

ABSTRACT:

Problem statement: In recent years, daylighting simulation tools have been increasingly used by many architects, engineers and researchers to evaluate the day lighting performances of building design. Most of these tools employ CIE sky models for simulation. However, the accuracy and applicability of these tools for tropical sky are doubtful. The aim of this study was to validate the computer simulated result with scaled physical model results measured under real tropical sky. **Approach:** Daylighting model was constructed using scaled physical model to be tested under real sky measurement. The same model was configured in Desktop Radiance 2.0 to perform day lighting simulation experiments. All the measurements were carried out under intermediate and overcast tropical sky conditions in Malaysia; while related CIE sky conditions were used for simulations. **Results:** Due to the CIE sky conditions are very dissimilar from the actual tropical sky; simulated absolute value results such as external illuminance, absolute work plane illuminance and surface luminance recorded high mean differences from the measured results, with 81.63; 71.06 and 49.71%, respectively. However, relative ratios such as Daylight Factor (DF) yielded mean difference of 26.06% and luminance ratio was 29.75% only. The average mean difference was 44.37%. **Conclusion/Recommendations:** To compare the performances, relative ratios such as DF and luminance ratio showed better accuracies. For future research, validation on other parameters can be performed such as orientations, angle of the overhang, glazing, window sizes, colors, environment settings and electric lighting.