Abstracts

Development of a 915-MHz Direct-Contact Applicator for Therapeutic Heating of Tissues

A.W. Guy, J.F. Lehmann, J.B. Stonebridge and C.C. Sorensen. "Development of a 915-MHz Direct-Contact Applicator for Therapeutic Heating of Tissues." 1978 Transactions on Microwave Theory and Techniques 26.8 (Aug. 1978 [T-MTT] (Special Issue on Microwaves in Medicine, with Accent on the Application of Electromagnetics to Cancer Treatment)): 550-556.

The design of a 915-MHz diathermy dielectric-loaded applicator with a TE/sub 10/-mode aperture field distribution is described. The lightweight porous dielectric used for loading the applicator allows for the transmission of refrigerated air through the cavity to provide surface cooling so therapeutic temperature can be produced in deep tissues without excessive heating of surface tissues. The design is based on theoretical calculations previously developed by the authors which predict optimal size of the aperture and field distribution that would provide the best heating patterns in deep layers of tissue. Experimental evaluations of the heating of tissues of models and human beings are discussed.

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