



# Small and powerful

A new-generation retroreflectometer overcomes the drawbacks of historic models and is optimized to facilitate safe operation on the road

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Retroreflectometers are indispensable in the evaluation of optical performance or night-time visibility of retroreflective road materials. Despite retroreflectivity being an essential indicator in the management of resources, persistent drawbacks have been discouraging technicians from using such devices for more than 30 years. Indeed, many standard retroreflectometers can be too large, heavy and inconvenient for the job at hand.

To assess the night-time visibility of road markings it is often necessary to travel long distances. As a result, standard horizontal retroreflectometers are usually protected in large foam-lined carrying cases which easily exceed 20kg. This can make traveling with the equipment difficult for technicians.

In order to develop its new mini-retroreflectometer technology, Easylux first needed to understand three fundamental aspects: how retroreflectometers used to be, how they currently are, and how a handheld device should function.

#### Advances over time

One of the first horizontal retroreflectometer patents dates back to 1980. It was registered by an Italian citizen named Steffano Pallotta. It was for a system with a light source and a number of photo sensors, engineered



(Above) **Easylux's MiniReflecto** has been developed in accordance with **ASTM E1710, E2176, E2177 and EN1436**  
(Left) **The dynamic retroreflectometer with LED technology from Easylux can provide continuous measurements at speeds up to 120km/h**

according to a well-known geometry. All components were packaged in a large, heavy case.

Current equipment is only slightly different to the 1980 model in terms of size and shape. However, there have been notable advances with regard to the optical elements, especially in their geometry and their performance, which now has to meet ASTM E1710 and EN1436 standards. Many modern features have also been incorporated into the old, heavy (8kg), and large (70cm long) box.

Manufacturers worldwide pride themselves on having added color screens, a digital processor, internal memory and GPS, among other technology upgrades, to the old 1980s model, and thus regard themselves as innovators.

It is unfortunate that the main issue has not been given as much attention: large and heavy instruments are not safe for work on the roads and cause discomfort to the users, both during operation and when traveling.

#### A new approach

Handheld retroreflectometers should be small and light, and powered by batteries that can be easily found in the local market. They should also be suitable as carry-on luggage on an airplane. Furthermore, they should enable access to the measurement area, enabling the performance of tests under rain-simulated conditions (ASTM E2176), as well as the verification of material placement or material characteristics.

Horizontal instruments should be able to measure profiled markings of up to 15mm



(Left) **A comparison between standard technology and the new Easylux MiniReflecto**

without the need for special procedures. In the case of reflective studs, the instruments should be able to work with two observation angles simultaneously, to include truck and bus driver geometry.

Finally, vertical instruments should be capable of evaluating at least four different angles so that a single product can meet all of the ISO 20471 requirements.

#### **A new technology**

EasyLux realized how unsafe and unsuitable big and heavy instruments are for road visibility control. The company's MiniReflecto line of handheld instruments encompasses everything that retroreflectometers should be and represents the first true technological innovation in this field for 20 years.

Independent test labs – with traceable international standards – have certified EasyLux's patented technology. There is currently no other retroreflectometer that can match the performance, design, weight and reduced size of the MiniReflecto.

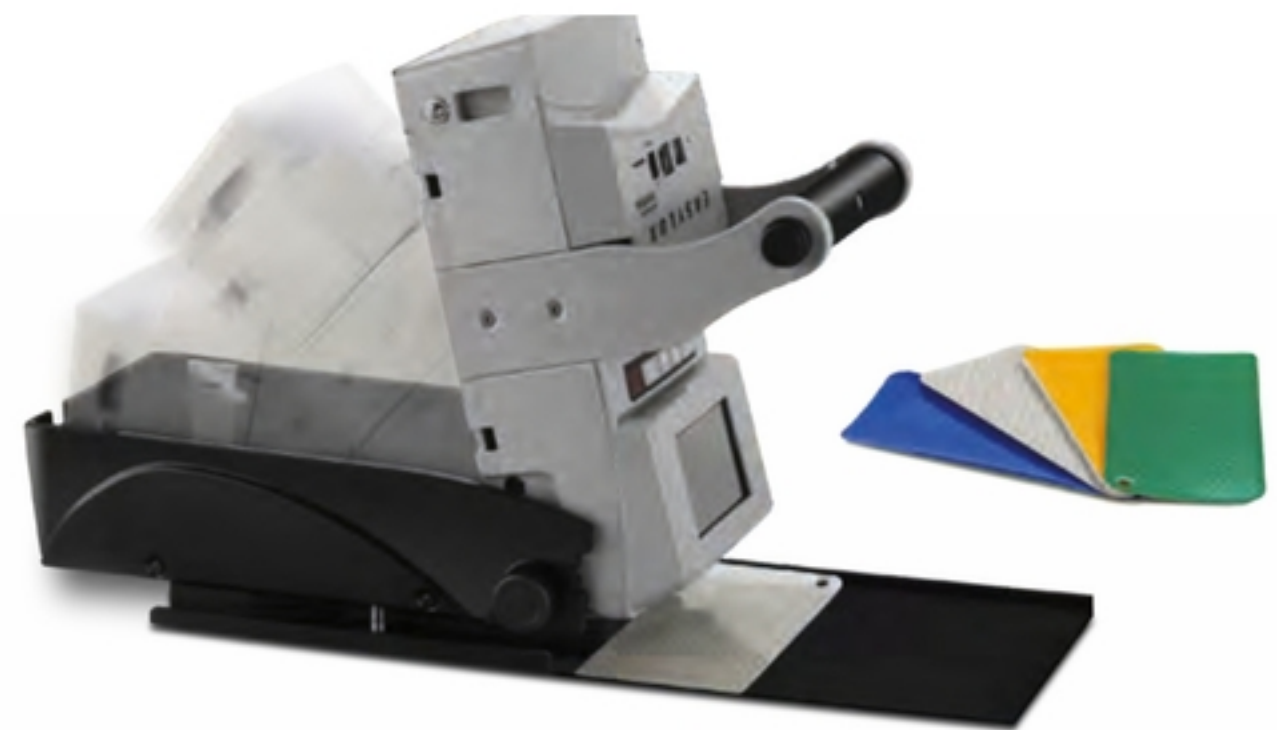
#### **Mobile alternative**

A dynamic retroreflectometer can be attached to a vehicle for night-time visibility measurements. EasyLux designs dynamic instruments with LED technology, eliminating the need to replace light bulbs – a frequent problem for old technologies. They are capable of operating at speeds of up to 120km/h (75mph), in any light condition.

The richness of the information gathered by dynamic technology enables optimized maintenance programs. However, handheld devices are still widely used in surveillance, quality and performance control, due to their lower cost and operational convenience, especially on short stretches of road. ■



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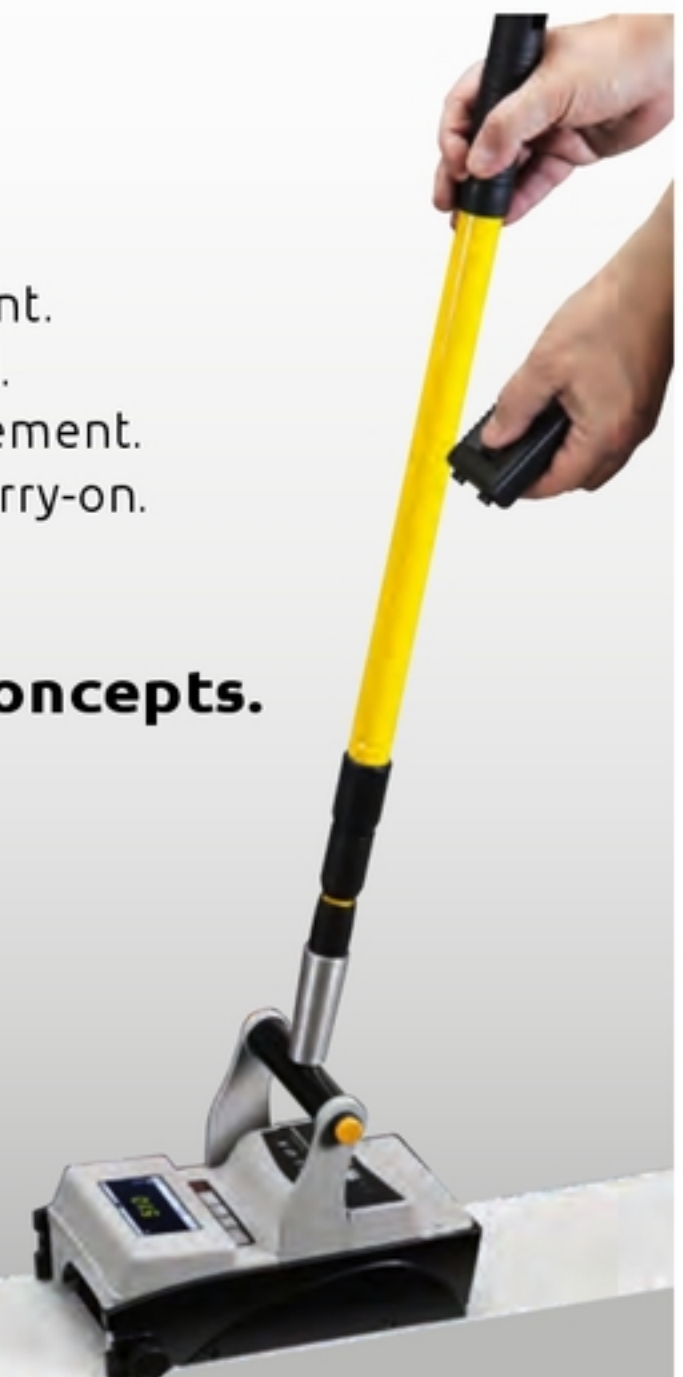


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