Abstract

This paper presents new hybrid modulation strategies for the chosen three phase seven level Asymmetrical Multi Level Inverter (AMLI) with Stepped reference. Performance indices used are Total Harmonic Distortion (THD), Form Factor (FF), Crest Factor (CF), Root Mean Square (RMS) value of output voltage and DC bus utilization. The combination of inverted sine carrier and triangular carrier is used as hybrid carrier to produce triggering pulses for the power switches used in the proposed three phase seven level AMLI. This paper also investigates the potential of using hybrid carrier with the existing strategies such as Phase Disposition Pulse Width Modulation (PDPWM), Phase Opposition Disposition PWM (PODPWM), Alternate Phase Opposition Disposition PWM (APODPWM) and Variable Frequency PWM (VFPWM) techniques for carrier. The simulation is done in MATLAB/SIMULINK and the results are presented for all modulation strategies. It is observed that hybrid PDPWM provides relatively better DC bus utilization and creates relatively less distortion for ma=0.7-1.
A New Three Phase Seven Level Asymmetrical Inverter with Hybrid Carrier and Stepped Reference

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A New Three Phase Seven Level Asymmetrical Inverter with Hybrid Carrier and Stepped Reference Modulation Scheme for Three-Phase Parallel Multilevel Inverters, "IEEE Trans. on Industrial Electronics, (Feb 2012.) vol. 59, no. 2, pp. 690-700

Index Terms

Computer Science

Power Systems

Keywords

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