A Dynamic Model for Contactless Energy Transfer Systems

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Abstract	Inductive contactless energy transfer (CET) systems show a certain oscillating transient behavior of inrush currents on both system sides. This causes current overshoots in the electrical components and has to be considered for the system dimensioning. This paper presents a simple and yet very accurate model, which describes the dynamic behavior of series-series compensated inductive CET systems. This model precisely qualifies the systems current courses for both sides in time domain. Additionally, an analysis in frequency domain allows further knowledge for parameter estimation. Since this model is applicable for purely resistive loads and constant voltage loads with bridge rectifiers, it is very practicable and can be useful for control techniques and narameter estimation.
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