

Large-scale Road Marking Visibility Measurements on Busy Highways

Overview

- Jiangsu Modern Road & Bridge Co. were required to assist several road companies to measure the road marking retroreflection coefficient of over 40 highways
- The [Zehntner ZDR 6020 RL](#) was used to collect the retroreflectivity data of the road markings and create comprehensive reports
- The team achieved a direct increase in detection capacity, improving measurement efficiency by 150%

Jiangsu Modern Road & Bridge Co. Ltd. belongs to Jiangsu Traffic Holding Co. Ltd. and is a state-owned specialized maintenance engineering enterprise. It regularly assists other road companies which are also under the jurisdiction of Jiangsu province, to carry out the overall collection of road marking retroreflection coefficient of more than 40 expressways.

Challenge

The hand-held marking retroreflection measuring instrument on the market is not capable of conducting a large-scale scan of the overall marking retroreflection coefficient of the highway section. Road maintenance operators need a dynamic inspection solution to address the limitations of current inspection techniques.

Firstly, the entire workflow of detection is time-consuming and inconvenient with the need to apply for section closure for the detection of road sections before testing. Each section of the detection is also extremely dependent on personnel detection, meaning detection efficiency can be low.

Second of all, based on the current standards for testing there may be insufficient number of samples per unit section, resulting in the detection results that do not reflect the overall road visibility characteristics of the markings.

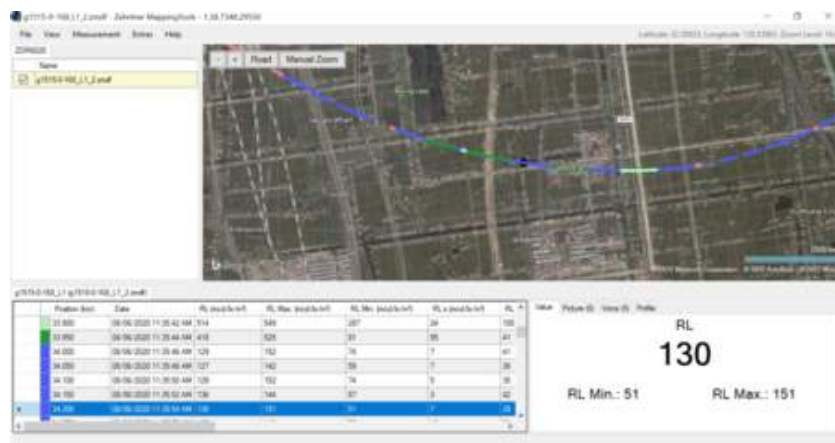
Finally, there are significant safety hazards for the inspectors in a static inspection process.

Solution

With the ZDR 6020 RL, the sampling rate is up to 300 Hz. The marking retroreflection coefficients are collected at 80 km/h and the average value of all sampling points within this distance is calculated every 50 m. A total of 200 average data within the 10 km section characterizes the retroreflection coefficient value of this 10 km high speed section.



Using Zehntner Mapping Tools, the data can be visually analyzed on a Google map or Bing map (as shown below) to observe section by section whether there are any non-conforming items of the highways in the province.



Visual analysis of the collected data on the mapping tool

Results

In the second year after Jiangsu Modern Road & Bridge Company purchased the vehicle-mounted dynamic marking retroreflection equipment [ZDR 6020 RL](#), it completed the dynamic detection of retroreflection of more than 40 highways and 20,000 km of markings for several road organizations including Sutong Bridge Company, Ninghu Company, Jiangsu Ninghang Expressway Company, Runyang Bridge Company, Jiangsu Expressway Operation Management Company, Yangtze River Expressway Company, and Yanjiang Expressway Company.

Sampling points from the previous standard provisions of 30 per ten kilometers to the current 135,000 points, achieve a comprehensive increase in detection capacity, making it possible to test the full range of provincial highway markings safely, without any traffic disruption.

- Mr. Xu Huan, Head of road testing project by roadbed pavement testing center, Jiangsu Modern Road & Bridge Company.



Mr. Xu Huan is setting up ZDR 6020 RL parameters

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