Abstracts

A Multiloop Concentric Hyperthermia Applicator with Enhanced Penetration Depth

P.G. Cottis, N.K. Uzunoglu and G.E. Chatzarakis. "A Multiloop Concentric Hyperthermia Applicator with Enhanced Penetration Depth." 1988 Transactions on Microwave Theory and Techniques 36.4 (Apr. 1988 [T-MTT]): 676-681.

The electromagnetic field deposition into a three-layer cylindrical human body model by a multiloop concentric hyperthermia applicator is investigated analytically. The multiloop radiator axis is taken to be coincident with the cylinder axis. A technique based on the method of separation of variables is employed to determine the axisymmetric field in every point. In order to compute the imposed specific absorption rate in the tissues, a numerical integration technique is utilized. Numerical results are presented for several loop geometries at a 13 MHz operation frequency. The possibility of obtaining improved in-depth heating in comparison with conventional single magnetic loop applicators is investigated. It is shown that significant enhancement of the penetration depth cars be obtained by using a simple phased magnetic loop system.

❑ Return to main document.