

Evaluation the technical competence of the thermal mechanical laboratories by using the statistical processing of test results *

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Abstract

This research aims to present the importance of using statistical methods while establishing a quality management system in the laboratory according to the requirements of the international standard ISO 17025:2005.

In addition the research describes how statistical analysis of the tests results works and includes a practical study to evaluate the technical competence of the laboratory by using the most common statistical methods (hypothesis testing) to study the results in a scientific way enables researchers to identify weaknesses in the laboratory performance, and thus provides it with feedback and technical advice helping to determine measurement problems and to check the Trueness of tests results.

Finally, the research provides recommendations and proposals such as a necessity of applying practical methods for monitoring the performance of tests , making sure they meet quality requirements in terms of trueness and precision , and working to remove the causes that affect the quality of performance during all phases of testing, these proposals would – if they have been applied – support the laboratory to obtain the certification in accordance with international standard ISO 17025:2005.

Key Words: Quality Management System, Hypothesis Testing, Measurement Trueness and Precision, Accreditation, Laboratory performance.

* For the paper in Arabic see pages (501-513).

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