COMPARISON OF LUMINOUS DISTRIBUTION OF MALAYSIAN SKY WITH THE NAKAMURA MODEL

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"I declare that this thesis is the result of my own work except the ideas and summaries which I have clarified their sources. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any degree."

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ABSTRACT

In Malaysia, solar energy studies are considered new. The applications of solar energy in Malaysia can be classified into two categories which are thermal systems and photovoltaic systems. Thermal systems mean the conversion of solar energy into thermal energy and photovoltaic systems mean the conversion of solar energy into electrical energy.The availability and cost of energy have become dominant factors in society today. Therefore, renewable energy resources are expected to cover the energy scenarios of the future energy consumptions. Solar energy is practically unlimited, environmentally clean, and friendly. Solar energy is expected to play a very significant role in the future especially in developing countries, but it has also potential prospects for developed countries. But, solar energy is intermittent because night and day, cloudy days, and seasons of the year. Consequently, it must be collected when available and stored in large quantities and used later as energy. Basically in this study, the development of experimental data that provides the daylight data in Malaysian Sky, specifically in Shah Alam is the target that needs to be achieved.

The purpose of this project is to compare the Luminous Distribution (LD) of Malaysian Sky with the Japanese Sky, given as the Nakamura Model. The value of Luminance of Malaysian Sky is also measured and analysed. From this study, it can be concluded that Luminous Distribution of Malaysian Sky does not exactly follow the Nakamura Model. The LD of Malaysian Sky only valid to Nakamura Model at certain period of time which falls between 11.30 am until 2.30 pm. The highest value of Luminance by average was recorded at 1.30 pm with the value of 12.98 kcd/m^2.

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