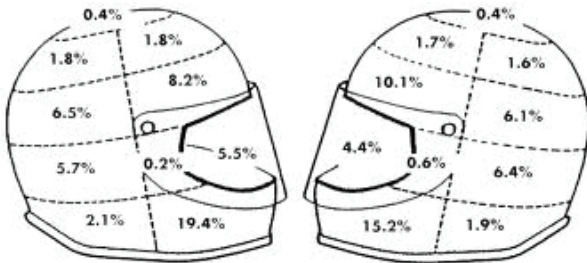Prosig Case Study

Helmet Compliance

A weight is dropped on to a motor cycle helmet mounted on a dummy head. The acceleration of the weight and helmet is measured. Different acceleration profiles must be achieved for different test standards. The DATS Human Response software is used to check if the test has met the required profile and to verify whether the helmet meets the necessary standards.

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Helmet Compliance

Fast results and ease of use are key when you are one of the most advanced and busiest helmet testing facilities in the world. A helmet must pass all of the tests before it can be certified. The customer needs an accurate, fast and reliable measurement and analysis system.

Before a helmet can be certified it must be tested. Technicians conduct a variety of tests to determine the helmet's performance and its ability to remain securely in place. These tests have to be carried out under defined different conditions and situations.
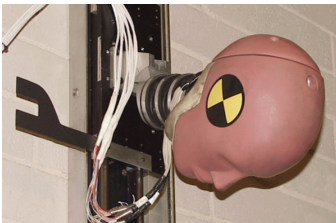
The impact or drop testing stage of certification requires a series of tests. The helmet is positioned on a head shaped dummy, usually constructed from steel. Then, a variety of shaped objects are dropped onto the helmet from various heights to simulate different impact velocities, forces and directions. Flat, Hemisphere, Kurbstone, Roll bar, Edge and Horseshoe shapes are used to simulate a range of different impact surfaces.

Distribution of impact locations on motor cycle helmets

For motor cycle helmets with a chin bar, the helmet is mounted on a dummy head and a mass dropped on to the chin bar.

Next the helmet is subject to Stability Testing. For this it is mounted at a particular angle on a dummy head. Then a mass is 'hung' from the back of the helmet to try for displace the helmet from the dummy head. The helmet must stay firmly attached.

Finally, the helmet is fitted to a dummy head and a mass with a sharply pointed striker is dropped onto it. This is known as Penetration Testing. The striker should not penetrate the helmet in any way.

Using Prosig hardware and software the customer is able to monitor signals from various sensors and record the results of the tests. The user is further assisted by the Prosig software which automatically applies international standards for certification to the stored data. The software also produces reports that are subsequently used for certification.
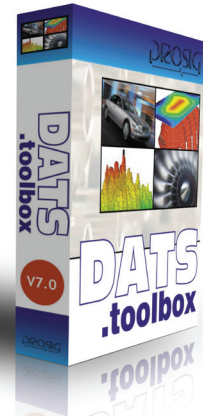
System consists of

P8004
24-bit data acquisition system

1 x P8004 System

DATS
Analysis software

1 x DATS.toolbox software
1 x DATS Human Response Analysis

Contact Prosig

Prosig Ltd (UK)
Email: sales@prosig.com
Phone: +44 (0)1329 239925

Prosig USA Inc
Email: prosigusa@prosig.com
Phone: +1 248 443 2470

THE BRITISH ASSESSMENT BUREAU
ISO9001

UKAS MANAGEMENT SYSTEMS
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