ECODYN 3
- Continuous inspection of diurnal and nocturnal visibility of road marking -

ECODYN 3 is a compact equipment that continuously measures the retro-reflected luminance coefficient of the road marking as well as the daytime and night-time contrasts.

Thus, it helps the manager to program its maintenance campaigns, to control the quality of the marking product implementation and to track their evolution over time.

Overview

The unit is compact, which is an undeniable advantage in terms of operator and user safety. It considers recent technological developments, particularly at the level of the lighting sources and digital signal processing.

The data acquisition is realized at traffic speed (easily up to 130 km/h (80 mi/h)), using one or two simultaneous heads. This new possibility offers a time saving during the implementation of the measurements. Thus, it limits the time spent on the network and the user discomfort.

The 1-meter investigation width, doubled compared to the older generation, makes easier the lateral positioning on the roadways but also the possibility to undertake simultaneously measurements of marking on the axis and on the edge (using a second head).

The use of light-emitting diode technology permits to increase in durability and in energy consumption compared with older versions.

In this new design, all the elements are grouped in the head of the equipment, facilitating the metrological integrity of data and the international deployment of the unit.

Principle

The retro-reflected luminance coefficient of a marking characterizes its ability to return to the driver the light sent from its vehicle headlights (noted RL and expressed in $mcd.m^{-2}.lx^{-1}$).

It must be measured according to a standardized lighting geometry and observation (equivalent to 30 m (98 ft)). To measure the retroreflection, Ecodyn 3 emits a pulsed white light, and measures the amount of light reflected by the marking.

The measurement geometry complies with European standard NF EN 1436 into force namely 1.24° to the plan of the roadway for the emission and 2.29° for the reception. It simulates a marking visibility of 30 m (98 ft) and corresponds to the vision seen by the driver.

Features

Metrological characteristics

Emission angle	1.24°
Acceptance angle	2.29°
Average distance of illumination	6 m (0.49 ft)
Investigated zone	1 m

Mechanical and electrical characteristics

Carrying vehicle	Minivan air-conditioned type (with rigid suspension)
Measuring box	L = 0,55 m (1,96 ft) ; l = 0,161,31 ft) m ; h = 0,28 m (5,9ft)
General power	12-Volt vehicle battery
Light source	Light-emitting diodes, life expectancy : about 50 000 hours.

Terms of use

- Clean and dry marking, without salt,
- Weather conditions: dry weather, 1 °C > 5 °C (34°F>41° F),
- Speed : 0 to 130 km/h (0 to 80 mi/h),
- Integrates into traffic, without special protection

Applications

- Continuous measurement of diurnal and nocturnal visibility of road markings (steps = 40 cm (1.31ft))
- Return of results in the form of averages by zones having an operator-defined length (100 m, 500 m, etc. or 328 ft, 1,640 ft, etc.).
- The measurement range from a few $mcdm^{-2}.lx^{-1}$ and 2,000 $mcd.m^{-2}.lx^{-1}$.
- A camera (definition of 1920 x 1080 pixels) can be added as an option on the vehicle.

Expression of results

Apart from their viewing as listings and graphs, the results can be integrated into the road databases and returned in the form of itinerary and mapping schematics.

The MLPC® equipment for the road condition survey are designed by IFSTTAR and CEREMA. These equipment are distributed by Vectra Equipment, exclusive licensee for the manufacture and marketing.

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