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16. Abstract  <p>This study evaluated the effect of blue content of headlamps on discomfort glare, in order to provide guidance regarding spectral compositions that would minimize driver complaints. Three LED headlamps were tested (with correlated color temperatures of 4000, 4800, and 6600 K), as well as a tungsten-halogen headlamp and an HID headlamp. Subjects, seated in a stationary vehicle, rated discomfort from brief presentations of stimuli that produced illuminances of 0.25, 0.5, and 1 lux.</p> <p>As predicted in our previous analytical study, we found that—when they appear bluer than current tungsten-halogen or HID headlamps—LED headlamps tend to produce more discomfort glare. The effect is probably due to the color appearance of the LED lamps used in this study rather than to any inherent characteristic of LED sources, and it could probably be altered or reversed with different sources. For the data reported here, ratings of discomfort glare were linearly related to the amount of blue content in the light output as weighted by the spectral sensitivity of the short-wavelength (blue) cone photoreceptors. Therefore, if this relationship is replicated and extended in future studies, it may provide an index of blue content that could be used heuristically to select colors of headlamps to minimize driver complaints about glare.</p>					
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