Journal of the European Microwave Association

Volume 4 – Issue 1 – 2008

"Evaluation of reconstruction error in microwave holographic imaging with reduced data sets"

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Abstract – The need for rapid and efficient imaging systems for detection of defects in known structures or buried objects requires the development of fast inversion techniques. Microwave and millimeter wave holography have proven to be very effective in performing this task. However, the main issue associated with these techniques is the large amount of required measured data for performing a meaningful inversion. In this paper, several approaches for the synthesis of the needed data from a limited set of measurements of the reflection coefficient are considered. Comparison of the results of these different approaches are provided and discussed.