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16. Abstract

SAE Recommended Practice J852 and ECE Regulations 119 and 48 for cornering lamps were compared. Photometric points described in each specification were then compared to naturalistic low-speed turn trajectories produced by 87 drivers. Future locations of a vehicle engaged in a turn were calculated based on the vehicle's momentary position and speed, and the calculated time required to bring a vehicle to a complete stop. The angular offset and distance separating current and future positions were compiled to produce a map of useful preview positions—that is, positions relative to the current position of the vehicle that are far enough away to allow a driver to successfully stop if an object is first seen there. The distribution of preview positions shows strong concentrations between 30 and 35 degrees to the right or left of the current direction of travel. Geometric characteristics of this distribution were then compared to the geometry implied by the photometric minimum points indicated in the two specifications. Implications for path illumination during turns were discussed.

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