عنوان مقاله:

Maximum efficiency conditions of wireless power transfer between two helical wire antennas

محل انتشار:

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خلاصه مقاله:

The aim of the study is to codify a computational procedure for the study and analysis of the wireless power transfer between two helical wire antennas. Using this method, we can study the effective factors such as distance, loading, non-coaxiality and antennas' sizes on wireless power transfer and delineate the conditions which maximize the efficiency of the wireless power transfer. In the suggested method, using the applied method of moment (MOM) in FEKO software, current distribution and scattering parameters of a two-port wireless power transfer system for different distances are determined. Subsequently, using circuit analysis, we appoint the efficiency of wireless power transfer for different amounts of load resistance and different amounts of transfer distances and the angles between the axle of two helixes and then we compare them with each other. Using repeater helical wire which has the similar structure of the previous helix structures, we can improve the efficiency of wireless power transfer in 3meter distance to 35 percent.

کلمات کلیدی:

wireless power transfer; helical antenna; inductive coupling; resonant coupling

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