



# Upon reflection

The role that retroreflection can play in improving traffic safety – and why standards are particularly useful in this sector

Words | **Kjeld Aabye, DELTA, Denmark**

There is much focus on traffic safety in Europe today. The aim of various European traffic safety programmes is to reduce the overall number of accidents on roads and therefore the number of people injured and killed. In the first EU programme, implemented between 2001 and 2010, the goal was to reduce by half the number of people killed in road accidents. Most EU countries showed significant improvement over that decade and a few countries even met or exceeded the target, with an overall improvement of more than 40%. A second road safety programme has been implemented for the period 2011 to 2020, with the target to reduce the number of

people killed in traffic accidents by another 50%. The programme mentions seven strategic areas of focus, one of them being the establishment of safer roads.

## Road markings, traffic signs and safety

Road markings and road traffic signs are important tools to ensure efficient and safe traffic flow. Research shows that night-time driving in particular increases the risk of fatal accidents, and poorly maintained traffic guidance tools such as road markings and road traffic signs may be a contributing factor to accidents occurring. Maintaining high visibility levels is a very important task

for road administrators. High visibility is ensured by measuring the retroreflection periodically with a retroreflector and carrying out maintenance if minimum retroreflection levels are not met. This procedure also allows road owners to plan maintenance and replacement of road markings and road traffic signs, optimising their often limited budgets.

## Minimum retroreflection levels

Standards covering the European Union countries are in place. Among other things, they propose minimum retroreflectivity levels to ensure safe driving under different weather and driving conditions. The

following two standards are in place for road markings and road traffic signs: EN 1436 'Road marking materials - Road marking performance for road users'; and EN 12899 'Fixed vertical road traffic signs'.

A third standard, EN 471 'High-visibility warning clothing for professional use - test methods and requirements', deals, among other issues, with minimum retroreflection levels of warning clothing used by road workers.

EN 1436 is based on the internationally recognised 30m geometry. It simulates how a person driving in a standard car sees the retroreflection of a road marking 30m ahead. The standard includes recommended



(Main) **Vehicle-mounted retroreflectometers are being embraced by the industry**

(Left) **The LTL-X is designed for measuring road markings**

minimum retroreflection values applied to different types of road classes, under different driving conditions (dry roads, wet roads, rainy conditions, daytime driving, night-time driving) and on white and yellow markings.

EN 12899 is a specific European standard. It simulates how a person driving in a standard car sees the retroreflection of a road traffic sign approximately 100m ahead. The standard includes recommended minimum retroreflection values applied to different types of sheeting material (engineering grade, high intensity grade) and different colours. The standard deals with type approval, certification testing and testing of resistance to weathering – the situation on the road.

## Retroreflectometers

Retroreflectometers have been available on the market since the 1980s. DELTA has been driving their development since the first retroreflectometers, with its LTL800 model, followed by LTL2000 and more recently LTL-X and LTL-XL for road markings and the RetroSign line for road traffic signs. Most recently, mobile retroreflectometers mounted on a car

measuring retroreflection at traffic speed have caught the market's interest, the newest launch being DELTA's LTL-M system, which is based on digital camera technology and digital image processing ensuring accurate measurements.

A retroreflector is able to measure the retroreflection of road markings and road traffic signs as seen by the driver of a car. The retroreflector provides a figure that can be related to the minimum retroreflection levels stated in the standards and be a good and sound basis for decisions on maintenance of markings and signs.

## Improving traffic safety

Ensuring the right performance levels at any time of road markings and road traffic signs will not on its own be able to have the European traffic safety programme meet its goal of 50% fewer people killed in the traffic on European roads before 2020. But high performing markings and signs will be a relatively cheap and efficient way to contribute to reaching this goal. A retroreflector from DELTA can ensure you have the right quality traffic guidance tools on the road to bring drivers safely back home. ■