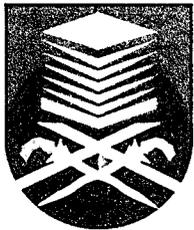


**CASE STUDY ON LIGHTNING PROTECTION SYSTEM
IN TERM OF COLLECTION VOLUME METHOD AT
FACULTY OF SCIENCE COMPUTER AND
MATHEMATICS IN UNIVERSITI TEKNOLOGI MARA
SHAH ALAM**

This thesis is presented in partial fulfillment for the award of the
Bachelor of Engineering (Hons.) Electrical



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ABSTRACT

This paper describes the study on the risk assessment of lightning protection at Faculty of Science Computer and Mathematics building. Risk assessment is a process in order to detect potential hazard and analyses the possible occurrences happen towards the building and assets by using the suitable Lightning Protection System (LPS). The study based on the respective building in order to reduce the risk of damage of electric and electronic equipment due to lightning strikes. The risk of the building will be determined based on Malaysian Standard Lightning Protection System MS 62305. In this Malaysian Standard, it is divided into 4 parts which are general principles, risk management, physical damage to structures and life hazard and electrical and electronic systems within structures. Basically, this thesis will be covered by comparing the tolerable risk (R_T) with all relevant risk components (R_1). If $R_1 > R_T$, the protection should consider suitable protection measures in order to reduce the risk due to lightning flashes. Several mathematical parameters need to be taken into consideration while assessing of the risk evaluation. The recommended method for this project is Collection Volume Method (CVM). The methods had been evaluated and been discussed looking for any improvement and reliability regarding the risk assessment at respective building. At the end of this paper, the analyses data will represent the reliability or any improvement towards building location in term of reducing the risk due to the lightning.

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CHAPTER 1

INTRODUCTION

1.1 Background of study

Lightning is one of the major cause to the overhead line Faults. Lightning strikes exhibit in consistently far and wide. Something like 5% to 10% of the lightning brought on deficiencies bring about changeless harm to power framework supplies [1]. At Tenaga Nasional Berhad (TNB), lightning likewise has been a significant reason for force interruptions at one of Power utility in Malaysia, as this nation is among the nations with the most noteworthy lightning activities in the world [2]. Lightning strikes to the ground basically around hundred times for each second.

Basically lightning strike can reach the lowest stroke around 20 kA and usually can reach 300 kA. Damage from the risk of lightning can usually determine the internal electrical system by using that level [10].

According to the records of lightning, Malaysia is one of the countries that have the higher one. It additionally archives high number of lightning mischances which prompt to death, injury, property damage and service disruption due to lack of awareness and knowledge among both general public and engineering or technical communities on lightning safety and protection [3]. Phenomena of lightning are random and unpredictable phenomena and around 25000 deaths are recorded per year [4].

Recently, when the thunderstorms happen it will produce electrical discharge. A lot of process of lightning form that can be understand. Figure 1.1 below shown the record of lightning strikes around the world.