Annex 3

PATTERN COMPLIANCE OR CONFORMITY TO TYPE

For many years, testing authorities around the world have believed that instruments submitted for type approval are carefully selected and tested instruments – often referred to as “gold plated instruments”. However, there is little evidence to support this perception, despite the fact that it was unlikely that a manufacturer would submit for type testing an instrument in which he did not have a certain degree of confidence that it would perform satisfactorily. Many testing authorities required manufacturers to provide test results in support of their application, again ensuring that the instrument submitted would be a good quality one.

In the late 1980´s the then National Standards Commission of Australia (NSC) (now the National Measurement Institute) was requested to carry out testing on some approved load cells that were to be used in weighbridge upgrades in one of the small countries in the South Pacific Region. Sixteen load cells from different manufacturers (all approved in Australia and in various other countries) were tested and only one met the performance requirements necessary for the number of scale intervals that their approvals allowed. Some performed as less than 20 % of the required standard for their existing approval.

Pattern compliance has always been a difficult activity to introduce because of the lack of funding necessary for carrying out the tests. Manufacturers were reluctant to fund repeat testing of already approved equipment as any additional costs had an impact on their ability to recover the development costs on new and existing technology.

Other examples of production instruments failing to meet the same standard as the tested and approved instrument were uncovered accidentally as there was no process of post approval testing other than the in field verification process, which cannot ensure compliance with most of the environmental and influence requirements that the instruments are exposed to during type testing. Examples that were discovered showed that screening of displays against EMC was not supplied on production models. Similarly ferrite beads on data cable were not supplied on standard production models.

In 2001 the Australian Government recognised that with mutual recognition agreements reducing the amount of testing globally, the risks of non complying instruments being supplied into the Australian market could increase and as a result they provided funding to allow random post approval testing to be carried out.

As the Government was funding the project there was to be no cost to manufacturers and as most suppliers of instruments in Australia are importing agents they were willing to voluntarily provide production instruments for pattern compliance testing.

Since the scheme was introduced tests have been carried out on over 80 instruments with the tests being restricted to those aspects which cannot be checked in the field. In order to make some allowance for manufacturing variables the non-compliance was broken up into two categories “minor failure” = no more than l.5 x MPE for type approval and “major failure” = greater than 1.5 x MPE for type approval.

Of the tests carried out to date there have been 15 “minor failures” and 6 “major failures”.

As part of the incentive for manufacturers to cooperate it was agreed that there would be no penalty for minor failures. This meant that manufacturers were very interested in the results of the testing with many going back to their supplier to have the design checked for the causes of the minor failures.

With the major failures, manufacturers voluntarily withdrew their product from the market until the causes of the failures had been determined and rectified.

This program has demonstrated that there is a need for pattern compliance testing after approvals have been granted and this will become more important as the OIML MAA has the effect of significantly reducing the amount of independent testing that instrument prototypes max be subjected to as part of the type approval process.