

DfR Solutions Newsletter

May/June 2009

Implementing Design for Excellence (DfX) (Oct. 19-22)

DfR Solutions, in collaboration with [BestTest](#) and [IPC](#), is proud to announce the first ever [DfX Training](#). This one-of-a-kind collaborative effort will provide designers, reliability personnel, and engineering management with tools on how to meet [time-to-market](#) deadlines and reduce [warranty issues](#). Areas to be covered include Design for Reliability, Design for Manufacturability, Design for Testability, and Design for Environment. For a full schedule of courses and information on registration, please contact [Carrie Sharik-Ernest](#).

US RoHS Has Finally Arrived

Back in [January 2007](#) (ok, we were a little early), DfR predicted that US RoHS legislation would be introduced with backing from major electronic associations. Fast forward to May 14, 2009: [Rep. Burgess](#) has introduced [H.R. 2420, Environmental Design of Electrical Equipment Act](#) ("EED Act"). And who is out there in front supporting it? [NEMA](#), who not only has an [issue brief](#) and a [white paper](#), but is also working to introduce a [companion bill](#) in the Senate. Use [DfR's website](#) to track this critical piece of legislation.

The Next Reliability Challenge: Free Air Cooling

The environmental movement is not just limited to material restrictions. An increasing number of data centers are moving to reduce their carbon footprint through [Free Air Cooling](#). While hailed as common sense simplicity by the general media, this [critical white paper](#) by DfR Solutions highlights some of the critical challenges faced by server and enterprise OEMs trying to design and build to this new requirement. For more information or free consultation, please contact [Randy Schueller](#).

In This Issue:

[US RoHS Arrives](#)
[Free Air Cooling](#)
[Reliability of Green](#)
[Online Education](#)
[Say Goodbye to SnPb](#)
[Axial Fans](#)
[Importance of DfR](#)
[Li-Ion Battery Reliability](#)
[DfR News](#)
[Upcoming Events](#)
[Employment](#)



Innovate to Increase Profit Margin. Build SMD mounted Piezo motors directly on PCB itself. The result: smaller, cheaper, and more accurate movement in applications. You can introduce a world of new design opportunities using standard components and assembly techniques. Read our Whitepaper at <http://www.pcbmotor.com/default.aspx?CMSID=125>

or contact us at <mailto:info@pcbmotor.com>



ESPEC North America, Inc. has the widest selection of environmental test chambers, which includes: bench tops, over 70 different reach-ins for temperature/humidity cycling, and compact thermal shock chambers with low utilities. We also have specialty chambers including HAST, precision industrial ovens for high-temperature testing, and measurement systems for ion-migration and solder-cracking. See all of our models at

<http://www.espec.com> or call us at 877-GO-ESPEC.

The Reliability of Green

Engineering management must be aware that the continued move to being environmentally-friendly has progressed far beyond SAC305 solder. New [Pb-free alloys](#), halogen-free, design for the environment (DfE), and free air cooling are just some of the challenges facing all markets over the next several years. [Dr. Randy Schueller](#), with experience in all these issues, will be presenting "[The Reliability of Green](#)" at [SMTAI](#), providing insight and guidance on the broader environmental changes in electronics.

Service of the Month: Online Education

Looking to stay up on the latest industry knowledge, but constrained by spending limits and travel restrictions? Look no further than our [e-Learning page](#). With over 50 [publications](#), 30 [white papers](#), 20 [case studies](#), and 5 [webcasts](#), DfR provides an unrivaled free knowledge source for you and your colleagues. Looking for something else? Let us know by contacting our Education Coordinator, [Cheryl Tulkoff](#).

SnPb IS DEAD

In our [November2008](#) newsletter, DfR made the observation that the world of SnPb was shrinking rapidly. Well, pay your last respects. Recent events suggest that SnPb is close to rigor mortis. These include:

- Pb-free will soon pass SnPb as the most common solder in the US
- Military programs are starting to accept Pb-free products
- Medical device manufacturers have launched Pb-free transition teams
- The hottest material (pardon our pun) is high temperature Pb-free solder
- [H.R. 2420](#) requires the electroindustry to be Pb-free by JULY 1, 2010!!

For those in military and avionics organizations who do not grasp this, electroindustrial means ANY product used in the generation, transmission, distribution, control, and end-use of electricity. You can say goodbye to the critical cousins (industrial control, medical, telecom) that have provided whatever SnPb market that still exists. For more information, please contact [Craig Hillman](#).

Component Upgrading: Axial Fans

As part of our ongoing series on best practices in reliable and cost-effective design, we are pleased to continue our discussions on upgrading, which involves performing a risk assessment of parts used outside their manufacturer's specifications (typically temperature). This month's component is [Axial Fans](#). For more information on our upgrading and derating services, please contact [Nathan Blattau](#) or [Tom Johnston](#).

Increasing Interest in Design for Reliability

Steve Gold interviewed the CEO of DfR Solutions, [Craig Hillman](#), at IPC APEX to learn more about the increasingly important activity of [Design for Reliability](#) in the new product development (NPD) process. [Click here](#) to learn more.

Lithium-Ion Battery Reliability

DfR continues to respond to the ever-changing market technologies with our newest course "System Reliability Issues and Failure Mechanisms in Batteries and Related Control Electronics," which will be presented in association with HEVTC at the US Army [TARDEC](#) in early July. In this course, Jim McLeish of DfR Solutions will review all major battery technologies, including lithium-ion, and will discuss the influence of design, process, control systems, and qualification on reliability prediction and assurance. For more information, or to schedule a course at your facility, please contact [Jim McLeish](#).

DfR News

Its a Girl!

DfR Solutions is proud to announce the newest member of our team, Adele Warren Hillman. While Adele is only one month old, we expect her to start her first reliability assessment in the coming weeks.

DfR Solutions Selected by KTL to Develop Plated Through Hole (PTH) QC Standards

DfR is proud to announce that it has been selected by the [Korea Testing Laboratory](#) (KTL) to develop non-destructive techniques for detecting printed circuit board (PCB) plating defects. KTL selected DfR because of the firm's proven expertise in PCB quality and reliability issues. DfR Solutions will determine the severity of the defects (plating voids, insufficient plating thickness, etc.) and their impact on the reliability of the PCB by monitoring the electrical performance during accelerated life testing. Once PCB manufacturers understand how defects influence

time to failure and how defects are detected, a robust QC standard can be developed. For more information, please contact [Nathan Blattau](#).

When in Boston, Run the Marathon

While in Boston to present "[Manufacturing and Reliability Challenges with QFN Packages in Pb and Pb-Free Environments](#)," at the [SMTA/IMAPS/IEEE Chapter meeting](#), Cheryl Tulkoff took a quick break to run the 2009 Boston Marathon. When we say quick, we mean it. Cheryl finished the 40k race in just over 3 hours [with a pace of 7:28 minutes/mile](#). Congratulations Cheryl!

Upcoming Events

SMTA Upper Midwest Expo and Tech Forum (Bloomington, MN: June 11)

DfR gave a presentation on "[Second Generation Lead-Free Alloys](#)," at the SMTA Vendor Day Meeting. For more information, please contact [Randy Schueller](#).

SMQ Laboratories (Shenzhen, China: June 12)

DfR and [SMQ Laboratories](#) co-hosted a one-day seminar on [Root-Cause Analysis \(RCA\) in Electrical and Electronic Products](#). This insightful training provided a strong overview of this critical technique for continuous improvement and Six Sigma and some key case studies. For more details, please contact [Jim McLeish](#).

DfR in South Carolina and Georgia (June 15-17)

[Dr. Bob Esser](#) will be speaking to a number of companies in South Carolina and Georgia on a variety of topics, including test plan development, integrated circuit (IC) wearout, and Pb-free under vibration and mechanical shock. If you and your associates are interested in an onsite visit, please contact [Carrie Sharik-Ernest](#) or [Ted Kress](#).

DfR in Southern Wisconsin and Illinois (July 8-10)

Dr. Randy Schueller of DfR Solutions will be visiting companies in Southern Wisconsin and Illinois in early June to discuss a variety of topics, including Pb-free transition, electronic packaging, and component engineering. If you and your associates are interested in an onsite visit and/or presentation, please contact [Tammy Smittenaar](#).

Symposium on Defense and Aerospace Electronics (Huntsville, AL: August 13)

Dr. Craig Hillman will be giving the keynote address at this important one day workshop co-sponsored by University of Alabama Huntsville and Benchmark Electronics. For more details, please contact [Carrie Sharik-Ernest](#) or [David Cavanaugh](#).

DfR in Huntsville, AL and Atlanta, GA (August 12-14)

Dr. Craig Hillman of DfR Solutions will be visiting companies in Huntsville, AL and Atlanta, GA in mid-August. If you and your associates are interested in an onsite visit and/or presentation, please contact [Tammy Smittenaar](#).

Embedded Systems Conference (Boston, Massachusetts: September 24)

DfR will present Common Hardware Mistakes by Embedded System Designers, at the Embedded Systems Conference. For more information, please contact [Tammy Smittenaar](#) or [Craig Hillman](#).

DfR in Boston Area (September 21-24)

Dr. Craig Hillman of DfR Solutions will be visiting companies in the Boston area in September. If you and your associates are interested in an onsite visit and/or presentation, please contact [Tammy Smittenaar](#) or [Bob Wons](#).

IPC Midwest (Schaumburg, IL: September 23-24)

DfR will present Pb-Free Reflow, PCB Degradation, and the Influence of Moisture Absorption, at the IPC Midwest conference. If you are interested in attending this presentation, please visit the [IPC Website](#). For more information on this topic, please contact [Cheryl Tulkoff](#).

Philips Symposium on Advanced Reliability Engineering (Eindhoven, The Netherlands: September 29-30)

DfR Solutions has been invited to contribute to this European meeting on the latest techniques, trends, and challenges in advanced reliability engineering. For more information, please contact [Jim McLeish](#).

SMTA International (San Diego, CA: October 4-8)

DfR Solutions will present "Second Generation Lead-Free Alloys," at the SMTA International Conference. If you are interested in more information on this topic, please contact [Randy Schueller](#). Randy will also be giving a seminar on "The Reliability of Green." For more information, please contact [Carrie Sharik-Ernest](#) or Melissa Serres Marx.

IEEE ASTR Conference (Jersey City, NJ: October 7-9)

DfR Solutions will give two presentations at the upcoming IEEE ASTR conference. Craig Hillman, in association with Neill Doertenbach from the [QualmarkCorporation](#), will present "Is Your Reliability Testing Program Keeping Pace with Manufacturing and Design Advancements?" and Nathan Blattau will present "Thermo-Mechanical Fatigue Testing of Printed Circuit Card Assemblies Using Power Cycling." If you are interested in attending the conference and hearing these presentations, please contact [Cheryl Tulkoff](#).

Design for Excellence Course (DfX) (October 19-22)

This course will include all the elements for a successful design, including design for manufacturability, design for testability, design for reliability, and design for environment. Will be presented in collaboration with [Louis Ungar](#) of [BestTest](#). For more information, please contact [Carrie Sharik-Ernest](#).

Employment

Looking to hire? [Click here](#) to visit the newly added seeking employment section of our website where we highlight engineering professionals who are currently looking for job placement.

Advertise Here & Reach Over 8,000 Electronics Professionals Each Month!

DfR is now accepting advertisements in the DfR Solutions Newsletter. For more information, [click here](#) .

[Home](#) | [Services](#) | [Products](#) | [Clients](#) | [Education](#) | [Resources](#) | [In the News](#) | [About Us](#) | [Site Map](#) |

© Copyright 2005-2007 DfR Solutions

[Unsubscribe here.](#)

5110 Roanoke Place, Suite 101, College Park, MD 20740