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Magnetic measurement of the magnets with trim coils in the HEPS storage ring

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The High Energy Photon Source (HEPS) is a 34-pm, 1360-m storage ring light source being built in the suburb of Beijing, China. In the HEPS storage ring, a proportion of quadrupoles and sextupoles are equipped with trim coils for horizontal and vertical orbit correction. For these magnets, the main field and corrector fields may have non-ignorable impact on each other. We have carried out detailed measurements and subsequent data analysis of these magnets. It is observed that changing the corrector currents in the presence of constant main current, can lead to a relative deviation of the main field of 0.1 percent level. In this paper, we will report the measurement procedure and main results.

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