



DfR Solutions Newsletter
September/October 2007

Is Your Company Ready to be Best-in-Class?

The best electronic OEMs consistently outperform their competition in new product development (NPD). They have fewer redesigns and each redesign takes less time and less money. How do they do it? They [utilize design tools](#) early in the NPD process. This is why DfR Solutions is proud to announce [fiXtress™](#). This revolutionary software, by automating component stress analysis and stress derating, can [reduce NPD time](#) by 2-4 weeks and can provide a [return on investment \(ROI\) of 10:1](#) in just the first year. To learn more, contact our [experienced team](#) for an online or onsite demonstration.

Failure Mechanisms in High Voltage Printed Circuit Boards

High voltage designs often adhere to IPC, UL or MIL requirements. However, blindly following these specifications can cause heartburn when dealing with space constraints or insulation degradation experienced in severe environments. This [white paper](#) written by DfR Solutions provides clear and concise understanding of industry specifications, the mechanisms that induce failure in high voltage designs and how to avoid them.

China RoHS: The Answer

As the deadline for the European RoHS grows more distant in the rearview mirror, increasing attention is on the Chinese version of the legislation. The official government page on this legislation, with Google-inspired translation, can be found [here](#), along with the three critical documents: [Catalog](#), [FAQ on Marking and Detection](#), and [FAQ on China RoHS](#). For more traditional translations, there is some excellent work by Grace Compliance Specialist ([Questions and Answers](#) and [Updated FAQ](#)) and AeA ([China Marking](#) and [China Test Methods](#)).

China RoHS: The Question

The one confusing aspect about China RoHS? If you read the existing documents, it would seem that every electronic product will be required to be compliant (doesn't every piece of electronics have a resistor?). However, companies are being told, in informal (sidebar?) conversations, that their products are not covered by China RoHS. Is China RoHS a paper tiger? Will the real China RoHS please stand up?

Norway RoHS: One-Upmanship?

Is Europe jealous of all the attention towards China RoHS? Norway has just announced that it will adopt additional regulations above and beyond RoHS. Eighteen substances will be prohibited from consumer products manufactured and sold in Norway, including GaAs!! (who needs high-speed computers anyway?). A draft of the Norwegian Product Regulations can be found [here](#) along with a detailed [Impact Assessment](#).

What is Electrical Overstress (EOS)?

What is EOS? And how is it different from ESD? Does my risk of EOS change in different environments and different designs? The answer to the first question is an over voltage or over current event with a duration exceeding 100 to 1000 nanoseconds and nominal durations of 1 millisecond that occurs while the device is in operation. For the answers to the other questions and solutions to one of the most common causes of 'random' failures during useful life, please see our [white paper](#).

Service for September/October – Test Plan Development

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Contact Us

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We have received many inquiries lately asking if DfR develops Test Plans. The answer is a resounding YES. Product test plans, also known as design verification, product qualification, and accelerated life testing, are critical to the successful launch of a new product into the marketplace. DfR takes a practical approach, starting with standard industry practices and modifying as necessary based on our knowledge of physics of failure (PoF). The end result is a test that is optimized in terms of stresses, time, and resources and accepted by your management and your customer. And the best part? We can perform the testing for you.

For more information on how DfR can develop a Test Plan to meet your specific needs, contact [Sheena Mitchell](#). All companies requesting a quote for a Test Plan during the months of September or October will receive a 10% discount.

In the News

DfR Solutions on the Cover of Circuitree Magazine

"Getting to the Root Cause of PCB Failures," an article by Craig Hillman, was the cover story for the August issue of *Circuitree* magazine. To read the article [click here](#) (you will need to log-on to read the article, registration is free).

DfR Announces New Staff Member

[Edward Dodd](#) has joined DfR Solutions as our East Coast Sales Manager. Ed's focus is on promoting DfR's wide range of services, with an emphasis on the [fiXtress software](#). Ed has extensive experience from across the product development and usage cycle. This includes production, packaging, installation, and maintenance of electrical systems. He has a background in Electrical Engineering and served his country for four years in the United States Navy working in Gas Turbine Systems Engineering. Most recently, Ed has been performing failure analysis activities at DfR Solutions, with a particular focus on circuit issues. If you are on the East Coast and are interested in learning more about fiXtress and other DfR capabilities, please contact Ed to arrange an appointment.

Upcoming Events

DfR in Bay Area (October 1-4)

[James McLeish](#) will be in the California Bay Area to present "Understanding Failure & Root Cause Analysis" at the Tyco Electronics' Menlo Park facility October 2-3. While he is in the area, he will also be available to meet with local companies. If you are interested in arranging a presentation, please contact him.

DfR Solutions in Europe (October 1-5)

[Gerd Fischer](#), who is fluent in German and Danish, will be visiting European customers of DfR. If you are interested in a visit to learn about ceramic capacitors, tin whiskers, or other areas of expertise at DfR, please contact Dr. Fischer or [Sheena Mitchell](#) to make arrangements.

IPC International Conference on Lead Free Electronics (Berlin, Germany: October 4-5)

Dr. Gerd Fischer will present a full-day seminar, "Understanding Failure and Root-Cause Analysis in Lead Free Electronics" at the IPC conference in Berlin. This seminar is designed to educate engineers and managers on the failure mechanisms of concern with Pb-free and the tools and analyses that will help identify root-cause. For more information, contact [Craig Hillman](#) or [Michelle Michelotti](#), or register online.

SMTA International Conference (Orlando, FL: October 7-11)

DfR Solutions is proud to announce that it will present a tutorial at SMTA International's annual meeting.

[Craig Hillman](#) will present a one-day tutorial on Monday, October 8th titled, "Selecting a Lead-Free Solution for Military, Avionic and Space Applications." It will provide data and information on developments over the past 6 to 12 months in Pb-free technology, including market trends, process solutions, and quality and long-term reliability issues. Recent GEIA documents, which are expected to be the backbone of lead free product qualification for military and avionic applications, will be reviewed in regard to risk minimization. For more information, contact [Sheena Mitchell](#) or click [here](#) to register.

SMTA International Conference (Orlando, FL: October 7-11)

DfR Solutions will present a paper, "[Silver and Sulfur: Case Studies, Physics, and Possible Solutions](#)." This presentation will provide an overview of known silver sulfide corrosion failures. The fundamentals of these case studies will provide a path for a discussion on the physics of this phenomenon, including how sulfur reacts with silver, how this reaction is influenced by the environment, how classic corrosion behavior may accelerate this reaction, and how sulfur-containing gases may migrate through and be retained by polymeric materials. For more information on the conference, visit the [SMTA](#) website.

Surface Mount and Circuit Board Assoc. (Australia / New Zealand: October 22-31)

[Craig Hillman](#) will be presenting Best Practices in Failure Avoidance during a tour of "Down Under" in late October. More information, please contact [Andrew Pollock](#) of the [Australia Surface Mount and Circuit Board Association](#).

Hobbs Engineering to Present Seminar at DfR (College Park: October 29-30)

Hobbs Engineering will present a two-day seminar, including a hands-on workshop, at DfR Solutions' headquarters. To register for the HALT & HASS Workshop, click [here](#).

IEEE – ASTR 2007 Conference (Greenbelt, MD: October 31-November 2)

DfR Solutions is a co-local host for this important industry meeting on best practices in testing and reliability assurance in electronics. This year's conference theme, "Accelerated Life Testing: It's Role, Challenges, Attributes and Interaction with Qualification Testing," focuses on the growing issue of reconciling the need for the highest quality product with the necessary push for early time-to-market. For more information on the workshop, contact [Cheryl Tulkoff](#) or visit the IEEE [website](#).

IMAPS 2007 (San Jose, CA: November 11-15)

[Craig Hillman](#) will present "[Selecting Lead-Free Solutions for Military & Avionics](#)" on November 12 during the IMAPS Conference. For more information on the conference visit the [IMAPS](#) website.

Applied Reliability Engineering & Management Institute (Tucson, AZ: November 12-15)

[Craig Hillman](#) will present "Best Practices for Reliability Assurances in the Electronics Marketplace" on November 15 during the 45th Annual Applied Reliability Engineering and Management Institute. For more information on the conference visit the [University of Arizona's](#) website.

IEEE Reliability Society – Boston Chapter (Boston, MA: January 9, 2008)

[Craig Hillman](#) will provide an overview on [fiXtress](#)[™], the revolutionary software that automates component stress analysis, reducing product development time and greatly reduces the risk of potential field issues. For more information, please visit the IEEE Boston Chapter [website](#).

SMTA Medical / Medical Device and Manufacturing (Anaheim, CA: January 29, 2008)

DfR Solutions will be presenting "Selecting a Pb-Free Solution for Military and Avionics" on January 29, 2008 at the Medical Device and Manufacturing West Conference. More information will be provided when available.

Cisco's "Innovation in Test" (San Jose, CA: March 5 - 6, 2008)

DfR Solutions will be presenting on industry best practices in testing bare boards and completed assemblies. More information will be provided when available.

IPC Printed Circuits Expo (Las Vegas, NV: March 30 - April 3, 2008)

DfR Solutions will be presenting "Understanding Failure and Root-Cause Analysis in Lead Free Electronics" along with "True Design for Reliability: Understanding What Is and What Is Not DfR" at the IPC Printed Circuits Expo, APEX, and Designers Summit. For more information, please visit the [IPC](#) website.

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Our patented lead-free solder SN100C is based on a unique formulation of tin, copper, nickel and germanium that delivers cost-effectively high performance in production and reliability in service. SN100C matches the performance of the tin-lead solder it replaces in delivering smooth, bright, crack-free fillets and high first pass yield. And its combination of strength and ductility ensure superior performance in high strain conditions such as vibration.

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