

The finite element analysis of horizontal wire buried in a lossy ground

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SUMMARY

The end-driven wire, immersed in the imperfectly conducting ground is modelled, as a monopole antenna by using the electric field integral equation derived for radiation half-space problem. The influence of a dissipative half-space is taken into account by Sommerfeld theory, and also by reflection coefficient approximation. Solving the corresponding equation via finite element integral equation method (FEIEM) the equivalent current distribution is obtained. After expressing the electric field distribution in terms of known current distribution it is possible to evaluate the input impedance of the buried wire.
