

**Study on Locating Internal Defect of Ground Coil  
by Detecting Electromagnetic Waves**

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Because a huge number of ground coils are used outdoors for an extended period of time in the Maglev system, a reduction in ground coil cost while keeping high reliability is required. The propulsion coil especially needs the high insulation stability as high-voltage equipment. Because the ground coil, which is made with the resin-molded winding, does not have a core in the structure, the ground coil must be exposed to the electromagnetic force directly. Therefore, there is a possibility that minute defects in the molded resin of the ground coil may develop. In this paper, we studied the insulation diagnosis to assess the existence/nonexistence of the inside defect of the ground coil and locate the defect by detecting the electromagnetic waves that are emitted from a partial discharge at the defect point.