

Finite element input impedance calculation of the loaded wire above an imperfect ground

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SUMMARY

The finite element/exponential approximation approach provides a simple and efficient procedure for input impedance calculation of the loaded straight wire located horizontally over a lossy half-space. The effect of a lossy half-space is taken into account via Sommerfeld integrals appearing within the kernel of electric field integral equation (EFIE) for loaded wire. These integrals are evaluated by means of exponential approximation technique. The EFIE for loaded wire above a lossy earth is solved via finite element integral equation method (FEIEM). Numerical results are obtained for input impedance spectrum for a resistively loaded dipole antenna.
