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ADAS Impact Assessment by Micro-Simulation

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Abstract

This article presents the results of a ex-ante impact assessment study of Advanced Driver Assistance Systems. It focuses on two systems supporting longitudinal driving tasks, namely Autonomous Intelligent Cruise Control and Intelligent Speed Adaptation (ISA). The article addresses and compares the impacts of these systems on efficiency, reliability, driving comfort and safety by micro-simulation, for different penetration levels and bottleneck lay-outs.

The analysis reveals that deployment of cruise control improves bottleneck capacity, while on the contrary, the bottleneck reliability generally reduces. The impact on traffic safety is undetermined, and the cruise control has a negative impact on driver comfort. ISA has no considerable effect on capacity. Also, no substantial contribution to the bottleneck reliability could be established. The expected safety benefits of ISA could generally not be established using the assessment methodology applied in this research.

Received: July 2001
Accepted: November 2001

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