



Reliability  
ALACARTE™

# News

**TOP EVENT: ASTR, Oct 4-6 - San Francisco, CA**  [Click here for a printable version](#)

Summer -Fall 2006

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Theme this newsletter:

## RELIABILITY ASSESSMENT

### IN THIS ISSUE

[COURSES and SEMINARS](#) - Both public and in-house courses

.....  
[EVENTS](#) - Workshops and Symposiums

.....  
[SPECIAL OFFERS](#) - Free Admission to ASTR, Oct 4-6, San Francisco

.....  
[NEWS](#) - Ops A La Carte in the news

.....  
[FEATURED SERVICE](#) - Reliability Assessments

.....  
[ADVERTISEMENTS](#) - Advertise here and watch your business grow

.....  
[JOB OPENINGS](#) - Looking for a job? Check our new section here !

### COURSES

▶ [Certified Quality Engineer \(CQE\) Preparation Course](#) (pdf) - **Oct 3-Nov 21, 2006**

To register, email us at [CQECourse@opsalacarte.com](mailto:CQECourse@opsalacarte.com)

▶ For details see the [Ops A La Carte Schedule](#)

### SEMINARS

▶ The following is a list of all our public seminars for the the next few months. Most of our seminars are taught as **in-house tailored** seminars. To view a list of all our seminars, go to [Ops A La Carte Course List](#)

**Design for Reliability** ([click here for outline](#))

▶ **October 26-27, 2006 San Jose, CA** (with [Hobbs Engineering](#))

**Designing for Warranty Cost Reduction** ([click here for outline](#))

▶ **October 25, 2006 San Jose, CA** (with [Hobbs Engineering](#))

▶ For details see the [Ops A La Carte Schedule](#)

**OTHER SEMINARS COMING IN 2006** - inquire if interested at [education@opsalacarte.com](mailto:education@opsalacarte.com)

▶ [Mechanical Design for IC Packaging](#)

▶ [Design for Manufacturability \(DfM\)](#)

▶ [Design for Testability \(DfT\)](#)

▶ [Design for 6 Sigma \(DfSS\)](#)

▶ [Design for 'X' \(DfX\)](#)

▶ [Design of Experiments \(DoE\)](#)

▶ [HALT and HASS Application](#)

▶ [Statistics for 6 Sigma](#)

▶ [Fundamentals of Statistical Process Control](#)

▶ [Design for Climatic Conditions](#)

▶ [Design for Vibration and Shock](#)

▶ [Software Reliability](#)

▶ [RoHS](#)

▶ [Root Cause Analysis](#)

▶ For details on these NEW seminars, see the [Ops A La Carte Course List](#)

## EVENTS

### ▶ Reliability Integration and Failure Analysis Seminar - Sept 26th, Taipei Taiwan

SGS Testing Services and Ops A La Carte are putting on a free one-day seminar in Taiwan on Sept 26th and the featured speakers shall be Mike Silverman and Bob MacLevey of Ops A La Carte. Mike will be presenting the fundamentals of Reliability Integration and Bob will be presenting how to integrate solid Failure Analysis techniques into a reliability program. The seminar is being hosted by SGS. For a brochure on the event, please go to [Taiwan Reliability Seminar](#).



### ▶ 2006 Asian Network of Quality Seminar - Sept 27-29th, Singapore

Ops A La Carte was chosen to give a paper at ANQ2006. The Asian Network of Quality (ANQ) in conjunction with the [Singapore Quality Institute](#) will hold its annual symposium in Singapore on Sept 27-29th and has invited Ops A La Carte to present a paper on Accelerated Reliability Testing techniques. For more details on the conference, please go to [ANQ2006](#).



### ▶ ASTR 2006 - Accelerated Stress Testing for Reliability (ASTR) Workshop

October 4-6, 2006, San Francisco, [Sheraton Fisherman's Wharf](#)

Ops A La Carte is on the local committee for this year's AST Workshop in being held at the Fisherman's Wharf in San Francisco. Various OALC consultants have been invited to present papers, including the following: 1) HALT Results on RoHS Products, 2) Competitive Analysis, 3) Design for Warranty Cost Reduction, 4) HALT vs. ALT - When to Use Which Technique, and 5) Lot Acceptance Testing: A Method for Reducing the Need for Failure Analysis.

We shall also be exhibiting at this symposium so please come by our booth. For more details, please go to [Accelerated Stress Testing and Reliability \(ASTR\) Workshop](#). Email us at [ASTR@opsalacarte.com](mailto:ASTR@opsalacarte.com) for more information on this event.



## SPECIAL OFFERS

▶ **Free Admission** to the [Accelerated Stress Testing for Reliability \(ASTR\) Workshop](#) to the first individual that turns us onto a new consultant. We are growing rapidly and are looking for the best technical operations' consultants out there. If you know of anyone, please pass their name to us at [consultantsearch@opsalacarte.com](mailto:consultantsearch@opsalacarte.com). **This is a \$700 value.**

## NEWS



- Sep 1, 2006

**SJ Business Journal announces Ops A La Carte to the "Fast 50" list.** Each year, the Silicon Valley/San Jose Business Journal comes out with a list of the 50 fastest growing private companies in Silicon Valley, and this year, Ops A La Carte has made the list. On September 21st, they will hold a banquet to announce the order of the top 50. For more details, go to [SJ Business Journal's Fast 50 List](#)

SILICON VALLEY / SAN JOSE  
**Business Journal**

- July 1, 2006

**Ops A La Carte completes purchase of QualMark HALT Lab in Santa Clara.** The Santa Clara HALT Lab was started in May, 1995 by Mike Silverman when he was an employee of QualMark. Mike ran the lab for 5 years before leaving to start Ops A La Carte in 2000. Then last year, Ops A La Carte took back over the management of the lab, and on July 1st, we officially purchased the facility from QualMark. Please go to our revised [HALT](#) and [HASS](#) Web Pages for more details. Below is our new logo for the lab.



► **Presentations for the above events** are available for download on the [Resources Page](#) of our website.

► **For more information** on news, please visit our [News Page](#) or call (408) 472-3889.

## FEATURED SERVICE



## Reliability Assessments

When anyone asks me "How do you go about developing a reliability program?", I tell them that any reliability program can be broken down into 4 basic steps:

- 1) **Assess** where you are at
- 2) **Develop** good **Goals**
- 3) **Write** a solid **Plan** on how to get there
- 4) **Develop** a good **Execution Strategy**

Often times companies skip this first key step and jump right into setting goals for a program, yet how do you know what goals to set and whether you can achieve them if you don't first take an inventory of what you have? It's like baking a cake. If

I decide that baking a cake is my goal, I can find a recipe (my Plan), but first must take an inventory of my supplies (flour, sugar, etc.). And if I find that I don't have some of these key ingredients, I need to first get them before I can get very far with my cake.

*An assessment is no different. Until I take inventory of my situation, I won't get very far no matter how much time I spend developing good goals. And if I find that I am missing an ingredient, I need to go out and either hire or train or buy software.*

Assessments can be performed for a variety of different reasons - During a RoHS transition, for a Warranty Analysis, looking at Compliance/Safety on a new product, and even when reviewing a company's Software Reliability program (next month, our feature service will be Software Reliability and how to effectively conduct a Software Reliability Assessment).

***One of the most effective types of assessments is one for an entire reliability program.***

## *Business Situation*

Many customers come to us and know exactly what service they need - a Reliability Prediction, a HALT, maybe an FMEA, or perhaps an Accelerated Life Test. But often times, customers come to us wanting to make improvements to their overall reliability program and don't know which technique(s) to use. This is a perfect time for a Reliability Assessment.

***An assessment is a systematic evaluation of a broad range of potential reliability activities and tools as currently employed and integrated.***

In simplest terms, we come to your facility and through a series of discussions with key personnel, we figure out what you are doing that is working vs. what you are doing that is not working (or what you are not doing at all).

Our Reliability Assessment Services will give the following information:

1. Where you are (Reliability Assessment)
2. How far away are you (Gap Analysis)
3. What do you need to do to get there (Reliability Goal Setting and Reliability Program Plan Development)

## *Objectives of an Assessment*

There are 5 key objectives of our Assessment process, all with the goal of shortening time to market, lowering manufacturing costs, and improving field reliability:

- 1) Assess capabilities and practices in many areas, including (but not limited to) the following:
  - a) Design Control/Design Process Review
  - b) Engineering Practices
  - c) Electrostatic Discharge
  - d) Environmental Stress Screening
  - e) In-House Test Data
  - f) MTBF - Piece part and system level
  - g) Parts Screening
  - h) QA Processes
  - i) RMA Returns
  - j) Software
  - k) Test philosophy
  - l) Vendor Selection and Performance
- 2) Identify and define a path forward to continue reliability improvements.
- 3) Identify strengths and weaknesses in current reliability program.
- 4) Make recommendations on how to improve in each area. Each recommendation shall clearly show a positive cost/benefit trade-off.

## *Value/Benefits to Your Organization*

An objective view of the existing reliability program permits the effective investment in areas of the program that will efficiently improve product reliability. The very rapid ability to focus improvement efforts on the critical few items coupled with a long term view and plan to get there assists an organization to dramatically alter

their reliability program's capability.

## *Deliverables*

A summary report/presentation after each phase outlining initial findings and areas of focus for next phase.

A final report/presentation detailing strengths and weaknesses of current reliability program. Include recommendations on next steps and long term reliability program improvements.

## *Reliability Assessment Activities*

There are 3 distinct phases of an Assessment: An initial or high level view, a detailed assessment, and a gap analysis.

### **Phase 1: Initial Assessment and Definition of Objectives** (where you are - 10,000 ft view)

Duration: 1 week (one day on site plus 1-2 days to write up report and review with team)

Tasks: Review product specifications and requirements. This includes overall division reliability related objectives, specific product objectives and performance.

Conduct interviews/discussions (approximately 1 hour each) with 6-8 key individuals on reliability objectives and management processes. The focus is on reliability related areas of design, procurement and manufacturing of products to meet reliability objectives.

Conduct a cursory review of each area highlighted in the Project Objectives.

*Develop an objective score for each area discussed. The scoring system ranges from 0 (activity not currently performed) to 4 (activity performed effectively). Create a weighted average of the total score in each of the following areas: Overall Program, Management, Design, and Manufacturing.*

Deliverable: Conduct a draft review with participants to verify accuracy of observations. Create a summary report/presentation on initial findings and areas of focus for next phase.

### **Phase 2: Detailed Reliability Practices Assessment** (where you are - Ground-level view)

Duration: 1-2 weeks

Tasks: Based on results of Phase 1 plus guidance from customer, identify 2-3 product reliability focus areas for in-depth assessment.

Conduct a more thorough review of a few key areas highlighted in the Project Objectives. The focus is a detailed assessment of current product reliability practices.

Review detailed field failure information, production yields, test data, and any other form of data available to understand possible holes in processes.

*The intent of this phase is to explore in more depth areas of concern uncovered during the Initial Assessment, or areas of concern of specific interest to the customer. If these are all explored sufficiently during the Initial Assessment, and none warrant a deeper level of exploration, then we shall skip this phase.*

Deliverable: Create a summary report/presentation on assessment results, observations, and results of data analysis.

### **Phase 3: Gap Analysis** (how much improvement is needed)

Duration: 1 week

Tasks: Conduct analysis of information from Phase 1 and 2, compare to other successful reliability programs based on our collective experience on similar programs.

Determine areas of weakness and how much improvement is needed in these areas to achieve reliability based on customer requirements and benchmarking results.

Deliverable: Create a *final* report/presentation detailing strengths and weaknesses of current reliability program. Include recommendations on next steps and long-term reliability program improvements.

In this report, we shall use the weighted average score that we came up with also compare how your company is doing against companies that are "best in class" in the following areas:

- 1) Management Understanding and Attitude
- 2) Reliability status
- 3) Problem handling
- 4) Cost of Reliability as % of net revenue
- 5) Feedback process
- 6) DFR program status
- 7) Summation of reliability posture
- 8) Cost of Reliability as % of net revenue

We shall then plot these scores against our Reliability Maturity Matrix to see how your organization compares against "Best in Class" organizations and show you the gaps you need to fill to get there. *This will be the starting point of developing our reliability program.*

## *Development of Reliability Program and Integration Plan*

Following the assessment, the next logical step is to write a Reliability Program and Integration Plan. With the details of the assessment, the only other piece of information that we need are to set good reliability goals. Then we are ready to write our plan.

### **Phase 4: Reliability Goal Setting**

Duration: 1 week

Tasks: Identify key reliability metrics (e.g. MTBF, DOA rate, Annualized Failure Rate, Warranty Returns).

Hold workshops with key departments to come up with realistic goals for each metric based on current capabilities, customer requirements, and benchmarking results.

Deliverable: Create a summary report/presentation on results of Reliability Goal Setting, identifying several key metrics and associated goals for each.

### **Phase 5: Reliability Program and Integration Plan Development**

Duration: 1-2 weeks

Tasks: Develop a Reliability Program and Integration Plan taking into account goals, gaps, schedules, and resources. The plan shall outline which elements of reliability to include and the expected contribution of each element to the overall reliability and how to integrate each element together for a cohesive reliability program.

Deliverable: Create a Reliability Program and Integration Plan. This Plan shall be used to drive the entire Reliability Program.

## *Reliability Improvement Activities*

Once the Reliability Program and Integration Plan is written, now it is time to execute our Reliability Program. Whatever techniques were called out in our plan are now implemented here. Often times, the best first step is

to educate the team members on how to effectively use each element. This then calls for a good Design for Reliability (DfR) Seminar.

### Phase 6: Seminar on Design for Reliability/Reliability Integration

Duration: 2-3 days

Tasks: Develop and give a 2-3 day tailored seminar on Design for Reliability/Reliability Integration in which we introduce each of the significant reliability design tools such as Predictions, FMEAs, Design of Experiments, Thermal Analysis, Derating Analysis, Software Reliability, and others, and show you how to integrate them together into a cohesive reliability program. We will have examples, case studies, and classroom exercises.

Deliverable: Seminar on Reliability

## Summary

A variety of circumstances require knowledge of the current reliability program and how best to make changes to improve product reliability:

- 1) Increasing field returns or changes in customer expectations
- 2) Management decision to compete on reliability
- 3) Decision to reduce warranty costs

Whatever the reason, a Reliability Assessment is an effective method of obtaining this knowledge so that we can then develop an effective execution strategy.

Ops A La Carte has performed over 100 of these types of assessments in over 20 different industries including Telecom, Computers, Medical, Defense, Aerospace, Oil Exploration, Alternative Energy, and Consumer Electronics. Give us a call and we can talk with you if an assessment is right for your situation. You can also read more about this service on our web site at [Reliability Assessments](#).

## PROBLEM SOLVER

### Problem on Accelerated Life Testing

An accelerated life test is performed on a new electronic device. The accelerated test is conducted at 150°C, with a mean failure time of the devices equaling 100 hours. Given an activation energy of 0.25 eV and an acceleration factor of 2.0, determine the normal operating temperature in °C.

**Free Admission** to the [Accelerated Stress Testing for Reliability \(ASTR\) Workshop](#) to the first individual that emails us the correct solution. You can email us at [problemsolver@opsalacarte.com](mailto:problemsolver@opsalacarte.com). **This is a \$700 value.**

## ADVERTISEMENTS



The GoldSim simulation framework allows one to probabilistically simulate the reliability and performance of complex engineered systems over time. GoldSim provides the ability to model the interdependence of

components through requirements and fault trees, as well as the capability to define multiple independent failure modes for each component. This facilitates both reliability modeling and risk analysis within a variety of industries, including space and defense, manufacturing, mining, telecommunications, electronics and infrastructure. For more information, contact Tim Schmitt at [tschmitt@goldsim.com](mailto:tschmitt@goldsim.com) or go to [www.goldsim.com](http://www.goldsim.com)

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The logo for LinkSV, featuring the text "LinkSV" in a white, bold, sans-serif font with a slight shadow effect, set against a solid olive green rectangular background.

Link Silicon of Valley, LLC (LinkSV) is an online networking resource for researching, identifying and contacting the companies and people within the 6,000 plus active & inactive companies in the greater Bay Area. Our company records identify the senior team, board members, financing, key partners and customers. There are many features which allow you to view the information from different angles and "connect all the dots".

LinkSV helps you tap into previously scarce and extraordinarily hard-to-find information on early stage companies and the key people associated with them. This will improve your effectiveness without the hassle and time of trying to do it all on your own. LinkSV is ideally suited to help you quickly identify and leverage your own connections in career search, in identifying new business opportunities, new investors and Board members.



The Reliability, Maintainability, and Supportability Partnership (RMS/P) organization's goal is to enhance communication, coordination and collaboration between industry and government in a manner that will encourage individuals and organizations to adopt an integrated systems engineering approach, or end-to-end management approach, when addressing RMS issues. The RMS Partnership also encourages individuals, professional societies, and industry associations to develop, use and maintain world-class RMS non-government standards. The RMS Partnership publishes a quarterly newsletter which is freely available on the Web site. Membership in the RMS Partnership is open to individuals and organizations interested in being on the cutting edge of RMS issues and initiatives both nationally and internationally.

*Ops A La Carte's newsletter goes out to over 7000 subscribers. If you would like to advertise in next quarter's "Reliability News", email us at [advertise@opsalacarte.com](mailto:advertise@opsalacarte.com) or call at (408) 472-3889.*

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#### **JOB OPENINGS**



#### **Senior Reliability Consultants Needed !**

Ops A La Carte is looking for Senior Reliability Consultants *around the world* with their own consulting practice to join our team of consultants and work on some of the most exciting and challenging projects in the industry.

## CONSULTANT PROFILE

- *Set your own hours*
- *Control your own future*
- *Work on fascinating projects in new industries*
- *Travel as little/much as you'd like*
- *Be looked upon as an expert*
- *Work with the best consultants in the industry*
- *Run your own business*
- *Eligible for free seminars and symposia*
- *Freedom to work on the projects you want*

If interested, please email [hr@opsalacarte.com](mailto:hr@opsalacarte.com) or call (408) 472-3889.

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