Harmonic Elimination for Active front-end Converters with Low Carrier Ratio

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Abstract

This study proposes harmonic elimination for active front-end converters with low carrier ratio. The low carrier ratio is utilized to reduce the switching loss of active front-end converters. The ninth frequency modulation ratio is utilized for low amplitude modulation ratio region. The modified eleventh frequency modulation ratio is utilized for high amplitude modulation ratio region. Furthermore, the high order harmonics are decreased by low pass filter. The harmonics are suppressed by the proposed low carrier ratio scheme. The performances of the active front-end converters with low carrier ratio are validated by simulation results.

Keyword：Harmonic elimination; active front-end converter; low carrier ratio