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The load reliant power transfer of the series-to-series inductive resonant wireless power transfer (Article)

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Abstract

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In this paper, the effect of the output impedance to the power transfer efficiency of the series-to-series inductive resonant wireless power transfer at the resonance frequency is reviewed in details. The analysis is carried out by utilizing the theoretical inductive resonance wireless power transfer model using the MATLAB® package. In this paper, the experiment is designed to confirm the highest power transfer efficiency is obtained at the resonance frequency for the given value of the coupling coefficient. Besides that, the experiment is also conducted to find the optimum load impedance for all given value of coupling coefficient. The analysis shows that the maximum wireless power transfer efficiency for series-to-series inductive resonant wireless power transfer is at the maximum peak when operational at the resonance frequency. In addition, the power transfer efficiency is improved by working at the optimum load impedance. The experimental set up is presented and the analytical results are reported. © 2019 Mattingley Publishing. All rights reserved.

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