

Experimental Data Collection

PURPOSE: To record participants' driving and eye glance behavior for later analysis with respect to research questions addressing safety impacts of the crash avoidance warning system HMI characteristics. This data collection is necessary for collecting information from the public to support NHTSA's vehicle safety efforts and potential rulemakings.

HOW: Experimental Data Collection will involve driver behavior observation while driving on a test track, public road, or in a simulated environment (i.e., driving simulator). NHTSA-provided vehicle instrumentation will include video cameras for recording driver eye glances and other actions such as control manipulation, as well as the road scene. Instrumentation will also include sensors to capture information such as vehicle position, speed, vehicle control inputs (e.g., steering wheel, accelerator pedal, and brake pedal inputs), and turn signal status. Computer equipment will be used to review these data and for subsequent analysis. These data will be used to assess how efficiently crash avoidance warning system HMI characteristics communicate the conflict situation (e.g., crash imminence) to the driver and whether the conditions elicit a timely and appropriate response from the driver.

Data collection may also involve stationary laboratory measurements relating to crash avoidance warning signal characteristics, such stationary laboratory measurements of individuals' visual angle when gazing at in-vehicle visual signals (e.g., instrument panel symbols) and displays with the participant seated in a stationary vehicle. These measurements would be used to determine the best placement of crash warning visual signals to ensure they can be perceived effectively by all drivers.