Abstracts

A Spherical Slot Array Applicator for Medical Applications

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A new type of microwave hyperthermia applicator is proposed and analyzed. A cavity, consists of concentric conducting partial spheres which are enclosed by a part of a conducting cone, is employed to excite an array of slots coherently. From numerical results that we obtained, it is possible to focus the electric field radiated from the slots to the center of the sphere where a tumor is assumed to be located. Furthermore, SAR distributions of some applicators are obtained by using computer, and these applicators have been designed. From the measured results of electric field distributions at 2450 MHz, it is found that the focusing characteristics are achievable. Thermographic studies show that the heating volume can be varied by using different number of slots and the maximum heating depth is 3 cm.

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