

A WEB Application for Electromagnetic Structures

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Several structures in electromagnetic applications were studied along the last decades and the results have been published in reports, papers and magazines. With the success of Internet applications, it's important to think how we could use it to permit users to resolve some simple problems using a browser to inform some characteristics of a structure and receive the result of his research. Structure like transmission lines, antennas, planar circuits are, sometimes, analyzed using approximate equations that are enough to some applications. So, we can use them to construct a WEB interface to receive the data and to show the results.

In this paper, a WEB interface is constructed to solve problems of transmission line, antennas and planar circuits and used as a tool to analysis and synthesis of such structures. The objective is use, initially, closed equations to characterize some transmission lines presenting results for characteristic impedance, resistance, inductance, capacitance, loss conductor, loss in dielectric and attenuation.

In the analysis of antennas, some types are considered, like monopole, dipole, helicoidal, yagi, microstrip and others. The variables to be analyzed are resonant frequency, gain, radiation pattern and quality factor. It is important in a WEB application, the graphical behavior of some electrical parameters, like frequency versus length or height.

Other application of special importance for designers is the synthesis of transmission lines, antennas and circuits. The WEB interface allows the filling in some fields with the desired electric parameters and the output presents the physical characteristics of such structure.

This kind of WEB applications is been projected to be also used as a didactic tools for teaching electromagnetic concepts to the CEFETRN's students in analysis of electromagnetic concepts and some projects. The final objective is to obtain a portal that grows with the addition of new devices. This growth can be done by any person involved in the project in any place of the world using the WEB management tool.