

ABSTRACT

Cooling system is important part in many electronics devices to avoid overheating. Cooling itself is related to thermal resistance in heat distribution. The purposes of this research are for analyzing heat dissipation rate affection to thermal resistance in cooling system, and for studying relationship between heat rate and thermal resistance with releasing heat from system to environment. Water fluid is flowing through waterblock to heat exchanger as medium to absorb heat. The system is examined by varying heat load from thermoelectric cooler (TEC 12706) with adjusting DC voltage input. Inlet and outlet temperature in heat exchanger, hot side temperature of TEC, environment temperature, and waterflow are measured and studied. It results that the minimum thermal resistance is 0,3°C/W in cooling system with heat dissipation rate 52,8W. Higher waterflow make faster heat-flow and higher heat dissipation rate, hence lower resistance thermal.

Keywords: *thermal resistance, heat dissipation rate, heat exchanger, thermoelectric.*