

## Record of 6146A Line-item Letter Ballot Review by TC Chapter for Procedural Review

Region/Locale: **North America**

Global Technical Committee: **Metrics**

TC Chapter Cochairs: **David L. Bouldin/Fab Consulting, Vladimir Kraz/Best ESD, Mark Frankfurth (Cymer)**

Standards Staff: **Inna Skvortsova**

	Scheduled in Background Statement	Actual
Date	Wednesday, November 8, 2017	Wednesday, November 8, 2017
Location	SEMI HQ	SEMI HQ
Reason for Change of Date and/or Location (if changed)		

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

### Document Information

#### I. Document Number, Title, Lists of Line Items

<b>Document Number</b> 6146A		<b>Document Title</b> LINE ITEM REVISIONS TO SEMI E35-0312, GUIDE TO CALCULATE COST OF OWNERSHIP (COO) METRICS FOR SEMICONDUCTOR MANUFACTURING EQUIPMENT and SEMI E140-0312, GUIDE TO CALCULATE COST OF OWNERSHIP (COO) METRICS FOR GAS DELIVERY SYSTEMS
<b>List of Line Items</b>	<b>Line Item 1</b>	<b>Line Item Title</b> Change definition and calculation of cost footprint (CF) to cost footprint rectangle area (Acf).
	<b>Line Item 2</b>	<b>Line Item Title</b> Provide additional guidance for calculating/estimating throughput per SEMI E79.
	<b>Line Item 3</b>	<b>Line Item Title</b> Provide additional guidance for calculating/estimating utilization and uptime metrics per SEMI E10.
	<b>Line Item 4</b>	<b>Line Item Title</b> Clarify what types of engineering should be included.
	<b>Line Item 5</b>	<b>Line Item Title</b> Clarify the difference between initial training vs. ongoing training and clarify what training-related costs are included.
	<b>Line Item 6</b>	<b>Line Item Title</b> Update the definitions of 'consumable material' and 'consumable part' to match the ones in referenced

		SEMI E10.
Line Item 7	<b>Line Item Title</b>	Revise and harmonize the SEMI E35 Cost Elements Section 9 with the SEMI E140 Definitions worksheet.
Line Item 8	<b>Line Item Title</b>	Miscellaneous minor technical and/or editorial changes needed.

**Line Item 1 Adjudication**

**II. Tally**

Standards staff to fill in.

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

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

Voting Tally (Line Item 1):

Voting Interest:	Returned Vote		Distributio	=	Return Rate	
Letter Ballot	36	÷	58	=	62.1%	≥60%
Intercommittee Ballot	19					
Voting Interest Reject(s)	0		Total Voters with Rejects		0	
Voting Interest Accept(s)	17					

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 ¶ 9.7.1.2)

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

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

		Accepts		(Accepts + Valid Rejects)			
Approval Rate	=	17	/	17	=	100.0%	≥90%

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

Note: See Regulations § 9.7.2 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**

Standards staff to fill in.

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

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

**Voting Tally (Line Item 2):**

Voting Interest:	Returned Vote		Distributio		Return Rate	
Letter Ballot	36	÷	58	=	62.1%	≥60%
Intercommittee Ballot	19					
Voting Interest Reject(s)	0		Total Voters with Rejects		0	
Voting Interest Accept(s)	17					

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 ¶ 9.7.1.2)

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

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

		Accepts		(Accepts + Valid Rejects)				
Approval Rate	=	17	/	17	=	100.0%		≥90%

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

Note: See Regulations § 9.7.2 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.

### Line Item 3 Adjudication

## II. Tally

Standards staff to fill in.

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

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

**Voting Tally (Line Item 3):**

<b>Voting Interest:</b>	<b>Returned Vote</b>	<b>Distributio</b>	<b>Return Rate</b>	
Letter Ballot	36	÷ 58	= 62.1%	≥60%
Intercommittee Ballot	19			
Voting Interest Reject(s)	0	Total Voters with Rejects		0
Voting Interest Accept(s)	16			

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 ¶ 9.7.1.2)

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

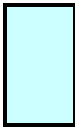
Note: If both approval conditions are not satisfied, the Document fails.

		Accepts	(Accepts + Valid Rejects)				
Approval Rate	=	16	/ 16	=	100.0%		≥90%

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

Note: See Regulations § 9.7.2 for further information.

X	<p><b>Globally Approved (No Ratification Ballot needed):</b>                  Line Item 3 meets the Letter Ballot approval conditions for the global technical committee.</p>
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### Need a Ratification Ballot:

Line Item 3 meets the Letter Ballot approval conditions for the TC Chapter and a Ratification Ballot will be issued to validate technical changes.

## Line Item 4 Adjudication

### II. Tally

Standards staff to fill in.

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

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

Voting Tally (Line Item 4):

Voting Interest:	Returned Vote	Distributio	Return Rate	
Letter Ballot	36	÷ 58	= 62.1%	≥60%
Intercommittee Ballot	19			
Voting Interest Reject(s)	0	Total Voters with Rejects		0
Voting Interest Accept(s)	17			

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 ¶ 9.7.1.2)

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

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

		Accepts	(Accepts + Valid Rejects)				
Approval Rate	=	17	/ 17	=	100.0%		≥90%

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

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

**Globally Approved (No Ratification Ballot needed):**

Line Item 4 meets the Letter Ballot approval conditions for the global technical committee.

**Need a Ratification Ballot:**

Line Item 4 meets the Letter Ballot approval conditions for the TC Chapter and a Ratification Ballot will be issued to validate technical changes.

## Line Item 5 Adjudication

### II. Tally

Standards staff to fill in.

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

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

Voting Tally (Line Item 5):

Voting Interest:	Returned Vote	÷	Distributio	=	Return Rate	
Letter Ballot	36	÷	58	=	62.1%	≥60%
Intercommittee Ballot	19					
Voting Interest Reject(s)	0		Total Voters with Rejects		0	
Voting Interest Accept(s)	17					

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* ¶ 9.7.1.2)

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

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

		Accepts		(Accepts + Valid Rejects)			
Approval Rate	=	17	/	17	=	100.0%	≥90%

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

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

**Globally Approved (No Ratification Ballot needed):**  
Line Item 5 meets the Letter Ballot approval conditions for the global technical committee.

**Need a Ratification Ballot:**  
Line Item 5 meets the Letter Ballot approval conditions for the TC Chapter and a Ratification Ballot will be issued to validate technical changes.

**Line Item 6 Adjudication**

**II. Tally**

**Standards staff to fill in.**

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

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

**Voting Tally (Line Item 6):**

Voting Interest:	Returned Vote		Distributio		Return Rate	
Letter Ballot	36	÷	58	=	62.1%	≥60%
Intercommittee Ballot	19					
Voting Interest Reject(s)	0		Total Voters with Rejects		0	
Voting Interest Accept(s)	17					

**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 ¶ 9.7.1.2)

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

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

		Accepts		(Accepts + Valid Rejects)			
Approval Rate	=	17	/	17	=	100.0%	≥90%

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

Note: See Regulations § 9.7.2 for further information.

**Globally Approved (No Ratification Ballot needed):**

Line Item 6 meets the Letter Ballot approval conditions for the global technical committee.

**Need a Ratification Ballot:**

Line Item 6 meets the Letter Ballot approval conditions for the TC Chapter and a Ratification Ballot will be issued to validate technical changes.

### Line Item 7 Adjudication

## II. Tally

Standards staff to fill in.

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

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

**Voting Tally (Line Item 7):**

<b>Voting Interest:</b>	<b>Returned Vote</b>	<b>÷</b>	<b>Distributio</b>	<b>=</b>	<b>Return Rate</b>	
Letter Ballot	36		58		62.1%	≥60%
Intercommittee Ballot	19					
Voting Interest Reject(s)	0		Total Voters with Rejects		0	
Voting Interest Accept(s)	16					

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 ¶ 9.7.1.2)

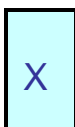
APPROVAL CONDITION 2: At least 90% of the sum of valid Voting Interest Accept and Voting Interest Reject Votes must be Accept. (Regulations ¶ 9.7.1.3)

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

		<b>Accepts</b>		<b>(Accepts + Valid Rejects)</b>		
<b>Approval Rate</b>	<b>=</b>	16	<b>/</b>	16	<b>=</b>	100.0% ≥90%

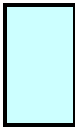
**VII. – (ii) Approval Level (check one)**

Note: See Regulations § 9.7.2 for further information.



**Globally Approved (No Ratification Ballot needed):**

Line Item 7 meets the Letter Ballot approval conditions for the global technical committee.



### Need a Ratification Ballot:

Line Item 7 meets the Letter Ballot approval conditions for the TC Chapter and a Ratification Ballot will be issued to validate technical changes.

## Line Item 8 Adjudication

### II. Tally

Standards staff to fill in.

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

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

Voting Tally (Line Item 8):

Voting Interest:	Returned Vote	Distributio	Return Rate	
Letter Ballot	36	÷ 58	= 62.1%	≥60%
Intercommittee Ballot	19			
Voting Interest Reject(s)	0	Total Voters with Rejects		0
Voting Interest Accept(s)	16			

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 ¶ 9.7.1.2)

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

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

		Accepts	(Accepts + Valid Rejects)				
Approval Rate	=	16	/ 16	=	100.0%		≥90%

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

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

### **Globally Approved (No Ratification Ballot needed):**

Line Item 8 meets the Letter Ballot approval conditions for the global technical committee.

### **Need a Ratification Ballot:**

Line Item 8 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.

<b>Motion</b>	<input checked="" type="checkbox"/>	This is not a <b>Safety Document</b> , 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 <b>Safety Document</b> , 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)
<b>Motion by/2<sup>nd</sup> by</b>		Vladimir Kraz (Best ESD) / Supika Mashiro (TEL)
<b>Discussion</b>		NONE
<b>Vote</b>		5 Y-0 N; Motion passed

### IX. Intellectual Property (IP) Check

**Note:** This IP check applies to the entire Standard or Safety Guideline including all the approved Line Items. See § 16 of the *Regulations* for further information.

<input checked="" type="checkbox"/>	The TC Chapter meeting chair asked those participating, if they were aware of any potentially material patented technology or copyrighted items* in the Standard or Guideline. ( <i>Regulations</i> ¶ 8.8.1)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	No potentially material patented technology or reproduction of copyrighted items is known. <span style="float: right; background-color: #FFDAB9; padding: 2px;"><b>GO TO SECTION X.</b></span>

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

### X. Action for This Document

<b>Motion (Check all applicable items)</b>	<input checked="" type="checkbox"/>	Line item(s) [1], [2], [3], [4], [5], [6], [7], and [8] passed TC Chapter review as balloted and will be forwarded to the ISC A&R SC for procedural review.
	<b>Motion by/ 2nd by</b>	
	Vladimir Kraz (Best ESD) / Russell Fitzpatrick (Applied Materials)	
	<b>Discussion</b>	
	NONE	
<b>Vote</b>		5 Y-0 N
<b>Final Action</b>		<input checked="" type="checkbox"/> Motion passed
		<input type="checkbox"/> Motion failed

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

A&R		Line item(s) [X], [X] and [X] are Approved for publication
		Line item(s) [X], [X] and [X] are Approved pending acceptance of the Ratification Ballot
		Line item(s) [X], [X] and [X] are Not approved
	Reason:	