

Record of Line-item 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, Sesh Ramaswami/ Applied Materials**

Standards Staff: **Laura Nguyen**

	Scheduled in Background Statement	Actual
Date	04/02/2020	07/10/2020
Location	SEMI HQ, Milpitas, CA/USA	SEMI Japan Office, Tokyo, Japan
Reason for Change of Date and/or Location (if changed)	Force majeure caused by the corona virus.	

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

Document Information

I. Document Number, Title, Lists of Line Items

Document Number 6631	Document Title Line Item Revision to SEMI 3D12-0315, GUIDE FOR MEASURING FLATNESS AND SHAPE OF LOW STIFFNESS WAFERS	
List of Line Items	Line Item 1	Line Item Title Clarify the Purpose statement in ¶1.3.
	Line Item 2	Line Item Title Add definition of precise monofilament and revise definitions in Terminology §5 for clarity.

Line Item 1 Adjudication

II. Tally

Voting Tally:

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	68	÷	107	=	63.6%	≥60%
Intercommittee Ballot	26					
Voting Interest Reject(s)	1		Total Voters with Rejects			1
Voting Interest Accept(s)	52					

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

III. Rejects

Voting Interest Reject 1 (Voting Interest Name: Self)

Voter Reject 1 (Voter: Masanori Yoshise/Self)

Negative 1

Negative	Referenced Section/ Paragraph	*TF/TC Chapter to fill in, including text in the ballot if necessary.		
	Negative Text	<p>¶1.3 Manufacturing processes incorporating bonded wafers typically require thinned wafers; <u>which will subsequently have much lower stiffness</u> these wafers are then extremely low stiffness. In addition, since non-planarity of the wafers can lead to problems in subsequent processing steps, including lithography and electrical contact between metal layers on the bonded wafers, these technologies demand higher precision wafers and more accurate depiction of the true topography of the wafer.</p> <p>*Original complete Negative text (e.g., issue, justification, suggestion) should be copied. This item is discussing about purpose of the document. So this is not allowed as 'Line Item Revision' and must be 'Major Revision' according to regulation</p>		
TF input (optional)				
Withdrawal (check one)	<input type="checkbox"/>	No Negative withdrawal made by Voter.	GO TO "Related" subsection	
	<input checked="" type="checkbox"/>	Withdrawal document received by Standards staff on 7/10/2020.	GO TO "Final" subsection → (A)	
Related	Motion and Reason (check one)	<input type="checkbox"/>	'Related' is mutually agreed upon. (Needs no motion.)	GO TO "Persuasive" subsection
		<input type="checkbox"/>	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)	<input type="checkbox"/>	[Negative is not related.] < 2/3	GO TO "Persuasive" subsection	
	<input type="checkbox"/>	2/3 ≤ [Negative is not related.]	GO TO "Final" subsection → (B)	
	XX Y-XX N; Motion passed/failed.			
Persuasive	Motion and Reason (check one)	<input type="checkbox"/>	Negative is related and persuasive. (Needs >1/3 votes to pass.)	
		<input type="checkbox"/>	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)	
		Reason		
	Motion by/ 2nd by	Name (Company)/Name (Company)		
	Discussion			
XX Y-XX N; Motion passed/failed.				

Result of Vote (check one)	<input type="checkbox"/>	[Negative is related and persuasive.] > 1/3	Is a technical change recommended? (check one)	<input type="checkbox"/>	Y	GO TO "Address by Technical Change Option" subsection
	<input type="checkbox"/>	[Negative is related and not persuasive.] < 2/3		<input type="checkbox"/>	N	GO TO "Final" subsection → (E)
	<input type="checkbox"/>	2/3 ≤ [Negative is related and not persuasive.] < 90%	GO TO "Final" subsection → (C)			
	<input type="checkbox"/>	90% ≤ [Negative is related and not persuasive.]	GO TO "Not Significant Finding Option" subsection			
Technical Change Recommendations						
Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields.						
Address by Technical Change Option	Technical 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		Negative is addressed by the technical change(s).				
Motion by/2 nd by		Name (Company)/Name (Company)				
Discussion						
Result of Vote (check one)		XX Y-XX N; Motion passed/failed.				
<input type="checkbox"/>	2/3 ≤ [Negative is addressed by the technical change(s).]	GO TO "Incorporation of the Technical Change" subsection				
<input type="checkbox"/>	[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/2 nd by		Name (Company)/Name (Company)			
	Discussion					
	Result of Vote (check one)		XX Y-XX N; Motion passed/failed.			
<input type="checkbox"/>	90% ≤ [Agree to incorporate.]	GO TO "Final" subsection → (F)				
<input type="checkbox"/>	[Disagree to incorporate.] > 10%	GO TO "Final" subsection → (E)				
Not Significant	This option can be used only "if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action". (Regulations ¶ 9.6.1.4.5.2)					
	<input type="checkbox"/>	It is mutually agreed upon to term the Negative "not significant".			GO TO "Final" subsection → (D)	

	Use of “Not significant finding option” (check one)	<input type="checkbox"/>	It is mutually agreed upon to term the Negative “significant”.	GO TO “Final” subsection → (C)	
		<input type="checkbox"/>	Whether or not the Negative is “not significant” is decided by a vote.		
	Motion	The Negative is “not significant”.			
	Motion by/ 2nd by	Name (Company)/Name (Company)			
	Vote	<input type="checkbox"/>	XX Y-XX N; Motion passed with simple majority	GO TO “Final” subsection → (D)	
<input type="checkbox"/>		XX Y-XX N; Motion failed with simple majority	GO TO “Final” subsection → (C)		
Final	(check if applicable)	<input checked="" type="checkbox"/>	(A)	Withdrawn (counted under h in disposition)	
		<input type="checkbox"/>	(B)	Not related (counted under i in disposition)	
		<input type="checkbox"/>	(C)	Related and not persuasive (significant)	
		<input type="checkbox"/>	(D)	Not significant (counted under j in disposition)	
		<input type="checkbox"/>	(E)	Related and persuasive and not addressed by technical change	DOCUMENT FAILS
		<input type="checkbox"/>	(F)	Addressed by technical change (counted under k disposition)	
	(check if applicable)	<input type="checkbox"/>	Comment generated. See Section V-(ii) Comment # X.		

Disposition of Voting Interest Reject 1

Check only when the Document has not been failed.

1	Original number (#) of Negatives	(g)	
1	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	<input checked="" type="checkbox"/>	$g - (h + i + j + k) = 0$	Reject is Not Valid and is not included in the denominator of § VI. Approval Conditions Check
	<input type="checkbox"/>	$g - (h + i + j + k) > 0$	Reject is included in the denominator of § VI. Approval Conditions Check
	<input type="checkbox"/>	Reject without a Negative	Not Valid

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 (Larry Hartsough/UAA) - Comment 1

Comment	*TF/TC Chapter to fill in section/paragraph #, if necessary.	
	replace the semicolon before the changed text with a comma.	
Action	The TC Chapter agreed to do one of the following actions.	
	*No motion is required in this step.	
	<input type="checkbox"/>	Already addressed by Commenter #, Comment #
	<input type="checkbox"/>	No further action was taken by the TC Chapter.
	<input type="checkbox"/>	Refer to the TF for more consideration.
	<input type="checkbox"/>	New Business
	<input checked="" type="checkbox"/>	Editorial Change
Options for editorial change (check one)	<input type="checkbox"/>	Case 1: No vote in this section: To be included and voted on as a group in § VI. <i>Editorial Changes Other than Those Voted on in § V.</i>
	<input checked="" type="checkbox"/>	Case 2: Voted in this section: Original section number and at least one full sentence are required in "FROM" and "TO" fields.
	FROM: Section/Paragraph 1.3	
	TO: Section/Paragraph 1.3	
Editorial Changes	1	Manufacturing processes incorporating bonded wafers typically require thinned wafers, which will subsequently have much lower stiffness.
		Manufacturing processes incorporating bonded wafers typically require thinned wafers, which will subsequently have much lower stiffness.
		Justification (If necessary)
Motion	To approve above editorial change(s)	
Motion by/2 nd by	Hiroyuki Shida (Consultant) / Kiyotaka Chiba (Tokyo Seimitsu)	
Discussion	None	
Vote	3 Y-0 N; Motion passed	

**V-(ii) Comments Created by Handling Negative
None**

**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	=	52	/	52	=	100.0%		≥90%	

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

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

Globally Approved (No Ratification Ballot needed):

Line Item 1 meets the Letter Ballot approval conditions for the global technical committee.

Need a Ratification Ballot:

Line Item 1 meets the Letter Ballot approval conditions for the TC Chapter and a Ratification Ballot will be issued to validate technical changes.

Line Item 2 Adjudication

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 Vote	Distributio	Return Rate	
Letter Ballot	68	÷ 107	= 63.6%	≥60%
Intercommittee Ballot	26			
Voting Interest Reject(s)	0	Total Voters with Rejects		0
Voting Interest Accept(s)	52			

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

III. Rejects

None

IV. Other Technical Issues

None

V. Comments

None

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	=	52	/	52	=	100.0%		≥90%	

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

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

- Globally Approved (No Ratification Ballot needed):**
Line Item 2 meets the Letter Ballot approval conditions for the global technical committee.
- Need a Ratification Ballot:**
Line Item 2 meets the Letter Ballot approval conditions for the TC Chapter and a Ratification Ballot will be issued to validate technical changes.

Checks for Entire Document Including All Approved Line Items

VIII. Safety Check

Note: This Safety check applies to the entire Standard or Safety Guideline including all the approved Line Items. See § 15 of the *Regulations* for further information.

Motion	<input checked="" type="checkbox"/>	This is not a Safety Document, when all safety-related information is removed, the Document is still technically sound and complete. (<i>Regulations</i> ¶ 8.7.1)
	<input type="checkbox"/>	This is a Safety Document, when all safety-related information is removed, the Document is not technically sound and complete. (<i>Regulations</i> ¶ 8.7.2)
	<input type="checkbox"/>	Safety Checklist (<i>Regulations</i> ¶ 15.3) is complete and has been included with the Document throughout the balloting process. (<i>Regulations</i> ¶ 15.1.2)
Motion by/2 nd by		Hiroyuki Shida (Consultant) / Kiyotaka Chiba (Tokyo Seimitsu)
Discussion		None
Vote		3 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 including all the approved Line Items*. 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 <i>Regulations ¶ 16.3.1.1</i>) to the Standard or Safety Guideline; or, any copyrighted items or trademarks that are used/reproduced (see <i>Regulations ¶ 16.4.1.2</i>) in the Standard or Safety Guideline. (Also see, <i>Regulations § 8.8</i>)			
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

IX(a) and IX (b) are omitted because “GO TO SECTION X” as above.

X. Action for This Document

Motion (Check all applicable items)	X	Line item(s) [2] passed TC Chapter review as balloted and will be forwarded to the ISC A&R SC for procedural review.
	X	Line item(s) [1] passed TC Chapter review with editorial changes and will be forwarded to the ISC A&R SC for procedural review.
		Line item(s) [X], [X] and [X] 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.
		Line item(s) [X], [X] and [X] failed TC Chapter review and will be returned to the TF for rework.
		Line item(s) [X], [X] and [X] failed TC Chapter review and work will be discontinued.
Motion by/ 2nd by	Nobuyuki Shida (Consultant) / Kiyotaka Chiba (Tokyo Seimitsu)	
Discussion	None	
Vote	3 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.