Record of Letter Ballot Review by TC Chapter for Procedural Review

Region/Locale: China
Global Technical Committee: Photovoltaic
TC Chapter Cochairs: Guangchun Zhang/CSI
StandardsStaff: Isadora Jin/SEMI China

	Scheduled in Background Statement	Actual
Date	10/25/2019	10/25/2019
Location	Beijing	Beijing
Reason for Changeof Date and/or Location (if changed)		

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

I. Document Number andTitle

Document Number6191	Document Title New Standard: Guide for the Design of Testing and Sorting Equipment for Crystalline Silicon Solar Cells

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* ¶9.6.2.1.1)

Voting Tally (with example values):

Voting Interest:	Returned Vote		Distributio		Return Rate	
Letter Ballot	93	÷	153	=	60.8%	≥60%
Intercommittee Ballot	40					
Voting Interest Reject(s)	1		Total Voters with Rejects			1
Voting Interest Accept(s)	72					

Note: See *Regulations* § 3.2.1 for definition of Voting Interest.

III. Rejects

Voting Interest Reject 1 (Voting Interest Name:U.A. Associates)

Voter Reject1 (Voter:LarryHartsough and U.A. Associates)

Negative 1

Negative	Referenced Section/Paragraph	*TF/TC Chapter to fill in,including text in the ballot if necessary.		
		§ 1.1 1. 1 In order to provide designers with guidelines in the design process of crystalline silicon solar cell testing and sorting equipment, this paper specifies the design criteria, key design parameters, basic design guide and extensibility designguide for crystalline silicon solar cell testing and sorting equipment.		
	Negative Text	*Original complete Negative text (e.g., issue, justification,suggestion) should be copied.		
		Reject, Negative 1, for Section 1.1, cannot use the word "specifies" – only a Specification can specify. Instead, use "discusses". This could probably be accomplished via a Ratification Ballot. *in 1.1, replace "paper" with "guide" or "document".*		
TF input (optional)				
Withdrawal(check one)		X	No Negative withdrawal made by Voter.	GOTO"Related" subsection
			Withdrawal document received by Standards staff on MM/DD/YYYY.	GO TO "Final"subsection →(A)
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon.(Needs no motion.)	GO TO "Persuasive" subsection
			Negative is not related.(Needs ≥2/3 votes to pass.)	
			Reason	XXXX
	Motion by/ 2nd by	Name (Company)/Name (Company)		
	Discussion			
	Result of Vote(check one)	XXY-XXN;Motion passed/failed.		
			[Negativeis not related.] <2/3	GOTO "Persuasive" subsection
			2/3≤ [Negative is not related.]	GO TO "Final" subsection →(B)
Persuasive	Motion and Reason (check one)	X	Negative is related and persuasive.(Needs >1/3 votes to pass.)	
			Negative is related and not persuasive.(Needs ≥2/3 votes to pass.)	
			Reason	XXXX
	Motion by/ 2nd by	Hui Long (CETC 48)/Rulong Chen (Runergy)		
	Discussion			
	Result of	43Y-10N;Motion passed.		

	Vote(check one)	X	[Negative is related and persuasive.] >1/3	**Is a technical change recommended? (check one)**	X	**Y**	**GO TO "Address by Technical Change Option" subsection**
			[Negative is related and not persuasive.] <2/3			**N**	**GO TO "Final" subsection →(E)**
			2/3≤ [Negative is related and not persuasive.] <90%	**GO TO "Final" subsection →(C)**			
			90%≤ [Negative is related and not persuasive.]	**GO TO "Not Significant Finding Option" subsection**			

Address by Technical Change Option

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

Technical Changes — **1**

FROM: Section/Paragraph1.1
1.1 In order to provide designers with guidelines in the design process of crystalline silicon solar cell testing and sorting equipment, this paper specifies the design criteria, key design parameters, basic design guide and extensibility design guide for crystalline silicon solar cell testing and sorting equipment.

TO: Section/Paragraph1.1
1.1 In order to provide designers with guidelines in the design process of crystalline silicon solar cell testing and sorting equipment, this document discusses the design criteria, key design parameters, basic design guide and extensibility design guide for crystalline silicon solar cell testing and sorting equipment.

Justification (If necessary)
Use *discusses* instead of *specifies*.
Use *document* instead of *paper*.

Motion		Negative is addressed by the technical change(s).	
Motion by/2nd by		Hui Long (CETC 48)/Rulong Chen (Runergy)	
Discussion		Zhixin Li (Linton): Specify is not suitable here.	
Result of Vote (check one)		43**Y**-10**N**; Motion passed.	
		X	2/3≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**
			[Negative is not addressed by the technical change(s).] < 2/3	**GO TO "Final" subsection →(E)**
Incorporation of the Technical Change	**Motion**	To incorporate the technical change(s).	
	Motion by/2nd by	Hui Long (CETC 48)/Zhixin Li (Linton)	
	Discussion		
	Result of Vote (check one)	48**Y**-5**N**; Motion passed.	
		X	90%≤ [Agree to incorporate.]	**GO TO "Final" subsection →(F)**
			[Disagree to incorporate.]>10%	**GO TO "Final" subsection →(E)**

Final

(check if applicable)	**(A)**	Withdrawn**(counted under h in disposition)**
	(B)	Not related **(counted under i in disposition)**
	(C)	Related and not persuasive (significant)
	(D)	Not significant**(counted under j in disposition)**

			(E)	Related and persuasive and not addressed by technical change	**DOCUMENT FAILS**
		X	**(F)**	Addressed by technical change **(counted under k disposition)**	
	(check if applicable)		*Comment generated.* ***See Section V-(ii) Comment #X.***		

This table is needed for each Negative.

Negative 2

Negative	**Referenced Section/Paragraph**	***TF/TC Chapter to fill in,including text in the ballot if necessary.**			
		§ 8.3.3			
	Negative Text	***Original complete Negative text (e.g., issue, justification, suggestion) should be copied.**			
		in 8.3.3, should "CAD" be "CDA"? If not, what is meant by "CAD"?			
TF input (optional)					
Withdrawal(check one)		X	No Negative withdrawal made by Voter.		**GOTO"Related" subsection**
			Withdrawal document received by Standards staff on MM/DD/YYYY.		**GO TO "Final"subsection →(A)**
Related	**Motion and Reason (check one)**	X	'Related' is mutually agreed upon.**(Needs no motion.)**		**GO TO "Persuasive" subsection**
			Negative is not related.**(Needs ≥2/3 votes to pass.)**		
			Reason	XXXX	
	Motion by/ 2nd by	Name (Company)/Name (Company)			
	Discussion				
	Result of Vote(check one)	XX**Y**-XX**N**;Motion passed/failed.			
			[Negativeis not related.] <2/3		**GO TO "Persuasive" subsection**
			2/3 ≤ [Negative is not related.]		**GO TO "Final" subsection →(B)**
Persuasive	**Motion and Reason (check one)**	X	Negative is related and persuasive.**(Needs >1/3 votes to pass.)**		
			Negative is related and not persuasive.**(Needs ≥2/3 votes to pass.)**		
			Reason	XXXX	
	Motion by/ 2nd by	Hui Long (CETC 48)/Zhixin Li (Linton)			
	Discussion	Co-chair: Larry is very careful and gives good comments. In addition, please add CDA as acronym in § 5.1			
	Result of Vote(check one)	53**Y**-0**N**;Motion passed.			
		X	[Negative is related and persuasive.] >1/3	**Is a technical change recommended? (check one)**	X **Y**	**GO TO "Address by Technical Change Option" subsection**

			[Negative is related and not persuasive.] <2/3			N	GO TO "Final" subsection →(E)
			2/3 ≤ [Negative is related and not persuasive.] <90%	GO TO "Final" subsection →(C)			
			90%≤ [Negative is related and not persuasive.]	GO TO "Not Significant Finding Option" subsection			

Address by Technical Change Option

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

Technical Changes

1

FROM: Section/Paragraph8.3.3

8.3.3 The total pressure of CDA should be controlled at 0.4~0.6Mpa, and pressure of CAD in the suckers of should be controlled at 0.2~0.4Mpa.

TO: Section/Paragraph8.3.3

8.3.3 The total pressure of CDA should be controlled at 0.4~0.6Mpa, and pressure of CDA in the suckers of should be controlled at 0.2~0.4Mpa.

Justification (If necessary)
This is a spelling mistake. CAD is changed to CDA.

2

FROM: Section/Paragraph 5.1

5.1 Abbreviations and Acronyms

5.1.1 MTBF — Mean Time Between Failure

5.1.2*MTTR* — Mean Time To Restoration

TO: Section/Paragraph5.1

5.1*Abbreviations and Acronyms*

5.1.1*MTBF* — Mean Time Between Failure

5.1.2 *MTTR* — Mean Time To Restoration

5.1.3 *CDA*— Compressed Dry Air

Justification (If necessary)
Add CDA as acronym in § 5.1

Motion		Negative is addressed by the technical change(s).		
Motion by/2nd by		Hui Long (CETC 48)/Zhixin Li (Linton)		
Discussion				
Result of Vote (check one)		53**Y**-0**N**; Motion passed.		
		X	2/3≤ [Negative is addressed by the technical change(s).]	GO TO "Incorporation of the Technical Change" subsection
			[Negative is not addressed by the technical change(s).] < 2/3	GO TO "Final" subsection →(E)
Incorporation of the Technical Change	**Motion**	To incorporate the technical change(s).		
	Motion by/2nd by	Hui Long (CETC 48)/Zhixin Li (Linton)		
	Discussion			
	Result of Vote (check one)	53**Y**-0**N**; Motion passed.		
		X	90%≤ [Agree to incorporate.]	GO TO "Final" subsection →(F)
			[Disagree to incorporate.]>10%	GO TO "Final" subsection →(E)

n	(check if		(A)	Withdrawn(counted under h in disposition)

	applicable)		(B)	Not related (counted under i in disposition)	
			(C)	Related and not persuasive (significant)	
			(D)	Not significant(counted under j in disposition)	
			(E)	Related and persuasive and not addressed by technical change	DOCUMENT FAILS
		X	(F)	Addressed by technical change (counted under k disposition)	
	(check if applicable)		*Comment generated. See Section V-(ii) Comment #X.*		

Negative 3

Negative	Referenced Section/Paragraph	*TF/TC Chapter to fill in,including text in the ballot if necessary.		
		§ 9.5, § 5.1		
	Negative Text	*Original complete Negative text (e.g., issue, justification, suggestion) should be copied.		
		in 9.5, what is "MES"? Add it to the Acronyms in 5.1.		
TF input (optional)				
Withdrawal(check one)		X	No Negative withdrawal made by Voter.	GOTO"Related" subsection
			Withdrawal document received by Standards staff on MM/DD/YYYY.	GO TO "Final"subsection →(A)
Related	Motion and Reason (check one)	X	'Related' is mutually agreed upon.(Needs no motion.)	GO TO "Persuasive" subsection
			Negative is not related.(Needs ≥2/3 votes to pass.)	
			Reason	XXXX
	Motion by/ 2nd by	Name (Company)/Name (Company)		
	Discussion			
	Result of Vote(check one)	XXY-XXN;Motion passed/failed.		
			[Negativeis not related.] <2/3	GO TO "Persuasive" subsection
			2/3 ≤ [Negative is not related.]	GO TO "Final" subsection →(B)
Persuasive	Motion and Reason (check one)	X	Negative is related and persuasive.(Needs >1/3 votes to pass.)	
			Negative is related and not persuasive.(Needs ≥2/3 votes to pass.)	
			Reason	XXXX
	Motion by/ 2nd by	Hui Long (CETC 48)/Zhixin Li (Linton)		
	Discussion			
	Result of	45Y-8N;Motion passed.		

	Vote(check one)	X	[Negative is related and persuasive.] >1/3	**Is a technical change recommended? (check one)**	X	**Y**	**GO TO "Address by Technical Change Option" subsection**
			[Negative is related and not persuasive.] <2/3			**N**	**GO TO "Final" subsection →(E)**
			2/3 ≤ [Negative is related and not persuasive.] <90%	**GO TO "Final" subsection →(C)**			
			90%≤ [Negative is related and not persuasive.]	**GO TO "Not Significant Finding Option" subsection**			

Address by Technical Change Option	**Technical Change Recommendations** **Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.**		
	Technical Changes	**1**	**FROM: Section/Paragraph5.1** 5.1*Abbreviations and Acronyms* 5.1.1*MTBF* — Mean Time Between Failure 5.1.2 *MTTR* — Mean Time To Restoration 5.1.3*CDA*— Compressed Dry Air
			TO: Section/Paragraph5.1 5.1*Abbreviations and Acronyms* 5.1.1*MTBF* — Mean Time Between Failure 5.1.2 *MTTR* — Mean Time To Restoration 5.1.3*CDA*— Compressed Dry Air 5.1.4 *MES*— Manufacturing Execution System
			Justification (If necessary) **Add MESto the acronyms in § 5.1**

Motion			Negative is addressed by the technical change(s).	
Motion by/2nd by			Hui Long (CETC 48)/Zhixin Li (Linton)	
Discussion				
Result of Vote (check one)			53**Y**-0**N**; Motion passed.	
		X	2/3≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**
			[Negative is not addressed by the technical change(s).] < 2/3	**GO TO "Final" subsection →(E)**
Incorporation of the Technical Change	**Motion**		To incorporate the technical change(s).	
	Motion by/2nd by		Hui Long (CETC 48)/Zhixin Li (Linton)	
	Discussion			
	Result of Vote (check one)		53**Y**-0**N**; Motion passed.	
		X	90%≤ [Agree to incorporate.]	**GO TO "Final" subsection →(F)**
			[Disagree to incorporate.]>10%	**GO TO "Final" subsection →(E)**

Final	**(check if applicable)**		**(A)**	Withdrawn**(counted under h in disposition)**
			(B)	Not related **(counted under i in disposition)**
			(C)	Related and not persuasive (significant)
			(D)	Not significant**(counted under j in disposition)**

			(E)	Related and persuasive and not addressed by technical change	**DOCUMENT FAILS**
		X	**(F)**	Addressed by technical change **(counted under k disposition)**	
	(check if applicable)		*Comment generated.* ***See Section V-(ii) Comment #X.***		

Disposition of Voting Interest Reject 1

Check only when the Document has not been failed.

3	Original number (#) of Negatives			**(g)**
#	Number of Negatives withdrawn			**(h)**
#	Number of Negatives found not related			**(i)**
#	Number of Negatives found not significant			**(j)**
3	Number of Negatives addressed by technicalchange **(Negative becomes not significant)**			**(k)**
Final	X	**g**-(**h**+**i**+**j**+**k**)=0	**Reject is Not Valid and is not included in the denominator of § VI. *Approval Conditions Check***	
		g-(**h**+**i**+**j**+**k**)>0	**Reject is included in the denominator of § VI. *Approval Conditions Check***	
		Reject without a Negative	**Not Valid**	

This table is needed for each Voting Interest Reject.

Note: If all of the Negatives included with a Reject Vote are withdrawn, determined to be not related, or determined to be not significant, the Reject Vote is not valid. (*Regulations* ¶ 9.4.3.3)
Note: A Negative addressed by a technical change is automatically considered to be not significant. (*Regulations* ¶9.6.1.4.5.2)

IV. Other Technical Issues

Note: TC Chapter may choose to address a technical issue that is not part of a Negative received on a Letter Ballot (i.e., a Comment or a reason not addressed by a Vote response) by handling it as a Negative and finding it related and technically persuasive. The TC Chapter may then fail the Document or address such technical issue by using the procedure defined in*Regulations*§9.6.1.4.3to make a technical change to the Document. (*Regulations* ¶9.6.1.4.2.5)

Technical Issue	**Origin**	***TF/TC Chapter to choose** Comment # (Voter: Yani He and LONGi)
	Referenced Section/Paragraph	***TF/TC Chapter to fill in including text in the ballot as appropriate.**
	Reason	***Original Commenttext, if applicable, and problem statement,including justification and suggestion, should be copied.**
		The design for the equipment should include the lense and camera, which decide the sharpness of EL images.
Handle technical issue identified above as a Negative.		

<table>
<tr><td rowspan="8">Related</td><td rowspan="4">Motion and Reason (check one)</td><td>X</td><td colspan="2">‘Related’ is mutually agreed upon.(Needs no motion.)</td><td>GO TO “Persuasive” subsection</td></tr>
<tr><td></td><td colspan="3">Negative is not related and assigned to TF.(Needs ≥2/3 votes to pass.)</td></tr>
<tr><td></td><td colspan="3">Negative is not related and placed on agenda of current TC Chapter meeting as new business.(Needs ≥2/3 votes to pass.)</td></tr>
<tr><td></td><td>Reason</td><td colspan="2">XXXX</td></tr>
<tr><td>Motion by/ 2nd by</td><td colspan="5">Name (Company)/Name (Company)</td></tr>
<tr><td>Discussion</td><td colspan="5"></td></tr>
<tr><td rowspan="4">Result of Vote(check one)</td><td colspan="5">XXY-XXN;Motion passed/failed.</td></tr>
<tr><td></td><td colspan="2">[Negativeis not related.] <2/3</td><td>GO TO “Persuasive” subsection</td></tr>
<tr><td></td><td colspan="3">2/3 ≤ [Negative is not related] and assigned to TF.</td><td rowspan="2">GO TO “Final” subsection →(B)</td></tr>
<tr><td></td><td colspan="3">2/3 ≤ [Negative is not related] and placed on agenda of current TC Chapter meeting as new business.</td></tr>
<tr><td rowspan="8">Persuasive</td><td rowspan="4">Motion and Reason (check one)</td><td>X</td><td colspan="4">Negative is related and persuasive.(Needs >1/3 votes to pass.)</td></tr>
<tr><td></td><td colspan="4">Negative is related and not persuasive.(Needs ≥2/3 votes to pass.)</td></tr>
<tr><td></td><td>Reason</td><td colspan="3">XXXX</td></tr>
<tr><td></td><td colspan="4"></td></tr>
<tr><td>Motion by/ 2nd by</td><td colspan="5">Hui Long (CETC 48) / Li Huang (SEMILAB)</td></tr>
<tr><td>Discussion</td><td colspan="5"></td></tr>
<tr><td rowspan="4">Result of Vote(check one)</td><td colspan="5">41Y-12N;Motion passed/failed.</td></tr>
<tr><td>X</td><td>[Negative is related and persuasive.] >1/3</td><td rowspan="2">Is a technical change recommended? (check one)</td><td>X</td><td>Y</td><td>GO TO “Address by Technical Change Option” subsection</td></tr>
<tr><td></td><td>[Negative is related and not persuasive.] <2/3</td><td></td><td>N</td><td>GO TO “Final” subsection →(E)</td></tr>
<tr><td></td><td>2/3 ≤ [Negative is related and not persuasive.] <90%</td><td colspan="3">GO TO “Final” subsection→(C)</td></tr>
<tr><td>Initial</td><td colspan="5">Technical Change Recommendations
Original section/paragraph number and at least one full sentence are required in “FROM” and “TO” fields.</td></tr>
</table>

	Technical Changes	1	**FROM: Section/Paragraph8.4** 8.4 The Guide for Design in Test Accuracy and Repeatability 8.4.1 High-precision servo motors should be used for transmission motors and positioning system motors in the test system(the positioning accuracy is recommended to be greater than 5um). 8.4.2 For test equipment with visual positioning, the visual positioning control system should have regular calibration function to eliminate the accumulated error in positioning. It is recommended to calibrate 1timesevery0.2 million test times. 8.4.3 For electrical properties and EL testing, the width of the probe row shall not be greater than 3mm, subject to the requirements for the installation of the probe. 8.4.4 For electrical properties and EL testing, the layout of the probe row should be arranged in a way that minimizes the blocking of the cells. 8.4.5 For electrical properties and EL testing, the lead lines of the probe shall be shielded or equipped with magnetic rings to reduce interference of external electromagnetic fields on the test of current and voltage. 8.4.6 The test area should be opaque to avoid optical interference and light leakage. 8.4.7 For the electrical properties testing, the surface of each part of the testing area should be blackened to reduce reflection, and the testing area should have good heat dissipation to ensure testing temperature requirements. 8.4.8 For the electrical properties test, the electrical system needs to be equipped with voltage stabilizer to ensure the stability of the light source. 8.4.9 The electrical system should be well antistatic， and the communication cable between the control system and the module should have strong anti-interference ability. 8.4.10 For the electrical properties testing, the solar simulator should meet Class 3A in IEC 60904-9-2007. 8.4.11 For crystalline silicon solar cells with high capacitance characteristics, the solar simulator should use a test light source with an exposure time greater than 60ms.

TO: Section/Paragraph8.4

8.4 The Guide for Design in Test Accuracy and Repeatability

8.4.1 High-precision servo motors should be used for transmission motors and positioning system motors in the test system(the positioning accuracy is recommended to be greater than 5um).

8.4.2 For test equipment with visual positioning, the visual positioning control system should have regular calibration function to eliminate the accumulated error in positioning. It is recommended to calibrate 1timesevery0.2 million test times.

8.4.3 For electrical properties and EL testing, the width of the probe row shall not be greater than 3mm, subject to the requirements for the installation of the probe.

8.4.4 For electrical properties and EL testing, the layout of the probe row should be arranged in a way that minimizes the blocking of the cells.

8.4.5 For electrical properties and EL testing, the lead lines of the probe shall be shielded or equipped with magnetic rings to reduce interference of external electromagnetic fields on the test of current and voltage.

8.4.6 The test area should be opaque to avoid optical interference and light leakage.

8.4.7 For the electrical properties testing, the surface of each part of the testing area should be blackened to reduce reflection, and the testing area should have good heat dissipation to ensure testing temperature requirements.

8.4.8 For the electrical properties test, the electrical system needs to be equipped with voltage stabilizer to ensure the stability of the light source.

8.4.9 The electrical system should be well antistatic， and the communication cable between the control system and the module should have strong anti-interference ability.

8.4.10 For the electrical properties testing, the solar simulator should meet Class 3A in IEC 60904-9-2007.

8.4.11 For crystalline silicon solar cells with high capacitance characteristics, the solar simulator should use a test light source with an exposure time greater than 60ms.

8.4.12 For EL testing, the near-infrared CCD camera and infrared filter need to be selected depending on the type of cells being tested.

Justification (If necessary)
Added the design selection of lens and camera in EL test in 8.4.12.

Motion		Negative is addressed by the technical change(s).		
Motion by/2nd by		Hui Long (CETC 48) / Li Huang (SEMILAB)		
Discussion		Hui Long (CETC 48): We accept Yani He's comments and added the design selection of lens and camera in EL test in 8.4.12.		
Result of Vote(check one)		49**Y**-4**N**; Motion passed.		
		X	2/3≤ [Negative is addressed by the technical change(s).]	**GO TO "Incorporation of the Technical Change" subsection**
			[Negative is not addressed by the technical change(s).] < 2/3	**GO TO "Final" subsection →(E)**
Incorporation of the Technical Change	**Motion**	To incorporate the technical change(s).		
	Motion by/2nd by	Hui Long (CETC 48) / Li Huang (SEMILAB)		
	Discussion			
	Result of Vote (check one)	49 **Y**-4 **N**; Motion passed.		
		X	90%≤ [Agree to incorporate.]	**GO TO "Final" subsection →(F)**
			[Disagree to incorporate.]>10%	**GO TO "Final" subsection →(E)**
5	**(check one)**		**(B)**	Not related

	(C)	Related and not persuasive	
	(E)	Related and persuasive and not addressed by technical change	DOCUMENT FAILS
X	(F)	Addressed by technical change	
(check if applicable)		Comment generated. See Section V-(ii) Comment #X.	

V. Comments

V- (i) Voters' Comments

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

Comment	*TF/TC Chapter to fill in section/paragraph #, if necessary.		
	In subsection 8.3.3 change 'Mpa' to 'MPa' (two times).		
Action	**The TC Chapteragreed 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 Votedonin §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/Paragraph8.3.3** 8.3.3 The total pressure of CDA should be controlled at 0.4~0.6Mpa, and pressure of CAD in the suckers of should be controlled at 0.2~0.4Mpa.	
		TO: Section/Paragraph8.3.3 8.3.3 The total pressure of CDA should be controlled at 0.4~0.6 MPa, and pressure of CAD in the suckers of should be controlled at 0.2~0.4 MPa.	
		Justification (If necessary) Change 'Mpa' to 'MPa'.	

Motion	To approve above editorial change(s)
Motion by/2nd by	Hui Long (CETC 48)/Zhixin Li (Linton)
Discussion	Hui Long (CETC 48): We will check carefully next time.
Vote	*53**Y**-0**N**; Motion passed.*

This table is needed for each Comment accompanied a Vote

Comment 2

Comment	*TF/TC Chapter to fill in section/paragraph #, if necessary.		
	In subsections 8.4.1 and 8.4.11 separate values of units.		
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 Votedonin §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/Paragraph8.4.1** 8.4.1 High-precision servo motors should be used for transmission motors and positioning system motors in the test system(the positioning accuracy is recommended to be greater than 5um).	
		TO: Section/Paragraph8.4.1 8.4.1 High-precision servo motors should be used for transmission motors and positioning system motors in the test system(the positioning accuracy is recommended to be greater than 5 um).	
		Justification (If necessary) Separate values of units.	
	2	**FROM: Section/Paragraph8.4.11** 8.4.11 For crystalline silicon solar cells with high capacitance characteristics, the solar simulator should use a test light source with an exposure time greater than 60ms.	
		TO: Section/Paragraph8.4.11 8.4.11 For crystalline silicon solar cells with high capacitance characteristics, the solar simulator should use a test light source with an exposure time greater than 60 ms.	
		Justification (If necessary) Separate values of units.	
Motion		To approve above editorial change(s)	
Motion by/2nd by		Hui Long (CETC 48)/Zhixin Li (Linton)	
Discussion		XXXX	
Vote		*53**Y**-0**N**; Motion passed.*	

Commenter 2(Yani He /LONGi LERRI)- Comment 1

mm	*TF/TC Chapter to fill in section/paragraph #, if necessary.

	The standard should reference related EL standards to minimize the misjudgement.		
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. For the reference EL image judgment standard, only SEMI has a Doc.6070E draft standard "Guide for Identifying Cell Defects in Crystalline Silicon PV Modules by Electroluminescence (EL) Imaging" in development, but the draft standard has not been global published. So it is impossible to take reference..	
		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 Votedonin §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/Paragraphxxx**	
		TO: Section/Paragraphxxx	
		Justification (If necessary)	
	2	**FROM:Section/Paragraphxxx**	
		TO: Section/Paragraphxxx	
		Justification (If necessary)	

Motion	To approve above editorial change(s)
Motion by/2nd by	Name (Company)/Name (Company)
Discussion	XXXX
Vote	*XX **Y**-XX **N**; Motion passed/failed.*

V-(ii) Comments Created by Handling Negative

None

VI. Editorial ChangesOther than Those Votedon in §V

None

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* ¶9.6.2.1.2)

APPROVAL CONDITION 2: At least 90% of the sum of valid Voting Interest Accept and Voting Interest Reject Votes must be Accept. (*Regulations*¶ 9.6.2.1.3)

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

		Accepts		**(Accepts + Valid Rejects)**				
Approval Rate	=	**72**	/	**72**	=	**100.0%**		**≥90%**

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

Note: See *Regulations*§ 9.6.2 for further information.

	Globally Approved (No Ratification Ballot needed): **The Letter Ballot meets the Letter Ballot approval conditions for the global technical committee.**
X	**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 validatetechnical 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)

		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		Hui Long (CETC 48) / Li Huang (SEMILAB)
Discussion		XXXX
Vote		45 **Y**-8 **N**; Motion passed.

IX. Intellectual Property (IP) Check

Note: This Letter Ballot may cover all or part of a Standard or Safety Guideline. Regardless of the coverage, 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 patented technologythat might be relevant (see *Regulations* ¶16.3.1.1) to the Standard or Safety Guideline; or,anycopyrighted items or trademarks that are used/reproduced(see *Regulations* ¶16.4.1.2) in the Standard or Safety Guideline.(Also see, *Regulations*§8.8)					
	X	The question is NOT answered in affirmative (No potentially material patented technology or use/reproduction of copyrighted items/trademarks is known.)	**GO TO SECTIONX.**			
		The question is answered in affirmative	Is any of the known IPs a patented technology?		**Yes, at least one of them is a patented technology**	**GO TOIX (a) "Patented Technology" subsection**
					No	**GO TO IX (b)"Copyright items" subsection**

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.
		This Document passed TC Chapter review with editorial changes and will be forwarded to the ISC A&R SC for procedural review.
	X	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		Hui Long (CETC 48) / Rulong Chen (RUNERGY)
Discussion		XXXX
Vote		43 **Y**-10 **N**
Final Action	X	Motion passed
		Motion failed

Note: If the use of PMPT or copyrighted item is justified by the TC Chapter, LOA or release form must be received before publication can proceed.