 'm'(consistent with segments of electrodes), and the waves should be complete. Mark the 1st peak to ith peak as FP1~FPi,, the peeling force is thus F= $\frac{\sum_1^m F_{pi}}{m}$, which is the average peeling force of m peak forces, as shown in Figure 11.
		TO: Section/Paragraph 13.1.2 For segmental electrodes test, amount data peak is 'm' (consistent with segments of electrodes), and the waves should be complete. Mark the 1st peak to ith peak as FP1~FPi, the peeling force is thus F=$\frac{\sum_1^m F_{pi}}{m}$, which is the average peeling force of m peak forces, as shown in Figure 11.
		Justification (If necessary) Replace Chinese symbol "，" with English "," after the formula "F=$\frac{\sum_1^m F_{pi}}{m}$"; Add space before the brackets; Delete an redundancy symbol "," and several redundancy spaces;
	5	**FROM: Section/Paragraph 13.1.3** For non-segmental electrodes and back surface field tests, the peak of whole curve is peeling force F, as shown in Figure 12
		TO: Section/Paragraph 13.1.3 For non-segmental electrodes and back surface field tests, the peak of whole curve is peeling force F, as shown in Figure 12.
		Justification (If necessary) Replace Chinese symbol "，" with English "," after the word "tests"; Add a period at the end of the sentence;
	6	**FROM: Section/Paragraph 9.2.1** 9.2.1 Procedure: ①Prepare back sheet, EVA, glass and cell, one for each (size of back sheet, EVA, and glass should be larger than cell's size); Slice the back sheet into 10±1mm width strips and stack it as the normal module, shown in Figure 4. ②Take a 20~30mm width linoleum (length should be longer than cell) and place it under the cell, between back sheet and EVA, in order to avoid back sheet stick with glass completely. Fasten linoleum, cell, EVA, and back sheet on glass with high temperature tape. ③Laminate the sample under the same condition of mass production module, multiple cell samples can be placed in one laminating sample. Slice back surface(both EVA and aluminum-silicon alloy layer) field into the same size strips of back sheet after laminating, as shown in Figure 5. Laminated sample should be no bubble, bulges and other abnormal.

		TO: Section/Paragraph 9.2.1, 9.2.1.1, 9.2.1.2, 9.2.1.3 9.2.1 Procedure 9.2.1.1 Prepare back sheet, EVA, glass and cell, one for each (size of back sheet, EVA, and glass should be larger than cell's size); Slice the back sheet into (10 ± 1) mm width strips and stack it as the normal module, shown in Figure 4. 9.2.1.2 Take a 20–30 mm width linoleum (length should be longer than cell) and place it under the cell, between back sheet and EVA, in order to avoid back sheet stick with glass completely. Fasten linoleum, cell, EVA, and back sheet on glass with high temperature tape. 9.2.1.3 Laminate the sample under the same condition of mass production module, multiple cell samples can be placed in one laminating sample. Slice back surface(both EVA and aluminum-silicon alloy layer) field into the same size strips of back sheet after laminating, as shown in Figure 5. Laminated sample should be no bubble, bulges and other abnormal.
		Justification (If necessary) Delete the circled numbers in 9.2.1; Split the paragraph 9.2.1 in small sections 9.2.1.1, 9.2.1.2 and 9.2.1.3; Change symbol "~" to "–" in 9.2.1.2; Add a space between a numerical value and the unit in 9.2.1.1 and 9.2.1.2; Add brackets in the value with symbol "±" in 9.2.1.1 (same changes in 10.1.1, 12.1.4).
	7	**FROM: Section/Paragraph 10.1.1** Standard test condition, temperature: 23±2℃ (Refers to *BS-EN-61189-2-2006, § 9.6.4)*, relative humidity (RH) 45~65%.
		TO: Section/Paragraph 10.1.1 Standard test condition, temperature: (23 ± 2) °C (Refers to *BS-EN-61189-2-2006, § 9.6.4)*, relative humidity (RH) 45-65%.
		Justification (If necessary) Replace Chinese symbol "℃" with English "°C"; Change symbol "~" to "–";

Motion	To approve above editorial change(s)
Motion by/2nd by	Junyu Lu (Talesun) Rulong Chen (Suntech) / Tongrong Zhao (LINYANG PV)
Discussion	**None**
Vote	41 **Y**-0 **N**; Motion passed

Commenter 3 (Gan, Yang / Harbin Institute of Technology) - Comment 2

Comment		***TF/TC Chapter to fill in section/paragraph #, if necessary.**
		Remove periods in sentences in 14.1. Add a period at the end of sentence in 12.2.1.
Action		**The TC Chapter agreed to do one of the following actions.**
		***No motion is required in this step.**
		Already addressed by Commenter #, Comment #
		No further action was taken by the TC Chapter.
		Refer to the TF for more consideration.
		New Business
	X	Editorial Change

	Options for editorial change **(check one)**		**Case 1: No vote in this section:**
			To be included and voted on as a group in § VI. *Editorial Changes Other than Those Voted on in § V.*
		X	**Case 2: Voted in this section:**
			Original section number and at least one full sentence are required in "FROM" and "TO" fields.
Editorial Changes	**1**	**FROM: Section/Paragraph 12.2.1** in order to avoid crack of cell during laminating process, Figure 9	
		TO: Section/Paragraph 12.2.1 in order to avoid crack of cell during laminating process, Figure 9.	
		Justification (If necessary) Add a period at the end of the sentence;	

Motion	To approve above editorial change(s)
Motion by/2nd by	Junyu Lu (Talesun) Rulong Chen (Suntech) / Tongrong Zhao (LINYANG PV)
Discussion	**None**
Vote	41 **Y**-0 **N**; Motion passed

Commenter 3 (Gan, Yang / Harbin Institute of Technology) - Comment 3

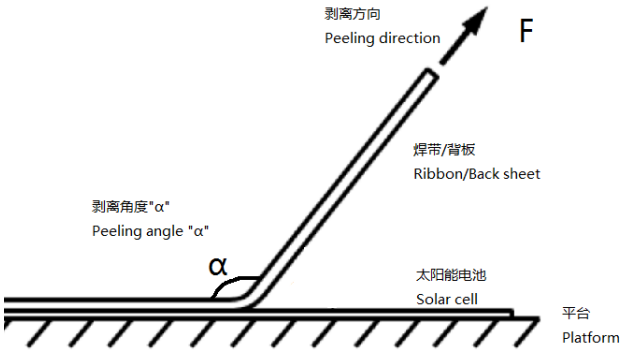
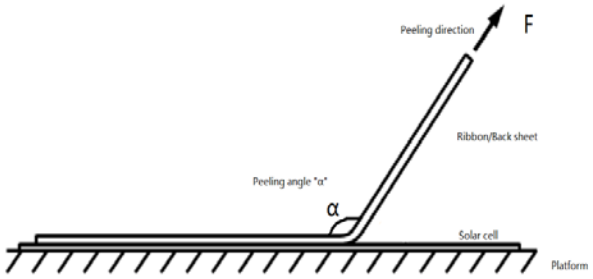
Comment	***TF/TC Chapter to fill in section/paragraph #, if necessary.**		
	Put a space between a numerical value and the unit with % and degree units as only exceptions where a space is not needed. For example, 0.001 mm is correct while 0.001mm is wrong.		
Action	**The TC Chapter agreed to do one of the following actions.**		
	***No motion is required in this step.**		
		Already addressed by Commenter #, Comment #	
		No further action was taken by the TC Chapter.	
		Refer to the TF for more consideration.	
		New Business	
	X	Editorial Change	
	Options for editorial change **(check one)**		**Case 1: No vote in this section:**
			To be included and voted on as a group in § VI. *Editorial Changes Other than Those Voted on in § V.*
		X	**Case 2: Voted in this section:**
			Original section number and at least one full sentence are required in "FROM" and "TO" fields.
Editorial	**1**	**FROM: Section/Paragraph 11.2.1** The coaxiality should not exceed φ2mm/500mm	
		TO: Section/Paragraph 11.2.1 The coaxiality should not exceed Φ2 mm/500 mm.	

		Justification (If necessary) Replace Chinese symbol "φ" with English "Φ"; Add a space between a numerical value and the unit "mm"; Add a period at the end of the sentence;
	2	**FROM: Section/Paragraph 11.6.1** The smallest resolution of the displacement meter of cross beam should be 0.001mm.
		TO: Section/Paragraph 11.6.1 The smallest resolution of the displacement meter of cross beam should be 0.001 mm.
		Justification (If necessary) Add a space between a numerical value and the unit "mm";
	3	**FROM: Section/Paragraph 12.1.2** Fixed the sample on platform of test apparatus, and clip the ribbon head or 10mm back sheet strip (Figure 6)
		TO: Section/Paragraph 12.1.2 Fixed the sample on platform of test apparatus, and clip the ribbon head or 10 mm back sheet strip (Figure 6).
		Justification (If necessary) Add a space between a numerical value and the unit "mm"; Add a period at the end of the sentence;
	4	**FROM: Section/Paragraph 12.1.4** Steadily and straightly pull the clip with a specific angle, to peel off the ribbon from electrodes, speed setting: 300±100mm/min.
		TO: Section/Paragraph 12.1.4 Steadily and straightly pull the clip with a specific angle, to peel off the ribbon from electrodes, speed setting: (300 ± 100) mm/min.
		Justification (If necessary) Add a space between a numerical value and the unit "mm/min";

Motion	To approve above editorial change(s)
Motion by/2nd by	Junyu Lu (Talesun) Rulong Chen (Suntech) / Tongrong Zhao (LINYANG PV)
Discussion	**None**
Vote	41 **Y**-0 **N**; Motion passed

Commenter 3 (Gan, Yang / Harbin Institute of Technology) - Comment 4

Comment		***TF/TC Chapter to fill in section/paragraph #, if necessary.**
		Remove Chinese characters in Figure 7.
Action		**The TC Chapter agreed to do one of the following actions.**
		***No motion is required in this step.**
		Already addressed by Commenter #, Comment #
		No further action was taken by the TC Chapter.
		Refer to the TF for more consideration.

		New Business	
	X	Editorial Change	
	Options for editorial change **(check one)**		**Case 1: No vote in this section:**
			To be included and voted on as a group in § VI. *Editorial Changes Other than Those Voted on in § V*.
		X	**Case 2: Voted in this section:**
			Original section number and at least one full sentence are required in "FROM" and "TO" fields.
Editorial Changes	**1**	**FROM: Section/Paragraph 12.1.3, Figure 7** 	
		TO: Section/Paragraph 12.1.3, Figure 7 	
		Justification (If necessary) Remove Chinese characters in Figure 7.	

Motion	To approve above editorial change(s)
Motion by/2nd by	Junyu Lu (Talesun) Rulong Chen (Suntech) / Tongrong Zhao (LINYANG PV)
Discussion	**None**
Vote	41 **Y**-0 **N**; Motion passed

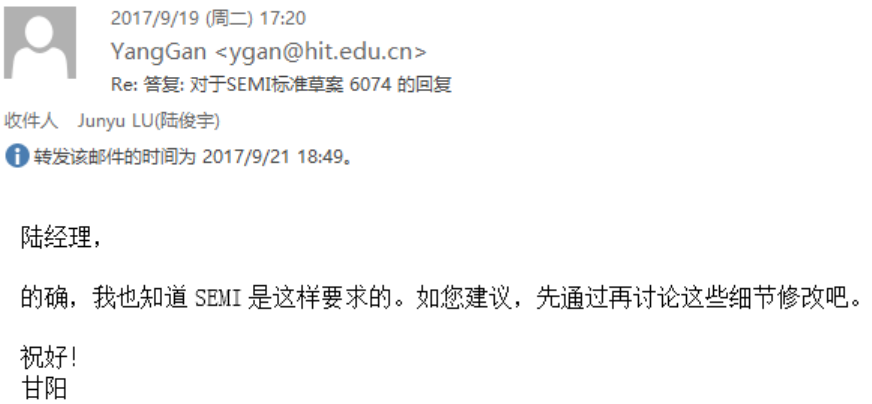
Commenter 3 (Gan, Yang / Harbin Institute of Technology) - Comment 5

Comment	***TF/TC Chapter to fill in section/paragraph #, if necessary.**
	The image quality needs to be improved. A professional camera instead of a mobile phone is recommended for this purpose.
Acti	**The TC Chapter agreed to do one of the following actions.**
	***No motion is required in this step.**

		Already addressed by Commenter #, Comment #
	X	No further action was taken by the TC Chapter.
		Refer to the TF for more consideration.
		New Business
		Editorial Change

	Options for editorial change **(check one)**		**Case 1: No vote in this section:**
			To be included and voted on as a group in § VI. *Editorial Changes Other than Those Voted on in § V*.
			Case 2: Voted in this section:
			Original section number and at least one full sentence are required in "FROM" and "TO" fields.

Editorial Changes	**1**	**FROM: Section/Paragraph xxx**
		TO: Section/Paragraph xxx
		Justification (If necessary)
	2	**FROM: Section/Paragraph xxx**
		TO: Section/Paragraph xxx
		Justification (If necessary)

Motion	None
Motion by/2nd by	None
Discussion	The commenter agreed to do the changes after the standard being published. Discussed with Prof. Yang Gan via email on Sep 19th, 2017 18:49  2017/9/19 (周二) 17:20 YangGan <ygan@hit.edu.cn> Re: 答复: 对于SEMI标准草案 6074 的回复 收件人 Junyu LU(陆俊宇) 转发该邮件的时间为 2017/9/21 18:49。 陆经理， 的确，我也知道 SEMI 是这样要求的。如您建议，先通过再讨论这些细节修改吧。 祝好! 甘阳
Vote	XX **Y**-XX **N**; Motion passed/failed.

VI. Editorial Changes Other than Those Voted on in § V

Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.

1	Origin of this editorial change **(Check one)**		Commenter(s) / Comment(s) #
		X	Other [ ]
	FROM: Section/Paragraph 1.1 This standard aims to formulate the method that measures the peeling force between electrode and ribbon/back sheet, include: 1) ribbon and front electrode 2) ribbon and back electrode and 3) back sheet and back surface layer . Peeling force test is a common used method to evaluate the reliability of paste, ribbon, back sheet, EVA etc. for PV industry. This standard offers a principle for conducting the peeling force with sample preparation, test procedure, and setting of test conditions, as well as data analysis. Furthermore, the test provides a basis for the reliability evaluation of raw material.		
	TO: Section/Paragraph 1.1 This standard aims to formulate the method that measures the peeling force between electrode and ribbon/back sheet, include: 1) ribbon and front electrode 2) ribbon and back electrode and 3) back sheet and back surface layer. Peeling force test is a common used method to evaluate the reliability of paste, ribbon, back sheet, EVA etc. for PV industry. This standard offers a principle for conducting the peeling force with sample preparation, test procedure, and setting of test conditions, as well as data analysis. Furthermore, the test provides a basis for the reliability evaluation of raw material.		
	Justification: (If necessary) Delete four redundancy spaces in this paragraph.		
2	Origin of this editorial change **(Check one)**		Commenter(s) / Comment(s) #
		X	Other [ ]
	FROM: Section/Paragraph 5.1 5.1.1 *EVA* —Ethylene Vinyl Acetate 5.1.2 *N*— newton 5.1.3 Σ —summation 5.1.4 φ-diameter.		
	TO: Section/Paragraph 5.1 5.1.1 *EVA* — ethylene vinyl acetate 5.1.2 *N* — newton 5.1.3 $\sum$ — summation 5.1.4 Φ — diameter		
	Justification: (If necessary) Change the first letters of the words "Ethylene Vinyl Acetate" to lowercase; Replace Chinese symbol "Σ" with English "$\sum$" in 5.1.3; Replace Chinese symbol "φ" with English "Φ" in 5.1.4; Replace symbol "—" with em dash "—" in 5.1.4;		
3	Origin of this editorial change **(Check one)**		Commenter(s) / Comment(s) #
		X	Other [ ]

	FROM: Section/Paragraph 6.1, 8.5, 9.1.1 6.1 Universal testing machine - such as Tophung TH8201S etc. 8.5 Be careful when using knife for specimen preparation of back surface test. 9.1.1 Both front and back electrodes should be soldered with ribbon, and the end of ribbon should cross cell edge a bit(Figure 1,2)； Soldering can be divided into manual and machine for different companies. For manual soldering, ribbon should be immersed in flux 10 minutes.
	TO: Section/Paragraph 6.1, 8.5, 9.1.1 6.1 Universal testing machine, such as Tophung TH8201S, etc. 8.5 Be careful when using knife for specimen preparation of back surface test. 9.1.1 Both front and back electrodes should be soldered with ribbon, and the end of ribbon should cross cell edge a bit (Figure 1, 2). Soldering can be divided into manual and machine for different companies. For manual soldering, ribbon should be immersed in flux for 10 minutes.
	Justification: (If necessary) Change the symbol "-" to "," in 6.1; Add the "," before "etc" in 6.1; Delete redundancy space before word "test" in 8.5; Add space before the brackets in 9.1.1; Add space after the symbol "," within the brackets in 9.1.1; Replace Chinese symbol "； " with English "." in 9.1.1; Change sentence "be immersed in flux 10 minutes" to "be immersed in flux for 10 minutes" in 9.1.1;
4	Origin of this editorial change **(Check one)**: [ ] Commenter(s) / Comment(s) #; [X] Other [ ]
	FROM: Section/Paragraph 8.2, 14.1.1.2, 14.1.1.3, 14.1.1.4, 14.1.1.6, 14.1.1.8 8.2 Check the status of test apparatus (any loose of screw etc.) before using. 14.1.1.2 Test purpose and date 14.1.1.3 (Front electrode paste, back electrode paste, back field paste etc.) 14.1.1.4 Workshop\line of selected specimen, Workshop\line for soldering (laminating) specimen; provide soldering (laminating) condition if necessary. 14.1.1.6 Curve of peeling force test data 14.1.1.8 Test department\staff, and personnel of approval
	TO: Section/Paragraph 8.2, 14.1.1.2, 14.1.1.3, 14.1.1.4, 14.1.1.6, 14.1.1.8 8.2 Check the status of test apparatus (any loose of screw etc.) before using. 14.1.1.2 Test purpose and date. 14.1.1.3 (front electrode paste, back electrode paste, back field paste, etc.) 14.1.1.4 Workshop/line of selected specimen, Workshop/line for soldering (laminating) specimen; provide soldering (laminating) conditions if necessary. 14.1.1.6 Curves of peeling force test data. 14.1.1.8 Test department/staff, and personnel of approval.
	Justification: (If necessary) Change word "using" to "use" in 8.2; Add a period at the end of the sentence in 14.1.1.2, 14.1.1.6 and 14.1.1.8; Change symbol "\" to symbol "/" in 14.1.1.4 and 14.1.1.8; Change the first letter of the word "Front" to lowercase in 14.1.1.3; Add the "," before "etc" in 14.1.1.3; Change word "condition" to its plural form "conditions" in 14.1.1.4; Change word "curve" to its plural form "curves" in 14.1.1.6;

Motion	To approve the above editorial change(s).
Motion by/ 2nd by	Junyu Lu (Talesun) Rulong Chen (Suntech) / Tongrong Zhao (LINYANG PV)
Discussion	None
Vote	41 **Y**-0 **N**; Motion passed

VII. Approval Conditions Check

VII. - (i). Approval Rate

APPROVAL CONDITION 1: All Negatives have been discussed and were withdrawn, found not related, found not persuasive, or addressed by a technical change. (*Regulations* ¶ 9.7.1.2)

APPROVAL CONDITION 2: At least 90% of the sum of valid Voting Interest Accept and Voting Interest Reject Votes must be Accept. (*Regulations* ¶ 9.7.1.3)

Note: If both approval conditions are not satisfied, the Document fails.

		Accepts		**(Accepts + Valid Rejects)**				
Approval Rate	=	**55**	/	**55**	=	**100.0%**		**≥90%**

VII. – (ii) Approval Level (check one)

Note: See *Regulations* § 9.7.2 for further information.

X	**Globally Approved (No Ratification Ballot needed):** **The Letter Ballot meets the Letter Ballot approval conditions for the global technical committee.**
	Need a Ratification Ballot: **The Letter Ballot meets the Letter Ballot approval conditions for the TC Chapter and a Ratification Ballot will be issued to validate technical changes.**

VIII. Safety Check

Note: See *Regulations* § 15 for further information.

	X	**This is not a Safety Document**, when all safety-related information is removed, the Document is still technically sound and complete. (*Regulations* ¶ 8.7.1)

Motion		**This is a Safety Document**, when all safety-related information is removed, the Document is not technically sound and complete. (*Regulations* ¶ 8.7.2)
		Safety Checklist (*Regulations* ¶ 15.3) is complete and has been included with the Document throughout the balloting process. (*Regulations* ¶ 15.1.2)
Motion by/2nd by		Junyu Lu (Talesun) Rulong Chen (Suntech) / Tongrong Zhao (LINYANG PV)
Discussion		None
Vote		41 **Y**-0 **N**; Motion passed

IX. Intellectual Property (IP) Check

Note: This Letter Ballot may cover all or part of a Standard or Safety Guideline. This IP check applies to the entire Standard or Safety Guideline. See *Regulations* § 16 for further information.

X	The TC Chapter meeting chair asked those participating, if they were aware of any potentially material patented technology or copyrighted items* in the Standard or Guideline. (*Regulations* ¶ 8.8.1)		
	X	No potentially material patented technology or reproduction of copyrighted items is known.	**GO TO SECTION X.**
		Potentially material patented technology or reproduction of copyrighted items is known, but a Letter of Assurance (LOA) or copyright release letter for such items has been obtained or presented to the TC Chapter.	**GO TO SECTION X.**
		Potentially material patented technology or reproduction of copyrighted items is known and use of such materials is technically justified by the TC Chapter, but an LOA or copyright release letter for some of the item(s) has NOT been obtained or presented to the TC Chapter.	
	Motion		Ask ISC for special permission to publish.
			Quit activity.
			Wait for LOA for patented technology or release of copyrighted items.
	Motion by/2nd by	None	
	Discussion	None	
	Vote	XX **Y**-XX **N**	
	Final Action		Motion passed
			Motion failed

*** Note: Such potentially material patented technology or copyrighted items might have become known since the Standard or Safety Guideline was last reviewed, or might become relevant due to this Letter Ballot.**

X. Action for This Document

Motion		This Document passed TC Chapter review as balloted and will be forwarded to the ISC A&R SC for procedural review.
	X	This Document passed TC Chapter review with editorial changes and will be forwarded to the ISC A&R SC for procedural review.

		This Document passed TC Chapter review with technical changes and with or without editorial changes and will be forwarded to the ISC A&R SC for procedural review. A Ratification Ballot will be issued to verify the technical changes.
		This Document failed TC Chapter review and will be returned to the TF for rework.
		This Document failed TC Chapter review and work will be discontinued.
Motion by/ 2nd by		Junyu Lu (Talesun) Rulong Chen (Suntech) / Tongrong Zhao (LINYANG PV)
Discussion		None
Vote		41 **Y**-0 **N**
Final Action	X	Motion passed
		Motion failed

Standards staff to record the result of the A&R procedural review here:

A&R		**Approved for publication**
		Approved pending acceptance of the Ratification Ballot
		Not approved
	Reason:	