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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 comissioning

## **ADVANTAGES**

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

## **RELATED MATERIALS**

## ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Novel Modulation Technique for Flying Capacitor Multilevel Converters
- ▶ Multi-Phase Hybrid Power Converter Architecture With Large Conversion Ratios

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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



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