

EKAMON CHIENPRADIT : A STUDY OF VISUAL PERFORMANCE THROUGH PARTIALLY TRANSPARENT MEDIA. THESIS ADVISOR : ASSO.PROF.DR. MANIT THONGPRASERT, THESIS COADVISOR: ASSO.PROF.DR. PRAMOT UNHAVIATHAYA, 102 PP.

As Thailand is a tropical country, the ambient temperature and the solar radiation is rather high all year. It is quite popular for the local people to put a dark plastic film on their car's window glass in order to partially protect solar radiation transmitted into their car. The glass window with plastic film, technically called partially transparent media, will reduce the visual performance of the vehicle's driver, especially at the morning and sunset time.

The visual performance through partially transparent media with four level of transmittance, 54.58, 38.40, 36.72 and 15.28% are investigated. Because the psychophysical ability is an important factor, the observers are carefully selected, having ages in range of 20 to 30 years. The background luminance is simulated in the manner that it's value is between  $1 \text{ cd/m}^2$  to  $30 \text{ cd/m}^2$ . The task is a set of Randolt rings with a task demand level of 30 and a critical component weighting of 0.6 and it is controlled to have only luminance contrast. A mathematical model CIE is used in this study.

Result of the study indicate that the visual performance through the partially transparent media, having transmittance of 54.58 and 38.40, are reduced 15.40% and 25.30% respectively when compared with visual performance through a clear with transmittance of 92%. As the background luminance is  $3 \text{ cd/m}^2$ .