Abstracts

Radio Communication in Tunnels

J. Chiba, T. Inaba, Y. Kuwamoto, O. Banno and R. Sato. "Radio Communication in Tunnels." 1978 Transactions on Microwave Theory and Techniques 26.6 (Jun. 1978 [T-MTT]): 439-443.

The attenuation constant of radio waves in tunnels was obtained experimentally and theoretically. According to this study, the tunnel is a transmission channel of high-pass type. It is found that the higher the frequency, the smaller the attenuation constant. The experimental values of attenuation constants are similar to the theoretical values of the the TE/sub 01/ and EH/sub 11/ and modes when the tunnel is regarded as a circular waveguide with the same cross-sectional area as the tunnel. Radio communication using the tunnel was proven to be fully possible in spite of the standing wave effects due to the interference of the propagation modes.

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