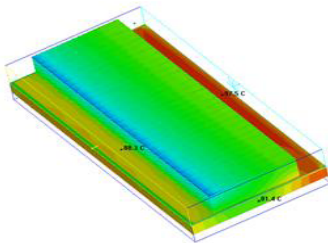
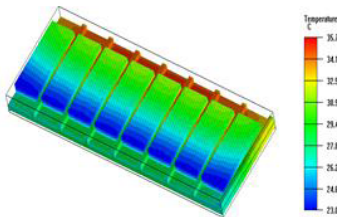
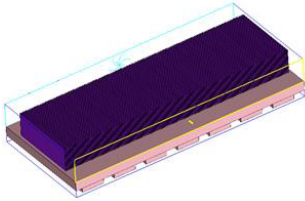


# Design Case Study

**Industry:**  
**Transportation**  
**Application:**  
**Automotive Radiator**



## Introduction

- A manufacturer of electric vehicles sought Aavid, Thermal division of Boyd Corporation, in a thermal design challenge with cooling their radiator. Aavid was tasked to develop a practical solution while meeting a strict cost per unit in production.

## The Challenge

- The manufacturer of the Electric Vehicle needed thermal expert analysis to make a reliable product in a new overall product design feature. Focusing on the unit's radiator and existing Folded Fin structure Aavid was tasked to simulate a baseline design and optimize fin spacing and thickness to meet the requirements of the customer. This included:
  - Fin louver structure study.
  - Fin spacing and thickness optimization.
  - 5 mm taller fin optimization.
  - Base plate thickness study.
  - Aluminum vs. Copper fin and baseplate investigations.

## The Solution

- Aavid's lab tested the louver structures to examine the impeding airflow and increase the pressure drop across the heat sink and their thermal performance.
- Aavid took these finding and created a fin optimization summary. For the Aluminum and Cooper bases, testing showed by using cooper performance increased by 5C.
- It was discovered that the overall airflow management system needed to be optimized in a way of minimizing flow turns and flow direction changes as well as flow sudden expansion and contraction.

## The Deliverables/Results

- Aavid presented the customer with a full presentation report which included: descriptions of the unit and components modeled, color temperature contour and flow field vector plots, key results, conclusions, and recommendations for improvements.
- The manufacture took this report and selected the proper thermal solution vs. cost. Today Aavid Corporation provides its production needs globally.