Record of Letter Ballot Review by TC Chapter for Procedural Review

Region/Locale: North America
Global Technical Committee: Gases
TC Chapter Cochairs: Mohamed Saleem / Brooks Instrument
Standards Staff: Laura Nguyen

	Scheduled in Background Statement	Actual
Date	04/04/2017	04/04/2017
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.

I. Document Number and Title

Document Number	Document Title
6119	Revision to SEMI E17-1011, Guide for Mass Flow Controller Transient Characteristics Tests with Title Change to Test Method for Measurement of Mass Flow Controller Transient Characteristics

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* ¶ 9.7.1.1)

Voting Tally (with example values):

Voting Interest:	Returned Votes		Distribution		Return Rate	
Letter Ballot	40	÷	65	=	61.54%	≥60%
Intercommittee Ballot	16					
Voting Interest Reject(s)	1		Total Voters with Rejects			1
Voting Interest Accept(s)	22					

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

III. Rejects

Voting Interest Reject 1 (Voting Interest Name: **Tokyo Electron**)

Voter Reject 1 (Voter: **Supika Mashiro / TEL**)

Negative 1

Negative	**Referenced Section/ Paragraph**	Section 5.1.3			
	Negative Text	Negative/ Define “input transient” or replace the undefined term with phrase consisted of defined terms and common English words as defined in the Merriam Webster.			
		[Reason/Justification] As written, there is no clue other than “transient overshoot” and “transient undershoot” for what “input transient” could mean. But as those terms are defined as maximum change (as the effects of a set point step change), they are not compatible to the notion, the effects of the input transient have expired to a value equal to or below the intrinsic drift and noise			
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)**	**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	Thomas Fritz (WIKA) / Jeff Christian (WIKA)			
	Discussion	None			
	Result of Vote (check one)	04 **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/Paragraph Section 5.1.3

5.1.3 *final steady state value* — the average value of the actual flow, after the effects of the input transient have expired to a value equal to or below the intrinsic drift and noise.

TO: Section/Paragraph Section 5.1.3

5.1.3 *final steady state value* — the average value of the actual flow, after the effects of the ~~input~~ initial flow transients have expired to a value equal to or below the intrinsic drift and noise.

Justification (If necessary)

Replaced 'input transient' with 'initial flow transients' for clarity, as 'input transient' was not defined in the document. There is no clue other than "transient overshoot" and "transient undershoot" for what "input transient" could mean.

Motion		Negative is addressed by the technical change(s).	
Motion by/2nd by		Erica Kitano (Fujikin) / Thomas Fritz (WIKA)	
Discussion		None	
Result of Vote (check one)		04 **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		Joyce Chen (UCT) / Erica Kitano (Fujikin)	
Discussion		None	
Result of Vote (check one)		04 **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.	

Voter Reject 1 (Voter: **Supika Mashiro / TEL**)

Negative 2

Negative	**Referenced Section/ Paragraph**	Section 5.1.4					
	Negative Text	Negative/ The definition is ambiguous.					
		[Reason/Justification] The end point of “settling time”, “when the actual flow remains within the specified band, does not identify specific point of time as written. [Suggestion] Change to something in the effect of: “the time between the set point step change and the beginning of the period during which the actual flow continues to stay within the specified band.					
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 current definition is consistent with Figure 1.			
	Motion by/ 2nd by	Thomas Fritz (WIKA) / Jeff Christian (WIKA)					
	Discussion	None					
	Result of Vote (check one)	04 **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)**
			2/3 ≤ [Negative is related and not persuasive.] < 90%	**GO TO “Final” subsection → (C)**			

		X	90% ≤ [Negative is related and not persuasive.]	**GO TO "Not Significant Finding Option" subsection**
Not Significant Finding Option	**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* ¶ 9.6.4.4.2)**			
	Use of "Not significant finding option" (check one)		It is mutually agreed upon to term the Negative "not significant".	**GO TO "Final" subsection → (D)**
		X	It is mutually agreed upon to term the Negative "significant".	**GO TO "Final" subsection → (C)**
			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		XX **Y**-XX **N**; Motion passed with simple majority	**GO TO "Final" subsection → (D)**
			XX **Y**-XX **N**; Motion failed with simple majority	**GO TO "Final" subsection → (C)**
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)		Comment generated. **See Section V-(ii) Comment #** X.	

Disposition of Voting Interest Reject 1

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)**
1	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**

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* ¶ 9.6.4.4.2)

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* § 9.6.4.3 to make a technical change to the Document. (*Regulations* ¶ 9.6.2.4.5)

Technical Issue	**Origin**	***TF/TC Chapter to choose** Comment 1 (Voter: Yanli Chen / UCT) / A reason not addressed by a Vote response		
	Referenced Section/ Paragraph	***TF/TC Chapter to fill in including text in the ballot as appropriate.** Section 5, Terminology		
	Reason	***Original Comment text, if applicable, and problem statement, including justification and suggestion, should be copied.** In the section of Terminology , 5.1.6 transient overshoot — the maximum change in actual flow minus the steady state change in actual flow, expressed as a percentage of the set point step change. 5.1.7 transient undershoot — the maximum amount that the actual flow passes the final steady state value, in the opposite direction of overshoot, expressed as a percentage of the set point step change. The language for the above two definition is ambiguous, so it'd better to make them clear and match with Figure 1. 5.1.8 set point – the electrical input signal to the MFC which sets the desired value of the controlled flow Should be consistent in the SEMI documents. It is better to use the one defined in SEMI E56. Set point – the input signal provided to achieve a desired flow, reports as sccm, slm, or percent full scale.		
Handle technical issue identified above as a Negative.				
Related	**Motion and Reason (check one)**	**X**	‘Related’ is mutually agreed upon. **(Needs no motion.)**	**GO TO “Persuasive” subsection**
			Negative is not related and assigned to TF. **(Needs ≥2/3 votes to pass.)**	
			Negative is not related and placed on agenda of current TC Chapter meeting as new business. **(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] and assigned to TF.	**GO TO “Final” subsection → (B)**
			2/3 ≤ [Negative is not related] and placed on agenda of current TC Chapter meeting as new business.	
Per sua	**Motion and Reason**	**X**	Negative is related and persuasive. **(Needs >1/3 votes to pass.)**	

	(check one)		Negative is related and not persuasive. **(Needs ≥2/3 votes to pass.)**				
			Reason	XXXX			
	Motion by/ 2nd by	Erica Kitano (Fujikin) / Joyce Chen (UCT)					
	Discussion	None					
	Result of Vote (check one)	04 **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)**			

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/Paragraph Section 5.1.6

5.1.6 *transient overshoot* — the maximum change in actual flow minus the steady state change in actual flow, expressed as a percentage of the set point step change.

TO: Section/Paragraph Section 5.1.6

5.1.6 *transient overshoot* — the maximum ~~change~~ ~~in~~ deviation from the actual flow to the set point, ~~minus the steady state change in actual flow,~~ expressed as a percentage of the set point ~~step change~~.

Justification (If necessary)

Definition was revised for clarity and to match to Figure 1.

2

FROM: Section/Paragraph Section 5.1.7

5.1.7 *transient undershoot* — the maximum amount that the actual flow passes the final steady state value, in the opposite direction of overshoot, expressed as a percentage of the set point step change.

TO: Section/Paragraph Section 5.1.7

5.1.7 *transient undershoot* — the maximum ~~amount that~~ deviation from the actual flow to the set point ~~passes the final steady state value,~~ in the opposite direction of overshoot, expressed as a percentage of the set point ~~step change~~.

Justification (If necessary)

Definition was revised for clarity and to match to Figure 1.

3

FROM: Section/Paragraph Section 5.1.8

5.1.8 *set point* — the electrical input signal to the MFC which sets the desired value of the controlled flow.

			TO: Section/Paragraph Section 5.1.8 5.1.8 *set point* — ~~the electrical input signal to the MFC which sets the desired value of the controlled flow.~~ the input signal provided to achieve a desired flow, reported as sccm, slm, or percent-full scale.		
			Justification (If necessary) Modified to match definition in SEMI E56 and SEMI Compilation of Terms (COT).		
	Motion		Negative is addressed by the technical change(s).		
	Motion by/2nd by		Erica Kitano (Fujikin) / Thomas Fritz (WIKA)		
	Discussion		None		
	Result of Vote (check one)		04 **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		Joyce Chen (UCT) / Erica Kitano (Fujikin)		
	Discussion		None		
	Result of Vote (check one)		04 **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 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 (Yanli Chen / UCT) - Comment 1

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

Comment	In the section of Test Setup 7.9 The test setup is recommended for MFC full scale flow rates above 10 sccm. In those cases where the flow rate is below 10 sccm and the pneumatic time constant is not less than 1/5 of the step response time of the MFC the pneumatic time constant shall be reported This is confusing. Can this test setup be used for MFC full scale flow rates below 10 sccm or not? Suggest to rework on the language.	
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. Language is clear. Section 7.9 provides guidance on how this setup can be used for MFC of full scale flow rate below 10sccm.
		Refer to the TF for more consideration.
		New Business
		Editorial Change

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* ¶ 9.7.1.2)

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	=	**22**	/	**23**	=	**95.7%**		**≥90%**

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

Note: See *Regulations* § 9.7.2 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 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		Joyce Chen (UCT) / Thomas Fritz (WIKA)
Discussion		None
Vote		04 **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. 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 potentially material patented technology or copyrighted items* in the Standard or Guideline. (*Regulations* ¶ 8.8.1)		
	X	No potentially material patented technology or reproduction of copyrighted items is known.	**GO TO SECTION X.**
		Potentially material patented technology or reproduction of copyrighted items is known, but a Letter of Assurance (LOA) or copyright release letter for such items has been obtained or presented to the TC Chapter.	**GO TO SECTION X.**
		Potentially material patented technology or reproduction of copyrighted items is known and use of such materials is technically justified by the TC Chapter, but an LOA or copyright release letter for some of the item(s) has NOT been obtained or presented to the TC Chapter.	
	NO		Ask ISC for special permission to publish.

			Quit activity.
			Wait for LOA for patented technology or release of copyrighted items.
	Motion by/2nd by		Name (Company)/Name (Company)
	Discussion		XXXX
	Vote		XX **Y**-XX **N**
	Final Action		Motion passed
			Motion failed

*** 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

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		Joyce Chen (UCT) / Thomas Fritz (WIKA)
Discussion		None
Vote		04 **Y** 0 **N**
Final Action	**X**	Motion passed
		Motion failed

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

A&R		**Approved for publication**
	X	**Approved pending acceptance of the Ratification Ballot**
		Not approved
	Reason:	