

Minutes of the Joint ECA Soldering Technology Committee (STC)

Tuesday, October 7, 2003

San Antonio Marriott Rivercenter

San Antonio, Texas

The scope of the Soldering Technology Committee (STC): The STC encompasses soldering practices (soldering iron-mass reflow techniques) and associated soldering materials (solders, pastes and adhesives, and flux/cleaning agents). However, the Committee will focus on solderability test method development for printed through-hole (PTH) and surface mountable components. One of the major functions is to promote commonality and standardization of soldering test methodology within the EIA Sectors.

The meeting was called-to-order at 1:30 PM by Chairman Doug Romm.

Name	PI*		Organization	Telephone	Fax	Email
	V	T				
Voting members						
Doug Romm	M	P	Texas Instruments, Inc.	903.868.7388	903.868.6002	doug@ti.com
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Yumi Chiong	M	P	KRFM America Inc.	703.351.5082		yumi2007@krfmamerica.com
Aihara						
Absent voting members						
Michael Cannon	M	P	TDK Corporation	847.390.4317	847.390.4498	mcannon@tdktca.com
Mike Lauri	M	U	IBM	845.892.0442	845.892.0607	laurim@us.ibm.com
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Mark Kwoka	M	P	Intersil	321.729.5790	321.729.4744	mkwoka@intersil.com
Greg Wood	M	G	American Competitiveness Inst.	610.362.1200x221	610-362-1290	gwood@aci_corp.org
Stephen Todd	M	P	FCI Electronics	717.938.7942	717.938.7991	Toddse@bergelect.com
Gordon Davy	M	U	Northrop Grumman	410-993-7399	410-694-2889	gordon_davy@md.northgrum.com
Maureen Williams	M	G	NIST	301-975-6170	301-975-4553	Maureen.Williams@nist.gov
Kil-Won Moon	M	G	NIST	301-975-6148	301-975-4553	kwmoon@nist.gov
Nonvoting members present						
Ed Mikoski	S	G	EIA	703-907-7518	703-907-7501	emikowski@eca.us.org

* PI = Participant identification: V = voting status; M = member; G = guest; S = staff; T = participant type; P = producer; U = user; G = general participant

1 Committee organization and procedures

1.1 Membership and attendance

Self-introductions were made and attendance was taken.

1.2 Approval of the Agenda

The Committee unanimously accepted the Agenda as presented.

1.3 Approval of the Minutes

The Committee unanimously accepted the Minutes of the last meeting as written.

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2 Old business

2.1 Review/status of ANSI J/STD-001-C

ANSI J/STD-001-C was published March 2000. New revision activity kicked off in New Orleans last November. A working draft has been prepared for ballot/comments. The Chairman will forward the draft to committee members for review.

3 New business

3.1 Review of ANSI J/STD-002-B

3.1.1 J-STD-002B Status

Dave Hillman updated the team on revision activity for J-STD-002 "Solderability Tests for Component Leads, Terminations, Lugs, Terminals and Wires". A key item to be included in the next revision of the J-STD-002 is to include options for testing to lead-free temperatures. Mr. Hillman reported that he is formulating a DOE that will encompass soldering temperatures, times, flux, and component finishes for comparison to board mounted units. Mr. Hillman will work with Bill Russell of Raytheon to finalize and publish the DOE to the committee. Mr. Hillman is chairman of the IPC committee which will have inputs to the J-STD-002 revision. The STC will perform the solderability testing while the IPC members will be in charge of performing board mount and evaluation of board mounted components. Several STC committee members volunteered to supply components for evaluations as follows:

<u>Name</u>	<u>Components to supply</u>
Doug Romm	NiPdAu finished IC packages
Jeff Cannis	SnPb, Matte Sn, SnBi, and NiPdAu finished IC packages
Matt Joiner	0603 100% Sn plated fuses
Sue Barkal	0805 matte Sn tantalum capacitors
Dave Toomey	0805 matte Sn tantalum capacitors
Yumi Aihara	0805 capacitors
Michael Cannon	0603 capacitors

The wetting balance test method is currently listed in ANSI/J-STD-002 under the section "Tests without Established Accept/Reject Criterion". Mr. Hillman reported that there is interest in the IPC committee in either updating the status of wetting balance test method as an "accepted" method or eliminating it from the J-STD-002. Bill Russell presented a summary of historical work performed the STC to evaluate repeatability of the wetting balance method.

Discussion on the wetting balance method concluded with the following:

- The committee agreed that the smaller the surface area, the lower the accuracy of wetting balance method.
- Several members (5) indicated "no support" for wetting balance test method at this time.
- IPC-TM-650 methods document is a possible location for the wetting balance method to reside.
- The IPC committee has a test plan for looking at gauge R&R of newer wetting balance equipment.

3.1.2 Possible replacements for steam pre-conditioning

Both the IPC and STC committees are interested in investigating possible replacements for steam pre-conditioning. Mr. Hillman presented a summary of his work on steam pre-conditioning. Summary of inputs are:

- Steam creates oxide conditions that do not match natural aging conditions.
- The IPC committee is agreeable to defining a different set of conditions.
- Mr. Hillman is leaning towards using 125C or 150C dry bake for a period of time, not yet determined.
- There is no active work going on with a replacement for steam pre-conditioning right now. It's up to the STC to generate the data.

3.1.3 Other needed additions to J-STD-002

STC members discussed packages which exist now but are not included in the pass/fail criteria listed in J-STD-002. The team agreed pass/fail criteria needs to be included for QFN, Exposed Pad, and BGA-type packages.

3.1.4 STC Priorities for 2004

STC members discussed the various areas of possible work. It was agreed that the order of priority for the team will be:

1. Define/complete the Pb-free DOE; update J-STD-002.
2. Investigate replacement for steam pre-condition.
3. Perform gauge R&R for wetting balance method.

4 Next meeting

The next meeting is tentatively planned for Spring 2004 in conjunction with the ECA Spring Engineering Summit in Tampa, Florida. Ms. Yates will forward the meeting notice.

5 Adjournment

The Committee moved, seconded, and unanimously agreed to adjourn at 5:00PM.

This meeting was conducted in accordance with the EIA legal guidelines and the EIA manual of organization and procedure.

Doug Romm

STC Chairperson