

DESIGN AND PERFORMANCE EVALUATION OF CEILING FAN, MOTOR USING MATLAB

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ABSTRACT

Induction motors find applications in a wide range of application the overall performance of induction motors depends heavily on the quality of supply voltage and frequency fluctuations. The aim of this work is analyzing the effect of voltage variation under no load conditions as well as loaded conditions on the performance characteristics of the ceiling fan. The method adopted for this work involves a successive variation of voltages from 180V to 220V under the stated conditions above. A mathematical model of the capacitor starts, capacitor run is carried out using MATLAB SIMULINK. The process is set up and the Simulink carried out to illustrate the variation in voltage and the consequent effect on efficiency and speed respectively under the condition stated above. The results obtained show a clear increase in efficiency with increasing voltage under the no-load condition, which negates the standard operating principles of a ceiling fan motor (single phase motor). Under loaded condition however, therefore, was a reduction in efficiency which is in tandem with standard operating principles. The result is tabulated in the table shown for easy perusal and referencing and recommendation on improvement is cited in the later part of the work.

KEYWORDS: *Ceiling Fan, Induction Motor, Capacitor Start Motor, Motor Performance*

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