Abstracts

Hybrid FGCPW/CPS scheme in the building block design of low-cost uniplanar and multilayer circuit and antenna

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A hybrid design scheme of finite-ground coplanar waveguide (FGCPW) and coplanar stripline (CPS) is studied for low-cost and miniaturized uniplanar and multilayer circuits and antennas. Two types of uniplanar FGCPW/CPS transition are characterized through a "short-open calibration" (SOC) technique self-contained in our full-wave method of moments (MOM). Extracting numerical error terms along the FGCPW and CPS feed lines with the FGCPW/CPS short and open standards, the electrical properties of these structures can be effectively calibrated (deembedded) in terms of a general-purpose circuit model. Back-to-back FGCPW-to-CPS transitions are analyzed from extracted circuit models and the predicted characteristics are confirmed by our measurements. Further, a uniplanar FGCPW/CPS fed dipole antenna is realized and measured to showcase the proposed hybrid building block scheme.

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