An Equation-Based Method for Calculating Electromagnetic Interference on Printed Circuit Board

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ABSTRACT

A simplified closed-form equation for microstrip lines radiation is applied for calculating electromagnetic interference(EMI) problems on printed circuit board (PCB). Conventionally, radiation problems have to resort to full wave simulators. However, those methods always cause insufficient memory for calculating complicated structure. Even if one have enough memory, it is always time-consuming for calculating a simple structure, not to mention a whole complicated real case containing hundreds of microstrip lines and vias. This equation can be combined with two dimensional finite difference time domain methods and transmission line equation to calculate EMI of microstrip lines and vias including the effect of power ground bounce, and power ground plane resonance.

Keywords: electromagnetic intereference (EMI), printed circuit board (PCB), two dimensional finite diff...

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