

Appendix E
2019 NTEP Measuring Sector Summary – Rev 10-30-19
Proposed Changes to the Liquid Measuring Devices Checklist – Field Evaluation
& Permanence Tests Section
(Includes Revisions Made During the 9-24-19 Measuring Sector Meeting)

Below are proposed changes to the initial section of the Laboratory/Field Evaluation and Permanence Tests for Metering Systems section of the LMD Checklist. Following the marked version of the proposal is a “clean” version with editorial marks removed.

National Type Evaluation Program
Liquid Measuring Devices – Laboratory / Field Evaluation and Permanence
Tests for Metering Systems

A. Laboratory or Field Evaluation – Electronic Devices and/or Software

Use of Simulated Inputs:

As per NTEP Technical Policy U. Evaluating Electronic Indicating Elements Submitted Separate from a Measuring Element. When evaluating electronic indicators indicating elements submitted separate from a measuring element, simulated inputs (e.g. meter pulse, temperature, pressure, density, communications, etc.) may be used as follows:

- For the initial testing of ~~the indicator~~ an indicating element.
- For software changes to a device with an existing CC.

For retail motor-fuel dispensing point-of-sale systems, additional testing may be required to demonstrate functionality for tests such as power-loss.

B. Compatibility Test

Similar devices that were individually tested for a “similar” application can be “mixed and matched” without additional testing if the system functions properly during the initial test.

- Examples of “similar” devices include but are not limited to:
 - A certified console/controller (retail motor-fuel dispenser point-of-sale system) interfaced with a certified retail motor-fuel dispenser.
 - A certified loading-rack meter indicating element interfaced with a certified flow meter.
 - A certified loading-rack meter controller interfaced with a certified flow meter.
 - A certified vehicle-tank meter indicating element interfaced with a certified vehicle-tank metering element.

If devices are to be used in “dissimilar” applications, then additional NTEP testing may be required.

- An example of a “dissimilar” application in which testing is required includes:

- A certified meter evaluated in a stationary application to be used in a mobile vehicle-tank metering application.
- An example of a “dissimilar” device in which testing is *not* required includes:
 - A certified meter evaluated in a mobile vehicle-tank metering application to be used in a stationary metering application.

C. Laboratory or Field Testing and Permanence Testing

1. Field and Permanence Testing for Electronic Devices Subject to Evaluation:

Field Evaluation and Permanence Testing – General:

~~Measuring systems, devices, and elements~~ whose performance may change with use over time are generally subject to field evaluation and permanence tests. Experience has demonstrated that permanence tests on electronic devices (other than mobile devices) and/or software are unnecessary.

When necessary, permanence testing consists of conducting an initial test followed by a subsequent test. The device shall be used under conditions of normal use during the permanence period. The conditions of use and duration of the test shall be as agreed upon between the evaluating laboratory and the manufacturer.

During the permanence period, the device must perform and function correctly and not be serviced.

Mobile Devices:

- **Initial Evaluation:** A permanence test is required for all mobile devices. Permanence testing consists of conducting an initial test followed by a subsequent test. The subsequent test will be conducted not sooner than 20 days following the initial test. During this period of use, the device is to be used in a manner consistent with the intended application.
- **Changes to Existing CC:**
 - **Hardware Changes:** When updating a CC for changes in hardware that affect the metrological performance of the device, a permanence test is required.
 - **Software Changes:** When updating a CC for changes in software, a permanence test is not required.

Stationary Devices:

~~The following types of devices and elements are subject to initial field or laboratory evaluation:~~

A permanence test is not required in either new evaluations or when updating a CC for devices such as the following:

- Electronic Indicating Elements
- Consoles
- Recording Elements
- Electronic Cash Registers (e.g., Point-of-Sale Systems)
- Data Processing Units

This list is provided as examples and is not intended to be all inclusive.

~~Field examination is conducted between 20 and before 30 days of use in a normal installation. During this interval, the device must perform and function correctly and not be serviced. Permanence tests are conducted on equipment such as a complete measuring system or only a measuring element (meter.)~~

~~The permanence test is not required in either new evaluations or updating a CC for the electronic devices listed above in stationary installations. The permanence test for mobile electronic devices may be waived by NTEP for updating a CC.~~

~~Compatibility Test~~

~~Similar devices that were individually tested for a similar application can be "mixed and matched" without additional testing, if the system functions properly during the initial test. For example, NTEP can determine the compatibility of an approved console interfaced with an approved retail motor fuel dispenser during a type evaluation when both components are previously approved in like applications. If devices are to be used in dissimilar applications, then additional NTEP testing is required.~~

A. Permanence Test Procedures for Meters

2. Field Evaluation and Permanence Test of New-Design Meters in Retail Motor Fuel Dispensers

[Re-number/re-letter subsequent sections as appropriate.]