A Study on Communication between Moving passenger Car and Other Vehicles

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ABSTRACT

Horn and lamps are two types of devices currently available in the cars for drivers to communicate with others. However, additional devices are needed for certain occasions based on the results of a survey conducted in this research. Among them, a reflector was studied to see if it can be effective to inform the posterior driver to turn off the high-beam headlamp when it is disturbing. In-field tests were carried out to see how the reflector of different material, positions, and sizes can bring the posterior driver into awareness that he or she is causing disturbance. The results show that crumpled-aluminum-foil installed at the rear edge of trunk-lid with sizes of 5 cm × 15 cm、6 cm × 9 cm and 6 cm × 12 cm can produce glare to let the posterior driver 10 meters behind notice. Reflector of 6 cm × 12 cm can even make the posterior driver 20 meters behind getting aware. Material with better reflection property is needed for longer distances.

Keywords : reflector

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REFERENCES

一、中文部分 1. 王凱正（2001）。對向汽車頭燈照射對向駕駛者可視度的影響探討。大葉大學設計研究所。碩士論文。 2. 石曉蔚（1996）。室內照明設計原理。淑馨出版社。 3. 台灣省政府教育廳編印（1990）。學生視力保健手冊。 4. 何正倫（1994）。照明與照明設計。三泰出版社。 5. 李碩重（1993）。照明設計學。全華科技圖書股份有限公司。 二、 英文部分 1. Adler, B., and Lunenfeld, H.（1973）.April. Three-beam headlight evaluation(Report No. HS-238-2-411-1). Deer Park, NY: Airborne Instruments Laboratory. 2. Alexander P. De Vos.（2000）.Non-planar driver ’ s side rearview mirrors: A Survey of Mirror types and European Driver Experience and a Driver Behavior Study on the Influence of Experience and Driver Age on Gap Acceptance and Vehicle Detection. NHTSA Contract Monitor: Michael Perel, Office of Vehicle Safety Research, DOT HS 809 149. 3. Bhise VD, Farber EI, Saunby CS, Troell GM, Walunas JB, Bernstein A.（ 1977 ）.Modeling vision with headlights in a systems context. Society of Automotive Engineers Congress and Exposition, Detroit, MI: Society of Automotive Engineers. 4. Bureau of Transportation Statistics.（2002）.Survey Documentation for the Bureau of Transportation Statistics Omnibus Survey Program. 5. Erich S. Phillips, Tara Khatua, Garrison Kost, and Robert Piziali,.（1990）.Vision and Visibility in Vehicular Accident Reconstruction. SAE Technical Paper series 900369, Failure Analysis Associates.45 6. Flannagan, M.J., Michael Sivak, and Eric C. Traube.（1996）.Driver Perceptual Adaption to Nonplanar Rearview Mirrors. SAE TECHNICAL PAPER SERIES 960791, Reprinted from: Automotive Design Advancements in Human Factorys: Improving Driver ’ s Comfort and Performance. 7. Hemion RH.（1969）. A Preliminary Cost-Benefit Study of Headlight Glare Reduction, Report AR-683. San Antonio, TX: Southwest Research Institute. 8. Kirkpatrick, M., & Marshall, R.（1989）.Evaluation of glare from daytimerunning lights NHTSA, DOT HS 807 502. 9. Luckiesh, M., and Moss, F.K.（1927）.The New Science of Seeing in Interpreting the Science of Seeing into Light Practice, vol. 1. Cleveland: General electric Co. 10. Miller, N. D., Baumgardner, D., and Mortimer. R. G..（1974）.An evaluation of glare in nighttime driving caused by headlights reflected from rearview mirrors

(Report No. 740962). Warrendale, PA: Society of Automotive Engineers. 11. Olson, P. L., and Sivak, M.（1984）.Glare from automobile rear-vision mirros. Human factors, 26(3), 269-282. 12. Rumar K.（2001）.Intensity of high-beam headlights. Progress in Automobile Lighting Symposium, Darmstadt, Germany: Darmstadt University of Technology. 13. Sanders, Mark S. & McCormick & Ernest J.（1998）.Human factorys in engineering in design. 14. Theeuwes, J. and W. A. M. Alferdinck.（1996）.The Relation Between Discomfort Glare and Driving Behavior, Report DOT HS 808 452.Washington, DC: National Highway Traffic Safety Administration. 15. Wolf, M., and Gardiner, J. S.（1965）.Studies on the scatter of light in the dioptric media of the eye as a basis of visual glare. Archives of Ophthalmology, 74, 338-345. 三、網路部份 1. 全國法規資料庫 http://law.moj.gov.tw/LawClass/LawContent.aspx?PCODE=K0040013 2. 財團法人車輛研究測試中心 http://www.artc.org.tw/ 3. http://www.sae.org/ 4. http://www.ansi.org/ 5. 行政院主計處 http://www.dgbas.gov.tw/mp.asp?mp=1 6. 交通部公路總局 http://www.thb.gov.tw/TM/Default.aspx 7. 交通部運輸研究所 http://safety.iot.gov.tw/map/map.asp 8. 中華三菱汽車網站 www.5230.com.tw 9. 汎德汽車網站 http://www.bmw.com.tw/home/index.htm 10. 維基百科 http://zh.wikipedia.org/w/index.php?title=首?&variant=zh-tw