



اُنِيْوَرْسِيْطِيْ تِيْكَنُوْلُوْجِيْ مَارَا
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DESIGN OF EXTERNAL LIGHTING PROTECTION SYSTEM FOR SULTAN ABDUL AZIZ SHAH (SAAS) TOWER

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ABSTRACT

Recently, Universiti Teknologi Mara (UiTM) has changed new external lightning protection system (LPS) of Menara Sultan Abdul Aziz Shah (SAAS). This new design based on Collection Volume Method (CVM). The new method believed to be providing more effective protection against lightning than before. However, these were apparently ignored by the scientific community as the CVM was considered to be a method that was proposed by a manufacturer for its own use, and hence was considered inconsequential. The aim of this paper is to design an external LPS for Menara SAAS. The design was based on the lightning protection international standard (IEC 62305) which was accepted by scientific community.

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CHAPTER 1

INTRODUCTION

1.0 Introduction

The very impressive natural phenomenon of lightning has been considered from the oldest times of humanity as a sign of power and as an instrument of punishment in the hand of the gods. The ancient Greeks imagined Zeus the ruler of the gods in Olympus as being the master of lightning which he could use as a symbol of his supremacy. Similar stories can be found in the mythology of almost all cultures. [4]

Lightning is a natural phenomenon that may cause dangerous currents and voltages. For many centuries, lightning has been a danger during thunderstorms for people, building and damage to equipment. Thousands of people are killed every year by lightning. The damage caused by both direct and indirect lightning stroke. Every year, the damage may reach billions of ringgit.

For power engineers, the mechanism of the lightning flash and the characteristics of electromagnetic fields generated by lightning, are vital for the design of protection measures in power lines [4]. Based on information from the World Meteorological Organization records, Peninsular Malaysia has thunderstorm between 100 to 140 days per year as mention in **Figure 1.1**.