Evolutionary Computing Based Area Integration PWM Technique for Multilevel Inverters

The existing multilevel carrier-based pulse width modulation (PWM) strategies have no special provisions to offer quality output, besides lower order harmonics are introduced in the spectrum, especially at low switching frequencies. This paper proposes a novel multilevel PWM strategy to corner the advantages of low frequency switching and reduced total harmonic distortion (THD).The basic idea of the proposed area integration PWM (AIPWM) method is that the area of the required sinusoidal (fundamental) output and the total area of the output pulses are made equal.An attempt is made to incorporate two soft computing techniques namely evolutionary programming (EP) and genetic algorithm (GA) in the generation and placement of switching pulses. The results of a prototype seven-level cascaded inverter experimented with the novel PWM strategies are presented.

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