



INTISARI

Industri otomotif di Indonesia mengalami kemajuan yang sangat pesat, salah satunya adalah bidang modifikasi otomotif. Dengan dilakukannya modifikasi terhadap kendaraan yang dimiliki maka diharapkan kendaraan dapat tetap nyaman dan *safety* bila dipakai sehari-hari serta tidak membahayakan pengemudi lain. Namun dalam praktiknya terkadang modifikasi yang dilakukan justru dapat membahayakan pengemudi maupun orang lain. Dalam hal ini khususnya modifikasi pada *headlight* standar pabrik berjenis halogen dengan jenis lampu HID. Permasalahan yang muncul adalah bagaimana pengaruh tingkat *correlated color temperature* (CCT) lampu HID kendaraan bermotor terhadap konsentrasi berkendara berdasarkan *temporary blind time* yang diperoleh pengemudi setelah terpapar cahaya.

Pengambilan data primer dilakukan melalui percobaan dengan menghitung perolehan waktu pada saat responden yang berjumlah 12 orang mengalami *temporary blind*. Lampu yang digunakan pada saat percobaan berjumlah 3 buah lampu, yaitu: HID 3000 Kelvin, Halogen 4200 Kelvin, dan HID 6000 Kelvin, dengan fungsi lampu *low beam* dan *high beam*. Percobaan ini dilakukan 3 kali pengambilan data dengan urutan lampu yang berbeda-beda. Pengambilan data sekunder dilakukan melalui kuesioner untuk mendapatkan informasi pengalaman berkendara, dan persepsi terhadap cahaya. Pengolahan data menggunakan uji keseragaman, uji kecukupan, uji kenormalan, uji *Friedman* dan Uji *Post Hoc* untuk mengetahui pengaruh antar lampu.

Berdasarkan penelitian yang telah dilakukan, Terjadi pengaruh yang signifikan antara level *Correlated Color Temperature* (CCT) 3000 Kelvin, 4200 Kelvin dan 6000 Kelvin pada kondisi *low beam* dengan *temporary blind time*. Dengan nilai signifikansi sebesar 0,001. Terjadi kenaikan rata-rata nilai *temporary blind time* seiring dengan kenaikan level CCT, dengan perolehan rata-rata nilai *temporary blind time* terendah terdapat pada level CCT 3000 Kelvin kondisi *low beam* dan rata-rata nilai *temporary blind time* tertinggi terdapat pada level CCT 6000 Kelvin kondisi *high beam*. Begitu pula halnya dengan rata-rata waktu pengerjaan *task* yang diberikan dan hasil *illuminance* yang didapat. Selain itu dari hasil kuesioner yang diperoleh, lampu 6000 Kelvin dan kondisi lampu *high beam* dianggap paling mengganggu dan memiliki dampak atau efek yang besar terhadap penglihatan serta semua responden merasakan kondisi *temporary blind* setelah terkena 3 lampu yang diuji.

Kata kunci: *Correlated color temperature*, fungsi lampu, *temporary blind time*



ABSTRACT

The automotive industry in Indonesia is progressing very rapidly, one of which is the field of automotive modification. By doing modifications to vehicles owned it is expected that the vehicle can remain comfortable and safety when used daily and do not endanger other drivers. but in practice, sometimes modifications made to it can endanger the driver and others. In this case, particularly modifications to the standard factory-type halogen headlights with HID lamp types. The problem that arises is how to influence the level of correlated color temperature (CCT) HID lights on the concentration of driving a vehicle by a temporary blind time obtained after exposure to light.

Primary data collection is done through experiments by calculating the acquisition time when the respondents were 12 people suffered temporary blindness. The lights were used at trial amounted to 3 pieces of light, namely: HID 3000 Kelvin, 4200 Kelvin Halogen and HID 6000 Kelvin, with low beam light function and high beam. The experiment was conducted three times to collect data by a sequence of different lights. Secondary data retrieval is done through questionnaires to obtain information about the driving experience, and perception of the light. Data processing using the test uniformity, adequacy test, normality test, Friedman test and Post Hoc test to determine the effect between the lamp.

Based on the research that has been done, significant effect occurred between levels Correlated Color Temperature (CCT) of 3000 Kelvin, 4200 Kelvin and 6000 Kelvin at low beam condition with temporary blind time. With a significance value of 0.000. An increase in the average value of temporary blind time due to higher levels of CCT, with an average acquisition value are temporary blind the lowest time at the level of 3000 Kelvin CCT low beam condition and the average value of temporary blind the highest time are at the level of 6000 Kelvin CCT condition high beam. Similarly, the average processing time given task illuminance and the results obtained. In addition the results of the questionnaire obtained, lamps 6000 Kelvin and high beam light conditions are considered the most intrusive and have a large impact or effect on vision as well as all respondents felt blind temporary condition after being hit by three lights were tested.

Key word: Correlated color temperature, light function, temporary blind time