

Exciting Voltage Control for Efficiency Maximization for 2-D Omni-Directional Wireless Power Transfer Systems

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Abstract : The majority of wireless power transfer (WPT) systems transfer power in a directional manner. This paper describes a discrete exciting voltage control technique for WPT via magnetic resonant coupling with two orthogonal transmitter coils (2D omni-directional WPT system) which can maximize the power transfer efficiency in response to the change of coupling status. The theory allows the equations of the efficiency of the system to be determined at all the rate of the mutual inductance. The calculated results are included to confirm the advantage to one directional WPT system and the validity of the theory and the equations.

Keywords : wireless power transfer, omni-directional, orthogonal, efficiency

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