

Design and Analysis of Compact Dual Band WPT System Using Interdigital Capacitor

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Abstract

In this paper, a noteworthy compact dual band wireless power transfer (DB-WPT) system is presented and studied. This system is proposed using interdigital capacitor which reduced the size of the whole system and accomplished high efficiencies. An interdigital capacitor is printed in the ground plane of the design and loaded with a chip capacitor to produce dual bands. The operation of the system is verified by fabricating the proposed DB-WPT system, which shows measured coupling efficiencies of 96 % and 98.8 % at 0.53 and 1.1 GHz, respectively at a transfer space of 12 mm. The fabricated structure has dimensions of 13.5 mm × 20 mm. The results show good agreement between the circuit model and the measurements. The idea of this design makes it applicable for compact near field WPT applications.

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