

Critique of

IR3: DRL Project

**Do other road users suffer from the presence of cars that have their daytime running lights on?
Brouwer, Janssen, Theeuwes 2004**

How laboratory tests cannot replicate real life situations

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Extracts from IR3:

Method

“Subjects viewed colour slides depicting natural daylight scenes of traffic intersections”.

“This study has used pictures of traffic scenes that varied in several dimensions”

“Stimuli and fixation points were presented by two separate random access Kodak slide projectors.”

Conclusions

“The main result of this study is that we found no evidence that the conspicuity of road users in the vicinity of a DRL-vehicle, as measured by the speed with which their presence was detected, suffered from a car having its Daytime Running Lights on. In fact, the evidence pointed in the opposite direction – other road users actually benefiting from the lights being on, although the effect was small.”

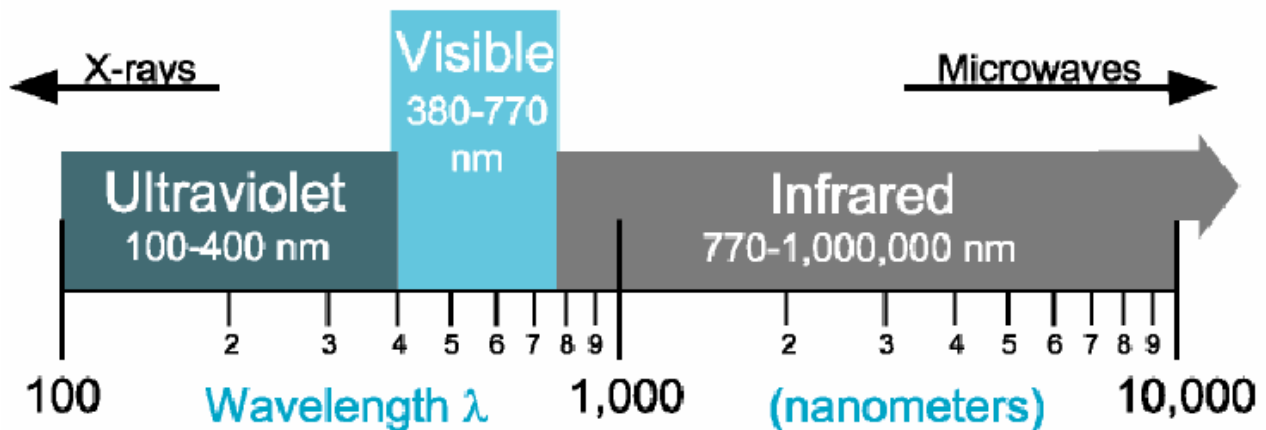
“There is in these findings no support for the possibility that situations could exist in which a negative effect of DRL could occur.”

Critique

Visible light is one portion of the electromagnetic spectrum ranging from radio waves with wavelengths of a meter or more, down to x-rays with wavelengths of less than a billionth of a meter. Optical radiation lies between radio waves and x-rays on the spectrum, exhibiting a unique mix of ray, wave, and quantum properties.

At x-ray and shorter wavelengths, the electromagnetic radiation tends to be quite particle like in its behaviour, whereas toward the long wavelength end of the spectrum the behaviour is mostly wavelike.

The visible portion occupies an intermediate position, exhibiting both wave and particle properties in varying degrees.



White light is a form of radiation ranging from infra red with a wavelength of 770 nanometres to Ultraviolet with a wavelength of 380 nanometres

Beams from a motorcar headlamp directly focus this radiation into other driver's eyes, even indirectly when dipped as the reflector is always visible. The blue lower end of the spectrum can cause "staring" glare and dazzle severely reducing a driver's useful field of vision.

The IR3 tests were conducted in a laboratory using slides of static vehicles to eighty subjects.

Slides using light reflected off a white screen cannot simulate the range of direct electromagnetic radiation from a Tungsten Halogen lamp or the more glaring High Intensity Discharge lamps into an observer's eye.

Because static slides were used, the tests neglected to account for instantaneous dynamic glare caused by road undulations, speed humps, acceleration, vehicle loading, headlamp misalignment or continental vehicles with right hand dipped beams. Xenon metal halide HID headlamps are increasing on vehicles. These emit light radiation in the more harmful blue/ultra violet end of the spectrum. By ECE law, they must have self levelling mechanisms but these do not have sufficient reaction speed or dip range to cater for humps and undulations thus adding to glare.

Conclusion

For valid results, the researchers should have conducted experiments with a range of real moving vehicles in real traffic situations in a similar manner to that used by the Japanese Government in their studies.#

Therefore the findings of the IR3 study are invalid.

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References: Japanese Government reports

TRANS WP29 GRE 51 10e Study on the Effects of Four-wheeled Vehicles' Daytime Running Lights on the Improvement of Their Conspicuity and on the Impairment of Conspicuity of Motorcycles

TRANS WP29 GRE 53 08e Study on the Effects of the Daytime Running Lights of Four-wheeled Vehicles on Their Discernibility (and on the Impairment of Conspicuity of Motorcycles) - Report No. 2