Abstracts

A study of uncertainties in modeling antenna performance and power absorption in the head of a cellular phone user

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A set of finite-difference time-domain (FDTD) numerical experiments modeling canonical representations of the human head/cellular phone interaction has been performed in order to investigate the effect of specific simulation details (e.g., antenna numerical representation and absorbing boundary conditions) on computed results. Furthermore, hybrid techniques based on the dyadic Green's function and the method of auxiliary sources, and on a hybrid method-of-moments-FDTD technique have been used to compute parameters of interest for comparison with the FDTD evaluated parameters. It was found that small, but potentially significant, differences in computed results could occur, even between groups that were nominally using a very similar method. However, these differences could be made to become very small when precise details of the simulation were harmonized, particularly in the regions close to the source point.

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