Analytical Investigation of Modeling and Simulation of Different Combinations of Sinusoidal Supplied Autotransformer under Linear Loading Conditions

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Abstract : This paper investigates the operation of a sinusoidal supplied autotransformer on the different states of magnetic polarity of primary and secondary terminals for four different step-up and step-down analytical conditions. In this paper, a new analytical modeling and equations for dot-marked and polarity-based step-up and step-down autotransformer are presented. These models are validated by the simulation of current and voltage waveforms for each state. PSpice environment was used for simulation.