

**Design Study Aiming at Increasing Transfer Power per Unit Area of the Coil for the Wireless Power Transfer  
System of Railway Vehicles**

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We had been developing a wireless power transfer (WPT) system for railway vehicles, which is composed of power transmission coils in the track and onboard power receiving coils. To reduce the installation space of the onboard coils, in this paper, we have studied the design of the WPT coils the transfer power per unit area of which is increased by using FEM simulation, and we have organized the design principle.