SEMI-THERM 36

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How-To Presentation

Tuesday, March 17 5:00 p.m. - 6:00p.m.

A Tile: A Look at Acoustic Fundamentals and Designs as Applied to Air-Cooled Electronics

Presenter: Herman Chu

As air-cooling design continues to increase in airflow requirement without much relieve in the overall equipment form factor, acoustic design considerations need to be actively engaged at the start of the product development cycle in order to clearly define expectations and deliver the best achievable sound quality.
In this how-to session, the speaker will present acoustic design fundamentals, review logarithmic arithmetic used in calculating sound levels, and review pertinent industry standards in performing acoustic testing for product evaluation.

Herman Chu is classically trained in thermal fluid systems and has over 30 years of industry experience spanning from military aerospace applications to electronic cooling of consumer products, computers and computer servers, mainframes and NEBS compliant networking equipment. His career has taken him to deploy all different kinds of cooling technologies from air cooling to various forms of liquid cooling.

Basic Pumped Refrigerant Cycle Calculations for Cooling IT Loads

Presenter: Joe Marsala
Durbin Group LLC

There is a growing interest in using pumped refrigerant to cool IT loads across various hardware platforms. This how-to session will examine some of the basic first order engineering considerations necessary when evaluating pumped refrigerant as an option. The speaker will present how pumped refrigerant thermodynamic cycles are represented on pressure-enthalpy diagrams, how to calculate refrigerant circulation rates and discuss choice of refrigerant. The four basic components of a pumped refrigerant cycle: refrigerant pump, cold plate, condenser and reservoir will be presented.

Joe Marsala is the CTO of Durbin Group LLC. He has over 30 years of experience in thermal research, engineering, and business and product management with large and small firms including Rockwell Allen-Bradley, Thermo Electron, Wakefield Engineering and the Gas Research Institute. He is the holder of over 25 issued and pending US and foreign patents and has numerous technical publications. His foundational patents in two phase cooling have been cited in more than 200 subsequent patents. Joe earned his B.S.E. degree in Chemical Engineering from the University of Michigan. He is a licensed Professional Engineer.