

THERMAL VALIDATION OF THE FDTD METHOD IN A MULTIMODE CAVITY

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An FDTD model validation method of a multi-mode microwave cavity for thermal processing has been developed. The goal of this development was to verify that power dissipation computed by the FDTD method, when coupled with a thermal model, predicts the correct thermal response. Temperatures were measured using both thermally sensitive paper at low temperatures and non-metallic thermal sensors. The validation was done by comparing the measured thermal response to the transient thermal model results. In our studies we found that the presence of large volumes of low loss insulating materials can significantly change the amount of predicted power dissipated within the part being processed.