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Thu-Mo-Po4.03-06 [17]: Design and optimization of the PCB search coils for the accelerator magnet measurements

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Accurate and reliable magnetic field measurement is of great significance at various stages in the lifetime of accelerator magnets. The method of search coils is the most widely used on the magnetic measurements. Traditional search coils are machined and/or hand-wound, which have the poor repetition and weakness in the precision of the coil geometry and position. To overcome these issues, the printed-circuit-board (PCB) method is recently applied to the manufacture of search coils. This paper presents the design method and optimization procedure of the PCB search coils, comparing the electrical parameters between theoretical calculations, simulation and test results.

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