Abstracts

Mini-Annular Phased Array for Limb Hyperthermia

P.F. Turner. "Mini-Annular Phased Array for Limb Hyperthermia." 1986 Transactions on Microwave Theory and Techniques 34.5 (May 1986 [T-MTT] (Special Issue on Phased Arrays for Hyperthermia Treatment of Cancer)): 508-513.

The design concepts of a thin-shell cylindrical or annular phased-array of conformal strip radiators is shown to be suitable for deep heating of phantoms simulating the limbs of the human body. The Mini-Annular Phased Array (MAPA) is presently under clinical investigation for treatment of cancer of the limbs at a limited number of institutions. The effect of frequency and tissue conductivity is shown under simulated conditions for a few sample power-density patterns illustrating the deep focusing of the radiated EM fields. These are compared to a numerical model pattern which can be used to estimate the patterns in varying diameter limbs. The effect of offsetting the limb within the array to steer pattern of heat deposition has also been shown to produce desirable asymmetrical patterns.

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