

DfR Solutions

reliability designed, reliability delivered

DfR Solutions Newsletter January/February 2009

Happy New Year and Welcome to 2009!

In celebration of a new year, DfR is now offering a limited-time special on HALT activities. The first five customers that contact DfR will receive [Premium HALT](#) at Standard HALT rates. This is a significant savings! [Contact DfR](#) now and refer to code OK5T.

[DfR Expands Power and Analog Circuit Analysis Capability!](#)

RoHS 2 Has Arrived

In December 2008, the European Commission released proposed modifications to the [WEEE](#) and [RoHS](#) legislations. Just as the initial version caused upset and turmoil in the electronics marketplace, this next generation is sure to keep reliability engineers busy for years to come. [Click here](#) to read DfR's exclusive insightful summary on what changed, what didn't change, and how it will affect you. Have more questions? Please contact [Craig Hillman](#).

Success of the Month: Rapid-Response Root Cause Analysis

A customer of DfR Solutions recently experienced a field issue that required an immediate and high-level response. To help support our customer, DfR provided a comprehensive range of services, including ion chromatography, cross-sectioning, test plan development, and reliability prediction. Not only did these services come with expert-level advice, but DfR staff was active on this project for four weekends in a row until our customer and their customer was completely satisfied. Please contact [Bob Esser](#) for more information on our unrivaled root cause analysis services.

Understanding the Transition to RoHS

When product teams think about a transition to lead-free products, their focus is primarily on assembly optimization and product testing. They are often unaware that there are other areas that are equally important to ensuring reliability. This [white paper](#) provides a road map for those companies still considering transitioning to Pb-free (RoHS I) or those who are preparing to be compliant to RoHS II. For more information on our RoHS transition services, please contact [Randy Schueller](#).

Trends in RF and Wireless

Being a leader in assessment and evaluation of new technologies requires an understanding of trends in electronic components, products, and systems. As part of our effort to educate our readers, DfR has put together an [overview of the current and future marketplace in RF and Wireless](#) and how this could create potential reliability challenges. For more information, please contact [Nathan Blattau](#).

DoD Initiates a Revision to MIL-HDBK-217

In 2008 the U.S. Defense Standardization Program Office (DSPO) initiated an effort to update MIL-HDBK-217, the military's traditional reliability prediction bible for electronics equipment. As this document has significantly influenced the reliability profession, there is considerable interest in this first modification since 1991. In response to this attention, [Jim McLeish](#), a member of the 217 update team, will be providing periodic updates for DfR Solutions Newsletter readers. In this edition, Jim reports that the team has moved out of its organizational phase and has started updating the document. [A summary of this effort is available here](#). If you are interested in this effort and would like to get involved in either component failure rate/MTBF prediction or the Physics of Failure approach, please contact [Jim McLeish](#).

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Are We Approaching Another Reliability Bust?

Those who interact closely with DfR realize that we proscribe to the theory of 'cyclic reliability'. The early years of electronics, 1950's and 1960's, were extremely difficult for reliability and led to the establishment of the organizations and tools currently used today (IRPS, MEOST, RAMS, FMEA, etc.). Establishment of large electronic OEMs such as Motorola, Texas Instruments, and IBM in 1970's and early 1980's resulted in extensive reliability practices and organizations that are still awe-inspiring. [More...](#)

Don't Look Now, But Here Comes Halogen-Free

Just when you thought you understood Pb-free, here comes the next market response to the environmental movement. Intel, recognized as a leader among component manufacturers, recently announced that its [Xeon processors are halogen-free](#). This offering is not surprising, as Intel's major customers are eliminating brominated flame retardants ([Apple](#) by 2009, [Dell](#) by 2010, [HP](#) by 2010, [Acer](#) by 2009, [Toshiba](#) by 2009 with some hedging, [Lenovo](#) by 2010, [Fujitsu](#) by 2011 with some hedging, [Asus](#) is non-committal, [Sony](#) by 2011 with some hedging).

Will this mean the end of components with brominated flame retardants? Absolutely. Numerous [NGOs](#) and [media organizations](#) are warning in large type the dangers of flame retardants to children. While components will go first, and many already have, it would not be surprising to see even laminate with halogenated flame retardants become scare by 2012 ([see our article on REACH for more explanation](#)). For more information on this second wave of environmentally-driven material changes and how DfR can help you, please contact [Seth Binfield](#).

FAILURE ALERT: Sulfur-Producing Drywall

It has come to our attention that [drywall produced in China is releasing sulfur gas](#). This problem has already induced failures in evaporator coils and experience tells us that issues with house-bound electronics (computers, appliances, HVAC controls) are likely not far behind. Stay on the lookout for this problem and feel free to contact our corrosion experts, [Randy Schueller](#) or [Nathan Blattau](#), for guidance or advice.

DfR News

DfR Welcomes Dr. Ron Wunderlic as New Senior Member of Technical Staff

DfR Solutions is proud to announce the addition of a new team member at DfR Solutions, Dr. Ron Wunderlic. Ron is widely recognized as a leader in the design, analysis and diagnostics of power supply and analog circuitry. He is highly proficient in switch mode power supply design, analog circuitry, magnetic components, power supply switching ASICs and simulation at both macro level and device physics level. Customers have experienced a particularly high level of return on investment (ROI) with Ron's Design for EMI/EMC activities. Ron has been responsible for power supply CCA and ASIC design and development, among other activities, at Celestica and IBM and holds 6 patents and has authored 20 papers. He received a PhD in EE from SUNY-Binghamton, a MS in EE from Syracuse University, and a BS in EE from RIT.

DfR Solutions Opens Minnesota Office in Minneapolis

In response to increasing demand for our services in the Upper Midwest and medical electronic OEMs, DfR has opened a Minnesota office. Located in Minneapolis, this office will allow for closer interaction with our customers. The office will be headed by Dr. Randy Schueller, who has extensive experience in die fabrication, component packaging, OEM supplier audits, and Pb-free transition. For more information or to schedule an onsite visit to your facility, please contact [Erik Stromberg](#).

Upcoming Events

Lead-Free Electronics in Aerospace Project (LEAP) Working Group (Forth Worth, TX: January 27-28)

DfR Solutions will present two critical presentations on Pb-free at the Lead Free Electronics in Aerospace Project. The first presentation will be by Randy Schueller and will discuss "Strategies for a Successful Transition to Pb-Free." The second presentation will be by Nathan Blattau, and will provide "An Overview on Vibration of Electronic Assemblies and What It Means for Pb-Free Reliability." For more information, please contact [Tammy Smittenaar](#) or [Rusty Rentsch](#).

DfR in Dallas / Austin / Houston (January 27-30)

DfR Solutions will be visiting companies in Texas (Dallas, Austin, Houston) in late January. If you and your associates are interested in an onsite visit and/or presentation, please contact [Tammy Smittenaar](#).

IPC 7711/7721 Training at DfR Solutions (College Park, MD: February 9-13)

Circuit Technology will teach an advanced course on "Rework, Repair, and Modification of Printed Boards and Electronic Assemblies." Successful participants in this comprehensive hands-on training will be issued an official IPC certification. For more information or to register, please contact [Tammy Smittenaar](#) or [Circuit Technology](#).

Components for Military and Space Electronics (CMSE) (San Diego, CA: February 9)

DfR Solutions will present a seminar on the Successful Transition to Pb-Free Components and Materials for Military/High Reliability Applications in collaboration with Mike Silverman of OpsAlaCarte. For more information, please contact [Tammy Smittenaar](#) or go to the [CMSE website](#).

DfR in Southern California (February 10 & 12)

DfR Solutions will be visiting companies in Southern California (San Diego, Los Angeles) in early February. If you and your associates are interested in an onsite visit and/or presentation, please contact [Tammy Smittenaar](#).

SMTA Anaheim Academy – Electronics West (Anaheim, CA: February 11)

DfR Solutions will present two half-day seminars: "Medical Electronics and Lead-Free," and "Understanding Failure and Root Cause Analysis in Electronics." If you are interested in attending this course, please contact [Melissa Serres Marx](#) or [Tammy Smittenaar](#).

MIL-HDBK-217 Working Group (Dallas, TX: February 18-19)

Jim McLeish will be presenting DfR's proposal on how to integrate Physics of Failure (PoF) analysis into the future revision of MIL-HDBK-217. For more information, please contact [Tammy Smittenaar](#) or [Jim McLeish](#).

IPC/JEDEC Conference on Pb-Free Electronics (Santa Clara, CA: March 5)

Craig Hillman will present a half-day seminar, "Understanding Failure and Root-Cause Analysis in Lead-Free Electronics," the morning of March 5th. This will be followed in the afternoon by Randy Schueller and "A Practical Guide to Managing Your Lead-Free Transition." If you would like to attend these courses, please contact [Tammy Smittenaar](#) or [Michelle Michelotti](#).

DfR in Bay Area (March 2-4)

DfR Solutions will be visiting companies in the San Francisco Bay Area in early March. If you and your associates are interested in an onsite visit and/or presentation, please contact [Tammy Smittenaar](#).

DfR Solutions in Upstate New York (March 11-13)

DfR Solutions will be visiting companies in Upstate NY (Buffalo, Rochester, Syracuse, Binghamton, Albany) in mid March. If you and your associates are interested in an onsite visit and/or presentation, please contact [Tammy Smittenaar](#) or [Joe DePeter](#).

DfR in Paris, France (March 16-19)

DfR Solutions will be visiting companies in the Paris Area in mid March. If you and your associates are interested in an onsite visit and/or presentation, please contact [Tammy Smittenaar](#).

IPC APEX Expo (Las Vegas, NV: March 30-April 1)

[Craig Hillman](#) will present two seminars at IPC APEX. They include "The Reality of Pb-free Reliability," and "Design for Reliability: A Physics of Failure Based Approach." If you are interested in attending one or both of these courses, please contact [Michelle Michelotti](#) or [Tammy Smittenaar](#).

Wayne Tustin at DfR Solutions (College Park, MD: April 1-3)

Wayne Tustin will teach his popular short course "Random Vibration and Shock Testing, ESS, HALT & HASS" at DfR Solutions, College Park, MD. For more details and reservations, please [click here](#).

SMQ Laboratories (Shenzhen, China: mid-April)

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

Development of 'Manhattan Project' for Pb-Free Electronics (Philadelphia, PA: April 22-May 1)

DfR Solutions has been invited to contribute to a critical meeting on the future challenges and solutions for Pb-free and military and aerospace electronics. The unique environments, life expectations, and extreme reliability requirements experienced by these products have not been completely addressed by existing research among industry and academia. At this meeting, in collaboration with other experts, DfR will help determine the best path forward. For more information, please contact [Craig Hillman](#).

NEPCON East (Boston, MA: April 22-23)

DfR Solutions will present two courses, 'The Reality of Pb-free Reliability' and 'Next Generation Technologies in Electronic Packaging', at NEPCON East. If you are interested in attending these courses, please contact [Melissa Serres Marx](#) or [Tammy Smittenaar](#).

Micro TCA Summit (Chantilly, VA: May 12-14)

DfR will present a half-day tutorial, 'Getting Your Hardware Design Right...The First Time!' at the MicroTCA Summit. If you are interested in attending these courses, please contact [Lance Leventhal](#) or [Tammy Smittenaar](#).

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