



July/August 2011 Newsletter

[TRW Selects Sherlock](#) | [DoD Systems Engineering](#) | [DfR is Hiring!](#)

Sherlock Expanding Rapidly

The response of the electronics community to DfR's new [Automated Design Analysis™](#) tool has been overwhelming. Since the [launch of Version 2.0](#), *over one hundred licenses* have been issued and demand continues to rise. TRW is just one of [many satisfied customers](#). Interested? [Contact us](#) and learn how you can be a part of a design revolution.

RoHS Part II Finally Arrives

The new [RoHS Directive](#) became law on July 21, 2011. Key points:

- No new restricted substances
- 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
- Compliance timeline - medical and monitoring/control have 3 years, in-vitro medical has 5 years, and industrial monitoring/control has 6
- Exemptions will end in 5-7 years, including telecom and high lead
- CE mark required
- Larger companies must go beyond certificates of compliance
- Your EU importer is now also liable
- Oh, and don't forget India

See how this differs from [our reporting](#) two years ago. What will this mean? More paperwork and more testing. Need help? Contact [Craig Hillman](#).

True Root-Cause Analysis (RCA)

The staff at DfR Solutions performs over 400 failure investigations every year. What differentiates DfR from all the others? We know true [root cause analysis](#). As detailed in this illustrating [report](#), DfR surpasses other organizations by using unparalleled combination of equipment, electrical characterization, and knowledge of manufacturing methods and semiconductor physics. For more information on how we can take your organization to the next level, please contact [Tom Johnston](#).

In This Issue

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[True Root-Cause Thermal Upgrading Pb-Free Alloys Leads Obsolete? Reliability and Safety A Brighter World ESD to the MAX Upcoming Events Employment](#)



Medical Electronics: Vital Technologies for Health
September 27-28, 2011
Arizona State University

Those involved in the medical electronics industry are well aware of the focus on advancing technology, with the main objectives of improving all aspects of human health. Plan to attend this event to hear from the experts on materials, integrated circuit fabrication, manufacturing and assembly processes, as well as end products and applications.

Thermal Up-rating

Using a component above its rated temperature is always challenging (and surprisingly common). In this [white paper](#), DfR provides a concise explanation of up-rating, including the risks, the costs, and the process. For more component-specific guidance, visit our [White Paper web page](#). For more information on our up-rating and derating services, please contact [Gregg Kittlesen](#).

Alternative Pb-Free Alloys

While Sn3.0Ag0.5Cu (SAC305) still dominates, alternative Pb-free solders continue to proliferate to meet market demand. PC vendors are encouraging suppliers to eliminate SAC305 to reduce cost ([SAC305: \\$42/lb](#), [SACX0307: \\$28/lb](#), [SN100e: \\$22/lb](#), [SN100C: \\$15/lb](#)), high-rel OEMs are [still not satisfied](#) with SAC305 performance, and iNEMI is [testing over ten non-SAC305 Pb-free alloys](#). How to choose? DfR can help. We can guide you in [the proper selection of these materials](#) and perform the complex testing and analysis necessary to mitigate risk. For more information, please contact [Randy Schueller](#).

Are Leaded (not Pb) Parts Going Obsolete?

First the PLCC. Now TSOP? DfR has word that due to the strong success of no-lead [[dual row \(DFN\)](#) and [quad flatpack \(QFN\)](#)] parts, several [OSAT](#) vendors are scaling back TSOP production, with the package only available at very high annual volumes. Are you prepared for the end of leaded components? Contact [Nathan Blattau](#) for more information.

Reliability and Safety: A Happy Marriage?

One of the most challenging applications is automotive electronics due to severe environments, long warranties, and low cost. While the industry has shown impressive gains, there is room for improvement. In [this insightful presentation](#), DfR lays out some of the challenges and some of the solutions for the tricky exchange between quality, reliability, and safety. For more information on how DfR helps the automotive supply chain every day, contact [Jim McLeish](#).

Making the World a Brighter Place

The light bulb is long overdue for an overhaul. Current innovations like compact fluorescent, efficient but expensive, or halogen, poor efficiency and short lifetime, are only temporary fixes. High Brightness Light Emitting Diode (HB-LED) offers a real solution, but its design must remove thermal stresses to ensure lifetime. In this white paper, [DfR elaborates these issues](#) and demonstrates how we can support you through-out product development. Contact [Greg Caswell](#) for more information.

ESD to the MAX

NASA has released some stunning photos of [lightning](#), a common source of [electrical overstress](#) / electrostatic discharge (EOS/ESD). Although these pictures are extreme, electronics are often damaged or degraded as a result of ESD. DfR has [extensive experience in mitigating ESD](#). Let us show you how to [Design for ESD](#). For more information, please contact [Cheryl Tulkoff](#).

DfR News

TRW Automotive Selects Sherlock Automated Design Analysis™ Software from DfR Solutions

As part of its continuing drive to improve the performance of its products AND speed up the product development and qualification process, [TRW recently announced](#) the selection of DfR's Automated Design Analysis™ tool, [Sherlock](#). With its ability to provide accurate predictions of product reliability, Sherlock is unrivaled in its ability to identify design issues before prototype, reduce qualification time, and effectively reduce the cost of managing product cost reductions. For more information on how Sherlock is sweeping through the automotive industry, please contact [Jim McLeish](#).

Greg Caswell Cited by IPC as Leading Expert in LED Technology

In the lead up to Greg's insightful course on LED Packaging, Performance, and Reliability, [Terry Costlow interviewed Greg](#) to get his thoughts on effectively managing thermal performance of LEDs. "In a street lamp, you'll see between 90 to 150 high brightness LEDs on a circuit board. That's a lot of current and it creates a lot of heat. If you don't remove the heat, you're going to reduce the lifetimes," Caswell said. Packaging is a major aspect in removing this heat, he added. For more information on optimizing LED technology, please contact [Greg](#).

DfR Solutions to Provide Manufacturing and Reliability Thought Leadership to DoD Systems Engineering

In recognition of its extensive expertise and experience and ability to develop and introduce new concepts into systems development, DfR Solutions has been selected to support the Office of the Secretary of Defense (OSD) in the [areas of manufacturability, reliability, maintainability, and sustainability](#). Specifically, DfR's integrated use of Physics of Failure (PoF) and Best Practices provides crucial insights and solutions early in product design and development and throughout the product life cycle. For more information, please [click here](#) or contact [Walt Tomczykowski](#).

DfR Solutions and TSI Team on Revolutionary Sherlock Tool

DfR Solutions is very proud to announce that [TSI](#), a leading supplier of Electronic Design Automation (EDA), Automated Hardware Test, and Product Lifecycle Management (PLM) software for the Eastern United States, has joined forces with DfR Solutions' North American (NA) sales teams in offering DfR Solutions' revolutionary automated design analysis tool, 'Sherlock'. DfR Solutions' partnership with TSI will strengthen and expand DfR's presence among NA OEMs and PCB contractors. For more information, please contact [Greg Conley](#).

Google Calendar

Look for DfR at upcoming events, conferences, webinars, and sales visits that may be in your area on our new link to Google Calendar. Hunt for us on the [web](#). For more information on a specific activity, please contact [June Caswell](#).

Upcoming Events

DfR in Singapore (Singapore: July 19-23)

Greg Caswell was in Singapore providing 3 days of training to a DfR customer. DfR Solutions will be in Singapore December 6-10. To arrange a visit, please contact [June Caswell](#).

American Society of Naval Engineers (Washington, DC: July 20)

Walt Tomczykowski presented "Designing for Affordability" at the American Society of Naval Engineers meeting in Washington. For any follow up information, please contact [Walt](#).

University of Arkansas EPSCoR Meeting (Little Rock, AR: July 26-28)

Greg Caswell was in Little Rock supporting the EPSCoR meeting as an advisor to the University of Arkansas. If you missed connecting with [Greg](#), please let DfR know when a follow up visit would be of benefit to you.

DfR in the Philippines (Manila, Philippines: August 2-5)

Craig Hillman and Greg Caswell visited customers in the Manila area in early August. If you and your associates are interested in an onsite visit and/or presentation, please contact [June Caswell](#).

Design for Manufacturability (Webinar: August 3, 10 a.m. Central)

Cheryl Tulkoff presented a one hour webinar on Design for Manufacturability for IPC. For more information on how DfR can introduce DfM into your engineering teams and your supply chain, please contact [Cheryl](#).

Awareness of Reliability Impacts of DMSMS Solutions (Lexington

Park, MD: August 10)

Walt Tomczykowski presented a one hour seminar to the NAVAIR DMSMS Working Group on how more accurately capturing reliability performance is critical in preventing material shortages. For more information on this topic and other Design for Supportability issues, please contact [Walt](#).

Design for ESD Prevention (Austin, TX: August 18)

Cheryl Tulkoff presented "Design for ESD Prevention & Failure Analysis Techniques when Unsuccessful" at the Austin ESDA Meeting at 3M. For more information on this presentation, please contact [Cheryl](#).

DfR in Pittsburgh (Pittsburgh, PA: August 29-31)

Cheryl Tulkoff will be visiting customers in the Pittsburgh area. If you and your associates are interested in an onsite visit and/or presentation, please contact [June Caswell](#).

DfR in New York (Long Island, NY: September 6-9)

Cheryl Tulkoff will be visiting customers in the Long Island area the week of September 6. If you and your associates are interested in an onsite visit and/or presentation, please contact [June Caswell](#).

EMPC – IMAPS Europe (Brighton, UK: September 12-15)

Greg Caswell will be teaching a NEW course: High Brightness Light Emitting Diodes - Reliability Considerations. If you would like to schedule a visit with Greg at the conference, please contact [June Caswell](#).

DfR in Pittsburgh (Pittsburgh, PA: September 12-13)

Craig Hillman will be visiting customers in the Pittsburgh area. If you and your associates are interested in an onsite visit and/or presentation, please contact [June Caswell](#).

SMTA Capital Chapter (September 13)

Walt Tomczykowski will be giving a presentation entitled "How to Design for Reliability and Summarizing the Importance and Cost Benefits of Designing in Reliability Early in the Life Cycle. For more information, contact [June Caswell](#).

IPC Midwest Conference (Schaumburg, IL: September 21-22)

Craig Hillman will be presenting "Common Mistakes in Electronic Design" as part of focused Design for Reliability session within the annual IPC Midwest Conference. He will also present "Quantitatively Predicting the Reliability of Complex Integrated Circuits" in a technical session. If you would like to schedule a visit to your company while Craig is in the area, please contact [June Caswell](#).

DfR in Illinois and Indiana (September 19-23)

Craig Hillman and Jim McLeish will be visiting companies in the Illinois/Indiana area in mid-September. If you would like to schedule a visit to your company while they are in your area, please contact [June Caswell](#).

Predicting Hardware Reliability for the Data and Telecom

Industries (Webinar: September 27, 11 a.m. Eastern)

Gregg Kittlesen will be giving a very insightful presentation, based on his direct experience in implementing successful Pb-free transitions in several companies in the telecommunications and enterprise markets. [Registration](#) is now open.

IEEE Boston Reliability Chapter (Wilmington, MA: October 12)

Gregg Kittlesen will be presenting on DfR's Electronics Expert Reliability Analysis Tool at the [IEEE Boston Reliability Chapter](#) meeting this fall. For more information, please contact [Aaron Dermarderosian, Jr.](#)

DfR in New England (October 12-14)

Gregg Kittlesen will be visiting companies in the Boston area in mid-October. If you would like to schedule a visit to your company while they are in your area, please contact [June Caswell](#).

IMAPS Symposium (Long Beach, CA: October 9-13)

Greg Caswell will be presenting three workshops at the IMAPS Conference - [S5: Understanding Failure and Root-Cause Analysis in Pb-Free Electronics](#), and [M12: An Electronics Expert Reliability Analysis Tool](#). In addition Greg will be presenting [The Reliability Impact of Reballing COTS Pb-Free BGAs to Sn/Pb for Military Applications](#) and Cheryl Tulkoff will be presenting [Manufacturability & Reliability Challenges with Leadless Near Chip Scale Packages in Pb-Free Processes](#).

DfR in Southern California (October 10-14)

Greg Caswell and Cheryl Tulkoff will be visiting companies in the Los Angeles area in mid-October. If you would like to schedule a visit to your company while they are in your area, please contact [June Caswell](#).

SMTA International Conference (Ft Worth, TX: October 16-20)

Randy Schueller will be teaching a NEW course: Packaging and Reliability Considerations for High Brightness LEDs at [SMTA](#). If you would like to arrange a meeting with Randy while he is in the area, please contact [June Caswell](#).

DfR in Texas (TX: mid-October)

Craig Hillman, Ed Dodd and Randy Schueller will be visiting customers in North Texas. If you would like to arrange a meeting with them while they are in the area, please contact [June Caswell](#).

Webtorial in Conjunction with Qualmark (Virtual: October 20)

[Dr. Nathan Blattau](#), DfR's Chief Technologist, will be the featured presenter for a special 2-part edition of Qualmark's popular Ask the Experts webinar series this fall. Mark your calendars to attend the October 20th session on Vibration and the November 17th session on Shock when Dr. Blattau will discuss the effects of these stresses and how they can be effectively applied during product development and process verification to deliver a more reliable product. Watch for more information and registration links as the dates approach or [send an email](#) to be sure you receive an invitation.

Webinar in Conjunction with IPC (Virtual: October 20)

[Cheryl Tulkoff](#) will be presenting a webinar entitled, "Electronics Failure Analysis: Common Mechanisms & Techniques" jointly with IPC. Effective failure analysis is critical to product reliability. Without identifying the root causes of failure, true corrective action cannot be implemented and the risk of repeat occurrence increases. A systematic approach to failure analysis is recommended -proceeding from non-destructive to destructive methods until all root causes are conclusively identified. Choosing the appropriate techniques based upon the failure information (failure history, failure mode, failure site, failure mechanism) specific to your product is also critical. Learn how in this webinar! Contact IPC to register.

Lockheed Martin Pb-free Electronics Workshop (College Park, MD: October 27)

Lockheed Martin has invited Craig Hillman to present on the broad range of Pb-free research and development activities being currently performed at DfR Solutions. If you would like a similar informative update at your facility, please contact [June Caswell](#).

IPC Conference on Reliability: Assembly Process for a Reliable Product (Irvine, CA: November 1-2)

Cheryl Tulkoff will be teaching two courses at the conference. One on "Design for Reliability" and the other on "Design for Reliability/Manufacturability in the Lead Free Era". Dr. Nathan Blattau will be presenting on, "Coating and Potting of QFNs." Nathan and Cheryl will also be visiting companies in the Irvine area. . If you would like to schedule a visit to your company while they are in your area, please contact [June Caswell](#).

DfR in Southern California (November 1-4)

Cheryl Tulkoff and Nathan Blattau will be visiting customers in the Orange County and San Diego areas. If you would like to schedule a visit to your company while they are in your area, please contact [June Caswell](#).

ASQ Reliability Division Webinar (Virtual: November 10, noon EST)

Jim McLeish will be presenting "Introduction to Physics of Failure Reliability Methods" during this webinar. For registration information, please contact [Jim McLeish](#).

Webtorial in Conjunction with Qualmark (Virtual: November 17)

Dr. Nathan Blattau, DfR's Chief Technologist, will be the featured presenter for a special 2-part edition of Qualmark's popular Ask the Experts webinar series this fall. Mark your calendars to attend the October 20th session on Vibration and the November 17th session on Shock when Dr. Blattau will discuss the effects of these stresses and how they can be effectively applied during product development and process verification to deliver a more reliable product. Watch for more information and registration links as the dates approach or [send an email](#) to be sure you receive an invitation.

DfR in Israel (Israel: December 4)

Craig Hillman will be visiting customers in Israel. If you would like to arrange a visit please contact [June Caswell](#).

DfR in Malaysia (December)

DfR Solutions will be visiting customers in Malaysia. If you would like to arrange a visit please contact [June Caswell](#).

Electronics Packaging Technology Conference (Singapore: December 7)

DfR Solutions will be teaching a NEW full-day course titled "Reliability Predictions for Packaging and Tools for Analyzing Risks and Grading Packages at Board Level" at the [Electronics Packaging Technology Conference](#). The course will be in two parts with the first addressing semiconductor packaging and the second board level reliability.

DfR in Singapore (December 6-10)

DfR Solutions will be visiting customers in Singapore. If you would like to arrange a visit please contact [June Caswell](#).

Manufacturability and Reliability of 0.3 mm Pitch Chip Scale Packages (Webinar: December 6)

To successfully move to 0.3mm requires buy-in from the entire manufacturing industry, from the printed board manufacturer, to the solder paste supplier, to the stencil manufacturer, and a comprehensive

understanding of the potential reliability risks the change in interconnect design may entail. This joint webinar from ITM Consulting and DfR solutions will address this issue from the perspective of the manufacturing and reliability. For more information or to register please contact [June Caswell](#).

Employment

Reliability Manager

Full-time onsite at customer location in Washington, DC, metro area.

Individual will utilize a thorough knowledge of the DoD 5000 acquisition process to draft policy and guidance documents and to review DoD major weapons systems reliability and maintainability documentation. Individual will supervise a team of reliability engineers and analysts. This is a fast-paced, high-visibility position that requires the applicant to be highly engaged, capable of managing multiple tasks, writing comprehensive reports and meeting critical deadlines. Position includes travel up to 25% of the time.

Required:

- Highly skilled in presenting to senior leadership in both industry and government
- Thorough knowledge of reliability improvement, growth theory and practice, and the DoD 5000 acquisition process to include the Defense Acquisition Guide
- 20 years experience working in the DoD system program office
- Minimum M.S. degree in engineering
- Secret clearance and US citizenship

Preferred:

- Cross-domain experience (air, land, sea, space) is a plus

Qualified individuals should [e-mail](#) their resume along with a cover letter.

Reliability Analyst / Engineer

Full-time onsite at customer location in Washington, DC, metro area.

Required:

- DoD 5000 acquisition directives and regulations
- DoD major weapons systems development timeline with an emphasis on reliability and maintainability activities
- Reliability design principles and practices including part selection,

physics of failure, R&M math models, etc.

- Best practices in test development and execution including HALT/HASS, reliability growth tests, accelerated life testing, etc.

Required Experience/Education:

- Minimum 10 years of experience including direct experience with system-level technical reviews
- Minimum B.S. degree in engineering
- Secret clearance and US citizenship

Preferred:

- Cross-domain experience (air, land, sea, space) a plus
- Certified Reliability Engineer (CRE)
- Green Belt Six Sigma

Qualified individuals should [e-mail](#) their resume along with a cover letter.

Advertisement

Advertise here and reach more than 11,000 electronics professionals. DfR Solutions is now accepting advertisements in the DfR newsletter. For more information, contact [Tammy Smittenaar](#).