Abstracts

On the Attenuation of Monofilar and Bifilar Modes in Mine Tunnels (Short Papers)

S.F. Mahmoud. "On the Attenuation of Monofilar and Bifilar Modes in Mine Tunnels (Short Papers)." 1974 Transactions on Microwave Theory and Techniques 22.9 (Sep. 1974 [T-MTT]): 845-847.

The modal equations for both the monofilar and bifilar modes of a two open wire transmission line located in a waveguide model of a rectangular mine tunnel are derived by extending an earlier general analysis. Attenuation curves of both modes in the frequency range 200 kHz-200 MHz are presented for two distinct configurations of the transmission line that may be used in practice. It is demonstrated that the proximity of the lossy tunnel wall tends to increase greatly the attenuation rate for the monofilar modes but has relatively little effect on the bifilar modes.

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