Abstracts

Two-dimensional computer analysis of a microwave flat antenna array for breast cancer tomography

A.E. Souvorov, A.E. Bulyshev, S.Y. Semenov, R.H. Svenson and G.P. Tatsis. "Two-dimensional computer analysis of a microwave flat antenna array for breast cancer tomography." 2000 Transactions on Microwave Theory and Techniques 48.8 (Aug. 2000 [T-MTT]): 1413-1415.

In this paper, we report a two-dimensional computer simulation of a microwave flat antenna array for breast cancer tomography. This new technology promises reduction of X-ray exposure and easier access to peripheral areas of the breast. Using our version of the Newton algorithm, we studied two simple mathematical objects and a more sophisticated two-dimensional model of the breast that takes into account dielectric properties of different human tissues and malignant tumors. Our calculations show that, operating at 2 GHz, this device may give very reasonable images of tissues located up to 3-4 cm beneath the surface.

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