SYMAN – LIDAR
– For the evaluation, preservation, and management of your roadways –

Principle

The SYMAN Multifunction (Multifunction Testing System) is a device capable acquiring in a single pass all data at traffic speed (roadway and freeway). This device was designed and developed to meet the requirements of the roadway and freeway managers

SYMAN was created to be an open, modular, scalable and capable system: · To render reliable measurements, and reliable indicators, · To ensure high productivity, Without speed constraint and user interference, it works day or night

Overview

Equipped with all latest technologies, SYMAN allows surveying the essential features for the management of roadways in a single pass.

The complete integration of sensors into the body of the vehicle allows SYMAN to perform the measurements on all road networks without any discomfort to users.

THE INTEGRATED SYMAN INCLUDES:

- The LCMS (Laser Crack Measurement System) technology allows carrying out the very high definition 3 dimensional mapping of the pavement surface, essential for a reliable detection of the present degradations at the surface of modern roadways.
- A LIDAR (LIght Detection And Ranging) sensor or light laser telemetry allowing the tracking and measurement of objects close to the pavement as a continuous recording in the traffic of the heights of guide rails or the measurement of the clearance under work.

Features

Distance measurement
- Sensor: Optical encoder,
- 5,000 pulses per wheel rotation,
- Accuracy: ≤ 0.2%,
- Resolution: 0.4 mm (0.016 in)
- Indicator: distance traveled, synchronization of systems.

GPS/inertial positioning system (hybrid system of dual GPS positioning coupled to an inertial navigation unit)

- High end positioning system.
- Enables continuity of positioning in the event of masking.
- Possibility of differential correction in real time.
- Ability to post processing.
- Accuracy of the X Y positioning between 2 m (6.6 ft) and a few cm/in.
- Geo-referencing of data in GPS coordinates,

Geometrical characteristics
- Sensors: inertial GPS hybrid, laser,
- Evaluation of the roadway geometrical characteristics,
- Precision of the slope and roll: 0.05°,
- Accuracy on the course: 0.05°,
- Indicators: cant, slope, radius of curvature in plan...
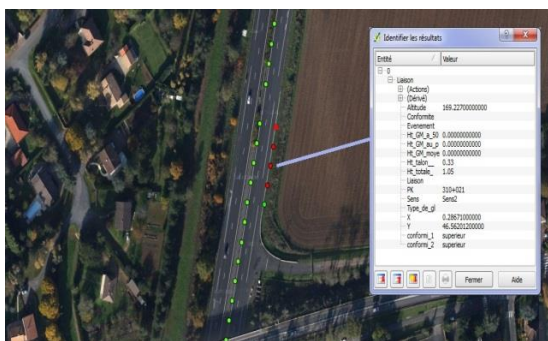
Rolling noise
- SONOROUTE System mlpc®
- Comprising 3 microphones and a dedicated recorder.
- Study of the acoustic performance of pavement coverings in situ.
- Complies with LPC test method no.

63 Environment camera

- 1 Environment camera
- Resolution > 2Mpixels.
- Adjustment of the camera optimized depending on the lighting conditions.

Transverse profile
- Width of profile: 4 m (13.1 ft)
- Profile consists of 4,000 points on a travel lane,
- Transverse resolution: 1mm (0.04 in)
- Vertical resolution (depth): 0.5 mm (0.2 in)
- Indicators: depth and width of rut, amount of reshaping, potential water height, flatness...
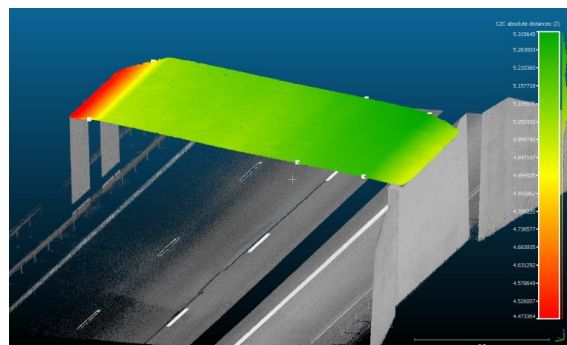
Longitudinal profile Mlpl Tri-track + Macrotexture

- 2 sensors in rolling tracks (Roughness / Macrotexture)
- 1 sensor in the central band (Roughness / Macrotexture) – no-traffic reference zone
- Qualified function mlpc®
- Sensors: laser, gyroscope, accelerometer,
- Measuring range: ± 100mm (3.94 in)
- Vertical resolution: 0.1 mm (0.004 in)
- No acquisition (for roughness): 5 cm (1.97 in)
- High frequency lasers allowing the computation of the macrotexture on the 3 traces,
- Indicators: Raw profile, IRI, APL (NBO, EBO, QSPO), CP, SW, MPD...

Surface condition (degradations)
- Sensors: camera, laser,
- Acquisition of very high-resolution 3D profiles of the travel lane independent of lighting conditions,
- Width of the visualization: 4 m (13.1 ft)
- Optimized manual detection.
- Automatic detection made possible and relevant through depth information (3D) carried out by the algorithms.
- Minimum detection characteristics: crack width 2 mm (0.08 in),
- Indicators: qualification and quantification of surface degradations. Macrotexture.