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IMPACT OF MAGNETIC MATERIALS SHIELDING ON COILS USED IN WIRELESS POWER TRANSFER

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Wireless Power Transfer (WPT) becomes more and more common as a charging method for electric vehicles and communication devices. The key to highly efficient power transfer is preparation of excellent magnetic resonant coupling between transmitter and receiver coils. In this paper we focus on influence of coils' geometry and different magnetic materials used to magnetic shielding influencing on WPT. Fig. 1. shows self-inductance of transmitter coil being dependent on its diameter and different magnetic materials as magnetic shield.

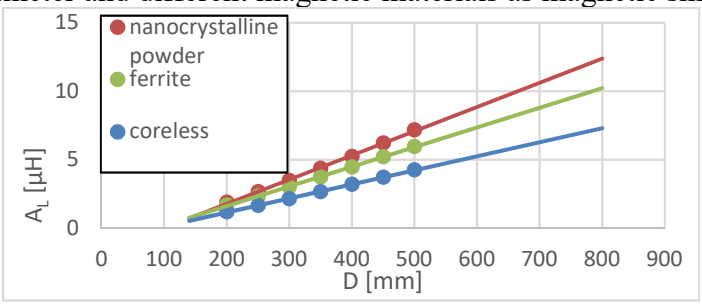

Fig. 1. Two turn planar coil self-inductance related to coil diameter and different shielding materials at frequency of 180 kHz

From Fig. 1. can be seen the need of magnetic composite shielding for planar coils used in WPT application. Coil with magnetic shield made of nanocrystalline powder composite has higher self-inductance than magnetic shield from ferrite polymer composite.

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