

DfR Solutions
reliability designed, reliability delivered

DfR Solutions November/December 2010 Newsletter

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RoHS II Has Arrived

Approved two weeks ago by the European Parliament, this major update to environmental legislation does not provide too many surprises. Key things in the [document](#) to be aware of: no new restricted substances; there are nine (9) exclusion categories - military, space, transportation (trains, planes, autos), fixed installation, large industrial tools, off-road machinery (i.e., bulldozers), implantable devices, solar panels, and R&D equipment; medical and monitoring and control have three years to be compliant, in-vitro medical has five years to be compliant, and industrial monitoring and control has six years to be compliant; all exemptions will die out in five to seven years, including telecom / enterprise and high lead (Pb); and you will need a CE mark. For more information on RoHS, including compliance and transition, please contact [Craig Hillman](#).

Lithium-Ion Battery Safety and Reliability: A New Approach

A major issue facing the utilization of lithium ion batteries is the problem associated with self discharge while in storage. There is a critical need to develop a rapid and cost-effective approach for determining the state of health (SOH) of a large number of batteries during storage. DfR has partnered with Exponent in [proposing a revolutionary methodology](#) for resolving this issue. For more information, contact [Eli Aghassi](#).

Service of the Month: Parts and Part Manufacturers

Our client base does not stop at OEMs. DfR is well-renowned for our expertise in electronic and electro-mechanical parts and we have assisted part manufacturers in variety of areas, such as application notes, finite element analysis (FEA), reliability prediction, FMEA of new technology, conflict resolution with customers, root-cause analysis, and part qualification and testing. If you are a part manufacturer looking for a partner that will help you succeed in the marketplace, please contact [Nathan Blattau](#).

Upgrading your Derating

In the early stages of product development (circuit schematic and part selection), effective design-for-reliability (DfR) can have a critical impact on final product integrity. To respond to this need, DfR has developed [world-leading strategies on derating](#), one of the most popular DfR approaches for assuring that an individual component will operate robustly against major stress elements. To learn more, contact [Greg Caswell](#).

0201-01005 "It's a Small World After All!"

First introduced in 2000, 0201 production ramped up in 2003 and now accounts for approximately 20% of chip component demand worldwide. Does this mean these parts are ready for your design? Before you make the wrong the decision, read our [ground-breaking industry-wide survey](#) on the implementation of this challenging technology. For more information, please contact [Cheryl Tulkoff](#).

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Trends in Material Substitution

The fear of RoHS is starting to lead to some fascinating material substitutions, including [halogen-free flame retardants](#) and a [nickel-tungsten replacement](#) for hexavalent chrome. But, RoHS is not the only environmental legislation OEMs need to worry about. Conflict minerals is fast becoming the legislation of concern, with [several organizations](#) trying to direct the industry response. Some DfR customers are even eliminating tantalum capacitors from future designs (legislative obsolescence?). Confused and concerned? Contact [Randy Schueller](#) for assistance.

Managing Counterfeit Risk

DfR Solutions is known for being one of the leaders in [counterfeit avoidance strategies and detection techniques](#). In recognition of our capability, Honeywell has selected DfR as one of the few organizations approved to perform counterfeit detection per [SPOC 419](#). Trying to manage your counterfeit risks? Contact [Ed Dodd](#) today to learn more.

Where in the World is DfR?

DfR senior staff and management spend a lot of time on the road visiting customers and presenting at conferences worldwide. In 2010 alone, we visited more than 70 locations including Israel, England, Sweden, Germany, Switzerland, Finland, China, Canada, and 28 US states. So, keep an eye on our upcoming events calendar in each newsletter and let us know when we can stop by your company and educate you and your colleagues on the latest in electronics technology, design, packaging, and reliability. To arrange a visit, please contact [June Caswell](#).

DfR News

DfR is Hiring

DfR is looking for two senior members of the technical staff. The first should have 10+ years of mechanical engineering experience and an operational knowledge of Abacus modeling software. The second should have 10+ years of experience in a technical discipline, such as SMT, Solar, LED, etc. Both will be expected to manage and assist on DfR projects, write technical reports, make presentations at conferences, and provide guidance to staff engineers. Send your resume and cover letter to [Tammy Smittenaar](#).

Get on the Optical Bus

For many years, engineers have sought to transfer signals from chip to chip with photons. Photons are more than fast, and because they don't carry a charge, can't interfere with each other. For designers, however, the optoelectronic strategy has been hindered by the problem of channeling photons correctly. IBM has done some [interesting research](#) in this technological area. DfR engineers can provide insight into the reliability of optical interconnect technology. For more information contact [Nathan Blattau](#).

Efficient Manufacturing in the US

Everyone is aware that getting their products produced in China should reduce costs. However, [this article](#), addresses the fact that the support engineering activity is lacking. The military infrastructure in the US must maintain a level of critical resources for their products. Can this be applied to bring jobs back to the US in other sectors by maintaining a high level of expertise and infrastructure? [Andy Grove](#) talks about how Intel accomplished just that. Let DfR help you to define reliable manufacturing operations that reduce costs. For more information contact [Cheryl Tulkoff](#).

DfR is Looking for Volunteers

In our continuing effort to lead the industry with regard to Physics-of-Failure analysis and support new locations, DfR is looking for volunteers to staff our

[newest facility](#). Warning: The commute is brutal.

Upcoming Events

IMAPS (**Research Triangle, NC: October 31 - November 4**)

DfR Solutions presented two workshops at the [IMAPS Conference](#). Greg Caswell presented "Understanding Failure and Root-Cause Analysis in Pb-Free Electronics" on Sunday, October 31, and Nathan Blattau presented "An Electronics Expert Reliability Analysis Tool" on Monday November 1. Greg also presented "Counterfeit Detection Strategies: When to Do It / How to Do It" during the technical program on Tuesday, November 2.

DfR Solutions in Phoenix (**Phoenix, AZ: November 10-12**)

Craig Hillman visited companies in the Phoenix area. If you and your colleagues would be interested in a future visit and a presentation on a range of technical topics, please contact [June Caswell](#).

IPC / SMTA Cleaning Conference (**Chicago, IL: November 16-18**)

DfR Solutions presented on a number of topics at this joint industry conference. [Randy Schueller](#) provided updates on sulfur attack of silver and other board platings. [Seth Binfield](#) presented on recent work on flux chemistry and voiding which was performed in collaboration with Jeannette Plante of NASA's Goddard Space Flight Center.

DfR Solutions in New Jersey (**NJ: November 18**)

Craig Hillman visited companies in the Northern New Jersey area. If you and your colleagues would be interested in a future visit and a presentation on a range of technical topics, please contact [June Caswell](#).

DfR Solutions in Houston (**Houston, TX: November 29-30**)

Craig Hillman and Cheryl Tulkoff visited companies in the Houston area. If you and your colleagues would be interested in a future visit and a presentation on a range of technical topics, please contact [June Caswell](#).

IPC Tin Whiskers Conference (**Chicago, IL: December 6-7**)

[Craig Hillman](#) gave a half-day workshop on Tin Whisker Prediction and a half-day workshop on Tin Whisker Mitigation and Risk Assessment at this unique [industry conference](#) focused on practical methodologies. For more information, please contact [Craig Hillman](#).

DfR Solutions in Huntsville (**Huntsville, AL: November 8**)

Craig Hillman visited companies in the Huntsville area. If you and your colleagues would be interested in a future visit and a presentation on a range of technical topics, please contact [June Caswell](#).

DfR Solutions in St. Louis (**St. Louis, MO: December 16-17**)

Craig Hillman and Cheryl Tulkoff will be visiting companies in the St. Louis area. If you and your colleagues would be interested in a future visit and a presentation on a range of technical topics, please contact [June Caswell](#).

PERM (**Coral Gables, FL: January 11-13**)

Jim McLeish will be providing an update on the status of Mil-HDBK-217 at the PERM meeting. For more information or to arrange a meeting, please contact [Jim McLeish](#).

RAMS (**Lake Buena Vista, FL: January 24-27**)

Jim McLeish will be presenting an "Introduction to Reliability Physics of Failure Methods" and "A CAE Tool for PoF Reliability Simulations of Electronic Equipment" at [The Role of Reliability and Maintainability in Design for](#)

[Sustainability](#) in the technical program and Greg Caswell will be participating in a panel discussion on Solar Reliability with a focus on Concentrated Photovoltaic system reliability. For more information on these topics contact [Jim McLeish](#) or [Greg Caswell](#) regarding their respective topics.

IPC (CA: February)

Cheryl Tulkoff will be presenting the full-day workshop: "High Reliability: Solving Problems with Reliability, Repair and Rework in the Lead-Free Era." For more information, please contact [Susan Filz](#) of IPC.

IPC APEX (Las Vegas, NV: April 12-15)

Several members of DfR staff will be teaching courses and making technical presentations at the [IPC APEX EXPO](#). Courses will be presented on "The Transition to High Brightness Light Emitting Diodes," "Design for Manufacturing," and "Component Engineering-The System Approach." Contact [Greg Caswell](#) for more information. In addition, [Randy Schueller](#) will be presenting a technical paper on "Automated Design Analysis: Accurately Capturing Warranty and End-of-Life Risks Early in Product Development," and [Ed Wyrwas](#) will be presenting on "Accurate Quantitative Physics-of-Failure Approach to Integrated Circuit Reliability." DfR staff members will be meeting with customers at the conference. To arrange a meeting please contact any of the individuals listed.

Reliability and Safety Workshop (Greenwich, United Kingdom: April 14)

Cheryl Tulkoff will be making a presentation on "The Synergy between Reliability & Safety in Automotive Electronics." For more information on this please contact [Cheryl](#).

Employment

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

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For more information, contact [Tammy Smittenaar](#).

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