

ABSTRACT

Electric Grounding Requirements for Substations
With The Aid Of Computers

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This project examines and develops a computer program for the study of the 'electrical grounding requirements' of conventional AC outdoor substations.

The program is written in two parts, as follows:

- (a) In the first part, a program is developed to assist in the design and optimization of substation grounding. The program is based on the third edition of the I.E.E.E. Standard 80 - "Guide for Safety in Substation Grounding".
- (b) In the second part, a program is developed for computing surface potentials, ground current distribution and grounding resistance associated with substation ground mats. The program is applicable to rectilinear mats with or without ground rods. A two layer earth model is utilized.

The results indicate that the ohmic voltage drop along the grid conductor may have a significant effect on surface voltages for unsymmetrical, unevenly spaced grids.