DESIGN AND CONSTRUCTION OF SMALL EPSTEIN APPARATUS FOR ELECTRICAL ENGINEERING LABORATORY

by

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ABSTRACT

This thesis deals with the magnetic materials for the general properties, characteristics, the iron loss, the design and construction of the apparatus, rules of testing, and the experiments. Each experiment includes the purpose, procedure, details, circuit diagrams, typical data and the calculations.

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from Japan and the others two are locally made, one of which varnish coated and the other is tin coated. This apparatus can be used in testing the magnetic materials, and performing the experiments on the iron loss which are very important for Electrical Engineer.

INTRODUCTION

All of the engineers have been working against the economic for a long time. They tried their best to create the new inventions in the minimum investment of best efficiency or minimum losses and low maintenance. For electrical designation that used the magnetic core, the losses in the core is the most important thing. The Epstein apparatus is the apparatus uaed in measuring the losses. In Electrical machine laboratory of Chulalongkorn University, there are unsufficient of apparatus for undergraduate students to study the losses of magnetic core. The author's intention is to prepare the Epstein Apparatus for that purpose which this idea has been approved by graduate supervisor and the staff. This apparatus is constructed as a present to Electrical laboratory in order to help the undergraduate students in detemining the iron loss at various flux densities and frequencies. For this purpose this Thesis has been successfully done and aimed only to contruct the Epstein apparatus with basic principle.

In fact, the experiments on iron loss are already performed insseveral universities in Europe and America. The test specimens composed of 4 per cent silicon steel

CONTENTS