

Minimization of Switching Losses in Cascaded Multilevel Inverters Using Efficient Sequential Switching Hybrid-Modulation Techniques

Authors : P. Satish Kumar, K. Ramakrishna, Ch. Lokeshwar Reddy, G. Sridhar

Abstract : This paper presents two different sequential switching hybrid-modulation strategies and implemented for cascaded multilevel inverters. Hybrid modulation strategies represent the combinations of Fundamental-Frequency Pulse Width Modulation (FFPWM) and Multilevel Sinusoidal-Modulation (MSPWM) strategies, and are designed for performance of the well-known Alternative Phase Opposition Disposition (APOD), Phase Shifted Carrier (PSC). The main characteristics of these modulations are the reduction of switching losses with good harmonic performance, balanced power loss dissipation among the devices with in a cell, and among the series-connected cells. The feasibility of these modulations is verified through spectral analysis, power loss analysis and simulation.

Keywords : cascaded multilevel inverters, hybrid modulation, power loss analysis, pulse width modulation

Conference Title : ICEETA 2014 : International Conference on Electrical Engineering: Theory and Application

Conference Location : Singapore, Singapore

Conference Dates : March 30-31, 2014