

Wednesday September 1, 2004

## **NTF Seminar: HALT/HASS & EMC – Equipment Test that Ensure High Quality of Electronic Products!**

**Nordic Test Forum is hosting a Seminar on HALT/HASS Testing and EMC Testing at DELTA Danish Electronics, Lights & Acoustics.**

A prerequisite in modern design and development of electronic equipment is short development time and high quality. Basically these prerequisites may be seen to counteract other, since it typically takes relatively long time to prove quality of products using traditional methods. However, to meet such requirements new and highly efficient methods have emerged in recent years.

About 10 years ago the advent of the EMC Directive resulted in a significant improvement of product quality in terms of electromagnetic interference. However, it is not until recently that new techniques stress testing and stress screening of products have started to be generally accepted in the industry. Some of the more prosperous techniques are HALT testing (Highly Accelerated Life Testing) and HASS testing (Highly Accelerated Stress Screening). HALT, which more properly ought to be referenced as "Highly Accelerated Limit Testing" aims at making the detection of weak spots in new product more efficient in a shorter time. HASS is targeted more towards revealing weak spots that result from the production itself.

HALT and HASS testing are normally based upon extreme stress conditions of electronic equipment including thermal stress, rapid temperature changes, vibration and combinations of these techniques. The stress testing may also include humidity, low temperatures, drop tests, mechanical stress and extreme EMC exposures.

The seminar aims at given an introduction in the techniques of HALT/HASS and EMC as well as giving examples of such tests and their results and sharing experience at large. The seminar will take place at one of the leading centres in Scandinavia for HALT/HASS and EMC testing, where also facilities and experiences rank high internationally. During the event, it will be possible to get access to the modern facilities for HALT/HASS testing, EMC testing and to an advanced failure analysis laboratory.

Join the seminar, listen to the experts, and take an active role in the open dialog concerning the current status of HALT/HASS and EMC. Almost regardless of your background there will be interesting new results to learn.

Do not miss a good opportunity to be updated on the status of some of the most prosperous test techniques associated with the introduction of new electronic products.

Seminar fee:                   600 DKK for NTF members  
                                     800 DKK for non-members

Place:                           Delta , Danish Electronics, Light & Acoustics  
                                     Venlighedsvej 4  
                                     DK-2970 Hoersholm  
                                     Denmark

Local NTF arrangement: microLEX Systems A/S                   (Birger Schneider, Suzanne Holte)  
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Registration:                To microLEX Systems **No Later than Wednesday 25 August, 2004.**

### Program

Time	Duration	Topic	Presenter
09:30	00:30	Registration & Coffee	
10:00	00:15	Welcome & introduction	Knut Båstoløkken, Kitron Birger Schneider, microLEX
10:15	1:00	"HALT/HASS Testing Methods and Case Stories including Status for HALT in Scandinavia"	Susanne Otto, Delta
11:15	00:45	"Rapid Development and Virtual Prototyping in Automotive Applications"	Magnus Törnvall, Kitron Development, Jönköping
12:00	00:45	Lunch	
12:45	00:45	"Simulation and visualization of EMI problems at system and board level"	Ilja Belov, PhD School of Engineering, Jonkoping University
13:30	00:45	"Robust EMC Design and Correct EMC Test"	Per Thåstrup Jensen, Delta
14:15	00:30	"EMI/EMC during the Production Test"	Ulf Nilsson, EMC Services
14:45	00:20	Coffee	
15:05	00:30	"Contact less EMI/EMC Testing at PC Board Level"	Dag Stranneby, professor Örebro University
15:35	16:15	Demonstration of: <ul style="list-style-type: none"> <li>• HALT/HASS test</li> <li>• EMC test</li> <li>• Failure analysis</li> </ul>	Delta personnel
16:15	00:15	"Wrap-up & close of HALT/HASS & EMC Seminar"	NTF Chair: Knut Båstoløkken, Kitron Arendal