

CHAPTER I

INTRODUCTION



1.1 General Remarks

Owing to the increasing demand for energy and also the world's limited supply of fossil fuel, alternative energy sources have to be utilized. One of the most positive and practical suggestions is to make use of solar energy. The energy received from the sun is clean and pollutionless, free for everybody, and limitless in amount. As clear as daylight itself is the reason why mankind should make a better use of solar energy, challenging many hard scientific and technical breakthroughs required for efficient collection of solar energy which arrives the earth being greatly scattered and in very thin density.

In planning for the utilization of solar energy equipments such as solar distillation, solar dryer, solar refrigeration and solar pump, etc., there is a need of an instrument for measuring solar radiation. Commercially available instruments cost many thousand bahts, and they are delicate instruments, requiring skilled personnel for their operation. The need for the deploying of simple low cost solar radiometers to survey the availability of solar energy in the under-developed areas has been emphasized by world solar energy experts. Also semi-skilled small scale manufacturers of solar energy appliances and research workers

with limited funds need low-cost sturdy instruments for testing their equipments.

### 1.2 Purpose of Research

The purpose of this research is to develop a simple portable radiometer to measure direct and diffuse solar radiation and costing not more than a few hundred bahts. The conditions of design should be simplicity of construction, minimum cost and no scientific training or knowledge required by an operator.

### 1.3 Scope of Research

In this research, a simple low cost portable solar radiometer was to design, construct and test. The radiometer was then compared with commercially available instruments for calibration.