Abstracts

Computation of Near-Field Microwave Radiometric Signals: Definition and Experimental Verification

A. Mamouni, Y. Leroy, B. Bocquet, J.C. van de Velde and P. Gelin. "Computation of Near-Field Microwave Radiometric Signals: Definition and Experimental Verification." 1991 Transactions on Microwave Theory and Techniques 39.1 (Jan. 1991 [T-MTT]): 124-132.

Applications of microwave radiometry for thermometry of bulk materials require the development of methods of computation of the radiometric signals. Owing to the reciprocity theorem, the radiometric signals can be deduced from a knowledge of the near field radiated in the assumed lossy material by the antenna which is being used as a probe in the radiometric operation. In this paper, we propose a modal method for computing the field. This method has first been tested in an active process by measurements of the radiated field. It also gives excellent agreement with experimental data obtained in the bands around 1.5 and 3 GHz over a lossy material (water) in both total power and correlation radiometry.

❑ Return to main document.