

ABSTRAK

Sistem pencahayaan adalah satu dari beberapa faktor yang berpengaruh terhadap kenyamanan penumpang di kereta api. Pencahayaan berkaitan dengan produktivitas manusia menjadi faktor pendukung kenyamanan dan keamanan. Standar pencahayaan minimum di kereta *stainless steel* senilai 300 lux (PM No: KM. 41 Tahun 2010) dan kondisi *emergency* senilai 5 lux (UIC 555 1st edition). Standar nilai *uniformity* pencahayaan mengacu UIC 555 1st edition. Permasalahan penelitian adalah kesesuaian nilai pencahayaan ruang terhadap standar keberterimaan yang berpengaruh pada kenyamanan visual penumpang. Tujuan penelitian adalah analisis desain dan simulasi pencahayaan di kereta K1 dan kereta makan *stainless steel* pada kondisi normal dan *emergency*. Metode penelitian adalah kuantitatif eksperimental dengan pengukuran intensitas cahaya, observasi objek interior, dan simulasi pada *software* DIALux Evo. Hasil penelitian dianalisis dari pengukuran dan simulasi adalah nilai intensitas cahaya untuk kondisi normal memenuhi nilai standar minimum 300 lux dan beberapa ruang kondisi *emergency* di bawah 5 lux. Nilai *uniformity* di kereta K1 dan kereta makan memenuhi nilai standar yang direkomendasikan dan ditemukan variasi warna dan elemen interior yang berpengaruh terhadap nilai refleksi cahaya di ruangan. Kesimpulan penelitian adalah pencahayaan di kereta api memenuhi standar keberterimaan dan pencahayaan ruang dipengaruhi dua dari beberapa faktor yaitu warna dan elemen interior.

Kata kunci: emergency, kereta makan, K1, stainless steel, uniformity

ABSTRACT

The lighting system is one of several factors that affect the comfort of passengers on trains. Lighting is related to human productivity as a supporting factor for comfort and safety. The minimum lighting standard on stainless steel trains is 300 lux (PM No: KM. 41 of 2010) and in emergency conditions is 5 lux (UIC 555 1st edition). The standard for lighting uniformity values refers to UIC 555 1st edition. The research problem is the suitability of the value of room lighting against acceptable standards that affect the visual comfort of passengers. This research aims to analyze the design and simulation of lighting on the K1 and dining cars of stainless steel trains under normal and emergency conditions. The research method is quantitative experimental by measuring light intensity, observing interior objects, and simulating on DIALux Evo software. The results of this research analyzed from measurements and simulations are that the light intensity value for normal conditions meets the minimum standard value of 300 lux and for several emergency room conditions below 5 lux. The value of uniformity in the K1 and dining car met the recommended standard values and it was found that color variations and interior elements had an effect on the value of light reflection in the room. The study concludes that lighting on trains meets acceptable standards and room lighting is influenced by two of several factors, namely color and interior elements.

Keywords: dining car, emergency, K1, stainless steel, uniformity