

Efficiently Monitoring the Performance of Road Markings and Signs

Overview

- The Centre for Research, Professional Training and Services (CRAPTS) needed to monitor the performance of road markings & road traffic signs.
- [Zehntner ZRM6014RL](#) Retro reflectometer was used for the road markings and [Zehntner ZRS6060](#) was used to measure the signage.
- The team collected precise, geolocated measurements of the retroreflectivity and created fast, comprehensive reports.

CRAPTS conducts testing for road signs and markings to improve safety and provides training services to professionals. CRAPTS was awarded a contract for road safety testing, for 1400 km of road markings and signages for the state of Odisha across various locations.

Challenge

CRAPTS needed to utilize a high-performance instrument to [monitor the performance of road markings & road signage](#) for 1400 kms at various locations in Odisha, India as per the assigned contract, to ensure road safety for drivers. Road marking visibility ensures better safety by directing & guiding drivers on the road. The team also wanted to make pre-commissioning tests of road after construction, for road safety.

Solution

The team opted for Swiss made retroreflectometers by Zehntner to ensure that they deliver the highest quality measurements and reporting for road marking and signages.

1. The advanced ZRM6014RL Retroreflectometer was used for pavement markings with GPS.
2. Zehntner ZRS6060 Retroreflectometer was used for road signages with GPS.





The base of road markings can be for example thermoplastic paints, water or solvent-borne road marking paints, which have a life depending on a variety of factors. Reflective road markings are also embedded with an optimal level of glass beads to ensure retroreflection from the vehicle's headlights. The reflectance from the road markings degrades over time.

Results

The ability of a driver to view the markings, while driving at speed, from a distance, whether in day or night, dry or wet, can ensure avoidance of accidents. A retroreflectometer is used to measure the retroreflection performance of the surface. Visibility in the daylight of the road paint is referred to as "Qd" i.e luminance coefficient under diffused illumination.

Night time visibility is referred to as "RL" i.e Retro reflection. Retroreflectometers work in accordance with EN 1436, • ASTM E 1710 (RL), • ASTM E 2302 (Qd) • and ASTM E 2177 (RL wet), and measure day and night visibility of road markings (or signages) with retroreflectometry. CRAPTS finds the Zehntner retroreflectometers very handy to operate (1- person Job), providing ultrafast test measurements that allow an operator to test long-length road stretches in much less time.



Enabled with 5.7" high-resolution color touchscreen, the retroreflectometer offers excellent visibility under all light conditions. The retroreflectometer logs all measurements with precise geolocation & provides comprehensive reports quickly with the help of user-friendly reporting software at ease.

ZEHNTNER
TESTING INSTRUMENTS

Measuring example ZRM 6014 with optional camera

Clever "MappingTools" software for easy data display and analysis

The screenshot displays the MappingTools software interface. At the top, there is a satellite map of an urban area with a red location pin and a red box labeled "Geographical position of the measurement". Below the map is a data table with columns for "Date", "Time", "Value", "Unit", "Status", and "Location". A red box labeled "Measuring value" points to a row in the table. To the right of the table is a camera view of the measuring area, with a red box labeled "Picture of the measuring area" pointing to it. The camera view shows a road surface with a white line and a red box labeled "Measuring value" pointing to a specific spot on the road.

Date	Time	Value	Unit	Status	Location
2023-10-27	10:00:00	100	cm	OK	100
2023-10-27	10:01:00	100	cm	OK	100
2023-10-27	10:02:00	100	cm	OK	100
2023-10-27	10:03:00	100	cm	OK	100
2023-10-27	10:04:00	100	cm	OK	100
2023-10-27	10:05:00	100	cm	OK	100
2023-10-27	10:06:00	100	cm	OK	100
2023-10-27	10:07:00	100	cm	OK	100
2023-10-27	10:08:00	100	cm	OK	100
2023-10-27	10:09:00	100	cm	OK	100
2023-10-27	10:10:00	100	cm	OK	100

This case study was provided by our customer [Stanlay](#), who supplied the equipment and training for this project.

See more case studies on road marking and sign visibility in our [Tech Hub](#).



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