

Appendix D
2019 NTEP Measuring Sector Summary
NCWM S&T Items for Review and Discussion
As Time Permits

Items identified by the S&T Chair for Sector review and discussion are shown below. For details and background information on these items, see the S&T Committee's 2019 Interim Report at:

<https://www.ncwm.net/meetings/annual/publication-16>.

ITEM 1 for Review:

GEN-1 I G-A.1. Commercial and Law-Enforcement Equipment. and G-S.2. Facilitation of Fraud.

Source:

Arizona, Florida, Maine, Michigan and Cambridge, Massachusetts (2018); Skimmer Task Group (2019)

Purpose:

To prevent access and tampering by unauthorized persons to any area of the device where electronic financial transactions occur, credit card information is obtained, and or personal information is stored or transmitted.

Item Under Consideration:

NOTE: During the 2019 NCWM Interim Meeting, the Skimmer Task Group developed and provided new language to address issues of fraud due to skimmer technology. The Skimmer Task Group's most recent proposal is to add a new User Requirement paragraph, UR.4.2., to the Liquid Measuring Device Code in NIST Handbook 44 to replace the original proposal to update Paragraphs G-A.1. and G-S.2. in the General Code of NIST Handbook 44. Both the original proposal and the new proposal are included below. See Appendix A of this report for the comments and discussion from the 2019 NCWM Interim Meeting.

Original proposal - Arizona, Florida, Maine, Michigan and Cambridge, Massachusetts (2018)
Amend NIST Handbook 44 General Code as follows:

G-A.1. Commercial and Law-Enforcement Equipment. – These specifications, tolerances, and other technical requirements apply as follows:

- (a) To commercial weighing and measuring equipment; that is, to weights and measures and weighing and measuring devices commercially used or employed in establishing the size, quantity, extent, area, composition (limited to meat and poultry), constituent values (limited to grain), or measurement of quantities, things, produce, or articles for distribution or consumption, purchased, offered, or submitted for sale, hire, or award, or in computing any basic charge or payment for services rendered on the basis of weight or measure.

(Amended 2008)

- (b) To any accessory attached to or used in connection with a commercial weighing or measuring device when such accessory is so designed that its operation affects the accuracy **or can be used to defraud or collect unauthorized personal or financial information from the user** of the device.
- (c) To weighing and measuring equipment in official use for the enforcement of law or for the collection of statistical information by government agencies.

G-S.2. Facilitation of Fraud. – All equipment and all mechanisms, software, and devices attached to or used in conjunction therewith shall be so designed, constructed, assembled, and installed for use such that they do not facilitate the perpetration of fraud. **Any device capable of customer initiated electronic financial transactions shall incorporate an event counter that records date and time of access and must be of such design and construction to substantially restrict access and tampering by unauthorized persons to any area of the device where financial transactions occur, credit card information is obtained, and or personal information is stored or transmitted. Restriction of access and tampering may be accomplished by:**

- (a) Electronic alarming or disabling of the equipment if unauthorized access is gained or,**
- (b) Physical means that cannot be breached without causing visible damage to the exterior of the device. Such physical means shall not include the use of a universal key, master key or security device that can be manipulated with universal tools.**

(Amended 2007 **and 20XX**)

New proposal - Skimmer Task Group (2019)

Amend NIST Handbook 44 Liquid Measuring Device Code by adding the following new paragraph:

UR.4.2. Security for Retail Motor-Fuel Devices (RMFD). Any retail motor fuel device capable of conducting customer initiated electronic financial transactions must be secured to substantially restrict the ability of unauthorized persons to manipulate it to obtain payment information that could be used to commit fraud. The following is a non-exhaustive list of ways that restriction of such manipulation may be accomplished:

- (a) A physical lock, locking device, or a physical securing device that will restrict access to the electronic financial transaction compartment of the RMFD. A lock, locking device or securing device shall not be manipulated with commonly available tools. A lock shall not allow the use of a universal key. A universal key is a key that is readily available in the market or can be easily purchased in a hardware or common retail store. A single non-universal key for all of the like devices at a retail facility or for all of the like devices at a chain of retail facilities is acceptable or;**
- (b) Electronic alarming or disabling of the equipment if unauthorized access is attempted or;**
- (c) Advanced payment acceptance technologies that increase protections against the theft of payment information itself or do not allow access to such information in a form that may be used to commit fraud or;**

(d) Another security solution that has been approved by the local or state weights and measures jurisdiction with authority.

(Added, 20XX)

Background/Discussion: See Appendix A, Page S&T-A296.

Additional letters, presentation and data may have been submitted for consideration with this item. Please refer to <https://www.ncwm.net/meetings/annual/publication-16> to review these documents.

ITEM 2 for Review:

(NEW) BLOCK 1 ITEMS (B1) A TERMINOLOGY FOR TESTING STANDARDS (VERIFICATION STANDARDS, FIELD STANDARDS, TRANSFER STANDARDS, FIELD REFERENCE STANDARDS, ETC.) TOLERANCES ON TESTS WHEN TRANSFER STANDARDS ARE USED, MINIMUM QUANTITY FOR FIELD REFERENCE STANDARD METER TESTS

At the 2019 NCWM Interim Meeting the S&T committee decided to combine the items on the agenda dealing with the issue of transfer standard (Including Items in a block) into one block. Block 1 of this Interim Meeting report now includes Gen-3, B1 (original items from the 2019 interim agenda that appeared under Block 1), B2, LPG-3 and MFM-5, which were all separate items and blocks of items on the S&T Committees 2019 Interim Meeting agenda (NCWM Publication 15). Agenda items Gen-3, B1, B2, LPG-3 and MFM-5 still appear as individual listings on the agenda with a note added beneath each listing referring the reader to the New B1 items. All items under this New B1 have retained the same numbering system for ease in referring to the appendix for discussion on each item.

GEN-3 A G-T.5. Tolerances on Tests When Transfer Standards are Used., Appendix D – Definitions: standards, field, ~~transfer standard~~ and standard, transfer.

Source:

Seraphin Test Measure Company (2019)

Purpose:

- (a) Add a definition for field standard that identifies the critical characteristics for field standards to comply with the Fundamental Considerations of Handbook 44 (specifically, a standard that has long-term stability and meets the one-third requirement for accuracy and uncertainty over the range of environmental and operational variables in which commercial measuring devices are used); and
- (b) To add a generalized definition for transfer standards in Handbook 44 to clearly include the transfer standards already referenced in various codes; and
- (c) To specify that when a transfer standard is used, the basic tolerances specified in Handbook 44 be increased the amount of the estimated uncertainty associated with the transfer standard.

Item Under Consideration:

Amend NIST Handbook 44 General Code as follows:

G-T.5. Tolerances on Tests When Transfer Standards Are Used. – To the basic tolerance values that would otherwise be applied, there shall be added an amount equal to two times the standard deviation of the applicable transfer standard when compared to a basic reference standard.

The codes 5.56.(a) Grain Moisture Meters, 5.56.(b) Grain Moisture Meters, and 5.57. Near-Infrared Grain Analyzers are exempt from this requirement, because NIST Handbook 159 has requirements for monitoring and retesting grain samples to ensure adequate stability and the tolerances for the devices under test already incorporate the uncertainty associated with the use of grain samples as transfer standards. The code 2.21. Belt-Conveyor Scale Systems is also exempt, because relative and absolute tolerances are included in the code.

And amend Handbook 44 Appendix D – Definitions as follows:

Standard, Field. – A physical standard that (a) is stable (accurate and repeatable) over an extended period of time (typically one year) and (b) meets the specifications and tolerances in NIST Handbook 105- series standards (or other suitable and designated standards) over the range of environmental and operational parameters in which the commercial measuring devices are used and is traceable to the reference or working standards through comparisons, using acceptable laboratory procedures, and used in conjunction with commercial weighing and measuring equipment. “Other suitable and designated standards” must show that the field standards have been tested over the range of environmental and operational parameters in which the commercial measuring devices under test are used and prove that the performance of the field standard meets the requirements of the fundamental considerations.

~~transfer standard. — A measurement system designed for use in proving and testing cryogenic liquid-measuring devices. [3.38]~~

Standard, Transfer.- A physical artifact, static or dynamic measurement device or a reference material that is stable (accurate and repeatable) for a short time period under the limited environmental and operational conditions during which the transfer standard is used. A transfer standard may be used as a temporary measurement reference to check the accuracy of a commercial measuring instrument, but the transfer standard does not satisfy the NIST Handbook 44 Fundamental Consideration that its correction and uncertainty are less than one-third of the smallest tolerance applied to the commercial measuring instrument under test, either over a long time period or a wide range of environmental or operating parameters. Transfer standards are called by different terms in different Handbook 44 codes and include terms such as master meter, fifth wheel, material, reference weight [railroad] cars, test vehicles and reference vehicle.

Background/Discussion: See Appendix A, Page S&T-A296.

Additional letters, presentation and data may have been submitted for consideration with this item. Please refer to <https://www.ncwm.net/meetings/annual/publication-16> to review these documents.

BLOCK 1 ITEMS (B1) A TERMINOLOGY FOR TESTING STANDARDS (original items and title for block one items that were included on the 2019 NCWM S&T Interim Meeting agenda.)

Source:

NIST OWM (2018)

Purpose:

To remove the current limited definition and use of the term “Transfer Standard” and eliminate terms “Testing Standards”, “Verification (Testing) Standards”, and instead use the term Field Standard, consistent with its reference in Handbook 44, Appendix A, Fundamental Considerations and its use in several sections of Handbook 44. To correct the broad use of the term Transfer Standard and instead replace its use with the term Field Standard. To update all use of the term “standard” to use the term “Field Standard”. To remove the current limited definition of Transfer Standard and instead use the term Field Standard.

B1: SCL-4 A N.2. Verification (Testing) Standards

Item Under Consideration:

Amend NIST Handbook 44, Scales Code as follows:

N.2. ~~Verification (Testing)~~ Field Standards. – Field standard weights used in verifying weighing devices shall comply with requirements of NIST Handbook 105-Series standards (or other suitable and designated standards) or the tolerances expressed in Fundamental Considerations, paragraph 3.2. (i.e., one-third of the smallest tolerance applied).
(Amended 1986 and 20XX)

B1: ABW-1 A N.2. Verification (Testing) Standards

Item Under Consideration:

Amend NIST Handbook 44, Automatic Bulk Weighing Systems Code as follows:

N.2. ~~Verification (Testing)~~ Field Standards. – Field Standard weights and masses used in verifying weighing devices shall comply with requirements of NIST Handbook 105-1 (Class F) or the tolerances expressed in Appendix A, Fundamental Considerations, paragraph 3.2. (i.e., one-third of the smallest tolerance applied).
(Amended 20XX)

B1: AWS-1 A N.1.3. Verification (Testing) Standards, N.3.1. Official Tests, UR.4. Testing Standards

Item Under Consideration:

Amend NIST Handbook 44, Automatic Weighing Systems Code as follows:

N.1.3. ~~Verification (Testing)~~ Field Standards. – Field standard weights shall comply with requirements of NIST Handbook 105-1, “Specifications and Tolerances for Field Standard Weights

(Class F)” or the tolerances expressed in Fundamental Considerations, paragraph 3.2. (i.e., one-third of the smallest tolerance applied).

(Amended 20XX)

N.3.1. Official Tests. – Officials are encouraged to periodically witness the required “in house” verification of accuracy. Officials may also conduct official tests using the on-site **testing field** standards or other appropriate standards belonging to the jurisdiction with statutory authority over the device or system.

(Amended 20XX)

UR.4. Testing Field Standards. – The user of a commercial device shall make available to the official with statutory authority over the device **testing field** standards that meet the tolerance expressed in Fundamental Considerations, paragraph 3.2. Tolerances for Standards (i.e., one-third of the smallest tolerance applied). The accuracy of the **testing field** standards shall be verified annually or on a frequency as required by the official with statutory authority and shall be traceable to the appropriate SI standard.

(Amended 20XX)

B1: CLM-1 A N.3.2. Transfer Standard Test and T.3. On Tests Using Transfer Standards

Item Under Consideration:

Amend NIST Handbook 44, Cryogenic Liquid-Measuring Devices Code as follows:

N.3.2. Transfer Field Standard Test. – When comparing a meter with a calibrated **transfer field** standard, the test draft shall be equal to at least the amount delivered by the device in two minutes at its maximum discharge rate, and shall in no case be less than 180 L (50 gal) or equivalent thereof. When testing uncompensated volumetric meters in a continuous recycle mode, appropriate corrections shall be applied if product conditions are abnormally affected by this test mode.

(Amended 1976 and 20XX)

~~T.3. On Tests Using Transfer Standards.— To the basic tolerance values that would otherwise be applied, there shall be added an amount equal to two times the standard deviation of the applicable transfer standard when compared to a basic reference standard. (Added 1976)~~

B1: CDL-1 A N.3.2. Transfer Standard Test, T.3. On Tests Using Transfer Standards

Item Under Consideration:

Amend NIST Handbook 44, Carbon Dioxide Liquid-Measuring Devices Code as follows:

N.3.2. Transfer Field Standard Test. – When comparing a meter with a calibrated **transfer field** standard, the test draft shall be equal to at least the amount delivered by the device in two minutes at its maximum discharge rate.

(Amended 20XX)

~~T.3. On Tests Using Transfer Standards.— To the basic tolerance values that would otherwise be applied, there shall be added an amount equal to two times the standard deviation of the applicable transfer standard when compared to a basic reference standard.~~

B1: HGM-1 A N.4.1. Master Meter (Transfer) Standard Test, T.4. Tolerance Application on Test Using Transfer Standard Test Method

Item Under Consideration:

Amend NIST Handbook 44, Hydrogen Gas-Measuring Devices Tentative Code as follows:

N.4.1. Master Meter (~~Transfer~~) Field Standard Test. – When comparing a measuring system with a calibrated ~~transfer field~~ standard, the minimum test shall be one test draft at the declared minimum measured quantity and one test draft at approximately ten times the minimum measured quantity or 1 kg, whichever is greater. More tests may be performed over the range of normal quantities dispensed. **(Amended 20XX)**

~~**T.4. Tolerance Application on Test Using Transfer Standard Test Method.**—To the basic tolerance values that would otherwise be applied, there shall be added an amount equal to two times the standard deviation of the applicable transfer standard when compared to a basic reference standard.~~

B1: GMM-1 A 5.56(a): N.1.1. Air Oven Reference Method Transfer Standards, N.1.3. Meter to Like-Type Meter Method Transfer Standards and 5.56(b): N.1.1. Transfer Standards, T. Tolerances¹

Item Under Consideration:

Amend NIST Handbook 44, Grain Moisture Meters Code as follows:

5.56.(a) Grain Moisture Meters

N.1.1. Air Oven Reference Method ~~Transfer Field~~ Standards. – Official grain samples shall be used as the official ~~transfer field~~ standards with moisture content and test weight per bushel values assigned by the reference methods. The reference methods for moisture shall be the oven drying methods as specified by the USDA GIPSA. The test weight per bushel value assigned to a test weight transfer standard shall be the average of 10 test weight per bushel determinations using the quart kettle test weight per bushel apparatus as specified by the USDA GIPSA. Tolerances shall be applied to the average of at least three measurements on each official grain sample. Official grain samples shall be clean and naturally moist, but not tempered (i.e., water not added). (Amended 1992, 2001, ~~and~~ 2003, and 20XX)

N.1.3. Meter to Like-Type Meter Method Transfer Standards. – Properly standardized reference meters using National Type Evaluation Program approved calibrations shall be used as ~~transfer field~~ standards. A reference meter shall be of the same type as the meter under test. Tests shall be conducted side-by-side using, as a comparison medium, grain samples that are clean and naturally moist, but not tempered (i.e., water not added). (Added 2001) **(Amended 20XX)**

5.56.(b) Grain Moisture Meters

N.1.1. ~~Transfer Field~~ Standards. – Official grain samples shall be used as the official ~~transfer field~~ standards with moisture content values assigned by the reference methods. The reference methods shall be the oven drying methods as specified by the USDA GIPSA. Tolerances shall be applied to the average of at least three measurements on each official grain sample. Official grain samples shall be clean and naturally moist, but not tempered (i.e., water not added).

(Amended 1992 and 20XX)

T. Tolerances¹

¹These tolerances do not apply to tests in which grain moisture meters are the **transfer field** standards.

(Amended 20XX)

B1: LVS-1 A N.2. Testing Standards

Item Under Consideration:

Amend NIST Handbook 44, Electronic Livestock, Meat and Poultry Evaluation Systems and/or Devices Code as follows:

N.2. Testing Field Standards. – ASTM Standard F2343 requires device or system users to maintain accurate **reference field** standards that meet the tolerance expressed in NIST Handbook 44 Fundamental Considerations, paragraph 3.2. Tolerances for Standards (i.e., one-third of the smallest tolerance applied).

(Amended 20XX)

B1: OTH-1 A Appendix A: Fundamental Considerations, 3.2. Tolerances for Standards, 3.3. Accuracy of Standards

Item Under Consideration:

Amend NIST Handbook 44, Appendix A: Fundamental Considerations as follows:

3.2. Tolerances for Field Standards. – Except for work of relatively high precision, it is recommended that the accuracy of standards used in testing commercial weighing and measuring equipment be established and maintained so that the use of corrections is not necessary. When the standard is used without correction, its combined error and uncertainty must be less than one-third of the applicable device tolerance.

Device testing is complicated to some degree when corrections to standards are applied. When using a correction for a standard, the uncertainty associated with the corrected value must be less than one-third of the applicable device tolerance. The reason for this requirement is to give the device being tested as nearly as practicable the full benefit of its own tolerance.

(Amended 20XX)

3.3. Accuracy of Field Standards. – Prior to the official use of testing apparatus, its accuracy should invariably be verified. Field standards should be calibrated as often as circumstances require. By their nature, metal volumetric field standards are more susceptible to damage in handling than are standards of some other types. A field standard should be calibrated whenever damage is known or suspected to have occurred or significant repairs have been made. In addition, field standards, particularly volumetric standards, should be calibrated with sufficient frequency to affirm their continued accuracy, so that the official may always be in an unassailable position with respect to the accuracy of his testing apparatus. Secondary field standards, such as special fabric testing tapes, should be verified much more frequently than such basic standards as steel tapes or volumetric provers to demonstrate their constancy of value or performance.

Accurate and dependable results cannot be obtained with faulty or inadequate field standards. If either the service person or official is poorly equipped, their results cannot be expected to check consistently. Disagreements can be avoided and the servicing of commercial equipment can be expedited and improved if service persons and officials give equal attention to the adequacy and maintenance of their testing apparatus.

(Amended 20XX)

B1: OTH-2 A Appendix D – Definitions: fifth-wheel, official grain samples, ~~transfer standard~~ and Standard, Field

Item Under Consideration:

Amend NIST Handbook 44, Appendix A: Fundamental Considerations as follows:

fifth wheel. – A commercially-available distance-measuring device which, after calibration, is recommended for use as a field ~~transfer~~ standard for testing the accuracy of taximeters and odometers on rented vehicles. [5.53, 5.54]

(Amended 20XX)

official grain samples. – Grain or seed used by the official as the official ~~transfer~~ field standard from the reference standard method to test the accuracy and precision of grain moisture meters. [5.56(a), 5.56(b)]

(Amended 20XX)

~~**transfer standard.** – A measurement system designed for use in proving and testing cryogenic liquid measuring devices. [3.38]~~

Standard, Field. – **A physical standard that meets specifications and tolerances in NIST Handbook 105-series standards (or other suitable and designated standards) and is traceable to the reference or working standards through comparisons, using acceptable laboratory procedures, and used in conjunction with commercial weighing and measuring equipment.**

(Added 20XX)

Background/Discussion: See Appendix A, Page S&T-A339.

Additional letters, presentation and data may have been submitted for consideration with this item. Please refer to <https://www.ncwm.net/meetings/annual/publication-16> to review these documents.

Block 2 items (B2) A define “field REFERENCE standard”

Source:

Endress + Hauser Flowtec AG USA (2018)

Purpose:

Add definition field reference standard meter to HB 44. Delete transfer standard definition. Change terms in sections 3.34, 3.38 and 3.39.

B2: CLM-2 A N.3.2. Transfer Standard Test and T.3. On Tests Using Transfer Standards

Item Under Consideration:

Amend NIST Handbook 44, Cryogenic Liquid-Measuring Devices Code as follows:

N.3.2. ~~Field Reference~~Transfer Standard Meter Test. – When comparing a meter with a calibrated ~~field reference~~~~transfer~~ standard meter, the test draft shall be equal to at least the amount delivered by the device in two minutes at its maximum discharge rate, and shall in no case be less than 180 L (50 gal) or equivalent thereof. When testing uncompensated volumetric meters in a continuous recycle mode, appropriate corrections shall be applied if product conditions are abnormally affected by this test mode.

(Amended 1976 and 20XX)

T.3. On Tests Using ~~Field Reference~~Transfer Standards Meters. – To the basic tolerance values that would otherwise be applied, there shall be added an amount equal to two times the standard deviation of the applicable ~~field reference~~~~transfer~~ standard meter when compared to a basic reference standard. (Added 1976)

B2: CDL-2 A N.3.2. Transfer Standard Test and T.3. On Tests Using Transfer Standards

Item Under Consideration:

Amend NIST Handbook 44, Carbon Dioxide Liquid-Measuring Devices Code as follows:

N.3.2. ~~Field Reference~~Transfer Standard Meter Test. – When comparing a meter with a calibrated ~~field reference~~~~transfer~~ standard meter, the test draft shall be equal to at least the amount delivered by the device in two minutes at its maximum discharge rate.

(Amended 20XX)

T.3. On Tests Using ~~Field Reference~~Transfer Standards Meters. – To the basic tolerance values that would otherwise be applied, there shall be added an amount equal to two times the standard deviation of the applicable ~~field reference~~~~transfer~~ standard when compared to a basic ~~field reference~~~~reference~~ standard meter.

B2: HGM-2 A N.4.1. Master Meter (Transfer) Standard Test and T.4. Tolerance Application on Test Using Transfer Standard Test Method

Item Under Consideration:

Amend NIST Handbook 44, Hydrogen Gas-Measuring Devices Tentative Code as follows:

N.4.1. ~~Field Reference~~Master Meter (Transfer) Standard Meter Test. – When comparing a measuring system with a calibrated ~~field reference~~~~transfer~~ standard meter, the minimum test shall be one test draft at the declared minimum measured quantity and one test draft at approximately ten times the minimum measured quantity or 1 kg, whichever is greater. More tests may be performed over the range of normal quantities dispensed.

(Amended 20XX)

T.4. Tolerance Application on Test Using ~~Field Reference~~Transfer Standard Meters Test Method. – To the basic tolerance values that would otherwise be applied, there shall be added an amount equal to two times the standard deviation of the applicable ~~field reference~~~~transfer~~ standard meter when compared to a basic reference standard.

B2: OTH-3 A Appendix D – Definitions: field reference standard meter and ~~transfer standard~~

Item Under Consideration:

Amend NIST Handbook 44, Appendix D as follows:

field reference standard meter – A measurement system designed for use in proving and testing measuring devices and meters.

~~**transfer standard – A measurement system designed for use in proving and testing cryogenic liquid measuring devices.**~~

Background/Discussion: See Appendix A, Page S&T-A346.

Additional letters, presentation and data may have been submitted for consideration with this item. Please refer to <https://www.ncwm.net/meetings/annual/publication-16> to review these documents.

LPG-3 A N.3. Test Drafts.

Source:

Endress + Hauser Flowtec AG USA (2015)

Purpose:

Allow transfer standard meters to be used to test and place into service dispensers and delivery system flow meters.

Item Under Consideration:

Amend NIST Handbook 44 LPG and Anhydrous Ammonia Liquid-Measuring Devices as follows:

N.3. Test Drafts.

N.3.1 Minimum Test – Test drafts should be equal to at least the amount delivered by the device in 1 minute at its normal discharge rate.

(Amended 1982)

N.3.2. Field Reference Standard Meter Test. – The minimum quantity for any test draft shall be equal to or greater than the amount delivered in one minute at the flow rate being tested.

(Added 20XX)

Background/Discussion: See Appendix A, Page S&T-A377.

Additional letters, presentation and data may have been submitted for consideration with this item. Please refer to <https://www.ncwm.net/meetings/annual/publication-16> to review these documents.

MFM-5 A N.3. Test Drafts.

Source:

Endress + Hauser Flowtec AG USA (2015)

Purpose:

Allow transfer standard meters to be used to test and place into service dispensers and delivery system flow meters.

Item Under Consideration:

Amend NIST Handbook 44 Mass Flow Meters Code as follows:

N.3. Test Drafts. –

N.3.1 Minimum Test - The minimum test shall be one test draft at the maximum flow rate of the installation and one test draft at the minimum flow rate. More tests may be performed at these or other flow rates. (See T.3. Repeatability.)

(Amended 1982 **and 20XX**)

N.3.2. Field Reference Standard Meter Test. – The minimum quantity for any test draft shall be equal to or greater than the amount delivered in one minute at the flow rate being tested.

(Added 20XX)

Background/Discussion: See Appendix A, Page S&T-A390.

Additional letters, presentation and data may have been submitted for consideration with this item. Please refer to <https://www.ncwm.net/meetings/annual/publication-16> to review these documents.

ITEM 3 for Review:

EVF-3 D S.3.5. Temperature Range for System Components. and S.5.2. EVSE Identification and Marking Requirements.

Source:

NIST OWM (2019)

Purpose:

Ensure there are no inconsistencies in the tentative code between the temperature range requirement of – 40 °C to + 85 °C (– 40 °F to 185 °F) specified for the EVSE’s operation and the requirement in paragraph S.5.2. EVSE Identification and Marking Requirements that specifies an EVSE must be marked with its temperature limits when they are narrower than and within – 20 °C to + 50 °C (– 4 °F to 122 °F).

Item Under Consideration:

Amend NIST Handbook 44, Electric Vehicle Fueling Systems follows:

S.3.5. Temperature Range for System Components. – EVSEs shall be accurate and correct over the temperature range of – 40 °C to + 85 °C (– 40 °F to 185 °F). If the system or any measuring system components are not capable of meeting these requirements, the temperature range over which

the system is capable shall be stated on the NTEP CC, marked on the EVSE, and installations shall be limited to the narrower temperature limits.

S.5.2. EVSE Identification and Marking Requirements. – In addition to all the marking requirements of Section 1.10. General Code, paragraph G-S.1. Identification, each EVSE shall have the following information conspicuously, legibly, and indelibly marked:

- (a) voltage rating;
- (b) maximum current deliverable;
- (c) type of current (AC or DC or, if capable of both, both shall be listed);
- (d) minimum measured quantity (MMQ); and
- (e) temperature limits, if narrower than and within – 20 °C to + 50 °C (– 4 °F to 122 °F).

Background/Discussion: See Appendix A, Page S&T-A403.

Additional letters, presentation and data may have been submitted for consideration with this item. Please refer to <https://www.ncwm.net/meetings/annual/publication-16> to review these documents.

ITEM 4 for Review:

OTH-4 D Electric Watthour Meters Code under Development

Source:

NIST OWM (2016)

Purpose:

- 1) Make the weights and measures community aware of work being done within the U.S. National Work Group on Electric Vehicle Fueling and Submetering to develop proposed requirements for electric watthour meters used in submeter applications in residences and businesses;
- 2) Encourage participation in this work by interested regulatory officials, manufacturers, and users of electric submeters.
- 3) Allow an opportunity for the USNWG to provide regular updates to the S&T Committee and the weights and measures community on the progress of this work;
- 4) Allow the USWNG to vet specific proposals as input is needed.

Item Under Consideration:

Create a “Developing Item” for inclusion on the NCWM S&T Committee Agenda where progress of the USNWG can be reported as it develops legal metrology requirements for electric watthour meters and continues work to develop test procedures and test equipment standards. The following narrative is proposed for this item:

In 2012, NIST OWM formed the U.S. National Working Group on Electric Vehicle Fueling and Submetering to develop proposed requirements for commercial electricity-measuring devices (including those used in sub-metering electricity at residential and business locations and those used to measure and sell electricity dispensed as a vehicle fuel) and to ensure that the prescribed

methodologies and standards facilitate measurements that are traceable to the International System of Units (SI).

In 2013, the NCWM adopted changes recommended by the USNWG to the NIST Handbook 130 requirements for the Method of Sale of Commodities to specify the method of sale for electric vehicle refueling. At the 2015 NCWM Annual Meeting, the NCWM adopted NIST Handbook 44 Section 3.40 Electric Vehicle Refueling Systems developed by the USNWG.

This Developing Item is included on the Committee's agenda (and a corresponding item is proposed for inclusion on the L&R Committee Agenda) to keep the weights and measures community apprised of USNWG current projects, including the following:

- The USNWG continues to develop recommended test procedures for inclusion in a new EPO 30 for Electric Vehicle Refueling Equipment along with proposed requirements for field test standards.
- The USNWG is continuing work to develop a proposed code for electricity-measuring devices used in sub-metering electricity at residential and business locations. This does not include metering systems under the jurisdiction of public utilities. The USNWG hopes to have a draft code for consideration by the community in the 2019-2020 NCWM cycle.

The USNWG will provide regular updates on the progress of this work and welcomes input from the community.

For additional information, contacts for the subgroups of the USNWG are:

Electric Vehicle Refueling Subgroup:

- Chairman, Tina Butcher at tbutcher@nist.gov or (301) 975-2196
- Technical Advisor, Juana Williams at juana.williams@nist.gov or (301) 975-3989

Electric Watthour Meters Subgroup:

- Chairman, Lisa Warfield at lisa.warfield@nist.gov or (301) 975-3308
- Technical Advisor, Tina Butcher at tbutcher@nist.gov or (301) 975-2196

Background/Discussion: See Appendix A, Page S&T-A416.

Additional letters, presentation and data may have been submitted for consideration with this item. Please refer to <https://www.ncwm.net/meetings/annual/publication-16> to review these documents.