

VDI

Wissensforum

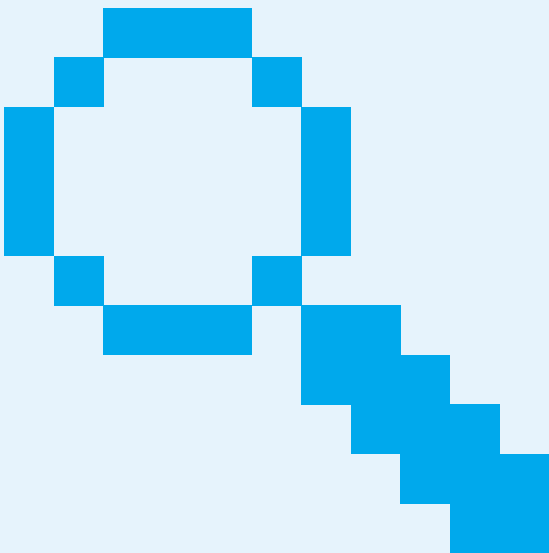
Short Course on

Accelerated and Classical Reliability Methods Integrated

Seminar 305201

November 25 - 26, 2002

Düsseldorf (Germany) / VDI Headquarters



Seminar Description

This seminar combines the latest accelerated reliability development tools and the classical reliability tools into one cohesive group, enhancing the reliability and reducing the cost of the products produced using the methods. Prior to this new seminar, there was no one location to gain all of this knowledge. The instructors are Gregg K. Hobbs, Ph.D., P.E., the inventor of HALT and HASS, and Mike Silverman, B.S., CRE. Both instructors are eminently qualified in their fields and together they bring synergism to the reliability arena. It should be stressed that these new techniques introduced in early 1996 have resulted in at least a ten-fold improvement of the classical methods and another new technique introduced in 1999 further enhanced the processes by another two orders of magnitude. These improvements resulted in the savings of several billions of dollars for the numerous companies, Mr. Hobbs has been working for.

In an effort to develop effective reliability programs with HALT (Highly Accelerated Life Tests) and HASS (Highly Accelerated Stress Screens) as the cornerstone, many engineers are forgetting (or never learned) some of the basic building block analysis and test tools for HALT and HASS. This seminar offers an understanding of several key tools used in conjunction with HALT in addition to a thorough teaching of HALT and HASS. Reliability Predictions and Modeling, Derating Analysis, Failure Modes Effects and Criticality Analysis (FMECA), Failure Reporting Analysis and Corrective Action Systems (FRACAS) and Reliability Demonstration Tests (RDTs). This seminar will demonstrate how each contribute to learning about and improving the reliability of a product and how each can help during the planning process of a HALT and how the HALT results can be used in conjunction with the tools.

Who should attend

This seminar is intended for those who are involved in the design, analysis, test, quality and reliability of electronic, mechanical, electro-mechanical, electro-hydraulic and many other types of equipment. Participants will develop an understanding of various tools used as part of reliability analysis, accelerated reliability testing and product improvements.

The Course contains several case studies, question and answer sessions as well as lots of references.

The course will be held in the English language.

Participants will receive special course notes and Dr. Hobbs' book "Accelerated Reliability Engineering, HALT and HASS".

November 25, 2002

9:30 a.m. to 5:30 p.m.

**Accelerated and Classical Reliability Methods Integrated
Part I: Tools used to help plan a HALT**

- 1. Reliability Modeling and Predictions**
 - How to model a system
 - When to add redundancy
 - How to perform a reliability prediction (Parts count type, Part Stress type)
 - How to use Modeling and Predictions in preparation for a HALT

- 2. Derating Analysis**
 - What derating is
 - How to apply derating principles
 - How to use derating in preparation for a HALT

- 3. Failure Modes, Effects and Criticality Analysis**
 - Objectives of a FMECA
 - Standards available for performing FMECAs
 - Different types of FMECAs
 - How to perform FMECAs
 - How to use a FMECA in preparation for a HALT
 - Special types of FMECAs can help prepare for a HASS

- 4. Accelerated Reliability Development, HALT and HASS**
 - How HALT and HASS work: Time Compression and the Physics of Failure
 - HALT-Finding the weak links in the design and improving them
 - Cost reductions and timesavings possible in HALT

- 5. HASS-Finding the flaws in production and fixing them**
- 6. Safety of Screen (HASS)**
- 7. Optimizing for lowest cost and highest effectiveness**
- 8. Cost reductions possible in HASS**
- 9. Software HALT for improving Coverage and Resolution during testing**
- 10. Equipment Necessary for HALT and HASS**
- 11. Case studies**
- 12. Conclusions and Wrap-up Discussions**

November 26, 2002

9:00 a.m. to 4:00 p.m.

**Accelerated and Classical Reliability Methods Integrated
Part II: Tools used with HALT results**

13. **Failure Reporting and Corrective Action System (FRACAS)**
 - How to set up a FRACAS
 - Root Cause Analysis
 - How to use a FRACAS in conjunction with HALT
14. **Reliability Demonstration Testing (RDT) - RDT defined**
15. **How to use the results of HALT and reliability predictions to perform a successful RDT**
16. **Using all of the Tools Together**
17. **Relationship between the Accelerated Methods and the Classical Methods**
18. **Case studies**
19. **References**
20. **Question and Answer Session**

Instructors

Gregg K. Hobbs, Ph.D., P.E., is the originator of and world leader in the principles of HALT and HASS. He has been a consulting engineer since 1978, specializing in the fields of stress screening, robust and flaw tolerant design, dynamic analysis and testing. Many leading companies in the aerospace, commercial, military and industrial fields have employed him as a consultant. He has taught courses on these subjects in the USA, Canada, Europe, Asia and the Middle East. Dr Hobbs has taught at the universities of California at Los Angeles and Santa Barbara and at the University of Minnesota.

Mike Silverman, C.R.E., Managing Partner of OPS A LA CARTE, is an experienced leader in reliability testing, quality development and compliance testing. He has 16 years of reliability experience, including 8 years of hands-on experience with HALT and HASS for a variety of different industries, including medical, telecom and robotics. Mike also has extensive experience as a consultant to high-tech companies, and has consulted for over 35 companies in the areas of HALT and HASS and general reliability program development.

Information and Registration

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The „VDI-Wissensforum GmbH“ ist the Centre for Advanced Training of the Association of Engineers (VDI)

Registration must be done in writing (per mail, e-mail or fax). Please complete and forward the enclosed registration. In case of more than one registration please make copies of the registration form. The registration will be confirmed by sending the invoice for the registration fee and the participation voucher. Late registrants will get their voucher at the registration desk. Payment should not be made until receipt of the invoice.

Location: The course will be held at the VDI Headquarters
Graf-Recke-Straße 84
D-40239 Düsseldorf (Germany).

Accommodation: Enclosed with the invoice and participation voucher every participant will receive a location map and a list of recommended hotels in the vicinity of the course location, some of them with special rates. We kindly ask you to reserve hotel rooms by yourself mentioning „VDI-course.“ Early reservation of accommodation will be recommended.



Registration Fee

The participation fee is	EUR 720,-
Personal members of the VDI pay (+)	EUR 648,-

* For getting the discount for personal members of the VDI please quote your VDI-Membership-No. on the registration form.

The registration fee includes **Dr. Hobbs`book** „Accelerated Reliability Engineering HALT and HASS“, **special course notes, lunches** and refreshments during the coffee breaks.

Payment should be made on receipt of the invoice by sending a cheque or by bank transfer to:

Deutsche Bank AG, D-40001 Düsseldorf
Bank sort code: 300 700 10
Account holder: VDI-Wissensforum GmbH
Account number: 54 92 210

In either case the bank transfer form or cheque must bear the invoice number, the printed first name and surname of the participant and the course number 305201.

Terms of business: If registration is cancelled in writing until 14 days before the beginning of the course (date of the postmark) the fee will be refunded less EUR 50,- (+16% VAT) administration fee. If participation is cancelled in writing after this deadline we have to charge the full amount of the fee. In this case please send the participation voucher to the VDI-Wissensforum GmbH and we will send you the course notes and the book. It is possible to have someone else attend the course instead of a registered person. This requires prior consultation of the VDI-Wissensforum GmbH. If the course has to be cancelled due to unforeseeable reasons, the participants will be informed immediately. In this case the VDI-Wissens-forum GmbH will refund the participation fee, if it has been paid already. At any rate the liability of the VDI-Wissensforum GmbH is limited to the participation fee.