FRACTIONAL OF SKY COVER AT *SHAH ALAM*

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TABLE OF CONTENTS

ABSTRACT

FRACTIONAL OF SKY COVER AT *SHAH ALAM*

This research present the fractional of sky cover at Shah Alam. Sky cover means the expected amount of clouds (in percent) covering the sky valid for the indicated hour. To know the fractional of sky cover, the new instrument named Total Sky Imager Model TSI-880 was used to capture the sky cover. This is one of the automated processing methods in order to determine fractional of sky cover. The factors that consider influence fractional of sky cover is the characteristics of Malaysia climate which are constantly high temperature and relatively humid through out the year. This is mainly due to the formation of the cloud. Clouds remain the greatest sources of uncertainty in global climate change research. Sky condition has similar features and is useful for energy-efficient building designs. Fractions of sky cover are divided into three; clear sky, thin, and opaque. Its measured in tenths, which are 0.0 to 0.3 indicates for clear sky, 0.4 to 0.7 indicates thin, and 0.8 to 1.0 indicates opaque.

CHAPTER 1

INTRODUCTION

1.1 Background and Problem Statement

Tropical countries have a great potential to use daylighting in buildings and Malaysia in special, has favorable climatic conditions with sky domes of great luminosity, which enhances the opportunities of taking advantage of the natural light as a way to save electrical energy during the day. Luminous efficacy is important predictions that allow the estimation of daylight illuminances using sun and sky condition. How much light that we receive is depending on amount of clouds covering the sky, where sky cover is defined as the expected amount of clouds covering the sky valid for indicated hour. Sky covers also refer to the fraction of the sky obscured by clouds when observed from particular location. There are three fraction of sky cover; clear sky, thin, and opaque. Clear sky is sky that covers less or no cloud, while thin sky is the amount of sky cover not completely hides all that might be above it, and opaque is the amount of sky cover completely hides all that might be above it. To determine fractional of sky cover, the instrument that has been used is Total Sky Imager Model TSI-880 as shown in figure 1. This Total Sky Imager Model TSI-880 is an automatic, full-color sky imager system that provides real-time processing and display of daytime sky conditions. From this instrument, fractional sky cover can be easily determined itself by calculate the number of cloudy pixels divided by total number of pixels in the 160° FOV.