



Safety measures

Maintenance of road markings and RRPMS is essential for road safety. A flexible new system makes measurement of such traffic guidance tools easier and more accurate

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Road markings and raised retroreflective pavement markers (RRPMs) are important tools in securing efficient and safe traffic flow. Statistics show that night-time driving in particular increases the risk of fatal accidents, in which poorly maintained traffic guidance tools like markings may be a contributing factor.

To maintain high visibility is a very important task in road administration. High visibility is ensured by periodically measuring the retroreflection with a retroreflectometer, which will also allow the road owner to plan the maintenance and replacement of markings and RRPMS.

To make this task more efficient and ensure accurate measurements, Delta has introduced the new LTL-M mobile retroreflectometer. The product is based on a new patent-pending technology that makes use of a proprietary flash system, digital camera technology and real-time digital image processing.

The technology allows Delta to offer a retroreflectometer that is very easy to mount, calibrate and operate, and is able to provide

measurement results as accurate as those obtained using handheld instruments.

LTL-M is a flexible system that can be mounted on any kind of vehicle. The preferred vehicle choice is some type of working vehicle or an SUV. The system can be mounted on a standard passenger car, but the vehicle may need some modifications such as harder suspension. Mounting the fittings on additional vehicles enables the rotation of the LTL-M system to other vehicles. The LTL-M system will be ready for use 15-20 minutes after mounting, and after a simple calibration procedure has been performed.

Performance tests

Independent tests in 2009 and 2010 confirmed the LTL-M system's superior performance in terms of accuracy. The test in 2009 was performed by the Swedish National Road and Transport Research Institute (VTI) on more than 30 road stretches in Denmark and Sweden. The test in 2010 was commissioned by the European Committee for Standardisation (CEN), and was run on 22 stretches of road in Belgium.

Both studies showed the LTL-M system to be superior to other tested mobile systems on systematic and random errors, and better or equal on repeatability.

To further improve the performance of the LTL-M system, Delta now offers the possibility to add a distance measuring instrument (DMI) and an overhead camera. The DMI is mounted on one of the vehicle's wheels and measures the precise driven distance even on road stretches where the GPS may not deliver coordinates. The overhead camera is mounted in the vehicle's windscreen and will record the road conditions as seen by the driver. When reviewing the measurement results it is possible to open the video and investigate the actual conditions of a particular stretch of road. The video comes with the measurement data overlaid.

Delta has been looking into the option of delivering the LTL-M system integrated into road survey platforms. The first such integration has been undertaken by Australian company ARRB in the Hawkeye platform, where LTL-M is one of several components delivering data. ■