

# THERMAL TEST VEHICLE FOR ELECTRONICS COOLING SOLUTIONS

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

## 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

- ▶ [Multi-Phase Hybrid Power Converter Architecture With Large Conversion Ratios](#)

## CONTACT

Michael Cohen  
mcohen@berkeley.edu  
tel: 510-643-4218.



## INVENTORS

- » Pilawa-Podgurski, Robert C.N.

## 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

