

**50 Hz POWER FREQUENCY ELECTRIC AND
MAGNETIC FIELDS AND HUMAN HEALTH**

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**ROSNAH BTE DAUD
School of Electrical Engineering
Institut Teknologi MARA
40450 Shah Alam
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ABSTRACT

Electricity has become an integral part of our society, and power electric and magnetic fields are widespread. In recent years, electromagnetic fields (EMFs) in 50 / 60 Hz Extremely Low Frequency (ELF) band are causing a growing public concern because of suspected health effects. The news or publishing media has attempted to capitalize on or exploit the concern over health effects of electric and magnetic fields. Where are the electric and magnetic fields produced by electricity generation, transmission and consumption. In fact, there are well established effects lower levels might have effects based on weak epidemiological results, but these results are not supported by an physical or biological evidences. In fact, such worries are increasingly affecting the electricity users. However much of the concern is based on misunderstandings.

In this project, the magnetic fields calculation generated by high power transmission line have been done using the Biot Savart Law and by applying to the program of Fortran 77 software. In addition, to support this study we are using the ' HI- 4000 Hazard Measurement System ' for electric field measurements.

We would like to be able to say that today we are unable to give the answers. What we can do is to look at the various sources of power frequency fields and give the results of the most recent research on this subject so that you may be able to make a more informed on the problem. Behind all that is a big question mark.

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CHAPTER 1

INTRODUCTION

1.1 Background

The initial awareness of possible human effects from exposure is usually ascribed to reports in the early 1960's relating to studies in the Soviet Union of switchyard workers. The effects that were reported included appetite loss and headaches. These reports sparked substantial research on effects of exposure to electric fields in Europe and the US, which included Electric Power Research Institute (EPRI's) first research in this area. Subsequent research on plants, animals and humans has not revealed any significant human health hazard from electric field exposure.

1.2 Objectives

The objective of the this project paper to supply the reader with information necessary to make intelligent analysis of the research on health effects due to electric and magnetic fields. This paper looks first at the various sources of power frequency fields, then presents a brief review of the subject of biological effects of 50-Hz, with magnetic field strength to 10mT and electric fields in air of up 15 kV/m. Public concern in this area is based on a number of studies which suggest a possible weak association between childhood leukaemia and power frequency magnetic field exposure. Among studies and