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# THERMAL TEST VEHICLE FOR ELECTRONICS COOLING SOLUTIONS

Tech ID: 33617 / UC Case 2024-156-0

## PATENT STATUS

Patent Pending

## BRIEF DESCRIPTION

As the density and performance of electronics continues to increase, thermal challenges have become a primary concern. Removing heat from electronic components can be extremely challenging, given their small size, electrical activity, and mechanical constraints. This necessitates the design of cooling solutions for a wide variety of electronic designs in applications such as datacenters, renewables, aircraft, etc.

To address this problem, researchers at UC Berkeley have developed a thermal test vehicle (TTV) for characterizing the performance of electronics cooling solutions under a wide variety of operating conditions. All of the TTV circuitry required to perform measurements and temperature estimations can be included on one printed circuit board (PCB). This represents a simple, highly flexible approach for thermal test vehicle design. The overall size of the array can be scaled to any desired amount.

This novel TTV represents a simple, highly flexible approach for thermal test vehicle design. Furthermore, its use of standard commercial electronic components allows for a vast reduction in cost compared to existing commercial solutions.

## SUGGESTED USES

- » Thermal test vehicle for electronics cooling solutions
- » High-performance controllable heater
- » Testing equipment for data center commissioning

## ADVANTAGES

- » simple and highly flexible approach
- » uses standardized commercial components
- » reduces costs compared to existing commercial options

## RELATED MATERIALS

### ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ Current-Programmed Modulation of Flying Capacitor Multilevel Converters
- ▶ Multi-Phase Hybrid Power Converter Architecture With Large Conversion Ratios
- ▶ Enabling Partial Soft-Switching Within Regulating Switched Capacitor Converter

## CONTACT

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## INVENTORS

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## OTHER INFORMATION

### KEYWORDS

data center, thermal testing, test equipment

### CATEGORIZED AS

- » Computer
- » Hardware
- » Research Tools
- » Other
- » Sensors & Instrumentation
- » Physical Measurement
- » Scientific/Research

### RELATED CASES

2024-156-0

