

DfR Solutions January/February 2011 Newsletter

[Dr. Gregg Kittlesen Joins DfR](#) | [DfR in Michigan](#) | [DfR Paper on IC Wearout](#)

Design it Better, Launch it Faster, and Satisfy your Customers
After years of development and a successful launch among early adopters, DfR Solutions is launching version 2.0 of its revolutionary [electronic design analysis software](#). This unrivaled product provides the most comprehensive solution available for Physics of Failure (PoF) based analysis of electronic designs. The software's intuitive commands and ease of use invite usage among a broad range of engineers and managers, where rapid results provide almost immediate feedback on product designs and their performance in the hands of the customer.

To learn more about a tool that will change the way you design, please join us for our introductory webinar on Thursday, March 31. [Registration](#) is now open. For more information, contact [Ed Dodd](#).

The Best Way to Stop Tin Whiskers

The electronics industry has struggled to find the right combination of confidence and cost in mitigating the risk of tin whiskers. An excessive reliance on environmental testing has resolved neither of these issues. The real solution, detailed in this [white paper](#), relies on the fundamentals of physics and quality control to put a stop to whiskers once and for all. For more information, contact [Randy Schueller](#).

Beyond Bearing Wearout: Solving Fan Reliability

Fans continue to be a liability in the long-term reliability of electronic systems. To address this risk, DfR has developed an [accelerated test methodology](#) that is a singular solution for electronic OEMs attempting to select fan suppliers or attempting to determine the root-cause of field failures. By subjecting fans to conditions more applicable to application environment, their true capability and performance can be assessed in a fraction of the time. For more information, contact [Tom Johnston](#).

How to Design for Thermal Cycling (iMAPS)

In collaboration with iMAPS, DfR Solutions will present a broad-based webinar on the challenges of designing for an environment with changing temperature. Whether your product is military, industrial, or part of the 'Free Air Cooling' trend, this insightful presentation will identify all of the mechanisms affiliated with thermal cycling and how to rapidly assess these risks during product design. To register, please contact [Brian Schieman](#). For more information, contact [Nathan Blattau](#).

From Concept to Customer

DfR has documented a comprehensive review methodology for a [Product Delivery Process](#) (PDP) that involves the entire product life cycle from design to manufacturing to delivery. The approach utilizes well established "Benchmarking," "Organizational Re-Engineering" and "Lean Process" evaluation methods. The

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intent is to identify the various steps in a company's current PDP and to benchmark their effectiveness and efficiency to best-in-class organizations. For more information on how DfR can help your organization become a market leader, contact [Cheryl Tulkoff](#).

Solderability and Long-Term Storage

With shorter product life cycles and longer extensions of existing products, electronic OEMs are increasingly relying on storage to mitigate the risks of part availability. As explained in this [white paper](#), solderability is a major issue that must be proactively assessed before any long-term storage plan is implemented. For more information, contact [Greg Caswell](#).

How to Choose a Reliable Package on Package (PoP)

One company's solution can be another company's nightmare, especially in component packaging. A desire to maximize functionality and fit space constraints can result in something like this [monster \(25mm x 50mm\) package on package \(PoP\)](#). While likely satisfying a market need, this component will be challenging from a manufacturability and reliability perspective. For example, the package weight will likely reduce solder ball height to less than half the diameter, increasing the likelihood of pad cratering and thermo-mechanical fatigue. If you are looking for real solutions to PoP challenges, contact [Craig Hillman](#).

DfR News

DfR Welcomes Dr. Gregg Kittlesen as New Senior Member of Technical Staff

DfR Solutions is proud to announce the hiring of [Dr. Gregg Kittlesen](#) to lead its component integrity effort. Located at DfR headquarters in College Park, MD, this effort will provide telecommunication and enterprise OEMs insight and guidance into reliability assessment and risk mitigation for components and modules.

[Dr. Kittlesen](#) is internationally recognized as an expert in the fields of optoelectronic device and integrated module reliability engineering. Prior to joining DfR Solutions, he was responsible for component and module reliability evaluation at Ciena Corporation, a leading supplier of network infrastructure solutions. His experience included qualification programs, supplier audits, corrective action resolution, failure analysis, reliability prediction, and prognostic health management. Previous positions at Ericsson Microelectronics and Analog Devices included wafer-level testing and qualification of integrated laser/modulator (DFB/EA) devices, chip product engineering, RF bipolar process integration and qualification, etch/deposition tool evaluation and process development.

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](#). For more information on a specific activity, please contact [June Caswell](#).

DfR to Present at MEPTEC's The Heat is On Symposium

In recognition of our understanding of the tradeoffs between temperature and reliability for multiple technologies (hard drives, fans, integrated circuits, etc.), DfR Solutions has been invited to present "Reliability of Electronic Systems in Telecom Environments" at MEPTEC's "[The Heat is On](#)" Symposium. The Symposium is part of the [Electronic Thermal Week](#). For more information, please contact [Greg Caswell](#).

DfR Launches the Shock and Vibration Partnership

With companies representing a range of industries (medical, military, avionics, solder), DfR Solutions launched the [Shock and Vibration Partnership](#) on January 21, 2011. This activity will use a combination of simulation and testing to identify the most effective vibration and shock mitigations. Solutions such as underfill,

staking compounds, dummy ball, solder alloy, and corner slots will be benchmarked in regard to cost, manufacturability, effect on thermal cycling, and ability to mitigate shock and vibration damage. If you would like [more information](#) on this activity, contact [Joelle Arnold](#).

DfR Assessment of Integrated Circuit Wearout Published by IEEE Recognition of DfR's ground-breaking tool for the prediction of integrated circuit reliability and wearout, collaboratively developed with AVSI and Professor Yosef Bernstein, [IEEE Instrumentation and Measurement](#) magazine has published Ed Wyrwas' article, "[Quantitatively Analyzing the Performance of Integrated Circuits and Their Reliability](#)." For more information on this topic and how your future designs will require this type of analysis, contact [Ed Wyrwas](#).

Upcoming Events

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

Jim McLeish provided an update on the status of Mil-HDBK-217 at the PERM meeting and how physics of failure (PoF) is the future of the reliability prediction process. If you and your colleagues would be interested in a presentation on this technical topic, please contact [June Caswell](#).

DfR Solutions in San Jose (**San Jose, CA: January 11-13**)

Craig Hillman visited companies in the San Jose, CA area and discussed a range of issues, including accurate reliability prediction using physics of failure (PoF), ensuring cleanliness in complex surface mount assemblies, and silver migration. If you and your colleagues would be interested in a visit and possibly a presentation on a range of technical topics when DfR is back in the Bay Area March 21-25, please contact [June Caswell](#).

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

Greg Caswell participated in a panel discussion on Solar Reliability with a focus on Concentrated Photovoltaic system reliability. For more information on this topic, please contact [Greg Caswell](#).

DfR Solutions in Upstate New York (**NY: January 25-28**)

Tom O'Connor and Nathan Blattau visited companies in upstate New York area and presented on a variety of topics, including automated design analysis, integrated circuit wearout, reballing, and qualifying new Pb-free solders for severe environments. If you and your colleagues would be interested in a presentation on any of these topics, please contact [June Caswell](#).

DfR Solutions in Phoenix (**Phoenix, AZ: February 15-17**)

Craig Hillman will be visiting companies in Phoenix and Tucson, Arizona, in mid-February. If you and your associates are interested in an onsite visit and/or presentation, please contact [June Caswell](#).

Reliability Webinar (**February 16**)

Cheryl Tulkoff will present a webinar entitled "High Reliability: Solving Problems with Reliability, Repair and Rework in the Lead-Free Era." For more information and to register, visit [IPC's website](#) or contact [Cheryl Tulkoff](#).

G12 Conference (**Tempe, AZ: February 16-17**)

Craig Hillman and Ed Wyrwas will be presenting "Physics of Failure Approach to Integrated Circuit Reliability" at the G12 Solid State Devices Committee Meeting. For more information, or to arrange to meet with them, please contact [Ed Wyrwas](#).

DfR Solutions in Michigan (**Detroit, MI: February 23-25**)

Craig Hillman and Jim McLeish will be visiting companies in Michigan area. If you

and your colleagues would be interested in a visit and possibly a presentation on a range of technical topics, please contact [June Caswell](#).

DfR Solutions in Dayton (Dayton, OH: March 1-2)

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

DfR Solutions in Pennsylvania and New Jersey (NJ: March 2)

Nathan Blattau will be visiting companies in Central New Jersey and Eastern Pennsylvania in early March. If you and your associates are interested in an onsite visit and/or presentation, please contact [June Caswell](#).

MEPTEC's The Heat is On Symposium (San Jose, CA: March 21)

Greg Caswell will be presenting "Reliability of Electronic Systems in Telecom Environments" at MEPTEC's "[The Heat is On](#)" Symposium. The Symposium is part of the [Electronic Thermal Week](#). For more information, please contact [Greg Caswell](#).

DfR Solutions in San Jose (San Francisco, CA: March 21-24)

Greg Caswell and Ed Dodd will be visiting companies in the San Jose area in mid-March. If you and your associates are interested in an onsite visit and/or presentation, please contact [June Caswell](#).

DfR Solutions in The Philippines (Manila, The Philippines: March 21-25)

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

Training Workshop (Springfield, VA: March 30-31)

Craig Hillman will be participating on a panel discussing "Achieving Highly Reliable & Safe Systems at Best Cost." To register on-line please go to the [RMS Partnership website](#). For more information, contact [Craig Hillman](#).

DfR Solutions in Europe (Europe: April 11-18)

Craig Hillman will be visiting several countries in Europe, including England, Sweden, Switzerland, and Austria. If you and your associates are interested in an onsite visit and a presentation on a range of technical topics, please contact [June Caswell](#) as soon as possible.

SAE Congress (Detroit, MI: April 12-14)

Jim McLeish will be attending the [SAE World Congress](#) in Detroit, MI to support DfR's activities in automotive reliability. For more information contact [Jim McLeish](#).

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

Several members of DfR staff will be teaching courses 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 [June Caswell](#).

Reliability and Safety Workshop (**Greenwich, United Kingdom: April 14**)
Craig Hillman will be making a presentation on "The Synergy between Reliability & Safety in Automotive Electronics" at the [Reliability & Safety workshop](#) jointly organized by IEEE, Reliability Society UK&RI and the University of Greenwich. For more information on this please contact [Craig Hillman](#).

EuroSimE Conference (**Linz, Austria: April 17**)
Craig Hillman will be making a presentation entitled "Automated Design Analysis: Accurately Capturing Warranty and End-of-Life Risks Early in Product Development." at [EuroSimE 2011](#). For more information or to arrange a meeting with Craig please contact [Craig Hillman](#).

Fundamentals of Random Vibration and Shock (**College Park, MD: April 19-21**)
Wayne Tustin, recognized internationally in the field of shock and vibration testing, will be presenting his three-day Fundamentals of Random Vibration and Shock Testing course at DfR Solution's headquarters facility. The course will address how to measure vibration and shock, calibrate measurement systems, convert field measured data into a test program, interpret results, define methodologies for shock and vibration testing and more. To register for this course please visit the [Equipment Reliability Institute's website](#).

iMAPS Conference (**Boston, MA: May 3**)
Cheryl Tulkoff and Nathan Blattau will be making a presentation entitled "Automated Design Analysis: Accurately Capturing Warranty and End-of-Life Risks Early in Product Development," at the IMAPS New England Conference. If you and your associates are interested in an onsite visit and/or presentation or you would like to meet with either Nathan or Cheryl at the conference, please contact [June Caswell](#).

DfR Solutions in Israel (**Israel: May 3-5**)
Craig Hillman will be jointly presenting with MET Labs in Israel. While he is in Israel, he will be visiting companies in the area. If you and your associates are interested in an onsite visit and/or presentation, please contact [June Caswell](#).

International Conference on Soldering and Reliability (**Toronto, Canada: May 4-6**)
Cheryl Tulkoff will be presenting courses at the International Conference on Soldering and Reliability entitled "High Reliability: Solving Problems with Reliability in the Lead-Free Era" and "Second Generation Lead Free Alloys: Is SAC the Best We Can Do?" To register for the conference, visit the [SMTA website](#). For more information, please contact [Cheryl Tulkoff](#).

iMAPS High Reliability Microelectronics for Military (**Baltimore, MD: May 17-19**)
The International Microelectronics And Packaging Society (IMAPS) is sponsoring an [Advanced Technology Workshop](#) on military high reliability packaging issues and applications which is chaired by [Greg Caswell](#). The technical program will focus on the latest military electronic devices, systems, and applications with particular emphasis on system level issues that have an impact on mission assurance as well as the connected issues at the design and applications level. Abstracts are currently being solicited for the technical program. To register for this conference, please contact [Greg Caswell](#) or go to the [website](#).

International Applied Reliability Symposium (**San Diego, CA: June 7-9**)
Randy Schueller will present "Physics of Failure in Five Minutes" at the [2011 International Applied Reliability Symposium](#). For more information, or to

arrange a meeting during the conference, please contact [Randy Schueller](#).

Product Development Webinar **(June 30)**

Jim McLeish will present a webinar entitled "How to Accelerate Automotive Product Development." [Registration](#) is now open. For more information, contact [Jim McLeish](#).

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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