



National Conference on Weights and Measures

"That Equity May Prevail"

An Overview of the National Type Evaluation Program



What is The National Type Evaluation Program?

The National Type Evaluation Program (NTEP) is:

- A program operated by the National Conference on Weights and Measures.
- Operated by 2 individuals
 - NTEP Administrator
 - NTEP Specialist
- Supported by 5 brick and mortar laboratories.
 - New York, Maryland, Ohio, USDA, and California
- Supported by 4 field evaluators (2 with NTEP & 2 with a State)



What is The National Type Evaluation Program? -continued-

The NTEP reports to the NTEP Committee which is a subset of the NCWM Board of Directors. The committee is responsible for:

- Oversight of the program.
- Provides final review and approval of recommendations to amend *NCWM Publication 14, Technical Policy, Checklists and Test Procedures*.
- Provides recommendations to the NCWM Board of Directors for amendments to *NCWM Publication 14 Administrative Policy*.



What is The National Type Evaluation Program? -continued-

The NTEP Committee also addresses NCWM's involvement in:

- International standards development
 - Agreements related to type evaluation and certification.
- OIML-Certification System (OIML-CS)
- Signed agreement to be a utilizer of load cell test data.
 - Has representation on the OIML-CS Review Committee



What is The National Type Evaluation Program? -continued-

➤ Mutual Recognition Agreement (MRA) with Measurement Canada.

Fuel Dispensers	Scales
<ul style="list-style-type: none">• Gasoline and Diesel Dispensers• High-speed Dispensers• Gasoline and Diesel Meters Intended to be Used in Fuel Dispensers and Truck Refuellers Only	<ul style="list-style-type: none">• Electronic Computing and Non-computing Bench and Floor Scales with a Capacity up to 1000 kg (2000 lb)• Separate Weighing/Load Receiving Elements with a Capacity of up to 1000 kg (2000 lb)• Separate Electronic Indicators (except those that are "software based"; i.e., programmed by downloading parameters)• Mechanical Scales up to 10,000 kg (20,000 lb)



What does NTEP Do?

- Provide type evaluations and certification services for many different weighing and measuring device types.
- Provides technical support to NTEP Sectors and Work Group meetings.
- Publishes the checklist and test procedures to support device evaluation testing.
- Provides technical advisors to the National Specifications and Tolerances Committee.
- Operates the Verified Conformity Assessment Program (VCAP).



NTEP Evaluation Process – Start to Finish

1. Receive an application for device evaluation.
2. The application is reviewed for accuracy and if accepted;
 - a. Control Number is assigned (Internal project tracking number)
 - b. Evaluation is assigned to Lab or Field Evaluator
 - c. Customer is notified and given evaluators contact information
3. The evaluator and the applicant work out the details of the device testing schedule.
4. Device is tested.
5. A draft Certificate of Conformance is written and approved by the applicant.
6. The Certificate of Conformance is reviewed for accuracy and consistency and published.



NTEP Technical Policy by Device Type

NTEP has technical policies that guide the evaluator through the selection of samples for evaluation that ends up with the NTEP certification of a wider range of devices in the family.

For example: a manufacturer may want NTEP certification of a family of scales which are of the same design but differ in platform size, capacity and increment size.



NTEP Technical Policy by Device Type

Let's look at an example:

Model	Capacity (lb)	Increment Size (lb)	Platform Size
ABC-6	6	0.002	6" x 6"
ABC-15	15	0.005	9" x 9"
ABC-30	30	0.01	18" x 18"
ABC-60	60	0.02	18" x 24"
ABC-120	150	0.05	18" x 30"
ABC-120	150	0.05	24" x 30"

NTEP does not want to evaluate each model, however; we do want to evaluate the 'worst' conditions to have confidence in certifying all models.



NTEP Technical Policy for Complete Scales

- a. The lowest capacity and the highest capacity.
- b. The largest platform area for each of the capacities submitted.
- c. The most resolution (highest number of scale divisions.)
- d. The smallest scale division value (d.)
- e. Not to exceed a capacity range of 10 to 1.

Model	Capacity (lb)	Increment Size (lb)	Platform Size	Number of Increments
ABC-6	6	0.002	6" x 6"	3000
ABC-15	15	0.005	9" x 9"	3000
ABC-30	30	0.01	18" x 18"	3000
ABC-60	60	0.02	18" x 24"	3000
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NTEP Technical Policy for Non-Modular Vehicle Scales

Non-Modular Vehicle Scales (Weighing/Load Receiving Element):

- a. Nominal **capacities** up to 135% of evaluated capacity.
- b. **Widths** up to 120% of the width of the platform tested. (limited to 12')
- c. **Lengths** no shorter than 7' and up to 150% of the length of the platform tested.
- d. A **span** between sections of not more than 20% greater than the equipment evaluated.
- e. **Concentrated Load Capacities** (CLC) from 50% to 100% of the CLC value tested.
- f. Limited to the **platform material** evaluated (Concrete, Steel)



NTEP Technical Policy for Modular Vehicle Scales

Modular Vehicle Scales (Weighing/Load Receiving Element):

- a. Nominal **capacities** not more than 1.5 times CLC for a two-section scale to 135% of capacity of the device evaluated.
- b. Platform **lengths** no shorter than 7'. Increased lengths for scales with two or more modules are not restricted as long as the v_{min} relationship formula is satisfied.
- c. **Span(s)** between sections which is (are) not more than 20% greater than the span of the largest two-section, four load-cell module evaluated.
- d. **Widths** up to 120% of the width of the platform tested. (limited to 12')
- e. **Platform construction and material** similar to that of the device evaluated.
- f. **Module connection type** will be limited to the original type evaluated.



NTEP Technical Policy for Round Hopper Scales

Cylindrical Cone Bottom Tank or Hopper:

- a. Weighing **capacities** from 20% to 125% of the evaluated capacity.
- b. Tank or hopper **height** from 50% to 125% of the height of the evaluated device.
- c. Tank or hopper **diameter** from 50% to 110% of the diameter of the evaluated device.
- d. Tank or hopper **construction and materials** similar to that of the equipment evaluated.
- e. **Number of load supports** equal to or greater than the number of supports in the device submitted for evaluation.



NTEP Technical Policy for Rectangular Hopper Scales

Rectangular Tank or Hopper:

- a. Weighing **capacities** from 20% to 125% of the evaluated capacity.
- b. Tank or hopper **height** from 50% to 125% of the height of the evaluated device.
- c. Tank or hopper **length** from 50% to 110% of the length of the evaluated device.
- d. Tank or hopper **width** from 50% to 110% of the width of the evaluated device.
- e. Tank or hopper **construction and materials** similar to that of the equipment evaluated.
- f. **Number of load supports** equal to or greater than the number of supports in the device submitted for evaluation.



Evaluations

- Once the sample device(s) are selected they are sent to the NTEP Laboratory or a field evaluation is scheduled.
- What determines if it is a lab evaluation or a field evaluation?
- Does the device fit into a walk-in temperature chamber.





Evaluations

That statement is true in it's purest form. However, there are NTEP guidelines to help us make the proper determination.

Device Type	Temperature Accuracy ⁷	Temperature Zero Drifts	Barometric Pressure	Warm-up Time	Voltage ⁴	Power Interruption ⁵	Time Dependence
Scales ≤ 2000 lb	X	X	X ¹	X	X	X	X
Scales ≥ 2000 lb	X ²	X ²	X ²	X	X	X	X ²
ECR's Computers, Bulk-weigher Controllers (without A/D)						X	
Printers						X	
Dials (spring)	X	X					X
Leaver/beam Scales and Pendulum Dials							
Weighing/ Load-Receiving Elements	X	X	X ¹				X
Indicating Element ⁶	X	X		X	X	X	
Class II Scales	X	X		X ³	X	X	X
Load Cells							
Canister-Type	X	X	X ¹				X
Hydraulic	X	X					X
All Others	X	X					X

¹ Testing is limited to some canister load cells.

² Compliance with influence factors requirements will be determined according to existing NTEP policy.

³ Test limited to power switch only, not to initial plug-in of the device.

⁴ Voltage test is 130 and 100 VAC and low battery test on DC. See Checklists and Test Procedures, Section 61.

⁵ Power interruption is pulling the plug for 10 seconds. See Checklists and Test Procedures, Section 19.

⁶ Indicating elements processing only digital information do not have to be tested for compliance with the influence factors.

⁷ Compliance with temperature requirements by NTEP is limited to temperatures that are no lower than -10 °C and no higher than 40 °C.



Evaluations

- For devices that do not require temperature testing or are too large to fit into a temperature chamber.
 - The individual components such as the indicating element and the load cell(s) must be traceable to an NTEP Certificate of Conformance (which means the components have undergone temperature testing.)
 - The device evaluation is then performed in the field



Field Evaluation - Photo's





Field Evaluation - Photo's





NTEP Certificate of Conformance

The end product is a Certificate of Conformance

You will learn more about the information in these certificates During the next presentation.

Certificate Number: 04-034A1
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NATIONAL TYPE EVALUATION PROGRAM
Certificate of Conformance
for Weighing and Measuring Devices

For: Indicating Element Digital Electronic Models: AD-4405, AD-4406, AD-4406A, AD-4407, AD-4407A Dmax: 10 000 Accuracy Class: III / III L	Submitted By: A&D Engineering 1756 Automation Parkway San Jose, CA 95131 Tel: 408-263-5333 Contact: Jerry Wang Email: jwang@adonline.com Website: www.andweighing.com
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Standard Features and Options

A label stating, "The counting feature is not legal for trade" is attached near the weight display for those models with this function

Automatic zero setting mechanism (AZSM)	RS-232 serial interface
Initial zero setting mechanism (IZSM)	Multi-interval capability
Semi-automatic (push-button) zero	AC/DC adapter
Semi-automatic (push-button) tare	Center of zero annunciator
Gross/net indication	Stable annunciator
Vacuum fluorescent display (Models AD-4405, AD-4407, AD-4407A)	Stainless steel enclosure (Model AD-4407, AD-4407A)
Liquid crystal display (Model AD-4406, AD-4406A)	

Options:

- DC power supply and DC battery operation (Model AD-4406, AD-4406A)
- Printer
- Integral printer (Model AD-4405)

Temperature Range: -10 °C to 40 °C (14 °F to 104 °F)

This device was evaluated under the National Type Evaluation Program and was found to comply with the applicable technical requirements of "NIST Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.

 Brett Gurney Chairman, NCWM, Inc.	 James Cassidy Jr. Committee Chair, NTEP Committee Issued: December 11, 2018
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Thank you for your time this morning

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Questions?