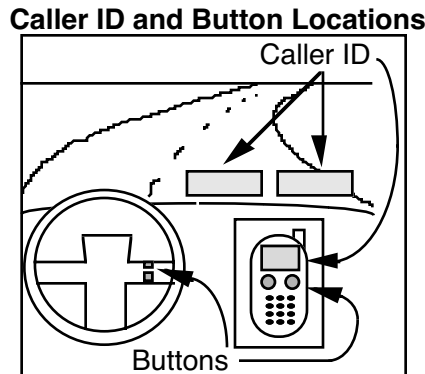
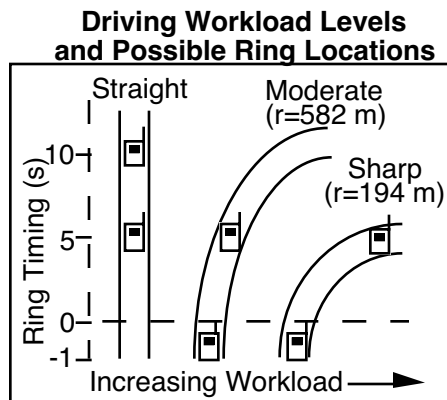


1 Issues

1. Does the location of a caller ID display and phone buttons affect either the time to answer the phone or driving performance?
2. Does the presence or absence of an auditory ring (where the HUD caller ID indicated a call) affect either the time to answer the phone or driving performance?
3. Does increased driving workload affect either the time to answer the phone or driving performance?
4. What were the initial driver reactions to a HUD-based call timer?

2 Test Plan

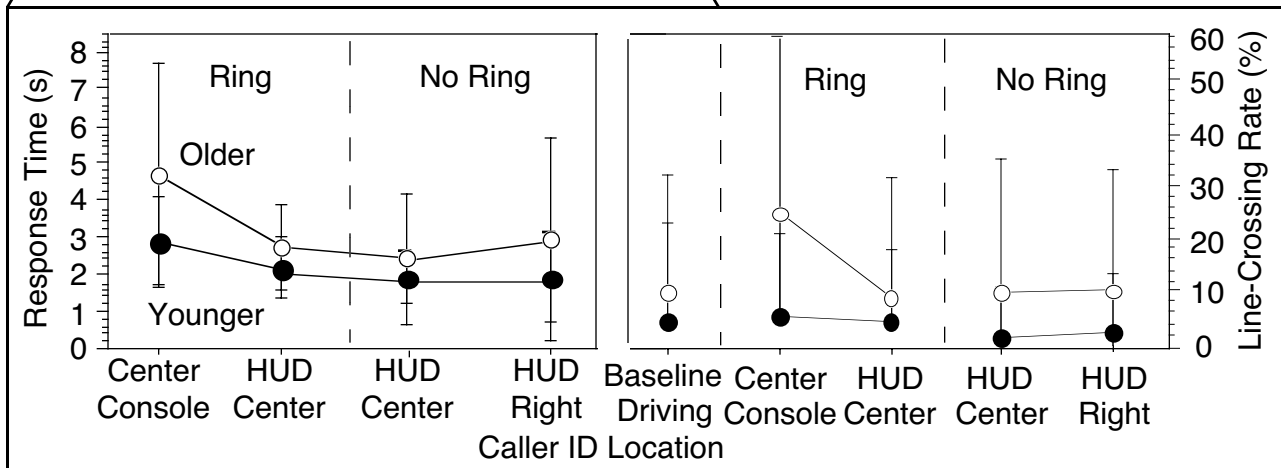


Test Participants

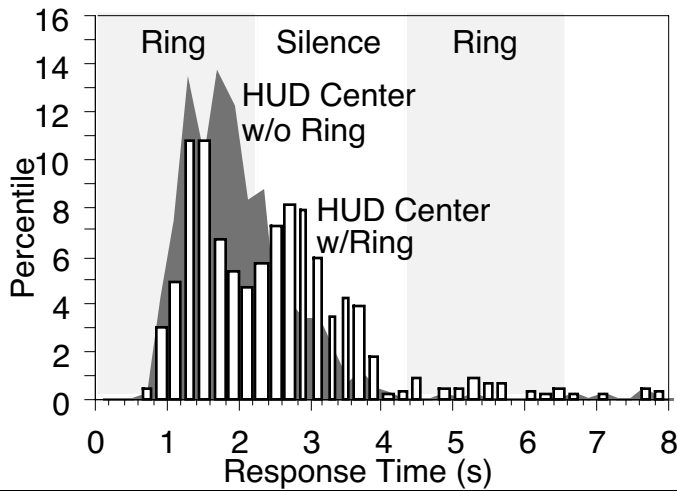
N=24	Female	Male
Older (60-75)	6	6
Younger (18-30)	6	6

3 Results and Conclusions

Issue 1: Effects of caller ID and button location

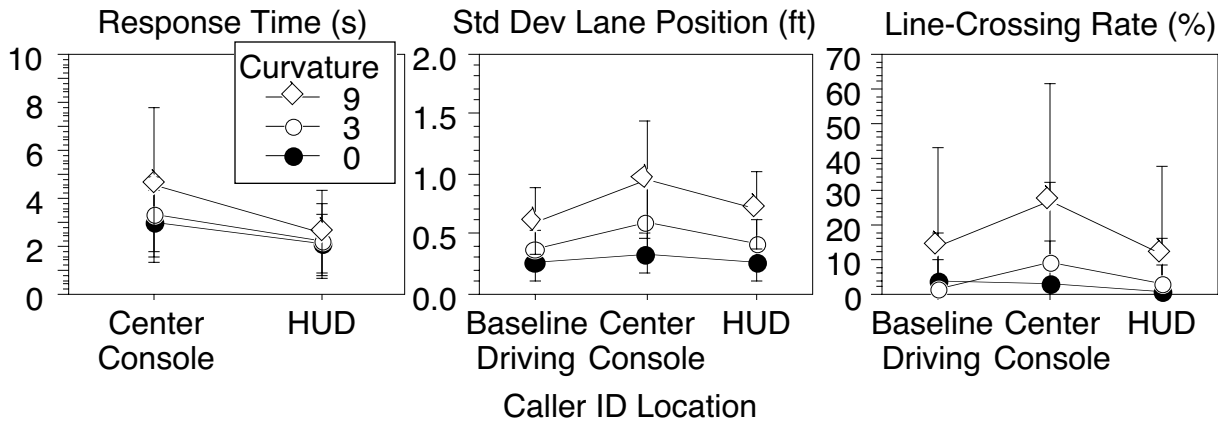


Issue 2: Effect of auditory ring



No. of Drivers	Ring/No Ring Difference
10/24	Response time unaffected
9/24	Response time slowed
5/24	No consistent RT trends
24/24	Driving performance unaffected by the ring

Issue 3: Effect of driving workload



Issue 4: Driver reactions to call timer

- Seventy percent of drivers did not want to see the call timer.
- All drivers wanting the call timer also preferred the center HUD location.
- Many commented that they didn't notice the call timer in any of the locations.

4 Design Recommendations

Design Parameter	Recommendation
Caller ID Location	Use a central HUD location (e.g., within approximately 5 degrees down and 5 degrees right or left from center).
Button Locations	Use steering wheel buttons for "Talk" and "End."
Auditory Ring	Response time data suggests that the use of short auditory alerts (1 second or less) might be less distracting, but more research on other rings (including musical rings) is needed.
Call Timer	Preference data indicated that drivers did not want to see a call timer that was continuously updated on the HUD.