Prosig Case Study

Highway Study



The customer uses a Prosig P8004 connected to a custom triaxial accelerometer to study tarmac surfaces. As a car moves over a road it causes a ripple in the road surface. DATS is used to derive displacement from the measured accelerations. The results are used to study different types of surface and changes due to humidity and temperature. The goal is to find a surface that does not flex and break, but is not too rigid.

Highway Study



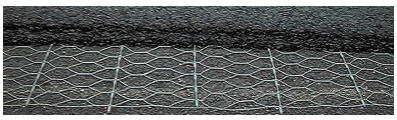
It would be reasonable to consider vehicle roadway (often called pavement by the industry) as a solid and rigid medium. In fact, this is far from the truth.

A major transport research organisation needed to study and understand how pavement behaved under different enviromental and traffic conditions. So a test programme was undertaken to study the displacement of the road surface as a vehicle passes over. The objective of the study was to understand the behaviour of the pavement. Using the results, the construction of future pavement could be improved and maintenance costs reduced.

Using specially developed triaxial accelerometers, different pavements were tested. The Prosig P8000 allowed the data to be monitored in real time. The DATS software allowed acceleration data to be viewed and analysed as displacement and velocity in both real time and post processing.



From studying of the displacement of the surface, researchers now understand that vehicles on pavement cause similar phenomona to a ship on the ocean causing a bow wave. Indeed, each vehicle wheel causes its own bow wave. When these propagate through the road surface some waves construct to form even larger displacements.



It was only by studying the frequency content and completing a full spectral analysis of the surface waves that conclusions could be drawn on future pavement contruction.

Through consultation with construction engineers methods for long term improvements on displacement issues were developed. These took into account changes due to temperature and humidity and, of course, vehicle usage.

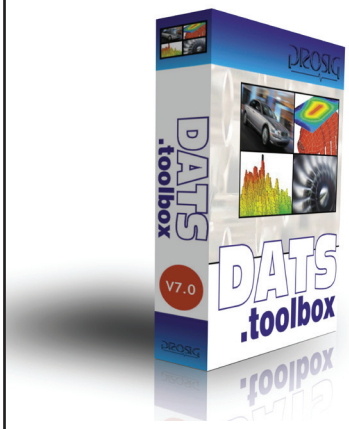
System consists of

P8004
24-bit data acquisition system



1 x P8004 System

DATS
Analysis software



1 x DATS.toolbox software

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