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Non Automatic Weighing Devices	Issued: 2004-03-01	Revision Number: Original	

## STP-21 MATHEMATICAL AGREEMENT OF TARE, NET AND GROSS WEIGHTS

### REFERENCE

Sections 19 of the Non Automatic Weighing Devices Specifications.

### Purpose

There are two primary requirements concerning the printing of tare, net and gross weight values. First the recorded values must be mathematically correct and, second, the recorded values must be in agreement with the displayed values.

Two situations provide the greatest potential for non compliance with these requirements. One is when a platter tare is taken to the internal resolution of the scale and the scale indicates and records Gross, Tare and Net weights. In the second, a scale sums the analog signal from two or more weighing elements and the scale indicates and records Gross, Tare and Net weights.

### PROCEDURE

The following procedure is performed on an electronic scale when a tare is taken to the internal resolution and the scale can display and/or print Gross, Tare and Net weights.

-Place a load on the platter that results in a scale indication that is just below the zone of uncertainty (or upper edge of the interval) and press the push-button tare key.

-Add more weight to the scale so the gross load is just above the zone of uncertainty (lower edge of the scale interval).

-Compare the indicated and recorded values for the Gross, Tare and Net weights. Values must be in mathematical agreement; indicated and printed values must be in agreement.

### Example of possible non compliance on a 50 t x 10 kg:

Load perceived by the scale to the internal resolution	Displayed and Recorded Values
45 006 kg Gross <u>20 004 kg Tare</u>	45 010 kg Gross <u>20 000 kg Tare</u>
25 002 kg Net	25 000 kg Net

The following procedure is performed on an electronic scale that sums the analog signals from two or more weighing elements and the scale displays and prints Gross, Tare and Net weights.

-Place a load on each weighing element that results in a weight indication just below the zone of uncertainty (upper edge of the scale interval), or just above the zone of uncertainty (lower edge of the scale interval).

-Compare the indicated and recorded values for the Gross, Tare and Net weights. Values must be in mathematical agreement; indicated and printed values must be in agreement.

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**Examples of possible non compliance on a 300 kg x 0.1 kg scale:**

	Load to internal resolution	Displayed values	Load to internal resolution	Displayed values
Scale 1	25.04 kg	25.0 kg	25.06 kg	25.1 kg
Scale 2	25.04 kg	25.0 kg	25.06 kg	25.1 kg
Sum	50.08 kg	50.1 kg	50.12 kg	50.1 kg

**INTERPRETATION OF RESULTS**

The device complies with the requirements if the displayed and printed values of Gross, Tare and Net weights are in mathematical agreement ( $N + T = G$ ); and displayed values agree with printed values.

**REVISION**

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