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ABSTRACT

A dipole antenna is an antenna with a center-fed driven element for transmitting or receiving radio frequency energy. These antennas are the simplest practical antennas from a theoretical point of view. Dipole antennas are commonly used for broadcasting, cellular phones, and wireless communications due to their omnidirectional property.

Antenna design is interactive. So, changing one dimension in each formula results in the need to change other dimensions or parameters which will take much time and calculations. Instead of formulas, the antenna design programs use interactive algorithms that automatically make all the other changes simple and easy.

This thesis attempts to construct and analyze different types of dipole antennas such as half wave dipole antenna and rabbit ears (V) antenna. These examples illustrate both the simplicity and power of the software such as PCAD, MMANA, EZNEC and MATLAB, through the construction and simulation of these antenna structures.

As a practical application to dipole antennas, Yagi-Uda antenna is considered as one of the most important type of dipole antennas where, different number of elements are constructed and simulated to analyze its characteristics.

An implementation of Yagi-Uda antenna is designed and simulated in accordance with the broadcasting channels of Bayrak Radyo ve Televizyon Kurumu (BRTK) in Turkish Republic of Northern Cyprus (TRNC).

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