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The influence of the Advanced Emergency Braking System in critical scenarios for autonomous vehicles

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Abstract

This paper proposes use indications for an Advanced Emergency Braking System (AEBS) module developed in Matlab and included in a Simcenter Prescan simulation. The analysed indications depend on a Long-Range Radar (LRR) and Short-Range Radar (SRR) beam range, on the speed of the autonomous vehicle and on the time between the detection of the obstacle in front of the autonomous vehicle and the time the obstacle starts to move. The simulated scenario consists of an autonomous vehicle that travels at a certain speed, where another vehicle starts to move from a bus station after a sudden stop, challenging the autonomous vehicle to stop in a safe manner and in a short time.

Keywords: autonomous vehicles, long-range radars, short-range radar, braking systems

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