

## Instrumentation corner

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This is the start of something new, and for want of a better title, the Measurement and Instrumentation group has named it Instrumentation Corner. It will be the first in a series of a regular column from the Measurement and Instrumentation group. Each member of the committee will select a topic for the column to give hints and tips about anything relevant to practical measurement work in sound and vibration.

It should prove to be an interesting series as the M&I group committee members, between them, cover a wide range of expertise, not only in the fields of acoustics and vibration, but also in instrumentation and measurement in general, although we do not stray too far from the core aspects of the Institute.

So where to start? At the beginning is often the best, so here goes. The Institute of Acoustics was formed in 1974 by the amalgamation of the Acoustics Group of the Institute of Physics and the British Acoustical Society. Full information about the IOA can be found on the Institute web site. It was a further 21 years before the Measurement and Instrumentation group was inaugurated. This gap seems a little surprising given the importance of instrumentation and good measurement practice within the other specialist groups. Right from the start the new group set a goal (which has remained) of education for users in making accurate measurements, using precision instrumentation, calibration and traceability to standards with best measurement practice always at the forefront. The mission statement for the group can be found on the M&I web page.

Over the past 13 years the group has organised one-day and two-day meetings on subjects including noise mapping and long term monitoring, sound power and intensity, human response to vibration, legislation, and speech intelligibility. These meetings have been held at a range of venues such as a Space Centre, amongst motorcycles and cars, and at a palace, as well as the more usual hotels and universities. The picture shows a number of delegates measuring the noise outdoors at the Shuttleworth Collection, from a range of sources such as this tractor from about 1940.

Looking forward to 2009, the year will see the publication of two quite interesting but completely different documents from Europe. One is the new Machinery Directive, which includes noise levels and vibration values covering safety. The other deals with ride comfort for railway passengers. Understanding and implementing standards, and the legislations that require compliance, are important to health and safety as well as the quality of life.



Agricultural machinery noise was not limited in the 1940s

The Machinery Directive has been recast from the earlier Directive and will come into force on 29 December 2009. It is a wide ranging Directive covering all aspects of risk assessment to ensure the health and safety of persons, in particular workers and consumers, by inherently safe design and construction of machinery. The adaptation of nearly 600 harmonised standards has been necessary.

Noise and vibration are but a small part of this comprehensive Directive but they are of great importance to the members of the IOA. The changes to the reporting of the noise and vibration emissions are that the uncertainty of measurement must now be given by the manufacturer. The changes in this Machinery Directive reflect the link to the Physical Agents (Vibration) Directive and have necessitated the ongoing revision of standards for testing hand-held, hand-guided and mobile machinery.

Sometime in spring (or summer) 2009, a long awaited revision of standard EN 12299 *Railway applications - Ride comfort for passengers* will be published. This standard should help in assessing the quality of travel for many passengers using guided transport. The comfort index NMV, from very comfortable to very uncomfortable, extends from below  $1.5\text{ms}^{-2}$  to above  $4.5\text{ms}^{-2}$ . It requires a complex calculation but should help guided transport systems improve their ride.

Look out for more hints and tips from the Measurement and Instrumentation group in future issues of *Acoustics Bulletin*.