Record of Letter Ballot Review by TC Chapter for Procedural Review

Region/Locale: North America
Global Technical Committee: 3D Packaging & Integration
TC Chapter Cochairs: Bill Kerr/Evergreen Enhancement, Chris Moore/Covalent Metrology
Standards Staff: Laura Nguyen

	Scheduled in Background Statement	Actual
Date	TBD	03/23/2021
Location	TBD	OVTCCM
Reason for Change of Date and/or Location (if changed)	COVID-19	

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

I. Document Number and Title

Document Number	Document Title
6591A	Revision to SEMI 3D20-0719, Specification for Panel Characteristics for Panel Level Packaging (PLP) Applications

II. Tally

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 Votes		Distribution		Return Rate	
Letter Ballot	71	÷	112	=	63.4%	≥60%
Intercommittee Ballot	55					
Voting Interest Reject(s)	1		Total Voters with Rejects			1
Voting Interest Accept(s)	64					

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

III. Rejects

Voting Interest Reject 1 (Voting Interest Name: SEC)
Voter Reject 1 (Voter: Tsukasa Fukunaga/Shin-Etsu Polymer)
Negative 1

Negative	Referenced Section/ Paragraph	*TF/TC Chapter to fill in, including text in the ballot if necessary.					
		Section 4.1					
	Negative Text	*Original complete Negative text (e.g., issue, justification, suggestion) should be copied.					
		In 4.1, isn't it necessary to add SEMI 3D12, which is referred in Table A1 1?					
TF input (optional)							
Withdrawal (check one)		X	No Negative withdrawal made by Voter.				GO TO "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.					
			[Negative is 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)		Negative is related and persuasive. (Needs >1/3 votes to pass.)				
		X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)				
			Reason	The issue can be resolved by an editorial change.			
	Motion by/ 2nd by	By: Cristina Chu / SEMI Pathfinders Second: Gregory Arslanian / Air Products					
	Discussion	None					
	Result of Vote (check one)	7 Y-0 N; Motion passed.					
			[Negative is related and persuasive.] > 1/3	Is a technical change recommended? (check one)		Y	GO TO "Address by Technical Change Option" subsection
			[Negative is related and not persuasive.] < 2/3			N	GO TO "Final" subsection → (E)

		X	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	
Final	(check if applicable)		(A)	Withdrawn (counted under h in disposition)	
			(B)	Not related (counted under i in disposition)	
		X	(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
			(F)	Addressed by technical change (counted under k disposition)	
	(check if applicable)	X	*Comment generated. See Section V-(ii) Comment # 1.*		

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.			
		Table A2-1			
	Negative Text	*Original complete Negative text (e.g., issue, justification, suggestion) should be copied.			
		Table A2 1 has wrong figure numbers, e.g., GBIR is not shown in Figure A2 6 but in A2 4, etc.			
TF input (optional)					
Withdrawal (check one)		X	No Negative withdrawal made by Voter.	GO TO "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.			
			[Negative is 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)		Negative is related and persuasive. (Needs >1/3 votes to pass.)		
		X	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)		
			Reason	The issue can be resolved by an editorial change.	

	Motion by/ 2nd by	By: Cristina Chu / SEMI Pathfinders Second: Mark Biedrzycki / ThermoFisher Scientific					
	Discussion	None					
	Result of Vote (check one)	7 **Y**-0 **N**; Motion passed.					
			[Negative is related and persuasive.] > 1/3	**Is a technical change recommended? (check one)**		**Y**	**GO TO "Address by Technical Change Option" subsection**
			[Negative is related and not persuasive.] < 2/3			**N**	**GO TO "Final" subsection → (E)**
		X	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**			
Final	**(check if applicable)**		**(A)**	Withdrawn **(counted under h in disposition)**			
			(B)	Not related **(counted under i in disposition)**			
		X	**(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**		
			(F)	Addressed by technical change **(counted under k disposition)**			
	(check if applicable)	**X**	*Comment generated.* ***See Section V-(ii) Comment # 2.***				

Disposition of Voting Interest Reject 1

Check only when the Document has not been failed.

2	Original number (#) of Negatives			**(g)**
0	Number of Negatives withdrawn			**(h)**
0	Number of Negatives found not related			**(i)**
0	Number of Negatives found not significant			**(j)**
0	Number of Negatives addressed by technical change **(Negative becomes not significant)**			**(k)**
Final		**g** - (**h** + **i** +**j** + **k**) = 0	**Reject is Not Valid and is not included in the denominator of § VI. *Approval Conditions Check***	
	X	**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
None

V. Comments
V- (i) Voters' Comments
Commenter 1 (Lai-Cheng Kong/CMPUG Taiwan) - Comment 1

Comment	*TF/TC Chapter to fill in section/paragraph #, if necessary.	
	Not very knowledgeable with PLP process, need to study more about PLP to be familiar.	
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

Commenter 2 (Hirokazu Tsunobuchi/Nidec-Sankyo) - Comment 1

Comment	*TF/TC Chapter to fill in section/paragraph #, if necessary.	
	There are several T7 descriptions. The scope of T7 is for silicon wafers. PLP Glass Carrier is not a silicon wafer. When a new standard is developed, you should refer to that standard. We are currently developing the following related standard. Document Number: 6674 SNARF for: New Standard: Specification of ID Marking for Glass Carrier Characteristics of Panel Level Packaging (PLP) Applications	
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

V-(ii) Comments Created by Handling Negative

Comment (Created by Handling Negative) NC – 1
(Voter: Tsukasa Fukunaga/Shin-Etsu Polymer)

Comm	*TF/TC Chapter to fill in
	In 4.1, isn't it necessary to add SEMI 3D12, which is referred in Table A1 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 4.1** 4.1 *SEMI Standards and Safety Guidelines* SEMI G83 — Specification for Bar Code Marking of Product Packages SEMI M1 — Specification for Polished Single Crystal Silicon Wafers SEMI M12 — Specification for Serial Alphanumeric Marking of the Front Surface of Wafers SEMI T7 — Specification for Back Surface Marking of Double-Side Polished Wafers with a Two-Dimensional Matrix Code Symbol	
		TO: Section/Paragraph 4.1 4.1 *SEMI Standards and Safety Guidelines* SEMI 3D12 — Guide for Measuring Flatness and Shape of Low Stiffness Wafers SEMI G83 — Specification for Bar Code Marking of Product Packages SEMI M1 — Specification for Polished Single Crystal Silicon Wafers SEMI M12 — Specification for Serial Alphanumeric Marking of the Front Surface of Wafers SEMI T7 — Specification for Back Surface Marking of Double-Side Polished Wafers with a Two-Dimensional Matrix Code Symbol	
		Justification (If necessary) Missing referenced standard.	

Motion	To approve above editorial change(s)
Motion by/2nd by	By: Cristina Chu / SEMI Pathfinders Second: Mark Biedrzycki / ThermoFisher Scientific
Discussion	None
Vote	7 **Y**-0 **N**; Motion passed.

This table is needed for each Comment created by handling Negative.

Comment (Created by Handling Negative) NC – 2
(Voter: Tsukasa Fukunaga/Shin-Etsu Polymer)

Comm	*TF/TC Chapter to fill in	
	Table A2 1 has wrong figure numbers, e.g., GBIR is not shown in Figure A2 6 but in A2 4, etc.	
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 Table A2-1

Table A1-1 Acronyms for Flatness Measurements

Acronym	*Expanded Form of Acronym*	*Reference Figure*
GBIR	Global Flatness, Back Surface, Ideal, Range	Figure A2-6
GF3R	Global Flatness, Front Surface, 3-point plane, Range	Not illustrated
GF3D	Global Flatness, Front Surface,3-point plane, Deviation	Not illustrated
GFLR	Global Flatness, Front Surface, Least Squares fit, Range	Figure A2-7
GFLD	Global Flatness, Front Surface, Least Squares fit, Deviation	Not illustrated
SBIR	Site Flatness, Back Surface, Ideal, Range	Figure A2-10
SBID	Site Flatness, Back Surface, Ideal, Deviation	Figure A2-11
SF3R	Site Flatness, Front Surface, 3-point plane (global), Range	Not illustrated
SF3D	Site Flatness, Front Surface, 3-point plane (global), Deviation	Not illustrated
SFLR	Site Flatness, Front Surface, Least Squares fit (global), Range	Not illustrated
SFLD	Site Flatness, Front Surface, Least Squares fit (global),	Not illustrated
SFQR	Site Flatness, Front Surface, Least Squares fit (site), Range	Figure A2-8
SFQD	Site Flatness, Front Surface, Least Squares fit (site), Deviation	Figure A2-9
SFSR	Site Flatness, Front Surface, Least Squares fit (subsite), Range[#1]	Not illustrated
SFSD	Site Flatness, Front Surface, Least Squares fit (subsite), Deviation[#2]	Not illustrated

TO: Section/Paragraph Table A2-1

Table A2-1 Acronyms for Flatness Measurements

Acronym	*Expanded Form of Acronym*	*Reference Figure*
GBIR	Global Flatness, Back Surface, Ideal, Range	Figure A2-~~4~~6
GF3R	Global Flatness, Front Surface, 3-point plane, Range	Not illustrated
GF3D	Global Flatness, Front Surface,3-point plane, Deviation	Not illustrated
GFLR	Global Flatness, Front Surface, Least Squares fit, Range	Figure A2-~~5~~7
GFLD	Global Flatness, Front Surface, Least Squares fit, Deviation	Not illustrated
SBIR	Site Flatness, Back Surface, Ideal, Range	Figure A2-~~8~~10
SBID	Site Flatness, Back Surface, Ideal, Deviation	Figure A2-~~9~~11
SF3R	Site Flatness, Front Surface, 3-point plane (global), Range	Not illustrated
SF3D	Site Flatness, Front Surface, 3-point plane (global), Deviation	Not illustrated
SFLR	Site Flatness, Front Surface, Least Squares fit (global), Range	Not illustrated
SFLD	Site Flatness, Front Surface, Least Squares fit (global),	Not illustrated
SFQR	Site Flatness, Front Surface, Least Squares fit (site), Range	Figure A2-~~6~~8
SFQD	Site Flatness, Front Surface, Least Squares fit (site), Deviation	Figure A2-~~7~~9
SFSR	Site Flatness, Front Surface, Least Squares fit (subsite), Range#1	Not illustrated
SFSD	Site Flatness, Front Surface, Least Squares fit (subsite), Deviation#2	Not illustrated

Justification (If necessary)
Figures in Table are not numbered correctly.

Motion	To approve above editorial change(s)
Motion by/2nd by	By: Cristina Chu / SEMI Pathfinders Second: Gregory Arslanian / Air Products
Discussion	None
Vote	7 **Y**-0 **N**; Motion passed

VI. Editorial Changes Other than Those Voted on 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	=	**64**	/	**65**	=	**98.5%**		**≥90%**

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

Note: See *Regulations* § 9.6.2 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.

Motion	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			By: Steve Martell / Nordson SONOSCAN Second: Cristina Chu / SEMI Pathfinders
Discussion			None
Vote			8 **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. 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 technology that might be relevant (see *Regulations* ¶ 16.3.1.1) to the Standard or Safety Guideline; or, any copyrighted 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 SECTION X.**			
		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 TO IX (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.
	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		By: Steve Martell / Nordson SONOSCAN Second: Mark Biedrzycki / ThermoFisher Scientific
Discussion		None
Vote		8 **Y**-0 **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.