

## Car-to-Car Communication

- First driving demonstration of car-to-car communication between Mercedes-Benz E-Class and Dodge Durango

- The innovative technology helps to optimize traffic flow and appreciably enhances traffic safety

- DaimlerChrysler is preparing demonstration tests together with the Federal Department of Transportation and several states

A pioneering initiative is being shown at the DaimlerChrysler Innovation Symposium by research engineers from the Research and Technology Center North America, based in Palo Alto, California. For the first time, DaimlerChrysler is presenting a dynamic driving demonstration of broadband car-to-car communication between a Mercedes-Benz E-Class and a Dodge Durango. With this initiative, DaimlerChrysler is the first automaker to publicly test this new wireless communications technology. The company is moving forward with this Dedicated Short-Range Communication (DSRC) technology, which makes real-time communication possible between a vehicle and roadside stations and from one vehicle to another.

With the aid of car-to-car communications, the selective forwarding of information helps to optimize traffic flow and appreciably enhances traffic safety. For example, if a vehicle encounters a critical situation such as congestion, fog, ice or an accident, it can pass the relevant information on to all road users in the immediate vicinity of the danger spot. Traffic approaching from further away is given ample warning and can respond to the situation.

Cars equipped with DSRC can communicate directly with one another, also making it possible to transmit braking signals back over several vehicles, giving drivers early warning that they might soon have to brake. In this information network, each vehicle can take on the role of a sender, receiver or router. It allows a chain of information to be passed on, like a relay race. With the aid of this process, known as multi-hopping, information can be spread further to cover a substantial distance. The data exchange between vehicles is made possible by ad-hoc networks. These short-distance connections are spontaneously created between the vehicles as the need arises and can organize themselves without the help of any external infrastructure. DCRS uses Wireless Local Area Network (WLAN) technology to transmit data at 5.9 Gigahertz over a distance of up to 1,000 meters.

The technology represents a further significant milestone towards realizing the Vision of Accident-free Driving. According to investigations by the US National Highway Traffic Safety Administration, 88 percent of all rear-end accidents are the result either of inattention on the part of the driver or of travelling too closely to the vehicle in front. DCRS can help prevent such accidents or reduce their severity.

The system is primarily designed to enhance safety and improve traffic flow on the road, but it can also be used to transmit other data such as digital music, movies or even map updates for the on-board navigation system into the vehicle which could be added benefits and value. DaimlerChrysler is working with the Federal DOT and several states (Michigan, California and Florida) to prepare demonstration tests of vehicle-to-infrastructure communications. Working through the Vehicle Infrastructure Integration (VII) initiative, DOT is expected to select a set of locations for a series of progressively more integrated tests from 2005 through the end of the decade.

The Vehicle IT & Services Research department in Palo Alto focuses on technologies and applications for infotainment, vehicle relationship management and communication-based driver information and driver support systems. The team of approximately 20 research scientists and engineers at the facility identify new technological trends, develop them further and then implement them in prototypes. The objective is to rapidly equip DaimlerChrysler vehicles with innovations that offer clear customer utility.