

Reliability

Business



**ASSIGN
BUSTER**

Reliability is the ability of an instrument to consistently measure a given variable and be able to produce the same results every time the variable is measured.

A more technical definition would be that it is the "probability that an equipment operating under a specified condition shall perform satisfactorily for a given period of time." (EPSMA, 4). In order to determine the reliability of an equipment, one must consider the values for the Failure Rate, the Mean Operating Time Between Failures and the Mean Time To Failure. Designers and manufactures of equipment sometimes provide published reliability data to end users of electronic equipment but sometimes it is up to the end users to compute the reliability figures from the available data. Therma 1, which is an industrial thermometer does not have its reliability data but the manufacturer has provided other technical specifications data.

It is possible to determine the reliability of an equipment using certain experimental methods and the three most common of these methods are, test-retest, equivalent form, and internal consistency hence it is possible to evaluate the reliability of Therma 1. On the other hand, an instrument is valid if it measures what it was designed to measure. The validity of Therma 1 would therefore be evaluated on the basis of its being used to measure temperature and not any other variable. Its scale and calibration would also have to be correct for the measurement of the particular units of temperature in order for the instrument to be valid. For the Therma 1 to be valid, it will have to first be reliable but it can be reliable without being valid. This may happen in the case where scale of the instrument is not properly calibrated.

In other words, the value that would be obtained for a particular variable would be the same but incorrect.