

In this paper, a network approach for the analysis of a wireless resonant energy link consisting of N inductively coupled LC resonators is proposed. By using an artificial transmission line approach, the wireless link is modeled as a transmission line described by effective parameters. It is shown that the analyzed system exhibits a passband filter behavior. More specifically, the reported results demonstrate that in the wireless link passband the effective parameters assume negative values resulting in a negative phase delay. Useful design formulas are derived and validated by comparisons with the experimental data.