**ABSTRACT**

It is a key issue for improvement of inductively coupled power transfer system that the output power is regulated with high efficiency especially over a wide load range. In this project, a novel harmonic based phase-shifted control method is proposed. With this method, the harmonic component other than the fundamental component of the resonant inverter output voltage is employed to regulate the transferred power.

The output power is controlled by changing the phase-shifted angle of the inverter. Different from the conventional approaches, the switching frequency in this method is much lower than the resonant frequency, meaning much reduced switching losses. The operation principle, switching strategy, and dead-time effect have all been presented. Experimental results demonstrate that the proposed power control method can achieve significant performance improvement at the light-load condition.