



“Gheorghe Asachi” Technical University of Iasi, Romania



STUDIES OF INDUCTANCE VARIATION FOR SQUARE SPIRAL INDUCTORS USING *CIBSOC* SOFTWARE

Claudia Pacurar*, Vasile Topa, Calin Munteanu, Adina Racasan, Claudia Hebedean

Technical University of Cluj-Napoca, Department of Electrotechnics, 26-28 G. Baritiu Street, 400027 Cluj-Napoca, Romania

Abstract

This paper presents the most recent developments regarding the square spiral inductors inductance evaluation. The study was performed in order to develop, implement and validate powerful software, CIBSOC able to determine the inductances of spiral inductors and also to optimize the spiral inductors layouts.

We have studied the inductance variation of square spiral inductors. The four modules of the CIBSOC software were described, applied for the computation of inductance and the optimization of spiral inductors layout. Also, we have analyzed an extensive range of square spiral inductors using CIBSOC and compared the results of our analyses with the simulations performed using a commercial solver in order to validate our program. Our data demonstrated that the analyses carried out with CIBSOC have a high accuracy, so that the program is very useful for the spiral inductors design. Also the analyses are solved in short running times and using low computational resources. It is also useful for the spiral inductors optimization, because it affords optimal solutions for spiral inductor layouts in terms of the technological limits and/or of the users' needs. The program has a friendly interface, being easy to use its computation and optimization modules and the running times and computational resources are smaller when compared with analogous tools.

Key words: analysis, computation, inductance, spiral inductors, variation

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* Author to whom all correspondence should be addressed: E-mail: Claudia.Pacurar@et.utcluj.ro