Abstracts

Input impedance characteristics of coaxial slot antennas for interstitial microwave hyperthermia

D.W.-F. Su and Lin-Kun Wu. "Input impedance characteristics of coaxial slot antennas for interstitial microwave hyperthermia." 1999 Transactions on Microwave Theory and Techniques 47.3 (Mar. 1999 [T-MTT]): 302-307.

In this paper, a transmission-line type of input impedance model originally developed by King et al. (1983) for the insulated dipole antenna embedded in a homogeneous dissipative medium is extended to the case of insulated coaxial slot antenna. Physical construction of the latter indicates the presence of additional current path(s) inside the feed line, which shall lead to the shortening of its resonance length. This effect is taken into account in the impedance model and verified by experiments. Furthermore, a simple strategy for optimizing the applicator's impedance-matching performance is also described and verified. Excellent agreements observed between theoretical and measured S/sub 11/ data indicate that these models can be relied upon when designing an efficient applicator for interstitial microwave hyperthermia.

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