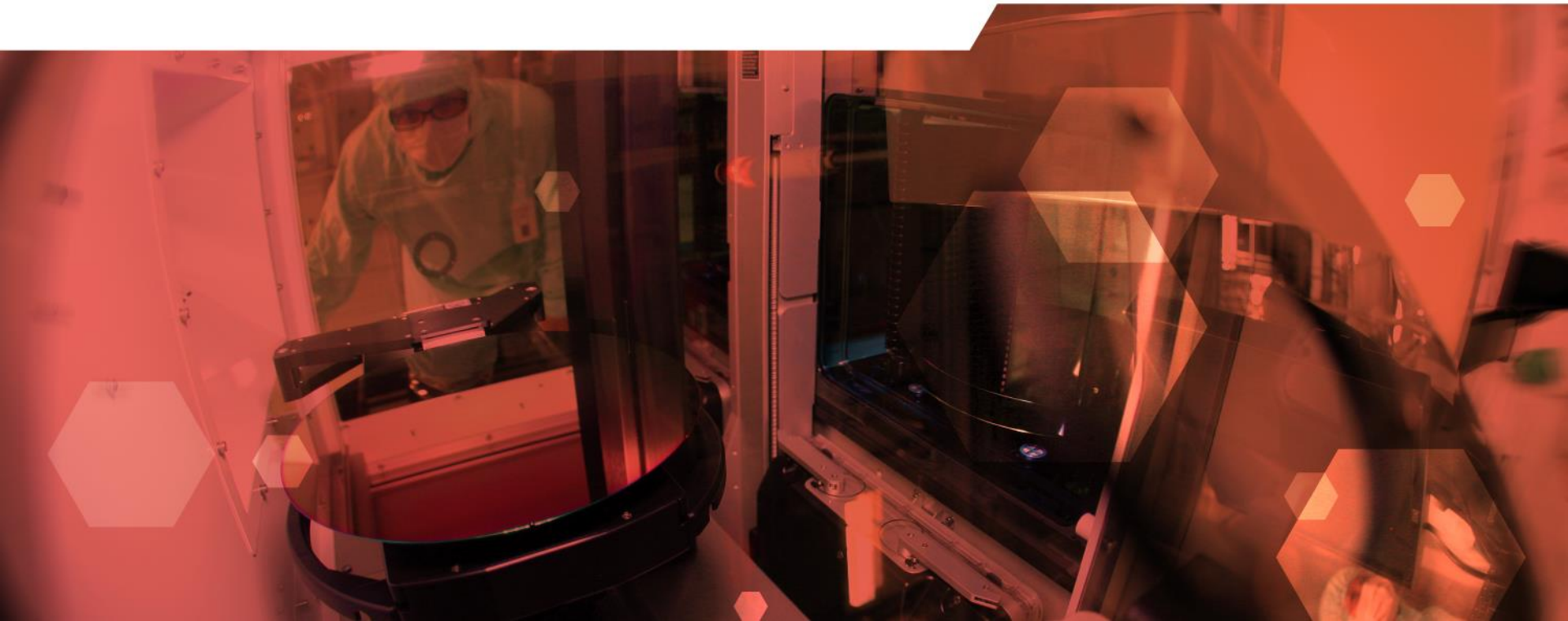


# North America Metrics Technical Committee Chapter

## Liaison Report

July 2017 v1.1



# Outline

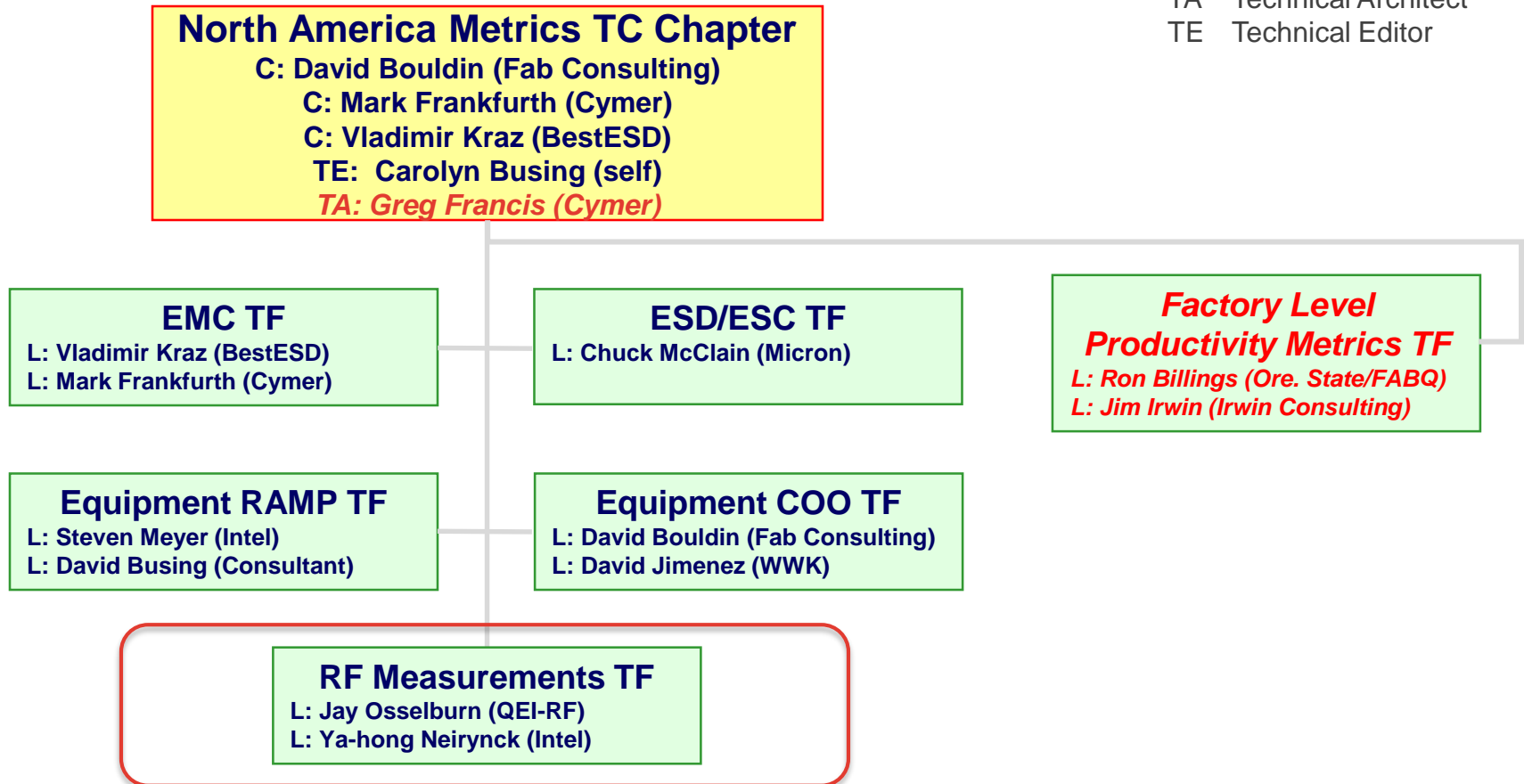
- Leadership
- Organization Chart
- Meetings Information
- Ballot Results
- Upcoming Ballots
- Old Business (5 Year Review and 3 Year SNARFs)
- Task Force Status Update
- Proposed Meeting Schedule

# Leadership

- N.A. Metrics TC Chapter Cochairs
  - David Bouldin (Fab Consulting)
  - Mark Frankfurth (Cymer)
  - Vladimir Kraz (BestESD)
- RF Measurements TF – New Task Force
  - Jay Osselburn (QEI-RF)
  - Ya-hong Neiryneck (Intel)

# N.A. Metrics TC Updated Organization Chart

<u>Legend</u>	
C	Chair/Co-Chair
L	Task Force Leader
TF	Task Force
TA	Technical Architect
TE	Technical Editor



NOTE: *Italics* means group is currently inactive.

# Meeting Information

- Last meeting
  - July 12, 2017 @ SEMICON West 2017 Meetings
    - San Francisco, California
- Next meeting
  - November 8, 2017 @ N.A. Standards Fall 2017 Meetings
    - SEMI Headquarters, Milpitas California

# Ballot Results Cycle 5 2017

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
<b>5596A</b>	New Standard: <i>Guide to Assess and Minimize Electromagnetic Interference (EMI) in a Semiconductor Manufacturing Environment</i>	<b>Passed;</b> <b>Ratification Ballot issued</b>
<b>6144</b>	Line-item Revision to SEMI E140-0312, <i>Guide to Calculate Cost of Ownership (COO) Metrics for Gas Delivery Systems</i>	<b>Failed</b>
<b>6145</b>	Line-item Revision to SEMI E35-0312, <i>Guide to Calculate Cost of Ownership (COO) Metrics for Semiconductor Manufacturing Equipment</i>	<b>Failed</b>
<b>6146</b>	Line-item Revisions to SEMI E35-0312, <i>Guide to Calculate Cost of Ownership (COO) Metrics for Semiconductor Manufacturing Equipment</i> and SEMI E140-0312, <i>Guide to Calculate Cost of Ownership (COO) Metrics for Gas Delivery Systems</i>	<b>Failed</b>

# Ballots Issued for Standards Fall 2017 Meetings

## Adjudication

#	When	Details
<b>R5596A</b>	Cycle 6-17	New Standard: <i>Guide to Assess and Minimize Electromagnetic Interference (EMI) in a Semiconductor Manufacturing Environment</i>
<b>6144A</b>	Cycle 6-17	Line-item Revision to SEMI E140-0312, <i>Guide to Calculate Cost of Ownership (COO) Metrics for Gas Delivery Systems</i>
<b>6145A</b>	Cycle 6-17	Line-item Revision to SEMI E35-0312, <i>Guide to Calculate Cost of Ownership (COO) Metrics for Semiconductor Manufacturing Equipment</i>
<b>6146A</b>	Cycle 7-17	Line-item Revisions to SEMI E35-0312, <i>Guide to Calculate Cost of Ownership (COO) Metrics for Semiconductor Manufacturing Equipment</i> and SEMI E140-0312, <i>Guide to Calculate Cost of Ownership (COO) Metrics for Gas Delivery Systems</i>
<b>6241</b>	Cycle 7-17	Reapproval of SEMI E113-306 (Reapproved 0512), <i>Specification for Semiconductor Processing Equipment RF Power Delivery Systems</i>
<b>6242</b>	Cycle 7-17	Reapproval of SEMI E136-1104 (Reapproved 0512), <i>Test Method for Determining the Output Power of RF Generators Used in Semiconductor Processing Equipment RF Power Delivery Systems</i>
<b>6243</b>	Cycle 7-17	Reapproval of SEMI E143-0306 (Reapproved 0512), <i>Test Method for Measuring Power and Variation into a 50-Ω Load and Power Variation and Spectrum into a Load with a VSWR of 2.0 at Any Phase Angle</i>

# 5 Year Review Metrics

Name	*Due for Review	Title	Status
SEMI E161-0611	6/1/2016	<i>Guide for Identification and Classification of Training Tiers</i>	Plan to go inactive
SEMI E113-0306 (Reapproved 0512)	5/1/2017	<i>Specification for Semiconductor Processing Equipment RF Power Delivery Systems</i>	Reapproval ballot recommended by TF
SEMI E35-0312	3/1/2017	<i>Guide to Calculate Cost of Ownership (COO) Metrics for Semiconductor Manufacturing Equipment</i>	Balloted Cycle 6-2017
SEMI E140-0312	3/1/2017	<i>Guide to Calculate Cost of Ownership (COO) Metrics for Gas Delivery Systems</i>	Balloted Cycle 6-2017
SEMI E136-1104 (Reapproved 0512)	5/1/2017	<i>Test Method for Determining the Output Power of RF Generators Used in Semiconductor Processing Equipment RF Power Delivery Systems</i>	Reapproval ballot recommended by TF
SEMI E143-0306 (Reapproved 0512)	5/31/2017	<i>Test Method for Measuring Power and Variation into a 50-<math>\Omega</math> Load and Power Variation and Spectrum into a Load with a VSWR of 2.0 at any phase Angle</i>	Reapproval ballot recommended by TF
SEMI E135-0704 (Reapproved 0512)	5/30/2017	<i>Test Method for RF Generators to Determine Transient Response for RF Power Delivery Systems Used in Semiconductor Processing Equipment</i>	RF Measurements TF is working on ballot preparation.
SEMI E78-0912	9/28/2017	<i>Guide to Assess and Control Electrostatic Discharge (ESD) and Electrostatic Attraction (ESA) for Equipment</i>	In review by TF member
SEMI E129-0912	9/28/2017	<i>Guide to Assess and Control Electrostatic Charge in a Semiconductor Manufacturing Facility</i>	In review by TF member



## 5 Year Review – Inactive Standards

- SEMI E161-0611, *Guide for Identification and Classification of Training Tiers*
  - To go inactive

# SNARFs 3 Year Status

- **None**

# ESDA Liaison Report – ESD Association

- ESDA and JEDEC are collaborating to release joint device test standards. **Update of HBM standard JS-001 completed.** CDM standard JS-002 has been released and is now available on both the ESDA and JEDEC websites. Collaboration with JEITA is in process. **Working on a template for data sheet information**
- Website - [www.esda.org](http://www.esda.org)
  - Information and **free download** of ANSI ESD S20.20 (static control program), ANSI ESD S541 (packaging) documents. ESDA Glossary of Terms – online and searchable on the website. Device Test standards (referenced in SEMI documents) are available as a free download.
- **An updated international version of ANSI/ESD S20.20 is out for vote by the IEC as IEC 61340-5-1. This has been harmonized to the 2014 version of S20.20.**
- ESD Association Technology Roadmap for semiconductor device ESD sensitivity has been updated and is available on the ESDA website.
- ESDA and the Industry Device Council have activities regarding electrical overstress (EOS) test methods. Industry Device Council WP-4 is being reviewed for release by JEDEC
- **Next meetings September 7-10 in Tucson AZ. ESD Symposium and Tutorials September 10-14 in Tucson. Check the ESDA website for more information.**

# EMC Task Force Report

- Doc. 5596A, New Standard: *Guide To Assess and Minimize Electromagnetic Interference (EMI) in a Semiconductor Manufacturing Environment*
  - Issued in Cycle 5-17 and received one reject and a few comments
  - Passed with technical changes. Ratification ballot to be issued in Cycle 6-17
- Industry Update EMC:
  - IEEE EMC Symposium, August 7-11, 2017, Washington, DC
- Industry Update ESD:
  - ESDA Standards Session September 8-15, 2017, Tucson, AZ
  - ESDA Standards Session (remote): July 17-27, 2017
  - contact [www.esda.org](http://www.esda.org) for specific schedule

# RF Measurements Task Force Report

- **Ballots under development**

- Doc #6184, Revision to SEMI E135-0704 (Reapproved 0512), *Test Method for RF Generators to Determine Transient Response*
  - Motivation
    - The standard has not kept up with digital communications and complex modulation of RF waveforms now in common use.
    - Broaden load test conditions
  - Target ballot submission Q4 2017

- **TF Meeting Results**

- Reviewed OEM feedback of E135
  - Inputs received from: AMAT, Lam, and TEL
  - SEMICON West meeting focused on:
    - Defining the high and low impedance loads that should be used for this test;  $\Gamma = 0.8$  or  $0.98$ 
      - » how many phase angles
    - Suggestion on alternate approach: specify high and low impedance ranges rather than specific values
    - Possible limitations to VHF products. Discussion determined that the  $\Gamma = 0.98$  test condition can be replicated for these products at VHF frequencies using specific cable lengths.
- Next steps: Review proposal for alternate test load conditions at 8/3 TF meeting.

- **Future Work**

- Industry wide feedback clearly indicated that a standard for durability testing is desired.

# E-COO Task Force Report

- No Task force meeting during SEMICON West.
- Doc. # 6144, Line-item Revision to SEMI E140-0312, *Guide to Calculate Cost of Ownership (COO) Metrics for Gas Delivery Systems*
  - Failed due to procedural issue, will be resubmitted in Cycle 6-17
- Doc # 6145, Line-item Revision to SEMI E35-0312, *Guide to Calculate Cost of Ownership (COO) Metrics for Semiconductor Manufacturing Equipment*
  - Failed due to procedural issue, will be resubmitted in Cycle 6-17
- Doc. # 6146, 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*
  - Failed due to procedural issue, will be resubmitted in Cycle 7-17

# Next Meeting Schedule

- Metrics Webinar Education Series:
  - SEMI E10 RAM & Utilization Specification Standard Overview
  - SEMI E79 RAM & Utilization Specification Standard Overview
  - SEMI E10 RAM & Utilization Specification Standard Applications, Part 1
  - SEMI E10 RAM & Utilization Specification Standard Applications, Part 2 (in production)
- On-demand free to stream from the [SEMI Standards Webinar Series](#)
- Developed by the Equipment Reliability, Availability, Maintainability, and Productivity (RAMP) Task Force of the N. A. Chapter of the Metrics Global Technical Committee
- Provides overview of SEMI E10, E79, E58, and E116 (and how they work together)
- Enhance the application and correct usage of these existing Standards.

# Next Meeting Schedule

The next N.A. Metrics Standards Meetings are tentatively scheduled\* for November 7-8, 2017 at SEMI HQ, California in conjunction with the Standards Fall 2017. Exact meeting date and details will be announced when finalized and available at <http://www.semi.org/en/standards-events>

## **Tuesday, November 7 (Tentative)**

- ESD/ESC TF (1:30PM – 3:30PM)
- Equipment COO TF (3:30PM – 5:00PM)
- EMC Task Force (5:00PM – 6:00PM)

## **Wednesday, November 8 (Tentative)**

- Equipment RAMP Metrics TF (9:00AM – 11:00AM)
- RF Measurements TF (2:00PM – 3:00PM)
- Metrics NA TC Chapter (3:00PM – 6:00PM)

\*All times are in Pacific Standard Time. Times and dates are subject to change without notice.



# Thank you!

For more information or to participate in any N.A. Metrics activities,  
please contact Inna Skvortsova at SEMI ([iskvortsova@semi.org](mailto:iskvortsova@semi.org))