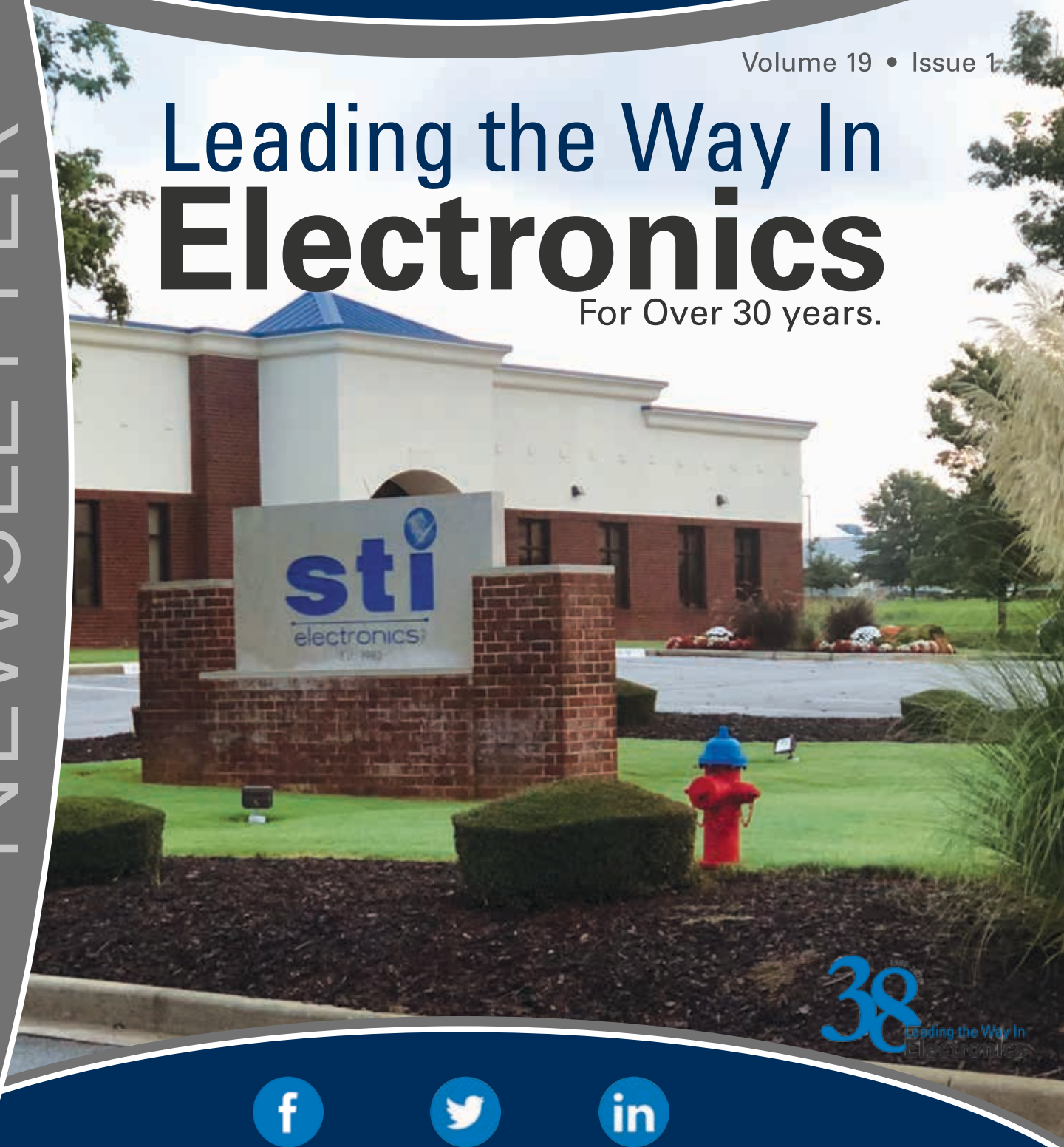
NEWSLETTER

sti electronics inc.

Volume 19 • Issue 1

Leading the Way In Electronics

For Over 30 years.



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Contents

Volume 19, Issue 1, 1st Quarter

features

STI Electronics, Inc.
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Dave's World

March 2021

As we continue to travel through 2021, things are looking up. If you've ever done math and especially fractions and percentages, you know the easiest way to have a large percentage gain is to have a really low denominator in the equation. I promise that it wasn't by choice but we set that denominator fairly low in 2020. Our April 2021 sales should be more than two times our April 2020 sales. The increase in some cases can be attributed to dumb luck and the fact that we are a year into a pandemic and the world, including many of our customers have recovered to almost normal pre-pandemic levels. However, most of our increase in sales is due to the employees at STI going the extra mile to increase business and exceed customer expectations.

We've gained a new major medical customer in Contract Manufacturing and Engineering which is exciting. Our Training Services group is working on catching up with the backlog of training caused from many companies no travel policies over the past year. We are continuing to conduct almost full, socially distanced, in person training but have also been experiencing increased interest and participation in the online classes.

At STI, we've always taken pride in a family atmosphere. This month, for the first time in our history, we lost an active "family" member. Teresa Seals passed away on March 17th very unexpectedly. Teresa worked in our Quality Department as a Quality Inspector doing mostly Incoming/Receiving Inspection. Teresa was a joy to work with and always had a smile on her face. Our thoughts and prayers are with her husband Tim and son Steven and the rest of her non- STI family. We are still in shock but very thankful for the almost 9 years Teresa was part of our work family.

Thank you for your support of STI over the years and especially during these unusual times we are living through now. Please let us know how we can help you.

David Raby

David Raby

President/CEO

draby@stiusa.com

In Memory of

Teresa Seals

1959 - 2021

UP CLOSE and PERSONAL

"Be the best version of yourself!"

Interview with Shawn Milton

Meet Shawn

Engineering Tech

How long have you been part of STI Electronics, Inc.? **2 years**

What do you do for STI? **Manufacture quality products to the best of my ability.**

Just For Fun

Tell us about your family. **Mom of five amazing kids. Bria (CSR for Apple), Tyler (Navy), Morgan (Walmart Associate), Kaitlyn and Frederick (twins - 9th graders), and Gigi (grand-ma) to Aiden and soon to be Zoey.**

Do you have a favorite place to visit? **Jacksonville, Fl**

What's your favorite type of music/song/artist? **I enjoy all genres of music.**

What is your favorite movie or TV show? **Mulan**

What's your favorite meal/food? **Taziki's Mediterranean Café (Greek salads) and Olive Garden (cheese ravioli).**

Tell us about any hobbies that you enjoy. **I love dancing, Tae Bo, boxing and crafting.**

What is your favorite motto or quote that summarizes your approach to life? **As a man thinketh in his heart, so is he. Proverbs 23:7**

What's one fun thing to know about you? **I have a sense of humor, and I love oatmeal crème pies with a Grapico soda.**

What's your favorite thing about working at STI? **Working alone (just kidding)**

What is your favorite non-profit to support and why? **St. Vincent De Paul Society. They provide aid to families that are in need with love and compassion.**

Anything else you'd like to share with your team members? **Be the best version of yourself!**

Mark McMeen
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How Does the Electronics Industry Define "Cleanliness"? opinion by Mark McMeen and Mike Bixenman

Written by Mark McMeen and Mike Bixenman

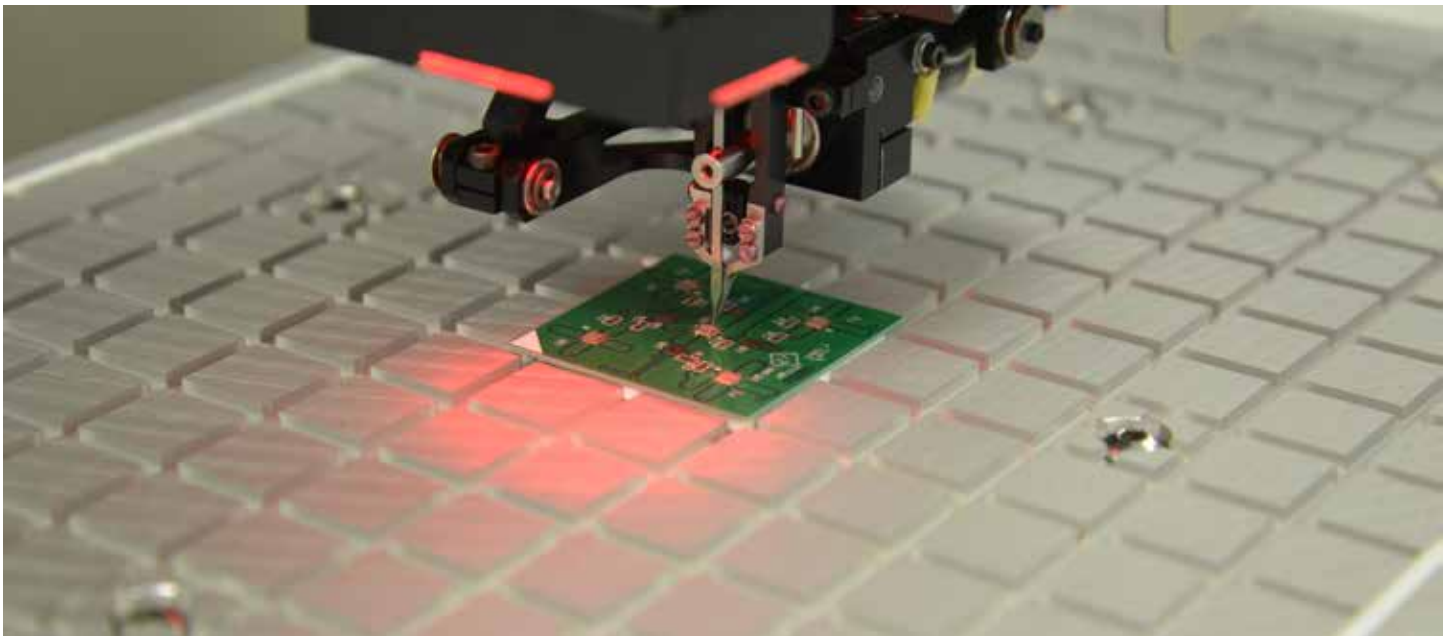
The industry does not define "Cleanliness" in absolute terms or by defining a pass or fail criteria or even how to quantitatively measure it. The industry specification as defined by J-STD-001 Rev. H Section 8 Cleanliness defines "Cleanliness" as an open ended definition that must be determined and defined by each individual manufacturer and end user. The definition requires each manufacturer and end user to develop its own "Objective Evidence" which again opens the definition up to each manufacturer and end user to define its own interpretation and definition. The goal of the specification was to put ownership of objective evidence on the manufacturer to provide data that was measurable and conclusive that the products they were building were clean enough to meet their customer fielded use state. It also said that ROSE testing and IC testing without other supporting data was not sufficient to satisfy the section 8 requirement for objective evidence.

Here at STI and MGX we believe in defining "Cleanliness" with data that allows one to understand the electro chemical signature of the final residue on and underneath your components after the final processes are completed. What is the state of cleanliness once all manufacturing processes are complete and the electronic product is considered completed in its final state after manufacturing? Data is required to determine cleanliness because without it how would one know if the product is reliable and repeatable from lot to lot and that the process is stable and repeatable. SIR (Surface Insulation Resistance) testing is one of the tools in the tool belt that is used to get an electro – chemical signature or data set that allows one to get a hard data number or data point that can be correlated to actual

hardware. A second tool in the tool set is IC (Ion Chromatography) to help define or quantitatively discern the ionic species present and its corresponding concentration level. The ability to measure both the SIR data to the corresponding IC data allows one to correlate the ionic species causing the SIR value and thus correlate back to the actual hardware. IC measures the anion, cation and weak organic acids in a quantitative measuring tool so one can now correlate SIR values in log ohm scale back to ionic species found on and underneath components. This data correlation goes a long way to using data as a way to quantify and qualify "Cleanliness" which can then be used on a regular basis to insure repeatability and reliability. The ability to use data as a qualification tool and then use the same data as a process control tool is the essence of 'Objective Evidence". The same can be said for defining Cleanliness – it is the ability to use real data that is measurable to define cleanliness as it relates to your finished electronic product.

The J-STD-001 Rev. H Section 8 allows each company the ability to define its definition of Cleanliness by using data as objective evidence to show it understands its end product cleanliness level. The ability to measure SIR underneath your most difficult and critical components such as BTC – Bottom Terminated Components – and then quantify the ionic species and concentration levels goes a long way to defining cleanliness because one now has a baseline measurement in SIR – LOG OHM as well as the correlating ionic species to know if they are deviating from the original qualification levels as they produce on a lot-to-lot basis. The goal of the J-STD-001 Rev.H specification was to allow the industry and companies the ability to define cleanliness as it relates to their product uniqueness and product reliability objectives. Obviously, Medical, Military and Aerospace would have far different reliability objectives and cleanliness levels than say consumer products and industrial products that were not considered Human Critical Electronic Hardware. We know from our customers in different industries that 8 log ohms and higher is good for general purpose electronic hardware that is not Human Critical, but other clients want their SIR values to be 9 log ohms and 10 log ohms minimum when it is Human Critical or the asset or electronics must work all the time with zero defects or anomalies. This is why the specification was written so that the definition and cleanliness level could match the expected end use environment and its corresponding reliability objective.

Cleanliness is an end condition or state of a number of manufacturing processes, material choices / influences, and environmental impacts on the final electronic hardware. It is not defined by industrial specifications in hard terms or limits, Government mandates or levels, or by trade associations and consortiums. This open-ended



self-definition to define “Cleanliness” through the use of objective evidence requires one to take charge and perform a self-assessment and define “Cleanliness” as it relates to your own manufacturing processes and techniques / parameters and material choices and expected environmental conditions.

This is why STI / MGX believes in data driven product qualifications, material evaluations and characterizations and process control measures such as ion process deviation monitoring using SIR testing as the gold standard for gathering real measurable and actionable data. The use of data driven test methodologies allows one to use the data to make decisions and action plans on defining “Cleanliness” that is the foundation of your objective evidence.

How to define Acceptable “Pass” Cleanliness – All electronics has some levels of ionic contamination and organic residues present on them after assembly and manufacturing. One must use a number of historical test parameters to determine “Acceptable” Cleanliness such as historical warranty data, field performance data, environmental stress testing of actual hardware, SIR data on a correlated test vehicle using your most challenging components and circuit layout areas, and IC data to define and quantitatively discern what Ionics are present but cannot be seen. The above data set allows one to define Cleanliness and its corresponding level and then define “ACCEPTABLE CLEANLINESS” quantitatively and allow one to use the data as its own “Objective Evidence” to show its customers that it understands its Cleanliness level. Thus, it now meets the intent and definition of the J-STD-001 Rev.H Section 8 by allowing the manufacturer to define and measure its cleanliness level.

How to define Unacceptable “Failed” Cleanliness- As defined above for acceptable – unacceptable is the inverse by which ionic contamination and organic residues are too high or in combination together react negatively or adversely to create intermittent parasitic leakage or a detrimental effect such as dendritic growths or formations. Both of these outcomes are unacceptable levels of cleanliness that impact overall electrical performance and can be measured and quantified by SIR testing and correlated with IC testing to discern what ionic species is causing these detrimental problems. This inverse definition of unacceptable cleanliness is a measurable attribute that can be validated at qualification testing and further controlled thru periodic process control monitoring.

In conclusion, the ability to define and use quantifiable data to determine “Acceptable” and “Cleanliness” is the key to answering the question, “Are my electronic assemblies clean enough to meet my customer end use environment and reliability objectives?” as they relate to cleanliness. The ability to have the data correlate from product qualification thru process control is the objective evidence goal as defined by J-STD-001. The use of SIR data and IC data as it relates to actual warranty data and environmental stress testing hardware allows one the ability to correlate and answer the question – Is my electronic hardware clean enough for its end use environment.

Thanks for taking the time to read and if you would like further information or have any questions please contact

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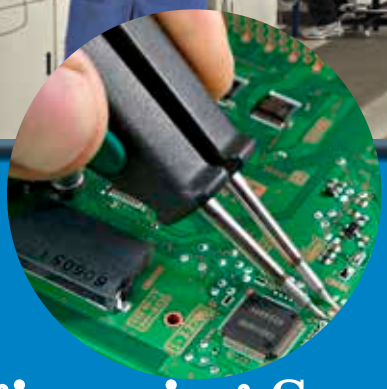

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On-line IPC Training & Certification

IPC Training Center

In response to the COVID-19 pandemic, IPC has worked diligently to develop a remote testing solution that will allow certification/recertification candidates the ability to take certification exams remotely.

In addition to our classroom and on-site training courses, STI will be offering on-line training and remote testing for the following IPC lecture based Certification/Recertification courses:

- IPC-A-610 Certified IPC Trainer (CIT) and Certified IPC Specialist (CIS)
  -Standard required for class
- IPC/WHMA-A-620 CIT, and CIS
  -Standard required for class
- IPC-A-600 CIT and CIS
  -Standard required for class

Note: Currently hands-on courses are not available for on-line training or remote testing for CIT's or CIS's.

The following on-line courses will be available for Certified Subject Matter Expert's (CSE's) as of April 13, 2020.

- IPC-A-610, IPC/WHMA-A-620, IPC-A-600, IPC-7711/7721 and J-STD-001
  -Standard required for class

Exams that are required for these courses can now be proctored remotely using IPC EDGE.

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J-STD TRAINING KITS with LEAD Free Option

ORDER Online

SST-J001-K6 REV F CERT KIT

This revised J-STD-001 Kit provides additional QFP100 components that are 20 mil pitch as well as smaller 0402 chips and DPAKs.

SKU: 405-2872

SST-J001-K6-LF REV F CERT KIT

Same as above but with lead free finish.

SKU: 405-2873

NEWS & INFO
Get the Latest News, Updates, and Information

HAPPENINGS

Congratulations

During this first quarter of 2021 we have had several anniversaries to celebrate. We would like to congratulate each one on achieving this anniversary with us! They have have all worked hard for this accomplishment and we truly appreciate their dedication.

Jane • 5 Years

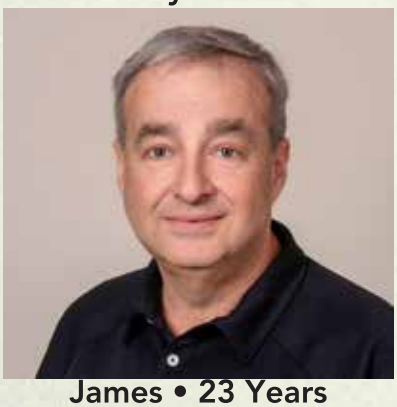
Martin • 3 Years

Pat • 20 Years

Brittany • 4 Years

Randy • 33 Years

David • 36 Years



James • 23 Years

Melissa • 2 Years

Debra • 2 Years

Janie • 5 Years

Scott • 2 Years

Do you have a question?
Do you need information?
CHAT with us online!

Cable Harness 100

Pat Scott
Training Services Manager
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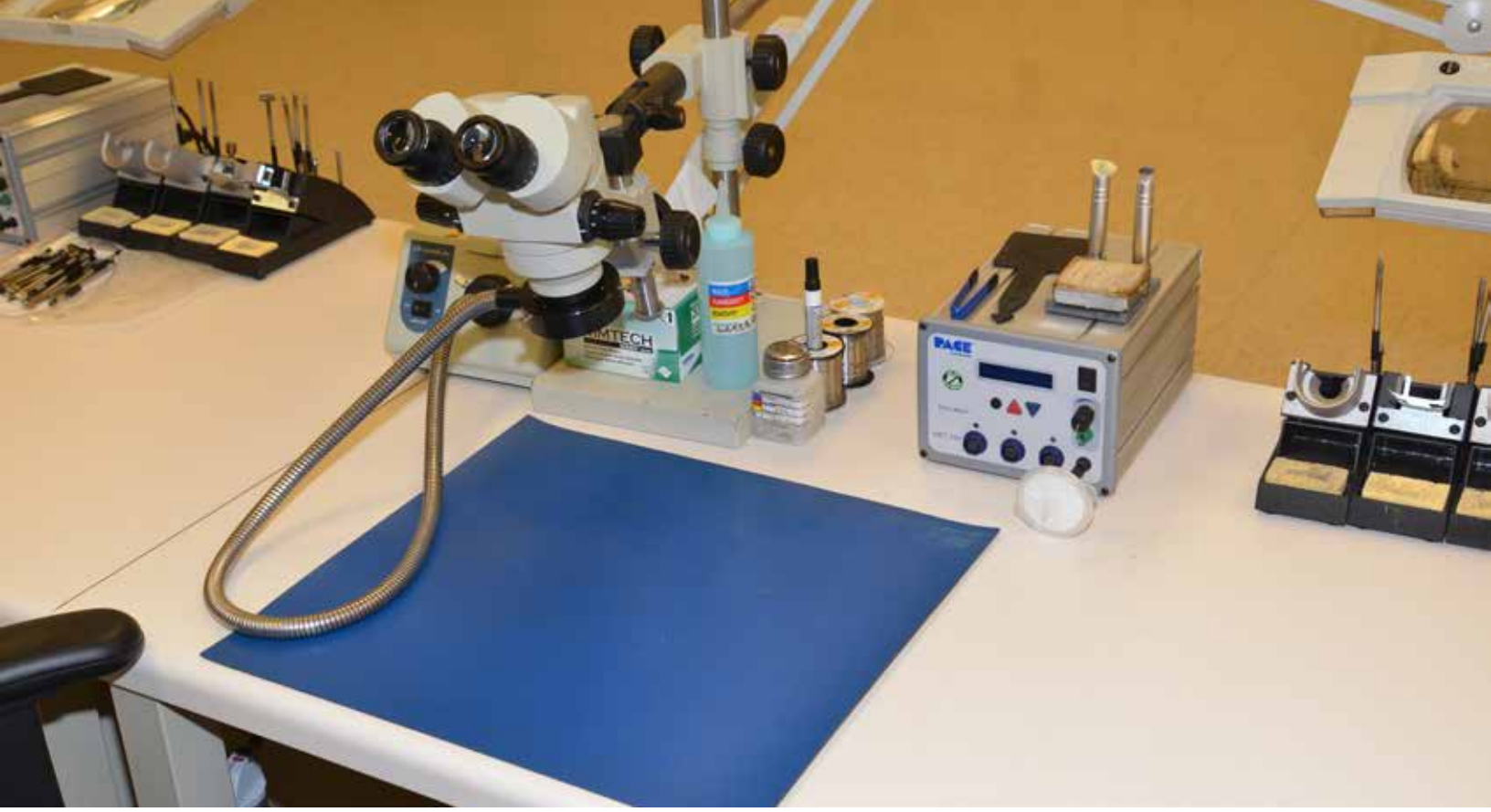
Are you looking for a basic Cable/Harness course? STI's Cable/Harness 100 course may fit your needs. We have seen many new hires being sent to the IPC/WHMA-A-620 "Requirements and Acceptance for Cable and Wire Harness Assemblies" certification course without any experience. The 620 course is a good course but can be overwhelming for those new to the technology. The Cable/Harness 100 course may be a good starting point. The course covers the following topics:

- Introduction
  - Safety Requirements
  - Tools and Equipment Overview
- Common Terms and Definitions
  - American Wire Gauge (AWG)
  - Circular Mil Area (CMA)
  - Conductor
  - Stranded Wire
  - Solid Wire
  - Insulation
- Fundamentals of Crimping
  - Wire Preparation
  - Wire Stripping
    - Mechanical/Thermal Stripping
      - Use and Care
    - Insulation Stripping Lab
- Wire Tinning
  - Soldering Iron/Solder Pot
- Wire Tinning Lab
- Crimped Contacts
  - Types
    - Stamped & Formed Contact
    - Machined Contacts
    - Color Codes
- Crimped Tool Usage
  - Tool Set-up
  - Inspection
- Pull Test
  - Overview
  - Procedure
    - Pull Test of Samples/Documentation of Findings
  - Crimping Lab (Hands-On)
    - Crimping of Contacts to Stranded Wire
    - Inspection of Samples
- Wires and Terminals
  - Insulation Clearance
  - Terminals (Turret, Bifurcated, Pierced, Hook, Solder Cups)
    - Wrap Requirements
  - Materials
    - Solder, Flux, Cleaning Materials, etc.
  - Solder Requirements
  - Inspection (Birdcaging, Nicked Wires, etc.)
  - Wire and Terminal Lab (Hands-On)

If you are interested in signing up for this course visit our website at https://stiusa.com/product/cable-harness-100/11045/ or contact Michelle Morring at mmorring@stiusa.com or Melissa Huffman at mehuffman@stiusa.com.



J-STD-001H and IPC-A-610H Training Materials

For those of you who are MIT or CIT certified to the J-STD-001H and/or IPC-A-610H the training materials are currently available in English. IPC volunteer translation groups are working on various languages for the training materials. These will be released upon completion. To download the files visit https://myipcedge.org/CIT Resources / Select Course and download the files. All CITs and MITs can now schedule these courses through the portal. For additional information regarding IPC-A-610H and J-STD-001 Endorsement exams visit CQI News (ipcedge.org).

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