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### Experimental study on thermal performance of MWCNT nanocoolant in *Perodua Kelisa* 1000cc radiator system<sup>☆</sup>

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#### ABSTRACT

Latest advances in nanotechnology have allowed development of new applications of nanofluids in vehicle engine cooling. In this study, the heat transfer enhancement of vehicle radiator by using water/ethylene glycol based multi-walled carbon nanotube (MWCNT) nanocoolant was studied experimentally. A car engine system (*Proton Kelisa* 1000cc) was utilized to test the heat transfer performance using this nanocoolant as a substitute to the conventional coolant. Different nanoparticle volume concentrations (0.1%, 0.25%, 0.50%) in 50:50 water/ethylene glycol have been prepared and tested. Liquid flow rate has been regulated in the range of 2, 4 and 6 l/min and the experimental analysis was carried out in laminar flow region. Our experimental results revealed that the average heat transfer coefficient is directly proportional to the volume concentration of nanofluids and Reynolds number. In addition, the maximum average heat transfer coefficient enhancement was found to be 196.3% for 0.5% nanoparticle volume concentration compared with base fluid.