

Adjustment, calibration and verification

What's the difference?

Adjustment, calibration and verification are three terms that are often confused but have distinctly different meanings and roles in metrology traceability—change vs. comparison vs. evidence. Understanding the difference among the three terms is crucial to accurate device maintenance.

Adjustment

Adjustment involves making a **change** to a measuring system. It's a set of operations carried out on a measuring system so that it provides prescribed indications that correspond to the given values of a quantity to be measured.

Calibration

With calibration, **no changes** are made to the measuring system.

Calibration is a **comparison** between a known reference to a device under test. It is an operation that, under specified conditions, establishes a relation between the quantity values with measurement uncertainties provided by measurement standards and corresponding indications with associated measurement uncertainties and, in a second step, uses this information to establish a relation for obtaining a measurement result from an indication.

Verification

With verification, on the other hand, objective **evidence** is required

Verification is the provision of objective evidence that a given item fulfills specified requirements

In verification, we provide objective evidence usually through a calibration event, that an item meets or does not meet a given specification.

The three processes are easily confused but are very different. Each one has an important role to play in the accurate measurement of device performance.

Adjustment: Making a change to a measuring system

Calibration: Comparison made between a reference and a device under test

Verification: Objective evidence that an item fulfills a specification