MOORE INDUSTRIES WORLDWIDE *The Interface Solution Experts*

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FOR IMMEDIATE RELEASE

Moore Industries Bakes NCS Data Acquisition System for Two Years During Long-Life Endurance Test

The NCS has been running since February 2005 in an environmental chamber at temperatures up to 221°F to prove it will work in Middle Eastern applications

NORTH HILLS, CA—Moore Industries has been continuously running its NET Concentrator System® (NCS) data acquisition system at temperatures hovering around the boiling point of water for more than two years in an environmental chamber, just to prove a point.

Fred Adt, director of quality assurance at Moore Industries, explains that conventional testing and life-test procedures are not enough when products are intended for use in severe operating conditions, such as in the Middle East. The NCS is intended for use as a remote control and data acquisition system in unheated and un-air conditioned enclosures, so it has to endure wide temperature extremes**.**

"The MTBF (Mean Time Between Failures) for the NCS, determined in accordance to the Bell Core reliability model, exceeds 300,000 hr@25°C," explains Adt. But this model isn't good enough for Moore Industries**.** Adt wants to find out how long the NCS will really last.

So Adt is using the Highly Accelerated Life Test (HALT) concept, which calculates equipment life based on increased environmental stress at higher temperatures.

Running at 90°C provides a factor of 6.5; that is, every hour running at 194°F (90°C) is equal to running 6.5 hours at normal ambient temperatures. Fortunately, meeting the test specs was not difficult. Moore Industries' products are designed for operation at ambient temperatures of -40°C to +85°C, so the test is just barely above its maximum design temperature.

"HALT lets us demonstrate performance of the NCS outside its specified environmental operational envelope," explains Adt. "The idea is that any failures induced that way might be consequently eliminated by design, thus creating a product with more margin to failure.

Therefore, we have been running a continuous HALT on the NCS since February 2005, at temperatures from 90 to 105°C (194 to 221°F), with open air applications in the Middle East in mind." So far, it hasn't failed.

The NCS reached a HALT-calculated MTBF of 123,240 hr in April 2007, and remains in continuous test. The HALT accumulates about 50,000 hours per year, so the full test has less than four years to go before reaching 300,000 hr. "We intend to reach 300,000 hours, and maybe beyond," notes Adt.

"Having actually operated our product at these high temperatures should give our customers more confidence," Adt notes. "HALT demonstrates that our MTBF calculations and design verifications are valid so far."

The specs for the NCS HALT are:

Ambient Temperature:	90°C (194°F)
Test Commenced:	February 8, 2005
Models Installed:	EIM, CPM, AIM, TIM, DIM, ROM
Operation Mode:	Temperature inputs are monitored via EIM on-line and data is logged on a daily basis.
MTBF status:	790 days times 24 hr = 18,960 hr. According to the Arrhenius equation, the acceleration factor for 90°C is 6.5. This means a demonstrated MTBF of 123,240 hr has accumulated as of April 8.

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