

Documentation

TMAP Calibration Report

This document conforms to ANSI/NCSL Z540-1 and the superseded Military Standard Spec 45662A. The weighing designs used for this calibration are extensive and consist of repeated comparisons, the same as those used at the national level (NIST). When these calibrations are performed, the 4-to-1 uncertainty to tolerance ratio is met for a weight range of 10 kg to 1 mg, thus giving the most accurate values of the weights as possible. Weights that include this document are traceable to NIST.

TMAP Traceable Certificate

This document conforms to ANSI/NCSL Z540-1 and includes all the necessary information that is required by the superseded Military Standard Spec 45662A. We use a modified weighing design, and provide the following information: nominal and correction values, tolerance for the specific class, assumed density, and the environmental conditions present at the time the tests were performed. Weights that include this certificate are traceable to NIST.

RLWS Traceable Mass Value Report

This document witnesses actual weight values, as well as uncertainties and tolerances. Weights carrying this documentation are traceable to NIST. However, the uncertainty to tolerance ratios are not guaranteed. This is not an accredited document.

Certificate Of Accuracy

This is neither a traceable nor accredited document. This document states that the mass (weight) has been compared to a known standard. The standards used must have traceability to NIST and the certificate will list the report number, nominal value, description of weight (or kit), serial number, class and tolerance.

TMAP Traceable Certificate vs. TMAP Calibration Report

The major difference between the two is the method in which the weights are compared to the known standard. They both give the actual values and uncertainties. The TMAP Calibration Report will, however, give a smaller uncertainty and a more precise value of the actual mass due to the multiple measurements that are made during the calibrating process.

Both the TMAP Traceable Certificate and TMAP Calibration Report will include the following information:

- Actual mass values or the corrections to the nominal mass of the weight being calibrated vs. 8 grams/cm³.
- The uncertainty of the measurement process as it relates to the item being calibrated.
- The environmental conditions present during the test.

- The assumed density of the weight being tested so that atmospheric buoyancy corrections can be applied.

Which Document Do I Need?

This is one of the most frequently asked questions we hear at our Mass Metrology Laboratory and often times, the decision has already been made for you depending on the class of weight being evaluated.

Sometimes the answer is obvious, as when a company has legal or contractual requirements that mandate a specific document. Government contracts may dictate a document to meet certain Military Standard specifications. Often the need for quality control requirements for ISO-9000 guidelines specify that certain standards be met in their weight documentation.

In the absence of any programs or guidelines within your company, the Accuracy Classes for Mass Standards and Test Weights chart on page 247 can be used as a guide to define whether a TMAP Calibration Report or TMAP Traceable Certificate is required.

A Certificate of Accuracy is adequate if the actual values and stated uncertainties of the weights are not necessary, and only the tolerances of the specific class are needed. These documents are normally adequate for weights used to calibrate industrial balances and scales more than 6 kg in capacity. The mass standards used by Rice Lake Weighing Systems are used to verify that those weights are within the necessary tolerances and are traceable to NIST. Weights with this document do not meet the requirements needed in legal-for-trade scale applications.

Legal-for-Trade Weight Applications

NIST Class F weights are required for all legal-for-trade applications which include any product that is sold by weight. This would include all retail scales and floor and truck scales. For these applications we recommend a traceable certificate, which will give actual values and uncertainties of the weights. Most State Weights and Measures Departments require this information as a minimum to allow weights to be put into field service.

This is usually the same information that the state gives when they certify weights. Check with your state and local Weights and Measures Department for acceptance of our documentation.