

Validation of Calibration Methods

E.Filipe,

Instituto Português da Qualidade, Portugal

efilipe@mail.ipq.pt

The Mutual Recognition Arrangement (MRA) signed in October 1999 by the countries of the Meter Convention has raised several problems to the National Measurement Institutes (NMI). In its objectives is stated: *“to establish the degree of equivalence of national measurement standards maintained by NMIs; to provide the mutual recognition of calibration and measurement certificates issued by NMIs; thereby to provide governments and other parties with a secure technical foundation for wider agreements related with international trade, commerce and regulatory affairs”*. These objectives are reached by *“International comparisons of measurements, key comparisons and supplementary comparisons and “quality systems and demonstration of competence by NMIs”*. The Regional Metrology Organisation, EUROMET, have decided for this last issue to implement at their NMIs a quality system following the ISO CEI 17025 standard.

The NMIs as the head of the national measurement system transfer by calibration the traceability to the SI units. To fulfill the ISO CEI 17025 standard, namely its point 5.4.5, means that these laboratories should validate their own laboratory-designed or developed calibration methods. The laboratory should always describe the way the validation of the test/calibration methods is done and this description should be a part of the quality system/manual. In the validation process an estimate is made of the representativeness, repeatability and reproducibility of the method.

A procedure for validation of calibration methods is proposed and an example of validation of calibration results is drafted by the application of Experimental Design, statistical technique that enables to make inferences about the results, namely from methods comparisons and reproducibility measurements.