# 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 and Title

Document	Document Title
Number6191	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):**

<b>Returned Vote</b>		Distributio		Return Rate	
93	÷	153	=	60.8%	≥60%
40					
1		Total Vote	ers v	with Rejects	1
72					
	93 40 1	93 ÷	93 ÷ 153 40 1 Total Vote	93 ÷ 153 = 40  1 Total Voters	93 ÷ 153 = 60.8%  40  1 Total Voters with Rejects

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: Larry Hartsough and U.A. Associates)

Negative 1

9	alive i									
		*TF/TC Chapter to fill in,incl	uding text in the ballot if nece	essary.						
	Referenced	§ 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,								
Nega	ριι	basic design guide and extensibility designguide for crystalline silicon solar cell testing and sorting								
Negative		equipment.	text (e.g., issue, justification	suggestion) should be						
		copied.		,						
	Negative Text		1, cannot use the word "specifies" - uld probably be accomplished via a							
		in 1.1, replace "paper" with "guide	e" or "document".							
TFi	input (optional)									
Wit	hdrawal(check	X No Negative withdrawal r	made by Voter.	GOTO"Related" subsection						
	one) `	Withdrawal document red MM/DD/YYYY.	GO TO "Final" subsection →(A)							
	Motion and	X 'Related' is mutually agre	GO TO "Persuasive" subsection							
	Reason	Negative is not related.(N	leeds ≥2/3 votes to pass.)							
	(check one)	Reason X.	XXX							
Related	Motion by/ 2 <sup>nd</sup> by	Name (Company)/Name (Com								
ated	Discussion									
		XXY-XXN;Motion passed/faile	ed.	_						
	Result of Vote(check	[Negativeis not related.] <	<2/3	GOTO "Persuasive" subsection						
	one)	2/3≤ [Negative is not rela	GO TO "Final" subsection →(B)							
		X Negative is related and po	ersuasive.(Needs >1/3 votes to	o pass.)						
Pe	Motion and Reason (check one)	Negative is related and not persuasive.(Needs ≥2/3 votes to pass.)								
Persuasive		Reason X.	xxx							
ve	Motion by/ 2 <sup>nd</sup> by	Hui Long (CETC 48)/Rulong C	Chen (Runergy)							
	Discussion	•	•							
	Result of	3 <b>Y</b> -10 <b>N</b> ;Motion passed.								

	Vo	•	check ne)				e is relate ve.] >1/3	d and	Is a technical change recommended?	Х	Υ	GO TO "Address by Technical Change Option" subsection					
						e is relate ve.] <2/3	d and not	(check one)			GO TO "Final" subsection →(E)						
							gative is r	n <b>→</b> (C)									
							ersuasive.] <90%  ≤ [Negative is related and GO TO "Final" subsection →(C)  ≤ [Negative is related GO TO "Net Significant Finding Option" subsection										
					and	not p	persuasiv		GO TO "Not Sigi	TITIC	ant F	inding Option" subsection					
		nal	al Chang section/					d at least o	one full sentence	are	requ	ired in "FROM" and "TO"					
							graph1.1		: 1-1: : 41	1	•						
					-		_		-		_	process of crystalline silicon e design criteria, key design					
			paramet	ers,	basi	ing and sorting equipment, this paper specifies the design criteria, key design asic design guide and extensibility design guide for crystalline silicon solar cell											
	echr		testing a	and s	orti	ng e	quipmen	t.									
	Technical Changes		TO: Sec			_	•	*41	. 1 1	1		C 4 11' '1'					
	Ch	1			to provide designers with guidelines in the design process of crystalline silicon esting and sorting equipment, this document discusses the design criteria, key												
Ad	ang					eters, basic design guide and extensibility design guide for crystalline silicon											
dre	es		solar ce	ll tes	sting	and	sorting	equipment									
ss b			Justific														
y Te							ad of <i>spe</i> ad of <i>pap</i>										
chn	Motic	n				Negative is addressed by the technical change(s).											
iical	Motic	n l	by/2 <sup>nd</sup> by	•		Hui Long (CETC 48)/Rulong Chen (Runergy)											
Address by Technical Change Opt	Discu	ıss	ion			Zhixin Li (Linton): Specify is not suitable here.											
ıge						43Y	-10 <b>N</b> ; Mot	tion passed.									
Option			sult of Vo			X	X 2/3≤ [Negative is addressed by the technical change(s).] GO TO "Incorporati Technical Change" subsection										
							[Negative change(s		ressed by the tech	nical		GO TO "Final" subsection →(E)					
	_	Mo	otion			To incorporate the technical change(s).											
	nco Tec		otion by/2		у	Hui l	Long (CE	TC 48)/Zhix	rin Li (Linton)								
	rpor	Di	scussion	ı													
	atio al C					48Y	-5 <b>N</b> ; Motic	on passed.									
	ncorporation of the Technical Change		Result of			X	90%≤ [Aឲ្	gree to inco	rporate.]			GO TO "Final" subsection →(F)					
	9		(check	one)			[Disagree	e to incorpo	rate.]>10%			GO TO "Final" subsection →(E)					
						(/	<b>A)</b>	Withdrawn	(counted under h	in d	lispo						
Final	(0	che	ck if			(1	B)	Not related	(counted under	i in c	lispo	osition)					
<u>  a</u>	ар	applicable)				(	C)	Related an	d not persuasive (	signi	ficar	nt)					
						(D) Not significant(counted under j in disposition)					sposition)						

		(E)	Related and persuasive and not addressed by technical change	DOCUMENT FAILS
	ted under k disposition)			
(check if applicable)		Comment gene	rated. See Section V-(ii) Comment #X.	

This table is needed for each Negative.

**Negative 2** 

INCH	ative 2												
	Referenced Section/Paragra		/TC Chapter to fill in,ir	cludir	ng text in the ball	ot if ı	nece	essary.					
Neg	ph	§ 8.	3.3										
Negative	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)												
Wit	hdrawal <mark>(check</mark>	Х	No Negative withdrawa		GOTO"Related" subsection								
****	one)		Withdrawal document MM/DD/YYYY.	receive	ed by Standards st	aff o	n	GO TO "Final"subsection →(A)					
	Mation and	Х	'Related' is mutually ag	greed ι	ıpon. <mark>(Needs no</mark> m	otio	n.)	GO TO "Persuasive" subsection					
	Motion and Reason		Negative is not related	.(Need	ls ≥2/3 votes to p	ass.)							
	(check one)		Reason	XXXX	(								
Rel	Motion by/ 2 <sup>nd</sup> by	Name (Company)/Name (Company)											
Related	Discussion												
	Result of Vote(check one)	XX <b>Y</b> -XX <b>N</b> ;Motion passed/failed.											
			[Negativeis not related.] <2/3					GO TO "Persuasive" subsection					
			2/3 ≤ [Negative is not r	elated	]			GO TO "Final" subsection →(B)					
		X	Negative is related and	d persu	asive. <mark>(Needs &gt;1/3</mark>	3 vot	es to	p pass.)					
	Motion and Reason (check one)		Negative is related and not persuasive.(Needs ≥2/3 votes to pass.)										
Pe	(choon cho)		Reason XXXX										
Persuasive	Motion by/ 2 <sup>nd</sup> by	Hui	Long (CETC 48)/Zhixin	Li (Lin	ton)								
ive	Discussion	n Co-chair: Larry is very careful and gives good comments. In addition, please acronym in § 5.1											
	_	53 <b>Y</b>	'-0N;Motion passed.										
	Result of Vote(check one)	X	[Negative is related an persuasive.] >1/3	d	Is a technical change recommended? (check one)	Х	Y	GO TO "Address by Technical Change Option" subsection					

					e is related and not		N	GO TO "Final" subsection				
			2/3	≤ [N	ive.] <2/3 egative is related	GO TO "Final" s	uheactio	⇒(E)				
					persuasive.] <90% legative is related							
			and	not	not persuasive.]							
			al Change Reconsection/paragram			one full sentence	are requ	ired in "FROM" and "TO"				
	fields											
			FROM: Section/				<i>f</i>	CAD's days 1 age 6				
				3.3 The total pressure of CDA should be controlled at 0.4~0.6Mpa, and pressure of CAD in the suckers of could be controlled at 0.2~0.4Mpa.								
		1	<b>TO: Section/Paragraph8.3.3</b> 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	nece	essary)	and to CDA						
	Tec		This is a spelling mistake. CAD is changed to CDA. FROM: Section/Paragraph 5.1									
	hnic		5.1 Abbreviations of		<b>.</b>							
	al C				ime Between Failure							
Þ	Technical Changes		5.1.2MTTR — Mean Time To Restoration									
ddre	ges		TO: Section/Paragraph5.1									
SS		2	5.1Abbreviations a	nd A	cronyms							
у Т			5.1.1 <i>MTBF</i> — Mea	an Ti	me Between Failure							
ech			5.1.2 <i>MTTR</i> — Me									
nica			5.1.3 CDA— Compressed Dry Air  Justification (If necessary)									
Address by Technical Change			Add CDA as acronym in § 5.1									
ınge	Motic	on		Negative is addressed by the technical change(s).								
0	Motic	on k	oy/2 <sup>nd</sup> by	Hui Long (CETC 48)/Zhixin Li (Linton)								
ption	Discu	ıss	ion									
				53Y	-0 <b>N</b> ; Motion passed.							
			sult of Vote	X	2/3≤ [Negative is ad change(s).]	dressed by the ted	chnical	GO TO "Incorporation of the Technical Change" subsection				
		Ì	•		[Negative is not addiction change(s).] < 2/3	ressed by the tech	nical	GO TO "Final" subsection →(E)				
	ı		otion	To i	ncorporate the techr	nical change(s).						
	ncor Tecl		otion by/2 <sup>nd</sup> by	Hui	Long (CETC 48)/Zhix	rin Li (Linton)						
			scussion									
	pora hnica	Dis	304001011									
	poration hnical Ch	Dis		53 <b>Y</b>	-0 <b>N</b> ; Motion passed.			loo 70 "F" "				
	poration of th		Result of Vote	53 <b>Y</b>	-0 <b>N</b> ; Motion passed. 90%≤ [Agree to inco	rporate.]		GO TO "Final" subsection →(F)				
	Incorporation of the Technical Change					· -						

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

**Negative 3** 

neg	ative 3										
	Referenced Section/Paragra	*TF/TC Chapter to fill i	in,including text in the ballot if nec	essary.							
Neg	Section/Paragra ph	§ 9.5, § 5.1									
Negative	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.									
TFi	input (optional)										
Wit	hdrawal <mark>(check</mark>	X No Negative withd	rawal made by Voter.	GOTO"Related" subsection							
	one)	Withdrawal docum MM/DD/YYYY.	ent received by Standards staff on	GO TO "Final"subsection →(A)							
	Motion and	X 'Related' is mutual	y agreed upon.(Needs no motion.)	GO TO "Persuasive" subsection							
	Reason	Negative is not rela	ated (Needs ≥2/3 votes to pass.)								
	(check one)	Reason	xxxx								
Reli	Motion by/ 2 <sup>nd</sup> by	Name (Company)/Name	lame (Company)/Name (Company)								
Related	Discussion										
		XXY-XXN;Motion pass	ed/failed.								
	Result of Vote(check	[Negativeis not rela	ated.] <2/3	GO TO "Persuasive" subsection							
	one)	2/3 ≤ [Negative is r	not related.]	GO TO "Final" subsection →(B)							
	Matian and	X Negative is related	and persuasive.(Needs >1/3 votes t	to pass.)							
Per	Motion and Reason (check one)	Negative is related	and not persuasive.(Needs ≥2/3 vot	es to pass.)							
rsuasive	,	Reason	xxxx								
ive	Motion by/ 2 <sup>nd</sup> by	Hui Long (CETC 48)/Zh	ixin Li (Linton)								
	Discussion										
	Result of	45 <b>Y</b> -8 <b>N</b> ;Motion passed									

I	\/ <u>^</u>	to!	check											
	V V V		ne)	X			e is relate ve.] >1/3	d and	Is a technical change recommended?	Х	Y	GO TO "Address by Technical Change Option" subsection		
							e is relate ve.] <2/3	d and not	(check one)		N	GO TO "Final" subsection →(E)		
							[Negative is related GO TO "Final" subsection →(C)							
							not persuasive.j <90%							
						Go TO "Not Significant Finding Option" subsection								
	Tech	nic	al Chang	ie Re				J.]						
	Origi	nal						d at least o	one full sentence	are	requ	ired in "FROM" and "TO"		
	fields	<u>.</u>	lenou.	<u> </u>	. ,-									
							graph <mark>5.1</mark>							
			5.1 <i>Abbre</i>	viatio	ons ai	nd Ao	cronyms							
			5.1.1 <i>MTI</i>	3F —	- Mea	ın Tiı	me Betwee	n Failure						
	Tec						me To Res	toration						
	hni						d Dry Air							
	Technical Changes	1	TO: Sed			_	-							
	Ch	ľ	5.1 <i>Abbre</i>	viatio	ons ar	nd Ac	cronyms							
Þ	ano		5.1.1 <i>MTH</i>	3F —	- Mea	ın Tiı	n Time Between Failure							
ddr	ges		5.1.2 <i>MT</i>	TR —	- Mea	nn Time To Restoration								
ess						ressed Dry Air facturing Execution System								
<u>\$</u>			Justific					ition System						
Te							nyms in §	5.1						
chn	Motic	n on	<u> </u>		1				the technical cha	nge(s	s).			
ical (	Motic	on l	by/2 <sup>nd</sup> by	,		Hui Long (CETC 48)/Zhixin Li (Linton)								
Address by Technical Change	Discu	ıss	ion											
ge						53 <b>Y</b> -0 <b>N</b> ; Motion passed.								
Option		_	sult of Vo			X		gative is ad	dressed by the ted	chnica	al	GO TO "Incorporation of the Technical Change" subsection		
						[Negative is not addressed by the technical GO TO "Final" subs				GO TO "Final" subsection →(E)				
		Mc	otion			To i	ncorporat	e the tech	nical change(s).					
	Inc:	Mc	otion by/2	2 <sup>nd</sup> b	у	Hui	Long (CE	TC 48)/Zhix	kin Li (Linton)					
	Incorporation of the Technical Change	Di	scussion	)			- •	•						
	ration					53V	-ON: Motic	on passed.						
	on (				ı							GO TO "Final" subsection		
	of the inge		Result of (check			X	90%≤ [Ag	gree to inco	rporate.]			<b>→</b> (F)		
	) He		(Check	one)			[Disagree	to incorpo	rate.]>10%			GO TO "Final" subsection →(E)		
						(/	<b>A</b> )	Withdrawn	(counted under h	in d	ispo	osition)		
Ξ	(0	che	ck if			(1	В)	Not related	(counted under	i in d	ispo	osition)		
Final			cable)				C)		d not persuasive (			•		
									cant(counted und			,		
Щ						1,	- /		quu anid	J ''		- p - 5		

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

#### **Disposition of Voting Interest Reject 1**

Check only when the Document has not been failed.

3	Original	num	ber (#) of Negatives		(g)		
#	Number	of N	egatives withdrawn		(h)		
#	Number	Number of Negatives found not related (i)					
#	Number	Number of Negatives found not significant (j)					
3			egatives addressed by technic t significant)	alchange (Negative	(k)		
	Final				is not included in the pproval Conditions Check		
			<b>g-(h+i+j+k)</b> >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* §9.6.1.4.3 to make a technical change to the Document. (*Regulations* ¶9.6.1.4.2.5)

Те	Origin	*TF/TC Chapter to choose Comment # (Voter: Yani He and LONGi)					
Technical	Referenced	*TF/TC Chapter to fill in including text in the ballot as appropriate.					
	Section/Parag raph						
Issue	Reason	*Original Commenttext, if applicable, and problem statement,including justification and suggestion, should be copied.					
	Reason	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.							

_			1								
		Χ	'Related' is mutually ag	greed up	oon. <mark>(Needs no mot</mark> i	ion.)		GO TO "Persuasive" subsection			
	Motion and		Negative is not related	and as	signed to TF.(Needs	s ≥2/	3 vot	tes to pass.)			
	Reason		Negative is not related and placed on agenda of current TC Chapter meeting as new								
	(check one)		business.(Needs ≥2/3 votes to pass.)								
	(encon enc)		Reason								
Related	Motion by/ 2nd by	Nar	me (Company)/Name (C	ompan	/)						
ted	Discussion										
		XX	Y-XXN;Motion passed/fa	ailed.							
	Result of Vote(check		[Negativeis not related	.] <2/3				GO TO "Persuasive" subsection			
	one)		2/3 ≤ [Negative is not r	elated]	and assigned to TF.			GO TO "Final"			
	,		2/3 ≤ [Negative is not	subsection →(B)							
			current TC Chapter me	eting a	s new business.			Subsection 7(B)			
		X	Negative is related and persuasive.(Needs >1/3 votes to pass.)								
	Motion and Reason (check one)		Negative is related and	o pass.)							
	(, , , , , , , , , , , , , , , , , , ,		Reason XXXX								
Persuasive	Motion by/ 2 <sup>nd</sup> by	Hui	Long (CETC 48) / Li Hu								
asi	Discussion										
Ve		41Y	/-12 <b>N</b> ;Motion passed/fa	iled.							
	Result of Vote(check	X	[Negative is related and persuasive.] >1/3		Is a technical change	Х	Υ	GO TO "Address by Technical Change Option" subsection			
	one)		[Negative is related an persuasive.] <2/3		recommended? (check one)		N	GO TO "Final" subsection →(E)			
			2/3 ≤ [Negative is related and not persuasive.] <90%		GO TO "Final" subsection→(C)						
			ecommendations								
hnic al	Original section fields.	ı/para	/paragraph number and at least one full sentence are required in "FROM" and "TO"								

#### 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.

10

#### 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.
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- 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.
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- 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/2 <sup>nd</sup> by Hui Long (CETC 48) / Li Huang (SEMILAB)								
Disc	Discussion					ETC 48): We accept Yani He's commer lens and camera in EL test in 8.4.12.	nts and added the design	
				49	Y-4N; Mo	tion passed.		
Result of Vote(check one)			X	2/3≤ [Ne change(	gative is addressed by the technical 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)	
	Motion			To incorporate the technical change(s).				
Inc Te	Motion by/	2 <sup>nd</sup>	by	Hui Long (CETC 48) / Li Huang (SEMILAB)				
Incorporation Technical Ch	Discussion							
atioi al C				49	Y-4 N; M	otion passed.		
ncorporation of the Technical Change		Result of Vote		X	X 90%≤ [Agree to incorporate.]		GO TO "Final" subsection →(F)	
ซื ดี (check one		one)			[Disagre	e to incorporate.]>10%	GO TO "Final" subsection →(E)	
(ch	(check one)				(B) Not related			

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

## **V. Comments**

V- (i) Voters' Comments Commenter 1 (Rafael Vargas-Bernal / Instituto Tecnologico Superior de Irapuato)-**Comment 1** 

11 <u>1116</u>	ent 1								
Comment	*TF	/TC Chapte	er to	fill in section/paragraph #, if necessary.					
ment	In subsection 8.3.3 change 'Mpa' to 'MPa' (two times).								
	The	The TC Chapteragreed to do one of the following actions.							
	*No motion is required in this step.								
Ac		Already ac	ddre	ssed by Commenter #, Comment #					
Action		No further	acti	on was taken by the TC Chapter.					
		Refer to th	e TI	F for more consideration.					
		New Busir	ness						
	Χ	Editorial C	han	ange					
		Options		Case 1: No vote in this section:					
		for editorial		To be included and voted on as a group in § VI. Editorial Changes Other than Those Votedonin §V.					
		change (check		Case 2: Voted in this section:					
		one)	Χ	Original section number and at least one full sentence are required i "FROM" and "TO" fields.					
		FROM: Section/Paragraph8.3.3							
Editor		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.							
Editorial Changes	1	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 is suckers of should be controlled at 0.2~0.4 MPa.							
jes		Justificat Change 'M <sub>J</sub>		(If necessary) o 'MPa'.					
M	Motion			Го approve above editorial change(s)					
М	otion	by/2 <sup>nd</sup> by	ŀ	Hui Long (CETC 48)/Zhixin Li (Linton)					
Di	scus	ssion	ŀ	Hui Long (CETC 48): We will check carefully next time.					
V	ote			53 <b>Y</b> -0 <b>N</b> ; Motion passed.					
toh	ble is needed for each Comment accompanied a Vote								

This table is needed for each Comment accompanied a Vote

#### Comment 2

	ent z							
Comment	*TF/TC Chapter to fill in section/paragraph #, if necessary.							
nent	In subsections 8.4.1 and 8.4.11 separate values of units.							
	The	TC Chapte	r agreed to do one of the following actions.					
	*No motion is required in this step.							
Ac		Already add	ressed by Commenter #, Comment #					
Action		No further a	ction was taken by the TC Chapter.					
		Refer to the	TF for more consideration.					
		New Busine	ess					
	Χ	Editorial Ch	ange					
		Options	Case 1: No vote in this section:					
		for editorial	To be included and voted on as a group in § VI. Editorial Changes Other than Those Votedonin §V.					
		change (check	Case 2: Voted in this section:					
		one)	Original section number and at least one full sentence are required in "FROM" and "TO" fields.					
		<b>FROM: Section/Paragraph8.4.1</b> 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).						
Edi	1	TO: Section/Paragraph8.4.1 8.4.1 High-precision servo motors should be used for transmission motors and positioning sys motors in the test system(the positioning accuracy is recommended to be greater than 5 um).						
itorial C		Justification (If necessary) Separate values of units.						
Editorial Changes		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.						
	2	TO: Section/Paragraph8.4.11 8.4.11 For crystalline silicon solar cells with high capacitance characteristics, the solar simulate should use a test light source with an exposure time greater than 60 ms.						
			n (If necessary) lues of units.					
M	otion	l	To approve above editorial change(s)					
M	otion	by/2 <sup>nd</sup> by	Hui Long (CETC 48)/Zhixin Li (Linton)					
Discussion			XXXX					
V	ote		53 <b>Y</b> -0 <b>N</b> ; Motion passed.					

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

	The	e standard should reference related EL standards to minimize the misjudgement.						
	The	The TC Chapter agreed to do one of the following actions.						
	*No	No motion is required in this step.						
		Already addressed by Commenter #, Comment #						
Action	Х	No further action was taken by the TC Chapter.  For the reference EL image judgment standard, only SEMI has a Doc.6070E draft star "Guide for Identifying Cell Defects in Crystalline Silicon PV Modules by Electroluminesc (EL) Imaging" in development, but the draft standard has not been global published. So impossible to take reference						
			e TF for more consideration.					
		New Busin						
		Editorial C						
		Options for editorial	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.					
		change (check	Case 2: Voted in this section:					
		one)	Original section number and at least one full sentence are required in "FROM" and "TO" fields.					
		FROM: Section/Paragraphxxx						
Ed	1	TO: Section/Paragraphxxx						
itorial (		Justification (If necessary)						
<b>Editorial Change</b>		FROM:Section/Paragraphxxx						
S	2	TO: Secti	on/Paragraphxxx					
		Justificat	ion (If necessary)					
M	otion		To approve above editorial change(s)					
М	otion	by/2 <sup>nd</sup> by	Name (Company)/Name (Company)					
Di	iscus	sion	XXXX					
V	ote		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.

**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**

X

Note: See Regulations§ 15 for further information.

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)

<b>This is a Safety Document</b> , when all safety-related information is removed, the Document is not technically sound and complete.( <i>Regulations</i> ¶ 8.7.2)						
			ecklist ( <i>Regulations</i> ¶ 15.3) is complete and has been included with the Document the balloting process. ( <i>Regulations</i> ¶ 15.1.2)			
Motion by/2 <sup>nd</sup> by		oy/2 <sup>nd</sup> by	Hui Long (CETC 48) / Li Huang (SEMILAB)			
Discussion		ıssion	XXXX			
Vote		ote	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 <i>Regulations</i> ¶16.3.1.1) to the Standard or Safety Guideline; or,anycopyrighted items or trademarks that are used/reproduced(see <i>Regulations</i> ¶16.4.1.2) in the Standard or Safety Guideline.(Also see, <i>Regulations</i> §8.8)								
	X	The question is NOT answered in affirmative (No potentially material patented technology or use/reproduction of copyrighted items/trademarks is known.)							
		The question is answered in affirmative	Is any of the known IPs a patented		Yes, at least one of them is a patented technology	GO TOIX (a) "Patented Technology" subsection			
			technology?		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/ 2 <sup>nd</sup> by			Hui Long (CETC 48) / Rulong Chen (RUNERGY)	
Discussion			XXXX	
Vote			43 <b>Y</b> -10 <b>N</b>	
F	Final Action		X Motion passed	
7 (01/01/		, (00,011	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.