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Design and Simulation of a 150 kVA Single-Phase HTS Transformer with 1G/2G Hybrid HTS Tapes

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The composite method is an effective way to obtain superconductors with better performance. Through the combination of the first and second generation high temperature superconductors, the stability of superconductors can be improved, the engineering current density can be increased, and the AC loss of superconductors can be reduced. In this paper, a HTS transformer with first and second generation HTS tapes is designed. The distributions of magnetic field and current, AC loss are simulated. The results show that the application of hybrid superconductors can increase the critical current, reduce the AC loss, and get a better cost performance of HTS transformers.

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