Acoustic Testing Delivers 100% Quality Inspection of On-Board Tolling Computers

At Continental AG, Polytec industrial vibrometers are used for 100% inspection of tolling computers. The IVS-400 Industrial Vibrometer is integrated into the tolling computer test station to measure the structure-borne sound of a component without direct contact, ensuring that a specified target value is met and that the component functionality is assured.

Tolling Computers Help Fund Growing Infrastructures

Increasing freight traffic and volume on roads and highways are being forecast. To develop the necessary infrastructure and to properly maintain it, tolling systems have been developed which automatically capturing individual journeys and permit allocating toll charges by individual use. The on-board tolling computers are developed and produced by Continental for the German and European markets.

The product portfolio covers all aspects of the tolling system (Fig. 1). In addition to the dashboard and front screen solutions that can be retrofitted to existing vehicles, DIN slot solutions are being offered. Continental is also providing the on-board units for the Slovak Republic.

100% Inspection in Production

To ensure the uninterrupted service of the tolling computer, the final units are subjected to 100% inspection. In addition to testing the actual functions, for example GPRS tests, the keys are tested mechanically with the aid of a robot. Acoustic testing of the alarm buzzer is also performed. The measurement task involves comparing measured outputs with predefined amplitudes according to vibrations produced at 2,700 kHz for example. All measurement data must be recorded. The acoustic testing has been carried out in a closed cell (to screen out external noises) using a microphone measure-

Fig. 1: Various tolling units.
The IVS-400 Industrial Vibrometer is an integrated single-box digital vibrometer, specifically developed for non-contact vibration measurement in production test applications. It features a robust and compact design, sealed (IP-64 standard) to cope with the challenges of harsh industrial areas. It exploits the latest digital signal processing techniques to ensure accurate and repeatable measurement from uncooperative surfaces. Further benefits include three measurement ranges up to ±500 mm/s, an excellent signal/noise ratio and a linear frequency response from 0.5 Hz up to 22 kHz.

The all-in-one CLV-2534 Compact Laser Vibrometer comprises a 19” rack-mountable controller supplying laser power to the vibrometer head via a fiber optical cable. The unit is compact and flexible in application. Surface vibration is measured in velocity and displacement with high precision and low noise over a bandwidth of 3.2 MHz at 10 m/s maximum velocity. A wide range of options such as an integrated video camera and microscope objectives make the CLV-2534 an ideal tool for industrial and lab measurements on structures varying in size from the micro to the macroscopic.

More Info:
www.polytec.com/vibrometers