Abstracts

Calibration of External Electro-Optic Sampling Using Field Simulation and System Transfer Function Analysis

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A field based calibration technique for external electro-optic (E-O) sampling has been proposed using the system transfer function approach and verified by simulation. The optical simulation incorporated with the Finite-Difference Time-Domain (FD-TD) full wave field analysis is used to predict the optical output in external E-O sampling and to evaluate the system transfer function. This calibration technique will enable us to de-embed the distortion in E-O sampling and to move E-O sampling further towards quantitative measurements. It is found that distortions can be introduced by probes due to their intrinsic frequency response determined by probe dimensions and materials. Generally, it is confirmed that thin probes exhibit less distortion in picosecond or subpicosecond measurements.

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