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Mutual impedance with finite feed gap model of dipole antennas using the induced EMF method (Conference Paper)

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Abstract

Mutual coupling in antenna arrays bring a significant impact especially when antenna elements are placed close with each other. It affects antenna performance, communication capacity and so on. Likewise, an accurate analysis of **mutual** coupling which can be expressed in terms of **mutual impedance** is important. A few analytic approaches for **mutual impedance** between two dipoles are available, one of it is the **Induced EMF method**. The **Induced EMF method** is accurate for short and thin, with an infinitesimal **feed gap**, which is impractical. A **finite feed gap** which is practical, can be modeled using electromagnetic simulation approaches. However, no analytical techniques are available to compare the results of the design with numerical software. The **finite feed gap** modelling of the **mutual impedance** using the **Induced EMF method** will be highlighted in this paper. The results are compared with other electromagnetic software. Then, the effect of the **finite feed gap model** has been observed in the far field pattern of **dipole** antenna arrays and they are in good agreement with other electromagnetic software. © 2015 IEEE.

Author keywords

Dipole; **Feed gap**; **Induced EMF method**; **Mutual** coupling; **Mutual impedance**

Indexed keywords

Engineering controlled terms: Antenna arrays; **Dipole antennas**; Directional patterns (antenna); Electric **impedance**

Dipole; **Feed** gaps; **Induced EMF method**; **Mutual** coupling; **Mutual impedance**

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1 Chai, X.-D., Costache, G.I.
Numerical analysis of mutual coupling effects in linear and circular arrays
(1992) *Int. Symposium of Antennas and Propagation Society*, 1, pp. 641-644.

2 Lewin, L.
Mutual Impedance of wire aerials
(1951) *Wireless Engineer*, 28, pp. 352-355.
December

3 King, H.E.
Mutual Impedance of Unequal Length Antennas in Echelon