



sti NEWS

electronics^{inc.}

In this issue:
Dave's World p2

Training Services p3

Engineering Services p4

Business Development/Sales p5

Winter Training Schedule p6

Training Materials p7

Jim's Corner p8



DAVE'S WORLD



CONTACT INFORMATION:

DAVE RABY

PRESIDENT/CEO

DRABY@STIELECTRONICSINC.COM

2010 IN REVIEW BY: DAVE RABY

It is said that time flies when you are having fun. Looking back, 2010 didn't seem to take very long.

STI continued to grow in a lot of ways in 2010. The most easily measurable is our sales growth which says customers are happy and allows us to continue to expand our products and services. But most importantly, we continue to add talent, depth, and capabilities which in turn make us more valuable to customers. We can support customers in many ways now that we couldn't in the past. We added a reflow oven to our clean room so we now have a full SMT line inside the clean room. We added a conformal coating machine and flying probe tester and have a vibration table on the way, all of which support our internal operations but also provide services we did not previously offer. We introduced a test protocol for accelerated SIR testing which helps qualify (or disqualify) high reliability assemblies and hardware much more quickly than ever before. This test won a 2010 Global Technology Award and can help save customers untold amounts of time and money (see Casey's article on page 4). We wrote the new lesson plans for IPC-

A-610E and J-STD-001E which are now being used worldwide for training and certification. These replaced the revision D lesson plans to these specs which we also wrote. Of course, we also began teaching the updated revisions. We added a new territory to our outside sales force for Engineering and Training Resources which makes us much more accessible to our customers in Arkansas, Louisiana, Oklahoma, and Texas.

We also added talent and experience. The type and variety of projects we are involved in and work we do increases our internal experience level every day so we are always getting smarter but we also continue to add good, smart, and experienced people. Tony (IT), Jack (Sales), Sharon (Admin), Doris (Lab), Harold (Sales), Katrena (Test), Tracey (Admin), KP (Lab), and Tom (Sales) all joined the STI team this year and we now have 15 employees who have been at STI 10+ years. Personally, I've had a great year. It has been fun watching STI grow and change for the better over the past 28 years but this year has seemed even more special. Every time I call our leadership team together I am so impressed with their knowledge and calmness and long term outlook toward doing the right thing the right way. The leadership team and everyone at STI give me a huge amount of confidence about our future. My job is evolving from President with some CEO stuff as time permits to CEO with some President stuff as absolutely necessary. That evolution is taking some time and effort on my part but feels a little more natural every day.

Everything we do at STI is based around serving you, our customer, better. Please let me know how we can do a better job of helping you. You are why we exist. Thank you for your support and I wish you a Merry Christmas, a Happy Holiday Season, and a Happy, Healthy, and Prosperous 2011.

David E. Raby

To follow STI on Twitter or Facebook, go to www.stielectronicsinc.com and follow the links in the upper right corner of the home page.

Happy Holidays



STI'S TRAINING SERVICES

BY: PAT SCOTT

The success of STI's Training Services department is based on its outstanding reputation, knowledgeable instructors, and commitment to providing quality training. When you attend a class conducted by STI you will be provided with all the proper equipment, tools and materials in order to be successful in completing all hands-on projects.

Students will also be provided with live hands-on demonstrations for each and every project whether it's Terminal Soldering, Through-Hole Assembly and Soldering, SMT Soldering, Cable Fabrication Basics, Rework and Repair, etc.

STI provides students the attention that is needed in order for them to be successful in improving hands-on and assessment skills to benefit their companies and customers by applying that experience in the workplace. After a demonstration is performed the instructor spends time circulating through the classroom in order to ensure that each student is progressing smoothly and to answer any questions that might come up.

Additionally, the relationship you have with the training center after the course is completed is critical. Yes, our instructors are busy teaching classes but they will always find time to return emails or phone calls because they know that if students have a question they need it answered in a timely manner.

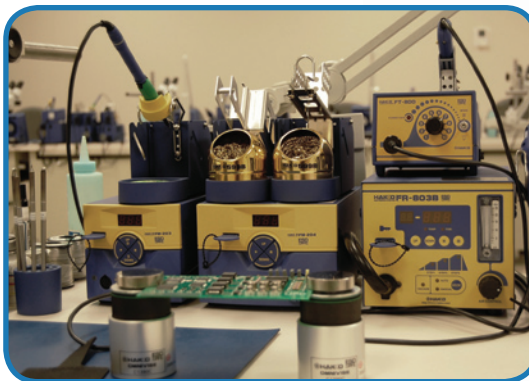
STI is considered a premiere training site and we strive to be competitive in all aspects of our training. One area we want to make sure that we continue to stay competitive in is pricing. So in 2011 STI will try to match any competitors pricing (in writing) for the same training. We also have very competitive corporate pricing available. Give us a call and let us become your corporate training partner.

We appreciate our current customers who have shown us loyalty throughout the years and look forward to meeting new customers this next year.

Please feel free to give me a call at 256-705-5528 or email me at pscott@stielectronics-inc.com

inc.com if you have any questions or if you require a quote. We look forward to seeing each of you in 2011. Happy Holidays!

Pat Scott



TRAINING SERVICES



CONTACT INFORMATION:

PAT SCOTT

DIRECTOR OF TRAINING SERVICES

256-705-5528

PSCOTT@STIELECTRONICSINC.COM

ENGINEERING SERVICES



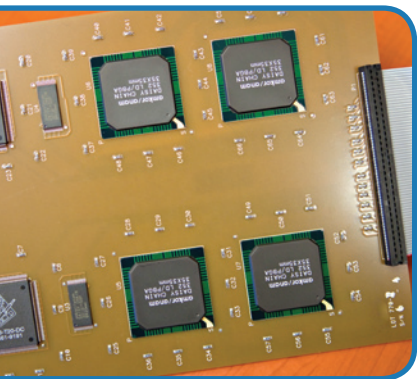
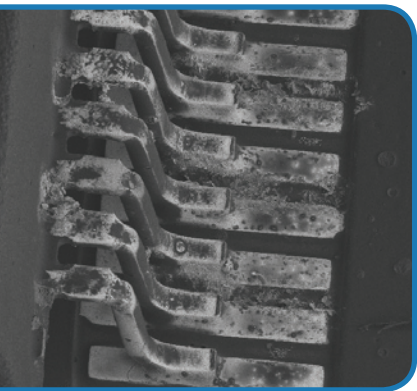
CONTACT INFORMATION:

CASEY COOPER

MICROELECTRONICS LAB MANAGER

256-705-5511

CCOOPER@STIELECTRONICSINC.COM



ACCELERATED SIR MATERIALS TEST PROTOCOL BY: CASEY COOPER

Qualification Testing for Hi-Rel Electronics Hardware

STI's surface insulation resistance (SIR) test protocol offers an accelerated method to qualify assembly materials and processes for high reliability (hi-rel) electronics hardware operating in harsh environments. The deadly combination of heat and moisture (humidity), electrical potential (voltage bias), and ionic contamination (residue) is enough to create electrochemical failures (dendritic growth), thus producing dielectric failure and current leakage—both of which result in degradation in performance, if not complete failure, of the electronics assembly. With faster data sampling rates and a more aggressive test environment (moisture in addition to temperature cycling) than standard test protocols, STI's Accelerated SIR Materials Test Protocol is designed to provide a cost-efficient, quick-turn method to evaluate both assembly materials and manufacturing processes through industry standard SIR testing and STI's supplementary voltage monitor testing.

Application of a bias voltage and aggressive test environment conditions are utilized to intensify the effect of humidity and temperature cycling to determine if the assembly materials, e.g. conformal coating, and manufacturing processes, e.g. residues, will result in current leakage and/or dielectric breakdown between conductors. The test vehicles are wired with current-limiting resistors to help preserve dendrite formation, insulation resistance measurements are taken at the end of each cycle (every 24 hours), and voltage monitoring data is captured every 60 seconds throughout the duration of the test.

Because SIR test results are dependant of the design and manufacturing of the test vehicle, STI offers a customized test board design (representative of your electronics hardware component set) in addition to those available commercially for IPC and IEC. STI can also provide turn-key SIR test services, including test vehicle assembly utilizing STI's contract manufacturing and prototype lab. During the test period, STI provides daily cumulative SIR updates and voltage monitoring data plots for quick comparison of multiple test samples and data assessment.

KEY FEATURES:

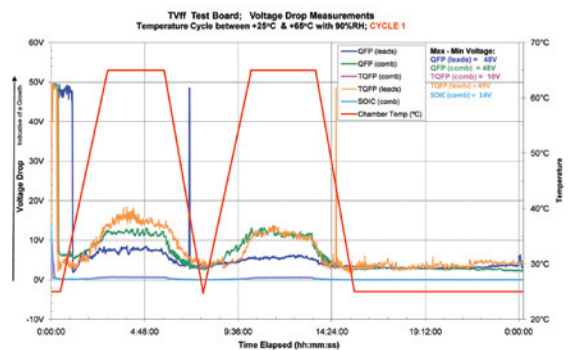
- Cost-Efficient
- Increased Sampling Rate
- Customized Test Vehicle
- Accelerated Test Environment
- Quick-Turn Data Analysis

QUALIFICATION FOR:

- Materials Qualification
- Process Evaluation (residues)
- Materials Comparison
- Conformal Coating Evaluation (area-array penetration & edge-and-point coverage)
- Reliability Assessment in Humid Environments

INCLUDES ELEMENTS OF:

- IPC-TM-650 (Surface Insulation Resistance)
- MIL-STD-202 (Moisture Resistance)
- IPC-TM-650 (Moisture & Insulation Resistance - Conformal Coating)
- IPC-J-STD-004 (Solder Paste Flux Qualification)
- IPC-CC-830 (Conformal Coating Qualification)



AN INTRODUCTION BY: HAROLD BREEN

Given this is my inaugural entry in the newsletter; I thought it would be appropriate to provide a brief introduction. I come to STI after 18 years in the manufacturing sector with IMS Manufacturing. My product background is largely associated with mechanical products used in electrical and electronic systems. This includes raw materials and coatings (environmental and thermal, etc.) and their performance in various environments as well as their compliance with evolving industry standards. On a personal note, I celebrated 25 years of marriage this year (30 Nov in fact) with my dear wife Valeria. We are blessed to have two beautiful daughters (Erica, 21 will graduate from Samford University in Birmingham this December and Anna Marie, 15 who is a sophomore in High School). I am a native of Huntsville and currently reside somewhat out in the country, but within the city limits of Arab, Alabama.

Since the last newsletter our department has been quite busy. The diversity of the knowledge base and breadth of capability at STI I believe will continue to be the cornerstone for future growth. In today's marketplace, suppliers must have depth in order to meet customer's expectations. We believe that it is no longer acceptable in today's dynamic environment to be one dimensional. In order to succeed, one has to be multi-dimensional within the core industry you choose to serve and we have achieved that operational level. Our challenge lies in properly communicating the depth of our resources (human and capital) and knowledge to each of our current customers as well as prospective customers in such a manner that illustrates we are a solid value and resource.

We have completed a restructure of our sales department that will result in our customers and potential customers being presented with all of STI's

capabilities (Training Services and related support materials and kits, Sales/Distribution, and Engineering Services to include laboratory analysis and manufacturing support) of the company and how they combine to create the best value relationship in the industry. Our goal is to provide the most efficient technical solutions combined with the greatest product and superior service that result in a true turn key solution for the electronics market. Currently we have national focus with our entire sales team as well as strategic regional focus in the South and Southeast from North Carolina to Texas.

The third quarter of 2010 brought success in the area of new customer development. We are excited to have had success in new markets including the smart power and energy sector, lighting sector for digital controls, direct contract support for Redstone Arsenal, biomedical microelectronics, as well as opportunity for further integration of our current capabilities within the existing customer base.

I am grateful for the opportunity I have been given to have some impact on centralizing the sales and business development efforts for STI. Additionally, I am grateful to have the opportunity to work with my new colleagues. I have already learned a tremendous amount from them (even though there are days I feel like I am drinking from a fire house) but still have so much more to learn.

I would also like to take this opportunity to wish each and every reader a very Merry Christmas and a Happy New Year. I would be remiss not to remind each of us to truly count our blessings and be thankful. May God richly bless you and yours!

BUSINESS DEVELOPMENT/SALES



CONTACT INFORMATION:

HAROLD BREEN

**BUSINESS DEVELOPMENT
/SALES MANAGER**

256-705-5533

HBREEN@STIELECTRONICSINC.COM



TOM LOGGINS, NEW ACCOUNT EXECUTIVE

Tom Loggins joins STI as an Account Executive in its sales department. "Tom brings a tremendous amount of sales and business development experience to STI and our customers. We are excited about the addition of Tom to our staff and he is excited about the full range of products and services that he will have to offer to customers," said David Raby, President & CEO. Tom will be selling all of STI's products and services to the Southeastern United States. He brings with him over 20 years experience in the electronics manufacturing industry.

Prior to joining STI, Tom was a manufacturer's representative, managing the Southeast for major electronics manufacturers such as Pace, Aim Solder and 3M Static Control. Tom holds a Marketing Degree from Jacksonville State University.

WINTER TRAINING SCHEDULE



DECEMBER 2010 - FEBRUARY 2011

MONTH	DATE	CLASS	LOCATION
December	13-16	IPC-A-610 Certified IPC Trainer (CIT) Certification Program	Madison, AL
	13-14	IPC Rework/Repair & Modification Certified IPC Trainer (CIT)	Madison, AL
	20-22	IPC-A-600 Certified IPC Trainer (CIT) Certification Program	Madison, AL
January	03-06	IPC/WHMA-A-620 Certified IPC Trainer (CIT) Certification Program	Madison, AL
	03-04	IPC-A-610 Certified IPC Trainer (CIT) Recertification Program	Madison, AL
	03-07	MSFC/NASA 8739.2/3 Solder Certification Course	Madison, AL
	05-06	IPC J-STD-001 Certified IPC Trainer (CIT) Recertification Program	Madison, AL
	07	IPC/WHMA-A-620 Instructor (CIT) Hands-On Lab	Madison, AL
	10-14	IPC J-STD-001 Certified IPC Trainer (CIT) Certification Program	Madison, AL
	18-21	IPC-A-610 Certified IPC Trainer (CIT) Certification Program	Madison, AL
	18-21	Basic Soldering	Madison, AL
	31-01	IPC/WHMA-A-620 Certified IPC Trainer (CIT) Recertification Program	Madison, AL
February	02-03	IPC Rework/Repair and Modification Certified IPC Trainer (CIT) Recertification Program	Madison, AL
	21-25	J-STD-001 Certified IPC Specialist (CIS) Training Program	Madison, AL
	22-25	IPC-A-600 Certified IPC Trainer (CIT) Certification Program	Madison, AL
	28-04	IPC J-STD-001 Certified IPC Trainer (CIT) Certification Program	Madison, AL

To register for a course or for additional information go to www.stielectronicsinc.com or e-mail us at training@stielectronicsinc.com.

TRAINING MATERIALS

BY: MEL PARRISH

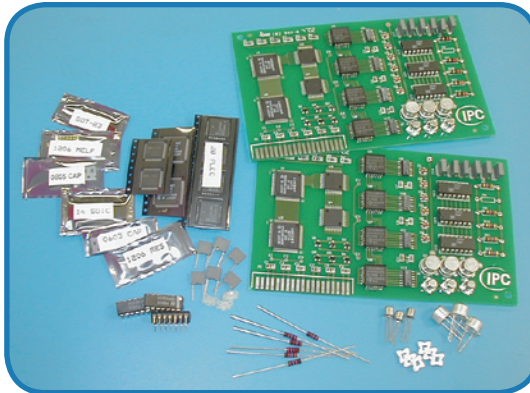
PICK YOUR FINISH

Current opportunity to choose a circuit board plating finish is far more diverse than in the past. Historical selections for board finishes were limited to forms of Tin Lead such as Plate Reflow or HASL, Emersion Nickel Immersion Gold (ENIG), or bare copper with OSP. With the addition of Lead Free opportunities the number of alloys as well as methods is greatly expanded. Combine that with significant alternative flux formulations and the combinations affecting soldering can be mind boggling.

Board finish availability for training boards from STI's Training Materials Department is necessarily diverse to represent these variations in the production processes and their impact on skills necessary to produce acceptable hardware. In addition to the normal Tin Lead HASL finishes, today we also offer Immersion Tin, Immersion Silver, and ENIG. It is interesting to note that the most popular finish for Training Boards is still Tin Lead. Other finishes react differently to the soldering process and require additional skill to ensure success. Knowing the characteristics of applied finish is an important element for soldering acceptability. This is especially true for the rework processes. Loss of solderability after initial reflow may be significantly reduced with Lead Free from what you might expect with typical Tin Lead. Students attending STI Training sessions for IPC Instructor Certification will be exposed to the Immersion Tin Lead Free finish. Please contact us for the current combinations for the various board designs or any additional finish types you would like to experience.

WE ARE TRAINERS

STI Training Resources Department is staffed with people that understand Soldering Skill



Training. Many originally conducted training in various "Train the Trainer" operations either from the NASA or DoD programs. We know the challenges of training and all of the necessary commitment for production success. Our Training Materials are created to ensure your success, let us help you with your next challenge. Our featured Solder Training Kit for this edition is our popular Rework Repair IPC-7711 Training Kit. This kit is available with Tin Lead and Immersion Tin (Lead Free) versions for either original Certification or Recertification and can also be used effectively as a custom soldering kit with various component selections. In addition, this kit can be purchased assembled or unassembled. It was originally designed to develop Rework and Repair skills to support IPC-7711/21 training objectives. Mention this article during the newsletter release month and receive a 10% discount for any of the STI IPC-7711 soldering skill kits.

We certainly appreciate and want to thank our loyal friends and customers throughout the industry for their support over the years. We look forward to seeing you all in a successful New Year.

KELLI KING, PROMOTED TO INSIDE SALES MANAGER

In her new role, Kelli will be responsible for managing the inside sales staff and coordinating the inside sales efforts. Kelli holds a Bachelor's degree in Business Management with a minor in marketing from Athens State University.

"Kelli has been with the company for five years and has been an integral part of STI's success in the sales and distribution of electronic and industrial products worldwide. We are excited about Kelli's promotion and believe that she will be a tremendous asset for STI and our customers," said David Raby, President & CEO.



TRAINING MATERIALS



CONTACT INFORMATION:

MEL PARRISH

DIRECTOR OF TRAINING MATERIALS

MPARRISH@STIELECTRONICSINC.COM

CHECK OUT OUR TRAINING PRODUCTS CATALOG!



VISIT OUR WEBSITE AT

WWW.STIELECTRONICSINC.COM

261 Palmer Road
Madison, AL 35758
Phone: (256) 461-9191
Fax: (256) 461-9566

PRSRT STD
US Postage
PAID
Huntsville, AL
Permit #4

STI is a Resource for Training Services,
Training Materials, Engineering Services,
and Product Distribution.
Visit www.stielectronicsinc.com

JIM'S CORNER



CONTACT INFORMATION:

JIM D. RABY
PE, TECHNICAL DIRECTOR
256-705-5511
JRABY@STIELECTRONICSINC.COM

JIM D. RABY, PE, TECHNICAL DIRECTOR

When one becomes a little older they begin to think of the manner that they acquired certain information. In this case, we needed to understand solder wetting and the effects of flux on this wetting. This was about 1958 and the beginning of the space program. Dr. Werner Von Braun through my boss Dr. Albin Wittmann asked a question regarding the role flux played in the wetting of solder to a termination. Flux was difficult to remove and it was necessary to understand the impact flux had on a connection.

After much thought and various tries to understand wetting and solder flow, it was decided that each flux that was on the market should be tested to determine which was the best for the job to be done. Using both RMA and RA the test was finally accomplished by placing a sheet of copper on top of a hot plate at various temperatures and to apply cored solder wire to it until the solder began to melt. We soon learned that heat on the copper grew oxides very fast. We learned also that flux would stop the growth of the oxide, and prevent continued oxide growth. We learned that solder alone (without the flux) just would

not flow or wet to the copper therefore it became important to use a wire solder that contained flux. The flux, both RA and RMA would exit the wire solder early and begin to remove (clean) the oxide from the copper, it would also prevent reoxidation during the solder process.

In the photo to the left, one can see that the flux is out in front of the solder and cleaning (removing) the oxide before the solder makes contact and that the wetting angle on the copper is reaching out as it flows. When no flux was applied one could see that the solder stopped abruptly and had a negative wetting angle rather than a positive.

This type of test was used to understand various terminations, temperature applications, dwell time and in general how to make a solder joint before any specification or requirement was written.

Just thought you might have interest in what was the reason for some requirements, and was there understanding of the activity before a requirement was written.

Jim D. Raby
[jraby@stielectronicsinc.com](mailto:jruby@stielectronicsinc.com)

